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Address.

HISTORY OF THE CLINICAL RECOGNITION OF GASTRIC ULCER.*

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BALTIMORE.

Succinct histories of the development of clinical conceptions on special diseases are very rare. This is partially explicable by the scarcity of historical data concerning early clinical thinking and by the confusion that has been brought into the accounts of the classical writers of medicine by the facts that the identical disease is designated with different names by different authors, and also that the exact diagnosis was rarely verified by operation or autopsy.

In the following sketch of the history of the clinical recognition of gastric ulcer, conclusions were based only on such cases as were substantiated in the manner just mentioned. In the writing of Hippocrates we find no statement which would justify us in concluding that the "Father of Medicine" was familiar with ulcer of the stomach as we conceive it to-day.

It is stated (Lebert) that Hippocrates treated Pericles for intense abdominal pain (gastralgia) by hellebore and flaxseed poultices.[1] I shall return to the Hippocratic literature on this subject in the latter part of this article.

A careful review of a German translation of Galen reveals no knowledge of peptic ulcer, though undoubtedly both Hippocrates and Galen give accounts of vomiting of blood in the sequence of digestive disturbances and abdominal pain.

It is impossible to personally scrutinize the writings of the historical clinicians for any statement that might be interpreted as a distinct clinical recognition of gastric ulcer. According to Lebert,[2] from whom also Welch[3] has derived most of his information concerning the history of clinical recognition of peptic ulcer, it is not until the sixteenth century that a clinical record available for our purpose can be found. It occurs in the writings of Johann Bauhin, the elder brother of Caspar Bauhin (1550-1624), and may be found in "Boneti Sepulchretum." It refers to a physician's wife, 18 years old, who suddenly showed symptoms of a perforation into the peritoneum, and died four days afterwards. In her abdomen was discovered besides gas, fluids and food remnants, a perforation in the middle of the stomach near the fundus; there were black contents in the stomach and clotted blood had been evacuated by the bowels.

From the second half of the sixteenth century dates another observation by Marcellus Donatus, which refers to a man 59 years old, who, after continued vomiting and pains in the stomach, was found at the postmortem examination to have near the pylorus at the lower end of the stomach an ulcer—*tunicam interiorem exesam*—a very graphic descriptive expression.

Courtial describes an oval opening in the anterior part of the stomach, with callous edges in a young woman who had suffered from gastric symptoms since her youth.

Littré found in the case of a man who had suffered from various affections of the stomach, and finally from hemorrhages, a round ulcer near the pylorus.

One of the first ulcers leading to a fistula in the stomach which is recorded in the literature so far known, seems to be associated with a case of Duverney. Similar observations were described in the first half of the previous century by van Swieten, Klein, Wenker, Iodac, Atkinson, Petit, Eckmuller, Cireaud, Helm, and Kade. It is not, however, quite certain to what the trouble in the various cases might rightly have been attributed, whether to the presence of a simple ulcer, or to a circumscribed abscess of the stomach region or a combination of both. The probabilities are, however, that the observation of van Swieten and Wenker were genuine cases of peptic ulcer.

Records of cases of healed ulcer of the stomach we already possess for the sixteenth and seventeenth centuries, by Forestus and Schenk von Grafenberg (1531 to 1598). In this connection should be mentioned an observation from the close of the preceding century by Reil, in which the scar of a healed gastric ulcer had become adherent to the mesenteric glands. The radiant formation of such a scar at the lesser curvature of the stomach has been aptly described according to a specimen in Meckel's collection. Older observations concerning abnormal conditions of the form of the stomach, with median contraction, by Blase, Mangold, Heister, Sandifort, Sömmering, Morgagni, etc., allude in a measure to such ulcers. In a number of cases symptoms of chronic stomach trouble existed beforehand, and frequently mention is made of callous bands, which would point to scars of earlier existing ulcers. In the last century mention is often made of adhesions of the stomach to adjacent parts (Mead, Murray, Santessen, Westring, etc.) of rupture of the stomach (principally through an ulcer), of death from excessive hemorrhage, also mainly attributable to a chronic peptic ulcer.

A good brief description, with excellent illustrations, was given at the close of the eighteenth century (in 1793) by Matthew Baillie. To Matthew Baillie unquestionably belongs the credit of having first accurately described, in 1793, the anatomic peculiarities of simple

*Address before the American Gastroenterologic Association, Atlantic City, June, 1904.

1. I have seen this statement quoted also by Talmage in an address to medical graduates, but have not been able to trace the source nor authority for same.—J. C. H.
2. Krankheiten d. Magens, Tübingen, 1877, p. 180.
3. Pepper's System of American Medicine, vol. ii.

gastric ulcer.[4] At a later date he published three good engravings of this disease.[5] Baillie's concise and admirable description of the morbid anatomy of gastric ulcer was accompanied by clinical data, and seems to have had little or no influence in directing increased attention to this disease.

By far the best description of this disease up to the date of its publication is by Voigtel, at the beginning of the eighteenth century. The following description is quoted from Lembert:[1] "Frequently ulcers are found in the membranes of the stomach. Oftener they progress from the interior to the exterior; they are merely superficial cancers or perforations. They have in common a peculiar appearance. Frequently they are surrounded by an inflammatory thickening and hardness, and then again it is not possible to detect near or around them any distinctive abnormal formation of the stomach. They appear as if "a piece of the stomach had been cut out with a knife," and the edges so healed as to make a smooth boundary all around the opening; at times the gastric tissue about the opening has condensed." The subsequent remarks point likewise to an admirable knowledge with the whole evolution of the disease on the part of Voigtel and his contemporaries, Meikel, Reil, etc. The words used by Voigtel in describing the appearance of this gastric lesion, namely: "As if a piece of the stomach had been cut out with a knife."—remind one of the expression of Rokitansky[6] used much later, and which is much oftener quoted, namely: "As if a piece of the stomach had been cut out with a punch."

Many observations, accompanied by diverse commentaries, are found in the early scientific literature concerning spontaneous perforations of the stomach, the greater part of which may rightly be classed here.

Toward the end of the eighteenth century we encounter Hunter's theory of the origin of gastric perforations, attributing them to the erosion by the gastric juice; although based on the authority of Spallanzani, this hypothesis lost ground very rapidly, notwithstanding the support given it by a number of important authorities. Carswell managed to bring it again into transitory favor. In the year 1800 Joseph Morin stated that perforation of the stomach was a result of a protracted local inflammation of the gastric membranes. He likewise speaks of stagnation in the blood vessels, with a change in the direction of the flow of the blood and autodigestion, as some of the causes. According to the very pretty historic compilation of Lefevre, Lerons and Chaussier, in the year 1808, presented to the Paris Medical Association reports of their observations of perforated gastric ulcers accompanied by adhesions of the spleen.

Very interesting history also is found in the defense of a person by Chaussier against the charge of poisoning, in 1818, when the latter proved that a perforation of the stomach had taken place after previous prolonged ulceration. Similar cases have come up frequently since that time. Cruveilhier relates that there was a movement on foot to attribute the death of one of his cases of chronic gastric ulcer to poisoning, when he proved that the true cause of the perforation in question had been a previously existing ulcer in the stomach. The dissertation of 1819 by Lainé offers for those times very sound opinions about this perforation, and describes the deleterious action of the digestive fluid as succeeding ulceration. He also emphasizes the importance of studying the antecedents of a case. The expression "perforation by erosion" from now on appears more frequently. Lainé also recommends, for forensic reasons, not only chemical inquiry, but also an examination of those parts of the anatomy through which the alleged poison is supposed to have passed into the stomach.

Rausch, in his classification of gastric ruptures, designates those incident to a real ulcer, often with callous edges, as one of the main groups. Similar results are reached by Ebermaier, who, in addition to his own, cites cases by Henkel, Mole, Baron, Gérard, Desgranges, Trinius, Besker, Spitta, and Thomissen. To all these cases he attributes a chronic, many times unknown course, frequently with easily discernible symptoms, especially cardiac symptoms. The frequency with which the rupture takes place near the pylorus is pointed out by him, but he seems to be unable to determine the cause of this phenomenon. Cancer and ordinary inflammation, however, are not regarded as having causal significance.

In 1824, Abercrombie published a brief, but for his time a very remarkable description of this disease. Some of his observations clearly refer to the ulcus simplex; indeed one of the cases reported to him by Wood refers to a perforated ulcer of the duodenum. His confusion of cases of gastric cancer and other malignant growths with those of simple ulcer, shows how undefined his views were.

We now have become acquainted with two phases of the history of chronic ulcer—the first being one of the isolated observations beginning with the tenth century, the second beginning with the close of the eighteenth and with the early part of the nineteenth century, and occupying itself with the establishing of a collection of those isolated observations as done by Voigtel, but emphasizing more of the pathologic anatomic point of view; on the clinical side, too, much attention is paid to the perforation itself.

Cruveilhier has the distinction of being the first to subject this disease both clinically as well as anatomically to a thorough and intelligent pathologic examination. The tenth issue of his great "Pathological Anatomy," from the beginning of the third decade of the nineteenth century, 1829-1835, gives evidence of an extensive personal experience on the subject.

Cruveilhier[6] in the first volume of his work on Pathologic Anatomy, published between the years 1829 and 1835, for the first time clearly distinguished ulcer of the stomach from cancer of the stomach and from ordinary gastritis. He gave an authoritative and full description of gastric ulcer from the anatomic, the clinical and the therapeutic points of view.

Among his observations are those concerning the Greek professor, Gall, from the end of the year 1828 and beginning of the next; one from December, 1829, about a charcoal burner, who died soon after the perforation of his stomach; one from the beginning of the year 1830, concerning the famous chemist, Darcet; one from the same year concerning a gastric ulcer which had cicatrized—and with respect to this case we learn from his twentieth issue that the person in question died in 1834 from a perforated stomach. Not only are the anatomic aspects—i. e., rapidly developing, chronic

4. The Morbid Anatomy of the Most Important Parts of the Human Body, London, 1893, p. 87.

5. A Series of Engravings, accompanied with explanations, etc., London, 1799.

6. Lehrbuch d. Pathol. Anatomie.

6. Anatomie pathologique du Corps humain, vol. I, Paris, 1829-35, No. 10 and No. 20; and vol. II, Paris, 1835-42, No. 30 and No. 31.

ulcer, closing up, scarring over, perforation, hemorrhage from the coronary artery of the stomach, from the splenic artery, malformation of the stomach, contraction of the pylorus through the agency of scarring—well described, but also a good foundation is laid for clinical and therapeutic work.

We thus emerge into the modern phase, in which a correct and broad interpretation of anatomic and clinical facts of the influence of hygiene, diet and therapeutics takes place, and thus order and understanding are introduced into this chaos of observations.

In Germany we are indebted to Rokitansky for a classical treatise on the peptic ulcer, based on a large clinical and pathological experience, well analyzed. This excellent work became rapidly known.

Next to Cruveilhier, Rokitansky has had the greatest influence on the modern conception of gastric ulcer. In 1839 this pathologist gave a description of the disease based on an analysis of 79 cases.[7] The anatomic part of his description has served as a model for all subsequent writers on this subject everywhere. A few years later von Jaksch extended the pathologic knowledge of the gastric ulcer (to be sure, more from his clinical experience than from a strict analysis of bedside records), by a series of thorough clinical investigations.

From 1830 to 1840 observations and compilations appear frequently in the medical literature of almost all countries. According to Lebert,[1] rich collections for causal interpretation are found in the *Bulletins de la Société anatomique de Paris,* also in *Archives générales de Médicine,* in the "Annual Reports" of the last 20 years of Canstatt,[8] the Proceedings of the London Pathological Society, etc. Among the older journal articles and dissertations that have appeared is the Thesis of Duval in the year 1852 (Paris), one of the earliest of the better French compilations. Lebert[1] also refers to the publications of one of his pupils, Bisseger, as containing his own views often expressed in the Zürich clinic, and also an analysis of its rich material, together with clinical histories.

After Virchow, in 1855, developed his views on the hemorrhage-necrotic origin of the simple peptic ulcer, a series of good dissertations appeared under his editorial supervision, among which especial mention should be made of those by Steiner, 1868, and Wollman, 1868. Among the English authors, Crisp, Ashborne, Chambers, Habershon, Handfield-Jones, etc., but especially Brinton, have done excellent work. From the latter emanated the largest compilation, with excellent anatomical and clinical data. Habershon has also made valuable clinical additions to our knowledge of this disease.

From the beginning of scientific inquiry cited in the preceding, to the year 1868, there is, as we have seen, a vast accumulation of clinical data, but out of all of this literature, according to Lebert, not 100 are of genuine objective merit.

Cruveilhier's work of 1856, made known in the *Archives Generales de Medicine,* contains for those times and for the present no new matter beyond what was presented in his previous publications, but impresses us with the great anatomic and clinical experience of this wonderful pathologist.

Trousseau, in his *Clinique Medicale,* gives a review of the essentials, which acts in a stimulating manner on medical thinkers, but is, of course, incomplete, which is to be expected of clinical lectures, however important they otherwise may be.

Bamberger's description is an excellent sketch of the subject. The work of Ziemssen (in his Encyclopedia, Ziemssen's *Handbuch d. spec. Path. u. Therap.*), on the treatment of chronic gastric ulcer, represents the best knowledge of the Münich clinic.

As early as 1845 Schiff shows that hemorrhagic localized infiltrations of the mucous membrane of the stomach result from an irritation of certain parts of the brain. After a number of other experiments, he published the results of his investigations in his "*Leçon sur la digestion.*" In 1852 Lebert became acquainted for the first time with the hemorrhagic type of the growth of chronic gastric ulcer. In 1855 Virchow made known his views on this matter, and brought into general favor the acceptance of a hemorrhagic necrotic origin of the peptic ulcer. Müller has the distinction of having proved, in 1859, that the ligation of the portal vein results in numerous hemorrhagic erosions of the stomach, particularly in the pyloric region. Pavy later on showed the same thing in the case of larger ulcers through ligation of branches of the gastric artery. For the best and most exhaustive experiments on the circumscribed hemorrhagic infiltrates in the mucous membrane of the stomach, we are indebted to Ebstein.

Since the ushering in by Cruveilhier and Rokitansky of the modern era in the history of the gastric ulcer, the era of exact objective investigation, medical literature abounds in articles on this disease. But it can not be said that the importance of these works is at all commensurate with their number or that they have added very materially to the classical descriptions given by Cruveilhier and by Rokitansky. Perhaps most worthy of mention of the works of this later era are the article by Jaksch relating to symptomatology and diagnosis, and of Virchow relating to etiology, the statistical analyses by Brinton, and the contribution to the treatment of the disease by Ziemssen and by Leube.[9] In 1860, Ludwig Müller[10] published an extensive monograph on gastric ulcer. The most modern literature on the subject is contained in the works of Riegel.[11] Prof. Wm. H. Welch[12] gives a short résumé of the history of the clinical recognition and pathology of gastric ulcer, taken largely from Lebert. In the new *Handbuch der Geschichte der Medicin,* by Neuberger and Pagel,[13] the history of gastric ulcer is rather neglectfully treated. It seems that the author, George Korn, had no knowledge of the interesting studies of Abercrombie, Voigtel, Littré, Matthew Baillie, Cruveilhier and the other clinical and pathologic workers mentioned in the preceding. The article is interesting for the histology and pathology of digestion, the history of the stomach tube, etc., but for the history of the development of clinical ideas on any single gastric disease, little help can be obtained from this

7. Oesterich Med. Jahrb., 1839, vol. xviii (abstract in Schmidt's Jahrb., vol. xxv, p. 40).

8. Canstatt's Jahresberichte.

9. Jaksch: Prager Vierteljahrschr., vol. iii, 1844; Virchow: Arch. f. path. Anat., vol. v, p. 362, 1853; and A. Beer: "Aus dem. path. anatom., Curse des Prof. R. Virchow in Berlin, Das einfache duodenische (corrosive) Magensgeschwür," Wiener med. Woch., Nos. 26, 27, 1857; Brinton: On the Pathology, Symptoms and Treatment of Ulcer of the Stomach, London, 1857; V. Ziemssen: Volkmann's Samml. klin. Vorträge, No. 15, 1871; Leube: Ziemssen's Handb. d. spec. Path. u. Therap., vol. vii, Leipzig, 1878.

10. Das corrosive Geschwür im Magen und Darmkanal, Erlangen, 1860.

11. Erkrankungen des Magens. In the fourth volume of Penzoldt u. Stintzing's Handbuch d. specielle Therapie, p. 316, also pp. 437 and 438 are contained 150 bibliographical and historical references on gastric ulcer.

12. American System of Medicine (edited by Pepper), vol. ii, p. 480.

13. Vol. ii, p. 666.

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otherwise very interesting article. On page 693 of this article, Korn asserts that Hippocrates already described some of the symptoms of gastric ulcer as a special disease which was called *"sphacelous disease,"* or *"morbus niger,"* because black masses in the form of clumps were either vomited or passed by the bowels. I have looked up this passage in Hippocrates[14] and, while there is great temptation to credit the "Father of Medical Literature" with the first trustworthy knowledge of gastric ulcer, I regret to report that his account is not even approximately correct for this disease, but would cover that also of gastric carcinoma and even of secondary gastric hemorrhage, due to cirrhosis of the liver. Some have thought the dietetic treatment which Hippocrates recommended for his *morbus niger* gave evidence that he recognized it to be the disease we know as gastric or peptic ulcer. But even this hope is destroyed by a critical investigation of the diet of Hippocrates for this purpose. In 1899 Rudolph Bandel, on the incentive of Prof. R. Fleischer, of Erlangen, investigated the writings of Hippocrates for his knowledge on dietetics. It is published in a small pamphlet entitled *"Ansichten u. Ausprüche des Hippokrates über die Ernährung vom Gesunden und Kranden, etc."* (Inaugural dissertation, Erlangen.) In this publication we find nothing to confirm the supposition that the diet of Hippocrates gave evidence of his knowledge of gastric ulcer. The term which Hippocrates gives to the vomited masses in *morbus niger* is *atra bilis* (black bile), which expression maintained itself in medical literature until 1740, when F. R. Hoffmann demonstrated that the seat of *morbus niger* is the stomach. His words are as follows: "Simultaneously with the destruction of the substance of the stomach, the vessels are corroded or broken open, and these open vessels furnish the blood which is expelled by vomiting. We have to assume that the vessels are corroded by sour and acid juices, when a sharp gastric pain precedes the vomiting, and when the vomited bloody masses are black and acid at the same time, make the teeth stand on edge, and irritate the mouth and gullet."

Morgagni (1682-1771), a contemporary of the prominent Italian anatomists, a pupil of Valsalvas and Albertini, and a friend of Lancissi, in his book on "The Seat and the Causation of Diseases," does not agree with the view of F. R. Hoffmann just expressed, but holds that patients who die of *morbus niger* were suffering from a kind of gangrene of the stomach; that they did not die of loss of blood, but of a kind of poisoning of the blood, which infected the brain. It is interesting to note here that Morgagni described in this work the condition known as "continuous gastric secretion" (gastric succorrhea) occurring in a German nobleman in Bologna, who died later with symptoms of gastric tetany.

The designation *ulcus ventriculi* was first used by the versatile Jena clinician, Johann Peter Frank (1745 to 1821.) It is regrettable that the writings of this scholarly asclepiad are being gradually forgotten, for the modern treatment of gastric ulcer dates from him. The insistance on absolute rest in bed, the application of snow or crushed ice to the stomach, the great regard for dieting (milk and bouillon in small portions), all show exceptional clinical experience. The best that is known on gastric ulcer and gastric diseases in general up to 1850 is presented in the work of William Brinton. Since the descriptions of Cruveilhier, Rokitansky and Virchow, the pathologic conception and the clinical conception of the gastric ulcer have received no notable advance. The further students of this disease, Trousseau, Kussmaul, Ziemssen, Leube, C. A. Ewald, von Mering, Fleiner, Boas, Rosenheim, Riegel, Penzoldt, furnished clinical elaborations, purely.

It might be mentioned before concluding, that the first surgical intervention for gastric ulcer was undertaken in 1881 by Rydygier. For further history of gastric surgery, see Hemmeter.[15]

14. Sydenham Society edition.

15. Diseases of the Stomach, third edition, p. 348. For history and literature of gastric ulcer, see same work, pp. 486-526, containing 248 literary references on the subject.

Original Articles.

BLINDNESS AND OCULOMOTOR PALSIES FROM INJURIES NOT INVOLVING THE OPTIC OR OCULOMOTOR NERVES.*

ALVIN A. HUBBELL, M.D., Ph.D.
BUFFALO, N. Y.

That the eye in its visual function and motility is disturbed by causes remote from it, has been known for centuries, and is also a matter of common observation to-day. Among these disturbing causes have been found certain injuries about the face and forehead, which have led to partial or complete loss of vision, usually of one eye, and paralysis, partial or complete, of some of the ocular nerves, these injuries not seeming to involve the particular nerves whose function was impaired or lost. In a large proportion of these cases the injuries have apparently been limited to the fifth nerve, or some of its branches. Hippocrates had noticed this, and it is recorded that he said "the sight is obscured in wounds which are inflicted on the eyebrow or a little higher."[1]

Blindness and ocular palsies following violent injuries of the face and head, and direct injuries of the optic and oculomotor nerves, have recently received careful study and consideration. Berlin[2] read a paper at the Heidelberg Congress, in 1879, in which he reported the statistics of Dr. von Hölder, comprising 124 cases of fracture of the cranium in which postmortems had been made, and in which the fracture, in 79, passed through the orbital vault; and of these 79, 63 involved the walls of the optic canal. He believes that such fractures and direct injuries to the nerves are essential factors in producing the blindness and paralysis often found after head injuries.

Among those who particularly adhere to the same theory are Nettleship,[3] who has studied a large number of gunshot injuries of and about the orbit; Callan,[4] who reported in 1893, 9 cases of orbital traumatism, and who, in a private letter to me a short time ago, said that up to the present time "it has been my fortune to see at least 25 cases of the same type"; Simeon Snell,[5] who has analyzed 18 cases of blindness following

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Hocken: A Treatise on Amaurosis, Philadelphia, 1842, p. 155.
2. Berlin: Graefe-Saemisch Handbuch der Gesamten Augenheilkunde, first edition, vol. vi, p. 604.
3. Nettleship: Transactions of the Ophthalmological Society of the United Kingdom, 1901, vol. xxi, p. 120.
4. Callan: New York Eye and Ear Infirmary Reports, vol. i, Part 1, January, 1893.
5. Snell: Transactions of the Ophthalmological Society of the United Kingdom, 1897, vol. xvii, p. 81.

injury "chiefly of the anterior part of the head"; Purtscher,[6] who has collected 46 cases of traumatic paralysis of the abducens nerve; and Friedenwald,[7] who continued Purtscher's series by the addition of 11 more belonging to the same class.

I quite agree with the conclusions of these gentlemen that, in most of the cases which they have cited, the blindness or paralysis was due to injury, either direct or indirect, of the affected nerves. It is this class of cases that I would eliminate entirely from this discussion. I wish to reserve only those in which there has been no violent face or head injury, and, so far as can be seen or determined, no direct nor indirect involvement of the disabled nerve itself.

The question naturally arises, Do any such cases exist? To this question both affirmative and negative answers have been given. The negative answers I shall not analyze. On the affirmative side there have been many keen observers, both before the time of the use of the ophthalmoscope and since. The cases cited to sustain the affirmation during the pre-ophthalmoscopic period are by no means valueless, for the ophthalmoscope is not indispensable, always, to determine where an injury has been inflicted or whether an eye has been actually blinded or palsied. We might begin the citation of authorities with Hippocrates and continue it to the present time, and we should find that they include the most learned men and most discriminating observers of the medical world. Let me name a few of those of the past century who have recorded themselves on the affirmative side of this question: Beer,[8] Guthrie,[9] Wardrop,[10] Middlemore,[11] Hocken,[1] Chelius,[12] Lawrence,[13] Hutchinson,[14] de Wecker,[15] Badal,[16] Redard,[17] Norris,[18] Nuel,[19] Noyes,[20] Panas,[21] Chauvel,[22] Spaulding.[23] The list might be greatly extended, but this is sufficient to show the credibility and number of the witnesses. Many individual cases have otherwise been reported, which are said to be due to fracture involving the walls of the optic canal or orbit, but in which there is a possible doubt. For example, Snell,[5] in his report above referred to, included 2 cases, Nos. 2 and 3, of this class; Posey[24] also reported a case of the same kind to the College of Physicians of Philadelphia in 1899; and others have reported similar cases.

I can not reproduce the long list of individual cases which are scattered through medical and ophthalmologic literature, but must refer those interested to the various authorities who have recorded them, some of which I have already named. It seems to me that there is room, in those cases that I have studied, to doubt that there was fracture at the optic foramen or of the orbital walls, or injuries of the disabled nerves, either by laceration, contusion, concussion or extravasation of blood. In most of them the injury has been found to exist in some branch of the fifth or trifacial nerve alone, either the infraorbital, nasal, frontal or supraorbital, and not in the least to involve the optic or motoroculi nerves. That the results described might be indirect seems possible, when it is recalled that there are so many well-authenticated cases recorded, in which paralysis of the intraocular or extraocular muscles and blindness more or less complete have supervened on some disease (not injury) of the trifacial, and particularly of the branches distributed to the teeth. Furthermore, it should be remembered that this great nerve, with its extended distribution, has numerous and important relations, and it is not strange that authors should have concluded that disturbances originating in it may so react on the vasomotor nerves and nerve centers as to interfere with the nutrition of the eye, to check its movements, and even to suspend, partially or completely, temporarily or permanently, so delicate a function as vision.

This reaction has been acknowledged and studied by Brown-Séquard,[25] by Jonathan Hutchinson,[14] by Rondeau,[26] by Hughlings Jackson and by others, and they have designated it as "reflex." Furthermore, it has been claimed that these eye reflexes may originate elsewhere than in the branches of the fifth nerve, and particularly in the genital organs and the intestinal tract. Jonathan Hutchinson[14] says that these reflexes are probably due in many cases "to an influence exerted through the vasomotor nerves only, by which are induced alterations of blood supply to the affected part. It is probable, however, that nutritive alterations may be induced through the nervous system independently of any primary change in the caliber of the blood vessels."

When I recall the anatomy of the bony structures immediately surrounding the optic nerve, and the difficulty of fracturing the canal through which this nerve enters the orbit, and when I stop to think that it is most difficult to implicate any of the other orbital nerves in a fracture that would involve either the sphenoidal fissure or the orbital walls, I am led to question the sufficiency of the fracture theory in the class of cases which I am discussing, and am inclined to accept, at present, for want of a more satisfactory explanation, the reflex theory.

I shall now detail from my own experience a few cases which have appeared to me not to be easily accounted for on the fracture or injury theory.

CASE 1.—Paralysis of the right superior levator palpebræ, and partial paralysis of the right superior rectus muscles following a punctured wound on the right side of the nose, at the inner angle of the eye; recovery.

6. Purtscher: Archives of Ophthalmology, 1894, vol. xxiii, p. 361.
7. Friedenwald: Archives of Ophthalmology, 1894, vol. xxiii, p. 403.
8. Beer: Lehre von den Augenkrankheiten, Wein, 1813, vol. i, pp. 176, 185, 189.
9. Guthrie: Lectures on the Operative Surgery of the Eye, London, 1823, p. 100.
10. Wardrop: The Morbid Anatomy of the Human Eye, London, 1834, vol. ii, p. 194.
11. Middlemore: Treatise on the Diseases of the Eye, London, 1835, vol. ii, p. 364.
12. Chelius: System of Surgery, translated by South, London, 1847, vol. i, p. 430.
13. Lawrence: A Treatise on the Diseases of the Eye, American edition, Philadelphia, 1854, p. 125.
14. Hutchinson: Royal London Ophthalmic Hospital Reports, 1863, vol. iv, Part I, p. 120.
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Patient.—J. V. B., male, aged 24, laborer, consulted me on Aug. 1, 1903, for inability to raise the right upper lid.

History.—Ten days previously when fishing, a comrade threw a fishpole toward him, and the small end struck him on the right side of the nose in the region of the lachrymal sac, producing a puncture of the skin. He was very sure that the pole did not pierce the orbit. Neither the upper eyelid nor the eyeball was injured at any point. The eye was dressed and bandanged over night, and the next morning, on removing the dressings he found that he could not raise the upper eyelid.

Examination.—At the time of this consultation there was complete ptosis of this eyelid. On raising it with my finger, he said there was slight diplopia on turning the eyes upward and to the left, but in the primary position he saw singly. Inspection seemed to indicate unrestricted and normal rotation of the eye in all directions except upward. The pupil was normal in size, and responded normally to light. Vision was normal. Iodid of potassium was given internally.

August 29. The ptosis had nearly disappeared, but he continued to see double on turning the eyes upward.

September 12. The function of the levator palpebræ and superior rectus muscles was fully restored, and the ptosis had entirely disappeared.

CASE 2.—Paralysis of the left third cranial nerve following a fall from a bicycle.

Patient.—P. M., male, aged 23. Referred to me by Dr. Mickle, Nov. 3, 1898.

History.—On August 27, preceding, he fell from his bicycle and struck his head on the pavement. There was no external wound nor injury of the eyeball but he was unconscious for several hours. On recovering consciousness there was found to be total paralysis of the left third cranial nerve, with the attending symptoms of ptosis, divergent strabismus, dilated pupil, etc. For some time afterward there was confusion of the intellect and impairment of memory.

Treatment.—At the date of consultation the paralysis was much improved, and the vision of each eye was five-fifths, although both optic discs seemed rather pale. I suggested the internal use of iodid of potassium, and the local application of electricity. I have never seen the patient since.

CASE 3.—Paralysis of the external rectus muscle of the right eye following a blow over the eye; persisted at the end of four years.

Patient.—I. B., male, aged 13. Referred to me by Drs. W. D. Greene and E. Clark, Feb. 21, 1898.

History.—Four years previously he was struck over the right eye with a small tin can attached to a string, which another boy was playing with and swinging. The eyeball was not injured. Immediately afterward the right eye began to converge, and has remained convergent up to the present time. He was unable to turn the eye outward beyond the median plane.

Examination.—Vision equaled fingers at one to two feet. Pupil reacted well to light and was of normal size. Nothing abnormal could be found in the fundus, even after dilating the pupil with homatropin. The vision of the left eye equaled five-fifths. No treatment was advised, and the patient was not seen again.

CASE 4.—Paralysis of the right external rectus muscle following a fall and striking on the back of the head; recovery.

Patient.—R. M., male, aged 15. Referred to me by Dr. A. J. Colton, July 23, 1903.

History.—About three weeks previously was run down by a bicycle, and in falling struck, as he says, the back of his head. He was unconscious for a short time, and afterwards had severe headache. He at once began to see double, and the right eye was found to be convergent.

Examination.—At the time of consultation there was almost complete paralysis of the external rectus muscle of the right eye. The vision was normal in each eye, and so was each fundus. The eyeball had not been injured, and there was no evidence of intracranial hemorrhage.

Treatment.—I advised iodid of potassium to be given internally, and the covering of one eye until the paralysis disappeared.

August 27. Paralysis was much improved. Advised the continuance of the same treatment.

Later, I was informed that the case had entirely recovered.

CASE 5.—Paralysis of the external rectus muscle of the right eye following a slight bruise over the eye; recovery.

Patient.—H. B., male, aged 50, railroad employe, consulted me on March 27, 1897.

History.—He fell out of the door of a baggage car a few days previously, and struck his head against an object, leaving a slight bruise over the right eye near the hair of the scalp. There was no loss of consciousness and no dizziness. Immediately after the injury he began to see double.

Examination.—On examination I found that the right external rectus muscle was partially paralyzed, leaving a pronounced convergent strabismus. Fundi of both eyes were normal.

Treatment.—After correcting a slight hypermetropia the vision of each eye equaled five-fifths. Strychnia was given internally, and the paralysis disappeared after a few weeks.

CASE 6.—Paralysis of the external rectus muscle of the right eye, following an operation in the nose; recovery.

Patient.—E. H., woman, aged 23. On Jan. 24, 1898, I was called in consultation to see the patient by Dr. Horace Clark, and obtained the following history:

History.—On January 17, the physician removed the right middle turbinated bone, and then proceeding some distance backward and upward, undertook to remove further bony obstruction with a gouge by making light taps on it with a mallet. This did not seem sufficient, so he gave it a harder tap, when she at once complained of severe pain on the right side of the head and forehead, which continued for about an hour. Immediately after the onset of the pain she began to see double, and the physician noted that the right eye was convergent from paralysis of the external rectus muscle. Two days afterward a distinct ecchymosis was observed in the right lower lid, and there was also a slight ecchymosis of the conjunctiva of the eyeball on the lower and outer side. It was not possible, the physician said, for the chisel to have pierced the floor or apex of the orbit at any point. Dr. Lucien Howe had also seen the case.

Examination.—Examination showed that the vision of the eye seemed to be normal, although test letters were not used. There was still some ecchymosis of the lid and conjunctiva, but otherwise the structural appearances of the eye were normal. The ophthalmoscope showed an unusual redness of the optic disc, which perhaps was normal, as the same appearance was present in the other eye. I expressed the opinion that the case was one of reflex paralysis of the external rectus muscle, and gave a favorable prognosis.

February 2.—On examination at my office, the paralysis was somewhat improved. There was refractive error in each eye, and without correction vision equaled five-sixths each. With correction it was five-fifths each. With the ophthalmoscope there was seen the same unusual redness of both optic discs. Ordered the correcting glasses.

April 9.—The right external rectus muscle had entirely recovered its normal strength, and the convergence had disappeared.

CASE 7.—Blindness following cut over the left eye, extending through the eyebrow and into the base of the orbit.

Patient.—C. C. H., male, aged 23, musician, consulted me on Nov. 17, 1896.

History.—Three days before, when in a house of ill-fame, he was attacked by one of the girls and struck with a case-knife, inflicting a wound over the left eye which extended through the eyebrow from above, downward and outward into the orbit. He was taken to the Emergency Hospital on Michigan street, and attended by Dr. Francis J. Carr, who closed the wound with sutures and on the third day sent him to me.

Examination.—I found some swelling of the eyelid and of the orbital tissues. The pupil was dilated, and vision in this eye was totally lost, even to the strongest light. There was

no injury of the eyeball. The ophthalmoscope showed that the refractive media were clear, and the fundus normal.

Treatment and Result.—The case was treated with cold applications over the parts, and medium-sized doses of iodid of potassium were given internally.

On December 1, the swelling had entirely disappeared, there was some conjunctival and lid ecchymosis, and the movements of the eye were normal, except in the outward direction. There was no vision, and the ophthalmoscopic appearances were the same as before.

On December 21 the movements of the eye were normal except outward, and this was improved. Pupil was a little dilated when the right eye was covered, but responded consensually to light acting on the other eye. The ophthalmoscope showed that the optic disc was becoming a little pale. The potassium, internally, was continued.

February 1. The optic disc had continued to grow pale and the retinal vessels were smaller than normal. The external rectus muscle was still semi-paralyzed, but the patient was able to turn the eye outward considerably beyond the median plane. Vision remained *nil.*

The vision of the other eye was normal.

CASE 8.—Blindness of right eye following a fall.

Patient.—F. M., male, aged 11.

History.—On Nov. 1, 1901, he was riding on horseback, when the horse stumbled and he was thrown to the ground, striking his head on the right side and cutting the skin over the right eyebrow. There was no bleeding from the nose or ears. He was dazed for ten or fifteen minutes, after which he was taken to Dr. G. H. Grant, who dressed the wound and applied a bandage so as to cover both the wound and that eye. The dressing was kept on for a week or ten days. On removing it he found that he could barely distinguish light from darkness with that eye. He had severe headaches for several days after the injury.

Examination.—On November 26, Dr. Grant brought him to me, when the examination showed that the pupil did not respond to light, except in harmony with the light reflex of the other eye. With the ophthalmoscope the optic disc of that eye had a slightly waxy white color, but the retinal vessels were normal in size, and there were no lesions elsewhere in the fundus. The vision was totally lost, even to the strongest light. The vision of the left eye was five-fifths. Potassium iodid was ordered to be given internally, but the prognosis as to vision was unfavorable.

Result.—The optic disc of the right eye gradually passed into complete atrophy, and at the present time the eye is totally blind.

CASE 9.—Injury above and below the left eye followed by blindness after three or four days.

Patient.—L. B., male, aged 21.

History.—On May 26, 1900, while riding on his bicycle, he collided with another bicyclist and fell and struck his head in such a manner as to bruise his nose and face and to produce a cut through the outer part of the left eyebrow. He was unconscious for about an hour, and delirious for about two hours more. He had profuse nose bleed after the fall. Much swelling over and around the eye followed, and for several days it was with much difficulty that the lids could be opened. He thought that on the day following the injury he could see a little, but in three or four days the vision was entirely lost. He also said that there was a sense of numbness in the left side of his face and upper jaw, including the teeth on that side. He was treated by Dr. Borden in consultation with Dr. Lake of Gowanda, N. Y., who referred him to me.

Examination.—On June 11, when I saw the case, I found the wound of the eyebrow healed. There was no swelling of the tissues of the orbit, but there was a small conjunctival chemosis on the outer side of the eye. The movements of the eyeball were normal and unrestricted in all directions. The pupil reacted consentaneously with the other, but did not respond to light when it alone was exposed, and was dilated when the right eye was covered. There was entire absence of perception of the strongest light. The ophthalmoscope showed nothing abnormal, except, perhaps, that the retinal veins were a little distended. The numbness in the left side of face and jaw was still perceptible.

Treatment.—Prognosis, so far as vision was concerned, was pronounced unfavorable. Advised the continued use of iodid of potassium and strychnia internally.

July 3. No vision of the left eye, and optic disc of that eye was pale and waxy in appearance. Continued treatment as before for a few weeks.

April 29, 1903. Optic disc of left eye had become atrophic and blindness continued. The vision of the other eye was normal.

CASE 10.—Immediate blindness of left eye following an injury at the base of the orbit, at the lower and inner portion.

Patient.—T. K., male, aged 36, occupation, foreman in a metallic bedstead manufactory; was brought to me by Dr. Charles P. Chapin of Buffalo on Aug. 30, 1903.

History.—The right eye had been blind for three years with cataract, caused by being struck with a piece of iron. Two days previously (August 28), while working in the manufactory, he bent over to reach for something and struck a projecting wire, the end piercing the lower lid of the left eye sidewise from without, inward, and slightly, but not directly, backward. The skin was torn for perhaps a third of an inch at a point just above the lower margin of the orbit, and a little beyond the center of the lid toward the nose. Patient insisted that the wire did not penetrate more than one-half inch, if it did to that extent, even. Immediately after the injury he found himself totally blind in the left eye, and, having been blind from cataract in the other eye before this, the outside world was now entirely closed to him so far as his vision was concerned. There was not the slightest disturbance of consciousness or equilibrium. He was taken to a physician nearby who closed the external wound with a suture, and declared to him that the eyeball was not injured, and that he thought that the vision would return after a few days.

Examination.—When first examined by me, August 30, there was no swelling of the lids, no effusion nor swelling of the cellular tissue of the orbit at any point. There was, however, some ecchymosis of the lower lid, and a very small ecchymosis of the conjunctiva of the lower part of the eyeball. I examined very carefully for evidence of a wound of the eyeball, but I did not find the slightest. Neither was there any evidence of deep penetration of the orbit. Patient said that the hemorrhage from the wound was very slight, and that there was no bleeding from the nose. There had been no pain since the injury was inflicted. Further examination of the eye showed that the pupil was dilated when the other eye was covered, and that it did not respond to light. It did, however, contract consensually on exposure of the right eye to light. The refractive media were absolutely clear, and the fundus was distinctly seen. Not the slightest change in the eyeground could be found, unless it was that the retinal veins were a little more distended than normally, alhough this, even, was questionable. There was not the faintest perception of the strongest light. I predicted permanent blindness of this eye with subsequent atrophy of the optic nerve.

Treatment.—I at once took steps to restore the vision of the right eye which had been injured three years ago by being struck with a chip of steel. Examination of it revealed the presence of a small piece of iron lodged in the iris on the nasal side about half way between the pupillary and peripheral margins. The lens was fully opaque and the iris was adherent to it at the point of injury. Pupil responded fairly well to light, and vision equaled good perception of light throughout the visual field. The presence of the steel was shown both by inspection and by its being attracted by the electro-magnet. On September 1, I made an incision through the cornea at the inner margin and loosened the steel with a Sweet electro-magnet, and withdrew it from the anterior chamber with a small iris forceps. The eye recovered rapidly from the operation, and on September 15 I extracted the cataract without iridectomy. The recovery from this operation was also rapid, but the capsule was left in a thickened and opaque condition. On October 12, I

split the capsule with two needles, leaving a good central opening. On October 26, with + 14.00 D.S., vision equaled five-sixths and with + 3.00 D.S. added, vision equaled Jaeger No. 1 at fourteen inches. Glasses were ordered accordingly, and he resumed his occupation.

At the present time the vision of the left eye remains totally lost, and the optic nerve has become quite atrophic. With the right eye he sees as before.

Of these 10 cases, 6 are paralysis of the extraocular muscles, without any evidence of the muscles themselves or their nerve supply being directly injured, either by a contusion, compression or hemorrhage, and 4 are cases of unilateral blindness which vary somewhat in the nature of the injury. In Cases 7 and 10 it seems impossible to account for the blindness, on the assumption that the optic nerve was injured directly, or by compression through fracture of the optic foramen. In the one it does not seem to me that the knife could have penetrated to the apex of the orbit, and cut or bruised the optic nerve without seriously injuring, also, other important orbital structures, or that the sphenoid bone could have been fractured at the optic foramen through impact on the vault of the orbit. In the other case we have the positive statement of the patient that the wire did not penetrate deeply into the orbit, and the symptoms following the injury, so far as the orbital structures are concerned, are opposed to such a supposition. In the other 2 cases the injuries were more violent, and while I can not see how they could cause a fracture at the optic foramen, yet I am not prepared to say that such an occurrence was not possible. My present opinion, however, is that none of these ten cases is clearly explainable on the fracture or direct injury theory. Are they not all reflex?

DISCUSSION.

DR. S. D. RISLEY, Philadephia, said that he is not quite willing to accept the theory of reflex origin of the blindness in the cases mentioned. He has never been able to grasp a satisfying comprehension of the reflex origin of a disease; particularly of one so serious as to cause blindness, though there are certain clinical facts which seem to bear out this theory. The late Dr. Flagg several years ago published in the *Dental Cosmos* a report of a case of total blindness which was brought to him for inspection of the teeth. Dr. Flagg found that placing a piece of ice on a certain tooth demonstrated excessive sensibility to cold in that tooth. Extraction of the tooth was followed by almost immediate restoration in sight. The pupils, which had been widely dilated, contracted and vision returned to normal. A curious deposit was found in the pulp cavity of the tooth. Pressure on the dental branch of the nerve seemed to have this marked effect on vision. Dr. Risley mentioned the case of a man who had a high degree of mixed astigmatism and who had worn glasses for several years with much comfort, but finally came back with a great deal of discomfort. On investigating the mouth Dr. Risley found that the premolar was double and that the first tooth had not been thrown off. After extraction of the deciduous teeth there was complete relief from headache and from impaired vision. Dr. Risley has seen eight cases, six of which were totally blind in the eye involved, one partially blind in both eyes and in the other paralysis of the third pair of nerves, the man having been injured by being thrown from his buggy by a train. In this case the eyelid was paralyzed afterward and with no injury to the nerve. A carter was thrown from his cart, striking on the left superior orbital rim and went blind in six weeks from atrophy of the optic nerve on the side of the injury. A small child fell and struck the inferior orbital rim against the end of a stick she was carrying in her hand, apparently not causing any very serious injury. A few days later she complained of impaired sight and went blind with atrophy of the optic nerve. Another case, a man, was struck on the top of the head anteriorly with a piece of scantling and in a few days noticed impairment of sight and recovered finally with only 1/10 vision. These were very interesting cases to Dr. Risley, but so far from regarding the blindness of reflex origin he has been inclined to think that the optic nerve itself had been injured, the force of the blow being conducted along the walls of the orbit and pressing the nerve, whether there had been a fracture of the foramen or not; or in the case of paralysis of the oculomotor that the nerve had been injured in the sphenoidal fissure. While on a visit in the west Dr. Risley saw a case of a farmer who was thrown from his horse-rake, sustaining a fracture of the temporal wall of the left orbit. There was profuse intraocular hemorrhage and total blindness ensued with optic atrophy in the injured eye.

DR. G. E. DE SCHWEINITZ, Philadelphia, regretted that Dr. Hubbell should lend the weight of his authority to a theory which rests on so slight a foundation as that of reflex blindness. Dr. de Schweinitz said that while it is not always possible to state with accuracy the underlying pathologic conditions which cause loss of sight under the circumstances which Dr. Hubbell has detailed, and while there is often no clinical evidence, at first, at least, of injury to the optic nerve, it seems to him that most of these cases can be explained without an appeal to a reflex theory. Certainly some are due to hemorrhage in the sheath of the optic nerve, and recent investigations have shown that after comparatively slight blows on the head there may be fracture of the base of the skull, or a fissure running into the optic canal, which of itself would cause to be thrown out much inflammatory material and so make pressure on the nerve, or be the cause of a hemorrhage into the optic nerve sheath. Dr. de Schweinitz considers that some of these cases may be due to an infection, perhaps, of the optic nerve sheath, precisely as an infection may be caused in the pleura by the removal of a stitch, or from a wound on or above the brow. Finally, if there should be a sustained vasomotor alteration affecting the retinal circulation, such as probably takes place with certain toxic agents in the system, the ganglion cells of the retina are starved and degenerate and cause an ascending atrophy of the optic nerve.

DR. ALVIN A. HUBBELL said that he does not think that Dr. de Schweinitz has explained away the reflex theory. He should be glad to accept the fracture or injury theory, if it seemed sufficient, but in many cases it does not. Moreover, the reflex theory appeals to him, as there are cases of blindness and oculomotor paralysis in which there has been no injury of any kind, and which were the result, apparently, of disease remote from the eye itself. Many such can be gathered from both American and European authorities. Dr. Hubbell confessed that the reflex theory has its difficulties, and he desires further enlightenment. After eliminating cases of undoubted traumatic involvement of the ocular nerves whose function is impaired or lost, there seems to remain a residuum of cases in which the injury does not reach to or implicate them, and that belong to that class heretofore known as reflex.

CONTRACTION OF THE VISUAL FIELD;

A SYMPTOM OF ANESTHESIA OF THE RETINA IN CHILDREN.*

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The term retinal anesthesia is usually employed to designate a rather vague condition in which the function of the retina is temporarily suspended or its sensibility greatly diminished. In many text-books it is included in retinal diseases only for consistency's sake and to describe a possibility of the occurrence of such a con-

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dition. But from the descriptions usually given it would seem that authors had never encountered the affection as a purely independent disease having definite symptoms, treatment and prognosis. It is my purpose in this paper to present the features of this condition as I have met with it and to substantiate my statements with brief histories of my cases. This retinal anesthesia, in my experience, is characterized by a reduction in the acuity of vision and marked contraction of the visual fields, with no reversal in the color fields. There are no other symptoms, and the eyeground is normal in every respect. The affection is by no means infrequent and is usually observed in children from six to fourteen years of age of both sexes, being most common in children of the better class of people. The acuity of vision is rather suddenly diminished, and this diminution is first manifested by the child becoming awkward and by stumbling over objects not in the direct line of vision. An inability to read except in very strong light makes its appearance in a very short time, and soon distant vision also becomes reduced. At this stage of the affection the ophthalmologist is usually consulted and a careful examination of the visual field will reveal marked contraction, varying from 30 to 55 degrees in both the vertical and horizontal meridians, and a reduction of vision to one-fifth normal or less. The color fields are contracted proportionately and maintain their relation to each other. Visual scotomata are absent. The ophthalmoscopic examination reveals nothing abnormal. The pupils are semi-dilated and somewhat inactive. The patients are usually in good health and complain of no symptoms other than the great loss of vision.

The treatment which I employ in these cases is the daily application of a weak constant electric current, one or two milliamperes "voltaic alternatives." The negative pole should be placed over the eyeball and the positive pole over the opposite temple or nape of the neck. The sitting should be of about ten minutes' duration. The fields should be taken daily during the treatment and marked improvement will be observed within a few days. Recovery is prompt. As in other ocular conditions, the state of the refraction should be ascertained, but any error present should not be corrected until after a thorough course of electric treatment. The refraction should not be considered as an essential portion of the treatment for reasons I shall give later. The total number of cases under observation have been twenty-four.

CASE 1.—A. B., girl, aged 9 years, was brought to me in December, 1887, with a history of general awkwardness and diminution of vision, which in examination by test letters was found to be R. E. 20/70, L. E. 20/50 (one letter). The visual field was shown by the perimeter to be markedly contracted. The eyeground was normal with the possible exception that the veins were dilated and tortuous. The refraction was examined and Sph. plus 0.25 was found for each eye; glasses were not prescribed. The patient was referred to Dr. G. G. Faught for electrical treatment as described, and after five applications the visual fields and vision were restored to normal. The patient was then discharged. She was again seen by me in November, 1894, but had had no recurrence up to that date.

CASE 2.—F. H., boy, aged 10 years, consulted me in February, 1894, with a similar history, and the additional symptom of headache. Examination of the visual fields also showed marked contraction to 10 degrees in all meridians. Hyperopic astigmatism was detected at this time (Cyl. plus 0.50, ax. 90), confirmed by retinoscopy and trial lenses. The electrical treatment was employed four times, and nine days after the first visit to me the fields were found normal. The astigmatic correction was refused at this time. When seen in April, 1904, he stated that he had had no recurrence. Examination of the fundus showed the optic nerve to be red and excessive pigment in the choroidal coat. The ametropia under atropin, and confirmed by retinoscopy at this time, was R. E. Sph. —3.00, L. E. Sph. —1.00, which were prescribed, a change from hyperopic astigmatism cyl. plus 0.50 ax. 90 in both eyes to present condition of myopia which had developed during the past ten years.

CASE 3.—H. P., a boy, aged 10 years, came under my observation August, 1895, with visual disturbances and slight headache. The fields were found contracted irregularly to 10 to 20 degrees. Mixed astigmatism was detected and corrected. Sph. plus 0.25, cyl. —0.50, ax. 180; L. E., Sph. plus 0.37, cyl. —0.50, ax. 180. After several applications the field became normal in extent and the patient was discharged. In February, 1897, the patient again consulted me, and a slight contraction of the lower field was detected. No change required in the glasses. In January, 1904, I again saw the patient, at which date the fields were normal, and no change required in the glasses.

CASE 4.—C. N., female, aged 12 years, was seen by me in January, 1896, with the complaint of failing vision, which by means of test letters was shown to be 20/100 in both eyes. The correcting lenses (B. E. Sph. plus 0.50) served to increase the vision to 20/50. The fields were found to be contracted to 10 degrees in all meridians, but were restored promptly to normal after eight electrical treatments, combined with rest. Vision, both eyes, 20/20. In April, 1899, there was a slight recurrence, possibly owing to her greatly weakened condition. The patient died of pernicious anemia in November, 1896.

CASE 5.—H. C., girl, aged 10 years, came under my professional care in October, 1897, with vision R. E. 5/100, L. E. 20/200, and fields contracted to 20 degrees in the principal meridians. There was a history of a blow on the head. As there was no change in the color of the optic nerves, I did not think that the blow caused any change in the vision or fields. The electrical treatment was instituted, and within four weeks the left field was normal, but the right was still contracted. Three months later, however, the right field was normal. Myopia (Sph. —1.00) was present. In March, 1904, a recurrence occurred, due, in all probability, to excessive study. The refraction was examined and high myopic astigmatism detected and corrected (R. E., Sph. —4.25, cyl. —0.50, ax. 5; L. E., Sph. —4.50, cyl. —1.25, ax. 180).

CASE 6.—H. S., a girl, aged 11 years, was brought to me Feb. 25, 1899, with failing vision (20/200), both eyes, and contracted fields to 15 degrees without obvious cause. Lenses cyl. —0.50, ax. 180, both eyes, failed to improve vision more than 20/70. After five electrical treatments the fields became normal, and concave (cyl. —0.50, axis 180) cylindrical lenses were accepted, with vision restored to 20/20. No recurrence.

CASE 7.—J. G., a boy, aged 10 years, consulted me in November, 1899, with failing vision, 20/200, which lenses failed to improve. There were no structural changes to account for this loss of visual acuity. The perimeter demonstrated contraction of the fields to 30 degrees. After eight electric treatments the fields became normal and visual acuity increased to 20/20. There was no recurrence to my knowledge.

CASE 8.—J. J. D., boy, aged 9 years, complained of failing vision Feb. 21, 1899. The fields were found contracted to 30 degress, vision 20/100, and the optic nerves pale. Glasses afforded no improvement. The electrical treatment was employed twice, when the visual fields and vision were found to be normal.

CASE 9.—B. H., girl, aged 11 years, was brought to me Oct. 12, 1900, because of loss of vision. Examination by means of test letters showed the vision to be 20/70 in the right eye and 20/100 in the left eye. The fields were contracted to 10 degrees in the vertical and 20 degrees in the horizontal meridian. There was a very small degree of simple hyperopia. Seven electric applications restored the fields to normal, and vision 20/20.

CASE 10.—S. P., a boy, aged 8 years, complained of failing vision Oct. 21, 1898. No other subjective symptoms were present. The fields were found contracted to 20 degrees in both meridians and vision 20/100. Slight error of refraction was detected, but lenses afforded no improvement. Restoration of fields and vision occurred after nine electric applications.

CASE 15.—Indian girl, aged 12 years, complained of failing vision, November, 1902. R. E. 20/100, L. E. 20/40. A slight error of refraction (Sph. plus 0.25) was present, but glasses were not worn. Fields contracted to, R. E. 30 degrees, L. E. 40 degrees, in both meridians. Improvement followed seven applications of electricity. She had all the characteristics of her race, being a pure-blooded Sioux, strong and robust.

This is the only case among the red race I have ever found, having examined thirty-five hundred children.

The other thirteen cases were similar in character—the same contracted fields, with loss of vision; good results obtained by the use of electricity. Two cases are under treatment at the present time.

In presenting these cases, the points to which I wish to lay great emphasis are the occurrence of contracted visual fields in children between the ages of 8 and 16 years having unaccountable diminution of vision and the prompt restoration to normal vision and enlargement of the visual fields, after the use of the constant electric current (voltaic alternatives). These observations I believe to be original with myself. A few other ophthalmologists have closely approached them, however. W. F. Southard[1] observed in 1896 a case occurring in a delicate woman, 26 years of age, in which there was a history of headache and diplopia for a period of three months, followed by sudden blindness. The fields were contracted and there were hemiopia and absolute scotoma of fixation in the right eye. Examination of the refraction revealed the following error: R. E. C—1.75 ax. 180 L. E. C.—1.25 ax. 180. The wearing of correcting lenses increased the vision. Improvement also occurred under the influence of rest, but recurrences of the blindness were common. Hysteria was excluded as an etiologic factor. P. B. Wing of Tacoma[2] observed a case in a robust, well-nourished boy of 8 years, of failing vision, which lenses failed to relieve. It became progressively worse, and the fields became contracted. The condition was attributed to coffee, which the patient consumed at the rate of six to eight cups daily. One month after the institution of proper treatment vision was normal and the fields full.

The cases I have described I believe to belong to the class of functional disorders of the retina termed retinal anesthesia, as there seems undoubtedly to be a temporary suspension of sensibility in that structure. Apparently it seems to be a condition of fatigue due to overwork at the time of life when the sensory elements are least prepared for any strain. It will be recalled that these cases occurred between the ages of 8 and 16 years, and mostly in robust individuals, and not limited to the white race alone, as I have mentioned one case where this condition was found in a robust Indian girl.

Hysteria, however, I think, may readily be excluded from the etiology. The patients usually possessed no concomitant signs, the color fields were not inverted, nor were there any of the ordinary ocular symptoms of hysteria. Eyestrain has been suggested as a possible cause, but it will be remembered that in only three were there any of the ordinary asthenopic manifestations. While errors of refraction were corrected in most cases, there were seven instances in which the current was used alone, and the response was prompt as usual and there were no recurrences. Frequently the correction accepted during the affection was rejected when the fields and vision were restored. The only case in which there was a complete return of the condition was one having myopia, which was carefully corrected during the first attack, but required a change of lenses at the time of the subsequent attack; as this was a case of progressive myopia, the change in the glasses was due to this alone. In one case vision was normal and the fields contracted. Glasses were not called for, and recovery was prompt by the use of electricity.

The manner in which the electric current brings about its beneficial effects in these cases is not clear. It has been suggested to me that the constant current redirects the proper nerve impulses to the retina, and at the same time it would seem that these treatments served to increase the blood supply, and consequently the nutrition of the affected structure. In all of the cases mentioned, general rest from study was of value, showing that in large part the affection was nutritional in origin, despite the fact that the patients were apparently well nourished and healthy.

It gives me great pleasure to quote Dr. G. Granville Faught's experiences in the evolution of this treatment:

"Twenty years ago electrotherapeutics was mainly a matter of empiricism, and in no department was it more so than in that of the eye. Erb of Leipzig, in a publication dated 1883, says: 'We are thus compelled to acknowledge the deficiency of the theoretical basis of our electrotherapeutic knowledge; now, as formerly, it must be studied on an empirical basis.'"

As to the eye, Erbe says: "To my regret I must admit that very little is known with regard to the pathologic relations of the electrical irritability of the retina and optic nerve." In the use of the electric current at this time, Erb particularly advises that "sudden interruptions or reversal of the current should be avoided"; and, again, "do not make any interruptions or changes of polarity." Strümpell (Vickery, Knapp, Shattuck), writing in 1887, follows the teaching of Erb, and on the treatment of ocular paralysis says: "Of other remedies galvanic treatment gives the speediest relief. We pass weak currents transversely through the temples, or, what is usually better, put the anode on the back of the head and apply the labile kathode to the closed eye. Great caution, weak currents, and the avoidance of any great variations in the current are, of course, necessary; the current should not be too strong, and there should be no abrupt changes in it."

It was at this time and under these conditions that Dr. Fox and myself began the study of electrotherapeutics in relation to the eye. Among many other cases, my attention was early directed by Dr. Fox to those of retinal anesthesia, and in connection with these I conducted a considerable experimenture. In many cases a definite result was obtained by the ordinary application of the galvanic current, but not sufficiently speedy and certain to be satisfactory, so that I was finally led to consider the subject of Volta's alternatives. From the days of Volta it has been a well-determined fact that "if the current has been closed for some time in one direction, the irritability of the nerve is increased to opening in the same direction or closure in the opposite." However well known, no use was made of this in the matter of therapeutics until I took it up in connection with the treatment of retinal anesthesia. I was sure that what was eminently true as to motor phenomena would prove equally true in connection with sensory conditions, and my belief has been abundantly confirmed. After several years of experimenture, I affected a method of therapy which I designated as "Voltaic Alternatives" (Houston, Dictionary, "a term used in medical electricity to indicate sudden reversals in

1. Pacific Med. Journal, May, 1902.
2. Annals of Ophthal., April, 1903.

the polarity of the electrodes of a Voltaic battery"), and I devised a "pole-changing handle."[3]

I regret to state that little or nothing has been done since then in this matter of voltaic alternatives. Dr. Fox and myself have had eminent success in numerous lesions of the eye, vitreous opacities, retinitis-pigmentosa, chorio-retinitis and choroiditis, by this method, and it is to be hoped that this article will lead others to follow in our footsteps.

In ordinary usage I employ a current of 2 milliamperes, and reverse it at intervals of two seconds, continuing the treatment to a period of ten minutes.

DISCUSSION.

DR. WALTER L. PYLE, Philadelphia, said that he believes this affection to be a reflex inhibitory paresis of the peripheral visual cells in the retina, acting in the same manner as a reflex paralysis of the orbicularis in certain cases of uncorrected or improperly corrected ametropic eye-strain. He has often noticed the deficient vision without sufficient ophthalmoscopic changes in ametropic young persons, particularly school girls, and he has seen speedy restoration of full visual acuity by the simple use of the ametropic correction. He has never measured the visual fields in these cases, and thinks that full credit should be given to Dr. Fox for calling attention to the perimetric findings. Dr. Pyle thinks that overwork is undoubtedly the main factor. In younger persons, malnutrition is probably an important cause. It is often due to ametropic eye-strain, and after proper refraction most of the patients recover without the application of electricity. The constant current probably overcomes the reflex inhibitory influence and undoubtedly greatly hastens the recovery of visual acuity. However, the careful correction of even very low degrees of refractive error is of great importance. Small amounts of astigmatism, particularly at oblique axes, should be looked for.

DR. E. E. HOLT, Portland, Me., stated that he has observed several of these cases. On taking the field of vision it is found to be markedly contracted. His experience has coincided with that of Dr. Fox, that electricity restores normal vision, and he has not found that they relapsed. The condition, he thinks, is brought about by overwork.

DR. G. E. DE SCHWEINITZ, Philadelphia, asked what is the distinction between the cases reported by Dr. Fox and those which have been described many times by various writers under the names of retinal asthenopia, retinal anesthesia and nervous weakness of sight, the inappropriateness of which he recognizes. These conditions occur in young subjects, usually school girls near the age of puberty, who present reduction of acuity of vision unimproved by optical therapeutics, contraction of the visual field, and normal ophthalmoscopic appearances. They recover under proper hygienic treatment. Dr. de Schweinitz agreed with Dr. Fox that they do not in the least represent hysterical manifestations because the ordinary signs of the hysteric field are not present, that is, permanent contraction and frequent inversion of the color lines. They do present, however, an unstable contraction of the visual field, and sometimes the so-called oscillating field. They seem dependent on some instability of the whole nervous mechanism.

DR. L. WEBSTER FOX said that there is a suspension of function in the retina and that it is not a hysteric one, he is sure. The contraction of the color fields corresponds to the field of vision at the time. If the normal field is down to 10, then all colors are visible up to that point. There has seemed to be no reversion of the fields, and therein it differs from the other class of cases (hysteric). In 1884 it was discovered that by changing the current rapidly in a motor nerve function could be restored where otherwise it could not be done. Dr. Faught was the first to adopt the idea in the treatment of a sensory nerve, and it is the rapid alteration that seems to bring about the result. He has invented a little handle by which this can be done very nicely. It is marvelous what one or two applications can do in some of these cases.

3. N. Y. Med. Jour., 1886, p. 564.

AN EXACT AND SECURE TUCKING OPERATION FOR ADVANCING AN OCULAR MUSCLE.*

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The fact that many advancement operations have been devised is evidence that there is dissatisfaction with the various methods. Many of these operations are very similar, and if the different descriptions are placed side by side it will be found that they could be arranged in such a manner as to show only slight variations, and yet, like the colors of the spectrum which merge from one into another, the two extremes will be found to be very different and many new principles may be detected which have gradually been introduced. The evolution is slow but upward, those new principles which have proven of value remaining while those not practical and false have been discarded.

I desire to demonstrate† my method of performing this operation, but before doing so wish to call attention to other operations of like character, i. e., muscle-folding operations, in order that those who have done original work in this field may be given due credit.

HISTORY OF FOLDING OPERATIONS.

Knapp[1] gives credit to J. F. Noyes[2] of Detroit for having been first to describe an operation for shortening of the muscle by folding (1874). "The tendon is divided near its insertion, and the distal end brought forward under the proximal end, lapped, and sutured. At the same time a portion of the tendon may be or may not be cut off. The point of insertion of the tendon is not changed in this method. The folding of a piece has, of course, the same effect as if so much of the tendon had been excised." This operation, while having enough points of resemblance to be included in a description of the evolution of shortening operations, is not a tucking operation, as the tendon was cut.

De Wecker[3] performed a folding of the capsule and tendon, which was described in 1885. He makes a vertical incision in the conjunctiva over the tendon and undermines the conjunctiva toward and around the cornea as far as the vertical meridian, opens Tenon's capsule at the lower border of the tendon, passes a hook under the tendon, incising the capsule where it emerges on the upper side. He then inserts one suture into the episcleral tissue above the cornea, and the other end through the opening in the capsule into the upper edge of the muscle on through the conjunctiva, and then ties this suture. A like suture is passed through the lower edge of the muscle and the episcleral tissue below the cornea.

Knapp[4] did a similar operation, which was described in 1886 as an improvement on de Wecker's. Knapp's modification consists in the use of one or two additional sutures inserted in a similar manner between these two

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

† The operation was demonstrated at the meeting on a large manikin.

1. H. Knapp: Norris and Oliver, p. 874.

2. J. F. Noyes: A New Method of Operating for Strabismus. Transactions of the American Ophthalmological Society, 1874, p. 273.

3. De Wecker: Sur l'opération du strabisme au moyen de l'avancement capsulaire, Annales d'Oculistique, vol. xc, 1883, p. 188; La combinaison de l'avancement capsulaire et de la ténotomie, Annales d'Oculistique, vol. xcii, 1885, p. 72; les opérations modernes du strabisme, Archives d'Ophtalmologie, vol. xiii, 1893, p. 1.

4. H. Knapp: Advancement of Tenon's Capsule. Transactions of the American Ophthalmological Society, July, 1886.

sutures. In both of these operations the tendon and capsule were folded on themselves and not divided.

In 1892 Lagleize[5] of Buenos Ayres described a folding operation in which the tendon is folded on itself, or rather the muscle is folded on the tendon. In his operation a piece of conjunctiva is excised over the tendon, a hook is passed under the tendon near its insertion and another under the muscle. One needle of a doubly-armed suture is passed through the muscle and conjunctiva from within outward near the posterior hook, one millimeter from the upper border of the muscle, while the other needle is passed in the same manner one millimeter from the lower border. Both needles are then carried under the conjunctiva to the cornea, into the episcleral tissue, and the threads tied, causing the muscle to be folded on the tendon. The tighter the threads are pulled the greater the effect. The tendon in this operation is not severed.

Savage[6] published, in 1893, the description of his operation. The conjunctiva, and then Tenon's capsule, is cut just below the lower border of the muscle (when operating on a lateral muscle). Through this hole two strabismus hooks are placed; one hook is pushed forward to the insertion of the tendon and the other backward toward the belly of the muscle. One needle of a doubly-armed silk suture is passed through the cut beneath the tendon and forced through the tendon near the upper border, close to the scleral attachment. The second needle is passed through the cut beneath the muscle belly, through the upper border of the muscle, then through the capsule and conjunctiva; the same needle is passed back through conjunctiva, capsule and muscle directly under the last point pierced and near the lower

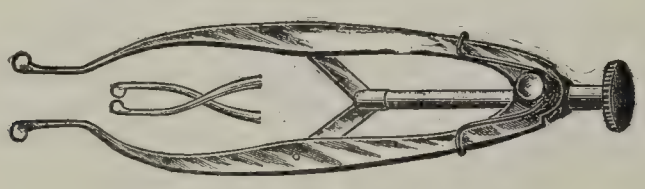


Fig. 1.—Author's tendon tucker.

border of the muscle, then passed forward under the muscle, to again emerge through the tendon at its insertion just under the point pierced by the first needle. Both hooks having been removed, the two ends of the suture are tied over the Price suture plate, thus producing the fold. The distinctive feature of this operation, which was not practiced in any operation described previous, is the folding of the tendon on itself by introducing sutures only in the muscle and tendon, and not into the sclera, and the use of the Price suture plate to prevent cutting of sutures.

Tenney of Boston devised in 1894 an instrument to aid in the performance of Savage's operation.

Grandclément's operation,[7] described in 1893, is as follows: With a pair of fixation forceps he raises a vertical fold through which he passes the needles of a doubly-armed suture (through the conjunctiva capsule and tendon), making a loop.

Valk,[8] working independently, described his method in 1895. After dissecting Tenon's capsule, he lifts the tendon with his pair of twin strabismus hooks, carries a catgut suture through the tendon from without inward, close to the sclerotic, passes backward under the muscle through the muscle from within outward; crossing the muscle, the suture is reinserted from without inward through the muscle back to a point above or below the place at which the suture was first inserted. Thus the suture is placed like that of Savage. When tied, the tuck is taken. Valk was the first to suggest the use of an absorbable suture.

Greene[9] described a tendon-tucker and his method of tucking in 1899. He says: "I have tried several expedients to get rid of the objectionable features of the operation which I have already mentioned, when, several years ago, I conceived the idea of taking a tuck in the tendon, which I did several times by the use of sutures. I thought it a new idea, but on searching the literature on the subject I found it had been done before by J. F. Noyes of Detroit, in 1874, and Lagleize, in 1892." Greene objected to the use of the conjunctival sutures, and, after producing the tuck, introduced one catgut suture, binding the middle of three layers of tendon; thus he followed the practice of Savage and Valk in introducing his sutures only through the tendon and muscle. His tendon-tucker was an ingenious device, and I am of the opinion that he deserves more credit than he claims for having thus facilitated the performance of this operation.

In a paper published April, 1902, Colburn[10] describes an operation which he performed, and he states that it

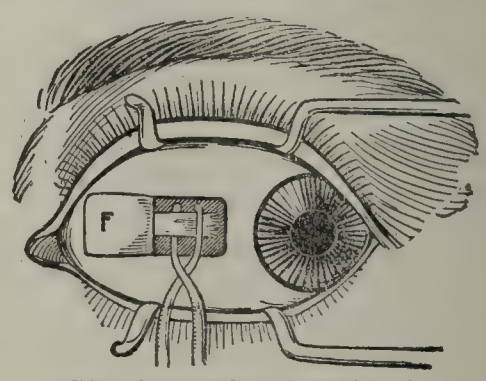


Fig. 2.—Tucker introduced.

was first described by him in a discussion at the session of the American Medical Association in 1888: "The suture was introduced, passing through the tendon at its point of attachment, thence beneath the capsule along the upper margin of the tendon, and backward to the point of entrance. The single suture is then drawn and tied, the conjunctival flap returned to its place and held by a suture." Colburn also describes various other methods of tucking a tendon and shows a cut of a double hook he had used, shaped out of another instrument, and also a crude device made from a pair of ear forceps, to aid in taking the tuck. In addition to the above-described methods, there are others who have done work along similar lines.

In February, 1902, my method[11] was described, but I have since improved it by the incorporation of certain details. This reason, and the additional fact that many ophthalmologists have written requesting a more detailed explanation, induces me to present this description.

5. Lagleize: Archives d'Ophtalmologie, vol. xii, 1892, p. 668.

6. G. C. Savage: Editorial, Ophthalmic Record, March, 1893.

7. Grandclément: La cure du strabisme obtenue ou complété par un simple froncement sousconjonctival du muscle et de la capsule, à l'aide d'une anse de fil, Bulletins et Mémoires de la Société Francaise d'Ophtalmologie, 1893, p. 291.

8. F. Valk: Post-Graduate (N. Y.), July, 1895.

9. D. M. Greene: Correction of Divergent Strabismus by a New Method and New Instrument, Ophthalmic Record, September, 1899.

10. J. E. Colburn: Muscle Tucking—A Report of Cases and Conclusions, Ophthalmic Record, April, 1902.

11. F. C. Todd: A Secure Advancement Operation Performed with the Aid of a New Tendon Tucker, Ophthalmic Record, February, 1902. Improved Tendon Tucker, Ophthalmic Record, March, 1903.

DESCRIPTION OF AUTHOR'S METHOD OF PERFORMING THE TUCKING OPERATION.

To avoid confusion and to enable the reader to secure a more definite idea of the operation, the tucking of an internal rectus will be described. In many cases the external rectus is first tenotomized, then a flap of conjunctiva is dissected up and turned back toward the internal canthus, and Tenon's capsule is freely opened so as to clearly expose the tendon of the internal rectus from its insertion backward for a quarter of an inch. A strabismus hook is now placed under the tendon from above and made to emerge below; the tendon is lifted from the globe to facilitate the introduction of the tucker.[12] The prongs of the tendon-tucker being crossed, the one toward the internal canthus, being uppermost, is placed under the tendon (passing it in at the lower border of the tendon); the strabismus hook is now removed (Fig. 2), the screw head at the distal end of the instrument is turned to the right, causing the upper prong to pass toward the cornea as the lower prong passes toward the internal canthus; this produces the tuck in the tendon as the prongs are separating and causes the eye to turn inward. The tuck should be large enough to secure the desired effect.[13] Catgut sutures are now placed in the two layers of tendon midway between the prongs as follows: Carry the needle of one suture under the upper border nearly to the middle of the tendon, bring it outward through the two layers and tie it; place another suture in the same manner, including nearly the lower

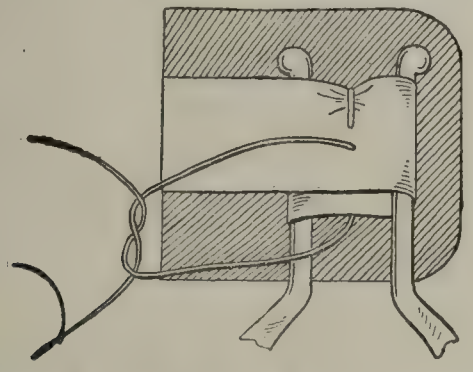


Fig. 3.—Placing of catgut ligatures after tuck has been made.

half of the two layers of tendon (Fig. 3), and tie it.[14] This leaves the nutrient artery undisturbed between these two ligatures. Now carry the needle of a doubly armed silk suture through the two layers of tendon just back of the *upper* catgut ligature from within outward, then up through the conjunctival flap from within outward; pass another similar doubly-armed silk suture just back of the *lower* catgut ligature from within outward and through the conjunctival flap; pass the needle at the other end of the *upper* silk suture underneath the conjunctiva into the episcleral tissues (above and internal to the cornea), bringing it out through the conjunctiva; now tie with only one knot (so that it can be regulated later) these two ends of this *upper* silk suture (Fig. 4). While an assistant holds the two ends of this suture, release the tucker (loosening it by turning the screw head) and remove it. Now insert the second needle of the *lower* silk ligature below the cornea into the episcleral tissues and tie in one knot the two ends of this *lower* suture in the same manner as the *upper* suture was tied. The pressure on the eyeball exerted by the tendon-tucker disturbs for the time being the exact position of the eyeball; it now having been removed, the two eyes may be compared and measured and the silk sutures tightened until the desired effect has been secured. These sutures will not slip as they pull against the catgut ligatures at one end, and are inserted into firm scleral tissue at the other. After the desired effect is secured the second knots are tied (Fig. 5).[15] It will be observed that these regulating silk sutures also serve to stitch the conjunctival flap into place.

This operation is adapted to any case where an advancement operation is indicated and is found of especial service in those rather difficult cases where strabismus has resulted from an overcorrection of an opposite strabismus.

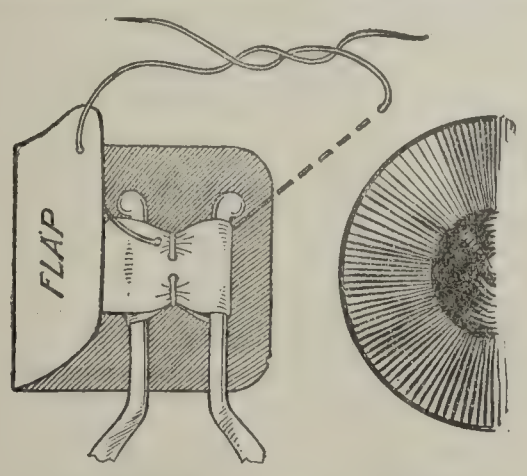


Fig. 4.—Showing placing of upper regulating (or retention) suture.

It is preferable to use cocain anesthesia for all muscle operations, as general anesthesia disturbs the physiologic balance; for instance, in a case of convergent strabismus, the eyes may diverge when the patient is asleep and the operator can not, therefore, determine the effect of his operation until the patient is awake. The surgeon can, however, perform this tucking operation, inserting the sutures and tying only one knot in the silk regulating sutures, and when the patient is thoroughly awake, under cocain anesthesia, these regulating sutures may be adjusted so as to secure parallelism and the second knot may then be tied.

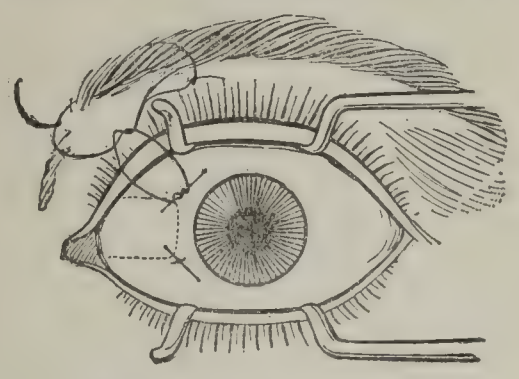


Fig. 5.—Tying of silk sutures.

The advantages of the tucking operation over any advancement operation when the muscle is severed, as given by Savage,[16] are: "First, it is easier of accomplishment; second, its plane of rotation is less likely to be changed when there is no indication for changing it;

12. This instrument is universal, i. e., it can be used on any of the recti muscles. Many of the instruments have been imperfectly made, the commonest fault being a sharp point and inefficient hook at the ends of the prongs so that the instrument slips out during the operation. If correct, the instrument will cause no such annoyance.

13. Chromicized catgut is best to use, as ordinary catgut sometimes absorbs too quickly.

14. The needle is easily introduced through the two layers of tendon by tilting the tendon-tucker so as to lift the prong nearest the cornea.

15. A bowknot may be tied and the ends brought out through the nearer canthus where they may be fastened to the cheek or nose with collodion, thus allowing for more regulation by tightening or loosening the next day or later.

16. G. C. Savage: Ophthalmic Myology.

third, the stitch is not so likely to cut its way out, and, and if it does so, or if the knot should become untied, the case would be no worse than before operation; whereas, if either of these accidents should happen to an advancement, before adhesion has formed, the recession of the muscle might be farther back than its original attachment."

In addition to these advantages, I claim for my method:

1. Exactness. Perfect adjustment of the eye may be secured at the time of operation when tying the silk sutures after the tuck has been taken. (In nearly all advancement operations the operator is obliged to estimate the amount of the effect desired and does not know until his operation has been completed the exact amount of effect that has been produced.)

2. Security. When the operation is completed the stitches can not slip and the tendon will remain where it has been placed.

3. Ease. The operation is very easy of performance, made so by the use of the instrument.

4. Flexibility. The smallest or the greatest amount of deviation may be produced.

5. Strabismus of high degree. The greatest degree of effect can be produced when accompanied by a tenotomy of the opposing muscle, and thus a strabismus of the highest degree can be corrected by operation on one eye alone if desired.

DISCUSSION.

DR. G. C. SAVAGE, Nashville, Tenn.—My operation differs from Dr. Todd's in several respects, one being that there is less trauma in mine. Dr. Todd's operation is a combination of my tucking operation and the Laglieze lapping advancement operation. These three operations are the only ones that should be done for giving added power to a muscle. In neither of these operations is the tendon of the muscle severed. Again I wish to be recorded as saying that no rectus muscle should ever be cut entirely loose from the globe, either for setting back its attachment or as a preliminary for advancing it. It would frighten me if I were to cut a tendon entirely across. My muscle shortening operation can be done with the aid of the Todd tucker, or the Tenney or Valk folder, but I prefer to use two large strabismus hooks. The technic of my operation is simple and the traumatism is slight. I make a cut near to, and parallel with, a border (lower if the muscle is an externus or an internus) of the muscle, through the conjunctiva and capsule. Through this incision I pass one of the large hooks beneath the tendon, carrying it forward to the insertion. Lifting the tendon with this hook, I pass one of the two needles (the suture is armed with two needles) through the incision and make it penetrate the tendon near its upper border and at its insertion, and pass it on through capsule and conjunctiva. An assistant then inserts the second hook and carries it back beneath the belly of the muscle as far as possible and now slightly raises the muscle. Still holding the first hook, I now pass the second needle through the incision to a point of the muscle similarly related to the muscle plane with the point of puncture of first needle, and at such a distance behind the attachment as may be judged necessary; the needle is now pushed through muscle, capsule and conjunctiva and the part of the suture under the muscle is drawn into position parallel with it. The same needle is now passed through the conjunctiva, capsule and muscle near its lower border, immediately beneath the second puncture, and is brought out through the cut. The thread is now drawn on until the loop rests against the conjunctiva. The second hook is now removed and I now pass the same needle through the incision, beneath the tendon, and push it through the tendon near its lower border and at its insertion, and on through capsule and conjunctiva, being careful that the third and fourth punctures are in a plane parallel with the rotation plane of the muscle. I now pass the two needles through the two holes in the suture plate and complete the operation by tying a surgeon's knot on the silver plate; and in doing so I draw that part of the muscle beneath the loop into contact with the tendon at its insertion, thus shortening the muscle to that extent. It is a simple operation, easily done and efficient. The muscle capsule and conjunctiva are all included in the stitch. The knuckle of tissue thus formed needs no stitch to flatten it, for it soon disappears by absorption. This suture needs no anchoring sutures to strengthen it.

A mistake made in this operation and in other operations requiring a stitch is in allowing the suture to remain in too long. The stitch should be removed on the fifth day, even a day earlier if there is too much irritation excited by its presence. I always use silk. In the Laglieze operation the conjunctiva is incised over the tendon and turned back. A strabismus hook is passed beneath the tendon for the purpose of lifting it, when one needle of the double-armed suture is passed through the muscle after the manner of sewing on goods, thus placing a loop of thread beneath the belly of the muscle. Each of the two needles is now passed into the scleral tissue just as far in advance of the insertion of the tendon as the loop already taken is behind the insertion. The scleral punctures must be related, ordinarily, to the plane of rotation as are the puncture and counter-puncture in the muscle. In tying the surgeon's knot that part of the tendon and muscle between the insertion and the loop is drawn over the insertion to the scleral stitches, and is kept flat against the globe. This done, the conjunctival wound is closed by one or more sutures. The scleral stitch should be taken parallel with the canal of Schlemm, and behind it.

It is now clear that the operation shown on the manikin by Dr. Todd is a combination, with some modifications, of my muscle-shortening operation and the Laglieze lapping attachment operation. My objection to the tucker shown by Dr. Todd is that, if one wishes to change the plane of rotation of the muscle to cure a complicating cyclophoria it would be hard to accomplish, whereas it is easily done when the strabismus hooks are used. The Todd operation is a good one, the chief objection being the amount of trauma inflicted. More effect can be gotten from the Laglieze operation than from mine or Todd's.

DR. WENDELL REBER, Philadelphia—I am compelled to say that I do not think advancement is an easy operation. One must be doing a great many of them to make it at all easy. All the gentlemen with whom I have talked would rather do any other operation than an advancement. Tenotomy is easy; as to the result one gets, that is different. Whether a muscle is or is not to be cut away from its attachment depends on whether we aim at cosmetic effect or binocular vision; if for cosmetic effect it does not make any difference. It is generally done for that purpose and binocular vision is not a frequent result. That operation which enables us most clearly to see what we are doing seems to me the most commendable. The Worth operation is one to be carefully considered. I find it comparatively easy to do, and the effect secured at the operation is not lost. I confess that Dr. Todd's operation has one element to make it desirable and that is the ease with which the effect can be regulated after the anesthesia has worn off. When Dr. Todd brought out his first tucker I used it in three or four cases, and while we were not enthusiastic about it, we thought that perhaps we had not used it enough to become proficient; I felt that the tucker was in the way all the time and that the effect was likely to be a temporary one. All the sutures should be fast so that the operation may be made more definite. I think the Worth operation is to be preferred; the reaction is slight and the effect is permanent.

DR. L. WEBSTER FOX, Philadelphia—I had the pleasure of having Dr. Todd demonstrate his tucker operation in my clinic last Monday. I had attempted the operation several times, but the result was not satisfactory. Dr. Todd explained to me that the instrument I was using was not made correctly. I failed to bring about a good result by an improperly made instrument, so that it is not fair to condemn an operation until you have seen the surgeon who devised it, use the instru-

ment himself. Dr. Todd performed the operation in my clinic very successfully, even with the very inferior instrument in my possession.

DR. OSCAR WILKINSON, Washington—I have been with Dr. Worth in a great many of his operations and have watched the results, and in my own practice no other advancement operation has given such good results. The operation depends largely, of course, on the object we wish to obtain and the amount of defect to be corrected. Where there is a large defect I should be skeptical as to the results of the tucking operation. It may be very valuable where the defect is slight, and it is certainly an ingenious idea.

DR. MARK D. STEVENSON, Akron, Ohio—I make a long, vertically curved incision through the conjunctiva, the center nearly touching the limbus, the ends curving away from the cornea. Tenon's capsule is next opened and the conjunctiva and capsule being pushed well back the muscle is seized by my advancement forceps and then cut free from the sclera. A sharp needle on a silk suture is next passed from without inward through the junction of the upper and middle third of the tendon and is then passed outward through the upper margin of tendon, and again passed through the tendon just behind the first point of entrance. It is then carried near the edge of the cornea and passed deep through episcleral tissue into the sclera. The needle on the other end of the suture is likewise used on the lower portion of the tendon and the two being first tied in a single knot, are tightened until effect required is secured, when a surgeon's knot may be made. All superfluous tissue should be removed. By this suture the upper and lower portions of the tendon are securely held, while the middle portion also affords support by the cross piece of the suture. The circulation in the middle portion is not interrupted, however, and only one knot is necessary.

DR. JOHN E. WEEKS, New York City—Any operation that necessitates doubling the tendon or muscle into a cord is certainly theoretically imperfect. The operation of Dr. Savage is such an operation. That difficulty has been avoided to some extent by the last speaker. The ideal operation is one that will maintain the normal width of the tendon, in addition to accomplishing the result desired. In order to maintain the width of the tendon, sutures must be entered at the upper and lower borders of the tendon. If only two sutures are used the middle portion can not be fastened as it should be, but with three sutures the width of the tendon can be controlled perfectly. My experience has led me to the conclusion that deviation of the muscle in any way imperils the result of the operation. For some years I used the advancement by tucking as devised by de Wecker, with very good results. One can not tell by half a millimeter the amount of the effect that will be produced by any operation. Another thing that is detrimental is the strangling of a portion of the tendon. That is done when the middle or the sides of the tendon are tied. It can be avoided by quilting the sutures. It is important to go well into the scleral tissue in passing the bulbar sutures. Another thing, do not delude yourselves in believing that a sufficient plastic process will be set up in four or five days to retain the advanced muscle. It ordinarily requires a longer time. Leave the sutures in from seven to ten days in order to be assured of the permanent retention of the tendon in the position in which it is placed at the time of operation.

DR. W. E. LAMBERT, New York City—I should like to substantiate what Dr. Weeks has just said. I am not an advocate of the tucking operation. I find advancements, or resections and tenotomies perfectly satisfactory.

DR. J. L. BORSCH, Philadelphia—Dr. Todd in his paper says that he can overcome a secondary strabismus by tucking the muscle that allowed the eye to deviate. The tendon, in a secondary strabismus, is so retracted that in most cases it can hardly be found; and what is advanced is the capsule, and the eye is thus straightened. It has been my privilege to assist de Wecker in many operations for capsular advancement, and have performed many myself, and fail to understand why an operation so simple and so effective should be modified. The manner of placing the sutures, it has been said, prevents their slipping; if the sutures are of the proper kind this will not occur. Dr. Todd assures, you can regulate the effect exactly with his method. This can also be done by grasping the capsule in the broad forceps, but in the majority of operations one must overcorrect a few degrees for a day or two. As for judging the amount of deviation corrected, I wish to say, that by using the de Wecker strabometer, which is extremely simple and portable, you can measure the exact deviation of the eyes and regulate the operation accordingly. I venture to say that the fraternity who do many operations will bear me out in the statement that we must simplify and not complicate operations in ocular surgery. For myself I am not ready to abandon the de Wecker operation.

DR. F. C. TODD—The great number of operations that have been described is evidence that we are not satisfied with what has been done so far in this work. As to Dr. Savage's criticism that torsion could not be effected by my operation, I would say that that is one of the advantages of the use of the instrument; the torsion can be easily regulated. In the second case I operated on I was obliged to produce torsion. By changing the axis of the instrument and inserting the scleral sutures above or below, as the case may be, the desired effect may be readily produced. Of course, the idea of the ligatures above and below is to prevent the cutting of the suture along the fibers of the tendon, which takes place in many of these operations and, as it seems to me, would take place in Dr. Savage's operation. I would remind Dr. Weeks that while he cuts off that portion of the tendon I ligate it, and I san not see that it makes any difference whether it is removed by atrophy or cutting; the results are the same; we do not care to preserve that portion of the tendon. Another advantage of this method is that the flap lies down and makes a smaller lump, which later disappears. In regard to the administration of chloroform, in these cases I rarely use chloroform; I prefer not to. As to the matter of pain, of course, many of these operations are somewhat painful, but that depends largely on the pulling of the muscle. With this instrument the pull is gradual and steady, while the pain is caused mostly by jerking the muscle. Now someone has spoken of doing a tenotomy. Each case must be treated on its merits. I would suggest that where one eye is involved it might be wise to do a tenotomy and an advancement, but where you have an alternating strabismus or where the movement of the two eyes is about equal we might desire to do two advancement operations.

THE PASSAGE OF DIFFERENT FOODSTUFFS FROM THE STOMACH.*

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In the transfer of food from the stomach to the intestine two factors are concerned, the gastric waves of peristalsis and the pyloric sphincter. It is now known that under normal conditions the peristaltic waves course from the middle of the stomach to the pylorus without interruption during the whole of a digestive period. How the waves will affect the food is determined by the action of the pylorus. If the pylorus remains closed, the repeated waves over and over again churn the food with the gastric secretions; if the pylorus opens, these same waves act as the motive power to force the food onward.

The determinative function of the pylorus was recognized by the fathers of medicine, for they gave the ancient terms *pylorus* (keeper of the gate), *rector* and *janitor* to the sphincter, and assumed that it possessed a "will" which fixed the fate of ingested food. Van Helmont, in the days when the learned confused mysticism with science, presented his reasons for believing that the pylorus was the seat of the soul. It is certain that this

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wonderful sphincter holds the chances for good and evil in many of the most essential processes of digestion. The retention of food in the stomach to undergo gastric digestion, the gradual delivery of food from the gastric reservoir into the region of intestinal digestion, so gradual that the important digestive processes near the pancreas shall proceed regularly and without disturbance; the checking of irritants in their onward passage through the alimentary canal—all these functions are in the control of the pyloric sphincter.

Differing views of the way in which the pylorus opens and permits the food to pass have been set forth. Oppenheimer,[1] in 1889, and Rossbach,[2] in the next year, declared the food was all thoroughly mixed with the gastric juice, and that only four hours or more after eating did the sphincter relax and allow the stomach to empty. These observations, however, have not been substantiated; the errors in them probably were due to the nature of the method employed, for both clinical findings with the stomach tube, as Ewald and Boas[3] have demonstrated, and studies with the *x*-rays on the undisturbed subject,[4] prove that the stomach is not emptied all at once at the end of gastric digestion, but progressively during the period. In an investigation of the passage of food from the stomach we have, therefore, to consider agencies maintaining an intermittent closure of the pylorus, agencies which usually keep the channel closed, yet occasionally open it to permit portions of the digested food to advance.

Both mechanical and chemical agents have been supposed to determine the emptying of the stomach. Rossbach,[2] for example, thought that the stomach emptied only at the completion of gastric digestion, because the muscular contractions at that time were (under the conditions of his observations) more intense than before. Penzoldt,[5] after an extensive study of the periods during which various foods remain in the stomach, noted that such foods as delayed the appearance of free hydrochloric acid remained longest in the stomach. Verhaegen,[6] on the other hand, declared that it mattered little in the passage through the pylorus whether the food was acid or neutral. In criticism of these statements, it may be said that Rossbach's observations were made on morphinized animals, with opened abdomen, conditions known to disturb the normal activities of the digestive tract; and in Penzoldt's[5] studies, although the amounts of food are stated, no attempt was made to have these amounts uniform, or to have the food of the same consistency. Furthermore, Penzoldt was dependent on securing remnants of the food by means of the stomach tube, a procedure which furnished no data concerning the rate at which the stomach was emptied, and was also objectionable in interfering with the digestive processes. This method, moreover, leaves the investigator in doubt as to which of the factors, the gastric peristalsis or the pylorus, caused the retardation of the food. Verhaegen's[6] conclusions are based on observations with the stomach tube on only four individuals, two of whom were admittedly pathologic. In the presence of strong evidence against his conclusions, the small number of cases observed by him must furnish him inadequate support.

Because of the differences of opinion which the above discussion has shown to exist, and because of the importance which the passage of food from the stomach bears both to physiology and to practical medicine, further investigation of the factors concerned in the process is desirable.

THE METHOD OF INVESTIGATION.

In studying the agencies controlling the pyloric passage, it is well, for the sake of simplicity of conditions, to employ foods predominantly proteid, fat or carbohydrate. Such foods were used in this investigation. Boiled beef, free from fat, boiled whitefish and the white meat of fowl are examples of proteids which were fed; beef suet, mutton and pork fat are representatives of the fats; starch paste, rice, and potatoes, of the carbohydrates. In all cases full-grown cats, deprived of food for the twenty-four or thirty hours previous to the experiment, served for the observations. The food was invariably given in uniform amount, 25 cubic centimeters, and with uniform consistency, the consistency of thick mush. Before the food was given to the animals it was mixed with 5 grams of subnitrate of bismuth. Comparison of subnitrate of bismuth with other insoluble heavy salts has shown that it has no peculiar effects on the movements of the alimentary canal; and clinical studies by Schüle[7] have proved that the addition of subnitrate of bismuth to food does not interfere with gastric motility. The animal thus fed with food mixed with bismuth subnitrate was exposed to the *x*-rays, and the movements of the food in the stomach and small intestine observed by means of the shadows cast on a fluorescent screen. The observations were recorded at regular intervals, one-half hour, one hour, and every hour thereafter for seven hours following the feeding. The records consisted of outlines of the shadows of the food, traced on transparent tissue paper laid over the fluorescent surface. Inasmuch as the diameter of the intestines varies only slightly, the area of cross-section of the contents may be disregarded, and the aggregate length of the shadows of the food in the small intestine may be taken to indicate the amount present. By comparing the aggregate lengths of the shadows cast by the intestinal contents it is possible to know the relative amounts of food in the intestine at different times as well as the relative amounts of different foods present in the intestines of different animals at the same time after eating.

It is obvious that the method has defects. For example, loops of intestine are not always parallel to the screen, and the loops not parallel may not always form the same angles with the screen, and they would, therefore, be variously foreshortened. It may be said in answer to this objection that the animals were stretched on their backs and the abdominal wall flattened both by the stretching and by the pressure of the fluorescent screen, so that the loops must lie nearly parallel to the screen, except, possibly, at short dorsoventral turns from one loop to another. That these turns were not a serious source of error was proved by massage of the abdomen, which rearranged the coils; tracings made before and after such treatment showed only slight variations in the aggregate length of the shadows. Another possible defect of the method arises from such overlapping of the loops that two loops, or parts of two loops, cast a single shadow. Care was always taken to obviate this error by separating by pressure with the finger loops lying close together. Still further faults of the method are found in the variations in the thickness of the food masses in the intestine, and the changes due to absorption, which proceeds at different rates with the different foods. But

1. Oppenheimer: Deutsche med. Wochenschrift, 1889, xv, p. 125.
2. Rossbach: Deutsches Archiv für klin. Medicin, 1890, xlvi, pp. 296, 317.
3. Ewald and Boas: Virchow's Archiv, 1885, ci, p. 364.
4. Cannon: American Journal of Physiology, 1898, i, pp. 368, 369, 378.
5. Penzoldt: Deutsches Archiv für klin. Medicin, 1893, li, p. 545.
6. Verhaegen: La Cellule, 1897, xiv, p. 33.
7. Schüle: Zeitschrift für klin. Medicin, 1895, xxviii, 6, 500.

these defects must be regarded as slight, especially in the early stages of intestinal digestion, when compared with the great and characteristic differences in the amounts of food present in the intestine when carbohydrates, fats and proteids are separately fed.

What these differences in the treatment of the three kinds of foodstuffs by the stomach are, will now be stated. The results here set forth are based on between 600 and 700 observations on 80 to 90 cases.

RESULTS.

The characteristic differences in the aggregate length (in centimeters) of the intestinal content with the various foodstuffs at definite times after eating are illustrated by the following average figures:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Fats (15 cases)	5	9	14	17	16	13	13	9
Proteids (10 cases)	1	5	18	21	23	19	17	14
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6

Note that the carbohydrates and fats both begin leaving the stomach soon after they are ingested; but the carbohydrates leave rapidly, while the fats leave slowly. The curve representing the carbohydrate rapidity of passage would have a quick rise to a high maximum at the end of two hours, then a slow drop; the curve for fats would be a long, low curve, with no prominent maximum point. The figures for proteids are of especial interest, for they show that the proteids begin to pass out much later than either carbohydrates or fats (in many cases of proteid-feeding nothing left the stomach during the first half hour, and frequently nothing was out at the end of an hour, though peristaltic waves were running regularly from the beginning), and, moreover, after the proteids begin to leave the stomach, they leave slowly. The curve for proteids would show a slow rise to a maximum at the end of four hours, and then a gradual fall.

Many confirmations of these figures have been secured. For example, when proteids are fed first and carbohydrates later, the proteids are pressed more into the pyloric while the carbohydrates lie more in the cardiac end of the stomach. Under these circumstances, the presence of the proteids near the pylorus delays the discharge of the carbohydrates, as the following comparison of average figures in two such cases with the average proteid figures will clearly show:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Proteids (10 cases)	1	5	18	21	23	19	17	14
Proteid first, carbohydrate second	2	6	15	21	29	34	28	22

On the other hand, when carbohydrates are fed first and proteids second, the presence of the proteids in the cardiac end of the stomach does not materially check the exit of the carbohydrates. A comparison of average figures in two such cases with the average carbohydrate figures will make this relation clear:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6
Carbohydrates first, proteids second	4	23	35	28	25	18	14	7

The most significant feature of the above tables is undoubtedly the remarkable difference between the figures for carbohydrates and for proteids. Why are the carbohydrates, which are not digested by the gastric juices, permitted to go quickly onward into the intestines, where they are digested, while the proteids, digested in the stomach, are retained there to undergo digestion? What fine mechanism of the digestive economy could see to it that the gastric part performs its function well when food it acts on is present, and lets it waste but little time or energy with food it can not change? Such apparently purposive functioning recalls the ancient attribution of a "will" to the pylorus, supposed to control the movements of material through the channel with reference to the body's welfare. Is there, however, a more simple and direct explanation of these activities?

If the presence of free acid in the stomach and near the pylorus is a stimulus to the relaxation of the pyloric sphincter, the interesting mechanism is largely explained. Both carbohydrate food and proteid stimulate the gastric secretion in abundance, as researches on dogs by Pawlow and his pupils,[8] and as clinical studies on man, have shown.

Now, inasmuch as carbohydrates provoke an acid secretion and do not unite chemically with it, free acid is at once present in the stomach; whereas with proteids, since they join with the acid secretion to form acid proteids, free acid does not make its appearance for some time. Thus the carbohydrates would begin almost immediately to pass through the pylorus. Thus proteids would be delayed.

The hypothesis that the presence of free acid in the stomach opens the pylorus can be tested. Feeding a carbohydrate mixed with an alkaline fluid would delay the appearance of free acid in the stomach, and, according to hypothesis, should also delay the passage of the food. The similarity between the average figures from two cases fed on crackers moistened with 1 per cent. sodium bicarbonate, and the average figures for proteid, shows how closely the addition of the alkaline fluid makes the figures approximate.

Hours after feeding.	0-½	1	2	3	4	5	6	7
Proteids (10 cases)	1	5	18	21	23	19	17	14
Alkaline carbohydrate	0	4.5	19	28	31	29	25	21

The converse of this process also was tried. Proteids changed to acid proteids, and freed from all excess of acid were fed and the rate of discharge recorded. The following average figures of three cases of acid proteid (lean beef acid with hydrochloric acid), compared with the average figures for carbohydrates, show a remarkably close relation throughout:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6
Acid proteid	6	30	43	39	28	21	14	10

These two tables show that alkaline carbohydrate, like ordinary proteid, leaves the stomach slowly, while acid proteid leaves the stomach quite as rapidly as carbohydrate food. All cases which have been tested harmonize with the idea that conditions delaying the appearance of free acid in the stomach delay the discharge of the food, and conditions favoring its appearance hasten the discharge.

At first thought it might seem that acid added to carbohydrate food would still further increase the rapidity of the discharge. Such, however, is not the fact. When 0.4 per cent. hydrochloric acid is added to crackers in sufficient quantity to make a thick mush, the figures secured do not vary much from those secured when crackers and water are fed:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Crackers and water	10	23	43	46	43	30	19	5
Crackers and 0.4 per cent. HCl	8	18	41	51	45	25	21	17

But if free acid is the stimulus to the opening of the pylorus, why does not the addition of free acid to the food open the pylorus and hasten the emptying of the stomach? How is the paradox to be explained? It is here that the reflexes from the duodenum must be considered.

In 1893 Hirsch[9] observed that the introduction of acid into the duodenum through a duodenal fistula inhibited for a time the passage of food by the opening. Serdju-

8. Pawlow: The Work of the Digestive Glands, English translation, London, 1902, p. 35.

9. Hirsch: Centralblatt für klin. Medicin, 1893, xiv, p. 73.

kow,[10] one of Pawlow's students, confirmed the work of Hirsch. It was impossible to tell by the methods these investigators employed whether the acid in the duodenum checked the gastric peristalsis, or compelled a prolonged contraction of the pyloric sphincter. Observations with the *x*-rays show that, although there is no cessation of gastric peristalsis after the advance of acid food into the duodenum, the pylorus does not for some moments relax. The duodenal reflex of Hirsch and Serdjukow must, therefore, affect the pyloric sphincter.

It is now possible to explain the slow passage of fats from the stomach. Fats are unlike either proteids or carbohydrates in that they are seldom eaten as a pure, or even predominant, foodstuff. When fats in almost pure form are fed to animals the gastric peristalsis is often observed to be slight, and, according to Pawlow, the flow of gastric juice is not stimulated. When fats enter the duodenum, however, they cause the same reflex that acid causes.[11] Thus, by a diminution of the influence opening the pylorus, and by a continuance of the influence closing it, the fats are long retained in the stomach, and only slowly passed along.

THEORY OF THE ACTION OF THE PYLORUS.

Evidence has been presented in the foregoing paragraphs which would explain the remarkable activities of the pylorus in the presence of food as largely due to chemical stimulation. The degree of contraction of the pyloric sphincter when at rest varies,[12] but the effect of particles of food in keeping the sphincter contracted[4] indicates that the mere mechanical presence of food in the stomach will produce a closure of the pylorus. After food has reached the stomach all evidence points to the probability that the signal for a movement onward into the intestine is the appearance of free acid. Free acid on the stomach side of the pylorus would thus be the stimulus to open the pylorus and initiate the chemical control of the sphincter. The opening of the pylorus permits the exit of a portion of the acid chyme. There is proof that acid in the duodenum closes the pylorus and keeps it closed. Thus the acid chyme would go forth from the stomach, and, with its acid, close the gate behind it. But acid in the duodenum is known to be the stimulus for the flow of the alkaline secretions of the pancreas.[13] No inorganic acid is normally present beyond the first few inches of the small intestine.[14] The acid, therefore, is here neutralized. As the neutralizing of the acid proceeds the stimulus to the closure of the pylorus is weakened, until the acid in the stomach can again open the pylorus. Again the food would pass out and the gate close till the duodenal changes finish their slower course.

Thus, automatically, carbohydrates, on which the stomach works no change, would go early and quickly into the intestine, where they meet their proper ferment; thus, automatically, proteids would be retained in the stomach to suffer alteration by the gastric juice, and only after such alteration be permitted to go on; thus, automatically, the intestine would be saved from oppression by overwhelming discharges from the gastric reservoir; and, by this same automatic mechanism, the gastric secretion, harmful to the action of the intestinal ferments, is rendered innocuous because of its admission, little by little, into the duodenum.

10. Serdjukow: Reviewed in Hermann's Jahrsbericht über die Fortschritte der Physiologie, 1899, viii, p. 214.
11. Lintwarew: Biochemisches Centralblatt, 1903, i, p. 96.
12. Oser: Zeitschift für klin. Medicin, 1892, xx, p. 285.
13. Dolinsky: Archives des sciences biologique de St. Pétersbourg, 1895, iii, p. 399.
14. Moore and Rockwood: Journal of Physiology, 1897, xxi, p. 373.

DISCUSSION.

DR. WINFIELD S. HALL, Chicago—I will note in a few words the relation between Dr. Cannon's findings and something that I have discovered in my experiments in dietetics in my department, namely: Patients with acute gastritis can take with comfort egg lemonade earlier than they can take any other form of food, and it is our custom to give that at the beginning of feeding after they have had the period of rest that Nature is calling for in an acute case of gastritis. The earliest food that we can give is very small doses of egg lemonade every two hours. Dr. Cannon's discoveries regarding the influence of acid make it evident that this egg lemonade, being in the condition of acid albumin and already half digested, passes readily right on through the stomach, without exciting or irritating it, and down into the duodenum, where its digestion is completed.

DR. CHARLES HARRINGTON, Boston—Did the gluten curve take that form on account of the presence of carbohydrates, which are commonly found in large amounts in commercial glutens?

DR. D. H. BERGEY, Philadelphia—How does Dr. Cannon account for the prolonged time of absorption from the stomach? Our usual idea has been, I think, that food passes from the stomach in a much shorter time than his curves indicate. Does he believe that the food really remains in the stomach for that length of time, or is it due to the shadows cast by the subnitrate of bismuth remaining on the mucous membrane?

DR. FENTON B. TURCK, Chicago—One interesting point that Dr. Cannon has brought out here is that the presence of acid or alkali does not materially influence the peristaltic motion and that the chemical composition of the food does not influence the motions of the stomach. The peristaltic waves he found extending over to the pylorus were independent of the character of the stomach contents. In this difference between starch and proteid, the more rapid passage of the starch was not due to increased peristaltic waves caused by carbohydrates, nor to lessened peristaltic waves influenced by diminished stimulatory action of the proteid on the muscle fibers of the gastric wall, but to difference in the opening or closure of the pylorus. This somewhat corresponds with my own observations, published last year, on the influence of various chemical bodies on the gastric mucosa. To the entire mucosa were applied various chemical bodies—acids, alkalies, varieties of food, such as bouillon, peptones, starch—and they did not seem to influence the peristaltic motions a particle; but as soon as tension was brought to bear on the muscle wall of the stomach by distending the stomach with air or water, introduced directly, or indirectly in a rubber bag inserted in the stomach, it promptly caused rhythmical contractions—peristaltic waves. The degree of tension or intermittent tension, within limits, increased these peristaltic waves proportionally. By prolonged and excessive tension, lasting several hours, the gastric muscle of the dog became fatigued and resulted in dilatation of the stomach. I also observed, as Dr. Cannon has done, the influence of acid on the mucosa of the stomach and duodenum, causing the opening and closing of the pyloric door; and this work that Dr. Cannon has brought out in another direction not only confirms my observation of the negative effect of chemical stimulation or excitation of stomach movements, but goes further and gives an explanation of the manner in which the pyloric door is opened. Does this, then, conflict with the popular theoretical idea that excessive acid in the stomach causes spasm and a closure of the pylorus, as is held by clinicians? I am impressed more with the physical and mechanical effect of the stomach contents in causing rhythmical contractions, which necessarily includes relaxation as well as contraction. The acidity may be an incident indirectly influencing the passage of food through the pylorus.

DR. CLAUDE A. SMITH, Atlanta, Ga.—Has Dr. Cannon made any observations on the effect of exercise on the passage of these different foods from the stomach?

DR. W. B. CANNON—In order to find the reason for gluten leaving the stomach early and in large amounts, just as carbohydrates do, I took equal amounts of gluten paste and of the proteid (meat proteid) which I had been using, and put into each the same amount of 0.4 per cent. hydrochloric acid. In about thirty minutes the free hydrochloric acid had entirely disappeared from the meat, but the free hydrochloric acid was still present in the gluten paste twenty hours after being introduced. Evidently this gluten does not readily unite with the acid; so that, if acid is poured out on the gluten in the stomach, free acid must be present immediately, just as it is in the case of carbohydrates. I used Dr. Johnson's gluten, and I understand that a large amount of starch is present in it. The figures I have presented do not show the amount of food in the stomach. The figures show the amount of food in the small intestine. The stomach may be empty while food is still present in the small intestine. It is true, as Dr. Turck has suggested, that I have seen no considerable variation in the peristalsis. Gastric peristalsis runs regularly from the beginning to the end of digestion unless stopped by emotional disturbances. I have not examined the effect of exercise, but one of my students is at the present time at work on the effect of exercise and other factors.

THE DIAGNOSIS OF ENLARGED BRONCHIAL LYMPH NODES.*

ALFRED FRIEDLANDER, M.D.,
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Among the phenomena of the developmental period of childhood, there is none more striking perhaps, than the activity for the lymphatic system. The lymph glands constitute an apparatus for filtration. Given the factors of rapid growth, on the one hand, and of poorly developed powers of resistance, on the other, and it can readily be seen that the period of childhood must necessarily be accompanied by marked reactive irritation and inflammation of the entire glandular system. During this period the mucous membranes are prone to irritation, with resulting inflammation. Added to this, there is the disposition, often hereditary, not infrequently aggravated by faulty conditions of development and hygiene, to chronic inflammation of mucous membrane, skin and bone. Under such conditions it is not surprising that the filter system should be taxed to its utmost capacity—hardly less astonishing that we should find very often, in the inability of this system to hold the various poisons localized—an avenue for general systemic infection.

From the nature of things we should expect to find inflammation of the tracheobronchial glands to be enormously common. The three groups of these glands—the tracheal, the tracheobronchial and the peribronchial intercommunicate freely. They receive the lymphatics of the trachea, the bronchi and the lungs and the pleuræ. But, more than this, through the deep lymphatics of the neck, lying both in front of and behind the carotid sheath, they are in direct communication with the cervical glands. Again, these glands are directly connected with the mesenteric lymph nodes.

It will thus be apparent that very many different factors and very diverse conditions may induce inflammation of these glands. Of these factors there are many that are particularly frequent in childhood. Diseases of the nasopharynx and irritation of the bronchial mucosa are excessively common. Indeed, if we consider the morbidity of but two diseases, which invariably cause a good deal of irritation of the bronchial mucosa and thus of the bronchial glands, namely, measles and pertussis, the frequency of the condition can not be doubted.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

SIMPLE ADENITIS.

Simple adenitis of these glands is very frequently only the precursor of the far more serious tubercular involvement. There is no need to quote many figures as to the frequency of such tubercular infection. As long ago as 1865 Steiner and Neuritter showed that in 302 autopsies in tuberculous children, the bronchial lymph nodes were affected 275 times (91 per cent.). And the oft-quoted figures of Northrup, who found the nodes tubercular in every case, in a series of 125 autopsies, irrespective of the cause of death, hardly need comment. It is not only true that tubercular bronchial adenitis is present in at least four-fifths of all cases of tuberculosis in children, but—and this is the more important—it is certain that in the majority of these cases, it is the primary lesion.

There can be no doubt that many cases of enlarged bronchial glands tend to recovery, without subsequent tubercular infection. The danger of such infection, however, is always present, and it is, after all, this factor which adds so greatly to the gravity of the condition.

If we consider that the morbidity of measles is probably greater than that of any other infectious disease; if we add to this the enormous frequency of pertussis, influenza and of such forms of irritation as adenoid vegetations, the statement that almost every child, at some time or other, exhibits a bronchial adenitis, does not seem exaggerated. Of course, in many cases, such a simple adenitis recedes with the disappearance of its cause. With the subsidence of the special infection, the strong and otherwise healthy child recovers, and is to all intents perfectly well again. Yet every adenitis of this sort is but a preparation of the soil whereon, under proper condition of diminished vitality and lowered bodily resistance, the ubiquitous tubercle bacillus may grow and flourish. And other things being equal, the longer such adenitis persists, the greater the danger of tubercular infiltration.

TUBERCULAR ADENITIS.

Yet, even though it be admitted that tubercular disease of these glands is enormously common, it is not to be forgotten that this form of tuberculosis—so long as it remains localized—is still decidedly amenable to treatment. Indeed, tuberculosis, in infancy and childhood, is essentially a disease of lymphatic structures. It may remain so localized for months and years, gradually progressing to other and more incurable forms. There is, it is true, the ever-present danger of general infection; and owing to the anatomic peculiarities, to the peculiarly intimate relation of these glands to other lymphatic systems, such infection is particularly apt to occur in the form under consideration, namely, enlargement of the bronchial glands. A recent writer insists on "the predominating influence of the tracheobronchial glands, as compared with any other lymph glands, in the origination of tubercular processes elsewhere in the body."

DIAGNOSIS OF ENLARGED BRONCHIAL GLANDS.

From the viewpoint of prophylaxis, as well as of direct therapy, it is thus very desirable that we should be able to make a definite diagnosis of enlargement

of these bronchial lymph nodes. Unfortunately, this is often quite impossible. Indeed, the view is not infrequently expressed by men of wide clinical experience that the diagnosis of enlarged bronchial glands *per se* can not be made during life.

Thus an observer as keen as Henoch doubts whether the diagnosis can be made "in the great majority" of cases. And he adds that, at autopsy, he frequently found voluminous pockets of caseous bronchial glands whose existence could not have been inferred from a single symptom during life. It must be remembered, however, that this was written fourteen years ago.

Yet there are several symptoms—in some cases even definite physical signs—whose presence justifies the making of a diagnosis on the grounds of probability, and this is a condition where we must often rest content with such a diagnosis, where, to use the apt phrase of a well-known Vienna clinician, we must be satisfied with a diagnosis made not with mathematical certainty, but on overwhelming probability. Even admitting the necessary uncertainty of diagnosis, it is worth while to study the condition most carefully. For, on the one hand, we have indisputable evidence of the postmortem table as to the enormous frequency of the condition, and, on the other, there is hardly a phase of the whole question of tuberculosis in childhood where therapeutic inquiry offers more favorable promise.

SYMPTOMS AND PHYSICAL SIGNS.

One of the early symptoms suggestive of enlarged bronchial glands is a peculiar paroxysmal cough. This cough resembles that of pertussis, except that there is no growing inspiration. The paroxysms, often very violent and exhausting, may end in vomiting. The attacks are usually more frequent at night; indeed, there are often nocturnal attacks closely simulating asthma. The sleep is in consequence often restless.

Dyspnea on even slight exertion without demonstrable cardiac lesion, is frequently present. The appetite is capricious, the child is not well nourished and usually anemic, and anemia in children without demonstrable cause is always suspicious. There may or may not be slight afternoon rise of temperature. Hoarseness more or less constant is often noted. The listlessness of the child is often one of the early symptoms noted by the parents.

Physical examination is usually absolutely negative at this time. This symptom-complex is often seen after an attack of measles or whooping-cough, not rarely after influenza, especially in so-called delicate children. It will be remembered that there has been described a pseudopertussis (or pertussoid) after influenza. It is certainly questionable whether this is in reality anything more than an acute condition of enlarged bronchial glands. Very often, however, the symptoms develop gradually, with remissions and exacerbations, but always without demonstrable physical signs until the process is well advanced.

Broadly stated, the physical signs of enlarged bronchial lymph nodes are always those of compression. The bifurcation of the trachea is found opposite the fifth dorsal vertebra posteriorly, and behind the lower end of the manubrium sterni anteriorly. The tracheobronchial glands are thus inclosed within the comparatively unyielding thorax, and in its narrowest part. In the anterior plane of this upper mediastinal space lie the vena cava superior, the innominate veins, the aorta and its branches and the pulmonary arteries and veins.

In the posterior plane are the trachea, esophagus, pneumogastric and recurrent laryngeal nerves and the branches of the sympathetic system. The lymph nodes thus lie in most intimate relation to trachea, bronchi, lungs, vessels and nerves and their enlargement may therefore give rise to a great variety of pressure phenomena. At the same time, it is not to be forgotten that these glands may at times attain enormous size without the production of either symptoms or signs to permit of a definite recognition of the abnormality. With this reservation, we, however, still note certain signs whose presence is at least always suggestive.

Inasmuch as there is direct connection between the tracheobronchial glands and the cervical glands, we should expect to find some enlargement of the latter in disease of the former. As a matter of fact, a certain type of cervical adenitis is suspicious. Whenever we find that the supraclavicular glands are larger than the cervical glands higher up (without local cause for such inflammation), we have a diagnostic point of importance. Naturally, when the tracheobronchial glands are primarily affected, the intensity of the adenitis in the neighboring lymphatics is greatest in the ganglia nearest the tracheobronchial nodes themselves. The cervical nodes higher up in the neck show less involvement than those nearer the sternum. In line with this is Hoffman's observation, that in these cases enlarged lymph nodes may often be felt in the jugular region if the head be bent forward.

Percussion.—There is much diversity of opinion with reference to the value of the percussion find in these cases. There appears to be a consensus of opinion, however, that dullness on percussion over the sternum, behind the manubrium and the upper part of the gladiolus and extending laterally on either side of the bone, is a sign of value. It is true that in cases of persistent or enlarged thymus there may be dullness over the sternum. But this dullness does not extend, as a rule, beyond the margins of the bone laterally. Unfortunately, on account of the covering lungs, with a resonant percussion note, dullness is not always easy to elicit, even where the glands are distinctly enlarged. Some authorities insist that an interscapular dullness may be made out in these cases, by careful percussion. But the amount of overlying lung tissue is, of course, even greater here than in front, so that absence of dullness on percussion here could not negate the diagnosis. Hoffman, who rather doubts the diagnosis by percussion front or back, insists that by palpatory percussion one may feel the increased resistance. But, as Hall points out, more depends on the size of the mass of the diseased glands than on all other factors in their detection by percussion.

Auscultation.—Auscultation often gives valuable information. Voelker calls attention to the value of unilateral alteration in the breath sounds. In children, of course, the respiratory murmur in the interscapular region may be very greatly exaggerated, especially, owing to the anatomic relations, on the right side. Roughened breathing on the right side must, therefore, be taken cautiously. Nevertheless, Widerhofer emphasizes the importance of any great increase in the difference between the two sides. Bronchovesicular breathing on the left side, with prolonged and very harsh expiration, is always suggestive. With extreme compression of one of the primary bronchi the respiratory murmur may be much diminished or quite inaudible on the affected side.

Marfan mentions the presence of bronchial breathing on the affected side between the spine and angle of the scapula, when the glands surround a bronchus. Wilson finds moist râles and bronchial breathing, the latter being heard further from the root of the lung, the more the glands are diseased. Rilliett and Barthez call attention to the fact that these enlarged glands may at times conduct the tubular breathing to the surface even though there be no consolidation of the intervening lung.

It will be apparent, from the very diversity of opinion as to the percussive and auscultatory phenomena in these cases, that the physical signs are not definitely fixed, so that the diagnosis is often very hard to establish, even in the presence of distinctly suggestive symptoms.

Long ago Eustace Smith noted that if a child with enlarged bronchial nodes bends the head back, so that the eyes look to the ceiling, a venous hum of varying intensity is heard over the manubrium. This murmur gradually disappears as the chin is depressed, being lost before the head returns to the normal position. This murmur is due to the compression of the left innominate vein, between the enlarged glands and the sternum. It can never be produced by an enlarged thymus, because this gland lies in front of the great vessels. Later observation has shown, however, that such a venous hum is heard in some children without any other evidence of disease of the bronchial glands. Moreover, the sign can not be elicited if the gland be bound down by adhesions.

Of course, in very advanced stages of glandular enlargement, other pressure effects may make themselves manifest. Marked distension of the cervical veins, edema of the face, atelectasis of one lung with consequent dilation of the right heart, and all its sequelæ, may occur. Hoarseness or complete aphonia, due to pressure on the recurrent laryngeal nerve, may often be noted. The caseous glands may ulcerate into the surrounding structures, pleura, pericardium, esophagus, or—most often—into the trachea. Cases of gradual asphyxia from the latter cause are common. But in these advanced cases the tuberculous process is usually not limited to the glands proper and the signs and symptoms then present are those of some more generalized form of tuberculosis.

It is clear that often the diagnosis of this most common affection is perforce only a presumptive one. It is certainly desirable that if possible more definite signs be found looking to the diagnosis—at least, on the score of probability in the earlier stages. The desideratum, indeed, would be to find such signs before the stage of very pronounced compression signs, because the results of treatment are naturally best in the incipient cases, certainly in the stages preceding tubercular caseation.

For the past few years, I have been making systematic blood examinations, in a series of cases of this sort. As is well known, enlargement of the bronchial glands is a constant concomitant of pertussis. Guêneau de Mussy even went so far as to advance the hypothesis that whooping cough was due to a specific inflammation of the tracheobronchial glands. In 1898, Meunier reported studies of the blood in 102 cases of whooping cough. He found, as an early and constant factor, lymphocytosis. No matter what the absolute number of whites was—and the white count often ran very high—the lymphocytes were found to be relatively as well as absolutely increased. His observations have been repeatedly confirmed.

Another disease in which enlargement of the bronchial glands is very common is measles. Here there is ordinarily no leucocytosis—in fact often a leucopenia—during the eruptive stage. Later on, in convalescence, there is a constant lymphocytosis. Taken together, these facts are at least significant. In two diseases, both of which have the factor of enlarged bronchial glands in common, the blood is identical in one respect, there is lymphocytosis in both cases. It seemed possible that the lymphocytosis might be brought into relation with the enlarged bronchial glands. Indeed Cabot suggests this explicitly for pertussis, where he says we have "a lymphocytosis due perhaps to stimulation of the bronchial lymph glands."

In any study of blood conditions in childhood, there is one factor which may not be forgotten. And it is this, that the usual type, at this period of life differs very materially from that seen in adult life. Taking merely the question of the relative proportions of the different varieties of white cells, it is to be noted that the percentage of lymphocytes is always higher in early childhood. To a degree, indeed, the differential blood count affords some index as to the development of the child. Thus under certain circumstances, the blood shows a marked tendency to recur to the infantile type, where the lymphocytosis is normally highest. Various acute conditions may also produce a lymphocytosis—abnormal for the special time of life of the child. As Cabot says, "A child of 3, convalescent from a summer diarrhea, may have 50-60 per cent. of lymphocytes—which would be normal for an infant of a few weeks—but for 3 years old is very high." Again it is well known that in certain conditions, such as chlorosis, there is a false lymphocytosis due to absolute decrease of the number of neutrophile cells. In such cases, however, the total number of white cells shows a distinct reduction—there is a true leucopenia.

The number of cases of enlarged bronchial glands, in which I have been able to make systematic examinations of the blood, is too small to permit the deduction of any absolute conclusions. Nevertheless it is noteworthy that every case studied showed a constant lymphocytosis. Thus in one child, a girl of seven, the differential count, made in October, 1903, when the clinical picture of enlarged bronchial glands was very clear, gave the following results:

	Per Cent.
Small lymphocytes	64.4
Large mononuclears	0.4
Polymorphonuclears	32.0
Eosinophiles	2.8

Under treatment this child's condition has improved very decidedly. The cough is not nearly so severe. There has been a gain in weight of seven pounds. Slight dullness still persists in the interscapular space. A recent count gave the following figures:

	Per Cent.
Small lymphocytes	48.8
Large mononuclears	5.6
Polymorphonuclears	44.6
Eosinophiles	0.8

In other words commensurate with the general improvement, there is the change in the blood find.

In another case, a boy of 9, lymphocytosis originally ran up to nearly 60 per cent.—at a time when the picture of the tracheobronchial adenopathy was distinct. Seven months later, when all the symptoms had disappeared, a differential count had the following result:

	Per Cent.
Small lymphocytes	33.2
Large mononuclears	12.4
Polymorphonuclears	43.6
Eosinophiles	16.6

The percentage of lymphocytes is here practically normal, although the eosinophile count is very high—without new demonstrable cause for the eosinophilia. Indeed a subsequent count showed normal proportions of eosinophiles. Without exception, in all of the cases studied, there has been the distinct picture of lymphocytosis—usually very well marked—when the clinical condition allowed a diagnosis of enlarged bronchial glands to be made.

In this connection it may be permissible to refer to the figures of a count, previously reported, of a case of so-called pertussoid, following influenza, in an infant of 8 months. In this case the percentage of lymphocytes was 69.6 per cent. the polymorphonuclears numbering only 30 per cent of the whites. A certain degree of lymphocytosis is, of course, to be expected in infancy, but figures reported in this case are certainly suggestive.

The number of cases studied (10) is not large enough to warrant the drawing of any absolute conclusions. Nevertheless, the fact that each of these cases showed a lymphocytosis, stands out prominently. And its significance is enhanced by the fact that in the cases which could be followed up, the lymphocytosis disappeared, to a degree, with the subsidence of the symptoms.

It is indeed not unreasonable to expect that, where there is marked irritation or inflammation of the lymph glands—we should see a reactive lymphocytosis. The best illustration of this we see in lymphatic leukemia. But this is not an isolated example. Thus in typhoid there is relative lymphocytosis, and as we know, marked inflammation of the mesenteric lymph glands. Again, in the early stages of syphilis, with acute adenitis, lymphocytosis is the rule. On the other hand, we know that all forms of adenitis are not accompanied by lymphocytosis. In Hodgkin's disease, for instance, lymphocytosis is only occasionally found. So, too, in the adenitis accompanying malignant disease there is ordinarily no lymphocytosis.

With reference to the blood find in general tuberculosis it may be said that, except for a reduction in hemoglobin, there are no important blood changes—unless there be secondary infection. As Cabot says, "whether or not tuberculosis of the abdominal or other internal lymph glands affects the blood, I am unable to say."

CONCLUSIONS.

In the absence of more extended series of observations than the present one, too much theorizing is certainly out of place. Yet it seems fair to emphasize the fact that in two diseases where we know clinically that a tracheobronchial adenitis exists, namely, pertussis and measles, there is a constant lymphocytosis. And in the 10 cases of enlarged bronchial glands studied, lymphocytosis was found in every case. In the light of these cases it seems fair to assume that the lymphocytosis of pertussis and measles is to be explained by the irritation of the tracheobronchial gland.

If after further investigation and after study of a much larger series of cases, the observation of constant lymphocytosis be confirmed, we shall have an additional sign—and I believe a valuable one—looking to the more definite diagnosis, and, therefore, to the more successful treatment of the condition of enlarged bronchial glands.

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DISCUSSION.

DR. R. B. GILBERT, Louisville, considers that the situation of these bronchial glands at the bifurcation, and against the posterior wall of the trachea, renders them, when they are enlarged, a potent source of irritation. They are enlarged more or less in every case of bronchopneumonia, and especially in measles. The method followed by Dr. Gilbert in cases of persistent cough following measles, and which ordinary cough remedies fail to relieve, is to give full doses of potassium iodid, and if the cough is due to the irritation caused by enlarged bronchial lymph nodes, it will frequently be rapidly relieved by the administration of this remedy. These conditions are most likely to be met in persons with a syphilitic or scrofulo-tubercular diathesis.

DR. GEORGE N. JACK, Depew, N. Y., said that it seems strange to him that such an ancient disease as asthma, as well as other common respiratory conditions, should be attributed to a spasmodic contraction of the air tubes, as the anatomist has clearly demonstrated that it is absolutely impossible for one of these tubes to contract. Therefore, the condition must be due to direct obstruction. The bronchial lymphatic glands are the dumping grounds of the blood. The blood passes through them and rids itself of its impurities. If, then, the blood is loaded with waste and useless material while in the lungs for oxygenation and purification, it will naturally deposit as much as possible of this useless substance in the bronchial lymphatic glands. The blood, stool, urine and clinical history of the patient must be our chief guides in diagnosis.

DR. THERON W. KILMER, New York City, is of the opinion that the bridge of tissue sometimes formed after the removal of adenoids as the result of adhesions, and which gives the same symptoms as the adenoids themselves, should be broken down with the finger, a month after the adenectomy. He has never observed pseudo-pertussis or pertussoid forms of cough and is inclined to look on them as myths. He has never found bronchial lymph nodes during life. Even if the diagnosis is made, he knows of no efficacious treatment to promote their reduction.

DR. LOUIS J. LAUTENBACH, Philadelphia, emphasized the fact that peculiar malformations of the bony structure of the palate are often associated with these obstructions in the posterior nares. This peculiar condition of the bony structure may escape attention unless it is looked for. He also referred to the frequent occurrence of deafness resulting from nasal disease, catarrhal deafness being practically always so caused. In cases where adenoids are said to recur after removal it is often not a true recurrence, but a new growth brought about by the same underlying conditions which produced the first enlargement.

DR. ALFRED FRIEDLANDER said that it is perhaps going a little too far to assert that the coughs Dr. Gilbert referred to are always due to adenoids. He has seen many improve without removal of the adenoids, and thinks that when there is tracheobronchial adenitis a primary localized tuberculosis is present and it is surprising that more of these cases do not develop a generalized tuberculosis. He considered it our duty to treat these cases precisely as we would treat a localized tuberculosis elsewhere. Even when there is only a suspicion of such a condition, the patient should be given the benefit of the doubt and treated accordingly. The importance of removing adenoids in children is appreciated, but too much stress should not be laid on this one factor alone. It has become the rule to ascribe all the ills of children to adenoids, but it is a fair assumption that sometimes the illnesses are not due to this condition.

Domestic Opium.—In his annual report Secretary Wilson of the Department of Agriculture states that opium poppies have been grown successfully in Vermont, both the white-seeded and the blue-seeded varieties yielding good crops. Experiments are now being carried on to ascertain the possibility of obtaining morphin directly from the plant. If the experiments prove successful, the American product may replace the oriental opium as a source of morphin.

THE IMPORTANCE OF AN EARLY AURAL EXAMINATION IN ACUTE DISEASES OF CHILDREN.*

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The prominence of aural disease has been brought very frequently before the profession for the past decade; but I know of nothing in aural disease of children of greater importance than an early recognition and treatment of some of the conditions I shall enumerate.

It is more particularly to call your attention to certain forms of aural disease, especially in children, not easily recognized by the pediatrist or general practitioner, and therefore all the more important, or if recognized, usually too late to be of value from a prophylactic standpoint, that this paper is written.

You are all familiar with the complications frequently accompanying the acute exanthemata, but usually your first intimation of an aural condition is to have the little patient complain of earache, or if it be a young infant, you expect him to pull or tug at the affected ear, and cry out with pain, thus drawing your attention to the local condition. That such manifestations do take place in a certain number of cases, there can be no gainsaying; but this number is small in comparison with the number of cases that never complain, nor give the slightest evidence of any ear trouble being present until a discharge is noticed coming from the external auditory canal.

It is of these cases that I wish to speak more in detail, and of how important it is that frequent otoscopic examinations be made that we may early recognize and treat any pathologic conditions found, and thus prevent the patient from undergoing a long and dangerous sickness that might be caused directly or indirectly by such an aural condition.

TECHNIC OF EXAMINATION.

Otoscopic examination in very young children is by no means an easy matter to those not constantly practicing it; in the first place, the specula used are too large; secondly, the auricle is drawn upward, backward and outward, and in this way the major portion of the lumen of the canal is shut off from our view—whereas if we draw the auricle gently downward and backward, we open the canal and expose to view the deeper structures.

Then, too, we will oftentimes find the circumference of the meatus lined with cerumen, and if we attempt to force the speculum beyond this, we not only hurt the patient, but our view is obstructed by a speculum, the distal end of which is filled with wax. In these cases it is always well to syringe the canal with warm, sterile water, and remove the obstructing cerumen before we attempt a further examination.

CONDITIONS OF TYMPANIC MEMBRANE.

In many cases, on inspecting the drum membrane, when middle ear disease is suspected, we see a white, rather prominent looking drum, showing not the slightest vestige of congestion, but if we here bring to our aid a cotton tipped probe, and gently brush the surface of the drum membrane with it, the white looking drum will be replaced by a bulging, reddened and angry looking surface, which shows the true condition of the middle ear. The pressure behind the drum having been so great as to cause a rapid exfoliation of the external epithelial layer; and this on inspection can easily be mistaken for a drum membrane free from involvement.

Such an error is made again and again, and then when pus suddenly appears in the canal a few hours after the examination, the observer is surprised at such a rapid infection, and wonders how so large an accumulation of fluid or pus can form in such a short time, when in reality it was present all the time.

Another picture, the otoscope examination reveals in cases complicating the exanthemata, is that of the upper half of the drum membrane looking normal save for a slight tinge of congestion along the superior border of Shrapnell's membrane, while the lower half, and particularly that portion of the drum corresponding to the tubal opening in the middle ear looks lustreless; and has a grayish, mottled appearance. This shows that already the mucous membrane of the tube and that portion around the tubal entrance is swollen and pouring forth a serous exudate which demands an immediate evacuation through an opening in the drum if we wish to cut short the process, and prevent the disease from attacking structures higher up.

Another picture frequently seen, and when present usually accompanied by severe earache, is that of a drum membrane showing decided congestion of the whole upper third; the lower two-thirds retaining its lustre; neither bulging nor fullness is present, but the superior and posterior portion of the membranous canal is intensely reddened; the excessive pain being no doubt due to the involvement of this connective tissue fold in the membranous canal.

Here early incision is advisable, even before bulging takes place in order that we may prevent extensive attic involvement.

AURAL COMPLICATIONS OF THE EXANTHEMATA.

In young children suffering from the acute exanthemata, it is, I believe, just as important that their ears should be examined each day, as it is that they should be seen for their general condition, for, after all, the mortality is quite as large in these diseases from the aural complications as from any other; and many of the cases of deaf mutes, as well as the legion of chronic purulent ears with their sequelæ might be avoided if in the future this precaution were taken. The usual time for an aural condition to develop, complicating these acute diseases, is any time after the third day, and it is all the more important that these aural examinations be made frequently, for in a large number of the cases, there is no symptom pointing to an aural condition until after the damage has occurred, namely, a spontaneous rupture with destruction of a portion of the drum membrane, which might easily have been avoided, had otoscopy been practiced frequently.

When the general practitioner or pediatrist is treating any of the acute inflammatory diseases, and the disease is subsiding, and the existing temperature is high and out of all proportion to that stage of the disease, it is wise to perform otoscopy, as in many of these cases here will be found the cause of the temperature, and a speedy relief from anxiety will follow as the fever drops when the ear is appropriately treated.

AURAL COMPLICATIONS IN OTHER DISEASES.

Gastrointestinal Diseases.—This condition occurs frequently in diseases other than the exanthemata; as for example, complicating an acute gastrointestinal condition, where the local symptoms are fast disappearing and yet the child is fretful, uneasy, and the temperature remains high. All other conditions excluded, if the ears

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are examined quite frequently, the cause for the child's latent symptoms is found here. Again, take a patient convalescing from pneumonia or the "grippe," when the temperature varies and remains high, and the physician for several days can not locate the cause of the existing fever, but thinks it is a latent "grippe" or an incomplete or delayed resolution, or that that much maligned disease, malaria, is at work on the patient's system again —if when such conditions present themselves, the ears be examined carefully many times, here will be found the cause of the disturbance, when, before examination, it was not even suspected.

Follicular Tonsillitis.—It is also advisable that frequent examinations of the ear be practiced during an attack of acute follicular tonsillitis, though here pain is usually a prominent symptom in children owing to the fact that there is usually lymphoid hypertrophy present in the naso-pharynx, and the swelling existing here causes pressure on the eustachian tubes, and the pain is at once referred to the ear.

A prophylactic measure of the greatest importance in young children, is to see that all adenoid tissue be removed before the winter months, as the presence of this tissue is very often the exciting cause of an acute middle ear suppuration, and very frequently such a suppuration will not cease until the exciting cause, namely, the adenoids, has been removed. It is then often astonishing to see how rapidly resolution will take place without any local treatment whatever directed to the ear, after this source of irritation has been removed; or if it does not clear up quickly the treatment necessary to bring about a favorable result will occupy a much shorter period of time.

Hypertrophied Tonsils.—Hypertrophied tonsils should also be sacrificed when there is a history of frequent attacks of ear trouble in children, as enlargement in this region causes engorgement around the orifice of the eustachian tubes, and this is an exciting factor, even though somewhat remote from the seat of the disease.

Coryza.—Another condition in children requiring otoscopic examination is when an acute coryza is present, for here, with the frequent and forcible blowing of the nose, bacteria-laden mucus is often forced into the opening of the tube, with the result that an acute condition of the middle ear is speedily established, and frequent examinations reveal to us the disease in its very earliest stages, thus enabling us to check the process without impairment of audition or any of the unpleasant sequelæ coincident with middle ear suppuration.

Nasopharyngeal Catarrh.—In many cases of mild nasopharyngeal catarrh, where all the symptoms are practically absent, save temperature, if the ear be examined here will be found the cause of this temperature, for otoscopy will show us acute middle ear changes taking place and this condition is not infrequently found where no adjacent local manifestations are present, not even a simple cold.

Typhoid.—Another disease, and one often overlooked, where otoscopic examinations are necessary, is typhoid fever; for here the aural complications when they do exist, if overlooked, leave the audition permanently impaired. There is rarely a symptom present in this disease to call one's attention to the ear, and many a case of labyrinthine disease owes its origin to an attack of typhoid fever.

Mastoiditis.—One of the complications of acute middle ear suppuration in young children, mastoiditis, may, I think, be appropriately mentioned here, as in the minds of many practitioners, such a complication does not exist unless the ear is found to be displaced forward, and a swelling of more or less magnitude, with edema, is found over the mastoid.

Given a case of acute middle ear suppuration following any one of the many diseases which it may complicate, and this disease having subsided, we have a running ear to treat, with one other symptom present, namely, temperature. This temperature is usually not high, but varies from 99 to 100.5, continuing for several days with morning remissions and evening exacerbations, without any apparent change in the character of the secretion coming from the ear, except a slight diminution in quantity. We find also on cleansing the external auditory canal, and wiping away the secretion from the point of perforation in the drum membrane that pus oozes through this opening drop by drop as we wipe it away. In such a condition as this, delay is extremely dangerous, for there is already an infiltration of pus throughout the mastoid structure and an operation for mastoiditis here is imperative, for if allowed to progress, in a few days the case will present the gross physical signs described above.

It is very difficult, and frequently impossible, to elicit the slightest evidence of pain in young children when we press on the mastoid process, even though the mastoid be filled with pus, for these little patients will scream quite as much when the normal side is being examined, as they do when the diseased side is gone over; and if one waits for the appearance of edema over the mastoid, as an indication for operation in these young children, he is increasing the danger tenfold by inviting one or more of the complications to take place.

Another fallacy in connection with this phase of aural complications, is, that when a swelling takes place behind the ear in young children, and there is a subperiosteal accumulation of pus present, that it is quite sufficient to make an incision, the so-called Wilde's, in the soft parts over the swelling, evacuate the pus, pack it, and believe nature will do the rest. A condition like this treated in such a way almost invariably leads the patient into danger from the complications arising thereafter, to say nothing of the permanent impairment of the hearing, for a chronic aural discharge will be the result of such treatment.

Abundant clinical evidence has been brought to bear on this point, from all modern otologists, and the importance of opening the mastoid, and draining the middle ear in these cases has, in my experience, been amply demonstrated during the past two years. In a large hospital service, 57 cases of subperiosteal abscess were present in young children ranging from 5 weeks to 6½ years of age; in all of these the mastoid was opened and the middle ear drained posteriorly, and 56 of the mastoids contained pus. In the one in which pus was not present, granulation tissue was found throughout, and the structure was just on the point of breaking down.

In these cases do not be content with a simple incision and evacuation, for if this only be done a dangerous legacy is left these little patients, and one to which unfortunately, all too many succumb. Even though in many cases the external evidences have disappeared, the ear still continues to discharge, because it has not been properly drained, and this discharge is the result of the mastoid necrosis, which is still progressing, and sooner or later he who is treating such a case is brought to face a still more serious condition, namely, that of one or more of the frequent intracranial complications of otitic origin.

Another serious complication of acute aural suppuration which is by no means infrequent in young children, is that of a primary involvement of the jugular bulb, without disease of any of the mastoid structure. Here the principal symptom is mainly one of temperature, which ranges all the way from normal to 107 F. The rises are rapid and the remissions to normal or near it, quite as abrupt. In adults, we usually associate such a condition with more or less well defined symptoms, the principal one, aside from the temperature, being the presence of a chill or chilly sensation. In young children, we hardly ever observe this symptom, but in the place of it the little patients have cold hands and feet preceding the rise in temperature. These with a discharging ear may be the only symptoms present for several days, until the child gradually becomes septic. When the observer suddenly awakens to this fact, it is usually too late to save the life of his patient.

The question may be asked, "How can a primary involvment of the jugular bulb take place, without first involving the mastoid structure?"

It can take place very easily under the following conditions:

With an active, virulent infection of the middle ear cavity, and the presence of a large irregularly shaped bulb encroaching on it, and these two spaces separated by only a thin, parchment-like wall of bone, it becomes a very easy matter for the infection to pass through this thin plate of bone, and poison the blood current, before such infection would have time to travel its usual pathway, namely: Through the mastoid structure. That such a complication is not infrequent, can be readily comprehended, when in my experience alone, five such cases have been encountered during the past six months. The successful treatment of this condition is an early operative procedure.

Eczema of the External Auditory Canal.—Another condition where an otoscopic examination is indicated is where we find an eczema present of the external auditory canal and meatus, and sometimes extending over nearly the whole auricle, and down the side of the face. This condition is caused in nearly all the cases by a scanty serous discharge coming from the middle ear, and this moisture lies in the canal until an exfoliation of the superficial epithelial layer takes place, and the little patient's first symptom is an intense itching at the meatus, accompanied by a very natural desire to scratch, which is indulged in with the result that in a very short space of time, a well-developed eczematous area is present. Even though this complication be treated faithfully and conscientiously, it will recur from time to time, because the etiologic factor in its production has not been discovered, namely, the scanty acrid discharge from the middle ear. Had an examination of the ear been made on the appearance of the eczema, these little sufferers might have been spared weeks of pain and annoyance, instead of enduring the torture they are allowed to undergo.

A rather infrequent complication of this eczematous state in young children is the appearance of a diffuse circumscribed external otitis or furuncle, caused by scratching the meatus. When this condition is present and well developed, it many times is mistaken for mastoiditis, owing to the large amount of swelling which is present over and around the mastoid process. An aural examination will always clear this up and the true cause be discovered in the external auditory canal and meatus.

CONCLUSION.

I would in no sense be understood as always advocating the calling in of an aurist for the making of these frequent examinations, but in each case, when the general practitioner or specialist in children's diseases is first called to examine the case, the physical examination is an incomplete one unless the ears are included. It is a simple matter for those not accustomed to perform otoscopy, by a little practice, to be able to do it well enough for all practical purposes.

To the general practitioner of the future will belong the credit of a decrease in the number of cases of chronic purulent ear disease with their sequelæ, for if recognized and treated early, an acute condition need never reach the chronic stage. If, however, a chronic ear disease be encountered, no time should be lost in an attempt to rectify the pathologic condition, so that the patient may retain his audition; and also to prevent the possibility of an intracranial condition occurring later.

62 West Fifty-second Street.

DISCUSSION.

DR. HERMAN JARECKY, New York City, stated that the routine examination of every child suffering from an acute condition should always include a careful inspection of the ear. Recently Dr. Kerley was called to see a child that was being treated for empyema. On examination, Dr. Kerley found that the case was one of acute middle ear disease. Dr. Jarecky saw the patient on the following day and did a paracentesis: the temperature dropped to normal and all the symptoms of the supposed empyema disappeared. Dr. Jarecky said that, in the adult, a view of the drum membrane is obtained by pulling the auricle upward and backward, in infants it must be drawn downward and backward, and in older children simply backward.

Acute middle ear disease during the acute exanthemata is particularly liable to affect children who are suffering from adenoids, because the drainage is imperfect. In typhoid fever the ear complication is probably frequently overlooked on account of the general apathetic condition. In every case in which the ears are involved with bulging of the drum membrane, paracentesis should be done without delay. The simple operation can be done by the general practitioner as well as by the specialist. The ear should be properly irrigated with bichlorid solution or peroxid, and the drum membrane incised. In cases in which the posterior part of the wall is involved, we should not wait for bulging before incising the drum membrane.

DR. SAMUEL J. WALKER, Chicago, emphasized the necessity for examination of the ear in acute infectious diseases in children, and that middle ear disease may simulate almost any disease of childhood, such as meningitis, typhoid fever or pneumonia. He was called recently to see a child three years of age that was seemingly very ill. The child's father was a physician and had made a diagnosis of probable pneumonia. The patient was carefully examined, but Dr. Walker was unable to find any objective sign of pneumonia. On the following day the child's father was inclined to believe that the case was one of typhoid fever, but this diagnosis was practically excluded by the result of a blood count, which showed a leucocytosis of 28,000. On this second day the chest finding was still negative, so that pneumonia could probably be excluded. An ear specialist was called in, examined both ears, and pronounced them practically normal. The child, however, continued to show severe symptoms of acute infection. On the third day the ear man again saw the patient. At this time he found some redness and bulging of the membrane in both ears. Paracentesis was performed and there was a free discharge of pus followed by a rapid subsidence of all symptoms.

DR. SAMUEL MCC. HAMILL, Philadelphia, said that in his wards at the hospital, three out of seven cases of typhoid fever developed a complicating otitis media. In the majority

of instances of this kind that he has seen the diagnosis was not made until the drum membrane had ruptured spontaneously. Most of these cases were in children, and in the majority of instances with which he has come in contact the complication has occurred almost at the point of defervescence in the course of the typhoid fever.

DR. THERON W. KILMER, New York City, asked Dr. McKernon if he advocates paracentesis in every case of bulging of the drum. Dr. Kilmer has seen the inflammation disappear in these cases under the use of douches of hot boracic acid solution, and without incision.

DR. LOUIS FISCHER, New York City, has found the temperature in suppurative conditions of the middle ear a rather uncertain guide. A child with scarlet fever, while progressing satisfactorily, is suddenly "restless during the night:" the temperature is 99; pulse, 120. The next day there is a discharge from the ear. Excluding the restlessness there is sometimes no indication of a suppurative process going on. He has come to look on the temperature as a not very positive symptom in acute suppurative otitis, especially during the infectious diseases. Many cases of suppuration of the middle ear are the result of mechanical infection through the nose and eustachian tubes by irrigation, etc. He believes that if we leave the nose alone, and do not irrigate, as is so frequently done in the acute infectious diseases, there will be fewer cases of acute otitis media.

DR. S. W. S. TOMS, Nyack, N. Y., emphasized the possibility of nasal cleansing setting up middle ear disease. About two years ago he saw a child with a purulent rhinitis, and made an effort to cleanse the nose by irrigations. The following morning the child developed a temperature of 104, and he found the left ear drum bulging. The temperature rose to 107 within three hours, and the child was in a desperate condition, the pulse being 186 and the respirations 84. An aural specialist was called in, who incised the left ear drum, evacuating no pus, but some bloody serum. The drum of the opposite ear was apparently perfectly normal. The child's general condition decidedly improved after the paracentesis, but the temperature did not drop more than one degree. The respirations and pulse also remained high. Dr. Toms frequently examined the right ear drum during the night, and the next morning found that it distinctly bulged. The otologist was again sent for and incised the membrane, evacuating a little bloody serum. Within three hours after this second paracentesis the temperature dropped to 100, and the child's further recovery was uneventful. Since this case, Dr. Toms has carried a head-mirror and speculum with him, and to examine the ears as a routine measure in case of acute disease in a child.

DR. THOMAS S. SOUTHWORTH, New York City, said that in the acute infectious diseases, a number of patients will develop middle ear trouble, whether the nose is irrigated or not. He thinks that if the irrigation is done carefully and as much as possible of the septic material in the naso-pharynx is removed, the number of cases of complicating ear disease will be decreased rather than increased. The aurist sees only the irrigated cases which develop otitis, but he does not see the larger number saved from otitis by irrigation. Of course, the irrigations should be made very gently, preferably by fluid poured into the nose from a spoon.

DR. F. L. SMITH, Bridgeport, Conn., said that it has often been very difficult for him to decide just what to do and when to operate. Not long ago he saw a patient who complained of an earache. He examined the drum membrane, and from its appearance did not suspect any serious middle ear trouble. During the night the drum ruptured spontaneously, and there was a purulent discharge from the ear.

DR. CHARLES G. KERLEY, New York City, said that he gave his experience with 51 cases in a paper at the recent meeting of the American Pediatric Society in Detroit. In 34 there was no pain nor other local manifestation of ear involvement. The only symptom indicating the middle ear as the seat of the trouble was the elevation of temperature. In the treatment of children it is just as important to make a careful examination of the ear as of the heart or lungs.

Dr. J. F. McKernon agreed with Dr. Walker that middle ear disease may simulate almost any disease in the category. In typhoid fever the ear symptoms are most commonly observed during the stage of defervescence. If typhoid patients could have the ears examined systematically after the first week, Dr. McKernon believes that we could often prevent serious middle ear trouble, with resulting labyrinthine disease, and the dry catarrhal form, in which the prognosis is so absolutely bad as a sequela of typhoid fever.

Dr. McKernon said that he would incise the drum membrane in every case if it were bulging, and in a certain number of cases he would even make the incision when the bulging was absent, depending on the physical signs and symptoms presenting. He disagreed with Dr. Fischer in regard to the temperature in middle ear disease. There are a certain number of cases where there is no temperature at the time we see the patients; these patients may have had a temperature before we saw them, or may be patients who are more or less resistant to temperature changes, but in the vast majority of cases the temperature is one of the predominating features throughout. In streptococcus infection the temperature is usually high and continuous until the pus is evacuated, whereas in the mixed infection with the pneumococcus the temperature is not so high. In staphylococcus infection the temperature is not very high. In adults the temperature is not so predominating a factor as in children. He has not used a douche in the nose nor nasopharynx for ten years. If the child is old enough, he holds its head sideways, and allows the fluid to run through gently. If there is much secretion in the nose it can be wiped out with a cotton-tipped probe. He never uses the douche nor spray, and disapproves of their use in diphtheria or scarlet fever. In the acute middle ear diseases in children, the presence of pus is not always necessary. There may be infected serum just as well as pus, and the former calls for evacuation quite as much as the latter. It is well known that many of these cases apparently recover without surgical interference, but a large proportion will show evidences of pronounced impairment of hearing in future years.

SOME PHYSICAL SIGNS IN INFANTS AND CHILDREN NOT SUFFICIENTLY EMPHASIZED.*

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AND
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Several years ago we began a systematic examination of the heart and lungs of infants and children in our out-patient services in the Howard and Polyclinic Hospitals, with a view to confirming certain observations which we had made, some of which had not been sufficiently emphasized in the literature and of [illegible] which were at variance with the [illegible]

CONDITIONS IN THE L[illegible]

Our observations relate exclusively to normal or functional conditions. In relation to the lungs there are three in number: First, an area of impaired resonance under the left clavicle. Second, the area of transmission of the bronchial type of breathing as heard over the root of the lung. Third, the influence of position on the percussion note in infants.

An Area of Impaired Resonance Under the Left Clavicle.—This sign was first noted accidentally by one of us in a child convalescent from bronchopneumonia. In this instance, owing to the absence of all other signs

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of pulmonary consolidation it was interpreted as probably indicating enlargement of some of the lymphatic glands. In the study of subsequent cases of bronchopneumonia, this same area of impaired resonance was observed and found to persist until the patients passed from under observation. The constancy of its presence led us to search for it in the chests of infants and children free from pulmonary diseases. These studies, which have extended over a period of two years, have convinced us that this is a normal manifestation, constantly present up to the age of nine or ten years, and not infrequently as late as the thirteenth year. The degree of impairment varies in different individuals. It is difficult to elicit in early infancy. It is always present under the inner third of the clavicle. It occasionally extends outward to the midclavicular line, gradually fading as this point is approached; it extends in a downward direction to the first interspace and not infrequently blends into the cardiac dullness.

Unfortunately, we are not able to give an entirely satisfactory explanation for its presence. In a few postmortem studies, which we have made with the idea of elucidating this point, the only feature noted, which may have some bearing on its production, was the exposed condition of the great vessels. The left lung in early life lies more posteriorly than in the adult. The anterior border, in not extending so far forward, leaves the great vessels, as it does the heart, in more intimate contact with the chest wall, which naturally results in producing a higher pitched note over the portion of the chest immediately overlying. This probably does not account for the instances in which the impairment extends as far to the left as the midclavicular line, unless it be that the relatively extensive area of contact with the solid organs—the great vessels and heart—reduces the elasticity of the chest wall sufficiently to partially deaden the pulmonic resonance for a limited distance beyond the point of contact with these solid organs.

The importance of this observation is manifest. We have been taught, heretofore, that if there is any difference in percussion resonance over the apices, it is somewhat higher over the right. On the basis of this teaching, one would naturally look on an area of impaired resonance under the left clavicle as indicating some abnormality of the lungs, great vessels or lymphatic glands. It also has an important bearing on the determination of the upper area of cardiac dullness. In many instances, as stated, it blends into it, and in these, renders impossible its definite delimitation.

The Area of Transmission of the Bronchial Type of Breathing.—This is ordinarily heard over the root of the lungs, and varies greatly in different children. Posteriorly, it is usually limited to the interscapular space and supraspinous fossæ. It is often conveyed to the entire scapular area and it can sometimes be heard just above and in front of the angle of the scapula, about in the posterior axillary line—as a high-pitched, distant, bronchial murmur, which is sometimes so misleading that we have seen it mistaken for the bronchial breathing of consolidation. When heard here, it is usually bilateral, assuming that the child is examined in a position which renders breathing equal on the two sides. It is much more common in children under six years of age, although we have noted it after this period. Dr. D. L. Edsall tells us that he has sometimes noted the same thing in the examination of the adult chest, as well as in that of the child.

The Influence of Position on the Percussion Note in Infants.—It has been indefinitely stated in text-books, that placing a child on pillows or even in contact with the ordinary mattress, will, to some extent, deaden the sound produced by percussion of the chest. We have not, however, seen emphasized in the literature the striking differences on the two sides of the infant's chest, when it is examined lying on its side with the dependent lateral surface of the chest wall in intimate contact with the bedding—an incorrrect position which is commonly employed in the examination of the chest. Under these circumstances, the elasticity of the chest wall is destroyed, the lung is compressed, air enters it inadequately and, in consequence, there results a striking increase in the height of the pitch of the percussion note, which, when compared with the note on the opposite side, proves very misleading, unless one determines its origin by examining the infant with both sides of the chest free and symmetrical.

THE HEART.

In the study of the heart, we have considered: First, the position of the apex beat. Second, the outlines of the heart. Third, the venous hum. Fourth, the functional murmur. These subjects have been much under discussion and the opinions regarding them are much at variance.

The Apex Beat.—In studying the position of the apex beat, we have examined the children in the upright position, recording as the apex the point farthest to the left and lowest down, at which it was impossible for us to obtain any cardiac impulse. We found that the area formerly described as representing the apex beat, namely, the point of maximum intensity of the impulse, was so variable in its position and frequently so far removed from the left border of cardiac dullness, as to give a very definite idea of the position of the point of the heart. There is considerable variation in the position of the apex, as we have determined it, but it is much less than the variation of the point of maximum impulse.

We have always believed that the point of the heart remains in the fourth space and near to the midclavicular line for a longer period than is ordinarily supposed, and that after descending from the fourth to the fifth space, it almost constantly finds itself in the midclavicular line and occasionally outside of it; the approach to the normal position of the adult being made on a horizontal plane from this point. The results of our work have confirmed these views.

In a series of seventy-one infants under three years of age, examined in our dispensary services, we found the apex beat in the fourth space fifty-seven times. In seventeen of these it was just without the midclavicular line; in three, one-half inch without; in twenty-five, in the midclavicular line, and in twelve just within the midclavicular line. In fourteen cases, it was in the fifth space, just within the midclavicular line four times; one-half inch without the midclavicular line three times; just without once, and in the midclavicular line six times.

In a series of thirty-six cases, studied during the fourth and fifth years, the apex was in the fourth space twenty times; just without twice; in the midclavicular line seven times; and just within the midclavicular line eleven times. It was found in the fifth space thirteen times—once without the midclavicular line; eight times in the midclavicular line; three times just within, and once one-half inch within the midclavicular line. Three times it was apparently be-

hind the fifth rib in the midclavicular line. Up to the end of the fifth year, therefore, the apex is found much more frequently in the fourth space than in the fifth space. During the following year, however, there comes a very abrupt change.

Thus, in thirty cases, it was found in the fourth space but eight times—once one-half inch outside the midclavicular line; twice in the midclavicular line; four times just within the midclavicular line, and once one-half inch within. It was noted twenty-two times in the fifth space—appearing twice one-half inch without the midclavicular line, eight times in the midclavicular line, six times just within the midclavicular line, and six times one-half inch within the midclavicular line.

In one hundred and thirty-eight cases, studied from the sixth to the twelfth year, it was noted but thirty-three times in the fourth space—most frequently in the midclavicular line, (eighteen times in the midclavicular line, seven times just within the midclavicular line, eight times one-half inch within the midclavicular line). In the remaining one hundred and five cases it was found in the fifth space—and again most frequently in the midclavicular line, namely, thirty-six times; twenty-eight times it was just within the midclavicular line, twenty-two times one-half inch within and nine times (during the eleventh and twelfth years) one inch within the midclavicular line.

It is worthy of note that, in none of the eleven cases observed in the twelfth year, was the apex beat found in the fourth space.

As the result of the examination of these two hundred and seventy-five cases, therefore, it may be concluded that, up to the sixth year, the apex beat is found much more commonly in the fourth intercostal space and in the midclavicular line and that, after this period, it is usually in the fifth space, in or just within the midclavicular line. Occasionally, however, it continues to beat in the fourth space even up to the twelfth year.

Area of Cardiac Dullness.—With reference to determining the outline of the normal heart, we have examined a series of one hundred and ninety-one cases. The patients have been examined almost entirely in the upright position. In infants under one year of age, the recumbent posture was maintained because we found that the results of outlining the heart with them in the upright position was extremely unsatisfactory. Insofar as we were able to compare the results in the two positions, at this period of life, they were not very different. The hands were used for both plexor and pleximeter and the percussion stroke was made extremely light—an absolute necessity in the outlining of these hearts, if one desires to obtain accurate results. Probably the term accurate is not appropriately applied to the outlining of the heart of infants and children. We do not agree with those who believe that it is easier to outline the heart in children than in adults. In the first place, the heart lies freer in the chest in early than in adult life, and consequently, is more readily displaced. Aside from this, infants and children are much more liable to extreme distention of the abdomen, which, in pushing up the diaphragm, tends to push the heart upward and to the left, and, what is probably still more important, the relatively greater size of the liver and its frequent enlargements, give rise to an area of impaired resonance to the right of the sternum, which it is often impossible to differentiate from the right border of cardiac dullness. We have endeavored, insofar as possible, to eliminate cases in which these conditions might have interfered with our results, but, notwithstanding these precautions, we submit our conclusions with a certain amount of trepidation. We are quite willing to adopt the words of Clifford Allbutt, in relation to this subject, which are as follows: "The facility with which modern physicians delineate and record the varying dimensions of the heart excites my admiration—a skill I can not hope to attain; the conditions of physical diagnosis seem to me indeed to be too inconstant for such appraisements."

In fifty-one cases, examined during the first three years of life, the upper border corresponded to the second rib thirty-four times, to the second space ten times, and to the upper edge of the third rib seven times. The right border was at the midsternum twenty-nine times, at its right edge fourteen times, and at its left edge eight times. The left border was in the midclavicular line sixteen times, just without twenty-one times, and one-half inch without fourteen times.

During the fourth, fifth and sixth years, in forty-one cases, the upper border corresponded to the second rib ten times, to the second space eleven times, and to the upper border of the third rib twenty times.

The right border extended to the left edge of the sternum once, to the mid sternum twenty-four times, to the right edge of the sternum fourteen times, and one-half inch beyond its right edge twice.

The left border extended one-half inch without the midclavicular line three times, just without sixteen times, and was in the midclavicular line twenty-two times.

During the seventh, eighth and ninth years, in fifty-five cases observed, the upper border was over the second rib eight times, the second space thirteen times, and the upper border of the third rib thirty-four times.

The right border corresponded to the left edge of the sternum five times, to the mid sternum twenty-two times, to its right edge twenty-three times, and was one-half inch beyond its right edge five times.

The left border was found one-half inch outside the midclavicular line fifteen times, in the midclavicular line thirty-six times and just within four times.

During the tenth, eleventh and twelfth years, in forty-three cases studied, the upper border corresponded to the second rib five times, to the second space eleven times, to the third rib twenty-seven times.

The right border was over the left edge of the sternum twice, over the mid sternum twenty-seven times, the right edge eleven times, just beyond the right edge once, and in two instances one-half inch beyond.

The left border was seven times one-half inch outside the midclavicular line, seven times just without the midclavicular line, twenty-nine times in the midclavicular line.

In the light of the above figures we conclude that the average outline of the heart for children under three years of age is as follows: Upper border, second rib; right border, mid sternum; left border, just without the midclavicular line.

From the third to the sixth year: Upper border, the upper border of the third rib; right border, mid sternum; left border, in or just without the midclavicular line.

From the sixth to the twelfth year: Upper border, third rib; right border, from the mid sternum to the right edge of the sternum; left border, most commonly in the midclavicular line.

The two remaining points to be considered, the venous hum and functional murmur, are of much more importance than the determination of the cardiac outline.

The communications in the text-books on these subjects are very scant. A considerable number have been contributed to the literature in the form of theses and essays, and in these one finds a very remarkable and inexplicable diversity of opinion as to the frequency, etiology, nature, time, distribution, and significance of these murmurs. Only a few observers admit that they are present, except with the greatest rarity, during the first four years of life; for instance, such a careful observer as Hochsinger[1] makes the statement that "during the first three years, systolic murmurs heard over the precordia are certainly of organic origin."

It is for the purpose of refuting statements such as these and with a view to elucidating some of the points above referred to, that we have made a careful, systematic study of a large number of children. We have examined children of all ages up to the twelfth year. We have accepted the general run of dispensary cases, excluding all febrile cases, those having deformities of the chest and those in whom the heart's action was abnormally rapid. We have not, in these cases, made systematic examinations of the blood. Where anemia was manifest on observation, it was recorded in our notes. The majority of our patients were asthenic children, with a degree of anemia, not manifest in the appearance. We recognize the unreliability of this method of excluding anemia, and it is very probable, that in many, and perhaps the majority of our cases, there may have been a slight degree present. But we do not believe that the anemia was the main factor in the production of the murmurs. We have noted marked anemias without murmurs and found them present in patients with a normal hemoglobin percentage. We are much more inclined to believe that these murmurs bear a closer relationship to the general nervous tone of the individual, which extends itself to the nervous mechanism controlling the condition of tone of the heart and vessels—conditions which may be secondary to any of the infectious or nutritional disturbances. What the possibilities of a diminution in the bulk of blood in children of this type are, we do not attempt to determine. If the defective conditions of hygiene under which they exist can yield such a result, it is possible that this may have some etiologic significance.

The Venous Hum.—In the study of the venous hum, we have made it essential that the hum should be present when the patient was examined with the head fixed in the median line. Turning the head away from the side under examination will always augment the murmurs and sometimes produce them where they had not previously existed. We have used a double stethoscope, with a chest piece three-quarters of an inch in diameter, and in its application used only sufficient pressure to bring its circumference in complete contact with the underlying surface. We have examined all of our patients in both the upright and recumbent postures.

In the two hundred and twenty-six cases in which we studied the venous hum, twenty-four occurred during the first three years of life, four of these being in the first twelve months. Following this, the number of cases was about the same in each year. In all but thirty-six, the hum was best heard over the right jugular vein. In the thirty-six in which this was not so it was best heard over the left. It was heard alone on the right side sixty-four times and alone on the left twelve times. In eighty-nine cases it was heard over both the right and left, being best heard in the right side seventy-seven times and in the left twelve. In thirty-eight instances the distribution was more extensive, the following being the most common: Over the right jugular, the intensity being greatest at this point, under the right clavicle, in the suprasternal notch, over the manubrium sterni and over the left jugular. Occasionally it was heard only over the right jugular and under the right clavicle. In several instances, the murmur was distinctly audible along the right edge of the sternum as low as the second costal cartilage, and in two instances, we heard it over the second left costal cartilage.

The murmur, as heard over the right jugular, was continuous in the vast majority of cases, having its maximum intensity during the systolic period. There was usually some reduction in the loudness of the sound during the end of systole with some augmentation in volume during diastole. In but six of these two hundred and twenty-six cases was the hum audible in systole alone, and in no instance did we hear it alone in diastole.

The influence of posture on the sound was striking. In only ten instances was the murmur audible when the patient was recumbent and in all of these it was much louder when the upright position was assumed.

The presence of this murmur over the manubrium sterni has interested us, in its relation to Eustace Smith's sign of enlargement of the bronchial glands. While the murmur disappeared in these cases when the patient was recumbent, it was again produced if the head was extended and sometimes when there was no hum present over the manubrium sterni in the upright position, it could be induced by having the head fully extended when the child was recumbent. The frequency of this phenomenon in cases in which there was an entire absence of other signs of enlargement of the glands, has led us to place very little reliance on this sign.

The extensive area of distribution of the venous hum may result in its being mistaken for murmurs at the base of the heart, or possibly for murmurs produced by lesions of the vessels. As has been noted in several instances, the murmur was audible as low as the aortic area and in two instances we have observed it in the pulmonary area. It is quite true that in all of these, if the patient was examined in the upright position, the murmur had the peculiar, humming, continuous sound which is characteristic of the venous hum, but in several instances, when the patient was placed in the recumbent posture, there persisted during systole a faint systolic whiff, which might readily have been mistaken for a murmur produced by lesions of the aortic or pulmonary orifice, or more probably, for a functional cardiac murmur. In the sub-joined study of inorganic heart murmurs we have noted a murmur, systolic in time, in the aortic area, which we believe to have been produced in this manner.

Functional Heart Murmurs.—We have studied these murmurs in two hundred and sixty-seven cases. Of this number, twenty-three occurred during the first three years of life (of these twenty-three, four having been noted during the first year, nine during the second and the remainder during the third). The figures during the remaining years are as follows:

1. Allgemein, Wein. Med. Zeit., 1888.

4th year	20	9th year	27
5th year	19	10th year	32
6th year	36	11th year	23
7th year	35	12th year	13
8th year	39		

These figures probably do not indicate the relative frequency of these murmurs at the various ages indicated, for the reason that, in our dispensary service, the number of children treated between the ages of three and ten years is relatively greater than the number treated during the first two or the eleventh and twelfth year. Aside from this, the difficulties attendant on the satisfactory examination of infants in a large dispensary service are too great to make the recognition of faint murmurs possible.

The murmur was best heard, in the majority of instances, in the pulmonary area—in one hundred and eighty of our cases. The next point of maximum intensity was over the body of the heart, in the space between the third rib, the left edge of the sternum and a point within and above the apex beat. This applied to forty-five cases. In twenty-six, the murmur was best heard at a point slightly above and just within the apex. It was sometimes transmitted slightly beyond the apex beat and infrequently as far posterior as the mid-axillary line. In sixty-one of our cases, it was audible only in the pulmonary area; on the other hand, the area of distribution, in some instances, was very extensive. It was not an uncommon experience to find the murmur audible in the pulmonary area, over the body of the heart, at and beyond the mitral area, and, in twelve instances, in the aortic area.

In the vast majority of cases, the murmur was inaudible in the upright position and, in only four, was it heard in the upright position and not in the recumbent. In two hundred and ten cases, it was audible in the recumbent posture only, while in fifty-one, it was audible in both the recumbent and upright.

To determine how definitely the foregoing studies illustrated the frequency of these murmurs in children under three years of age, through the courtesy of Dr. J. R. Bryan, we were enabled to examine a series of cases in St. Vincent's Home. The result of this work is so interesting that, in order to emphasize it, we tabulate it and give it separate consideration.

It includes a series of thirty-four cases—nineteen of them being one year old or under, seven of them between one and two years and the remaining eight between two and three years. The hemoglobin was estimated in all of these children. We did not make a complete blood examination, believing that the percentage of hemoglobin would prove a sufficiently satisfactory indicator of the degree of anemia. Of the nineteen under one year of age, twelve were foundlings and seven were breast fed children. These two groups are contrasted because they illustrate so well the effects of the natural and artificial modes of nourishment.

Among the twelve foundlings we found a venous hum present four times (in each instance it was heard only during systole), and functional murmurs seven times. The character and distribution of these murmurs was much the same as in the cases previously referred to and therefore need not be described in detail. In one instance, the venous hum was present without functional murmurs, and in four instances the functional murmur existed without the venous hum. The percentages of hemoglobin, in the cases indicated, were as follows: 50, 60, 70 twice, 74, 76, 77 and 90. In the instance in which the hemoglobin was 90 per cent., both the hum and the murmur were present. One case

TABLE 1.

CHILDREN UNDER ONE YEAR.

	FOUNDLINGS.												BREAST FED.											
Number of Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Age	4½ m.	2 m.	2¼ m.	2wks.	9½ m.	4¼ m.	6m.	1 yr.	1 yr.	2wks.	5wks.	1m.	14m	3m.	5m.	2m.	6m.	7m.	2m.	16m.	18m.	19m.	20m.	2
Venous Hum . . Distribution	. . .	. . .	. . .	R	R L	. . .	R R C	. . .	. . .	. . .	. . .	R	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	R L	R	R
Venous Hum . . . . . Posture	. .	. . .	. . .	U	U	. . .	U	. . .	. . .	. . .	. . .	U	. .	. .	. .	. .	. .	. .	. .	. .	. .	U S D	U S D	U S D
Venous Hum . . . . . Time of	. . .	. . .	. . .	S	S	. . .	S	. . .	. . .	. . .	. . .	S	. .	. .	. .	. .	. .	. .	. .	. .	. .	LS 3Sp LES	3 Sp	P
Functional Murmur . Time of	. .	LS 2Sp	LS	LS inM	3 Sp P	. . .	LS P 3 Sp	. . .	LS M	. . .	LS	. .	LS	. .	. .	. .	. .	. .	. .	LS 3 Sp P	. . .	LS P	LS	LS
Functional Murmur . . Distr.	. . .	BH M	3 Sp	BH P	P	. . .	M	. . .	BH P A	. . .	P BH	. . .	P 3Sp	. .	3Sp	. .	. .	. .	. .	LES M	. . .	M	20m. R S D LS 3Sp 3 Sp	R U 85
Functional Murmur . . Posture	. . .	R	R	R	R	. . .	R	. . .	R	. . .	R	. .	R	. .	. .	. .	. .	. .	. .	R	. . .	R		R
Anemia . . . . . per cent.	65	50	60	70	90	88	76	92	77	94	70	74	U 61	71	70	80	83	83	80	80	75	75		88

TABLE 2.

CHILDREN OVER ONE YEAR.

Number of Case	25	26	27	28	29	30	31	32	33	34														
Age	2	2	2½	2½	2½	2½	2¾	2½	3	3½														
Venous Hum . . Distribution	R R C S N L	R	R L	R L C R C	. .	R R C L	R R C L C S N	I R	R L	R R R C														
Venous Hum . . . . . Posture	U S D	U S D	U S D	. .	. .	. .	. .	U S	U R S D	U S D														
Venous Hum . . . . . Time of	P	. .	LS P BH M	LS P 4Sp	P	3Sp	4Sp	P	3Sp	LS 3Sp P														
Functional Murmur . Time of	LS P B H 1/20 M	. .	LS P B H M	LS P	LS	LS	LS	LS	LS	. .														
Functional Murmur . . Distr.	R U 90	. .	U 70	R U 55	R 92	R U 75	U R 60	U 100	R U 55	R U .														
Functional Murmur . . Posture																								
Anemia . . . . . per cent.																								

EXPLANATION OF ABBREVIATIONS.

In relation to posture "R" means recumbent and "U" upright. The upper letter in the column indicates the point of maximum intensity of the sound.
Distribution of Venous Hum: R.—Right side. L.—Left side. R. Cl. and L. Cl.—Under right and left clavicles. S. N.—Supersternal notch. M.—Manubrium.
Distribution of Functional Murmur: P.—Pulmonary Area, left interspace close to the sternum. M.—Mitral area. A.—Aortic area. B. H.—Body of heart (the portions of the heart not described under valve areas). 3 Sp.—Third left interspace within the parasternal line.
The time of the murmur is indicated by the abbreviations: S.—Systolic. D.—Diastolic. L. S.—Late systolic.

showed a hemoglobin percentage of 65 per cent. without either hum or murmur. The youngest child included in this series was two weeks of age, and in this case, both the hum and the murmur were noted. Four of the others were under six months of age. In the seven breast fed children there were no venous hums present. One child, who had recently passed through a severe attack of measles, had a functional murmur. This child had a hemoglobin percentage of 61. The hemoglobin estimates in the remaining cases were 70, 71, 80 twice and 83 twice.

The point which we desire specially to emphasize in this comparison, is the fact that, in the breast fed children, although in two instances the hemoglobin percentage was as low as in the children showing murmurs in the other set, there were no murmurs present. On casual observation, the condition of nutrition of some of the foundlings seemed quite as good as that of some of the breast fed children. On closer inspection, however, the former were seen to be more apathetic, their muscles more flabby and their general tone much lower. These differences in the condition of tone were striking. The mild anemias were about the same in the two sets; therefore, we are inclined to believe that the murmurs recognized were not dependent on the associated anemia, but rather on the differences in nutrition.

In the fifteen children over one year of age, the venous hum was found eleven times and the functional murmur thirteen times, and in two instances, the murmur was present without the hum. The venous hum, in these cases, with one exception, was continuous and in this one instance it was heard only during systole.

The hemoglobin percentage varied from 55 to 100 and, in the instance in which it was 100, both the venous hum and functional murmur were heard.

These observations are not in accord with the investigations which have been made. As intimated in the beginning of our paper, functional murmurs are almost universally stated to be absent under three years of age. One exception to this statement appears in a communication by Rheiner.[2] He says that he believes that functional murmurs, though unusual, do exist before the second half of the fourth year and that he has heard soft, inconstant murmurs in the pulmonic and mitral areas in apparently healthy infants in the first year of life, for which he has found no satisfactory explanation.

In reference to this subject, Holt[3] makes the statement that "accidental murmurs may be due to anemia and other blood conditions and, although not so common as in older patients, they are by no means rare even in infants."

W. L. Johnson[4] makes the statement that he has "seen two cases of febrile murmurs in young infants."

With these exceptions, we have found no reference to their existence except as very unusual manifestations prior to the third year.

DISCUSSION.

DR. JOHN LOVETT MORSE, Boston, has tried to obtain information regarding the size of the heart in children, and has not been able to find anything satisfactory. According to his experience, the right border of the heart in infants up to two years of age is from one to two centimeters to the right of the right border of the sternum. Functional murmurs are very common in infants, and he believes that in many cases a murmur can be heard at the upper part of the sternum if the head is held backward.

DR. LOUIS C. AGER, Brooklyn, N. Y., asked whether the heart of the young infant is usually displaced much to the left in intestinal dilatation. His experience has been that it is crowded directly upward, but not much to the left.

DR. R. B. GILBERT, Louisville, said that there ought to be a book on anatomy giving the structures of the various organs in young children. The various text-books on this subject are wholly misleading, and on that account he believes that we have all experienced difficulty in mapping out the heart in cases of suspected cardiac affections in infants. The same is true in regard to the caliber of the bronchial tubes, and there are a number of anatomic points bearing on diagnosis which show distinct variations in the child as compared with those in the adult.

2. Correspondenz-Blatt f. Schweitzer Aertze, December, 1903, p. 769.
3. Text-book on Diseases of Children, second edition, 1903.
4. St. Louis Courier of Medicine, December, 1903, p. 383.

CONGENITAL DISLOCATION OF THE HIP.

AN ARGUMENT CONCERNING THE METHOD OF ITS TREATMENT.*

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There is a line of argument concerning the method of treatment of congenital dislocation of the hip, which is to-day being forgotten. I desire to review it because it opposes the reduction of the dislocation by any kind of forcible manipulation, and perhaps will tell against manipulation where but moderate force is used.

In 1899 I reported, at the New York meeting of the American Orthopedic Association, thirteen manipulative reductions; of these one is an anatomic and functional success, one is probably an anterior subluxation because of interposed capsule between the head and acetabulum, one was an anatomic success, but became ankylosed after an exploratory incision and consequent infection. Two of these have been verified by very recent, or comparatively recent, examination. The ankylosed one has passed from observation. There is nothing to add to the statement then made of the failures to maintain reduction in the other cases.

The previous year, 1898, at the Denver session of the American Medical Association, I reported, as part of a general report on the work I had been able to do, the case of a girl, 6 years old, with both hips out, on whom the manipulation plan apparently succeeded, but really failed. A second attempt again apparently succeeded on one hip and again really failed, and on the other hip the failure was a frank one. In this case I finally did arthrotomy and found that, in the joint in which the second attempt had apparently succeeded but had really failed, the interposed capsule, and the impossibility of putting the head through the narrow part in the capsule, was the cause of the failure; in the other joint the same obstacle existed and the capsule was full of bloody synovia, showing that the manipulations had been forcible and fairly well directed. Both hips were reduced by arthrotomy and the child left the hospital with each *in situ,* but her condition and whereabouts are not now known.

Since this operation, which was done in 1898, I have made no attempts, save one, at manipulative reduction, but have, instead, done the operation by arthrotomy in all instances.

* Read at the meeting of the American Orthopedic Association, Atlantic City, 1904.

As regards the manipulative method, I am sure that Lorenz told the whole truth when he stated that the obstacle to reduction was the narrowed part of the capsule just at the posterior and superior or superior part of the acetabular rim. If the opening, at this narrowed part, is big enough to permit the head to pass, reduction can be accomplished by manipulation, and may be maintained if the acetabulum is deep enough. I have in two instances done this, I know. In the 28 cases in which I have done arthrotomy, and in which I have explored the narrow part of the capsule by my finger, and so know its size and the strength of its walls, there has been but one case in which the passage of the head would have been possible. I am not too dogmatic when I say that no possible force could have put the femoral heads through the narrow part of the capsule in any of the other cases. One possibility, and 27 impossibilities!

Now what happens when attempts are made to accomplish this impossibility? Lorenz has reported plenty of fractures of the femur and one each of the pubis and of the ilium, and other operators have done the same.[1] Lorenz reports seven cases of paralysis out of 400 odd operations, but Taylor,[2] looking carefully for the condition, finds eleven cases in less than fifty operations, by various operators, including, I believe, Lorenz himself. While Taylor states that most of these cases recover, the uncertainty of the result is patent to all who have had the misfortune to injure a few major peripheral nerves. It certainly is an accident that can not be disregarded. My own contribution to the casualty list is the report of a case of Lorenz's own, of rupture of the capsule of the hip joint, distal to the constriction, and the thrusting of the femoral head out among the muscles of the thigh. While only one case was shown to have had this accident, still, from the similarity of the clinical conditions, I believe another had it, and it is not in the least impossible or improbable that it occurs in very many cases, especially in the class called "anterior transposition." Finally, on all sides one finds the absurdity of the term "bloodless" pointed out, and the reference to the lacerations of muscles, the extravasations of blood and hematomas. And last of all, Lorenz has reported one case of gangrene of the whole lower extremity.

These accidents must make any one who is not an enthusiast, or a special pleader, stop and think. One must say that to justify the exposure to such risks the percentage of successes, anatomic and functional, must be high, so that the benefit may, in the opinion of all, outrank the possible harm.

What is the percentage of successes?

From what we have seen of the Lorenz results, scattered between Boston and San Francisco, we can not believe that he ever really got good anatomic results in about half of all his cases. I am told that Wolff's claim was for only 25 per cent. of anatomic repositions, and Ridlon, in the most recent pronunciamento, claims only 10 per cent., though he hints at 20 per cent. Is this enough?

One hundred children are exposed to fractured bones, injured nerves, lacerated muscles, torn capsules and ruptured blood vessels. Ten out of the one hundred may expect to get the prize sought. Sixty out of the one hundred may get the doubtfully "good result" of an anterior transposition. Thirty children out of the hundred are perhaps to be considered fortunate if they get nothing.

In all seriousness I declare that the percentage of successes is not enough to warrant the risk, and I claim that the percentage of successes is not enough to justify the method apart from the risk. I am perfectly ready to subscribe to the satisfaction, for all parties, parents, patient and surgeon, which comes from a perfect anatomic and functional result, for I have experienced that satisfaction. But I deny that there can be any special satisfaction in the "anterior transposition," the result that has to be dubbed "good" in quotation marks, the result that still leaves a short limb and a limp, the result that in its failure may only suggest the quotation from Bret Harte, "He done his level best," as an excuse for the surgeon.

Ridlon quotes the earlier statistics of the operation for carcinoma of the breast, an ultimate mortality of 90 per cent. to excuse the 90 per cent. of failures to get anatomic results in congenital dislocations. But the 90 per cent. ultimate mortality in carcinoma of the breast was not satisfactory to surgeons, and methods had to be devised to lessen it. That they have been devised is shown by Kocher, who now quotes 42 per cent. of the cases sound three years after operation. The same dissatisfaction belongs to the results in congenital dislocation of the hip. We are bound to improve the methods of eliminating the risks, which are too many and too great and too awful. We have got to increase the number of cases in which the head is really and honestly put into the acetabulum, the cartilage of the head in actual contact with the cartilage of the socket. We are under the obligation of improving the methods for making this actual reposition permanent. In brief, we must improve in every particular the quality of the results we offer the people in these cases.

If we, as orthopedists, read what general surgeons teach and practice concerning the treatment of traumatic dislocations we shall see that they all deprecate the use of undue violence. Manipulation must be based on the most accurate knowledge of the mechanism of dislocation, and must be restricted to reduction without adding to the trauma. To accomplish this the dislocated bone must traverse, in its return, the path it made when it was displaced. Never must it be ground through a new path. If reduction is not possible by moderate force and in a reasonable time, an incision is imperative to permit the path to be cleared, the reduction to be done and the parts to be restored to the approximate anatomic relations.

No general surgeon to-day would countenance the use of extreme force in the treatment of an old unreduced traumatic dislocation. Moderate force, if it promises success or attains it, is advised, but extreme violence or prolonged efforts are wrong. In the light which an incision lets in otherwise insuperable obstacles are cleared away. In no instance of a recent or an old dislocation would a general surgeon attempt to jam a too large bone through a too small hole, and the passage of the femoral head through the constriction of the capsule in the case of the congenital hip dislocation, he would recognize, in the great majority of cases, as an impossibility.

If we turn to fractures, the advice and practice is the same. When the inside conditions of a fracture are such that satisfactory replacement of the fragments is impossible from the outside, the general surgeon makes an incision and deals with the fragments immediately.

1. Davis: Am. Jour. Ortho. Surg., February, 1904.
2. Am. Jour. Orth. Surg., February, 1904.

I do not forget that as orthopedists, we are teaching much to the general surgeon, and that we shall probably teach more; but we must be careful that we do not, in this instance, abuse his confidence and so invite him to criticize; for the general surgeon knows that the trauma of an aseptic incision is practically nothing in contrast to the injuries recited as incidental to the forcible manipulative method. The incision is less than that required for an appendectomy, less than that required for a nephrotomy, less than that required for an intra-abdominal shortening of uterine ligaments, less than that required for a herniotomy, less than that required for a lithotomy, less than the admittedly often necessary exploratory celiotomy. If the general surgeon, the world over, would not balk at this little incision, why should we? Or, if those of us who do some general, as well as some orthopedic surgery, would not shy at incisions for some objects, why should we do so for other objects?

If I am not afraid to open the knee joint to take out a floating cartilage—and I am not afraid to do this—why should I be afraid to open the hip joint to clear away the obstacle between the acetabulum and the femoral head?

I really do not believe that the definiteness of that obstacle is appreciated or else this question would not be necessary. In the case of a child who had a congenitally dislocated hip, who had never walked and who died of pneumonia sequent to measles, I secured the os innominatum and the whole of the limb. Before the child's death I had tried a manipulative reposition, using carefully regulated force, and apparently had succeeded; that is, the head went with a hop and a click to some place near the acetabulum. A week after this, however, reluxation had occurred. I then definitely reduced through an incision, and while in the splint the fatal illness supervened. The necropsy of the hip joint showed that my incisional reposition had not been permanent, the femoral head was posterior and superior to the acetabulum and the incision in the capsule had healed so perfectly that it could not be found, so that the original local conditions were restored. Now with all of the tissues removed from the bones except the capsule, and able to get a thoroughly good hold of the parts and to guide my efforts by sight, I was still unable to put the femoral head into the acetabulum. At the present time I am fairly familiar with the feeling gained by thrusting the forefinger down into the constricted part of the capsule after the joint has been opened, and in the operation which was done on this child in life the constricted part was not different from what it has been in other children, nor was it different after death, when I examined the joint. I am stating a fact when I say that no one in this world could, by manipulation alone, have put that femoral head into that acetabulum before death or after death, yet the child was but 10 months old and had never walked. In the 28 cases in which I have opened the joint and put in my finger, I have found one case that could surely have been reduced by manipulation, but only one. In all the others the femoral head was too big and the constricted part too small for the one to go through the other. It is literally the case of the camel and the needle's eye.

If this disproportion is such as I have described it, and I know that it is so; or if it is half as great as I have made it out, and it certainly is that; if it is only so bad as to make anatomic reduction impossible in from 75 per cent. to 90 per cent. of the hips, why submit that number of hips to the forcible manipulation now in vogue? Why follow an inexact and vulnerating method which gives a small percentage of anatomic reductions, when we have at hand a simple and exact surgical method which will permit the reduction to be definitely accomplished in practically all the cases that are of suitable age?

Of course if we are to save these cases, irreducible by manipulation, from the risks of forcible manipulation, we must save all, for no one can tell, *a priori,* which case is to prove reducible and which is not; and that will mean that all congenitally dislocated hips shall be reduced by arthrotomy, so that the operator knows just what he is doing, does what he wishes, and does not do what he does not wish. Moreover, it means that all hips, in the suitable ages, shall be definitely reduced, the surgeon will actually put the two parts together, and, so far as the conformation of the parts permits, they will stay in that relation. If, however, the parts are so malformed that a reposition which shall be stable is not possible, there will be a reluxation or a subluxation, possibly an anterior one. This is just as likely to occur in the arthrotomy reductions as in the manipulative reductions, and no more likely. It will be a late result, and the mechanically inevitable result of preexistent anatomic conditions; it will not be the result of an inexact and incompetent method. I much prefer to be able to say to parents that I have put their child's bones together properly, but that the bones are too misshapen to remain together, than to have to say that I could not put them into any anatomic relation whatever.

Finally, by the arthrotomy method the patient will have been saved the exposure to paralysis, which comes at the rate of from 2 to 20 per cent of the cases; will have been spared the risk of a broken leg or pelvis; will not have had the contusion and lacerations of the muscles about the hip which result in ecchymoses and hematomas and possible gangrene; and will have been exposed only to the one danger of sepsis, the possibility of which should not be greater than, nor as great, as it is in clean appendectomies.

I do not see what is gained for the children by the present method of forcible manipulation except for that small proportion, 10 per cent., that gets the anatomic and functional perfect result; and this result could be gained more easily and with less risk by the arthrotomy method, so that the value of this 10 per cent. is not its face value. Nor can I see any reason in an argument against an aseptically made incision to clear away the obstruction and permit the easy access of the head to the acetabulum, a goal that is so strenuously struggled for in the manipulative method. It seems to me to be sensible to really reduce the dislocation when we set out to do so, and choosing a more difficult and devious instead of an easier and more direct method is very much like making a feat of a surgical procedure.

My own list of cases, which I have done by arthrotomy, is a modest one, and would not have been reported until it was longer and older had it not seemed to me to be right to speak of this question now.

There have been 28 hips in 20 children submitted to reduction by arthrotomy. The oldest was 11 years, the youngest was 10 months. Between these ages there were 3 in the second year of life, 3 in the third year, 5 in the fourth year, 2 in the fifth year, 1 in the sixth year, 1 in the seventh year, 1 in the eighth year, 1 in the ninth year and 1 whose exact age is not known, but, as I remember, it must have been about 6.

In each instance the femoral head has been put into the acetabulum, cartilage to cartilage. Seventeen hips are known to be in stable position, with the head in the acetabulum, at times varying from 2 months to 6 years after the operation. In those children who were operated on earlier in life—below 7 years—there is ample range of motion at the hip, so that they can sit down, and can go up and down stairs, and can run and jump. In these younger children there is no tendency to ankylosis. In those who were older there has been a tendency to ankylosis, which has had to be combated, or else a practically immobile hip has resulted. This may be a permanent condition or the joint may work loose, the final result depending more on the disposition of the child—for the active child will develop motion when the passive child will not—than on any condition in the hip. I have seen the same thing in the old Lorenz operation; a child whose hip remained fairly rigid, having only what we call "shake motion" for many months, would slowly work itself loose and have finally an ample practical range of motion. Eight hips are known to be sub-luxated or reluxated, and the times of observation are about the same as in the group just cited. In three hips the final result is unknown.

Some of the hips that reluxated did so, I feel sure, because of too short a time in the plaster of paris, and consequently the hips of more recent operation, where splint restraint has been continued for a longer time, seem to me to promise better results. Certainly the 12 and 18 month old cases are, at present, very satisfactory.

In two of these cases there was a slight staphylococcus albus infection of the skin incision. No case has had any infection of the deeper tissues. In one case, one of the older children, the skin of the perineum was torn and there is a paralysis of the muscles of the leg. The attempt at reduction in this child had risks which were acknowledged before the operation and the attempt was made reluctantly. It has succeeded, the head is in the acetabulum, the perineal wound has healed, but the paralysis has not yet disappeared. It is known, however, that this paralysis occurred after the accomplishment of the reduction and at the time that the knee was extended so that it is reasonable to expect it to disappear in time. With the exception of these items there has been no casualty of any kind in this series of cases.

There is still another word to be said. I took one of the anterior transposition cases of Dr. Lorenz's and tried to accomplish reposition by arthrotomy. My incision found the head in a subfascial extra-articular location and surrounded by a pseudo capsule; the cartilage on the head was eroded. The true capsule it was not possible to identify, excepting that part of it which was attached to the acetabular rim. It was very plain that, in the forcible manipulation the capsule had been ruptured and the head thrust through the rent. It is to be remembered that in the Lorenz method there is a time when he does what he calls stretching the anterior part of the capsule. At this point in the procedure the limb is wholly abducted and the head well jammed down over the acetabulum. In this position the knee is carried backward and the head lifted from the bone, the shaft being a lever and the fulcrum the side of the pelvis. Just what the act would accomplish if the head were in the acetabulum I do not know; but when the head has been pushed down past the too small opening in the capsule and held firmly against the lower part of the upper portion of the capsule, which must be stretched very tightly, it is easy to understand that a rent would not be difficult to make, and a continuation of the prying motion would carry the head through it.

The point that I wish to make is that this laceration of the capsule precludes the possibility of a successful reduction by arthrotomy. Another point is that those of us who attempt reposition by manipulation must be guided by rules analogous to those that govern taxis for a strangulated hernia. Do not attempt the procedure if another has attempted and failed. Do not push the effort beyond a certain short time. Do not use force great enough to tear any part of the capsule, for you have no way of telling what part you may be tearing, and you may not only fail of manipulative reduction, but may also spoil the hip for an arthrotomy.

TECHNIC OF OPERATION.

The technic of the operation as I have come to do it, is as follows: The child is placed on the table with a sheet, rolled diagonally into a soft sort of rope, between the thighs. The ends of this rolled sheet reach beyond the child's head and are attached to a stout ring in the wall of the room. The part which is between the thighs is wrapped with a wet sterile towel, arranged so that it lies directly under and across the ischial tuberosity of the side on which the operation is to be done. It must not lie across nor cover the genitalia. This sheet gives a safe and sufficient counter traction in case any amount of force is needed to pull the femoral head down to the level of the acetabulum.

Around the thigh, just above the knee, is fastened a skein of yarn, by a clove hitch, and another is put around the ankle in the same way. Traction on either or both of these is permissible, up to limits which seem safe, and that without injury to the skin.

A moderate pull is then made on the leg which draws the femoral head down from its usual location on the dorsum of the ilium, and brings it to just below the anterior superior iliac crest, where it is easily palpable. The incision advised by Lorenz is then made, cutting skin, subcutaneous fascia, fascia lata and finally the muscles and all in the direction of the muscular fibers, so that these are separated and not cut. This exposes the capsule and it is incised in the same direction showing the femoral head inside it. Deep retractors have been used to hold the tissues apart, but now long loops of catgut are put in either side of the incision in the capsule, and they act as retractors. In older children it is right to do a subcutaneous section of the adductor tendons close to the pubes.

The pull on the leg is now relaxed, the femoral head goes up and the gloved finger is slipped into the capsule and down toward the acetabulum. Very rarely indeed will it be able to enter the latter, though flexion of the hip relaxes the anterior part of the capsule, and so makes the opening somewhat larger. With the finger as a guide a long, straight probe-pointed bistoury is passed into the acetabulum and while the finger in the wound presses its edge downward against the lower part of the capsule the hand on the outside slowly saws the knife to and fro. The cut thus made must be close to the femur and must especially avoid the anterior part of the capsule. Care must be taken not to cut off the ilio-psoas tendon, but the incision must be ample enough to give free access to the cavity of the acetabulum.

The femoral head is again pulled down from the

dorsum of the ilium by hard traction on the leg or on the yarn skeins, or, in older children, a tackle of blocks and rope may be used to overcome the resistance of shortened muscles and fascia.

When the head is over the acetabulum it may, in some instances, be thrust into the socket by firm pressure inward over the trochanter. Sometimes this maneuver has to be combined with abduction of the leg, made while the traction is maintained, the operator pressing the while firmly on the trochanter and supplying a fulcrum so that the head may be made to travel downward and inward and jump over the acetabular rim into the socket. There is one objection to the traction, for it makes a pull on the anterior fibers of the capsule and narrows the opening, and so occasionally one finds that, after reasonable efforts, in which the capsule has probably become somewhat stretched, flexion of the hip and manipulation of the leg—the direction of the movements being guided by the finger in the joint—succeeds in slipping the head into the acetabulum without the use of force at all. In not a few instances, in young children, from two to four years old, this may be done primarily, without the preliminary pull on the leg.

In a fair proportion of these cases there is a twist in the upper part of the femoral shaft so that the neck and head look forward when the toes are pointed in the same direction. Whether this is the case or not can always be determined by radiograms, one taken with the toes pointing forward, and another with the legs rotated out. If there is the twist forward in the bone, it will be necessary to compensate for it by rotating the whole limb inward during the manipulations to direct the head into the acetabulum. Once the head is in the acetabulum the limb is put into a position of abduction of from 50° to 90° and rotated in or not as may be necessary. This position thrusts the head more firmly into the acetabulum and prevents reluxation. The two retracting cat-gut loops are now tied together to close the upper part of the incision in the capsule. The lower part of the capsule incision, by the act of reduction, has been carried so deeply into the limb that it can not be reached to be sutured. Sutures are then put in the fascia, deep and superficial, leaving space for the insertion of a cigarette drain down to the capsule. Finally the skin is sutured and then both limbs and the pelvis are put into a double plaster of paris spica. Even if but one hip is operated on, both limbs must be included in the first retentive plaster dressing.

AFTER-TREATMENT.

After forty-eight hours the drains are taken out, and if there has been no sepsis, the leg is left undisturbed for three months. If sepsis occurs it is right to reluxate to avoid an ankylosed hip.

After three months the spica is taken off, and the limb adducted somewhat and another spica put on, including only the leg of the side of the operation in the one-sided cases, but both legs in the double cases.

After another month or so this may be arranged so as to leave the foot free, and the child may then be made to walk in the plaster. After six months have elapsed the spica may be made only to include the thigh and pelvis, leaving the knee free. After eight or nine months the retentive dressing may be left ofl entirely.

THE TREND OF MODERN PRESCRIPTION WRITING.*

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The object of this paper is to show the trend of the physician in his prescribing at the present time. Five hundred prescriptions were carefully examined as they were received and filed in each of two of Philadelphia's best prescription stores, both of which are managed by able and energetic pharmacists, who have had collegiate training.

Five hundred prescriptions were examined in each store in order to make proper comparisons, and also to give a more general report of the type of the modern prescription.

These stores were so located that they received prescriptions from all the leading physicians of the city, and a large number of the prescriptions were from the pens of the professors and instructors on our medical school and hospital staffs, as well as a number from physicians in general practice, so that these prescriptions represent the type of prescription as written by our best practitioners in the twentieth century.

The following table gives the results of my investigation, these prescriptions all being written since January 1, 1904:

1,000 Prescriptions.	Store No. 1.	Store No. 2.	Total expressed in percentage.
Number containing chemical incompatibilities	8	5	1.3
Number containing pharmaceutic incompatibilities	10	3	1.3
Number containing therapeutic incompatibilities	1	....	0.1
Number containing 6 or more ingredients	34	16	5
Number containing 2 to 5 ingredients	347	371	71.8
Number containing one drug or preparation	119	113	23.2
Number containing only official preparations	244	240	48.4
Number containing proprietary preparations in whole or part	195	164	35.9
Number containing patent medicines	1	1	0.2
Number in which the metric system was employed.	3	2	0.5
Number containing non-official preparations in whole or part	60	95	15.5
Number written correctly	328	293	62.1
Total prescriptions examined	500	500	100.0

Now let us consider these prescriptions under the various headings as classified above:

PRESCRIPTIONS CONTAINING CHEMICAL INCOMPATIBILITIES.

Only those were considered where a dangerous or objectionable compound would result from dispensing the prescription as ordered (intentional incompatibilities not being considered), and we find eight in the one series and five in the other. This is a good showing, but it would have been far better if there had been none, as in some instances the prescriber had to be notified and the prescription altered, in others a "shake well" label would suffice to obviate possible danger.

This shows two things: first, the importance of having our prescriptions compounded by competent pharmacists, who have a thorough knowledge of chemistry, and who can act as a "safety valve" when dangerous compounds are ordered, either through oversight or ignorance on the part of the prescriber. Second, the importance of every physician having a general knowledge,

* Read before the Philadelphia County Medical Society, 1904.

at least, of chemical combinations, and how to intelligently combine drugs in order to obtain the best results without forming dangerous compounds.

PRESCRIPTIONS CONTAINING PHARMACEUTIC INCOMPATIBILITIES.

This heading is of particular importance to the pharmacist, as it is his duty to dispense as elegant and palatable preparations as possible.

As in the first group, only those prescriptions were classified which were particularly objectionable or unsightly in appearance, nauseating in taste or difficult to dispense as ordered. We obtained ten from the one store and three from the other. It has been frequently said that if a physician had to take some of the "potions" that he orders, there would be a radical change in modern prescription writing.

Every medical school should give a complete course in prescription dispensing in the pharmaceutic laboratory, as this knowledge would be of inestimable value not only in framing elegant combinations, but would be of especial service to the country practitioner who is compelled to compound his own medicine.

PRESCRIPTIONS CONTAINING THERAPEUTIC INCOMPATIBILITIES.

Only one prescription was found that was particularly antagonistic from a therapeutic standpoint, and this shows that the average medical student is more thoroughly trained in therapeutics than he is in pharmacology.

PRESCRIPTIONS CONTAINING SIX OR MORE INGREDIENTS.

Thirty-four in the one series and sixteen in the other contained six or more ingredients, and it was a noticeable fact that the majority of these prescriptions were written by a certain few physicians who had drifted into polypharmacy. It is pleasing to note that this tendency is gradually dying out, and we hope that the day is not far distant when the old "shotgun" prescriptions, of from twelve to fifty ingredients, will be framed as curiosities of by-gone days.

Another noteworthy fact is that these prescriptions are mostly written by the very old practitioners. If this improvement had only occurred years ago, homeopathy would not have gained its present foothold; then, again, the system of prescribing as used in our best hospitals is so designed as to use only single drugs or preparations, and to make these as elegant and palatable as possible—a good step in the right direction.

PRESCRIPTIONS CONTAINING FROM TWO TO FIVE INGREDIENTS.

This constitutes the great majority, almost three-fourths, of the prescriptions, and shows a great improvement over the prescription of a century ago, when it was the popular belief that the greater the number of ingredients the greater the chance of cure. This rule would apply where ignorance in diagnosis exists, as by this theory the greater the number of ingredients present the more likelihood of administering something that will be of service. A good example of this is the old Warburg's tincture; the original formula as directed by Dr. Warburg contained the old *"confectio damocratis."* This was a complex astringent confection containing opium, and originally had sixty-four ingredients, many of the constituents being unobtainable at the present day.

PRESCRIPTIONS CONTAINING ONE DRUG OR PREPARATION.

It is pleasing to state that the greater number of these prescriptions were written by our most able practitioners, men who are prominent in medical teaching, and while they do not represent quite one-fourth of the total number, this is not a bad showing.

PRESCRIPTIONS CONTAINING ONLY OFFICIAL PREPARATIONS.

Approximately one-half belonged to this group, and it will be noted the very slight variation in this respect in the two series. This is likewise encouraging, and may the day be not far distant when the number will be increased still more. A point of interest observed here was that the more educated the physician the greater the use of the United States Pharmacopeia.

PRESCRIPTIONS CONTAINING PROPRIETARY PREPARATIONS IN WHOLE OR PART.

One hundred and ninety-five of the one series and 164 of the other, about 36 per cent., contained proprietary preparations, or, in other words, more than one in three prescriptions.

This is a good showing, when we consider that the manufacturing chemists employ persuasive salesmen, who visit every physician's office at stated periods and present him with a liberal supply of their "ideal" preparations, which are always "superior to any other made," and which are usually combined by a "peculiar" chemical process that enhances their therapeutic activity.

PRESCRIPTIONS CONTAINING PATENT MEDICINES.

Only two of the prescriptions were for patent medicines, and one of these was written by an "osteopath," so that we are only responsible for one, and this was one too many. How any regularly qualified practitioner of medicine could so disgrace himself and his profession as to order patent medicines is beyond my comprehension.

PRESCRIPTIONS IN WHICH THE METRIC SYSTEM WAS EMPLOYED.

Only three of the one series and two of the other demonstrate the fact that the metric system is but little employed at the present time, and its use does not materially increase, as my own experience in the retail drug business for a number of years corroborates. One fact is observed, when a practitioner uses the metric system, he uses it exclusively. It is to be regretted that the profession does not adopt this system and use it exclusively, as it is simpler, more scientific and in every way preferable to our present system of weights and measures. The leading medical schools give their students a thorough training in this system, and teach them how to convert the various denominations into the English system, and vice versa, but after leaving the college halls this is all thrown aside.

PRESCRIPTIONS CONTAINING NON-OFFICIAL PREPARATIONS IN WHOLE OR PART.

In this group are classified prescriptions containing commonly used preparations which are not recognized by the United States Pharmacopeia, but which can be prepared by any pharmacist, such as elixir of iron, quinin and strychnin. In this group we have sixty in the one series and ninety-five in the other, showing considerable variation, a noteworthy feature being that the series that yielded a large number, thirty-four, of the polypharmacy type of prescription, yielded the small number, sixty, of this type, while the other series that yielded sixteen of the former yielded ninety-five of the latter. A proportionate comparison.

NUMBER OF PRESCRIPTIONS WRITTEN CORRECTLY.

The criticisms in prescription writing applied to the

endings used in designating the drugs or preparations and the use of the proper official names as embodied in the inscription, and the proper phraseology as applicable to the subscription. As a rule, the prescriptions of the teaching class of practitioners were correctly written to a great extent, while those of some of the regular practitioners were carelessly written, and those of others showed a marked defect in the knowledge of prescription writing. This was especially noticeable among the prescriptions of the more recent graduates. Less than two-thirds were correctly written, and this is largely due to the deficient training in this important subject in the average medical school. Several of the prescriptions were written by a young practitioner who received the highest average among 400 men at a recent examination of the state medical board, yet every one of his prescriptions showed errors in writing and in combining drugs. This merely shows that his training was deficient in this important subject.

IMPORTANCE OF PROPER TRAINING IN THIS BRANCH OF MEDICINE.

Now, who is responsible for this deficiency? Is it the teacher, the means at his command and time allotted for teaching the subject, or the student, that is at fault? The teacher is often a physician, who has never received any practical pharmaceutic training other than the "smattering course" that he received as a medical student, and, as a rule, on account of limited training and lack of interest, he follows the same rut as his predecessor; as a consequence, the pharmaceutic laboratory is deficient in its equipment and very unattractive.

Because of these facts, officers and trustees consider this branch of medicine unimportant, and the student, not realizing the value of a pharmaceutic training, completes the course ignorant of its many valuable points, and usually not until he reaches the senior year and commences to prescribe does he fully realize his deficiency in the knowledge of the mode of preparation, appearance, administration and effects of combining drugs, the very ammunition he is to use in firing his gun of knowledge to combat disease. It is not, however, until as a physician, authorized to use blank and pencil, and brought face to face with the patient, that he most seriously and keenly feels the sting of his pharmaceutic ignorance; tries to formulate a palatable mixture and fails, expects to find a nice clear solution when he calls, only to find one with an unsightly and often dangerous precipitate. It is now after repeated failures that the horizon is filled with attractive-looking proprietary preparations, and these are substituted for the official drugs, because the label states that they are specific for the disease under consideration. As a result, this habit once established is continued through life.

Three of the above prescriptions were written by "osteopaths" and they all showed utter ignorance of the first principles of prescription writing. This should be a warning to us, because, if osteopaths should receive recognition in the various states they will attempt to prescribe medicines and to treat all diseases, not limiting themselves to their own particular methods. The medical profession should be aroused to this matter and take action before it is too late. In the past few months several scathing editorials have appeared in the daily press relative to the large number of incompetent practitioners who are turned out by our medical schools, and the state board suggests an investigation of the present methods of teaching and the adoption of a more comprehensive curriculum.

However, in looking over the examination results of the various state boards as compiled in the Aug. 13, 1904, number of THE JOURNAL of the American Medical Association, we find that the percentages of failures from the Philadelphia medical schools vary from none to 8.6 per cent. for the year 1903, and this was the most satisfactory showing of any state in the series, when one considers the number of students examined.

The total number of candidates examined in the thirty-seven states was 5.027. They represented 151 American colleges, 8 Canadian institutions, and there were some representatives of foreign schools. Of the whole number examined, 4,312 passed and 715 failed. The percentage of failure was 14.2, but of the Philadelphia students but 5.48 per cent. were found wanting. This was a lower percentage than was shown by any other state or by the outsiders. The percentage of failures from New York was 7.12; of Boston, 7.28; of Chicago, 8.18; of Washington, 18.84; of Baltimore, 22.70; of Louisville, 27.67; and of St. Louis, 32.67.

Another remarkable showing is, that of the 4,312 successful candidates, 9 per cent. were from the Philadelphia schools, and only 3.2 per cent. of the 715 failures can be charged to this city. These figures demonstrate conclusively that the medical training given by the Philadelphia schools is thorough and comprehensive.

Again, at the recent examination of a state medical board the following are two of the questions asked under materia medica:

1. Name the drug of which pilocarpin is the active principle, and give the dose of the tincture that would be equivalent to 1/20 grain of pilocarpin.

In the first place, there is no official tincture of pilocarpus, and hence no recognized tincture of definite strength, and the majority of our standard medical works do not mention any strength for the tincture, and those that do show a variation in strength, so that this question is unanswerable. Books like those of Remington, Caspari, Coblentz and United States Dispensatory on pharmacy, and of Shoemaker and Potter on materia medica, do not mention any strength for the tincture, and, granted that the strength was given, the yield of alkaloid varies from 0.25 to 2 per cent. in different lots of the drug, as all the books state; therefore, how in the world can a student answer such a question?

2. Give the dose of tincture of nux vomica equivalent to 1/30 grain of its principal alkaloid, and name two official preparations into which this active principle enters.

This is a more desirable question, but even here very few students can remember the strength of the tincture as indicated in the United States Pharmacopeia, and for the second portion of the question, a number of the students gave the salts of strychnin instead of the preparations asked for. After conversing with a number of the candidates as they came from the examination room, I found that not one answered these questions correctly.

If the medical boards desire less failures, let them ask: First, questions that can be answered; and, second, questions that when answered are of some practical value, and not unanswerable and unusual questions that no one could answer intelligently, even if they had access to the text-books. The object of state examining boards is to determine the fitness of candidates to practice medicine and surgery, and this can only be done by asking practical and useful questions, that every well-

educated physician should be able to answer intelligently, and not by asking unanswerable or unusual questions, the knowledge of which would be of no practical value, and questions which examiners could not answer themselves without consulting the proper books.

CONCLUSIONS.

The above investigation warrants the following conclusions:

1. That the trend of modern prescription writing is in favor of proprietary preparations.
2. That the use of polypharmaceutic preparations is diminishing to a great extent, and their use is chiefly confined to the older practitioners.
3. That the number of incompatibilities observed is greater than it should be.
4. That the metric system is but little employed at the present time in prescription writing, a condition to be deplored.
5. That over one-third of the prescriptions are incorrectly written, and this is especially noticeable among the younger practitioners.
6. That certain non-official preparations are quite popular, and that some of these deserve admission to the United States Pharmacopeia.
7. That the more educated the physician the greater the use of the pharmacopeial preparations, and the greater the tendency to simple instead of complex, non-scientific, polypharmaceutic and proprietary preparations.

Clinical Reports.

TETANY AND LARYNGISMUS STRIDULUS ACCOMPANYING MALNUTRITION IN AN INFANT.

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Rarity of Cases.—The relative infrequency of tetany in infants has prompted me to report this case. That it is rare in this country is shown by the report of Griffith,[1] who was able in 1895 to collect but 50 cases, 38 of which were in children. Sanger Brown[2] was able to find but 100 cases in this country up to 1898. He does not state the age at which it was found to occur most frequently.

A careful search of available literature fails to reveal a report of any cases of the disease occurring in infancy, which hardly corresponds with the observation of Holt. It is conceded that the disease is often accompanied by laryngismus stridulus, and usually accompanying rachitis or marasmus. In the following case there was a condition of marked malnutrition of a few weeks' duration only, and only a very few symptoms of rachitis were to be seen before the final termination.

Patient.—J. C. G., male, born May 6, 1904, weight at birth 7½ pounds.

Family History.—Both parents are apparently in good health. The patient was their fourth child. One child died of scarlet fever some few months ago. The other two children, a boy of about 7 and a girl of about 9, are both bright and healthy.

Previous History.—When this child was born it was tongue-tied, which was clipped about six weeks later. Mother states that she has always had plenty of milk in both breasts to nourish the other children well, but at the lactation just previous to this she thought the supply in the left side was not so good. The milk from left breast at present is poor in quality, showing low percentage of fat, and on standing, separates into opaque and transparent portions. From June 17, when the frenum was clipped, until September 10, the child did not come under my observation.

Clinical Course.—During my absence from home for a few days early in September, a fellow practitioner was called in on account of several superficial ulcerations presenting on the scalp and behind each ear which were slow in healing. There were also several small sores around the edges and end of the tongue, and on the corresponding buccal and labial surfaces. On September 10 I was hurriedly called on account of a spasm the child had just passed through. I found the child lying quietly in the mother's lap, uttering a low feeble whine, mouth wide open, eyes partly closed, skin bluish, features pinched and peaked, lying apparently oblivious to all surroundings and offering no resistance to manipulations. Temperature, 101.4 (axilla); pulse about 125 and weak. The mother, in describing the spasm, said that the child's face became blue, the head was thrown back, the limbs became stiff and rigid. Respiration ceased entirely for a brief time, then began again, and the normal color gradually returned to the skin.

The mother stated that four or five weeks ago the child weighed 12 pounds; present weight 9. He takes the nipple vigorously, but after three or four efforts drops it and begins to fret and cry; on changing to the other breast he nurses all right and seems to be satisfied. Suspecting poor quality and deficient quantity of milk to be largely the cause of the present trouble, an immediate change was made to a 5 per cent. preparation of cow's milk. The sores on the tongue and lips prevented the use of the rubber nipple, so we made use of an ordinary medicine dropper until he could grasp the nipple. The bowels were moving two or three times a day, but contained particles of undigested food. An examination of the lungs was negative.

September 11: Temperature 101.4; pulse fair; slept quite well; takes bottle some; lungs negative; no distension of abdomen.

September 13: Temperature 100.3; pulse strong; gave strychnin in 1/300 gr. every four hours since first visit. Bowels moved three times. Child seems more lively, and takes more notice of things going on about him; cry is stronger, urine scant and of reddish color. Glottic spasms have been occurring each day at intervals of from forty minutes to three hours.

September 15: Temperature 100; some curds passing in stools; some distension of abdomen; lungs negative.

September 19: Temperature 100.2. Until this morning the child was doing nicely, except for some tympanites, which was relieved by enemata. This morning the mother noticed slight twitching of fingers and forearm on left side. (He had all the time held both thumbs flexed into the palms and fingers clasped over them, so that where the index fingers crossed the thumbs there appeared a small ulceration. We had previously secured the thumbs outside the fingers to allow these to heal.) When I arrived at the house both forearms were involved in the muscular spasm, and the toes of both feet were markedly flexed. The lungs were negative, and the glottic spasms were less frequent and milder. Color of skin was even better than when last seen.

September 20: Temperature 100. Tremor is about the same, but has not had any glottic spasms since night before. Present weight 9½, showing a gain of a half pound. Has had no general convulsion.

September 22: Temperature 101. Tremor was less yesterday, but has increased to-day; some sore throat; a fine, elevated, glistening eruption has appeared over upper part of chest, shoulders and neck. Skin is quite red with a few minute pustules. Small ulceration appeared on umbilicus. Sweats a great deal. Bowels moved three times.

September 24: Temperature 101. Tremor about the same; color of skin better; eruptions disappeared; umbilicus better; profuse sweating, especially of head. Some abdominal disten-

1. Holt's "Infancy and Childhood."
2. Sanger Brown: Med. News, July 5, 1904.

sion; ear and scalp wounds healing nicely and urine is now quite clear. Sleeps well; no undigested food in stools. Has had slight cough for past thirty-six hours; lungs negative.

September 27: Temperature 104. Eruption has reappeared on chest and neck; cough has disappeared; some mucus in throat; bowel movements from two to four a day; quite marked abdominal distension; respiration somewhat rapid; a few fine subcrepitant râles found in upper lobe of right lung posteriorly; left side negative; tremor present as before.

September 27: Temperature 107.4 (axillary); marked dyspnea; pulse rapid and weak; tremor has disappeared; skin dark; coarse râles over all portions of both lungs; has occasional glottic spasm; liver enlarged downward three inches. After use of cold towels for from fifteen to twenty minutes, temperature was 103; cold was discontinued, and an hour later it had dropped to 101. When temperature fell, the tremor reappeared, in hands first and finally in feet.

September 28: 9:00 a. m. Temperature 101; has risen to 103 once during night; no more glottic spasm; respiration is rapid and very difficult; condition of lungs unchanged. Tremor of upper extremities as before, and mild in toes and plantar muscles.

The child died at noon, the tremor subsiding only immediately before death.

Treatment.—The treatment of this case was, from the beginning, an effort to supply a better quality of food. Working on the theory that the disease is of gastrointestinal origin,[3] the aim was to rid the intestinal canal of its toxin-producing material by administering at the beginning a full dose of calomel, and each subsequent day three or four one-tenth grain tablets, so as to produce from two to four free evacuations each day. To supply the lack in food a good quality of cow's milk was given at alternate feedings. Pure cream and saccharum lactis were added as needed.

Comments.—The theory of auto-intoxication is advanced as the determining cause of tetany, as given by Strong,[4] Loebl[5] and Moynihan[6]-Peters[7] of Berlin, in an excellent discussion of the pathologic anatomy, as a result of a histologic examination of eight cases, says that it is an organic affection, the lesion consisting of an interstitial neuritis or ganglitis, the process involving the nerve roots, innervating the parts that are the seat of the muscular spasms. This over-excitability of the motor nerves is the result of mechanical compression of the motor fibers in the root regions, by the products of the inflammation.

That tetany in infants is nearly always preceded by some disorder of nutrition is very good evidence in favor of the auto-intoxication theory. Rachitis is a common forerunner of the disease, and while the case just detailed presents a few of its symptoms, it is hardly enough to say that, had the child lived six months longer he would have developed the disease in a well-marked form. It might be added that antipyrin and bromid of sodium were both used in this case, with apparently little effect. I would also call attention to the fact brought out that the general condition of the child was improving up to the development of the lung complication, as evidenced by the gradual healing of the ulcerations about the head.

CURE OF A CASE OF SPINA BIFIDA.

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MERCER, PA.

History.—A woman, aged 40, in her ninth labor, which was tedious but uneventful, gave birth, Dec. 28, 1901, to a 9-pound boy, fat and well developed, except for a spina bifida at the fourth lumbar vertebra. The tumor was sessile, rather larger than a hulled black walnut. When the child cried the sac was distended, but when the child slept it was flaccid. I wanted to operate at once, but failed to get the consent of the parents. May 15, 1902, when the child was almost 5 months old, I was notified that the tumor had ruptured. The parents then realized that a crisis had arrived and were willing to have anything done. Summoning Dr. L. R. Heath, who kindly assisted me, we repaired to their home, two miles in the country. I found the child greatly emaciated, weighing less than 6 pounds, although nursed by the mother. The tumor had grown to about ten inches in circumference, but had now collapsed to two-thirds of its former size.

Operation.—Ether anesthesia was used and owing to the extremely feeble condition of the child and the constant fear that it would collapse, the operation was hurried at every point. With scissors I cut away three-fourths of the sac, which contained bloody serum. No floating nerve filaments were seen, but some were imbedded in the serous membrane. I separated the serous membrane and, involuting it, I packed it into the bony canal, which was large enough to admit the end of my little finger. Using silk sutures, I carried the first row from the edge of the muscle through the involuted mass and out through the edge of the opposite muscle; this closed the canal. I then introduced another row of sutures, embracing a mass of muscle and fascia on each side. Although there was considerable tension, a mass was raised up over the site of the canal. The thinner side of the sac wall was trimmed close to the sound skin, and the whole covering was made from the thick wall, which acted somewhat as a pressure pad over the site of the canal.

Result.—The child, seeming more dead than alive, was placed between hot blankets. The fontanelle was greatly depressed, and the pulse was imperceptible. The next morning reaction had taken place. The temperature did not reach 100 at any period of convalescence. The child was weaned and put on a modified cow's milk diet. The wound healed by first intention, but later, for fifteen months, from time to time, a deep stitch would suppurate out. The child began to take food freely and has continued to thrive. He walked in his nineteenth month, and is now in his thirty-sixth month, weighs 32 pounds, and is in perfect health. I believe the result was due to the complete closure of the canal.

3. Fleiner: Abst. THE JOURNAL A. M. A., vol. xl p. 1114.
4. Strong: Med. Record, Nov. 29, 1902.
5. Loebl: Abst. THE JOURNAL A. M. A., vol. xll, p. 1121.
6. Moynihan: Boston Med. and Surg. Jour., Nov. 5, 1903.
7. Peters: "Pathologic Anatomy of Tetany." Abst. THE JOURNAL A. M. A., vol. xll, p. 1237.

Successful Removal of Bullet from Heart.—The bullet lodged in the rear wall of the right ventricle, and was removed by an incision in this wall after suture of the entering hole. The incision was also sutured. The patient was a woman, and, after a mild, consecutive pericarditis with serous exudation, requiring evacuation, she made a rapid recovery. The external hemorrhage from the bullet wound was slight, but the patient exhibited cyanosis and anemia, and the operation revealed that the heart was being suffocated, as it were, by the accumulation of blood in the pericardium. The pulse was only slightly accelerated. An injection of camphor temporarily restored the pulse to 80. The moment the accumulated blood was removed from the pericardium, the pulse became good and remained so throughout all the further manipulations, without a trace of indications of collapse. There was no intermission in the contractions, even when the rear wall was incised. The operation was done, under ether, by Zoege von Manteuffel at Dorpat, and is reported in the *St. Petersburger med. Wochft.* for October 29. He remarks that it is the third case of successful suture of a bullet wound of the heart on record, and the first in which the projectile was extracted. It measured 5 mm. in diameter. The heart was reached by resection of the costal cartilage and margin of the sternum through a single vertical incision. The rotation of the heart was such that during diastole the wall of the right ventricle presented at the incision and during systole the wall of the left.

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NEUROFIBRILS.

The idea that the nerve-cell protoplasm has a fibrillary content dates back to the time of Max Schultze. Histologists were, however, in doubt about the matter until Apáthy, a Hungarian scientist, with the use of a difficult and complicated method, devised by himself, demonstrated the fibrils convincingly. The method of Apáthy, however, yielded very inconstant results, and, moreover, often failed entirely in the hands of other investigators. Beside, the method was applicable only to the tissues of invertebrates, mammalian and other vertebrate tissues failing to respond to the stain. Apáthy, by his demonstrations before various anatomic societies, was nevertheless able to convince research workers in his field that the fibrils actually exist.

A search for a method which would stain the neurofibrils in human tissues was rewarded by the discovery by Bethe of a procedure which stains tolerably satisfactorily the fibrils in normal adult nerve cells. Bethe's method is also a difficult one, and one which involves the treatment of the tissues with strong reagents. It is limited further by its non-applicability to embryonic organs.

The methodology of the subject was soon further enriched by Ramón y Cajal and by Bielschowsky, each of whom invented an easy method of demonstrating the neurofibrils by silver impregnation. Each of these methods yields excellent results, and histologists have not yet fully decided as to which of the two methods is preferable. A great advantage consists in the fact that the silver methods permit of the staining of the neurofibrils at the time of their earliest appearance in embryonic tissues. The technic of the silver staining is comparatively simple, and some good work has already been done with it in researches dealing with the pathology of nerve cells.

Bethe has made some interesting observations on what he speaks of as the "primary stainability" of the neurofibrils with basic dyes like methylene blue, thionin or toluidin blue. By "primary stainability" he means the property of staining tissue in the fresh condition, or when it has been altered by dehydration only; he contrasts this primary stainability with the secondary stainability which exists after the tissue has been chemically altered, say by the action of some mordant. On staining nerve cells with methylene blue or toluidin blue, dyes which above most others exhibit neurotropic affinities, it is found that not only the tigroid masses of Nissl take the stain, but also the neurofibrils and sometimes the myelin sheath of medullated nerve fibers. In tissue dehydrated by alcohol, the myelin can be removed by treatment with xylol, and then only two substances remain which possess primary stainability. The use of toluidin blue as a staining reagent is especially to be recommended because it stains the neurofibrils metachromatically, of a different tint from that assumed by the tigroid substance.

Bethe has shown that certain reagents possess the power of destroying the primary stainability of the neurofibrils without removing the fibrils themselves from the nerve-cell protoplasm. Thus nitric acid or dilute solutions of the alkalies so change the neurofibrils that they no longer stain "primarily," though they can be stained by mordanting methods. This fact led Bethe to the idea that some substance responsible for the primary stainability of the fibrils enters into their chemical constitution normally, but can be easily split off from them. By further experimentation he found that the primary stainability of the neurofibrils can be destroyed by treatment with a dilute solution of hydrochloric acid in alcohol, though the Nissl bodies remain unchanged in their stainability by this process. The primary stainability of the latter can, however, be removed by treatment with a dilute aqueous solution of hydrochloric acid. Bethe concludes, therefore, that in each instance an acid substance, combined with the albuminous substratum, is the chemical constituent underlying the primary stainability. He therefore speaks of the "fibril acid" in one instance and of the "Nissl acid" in the other. Each acid is split from its attached albumin by hydrochloric acid; the free fibril acid is soluble in alcohol but insoluble in water; the free Nissl acid, on the contrary, is insoluble in alcohol but soluble in water. Ammonia dissolves out the Nissl acid easily, but has no effect on the fibril acid.

It is interesting that Bethe has succeeded already in obtaining small quantities of these acids in a comparatively pure state and has begun the study of their physical and chemical properties. The free fibril acid is an amorphous substance, almost colorless, of horny consistence, insoluble in water, chloroform, ether or in dilute mineral acid. It dissolves tolerably easily in alcohol, especially when the latter is acidified, and can be precipitated from alcoholic solution by sodium hydrate or potassium hydrate in the form of alkali salt. The potassium and sodium salts are very soluble in water, but the ammonia salt is insoluble in either alcohol or water.

The free fibril acid suspended in water stains intense violet in toluidin blue. The free acid does not yield the biuret reaction, and it is not yet certain whether it contains nitrogen or not. The substance must be obtained in much larger quantities than those hitherto available before more definite statements regarding its nature and chemical constitution dare be made. Bethe

obtained only two centigrams of the substance from a whole kilogram of the spinal cord of the ox.

Inasmuch as the conduction of impulses by nerve fibers appears to depend on the integrity of the chemical compound on which the primary stainability of the neurofibrils depends, the extraordinary interest and importance of the fibril acid become at once apparent. Further research along these lines will be eagerly looked forward to by neurologists everywhere.

THERAPY OF EXOPHTHALMIC GOITER.

Although it is now ten years since Baumann isolated the active principle of the thyroid gland, and since Roos demonstrated that this iodin-containing body accomplished the chief functions of the thyroid, if not all of them, yet it has not to this day been settled whether thyroidin acts by neutralizing toxic products of metabolism or by furnishing some stimulus necessary for proper metabolism. Much evidence has accumulated, however, to lend support to the view that neutralization of toxic substances is an important function of the thyroid, whether its sole function or not. Of particular interest is the evidence secured through the successful treatment of exophthalmic goiter on principles suggested by the antitoxic theory of thyroid function. From the results of many experimental and clinical observations, it has been well established that the symptoms of exophthalmic goiter are largely due to a poisoning by products of thyroid metabolism, although the cause of this overproduction is still an unsolved problem. Thyroid products, therefore, although normally acting to neutralize toxic substances, are themselves toxic when not neutralized and present in sufficient quantities. If it were possible, therefore, to secure these toxic substances that the thyroid products normally neutralize, it might be possible to administer them to patients suffering from thyroid intoxication, and thus neutralize the excessive products of the thyroid. This is, of course, simply a reversal of the practice in the treatment of myxedema, in which disease the patient is presumably suffering from unneutralized products of metabolism, which can be neutralized by administering thyroid extract.

The first application of this idea to the treatment of exophthalmic goiter was probably by Ballet and Enriquez, and later independently by Lanz and by Burghart and Blumenthal. Material was secured by removing the thyroid from goats or dogs; when the blood of the animals had become saturated with toxic substances which should have been neutralized by the thyroid, and the animals were suffering from the consequent tetany or acute myxedema, they were killed and their blood secured for therapeutic purposes. Whether injected subcutaneously in the form of serum, or administered by mouth in the form of tablets of dry blood, favorable effects have been obtained by many independent and competent observers. Lanz has furthered popular use of this method of treatment by discovering that the milk of thyroidectomized goats contains the toxic materials, and as goats live for some time without their thyroids it is possible to have the patient take daily for several months one-half to one pint of such milk, with good results. As goat's milk becomes objectionable after some time, a preparation has been made by precipitating out the toxic materials and administering them in solid form; such a preparation is on the market in Germany.

The clinical course of exophthalmic goiter is so variable that one is justified in withholding an opinion as to the results of any particular method of treatment until very considerable numbers of cases have been followed for a long time. However, when clinicians of the reputation of Möbius and von Leyden go on record in favor of this method, which is furthermore founded on a scientific principle, it may be considered to be of no inconsiderable worth. Von Leyden has recently published an interesting clinical lecture on the topic,[1] in which he states that improvement is generally observed in three to four weeks, but the treatment must be followed for months and repeated at intervals according to the condition of the patient.

THE SERUM DIAGNOSIS OF TUBERCULOSIS.

While the use of the Widal reaction has become widespread in this country, and serum diagnosis has also been used to a considerable extent in dysentery and in summer complaint, its use in tuberculosis has been almost entirely neglected. Whether this is due to the technical difficulties which make this test more difficult than the Widal and allied reactions, or whether it is due to the fact that we are more apt to follow a German than a French example, is hard to say. It can not be denied, however, that in America this method of diagnosis has not been given an extended trial.

The matter was recently brought up by the originators of the test, Drs. Arloing and Courmont, at the Congress of Arts and Science in St. Louis, and a full description of the test with its drawbacks and difficulties was given.[2] As the authors point out, the sources of error may lie in the localization and evolution of the tuberculosis, or in the manner in which the cultures used for the test are developed. It is pointed out that advanced cases are the ones which most frequently do not give the reaction, and, on the other hand, very early cases, which may present no physical signs, do give it. For this reason many observers have been skeptical about the accuracy of the results reported by Arloing and Courmont, notwithstanding the fact that in a good many cases they have been able to control their clinical findings by autopsy. Then, again, in order that the test shall be a satisfactory one, it is necessary that the culture of the tubercle bacillus shall be in the form

1. Medizinische Klinik, Dec. 1, 1904.
2. Boston Med. and Surg. Jour., vol. cli, No. 23, 1904.

of a liquid homogeneous culture. Arloing and Courmont point out that it is quite difficult to obtain a good culture, and that some of those who have criticized their work have failed to follow closely their directions.

In order to obtain satisfactory results with their method, it is necessary, in the first place, to have a homogeneous liquid culture, grown in bouillon containing from 4 to 6 per cent. of glycerin, from a luxuriant greasy growth on potato. Such a suspension of tubercle bacilli must be tested with a standard serum which is known to agglutinate, as well as with the serum to be tested. As agglutination only occurs in relatively low dilutions, these should be used, preferably one to five, one to ten and one to fifteen. The serum to be tested should be fresh, clear and sufficient in amount, and the test should be watched for from three to five hours after it is begun. A test should never be considered positive unless the tubes show complete agglutination visible to the naked eye, and showing flocculi and subsequent clarification.

Arloing and Courmont have followed these directions in over 400 medical cases, with the following results: Where there was a positive clinical diagnosis of tuberculosis 87.9 per cent. gave the reaction, and 12.1 per cent. did not; in hospital cases with no clinical tuberculosis 34.6 per cent. gave a positive, and 65.4 per cent. a negative reaction; in apparently well persons 26.8 per cent. gave a positive, and 73.2 per cent. a negative reaction. In a smaller number of cases of surgical tuberculosis, over 73 per cent. of the cases gave a positive reaction. The writers also found that the fluids from tuberculous inflammatory lesions have the power of agglutinating tubercle bacilli, especially the serum from cases of tuberculous pleurisy and mild cases of tuberculous peritonitis. In the case of non-tubercular effusions no agglutination takes place.

With regard to the fact already noted, that in advanced cases no reaction may occur, the authors point out the similar lack of tuberculin reaction in many advanced cases. The lack of reaction may be due to great virulence on the part of the infecting tubercle bacillus, or to a lack of resistance on the part of the individual. The latter factor seems to be the more important, as the authors state that the development of the agglutinating power seems to require well-marked resistance on the part of the infected individual. The value of the test is both diagnostic and prognostic. It is diagnostically valuable on account of the fact that it occurs in the early stages of the disease, even in people who have neither symptoms nor physical signs. It is prognostically valuable in advanced cases, where a failure of the reaction indicates a lack of resistance, and renders the prognosis grave. The test has been confirmed by a number of observers, both in France and Germany, and though there are some who deny its value, it seems well worthy of a more extended trial.

EXPERIMENTAL SYPHILIS.

Metchnikoff and Roux, followed by Lassar and Neisser, have demonstrated conclusively, by numerous and diversified experiments, that syphilis may be transmitted by inoculation to chimpanzees and other apes. It has been found that in the chimpanzee the period of inoculation varies between twenty-two and thirty-seven days; and, furthermore, that the disease may be transmitted from chimpanzee to chimpanzee. This means that it now has become possible to subject the "virus" or "contagium" of syphilis to more penetrating investigations with the view to obtain some idea of its nature, and thus pave the way for its actual demonstration.

So far, minute study of the material known to contain the infectious agent of syphilis has not yielded any information—organisms have not been found in the scrapings and juices of chancres and other lesions in either man or anthropoid. The thought naturally suggested itself that the syphilitic virus might be filterable, like the virus or organisms of bovine peripneumonia, of foot-and-mouth disease, of yellow fever, etc. But the experiments of Klingmüller and Baermann[1] and of Metchnikoff and Roux[2] show that the cause of syphilis does not pass through filters that permit the passage of the organism of peripneumonia, while small known bacteria are held back. Hence the virus of syphilis does not seem to be filterable, whatever the reason for this may be.

Metchnikoff and Roux, then, show that the syphilitic virus completely loses its virulence when heated for one hour to 51 C. On the other hand, pure glycerin seemed to have no effect on the virus. They found, further, that the heated and the filtered inactive materials did not have the power to protect chimpanzees against virulent virus. From this result and from certain other considerations, Metchnikoff and Roux were led to believe that an attenuated virulent virus, suitable for the purposes of a vaccine, might perchance be obtained from animals with a relatively slight susceptibility to syphilis.

For this purpose, extensive studies of syphilis in lower forms of apes and of monkeys seemed indicated, and Metchnikoff and Roux as well as others have accumulated quite a number of observations anent syphilis in some of the catarrhine monkeys of the Old World. These observations are as yet, however, wholly preliminary and serve for orientation. Perchance, before long indications may be secured that will point out definitely the direction along which extensive experiments must be made. Undoubtedly, the renewed interest in syphilis caused by the demonstration of its transmissibility to apes and to monkeys sooner or later will lead to more light being thrown on the many obscure questions connected with its etiology.

1. Deut. med. Woch., 1904, p. 766.
2. Ann. de l'Institut Pasteur, 1903, xviii, 657.

PERITONITIS AS A COMPLICATION OF TONSILLITIS.

Peritonitis results most commonly by extension from adjacent disease, especially of the abdominal viscera. Less commonly it arises as a result of infection transmitted by way of the blood stream from some more or less remote point. The tonsils have been pointed out as possible sources of danger in this connection. The function of these glandular structures is involved in some obscurity. They are known to act as absorbents and also to take part in the production of lymphocytes. By reason of their exposed situation, they are often the seat of disease, and there is a considerable volume of evidence that they serve as portals of entry for various pathogenic micro-organisms, at times, without being themselves seriously involved. Thus there is a growing belief that the micrococcus that is supposed to be the cause of acute rheumatism gains access to the interior of the body by way of the tonsils, and it is equally probable that other infections are acquired through the same channel. A case illustrative of this view has recently been recorded by Dr. Hermann Künzel.[1] A cook, 18 years old, came under observation in an unconscious state and died in the course of three hours. Postmortem examination disclosed the existence of purulent peritonitis, no other source for which could be discovered than inflammation of both tonsils. In cultures from these, as well as from the peritoneal exudate, streptococcus pyogenes developed. In explanation of the course of events in this case it is suggested that a small amount of fluid present in the peritoneal cavity may have constituted a favorable medium for the development of the bacteria entering the circulation by way of the tonsils. In any event, these organs must be reckoned with as one of the portals of entry for a number of micro-organisms capable of causing peritonitis, and their implication in various morbid processes is, therefore, not lightly to be dismissed.

DR. FRANK P. FOSTER.

Last Saturday Dr. Frank P. Foster completed his twenty-fifth year as editor of the *New York Medical Journal,* and we wish to congratulate him on the event. During the quarter of a century vast strides have been made in medicine and in medical journalism, but Dr. Foster has always kept at the front. Always honorable, fair and square as a man, he has stood for the highest ideals in medical journalism, and has set an excellent example for other editors to follow. As far as we know, since Dr. Culbertson of the *Lancet-Clinic* and Dr. Shrady of the *Medical Record* have given up editorial work, Dr. Foster is the Nestor of medical editors in the United States. We wish him many more happy and prosperous years.

THE USE OF SALT.

The question of the dangers of food preservatives is not yet thoroughly settled. The elaborate tests by Dr. Wiley, it is reported, have left with him an unfavorable impression regarding their effects on the human digestion, but his mind is still open to conviction on the subject. One thing, however, is certain—from an economic point of view, the food resources of the world would be considerably lessened if the use of all preservative chemicals, including common salt, was discontinued. Certain French physicians have recently discussed at some length the effect of salt and the value of dechlorization in certain disorders, and it is claimed, by at least one authority, that the use of salt is generally hurtful to the human system. The amount of the substance that we really require would be obtained through our food without the process of artificial salting, he says, and the taste for salt is not innate but is acquired. It would be impossible to avoid ingesting a certain amount of chlorid of sodium in our food. It is one of the most widely distributed substances in Nature, but it seems going a little to extremes to say that a taste for it is purely an acquired one, and it is easy to conceive that the universal craving for salt, which is shared by man in common with many of the lower animals, indicates a real want, and that at times, at least, salt may be insufficiently supplied by an unseasoned diet. Like everything else, salt is liable to overuse, but this does not mean that it may not be sometimes too little used. We can not dispense with the use of salt, if only for economic reasons, and while it may be harmful in certain disorders, its usefulness to the average individual in health and to the population generally can not be questioned. It would be an interesting calculation how much the world's progress is due to salt, and how far our present civilization could really exist without this important food preservative.

1. Münchener med. Wochenschrift, Oct. 25, 1904, p. 1920.

THE ORIGIN OF PARASITISM.

The remarkable predilection shown by certain species of microbes for certain hosts, and the relative indifference of these parasites to other organisms, has long been the subject of zealous speculation and inquiry. Great as has been the advance in our knowledge of the underlying causes of natural immunity during the last few years, it can not be said that any final explanation is even yet in sight. It is, indeed, apparent that the ardent prosecution of studies into the germicidal and antitoxic qualities of immune sera has caused a temporary suspension of activity in other lines of investigation. The broader biologic aspects of natural immunity sometimes have been neglected. It may well happen that studies in plant pathology will be found to throw light on some of the questions of animal parasitism that have hitherto been shrouded in obscurity. For some time botanists have known much concerning the various modes by which parasitic fungi gain access to the interior of the host plant. Some enter through the stomata, some by piercing the walls of the epidermal cells or the guard cells of the stomata. Marshall Ward, in his study of the Bermuda lily disease, discovered the interesting fact that the fungus concerned (a species of *Botrytis*) effects its entrance into the host plant by secreting at the tip of the germ tube an enzyme which softens the substance of the cell wall. Quite recently Massee has brought out important facts concerning the influences that determine the attack of a specific host

by a specific fungus. It is pointed out that while the spores of a parasitic fungus will germinate on the damp surface of the leaf of any plant, yet the germ tubes will enter the tissues and infect only the particular kind of plant on which the fungus is known to be parasitic. It is a legitimate inference from this fact that the tissues of the particular host possess a special and peculiar attraction for the parasite in question. This hypothesis has been tested experimentally, and it has been found that under certain circumstances positive chemotropism plays a prime part in inducing infection. Through the use of certain chemical substances shown to attract certain fungi, an otherwise immune host plant has been successfully infected. In other words, the entrance of a parasitic fungus into the tissues of a healthy plant depends, at least in some cases, on the presence of some positively chemotropic substance in the cells of the host. It is stated that a saprophytic fungus can be gradually educated to become an active parasite for a certain plant by introducing a positively chemotropic substance into the tissues of that plant. It is possible also by similar means to induce a specific parasitic fungus to invade a new host hitherto not attacked by this particular parasite. In this connection it has been pointed out that a remarkable coincidence exists between the behavior of fungus spores toward their host, and that of the pollen grains when placed on the stigmas of flowers of their own and of other species. The marked positive and negative chemotropic properties shown in the attraction of pollen tubes are apparently closely related to the similar manifestations of the germ tubes of parasitic fungi. The strict association of specific parasite and specific host may, perhaps, be explained on a similar chemotropic basis.

THE FOOD VALUE OF ALCOHOL.

The question whether alcohol is a food or not will be answered in accordance with the individual point of view, especially as to the definition of what constitutes a food. Some argue that if, after ingestion, it is oxidized in the tissues, entering into their formation and repair and giving rise to heat and energy, it must be considered a food, whereas, if it be excreted unchanged, it can not be thus classified. Different observers have reached divergent conclusions on the subject, and the explanation must be looked for, in part at least, in differences in method, and in part also in differences in conception of the character of a food. It has been shown that alcohol is oxidized in the animal body, although, at the same time, it interferes with metabolism or oxidation of other substances, as indicated by lessened absorption of oxygen, decline in body temperature, degeneration of albuminous tissues into fat and diminution in the amount of urea, uric acid, carbon dioxid and salts eliminated. This impairment of metabolism may be attributed, among other things, to interference with the oxygenating function of the red blood corpuscles, while the readiness with which the alcohol seizes on the oxygen in the tissues and thus robs the fixed elements of their proper share, results in arrest of decomposition at the stage of fat formation, and so, as a whole, in prevention of tissue waste. With the object of determining the exact point at which alcohol begins to be eliminated as such and the amounts of the substances into which it is transformed in the body, Dr. W. H. Goddard[1] undertook a series of experimental observations on dogs in which alcohol was administered in progressively increasing amounts. It was found that when alcohol was administered to the amount of 1/750 part of the body-weight, a little more than 5 per cent. of that amount was excreted. No aldehyd or other derivatives were detected in the expired air, the urine, the blood, or in any part of the body after death, so that it may be concluded that nearly 95 per cent. was utilized as food. When double the amount of alcohol was administered a little more than 6 per cent. was excreted, while acetic aldehyd made its appearance in the expired air, although none could be detected in the urine or elsewhere in the body. Finally, when a large amount of alcohol was administered, rather more than 49 per cent. of alcohol or its equivalent was excreted, and hence was unutilized. Accordingly, Goddard comes to the conclusion that alcohol has a distinct food value when taken in small amounts, but when larger amounts are given it is in considerable part excreted from the body unchanged, while at the same time the unutilized excess interferes with the normal metabolism. Over and above the part that alcohol plays in the metabolic economy, consideration must be given also to its irritant effect on the mucous membrane of the digestive system, and the tissues of the liver, the heart and blood vessels, the kidneys, the nervous system, etc. In a word, therefore, alcohol in small (physiologic) doses may be made to subserve a useful purpose, while in large (toxic) doses it is calculated to do harm.

Medical News.

ILLINOIS.

Chicago.

Wood Sent to Jail.—Dr. N. News Wood, of Christian Hospital notoriety, was sentenced to ten days in jail for contempt of court, December 30, and in addition he was fined $100 and the "hospital" $250, for violation of an injunction restraining them from using the name of Dr. John B. Murphy in connection with the establishment.

Chicago's Health in 1904.—Dr. Arthur R. Reynolds, commissioner of health, reports that during the first eleven months of the year there had been a total of 23,959 deaths from all causes reported, with an annual death rate of 12.54 per thousand—as compared with a total of 25,999 and a rate of 15.15 per thousand during the corresponding period of 1903. Since then there has been a great increase of mortality and the total is swelled to 26,300 for the year 1904, with an annual rate of 13.61 per thousand. Still this is the lowest on record for the city and the lowest by a wide margin for any city of magnitude either in this country or abroad. The lowest previous death rate for Chicago was 13.88 for the year 1901—a year of remarkable healthfulness throughout the world. Only five of the important causes of death show any increase over the numbers of the previous year. Except deaths from the acute intestinal diseases, which were 16 more than in 1903, the causes showing increases were diseases over which sanitary effort and preventive medicines have as yet gained little or no control. These are: Apoplexy, 116; Bright's disease, 128; consumption, 234, and cancer, 59 more than in the previous year. Smallpox, which more than once threatened an epidemic spread from repeated importations into the city, has been

1. Lancet, Oct. 22, 1904, p. 1133.

combated with such vigilance and efficiency that its mortality is only 30 as compared with 47 in 1903. This vigilance and efficiency, made possible by the city council's emergency appropriation, has prevented any panic or undue excitement from the continued presence of the disease—a presence which must last as long as smallpox remains so widespread throughout the country as it now is. A total of 2,614 fewer deaths among a population some 60,000 more than last year; a reduction of 1,224 deaths under 5 years of age, including 927 of children at the "milk-feeding period" of life; the best sanitary quality of the public water supply ever furnished, and as a consequence of the latter, a vanishing death rate from typhoid fever; a successful battle with frequent importations of smallpox—are among the features of the year on which Dr. Reynolds bases the claim that Chicago has maintained its record for highest degree of healthfulness among all the principal cities of the world—those having populations of more than 300,000 each.

MARYLAND.

Opening of Peninsula General Hospital.—The Peninsula General Hospital at Salisbury was opened formally December 28. There was a very large atendance of physicians of the eastern shore. The site is elevated, with fine view of Lake Humphrey and Wicomico River. The building cost $50,000 and was a present of Hon. William H. Jackson, M. C. It is of brick, stone and iron, four stories, with basement and sub-basement. The front is 35x46 feet, with two wings each 26x38 feet. In the sub-basement is the steam heating and electric light plant. In the basement is a chapel, embalming and autopsy morgue, dining-room, kitchen and laundry. The first floor contains writing room, physicians' and nurses' rooms, bath and toilet rooms, two wards and dispensary. The second and third floors contain private rooms and public wards, diet kitchens, and on the third floor is an operating room. There is an elevator. The president of the board has fitted up the building at an expense of $4,000, and the treasurer, Mr. W. R. Miller, has given an ambulance worth $500. The state appropriates $5,000 annually for the hospital. Addresses were delivered by Drs. Guy L. Hunner and H. O. Reik, Baltimore, and Dr. Joseph W. Hearn of Philadelphia. The medical staff consists of: Drs. F. M. Slemons, Louis W. Morris, J. McFadden Dick, E. W. Humphreys and George W. Todd, all of Salisbury; visiting medical staff, Dr. Joseph W. Hearn, Philadelphia, general surgeon; Dr. Howard A. Kelly, Baltimore, consultant; Dr. Guy L. Hunner, Baltimore, gynecologist; Dr. H. O. Reik, Baltimore, eye and ear specialist.

NEW YORK.

Measles in Buffalo.—Buffalo is suffering from an epidemic of measles. Forty to fifty cases of this disease are being reported daily to the Department of Health.

Personal.—Dr. A. W. Jayne of North Tonawanda has been appointed health physician to fill the term made vacant by Dr. Leanhardt, who has gone to Porto Rico.

Thrall Hospital.—The annual charity ball for the benefit of this institution, located at Middletown, was given Dec. 27, 1904. This hospital cares for many employes of the Ontario & Western Railroad and Mr. Fowler, president of the road, paid $250 for a ticket to show his appreciation.

Rabies in New York.—According to the last annual report of the State Department of Agriculture, rabies has been more prevalent in New York state than ever before. Rabies has been found to exist in the following counties: Sullivan, Ulster, Saratoga, Broome, Tioga, Tompkins and Chautauqua.

Impurities from Pulp Mills.—Recommendations have been awaiting the action of the legislature to restrain paper factories from polluting the waters of Lake Champlain and the streams in the vicinity with waste products. However, a new process for reclaiming these waste products has been invented in the meantime and is being used at Ausable Forks by which the water comes out perfectly clear, with all the impurities of the mill removed. Other companies expect to install plants, and it is hoped that there will be no further cause for complaint.

Safeguarding of Cities Against Impure Milk.—Health Commissioner Greene of Buffalo held a conference with State Commissioner Lewis and Commissioner Darlington in Albany concerning the safeguarding of cities against impure milk from the country. At present there is no inspection of dairies in the country and the cities have to rely to a great extent on the vigilance of the town health authorities to report dangerous conditions as to the source of the milk supply. It is proposed that New York City and Buffalo have their respective common councils authorize the appointment of the desired inspectors as city employes, the state health commissioner then to appoint them state inspectors without pay. The duties of such inspectors would be to make the rounds of all the dairies at frequent intervals to see that not only are the dairies in good sanitary condition and the utensils kept clean, but also that the cattle are kept in sanitary stables and that no milk from cows afflicted with tuberculosis or other diseases communicable to human beings be sent to the city. On the discovery of contagious disease in the family of a dairyman they are to suspend the sale of milk from this dairy until such time as the milk is beyond danger of infection.

New York City.

Personal.—Dr. Max Einhorn has been elected a corresponding member of "The Society of Physicians of Munich" (Aerztlicher Verein von München).

Beth Israel Hospital.—At the annual meeting of the directors of this institution it was reported that an additional building had been purchased at a cost of $71,000, adjoining the hospital. The total number of patients in the hospital during the year ended September 30 was 1,713; of these 88.5 per cent. were treated gratuitously. There is a surplus of $2,529 in the treasury.

Contagious Diseases.—There have been reported to the sanitary bureau for the week ended December 24, 347 cases of tuberculosis, with 143 deaths; 338 cases of diphtheria and croup, with 49 deaths; 227 cases of scarlet fever, with 15 deaths; 163 cases of measles, with 4 deaths; 60 cases of typhoid fever, with 17 deaths; 185 cases of varicella, and 17 deaths from cerebrospinal meningitis.

Good Collections for the Hospitals.—The general treasurer of the Hospital Saturday and Sunday Association reports an encouraging outlook for the collection now in progress. The returns from the church collections on Hospital Sunday showed large advances over last year. St. Thomas, for example, gave $3,300 more than last year, and the trades auxiliaries also show largely increased collections.

Presbyterian Hospital Deficit.—This hospital, one of the big four in the New York hospital group, reports a deficit of $72,963, which condition is by no means peculiar to this institution. It means that unless the public provides more generously for the hospitals they must come under municipal management. Mr. Frank Tucker, vice-president of the Provident Loan Society, has been urging the plan for raising a large endowment fund, the income to be used in supplementing the present incomes of the group of hospitals which find themselves in the same financial condition as the Presbyterian.

New Immigrant Hospital.—The United States government has planned to build a hospital for the reception of dangerous contagious diseases on an artificial island to be raised in the upper bay near Ellis Island. The land under water has already been purchased from the state of New Jersey and Congress has made available the sum of $150,000 for the construction of the island. The commissioner general of immigration will advertise for bids on the work in the immediate future. Some alarm has been expressed at what might seem to be the creation of a pest corral at the city's front door, but Dr. Doty, health officer of the port, did not think that there would be as much danger as under the present plan, and considered it much more fitting that the United States government should care for immigrants than the city of New York should continue to do so, even though the government was paying the city well for this service.

OHIO.

Ohio Valley Medical Association.—The executive committee of the Ohio Valley Medical Association has selected Henderson, Ky., as the place of the next annual meeting, which will take place Nov. 8-9, 1905. The president, Dr. J. W. Stone, will soon announce the standing committees.

Cincinnati Society for Medical Research.—At the regular meeting of the Cincinnati Society for Medical Research, held Dec. 22, 1904, the following papers were read: "The Sources of Tuberculous Infection in Cincinnati," Dr. B. F. Lyle; "Dystoma Hematoidium of the Bladder," with slides, Dr. A. Faller; "Histologic Findings in a Case of Diabetes Mellitus," Dr. J. E. Greiwe.

Cincinnati's Health in 1904.—The annual report of the health office shows that the number of deaths in Cincinnati

during 1904 was 6,975, as against 6,201 for 1903, an increase of 774. The greatest mortality occurred in January, February and March. The number of patients visited by the city physicians during 1904 was 6,250, with a total number of visits of 12,486, as against 6,360 patients and 14,698 visits for 1903.

Highland County Medical Society.—The Highland County Medical Society, a branch of the Ohio State Medical Association, held an all-day session at Hillsboro, Ohio, on January 4, the president, Dr. J. T. Gibson, in the chair. The following papers were read: President's Address, Dr. J. T. Gibson, Lynchburg; "Laryngeal Tuberculosis," Dr. J. A. Thompson, Cincinnati; "Surgical Tuberculosis," Dr. J. C. Oliver, Cincinnati; "Prevention and Cure of Tuberculosis," B. F. Lyle, Cincinnati.

Typhoid Fever in Cincinnati.—Typhoid fever seems to be increasing in Cincinnati, according to the report of the Department of Health, 41 cases with 5 deaths having been reported for the week ending December 23. The city seems to be singularly free from other infections, there being reported but one case of measles with no deaths, 12 cases of diphtheria with no deaths, 10 cases of scarlet fever with no deaths, 2 cases of smallpox with no deaths, and a scattering of other infections.

Coroner's Report for Hamilton County.—The report of Dr. Walter B. Weaver, who has just finished his second and last year as coroner of Hamilton County, shows that his office has handled the largest number of cases in its history, a total of 823 for the year. These cases were divided as follows: Homicides, 37; suicides, 103. Manner of suicide—By morphin, 6; by carbolic acid, 25, a marked falling off from the previous year; by laudanum, 3; by cutting throat, 7; by shooting, 25; by hanging, 14, an increase; by falling in front of train, 1; by drowning, 6; by paris green, 8; by jumping from bridge, 1; by jumping from window, 1; by prussic acid, 1; by undetermined poison, 1. Accidents, 334. Nature of accident: Killed by steam railroad, 82; by electric railroad, 28. This is the smallest number of fatalities by electric railroad for a number of terms. Natural deaths, 334; alcoholism, 15, showing an increase over former reports. Total number of native born, 585; foreign born, 219; undetermined, 19; an excess of native born over foreign born and undetermined cases of 366. During Dr. Weaver's first term, 1903, the homicides were 30; suicides, 95; street car cases, 42; steam car, 89; natural deaths, 303; miscellaneous accidents, 223. At the beginning of the new year Dr. Otis Cameron formally assumed the office of coroner of Hamilton County. Dr. Cameron is not new to his duties, as he has occupied the office of deputy coroner for several years during the régime of Dr. Walter B. Weaver. Dr. Oliver Coe, who has served as receiving physician to the Cincinnati Hospital for a number of years, has been selected as deputy coroner.

PENNSYLVANIA.

Personal.—Drs. L. M. Frankhouser and Oan J. Thompson have been elected president and secretary, respectively, of the staff of the Society for the Aid of Indigent Consumptives of Reading and Berks County.

Physician Injured.—Dr. Frederick W. Van Buskirk, Pottstown, while on a visit to Philadelphia, December 30, fell on an icy pavement and sustained a fracture of both arms at the elbow joint. He was treated in the German Hospital.

Philadelphia.

Webster in Philadelphia.—Dr. J. Clarence Webster, Chicago, read a paper before the Philadelphia Obstetrical Society, December 5, on "Fibroid Tumors of the Uterus," and was afterward the guest of honor at a reception given by Dr. Richard C. Norris at his residence.

Hughes Memorial.—In perpetuation of the memory of Dr. Daniel E. Hughes, who served as chief physician of the Philadelphia Hospital for 12 years, a bronze tablet was unveiled on the wall of the main entrance to the hospital with appropriate ceremonies, December 27. The memorial was secured by subscriptions from admirers and friends, which were largely secured by the kindly efforts of the *Philadelphia Press*.

Dinner to Dr. Chapin.—In an item of news in THE JOURNAL, December 10, 1904, page 1798, the presentation of an oil painting of Dr. Chapin was credited to the members of the staff and the board of trustees. We are informed that there were 125 subscribers to the fund, which included, beside those mentioned above, a large number of physicians connected with hospitals for the insane, the managers of the hospitals with which Dr. Chapin is connected, and of other hospitals, etc.

Decreasing Marriages.—During 1904 there has been a decided falling off in the marriages in this city, as the figures from the marriage license office indicate. During 1903, 13,091 marriage licenses were issued. During the present year only 12,190 were issued, a decrease of 901. These figures, however, were given before the close of the year; therefore, by adding 100 more to the list of 1904 there still would be a decrease of 801. The reason for this falling off in the number of marriage licenses the officials believe is due to the publication of the license list. This leads, they say, young people who wish to avoid publicity to go to New York, Wilmington and the surrounding counties in the state where no publication is made.

Antitoxin in Diphtheria.—From the study of the cases of diphtheria recently admitted to the Municipal Hospital the fact is disclosed that there is marked indifference in many quarters as to the value of antitoxin in the treatment of the disease. Of 147 cases admitted to the hospital during September and October not one had received antitoxin before admission. All diphtheria patients admitted to the hospital are immediately given antitoxin. The effect of the measure is demonstrated by the following figures: Of 7 cases admitted within twenty-four hours of the initial illness all recovered; of 51 admitted during the second day of the disease 3 (all laryngeal cases) died; of 29 admitted during the third day 3 died; of 25 admitted during the fourth day 6 died; of 13 admitted during the fifth day 2 died; of 8 admitted during the sixth day 2 died; of 5 admitted during the seventh day 3 died; of 9 admitted on and after the eighth day of the disease 2 died. In other words, of 87 cases admitted on or before the third day of the disease only 6 died, giving a mortality of 6.88 per cent., while of 60 cases admitted after the third day 15, or 25 per cent., died.

GENERAL.

Missouri Valley Medical Society.—The semi-annual meeting of the Medical Society of the Missouri Valley will be held in Kansas City March 23, 1905. An invitation has been extended to the presidents of the state associations within the territory embraced by the Missouri Valley and to the profession in general, and an interesting and profitable meeting is expected.

Southern Medical College Association.—The Southern Medical College Association has elected the following officers: President, Dr. Christopher Tompkins, Richmond, Va.; vice-president, Dr. J. C. LeGrande, Birmingham, Ala.; secretary, Dr. G. C. Savage, Nashville, Tenn.; executive committeee, Drs. J. A. Cain, Nashville; Charles Rosser, Dallas, Texas, and W. B. Rogers, Memphis, Tenn.

American Association for the Advancement of Science.—The fifty-fourth meeting of the American Association for the advancement of Science was held at the University of Pennsylvania, December 27-30. Beside the ten sections of the American Association, thirty affiliated scientific societies also held their annual meeting. This is the third time the association has met in Philadelphia.

National Association for the Study and Prevention of Tuberculosis.—The first annual meeting of this association will be held in Washington, D. C., May 18-19, 1905. There will be three divisions of the work—a sociologic, under the chairmanship of Mr. Homer Folks, New York City; a pathologic and bacteriologic, under the chairmanship of Dr. H. M. Bracken, St. Paul, and a clinical and climatologic division, with Dr. Norman Bridge, Los Angeles, as chairman.

One Hundred Years of Publishing.—The firm of William Wood & Co. of New York has just celebrated its hundredth anniversary and to commemorate it has issued a neat little book entitled "One Hundred Years of Publishing," which gives a history of the firm from its earliest beginning to the present day. With the exception of the Methodist Book Concern, this is the oldest publishing firm in New York. A most interesting account is given of the various buildings occupied by the firm and of the books and periodicals published by them. The business was founded early in 1804 by Samuel Wood, grandfather of the present senior partner of the firm, and his portrait forms the frontispiece. The first publication was a little primer called "The Young Child's A, B, C, or First Book," and a facsimile of the title page of this is reproduced. In 1810 Samuel Wood moved into a larger store and took into partnership two of his sons. In 1817 another move was made and also another son, William Wood, admitted to partnership. The business by this time had increased from the original trade in miscellaneous and second-hand books to the publication and general sale, both wholesale and retail, of books and general stationery. From the time of his admission to the firm William Wood was especially interested in medical works, and by his influence particular attention was paid to this class of publications. In 1836 Samuel S. and William

Wood bought out the interests of their father, Samuel Wood, and he retired from business. Samuel Wood died in 1844. In 1856 the firm again moved, this time to 389 Broadway. In 1861 Samuel S. Wood died, and for over a year William Wood conducted the business under his own name, moving to 61 Walker street. Soon after he took into partnership his son, William H. S. Wood, the present head of the house. The style William Wood & Co. was then adopted and has since been retained. From the time of his admission to the firm William H. S. Wood advocated further specialization in the direction of medical publications, and in 1866 the first number of the *Medical Record* was published. Various other medical and pharmaceutical journals have also been published by this house. The firm at the present time is composed of William H. S. Wood and his three sons, whose portraits appear in the book.

CANADA.

Toronto General Hospital.—The total number of patients treated at the Toronto General Hospital during the official year past was 3,825. Of these 2,191 were males and 1,634 were females. On Dec. 31, 1904, there were 276 patients in the wards.

Smallpox Statistics in Montreal.—Dr. Laberge, the health officer of Montreal, considers that the smallpox statistics for that city for the past few years is a fine illustration of the saying, "An ounce of prevention is worth a pound of cure." In 1885 the great epidemic carried off 3,164 people. In 1886 there were only ten deaths. From 1886 to 1896 not a death was reported. In 1897 there were 12 deaths, two in 1898, none in 1899, 10 in 1900, 2 in 1901, 10 in 1902, and 2 in 1903.

Pauper Immigration in British Columbia.—Dr. P. H. Bryce, chief medical health officer of the department of the interior at Ottawa, has been for some time in British Columbia securing statistics regarding the entry of diseased and pauper immigrants into Canada by way of British Columbia. The inspection is due to the report that diseased immigrants are getting into Canada by way of Puget Sound ports. There is no fear of European immigrants of the diseased class, who come direct, of getting into Canada via the United States, as the laws are sufficiently rigid in that country, but the government is investigating how far it can proceed with the inspection against the American border cities.

Dr. Osler in Toronto.—The last week of 1904 may well be handed down in the medical history of Toronto as "Osler" week, for Dr. Osler was there all week and, of course, was lionized. On the afternoon of Tuesday, Dec. 27, a reception was held in the new medical buildings by Dean and Mrs. Reeve for the purpose of giving the medical fraternity and their wives an opportunity of meeting Dr. Osler. On the following evening Dr. A. McPhedran, professor of medicine in the university, was at home to Dr. Osler and his medical friends, several being present from a distance from various parts of Ontario. On the afternoon of the following day Dr. Osler formally opened the new home of the Ontario Medical Library Association. This building, which has been recently acquired as a permanent home for this association, is situated in a convenient part of the city. To this library home Dr. Osler contributed $1,000, as well as making a large donation of books, formerly the property of his old preceptor, Dr. Bovel. Dr. Osler was further entertained by the Canadian Club and the Trinity Old Boys' Association.

FOREIGN.

Bubonic Plague at Aden.—From October 26 to November 25 the public health reports state that 21 cases of plague and 9 deaths from that disease were reported from Aden.

Senator Festschrift.—The *Festschrift*, presented to Senator on his seventieth birthday, is a volume of 460 pages, containing thirty works by his former or present pupils. It is published by A. Hirschwald of Berlin.

Zeitschrift f. Experimentelle Pathologie und Therapie.—This new medical periodical is a companion to the *Zeitschrift f. klinische Medizin*, being published in the same form and by the same publisher as the latter. The editorial staff comprises Brieger and Kraus of Berlin, Hering of Prague and Paltauf of Vienna.

Le Radium.—This is the name of a new semi-monthly medical journal just founded at Paris by a company including D'Arsonval, Blondlot, Becquerel, Beclère, Danysz, Oudin and Curie. J. Danne is the secretary, and Masson, 120 boul. Saint-Germain, is the publisher.

Honors for Ingegnieros.—Dr. J. Ingegnieros, professor of nervous and mental diseases at Buenos Ayres, has been awarded the prize offered by the medical faculty for the best scientific work published in the Argentine Republic during 1902-3. His friends gave him a banquet on the occasion. His works on nervous pathology are frequently quoted. Among the latest are articles on the hysteric laugh and the physiologic mechanism of musical language.

New Home for the Semaine Medicale.—The *Semaine Medicale* of Paris enters on its twenty-fifth year in new quarters, having recently moved to the building erected for a residence by the wealthy painter, Munkaczy. The artistic and palatial interior is in marked contrast to the popular conception of an editorial sanctum. The journal occupies the entire building, the editorial sanctum being a hall nearly 50 feet long by 26 wide, richly decorated with carvings, etc., in the renaissance style. The issue for December 14 gives several views of the interior of the new home. They suggest that the office boy will not have much time for his dime novels if he attempts to keep the carvings dusted.

The Don Quixote Tercentennial.—During January will be celebrated the three hundredth anniversary of the publication of *Don Quixote*, and our Spanish exchanges are devoting much space to the medical references to be found therein. The *British Medical Journal*, December 10, remarks that *Don Quixote* may be considered as a study of madness from its predisposing causes to its complete development. The contagion of insanity is shown in its effect on Sancho Panza, and the various efforts to divert the Knight of the Sorrowful Countenance from his exalted ideas indicate that Cervantes had a clear conception of the value of psychic treatment. He mildly satirizes the medical men of his day and makes frequent reference to various drugs and to the value of hygienic living.

Seaside Public Sanatorium.—The Sanatorium Umberto I, for the consumptive poor, erected at Leghorn, Italy, was formally inaugurated in December. Queirolo of Pisa, in the opening address, commented on the modern method of treating tuberculosis, which is to fortify the organism, to renew its energies and to stimulate its tissues to more active reactions. This is best realized at the seashore where the pure, ozonized air, the intense sunlight and the iodized emanations combined with nourishing food supply the elements needed for the struggle with the disease. The air of the Italian coast is a medicated, tonic and stimulant air, while the mildness of the climate and the great uniformity of the temperature are valuable points of superiority. He protested against the saying that "the Italian coast is the flower-strewn tomb for the consumptives of Germany." He also protested against the assumption that the mountains are better than the Mediterranean for tuberculosis, presenting arguments in favor of the seaside sanatoria.

Russian Physicians at Harbin.—Letters from Russian physicians at Harbin state that 32,000 wounded were received from the battles during the last four days of September. During the first weeks in October forty to fifty trains of cars loaded with wounded were always waiting at the station to be gradually emptied. There is a great difference now between the course of the wounds and those observed during the warm weather, the complications being much more serious and frequent. The wounded are not received until eight to twelve days after the injury. The first-aid dressings are, therefore, left unchanged too long, and during the colder weather the soldiers are dirtier and infection of the wounds occurs more frequently. Another reason for the higher morbidity is that the Japanese are using larger bullets with a comparatively soft copper mantle instead of the nickel steel mantles they used at first. During the warm weather scarcely any one succumbed in the hospitals to the effects of his wounds, but the outlook is different now, although the tidal wave of wounded has subsided. Fully 20,000 were given shelter in Harbin, the Red Cross and similar institutions caring for only 2,000, while all the rest were in the hands of the military surgeons. The writer of the letter from which we quote the above states that so much is said, written, printed and telegraphed about the work of the Red Cross that one is apt to forget that scarcely more than 10 to 12 per cent. of all the wounded pass through its hands. The care in the Red Cross hospitals averages better than in the military hospitals, but at an incomparably greater expense. There is plenty of good food in the army hospitals, and in every respect they hold their own in comparison, while in cleanliness they surpass the Red Cross. In the military hospital in his charge there are accommodations for 630 patients, with a surgical force of four, one of

whom is a gynecologist. The letters written home by the recently deceased Dr. B. Böttcher have been published in book form under the title, "With the Red Cross in the Far East."

LONDON LETTER.

The Motor Ambulance.

At the headquarters of the army medical corps an interesting series of trials was made to show that the motor car may be useful as an ambulance, for the generation of electricity, for the lighting of field hospitals, for the manufacture of ice, for the sterilization of water and for many other useful purposes in the field. On the snowclad square of the barracks the motor stood covered with armored plating one-quarter of an inch thick, forming an effectual protection against bullets. The driver was protected by shields. Within the shelter sat two Red Cross men. The idea is that the motor could advance to where the wounded lie, even in the line of fire. Then stationary armor flaps would be opened and complete protection afforded to the wounded and dressers while first aid is being rendered. After this they would be rapidly sent to the rear. The trials were watched by Sir William Taylor, director general of the army medical corps, who expressed his satisfaction.

The Health of the Navy.

A blue book containing a statistical report of the health of the navy for 1903 has been issued. On the whole the returns are very satisfactory. With an increase of 3,500 men as compared with the previous year there are decreases in the cases of illness, invalidings and deaths. The numbers are respectively 85,735, 2,478 and 433, in comparison with 85,769, 2,985 and 590 in 1902. The aggregate number of cases of disease and injury for the year furnishes a ratio of 831.57 per 1,000, which shows a decrease of 29.56 per 1,000 as compared with 1902, and of 48.6 when contrasted with the average of the last six years. The invaliding ratio—namely, 24.03 per 1,000—shows a decrease of 5.93 as compared with 1902, and also a decrease of 6.94 in comparison with the average for the last six years. The highest invaliding rate was on the North American and West Indian stations. As regards the death rate, the ratio per 1,000 was 4.19, showing a decrease of 1.73 as compared with 1902, also a decrease of 1.49 as compared with the average of the last six years. The highest death rate occurred on the East Indian station. The total death rate, 4.19, is the lowest recorded since 1856. The death rate from disease alone was 2.79 per 1,000, which is .72 less than in the previous year.

The Milk Supply of Towns.

The question of the milk supply of towns has been considerably discussed of late. It is certain that the conditions of many dairies and the manner of transport of milk leave much to be desired. How to obtain "clean milk" instead of that too often supplied containing much dirt and therefore swarming with germs is the problem. In a paper on "The Management of the Milk Supply of Towns," read before the Charity Organization Society, Dr. Edmund Cautley said that it is a matter of difficulty and uncertainty for the rich and almost one of impossibility for the poor to obtain satisfactory milk in large towns. There is a lack of efficient control. The local authority in London, for example, has due control over the production of milk in its district, but none whatever over that brought from the country. Consequently milk is drunk in London which has been declared unfit for sale in the country or in other large towns. It is difficult for the local authority to ascertain the exact source of the milk supply of any particular vendor. Even when this has been done it is only with considerable trouble and after the loss of a dangerous amount of time that the local authority, by means of a cumbrous legal process, can stop the delivery in its district of infected milk from a farm. Moreover, the same milk may still be delivered in an adjacent district. With regard to the bacteriologic impurity of milk from samples of milk bought in London, Dr. Cautley found from 3,000,000 to 30,000,000 of microbes in each teaspoonful. Though most of these microbes were harmless, it is by no means uncommon to find dangerous ones. In 14 per cent. of London milk the tubercle bacillus has been found.

The Expedition of the Liverpool School of Tropical Medicine to the Congo.

A most important and interesting report has been sent from the Congo by the expedition dispatched by the Liverpool School of Tropical Medicine. A state steamer was placed at the disposal of the expedition by the government, enabling it to make fairly complete observations of the spread and distribution of sleeping sickness along the Congo River from the "Pool" to the "Falls"—a distance of nearly 1,000 miles. A disease the nature of which has previously been unrecognized was found to occur amongst the state's cattle. Its pathogenic agent was shown to be a trypanosome, the species of which is yet undetermined. Sleeping sickness is a terrible scourge, especially amongst the river tribes. It is obvious that the disease has spread in the Congo in recent years along the lines of communication, that is, along the rivers. Declared cases of sleeping sickness are easily recognized, but the trypanosome may be present in the blood for months and even years while the patient remains in apparent health. It is believed that palpation of the cervical glands is an excellent clinical method of detecting an infected person. When many of these glands were enlarged to above 1.5 by 1 cm., other causes being absent, trypanosomes were generally found in the drop of fluid obtained by aspirating a gland with a hypodermic syringe. As a rule simultaneous examination of the blood gave a negative result.

The Medical Profession and the Teaching of Hygiene.

A petition signed by 14,718 medical practitioners has been directed to the central educational authorities of the United Kingdom in which each local authority is urged to consider whether it would not be possible to include in the curricula of public elementary schools and to encourage in the secondary schools such teaching as may lead all children to appreciate at their true value bodily conditions as regards cleanliness, pure air, food, drink, etc. The petitioners consider that such instruction should be placed among the subjects of compulsory education and be given at an earlier age than at present. They point out the conditions which prevail in Canada, Australia and America for such teaching. A syllabus of suggested courses in the teaching of hygiene and temperance has been drawn up and adapted to the different ages of the children in elementary schools, special attention being drawn to the deleterious effects of alcohol.

Correspondence.

The Propriety, Indications and Methods for the Termination of Pregnancy.

BOSTON, Dec. 20, 1904.

To the Editor:—In reply to the enclosed* letter: In my paper I have stated what are now generally considered to be the indications for the termination of pregnancy in properly selected cases, so that it is unnecessary for me to review the subject again here. As I have nothing to conceal in this matter, however, and as every operation that I have performed has been done after mature deliberation and consultation with reputable men, I have made a brief report of each case for publication.

1. Mrs. E. F. B., Oct. 15, 1900; seen in consultation with Dr. A. A. Cliff; patient had also been seen by Dr. L. A. Cliff; young married woman with extreme exhaustion from constant vomiting; she and husband both desirous of children and to have pregnancy continued if possible. Condition extreme and recovery considered doubtful even with operation. Adherent retroversion. Pregnant about six weeks. Curettage under primary anesthesia.

2. Mrs. F. W. H., Nov. 26, 1900; was referred to me by Dr. G. H. M. Rowe, superintendent of the Boston City Hospital, and was seen in consultation with Dr. S. W. Kelley, ex-president of the East Middlesex District Branch of the Massachusetts Medical Society. First pregnancy about six years before, and patient and her husband were anxious for other children. Second pregnancy at two months; critical condition from continued vomiting. At second consultation uterus curetted under very light anesthesia.

3. Mrs. E. R. F., wife of a physician; first seen July 11, 1903; about four weeks pregnant, with a mild degree of pelvic inflammation, and with marked degree of emaciation and general exhaustion. No improvement in condition under treat-

* EDITOR'S NOTE: This letter is a reply to that of Dr. Cattell in THE JOURNAL, Dec. 31, 1904. We sent a copy of Dr. Cattell's letter to Dr. Higgins December 9, asking him to send at once any reply that he wished to make. After waiting two weeks we published Dr. Cattell's letter in the issue of December 31, which went to press December 28. Dr. Higgins' letter was received December 30.

ment and restriction to bed. Husband suggesting that pregnancy be ended, I asked Dr. Charles M. Green, associate professor of obstetrics and clinical gynecology at the Harvard Medical School, to see the patient with me. Dr. Green saw the patient in consultation August 17, and advised operation, which was done, Dr. L. R. G. Crandon assisting.

4. Mrs. C. N. C., Sept. 29, 1904; seen in consultation with Dr. Edward T. Twitchell. Patient had been in a critical condition from previous illness and had been cautioned against immediate risk of pregnancy. I was asked to see the patient immediately early in the morning, because of her rapid decline from vomiting. Patient was in a private hospital, and operating table, etc., had been prepared for operation, but to save time and the patient's strength, she was quickly curetted on the bed under primary anesthesia. Vomiting ceased, but patient died in about twenty-four hours of exhaustion.

5. Mrs. G. H. H., wife of a physician; seen in consultation with her husband and Dr. J. B. Lyons; was referred to me by Dr. F. C. Shattuck, professor of clinical medicine at the Harvard Medical School. Patient was first seen on Nov. 20, 1903, and was in a very critical condition from continued vomiting, but operative relief was very much opposed and at first refused by the patient and her family. Three days later I was again summoned and performed the operation, assisted by Dr. Furrer. Recovery was very slow and during the convalescence Dr. Shattuck saw the case in consultation with me.

6. Mrs. E. M. G., Dec. 30, 1903; seen in consultation with Dr. Francis Magurn; about three and a half months pregnant; failing rapidly from inability to take and retain food. The cervix was dilated and applications made with the hope of obtaining some relief. Dr. E. M. Plummer, the laryngologist, saw the patient several times with the hope of relieving throat symptoms, which it was thought might be interfering with taking food. Dr. J. A. McDonald also saw the patient twice at the request of the family, and finally advised an immediate operation to save her life, although at first he was inclined to doubt the necessity for it, as he had never seen a similar case in many years' experience. Operation was performed on January 12, and Dr. Freeman Allen was asked to go out of town in the night to etherize, because of the patient's urgent condition and that it was impossible to empty the uterus at this period of pregnancy under primary anesthesia. There was improvement for a short time after the operation, but other symptoms developed, delirium, blindness, cerebral retraction, etc., and death in about seven weeks. It seemed probable that the cause was a tubercular meningitis.

7. Mrs. F. W. H.; same patient as No. 2. Anxious for more children and about two years before consulted Dr. Kelley to see if he considered it safe for her to become pregnant again. March 17, 1904, Dr. Kelley telephoned me that Mrs. H. was in a dangerous condition from pernicious vomiting of pregnancy, and asked me to see the case with him. After consultation with Dr. Kelley immediate operation was done to relieve the patient.

8. Mrs. G. H. H.,; same patient as No. 5, and seen in consultation as before, Sept. 17, 1904. Subacute appendicitis complicating pregnancy; very severe vomiting and most distressing thirst, retaining no food and practically no liquid. As some form of relief was fast becoming imperative, it was debated whether the appendix should be removed or the uterus emptied. The latter seemed the safer procedure, inasmuch as removal of the appendix might not relieve the symptoms, and she was in no condition to undergo both.

9. Mrs. R. K.; first seen Sept. 16, 1904, with Dr. Francis J. Ford. About four months pregnant; last confinement about one year before, which she barely survived, owing to cardiac and renal disease. When first seen she was beginning to complain of shortness of breath, inability to walk much or to go up stairs. The question of interference was raised, but it was thought that under rest and care she might reach the viable period. She grew worse, however, and on October 18, after a bad night with pain, increasing dyspnea and cyanosis, labor was induced.

The above include all of my cases done before the viable period. There are also some cases in which premature labor was induced after the seventh month, but I see no necessity for reporting these at this time. FRANK A. HIGGINS.

Enuresis in Children.

NEW YORK, Dec. 30, 1904.

To the Editor:—The editorial in THE JOURNAL of Dec. 24, 1904, and the previous comments on the paper of Dr. J. C. Rey, on the subject of enuresis in children, both seem to leave Hamlet out of the play. Preputial adhesions are so predominantly the cause for enuresis, or at least the precipitating factor, that they might well be referred to in Celtic capitals in "scarehead" proportions in the text of contributions on the subject. Particularly in girls is enuresis dependent on preputial adhesions. It is one of the curiosities of medical literature that the subject of preputial adhesions is dealt with chiefly in reference to boys, while, as a matter of fact, girls need circumcision more frequently than boys for the reason that they are more subject to preputial adhesions than boys are. The more impressionable nervous system of girls responds to the irritation more quickly and more extensively than it does in boys. If any woman physician struggling for practice wishes to get some brilliant results, and fame ahead of time, let her take up the subject of circumcision in girls. Concerning the single symptom of enuresis, it will commonly disappear on the day on which circumcision is performed, and will not reappear. In older patients who have developed an enuresis habit, in spite of applications of moral suasion, belladonna, the back of a hair brush, and Eddyism, there is a tendency for occasional enuresis after the cause has been removed, but the results of circumcision in the cases that are dependent on preputial adhesions are so prompt, as a rule, that we are not left in any doubt about the character of the influence that had been at work. ROBERT T. MORRIS.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

QUALITATIVE SUGAR REACTION IN THE URINE.

To the Editor:—Anent your editorial in THE JOURNAL, Dec. 10, 1904, on the above subject, permit me to call you attention to the method advocated in inclosed reprint. It is much simpler, it is no more time consuming, and it is more certain (in small percentages) than is fermentation, and it is certainly much less trouble. W. C. RILEY.

ANSWER.—The method recommended by Dr. Riley is as follows: "Take equal parts of the suspected fluid and Fehling's, cold, mix thoroughly and set aside. Any urine containing .05 per cent. or more glucose will react, giving a yellow precipitate in the course of 24 hours or less, according to the amount of glucose present and the room temperature." In connection with Dr. Riley's comment a brief historical review of our knowledge of the reduction of copper salts by sugar in the urine may be of interest. The fact that salts of copper, especially blue vitriol, are reduced in alkalin solution by glucose with separation of red cuprous oxid was first discovered by Becquerel; the reaction was not studied carefully, however, until 1841, when at Mitscherlich's suggestion Trommer looked into the matter and demonstrated the extraordinary delicacy of the reaction which has since borne his name. Müller and Hagen showed later that under favorable conditions as little glucose as 0.00000833 gram in ice water could be easily and certainly demonstrated. On applying Tommer's test or other copper tests to urine, however, peculiar difficulties are met with owing to the fact that substances other than sugar in the urine (e. g., uric acid, pigments, kreatin, kreatinin, albumen, peptone, ammonium salts, as well as various drugs—chloral, salicylic acid, salol, phenacetin, antipyrin, acetanilid, salfonal, etc.) are capable of reducing the copper salts or of preventing the precipitation of cuprous oxid; thus Jolles[1] has shown that mistakes that correspond to as much as 0.24 per cent. of glucose may be made. The disturbing effect of other reducing substances in the urine can often be decreased by diluting the sample five or ten times (Zchuissen). More important still, glucose reduces at a temperature below 100 C.; the others usually only on boiling. Another method recommended by Focke[2] consists in boiling 10 grams with 5 g. copper-sulphate solution (1:9), to the well-cooled filtrate adding

soda solution 1.9, allowing to sediment after shaking and then adding a few drops of this fluid to a hot mixture of equal parts Fehling's solution and water and boiling. Instead of copper-sulphate, Barfoed[3] used a solution of one part of crystallized neutral cupric acetate in 15 parts water; 200 c.c. of this were mixed with 5 c.c. acetic acid (38 per cent.). Müller and Hagen[4] were able to demonstrate as little as 0.007 per cent. glucose by allowing a mixture with the solution to stand for 12 hours at 45 C. A copper solution which is reduced even in the cold can be obtained, according to Becquerel,[5] by dissolving 6.25 g. blue vitriol in 50 c.c. water and adding it, with constant stirring, to 100 ccm. sodium hydrate solution (sp. gr. 1.20) so that all remains dissolved. Other solutions for the same purpose have been recommended by Krantz and Gawalowski. According to Sjollema[6] a most sensitive solution for reduction in the cold consists of 100 c.c. of 10 per cent. copper-sulphate solution along with 30 c.c. of 10 per cent. solution of ammonia, or a mixture of 100 ccm. of 5 per cent. copper-acetate solution, a little acetic acid and 30 ccm. of 10 per cent. solution of ammonia; no excess of ammonia dare be present, and no torbidity should arise on dilution with water until 10 volumes have been added; if 2 c.c. of a fluid containing glucose be added to 0.5 c.c. of the reagent, turbidity formation of a voluminous precipitate occur immediately if 0.5 per cent. glucose be present, or more gradually with 0.25 to 0.115 per cent. of glucose. Riley[7] finds very satisfactory the use of equal parts of the suspected urine and cold Fehling's solution, mixed thoroughly and set aside, as indicated in his letter above. It was Fehling[8] who first established a definite reduction relation (1:5) between glucose and cupric oxid; he used neutral tartrate of potassium in making his solution, a salt which Boedeker subsequently replaced by tartrate of sodium and potassium (Sal Rochelle). The error was long made of thinking that the reduction relation of 1:5 held under all circumstances; numerous researches have shown, however, that the glucose equivalent of Fehling's solution is far from constant, varying with the concentration, the alkalinity and time of action. It is interesting to note how many variations in the composition of Fehling's solution have been recommended; we have found no less than 32 different formulæ in the literature, and doubtless even more exist. Full clearness regarding the process of copper reduction by glucose was not obtained until Soxhlet[9] made his exhaustive studies of the subject. For quantitative estimations many efforts have been made to keep the cuprous oxid in solution during filtration in order to expedite the determination; where the ordinary Fehling's method is employed the end-reaction is marked by the precipitate and one has to wait until it settles or filter and make repeated filtrations. The method of Pavy,[10] the method of Moritz, that of Peska, that of Gaud, and Haines' method, utilized an excess of ammonia to hold the reduced salt in solution. Gerrard,[11] for a similar reason uses cyanid of potassium, a method which Riley, in this country, enthusiastically supports. If it be borne in mind that, with these rapid methods of estimation by filtration, the results obtained are not rigidly exact, there would seem to be no valid objection to their use for chemical purposes; they would not suffice for strictly quantitative work, but are probably sufficiently accurate for the needs of the clinic.

1. Chemisches Centralblatt, vol. xcv, p. 175. 2. Chemikerzeitung, vol. xviii, Repertorium 197. 3. Fresenins' Ztschr. f. Analy. and Chem., vol. xi, p. 321. 4. Pflüger's Archiv., vol. xxii, p. 325. 5. Annales de chim. et physique, II, vol. xlvii, p. 15. 6. Chemiker Zeitung, vol. xxi, p. 739. 7. Calif. State Jour. of Med., November, 1904. 8. Liebig's Annalen, vol. ixxii, p. 106, and vol. cvi, p. 75. 9. Journal f. prakt. Chemie, vol. xxi, p. 227. 10. Lancet, March 1, 1884. 11. Chem. Centralbl., 1896, ii, 135.

A GOLDEN OPPORTUNITY.

Some of our readers have favored us with copies of a circular letter that is being sent to physicians. It is as follows:

SPRINGFIELD, OHIO, Dec. 15, 1904.

A golden opportunity which is offered but once in life.

As I am about to retire from the practice of Medicine, after having spent many years a Specialist in Office Practice, and at the earnest solicitation of many physicians, I have finally concluded to place my PRIVATE formulas in the hands of physicians where they can accomplish the most good.

Each one of these formulas are worth hundreds of dollars to the earnest and energetic physician, as they are both MERITORIOUS and ORIGINAL.

With these in his possession, the physician can easily double, and even treble his annual financial income. They are as follows, namely:

1. Stomach Powder; 2. Catarrh Ointment; 3. Pile Ointment; 4. Syphilis and Blood.

And, in order to give them as wide a circulation as possible, I will send all the above private formulas to any physician, with full directions as to their use, upon receipt of Ten ($10.00) Dollars in Registered Letter, Money Order or Draft.

From reading this letter, in spite of the bad grammar it contains, one would imagine that the writer had been a very successful physician and had had wonderful results in his practice. We find, however, that such is not the case, strange as it may seem. Further, we find he is not even a graduate from a recognized school. He did succeed in getting a "diploma" from a so-called "American Eclectic College of Cincinnati," an institution that has long been extinct, and concerning which it is alleged that during its brief existence it was simply a diploma mill. The practice of this doctor, who is so generous with his prescriptions, we are informed, has thus far been decidedly limited, and if he can sell a few "formulæ" each month at $10.00 each he will make more money than he has been making in his practice.

PHYSICIANS AS NOSTRUM PROMOTERS.

The following is a copy of a letter that is being sent to physicians, and, as it is so delightfully innocent, we can not resist the temptation to publish it in full. Just what the physician is to get out of it is not evident on the face of the letter, but undoubtedly there will be a goodly number who will respond to the generous request for a testimonial. It must be borne in mind that the preparation is not now being advertised to the laity only in certain medical journals:

BROMIN-IODIN CHEMICAL COMPANY.

BINGHAMTON, N. Y., Dec. 12, 1904.

Dear Doctor:—

We are preparing matter for a booklet which we intend to send free to every physician whose name appears in Polk's Medical Directory.

We intend to advertise our compound through the newspapers in every locality where it is used by physicians, and the advertisement will be written in such a way as to create a desire on the part of the laity to secure our booklet that they may learn how they can be cured of Asthma—Bronchitis—Consumption—Hay Fever—Pneumonia—or kindred diseases.

If you feel at liberty, we would be grateful if you will give a brief indorsement and permission to print it in the booklet; if you decide to do this, so far as possible, kindly avoid technical terms, that the laity will have no difficulty in understanding it. We would also be glad to append your name and address to our newspaper advertising as being able to administer our compound, but your name will not be used in any way *unless you give us permission.*

We already have a number of indorsements, and desire to get the copy for the booklet into the hands of the printer before the end of this month, so as to begin mailing them by Jan. 1, 1905, at the latest. We desire to thank you for your past patronage.

Very truly, BROMIN-IODIN COMPANY.

RESULTS OF STATE BOARD EXAMINATIONS.

BALTIMORE, Dec. 20, 1904.

To the Editor:—Will you kindly tell me which of the following named institutions obtained the highest marks in the different state board examinations for the year 1904: Baltimore Medical College, College of Physicians and Surgeons of Baltimore, University of Maryland School of Medicine, Baltimore University School of Medicine, Maryland Medical College, Southern Homeopathic Medical College of Baltimore, Johns Hopkins University School of Medicine. LOUIS C. BONETA.

ANSWER.—In THE JOURNAL, Aug. 13, 1904, pages 514 and 515, we published a report in which were given the number of graduates from the colleges mentioned who passed or failed in the various state board examinations during 1903. We quote as follows:

	Totals.	Passed.	Failed.	Percentage of Failures.
Baltimore Medical College.—R.	135	110	25	18.5
Baltimore University School of Medicine.—R.	43	19	24	55.8
College of Physicians and Surgeons of Baltimore.—R	74	56	18	24.3
Medical Department, Johns Hopkins University.—R	53	52	1	1.9
Southern Homeopathic Medical College.—H.	3	2	1	33.3
University of Maryland, School of Medicine.—R	102	89	13	12.7
Maryland Medical College.—R.	56	31	25	44.6

Compiete statistics for 1904 have not yet been compiled.

WANTS A GOOD FAMILY DOCTOR BOOK.

MARION, IND., Dec. 21, 1904.

To the Editor:—A good patron of mine wanted me to recommend to him a good family doctor book, or, in other words, a book on general medicine for family use, and I am anxious to get the best and latest for him. Have you such a book in mind which you could recommend? C. J. OVERMAN.

ANSWER.—Such a situation is a delicate one. In some cases, if the physician who is asked such a question vigorously expresses his convictions as to the peril of self-drugging by the laity, he may repel his questioner, and may lose his influence over him. On the other hand, tactfully to suggest the dangers may have some effect. A book like Walter L. Pyle's "Personal Hygiene," (1904, W. B. Saunders & Co., New York City, $1.50. 441 pages) may be recommended. It is more than its title indicates and gives the simple household treatments that may safely be used by any one

of ordinary common sense. An excellent book for young women is "Beauty Through Hygiene," reviewed in THE JOURNAL, Nov. 12, 1904, page 1485. "A little knowledge is a dangerous thing," and many persons pass beyond the confines of the legitimate home treatment of minor aches, cuts, bruises, indigestions, etc.

A BURLESQUE NUMBER OF THE JOURNAL.

HARRISONVILLE, Mo., Dec. 21, 1904.

To the Editor:—Apropos of the query and answer concerning the burlesque number of the *Münchener med. Wochenschrift,* in the December 17 issue of THE JOURNAL, would it not be a commendable policy for THE JOURNAL of the American Medical Association, the greatest Wochenschrift in America, to supply its many readers a burlesque number once a year? I can not see wherein such a policy would detract from its dignity or in any way interfere with its scientific purposes. Moreover, the strenuous life of the average American physician, more than that of the more philosophic German, is in dire need of some such occasional relaxing and restraining influence. Not to my knowledge has anything of the kind been attempted in America; but should such a policy be instituted by THE JOURNAL, it is my judgment that it would be received with almost universal favor and enthusiasm. Yours truly,

J. S. TRIPLETT, M.D.

SEQUELS OF GONORRHEA.

ATLANTA, GA., Dec. 23, 1904.

To the Editor:—Will you kindly publish, under the head of "Queries and Minor Notes," the diseases and conditions usually included under the "Sequelæ of Gonorrhea?" G.

ANSWER.—In men the following conditions may be complications or sequelæ of gonorrhea: Chronic urethritis, anterior or posterior or both; stricture, chronic cystitis, periurethral abscess, inflammation of Cowper's glands, prostatitis, epididymitis, orchitis, inflammation of the vas deferens, inflammation of the seminal vesicles, pyelitis, pyonephrosis, gonorrheal rheumatism and arthritis, rheumatic gonorrheal ophthalmia, gonorrheal conjunctivitis.

In women any or all of the following conditions may be caused by gonorrheal infection: Endometritis, salpingitis, pyosalpinx, pelvic abscess, ovaritis, and more rarely cystitis, gonorrheal rheumatism and arthritis and gonorrheal conjunctivitis.

REPORT OF CANCER RESEARCH FUND.

KALAMAZOO, MICH., Jan. 2, 1905.

To the Editor:—At a meeting of the general committee of the Cancer Research Fund, held recently in England, Dr. E. F. Bashford made an interesting and important report regarding the cause, infectiousness and treatment of cancer. Do you know of such a report and where it may be found or where I may find any article along this line? O. H. CLARK.

ANSWER.—A reprint of Dr. Bashford's report may be obtained from Taylor & Francis, Red Lion Court, Fleet Street, London, E. C. The price is 2s 6d (about ($0.60). This report was mentioned editorially in THE JOURNAL March 5, 1904, page 650. A paper by Dr. G. Cooke Adams on "Cancer in Australia, with Specific Treatment for the Prevention and Spread of the Disease," appeared in *The Lancet,* Feb. 13 and 20, 1904, and was abstracted in THE JOURNAL March 5 and 12, 1904, pages 683 and 741.

HYGIENE OF BATHS AFTER EXERCISE.

BALTIMORE, Dec. 28, 1904.

To the Editor:—Is it better for a baseball player to take his shower at once, or should he wait some time to cool off and then take shower? The above is a question being debated by several medical friends and we leave it to you for solution. A.

ANSWER.—At once. The shock is greater after the relaxation of cooling off and the desired reaction may thus be interfered with. It is to be remembered that some persons, who do not react well to a cold shower, ought not to take it.

Marriages.

WILLIAM N. RUSSELL, M.D., to Miss Annie M. Longley, both of Baltimore, December 20.

RICHARD HALL JOHNSTON, M.D., to Miss Mary Page Small, both of Baltimore, December 21.

JOHN NORMAN PATTERSON, M.D., to Miss Louise Blanke, both of Burlington, Iowa, December 28.

JESSE P. GALBREATH, M.D., to Miss Nellie E. Bevan, both of Burnett's Creek, Ind., December 21.

ROY GILBERT STRONG, M.D., to Miss Lillian Mae Strong, both of Buffalo, N. Y., December 27.

W. BROWNLEY FOSTER, M.D., to Miss Clark Lee Crenshaw, both of Richmond, Va., December 20.

J. OLIVER PURVIS, M.D., of Annapolis, Md., to Miss Annie Stassford, at Baltimore, December 22.

DIELY N. PATTISON, M.D., Oelwein, Iowa, to Miss Schucknecht of Waverly, Iowa, December 22.

J. CHARLES BURKS, M.D., Roanoke, Va., to Miss Lelia Johns McCorkle, at Glasgow, Va., December 20.

DORSEY WARTMAN LEWIS, M.D., to Miss Mary Clayton Williams, both of Middletown, Del., December 15.

BENJAMIN STOCKWELL BARRINGER, M.D., to EMILY DUNNING, M.D., both of New York City, December 24.

THOMAS F. RODWELL, M.D., Cass Lake, Minn., to Miss Mayme Holden, of Brainerd, Minn., December 22.

M. ALPHEUS BURNS, M.D., Milan, Minn., to Miss Wilena McKenzie of Minneapolis, Minn., at Kalamazoo, Mich., December 21.

Deaths.

William C. Haven, M.D. New York University, New York City, 1877, a member of the Connecticut Medical Society, who represented his district in the legislature both as representative and senator; medical examiner for Coventry, some-time president of Tolland County Medical Association, died at his home in Coventry, Conn., from influenza, December 26, aged 53.

Martin P. Scott, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1846; surgeon in the Confederate service during the Civil War; professor of diseases of women and children in the Washington University School of Medicine, Baltimore, from 1867 to 1876, died from uremia at Hagerstown, Md., December 30, aged 81.

Gillespie S. West, M.D. New York University, New York City, 1854, a member of the American Medical Association; surgeon to the Sixteenth Alabama Infantry, C. S. A.; later brigade surgeon and then surgeon-in-charge of the hospitals in Atlanta during the Civil War, died at his home in Palestine, Texas, December 27, aged 81.

Marion Meredith, M.D. Medical College of Ohio, Cincinnati, 1860; a member of the American Medical Association; surgeon of the Sixty-eighth Iowa Volunteer Infantry during the Civil War; a practitioner of Vinton, Iowa, since 1866, died at his home in that city, after an illness of a few days, December 28, aged 73.

Abraham McMahon, M.D. Medical College of Ohio, Cincinnati, 1857, some-time physician and coroner of Santa Clara County and medical director of the Yountville Soldiers' Home; a surgeon in the Civil War, died suddenly at his home in San José, December 24, from heart disease, aged 72.

Stephen Fish Selby, M.D. College of Physicians and Surgeons of the Western District of New York, Fairfield, 1839, surgeon to the Third Ohio Volunteer Cavalry in the Civil War, died at his home in Ashtabula, Ohio, December 24, from the effects of a fall two days before, aged 90.

Elisha W. Baily, M.D. Jefferson Medical College, Philadelphia, 1844, surgeon of the Forty-seventh Pennsylvania Volunteer Infantry in the Civil War, died from subacute congestion of the lungs at his home in Sadbury Township, north of Christiana, Pa., December 4, aged 83.

Alphonso A. White, M.D. University of Maryland School of Medicine, Baltimore, 1853, surgeon of the Third and Eighth Maryland Volunteer Infantry, and later division surgeon during the Civil War, died at his home in Baltimore, December 18, from apoplexy, aged 73.

Robert Jones Owen, M.D. Miami Medical College, Cincinnati, 1869, died at his home in Cedar Grove, Ind., from tubercular peritonitis after an illness of three months, December 22, aged 62. He was an honorary member of the Franklin County Medical Association.

Henry Clay Clark, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1853, surgeon of the Second New Jersey Volunteer Infantry during the Civil War, died at his home in Woodbury, N. J., December 26, after a long illness, aged 82.

Albert Herbert Lilliston, M.D. University of Virginia Medical Department, Charlottesville, 1898, a member of the American Medical Association, died at his home in Accomac Court House, Va., December 20, from pneumonia, after a brief illness, aged 28.

James D. Tantum, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1878, of Trenton, N. J., died at the German Hospital, Philadelphia, from typhoid fever, after a surgical operation, December 18, aged 48.

William M. L. Fisk, M.D. Bellevue Hospital Medical College, New York City, 1863, a veteran of the Civil War, died from heart disease at his home in Brooklyn, N. Y., December 21, after an illness of four years, aged 63.

Henry C. McLean, M.D. New York University, New York City, 1873, a member of the New York State Medical Society, died at his home in Brooklyn, December 23, from neuritis, after an illness of a year, aged 44.

Merlin Caldwell, M.D. Western Pennsylvania Medical College, Pittsburg, 1904, of Ford City, Pa., died at Mercy Hospital, Pittsburg, December 23, after an illness of three weeks, from typhoid fever, aged 30.

Levi Mathiew, M.D. College of Physicians and Surgeons of Chicago, 1883, who recently moved to Chicago from St. Anne, Ill., died at his home from paralysis, December 11, after an illness of a year, aged 54.

Edward Hooker Dewey, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1862, died at his home in Meadville, Pa., December 21, from paralysis, after a long illness, aged 67.

Reuben Satterfield, M.D. University of Nashville, Tenn., 1900, was assaulted by a negro farm hand on his farm in Allen County, Ky., November 24, and died December 1 from his injuries, aged 35.

Frederick C. Cluxton, M.D. University of the Victoria College, Coburg, Ont., 1871, committed suicide while mentally irresponsible, by shooting himself through the head, December 17, aged 58.

Elmore H. Wells, M.D. Bellevue Hospital Medical College, New York City, 1867, a surgeon in the federal service during the Civil War, died at his home in Meshoppen, Pa., December 13.

Enos Penwell, M.D. Indiana Medical College, La Porte, Ind., 1848, for more than half a century a practitioner of Shelbyville, Ill., died at his home in that city, December 24, aged 83.

Samuel Carson Garver, M.D. Medical Department University of Illinois, Chicago, 1898, committed suicide by taking carbolic acid at his office in Birmingham, Ala., December 3, aged 32.

James W. Cairncross, M.D. Bellevue Hospital Medical College, New York City, 1875, died at his home in Wauwatosa, Wis., December 21, after a prolonged illness, aged 52.

Earl Devore, M.D. Medical College of Ohio, Cincinnati, 1900, died while en route from Florida to his home in Ripley, Ohio, December 28, from tubercular peritonitis, aged 26.

Jeremiah W. Dearborn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1857, died at his home in Maplewood, Maine, December 9, aged 72.

Thomas A. Curtis, M.D. College of Physicians and Surgeons in the City of New York, 1886, died from pneumonia at his home in Red Bank, N. J., December 23, aged 43.

Lewis A. Foote, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1873, died at his home in Grand Rapids, Mich., December 24, aged 56.

John S. Prettyman, M.D. New York, 1867, consul at Glasgow, Scotland, in Lincoln's administration, died at his home in Melford, Del., December 24, aged 79.

D. L. Stine, M.D. American Medical College, Indianapolis, 1897, a member of the State Dental Board, died from peritonitis following appendectomy, December 7.

John Alonzo Osborne, M.D. Medical Institute, Cleveland, 1855, died suddenly at his home in Portsmouth, Ohio, from heart disease, December 4, aged 73.

William Pike Phelon, M.D. Medical Department of the University at Keokuk, 1865, died at his home in San Francisco, December 29, from heart disease.

Joseph A. Ringe, M.D. University of Würzburg, Germany, 1868, died at his home in St. Louis, December 14, after an illness of seven months, aged 65.

Charles J. Miller, M.D. Hospital College of Medicine, Louisville, Ky., 1901, died from pneumonia at his home in Shawnee, Okla., December 25, aged 32.

James Orr, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1871, died at his home in Terrell, Texas, December 25, aged 57.

William J. Jones, Jr., M.D. New York University, New York City, 1891, of Winston, N. C., died suddenly near Verona, N. C., December 19, aged 34.

Lyman Leavitt, M.D. Pennsylvania Medical College, Gettysburg, 1857, died at his home in Trenton, N. J., from pneumonia, December 29.

John E. Frick, M.D. University of Heidelberg, Germany, 1850, died at his home in Limaville, Ohio, Nov. 7, 1904, aged 80.

D. C. Wallace, M.D. Missouri Medical College, St. Louis, 1856, died at his home in Litchfield, Ill., December 21, aged 85.

Ellen O. Beebe, M.D. Illinois, 1879, was found dead in her apartments in Chicago, December 30, from exposure, aged 55.

George H. Miller, M.D. Rush Medical College, Chicago, 1874, died suddenly at his home in Galena, Ill., December 30.

Caleb N. Harrison, M.D. Johns Hopkins Medical School, Baltimore, died in Madison, Wis., Oct. 11, 1904.

Homer J. Doucet, M.D. Pennsylvania, 1863, died at his home in Philadelphia, December 20, aged 84.

Leonard D. Skilling, M.D. Illinois, 1878, died at his home in Kiowa, Kan., Nov. 1, 1904, aged 88.

Deaths Abroad.

P. Gradenigo, M.D., the well-known professor of ophthalmology at Padua, Italy, died there December 1, aged 73. He belonged to a family which gave four doges to the republic of Venice, and in his scientific career he has always been one of the pioneers. His pupils had collected his works into a *Festschrift,* which was to have been presented to him this month in honor of the thirtieth year of his professorship. His favorite field of work was surgical operations on the eyes, and he devised many new ones and perfected others, among them the technic which allows extraction of a cataract without the tedious waiting for it to ripen, and his plastic operations on the lids and on the cornea. He proclaimed the importance of massage for the eyes as early as 1882, and in 1894 published examples of its efficacy in treatment of detachment of the retina. He also invented several instruments and founded and edited the leading Italian ophthalmic journal.

A. Reder von Schelmann, M.D., former professor of surgery and later of dermatology at Vienna, died there November 10, aged 79. He had been president of the Vienna Doktoren-Collegium since 1891.

O. Bode, M.D., a well-known Berlin surgeon and writer on surgical subjects, succumbed to professional blood poisoning November 25, aged 44.

A. S. Herrero, M.D., professor of clinical medicine at Madrid, died there November 28.

K. Koester, M.D., professor of pathology at Bonn, died there December 2, aged 62.

Book Notices.

THE PRINCIPLES AND PRACTICE OF GYNECOLOGY, for Students and Practitioners. By E. C. Dudley, A.M., M.D., President of the American Gynecological Society. Fourth Edition, Revised. With 409 Illustrations in Colors and Monochrome, of Which 18 Are Full-page Plates. Cloth. Pp. 771. Price, $5.00 net. Philadelphia and New York: Lea Brothers & Co. 1904.

One finds in this many changes from former editions. Much new matter has been added and much of the old has been thoroughly revised and rewritten. Of the greatest value are the four hundred illustrations. Most of these are new and they have been so well executed that they convey clearly the ideas intended. There can not be too many good illustrations, but poor ones are worse than none. The subdivision of the subject is a natural one and the subheads under the chapters have been conspicuously typed so that one may quickly turn to the particular point desired. The work is well arranged and published and, as the author's views are sound, it must take its place as one of the best text-books on the subject.

A SYSTEM OF PRACTICAL SURGERY. By Prof. E. von Bergmann, M.D., P. von Bruns, M.D., and J. von Mikulicz, M.D. Volume IV, Surgery of the Alimentary Tract. Volume V, Surgery of the Pelvis and Genitourinary Organs. Translated and Edited by William T. Bull, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York. Edward Milton Foote, M.D., Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York. Carleton P. Flint, M.D., and Walton Martin, M.D. Cloth. Pp. 758. Price, $30 per set, 5 volumes. New York and Philadelphia: Lea Brothers & Co. 1904.

Vols. I, II and III have already been reviewed in these columns. Vols. IV and V complete the work. The translation has been very liberal and at times the matter greatly condensed. The omission of the short bibliography which follows each prin-

cipal subject in the original is a distinct loss to the translated edition, a loss for which the slight saving in space does not at all compensate. Each volume has its own index beside a general index at the end of the fifth volume which covers fifty pages and which is complete, enabling one quickly to find any subject desired.

A MANUAL AND ATLAS OF MEDICAL OPHTHALMOLOGY. By Sir Wm. R. Gowers, M.D., F.R.S. Fourth Edition. Edited by the Author and Marcus Gunn, M.B., F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital. Pp. 318. Illustrated. Cloth. Price, $4.00. Philadelphia: P. Blakiston's Son & Co. 1904.

This well-known text-book, which has for so many years been a work of standard reference for the ophthalmologist, the neurologist and the practitioner of general medicine, is now reprinted, with additions, for the third time. The text has not undergone many alterations since the third edition was published, but the colored illustrations have been omitted. We must confess that we regard this innovation, in the reproduction of ophthalmoscopic pictures especially, as a decided improvement. The autotype plates, in making no pretense of reproducing the coloration of the fundi, are at least not misleading (as the colored plates were) and furnish a good idea of the changes in and the appearance of the ocular background. The original drawings are in sepia by the author and the collaboration of Mr. Marcus Gunn, the well-known ophthalmic surgeon, has further enriched the book. This valuable manual ought to be in the hands of every physician who desires to possess the great advantage of a knowledge of ophthalmoscopy as an indispensable help in the diagnosis of general disease.

A TEXT-BOOK OF HISTOLOGY. By Frederick R. Bailey, A.M., M.D., Adjunct Professor of Normal Histology, College of Physicians and Surgeons. Profusely Illustrated. Cloth. Pp. 481. Price, $3.00 net. New York: Wm. Wood & Co. 1904.

A casual examination of this volume leads to the impression that it is to a certain extent an abridgement of a very popular work on histology by another author. A careful and thorough review strengthens this impression and leads us to make the statement that the larger work has apparently suffered in being thus abridged. Furthermore, the author makes the mistake, as have many other writers, of giving a general technic not at all suitable for the tyro and altogether too elementary and incomplete for the teacher and research worker. It assumes preliminary knowledge on the part of the reader and yet is simply the technic which has proved useful in the hands of the author. The directions for technic, however, which are appended to each chapter are commendable because they are such as will be a benefit to all entering on the study of this subject. So, too, the short embryologic references at the beginnings of chapters serve a useful purpose. Far too much space is devoted to the discussion of so unimportant a tissue as fat, while, on the other hand, the description of bone leaves much to be wished for. The special chapters devoted to the skeletal system and to the muscular system are merely useless repetitions; nor is there any need for discussing the articulations in a text-book on histology. The illustrations, many of which are original, are excellent, as is also the mechanical work as a whole.

CLINICAL URINOLOGY. By Alfred C. Croftan, Professor of Medicine, Chicago Post-Graduate Medical College and Hospital: Illustrated. Cloth. Pp. 298. Price, $2.50 net. New York: Wm. Wood & Co. 1904.

The author states in his preface that this book was not intended to be a mere laboratory guide, nor a purely clinical treatise, but a description of the borderland between the laboratory and the clinic. This purpose, on the whole, has been accomplished satisfactorily. The book has many advantages. It is brief. It is written by a physician who has had much more training in chemical examinations than practitioners on the average receive. The author has taken especial pains to interpret urinary findings clinically, so far as it is possible to do so at present, and this last is the feature of the book which will make it most attractive, we think, to the practitioner. The chapters dealing with albuminuria, the purin bases, glycosuria, acetonuria, the conjugate sulphates and glycuronates are modern and interesting. The inorganic constituents of the urine receive an unusual degree of attention, but deservedly so in the light of newer investigations which have revealed to us an importance of these substances hitherto unsuspected. A welcome chapter is that on the determination of the renal function in which are discussed the value of cryoscopy, the methylene-blue test, the phlorizin method and the toxicity of the urine as an index of renal activity. Here and there in this volume the dogmatic tone adopted jars a little, but dogmatism can be more easily condoned in a book of this kind than a wavering indecision. Now and then the choice of method might have been improved, we think; the convenient Hopkins method (as now modified) for estimating uric acid might well have taken the place of the unreliable Heintz method; Penzoldt's test for acetone with orthonitrobenzaldehyd is too good to be omitted; the reaction for indican with dimethylamidobenzaldehyd is perhaps the most delicate test we have for that body and should be included in another edition, along with, perhaps, fuller details rather than bare mention of the rather rough but clinically helpful methods of quantitative estimation of indican worked out by H. Straus and J. Bouma. The reliability of the fermentation test for glucose is scarcely sufficiently emphasized, while on the other hand the ease of differentiating the various crystalline ozazones by melting point determinations is exaggerated. The word "serin" used on page 10 as synonymous with serum albumin should no longer be employed in this way, since by "serin" chemists now understand a definite chemical compound, namely, alpha-amino-beta-oxypropionic acid. The "sodium nitrate" recommended in Arnold's test on page 107 appears to be a misprint for sodium nitrite. The book should have a distinct influence in stimulating interest in the newer studies of the urine and in making clear to the clinician the significance of the results which the chemical methods, especially of urinary examinations, are capable of yielding.

THE BOOKS OF A YEAR.

List of Books Published on Medical Subjects During the Year 1904.

The following is a list of the new books published in the United States in the year 1904. It may contain some books that were published before 1904, as we have had to depend on the replies of publishers to our letters and they may not have fully understood in every case the limits we desired to put on the list. Some books may have been omitted which should be here, but we have tried to make the list complete. Second editions or other republications are not included, nor are foreign books which are not issued under the imprint of an American publishing house.

Anatomy.

Anatomy of the Brain. J. F. Burkholder. Price, 2.00. Engelhard.

Laboratory Manual of Human Anatomy. Lewellys F. Barker. $5.00. Lippincott.

Treatise on Applied Anatomy. Edward H. Taylor. $9.00. Lippincott.

Bacteriology.

Bacteriology and the Public Health. George Newman. $5.00. Blakiston.

Clinical Diagnostic Bacteriology, Including Serum Diagnosis and Cytodiagnosis. Alfred C. Coles. $2.75. Blakiston.

Rabies. Its Place Among Germ Diseases and Its Origin in the Animal Kingdom. David Sime. 10½ shillings. Macmillan.

Chemistry.

Clinical Urinology. Alfred C. Croftan. $2.50. Wood.

Elements of Chemistry. M. M. Pattison Muir. $3.50. Blakiston.

Epitome of Inorganic Chemistry and Physics. A. McGlannan. $1.00. Lea.

Epitome of Organic and Physiological Chemistry. A. McGlannan. $1.00. Lea.

Examination of the Urine. G. A. de Santos Saxe. $1.50. W. B. Saunders.

Immune Sera. Hemolysins, Cytotoxins and Precipitins. A. Wassermann. $1.00. Wiley.

Manual of Clinical Microscopy and Chemistry. Herman Lenhartz. $3.00. Davis.

Outlines of Physiological Chemistry. S. P. Beebe and B. H. Buxton. $1.50. Macmillan.

Practical Physiological Chemistry. J. A. Milroy and T. H. Milroy. $1.60. Longmans.

Text-book of Quantitative Chemical Analysis by Gravimetric, Electrolytic, Volumetric and Gasometric Methods. J. C. Olsen. $4.00. Van Nostrand.

Toxicology. Edwin Welles Dwight. $1.00. Lea.

Uric Acid, an Epitome of the Subject. Alexander Haig. $1.00. Blakiston.

Diagnosis.

Manual of Serum Diagnosis. O. Rostoski. $1.00. Wiley.
Medical Laboratory Methods and Tests. Herbert French. $1.50. Keener.
Serums, Vaccines and Toxins in Treatment and Diagnosis. Wm. Cecil Bosanquet. $2.00. Keener.
Surgical Diagnosis. James Berry. $2.00. Blakiston.
Text-book of Clinical Diagnosis. L. Napoleon Boston. $4.00. Saunders.

Genitourinary, Cutaneous and Venereal Diseases.

Development and Anatomy of the Prostate Gland. W. G. Richardson. $3.75. Churchill.
Prostatic Hypertrophy. By C. M. Phillips and 40 Authors. $1.75. Mathews.
Social Diseases and Marriage. Social Prophylaxis. Prince A. Morrow. $3.00. Lea.
Syphilis and Gonorrhea. C. F. Marshall. $2.25. Redman.
Value of Ureteric Meatoscopy in Obscure Diseases of the Kidney. E. Hurry Fenwick. $2.50. Keener.

Histology.

Normal Histology. Jeremiah S. Ferguson. $5.00 Appleton.
Text book of Histology. Frederick R. Bailey. $3.00. Wood.

Hygiene.

Beauty Through Hygiene. Emma E. Walker. $1.00. Barnes.
Examination of Water and Water Supplies. John C. Thresh. $4.00. Blakiston.
Food Inspection and Analysis. Albert E. Leach. $7.50. Wiley.
Health and Disease in Relation to Marriage and the Marriage State. Vol. I. $7.00. Redman.
Health, Strength and Power. Dudley A. Sargent. $1.75. Caldwell.
Methods of Teaching Gymnastics. W. G. Anderson. $1.25. Hinds and Noble.
Physical Education by Muscular Exercise. Luther H. Gulick. 75 cents. Blakiston.
The Prevention of Disease. $7.50. Funk & Wagnalls.
Suppression of Tuberculosis. E. von Behring. $1.00. Wiley.
Weather Influences. Edwin Grant Dexter. $2.00. Macmillan.

Laryngology.

Adenoids. Wyatt Wingrave. $1.00. Keener.
Cleft Palate and Harelip. Edmund Owen. $1.00. Keener.

Materia Medica, Pharmacology and Therapeutics.

Action of Light as a Therapeutic Agent. Leonard K. Hirshberg. Snow & Farnham.
Diet in Health and Disease. Julius Friedenwald and John Ruhräh. Saunders.
Elements of General Radiotherapy for Practitioners. Leopold Freund. $5.00. Rebman.
Introduction to Pharmacognosy. Smith Ely Jelliffe. $2.50. Saunders.
Light Energy; Its Physics, Physiological Action and Therapeutic Applications. Margaret A. Cleaves. $5.00. Rebman.
Modern Practical Electricity. R. M. Walmsley. $12.00. Keener.
Philosophy of Therapeutics. Eldridge C. Price. $2.00. Nunn & Co.
Practical Dietetics. Diet in Health and Disease. A. L. Benedict. $1.50. Engelhard.
Radiotherapy, Phototherapy and High Frequency Currents. Charles Warren Allen. $4.50. Lea.
Roentgen Ray Diagnosis and Therapy. Carl Beck. $4.00. Appleton.
Self-cure of Consumption Without Medicine, with a Chapter on the Prevention of Consumption and Other Diseases. Charles H. Stanley Davis. Treat.
Text-book of Alkaloidal Therapeutics. W. F. Waugh and W. C. Abbott. $5.00. Clinic.
Text-book of Materia Medica. Robert A. Hatcher and Torald Sollman. $2.00. Saunders.
Therapeutics of Mineral Springs and Climates. I. Burney Yeo. $3.50. Keener.
Unconscious Therapeutics, or the Personality of the Physician. Alfred T. Schofield. $3.50. Blakiston.

Miscellaneous.

All Around Specialist. J. R. McOscar. $3.50. Keener.
Dictionary of New Medical Terms. George M. Gould. $5.00. Blakiston.
Appleton's Medical Dictionary. Edited by Frank P. Foster. $10.00. Appleton.
Doctor's Confession. Wm. Hinshaw. $1.25. Mathews.
Physician Versus Bacteriologist. O. Rosenbach. $1.50. Funk & Wagnalls.
Railway and Other Accidents. Allan M. Hamilton. $3.50. Wood.
Sexual Life. C. W. Malchow. $3.00. The Burton Co., Minneapolis.
Text book of Legal Medicine and Toxicology. Edited by Frederick Peterson and Walter S. Haines. $5.00. Saunders.

Nervous and Mental Diseases.

Epilepsy and Its Treatment. William P. Spratling. $4.00. Saunders.
Epitome of Nervous and Mental Diseases. Joseph Darwin Nagel. $1.00. Lea.
Force of Mind. A. T. Schofield. $2.00. Funk & Wagnalls.
Insanity in Everyday Practice. E. G. Younger. $1.00. Keener.
Lectures on Clinical Psychiatry. Dr. Emil Kraepelin. $3.50. Wood.
Mental Defectives: Their History, Treatment and Training. Martin W. Barr. $4.00. Blakiston.
Multiple Personality, an Experimental Investigation Into the Nature of Human Individuality. Boris Sidis and Simon P. Goodhart. $2.50. Appleton.
Nerves in Disorder. A. T. Schofield. $1.50. Funk & Wagnalls.
Outlines of Psychiatry. Charles Gilbert Chaddock. $2.50. Mathews.
Practical Treatise on Nervous Diseases. F. Savary Pearce. $6.00. Appleton.
Subjective Sensations of Sight and Sound. Abiotrophy and Other Lectures. William R. Gowers. $2.00. Blakiston.
Text-book of Insanity Based on Clinical Observations. R. von Krafft-Ebing. $4.00. Davis.
"The Blues," Causes and Cure. A Variety of Nerve Exhaustion so Largely Prevalent in Our Modern Life. Albert Abrams. $1.50. Treat.
Treatise on Diseases of the Nervous System. L. Harrison Mettler. $5.00. Cleveland Press, Chicago.

Obstetrics and Gynecology.

Atlas and Epitome of Operative Gynecology. O. Schaffer, edited with additions by J. Clarence Webster. $3.00. Saunders.
Mothers' Manual. Evelyn Lincoln Coolidge. $1.00. Barnes.
Obstetrics for Nurses. Joseph B. De Lee. $2.50. Saunders.
Physician's Practical Gynecology. W. O. Henry, Omaha. The Review Press, Lincoln, Neb.
Manual of Practical Ophthalmology. George A. Berron. Lippincott.

Ophthalmology.

Biographic Clinics. Vol. II. George M. Gould. $1.00. Blakiston.
Commoner Diseases of the Eye, How to Detect and How to Treat Them. Casey A. Wood and Thomas A. Woodruff. $1.75. Engelhard.
Diseases of the Eye. L. Webster Fox. $4.00. Appleton.
Hand-book of the Anatomy and Diseases of the Eye and Ear. D. B. St. John Roosa and A. Edward Davis. $1.00. Davis.
Manual of Practical Ophthalmology. George A. Berry, Lippincott.
Modern Ophthalmology. James Moores Ball. $7.00. Davis.
Ophthalmic Year-book. Edward Jackson. Herrick Book and Stationery Co., Denver.
Optical Dictionary. Edited by Charles Hyatt-Woolf. $1.00. Blakiston.
Pathology of the Eye. J. Herbert Parsons. Vol. I. Histology—Part 1. $3.50. G. P. Putnam.
Principles of Refraction in the Human Eye Based on the Laws of Conjugate Foci. Swan M. Burnett. $1.00. The Keystone, Philadelphia.
Strabismus or Squint. Francis Valk. $1.75. Putnam.

Pathology.

Atlas and Epitome of General Pathologic Histology. H. Dürck. $5.00. Saunders.
Friedberger and Frohner's Veterinary Pathology. Translated and edited by M. H. Hayes. $4.00. Keener.
Manual of Antenatal Pathology and Hygiene. The Embryo. J. W. Ballintyne. Wm. Green & Sons, Edinburgh.
Manual of Pathology. Sidney H. C. Martin. $4.00. Blakiston.
Text-book of Pathology. Joseph McFarland. $5.00 net. Saunders.

Pediatrics.

Adolescence. Vols. I and II. G. Stanley Hall. $7.50. Appleton.
Epitome of Pediatrics. Henry E. Tuley. $1.00. Lea.
Lectures on Diseases of Children. R. Hutchinson. $2.40. Longman.
Nutrition of the Infant. Ralph Vincent. $3.50. Wood.
Squint Occurring in Children. E. A. Browne and Edgar Stevenson. $1.00. Keener.
Summer Diarrhea of Infants. H. Illoway. $1.00. E. R. Pelton, New York.

Physiology and Embryology.

Blood Pressure as Affecting Heart, Brain, Kidneys and General Circulation. Louis Faugeres Bishop. $1.00. Treat.
Clinical Study of the Blood Pressure. Theo. C. Janeway. $3.00. Appleton.
Introduction to Vertebrate Embryology. Albert Moore Reese. $1.40. Putnam.
Lymphatics, General Anatomy of the Lymphatics. G. Delamere and P. Poirier. $5.00. Keener.
Manual of Experimental Physiology. Winfield S. Hall. $2.75. Lea.
Physiologic Economy in Nutrition. Russell H. Chittenden. Frederick A. Stokes Co., New York.
Physiology and Pathology of the Urine, with Methods for Its Examination. J. Dixon Mann. $3.00. Lippincott.
Recent Development of Physical Science. William C. D. Whetham. $2.00. Blakiston.
Text-book of Human Physiology. Albert P. Brubaker. $4.00 Blakiston.
Text-book of Physiology. Isaac Ott. $3.00. Davis.

Practice of Medicine.

Arrhythmia of the Heart. K. F. Wenkenbach. $4.50. Keener.
Beri-beri; Its Symptoms and Symptomatic Treatment. Percy Netterville Gerrad. $1.00. Blakiston.
Clinical Cases of Cancer of the Breast. Cecil H. Leaf. 80 cents. Keener.
Clinical Lectures and Essays on Abdominal and Other Subjects. H. D. Rolleston. $1.50. Blakiston.
Diseases of the Intestines and Peritoneum. Herman Nothnagel. $5.00. Saunders.
Diseases of the Liver, Gall Bladder and Bile Ducts. H. D. Rolleston. $6.00. Saunders.
Disorders of Metabolism and Nutrition. Carl von Noorden. Part V—Saline Therapy. 75 cents. Treat.
Graves' Disease With and Without Exophthalmic Goiter. William Hanna Thompson. $1.50. Wood.
Laboratory Studies in Tropical Medicine. C. W. Daniels. $4.00. Blakiston.
Lectures Chiefly Clinical and Practical on Diseases of the Lungs and Heart. James A. Lindsay. $3.50. Wood.
Lectures to General Practitioners on Diseases of the Stomach and Intestines. Boardman Reed. $5.00. Treat.
New Methods of Treatment. J. Laumonier. $2.50. Keener.
Practical Guide to the Administration of Nauheim Treatment in Chronic Diseases of the Heart. L. Thorne. $1.00. Keener.
Principles of Relief. Edward T. Devine. Macmillan.
Short Treatise on Anti-typhoid Inoculation. A. Wright. $1.25. Keener.
System of Clinical Medicine. Thomas D. Savill. Vol. I and II. $4.50. Keener.

Treatment of Some Acute Visceral Inflammations. David B. Lees. $1.50. Blakiston.

Tuberculosis and Acute General Miliary Tuberculosis. G. Cornet. $5.00. Saunders.

Surgery.

Aseptic and Antiseptic Preparations and Treatment of Emergencies After Abdominal Surgical Operations. G. Wackerhagen. $1.00. E. R. Pelton, 19 E. 16th St., New York.

Case Teaching in Surgery. Herbert L. Burrell and John Bapst Blake. 75 cents. Blakiston.

Closure of Laparotomy Wounds as Practiced in Germany and Austria. Edited and translated by Walter H. Swaffield. Blakiston.

"First Aid" Hand Book. M. J. Shields, Carbondale, Pa. Published by the Office of Thomas Boundy, Jermyn, Pa.

Gallstones and Their Surgical Treatment. B. G. A. Moynihan. $4.00. Saunders.

Hand Book of Surgery. Frederick R. Griffith. $2.00. Saunders.

Handbook of Surgical Anatomy. G. A. Wright and C. H. Preston. $1.50. Blakiston.

Manual of Fever Nursing. Reynold Webb Wilcox. $1.00. Blakiston.

Manual of Intragastric Technique. George Herschell. $2.50. Keener.

Regional Minor Surgery. George Gray Van Schaick. $1.50. International Journal of Surgery Co., 100 William St., New York.

Surgery. A Manual for Students and Practitioners. M. D'Arcy Magee and Wallace Johnson. $1.00. Lea.

Surgery of the Diseases of the Appendix Vermiformis and Their Complications. W. H. Battle and E. M. Corner. $2.50. Keener.

Surgery of the Heart and Lungs. Benjamin Merrill Ricketts. $5.00. The Grafton Press, New York.

Surgical Anatomy of the Head and Neck. John B. Deaver. $12.00. Blakiston.

Surgical Emergencies. The Surgery of the Abdomen. Part 1. Bayard Holmes. $2.00. Appleton.

Surgical Treatment of Bright's Disease. George M. Edebohls. $2.00. Frank F. Lisiecki, New York.

System of Practical Surgery. By E. von Bergmann, P. von Bruns and J. von Mikulicz. Vol. I. Surgery of the Head. Vol. II. Surgery of the Neck, Thorax and Spinal Columns. Vol. III. Surgery of the Extremities. Vol. IV. Surgery of the Alimentary Tract. Vol. V. Surgery of the Pelvis and Genito-urinary Organs. $6.00 per volume. Lea.

Wounds in War. W. F. Stevenson. $5.00. Longman.

Publishers.

Below are the full names of the publishers to whom reference is made in an abbreviated manner.

D. Appleton & Co., 436 5th Ave., New York.
P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
A. S. Barnes & Co., 156 5th Ave., New York.
H. M. Caldwell Co., Boston.
Clinic Publishing Co., Ravenswood Station, Chicago.
The F. A. Davis Co., 1914 Cherry St., Philadelphia.
G. P. Engelhard & Co., 358 Dearborn St., Chicago.
Funk & Wagnalls, 44-60 E. 23d St., New York.
Hinds & Noble, 31 W. 15th St., New York.
W. T. Keener & Co., 90 Wabash Ave., Chicago.
Lea Bros. & Co., 706 Sansom St., Philadelphia.
J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Longmans, Green & Co., 91 5th Ave., New York.
The Macmillan Co., 66 5th Ave., New York.
Lewis S. Mathews & Co., 2623 Olive St., St. Louis.
G. P. Putnam's Sons, 27 W. 23d St., New York.
The Rebman Co., 70 W. 23d St., New York.
The Saalfield Publishing Co., Akron, Ohio.
W. B. Saunders & Co., 925 Walnut St., Philadelphia.
Snow & Farnham, Providence, R. I.
E. B. Treat & Co., 241 W. 23d St., New York.
D. Van Nostrand Co., New York.
John Wiley & Sons, 43 E. 19th St., New York.
Wm. Wood & Co., 51 5th Ave., New York.

State Boards of Registration.

COMING EXAMINATIONS.

Wisconsin Board of Medical Examiners, Hotel Pfister, Milwaukee, January 9-11. Secretary, Filip A. Forsbeck, M.D., Milwaukee.

State Medical Board of the Arkansas Medical Society, Little Rock, January 10. Secretary, J. R. Runyan, M.D., Little Rock.

Indiana State Board of Medical Registration and Examination, State House, Indianapolis, January 10-12. Secretary, W. T. Gott, M.D., Crawfordsville.

Vermont State Board of Medical Censors, Y. M. C. A. Building, Burlington, January 11-12. Secretary, S. W. Hammond, M.D., Rutland.

Board of Medical Supervisors of the District of Columbia, Washington, January 12. Secretary, Wm. C. Woodward, M.D., Washington, D. C.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

New Mexico Medical Board Can Not Examine.—Solicitor General G. W. Pritchard has given it as his opinion that the present medical-practice law in New Mexico does not authorize examinations. Therefore, an applicant who can not present satisfactory evidence that he is a graduate of a medical college in good standing can not be licensed. The opinion further upholds the right of the board to exercise discretion as to what colleges are "in good standing," taking into consideration clinical opportunities, etc.

Utah October Report.—Dr. R. W. Fisher, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, October, 1904. The number of subjects examined in was 20; total questions asked, 120; percentage required to pass, 75. The total number examined was 12, of whom 8 passed and 4 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Chicago Homeo. Med. Coll.	(1879)	85.8
Univ. of Colorado Med. Dept.	(1904)	83.3
College of P. and S., Baltimore	(1904)	80.3
St. Louis Univ., Med. Dept.	(1904)	76.7
Rush Medical College	(1900)	87.3
Univ. of Toronto, Canada	(1893)	88.7
Denver and Gross Med. Coll.	(1903)	78.5
Tufts Med. Coll., Boston	(1904)	86.5
FAILED.		
American Med. Coll., St. Louis	(1885 67.3*, (1898)	72.6
Coll. of Med. and Surg., Chicago	(1903)	72.6
Rush Medical College	(1903)	74

*Second examination.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Dec. 31, 1904:

Smart, Robert, asst.-surgeon, leave of absence extended fourteen days.

Hall, John D., asst.-surgeon general, relieved from duty in Philippine Division and ordered to proceed to San Francisco and report on arrival to the military secretary for further orders.

Jones, Percy L., asst.-surgeon, relieved from duty on transport *Sumner* and ordered to report at Medical Supply Depot, New York City for temporary duty, to examine medical supplies now being delivered at that depot.

Buck, Carroll D., asst.-surgeon, granted ten days' leave of absence on being relieved from duty with First Battalion Philippine Scouts, World's Fair Grounds, St. Louis, and Dec. 24, 1904, assignment to duty at Fort Des Moines, Iowa, changed to Fort Leavenworth, Kan.

Shook, Jay R., asst.-surgeon, relieved from duty at Fort Leavenworth, Kan., and ordered to Fort Des Moines, Iowa.

Brown, Henry D., contract surgeon, returned to Fort Worden, Wash., December 19, from leave of absence.

Freeman, Charles E., contract surgeon, assigned to temporary duty at the Depot of Recruits and Casuals, Fort McDowell, Angel Island, Cal.

Kellogg, Preston S., contract surgeon, returned to duty at Fort Robinson, Neb., December 18, from leave of absence.

Bell, Leonard P., and Hansen, Morris J., contract surgeons, returned to duty at San Francisco December 19 from leave of absence, and will sail for the Philippines December 31.

Lemmon, Robert, contract surgeon, ordered from Fort DuPont, Del., to Fort Terry, New York, for temporary duty, and on its completion, to his proper station, Fort McKinley, Me.

McMillan, Clemens W., contract surgeon, granted leave of absence for fifteen days about Jan. 10, 1905.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Dec. 31, 1904:

Grunwell, A. G., surgeon, detached from the *Dixie* and ordered to the Naval Hospital, New York, for treatment.

Ledbetter, R. E., P. A. surgeon, detached from the *Lancaster* and ordered to the *Dixie*.

Kennedy, J. T., P. A. surgeon ordered to the Naval Station, Guantanamo, Cuba, and to additional duty on the *Amphitrite*.

Page, J. E., P. A. surgeon, ordered to the *Lancaster*.

Means, V. C. B., surgeon, ordered to the Naval Hospital, Philadelphia.

Bell, W. L., P. A. surgeon, when discharged from treatment at the Naval Hospital, New York, ordered home and granted sick leave for three months.

Janney, W. H., A. A. surgeon, detached from the *Marcellus* and ordered to the *Cæsar*.

Grove, W. B., surgeon, detached from the *Atlanta* and ordered home to wait orders.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Dec. 28, 1904:

Smith, A. C., surgeon, detailed as inspector of unserviceable property at Camp Hutton, La.

Rosenau, M. J., P. A. surgeon, detailed to represent the Service at the Second Annual Mosquito Exterminating Convention, New York, Dec. 16-17, 1904. Detailed to represent the Service at the annual meeting of the Society of American Bacteriologists at Philadelphia, Dec. 27 28, 1904.

Von Ezdorf, R. H., P. A. surgeon, to report in person to Rear Admiral Walker, U. S. N., for duty in connection with quarantine in the Isthmian Canal Zone, Republic of Panama.

McClintic, T. B., P. A. surgeon, granted leave of absence for five days from Dec. 27, 1904, under Paragraph 191 of the Regulations.

Korn, W. A., P. A. surgeon, granted leave of absence for seven days.

Berry, T. D., asst.-surgeon, to proceed to Perth Amboy, N. J., and assume temporary charge of Service during absence on leave of P. A. Surgeon W. A. Korn.

Salmon, T. W., asst.-surgeon, to report at the Bureau, Washington, D. C., for special temporary duty.

BOARD CONVENED.

Board convened to meet at the Hygienic Laboratory, Washington, D. C., on call of the chairman, for the examination and marking of applications for appointment as technical assistants in zoology, chemistry and pharmacology. Detail for the board: P. A. Surgeon M. J. Rosenau, Director of Hygienic Laboratory, chairman; Ch. Wardell Stiles, Chief of Division of Zoology; Reid Hunt, Chief of Division of Pharmacology, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Dec. 30, 1904:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Dec. 17-24, 1 case.
Illinois: Chicago, Dec. 17-24, 20 cases, 1 death; Springfield, Nov. 28-Dec. 21, 5 cases.
Kentucky: Louisville, Dec. 15-22, 1 case.
Louisiana: New Orleans, Dec. 18-24, 7 cases, 4 imported.
Michigan: At 70 localities, Dec. 10-17, present.
Minnesota: Meeker Co., Dec. 21-19, 1 case; Dec. 12-19, Otter Tail Co., 1 case; Rice Co., 12 cases; Wilkin Co., 1 case.
New Jersey: Camden, Dec. 18-24, 1 case.
New York: New York City, Dec. 18-24, 1 case.
Ohio: Cincinnati, Dec. 16-23, 2 cases.
Pennsylvania: Dec. 17-24, Johnstown, 1 case; Philadelphia, 1 case.
South Carolina: Charleston, Dec. 10-17, 2 cases.
Tennessee: Nashville, Dec. 17-24, 4 cases.
Washington: Nov. 1-30, Pierce Co. (including Tacoma), 2 cases; Walla Walla Co., 5 cases; Seattle, 1 case.
Wisconsin: Milwaukee, Dec. 10-24, 40 cases.

SMALLPOX—FOREIGN.

Argentina: Bahia Blanca, Nov. 18, present; Buenos Ayres, Sept. 1-30, 22 deaths.
Austria: Prague, Nov. 26-Dec. 3, 18 cases.
Brazil: Bahia, Nov. 12-26, 28 deaths; Rio de Janeiro, Nov. 6-27, 373 cases, 160 deaths.
Ecuador: Guayaquil, Nov. 30-Dec. 7, 3 deaths.
France: Lyon, Nov. 20-Dec. 3, 1 case; Paris, Dec. 3-10, 9 cases.
Great Britain: Glasgow, Dec. 8-16, 2 cases; London, Nov. 26-Dec. 10, 3 cases; Dec. 3-10, Newcastle-on-Tyne, 21 cases; Nottingham, 3 cases; South Shields, 2 cases.
India: Bombay Nov. 22-29, 5 deaths; Calcutta, Nov. 19-26, 2 cases.
Italy: Palermo, Nov. 26-Dec. 10, 33 cases, 15 deaths.
Russia: Odessa, Nov. 26-Dec. 3, 1 case.
Turkey: Constantinople, Nov. 27-Dec. 4, 15 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Nov. 25-Dec. 7, 3 deaths, 1 case on S. S. *Limari* at Puna from Panama.
Mexico: Coatzacoalcos, Dec. 10-17, 2 cases; Juchitan, Dec. 11-17, 1 case.
Panama: Panama, Dec. 12-19, 3 cases.

Medical Organization.

ORGANIZATION WORK NEEDED IN KANSAS.

J. N. McCormack, M.D.

CHAIRMAN OF THE COMMITTEE ON ORGANIZATION.
BOWLING GREEN, KY.

Although a majority of the physicians met by me in Kansas compare favorably with their brethren in the older states, and in spite of the fact that 800 of the 2,600 physicians are enrolled as members of the state society, outside of Wichita, where an excellent city society has existed for two years, the profession is practically unorganized in every section visited by me.

There are the usual local dissensions in most sections, but the condition most noticeable and most impressive to a stranger is the almost universal and absolute indifference to every professional interest which is not strictly and immediately personal. As would be expected from the foregoing statements, all the evils of commercialism are pronounced in such sections, including rate-cutting, commissions by surgeons, and the various questionable methods of securing practice, associated, as these evils always are in my experience, with a lack of financial prosperity in the rank and file of the profession, in striking contrast to the commercial wealth of the country. In some rich towns and counties one could not but be impressed with the idea that the country is developing more rapidly than the profession, and that systematic postgraduate work and a general awakening are necessary for the good of both the profession and the public.

District societies, overlapping each other in every direction, and supported by a few of the best men, had formerly assumed proportions not found elsewhere, all of them doing really excellent work, but none of them reaching, interesting nor benefiting the mass of the profession. Until two years ago some of these were as large as the state society—which, before that time, was practically confined to the northeastern section of the state—and were organized and run in a spirit of more or less distinct rivalry and antagonism to that body. Add to this the fact that there has been no co-operation between the State Board of Medical Examiners and the State Board of Health and the State Medical Society, that the officers and members of these boards, who should be selected, or at least nominated to the appointing power, by the organized profession, as its executive agents, seldom even attend the meetings of the society, and that the officers of the latter body have heretofore done little more than to issue a program for, and to perform the routine duties incident to, the annual meeting, with no real county societies anywhere, and there will be little difficulty in accounting for existing conditions.

What is needed in Kansas is zealous, personal, self-sacrificing labor, not only on the part of the councilors and of the other officials of the state society, but of all who can be induced to assist them from Topeka, Wichita, Kansas City, Hutchison and elsewhere, until a real, live society exists in every county containing five or six physicians, to make a practical study of and to promote the interests of every member and citizen of the jurisdiction.

First, the president and secretary of the state society need to wake up to the importance of their positions, as similar officers have done in other states, and to assist and to encourage the councilors in the onerous and difficult duties so that they may be able to complete the tasks set for them before the next meeting. The state journal is doing excellent work, and Dr. Furst has accomplished much in his district, but most of the other councilors have done practically nothing. I found that they had expected to organize county societies by a desultory correspondence and were despondent because they had had less tangible results than children usually do who send letters up the chimney to Santa Claus before Christmas. Such an organization as is demanded by the best interests of the profession and of humanity involves intelligent thought, labor and expense on the part of those charged with the duty. My meetings were well attended considering the short and imperfect notice it was possible to give, and the interest and enthusiasm manifested everywhere indicated that the profession was ripe for a real reform if those chosen to lead the movement can be induced to put some spirit into their work and push into effect the comprehensive methods which have proven so effective elsewhere.

The great natural wealth of Kansas, and the rapid encroachment being made on the arid sections by cultivation and tree growth, must make it one of the foremost states in the union. Although often there before, this was impressed on me more forcibly during this trip, traveling chiefly in the daytime, and often riding for hundreds of miles over fertile plains stretching out to the sky-line as rich as the famous Blue Grass regions. With proper organization, possible only through such a system of local societies as will bring the physicians of each community into fellowship and co-operation for their own and the public good, the future of the medical profession is as promising as that of the country.

IN MISSOURI.

My western trip ended with a meeting at Kansas City in the evening of December 2. Although a meeting called on short notice, with limited information as to its purpose, the attendance, and more especially the active and appreciative spirit with which the work was taken up, admirably indicated the influence which a good society, holding weekly meetings, will exert in any community. In the frank discussion which followed my talk it was shown that, while there is much to be done in that city even locally, so much has already been done, and the personal relations and enthusiasm in the large. active working force are such that anything is possible of accomplishment by a more extensive and searching utilization of the forces at the command of the profession. Both the city and state are overrun with quackery to an unusual degree, and my information is that professional conditions are bad in many counties in Missouri, but if St. Louis and St. Joseph will join hands with Kansas City and with the officers and councilors of the state association in earnest work, the foundation can be laid for remedying all of these evils before the next annual meeting.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

The President, Dr. Charles H. Mayo, Rochester, Minn., in the Chair.

Officers Elected.

President, Dr. H. D. Niles, Salt Lake City, Utah; vice-presidents, Drs. E. Wyllys Andrews, Chicago, and W. W. Grant, Denver; secretary-treasurer, Dr. B. B. Davis, Omaha.

Kansas City, Mo., was selected as the place of meeting in 1905, with Dr. H. C. Crowell as chairman of the committee of arrangements.

Stone in the Kidney.

DR. A. L. WRIGHT, Carroll, Iowa, drew the following conclusions:

1. Kidney stone may occur at any time of life, from the earliest to ripe old age. 2. These stones are the most frequent, and give rise to the greatest amount of suffering of any form of surgical disease of the kidney. The clinical manifestations of kidney stone do not depend on its size. A small stone, just large enough to prevent its escape, and composed of oxalate of lime, will cause more suffering and damage to the kidney parenchyma than a very much larger deposit of softer formation, as well as completely disable the patient while the destructive changes are taking place, although the clinical symptoms are not intensely active. 3. While generally unilateral, stone occasionally occurs in both kidneys, or the reflex symptoms may point most prominently to the sound kidney, the stone being found not infrequently on the side free from pain. 4. Diagnosis is not difficult in the typical cases, but the stone remaining quiescent in some for an indefinite period makes recognition almost impossible. 5. Owing to the fact that kidney stone may put on the livery of infectious diseases, the diagnosis is difficult, if not impossible, in those cases where the classical symptoms are absent. 6. There are few diseases of the kidney more certainly fatal, when left to themselves, and more successfully treated when encountered by proper surgical interference, arresting the destructive changes taking place in the kidney, and restoring the viscus to its physiological functions.

DISCUSSION.

DR. ALEX. HUGH FERGUSON, Chicago, said that pain is sometimes very deceptive. It is both local and referred; local in the region of the kidney itself, and referred to different parts of the body, chiefly along the genito-urinary tract toward the testicle; sometimes toward the midline of the abdomen; at other times toward the ensiform cartilage in the region of the gall bladder and duodenum, and not infrequently it is referred to the back. Pain is caused in nearly all cases at first, when there is no septic urine, by stretching of the pelvis of the kidney and of the kidney tissue, the calices, etc. A quiescent stone does not always cause colic, although it frequently gives rise to referred pain. In the diagnosis one should consider tumor of the kidney, recurrent attacks of interstitial nephritis, and tuberculosis of the kidney. The *x*-ray is one of the best diagnostic aids. Dr. Ferguson called attention to the dangers incident to the passage of such instruments as the segregator, cystoscope, etc.

DR. W. D. HAINES said he had made over two thousand autopsies, and in about 50 per cent. of the cases he found stones of variable sizes in the kidney. In those few cases in which the history could be traced, it was surprising to find how infrequently symptoms referable to the kidney were complained of. In treating these cases surgically, one of the principal things to determine is the presence of a kidney on the opposite side.

DR. WRIGHT maintained that the pain is inflammatory in character, and is not due to stretching of the kidney tissue. Many kidneys are opened, where the clinical manifestations indicate the existence of stone, but none is found, except possibly a little debris. Furthermore, where the deposit consists of oxalate of lime, the pain is very excruciating. The stone is too large to engage in the ureter, but not large enough, however, to stretch the pelvis or parenchyma of the kidney, or to produce any stretching effect whatever. He believes the same is true of kidney stone as of gallstone, the pain not being due to the passage of the stone, but to an inflammatory reaction. When such kidneys are opened and drained, relief is prompt, even when no stone or stones are found.

Newer Aids to Diagnosis in Diseases of the Urinary Tract.

DR. M. L. HARRIS, Chicago, arranged the newer aids to diagnosis in diseases of the urinary tract in the following order, according to their value: (1) The cystoscope. (2) Ureteral catheterization or segregation, with comparative analyses of the separate urines. (3) The *x*-ray. (4) The phloridzin test. (5) Comparative cryoscopy of the separate urines. (6) Cryoscopy of the blood, with the necessary corrections made.

DISCUSSION.

DR. B. B. DAVIS asked whether the essayist had observed temporary anuria in any of the cases, enough to interfere materially with the value of the test. Dr. Davis related a case in which temporary anuria followed the use of the segregator.

DR. HARRIS said he had observed temporary anuria in a number of instances, lasting sometimes a few minutes, sometimes ten or fifteen minutes, and sometimes as long as thirty or forty minutes, but how long it would have lasted had the examination been continued he does not know. Temporary anuria, however, is exceptional. He has also seen temporary anuria follow the introduction of the ureteral catheter, lasting for several hours, or until the catheter was withdrawn.

Methods of Exploring the Abdomen, and a New One.

DR. ALEX. HUGH FERGUSON, Chicago, stated that in the daily round of work the surgeon meets cases requiring colpotomy, anterior or posterior, to remove myomata, or cysts, and that these cases often give a history of stomach, gall-bladder, kidney or bowel disturbances. An examination of the abdominal organs is highly satisfactory, although oftentimes one hardly feels justified in opening through the abdominal wall for that purpose. The problem is solved by passing the hand and entire forearm into the abdominal cavity through the vagina. In order to furnish enough space for this purpose it is imperative to cut through the mucous membrane of the vagina its whole length on each side postlaterally. The mucous membrane being severed, the other structures will stretch at once. The bare arm, being smeared over with sterile vaselin, glides in with ease. He has within the last three years passed his hand through the vagina to the diaphragm, and palpated all the abdominal organs. In one case, after detecting gallstones, he cut down upon the gall bladder and pushed it, full of biliary calculi, through a buttonhole incision in the abdominal wall. In another case, a cancer of the rectum, he passed his hand and detected cancer of the liver and gall bladder. In a third case the vaginal outlet was so small that a digital examination could not be made without an anesthetic. He found cancer of the posterior lip of the cervix. He passed his hand through an anterior colpotomy, after having slit the vagina on each side, and found a hard tumor, evidently cancerous, on the anterior surface of the stomach. The lymphatics were also extensively invaded.

DISCUSSION.

DR. R. C. COFFEY asked under what circumstances the essayist would make such an exploration as he had described, inasmuch as the vagina can not be thoroughtly sterilized, and since an abdominal incision is fraught with so little danger.

DR. A. L. WRIGHT spoke disparagingly of this method of exploration. He questioned the possibility of being able to render the vagina aseptic. The method impressed him as being much more formidable, and attended with more danger than an abdominal incision.

DR. C. O. THIENHAUS called attention to the method employed by Ott, who introduces an electric light through the vagina into the abdomen, at the same time using one on his forehead, with which he can explore the abdominal cavity.

and see diseases with the eye which can not possibly be diagnosed otherwise, and are dealt with accordingly.

Peritoneal Adhesions, Their Cause and Prevention.

DR. ARTHUR E. HERTZLER, Kansas City, Mo., studied peritoneal adhesions by means of a small glass window sewed into the lateral abdominal wall of an animal. Peritoneal surfaces may agglutinate without a destruction of the endothelial layer. In true adhesions the endothelial layers are always destroyed. If the basement membrane is not destroyed, the adhesions may separate after a time. If the basement membrane is destroyed, the union is formed by a true growth of fibrous tissue, and is permanent. Ordinary adhesions are formed by fibrin formation, with a loosening of the cement substance of the basement membrane, and an interlacing of the fibers forming the basement layer. This forms in from twelve to eighteen hours. The formation of peritoneal adhesions depends on the same factors as does blood coagulation. The irritation of the surface destroys the endothelium, permitting the escape of fibrinogen-forming fluid. The CaCl is abundant immediately below the endothelial cells, as may be demonstrated with silver nitrate. The escape of the leucocytes from the vessels activates the proferment, and makes it active. The precipitate of fibrin thus formed is identical with that formed in blood coagulation, as may be demonstrated by the fact that those factors which prevent coagulation also prevent peritoneal adhesions. The agents most employed are phosphorus and peptone. The former prevents the formation of adhesions by destroying the fibrinogen, the latter by acting on an antiferment. The presence of a digestive ferment in the upper intestinal tract explains why adhesions form less readily in spontaneous perforations in this region.

(To be continued.)

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Continued from page 1988 of last volume.)

Unveiling Exercises.

The monument erected by the association to its founder, the late Dr. W. E. B. Davis, was unveiled in Capitol Park with fitting ceremonies, December 14, at 11 o'clock, in the presence of about 5,000 people, including the members of the association. After an invocation by Rev. Dr. L. S. Handley, Dr. Charles M. Rosser of Dallas, Texas, was introduced and delivered the address of presentation of the statue. The statue was unveiled by Elizabeth and Margaret Davis, the little daughters of the beloved physician. Dr. R. M. Cunningham, acting governor of the state of Alabama, accepted the statue in behalf of the state in an eloquent address in which he paid a glowing tribute to this great physician. The statue, in behalf of the city of Birmingham, was accepted by Hon. John C. Forney, the representative of Mayor Drennan, who was unavoidably absent.

A Method of Uniting Intestines of Very Small or of Unequal Caliber.

DR. J. SHELTON HORSLEY, Richmond, Va., said that modifications of sutures may be divided into two general classes, the continuous and the interrupted. Taking it for granted that each suture penetrates all coats of the intestines, he demonstrated experimentally that the continuous suture more nearly fulfills the ideal conditions for intestinal healing than the interrupted suture. Serous surfaces unite after being sutured, on account of the hyperemia of repair, and this is dependent on some slight injury to the peritoneum. In the case of an interrupted suture, union is obtained within the bite of the suture, by hyperemia caused by pressure of the suture, by the trauma of the needle, and by the presence of the thread. Between the sutures the pressure from thin intestinal tissues is practically *nil*, so union depends solely on extension of this hyperemia, and if this process does not extend from one stitch to another, leakage will surely occur. If continuous and moderate pressure is made on two serous surfaces, sufficient injury will be done those surfaces to cause adhesions. This continuous pressure along the entire margin of an intestinal wound can be obtained only by the continuous suture.

He described nine experiments in which an area of intestine was included between two lines of sutures. In only four of these did the whole area between the rows of sutures unite, demonstrating that something beside mere approximation of serous surfaces is necessary for satisfactory union. The intestinal ends to be united are placed side by side with their convex borders in contact and clamped with a hemostatic forceps. Then he uses a suture that passes through the whole of the intestinal wall, sewing together with a continuous stitch a crescentic area excised; then, changing the stitch to a Cushing right-angled continuous suture penetrating all the coats and invaginating the remaining margins of the wound. When the first knot is reached in the suture, it is invaginated, and the suture continued by two or more insertions of the needle; with the last two insertions as secure a hold as possible is obtained without penetrating the mucosa. The very last insertion of the needle is in the reverse direction of the other insertions, so that when the knot is tied it is partly buried. The bowel is then returned to its natural position, and the mesentery sewed up with continuous stitches.

DISCUSSION.

DR. W. P. CARR, Washington, D. C., stated that the holding of the bowel with a clamp, a rubber ligature, or tape to prevent the escape of intestinal contents during operation is the only part of intestinal suture that seems not to be as perfect as it might be. There is more or less danger of injuring the bowel by a clamp or ligature which is put around it tight enough to prevent the intestinal contents from escaping. The Murphy button or any form of clamp might possibly do this at times, particularly if the bowel is already more or less inflamed at the time of operation. He thinks it is better to have an assistant hold the bowel with the fingers when this is possible, although it facilitates the operation very much to take the bowel in a long clamp not far from the point where it is going to be sutured, as it prevents the sliding of the coats of the bowel over each other.

DR. HERMAN J. BOLDT, New York City, prefers suturing to using buttons or mechanical devices.

DR. J. M. T. FINNEY, Baltimore, has found that there are certain technical difficulties to the end-to-end suture which are hard to overcome. For example, at the mesenteric border it is difficult to obtain satisfactory union; there is so much likelihood that a leak will occur there, that it has been his practice for the last two years to use, almost exclusively, lateral anastomosis, closing both ends. This gives more satisfactory union. He advocates the interrupted suture.

DR. A. PALMER DUDLEY, New York City, uses the continuous suture and has obtained good results.

DR. W. S. GOLDSMITH, Atlanta, Ga., believes that in placing continuous sutures around the bowel, where there is likely to be distention, leakage may result, and a fistula be produced by tissue necrosis incident to bowel distention on account of the application of this ligature. He prefers the interrupted suture, although not so rapid for use, thus minimizing the pressure owing to distention or dilatation of the gut.

DR. SAMUEL J. MIXTER, Boston, said that the continuous suture is quicker. He emphasized the necessity of everybody practicing these operations on lower animals before doing them on patients. Every new method should be tried on the lower animals. He thinks very little clamping is necessary, even if there is some leakage. He does not consider that there is any great danger from septic peritonitis following, because the peritoneum is able to stand a great deal of soiling without much damage, and it can be washed off without producing any ill-effects. This is likewise true of operations on the stomach.

The Abuse of Purgatives Before and After Abdominal Section.

DR. I. S. STONE, Washington, D. C., said that purgatives should be given as evacuants and should not produce hypercatharsis, whether administered before or after abdominal section. The excessive purgation hypercatharsis commonly employed is intended not only to empty the bowels, but to perform additional service, namely, to remove collections of serum or other fluids which may be in the peritoneal cavity.

A large majority of the sections made at the present time may be called minor pelvic or minor abdominal. In these no infection exists nor is the intestine in any way involved. Such cases require only the mildest evacuants, with sterile diet in the preliminary treatment. Vomiting, paresis, ileus, and excessive distension of the abdomen after operation are frequently exaggerated and aggravated by the administration of the worse than useless cathartics which are usually given. No remedy has been discovered for vomiting due to anesthesia, and this fact should interdict the annoyance given patients by using purgatives before normal peristalsis has been restored. The only remedy of value for vomiting is the regulation of stomach contents, both as to character and quality of substances ingested. It has been shown that patients have bowel movements after surgical operations because they are ready to act rather than because one has found any method to produce such results. Hypercatharsis does more than anything short of venesection, or the use of dangerous heart depressants, to unfit patients for prolonged anesthesia and operations. The prompt administration of purgatives after operation appears to cause vomiting and reversed peristalsis, and adds to the general discomfort of the patient. If the intestines are not actually scoured by catharsis and have only been fairly well emptied of excess of gas and fecal matter, they will respond to treatment after operation with far greater ease than when made absolutely empty.

A Review of the Treatment Immediately Before and After Abdominal Section.

DR. L. S. MCMURTRY, Louisville, said that the general indications for preparatory treatment in cases of abdominal section were to cleanse the alimentary canal thoroughly without violent disturbance or exhaustion, to put all the eliminative functions in the best possible condition, and to favor in every way a tranquil state of mind and body. More than a year ago he became satisfied that to put the patient to bed for three days, or even longer, as was practiced by many, was not the best course of preparatory treatment. There is a positive advantage in having the bowels cleaned out in a relatively short time, as the patient is not relaxed by purgation and is less prone to suffer from toxic changes. Prolonged and irritating catharsis increases the nausea and vomiting of ether and of chloroform anesthesia. A prolonged period of preparatory treatment impairs the patient's strength and depresses the nervous system.

In the cleansing and disinfection of the skin we must accept at the outset the established fact that sterilization of the skin from a bacteriologic standard is impossible; yet mechanical cleansing will, for all practical purposes, free the skin of all active germ action and provide for immediate primary union of wounds. In the effort to accomplish this the important fact has been overlooked that the unbroken skin is endowed with a power of resistance to the activity of its own and other germs, and when the epidermis is cracked, denuded and broken by irritating germicides and scrubbing with hard brushes, this natural resistance is impaired and infection occurs. Mechanical cleansing will remove germs readily from smooth and unbroken cutaneous surfaces. For these reasons the brush and chemical germicides should be discarded and only soap and water and alcohol should be used, applying these with gauze instead of the brush.

In the after-treatment only the most simple course is necessary in average cases. The routine use of purgatives is to be avoided. The patient should be allowed to move about in bed freely, and should be given water as soon after operation as it can be retained.

The Employment of Celluloid Plates for Covering Openings in the Skull in Operations for Epilepsy, Brain Tumor, Etc.

DR. WILLIAM P. NICOLSON, Atlanta, Ga., summarized this subject as follows: 1. Celluloid is safe and does not add any extra risk to the operation. 2. It not only removes the pressure and irritation which the surgeon is endeavoring to combat, but by its resistance prevents a recurrence from the subsequent consolidation of the coverings in a false position due to atmospheric pressure. 3. It protects the patient from external influences, and not only makes him feel safer, but he is actually safer. 4. It enables surgeons to be much more untrammeled in the amount of bone that they can remove. 5. It prevents deformity, which especially, when beyond the hair line, is necessarily great in large bone removals.

Traumatic Synovitis of the Knee Joint.

DR. EDWARD A. BALLOCH, Washington, D. C., cited illustrative cases showing the advantages of early operative intervention, after which he drew the following conclusions: 1. In most, if not all, cases of traumatic arthritis of the knee there is an injury to some of the structures of the joint. 2. Conservative measures should not be persisted in too long. Three weeks was proposed as a fair length of time for a trial of these measures. If no improvement is manifest at the end of that time, the propriety of operative intervention should be considered. 3. Arthrotomy, properly performed, is not an essentially dangerous procedure and may do great good. 4. Early operative intervention will give a greater proportion of useful joints in a shorter space of time than will any other method.

Cases in Which Early Diagnosis of Cancer of the Uterus Was Made.

DR. RUFUS B. HALL, Cincinnati, said that of the many cases of cancer of the body of the uterus coming under his observation only two cases, which he reported in his paper, were seen early enough to make a diagnosis while the disease was limited to a very small area. Adenocarcinoma was found to be the variety of the disease in each case. He believes that the disease can be diagnosed in its incipiency if surgeons systematically curette every suspicious case and make repeated microscopic examinations of the scrapings removed from the uterus until they confirm or disprove the presence of malignant disease.

A Contribution to the Origin of Adenomyoma of the Uterus.

DR. J. WHITRIDGE WILLIAMS, Baltimore, after calling attention to the anatomic appearance of adenomyomata of the uterus, and to the various theories which have been advanced according to the origin of the epithelial structures contained in them, described a uterus removed at autopsy from a woman who died just after delivery as the result of hemorrhage from placenta previa. At the time of its removal the uterus apparently presented the characteristic appearance of the organ immediately following delivery, except that the area of placental attachment covered two-thirds of its interior, instead of being more circumscribed and limited to the anterior or posterior wall, thus indicating in all probability that interference with its blood supply had led to a much more extensive implantation of the placenta than usual.

On making a sagittal section through the uterus after hardening, numerous irregularly shaped, more or less oval areas, of a dull white appearance, and varying from a millimeter in diameter to structures 5 by 10 mm. in their various dimensions, could be seen throughout the entire thickness of the uterine walls, which measured 3 cm. in their thickest parts. These areas were most abundant immediately beneath the endometrium, but could be traced outward through the entire thickness of the uterine wall to its peritoneal covering. On microscopic examination they were found to consist of typical decidual tissue, which was made up of the characteristic decidual cells and glandular spaces lined by cuboidal epithelium. Dr. Williams stated that, so far as he could ascertain, this is the first case in which such a distribution of decidual tissue has been ob-

served, and then discussed the importance of such an observation in contributing toward determining the derivation of the epithelial structures contained in adenomyomata. He referred briefly to the literature on the histogenesis of adenomyomata and pointed out that while the vast majority of such growths are clearly derived from Muellerian tissue, conclusive evidence against the Wolffian body origin of certain cases has not yet been and probably never can be adduced.

Development of Fibroids of the Uterus After Ablation of the Appendages.

DR. J. WESLEY BOVÉE, Washington, D. C., stated that the large number of published cases of fibroid tumors that have undergone malignant degeneration, or that have broken down, become infected, or undergone other changes in structure detrimental to the lives of their unfortunate possessors, have swept away the old ideas as to their benignancy, and that pathologists are now searching for a distinct borderline between benign and malignant soft uterine myomata. Recurrent myomata, while not so dangerous as cancer, must be considered malignant. Between these and sarcomata there is not always a distinct difference. Dr. Bovée cited five cases, and of these two were operated on for non-infectious disease, two were victims of infection and in one a condition requiring the removal of the appendages was not known.

In considering the changes in the uterus after ablation of the appendages, Dr. Bovée quoted the experimental work on lower animals of Hunter Robb and others, and said that from these experiments and investigations one can find but one theory on which to base a cause for the development of fibroids after double salpingo-oöphorectomy. This is the endarteritis obliterans noted by Benckeiser.

The Effect of Suspension of the Uterus on Pregnancy and Labor.

DR. JOSEPH TABER JOHNSON, Washington, D. C., contended that very few, if any, such injurious effects need be feared as have been frequently charged against this operation. In over 100 suspensions done by himself he only knows of two pregnancies. These were both normal. In one case the labor was so rapid that the child was born before the physician's arrival, and he knows from recent examinations that there has been no return of the retroversion. The other case he delivered in November last after a five hours' normal labor, without chloroform or forceps.

Typhoid Fever and Appendicitis.

DR. JOHN C. OLIVER, Cincinnati, draws the following conclusions: 1. That typhoid ulcers may appear in the glandular structures of the appendix and give rise to a typhoid appendicitis. 2. That the infiltration of the ileum and cecum in typhoid fever may be so great as to give rise to a distinct tumor mass in the right iliac fossa. 3. That the Widal test is of but little, if any, value in the early diagnosis of the disease present. 4. That the leucocyte count proved in his series of cases to be of value in distinguishing between the two diseases. 5. That an exploratory laparotomy in typhoid fever is not devoid of danger. 6. That abdominal incision is imperative when it becomes necessary to establish the differential diagnosis between a typhoid perforation and fulminant appendicitis. 7. That in the absence of perforation cases of typhoid appendicitis should not be operated on.

Gynecologic Problems.

DR. P. F. CHAMBERS, New York City, read a paper in which he pointed out the problems presented to the gynecologist twenty-five years ago and to-day.

The Management of Acute General Peritonitis.

DR. J. GARLAND SHERRILL, Louisville, Ky., considered two forms of infection: First, acute septic peritonitis; second, general suppurative peritonitis. The various methods of medical treatment were considered, and the position taken that these cases are surgical, except where operation is refused and the patient's condition will not permit of surgical interference.

In considering the surgical treatment he placed much stress on early operation for the prevention of general peritonitis while the process is yet localized. The outcome of a given case will depend on the following factors: 1, the virulence of the infection; 2, the quantity of the infecting medium; 3, the resistance of the patient; 4, the activity of the organs of elimination; 5, the time at which the patient comes to operation; 6, the rapidity and thoroughness of the surgical procedure.

Dr. Sherrill considers that the special technic of the operation is of less importance than the dexterity of the surgeon and the care with which he does his work. He finds that by flushing he can best free the peritoneum of infectious material, and usually drains. The patient should have the usual treatment given all abdominal cases.

Some Further Advances in Renal Surgery.

DR. JOHN B. MURPHY, Chicago, made a forcible plea for more conservative surgical work on the kidneys and ureters in the future, saying that surgeons must consider the importance of preserving any portion of a kidney that is still in a condition to functionate, on account of the enormous mortality associated with the removal of this organ. The mortality in the past following the removal of a kidney that was secreting practically the normal amount of urine varied from 29 to 35 per cent. He reported six cases of operations on the kidney. In all of them the enlargement of the pelvis of the kidney was almost equivalent to, and in many instances larger than, the kidney itself. In cases of great dilatation of the pelvis of the kidney it was his custom to remove the kidney until he realized that it was practically a normally secreting organ and that the dilatation of the pelvis is due to ureteral obstruction, and that there is no good reason for taking out a kidney when the sac is removed, regardless of the position of attachment of the ureter to the sac, as this varies in every case. He believes in connection with surgery of the kidney that surgeons are approaching a time when they will examine the kidney carefully and cautiously and then decide, as in certain lesions of the stomach, that this or that portion shall be removed and the remaining part husbanded.

Vesical Diverticula Requiring Operation.

DR. HUGH H. YOUNG, Baltimore, stated that a patient died after obscure bladder symptoms, and autopsy showed seven diverticula, the largest about five inches in diameter, communicating with the bladder by small orifices. Both ureters were compressed by the diverticula, and hydroureter and hydropelvis resulted. The patient died of uremia. Since then he has had four cases of vesical diverticula where operation was advisable, and was performed with success in each case. In two cases the diverticula were larger than an orange, in the others smaller.

His four patients are all living and in good condition. In three cases the diverticula were completely excised, but ureteral transplantation was avoided by a plastic method. Renal infection was avoided and no fistulæ resulted.

The Ultimate Results Obtained by Conservative Perineal Prostatectomy in Seventy-Five Cases.

DR. YOUNG also read this paper. In this series there were 5 cases over 80 years of age, one 87 years of age, with one death five weeks after the operation in a man aged 84. Two other deaths, neither attributable to the operation, occurred, each in the third week, one, in a patient walking about and ready to go home, from pulmonary thrombosis, and the other in a man 77 years of age who had been uremic for several weeks, and autopsy showed double pyo-hydro-nephrosis. The harmlessness of the operation was thus shown.

When Shall We Resect in Tuberculous Disease of the Joints?

DR. C. H. CALDWELL, Cincinnati, in a paper on this subject, stated that his judgment as to the advisability of resection in a given case of tuberculous joint disease would be influenced by many considerations. A single tuberculous focus in the epiphysis of a long bone, which is susceptible of complete immobilization, stands a much better chance of undergoing reparative change than will such a focus in the spongy bones of the wrist,

n the close proximity of synovial and ligamentous structures which favor dissemination and persistence of the disease. The conservative treatment of joints was discussed at considerable length and was divided into three classes—ideal, satisfactory and unsatisfactory.

The results from the resection of the hip are of necessity unsatisfactory when complete, as with ablation of the head and neck of the femur, one leaves no *point d'appui* for the femur, and there must be a greater or less amount of give to it under the weight of the body. In tuberculosis of the knee one is confronted with an entirely different problem. There is but little use of wasting time with a knee joint in which marked osseous changes are already present, and which, in spite of conservative treatment over a period of six months, has shown no improvement. Resection of the knee in cases which have passed the period of adolescence has much to recommend it and but little can be said against it. In those cases long delay often means amputation. As to resection in elbow cases, one is again confronted with the fact that results are at the best far from what one may desire. In the wrist and carpal joints excision depends on individual judgment. Ankle joint and tarsal excisions are, as a rule, very unsatisfactory. The deficiency in weight-bearing capacity renders the result far from gratifying and amputation is, so far as his observation goes, too frequent a sequel to these operations. Several skiagrams were exhibited illustrating tuberculous joints and the results of resections.

Obliteration of the Stomach by Caustic.

DR. SAMUEL J. MIXTER, Boston, stated that doubtless other surgeons have seen cases of constriction of the esophagus after the ingestion of acid or of strong alkalies, and also cases of constriction of the pylorus from the same cause. It is very rare, however, to find practically the whole stomach destroyed. He reported three cases in which the stomach was almost entirely obliterated by caustics.

Vaginal Cesarean Section.

DR. C. JEFF MILLER, New Orleans, reported a case and summed up the advantages of the method as follows: 1. In severe eclampsia, when the woman is unconscious between the convulsions, the cervix rigid and elongated, and delivery imperative, it is always preferable to abdominal section, and, under proper surroundings, may be preferable to metal dilators for manual dilatation. 2. In severe cases of accidental hemorrhage, when the cervix is closed, it is safer than the other method of accouchement forcé, owing to the rapidity with which the uterus can be emptied, and should be given preference over abdominal hysterectomy, which is generally advised. 3. It may be considered in other conditions where cesarean section is indicated, except in contracted pelvis or dystocia, arising from maternal or fetal disproportion. It has not the disadvantages of an abdominal operation in that the peritoneum need not be opened unless hysterectomy is to be preferred for malignancy, and there is less shock than follows abdominal operation. 4. It is not more dangerous than attempting to deliver either by version or by forceps, when the os is not fully dilated, if done under strict aseptic precautions.

Dermoid Cysts and Fistulae of the Sacrococcygeal Region.

DR. LEWIS C. BOSHER, Richmond, Va., has operated on seven cases of dermoid cysts for fistulæ of the sacrococcygeal region. After referring to the diagnosis and prognosis, he says that the usual methods resorted to for treating inflammatory fistulous tracts will seldom result in permanent cure. Complete extirpation of the fistula and sac must be performed to prevent a recurrence. It is to be noted that this is not always possible, as in a case reported in the literature by Wette, where complete extirpation would have involved opening the spinal canal, with serious injury to the nerves.

Hematoma of the Ovary.

DR. MAGNUS A. TATE, Cincinnati, presented a study of the cases which he had collected from the literature. These cases showed that three periods of life markedly predominate as a predisposing factor in the causation of hematoma of the ovary: First, before or during birth; second, at or near the first menstrual flow; third, early adult or child-bearing period. The age of child-bearing women who are afflicted with hematoma of the ovaries varies from 15 to 40 years, and the left ovary seems to be more frequently affected than the right.

Pathogenesis and Surgical Treatment of Tubercular Peritonitis.

DR. WILLIAM E. STOKES, Salisbury, N. C., after dwelling on the pathogenesis of this disease, divided it into four forms—the adhesive, suppurative, tympanitic and ascitic. He quoted extensively from the literature of the subject, referred to the modes of infection, reported a series of cases occurring in his own practice, and spoke of the importance of histologic examinations.

Tracheotomy for Gunshot Wounds of the Trachea.

DR. J. MCFADDEN GASTON, Atlanta, Ga., discussed the subject of gunshot wounds of the trachea, and the complications that are likely to occur from septic infection or from laryngeal stenosis. He reported a case of gunshot wound of the trachea in a child 8 years of age. The position of the incision in the trachea was lateral rather than on the anterior surface of the windpipe. The patient made an excellent recovery.

Rupture of the Diaphragm.

DR. GEORGE S. BROWN, Birmingham, Ala., read a paper on this subject and reported an interesting and instructive case in a fireman, 27 years of age, six feet tall, whose weight was 190 pounds. The patient had hurt or strained his side slightly about two years before the rupture of the diaphragm occurred. Although an operation was performed, the case terminated fatally.

The following papers were also read: Dr. J. A. Goggans, Alexander City, Ala., "Report of Two Cases of Tumor of the Pancreas"; Dr. Herman J. Boldt, New York City, "Treatment of Uterine Bleeding"; Dr. W. H. Doughty, Augusta, Ga., "Suprapubic Prostatectomy"; Dr. W. D. Haggard, Nashville, Tenn., "Encephalo-Meningocele." Dr. Haggard also described an easy method of instituting peritoneal gauze drainage through the cul-de-sac. Dr. J. B. Murfree, Murfreesboro, Tenn., "Strangulated Hernia." Dr. E. Denegre Martin, New Orleans, reported two cases of cancer of the appendix.

Dr. Henry T. Byford's paper, "Some points in the Technic of Aseptic Operating," will appear in full in THE JOURNAL.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, Nov. 3, 1904.

The President, Dr. Richard C. Norris, in the Chair.

Report of a Case of Rupture of the Trachea During Labor.

DR. CHARLES A. SERVICE reported this case. In a primipara, aged 29, after labor had proceeded in an apparently normal manner for some time, during a pain, a swelling appeared about the left side of the neck and face. On examination the subcutaneous tissue from the sterno-clavicular junction to the corner of the mouth was found to be emphysematous and painful on pressure. This condition increased with each pain. An anesthetic was administered and delivery effected as speedily as possible. The emphysema finally extended to the entire trunk and both arms, and the eyelids, especially of the left, were distended to the extent of obscuring vision. The swelling disappeared by the eleventh day, absorption being apparently favorably influenced by the application of hot alcohol several times daily.

DISCUSSION.

DR. ROLAND C. CURTIN reported a case of emphysema of the chest, neck and face during labor which later involved the whole chest except the mammary glands and in which deglutition caused pain and nausea and which was followed by an uneventful recovery.

DR. E. P. BERNARDY said that he had seen a patient's face become swollen and crepitant after a long and difficult labor, but that he had not considered this a condition of fractured trachea.

DR. RICHARD C. NORRIS reported seeing this accident twice.

DR. B. C. HIRST stated that he had seen one case of rupture of the trachea and that that was a comparatively mild one. The deformity was not great, but the crepitation was marked.

Central Rupture of the Perineum.

DR. W. H. NICHOLSON reported this case, which occurred during labor. The rupture was the size of a half-dollar and occurred just in front of the anus. He ascribed its causation to marked overflexion of the head associated with a very narrow symphyseal arch. He considered that there may have been some abnormality in the function of the levator ani which either prevented head extension or did not present enough resistance to produce it. Dr. Nicholson said that the symptoms which would lead one to suspect such an accident are great distension and thinning of the perineum, associated with posterior situations of the presenting part as a whole. He thinks that the preventive treatment should consist in section of the perineum in the median line followed by a delivery of the head by forceps or rectal finger.

DISCUSSION.

DR. ROLAND G. CURTIN reported a case similar to that of Dr. Nicholson.

DR. RICHARD A. CLEEMANN also reported a similar case. The child was born during his absence, and on examining the patient afterward he found a long jagged tear extending from the anus nearly to the fourchette. The wound was at once closed with silk sutures, but union was followed by a vaginal fistula which closed spontaneously later. Subsequent labors occasioned lacerations, but none so severe.

DR. H. P. FISHER reported a case in which he averted a tear into the rectum by incising the perineum anteriorly with scissors.

DR. DANIEL LONGAKER said that he has never seen a central perforation of the perineum, but has frequently seen, coming in advance of the head, a fold of mucous membrane which was starting to tear high up in the vagina and was advancing with the progress of the head.

DR. G. N. BOYD considers the etiology of the tear a matter of great importance. He has seen a tear commencing as a central laceration finally completing itself before the delivery of the child. He admitted the possibility of the explanation given by Dr. Nicholson of spasm of the levator ani causing this condition.

DR. E. P. BERNARDY stated that central lacerations may be due to several causes, the principal one being malposition of the head, especially posterior presentations. The second cause he regards as the well-known lack of muscular extensibility. The forceps as applied in posterior presentations may also be a cause. He reported an illustrative case.

DR. R. C. NORRIS stated that one has to theorize a good deal on the mechanism of labor in such cases, since they happen so infrequently. He considers Dr. Nicholson's explanation not wholly satisfactory. He has noticed that just before the birth of the occiput there is occasionally a sudden giving way of some obstacle to the advancing head. He believes that this release of the head is due to sudden overdistension of the pelvic floor, which allows the head to quickly pass through the vulvar ring. The practical side of the question is that at this stage of labor the obstetrician should see that the head does extend.

DR. NCHOLSON stated that the overdistension of the perineum, antedating the true central lacerations, precludes the possibility of mistaking an ordinary case for a central laceration. He thinks it is generally agreed that there should be immediate repair of the injury.

Therapeutic Value of Ergot in Labor.

DR. J. C. APPLEGATE stated that he does not regard ergot as a safe or appropriate remedy for uterine inertia. Its physiologic effects on the uterus are unlike the rhythmical labor pains in that they are less intermitting, more continuous and predisposed to cause uterine constriction, particularly of the lower segment. He thinks that the dangers attending premature administration of the drug are: Rupture of the uterus, asphyxiation of the child or paralysis of fetal heart from compression, and retention of the placenta and membranes. He believes it better to complete the dilatation manually. He considers ergot indicated as a safeguard after delayed labor, or when inertia has been a factor, after placenta previa, and after reposition of an inverted uterus.

DISCUSSION.

DR. R. C. CURTIN stated that most of the ergot he has given of late has been for other hemorrhages than those of the uterus. In cases where there is general oozing from a mucous membrane he thinks it does good.

DR. LONGAKER said that he agreed with Dr. Applegate that several of the most difficult cases of expulsion of the placenta were cases in which ergot had been given freely. He reported briefly two patients who died of postpartum hemorrhage after they were left by the physician. In neither case was ergot used. He thinks that the routine method of completely emptying the uterus and then administering ergot would prevent such calamities.

DR. W. R. NICHOLSON stated that ergot instead of increasing the chances of infection has the opposite effect and offers a means of cleansing the uterine cavity in a way not possible by any other means.

DR. APPLEGATE agreed that ergot may be of great advantage as a preventive against septic infection when there is profuse bleeding or other evidence of a relaxed condition of the uterus. On the other hand, if the uterus is normally contracted, he believes that ergot blocks the secretions and dilates the veins, thus aiding in the absorption of septic material.

Travel Notes.

XXI.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.

CHICAGO.

S. S. KRONPRINZ WILHELM, Oct. 11, 1904.

When I decided to make a tour around the world by way of India, during midsummer, I knew beforehand that I would have no use in that part of the world for an overcoat or blankets. I was very well aware of the fact that that part of India which I expected to see had an unenviable reputation as a summer resort. Information from different sources concerning the climate of certain countries is about as reliable as hunting and fishing stories. In order to ascertain about what I had to expect in the way of heat at that time of the year, I interviewed sea captains and people who had lived in India. The opinions expressed were so widely at variance that I remained in doubt concerning the real climatic conditions that I would have to encounter in that part of my itinerary around the world. A traveling companion from San Francisco to Auckland, a missionary, who had lived several years in the northern part of India, gave me the most discouraging account. He said that where he formerly resided the burning sun during summer heated the stones to such a degree of heat that a simple touch with the hand would result in a burn sufficiently severe to blister the skin. An officer of the Indian Medical Service gave me the consoling information that when he was on duty at Calcutta he had to spend several hours each day in a cool bath during the summer months to counteract the intensity of the heat. Sea captains were only familiar with the climate on the coasts of India; they knew nothing about the summer climate of the great plains which I expected to cross. Their opinions on the coast climate were not unanimous. They could be formulated about as follows: Very hot, hot, quite hot, not so bad as has been represented. In view of these testimonies, I approached the climate of India with a mixed feeling of hope and fear. After having crossed the equator twice on the way from

San Francisco to Ceylon, I spent five days in the hot, humid climate of Ceylon, and for the first time fixed my eyes on "India's Coral Strand" early Tuesday morning, August 30. From subsequent experience, I would suggest the following change in the second line of the famous and well-known missionary hymn:

> From Greenland's icy mountains
> From India's "burning" strand,

as this change would more forcibly indicate the difference in the climatic conditions of these two places which these lines are intended to convey. The first impression of India in landing at Tuticorin is very disappointing. Unlike the South Sea Islands and Ceylon, the coast is not fringed with palm trees; it is bare and barren. The country is level and vegetation very scanty. The part of India which I traversed, and the tour extended from Tuticorin to Bombay, via Madras, Calcutta, Benares, Allahabad, Agra, Delhi, Jaipur and Ahmehabad, is entirely devoid of interesting scenery. There are no forest-clad mountains, waterfalls, mountain lakes, babbling springs nor clear rivers. Most of the river beds are dry or are a succession of dirty pools, the favorite bathing and drinking places for man and beast.

The sacred Ganges at Benares is about the size of the Mississippi at St. Louis. It is the great sewer for millions of people; its dirty water is credited with great healing power by the superstitious population and is carried in earthen or brass vessels, or pigskins, great distances for drinking purposes, as it is supposed to possess virtues which will prevent and cure all kinds of diseases. When we realize that the river is used as a receptacle for corpses, dead animals and everything that is filthy, it is difficult to comprehend how Mark Twain could come to the conclusion that its water is the purest in the world and sing its praises. This great traveler has immortalized himself with the natives of India by lauding the purity of the Ganges water. He may be right from a bacteriologic standpoint, and his position would be upheld by the Chicago Department of Health, but would meet with violent opposition by the guardians of health of the city of St. Louis.

When I saw this sacred stream its water was about the color of pea soup, and during a boat ride along its shores I saw a number of decomposed, bloated dead dogs floating on the surface of the sluggish stream, and at the place where the corpses of human beings are cremated baskets of ashes were consigned to its sacred water. The soul of the Hindu finds no rest until at least a part of the incinerated remains are deposited in this river. From the ashes of the cremated bodies a few fragments of bone are taken, tied up in a cloth and sooner or later this ghastly bundle must be thrown into the Ganges, even if this part of the funeral rites requires days and weeks and no inconsiderable expense incidental to the travel. It is fortunate that this river is inhabited by crocodiles, which can dispose, at least, of some of the bodies and carcasses which are thrown into it by the hundreds and thousands every day. In the inhabited parts of the country through which the Ganges passes, its shores are lined with washerwomen and washermen and human and animal bathers. The amount of human excreta which find their way into this stream is simply enormous, and other sources of pollution are innumerable; hence, if nature's laboratory can cope successfully with so many sources of contamination and render the water, if not clean, yet potable and bacteriologically pure, she has done what sanitarians so far have failed to accomplish.

I have said that the part of India included in my tour lacks scenic beauty. It is monotonous, a great, level, limitless plains, covered by rice marshes on the west coast; deserts, pastures, grain and cornfields in the interior and along the Indian Ocean coast; very little fruit culture anywhere. Between Madras and Calcutta, and in the vicinity of Jaipur, the monotony of the landscape is somewhat relieved by mountain ranges, which are, however, almost bare, dotted only here and there with clumps of shrubs and dwarfed, hardy, much-branched trees.

Water is India's greatest concern. On the amount of rainfall depends the success or failure of the crops.

> "All the results of agriculture are dependent not so much on reason and diligence, as on those most uncertain things, winds and weather."—Cicero.

Deforestation has impoverished India, as it has the Holy Land, Greece, Turkey, Spain, southern Austria, and parts of the United States. The building of reservoirs and dams to hold heaven's gift have succeeded only in part to prevent drouths when the rainfall is scanty. The government has at last recognized the true cause of the frequent drouths, and in 1880 passed laws prohibiting further forest destruction, and took active steps to restore what has been lost by the reckless, thoughtless, destructive work of man. The results of the efforts of reforestation are apparent in many parts of the country, and if this good work is carried on with the deserved energy, India will get its good share of rain in less than a hundred years; the farmer will reap, from year to year, the rewards of labor, famine will disappear and the general prosperity of the country will reach a degree never known before. Nature has made provision for reforestation of arid regions. In the desert of Sahara, along the banks of the Suez Canal, I noticed a shrub from 4 to 8 feet high, with a dark green foliage—the *Tamarix tetragyna*—in places where nothing else would grow. This shrub is preeminently fit for dry saline soil. The leaves are eaten by cattle. This shrub would flourish in the deserts of our western states.

At present the laboring classes spend much of their time and labor in holding and distributing the limited water supply. In some districts the government has established well-planned systems of irrigation, which have brought millions of acres of arid land under successful cultivation. Beyond these areas, the farmer, during the dry season, spends most of his energies in supplying the arid soil with moisture by the most primitive methods. From pools, tanks and wells, water is drawn in pails by hand, foot or bullock power, in the same way as was done a thousand years and more ago. I never saw a windmill in India. The water is poured into little gutters, which intersect the fields in different directions. Men, women and children are engaged in this kind of work. The women supply the household with water and, as the wells are frequently far apart, this task is often not an easy one. Hard as this work may be, it has its fascination for the women. They congregate at the well, chatter and laugh while the earthen or brass vessels are being filled, and, when perched on their well-balanced heads, return in files to their village, keeping up their lively conversation until the one from the greatest distance finds herself alone. The erect, graceful stature of the laboring native women is largely due to this enforced useful gymnastic exercise.

A common way of dipping water from a tank or pool into an irrigating ditch is by means of a large waterproof basket made of palm leaves, to which is attached a piece of rope on opposite sides. Two persons swing this basket so regularly and skillfully that it catches the water on one side and discharges it on the other. To maintain the proper tempo of these swinging movements between the two persons so employed, a monotonous chant regulates the muscular movements. Pumps appear to be unknown. When bullocks take the place of man power, the water is drawn from the well in an immense bucket, the traction rope running in the groove of a wheel about two feet in diameter. The bucket is swung in the desired direction by a man and emptied. The bullock's work is not so easy as it might seem. The run is a short one and the animal is not a very lithe one, and the constant turning movements must be much more fatiguing than the traction in a straight direction over such a short distance.

The elevation of water from a well by a beam, kept in motion by up-and-down movements by the to-and-fro walking on it of one or more boys, can not be regarded in the light of a childish play. The actors must be sure-footed in walking back and forth on the polished beam, and when the exercise

is kept up for hours the muscles of the legs and back have certainly undergone a great strain, and when this work is done under the burning rays of the sun, it means a bodily exertion which would exhaust the strength of our best athletes in a surprisingly short time.

ATTRACTIONS OF INDIA.

I did not go to India with the expectation of seeing enchanting scenes, hence I was not disappointed at their absence. I had seen most of the finest scenery in the world, including Alaska, Yellowstone Park, Yosemite Valley, Switzerland, Norway, Tyrol, Siberia, West Indies, Central America, Tahiti, etc., and I came to India to see what is generally recognized as the most interesting country in the world. I came to India to see her people, temples, palaces, tombs, her works of ancient art, her trees, flowers and animals. Having seen as much as possible of these things during the short space of eighteen days, traveling at the same time more than 4,000 miles by rail and during the worst season of the year, I feel fully compensated for the risks incurred and the sufferings endured, and can only repeat what has so often been said, that the real traveler, not the sightseer, will find here more that will interest him than in any other country in the world.

Take away from the Holy Land sacred history and its remaining landmarks, and it could furnish no such attractions as can India, the land of ancient history, civilization, art and science. The tombs and pyramids of Egypt are modern when compared with the ancient temple ruins in India. The history of Rome is as of to-day when contrasted with the records of India, punctured indelibly in characters on the palm leaves used as writing material for thousands of years, and carefully preserved in the temples, which are practically fireproof, and many of them never touched by the rude hand of war and plunder. The ancient history of Egypt must be studied, not in Egypt but in the British Museum, while to become familiar with the earliest history of India, it must be studied in India itself. India has landmarks in history that can not be transported like Cleopatra's needle, landmarks that would be ruined and made valueless if they were taken from the places where they were built thousands of years ago. People from all parts of the world may be seen at a world's fair exhibition, but it is impossible to know them or to learn their habits and customs, their vices and virtues until they are seen at their houses, at their places of business, on their farms, at their public amusements, in their own environments. A native in a distant strange land on exhibition is no more of a native than is a lion in a cage to be compared with a lion in the deserts of Nubia.

And, after all

> "The greatest study of mankind is man."—
> Pope.

The average tourist wants to see beautiful scenery, to walk picture galleries, to attend operas and concerts, to get a glimpse of and, if it is at all possible, to come in touch with royalty or with persons of high positions and social influence. The true traveler, on the other hand, spends much of his time among the mass of the common people, the backbone of every nation. He is anxious to learn from his own observations what they do and how they live. He sees them work in the fields and he visits them in their huts. He visits the markets to learn what the country produces, and he ascertains the prices of foodstuffs. He studies the habits and customs of the people, their clothing, their implements of agriculture and war and the tools of the artisans. He looks into the little shops and finds out what the people buy and sell. He makes a study of the trees, flowers and animals, domestic and wild. He frequents the botanic and zoologic gardens and museums. He takes special interest in the landmarks of history, ancient and modern, and the educational advantages and religious beliefs of the natives of the country he visits. With such objects in view, there is no country in the world that offers a wider field and a richer material than India.

MY SERVANT, LAZARUS.

As I have indicated before, travel out of season in a tropic country offers advantages as well as disadvantages. Crowding on shipboard, in railway carriages and in hotels is avoided. There were only twenty first-class passengers on the voyage from Adelaide to Colombo, four from Colombo to Tuticorin and less than fifty from Bombay to Marseilles. At Madras, besides myself, there was only one guest in the Connemara Hotel; at Calcutta, in the Great Western Hotel, not more than ten; at Benares I had the Hotel de Paris to myself, so at Agra the Metropole, and at Delhi the Laurie Hotel, and at Jaipur, in the Rastum Family Hotel, besides myself, there was the Parsee woman doctor who will be referred to again further on. At Bombay, the magnificent hotel Taj Mahal, with 600 rooms, had less than sixty guests at the time of my visit. The Indian railways provide well for the first-class passengers. The first-class compartments have six sitting and four lying-down places, lavatory and a connecting small compartment for servants. Towels and bedding are carried by the passengers. During the six nights I spent on the train I shared such a convenient compartment only once with a fellow traveler, and during the day I was very seldom disturbed by additional passengers. I was never obliged to check my trunk, which was always brought into my compartment. All trains carry ice and soda; the former is sold at 4 cents a pound and the latter at current prices. The trains make a stop of from 25 to 30 minutes at the eating stations at the usual meal hours observed in India.

In undertaking the trip through India at such an unseasonable time, I felt, for the first time in my life, the need of a personal attendant to relieve me of unnecessary care and physical exertion, and on its completion I had every reason to be satisfied with the step I had taken. To pack and to unpack, in a temperature ranging between 92 and 105 F. every day or two and to take care of the baggage and bring it from station to hotel and from hotel to station in such an uncongenial climate, are tasks that should be avoided by the traveler and assigned to a coolie. At Colombo I engaged Lazarus, a Ceylonese Tamil, about 26 years of age, who was to accompany me as my servant from there to Bombay The understanding was that I should pay his transportation both ways, third-class, and that he should receive a rupee and a half (48 cents) a day. The whole expense for the required time amounted to $35.66.

Lazarus was a typical Tamil, slender, lithe, coal-black, with sharp, rather intelligent eyes. He had a wife and two children and lived near Colombo. He inherited the Roman Catholic faith and whenever we visited a Catholic church he sprinkled himself with holy water and made the sign of the cross. A closer acquaintance with him, however, threw some shadows on the religious life of this member of the Roman Catholic faith. His greatest failing was in money matters. Our accounts did not always agree, but, as the amount was usually small, his bills were generally passed and paid; however, as this was a daily affair, I am satisfied that some rupees, many annas and much copper found their way into a corner of his soiled handkerchief instead of back into my pocket. I have learned by a somewhat expensive experience that a pigmented skin abhors truth and cherishes to represent things in the wrong light, and that whether yellow or black its owner, heathen or convert can seldom be depended on. I have learned to comprehend why the Devil, the father of lies, when pictured, is usually made to appear in black. Questionable as the little transactions of Lazarus may have been, his services proved invaluable and, in the end, I was the gainer so far as expense was concerned. He was a very good servant. I could not lose anything if I tried. Things that I threw aside he would pick up and repack.

Lazarus had many unpleasant functions to perform. Tipping is the curse of the traveler. This nuisance has reached greater dimensions in India than in any other country. Tipping in out-of-season travel grows as an unavoidable evil in proportion as the number of visitors is diminished. In hotels and at railway stations the number of employes far exceeded the demand, and as I was so often the only guest or first-

class passenger, all eyes and hands centered on me. I made Lazarus my agent in the distribution of tips. It was he who converted large silver coins into smaller change, silver and copper. The coolies did not like to deal with me in such an indirect way, but the rule was an inflexible one and was adhered to from the beginning to the end of the trip. It was by this method of disposing of the tip nuisance that both I and Lazarus made money. The coolie, ignorant as he may be, has learned to distinguish between silver and copper and hates the sight of the latter. To pass through India with honor in the estimation of the coolie, it is necessary to carry a liberal supply of silver coins and to see to it that not too many get a hold of your baggage, as the carrying of an umbrella or cane seems to entitle the bearer to the same financial consideration as is tendered to the one who groans under the weight of the trunk. Lazarus was a source of the greatest comfort to me. He would inform me when to prepare for the next eating station and when the time came to change cars or the approach of the station where I wished to interrupt the journey. He brought me ice and soda whenever I was tortured by thirst, which was often the case. He was master of the Tamil, Singhalese and Hindustan languages, but his knowledge of English was very limited. This was perhaps on many occasions desirable, as he was very loquacious, like all his countrymen. He would often discourse at length, but at the end I did not know in what language. Some of his pigeon English was amusing. In looking at some wild peacocks one day, he wanted to point out the bird with the brightest plumage, and did so by calling him "man peacock." His pronunciation of any of the common English words was so defective that they were absolutely unintelligible. I had held out to him from the very beginning the inducement that if his service should prove satisfactory at the end of the trip he would receive, besides his daily wages, some gold, and in this I did not disappoint him when I bid him good bye at the Bombay dock.

(To be Continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Acute Laryngeal Catarrh.

In the treatment of this affection in adults, Yeo, in *Clin. Ther.*, states that small doses of opium are advantageous in the early stages in allaying the irritation and in relieving the cough. It is of service combined as follows:

℞.	Morphinæ acetatis	gr. ii	12
	Antimonii et potassii tartratis.....	gr. iss	09

M. Fiant chartulæ No. xvi. Sig.: One powder every four or five hours.

Heroin is also of value in relieving the tickling cough and the soreness in the larynx combined as follows:

℞.	Heroin hydrochlor.	gr. ss	03
	Terpin. hydratis	gr. xxx	2

M. Fiant capsulæ No. xv. Sig.: One capsule every three or four hours.

Warm alkaline drinks should also be recommended in thinning the mucus which is sometimes very tenacious and hangs about and partially obstructs the glottis, rendering it difficult to expel. For this purpose the author recommends Apollinaris water to which one or two tablespoonfuls of hot milk should be added and the entire amount drunk. This should be repeated every two or three hours. The following mixture may be substituted for this:

℞.	Sodii bicarb.	ʒi	4
	Sodii chloridi	gr. xxx	2
	Spiritus chloroformi.....	m. xxx	2
	Aquæ camphoræ q. s. ad.....	ʒvi	180

M. Fiat mistura. Sig.: Two tablespoonfuls every two or three hours, mixed with an equal amount of hot water or milk.

Ammonium chlorid in 10-grain doses (.60) may be substituted for the sodium chlorid in the above combination.

Counter-irritation and warmth are indicatd by means of small mustard or linseed poultices over the larynx. The following liniment is recommended by the author, rubbed into the throat:

℞.	Olei pini sylves.....	ʒii	8
	Linimenti camph. compos.....	ʒiv	15
	Linimenti saponis q. s. ad.....	℥iss	45

M. Fiat linimentum. Sig.: Apply locally two or three times daily, followed by thorough friction.

Elimination by the bowels by means of saline aperients should be carried out. The voice should be rested and the desire to cough resisted as much as possible.

The following spray is recommended as very efficacious:

℞.	Cocainæ hydrochlor.	gr. iv	25
	Potassii chloratis.....	gr. lxxv	5
	Aquæ laurocerasi.....	m. lxxv	5
	Essentiæ menth. pip.....	m. iii	20
	Aquæ q. s. ad.....	℥viii	240

M. Fiat mistura. Sig.: To be used as a spray into the larynx.

Inhalations of the tincture of benzoin are indicated, especially in the less acute cases, applied by floating half a teaspoonful of the tincture on a pint of hot water. It is allowed to stand in the patient's room or is inhaled through a funnel. In the treatment of laryngitis in children, hot sponges applied to the neck are recommended and vomiting produced where the mucus is very tenacious, by the administration of vinum ipecacuanhæ minims 30 to 60 (2.-4.) mixed with two or three teaspoonfuls of warm water. Where there is a constant irritating cough, small doses of Dover's powder are advised to relieve the cough. To promote expectoration the following combination is recommended:

℞.	Sodii chloridi	gr. xvi	1 06
	Sodii bicarb.	gr. xxiv	1 55
	Syr. senegæ	ʒiv	15
	Aquæ q. s. ad.....	℥iv	120

M. Fiat misturæ. Sig.: A dessertspoonful, warm, every two hours.

As an expectorant in catarrhal laryngitis in children the following is of service:

℞.	Potassii iodidi.....	gr. xv-xx	1-1 30
	Syrupi senegæ	ʒiii	12
	Aquæ q. s. ad.....	℥iii	90

M. Fiat mistura. Sig.: One dessertspoonful every two hours.

The following may be used as a spray:

℞.	Cocainæ hydrochlor.....	gr. iv	25
	Glycerini acidi carbol.....	ʒi	4
	Aquæ rosæ q. s. ad.....	℥iv	120

M. Sig.: To be used as a gargle three or four times a day or sprayed directly into the larynx.

[Glycerin acidi carbolici contains 20 per cent. of carbolic acid].

Bronchopneumonia in Childhood.

The chief indications in the treatment of bronchopneumonia, according to Stanley, in *Birmingham Med. Rev.*, are to prevent the extension of the disease and to lessen the tendency to blocking the tubules. The child must be kept in bed in a properly ventilated room and placed on a light diet, as milk and barley water, or in older children boiled milk and bread. The following is recommended as an expectorant:

℞.	Vini ipecacuanhæ.....	m. v-x	30-.65
	Spts. ammon. arom.....	m. v	30
	Syrupi tolutani	m. v	30
	Aquæ q. s. ad.....	ʒii	8

M. Sig.: To be taken at one dose, and repeated every four hours.

In cases of medium severity with a moderate amount of consolidation a pneumonia jacket should be applied and the following prescribed:

℞. Vini ipecacuanhæ.....m. v | 30
Spts. ammon. arom. |
Syrupi senegæ, āā.....m. x | 65
Syrupi tolutani.....m. xv 1 |
Aquæ q. s. ad.....3ii 8 |

M. Sig.: To be taken at one dose and repeated in four hours.

If there is no improvement within thirty-six hours one minim of creosote should be added. If the temperature is unusually high, tepid sponging is indicated and the following substituted:

℞. Liq. ammon. acetatis.....m. xv 1 |
Spiritus etheris nitrosi.....m. x | 65
Ammon. bromidi .....gr. v | 30
Syrupi simplicis.....m. xx 1 | 30
Aquæ q. s. ad.....3ii 8 |

M. Sig.: To be taken at one dose, and repeated every four hours.

If vomiting and diarrhea are present, the milk may be discontinued and whey or albumin water substituted. The following combination should be given if the diarrhea proves stubborn:

℞. Bismuthi salicyl. |
Sodii bicarb., āā.....gr. v | 30
Bismuthi subnit. .....gr. x | 65
Pulv. tragacanthæ .....gr. xx 1 | 30
Aquæ q. s. ad.....3iii 12 |

M. Sig.: At one dose, and repeat in four hours if necessary.

Two grains of Dover's powder may be added to the foregoing if necessary to check the diarrhea. During convalescence the patient should be given very nutritious food along with cod-liver oil or the hypophosphites.

Aufrecht, in Nothnagel's Encyc. of Med., recommends as the most important thing in the treatment of this disease that the patient be placed in a sunny, well-ventilated room and special attention given to the diet. Quinin tannate is recommended, given in small doses. Children up to 1 year of age should receive one and a half grains (.09) twice daily, and older children three grains (.20) twice a day. The following combination is also employed in the treatment of this form of pneumonia as in the croupous form:

℞. Quininæ tannatis |
Ferri oxydati sacch., āā.....gr. iss | 09

M. Fiat chart. No. i. Sig.: One such powder twice a day, increasing the dose according to age.

As to the method of lowering temperature and of increasing elimination, the author advises that a linen cloth or napkin be wrung out of cold water and wrapped around the body of the patient from the back, enveloping the entire thorax, and a dry piece of flannel placed around this compress. The child is then placed in bed and in half an hour the cloth should be changed. By this treatment the respiratory movements become deeper, the sleep is improved, the temperature lowered and the frequency of the respirations and pulse markedly diminished. These improvements are generally shown within ten or twelve hours, when this treatment may be discontinued, to be repeated when necessary, observing at the same time any symptoms of collapse which may occur from too rapid extraction of heat. It is important to change the position of the patient from time to time to prevent stasis in the posterior and dependent portions of the lungs. This author recommends baths only in cases in which there is marked dyspnea, cyanosis and stupor with high temperature. In such cases he recommends a bath at a temperature of from 88 to 90.5° F. for five or ten minutes at a time, followed by effusions of cold water on the neck and back from a moderate height. He condemns the use of emetics except in those cases in which the affection sets in abruptly inside of from twenty-four to thirty-six hours with symptoms of dyspnea and marked cyanosis. Emetics should not be administered to debilitated and poorly nourished children. When emesis is indicated the following combination is recommended:

℞. Antimon. et pot. tartratis.....gr. 1/6 | 01
Pulv. ipecacuanhæ .....gr. iv | 25

M. Fiat chart. No. i. Sig.: One such powder every ten to fifteen minutes until emesis is produced. The use of apomorphin should in all cases be avoided.

Expectorants are very useful in the course of the affection. For this purpose the author recommends the following:

℞. Pulv. ipecac.....gr. iss-iii | 09-.20
Syrupi simplicis.....3ss 2 |
Aquæ q. s. ad.....3ii 8 |

M. Sig. One-half this amount at one dose, and repeat every two hours.

Attention is called to the fact, however, that some children possess an idiosyncrasy against ipecac. Even though vomiting may not occur, exhaustion may ensue and will disappear with the discontinuance of this medicine. As the most suitable sedative to the irritated mucous membrane the author employs inhalations of steam. When the child is continuously coughing day and night, leading to hoarseness and to exhaustion and sleeplessness, small doses of morphin must be used combined as follows:

℞. Morphin sulph.....gr. 1/3 | 02
Aquæ destil.....3iiss 10 |

M. Sig.: Five drops to a child 2 years of age, repeated two or three times daily according to indications, and increasing the succeeding doses to ten or fifteen drops (.65-1.00) if necessary, depending on the effect of the first dose.

In rachitic and cachectic individuals and in those cases subject to intestinal disturbances this treatment must be modified. More attention must be given to the diet and alcoholic stimulants added in the form of wine, according to the season.

Pertussis.

The following combinations are recommended in *Clin. Ther.* in the treatment of whooping cough:

℞. Ext. cannabis ind.....gr. i | 06
Ext. belladonnæ .....gr. iii | 20
Spiritus vini rectif. |
Glycerini, āā .....3iss 6 |
Aquæ q. s. ad.....℥iii 90 |

M. Fiat mistura. Sig.: One-half to one teaspoonful at a dose, night and morning, depending on the age of the patient.

The foregoing should not be given to infants under eight months of age. Or:

℞. Ext. belladonnæ flu.....m. iv | 25
Potass. bromidi .....gr. xlviii 3 | 20
Glycerini .....℥iii 90 |
Aquæ dest. q. s. ad.....℥iv 120 |

M. Fiat mistura. Sig.: Two teaspoonfuls every four hours.

Medicolegal.

Power of School Board to Require Vaccination.—The Supreme Court of North Carolina says that the sole question presented in the case of Hutchins vs. School Committee of Town of Durham was whether the following resolution was a reasonable exercise of the powers of the school committeee of the city of Durham: "Whereas, From the report and recommendation of Dr. N. M. Johnson, superintendent of health of Durham County, in the judgment of this committee, general vaccination of teachers and children attending the schools is desired and required for the public safety: Now, therefore, be it resolved, that no teacher or pupil be allowed to attend any school of the city of Durham after April 1, 1904, who does not present to the principal of such school a certificate of a physician of the city showing that such teacher or pupil has been successfully vaccinated within three years from that time, unless such person has been vaccinated within ten days preceding the date he or she presents himself or herself for such attendance, and this resolution shall be a permanent regulation of the schools." An epidemic of smallpox prevailed in the city of Durham and its suburbs last spring, not less than 1,000 persons being attacked, and the above resolution was passed as a protection to the 2,500 children in the schools of that city, the attendance

in which had fallen off 40 per cent. by reason of the fear of contagion. These facts were averred in the answer and found to be true by the judge. In the judgment of the Supreme Court, the resolution was a proper and reasonable exercise of the powers of the defendant. This, the court says, was not a question of compulsory vaccination under legislative authority, but simply whether, if a child was not vaccinated, the school board could, as a precautionary measure, exclude all such from the school, by a resolution, under the power given in the charter to "have entire and exclusive control of the public school interest and property in the town of Durham, prescribe rules and regulations . . . and do all other acts that may be just and lawful to conduct and manage the public school interests in said town." The plaintiff relied on Potts vs. Breen, 167 Ill. 67, that, in the absence of express legislative power, a resolution requiring vaccination as a prerequisite to attending schools is unreasonable, when smallpox does not exist in the community, and there is no reasonable ground to apprehend its appearance. But this court is not inclined to follow that authority. With the present rapid means of intercommunication, the court says, smallpox may make its appearance in any community at any moment without any notice given beforehand, and incalculable havoc be made, especially among the school children, which can not be remedied by a subsequent order excluding the non-vaccinated. "An ounce of prevention is worth a pound of cure." Besides, that case was not in point here, where smallpox had been epidemic, and was still threatening. The language of the resolution making it "permanent" would not prevent its repeal if on the subsidence of the danger the school board of that day should deem it proper to repeal. If the action of the board was not satisfactory to the public a new board would be elected who would rescind the resolution. The fact that it would be dangerous to vaccinate the plaintiff's daughter, owing to her physical condition, would be a defense for her to an order for general compulsory vaccination, but was no reason why she should be excepted from a resolution excluding from the school all children who had not been vaccinated. That she could not safely be vaccinated might make it preferable that she herself should run the risk of taking the smallpox, but was no reason that the children of the public school should be exposed to like risk of infection, through her, or others in like case. Though the school children were vaccinated, there were always some whose vaccination was imperfect and danger to them should not be increased by admitting those not vaccinated at all. Besides, a rule not enforced to all alike would soon cease to be a rule enforceable at all.

Construction of Practice Act and What Violates It.—The Supreme Court of Iowa says, in State vs. Heath, that certain penalties are denounced by section 2580 of the Code against those who shall practice medicine, surgery or obstetrics in that state without first having obtained and filed for record the certificate required by the chapter of which that section forms a part. Section 2579 defines who shall be deemed to be practicing medicine as follows: "Any person shall be held as practicing medicine, surgery or obstetrics, or to be a physician, within the meaning of the chapter, who shall publicly profess to be a physician, surgeon or obstetrician, and assume the duties, or who shall make a practice of prescribing or of prescribing and furnishing medicine for the sick, or who shall publicly profess to cure or heal." The manifest intention of the legislature was to divide those who shall be deemed practicing medicine into three classes: 1, all "who shall profess to be a physician, surgeon or obstetrician and assume the duties;" 2, those "who shall make a practice of prescribing or prescribing and furnishing medicine for the sick," and 3, those "who shall publicly profess to cure or heal." It is doubtless true that a mere public profession of an ability to heal would not subject any one to the penalties of the law. Such profession must be made under such circumstances as to indicate that it is made with a view of undertaking to cure the afflicted. One publicly professes, in announcing to the public generally his claim of skill in the art of healing, and is guilty, under section 2580 of the Code, if, without a certificate, and not within the statutory exceptions, this is done with the purpose of treating the maladies of patients who may engage his attention. There is some reason for not exacting proof of actual treatment in all cases. Should one profess to be a physician, and assume the duties or prescribe for the sick, little difficulty might be experienced in obtaining evidence of the fact. But suppose a charlatan, quack or other persons assumes or pretends to believe he may effect cures in an invisible manner, and undertakes to do so? Proof of his effort would be all but impossible. The statute, in order to be effective, has denounced the public profession that he will cure or heal, and this may be proven without exacting evidence that he has actually undertaken to do so. The statute, when fairly construed, does not seem capable of a broader construction. Nor does the court deem this essential in order to sustain its constitutionality. The statutes do not attempt to discriminate between different schools of medicine or systems for the cure of disease. No method of attempting to heal the sick, however occult, is prohibited. All that the law exacts is that, whatever the system, the practitioner shall be possessed of a certificate from the State Board of Medical Examiners, and shall exercise such reasonable skill and care as are usually possessed by practitioners in good standing of that system in the vicinity where they practice. This excludes no one from the profession, but requires all to attain reasonable proficiency in certain subjects essential to the appreciation of physical conditions to be affected by treatment. The object is not to make any particular mode of effecting a cure unlawful, but simply to protect the community from the evils of empiricism. Often the individual alone suffers from the want of proper attention, but in cases of contagious or infectious diseases the entire community may be endangered. In no profession, occupation or calling are the people more easily or readily imposed on. Section 2576 of the Code requires all, regardless of the particular school, to be examined in anatomy, physiology, general chemistry, pathology, surgery and obstetrics. Surely it is not unreasonable to exact for every one who proposes to undertake to prevent, cure or alleviate disease and pain some knowledge of the nature of disease, its origin, its anatomical and physiologic features, its causative relations and of the preparation and action of drugs. At any rate, the state, in order to guard the people against the effects of imposition or ignorance, had the right to exact such knowledge. The examination in materia medica, therapeutics and the principles and practice of medicine must correspond to the school according to which the applicant proposes to practice. In this case it conclusively appeared that the accused, who had never obtained a certificate from the State Board of Medical Examiners, professed publicly to heal a great variety of ailments (by "magnetic treatments"), and so did for the purpose of procuring patients and treating them. The question of his guilt should have been submitted to the jury.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 24.

1 *Roentgen Rays in the Treatment of Leukemia; a Study of Reported Cases. George Dock, Ann Arbor.
2 Two Cases of Bothriocephalus Infection, One of Them Showing Profound Anemia. David L. Edsall, Philadelphia.
3 The Military Importance of Mild Typhoid Infections, Such as Mountain Fever. Charles E. Woodruff, U. S. A.
4 *The Problem of the Prevention of Measles and Whooping-cough. Charles S. Caverly, Rutland, Vt.
5 The Pitch of the Normal Pulmonary Valve Sound and the Practical Significance of Its Changes in Acute Lobar Pneumonia and in Emphysema of the Lungs. Howard S. Anders, Philadelphia.
6 *An Unusual Case of Addison's Disease. H. B. Whitney, Denver.
7 The Compression Cylinder in Skiagraphy of Calculi. Henry Hulst, Grand Rapids, Mich.

1. **Roentgen Rays in Leukemia.**—Dock says that some cases of leukemia undergo marked change for the better under treatment with the Roentgen rays. The leucocytes fall to normal and sometimes show no more pathologic cells; the red

corpuscles improve, the enlarged spleen and lymph glands resume normal proportions, the general health seems restored. In some cases the effects are imperfect. In no case has observation been carried out long enough to speak of cure. In several cases death occurred while the symptoms seemed to indicate improvement. The action of the rays probably consists in affecting the tissues that produce the pathologic leucocytes, either directly or more probably through the production or setting free of substances that affect cell formation, or degeneration, or chemotaxis, or all of these processes. Further investigation is necessary. At present the improvement must be considered functional and not affecting the original cause, nor in a permanent way the morbid histology of the disease. The improvement of the red cells may be due to general stimulation of nutrition, in which suggestion may have a part, or by diminution of lymphoid or myeloid tissue. Roentgen ray treatment of leukemia is dangerous on account of the usual risk of dermatitis and burns, but probably also on account of toxic processes as yet impossible to explain. No stronger claims can be made for it than can be made for arsenic and certain serums and bacterial toxic substances, but it may prove more certain in its action than arsenic, and it can be more readily applied in practice than the injection methods. Great care should be taken to avoid burns. Methods should be as fully described as possible in each case; the blood should be carefully examined as fully and as frequently as possible and, if possible, urine examinations should be made to throw additional light on metabolic changes.

4. **Prevention of Measles and Whooping Cough.**—Cacerly deprecates the tendency on the part of the profession and of the public to view these diseases as harmless. Although the death rate from scarlet fever has been lessened considerably by judicious preventive measures, that from measles and whooping cough remains unchanged, these diseases causing more deaths than scarlet fever. From their fatalities they are as important as scarlet fever, or diphtheria, or even smallpox. Their prevention presents peculiar difficulties. First, the indifference of the public, shared by the profession. Second, the failure of many patients to see a physician. Third, their contagiousness at a time when they can not be recognized, and fourth, the variable length of time that they remain virulent. There is not sufficient unanimity among doctors as to the necessity of preventing these diseases. They are difficult of early and certain diagnosis because their early symptoms are common to these and many other less severe and less contagious diseases. The schools offer the best opportunity for their spread. In catarrhal diseases of all kinds affecting the upper air tracts, the child should be excluded from the school. The early communicability of measles and whooping cough should never be overlooked.

6. **Unusual Case of Addison's Disease.**—The striking features of Whitney's case were an entire lack of the usual pigmentation of the skin, and a course which was extremely acute, that is, so far as the clinical manifestations are concerned, since the adrenal tuberculosis was undoubtedly chronic and of very slow development. The diagnosis was not made until at the autopsy.

Medical News, New York.

December 24.

8 The Alleged Use of Dum-dum Bullets in the Japanese-Russian War. George Ryerson Fowler, Brooklyn.
9 Renal Hematuria of Unexplained Origin. Report of a Case with Cessation after Nephrotomy. Benjamin R. Schenck, Detroit.
10 Address. Medical Society of the County of New York. Henry S. Stearns, New York.
11 Hysterectomy and the General Health. Eugene C. Savidge, New York.
12 *An Analysis of Twenty-five Cases of Strangulated Hernia Treated by Operation. George Tully Vaughan, Washington, D. C.
13 *The Significance of Pus in the Nose, with Special Reference to the Affections of the Accessary Sinuses and Their Proper Treatment. George L. Richards, Fall River, Mass.

12. **Strangulated Hernia Treated by Operation.**—Vaughan analyzes 25 cases of strangulated hernia, including only those cases in which the intestine was not only incarcerated, but the circulation of blood so obstructed as seriously to threaten and in several cases to destroy the integrity of the intestine. Five were femoral, and 20 were oblique inguinal hernias. Twenty-three were on the right side, 2 on the left. There were 2 cases of pro-peritoneal or interstitial hernia. Only one case was complicated with an undescended testicle. The youngest patient was six weeks, and the oldest 77 year old. In 8 cases the point of greatest restriction was at the external ring, in 7 cases at the internal ring, and in 1 case in the abdominal cavity (constriction not determined in 9 cases). In 19 cases the sac contained small intestine, and in every instance in which the portion could be identified—11 in number—it was found to be ileum. In 1 case, the contents were two loops of small intestine; in 1, small intestine and omentum; in 1, large and small intestine and omentum; in 1, large intestine (sigmoid flexure); and in 2, omentum only. In 11 cases, dark or turbid fluid—sometimes blood clots—were found, and in these cases strangulation had existed from 2 to 96 hours; in 8 cases over 6 hours, and in 3 cases less than 6 hours. Venous thrombosis in the mesentery, ecchymosis, or hematoma of the intestinal wall or mesentery were found in 10 cases. In 2 cases the intestinal wall was rough and bruised, and in 1 a large hematoma was found in the intestinal wall and was treated by incision, evacuation and suture. In 9 cases the contents of the sac were gangrenous, 3 of the omentum only, and 6 of the intestine, and in 4 of these there was what is usually called general peritonitis. Besides the physical signs, the two most valuable symptoms were pain and vomiting. Pain existed in all the cases, but varied in character, duration and locality. Vomiting occurred in 20 cases, nausea without vomiting in 2, and neither nausea nor vomiting in 3. In 4 cases the so-called stercoraceous vomiting occurred. In all the cases except 3, after attending to the contents of the hernial sac, some operation for radical cure was performed. Of the 3 cases mentioned, 2 were cases of peritonitis, in which it was thought best to provide for drainage, and the third did not survive the operation. The formation of an artificial anus with or without resection of the intestine must not, says Vaughan, be done in any case in which the patient's condition will permit resection with immediate reunion. In every case in which the patient's condition will permit an operation, the radical cure should be performed. There were 6 deaths in Vaughan's series. One patient was a hard drinker; one, a woman, aged 77 years, who had suffered from strangulated hernia 13 days and had an incipient general peritonitis when the gangrenous intestine was resected. She died of peritonitis 48 hours after operation. The third case was that of a patient who had been suffering with intestinal obstruction nine days and who was very weak. He died on the table, apparently from exhaustion. The fourth case was one of strangulated hernia of nine days' standing, with general peritonitis, death occurring 14 days after the operation. The fifth case was a man, aged 60 years, who had gangrene of the intestine with numerous mesenteric thrombi and beginning general peritonitis. The last case was a feeble man, aged 77 years, inmate of an insane asylum, who had had strangulation of a right oblique inguinal hernia for 8 hours, and had been treated by taxis. Death occurred on the fourth day from toxemia or exhaustion. No peritonitis. This gives a mortality of 24 per cent. Cases in which the contents of the sac were in good condition, 16; 3 deaths; mortality, 18.75 per cent. Cases in which the contents of the sac were gangrenous or general peritonitis existed at the time of operation, 9; deaths, 3; mortality, 33.3 per cent.

13. **Significance of Pus in the Nose.**—A patient presenting himself with pus coming from one or both sides of the nose, the first thing to do, says Richards, is to clear the nose of all visible sources of obstruction, especially polypi; examine the teeth, to see whether there is anything in the way of probable dental origin of sinus trouble. Then at-

tempt to ascertain whether the pus comes from the antrum or from the frontal sinus or from the ethmoidal cells. Transillumination and exploratory puncture of the antrum may be resorted to. If the antrum is free, explore the frontal sinus; try to wash out with the canula or pass a probe, if possible; if not, remove the middle turbinate. If the antrum contains pus, irrigate. If these measures fail, a radical operation must be done. The better the drainage, the faster the cure, and to accomplish this it is necessary to have a good-sized opening into the antrum. If the pus appears to come from the frontal sinus, wash out with a canula, if possible, pursuing this treatment a reasonable length of time, and being guided as to the question of a future operation somewhat by the feelings of the patient, somewhat by the annoyance of the discharge, somewhat by the chronicity of the case. It is to be remembered that the frontal sinus is a simple, large, irregular cavity, which may communicate with one or more of the anterior ethmoidal cells, and that the operation, while not of itself especially serious, may mean a more or less prolonged course of after-treatment. Where there are several empyemas, it is better to clear out the nose as thoroughly as possible, and then, under ether, do the operation on all the cavities at once.

New York Medical Journal.

December 24.

14 A Contribution to the Serum Therapy of Syphilis. Justin De Lisle, New York.
15 *The Plasmeba of Dengue; a Brief Description of the Earliest Phases of Its Plasmic Characteristics. H. A. Eberle, Greensboro, S. C.
16 *The Removal of Internal Hemorrhoids by Incision. Ernest LaPlace, Philadelphia.
17 An Attachment to Bennett's Inhaler for Pharyngeal (Crile's Method) and Tracheal Administration, and for Ethyl Chlorid-ether Sequence. Victor C. Pedersen, New York.
18 A Reply to Dr. H. H. Seabrook's Paper on What Should the General Practitioner Know of Ophthalmology? Frank D. W. Bates, Hamilton, Canada.
19 Surgical Shock. J. Shelton Horsley, Richmond, Va.
20 Report of Skin Grafting, Using Amputated Extremities as a Supply of Skin. G. Hartman and C. Weirick, Harrisburg, Pa.

15. The Plasmeba of Dengue.—This name has been given to a parasite found by Eberle in the blood of persons suffering from dengue. The parasite of dengue belongs to the class sporozoa, and since it is found first in the plasma of the blood, Eberle has given it the generic name plasmeba. This plasmeba, primarily found in the blood plasma, impregnates the corpuscles, producing a pale, violet tinted growth assuming various shapes as it increases in size, and in which can be noticed, after from two to four hours, faintly darker bodies, the earliest spore formations which occupy usually from two-thirds of to the entire corpuscle. On many occasions, when the spores form in the pseudopodiæ, they give the corpuscles the appearance of being crenated, but in fact they are merely projections beyond the border of the corpuscle pushing out the elastic limiting membrane of the cell. These spores mature in the course of a few hours and are characterized by a definite outline enclosing a pale protoplasm without nucleus or nucleolus. These matured spores are highly refractive and finally burst through the limiting membrane of the corpuscle and are poured out into the plasma (the greater number, however, being passive) and are ready to enter on the new cycle. The dengue plasmeba is smaller and much more active than the ameba in malarial blood. Its detection requires great patience on the part of the investigator and thorough knowledge of its morphology. The secondary changes in the corpuscles are unlike those of any of the malarial types. Crescents or flagellæ have not been noticed. There is no enlargement of the spleen or liver. The plasmeba can be found in fresh blood specimens during every day of the disease, and in the same specimens sporulation and segmentation go on continuously. Quinin has no effect in cutting short the disease, nor in lowering the temperature. Only in complicated cases would its administration be recommended, and then it should be combined with other antipyretics. The minute dengue organisms stain beautifully in weak eosin solutions and in methylene blue.

16. Removal of Internal Hemorrhoids by Excision.—LaPlace describes his method as follows: The patient, prepared as usual, is placed on the left side with the thighs flexed on the abdomen. The sphincter ani is dilated by stretching with both thumbs. The hemorrhoidal area is brought into view by clamping with forceps (preferably Kocher's) each hemorrhoid at its upper and lower extremity parallel with the course of the rectum. The upper forceps being held in the left hand, the hemorrhoid is cut immediately above the forceps, with curved scissors, just enough to allow the cut to be closed by the immediate insertion of a continuous suture of No. 2 cumolized plain catgut, on a medium-sized curved Hagedorn's needle. This first cut being closed, the hemorrhoid is again cut a little, and the wound is closed by the same continuous stitch, and so the procedure is repeated until the hemorrhoid is removed, when the suture is finally tied. Should any hemorrhage occur, a whipped suture is applied locally. The result is a linear cut securely sutured. The danger from hemorrhage or from sepsis is reduced to a minimum. The catgut drops away in due time. Pain is rarely present and occurs only when the sutures have been applied too deeply. The advantages of the method are precision, absence of hemorrhage during or after the operation, safety, and simplicity. LaPlace has performed it 83 times without any complication in any case. The patients are cautioned to keep the bowels locked, with a half-grain opium pill twice a day, for two days. On the sixth day an enema is given and the patient is ready, as a rule, to be discharged. No dressing is applied, except a pad externally.

Medical Record, New York.

December 24.

21 *The Antitoxin Treatment of Tertian Malarial Infections. Joseph Herbert Ford.
22 Remarks on Melancholia. Joseph Collins, New York.
23 *Report of a Case of Primary Lupus Vulgaris of the Oropharynx and Nasopharynx Treated by *X*-Rays. H. S. Birkett, Montreal.
24 Infant Feeding. M. J. Synnott, Montclair, N. J.
25 Paraphimosis in a Young Girl. M. I. Beeman, Newburgh, Ont.

21. Antitoxin Treatment of Tertian Malaria.—The antitoxin used by Ford was obtained from rabbits which were injected with the blood of patients suffering from malaria, or infected mosquitoes were allowed to bite them. The material injected was either the fluid serum or defibrinated serum, or serum, or corpuscles desiccated at a temperature below 53 degrees C. Of 9 patients treated, 2 were apparently unaffected; in 1 there was a temporary disappearance of symptoms, in 1 an abscess developed at the site of injection. Four patients recovered. The fever and parasites disappeared in the fifth case, but the course of the disease so much resembled a case of spontaneous cure that Ford regards it as inconclusive, in spite of the severity of the infection and the promptness with which the parasites disappeared from the blood after the injection of the serum.

23. X-Rays in Primary Lupus of Oropharynx.—Birkett's patient, a boy, aged 15, with a family history of tuberculosis, had two distinct growths in the oropharynx, each situated on the lateral and partly on the posterior walls of the pharynx. The growths were distinctly nodular in appearance, about the size of a swollen sago-grain, quite separate and distinct in the central portion, but merging into one another at the periphery; pale pink in the center, darker toward the periphery. The structures anterior to the growth were not involved. The uvula on its palatal surface seemed normal. The infiltrations extended upward to the cushion of each Eustachian tube, and from there towards the center of the nasopharynx along its root. There was no extension into the posterior nares. The pharyngeal aspect of the uvula showed two nodules, each about the size of a lentil. Under ether, by means of cutting forceps, Birkett removed the greater portion of the masses involving the lateral walls of the oropharynx. The microscope showed tubercle bacilli in typical tubercular tissue. Animal inoculation was positive. The local treatment carried out subsequent to the

removal of the masses consisted of curetting the infiltrated areas and subsequently rubbing in a mixture of lactic acid and glycerin. This treatment proving ineffectual, the galvanocautery was tried, and finally, the Roentgen ray. The patient was treated with a regulating tube with a vacuum equal to a three-inch spark-gap, which was supplied from an eighteen-inch coil, operated by an electrolytic interrupter. The tube was placed ten inches from the patient and ten-minute exposures were made for ten treatments. On account of inflammation, treatment was suspended for three weeks. Daily treatments were then given for 23 days, the face being protected by a piece of wood painted with 11 coats of white lead on each side. A recurrence was treated in the same manner and the results at the present time are most satisfactory.

Boston Medical and Surgical Journal.

December 22.

26 Two Cases of Chronic Pemphigus of the Mouth. John W. Farlow, Boston.
27 Leprosy. Theobald Smith, Boston.
28 *Chronic Gastric Ulcers. Hour-glass Deformity of the Stomach. Report of a Case Successfully Operated on. Charles L. Scudder, Boston.
29 *The Decrease in the Death-rate of Consumption. Lester C. Leonard, Worcester, Mass.
30 Pulmonary Congestion as a Cause of Sudden Death. W. W. Miner, Ware, Mass.

28. Hour-Glass Deformity of Stomach.—Scudder's patient, a woman, aged 38, suffered from influenza 10 years ago, and since that time she has had more or less trouble with her stomach, complaining of dyspepsia and indigestion. She was unable to keep anything on her stomach and was nourished by nutrient enemas. On percussion the lesser curvature of the stomach was found two inches above the umbilicus and the greater curvature three inches below. An operation was undertaken because of the persistent vomiting, and the evident obstruction. On opening the abdomen, an hour-glass deformity of the stomach was found. The obstructing portions were evidently cicatrices of old and recent ulcers. A gastrogastrostomy and a gastroduodenostomy were done. Both of these operations were facilitated by the use of rubber-covered clamps, which prevented hemorrhage and the escape of stomach or intestinal contents. The patient made an uninterrupted recovery, being able to take with relish whatever food was given her.

29. Decrease in Consumption Death Rate.—Miller has reviewed such literature on the subject of tuberculosis as deals with the work done for its extinction. Treatment of any kind not directed toward the decrease or prevention of the disease he did not study. He says that statistics of tuberculosis show conclusively a marked decrease in the death-rate during the last 20 years. For the countries whose statistics were available, he believes that it is not too much to expect that the disease will die out in this century. The most careful investigators are agreed that tuberculosis is directly communicable from one person to another. They consider the dried sputum a source of danger, but the spray from a coughing, sneezing patient in the last stages of consumption they consider a much greater source of danger. They consider a hospital for the consumptive poor, when in the last stage, to be a necessity for the effective prevention of the spread of the disease. With proper precautions the danger of infection from a consumptive may be reduced to almost nothing.

Lancet-Clinic, Cincinnati.

December 24.

31 Streptococcus and Other General Infections of Intestinal Origin, with Report of Fatal Cases. G. W. McCaskey, Fort Wayne, Ind.
32 Chorio-epithelioma Malignum. Wm. H. Taylor, Cincinnati.
33 Quinsy; Its Causation and Cure. John F. Barnhill, Indianapolis.
34 The Widal Reaction. Albert Faller, Cincinnati.

Annals of Surgery, Philadelphia.

December.

35 *The Morphology of Carcinoma and the Parasitic Theory of Its Etiology. Johannes Orth, Berlin.
36 The Present Position of the Surgery of the Hypertrophied Prostate. J. William White, Philadelphia.
37 Intussusception of Meckel's Diverticulum. W. Watson Cheyne, London.
38 *The Operative Treatment of Cancer of the Breast, with an Analysis of a Series of 100 Consecutive Cases. J. Collins Warren, Boston.
39 Modern Bullet Wounds. Frank W. Foxworthy, Indianapolis.
40 *Some Experiments with a New Method of Closing Wounds of the Larger Arteries. George Emerson Brewer, New York.
41 Birth-fracture of the Skull. Family of Three, Illustrating the Effects of Operative Treatment. James H. Nicoll, Glasgow.
42 Divulsion in Esophageal Stricture by Means of a New Instrument. Roberto Alessandri, Rome.
43 *Parotitis Following Injury or Disease of the Abdominal and Pelvic Viscera. Brennan Dyball, Exeter, England.
44 *Duodenal Ulcer; a Clinical Review of 58 Cases Operated On, with Some Remarks on Gastrojejunostomy. William J. Mayo, Rochester, Minn.
45 Tetany and Foreign Bodies in the Stomach. Tetany Caused by a Mass in the Stomach, Composed of 40 Metallic Articles, Weighing One Pound; Gastrotomy; Cured. James P. Warbasse, New York.
46 Intra-abdominal Torsion of the Entire Great Omentum. Charles L. Scudder, Boston.
47 Hernia of the Bladder Complicating Inguinal Hernia. Francis J. Shepherd, Montreal.
48 Dermoid Cyst of the Pelvic Connective Tissue. Two Cases, with a Consideration of 24 Reported Cases. Harry H. Germain, Boston.
49 The Iliac Extraperitoneal Operation for Stone in the Lower Ureter in the Male. Harry Atwood Fowler, Washington, D. C.
50 *Undescended Testicle. Based on a Study of 77 Cases. Walter B. Odiorne and Channing C. Simmons, Boston.
51 I. Hypernephroma of Kidney. II. Fibro-adenoma of Inner Wall of Ileum. Francis S. Watson, Boston.

35. Etiology of Carcinoma.—Orth says that it is a matter of no consequence etiologically in proving the transplantability of cancer, to produce a secondary cancer even on another individual, but it is of consequence to produce a primary tumor. As long as that is not successfully accomplished, and that by means of an organism in pure culture, so long is also the parasitic nature of cancer not proved.

38. Operative Treatment of Mammary Cancer.—Warren has collected a series of 100 consecutive cases of mammary cancer taken from his hospital and private practice, in which at least three years had elapsed from the time of operation. These cases have all stood the test of careful microscopic examination, and their subsequent history has been followed up carefully, thus enabling him to give end results bearing on all important points. These cases represent the average, such as the surgeon would consent to operate on with hope of benefit, if not of cure, to the patient. The results illustrate what may be accomplished under the usual conditions of surgical practice. Recognizing the importance of early surgical interference, Warren makes it a practice in all cases of tumor of the breast, in which there is uncertainty as to the nature of the growth, to explore the gland through the so-called Thomas incision, and thus arrive at the earliest possible diagnosis. In five cases it was evident that cancer had developed as a secondary process in either a cyst wall or in that chronic inflammatory condition of the gland tissue which is the accompaniment of cystic degeneration. All but one of these cases are reported as cures. In another case cancer was found growing in a small fibroma which had existed for over twenty years. Warren considers this strong testimony in favor of early operation of non-malignant tumors of the breast. In six cases there was a history of abscess; in 16 some kind of blow; in 18 cases there was a family history of cancer. The disease was most commonly observed in the sixth decade of life, 36 cases occurring between 50 and 60, 14 cases between 30 and 40, 28 cases between 40 and 50; 15 cases between 60 and 70, 5 cases between 70 and 80. The average age of those cured by operation was 52.9 years; the youngest was 31 years old, and the oldest 73. A pathologist was present at each operation and a provisional diagnosis made by the microscope at the time, also of the condition of the lymph glands removed, the dissection being continued until the last gland removed was reported not infected. Of the 100 cases 26 can be regarded as cured, that is, the patients are either alive (free from recurrence) or have died from other causes three years or more after operation. Seven of the 26 cases died, the cause and time of death being as follows: Apoplexy, 10 years after operation; cholera, 6 years; pulmonary hemorrhage, 14 years; grippe, 13 years; pneumonia, 10 years; apoplexy, 8 years, and pneumonia, 4 years after operation. Of the remaining 19 cases one each is alive at 20, 19, 18, 14, 11, 10, 4 and 3 years after operation;

two each 10 and 8 years, three 7 years, and five 5 years after operation. The percentage of cures in each variety of cancer is as follows: Colloid, 2 cases; cured, 2; 100 per cent. Cancer, 26 cases; cured, 6; 23 per cent. Scirrhus, 28 cases; cured, 12; 42 per cent. Medullary, 40 cases; cured, 3; 7 per cent. Paget's disease, 1 case; cured, 1; 100 per cent. Adenocarcinoma, 3 cases; cured, 2; 66 per cent. Warren divides the clinical course of his cases into stages. The first stage includes all cases in which the disease still remains practically in the condition in which it was when first discovered by the patient. The second stage marks the beginning of the period of visible activity in the growth. In the third stage are included all cases which have advanced beyond the immediate neighborhood of the primary focus, and have involved adjacent regions, either by direct extension or by metastases. The summary of cases made on this basis is as follows: First stage, 45 cases; cured, 19; 42 per cent. Second stage, 35 cases; cured, 6; 17 per cent. Third stage, 18 cases; cured, 1; 5 per cent. In 2 cases death resulted from the operation, and, therefore, these are not included in this list. Of 23 cases in which the skin was adherent to the growth, 6 died within a year after operaton, 5 within two years, 1 within three years, 1 five and a half years after operation. Two recurrences, four years after operation, are alive and well, and there are four cures, 13, 10, 6 and 4 years after operation. Adhesion of the skin diminishes the chances of cure by one-third. In 72 cases enlarged glands were felt in the axilla, no axillary involvement in 17, no record in 11. Of the 17 cases 11 are cures, 64 per cent. Among the 26 recorded cures 12 cases had enlarged axillary veins, no glands in 11, no record in 3. Of the 72 cases in which enlarged glands were present there were 8 in which glands were also felt above the clavicle. One of these cases died at the operation. Six that died with recurrence had lived on an average, 1.8 months after operation. One is living with recent recurrence 8 years after operation. In 61 cases in which death occurred from recurrence, the average duration of life after operation was 2 years and 1 month. In 52 cases recurrence took place on an average 1 year and 10 months after operation. Of the 61 cases 12, or 19 per cent., died after the three-year limit. After a period of 5 years the percentage is as low as 8, and it is not until 9 years have elapsed that no deaths occurred. Of 9 living cases in which there is a history of recurrence, 2 that are cured have gone respectively 16 and 10 years since the last operation. In 14 cases the disease had advanced so far that a radical cure could not be expected, yet one lived 2 years, three lived 3 years and one died 8 years after operation. The situation of the disease was as follows: Upper outer quadrant, 17; center of breast, 12; upper hemisphere, 10; lower outer quadrant, 8; upper inner quadrant, 7; whole breast, 7; outer hemisphere, 7; lower hemisphere, 3; lower inner quadrant, 1; inner hemisphere, 1; axillary border, 1. The average duration of the disease in the 100 cases was 11.8 months before treatment, but the average duration in the 26 cured cases was 12.3 months. Retraction of the nipple was recorded in 22 cases. The operation performed in the first 50 cases consisted in a removal of the breast and of the pectoral fascia and a dissection of the axilla. In the second 50 the "completed" operation was performed, both pectoral muscles being removed, the clavicular portion of the pectoralis major being left behind and the posterior cervical triangle frequently dissected. The results of operation in the two series of 50 cases show a slightly greater number of cures where the lesser operation has been performed. In the first 50 there were 14 cures and in the second 50 only 12. In the series of 100 cases there were 2 deaths from the operation, 1 from acute septic infection, due apparently to the fact that the patient was put in a bed previously occupied by a case of erysipelas, and the second case was one of pulmonary embolism caused by allowing the patient to sit up too soon and to move about too freely after operation. Speaking of cancerous infection during the operation, Warren says that it is his habit to act on the supposition that such danger exists, and throughout the operation to attempt to keep the parts exposed protected as much as possible by gauze packing. His modification of the Halsted operation has the advantage that nine-tenths of the wound is not exposed, nor, in fact, touched by an instrument until the close of the operation, presenting, therefore, much less danger of cancerous infection. In exploratory incisions instruments should be changed and the wound leading to the disease temporarily closed by suture or packed with gauze, so as to protect the operation wound as thoroughly as is possible.

40. **New Method of Closing Wounds of Large Arteries.**—Brewer records experiments undertaken with a view of obtaining some new and simple method of closing accidental wounds of the larger arteries. Experiments were carried out as follows: As soon as the artery is exposed it is brought to the surface of the wound and incised with the point of the scalpel. The vessel is then compressed above and below the wound to prevent excessive hemorrhage, and the sheath carefully removed. The artery is next cleansed of all blood by the use of a small pledget of gauze moistened with ether. As the ether evaporates the vessel wall is left clean and dry. A small strip of a specially prepared plaster sterilized by formaldehyd vapor is next passed beneath the vessel, and the two corners held by two small artery forceps. The strip is then put gently on the stretch and the lower extremity of the strip held by clamps placed firmly in contact with the vessel, while the upper extremity of the plaster is slowly drawn upward. This causes the vessel to rotate with the plaster until the horizontal edge of the lower extremity of the plaster is on a level with the vessel and firmly adherent to it. The two clamps are then passed over the vessel and the plaster kept on the stretch while the operator, with thumb and forefinger, gently rotates the vessel backward, and at the same time compresses the enveloping plaster until it adheres snugly. The redundant plaster is then removed and the vessel allowed to fall back to its normal position in the wound. The wound is closed without drainage and the gauze and collodion dressing applied. Brewer is of the opinion that, in dogs at least, small wounds of the larger arteries can be successfully treated by the application of an aseptic elastic plaster. This plaster should be exceedingly thin, very adhesive and applied with the minimum of pressure on the vessel wall; and that, if the operation is carried out with perfect aseptic technic, the plaster becomes embedded in the tissues and produces no outward symptoms. Brewer says he would not hesitate to use this method on the human subject if an occasion presented.

43. **Celiac Parotitis.**—Among many complications, says Dyball, which may be met with after operations on, or diseases of, the abdominal and pelvic viscera, one of the rarest is parotitis. To this form of parotitis Dyball proposes to give the name celiac parotitis. He concludes that it is most probable that celiac parotitis is due to the action on parotic glands of toxic substances absorbed into the blood and derived from (a) the secretions of certain organs modified by injury or disease; (b) toxins of microbic origin (*Bacillus coli communis*) absorbed either from the alimentary canal, peritoneal cavity or bladder; (c) products of deranged digestion. In any given case of injury or of disease of the abdominal or pelvic viscera, the occurrence or not, of parotitis will, therefore, depend on the presence and on the absorption in sufficient quantity of some of these various toxic agents. Suppuration does not appear to be an esential feature of the condition, but is due to the fact that the parotid gland, when inflamed by the action of these toxic agents, forms a *locus minoris resistentiæ* and becomes secondarily infected by pyogenic organisms reaching it (a) by the blood stream; (b) by Stenson's duct. Dyball suggests this theory as one which affords an explanation of all cases, and which is in accordance with present knowledge of the colony.

44. **Duodenal Ulcer.**—Mayo reports 59 operations in 58 cases; 7 for acute conditions developing with one exception, on chronic ulcer, with 3 deaths. Fifty-one operations for chronic conditions gave one death. He says that at the present time posterior gastroenterostomy appears to be the operation of choice in the chronic cases.

50. **Undescended Testicle.**—Odiorne and Simmons performed orchidopexy 7 times in children ranging in age from 5 to 13

years. In but two instances was a perfect result obtained, and this in the same patient, aged 13, who had double retention. Both testicles are normal in size, position, and probably in functionating power. Two other boys were operated on at the same age, 13, and in both the testicles have remained in the scrotum. Although they have retracted to a position high in the scrotum, they are not in contact with the pubic bone. Neither testicle is notably atrophied. One of the patients suffers some pain. One case, aged 11, has a poor result, the testicle being much atrophied and fixed firmly just outside the ring, where it is a constant source of pain, and would better be removed. Two children were 5 years old at operation. In one the testicle drew up into the canal, where it remains very small and undeveloped; in the other it retracted to the pubic region, where it has as yet given no trouble. The only really satisfactory results were in the 4 cases, aged 13. As a result of 11 operations performed on adults of from 16 to 42 years of age, 5 testicles have remained in the scrotum, 4 of them occupying a high position in it, while the remaining one is in almost perfect position and fully one-half normal size, yet is the seat of frequent inflammatory attacks due to injury. Three testicles retracted soon after operation into the canals, where they remained very much atrophied. One of them is the cause of much pain. Two have retracted to the pubic region, where they are the source of considerable annoyance, undoubtedly due to their position. One of these is atrophied. In every case in which the organ appeared normal at the time of operation there has been a subsequent diminution in size. In two cases, however, the atrophy is not very marked, the testicle being fully one-half normal size. In 2 cases symptoms were distinctly relieved, in 3 not relieved and in 2 others were aggravated. In no case has there been a recurrence of a complicating hernia.

Northwest Medicine, Seattle, Wash.

December.

52 *Chorea in Pregnancy. J. M. Semple, Spokane, Wash.
53 *Preliminary Report of Results Obtained with Extravisceral Ligature in Enteroenterostomy and in Gastroenterostomy. R. C. Coffey, Portland, Ore.
54 Heart Failure Due to Acute Indigestion. L. R. Markley, Bellingham, Wash.

52. **Chorea in Pregnancy.**—Semple says that the perils of chorea in pregnancy are so great that when the symptoms increase, in spite of medical and moral treatment, and the sleep is becoming disturbed, the only course left for the physician is to induce premature labor, which gives the patient the only chance of recovery.

53. **Extravisceral Ligature.**—After having performed an enteroenterostomy and a gastroenterostomy. Coffey suggests the picking up of the side of each intestine entering into the anastomosis and tying it with a strong silk or linen thread, including as much of the intestine as necessary to make a hole of the desired size. Then take a Lembert suture and sew the intestines together, surrounding the two portions of intestine entirely with the suture. This method is a modification of that of McGraw, and is the result of a suggestion made by Weir that an opening between two hollow viscera would be better and more permanent, if it could be made in the form of a hole, like that punched through leather in harness-making, than the simple slit made by the McGraw ligature.

Archives of Pediatrics, New York.

December.

55 *Recurrent Vomiting in Children. B. K. Rachford, Cincinnati.
56 *Pyloric Stenosis in Infancy. Report of Case; Gastroenterostomy; Recovery. Henry L. K. Shaw and Arthur W. Elting, Albany.
57 Bronchial Asthma in Infants and Children, with an Analysis of 43 Cases. L. E. LaFetra, New York.
58 Gonorrheal Pericarditis. F. Huber, New York.
59 *Case of Carbolic Acid Poisoning Simulating Acute Scarlatinal Nephritis. S. S. Adams, Washington, D. C.

55. **Recurrent Vomiting.**—Rachford's treatment of the prodromal stage is as follows: One-quarter of a grain of calomel and 5 grains bicarbonate of soda are given every half-hour until 2 grains of calomel are taken. If the stomach is not too irritable the calomel should be followed, in two or three hours, by a saline laxative, and four or five hours later by benzoate of soda in from 3 to 8 grain doses every two or three hours, dissolved in essence of pepsin and peppermint water. No food whatever should be given. Water may be allowed if the stomach will retain it. The curative treatment consists of the carrying out of proper hygienic measures and a carefully restricted and selected diet. Sources of reflex irritation should be sought for and, if possible, removed. In the medicinal treatment Rachford considers the wintergreen salicylate of soda and the benzoate of soda most valuable remedies, and describes them in the following combination:

R.	Sodii salicylatis (gaultheria)	℥i 4
	Sodii benzoatis	℥ii 8
	Pepsin essence	f℥ii 60
	Aquæ menth. pip.	f℥ii 60

M. S.: Teaspoonful after meals for a child 6 years of age.

In the more severe cases this prescription must be continued for months at a time and, after this, is to be given once a day for an indefinite period.

56. **Pyloric Stenosis in Infancy.**—Shaw and Elting attempt to show that pyloric stenosis in the infant is of much more frequent occurrence than is commonly supposed, and that medical treatment of these cases is both uncertain and unsatisfactory. They advise early surgical interference, before the strength and vitality of the patient have become seriously reduced, either pyloroplasty or anterior gastroenterostomy being the operations of choice.

59. **Carbolic Acid Poisoning Simulating Acute Scarlatinal Nephritis.**—Adams' case, a girl, aged 10 years, had a moderately severe attack of scarlet fever without any troublesome symptoms. It was impossible from beginning to end even to approximate the quantity of urine passed in any twenty-four hours, as the mother invariably had an excuse for not keeping it or not measuring it. At the time of the seventh visit the child complained of intense itching. The mother was instructed to bathe her twice daily with a teaspoonful of carbolic acid to the quart of water (1 to 256). The itching was allayed and there was neither tingling nor irritation of the skin from the carbolic acid. Thirteen days later the patient passed a fair quantity of dark urine which was found to contain carbolic acid. The eyes were only slightly puffed; otherwise the girl was in fine condition. Adams is satisfied that the nephritic symptoms which appeared were due to the irritation of the drug and not to the toxemic effect of the scarlatina. This opinion was confirmed by the speedy relief of the kidney irritation with the elimination of the carbolic acid.

The Medical Mirror, St. Louis.

November.

60 Tent Life for Invalids in Colorado. C. F. Gardiner, Colorado Springs.
61 In the Matter of Syphilis, Treatment of the Individual Is Scarcely Second in Importance to Treatment of the Disease. G. M. Phillips, St. Louis.
62 Definite Records of Physical Signs. C. E. Quimby, New York.
63 Some Remarks on External Urethrotomy. R. Harrison, London, England.
64 Granular Urethritis. D. F. Talley, Birmingham, Ala.
65 Examination of Urine. D. C. Summers, Elm Springs, Ark.

The Texas Medical News, Austin.

November.

66 Autotoxemia or Malaria. B. H. Brodnax, Brodnax, La.
67 Uncinaria Americana. W. P. Dunbar, Campbell, Teas.
68 The Immediate Repair of the Pelvic Floor and Perineum. E. B. Davis, Philadelphia.

The Journal of the Medical Society of New Jersey, Newark.

December.

69 The Treatment of Angiomata by Boiling Water. J. A. Wyeth, New York.
70 Some Abuses and Uses of Cardiac Stimulants. W. B. Stewart, Atlantic City.
71 Infection by the Bacillus Aerogenes Capsulatus. W. P. Eagleton, Newark, N. J.
72 Injuries of the Eye. T. R. Chambers, Jersey City.

The Kansas City Medical Index-Lancet, Kansas City.

December.

73 Infections of the Urinary Tract with the Common Colon Bacillus. R. McE. Schauffler, Kansas City.
74 Stricture Retention—Its Surgical Treatment. H. Hill, Kansas City.
75 Some Diseases of the Biliary Passages, with Report of Cases. W. F. George, Kansas City.

The Medical Herald, St. Joseph.

December.

76 An Address, University Medical College. F. B. Tiffany, Kansas City.
77 Is It Mental Trauma? S. G. Burnett, Kansas City.

Atlanta Journal-Record of Medicine, Atlanta.

December.

78 Lumbar Puncture, a Direct Method for the Treatment of Tetanus, with the Report of 9 Successful Cases so Treated. W. T. Bivings, Atlanta.
79 Compulsory Returns of All Cases of Pulmonary Tuberculosis the First Step Toward Public Measures of Prevention and Treatment. E. R. Corson, Savannah.
80 Acute Alcoholism. C. C. Stockard, Atlanta.
81 A Case of Calculus. W. L. Champion, Atlanta.

St. Paul Medical Journal.

December.

82 Occipital Meningocele, with a Report of a Case Operated On. A. E. Benjamin, Minneapolis.
83 Trauma-psoriasis. E. Klaveness, Brooklings, S. D.
84 Hey's Internal Derangement of the Knee-joint. John Knott, Dublin.
85 Symptoms and Diagnosis in Injuries to the Abdomen. George H. Norris, Clearwater, Minn.
86 Tuberculosis of the Kidney. John T. Rogers, St. Paul.

Southern Practitioner, Nashville.

December.

87 Hysteria. J. R. Buist, Nashville.
88 Diseases of Children's Teeth and Treatment. W. C. Gillespie, Nashville.
89 Hepatic Insufficiency. Hubert Richardson, Baltimore.

The Laryngoscope, St. Louis.

November.

90 Some Points in the Pathology of "Bone Cysts" in the Accessory Sinuses of the Nose. A. L. Turner, Edinburgh.
91 The Applied Anatomy of the Frontal Sinus. H. P. Mosher, Boston.
92 The Sphenoidal Sinus and Its Surgical Relationship. H. H. Curtis.
93 Fourteen Cases of Chronic Multiple Sinusitis (Maxillary Antrum, Ethmoid Cells and Sphenoid Sinus) Operated On by Way of the Maxillary Route. T. P. Berens, Chicago.
94 Orbital Infection from the Ethmoid Cells with Spontaneous Opening at Inner Angle of Orbit. C. E. Munger, Waterbury, Conn.
95 A Report of Four Cases of Sinusitis in Children Operated On. L. A. Coffin, New York.
96 Purulent Otitis Media Complicating Typhoid Fever. E. W. Day and Chevalier Jackson, Pittsburg.

Northwest Medicine, Seattle.

November.

97 Helps and Hindrances to Proper Pre-Natal Conditions. W. C. Hastings, Seattle, Wash.
98 Diagnosis of Diseases of the Skin. R. W. Schoenle, Seattle, Wash.

The Alabama Medical Journal, Birmingham.

November.

99 President's Address, Medical Society of State of Alabama. M. B. Cameron.
100 The Importance of Thorough Chest Examinations in Office Practice. J. D. Heacock.
101 The Ovary and Its Functions—A Study in Minute Anatomy. E. H. Sholl.
102 Major Operations Performed at St. Vincent's Hospital. E. M. Robinson.

Pacific Medical Journal, San Francisco.

November.

103 Neglected Opportunities by the Patent Medicine Man. E. H. Smith, San Francisco.

The Central States Medical Magazine, Anderson, Ind.

November.

104 Some Surgical Suggestions. M. A. Austin, Anderson, Ind.
105 Dust, Water and Milk as Sources of Infection. S. E. Earp, Indianapolis.
106 Case of Poisoning by Antiseptic Tablets. Leonard W. Brown, Indianapolis.

Fort Wayne Medical Journal-Magazine.

November.

107 Endocarditis as a Complication of the Acute Infectious Diseases. B. P. Weaver, Ft. Wayne.

The Providence Medical Journal.

November.

108 The Case of Injury to the Cervical Portion of the Spinal Cord, with Postmortem Examination. J. H. Morgan.
109 Injuries of the Eyeball, with the Report of Seven Cases. V. L. Raia.
110 The Results of the Improper Treatment of Some Eye Affections. G. W. Van Benschoten.

Archives of Electrology and Radiology, Chicago.

November.

111 Some Observations on the Medical Uses of the Continuous (Galvanic) Current. D. R. Brower, Chicago.
112 Three Cases of Inoperable and Recurrent Sarcoma Successfully Treated by the Roentgen Ray. G. C. Johnston, Pittsburg.

The Clinical Review, Chicago.

December.

113 A Cause of Acute Appendicitis and the Treatment of Acute General Suppurative Peritonitis Due to Rupture of the Appendix. A. H. Levings, Milwaukee, Wis.
114 Infantile Hemiplegia. L. H. Mettler, Chicago.
115 The Construction of Hospitals for the Treatment of Contagious Diseases. A. J. Ochsner, Chicago.

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

December.

116 An Improved Method of Standardizing the Recruit. H. G. Beyer, U. S. A.
117 The United States Army General Hospital at the Presidio of San Francisco, Cal. A. C. Girard, U. S. A.
118 Gunshot Wounds of the Ureter—Two Cases of Uretero-vesical Anastomosis. G. T. Vaughan, Washington, D. C.
119 Some Features of the Immediate Treatment and Transport of the Wounded in Naval Warfare. C. F. Stokes, U. S. A.
120 The Army Medical Service of Russia. F. Howard, London.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

December 10.

1 Seven Cases of Thoracoplasty for the Relief of Chronic Empyema. Hamilton A. Ballance, London.
2 Hydrocephalic Fetus Delivered by Spinal Tapping. J. W. Valentine, Edinburgh.
3 *Vomiting of Pregnancy. J. M. H. Martin.
4 Suggestion of a Cubic Centimeter Measure for Patient's Use. J. Theodore Cash.

December 17.

5 *The Indications for Operative Interference in Diseases of the Stomach. Robert Saundby.
6 The Diagnosis and Surgical Treatment of Certain Cases of Chronic Indigestion. Gilbert Barling.
7 *Duodenal Ulcer and Its Treatment. D'Arcy Power.
8 The Nature of the Malformations of the Rectum and Urogenital Passages. F. Wood-Jones.
9 The Germ Cell Theory of Cancer. Albert S. Grunbaum, London.

3. Vomiting of Pregnancy.—Martin offers the following classification of this condition, and in doing so cautions that there may be vomiting due to phthisis or gastric ulcer coincident with pregnancy. 1. Where the nausea or sickness is light, with, at the most, retching, occurring usually in the forenoon and passing away just before or when quickening takes place, without producing any constitutional disturbance. 2. Where vomiting as well as nausea is of frequent occurrence, not confined to any period of the day, and resulting in appreciable failure of health and emaciation. 3. Where vomiting is so constant and persistent that all food is rejected, rapid emaciation follows, with febrile disturbance, circulatory troubles, jaundice, dry tongue, quick pulse, delirium and threatened death. 4. Where organic disease is present, and it is difficult or impossible to say what share pregnancy has, in producing a dangerous or fatal result. An extended clinical experience leads Martin to say that there is simple nausea with or without actual emesis, of physiologic and of reflex origin, a symptom only due to hyperemia, the developing uterus, vessels and nerves in a confined cavity. That malposition of the uterus, if the cause of so many troubles in ordinary conditions of health, must be a graver trouble in the pregnant woman, and thus increases the vomiting of pregnancy and consequent malnutrition and emaciation. That in the absence of uterine troubles and organic disease hysteria plays an important rôle and usually defies all therapeutic remedies. If operation should be deemed necessary it should be carried out under thoroughly antiseptic conditions and anesthesia. Martin has found nepenthe by mouth and morphin by rectum most useful in the treatment of vomiting of pregnancy. The induction of abortion must be considered in those cases which come under the third and fourth divisions of his classification. The responsibility of such an operation should be a divided one, and the patient should have the benefit of it before it is too late, not waiting too long under the hope that vomiting may suddenly subside, as it sometimes does. Better attention to health and the greater inclination to athletic exercises and hygienic surroundings may have a tendency to counteract the artificial existence which has for so many years existed in the child-bearing population.

5. Indications for Operation in Stomach Disease.—Saundby urges the importance of the assistance to be derived from surgery in the treatment of stomach diseases, the need for seeking surgical aid before the patient's strength is undermined by the duration of the disease, and the value of simple means of diagnosis. Surgeons should reconsider the claim to operate in every chronic ailment of the stomach which has not been re-

lieved by medical means, to select their cases by studying the indications which justify operative interference, and to avoid, so far as possible, operating on patients who are the subjects of general neurasthenia.

7. **Treatment of Duodenal Ulcer.**—Power attempts to show that duodenal ulcers are not very uncommon; that usually they are single, and more frequent in men than in women. These ulcers may perforate and cause acute symptoms, or they may heal, and by cicatrization lead to symptoms of chronic duodenal obstruction. Power says the sequelæ of a healed ulcer may be so remote that the symptoms are mistaken for those due to cancer of the pylorus, and the patient is allowed to drift from bad to worse under the erroneous notion of the day that he is bound to die. In many cases there is no means of recognizing the existence of the ulcer until it perforates or until the results of its cicatrization become manifest. The treatment of duodenal ulceration laid down by Power is as follows: 1. Direct suture of a perforated ulcer, the prognosis being less favorable than in similar cases of perforation. 2. The performance of gastrojejunostomy in cases of dilated stomach due to duodenal constriction, the prognosis being the most favorable of all the conditions for which this operation is performed at the present time.

The Lancet, London.

December 10.

11 *Abdominal Pregnancy in Women, Cats, Dogs and Rabbits. J. Bland-Sutton.
12 Diseases of the Nervous System Sometimes Regarded as Functional, with Particular Reference to Diabetes. W. Howship Dickinson.
13 *Some Unusual Effects of Movable Kidney. C. Mansell Moullin.
14 Ankylostomiasis in Westphalia, Hungary, and Cornwall. Thomas Oliver.
15 Case of Extradural Abscess Complicating Acute Middle-ear Catarrh without Perforation of the Membrana Tympani; Operation; Recovery. R. G. Henderson.
16 Curious Case of General Tuberculosis in which a Complete Cast of the Stomach Was Vomited. Edward Swales.
17 Morbilli Sine Morbillis. J. D. Rolleston.

December 17.

18 The Operative Treatment of the Conditions of the Gastro-intestinal Tract which Result from Chronic Constipation. W. Arbuthnot Lane, London.
19 Benign Villous Tumor of the Renal Pelvis; Hematothorax; Nephrectomy; Recovery. H. Savory and W. Gifford Nash.
20 *Ethyl Chlorid as an Anesthetic in General Practice. Harvey Hilliard.
21 Case of Acute Lymphocythemia. Leonard S. Dudgeon.
22 Two Cases of Severe Cranial Injury. W. D. Chapman.
23 A Case of Congenital Hypertrophic Stenosis of the Pylorus in the Adult. A. Ernest Maylard, Glasgow.
24 Movable Kidney and Bilharzia Hematobia Affecting the Kidney. W. H. Clayton-Greene.
25 Case of Anencephalous Monster. H. Beattie.
26 *Appendicitis and Pregnancy: Notes of a Case with Operation and Recovery. H. A. Lediard and R. E. Sedgwick.

11. **Abdominal Pregnancy.**—In this paper Bland-Sutton brings forward facts in support of his contention that primary abdominal pregnancy is still an unverified speculation.

13. **Unusual Effects of Movable Kidney.**—In one case cited by Moullin a movable right kidney gave rise to a series of symptoms resembling very closely those ordinarily present in chronic gastric ulcer. The pain invariably came on from a quarter to half an hour after meals. Solid food made it worse, vomiting was frequent, and was rather encouraged as it relieved the pain. The stomach was not dilated or displaced. There was a little tenderness on deep pressure to the right of the epigastrium, but no tumor could be felt. Both kidneys were movable, the right one in particular, descending so far when the patient strained or coughed that it came quite below the thorax and the hands could be made to meet above it. In two other cases there had been repeated attacks of colic beginning in the right hypochondrium and resembling mild attacks of biliary colic, but bearing little or no relation to food. They rarely occurred at night. They were often attended by jaundice, which, however, rarely lasted longer than two or three days. There was tenderness in the right hypochondrium in both, especially after one of the attacks. The liver was not enlarged and no tumor could be felt when the patient was lying down. When standing up and leaning forward, supporting the weight of the upper part of the body on the hands, so that the abdominal muscles were relaxed, a sensation of deep resistance was felt over the region of the gall bladder, but the gall bladder could not be defined. The lower end of the right kidney could easily be felt in both patients when they were standing upright, but it was not movable in the ordinary sense of the term. In several other cases inflammation of the appendix was simulated very closely by movable kidney.

20. **Ethyl Chlorid Anesthesia.**—Hilliard describes the method of using ethyl chlorid, its dose, after-effects, clinical signs, and the preparation and posture of the patient. He considers this preparation an admirable anesthetic, either alone or with air, with nitrous oxid, with chloroform, with ether, with A. C. E. mixture, and as a preliminary to each of the last three for a large variety of surgical operations. It is contraindicated in diseases of the larynx, inflammatory lesions and tumors in, or adjacent to, the respiratory passages; goiter; all conditions giving rise to urgent dyspnea, and in long operations.

26. **Appendicitis and Pregnancy.**—The author's patient, aged 40, was seized with pains in the lower right half of the abdomen during the fifth month of pregnancy. Pain continued and was accompanied by constipation, but no vomiting. Poulticing relieved the pain for a few days, when it returned, accompanied by fever, constipation, swelling and tenderness in the right iliac fossa. She had had two similar attacks previously during pregnancy, and at about the same time. The diagnosis of suppurating appendicitis was made. An incision through the parietes in the usual place allowed the omentum to bulge forward into the wound. This omentum covered an abscess cavity containing about three ounces of pus. A gauze drain was inserted and the patient was put back to bed. Pregnancy was advancing and the movements of the child were both seen and felt, which did not tend to the formation of a good scar. Eventually, however, the wound closed. A month after the operation the patient miscarried, the child being dead. There were no complications, and the woman made an uneventful recovery. In view of the rapid growth of the uterus during the latter months of pregnancy, the author considered the advisability of procuring miscarriage. For some days after operation the wound seemed to get more and more extensive and gaping, and omentum was protruded. They felt that when the wound did heal several unpleasant possibilities might present during labor. The scar, recent and thin, might rupture; a large ventral hernia in all probability would form either during labor, with possible intestinal constriction as a result, or afterwards, in which case a second operation would be necessary for its cure. The risk of procuring miscarriage was thought to be sufficiently great to counterbalance what were, after all, only reasonable possibilities or probabilities, and nature finally and fortunately came to the rescue and solved all difficulties. Throughout her illness the patient had a singularly rapid radial pulse, and her temperature was almost uniformly subnormal and never rose above 99 except on three occasions.

Bulletin de l'Académie de Médecine, Paris.

Last indexed XLIII, page 1905.

27 (LXVIII, No. 38, November 22.) Japanese Mosquito Expeller.—Chasse-moustiques japonais. A. Laveran.

Presse Médicale, Paris.

28 (No. 93, November 19.) *Les français aux congres médicaux de St.-Louis. P. Courmont.
29 Pathologie. Experimentelle et comparée. H. Roger.
30 Les formes frustes de scorbut infantil. V. Hutinel.
31 (No. 94.) *Les variations de la virulence et la chirurgie urinaire. Guyon.
32 (No. 95.) *Sur la création à Paris d'une maison de santé pour le traitement des maladies contagieuses dans la classe aisée. J. L. Faure.
33 Fees for Medical Attendance in Industrial Accidents.—Les honoraires médicaux dans les accidents du travail. E. Forgue and E. Jeanbrau.
34 (No. 96.) *Les injections à froid de paraffine. M. Broeckaert.
35 *Des modes mécaniques de purification du lait (milk). P. Diffloth.
36 (No. 97.) Une epidémie de béribéri a Marseille. P. A. Lop.
37 *Anatomie et physiologie pathologiques du foie cardiaque (cardiac liver). E. Geraudel.
38 *L'etat "naissant" des substances médicamenteuses (nascent state). M. Frenkel.
39 *Les matériaux de l'urine. M. Labbé and H. Labbe.
40 Les deux indications de la trachéotomie dans la tuberculose laryngée. A. Lermoyez.
41 *Sur le traitement des affections de l'oreille et, en particulier, du vertige auriculaire par la rachicentèse. J. Babinski. Abstract.

28. **The French at the St. Louis Congress of Sciences.**—Out of the 130 presidents' and 260 official addresses at this international congress, 28 were representative Germans, 13 Englishmen and 15 Frenchmen. The Austrians numbered 8 and the Japanese 4, Italians 3 and Dutch 2, while six other countries sent one representative each, and the Americans numbered about 300. Courmont and Teissier are both of Lyons, France, and with these exceptions the other representatives from France were not officially connected with any medical faculty. Courmont compares this apathy on the part of the French with the systematic organization of an imposing representation invariably sent by Germany on such occasions. The French are not seen at these international gatherings, he remarks, and people forget that they are among the first, if not the first, in the medical sciences. Thirty years ago students flocked from America to Paris to complete their studies; now they go to Vienna, Leipsic or Berlin, and pass by France. One of the principal reasons for this is the excessive centralization of Paris. Foreigners do not know that there are a number of fine medical schools outside of Paris, one having 1,200 medical students. Invitations to participate in the congresses are sent to Paris only. If the invitations for Germany had been sent to Berlin alone there would not have been so many representatives at St. Louis. He concludes with the remark: "If our friends across the sea would remember that there are many universities in France they would have more visitors and more representatives of French medicine to respond to their invitations."

31. **Variations in Virulence and Urinary Surgery.**—Guyon comments on the comparative rarity of ammoniacal cystitis now; "retentionists" get along for years without local or general mishaps, notwithstanding their retention and the rich microbian flora in their bladders. The microbes are kept in a state of hypovirulence by the more frequent emptying of the bladder and its occasional disinfection with silver nitrate. The germs do not wax virulent under these measures, and as they are capable of attenuating the virulence of the germs, no surgical intervention should be attempted on the urinary passages until the virulence has been attenuated by these or by other measures. The operation, instead of being a very dangerous one in a field of hypervirulence, thus becomes a very benign intervention in a hypovirulent field. Prostatectomy, nephrectomy, lithotrity and suprapubic incision under these conditions, after attenuation of the virulence of the germs, do not expose the subject to operative shock, nor to exacerbation nor renewal of the febrile phenomena. The only operations which are best done without delay are those where it is necessary to open some septic focus from infiltration of urine or the like, merely a simple, rapid incision.

32. **Pay Hospital for Contagious Diseases.**—Faure suggests the advisability of establishing at Paris a well-equipped hospital for contagious diseases among the well-to-do. As each patient would have a separate room such a hospital would be expensive, and he adds that it might be better to have several small ones for each disease, measles, scarlet fever, diphtheria, etc.

34. **Syringe for Injecting Cold Paraffin.**—Broeckaert gives an illustration of his improved syringe which by the pressure of a screw forces out the cold paraffin in a soft, thin stream. Its advantages over other syringes of the kind are that only one hand is used. The screw is worked by an automatic lever which also serves as the handle for the syringe. By compressing together the two legs of this lever handle the screw is turned as rapidly as desired while the tip of the syringe is under complete control and the other hand is left free. He usually makes a pocket in the tissues with the tip of the needle to hold the paraffin before he injects it, and is enthusiastic in regard to paraffin prothesis as one of the finest acquisitions of modern surgery and, perhaps, one of the most fertile in its applications. He has sometimes obtained excellent results in the most discouraging cases by combining an autoplastic operation with the injection of paraffin.

35. **Mechanical Purification of Milk.**—Diffloth reports that great progress has been realized by the cotton filters, a Swedish invention, now used for purifying milk. The milk is strained through two wire strainers holding between them a flat, round, small sheet of cotton. The cotton is thrown away and replaced by a fresh disc of cotton after using. In eight months of tests with this cotton filter his inoculation of animals with the milk never caused morbidity, and the milk thus filtered could be kept for many days without souring. Diffloth regards the results of these tests as very remarkable in regard to the preservation of the chemical composition and of the digestibility of the milk, but as the milk was obtained from a model dairy they are not conclusive in respect to the microbes. Centrifugation has no effect on pathogenic germs in milk, or is liable to favor their proliferation. He adds that stock raisers have found it necessary to pasteurize "skim milk" from the creameries before feeding it to their pigs, as it is much harder to preserve than "skim milk" from natural cream rising. Centrifugation also interferes with what he calls the stereochemistry of the milk, that is the molecular arrangement of its constituents, and it has the further disadvantage that it expels the gases.

37. **"Cardiac Liver."**—Geraudel describes the pathologic anatomy of the congested liver in heart disease, commenting on the fragility of the liver in general and especially of the parenchyma surrounding the hepatic veins. The most remarkable feature of the "nutmeg" liver is the regional variation of the reaction of the organ to the injurious influences. The portal zone resists, but the zone around the hepatic veins rapidly yields. This imposes the necessity for guarding the subject with heart disease from any causes, alimentary, medicinal or of other origin, liable to reduce the resisting powers of the liver still farther, or to enhance the fragility of this zone around the hepatic veins.

38. **Nascent State of Medicinal Substances.**—Frenkel remarks in this continuation of his researches that each molecule of free oxygen contains two atoms, and the intraorganic oxidations occur only when the molecule has been split up into its atoms. Inside the body oxygen is split up into its atoms, which is the same as saying that it is in the nascent state. Ordinary oxygen in contact with the skin or taken into the stomach retains its molecular character and does not split up into atoms, but the peroxids do this. Hence their importance in therapeutics whether in the form of ozone (peroxid of oxygen), of peroxid of hydrogen, of magnesium or of zinc. These peroxids give up their oxygen, split into atoms, on contact with acids or ferments, and hence they allow, on the surface of the body, oxidations similar to the intraorganic vital processes.

39. **Materials of the Urine.**—Labbé presents arguments and data to corroborate the fact that the mineral substances in the urine owe their origin to the food. The proportion of chlorin, phosphorus and sulphur show the quantity and quality of the food taken. Exact knowledge of the diet and comparison of the ingesta with the excreta are indispensable for a proper study of the nutritive functions.

41. **Lumbar Puncture in Ear Affections.**—Babinski noticed that vertigo of aural origin was benefited by lumbar puncture. As the vertigo in such cases is due to irritation of the labyrinth, the idea occurred to him that the same measure might prove effectual in other affections of the labyrinth. He first established that rachicentesis does no harm from the standpoint of the ear. The occasional headache and nausea are transient and they are usually most pronounced in the subjects who derive most benefit from the intervention. He reports his experience with 106 cases thus treated. At first he allowed only 4 or 5 cm. of the cerebrospinal fluid to escape, but now he withdraws from 10 to 15. A single puncture is generally sufficient, but some patients require two or more. Out of 32 cases of vertigo, 21 of the patients were improved, including 7 who have been completely cured for six months at least. In 11 no benefit was apparent. The subjective symptoms were more rebellious. Out of 90 only 30 have found that the tin-

nitus was much improved. Deafness is still more rebellious, but occasionally cases were encountered in which the improvement seemed almost miraculous. In one case, a woman who had been deaf in one ear for six years subsequent to a suppuration, was able to hear the whispered voice at nearly seven feet. A man of 33 who had been a deaf mute from the age of two and a half, entirely deaf in one ear and almost completely deaf in the other, who had submitted to every imaginable form of treatment, was treated by puncture thrice repeated. No benefit was apparent after the first, but the second was followed by slight improvement, and now he hears the speaking voice at eight inches on the side in which the hearing had been supposed to be entirely lost. Pure labyrinthitis gives the larger proportion of successes, and in otitis media the phenomena due to irritation of the labyrinth are the ones most favorably influenced.

Berliner klinische Wochenschrift.

42 (XLI, No. 48, November 28.) *Carbonic Oxid Poisoning.—Untersuchungen zur Kohlenoxydvergiftung. F. Strassmann and A. Schulz.
43 *Differential Importance of Retrogressing Paralysis of Vocal Cords.—Zur diff.-diagn. Bedeutung der zurückgehenden Stimmbandlähmung. W. Berent.
44 *Beitrag zur Kenntniss der Infectionswege bei Lungentuberculose. M. Wassermann.
45 *Acute Articular Rheumatism in Children.—Der acute Gelenkrheumatismus der Kinder. A. Baginsky. (Commenced in No. 47.)
46 (No. 49, Senator number.) *Zur Diagnose und Therapie der cardiospastischen Speiseröhrenerweiterung (dilatation of esophagus). H. Strauss.
47 Ueber die chromophoren Zonen bei der vitalen Blutfärbung (blood staining). H. Rosin and E. Bibergeil.
48 Ueber familiäre Tabes dorsalis und ihre Bedeutung für die Aetiologie der Erkrankung. W. Croner.
49 *Roentgen Treatment of Blood Affections.—Zur Frage der Behandlung der Blutkrankheiten mit Röntgenstrahlen. R. Milchner and M. Mosse.
50 *Cure of Stricture by Mechanical Dilatation.—Heilung einer schweren Oesophagus-Narben-Strictur durch Sondenbehandlung. Wadsack.
51 *Metabolism During Convalescence from Inanition.—Ueber den Stoffwechsel im Rekonvalescenzstadium nach chronischer Unterernährung. P. F. Richter.
52 *Ueber die experimentelle Erzeugung von Lymphocyten-Exudaten. A. Wolff and A. von Torday.
53 Zur Diagnostik der Nierentuberculose (of kidney). R. Milchner.
54 Senator in Forensic Medicine.—Senators Bedeutung für die gerichtliche Medicin. C. Strauch.
55 Senator's Works on Functions and Pathology of Skin.—Senator's Arbeiten über Hautfunction, Hautkrankheiten und Syphilis. R. Ledermann.

42. **Carbonic Oxid Poisoning.**—Strassmann and Schulz have been studying to learn if it is possible to distinguish between poisoning from without and poisoning from within by this agent, that is, whether it was inhaled during life or permeated the tissues after death. They experimented with illuminating gas, using the sensitive palladium chlorid test. The gas was introduced into the air-tight coffin holding the cadaver, and sometimes the tube was placed in the mouth. The results showed that there is no part of the body into which the carbon oxid does not penetrate in time, whether the gas is pure or diluted with air, stagnating or constantly renewed. A very important sign that the gas has penetrated from without is the difference in color of the hemoglobin in the muscles as they are nearer or farther from the surface of the body. There is no qualitative difference between the findings after carbonic oxid poisoning and of postmortem diffusion, but the quantitative difference is marked when the body has not been very long exposed to the gas. If completely saturated with it there may be no difference of any kind. In a recent case a woman was found dead with the tube of her gas stove in her mouth and the stopcock open. A relative asserted that criminal abortion had been forced on her and that the gas accessories were merely to divert suspicion. No traces of recent abortion could be discovered and tests for carbonic oxid in the blood aided in confirming the assumption of suicide.

43. **Retrogressing Paralysis of Vocal Cords.**—The postmortem findings in the case of fatal aneurism described and illustrated showed that the sac had become filled with coaguli during life. As they formed, the aneurism was not distended to quite the same extent as before, thus relieving the pressure which had induced the paralysis of the vocal cords.

44. **Routes of Infection for Tuberculosis.**—Wassermann believes that pulmonary tuberculosis frequently starts at some point in the lining of the mouth or throat or even in the ear. This lesion involves in turn the glands in the neck, the infection working downward and inward. The pleura is next involved and later the hitherto intact lung. This passage of the infection through the chain of organs to the intact lung and the tuberculization of the latter form a sequence which is frequently observed. He cites a few cases in illustration, among them that of a child with enlarged glands in the neck. The grandmother rubbed salve vigorously into the glands and the swelling subsided, but the bacteria forced out of the glands by the massage evidently passed into the pleura with resulting pleuritis, followed by infection of the lung. The assumption of this route for the infection needs to be confirmed by anatomic study of the lung apex *in situ*, not after it has been pulled out. If the findings were to indicate that the infection had been propagated from the parietal to the visceral pleura, then there could be no further doubt as to the correctness of this assumption.

45. **Acute Articular Rheumatism in Children.**—Baginsky has never found the blood essentially abnormal. The anemic appearance is probably due to the lessened blood pressure and the smaller amount of blood in the vessels. He protests against the dumping of chorea in the general receptacle for infectious affections—there are probably two main groups, the rheumatic and the nervous choreas. In 64 cases of chorea he found only 20 in which there were any rheumatic antecedents. Aside from chorea, nervous manifestations were rare in his experience with rheumatism except that cerebrospinal meningitis was sometimes associated. The distinguishing feature of acute articular rheumatism in children is the early and almost inevitable involvement of the heart. All except 7 of the 76 cases in his experience presented evidences of lively irritation or inflammation in the heart. In 17 cases there was apparently complete restitution of the heart, but in 41 others some cardiac defect developed sooner or later. The proportion of cases with intact heart was 12 per cent.; of complete recovery, 23 per cent.; of permanent heart defects, 62 per cent., and of deaths, 9.9 per cent. The postmortem findings demonstrated that the special and most prominent anatomic reaction of the heart in childhood to the irritation of the rheumatic virus is a fibrinous pericarditis with adhesions, and a tendency of the fibrinous exudated and proliferating products of the inflammation to become transformed into connective tissue, with the heart and pericardium completely grown together. The organism usually manages with this immovably fastened organ until the stress of puberty. Salicylic medication has no effect on the heart complications either for prevention or cure. He relates experiences with various drugs, including subcutaneous injection of carbolic acid, all to no avail. The only one that seemed to do any good was potassium iodid, from 1 to 3 gm. a day. This seemed to alleviate the symptoms of severe inflammation in cases of pronounced pericarditis and endocarditis. It sometimes had a magical action in reducing the fever, moderating the local inflammation and combating the most dangerous symptoms of the disease. His experience with antistreptococcus serum has been slight and rather unfavorable.

46. **Diagnosis and Treatment of Cardiospastic Dilatation of Esophagus.**—Strauss has modified his method previously described in these columns, and describes its mode of application and the results. One patient had presented symptoms of cardiospasm for ten years. The stomach tube introduced into the esophagus revealed evidences of stagnation. Pushing it farther down into the stomach evacuated food relics showing traces of digestion, entirely absent in the slimy mass removed from the esophagus. The sound with the inflated rubber bag afforded reliable information in regard to the size of the dilated esophagus. Its capacity was 350 c.c. in the typical case described. The sound projects into the stomach, and air blown through it can be recognized by auscultation. Pressure on the stomach region also disturbs the water in a connected jar. By this means it is possible to exclude a diverticulum, as in

case of the latter it would be impossible to push the sound down into the stomach without first withdrawing it a certain distance. The inflammation in the esophagus healed on removal of inciting causes, on resorting to rectal feeding and ingestion of oil, butter and minimal amounts of fluids, with tannin per os. Systematic stretching of the cardia was not undertaken until all symptoms of inflammation had subsided. The instruments used were all soft and flexible. One was a soft rubber tube with a hollow, spiral metal guide terminating 2 cm. from the tip of the tube. With this the esophagus was gently inflated as the tube was introduced, which has a tendency to open the cardia by the traction. When this appliance had been systematically used for a time he changed to one which has a spindle-shaped bag on the stomach tube. The air bulb is connected with this and the esophagus gently dilated. When the collapsed bag passes into the stomach its presence there can be determined by ascertaining that the tip of the tube projects into the stomach (auscultation of air blown in, etc.) The air bulb is then detached from the stomach tube and changed to a T tube. The rubber bag in the stomach is then inflated, the amount of air necessary to distend it to a circumference of about 9.5 cm. having been previously ascertained. Gentle traction on the stomach tube brings the inflated bag back through the cardia, accomplishing the dilatation. The air is then released and the apparatus withdrawn. Patients treated on these principles are soon relieved of all their disturbances, and in the typical case described the young man gained 28 pounds in six weeks. A woman with the esophagus dilated to a capacity of 550 c.c. was restored to health and gained materially in weight by a few weeks of systematic dilatation of the cardia in this way, although the capacity of the esophagus had not been much reduced. She has been free from disturbances during the year and a quarter since. The superior advantages of the appliances described are that the softness prevents injury of the lining, the pneumatic principle of inflating the esophagus renders it much easier for the bag to pass the cardia, and the larger circumference of the bag renders the dilatation more effectual, while a safety contrivance for the escape of the mercury prevents injury from too great pressure.

49. Action of Roentgen Rays on Blood Affections.—The experimental research on rabbits reported demonstrated that close exposure to *x*-rays causes the myeloid and lymphoid cells to vanish from the bone marrow while the red corpuscles remain unaffected. The findings confirm the clinical observation that pernicious anemia is not influenced by Roentgen treatment while leukemia is liable to show marked improvement owing to disappearance of the lymphoid and myeloid tissue. Red corpuscles suspended in salt solution and exposed for two hours to the rays were apparently unaffected by them.

50-51. Mechanical Dilatation of Esophageal Stricture.—An impermeable cicatricial stricture of the esophagus in a girl of 17 was dilated with a Crawcour spiral sound introduced for a quarter of an hour daily until fluids could be ingested. Further dilatation was accomplished with Senator's swelling sound, that is, a sound on which a laminaria tent is fastened. About fifteen minutes after its introduction the patient feels the pressure of the swelling tent in the stricture; when it becomes unbearable the sound is removed. The success of this mechanical dilatation was most striking. In six weeks the patient was eating normally and gained 66 pounds in seventy days. Richter's article reports the findings in regard to the metabolism during convalescence.

52. Experimental Production of Lymphocyte Exudates.—Wolff recalls that Senator in 1893 was the first to suggest the possibility of an active lymphocytosis. He proposed this as an explanation for the finding of lymphocytes in the urine in certain cases of nephritis. Wolff has been seeking some means of influencing the lymphocytes and of inducing active lymphocytosis by chemotactic or other means. He first undertook research to determine whether the lymphocyte reaction is of the same biologic importance in different species, and whether the agents found to induce lymphocytosis in one have the same action in other species. The results demonstrated that injection of tetanus and diphtheria toxin is able to induce exudation of lymphocytes, persisting for one to twenty-four hours after the injection. The mouse has a special tendency to lymphocytosis. The substances which induce polynucleosis in the guinea-pig cause lymphocytosis in the mouse. A peritoneal injection of .1 c.c. of one of these toxins produces active lymphocytosis at will. In the guinea-pig similar injections cause lymphocytosis at first, gradually changing to polynucleosis after the first hour.

Centralblatt f. Chirurgie, Leipsic.

Last indexed XLIII, page 1008.

56 (XXXI. No. 44, November 5.) Zur Technik der Röntgen-Therapie. A. Schönberg.
57 *Zur Radikal-Operation der Schenkelhernie (femoral hernia). A. Hammesfahr.
58 Typhus-Reaktion in Abszessinhalt und Blut nach 23 Jahren (after 23 years). Harbordt.
59 (No. 45.) Zur Witzel'schen Methode der hohen Rektum-Amputation. C. Hofmann.
60 Eine Modifikation bei der Oberschenkel-Amputation sec. Gritti. M. Silbermark.
61 Technic of Sawing an Arc.—Wie erleichtert man sich das Sägen im Bogen? C. Bayer.
62 (No. 46.) Meine zweite Methode der Magen-Resektion (of Stomach). L. Rydygier.
63 (No. 47.) *Gelenktuberkulose und Trauma (joint tuberculosis). N. N. Petrow (St. Petersburg).
64 Eine Kieferklammer (jaw clamp for narcosis). A. Hofmann.
65 (No. 48.) *Woody Phlegmon of Neck.—Zur Kenntnis der sogenannten "Holzphlegmone" ("Phlegmone ligneuse du cou" nach Reclus). H. Merkel.

57. Radical Operation for Femoral Hernia.—Hammesfahr closes the femoral canal by fastening Poupart's ligament to the crest of the horizontal ramus of the pubis. After the hernial sac has been resected and the stump reduced, he drills three holes in the upper margin of the ramus. They are drilled from the front and slant upward so that the inner opening is close beneath the edge of the crest. Strong silk is then passed around Poupart's ligament and then through the holes and tied firm. This fastens the ligament to the bone like the periosteum, and it probably becomes adherent. The ligament can be said to start at the crest of the pubis, toward the median line from the femoral vein. Aseptic healing can be counted on if silk, boiled and kept in Claudius' 1 per cent. iodin-iodid solution, is used and thread gloves worn.

63. Joint Tuberculosis and Trauma.—Petrow gives illustrations of the joints of animals after peritoneal inoculation of tubercle bacilli. The joints and epiphyses were clinically and macroscopically intact, but the microscope revealed tubercle bacilli latent in the marrow of the epiphyses in 14 out of 312 sections, the positive findings being from 8 animals which had succumbed to tubercular peritonitis four or five weeks after inoculation. Further experiments with infected joints exposed afterward to trauma demonstrated the unmistakable action of trauma in accelerating the progress of the infection. In another series of experiments he established that a severe trauma affecting a joint is liable to favor the localization at this point of chronic tuberculous infection.

65. Woody Phlegmon of Neck.—Merkel describes a typical case of Reclus' "phlegmone ligneuse" developing in the course of four months. The process evidently started in the tonsil and burrowed outward, spreading under the skin and inducing dyspnea and dysphagia, pain and slight temperature. An incision was made in the hard, woody tumor, under chloroform, and a tablespoonful of pus evacuated, after which the tumor rapidly softened and in two months not a trace was left. The patient connected the tumor with the fact that he had held a knife for a few moments in his mouth after he had just slaughtered with it a cow presenting lesions of actinomycosis. But nothing about the phlegmon suggested an actinomycotic process.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed XLIII, page 2054.

66 (XXVIII, No. 46, November 19.) *Remote Results of Incision of Portio and Vagina for Rapid Delivery.—Heilungsresultate nach vorderem Gebärmutter-Scheidenschnitt und deren Bedeutung für die Bewertung dieses Schnellentbindungsverfahrens. H. v. Bardeleben.
67 *Zur Hebotomie. G. Leopold (Dresden).
68 Ueber die Symphyseotomie. D. v. Velits.
69 *Meine Technik des Lateralschnittes (lateral section). L. Gigli (Florence).

70 Prolapse of Omentum.—Netzvorfall, in einer 8 Jahre post operationem geplatzten Koliotomie-Narbe. Westphal.
71 Suture of Recent Lacerations.—Zur Naht frischer Scheiden-Damm-Risse. H. Rose.
72 Open Wire Model of Infantile Skull for Study of Diameters.—Gefenstertes Modell des kindlichen Schädels zur Darstellung der Durchmesser. G. Burckhard (Würzburg).
73 (No. 47.) Zur Frage der Opitz-schen Schwangerschaftsdrüsen (pregnancy glands). M. Schwab.
74 *Beitrag zur Symptomatologie der Retroflexio uteri mobilis. W. Nacke.
75 Foreign Body Stone in Bladder.—Entfernung eines von Blasensteinen umgebenen Gänsekieles aus der Harnblase. P. v. Kubinyi.
76 Doppelseitige Mastitis in der Gravidität im Anschluss an ein impetiginöses Ekzem der Brustwarzen. A. Calmann.
77 Zur Technik der Amputation des invertierten Uterus. E. Falk.
78 (No. 48.) *Gefährliche Blutung aus den Harnwegen während der Gravidität (hemorrhage from urine passages). P. v. Kubinyi.
79 Tod intra partum durch innere Verblutung infolge Ruptur eines Mesenterialgefässes (death from internal hemorrhage). Jacoby.
80 *Lokal Anästhesie mittels Eukain-Adrenalin. H. Freund.
81 Fall von Hernia abdominalis uteri gravidi. A. Rosner.

66. **Ultimate Results of Anterior Utero-Vaginal Incisions.**—Bardeleben reports 8 cases examined for the remote results of rapid dilatation by means of an incision through the portio and vagina. There was no hemorrhage, no discharge in any instance, nor retroflexion, and in only 1 was anteposition and in 2 retroversion with anteflexion noted. The advantage of the incision is that one can control the evacuation of the uterus in a given time, and the wound is in the best possible condition for repair. Instrumental dilatation is under less complete control, and in case of unyielding tissues there is danger of laceration, after which the prospects for repair are much less favorable.

67. **Extramedian Symphyseotomy.**—Leopold has performed the Gigli operation in 5 cases recently. It proved simple and easy of execution and the lying-in period was free from complications of any kind. He gives the details, the results confirming Gigli's assertions in every respect.

69. **Gigli's Technic for Extramedian Symphyseotomy.**—Gigli qualifies ordinary symphyseotomy—from the surgical standpoint—as not a proper operation. His technic of extramedian symphyseotomy, however, is free from all its disadvantages while securing all that is claimed for it. The incision must be to one side of the articulation of the symphysis, and it must also be outside of the point of attachment of the pubovesical ligament. The line that best respects the relations between the bladder and the pubis, etc., is drawn from the tuberculum below, slanting upward toward the median line above, lying entirely along the bone. This avoids the points where the abdominal wall is weak and leaves the cartilaginous apparatus intact. It is well to draw the skin down so that there will be as much space between the incision and the genitalia as possible. The soft parts are then incised down to the bone, and then mobilized a little at top to allow the finger to feel the upper margin of the pubis. A blunt-pointed, curved needle is then easily passed from above behind the bone in the direction of the incision, and, guided by the finger in the vagina, it emerges at the proper point below, entirely avoiding the crura clitoris. There are no large vessels at the back of the pubis, and the needle curves up readily around the lower margin of the pubis. The wire saw is then fastened in the needle, which is then drawn back, the bone sawed and the operation is done. Both the immediate results—the absence of complications—and the remote—the permanent enlargement of the pelvis with no interference with the gait—speak in favor of this operation first made possible by Gigli's wire saw. He insists that it should be called "Lateralschnitt des Beckens," which may be translated "lateral section of the pelvis." Others call the operation "hebotomy," from the Greek term for pubis. [For convenience in indexing, the term extramedian symphyseotomy seems preferable for the present.—ED.]

74. **Symptomatology of Movable Retroflexion.**—Nacke found that 14 per cent. of 265 patients with movable retroflexion and otherwise apparently normal genitalia had no symptoms whatever from the backward displacement. Of the others, 66 complained of backache alone, 37 of backache and other symptoms, and 125 of every possible symptom. The retroflexed uterus does not seem to cause disturbances so long as it is not enlarged and is free from pathologic changes. In case of congestion of the organ, increasing its size, or of irritation of its peritoneal investment from running, dancing, working the sewing machine, etc., the retroflexed uterus gives rise to pains which probably would not be the case if the organ were in anteflexion. The symptoms observed are probably due to slight changes in the tissues or in the nervous apparatus of this region from these causes.

78. **Hemorrhage from Varices During Pregnancy.**—Kubinyi has observed a case of complete retention of urine after sudden hemorrhage from the bladder at the eighth month of a pregnancy, the outlet of the bladder having become obstructed with a thick clot. The hemorrhage was traced to a varicose enlargement of one of the veins in the bladder. In another case an almost fatal hemorrhage occurred from a varix on the leg of a pregnant woman.

80. **Eucain-Adrenalin Local Anesthesia.**—Freund relates his experience with local anesthesia with a mixture of 2 parts of 1 per 1,000 adrenalin to 8 parts of a 1 per cent. solution of beta eucain, injected under the skin or mucosa or both. He regards it as indispensable for prolapse operations and for plastic operations on the perineum. No by-effects were ever observed in his extensive experience except that a few extra sensitive patients complained of transient smarting.

Dermatologische Zeitschrift, Berlin.

Last indexed XLII, page 1599.

82 (XI, No. 6, June.) *Ueber Pagets Disease. A. Jungmann and I. Pollitzer.
83 *Zur Radiotherapie. O. Lassar.
84 (No. 7.) Zur Kasuistik des Adenoma sebaceum. A. Buschke.
85 *Ueber Hg. Paraffin-Embolien. Voss.
86 Value of Alcohol Soaps in Dermatology.—Alkoholseifen. K. Gerson.
87 *Die Wasserbehandlung der Gonorrhoe und des Ulcus molle (water treatment). J. Sadger.
88 (No. 8.) Vasenol, eine neue Arzneimittelgrundlage für Salben, Pasten und Injektionsflussigkeiten (new vehicle). P. Thimm.
89 *Ueber eine Weiter-Impfung vom syphilitisch infizierten Schimpansen (further inoculation of ape). O. Lassar.
90 (No. 9.) Ueber einen interessanten Fall von Lepra mutilans. G. Demetriade.
91 Ueber ungewöhnlich lange Inkubations-Dauer der Gonorrhoe (unusually long incubation). M. Joseph.
92 Zur allgemeinen Pathologie der Syphilis und der sogen parasyphilitischen Erkrankungen. F. Lesser.
93 Ueber die Beziehungen des idrocystoms zur Granulosis rubra nasi. F. Pinkus.
94 Zur Histologie der Granulosis rubra nasi Jadassohn. E. Baumer.
95 Die Ursache der Alopecia praematura (cause). F. B. Solger.
96 Zur Vererbung der Syphilis (hereditary transmission). P. Misch.
97 *Improved Yellow Oxid Ointment.—Ueber die Verordnung und Zubereitung der gelben Salbe. F. Schanz.
98 (No. 10.) Zur Anatomie der Haut-Epitheliome. K. Kreibich.
99 *Kathoden Strahlem als Ersatz für Röntgen- und Radiumstrahlen (Cathode rays as substitutes). H. Strebel.
100 Report of Fifth International Congress of Dermatology, Berlin, Sept. 12-17, 1904.
101 (No. 11.) Ueber Finsen Behandlung. O. Lassar.
102 Demonstration von Paraffin-Prothesen bei Gesichts-Deformitäten und Gaumen-Defekten. H. Eckstein.

82. **Cure of Paget's Disease.**—In the case described, the affection known as Paget's disease of the nipple was located in the axilla. For this reason the authors suggest that the disease had better be called by a more descriptive name, and propose "chronic, circumscribed, eczemiform epithelial dermatosis." This term corresponds with the histologic findings which they describe in detail. The lesion was so extensive in the case reported, measuring 13 by 20 by 27 cm. in extent, and involving the upper arm and both the front and back of the chest, that the surgeons declared it inoperable, especially as the patient, a ix-para, was very cachectic. Excised scraps from the deeper part of the lesion showed the elements of a squamous-celled carcinoma, evidently originating in the epidermis. Roentgen treatment was applied, exposing the entire region in a single sitting to a radiation of 4 chromoradiometer units and the deeper parts to from 8 to 10 units. After two or three weeks a reaction of the first degree developed all over the lesion and as this subsided the lesion healed. In less than four months nothing was left of the cutaneous lesion but a few narrow strips, and in the depths of the affection exhibited progressive improvement. The general health improved, the patient has gained in weight, and the blood findings are nor-

mal. A further exposure of 3 to 4 units was made four months later, and again after a few weeks, one small strip in the axilla being treated with radium.

83. **Radium Therapy.**—Lassar gives illustrations of a number of patients with melanoma or cancroid cured by application of 1 mg. of radium bromid in a small capsule of lead foil on a sheet of mica. He thinks that his experience justifies him in proclaiming that neoplasms can be cured with radium in the hands of any physician. Although the first expense of redium is high, yet as its energy is inexhaustible, on the whole, it is cheaper than some other methods of treatment. All mishaps from its use can be confidently avoided by suspending the treatment at the slightest symptom of irritation, swelling, redness, pigmentation or tenderness. Medical oversight is imperative and the rather tedious exposures must not be left to subordinates. During the thousands of sittings in his institute no inconveniences of any kind were noted, and the results observed indicate that radium has a wide field of usefulness in dermatology. He is also enthusiastic in regard to the efficacy of Roentgen treatment of cancer. It frequently transforms an inoperable into an operable lesion, and is almost certain to cure the incipient recurrences of the growth. They are usually more superficial than the primary lesion. He cites a number of cases in detail, among them that of a woman of 50 who appeared nine months after radical extirpation of a mammary cancer. The growth had recurred in the form of numerous ulcerating nodules, the size of a pigeon's egg, scattered over the region from the axilla to the median line and down to the waist. His illustrations show that the nodules entirely retrogressed under the *x*-rays, and the patient has gained more than six pounds.

85. **Embolism from Mercury in Paraffin.**—Voss states that in a material of 1,373 persons treated with 13,671 injections of insoluble mercurial salts, suspended in paraffin, embolism occurred fifteen times. The proportion was one embolism to each 91 subjects. The salt generally used was Hg. salicylate in a .05 or .1 per cent. suspension in paraffin. The symptoms were invariably slight and transient, and embolism may be regarded as a harmless complication. The injections were always intramuscular.

87. **Hot-Water Treatment of Gonorrhea and Soft Chancre.**—Sadger reiterates that the application of heat reduces the length of treatment by one-half or more; it entirely prevents glandular enlargement; renders a bubo non-virulent, and insures its rapid healing after evacuation. It is not effectual before incision. The application of heat alone is better than to combine it with medication. Welander has thus treated more than 2,000 soft chancres, and the results were invariably most favorable. K. Ullmann's hydrothermoregulator is proving a simple and convenient mode for local and self-regulating application of heat in the form of hot water continuously circulating in an endless tube.

89. **Further Inoculation of Ape with Syphilis.**—From the illustrations given by Lassar it seems to be evident that he has succeeded in inoculating a second chimpanzee with syphilis, the virus being taken from the first chimpanzee previously reported. He thinks that these results offer a prospect for obtaining an effectual antisyphilis serum from chimpanzees in time.

97. **Prescribing of Yellow Oxid Salve.**—Schanz presents various arguments to show the defects in the current modes of prescribing and making yellow oxid salve. His improved formula is: Hydrarg. oxyd. flav. recent. pur. pultiform .1 to 1 gm.; aq. dest. and adip. lanæ anhydric., āā, 1 gm.; vasel. amer. alb. 10 gm.

99. **Cathode Rays as a Substitute for X and Radium Rays.**—Strebel announces that the cathode rays act like the radium rays, and may substitute the latter in radiotherapy. He further describes his mode of photo-cauterization and commends it as a valuable means of treatment of lupus, cancroid and similar affections. His experience has also been very gratifying with local applications of the ultraviolet rays in the urethra to induce hyperemia as a means of treating gonorrhea.

Münchener medicinische Wochenschrift.

103 (LI, No. 46, November 15.) Comparative Pathology of Animal and Plant Tissues.—Vergleichende Betrachtungen über die abnormalen Gewebe der Tiere und Pflanzen. E. Kuster.
104 *Beitrag zur Symptomatologie der Sympathikus-Lähmung (paralysis). A. Rosenfeld.
105 *Ueber die tonische Reaktion licht-starrer Pupillen (not reacting to light). L. Roemheld.
106 *Ueber postdiptherische Nephritis. A. Mayer.
107 Die neuropathische Prädisposition. J. Bernhart.
108 *Klimatische Einflüsse auf Asthmatiker. G. Avellis.
109 Embolie der Arteria mesenterica superior im Puerperium. H. Cramer.
110 Extrauteringravidität bei gleichzeitig bestehender Infrauteringravidität. G. Wiener.
111 Birth Statistics in Bavaria.—Die Fruchtbarkeit des bayerischen Volkes im vorigen Jahrhundert. Grassl.
112 (No. 47.) *System der Strahlungstherapie (radiotherapy). G. Holzknecht.
113 Zur Kenntnis der Blutfermente (blood ferments). A. Jolles.
114 To Secure Expansion of Lung.—Wie unterstützen wir einfach und zweckmässig die Wiederausdehnung der Lunge nach der durch Rippen-Resektion vorgenommenen Entleerung eines Pleura-Empyems. C. Hofmann.
115 Influence of Carlsbad Waters on Bile Secretion.—Choledochus-Verschluss durch primäre Anlagen (Gallenschlamm) — Cholagoge Wirkung des Karlsbader Thermalwassers. F. Fink.
116 *Relations Between Tonsillitis and Articular Rheumatism.—Ueber die Beziehungen zwischen Mandelerkrankungen und dem akuten Gelenkrheumatismus. Gürich.
117 Sprained Ankle Cause of Death.—Fussgelenkdistorsion als Todesursache. W. Fürstenheim.
118 Zur Kasuistik der Misbildungen (deformities). L. Hecht.
119 Ueber die Erzeugung intensiver Röntgen-Strahlen für therapeutische Zwecke. J. Rosenthal (Munich).
120 Ueber die paraportale Resorption bei Neugeborenen während der ersten Lebenstage (in the new born). Ganghofner.
121 Gregarinen oder Plasma-Zellen. R. Hoffmann.
122 *Ueber Obliteratio uteri totalis. F. Frank. (Commenced in No. 46.)
123 Die Seebäderreise des "Meteor" (floating sanitarium). M. Fürst (Hamburg).

104. **Symptoms of Paralysis of the Sympathetic.**—Rosenfeld describes a case of cancer of the esophagus causing paralysis of the right sympathetic and left recurrent laryngeal nerves. Besides the usual symptoms he mentions a remarkable hyperemia of the opposite side of the face, and the anidrosis and reaction of the pupil to pain, observed on the affected side.

105. **Tonic Reaction of Pupils Not Reacting to Light.**—Roemheld's patient presented evidences of old phthisis and exophthalmic goiter, no syphilis. The pupils were unsymmetrically dilated, without any reaction to light. During accommodation, convergence and closing of the lids, they contracted with great rapidity and completeness, and persisted in this condition for a long time, resuming their former condition very gradually. There were no other indications of a spinal affection. This phenomenon has been observed to date in congenital lues, multiple sclerosis, tabes, diabetes, alcoholism, migraine and paralysis. Its significance for diagnosis and prognosis is still undetermined.

106. **Postdiphtheritic Nephritis.**—Mayer has witnessed a couple of cases of acute nephritis commencing the second week of diphtheria. He thinks that postdiphtheritic nephritis is more common than supposed, but generally escapes notice. The urine should be examined long into convalescence to detect albuminuria.

108. **Climatic Influences on Asthma.**—Avellis relates a few instances from his experience to show the contradictory action of change of climate in cases of asthma. In one instance a child had been permanently relieved of the asthma by a trip to a certain place in the country. There was no recurence of the asthma, but a year later the child was taken to this same place and at once the asthma returned and persisted until after the return home. In another case a change of air always brought on asthma; in a third, a place where the patient had always been free from asthma brought it on as soon as she arrived there. A fourth patient with very severe, almost constant, asthma, was permanently relieved by a two-hour journey to a hill country and the same place always proved "asthma immune" in her case. Another asthmatic lived in Heidelberg and suffered much from asthma, but was always relieved when he climbed to the top of the high hill there. Some do best in high valleys, others on the plains, some even in the London fogs. Sea air seems to have an unfavorable influence except for children, whom it frequently benefits. Mountain air sometimes helps children,

while Avellis has not found it of any use for adults. There is no special immune climate for asthmatics. Each must perseveringly seek the individual climate best suited for his individual case. The best climate of all for the purpose is in some special sanatorium where therapeutic suggestion and medical guidance of the nervous system accomplish more than all the most famous health and scenery resorts.

112. **System of Radiation Therapy.**—G. Holzknecht is privat docent of radiology at Vienna. He thinks that all forms of radiotherapy can be classified and arranged in a system which renders their exact application much easier and more scientific. There are six kinds of radiation: 1, heat; 2, visible rays (*a*, red to green inclusive, and *b*, blue and violet); 3, ultra-violet (*a*, about 350; *b*, about 250, and *c*, below 185.5); 4, cathode rays; 5, Becquerel rays (alpha, beta and gamma), and 6, Roentgen rays. In a table are shown the 16 sources for these rays. Sunlight is the first, and it includes 1, 2 *b* and 3 *a*. The Finsen light includes 2 *b*, 3 and 1. Radioactive bodies include 5 and the Roentgen tubes 6. The list of 8 standpoints from which each form of radiation must be considered includes: 1, the physical properties; 2, their eventual transformation outside of the absorbing tissue elements (artificial transformation); 3, their diffusion in the tissue; 4, their eventual transformation in the absorbing tissue elements (natural transformation); 5, the kind of action exerted on the tissue, organ or body in general; 6, the susceptibility of the special kind of cell involved; 7, the kind and the extension of the reaction; 8, the practical applicability and the clinical results. He argues further to prove that the cathode, Becquerel and Roentgen rays are essentially generators of ultra-violet rays, or, to be more exact, are conveyors of ultra-violet rays. The essential difference between them lies in their greater or less ability to carry the ultra-violet rays deeper into the tissues.

116. **Relations Between Tonsillitis and Articular Rheumatism.**—During the last four years Güring has had occasion to treat 17 cases of acute articular rheumatism, and noted evidences of tonsillitis in all but 4, and in these there was a peritonsillar abscess. The special form of tonsillitis was always the chronic, desquamating, inflammation with the yellowish-white, bad smelling "tonsil plugs" which form in the follicles. This follicular tonsillitis is responsible for many cases of articular rheumatism, and this disease can be warded off or recurrences prevented by incising and cauterizing the follicles and eventually excising part or all of the tonsil. The virus of articular rheumatism finds its way into the tonsils and induces acute tonsillitis, which may or may not be specially noticed by the subject. The virus then lurks in the recesses, latent but still virulent. It induces, alone or with other agents, a chronic follicular angina with or without the formation of plugs. When an exacerbation of this follicular angina occurs the door is thrown wide for the invasion of the body by the rheumatism virus. The tonsil plugs ,being very infectious foreign bodies, are liable to help on the disease process, and at any time assist in the development of a recurrence.

122. **Complete Removal of the Endometrium.**—Frank commends the total removal of the lining of the uterus as a simpler, more certain and harmless procedure than total extirpation, accomplishing the same purpose in appropriate cases. It might as well be called "extraperitoneal removal of the uterus lining" or "excisio vaginalis mucosæ uteri," or "total endometrectomy without opening the peritoneum." He describes his experiences with this operation in a number of cases since he first advocated it in 1887. It has been condemned by some physicians, but he thinks that the results he is able to show fully establish its usefulness in non-malignant affections.

Wiener klinische Rundschau, Vienna.

Last indexed XLIII, page 2004.

124 (XVIII, No. 40, October 1.) Forensic Differentiation of Blood.—Die Blutdifferenzierung vom gerichtlichen Standpunkte. S. Minovici.

125 New Views of Stuttering, etc.—Neuere Ansichten über Stottern, Stammeln, Poltern und Hörstummheit. (Commenced in No. 39.) J. Barth.

126 (No. 42.) Kasuistischer Beitrag zur Kenntnis einer "besondere insidiösen durch das Fehlen der Krampfanfälle charakterisierten Form des Status epilepticus" (Pick. A. Pilcz.

127 (No. 43.) Sacral Pain and Dysuria in Women.—Kreuzschmerz und Dysurie bei kranken Frauen. K. Pollitzer.

128 Zur Kasuistik der Claudication intermittente. R. Bernert. (Commenced in No. 41.)

129 (No. 44.) Anaesthesin bei chirurgischen Erkrankungen insbesondere der Speiseröhre (of esophagus). G. Lotheissen.

130 Airol als Diagnosticum bei kariösen Ohrenentzündungen (otitis). O. Kutvirt.

131 Beitrag zur Kenntnis der Hypoplasia uteri. E. Pollak. (Commenced in No. 43.)

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

ATLAS AND EPITOME OF GENERAL PATHOLOGIC HISTOLOGY. By Dr. H. Dürck of Munich. Edited, with additions, by Ludvig Hektoen, M.D., Professor of Pathology, Rush Medical College, in affiliation with the University of Chicago. With 172 colored figures on 77 lithographic plates, 36 text-cuts, many in colors. Cloth. Pp. 371. Price, $5.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhräh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Cloth. Pp. 689. $4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A MANUAL OF PERSONAL HYGIENE. Proper Living on a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Second edition, revised and enlarged. Fully illustrated. Bound in silk. Pp. 441. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

GALLSTONES AND THEIR SURGICAL TREATMENT. By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, England.. Illustrated with text-cuts, some in colors, and nine colored insert plates. Cloth. Pp. 386. Price, $4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

THE SURGERY OF THE DISEASES OF THE APPENDIX VERMIFORMIS AND THEIR COMPLICATIONS. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas' Hospital and Edred M. Corner, M.B., B.C., F.R.C.S., Surgeon in Charge of Out-Patients to St. Thomas' Hospital. Cloth. Pp. 208. Price, $2.50 net. Chicago: W. T. Keener & Co. 1905.

NORMAL HISTOLOGY AND MICROSCOPICAL ANATOMY. By Jeremiah S. Ferguson, M.Sc., M.D., Instructor in Normal Histology, Cornell University Medical College, New York City. With 462 illustrations in the text, many in colors. Cloth. Pp. 738. Price, $5.00. New York and London: D. Appleton & Co. 1905.

DISEASES OF THE LIVER, GALL-BLADDER, AND BILE DUCTS. By H. D. Rolleston, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London. Fully illustrated, including seven colored insert plates. Cloth. Pp. 794. Price, $6.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

MEDICAL ELECTRICITY. A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D., Fellow of the Royal College of Physicians. Fourth Edition, with Illustrations. Cloth. Pp. 356. Price, $3.50. Philadelphia: P. Blakiston's Son & Co. 1904.

ANNUAL REPORT OF THE SURGEON GENERAL of the Public Health and Marine-Hospital Service of the United States for the Fiscal Year, 1904. Paper. Pp. 675. Washington: The Government Printing Office. 1904

NEW PATENTS.

Patents recently granted that are of interest to physicians:

775520. Invalid bed. Julius W. Crigler, Bloomington, Ill.
775556. Microtomer. Carl F. Dieckmann, Buffalo, N. Y.
775841. Cap for air valves for surgical cushions or the like. Christian W. Meinecke, Jersey City, N. J.
775506. Artificial limb. Lawrence A. Weisser, National City, Cal.
775482. Back and head rest for invalids. Laura R. White, Ashland, Ky.
776062. Electromedical apparatus. Wm. Hirschhorn and F. Lowenstein, New York.
776402. Metallic package for syringe needles. Robert W. Johnson, New Brunswick, N. J.
776335. Vertebral stretcher. Solon M. Langworthy, Cedar Rapids, Iowa.
776087. Surgical bandage and material for making same. Rudolf Robitschek, Vienna, Austria-Hungary.
776908. Artificial limb. Samuel J. Henry, Princeton, Iowa.
776914. Truss pad. Alfred E. Johnson, Bloomington, Ill.
776519. Cabinet for specialists. Thomas W. Kelsey, Logansport, Ind.
776870. Support for sanitary cloths, garments, etc. Emanuel M. Silberman, Philadelphia, Pa.
777583. Sanitary attachment for telephone transmitters. Henry Baethig, Buffalo, N. Y.
777496. Induction apparatus. George M. Christopher, Chicago.
777182. Syringe nozzle. Harry M. Clark, Atlanta, Ga.
777406. Apparatus for making methyl chlorid. Maurice E. Douane, Paris, France.
777195. Douche commode. Sarah and M. Fischer, New York.
777503. X-ray tube. Robert Friedlander, Chicago.
777143. Massage appliance. Camillo Rigola, Bournemouth, England.

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Original Articles.

THE OCULAR SYMPTOMS OF LESIONS OF THE OPTIC CHIASM,

WITH THE REPORT OF THREE CASES OF BITEMPORAL HEMIANOPSIA.*

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AND

JOHN T. CARPENTER, M.D.

PHILADELPHIA.

In order to study the ocular symptoms of lesions of the optic chiasm, the following classification, although somewhat artificial, naturally suggests itself:

1. The anatomic relations and structure of the optic chiasm.
2. Anomalies of the visual field.
3. Ophthalmoscopic changes.
4. Anomalies of the external ocular muscles.
5. Alterations in the pupil reflexes, with special reference to the hemiopic pupillary inaction.
6. The lesions which produce alteration in the structure and function of the optic chiasm and give rise to the ocular symptoms from which their position is inferred.
7. Diseases of the pituitary body, with special reference to the ocular symptoms of acromegaly.
8. Simulation of chiasm disease by other affections, for example, hysteria, locomotor ataxia, brain tumors.
9. The effect of certain toxic agents in causing lesions of the optic chiasm.

ANATOMIC RELATIONS.

Beneath the floor of the third ventricle the optic chiasm rests in the optic groove of the sphenoid bone. Its important anatomic relations are ventrally the sphenoid bone, dorsally the third ventricle of the brain and posteriorly the hypophysis with its prolongation, the infundibulum. The circular venous sinus and the internal carotid arteries, with their anterior cerebral branches, are in close surgical relation to the chiasm.

Microscopic Structures.—As is well known, there has been considerable difference of opinion in regard to the disposition of the fibers in the optic chiasm, whether on the one hand there is total crossing of the fibers, as Michel and von Kölliker believe, or whether, according to the majority of authors, there is, as a rule, a partial decussation. The literature of this subject, often involved and contradictory, has been best analyzed in comparatively recent times by Llewellys Barker,[1] and we can not do better than quote in a somewhat condensed manner from his admirable review as follows:

The long processes, or axones, of the ganglion cells pass into the nerve fiber layer of the retina, reaching the papilla or nervehead, and proceed to the optic nerve. Having reached the optic chiasm, a portion of the fibers of one optic nerve cross over and enter the optic tract of the opposite side, forming the crossed fasciculus, while a certain number of other fibers do not cross, but enter the optic tract of the same side, forming the noncrossed fasciculus. The noncrossed fasciculus arises chiefly from the temporal side of the retina, while the crossed fasciculus arises from the ganglion cells of the nasal side of the retina. The bundle of the macula lutea, or papillo-macular bundle, in general terms, is situated in the central part of the optic nerve and maintains its central position in the optic chiasm and in the optic tract, and is composed of crossing and direct fibers.

Now, although secondary degenerations observed in pathologic cases in higher animals and in human beings seem to prove a semi-decussation and not total crossing of the optic chiasm, and although von Gudden has shown that in the rabbit, where the decussation is almost total, there is a small non-crossed fasciculus and that total decussation is present only in such animals in which the visual fields of the two eyes are entirely separate, for example, in fish, amphibia and birds, von Michel asserts that even in man the decussation is complete or total. He bases his opinion on serial sections of the normal optic chiasm, on sections of the optic nerves, chiasm and tracts, in cases of degeneration in men and animals; and on certain physiologic considerations.

Apparently, however, his views are not tenable when taken into consideration with the great mass of evidence which has accumulated on the opposite side. Von Gudden, with careful consideration of the superior commissure of Meynert, the inferior commissure of Gudden, and the hemispheric bundle, has demonstrated by unobjectionable methods, that each of these, as well as the crossed fasciculus and the non-crossed fasciculus, can be individually isolated. He has shown that the well-known experiments of Nicati, by which the optic chiasm was cut in the middle through the mouths of cats, demonstrate that these cats could still see, which would be difficult or impossible to explain if the decussation was total, and in Siemerling's case of destruction of one optic tract with diminished sharpness of the opposite eye, the patient could still see with the temporal side of his retina, also an impossiblity if complete decussation had been present.

Finally, we come to the studies of Henschen, based on elaborately studied and collected clinical material. According to this observer, whose views are accepted by almost all modern writers on the subject, the following is the arrangement of the fibers in the chiasm: The macular fibers, both crossed and uncrossed, are axial in situation, the crossed bundles being central while the uncrossed bundles are found medial and lateral. The papillo-macular bundle, although mainly axial, almost reaches the periphery behind the center of the chiasm

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. The Nervous System and Its Constituent Neuroses, 1899, p. 782.

where the crossing fibers are exposed to injury by a circumscribed lesion in the median line. The fasciculus cruciatus from each optic nerve is found on the dorsal and ventral aspects; while the *fasciculus non-cruciatus* is found medial and lateral.* In addition, the chiasm at its posterior angle contains two sets of commissural fibers not concerned in vision—the superior commissure of Meynert and the inferior commissure of von Gudden.

While it is undoubtedly true that this represents the usual anatomic arrangement in the chiasm, individual differences of great variety are possible, and indeed, have been found, varying from the entire absence of the chiasm (the right optic nerve going to the right tract and the left nerve to the left tract), to perhaps total decussation in the chiasm. (Fig. 1.)

ANOMALIES OF THE VISUAL FIELD IN CHIASM DISEASE.

The literature of this subject is extensive, and although we have examined it with some thoroughness and carefully analyzed between forty and fifty of the most important papers, it does not seem profitable in a communication of this character to do more than present a condensed statement of the possibilities in visual field changes without detailed reference to individual cases. Moreover, the entire subject has been dealt with in so masterly a manner by Wilbrand[2] that it would be impossible to avoid quoting him as freely as we have in the section which follows:[3]

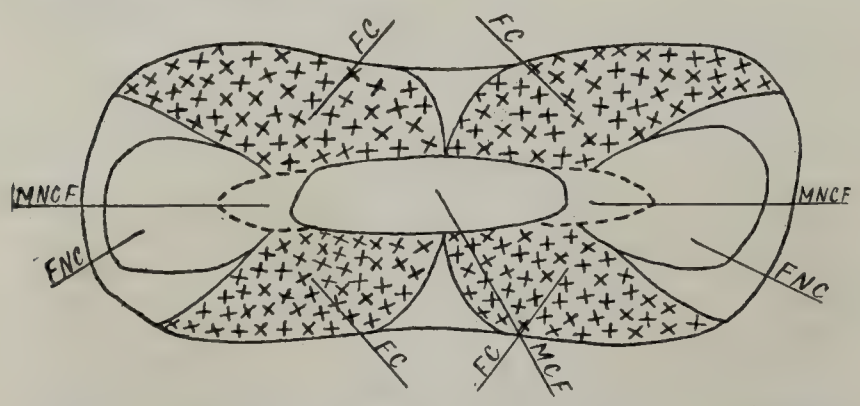


Fig. 1.—Henschen's arrangement of the fibers and chiasm according to Barker: f. c., crossed fasciculus; f. n. c., uncrossed fasciculus; m. n. c. f., macular non-crossing fibers; m. c. f., macular crossed fibers.

Complete Bitemporal Hemianopsia.—The most characteristic alteration of the visual field which may be regarded as pathognomic of chiasmal lesion is bitemporal hemianopsia, which, with its various modifications, is called by Griffith "the localizing form of hemianopsia." In a typical example there is blindness of the temporal halves of the visual field, with preservation of the normal function of the nasal halves, the dividing line making a sharp, vertical separation between the two portions of the field of vision. (Fig. 2). Instead of loss of the temporal field exactly to the fixation point, a portion of the field may be retained beyond this position, i. e., the line of separation does not lie in the vertical meridian.

This "over-shot field of vision," as it has been called, suggests the supply of the macula with a double set of nerves, one from each hemisphere, and has been explained by Schmidt-Rimpler by assuming anastomoses of the fibers in the optic nerves and chiasms. An interesting fact is the occasional long unchanged duration of bitemporal hemianopsia, as in Förster's[4] case, where with complete loss of the temporal fields those on the nasal side remained unaltered for ten years. In these typical cases, not only does the nasal field for form remain unchanged, but the color-limits of the same sides are also preserved and coincide with the vertical separation. The temporal field defect is not necessarily complete *ab initio;* it may begin with loss for colors only, to be followed later by loss of form sense and light sense, or the form sense and color sense may be lost, and the light sense retained entirely or in part.

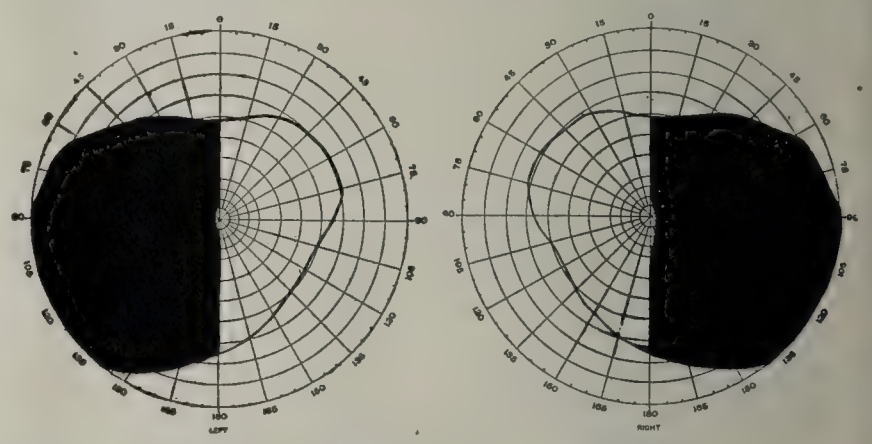


Fig. 2.—Typical bitemporal hemianopsia.

Again, the process may begin with paracentral or bitemporal hemianopic scotomas, which gradually broaden into bitemporal hemianopsia. Such cases, according to Wilbrand, have been reported by Beer, Förster, and Vossius.[5] In the last-named author's case, the condition began with bilateral temporal contraction of the visual fields and paracentral scotomas, and was followed by sharply limited bitemporal hemianopsia (Fig. 3).

Finally, the original condition of bitemporal hemianopsia may change and result in symmetrical paracentral hemianopic scotomas, as in Treitel's[6] case, which is quoted by Wilbrand. (Fig. 4).

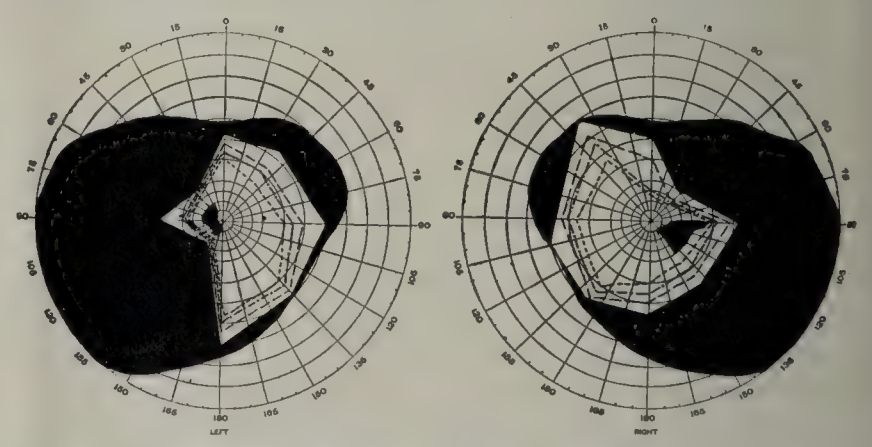


Fig. 3.—Bitemporal contraction of the visual fields and paracentral scotomas, followed later by bitemporal hemianopsia, after Vossius.

Significance: Typical bitemporal hemianopsia of permanent character is caused by a lesion which destroys the function, or, as it is called, the conductivity of both crossed fasciculi, leaving the non-crossed fasciculi unaffected. The best reported case of this character has been recorded by Weir Mitchell and Dercum,[7] in which

*A somewhat different arrangement of the chiasm fibers is given by Wilbrand and Saenger, Neurologie des Auges, vol. iii, p. 79.

2. Perimetry and Its Clinical Value: A System of Diseases of the Eye, edited by Norris and Oliver, vol. ii, 1897, pp. 262-278. See also by the same author, Die Hemianopischen Gesichtsfeld-Formen und das optische Wahrnehmungszentrum: Wiesbaden, 1890. Since writing this paper Die Neurologie des Auges., vol. iii, 1904, by Wilbrand and Saenger has appeared. It has not been possible to incorporate the superb studies of chiasm diseases contained in its pages.

3. See also Das Gesichtsfeld: Karl Baas, 1896, p. 216.

4. Graefe und Saemisch, Handbuch der gesammten Augenheilkunde, vol. vii, p. 116.

5. Graefe's Archiv f. Ophthalmologie, vol. xxx, 3, p. 172.

6. Centralbl. f. prakt. Augenheilk., 1881, p. 320.

7. Jour. Nervous and Mental Disease, vol. xiv, 1889, p. 44.

an aneurism destroyed the center of the chiasm and obliterated the function of the crossed fasciculi. Paracentral or hemianopic scotomas indicate that the lesion is confined to that point on the dorsal surface of the chiasm where the papillo-macular fibers of the crossed fasciculus are interwoven.

Bitemporal hemianopsia subject to fluctuations in the extent of the visual disturbances depends on the basal disease, especially syphilis, as has been pointed out by Oppenheim.[8] Improvements, even to complete recovery, may be followed by subsequent loss of vision. In such a case as Treitel's, previously quoted (See Fig. 4), Wilbrand suggests that a basilar gummatous meningitis may have injured the crossed fasciculus, while an interstitial neuritis may have caused atrophy at the intersection of the papillo-macular fibers.

In this connection we briefly refer to two cases of bitemporal hemianopsia with autopsy:

BASAL GUMMA AND BITEMPORAL HEMIANOPSIA.

CASE 1.—This case one of us (de Schweinitz[9]) has already reported briefly.

History.—The patient, a colored man, in the wards of Dr. H. C. Wood in the Philadelphia Hospital, was a syphilitic aged 55, who had epileptic attacks, Jacksonian in type, partial loss of hearing on one side, demonstrable loss of taste and smell, partial hemianesthesia and hemiplegia. Wernicke's pupil symptom could not be demonstrated. Both nerves were atrophic, and there was complete bilateral temporal hemianopsia,, with marked contraction of the preserved fields (Fig. 5).

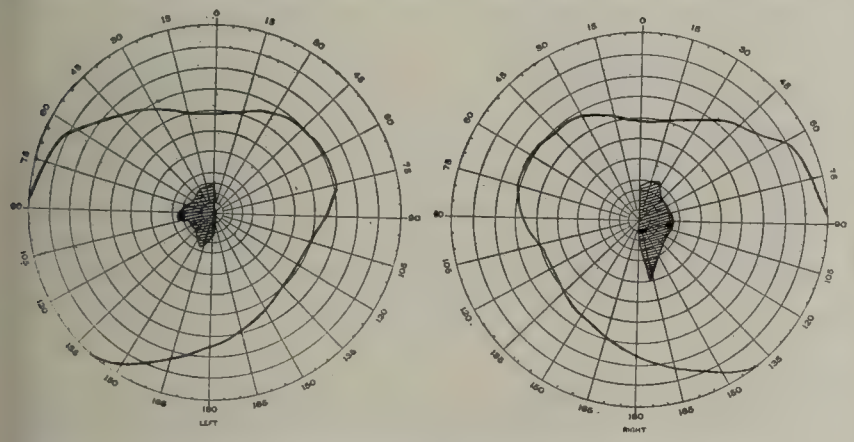


Fig. 4.—Symmetrical paracentral scotomas, after Treitel.

Autopsy.—At the postmortem examination a band-like gumma was found which stretched across the anterior end of the pons and reached to the cribriform space. One end of the tumor was thicker and heavier than the other. The corpora quadrigemina and optic tract and chiasm were involved. Microscopic examination was not made.

TUMOR OF CHIASM; METASTASIS FROM MAMMARY CARCINOMA; BITEMPORAL HEMIANOPSIA.

CASE 2.—This patient, a woman between 50 and 60 years of age, was examined by one of us (de Schweinitz) in consultation with Drs. Tyson and Mills, who will report the case in detail. It is now referred to as a typical example of temporal hemianopsia in which a growth secondary to a carcinoma of the breast was situated at the base of the brain and involved in the chiasm. The visual fields (Fig. 6) indicate that the crossed fasciculi were divided. Dr. Spiller's examination of the specimens is as follows:

Autopsy.—The findings in the chiasm of Mrs. G. are as follows: The sella turcica was much enlarged and was about one and one-half inches in width from side to side, and about one inch from before backward. A large tumor mass filled the sella turcica, and the tumor was larger on the left side than on the right. The tumor extended around the optic chiasm and grew from behind it, and extended backwards almost as far as the anterior part of the pons. The right optic nerve was not imbedded in the tumor, but the tumor grew into the left orbit and surrounded the left optic nerve.

Microscopic Examination.—This showed that the tumor was a carcinoma, and that the optic chiasm was much degenerated by the invasion of and pressure from the tumor.

Temporal Hemianopsia of One Eye and Partial or Complete Blindness of the Opposite Eye.—Partial or complete blindness of one eye, with loss of vision in the temporal field of the opposite eye, has been reported a number of times. Thus there may be temporal hemianopsia of one eye, with entire loss of vision in the opposite eye, except in its upper or lower nasal quadrant; or the loss of vision in the opposite eye may be complete for color or form, but partially retained for light in one nasal quadrant; or, finally, the loss of vision in the opposite eye may be absolute. Cases of this character have been reported by Hirschberg, Lang and Schoen.

Significance: Under these circumstances the clinical picture is significant of a spreading lesion gradually involving the entire chiasm. Thus, if the upper or lower quadrant of the nasal field of the opposite eye is lost, in addition to its temporal blindness, it means that the disease has spread to the areas of the chiasm represented by the loss of visual function.

In this connection we record the following case already briefly reported by one of us (de Schweinitz[10]).

CASE 3.—A man, aged 34, clerk, American by birth, presented himself on Nov. 3, 1903.

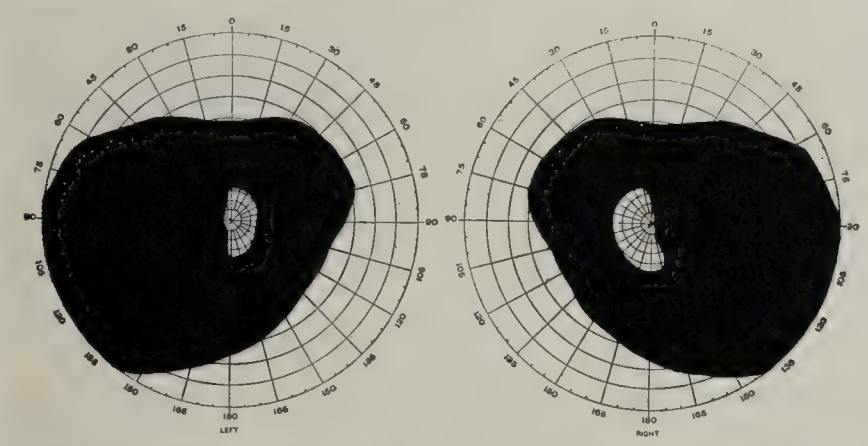


Fig. 5.—Bitemporal hemianopsia and contraction of preserved visual fields from a patient under care of H. C. Wood. The lesion was basal gumma.

History.—The patient's father and mother are living, as also are four brothers and one sister, all of whom are in good health and have no organic defects of vision. Since an attack of dysentery at the age of 2 he has enjoyed good health, history of severe illness being absent. In 1883 he fell from a horse and was injured on the forehead over the left eye, but the skull was not fractured, so far as is known. The patient has led a healthful life, has no drug habits and denies venereal taint of any kind. His eye sight gave him no concern until seven years ago, when it began to fail, first on the left and later on the right side, the defect in vision being manifest by loss of the visual field on the temporal sides. There was never at any time pain, headache or signs of ocular inflammation.

General Examination.—The patient was undersized, but well nourished and presents all of the physical signs of infantilism of the myxedematous variety. With this exception, examinations made by us, as well as by other physicians, failed to find signs of organic disease. The urine was normal.

Examination of Eyes.—The eyelids were slightly puffy, and there was a moderate conjunctivitis of the left eye. V. of R. E. with + 0.75 sph. 6/7.5; amplitude of accommodation, 6 D. The optic nerve was ophthalmoscopically a narrow, vertical oval and atrophic, being bounded on its outside by a widened

8. Mills, Univ. of Penn. Med. Bulletin, May, 1904, p. 110.
9. Jour. of Nervous and Mental Disease, vol. xiv, 1887; also Nervous Diseases and Their Diagnosis, by H. C. Wood, p. 271.
10. Ophth. Record., vol. xiii, 1904.

scleral ring; the veins were rather fuller than normal and were faintly streaked with white lines; the arteries were unchanged in size, both sets of vessels carrying normally tinted blood. Distinct evidences of neuritis were lacking and there were no gross changes in the retina or choroid. The visual field for form and colors exhibited the typical chart of temporal hemianopsia, the preserved form field (1 cm. square of white) being normal in extent, while the color fields (red and green) are markedly contracted, the dividing line exactly following the vertical meridian, the macular representation being in the preserved field (Fig. 7). The light field was preserved, except the upper and outer quadrant, which was entirely dark. The direct light reflex of the pupil was preserved, the consensual reflex absent, and the hemiopic pupil inaction (Wernicke's sign) could not be demonstrated, although the response was not so prompt when the light was directed on the blind side of the retina as when it fell on the opposite side.

V. of L. E. was *nil*, light perception being absolutely lacking. The optic disc ophthalmoscopically was small, round and entirely atrophic, but there was no marked decrease in size of the retinal vessels, and as on the other side, no distinct signs of a previous neuritis. The direct light reflex of the pupil was, of course, absent; the consensual reflex preserved;

Examination of Nose and Throat.—Examination of the rhino-pharynx and sinuses by Dr. Walter Freeman yielded negative results, who writes: "I find no evidences of sinus or nasal disease which could account for the eye trouble; I believe the sphenoids and ethmoids are normal."

Examination of the Head.—Examinations of the cranium by means of the *x*-rays were made by Dr. Henry Pancoast at the Hospital of the University of Pennsylvania, and the skiagraphs showed a shadow directly in the position which would be occupied by the chiasm, which shadow was not present in a skiagraph of the normal head, kindly loaned by Dr. Pancoast.

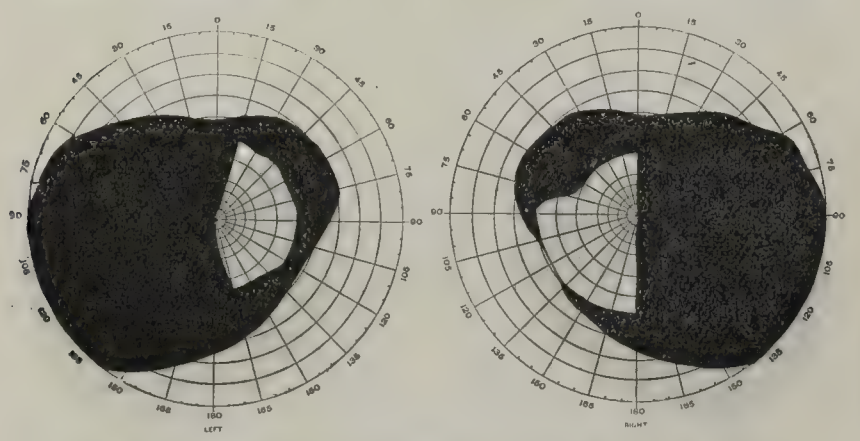


Fig. 6.—Bitemporal hemianopsia; tumor involved chiasm.

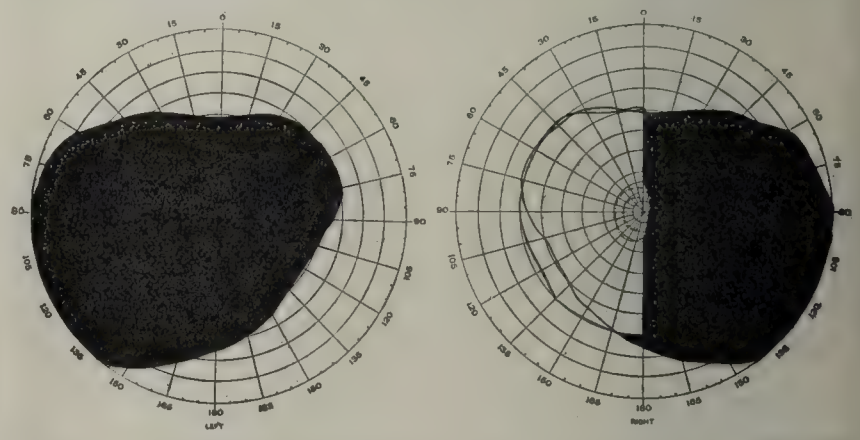


Fig. 7.—Temporal hemianopsia of right eye; complete blindness of left eye.

Remarks.—In the present instance we evidently had to deal with a case which was originally bitemporal hemianopsia, because the patient's statement accurately described the loss of the temporal side of each visual field as his first visual disabilities. Gradually the degeneration of the optic nerve continued, until on the left side the blindness became complete, and there is now temporal hemianopsia of the right eye for form and color and with a partial retention of the light sense, that is to say, it is preserved in the lower temporal quadrant and completely on the nasal side. In other words, we had here a very good example of a spreading lesion, so that only the nasal field of one eye remains perfect.

As to the probable lesion, three possibilities may be named, and in studying them we have had the advantage of Dr. William Spiller's examinations, who saw the case in consultation: 1, Myxedematous enlargement of the pituitary body; 2, as the patient once suffered from tapeworm, cysticercus of the chiasm; 3, aneurism or tumor at the chiasm.

What the exact lesion is is purely speculative, except there can be no doubt that the optic chiasm is involved. Sphenoid disease, which we first thought of, seems to be eliminated by Dr. Freeman's report. Dr. Pancoast's skiagram seems to show a shadow approximately in the region of the chiasm, a shadow, moreover, which is abnormal and which may indicate a growth, for example, an exostosis. Naturally, the injury which this patient received when he was thrown from a horse suggests the possibility that there may have been a fracture extending into the sphenoid bone. It is, however, difficult to accept this explanation in view of the fact that the injury occurred twenty years ago, while his visual defects were noticed only seven or eight years ago. Specific history is denied and there was no response to antisyphilitic treatment. He seems to have improved slightly in his general condition under the influence of thyroid extract. There has been no change, however, in the visual defects and also no progression.

Bitemporal Achromatopsia with Central Scotoma for Colors.—As already noted, the defect in the temporal fields may begin with loss for colors only, followed later by loss of form and light sense. In a case reported by Benson,[11] in addition to a bitemporal defect for colors, there was a scotoma for colors. The patient had acromegaly and was an excessive smoker. Sometimes, it would seem, there may be simply scotoma for color on one side, for example, in Doyne's case,[12] while on the other the scotoma is absolute.

Significance: In these hemiachromatoptic cases we may assume the interference in the conduction of the fibers involved has been sufficiently great only to lead to an inability to recognize colors, for example, red and green. Greater disturbance would lead to inability to recognize blue. As the power of conductivity grows less and less perfect, the patient gradually fails to distinguish black from white, and finally when it is lost the perception of light is lost.[13]

Chiasmal Central Amblyopia.—The development of bitemporal hemianopsia from symmetrical paracentral scotomas has been described. But it would seem that central scotomas, very difficult to distinguish from those seen in toxic amblyopia, are sometimes the initial signs of chiasm disease. According to Nettleship,[14] "the loss of the central field in the earlier stages is more abruptly defined than in tobacco amblyopia, and the symmetry is less precise, both in time and degree than in the latter disease." In one case in which a postmortem examination was obtained and the chiasm incorporated in a cyst, there was a central scotoma of oval shape, beginning just outside the fixation point, and extending twenty degress outward; the peripheral fields were intact.

Irregular Losses in the Visual Field.—A number of case records have been published describing irregular losses of portions of the visual fields. To some of these reference has already been made. Wilbrand has arranged them as follows: Temporal hemianopsia of one

11. Brit. Med. Journ. October, 1895, p. 949.
12. Trans. Ophth. Soc. U.K., vol. xv, 1895, p. 134.
13. Consult Holden, Archives of Ophthalmology, vol. xxiv, 1895, p. 447.
14. Ophth. Rev., vol. xv, 1896, p. 309.

eye with loss of the upper outer quadrant of the visual field in the other (Schoen); temporal hemianopsia in one eye, in the other loss of the lower outer quadrant of the nasal visual field (Lang); loss only of the upper and outer quadrants of both fields; loss only of the lower and outer quadrants of both visual fields; loss of both visual fields, except their upper nasal quadrants which remained active; finally, loss of both visual fields, except their lower nasal quadrants which remained active is conceivable, although no such case has been reported. These irregular types of visual field defects are due to circumscribed lesions affecting small bundles of fibers in the chiasm. It is again to be noted that irregular losses of the visual fields with transient and varying types of bitemporal hemianopsia usually mean syphilitic meningitis, or gummatous involvement of the chiasm, in which recovery of vision often results from the administration of iodids or mercury.[15]

Binasal and Unilateral Nasal Hemianopsia.—Cases of binasal hemianopsia occur with comparative infrequency. The literature has been analyzed by Veasey,[16] who makes reference to nineteen cases, but who also includes in them cases of unilateral nasal hemianopsia of the bilateral form of the disease as it is seen in spinal cord disease. The subject has also been discussed by S. M. Burnett,[17] who reports a good example of this affection.

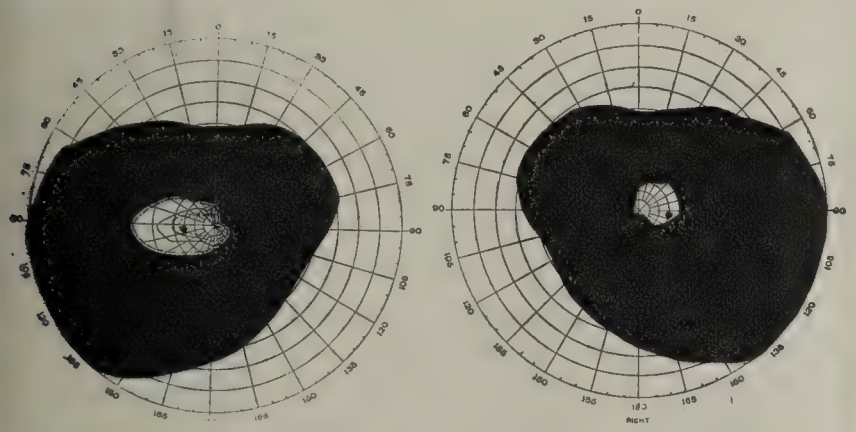


Fig. 8.—So-called binasal hemianopsia in hysteria, really simply an irregular contraction of the visual field. Patient under care of J. K. Mitchell and G. E. de Schweinitz.

Significance: The true chiasmal variety of the affection must be rare, if, indeed, it actually occurs. In Knapp's case it was ascribed to degeneration of the arteries of the corpus calosum, causing disease of the lateral angles of the chiasm. Burnett suggests as possible lesions in his case, in which the hemianopsia followed a fall on the forehead and remained unchanged for more than three years, a clot, or pathologic process set up by it, making pressure on the outer side of the right nerve trunk, and passing either above or below this trunk to the other side, without affecting intervening tissue, and there pressing on the temporal side of the left nerve. A double lesion affecting only the temporal supply-fibers in the tracts is also suggested as possible. Burnett himself recognizes, however, the difficulty surrounding the hypothesis he suggests. The irregularity of the remaining fields in most cases of binasal hemianopsia, as well as microscopic examinations which have been made, indicate that visual field phenomena are caused by optic nerve lesions. Thus, Gowers, commenting on Eales's case, suggests as an explanation bilateral inflammation of the trunks of the optic nerves in front of the chiasm, extending to this, and chiefly intense symmetrically at each side of the chiasm. Veasey accepts this explanation as most suited to his case.

A nasal hemianopsia on one side is produced by a lesion affecting the lateral portion of the chiasm involving the non-crossing fibers of one eye. Blindness of one eye and nasal hemianopsia of the other can not be explained by a single lesion. In Henschen's case the chiasm and optic tract were so involved that only the crossed fasciculus of one eye remained comparatively unaffected.

Bilateral Blindness of Chiasmal Origin.—Total loss of vision and of the pupillary reflexes in both eyes, followed in several weeks by bilateral optic nerve atrophy, is possible. Under such conditions we must assume that a lesion has divided the chiasm into an anterior and posterior portion and destroyed the conductivity of the lateral as well as the crossed fasciculi of both sides.

Superior and inferior hemianopsia have been described, and would indicate disease of the upper half of the chiasm, or, as in Uhthoff's case, symmetrical disease of the optic nerves.

OPHTHALMOSCOPIC CHANGES.

Following a destructive lesion affecting the optic chiasm, the ophthalmoscope usually reveals bilateral

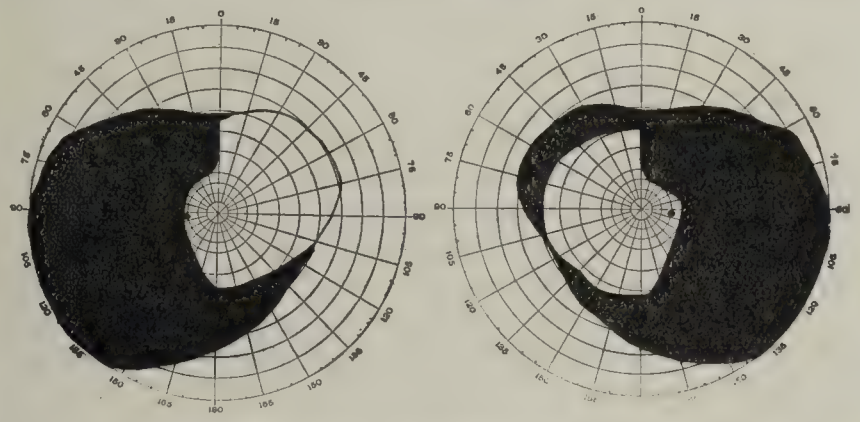


Fig. 9.—Bitemporal visual field defects in locomotor ataxia. Patient under care of G. E. de Schweinitz.

atrophy from descending degeneration. Partial atrophy of the optic disc results from circumscribed destruction of fasciculi of fibers on their passage through the chiasm. All grades of optic neuritis may be found with disease at the base of the brain involving the optic chiasm, varying from slight veiling of the edges to typical choked disc, but optic neuritis is not often found in chiasmal disease, even when produced by cerebral tumors. A reference to the report of the conditions of the eyegrounds in some fifty cases of disease of the chiasm show the following fundus changes, which can be conveniently grouped:

(*a*) Optic atrophy without preceding neuritis.

(*b*) Postneuritic atrophy.

(*c*) Atrophy of the temporal half of the nerve (partial atrophy).

(*d*) Slight optic neuritis as revealed by blurring of the disc edges.

(*e*) Well-marked optic neuritis and neuroretinitis with or without retinal hemorrhages.

(*f*) "Choked discs."

In one case mentioned by Hutchinson[18], the ophthalmoscope shows retinal arteries and veins diminished, retina white and hazy with many hemorrhages.

15. Just as this section was completed the third volume of Wilbrand and Saenger's "Die Neurologie des Auges." has come to hand, in which there is a most complete discussion of the visual field phenomena which would follow variously placed chiasm lesions.

16. Ophth. Rec. February, 1897.

17. Arch. of Ophth., vol. xxix, 1900, p. 1.

18. Ophth. Review, 1889.

It is important to remember that although central vision in most cases of bitemporal hemianopsia is lowered (rarely normal acuity of sight has been preserved), and that the final stage of chiasmal disease is apt to be total blindness with atrophic discs, occasionally, even after blindness has appeared, as Wilbrand remarks, nearly normal power may return.

ANOMALIES OF THE EXTERNAL OCULAR MUSCLES.

Chiasmal diseases may be accompanied by paralysis of nearly all the motor and sensory nerves of both eyes. The progress of the lesion can at times be closely followed by the successive involvement of the cranial nerves running to the orbit. Anosmia indicates the extension of the lesion forward; bilateral hemianopsia followed by unilateral blindness and paralysis of the cranial nerves entering the orbit of that side shows the extension of the disease toward the right or left side of the chiasm. The third nerve is most frequently affected.

ALTERATIONS IN THE PUPIL REFLEXES WITH SPECIAL REFERENCE TO THE HEMIANOPIC PUPILLARY INACTION.

The production of complete blindness by chiasmal disease gives the usual loss of direct pupil reaction. Most reporters have failed to note the presence of the hemianopic inaction.

In some forty cases referred to by the authors, whose reports we have examined, this inaction was noted in but four cases. The usual note was "pupil dilated and sluggish," or "unresponsive to light, react to convergence."

The hemianopic pupillary inaction has been unquestionably present in some cases and no doubt would have been found if more carefully looked for in many more cases of disease of the optic chiasm. It is a symptom difficult to elicit and its existence has been denied by some authors. Even Bach, with his large experience and skill, has not observed it, although he does not deny that it may occur.

LESIONS WHICH MAY PRODUCE ALTERATIONS IN THE STRUCTURE AND FUNCTION OF THE OPTIC CHIASM.

From a consideration of the anatomic relations of the chiasm, we may divide these lesions as follows:

1. Those which affect the chiasm from below. These include trauma, for example, fractures of the sphenoid bone, exostoses, basilar, gummatous and tubercular meningitis, periostitis, arterial disease, aneurism, syphilitic arteritis and hemorrhage, and tumors of the sphenoid bone.

2. Lesions which encroach on the chiasm from above. These include tumors of the third ventricle and distention of the floor of the third ventricle in internal hydrocephalus.

3. Lesions which affect the posterior angle of the chiasm. These include tumors and hypertrophy of the pituitary body—notably in acromegaly. To this frequent cause of chiasmal disease a more extended reference is made in a succeeding paragraph.

4. The lesions of multiple sclerosis. Cases of this character have been reported by Snell, Taylor, Uhthoff, Spiller and other authors.

5. The lesions of tabes dorsalis. Cases of this character have been reported by Gowers, Uhthoff, Popow, Moxter and Benedict.

The chiasmal symptoms in these cases may be due to syphilitic basilar lesion, and not to interstitial inflammation of the chiasm, as Gowers states. This author also includes as a possible cause of chiasmal disease interstitial inflammation from inherited gout. Interstitial hemorrhage has been reported. Swanzy states that tumors of the cerebellum, by closure of the aqueduct of Sylvius, may produce internal hydrocephalus and cause pressure upon the chiasm.

The above summary comprises the results of careful study of the literature for reports of postmortem findings in somewhat more than one hundred published papers.

ACROMEGALY.

As is well known, acromegaly is a frequent cause of bitemporal hemianopsia, and this visual field defect, to use the language of Swanzy, is one of the commonest and earliest symptoms of this affection. It does not seem necessary to do more than make the briefest reference to the facts in the case. According to Hinsdale, the bitemporal hemianopsia in acromegaly is caused by an overgrowth or neoplasm of the hypophysis pressing on the chiasm, and by bony changes consequent on the abnormal growth of the lesser wing of the sphenoid bone. It may occur as a bilateral defect, as an unilateral defect, either right or left sided, and in two instances, at least, has appeared in the form of a nasal hemianopsia.

While it is true that the bitemporal variety of the visual field defect is the one most commonly observed, homonymous hemianopsia has also been noted by several observers. One of them (de Schweinitz) has examined a case of this character for Dr. Dulles of Philadelphia, and he has also seen and examined two other cases with typical bitemporal hemianopsia, one in the service of Dr. H. C. Wood at the University Hospital and the other in his own practice.

SIMULATION OF CHIASM DISEASE BY OTHER AFFECTIONS.

Hysterical Hemianopsia.—There is much difference of opinion whether hemianopsia ever occurs as an ocular stigma of hysteria. Parinaud maintains that there is one variety of visual insensibility which hysteria appears to be incapable of producing, and that is hemianopsia in the sense in which this term is used in organic cerebral lesions, and this opinion apparently is shared by Charcot, Gilles de la Tourette, Gowers, Freund, Binswanger and others. On the other hand, Rosenthal[19] states that in all cases of hysterical amblyopia which he has investigated temporal hemianopsia was present[20]. Lateral non-crossed hemianopsia in hysteria has been recorded by a number of observers, for example, Bonnefoy, Westphal, Galezowski, M. W. Zimmerman and Henry Lloyd.

So far as we are able to judge from a critical examination of the literature, hemianopsia as an enduring ocular symptom of hysteria does not exist. On the other hand, as a temporary phenomenon it has been observed a good many times by those who are competent to judge, and has appeared, as already noted, as a bitemporal defect, a homonymous lateral defect, and even, it would seem, as a binasal obscuration. It is possible, according to Pierre Janet[21], that there may always be a period of hemianopsia when the ordinary hysterical amaurosis is recovering.

A similar observation was made by Galezowski and Daguenet prior to his publication, who have also noted

19. Wiener Med. Presse, Nr. 23, 1879, p. 736.

20. In Gilles de la Tourette's book Rosenthal is quoted as having written a letter to Charcot in which he retracts this statement, saying that hysterics exhibit only amblyopia and concentric contraction of the visual field.

21. La Presse Medicale, 1899, p. 243.

a transitory scotoma. Hirsh[22] describes hysterical blindness in a boy of thirteen. After return of sight, there was high grade contraction of the visual field, which gradually widened and showed a temporary bitemporal hemianopic character. Unilateral temporal hemianopsia has been described in hysteria by Landesberg[23] Wilfred Harris in his Cambridge Thesis[24] refers to two cases of hysterical binasal hemianopsia, one of temporary character reported by D. B. Lees, the other published by J. K. Mitchell and de Schweinitz. It is true they somewhat incautiously made use of the expression that the visual fields had the character of binasal hemianopsia, but they are quite sure they should be regarded simply as an unusual form of bilateral contraction. (Fig. 8.)

Bilateral Temporal Field Defects in Locomotor Ataxia.—As Gowers has pointed out, symptoms of a local lesion in the chiasm may occur in rare instances of tabetic atrophy. In one case which he has recorded the characteristic visual defect appeared suddenly. Popow[25] has examined in cases of ataxia the chiasm and found foci of degeneration. But the visual field changes in tabes dorsalis may simulate chiasm disease, when, in all probability, the chiasm itself is unaffected. It is probable that tabetic atrophy of the optic nerve may depend in part on disease and disappearance of the retinal ganglion cells. Should such disappearance occur on suitably situated symmetrical areas, symmetrical temporal field defects might follow. (Fig. 9.) It will be observed in a case which one of us (de Schweinitz) has observed, that although there is a form of bitemporal hemianopsia, the dividing line is irregularly placed and this in all probability would be a notably distinguishing, although not pathognomonic difference between ataxic and the chiasm-disease visual field.

Bilateral Temporal Field Defects in Brain Tumors Unconnected with the Chiasm.—As well recognized causes of bitemporal hemianopsia are basal tumors, and especially tumors of the pituitary body. But it should be remembered that a growth at a distance from the chiasm may occasion similar signs. As Swanzy, Gowers and others point out, a tumor of the cerebellum by closure of the aqueduct of Sylvius may produce internal hydrocephalus and thus exert pressure on the chiasm. So far as we are aware, bitemporal hemianopsia has never been observed as has cortical hemianopsia as a distant symptom. It is possible, however, that destruction of areas of retinal ganglion cells in cases of the choked discs of non-basilar cerebral tumor might give rise to bitemporal binasal visual field defects, but in such a case there would of necessity be marked irregularity in the line dividing the visual fields.

A brief reference to the lesions of the chiasm in multiple sclerosis has been made.

SYMPTOMS OF CHIASM DISEASE CAUSED BY CERTAIN TOXIC AGENTS.

We have already referred to central amblyopia and central scotoma as a sign of chiasm disease, and how such a scotoma may be difficult to distinguish from that produced by toxic amblyopia. One of us (de Schweinitz[26]) has published the results of microscopic examination of the optic nerves, chiasm and tracts from a typical case of so-called tobacco amblyopia with characteristic and intact visual fields. Degenerated patches are evident, occupying symmetrical positions in about the situation of the non-crossing macular fibers and leaving the remainder of the chiasmal structure intact.

Necessarily, they give no evidence of their existence except in the central scotomas. According to Westphal and Elschnig, optic neuritis with bitemporal hemianopsia has been observed as an ocular symptom of lead poisoning.

Homonymous lateral hemianopsia has been occasioned by illuminating gas toxemia, as reported by Purtscher and H. Friedenwald, but not the bitemporal variety of this form of the affection. Raffegean observed in a case of carbonic acid poisoning inferior hemianopsia dependent on a certain degree of interstitial neuritis of the optic nerves.

CONCLUDING REMARKS.

In the presence of typical bilateral hemianopsia, which, as we have before remarked, quoting the words of Griffith, may be regarded as the localizing form of hemianopsia, it is practically impossible to make a mistake, and the lesion must necessarily be, as already stated, one which destroys the conductivity of the crossed fasciculi, leaving the non-crossed fasciculi intact. When one comes to consider, however, the numerous irregularities in the visual field which may be present in chiasm disease, its existence can not always with safety be inferred from them without elaborately repeated examinations.

As Wilbrand has remarked, the chiasm with both tracts and the other intracranial portions of both optic nerves may be surrounded by diseased processes, particularly of a gummatous nature, and irregular defects of the field of vision result, from which a correct diagnosis would be difficult. Much depends on the method of examination and the degree of the destruction of the light sense. A careless examination might fail to develop a temporal field defect which a more careful one, conducted under diminished illumination, or using gray squares placed on white cardboard, would develop. On the other hand, an examination with a very bright light, for example, such as one uses in an electric perimeter, might reveal an intact visual field on the temporal side, good light sense being preserved, while it would be absent for form or colors.

Finally, the fact that a scotoma may be the beginning of a visual-field defect which will eventuate in a bitemporal hemianopsia and be significant of chiasm disease, should not be forgotten, and, moreover, a scotoma which to careless examination would seem to indicate simply papillo-macular bundle involvement and not involvement of the intermingling of the papillo-macular fibers in the chiasm.

The evident conclusion of the whole matter is that, in a large number of cases of optic nerve atrophy, the most elaborate examinations should be made by all known tests, under all degrees of illumination, and with all types of saturated colored squares, in order to eliminate or prove the presence of chiasm disease. We strongly suspect that there are a fair number of optic nerve atrophies on record, and, naturally, a much larger number in examination, which, if these precautions had been observed, would have yielded a larger percentage of chiasm disease than now seems indicated by the reports.

DISCUSSION.

DR. CASEY A. WOOD, Chicago, stated that for a number of years he has suspected that those curious cases of aversion to

22. Munch. med. Wochenschr., Nr. 13, 1903, p. 58.
23. Jour. of Nervous and Mental Disease, vol. xiii, 1886, p. 85.
24. Brain, 1897, p. 308.
25. Jahresbericht f. Ophth., vol. xxiv, 1893, p. 512.
26. Trans. of the am. Ophth. Soc., vol viii.

binocular single vision are due to certain congenital defects of development; in other words, to lack of proper crossing of the optic fibers as they run forward from the visual centers. So far as he knows no proof of such an anatomic anomaly has been advanced to explain this failure to obtain binocular single vision. The fact that in certain cases of squint (usually alternating) two eyes with equally good vision, though straightened and treated by every known means, should still object to a completion of the act of binocular single sight is remarkable. It is exasperating that after early operation and training under apparently the most favorable conditions binocular single vision is unobtainable. Dr. Wood has not been able to accept the theory of lack of development of the fusion centers; he believes that we shall find the explanation in lack of proper crossing of the fibers at the chiasm.

DR. JOHN T. CARPENTER, Philadelphia, said that perhaps Dr. Wood's suggestion could best be carried out in a general hospital, where such cases might be followed and autopsies properly made. He thought that the rarity of these cases is shown by the fact that in fourteen years he has not had a case of chiasm disease in his private practice.

DR. CLARENCE A. VEASEY, Philadelphia, exhibited a skiagraph of a recent case of chiasm disease. The patient is a robust man, perfectly healthy all his life, except for this ocular disease. He has been able most of the time to follow his vocation, that of a traveling salesman. Two years ago this chiasm disease showed itself, beginning in the temporal field of each eye as a slight fogginess. Later the form field was lost, the light sense being retained. The dividing line has varied from time to time. At one time it would pass directly through the fixation point; at another examination it would pass from 2½ to 15 degrees to the right or left of the fixation point; then again through the fixation point. There were no intraocular changes. This variability of the field can only be explained by a lesion, probably vascular, which produces change in the pressure between the examinations.

DR. J. L. BORSCH, Philadelphia, said that it is advisable, even when there is atrophy of the nerve, when destruction of nerve fiber has taken place and the chiasm is separated into an anterior and posterior portion, so to speak, to give a guarded prognosis, for a patient may present an atrophy of the optic nerve and one may be led to believe that permanent blindness has resulted, and still such a patient may recover his vision. Seven years ago Dr. Borsch saw a patient in the de Wecker clinic who had been brought in by a friend, which friend had wrested a revolver from him as he was about to take his life, as several oculists had told him that he was incurably blind; one of these gave him a certificate to that effect in order that he might enter the blind asylum. On examination it was found that he had complete atrophy of both nerves, with slight light perception on left side of field; on close questioning the fact was elicited that during the Franco-Prussian war he acquired lues, which had not been treated; he had had the ordinary diseases of childhood, but otherwise had never been ill, and in other respects was healthy. The man was placed on energetic specific treatment, and at the end of four months he had 1/6 vision, and in six months 2/3 vision. Dr. Borsch saw the patient last year while in Paris; he had normal vision in right eye and 2/3 in left.

DR. G. A. ASCHMAN, Wheeling, W. Va., mentioned a case seen six years ago of angiolithic sarcoma of the optic chiasm. The patient had a central scotoma which grew from week to week, but before that occurred it was thought to be a case of tobacco amblyopia, as he had been a heavy smoker. The interesting point was that this patient did not have any fundus changes for a long time. There were no signs of pressure; no choked disc. It was thought for a time that it might be a syphilitic trouble, but he did not improve at all on antisyphilitic treatment. It illustrates what has been said about confounding these cases with tobacco amblyopia.

DR. FLAVEL B. TIFFANY, Kansas City, Mo., said that he had a case a year ago of bitemporal hemianopsia in a man of 50 years of age, who came to him complaining of blindness on the temporal side of each eye. There was no history of syphilis, no trauma. Vision was 20/70 of the right eye and 20/200 of the left. The color sense was also impaired, especially for red. The treatment was pilocarpin ¼ grain twice a day, also vibratory massage once a day. The patient improved on this, his vision coming up to 20/40 and 20/70, respectively, in the two eyes. The etiology was very obscure. The trouble was probably due to a toxemia from grippe, which he had had two months before the onset of the hemianopsia. The lesion was evidently located in the chiasm involving the crossed fibers or those from the nasal side of each retinæ.

DR. C. R. HOLMES, Cincinnati, referred to a case in which the postmortem showed the exact condition afterward. A newspaper reporter came on account of inability to use his eyes. Careful examination revealed the fact that his glasses were correct, and with the ophthalmoscope no lesion was visible. He was ordered on a vacation, but returned worse than before. The condition was rather obscure. He, however, had a good deal of swelling in the nose and complained of inability to breathe. Dr. Holmes operated on one side, removing the hypertrophied tissue, and he was to come the following week for another operation. The day before the second operation was to have been performed Dr. Holmes was notified that he was not well enough to come, and the next day he learned that the patient was dead. He at once sent an assistant to try to secure a postmortem, which he succeeded in getting. It was found that there had been inflammation with necrosis of the sphenoid cavity, which had not been apparent at the examinations through the nose. When the brain was removed there was found a clot in the region of the sella turcica and extending over the chiasm. The bony roof had been entirely eroded, and a finger could be put into the sphenoid cavity.

DR. JOHN E. WEEKS, New York City, asked why we do not more frequently find choked disc in these cases. A compilation has recently been made by one of the physicians associated with the New York Eye and Ear Infirmary of 102 cases,[1] and in only one or two of these cases was choked disc observed. The theory advanced by one writer is that the disease of the chiasm closes the subarachnoid space where the optic nerves leave the chiasm, and that the entrance of the subarachnoid fluid into the subvaginal space of the optic nerve is thus prevented.

DR. G. E. DE SCHWEINITZ particularly called attention to the series of cases described in which there is simulation of chiasm disease by other affections, and particularly to the explanation which they have endeavored to give of so-called bitemporal hemianopsia of hysterical origin, which is never in their experience a permanent stigma of this condition, but which simply represents a form of the well-known amblyopia of hysteria.

THE MATHEMATICAL POINT OF REVERSAL IN SKIASCOPY.*

SWAN M. BURNETT, M.D., Ph.D.
WASHINGTON, D. C.

Of all the objective methods for determining the refractive state of the eye, the shadow test is not only the most reliable, but, up to a certain point, the easiest to apply practically. In view of these facts it seems unaccountable that concerning the laws underlying the method, there should be such a lack of clear and positive proof offered, even by those who are supposed to deal with the subject in an authoritatively scientific manner. The ordinary text-books for students and general practitioners, without exception, I believe, pass over the theoretical part very superficially, giving attention wholly to the signification of shadow movements "with" and "against," mentioning the "point of reversal" only

1. N. Y. Eye and Ear Infirmary Reports, 1904.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

casually, with a matter of course assumption that everybody knows where it is.

It is not my intention to charge these writers with ignorance of the laws on which the phenomena are based, but they certainly lay themselves open to criticism of lack of explicitness by any one seeking for a satisfactory scientific explanation of the fundamental principles involved. I am inclined to think that this lack of precision and definiteness in description may be due, in many cases, to the want of a clear idea of what it is that we really observe in making the examination by this method.

We are aware that Cuignet, who was the discoverer and first employer of the method in a systematic manner, had an entirely erroneous conception of the essential optical principles. He believed that the cornea was the chief agent in causing the phenomena, and since this was the thing to be observed he gave the name "keratoscopy" to his method.

It would seem also that some writers regard the image of the flame giving the illumination formed on the fundus of the observed eye as the object of direct observation, and have thus given some sort of justification for the use of that hybrid abomination "retinoscopy;" and I am sorry to see that Dr. Jackson makes one statement in his article on skiascopy in the Norris and Oliver's system which lends countenance to this. He[1] says: "The movement to be observed is the apparent movement of an area of light on the retina."

Any one reading the context, however, will discover that he does not mean that specifically at all, but something quite different, which only shows how nearly our best men sometimes come to making misleading statements in dealing with this subject.

Others, prominent among whom is Landolt, teach that the object of observation is the pupil, if we may accept the term "koroscopy" as indicative of his idea, though one is left in a confused state of mind as to whether he means the pupil of the observing or of the observed eye.

Now there can be no question that the subject of observation in this method is neither the cornea, the pupil nor the movement of an area of light over the retina. A study of the optices involved shows that it can be only one thing, and that is the image of the bright area on the fundus formed by the refracting system of the eye at the conjugate focus of the retina, or the far point of the observed eye. On this simple and fundamental mathematical fact hangs all the law and the prophets of the skiascopic method. In the higher degrees of myopia this lies between the eyes of the observer and the observed. In hyperopia, it lies behind the observed eye, while in emmetropia and low degrees of myopia it is behind the observer's eye, placed at the ordinary observing distance. The optical laws, explanatory of all the phenomena involved on this basis, I have exposed in a previous article[2] on this subject, and to this I refer those who care to examine into the details of the exposition.

In returning, at this time, to the "point of reversal," it is to attempt to clear away some obscurities that have surrounded its location and established its exact position in the quite complex optical system of which it forms a part.

In practice, it may suffice to say, in a general way, that the eye of the observer is at the point of reversal, but in any discussion of the question in an academic manner, as should be the case when we are dealing with an exact science like optics, it is necessary to establish that point with mathematical precision.

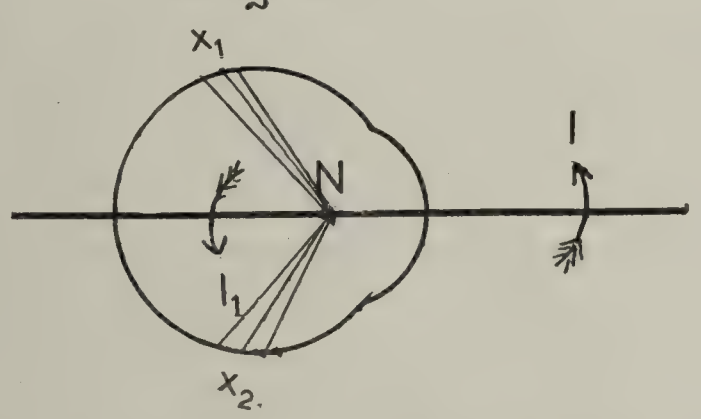
As in optics we deal entirely with points and lines, there must be a mathematical point in the compound optical system to which it belongs where the movement of this image in one direction passes over to that in another. Where is that point? The answer should be simple and clear.

Now we know in order to have a movement against the mirror rotation, an inverted image of the bright spot on the fundus of the observed eye must be formed in front of the nodal point of the observing eye, while in order that there be a movement with the mirror rotation, an exact image must be formed behind the nodal point of the observing eye; it necessarily follows, therefore, *that the point of reversal from the one to the other is the nodal point itself.*

This is shown in Fig. 1, where all movements of the image I, in front of the nodal point N, are against the mirror rotation, while all movements behind N, as at I^1, are with the mirror rotation. At N itself, which is the point of transition, or reversal from one movement to the other, there is no movement at all.

Furthermore, it must be apparent that when the image of the bright spot lies at N the rays X_1 and X_2

Fig. I.



preceding from any one point of it divergently in all directions, as they do from every illuminated object, are sufficient to fill the whole of the interior of the eye, since they are not acted on by any refracting medium. It follows, then, that so long as there is a single point of the image remaining at N, under a rotation of the mirror in any direction, so long will there be a steady and full illumination of the field with no defined edge, shadowy or otherwise.

The point of reversal at the nodal point, therefore, is characterized by no movement and a steady illumination under all mirror rotations. Moreover, these phenomena are possible only when the image of the bright spot lies exactly at the nodal point.

This is so inevitable that it seems strange that it has not found a categorical expression before this, but I have not been able to find it.

An explanation of the confusion and lack of clear expression on the subject may be found in one of several causes. The principal one, as I have mentioned previously, seems to me to be the want of a definite conception as to what is really to be observed and the position it occupies respecting the observing eye. Jackson, to whom we are so much indebted for his careful studies of the optics involved, fails to bring his usual clearness of demonstration to bear on this explanation, and the average student would not, I fear, find his ideas

1. Vol. ii, p. 91.
2. Am. Jour. of Ophth., May and June, 1903; and in the "Principles of Refraction," published by the Keystone, Philadelphia, Pa., 1904.

as to the exact point of reversal altogether free from confusion, for the reason that he leaves so much to be inferred.

The same must be said of the account given by Souter, who has written lucidly and comprehendingly on optical questions in general.

Neither is Tscherning any more satisfactory in what he offers either as to the principles of the method or the point of reversal in particular. Accepting the theories of Parent and Leroy, he attaches great importance to the rôle of the pupil, and fails to mention the nodal point at all in this connection.

He says, in speaking of the point of reversal on page 210 of his "Physiological Optics": "At the critical moment, when the light changes its direction, the far point of the eye coincides with the pupil of the observer." Landolt in his last treatise on the methods of determining the refraction of the eye, now in course of publication in the new edition of the Gräfe-Saemisch System, takes the positive stand that the point of reversal lies in the pupil of the observer's eye. He says on page 248: "Aside from those conditions in which the illumination of the pupil with the mirror, be it plane or concave, moves in the same direction and those in which it moves in the opposite direction, there is yet another in which no movement of the eye is perceived at all, because the pupil in its entirety appears either illuminated or dark. This occurs when the far point, that is, the conjugate focus of the retina of the observed eye falls in the pupil of the observer's eye."

We have shown above that the conditions of constant illumination and no movement to which he alludes has its mathematical explanation only in the coincidence of the image of the bright area on the fundus of the observed eye with the nodal point of the observer's eye. It is possible to conceive here that the pupil, as such, can play a necessary part in the production of either of these phenomena; yet Landolt, throughout the text of his treatise and by the illustrations and diagrams, insists that it is the pupillary edge of the iris which plays the principal rôle. In this he has evidently followed Wolff, the latest German authority on skiascopy, from whom he quotes largely.

That the diaphragm of the ophthalmoscopic mirror with its sight hole, can and does play a modifying part in the sequence of appearances, can not be gainsaid and in my article, above referred to, this has been given due attention and what is there said can be applied with equal pertinency to the iris and its pupillary opening. It was there demonstrated and shown by diagrams, how when the examination was made in the usual way, and the point of reversal was at the nodal point of the observing eye, the pupillary edge of the iris of the observed eye, had its conjugate focus and image on the retina of the observing eye. This, however, is a secondary incident and has no direct nor necessary connection with the main and essential feature of the position of the point of reversal. If there were no iris nor diaphragm of any kind, the mathematical principles being still the same, the point of reversal would yet lie at the nodal point.

The iris and its pupillary opening not being in any sense cardinal points in the complex optical system, it is difficult to understand how it came about that such high authorities came to select this location as the point of reversal, except as an approximate guess.

It is true that in the normal eye the nodal point is not far removed from the pupillary opening, but in aphakia, for example, it is some distance behind, being at the center of the corneal curvature. There seems no more reason then, from a strictly mathematical point of view, for selecting the pupil as the point of reversal than the apex of the cornea or any other point in the immediate vicinity.

It has to be conceded that in our crude method of examination we are not able to locate the point of reversal with the mathematical exactness here insisted on. There is always a limited space within which the movements are not clearly defined, so that the phenomenon does not offer an immediate passing over from one movement to the opposite.

This inaccuracy can usually be neglected as insignificant in low degrees of ametropia, and when the point of reversal is located at a considerable distance from the eye, that is, one meter or more. Moreover, it must be held in mind that for the perfect working out of the law it is necessary that all points of the image fall on the plane coincident with the nodal point. Should the image be not so formed, some points being in front of, and some behind the nodal point, there will be conflicting shadows within the illuminated area. These I have called "internal shadows."[1] They have their origin in irregularities in the refracting media and are usually most pronounced under a wide pupil, which exposes the irregular astigmia of the periphery of the refracting media, particularly that of the cornea. In some cases these are sufficient to materially vitiate the findings. For the most accurate results this method demands media clear of any irregularity in refraction within the area of the pupillary opening.

DISCUSSION.

Dr. Edward Jackson, Denver, stated that any one who has followed the demonstration can see that it is the nodal point of the eye and not the pupil at which reversal takes place. In the sense in which Dr. Burnett speaks, of course, one does not look at the light area on the retina of the observed eye, but at the image of that retina which is formed at the conjugate focus of the retina on which the light area is situated; in the same sense, with a pair of opera glasses or field glasses one does not look at the actor or at the landscape, but at an image formed by the glass. One looks at the object through the intervention of the image. A paper of this sort can perhaps be better appreciated when read than when listened to, but it is of great practical importance to frequently follow these mathematical problems through a clear demonstration in this way. Not that it is the best way to learn the facts, perhaps, but that it is a good way to get a working conception of the facts. These facts can be learned from a book, but to follow them through a demonstration of this kind gives a working knowledge that is of great value, particularly regarding the shadow test. Nothing else in ophthalmology has been done so much by rule of thumb.

Dr. Mark D. Stevenson, Akron, Ohio, said that the mathematical point of reversal is never found in actual practice, and can only be imagined in theory in an ideal or standard eye. The light reflected from the fundus of the patient's eye passes out and forms an area of light at the examiner's face. If this area is much larger than the examiner's pupil only a certain amount of the light enters his pupil and the portion of the patient's pupil through which these rays pass, alone, appears illuminated. The remainder of the patient's pupil appears slightly darker. If all the rays of light reflected from the patient's fundus would focus at or pass into the observer's pupil, he would receive rays of light through every part of the patient's pupil which would appear completely illuminated. This will place him at the practical point of reversal. If the examiner could dilate his pupil *ad libitum*, so as to make

1. Trans. Amer. Oph. Soc., 1892.

it correspond to the area of light on his face, the patient's pupil would always appear fully illuminated. It is thus seen that if the observer's pupil receives all the rays of light, the observer is at the practical point of reversal. However, in this ideal condition under consideration, we must imagine a perfect anterior focal point or point of reversal coinciding with a pin-point pupil. The secondary rays of light will necessarily cross one another at this perfect focus, through this pin-point-sized pupil, thus making the nodal points coincide to the location of the pupil and point of reversal. Mathematically they do coincide, although in practice the pupil is the determining factor.

DR. SWAN M. BURNETT declared that it must be apparent that there can be only one mathematical point of reversal and that it is the nodal point of the examiner's eye.

SYPHILOMA OF THE CILIARY BODY.*

HERMAN KNAPP,
NEW YORK CITY.

My interest in cases reported by Dr. Charles J. Kipp,[1] Newark, N. J., and Dr. Edward Stieren,[2] Pittsburg, Pa., and in a recent case of my own, leads me to give a general description of this peculiar and uncommon condition.[3]

Dr. Kipp's first case was seen May 14, 1903. The right eye was normal, V. = 6/5. The left eye was greatly inflamed; conjunctiva intensely congested and slightly swollen; lids normal. Anterior chamber of normal dimensions, the temporal half filled with fibrinoid exudation. The nasal half of the iris visible, swollen and discolored. Pupil closed. No pain. The eye had been red and painful five days before Dr. Kipp saw the patient. Patient denied syphilis.

Diagnosis.—Irido-cyclitis plastica.

Treatment.—Warm fomentations, atropin instillations, sodium salicylate, leeches.

Five days later there was some bulging of the sclera along the upper and outer border of the cornea. This bulging increased, and two days later a dark-colored spot the size of a pinhead was noticed in the outer part of the horizontal meridian. Eye T + 1, intensely painful. Another black spot, smaller than the first, was noticed near the former; both grew larger. The bulging of the sclera increased, and some blood added itself to the yellowish mass in the anterior chamber. Dr. Kipp, believing that he had to deal with an intraocular growth, enucleated the eye. The wound healed in a few days. Shortly afterward Dr. Kipp learned that his patient had been treated energetically for syphilis.

Pathology.—Examination by Dr. Alt showed a mass of soft tissue, which had broken from inside through the sclerotic near the cornea, on the upper and outer side. The tissue was in direct communication with the enormously swollen ciliary body. The tumor started in the pars nonplicata, proliferated in the pars plicata and absorbed the iris. The optic nerve was atrophic. The tumor consisted altogether of small, round, polymorphonuclear cells, mostly mononuclear.

After-Treatment.—After the operation the patient received mercurial treatment and had good health.

Dr. Kipp's second case, a man aged 44, was brought by his physician. He was under treatment for syphilis. The left eye was normal, the right deeply injected, but not chemotic. Cornea hazy, Descemet's membrane dotted with whitish particles, the iris discolored and swollen, pupil contracted, secluded. Good perception of light. Mercurial treatment to be continued. He reported twice more, at intervals of a month. The eye went from bad to worse—hypopyon, iris covered with a thick, yellowish exudation, intense congestion of the entire globe with chemosis, cornea hazy, anterior chamber obliterated, pupil closed, faint perception of light, T + 2. In the sclera, a few millimeters from the outer margin of the cornea, several small black nodules projected 1 mm. above the sclera. Dr. Kipp yielded to the entreaties of the patient and enucleated the globe.

Examination of Tumor.—The tumor occupied the site of the ciliary body. The iris was drawn into the channel of the perforation. The ciliary body opposite the tumor was atrophied, but covered by tumor tissue, implicating the iris and filling the whole anterior chamber. The tumor broke not only outward, but also through the pigment epithelial layers of the pars plicata into the eyeball. It consisted of closely packed small mononuclear and polynuclear cells, and was in places quite vascular.

The patient recovered his health under prolonged treatment.

My own case is as follows:

A frail, unmarried woman of 32, consulted me Nov. 16, 1903. She is pale and has not been well for some time. Five days previous to her coming she found that her left eye was blurred. S. 20/70. In the center of the posterior surface of the cornea was a cluster of fine dots. Fundus blurred, but free from inflammatory foci. F. and T. normal. I made the diagnosis uveitis serosa, ordered rest in bed, atropin and salicylate of soda.

November 21. V.=20/40—. As the salicylate disagreed with her, I ordered calomel, refracta dosi. November 27. V. fallen to 5/200. Then she told me that she had syphilis and had been under treatment for it. I advised her to go to the hospital. She accepted at once and stayed there[4] seven and one-half weeks, where I saw her every day.

Treatment.—She was kept in bed as much as she could stand and was treated with mercurials, chiefly inunctions, and instillations of atropin and sublamin to keep the conjunctiva free from irritation. She developed an intense iridocyclitis. The ciliary region in the upper temporal part began to swell, at first in shape of a white, vascular nodule, which soon burst and showed the black uveal pigment. The swelling extended along the upper and outer neighborhood of the corneal margin. Its elevation was 3 to 4 mm., its length 6 to 8 mm. The cornea was hazy, the iris vascular and lack-luster, the pupil was about 3 mm. in diameter, its edge beset with filiform synechiæ. Tension increased, therefore instillation of 1 per cent. eserin, which soon reduced the hypertension. Yet it returned again when atropin was used, which was continued to reduce the iritis and prevent the closure of the pupil. Codein was given with the atropin. For a week her sight was more than perception of light, which as well as the projection, was always good. This kept me from proposing enucleation to her, though I asked myself whether that would not be the best treatment. Considering, however, that recovery of useful sight can never absolutely be denied, as long as perception of light or projection are preserved, I continued the treatment, and was gratified in seeing that gradually the symptoms abated. She never had great pain, for whenever it set in with plus tension, we gave her a myotic and morphin. As soon as tension was reduced we used homatropin or atropin, watching the effect.

December 12, about six weeks after her admission to the hospital, she counted fingers at 1 to 2 feet. The hypertension not infrequently alternated with hypotony, so that we could give atropin without hesitation. She was discharged Jan. 24, 1904. Pupil irregular, clearer; T. fundus dull; F. contracted temporally; V. fingers at 12 feet. The conjunctival congestion had almost disappeared, the perforation in the sclerotic was circumscribed, the elevation of the sclerotic diminished. She received strychnia tablets, gr. 1/50 for a week, then she was treated with potassium iodid and mercury mixed.

Result.—Her recovery progressed steadily. Atropin produced no glaucomatous attacks any more. The cornea and iris cleared themselves, the anterior chamber remained shallow for

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. American Jour. Ophthal., vol. xxi, pp. 3-11. Two cases of syphiloma of the ciliary body; clinical histories, Dr. C. J. Kipp; microscopic examination. Dr. Adolf Alt.

2. Gumma of the Ciliary Body, Penn. Med. Jour., Nov., 1901.

3. I acknowledge suggestions from the excellent monograph of Prof. T. v. Ervetzky, Ueber das Syphilom des Ciliarkörpess, Berlin, 1904.

4. N. Y. Ophthalmic and Aural Institute.

weeks, the pupil dilated, the filiform synechiæ did not entirely disappear. March 29, with + T. 21/50, fundus still hazy. April 5, no inflammation, interior normal, pupil somewhat oblong. April 23, 1904, interior clear, some synechiæ; V. with — 1C. 90° 20/20.*

Thus the patient and the physician could mutually congratulate themselves on the reward of their perseverance.

Dr. Edward Stieren's case of gumma of the ciliary body was as follows:

A woman of 21, family history negative, was married at 16 years of age, gave birth to a living healthy child ten months after marriage. Six months later, November, 1899, symptoms of secondary and tertiary syphilis appeared (sore throat and abscess of tongue; a month later small brown blotches over the whole body, etc.). She nursed her child, contrary to advice, and infected it, but the child was soon cured by mixed treatment. The mother, receiving the same treatment, in appropriately larger doses, until March, 1900, when, against advice, she ceased medication. Dec. 24, 1900, she reappeared with a deep, spreading ulcer of the right side of the nose, involving the cartilaginous septum and the upper lip. She was put on large, rapidly increasing doses of potassium iodid, and in a week returned with the ocular involvement. The eye was extremely intolerant of light, with intense ciliary injection, muddy iris, cloudy aqueous, large leucocytic hypopyon, and a small inactive pupil.

Treatment.—Hot fomentations, instillation of atropin, large doses of potassium iodid, with ⅛ gr. of calomel every two hours, every day until Jan. 4, 1901, i. e., twelve days, when salivation called for the withdrawal of the mercury. On this date the eye presented the following condition: Hypopyon absorbed, pupil fully dilated, photophobia, ciliary injection and tenderness on pressure marked. Two days later a purplish diameter, gradually spreading in every direction, very painful to the touch. The pupil contracted opposite the swelling, giving it a kidney shape. Acute and constant pain, ciliary injection reaching its height, sight reduced to perception of light. Cornea very hazy in twenty-four hours, almost no fundus reflex.

January 10. Swelling increased, with oblique light; it was dimly seen to extend into the vitreous, pushing lens and iris forward. T. + slight. One hundred grains of potassium iodid were taken three times daily.

January 12. Patient more comfortable; photophobia and tumor unchanged; 160 grains of potassium iodid t. i. d., well tolerated.

January 16. Anterior chamber obliterated, showing reflex from vitreous chamber T. — 2; 180 grains potassium iodid t. i. d.

January 19. Total paralysis of rectus externus; 200 grains potassium iodid t. i. d.

January 29. Eye improved; pupil well dilated except at gumma; no synechiæ; the scleral aspect of the tumor slate-colored; fundus reflex bright, but no details of background; gumma notably smaller inside and out. V. 3/200; T. — 1; left external rectus regaining strength. From this date on steady improvement, reducing potassium iodid to 160 grains t. i. d.

April 6. The large doses of potassium iodid were no longer tolerated; now gr. x were given three times daily. Gumma had entirely disappeared, pigmentation in sclerotic marks its site. V. = 6/40.

May 1. Background clear, showing the remains of a neuroretinitis.

July 19, 1901. Perfect movement in all directions; a slight accommodative squint relieved by a cycloplegic. The round pupil slightly up and nasal. V. with correction, R. 6/8, L. 6/6.

Dr. Stieren draws the following conclusions: Syphilitic gummata of the ciliary body or of any other structure of the eye need not call for a hopeless prognosis, even though vision be reduced to perception of light and eyeball tension materially reduced. The resolution of gummous neoplasms is best brought about by large and rapidly increasing doses of the iodids; no limit in dosage need be thought of; the drug must be pushed until the symptoms yield, the gummy tumor melts away, exudates absorb, and inflammation subsides.

I indorse these views, except that in primary syphilis mercury would be my choice. As proof I cite my case in which the disease was identical with that of Dr. Stieren's in the pathologic conditions of the eye and in which the mercurial treatment brought about a perfect recovery.

*Note on correcting the proof, Dec. 5, 1904: The patient reported from time to time, continued to take small doses of KI, has had no relapse, and has perfectly recovered. The perforation of the sclerotic is still indicated by a small black patch. No changes in eye. Tn, Fn, V 20/20, H. K.

GENERAL NOTES OF THE SYPHILOMA OF THE CILIARY BODY.

Occurrence.—The beginning of this affection is difficult to determine, on account of the locality which we can not see. It seems usually to originate in the plicate part of the ciliary body as a nodule which, under inflammatory symptoms, grows in every direction, mostly into and through the sclerotic, into the anterior chamber, and into the vitreous at the relative frequence of 16:17:1, according to Ewetzky's statistics of 67 cases. Mostly it encroaches on two or even three parts. Usually only a single tumor develops, rarely (13 per cent.) two. More than two in one eye have not been noticed.

Appearance.—In the sclera it first appears as a small nodule, which may increase to the size of a bean. In its growth it is surrounded by a ring-shaped elevation, steep toward the cornea, but gradual toward the sclerotic. It is yellowish gray, and black when it has perforated the sclerotic.

In the extreme cases phthisis bulbi is the end. All intermediate grades up to perfect restoration are represented.

The duration of the disease varies from two or three weeks to nine or twelve months.

CONCLUSIONS.

The first appearance of the syphiloma frequently is a small nodule in the iris-angle of the anterior chamber, from whence it takes its way outward through the sclerotic or into the anterior and vitreous chambers, with exudations in the former as hypopyon spurium.

Only 9 per cent of Ewetzky's series had been free from iritis. The pupil is mostly changed by posterior synechiæ of the iris and membranous exudations, preventing more or less the examination of the posterior parts of the eye. These are frequently more or less seriously affected; for instance with congestion of the retina, retinitis in white patches, and postneuritic atrophy of the optic disc.

The shape and mobility of the globe are damaged in many ways and degrees.

As to sex, there were 47 men against 215 women; 52 per cent. were between 20 and 30 years old; 28 per cent. ended in phthisis bulbi. In 30 per cent. the enucleation was made.

The acuteness of sight in Ewetzky's count was in 66 eyes:

Blindness		63.6 per cent.
Weak sight	S=0.1	13.6 per cent.
Moderate sight	S=0.1 / S=0.3	12.6 per cent.
Good sight	S=0.7 / S=1.0	10.6 per cent.

Dr. Stieren's and my cases fortunately increase the good results.

DISCUSSION.

DR. SWAN M. BURNETT, Washington, D. C., said that syphilis of the eye is not usually a particularly malignant affection in the negro, but when the ciliary body becomes involved he has never yet been able to stay the process sufficiently to restore vision to any serviceable degree. Some years ago he reported in *Knapp's Archives* some cases of this sort with a drawing made from a section of the ball. A peculiarity of the structure, as these revealed, is its close pathologic resemblance to tubercle. The giant cells are pronounced in their formation and structure. Another point in which it resembles tubercle is that it destroys the tissue in which it is embedded. Last winter Dr. Burnett had a case under observation which under vigorous treatment finally disappeared, but the whole of the ciliary body and iris were transformed into cicatricial tissue, and he is sure that it will soon be added to the collection of eyes lost by syphiloma of the ciliary body. One of the most marked symptoms is the intense pain which it causes. It is essentially a secondary manifestation. Dr. Burnett has a man under observation now presenting a perfectly typical appearance who is in the secondary stage of the disease. The protuberance from the ciliary region is 5 mm. It is the second case he has seen this year. The treatment should be as vigorous as possible. Formerly he gave deep muscular injections of bichlorid. This is painful and it is difficult to get the patient to submit. Where he can not do this he uses the inunction treatment. He does not have to enucleate all these eyes, but he has a larger collection of them than he takes pride in. Dr. Burnett said he would like to hear from his confrères in the regions where the negro abounds regarding the frequency of this disease and its malignancy.

DR. CHARLES J. KIPP, Newark, N. J., said that he has not seen a case in which it did not become necessary to enucleate in the end. Cases in which there is apparently syphiloma of the ciliary body can not be diagnosed with certainty unless the tumor perforates the sclera. Dr. Kipp agreed with Dr. Knapp that mercury is preferable to the iodid. A patient came to him after the tumor had appeared on the outside of the sclera and was rapidly spreading. The man denied syphilis, and it was thought to be some form of intraocular tumor. There was a grayish-yellow exudate in the anterior chamber, covering the iris. It was only after the tumor began to spread that it was found to be a malignant tumor. The man returned two months after enucleation of the eye and said that he was getting blind in the other eye. There was a mild ciliary injection and some spots on Descemet's membrane. He was at once put on inunctions of mercury, and in eight weeks this eye was all right. A similar process was undoubtedly starting in the other eye. Dr. Kipp now relies entirely on mercury in these cases.

DR. E. E. HOLT, Portland, Me., stated that, during the Spanish-American war, there were a good many of the soldiers in the Maine Eye and Ear Infirmary, and in one there was a marked case of this kind, the left eye being the one involved. The inflammatory process came through the ciliary region and burst. Dr. Holt did not remove the eye, and the right eye was not involved at this time. The inflammation subsided. Within a week or ten days, however, the right eye presented a tumor in the ciliary region which went on and burst, and that eye was lost. Dr. Holt asked Dr. Knapp if removal of the first eye would have prevented the occurrence of the inflammation in the other.

DR. SAMUEL L. LEDBETTER, Birmingham, Ala., said that nearly all negroes have syphilis and they are generally neglected, so that this is a common sequence in that race. They generally do not appear for treatment until the sclera has ruptured and so, of course, a large percentage of the eyes are lost. A certain number can be saved when they come for treatment early enough.

DR. ROBERT L. RANDOLPH, Baltimore, said that he had recently observed a case which, in its objective signs, was like that described by Dr. Burnett. The patient was a white man and had been under the care of an ophthalmologist who had expressed the opinion that the condition was sarcoma of the iris and that the eye would have to be enucleated at once. There were, however, several things about the condition which led Dr. Randolph to think it was a case of luetic infection, and he put him on large doses of iodid of potash and also gave mercurial inunctions. In six weeks the man had recovered. While it is unlikely that the eye will ever become a useful organ, it is at least a comely and a harmless one.

DR. HERMAN KNAPP said that in syphilis the nodule which first appears soon disappears and the part above swells and almost invariably bursts and there is a black excrescence, which is pigment from the ciliary body. That is not characteristic in sarcoma, where the nodule is more or less oblong and tongue-like and in which there are very few inflammatory symptoms. This, Dr. Knapp thinks, is sufficient to make the differential diagnosis between this condition and sarcoma of the iris or ciliary body. Dr. Knapp, in replying to a question, said that he does not believe that sympathetic action in the other eye ever acts in that way, so that the removal of the eye would probably make no difference.

TEMPORAL CLEFT OF THE NERVE HEAD.*

CHARLES H. BEARD.
CHICAGO.

Having used the ophthalmoscope rather industriously in large eye clinics and in private practice for the past twenty-one years, I have been strongly impressed by the oft-repeated occurrence of a certain aberrant picture of the optic nerve entrance. Roughly estimated, the total number of well-marked examples of such anomalous optic papillæ that I have encountered is about sixty—seen in the eyes of perhaps forty individuals—or about one in every 1,000 persons.

This I consider an extremely conservative estimate, as I believe the number to be greater.

The most distinctive feature of the appearance in question is an apparent wide parting in the optic nerve fibers at the temporal side, or a sort of triangular cleft, outward, of the cortical portion of the nerve head. Briefly described, the condition and accompanying phenomena manifest the following peculiarities: The gray pink color of the disc is confined to a crescent at the nasal side which, with its horns, occupies about two-thirds of the circumference of the scleral ring. This crescent, at its broadest part, would seem to be somewhat wider than the normal zone of nerve fibers. The scleral and choroidal rings, as far as they outline the crescent, are of nearly normal width and appearance—probably a trifle narrow. Outward, the scleral ring is broad and slanting and, in most instances, the choroidal ring becomes a small external conus. Indeed, the cleft would seem to be nearly related to external conus, and does not occur with conus up and down or annular. I have seen a few such clefts where no conus existed. The whole disc is slightly foreshortened, owing to the obliquity at which the nerve pierces the sclera and the trunks of the retinal vessels appear suddenly from behind the horns of the gray-pink crescent. The triangular segment of the disc bounded by the horns, and the external scleral ring is on a lower level and is glistening white, excepting next to the scleral ring, where a blue-green shadow marks the brink of the depression. The depth of the depression is not great—hardly so great as that of an ordinary physiologic excavation—and is seldom crossed by any save the tiniest of the retinal blood vessels. Now and then a vessel from the

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

posterior ciliary system, or circle of Zinn, is seen to traverse this area—a truly unique sight in ophthalmology. All of which goes to prove that there are few nerve fibers between the observer and the sclera in this locality.

There are never any openings of the lamina cribrosa visible in this area, not even in its nasal extremity or apex. The diameter of the scleral ring is not excessive—on the contrary, in a few instances, the papilla is abnormally small—it and the adjoining conus both taken together not appearing larger than an average disc. From the beginning, the picture here presented has suggested to me that of a flower of the morning-glory family, projecting into the fundus, from the nasal side viewed in a horizontal manner, and with its stem hidden behind the globe. So I have come to note it in my records as "morning-glory right," or "left," or "both," as the case may be. In at least one-half the cases the anomaly is bilateral. Twice I have seen it in the eyes of more than one child of the same parents.

Anomalies of the retina (*a*); of the choroid (*b*); of the refraction (*c*) are constantly associated with this cleft optic nerve.

(A) ANOMALIES OF THE RETINA.

Those referable to the retina include freakishness in the distribution and other characteristics of the vessels. Often a posterior ciliary artery comes in and plays the rôle of a good-sized retinal one. Frequently, one of the eight larger vessel trunks is wanting, and the lack is made good by one from the opposite side, taking on twice its usual size and sending over a branch to supply the need. To judge from the shape and dimensions of the carefully mapped out blind spot in these cases, there is also an unnatural arrangement and distribution of the macular bundles of nerve fibers in the retina. This spot is almost invariably elongated toward the center of vision and that, to a degree and with a configuration out of all keeping with the size and form of any conus that may be present. Without the data of an exact anatomic examination of such a retina, to guide in the matter, a logical explanation of this peculiarity of the blind spot would seem to lie in the wide separation of the macular fibers. In other words, to the actual absence of the triangular sector of macular fibers at the optic-nerve entrance, and which corresponds approximately, in shape and size, to the cleft under discussion.

ANOMALIES OF THE CHOROID.

Among the anomalies of the choroid that exist in this connection, the most conspicuous and constant is the appearance of general lack of development. This tunic is thin and barren, being specially poor in capillaries and pigment. Hence, the eyeground is streaked and splotchy, and the irregular distribution of the pigment gives it the characteristic peppered look commonly spoken of as "powder-grain fundus." In rare instances one sees a plaque at the posterior pole, mostly congenital, wherein the choroid is either completely wanting or has undergone pigment degeneration; so-called choroidal coloboma of the macula. Small densely pigmented spots in the periphery are not infrequent. Occasionally there exists that condition of the choroid known as *fundus tigré*.

ANOMALIES OF REFRACTION.

The refraction of the eyes under consideration, while not exhibiting great departures from the normal, is rarely emmetropic, even in the usual acceptation of the term. Low grades of myopia and myopic astigmatism are the prevailing errors, though moderate degrees of hyperopia and hyperopic astigmatism are not uncommon among them. I have never seen this cleft associated with a high refractive error. Where the nerve defect is monolateral there is apt to be anisometropia or antimetropia. Temporal cleft of the nerve head with external clonus is not to be confounded with the obliquely set disc associated with posterior staphyloma, absorption of the choroid and high myopia. I do not remember ever to have seen the cleft in conjunction with these. In uncomplicated cases the defect or anomaly does not extend beyond the nerve head itself. The visual acuity, notwithstanding the best correcting lenses, is often below the standard, owing to the scant choroid. The fields of vision show varying degrees of diminished peripheral light sense, up to troublesome hemeralopia, but no other marked anomalies aside from those relative to the *punctum cæcum* already mentioned.

One of my cases was that of a 33-year-old man who came with the statement that since earliest childhood he had been unable to see at night, and that he had two brothers who had the same affliction. I rather expected to find the ophthalmic picture of retinitis pigmentosa. It proved to be a typical, double temporal cleft of the nerve head with the tiger fundus.

Another singular feature, that characterizes nearly every case, is torsion of all the fundus details toward the temple. Disc, conus, retinal vessels, fovea and macular coloboma of the choroid (when one exists) all show this temporal twist. This may have some reference to the fetal rotation of the globe, first noted by Kolliker,[1] and later by Vassius[2] and by Vasseaux.[3] This, of course, causes the macula and fovea to be placed abnormally low.

Cases complicated by great defects of the choroid are apt to have nystagmus and strabismus, particularly of the divergent variety. I have not seen any, however, that were accompanied by microphthalmos, harelip, cleft palate, nor other evidence of an imperfectly closed fetal fissure.

No inconsiderable amount has been written on the coloboma of the optic nerve and of the optic-nerve entrance. They mostly refer to incomplete closure of the ocular fissure, and are in conjunction with the downward coloboma of the choroid. The rest has to do, mainly, with various ectasias of the scleral portion of the nervehead, taking the forms of deep cavities or pits, single or multiple, within the area of the papilla, and situated at indiscriminate places. Another class, also quite prevalent in text-books and atlases, refers to a broad and deep excavation at the site of the optic-nerve entrance, whose dimensions, always considerably greater than that of the former disc, are often many times larger. The cases here in point are not those of true coloboma of the optic nerve, but their occurrence would seem to answer more to the explanation given by Ginsberg, of anomalous optic entrances which he had studied, both in the eyes of man and the lower animals, viz., a defect of the lamina cribrosa. A blocking up of the openings of the lamina cribrosa at the temporal side, or perhaps in some cases, an external, triangular area in this locality, where the sclera is actually imperforate. This would account for the crescen-

1. Embryologie de l'homme, p. 650.
2. Arch. f. Ophth., vol. xxix, p. 119.
3. Arch. d'Opht., vol. viii, p. 523.

tic arrangement of the optic nerve fibers, for the absence of any visible scleral perforations serving for the ingress of the nerve fiber bundles, and, in part, for the characteristic findings of the blind spot.

The nearest approaches to the description of the particular cleft of the nerve head treated of herein that I have found in the literature, are those of de Wecker, Stood, Nuël and Elschnig, though none of them conforms precisely to it. The nearest approximation as regards the papilla alone is the case of Nuël, but here there existed also high myopia and a plaque of bared sclera, outward, several times the size of the normal disc. Taking it all in all, Elschnig's case, which he examined anatomically as well as ophthalmoscopically, tallies most closely, though the ophthalmoscopic findings were considerably at variance with the cases here cited. Stood's second case is, to a degree, along this line, but here the temporal cleft was incomplete, as regarded the optic-nerve fibers, and a deep pit of ectasia occupied its floor and into which two retinal vessels dipped and disappeared, to emerge again on the other side.

Fuchs refers to a singular anomaly of the papilla, consisting in the presence of a small, temporal conus, and a white membrane covering the vessels over the greater part of the disc. He had seen three cases and cites another of Hirschberg.

I take it that the conditions presented by the fundi now brought to your notice have an important pathologic significance. This relates mainly to the accompanying imperfections of the choroid, as exemplified in its limited capillary system, its irregular pigmentation, diminution of the peripheral light sense, and general lack of blood supply. Its early recognition might redound to the great benefit of the possessor of such a fundus, for by one might hope for the possible prevention or amelioration of diseases arising through slow sclerosis of the choroidal vessels and other degenerative changes in the choroid, such as glaucoma simplex, true inflammatory glaucoma with high intraocular tension, and grave secondary degeneration of the retina. This would be accompanied, of course, by proper attention to the general physical condition, to the correction of errors of refraction, and, most important of all, to the regulation of the eye work in general.

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DISCUSSION.

DR. G. E. DE SCHWEINITZ, Philadelphia, said that when one examines the fundus of the eye with the aid of Dr. Beard's intelligent observations, one becomes familiar with appearances which, while they may have been seen before, were never properly appreciated or interpreted. Dr. de Schweinitz considers that the temporal cleft of the nervehead, which Dr. Beard has called the "morning glory," should be called "Beard's nervehead." In some recent investigations Dr. de Schweinitz has been struck with the frequency of various anomalies, in the nervehead, of the retinal circulation and of the fundus of the eye generally in the so-called degenerate types. This has recently been the subject of an important series of observations in France, and the conclusion has been reached that there is nothing in the eye itself, so far as functional examination reveals, indicative of the degenerate type. Dr. de Schweinitz does not believe, however, that the end of this matter is yet at hand and thinks that the subject demands more elaborate investigation. If Dr. Beard's investigations are correct, we should all endeavor to recognize the conditions which he has described, because they may give indications for treatment which will prevent later ocular calamities.

DR. EDWARD J. BROWN, Minneapolis, said that during the past year and a half he has carefully examined all refraction cases with reference to the ophthalmoscopic appearance of the disc. Of the first 160 cases 39 presented greater or less temporal concavity of the disc, not confined to the center, and of these 3 or 4 presented the appearance described by Dr. Beard in sufficient degree to attract attention, 2 of them being decidedly pronounced. Of the 39 cases only 4 had perfect fields, the others presenting peripheral defects ranging from 10 to 30 degrees. Dr. Brown's attention was especially called to these cases by the paper published by Professor Schoen of Leipzig in the *Ophthalmic Record* of October, 1902, presenting evidence that the so-called "physiologic excavation" of the optic disc is pathologic in character. Dr. Brown's observations suggest that concavity of the disc, not confined to the center, may at least indicate that such eyes belong to a class especially liable to be the subjects of glaucoma.

DR. CHARLES H. BEARD, in replying to a question, stated that he had never found this cleft in conjunction with any fissures or openings indicative of imperfect closure of fetal clefts. With colobomata involving the nervehead one often sees microphthalmos and other deformities. The nearest he has found with these are nystagmus and strabismus. Where anisometropia exists, as Dr. de Schweinitz suggests, it is the eye that has the cleft which has the higher degrees of refractive error, i. e., where the defect is monolateral. At a joint meeting of the Chicago Ophthalmological and Chicago Medical societies, Dr. Beard in April last brought out the point in connection with the "powder grain" fundus and thin attenuated choroid; these cases are particularly liable to have wide physiologic excavations. In all those cases there is diminished peripheral light sense, and they are truly pathologic cases. Dr. Beard has found that these cases average up intellectually as well as any he has ever seen.

DEVELOPMENT OF THE FACULTY OF BINOCULAR FUSION.*

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The fusion faculty, which controls the ocular movements in the interest of binocular vision, is one of the most delicate and exact, yet one of the most constant and rigid co-ordinations that the human being acquires. That it is not commonly possessed at birth seems to be well established by the agreement of all careful observers. That it is normally developed in early childhood, and only during early childhood, is equally certain. Persistent intelligent efforts have failed to give any indication of its acquirement in adult life. I believe it is well established generally before the age of 2 years, and practically always before 6. The earlier age is that

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of normal development; the later is the limit of delayed or obstructed development, beyond which its appearance or development is impossible.

Although development of the fusion faculty occurs after birth, it is, I believe, determined essentially by congenital tendency. It is a race characteristic, and is not a result of the reaction of the individual to environment. It develops, as do the sex characteristics and organs, in obedience to inherited impulse; not like the power of reading or writing through conscious effort or training. There is not very much evidence on this point, yet what there is is fairly conclusive.

Take, for instance, the case reported by J. L. Minor to the American Ophthalmological Society in 1898, of a man operated on for congenital cataract at the age of 40. After one cataract had been removed the patient was still able to judge distance better with both eyes shut than he could by the sight of one eye. The other cataract was removed, and ten days later, when he was first allowed to use the two eyes together, tests with prisms and stereoscopic figures showed complete binocular vision. Two days after that when his eyes were again unbandaged he could judge distance accurately with both eyes open, but he usually missed when either was closed. His power of overcoming prisms was still comparatively feeble.

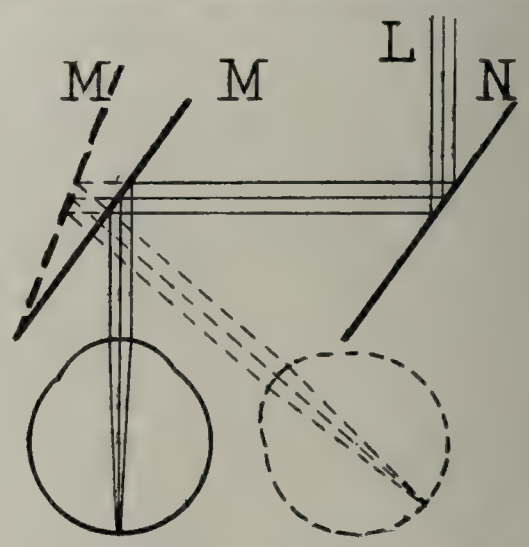
The very rapid acquirement of the power of binocular fusion from a few brief lessons with the amblyoscope reported by Worth and others, and which I also have witnessed, seems inexplicable except on the supposition that the fusion faculty has spontaneously become well-developed, although the patient, on account of some obstacle, has never learned to control or use it. Thus in the first of Worth's illustrative cases "fusion training" was given on five different days within a period of two weeks. On the fourth occasion it is noted: "The child has considerable amplitude of fusion." After the fifth seance, the eyes remain straight with glasses. Where the fusion sense has been established and the squint continues, Worth speaks of the repetition of fusion training once a month as being quite sufficient to keep up the fusion faculty until operation is permitted.

Evidently our most advanced treatment of squint today simply removes obstacles such as inequality of vision in the two eyes, or errors of refraction and the abnormal innervation they entail, or demonstrates to the child the existence of the fusion faculty that has already developed. But there are rare cases in which, without any apparent obstacle, no trace of binocular fusion seems to develop. In these cases without any serious error in refraction, with perfect vision in each eye, and no deviation of the visual axes, there still exists independence of function in the two eyes. They have no power of stereoscopic vision and no binocular diplopia can be provoked. There are also cases of alternating squint which are precisely similar to the above, except that the movements of the two eyes are co-ordinated to excessive convergence or divergence.

In a still larger class of cases a feeble faculty of binocular fusion or some rudiment of such a faculty is discernible; but it is not capable of overcoming even slight obstacles. The bulk of uncured convergent, like the neuropathic divergent squints of Worth, belong to this class. In the management of those cases must lie our chief opportunity for added future success in the treatment of squint. We now have instruments, the amblyoscope, the fusion tubes, and the stereoscope, with which we can in ten minute exercises demonstrate to the child the existence of the fusion faculty when it has already developed, but which he has heretofore left unused. These instruments, however, are not adapted to help in the continuous exercise of a fusion faculty which beside being unused, is really undeveloped.

In seeking an instrument that would aid us in the actual development of the fusion faculty, I have worked out one by which the patient can employ his binocular vision, such as he may possess, not only on a few specially prepared objects or slides, but on all objects that he looks at and continuously, even while there remains actual squint of any degree. The matter can be best presented by an explanation of the instrument.

In viewing the reflection of objects in a mirror there appears a lateral reversal of relative positions. If this reflection is reflected from another mirror the second reversal gives the objects their normal relative position. If the two mirrors are parallel, each object seen is seen after double reflection in its true direction. By inclining the surfaces of the mirrors to a certain angle each object seen through them appears displaced to double that angle. When, as in squint, the visual axis of the fixing eye is directed toward one point, that of the deviating eye is directed toward another. But by causing one or both eyes to look at such double reflections as are furnished by plane mirrors inclined to the proper angle



it is easy to present the same object to the visual axis of both the squinting and the fixing eye. The accompanying diagram illustrates the effect of changing the direction of one of the mirrors.

The solid lines represent the mirrors M and N as parallel and the eye as receiving the ray L parallel to its original direction. The broken lines represent M inclined as for a convergent squint, the altered direction of the ray after its second reflection, and the way it would be received by the converging eye. By varying the angle of the mirror M, the reflected ray can be given any direction required for even the highest degree of squint.

The instrument can be used for the same purposes as the amblyoscope or an adjustable stereoscope, with slides prepared as for the stereoscope. But it can also be used in looking at any object near or distant, to produce any modification of direction required in the interest of binocular fusion. If there be present a rudiment of this faculty, even with a high degree of squint, the mirror can be set at such an angle as to constantly stimulate the exercise of fusion. By varying the inclination of the mirror M, the patient can be induced to increase or diminish his convergence, and thus exercise his power of maintaining fusion.

For an instrument not to be worn by the patient the greatest simplicity is attained by arranging it to be used

before one eye only, the other being left free as in ordinary vision. The instrument swings either way on the upright that supports it so, that it can be used equally well for the right or the left eye. The arc can be graduated to show just how much convergence and divergence the position of the mirror represents. The reflection from two mirrors somewhat lessens the visibility of objects viewed by means of them; hence, the mirrors should ordinarily be placed before the non-deviating eye. To bring down the vision to an equality with that of the deviating eye, a series of smoked glasses of different shades are also furnished. These can be slipped in front of the opening, in the clip for this purpose.

With the width between the eyes, the degree of squint, and the difference in visual acuteness exactly known we can, in any given case, construct a binocular instrument very much smaller than this, which can be attached to a head band and worn continuously. With such an apparatus all the child's seeing for hours, or throughout the day, should be done under conditions that bring the two images of a given point on corresponding points of the two retinas.

I believe that with such an application of this principle of double reflection we will be able to bring about the development of fusion faculty in some cases in which such development would not otherwise occur. With the fusion faculty once fairly developed the complete cure of comitant squint becomes possible.

DISCUSSION.

DR. WENDELL REBER, Philadelphia, declared that there are three essentially different methods of regarding the eye: First, as an optical instrument contrived to form a perfect image, every focal point of which shall correspond with a radiant point in the object viewed; second, the retinal structure, and especially its bacillary layer; third, the still more wonderful correspondence of the two retinas, point for point, and of their representatives in space, point for point. Dr. Reber said that in the study of methods for the training of the fusion faculty, the question of the evolution of binocular vision is the primary consideration. It is a bewildering complex coordination, gradually acquired like walking or talking. The most rational method of studying this subject would seem to be in adults who, because of complete congenital cataract, have grown to maturity without seeing, and then had both eyes successfully operated on. Several such cases have been reported from time to time. One case recorded by Trombetta four or five years ago was that of a girl of 10 years, who had both eyes successfully operated on by Guaita, the eminent Italian ophthalmologist. Trombetta took charge of the young girl and in 45 lessons he succeeded not only in teaching the child to see without the sense of touch, but in obtaining satisfactory binocular vision. Before the twenty-fifth lesson, when the child's attention was directed to a nearly bright object, one eye would fix and the other wander up and out and oscillate. In the course of this lesson it was discovered that the child's vision had become stereoscopic. Dr. Reber said that in the case of the 40-year-old man quoted by Dr. Jackson, the question arises whether some sort of crude binocular vision did not develop and flourish before the man became entirely blind from the congenital cataract. If so, it would, of course, be a relatively easy matter for him to regain the faculty of stereoscopic vision when both retinas had been restored to their functions. This rousing of the faculty of attention and its close relation to the act of convergence, Dr. Reber considers, is closely bound up with the development of binocular vision. Le Conte shows that perception of the third dimension proceeds largely from an almost imperceptibly rapid exercise of the faculty of convergence. This fact, along with the psychologist's "mental faculty of attention," seems to form the basis for correct visual judgments. Whether the complex array of acts in binocular vision are or are not represented in the cerebral cortex by a special center is still *sub judice*. That a fusion faculty exists is beyond all doubt. Functional strabismus shows that the higher centers have abandoned the task of making the retinas correspond point for point, and must, therefore, be viewed as a species of atavism. The small globes and short interocular base line in little children, assisted by the excessive accommodation, will account for the turning in of the eyes rather than the turning out as would be expected. In constructing mechanical devices for the training of the fusion faculty one thing is axiomatic: that is, they should be simple and, if possible, so devised that they may be used several hours each day. The instrument here offered by Dr. Jackson is beautifully simple and if, as he states, it can be made small enough to be worn with a headband for several hours a day, it would seem to approach very closely to the ideal device for the development or restoration of stereoscopic vision. Priestley Smith's fusion tubes, one of which the child would take in each hand, represents the acme of simplicity. But as the child's visual axes are crossed, the tubes got in each other's way, and Mr. Worth happily thought of the reflecting tube and built his amblyoscope which has proved so efficient in selected cases. At no time should apparent parallelism of the visual axis be accepted as proof positive that the patient has been restored to stereoscopic vision. Some test for stereoscopic vision should invariably be resorted to as a final test, such as Hering's box, which is easily made and is quite as reliable as any.

DR. EDWARD JACKSON stated that the case cited by Dr. Reber is certainly nearer the experience of most cases of the sort that have been reported than is Minor's case. His case is a very exceptional one in the rapidity with which binocular vision was demonstrated after the second eye had been operated on. It was a remarkable patient; a patient who had remarkable powers of co-ordination for an absolutely blind person. The best illustration we have that binocular vision is developed sufficiently to go right into use after some obstacle is removed is the vision that children often get after the correction of a high error of refraction. Many of them will quickly or in a few days respond to the tests of full binocular vision. That is the basis for the assumption that binocular vision may develop to a high degree without having been exercised. The obstacle being removed binocular vision becomes possible. While the child undoubtedly acquires something in this short time, it does not acquire the complete nerve connections necessary for binocular vision. There is something there ready to be used as soon as the child acquires the knack.

DAIRY HYGIENE.

WITH SPECIAL REFERENCE TO THE LIMITATION OF BOVINE TUBERCULOSIS.*

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While perhaps it is impossible to be absolutely sure of the truth of any general statement, of which from its nature complete proof is unobtainable, we are justified, I think, in assuming that the statement that wild cattle are entirely free from tuberculosis is true. We are told that the native (Criollo) cattle of the Argentine are now and always have been free from tuberculosis. The appearance of the disease dates from the time when pure-blooded cattle were introduced into that country for breeding purposes. So it has been asserted that the native cattle of the Jura mountains and other places are, and always have been free from tuberculosis. So far as known, no animal running wild and eating the food that nature intended, has ever been tuberculous; and yet the disease is to-day the most common and most

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generally distributed of all diseases, affecting as it does, all living creatures, including man and every known species of warm-blooded animal, as well as fishes, amphibians, birds and reptiles.

Since the discovery of the tubercle bacillus in 1882, there has been a steady advance in knowledge of this disease, and of its, hitherto unsuspected, distribution throughout the animal kingdom.

There is, however, no proof that an animal living as nature intended, as has just been said, will ever become tuberculous;[1] while on the other hand, it seems to have been distinctly proved that under appropriate conditions, with a large enough dose of the infecting material, any living creature may be made tuberculous. Coincidentally with the knowledge of the great distribution of tuberculosis, has come the welcome knowledge that the disease is, to a great extent, curable in both man and animals.

It was a revelation to pathologists when Trudeau and others observed that if rabbits were inoculated with tuberculosis and then allowed to run at large, they recovered, while those kept in confinement after the inoculation died. So a small number of successful experiments have been reported undertaken to show the curability of the disease in dairy cattle, notably some at the Storrs experimental station some years ago. Also certain experiments have been made to demonstrate that the susceptibility of cattle to the infection of this disease varies with their environment.

Dr. Pearson of Philadelphia, fitted up two cow stables in the University Veterinary School. One stable had only 3,000 cubic feet of air space and few windows, and was in every way unhygienic. The other had 9,000 cubic feet of air space, plenty of light, and was kept scrupulously clean. Into each of these stables he put four healthy cows and two tuberculous ones, and kept them there for seven months, at the end of which time the four originally healthy cows in the unhygienic stable were affected with advanced tuberculosis, whereas of the four non-tuberculous cattle kept in the hygienic stable only two were tuberculous, and that to an inconsiderable extent.

Dr. de Schweinitz[2] gives a case as follows: "An animal originally tuberculous, kept at the station of the Bureau of Animal Industry, has received about 3,000 c.c. tuberculin in different injections extending over a long time. The animal is now well and fat and has entirely recovered from tuberculosis."

Dr. Salmon stated[3] in 1901 that 20 per cent. of Canadian pure-bred cattle offered for importation into this country were tuberculous, whereas of those brought into the United States for grazing and feeding, not over 0.2 of 1 per cent. are tuberculous, while the milch cattle of ordinary breeds offered for import, occupy an intermediate position. Bang long ago pointed out that the calves of tubercular cows did not themselves become tubercular if immediately separated from their dams and all other tuberculous cattle, and fed on sterilized milk. Theobald Smith, Bang and others have insisted on the desirability of preventing tuberculous infection in dairy herds by keeping the cattle in the open air as much as possible, and keeping the number of cattle in one herd as small as possible.

Conn[4] says: "The fact is that the more experience accumulates the more we learn that many of these incipient cases of tuberculosis are only temporary and that the animals in question, if kept in a favorable condition, will soon recover and may live many years of useful life."

C. S. Phelps, the agriculturist of the Storrs Experiment Station, gives the history of an experiment as follows: "Four cows, having been found to be tubercular, were placed in a high, light and airy stable, affording about 1,500 cubic feet of air space to each cow, and having a yard in which the cattle could exercise. In mild weather they occupied the yard most of the day. No especial treatment for the disease was attempted, but good care and feed were afforded at all times. In October, 1896, all four cows responded to the tuberculin test as they did in January, 1897. In April, 1897, two responded; in July, 1897, none of them responded, nor did any of them respond in December, 1898, a year and a half afterward. In the following February two of the cows were in good, and two in fair health, judging from their appearance. One of them, however, was still coughing."

While the number of observations on the curability of tuberculosis in cattle is quite limited, there seems to be no doubt that the disease is curable as well as preventable in cattle as well as in man.

Nocard has said[5] that animal tuberculosis is now rare in Paris because the animals are not kept longer than a year before fattening and slaughtering. Such a plan would probably eradicate the disease in any country, although all housed and confined animals are sufferers from this disease.

Dr. Louis Robinson[6] pointed out some years ago the greatly superior health of animals in a traveling menagerie over those in zoological gardens, who were confined in one spot, although the latter enjoy every care and attention that science can suggest.

The enormous distribution of tuberculosis in so many different species of animals, fishes and reptiles, would seem to establish the fact that it is essentially the same disease in all, and that the structural, morphologic and pathogenic differences noted in the tubercle bacilli of fishes, birds and mammals are gradually developed and due to differences in pabulum, temperature and environment, which the bacillus experiences in being passed through various hosts.

The ingenious theory advocated by Hueppe and others that the timothy hay bacillus, which has been proved to have slight pathogenicity, is the father of all the different varieties of tubercle bacilli, is not entirely lacking in verisimiltude.

Avian, human and bovine tubercle bacilli can certainly be so altered by cultivation and by passing through appropriate animals that they become indistinguishable. It is not my purpose to discuss this aspect of the subject further, nor is it necessary to burden this paper with figures to prove the enormous distribution of tuberculous disease in dairy cattle.

Experienced dairymen place the percentage of tuberculous cows in New Jersey, for instance, at thirty, and probably the number is about the same throughout the New England and middle states, although, until proper laws are passed enforcing regular stated inspections of all dairy cattle, and the rigid enforcement of the tuberculin test, no really accurate figures can be published, nor can proper steps be taken to eradicate the disease. We are at present only dallying with this very

1. Bulletin 32, U. S. Dept. Agriculture, 1901.
2. Bulletin 13, U. S. Dept. Agriculture, Sept. 19, 1896, p. 17.
3. Bulletin 3, U. S. Dept. Agriculture, 1901, p. 21.
4. Report of the Storrs Agricultural Experiment Station, 1898.
5. Sixteenth Annual Report, Bureau of Animal Industry, 1899.
6. Therapeutic Gazette, 1896, p. 570.

serious question. To be sure, if no milk from tuberculous cattle was allowed to be sold, there would be now and for a long time to come a milk famine; as there seems to be little doubt that at least one-third of all the milk sold in our markets comes from tuberculous cattle.

It is a saying among dairymen that a tuberculous cow will give more milk than a non-tuberculous one. Whether this is true or not, as we have just seen, it is the pure-bred, high-grade milch cattle that are at present most affected with the disease, and there is not lacking good authority for the statement that superlactation is one of the predisposing causes, if not the principal one, of bovine tuberculosis.

From what has been said, it is evident that it is not alone necessary to destroy, or at least separate, all tuberculous cattle from healthy cattle, but that it is also necessary to take the best possible care of all dairy animals if the disease is to be eradicated and kept out of dairy herds in the future. The proper construction of cow stables and the care and food of the herd have been well understood for some years, but it is not so generally understood that cattle, like human beings, suffer from overcrowding and from confinement. Not over forty or fifty cows should live in one stable, and they should have their regular exercise, even in the coldest weather. The sun should shine into their stables all day long and the cubic air space should be much greater than that usually allowed. Alvord[7] advises 1,200 cubic feet per cow.

One writer,[8] after asserting that the tuberculosis of milch cattle is due chiefly to over-milking, urges that every one should be prohibited by law from milking a cow during the last three months of gestation. Nelson says that if animals are properly cared for they will not contract tuberculosis even when exposed to the disease. He refers more particularly to the diet in this connection.

Fortunately we have an efficient and easily applied means for the demonstration of the presence of tuberculosis in man and animals; namely the tuberculin test. Unfortunately, however, this test is not absolutely infallible in the most scientific hands, and as usually applied, it is subject to certain errors which should be more generally understood and guarded against. That cattle with advanced tuberculosis fail to re-act to the test is well known, but in most, if not all of these, careful physical examination will reveal the presence of the disease. It is in the early stages of the infection, when physical examination fails to reveal anything wrong with the cow, that the tuberculin test is our sole reliance and in these cases, errors, if they do occur, are more likely to be costly and far-reaching. It is asserted by some that a healthy cow may re-act to the tuberculin test. At all events she would unquestionably do so if by any chance the amount injected were too large or too concentrated. Nelson[9] only claims for the test 90 per cent. of efficiency after excluding all sources of error.

Nevertheless, it is a remarkably accurate and trustworthy method of diagnosing incipient tuberculosis, and the failures to re-act when tuberculosis is present, are astonishingly few, when we consider that there is nothing absolute in medicine and that in practically no case can every possible source of error be eliminated.

It is now customary to say that there must be a rise of 2 F. in the cow's temperature within from twelve to twenty-four hours after the injection of the tuberculin to indicate a positive reaction. The bovine temperature, however, is a variable matter, each particular cow being a law unto herself. The temperature during the rut runs higher than at other times. Young cattle as a rule have a higher temperature than older ones, and the temperature of the same animal (without discoverable cause) may vary within considerable limits (Nelson[10] says 2 degrees) on different days and at different hours of the day. While the average dairy cow's temperature may range between 101 and 103 F., it seems unjustifiable to say that a temperature of 103 or 103.5 F. is always due to the reaction from tuberculin. For this reason the temperature of cows should be taken more than the two or three times at two-hour intervals, as is now customary before the tuberculin test is applied. In fact, to render the test fairly accurate, the temperature of each cow should be taken at two-hour intervals for forty-eight hours before and for twenty-four hours after the injection of the tuberculin. As the temperature of milch cattle is variable, and is especially so among Jerseys and other high grade stock, we should expect that their temperature would bear some relation to that of the surrounding atmosphere, and sometimes at least, this would seem to be the case. At all events, Dr. North, of the Purity Milk Farms in Trenton, observed that after thirty-five cows were injected with a double dose of tuberculin in October last, they averaged 1 F reduction of temperature. At the time of the tuberculin injections the thermometer in the barn registered 80 F. The next day there had been a drop of 30 F. in the outside temperature, so that the thermometer in the barn registered 50 F., and every individual cow showed a reduction in temperature of from half a degree to a degree from the evening temperature of the day before, when the tuberculin test was administered. Some of the cattle showed very little variation, so that it may be suspected that they were tuberculous, and had it not been for the great fall in the external temperature, their bodily heat would have increased instead of remaining nearly stationary, after the injection of tuberculin.

A cattle dealer has asserted that he can make any cow pass the test for tuberculosis by putting her in the cold room of a refrigerating establishment and keeping her there a few hours after she has been injected with the tuberculin. The dealer asserted that this keeping of the temperature down could also be accomplished by throwing cold water on the animal with a hose. At all events, for a pronounced case of tuberculosis, or for an animal that has been a short time before subjected to the test, the 2 F. rise which has been agreed on by the veterinarians as the standard, is too high, since, as we have seen, some cattle, although strongly infected with the disease, will not re-act to that extent.

Thirty-eight cows which had passed the state veterinarian of New Jersey and had their papers, were one month afterward re-tested, nine of them, or nearly a quarter, reacted to the tuberculin test. The official tests have been found so often unreliable that many dairy men no longer trust them, but have their own veterinarian test every new cow before she is admitted to the herd. A friend of mine tested twelve cattle in one herd of nice looking, fat cattle presenting no evidence of disease, except that some of them coughed a little, and found that eleven of them were tuberculous. This same man was offered six Jersey cattle, all of which, when tested, showed tuberculosis. These same cows were subse-

7. Year Book, U. S. Dept. Agriculture, 1894.
8. N. Y. Medical Record, Nov. 6, 1897, p. 685.
9. Bulletin 118, N. J. Agricultural Experiment Station, Nov. 30, 1896.
10. Report Biological Dept. N. J. Agriculture College Experiment Station for 1894.

quently sold to a wealthy man from New York for the especial nourishment of his children and invalid mother-in-law.

In another case, the one cow picked out of a herd for the exclusive nourishment of a particular infant, was tuberculous. A man went to a farm to buy four cows. The owner agreed to allow them to undergo the tuberculin test as a preliminary to the sale, provided that he should not be told if any of them were tuberculous. On applying the test, three reacted.

In a well-known dairy herd in New Jersey of 350 cows, a careful test is made of each animal every six months, and 15 per cent. of the cows have been repeatedly found to be tuberculous and have been taken out of the herd. Every precaution is observed in this excellent dairy to keep the cattle healthy and eliminate every possible source of infection, with one glaring inconsistency, as follows—the dry cows are boarded at the neighboring farms until they are ready to calve, when they are brought back to the dairy, and some of them must needs bring a fresh infection of tuberculosis with them.

It would probably be as economical to slaughter every cow when she goes dry, according to the method said to be in vogue in Paris, as to lose a third of a valuable herd every year from tuberculosis, and perpetuate the infection.

Nor does careful testing always avail to detect tuberculosis in cattle, nor to prevent its spread, as the following well authenticated case will show: A dairyman, desiring to move a herd of twenty cows from New Jersey into Pennsylvania, had them tested for tuberculosis in compliance with the law. Seven reacted and had to remain in New Jersey. Of the remaining thirteen, four were purchased and put with a healthy herd of 100 cows. In three months' time this herd was tested and only one cow reacted. This cow was one of the four that had been taken out of the infected herd. As the latter herd had been tested by a competent and honest veterinarian, this result shows one of the limitations of the tuberculin test, and it also shows that had the owner of the larger herd not been unusually vigilant he would presently have had, instead of one tuberculous cow, a badly infected herd.

As said before, our present laws are quite inadequate for the eradication of this widespread and rapidly growing infection. The different states demand that cattle brought across their borders shall pass the test, but they do nothing effective to quench the fire which is consuming the very vitals of the dairy industry.

A law commanding the firemen to direct all their attention to the environment of a burning building, but not to touch the building itself, unless they shall receive a request from the owner to do so, would hardly be considered sound legislation, nor calculated to deal effectively with the situation. Yet this is practically the nature of the present laws against bovine tuberculosis. An owner may have his herd tested by a more or less competent veterinarian if he chooses, and may receive about one-half the value for the cattle that are condemned to be slaughtered, or he may, if he elects, remain in blissful ignorance of the real state of health prevalent in his herd and may maintain a hot bed of infection and disseminate tubercle bacilli among the unsuspecting populace indefinitely.

We can no longer screen ourselves behind Koch's fallacious, albeit comforting, pronunciamento that bovine tuberculosis is not communicable to man. That it is communicable has been proved beyond all reasonable doubt. And furthermore, to quote Dr. Salmon,[11] the infection of human beings with bovine tuberculosis is one, if not the principal, cause of the long-continued virulence of human tuberculosis. He says "The human (tubercle) bacilli are generally much more saprophytic in their characters and far less virulent than those of most other mammalian sources, and it seems that the human organism has the power of attenuating these bacilli and gradually making them less and less harmful. But this influence for good must be continually counteracted by the infusion of extremely pathogenic germs from animal sources."

What then is our duty in the premises? It seems to me that there can be no doubt in any thinking mind, that a law should be passed making a semi-annual test of every dairy animal in the United States compulsory, and providing for the slaughter of every one showing any evidence of tuberculosis, and providing further that the owner shall be compensated to the full extent of the damage done him by slaughtering his animal or animals.

Such a movement would not cost a tithe of the sum which the government expects to spend on the Panama Canal, nor of that which it will cost a private corporation to tunnel the Hudson and East rivers in New York harbor, and yet it seems to me that from economic, scientific and philanthropic considerations, the stamping out of bovine tuberculosis would be a thousand-fold more beneficial to our country and to mankind the world over than the consummation of either of the great enterprises just spoken of.

Let us wake up from our lethargy and show that we are really advancing in civilization by adopting a very plain and obvious means of wresting from the "great white death" one of his most powerful and insidious weapons.

Let us also put out of business the bologna sausage man, who gives the dairyman $15 for the carcass of every diseased animal, which the latter can no longer milk at a profit, and makes the meat up into sausage.

Whether or not the remarkable freedom of the Hebrews from tuberculosis is due to eating Kosher meat, the reasonableness of the proposition that we should adopt similar precautions in choosing the meat for our tables is irrefutable in my opinion.

DISCUSSION.

DR. H. M. BRACKEN, Minneapolis, approved of testing dairy herds for the purpose of securing non-tuberculous cattle. The percentage of milch cows affected with tuberculosis as given seems very high, and, for Minnesota, he is sure it is too high. He does not think that the passing of a law by Congress compelling an examination of all cows is practicable. Compensation for the cattle destroyed can be easily regulated through the state legislature. In Minnesota a law has been in force for several years allowing compensation. The farmers throughout the state are not compelled to have their cows tested, but many of them are doing so. At first the compensation was two-thirds of the appraised value. The farmers and the dairymen were both well satisfied with this, for, as a matter of fact, the appraisals were generally high, and two-thirds of the appraised value nearly or quite represented the real value of the animal. Later this law was changed, and the owner now receives three-fourths of the appraised valuation. A man may require the testing of cows as a condition of purchase, but the owner is allowed to keep those condemned cows and sell them later in the open market. This should not be permitted. A great deal of the testing of cattle for the purpose of excluding tuber-

11. Maryland Medical Journal, February, 1904, p. 92.

cular milk from the city supply is a farce. For example: The dairyman's herd is inspected, say, once a year; 10 cows out of his herd are condemned, and he buys 10 cows to take their places. The 10 cows bought come from the open market, and nobody knows until possibly the next year whether they are tubercular or not. Such methods do not exclude tubercular cattle from the herd. An effort was made in Minnesota to require dairymen to purchase only tested cattle. Of course this is easily carried out in dairies furnishing certified milk, but with the general dairymen it is a difficult matter. Dairymen said they were willing to purchase such animals if they could, and were willing to pay an additional sum for them, but there were no such animals on the market. On various occasions efforts were made to place tested cows on the market, but without success. Dr. Bracken said that while tuberculous milk is dangerous, the dangers may be exaggerated. More children die from the use of bad milk than from the use of tubercular milk, and too often in the effort to secure milk from a non-tuberculous herd of cows the general sanitary conditions surrounding the cow and the milk are entirely overlooked. There is room for the general improvement of the sanitary conditions surrounding the dairy, the cow and the dairyman.

DR. GEORGE A. HARE, Tacoma Park, Wash., confessed to some disappointment in learning of the status of dairy inspection, and of the sanitary conditions surrounding the dairy supplies given to the people of the eastern states. He believes that there are very few questions before the American people to-day fraught with the possibilities for good or evil to such an extent as is the question of dairy products and their proper inspection and believes also that we are looking entirely in the wrong direction for help. He said that the remedy is at our hands and just as soon as the medical profession wakes up just so soon will this question be solved in a practical manner. This question will be finally settled by the verdict of public opinion and public opinion on sanitary matters is molded almost entirely by the attitude of the medical profession. With a careless or indifferent family physician we can not expect very much care on the part of the recipient of the dairy products. If the physicians are asleep and apathetic on this vital question, the people will remain so. In the eastern states tubercular cattle are far more numerous than in the West, where the cattle have larger ranges. About 3 per cent. of the cattle tested in California are affected with tubercular disease. The sanitary affairs of every state at the present time are supervised by a board of health. The time has come in our country when these boards of health should be controlled by physicians. Where they are controlled by physicians there is no good reason why the standard of dairy products may not be raised and maintained at any degree of efficiency the physicians choose. Dr. Hare said he had observed the conditions in a small city of 20,000, which a few years ago had no sanitary regulations. A board of health of five physicians was appointed, all of them untried men, but they had enthusiasm and a confident faith in the practical results of properly enforced sanitary laws. The result is that every dairy in that county is at the present time required to operate under a license. In the application for license it is specifically stated that the vendor of milk will subscribe to and observe every condition laid down by the board of health, and those conditions are printed in the application, with the statement that if he violates them wilfully his license will be forfeited. If he violates them unconsciously he agrees to correct the error immediately on his attention being called to the matter. As a result of these methods that city has clean dairies —the dirty ones went out of business. They raised the price of milk a trifle, not nearly so much, however, as the gain in the prevention of the use of water. Every dairy is inspected every month. Every dairyman is under contract not to purchase milk outside of the product of his own cows, nor outside of the cows registered by the inspectors, and never to sell milk from any cow that has not been tested. When he adds a new cow to his herd, that cow must be tested, or his license is forfeited. The milk dispensed in the summer time must show below 50,000 bacteria to each c.c. In the winter season the bacteria must be below 30,000 to each c.c. The count is made twice each month, and with but one exception has been below the requirement and down even as low as 10,000 or 12,000 for a number of months. Those are practical results. Dr. Hare could see no reason why it should not be within the province of the medical societies of this country to so supervise the dairies of America as to exclude all diseased cattle, and to demand that all cows must be properly inspected. Public sentiment so strongly endorses the work of the board of health of that city that no dairyman in the county at the present time wishes to risk a lawsuit. Every dairyman's report is published in the paper. This has greatly stimulated the dairies to compete with one another in the production of a good product, because the people will go to the dairyman who has the best record. They find it to their own interest to watch one another. Until physicians realize that they can control the dairy business of this country they will be unable to control tubercular cattle.

DR. HURTY asked how long this process has been in existence and for how long a period the health officer is appointed.

DR. HARE, replying to these questions, said that this process has been in existence for three years, and that the health officer is appointed by the board and continues in office at the pleasure of the board. The board is appointed by the mayor for a period of four years, but the physicians took a hand in the framing of the charter, which specifically states that not more than two persons of the same political party can be members of the board of health.

DR. J. N. HURTY, Indianapolis, said that he became very much discouraged at one time in the work of controlling the milk supply on account of an experience at Indianapolis. They had an excellent health officer. He was doing good work. He had been in office for two years, that being the term of the mayor; then the politics of the city turned over, and out he went. Fortunately, another good man was put in, and he continued the work which the first man had inaugurated, producing very excellent results; then the politics of the city turned back again, and out he went. Dr. Hurty thinks that boards of health should not be composed of physicians entirely, and it would be well to have trained sanitarians on them. In the State Industrial University, situated at Lafayette, there is a department of hygiene. The man at the head of the department is not a physician; he is a graduate of the Boston School of Technology and has had training with the Massachusetts Board of Health. He has brought the department up to a high degree of efficiency, and, although not a physician, has been very successful in teaching sanitary science and this fact has led Dr. Hurty to believe that if a professional sanitarian, although not a physician, is appointed to the board, good results would be produced. The gentleman has been permitted to work through several administrations at Lafayette, no matter whether democratic or republican, because he is not a physician but a professional sanitarian. Dr. Hurty believes that there was a health officer at Mont Clare who was not a physician. He was very efficient and did good work there, and is now employed by the United States Geological Bureau in the hydrographic department. This promotion came on account of efficiency. In Indianapolis a plan was tried of managing the dairies that was extra-legislative. At that time there was no milk ordinance. The secretary of the board of health enlisted the aid of the newspapers and the board announced, although there was no law for it then, that they would give licenses to all dairymen whose dairies would pass inspection, and the newspapers printed the rules as to what would be required in the inspection. The people were very much interested, and the dairymen all rushed in to get their licenses, because the people demanded it. The plan worked well. The state veterinarian tested the cattle. Photographs of clean dairies appeared in the newspapers from time to time, and

the very best results were being secured; then out went the man. Politics interfered, and the work has to be done all over again at some future time.

SURGEON-GENERAL STERNBERG, Washington, D. C., agreed with Dr. Hurty that a professional sanitarian might be a more suitable member of the health board than a physician who is not a sanitarian, but it seems to him that the professional sanitarians we need are men who have a medical education in the first instance, and added to that the necessary training to make them sanitarians. He thinks a great many physicians and health officers in this country appreciate the fact that a trained body of medical men who are specialists in sanitary work is needed. At the present time there is no regular system of training, and no place to go and pursue such a course of study. There is some prospect in Washington of being able to present such a course to those young medical men who desire to be sanitarians; the course will last for two years and lead up to the degree of Doctor of Public Health. The program has been made out by the president and trustees of Columbian University, which is soon to be called the George Washington University. The faculty has been selected. Dr. Sternberg is to be the dean, and among other members of the faculty are Dr. Wylie of the Agricultural Department, Dr. Salmon, and Dr. Stiles, who is an expert in everything relating to animal parasites. Dr. Wyman is to give lectures on quarantine administration, and Dr. Woodward on municipal sanitation. Dr. Sternberg is to have the general subject of hygiene. One or two distinguished lawyers and one justice of the supreme court, who is connected with the Columbian Law School, will give instruction with reference to sanitary laws, and the limitations placed by the constitution on legislation. They expect to have a competent sanitary engineer. The trustees have approved the plan, and there is only one thing at the present time that prevents them announcing that they are ready to receive students, and that is the lack of money. The trustees have decided that such a department shall be established as soon as $250,000 can be secured as an endowment or a guarantee fund of $50,000 to carry on the work of the department for a period of five years. If any wealthy gentleman will come forward with the guarantee fund they will be prepared to start the Department of Public Health. Dr. Sternberg believes if it could be fairly started that in the course of a few years they could begin to turn out thoroughly trained sanitarians. They will admit to the course non-graduates in medicine in order that they may take advantage of the instruction, but they can not receive a degree. The time will come when public sentiment in this country will demand that there shall be on every board of health at least one trained sanitary expert to whom all questions can be referred, who will conduct the laboratory work, etc.

DR. G. T. SWARTS, Providence, R. I., suggested that the trustees interview brothers Rockefeller and Carnegie.

DR. SENECA EGBERT, Philadelphia, believes the time will come when just such a school as this will be demanded; and when it begins to turn out its graduates we will then have sanitary districts, each with its proper sanitary officer. This plan is now in vogue in England. The United Kingdom is subdivided into sanitary districts, and in each of the sanitary districts there must be a sanitary officer, who is usually a graduate of just such a school and with such a degree as Dr. Sternberg has described. Dr. Egbert said if we can make the dairymen understand that by improving the conditions of their dairies and making them more sanitary and more nearly normal they are going to help themselves economically, we will reflexly help ourselves and our people, because as the dairy improves so will the quality of the milk improve. We must impress on the dairyman the necessity of putting his cattle in the best hygienic condition possible. Dr. Egbert believes that much of our tubercular infection comes from the milk and food we consume. He believes that the usual way of infection is through the alimentary tract into the lacteals, thence up through the thoracic duct to where it enters the subclavian vein. The chyle is poured directly into the subclavian vein just before the blood goes into the vena cava and heart, and from there right into the lungs. The material that goes into the body by way of the thoracic duct must go directly to the lungs, and the first place where it meets any marked obstruction to its progress is in the capillaries of the lungs. Everywhere else it has a comparatively large lumen to pass through.

DR. H. M. BRACKEN, Minneapolis, said that he does not think the Jews are any more careful in excluding tuberculous meat than are the gentiles. He knows of instances where tubercular cattle were killed under inspection, and the Jewish butchers were ready to take meat of a lower grade than the regular butchers. So far as he can judge, their inspection of meat does not amount to much when it comes to the question of tuberculosis.

DR. GARDINER SWARTS, Providence, R. I., said that there has been a good deal of dispute of late whether animals can infect the human being with tuberculosis, although the trend of opinion is confirmatory.

DR. R. C. NEWTON said that, so far as he could ascertain on the eastern seaboard, the percentage of infected cattle was 30 per cent. Whether this is so or not over the entire country, we have no accurate knowledge. Buyers of fancy cattle and men who are trying to get high-class herds have had such an experience that they are beginning to think the disease almost universal. Thirty per cent. among eastern cattle is, perhaps, a low average. New Jersey has just passed a good law, which requires that every health inspector shall be examined as to his fitness and be licensed. The present inspector in Montclair is a graduate of the Massachusetts Institute of Technology. Those men are educated along the lines of chemistry and bacteriology better than the average physician. An epidemic of typhoid fever which occurred in Montclair in 1894 resulted in giving the health board more power than perhaps any other health board in the state. They have regularly employed an expert inspector since then. He has an analysis made of the milk delivered by every dealer every month, and that analysis is posted on the wall in the office of the board of health and any one can go in there and find out whether he is getting milk with 30,000, 40,000 or more bacteria to the c.c. or not. The more careful dairymen are getting all the business. Public opinion must be elevated considerably above its present status in order that the health boards may have proper authority to issue licenses to all dairies and to revoke the license of any dairy not properly administered. It is a matter of common report that the Jew is remarkably exempt from tuberculosis, and many observers have asserted that the careful inspection of their meat is at least one cause of this. It has been stated on good authority that out of 10,000 Jews in New York City one will find only 79 cases of tuberculosis, while among 10,000 Irish in the same place one will find 660; among the Swedes, 500, and among the Americans over 200. If we knew the reason for this we would be able to do something definite towards solving the great problem of the predisposing cause or causes of human tuberculosis. Dr. Bracken thinks hygienic laws and general habits have a great deal to do with it, but he does not think the meat has anything to do with it.

IS PNEUMONIA INCREASING?*

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BALTIMORE.

The generally accepted view that the pneumonia mortality has risen rapidly in late years rests on no other evidence than the apparent mortality rates and ratios. If the rates and ratios are in general delusive, and if with respect to pneumonia they are shown to be fallacious, it does not follow that we must diminish our

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

respect for pneumonia as a cause of death, but that we must more accurately determine its important relations.

I shall use the ratios almost exclusively in this study, because the disturbing factors of mortality ratios are more easily ascertained than those of the death rates, and the ratios are less influenced by the vagaries and inconsistencies of registration.

The apparent rise of pneumonia dates from the beginning of mortality registration in this country, and has over and over again been the subject of remark. In 1889 the registration report of Massachusetts comments on the apparent rise of pneumonia mortality above the age of 60, but no remark is made on the statement that the ages below 15 had suffered 36.12 per cent of the pneumonia mortality during the previous 20 years. Its apparent rise since 1890 has, however, brought pneumonia prominently into view, and this period (since 1890) has been most discussed. In a study of the mortality reports of the United States

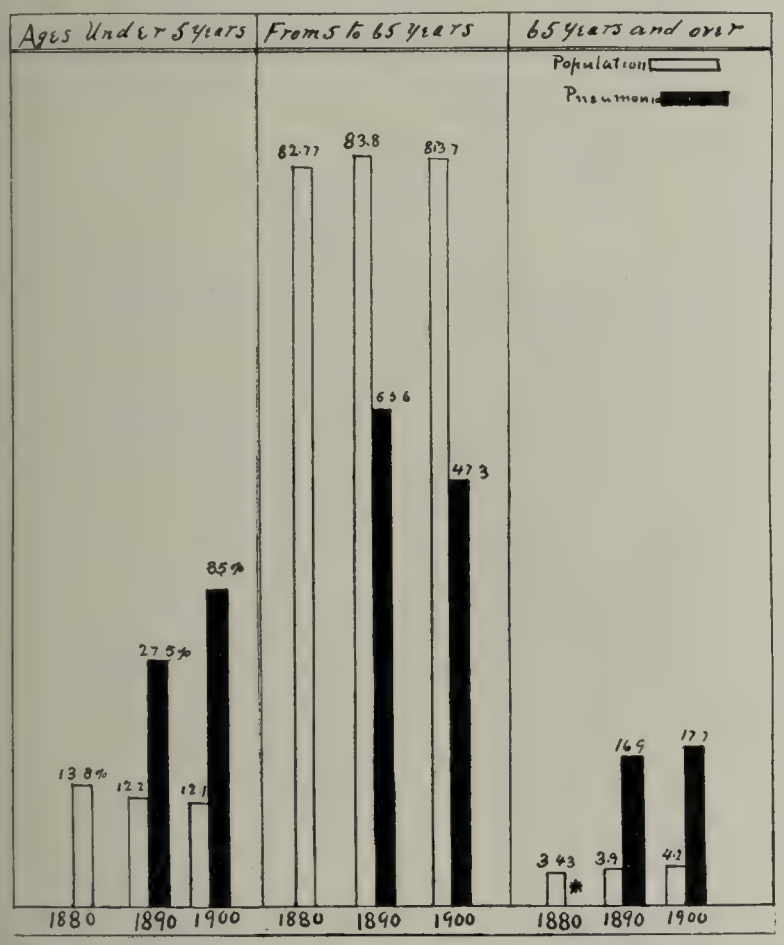


Chart 1.—United States census figures for 1880, 1890 and 1900. Population percentage in 3 age periods. Pneumonia mortality percentage in 3 age periods. *Pneumonia for 1880 unknown.

Census for 1890 and 1900 Klebs pointed out the interesting fact that the pneumonia mortality between the ages of 15 and 60 diminished from 1890 to 1900, while the periods of childhood and old age carried an increased burden of mortality. It also appears from the census statistics that the whole burden of the alleged increase fell on cities. Taking the study back to 1880 one finds the same distinctions, but I believe it has not before been remarked that the distinctions of age and of urban mortality were more marked in 1880 than in 1890. In 1890 37.7 per cent. of the pneumonia mortality of cities fell under the age of 15; in 1900, 45.5 per cent. fell on the same period of life; but in 1880 the children bore 48 per cent. of the pneumonia mortality. If these figures contained the whole truth of the matter we should believe that pneumonia under 15 had decreased in cities since 1880. But it happened that between 1880 and 1900 the age distribution of the population in American cities altered very materially.

A glance at the charts (1 and 2) showing the curves of population and of pneumonia mortality, distributed by quinquennial age periods, will bring into view the first correction which must be applied to mortality ratios.[1] Unfortunately the distribution of urban population in 1880 is not shown, but the general age distribution of population in that year shows that cities had a considerably larger proportion of children in 1880 than in 1900. The 45.5 per cent mortality of 1900 fell on 30.3 per cent of the population. If, as seems probable, the 48 per cent. mortality of 1800 fell on 35 per cent. of the population, then 48 per cent. in 1880 was really a lighter load than 45.5 per cent. in 1900. Here we find the true relations diametrically different from those which were at first apparent. Not a city in this country probably, and certainly not one of those cities where the apparent rise of pneumonia has excited most comment, can apply this fundamental test to its mortality statistics.

Next we must try the ratios by what we know, or think we know, about the causes of death.

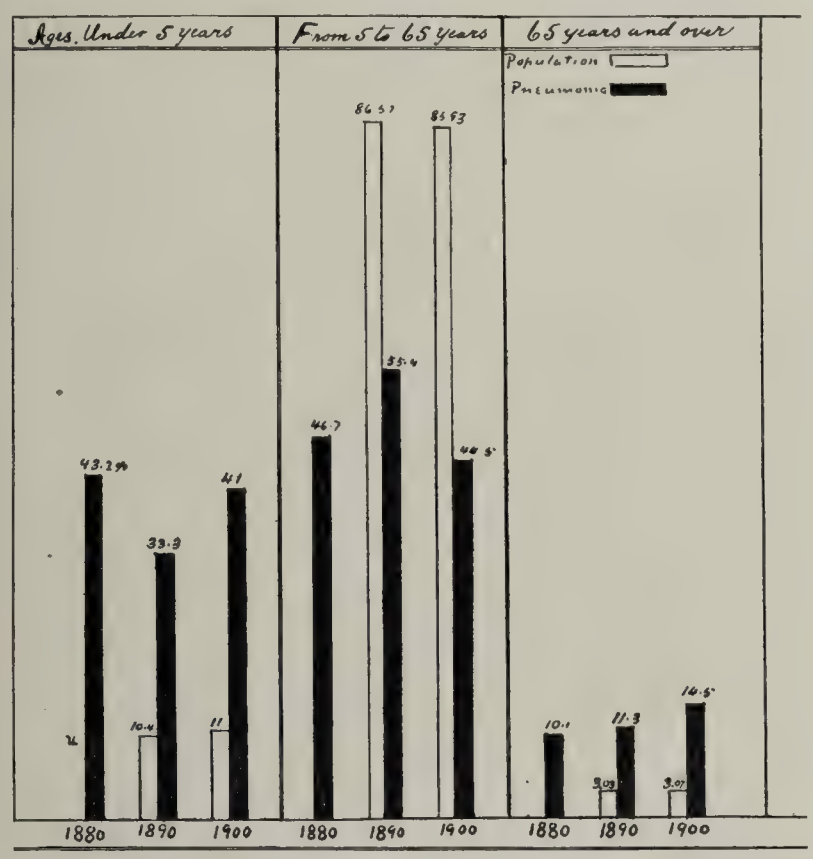


Chart 2.—United States Census, 1880, 1890, 1900. Percentages of urban population in 3 age periods. Percentages of urban pneumonia mortality in 3 age periods. Urban population for 1880 unknown.

The apparent ratios of death from pneumonia to deaths from all causes since 1850, as displayed in the United States reports, are as follows:

		Increase.	Per cent.
1850	37.55 per 1,000 deaths		
1860	68.74 per 1,000 deaths	31.19 points	83.00
1870	81.28 per 1,000 deaths	12.54 points	18.24
1880	83.30 per 1,000 deaths	2.02 points	2.5
1890	87.37 per 1,000 deaths	4.07 points	4.8
1900	106.1 per 1,000 deaths*	18.73 points	21.46

*Known causes.

Note that the twelfth census states for the first time the ratio of pneumonia to known causes. The previous ratios included unknown causes and need corrections which the reports appear to furnish, though unfortunately we can not rely upon their accuracy.

[1]The original charts (1 and 2), showing quinquennial age curves, could not be satisfactorily reproduced. The charts here substituted, showing but three age periods, illustrate the argument less forcibly. The same remark applies to Chart 12.

The deaths from unknown causes are said to have varied from 1850 to 1900 as follows:

1850	13.69	per cent. of the total mortality
1860	11.1	per cent. of the total mortality
1870	3.5	per cent. of the total mortality
1880	4.9	per cent. of the total mortality
1890	3.916	per cent. of the total mortality
1900	3.904	per cent. of the total mortality

Correcting our apparent ratios for pneumonia, we shall have: (Chart 3.)

		Increase.	Per cent.
1850	43.50 per 1,000 deaths		
1860	77.33 per 1,000 deaths	33.83 points	75.4
1870	84.23 per 1,000 deaths	6.90 points	9.0
1880	84.44 per 1,000 deaths	.21 points	.25
1890	90.06 per 1,000 deaths	5.62 points	6.6
1900	106.1 per 1,000 deaths	16.04 points	17.8

Meanwhile our views have altered as to what are unknown causes. In 1850 a death from "fever" was a known cause. So were deaths from "wasting," "worms," "teething," "rage," "fright," "grief," "congestion of the heart," "paralysis of the lungs," "swal-

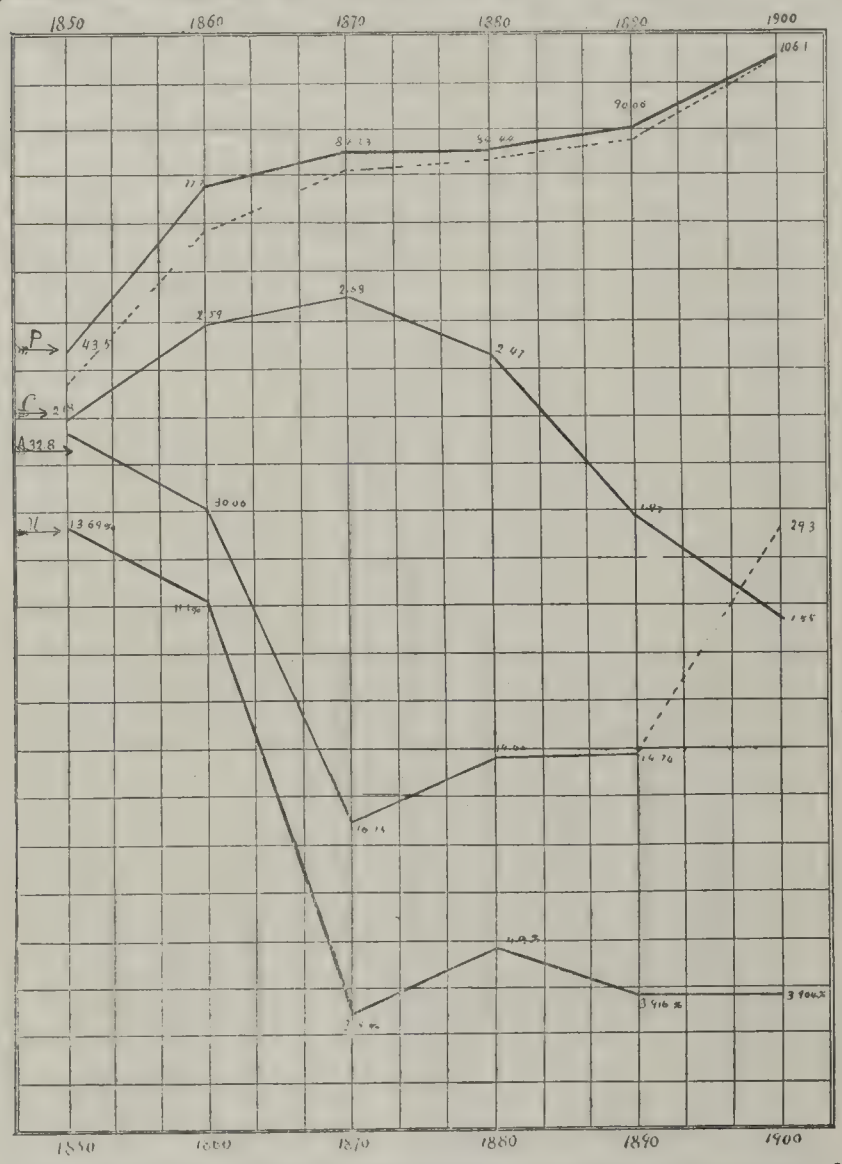


Chart 3.—United States census reports, showing the relation of pneumonia to unknown and indefinite causes of death. P, pneumonia; C, convulsions; A, old age; U, unknown causes.

lowed a penny when a boy," and other absurdities, traceable in the statistics down to the later nineties.

In 1900 the unknown class includes debility, wasting, heart failure, infantile atrophy, marasmus, inanition (above the age of three months), laparotomy, paracentesis, phlegmasia, pneumatosis, polydipsia, polyuria, surgical shock, strangulation, stricture, suppuration, tympanitis, typhomania, rupture of viscera, and 27 sorts of fever, all of which in 1870 were considered definite enough to be classified among known causes.

The percentage of unknown causes for the year of 1850, if brought into accord with modern ideas, would be much more than 13.7 per cent. of all the certificates examined, and the percentages for intervening years would be materially increased, thus further diminishing the differences in our pneumonia ratios. The published pneumonia rates for the various localities of this country are all uncorrected for unknown causes, and there is no means of ascertaining what the error is on this account, but certainly a descending scale beginning with a percentage of 13.7 in 1850 and ending with 3 in 1900, would not fully correct the ratio of pneumonia to known causes of death.

The state of Connecticut publishes a percentage table of unknown causes, though the ratios are not corrected by it. In 1878 the percentage of returns giving unknown causes of death was higher than that of the census for 1870, and this fact supports the view that the census percentages are very much too small. In 1878 Connecticut was a registration state, collecting her mortality data day by day at the time and place of death; while the United States Census Reports depend on the returns of a very few registration states and cities, supplemented, or confused as the case may be, by the

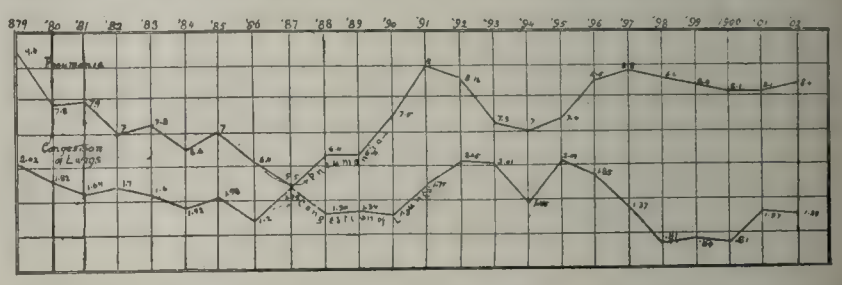


Chart 4.—District of Columbia, showing the symmetrical relations of pneumonia and congestion of the lungs with the striking effect of influenza's advent in 1890.

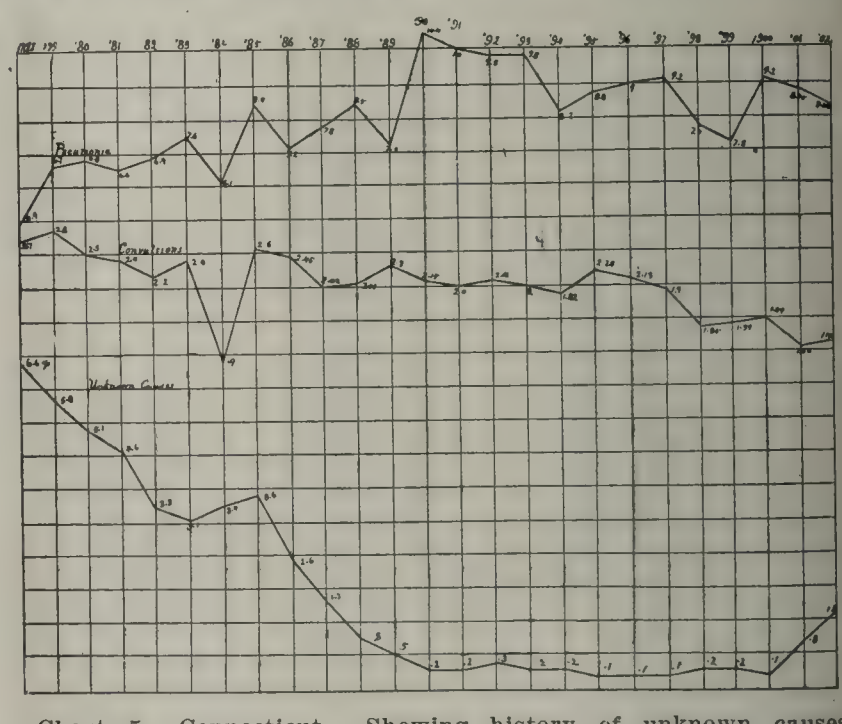


Chart 5.—Connecticut. Showing history of unknown causes. Illustrating the confusion between convulsions and pneumonia. Tendency to diverge in parallel motion. Relation of influenza suddenly appearing in 1890. Unknown causes are included in these ratios.

reports of unskilled lay enumerators making inquiry in May concerning all the deaths of a preceding twelve months.

The Connecticut percentage for unknown causes falls year by year from 6.6 per cent. in 1878 to two-tenths of 1 per cent. in 1890. It does not rise above three-tenths of 1 per cent. until 1901, when the international classification came into use, sending the ratio of ill-defined causes up in two years to 1.3 per cent. Fancy what would happen to the pneumonia ratios of Connecticut if they were subjected to a plus correction beginning at 1.3 per cent. in 1902 and augmented backward to 37.7 per cent. in 1880 (Chart 5).

No statement of unknown or ill-defined causes can be found in Chicago reports. In New York city reports since 1901 one can find the vague causes of death, and they amount to 4 per cent. of the total mortality. Baltimore has been employing the international classification since 1898, but the deaths classed as of indefinite causation are but six-tenths of 1 per cent. The Philadelphia registrar is cleverest of all (Chicago always excepted), for he only finds one certificate in two or three thousand too difficult for his skill at classification. The returns of Maryland, outside of Baltimore, are examined by a medical man, and so large a proportion as 6 per cent. of them are found incapable of classification and unfit for inclusion in the nosologic ratios.

Boston is silent about indefinite causes of death until 1902, when the international classification went into use, and the indefinite causes of death are found to be about 4 per cent. The Massachusetts registration reports give us a clue to the probable history of vague causes in Boston. The indefinite causes of death shot up in a remarkable way in 1868, when vague returns for deaths of infants were taken out of the infantile class and passed into the unclassified account for all ages. The percentage of unknown causes shot up from 1.9 per cent. to 5.4 per cent. of the total per thousand deaths from known causes, reducing the apparent rise of 22 points to a rise of less than 8 points in 20 years.

Statistical compartment No. 179 is not the only waste basket in our nosologic classification. Each class of diseases has a special receptacle for the certificates which appear to belong to a definite class of diseases but not to a definite nosologic title.

Old age furnishes a statistical history somewhat suggestive, though less interesting than that of undefined causes. The ratios of old age to the so-called known causes of death are, according to the census reports, as follows: (Chart 3.)

		Increase or Decrease.	Per cent.
1850	32.8 per 1,000 deaths		
1860	30.6 per 1,000 deaths	—2.2 points	—6.7
1870	16.75 per 1,000 deaths	—13.85 points	—45.9
1880	19.61 per 1,000 deaths	+2.86 points	+17.00
1890	19.74 per 1,000 deaths	+.13 points	+.66
1900	29.3 per 1,000 deaths	+9.56 points	+48.4

If old age were a cause of death, its ratio to total mortality should have steadily and very materially risen in 50 years, for the proportion of population above the age of 65 has risen. We find, however, that the mortality ascribed to this cause fell for twenty years, and in the next 30 years rose slightly. The apparent rise of mortality since 1890 can not, however, be explained

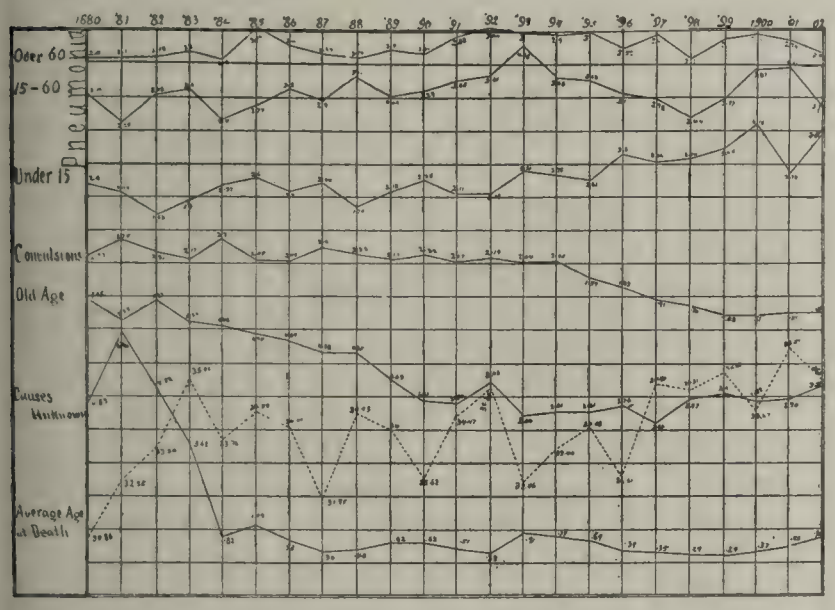


Chart 6.—Rhode Island. Showing an indefinite cause of death, "old age," declining while the average age at death increases and the pneumonia mortality above 60 does not rise. Under 15 years pneumonia rises while convulsions decline. These ratios are to total mortality, including unknown causes.

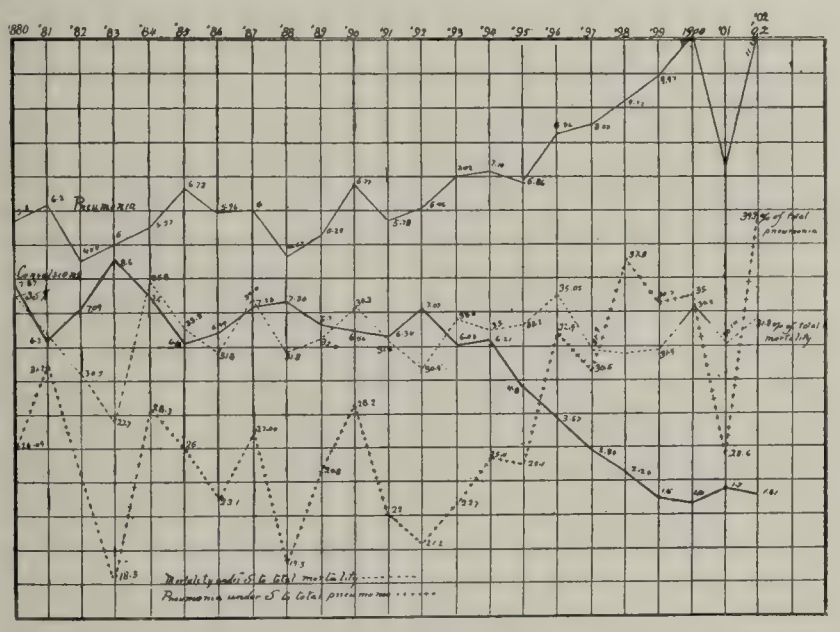


Chart 7.—Rhode Island. Showing apparent rise of pneumonia under 5, with coincident decline of convulsions and increasing ratio of pneumonia under 5 to total pneumonia. The decline of infantile mortality in general is also shown. Ratios are to total mortality under 5 and include unknown causes.

mortality, and from this point it fell to 1.17 per cent. in 1889. If the 4 per cent. correction for unknown causes in Boston in 1902 be multiplied backward to 24.8 per cent. in 1882, what will then be the relation of the ratios of any definite cause of death? If the experience of Massachusetts and Connecticut indicates so large a source of error in undefined causes, how can the error be less in Chicago or New York?

Moreover, the age distribution of the unknown and ill-defined causes of death shows that this correction applies but slightly to the middle period of life, 40 per cent. of it falling on ages under 5 years, and a small excess again on ages over 60. These corrections would undoubtedly moderate the remarkable angularity of the published pneumonia curves, and might even cause its apparent general rise to disappear.

The Massachusetts correction applied to the census figures would change the pneumonia ratio for 1880 from 83.30 per 1,000 deaths from all causes to 98.54 on the view that a larger proportion of deaths were returned under this vague title. The experience of all registration states is contradicted by the figures for these wide apart years, for everywhere old age is diminishing as an alleged cause of death, though everywhere old age as a phase of human life is increasing. The deaths of the aged are nowadays far more definitely explained than 20 years ago. Of those lost to the indefinite account many have gone into the accounts of cancer and of kidney diseases, but some have gone into the pneumonia account. The apparent rise of pneumonia in the aged is fully accounted for by the increased population at advanced ages, added to the improved certification resulting from better diagnosis.

In the class of respiratory diseases there is a vague title which undoubtedly conceals part of the pneumonia mortality. It is "congestion of the lungs," a title signifying as much in vital statistics as it does in medical

diagnosis, and no more. The District of Columbia[1] reports show the progress of this statistical item for many years. Observe chart 4, which shows pneumonia and congestion of the lungs diverging steadily year by year in parallel motion. Its responsiveness to the pneumonia curve shows that congestion of the lungs, in the District of Columbia at least, is not an empty title, although it has been unloading into the pneumonia column for years.

Certain obscure or ill-defined diseases bear relations to infantile mortality quite analagous to those borne by old age to the mortality above 60, and by unknown causes to the total mortality. One of these statistical titles has a close relation to the pneumonias of children, namely, "convulsions." Statistics of mortality from convulsions are available from 1850 to the present time. (Chart 3.) Their history in the United States Census is as follows:

	Per 1,000 deaths from all causes.	Per 1,000 deaths from known causes.
1850	18.8	21.8
1860	23.04	25.9
1870	25.9	26.8
1880	23.6	24.7
1890	18.9	19.7
1900	.....	15.5

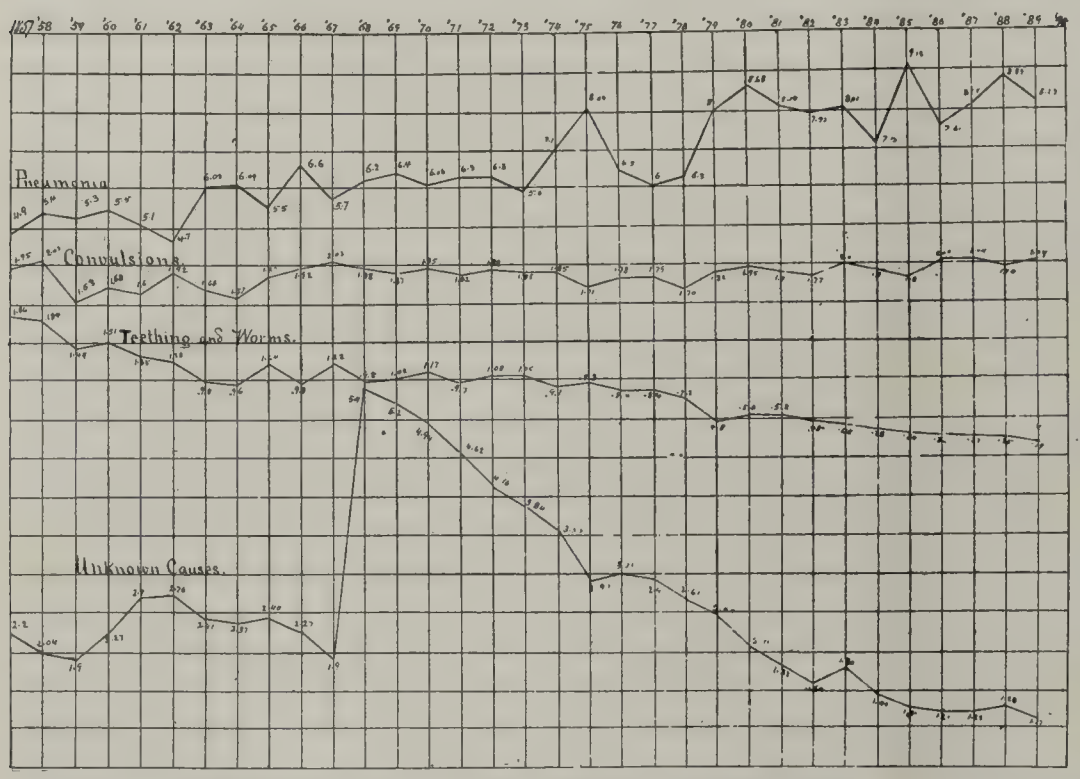


Chart 8.—Massachusetts, 1857 to 1890. Showing progress of the pneumonia ratios for all ages in relation with the progress of "unknown" causes and with two indefinite causes.

For the last decade, while pneumonia has been rising from 90.06 to 106.1, convulsions have fallen from 19.7 to 15.5 per 1,000 deaths from known causes. In the same period the death rate, for convulsions, per 100,000 population, has fallen from 56.2 to 33.1. The ratio of convulsions per 1,000 deaths from known causes at known ages has dropped from 33.5 to 20.4.

The relations of convulsions to quinquennial periods under 15 are as follows: In each 1,000 deaths under the age of 5 years there were charged to convulsions in 1890, 67.05; in 1900, 59.5. In each 1,000 deaths between 5 and 10 years, 15.44 in 1890, and in 1900, 11.3 were charged to convulsions. In each 1,000 deaths between 10 and 15 years of age there were charged to convulsions in 1890, 8.45; in 1900, 5.3. This is a remarkably consistent statistical exhibit of the progress of the mortality records toward definiteness.

Convulsions in children mask pneumonia more than any other cause of death, and one can safely say that a major part of the diminishing mortality from convulsions has, through improving diagnosis, been transferred to the pneumonia account, though from the statistical point of view this means no more than a step or two toward definiteness. At the present time every textbook warns one not to be misled by convulsions into overlooking pneumonia, and the importance of convulsions in the symptomatology of pneumonia is strongly emphasized. The diagnosis of pneumonia in children is indeed a very modern refinement of medicine, and dates from the comparatively recent inclusion of pediatrics among the essential subjects of college training.

One can not derive from the published statistics of large cities the relations of convulsions to pneumonia, but it seems quite significant that the weekly bulletin of Chicago has recently commented on the 40 per cent. decline of mortality from nervous diseases in the present decade, as compared with the decade preceding. The great part of that gain is a 60 per cent. reduction of the mortality from convulsions. It will be safe to say that 95 per cent. of the deaths charged to convulsions in Chicago fall on the period of life below 5 years, and that no more than 15 per cent. of these cases were in any proper sense diseases of the nervous system. A majority, at least, of these cases were pneumonia, and undoubtedly the pneumonia account has fattened on the alleged decline of nervous diseases.

The relations of pneumonia to convulsions are shown on several of the accompanying charts, and here, as in the case of congestion of the lungs, one observes a tendency to rise and fall together, particularly in the earlier part of the history. They diverge, however, the convulsions line pursuing a general downward course as pneumonia tends to rise.

For the state of Rhode Island I have been able to separate the pneumonia ratios by age periods, charting separately the pneumonia ratios for ages under 15 (Chart 6), from 15 to 60, and above 60. This brings out the relation of convulsions to infantile pneumonia rather better, although the statement is not quite fair to that relation. The relations of pneumonia under 15 to convulsions would be better stated as ratios to the mortality from known causes under 15 than to the mortality at all ages. The published figures would not yield these ratios, but Dr. Swarts has kindly furnished me figures which yield a still more striking illustration, namely, the relations of pneumonia and convulsions under 5 years to the total mortality under 5 years, the relations of pneumonia under 5 to pneumonia at all ages, and of the mortality under 5 to total mortality;

1. The apparent pneumonia history of the District of Columbia has attracted much attention as the "exception." The crude statistics indicate a decline of pneumonia. The age distribution of the population of Washington is very different from that of any other city in the country. In this respect it resembles none of the states adjacent. The population of Washington is deficient below the age of 20 and above the age of 60 years. It lacks precisely the elements of population which are said to have suffered the increased incidence of pneumonia. The average age at death has steadily increased, but it is doubtful if the average age of the living has materially altered in Washington in the past 20 years. If the statistics of Washington could be studied for pneumonia under the age of 5 years, it should and probably would appear that the returned mortality for pneumonia has increased, but the tables do not yield the necessary data, though Washington prints better statistics of mortality than any other large city in the country.

all for the period of time covered by the preceding chart (Chart 7).

The chart for Massachusetts contains, besides convulsions and unknown causes, the mortality ratios for "teething" and "worms." In 1897 only 1.3 deaths in "worms" are given definite consideration in the mortality statistics of Massachusetts down to the year 1900, when these items were lost by the adoption of the international classification. The relations of "teething" and "worms" to present-day mortality may very well be ignored, but their relations to our vital bookkeeping in the past may not be ignored. In 1857, 18.6 deaths in every 1,000 deaths at all ages, were attributed to "teething" and worms." In 1897 only 1.3 deaths in 1,000 are found under these heads. Different and more definite relations of infantile pneumonia are shown in Chart 9 from the experience of Massachusetts between 1889 and 1902.

A single registration office that I know of keeps separate account of the diseases of the brain and nervous system of children. My friend, Henry Mitchell, of New Jersey, furnishes this statistical account for comparison with the pneumonia account. The graphic

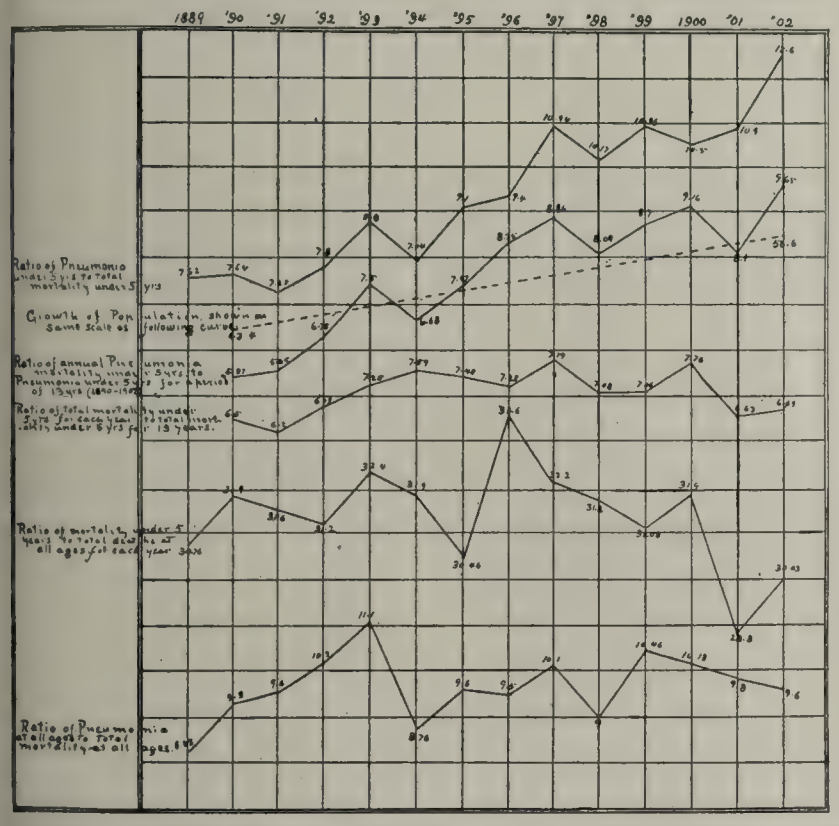


Chart 9.—Massachusetts, 1889 to 1902. Showing apparent rise of pneumonia under 5, increasing independently of the proportionate general mortality for that age period; showing the ratio of pneumonia for each year to pneumonia for 13 years, in the age period under 5, increasing but slightly in excess of growth of population.

statement is quite a remarkable one, showing the two curves separating in parallel motion so uniformly as to leave no doubt, in my mind at least, that the pneumonia account is fattening on the decline of its too responsive companion. Let me remind you again of the diagnosis of pneumonia in children. Its symptoms may include convulsions, stiff neck, opisthotonos, Kernig's sign, and the tache cérébrale. the cardinal signs, till recently, of meningitis. (Chart 10.)

For the state of Michigan I have been able to chart the ratio of pneumonia under 5 to the mortality from specified causes under 5, and to show the progress of convulsions and of unknown causes in the same relations. The relations of all these curves to the proportion of total mortality borne by children under 5 is also shown. A particular point of interest in this chart is the extremely irregular curve of unknown causes. Of course the unknown causes pursued in reality no such eccentric course. Rather does it indicate that Michigan registrars were like the rest of us, long in acquiring the Socratic merit of knowing that they did not know. From 1884 to 1889 a large number of obscure causes of death in infancy appear to have been restored to the classified nomenclature. If the plan of compilation used in 1883 had continued in use to 1889, the ratios would have traveled as high as they do in the nineties until 1897, when a much more stringent exclusion of vague causes was practiced, sending up a ratio that otherwise would have fallen. (Chart 11.)

In this state, too, the advent of influenza in 1890 had a remarkable effect on both pneumonia and convulsions. Both the ratios fall a long way in obedience to the strong impression made by the grip on the medical mind and probably also on the registration office. This precipitate decline marks the period when the physicians and registration officers of Michigan came very near calling a spade a spade, though they have, in common with physicians and registrars elsewhere, been hiding influenza in the pneumonia account ever since that year.

One must regret that the mortality statistics of the large cities can not be studied from the published reports. It is a reproach that the mortality of these cities is not at least put into condition for study before publication. The fact that crude statements are published without any mention of their elements, is of itself sufficient ground for refusing them credit. For New York it may be said that it is difficult to find collateral evidence of the delusiveness of her pneumonia statistics. Chicago, however, does not confine her remarka-

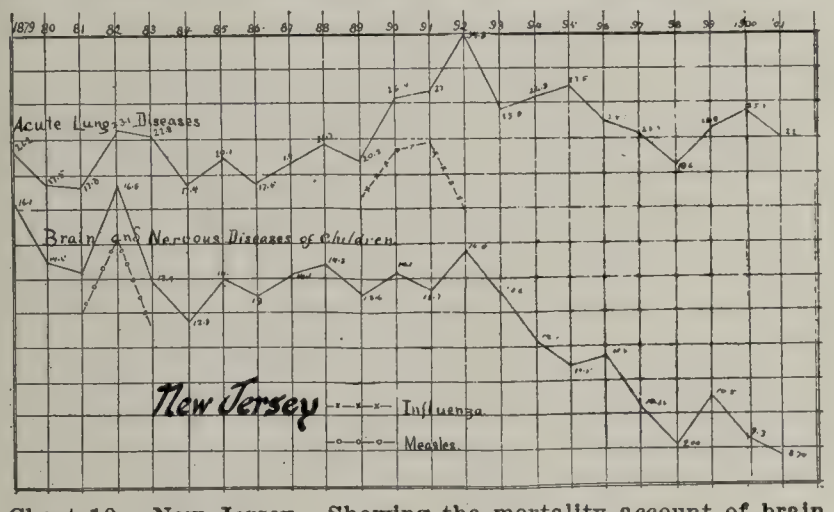


Chart 10.—New Jersey. Showing the mortality account of brain and nervous diseases of children unloading into the mortality account of acute lung diseases. The chart at 1892 suggests marked alteration either in the death certification or statistical treatment of influenza.

ble statements concerning mortality to the subject of pneumonia. Some of Chicago's detached utterances are difficult to reconcile. For instance, when we are told that from November, 1903, to May, 1904, there were 3,568 deaths from pneumonia, one may ask whereabouts on the population the mortality fell?

Above the age of 65, Chicago has but 2.46 per cent. of her population. The large American cities (including Chicago) have 3.07 per cent. of their population above 65. The Chicago figures for pneumonia impose a mortality 30 per cent. excessive on a population 20 per cent. short. One can not compound mortality at this rate.

At ages between 5 and 65 pneumonia is declining, and Chicago should derive a profit from this fact, for she has 86.3 per cent. of her people in this period, against the 85.93 per cent. in other large American cities. The excessive mortality can not fall on this period.

Chicago has below the age of 5 years, 11.24 per cent. of population, against 11 per cent. in this period in other large American cities. This part of the population, according to urban experience in recent years, must carry approximately 46.4 per cent. of the pneumonia mortality.

According to a recent bulletin the present proportion of deaths under the age of 5 is 21.8 per cent. of the total mortality, about 4 points less than it has been in years. The pneumonia mortality of Chicago is said to be 22.32 per cent. of the total mortality. The use of exactly these figures would result in an absurdity so gross that I hesitate to utilize it. Let us assume as Chicago's proportionate mortality what she says is her average, 26 per cent., and we shall have the statement that 26 per cent. of all deaths include not less than 37 per cent., and perhaps as much as 46 per cent. of the deaths from that cause which itself causes 22.32 per cent. of the total mortality. The arithmetical result of this sad disarrangement is that of every 1,000 deaths in Chicago under the age of 5 years, between 318 and 471 must have died of pneumonia.

There is no conceivable way of adjusting 3,568 deaths from pneumonia to the roll of the living or the dead in

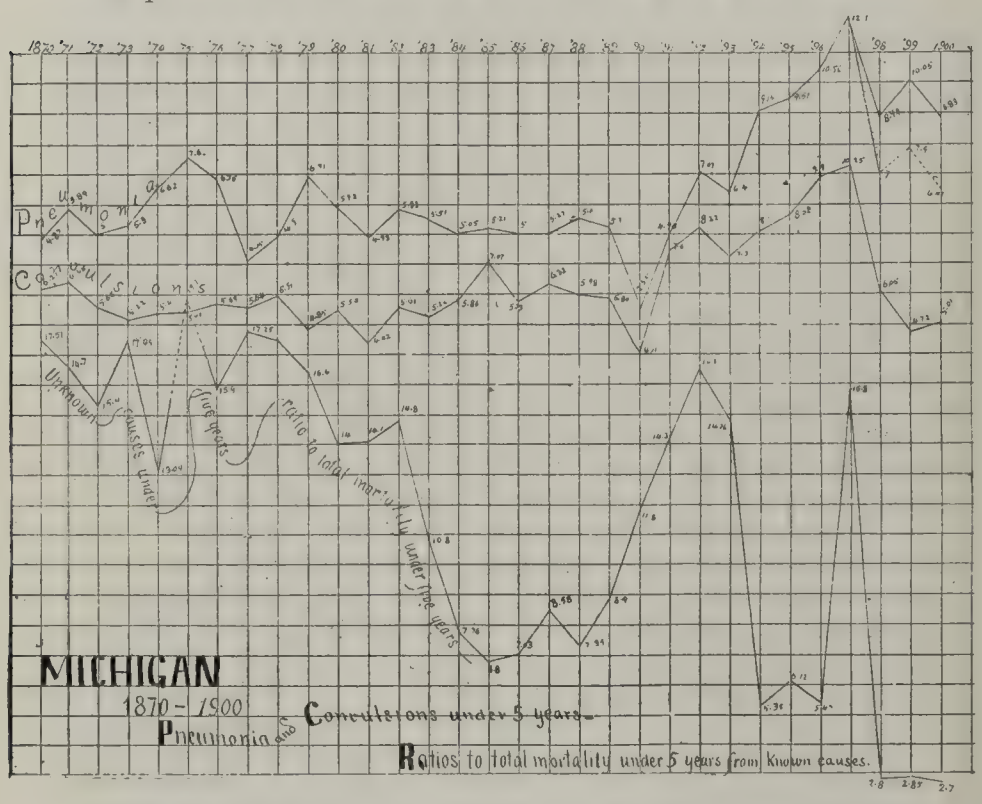


Chart 11.—Michigan. Illustrating the confusion of pneumonia with convulsions, especially in the years 1871, 1878, 1881, 1882 1883, 1888, 1889, 1890, independent of the fluctuations of unknown causes—in the years 1891, 1892, 1893, 1897, 1898 the same confusion exaggerated by the fluctuation of unknown causes. At the year 1890 the chart derives its peculiar character from the reference of many deaths under 5 to influenza—convulsions and pneumonia, both falling, notwithstanding a large rise in the unknown causes. Unknown causes are excluded from the ratios.

Chicago without producing as absurd relations as these. Instead of 21.8 per cent., 31.8 per cent. of total mortality for the period of life under 5 years is the lowest figure possibly consistent at the same time with human experience and with Chicago's reported pneumonia mortality. On the other hand, if 21.8 per cent. is approximately the proportionate mortality of Chicago for the age period under 5 years, the pneumonia mortality must be counted down from 3,568 to 2,880 before it reaches the limits of credibility

The bulletin says again that the present season is the most favorable in the history of the city so far as childhood is concerned. Great gratification is expressed at the "phenomenal infrequency of the contagious diseases." Since the first of the year there are said to have been but 9 deaths from measles, against 190 in a like period last year, but 91 deaths from scarlet fever against 167 in a like period last year, but 8 deaths from whooping-cough against 186 in a like period last year. Now Chicago is on earth. It is situated in one of the United States, is inhabited, and its people have the characteristics of the human race, except that they can suffer a phenomenal rise of pneumonia, associated with a more phenomenal fall of measles, scarlet fever and whooping-cough. In this respect the history of Chicago in 1904 is unique in the experience of Illinois, of the United States, of the world, and of Chicago.

These representations of the history of indefinite causes in general exhibit the progress of medical diagnosis and of registration in the general direction of definiteness. They show that improvement in medical diagnosis has a far more serious effect on the signifi-

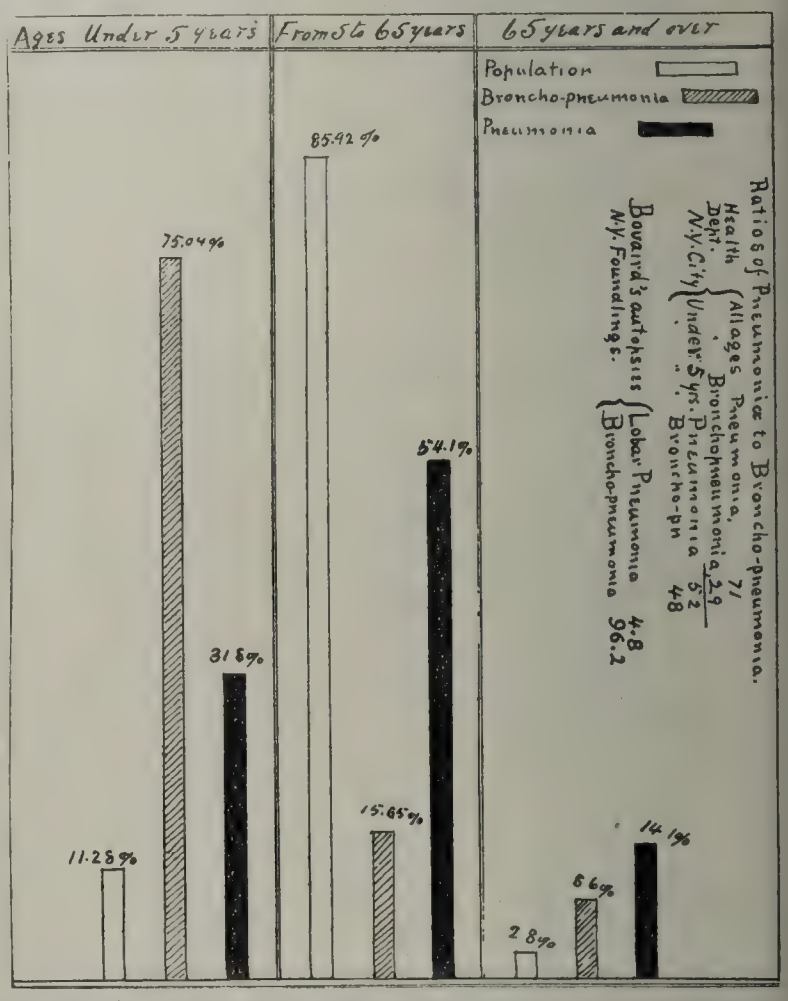


Chart 12.—New York City, 1901. Percentages of population in 3 age periods. Percentages of pneumonia mortality in 3 age periods. Percentages of bronchopneumonia in 3 age periods.

cance of the figures than is generally admitted. In the history of the very indefinite and unknown causes one sees so large an error as to vitiate the statistics for practically all the definite diseases, which are said to be rising. In the infantile mortality especially, one sees a number of vague causes of death gradually disappearing from the tables, while most of the definite affections are at the same time declining. There is but one possible explanation of the declining mortality charged to such vague statistical accounts as teething, worms, convulsions, brain and nervous diseases of children, and that explanation is that deaths long ago attributed in large numbers to these causes are now receiving at the hands of physicians more definite nosologic reference.

Certain important diseases of infancy are declining, and their decline can be accounted for. A single rising account has appeared in the history of infantile mortality, and the conclusion is to me irresistible, that the one

rising account has profited by the decline of the indefinite causes of infantile mortality.

If such corrections as I have suggested be applied to the statistics, we shall, perhaps, not seriously diminish the importance of pneumonia as a cause of infantile mortality at the present time. So far, indeed, the argument simply brings the past and unsuspected importance of pneumonia into view, and at that point we should have to stop if pneumonia were a definite cause of death. But the term pneumonia is not, either in the tables or in its medical use, a definite statement of a cause of death. In medical parlance pneumonia has grown less definite in the course of time. In statistics the term is less definite than in medicine, although it preserved the appearance of definiteness until the adoption of the international classification, when the comparatively modern compounded word, bronchopneumonia, received a separate index.

In the United States census for 1900, although the international classification is used, one finds under the head of pneumonia no differential statement such as this classification provides for. For the local registration offices in general, one may say that differential statements can rarely be found in the published records where the international classification is not used, while in the offices employing this classification differential statements are obtainable only for the past three or four years.

All the statistical sources utilized in this study give differential statements for a total of 13,608 deaths, of which 9,263 were returned under the head of pneumonia, and 4,340 under the heads of bronchopneumonia and pleuro pneumonia.

The published reports for New York furnish hardly any and those of Chicago no means whatever of determining the probable line of cleavage between the two sorts of pneumonia, but if the per cent. derivable from the figures given hold good for these cities, 32 per cent. will be cut off the returned mortality for the past four years. One can not say, however, that the 32 per cent. error which is fairly chargeable against the records for the years 1900-1902 would hold good for any equal antecedent period. The information yielded by the New York City report for 1901 is shown in Chart 12.

The statistics for Boston throw a curious light on this point. The pneumonias were differentiated in that city in the published reports before 1900, but they were distributed in such a way as to make it appear that lobar pneumonia has been decreasing, while bronchopneumonia has been increasing. The bronchopneumonia for 1896 was 15 per cent. of the whole pneumonia account, in 1897, 17 per cent., and in 1899, 22 per cent. Since 1900, 46.7 per cent. of the pneumonia account of Boston is made up of deaths returned as caused by bronchopneumonia.

One might say that it is right to add bronchopneumonia to pneumonia now, the figures should be recovered and added to the pneumonia of the past. But the rise of bronchopneumonia does not mean in medicine and it should not mean in statistics anything added to pneumonia. Traced backward, bronchopneumonia will be found to disappear, the greater part of it at least, in the bronchitis account.

The correction for certificates returned under the head of bronchopneumonia is a discount applied to the pneumonia ratios at a rate beginning with at least 32 per cent. in 1902, and diminishing year by year to zero at about the year 1880.

This would still leave a considerable though indeterminate amount of bronchopneumonia in the figures for recent years. The terms pneumonia and bronchopneumonia, although convertible terms in statistics, are not convertible terms in medical use. No physician ever writes "bronchopneumonia" on a death certificate when he means lobar pneumonia, but many physicians write simply "pneumonia" when they have recognized the cause of death as bronchopneumonia. Bovaird's recent figures for 500 autopsies at the New York Foundling Asylum gave 95.2 per cent. of bronchopneumonia to 4.8 per cent. of lobar pneumonia. Fancy the curves on these charts cut to fit this ratio, and one can see the end of the pneumonia sensation. If the bronchopneumonia could, however, be eliminated or distinguished, the pneumonias remaining would still lack a definite significance.

In the manual which presumably governs the practice of officers using the international classification the instructions as to what returns are to be included under each of the two heads are interesting. Pneumonia includes deaths certified as due to acute, alcoholic, apical, croupous, infectious, bilious, typhoid, diplococcus, lobar and vesicular pneumonia, lung fever, inflammation of the lung or chest, peripneumonia, pneumopericarditis, pneumopleurisy, splenopneumonia. The title does not include death certified as due to bacillary pneumonia, caseous, catarrhal or interstitial pneumonia.

Bronchopneumonia includes catarrhal pneumonia, aspiration pneumonia and deglutition pneumonia. The bronchopneumonia of the census does not include the returns of capillary bronchitis. Capillary bronchitis is counted in the census office and in several local registration offices as bronchitis! One has no means of ascertaining what practice was followed previous to 1900, but it is certain that the practice differed from this. Practically everywhere the total pneumonia account includes all the death certificates in which the word pneumonia was used without reference to an antecedent disease of equal or greater statistical importance. In the District of Columbia the pleurisy account carries the pleuropneumonia mortality. The hypostatic, traumatic, surgical, septic, terminal and ether pneumonias are included in the pneumonia account whenever the death certificate fails to mention an antecedent condition having recognized importance as a cause of death.

The age distribution of bronchopneumonia is interesting. A very large part of it—75 per cent.—falls on ages under 15, but no part of life appears to be exempt from it; 25 per cent. is far too much to charge to ages above 15. I have charted the pneumonia and bronchopneumonias separately for New York by ages. Enormous as the disparity appears below the ages of 5 years, the actual contrast is greater. (Chart 12.) If the bronchopneumonias between 15 and 50 were all charged to tuberculosis, the bronchopneumonia statistics would be better and the tuberculosis statistics no worse. Above the age of 60 the use of the term bronchopneumonia does not express antemortem diagnosis.

Our study has gradually narrowed down to the question of pneumonia under 15, and in this period to the one-ninth or so of population under 5 years. Here we find that something like 90 per cent. of the recorded pneumonias have extremely various etiologic relations, and have no right whatever to consideration under a single nosologic head. Outside of mortality statistics, such thing as a primary bronchopneumonia is but

rarely recognized. In a great majority of instances the essential cause of bronchopneumonia can be determined clinically, and should be recorded on the certificate. Possibly since 1890 the diagnosis of respiratory affections in childhood has been in a single respect more difficult. Since the advent of influenza many bronchopneumonias are perhaps not referred to their etiologic factor so easily as are the bronchopneumonias of measles, whooping cough, scarlet fever, diphtheria, etc. Bronchopneumonia is a secondary or complicating condition, and whenever the primary causative factor is known a death from bronchopneumonia should receive appropriate statistical reference. When the certificate fails to designate the proper statistical reference, the record should at least be disposed of in such a way as not to obscure the relations of an agent of death as definite and important as lobar pneumonia.

There is no proof that lobar pneumonia has grown more prevalent or more fatal at any period of life. There is no considerable evidence of an increase at any period of life save that under 5 years, and here pneumonia has simply come into view and demands some consideration. Pneumonia is not the "Captain of the Men of Death." The claims of six destroyers stand between pneumonia and the distinction of leadership.

CONCLUSIONS.

1. The returned mortality of the United States for ages between 15 and 60 during the past twenty years shows a diminishing mortality from the class of respiratory diseases commonly returned as pneumonia. Of the pneumonias occurring in this age period a large majority are true lobar pneumonia. Fifty-eight and a half per cent. of the population of the United States, and 66.5 per cent. of the population of cities are between the ages of 15 and 60. The incidence of lobar pneumonia on a major part of the population is therefore diminishing.

2. The return mortality of the United States, for ages above 60, indicate that the mortality from the class of respiratory diseases commonly returned as pneumonia has increased from 21.9 per cent. to 22.6 per cent. in ten years, the population at the same age in the same period having increased from 6.2 to 6.6 per cent.

The urban mortality for the same age has grown in ten years from 16.1 to 19.5, and has been accompanied by an increase of population in that age period laterally from 5.23 to 5.27 per cent. Several pathologic conditions added to the group of pneumonias, and not provided for in statistics, are included in the returned mortality of pneumonia for ages above 60. For 6 per cent. of our total population lobar pneumonia may have increased in the past ten years, though satisfactory evidence of an increase has not been offered.

3. The return mortality of the United States for ages under 15 (about one-third of the total population) shows an apparent rise of mortality for the group of respiratory diseases commonly classed as pneumonia. The acute respiratory diseases of children were in former years commonly mistaken for affections of the nervous system. Year by year for thirty years increasing numbers of deaths formerly found in the indefinite accounts, and in the class of nervous diseases, have been transferred to the class of respiratory diseases and especially to the pneumonia account.

Of the mortality recorded as due to pneumonia under the age of 15 years, not more than 10 per cent. is due to lobar pneumonia. A small though considerable incidence of lobar pneumonia in children under the age of 5 has come into view of late years, but there is no evidence that lobar pneumonia has increased in this age period. The remaining 90 per cent. of the recorded mortality ascribed to pneumonia includes the conglomerate group of bronchopneumonias, nearly all of which are secondary or complicating causes of death, and should be referred in the mortality tables to the primary causes of death.

4. Since 1890 a new cause of infantile mortality has come into view, an acute respiratory infection, attacking infants of 2 years old and under, commonly returned under the diagnosis of pneumonia, sometimes returned as due to a disease of the nervous system, and probably due to influenza.

5. The mortality registration of American cities is in general very poor. The crude rates and ratios offered by certain cities as evidence of a rising pneumonia mortality are inconsistent with the mortality statements concerning other causes of death, and with the characteristics of the populations concerned. They represent a perversion of statistics which must eventually bring discredit on American mortality registration.

DISCUSSION.

DR. BENJAMIN LEE, Philadelphia, said that we all remember the criticism of the individual who divided lies into three classes—lies, confounded lies and statistics. Dr. Lee does not second that particular definition of statistics. At the same time he could not help thinking that we were discussing two propositions supposed to be founded on statistics, both of which have been accepted as definite and fixed, and neither of which, to his knowledge, has ever been definitely proved. It seems to him that we might expect 75,000,000 people to consume more alcohol than 10,000,000, but, taking our people as we find them, he does not think that any one can prove that at the present time intoxication is a vice of this country to the extent that it was 100 years ago. At that time a man was hardly considered a gentleman who did not go to bed drunk, while at the present time it is the exception for a respectable man to go to bed drunk. We may be increasing in the use of certain forms of alcohol, but those are the forms which are the least pernicious. The man who drinks a pint of beer does not drink as much alcohol as the man who drinks a glass of sherry, and very much less than the man who drinks an ounce of whisky. It does not seem to him that our present diseases are more due to the use of alcohol now than they were fifty years ago. There are many factors to be considered when we come to make up our minds as to statistical data and results in medicine. One of the most important factors is the question of diagnosis, and following that is the question of nomenclature. Both of these, in the period during which more or less accurate statistics have been kept, have made wonderful changes. Our advances in diagnosis have been very remarkable, and Dr. Fulton has pointed out that an immense number of diseases are now properly reported as pneumonia which formerly were not so reported. Comparatively few physicians now report infantile bronchitis and catarrh. Most of these cases are probably now reported as pneumonia.

DR. CRESSY L. WILBUR, Lansing, Mich., regrets that it is so extremely difficult to go back over the records of any state, or the United States, and obtain thoroughly reliable data as to the age distribution of any particular disease. He said that, in regard to the variations in the distribution of unknown causes in Michigan, perhaps Dr. Baker can throw some light on the matter, as the early records were compiled under Dr. Baker's personal supervision. Not only the methods of compilation change, but the men change who make the compilations. Dr. Baker, in the early compilation of the Michigan statistics, formed a book of practice, which served as a guide to the work. The statistics at that time were compiled according to the classification of Dr. Farr. During Dr. Wilbur's first experience in compilation he used this classification, but

e had no guide to its practical employment. He simply used is best judgment. At the Montreal meeting of the American ?ublic Health Association, in 1894, he suggested a new classi-ication. At that time there was no hint or promise of an in-ernational agreement. As soon as there was a prospect of successful international classification, beginning with the Bertillon system in 1898, he began to use it. This system was evised in 1900, the revision going into effect in 1901, since vhich time he has adhered strictly to the "international classi-ication," as it is now called. That makes four systems that ave been used in Michigan, besides one system which was mployed by three different compilers, varying in methods to ome extent. This shows the necessity of having a proper uide in this matter if our statistics are to be used for com-arisons even in the same state, and the international classifi-ation, if strictly followed, should give more satisfactory re-ults than those shown by the diagram. The United States Census reports for the year 1900 were for the census year 1899-900. The international classification was not used for that ompilation, so that the results shown in the last line should ompare with those for the preceding censuses. The Interna-ional Commission of Paris in 1900 did not seem to give this uestion of the proper compilation of pneumonia very much onsideration. A distinction was made between broncho-neumonia and "pneumonia," the latter supposed to corre-pond closely to croupous pneumonia; but, unfortunately, mong the deaths reported from "pneumonia" are included nany deaths from bronchopneumonia or catarrhal pneumonia, nd the statistics are thereby vitiated. Dr. Tatham of the English Registrar General's Office recently introduced a new lassification, and now makes four divisions of pneumonia. Epidemic pneumonia is placed among the infectious diseases. Bronchopneumonia or catarrhal pneumonia and acute lobar or roupous pneumonia are stated separately. In the fourth class ppears "pneumonia," unqualified, with indications that it is an ndefinite term, not to be chosen if possible to specify more lefinitely. Dr. Wilbur stated that the statistics of pneumonia re also confused by the fact that many deaths from "pneumo-nia" occur as the terminations of chronic diseases and are nerely terminal infections or complications. When pneumonia s the result of whooping cough, measles, or any of those dis-ases, it should be charged to the primary cause.

DR. J. N. HURTY, Indianapolis, said that, attracted to this ubject by constant reference of the bulletin of the Chicago Board of Health, he commenced to study the matter very losely in Indiana and tabulated and compared the pneumonia periods, as he called them, namely, November, December, Janu-ary, February and March of each of the four last years. He found that during the last period there were fewer deaths than the average of the entire four years, and so, evidently accord-ng to our statistics, while there was no increase in the total leaths from pneumonia, still, when they compared the re-ults by the different ages, they found an increase in those under 5 years of age. There were more pneumonia deaths during the last period than the average for the four years. During the first period, November and December, 1899, and January, February and March, 1900, there were quite as many deaths from pneumonia in Indiana as during the same periods in 1903 and 1904. The weather of the last period was very bad, being very raw, cold and wet. The humidity was high. In the first period there were quite as many pneumonia deaths, but the weather was comparatively mild, so he concluded that the weather was not causing an increase, if there was an in-crease, which did not appear by these comparisons. In one par-ticular the two periods were alike in having the same number of deaths from pneumonia and in this, that measles, influenza and whooping cough prevailed extraordinarily in both those periods, and in the lower periods they did not prevail, but Dr. Hurty could not find any similarity in the weather to ac-count for it.

DR. HENRY B. BAKER, Lansing, Mich., stated that from his standpoint the method of study is fundamentally wrong. He does not think we know from that method of study whether pneumonia is increasing or decreasing. It is not a satisfactory method to determine this question by means of the ratio of deaths from pneumonia to the deaths from all causes, because the deaths from the other causes are changing. Dr. Fulton or someone should take these figures and give us the relation of the deaths from pneumonia at certain ages to the population at those same ages. We are indebted to Dr. Fulton for calling attention to the influence of these other questions on the subject, but it is too early to apply these corrections which he seeks to apply. We haven't anything to apply them to to the best advantage.

DR. BENJAMIN LEE, Philadelphia, believes that a board of health without a proper system of registration of vital statistics is a truncated animal, and he is simply longing for the time when Pennsylvania will take as firm a stand as any other state. There are one or two points in regard to this question of pneumonia which have not been touched on. One is the influence of the presence in this country for the past ten years of the grip germ. Unquestionably a great many of the cases reported as pneumonia take that special form. The other point is the greater prevalence of pneumonia in cities as compared with the rural districts. Dr. Lee believes that street dust is a great factor in producing the disease, and whether that street dust contains the pneumococci or whether it contains some other poison is in each case an open question. He believes that long periods of dry weather, during which the atmosphere becomes filled with dust, are more frequently a source of danger than rainy weather. A most interesting experiment was tried in the city of New York many years ago. They were laying out a large park and had set out a great number of elm trees, and during the first two years all those trees died. When they came to take up the trees to find out the cause of death they found that all the roots of the trees were dyed blue, and on investigation they discovered that the dye material was Prussian blue, produced by the reaction of iron, potash and nitrogenous material in the street dirt, which had been used as a fertilizer. Dr. Lee has never followed up the question as to what effect the breathing of dust laden with Prussian blue would have, but he can conceive that it would have a very unpleasant action on the mucous membrane of the air passages. He does not believe that the question of street dust is at all ended when we talk only about the bacilli. He believes that there are other impurities and poisons in the street dust which may affect the pulmonary tissues disastrously.

DR. G. T. SWARTS, Providence, R. I., stated that the changes in nomenclature have been so rapid within the last four or five years that it would be difficult to compare the results with previous years. One could hardly believe the conditions existed as they are reported, and with the intent of learning something of those conditions since last February he has written to every physician who has reported the cause of death as pneumonia as to whether there was any known exposure to another case. That was for the purpose of determining if boards of health could profit by requiring isolation. At the present time it would seem that the amount of known exposure is very slight indeed. In answer to his inquiries he noticed that sometimes a physician would correct his diagnosis and state that the attack of pneumonia followed influenza. That would lead us to go back to what we call the primal cause of pneumonia, and whether the pneumococcus was present or some other organism as in measles or scarlet fever, and which has produced the inflammation of the lungs which simulates pneumonia. Until we can educate physicians to make an exact diagnosis and be more particular as to what we, as registrars, desire from them our statistics will still be in a chaotic state. When we attempt to draw conclusions we are very apt to be led astray unless we know the physician. The physicians of the state of Rhode Island are taking up this subject with interest, especially as they have been pestered for the last few years with questions from the registrar as to what they mean or do not mean to give as the cause of death.

DR. JOHN S. FULTON said that this subject, like many others of the sort, is in a state of confusion. To show that was one of the purposes of the paper. The argument which he made is for the most part destructive, but is none the less a necessary

argument. The registration offices in this country do not furnish the data necessary to a satisfactory study of the subject. Accurate numerical statements concerning the elements of population and concerning the distribution of mortality are lacking. The heterogeneousness of some of the mortality accounts has not been sufficiently considered by many students of the subject, and some registration offices have published misleading and alarming statements based on very insufficient data. The influence of improving diagnosis has not been accorded its due importance and the history of indefinite causes of death has not been taken into account. To his mind one of the most interesting phases of mortality registration is its progress toward definiteness. As medical knowledge improves the indefinite account loses by the medical reference of a certain number of deaths to their true cause. At the same time the indefinite account gains by the statistical reference of deaths medically returned under very vague or obsolete nosological heads. The weight of movement is toward definiteness but some of our growing accounts have not become definite, and one or two, though having very definite appearing titles, such as pneumonia, have actually become less definite. The progressive unloading of the "unknown" account, of "teething" and "worms," "old age," "convulsions," etc., into other accounts gives as a general result an exaggerated view of rising accounts and a disguise of falling accounts, but no one dare say, without careful examination, how any particular account has been affected. The pneumonia account has received substantial accretions from certain more indefinite accounts, but the term pneumonia has not meanwhile grown more definite, but less so. No one is prepared to tell us exactly what the pneumonia account includes, but in the period of life below 5 years 85 per cent. of the pneumonia mortality consists of the secondary bronchopneumonias, having a variety of etiologic relations. In the present state of knowledge it matters little that the pneumococcus is more or less loosely related to many of these cases, for the relations of pneumococcus even to the massive pneumonias, which physicians have in mind when speaking of pneumonia, are not yet satisfactorily affirmed. A consideration of the figures seems to Dr. Fulton to suggest rather strongly that about 1889 a new factor entered into the pneumonia mortality of young children. This new factor may not have been the freshly imported strain of influenzal virus, but it certainly was not a new strain of pneumococcus. The relation of influenza to infant mortality has not been regarded as very important, but he suspects that the apparent pneumonia mortality would be very much reduced by successful prophylaxis of influenza, and that profits therefrom would be realized most amply by that part of the population under 5 years of age.

THE MANAGEMENT OF HERNIA IN INFANCY AND CHILDHOOD, WITH RESULTS OF OPERATIVE TREATMENT.*

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The fact that at least one-third of all the cases of hernia occur in children under the age of 14 is sufficient evidence of the importance of this subject.

Most cases of hernia in infancy and childhood are regarded as congenital, but this is a term that has given rise to much confusion. By congenital hernia we do not mean a hernia that existed at birth, but a hernia due to the failure on the part of Nature to close the process of peritoneum that has followed the testis in its descent into the scrotum. If the hernial sac is found at operation to communicate with the tunica vaginalis of the testis, we speak of it as congenital hernia. If, however, the pouch of peritoneum has become closed off just above the testis, but still leaving an open funicular process extending through the canal, or even into the scrotum, we still have a condition quite as favorable for the development of a hernia as in the former typical congenital variety. This latter variety, strictly speaking, would be a congenital hernia, although there is no way of differentiating it, anatomically, from an acquired hernia.

It is probable that the great majority of herniæ in children under the age of 5 or 6 years belong to these two varieties, and owe their existence to a congenital or preformed hernial sac. An analysis of our own series of operations for hernia in children shows that in more than half of the cases there is no communication between the hernial sac and the tunica vaginalis. Given the existence of a congenital or pre-formed sac, the immediate or exciting cause may be anything that greatly increases the intra-abdominal pressure, e. g., crying, coughing, straining at stool, constriction of the abdominal cavity by too tight bands.

The main question under consideration in the present paper is how to treat a hernia after it has developed, and the first point to decide is: Shall the treatment be mechanical or operative?

We believe that truss treatment should always be the method of choice in children under the age of 4 years, although not a few surgeons, both here and abroad, are now advocating operation as the primary method of treatment in infants. While I believe it a good general rule not to operate until the age of 4 years has been reached, there are certain important exceptions:

1. If there is a history of strangulation that has become reduced by taxis, I believe that an operation is indicated, no matter how young the child.

2. In cases in which, despite carefully directed truss treatment, the hernia has become irreducible, or reducible with difficulty, I think early operation should be advised.

3. In cases in which the rupture can not be controlled by a truss and, as a consequence, is gradually increasing in size.

4. In all cases of femoral hernia, the reason for prompt operation in this class being that a cure by persistent truss treatment is practically unknown at any age.

5. Immediate operation is indicated in all cases of hernia associated with reducible hydrocele or fluid in the hernial sac, inasmuch as it is impossible to control the rupture by means of a truss, and there is, hence, nothing to be gained by waiting.

RESULTS OF MECHANICAL TREATMENT IN CHILDREN.

Roughly speaking, I believe that herniæ in infants and children under the age of 4 years can be cured by carefully directed truss treatment in about two-thirds of the cases, although it is probable that, in after years, a considerable percentage will relapse.

Beyond the age of 4 years, in a fair proportion of the cases, a cure can be effected by means of a truss, provided the truss is properly fitted in the first place, and the child is regularly seen by a surgeon for a period of not less than two years.

METHOD OF MECHANICAL TREATMENT.

There are several kinds of trusses, all of which are of nearly equal value in the treatment of hernia in children. Personally, I consider the "opposite-side" or "cross-body" truss (Knight truss, Fig. 1) the best. It consists

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* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of a light steel frame, extending three-quarters the distance around the pelvis, the remaining distance being covered by a strap. The spring is covered with rubber tubing, and the pad is attached to a short steel arm fastened at right angles to one end of the spring. The spring is so tempered that any desired pressure can be easily secured. Another very good form of truss is the frame truss of the Hood or Pomeroy type (Fig. 2).

A truss can not be applied too early. As soon as a rupture in an infant has been recognized, the truss should be immediately fitted and should be worn night and day.

Umbilical hernia in children generally develops during the first year of life, and in the great majority of cases can be cured by mechanical treatment. Operation is very seldom indicated. One of the best methods of treatment in these cases is by means of a small wooden button mold, covered with rubber plaster and placed over the opening. This pad is held in place by a circular strap of rubber plaster, two inches in width, entirely surrounding the abdomen. Care should be exercised not to cause any appreciable constriction. This should be changed every week or ten days. In rare cases with very large opening, the hernia may be found to persist despite careful treatment. In these cases operation should be performed. The method of excision of the umbilicus, including the hernial sac, with careful suture in three layers—with or without overlapping the fascia—will almost always result in a permanent cure.

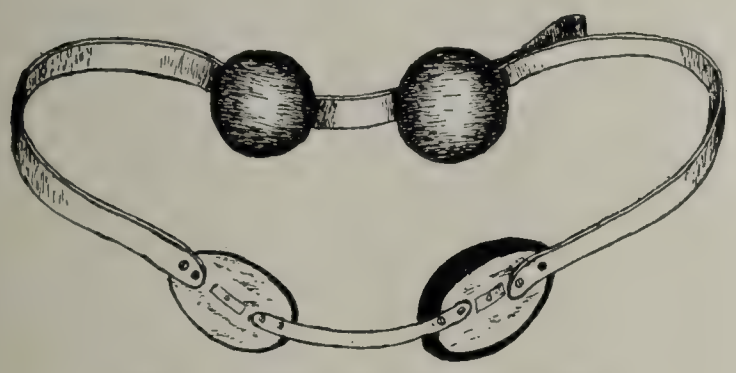


Fig. 1.—"Hood" or "Pomeroy" truss.

Epigastric herniæ are not very rare in children, and if the opening is large enough to admit the tip of the index finger an operation will probably be needed to effect a cure. They do not tend to spontaneous cure, as is generally the case in umbilical hernia in children.

DURATION OF TREATMENT.

If a child has reached the age of 4 years and the rupture has not been cured, as shown by its occasional appearance when the truss is removed, then an operation should be performed. If a rupture is first noticed in a child over 4 years of age, it is a question whether to employ mechanical or operative treatment. At this age the percentage of cures by truss treatment is comparatively small, far less than in infants. In addition, the treatment, in order to be of any avail, has to be prolonged over a period of from two to three years which, to a dispensary child, means a great deal of trouble and much loss of time to the parents in bringing the child regularly to the hospital or dispensary. Hence there is much to be said in favor of an operation, which is practically sure to effect a cure in from two to three weeks' time, and, furthermore, is almost entirely free from risk. It has been our former practice at the Hospital for Ruptured and Crippled to treat all children with comparatively small and easily held ruptures for a time with a truss. However, of late the results of operation have been so uniformly satisfactory that we are now inclined to advise operation in the majority of such cases, especially in dispensary children, who seldom get proper supervision of the truss at home.

METHODS OF OPERATION.

It seems to be the impression that the radical cure of hernia in children is a much simpler matter than in adults, and that almost any method will accomplish the desired result. While it may be admitted that the results of operation in children during the past decade have been a trifle superior to those obtained in adults, I believe this fact due rather to improved methods of operation than anything else. I need only cite a series of 20 cases operated on at the Hospital for Ruptured and Crippled prior to 1890 by the methods of Socin and Czerny, with 50 per cent. of relapses in less than a year after operation, to disprove the contention that hernia in children can be cured by any method of operation.

To operate in children in which we have to separate the hernial sac, as thin as tissue paper, and avoid cutting or tearing the slender cord, requires far more care and delicacy than the operation in the adult. With the

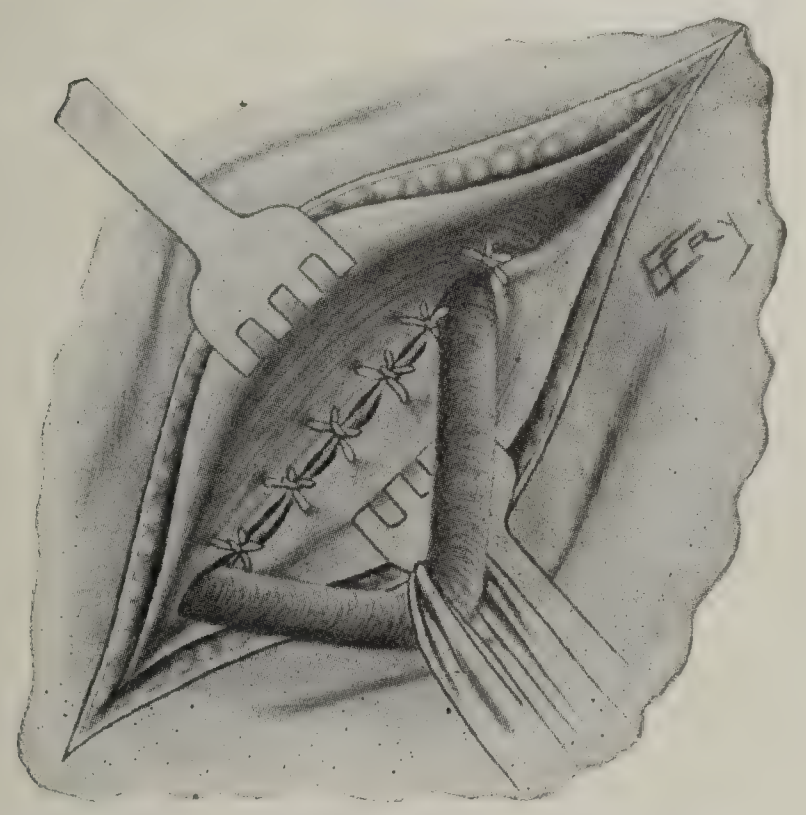


Fig. 2.—Bassini's operation (deep sutures), showing extra suture above the cord.

operation carefully and skillfully done by the Bassini method, or possibly by the same method without the transplantation of the cord, the results are almost perfect.

I have as yet never cut or torn the cord, either in children or adults, and with proper care the accident should never occur. The lower end of the sac is removed if acquired, and if congenital, i. e., communicating with the tunica vaginalis, I always put in a purse-string suture which closes it over the testis.

I believe the substitution of an absorbable suture, e.g., chromicized kangaroo tendon, a great improvement over the buried silk sutures advocated by Bassini, or the silver wire so much used and lauded by other surgeons.

The method of operation that I have employed in most cases in children as well as in adults, is the Bassini method, with the modification of first placing one suture above the cord, in addition to those below, to prevent any widening of the new internal ring in an upward direction, and to substitute for the buried silk

sutures used by Bassini absorbable sutures, i. e., chromicized kangaroo tendon.

After the sac has been tied off well beyond the neck, at a point where it has begun to widen out into the general peritoneal cavity, the deep layer of sutures is placed as follows: With a small tape the cord is held up and the first suture is placed so that it just touches the lower border of the cord when the latter is brought vertically to the plane of the abdomen; three to four more through the internal oblique and Poupart's ligament will suffice to close the canal to the symphysis pubis. Then the suture above the cord (Fig. 3) is inserted. This is not a part of Bassini's technic, but I believe it is of decided aid in preventing a relapse, as it strengthens the only weak point in the operation. The incision in the aponeurosis is then closed from above downward by a small continuous suture of kangaroo tendon and the skin with catgut. No drainage is used, and the wound is dressed very carefully with sterile gauze, cotton, a firmly applied spica bandage, and finally a plaster-of-paris spica is applied to give perfect rest to the parts. The wound is dressed the seventh

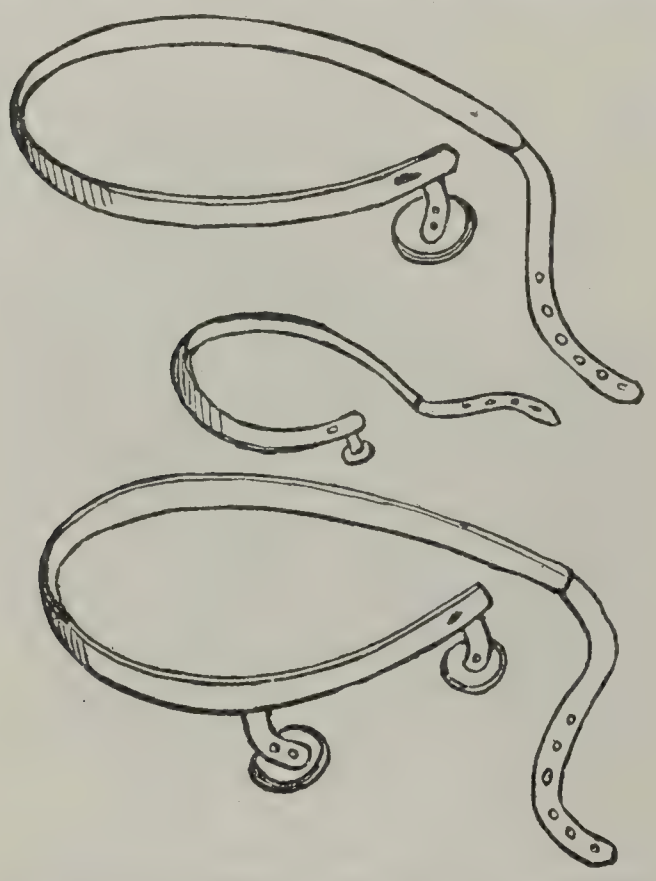


Fig. 3.—The "Knight" truss; single and double.

day, and the patients are kept in bed two weeks and allowed to go out in from two and one-half to three weeks, wearing a spica bandage until four weeks have elapsed, after which time no support is worn.

In a small series of cases, about 100 in number, extending back to 1892, Dr. Bull and myself have employed a method practically the same as Bassini's, without transplantation of the cord, the cord coming out at the lower angle of the wound, just above the symphysis pubis, the internal oblique being sutured to Poupart's ligament, the aponeurosis of the external oblique closed by continuous suture. In other words, all the steps are identical with those of Bassini's method, except the treatment of the cord.

This is the method that has recently been advocated by a number of surgeons as superior to Bassini's, and while they have perhaps operated on a larger number of cases by this method, these cases have not been observed for so long a period as our own. The method is undoubtedly an excellent one, but the results, as far as I have been able to determine from present data, are slightly inferior to those obtained with transplantation of the cord. There has been no atrophy of the testis following the transplantation of the cord, and the time required for the operation, with or without the transplanting of the cord, is practically the same, viz., from ten to fifteen minutes.

I have personally operated on 230 cases of inguinal hernia in the female, including both children and adults, by this method, namely, allowing the round ligament to come out at the lower angle of the wound instead of removing or transplanting it; suture of the internal oblique to Poupart's ligament, and closing the aponeurosis by a continuous layer suture of kangaroo tendon. These 230 cases have been very carefully traced, and, thus far, not a single relapse has been observed.

These results, while they go far to prove that the transplantation of the round ligament is neither necessary nor desirable, do not to the same extent prove the uselessness of the transplantation of the cord in the male, inasmuch as the cord is considerably larger than the round ligament, especially in the region of the symphysis pubis, or at the point where it emerges from the external ring. Removal of the veins of the cord is never necessary in children, and personally I believe it is very seldom indicated in adults.

COMPLICATIONS—HERNIA ASSOCIATED WITH UNDESCENDED TESTIS.

This condition is not infrequent in hernia in children, and there is by no means unanimity of opinion among surgeons as to its proper treatment. Some advise against operation altogether until the age of puberty; others advocate operation in all cases, even in infants.

Truss treatment of hernia, associated with undescended testis, is most unsatisfactory. The pad presses on the testis and causes pain, and may keep the testis within the external ring and retard its natural progress into the scrotum. The danger of producing malignant disease from the pressure of the truss on an undescended testis is far less than one would believe from the prominence given it in surgical text-books. Such a result has never been observed at the Hospital for Ruptured and Crippled during the last fourteen years, during which time upward of 60,000 cases have been treated.

McAdams Eccles of London, in his very elaborate study of the subject of undescended testis, shows that there is little foundation for this well-established belief. He states that in 48,000 males with hernia, 854 had undescended testis, and not a single case of sarcoma was observed.[1]

Bevan, in his admirable article[2] on the treatment of undescended testis, read before this Association a year ago, advises operation in most cases, even in young children.

I have operated on 38 cases of hernia associated with undescended testis, 27 of these being under the age of 14. At the Hospital for Ruptured and Crippled we were at first inclined not to operate under the age of 10 or 12, because observation showed that in many cases the testis descended into the scrotum of its own accord before the age of puberty. The danger of strangulation

1. Since this was written I have just observed for the first time a case of sarcoma of an undescended testis in a man of 35. The patient, however, never wore a truss. In my series of 22 cases of sarcoma of the testicle this is the only one in which the testis was undescended.

2. THE JOURNAL A. M. A., Sept. 19, 1903.

in these cases, even if a truss is not worn, is not great, as the testis acts as a barrier and prevents the rupture from coming down. Still, we have since found that even if the testis does descend into the scrotum, the hernia, as a rule, persists, and operation is finally necessary. For this reason we are now operating earlier than formerly.

METHOD OF OPERATION FOR HERNIA ASSOCIATED WITH UNDESCENDED TESTIS.

The Bassini method has been employed in most of my cases, but a little gain in the length of the cord is secured if it is not transplanted, and as the results are so nearly equal, I think it is well to omit transplantation in such cases and let the cord emerge at the lower angle of the wound. By freeing the cord very high up and by removing some of the veins, if necessary, the testis can, in most cases, be brought into the scrotum. In my early operations I tried several methods of fastening the testis into the scrotum, e. g., by wire frames, but soon abandoned such methods. If the testis is to remain permanently in the scrotum, it must be so thoroughly freed from the cord that it rests in the scrotum without tension, otherwise it will finally retract to the external ring or into the canal.

I believe that the method proposed by Bevan, of separating the veins deeply in the iliac fossa with the finger, is attended with some risk, and a hemorrhage in such a place would be most difficult to control. I do not believe the testicle should be sacrificed, for the reason that, although atrophied and possibly of little functional value, it nevertheless has an important influence on the development of the child. The hernia can certainly be cured without castration, as is shown by our own statistics. In no case has the hernia relapsed.

In the earlier cases in which less care was taken to thoroughly separate the fascia and free the cord high up, retraction of the testis to the region of the external ring was the rule rather than the exception. In the more recent cases it has been found possible, in a greater proportion of cases, to keep the testis in the scrotum.

STRANGULATED HERNIA IN CHILDREN.

This condition is comparatively rare in children, and is most frequent during the first two years of life. I have operated on 13 cases between the ages of 13 days and 14 years. In only 2 cases did strangulation occur between the ages of 2 and 14. This series of cases helps to settle an important and much-disputed point in the etiology of strangulation in children. The earlier statistics stated that the neck of the sac caused the strangulation in most cases. In every one of my own cases the strangulation was due to the tense fascia of the external ring, and not to the neck of the sac, which, in children, is always a thin and easily distensible membrane, incapable of producing strangulation. The error of the older statistics is probably due to the fact that operation in these cases consisted in merely relieving the strangulation by cutting all the tense tissues, including the sac at the same time. Hence the particular tissue causing the strangulation was not recognized. In our own cases the operation is precisely the same as that employed for the radical cure of non-strangulated cases, the skin incision being made beginning on a level with the anterior superior spine, and there has never been any difficulty about the reduction of the strangulated loop of bowel as soon as the tense fascia of the external ring has been severed.

In the 12 cases of strangulation there was one death, in a child six weeks old, the hernia having been strangulated for three days, and the child practically moribund at the time of operation.

RESULTS AS REGARDS PRIMARY WOUND HEALING.

Prior to 1897, when rubber gloves were not used, primary wound healing was observed in 96 per cent. of the cases; since the introduction of rubber gloves, it was noted in 99 per cent., which proves beyond any question that it is possible to obtain a sterile absorbable suture. Furthermore, the fact that the final results in 775 Bassini operations in children showed but three relapses, proves quite as conclusively that the tendon sutures remain unabsorbed sufficiently long to effect a permanent cure. The disadvantages of using buried non-absorbable sutures in the hernial canal I have pointed out so frequently that I will merely allude to them here.

In a certain number of cases they lead to the formation of a sinus, which usually persists for weeks or months, until the offending suture is removed, but the worst feature is the weakening of the canal by the suppuration, leading in most cases to relapse. A large number of such cases have been observed at the Hospital for Ruptured and Crippled, showing that these objections are not merely theoretical, but very practical.

FINAL RESULTS OF OPERATIVE TREATMENT.

Between August, 1891, and July, 1904, I have performed 825 operations for the radical cure of hernia in children under the age of 14 years with one death, due to ether pneumonia. Four operations were for umbilical hernia; four for ventral; two for epigastric; 25 for femoral; thus making 815 cases for the radical cure of inguinal and femoral hernia in children; or 790 operations for inguinal hernia. In 15 of these the cord was not transplanted, leaving 775 cases in which Bassini's method, with the substitution of chromicized kangaroo tendon for the buried sutures, was performed. In this series of 775 operations but 3 relapses were observed; in the 15 in which the cord was not transplanted, 5 relapses were noted.

In a total of 1,330 operations for the radical cure of inguinal and femoral hernia, including adults, only two deaths occurred, and 12 relapses.

In the 25 cases of femoral hernia in children, there has not been a single relapse. Sixteen were examined and found perfectly sound from 3 to 8 years after operation; 5 from 1 to 2 years; four cases were not traced beyond six months.

The utmost effort has been made to trace these cases to final results, and comparatively few have been lost sight of. In my paper read before the American Surgical Association[3] a year ago, the end results of 1,003 cases were given in more detail. Six hundred and fifty of these cases (including adults) were examined and found perfectly sound from 1 to 11 years after operation.

The method of operation for femoral hernia in children has been in every case the "purse-string suture," with kangaroo tendon.

The technic, as I have performed the operation, in brief is, first, to thoroughly free the sac well beyond the neck; high ligation of the sac and closure of the canal by means of a purse-string suture of chromicized kangaroo tendon. The suture is introduced through Poupart's ligament or the inner portion of the roof of the

3. Transactions of the Am. Surg. Association, 1903; Annals of Surgery, June, 1903.

canal, or crural arch, from where it passes downward into the pectineal muscle or floor of the canal, outward through the fascia lata overlying the femoral vein, and upward through Poupart's ligament or roof of the canal, emerging about three-fourths of an inch from the point of introduction. On tying the suture, the floor of the canal is brought into apposition with the roof, and the femoral opening is completely obliterated. The superficial fascia may then be closed with catgut or fine tendon, and the skin either with catgut or silk.

This method I believe superior to Bassini's operation for femoral hernia, and of 82 operations for femoral hernia done within the last 14 years, 66 were performed by this method, without a single relapse; in 16 cases operated on by Bassini's method, there was one relapse.

RELAPSES AFTER BASSINI'S OPERATION FOR INGUINAL HERNIA IN CHILDREN.

1. J. K., male, aged 6½. Bassini's operation, substituting kangaroo tendon for silk in the buried sutures, done in October, 1894. Primary wound healing. Slight relapse one year later.

2. J. W., male, aged 9. Operated on by Bassini's method in August, 1894. Slight relapse two years later. Truss applied for a time; then left off. Examination in 1903, nine years later, showed only a slight impulse on coughing.

3. B. B., aged 6. Right inguinal hernia. Operated on June 12, 1903. Wound healed by primary union. On July 15 the patient had a severe attack of whooping cough, during which time he applied no support to the recently healed wound of the inguinal canal. A recurrence was noticed on August 8.

RELAPSES IN CASES IN WHICH THE CORD WAS NOT TRANSPLANTED

1. H. O., aged 8. Operation Dec. 12, 1901. Cord not transplanted. Relapse three months after operation.

2. C. R., aged 13. Very large right inguinal hernia. Operation Dec. 28, 1891. Cord not transplanted. Silk used for the deep buried sutures. Wound suppurated and most of the deep sutures came out. Relapse within three months after operation.

3. B. S., aged 12. Right inguinal hernia. Operation January, 1892. Cord not transplanted. Silk used for the buried sutures. The wound healed by primary union, but a few weeks later a sinus formed and a few silk sutures were extruded. Relapse followed a few months later. Patient was re-operated on by Bassini's method, and was entirely well ten years after.

4. F. H., aged 10. Operation February, 1892. Cord not transplanted. Chromicized catgut for buried sutures. Patient remained well for three years, when a slight relapse occurred.

5. E. B., aged 6. Operation February, 1901. Cord not transplanted. Sliding cecal hernia. Relapse three months after operation.

REMARKS.

A closer study of these relapses is of some interest. In four of the five relapses following operation without transplantation of the cord, operation was performed in 1891-2, or more than twelve years ago. In two of these cases silk was used for the buried sutures, with subsequent sinus formation which weakened the canal and was, undoubtedly, an important factor in causing the relapse. In the fifth case which relapsed after operation in 1901, we had to deal with a sliding cecal hernia, a form of rupture the radical cure of which is acknowledged to be almost impossible to obtain with any method of operation. Five relapses in a series of twelve cases in which the cord was not transplanted is certainly a high percentage.

Coming to the cases operated on by Bassini's method with the substitution of kangaroo tendon for silk, in the buried sutures, we have 775 cases with three relapses. Two of these relapses were very slight; one of them showing only a moderate impulse on coughing nine years after operation. The third was due to a severe attack of whooping cough coming on four weeks after operation.

This series of cases, I think, conclusively proves that the risk of operation for the radical cure of hernia in children is exceedingly small and the chance of securing a permanent cure almost certain.

DISCUSSION.

DR. DAVID E. ENGLISH, Millburn, N. J., stated that some years ago he emphasized the fact that in the treatment of this form of hernia a proper kind of pad must be used and that anything in the shape of a button that was pointed or round on the surface next to the skin would rather defeat the purpose for which it was placed there. Since reading that paper he has used a silver quarter, properly padded, and his results have been very good.

DR. ARTHUR L. FISK, New York City, agreed with Dr. Coley that it is not wise to operate on such young infants unless the conditions demand it.

DR. ROSA ENGELMANN, Chicago, asked Dr. Coley how he prevents excoriation of the skin in connection with his applications for the treatment of ventral hernia. Recently Dr. Engelmann has been using the oxid of zinc plaster, and still has been unable to prevent excoriation of the skin.

DR. W. B. COLEY, in reply to questions, said that the character of the pad in ventral and umbilical herniæ is of considerable importance. The side in contact with the skin should be slightly convex instead of concave, and should be considerably larger than the hernial ring, since otherwise it will sink into the ring. A certain amount of excoriation will be produced by any kind of plaster if it is allowed to remain on for any length of time, but zinc oxid has been found to cause far less trouble than the ordinary plaster. It should always be changed within a week or ten days, and strict cleanliness should be observed. Dr. Coley agreed with Dr. Fisk that it is not wise to operate on very young infants, although there is a great tendency, particularly in France and Germany, to operate on infants even a few months old. The fact that so many of these cases can be cured by the use of a truss and, furthermore, that the danger of strangulation in infants is not great, are ample reasons for deferring operation.

THE SCHOTT METHOD OF TREATING DISEASES OF THE HEART AND BLOOD VESSELS.*

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It may appear rather late in the day either to present the claims of the Schott methods of treating chronic cardio-vascular diseases or to discuss the details connected with their application. It should ever be a feature of our therapeutic creed, however, to give close attention to physiologic means and to recognize their superiority over drugs as curative agencies. No one who views the immense concourse of persons pouring into Bad Nauheim from every part of the globe and notes the conditions presented by a small fragment even, as I have done, can fail to be impressed with the fact that confusion obviously reigns in the minds of a large proportion of the medical profession as to what constitutes a suitable case for this recognized mode of treatment. The same vagueness and indefiniteness of professional thought and action holds true at home, perhaps in greater degree than abroad, more especially in England, Germany and Russia—countries in which

* Read at a meeting of the Philadelphia County Medical Society, 1904.

much attention has been paid to the subject. These facts furnish the *raison d'être* for attempting to extend a knowledge of the subject among the members of the profession of America, on whom it unquestionably has strong claims. On the other hand, the Schott method of treating chronic cardiac diseases has not been as universally appreciated as it deserves. A transference of the point of view to an actual observance of the workings of the *kur* furnishes a clearer vision and serves to emphasize both its efficacy and the vastness of its sphere of usefulness.

Of the numerous health resorts that have risen to fame in recent times, unquestionably Bad Nauheim heads the list, but its claims to public favor are not solely ascribable to the virtues of its healing waters as some contend, great as is the value of this expedient, but, as will be shown hereafter, the "resistance exercises," which enter into the method of treatment herein described, form an element of almost equal therapeutic importance. Considerable attention is also bestowed on the patients' dietary and hours for sleep and recumbency. Again, Nauheim has certain outside recommendations, and commands an attractive and restful environment. Beautifully embowered in a pretty park, lying near the foot of the Tannus mountain, are the commodious, cheerful and modern bath-houses (*bäder*), while the springs, or underground streams, that supply them "without hurry and without rest," gracefully yield their healing waters from the great repositories of Nature. Around this fairly extensive and pretty park cluster numerous stately villas, hotels, and, in the loftiest part stands prominently the handsome "kurhaus," on the terrace of which there are daily concerts by an orchestra, and theatrical performances in the evening, the amusements offered being in keeping with the nature of a serious health resort.

One need not renounce modern comfort at Bad Nauheim. I gained the impression, however, that the healthy public might find this resort dull, since conversation constantly involves excursions into the subject of chronic diseases of the heart and their treatment by the special method under consideration. This resort possesses certain minor climatic advantages; it is situated on the edge of a plateau (the Wetterau) at an elevation of 450 feet above the level of the sea, and the nights are always cool, owing to the nearness of the Johannisburg and the Woodland. There are also long, wide avenues with their cooling shade. Again, the sanitary arrangements are quite good.

In attempting to present the claims of the Schott methods of treatment of chronic cardiac diseases, as conducted at Nauheim, I am not unmindful of the existence of the excellent monograph of Bezly Thorne[1] and the papers published on the subject by Camac,[2] Tyson,[3] Baldwin[4] and others. These writers have given a creditable estimate of its advantages and have fully presented the details of its application, but they have scarcely formulated the whole truth in the premises. Moreover, the skeptically minded is among us; he who ascribes the *rationale* of the phenomenal results achieved to the good effects of rest and a peculiarly attractive environment. Granted that a salubrious environment shares in the production of the beneficial effects, the principal and most influential factors to the attentive and practiced observer are unquestionably the systematic and methodic use of the saline baths and the "resistance movements."

Time and space forbid a full descriptive account of the baths and their constituents in this place. The springs are known both by names and numbers, but the former alone will best serve the purposes of this article.

The bath waters contain from 2 to 3 per cent. of sodium chlorid, from 2 to 3 per 1,000 of calcium chlorid, various forms of iron, and above all, a large amount of carbonic dioxid (Schott).[5] A course of baths embraces the use of waters of various strengths, ranging from the milder to the more potent with the progress of the cure, and the duration of the period of immersion is also variable. At the beginning, the waters of the so-called thermal baths are employed; they are freed to a certain extent from their natural gas. These are succeeded by the thermal-sprudel baths, then pure sprudel and, finally, in a certain proportion of the cases, the so-called strom-sprudel. The baths intermediary between the thermal and effervescing (sprudel) are supplied from storage tanks. To render the baths more stimulating, so-called *"mutterlauge,"* which is the refuse of the salt manufactory in the neighborhood, is added in carefully increasing quantity in certain cases. The flowing sprudel (strom-sprudel) baths, which possess the greatest balneologic strength known, are most efficacious when judiciously and wisely employed. Here the waters of the principal springs forcibly enter, pass through and leave the bathtub during the period of immersion; it is the "bath of champagne."

It can be readily shown that the Nauheim waters offer more than simple saline baths, seeing that they contain carbon dioxid in solution and are also strongly ferruginous. Furthermore, the amount of carbon dioxid is far greater than that contained in any other bath on the continent. The physiologic effects of the mineral baths are at present writing fairly well understood, although at an earlier period of time they were used empirically as a remedy in rheumatism and later in chronic cardiac diseases. The baths exert a beneficial influence in various directions in cardiac insufficiency and prominent among the salient results are a more vigorous systole with diminution in the size of the dilated heart and a reduction of the pulse rate. The diminution in the size of the heart is readily established both by percussion and the use of the *x*-rays.[6]

Of equal importance is the influence exerted on the blood paths, by means of which there is accomplished an arteriodilatation and a transfer of the abnormally large increment of venous blood to the arterial side of the circulation. The blood pressure, as shown by Prof. T. Schott,[7] is generally raised, but when it is too low at the start, this effect is not observed.

It is especially noteworthy that in consequence of a freer coronary circulation the impaired nutrition of the myocardium is correspondingly benefited. The labor of the overburdened heart is greatly diminished and its recuperation to a like extent assisted. Indeed, as the result of personal observation, I am enabled to affirm that all the usual evidences of an impaired circulation presented by the different organs (lungs, liver, stomach, kidneys), as well as the anasarca, disappear as the heart's capacity for physiologic work augments under the influence of balneologic therapy.

1. The Schott Methods of the Treatment of Chronic Diseases of the Heart, fourth edition, 1902.
2. THE JOURNAL, Aug. 28, 1897.
3. Univ. Med. Mag., July, 1897.
4. Med. Record, Feb. 13, 1904.
5. Prof. T. Schott: Med. Record, March 26, 1898.
6. Med. Record, June 29, 1901.
7. Among the most valuable early papers on the effects of the baths on the heart was that of A. Schott, published in 1880.

This effect on the circulatory system is not due to a direct action of the baths, but an indirect one through irritation of the cutaneous sensory nerve filaments, the stimulation being conveyed to the vasomotor, cardiac and other nerve centers, and producing an effect on the organic functions and general nutritive processes.

Beneke directed forcible attention to the striking improvement in comparison and even complete recuperation of enfeebled heart action in old valvular lesions, in gout and rheumatism, complicated with heart disease, as the result of judicious employment of the Nauheim springs. In 1882, the Brothers Schott began an exhaustive series of experiments on the effects of immersion in saline solutions on the blood pressure of lower animals. These experiments, together with those of Beneke and Jacob of Cudowa, place the fact beyond controversy that saline baths exert a marked influence on the blood pressure. Further, the "resistance movements," which are employed concurrently with the baths, were first introduced and elaborated by the Brothers Schott.

In this connection too much stress can not be placed on the rôle played by the nervous system in bringing about the curative effects of this special method of treatment. Thorne wisely argues that a certain amount of stored energy (available for response to the various stimuli which may be brought to bear on it) is necessary to a successful application of the therapeutic baths and "resistance exercises." It therefore requires an orderly method and sound judgment to decide whether or not the Schott methods are applicable to the given case, more especially if the patient is suffering from an advanced valvular lesion or myocardial degeneration.

The object of the "resistance exercises," which constitute the second essential portion of the Schott method, is to throw into activity different groups of muscles, more especially those of the extremities, "in orderly succession without inducing fatigue." The movements exert a marked influence on the circulation, both lesser and systemic. Indeed, they do not belong to the domain of "gymnastics," since they exercise their principal therapeutic effect over the cardiovascular system rather than over the muscular system. There has been considerable controversy over the *rationale* of the "resistance movements." Unquestionably they bring muscles that are for the greater part inactive under usual conditions, into normal functional activity; they stimulate the peripheral motor nerves, while the baths, it will be recollected, act on the sensory nerve filaments, and finally, they exert a tonic effect on the myocardium. The movements also tend to drive the venous blood to the right side of the heart, by compression of the veins (Broadbent).

This element of the treatment must be carried out by a specially trained operator, who carefully observes certain details in connection with its application. These rules are well summarized by Thorne as follows:

1. Each movement is to be performed slowly and evenly, that is, at a uniform rate. 2. No movement is to be repeated twice in succession in the same limb or group of muscles. 3. Each single or combined movement is to be followed by an interval of rest. 4. The movements are not to be allowed to accelerate the patient's breathing, and the operator must watch the face for the slightest indications of (*a*) dilation of the alæ nasi, (*b*) drawing of the corners of the mouth, (*c*) duskiness or pallor of the cheeks and lips, (*d*) yawning, (*e*) sweating, and (*f*) palpitation. 5. The appearance of either of the above signs of distress should be the signal for immediately interrupting the movement in process of execution, and for either supporting the limb which is being moved, or allowing it to subside into a state of rest. 6. The patient must be directed to breathe regularly and uninterruptedly, and should he find any difficulty in doing so, he must be instructed to continue counting, in a whisper, during the progress of each movement. 7. No limb or portion of the body of the patient is to be so constricted as to compress the vessels and check the flow of blood.

Every movement is designed to achieve a practical result on physiologic principles. The patient's condition and endurance must be the criterion as regards the number and character of the movements to be employed. In all cases, therefore, the physician must carefully instruct the operator; not only so, but he should supervise the administration of the "resistance movements" until convinced that they are being properly executed. It is not less important for the medical attendant to note the effects of the movements, for while, as a rule, the circulatory organs, and to a lesser extent the muscles and respiration, are strengthened and invigorated, yet an imperative need for a modification of the method may be presented. The movements employed are accurately and individually described by Bezly Thorne, and the reader may be referred to his excellent work for further details.

Much in this position might be said to further elucidate the physiologic conditions involved in the more or less co-ordinate action of the two main elements of the Schott method, to-wit: saline baths and "resistance movements," but this course would require more lines than these to which I am limited. After all, it is through its marvelous effects that it makes the strongest appeal to the judgment of an unprejudiced observer. It is well known how unsatisfactorily and incompletely disturbances of compensation in the course of chronic valvular lesions yield to medicinal measures, rest and regulation of the diet at home, both in private and hospital practice; also that, almost with certainty, progressive myocardial degeneration advances, leading sooner or later to a fatal degree of dilatation under similar treatment.

On the other hand, I have recently witnessed the application of the method under consideration in chronic valvulitis and various other conditions at Nauheim, and convincing clinical evidence was afforded of its remarkably beneficial and curative effects in a variety of cardiovascular degenerations. Speaking generally, it seemed to me that the improvement, in the vascular changes, as shown by the increased lumen of the vessels and volume of the pulse, was quite as striking as that produced on the myocardial changes. And the yielding of cases of angina pectoris within a comparatively brief period of time would lend support to the assumption that many examples of this grave disorder are most probably dependent on abnormal vasomotor influence.

There was, however, brought to my attention clear evidence of the beneficial effects of the method in vascular degenerations of well-marked degree. The great advantages of the baths and exercises in these cases, as well as in myocardial changes, serve to emphasize their potency in stimulating or favorably influencing bodily metabolism. This statement granted, and it becomes needless to point out that the methods are applicable to a wide range of varying conditions other than cardiac.

I shall now choose a few illustrations from among a large number of different forms of cardiac and non-

cardiac conditions which, by the courtesy of Prof. T. Schott, I had an opportunity of observing during the bathing course.

CASE 1.—Mr. A. C., aged 28 years, married; occupation, auctioneer; height, 5 feet 11 inches; weight, 151 pounds (in clothes); no heart lesions in any member of his family; neither gout nor rheumatism furnished by the family history.

History.—Patient had had childish diseases; at 12 he suffered from rheumatic fever of a severe type, but no heart complications arose, so far as the patient's knowledge extends; he had been considered a good risk by life insurance companies up to 4 years ago. At 22 he contracted syphilis, for which he was vigorously treated, and neither secondary nor tertiary manifestations put in an appearance. Within the last 5 years he has had two mild attacks of influenza. The social history does not furnish many points, although the patient formerly smoked an average of from 8 to 10 cigarettes daily, and used from 3 to 4 drinks of whisky and soda in the same period.

Present Illness.—The present illness began 3 years ago while playing hard at polo, when he developed pain in the region of the heart, to relieve which a hypodermic injection of morphin was employed. Subsequently, he continued well for 18 months, with the exception of dyspnea on muscular exercise. One year ago he began to suffer from vertigo at intervals; his physician said the heart was enlarged on the left side. Artificial Nauheim baths were employed at the suggestion of Dr. Thorne. On July 4 the patient went to Nauheim; this was just 3 weeks before he fell under my personal observation. On arrival, vertigo recurred several times daily, dyspnea was marked and sharp pains through the heart were complained of; the bodily surface was everywhere cold to the touch. After 3 weeks' treatment, or at the time I first examined the patient, the vertigo had disappeared and dyspnea greatly lessened. He could now walk a distance of several squares, whereas he was unable to walk unaided at the time of his arrival at the springs.

Physical Signs.—August 1: Heart much dilated, to the left it extends to anterior axillary line, to the right to a point near the right edge of the sternum; the impulse is feeble and a slight presystolic-systolic thrill is detectable at the apex. The area of percussion dullness corresponds with the impulse, and on auscultation a faint presystolic-systolic murmur is audible at the apex. Some distance above, and near the left edge of the sternum, a pure diastolic murmur is heard; it is soft and blowing.

August 17: A second physical examination shows the border line of cardiac dullness on the left to correspond to vertical nipple line, and the right boundary falls ¼ inch to the left of the midsternal line. The murmur at the apex is not audible, although the second pulmonic sound is accentuated; the diastolic murmur is still heard. The heart sounds in general are much stronger than at the previous examination. The patient now indulges in long walks without noticeable dyspnea and denies any discomfort.

The case reported above was regarded primarily as one of acute dilatation; and although complete relief has been accomplished, the patient is urged by his attending physician, Prof. T. Schott, to return one year hence, meanwhile being allowed to resume his usual vocation.

CASE 2.—W. A. M., aged 54 years; occupation, physician (lieutenant-colonel in the Indian medical service for 10 years); nothing hereditary in the family.

History.—Patient had had childish diseases, and syphilis at 20, attended with slight secondary manifestations only. Twelve years ago he had an attack of influenza and has not been in his usual health since. The patient had been a hard polo player for years, and also an excessive user of tobacco prior to the discovery of the heart lesions.

Present Illness.—In 1903 he had cold extremities and dyspnea on muscular exercise; Dr. Sansom diagnosticated mitral regurgitation with marked dilatation and instability of action.

Sept. 1, 1903: Patient commenced a course of treatment at Nauheim lasting 5 weeks; his condition was remarkably improved thereby, although sleepless and nervous for a time.

July 1, 1904: Symptoms returned to a moderate extent, and at once the patient proceeded to Nauheim. His condition was much less pronounced than in the previous year, and after a bathing course, lasting one month, I was privileged to examine him. There was present very slight dilatation of both ventricles; the increase in the transverse diameter of the heart being about ½ inch above the normal. The mitral systolic murmur was scarcely audible and the systole apparently normal; at intervals there was slight palpitation; it was not so apt to be induced by exercise as by nervous excitement, as on awakening or playing at a game of whist. The patient now indulged in long walks, even over mountain sides; this he could not do before the Schott method of treatment had been adopted.

It was supposed by his physician, Dr. Sansom, that the severe exercise and excessive use of tobacco had been the cause of the marked disturbance of compensation and induced secondary dilatation. It would appear from this and the previous case that the Schott methods are especially serviceable in the advanced stages of cases of rapidly developed dilatation. In confirmation of this position, I may state that Professor Schott related numerous cases of a similar character.

CASE 3.—R. H., aged 38 years, single; occupation, practicing physician in New York City; height, 5 feet 7 inches; weight, 172 pounds (stripped). The family history is negative, except that his mother, who is living, has been afflicted with rheumatoid arthritis for 10 years, but only in the hands.

Previous History.—Absence of all childish diseases. While a medical student he had intussusception, which cured itself spontaneously. In 1896 he had typhoid fever, lasting about 6 weeks; this attack was of medium severity, but recovery quite slow. Two years later (meanwhile working), he noticed severe attacks of palpitation and dyspnea, and was easily fatigued, compelling him to curtail his work. During and after the attack of typhoid, he had attacks of hemicrania, now on one, then on the other side, and nausea always and vomiting sometimes occurred during the attacks of migraine. For these headaches he used migrainin, phenacetin and other coal-tar products, but soon gave them up, having been told that his heart action was weak. For two years he has used strychnin (gr. 1/30 t. i. d.) irregularly, and he has also tried potassium iodid, which, however, disagreed with him, and hence was discontinued. The patient had been a moderate smoker and had used beer and wine, but never immoderately. He paid little or no attention to diet and systemic exercise.

Present Illness.—The present illness began 4 years ago, the symptoms being dyspnea on exertion, cardiac palpitation and thoracic oppression. Two years ago he had a serious collapse in a patient's house, probably a syncopal attack due to myocardial weakness. He took a few doses of the fluid extract of digitalis. At the end of 36 hours he had recuperated; he then avoided overexertion and excitement, but in July, 1903, had a second attack, though less severe, and was unable to work for an entire day. The third and last seizure occurred on June 24, 1904. This case began with severe vertigo, followed by complete unconsciousness. The local symptoms (palpitation, dyspnea and oppression) have become more severe for 2 years. Since the last attack of syncope he has been troubled with flatulence, small appetite and increasing weakness. During the past year he has also had rheumatic pains in joints and muscles at intervals, but they never lasted more than 24 hours.

Physical Examination.—August 5: Impulse diffuse, wavy and exceedingly feeble, both on inspection and palpation; no thrill detectable on palpation; percussion showed the area of cardiac dullness to be greatly increased in the trans-

verse diameter, to the left to anterior axillary line, to the right to a point ½ inch beyond the right sternal edge. On auscultation, a systolic apical murmur was heard, and the second pulmonary sound was somewhat accentuated. He began a bathing course and 2 days later the "resistance exercises" were also introduced.

August 11: The left border of the heart is now at vertical nipple line, the right at midsternum.

August 27: Impulse much stronger and apex about in normal position; left boundary line of dullness is at left vertical nipple line, while the right has moved to a point ½ inch to the left of the midsternal line; heart sounds only moderately strong, but no murmurs detectable; neither is there any appreciable arrhythmia present.

Before inaugurating treatment in this case, Prof. T. Schott gave me a remarkable demonstration of the effects of the "resistance exercises" on the dimensions of the heart. The patient was allowed to rest for forty-five minutes, when mild "resistance movements" were instituted; at the end of seven minutes the pulse had fallen from 84 to 72 a minute, while both the volume and tension had increased. After eighteen minutes of the exercises, I noted their effect on the dimensions of the heart. It will be conceded that the movements properly conducted cause a distinctly marked and decided shrinkage in the size of the heart chambers. Obviously, this reduction in size was not maintained, although persistence in the use of the exercises and baths brought about the result stated above. (Fig. 1.)

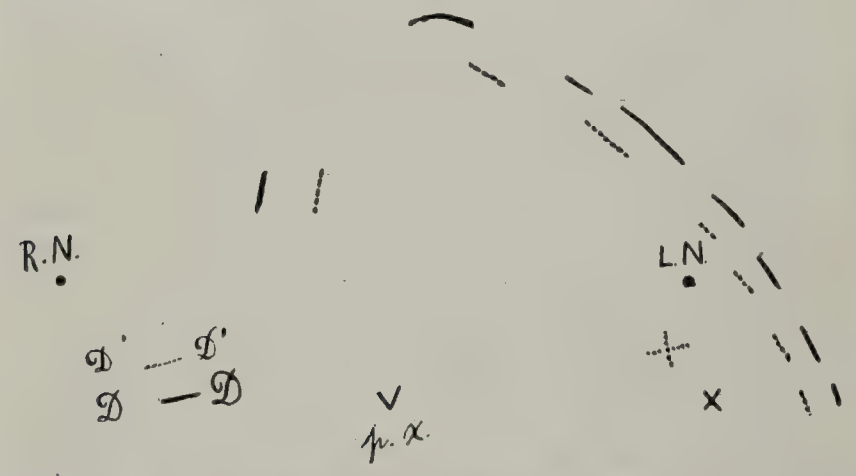


Fig. 1.—The straight lines indicate the outline of the heart; D—D, diaphragm, and X the apex beat before the exercises with resistance. The dotted line indicates the size of the heart, D'—D', the diaphragm, and the dotted cross the apex beat after 18-minute exercises with resistance. R. N., right nipple; L. N., left nipple.

CASE 4.—A. D., aged 35, male, Russian by birth; merchant, with rather arduous duties.

History.—Childish diseases: Acute articular rheumatism at 13, complicated with endocarditis. The patient was taken to Nauheim. Professor Schott found the heart enlarged 3 cm. to the right and 2½ cm. to the left; auscultation revealed a mitral regurgitant murmur. The patient took a bathing course for 7 years in succession and was considered to be cured. Fourteen years later, he injudiciously bathed in a stream of very cold water, whereon he developed an acute articular rheumatism, from which he partially recovered as the result of treatment at home. Shortly after, or one year ago, he was again brought to Nauheim, with traces of subacute rheumatism. A single bathing course resulted in apparent cure.

Examination.—He returned this season without rheumatism, and at the end of his course of treatment I was requested to make a physical examination. The heart was found somewhat hypertrophied; the left boundary line of dullness corresponded to vertical nipple line and the right to vertical midsternal line; the impulse was vigorous and regular, and on auscultation a faint systolic murmur was detectable at the apex. The patient feels himself to be in excellent condition and indulges freely in physical exercise without fatigue. The general appearance also indicates good health. This excellent result was accomplished without the use of any medicines.

It is not claimed by the most ardent advocates of the virtues of this method that chronic valvulitis is, as a rule, curable, although a few well-authenticated cases have been recorded. On the other hand, as a means of bringing about compensation, either in simple dilatation or in that form associated with chronic valvulitis (e. g., Case 4), it possesses advantages which meet the requirements more fully and satisfactorily by far than any other known form of treatment.

It is a point of common knowledge that many patients in whom digitalis has lost its therapeutic influence come to Nauheim, and after a few baths this drug takes hold. The following is a case in point:

CASE 5.—Mrs. A. H., native of Russia, aged 56; height, 5 feet 2 inches; weight, 180 pounds; father was corpulent and died suddenly at 58 years, cause unknown; all other members of the family also stout.

History.—Patient had had childish diseases, and at 36 had an attack of acute articular rheumatism following childbirth and lasting about 3 months; there was a chest complication, the precise nature of which, however, is unknown. The patient has 6 children, all in good health. Menopause occurred 5 years ago.

Present Illness.—The present illness began at that time with swelling of ankles and distress of breathing on muscular exercise. The attending physician found a heart lesion and sent the patient to Dr. Schott, who discovered a greatly dilated heart with associated cyanosis, urgent dyspnea and marked edema of the legs. The diagnosis of aortic stenosis and mitral regurgitation with secondary relative tricuspid regurgitation was made. The patient had taken digitalis, at first with marked benefit, but later without beneficial effect prior to coming to Nauheim. After a course of baths, a smaller dose than had previously been employed seemed to exercise a happy influence. The patient has been returning annually to Nauheim and each new season has found her improved. Patient is now comfortable, even after exercise, and has not required any digitalis or other cardiac stimulant during the past year.

CASE 6.—General W., Englishman, aged 71, with a negative family history, although father died at 67 years, "an old man." On the whole, the family is not long-lived.

History.—Patient spent 7 years in Indian service; has never been rheumatic, but gouty at intervals, and has just recovered from an attack of lumbago. He has never paid any attention to diet, but has exercised considerably; he has been a moderate indulger in intoxicants and tobacco.

Present Illness.—He first came to Nauheim 6 years ago, and has returned each year since then; his condition at first was marked weakness, with great distress of breathing on exertion; his legs felt like lead and he could only walk a few steps when his head would reel and his sight fail. The heart action was excessively weak, with an occasional intermittence, but no murmurs were present. Each bathing course of 6 weeks brought about a decided gain from year to year, so that at present he can walk briskly for long distances. Occasionally, at night, the patient experiences a "thump," followed by a brief stop in the heart action.

Aug. 18, 1904, or at the end of the last course of treatment, I was permitted to make a physical examination. The heart was found to be of normal outline; the impulse was rather feeble, but regular, and no murmurs could be detected; the first sound was also clear with, however, some accentuation of the second aortic. The peripheral vessels are but slightly sclerosed to the touch.

The combined bath treatment and "resistant exercises" has rejuvenated this man beyond question. Without stopping to detail other similar cases, it may be stated that in no class of affections did the Schott method appear to exert more salutary effects than in

moderate degrees of arteriosclerosis with embarrassment of the heart action. I observed several additional instances in which from a course of baths and exercises marked relief was afforded. The explanation is not far to seek; the lumen of the arteries, both larger and smaller, is widened, and thus the heart relieved and given an opportunity to rehabilitate itself. Whether the baths and exercises affect principally the vasomotor nervous apparatus or increase the arteriocapillary capacity in an indirect manner by favorably influencing metabolism, I can not venture to state at present writing.

Closely connected with this class of cases are those in which the atheromatous changes involve especially the coronaries and lead to the development of angina pectoris. It was my good fortune to be privileged to examine several cases of the sort and to note the results of treatment. The special effect of the Schott method was most gratifying and scarcely less than magical in many cases at least. I regret that the limits of this article will permit of my giving but a few illustrations.

CASE 7.—M. M. S., sent from San Francisco; male, aged 48; German; occupation, cigar manufacturer and wine agent; height, 5 feet 9 inches; weight, 160 pounds. Father died of chronic Bright's disease, and mother of pneumonia; all brothers and sisters, 8 in number, living and in good health.

History.—Patient had had childish diseases, after which he remained well until the age of 44, when he developed subacute articular rheumatism, lasting a couple of months; he had a recurrence the following winter, and he was cured by Kreutznoch baths. In previous years he indulged freely in beer and wine, and also smoked 10 cigars daily, on the average.

Present Illness.—Present illness began suddenly 2 years ago with numbness of arms, quickly followed by severe pain behind the sternum, which radiated to the neck and arms, especially the left; associated symptoms were cold sweats, inability to breathe, syncope and dizziness. The attacks lasted from 1 to 3 minutes and recurred from 2 to 3 times a week while engaged at work, but not so often when at rest. After two unusually severe attacks, he came to Bad Nauheim, June 14, 1904. He took 30 baths prior to July 20 (9 thermal, 10 thermal-sprudel, and 11 sprudel). From the commencement of the bathing course he experienced no pain, but felt somewhat weak and nervous for a couple of weeks, after which he felt quite strong. On July 20 he went to an "after *kur*," and remained 18 days; he returned to Nauheim feeling well, but was advised to take a brief bathing course.

August 23: He declares himself perfectly well, experiences no discomfort on walking briskly, whereas when he arrived at Nauheim walking invariably induced dyspnea and sometimes pain. Physical signs show slight dilatation in the transverse diameter, and the presence of an apical systolic murmur with accentuation of secondary pulmonary sound; there is no arrhythmia.

CASE 8.—A. A. P., Russian, aged 60; occupation, official judge; with negative family history.

History.—After child's diseases he continued well until 10 years ago, when he had influenza. He has never used either alcoholic intoxicants or tobacco; neither has he paid any special attention to diet or exercise.

Present Illness.—The present illness dates from one year ago and began with pain in the left parasternal region and radiated to arms. The primary attack was severe and lasted but a few minutes. Subsequently he experienced dyspnea on exertion, and during the following year he had three additional paroxysms of great severity. June 1, 1904, he came to Nauheim in an extremely weak condition, with hardened arteries, and the slightest attempt at exercise induced pain. He began treatment.

Aug. 23, 1904, a physical examination which I was permitted by Professor Schott to make, showed a moderate degree of right ventricle hypertrophy, while the left was practically normal; no murmurs detectable on auscultation; radials were palpable and the pulse small and irregular. He still has pain in the region of the heart on active exercise, but not true angina, and the arrhythmia, which had been present from the beginning of his illness, was now absent. The condition is greatly improved; treatment to be continued at intervals.

CASE 9.—A. K., American, aged 65, bishop; height 5 feet 8½ inches; weight, 185 pounds. Father died at 72 of stenosis of the esophagus, and mother at 55 of an aneurism; otherwise family history is negative.

History.—Escaped most childish diseases, although in delicate health all his life; at 23 he developed congestion of the lungs; for 25 years he has felt rheumatic pains in his knees and elbows; he is also troubled with nervous indigestion and attacks of troublesome diarrhea during the same period. Eight years ago he had an attack of acute rheumatism, affecting principally the left shoulder, with considerable fever, lasting one week; a heart complication developed, from which he apparently recovered.

Present Illness.—He continued well until 4 years ago, when he discovered by accident a heart lesion with dilatation. Prior to that time he had occasional vertigo, palpitation and appreciable irregularity of the heart action. Patient never smoked nor used intoxicants; had lived simply and eaten plainly, and had taken much walking exercise. For 5 years previous to being treated after the Schott method at Nauheim, he had suffered from angina pectoris of moderate intensity; the attacks especially excited from muscular exercise, and, to a lesser extent, also mental excitants. He has visited Professor Schott at Nauheim each summer for 6 years. From the first bathing course, combined with muscular exercises, the condition improved, and during the past two years he has not experienced any pain whatsoever. Patient finds that at or about the close of each winter season's arduous work he suffers from general weakness, slight dyspnea on walking, and for this reason still continues his annual visits to Nauheim.

Aug. 23, 1904, I made a physical examination and found the heart somewhat enlarged, the left boundary line of cardiac dullness corresponding with the vertical nipple line and the right falling through midsternum. Two murmurs are audible, one diastolic at the base, the other systolic at apex. The diagnosis had been aortic regurgitation with secondary relative mitral incompetency. The action of the heart is regular and pulse moderately strong. During the entire course of treatment, no medicinal measures were employed, while the heart grew steadily smaller in size and the general health better.

Granting that the baths and exercises do more good in their own attractive and restful environment than elsewhere, for example, at home, it will be conceded that such results as recorded above can not be attributed solely to this factor.

In connection with Case 3, reported above, attention was directed to the striking and immediate effects of "resistance exercises" on the size of the heart. I was also permitted, through the courtesy of Professor Schott, to note the results of the first thermal bath on the heart in a case of extreme cardiac dilatation. The notes are as follows:

CASE 10.—P. L. P., aged 31, single, German by birth; occupation, musician; height 5 feet 7 inches; weight, 119 pounds (loss of 30 pounds). The family history reveals that one sister had rheumatism and heart disease combined, and one brother died of tuberculosis.

History.—Patient has had childish diseases; at the age of 8 he had an attack of acute rheumatism, which recurred annually for 6 years. In 1893 he had pneumonia, with good recovery. He formerly indulged freely in beer, but not since the present illness began; had paid no attention to diet or exercise.

Present Illness.—The present illness began in February, 1904, as a bronchial catarrh, with dyspnea on exertion, palpitation of the heart and considerable cough; occasional night sweats and fever at intervals were present. August 23 a physical examination showed a wavy and rapid impulse, but no thrill; percussion dullness extended to midaxillary line on the left, and ½ inch beyond the right sternal edge in the opposite direction, and upward to third interspace; a murmur was heard at the apex with the systole, and at the base (slight) with the diastole; the pulse, after resting for one-half hour before the bath, was 120, small and compressible (pulse resembles that of true tachycardia at times). In the bath the patient seemed nervous, and pulse remained the same; after the bath, and after having rested for five minutes, the pulse was 116, but fuller, stronger and more regular. The physical signs after bath: Impulse seemed somewhat more forcible; the murmurs were slightly accentuated and the area of dullness decidedly lessened. This patient was sent to Nauheim by one of Berlin's foremost clinicians, but was not regarded as a suitable one by Prof. T. Schott, on arrival (Fig. 2).

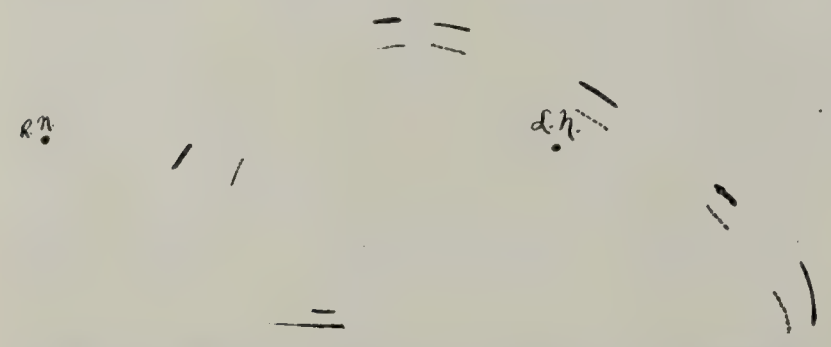


Fig. 2.—Black line, before mild thermal bath. Dotted line, after bath—8 minutes. R. N., right nipple; L. N., left nipple.

The manifest shrinkage in the size of the heart following the first bath, however, is not maintained, as holds true also in the case of the "resistance exercises"; each new bath, however, leaves the organ a little smaller than the previous one, and thus compensation is finally restored, in most cases, at least. It must be well understood that in the treatment of cases in which chronic dilatation less or more is present, the object is not alone to diminish the size of the organ, but to establish a true compensatory hypertrophy. It is to the fulfillment of this end that the Schott methods lend themselves with the most satisfactory results. It is often necessary for the patient to resume baths from year to year in order to accomplish rehabilitation of the cardiovascular forces.

There is a large class of cases, caused principally by an overstrenuous life especially involving severe mental taxation and characterized clinically by neurasthenia, evidences of malassimilation, indigestion and a moderate degree of dilatation of the heart with its usual accompaniments. This group receives striking benefits from a properly regulated bathing course. Great care is necessary in the conduct of this special mode of treatment in this group of cases, since the nervous phenomena are readily aggravated by the irritating effect of the baths on the cutaneous sensory nerves. I was permitted to observe the effects of the Schott method in a number of instances of the sort, all of which were apparently relieved. I may here cite the notes of a case in point:

CASE 11.—J. T., aged 49, physician; height, 5 feet 11 inches; weight, 189 pounds. Mother suffered from mitral regurgitation, but later died of erysipelas; father also deceased at 76 years, of pneumonia; rheumatic taint on both sides of the family antecedents.

History.—The previous history furnishes the following data: Childish diseases, chorea at 12, lobar pneumonia at 17, and acute articular rheumatism (lasting 10 days) at 28 years, and a subacute attack, implicating the knees, one year ago. Social history is exceptionally good, so far as his habits are concerned; he also has regulated the diet and taken physical exercise, although not regularly.

Present Illness.—The present illness dates from his forty-third year, when he became nervous and dyspeptic; more recently he has complained of palpitation of the heart, especially on retiring, and of troublesome flatulency on partaking of starches and sweets. He has also been troubled with insomnia and irritability of disposition.

July 29, 1904, a physical examination reveals a pale, moderately well-nourished individual. Apex beat is not visible, but palpable, situated one-half inch to the left of the left vertical nipple line; this is corroborated by percussion on auscultation, the first sound is found to lack vigor and the cardiac rhythm shows great instability. No murmurs, however, are audible and the second sounds are practically normal. The patient was given thermal baths for three days; temperature of bath advised was 32.5° C.; the duration of the first bath was 8 minutes, and the second and third 10 each. A pause of 48 hours was then advised, after which three more thermal baths, to which 1 liter of "*Mutterlauge*" was added, were ordered; this reinforcement to the bath proved too stimulating, hence it was omitted after the second bath; it had caused sleeplessness and a constantly excited action of the heart; the time of these baths was 11, 12 and 12 minutes, respectively, followed by a pause of one day, then thermal-sprudel baths, varying in duration, of 8, 9 and 10 minutes, respectively, were employed. The good effects now began to manifest themselves, and the baths were prolonged to 12 minutes, but omitted every third day. After six thermal-sprudel baths had been taken, sprudel baths of a somewhat lower temperature (31° C.) were advised. On the first day the duration was but 8 minutes, second, 9, and third and fourth days, 10 minutes each; fifth day, 11 minutes, and sixth or last day, 12 minutes. A pause was taken every third day. After three days, "resistance exercises" were also employed, their duration and severity being gradually increased with the progress of the treatment. Patient was then sent to the Tyrol mountains for an "after *kur*." Up to the time he left Nauheim, he was troubled with more or less palpitation and sleeplessness and other nervous phenomena. His heart, however, had returned to its normal dimensions, so far as could be made out by physical signs. At the conclusion of the stay in the mountains, marked and rapid improvement in the condition of the nervous system ensued, and in the course of one month subsequently the patient reported that he was apparently restored to health.

Cases of exophthalmic goiter have yielded completely to the treatment, and I saw one well-marked case after a cure had been effected.

It would appear from my observation that the primary effect of this method of treatment is to provoke an aggravation of the nervous symptoms in some cases, at least, and this may readily be carried too far by the unguarded. Within certain limits, however, this stimulation exercises a salutary influence on the heart's action, the respirations and the systemic circulation of the blood, promoting the warmth of the body and regulating the tissue metabolism to an extraordinary degree. Subsequently, the excitation of the nervous system produced by the baths gradually subsides.

The "after-cure" constitutes a not unimportant element of the treatment. The patient is generally sent to an altitude ranging from 1,000 to 3,000 feet above the sea level, is rigidly isolated from professional, business and domestic cares and responsibilities, and permitted to enjoy an abundance of pure air and sunshine. With reference to altitude, it may be said that the patient's special condition must be carefully considered in reaching a judicious decision. The length of the

stay is variable, although on the average about ten days to two weeks.

No presentation of the subject of the Schott methods in the treatment of chronic cardiac diseases would be complete without a brief mention of the contraindications to the treatment: 1. Cases presenting fever. 2. Advanced arteriosclerosis. 3. Far advanced myocarditis. 4. The closing stage of chronic valvulitis, with extreme dilatation of the chambers. 5. Aneurisms of the aorta or of its larger trunks, except in the incipient stage. In any case in which the blood pressure is lowered by the balneologic treatment. 7. Cases in which a tenometric figure as low as 65 or 60 mm. of mercury is found (Schott). 8. Cases in which chronic bronchitis and asthma are well marked (Baldwin).

Dr. James Tyson, in his paper cited above, has given a full and accurate description of the home-made baths, and to this paper the reader is referred for details. Tyson points out the great advisability of more conveniently available baths than those to be found at Bad Nauheim. I am in accord with this view, but I am not aware of the existence of specially trained operators to carry out the "resistance exercises"—an essential element of the method.

Moreover, the good effects of a favorable environment and of complete extrication of the patient from business and domestic cares and worriments, are, as a rule, lost when artificial Nauheim baths are attempted. If we take into consideration all these shortcomings and imperfections, there is little need to wonder at the unsatisfactory results which are only too commonly obtained. To practice the Schott method with success at home demands a separate, well-equipped and properly officered institution, and one far removed from the more densely crowded centers of population. Such an institution has yet to be produced in America.

In concluding, I desire to state that my studies and observations have fully confirmed the correctness of the principles of treatment long since established by the Brothers Schott, and unquestionably to them belongs the merit of having introduced to the medical profession a most efficient method for the treatment of those afflicted with cardiovascular diseases. Great, therefore, is the debt of gratitude which the profession owes to these gentlemen for what is most advanced and most valuable in the sum of our achievement in the treatment of this large group of affections.

DISCUSSION.

DR. JAMES TYSON said that he has limited himself to the home use of the Nauheim baths, because in this connection there is the greatest opportunity for its employment, the expense of a trip abroad and treatment at Nauheim being impossible to the majority of persons. He does not think a bath establishment is necessary and he has used the treatment in private houses in the use of the ordinary bath. A person is required to conduct the bathing as well as the exercises, although both may be done by the same individual. The baths, he believes, could be made very much simpler than the paper by William Bezly Thorne would lead one to believe. Chlorid of sodium and the chlorid of calcium were stated to be the two most important constituents. Five pounds of chlorid of sodium and five ounces of chlorid of calcium are put into the ordinary bath of from 40 to 50 gallons of water. The course consists usually of 21 baths, three of which are given in succession and then a day skipped. The proportions of sodium and calcium are increased until in the last five or six baths the water contains about ten pounds of the former and ten ounces of the latter. At home the carbonic acid element of the bath is secured by adding hydrochloric acid and bicarbonate of sodium. The cases that receive the most benefit, Dr. Tyson said, are those of cardiac weakness with dilatation, chronic dilatation brought about gradually as the loss of compensation is brought about in valvular cases, and also cases in which there has been muscular overexertion. Acute dilatation, he remarked, is best treated by rest in bed and by the use of nitroglycerin, etc. In such a case partially recovered improvement may be completed admirably by the administration of the Nauheim bath at that stage. The bath should not be given in cases of edema and general dropsy. Dr. Tyson thinks the patient a pretty good guide regarding the continuance of the bath; if he does not feel well after three or four baths, it is a mistake to continue them. Better is it to put the patient to rest. The first bath he makes five minutes in length, the second six or seven minutes, which time is increased to ten or fifteen minutes. Coincidentally with the increased duration of the bath the temperature is lowered. Eighty-two or 85, he said, is the lowest temperature at which the baths are given at Nauheim.

DR. JUDSON DALAND said that the most important features of the treatment can be subdivided as follows: The baths and movements, change of climate, régime. In the home use of the bath he attaches less value to the chlorids of sodium and of calcium than to the water and to the variations in temperature. He thinks that all physicians have gotten into the habit of using the resistance movements in combination with massage and of encouraging patients to make certain voluntary movements in cases of broken cardiac compensation. The use of the method in angina pectoris, he thinks, would be experimental. In dilatation of the heart with moderate sclerosis in persons of middle age he has found the treatment beneficial in some cases. Before instituting this treatment in such cases he determines the cardiac reaction by having the patient make a certain number of movements.

DR. S. S. COHEN referred to his demonstration before the society of the Schott treatment some eight years ago with the efficient aid of Dr. Charlotte West, and stated that Dr. West is available for the carrying out of the Schott resistance movements, as well as four other persons whom he has trained. He thinks that there is no difficulty in having the baths given at home, if the patient and physician are willing to take a little trouble in getting them started; intelligent patients can be entirely trusted to carry out the details. In preparing the bath the plan which Dr. Cohen has adopted and which has the advantages of preventing the cooling of the water and injury to the tub is to fill the tub half full of hot water, put in the brine and the bicarbonate of soda; let them remain for about twenty minutes so that they are thoroughly disseminated throughout the whole mass of water; then add sufficient water, which can be cold or lukewarm, according to the temperature to which the original quantity of water has cooled; then put in the acid sulphate cakes on the tinfoil and there will be a thorough effervescence. A valuable element in the treatment at Nauheim, Dr. Cohen believes, is the personality of Dr. Schott. His scientific spirit, his authoritative manner, thorough mastery of routine and of detail, the absolute obedience which he gets from all the attendants count for a good deal.

In the home treatment Dr. Cohen's plan is to give the baths in a course of six or eight weeks, interrupting them for eight or ten or twelve weeks and then again repeating them for two or three weeks; then again interrupting them, and again repeating. The best time to give them he considers to be at night so that the patient may have several hours' continuous rest afterward. He gives the baths every other day or every third day, giving exercise on the alternate days, if exercise is to be given. Sometimes the baths can be followed by massage, the character of which will vary with the character of the lesion and the reaction of the patient. He confirmed Dr. Anders' statement of the value of this treatment in exophthalmic goiter, but also stated that there is great danger in its employment in this condition. He would not trust patient nor attendant to give the treatment in exophthalmic goiter. In a few cases he believes it would do good if carefully applied and by the physician himself. In cases of arteriosclerosis not too

far advanced he has seen good results; also in angina pectoris, in mitral stenosis and in mitral regurgitation. He differed from Dr. Daland concerning the resemblance between the effect of active exercise on the part of the patient and the gentle resistance movement of the Schott system. In the Schott system there is no muscular exercise on the part of the patient at all. The moment exercise is made the patient defeats the object of the treatment. The method is, he said, "*gentle* resistance." The benefit obtained is in the starting up of the peripheral muscular pump on the vessels so that the action of the natural rhythmical contraction of the muscles on the vessels continued to assist the work of the heart. The carbon-dioxid gives to the "skin heart" a much more active stimulation than could be secured from massage or electricity, though the principle is just the same, the diversion of the blood to the surface and the stimulation of the vasomotor reaction.

DR. P. S. DONNELLAN said that he believes it is the combination of the baths, the resistance exercises, the environment and the care in diet which contribute to the success of the Nauheim treatment. A good feature, he pointed out, is that the bathtub is sunken into the ground. He considers the resistance exercises a valuable addition to the treatment in that they supply a distinct element of cure in those cases of cardiac dilatation, arteriosclerosis and some valvular conditions. He thinks that great care should be exercised in the selection of cases sent to Nauheim. He referred to the importance of the after-cure, which consisted in the patient being sent to the Black Forest or to some portions of Switzerland to complete the cure after a period of six or eight weeks' treatment at Nauheim.

DR. WILLIAM S. WADSWORTH referred to the physiologic principles underlying all treatment. In regard to the effect of the various ingredients of the bath on the stimulation of the skin and the effect on the sensory nerves, there is, he said, a very great additional effect not mentioned, the effect on the skin itself. For example, on putting a piece of skin, alive or dead, into water there is obtained a certain amount of maceration and an entire change in the feeling of the skin. If the finger is put into the water for half an hour the sensations are entirely different from those encountered from the air. All, he said, know the difference between the sea bath and the ordinary bath. Another factor in the bath, he pointed out, is the suspension of the body in a material which is of a certain specific gravity. Putting the body on a water bed, he considered, is also a very important factor. The changes of the specific gravity will bear the closest clinical study and should give interesting results. In the resistance movements Dr. Wadsworth stated there is a series of valuable factors developed of a purely mechanical sort. On the chemical side there is another group; a chemical change taking place in the muscle itself. Certain substances are taken up, causing change of tone of the whole system. Fatigue stuffs are thrown out which have a distinct effect on every organ that comes in contact with the blood.

DR. J. MADISON TAYLOR emphasized the importance of the physician, himself knowing enough about the question of exercise to direct a competent person to do the work. He thinks much can be gained if men will take the trouble to study their cases thoroughly, and watch them through from start to finish.

DR. J. M. ANDERS said that he is not convinced that the home treatment can be carried forward with much success. To have a suitable establishment in this country would require a specialist in heart disease to make the treatment a special study, and this one should watch the patient daily, noting the effect of every bath and every application of the resistance movements.

Formaldehyd for Disinfecting.—An improved method of disinfecting is the subject of a recent English patent, according to the *Pharmaceutical Era*. One part of paraformaldehyd and six parts of carbon, both in finely powdered condition, are mixed with sufficient gum tragacanth or other suitable gum to form a stiff paste, which is pressed into blocks and dried. When required, the blocks are ignited, formaldehyd vapor being thereby gradually and uniformly disseminated.

PARAURETHRITIS.

AN ANATOMIC REVIEW, WITH A REPORT OF TWO CASES.

J. W. CHURCHMAN, M.D.
BALTIMORE.

The recent occurrence within ten days of two rather unfamiliar forms of gonorrheal infection seemed to offer material of enough clinical interest to be worth recording and of enough anatomic interest to warrant detailed study of the structural features illustrated; and at the suggestion of Dr. Young,[1] in whose practice the cases occurred, the following report has been prepared:

The urethra may be roughly described as a tubular structure, with dependent glandular adjuncts; for throughout its whole extent, from meatus to internal sphincter, and even beyond in the trigone, glands or crypts are to be found occupying a "para-position" in relation to it. All of these are of clinical interest as haunts of infection; some, like the prostate and vesicles, have, beside, a very definite pathologic and physiologic interest of their own; but many (most of them, though small, by no means insignificant) bear so intimate a relation to the urethra that we can only speak of them as paraurethral and of their infection as paraurethritis. Strangely enough, the well-known proper names associated with many of these structures are so associated with little or no justice. Tyson's glands do not exist; Skene's glands were described and their gonorrheal infection noted by Astruc 125 years before the American publication, and again by Guérin in 1864; Littré was probably looking at something quite different from the glands which have since borne his name when he noted structures in the membranous urethra which were, as now seems likely, not glandular at all; and Cowper was antedated just eighteen years by Méry in describing the glands usually known as his.

For their discoverer, in 1680, there was no doubt as to the glandular nature of the depressions he saw on corona and cervix, and from their supposed function (they were first observed in the orang-outang) Tyson called them odoriferous glands. Morgagni subsequently denied their existence as anything more than depressions. So did Haller, Finger and others; and Sprunk, in a Königsberg thesis (1897), reported that an examination of 300 adults had failed to reveal Tyson's glands in a single case. Kölliker, taking a safe middle position, regarded them as inconstant, and only sebaceous glands at best. It seems quite probable, as Delbet[2] has shown from a study of the published cases, that what Tyson and others took to be true glands were only the papillæ and interpapillary spaces of Littré, and that there are no true glandular structures on corona or cervix. Behind the corona and on the mucous layer of the prepuce there are, of course, sebaceous glands, atrophied and rudimentary, and the products of these unite with some desquamated epithelium to form smegma.

The features of the urethral mucosa proper begin with the valve of Guérin, an epithelial transverse fold lying in front of the fossa navicularis, which it closes off somewhat as the aortic valve does the aorta. It is sometimes described as analogous to the lacunæ of Morgagni (so Janet[3]); but both its histology (its epithelium is

1. I am also indebted to Dr. Young for suggestions as to the best use to make of the material he was kind enough to put at my disposal.

2. Delbet: L'Appareil. Génital de l'Homme (in Poirier and Charpy's Traité d'Anatomie Humaine).

3. Janet: Les Repaires Microbiens de l'Urètre, Annales des Maladies des Organes Génito-Urinaires, No. 19, 1901, p. 897.

squamous in type) and its embryology show that it really deserves separate consideration. For the genito-urinarian it is chiefly of interest as offering resistance to the introduction of instruments; and it provides the stereotyped exception for that stereotyped rule of the text-books about hugging the superior urethal wall in passing sounds. Just back of this peculiar valvular fold begins the familiar series of glands and lacunæ usually associated with the names of Morgagni and Littré. Of these glands it may in general be said that they are more numerous on the upper (anterior) wall than on the lower (posterior); that they are present throughout the urethra, reaching even into the bladder as the aberrant glands of Littré, and that they appear about the third month of fetal life, though their development probably continues after birth (Rubin and Cadiat). Around the prostatic portion they lie in linear series; in the membranous they are scattered without order, though Motz and Bartrina[4] have recently called attention to the clinical importance of certain definite groups; and in the spongy portion they are abundant on the upper and numerous on the lateral surfaces. Their importance as harborers of gonococci needs, of course, no mention. The crypts of Morgagni—blind depressions, having the same structure as the urethra, and not glandular at all—are found from the valve of Guérin to the membranous urethra, where they usually disappear. They are arranged in linear series and were divided by Morgagni into foramina and foraminula, to which Sappey made the somewhat superfluous addition of a middle class. In the median line and on the dorsal surface they are largest, reaching their maximum in the well-known lacuna magna of the fossa navicularis. One 27 mm. deep was reported by Cruveilhier, but usually they do not run more than 6 or 7 mm.

In the female the urethral glands have less clinical importance, in proportion as urethritis is a less troublesome disease. In the clitoris, the morphologic analogue of the glans, no true glands exist, though there is usually a mucous crypt on the posterior inferior face, where in one case Wertheimer found the opening of a true clitoridean gland. In the urethra itself true acinous glands, though less numerous than in the male, exist throughout its extent. Of much greater interest and importance, however, are the well-known paraurethral structures to which Skene's name, by a sort of common consent, has become inseparably attached. Anatomically they are a puzzle. For a long time supposed to be the remains of Gärtner's canal, they were later explained as analogues of the urethral lacunæ; but their early appearance (they are first seen in the 65 mm. fetus), their constancy in the human female, and their general developmental history, make it probable that they are really homologues of the *prostatic* glandules—a probability pointed out by Astruc as early as 1755. The position of their orifices, the general course of their canals and their relation to urethral infections suggest quite strongly their clinical analogy to the paraurethral ducts seen in the male, whatever be their exact anatomic nature.

All these features of the male and female urethra occur with enough constancy to be considered normal. In a certain number of cases, however, additional depressions and ducts are found, whose infrequent occurrence gives them anatomic and clinical interest. They may take various forms,[3] from a mere depression on the lip of the meatus to the system of small canals, giving to the glans of hypospadias a veritable moth-eaten character. In any case, they are admirably fitted to store away the elusive organisms—better fitted, of course, as their complication or the deepness of their site increases. Most frequently they occur as small openings on the lips of the meatus, which may prove to be mere depressions (Fig. 1), the mouths of culs-de-sac, or the orifices of true, and, in some cases, long canals, running in general parallel with the urethra (Fig. 2). Varied, too, are their terminations; now they lie beside the meatus as pin-point orifices or suggesting a double meatus; again they are found to open into the fossa navicularis, like a complete fistula; occasionally they burrow through one urethral wall to form a true sinus (Fig. 3a); sometimes (the subphrenal pouches) they run along in the prepuce, where they may be felt as cords, to open into the urethra, or exteriorly, or both (Fig. 3a). In other cases a transverse depression occurs in the lateral walls of the fossa

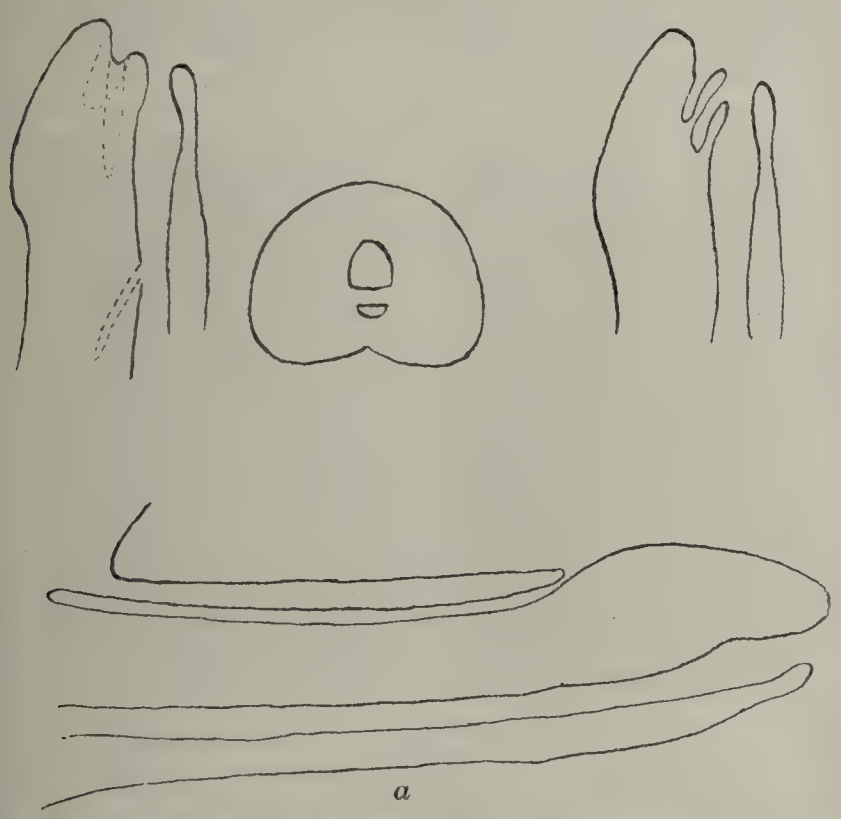


Fig. 1.—Diagram of paraurethral structures above the urethra. a. True dorsal fistula. (Modified from Janet.)

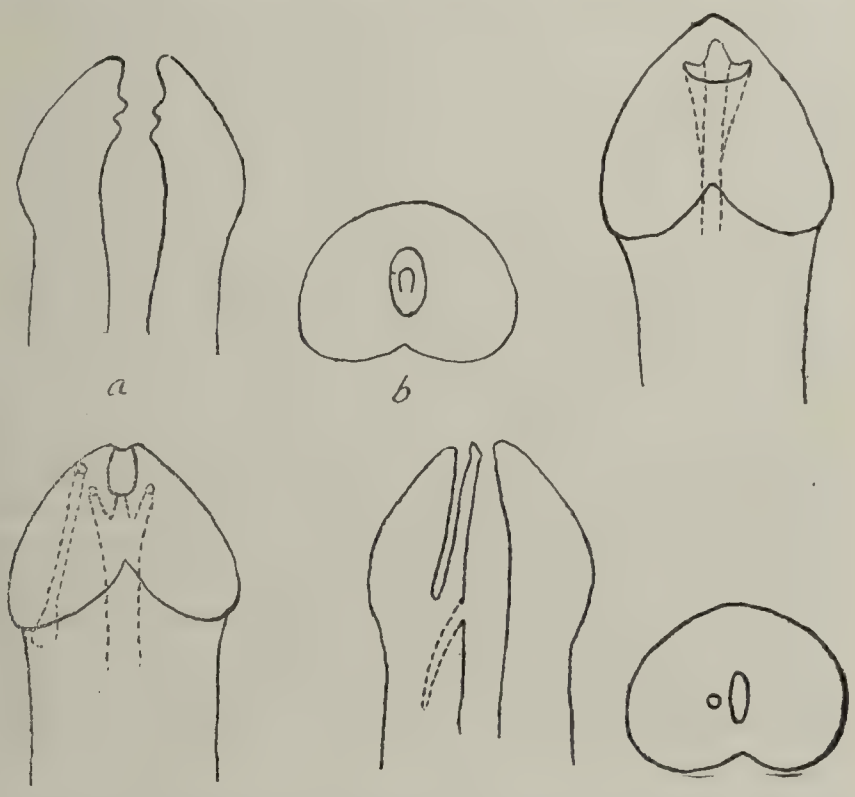


Fig. 2.—Diagram of paraurethral structures lateral to the urethra. a. Diaphragm formation; seen at b. reaching only partly around the urethral circumference. (Modified from Janet.)

4. Motz and Bartrina: Contribution à l'Etude des Abscès Périnéaux et des Phlegmons diffus d'Origine uréthrale, Annales des Maladies des Organes Génito-Urinaires, No. 21, Nov. 1, 1903.

navicularis and forms a diaphragm running, in certain of the patients, only partly around, and suggesting, by the combination of a vertical with a transverse meatus, the beginning of hypospadias (Fig. 2b). A true dorsal fistula may also occur, beginning just behind the glans and running back to the pubic symphysis (Fig. 1a). It is easy to see how complicated a picture combinations of these conditions may give, and this is what we actually get in hypospadias. In this deformity small median de-

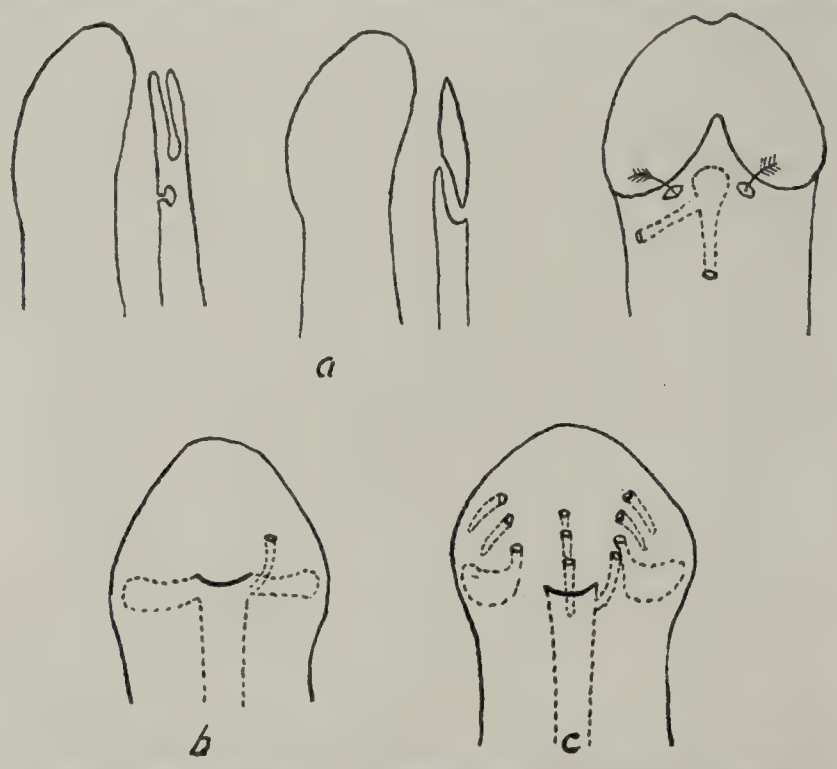


Fig. 3.—a. Diagram of paraurethral structures below the urethra. b. Lateral urethral pouches. c. Guyon's case. (Modified from Janet.)

pressions on the floor of the false meatus, or of what is really the opened fossa navicularis, are very frequently seen (Figs. 3c and 4); but all sorts of lateral and median canaliculi have also been observed, all of which, except the large, pouch-like urethral auxiliaries seen in Figure 3b, were observed in a patient of Guyon's (Fig. 3c), the richness of whose penile anatomy was somewhat counterbalanced by the co-existence of monorchism. Of the unusual paraurethal gland-like structures it may then, in brief, be said:

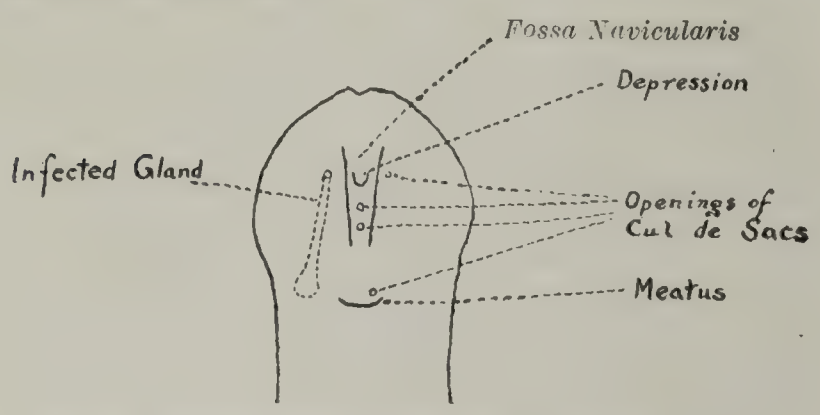


Fig. 4.—Diagram showing conditions in Case 2. (D. C.)

1. They are more frequently seen with hypospadias than in the normal penis.

2. They may occur above, below or lateral to the urethra.

3. They are oftenest seen, when hypospadias is not present, on the lips of the meatus.

4. They vary in extent from slight depressions to long ducts.

5. They may be independent of the urethra or directly connected with its lumen.

6. They secrete a clear serous fluid.

7. They may take the form of a true fistula running either more or less parallel with the urethra or burrowing through the body of the penis to connect with its lumen.

8. The most frequent form, in hypospadias, consists of median depressions in the wall of the fossa navicularis.

9. They may be responsible for persistent infection by offering a safe haunt for organisms.

In the deeper portions of the urethra we find, of course, paraurethral structures analogous to those in front; but these, by reason of their familiarity and their right to a consideration as distinct organs rather than urethral adjuncts, do not concern us here. It may be of interest, however, to note, in connection with the question of infection of paraurethral structures, the valuable article recently published by Motz and Bartrina.[4] These writers, from a study of a large number of pathologic specimens, have come to the somewhat novel conclusion that the conventional ideas about perineal abscess following stricture are all wrong; that Hunter was on the right track when he spoke of these conditions as primarily urethral or periurethral suppurations; that they actually start in suppuration of the "urogenital glandular thoroughfare," composed of prostate, vesicles, Lit-



Figure 5.



Figure 6.

Fig. 5.—Showing a drop of pus exuding from infected gland in Case 2. (Drawing from photograph.)

Fig. 6.—Showing extent and direction of infected gland in Case 2. a. Hypodermic needle. (Drawing from photograph.)

tré's glands, Cowper's glands, and the aberrant Cowper's or intrabulbar glands; that often, if not usually, the urethra is intact, and that "infiltration of urine" is a misnomer for what is really a diffuse bacterial phlegmon (Albarran's "acute septic edema of urinary origin"), the urine being not causative at all, but quite secondary.

CASE 1.—(S. W.) This was a case of paraurethral infection appearing during the course of a urethritis and occurring in an otherwise normal penis. The patient was first seen on Nov. 26, 1902. The history was of exposure five days previously. There had been urethral burning for three days, but the discharge had not been seen until the day before admission. The left inguinal glands were palpable. There was pus in the first glass; the second and third were clear; the patient denied all previous genitourinary trouble. Gonococci in great numbers were found in the discharge and the case was, of course, one of ordinary acute anterior gonorrhea. The usual treatment with daily irrigations was instituted, santal being given internally and the patient advised to drink copiously of water. For three weeks the course was uneventful, the urine showing no posterior involvement and the discharge gradually diminishing in amount and becoming more chronic in character.

On Sunday, December 26, patient first noticed a small papule on the glans penis near the urethral orifice. On examination I found a pin-point opening on the lips just to the left of the meatus and about opposite its middle point, surrounded by a reddened area with no accompanying induration. On squeezing, a small drop of pus exuded, rich in gonococci. A fine probe could be inserted for a distance of about 3 cm., and ran back and somewhat to the left. No other gland could be found. The urine, which on the patient's last visit had been suspicious of posterior involvement, now pointed to it plainly so that posterior irrigations of 1 to 10,000 silver nitrate were started—treatment of the urethritis from this time on taking the usual course. The infected paraurethral gland was touched with pure carbolic acid on a fine probe, a small piece of cotton was inserted between foreskin and glans and the latter cleaned with peroxid. For the next three days the paraurethral gland continued to discharge despite daily touchings with pure carbolic acid. On January 13 a very little seropurulent discharge could be squeezed from the gland, made up of disintegrated pus cells. One cell was seen containing gonococci. The next day an injection of 2 per cent. protargol was given with a blunt hypodermic needle, and on the 19th no pus could be obtained and no induration felt. On the 22d, however, a fairly large number of gonococci were found in the pus squeezed from the gland and an injection of peroxid was given. The patient was next seen on February 11, when the paraurethral infection had entirely subsided and no discharge could be squeezed from the gland. The subsequent history was the conventional story of chronic urethritis.

CASE 2.—(D. C.) This was one of paraurethritis appearing as the primary gonorrheal lesion in a patient with hypospadias. This penile deformity was an inheritance which had come through the mother's family, three maternal uncles and one maternal great uncle having had hypospadias exactly similar to the patient's. Two brothers, both dead in infancy, had no such deformity. The accompanying very small urethral orifice had, during childhood, given the patient no trouble except the inconvenience of a small urine stream. There was no history of nocturnal enuresis. At 9 years of age the patient was circumcised and the urethral orifice enlarged. Since his fourteenth year he had a good deal of urethral irritability, which began after a small dose of turpentine followed shortly afterward by dreadful strangury without hematuria. Since this time, however, when the urine is dark in color and "concentrated," urination has been accompanied by mild burning. A second attack of strangury without hematuria occurred last year subsequent to the taking of a large number of oranges. There was no history of previous genitourinary trouble. The patient was first seen January 8, giving a history of exposure on December 29 and 31, to the second of which he had reason for tracing his infection. There had been no previous exposure since October 15. Absolutely nothing was noticed until the morning of January 7, when there was some slight itching on the glans. On the night of the 7th a slightly inflamed point on the right lip of the false meatus was noticed, without any suspicion of urethral symptoms. The patient, who was a medical man, thought immediately of lues and spent a miserable night with the books of his student days. He was seen next morning in a highly nervous state, thoroughly convinced that two years of mercury and iodids lay before him. On examination the testicles were found normal, the globus major on both sides palpable, but not tender; veins of the cord enlarged. No rash, glands nor constitutional symptoms. The penis was deformed, as shown in Figure 4. On the right lip of the open fossa navicularis, about one inch from the true meatus, was a small reddened papule with no surrounding induration. No opening was to be seen, but on squeezing the papule a small drop of pus exuded (Fig. 5). A smear showed intracellular diplococci somewhat larger than gonococci and not uniformly stained. Nor was the Gram test decisive, some of the organisms decolorizing and others retaining the stain; but smears made next day on hydrocele agar gave a pure culture of gonococci with a typical Gram reaction. The urethral orifice was somewhat reddened, but there was no sign of discharge nor had there been any burning or other sensation. In the first glass were a few flakes of pus which did not contain gonococci; second and third glasses absolutely clear. The glandular orifice was cauterized with pure carbolic acid, the glans and then the anterior urethra well washed with potassium permanganate. The patient was told to keep the glans clean with peroxid. That afternoon the gland was again cauterized, the anterior urethra washed with a mild bichlorid solution, after carefully cleaning off all infection from the glans, and an effort made toward prophylaxis of the anterior urethra, possibly not yet infected, by an instillation of a 2 per cent. protargol. Lafayette mixture and large quantities of water were ordered internally. Next day there were still shreds in the first glass and carbolic cautery for the gland with 2 per cent. protargol in the urethra was again used. This was repeated on January 10, and on January 11 protargol, 2 per cent., was injected into the infected gland with a blunt hypodermic needle (Fig. 6), the glans being afterward wrapped in cotton soaked with protargol which, owing to the deformity, could fortunately be made to cover the infected orifice without blocking the urethra. January 12 the gland was still discharging; a smear made just at the meatus showed some gonococci, but as there was no discharge beyond a small amount of mucus, and as there had been absolutely no symptoms, it was felt that these might well be accidental from the infected gland and not from an infected urethra. A few flakes of degenerate pus continued in the first glass, but no gonococci could be found in it. On January 13 there was slight enlargement and tenderness of the glands of both groins and the patient reported having had priapism, without pain or chordee. during the previous night. Next day there was a slight amount of pus at the meatus which contained gonococci. The usual treatment of the gland was continued and regular tridaily permanganate irrigations of the anterior urethra were started (1 to 2,000, increasing to 1 to 800). On January 16 a lymphangitis running along the left side of the penis was noted. The gland was irrigated with 1 to 1,000 bichlorid and injected with 2 per cent. protargol. On January 17 pus could be squeezed from the gland in quantity and peroxid was injected with a blunt hypodermic. January 19 there was marked improvement. The urethral conditions remained the same and no gonococci could yet be found in the flakes of pus which continued in the first glass. On January 25 silver nitrate, 1 to 5,000, was substituted for permanganate in the urethral irrigations. No gonococci could be found in a smear from the urethra nor in the pus of the first glass. On January 26 the patient complained of some pain in the right hip joint and next day he was confined to bed with grip. Gonococci gradually decreased in number under treatment and on February 9 they could not be found in the gland which, four days later, was absolutely healed. Continued search for organisms in the urethra and in the few shreds which continued in the first glass failed to reveal them, but an irrigation test showed that some of the shreds had a posterior origin and posterior irrigations were started on February 11. Slight strangury followed their use, and on February 17 patient was taken with rectal pain, a severe chill, vomiting and temperature of 100 degrees. This condition lasted all night, but patient was well again next day. On February 28 examination of anterior urethra on a bougie was made and a few small indurations found. The massage caused some burning and on the night of March 2 patient had a chill with vomiting and fever. A few shreds still persisted in the first glass and a few indurations were palpable on a bougie, but there were no symptoms, and the prostatic examination showed only a few leucocytes in the secretion.

REMARKS.

This case was of interest by reason of the co-existing hypospadias,[5] the doubtful diagnosis in its early stage,

5. I have since seen a patient with chronic urethritis and hypospadias who showed paraurethral ducts on the right lip of the fossa navicularis and just to the left of the true meatus (similar to the condition in Case 2). Both are now perfectly normal, but there is definite history of their involvement during the acute attack four years ago.

when it might easily have been taken for a beginning chancre, a small chancroid or even an infected herpetic blister; the subsidiary character of the urethritis (due largely, no doubt, to the accident of co-existing hypospadias), the presence of unusual urethral irritability, making treatment difficult, and the long persistence of gonococci in the infected duct in spite of vigorous treatment. Indeed, having once seen a paraurethral infection, one wonders not that gonorrhea is so seldom cured, but that it is ever cured; and to have observed a duct, thoroughly irrigated with 1-1,000 bichlorid and then cleaned with hydrogen peroxid, the next day discharging gonococci in numbers, makes it easy to understand why gonococcicides have been more numerous than uric acid solvents, and equally effective. The observation of such a case impresses one with the importance of the mechanical effect of irrigations in urethritis, and the relatively small importance of the specific "anti" effect of the material used. The intraurethral glands are, of course, not so deep as the paraurethral glands, but the conditions there are similar to, if not so extreme as, the rarer affections; and in them, as in the paraurethral cases, the gumming of the glandular mouth, with the formation of a sealed tube containing a pure culture of gonococci in a congenial medium, ought, it seems to me, to be combated by irrigations, the frequency of which is of more importance than their composition. In my first case the gland was quite shallow, urethritis was already present, and the treatment was, therefore, quite unimportant. In the second case, conservative measures were persisted in, consisting of irrigations, strong antisepsis and cauterization, for it seemed unwise to cause any bleeding in the presence of a blood-infecting organism; and, moreover, to have converted this cul-de-sac into a sinus open at both ends, while it would, of course, have given better drainage, would, at the same time, have brought the source of infection nearer the meatus and so have abused the very protection against urethritis which Nature had provided in the hypospadias. Operative measures have, however, been advised, and Janet[5] has devised special instruments for the purpose, the object being either to convert the blind internal fistula into a complete fistula by incising it toward the urethra, or to open its blind end and so provide for through-and-through drainage. The method of incision was used with good results by Genouville[6] in a case of gonorrhea involving two glands, lateral to the frenum, without a co-existing urethritis; and in a case of recurrent gonorrheal urethritis traced to a latent infection of paraurethral gland in a patient with hypospadias (the canals opening both into the urethra and externally) Reymond effected a cure by instillations of strong permanganate. In Swinburne's[7] four cases operative treatment was avoided, application to the infected gland being relied on, together with whatever urethral treatment was indicated. One of these cases resembled my second case in several important particulars, for, though there were never any symptoms of urethritis (the infection was lodged in paraurethral meatal glands) and no cloudiness in the urine, gonococci, which, as a rule, could not be found in the urethra, occasionally appeared there, just as I was able to find them now and then without having caused as much burning as the patient often experienced in his uninfected irritable urethra and without appearing there with any consistency.

It would be interesting to compare the frequency of paraurethritis with the proportion of males having the anatomic abnormality necessary for its development. Theoretically, it is hard to conceive that such glands, when present, would ever escape infection, lying directly exposed, as they do, not only to the original source of infection, but also to the discharges of a urethritis. The strange freaks of contagion, however, are not to be theoretically prophesied with any exactness, for in my second case the urethra, to which careful prophylactic attention was paid, showed signs of at least temporary infection and continually provided the urine with shreds, while the small gland on the opposite meatal lip, though unavoidably exposed and practically untreated, escaped infection entirely. The number of gonorrheal cases with infected paraurethral glands ought to be the same as the number of gonorrheal cases with paraurethral glands to infect; and the relative rarity of paraurethritis means probably that it is frequently overlooked, and that paraurethral glands are a rather rare anatomic feature. In women in whom "gonorrheal urethritis is an almost constant manifestation of fresh infection" (Bumm[8]), Skene's ducts, occupying a site of somewhat similar exposure, are, of course, very frequently infected, causing the well-known reddened, pouting projections at the meatus; so that, whatever may be the exact anatomic analogy between the glandular structures of the male and the female lying near the urethral orifice, the frequency and importance of infections in the exposed paraurethral glands of the female lend clinical support to the otherwise theoretic presumption that the importance and frequency of their involvement in the male may have been overlooked.

SUMMARY.

The cases here reported show that:

1. Gonorrheal infection of paraurethral ducts occurs in the male, and that it may manifest itself either during the course of an ordinary urethritis or before urethral symptoms have appeared.

2. Paraurethritis may, in its very early stages, simulate inflammatory lesions of the surface of the glans, notably beginning chancre, chancroid, or herpes.

3. Paraurethral infection, once it has become established, can be destroyed only with great difficulty, the organisms reappearing in abundance even after cauterization of the duct.

4. The infection can be overcome without surgical intervention, and the continual existence of a neighboring focus of infection does not necessarily mean a bad urethral invasion if careful prophylactic measures are taken.

Clinical Report.

PAPILLOMA OF THE ASCENDING COLON UNDERGOING MALIGNANCY.

ILEO-COLOSTOMY (LATERAL IMPLANTATION); ILEOCECOCOLECTOMY; RECOVERY.*

LEWIS WHITAKER ALLEN, M.D.
Attending Surgeon to St. Luke's Hospital.
SAN FRANCISCO.

Papillomata occur in the colon with sufficient rarity as compared to their appearance elsewhere, e. g., in the mucous membrane of the nose, ear, larynx and genitourinary tract, to justify the report of this case.

6. Genouville and Reymond: Discussion before Asso. Franc. d'Urologie. Annales des Maladies des Organes Génito-Urinaires, No. 17, 1899, p. 1198.

7. Swinburne: Report of Cases Showing Unusual Lodgment of the Gonococcus. Journal of Cutaneous and Genito-Urinary Diseases, October, 1899.

8. Bumm: Beitrag zur Kenntniss der Gonorrhea der weiblichen Genitalien. Archiv für Gynäkologie, 1884, xxiii, 327-349; Veit's Handbuch der Gynäkologie, vol. i.

* Reported before the San Francisco Academy of Medicine, September, 1904.

Patient.—Mr. S. B. DeS., an Englishman, aged 36; good family history.

History.—He was always strong and well until the middle of May, 1903. He then complained of a burning sensation in the stomach and colon, of occasional attacks of vomiting, and of loss of strength and flesh. Within a week he noticed blood in the stools. He gradually grew worse, vomited nearly all food, and had small, black, thin stools daily. He lost 42 pounds in 10 weeks.

Examination.—Physical examination showed the heart and lungs to be negative. The abdomen was tympanitic, except on the right side, where palpation revealed a large, hard mass in the ileocecal region extending up to the free border of the ribs. This mass was not sensitive and could not be moved freely.

Treatment.—He was given large enemata of olive oil and olive oil was given by mouth, beside stimulation. He retained the olive oil but vomited all nourishment. He had a movement of small, thin, black stools, containing hard pieces of fecal matter.

Course of the Disease.—This condition of the stools, showing disintegrated blood and hard, marble-like feces, continued until October 1, the patient several times suffering from collapse, at which times his pulse became imperceptible. By October 1 he had lost greatly in flesh and strength, and was profoundly anemic. His emaciation was extreme. There was, however, now no blood in the stools. There was no vomiting and less flatulence. The mass had diminished to the size of an orange, situated in the right iliac region, and had become somewhat more movable. The blood in the stools disappeared with the hard scybala. Through the succeeding months his gain in strength was slow but continuous. April 13 I first saw the patient in consultation with Dr. Harris. I found a fairly well nourished, though anemic patient. His abdomen was normal in appearance, but a mass the size of a small orange could be made out through the newly acquired adipose tissue, in the right iliac fossa. It was freely movable, not tender, and at this time was giving the patient no discomfort. The abdomen was tympanitic over it. It was about the size of a chronically inflamed appendix with a moderate amount of adhesions about it.

Diagnosis.—The question of diagnosis was of some interest. As soon as the colon had been cleared of all scybala the hemorrhage stopped and the patient began to improve. Carcinoma and other malignant growths were now considered improbable. The fact that no bleeding had occurred for so many months forced one to consider other conditions than a papilloma. If the extreme condition to which the patient had been brought was due to the hemorrhages as a result of ulcerations produced by the scybalæ, then the tumor, as found at this time, might be a gumma, hypertrophied gland, or a mass of adherent intestines resulting from the previous ulcerations with peritonitis, or a chronically inflamed appendix with adhesions. There were neither symptoms nor history of syphilis. The growth was too large and too movable to be an enlarged gland. Besides, such a gland would have subsided during these months of convalescence. The mass seemed to have too much solidity to be adherent intestine only. Barring malignant growths, it felt more like a chronically inflamed appendix, surrounded by a mass of adhesions, than anything else. The persistency of the irritability of his stomach seemed to bear this out. Lack of an increase of temperature would mean nothing, as this often is lacking in chronic appendicitis. It was, however, a case for exploratory incision as soon as the patient was in condition. His anemia contraindicated any extensive operation at that time unless necessary, and it was suggested that a blood count be taken. He was found to have 40 per cent. hemoglobin. By June 11 it had reached 70 per cent., and so on June 13 he entered the hospital for operation, not in fine condition for extreme measures on the intestines, but still with a slight margin of strength for the necessary shock accompanying resection if that should be necessary.

Operation.—June 15, an incision was made along the right rectus over the tumor, and it was immediately seen that we had to deal with a tumor on the inside of the ascending colon. The incision was enlarged upward and across the rectus to afford space for intestinal anastomosis. The omentum was incised between ligatures tied about 1½ inches from its right border up to its junction with the transverse colon. The transverse colon was then clamped at the hepatic flexure and tied with a piece of gauze toward the median line. After a purse-string suture had been placed about it on the gauze side, the colon was cut through, the end puckered in with the purse string, and whipped over with catgut. This closed the distal end and the gauze was removed. The other end, after careful cleansing, was wrapped and covered with several layers of gauze for protection. This method was pursued because of the necessity of hurrying on account of the condition of the patient. The ileum was then prepared similarly about three inches from the ileocecal valve, but not severed. The omentum was reflected upward and the large end of a Murphy button was inserted in the usual way into the side of the transverse colon just below it. I took away a small area of the wall to prevent any chance of a later contraction of the new valve. The ileum was then divided, the other half of the button inserted into its proximal end and the union affected—a lateral implantation of the ileum into the transverse colon. After reinforcing the Murphy button with a continuous catgut suture, I drew the omentum down and lightly fastened it over the point of union with two or three fine catgut sutures, and also over the end of the closed colon. After cleansing the field well, the whole was dropped back into the abdomen, covered with a pad and seen no more. I then tied off the ascending colon, cecum, appendix, and stump of the ileum by ligating the mesentery from above downward with strong catgut, occasionally using clamps first. Only at the hepatic flexure did I have trouble from the vessels slipping from the grasp of the catgut, and this was readily controlled by passing a suture through the base of the mesentery. The wound was closed with through-and-through silkworm gut.

Result.—The patient reacted well. No symptoms of peritoneal irritation appeared. With the exception of a colon infection of the wound, apparently soiled by the open ends of the removed bowel, he made a very satisfactory recovery. The button passed on the nineteenth day. Food was given by mouth after the second day.

Examination of Tumor.—Examination of the tumor showed it to be a papilloma about the size of an orange situated on the outer side of the colon opposite the ileocecal valve, with its base undergoing malignant infiltration. An enlarged gland in the mesentery just beneath it was not involved in the malignancy, which speaks for a favorable prognosis in this case. The pathologic report, for which I am indebted to Dr. Mary Halton, showed the tumor to consist of many very light, branching, interlacing strands of connective tissue forming a papillomatous structure. These were all connected by a layer of cylindrical epithelium. In a few places the wall of the bowel had been penetrated, and similar branching connective structures covered with epithelium were found imbedded in altered muscular structure. In many places there were small collections of lymphocytes. The lymph gland showed hyperplasia with some hyperemia, and in places a catarrhal condition of the lymph sinus. No metastasis was seen in the gland.

The small amount of shock in this case, in which the patient was in such a condition as to be susceptible to considerable shock, I attribute to the small quantity of blood lost—every vessel being ligated before being severed—and, secondly, to the avoidance of unnecessary manipulation of the intestines and of undue exposure of them, but a very small amount being exposed at one time.

Few Castor Beans in Kansas.—According to the Kansas State Board of Agriculture, the growing of castor beans in Kansas may shortly cease altogether. The crop of 1904 amounted to only 2,925 bushels. In 1879 the yield was 766,143 bushels.

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THE CHEMISTRY OF THE PROTEID MOLECULE.

There are apparently three chief routes by which chemists may seek to learn the structure of the proteid molecule. First, by decomposing it, collecting the products of decomposition and studying their structure, quantity and possible groupings. Second, by splitting the proteid molecule step by step, so that the main groups can be determined and studied each by itself. Third, by synthesizing the proteid molecule. This, of course, is not to be done at one step, but first the ultimate splitting products are to be synthesized, then these joined to form the higher groups, and so on. Hopeless as this problem may seem to the practical physician, yet there are enormous energies directed toward its solution, and encouraging progress is undoubtedly being made. This, however, by no means implies that the goal is near. Two important centers of work on the structure of the proteid molecule are the laboratories of Emil Fischer in Berlin and of A. Kossel in Heidelberg and from each has recently appeared an article summarizing some of the features of the problem.[1]

By far the greatest amount of work has been directed to the isolation and study of the nitrogenous bodies that are split off when proteids are decomposed, as this is of necessity the fundamental study. Proteids in as pure condition as it is possible to obtain them are decomposed, by the action of acids or alkalies as a rule, instead of the digestive ferments, as with these are introduced other and unknown substances. To the earlier discovered and more generally known bodies, leucin and tyrosin, have been added more and more nitrogenous substances that also are split off from the giant proteid molecule which they go to form. Abderhalden gives the following list: Glycocol, alanin, aminovalerianic acid, leucin, isoleucin, phenylalanin, glutaminic acid, asparaginic acid, cysteïn, alpha-prolin, oxy-alpha-prolin, serin, tyrosin, tryptophan, lysin, aginin and histidin, not to mention other less studied substances. If we consider the possible ways in which such a number of substances, each in itself complex, can be arranged, we may have some insight into the difficulties of the problem and the enormous complexity of the proteid molecule. In addition must be considered the great obstacle due to the fact that at the present time we have no means of obtaining any proteid in a positively pure condition. Kossel, indeed, likens the proteid molecule to a great receptacle, filled with various organic compounds formed through the activities of the living organism. At one time it was believed that the differences between different proteids were chiefly external, and that one could be substituted for another in physiologic processes without important consequences. Now it is known that the proportion of the various components of the molecule may vary greatly. For example, arginin was found to occur in four different proteids in the following proportions—83, 40, 20 and 1.8 per cent. We therefore can not assume that proteid from muscle is of exactly the same effect and value as proteid from milk, egg white or grain. If we compare the composition of casein, the chief proteid supplied to the nursing infant, with the various proteids of the body it forms, it becomes evident that during the processes of digestion and assimilation very considerable changes must occur in the proteid foodstuffs. There is already considerable experimental evidence to support the theory that digestion of proteids in the alimentary tract does not stop with albumoses and peptones, but that they are always split up until they are no longer proteids at all, but relatively simple nitrogenous bodies similar to or identical with those obtained in experimental decomposition of the proteid molecule. These bodies are then combined again to form proteid molecules characteristic of the different tissues or organs of the body. Such a conception of the metabolism of proteid certainly fits best into the differences observed in the structure of the body proteids, as compared with the food proteids. If the food proteids remained as proteids in their course through the body, we could hardly expect them to be so greatly changed as they are in some instances when they form the body proteids.

The great diversity that exists in the composition of different proteid molecules is particularly well shown by the results of studies of the simplest forms of proteids, the protamins. In a series of seven different protamins eleven different nitrogenous bodies were found, and of these but two were present in all the protamins, eleven different nitrogenous bodies were six of the eleven bodies, and one contained but four. If such differences exist among the simplest proteids, what must the differences be among the most complex forms. We can no longer consider all proteids as having a fixed and constant central body, the typical proteid molecule, to which certain groups are joined to form the different varieties of proteids. Rather must we consider the proteid molecules as formed by the grouping of a large number of molecules of organic compounds, each characterized by containing nitrogen in various structural relations to the carbon, hydrogen and oxygen. In some proteids there are particular groups that are not present in others; in each the proportion of the constituent groups is different from that in any other sort of proteid.

1. A. Kossel: Berl. klin. Woch., 1904, vol. xli, 1065. E. Abderhalden: Medizinische Klinik, 1904, vol. i, 12.

ANTITUBERCULOSIS SERUM.

About a year ago, Marmorek made the startling announcement that he had succeeded in preparing a potent antituberculosis serum, but his claims were soon disputed by French practitioners of high standing. The high authority of the assailants of this new remedy caused it for a time to pass out of serious consideration, but it is gradually coming into prominence again as more favorable results from extended trials are being published in different parts of the world. Marmorek is convinced that tuberculin is not the true toxin of the tubercle bacilli which is responsible for the symptoms and for the anatomic lesions of tuberculosis. He believes that it is a bacterial product which, when injected into a tuberculous patient, causes the bacilli in the lesions to secrete toxin and thus to produce a rise in the patient's temperature. That being the case, we could hardly expect beneficial results from treatment with antituberculin serum and they have not been obtained. He has accordingly set out to obtain the true toxin in solution, and apparently has met with some degree of success, and is using this toxin in the immunization of horses. According to his views, the secretion of tuberculin and toxin are two functions that are not found in a culture of tubercle bacilli at the same time. The toxin is produced by the young organisms, while the older ones produce only tuberculin. In order to make the bacilli retain the physical properties of those in young cultures for a long time, and thus to augment their toxicogenic power, he grows them in leucotoxic serum which is prepared by immunizing calves against guinea-pig's leucocytes, by intraperitoneal injections. This leucotoxic serum he found to be a very fair culture medium for the production of toxin, but he was able to improve it somewhat by adding a bouillon extract of liver tissue. When a virulent culture of tubercle bacilli is grown in this serum-liver mixture, toxin is produced in such quantity that from 8 to 10 c.c. of the filtrate kills a guinea-pig of average size in about eight days. When horses are injected with these filtrates there are observed marked local and general disturbances, and their serum gradually acquires antitoxic powers, as is shown by the fact that from 15 to 20 c.c. of it protects a rabbit against an intravenous injection of tubercle bacilli. This dose of tubercle bacilli produces general tuberculosis and death when injected into normal rabbits.

Marmorek used his antituberculosis serum in the treatment of several cases of tuberculous meningitis, but observed only temporary improvement. In some cases of pulmonary tuberculosis the improvement seemed to be very striking. The serum was also used in cases of tuberculous pleuritis and tuberculosis of the spine with very encouraging results. In the former, the transudate was rapidly absorbed and the patient's general condition improved, while in the latter a complete cure was observed. In no case did the treatment appear to do harm. But very unfavorable reports were soon given out by Dieulafoy, Lucas-Championnière and Hallopeau. Recently, however, more favorable results have been reported by a number of French, German, English and Canadian clinicians. Latham,[1] for instance, reports five cases of pulmonary tuberculosis that improved under the serum treatment. Richer[2] reports seven cases, six of which improved and apparently got well, but the time is too short to say whether or not the improvement is permanent. The seventh case was in the last stages of the disease, and not much was expected from the injections. Richer believes, however, that they had an injurious effect, because the patient died thirty-six hours after the second injection. He advises, therefore, that the serum should not be used in the last stages of the disease. Frey[3] reports eight cases that were treated with the serum, six of which showed improvement. The other two cases were not benefited by the treatment, but there were no harmful effects other than slight local disturbances due to the injection of the horse serum. It would seem, therefore, that Marmorek's antituberculosis serum has some antitoxic properties, and as its use is in no way dangerous, it is desirable that it should be given more extended trials, as in this way only can its true value be determined.

The recent work of Friedman[4] on antituberculosis serum also is very interesting and encouraging. He isolated a culture of tubercle bacilli from a tuberculous lung in a turtle, and has shown that this culture is practically harmless for guinea-pigs and calves, but produces in them a fair degree of immunity against human and bovine tuberculosis. He immunized a cow with two injections of this organism, and later inoculated her intravenously with a large dose of bovine tubercle bacilli. This inoculation produced an acute fever, which subsided in a few days, and the cow showed no further signs of sickness. The control animal was very ill, lost weight, and the discharge from its nose contained tubercle bacilli. Three months after the inoculation both cows were killed, and the autopsy revealed general miliary tuberculosis in the control, while only a few healed tubercles were found in the bronchial glands of the immunized animal. Friedman also reports that a cow had acquired tuberculosis spontaneously, but recovered during the process of active immunization with the tubercle bacillus isolated from the turtle. He suggests that equally favorable results might be obtained with this treatment in cases of human tuberculosis. He has used this organism to produce an initial immunity in guinea-pigs and cattle, and was enabled to get a high degree of immunity in these animals later by using human and bovine tubercle bacilli. It must be remembered that it is difficult to produce an initial immunity in these animals if cultures from warm-blooded

1. Lancet, April 9, 1904.
2. Montreal Med. Journal, September, 1904.
3. Münch. med. Wochenschr., Nov. 1, 1904.
4. Deutsch. med. Woch., 1904, vol. xxx, p. 1673.

animals are used at the outset, because the animals usually die from the effect of the inoculations. The immune serum thus prepared protects guinea-pigs against a fatal dose of human or bovine tubercle bacilli, and Friedman hopes in this way to produce an antituberculosis serum of great clinical value.

THE MORTALITY AMONG PHYSICIANS IN 1904.

During 1904 we recorded the deaths of 2,142 physicians in the United States and Canada, a mortality of 17.14 per 1,000. The average age at death was over 60 years. The average length of practice was over 30 years.

These facts are based on a critical analysis of the list of deaths published week by week in THE JOURNAL. In this are now included not only the regular practitioners, but practitioners of the so-called "schools" which are recognized by state boards of medical examiners. Notwithstanding our persistent endeavors to obtain exact information, the statistics regarding these deaths are still incomplete. As illustrating this fact it may be said that in the notices of the deaths no cause was given, or the cause assigned was so obscure or so manifestly incorrect as to be valueless, in 954 cases, the age was not given in 421 instances, and the number of years of practice was omitted in 288 cases. During 1902 we chronicled the deaths of 1,400 regular practioners, during 1903, the deaths of 1,648 physicians, including the homeopaths and eclectics. Thus the mortality rates have been: 1902, 14.74 per 1,000; 1903, 13.73; 1904, 17.14. During 1904 the American Medical Association lost by death 166 members.

Heart disease leads the death causes with 205. These, of course, include the sudden deaths stated to have occurred from "heart failure," etc. Of the deaths due to cardiac disease, 16 were from angina pectoris and 3 from fatty degeneration of the heart. Cerebral hemorrhage, which includes the deaths from "paralysis," "apoplexy," etc., caused 179 deaths. Pneumonia heads the list of clearly defined diseases with 172 deaths, or 7.5 per cent. of the total mortality. Nephritis, including "kidney disease," was responsible for 91 deaths, and uremia caused 16. Tuberculosis is said to have been the cause of 90 deaths, all but 8 of which were from tuberculosis of the lungs. Cancer caused 39 deaths; typhoid fever, 37; septicemia, chiefly from operation wounds, 23; diabetes, 20; gastritis, 16; appendicitis and meningitis, 15 each; bronchitis and insanity, 11 each; hemorrhages and peritonitis, 9 each; asthma, influenza, locomotor ataxia, paresis, rheumatism and gangrene, 6 each; erysipelas, 4, and diphtheria and scarlet fever, 3 each. Of the total deaths, 143 were due to violence of one kind or another. Of these deaths, 95 are chargeable to accidents, 36 to suicide and 12 to homicide. Of the accidents, poison caused 21 deaths; railway accidents, 17; falls, 14; drowning, 10; street-car accidents, 8; runaways, 7, etc. Of the 36 physicians who committed suicide, 14 chose poison as the means; 11, firearms; 3, hemorrhages from cut arteries; 2, asphyxiation by gas; 1, drowning; 1, hanging. In 4 cases the method employed was not stated. During 1904, 12 physicians were murdered. This is 3 more than in 1903, and 1 less than in 1902. Of the 12, 10 died from gunshot wounds, 1 was stabbed, and in 1 case the cause was not stated.

The ages of the physicians who died varied between the limits of 22 and 104 years, the average being about 60 years. The greatest number of deaths—57—occurred at the age of 60; followed by 51 at the age of 70; 45 at the ages of 65 and 68, respectively; 43 at the age of 67; 41 at the ages of 75 and 76, and 40 each at the ages of 72 and 73. Above the age of 70, 596 deaths occurred; above the age of 80, 241 deaths; above the age of 90, 19 deaths; and 3 physicians had passed the age of 100, the oldest on record being 104 years old.

Notable among the dead are the following:

Dr. Hamilton Atchison West, Galveston, Vice-President of the American Medical Association in 1888, for twelve years secretary of the Texas State Medical Association, and an especial authority on malaria, typhoid and yellow fever.

Dr. Edmund Andrews, Chicago, scientist and pioneer in surgery and medical education.

Dr. William Barton Hopkins, Philadelphia, authority on fractures.

Dr. Roberts Bartholow, Philadelphia, whose "Practice of Medicine" and "Therapeutics" are standard works.

Dr. John Milton Duff, Pittsburg, Chairman of the Section on Obstetrics and Diseases of Women, 1894, widely known as a gynecologist, lecturer, teacher, writer, diagnostician and operator.

Dr. Ralph N. Isham, Chicago, one of the oldest and best known surgeons of the West, and one of the founders of the Northwestern University Medical School.

Dr. Frantz H. Coe, Seattle, president of the State Section on Nervous and Mental Diseases in 1904, and one of the most prominent young neurologists of the East.

Dr. N. S. Davis, Sr., Nestor of the American medical profession; one of the founders of the American Medical Association; first editor of THE JOURNAL; pioneer in scientific medicine, and a pillar of strength to the American medical fraternity.

Dr. Frantz H. Coe, Seattle, president of the State Board of Medical Examiners of Washington and of the Washington State Medical Association.

Dr. Samuel Warren Abbott, Boston, secretary of the Massachusetts State Board of Health, and an authority on vital statistics.

Dr. Alfred S. Wolff, for twenty-five years inspector and quarantine officer of the Texas State Health Department at Brownsville; expert on yellow fever.

Dr. James Anthony Dibrell, Little Rock, Vice-President of the American Medical Association in 1901, and twice president of the Arkansas Medical Society.

Dr. Henry Munson Lyman, Chicago, for many years senior dean of Rush Medical College and prominent as a neurologist.

GREATER PNEUMONIA MORTALITY IN FLATS.

The insanitary possibilities of the slum tenement house are sufficiently well known. Those of the average medium-priced flat we have already dilated on to some extent. Now it is reported that the pneumonia mortality is especially high in the high-priced apartment buildings—the tenements of the rich—in New York City. Every phase of excessive urban concentration seems to have its special unhygienic accompaniments.

HONEST MANUFACTURERS IN FAVOR OF THE PURE-FOOD BILL.

According to the Washington *Star,* a number of manufacturers of preserved food have communicated with Dr. Wiley, the chemist of the Department of Agriculture, pledging themselves to discontinue the use of any coloring matters or preservatives condemned by him. This is a favorable sign and a step in the right direction, but it does not lessen the necessity of the passage of the pure-food bill now before the Senate. It is an indication that such an act, if once passed, would be effective; what men can afford to do voluntarily will be still more likely to be done by others—if there is a penalty for not so doing. It shows that honorable manufacturers have no desire to oppose the passage of the act.

THE SYMPTOMATIC VALUE OF CHANGES IN THE NAILS.

Changes in the nails as a result of trophic influences have scarcely received the attention of which they appear to be deserving. It is true that the curvature of tuberculosis, the stunted growth of hemiplegia, the transverse marking after typhoid fever and the longitudinal striation attending myxedema have been described. In addition, the inflammation of syphilis is characteristic, while the nails sometimes suffer in conjunction with diseases of the skin, for example, favus, psoriasis, tinea. There is, therefore, good reason for believing that the nails may at times furnish evidence of the previous existence of disease perhaps not otherwise recognizable. Dr. E. Feer,[1] in a recent communication, calls attention to the formation of a transverse and somewhat curved line in the form of a groove or ridge on the nails, especially on those of the thumbs and the great toes, in the sequence of scarlet fever and measles. In typical cases of scarlet fever the phenomenon makes its appearance at the root of the nail four or five weeks after the onset of the disease, therefore at a time when desquamation is about completed. It becomes most distinct at the end of two months and it disappears at the end of six months, the natural period for the growth of the nail. The line is more prominent in proportion to the thickness of the nail and also to the intensity of the exanthem. The occurrence is referred to interference with the growth of the epithelial germinal layer of the root of the nail. In cases of measles, the line was observed under the same conditions as in cases of scarlet fever, although it was less pronounced and correspondingly less frequent. The presence of the line affords a means of estimating the time that has elapsed from the onset of the disease and it is thought to constitute a valuable diagnostic criterion. It would seem more likely, however, that the condition is not peculiar to any one disease, but it is probably associated with a considerable number, although perhaps most marked in connection with those in which the integument suffers in greatest degree. For this reason it may be more pronounced in cases of scarlet fever than in those presenting a less marked exanthem.

1. Münchener med. Wochenschrift, Oct. 4, 1904, p. 1782.

FATAL HYSTERICAL HEMOPTYSIS.

We are so accustomed to looking on hysteria as a disease attended only with symptoms of functional derangement that we do not always fully appreciate its true seriousness and occasional gravity. While it is now generally admitted to be a distinct morbid entity, its symptomatology is almost uncircumscribed, and its clinical manifestations are by some still thought to be not wholly free from intentional deception. Unfortunately, we are as yet unable to demonstrate the changes, cellular and chemical, that underly the hysterical disturbance, so that much, no doubt, is thus classified that has other origin. Contrariwise the error is not uncommonly made of confounding the symptoms of hysteria and those of organic disease. The hysterical symptom-complex in its protean variation is not rarely long continued, but fortunately the disease does not often terminate fatally. A remarkable case of this character, however, was recently reported by Dr. N. Pende[1] before the *Società Lancisiana* of Rome, death resulting from hemoptysis, for which no adequate organic cause could be discovered. A girl, 17 years old, who had lived with a sister, now dead of pulmonary tuberculosis, attended with repeated hemoptysis, developed in the sequence of emotional disturbance pulmonary hemorrhage, in conjunction with cough, pains in the chest and fever. On examination, distinct hysterical stigmata were discovered, as well as signs of congestion at the apices of the lungs. Neither elastic fibers nor tubercle bacilli were found in the sputum, inoculation of rabbits with which also yielded negative results. There was, however, a reaction on the part of the patient to tuberculin. The symptoms were considered hysterical, and fever, cough and hemoptysis yielded to suggestive treatment. The patient was dismissed as cured, but the hemoptysis recurred after several days and death followed in the course of a few hours. No anatomic alterations could be discovered on postmortem examination either in the lungs or in other organs that could be considered capable of causing the hemoptysis. The phenomenon accordingly is attributed to vasomotor influences.

1. Münchener med. Wochenschrift, Oct. 25, 1904, p. 1938.

TRUTH AND POETRY CONCERNING URIC ACID.

I.

In the slow but steady advance which medicine is making, new facts are often established for a long time before they meet with general acceptance, and old theories have had their foundations washed out from under them years or decades before their fallacies have become generally recognized by the profession. It is easy to be too severe in criticizing the inertia of medical men in this respect, for the very conservatism which accounts for the facts mentioned has gone far to protect our guild from the too speedy welcoming of immature conceptions, on the one hand, and from the too easy rejection, on the other, of theories which, under assault by partisan or ignorant critics, prove ultimately to be sound. It is not an unwillingness to accept new truth nor a desire stubbornly to retain error which is characteristic of our profession. On the contrary, it is rather the fear of being duped concerning the new or of being cheated of old and well-tried good which animates it and determines its action or inaction.

Now that the media of communication among physicians have been so marvelously multiplied, it may be urged that the excuse for a continuance in ignorance regarding medical facts and theories is not what it formerly was. Medical journals are, it is true, more widely read than ever before by the profession; the nations, through the activity of collective reviews and international periodicals, have been brought closer together than at any previous time; were the increased information brought to medical readers always reliable, the profession's knowledge ought to be advanced by leaps and bounds. Unfortunately, at a time when everybody writes, the views which are expressed in the various medical journals are so contradictory that the mind without a special scientific training often becomes confused, knows not what to believe, and naturally settles down on the convictions which suit its own inclination best or on statements which have been gained from some authority for which it has a particular predilection. The preliminary training which the average medical man has obtained hitherto in subjects like chemistry, physics and biology has been totally inadequate, when discussions involving disputes in these domains are brought to his attention, to permit him to form sound judgments concerning them. A further difficulty for the medical man in practice lies in the inequality of the articles which are admitted to the pages of even those medical journals which he has been taught to regard as the best. So disparate are the views expressed in different articles in the same number of a given journal that the average medical mind often turns from the reading of them with a feeling of uncertainty, if not of disgust.

It is one of the objects of THE JOURNAL in its editorial pages to present, from time to time, as accurately as it can, synopses of the real advances which take place in medical research. It is and has been its endeavor to promulgate as firm convictions in these columns only those views which receive the support of what it regards as the soundest medical judgment of the time. The wisest may err, and there can be no doubt that, even when the greatest care is exercised, an erroneous opinion may occasionally be supported or a faulty judgment passed. Should this occur, THE JOURNAL would be the first to regret it, and it would seize the earliest opportunity to correct it. Its readers may rest assured, however, that no pains are spared to prevent the expression of opinions other than those which represent the sanest medical thought of the day.

One of the subjects in which the growth of our conceptions has been extremely slow, but about which, to-day, our real knowledge far outruns the general professional recognition of it, is that which has to do with the origin, fate and significance of uric acid in the body. THE JOURNAL has, on several occasions, called attention to progress in knowledge in this field; it has warned against many of the fallacies which persist, and it has urged the profession to revise views which, though long taught, have been proved to be without firm foundation. The false ideas concerning the mode of formation of uric acid in the body, its decomposition and its pathologic significance have become so deeply rooted, not only in the professional mind, but to a certain extent in the mind of the laity, that it is unusually difficult to eradicate them. The perpetuation of erroneous ideas has been helped no little by facile publications like those of Haig, wherein, doubtless with good intentions and assuredly with great enthusiasm, doctrines have been advocated which are based partly on faulty or misinterpreted observations of others, partly on unskilled and non-scientific personal experiments. When such ideas happen to harmonize with the interests of an unbridled commercialism[1] which floods the country with highly colored and sensational reports of marvelous cures by so-called antilithics and uric-acid solvents, it is easy to understand how the attempt may be made by those who have vested interests to prolong the drowsiness of the profession and the laity, and how any effort made to awaken the somnolent may excite antagonism.

A considerable body of definite facts has now been established concerning uric acid. We really know a great deal about its origin, the transformations which it undergoes and the way it is excreted. We are be-

1. Since this was written THE JOURNAL has received a letter from a firm which has been advertising a "uric-acid solvent." This letter is a reply to a circular sent out by the advertising department: it bears so directly on the point mentioned that we quote a part of it: "Should we place an 'ad' with you, it would be to exploit a proprietary preparation for the relief and cure of the uric acid diathesis. It has been made apparent to us that it is the avowed policy of THE JOURNAL to discourage the use of all proprietary preparations, and under date of August 20 THE JOURNAL in an editorial made a very sarcastic, if not unethical, attack on the uric acid diathesis. We concede to any physician the right to his personal opinion on this subject, and to any journal the right to publish any views which may be held by its editors, but when such views tend to discourage the profession in the use of uric acid solvents and eliminants, it certainly impairs the value of its advertising pages as a medium through which the manufacturer of a uric acid remedy may reach the profession. This is an additional reason why we now decline to use THE JOURNAL through which to advertise ————."

ginning to know something of its significance, though far less, it must be admitted, than many people imagine. It is our intention to review, thoroughly though succinctly, the mass of work which has been done on the subject. We shall try to sift out the wheat from the chaff, and shall make an effort to distinguish what is the truth from what is mere poetry in this matter. In our next issue we shall begin with a review of the doctrines which have been held regarding the formation of uric acid in the body; in succeeding numbers of THE JOURNAL we purpose taking up the normal fate of uric acid in the tissues, the facts bearing on the localization of the processes of uric-acid formation and decomposition, the chemical and physical properties of uric acid and urates, including the conditions of solubility and precipitation, and, finally, the relation of uric acid to pathologic processes.

The literature on the subject is immense. One has only to glance at the collective bibliographies of the subject which have been prepared, for example, that of Wiener, to realize the magnitude of the task which a careful historical review necessitates. It would be impracticable as well as undesirable to marshal all the authorities in the review of the subject which we intend to make for our readers; it will suffice if we point out the most important steps which have been taken as knowledge of the subject has advanced. We believe that such a historical presentation, though it will be full of surprises for many, is the best means of making clear to the profession at large the true status of the questions at issue.

Medical News.

DISTRICT OF COLUMBIA.

Health of District.—The report of the health officer for the week ended December 31 shows the total deaths to have been 122. There were 119 births and 13 still births. At the close of the week there were under treatment 45 cases of diphtheria, 39 of scarlet fever, 172 of typhoid fever and one of smallpox.

Puerperal Arthritis.—At the meeting of the Washington Obstetrical and Gynecological Society, held on January 6, Dr. Edward E. Morse read an essay on puerperal arthritis. He took the position that all cases of puerperal arthritis are caused by sepsis and that the so-called puerperal rheumatism is puerperal sepsis.

Municipal Hospital.—The district government is about to build a municipal hospital at a cost of $250,000. The plans presented in competition by Frank Miles Day of Philadelphia were accepted. Congress has been asked to appropriate $150,000 additional to accommodate several hundred tuberculous patients who are barred from other hospitals.

ILLINOIS.

Fire in Hospital.—A fire which broke out in the hospital of the Illinois State Reformatory, Pontiac, caused damage estimated at $3,000. Of the 40 patients all were taken out safely.

State Teachers and Tuberculosis.—At the meeting of the State Teachers' Association at Springfield great interest was manifested in the exhibits of the State Board of Health showing the prevalence of tuberculosis in the state and its mortality as compared with that of other diseases. The association unanimously voted to indorse the efforts of the State Board of Health and to assist in the supervision of consumption by the dissemination of knowledge concerning the disease, the prevention and cure.

Personal.—Dr. H. C. Howard, Champaign, has gone to Florida for the winter.——Dr. and Mrs. Harry H. Whitten, Peoria, have returned from Europe.——Dr. William Engelbach, Arenzville, has returned from Europe.—Dr. George A. Clotfelter, mayor of Hillsboro, has been appointed local surgeon for the Big Four System.——Dr. Paul G. Manley, Mount Carmel, while driving across a railway track, was struck by a train, his buggy was demolished, but he escaped with severe contusions.——Dr. Milton Jay, Chicago, has been re-elected president of the Association of Chicago & Eastern Illinois Railway Surgeons.

Chicago.

Smallpox.—During the week ended January 7, 18 cases of smallpox were sent to the isolation hospital. Of these 12 had never been vaccinated and 6 had old scars.

Deaths by Violence Decreased.—During 1904 there were 542 less deaths from violence than in 1903. There were 59 fewer suicides, 7 fewer murders and only 8 more railroad deaths and 6 more street-car fatalities than in 1903.

Tuberculosis in Office Buildings.—Dr. W. A. Evans in a talk on consumption before the union of janitors and window-washers, said that ventilation of office buildings was not properly secured and that unventilated rooms furnished ideal breeding places for the germ of the disease. He urged the abolition of dry sweeping.

Deaths of the Week.—During the week ended January 7 there were 542 deaths, equivalent to an annual mortality of 14.19 per 1,000. All the important causes of death show decreases, the most marked in consumption—from 68 to 41, and the total from all causes is nearly one-fifth (19.7 per cent.) lower than that of the week before.

MARYLAND.

Baltimore.

Dinner to Dr. Bosley.—The employes of the health department entertained Dr. James Bosley, health commissioner, with a banquet, December 27.

Personal.—Dr. Thomas C. Bussey has been elected physician to the almshouse, and Dr. J. Royston Green, physician to the county jail of Baltimore County.——Drs. Randolph Winslow and J. Mason Hundley paid a visit to Dr. Mayo's Hospital, Rochester, Minn., last week, returning January 1.

Mandamus Proceedings Dismissed.—Dr. Campbell F. Flautt instituted mandamus proceedings some time ago in the Court of Common Pleas to compel the State Board of Examiners of the Medical and Chirurgical Faculty to issue him a license to practice medicine in Maryland. The mandamus was dismissed by Judge Stockbridge December 20.

Concerning Dr. Osler.—The *Maryland Medical Journal* has issued a booklet containing a portrait of Dr. Osler and comments from different sources on his resignation.——The committee on the Osler testimonial has appointed a subcommittee of 50 to canvass the profession of the city, each one seeing 10 doctors.——The twenty-ninth anniversary of the foundation of the Johns Hopkins University will be celebrated February 22. Dr. William Osler will deliver the principal address, probably his last public address before he leaves America.

MASSACHUSETTS.

Leper Colony.—The Massachusetts State Board of Charities has bought land in Harwich, a town on Cape Cod, for the establishment of a "leper colony" to accommodate the three patients now within the limits of the state. Very vigorous protests are being made from all the surrounding towns.

Sanitation of Cities.—Prof. William J. Sedgwick, professor of biology and lecturer on sanitary science and public health in the Massachusetts Institute of Technology, Boston, will give a course of ten free public lectures before the Lowell Institute on Monday and Thursday evenings, beginning January 9, on "The Sanitation of Cities."

Made a Test Case.—In order that the case might go to the Supreme Court, the judge in the Superior Civil Court at Dedham ordered a formal verdict for two children who brought suit for $10,000 each against the town of Hyde Park because they were denied school privileges, owing to a failure to be vaccinated. One hundred and fifty dollars was allowed the girl and $50 to her brother.

Home for Crippled Children.—The last legislature voted $300,000 for the purpose of building and maintaining a home for crippled and deformed children. The board appointed by

the governor to have charge are Drs. Edward H. Bradford, William A. Morrison of Boston, and Messrs. William Endicott, Jr., Leonard W. Ross and A. S. Pinkerton. The board organized with Dr. Bradford as chairman.

Milk Examination.—Examinations of Boston's milk supply made by the Board of Health during last summer showed that over 46 per cent. of the samples taken were warmer than the legal limit of 50 F.; 27.5 per cent. of the samples had more bacteria than the law allows, 500,000 to the c.c. Of these 9.75 per cent. had betwen 500,000 and 1,000,000, 12.75 per cent. between 1,000,000 and 5,000,000, and 5 per cent. more than 5,000,000.

The Question of Cancer.—The statement that only San Francisco exceeds Boston in its total annual deaths from cancer, and that while the former had in 1903, 103 deaths per 100,000 of population the latter had 85, is explained by the Board of Health on the basis that more careful mortality records are kept in Boston than in many other large cities. They maintain that the disease is not more prevalent than elsewhere. It is said that the report of the cancer investigation carried on at Harvard Medical School by Dr. E. H. Nichols for the past two years under the Crofts bequest of $100,000, will soon be published and will show that no etiologic factor except heredity is well established.

NEW YORK.

Fire in State Hospital.—Fire was discovered in ward 2 of the Middleton State Hospital. After flooding the floors the fire was subdued.

Liberal Gift.—The Syracuse Hospital of the Good Shepherd received a New Years gift of $50,000 from William B. Cogswell, who has previously contributed large sums to the support of the institution.

Personal.—Dr. Mary Clayton has resigned from the staff of the St. Lawrence State Hospital to accept the position of woman physician at the Craig Colony for Epileptics, Sonyea. ——Dr. Charles W. Clendenan has been appointed city physician of North Tonawanda.

Crippled Children's Hospital.—The New York State Hospital for the Care of Deformed and Crippled Children, Tarrytown, will move about April 1 to its new site at West Haverstraw, for which $50,000 was appropriated by the last legislature. During the year ended Sept. 30, 1904, 17 new patients were admitted, making a total of 42 patients treated during the year.

For an Inebriates' Home.—A bill has been prepared which will be presented to the legislature for the establishment in New York City of an inebriates' home, where there will be free treatment of alcoholism and drug habits. The home as planned will be built from money received from the excise law. It is estimated that about 1,000 patients would be found for such a home at once. The management would be under the mayor with a board of medical advisors.

The Governor's Message.—In his annual message Governor-elect Higgins says concerning the insane:

> The management of the state hospitals for the insane, fourteen in number, with a total number of patients on Oct. 1, 1904, of 25,019, was completely centralized by legislation of 1902 abolishing the boards of managers of the various hospitals and leaving with the commission on lunacy complete jurisdiction, both as to financial control and internal administration. The advantages of centralized control of the financial operation of the hospitals are evident. It is of the utmost importance, however, that this great system of hospitals, involving the expenditure of so large a sum of money annually, and the care of so many thousands of peculiarly unfortunate and defenseless persons, should rest on a broad basis of public interest and public confidence and should retain the cooperation of philanthropic citizens throughout the state. In my opinion this can best be secured, by leaving the control of all financial matters, as at present, in the hands of the commission, and by providing for each hospital a board of managers, in general charge, through the superintendent, of the internal affairs of the hospital.

He also favors the enlargement of the present hospital and the establishment of a new state hospital. He also advocates a separate building in each state hospital for the treatment of acute insanity. He protests against the commitment as dependent insane of those who are not properly state charges and who have property or relatives legally chargeable for their support and maintenance. He recommends that before any insane person is permanently received in a state hospital as a state charge the question be judicially investigated and determined whether such person is a pauper without relatives chargeable with his support and able to contribute thereto. He also recommends increased accommodations for the feeble-minded and that all sources of public water supplies be examined and analyzed at frequent intervals and that the private water supply of public resorts should also be subject to state analysis and the results should be made public. A system of state inspection of domestic water supplies to be maintained at the cost of the municipalities, corporations and private owners is recommended. A state water storage commission, having also for its object the supply of water to the cities, might be of great service. He further states:

> The court of appeals has finally upheld the constitutionality of the Tenement House Law of 1901, which has been contested by the courts. This measure is one not only of charity but also of justice; not only for the benefit of the poorest families but also for the general welfare of the community. For its enactment and enforcement my predecessor (Governor Odell) is entitled to the highest credit. The law is now definitely established.

New York City.

Crusade Against Voodoo.—Through its counsel the New York State Medical Association has begun a crusade against voodoo doctors of the East Side of New York City.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended Dec. 31, 1904, 434 cases of tuberculosis, with 134 deaths; 302 cases of diphtheria, with 45 deaths; 206 cases of scarlet fever, with 16 deaths; 126 cases of measles, with 6 deaths; 52 cases of typhoid, with 7 deaths; 87 cases of varicella, and 18 deaths from cerebrospinal meningitis.

Tenement House Sanitation.—The tenement house commissioner, in his annual report to the mayor, says that of 48 blocks in the Thirteenth Ward there are only seven in which there were no deaths from tuberculosis in 1904. Of 1,100 sanitary inspections made, from January 1 to October 1, the conditions discovered led the department to file 684 violations against tenement houses in this ward.

Death Rate Increased.—The death rate per 1,000 in Greater New York for 1904 was 20.32, an increase of over 2 per cent. over 1903. There was an alarming increase in the number of deaths from pneumonia and bronchitis, deaths from this cause numbering 14,518. There was also an epidemic of cerebrospinal meningitis which killed 1,211, while in 1903 there were only 271 deaths from this disease. During the year there were 55,195 violent deaths.

Bellevue Hospital Overcrowded.—Records show that the total number of admissions to Bellevue in 1904 was 28,925, the highest number the hospital has ever received. This is nearly 5,000 more patients than were received five years ago with the same accommodations. The recent order compelling the physical examination of patients has entailed an increase in the house staff from 43 to 48. The additional influx has compelled many to sleep on mattresses on the floors and the accommodations for the house staff have been proportionately reduced.

Buffalo.

Hospital Opened.—Mercy Hospital has opened its doors for the reception of patients.

Measles Epidemic.—The measles epidemic continues at Buffalo. In some school houses the attendance of classes is reduced 50 per cent. No school has entirely escaped the epidemic. There were 1,200 cases of measles reported last month and the average number reported each day to the Health Department is 40.

School Inspection.—Dr. M. Elizabeth Schugens recently read a paper entitled "Medical Inspection of Schools" before the Women Teachers' Association. She embodied in her paper a report of various large cities where medical inspectors are employed to visit schools, such as Boston, New York, Philadelphia and other cities. In the public schools of these cities the medical inspector visits the primary grades every morning and examines children who have been pointed out by the teachers as unfit for class work. If the medical inspector finds the child ill, it is sent home, given a sealed envelope containing a letter to the parents, stating the child's ailments and recommending that the family physician be called. Often children go to school in the first stages of an infectious disease. Here medical inspection is a safe barrier, and also to determine the safe time for a child convalescing from contagious disease to return to school. Boston was the first city to inaugurate the medical inspection of schools and Buffalo will, it is hoped, soon follow this excellent example and institute regular medical school inspection.

OHIO.

New Hospital at Lima.—The commission chosen to select a site for the proposed new state hospital for the insane unani-

mously selected Lima after a two days' session. The Dunn farm was the site chosen, about one mile north of the city and consisting of 620 acres.

Welch in Cincinnati.—Dr. William H. Welch of Johns Hopkins University represented his college at the inauguration exercises held in Cincinnati in honor of Charles W. Dabney, president of the Cincinnati University. During his visit Dr. Welch addressed the students at the Cincinnati Hospital. A general reception was given in his honor by Dr. Joseph Ransohoff.

Society Election.—At the annual meeting of the Marion County Medical Society the following officers were elected: President, Dr. Charles E. Sawyer; vice-president, Dr. Lewis D. Hamilton; secretary, Dr. Dana O. Weeks; treasurer, Dr. Clyde R. McKinniss; censors, Drs. Joel B. Taylor and C. T. Wiant, and delegates to the Ohio State Medical Association, Drs. Robert C. M. Lewis and A. Melville Crane, all of Marion.

City Will Investigate.—The ordinance introduced several weeks ago providing for the expenditure of $2,000 to employ agents to investigate the books and management of the Cincinnati Hospital, has, on recommendation of the finance committee, been indefinitely postponed. In its place a resolution was adopted authorizing the expert accountants employed in the office of the city auditor to make the investigation.

Cincinnati Hospital at Avondale.—It has been finally decided by the Board of Public Service by a vote of 4 to 1 that the new Cincinnati Hospital will be erected at Avondale, a suburb of the city. The hospital grounds will occupy about 25 acres, away from the noise and smoke of the city. The pavilion plan, two or three-story buildings, has been decided on as the most feasible, and the entire structure is expected to accommodate about 750 patients, thus providing sufficient facilities for a number of years to come. There will, of course, be emergency hospitals situated in the city proper. The estimated cost is more than $1,000,000. Architects have already begun the plans.

PENNSYLVANIA.

Third Donation.—The sum of $500 has been donated to the West Chester Hospital by a "friend." This is the third successive year this friend has thus remembered the institution.

Personal.—Dr. Alford H. Read, Norristown, has been appointed coroner's physician.——Dr. Albert E. Osborne, West Chester, has moved to California, where he will resume medical practice.——Dr. Charles B. Noecker has been appointed surgeon in the police department of Scranton.

Philadelphia.

Physician Fined.—Dr. Charles M. Burk, who was arrested by the Board of Health for delaying properly to report a case of smallpox, was fined $5 in the magistrate's court.

Children's Hospital Report.—The Children's Hospital of the Mary J. Drexel Home treated 573 patients during the year; of these 340 were treated free. There were 381 surgical operations, 11,223 nursing cases and 10,446 clinic cases. Out of 65 cases of typhoid fever one patient died, and out of 71 cases of appendicitis operated on, none died. The expenditures of the institution during the year were $58,294.34.

Personal.—Dr. Wharton Sinkler was elected a member of the board of trustees of the University of Pennsylvania, to take the place of Dr. W. Howard Furness, resigned.——Dr. Sinkler has also been elected a member of the board of managers of the Episcopal Hospital.——Dr. Alfred Gordon has been appointed by Dr. Edward Martin, director of the health bureau, examiner of the insane in the Philadelphia Hospital.

Work in Hospitals.—During December the following patients were treated in the different hospitals of the city: Three hundred and nine cases were admitted to the wards of the Pennsylvania Hospital, and 1,600 to the receiving ward; there were 999 new patients treated in the dispensary, and 3,552 return visits were made. The Howard Hospital admitted 31 patients, treated 152 accident cases, and 514 new cases in the dispensary. The Charity Hospital treated 647 patients.

War on Tuberculosis.—Dr. Alexander C. Abbott, chief of the Bureau of Health, has issued a circular letter asking the physicians of the city to co-operate with the health bureau by reporting all cases of tuberculosis which come to their knowledge. He explains that tuberculosis is not regarded, however, with the same concern as are the acute transmissible diseases, and is, therefore, not subjected to the same official supervision. Nevertheless, for the protection of the public health, it is essential that cases of tuberculosis be kept under sanitary supervision. For the information of the health board appropriate blanks will be furnished the physicians for properly reporting this class of cases.

Busy Year for Coroner.—A summary of the work done by the coroner's staff during the year just closed shows that 3,467 inquests were held. During the year 1903, 3,357 were held, indicating an increase of 110. There were 4,969 cases investigated and 703 postmortems made. The largest number of deaths resulted from railroad accidents, 204 being attributed to that cause. The deaths classified with the fatal casualties aggregated 1,065. There were 209 suicides and 43 homicides. Heart disease was responsible for 148 deaths; burns and scalds, 148; drowning, 99; gunshot wounds, 52; asphyxiation, 87; malpractice, 38; poisoning, 21; infanticide, 2; alcoholism, 25; exposure, 3; heatstroke, 2; lightning, 1; electric shock, 6, and starvation, 1.

Health Report.—The total number of deaths for the week reached 478, as compared with 656 for the corresponding period of last year, and 497 during last week. The deaths from pneumonia during the week showed a decrease, 62 being reported, as compared with 69 last week and 89 in the preceding week. Typhoid fever is on the increase, 99 cases being reported, an increase of 26 over the preceding seven days. There were 256 cases of contagious disease reported, with 25 deaths, as compared with 223 cases and 21 deaths for the week previous. There were 8 deaths from typhoid fever, 14 from diphtheria, 64 from tuberculosis, 22 from cancer, 19 from apoplexy, 56 from heart disease, 62 from pneumonia, 19 from enteritis and 36 from Bright's disease.

Pulmonary Diseases in 1904.—Pneumonia heads the list of fatal maladies in this city, with consumption a close second. The total number of deaths from pneumonia during 1904 aggregated 3,360, as compared with 3,107 from consumption. Much of the pneumonia is attributed to the cold, damp trolley cars. Notwithstanding that death has been frequent from pneumonia and consumption, the health of the city is regarded good. The total number of deaths during the year reached 25,972, which is an increase of 25 over 1903. The death rate per 1,000 inhabitants for 1904 was 18.44, as compared with 18.82 in 1903. The deaths from pneumonia in 1904 show an increase of 180 over 1903, and the total reached 3,180. The deaths from consumption in 1904 exceed those of 1903 by 54. Deaths from typhoid fever in 1904 reached 744, which is 213 less than during 1903, while the deaths from smallpox last year were 229, a decrease of 49 from the figures of 1903.

College of Physicians Elects Officers.—At the regular meeting of the College of Physicians, January 5, practically all the former officers were re-elected for the coming year, as follows: President, Dr. Arthur V. Meigs; vice-president, Dr. James Tyson; censors, Drs. Richard A. Cleeman, S. Weir Mitchell, Horace Y. Evans and Louis Starr; secretary, Dr. Thomas R. Neilson; treasurer, Dr. Richard H. Harte; honorary librarian, Dr. Frederick P. Henry; councilors, Drs. DeForest Willard and John H. Gibbon; committee on publication, Drs. Gwilyn G. Davis, Thompson S. Westcott and William Zentmayer; library committee, Drs. George C. Harlan, Francis X. Dercum, Charles A. Oliver, William J. Taylor and S. Weir Mitchell; committee on Mutter Museum, Drs. John H. Brinton, George McClellan and J. Alison Scott; hall committee, Drs. John K. Mitchell, Thomas H. Fenton, B. Alexander Randall, E. Hollingsworth Siter and Aloysius O. J. Kelly; committee on directory for nurses, Drs. Wharton Sinkler, James C. Wilson and James V. Ingham.

GENERAL.

Yellow Fever in Panama.—Six cases of yellow fever are reported in the Panama canal district. The disease is endemic in this vicinity, but no cases have occurred recently until these now reported.

Election of American Physiological Society.—At the annual meeting in the physiological laboratories of Jefferson Medical College, Philadelphia, December 28, the following officers were elected: President, Dr. William H. Howell, Baltimore; secretary, Dr. Lafayette Mendel of Yale; treasurer, Dr. W. D. Cannon of Harvard. The members of the society were entertained at luncheon after the meeting by Dr. Henry C. Chapman.

Fake Drug Concerns.—Dr. William H. Wiley, head of the United States Bureau of Chemistry, in addressing the Society of Chemical Industry, New York, said that there were in the United States no fewer than 5,000 fraudulent drug manufacturers who should be put out of business. During the past year

he said fifty such firms had been put out of business for selling or for advertising "fake" medicines. His own name had been used without his permission by one firm in an endorsement of its goods. When he protested he was told to mind his own business. However, he forced the firm to refrain from using his name.

CANADA.

Montreal Hospitals Filled.—Montreal is suffering from an abnormal amount of sickness at the present time. The various hospitals of the city have been overtaxed and there is no immediate indication that relief will come. In the Montreal General Hospital there is room for 202 patients, but 210 have been in residence. The number of patients in the institution on Dec. 31, 1904, was 191.

Contagious Diseases in Toronto.—During December, 1904, there were 227 cases of diphtheria in Toronto, as against 173 cases in the corresponding month of 1903; of scarlet fever there were 50 cases, as against 23 a year ago; of typhoid fever 14, as against 16 a year ago. The total number of cases reported during the year were as follows: Diphtheria, 1,360; scarlet fever, 318; typhoid, 133, as against 1,103, 699 and 156 for 1903. The deaths in December, 1904, were: Diphtheria, 17; scarlet fever, 1; typhoid fever, 6. The total number of deaths in 1904 from diphtheria were 125; scarlet fever 12; typhoid fever, 41; smallpox, 2, as against 136 for diphtheria, 100 for scarlet fever, 41 for typhoid fever and one for smallpox in 1903. The death rate from scarlet fever in 1904 was the lowest in six years.

FOREIGN.

Million to Charity.—Lord Mount Stephen has given over $1,000,000 to the King's Hospital Fund in England.

City Sanitarian.—The municipal authorities of Stettin, Germany, have installed a city "hygieniker," with a salary of nearly $2,000.

New Hospital in Rome.—The cornerstone has been laid of a hospital for the English-speaking residents of Rome. It is located on the Coelian Hill and has been endowed by contributions from many Americans and Englishmen.

Proprietary Medicines in New Zealand.—A bill has been brought before the New Zealand parliament to make it compulsory that all patent medicines sold in New Zealand place before the public the composition of the remedy sold. This will affect a great many from the United States.

Trachoma in London.—It is reported that so great is the rush of Russian Jews arriving in London suffering from trachoma, that the hospitals are turning them away. A large number of these persons are en route to America, while others have been rejected by the United States immigrant inspectors and having been returned by the steamship companies, are stranded in the United Kingdom instead of being sent back to Russia.

An Ophthalmologist at the Seat of War.—A. Moltrecht writes from the front during October that typhoid cases are numerous notwithstanding the almost wintry weather. He has encountered a number of interesting bullet wounds of the eye, among them several in which the bullet traversed the orbit, nose and mouth, or else passed out along the roof of the orbit, without injuring the eyeball. In several cases the bullet had injured the optic nerve, but the subject recovered without permanent functional disturbances, which is certainly, he adds, the *ne plus ultra* of a "humane" bullet.

American Hospital in Korea.—A new hospital building has been dedicated in Seoul, Korea, to be conducted under the direction of the Presbyterian Board of Foreign Missions. The first operation was performed in the new building on Oct. 4, 1904, and was for the extraction of cataract, one of the workers characterizing it as an especially appropriate one, that the first important work of a new missionary hospital should be an operation for "letting in the light." The entire cost of the building was defrayed by L. H. Severance of Cleveland, Ohio, and the hospital will be known as the Severance Memorial Hospital.

Joke Taken in Earnest.—A German daily paper has republished one of the satires from the burlesque number of the *Münchener med. Wochenschrift*, taking it in earnest or pretending to do so, and commenting drastically on it. The satire purported to be an ad. from a medical graduate seeking a place as substitute for a physician where he would have an "opportunity to learn something of obstetrics, of which at present he has not the faintest glimmer of knowledge." The daily paper cites the ad. as a "picture of the times" and comments on the audacity of the fledgling physician in thus offering his services to experiment on human beings as if they were laboratory rabbits. The editor of the lay paper in question is chairman of the local sickness-insurance companies (Krankenkassen), at Leipsic, where there has been, and is still, considerable friction between the Kassen and their medical officers.

Congress of Hygiene of Habitations.—The United States Public Health and Marine-Hospital reports state that the International Congress of the Hygiene of Habitations was inaugurated at Paris, November 3, in the amphitheater of the school of medicine, being the first reunion for the purpose of technical engineers, hygienists, and representatives of the great cities. At the opening meeting the French minister of public instruction, M. Chaumie, presided and, in his address to the congress, called attention to the special importance of the regulation of dwelling places as a protection against contagious diseases. Senator Strauss reviewed the means at the disposal of engineers and architects based on the medical knowledge gained in the campaign against tuberculosis, a malady notably perpetuated and diffused by faulty construction of houses. He affirmed that it is to-day inexcusable for a government or municipality to fail to interest itself in the question of tuberculosis, a disease whose principal foci of contagion are found in insalubrious homes. Representatives of numerous cities, especially prominent being the envoys of Berlin and Prague, addressed the congress. A section of the congress devoted its attention to floating habitations, namely, ships of every kind.

Recent Decisions of the Prussian Medical Court of Honor.—One of the decisions was in respect to the sale of an ophthalmic practice. The court decreed that it is incompatible with a profession carrying with it such responsibility and founded on a basis of scientific training to have a medical practice transferred from one physician to another for a pecuniary consideration. Another decision was in the case of a Berlin physician who had an office at his residence in a suburb and another office in the city. The regulations state that a physician can not have an office in two places already provided with other physicians. This regulation was meant for small towns, and it was decided that it did not apply to an office in a city with a suburban home. In the present case the physician was intending to give up one office as soon as his practice in the other would warrant it. Another physician was fined for professional association with a charlatan, and another for writing a letter to a colleague in which he referred to a third physician as having made a blunder in diagnosing, and commented on his nervous instability and morbid ideas, concluding with the statement that the writer could no longer have any respect for him as a colleague. The court further decided in another case to impose a fine on a physician for carelessly signing a certificate. He failed to state that he had no personal knowledge of the preceding circumstances, but merely reported them from hearsay. A certificate made out in this way is incompatible with the honor of the profession, and the physician was fined the costs.

Medical Prizes Awarded at Paris.—The particulars of the prizes offered by the Académie de Médecine and Académie des Sciences at Paris have been given in full in these columns from year to year. Many thousands of dollars are thus distributed annually, the competition for nearly all the prizes being open to the world. Full details were given in THE JOURNAL Jan. 24, 1903. The reports show that few physicians from outside France compete for the medical prizes. The only non-Frenchmen among the recipients this year were Christiani of Geneva, whose work on thyroid grafting received a prize; Odier of Geneva; A. Raffray of Mauritius received the Godard prize for a work on neurology, and Muskens of Amsterdam received honorable mention in connection with another. The great Audiffred prize offered for the discovery of a sovereign remedy for tuberculosis is an endowed annual income of $4,800. The income was divided among several recipients this year, including A. Delille for his research on the toxins of the tubercle bacillus in tuberculous meningitis and in tuberculosis of the nerve centers; and Nattan-Larrier for his work on the cultivation of the tubercle bacillus by injecting suspicious fluids into the nipples of guinea-pigs suckling young. The bacilli colonize readily in the secretion where they can be easily detected, while the inoculation induces a tuberculous mammitis. Two prizes were awarded to A. Monprofit of Angers, vice-president of the Société de Chirurgie, for a work on surgical affections of the ovaries and tubes, which also received a prize from the other Académie. No articles were re-

ceived in competition for five of the prizes, offered for the best work on cirrhosis of the liver, arteriosclerosis and nervous and malignant affections.

Student Life in Japan.—The *Journal de Méd. de Paris* quotes a letter from Professor Revon, who taught for years at Tokio, in which he states that the distinguishing characteristic of Japanese students is that they study hard and are very eager to learn. When the lecture is over there is always a group appealing for further light on certain statements. After the professor has left the room the entire body of students gather round this bolder group and take notes of what they have learned. He adds: "During seven years of teaching in Japan, my only solicitude was the excessive amount of study done by some of my pupils. I tried in vain to curb their zeal; one of them became insane and several died. At the funeral of one of them, one of their mates advanced to the grave and exclaimed: 'Thou hast died from the sacred love of science; we will try to imitate thee!' A student a few years ago, by some undeserved mischance, failed to pass his examination. He came to bid farewell to his teachers, on the point of committing suicidal autolaparotomy. The faculty hastily assembled and made out his diploma at once. The young men study so hard that they grow prematurely old, with spectacles on nose, candidates for consumption. The medical course requires from thirteen to fourteen years of study before the final license to practice freely is obtained, instead of the five or six years required in western civilization. The relations between professors and pupils are peculiarly intimate and affectionate. From childhood the maxim is impressed on them: 'Your father and mother are like the earth and the sky; the ruler of the state is like the moon; your teacher, like the sun.' Another familiar proverb may be translated: 'Education surpasses birth,' that is, education is worth more than ancestral lineage and wealth."

Campaign Against Malaria in Italy.—In view of the sanitary efforts that will be necessary to contend with malaria in Panama, a special interest from an American standpoint attaches to the campaign that is being vigorously pushed against this disease in the Roman Campagna, a section once thickly peopled, the site of prosperous cities, but now, owing to malaria, a desert waste, not more than one-tenth of which is under cultivation. The public health reports state that the first inroads of malaria in the once flourishing Campagna were attributed to the neglect of the cultivation of land incident to changed social conditions brought about by the decline of the Roman Republic. In the past great efforts have been made, both by the papal and the Italian governments, to induce cultivation of this vast area, but owing to unfavorable economic conditions little has been heretofore accomplished. When malaria begins in May the section is practically deserted. The shepherds with their flocks take refuge in the mountains. With the discovery of the relation of mosquitos to malaria a rational prophylaxis became possible. At present the railroad employes, whose occupation renders it necessary for them to remain at their posts during the unhealthy season, are protected by screened houses, mosquito masks, and prophylactic administration of quinin. In the month of October, 1904, in the seven zones of the Roman Campagna, where the Italian Red Cross Society is making its anti-malarial campaign, prophylactic doses of quinin were given to 2,433 persons, in addition to those whose treatment was begun in previous months. In the zones under observation there were reported, during the month, 13 primary cases of malarial disease, 88 relapses, and 62 cases of non-malarial disease. Thirty-four patients were sent to Rome for treatment in hospital.

The Approaching International Medical Congress.—The fourth official bulletin has been received of the fifteenth International Medical Congress, to meet at Lisbon, April 19, 1906. It states that the number of official addresses assigned is 188 and that some of them have already been received. We note a number of American names among them: Novy of Ann Arbor, H. U. Williams of Buffalo, A. E. Macdonald of New York, A. E. Regensburger of San Francisco, A. Ravogli of Cincinnati, W. C. Gorgas and W. J. Morton of New York. The American committee of propaganda includes Frank Billings of Chicago, W. W. Keen of Philadelphia, F. Shattuck of Boston, A. Jacobi of New York, and Osler of Baltimore, with the President of the American Medical Association, Dr. J. H. Musser, as the chairman. The list of members who have sent in their subscriptions is also published. The congress medal is being engraved by the Paris physician-artist, Dr. Richer. An interesting souvenir of the congress is being prepared in the form of a medical guide to Lisbon and Portugal, with all the details regulations and statistics that can possibly interest a physician and serve for reference later. The subjects of the various addresses are also given with the names of the speakers. Von Leyden of Berlin will present the present status of the cancer question; Balthazard of Paris, radioactivity and radiotherapy; Lassar of Berlin, inflammatory skin affections; Ravogli of Cincinnati, the precancer stage in relation to cutaneous cancer, and Hallopeau of Paris, what he calls quaternary syphilis; Vulpius of Heidelberg, spinal paralysis, and B. Fränkel of Berlin, cancer of the larynx. The committee of organization beg that communications for the congress may be sent in at the earliest possible date so that they can be published with care instead of being rushed through at the last moment. New subjects recommended are dangers of milk, nocturnal incontinence, hysteria and infantile neurasthenia, dentition and infections, school strain, hydrocephalus, congenital malignant tumors and their operability, general and local anesthesia for children, influence of tropical climates on descendants of northern colonists, mutual influence of vaccination and dermatoses, and secondary cataract.

LONDON LETTER.

A New Departure in the Teaching of Tropical Medicine.

The great advances in tropical medicine made so rapidly in the last few years in this country have from time to time been chronicled in THE JOURNAL. The importance which the subject has now attained is shown by a new departure in its teaching—the foundation of lectureships in protozoology and helminthology at the London School of Tropical Medicine. Protozoology has assumed in tropical medicine such great importance and such wide proportions that it is thought to demand the services of men specially equipped to keep pace with its advances. The same may be said, if not with so much force, of helminthology. Hitherto these subjects have been included in the general laboratory work taught in the schools of tropical medicine, but the subjects have outgrown general instruction and demand special teachers, special classes and special investigators. Thanks to the schools of tropical medicine, the physicians trained in the methods of investigating tropical disease and working in tropical countries now number many hundreds and by their labors a still further growth in our knowledge of protozoology and helminthology is to be expected in the next few years. It is thought necessary to have an authoritative center at which all observations may be focused and sifted, which will require what we do not now possess, well-trained experts. Zoologists of eminence are not wanting in this country, but for one to cope with the demands of modern tropical pathology he must specialize. The conditions of appointment to each chair are identical. The teachers must give their whole time to the service of the school and occupy themselves with research work and must teach for one hour a day in the aggregate, if required. Candidates holding medical qualifications will be preferred. The appointments will be for six years. The salaries will commence at $1,250 and rise by annual increments of $250 to $2,500.

Sulphur Dioxid as a Disinfectant and as a Destroyer of Rats.

An important report on investigations conducted for the medical department of the local government board by Dr. J. S. Haldane, F.R.S., and Dr. John Wade, D.Sc., into the destruction of rats and disinfection on shipboard has been issued. The bulk of the experiments were made with sulphur dioxid in the form of "Clayton gas," a special preparation for the disinfection of ships obtained by burning sulphur in the Clayton apparatus. Clayton gas mainly consists of the residual nitrogen of the air, a small amount of unconsumed oxygen, sulphurous acid gas in quantities up to 15 per cent., and a considerable amount of sulphuric acid in suspension. The experiments show that the gas under conditions easy to obtain forms a very efficient disinfectant of places to which it gains access. Pathogenic bacteria manifested different degrees of resistance. Anthrax spores were unaffected, but plague and cholera bacilli were destroyed after a few hours' exposure to an atmosphere of the gas containing 5 per cent. of sulphur dioxid. In disinfection the time of exposure was found to be more important than the degree of concentration of the gas. Rats were readily killed. Drs. Wade and Pembrey have shown that .5 per cent. of sulphur dioxid will kill rats within two hours. Cockroaches and fleas are also killed under these conditions. These results were readily obtained in comparatively empty spaces and in holds not containing cargo. The results obtained in holds containing a ship's cargo were altogether different. The penetrating power of sulphur dioxid was found to

be very gradual for many articles of the cargo, particularly woolen and other fabrics (not cotton) done up in tight bales. This was shown to be mainly due to the power of the fabrics to absorb the gas. Thus, a bale of wool absorbed at least ten times and a bale of jute at least four times its own volume. The absorption takes place in the outer layers; after many hours the air within the bale contains no sulphur dioxid. Similar absorptive power was shown by grain and other food substances. A further objection to the use of sulphur dioxid is its liability to damage articles exposed to it. In a hold packed with cargo not only did it fail to act as a germicide, but owing to the absorption by bales, it was insufficient to kill rats and insects. Drs. Haldane and Wade suggest that if it is desired to kill rats before discharging the cargo, a small proportion of carbon monoxid (say 10 per cent.) should be added to the gas used for the hold. The best results would be obtained by unloading the cargo, with precautions against the escape of rats, and then treating the empty holds with sulphur dioxid.

The Centenary of the Royal Medical and Chirurgical Society.

The greatest of the London medical societies, the Royal Medical and Chirurgical Society, was founded on May 22, 1805. The council has decided to celebrate the centenary in May next in a manner worthy of the occasion. There will be a reception at the society's rooms by the president, and an exhibition of books, prints, instruments, etc., published or in use at the time of the foundation of the society. A centenary volume will be published giving a narrative of the society and its work. There will be a festival dinner and a conversazione at the Royal College of Surgeons.

The New Director General of the Army Medical Service.

A new departure has been made by the appointment to the important post of director general of the army medical service of a comparatively junior officer. This is connected with the recent radical changes made in the service after the inquiry into the so-called "hospital scandals" of the South African War, and the appointment no doubt has the approval of, if it has not been inspired by, the advisory board of distinguished civil doctors which has recently been created. The new director general is Lieutenant-Colonel Alfred H. Keogh, an Irishman, who joined the service in 1880 and became lieutenant-colonel in 1890. He greatly distinguished himself as an organizer in the South African War, for which he received several decorations, and at headquarters, where he acted as a deputy to his predecessor.

New Expeditions of the Liverpool School of Tropical Medicine to West Africa.

On the occasion of the recent retirement of Sir William Macgregor (who is a medical man), from the post of governor of Lagos the Liverpool School of Tropical Medicine decided to mark their appreciation of his valuable services in the cause of health and sanitation in West Africa by sending further commissions to continue the investigations conducted there by the school for the past five years into tropical diseases. A fund was accordingly raised in honor of Sir William Macgregor at a farewell banquet given to him before his departure to Newfoundland, of which he has been appointed governor. The first expedition will be under the charge of Professor Boyce, the dean of the school. He will be accompanied by Dr. Arthur Evans, medical superintendent for one of the large Liverpool shipowners and by Dr. Clarke. The expedition will pay a short visit to the Gambia, French territory (Konakry), and Sierra Leone. A southern expedition will be in charge of Colonel Giles, late sanitary commissioner of the northwestern provinces of India, and Dr. R. E. MacConnell of McGill University. It will visit the Gold Coast, Lagos, Southern Nigeria and, if possible, Northern Nigeria. The principal object of the expedition will be to study the distribution of biting insects, to which in Africa a large proportion of the prevalent diseases are due, and to study the question of domestic antimalarial measures in the various colonies. At the present time, as announced in THE JOURNAL, the Liverpool school has an important expedition studying sleeping sickness in the interior of the Congo Free State, which has been there since August, 1903. Next year the school will send an expedition to the Amazon to study yellow fever, which is the second expedition it has sent for the purpose. Thus its enterprise is phenomenal, but the possibility of all these expeditions is largely due to the munificence of Sir Alfred Jones, president of the school, a wealthy Liverpool merchant who has contributed liberally. A deputation consisting of Sir Alfred Jones, Professor Boyce, Dr. Evans, Dr. Clarke, Colonel Giles, Dr. MacConnell of Canada, Dr. Thomas of Canada, and Dr. A. Breinl of Prague, waited on the colonial secretary for the purpose of securing his good wishes for the expeditions, which were readily given. The expenses of the expeditions have been entirely defrayed by subscriptions of Liverpool merchants.

DUBLIN LETTER.

A Workhouse Scandal.

A shocking state of affairs was brought to light recently in the North Dublin Union by one of the local government board's inspectors, Dr. Biggar. Into the nursery of that institution during the three years ended June 30, 1904, about 1,000 infants under 2 years of age were admitted, 396 of whom died, or two out of every five. An examination of the premises occupied gave an explanation of the mortality. These miserable children, of whom there are generally from 60 to 70 at a time, are packed into rooms insufficient for the number, ill-ventilated and foul smelling. The staff maintained to take charge of this nursery consists of one sister and two attendants (not nurses), with the assistance of six or eight inmates. The principal ward has practically no ventilation except by skylights, and the inspector states that the air therein had a very foul smell. It is stated, too, that the site of these dens which constitute the nursery was to begin with, unsuitable, since they are built on a disused graveyard. The children who are admitted to a union workhouse in this country are usually in anything but a healthy condition. Many are foundlings or illegitimate, and nearly all are suffering from the effects of poverty or of neglect. Many are actually ill. Such infants, instead of being herded together without either air or care, require, if they are to have any chance of healthy lives, strict medical attention and the best hygienic surroundings. Without the odium arising from the publicity of Dr. Biggar's report there is little reason to think that the North Dublin guardians would have paid any attention to the matter. After many postponements the guardians have at length adopted certain suggestions, which, though far from giving an adequate solution to the problem, will afford a temporary relief. As, however, the present winter is accompanied by much distress in Dublin, it is probable that the accommodation of the workhouse will be taxed to its utmost before the winter is over.

Richmond Asylum.

In view of the alarming increase of lunacy in Ireland, to which allusion was made in the last Dublin letter, the recent report of the Richmond District Asylum is particularly interesting. This asylum, the largest in this country, contains about 2,700 patients, and has for medical superintendent the well-known alienist, Dr. Conolly Norman. The number of patients under treatment continues year by year to increase, though the actual number of admissions last year was the same as in 1902. The cases admitted were mostly of an unfavorable nature as regards prospect of recovery, many of them being afflicted with what are regarded as incurable types of mental disease. Suicidal tendencies were more marked than usual, and several patients who feared suicide presented themselves as voluntary patients. Dr. Norman is a believer in a freer mode of treating the depressed than is usual in these countries, and he is to be congratulated that no successful attempt at suicide was made. It must, of course, be remembered that in no asylum in the United Kingdom is there so much freedom given to patients as is customary in America. Dr. Norman holds much the same views as Dr. Coulston of Edinburgh on the importance of alcohol in the causation of insanity, and we find that one-third of the cases where any cause has been assigned are credited to this cause. On the other hand, in the column headed "sexual intemperance" there is not a single entry. Hereditary influences were made accountable in 82 cases. The mortality of the asylum during the year was not unduly high, 7.9 per cent. of the average number of patients, but some of the causes seem to be capable of diminution. Phthisis especially is responsible for a larger number of deaths than should occur if modern preventive and therapeutic measures are practiced. It is interesting to note the variety and number of the industrial occupations in which it has been found possible to engage the great majority of the patients. All the clothes worn in the asylum have been made on the premises, and the stuff itself has been woven there. One can hardly think of any occupation from chimney-sweeping to "drawn-thread work," from blacksmith's work to embroidery, in which some of the patients are not employed.

Correspondence.

Modern Hospital Asepsis from an Interne's Viewpoint.

CHICAGO, Dec. 21, 1904.

To the Editor:—It seems almost superfluous and uncalled for to try to bring out anything more relative to asepsis in the modern hospital and operating room of to-day, but with the exception of a hint of them now and then to be seen in various articles in some of the later journals, no one has touched on two or three points that should be strongly emphasized and criticised, and the causes of which should be eliminated in order to get better aseptic surgical results.

One would think on close examination of one of the newer operating rooms that every precaution had been taken, that every means known to bacteriology had been or was constantly being employed to destroy the bacteria that had already gained entrance to the operative field and its environment and to prevent any further contamination. The room as a whole is built so that every square inch of its floor, walls and ceiling can be cleaned. There are no corners or ledges for dust or dirt to lodge or which are inaccessible to the frequently appearing scrubbing brush. Marble, iron, stone, tiling, enamel, glass and nickel are used exclusively in the make-up of the room and its necessary furnishings, not so much for the durability of such materials, but in order to obtain smooth surfaces which can be easily cleaned—surgically cleaned.

Everything that is brought into the room is surgically clean. The tables are scrubbed, washed with antiseptic solutions and covered with covers that have been sterilized. The basins, towels, sponges and instruments have all been baked, steamed or boiled. Only nurses specially trained in asepsis and antisepsis and in the reasons and necessity for the same, make the operating room ready for an operation and assist during it. In the dressing rooms are to be found scientifically arranged wash basins where hot and cold sterile water, sterile soap, sterile brushes and antiseptic solutions can be used without the necessity of touching anything that is not clean. Sterile gowns are put on, sterile gloves are at hand to cover the hands and sterile masks are ready to protect the open wound from the pathogenic bacteria that are present in such large numbers in our mouths and nostrils.

It certainly would seem improbable, yes, almost impossible, for clean wounds to become unclean in such an operating room, fitted with every appliance known to prevent it. But they do become unclean, wounds do become infected, clean hernias frequently must be "dressed" for days after the operation, single iridectomies do occasionally result in suppurating panophthalmias, ventral "suspensions" do become "fixations" after weeks of irrigation of purulent sinuses leading down to peri-uterine abscesses. Stitch abscesses do only too frequently occur. "Oosings" which are "only serum" do appear after interval, clean appendectomics. Redness and induration do occur even after the much abused poor, innocent catgut has been really and truly sterile.

And why?

It is not always due to some error in aseptic technic done behind the screen in the ward by the usually extremely careful nurse during the preparation of the patient, nor is it always due to the junior interne who, fresh from books on aseptics, is anxious to be known as a careful man in his preparation of the patient. It is not always because the bandage slipped up while the patient was being transported to the operating room from the bed. It is not always because the senior assistant interne has become careless because he is soon to leave the hospital. It is not always due to the fact that this or that unscrubbed nurse "touched things" about the sterile field. It is not always due to any peculiar affinity between bacteria and catgut, and it is not always because the "fool patient stuck his finger under the eye-pad to stop the itching."

But such unnecessary and inexcusable infections do occur and often, too, in our best hospitals and in our most carefully managed operating rooms. It seems to me that the real cause lies not with the hospital operating room, internes or nurse, but with the surgeon himself, the operator, the teacher and professor of aseptic surgery, and simply because he does not really do what he teaches others to do, what he believes should be done, and what he doubtless for the most part thinks he does do.

He says to the class, "Scrub hard for fifteen or twenty minutes," and then he comes hurriedly to the clinic and scrubs but two or three, in spite of the fact that he knows very well that he can not put on sterile gloves with unclean hands. He says, "To obtain aseptic surgical results you must not only make clean, but you must keep clean," and within a few moments he has literally removed his glasses with his sterile glove, or has traced a drawing on a blackboard and then, with not so much as a dip into the bichlorid solution, takes up the iridectomy knife to remove the cataract.

He says to the assistant. "While you are in my service do not go to the autopsy room," and yet he will come directly to an operation from the dissecting room himself.

Teachers of surgery—leading clinicians of to-day—can be seen daily grossly breaking the fundamental rules of asepsis in all our leading clinics and hospitals. They are very exacting about others and then very careless about their own behavior. The first is excellent, the last is unpardonable. The more strict with nurse and interne they are the better, but they must not expect the nurse and interne to remain enthusiastic about absolute surgical cleanliness when they see him—just because he is late or in a hurry, or for no reason whatever—neglect to do what he demands of them.

It is not necessary to go more into detail. Scores of such instances of aseptic lying are noticed by an interne during his year or two of service relative to some of our best operators. The same operator should know he is constantly watched, looked up to, listened to and gladly followed just so far as he is true to surgery and to himself, and criticised and ridiculed just so far as he blames nurse, interne or catgut when it is only too evident that he himself has been the cause for failure of primary union.

JOHN C. HOLLISTER.

Urination in the Dorsal Position.

LANCASTER, PA., Jan. 3, 1905.

To the Editor:—The inability to void urine lying down is common to many people even in health. By practice this may be overcome; rather easily when the half reclining position may be assumed, and the ability to urinate in the dorsal position gradually acquired. The patient usually has the joy of learning the technic of dorsal urination with added zest from postoperative pain and ether nausea.

I have found it of distinct advantage to have all patients who will have to void in the dorsal position practice this often before the position is necessitated, when time permits. In obstetric cases I order the morning urination on the douche pan during the last month of pregnancy until the knack is thoroughly acquired. In operative cases advantage is taken of every opportunity during preparatory treatment. I have had no patient who learned to void before operation who could not void afterward, excluding, of course, obstetric cases in which there had been much pressure on the urethra, and operative cases involving the region of the urethra or rectum.

Where the physician is so situated that he must either catheterize the patient himself or must trust to untrained assistants any help to make a patient void is of great value. Under the best surroundings there is danger in catheterizing. Patients readily see the value of this practice and are glad to adopt it. I have found that the procedure saved me a very great deal of trouble.

JOHN L. ATLEE.

Sarcoma of Intestines.

RIVERSIDE, CAL., Dec. 30, 1904.

To the Editor:—Five years ago I removed from Harold S. a small round-celled sarcoma with several inches of intestine, from which it originated. The case was reported in THE

JOURNAL, March 9, 1901, under the title "Sarcoma of the Intestines with Table of Fifteen Cases of Resection." A few weeks ago I visited this patient, now as well developed and as robust a boy of 10 as one often sees. I found no evidence of trouble about his abdomen or lymphatics, nor anywhere, in fact. The only effect traceable to the operation was a little more frequency of bowel movements than normal, but this never amounted to a diarrhea; usually there were one or two movements a day. In view of the fact that although a number of enlarged mesenteric glands were of necessity left in the abdomen and that there was no return of the growth some very interesting questions are suggested. Were the glands that were left in the mesentery real sarcomatous foci? Has the organism a certain amount of power to overcome a sarcomatous "infection"? Is there a benign growth which so nearly resembles sarcoma that experts fail to distinguish it?

C. VAN ZWALENBURG, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ERRORS IN VON BERGMANN'S SYSTEM OF SURGERY.

WINFIELD, ARK., Dec. 31, 1904.

To the Editor:—On page 17, vol. iv, of von Bergmann's System of Surgery, by Bull, I notice what might be construed a great mistake. On lines 10 and 11 it is said to use a tube 10-15 cm. Does it mean ten-fifteenths or ten and fifteen one-hundredths cm.? On the same page the bifurcation of the esophagus is spoken of. CHEVIS BEVILL.

ANSWER.—It is very evident that the "10-15 cm." on page 17 of vol. iv of "Von Bergmann's System of Surgery" by Bull, is a mistake, as it should be "10-15 mm." The term "bifurcation" on the same page refers not to a bifurcation of the esophagus, but to the bifurcation of the trachea. The word trachea might have been inserted to advantage and the sentence would have been relieved of all ambiguity.

SERUM TREATMENT OF CANCER.

GULFPORT, MISS., Dec. 18, 1904.

To the Editor:—Have there been any favorable developments in experiments on serum treatment of inoperable cancer of the uterus? If so, please give me any information available as to where or how I may obtain the serum. R. C.

ANSWER.—There is at present no recognized serum treatment of cancer. Doyen of Paris, France, claims to have a serum which he is using in the treatment of inoperable cancer, and has recently obtained considerable newspaper notoriety concerning it. Metchnikoff has recently reported on the matter in the French medical press. The serum is obtained from the *Micrococcus neoformans*, which is supposed by them to be the cause of cancer. It has not yet been established either that the organism mentioned is the cause of cancer or that the serum possesses any curative properties. The serum is not obtainable here, so far as we know. See also page 145.

Marriages.

WILLIAM G. LIST, M.D., Cincinnati, to Miss Martha White, December 20.

JULIUS PROPPER, M.D., to Miss Gizelle Propper, both of Philadelphia, December 29.

WILLIAM PEPPER, M.D., to Miss Mary Godfrey, both of Philadelphia, December 31.

EDWIN D. S. MULLISON, M.D., Philadelphia, to Miss Fannie W. Warren of Wrightstown, N. J., December 31.

GEORGE JOHNSON TOMPKINS, M.D., to Miss Elizabeth Haskins Dillard, both of Lynchburg, Va., December 28.

WALTER L. BOND, M.D., West Somerville, Mass., to Miss Bertha B. Fennell of Everett, Mass., Nov. 2, 1904.

TALBERT B. GINN, M.D., Hesselton, Ky., to Miss Mattie Hillis of Vanceburg, Ky., in Cincinnati, December 16.

Deaths.

Byron Cook Pennington, M.D. Jefferson Medical College, Philadelphia, 1881, fourth vice-president of the American Medical Association; president of the medical staff of, and surgeon to the Atlantic City Hospital; president of the Atlantic City Academy of Medicine; several times president of the Atlantic County Medical Society; for two years and a half surgeon in the merchant service between New York and Brazil; a member of the Atlantic City council, died at his home in Atlantic City, N. J., January 1, from uremia, after a long illness from interstitial nephritis, aged 46. In recognition of the personal and professional integrity and ability of Dr. Pennington the physicians of Atlantic City united last October in presenting to him a silver loving cup. He was chairman of the general committee of arrangements for the American Medical Association session of 1904.

Eber K. Watts, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879, a member of the American Medical Association and of the Wayne County (Ind.) Medical Society, some-time coroner of Wayne County, for 18 years a practitioner of Richmond, Ind., died suddenly while attending a consultation near Westville, Ohio, January 3, from uremia, aged 45.

Arthur C. Adams, M.D. Medical Department of Columbian University, Washington, D. C., 1873, a member of the American Medical Association, shot himself at his home in Washington, December 31, and died at Providence Hospital early on January 1, aged 50.

Robert H. Somers, M.D. Toronto University Medical Faculty, 1896, a member of the American Medical Association, one of the most popular physicians of Plymouth County, Iowa, died at his home in Lemars, January 3, after an illness of one week from pneumonia.

Hiram W. Young, M.D. Medical Department of Washington University, St. Louis, 1901, of St. Louis, was drowned by the upsetting of a gasoline launch in which he was making a cruise to Florida, about 25 miles below St. Louis, December 30, aged 33.

Calvin H. Kendall, M.D. Berkshire Medical College, Pittsfield, Mass., 1843, one of the first to employ nitrous oxid gas as an anesthetic in the extraction of teeth, died at his home in Ridgefield, Conn., Nov. 30, 1904, from uremia, aged 87.

Arthur T. O'Hara, M.D. University of Buffalo Medical Department, 1890, for 13 years physician and superintendent of the Buffalo Quarantine Hospital, was found dead in that institution January 1, from heart disease, aged 43.

Joseph Bartley Patrick, M.D. Medical Department of Western Reserve University, Cleveland, 1886, of Baldwin, Wis., died in St. Luke's Hospital, St. Paul, Minn., December 30, from post-operative pneumonia, aged 48.

Frederick H. Griffin, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1880, committed suicide at his home in Philadelphia, January 1, by inhaling illuminating gas, aged 48.

Shorland Harris, M.D. Exeter College, England, 1852, a surgeon in the Crimean War, died at his home in Mason City, Iowa, January 1, from cerebral hemorrhage, after a short illness, aged 75.

Evan F. Smith, M.D. Medical Department of the Columbian University, Washington, D. C., 1878, died at his home in Brooklyn, N. Y., from influenza, after a short illness, January 3, aged 53.

Joseph L. Richard, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, died at his home in Donaldsonville, La., December 31, after a short illness, aged 56.

John G. Lee, M.D. University of Louisville Medical Department, 1865, died at his home near Lasea, Tenn., December 24, from paralysis after an invalidism of eight years, aged 75.

Emory F. Gresham, M.D. Hospital College of Medicine, Louisville, 1892, died at his home in Sedalia, Mo., December 28, from brain tumor after an illness of several weeks, aged 35.

Amos C. Wood, M.D. New York University, New York City, 1855, the oldest practitioner of Owensboro, Ky., died at his home in that city, January 2, from heart disease, aged 80.

Gustavus A. Rene, M.D. Medical College of the Pacific, San Francisco, 1872, of San Bernardino, Cal., died at the hospital in that city, December 23, after a long illness, aged 63.

James E. Jones, M.D. Albany (N. Y.) Medical College, 1855, for 45 years a resident of Clayville, N. Y., died at his home near that village, December 25, aged 72.

James M. Eagleton, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, died at Ocala, Fla., January 4, from heart disease, aged 70.

Harry Lewis Hamilton, M.D. California, 1894, died at his home in Chicago, Cal., December 30, from spinal meningitis, after an illness of 36 hours, aged 33.

Frank E. Yerkes, M.D. Pennsylvania, 1894, died at his home in Ambler, Pa., December 16, after an illness of four days, from erysipelas, aged 38.

Hector S. Aley, M.D. Rush Medical College, Chicago, 1885, died at his home in Denver, Colo., December 9, from pernicious anemia.

David M. Shively, M.D. Indiana State Board, 1897, died at his home in Yorktown, Ind., from nephritis, January 3, aged 63.

Thomas A. Pierce, M.D. Philadelphia, 1850, died recently at his home in Winona, Minn., and was buried January 7.

Book Notices.

ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS. A Guide for Practitioners and Students. By Dr. Toby Cohn, Nerve Specialist, Berlin. Translated from the Second German Edition and Edited by Francis A. Scratchley, M.D., New York, Chief of Clinic, Diseases of the Nervous System and Instructor in Electro-Diagnosis and Electro-Therapeutics, University and Bellevue Hospital Medical College. With Eight Plates and Thirty-nine Illustrations. Cloth. Pp. 280. Price, $2.00. New York and London: Funk & Wagnalls Co. 1904.

This book presents the underlying scientific principles of electrodiagnosis and electrotherapeutics. It also explains the apparatus necessary for the use of electricity in the disorders where it is indicated. The book is conservative in spirit and has reached a recognized standing in Germany.

A TREATISE ON APPLIED ANATOMY. By Edward H. Taylor, M.D. (Dublin Univ.), F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital. Illustrated with 178 Figures and Plates from Original Drawings. Many Printed in Colors. Cloth. Pp. 738. Price, $9.00. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott Co. 1904.

The author's "object has been to provide an account of the regional anatomy of the human body in its more important applications to medicine and surgery." This has been so well done that nearly every point in anatomy has been intimately connected with some practical point in medicine or surgery so that the reading of the work has been made not only instructive but a pleasure. The work contains almost as much surgery as anatomy, and the illustrations, many of which are colored, are all very good. It is a good work and one which can be consulted with profit not only by the student but by the operating surgeon.

NEW METHODS OF TREATMENT. By Dr. Laumonier. Translated and Edited from the Second Revised and Enlarged French Edition by H. W. Syers, M.A., M.D., Cantab., Physician to Out-patients Great Northern Central Hospital. Cloth. Pp. 320. Price, $2.50 net. Chicago: W. T. Keener & Co. 1904.

This book is of peculiar importance in that it takes up and discusses the relative value of the more important newer remedies of the vast number which have been placed on the market. As a rule, the general practitioner gains his acquaintance with these newer remedies only in published formulas and prescriptions which in many instances gain their entrance into medical literature through the advertising columns. The author divides the several preparations into groups according to their actions and uses, including in this classification nutritive alterants, blood alterants, mineral medication, respiratory alterants, renal alterants, vasomotor alterants, opotherapy, serotherapy, nerve alterants, antipyretics and antiseptics. Space can not be given to the discussion of these different groups. To the physician who wishes a more thorough comprehension of the relative value of the newer preparations than can be obtained in the current literature, this book can be safely recommended.

THE PATHOLOGY OF THE EYE. By J. Herbert Parsons, B.S., D.Sc. (Lon.), F.R.C.S. (Eng.). Assistant Ophthalmic Surgeon, University College Hospital. Vol. I. Histology—Part I. Cloth. Pp. 388. Price, $3.50 net. New York: G. P. Putnam's Sons. 1904.

This is the most complete work of its kind ever undertaken in any language. Even in Germany the "Ginsberg Manual" is the only book which may be said to compare with Mr. Parsons' work. The first volume by its excellence promises much for those that are to follow. The work presents more than its title indicates; it abounds in practical applications of pathology to the surgery and treatment of eye diseases. In discussing a given condition, in addition to its pathology and histology Mr. Parsons has collected the theories and opinions of the world's authorities and has most successfully welded them into a very practical, homogeneous whole. Many of the more valuable of the late methods of laboratory technic are also given. The illustrations are taken chiefly from photographs, another good point, since the advanced student no longer needs schematic drawings, but prefers to see things as they really are to be seen under the microscope. There might, with advantage, be many more illustrations, and especially those in color, none of the latter appearing in the first volume. The binding also is inferior, especially for a work which is of such value that it can not fail to be in constant use.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-graduate Medical School. Vol. VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology, Suggestive Therapeutics, Forensic Medicine. Edited by George F. Butler, Ph.G., M.D., Henry B. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Daniel R. Brower, M.D., Harold N. Moyer, M.D., July, 1904. Volume IX. Physiology, Pathology, Bacteriology, Anatomy, Dictionary. Edited by W. A. Evans, M.S., M.D., Adolph Gehrmann, M.D., William Healy, A.B., M.D., August, 1904. Vol. X. Skin and Venereal Diseases, Nervous and Mental Diseases. Edited by W. L. Baum, M.D., Hugh T. Patrick, M.D. September, 1904. Chicago: The Year Book Publishers.

Volume VIII keeps up the standard that has been maintained by this valuable series. Butler's review of materia medica and therapeutics is especially full, occupying nearly one-half of the volume, and seems to give a very complete résumé of the advances that have been made during the year covered. Favill's review of Preventive Medicine is also judicious and thorough, and the same may be said of the section on climatology by Bridge and Claypole, and those on suggestive and forensic medicine, respectively, by Brower and Moyer. The editors have given us well-selected abstracts and the excerpt affording a fair résumé of the general advances made during the year. Volume IX covers much ground, but the material has been well selected, thus making one of the most valuable books of the series. W. A. Evans reviews anatomy and pathology, including general and special pathology. A. Gehrmann has charge of the section on physiology and bacteriology, considerable space being devoted to biochemistry and serum reaction, and Wm. Healy has compiled the dictionary of new words, which embraces twenty-two pages of nonpareil type. Volume X covers only two subjects, cutaneous and venereal diseases, by W. L. Baum, including genitourinary medicine and surgery, and nervous diseases by Patrick and Mix. Both are able and comprehensive critical reviews of the advances made during 1903 and cover a considerable portion of the literature of their respective subjects. The portion on mental diseases is rather brief, but the papers abstracted are well selected and the critical remarks of the editor are valuable as conveying judicious opinions on certain special points.

SURGICAL EMERGENCIES. THE SURGERY OF THE ABDOMEN. Part I. Appendicitis and Other Diseases About the Appendix. By Bayard Holmes, B.S., M.D., Professor of Surgery in the University of Illinois. Paper. Pp. 349. Price, $2.00 net. New York: D. Appleton & Co. 1904.

The author states that his volume of 350 pages is a part of "A Text-Book of Surgery for Practitioners of Medicine." As a text-book article, there is much in it that could be eliminated and much that could be condensed with advantage, particularly on the subject of appendicitis, for the complete title of the work is "Appendicitis and Other Diseases About the Appendix." With some of the author's statements we can not agree; for instance, "The examination of the patient forms only a small part of the material on which the diagnosis (of appendicitis) is made." On the contrary, the physical examination of the patient plays a very large and important part in the diagnosis in a large

proportion of the cases. The statement that "The appendages of the intestinal tract, especially the appendix vermiformis, the gall-bladder, and Meckel's diverticulum are traps laid for the purpose of catching and disseminating infection," might pass in a figurative sense, but when unqualified, as it is here, is not good in a text-book. The formula given for Schleich's solution on page 209 is incorrect, as it contains too much morphin, and Schleich does not use "normal salt solution." The statement on page 241 that "Ideal appendicectomy ought not to require an incision longer than an inch in the thin and an inch and a half in the fat patient; it ought not to require more than fifteen minutes of general anesthesia nor more than four or five days in the hospital and away from work or business" is pernicious in more ways than one. The incision should be long enough to permit the necessary work to be properly done regardless of the tape measure. Good work in many cases cannot be done through an inch incision. No patient who has had the abdomen opened and work done on the intestine should be permitted to leave the hospital and to resume his work or business in four or five days. The process of repair requires time and until repair is reasonably complete accidents may happen, and a surgeon is not justified, under ordinary circumstances, in permitting his patients to take the risk of returning to work. The author's views concerning the desirability of early operation and the very earnest and forceful manner in which he presents his arguments therefor are commendable. The "other diseases about the appendix" treated are peritonitis, intussusception, perforating typhoid ulcer and carcinoma of the intestinal tract. These are not so extensively dealt with as is appendicitis. Although one will find a number of statements to which one can not subscribe, still the work as a whole forms an interesting and instructive monograph, written in a very positive style.

THE ACTION OF LIGHT AS A THERAPEUTIC AGENT. By Leonard K. Hirshberg, Baltimore, Md. Fiske Fund Prize Dissertation. Cloth. Pp. 49. Providence: Snow & Farnham. 1904.

ROENTGEN-RAY DIAGNOSIS AND THERAPY. By Carl Beck, M.D., Professor of Surgery in the New York Postgraduate Medical School and Hospital. With 322 illustrations in the text. Cloth. Pp. 460. Price, $4.00. New York and London: D. Appleton & Co. 1904.

LIGHT ENERGY; Its Physics. Physiological Action and Therapeutic Applications. By Margaret A. Cleaves, M.D., Fellow of the New York Academy of Medicine. With Numerous Illustrations in the Text and a Frontispiece in Colors. Cloth. Pp. 827. Price, $5.00 net. New York and London: Rebman Co. 1904.

The number of books dealing with the various forms of radiant energy and their application to medicine is increasing rapidly. One of the first books in this field which has proved so productive of literary activity was that of General Pleasanton on "The Influence of the Blue Ray of the Sunlight and of the Blue Color of the Sky in Developing Animal and Vegetable Life in Arresting Disease and in Restoring Health in Acute and Chronic Disorders to Human and Domestic Animals," published in Philadelphia, 1877. The general's book was printed with blue ink and bound in blue. This led Finsen to suggest that "its contents could hardly fail to be colored also," a remark not without reason in view of General Pleasanton's tendency to regard blue light as a panacea. Of the three books at present noticed, the first may be dismissed with the statement that it was deemed worthy of the Fiske prize. It contains nothing particularly new. Dr. Beck's book on the Roentgen ray is marred by the introduction of many unnecessary details especially concerning individual cases. Numerous and often poorly made illustrations have been inserted; those of microscopic sections are wholly worthless. There is a tendency, it would seem, to stretch the efficacy of the *x*-ray to the utmost, as noticed for instance, in the following statement in speaking of one case of scarlatinal noma: "It seemed that after strong irradiation the process was checked." On the whole, no very serious attempt is made at careful, critical analysis of the diagnostic and therapeutic value of the *x*-ray on the basis either of the author's own material or that of others. The book is consequently not stimulating in its tone, although, of course, it contains much valuable information. Dr. Margaret A. Cleaves presents a more comprehensive work of its kind, in which she endeavors to embody the results of eleven years of study and practical experience. She does not consider fully the *x*-ray except more or less incidentally. The fundamental physics are considered at length. Dr. Cleaves has chosen as her aim the placing of light energy for general therapeutic purposes on a foundation as secure and scientific as that which the brave Finsen provided for its use in diseases of the skin. This is an ambitious undertaking, but the author has proceeded in the only way that leads on to its successful realization, namely, by critical study of all available material before drawing any conclusions. We believe this book may be recommended to those who wish to have on hand an able and conscientious discussion of light in its physical, physiologic and therapeutic aspects.

Miscellany.

GREAT INACCURACIES IN THE DOSAGE OF POTASSIUM IODID IN SATURATED SOLUTION.

Dr. William Healy.
CHICAGO.

Discussion between a druggist and a patient who thought he was not getting his regular amount of potassium iodid in solution led me to note an inaccuracy in the usual making up of the saturated solution. Later, in conversation, Dr. H. T. Patrick called my attention to a still greater error; namely, that most physicians regulate the dosage of this frequently prescribed solution as if one drop of the solution equaled one grain of the drug. I had always done so on the authority of Hare (Practical Therapeutics, ed. 1897, p. 225). This is far from being the truth. In proving up this matter on a practical basis, as I have done in company with two expert pharmacists, I note even a third possibility of error in dosage—the content of the domestic teaspoon.

The standard pharmacopeial authorities state that potassium iodid is soluble in .75 parts water, standard temperature C. 15, F. 59. I find that on this authority it is common for druggists to simply add these properties in making the saturated solution. Now waiving the point as to possible difference of solubility varying with different methods of manufacture, and working with granulated potassium iodid, such as druggists ordinarily carry, I find that potassium iodid 3iv added to distilled water 3iii gives a mixture of 3ivss. This, however, at room temperature, F. 70, is not a saturated solution. Almost another dram of potassium iodid can be dissolved, bringing the mixture then up to 3iv, m. i, practically one grain to the minim.

Now with regard to drops: I find them, as Dr. Patrick asserted, very small, indeed. Since it is almost impossible to drop the solution over the neck of a bottle, a medicine dropper is ordered. Using the common straight dropper 60 drops is found to equal only from 28 to 40 minims. From an eye pipette sold at some places as a medicine dropper 60 drops equals from 46 to 49 minims. Sixty drops from a thin glass beaker equals 28 minims and from a small graduate equals 39 minims.

Then, investigating the household measures, I find that what the laity considers a teaspoonful of the solution in question contains from 85 to 95 minims. How ludicrously inaccurate these various methods of dosage are is shown by their comparison. For instance, if one prescribes the 60 pipette drops fondly supposed to be a dram of the so-called saturated solution he is giving only about 41 grains of potassium iodid, or if he orders a teaspoonful, also thought of as a dram, he may be giving 90 grains—over twice as much. Or putting it in another way, the teaspoonful contains about 120 pipette drops.

Summarizing these various difficulties it appears, then, that when using the thoroughly saturated solution, dropped from a pipette, there is an error of at best 25 per cent. and when given by the teaspoonful of 33 per cent. Or, if properly measured by minims, the druggist's mixture may involve a difference of 12 per cent. In giving the large doses over the prolonged periods, which so frequently has to be done, it would be distinctly worth while to know what we are doing. As it stands, with most of us, when we think we are giving, say, 120 grains we may

really be giving 110 grains or 90 grains, or 160 grains. Evidently the only way to be even approximately accurate is to prescribe potassium iodid in solution *completely* saturated and measured for dosage, as it may be more rapidly and conveniently than by the pipette in a minim graduate.

1682 Sheridan Road.

Expert evidence is not evidence of fact, it is evidence of opinion based on scientific knowledge. Medical men give evidence of fact when they speak in the witness-box as to physical conditions which have come under their actual observation; but when they draw inferences from those conditions as to the duration of injuries, as to the amount of incapacity produced, or as to the cause of them so far as these points lie outside the limits of their knowledge, they then become expert witnesses.—*Lancet.*

Alcohol and Hypnotism.—Russian physicians are treating alcoholic cases by hypnotism, according to the *Gazette Médicale de Paris.* The first dispensaries for the treatment of alcoholism by hypnotism were used in 1896 in the psychiatric clinic of Moscow, and in 1891 at the hospital of Ijevo. Since then many establishments of the same kind have been started at Ekaterinislav, Voronege, etc., and all have given excellent results. According to the studies of Dr. Rybazoff the treatment of alcoholic cases by hypnotism has given 75 per cent. of radical cures, while all the other known methods have never given more than 30 per cent.

Doyen's Cancer Serum.—According to the *Semaine Médicale,* Doyen formally reports that Metchnikoff has obtained pure cultures of the *Micrococcus neoformans* in 41 out of 121 tubes inoculated with cancer material. The colonies were most numerous in material from the more malignant tumors. Doyen claims that 15 patients with cancer, inoperable in October, have been so much improved by his serum treatment that surgical intervention was rendered possible, and was successfully done. Two cancers of the breast, he claims, subsided completely under the treatment, which allowed the removal of an advanced tumor on the other breast. Before the Paris Société de Chirurgie, December 14, Doyen exhibited these and 8 other patients with advanced cancers whom he proposes to treat with his serum and to operate on later.

Consanguinity in Genesis of Deafness.—M. Natier of Paris has recently reported 2 cases of deafness coming on in the twenties in two sisters, whose parents had been cousins. The deafness is bilateral, progressive and accompanied by subjective symptoms, and has proved rebellious to all treatment. He has been very successful in other cases of deafness—sometimes in cases incurable by all other means—by re-educating the ear with acoustic exercises with tuning forks. He calls this the physiologic re-education of the ear, and states that if used early in encroaching deafness, it will ward it off. The general health must be kept in good order at the same time. His communication on the subject was read at the recent French Congress of Internal Medicine, and is published in the *Gazette Méd. de Paris,* November 5.

Hydrophobia in Berlin.—The German authorities have published a report of those in Berlin bitten by suspected mad dogs during 1903. During the year 307 persons were bitten by dogs supposedly mad. Rabies was conclusively demonstrated in 140 of the dogs. Of the 307 persons bitten, 281 (or 1.5 per cent.) received the Pasteur treatment. Of these only 4 succumbed, and one is reported to have recovered after the appearance of the symptoms of the disease. Of those not treated by the Pasteur method, but receiving other medical treatment, 6 per cent. died of the disease, and of those receiving no treatment whatever, 11 per cent. Allowing for the fact that a large proportion of patients bitten by supposedly rabid dogs do not develop the disease, the fact that four times as many recover after the Pasteur treatment as after other medical treatment, and nine times as many as after no treatment at all, is worth considering. Hydrophobia is probably the most terrible acute disease known to man. Fortunately, it is rare. Once well developed, it is practically incurable, though the one case reported in the Berlin statistics as recovering encourages a slight hope that even more may be done in the future.

The Bone Marrow as a Protecting Organ Against Infections.—The participation of the bone marrow in the defense of the organism against infections is well shown by the appearance of myelocytes in the blood when an infection is installed. Their presence or absence is an important element for the prognosis in pneumonia, for instance. Hoke of Prague has been studying this subject on animals, and reports his research in the *Zeitschrift f. Heilkunde,* xxv, No. 8. He considers it highly probable that macroscopic changes occur in the bone marrow likewise. Among his experiments were some in which he incorporated bone marrow in certain organs, simulating natural chemotactic processes, attempting in this way to demonstrate some direct action on the part of the bone marrow. His experiments are interesting, although not conclusive to date.

Praise for a Physician.—Some physicians and some medical publications occasionally have something to say about the lack of appreciation, among the laity, of the real worth of physicians. It is well to note such a tribute as the following, from the *New York Times:*

> When Dr. Carlos Finlay talks about health conditions in Cuba he must be heard with as much confidence as respect, for to special knowledge acquired by many years residence in the island he adds a thorough familiarity with all the new information in regard to the relations between insects and fevers, and he has a peculiar reason for believing in the reality of that relation and acting in accordance with it. For he is the man who, years and years before more than one or two people, if any, had begun to look with suspicion on the mosquito as a possible carrier of disease, positively and publicly charged the creature with performing that ill-service in the case of yellow fever. This conclusion he seems to have reached by a sort of divination, for his facilities were not such as to permit him to prove his theory, and it was so novel, so contrary to all the accepted ideas as to the conveyance of the so-called malarial maladies, that his now famous paper attracted no attention at all except a few pitying smiles, and it was left for our own Army surgeons, as part of the army of occupation in Cuba after the war with Spain, to take up the matter in the light of discoveries made in India and Italy, and turn Dr. Finlay's unsupported assertion into an absolute demonstration. This gave him the best of rights to say, "I told you so," but he has done it as little as could be expected from a mere mortal, and has taken no pains at all either to win fame for himself as a discoverer or to diminish that of investigators who, however admirable their work, could not have claimed his complete originality.

Clippings from Lay Exchanges.—"To the medical reader," remarks the *British Medical Journal,* "there is often more excellent fooling in the daily newspapers than in the professedly comic journals. The fun is unintentional, of course, but that makes it all the better, for, as Mr. Barrie's humorist says, two persons are required for the prosperity of a jest—one to make it and the other to see it. On the death of Professor Finsen, a message from Copenhagen informed the world that the initiator of the light treatment had died of 'calcination of the pericardium.' Not long ago the *St. James' Gazette* gave Lord Lister the credit of having devised the method of 'healing by first intention,' a soft impeachment which, we are sure, the great surgeon would be unwilling to own. Another evening paper is responsible for the statement that 'hemophilia, or lust of blood, is a well-known sign of degeneration.' In the matter of comic medicine the British press must, however, yield the palm to American journalism." There are then quoted some of the humorous bits with which THE JOURNAL readers have been made familiar through our column entitled "Clippings from Lay Exchanges."

Tuberculosis and Soiled Linen.—S. Bernheim of Paris, in a communication to the recent French Congress of Internal Medicine, expatiated on the danger of contagion from the soiled linen of consumptives. The soiled clothing of the family is usually kept in permeable receptacles, and when sorted out to send to the laundry becomes a menace if any member of the family is tuberculous. The bundles are piled with those from other families, and the employes in the laundries are liable also to become infected. In fact, the employes in laundries supply the largest contingent to the clientèle of the antituberculosis dispensaries throughout the country. He advocates that soiled linen should be kept in airtight receptacles and sent to the laundry in impermeable bags, disinfected at

once on arrival. A still better measure would be to have a central city laundry where the linen from consumptives being treated at the special dispensaries should be laundered free, or at minimal rates. These simple measures would prevent many cases of new infection.

A Pure-Food Law.—In a paper by Dr. E. J. Lederle read at the International Congress of Arts and Science at St. Louis, attention was called to the fact that competition in trade has become so keen and the substitution of inferior constituents in foods so general that the honest manufacturer has hardly a chance to succeed. The paper also stated that the use of injurious preservatives is practiced to a scandalous extent, and that the only remedy for these conditions is the passage and enforcement of a federal pure-food law. The paper went on to state that the public in general does not understand the extent to which patent medicines and secret nostrums undermine the public health, and says that there has been little or no attempt made to assume official control over their production and sale. Dr. Lederle considers that makers of patent medicines should be required to place on each package or bottle the exact ingredients it contains, and should be prosecuted for any deviation which can be shown to be detrimental to the health of the persons using the remedy, or which is designed to perpetrate on them a commercial fraud.

Responsibility of Authors for Their Formulas.—The Lyons courts recently acquitted a physician who had made an injection of 40 gm. of a 5 per cent. solution of cocain with the consequent death of his patient. The operation was for the relief of hydrocele, and the patient succumbed in twenty minutes after the preliminary injection of the cocain. The physician stated that he had merely followed the directions in Tillaux' Manual of Clinical Surgery, second edition, page 411, which advised for such cases an injection of "about 30 grams of a 5 per cent. solution of cocain;" that is, a gram and a half of cocain. In the third edition, which followed three years later, Tillaux warned against large doses and advised "about 10 grams of a 1 per cent. solution," that is, 10 cgm. The necropsy revealed pleural adhesions which made any injection of cocain dangerous. The court acquitted the physician, stating that the citation from Tillaux' text-book freed him from responsibility. Professor Tillaux was president of the Paris Académie de Médecine at the time of his death last fall, which occurred not long after this legal decision. The *Journal de Méd. de Paris*, commenting on the affair, remarks that the decision evidently offers a precedent for holding the author of a book or formula responsible if the application of his formula entails any mishap. It doubts, however, if this precedent will be accepted in jurisprudence, as any physician making such an injection ought to know enough not to inject 2 gm. of cocain under any circumstances. "Our confidence in the works of the masters should not deprive us of our powers of judgment." A similar case was recently decided in Georgia. The proprietor of a patent medicine was sued for injuries by a person who had taken the medicine. The court held that the proprietor was responsible and stated that after careful search not only in the authorities quoted by counsel, but in others, no record of a similar question having been determined by any court could be found. The court held further: "If the contents of a medicine are concealed from the public generally, and the medicine is prepared by one who knows its contents, and he sells the same, recommending it for certain diseases and prescribing the mode in which it shall be taken, and injury is thereby sustained by the person taking the same, proprietor would be liable for the damage thus sustained. . . . These proprietary or patent medicines are secret, or intended by the proprietors to be secret, as to their contents. They expect to derive a profit from such secrecy. They are, therefore, liable for all injuries sustained by any one who takes their medicine in such quantities as may be prescribed by them. . . . He has a right to rely on the statement and recommendation of the proprietor, printed and published to the world; and if, thus relying, he takes the medicine and is injured on account of some concealed drug of which he is unaware, the proprietor is not free from fault, and is liable for the injury thereby sustained."

State Boards of Registration.

COMING EXAMINATIONS.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Florida April and October Reports.—Dr. J. L. Niblack, secretary of the Board of Medical Examiners of the Third Judicial district, reports the oral examinations held at Live Oak, April 12 and Oct. 11, 1904. The total number of questions asked was 70; percentage required to pass, 75. Four persons were examined, all of whom passed. No averages were assigned by the board. The following colleges were represented: Tulane University, La., (1904); College of P. and S., Atlanta, Ga., (1903); Harvard University, (1903); Univ. of Pennsylvania, (1899).

Connecticut November Report.—Dr. C. A. Tuttle, secretary of the Connecticut Medical Examining Board, reports written examination held at New Haven, Nov. 9-10, 1904. The number of subjects examined in was 7; total number of questions asked, 70; the percentage required to pass, 75. The total number examined was 20, of whom 12 passed and 8 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
College of P. and S., New York	(1904)	83.1
College of P. and S., Baltimore	(1904)	75.6
Yale	(1904) 82.2, (1903) 77,	79.8, 78.9
Cornell	(1898)	82.1
Baltimore Med. College	(1904)	80.1
Univ. of Naples, Italy	(1901)	75.8
Dartmouth Med. Coll	(1903)	79.5
Univ. of Vermont	(1903)	79.9
Tufts Med. Coll	(1903)	76.2
FAILED.		
Baltimore Med. Coll	(1903)	58.8
College of P. and S., Baltimore	(1904)	73.5
Baltimore Medical College	(1904) 74.5, (1903)	74.7
Univ. of Naples, Italy	(1901)	73.6
Maryland Med. Coll	(1904)	73.2
Univ. of Vermont	(1898)	70
College of P. and S., Boston	(1904)	73.8

Dr. C. A. Lindsley, secretary of the Connecticut State Board of Health, reports the written examination conducted by the examining committee of the Homeopathic State Medical Society at Hartford, Nov. 8-9, 1904. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. Two persons were examined, 1 passed and 1 failed. Passed: Hahnemann Medical College, Philadelphia. Failed: New York Homeopathic Medical College and Hospital.

Georgia October Report.—Dr. F. D. Patterson, secretary of the regular Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, Oct. 11, 1904. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 21, of whom 20 passed and 1 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Maryland Med. Coll	(1904) 75,	75, 80, 81, 82
Univ. of Maryland	(1904) 83,	85, 87, 87
Univ. of Virginia	(1901)	85
Tulane University	(1904)	86
Johns Hopkins University	(1903) 86, (1904)	85
College of P. and S., New York	(1904)	88
Univ. of the South, Sewanee	(1900)	85
Meharry Med. Coll	(1904)	79, 77
Med. Coll. of South Carolina	(1904)	84
Jefferson Med. Coll	(1904)	79
Shaw Univ. Med. Dept	(1904)	82
Boston University	(1878)	78
FAILED.		
Chattanooga Med. Coll	(1895)	66

The following questions were asked:

CHEMISTRY.

Give the symbol, atomic weight and valence of each of five elements. Distinguish between the ide and ate terminations. Give formula for potassium chlorid and potassium chlorate. How many minims in one c.c. of water? What is a hydracid? An oxyacid? What is an empirical formula?

PHYSIOLOGY.

Give principal events in gastric digestion. Define blood pressure. State the factors which increase and decrease blood pressure. State, approximately, the amount of oxygen consumed and the amount of carbon dioxid produced in respiration in twenty-four hours. Describe the secreting structures of the kidneys. Give origin and distribution of sympathetic nerve fibers. Name the three classes into which its ganglia are divided.

MATERIA MEDICA AND THERAPEUTICS.

Give symbols of minims, fl. drams, fl. ounces, pint, gallon. Give difference between anesthetic and analgesic. Examples of each. (a) Define motor excitants; (b) name the most important; (c) therapeutics and doses. (a) Source of turpentine; (b) its composition; (c) action, external and internal; (d) its principal preparation; (e) therapeutics and doses. Write a prescription for gastric fermentation containing carbolic acid, bismuth subnitrate, glycerin, peppermint water.

GYNECOLOGY.

Describe the technic for a simple curettage; for curettage after an abortion, and for carcinoma which can not be removed radically. Describe an operation for lacerated perineum; for lacerated cervix. Describe an operation for cystocele, rectocele and prolapsed uterus to second degree. Give differential diagnosis between ectopic gestation, pyosalpinx and appendicitis. Name some of the causes of pelvic suppuration. State how you would treat an ovarian or tubal abscess attached to vaginal wall.

SURGERY.

Describe an amputation at lower third of the thigh. What is surgical shock, and how would you treat it? What is fracture; what is dislocation; how would you treat a compound, comminuted fracture of leg at its middle third? What is varicocele; hydrocele? Describe operation for both conditions. What is hernia? Describe an operation for radical cure of inguinal hernia.

PRACTICE.

Give etiology of poliomyelitis; (a) give some of the most prominent symptoms; (b) give location of lesion. Give the most distinguishing symptoms of smallpox; (a) give the three forms and types of each. Give etiology and treatment of lobar pneumonia. What is the essential cause of rachitis? (a) give treatment. Location of the lesions in acute dysentery in children; (a) give treatment.

OBSTETRICS.

Diagnose placenta previa; (a) describe method of treating same. Describe method of handling case of postpartum hemorrhage. Give method of handling puerperal eclampsia. Name the three stages of labor; (a) describe beginning and termination of each. Give the presumptive and certain signs of labor.

DIAGNOSIS.

What is vocal fremitus? What conditions: (a) increase vocal fremitus. (b) diminish vocal fremitus? Mention the aids to diagnosis that are of practical use in medicine and surgery. Describe the diagnostic characteristics of acute appendicitis. Differentiate rheumatic arthritis and joint tuberculosis. Differentiate acute cerebral meningitis from syphilitic gumma.

ANATOMY.

(a) Describe the frontal bone and (b) name its articulations. (a) Give the names of the muscles of the thigh and (b) state the origin, insertion and action of any one of the muscles mentioned. Describe the origin, course and distribution of the renal arteries. (a) Describe the portal system of veins and (b) give portal circulation. Describe the sympathetic nerve, naming and locating the principal ganglia. Give the anatomy of the skin and of its appendages.

PATHOLOGY.

Give pathology of interstitial nephritis. Define arthritis deformans, and give its morbid anatomy. Discuss the pathologic conditions in herpes zoster. Describe pus and give its essential elements. Name the bacteria usually associated with ordinary inflammation and suppurative processes.

Association News.

COUNCIL ON MEDICAL EDUCATION.

Meeting held in Philadelphia, Dec. 28, 1904.

A meeting of the Council on Medical Education of the American Medical Association was held at the Bellevue Stratford Hotel. Philadelphia, Dec. 28, 1904. The members of the council, all of whom were present, are Drs. A. D. Bevan, chairman, Chicago; V. C. Vaughan, Ann Arbor; J. A. Witherspoon, Nashville; W. T. Councilman, Boston, and C. H. Frazier, Philadelphia.

Dr. Witherspoon moved that Dr. George H. Simmons be asked to co-operate with the council and that Dr. J. H. Musser be regarded as a member ex-officio. Carried.

Dr. Vaughan moved that the council ask for a headquarters in the building of the American Medical Association in Chicago. Carried.

Dr. Witherspoon moved that Dr. Vaughan and the chairman constitute a subcommittee to confer with the Board of Trustees with reference to the appointment of a salaried secretary. Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges in those states in which it is fixed by statute. Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges as fixed by the state boards of medical examiners. Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges and the manner in which the credentials of preliminary education are received. Carried.

Dr. Witherspoon moved that the council draw up a scheme specifying the minimum requirements for the entrance to the study of medicine and the method whereby they shall be received.

Dr. Witherspoon moved that the secretary be instructed to ascertain and tabulate the length of the sessions in the various medical colleges. Carried.

Dr. Witherspoon moved that two subcommittees be appointed, one to report a scheme for the minimum requirements for admission to medical schools and the other a scheme on the curriculum. Carried.

The chairman appointed the following committees: Committee on preliminary education, Drs. Bevan, Vaughan and Witherspoon; committee on curriculum, Drs. Bevan, Councilman and Frazier.

Dr. Vaughan moved that the secretary be instructed to request each state board of medical examiners to send one representative to meet the council at its next meeting in Chicago. Carried.

It was decided that the chairman call a meeting of the council at Chicago, April 21 or 22, 1905.

Dr. Councilman moved that the surgeons general of the Army, of the Navy and of the Marine-Hospital Service be requested to send delegates to represent their respective services at the next meeting of the council and that they be informed as to the character of the information which the council desires. Adjourned.

NEW MEMBERS.

New members for the month of December, 1904:

ALABAMA.

Carleton, Wm. G., Dudleyville.
Curtis, R. C., Gansey.
Clements, H. C., Benton.
Coley, A. J., Alexander City.
Drake, J. H., Auburn.
Hays, Luther, Cullman.
Hiflin, H. T., Birmingham.
Harlan, A. L., Alexander City.
Jones, C. C., East Lake.
Manasco, Titus, Carbon Hill.
Milner, G. M., Goethite.
Pugh, Francis F., Brookside.
Prissly, H. E., Birmingham.
Peter, Thos. M., Fayette.
Thomas, M. C., Belle Ellen.
Twitty, F. S., Columbia.
Webb, Alfred P., Atmore.
Watkins, Jas. P., Opehika.

ARIZONA.

Lennox, J. W., Tuscon.
Schrader, C. A., Tuscon.

ARKANSAS.

Bills, A. R., Sulphur Springs.
Caruthers, C. K., Pine Bluff.
Eason, J. T., Grand Lake.
Early, C. S., Camden.
Graves, G. W., Pleasant Plains.
March, C. J., Fordyce.
Penn, G. E., Marvell.
Ross, Chas. J., Caglesville.
Reves, W. B., Alma.
Stearns, Moses, Springdale.
Snodgrass, W. A., Little Rock.
Withers, J. W., Pine Bluff.
Woods, G. G., Huntington.

CALIFORNIA.

Arbogast, J. L., St. Helena.
Armstrong, M. M., Los Angeles.
Anderson, L. S., San Francisco.
Beerman, W. T., San Francisco.
Benepe, J. L., San Jose.
Barmore, W. A., Santa Rosa.
Burgess, O. O., San Francisco.
Briggs, Solon, Pasadena.
Bowerman, A. C., Brentwood.
Blake, Chas. R., Atchison.
Burchard, L. S., Oakland.
Bauter, Lucian A., Redding.
Cooper, Chas. M., San Francisco.
Crowder, Henry C., Tracy.
Dresser, Ralph O., Paso Pobles.
Dorais, Louis P., Eureka.
Ellinwood, C. N., San Francisco.
Ellis, S. A., Azusa.
Fiske, H. A., Pasadena.
Fitzgerald, W. W., Stockton.
Fish, C. W., Los Angeles.
Freeman, W. F., Needles.
Foster, N. K., Sacramento.
Galehouse, Frank C., Fresno.
Green, N., Watsonville.
Gatchell, Ella F., Chico.
Grosse, A. B., San Francisco.
Hirschfelder, A. D., San Francisco.
Hitchcock, Wm. W., Los Angeles.
Hawkins, G. A., Reedley.
Harbirk, E., Stockton.
Hoffman, L. H., San Francisco.
Irey, J. T., Lakeside.
Jenkins, J. F. T., Los Angeles.
Keyes, Henry S., Los Angeles.
Kerr, Wm. J., Sebastopol.
Lehr, Stella R., Berkeley.
McArthur, Wm. T., Los Angeles.
Moyer, J. J., Mayfield.
Mallory, G. W., Santa Rosa.
O'Brien, E. S., Merced.
Parker, John, Salinas.
Peers, R. A., Colfax.
Porter, Geo. C., Hollister.
Porter, Wm. S., Oakland.
Phelan, Henry Du R., San Francisco.
Reinle, Geo. E., Oakland.
Rogers, A. C., Los Angeles.
Shults, Jas. H., Los Angeles.
Simpson, Frank Wm., San Francisco.
Stibbens, F. H., San Francisco.
Smith, Dudley, Oakland.
Salomon, D. M., San Francisco.
Southworth, H. E., Stockton.
Todd, Thos. M., East Auburn.
Thiell, Wm. C. A., Los Angeles.
Trew, Niel C., Los Angeles.
Taltavall, Wm. A., Redlands.
Wallace, A. H., Fresno.
Wilson, C. G., San Francisco.
Wing, H. B., Los Angeles.
Ward, M. W., Woodland.
Wood, G. N., Blue Lake.
Yates, Elizabeth M., Santa Rosa
Zuill, Wm. L., Pasadena.
Zachariah, S. R., San Francisco.

COLORADO.

Hanson, K., Grand Junction.
Jones, Robert, Ft. Morgan.
Law, G., Greeley.
Stadler, Lester C., Ouray.

CONNECTICUT.

Brooks, M. J., New Canaan.
McFarland, David W., Green's Farms.
Steadman, W. G., Southington.

Snow, F. L., Hartford.
Stretch, James, Stafford Springs.
Tiffany, Frank M., Stamford.
Welch, Ed. H., Winsted.
Walsh, Thos. P., Middletown.
Waite, F. L., Hartford.
Witter, O. B., Hartford.

DELAWARE.

Downs, P. J., Dover.
Skinner, T., Glasgow.

DISTRICT OF COLUMBIA.

Belknap, J. L., Washington.
Grayson, C. T., Washington.
McDonnell, W. N., Washington.
McAdory, Robert J., Washington.
Walker, Allen, Washington.

FLORIDA.

White, W. C., Live Oaks.
Wilson, Percy B., Sneads.
Van Valzah, J. A., Daytona.

GEORGIA.

Edwards, W. E., Cordele.
Gheesling, J. H., Greensboro.
Humphries, W. C., Acworth.
Oliveros, B. F., Savannah.

ILLINOIS.

Anten, F. E., Belleville.
Ashton, L. B., Quincy.
Arnold, B. A., Freeport.
Baker, John W., West York.
Ballance, H. A., Peoria.
Brengle, Geo. C., Winchester.
Blackwelder, J. F., Litchfield.
Brown, Geo. W. I., Dixon.
Blount, Anna E., Chicago.
Bower, R. W., Sheridan.
Brown, Curtis, Marion.
Baxter, Geo. E., Jacksonville.
Crutcher, Howard, Chicago.
Coy, R. E., Rockford.
Campbell, Wm. A., Chicago.
Corbus, J. C., Kankakee.
Curtis, W. H., Wilmington.
Darragh, E., Winnetka.
Dowdall, Guy G., Clinton.
Van de Roovart, J. F., Chicago.
Doepfner, Karl, Chicago.
Davidson, T. W., Oneida.
Dixon, W. A., Decatur.
Dunn, B. B., Perry.
Edwards, F. M., New Badur.
Ellis, J. P., Augusta.
Fletcher, W. R., Joliet.
Foulds, Thos. L., Alton.
Fletcher, J. R., Winnetka.
French, Z. D., Lawrenceville.
Fish, Wm. B., Oak Park.
Gelder, E. E., Peoria.
Grosvenor, W. F., Chicago.
Green, R. E., Chicago.
Gernon, J. H., Beaverville.
Hollands, L. F., Wheaton.
Hendricks, W. W., Bardolph.
Hardt, H. G., Hospital.
Holleman, P. W., Chicago.
Hamilton, R. J. C., Chicago.
Jentzsch, R., Chicago.
Kretsinger, J. F., Leaf River.
Keith, L. S., Towando.
Keyes, R. H., Hopedale.
Kirby, Wm. Thos., Chicago.
Kinloch, J. A., Chicago.
Krenser, T. A., Chicago.
Kanavel, Allen B., Chicago.
Landon, D. W., Quincy.
Lewis, J. V., Momence.
Leenneer, C. A., Chicago.
Lesage, Chas. A. E., Dixon.
Laugeay, S. M., Fayetteville.
Murphy, H. A., Sumner.
Marquis, B. V., Buffalo Prairie.
McConnell, R. J., Bayles.
MacLellan, Chas., Chicago.
Moorhead, J. J., Chicago.
Moorhead, E. L., Chicago.
Matson, Wm. F., Monticello.
Martin, Wm. B., Sheward.
McClanahan, Jas. M., Kirkwood.
Maury, J. M., Wheaton.
Millen, Wm. A., Marcellnea.
Moon, W. B., Bellmont.
Meirink, B. J., Germantown.
McNeill, I., Newman.
Nelms, J. N., Taylorville.
Noble, W. L., Chicago.
Owens, E. B., Dixon.
O'Malley, W. H., Kinsman.
Orr, Jesse A., Metropolis.
Patera, F. J., Chicago.
Perkins, J. B., Franklin.
Pischczak, J., Chicago.
Pigall, Jos. S., Chicago.
Root, J. W., Kilbourne.
Ragesdale, A. C., Metropolis.
Reid, L. W., Fairmount.
Reid, Anthony, Chicago.
Reticker, J. K., Quincy.
Roberg, O. T., Chicago.
Silverberg, G. M., Chicago.
Sprouse, J. G., Greenview.
Sorby, E. A., River Forest.
Spiece, Wm. H., Chicago.
Stolp, B. C., Wilmette.
Santee, H. E., Chicago.
Sammons, E. H., Chicago.
Senmott, J. S., Waterloo.
Strauss, F. L., Chicago.
Tucker, Chas. E., Joppa.
Tidball, J., Grafton.
Taylor, F. C., Granville.
Vasumpam, J., Chicago.
White, David A., Little York.
Welch, Chas., Ramsey.
Wozley, Chas. A., Brookport.
Walton, J. E., Medora.
Williams, S. E., New Bedford.
Wilkinson, C. E., Danville.
Zimmermann, C., East St. Louis.

INDIANA.

Allen, Chas. B., North Salem.
Amerman, Chas. A., Dugger.
Andrews, John R., River Vale.
Benham, C. W., Vincennes.
Brannon, G. D., Crown Point.
Bottorff, J. C., Corydon.
Buley, D. W., Vincennes.
Bradley, J. S., Hall.
Close, Thos. H., Scottsburg.
Cummer, W. M., Bloomington.
Epperson, A., South Bend.
Hervey, M. E., Richmond.
Hudelson, L. R., Milroy.
Hiatt, J. E., New Castle.
Hebble, D. W., Terre Haute.
Johnston, A., Akron.
Jenkins, J. R., Shelbyville.
Johnson, P. S., Richmond.
King, M. O., Rochester.
Loop, A. L., Economy.
Miller, C. E., Muncie.
McClain, Wm. L., Scottsburg.
Price, R. C., Monroeville.
Slonaker, C. L., Leiters Ford.
Sparks, J. T., Yeddo.
Sheperd, V., Dupont.
Weaver, B. P., Ft. Wayne.
Walsh, D. W., Mt. Vernon.
Willis, Jos H., Evansville.

IOWA.

Ayres, Ed. C., Larimor.
Arenschield, E. M., Ottumwa.
Armitage, G. I., Hopeville.
Caldwell, A. F., Shenandoah.
Cross, J. R., Foster.
Dewitt, F. F., Berea.
Ely, Wm. E., Ocheyedan.
Greer, B. A., Lamouri.
Hough, F. S., Sibley.
Hombach, W. P., Council Bluffs.
Meyer, H. E., Belmond.
Mason, H. P., Wilton Jct.
Meyer, V. J., Portsmouth.
Parker, E. W., Sutherland.
Parrish, W. O., Osceola.
Stockton, Chas. H., Keokuk.
Sievers, H. H., Tama.
Swezey, B. F., McCausland.
Tinsman, E., Orient.

KANSAS.

Bartley, C. P., Spearville.
Ferguson, O. S., Atchison.
Newton, W. B., Glasco.
Priest, W. R., Concordia.
Scott, John R., Garnett.

KENTUCKY.

Boone, J. C., Wickliffe.
Brown, S. S., Mountain Ash.
Clark, J. H., Bonnieville.
Carr, W. H., Claysville.
Coons, A. B., Newtown.
Earle, B. P., Charleston.
Ford, R. L., Livermore.
Godshaw, C. C., Louisville.
Garr, Chas. R., Flemingsburg.
Gray, Jas. R., Elizabethtown.
Hale, J. L., Wickliffe.
Hermann, Geo. J., Newport.
Hopper, W. O., Perryville.
Irvine, J. F., Tolesboro.
Jones, Theo. L., Will Springs.
Lock, Jas. S., Barbourville.
MacCracken, W. H., Bowling Green.
McCarthy, Chas. W., Fordsville.
Montgomery, F. H., Danville.
Ransom, M. G., Morganfield.
Reesor, J. H., Stithton.
Ranshaw, W. W., Covington.
Ribelin, Thos., Elizaville.
Sleet, Wm. E., Midway.
Salin, W. B., Owenton.
Stoltz, M. P., Louisville.
Treadway, L., Heidleberg.
Van Arsdall, C. B., Harrodsburg.
Winston, I. D., Sturgis.
Withersnoon, E. O., Louisville.
Wellingham, E. B., Cunningham.

LOUISIANA.

Brown, F. R., Ganzales.
Berwick, J. C., Berwick.
Colomb, B. A., Union P. O.
Couvillion, W. F., Marksville.
Gill, E. W., Gueydan.
Lemoine, B. J., Cottonport.
May, R. L., Baskin.
Wheaton, E., Gueydan.
Wren, R. B., Rayville.

MAINE.

Chenery, F. L., Wayne.
Ferris, H. R., Oxford.
Hamlet, F. S., Gorham.
Smith, A. R., Portland.
Stevens, T. H., Tenants Harbor.
Smith, A. K. P., Bradford.
Taylor, F. J., Pittsfield.
Wakefield, J. M., Warren.
Wood, A. M., Lentner.

MARYLAND.

Bowen, J. S., Mt. Washington.
Brown, F. S., Baltimore.
Browning, R., Myersville.
Eareckson, Wm. R., Elk Ridge.
Henkel, L. B., Annapolis.
Horn, Aug., Baltimore.
Keidel, A., Baltimore.
Ligget, J. J., Ladiesburg.
Maynard, S. S., Frederick.
McCleary, S., Baltimore
Owings, L. G., Ellicott.
Rosenheim, S., Baltimore.
Wright, J. J., Warwick.
Wolff, E. E., Cambridge.

MASSACHUSETTS.

Andrews, E. A., Newton Center.
Butler, R. B., Fall River.
Barry, E. W., Whilinsville.
Badger, G. S. C., Boston.
Crandon, L. R. C., Cambridge.
Dadnum, E. J., Boston.
Downey, J. F., Springfield.
Dwinell, W. G., Boston.
Fleming, P. J., Roxbury.
Foster, R. W., Lawrence.
Fiske, Chas. N., Chelsea.
Galvin, A. H., Dorchester.
Gould, C. S., Norwood.
Griffin, F. S., Newton Lower Falls.
Griffin, W. A., Sharon.
Holden, N., Southampton.
Hall, J. B., Jr., Boston.
Lynch, C. J., Quincy.
McBain, Wm. H., Malden.
Mahoney, G. C., Somerville.
Mercer, W. J., Pittsfield.
Nute, M. N., Dorchester.
Parks, E. L., Boston.
Russell, E. E., North Adams.
Spaid, C. J., Springfield.
Stiles, F. M., Waltham.
Sears, G. G., Boston.
Torrey, J. P., Andover.
Tirrell, V. M., South Weymouth.
Taylor, E. H., Pittsfield.
Waterman, G. A., Boston.
Wylie, E. R., Boston.

MICHIGAN.

Aaron, Charles D., Detroit.
Bunch, G. H., Kearsarge.
Boss, R. D., Wascousta.
Binning, D. E., Schoolcraft.
Buckham, J. N., Flint.
Clippert, F. J., Delray.
Clarke, H. E., Polisc.
Dunlap, Wm., Detroit.
Ennes, C. J., Sault Ste. Marie.
Eiskine, E., Rogers City.
Edwards, S. P. S., Battle Creek.
French, G. E., Wells.
Gibson, F. J., Jackson.
Hoim, Aug., Ashton.
Hall, B. C., Pompeii.
Kiefer, Guy L., Detroit.
Kingsley, A. F., Centerville.
Kassabian, W. H., Coopersville.
McCall, D. J., Elkton.
Munro, C. D., Jackson.
Osborn, S., Ann Arbor.
Ransom, T. H., Bloomingdale.
Thomson, A., Adair.
Town, L. S., Geneva.
Taylor, A. L., Middleville.
Thoms, T. M., Lansing.
Wells, M., St. Johns.
Whitmore, H. W., Quincy.
Wheeler, F. D., Detroit.

MINNESOTA.

Bessasan, A. N., Minneapolis.
Baxter, S. H., Minneapolis.
Clement, L. O., Lamberton.
Davis, L. A., Dalton.
Drenning, F. C., Duluth.
Flower, W. Z., Gibbon.
Fjelstad, C. A., Glenwood.
Gilmore, R., Bemidji.
Gunnz, A. N., Center City.
Gravelle, J. M. A., St. Paul.
Haggard, G. D., Minneapolis.
Jenson, T., Spring Grove.
Kreidt, D., Minneapolis.
King, Emil, Fulda.
Lockwood, S. O., Minneapolis.
Le Clerc, J. E., Le Sueur.
Lee, Wm. P., Fairfax.
Moen, J. K., Windom.
Mead, M. A., Minneapolis.
Moore, W. J., Wood Lake.
Strout, George E., Winthrop.
Stevens, F. A., Lake Elmo.
Stone, Wm. F., Park Rapid.
Seashore, G., Minneapolis.
Stievle, A., Rush City.
Taustrom, I., Center City.
Vibrance, G. C., Watkins.
Woodworth, E. A., Minneapolis.
Zeien, Thomas, North Branch.

MISSISSIPPI.

Abston, J. T., Hickory Flat.
Bethea, J. J., Seminary.
Coleman, J. E., Doddsville.
Feemster, L. C., Nettleton.
Hunnicutt, W. J., Poplarville.
Harris, J. B., Stewart.
Meyers, T. J., Shelby.
Mathis, E. J., Quitman.
Partin, E. B., Chunky.
Rainold, M. W., Pass Christian.
Thompson, W. G., Enid.

MISSOURI.

Asher, J. A., Trenton.
Bush, F. W., Hannibal.
Barnet, A. D., Guilford.
Clopton, M. B., St. Louis.
Chaffin, W. F., Raymore.
Dryden, U. C., Purdin.
Davis, A. W., Kansas City.
Farmer, P. J., St. Louis.
Foster, H., Kansas City.
Ferguson, W. J., Sedalia.
Greenfelder, H., St. Louis.
Griffin, P. H., St. Louis.
Griffin, J. M., Millville.
Harrison, A., Lees Summit.
McComb, J. L., Kenoma.
Mitchell, E. H., Pottersville.
Milnes, G. S., Milan.
Owens, F. C., Agency.
O'Dell, T. T., Ellington.
Stevens, R. N., Chillicothe.
White, A., Lakenan.

MONTANA.

Taylor, W. W., Kalispell.
Watkins, C. F., Billings.

NEBRASKA.

Ackley, W., Juniata.
Benington, G. A., Schuyler.
Bellwood, H. H., Alliance.
Hoyt, S. H., Omaha.
Marble, R. R., Hastings.
Magill, J. S., Gilead.
McNulty, J. F., Callaway.
Robinson, C., Pender.
Salter, P. H., Norfalk.
Stretton, H. H., Chester.
Talbott, W. E., Broken Bow.
Ward, A. A., Brady Island.
Womsley, L. B., West Union.

NEW JERSEY.

Arlitz, Wm. J., Hoboken.
Beach, E. M., West Long Beach.
Heintzelman, B. S., Bayonne.
Jedel, M., Newark.
Leonard, I. E., Atlantic City.
Matthews, H. E., Orange.
Read, C. H., Trenton.
Squier, M. T., Harrison.

NEW YORK.

Benedict, A. C., New York.
Barrick, C. W., Buffalo.
Bates, Wm. H., Brooklyn.
Fleming, M. J., New York.
Gilley, Wm. C., New York.
Goodrich, C. H., Brooklyn.
Gallager, E. J., Kingston.
Holding, A. E., Kingston.
Howell, J. T., Newburgh.
Hasbrouck, C. V., Rosendale.
Joyce, R. A., New York.
Keator, H. C., Rosendale.
Mandlebaum, F. S., New York.
Peck, M. R., New York.
Rostenberg, A., New York.
Radin, H. T., New York.
Sheffield, H. B., New York.
Van Loon, J. C. P., New York.
Wright, M. C., Mt. Vision.

NORTH DAKOTA.

Brenckle, J. F., Kulm.
Fernald, A. M., Sutton.
Patterson, C. F., Rye.
Saltmarsh, G. H., Lakeport.

OHIO.

Anzinger, F. P., Springfield.
Bookwallie, H., Columbiana.

Bates, F. L., Lima.
Brown, C. G., Mansfield.
Bailey, H. E., Swanton.
Black, J. F., Cleveland.
Cunningham, S. A., Mariette.
Carpenter, L. F., Cincinnati.
Colter, L. S., Cincinnati.
Carey, M. J., Cleveland.
Clark, H. F., Barden.
Drennen, J. N., Loydsville.
Ford, S., Cincinnati.
Good, I. I., Bellevue.
Gilmore, Wm. N., Lisbon.
Grafe, F. A., Cincinnati.
Gavin, F. W., Canton.
Gowing, W. A., Toledo.
Howley, C. A., New Paris.
Hartley, F. A., Byhalia.
Hazelton, H. M., Lancaster.
Hosick, W. R., Newcomerstown.
Keidler, A. G., Cincinnati.
Kistler, H. B., Sunbury.
Matthews, J. W., Buford.
McVay, F. P., Athens.
McGee, W. C., Vanlue.
McLeod, C. D., Chatfield.
Metcalfe, B. F., Greenville.
McDiarmid, N. L., Dayton.
Metzler, W. M., Vanlue.
Michlethwait, W. D., Portsmouth.
Oswald, B. F., Cleveland.
Russell, J. E., Mt. Vernon.
Sutter, F. B., Shelby.
Shank, R. R., Trotwood.
Sater, P. M., Gratis.
Selby, C. D., Cleveland.
Thompson, W. R., Troy.
Upson, G. D., Cleveland.
Whitaen, M., Cincinnati.
Wilson, E. M., Portsmouth.

OKLAHOMA.

King, Wm. M., Oklahoma City.
Levi, M. H., Elk City.
Lile, H. A., Aline.
Rector, N., Hennessey.
Standifer, T. E., Busch.

OREGON.

Evin, W. H., Union.
Jarnagin, M. E., Coburg.
Pilkington, R. J., Astoria.

PENNSYLVANIA.

Brumbaugh, A. S., Altoona.
Cadwallader, E. W., Philadelphia.
Cooley, J., Sandy Lake.
Chapin, F. S., Erie.
Curry, E. A., Danville.
Colcord, J. B., Port Allegany.
Colley, B., Dunbar.
Douchoo, J. F., Washington.
Downton, E. W., Starrucca.
Dodds, C. F., Washington.
Dutton, W. F., Walkers Mills.
Emmerling, C., Pittsburg.
Echard, T. B., Connellsville.
Everett, M. A., Scranton.
Fisher, H., Philadelphia.
Ferguson, G. M., Philadelphia.
Fredricks, W. J., Bradford.
Gass, H. W., Sunbury.
Graves, E. A., Coatesville.
Hoon, A. J., Mercer.
Hahn, J. N., Bath.
Hall, Wm. T., Tarentum.
Hays, M. J., Kane.
Hess, R. J., Philadelphia.
Hoover, B. A., Wrightsville.
Herr, B. F., Millersville.
Jenkins, J., Scranton.
Koch, V. F., Nazareth.
Kunkel, G. B., Harrisburg.
Knorr, J. K., Jr., Philadelphia.
Klotz, R. B., Lehigh.
Larkin, P. A., Uniontown.
Loeh, V. A., Philadelphia.
Le Roque, P. J., Philadelphia.
Lillibridge, Alice, Olyphant.
Lowman, J. B., Johnstown.
Mutschler, L. H., Philadelphia.
McConnell, E. M., Grove City.
Marvin, M. E., Luzerne.
Meyers, E. H., Wilkesbarre.
Newlin, A., Philadelphia.
Perdue, W. R., Unionville.
Peck, E. L., Philadelphia.
Peck, W. A., Scranton.
Ritter, H. T. M., Allentown.
Righter, H. M., Philadelphia.
Raudenbush, J. S., Philadelphia.
Stewart, W. C., Johnetta.
Snively, A. B., Waynesboro.
Scott, J. Y., Washington.
Smith, C. H., Parksburg.
Sprage, Charles W., Waynesbury.
Smith, E. A., Snydertown.
Schaeffer, E. D., Reading.
Stottler, F. R., Wilkinsburg.
Snodgrass, B. B., Rochester.
Tunis, J. P., Philadelphia.
Westman, A. A., Tannersville.
Wister, T. W., Germantown.
Wright, J. H., Allegheny.
Weygandt, W. W., Thomas.
Williamson, T. H., Allegheny.
Wilkins, J. C., Oil City.

RHODE ISLAND.

Baxter, J. J., Woonsocket.
Hawkes, C. E., Providence.
Moore, J. S., East Providence.
Smith, H. W., North Satuati.

SOUTH CAROLINA.

Bouner, L. F., Blackville.
Cheyne, W., Sumter.
Gillard, W. M., Plantersville.
Rosmond, J. O., Easley.
Stuckey, H. M., Sumter.
Tompkins, J. G., Edgefield.

SOUTH DAKOTA.

Klovatad, A., Yankton.
Line, W. M., Aberdeen.
Lockwood, J. H., Wolsey.
O'Toole, C. S., Vienna.

TENNESSEE.

Bosworth, B. D., Knoxville.
Brasfield, S. W., Humboldt.
Bell, C. B., Nashville.
Doyle, A. N., Columbia.
Denton, S., Buffalo Valley.
Marshall, C. C., Hornbeck.
Perry, R. S., Columbia.
Reese, H., Gallatin.
Shelton, E. A., Graysville.
White, S. W., Franklin.
Yongue, S. D., Obion.

TEXAS.

Arnecke, C. A. H., Arneckville.
Anderson, S. J., Brady.
Baldwin, B. H., Harnack.
Black, J. T., Elroy.
Buster, A. O., Celina.
Barnes, F. L., Groveton.
Cherry, T. T., Timber.
Campbell, W. R., Chappen Hill.
Carter, W. W., Leland.
Casey, Z. N., Albany.
Davidson, G. L., Wharton.
Drisdale, Wm. E., Yoakum.
Frechet, E. A., Hockheim.
Grant, C. B., Graham.
Hammond, J. S., Noble.
Halley, W. B., Ballinger.
Herrington, J. L., Mullin.
Harris, M. W., Bivins.
Howe, T. G., Douglasville.
Jenkins, F. H., Howard.
Jackson, C. M., Frankford.
Lowry, Wm., Guy.
Leonard, J. W., Peters.
McMillan, J. D., Paris.
Martin, A. E., Bonham.
Miller, T. A., Corsicana.
Morgan, W. M., McMahon.
Oliver, J. P., Caldwell.
Patton, O., Midway.
Rimmer, S. W., San Saba.
Stone, T. E., Jasper.
Smith, B. J., Houston.
Stroud, A. D., Henderson.
Schnell, J. H., Comfort.
Seymour, F. B., Beeville.
Stein, D. Y., Slidel.
Tappington, J. B., Oakhill.
Townsend, E. D., Llano.
Weber, W. G., Round Rock.
White, W. P., Henderson.
Watkins, C. R., Floresville.
Watts, S. A., Moffat.
Walker, Wm. H., Oakland.
Woodward, S. A., Carthage.
Zachry, G. R., Talpa.

UTAH.

Steele, F. B., Salt Lake City.
Smedley, R. C., Bingham.
Wherritt, W. R., Heber.

VERMONT.

Badger, F. D., Coventry.
Campbell, C. M., Rochester.
Hodgkins, C. L., Castleton.
Hoyt, E. F., Sandgate.
Hubbard, N. V., Barnard.
McArthur, J. H., East Barre.
McMahon, P. H., Burlington.
Nowlan, I. L., South Strafford.
Ranks, W. H., Shelburne.

VIRGINIA.

Burwell, Z. C. A., Salem.
Crockett, M. B., Knob.
Cockrell, L. E., Reedville.
Dunlap, J. C., Middlebrook.
Early, J. L., Galas.
Field, A., Gilmerton.
Forrer, D. A., Richmond.
Innes, W. J., Brookneal.
Moore, S. B., Alexandria.
Neff, J. H., Harrisonburg.
Tucker, C. C., Roanoke.
Wright, F. J., Fork Union.
Younger, E. F., Blackwood.

WASHINGTON.

Keylor, H. R., Walla Walla.

WEST VIRGINIA.

Bush, A. A., Berlin.
Baber, J. H., Finlow.
Bullard, R. H., Wheeling.
Fansler, M. J., Rowlesburg.
Gilchrist, T. L., Pickaway.
Haynes, W. N., Boomer.
Hutchins, W. S., Wheeling.
Howle, P. W., Mt. Carbon.
Love, R. W., Moorefield.
Moss, V. R., Barboursville.
Post, W. H., Delslaw.
Wilson, M. S., Wildell.
Wilson, W. C. L., Mannington.

WISCONSIN.

Aylward, R. C., Star Lake.
Boothby, E. L., Hammond.
Brown, F. W. A., Oshkosh.
Braun, O., Ashland.
Bradbury, E. L., Neillsville.
Brewer, J. B., Jefferson.
Beust, M. V., La Crosse.
Buckland, R. H., Princeton.
Combacker, H. E., Osceola.
Corr, A. B. S., Juneau.
Crum, J. A., Oshkosh.
Christiansen, E. S., Two Rivers.
Clark, B., Oshkosh.
Dyer, W. O., Neshkoro.
Eicher, Wm. B., Bonduel.
Foley, F. P., Neshkoro.
Foulds, R. F., Abrams.
Force, O. O., Pardeeville.
Gunther, E., Sheboygan.
Harris, Wm., Waukesha.
Horn, C. P., Luck.
Hurlbut, C. J., Omro.
Hastings, T. W., Limeridge.
Johnson, J. C., Ogdensburg.
Kreutzer, A. G., Cedarburg.
Leith, S. S., Junction City.
Miller, T. H., Maiden Rock.
Mathiesen, J., Whitehall.
Martin, George, Baldwin.
McDonald, R. J., Doylestown.
Netter, Wm., Sturgeon Bay.
Pinkerton, W. T., Prairie du Chein.
Potter, R. P., Auburndale.
Philler, H., Waukesha.
Provost, A. J., Oshkosh.
Rathbun, J. W., Prairie du Chein.
Richards, C. A., Rhinelander.
Simons, H. R., Sturgeon Bay.
Smith, P. H., Racine.
Webster, F. E., Amherst.
Walbridge, J. S., Berlin.

PHILIPPINE ISLANDS.

Wheate, J. M., Lucena.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of Medical officers, U. S. Army, for the week ending Jan. 7, 1905:

Siler, Joseph F., asst.-surgeon, relieved from duty at Fort Logan, Colo., and ordered to Fort Meade, S. D., for duty.

Devereux, J. R., asst.-surgeon, relieved from duty at Fort Meade, S. D., and ordered to Fort Logan, Colo.

Reilly, John J., asst.-surgeon, ordered to proceed from Jackson Barracks, La., U. S. Army General Hospital, Fort Bayard, N. M., for treatment.

Mearns, E. A., surgeon, granted thirty days' leave, to take effect on expiration of his present sick leave.

Geer, Charles C., asst.-surgeon, retired from active service on account of disability incident thereto.

Owen, W. O., surgeon, ordered to Fort Leavenworth, Kan., for examination by an army retiring board.

Byrne, Charles B., asst. surgeon general, detailed member of army retiring board to meet at Fort Leavenworth, Kan., vice Lieutentant Colonel George W. Adair, deputy surgeon general, relieved.

Yost, John D., asst.-surgeon, relieved from duty at San Francisco and ordered to Honolulu, H. T., for duty, relieving Major William B. Davis, surgeon.

Davis, William B., surgeon, relieved from duty at Honolulu, H. T., and ordered to Philippine Islands for duty.

Woodson, R. S., asst.-surgeon, relieved from duty at Fort Clark, Texas, and on discharge from Army and Navy General Hospital, Hot Springs, Ark., ordered to Fort McDowell, Cal., for duty.

Farr, Charles W., asst.-surgeon, in addition to his present duties will perform the duty of attending surgeon, San Francisco.

Wall, Francis M., contract surgeon, granted leave of absence for ten days.

McCall, James H., contract surgeon, ordered from Fort Moultrie, S. C., to Key West Barracks, Fla., for temporary duty.

Burr, Rollin T., contract surgeon, granted an extension of seven days to his leave of absence.

Hayes, Melville, A., contract surgeon, ordered to Vancouver Barracks, Wash., for duty at the expiration of his present leave of absence.

Bell, Leonard P., Hansen, Morris J., and Tuttle, George B., contract surgeons, sailed December 31 on the transport *Thomas* from San Francisco for Philippine service.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 7, 1905:

Payne, J. H., P. A. surgeon detached from the *Marietta* and ordered home to wait orders.

Ross, John W., medical director, to be placed on the retired list Jan. 11, 1905, under provisions of Section 1444, Revised Statutes, on which date he will reach the age of 62 years. He is ordered to continue duty with the Isthmian Canal Commission after retirement.

Steele, John N., surgeon, detached from the Naval Recruiting Station, Baltimore, and ordered to the *Colorado*.

Elmer, M. K., asst.-surgeon, detached from the *Hancock* and ordered to the Naval Hospital, New York, for treatment.

McMurdo, P. F., A. A. surgeon, detached from the Navy Yard, League Island, Pa., and ordered to the Naval Recruiting Station, Baltimore.

Ferebee, N. M., medical director, having been examined by a retiring board and found incapacitated for active duty, on account of physical disability incident to the service, retired from active service Dec. 31, 1904, under Section 1453, Revised Statutes.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 4, 1905:

Brooks, S. D., surgeon, to report on Jan. 10, 1905, to chairman

of board of examiners at Fort Stanton, N. M., for the purpose of determining his physical condition.

Nydegger, J. A., P. A. surgeon, granted leave of absence for seven days from Dec. 25, 1904, under Paragraph 191 of the Regulations.

Greene, J. B., P. A. surgeon, granted extension of leave of absence for seven days from Jan. 3, 1905.

Lumsden, L. L., P. A. surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Philadelphia and report to the medical officer in command for duty.

Salmon, T. W., asst.-surgeon, relieved from duty at Philadelphia and directed to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty.

Gregory, G. A., A. A. surgeon, granted leave of absence for seven days from December 30.

Linley, W. J., A. A. surgeon, granted leave of absence for thirty days from Jan. 16, 1905.

Wakefield, H. C., A. A. surgeon, granted leave of absence for three days under Paragraph 210 of the Regulations.

Brown, F. L., pharmacist, granted leave of absence for thirteen days from December 19, 1904. Granted extension of leave of absence for two days from Jan. 1, 1905.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., Jan. 5, 1905, for the physical examination of candidates for the position of second assistant engineer, Revenue-Cutter Service. Detail for the board: Asst.-surgeon General G. T. Vaughan, chairman; Asst.-surgeon A. J. McLaughlin, recorder.

Board convened to meet at Fort Stanton, N. M., Jan. 10, 1905, for the purpose of making a physical examination of Surgeon S. D. Brooks. Detail for the board: Surgeon P. M. Carrington, chairman; Asst.-surgeon Norman Robert, Asst.-surgeon H. G. Ebert, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 6, 1905:

SMALLPOX—UNITED STATES.

Colorado: Larimer Co., Nov. 1-30, 7 cases.
District of Columbia: Washington, Dec. 24-31, 1 case.
Illinois: Chicago, Dec. 24-31, 11 cases, 3 deaths; Danville, Dec. 17-31, 2 cases, 1 death.
Michigan: At 52 localities, Dec. 17-24, present.
Missouri: St. Louis, Dec. 17-24, 18 cases, 1 death.
South Carolina: Georgetown, Nov. 16-Dec. 31, 8 cases.
Tennessee: Dec. 24-31, Memphis, 3 cases, 2 cases imported; Nashville, 8 cases.

SMALLPOX—FOREIGN.

Austria: Prague, Dec. 3-10, 15 cases.
Ecuador: Guayaquil, Dec. 7-14, 1 death.
France: Lyon, Dec. 3-10, 1 case; Paris, Dec. 10-17, 4 cases, 1 death.
Great Britain: Dec. 10-17, London, 2 cases; Newcastle-on-Tyne, 19 cases; South Shields, 5 cases, 2 deaths.
India: Bombay, Nov. 31-Dec. 6, 14 deaths.
Italy: Catania, Dec. 8-15, 1 death; Milan, Oct. 1-31, 1 case.
Mexico: City of Mexico, Nov. 19-Dec. 10, 3 cases, 1 death.
Norway: Christiania, Dec. 10-17, 1 case, 1 death.
Russia: Moscow, Nov. 27-Dec. 8, 5 cases, 2 deaths; Dec. 3-10, Odessa, 1 case; St. Petersburg, 5 cases; Warsaw, Nov. 5-12, 5 cases.
Turkey: Constantinople, Dec. 4-11, 20 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Dec. 7-14, 3 deaths.
Mexico: Dec. 18-24, Juchitan, 2 cases, 1 death; Texistepec, 2 cases, 1 death.

CHOLERA.

India: Bombay, Nov. 30-Dec. 6, 2 deaths; Calcutta, Nov. 26-Dec. 3, 69 deaths.

PLAGUE.

Arabia: Aden, Nov. 25-Dec. 2, 18 cases, 14 deaths.
India: Bombay, Nov. 30-Dec. 6, 76 deaths; Calcutta, Nov. 26-Dec. 3, 8 deaths.
Straits Settlements: Singapore, Nov. 6-19, 3 cases, 3 deaths.

Cases reported during the week ended Dec. 30, 1904:

CHOLERA.

India: Bombay, Nov. 22-29, 1 death.
Russian Empire: Erivan, Nov. 22-28, 914 cases, 363 deaths; Jelisavetpol, Nov. 16-22, present; Tachken, Nov. 27, 18 cases, 8 deaths; Tiflis, Nov. 16-22, present.
Turkey in Asia: Nov. 28, 72 cases, 43 deaths.

PLAGUE.

Africa: Cape Colony, Nov. 6-19, 5 cases.
Arabia: Aden, Nov. 18-25, 19 cases, 12 deaths.
Argentina: Tucuman Province, Nov. 18, 1 death.
Brazil: Bahia, Nov. 12-26, 6 deaths; Rio de Janeiro, Nov. 6-27, 101 cases, 35 deaths.
Egypt: Tukh District, Nov. 19-26, 2 cases, 2 deaths.
India: Bombay, Nov. 22-29, 74 deaths; Calcutta, Nov. 19-26, 8 deaths; Karachi, Nov. 20-27, 14 cases, 14 deaths.
Paraguay: Ascuncion, Oct. 6, 20 cases weekly, estimated.
Peru: Guadelupe, Dec. 7, present; Lima, Nov. 1-15, 6 cases.

Medical Organization.

ORGANIZATION IN TENNESSEE.

The approaching meeting of the Tennessee State Medical Association leads the *Southern Practitioner* to discuss "this subject of so great importance to every member of the regular medical profession who has his own interest and that of his clientele at heart." The editorial is in part as follows: "The method now in force in so many states is unquestionably the most satisfactory, and promises by far the most beneficial results possible. It is distinctly representative, it places the foundation and basis of representation where it should be, at the bottom; the county societies being the only correct criterion and proper means and method of determining the standard of all who are entitled to the courtesies, the advantages and privileges of membership in our state and national associations.

"What does the member in an east Tennessee county know of the ethical standings of those in the western or middle divisions of our state? Or what can those in one county or section even not as far removed know of the character of others than those in their own vicinity? If a physician is acceptable to his home associates, he should certainly be acceptable to other members of the profession in other localities. This is the method adopted by all organizations, and can but prove most satisfactory in ours. Much might be said in behalf of the recent measures suggested by the American Medical Association for the profession in all states, and the progress so far made is most gratifying, indeed, and shows that it is being almost universally accepted. . . .

"We can but regret that the 'Old Dominion,' the 'Mother of States,' still lags back, and so far has refused to align herself with the large number of her sister states, north, south, east and west. We can but attribute it to a degree of unwise conservatism, a disposition to hold on to old methods, but it is not progressive. While our professional brothers in Virginia have done well, yes, better than a number of others under the old but somewhat loose and indefinite method of the past, we most heartily and sincerely believe that they can do still better under the new order, and we are surprised that its especially representative features have not appealed more strongly to them. However, we can afford to wait if they can, and we firmly believe that it is only a question of time.

"While we have accomplished much in our own state, yet we have not done altogether as well as our sincere desire, but what has been done has been most satisfactory, and we were perhaps too sanguine. We have now sixty-five counties with organized medical societies on the roll of our state association, with a membership of something over 1,200, and although these are the most populous and thickly settled sections of the state, we had hoped that others would have been added before this. Owing to the large area and sparse population, the defective roads and means of reaching them, the same effort has not been made by the committee on county organization that was continued over last April from the preceding years, as in other counties. In our opinion, the committeee has not been as active and energetic as it should have been. This, however, can be remedied in the months yet preceding the annual meeting of the state association. This statement is not made in a captious or critical manner as regards the action of the committee, and we take this method of calling their attention to the matter, and wish to put them on their mettle as it were, and most sincerely hope that an aggressive campaign will at once be entered on. The sooner work is commenced the better results we will have.

"In the thirty counties in which so far no organization has been officially reported and enrolled in the state association, there is, according to the census of 1900, a population of 301,317, while the other sixty-five counties embrace a population of 1,719,099. Even in some of these counties, county medical societies have been organized. In some of these counties the sparse population has necessitated but a limited number of physicians, not sufficient to form an organization, . . . yet we hope that . . . in those counties . . . two or more may unite in the formation of an organization, for which due provision is made in the constitution and by-laws of the state association.

"We have had the opportunity of visiting a few of the county societies during the past year, and in every instance we have found the members showing an interest that can but redound to their good. In two of these counties no organization had previously existed, and but few of the profession there had ever taken much interest in our state meetings, yet in these we found an active membership that we feel confident will be perpetuated and increased. From other counties . . . we have received very encouraging reports. Interesting and harmonious meetings, and in every instance where a county society has been organized for as much as a year, there is a far more agreeable and harmonious feeling between the members of the profession than had previously existed."

Continued Success in Michigan.

From a letter received from the Secretary, Dr. A. P. Biddle, we learn that the membership of the Michigan State Medical Society at the beginning of 1905 was 1,761, a gain of 106 over the year 1903. Considering the enormous gain of 1903 over previous years, the conditions are certainly very satisfactory and the workers in Michigan are to be congratulated.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

(*Continued from page 58.*)

Operation for Undescended Testicle.

DR. E. M. SUTTON, Peoria, Ill., reported the case of a boy, 11 years of age, a cryptorchid who suffered from strabismus and nervousness, but otherwise was well. In making an incision in the inguinal canal, the testicle was found above the internal ring free; the cord was retained by a band extending posteriorly toward the median line, and upward opposite the second lumbar vertebra. Blunt dissection was resorted to until the cord was freed and the testicle deposited easily in the bottom of the scrotum without tension. The remaining step of the operation consisted in making a buttonhole incision through the bottom of the scrotal sac, posterior to its middle, where the skin is less elastic, catgut stitches inserted through the edges of the skin, and the tunica albuginea in a way which held the end of the testicle attached to the skin, necessitating healing by granulation. Convalescence was uncomplicated; the testicle was permanently fixed in the bottom of the scrotum and did not atrophy.

Objections to attaching the testicle to the bottom of a movable sac are valid, since experience demonstrates the futility of such a method. The Katzenstein operation of taking a flap from the inner side of the thigh is a step in the right direction. However, with the modifications employed in the author's case, considering the satisfactory results, the surgeon can fix the testicle absolutely. Dr. Sutton also reported a case of aneurism of the superior mesenteric artery on which he had operated.

Splenic Anemia.

DR. PALMER FINDLEY, Chicago, reported a case of splenic anemia in which he removed the spleen with good results. He offered a word of caution as to the hasty diagnosis of splenic anemia wihout giving due consideration to other possible causes for splenic enlargement associated with a secondary anemia, such as malaria and syphilis, and advised splenectomy for only the rapidly progressive cases.

High-Frequency Electricity.

DR. E. M. SALA, Rock Island, Ill., related his personal experience with the d'Arsonval high-frequency current, and reported cases in which the immediate results are gratifying. He is convinced that the d'Arsonval-Odin apparatus has a very promising future.

The Care of the Axilla After Excavations for Malignant or Infective Lesions.

DR. JOHN B. MURPHY, Chicago, said that extensive dissection of the axilla is not infrequently followed by contracting, painful cicatrices, limitation of motion, edema, neuralgia, etc. These can be relieved or avoided by (a) line of skin incision, (b) immediate grafting or transplantation, (c) muscular implantation and (d) muscular conservation.

Bone Plug for Bone Cavities.

DR. JAMES E. MOORE, Minneapolis, Minn., stated that in January, 1903, von Mosetig reported a large number of successful results from the use of a new bone plug. The plug does not act as a foreign body, nor does it act as a culture medium. It possesses the inhibitory and medicinal properties of iodoform without causing iodoform intoxication. His experience with this material, although limited, has been sufficient to satisfy him that better results can be obtained in treating bone cavities with it than by any older method, and in illustration he reported four recent successful cases. He believes that cases can now be treated successfully with this bone plug in which formerly amputation was performed, as, for instance, in cases of tuberculosis of the wrist and ankle joints.

Excision of the Semilunar Ganglion in Facial Neuralgia.

DR. A. E. HALSTEAD, Chicago, reported seven cases. The pain may return after the removal of the ganglion. In his cases each ganglion was carefully examined by a competent microscopist. In each ganglion elements were found, and the gross anatomic characteristics of the organ were preserved.

DISCUSSION.

DR. JOHN B. MURPHY stated that in his twelve cases there were four deaths. This large percentage caused him to abandon the operation. Since his last report he has had only one recurrence of neuralgia after the injection of osmic acid.

Mortality, Disability and Permanency of Cure in Surgery.

DR. CHARLES H. MAYO, Rochester, Minn., selected this subject as the President's Address. This will be published in THE JOURNAL.

Surgical Diseases of the Pancreas.

DR. D. C. BROCKMAN, Ottumwa, Iowa, said that recent studies of the pancreas show the importance of internal secretion from the islands of Langerhans; also the influence of regurgitation of bile into the pancreatic ducts as a cause of pancreatic inflammation. He mentioned biliary disturbance as the chief cause of pancreatic disease, and stated that pancreatic cysts are believed to be mostly due to this cause. He reported three instructive cases of cyst of the pancreas, and then gave an outline of inflammatory troubles, with special reference to the diagnosis and treatment of acute and chronic pancreatitis.

Cysts of the Pancreas.

DR. D. W. BASHAM, Wichita, Kan., referred briefly to the physiologic anatomy of the gland, in order to elucidate the principles underlying the formation of a cyst of this organ. He recounted the symptomatology, and pointed out the difficulty attending the diagnosis. As to treatment, Gussenbauer was the first to marsupialize the sac, and since then this has been a favorite procedure with most surgeons. The only question regarding this method is whether to attach the sac to the abdomen and incise at once or to operate twice. If there is plenty of time and the cyst is not so large that a day or two may make any difference in the result, he thinks it is better to operate in two stages, stitching the sac to the peritoneum and muscles, and opening two or three days later. Excision of the sac is not often practical, but may sometimes be attempted. Often such a course will expose the patient to the risk of contaminating the peritoneal cavity with pancreatic secretions. He reported the case of a tumor of the pancreas in a woman 62 years of age. The tumor was removed. The patient left the hospital at the end of seven weeks, and he has not seen her since. The woman's dyspeptic manifestations were better after the operation than before, but were not entirely relieved. About the first of December the patient began to have serious trouble with her stomach and called a physician, who outlined a tumor in the region of the pylorus, which he diagnosed as cancer of the stomach.

DISCUSSION.

DR. WILLIAM D. HAGGARD thinks inflammations of the pancreas will occupy the most prominent position in the future development of surgery. Disease of this organ is closely allied to surgery for lesions in the upper abdomen. When one stops to think how our knowledge has been amplified in the last two years relative to this sequestered organ, and when one

considers that many cases of so-called gastritis, intestinal obstruction, etc., are after all probably instances of pancreatitis, it makes surgeons realize that the lesson has been appreciated, but we have not yet mastered the diagnosis of this as well as other lesions; nevertheless more attention should be addressed to lesions of the pancreas than has been done in the past. He referred to the three types of infection, and called attention to the excellent work done by Opie, Robson and others.

DR. BROCKMAN has had four cases of pancreatic cyst in the last twelve or fourteen years.

Excision of Elbow Joint for Ankylosis.

DR. B. MERRILL RICKETTS, Cincinnati, Ohio, drew the following conclusions:

"(1) Excision of the elbow joint for ankylosis, due to any cause, at any age, is a most rational procedure. (2) If possible, it should be done before or at the time ankylosis is complete. (3) A posterior median incision is the most practical. (4) With care the operation can be done without injury to blood vessels or nerves. (5) Drainage should always be provided for. (6) The arm should be placed on a right angle splint. (7) Results are better when only the articulating surfaces are removed. (8) If there is complete bony union of the articulating surfaces, much more bony tissue must be sacrificed, because disarticulation can not be accomplished. (9) All soft structures cut transversely will unite, but new insertions are formed which destroy their function. (10) All attachments of tendons and muscles should be preserved. (11) All periosteum should be preserved. (12) If excision of the joint is complete, leaving only the ends of the shafts, flail joint can be prevented by approximating their ends with kangaroo tendon at the time of primary operation. (13) Wire or nail may be used, but their removal sooner or later will be imperative. (14) Flail joint rarely results from any form of excision, but is more likely to be found following excision of the entire joint. (15) If flail joint results, a mechanical device may be employed. (16) Injections of alcohol or one or more of the various astringents will increase fibrous tissue, both in quantity and density."

Operative Treatment of Fractures and Sprains.

DR. A. E. BENJAMIN, Minneapolis, Minn., stated that all fractures should be examined with the *x*-ray to diagnose positively and to locate them. The ordinary form of treatment of even simple fractures often results in a deformed and crippled limb. The term ununited fracture is a myth; the condition is invariably due to some preventable cause. The habit of using the *x*-ray in all fractures leads to more operative measures, although without its use diagnosis is frequently impossible and treatment uncertain. There is frequently as great a subcutaneous injury from a simple fracture as in a compound fracture, and it is essential that an operation should be performed in such cases in order to prevent a lasting injury to the nerve and muscle tissue. By an operation on these fractures drainage is established, pain and fever lessened, exostosis and the organization of the exudate are less permanent, and necessarily there follows less permanent injury to the soft structures. Associated with fractures there is frequently a sprain or a tearing of ligaments and dislocation of cartilages. The progress of a joint that has been sprained is often slow and discouraging, resulting in a weak and insecure union of ligaments. It is advisable to operate on some sprains, especially where there is a great deal of exudate and pain. By the operative method drainage is established, pain relieved, the ligaments can be stitched in their natural position, the convalescent period is shortened, and a greater proportion of cures result.

The Surgical Considerations of Gastric Dilatation.

DR. A. M. POND, Webster City, Iowa, stated that in his last three cases of gastric dilatation due to impairment of the stomach wall, he modified the standard operation. Sufficient time, however, has not elapsed to warrant a description of the operation. In each instance a very satisfactory result was obtained. The success of the operation depends on the patency of the pyloric orifice and the ability of the gastric muscle to regain its normal tone. The author believes that gastric dilatation is usually a sequence rather than a primary cause of discomfort, and that it owes its presence to some disturbance of the elemental dynamics of digestion.

Treatment of Acute Perforations of the Upper Abdominal Viscera.

DR. VAN BUREN KNOTT, Sioux City, Iowa, pointed out the importance of the early recognition of such an accident. The symptoms of gastric or duodenal perforation will usually be more intense than those of perforation of the gall bladder. The previous history of the case is of importance in making a differential diagnosis. The treatment is successful in direct ratio to the promptness with which it is instituted. The resulting peritonitis is the most important outcome of the accident, and its treatment in the various cases is similar. He emphasized the value of posture in treatment.

Pneumatocele.

DR. L. L. MCARTHUR, Chicago, reported a case of pneumatocele, a gas-containing tumor of the cranium. Only 32 cases of this condition have been recorded since 1741. It always originates in connection with either the mastoid or frontal sinuses. It is not to be confounded with emphysema, which is gas in the cellular tissue. Pneumatocele is gas between the pericranium. Incident to the elevation of the periosteum are secondary bony outgrowths, giving the tumor a peculiar "feel." In the preantiseptic era the simple benign pneumatocele became a dangerous affair, because of the frequent connection with the mastoid sinuses, with the potential septic meningitis. Since antiseptic surgery has become well established all these cases recover.

The Value of Skiagraphy in Fractures.

DR. H. A. SIFTON, Milwaukee, Wis., is of the opinion that, when it is possible, the Roentgen ray should be used in the treatment of every fracture. Some urge its use in the obscure or complicated cases only, but the difficulty with this plan is that one can never tell whether or not a fracture is complicated until a radiograph of it is taken. It is the surgeon's duty to look on every case of fracture as a complicated one until it has been shown to be otherwise by a good radiograph. A good radiograph is of value for future information from a forensic standpoint, but no radiograph should be admitted as evidence in any medicolegal dispute unless both parties to the dispute know the conditions under which the radiograph was taken.

DISCUSSION.

DRS. L. L. MCARTHUR, J. W. ANDREWS, C. E. RUTH, A. I. BOUFFLEUR, M. L. HARRIS, A. E. BENJAMIN all concurred in the opinion that the *x*-ray is an important confirmatory aid to the surgeon, but that radiographs should not be admitted as evidence in a court of law.

The Practical Significance of Certain Common Symptoms in the Upper Abdomen.

DR. J. F. PERCY, Galesburg, Ill., said these symptoms are pain from ulcer of the stomach and cholecystitis, with or without stones, and the action of the gastric juice on an open ulcer, either in the stomach or duodenum. Another source of pain is the formation of gas from inhibited peristalsis, due to ulcer or adhesions arising from it. Vomiting was also referred to as one of the symptoms of disease in this region, but in the author's experience it is not as frequent as nausea. Two methods were referred to as aids to the location of lesions in the upper abdomen, one being light finger percussion, eliciting pain over the inflammatory focus, in patients not too obese, and the other the resistance of the costal cartilages on the right side in inflammatory conditions of the gall-bladder and in ulcer of the duodenum or pylorus, as recently pointed out anew by Elliott. The author laid special stress on the effects of chronic infections of the liver and pancreas from ulcer of the stomach and persistent cholecystitis, and cited cases in point. He stated that some of these cases are rarely diagnosed correctly. Biliousness and dyspepsia are the words most frequently used as descriptive of the diagnosis, and on this the treatment is based. The author stated further that a persistent infection will, in an appreciable number of cases, cause death, regardless of the form of treatment which may be instituted, because of the alteration in the functionating tissues of the liver and pancreas.

DISCUSSION.

DR. JOHN B. MURPHY congratulated the essayist on bringing out with greater force the fact that a differential diagnosis between lesions of the pyloric area of the stomach, the head of the pancreas, and the gall-bladder is extremely diffi-

cult, and also that he emphasized the periodicity of exacerbations in ulcers of the stomach. A large number of cases of ulcer of the stomach have pronounced exacerbations. They are practically well in the period between the attacks.

DR. ALEX. HUGH FERGUSON stated that sudden pain referable to the epigastric region, with tenderness over the gall-bladder, shows that the seat of the trouble is within the gall-bladder, the stone or stones being engaged in the cystic duct. Pain occurring while the patient is in a quiescent state, or occurring after the patient has gone to sleep, points to the gall-bladder rather than to any other organ. An occasional lancinating pain, referable to the region of the gall-bladder and its ducts, points to carcinoma. Pain referred to the region of the ducts is more characteristic of gall-stones. In cases of stone or tumor of the kidney, as well as in tumor of the suprarenal capsule, pain is generally referred to the back. Pott's disease should not be overlooked. Pain referred to the testicle, and radiating into the genitourinary tract, points to the kidney as the seat of the trouble. Still, pain is referred sometimes to these regions from other conditions than stone in the kidney.

DR. WILLIAM D. HAGGARD said that while expertness and refinement in diagnosis are desiderata, surgeons must realize that many of the cases under discussion are not amenable to the niceties and refinement of diagnosis to which attention has been drawn. He referred to the importance of a well-taken clinical history, saying that a great deal of dependence should be placed on it.

DR. B. B. DAVIS protested against the habit of making incisions without having made a careful and sufficient study of the case beforehand, but he said that man is more dangerous who does not make such incisions occasionally than the one who does make them before he has made accurate diagnoses. He related a case which he thought to be one of cholelithiasis, yet on operating he found a large appendix turned up underneath the gall bladder, with dense adhesions around the cystic duct. There were no stones found in the gall bladder; it was perfectly patulous, and after freeing the adhesions he could squeeze the bile out without any trouble. He did nothing to the gall bladder, simply removed the appendix, and thus far relief has been complete.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held in San Francisco, Nov. 22, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Resection of Chest Wall for Recurrent Carcinoma of Breast.

DR. EMMET RIXFORD exhibited a patient in whom a portion of the chest wall had been resected for recurrent carcinoma. The patient was seen Aug. 15, 1903, with a suppurating carcinoma of the breast, which had been first noticed four months previously. After primary cleansing of the suppurating area with pure carbolic acid, a Halsted operation was performed and the wound healed without difficulty. Eleven months later there was a recurrence at the site of the original operation and the recurrent tumor was adherent to the chest wall. At a second operation this tumor was removed. It was necessary to excise portions of the first and second ribs and about half an inch of the left side of the sternum. The left pleural cavity was opened, the lung collapsed, and the respiratory movements of the mediastinum and heart could be plainly seen. The respirations became very rapid, but if the opening into the pleural cavity was closed by a hand or a towel the lung seemed to expand and the respirations became better. The wound was closed by a large skin flap. Five months after the second operation there are no signs of a recurrence. The skin flap is drawn in at each inspiration. This is the fourth operation of this character which has been performed by Dr. Rixford. One of the other patients subsequently died of local metastases, one developed local nodules which disappeared under *x*-ray treatment, and one other beside the one here exhibited as yet has shown no signs of metastases. The operation is only justifiable when the patient is in good condition and when there are no distant metastases.

DISCUSSION.

DR. BARBAT suggested the use of some form of artificial respiration in such cases, similar to that used in physiologic experiments. The Sauerbruch pneumatic cabinet, if accessible, would find a place in these operations.

An Unusual Case of Anemia.

DR. G. H. EVANS and DR. MARY HALTON reported a case of anemia of the aplastic type. The patient entered St. Luke's Hospital Sept. 21, 1903. Six years previously he had had "blood poisoning" in the right foot, and three years previously he had lost his right eye in a shooting accident. About two months ago he had a severe nose bleed, and has had another less severe one since then.

Physical examination showed a well-nourished, pale man, with systolic murmurs over the base of the heart and a large ulcer on the outer aspect of the lower part of the right leg. The blood showed 1,150,000 red corpuscles, 7,300 leucocytes, and 30 per cent. of hemoglobin. A differential count of the white cells showed polymorphonuclears 6 per cent., small lymphocytes 91 per cent., large lymphocytes 2 per cent., and eosinophiles 1 per cent. No nucleated red cells were seen, and there was no marked poikilocytosis and no polychromatophilia.

During his stay in the hospital he had several severe nasal hemorrhages, an irregular fever, and, after gradually becoming weaker, he died ten days after admission. Shortly before death his blood showed 770,000 red corpuscles, 2,300 leucocytes, and about 10 per cent. hemoglobin. The differential count of the leucocytes did not differ essentially from the former count except in the absence of eosinophiles. No parasites nor eggs of parasites were found in the feces.

The autopsy and bacteriologic findings were negative except for the deposit of pigment, giving the reaction for iron in the liver and a moderate enlargement of the hemolymph glands about the inferior vena cava. The spinal cord and the bone marrow of the long bones were not examined.

The case here presented may possibly have been a leukemia with a reduction in the number of leucocytes. Such reductions have been observed during the course of acute infectious diseases, and one of the authors has seen it occur coincidently with pregnancy. On the other hand, the case suggests pernicious anemia in many of its features, viz., the high-color index, the marked reduction of both the red and white cells and the autopsy findings. As has been said, no nucleated red corpuscles were found during life, but later, after a search through about half a millimeter of blood, two megaloblasts were found. The case appears to belong to the class described as aplastic anemias, which are in all probability cases of pernicious anemia without the customary regeneration of blood by the bone marrow.

DISCUSSION.

DR. GEORGE BLUMER reported a similar case of anemia which he saw recently. During life the patient showed an irregular fever, a palpable liver, and bleeding hemorrhoids with an ulcer in the rectum. The red corpuscles varied from 1,500,000 to 1,100,000, the leucocytes from 4,600 to 3,400, and the hemoglobin from 20 to 19 per cent. Very few nucleated red cells were found, and these were either normoblasts or transitional forms. An average of several differential counts showed polymorphonuclears 7.5, large lymphocytes 2.3, small lymphocytes 90.2 per cent. and no eosinophiles. The autopsy showed in general the changes of pernicious anemia except that the signs of regeneration in the bone marrow were very slight. He agreed with the preceding speakers in regarding this type of anemia as pernicious anemia without a reaction on the part of the blood-forming organs.

DR. BRUNN described a child who had enlargements of the liver, spleen and lymphatic apparatus, with marked anemia and with 6,900 leucocytes, which were mostly small lymphocytes. The child died of a streptococcus angina.

DR. EVANS is inclined to regard the last case as one of lymphatic leukemia, with a concomitant infection.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, Nov. 23, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Value of the X-Ray in Diagnosis.

DR. L. J. HAMMOND reported the case of a patient who had been suffering with pain in his right wrist for more than two years. There was no tenderness to touch nor any visible signs of inflammation, and it was only when the wrist was abducted that the pain was intense. The condition had been variously diagnosed as rheumatism, sprain, tubercular periostitis and tenonitis. Treatment for these had given no relief. The *x*-ray revealed a fracture of the scaphoid bone, the fragments of which were united by a very loose fibrous connection. The interposed fibrous tissue was removed, perfect apposition of the fragments was secured and they were held together by two small silver wire sutures. There was perfect restoration of all the wrist movements, with entire absence of pain.

An interesting point was that, while the patient recalled having fallen with the hand outstretched and abducted, no immediate symptoms of pain, swelling or ecchymosis were sufficiently pronounced to demand surgical aid. Dr. Hammond said that experience in the surgical out-patients' department of city hospitals showed the frequency of fractures of the bones of the wrist and ankle joints without recognition. The only treatment is to secure bony union, which can be done only by securing perfect apposition, either by wiring or by any other of the mechanical means for this purpose. Dr. Hammond believes wiring to be by far the most reliable procedure.

DISCUSSION.

DR. CHARLES LESTER LEONARD referred to the obscure character of these fractures. They can only be demonstrated by the *x*-ray. This means of diagnosis is particularly valuable in the slight injuries occurring about the joint, the sprains, fractures and chipping of small fragments within the joint which lead to incapacity of function so important to those depending on their hands as a means of livelihood. He believes it the duty of the surgeon in injuries about the joints to have *x*-ray examinations made to exclude these fractures, for a negative diagnosis is of much value to the patient in a saving of time and in the immediate institution of the proper treatment.

DR. HAMMOND agreed with Dr. Leonard that fractures of this kind are not rare, are sure to be overlooked and the condition treated as a sprain or as some constitutional fault.

Typhoid Fever in Philadelphia.

DR. RANDOLPH FARIES said that typhoid fever does not exist in Philadelphia to the alarming extent that the general public is given to believe. The apparently large proportion of the disease in this city he attributed to three conditions: Errors in diagnosis, cases contracted elsewhere, and duplicate cases. He enumerated sixteen diseases which may be mistaken for typhoid fever. No case should be reported to the board of health as typhoid fever unless a Widal reaction has been taken and unless the urine, feces and catarrhal secretions also have been examined. Especial care should be taken in examining the liver and spleen, in noting the course of the temperature, the nature of the pulse, the amount and kind of stupor, as well as the nervous symptoms present, and a blood count should be made. Dr. Faries believes that, with the municipal improvements of cleaner streets, better surface drainage and perfect under drainage, the abolition of cesspools, houses constructed with better scientific ventilation, careful disinfection of everything whereby typhoid may be transmitted, extreme vigilance on the part of the health authorities in reference to impure milk, adulterated foods, impure water, and a constant instruction to the general public in reference to those foods by which typhoid is often contracted, such as raw oysters, lettuce, overripe and unclean fruits, etc., it is reasonable to suppose that there will come a time when very few cases of typhoid fever, if any, will exist in Philadelphia.

DISCUSSION.

DR. EDWARD MARTIN, director of the Bureau of Public Health, observed that statistics show a certain amount of transference of typhoid fever from one case to another, and that the reason for reporting the cases, so far as the public health is concerned, is to prevent this direct transference and to take precautions against a local epidemic. In most cases of typhoid, in the well-to-do, the community is properly protected, but among the cases seen by the corps of assistants to the Bureau of Health the importance of a report is very great. The bureau would rather have a report of a case which is not typhoid, and look it up, than to have the case unreported and a possible spread of the contagion. Disinfection of the dejecta he regards as difficult and thinks we should not be indifferent to the people who get water below our pollutions. In the walking cases the urinary secretions may remain for a week a prolific source of infection. The Bureau of Health has made a statistical study of wells and cesspools and has been astonished to find upward of one hundred in such juxtaposition that the water must be infected. He regards the water supply as the main source of infection and feels that Philadelphia will still be a typhoid-cursed city until it has a filtered water supply.

DR. FARIES said that many of the cases are reported too quickly, but that the remedy is difficult since the assistant inspectors of the health department are not allowed to interfere with the family physician. It is, therefore, manifestly the duty of the family physician to be especially careful in his diagnosis. While it is possible to ascertain the exact number of cases outside of the city, and the duplicate cases, it is not possible to estimate those cases of error in diagnosis.

Trachoma Successfully Treated with the X-Ray.

DRS. W. S. NEWCOMET and J. P. KRALL exhibited a girl of 18 who had been subjected to all the operations for the cure of trachoma without success. She was treated with the *x*-ray from July, 1903, until Jan. 1, 1904. The inflammatory reaction was so intense that it was thought better to abandon the treatment. Later, however, it was found that she could count fingers at close range. The cornea of the eye was entirely clear and only with special illumination could there be seen fine blood vessels. The eye not treated with the *x*-ray showed all the symptoms that the treated eye formerly exhibited. The condition of the patient had been present since infancy, and she had been unable to see across the room. Treatment was given every other day for five minutes for about six weeks, when a burn developed and treatment was withheld. Dr. Newcomet believed the result to be due to the accidental burn produced in the course of treatment.

DISCUSSION.

DR. JAY F. SCHAMBERG referred to a case of trachoma in the Polyclinic Hospital, in which the vascular injection of the cornea was less pronounced than in the case exhibited, but which had a tremendous growth of vegetative excrescences on the conjunctivæ. The man has received about twenty treatments. The growths have almost entirely disappeared in both eyes and the conjunctivæ are fast approaching normal. In technic the eye was exposed by means of a clamp, the upper lid was everted and the clamps held by weights.

DR. GEORGE E. PFAHLER referred to the paper of Dr. Mayo of London. He did not understand that any burns had been produced in the cases of Dr. Mayo. The face at first was covered with a mask, but later no precaution was taken. The soft tube was placed about nine inches from the patient and the treatments were from three to five minutes in length.

DR. CHARLES LESTER LEONARD regarded the case as of much interest both from the aspect of the ophthalmologist and from that of the *x*-ray worker. The condition still present in one eye which had been symptomatically cured in the other he thought showed a marked illustration of the possibilities of the *x*-ray in chronic conditions about the eye. The value of the method, he believes, depends not on the production of a burn, but on a specific action of the *x*-ray on the autolytic ferments contained within the cells themselves. The *x*-ray, he stated, is not a cure-all, but an agency which assists nature by stimulating to action the self-contained elements within the cells.

DR. M. K. KASSABIAN agreed with Dr. Leonard regarding the stimulating and irritating action of the *x*-rays on the tissues,

but he believes further that there is a germicidal or inhibitory action on the germ. He covers the Crookes tube with a dark cloth and darkens the room, preventing injury to the patient from the light because of the excessive photophobia. He attaches the everted eyelids by adhesive plaster to the skin. He had four cases in the Philadelphia Hospital, two acute and two chronic. The acute cases had severe photophobia and lacrimation and were improved after four or five exposures.

DR. NEWCOMET said operators in London are careless. One-half of the men used little or no protection in the treatment, and one man used only wet gauze. Dr. Newcomet uses a shield and as much as possible avoids handling the cases.

Travel Notes.

XXII.

AN INTERSEMESTRAL EXCURSION.*

LEWELLYS F. BARKER, M.D.
CHICAGO.

The division of the university year in Germany into two semesters with a good month's vacation between them in the spring has some special advantages. For the vacation is a real one; the student finds the clinics and the laboratories closed to him during this period; if he wishes to work he must apply at some private laboratory. The month gives excellent opportunity to teaching staff and students for quiet recreation or travel. Many teachers spend the time in a walking, bicycling or boating tour; others take advantage of this season to visit neighboring or distant colleagues, consult various authorities on particular phases of their research, examine new methods or new apparatus recently reported, or attend some one of the various congresses usually held in this period.

Despite the train of snows, rain, frosts and storms which winter, more than usually dreary in Munich, led "out of his Scythian cave," the city had been so interesting, profitable and enjoyable that it was with regret that one made up his mind to leave it. The home instinct which lies deep in human nature soon makes itself felt when once one is comfortably settled, even in a foreign city; it requires an effort to give up more permanent lodgings and enter again on the itinerant life. But the medical traveler who has only a year at his disposal dare not let his "high hopes faint on the warm (*sic*) hearthstone" of a German pension. The vacation must be utilized as well as the semesters if the year is to bring its full quota of experience.

NUREMBERG.

It seemed almost paradoxical to go to old Nuremberg to visit a new hospital, but it is nevertheless true that the American visitor can not afford to neglect a visit to the General Hospital of this artistic "City of the Empire" if it is a part of his mission to look into modern hospital construction in Europe. Just before leaving New York it had been my good fortune, thanks to Dr. Painter's courtesy, to examine in some detail the architecture and arrangements of the New York Lying-in Hospital. It proved to be a great help to have the main features of this triumph of hospital building in mind for comparison when visiting the Nuremberg Hospital and subsequently others of the newer European hospitals

The remarkable commercial development of Nuremberg in recent years has led to such a rapid growth of the city that it now has more than a quarter of a million inhabitants; this fact, together with the compulsory insurance of the working classes against disease in Germany, led to such an increase in the number of applicants for hospital treatment that, a few years ago, the building of a new hospital by the city became a matter of absolute necessity. It took some three years to build it. The plans were so carefully drawn and the work so well executed that the new City Hospital in Nuremberg has served for a model for several others which have been planned since; the new hospitals in Budapest, Copenhagen, Odessa, St. Petersburg, Prague, Rotterdam, Warsaw and Vienna have all, it is said, borrowed and adopted ideas from it.

The hospital, which is situated in the quiet northwestern part of the city, consists of thirty-one buildings, entirely separate from one another above ground, but all connected by means of subterranean tunnels for the conduction of heat, water and light. The buildings, with the exception of the administration and the director's dwelling, are simple externally —almost painfully simple—but one can not refuse to admire the wisdom which curtailed external adornment in order that the more important internal arrangements might be made as nearly perfect as possible. At present there are 946 beds—252 surgical, 417 medical, 121 for venereal diseases (!), 45 for skin diseases, 31 for insane patients, and 80 for overflow cases, medical and surgical. The money for the buildings was supplied by the city and the annual support, outside of the fees derived from patients, comes from the same source. The city government is represented by a civil supervisor, the so-called *Pfleger des Krankenhauses*. The whole medical administration, however, is subordinate to the medical director, Dr. G. Merkel, one of the best known and deservedly popular medical men of southern Germany. The housekeeping, bookkeeping and accounts are in the hands of the business manager, the so-called *Krankenhaus-Verwalter*. The dangers of conflict among these three factors of the administration are avoided by means of rigid definition of the functions of each; each has his own rights and each his own duties, and they are so specific that the machine runs, it is asserted, without friction. The medical director is also the physician-in-chief to the first medical subdivision of the hospital. The other chiefs of subdivisions are chosen from practitioners in the city; each has his own assistant physicians, nurses and orderlies directly responsible to him, and regarding the treatment of the patients in his wards he has a free hand Each "chief" is responsible for the general hygiene, diet and therapy in his particular division; he has to make a daily visit, in the early morning, and where necessary an evening visit also. If called at other times by the assistant physicians on account of an emergency or the grave condition of a patient, the "chief" is expected to promptly respond. Among other duties each chief is required to see that the histories of patients are regularly kept and to make sure that the assistants of his division perform their duties in full. It is his duty to see that an autopsy is performed by the pathologist on every patient dying in his division and to make sure that a proper protocol of the same is preserved. A special paragraph in the regulations states that "it is expected that the heads of divisions will, in the interests of science, utilize and work up as far as is possible the rich observation material at their disposal, calling on the assistant physicians to aid them in their work" If differences of opinion arise as to the medical duties the director has the deciding word.

All over south Germany the hospital nursing is in ecclesiastical hands; so in Nuremberg the nursing is in the charge of a superior deaconess of the Evangelical Lutheran Deaconess Institution of Neuen-Dettelsau. The orderlies (or male nurses) are also deacons. Non-ecclesiastical nurses and orderlies are employed in the insane wards and in the male syphilitic wards only. The hospital is supplied with all modern conveniences in the way of telephones, electric clocks, ice machine and the like, just as in our American hospitals. The assistant physicians live on the first floor of the administration building; in this building, too, are reading rooms, library, consultation rooms and the quarters of the business manager. Near the administration building is the large surgical operating house, quite in keeping in its appointments with the most fastidious requirements of the aseptic surgeon. A larger operating room is reserved for aseptic operations, a smaller one for septic cases. The light is excellent, most of the walls consisting of ground-glass windows, the rest of the walls and the floor of glazed white Mettlach tiles. The whole operating room is swung, as it were, in a warm-air bath, for, in addition to heating the room proper, warmed air circulates constantly through the air

* The last article by Dr. Barker, in this series, appeared in THE JOURNAL, Sept. 24, 1904, p. 892.

cavities beneath the floor and between the double walls and windows. The operating house contains also sterilizing rooms, instrument rooms, dressing rooms, nurses' rooms and a microscopic room—quite in accordance with modern American custom. One detail seemed wise—the provision of two currents for the electric lighting of the operating room at night and on dark days—one for regular use, the other in reserve in case of sudden interruption of the regular current in the course of an important operation.

The main wards of the Nuremberg hospital are, in the interior, very much like those of the Johns Hopkins Hospital in Baltimore, though it must have cost much less to build them. The wards have all the advantages, but also the disadvantages of the pavilion system. With modern ventilating systems, with improved elevator service, and with the newer knowledge of the mode of spread of infectious diseases, the necessity for the pavilion system of construction has largely disappeared; there would seem to be no reason now why the more compact system of hospital building, story above story, should not be returned to. The demands made on medical, nursing and housekeeping staff are enormously reduced in the more compactly built hospital; the administration is, therefore, a much more economical one, and, since hospital administrations are too often more economically inclined than is good for the welfare of the patients, it would seem probable that where endowment is limited the patients will be better cared for, the diseases better studied, other things being equal, in a compactly built hospital than in one arranged in separate pavilions.

The heating, ventilating and lighting systems in the Nuremberg hospital leave nothing to be desired. I was especially interested in the method of disposal of sewage. It seems that a city ordinance prevents the hospital from emptying any unpurified sewage into the city sewers. Accordingly, all the waste water from water-closets, sinks, baths, kitchen and laundry is brought through drains to a special building, where it is clarified and disinfected by the Müller-Nahnsen process. The watery sewage is first mixed with milk of lime, aluminium sulphate and silicic acid, then passed through a sieve to remove larger solid bodies and afterwards led into two large clearing tanks. The latter are about 25 feet deep, the incoming sewage mixing with the contents of the tanks at a level about 15 feet below the surface. Sedimentation takes place in the tanks; the overflow from the first tank fills the second; the overflow from the second is led into the city sewers. The solid bodies held back by the sieve are burned with other garbage in an adjoining crematory. The sediment which collects in the lower part of the tanks is removed from time to time by an electric plunger pump; it is placed in a large filter press, the filtrate running back into the clearing tanks. The residue of solid compressed sediment is carted away and buried; it amounts to about 1.5 cm. (5 cubic feet) a week. The water passing through the clarifying tanks amounts to some 300,000 liters daily. The clearing tanks cost about $8,000 to install; the patent preparation and chalk used to mix with the waste water costs less than $1.00 a day.

Another feature of the Nuremberg hospital which pleased me, one frequently found in sanitariums, but not as often represented in American public hospitals as one would like to see it, is the department for balneotherapy and mechanotherapy. The bathhouse is excellently arranged for hot and cold baths, Turkish and Russian baths, douches, showers, etc.; in addition there are carbonic acid baths, electric tub baths, electric light baths, sand baths, sun baths and mud baths. Nearby are the rooms for gymnastic exercises, massage and apparatus for mechanotherapy

Finally, I must mention among the praiseworthy characteristics of the Nuremberg hospital the number of rooms provided for a single patient, the laboratory for each ward, the excellent Roentgen ray laboratory, the liberal provision of verandas in connection with the wards, the mechanisms for lifting and transporting beds, and the movable iron gratings for the windows of the isolation rooms. The well-organized pathologic laboratory under the direction of Dr. Thorel is also worthy of imitation.

From what I have said it will be obvious that the hospital affords much opportunity for an American visitor to praise; there is but little for him to criticise. He misses, however, the quality of nurse to which he is accustomed at home; there is, further, no nurses' home, for the nurses live in rooms adjoining the wards. Certain hospital features jar on an American's taste, in Nuremberg as in most German hospitals, as for example the permitting of patient's wash basins in the main wards, the conspicuous position given to urinals and bedpans, the unnecessary exposure of patients during clinical examinations, the intimacy of the examining ear with the patient's skin, and the apparent unacquaintance with the utility of towels and screens. But take it all in all, Germany may be very proud of the kind of city hospital of which that in Nuremberg may be chosen as a type.

There is no medical school in Nuremberg, but arrangements are being made by which the hospital and its material will be utilized for the instruction (1) of German medical students during their fifth or hospital-practice year, and (2) of physicians who do postgraduate work in connection with the so-called postgraduate courses (*Fortbildungskursen*) now being organized all over Germany.

Though Nuremberg has had a great industrial awakening, the city authorities and citizens generally are to be congratulated on their efforts to preserve as intact as possible the landmarks of earlier times. In its esthetic characters Nuremberg seemed to me much the same as when I visited it nine years ago. The quaint and picturesque architecture is as interesting as ever, the collections as jealously guarded. You can buy tickets for a lottery of pictures in the Dürer house; the *Gänsemännchen* still steadily holds his double-sided burden in the market behind the Church of Our Lady. Up on Castle Hill the torture-chamber with the "Iron Virgin" excites horror as of yore. The little girl, who, in measured English, used to describe the mysteries of the deep well, is married now, but her account remains to the syllable unaltered. And as we wandered at night through the quaint streets, across the Pegnitz from the Lawrence to the Sebald side and up to the Moritz-Capelle, and again ate sausages and drank black *Tücherbräu* in the little *Bratwurst-Glocklein* we felt that, aside from Rothenburg, there is no place in Germany better suited, perhaps, than Nuremberg to carry one back in spirit to the life and habits of the Germany of old.

(To be continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Eczema in Infants.

The treatment of eczema in infants, according to *Amer. Med.*, consists first in regulating the diet of the mother if she nurses the child. A mixed diet should be prescribed, with prohibition of meat, wine and coffee.

The local treatment consists in removing all dried exudates from the skin by means of a bland oil, followed by a boric acid wash. This should be followed by a soothing application to calm the itching and pain. For this purpose the following combination is recommended:

℞.	Acidi salicylici.....gr. i-ii		06-.12
	Zinci oxidi Pulv. amyli, āā.....3iv	15	
	Lanolini Liq. petrolati, āā.....3iv	15	
M.	Fiat unguentum. Sig.: Apply locally.		

At night the hands of the infant should be tied so that he can not scratch the diseased areas and produce infection.

In chronic cases of eczema occurring in infancy the following combination containing resorcin is recommended:

℞.	Zinci oxidi	3i	4
	Resorcini	3ss	2
	Ung. aquæ rosæ		
	Liq. petrolati, āā	3iv	15

M. Fiat unguentum. Sig.: To be applied locally.

Ichthyol is also of value combined as follows:

℞.	Ichthyolei	3iss	6
	Acidi salicylici	gr. xv	1
	Adipis benzoinati	3vi	24
	Liq. petrolati	3iv	15

M. Fiat unguentum. Sig.: Apply locally after removing the crusts by means of olive oil.

Resorcin combined with sulphur is very frequently of service in infantile eczema combined as follows:

℞.	Resorcin	gr. xv	1
	Sulphuris loti	3ss	2
	Lanolini	3iii	12
	Adipis benzoinati	℥i	30

M Fiat unguentum. Sig.: Apply locally to the affected areas.

Internally arsenic frequently produces good results when given in the subacute and chronic forms:

℞.	Liquoris potassii arsenitis	℥ss	15

Sig.: Three drops well diluted in water three times a day.

If this preparation disturbs the stomach the liquor sodii arsenatis should be substituted for it, given in the same sized dose.

Where a strumous diathesis is present the following is of value in order to remove the anemia and for its alterative effect:

℞.	Syrupi ferri iodidi	3iiss	10
	Syrupi simplicis q. s. ad	℥ii	60

M. Sig.: One-half a teaspoonful after each meal, well diluted.

Walker, in the *Internat. Med. Annual*, recommends the high-frequency current as producing constant results, especially in the weeping form. He states that the itching sometimes disappears after the first treatment. The peculiar quality of the waves thus produced, according to Regnier, is that they modify the sensibility even to the extent of producing anesthesia without producing any appreciable contraction of the muscle, and is, therefore, useful in local inflammations and in impaired nutrition. Good results have also been reported by many dermatologists in the treatment of eczema by *x*-rays.

Camphor as an Anesthetic.

Leredde, in *Jour. de Med. Interne*, recommends the following combinations containing camphor as local anesthetics in affections of the skin accompanied by itching:

℞.	Camphoræ	gr. xv	1
	Olei amygdalæ dulcis	3iiss	10

M. Fiat unguentum. Sig.: To be applied locally. Or:

℞.	Olei camphoratæ	3iiss	10
	Chloralis hydratis	gr. xv	1
	Liq. petrolati	℥iii	90

M. Sig.: To be applied locally. Or:

℞.	Zinci oxidi		
	Pulv. cretæ		
	Olei camphoratæ		
	Aquæ calcis, āā	℥i	30

M. Sig.: Apply locally to the affected areas.

Digestive Infections of Infants.

The general indications for treatment of gastrointestinal infections of infants, according to an abstract in *Archives of Ped.*, are as follows:

IN ACUTE MILD FORMS.

A purgative is given with intestinal lavage and water internally. After twenty-four hours, skimmed milk or buttermilk may be given. If diarrhea is present and persists, bismuth, benzonaphthol and sodium bicarbonate are advised.

IN THE FORM WITH FEVER.

Purgatives, gastric lavage and a water diet are indicated, with compresses on the abdomen, and should be kept up for three or four days.

IN THE ALGID FORM.

In this form purgatives are contraindicated. Lavage with water diet and lactic acid are indicated, together with warm coverings, warm baths, hypodermoclysis and, if necessary, injections of camphorated oil hypodermically, opium and astringents.

DYSENTERIC FORMS.

Sodium sulphate as a laxative, lavage and a water diet are indicated; milk and buttermilk are not, as a rule, of benefit in these forms and are usually not well borne; decoctions of cereals, bread water, toast water, thin chicken broth, farina and at last milk in small quantities serve the best purpose.

CHRONIC FORMS.

A purgative and a water diet are first indicated, followed by a careful regulation of the diet. Alkalies, astringents and antiseptics should be employed, also some of the digestants are recommended such as pepsin and pancreatin.

Bronchial Asthma in Infants and Children.

La Fétra, in *Archives of Ped.*, states that the great majority of the asthmatic attacks are due to bronchial spasm, therefore the treatment should point toward relaxing them. He recommends medication by inhalation as of first importance. In infants where the attacks so closely resemble capillary bronchitis, he recommends steam impregnated with creosote, twenty drops (1.30) to a pint of water boiling in a croup kettle, which in most cases relaxes the spasmodic condition. In older children the niter paper, with or without stramonium, is useful. When the spasm becomes intense and marked dyspnea is present, chloroform inhalations are indicated.

As soon as the infant can swallow, the following may be given to relieve the symptoms:

℞.	Antimonii et potass. tartratis	gr. 1/100	0006
	Pulv. ipecacuanhæ	gr. 1/20	003
	Nitroglycerini	gr. 1/100-1/50	0006-.0012

M. Fiat chartula No. i. Sig.: At one dose, to be repeated every half-hour for three doses, or until relief is procured.

[We should hesitate in advising such large doses of nitroglycerin, repeated so often.]

The author has also derived great benefit from the administration of atropin in doses of grain 1/2000 every two hours until the face flushes. A child of 2 or 3 years can take, as a rule, two or three of the above doses before this symptom appears. After the attack has passed off the atropin should be given two or three times a day. If the stomach shows disturbances it should be emptied by a dose of syrup of ipecac. In cases of long standing the following mixture is recommended:

℞.	Potassii iodidi	gr. xx	1 30
	Morph. sulphatis	gr. 1/3	02
	Tinct. belladonnæ	m. xx	1 30
	Spiritus etheris comp	3iii	12
	Aquæ q. s. ad	℥ii	60

M. Sig.: One teaspoonful every three or four hours.

Falling Hair.

The *Medico-Chir. Jour.* recommends the following combination to check the falling out of the hair:

℞.	Acidi salicylici	3iii	12
	Acidi carbolici	3i	4
	Olei ricini	3iii	12
	Spiritus vini rectif. q. s. ad	℥vi	180

M. Sig.: To be applied freely to the scalp.

The following is recommended by *Merck's Archives* to prevent the hair from falling out:

℞.	Acidi gallici	3i	4
	Tinct. cantharidis	3ss	2
	Lanolini		
	Liq. petrolati, āā	℥i	30

M. Sig.: To be rubbed well into the scalp at night.

Acute Rheumatic Endocarditis.

The treatment of acute endocarditis as a complication of

rheumatism consists in the treatment of the cause and of the heart itself to reduce its increased activity and excitability which necessarily tend to increase the inflammatory condition of the valves.

In the treatment of the cause the patient must be put to bed and quiet instituted. The diet should consist principally of milk. The alkalies should be given in sufficiently large doses to promote elimination and to alkalinize the urine. Water should be given freely with the alkalies, such as potassium bicarbonate or citrate. Alternating with the alkalies or combined with them, sodium salicylate should be given in rather large doses. Salicin in doses ranging from grains five to ten (.30-.65) may be substituted for the salicylates.

As to the heart itself, it should do the least amount of work possible. Its action may be controlled by complete rest in bed, ice-bag to the precordial region or in some cases heat applied to the precordium. When much pain is present over this region small doses of codein or of Dover's powder should be given. When the heart becomes rapid or irregular, small doses of strychnia or alcohol are indicated. Anemia not infrequently is present in a good per cent. of these cases occurring in early adult life, and should be corrected as rapidly as possible along with the essential prolonged rest in bed. When the rheumatism has disappeared and the temperature has dropped to normal the patient may be placed on a combined tonic and alterative treatment, and for this purpose the syrup of ferri iodidum is recommended in moderate doses to correct the anemia and changes in the valves as well as in the blood vessels. Arsenic combined with iron and strychnia is a splendid combination during convalescence, as follows:

℞ Acidi arsenosi	gr. 2/3	04
Strychnin. sulph	gr. ss	03
Ferri sulph.		
Sodii carb., āā	3i	4

M. Fiant cap. No. xxx. Sig.: One after each meal three times a day.

Epidemic Cerebrospinal Meningitis.

The treatment of epidemic cerebrospinal meningitis, according to W. J. Wilson in *Jour. Mich. State Med. Soc.*, consists in sustaining life by rectal feeding of peptonized milk with yolk of egg when gastric irritability is present and a tendency to vomit. Lavage should be resorted to and light nutritious food given, such as whey, white of egg, broths and soups, administered at intervals of three or four hours. The sick room should be kept at a temperature of from 68 to 70 degrees F. If marked fever is present, the scalp should be shaved and an ice-cap applied to the top of the head and a bag to the nape of the neck. A mustard footbath is recommended by the author in some cases to relieve the cerebral symptoms.

Special attention must be paid to the bowels and kidneys, and if the urine is scanty, high colonic flushings of a normal salt solution should be given at a temperature of 110 degrees F. When active delirium is present hyoscyamin should be given hypodermically in 1/100 grain (.0006) doses.

Suppositories each containing chloralamid grains ten (.65) with or without small doses of belladonna are of benefit to produce sleep.

Large doses of potassium iodid or of sodium iodid in daily doses of from fifteen to sixty grains (1.-4.) should be tried. Mercurial ointment rubbed into the scalp and nape of the neck, morning and night, may be of service.

Medicolegal.

How to Recover Money Paid Illegal Practitioner.—The Court of Civil Appeals of Texas says, in the case of Gaither vs. Lindsey, an action on a contract for the treatment of the defendant's wife, that, in order to recover money already paid for the treatment of his wife, the defendant would have to do more than to prove that the plaintiff was practicing medicine in violation of the law. Unless, in addition, the defendant could show that he was deceived and imposed on, he would not be entitled to recover back money already paid, although the plaintiff could not recover anything from him, since the general rule would apply that money voluntarily paid cannot be recovered. If, however, the plaintiff in any way represented himself to be a practicing physician, when he was not authorized to practice medicine, and the defendant was thereby induced to employ and pay him for professional services, he could recover the money so paid.

May Give Conclusions Without Facts.—The Supreme Court of Iowa says that, in the case of Morrow vs. the National Masonic Accident Association, the only witnesses examined by the association as experts were physicians who had either attended the insured in a professional capacity after his injury or were present and took part in the postmortem examination held. Yet before they were permitted to testify their conclusions as to the cause of death they were required to detail all of the facts on which such conclusions were based. These rulings were, in the judgment of the Supreme court, clearly erroneous, because every conclusion testified to was based on actual knowledge of the physical condition of the deceased, and, further, because the rule has never, to the knowledge of this court, been applied to witnesses who were in fact experts on which they were called to testify. But, notwithstanding the error in the rulings, it must be held that they were without prejudice, because of the fact that in every instance the testimony was made competent under the rule of the district court and the conclusions of the witnesses received. Again, the Supreme Court holds that if there had been no conflict on the question of the cause of death the jury would have had no right to disregard the evidence of the physicians and find independently of it. But when there is a conflict in the evidence on a given point it is the general rule that the jury is not bound to treat the testimony of any witness as conclusive, no matter whether he be an expert or a non-expert.

Unlawful Practitioners—Taxing Itinerant Physicians.—The Supreme Court of Iowa says that the charge in the case of State vs. Edmunds was that the defendant, being a non-resident, assumed the duties of, and publicly professed to be, a physician, and did attempt and profess to heal and cure diseases by dieting his patients and causing them to take certain exercises and to wear glasses furnished by him; that he went about and in various ways solicited persons to meet him for treatment, and did, while so practicing as an itinerant physician, treat and attempt to cure injuries, diseases, etc. Did the acts charged constitute an offense under the laws of Iowa? Section 2579 of the Code defines "physician," "practice of medicine," etc., as follows: "Any person shall be held as practicing medicine, surgery or obstetrics or to be a physician within the meaning of this chapter who shall publicly profess to be a physician, surgeon or obstetrician, and assume the duties, or who shall make a practice of prescribing or prescribing and furnishing medicine for the sick, or who shall publicly profess to cure or heal." Section 2,580 provides a penalty to be imposed on "any person who shall practice medicine, surgery or obstetrics in the state without first having obtained and filed for record the certificate therein required." Section 2581 defines an "itinerant physician" as follows: "Every physician practicing medicine, surgery or obstetrics, or professing or attempting to treat, cure or heal diseases, ailments or injuries, by any medicine, appliance or method, who goes from place to place, shall be considered an itinerant physician." This section also provides for a license fee of $250 per annum, the same being payable into the state treasury for the use of the state of Iowa. Such license may issue only to such as hold a certificate from the State Board of Medical Examiners. It was contended that as the defendant did not profess or attempt to cure by any medicine, appliance, or method similar to medicine, but by dieting his patients, etc., his acts did not come within the prohibitions of section 2581. The Supreme Court says that the question here was a narrow one, depending wholly on the construction to be given the words "medicine, appliance,

or method." Do they mean a medicine or drug, or something administered as a medicine or drug would be? The court thinks this too narrow a construction. It says that an appliance can hardly be said to be a medicine or drug, and a method may or may not involve the administration of any substance, either internally or externally. True, when general terms follow specific words of a like nature, the general terms are presumed to embrace things and methods of the kind designated by the specific words. But for this rule to apply, it must appear that the general words are of a like nature. This was not true here. Undoubtedly the state has the right to determine what acts shall constitute the practice of the healing art, and it may impose conditions on the exercise of that privilege. Having defined the terms it uses, courts should accept the definition given, and not be too subtle in the use of refined distinctions. To save its people from quacks and charlatans, the state has plenary power to prohibit or supervise the exercise of the healing art. Statutes similar to the one in question have been enacted in many states, and they have been held to apply to magnetic healers (State vs. Parks [Ind. Sup.], 59 L. R. A. 190, with notes and briefs); empirics (Musser vs. Chance, 29 Ohio St. 577; Nelson vs. State Ky., 57 S. W. 501); obstetricians (State vs. Welch, 129 N. C. 579); midwives (People vs. Arendt, 60 Ill. App. 89); Christian scientists and osteopaths, although there is a decided conflict in the authorities as to these two classes of healing (Little vs. State, 60 Neb. 749; People vs. Jones, 92 Ill. App. 445; State vs. Buswell, 40 Neb. 158; contra, State vs. Myloid, 20 R. I. 632); and itinerant practitioners (State vs. Blair, 92 Iowa 28). See also State vs. Heath, 101 N W. 429 (reported in THE JOURNAL Jan. 7, 1905). Cases from other states cited and relied on by the defendant's counsel were not in point, for the reason that the statutes therein construed were not so broad as the one here before the court. The Iowa legislature evidently intended to prohibit the practice of the healing art by the use of medicine or any kind of appliance or methods, except on certain named conditions. The language used is very broad and comprehensive, and covers any and every kind of public profession to cure and heal by the use of any method or device. It confines the practice of medicine to the school or schools regarded as lawful, and does not permit quacks and charlatans to impose on the public. The charge against the defendant was that he was practicing as an itinerant physician without the required license, and it was unimportant, the court says, to inquire as to whether or not he had a state certificate, as this would afford him no protection. There may be some doubt as to whether a non-resident may obtain this certificate, maintain his residence in another state, and practice his profession in Iowa without obtaining the additional license required by section 2581 of the Code. But as to this the court expresses no decided opinion at this time. As to the contention that the license tax is unreasonably high, oppressive, and prohibitive, the court says that, being in the nature of an occupation tax, the state undoubtedly had the right to fix it at such sum as it saw fit. While the practice of medicine is often spoken of as a right, it is not, strictly speaking, a right, but a mere privilege, upon the exercise of which the state may impose conditions such as it deems advisable. The title of the act is, "Of the practice of medicine," and, the court says, the subject-matter is sufficiently expressed. It was error to sustain a demurrer to the indictment.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 31.

1 *Ideal Method of Removing the Vermiform Appendix. H. A. Kelly, Baltimore.
2 Tuberculosis of the Kidney, Ureter and Bladder. J. M. Baldy and Ed. A. Schumann, Philadelphia.
3 Primary Sarcoma of the Stomach: A Report of Three Cases. John A. Sipher, Cleveland.
4 The Reflexes in the Diagnosis of Nerve Lesions Due to Trauma. Henry S. Upson, Cleveland.
5 *The Cause of Death in Cases Operated on of Intestinal Perforation Occurring in Typhoid Fever. J. H. Anderson, Pittsburg.
6 Polyneuritis Complicating Typhoid Fever with Unusual Localization. Alfred Gordon, Philadelphia.

1. **Ideal Appendicectomy Method.**—With a view to devising a method for removing the vermiform appendix which will overcome the difficulties of all methods now in vogue, Kelly has made a pair of crushing forceps with longitudinal grooves on the crushing surface and a bevel above. When this forceps is applied, it requires a force of from 25 to 40 pounds to lock the blades on the appendix, and a force of about 60 pounds to release them after the appendix has been cauterized. The only other special instrument required is the ordinary Paquelin cautery. The method of operation is as follows: The appendix is exposed and the mesoappendix is tied off. A circular suture of fine silk is then laid around its base, about a centimeter distant, but not drawn up. The appendix is then grasped at its base with the forceps and crushed, while just beyond the forceps (distally) it is seized with an ordinary artery forceps to prevent the escape of its contents. Paquelin's cautery is then used to amputate the appendix between the two forceps, when it is laid aside in the grasp of the artery forceps. The crushing forceps, which is to be converted into a cooking, sterilizing, sealing iron, is carefully isolated by tucking dry gauze under each blade, so as to lift the end of the forceps up on a cone, away from all contact with the cecum. The next step, which is the most important one, is to keep the red-hot point of the cautery slowly traveling up and down the groove in the crushing forceps for from 40 to 60 seconds, so as to burn off every vestige of the stump, and at the same time to heat the forceps so thoroughly that the narrow ribbon of crushed appendix in its grasp becomes converted into a translucent, gristle-like substance in which the lumen of the appendix is completely destroyed. The lumen is so effectually obliterated that it never gaps. The final step in the operation is the tightening of the purse-string suture, and the inversion of the cooked base, after which the serosa is carefully united over the whole with another row of fine silk sutures. Kelly has cut off a little piece of the cooked tissue in seven cases and dropped it into a test tube containing agar medium, and in but one case was any growth obtained. The advantages he claims for this method are: Its perfect simplicity. There is at no time any exposure of the infected mucosa, the stump is not ligated or bruised, and thus left as a culture medium for whatever organisms may have lain in it. The appendix is amputated with the cautery and the proximal portion is sterilized and effectively sealed. The inverting sutures are then applied over an area as free from contamination as the rest of the peritoneal cavity.

5. **Cause of Death in Typhoid Perforation.**—Anderson reports his experiences in 21 cases of laparotomy for intestinal perforation. Twelve patients were operated on within 36 hours after the onset of the symptoms. Of these 9 were for perforation and 3 patients recovered. The remaining 3 cases presented symptoms resembling perforation; 1 case was typhoid appendicitis with peritonitis, 1 of peritonitis from mesenteric lymph gland infection, 1 of obstruction due to round worms in the ileum. These 3 cases recovered, making a total of 50 per cent. of recoveries in these 12 cases. The remaining 9 patients were operated on at varying periods of from two to four days after perforation; all died. Local anesthesia was used in 8 cases, the patients being extremely weak and toxic, and all died. In 9 cases the fecal contents of the ileum were removed through the perforation or by incisions. Four patients recovered; 3 were operated on for perforation and 1 for peritonitis from lymph gland infection. The peritoneum was irrigated with normal salt solution in all cases, with special attention to the diaphragmatic peritoneum. In these 9 cases there was a decided amelioration of the postoperative symptoms, which

leads Anderson to believe that irrigation of the bowel is of importance in preventing the toxemia which results from the absorption of poisons from the contents of the paralyzed bowel. He holds that toxemia is quite as important as peritonitis and insists on the institution of drainage.

Medical News, New York.

December 31.

7 *Effect of Hysterectomy on the Sexual Function. H. N. Vineberg, New York.
8 Difficulties of Anesthetization and Their Correction. Victor C. Pedersen, New York.
9 Hyperacute Melancholia: Case. R. N. Todd, Indianapolis.
10 *The Finsen Method. **Milton Franklin, New York.**
11 *Antiseptic Treatment of the Puerperal Woman. L. Kolipinski, Washington, D. C.
12 Cerebral Palsies in Children. J. M. Aikin, Omaha.

7. **Hysterectomy and the Sexual Function.**—The conclusion Vineberg draws from his own experience and from his study of the literature on the subject is that whatever other effects the removal of the uterus and ovaries may have on the female economy, it has little or none on her sexual feelings.

10. **The Finsen Method.**—Franklin describes the development of the Finsen method of treating tuberculous diseases of the skin by exposure to the ultra-violet or chemical rays of the spectrum. The description of the apparatus used is complete and doubtless will be of considerable assistance to those who employ this method. Franklin is of the opinion that the Finsen method, when properly practiced, and this necessitates the employment of suitable apparatus, free from glass and of sufficient power, is superior to all known procedures for the treatment of lupus vulgaris. This opinion is the result of close observation of the results obtained at the only place where the method has been properly employed. He says the use of the *x*-ray has been too limited to warrant the positive assertion that it is a specific in lupus. The cases that have been positively cured by the Finsen method are almost without number, while those cured by the *x*-ray are few and scattered and their authenticity shrouded in uncertainty.

11. **Antisepsis in the Puerperium.**—A word is said in favor of irrigation after delivery by Kolipinski, who considers the woman delivered of the new-born child a surgical subject, the victim of wounds of the contused and lacerated varieties, of the uterine cervix, the vagina and its outlet, injuries which, when not protected by art, are the chief cause of puerperal infection. A superficial torn wound of this or of any other part of the body, says Kolipinski, requires surgical treatment which is both curative and preventive. One of the best in thoroughness and efficiency is irrigation, and douching is one form of irrigation. He has used antiseptic douching in normal puerperal cases, and the effects are found to be in every way satisfactory, both in the feeling of general comfort to the patient and in the avoidance of septic fever, or its speedy destruction. He has followed the rule that it is better to flush with too much rather than with too little, and accordingly his method consists in washing out the vagina, the cervix and the vulva, the patient being in the proper position, with a gallon of a solution of boric acid in boiled tepid water, one and one-half drams of powdered acid to the pint. This is repeated three times a day for the first week and then discontinued altogether. The antiseptic vulvar pad is dispensed with or its use left to the discretion or wish of the nurse or patient. Septic fever has not been found to appear in any of the author's normal cases, and the patients have all been well satisfied with the result.

New York Medical Journal.

December 31.

13 *The Value of Stereoscopic Skiagraphy. M. K. Kassabian, Philadelphia.
14 Rôle of the Thyroid Gland in Exophthalmic Goiter Associated with Paralysis Agitans. Alfred Gordon, Philadelphia.
15 *Cysts of the Mesentery: a Case. L. S. McMurtry, Louisville.
16 Surgical Diseases of the Sigmoid. H. D. Niles, Salt Lake City.
17 *Enuresis and Its Treatment. J. Ullman, Buffalo.
18 *Unusual Case of Friedreich's Ataxia. R. N. Van Wart, New Orleans.

13. **Stereoscopic Skiagraphy.**—Kassabian details the principles of this method, the technic for making the skiagrams and the methods of examination of stereoskiagrams. The method is useful for demonstrating the structure of bones, studying the mechanism of joints, localizing foreign bodies and diagnosing fractures, showing the exact position of the fragments, the amount of overlapping or separation, the degree of apposition in deformities, etc. Although the method requires more time and care than ordinary skiagraphy, the results obtained with it compensate for these seeming disadvantages.

15. **Cysts of the Mesentery.**—The case reported by McMurtry was one of sero-sanguinous cyst of the mesentery, arising in the colonic mesentery near the left kidney in a woman, aged 67, who complained of digestive disturbances. The displacement of the colon by the tumor was such that the bowel seemed to enter and emerge from the tumor. The cyst wall was quite thin from distention. The left fallopian tube was attached to the tumor and bled freely when separated. There was no pedicle proper to the tumor, which evidently originated and developed between the folds of the mesentry. The area of enucleation was drained through the lower angle of the abdominal incision, and the abdomen closed in the usual way. The patient made a perfect recovery.

17. **Treatment of Enuresis.**—Ullman says that a solution of atropin, 1 grain to 2 ounces of water, 5 drops to be given at 4, 7 and 10 p. m., together with certain movements and hygienic and suggestive methods to which he refers, will usually give excellent results in the treatment of purely neurotic cases. The movements referred to are as follows: 1. The rectum is freed of feces and massage is applied to the sphincter vesicæ by means of the index finger. The child lies in the lithotomy position and, with the index finger in the rectum, the sphincter vesicæ is gently tapped for from one-half to one minute. 2. A deep circular massage is applied over the hypogastric region for from two to three minutes. 3. The patient, lying in the dorsal position, with the knees tightly drawn together, is told to resist while the knees are drawn apart, and, with the knees widely separated, he is asked to resist while they are drawn together. The same resistant adduction and abduction movements are carried out with the legs. These movements occupy about two minutes. 4. The patient, standing against a wall or door, crosses and recrosses one thigh over the other for a period of five minutes. 5. The patient is next taken across the knee and with the side of the hand the lumbar and sacral regions are sharply tapped very frequently, thus giving a vibratory sensation.

18. **Friedreich's Ataxia.**—This unusual case is presented by Van Wart to show that cases of hereditary ataxia are not necessarily doomed to chronic invalidism. His patient, an adult male, 44 years of age, traced his illness back to the sixth year of life. While never able to perform any heavy work, he could plow, drive and do most of the lighter work about the farm. When 30 years of age he became so disabled that he had to use crutches, and he then became a school teacher, following this occupation until two years ago, when the increasing ataxia in his hands compelled him to abandon this work also. His general condition was good.

Medical Record, New York.

December 31.

19 On What Lines Is the Treatment of Malignant Disease Advancing? Robert Abbe, New York.
20 *Problems Relating to Simple Ulcer of the Stomach. Beverley Robinson, New York.
21 *The "Yolk Cure" in the Treatment of the Underfed. Heinrich Stern, New York.
21½ Trachoma. Albert C. Bardes, New York.
22 Present Attitude Toward the Treatment of Prostatic Hypertrophy. Martin W. Ware, New York.

20. **Gastric Ulcer.**—Robinson considers this subject as it presents itself to the physician and to the surgeon. The cases in which a surgical operation is most likely to effect a cure that it places the knot between the apposed peritoneal sur-

are those of acute ulcer in which hemorrhage occurs suddenly, is profuse, repeated, and the outcome too eminently fatal to permit of the use of medicinal agents or hygiene and time, or those of chronic ulcer, in which the frequent and profuse hemorrhage may be taken as an indication that the degenerated gaping artery of the diseased surface may be obstructed for a while with a clot but will soon, through its removal, bleed afresh. An operation affords the only assurance of a cure. The same is true when perforation of the stomach has occurred, complicating any form of ulcer. The sooner the operation is performed the greater the chances of saving life. Although instances of cure without operation are recorded, they are very infrequent, and unless special conditions prevail, such as an empty stomach, very small opening on the ulcer in the stomach, chronic adhesions to adjacent organs, etc., even these instances would not have been possible. Robinson's attitude toward the surgical treatment of gastric ulcer is rather conservative, for as yet the results obtained from operative treatment are inferior to those obtained by proper medical care, especially in cases occurring among patients in affluent circumstances who seek medical advice early and who can carry out with intelligence the necessary dietary and remedial regimen. Hemorrhages in such cases are infrequent and slight and perforations occur rarely. Robinson's treatment is that of others who have given this subject considerable attention. One food which he mentions as being of special value when hydrochloric acid is deficient in the stomach is buttermilk, freshly made, and freely taken. He says that in several cases its use appears to have been followed by a permanent cure. In the treatment of the accompanying anemia he prefers to make use of the vegetable forms of iron rather than the mineral, which may be more or less irritating locally by their acidity and perhaps slightly corrosive action.

21. **The "Yolk Cure" of the Underfed.**—Stern again calls attention to the fact that underweight and underfed are not synonymous conceptions; that an individual of underweight but in metabolic equilibrium is not underfed, and that in the real underfed there is always a traceable disease or disorder which, directly or mediately, prevents normal digestion or complete utilization of food stuffs, giving rise thereby to bodily decline. It is absolutely useless to attempt to check bodily decline by forced feeding without paying attention to the condition of the digestive organs and the general assimilatory qualities. As soon as the organism is able physiologically to dispose of the ingesta, the tide of body decay is stemmed in all those instances in which some digestive assimilative disturbance, directly or remotely, stood at the foundation of the malnutrition. The treatment of the so-called wasting diseases resolves itself into the prevention of waste. The most potent factor in maintaining physiologic digestion and assimilation is an adequate food supply, one which is sufficient as regards quantity and which the organism is able to anabolize. Stern believes that the diet which he has termed the "yolk cure," one in which the greater portion of the calories yielded and in which the egg yolk forms the only fatty substance, is ideal in these conditions. This yolk cure may be modified as needed. The yolk of the hen's egg in the raw or half raw state is digested readily, is well borne, contains a diastatic ferment, does not exhibit fermenting qualities, stimulates gastric secretion, restores nerve force and also contains lecithin. From eight to twenty calories a day and kilogram of body weight are necessary to overcome the condition of underfed. An average yolk contains between five and six grams of fat, representing about fifty calories. The author gives explicit instructions for carrying on this particular dietary and gives a sample menu destined for a consumptive whose alimentary system admits the ingestion of some carbohydrates and of almost normal amounts of proteids.

Boston Medical and Surgical Journal.

December 29.

23 *Ultimate Results of Cauterization of the Lower Turbinate, with Therapeutic Suggestions Based on Histologic Findings. J. L. Goodale, Boston.

24 Standard Records of the Leucocytes in Normal Blood for Reference in Clinical Work. H. F. Hewes, Boston.

25 *Improved Method of End to Lateral Intestinal Anastomosis. Alfred H. Gould, Boston.

26 Bacterial Counts of Boston's Milk Supply. H. W. Hill and F. H. Slack, Boston.

27 Isolation Methods and Precautions in Contagious Disease. F. P. Denny, Brookline, Mass.

28 Suspected Homicide Proved to Be Suicide by Strychnia. F. J. Canedy, Shelburne Falls, Mass.

23. **Cauterization of Lower Turbinate.**—The object of Goodale's paper is to give the results of a histologic examination made into a series of cases which had been previously cauterized for swelling or hypertrophy of the lower turbinates and which had reported later with a recurrence of nasal obstruction. Goodale found that caustic applications to the nasal mucous membrane may cause a loss of the columnar ciliated epithelium with a replacement of this by cells of squamous type. That immediately below the cauterized mucous membrane new connective tissue may be formed, which extends downward to a depth dependent on the intensity of the trauma. That the contraction of the tissues following caustic applications is due to the contraction of this new form of connective tissue, and the consequent compression both of the lymph sinuses and of such cavities as the lumina of blood vessels and glands. That repeated superficial applications of caustics tend to the formation of connective tissue immediately beneath the epithelium, which by its contraction may constrict the lumen of the ducts of the glands and lead to cystic dilatation of the latter, thus contributing to a subsequent return of the nasal obstruction. As to the proper mode of cauterizing: If it is desired to contract a relaxed or distended mucous membrane, we should endeavor to reach its deeper layers where the lymph spaces and blood vessels are situated, producing at the same time a minimum amount of disturbance to the membrane itself. This result is best attained by deep linear applications, as narrow as possible, of chromic acid, or of the galvanocautery, or by submucous cauterization. If it is simply desired to diminish the nasal fluid we may advantageously sacrifice a certain number of canaliculi in the basement membrane by broad, superficial applications to a definite area of the septum and lower turbinates posteriorly. In the event of recurrence of the enlargement after cauterization, it is preferable to dispense with further cauterizing and to proceed immediately to the excision of a definite amount of obstructive tissue.

25. **Improved Method of Intestinal Anastomosis.**—This is the first of a series of four papers to be published by Gould illustrating changes in technic. The first paper describes an improved method of end-to-lateral intestinal anastomosis. The open intestine is split along its free border for about one and a half inches, and the corners, which project, are trimmed down with scissors so that an oblique opening is left with edges rounded out at the mesenteric border, thus allowing more tissue for sewing. The receiving intestine is opened on its free edge for about two inches, and the distal end of this cut is fastened by a mattress stitch to the mesenteric border of the entering bowel. Guides are placed, with the ends left inside, in such a way that they will invert the cut edges and expose the mesenteric third of the entering bowel side by side with a symmetrical portion of the cut edges of the receiving bowel. On tightening the guides, the remainder of the circumference falls away and allows easy introduction of the first layer of stitches. This layer is a continuous over-and-over No. 0 chromic stitch which starts from one guide and goes directly across to the other, piercing all coats. When the second guide is reached other guides are placed on the sides at regular intervals to assist in accurately matching the cut edges. When the free ends of the dorsal cuts are reached they are altered to make them fit one another, and the suture continued around to the opposite side, where it is tied to the long end left at the beginning of the stitch. The second step is the introduction of an interrupted sero-muscular stitch. Gould has modified the mattress stitch by placing the loop near the cut edge. This rolls the protruding edges down and approximates the peritoneum without the necessity of tucking in. This change might be applied to both sides of the stitch except for the objection

faces. The details of this operation which Gould considers original are: 1. The method of trimming the invaginating gut. 2. The method of placing the first layer of stitches. 3. The new mattress stitch.

Lancet-Clinic, Cincinnati.

December 31.

29 *The Choice and Use of Medical Literature. Hugh T. Patrick, Chicago.
30 Why So Many Errors in the Diagnosis of Graves' Disease? J. H. Stealy, Freeport, Ill.

29. This article appeared in THE JOURNAL, Dec. 10, 1904.

St. Louis Medical Review.

December 24.

31 Report of a Case of Hypertrophied Prostate, with a Remarkable Number of Calculi in the Bladder; Operation in Successive Stages; Recovery; Presentation of Patient. Bransford Lewis. St. Louis.

University of Pennsylvania Medical Bulletin, Philadelphia.

November.

32 Conjunctivitis Nodosa, with Histologic Examination. G. E. de Schweinitz and E. A. Shumway, Philadelphia.
33 *The Etiology of Congenital Absence of the Tibia. James K. Young, Philadelphia.
34 *Retrodisplacement of the Uterus. H. D. Beyea, Philadelphia.
35 A Practical and Simple Apparatus for Collecting Blood Serum. D. Rivas, Philadelphia.
36 Protozoan of Scarlet Fever; Preliminary Report. Charles W. Duval, Philadelphia.

33. **Congenital Absence of Tibia.**—From a careful examination of cases under his observation, and from a thorough investigation of the literature on the subject, Young is of the opinion that congenital absence of the tibia is due to an injury received in the early months of fetal life, usually about the third month. The cases presented by him would seem to prove that a sudden and a violent pressure on the uterus which would be sufficient to cause inflammation of the soft parts, but not of sufficient force to injure or fracture the bones, would lead to an amniotitis followed by hydramnios which would produce the exact conditions found in these deformities.

34. **Retrodisplacement of Uterus.**—Beyea's article includes the report of a statistical study of 465 cases of retrodisplacement of the uterus operated on by a method of ventrosuspension of the uterus, abdominal primary fixation of the fundus uteri to the anterior abdominal wall, and secondary to ligamentary suspension. The author has used this method for eleven years in 465 cases and it has always proved an efficient operation, has never been complicated, and never produced abnormal gestation nor complicated labor. In order to obtain these results it is necessary to secure the uterus to the anterior abdominal parietes, forward, in an exaggerated normal position, so that in the succeeding weeks, through the mobility of the organ, its traction on the abdominal walls, with, for instance, distension of the bladder, and through change in tension of the abdominal walls, a ligament is formed or pulled out to maintain the uterus in about its normal position, until the pathologic changes described disappear and the normal conditions of uterine support are restored. This ligament must be of just sufficient strength to maintain the uterus forward as a guy rope; must not be attached to nor involve a wide surface of the uterine parenchyma, and the tissue forming the ligament must be of such a character as to undergo hypertrophy or stretching during the growth of the uterus in gestation. Beyea addressed inquiries to the 465 women operated on in the past eleven years and received replies from 272. Of this number, 231, 85 per cent., say that they have been completely relieved and enjoy excellent health; 28, 10.5 per cent., state that they have been benefited, the greater part of the symptoms having been relieved; 13, 4.5 per cent., assert they have received no benefit. The improvement has been lasting in 225. Backache was completely relieved in 215; benefited in 39, and not improved in 17 cases. Headache was completely relieved in 228; benefited in 32, and not improved in 12. Nervousness was completely relieved in 189. The question as to the gain in weight is interesting. There were 63 who failed to take on flesh, and 9 have lost in weight. The remainder all gained between 2 and 40 pounds in weight. As to the time when improvement began, 55 stated that improvement began immediately or very soon after they reached home; 72 began to improve in from one to five months after the operation; 58 in from six to eleven months; 26 did not receive full benefit until a year had passed; 4 for eighteen months and 4 for two years. Beyea has personal knowledge of 5 recurrences of the displacement. In 3 it occurred before the patients left the hospital, in 2, as a result of pneumonia, the coughing causing such a strain on the abdominal walls as to sever the attachment, and in the other the attachment was separated by the resident physician in removing the sutures from the cervix. Another woman, regardless of advice, did heavy lifting immediately after returning home, and the retrodisplacement recurred. In the other case the uterus was retroverted and on opening the abdomen again the ligament was seen attached to the anterior surface of the uterus well below the fundus. Of the 272 women, 153 are married, and of these, 41 have been pregnant since operation; 37 have gone to term and borne a living child; 5 have twice borne a child, 2 having given birth to twins; 1 twice. In none of the 47 labors was there a complication which could be attributed to the operation. Nine of the 153 women have aborted or miscarried, 5 twice, all before the sixth month. There was one death, which occurred eighteen hours after a cervical dilatation and ventrosuspension of the uterus, the operation lasting 30 minutes. The postmortem failed to reveal the cause of death, and the conclusion was that death resulted from surgical shock, for there was a rapid failing heart action. This makes the mortality a little less than .2 of 1 per cent.

Chicago Medical Recorder.

December 15.

37 *Experiments with Radium in Some Nose, Throat and Ear Diseases. Joseph C. Beck, Chicago.
38 *Cases of Pus Infection Simulating Pulmonary Tuberculosis. Robert H. Babcock, Chicago.
39 Bronchoscopy for Foreign Bodies in the Bronchial Tubes. E. Fletcher Ingals, Chicago.
40 Gynecology from the Standpoint of the Neurologist. Archibald Church, Chicago.
41 *Observations on the Different Forms of Operations for the Correction of Septum Deformities. Charles M. Robertson, Chicago.
42 Abnormal Labor. Henry B. Hemenway, Evanston, Ill.
43 Pneumonia Complicating Pregnancy. Darwin R. Stockley, Evanston.
44 Diagnosis of Malignant Abdominal Tumors. G. W. Green, Chicago.
45 Instrumental Treatment of Chronic Gonorrhea. E. A. Fischkin, Chicago.

37. **Experiments with Radium.**—Beck reports his results accruing from the use of radium in the treatment of nose, throat and ear diseases. In a case of primary tuberculosis of the septum, 33 applications of radium bromid were made, each lasting from five minutes to half an hour, given at first every day, later three times a week and finally once a week. The headaches and pains disappeared after the second treatment. After about six treatments the mass looked better and did not bleed so easily on touch. After twelve treatments the patient was able to breathe better, and since then there has been a continued improvement and a diminution in the size of the growth. A case of nasal syphilis was treated intranasally with the result that there was relief from pain and a correction of the odor. In a case of sarcoma of the nose, the radium gave relief from pain and produced sleep, saying nothing of the possibility of the prevention of the recurrence of the malignant growth. Very satisfactory results were also obtained in a case of sycosis. A case of lingua nigra was cured by seven exposures. In a case of secondary tubercular laryngitis the radium failed to give any relief, as also in a case of carcinoma of the larynx with glandular involvement. In a case of chronic suppuration of the middle ear with necrosis, the odor was markedly modified and the discharge lessened. Pains in the ear were less marked. In a number of other painful conditions Beck has found the radium to afford more or less relief from the pain.

38. **Pus Infection Simulating Tuberculosis.**—The first case related by Babcock presented all the constitutional symptoms of pulmonary tuberculosis, but the lungs, though not normal, did not furnish any signs of disease. A thorough examination led Babcock to the belief that it was a case of septicemia originating in a pelvic peritonitis with purulent and circumscribed exudate, and that the indefinite lung find-

ings were due to some pulmonary change resulting from the infection and feeble cardiac action. This belief was confirmed at the operation. The second case was one of suppurative peritonitis due to trauma. The lung findings were very similar to those described in the first case. Three other cases were ambulatory and sought medical advice because of symptoms which they feared were due to an incipient pulmonary tuberculosis. One of these cases was found to be a suppurative appendicitis; a second was a case of cholecystitis, and a third a case of pyosalpinx.

41. **Correction of Septum Deformities.**—Robertson divides his cases into four groups: First, those which may be considered deviations of slight degree. A great majority of these may be treated by the removal of the excess of mucous membrane, cartilage or bone at the apex of curvature. Second, cases where the removal of the apex of the deflection will not suffice. In this class of cases some operation, such as the removal of v-shaped sections or a flap operation, is necessary to render the nostrils patulous. Third, cases which present irregular masses, marked deviations, and probably deep grooves or clefts on the side of the concavity. A window resection is the indicated operation. Fourth, cases in which from internal and violent injury the nasal bones are dislocated or fractured, and the septum is wrinkled or broken, causing obstruction by deflection to one or both sides. In this class of cases an external operation is advised. Speaking of the different forms of operative procedure, Robertson says that the sawing off of a ledge or spur will often give more room than would appear possible at the pre-operative examination. Great care in saving mucous membrane in these cases is not so important as is usually believed, as it is generally hypertrophied and, therefore, a diseased tissue. The precaution of avoiding a perforation is essential. The author comments on the impracticability of v-shaped operations, as made by files and knives, on small deviations, the consequent packing into space until the septum has regained its rigidity. Crushing operations are usually failures; they are brutal and unsurgical, and impracticable because it is impossible to make the circumference of an arc fit into a space the length of a segment of the arc. In most cases where there is no external deformity the Gleason method is the best; packing is necessary for only a short time. It is essential to save all tissue that is not diseased and is still functionating. He also comments on the absence of firm cartilaginous support in the window resection operation, and the liability of one or more perforations occurring duriing operation or healing.

Bulletin of The Johns Hopkins Hospital, Baltimore.

December.

46 *Multiple Primary Carcinomata of the Ileum. C. H. Bunting, Baltimore.
47 A New Office Irrigating Stand. George Walker, Baltimore.
48 Concerning a Case of Suppurating Myositis Caused by Micrococcus Gonorrheæ (Neisser). Norman MacL. Harris and Louis W. Haskell, Jr., Baltimore.
49 Bacterium Cyaneum: A New Chromogenic Organism. Ethel L. Leonard, Los Angeles, Cal.

46. **Multiple Primary Carcinoma.**—Bunting reports two cases. The first, male, aged 52, died from cardiac disease and at the autopsy there were found in the middle portion of the ileum six nodules scattered over a length of intestine of about 50 cm. These nodules varied slightly in size and were situated beneath an intact epithelial surface. They were of a definitely carcinomatous structure, apparently taking their origin from the epithelium of the crypts of Lieberkuehn. There were no metastases in any other organs. The evidence at hand is reviewed to show that all these nodules were primary. The second patient, male, aged 59, was taken ill with symptoms referable to intestinal obstruction and a palpable mass in the right iliac fossa. Exploratory operation revealed an inoperable carcinoma in the cecal region and a second mass in the sigmoid flexure. Carcinomatous tumors were found in the ileum, cecum and sigmoid. They were of the cylindrical-celled adeno-carcinomatous type, with ulcerated surfaces, without involvement of the peritoneum, and without metastases in other organs.

American Journal of Obstetrics, New York.

December.

50 *The Limitations of Operative Intervention in Cancer of the Cervix Uteri. Edward A. Balloch, Washington, D. C.
51 Ectromelus: Case. Henry F. Lewis, Chicago.
52 *Streptococci in Air of Hospital Operating Rooms and Wards During an Epidemic of Tonsillitis. Edward C. Rosenow, Chicago.
54 Movable Kidney. W. M. Sprigg, Washington, D. C.
55 *Conservation of the Natural Resistance of Patients in Surgical Work. Robert T. Morris, New York.
56 An Historical Résumé of Tuberculous Meningitis from Hippocrates to the Middle of the Nineteenth Century. Charles G. Cumston, Boston.
57 Infantile Intestinal Obstruction. J. W. Hyde, Brooklyn.
58 Chondrodystrophia Fetalis. Joseph Brown Cooke, New York.
59 A Case of Indirect Traumatic Rupture of the Uterus in the Eighth Month of Pregnancy; Amputation of the Uterus; Recovery. Joseph B. De Lee, Chicago.
60 Conservatism in Pelvic Surgery. Hunter Robb, Cleveland, Ohio.
60½ Gunshot Wound of the Abdomen Involving the Hip Joint; Report of a Case, with Remarks. L. H. Laidley, St. Louis.

50. **Cancer of the Cervix Uteri.**—After a thorough consideration of this subject, Balloch concludes that the present status of operative intervention in cancer of the cervix uteri is that it is practically useless in cases as they usually come under the notice of the surgeon. In the operable cases the only procedure offering any reasonable prospect of a permanent cure is the so-called radical operation by the abdominal route. Vaginal hysterectomy is useless as a radical operation, but has a place as a palliative measure. Balloch urges that the upper part of the vagina is deserving of more attention, from the standpoint of recurrence, than it has heretofore received. The most promising outlook for these cases, he continues, lies in early diagnosis, combined with thorough and complete operative measures. The starvation of the disease by cutting off its blood supply is a palliative measure worthy of trial.

52. **Streptococci in Air.**—Rosenow made some careful observations to explain the probable source of certain accidental, postoperative, peritoneal infections and calls attention to the following facts: 1. The infections occurred only in the most extensive, prolonged, intraperitoneal operations. 2. Owing to the large number of operations, the operating rooms were often in use from morning until night. These rooms were seldom disinfected. 3. The accidents occurred during the winter months; no adequate system of ventilation was in vogue anywhere in the institution. 4. During this time a number of patients suffering from very severe streptococcus infections were being dressed in the general dressing rooms of the hospital. The same carts on which these patients were dressed were used in transporting other patients to the operating room. 5. An epidemic of streptococcus angina prevailed among internes, nurses, attendants and patients. 6. The streptococcus pyogenes was responsible in each instance. Rosenow is convinced that there is what might be called "hospital air," which, under circumstances such as those mentioned, may become rich in pathogenic bacteria. The streptococcus seems to become more virulent or more numerous during an epidemic of angina due to this cause. Rosenow advises that persons suffering from such an affection should be isolated, and that the operator, the assistant and all connected in the handling of surgical material before and during the operation should wear a proper mouth covering. All sterile surgical material should be exposed to the air as little as possible. All operating rooms should be frequently fumigated with an efficient disinfectant.

55. See abstract in THE JOURNAL of October 8, page 1081.

Annals of Gynecology and Pediatry, Boston.

December.

61 Three Cases of Postoperative Vomiting and the Technic of Some Mechanical Means of Treatment. Richard F. Chase, Boston.
62 Postoperative Anuria. Pathogenesis of Anuria in a Case of Vaginal Hysterectomy for Cancer, with Experimental Research on the Cadaver. (To be continued.) Giuseppe Betagh.
63 *"Stem Pessary for Dysmenorrhea." J. H. Carstens, Detroit.
64 Cystoscopic Measures an Adjuvant in the Treatment of Many Conditions Found in Women. F. M. Johnson, Boston.

63. **Stem Pessary for Dysmenorrhea.**—The points brought forward in this article are substantially the same as those

emphasized in the article by this author which appeared in THE JOURNAL Dec. 10, 1904, page 1740.

Therapeutic Gazette, Detroit.

December 15.

65 Hookworm Disease (Uncinariasis). Thomas W. Dorsett, Willacoochee, Ga.
66 Insomnia and Sleep-induction. Henry B. Hollen, Detroit, Mich.
67 *The Rational Treatment of Erysipelas, with Case Reports. L. C. Davis, Harrison, Neb.
68 *Adrenalin Chlorid in Hemorrhage Complicating Typhoid Fever. M. Clayton Thrush, Philadelphia.
69 Attempted Suicide by Morphin Defeats Suicide by Potassium Cyanid. Henry S. Wieder, Philadelphia.
70 The Therapeutic Uses of Hamamelis Virginica. H. R. Coston, Birmingham, Ala.

67. **Treatment of Erysipelas.**—Davis details his experiences with antistreptococcic serum in the treatment of erysipelas. As the site of injection he prefers the anterior portion of the thigh, about midway between the knee and hip joint, in the body of the quadriceps extensor muscle. The amount of serum to be used will vary in each case. He usually begins by giving 10 c.c. and repeating the dose as often as is necessary. Twenty c.c. may be given at the beginning if needed. It is essential to give enough. His results from its use have been uniformly satisfactory.

68. **Adrenalin Chlorid in Typhoid Hemorrhages.**—Thrush has had an extensive experience in the use of adrenalin chlorid in the treatment of hemorrhage complicating typhoid and considers it superior to other astringents. The drug is particularly valuable in that it is also a decided vascular stimulant, stimulating the heart directly, and by contracting the arterioles it raises arterial tension. He gives 20 mm. doses (1 to 1,000) hypodermically every three hours until the hemorrhage is entirely controlled, when it can be administered per os in 10 mm. doses for the next 24 hours. The usual methods of applying ice to the abdomen, the elevation of the foot of the bed, etc., are recommended as valuable adjuncts in the treatment.

Journal of the Association of Military Surgeons, Carlisle, Pa.

January.

71 Observations in the Russo-Japanese War. Louis L. Seaman.
72 The Apron Stretcher. George A. Lung.
73 *The Operation for the Radical Cure of Varicocele. Augustin Aguirre.
74 Organization and Work of the Maritime Quarantine Service of the Isthmian Canal Commission. Henry R. Carter.

73. **Radical Cure of Varicocele.**—Aguirre describes a new method which consists in employing at the same time transverse resection of the scrotum and the excision of the bundle of varicose veins. The patient is placed flat on the back, the lower limbs slightly adducted. The operation is divided into four stages. In the first stage both testes are pushed toward the inguinal canals, and a pair of very much curved clamp forceps are placed crosswise, pinching up that part of the scrotum to be resected. With a bistoury all the tisues are divided. The forceps are then removed. In the second stage all the blood vesels cut, however small they may be, should be ligated. Complete hemostasis having been thus secured, the third stage is proceeded with, that of dissecting and ligating the varicose veins. The veins once isolated, a double thread of catgut is passed to make the ligatures on the two ends of the varicose veins, and the resection is done between the ligatures. The fourth and last stage comprises that of suturing the wound. This is done by planes, the deepest with catgut and the superficial ones with Florentine horsehair. An asptic dressing covers the wound. This procedure has the following advantages: 1. The resection of the scrotum has for a result the formation of a real and natural suspensory, which holds the testes in good position and prevents a recurrence of the trouble. 2. The wound is of sufficient size to permit of an operation for double varicocele, cyst of the cord, gumma of the testes, etc. 3. The dissection of varicose veins is made easy because one sees at a glance the component parts of the cords and thus avoids wounding the spermatic artery and the vas deferens. The author has used this method in 60 cases. Healing by first intention has followed in all, and the final result has invariably been satisfactory. There has been no recurrence in any case.

New Orleans Medical and Surgical Journal.

December.

75 Puerperal Insanity. E. M. Hummel, Jackson.
76 Acute Suppurative Osteomyelitis: the Importance of Its Early Recognition and Treatment. J. F. Ochsner, New Orleans.
77 Some Remarks on the Treatment of Club Foot by the Method of Lorenz. Report of Cases. J. M. Batchelor, New Orleans.
78 Extrauterine Pregnancy; Its Diagnosis. Report of Cases. Isaac I. Lemann, New Orleans.

Louisville Monthly Journal of Medicine and Surgery.

December.

79 Malignant Growths of the Eye. Adolph O. Pfingst, Louisville.
80 Echinacea Angustifolia. C. S. Chamberlin, Cincinnati.
81 Insults to the Viscera in Abdominal Surgery. Edward Lee Pearce, Louisville.
82 Case of Tetanus in a Child Four Years Old Cured by the Use of Antitetanic Serum. J. M. White, Fort Thomas.
83 A Study of a Case of Bright's Disease. Orville A. Kennedy, Louisville.
84 Hemorrhagic Typhoid Fever, with Report of a Case. B. F. Zimmerman, Louisville.

International Journal of Surgery, New York.

December.

85 A Consideration of Septal Spurs and Deflections. Harmon Smith, New York.
86 Tympanites. J. O'Day, Oil City, Pa.
87 Cranial Injuries. Shelby C. Carson, Greensboro, Ala.
88 Colopexy of the Sigmoid Flexure for Prolapse of the Rectum. Albert L. Bennett, Denver.

Medical Times, New York.

December.

89 Illustrating Cases Due to Eye-strain, with Explanatory Remarks Concerning Them. Ambrose L. Ranney, New York.
90 The Transmission of Phthisis, with a Study of Medical Geography. N. E. Barrett.
91 Nature and Treatment of Chronic Glandular Enlargement in Children. A. N. Ulrich.
92 The Nature and Treatment of Hepatic, Cardiac and Renal Dropsy. A. M. Leonard.

Journal of the Kansas Medical Society, Wichita.

December.

93 Trachoma, or Granulated Lids. Edw. P. Pitts, Atchison.
94 Retrospective View of the Treatment of Pneumonia. D. W. Humfreville, Waterville.
95 Intestinal Union by the Aid of a Hollow Candle. J. D. Riddell.
96 A Case of Deformity Following Fracture of Shaft Femur; Osteotomy and Result. E. E. Morrison, Great Bend.
97 The Influence on Valvular Lesions on Pulmonary Tuberculosis. R. C. Fear, Gardner.
98 Pelvic Suppurations. Charles J. Simmons, Lawrence.

Journal of Mental Pathology, New York.

Nos. 3-4.

99 Two Cases of Familial Heredospinal Atrophy (Friedreich's Type), with One Autopsy, and One Case of So-called Abortive Form of Friedreich's Disease. (Continued.) G. Mingazzini and G. Perusini, Rome, Italy.
100 Case of Left Hemiplegia, with Right Hemianesthesia of Traumatic Origin without Organic Lesion of the Spinal Cord. Pietro Timpano.

American Medical Compend, Toledo.

December.

101 The Anesthetics; Chloroform and Ether. James T. Lawless, Jr., Toledo.
102 The Borderland of Consumption. Paul Paquin, Asheville, N. C.
103 Report on the Use of Acetozone in Septicemia. H. B. Gooding, Leetonia, Ohio.
104 Atrophic Nasal Catarrh. L. R. McCready, Grand Rapids, Mich.

Medical Standard, Chicago.

December.

105 Treatment of Congenital Club-foot and the Modeling Redressment. Frederick Mueller, Chicago.
106 The Non-operative Treatment of Retrodisplacements of the Uterus. Channing W. Barrett, Chicago.
107 Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. Homer M. Thomas, Chicago.
108 The Cure of Chronic Suppuration of the Accessory Nasal Sinuses. William L. Ballenger, Chicago.
109 Autointoxication and Its Treatment. Heinrich Stern, New York.

Maryland Medical Journal, Baltimore.

December.

110 The Rôle Played by Nephritis in Obstetrics. George W. Dobbin, Baltimore.
111 Fournier and His Work. John Ruhrah, Baltimore.

Indiana Medical Journal, Indianapolis.

December.

112 Some Camp-fire Reflections. Theodore Potter, Indianapolis.
113 A Case of Fused Kidneys. August G. Pohlman, Bloomington.
114 Diphtheria Epidemic in the Miami County Orphans' Home: Successful Treatment by Antitoxin; Fifty-six Cases, with Three Deaths. Perry C. Bentle, Mexico, Ind.

Cleveland Medical Journal.

December.

115 *Clinical Studies in Arteriosclerosis. Alfred Stengel, Philadelphia.
116 Value of Various Methods of Estimating Total Nitrogen, Ammonia and Urea in the Urine. Howard G. Haskins, Cleveland.
117 Surgical Treatment of Paralytic Deformities. Walter G. Stern, Cleveland.

118 Some Observations on Hemoptysis. Guy H. Fitzgerald, Albuquerque.
119 Notes on Refraction and Eye-strain in the Case of 206 Second-grade School Children. Leigh K. Baker, Cleveland.

115. See abstract in THE JOURNAL, vol. xlii, page 1377.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Annales de l'Institut Pasteur, Paris.

Last indexed XLII, page 1825.

1 (XVIII, No. 6, June.) Sur la vie et les travaux d' Emile Duclaux.
2 *Le Serum antistreptococcique et son mode d'action. Besredka.
3 Role des streptocoques au cours de la scarlatine (scarlet fever). Besredka and Dopter.
4 Isolement de la zymase dans les tissus animaux et végétaux. P. Mazé.
5 Rôle des microbes dans la fermentation alcoolique. P. Mazé and A. Perrier.
6 Sur la fermentation mannitique. U. Gayon and E. Dubourg.
7 Sur quelques propriétés physiologiques des différents venins de serpents. F. Noc.
8 *Action du sérum de cheval chauffé injecté dans le péritoine (hot horse serum). Son utilisation en chirurgie abdominale. R. Petit.
9 (No. 7.) Etudes sur quelques épizooties de l'Indo-Chine. Yersin.
10 Etude du tétanos dit médical ou spontané. H. Vincent.
11 Anatomie pathologique des lésions syphilitiques observées chez les singes anthropoides (apes). Arnal and P. Salmon.
12 *La résorption de l'acide urique et de l'urate de soude. J. J. van Loghem (Amsterdam).
13 (No. 8.) *Etude de l'epuration des eaux résiduaires des villes et des industries (purification of residual water). A. Calmette.
14 L'infection mixte dans la tuberculose chirurgicale. N. Petroff (St. Petersburg).
15 Les anticorps coutre les spirilles de la septicémie des poules (antibodies in poultry septicemias). C. Levaditi.
16 Sur l'existence d' un fixateur dans l'organisme de l'animal jouissant de l'immunité naturelle. P. Zabolotnoff.
17 Isolement de la zymase. Revue critique. P. Mazé.

2. Mode of Action of Antistreptococcus Serum.—See THE JOURNAL, xliii, page 1975.

8. Hot Horse Serum in Abdominal Surgery.—See THE JOURNAL, xliii, page 1731.

12. Pathology of Gout.—Van Loghem corroborates the assumption that uric acid readily dissolves in the body fluids, and that sodium urate is precipitated in the body fluids when they contain a large proportion of uric acid. This precipitation of the crystals of sodium urate does not occur in normal tissues. The urate crystals may be taken up and carried away by the phagocytes. They are identical with the crystals found in the tophi of gout. These findings explain the attacks of gout that follow traumatism. The latter causes an exudation, that is, an accumulation of fluid containing large quantities of uric acid. The precipitation of the urate crystals causes the pain. The attacks that follow the grippe are explainable in the same way. It may be possible to study the therapeutic action of drugs by introducing sodium urate crystals into the body in collodion sacs, thus protecting them against the phagocytes.

13. Purification of Waters Draining from Factories, etc.—Calmette affirms that the problem of purifying the residual waters draining from sugar refineries and starch factories has at last been solved. The water is passed through three beds of aërobic bacteria. When it emerges, at the end of six hours, it does not putrefy and it is not injurious to fish. The city of Lille has placed every facility at his disposal for studying the biologic, chemic and chemicobacterial methods of purifying residual waters. He is now making a special study of the waters draining from each of the principal industries of the region, adapting the measures to the special conditions in each, as he relates in detail.

Bulletin de l'Académie de Médecine, Paris.

18 (LXVIII, No. 40, December 6.) Metal Tape Tourniquet.—Appareil hémostatique stérilisable. Lhomme.
19 *L'hyposthénie cardio-vasculaire de la menopause. Pawinski.
20 Prophylaxie de la maladie hydatique. F. Dévé (Rouen).
21 *Sur les ferments métalliques, leur action sur le métabolisme, leurs effets dans la pneumonie. A. Robin (Paris).

19. Weakness of Vascular System During the Menopause.—Pawinski has observed a number of cases of women, previously healthy, who during the menopause presented symptoms of cardiovascular hyposthenia, accompanied by nervous disturbances and predisposition to muscular fatigue. Bradycardia is more frequent than tachycardia, and the blood pressure is frequently much reduced. He attributes the trouble to ovarian insufficiency. Treatment should be along the lines of tonic and pressure-raising measures. The prognosis is favorable. The symptoms subside in a few weeks or months.

21. Action of Metal Ferments on Metabolism and in Pneumonia.—Robin announces that a solution of a metal, in a proportion of .00009 to .0002 gm. to the cubic centimeter, has a most remarkable action when injected subcutaneously. It displays a physiologic action like that of a true ferment, out of all proportion to the minute amount of the metal employed. The amount of urea may be increased by 30 per cent., in consequence, while there is liable to be a copious discharge of indoxyl in the urine and the uric acid may triple its former figure. The respiratory quotient is increased and the blood pressure transiently raised. The injection is followed also by leucocytosis. As certain of the vital processes are thus stimulated by these metal ferments, as he calls these extremely weak solutions of metals, he has tried to utilize them in the clinic. In pneumonia the phenomena observed during the crisis resemble those that follow injection of the metal ferment. In 14 cases of pneumonia an injection of from 5 to 10 c.c. of the metal solution hastened the crisis, the temperature dropping to normal before the seventh day, but the physical signs were not apparently modified. The metal ferments evidently stimulate the reaction of the organism, re-enforcing the natural resisting powers and superposing on the vital and personal reactions a parallel activity revealed by the more rapid disappearance of the correlative symptoms of the infection. He has treated 15 cases of pneumonia with antidiphtheria serum, normal horse serum, lactoserum or with yeast extracts, and their action seemed to be along the same lines as that of the metal ferments. He regards it as probable that the effect of these serums and of the metal ferments is practically identical. The latter may possibly substitute the former when more is learned in regard to their physical phenomena and biologic action. The therapeutic use of the metal ferments is an attempt to apply in the clinic the new data furnished by physics and chemistry in the last few years in regard to radioactivity, ionization and atomic energy, diastases, zymases, minutely divided metals and catalytic phenomena. The solutions are obtained by passing a small electric arc between metal electrodes submerged in distilled water. The metal passes into the fluid in the proportion of .09 to .2 mm. of the metal used to each c.c. of the fluid. A solution thus made displays a number of the reactions supposed to be peculiar to the organic diastases, and these reactions can be accelerated or inhibited by agents capable of influencing the diastases in the same way. The kind of metal used—silver, gold or platinum—did not seem to make any difference in regard to the results. He suggests that the effect may be due to a condition of the metal atoms similar to that noted in the vacuum of the metal atoms similar to that noted in the vacuum of the Crookes tube, the so-called "radiant state," in which the atoms are separated to the extremest limits, liberated, autonomous in their activity and susceptible of developing more energy. This hypothesis may explain the vital action of arsenic and iodin found normally in the tissues and also the remarkable therapeutic efficiency of certain mineral waters.

L'Obstétrique, Paris.

Last indexed XLII, page 228.

22 (IX, No. 4, July.) De l'allaitement au sein par les ouvrières d' usines, de fabriques, de manufactures (breast nursing by women employed). P. Budin.
23 Experiences with Nursling Consultations.—Six années de pratique d' une consultation hospitalière de nourrissons. C. Maygrier.
24 Ibid.—La consultation de nourrissons de l'hopital Tenon en 1903. Boissard.
25 De la flore microbienne de la bouche du nourrisson (flora of nursling's mouth). C. Jeannin.
26 (No. 5.) Le placenta au cours de l'infection syphilitique. C. Néils.
27 Sur la pathogénie des paralysies obstétricales. J. Thoyer-Rozat.
28 *Lead Poisoning During Pregnancy.—Intoxication saturnine au cours de la grossesse. R. Lefour.

29 Le plasmode dans le placenta normal. B. et Nattan-Larrier.
30 Des hémorrhagies consécutives à l'expulsion de foetus volumineux. P. Guéniot and L. M. Pierra.
31 (No. 6.) *Diagnostic de la rupture du sinus circulaire pendant le travail (rupture during labor). C. Maygrier.
32 Le petit bassin (small pelvis). L. Demelin.
33 Les déchirures complètes du perinée; périnéorraphie immédiate et périnéorraphie secondaire précoce (lacerations and suture). Plauchu.

28. **Lead Poisoning from Wall Paper During Pregnancy.**—The puzzling case described has already been mentioned in the news columns of THE JOURNAL. Lefour comments on it to the effect that we are all living in an atmosphere of lead. The danger from this source in paint has been recognized, but now we have to contend with lead poisoning from wall papers. In 11 samples of papers obtained from different merchants 9 had a basis of lead and 2 of copper. He found 1.2 gm. of lead to the square meter in the paper which contained the least, and 7.68 gm. in the one that held the largest proportion of lead. The latter paper was of the class called velvet paper. Plush papers are probably still more dangerous, as they are constantly shedding a fine dust. In the case described, lead poisoning from the new wall papers was unmistakably the cause of the illness of the parents, of the death of the fetus in the first pregnancy, and of the premature delivery, with great debility of the fetus, in the second.

31. **Rupture of Circular Sinus During Labor.**—In 6 typical cases reported, 3 of the patients were i-paræ; the presentation was always of the vertex, while the children were rather under-sized. The hemorrhage was characteristic. As the uterus contracts, blood is forced out from the ruptured sinus and flows freely, but almost immediately the pressure of the head on the soft parts arrests the bleeding. As soon as the contraction is relaxed, the pressure of the head ceases and blood flows anew. The hemorrhage in one case kept up thus for forty-five minutes, during the entire period of expulsion. If there is no engagement, the hemorrhage is continuous.

Semaine Médicale, Paris.

Last indexed XLIII, page 2053.

34 (XXIV, No. 49, December 7.) *Ether versus Chloroform.—De l'éther ou du chloroforme, quel est, d' après les recherches expérimentales, le moins dangereux? A. Jaquet.
35 Bright Red and Dry Tongue Sign of Tropical Abscess of Liver.—La rougeur vive et sèche de la langue comme signe pathognomonique des abcès tropicaux du foie. H. de Brun.
36 *Fatal Hysteric Hemoptysis. M. N. Pende (Rome). Abstract.
37 (No. 50.) *Etude des localisations dans les noyaux bulbo-protubérantiels (hypoglosse et facial) chez l'homme (in man). C. Parhon an d J. Papinian.
38 La valeur diagnostique de l'absence du réflexe aortique de percussion. E. Rondot. Abstract.
39 *Cure of Epilepsy by Ligature of the Superior Longitudinal Sinus. H. Delagénière (Mans). Abstract.

34. **Ether Versus Chloroform.**—This article presents the conclusions deduced from a careful study of the literature of the last decade, in addition to experimental and clinical research. The authors are convinced that chloroform depresses the heart, the respiration and the blood pressure, while ether, in the standard dosage, does not affect these functions. They add that nerve substance exposed to the fumes of chloroform is killed, while ether fumes induce only a transient paralysis. The safety zone is much wider with ether than with chloroform, and the former does not have such an injurious action as the latter on the parenchyma of the various organs when the narcosis is long protracted. The consensus of opinion seems to be that ether is consequently less dangerous than chloroform, and that the pulmonary complications sometimes observed consecutive to ether anesthesia are not so much the fault of the ether as of the æsthetist.

36. **Fatal Hysteric Hemoptysis.**—Pende's patient was an apparently healthy young woman who suddenly began to exhibit symptoms of phthisis after a domestic scene. She coughed much, with dyspnea, the sputa being blood-stained but free from mucus, elastic fibers and bacilli. The fifth dorsal vertebra was painful to pressure, and there was irregular temperature, but no physical signs of a lung affection, although hysteric stigmata were prominent. She improved under suggestion, but the tuberculin test, twice repeated, gave a positive response. Inoculation of guinea-pigs was always negative. She was dismissed apparently completely cured, but succumbed soon afterward to a fulminating hemoptysis. Not a trace of tuberculosis could be discovered at the necropsy.

37. **Localization of the Nuclei of the Hypoglossal and Facial Nerves.**—Parhon gives illustrations of the nerve findings in a case of cancer in the suprahyoid region, comparing the findings with the peripheral disturbances. The conclusions confirm the results of experimental research in regard to the localization of the nuclei of the hypoglossal and facial nerves, as he describes in detail.

39. **Treatment of Epilepsy by Ligation of Longitudinal Sinus.**—Delagénière reports that in operating on an epileptic of 54 the longitudinal sinus was accidentally injured and was tamponed to control the hemorrhage. The patient was freed at one stroke from his epileptic seizures and has had no recurrence during the two years since. The benefit derived suggests that the seizure may be the result of a permanent dilatation of the veins on the surface of the hemispheres, causing irritation of the cortex. If the circulation in the cortex could be modified, the epilepsy would be cured. Delagéniére has acted on this assumption in another case since, applying a double ligature to the longitudinal sinus near its end. The technic is similar to that of ligation of the saphena for superficial varices. The results were almost as perfect as in the first case. The patient was a man of 23 who has had no seizures during the three months since the simple intervention, the particulars of which are described in detail.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed XLIII, page 1666.

40 (LXXIV, No. 4.) Beiträge zum Diabetes in der Chirurgie. W. Kausch.
41 Zur Verständigung in der Behandlung der akuten Perityphlitis. Sonnenburg.
42 Ueber doppelseitige Nierensteine (bilateral kidney stones). Treplin.
43 *Progenitur Thyreopriver. Lanz.
44 Beitrag zur Lehre vom Riesenwuchs (giant growth). M. Zondek.
45 Transplantation of Gôiter.—Beitrag zur Kropfverlagerung. F. Steinmann.
46 Beitrag zur Beseitigung der technischen Schwierigkeiten bei subkutanen Paraffin-Prothesen. W. Krlin.
47 Ueber den Verschluss des Ductus choledochus durch Echinokokkenblasen und Heilung durch Choledochotomie nebst Radikaloperation. F. Sasse.
48 *Beiträge zur Bauch-Chirurgie (abdominal). J. Bakes.
49 Zwei Vorschläge zur Modifikation der Pyloroplastik. A. Narath.
50 *"Inoculation Cancers."—Gibt es "Impfkarzinome"? R. Milner. (Concluded.)

43. **Effect on Genital Sphere of Removal of the Thyroid.**—Lanz found that dogs, cats, goats and hens are usually unable to procreate after thyroidectomy. He has also observed the same effect in two human subjects. One was a man who was apparently deprived of all sexual functions by complete removal of the thyroid gland. Exhibition of thyroid extract, however, was followed by their gradual restoration. The other subject was a woman. The menses reappeared under thyroid treatment after they had been entirely suspended by thyroidectomy. This patient is unmarried. The other patient is married, but childless.

48. **Abdominal Surgery.**—Bakes mentions, among other experiences, that he has had three deaths for which he believes the scopolamin-morphin anesthesia was responsible. He has used this method of narcosis in 200 cases, but now discards it as uncertain and unreliable, except as an adjuvant for ether, for which it is very valuable, using minimal doses.

50. **"Inoculation Cancers."**—Milner does not regard any of the cases on record as conclusive in regard to the actual occurrence of cancer from inoculation during operations. The cancer cells may be attracted by way of the blood to the site of the wound, or the tissues may be injured by the cytotoxic fluids, etc. It has been found impossible to induce the development of cancer on intact epithelium by implantation of cancer cells, with the exception of the epithelium of the ovary. In every case reported of so-called "inoculation cancer" on any other epithelial surface it is impossible to exclude the possibility of retrograde metastasis or of multiplicity of the tumors. There is no positive observation on record of the unintentional

transmission of cancer from one individual to another of the same species. The prevailing fear of the contagiousness of cancer is probably exaggerated and unfounded, but at the same time none of the present prophylactic measures should be neglected. Further studies of these "inoculation cancers" may lead to interesting and important results. More than 200 articles were reviewed for this monograph, and the data are carefully analyzed and classified, with the above conclusions.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed XLIII, pages 1267 and 1587.

51 (XLII, No. 2.) Ueber Implantations-Recidive von Tumoren. R. Wilmanns.
52 Ueber die Glykogen-Reaktion des Blutes und ihre Verwertbarkeit bei chirurgischen Affektionen (of blood). Reich.
53 Zur Resektion der Harnblase wegen maligner Tumoren (of bladder). F. Mathias.
54 Vereiterung des persistierenden Urachus mit Durchbruch in die Blase und in die Bauchdecken (suppuration in urachus). Ibid.
55 Ueber Duodenotomie zur Entfernung von Gallensteinen (gallstones). G. Lefmann.
56 Zur Kasuistik des Darm-stenose nach Brucheinklemmung (after incarcerated hernia). B. Baisch.
57 Die Laparatomie im Dienst der Rectum-Exstirpation. H. Schloffer.
58 Ueber primäre Muskel-Angiome. O. Riethus.
59 Die Principien des Bruchpfortenschlusses bei Crural-Hernien unter Mitteilung einer neuen Methode v. Mikulicz. C. Goebel.
60 Behandlung der Carcinome mit Röntgen-Strahlen. O. Fittig.
61 Fall von Meckel'schen Divertikel ungewöhnlicher Art. L. Hendee (Ithaca).

Berliner klinische Wochenschrift.

62 (XLI. No. 50, December 12.) *Ueber Heilung und Latenz des Diabetes mellitus. H. Leo (Bonn).
63 Kann durch "Griserin" eine "innere Desinfection" bewirkt werden? Petruschky (Dantsic).
64 *Lead Poisoning of Eye.—Die chronische Vergiftung des Auges mit Blei. L. Lewin.
65 Physical Behavior of Solutions in Stomach.—Ueber das physik. Verhalten von Lösungen im menschlichen Magen. P. Sommerfeld and H. Roeder (Berlin).

62. **Cure or Latency of Diabetes.**—Leo analyzes the cases of diabetes which have been published as cured, and describes one personally observed. The patient was a man in the thirties, and he seemed to be entirely free from any trace of his diabetes for a number of months. Symptoms then reappeared, and the literature shows that this recurrence is not exceptional. Some writers assume that it is a new onset of diabetes, but Leo inclines to believe that the disease persists during the interval, although in an imperceptibly latent form. In examining for life insurance it is advisable to pay great attention to a history of diabetes, and persons who have once suffered from the disease should always refrain from overtaxing their carbohydrate-assimilating functions.

64. **Chronic Lead Poisoning of the Eye.**—Lewin has for years been making a study of industrial intoxications and has recently published a large work on their effect on the eyes. Lead poisoning has a particularly pernicious action on the eyes, ranging from transient blindness to atrophy of the optic nerve, from retinitis with albuminuria to paralysis or cramps of the ocular muscles and the corneal opacity noted in persons employed in making the salts of lead. Among 163 victims of lead poisoning with eye disturbances, 122 were men and 41 women, the majority of the women being under 20, while the largest proportion of the men was between 30 and 40. In 36 cases which terminated in atrophy of the optic nerve, 19 of the subjects were women and 17 men. In 167 cases in which the eye symptoms were accompanied by other evidences of the lead poisoning, colic was noted in 79, vertigo in 11, headache in 52, cramps or coma in 47, paralysis in 27, arthralgia in 18 and deafness in 6. In 114 cases of lead affections of the eye, a cure was realized in 40, 22 were improved, 36 terminated in atrophy of the optic nerve, and 16 in death. He classifies 130 cases of these lead ocular affections according to the occupation, a list of 30 trades. One case was traced to wrapping chocolate in metal foil wrappers. There is a long stretch, he remarks; between the disturbances in the eye which could be revealed by ophthalmoscopic examination and those which the subject himself first notices. One eye may be seriously compromised before the patient realizes that anything is wrong. In 127 cases in which the onset was noted, the eye affection developed gradually in 84 and acutely in 43. In 100 persons employed in the vulcanization of rubber, 34 were cured, 25 improved, but 20 were unimproved. Lewin adds that scientific study of industrial intoxications generally has to contend with obstacles purposely thrown in the way by the proprietors.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed XLIII, page 1827.

66 (LXXIV, Nos. 3-4.) *Zur Behandlung des eingeklemmten Bruches (incarcerated hernia). Lessing.
67 Der Epiphysenbruch des Femur im Kniegelenke (fracture at knee). Reismann.
68 *Ueber Enterostomie bei Darmverschluss durch Peritonitis (ileus). Busch.
69 *Ueber Extremitäten-Gangrän im jugendlichen Alter nach Infektions-Krankheiten. Barraud.
70 Zur Diagnose der Pankreas-Erkrankungen. A. Neumann.
71 *Ein Weg zum vesikalen Ureteren-Ende beim Manne. A. Neumann.
72 Ueber Narkosen mit dem Roth-Dragerschen Sauerstoff-Chloroform-Narkosen-Apparat. Oertel.
73 Ueber Situs viscerum inversus. Riechelmann.
74 Stiel Torsion eines soliden Ovarial-Tumors; schwere peritoneale Reizung. Extirpation. Heilung. Nadler.
75 *Die Behandlung der Hydrocele nach einem neuen Verfahren. Klapp.
76 (Nos. 5-6.) Exstirpation eines grossen Myxo-Fibro-Lipoms der Milz-Ligamente mit gleichzeitiger Exstirpation der Milz (of spleen). H. v. Burckhardt.
77 Fall von ungewöhnlich grossen sekundären Lebertumor bei atypischem Schilddrüsenkarzinom (tumor in liver with thyroid cancer). Labhardt und Saltykow.
78 *Surgical Treatment of Epilepsy.—Beiträge zur Hirn-Chirurgie. A. Nast-Kolb.
79 Hemorrhage from Stasis After Contusion of Trunk.—Weiterer Beitrag zur Kenntnis der Stauungsblutungen nach Rumpfkompression. H. Braun.
80 Osteoplastischer Verschluss einer Hernia obturatoria nach dreimaliger Einklemmung im Foramen obturatorium sinistrum. M. Schwarzschild.
81 Myositis ossificans traumatica mit spontanem Zurückgang der Muskelverknocherungen. R. Nadler.
82 Is Toxicity of Cocain Reduced by Adrenalin?—Wird die Giftigkeit des Kokain durch Kombination mit Adrenalin herabgesetzt? J. Thies.
83 Beitrag zu den Affektionen, namentlich der Tuberkulose, der Schleimbeutel in der Beckenhüftgegend (in bursæ of hip). J. Wieting.
84 Beitrag zur Lehre von der chronischen ankylosierenden Entzündung der Wirbelsäule (of spine). D. G. Zesas.
85 Zur Frage der operativen Behandlung der Tuberkulose der grossen Gelenke der Extremitäten und speziell der Resektion derselben (large joints). N. Wolkowitsch.
86 Ein Beitrag zur temporären Aufklappung beider Oberkiefer nach Kocher (turning back the jaw). Enderlen.
87 Experimentelle Untersuchungen über die Durchgängigkeit des Darmes für Bakterien (permeability of intestine). A. Helmberger und A. Martina.
88 Zur Kasuistik und Histologie der kavernösen Muskel-Angiome. K. Keller.
89 Ueber Luxatio pedis sub talo nach vorne mit Talus-Fraktur. E. Deetz.
90 Beitrag zur Lehre von dem Adamantinom. M. Matsuoka.

66. **Incarcerated Hernia.**—Lessing reviews the 165 cases of incarcerated hernia treated at the Königsberg clinic between 1896 and 1903. The majority of the 40 cases of gangrene occurred with femoral hernia.

68. **Enterostomy in Prevention of Ileus.**—Busch advocates prompt enterostomy in case of peritonitis as a means of preventing closure of the bowels from the action of the inflammation around. He reports 2 cases in which ileus due to the action of the existing peritonitis was relieved by immediate enterostomy. In one case an opening was made three times and in the other twice. He emphasizes the great importance of free evacuation of the intestines in every case of peritonitis, without waiting for the suppuration or sepsis to assume large proportions.

69. **Gangrene in the Young.**—Barraud's patient was a young woman whose finger was injured and became red and swollen, but without suppuration. A gland in the axilla also became enlarged and painful. Six weeks later fever developed, with pains in the joints and later in the leg of the opposite side, with gangrene and death. Staphylococci were found in the swollen gland, but not in the white thrombus which plugged the iliac, femoral and hypogastric arteries.

71. **Ureteral Abscess Opened Through the Perineum.**—Neumann describes a case in which he evacuated an abscess at the vesical end of the ureter by way of the perineum.

75. **Treatment of Hydrocele.**—Klapp slits the sac and sutures the tunica vaginalis propria.

78. **Surgery of the Brain.**—The three cases of epilepsy reported were characterized by the traumatic etiology, the com-

mencement of the spasms in a certain part of the body and the absolute failure of all medical measures. The motor region was exposed by a Wagner bone flap in all three. In the first case five small cysts were discovered, and the patient soon succumbed to meningitis which developed after a prolapse of the brain. In the second case the center involved in the spasmodic turning of the head was determined by faradization and excised, the resected portion measuring 6 x 9 x 11 mm. The patient remained cured for six months, but then showed symptoms of recurrence. The brain was trephined again, and this time the patient remained free from symptoms for seven months. In the third (quite recent) case a fibroma was found in the falx cerebri. It was extirpated with good results to date. Reviewing the literature on the subject of the surgical treatment of epilepsy, Nast finds 84 cases recorded since 1889. Of this number 28 were not benefited by the intervention, but 25 were cured for at least a year, and 20 for a period less than a year. Six were improved and five died. Fourteen of the recoveries were in the 35 cases of traumatic Jacksonian epilepsy, and 8 recoveries in the 35 non-traumatic cases. Horsley excision of the cortex was done in 14 instances, with 5 recoveries. The cured cases have been under observation for from three to twelve years. The center involved was determined by electric tests in 11 cases. Only 3 of the 15 cases of general epilepsy were cured, and 13 of the 15 were of traumatic origin.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed XLIII, page 1828.

91 (XX, No. 3, September.) Ueber Phlebektasien des graviden Uterus und ihre klinische Bedeutung. J. Halban.
92 Ueber die Anwendung der Kopfzange bei Beckenendlage (forceps in pelvic presentation). R. Müllerheim.
93 Incarceration cystisch degenerierter Ovarien bei Blasenmole (with vesicular mole). G. Bamberg.
94 *Relations Between Nasopharynx and Genitalia.—Die Veränderungen des Nasenrachenraums bei Schwangeren, Gebärenden und Wochnerinnen. H. W. Freund (Strasburg).

94. Connection Between Nose, Throat and Genitalia.—Freund's later researches have confirmed his announcements in respect to the relations between the female sexual organs and the nose. In 66 out of 100 pregnant women he found hyperemia of the throat and hypertrophy of the turbinals, generally of the lower. These findings persisted throughout the pregnancy and were accompanied by epistaxis in 25 per cent. During the birth act the turbinals swell and induce reflex phenomena in the respiratory organs. These changes in the nose persist during the lying-in period without being influenced by nursing. Hypertrophied turbinals in contact may induce hyperemesis. Congestion and enlargement occur in the throat also, but much less pronounced, and generally only in the tonsils.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed XLIII, page 1859.

95 (LIII, No. 1.) Tubar Gravidität bei gleichzeitig bestehender akuter eitriger Entzündung der Tube. F. Hitschmann.
96 Die Deportation der Zotten und ihre Bedeutung (villi). Ibid.
97 *Ueber die Ovarial-Veränderungen bei Blasenmole und bei normaler Gravidität (changes in ovaries). J. Wallart.
98 *Ueber die Diagnose des malignen Chorionepithelioms nach Blasenmole nebst Mitteilung eines neuen Falles. R. Krukenberg.
99 Ueber Embryoma tubæ. E. G. Orthmann.
100 Ueber Adenomyoma uteri. J. G. V. Meyer.
101 Eine seltene Form des Cervix-Myoms. P. Zacharias.

97-98. Vesicular Mole.—Wallart describes the findings in the ovaries in cases of vesicular mole and also during pregnancies, relating the particulars of a case in which a tumor developed after expulsion of a vesicular mole. In eight months metastases had developed in the lungs and in the vagina. Histologically it suggested a large-celled, blood-filled sarcoma. He classifies it as an atypical, malignant chorioepithelioma. Krukenberg also reports another atypical case. He advises prompt extirpation in dubious cases, without waiting for the uncertain findings of histologic examination.

Revista de Medicina y Cirugia, Havana.

Last indexed XLII, page 690.

102 (VIII, No. 11.) *Nuevo metodo de sutura en la operacion de la cura radical de la hernia inguinal. F. D. Roldan.
103 (No. 12.) Profilaxia de la fiebre amarilla (yellow fever). J. Santos Fernandez, G. Lopez and C. Delgado.
104 (No. 15.) Algo sobre el diagnostico de la diabetes sacarina. J. F. Arteaga.
105 *Complicaciones y tratamiento de las fracturas del maxilar inferior. F. D. Roldan.
106 (No. 16.) Nuevas observaciones de intervencion quirurgica en casos de litiasis biliar. J. A. Presno y Bastiony.
107 (No. 17.) Las corrientes galvanicas y faradicas en el tratamiento de la neurastenia. R. O. Vento.
108 (No. 18.) Algunos detalles sobre la anatomia de los dedos y desarticulacion de las falanges. F. D. Roldan.
109 (No. 19.) Contribucion al estudio de la atrofia infantil. Aparato digestivo y sus anexos en el atrofico. A. A. Aballi. (Commenced in No. 17.)
110 (No. 20.) Antagonismo entre la estricnina y la quinine. A. V. Dapena.
111 (No. 21.) Epiplectomia y hernias del gran epiploon (omentum). F. D. Roldan.
112 (No. 22.) Hosts of Protozoa.—Huespedes de infeccion protozoarica. M. G. Lebredo. (Commenced in No. 21.)
113 (Nos. 23-24.) Tuberculosis pulmonar. Estudio sobre localizacion, diagnostico precoz e intoxicacion. C. M. Desvernine.
114 (IX, No. 1.) La plata coloidal (colloid silver). J. A. Taboedela.
115 (No. 2.) Suturas intestinales. F. D. Roldan.
116 Anatomia topografica del recto (rectum). A. G. Casariego.
117 (No. 4.) *Modificacion de la "Dermo" lampara y aplicacion de los rayos Finsen en el diagnostico y tratamiento del hidrocele. F. D. Roldan.
118 (No. 5.) Anatomia topografica de la S iliaca. O. Solis.
119 *Nota sobre el tratamiento del queloide por las inyecciones de tiosinamina. J. A. Presno y Bastiony.

102. Roldan's Method of Treating Inguinal Hernia.—In a typical case described, bilateral inguinal hernia had recurred on both sides. Roldan shows in five full-page illustrations the technic of his method, which does away with a separate suture thread for ligating the sac. The latter is included in the suture of the lower tier. He uses three silk sutures, all passed through a short piece of a drain, tied together in such a way that they will not pull out of the drain. The threads are then threaded in turn in a Reverdin needle and passed through and under the skin to a point 2 cm. from the upper corner of the wound, where they emerge. With one of the threads the lower tier is reconstructed, the needle being passed back and forth through the neck of the sac, as well as through the muscles. The sac is then resected and the tiers above sutured with the other threads, and the ends passed separately through another piece of drain. He never operates if the patient has the slightest catarrhal symptoms in the air passages. He removes the threads in from two to three weeks and has his patients wear a truss, with slight pressure, for six months at most.

105. Treatment of Fractures of the Lower Jaw.—The same author gives a number of illustrations to show the plaster bandage he applies in case of a fractured jaw and also the excellent results in 3 cases. The band passes across the jaw below the mouth, is then crossed at the base of the hair and is crossed again just in front of the vertex. One end is brought down over the cheek to below the chin and the other end over the other cheek, over the shorter end, and over the top of the head again and down to below the chin on the other side. The portion of the bandage where the strips cross at the base of the hair is then cut out and the two sides laced together. A cast thus made holds the jaw immovable while allowing free use of the mouth. It does not encroach on the face beyond the middle of the cheeks.

117. Modified Finsen Treatment of Hydrocele.—Roldan has devised a cooling ring to use with the Dermo lamp. It not only prevents the heating of the apparatus, but it also serves to absorb the heat rays. Applied in the treatment of hydrocele, he found that the lesion subsided entirely during the month after two 8-minute applications of the lamp. The hydrocele always shows transparent in the light of the lamp. The amount of fluid in the case described was from about 60 to 80 gm. The patient was a young man of 17, and his usual occupations were not interfered with in any way, nor were any inconveniences noted from the treatment. The application of the light *per se* is always indolent.

119. Thiosinamin Treatment of Keloid.—Presno relates that a rebellious, recurring keloid was cured by four injections of a 15 per cent. glycerin solution of thiosinamin. The lesion was on the back of the neck and had resisted all kinds of chemical cauterization. The injections were made every third day directly into the tumor which had developed subsequently to acne.

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Original Articles.

THE TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS BY NERVE TRANSPLANTATION.*

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PHILADELPHIA.

Acute anterior poliomyelitis is generally recognized as an inflammation of the gray matter of the anterior horns of the spinal cord. The cases in which an examination of the spinal cord has been possible in the early stages of the disease have shown congestion of blood vessels, round cell infiltration about the vessels and within the nervous tissue, and more or less destruction of the nervous elements. The paralysis which occurs as a result of these lesions develops early in the disease and is usually extensive, and more so than at later stages. Some of the nerve cells of the anterior horns are so seriously damaged that they are incapable of regeneration, and the muscles formerly innervated from these, atrophy and lose their function. Other nerve cells are only seriously diseased and are still capable of at least partial restoration, and function returns later in the muscles innervated by these cells.

The representation of the muscles within the spinal cord is a matter of dispute and need not concern us in this connection. It is important, however, to bear in mind that in anterior poliomyelitis the muscles that remain permanently paralyzed represent nerve cells of the anterior horns which have degenerated, and that muscles which have recovered represent nerve cells which have regained their function. It is the usual experience that restoration of function in anterior poliomyelitis occurs in some of the muscles which at first were partially or even completely paralyzed, but this restoration, if it occurs, takes place within a few months following the onset of the disease. Certain muscles almost invariably remain functionless.

Medicinal treatment, massage and electricity are of little avail so far as these persistently paralyzed muscles are concerned; but there is in selected cases a hope for surgical intervention. In cases in which only one or two muscles of a group remain paralyzed, we may expect good results by uniting the nerve supply of these paralyzed muscles with a motor nerve in the vicinity, as in this way healthy nerve cells are brought into union with diseased nerve fibers and the latter may regenerate.

This procedure is not permissible within the three or four months immediately following the development of the paralysis, because, during this time, it is impossible to determine accurately which muscles will recover their function and which will not. Muscles that still remain paralyzed after six months are not likely to regain contractile power, and we are of the opinion that at the end of six months would be the most suitable period for operation, although recovery is still possible from operation at a later date.

Those cases in which a whole limb or the greater part of a limb remains paralyzed are not adapted to surgical treatment, and only those cases should be selected in which a few muscles are paralyzed.

Having these facts in mind, one of us (Spiller) proposed to Dr. J. K. Young that in a case of poliomyelitis of over two years' duration, in which the anterior tibial muscle alone was paralyzed, a nerve transplantation might be employed. The patient was a child. Investigations on the cadaver were made by Dr. Young to determine the method most suitable to the case. Dr. Young made an incision 10 cm. in length downward from the head of the tibia in the bony axis of the leg. The incision included the skin and superficial fascia. The deep fascia was divided on a grooved director, exposing the peroneal nerve. The nerve was followed down, and by separating the peroneus longus muscle three divisions were found: 1, The fasciculus of the nerves supplying the upper part of the anterior tibial muscle; 2, the anterior tibial nerve; 3, the musculocutaneous nerve; these divisions corresponding to those found in the cadaver. It was decided to take the upper division, of which there were four or five branches, and perforating the external division, the musculo-cutaneous, the former were united to the outer side of the latter by fine catgut sutures.

Great care was taken not to injure the musculo-cutaneous nerve any more than necessary, and the branches of the nerve which supply the anterior tibial muscle at its upper part were pushed through the incision in the musculo-cutaneous nerve without any attempt being made to separate the nerve fibers from the sheath. Small instruments were used, and the nerves were handled as little as possible.

The nerves which were anastomosed were divided as high up as possible, so that there would be no tension on them. The deep fascia was not closed with sutures. The skin was united by interrupted sutures. Over the antiseptic dressing a plaster-of-paris cast was applied to insure fixation of the limb.

This operation was done Dec. 4, 1902, and the case was reported[1] and the child presented before the Philadelphia Neurological Society, Feb. 24, 1903. At the time of presentation some improvement in the movement of the anterior tibial muscle was observed. At the

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Spiller and Young, Jour. of Nerv. and Mental Dis., June, 1903, p. 369.

present date the improvement is decided. The gait is nearly normal, and the child can draw up the inner side of the foot almost with normal power.

In some respects this case was an unfavorable one for the operation. The child was too young to appreciate the importance of making voluntary effort to contract the anterior tibial muscle, the mother was not sufficiently intelligent to understand the necessity of bringing the child to the dispensary for regular treatment by massage and electricity, and the long duration of the paralysis made regeneration of the nerve doubtful.

About two months after this operation was done, one of us (Frazier) performed a similar operation in another case of poliomyelitis. The results so far have not been so good as in the case just described, but the child undoubtedly moves its affected limb less awkwardly, and the mother feels convinced that improvement in the gait has occurred. The case is as follows:

History.—J. S., aged 4, was always in good health until two years ago. About this time he was ill for some weeks with pneumonia. Just previous to the pneumonia he suffered from a fall from the hands of his nurse. He had been making some efforts to walk at this time. On recovery from illness his mother says his legs were weak and he was slow in learning to walk. History otherwise negative. An examination of the patient before the operation demonstrated paralysis only in the peroneal group of muscles.

Operation.—Feb. 28, 1903. This consisted in the performance of nerve transplantation in which the musculo-cutaneous nerve was grafted into the anterior tibial nerve.

Result.—The patient was discharged from the hospital on April 5, at which time there was no evidence of any restoration of function in the affected muscles. March 14. Extract from a letter received by Dr. Frazier: "He is getting along pretty well, but his leg seems much thinner and soft, his ankle seems very weak, but in other ways he seems well."

Examination by Drs. Frazier, Spiller and Weisenburg the following week: As far as could be seen there was no material change; that is to say, there was no change in the electrical reactions. The parent of the child seemed to think that he walked a little better and that there was a little less toe drop. This was not manifest to those examining. An infantile palsy brace was ordered for the child.

The operation of nerve transplantation recommended by one of us (Spiller) in these cases was devised in ignorance that any similar attempt had previously been made. It seems, however, that Peckham,[2] in 1900, performed nerve transplantation for the relief of paralysis in anterior poliomyelitis. His operation differed from those described in this paper, in that healthy nerve fibers were cut and united with degenerated nerve fibers. The cases in which this can be done are rare, as the surgeon naturally will hesitate to cut healthy nerves in a limb in which nerve fibers already are paralyzed. In reading the report of Peckham's case, one is struck by the long duration of the paralysis —ten years—and by the rapid restoration of partial function. It is stated that at the end of six weeks the toes could be extended (dorsally flexed) until they were perfectly straight, a motion that had been impossible until after the operation.

DISCUSSION.

DR WHARTON SINKLER, Philadelphia, stated that he considers this one of the important advances which has been made in the treatment of poliomyelitis and he is sure that it is going to obtain a very prominent position in the treatment of cases where there is paralysis of an isolated muscle or group of muscles. It is frequently found that the anterior tibial group remains paralyzed when all the other muscles of the leg have recovered, and this gives rise to the flail foot which is so frequently seen in children suffering from this disease. The usual plans of treatment by electricity, massage and everything else which have been tried, have proved futile and he believes that there is a good field for this operation. He believes that a similar operation has been successfully done a number of times in cases of facial paralysis, that is, anastomosis of the seventh nerve.

DR. ALBERT E. STERNE, Indianapolis, declared that nerve anastomosis is a new thing applied in a practical way in this affection. Experimentally, it was done some years ago, even before the transplantation by tendon suturing had been attempted. Dr. Weiner of Chicago has had a great deal of experience and has reported a number of cases, with excellent results in tendon transplantation for poliomyelitis. Dr. Sterne has done the operation a number of times, not only anteriorly but by taking the posterior tendon and bringing it through between the bones of the lower extremity in late cases of poliomyelitis. Care must be taken that the motor axis be exact. If this operation of nerve suturing can be efficiently done and the results demonstrated, so that nerve implantation will exert the effect of tendon transplantation. it would be the rational thing to do, because the nerve force will establish a practically normal function of the muscles already in existence. In tendon transplantation, on the other hand, to a certain extent, a particular group of muscles is disabled. Nerve implantation leaves all the muscles normal. In the old cases that usually come, unfortunately, after the disease has been in progress and has run its course for several months, or even years, the ordinary methods of massage, electricity, etc., are of little avail. In cases seen at the very beginning of the disease, where the acute manifestations are still present, these methods will meet with as good or better results than any other. When the period of regeneration has not yet begun, or during this period, if treatment is instituted results are far superior. When cases are permitted to go along until the regenerative period comes on, then the same results will not be obtained. Early interference with radical measures of a natural character, such as electricity and massage, are the proper measures, but in the late cases nerve implantation may well be the proper thing to do, if it take the place effectively of tendon transplantation. But even here other mechanical measures should not be neglected, for if they be persistently carried out they accomplish at least an added local nutrition to the wasted extremity and prevent its retardation of growth.

DR. DAVID I. WOLFSTEIN, Cincinnati, considers that early interference in cases of anterior poliomyelitis is an exceedingly illogical procedure, because one would have to know to what extent the cord is diseased and to what extent the muscles are going to atrophy; otherwise, after surgical interference, atrophy might take place at a later date. If it is certain that the nerve to be selected originates from healthy nerve cells, nerve implantation might be the best method, but one can not be certain to what extent the anterior cortical cells are involved. Dr. Wolfstein is not convinced that electric treatment and massage in anterior poliomyelitis ever does much good. Massage does some good. A certain amount of tone is restored to the nervous system that depends on the amount of damage done the cord and the nerves involved.

DR. C. C. HERSMAN, Pittsburg, Pa., declared that, in his opinion, six months would be rather early to operate. He has a case which has been under observation for three and one-half years, in which the use of the arm is slowly returning, which would not be improved by operation, as there are no normal nerves in the arm. For the last year, motion has been returning and the patient has some use of the arm. It is possible that he will eventually use it fairly well, though he will never have a perfect arm, as it is much smaller than the other. This motion returning after two years at least of non-use of the arm, seems to indicate that six months would be too soon to interfere. The return of motion might be attributed to the operation; on the other

2. Providence Med. Journal, January, 1900, p. 5.

hand, if the child became worse, the parents and friends would attribute the worse condition to the early interference, and it would be better to wait twelve months at least.

DR. T. G. WEISENBURG, Philadelphia, stated that the first case mentioned he saw both before and after the operation, and there was a very marked improvement. In the second case the improvement was not so great.

DR. HOWELL T. PERSHING, Denver, Colo., said that while in a disease that leaves such sad results as this one must be on the lookout for every improvement in treatment, it seems that the results of such an operation would have to be very critically examined before one could assign to it any definite value; certainly more than one or two cases would be necessary. Although most of the improvement usually occurs within three months, or at the most within six months, yet occasionally under the use of massage and electricity some improvment occurs in a muscle that has long been out of use, and after such an operation treatment would be apt to be applied with especial care. Dr. Pershing asked how the axis cylinders of the nerve are supposed to act on the muscle. He disapproved of the treatment of all cases of poliomyelitis in the early stages with electricity and massage. In any case of inflammation affecting the nerve centers the indications for rest ought to be observed until the inflammation has completely subsided.

DR. ALBERT E. STERNE, Indianapolis, stated that he sees a large number of these cases and sees them early, and that in those cases where early remedial measures are taken the most excellent results are achieved. It is an absolute error to wait in these cases. No possible damage can be done with ice bags on the spinal column; it is only unfortunate that they exert so little action as they do. They are used in other conditions of inflammation; not to use them here is equivalent to cutting down the wires if the telephone is out of order. Electricity can do no possible harm in these cases seen early after the beginning of the inflammatory process. In these cases active measures do good, and waiting for the process of regeneration is not permissible.

DR. W. G. SPILLER, Philadelphia, stated that they are not at all radical in advocating this method of treatment. They should use it with a great deal of caution, and have said that the cases should be selected. He thinks that neurologists whose attention is directed to the subject will acknowledge that those cases of poliomyelitis in which the paralysis is limited to a small number of muscles are numerous; not a majority, but still numerous. In answer to Dr. Pershing's question, he stated that the subject of regeneration at the present day is a matter of great dispute. A few years ago most neurologists regarded this question as settled, and believed that the axis cylinders grew out from the central stump, and a regeneration from the peripheral portion of the nerve fiber. Later investigators have shown that the peripheral stump takes part in the regeneration. It is probable that the regeneration which occurs in the peripheral stump is not permanent, unless there is union with the central stump. The method recommended depends on the union of peripheral portions of diseased nerve fibers with healthy nerve cells and their axis cylinders. The period that should elapse before the operation is done is, of course, a matter of uncertainty. The longer the operation is postponed the less likely is it to be successful. It seems that six months would be the proper period; perhaps others may prefer a longer period. When this operation is done after a sufficiently long period, when further restoration of motor power is improbable, it can not in any way injure the child. The muscles have already become paralyzed, and cutting the nerve fibers supplying these muscles can in no way injure the child. The inserting of these diseased nerve fibers into the healthy nerve does not injure the nerve if properly done. Not all cases will be successful, but when the operation is successful decided advantages will have been gained over the method of tendon transplantation, because in tendon transplantation the muscle or muscles that have been diseased are thrown out of function entirely and use other muscles to perform a function which they have not been called on to perform heretofore. Nerve anastomosis restores the function of the paralyzed muscles where it is successful. The operation which Peckham performed in 1900 is remarkable on account of the long duration of the paralysis before the operation was performed and the rapid restoration of power. It differs from the operation here suggested in that healthy nerve fibers were cut and anastomosed with diseased nerve fibers. This Drs. Spiller and Frazier have not proposed, as by this operation, in most cases, one certainly causes paralysis in the region in which these healthy nerve fibers are distributed, and the operation is of very limited utility. Dr. Spiller is in the habit of using massage in poliomyelitis. He believes in all cases of paralysis it is our duty to keep the muscles in as good tone as possible until by natural processes their function is restored. Massage and electricity, he thinks, are useful in all cases of paralysis, especially in cases where recovery may be hoped for by natural means.

INTESTINAL OBSTRUCTION IN CHILDREN.*

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I shall take up in this paper the chief symptomatic factors in intussusception, strangulated hernia, postoperative bands, etc., Meckel's diverticulum, devoting the major portion of my time to intussusception.

INTUSSUSCEPTION.

This disease, barring a few accidental cases, is one that demands prompt surgical interference. Each successive case I see impresses me with the necessity of making operations of urgency in these cases, and of not temporizing with air inflation or water injections. The diagnosis is not difficult, although the symptomatology, as given in former text-books on diseases of children, etc.. should be rewritten with a view of placing all stress on blood or bloody mucous stools, and not on the presence of a sausage-shaped tumor.

In over 60 per cent. of a series of 28 cases seen by me, 24 of which I operated on, no tumor of any kind was palpable per rectum or through the abdominal wall. I do not find, on searching my histories, a single acute case in which blood, bloody stool, bloody mucus or bloody serum was not found, either on the diaper, in the commode, or expelled from the anus after digital examination.

Symptoms.—Sudden pain is almost invariably the first symptom that the child manifests, then a degree of shock varying in intensity, and efforts at defecation take place; these are followed by manifestations of spasmodic pains; a peculiar whining cry or fits of crying. In the first hour or two the abdomen is lax, and no marked evidences of pain are produced on palpation; tumor is not felt unless the intussusception is of considerable extent and is taking place rapidly. After a few hours, depending entirely on the degree of obstruction, abdominal distension and evidences of complete obstruction occur. Although some feces and gas may be expelled with the bloody rectal contents mentioned, they are due entirely to the fact that these contents were below the point of obstruction. When a tumor is felt it is not usually the proverbial sausage-shaped tumor of our didactic days, but is more apt to be round or nodulated and moderately movable. Recently, in oper-

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

ating on a subacute case of six days' duration, a tumor was found that in every possible manner simulated a freely floating kidney.

There is invariably an accelerated pulse and an elevation of temperature of from one degree to two degrees and a half. I feel that the temperature noted in the majority of my cases has been due to absorption of some of the decomposed, foul-smelling, bloody rectal contents that were and are present in every case of over six hours' duration. In two instances the symptoms were of a subacute variety and rather puzzling, no blood having been observed in either case, only a little mucus, and in neither was there complete obstruction noted.

Subacute Intussusception.—Case 20.—(Operative Case 19.) Operated on after a period of six days duration with recovery. I am indebted to both Francis and Joseph Huber.

DR. JOSEPH HUBER'S REPORT.

"N. U. was seen for the first time Sunday, Jan. 25, 1903 (the prior history having no bearing on the present illness, is therefore omitted). The child looked well; temperature was 99. He complained of pain in the abdomen; the pain was paroxysmal in character and not localized in any special area. The mother was positive in her statements that the bowels had moved twice daily up to the previous twenty-four hours.

Codein, gr. 1/6 hourly, high injections, and cold or warm applications were advised.

January 26, restless night; temperature 99, same paroxysmal pain, slight resistance of right rectus, bowels moved twice after injections, a. m. and p. m.

January 27, temperature 96.6, condition the same; restless, with pain in paroxysms all night.

At 11:30 a. m. I saw the boy in consultation for the first time.

Examination.—General condition excellent, pulse good, about 80 to the minute; respiration natural and not accelerated; tongue clean, no odor to breath; heart and lungs negative.

Abdomen: both recti tense, no pains in right iliac fossa; palpation negative, as was also examination per rectum; no retention of urine or delay in the urination; no evidence of shock or collapse. The patient insisted on getting out of bed to use the chamber. Between the paroxysmal pains he would play with his toys and took great pride in blowing a fish horn. No blood or mucus in the stools at any time.

Symptoms.—Pain referred to the umbilical region and tenderness in this area were constant. Pressure over McBurney's point negative. Colicky pains, recurring at irregular intervals and severe in type, caused the boy to roll about and cry out. Both recti tense. There was some interference with the functions of the bowels, as they did not act as readily as in health. No urgent symptoms being present, it was decided to await further developments. If no improvement occurred in twenty-four hours an exploratory laparotomy was suggested, the suspicion tending in the direction of a mild inflammation of the appendix.

January 28: Temperature 100, pulse 104; p. m. temperature. 99; restless all night, pains in paroxysms continued. Two good fecal movements followed injections, made by nurse. Dr. John F. Erdmann was now requested to see the patient in consultation, and suggested an early exploratory operation.

January 29: Temperature 99, pulse 110; very restless and in pain all night. Bowels moved well (distinct fecal masses) after injection. The necessary arrangements having been made, the child was sent to Gouverneur Hospital and operated on by Dr. Erdmann at 3:30 p. m.

DR. ERDMANN'S REPORT.

When I first saw the patient, with Dr. Joseph Huber, he had all the manifestations of an appendicitis without any shock. He had had some so-called results from enemata. I suggested to them that the boy be submitted to operation as soon as possible.

Examination.—He was admitted to the hospital the next morning, Jan. 30, 1903, for operation, and when under ether, on abdominal and lumbar palpation no tumor was found in the appendicular region; but on subcostal palpation, a tumor about the size, and absolutely the shape of an infant's kidney was displaced and could be brought down into the right iliac region. This mass would slip back into the loin exactly as a floating kidney would, but it was evident that the tumor was intraperitoneal.

Operation.—The abdomen was opened, with a view of exploration, through the right rectus. Digital examination detected a tumor involving the cecum and colon with a slight portion of the ileum. This tumor proved to be an intussusception, which was readily reduced; the appendix was removed, and the abdomen closed without a drain. The patient made a perfect recovery and was discharged to his home in ten days.

This case, without question, was one of those varieties, subacute in character, no adhesions interfering between the separate layers of the intussusception, in which the bowel was not sufficiently constricted to produce the characteristic discharge or to induce complete obstruction. When I saw the child I spent quite a length of time at the history, with the possibility of an intussusception in view; but at this time all manifestations were those of appendicitis, except the constitutional manifestations due to pus, which one would naturally suspect at the end of five or six days, and I therefore suggested, as above stated, exploratory laparotomy. The question of appendicitis was readily eliminated when the child was under the anesthetic.

Movements of the bowel occurred with mucus, spasmodic pains with intervals of from one-half hour to an hour, a tumor not palpable until anesthetized, and then simulating in size, shape and motility a floating kidney. The condition only demonstrated by exploration.

CASE 28.—(Operative Case 24.) The second case was one of eight days duration in a girl 22 months old, seen on the third day by one of our leading pediatricians. A diagnosis was not made. The case was seen by me on the eighth day, with the following signs and symptoms.

Symptoms.—A history of spasmodic pains, the child getting in the knee-chest position and crying out at intervals of thirty minutes. In the interim the child was either quiet or whining. Mucus was present, but no blood. Movements of the bowels occurred daily, but were due to rectal feeding. There was a movable tumor in the right side, but having no distinct outline. The child was in shock.

A diagnosis of intussusception with subacute symptoms was made.

Operation.—At the operation a gangrenous, irreducible, ileocecal intussusception was found. The appendix and ten inches of the ileum were excised. End to end suture anastomosis was employed. The patient died in six hours.

In this case I was satisfied that an intussusception existed although an appendicular mass had been suspected by the attending physicians.

Spontaneous Reduction.—Case 26.—A short time ago a case was referred to me by Dr. Francis Huber at about 11:30 in the morning. As I was unable to reach the house before 2 o'clock, I sent my nurses and assistants to prepare for operation so that no time should be wasted. On their arrival at 1:30 o'clock, they were told that the child had just had a distinct fecal movement, so that operation would not be necessary. The history of the case is as follows:

History.—Baby, 5 months old; was well up to 6 p. m. of the preceding day, when suddenly it was taken with a rectal discharge of pure blood, followed by vomiting. The mother said the child had agonizing pains, occurring at frequent intervals. When seen by Dr. Francis Huber at 11 o'clock of the following morning, i. e., the morning after the onset, the child was greatly depressed; the abdomen greatly relaxed; no stools since the preceding day; no tumor was palpable externally:

rectal examination was followed by the escape of about one ounce of offensive bloody discharge; no mass to be felt in the rectum or bimanually. The history further showed that an enema had been given some time before midnight, but nothing in the line of injections had been used following this time until the patient was seen by Dr. Huber. He, feeling that the symptoms were so pronouncedly those of intussusception, deemed it unadvisable for further interference other than surgical.

I was then called and ordered all preparation, as above stated, when, at 1:30 I was telephoned of the distinct fecal movement having taken place, and that the child's general condition was that which we see after a reduction of intussusception.

This spontaneous reduction evidently took place somewhere between twelve and fourteen hours after the injection had been used, and followed within an hour after the abdominal and rectal examination made by Dr. Huber. The mother said that from the time of the examination the vomiting and pain ceased, and that between 1 and 1:30 p. m. the bowels began to act.

The after-history of this patient was also typical of the cases we have reduced by operative procedure—that is, there was a foul-smelling, greenish diarrhea, which is almost invariably present, and is due to a superficial necrosis of the mucous membrane. In a comment by Dr. Huber on this case to me later, he said that in view of the history, symptoms and appearance of the baby with its foul enteritis (characteristic), he concluded that this was a fortunate case of spontaneous reduction, feeling that there could be absolutely little doubt on this score. I, personally, feel that this case was reduced largely through the manipulation, abdominal and rectal palpation, which simulated a massage. I certainly do not feel that the enema given about midnight could have had any influence whatever at so remote a time.

In the 28 cases seen by me twenty-four were operated on. One operative treatment was refused. Two are recorded as reduced shortly after the use of large enemata with inversion. One was recorded as a case of spontaneous recovery (see case No. 26) twelve or fourteen hours after injections had been used.

TREATMENT.

Rectal enemas in the first few hours are not productive of harm. but may, though rarely, be followed by reduction. This occurred but three times in the 28 cases seen by me.

Admitted that one meets occasionally with a reduction by the use of enemas, nevertheless this very important fact must be remembered, i. e., that the whole mass may be reduced but the ileocecal junction and one or more inches of the ileum. This being so, all the symptoms clear up for a time. They again return and necessitate operative interference at a time when the conditions of this region are not nearly so favorable to reduction, and may even require excision. This condition was well demonstrated in my sixteenth case, a male child, seven and one-half months old. Duration eight and three-fourths hours, injection used by the father, a well-known pediatrician, Dr. H. M. Silver, and myself was followed by a perfectly tranquil picture, but realizing the possibility of this condition of incomplete reduction. we all felt that the risk of exploration would be far less than that taken by leaving matters rest for farther manifestation. That our fears were not groundless was proved by the evidence of a mass at the cecum, which consisted of almost three inches of the ilium and the entire appendix. Reduction was readily accomplished. the appendix was removed. and recovery followed.

I should. therefore. not feel satisfied that reduction had taken place, even if the child should have no further manifestations of pain, etc., unless this was followed in a short time by a movement of the bowels that we could feel satisfied had come from beyond the supposed site of the previous intussusception; and that in the waiting interval for a movement we should be prepared to proceed at a moment's notice with the operative measures.

The use of enemas previous to operating is offered as a suggestion, and I can say that clinically it is of very valuable asistance, as there is no doubt that the injections reduce a portion of the intussusception, and any agency or procedure that limits operative time must of necessity diminish shock in direct proportion.

Although these little patients bear operative interference quite well. it is quite significant that my greatest mortality rate occurred in those cases which required the longest time for reduction, and that these cases were also the ones of longest duration. Enemas as a means of reduction are not advised after six hours time has elapsed from the first positive symptoms, as, after this period, much valuable time is lost by such procedure.

Anesthetic.—Chloroform has been the anesthetic used in all cases operated on by me, for the theoretical reason that vomiting may be a causative factor in producing this condition; therefore, the anesthetic that is the least liable to induce postoperative vomiting, which might reproduce the intussusception, should be used unless its danger to life in other ways is greater.

Operation.—The abdomen is prepared as in all emergency operations. The incision is invariably made by me in the middle third of the right rectus, and does not usually exceed two inches in length; the index finger explores the abdomen and then, if the tumor can not be delivered on the abdominal wall or into the incision, the latter is enlarged. Should the tumor be of considerable size, it is advisable, and even necessary, to reduce it in part as it lies in the abdomen, by compressing the distal end of the tumor in the proximal direction, i. e., so that the escaping intussusceptum can be seen or felt escaping toward the cecum in colonic or ileocecal varieties, and toward the duodenum in the enteric variety.

Traction as a means of reduction should never be used except in the lightest possible manner and then only with a view of directing the expulsion of the intussusceptum in its proper course.

Sometimes reduction occurs with a distinct pop; this is seen in the colonic and enteric varieties, but when the ileocecal valve is the part of the mass, great difficulty is often met with in reduction of the final portion. A little patience and gentle compression, aided with a backward and forward motion of the unreduced mass, allied to attempts at reduction and production of the condition is usually followed by success.

Occasionally a blunt instrument introduced between the intussuscipiens and the intussusceptum is of benefit in breaking up any adhesions, and may also be employed to dilate the tonic, contracted intussuscepiens.

When, as reduction proceeds, the tumor advances toward the right iliac region, it is advisable to bring the mass out of the abdomen before finishing the reduction. In each case, twelve in number, that I have operated on since January, 1902, I have removed the appendix before closing the abdominal incision, and in all but two of these the appendix was a portion of the intussusception. My reason for making the incision in the right rectus is due to the fact that the majority of cases

are those invading the cecum and colon, and such being the case, the most frequent site of final reduction is that of the right lower quadrant of the abdomen. Even if the case is one of the sigmoid or enteric variety, this incision can be enlarged sufficiently to approach the most remote parts of the abdomen in children, without subjecting the patient to any danger of a hernia.

In case of inability to reduce the intussusception or when gangrene of the gut exists, excision with end to end anastomosis in the enteric or colonic varieties, and end to side anastomosis in those cases requiring excision of portions of both large and small intestines is necessary. Although occupying a few moments more time, this should be done before a patient is taken from the operating table.

In one case of over five days duration, in a male four months old, I was compelled to excise for gangrene and irreducibility six inches of the ileum and all of the large intestines to within four inches of the rectum, making an anastomosis between the ileum and the lower portion of the sigmoid. Death followed in a few hours.

Before closing the abdomen care should be taken to examine thoroughly the abdominal contents for multiple intussusceptions; the term multiple is used in contradistinction to the terms double, triple, etc., given by Edred M. Corner, M.B.,[1] to those cases in which double, etc., invagination takes place in one intussusception.

After reduction, the abdominal incision is sutured in the usual manner and a very tightly applied abdominal dressing is used.

After-treatment.—The after-treatment is of great importance. Paregoric, in sufficient doses to control peristalsis, is to be administered every three hours; barley water and milk, proportions varying with the child's age, are employed, and a small amount of bismuth, etc., is used.

The first day or two the child may have all the evidences of a foul, putrid enteritis with a temperature of from one-half a degree to two degrees elevation, the latter being thoroughly consistent with primary union in the wound.

My work for the past fourteen months consists of six operations with two deaths. One of these patients was doing nicely for twenty-four hours when he suddenly died. Dr. Francis Huber, to whom I am indebted for the case, was of the opinion that death was due to status lymphaticus. The second case was that cited as Case 28, operative case No. 24, where I excised ten inches of the ileum, etc.

I can not but feel that the citation of the two cases, one of spontaneous reduction several hours after enema, and the one of a subacute variety of over six days' duration with recovery after operation, are of sufficient interest to repay us for the time occupied in recording them in detail.

STRANGULATED HERNIA.

In a recent paper[2] on strangulated hernia in which I reported 58 cases, two were in children under five years. Since reading the paper I have had another, occurring in a male six weeks old, son of a physician. Two occurred on the right side, while the third was on the left. All were inguinals and occurred in males.

The left-sided hernia occurred in an infant not quite 13 days old. The symptoms expressed were those of irritability, crying, restlessness and shock. The protrusion, readily discoverable, is usually found by the mother while giving the child its bath. No differential diagnostic difficulty is experienced in these unless the case be one of atypical Richter hernia as occurred in the patient of 5 years of age. In this case obstruction was evident for several days. A small nodule in the groin, said by the mother to have been there for a considerable time, never varying in size, was taken for an enlarged gland. An abdominal section was made, and the protrusion found to be a small portion of a knuckle of gut (Richter's hernia), strangulated and gangrenous, requiring a resection. The case of a male, aged six weeks, was reduced after manipulation, no operation being necessary.

Since recording the 58 cases of all varieties of strangulated hernia, I have had 7 more, including the child of six weeks, cited above. There were 5 inguinal and 2 femoral, making a total of 65 cases, giving us about .046 per cent. occurring in children under 5 years in strangulated hernia of all varieties. If the inguinal variety alone be considered, and this should be, as I do not know of any strangulations recorded in the literature of femorals, ventrals, etc., in children of this age. I then have 31 previously reported and 5 additional cases in this paper, making a total of 36 cases in my recent practice, of which 3 were in children.

We then find .083 per cent. of all inguinal strangulations occurred in children under 5 years. The treatment in these cases resolves itself into: 1, Reduction, if possible, and in recent cases when the child is under 2 years the use of a properly fitting truss, relying on the possibility of a spontaneous cure. The six-weeks-old child has never had a recurrence in the six months past since reducing the hernia. 2. Operation with radical cure in all irreducible cases and all cases over 2 years, as the chance of spontaneous recovery with truss is relatively infrequent after this period.

POSTOPERATIVE BANDS, ADHESIONS, ETC.

It has fallen to my lot to have 2 cases of obstruction due to the above causes—one in a boy 6 years old after an operation for appendicitis in a Brooklyn hospital, and the other in a boy 10 years old following a drain operation for appendicitis.

Symptoms.—The symptoms of obstruction are the usual ones—constipation, meteorism, singultus, increased pulse, bad facies, temperature, vomiting as time goes on becoming fecal.

These symptoms are readily assigned to their proper source by fact of the history containing evidence of a previous operation. Both of these cases occurred after a period of from five to seven months had elapsed since the time of the original operation. This period of time corresponds to that cited in quite a number of cases reported in the New York Surgical Society, May 11, 1904.

Treatment.—The treatment in the cases occurring early, i. e., in from two to four weeks after operation, consists of elevation of the hips and body, high injections, etc. Should these not accomplish the result desired, operative means must be undertaken.

In cases occurring late, i. e., after from four to six weeks, precious time is lost by any attempt at mechanical relief, and operative procedures should be promptly instituted.

Prophylaxis.—As a means of preventing adhesive obstruction, I deem it essential to have a movement from the bowel of the patient within from twenty-four to thirty-six hours after the operation and one or more

1. Pathology and Classification of Intussusception, Annals of Surgery, 1903.
2. Medical Record, March 12, 1904.

daily after that, and careful watching for not less than three weeks.

MECKEL'S DIVERTICULUM.

These abnormal conditions can produce obstruction in one of three ways, an instance of each one having been reported by me in past years.

First, the diverticulum may become inverted and act as a drag producing an intussusception. Case 2 in my list of intussusceptions.

Second, by strangulation by cords or band-like prolongations; two cases in young adults.

Third, by inflammation simulating appendicitis and producing obstruction either by means of parietal or visceral adhesion of the distal end, thereby forming a loop for strangulation; one case of a young adult reported by me; or by producing a general peritonitis with subsequent obstruction.

Symptoms.—The symptoms of obstruction by Meckel's diverticulum in types two and three are very similar to an appendicitis plus in a day or so a profound obstruction with or without a generalized peritonitis; while in appendicitis obstruction is not evident except in those cases accompanied by general peritonitis or in those exceptionally rare cases where the appendix overlies a portion of the intestine and acts as a band-producing or cord-producing obstruction.

I feel safe in saying that close observation of the literature of this subject will show that the great majority of cases have heretofore been operated on for appendicitis, and the actual condition was only found on exploration.

OBSTRUCTION FROM OTHER CAUSES.

I do not feel that the subject of obstruction in children has had proper attention without considering the obstruction peritonitis seen occasionally in pneumonia cases in which no visible lesion of the appendix or other abdominal viscus is evident. These cases simulate very closely those of intussusception or general peritonitis from appendicitis, and are usually differentiated by the fact that a pneumonia exists; that respirations are increased; that the appearance is of a livid or red-cheek character instead of pale and anxious, as in acute obstruction; temperature is higher than usual in obstruction; that no blood has been passed per rectum; that no mucus is present in the stool; that no mass is found in the right iliac region.

At the same time it must be remembered that a sufficient amount of fluid may be present in the peritoneal cavity to give a sense of fluctuation per rectum. The citation of the following case will impress itself on all: Recently I saw a case with one of our pediatricians for intussusception, in which I made a diagnosis of pneumonic peritonitis.

This patient was about 8 months old, had a lobar pneumonia, and with it a profoundly distended and rigid abdomen, complete obstruction, rapid and feeble pulse, and temperature of 102.5. At the time of the consultation I suggested exploration, although I felt that neither intussusception nor appendicitis was present. On returning in two hours with my assistants I found the child practically moribund, and refused to operate. Death followed in about two hours. Autopsy, abdominal only, revealed a general peritonitis; no other visceral involvement; appendix healthy.

The onset in these pneumonia peritonitis cases resembles an appendicitis, especially if the lower lobe be involved, pain is reflected down into the abdominal wall through the eighth, ninth, tenth and eleventh intercostal nerves, giving us rigidity over the spot seen at times in appendicitis cases.

It must be also admitted that a pneumonia and an appendicitis can occur at the same time. Recently I have seen such a case; fortunately the appendicitis complication became an enclosed abscess, and was successfully operated on after the right lower pneumonia had subsided.

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DISCUSSION.

DR. A. JACOBI, New York City, asked Dr. Erdmann the age limits of the patients on whom he had operated; if he always removed the appendix, and, if so, why.

DR. ISAAC A. ABT, Chicago, believes that all these cases are not due to mechanical obstruction of the bowels; there are cases of paralytic obstruction which deserve consideration. We have all seen examples of complete intestinal obstruction in pneumonia and in the course of severe intestinal infections which proved on autopsy to be paralytic in nature. Two years ago a colleague asked Dr. Abt to see his child. She was suffering from an acute gastrointestinal infection. The child vomited and had loose stools for a time, later on this was followed by a condition of absolute obstruction. There was complete prostration; the face was ashen; the child refused all nourishment; the temperature was normal—at any rate, less than 100—the pulse and respirations were very rapid. The abdomen was enlarged and tympanitic. A surgeon was called in during the night and pronounced the case one of intussusception. He was mistaken, however, as the autopsy a few hours later showed. During the earlier stage of the child's illness the stools had contained no blood; simply large quantities of mucus. The child died, and at the autopsy every inch of the intestine was carefully gone over. It was much distended, but no obstruction was found. The liver was fatty, and on section resembled that found in fat necrosis. Dr. Abt has seen two cases recently that were absolutely similar to this one. The striking features were, first, the symptoms of intestinal infection; then the absolute obstruction of the bowels, the low temperature, the rapid pulse and respiration, the fatty degeneration of liver and other viscera, and death. He believes that these cases belong to a class which has not been sufficiently described in literature, and that they are the result of ptomain poisoning, depending on the ingestion of some kind of poisonous food. He does not believe that such cases of obstruction can be helped by surgical measures.

DR. LOUIS FISCHER, New York City, said that the results that he has seen in operations on children have not been so good as those reported by Dr. Erdmann, and he attributes this to the fact that children do not bear the shock of laparotomy well. He has seen a series of cases in which laparotomy was done, and all the patients died. The fatal result in these cases might be attributable to several causes, one of which was a slow operation and shock. He would like to know whether rapidity of operating is not an important factor, so as to lessen the shock. The following case came under his observation recently. A child, apparently well in the morning, was taken suddenly sick in the afternoon with symptoms of constipation and considerable abdominal distension. In the evening the abdomen was still more distended. He saw the child at 9 o'clock, 12 hours after the first symptoms appeared, pronounced the case one of intestinal obstruction and suggested an operation. The operation was delayed till the following day and resulted fatally. The child was moribund at the time of operation.

DR. S. W. KELLEY, Cleveland, gave it as his opinion that spontaneous reduction occasionally occurs and may take place under the use of opium. If there is any time at which opium is useful in intussusception, it is in the beginning, but it should not be depended on. There are cases in which the use of air or water as a means of reduction is useful, and sometimes it must be adopted as a matter of necessity, as a laparotomy is not always permitted by the parents. The introduc-

tion into the bowel of air or water, when properly done, is sometimes followed by reduction, and Dr. Kelley does not think the method should be altogether dispensed with. Very little is said in regard to the way in which it should be applied, the amount of pressure that should be used, nor the length of time the pressure should be maintained. Dr. Kelley thinks the figures that Morris gave some years ago placed the pressure at 8 or 9 pounds, which appears to be too high. He believes that air pressure is preferable to water pressure in very many cases, but it is so difficult to measure that he finds it succeeds best by using air first and then following it with water, which is more easily handled, and by means of which the air pressure can be measured. He prefers a pressure of four or five pounds, keeping it up for a period of 15, 20 or 25 minutes, and believes that this is more effective than a higher pressure for a shorter time.

DR. SAMUEL MCC. HAMILL, Philadelphia, said that it has been shown that irritation of the rectum produces reversed peristalsis, and this fact may have had some bearing in producing spontaneous reduction in the case reported by Dr. Erdmann.

DR. A. JACOBI, New York City, considers that the phenomenon mentioned by Dr. Hamill would not be of any practical value in the treatment of these cases, because the reverse peristaltic wave would undoubtedly be interrupted at the point of intussusception.

DR. JOHN LOVETT MORSE, Boston, reported that the experience at the Infants' Hospital in Boston is that babies not only bear laparotomy but other severe operations very well, providing they are kept warm during the operation. All the patients who are to undergo an operation are wrapped in cotton and placed on a special operating table, which is kept warm.

DR. JOHN F. ERDMANN said that eight or ten years ago Dr. R. T. Morris produced reversed peristalsis by irritating the rectum by the use of chlorid of soda, to determine what portion of the intestine he was dealing with—whether the afferent or the efferent portion. Dr. Erdmann considers that it is not only time lost, but that it is very apt to prove useless, because the colon and the rectum will not hold the amount of pressure we wish to use. The sphincter will not hold the water in the bowel. With both air and water the danger of producing a rupture of the bowel is very great. If Dr. Kelley could see the difficulty Dr. Erdmann has experienced in reducing an intussusception with the fingers after the abdomen is opened he would never again resort to the introduction of air or water. The coats of the intestine are soggy and edematous, and unless great care is exercised in the reduction, a rupture of the serosa and musculosa will occur. While Dr. Erdmann does not favor the use of injections, he would not object to their use during the first six hours. Among his last six cases there were two deaths. In one, the cause of death was given as status lymphaticus; the other patient died after an extensive resection, with end-to-end anastomosis. There is no question that the more rapid the operation, the less the shock, and the latter is frequently the cause of death. The youngest child he has operated on was 14 or 15 weeks; that patient recovered. Children, as a rule, bear operation well. He has recently operated on 22 cases of appendicitis, all under 5 years of age, with a mortality of 9.9 per cent., and at least 14 of these cases were of the septic type. In the majority of his cases of intussusception, the operation was done within 15 or 20 minutes. If those cases that he operated on were not mechanical, then he does not know what constitutes a mechanical obstruction. An intussusception will occlude the caliber of the gut as completely as a wad of cotton, and even more thoroughly. The paralytic type of obstruction does occur, particularly in pneumonia in children, when there may be a general pneumococcus peritonitis, with paresis of the bowels, and death. The majority of his patients were under 1 year old; two of them were over 5, and the rest under 3. He removed the appendix because it could be done without complicating or lengthening the operation to any extent. He thinks it wise to do so because it prevents the formation of subsequent adhesions and a second abdominal section.

CHOICE OF A TIME OF ELECTION IN MASTOID OPERATIONS.

SOME CONSIDERATIONS ARISING FROM THE DIFFICULTIES OF THE CHOICE—PROSPECTIVE RESULTS.*

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Although voluminous articles, reports and discussions have appeared on the subject of mastoiditis, the mastoid operation and its ultimate results; indeed, experiences so exhaustively detailed that it would seem the searcher after truth might find his way without groping, yet perplexities that defy satisfactory decision so constantly confront the otologist, that I have chosen to place before you some such perplexities as have arisen for me in the recent past; and especially the choice of the proper moment for most advantageous operation.

This paper deals with well-to-do private patients, with whose intelligence it is undoubtedly more difficult to co-operate than in the case of the ordinary grade of dispensary subject. For, adding, in the former instance, to the difficulty and confusion which the conscientious worker experiences at times in his own mind, and at a moment, too, when most he needs to be unhampered in power to decide, there are presented to him by relatives and friends such questions and demands for positive answers that the picture of uncertainty is complete for him. While in the latter instance with the usual dispensary patient, one may follow a more independent and assured attitude, more easily ignoring inconvenient demands for enlightenment on the problems involved until one has arrived at some satisfactory solution of the best course to pursue.

So varied, too, are the final chapters in the histories of these cases, even after the otologist has had freedom in following his best intelligence, that they are at times quite inexplicable to him. Although reports of cases, like statistics, may be made to serve most contradictory ends, and are therefore not so useful as they might be, yet I wish to enforce and illustrate my theme by a few experiences which I will relate as briefly and relevantly as possible.

For the sake of logical discussion I have grouped these cases as follows:

Group 1. Features obtaining in mastoiditis as a complication or a sequel of the exanthemata.

Group 2. Features obtaining in mastoiditis as a complication or a sequel of influenza.

Group 3. Features obtaining in mastoiditis as occurring in the course of chronic suppurative otitis media.

As an object lesson looking toward the more intimate discussion of each of the above-mentioned groups it becomes necessary to study briefly the histories of cases apparently similar, yet with results widely divergent.

REPORTS OF CASES IN GROUP 1.

CASE 1.—Female child, age 6 years. Scarlet fever of severe type of six weeks' duration. Subsidence of all symptoms except slight fever never ranging above 100.5 degrees. Without premonition, many days after apparent convalescence set in, pain began in the right ear.

Examination.—This revealed a highly congested, slightly bulging drum membrane, no sagging of the posterosuperior canal wall, mastoid sensitive to pressure.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Treatment.—Free incision of drum membrane was followed by sanious discharge, which continued for ten days, during which time the temperature remained unchanged—99.5 degrees in the morning, 100.5 degrees in the evening—but with subsidence of all pain and mastoid sensitiveness.

Result.—Gradually the discharge from the ear diminished, then ceased, the incision closing, while the temperature remained within the same range for more than two weeks longer, when it at last became normal. Since this time the child has been in fair health, with unimpaired hearing. Frequent examinations were made by her physician during this time, but they failed to reveal signs of any intercurrent affection other than a pronounced anemia.

Observations on Case 1.—The long-continued course of slight fever in this case, almost a month after incision of the drum membrane, aroused constant suspicion of the presence of purulent deposit in the mastoid. Consideration also, of Ponfick's findings of 91 per cent. of the case of autopsy after exanthematous diseases as showing unsuspecting mastoiditis, did not tend toward lessening my apprehension in the study of this case, and he was long in doubt of his wisdom in postponing operation. But though return to health was discouragingly slow, yet in the absence of more decided symptoms, patience prevailed and in the end recovery seems complete.

There still remains, however, this same doubt of the superiority of so conservative a course, and the query still arises were it not better to have opened the mastoid and perhaps removed some slight focus of purulent deposit and hastened this recovery; and when in the course of this case ought this to have been done? Recourse to the bacteriologic examination of the discharge should theoretically help to aid in answering both these questions, but the systemic condition following the exanthemata varies so greatly with regard to vulnerability to bacterial attack, that practically it is extremely doubtful if the bacteriologic findings furnish a safe index for guidance in these cases.

CASE 2.—Male, 5 years old. Scarlet fever of severe type of four weeks' duration.

History.—Desquamation had ceased for ten days, the child was apparently doing well but for a continued elevation of temperature—99 to 100.75 degrees. After this had continued for ten days pain in the right ear began.

Examination.—When examined two days later the drum membrane was reddened and slightly bulging, no sagging of posterosuperior canal wall, nor was there tenderness on pressure over any part of the mastoid.

Treatment and Result.—The drum membrane was freely incised, liberating a moderate quantity of blood and pus. Pain promptly ceased but no fall in temperature occurred. The usual antiseptic treatment was ordered. Discharge of an odorless pus continued for two weeks. Repeated and careful examination failed to reveal other than the aural disease. Notwithstanding an unchanged temperature range the child gained considerably in strength, sat up in bed, later on played around the room, still showing no other symptoms than the slight temperature and the aural discharge. Very gradually the suppuration lessened both in quantity and consistency until only a colorless, mucoid discharge remained. So much improved had the conditions become that only an occasional visit, perhaps twice a week for three weeks, was made, when, without warning or apparent cause, the ear symptoms became suddenly aggravated, moderate ear pain ensued, with slight mastoid tenderness; the discharge was, however, unchanged. A slight though frequent and annoying cough began. The following day all the symptoms were more pronounced, temperature 103.5 degrees. There was now very slight swelling over the mastoid. The morning of the third day the mastoid was swollen and edematous, auricle displaced and immediate preparation made for operation.

Operation.—Immediately on incision a very considerable quantity of foul-smelling discolored pus was evacuated. The sinus leading to the mastoid antrum was readily found, the entire mastoid process was carious, only a curette being used to remove the diseased structure. The carious process had extended to the wall of the lateral sinus, which, owing to its anomalous position almost under the antrum, was perforated by the curette. Profuse hemorrhage indicated its freedom from thrombosis. The ruptured sinus was closed by a Mikulicz dressing and the operation completed. Recovery, with perfect hearing, ensued after two months.

Observations on Case 2.—It is to be observed that Case 2 presents an exactly parallel history with Case 1, in every particular except the former, Case 2, lacked mastoid tenderness. It seems highly improbable that the extensive necrosis found should have occurred in the two or three days preceding operation. Yet the extremely dangerous condition supervened with such apparent rapidity that I can not but believe that the time for most advantageous operation must have passed at some time during the five weeks of stationary temperature. Without, however, any signs except slight discharge, a marked grade of anemia and a moderate temperature, an exploratory mastoidectomy seemed to have been unwarranted.

CASE 3.—Female, age 3. Scarlet fever.

History.—During the desquamative stage acute otitis occurred in the left ear. The drum membrane perforated in two days. When seen, copious discharge was issuing from ear. Treatment only slightly modified the character and quantity of the discharge, yet the patient gained in strength so that she was brought to the office for two weeks for further treatment. Then pain of paroxysmal character began around the ear, temperature 100.5, no change in discharge, no mastoid tenderness at any time. On the fourth day slight edema over mastoid.

Operation.—Operation on sixth day revealed mastoid full of pus, complete necrosis, only curettement being necessary to clear away debris and enter antrum.

Observations on Case 3.—This case is so perfect a counterpart of the other two cases of this group up to the date of aggravated symptoms just preceding operation that there is due its discussion the same pertinent inquiry, ought exploratory mastoid operation to have been done during the weeks in which general improvement seemed in progress, and without other guiding symptoms than slight aural discharge with occasional slight elevation of temperature?

Examples of this group of cases might be multiplied with a quite unvarying symptom-complex, until perhaps, three to six weeks had elapsed in each case; the outcome in some cases being smooth, unexpected recovery in the end; in others, unequivocal demand for undelayed operation following sharply on what seemed a slow but satisfactory course of convalescence.

Bacteriology may in the future furnish the coveted data pointing to the need of operation during these latent intervals, but reinfection by streptococci during an otitis media of several weeks' duration is not only possible, but probable, especially in scarlet fever cases, or indeed in any of the exanthemata. Further, no private patient with the mild symptoms detailed above would permit a disfiguring operation though the presence of streptococci prognosticated eventual surgical interference. With a hospital patient whose time is important and who can have little care at home, the aspect is a totally different one and the bacteriologic examination ought to have due weight in arriving at a decision.

REPORT OF CASES IN GROUP 2.

CASE 1.—A thin, pallid woman aged 41 years.

History.—Had bronchopneumonia following grip, when she was attacked by acute otitis media of unusually severe nature.

Symptoms.—Pain violent and constant. Temperature 102.5 degrees. Drum membrane freely opened, releasing a quantity of sanious discharge. Pain was in nowise modified, radiating over entire side of head and neck, without ceasing. Considerable sensitiveness over mastoid and antrum, especially at tip, and over sternomastoid muscle, for several inches downward. At no time was there any edema or redness over mastoid. Copious discharge through external auditory canal and eustachian tube. Temperature remained 100.7 degrees a. m., to 101 degrees p. m.

Termination of Case.—Operation strongly advised, but positively declined because patient knew of one case of mastoid operation that at the end of one year was still unhealed. Indications were unmistakable for operation, but she persistently refused, and after about ten days recovery began and progressed slowly. There was much deafness and occasional severe pain about the ear and radiating about the head, especially the occiput, evidently indicating a resorptive process in antrum and mastoid cells.

Observations on Case 1.—As will be seen this case gave fairly urgent indications for operation. A recovery of rather an undesirable character seems to be in progress, for a possible operation still faces the patient. There is marked deafness which might have been escaped and the general health is very surely menaced by leaving nature to cope with the infection alone. It presents, however, an illustration of the difficulties of prognosis in cases of mastoid involvement.

CASE 2.—Woman, married, aged 28. Grip of three days' duration; when first seen temperature 101 degrees. Right drum had perforated with copious discharge; left ear acutely inflamed, membrane bulging, great pain.

Treatment and Result.—Membrane promptly incised, followed by profuse discharge of pus. Hot bichlorid irrigations every two hours gave some relief; temperature next day 99 degrees. During that night pain in the left ear recurred persistently. On morning of third day mastoid tenderness and frontal headache. Leiter coil applied for forty-eight hours. Mastoid swelling and tenderness slightly modified, temperature 99 degrees, with violent headache and pain in and around the ear. Discharge from right ear continued profuse, while that from left ear much lessened. No improvement by treatment; patient sent to hospital on fifth day for operation. Here much pus was expectorated, the incision in left drum membrane almost closed and discharge ceased.

Operation.—A diploëtic mastoid antrum was found filled with granulations, surrounding bone softened. Complete subsidence of the severe pain followed the operation; patient left hospital on the fifth day and on the seventh was sitting up, quite well and strong. She is now, at the end of three weeks, completely recovered, with excellent hearing.

Observations on Case 2.—The parallelism of these two cases as well as the contrast between them is so evident that they need little comment. The local and general conditions in each before operation were quite similar, minus the bronchopneumonia in the second case, while the operation undoubtedly changed the picture entirely in Case 2, from a slow, painful, doubtful and unsatisfactory recovery to a prompt and desirable one.

Group 2, unlike the examples in Group 1, offered no difficulty in deciding on the necessity for operation, nor as to the time for this procedure. One prominent feature to be observed in the history of these cases, as well as in that of several others, occurring recently and here unrecorded, and which were by prompt measures aborted, is the very rapid sequence of symptoms which I have noted as characteristic of aural complications of epidemic influenza.

REPORT OF CASES IN GROUP 3.

CASE 1.—Woman, aged 40 years. In poor health, anemic, hysterical, constant headache, which had been attributed to some uterine trouble for which a number of curettements had been done, without result.

History.—Had had suppuration in left ear for several years. Had tried many treatments but without avail. Discharge thick, tenacious; foul odor; carious bone. Pain over mastoid marked though inconstant. Temperature normal.

Treatment.—The case was treated tentatively for three weeks without improvement, and the Schwarze operation was done. Mastoid carious, much pus; the antrum and cells were carefully cleansed, the aditus enlarged, the attic curetted; thorough drainage obtained. Wound healed kindly, absolute cessation of suppuration, complete relief from headache and hysterical state, and health completely restored.

Observations on Case 1.—The severe and unremitting head pain and the hysteria which had been for years ascribed to uterine disease were completely relieved by the removal of the focus of disease within the mastoid. There has been no complaint of uterine disease since restoration to health took place.

CASE 2.—Woman, aged 38 years, in fair physical condition.

History.—For several years prior to her first visit she had had pain over the right mastoid which was considered neuralgia, but without apparent middle ear involvement until an unusual exposure caused severe chilling and cold. Pain then became violent, drum quickly ruptured, profuse purulent discharge without cessation of mastoid pain.

Examination.—When seen at the office, temperature 99 degrees, muscles of neck of right side rigid, profuse discharge from a large perforation in drum membrane, mastoid exquisitely sensitive, hearing reduced to loud voice close to ear; immediate operation.

Operation.—Mastoid carious, antrum very small but filled with pus, aditus unusually large, no necrosis detected in middle ear. Entire mastoid process removed and free drainage through middle ear established.

Result.—On following day temperature 98.5 degrees, stiffness of neck muscles subsided, suppuration entirely ceased, and on third day patient was going about feeling well. Hearing has become almost normal, ear dry, health good.

Observations on Case 2.—From the extensive caries found after a few days of illness, it seems probable mastoiditis was present perhaps for a long time before the exposure which resulted in the exacerbation. However, could the aural surgeon have advised operation with positively no sign to guide him but occasional severe pain of neuralgic character in the mastoid?

CASE 3.—Woman, aged 52 years. Anemic and rapidly losing health and strength.

History.—Has had middle ear suppuration from left ear since ten years of age. Recently the discharge has become very much worse. It would suddenly cease for a day or two, during which time there was intense pain in and around the ear, radiating to the forehead and accompanied with considerable vertigo. These attacks of pain and vertigo became more frequent.

Examination.—When she presented at the office there was a profuse discharge flowing from the ear, of foul odor and thin as water. The superoposterior canal wall was bulging and sensitive; pressure over mastoid painful to only slight degree. No redness nor edema over mastoid. There was no displacement of auricle. Temperature normal. Immediate operation was advised and accepted.

Operation.—The mastoid was very small antero-posteriorly, diploëtic and ivory hard, the antrum almost obliterated and very deeply placed; only a small quantity—a few drops—of pus was found in the antrum, but the surrounding bone was carious down to the inner table of the temporal bone, which was chiseled away until the dura exposed, which was found to

be smooth and healthy. Fully two-thirds of the small mastoid was removed, and this opening was made continuous with the middle ear; thus a modified radical mastoid operation was done. The closure of the wound differed somewhat from that ordinarily employed. The posterior flap was dissected from the skull for about two inches, then drawn forward and stitched to the auricular flap, leaving an opening at its inferior end for drainage, a gauze wick was inserted and removed on the third day, and as the reparative process was satisfactory it was left out and the wound allowed to granulate, which, since there was perfect apposition, it did promptly. Drainage was then secured only through the external canal. This procedure has given me the most satisfactory result.

Result.—There remains absolutely no deformity. At the end of one month the bandage was discarded and the patient resumed her usual duties. The ear is not entirely dry, but the discharge is only serous, slight and odorless.

Observations on Case 3.—The length of time of continuous aural suppuration without ill effect until the sudden exacerbation a few weeks prior to the operation is rather unusual.

It is to be observed also, that there was total absence of fever, mastoid swelling or redness, the diagnosis being made from the sagging posterosuperior canal wall, the pain and the vertigo. It must appear evident, that to have awaited the appearance of the so-called classic symptoms, which should determine the time of election of operation, would have exposed the patient to dangerous complications.

CONCLUSIONS.

In conclusion, it will be a source of helpfulness and gratification not only to me, but undoubtedly to those of the profession who may be interested in the transactions of this Section, if this paper shall elicit a free discussion on its various aspects; and especially would it seem valuable to find a consensus of opinion of this body on the question whether exploratory operation on the mastoid in obscure cases is ever justifiable in the absence of positive indications. While inclined to conservatism regarding exploratory operation on a suspected mastoiditis, I feel that a sin of omission in these cases is a serious one.

Some authorities have striven for definiteness on this subject of an opportune time for operation. It is possible in a condition presenting so varied a symptom-complex as at times does mastoiditis, that an elected time for operation might not be said to be a practical offering to our present wisdom on this subject, but it seems that some nearer approach to a definite rule might be arrived at through discussions of this deliberative body. Others have grounded on this same rock of hesitation and uncertainty, and the transactions of this Section show other requests for discussions that should advance toward the formulation of definite rules on this subject.

As I have indicated, the opinion of the best workers this field, but by these conservatives such varied rules are given as permit a latitude, within which decision may be remarkably perturbing to the surgeon. As in all work the good judgment of the operator must needs play its part, and to no greater extent in other surgical work does accurate and careful observation and deduction make for success than in the varying phases of an acute, supposedly suppurative mastoiditis.

As I have indicated, the opinion of the best workers in this field abroad favors waiting a longer time than it seems safe here to do in many instances, and I am persuaded that the rapidly infected mastoid following the exanthems and influenza here do not obtain in like measure abroad. From a very general survey of this subject, conjoined with my most intelligent prospective and retrospective study of the cases occurring in my work in the past few months, I am led to the conclusion that it is perhaps not possible to fix on a closer definition of the chosen time for operation than may be deduced from the following rules:

1. Delay in operation of cases belonging to the first two groups herein treated, should not be permitted beyond from thirty-six to forty-eight hours, if profuse discharge from the middle ear by incision or rupture, with ice to the mastoid and general antiphlogistic measures do not markedly improve the condition. Even with normal or slightly elevated temperature, if there is edema over the mastoid and sagging of the posterosuperior wall of the external canal, operation should not be delayed, for with what seems to be an improved general state, in the majority of cases operation will eventually be needed.

2. Cases showing infection with streptococci, while at time for days the symptoms lie in abeyance, such cases should not be treated tentatively on appearance of pronounced symptoms of aggravated pain about the ear, fresh rise of temperature, lessened or suppressed discharge from middle ear, but should be operated on without delay in order to prevent the extensive caries which occurs in from two to three days in such infection.

3. In cases of slow, painful recovery, even if promising in the end to be complete, it would be wise to operate after a reasonable period of observation, in order to assist nature in her task.

4. Since this paper deals with private patients who are seen without undue delay, and who have usually had the benefit of good care of a palliative kind, it may be stated that as a rule applying to these cases of chronic otitis media, that the radical operation with its disfiguring results may quite often be replaced by the simple operation conjoined with careful curettage of the middle chamber.

5. Cases of chronic otitis media may be permitted more latitude, if there arise no signs pointing to intracranial involvement. However, if there be present constant otorrhea, neuralgic pains over the part, lowered general health, with nervous irritability, perhaps vertigo, operation should be undertaken after from two to six weeks, if treatment has failed to relieve the condition.

As a last word I wish to disclaim any hope to offer novel material to this interesting and widely discussed subject. I have told my experiences and propounded queries which have confronted me while undergoing these experiences; and have offered rules not exhaustively applicable to all imaginable cases, but serviceable to me in dealing with the groups herein treated; and withal seeking in discussion more light. The various important surgical procedures all have a few characteristic features on which to base unequivocal indications for operation. Independence to the individual operator would undoubtedly be gained through a concurrence of conviction on this theme by the members of the Laryngologic Section of the American Medical Association.

DISCUSSION.

DR. B. A. RANDALL, Philadelphia, referred to the frontiersman's phrase: "If you see sign of Indian, be careful; no sign of Indian, more careful." That is true of disease of the middle ear. The symptoms may be obscure while destruction of a deep-seated character is going on, usually because dense cortical tissue is shutting in the process and its symptoms. If

patients have been made to understand that they have but one chance and they take that chance and recover without operation, one can only tell them they have been extremely fortunate and that it is a consolation to give other patients in the future. Dr. Kuyk will probably hear from that mastoid yet. Frank confession of difficulties in these operations may encourage younger men in their work, showing them that every one must do his best earnestly and conscientiously to make the fewest possible mistakes.

DR. J. F. BARNHILL, Indianapolis, said that, in a considerable number of cases of mastoiditis, in which the mastoid operation should be performed, the condition is almost symptomless, there being present no pain, fever, redness nor swelling. We must take into account the fact that the discharging ear does not show a tendency to dry up, and that in most instances the amount of the flow is out of all proportion to that which could possibly come from suppuration in so small a cavity as the middle ear alone. Since external evidences of mastoid involvement are often wanting, and when present do not always indicate the gravity of the ailment, most thorough otoscopic inspection and examination by every known means becomes an essential. Sagging of the posterior superior meatal wall is, of course, a most valuable indication, but unfortunately is not always present. Politzer says that if there is a pulsating light reflex on the bead or pus which projects through the drum membrane after cleansing the external meatus, and persisting two weeks after its rupture, it is certain evidence of disease of the mastoid cells. Dr. Barnhill does not believe it is ever wise, unless we have more positive evidence than is usual, to say to the patient that the only chance for his recovery is through operation. Patients get well that we thought would die without operation; and if we tell them there are absolutely no chances of recovery, and they afterward fall into the hands of quacks who treat them until such unexpected recovery takes place, they do the profession harm, for they are examples of our failure to foretell the truth. It is wise to spread a greater knowledge of ear diseases. Other surgeons have been more energetic in teaching the public in this respect. When we have a case in hand, we should make explanations, perhaps exhibiting some cuttings. This method has acted as the greatest kind of persuasion to the patient, easily showing that what is commonly regarded as the ear is in reality only one small part of the hearing apparatus, and that when the disease once reaches the cells behind the ear, the drainage is very poor. If the patient sees the relation of the mastoid cells himself, he is much more ready to consent to surgery than he would otherwise be, because it must be clear to anyone who sees the arrangement of the middle ear, mastoid cells and other parts liable to become affected, that surgery is often the only rational means of relief and cure.

DR. D. MCAULIFFE, New York, said that it takes one of great diagnostic ability to determine this question. There is something recognizable in the patient himself which guides a man, more than the local symptoms. The symptom complex generally put down is so rarely met with in the vast majority of cases that we have practically no guide to determine the time of operation. Tenderness from pain depends on the elasticity of the cortex of the mastoid. He finds that temperature is the best guide, and that generally a case will show some slight elevation of temperature after two weeks. Bulging of the posterior wall does not take place unless infection has occurred. If the forward march of the sepsis is not well marked, this bulging will be absent. In mild attacks of mastoiditis there are very few local symptoms, but when they recover without operation the hearing is impaired.

DR. OTTO T. FREER, Chicago, emphasized that bulging of the posterior wall of the external auditory meatus does not always indicate suppuration of the mastoid antrum or cells. These cavities may be intact while a deep subperiosteal abscess may be the cause of the prominence of the posterior wall. There may be enough bulging to entirely close the auditory canal and yet the pus may be situated externally under the periosteum and not in the mastoid cells.

DR. H. E. SMYTH, Bridgeport, Conn., said that the surgeon who is always radical, or the one who is always conservative, has little trouble in deciding when to operate, but the man who endeavors to be radical or conservative, according to the disease in the temporal bone as indicated by external signs, is constantly in a dilemma. The amount of disease is sometimes so at variance with the symptoms that there is marked damage within the bone with little evidence externally to call attention to the fact, and conversely, marked symptoms with little disease.

DR. D. J. MCDONALD, New York City, reported a case and remarked that we are taught now to look out for this condition of hidden sepsis. In every epidemic of measles Dr. McDonald said he inspected the secretions. If we do our work in this thorough manner, we shall be the means of publishing the results of otology to the world.

DR. D. A. KUYK asked if exploratory mastoidectomy in private practice is ever justifiable unless one has a fair proportion of symptoms indicating mastoid trouble and can assert positively the existence of mastoiditis. At what moment in the cases reported would have been the most advantageous time for operation?

DR. E. B. DENCH, New York City, said that he makes no distinction between private practice and any other; if there is any doubt whether to go in or not, he goes in. He would rather see a doubtful mastoid from the inside than from the outside. He explains to the family that an exploratory operation is justifiable and that there is no danger in it. In all cases where he has made this explanation and told the family he might find nothing, he has never failed to find something to justify the operation and to make him sorry he did not operate twenty-four hours before. He spoke of a case twenty-four hours after acute inflammation of the middle ear developed, in which he did myringotomy, and two days afterward opened the mastoid for tenderness and pain. He found pus in the mastoid cells, had a culture made, and it proved to be pure streptococcus. Had it been allowed to continue it would have spread to the deeper structures. When in doubt, operate, with explanations to the patient and family.

TWO CASES OF OBJECTIVE AURAL TINNITUS DUE TO THE ACTION OF TUBO-PALATAL MUSCLES.*

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Subjective noises in the ear, loud, distressing, and of various description, buzzing, ringing, roaring, singing, steaming, whistling, is one of the most familiar symptoms encountered in the practice of otology.

These sounds are sometimes so loud and intense that the afflicted patient is led to think that bystanders can hear them as well as himself, and it not infrequently happens that the physician is asked if he also can not hear the noise which the patient hears so distinctly.

But cognizant of their purely subjective character, the physician usually only laughs at the query.

It is worth while, however, to bear in mind that exceptionally this inquiry on the part of the patient is entirely justified and that if we put our ear close to his, we will discover that the sound, which we thought was heard only subjectively by the patient, may actually be heard objectively by another person.

Two kinds of objectively produced noises are distinguished:

1. Those of vascular origin, generally of a blowing, roaring or buzzing character, synchronous with the

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pulse, and influenced by pressure on the large neighboring blood vessels.

2. Those of muscular origin in which the sound is usually described as clicking, snapping, or ticking, and is likened sometimes to the sound produced by the friction of the edges of two opposing finger-nails, or that of the snapping of the fingers, or the ticking of a clock or telegraph instrument, and even in exceptional instances, to that of the firing of a pistol.

The latter have no connection with the pulse beat, but are isochronous with movements of the palatal muscles, or of the drumhead, or both, and in a number of cases with spasmodic contractions also in the muscles of the face and neck.

Johannes Müller,[1] writing in 1837, seems to have been the first to have recognized the muscular origin of certain objective aural sounds, to all of which he ascribes one method of origin, viz.: Contraction of the tensor tympani muscle.

Schwartz, Lucae,[2] Schappringer, Burkner, Lindet, Wolff and Kayser[3] have reported cases which were thought by these authors to have a similar causation. In 1862, Politzer,[4] and about the same time Luschka, working independently, came each to the conclusion that some cases of this type were to be explained by the action of the tubopalatal muscles, especially the contraction of the tensor palati. A few years later, in 1867, a case was reported by Boeck,[5] in which this author was able to make a postrhinoscopic examination at the time of the production of the sound. The patient presented a spasmodic, up-and-down movement of the larynx, and elevation of the palate accompanying the click, and according to Boeck[5] there could be seen also with each click a drawing forward of the anterior from the posterior wall of the eustachian tube. He considered that this thoroughly demonstrated the Politzer theory of a contraction of the tensor palati. Leudet,[6] in 1869, reported a case in which the clicking sound was accompanied with a movement of the drumhead as well as of the palate; and there was also a simultaneous, spasmodic movement about the eyebrow and in the suprahyoid region.

In 1873, Küpper[7] had a similar case, but without the movements in the drumhead, in which pressure on the tongue would cause the clicking to cease.

These were cases of involuntary clicking in the ear. In 1879, Dr. S M. Burnett[8] of Washington reported a case of voluntary clicking, and the only other case besides Boeck's,[5] so far as I have been able to discover, in which a description is given of the postrhinoscopic appearances at the time of the clicking.

Dr. Burnett's[8] case was also examined postrhinoscopically by Dr. Franck Hyatt, and the result of their examination, in which they agreed, was quite different from the above-mentioned case of Boeck.[6] "During the contractions," writes Burnett, "the anterior wall of the pharyngeal orifice remains stationary, while the posterior is moved obliquely forward and upward across the mouth of the tube, the edge sometimes reaching the anterior border and completely closing it, but usually going only about two-thirds the distance across. The uvula is at the same time drawn upward."

It has been my good fortune to meet with two of the class of objectively perceived clicking in the ears within a short time of one another, representing, respectively, the involuntary and voluntary type, in each of which it was possible to make a very satisfactory examination of the mouth of the eustachian tube during the production of the sound.

CASE 1.—The first case, a young man aged 24, was referred to me Nov. 15, 1903, by Dr. S. M. Burnett, who called my attention to an article in which he had reported the case of a voluntary objective clicking already mentioned. He wished that I should make an investigation of this case, with the view to finding any nose or throat lesion which might be responsible for the disorder.

History.—The patient, apart from his being nervous and anxious about the present affection almost to the point of neurasthenia, presented the appearance of being in good general health. For the past two years he had been subject to a loud clicking sound in both ears, which of late had become louder and more frequent, and very distressing. The clicking, which is likened to the snapping of the finger, occurs generally in quickly succeeding waves of from 10 to 20 at a time, and at the rate of about 60 a minute. The noises are more persistent when the patient is tired and exhausted, while during periods of quiet and restfulness he is nearly free of them. Swallowing or even deep breathing will, however, excite the clicking at any time.

The noise in the ears is always accompanied by an up-and-down movement of the larynx, which keeps exact time with the clicking, and sometimes the larynx movement will be in evidence unaccompanied by the aural sounds.

The patient called attention to two other symptoms which he had noticed. One that when he opens his mouth wide he has a sense of grinding at the point of articulation of the lower jaw, and the other that the act of opening his mouth wide in yawning is accompanied by the ejection of saliva in little jets or spurts.

Examination..—On examination it was found that a distinct clicking or snapping sound could be heard at a distance of about twelve inches from the ear, which was isochronous with the up-and-down movements of the larynx. This sound could also be heard in front of the mouth.

The eardrums were a little retracted, but otherwise appeared normal and did not show any movement. The watch could not be heard farther than half an inch on either side.

On looking into the throat it was seen that the muscles of the pharynx and palate were involved in an almost continuous clonic spasm, which accompanied the up-and-down movement of the larynx and was isochronous with the clicking noise in the ears. The spasm consisted chiefly in a jerky, somewhat violent muscular movement, causing an approach toward the middle of the posterior pillars of the palate, together with a more or less elevation of the palate—similar to the movement which is seen to take place in the act of vomiting.

A view of the nasopharynx showed that the mouth of the eustachian tubes was also involved in these movements in the sense that at each spasm the posterior lower lip moved forward and upward in such a way as to greatly narrow the opening of the tube, and the angle which appears in the image as an approximate right angle, looking forward and formed by the upper and lower part of the eustachian eminence, becomes narrowed into an extremely acute angle, or is entirely obliterated by the elevation of its inferior border.

The posterior extremities of the turbinates were somewhat enlarged, and there was inspissated mucus to be seen in the postnasal space and about the orifice of the tubes.

1. Müller, J.: Manual of Physiology, translated from the German by William Baly, London, 1837, p. 1262.
2. Lucae: Archiv f. Ohrenheilk., Würzburg, 1867, vol. iii, p. 201.
3. Kayser: Verh. der Deutsche. Otolog. Ges., 1895.
4. Politzer: Ueber die willkürlichen Bewegungen des Trommelfells, Wien. Medicinal-Halle, 1862, No. 18.
5. Boeck, O.: Rhinoskopischen Befund bei einem Knackenden Geräusch im Ohr, Arch. f. Ohrenheilk., Würzburg, 1867, vol. ii, p. 203.
6. Leudet, T. E.: Etude d'une variété de bruit objectif de l'oreille, cause par la contraction involontaire du muscle interne du marteau, et coincident avec un tic de quelque rameaux de la brache maxillaire inferieure du nerf de la cinquieme paire compt. rend, Acad. d. Sc., Paris, 1869, vol. lxviii, p. 128.
7. Küpper: Ueber klonische Krämpfe der Schlingmuskein, Arch. f. Ohrenheilk., Leipsic, 1873, vol. i, p. 296.
8. Burnett, S. M.: Objective Aural Sounds Produced by Voluntary Contraction of the Tubal Muscles, Arch. of Otol., N. Y., 1879, vol. viii, p. 357.

The pharynx presented the picture of the so-called lateral pharyngitis. The tonsils were moderately hypertrophied.

Treatment.—The treatment consisted at first in overcoming these hypertrophic conditions in the nose and throat, with a hope that reflexly they might beneficially influence the muscular contractions. The ears were also politzerized. This line of treatment was absolutely without any effect on the symptoms, although the hearing improved moderately.

Later, under catheterization and the employment of the eustachian bougie, swabbing of the postnasal space, and applications of astringent remedies directed to the eustachian orifice, the conditions appeared to improve slightly.

After the patient had been under observation about two months he left the city. I heard from him once, a few weeks after leaving, stating that the clicking in his ears was better.

CASE 2.—A young lady consulted me in regard to a slight feeling of fullness in the right ear, and a voluntary clicking which she said had existed as far back as she could remember. The sounds could be produced by a movement of the throat similar to that made in the act of yawning. The clicking in this case was not so loud as in the former, but could be distinctly perceived objectively with the ear held four or five inches from the patient's.

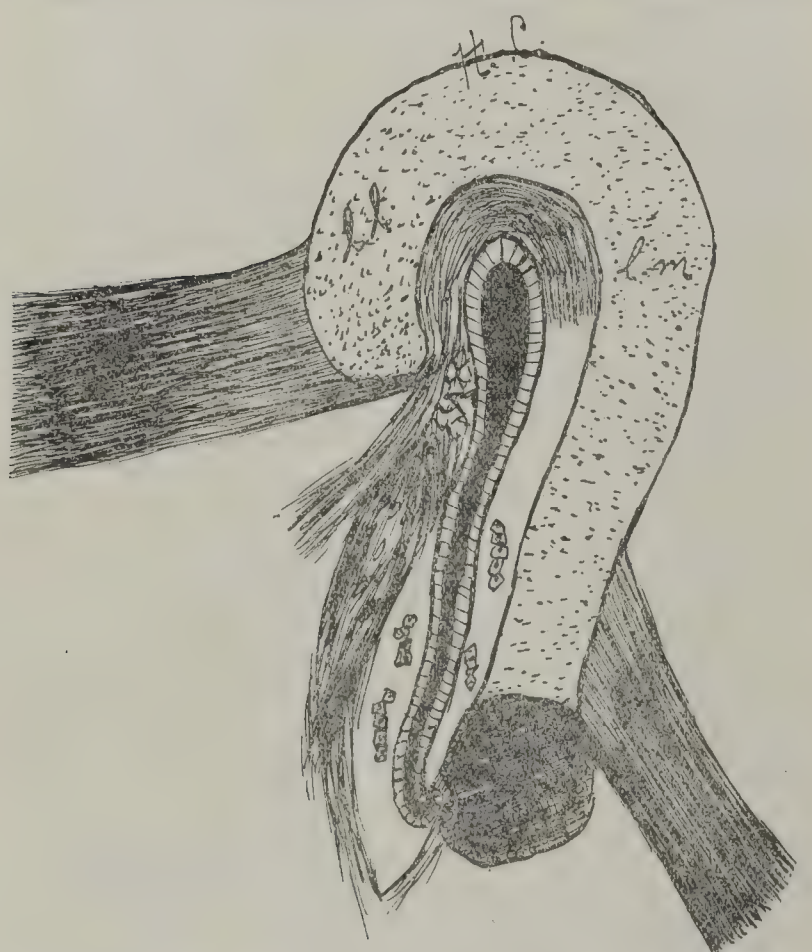


Fig. 1.—Cross section of the eustachian tube near its pharyngeal extremity. Represented as in its ordinary state with its walls in apposition, except at the upper part. H. C., hook cartilage; l. m., lamina medialis; t. p., spheno-salpingo-staphylinus muscle (tensor palati); s. p., salpingo-pharyngeus muscle (palato-pharyngeus); l. p., petro-salpirgo-staphylinus muscle (levator palati) in cross section.

Examination.—The hearing was normal; the membranes were each slightly opaque, and the right a little retracted; otherwise normal. Nothing abnormal in the condition of the mucous membrane was to be discovered in the examination of the nasal fossa, the postnasal space or the fauces. The contractions which took place in the throat at the time of the production of the clicking were far less violent than those noted in the other case. The movements which were chiefly observed were slight, jerky contractions of the posterior pillars, to which was occasionally added an elevation of the palate, but the latter movement was not at all necessary to the production of the clicking sounds, which were observed to be precisely isochronous, with the contractions of the palatopharyngeus.

Examination of the postnasal space showed no drawing away of the anterior wall from the posterior; there occurred the upward and forward movement of the posterior lip seen in the other case, but this was not a constant accompaniment of the sounds, taking place only when the palate was elevated. The only other movement was a scarcely visible fibrillary twitching of the inferior angle of the orifice at the moment of the contraction of the pillars.

Treatment.—The eustachian bougie was introduced into the tube and a postrhinoscopic examination confirmed the fact of its being in place. This procedure seemed to have little or no influence on the production of the sounds.

Two or three weeks' treatment, consisting chiefly in the use of the catheter, the bougie, or the application of astringents to the mouth of the tube, were unsatisfactory in their results. Sometimes immediately after the treatment the sounds would not be so loud, but this improvement was not permanent.

In both of the cases here related, the conclusion is obvious, that the sounds produced in the ear were due to a contraction of certain muscles of the pharynx and palate connected with the eustachian tubes, in the one case, loud snapping noises heard in both ears and associated with involuntary choreiform movements of the muscles on the outside of the throat as well as inside; in the other, a clicking sound, voluntarily produced, confined to the right side, only audible to the examiner with the ear placed close to that of the patient's or by the use of the stethoscope.

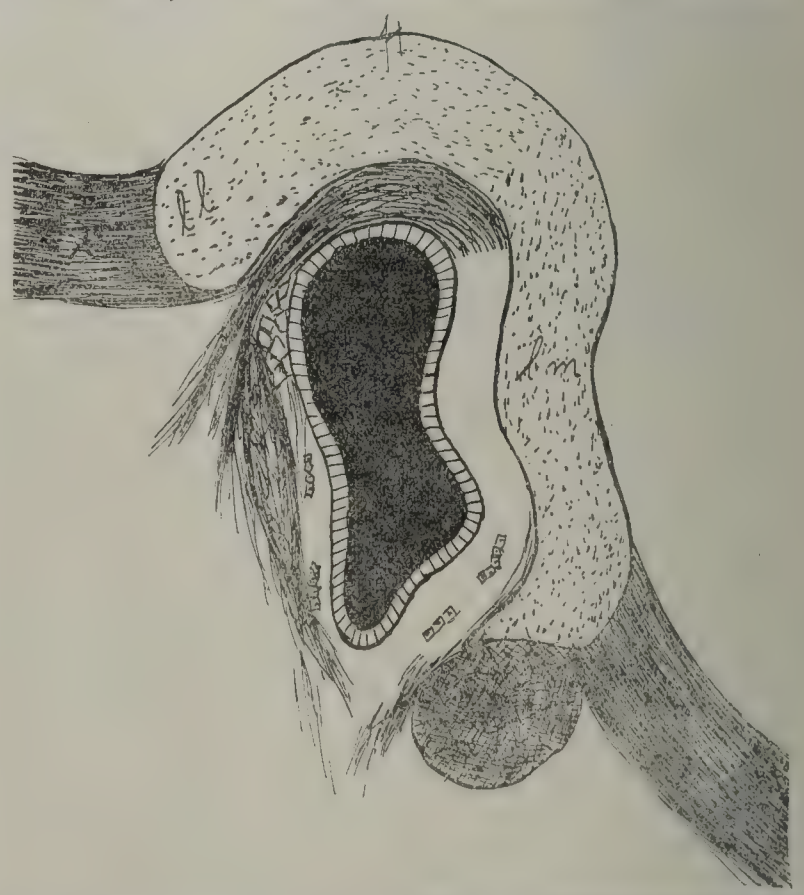


Fig. 2.—Same, showing supposed effect of tensor palati and palatopharyngeus muscles in dilating the orifice of the tube.

There was in neither case any visible movement of the drum membranes, and the sounds kept perfect time with the contractions observed in the throat. The only question is as to the mechanism which gives rise to the sounds described.

There are three muscles connected with the pharyngeal extremity of the eustachian tube (Fig. 1): 1. The tensor-palati (spheno-salpingo-staphylinus), which is attached to the anterior or fibrous wall of the tube, and whose function it must be to open or dilate the tube by drawing the anterior wall forward (Fig. 2).

2. The levator palati, which lies along the lower part of the posterior or cartilaginous wall, and whose function is disputed, but is generally believed to be that of making the tube more patent by the shortening of its long diameter which results from a contraction of the body of the muscle (Fig. 3).

3. The salpingopharyngeus, a slip which passes from the palatopharyngeus to be inserted into the posterior wall of the tube at its lower extremity. This little muscle is generally overlooked, but is said by some physiologists to take part also in the opening of the tube.

The explanation which Politzer[5] and Luschka have offered contemporaneously, as already mentioned, to account for these snapping noises, is that it is due to the action of the tensor palati drawing the anterior from the posterior lip of the eustachian tube. This explanation has been generally accepted by other authors who have reported cases (Kaufman,[9] Brandeis,[10] Gerould,[11] Goldflam and Meyerson,[12] Schwartze), though the cause has been here and there attributed to contractions of the levator palati.[13]

That the noise is produced by sudden separation of the moist agglutinated walls of the eustachian tube



Fig. 3.—Same, illustrating possible effect of levator palati (l. p.), supposing it to have the function of closing the tube—the two other muscles conceded to be dilators.

would seem to be the only satisfactory hypothesis, and while the contraction of the tensor palati may be the chief muscle concerned in the action in some cases, the constant, isochronous contractions of the palatopharyngeus observed in my two cases, in one of which generally unattended with any palatal contraction, would seem to prove that the salpingopharyngeus should also be considered as sharing in the causation of the sounds.

9. Kaufman: Ein Fall von objectiv wahrnehmbarem Ohrgeräusch. Monatsch. f. Ohrenh., Berlin. 1894, vol. xviii, p. 191.
10. Brandeis, R. C.: A Case of Binaural Objective Sounds with Synchronous Movements of the Membrani Tympani and the Palatal Muscles, Arch. Otol., N. Y., 1883, vol. xii, p. 14.
11. Gerould, J. B.: Objective Tinnitus Aurium, Boston Med. and Surg. Jour., 1888, vol. cxviii, p. 123.
12. Goldflam and Meyerson: Wien. Med. Presse, 1895, vol. xxxvi, pp. 641, 691, 728.
13. Szenes: Monatsch. f. Ohrenheilk., 1893, No. 10.

The impression which we gathered from the study of the nasopharynx at the time of the contraction was that the action of the levator palati was rather to close than to open the mouth, as evidenced by the upward and forward movement of the lower posterior lip to the anterior lip, precisely as in the case described by Dr. Burnett.

Instead of all three of the muscles being engaged to open the tube, is it not reasonable to suppose that one of them should have the function of closing it?

If this be so, we may then consider both the tensor palati and the salpingopharyngeus as acting in antagonism to the levator palati, both tending to open the tube, the former by drawing the anterior wall forward, and the latter by pulling the lower part of the inferior wall backward and downward.

The action of either one or both might be concerned in the production of the clicking tinnitus.

The number of cases of clicking tinnitus which has been reported—exclusive of those due to contraction of the tensor tympani—is not large. Cases of the voluntary type have been reported by Lucae,[2] Politzer,[14] Delstance,[15] S. M. Burnett,[8] Orne-Green, Bremen.[16] Cases of involuntary clicking by Kupper,[7] Leudet,[6] C. H. Burnett,[17] Urbantschitch,[18] Mermod,[19] Szenes,[13] Brandeis,[10] while Baker,[20] Shield,[21] Schwager[22] and Kaufman[9] have reported cases of involuntary clicking that were, however, at the same time in a great measure under the control of the patient's will.

ETIOLOGY.

So far as I have been able to make out by review of the literature, neither age, sex nor race have any particular influence in the etiology of the affection.

Many of the cases were spoken of as having a very decided, nervous disposition, and in two or three instances (it may have been merely a coincidence) a history was obtained of a fall or blow on the head. A case reported by Shield[21] had been in earlier life a stammerer.

Urbantschitch's[18] case had formerly been a subject of general chorea, and he looked on the contraction of the throat muscles as a sort of choreic manifestation.

In several cases the patient presented spasmodic movement of other muscles than those of the palate or pharynx. In Kupper's[7] case, there took place an elevation of the root of the tongue and a contraction of the muscles about the mouth; in Leudet's[7] case, there was a spasm of the eyebrow and of the mylohyoid and digastric muscles; in Boek's[5] case, an up-and-down movement of the larynx, as was observed in the case reported here.

TREATMENT.

So far as treatment is concerned, no deduction of

14. Politzer: Ueber willkürlichen contractionen des Musculus tensor tympani, Arch. f. Ohrenheilk., 1869, vol. iv, p. 19; 1868, No. 4, p. 19.
15. Delstanche: Etude sur le bourdonnement de l'oreille, Paris, 1872, p. 47.
16. Bremer: Ein Fall von objectiv wahrnehmbaren Ohrgerduschen, Monatsch. f. Ohrenheilk., Berlin, 1879, vol. x, p. 139.
17. Burnett, C. H.: An Objective Noise in the Ear Accompanied by Spasmodic Retraction of the Membrana Tympani and of the Velum Palati, Phil. Med. Times, 1874-5, vol. v, p. 306.
18. Urbantschitsch: Handbuch der Ohrenheilkunde, Herausg. v. Schwartze, p. 413.
19. Mermod: Des bourdonnements d'oreille perceptible á distance. Rev. Internat. de Rhinol., Otol, et Laryngol., Paris, 1894, vol. iv, p. 61.
20. Baker, A. R.: A Case of Objective Noise in Both Ears. Arch. of Otol., 1884, vol. xiii, p. 293.
21. Shield, A. M.: Pulsating or Clicking Tinnitus, Clin. Jour., London, 1896-7, vol. viii, p. 393.
22. Schwager: Ein Fall von objectiv wahrnehmbarem Ohrgeräusch, Monatschr. f. Ohrenheilk., Berlin, 1896, vol. xxx, p. 58.

any value can be drawn from the literature of the subject.

The administration of nervines and tonic remedies, change of air, sea voyage, the discontinuance of any confining or strenuous occupation, the treatment of any possibly existing nose or throat lesions, and a few other such usual commonplaces predicated on general principles have been advised by those who have written on the subject, and if the indication exists, one will, of course, not neglect such remedies; but, after all, it has to be admitted with regard to the objective form of tinnitus, as with the subjective, its prognosis is bad, and its treatment unsatisfactory.

DISCUSSION.

DR. W. S. BRYANT, New York City, said that all cases of tinnitus with the muscular basis have an important neurotic element which is responsible for keeping up the symptoms. A certain per cent. of these cases have impaired action of the pharyngeal muscles resulting in some unusual symptom which the patients brood over. As long as their minds are fixed on this, it is almost impossible to get a cure unless their hypochondriachal attitude can be changed. Local treatment does no good unless the mental attitude is changed at the same time. Very good results are obtained from the use of electricity in the neighboring regions, which probably helped the muscles and nervous mechanism. At any rate it pleases the patients and gives them confidence in the physician.

DR. C. R. HOLMES, Cincinnati, said that he had had but one typical case several years ago, where there was a clicking audible at a distance of several feet. He examined the case carefully with the mirror and each click was associated with a rhythmic contraction of the drum. The patient was under observation for a week or ten days for some other trouble and he called in a number of his colleagues to see it. The clicking was intermittent and would come on after nervous excitement or after eating a heavy meal, lasting from a few minutes to an hour or two.

OSMOLOGY AND PHARMACODYNAMICS.*

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Osmology is usually defined as the science treating of the osmotic states of the body fluids. However, as the osmotic processes in a liquid in a great measure reflect also its other physical conditions, this fact should be embraced in an adequate definition. Osmology, hence, may be spoken of as the knowledge concerning the physical conditions of and in the body fluids. This broader conception is adhered to throughout this paper.

The health of an organism depends on the existence and maintenance of its osmotic equilibrium. By osmotic equilibrium I understand that inter-relation of the physical conditions of the various body fluids—molecular concentration, osmotic concentration,[1] tension and dissociation—which is essential for the normal performance of the vital processes. This inter-relation does not consist in the equality, but in the physiologic dissimilarity of the osmotic conditions in the different fluids. In certain pathologic states, the fluids in the organism tend to equimolecular or equiosmotic concentration; the normal processes of life, however, are possible only so long as this uniformity is not established.[2]

It is the special office of the organs of secretion and excretion to maintain the osmotic equilibrium. A structural alteration of one or more of these organs, causing functional impairment, is liable to result in serious disturbance of the osmotic equilibrium. The functional impairment of such an organ is demonstrable by the altered osmotic tension of its secretion or excretion, which again may be an indication of the modified osmotic conditions in the blood. Normally, the secreting organs withdraw from the blood a certain amount of water in which are dissolved specifically proportionate quantities of inorganic and organic salts. The diseased emunctory is unable to cope with the secretion work, the absolute amount of water and salts withdrawn by it from blood and tissues falls short of that which it eliminates when functionating properly. Furthermore, the amount of water and solids secreted or excreted by a diseased organ may be in disproportion, that is, while the absolute amounts of both are diminished, the relative water or salt output may be still further reduced. The disturbance of the osmotic equilibrium between the body fluids and between the blood and the secretion or excretion progresses or regresses as a rule at the same rate as the structural changes in the parenchymatous tissues increase or subside.[3]

While the intrasystemic osmotic disturbances may be but rarely determinable by our present clinical means, the disturbed osmotic equilibrium between blood and secretion is soon demonstrated by simple physical methods. The degree of osmotic disequilibrium between blood and secretion is both an indicator of the intensity and the course of the pathologic process in the parenchymatous structures as well as of the influence of the therapeutic measure exerted on it. If there is a tendency to restoration of the osmotic balance, that is, if the insufficiency of the organ is gradually giving way to physiologic activity, the plan of treatment should be further pursued. If, on the other hand, improvement does not ensue after a protracted period, or if equilibration becomes still more distant, the therapeutic measures, as maintained by Zikel[4] should be at once replaced by more rational ones.

Pharmacologic action is not of an exclusive chemical nature. This fact, although not pronounced in so many words, was already recognized by Schmiedeberg[5] when he says that the molecular processes, as distinguished from those occurring between the atoms, should be taken into consideration when defining "chemical action." Further proof of his conception of "physical action" is furnished by his explanation of the non-toxic action of distilled water after its ingestion.

It is not often possible to distinguish between chemical and physical action; where the one ceases and the other begins is indistinguishable in almost every instance. We may assume even that the action of a great number of substances on the living cells is both of a chemical

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. While "molecular concentration" indicates the number of moles (gram-molecules) contained in a liter of fluid irrespective of an eventual dissociation, "osmotic concentration" as suggested by Hamburger (Osmostischer Druck und Ionenlehre, 1902) is the expression of that concentration indicating the total amount of molecules + ions contained in a liter of the physiologic or pathologic fluid.

2. Complete uniformity of all partial osmotic tensions supervenes at no time and nowhere in the organism. Such uniformity would result in the cessation of the tissue currents, but there is absolute proof that such cessation can never occur: in the dead human organism even these constant currents may be yet demonstrated. (Zikel.)

3. In certain phases of degenerative processes the insufficiency of an organ may yet for some time be averted by its unaffected cells; in case even that an organ has entirely ceased to functionate, another organ or set of organs may display vicarious activity, so that for the time being osmotic disturbances either do not ensue at all or are kept at a minimum.

4. Zikel: Klinische Osmologie, 1902.

5. Schmiedeberg: Grundriss der Arzneimittellehre, 1883.

and physical nature. Purely chemical or purely physical action is exhibited by comparatively few remedial agents. In so far, however, as one or the other mode of action predominates, we may differentiate between substances acting chemically and such that will display physical activity.

Again, pharmacologic action is determined by the constitution of the cells or cell-complex reacted on. Thus, a substance may not cause any reaction in the protoplasmic molecule—it may neither stimulate nor depress; or it may influence cellular function by calling forth chemical alterations of the cellular material, the specific composition of which invited chemical reaction; or it may modify tissue function by changing the molecular constitution of the intracellular or extracellular fluids. Whatever the mode of the action of a substance on living protoplasm may be its influence is one of a modifier only, that is, it may excite and increase or reduce and suppress functional activity, but it does not occasion any new function.

Ever since the advent of solidar pathology and the doctrines originating therefrom, the chemical nature of pharmacologic action was the one principally studied. Although the laws of endosmosis and exosmosis were known then, but few pharmacologists devoted sufficient attention to the physical side of pharmacologic action. And yet, the physical action of drugs, the salt action in the more limited sense, is so much simpler, is so much easier of comprehension than the complicated, only to the most rudimentary degree understood chemical drug action. I can not offer an explanation for this historical phenomenon, but it occurs to me that much could have been accomplished in the physical domain of pharmacology even before the rise of Van't Hoff, Arrhenius and Korányi.

By physical pharmacologic action I understand that influence which is exerted on the living cell by directly modifying the molecular constitution of the intracellular or extracellular fluids without synchronous alteration of the chemical structure of the protoplasm.

In the same sense in which osmology is the science treating of the physical conditions of and in the body fluids, osmotherapy is that mode of treatment, the ultimate aim of which is re-establishment of the normal physical conditions, the osmotic equilibrium. In its last instance, osmotherapy regulates the electrical conditions in the body fluids. Osmotherapy produces physical stimulation or depression by withdrawing, supplying or dissociating molecules; physical stimulation, again, is a mediate result of increased physical depression, that of diminished electrical conductivity of the intercellular or intracellular fluids.[6]

The remedial agents whose foremost action is the physical one, I designate as "equilibrants." They may be divided into four great classes:

1. Agents exerting specific localized activity; agents influencing the secretory and excretory functions of the diseased organ by transitory or permanent restoration of normal semi-permeability.

2. Agents regulating the perverted osmotic conditions of a certain body fluid, or maintaining a general osmotic equilibrium for the time being.

3. Agents whose principal action depends on their ions; agents which influence the electrical conditions in the system.

4. Agents with combined action; agents exhibiting any two or all three actions enumerated.

These equilibrants are all recognized therapeutic agents; each group has had its representatives in the armamentarium of the practitioner who, guided by a higher or lower degree of empiricism, only vaguely understanding their pharmacologic action, has virtually always employed them.

Under equilibrants with specific localized action I comprise those agents which in the face of impaired permeability of an organ, without being absorbed or, if so, without producing important systemic effects, cause it to functionate more or less normally. Stimulating the secretory or excretory activity without entering into or changing the chemical constitution of the irritated cells and not withdrawing by its own mediate action the components of the secretion or excretion from the blood, the paramount effect of these agents seems to be exerted on the impaired semi-permeability. The outpouring of the secretions following the administration of these substances is considered to be due to stimulation of the sympathetic, or to some other, mostly nervous cause. This may be true; still, the drug action has to be looked on as a purely physical one, as all elements of the secreting cells touched by the drug are more or less affected at the same time; as in certain cases the application of drugs tends to permanent improvement of the secreting power, and as artificial irritation is in vain unless all conditions essential to the secretory process are fulfilled. Moreover, if a secreting organ is in an atrophying state, its nerves also share in the degenerating process.

Among the equilibrants belonging to this group are the stomachics of condimental nature. This administration of a preparation of *Zingiber officinale*, for instance, in a case of chronic gastric blennosis of the second or of the beginning third degree frequently causes correction or augmentation of the gastric juice; it tends to equilibrize the osmotic conditions between the blood and the gastric secretion which is proved by the augmented production of hydrochloric acid, or by the latter's occasional production *de novo*. The formation of hydrochloric acid depends on the improved permeability of the glandular membrane.[7] Medicaments of similar local action, irrespective of synchronous ganglionic irritation, I count among remedial agents whose paramount pharmacologic action is a physical one.

Agents regulating the altered osmotic conditions in a body fluid are the equilibrants *par excellence*. Such agents are water and salts. They mainly differ from the equilibrants with specific localized action in the fact that they themselves furnish the material by which the osmotic conditions are directly influenced.

The employment of the equilibrants of this group should be based on a minute study of the osmologic disease factors. It is not the introduction *per se* of the equilibrant by which the osmotic conditions are corrected. This is accomplished by the quantity of the equilibrant conforming exactly to the functional change. If, for instance, the pathologic, cryoscopically ascer-

6. I do not consider the non-dissociated molecules of the same importance as the ions, between which the reactions occur with greater ease and rapidity than between the former. The majority of the physical pharmacologic reactions very likely occur between the ions.

7. Gastric hydrochloric acid does not originate in the glandular cell, but in the glandular membrane. This, a semi-permeable membrane, is impervious to free chlorin ions, but permeable to the hydrogen ions, coming from the blood. A certain secretory irritation is essential for the production of hydrochloric acid. This irritation is called forth by the presence of free chlorin ions on the inner side of the gastric membrane. Stomachics, like those aforementioned, create conditions facilitating the passage of chlorin ions to the inner side of the gastric membrane.

tained, osmotic pressure of a body fluid be subnormal to a certain degree, and if the deficiency is to be corrected by sodium chlorid, exactly the amounts of sodium chlorid necessary for the correction of the osmotic pressure are to be injected. Too little of the sodium chlorid may not effect any material alteration of the condition, too much of this salt may be followed by untoward phenomena.

The performance of cryoscopy is indispensable, when equilibrants of this category are to be employed. By its aid we are enabled to determine the osmotic alteration of the body fluid, the osmotherapeutic correction for its restoration, and the specific equilibrizing value of every osmotherapeutic agent.

The specific equilibrizing value of an equilibrant consists in the faculty of modifying a pathologic condition or a symptom by means of its purely physical properties, as molecular weight, dissociation and concentration.

In case two or more equilibrants are used in combination or alternately the osmotic partial pressure of each has to be taken into consideration.[8] According to Zikel[2] the concentrations of two specific injection-osmo remedies must be like the products from their molecular weights and the mutual dissociating coefficients.

Besides, the influence exerted by these equilibrants on the osmotic conditions *per se,* their dissociated parts, the ions, which are the conductors of electricity, may alter the electrical conditions in the organism. While there is no doubt that the mediate and individual action of the ions is of a chemical nature, their ability to conduct electricity is a purely physical property. The ions are conductors of ectogenous as well as of endogenous currents of electricity. Their ability to conduct the intrasystemically generated electricity stamps them as one of the most potent factors in the vital processes. It is evident that, if ionization is deficient, or if the electrolytes are interfered with by non-conductors,[9] the electrical conductivity of the body fluids, as I have shown elsewhere, will be diminished or entirely suspended. Among the equilibrants, hypotonic salt-solutions (or water) are often the most important, as first pointed out by me.[10]

Among the equilibrants with combined action, distilled water, under certain conditions, stands at the first place. In cases of hypochlorhydria, on the basis of chronic gastric catarrh, occurring together with renal insufficiency, for instance, distilled water acts primarily as an irritant, casting off the degenerated epithelium and establishing a more normal state of partly permeability of the gastric membrane. Subsequently, when lodged in the intestines, it exhibits its other equilibrizing qualities by withdrawing salts from the organism, by diminishing molecular concentration of the serum and by permitting or effecting increased ionization.

Osmotherapy is as yet in its very infancy. Of its rationale—if the premises, the theories of osmosis and dissociation be well founded—there is not the shadow of a doubt. But how well are these conceptions founded? Do we not conceive of Nature and her forces a little differently every few years? Will these conceptions endure sufficiently long to impress their mark on all the branches of medicine, as the bacteria have done?

I have briefly sketched the relation of osmology to pharmacodynamics in the light in which I see it. The picture, I know, is incomplete, and, perhaps, too tersely drawn in some respects. Succinctness, however, was compulsory on this occasion.

8. Osmotic partial pressure is the osmotic pressure of an individual dissolved substance in a solution of mixed substances. The osmotic pressure of a dissolved substance mixture is equal to the sum of the partial pressures of the individual substances.

9. Stern: A Contribution to the Pathogenesis of the Uremic State: the Probability of Its Physico-Electric Substratum, Med. Rec., Jan. 24, 1903.

10. Some Points Pertaining to the Therapeutic Management of the Uremic State, Amer. Med., May 2, 1903; Trans. of the Med. Soc. of the State of New York, 1903.

SOME PROBLEMS OF PRESBYOPIA.*

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When I began practice I did as I had been taught regarding the correction of presbyopia. Text-books, teachers, and general custom agreed that presbyopia began sometime after forty, and that no mydriatic was needed in such patients. There was a rough rule wandering about that plus spherical lenses of one diopter were needed in forty-five-year-old patients, twos at fifty, threes at sixty. This was about the time of the "Punch, Brother, Punch with care, a blue slip ticket for a five-cent fare, etc." Actual dealing with presbyopic patients soon brought me up sharp. Rules like those of the street car conductors would not work out in the oculist's office. If any rules at all were admissible they had to be of a different kind from those of the text-books; in some ways far more definite, in others more indefinite. Some of these cautions I have brought to clearness are as follows:

1. In oncoming and progressive presbyopia, cycloplegia is generally necessary to obtain the static refraction on which the presbyopic correction is based.

Precisely in eyes whose accommodation powers is being narrowed and lessened is the mydriatic most needed in order that eyestrain may not be increased by the close limits in which function is being compressed. When there is youth and a high range of accommodation the refractive error may not produce the injury taking place in the presbyopic. This is a truth so self-evident that it is astonishing to find it utterly ignored in Europe and too commonly ignored in our country.

The slightest misplacing of the axis of astigmatism, the failure to get the accurate amount of the error of refraction, the least imprecision in correcting the slight anisometropia, insure more trouble in the presbyopically lamed eyes than in others with plasticity and with activity of neutralizing or compensating powers. If there are symptoms of eyestrain, and especially if accompanied with any doubts in my mind as to accuracy, I do not hesitate to use a mydriatic up to the ages of fifty-five or sixty. I think almost all patients up to fifty should have it. I mean homatropin and cocain, and instilled in the office.

Discrimination as to those with latent or manifest glaucomic tendencies is, of course, demanded. The individual expertness of the oculist must also be considered. The art of refraction requires a skill, a judgment and a delicacy of perception, as great and rare as in any other calling, greater, I believe, than in surgical or inflammatory conditions. A highly exceptional mastery of the art may succeed in estimating the error of refraction without a mydriatic when others would fail. None may safely lay claim to such ability. None, at least, may safely trust himself in its habitual employment. Easy going assumption of it is another phasing

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of the characteristics which have duped us since proverbs and folk-tales and the ophthalmometter were invented.

2. The age at which presbyopic correction should first be given depends on the pre-existing refractive error.

The old rules as to forty-five, etc., are nonsense. If the patient has two diopters of hyperopia, the presbyopic correction will be needed much earlier than if he is emmetropic. If he has myopia, the necessity will arise later, as is well understood. But astigmatism creates a greater indefiniteness, and especially if it is unequal, or if unsymmetric. Anisometropia further complicates all rules and makes them still more indefinite. The onset of troublesome presbyopia also depends on whether the ametropia has been corrected or not for years previous.

3. The correction of the presbyopic error of one or both eyes is often dependent on the existence in one eye of amblyopia from disuse.

This exclusion of one eye from function always brings most difficult problems. If of high degree and of long standing it may not be possible to get reaction or to stimulate the lost power into function. As a rule I believe in saving partially ruined eyes, and it is possible to do so more often than has been supposed. Such eyes exist far more frequently than text books and teachers tell us about. In some rare cases at the presbyopic age the attempt to save the eye and bring it into function is not only possible, but will produce most decided rebellion on the part of eye and brain. These "hurt eyes," with stippled maculas which let you stare at them, and which so plainly show neglect and sin, both lay and medical, are daily visitors to the oculist's office, and they make his hair gray sooner than should be.

4. Less accommodation in one eye than in the other may condition the amount of the presbyopic correction.

This inequality of function may be the result of anisometropia, of right-eyedness or left-eyedness, of a peculiarity of occupation, of monocular disease or injury, of heterophoria, etc. It is of more frequency than is suspected, and causes much ill-success in the correction of presbyopia.

5. The onset of presbyopia demanding correction may be delayed beyond the usual age by hypertrophied accommodation.

This abnormalism of excessive accommodation is the result of lack of presbyopic lenses, with the resultant over-function of the ciliary muscle and abnormally retained elasticity of the lens. Excessive use of any organ, or abnormally prolonged use, produces disease. That of the accommodation in presbyopia causes eyestrain and all of its reflexes. The eye itself or the organs which bear the brunt of the derouted reflexes must suffer. I have heard of one oculist who attempted for many years to postpone presbyopia requiring correction into old age. That is a human vivisection experiment that would be somewhat interesting to science, but which I should be far from wishing to try in my own case. We see daily the injury and the suffering it causes in old people who indulge in the puerile vanity of ability to "read without glasses." The result is that they do not read much, their little intellect goes to seed, and the little reading they do produces disease.

6. The correction of presbyopia at an early or late age, and the high or low degree of the error depends on the amount of near work demanded of the eyes.

In nonreading farmers, workmen, seamen, etc., the correction is not required to be made at so early an age, nor perhaps in so high a degree as in sewingwomen, literary people, engravers, etc. A hurried test may also result in a too low correction, because the accommodation by a moment's intense effort may prefer a lower lens than would be required in more prolonged use of the eyes at near range.

7. Presbyopes who deceive the oculist as to their age may suffer if he has not been alert minded to detect the error.

One must be on his guard in treating "women of doubtful age."

8. The peculiarity of the habitual occupation may necessitate a higher and earlier correction than is usual.

Embroidering, "sewing on black," engraving, watchmaking, measuring in sixty-fourths of an inch, etc., are kinds of employment that make inordinate demands on the accommodation.

9. The light, its quality, power, etc., must also be inquired into.

If a patient works all day by artificial light, or by poor daylight, in darkened rooms, if the angle at which even a good light strikes the work is not right, eyestrain is sure to result. If after a long day of strain, under these hurtful conditions, reading, sewing, etc., are continued at home, and again perhaps, with bad lights, the results must be deplorable.

10. The position of the body and head in sewing, reading, or other near work, may be harmful to the eyes and the general health.

If the book, sewing material, writing, etc., is placed in the lap, or in such a position that the head is bent over, the spine curved, and the chest flattened, the injury to the patient's eyes is almost certain because of nonillumination of the page, paper, etc., and also because of the improper position of the eyes and head. The health generally must be harmed by the compressed condition of the pelvic organs and the lungs, poor respiration, etc.

Bookkeepers, etc., should stand at their work as much as they may, and chairs at desks should be low, the desk high, the writing leaf inclined, the axis of vision as nearly as may be perpendicular to the plane of work and of the spectacle lenses. The single disadvantage of the bifocal lenses is that they compel the axis of vision to be inclined downward. For this reason they should be set high before the eyes, and the habit advised of "chin-up." Book rests, book holders, etc., should be encouraged. In my boyhood "sewing-birds" screwed to tables were common. They were most excellent devices.

11. The state of the general health, the preserved vitality, the vigor of will and of body, will also condition the early or high correction.

A flaccid muscular tone, anemia, denutrition, care and worry, a melancholic or pessimistic disposition or philosophy of life, may not be entirely overlooked. Patients so handicapped require a fuller or earlier presbyopic correction than those who are more vigorous. Their innervational power is lessened and sometimes nothing the oculist can do will enable them to carry on severe near work when presbyopia doubles their strain.

12. Failure to cure the reflexes of eyestrain may be due to the want of bifocals.

Two separate pairs of lenses can not correct eyestrain as do the double lenses. With a distant pair only, there is an hour or more of strain every day in eating meals. There is also forgetfulness to change or indifference to the need of it, lenses are not repaired, are misplaced or lost, etc. The one disadvantage of bifocal lenses is counterbalanced a hundred times by the manifest benefits over the distant and near glasses made separate.

13. Eyeglasses being more prone to maladjustment than spectacles may be the cause of failure to bring relief of the symptoms or sequels of presbyopic eyestrain.

There are few noses capable of retaining bifocal eyeglasses in a correct position. The more expert the optician the more the attempt may be tried. This is especially true if the patient can consult the fitter at least once a month. Patients who by reason of living at a distance can not do so should not be allowed bifocal eyeglasses under any circumstances. To those with high degrees of astigmatism they must also be forbidden, except for one nose in ten thousand. Vanity causes a deal of suffering both to patient and oculist. It may prevent the patient wearing any glasses, and thus double the local and systemic reflexes. When, as usual, vanity demands eyeglasses, and the result is certain to prove bad, my custom is to tell the patient to consult another oculist. No greater ill fortune could happen to your rival than to have the patient go to him! And there is no better punishment for vanity than eyeglasses, unless it be the rest cure.

14. Premature presbyopia, or paresis of the accommodation, may occur years before the usual age, and explain failure to relieve symptoms when none of the preceding causes will do so.

The patient may have contracted a chronic habit of reading at too great a distance, and the presbyopic lenses ordered may force him to hold the page or sit at writing at a shorter distance than is comfortable or perhaps best.

This is especially true if there is exophoria or insufficient adduction power. If this is so, the adduction should be increased until comfort is secured, habitual reading or writing at, say, 20 inches may itself be a source of eyestrain.

16. The patient may have supernormal adduction power and the presbyopic lenses ordered may force him to read or write at too short a distance.

In this case, at least until the adduction lessens, the too weak lenses may cause discomfort.

17. The symptoms may not be due to presbyopia, nor to any eyestrain, but to systemic disease.

Every oculist has had many patients whose symptoms had been treated by glasses alone, or whose ocular muscles had been "clipped," when all the time there was concealed or unknown systemic disease, e. g., nephritis, diabetes, anemia, etc., or some morbid result of bad dietetic or other habits, which were the only or chief causes of trouble. This does not in the least excuse those wonderful oculists who find that all eyestrain symptoms and reflexes are due to systemic conditions. That is a good way to please the referer of cases, and to conceal inaccurate refraction. But it is not the best way to practice ophthalmology.

The preceding rules are, in fact, non-rules; they are in truth, cautions to have no rules in correcting presbyopia. Every case is exceptional and individual and requires a freedom of the mind from bias or prejudice of any kind. Precision in estimating the conditions, infinite patience, delicacy, and conscientiousness, in hunting out the individual variation there before one, and inexhaustible ingenuity in meeting all the varied and varying phases and factors, are the prerequisites.

There is but one invariable rule: Have no rule. Rules are the makeshifts of the lazy and unintelligent. The cunning rely on them, forgetful that cunning is really stupidity. Optical machines are often rules made into iron rods, scales and wheels. They may be of service if used not as dictators but as slight helpers, in the hands of the intelligent and guiding machinist, but they may serve as the excuse and ruin of those who rely on them to the exclusion of intelligence and diagnostic skill.

Any number of cases could be epitomized, illustrating the foregoing suggestions. I shall content myself with but few, because in every oculist's memory there doubtless arises plenty of examples.

CASE 1.—A lawyer who carried on a tremendous amount of eye work had an enormously high and complicated compound hyperopic astigmatism. Despite a perfect correction of his ametropia by capable and good oculists, and despite the best treatment by general physicians, his dyspepsia persisted. In obedience to his demand his oculists had allowed him to wear bifocal eyeglasses. A difference of five degrees or ten degrees in his astigmatic axes, inevitably caused by maladjusted eyeglasses, rendered his ametropic correction worse than useless. They failed to cure their patient because they did not demand spectacles.

CASE 2.—A woman of thirty-nine had sick headache which reappeared every few weeks despite my best correction of her low compound hyperopic astigmatism. I had three times gone over my work and found no change in her glasses was to be made. I feared I had what I had always been looking for—a typical migraine which I could not cure with glasses. Inquiry elicited the fact that the woman habitually did an enormous amount of literary work. I ordered presbyopic correction and bifocal spectacles to be worn constantly and the "migraine" has never shown a sign of itself since.

CASE 3.—A healthy, clear-headed intellectual man was given two pairs of spectacles for his myopic astigmatism, a stronger or higher correction for use at the theater, driving, etc., a weaker correction for reading and daily or constant use. For a year his wife and daughter observed, without telling him, that whenever he wore the strong, or accommodation-exciting glasses he "caught cold" with coryza, hoarseness, etc., which at once disappeared when the weaker lenses were used. He used the stronger ones but few times a year. When certain of the strange coincidence his wife told her husband. In the past ten years the cold has been produced in this way, a hundred or more times. Now if his weaker glasses get "crooked," or maladjusted, miscorrecting his axis of astigmatism by a few degrees, his cold promptly appears, to vanish in an hour after a visit to the optician.

CASE 4.—A gentleman of fifty years of age had consulted many of the most famous oculists because of severe and frequently recurring subconjunctival hemorrhages. Some of these had refracted his eyes, some had not, but all had followed a not uncommon custom of charging such symptoms to gout. None had found any error of refraction, except, of course, a couple of diopters of presbyopia. By the most competent authority his eyes had been pronounced mathematically emmetropic and perfect. None, of course, had used a cycloplegic. With paralyzed accommodation I found 0.25D of simple myopic astigmatism axis 180 degrees in each eye. For several years he has had no hemorrhages and by his glasses he has had also such relief from other cerebral symptoms that he has had heavy iron spectacles made for use in his bath, so that he may not be without lenses for a minute.

DISCUSSION.

DR. ROBERT L. RANDOLPH, Baltimore, said that he is surprised to find how often it is necessary to use homatropin in order to discover the astigmatism which is frequently responsible for the discomfort in these cases. The presbyopic condition, no matter how advanced, has never deterred him from the use of homatropin where there was the slightest doubt in mind as to the true condition of the refraction and he called attention to the great convenience of the cocain-homatropin discs. He usually employs two of these in each eye at intervals of twenty minutes, and an hour from the time when the first disc is introduced into the conjunctival sac the patient is ready for the examination. Results in his experience in both old and young do not differ from the results obtained when either atropin or

homatropin has been used. The fact that the desired result is obtained quickly is a distinct advantage as lessening the chance of high tension, and the fact, too, that the effect is promptly nullified by eserin is an additional advantage for obvious reasons. It is no uncommon thing for a patient to be able to use the eyes for close work within two or three hours after the instillation of the eserin. It is his habit to wait till the patient has experienced decided twitchings of the lids before allowing him to leave the office. These discs can be best used when put up in gelatin capsules (No. 2 size). The smaller half of the capsule is taken off and the disc can be emptied right into the conjunctival sac, where it remains. Four capsules, each containing a disc, are used for each patient.

DR. G. C. SAVAGE, Nashville, Tenn., said that a strong ciliary muscle means a small nervous impulse and late presbyopia. The presence of a strong ciliary muscle may be determined as follows: In the first place, there is orthophoria for distance and exophoria for near; exophoria far, greater exophoria near; or esophoria far and less esophoria near. Another method of determining this is that these patients will overcome a minus lens stronger than 3 diopters—they will overcome 4, 5 or 6 diopters and sometimes 7. Whenever there is delayed presbyopia, beyond the age of 45, there has been an abnormally large ciliary muscle, requiring a corresponding small nerve impulse. A weak muscle means a strong brain impulse and early presbyopia. This condition can be determined as follows: In the first place there is orthophoria for distance and esophoria for near; exophoria far, less exophoria near; or esophoria far, greater esophoria near. A weak ciliary muscle demands a strong impulse from the tenth conjugate center in the brain. It is generally understood that the center for the ciliary muscle is intimately associated with the third conjugate center for convergence. Every excitation of the tenth center means overexcitation of the third center controlling the interni, and means esophoria for near. These patients can not overcome a minus lens of 3 diopters; they will overcome a 2.50 maybe, or a 2, or a 1, and Dr. Savage has had patients who could not overcome a minus lens of .50 diopter. Dr. Savage related the following case: A confrère sent him a patient for consultation. The lady was 28 years of age and had other troubles besides a refractive error. She had had albuminuric retinitis and now has optic atrophy. She was suffering and no one expects suffering from atrophy of the optic nerve. The physician wanted Dr. Savage to help him work out the case, and in testing the case Dr. Savage found that she had orthophoria for distance and 6 degrees of esophoria for near. A plus 1.50 D. sphere gave her orthophoria in the near. That woman had a weak ciliary muscle. It required a strong impulse from the tenth conjugate center in the brain. The impulse liberated from that center caused a corresponding excessive impulse from the third center controlling the interni, and hence the esophoria. With a plus 1.50 D. sphere before her eyes her esophoria was corrected. Now the absence of necessity for an excessive impulse from the tenth center put into a normal state of action the center in the brain acting on the interni. A plus 1.50 D. presbyopic correction for that woman, only 28 years old, will be most helpful. Dr. Savage said that the corrected hypermetrope will not have, as a rule, early presbyopia, for he has an abnormally strong ciliary muscle. Correct the hypermetropia, being always guided by the muscle condition as to ordering full or partial correction, and, if in early life the hypermetropia is corrected, the patient will go beyond 45 without the need of presbyopic correction. It means delayed presbyopia because hypermetropes have abnormally large ciliary muscles.

DR. HERMAN KNAPP, New York City, said that he wears bifocals and his eyes do not trouble him at all. He is hypermetropic and presbyopic, of course, and his sight with glasses is just as good as when young. He looks at a distance and reads without even bending his head, and operates with great comfort, even when doing fine work like a capsulotomy. He recommends these glasses as an immense comfort. The line where the segments meet gives a prismatic effect, however, no matter what any one may say to the contrary. This shows particularly in walking down stairs, when a person must be cautious in order not to misstep. It is his habit to examine every patient who has any nervous trouble with the ophthalmoscope, with glasses and also with the phorometer. In all these anomalies of refraction a cure is obtained. Dr. Knapp thinks that the trouble is not in the muscle and he is astonished that Dr. Savage speaks of the weak ciliary muscle. It is a mere hypothesis which has been used to explain the different anomalies of refraction; for instance, a myopic squint. When a patient comes to him with asthenopic symptoms, after using the ophthalmoscope he tries the glasses if everything is all right with the ophthalmoscope, and, in the great majority of cases, he finds hypermetropia of .50 or 1 diopter; if he goes further and examines them with the phorometer he finds 2.50 or 3 degrees of esophoria; when he puts the convex glasses before these eyes the esophoria disappears. The person who is hyperopic 2 or 3 diopters must make a very strong effort at convergence. He must send into the ciliary muscle an impulse to do away with the 2 or 3 diopters of hypermetropia and in that way the latent hypermetropia can be detected.

DR. MARK D. STEVENSON, Akron, Ohio, said that he uses homatropin in from 1 to 2 per cent. solution while the patient waits in a darkened room. The ciliary muscle yields more readily to the cycloplegic action of the drug in a dark room since the patient is unable to read or see objects. In a light room the patient tries to use his eyes and the ciliary muscle is constantly straining against the effect of the drug; this, with the dazzling caused by the enlarged pupil, gives rise to discomfort, often congestion of the tunics of the eyeball, and headache. Dr. Stevenson uses atropia in the young, if the patient can spare the time, and homatropin in nearly all other cases. The degree of strain found in some old people's eyes is sometimes surprising. He uses cycloplegics in all ages unless he finds tension, and in people over 35 or 40 he puts one or several drops of eserin in the eyes as soon as he has completed the examination. Young myopes are sometimes unable to wear their full distant correction for near work. In some of these cases, after proper trial, it is well to give bifocals or two pairs of lenses. Occasionally young people have more close work to do than the ciliary muscle can accomplish; in some such cases bifocals or two pairs of lenses are useful. The relation between accommodation and convergence is too often neglected. It is well known that people past the age of puberty gradually lose their accommodative power until they require a presbyopic correction. It has been Dr. Stevenson's observation that these patients usually at the same time lose some of their convergence power. The patient's accommodation is generally relieved by a lens which draws the near point closer. This accomplishes two things: It necessitates greater convergence and at the same time partially or wholly removes accommodation, one of the chief stimulants to convergence. Many presbyopes have weak convergence and the additional burden added by advancing the near point gives rise to discomfort. In cases where the convergence is weak, give a farther reading distance, prism exercises with strong prisms bases out, or sometimes even combine prisms with the lenses bases in, or the equivalent by decentering. Sometimes it is well in a high degree of insufficiency, especially if combined with weak adduction and strong abduction, to perform a tenotomy of the strong or an advancement of the weak muscle. In cases with great excess of convergence it is often well to give a short reading distance and rarely use prisms. Eyeglasses with bifocal lenses properly adjusted are often worn by patients who would lay spectacles or two pairs aside. The reading angle should be correct in such cases. The patient's vocation must be kept in mind in determining proper working or reading distance. In a paper presented to this Section in 1900 Dr. Stevenson called attention to the unequal accommodation in the two eyes. If possible, give distant lenses for a few weeks before prescribing for near. Too frequently the correction for near is determined after the accommodation is tired by a long examination for distant correction; in such cases the reading or working distance will be too close.

DR. WALTER L. PYLE, Philadelphia, stated that early in his

career his attention was directed to the necessity of careful refraction, and to the value of cycloplegics. At the meeting of the American Ophthalmological Society in Washington, in 1903, Dr. Pyle reported the case of a patient aged 50, in which he used a single instillation of a 5-grain homatropin solution to get a better view of some peripheral lenticular opacities. On the morning of the third day she had violent acute glaucoma in both eyes. Dr. Pyle found her completely blind with both cornea steaming and with the eyeballs absolutely hard. He immediately performed posterior sclerotomy, which was followed by speedy relief. He also used hot applications and eserin. Within twenty-four hours the patient had normal visual acuity. The use of a drop of eserin solution before elderly or middle-aged patients leave the office avoids dangers of this kind.

DR. FRANCIS VALK, New York City, stated that in his work of fitting glasses for presbyopia, the more he leaves out the scientific ideas and gets down to natural methods the better seem to be his results. His objective point in fitting glasses for presbyopia is first to put the eye in a perfectly normal condition. The history of presbyopia in an emmetrope shows that they get along in life without any symptoms of asthenopia until they become 40 or 45, and then they require glasses. If they go to an optician and buy a pair of convex glasses, stronger as they need them, these glasses will carry them through life with no trouble. So, in a case of ametropia it must be put in the condition of the emmetropic eye by correcting the refraction, and then the addition of convex glasses will correct the presbyopia. In twenty-five years' work Dr. Valk has never found it necessary to use a cycloplegic in a case over 40 years of age. Some may find it necessary to dilate the pupil, but he has not met these cases. He corrects the refraction with the most careful objective examination, confirms this with glasses and then tests the range of accommodation. The text-books say bring the near-point up to eight or nine inches, but in many cases the position at which the patient works must be considered. His work may be at the desk and, if he has a very small region, this near-point must not be brought too close to the eyes. While Dr. Valk does not approve of the use of atropin in any case over 40, yet he would not hesitate to use it if he considered it necessary.

DR. JOHN S. KIRKENDALL, Ithaca, N. Y., agreed with Dr. Gould, but believes that the presbyopia spoken of by Dr. Stevenson in young myopes is apparent but not real. It is an acquired diseased condition, and if Dr. Stevenson continues to correct this apparent presbyopia in such cases he will add to the trouble by weakening the already atrophic ciliary muscles. Dr. Kirkendall's treatment of these cases is to thoroughly atropinize these patients, work out carefully their refraction and give them the full correction for both distant and near work, thereby developing the ciliary muscles, stopping the progress of the myopia and putting their eyes in the state of emmetropia; but at or about the age of 45 recognizes and corrects the presbyopia.

DR. J. L. THOMPSON, Indianapolis, said that he is not afraid of mydriatics at all. When von Graefe and others spoke of the danger they used atropin. Dr. Thompson should as soon expect to rush on the shield of Zeus and get off without punishment as to use atropin. Many people over 60 have some accommodative power. He uses homatropin because it can be corrected so nicely with eserin. The patient can be kept in the office until the pupil contracts. There may be a simulated astigmatism in the opposite meridian to the usual one and on using a cycloplegic it vanishes. Dr. Thompson sometimes examines women patients at 38 and then again ten years later and they are still not 40. Find out their reading point and judge for oneself about their age. If patients refuse the bifocals they may have two pairs of glasses. Dr. Thompson thinks that Dr. Gould stretches the matter a little. Sometimes on a bright day Dr. Thompson has migraine when passing a fence or on looking at a new, bright carpet. He has had it suddenly develop when getting ready to operate, caused by reflection from the white caps of the sisters.

DR. GEORGE M. GOULD stated that he uses homatropin and cocain—two-thirds homatropin and one-third cocain; and does not hesitate to use it up to the age of 60, or any time, because in suspicious cases he immediately brings back the pupil and the accommodation to normal with eserin. This he does with young and old if they wish to use the eyes the same day. He uses the eserin in solution of 2 gr. to the ounce, and the patients read as before in fifteen or twenty minutes after several instillations. In presbyopic cases one avoids in this way all possibility of glaucoma. The stronger eserin may cause a little spasmodic twitching for a few minutes, but otherwise no harm, so far as Dr. Gould has observed. Dr. Gould does not see how Dr. Valk can correct presbyopia without the use of a cycloplegic and he will be grateful to anyone who can show him how to do it. He believes in correcting the astigmatism and in the slightly misplaced axes he can not do this without a cycloplegic. He finds a large number of cases with axes 10, 15 and 20 degrees off from the vertical or horizontal, and in young people that, in what he calls "the dominant eye," will produce tilted head, which often brings about compensatory spinal curvature.

THE USEFULNESS OF THE OPHTHALMOMETER.*

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The ophthalmometer has gone through various stages of appreciation, depreciation and overpraise, back and forth over the same ground again and again; and still we have its enthusiastic advocates, claiming that it does away with the necessity of using mydriatics, while others consider it as merely an expensive scientific toy, utterly unreliable and of no practical value. Is it not worth while, then, to give the subject a few minutes of dispassionate consideration? Let us first take up the question: Is the ophthalmometer of any practical use in refraction work?

Those who argue against its usefulness base their argument on the ground that it only shows corneal astigmatism. The argument must turn largely, then, on the frequency and amount of lenticular astigmatism. Many authorities state that most of the astigmatism is corneal, and Suter and others explain the subtracting of half a diopter from the finding with the instrument in cases with the rule and adding the same amount in those against the rule by the fact that the lenticular astigmatism averages half a diopter against the rule. There is abundant testimony that this allowance should be made, and this certainly accords with my experience. A case will illustrate:

CASE 1.—Miss G., a sufferer from headache back of the eyes, had worn +0.25 sph. right eye, +0.50 sph. left eye, for two years without relief and they blurred her distant vision, which was improved from 15/15— to 15/10 with +0.50 cyl. ax. 90° right, +0.25 cyl. ax. 90° left. The ophthalmometer showed 1 D. right, 0.75 left, axis 90° or 180°, with the rule. Assuming it to be probably convex from information already obtained and subtracting 0.50 D., the usual allowance, we get the same glasses she saw best with. These were prescribed and gave satisfaction.

The ophthalmometer here only increases our confidence. This case is a type of such a common experience as to seem trite. Everyone doing refraction work recognizes the difficulty in regard to cases with oblique axes, and the following illustrations are of this class:

CASE 2.—A schoolboy, R. T., was referred to me because

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

his teacher noticed that he saw poorly. Vision was found to be about 15/50 each eye and no glass seemed to improve it. The ophthalmometer showing 3 D. axis 15° or 105° right, 3 D. axis 165° or 75° left, we then tried +2.50 axis 105° right, +2.50 axis 75° left, which brought vision up to nearly 15/20. The astigmatism, axis and amount were revealed by the instrument.

CASE 3.—Miss C., aged 18, consulted me Sept. 15, 1902. She had been operated on for internal squint when a little child. For some time the left eye had been turning up and a little out, worse when the eye was tired. R. V. 15/15, L. V. 15/40; not improved by any glass. In fact, she thought this eye nearly useless. We talked of operating on the muscle, as she was fond of going into society and was much embarrassed by the disfigurement. Here the ophthalmometer came to our rescue, showing 3 D. axis 30° or 120° left eye and +2.50 cyl. axis 120° with +1 sph. brought vision in this eye up to 15/15 practically. A small amount of astigmatism was found in the other eye. She has worn the glasses then prescribed with greatest satisfaction ever since, the eyes being perfectly straight under the glasses.

Who would say after such an experience that the ophthalmometer was of no use? In the cases so far cited no mydriatic was used. Shall we say, then, that this instrument makes it unnecessary to use mydriatics? While there are many cases like the above where it seems safe to prescribe without paralyzing the accommodation, and while the ophthalmometer, by increasing our confidence in the result already obtained, or giving first clew to axis and amount of astigmatism, confirmed later by other tests, adds very greatly to the class that can be fitted safely without a mydriatic, yet we feel still greater confidence after an examination under cycloplegia in any case, and in many cases it is indispensable. For example:

CASE 4.—C. T., wearing +1.50 sph. without relief to eyeache and with poor vision, seemed to accept +0.75 sph. each eye, but the ophthalmometer showed 0, which means either +0.50 cyl. axis 180°, or —0.50 axis 90°. Under homatropin his full correction was +1 D. sph. = +0.50 axis 180° both, thus confirming the instrument as to the astigmatism and correcting the mistake that would have been made by prescribing from the test by the lenses alone and showing what neither of the other examinations did, that there was compound hyperopic astigmatism.

But there is another advantage in using a mydriatic; it makes the examination with the ophthalmometer easier and more reliable. For example:

CASE 5.—Miss J. A. came to me Aug. 24, 1902, with symptoms of eyestrain. She seemed to see best with +0.50 cyl. axis 105° right, +0.50 axis 75° left, and the ophthalmometer indicated the same. These were prescribed and gave partial relief for a year, when she returned to see if they could be improved. This time homatropin was used and the same amount of astigmatism was shown both by the test lenses and ophthalmometer, but instead of the oblique axes both methods gave 90°.

This shows that the axis of the corneal astigmatism may be made to change probably by the lids pressing on the balls in straining to see, and this is avoided or lessened when the eye is put at rest by the mydriatic. A few other cases have shown different axes under the mydriatic from those of first test.

In view of what has been said it might seem unnecessary to consider the question: Is the ophthalmometer an infallible guide? But it will be understood that we mean subject to the limitations already expressed. In other words, Can we rely on the ophthalmometer in all cases, both as regards axis and amount of astigmastism, even after use of mydriatics? We can answer this best from our case book:

CASE 6.—Mrs. M., a sufferer from headache, had a small astigmatism recognized by the ophthalmometer in both eyes, axis 90° or 180°, while test lenses under homatropin gave left axis 135°, which was ordered.

CASE 7.—A little girl with frontal headache saw best with +0.50 axis 135° right, +0.50 axis 45° left, and homatropin confirming this, they were prescribed in spite of the fact that the ophthalmometer did not give oblique axes, and they relieved the symptoms.

CASE 8.—Miss M. on first test took +0.50 axis 90° right, +0.50 axis 180° left, which was apparently confirmed by the ophthalmometer, but homatropin showed simple hyperopia in left eye.

A few other similar cases have been observed, and two in which the instrument gave 1.D. more astigmatism than homatropin.

It is evident, then, that we have not an infallible guide in the ophthalmometer. Some one may ask, Do not the cases just cited prove as much against the instrument as the other cases did in its favor? They would, if numerous; but these cases are very exceptional, not types of many found in every-day experience like those cited in the argument in favor of the usefulness of the instrument. In fact, I have given nearly all the exceptional cases observed from June 1, 1901, to Jan. 1, 1904, under this head, and most of these can probably be explained as examples of unusual amount of lenticular astigmatism, or those where accurate ophthalmometric readings were rendered impossible by undue action of the lids, restlessness of the patient or other similar difficulties.

If not infallible, what are the limitations? This has already been answered, in part at least. It does not show lenticular astigmatism, which is an important factor in some cases, and there is some liability to mistakes from hasty work of the observer, restlessness of patients, contraction of lids, failure to look in direction desired, etc. Of course, it does not show hyperopia or myopia; in fact, it does not even show whether the astigmatism is hyperopic or myopic, except that a long radius suggests the former, a short one the latter. Yet it is very useful in spite of these limitations, and this leads to a comparison between this and other methods of measuring refraction.

This comparison will be limited to use of test lenses, with and without mydriatics, retinoscopy, the ophthalmoscope and the ophthalmometer. The objection to relying on the test lenses without a mydriatic is that the patient often accepts the wrong glass on account of undue or irregular contraction of the ciliary muscle. We do not need to cite cases to show that this method alone is very uncertain. Cases already cited bring out the advantage of supplementing this by the ophthalmometer to confirm or correct the result of the tests, and in many instances we find vision better with the glass suggested by the instrument.

However doubtful we may be about results of tests with lenses alone, there is probably no other method so sure and satisfactory when supplemented by the use of homatropin, scopolamin, atropin or other substances to control the accommodation. In other words, what the patient sees best with, when the eyes are under the influence of a cycloplegic, is the measure of his refractive error, to be relied on, if at variance with the findings by other methods.

Yet even here we should be careful that we have what the patient actually sees best with, and not what he seems to see best with. I have seen examinations under a mydriatic where astigmatism was found with axis perpendicular, apparently, in which the ophthalmometer gave

15° off, and later trial of this axis actually showed improvement in vision. It may be said that this ought to be discovered by trying the cylinders at various angles in the ordinary tests, but we know that patients often fail to detect small differences, and it frequently takes several trials and much care to bring them out, so that an instrument which quickly suggests the axis is of immense value.

The ophthalmoscope is of greatest assistance in high degrees of refractive error, enabling us to measure them approximately in a very short time, but it is not of much account in small defects, which form quite a large proportion of our work.

Retinoscopy would probably be voted by the majority of oculists the best (objective) method of measuring refraction. More is to be learned from it than from any other one (objective) method, as it shows hyperopia or myopia as well as astigmatism, and its measure of the latter is not limited to corneal astigmatism, but includes the lenticular as well. Now, if this all be true, practically as well as theoretically, and if we could all measure by this method any kind of refractive error down to 0.25 D., as some claim to do, no other method would be necessary, and even the trial case might be dispensed with. But retinoscopy has its drawbacks, too; it requires a mydriatic in all cases, and even then one has to be careful to get the refraction of the center of the field, and not the periphery. The method is also a slow one and necessitates the awkward changes of lenses from the trial case, or use of some cumbersome apparatus like the Würdemann skiascope in the hands of the patient, which can not be used easily, especially with children. Moreover, there is ground for skepticism as to the skill claimed by some to measure even 0.25 D. of any kind of refractive error by this method in a few minutes; at least such skill is limited to a few. Nevertheless it has some advantages, and there is ground for much that is said in its favor. It is especially valuable in examining little children and illiterates.

While the ophthalmometer gives less information than retinoscopy, what it gives is obtained more easily, more quickly and is more positive. In other words, it is the quickest and surest way of measuring corneal astigmatism, and since we have a definite rule for the majority of cases in regard to the relation between corneal and total astigmatism and can determine the hyperopia or myopia by the ophthalmoscope and testlenses, we have, in my judgment, in the ophthalmometer, combined with these other means, a method for general use not surpassed by any other for accuracy of results or speed in execution. An additional point is the fact that this instrument is so much more valuable in those cases where a mydriatic is refused, and adds so largely to the number that can be quite safely fitted without the annoyance and loss of time due to paralysis of the accommodation.

CONCLUSIONS.

1. The ophthalmometer is not merely an expensive toy, but a very useful instrument.

2. It shows the corneal astigmatism which, in most cases, is 0.50 D more than the total astigmatism if with the rule, or the same amount less if against the rule.

3. It does not do away with the necessity of using mydriatics, although it adds largely to the number that can be fitted with comparative safety without them.

4. It is not infallible as regards axis or amount of astigmatism, but the cases in which it misleads are exceptional and probably the result, chiefly, of unusual difficulties and irregular or extraordinary lenticular astigmatism.

5. It is one of the quickest and surest methods of determining astigmatism, either axis or amount, frequently giving the first clew.

6. In connection with the ophthalmoscope and testlenses (in many cases with use of a mydriatic), it is as good a routine method of measuring refraction as we possess.

This is submitted not dogmatically, but with the hope of starting a discussion which will give us the exact truth.

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DISCUSSION.

DR. WENDEL REBER, Philadelphia, said that he has used the ophthalmometer a great deal, but that he is not so enthusiastic as Dr. Heath. He uses it almost invariably in his office work, and, while he does not claim to be able to measure cases to within a quarter diopter with it, he can measure down to such a degree that he knows about what the corneal astigmatism is. Mydriatics, of course, are always refused by the patient at first. The ophthalmometer is most valuable, he thinks, as to its negative evidence; that is to say, in the lowest errors one does not get reliable evidence, but where there is one or more diopters one gets very good results. In cases of cataract, of course, it is important to know the amount of corneal astigmatism. While it is an important office adjunct, at the same time it is certainly not the faithful, accurate servant that retinoscopy is.

DR. J. M. RAY, Louisville, Ky., declared that, while recognizing that the ophthalmometer does not reveal the absolute amount of astigmatism in all cases, yet in daily use he thinks it invaluable as an aid in finding the astigmatic error. It is usually accurate as to the axis. He has used it for fourteen years on several thousand cases and would feel lost without it.

DR. C. F. CLARK, Columbus, Ohio, stated that he has been a persistent user of the ophthalmometer, and feels as Dr. Reber does about it. He asked why, in post-cataract cases, we do not obtain a correct result with the ophthalmometer. If the corneal astigmatism is accurately shown by the instrument, he asked why, when the lens is removed, we can not get a correct reading. There may be three diopters with the ophthalmometer, when only two will be the correct estimate.

DR. EDWARD JACKSON, Denver, said in reference to Dr. Clark's question, that the scale of the ophthalmometer is made out for the complete eye; it does not fit the aphakic eye; it does not give the true curve. After cataract extraction, there is an area toward the corneal section that shows the greatest departure from the original curve. He uses the ophthalmometer in every refraction case, but he does not depend on it. It is like the averages in presbyopia. One must test by the other methods afterward and see if it is correct.

DR. F. C. HEATH, Indianapolis, agreed with Dr. Jackson that the ophthalmometer is not to be relied on alone. It is not infallible. He does not consider it an exaggeration to say that he finds in 75 per cent. of his cases of astigmatism that the ophthalmometer is correct.

The Abdominal Aorta in the Aged.—Bauer holds that the abdominal aorta is frequently the site of a chronic aortitis which less frequently affects the arch (*Arch. Gen. de Med.*). The symptomatic manifestations are irregular as a rule, but occasionally symptoms point more or less directly to the condition especially in emaciated individuals in whom palpation and auscultation can be employed. In fleshy individuals the difficulty is greater, but persistent digestive disorders, lassitude, early fatigue, various sensory symptoms such as local feelings of cold, numbness, vague pains in the limbs, sometimes painful cramps, trophic disorders, etc., may point to the condition. It is often, however, undiagnosed; in rare instances attention may be called to the condition by an aggravation of acute or subacute aortitis.

INTERNAL AND EXTERNAL HEMORRHOIDS.

WITH SPECIAL REFERENCE TO THEIR TREATMENT.*

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PHILADELPHIA.

I have been requested to address you on the subject of hemorrhoids, viewed so far as possible from the standpoint of making my remarks of value and interest to the general practitioner. Time permits of only a brief synopsis of the subject.

Without making a thorough examination of a given case, no certain diagnosis can be made and no plan of treatment can be carried out with any degree of satisfaction. In most departments of medicine this fundamental principle is carefully observed, but possibly owing to a false sense of modesty on the part of patients afflicted with rectal trouble, some physicians are led to treat such persons without an exploration, either visual or digital, of the affected region. Consequently, it is not an infrequent occurrence for me to see a patient with an external hemorrhoid, greatly aggravated by the vain efforts made to push it within the anus. This illustration will suffice, no doubt, to emphasize the necessity of examining every case of presumed rectal trouble. Such an examination should include not only an ocular inspection of the parts outside the anal canal, but likewise a digital investigation of the rectum. It is only in cases of irritable ulcer of the anus (fissure) that an examination with the finger should be omitted. A rectal examination is not a very pleasant one, either to the practitioner or to the patient, yet without making it the physician's reputation, as well as the patient's health, may suffer.

Assuming, therefore, that attention has been paid to the proper methods to insure the making of a correct diagnosis, we are prepared to consider the variety of hemorrhoids, preliminary to a consideration of the treatment of the individual forms.

EXTERNAL HEMORRHOIDS.

External hemorrhoids are divided into the venous, the cutaneous and the compound.

Venous.—The venous variety occurs in three forms: 1. As a marked varicose condition of the plexus of the external hemorrhoidal veins. 2. As a thrombosis of this plexus. 3. As a clot of extravasated blood, due to a rupture of a varicose vessel. The existence of this last variety is denied by some authorities, but I have seen and operated on a number of such cases sufficient to warrant the classification given.

Cutaneous.—The cutaneous pile consists essentially of a hypertrophy of the skin surrounding the anus. It frequently is the result of a former venous hemorrhoid, a fold of skin being left after the clot has been removed, either by absorption or operation. When uninflamed, it occasions no great inconvenience, but when aggravated by improper diet, irregular habits, uncleanliness, etc., it invariably causes the patient an amount of suffering quite disproportionate to the pathologic appearance.

Compound.—The compound or so-called externo-internal pile is one in which the tumor is not only largely external, but is also intimately associated with an internal hemorrhoid, and is, therefore, in part, covered with mucous membrane.

INTERNAL HEMORRHOIDS.

Internal hemorrhoids are divided into the varicose, the capillary and the compound or intero-external.

Varicose.—The varicose or venous internal hemorrhoid is the form of tumor most frequently met with in the bowel, and consists of a varicosity of the internal hemorrhoidal veins, with a hypertrophy of the surrounding tissue in which these vessels are embedded.

Capillary.—The capillary or nevoid hemorrhoid consists of a small, raspberry-like arrangement of the arterial capillaries within, or just beneath the surface of the mucous membrane of the rectum. They are the source of frequent hemorrhages due, no doubt, to a covering of a very thin layer of epithelium, which is readily ruptured. They do not protrude and can not be located by digital examination.

TREATMENT OF EXTERNAL HEMORRHOIDS.

The local treatment of these tumors may be considered under the two heads, the operative and the palliative. It is only when these tumors are inflamed that patients suffer marked inconvenience, and find it necessary to consult a physician, and it is at such a time that I believe the best method of treatment is that of removal. If, however, the patient refuses to submit to our judgment in this matter, recourse must be had to local applications for the relief of the suffering incident to the acute inflammatory stage. What we have to say regarding the treatment of piles which are external applies with equal force to all the varieties included under the classification of this form of hemorrhoids.

Operative Treatment.—It is only by this plan that we may effect a radical cure. It may be accomplished by one of three methods, named in the order of our preference: (*a*) excision, (*b*) simple incision, and (*c*) excision and primary suture of the cutaneous edges of the resulting wound.

(*a*) EXCISION is the mode of treatment now employed by most proctologists for the cure of all the various forms of external hemorrhoids when the patient is seen in the acute stage of the trouble. The operation consists in washing the parts well with the tincture of green soap, alcohol and creolin, so as to render the field of operation as aseptic as possible. The hair is not shaven, as experience has shown that it is unnecessary. Formerly when the hair was removed, its subsequent growth was most annoying to the patient, feeling somewhat as though the vicinity of the anus had been converted into a pin cushion (by no means an empty one). The tumor to be removed is now anesthetized by means of a hypodermic injection of a 2 per cent. solution of the hydrochlorate of cocain, of which from 10 to 20 minims usually suffice. In connection with the use of local anesthetics, attention is called here to a matter, with which I have had no personal experience, but which justifies note, to-wit: The work done by Dr. Samuel G. Gant of New York City in the use of sterile water anesthesia in the office treatment of rectal diseases.[1]

Before removing the needle of the syringe, time is given the solution to permeate the tissues. The pile is next grasped by some suitable instrument, such as a hemostat (sometimes by two, if the hemorrhoid be a large one), and the tumor is rapidly removed in its entirety by means of a pair of scissors curved on the

* Read before the meetings of the Northwestern Medical Society and of the Medical Society of Germantown, Philadelphia, 1904.

1. New York Medical Journal, Jan. 23, 1904.

flat. It is rare that any vessels of size are met with and the ease with which, in this region, a bleeding vessel can retract and contract, obviates any necessity for the use of the ligature. All clots are removed. The resulting wound is now lightly packed with cotton, which is changed several times until most of the bleeding is stopped. The flow of blood is encouraged for a short time so as to get rid of any excess of cocain remaining in the vicinity.

Finally, when active bleeding has ceased the wound is packed with gauze, a 10-grain iodoform suppository is inserted into the rectum, and over the seat of operation is placed a firm pad of gauze and cotton and then a "T" bandage completes the dressing.

(*b*) SIMPLE INCISION requires a similar technic to that described for excision, with the exception of the operative part. This latter is accomplished by catching the parts on either side of the tumor between the thumb and forefinger of the left hand and transfixing its base in the direction of the radiating folds of the anus with a sharp-curved bistoury and cutting outward. Gentle pressure will cause the extrusion of most of the clots; any of them remaining may be picked out with a pair of forceps. The subsequent treatment consists in packing the wound with gauze and then using a similar dressing to that advised in the operation of excision. The main disadvantage of this operation consists in the fact that the skin distension occasioned by the inflamed pile is left, and may subsequently become inflamed or may refill with blood.

(*c*) EXCISION COMBINED WITH PRIMARY SUTURE OF THE RESULTING WOUND.—The essential difference between this method and that of simple excision consists in the close apposition of the wound by carefully buried silkworm gut, or some similar, suitable material. The advantage of the operation lies in the hope of obtaining primary union. I have practically discarded this method, as the suture tracks are liable to become infected, and I think the mechanical presence of the sutures, together with the constriction they produce, combine to add materially to the annoyance to the patient than when the parts are left to heal by granulation.

The Non-Operative or Palliative Treatment.—This consists primarily in keeping the parts thoroughly cleaned by bathing with water as hot as can be borne and in applying some soothing and astringent lotion during the acute inflammatory stage. Some of the preparations which I have employed with satisfaction are: Ichthyol, 50 per cent., combined with equal parts of lanolin and ung. aquæ rosæ; or a mixture, containing one ounce of the fluid extract of hamamelis; a half-ounce of the fluid extract of hydrastis; a like amount of the compound tincture of benzoin and two drams of the tincture of belladonna. This solution is to be well shaken before using, and is kept in the bottle and placed either in hot water and applied frequently by means of hot compresses to the affected part, or if cold is more agreeable to the patient, then the medicine is surrounded with ice and compresses wrung out of ice water are kept saturated with the mixture and are applied in the same manner as when they are used hot. Another useful mixture is the strong subacetate of lead solution, combined with an equal quantity of the tincture of opium, of which a teaspoonful is added to a wine glassful of cold milk and applied with frequency to the anus. In addition to these measures, the bowels should be freely moved, and a light, easily digested diet, with rest in bed, prescribed. These remedies will, as a rule, cause the inflammatory symptoms to subside within a few days, but usually a thickened tag of skin will remain, which is liable at any time, on the slightest provocation, to become inflamed.

TREATMENT OF INTERNAL HEMORRHOIDS.

With the exception of the nevoid or capillary pile the treatment of these tumors may be discussed under the following classification: (*a*) Preventive, (*b*) palliative and (*c*) operative.

Prior to taking up this part of our subject, it may be well to say a few words regarding the treatment of the capillary hemorrhoid. The safest method of effectually dealing with this condition consists in the use of the electrocautery applied by means of a small electrode. Anesthesia is not essential. Care must be exercised not to cauterize too deeply. A very old and deservedly popular treatment of this form of pile is the use of fuming nitric acid. Care must be exercised not to excite too intense an inflammatory reaction. The pile is caused to protrude into a speculum, is thoroughly dried with cotton on the end of an applicator, and then the acid is applied all over its surface by means of a rod of glass or a stick of wood. Before removing the speculum, which is left *in situ* for three or four minutes, a dossile of cotton is placed over the treated area so as to absorb any excess of the acid.

Caution in the use of the acid is necessary in order to avoid its getting on the cutaneous surface or on the margin of the anus. A good preventive measure against this accident is the smearing of the region named with glycerin or vaselin. One treatment of the acid usually suffices to stop the bleeding, but two or three applications may be required to completely destroy the tumor. These applications may be repeated at intervals of three to seven days.

Preventive Measures.—These consist, to a large extent, in the avoidance of the sedentary habits, the use of improper toilet paper, such as newspaper, printers' ink being a decided irritant, excessive venery, improper diet, the excessive use of alcohol or tobacco, and last, but not least, the constantly increasing employment by the populace of drastic purgative medicines. To cure the constipation, which is the result of the forenamed conditions, and which, to my mind, is the most frequent cause of piles, it is essential that regularity be observed in the time of going to the closet. This is the first step to be taken in the correction of this condition. Patients should be directed to go at the same hour daily, whether the desire exists or not. Before or after the morning meal will usually prove the best time. Physical exercise is another very important factor in correcting costiveness. To be of benefit it must be employed regularly, spasmodic efforts being harmful rather than effecting good results. Certain articles of food often aid in the removal of this affection, such as the fruits, of which apples, oranges and prunes are the best.

Medically, the treatment of constipation covers a wide range of remedies. No one plan can be outlined that will benefit all, or even the majority of persons so afflicted. It is impossible to consider this phase of the subject further, as it would necessitate prolonging this article to an unreasonable length.

Palliative Means.—This plan of treatment to accomplish the desired results must embrace a three-fold purpose: 1, The reduction of any inflammation; 2, the arrest of hemorrhage; and 3, the prevention of prolapse

of the tumors. It also includes careful attention to all the details enumerated under the head of preventive measures. In the early stages of the hemorrhoidal formations, cold water will often prevent further annoyance, when applied directly to the anus on a sponge, and also by injection into the bowel of a small quantity. The method of sponging the parts must be carried out systematically and regularly. To be successful, a large natural color sponge (one not bleached) must be secured about the size of one's fist.[2] This is soaked in cold water, and pressed against the anal region until all the fluid is extracted, and this procedure is repeated anywhere from fifteen to twenty-five times. The application of the water should be made both night and morning, and especially after a stool, when a protrusion is most liable to occur. The enemata need only be employed just prior to the time when the bowels are ordinarily evacuated. Sometimes considerable benefit is derived from an injection of a small quantity of cold or even ice water into the rectum, immediately after the movement of the bowels, and retaining it as long as possible.

For the relief of inflamed hemorrhoids, Dr. D. G. Gant[3] advises the use of the following simple ointment, which is very effective:

℞. Morphinæ sulphatis.....gr. viii | 5
Hydrargyri chloridi mitis.....gr. xii | 7
Vaselini .....ʒi 30 |

M. Sig.: Apply freely in the rectum to the tumors and about the anus. Always bathe the parts with hot water before applying the salve.

The tendency of piles to bleed may be stopped by the use of suprarenal extract, either in the form of an ointment or a suppository, ten grains to a dram when used in a salve, and in doses of five grains when a suppository is employed. The prolapsing of the tumors is best arrested by the use of cold water, as previously advised. A useful suppository, in this connection, is one advised by Dr. James P. Tuttle:[4]

℞. Ichthyol
Tannic acid, āā.....gr. v | 3
Ext. belladonnæ
Ext. stramonii, āā.....gr. 1/3 | 02
Ext. hamamelis .....gr. x | 6

M. Ft. suppository No. i.

Operative Measures.—Of these methods I have only time to give a brief summary of the opinions I have formed regarding five of the methods, to-wit: 1, Divulsion; 2, injection; 3, ligature; 4, clamp and cautery; and 5, Whitehead's operation.

1. DIVULSION.—This operation, done under nitrous oxid gas and oxygen, often exerts a most beneficial temporary effect, especially when a patient is suffering from strangulated piles and refuses any more radical treatment. Relief for a time is obtained thereby also from constipation, but the effects, I regret to state, are not permanent unless the patient adheres to the rules laid down for the prevention of costiveness. The operation of divulsion is an essential preliminary step to the treatment of a patient by the Martin, of Philadelphia, injection method, the details of which are soon to be published by the son.

Under gas, muscular relaxation does not obtain as in the use of ether. Hence dilatation under gas can be more rapidly induced, as we have the sphincteric rigidity as a guide in knowing exactly how much force may be employed in the individual case. The operation consists in overstretching the muscles with either the fingers or thumbs, or both, until all spasm is overcome. Care must be exercised not to tear the parts. My experience with this method, employed especially for the cure of fissure (irritable ulcer of the anus), enables one to say that the time occupied in the performance is less than half that under ether.

This operation is, therefore, indicated for the temporary relief afforded in a case of strangulated piles, when other operative measures are refused by the patient, and as a preliminary step to the treatment of piles by the injection method.

2. INJECTION.—Radical cures are effected by this means. Various formulæ are advocated. The principal difference in the methods being (1) in the use of strong solutions in large quantities, which cause a necrosis of the entire hemorrhoidal tumor; and (2) the employment of weaker solutions and smaller portions which, as my friend, Dr. James P. Tuttle,[3] expresses it, "produces an inflammatory induration and choking of the circulation, which is followed by shrinking and atrophy of the piles without ulceration or sloughing." In a paper, "The Treatment of Hemorrhoids by the Injection Method," reprinted from the *Therapeutic Gazette*, August, 1897, I detailed the method which I at that time employed, and expressed the conviction that the plan of treatment was efficient and satisfactory. (My later experience in this line I gave in a paper at the annual meeting of the Pennsylvania State Medical Society, Sept. 26-29, 1904.)

3. LIGATURE.—Some of my distinguished colleagues regard the use of the ligature as the ideal operation for the radical treatment of hemorrhoids. Dr. Joseph M. Mathews[5] states, quoting Erichsen, that "all external piles should be cut off, and all internal piles tied, and that he (Mathews) does not think that the advice then given can be improved on, even to this day. I am certain that in the hands of my skilled friend the operation proves all that he claims for it.

4. CLAMP AND CAUTERY.—This is the procedure which holds my preference over all other methods for the radical cure of hemorrhoids. A brief summary of the reasons why I view the operation in this light consists (1) in the fact that patients suffer the least pain; (2) that their recovery is quickest; and finally (3) that the constitutional effects, such as inability to urinate without catheterization, is least disturbed. The time required for a cure to be effected by this operation is at the outside two weeks. A patient after the operation has the bowels moved on the third day; is allowed to get out of bed on the fifth to the seventh day, and then is permitted to go home in from seven to ten days.

5. WHITEHEAD'S OPERATION.—I have never performed this operation, being unable to bring myself to a belief that the cases of hemorrhoids which have come under my observation justified the risks attending its performance. Not only are all the delicate structures in the anal region removed by this procedure, but there is also the grave possibility of a stricture following, should healing not occur by primary union. The plan of operation, in itself, reflects considerable credit on the ingenuity of its distinguished originator. I question, however, it ever reaching a popular professional employment.

2. The size of the sponge refers to one in the dried state.
3. Diseases of the Rectum and Anus, second edition, 1902, p. 431.
4. Diseases of the Anus and Rectum and Pelvic Colon, 1902, p. 617.
5. A Treatise on Diseases of the Rectum, Anus and Sigmoid Flexure, New York, 1892, p. 158.

Dr. Charles M. Kelsey[6] epitomizes this entire subject in the following advice given to students attending his clinic:

If you wish to radically cure your patients with the least possible pain, loss of time, confinement to the house, and risk of accident, use the clamp and cautery.

If you wish to accomplish the same results with no more risk, but with more pain, more local and general disturbances, use the ligature.

If you wish to take an hour to do what can as well be done in a few minutes, and gain nothing more by it in the results, use Whitehead's operation.

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PRE-OPERATIVE AND POST-OPERATIVE TREATMENT OF SURGICAL CASES.*

L. SEXTON, M.D.
NEW ORLEANS.

The question has often occurred to me that some surgeons at least view all therapeutic measures as more or less empirical or useless, and lay too much stress on what can be accomplished by operative procedure alone.

Specialists in any given line are prone to look on any given subject from their point of view; in fact, we are of the opinion that many surgical cases before operation are not treated as they should be, so as to prepare them for the great ordeal and shock incident to a major operation, and as a result of this lack of treatment or proper preparation before operation, they are likely to have to be overtreated after or during the operation.

As a matter of course, in emergency surgery, we often have no time for general treatment, but many other surgical cases are materially benefited by proper attention to their general health, the careful flushing out of the bowels, kidneys and liver; the regulation of the heart as to its beat and tone; respiration as to its depth and regularity, and the proper building up of the nervous system and the blood count by suitable medication.

We have seen much good result from dieting, tonic capsules of iron, quinia, strychnia and cascara or liquid preparation of iron and manganese preceding some operation, especially in anemic malarial subjects, which, without the previous building up, would hardly have been able to undergo the shock of any serious operative interference. In other cases, where the long drain of chronic diseased conditions have undermined the nervous and circulatory systems, much good may be accomplished by giving digitalis, strychnia and iron, till the heart is toned down by digitalis, and the nervous system braced up by the action of the strychnia and the blood count built up by the iron. As a matter of course, no imperative operation should be made to wait for the result of such medication, but the idea that we mean to convey is that when any such case may have to wait from any cause, the period of such waiting should be utilized in the general up-building of the patient's vitality.

Many times surgeons are called on to operate on patients who have led rather fast lives; who have not only burned the candle at both ends, but have overtaxed the stomach, overworked the liver, and kept the kidneys choked with excrementitious material which should have been flushed out. All such cases are very much benefited by thorough purgation with calomel and soda, or any other simple cathartic, if mercury is contraindicated. The thorough emptying of the bowels and stimulation of the secretions does away with half of the vomiting, which we have seen in cases which have not been properly purged before the operation.

Regulation of diet for several days previous to an operation so that no indigestible material is left in the alimentary tract, is another important detail to look after. The greater the quantity of water imbibed and the better the kidneys and bowels are flushed out, the better the chance for the patient to stand the operation.

In emergency operations one-fourth grain of morphia, enemas of hot milk, coffee and whiskey all tend to ward off shock. In any serious operation, Professor Smith recommends the previous administration of whiskey almost to the point of intoxication.

This plan is more suitable for subjects accustomed to drink than to follow as a general rule. The application of bandages formerly recommended to store up blood in the extremities is not practiced to any extent at present, but the saving of all the blood possible by the Esmarch bandages and the elevation of the limbs to be amputated, is doubly important in all very young or old subjects.

Mikulicz found that blood regeneration in an operation in which 1 per cent. of blood was lost, was made up in from two to five days; that 3 per cent. was made up in from five to fourteen days, and 4 per cent. was regenerated within thirty days. Usually we expect the blood regeneration to be complete within fourteen days. Mikulicz never operates on a patient whose hemoglobin is under 30 per cent. In all anemic and accident cases, where a great amount of blood has been lost, this 30 per cent. hemoglobin test is a good rule to follow, waiting, if possible, to build up the hemoglobin to the required 30 per cent. standard before operation.

We often see mucous patches and syphilitic ulceration of mouth, tongue and throat that in some degree resemble epitheliomatous growths so closely that it is hard to differentiate between the two. Recently such a case came under my observation, under the treatment of a throat specialist, who informed the patient that he had cancer of the tongue and tonsils, and must undergo a complete removal of those organs with all the deformity and consequent inconvenience incident thereto. The pathologist had examined the tumor and reported it an epitheliomatous growth. It certainly looked suspicious, and had a cancerous history, but behind all of this was also a vague syphilitic history. The patient refused to be operated on without seeing another specialist, who, on consultation, decided to try the test of free administration of iodid of potash and mercury, so the patient was given 20, 30 and 40-grain doses of iodid of potassa three times daily, well diluted, after meals, combined with protoiodid mercury pills. The effect of the treatment began to show after the first week, in diminishing the size of the ulcer and causing it to become paler and less hemorrhagic. Two weeks noted more marked improvement, and within a month the tumor had disappeared and the ulcer healed. In all cases of ulceration about the throat and tongue in syphilitic suspects, give the test treatment with iodid of potash and mercury, before any operative procedure is suggested. The time required for the test is only one month. The power of iodid of potassa and mercury in effecting such cures is almost miraculous. This recommendation, if followed, will clear up many suspicious diagnoses.

So much for pre-operative treatment. Let us now

6. The Treatment of Hemorrhoids, New York Med. Jour., June 16, 1894.

turn our attention to the patient who, from loss of blood, shock and anesthesia, or any other cause is *in extremis,* as the antiseptic details of modern surgery tend to prolong operations and to the production of shock.

We can hardly speak of post-operative treatment without going into the definition and details of shock. The demand for treatment is usually brought about by the loss of blood, shock or fat embolism. The essential condition of each is anemia of the brain, fast, weak-acting heart, inhibition of nerve force, with reflex paralysis, exhaustion of the active force of the medulla oblongata and spinal cord, accompanied by subnormal temperature. The weakness of the heart's action, combined with the paralysis of the vascular tone disturbing the circulatory balance, the abdominal veins become overfilled by gravitation, and the right side of the heart is greatly distended. These conditions necessarily lessen the amount of blood in the arteries. If this arterial pressure is very much lessened, anemia both of the lungs and brains soon follows. A slight degreee of shock may follow almost any traumatism or great loss of blood, but it is more severe in contusions and gunshot wounds of the viscera, crushing injuries of the extremities and testicles, and to burns and scalds extending to half or more of the body surface. We can differentiate hemorrhage from shock to some extent by the blood count, which should not fall below 3,500,000. The nature of the injury will also assist in making the diagnosis. In shock, circulation is vitally depressed. It is supposed in the case of crushed limbs to be brought about by nervous exhaustion, caused by continuous and severe irritation of peripheral, sensory and sympathetic nerves.

Rogers, in experimenting on frogs that he had shocked by electricity, observed that the spinal cord and muscles were not sensitive to drugs or stimuli, as, for example, strychnin failed in its effect on the spinal cord. The tissues seemed to be unable to react, or the strychnin seemed to fail of passage from the blood to the tissues. These experiments in part explain some of the observations of Crile, namely, that powerful, stimulating remedies fail in their mission to relieve exaggerated shock, and when given in too large doses may result in an absolute toxic effect on the patient. The following observations of Crile, while some of them are contrary to our clinical experience, are worthy of note in this connection. Crile contends that nitroglycerin, strychnia, alcohol and all other stimulants of vasomotor centers tend, like traumatism, to the production of shock.

Where the operative field invades a part rich in blood vessels and hemorrhage is hard to control, the amount of blood lost is often great in quantity, even though we use all the precautions possible by immediately clamping or tying every vessel that spurts. It is after such operations and in collapsed conditions that intravenous infusion and hypodermoclysis accomplish such good results by raising blood pressure, stimulating the endocardium, thus exciting the heart to action, filling up the empty blood vessels and stimulating the anemic brain. The amount of saline infusion should be governed by the amount of blood lost and its effect on the pulse. It is better to stop at two pints, if the pulse is restored, taking the chances of having to repeat it again if required, rather than to bring about pulmonary edema, for Crile found when the infusion amounted to 320 c.c. kilo., the fluid accumulated in the splanchnic area and embarrassed respiration by mechanical fixation of the diaphragm and ribs. We have seen pulmonary edema increased and damage done by using intravenous infusion in a case of albuminuria with suppression of urine.

Crile had the most lasting effect when to his saline infusion he added 1/50,000 adrenalin. He resuscitated animals that had been dead for ten (?) minutes by these infusions, combined with rhythmic pressure on the pericardium and artificial respiration.

We may have delayed shocks after an operation is completed, hence the importance of keeping the patient quiet and comfortable, with the foot of the bed raised, if much blood has been lost. During collapse the best clinical results are obtained medicinally by the hypodermic administration of 1/30 grain of strychnia, combined with 1/60 grain digitalin. If we could foretell, in any given operation, that shock was liable to occur, it would be well to reinforce our patient by giving him either a stiff toddy, ¼ grain of morphia, 2 grains citrate caffein, or a hot cup of coffee an hour or two before operating.

When from any cause serious or profound shock is produced, only the necessary interference to check the hemorrhage and stop the pain should be attempted, and even that should be done without the aid of anesthesia; morphia, under such circumstances, acting better than ether or chloroform. The exception to this rule is when the shock seems to be aggravated by a crushed painful limb; it is better to amputate under the influence of morphin and ether, thus removing the cause of the shock. The blood should be forced into the more vital parts by raising the limbs, if not injured, rather than by bandaging the extremities. Dry heat and mustard with friction to be applied freely, flannel cloths wrung out of hot water and sprinkled with turpentine should be applied over the precordial region. In some of these cases the most powerful stimulation fails to act. When, from either shock or anesthetic, respiration or circulation stops from anemia of the medulla oblongata, the head-down, inverted position, combined with artificial respiration with rhythmic pressure on the heart, affords the best chance for relief. Artificial respiration, with chest compression, not only brings in new oxygen, but expels whatever chloroform or ether vapor remains with the residual air. It is then that artificial respiration, lowering the head, infusion and faradization come to our relief. With one pole of the battery over the phrenic nerve and the other over the diaphragm, we can tide over some cases that otherwise might prove fatal. We should not try to force hot, stimulating drinks down a patient who can not swallow, as fatal strangulation may result, but if deglutition is not impaired, 10-minim doses of the tincture of digitalis dropped on the back of the tongue slows down the fast, weak-acting heart, but its culminative effect should be remembered, and it should not be repeated too often, as cardiac failure might follow overstimulation.

Many times the patient being operated on is not kept warm enough. Moisture from wet towels and dressings are left to be evaporated by the latent heat of the body. During the winter months, in cold climates, at least, the operating room should be kept at 72 F., and with some cases it is best to have the operating table heated by coils of hot water circulating underneath the table. Shock is superinduced by draughts, and at no time during or after an operation should a patient be uncovered except the actual part to be operated on. The patient should be kept warm when going from the operating room to his private bed, which should be well heated

before he is moved into it. In all our treatment, to bring about reaction, we should stop short of producing overaction and its sequence, which is secondary hemorrhage. Whenever it becomes necessary to operate on one who is very old it is important to reinforce their vital powers by a tonic course of strychnia a week or more before the operation, as it does much more good in this way than when given on the operating table. Confinement in bed is very damaging to these old people; they ought to be propped up in bed, or removed to a chair just as soon as it is practicable. It is important that operations on old persons be as bloodless as possible.

In these conditions of post-operative shock, do we not, under some circumstances, overtreat the case? Many times, with the heart scarcely beating for the lack of blood stimulation, with respiration sighing and shallow, with patient bathed in cold perspiration, we have seen one hypodermic injection after another containing stimulating poisons given in such quick succession that we may well pause to ask ourselves the question, are we not confusing and overpowering a circulation and respiration almost extinct by the rapid successive administration of such strong drugs as nitroglycerin, strychnia, digitalin, atropin and morphin into a subject already overpowered by a general anesthetic, loss of blood, shock and collapse? Under the excitement of such conditions, proper time very often does not elapse from one dose to another to see what the effect will be. Again, drugs having diametrically opposite effects are often used and stored up in the system. We are not claiming this to be a common practice in well-regulated operating rooms, but I am sure that many of us have witnessed cases in which the postoperative treatment was overdone.

It has always been my idea that, if surgeons would spend more time in getting the patient in proper condition to stand the operation, in having everything in readiness, in having assistants trained in what they are expected to do, and also if the least possible time were consumed in performing the operation, and if all lectures and explanations were suspended until the operation is finished, much less of the first necessary poison, viz., the anesthetic, would be required, and we would have fewer cases *in extremis* to deal with after operations.

THE MECHANISM OF STREPTOCOCCUS INFECTION.*

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INTRODUCTION.

Although a great deal of work has been done on the mechanism of streptococcus infection, both with normal and with immunized animals, many points are still left entirely in the dark. In the experiments described in this paper, an attempt is made to throw additional light on some of these points, but on account of the many inherent difficulties, the results which I have achieved by no means exhaust the problem.

Shortly after the publication of his classical paper on phagocytosis in daphnia, Metchnikoff[1] made a study of phagocytosis of streptococci in the human body, in cases of erysipelas. He concluded from his observations that streptococci gain entrance through abrasions of the skin, multiply and set up an inflammation. At the same time there is a gathering of microcytes about the streptococci, and these soon take up the latter and destroy them. Macrocytes also are found in considerable numbers, but they do not take up the streptococci, but have, nevertheless, a phagocytic action, in that they take up and remove dead and disabled microcytes.

In 1895 Denys and Leclef[2] studied the mechanism of immunity in rabbits which had been repeatedly injected with small but gradually increased doses of virulent streptococci. Their conclusions may be briefly stated as follows: Immune rabbit serum is not as good a culture medium for streptococci as normal serum, but it does not possess any marked streptococcidal powers. The cell-free fluid from a leucocytic exudate retards multiplication of virulent streptococci and sometimes kills them. Normal leucocytes in normal serum, and leucocytes from an immune rabbit suspended in normal serum, do not greatly retard multiplication of virulent streptococci. Leucocytes from a normal rabbit, or those from an immune rabbit, suspended in immune rabbit serum rapidly take up and destroy virulent streptococci. The serum has acquired something in the process of immunization which neutralized something in the cocci, by virtue of which they were protected against phagocytosis.

Denys and Marchand[3] showed that there is better phagocytosis of virulent streptococci when inoculated into a suspension of rabbit's leucocytes in normal rabbit serum, to which had been added 1 per cent. of immune horse serum, than when they were inoculated into the same mixture of leucocytes and rabbit serum, with the addition of 1 per cent. of normal horse serum.

Bordet[4] was able to find no protection against streptococci in normal and in immunized rabbits and guinea-pigs, except that due to phagocytosis. If a rabbit was treated with antistreptococcic serum, and later injected with several times the minimum fatal dose of streptococci, the organisms were all taken up by phagocytes and destroyed. In untreated rabbits he also found phagocytosis, but the organisms soon got the upper hand and the rabbit died of streptococcus infection.

Marchand[5] studied phagocytosis of virulent and non-virulent streptococci, and came to the conclusion that the failure on the part of the leucocytes to take up virulent streptococci depends on a physical property of the organisms and not on a secretion. Tchistovitch[6] injected rabbits intravenously with fatal doses of a highly virulent streptococcus, killed the animals in one-fourth to six hours, and examined the organs for evidence of phagocytosis. He was always able to find some phagocytosis in the lungs and in the liver of these animals, and concluded that this phagocytosis of virulent streptococci may be due to the fact that every culture contains some cocci which are less resistant than others, and that those are the only ones which are taken up by the phagocytes.

Simon[7] found very little evidence of phagocytosis, *in vitro*, when rabbit's leucocytic exudate was inoculated with a non-virulent streptococcus. The washed

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Virchow's Archiv, 1887, vol. cvii, p. 209.
2. La Cellule, 1895, vol. xi, p. 177.
3. Quoted from Denys, Centralbl. f. Bact., 1898, vol. xxiv, p. 685.
4. Annales de l'Institut Pasteur, 1896, vol. x, p. 104, and 1897, vol. xi, p. 177.
5. Archiv de Méd. Exper., 1898, vol. x, p. 253.
6. Annales de l'Institut Pasteur, 1900, vol. xiv, p. 802.
7. Centralbl. f. Bakt., 1901, vol. xxix, pp. 81 and 113.

leucocytes suspended in salt solution, and also the cell-free exudate, killed non-virulent streptococci, but not the virulent organisms. Leucocytic exudate mixed with rabbit serum had no effect on non-virulent streptococci. He was unable to confirm the view advanced by Bordet and others that a rabbit which is injected with streptococci into a pleural cavity containing leucocytic exudate can stand a larger dose than can a rabbit of the same size which is injected in the normal pleura. The pleural exudate was produced by the injection of aleuronat suspension forty-eight hours previously. These results are quite contradictory to those of other investigators, and it was, therefore, thought desirable to repeat these experiments with leucocytes.

EXPERIMENTS WITH LEUCOCYTIC EXUDATE IN VITRO.

A large Belgian hare was injected in each pleural cavity with 10 c.c. of aleuronat suspension, and bled to death in from eight to ten hours later. About 30 c.c. of thick exudate, containing chiefly polymorphonuclear leucocytes, was obtained and used in the experiment which is tabulated in Table 1. No sodium oxalate solution was added to this exudate, as this salt is strongly streptococcidal, but the coagulation of the exudate was prevented by occasional agitation of the tubes during the first hour. The contents of each tube were 2 c.c., which were inoculated with three loopfuls of a twenty-four-hour broth streptococcus culture, and three loopfuls were plated at intervals. Tube 8 differs from Tube 7, in that it contains the washed leucocytes which had been centrifugated out of 2 c.c. of the exudate, suspended in rabbit serum, whereas Tube 7 contained a mixture of 1 c.c. of the entire exudate +1 c.c. of serum. The fluid of the exudate in Tube 8 was removed to show that the effect of these mixtures is not due entirely to the liquid portion of the exudate, but in a large measure to the leucocytes. The table shows that non-virulent streptococci are destroyed by the leucocytic exudate, by mixtures of leucocytes and serum, by leucocytes and defibrinated blood, and by the cell-free exudate. Defibrinated blood and serum alone, the heated exudate and a suspension of leucocytes in salt solution have little or no effect on these organisms. The virulent streptococcus is not destroyed by the leucocytic exudate. Smears made from these tubes in from one to two hours showed evidence of phagocytosis, but this is most easily demonstrated in tubes containing suspensions of leucocytes in serum. Table 2 shows the same experiment as that shown in Table 1, except that guinea-pig's leucocytes and blood were used. With these leucocytes the eighteen-hour plates are often sterile, or nearly so, while it is only occasionally that they are sterile when rabbit's leucocytes are used.

TABLE 1.—Showing the effect of rabbit's leucocytic exudate and mixtures of exudate and body fluids on streptococci.

Streptococci.		Immediately.	3 hrs.	18 hrs.
300	Leucocytic exudate	4600	0	10000
300	Exudate 58° for half hour	3250	8000	Many
300	Cell-free exudate	4800	1400	3000
300	Defibrinated blood	4800	4700	Many
300	Blood 1 c.c. + exudate 1 c.c.	4000	750	1500
300	Rabbit serum	4200	4200	Many
300	Serum 1 c.c. + exudate 1 c.c.	5200	1100	Many
300	Leucocytes in serum	5000	900	Many
300	Leucocytes in NaCl sol.	4900	5000	Many
324	Leucocytic exudate	420	11	Many
324	Defibrinated blood	430	7000	Many
324	Blood 1 c.c. + exudate 1 c.c.	750	540	Many
324	Rabbit serum	552	6500	14000
324	Serum 1 c.c. + exudate 1 c.c.	320	1	Many
B104	Leucocytic exudate	3500	3600	Many
270	Leucocytic exudate	1700	2	Many

Sources of streptococci: Nos. 300 and 324 from the heart's blood of scarlet fever patients, postmortem. No. B104 from an abscess in a guinea-pig which had been injected with a fungus. This organism has been passed through 78 rabbits and is very virulent for both rabbits and guinea-pigs.

TABLE 2.—Showing the effect of guinea-pig's leucocytic exudate and mixtures of exudate and body fluids on streptococci.

Streptococci.		Immediately.	3 hrs.	18 hrs.
300	Leucocytic exudate	6500	70	170
A	Leucocytic exudate	650	600	Many
B104	Leucocytic exudate	8000	10000	Many
300	Cell-free exudate	5500	800	6000
B104	Cell-free exudate	8000	10000	Many
300	Defibrinated blood	6000	5000	Many
300	Defibrinated blood + leucocytes	6800	240	72
300	Serum	6000	6000	Many
300	Serum + leucocytes	6000	2000	Many

Streptococcus No. 300 is not virulent for guinea-pigs. Nos. B104 and A are virulent. No. A was isolated from a peritonsillar abscess following an attack of follicular tonsilitis and was used in this experiment in the first generation on artificial media.

EXPERIMENTS WITH LEUCOCYTIC EXUDATE IN VIVO.

In order to determine whether a rabbit is more resistant when injected in a pleura containing leucocytic exudate than when injected in the normal pleura, the following experiments were carried out:

EXPERIMENT A.—A gray rabbit weighing 1,450 grams was injected into the right pleura with 7 c.c. of aleuronat suspension. Fifteen hours later 2 c.c. of a 40-hour culture of a virulent streptococcus were injected into this pleura and also into the right pleura of a normal rabbit weighing 1,500 grams. The normal rabbit was found dead in 18 hours, and the one which had been previously injected with aleuronat died 45 hours later.

EXPERIMENT B.—A gray rabbit weighing 2,100 grams was injected in the right pleura with 6 c.c. of aleuronat suspension. Eighteen hours later 1 c.c. of a 24-hour culture of a virulent streptococcus was injected into this pleura and also into the right pleura of a normal gray rabbit weighing 2,150 grams. The normal rabbit died in about 18 hours, while the aleuronat rabbit died only after 45 hours—21 hours after the death of the control.

The experiment was now varied so that the conditions were the same as in Simon's experiments.

EXPERIMENT C.—A rabbit weighing 1,700 grams was injected in the right pleura with 8 c.c. of aleuronat suspension, and 48 hours later this rabbit and a normal rabbit weighing 1,700 grams were each injected in the right pleura with 1 c.c. of a 30-hour streptococcus culture. In this experiment the aleuronat rabbit died in 24 hours, while the control lived for five days.

EXPERIMENT D.—A rabbit weighing 1,800 grams was injected in the right pleura with 9 c.c. of aleuronat suspension. Forty-eight hours later this rabbit and a normal rabbit weighing 1,800 grams were each injected in the right pleura with 1.5 c.c. of a 24-hour streptococcus culture. The normal rabbit died in 37 hours, while the aleuronat rabbit died in 45 hours—eight hours after the death of the control.

The results of the last two experiments agree fairly well with those obtained by Simon, and we may now ask why they are different from the results of Experiments A and B. Apparently, this difference is due to the fact that in Experiments C and D the inoculation was made some thirty hours later than in Experiments A and B.

That this is the correct explanation is indicated by the following experiment:

EXPERIMENT E.—A rabbit weighing 2,300 grams was injected in the right pleura with 9 c.c. of aleuronat suspension. Forty-eight hours after this injection the rabbit was bled to death, and on opening the pleural cavity it was found to contain no leucocytic exudate.

Had this rabbit been inoculated in the right pleura forty-eight hours after the injection of the aleuronat suspension, the inoculation would not have been made into leucocytic exudate. That being the case we would not expect that this rabbit could stand a larger dose of streptococcus than a normal rabbit. In Simon's experiments, however, the inoculations into the pleural cavity were made forty-eight hours after the injection of aleuronat, and this is probably the reason why he did

not find these rabbits more resistant than normal rabbits. Had he made his inoculations within twenty-four hours after the injection of aleuronat his results would very probably have been different.

EXPERIMENTS WITH ORGAN CELLS.

It seems quite reasonable to suppose that the organ cells might play an important part in the protection of the body against invasion by streptococci, and with this point in mind the following experiment was carried out:

EXPERIMENT.—Two guinea-pigs, A and B, were bled to death and the blood collected under aseptic precautions. The organs were now carefully removed from the body, placed in sterile glass dishes and rubbed up; A with guinea-pig's serum, and B with defibrinated guinea-pig's blood. The organs and blood were not allowed to become cold. The suspensions of organ cells were now introduced into small test tubes, inoculated with two loopfuls of a 24-hour broth culture of a non-virulent streptococcus, and two loopfuls were plated at intervals. The colonies that developed in each plate were carefully estimated and the results are shown in Table 3. In no instance did the suspension of organ cells have an inhibitive effect on the multiplication of the streptococci, but on the contrary the organisms multiplied more rapidly in these suspensions than in either the serum or the defibrinated blood alone. If, however, bone marrow was added to the defibrinated blood or serum, the number of streptococci in these tubes was greatly diminished during the first three to five hours.

TABLE 3.—Showing the effect of suspensions of organ cells of guinea-pigs on streptococci.

Streptococcus.		Immediately.	3 hrs.	18 hrs.
B104†	Defibrinated blood	1800	1600	1500
B104	Blood + muscle	2000	8000	Many
B104	Blood + spleen	1900	Many	Many
B104	Blood + liver	1800	Many	Many
B104	Blood + kidney	1900	Many	Many
B104	Blood + adrenal	1500	Many	Many
B104	Blood + lymph gland	1500	6000	Many
300	Blood + bone marrow	2500	1000	Many
300	Serum	3800	3750	6000
300	Serum + leucocytes	2700	1800	1500
300	Serum + spleen	2800	5000	Many
300	Serum + liver	2000	12000	Many
300	Serum + kidney	2400	12000	Many
	Control liver + serum	0	3	9
	Control spleen + serum	0	0	0

†The strain of streptococcus B104 used in this experiment has not been passed through rabbits, and has lost its virulence.

These results agree with those found by Bail and Petterson[8] in their study of the mechanism of anthrax immunity in chickens, and show that suspensions of organ cells from the guinea-pig possess no streptococcidal power except the suspensions of bone marrow. Suspensions of marrow cells in defibrinated blood or serum kill large numbers of avirulent streptococci, but that is not the case with suspensions in salt solution. These results have also been obtained with suspensions of rabbit's bone marrow.

PHAGOCYTOSIS IN HUMAN INFECTIONS.

During the course of this work I had an opportunity to study a case of acute purulent rhinitis, in the discharge of which streptococci were found in pure culture.

Patient.—A man 27 years of age. During the first two days the discharge was clear and watery and contained very many streptococci in short chains and in diplococci. Figure 1 shows a photomicrograph of a smear made on the second day. There were only a few leucocytes, and those did not contain any streptococci. On the fourth day the discharge had become thick and purulent, and smears made at that time presented an entirely different picture. There were no free streptococci, but very many leucocytes, some of which were loaded with streptococci. Figure 2 shows a photomicrograph of such a preparation made on the fourth day. The purulent discharge continued for about a week, and during this time it was easy to find leucocytes in the smears which contained large numbers of streptococci. The streptococci finally disappeared, and the patient made a complete recovery.

In this case of streptococcus infection, phagocytosis of the organisms by the leucocytes seemed to be an important factor in combating the infection. In the smears made on the fourth day no free streptococci could be found, although diligent search was made for them. Plates made with a small quantity of discharge, which was obtained high up in the nares by means of a sterile cotton swab, contained, however, many colonies of streptococci after twenty-four hours' incubation. The fact that many colonies developed in the plates, although no free streptococci could be found in the smears, seems to indicate that the organisms were not dead when they were taken up by the phagocytes, but were taken up alive. It is possible, however, that there were free streptococci in this purulent discharge, even though they were not found in the smears.

PHAGOCYTOSIS OF LIVING STREPTOCOCCI IN VIVO.

The following experiment was, therefore, made to show more conclusively that there is phagocytosis of living streptococci in the animal body:

EXPERIMENT.—A guinea-pig was injected in the right pleura with 7 c.c. of aleuronat suspension. Twelve hours later he was injected in this pleura with 2 c.c. of an 18-hour glucose broth culture of a non-virulent streptococcus, and two hours after this injection he was bled to death. Several cubic centimeters of leucocytic exudate were now taken from the right pleura, under aseptic precautions. Smears made with this exudate contained no free streptococci, but many of the leucocytes contained cocci in large numbers.

Figure 3 is a photomicrograph of one of these smears showing streptococci in the body of a leucocyte.

Preparation of Slides.—By means of a sterile, soft cotton swab a small quantity of the exudate was now gently smeared on each of eight agar-covered slides; the slides were incubated in a moist chamber for from four to six hours, stained and examined under the microscope. The preparation of these slides requires the following special technic: Three ordinary clean glass slides and a heavy watch glass are placed in a large Petri dish and sterilized in dry heat. When the Petri dish has cooled sufficiently to be handled the slides are taken out with sterile forceps and hot glucose agar is poured on each to form a uniform thin film. Each slide is immediately replaced in the Petri dish and the agar allowed to solidify. The exudate which contains many streptococci in the bodies of the leucocytes is now gently smeared on these agar films, the watch glass is half filled with sterile water, and the large dish is placed in the incubator for from four to six hours. The water is used to prevent drying of the agar.

Staining.—The slides are now taken out of the Petri dish and dried in a thermostat at 55 C. for from fifteen to twenty minutes, or longer if necessary; fixed in 40 per cent. formalin for four or five minutes, washed in water, stained for only a few seconds with Loeffler's methylene blue solution, again washed in water and dried in the thermostat.

The best stains were obtained when the methylene blue solution was poured over the wet slide, the slide being held so that the stain ran off readily.

The slide is immediately placed in a dish of cold water and gently rinsed in several changes of water. Violent agitation in the water pulls off the film of agar. When the agar is perfectly dry (which requires only about half an hour), a coverglass is placed on it, either in glycerin or Canada balsam. The slides are now ready to be examined with the oil immersion lens.

Examination.—Examination in various stages shows positively that the streptococci in the leucocytes multiply, burst open the cell and form a small colony surrounding the cell

8. Centralbl. f. Bakt., 1903, vol. xxxv, p. 102.

which contained them. Figures 4 and 5 are photomicrographs of such preparations at different stages. In Figure 4 the leucocyte has just been burst open and the streptococci are beginning to grow out of it; in Figure 5 a considerable colony has already formed around the ruptured leucocyte. These colonies may be found in all stages, by varying the time of incubation.

The leucocytes do, however, kill streptococci if the conditions are right, as is shown by the following two facts: 1. Organism No. 300 is not virulent for guinea-pigs, and we have seen that the leucocytes take up the cocci alive. The guinea-pig must destroy these organisms somewhere, and we can find no substance in its body that is capable of doing this except the leucocytes and the bone marrow. We have seen in Table 2 that the leucocytes destroy streptococci *in vitro,* and the inference is that they also destroy them *in vivo.* 2. Plates made with three loopfuls of the exudate when taken from the guinea-pig contained 2,540 colonies of streptococci after twenty-four hours' incubation, while plates made with three loopfuls, after the exudate has stood in a test tube in the incubator for six hours, contained only 480 colonies. Evidently some of the streptococci were killed in this tube, but the smears show that all of the organisms are in the leucocytes, hence they must have been killed in the leucocytes.



Fig. 1.—Photomicrograph × 1500. Streptococci in nasal discharge on second day of sickness.

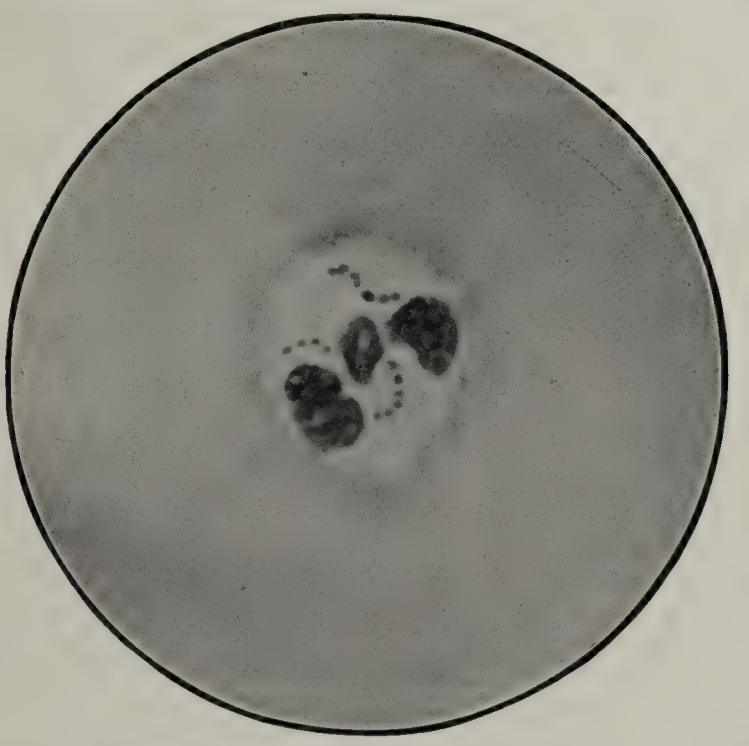


Fig. 2.—Photomicrograph × 1500. Streptococci in a leucocyte from nasal discharge on fourth day of sickness.

THE SO-CALLED STREPTOCOCCUS TOXINS.

The so-called toxin-producing power of streptococci has been studied by a number of investigators.† In 1888 Manfredi and Traversa[9] succeeded in preparing a toxic filtrate from a streptococcus which had been isolated from a case of erysipelas. Four years later Roger[10] prepared a filtrate which killed rabbits in doses of 13 to 20 c.c. per kilogram weight of rabbit. Marmorek[11] got a more powerful toxin by growing a virulent streptococcus in a mixture of bouillon and human serum for three months and filtering. One cubic centimeter of this filtrate killed a large rabbit in three to four days. More recently he[12] recommends a special culture medium containing glycocol and leucin, in which he claims to have obtained powerful toxins. Marmier[13] got a powerful toxin by growing streptococci in peptone solution. He precipitated the toxin from the filtered cultures, and found that the precipitate killed rabbits in doses of 40 mg. Schenk[14] extracted the livers of rabbits which had died of streptococcus infection, with salt solution and filtered the extract. These filtrates and also those of a broth culture of his organism were toxic for mice. Homén and Laitinen[15] prepared a toxin from broth cultures by precipitation with ammonium sulphate. These cultures varied in age from three to thirty days, and apparently were not filtered, hence it is doubtful whether the precipitates were sterile. Lingelsheim[16] found that some strains of streptococci possess a high toxicogenic power, but that they usually lose that property after being grown on artificial media, even if they are passed through rabbits from time to time. He obtained his most powerful toxin from an organism of medium virulence.

Besredka[17] succeeded in preparing filtrates that are strongly hemolytic for red corpuscles of various animals, by growing a virulent streptococcus in heated rabbit serum for eighteen to twenty-four hours and filtering. His filtrates were not toxic for rabbits, but I have shown[18] that filtrates thus prepared may also be toxic. Simon[19] has pointed out recently that the hemolysin and the toxin are probably two different substances, and this may explain why my results do not agree with those of Besredka.

Arohnson[20] found that the filtered broth cultures, varying in age from two to fourteen days, possessed only weak toxic powers, even if the organism was highly virulent. Macfadyen and Rowland[21] prepared a highly toxic extract of streptococci by grinding up the organisms when frozen and reduced to a very low temperature by means of liquid air, and exhausting this mass with salt solution. One-tenth c.c. of this extract killed a guinea-pig in six hours when injected intraperitoneally.

†It should be remembered that it has not yet been shown that any of the so-called streptococcus toxins correspond fully with the dogmatic definition now given of toxin.

9. Quoted from Lingelsheim, Beit. z. Exp. Ther., No. 1, p. 16.
10. Rev. de Méd., 1892, vol. xii, p. 944.
11. Annales de l'Institut Pasteur, 1895, vol. ix, p. 611.
12. Berliner klin. Woch., 1902, vol. xxxix, p. 253.
13. Annales de l'Institut Pasteur, 1895, vol. ix, p. 568.
14. Wien. klin. Woch., 1897, vol. x, p. 937.
15. Ziegler's Beiträge, 1899, vol. xxv, p. 10.
16. Beiträge zür Experimentellen Therapie, No. 1, 1899.
17. Annales de l'Institut Pasteur, 1901, vol. xv, p. 880.
18. THE JOURNAL A. M. A., 1903, vol. xli, p. 962.
19. Centralbl. f. Bakt., 1903-4, vol. xxv, pp. 308-440.
20. Berl. klin. Woch., 1902, vol. xxix, p. 981.
21. Centralbl. f. Bakt., 1904, vol. xxxv, p. 415.

Simon has shown that streptococci secrete more toxin when grown in a medium which has some resistance to their development than when grown in a medium which is favorable for their rapid growth. He therefore did not use broth or serum as a culture medium, but used the cell-free fluid from rabbit's leucocytic exudate. The exudate was obtained by injecting the rabbit in the pleura with 6 to 10 c.c. of aleuronat suspension and bleeding it to death the following day. He grew an organism of medium virulence in this fluid for from three to nine days under anaërobic conditions, and passed the culture through a filter. He also prepared a toxin by injecting into the pleural exudate a virulent streptococcus and filtering the fluid found in the pleura after the rabbit had died from the infection. These filtrates killed rabbits in from three to twelve days, in doses of from 4 c.c. to 7 c.c.

At the time of publication of Simon's paper I was working along the same line, and have since been able to confirm his results, as is shown by the following experiments:

EXPERIMENT A.—A mixture of two parts of cell-free exudate and one part of broth was inoculated with a virulent streptococcus (B. 104), incubated for three days and passed through a porcelain filter. One c.c. of the filtrate added to a tube of ascites broth gave no growth in 24 hours. A rabbit weighing 1,335 grams was injected with 10 c.c. of the filtrate. During the first two days the rabbit lost 50 grams and then held his weight, but died on the fourteenth day.

EXPERIMENT B.—A rabbit was injected with 4 c.c. of aleuronat suspension in each pleura, and the following morning he was injected in each pleura with 3 c.c. of a 24-hour culture of a virulent streptococcus. The rabbit was found dead the following morning and 25 c.c. of exudate was obtained from the pleural cavities. This exudate was centrifugated and passed through a filter. One c.c. of the filtrate added to a tube of ascites broth gave no growth. A rabbit weighing 1,690 grams was now injected with 10 c.c. of the filtrate. The rabbit appeared to be ill the next day, but did not die until the end of the fifth day. Cultures made from the heart's blood, liver and spleen remained sterile.

Several other experiments similar to these were carried out, but not all of the animals died from the injection of the filtrate. It is clear, however, that filtrates thus prepared possess a considerable degree of toxicity.

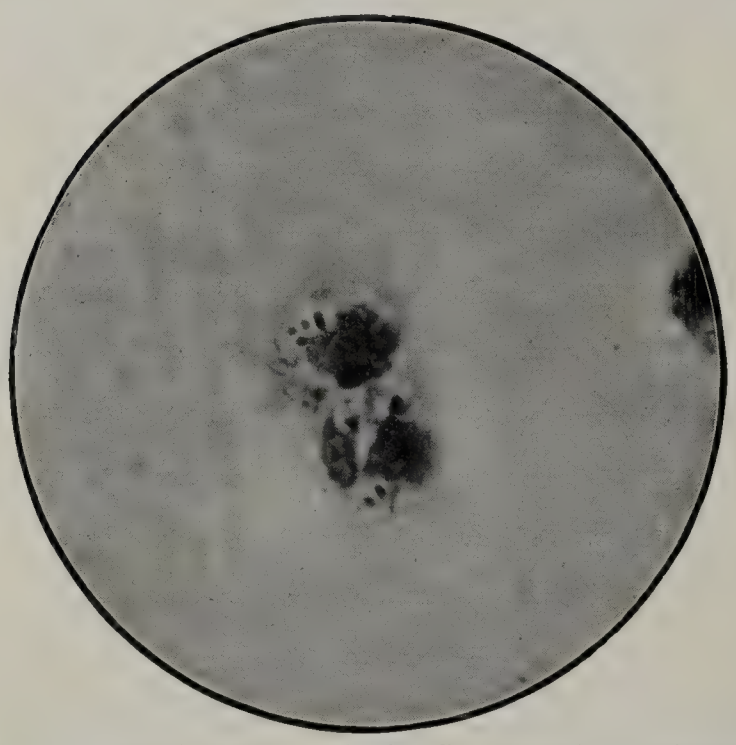


Fig. 3.—Photomicrograph × 1500. Streptococci in guinea-pig's leucocytes, taken from the pleura two hours after injection of streptococci.

At the suggestion of Professor Hektoen, I tested some of the filtrates to determine whether they are toxic for leucocytes, as has been shown by Van de Velde,[22] and by Neisser and Wechsberg,[23] to be the case with staphylococcus filtrates. The organism used in these experiments is B. 104,[18] which has been passed through 78 rabbits, and is very virulent for rabbits and for guinea-pigs, and produces an active hemolysin when grown in heated rabbit serum or in a mixture of equal parts of rabbit serum and ascites fluid. The filtrates used were from twenty-four to thirty-six-hour cultures in a mixture of rabbit serum and ascites fluid, which had been heated to 56 C. for one-half hour before inoculation.

Neisser and Wechsberg[23] have shown that living leucocytes reduce methylene blue solution when the supply of oxygen is shut off, while dead leucocytes no longer possess this property. In my experiments this fact was made use of to determine whether or not the leucocytes had been killed by the filtrate; 0.3 c.c. to 0.4 c.c. of leucocytic exudate from a rabbit was added to 1.5 c.c. of the filtrate, incubated for two hours, then two drops of a methylene blue solution added and the contents of the tube shaken up and covered with a layer of sterile olive oil. If there was reduction in two hours the result was considered negative, but if there was no reduction in that time this fact was taken as evidence that the leucocytes were dead. Control tubes with a mixture of equal parts of heated rabbit serum and ascites fluid were always made, and the results recorded only when there was marked reduction in the control in two hours. A large number of these experiments was carried out, but it is not necessary to tabulate more than one of them here.

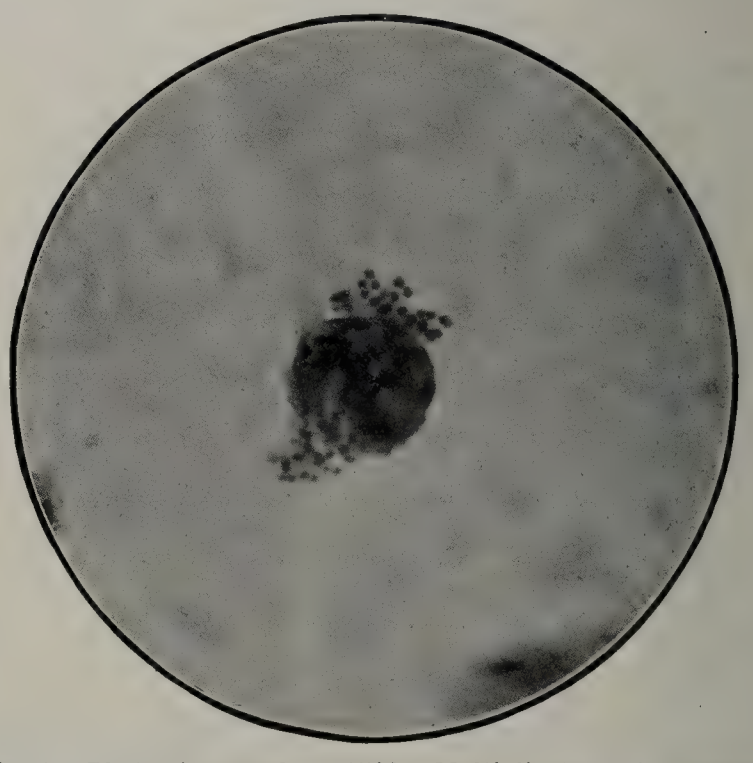


Fig. 4.—Photomicrograph × 1500. Multiplication of streptococci after their ingestion (*in vivo*) by a guinea-pig's leucocyte.

Experiment.—.3 c.c. exudate + 1.5 c.c. 24-hour filtrate; no reduction in 2 hours, but a trace of reduction in 3 hours.
.3 c.c. exudate + 1.5 c.c. 36-hour filtrate; no reduction in 3 hours.
.3 c.c. exudate × 1.5 c.c. ascites-serum;[24] nearly complete reduction in 2 hours.

The leucocytic exudate was obtained from the pleura of a rabbit which had been previously injected with aleuronat suspension. The methylene blue solution was

22. Annales de l'Institut Pasteur, 1896, vol. x, p. 580.
23. Zeitschr. f. Hyg., 1901, vol. xxxvi, p. 299.
24. The term "ascites-serum" as used here refers to a mixture of equal parts of ascites fluid and rabbit serum, heated to 56 C. for one-half hour.

made according to the formula given by Neisser and Wechsberg, which is given below:

Solution A.—Methylene blue, 1; absolute alcohol, 20; distilled water, 29.
Solution B.—1 c.c. of solution A; 49 c.c. of physiologic salt solution.
Two drops of Solution B, which must be sterile, are added to each tube in the experiments.

The fact that the filtrates have a decided effect on leucocytes has also been shown in a second experiment.

EXPERIMENT.—Two cubic centimeters of a rich leucocytic exudate were placed in each of five small test tubes and centrifugated. The clear, supernatant fluid was now decanted from each tube and replaced by 2 c.c. of bouillon, heated ascites-serum or filtrate from a 24-hour ascites-serum streptococcus culture. The leucocytes in each tube were evenly suspended in the fluid, the tubes placed in a water bath at 37 C. and kept there for from 1 to 1½ hours. Now .3 c.c. of normal rabbit serum (guinea-pig serum when guinea-pig's leucocytes were used) was added to each tube, the tubes inoculated with a loopful of a non-virulent streptococcus broth culture and plates made at intervals, the tubes being kept in the incubator.

The following table shows the results of an experiment:

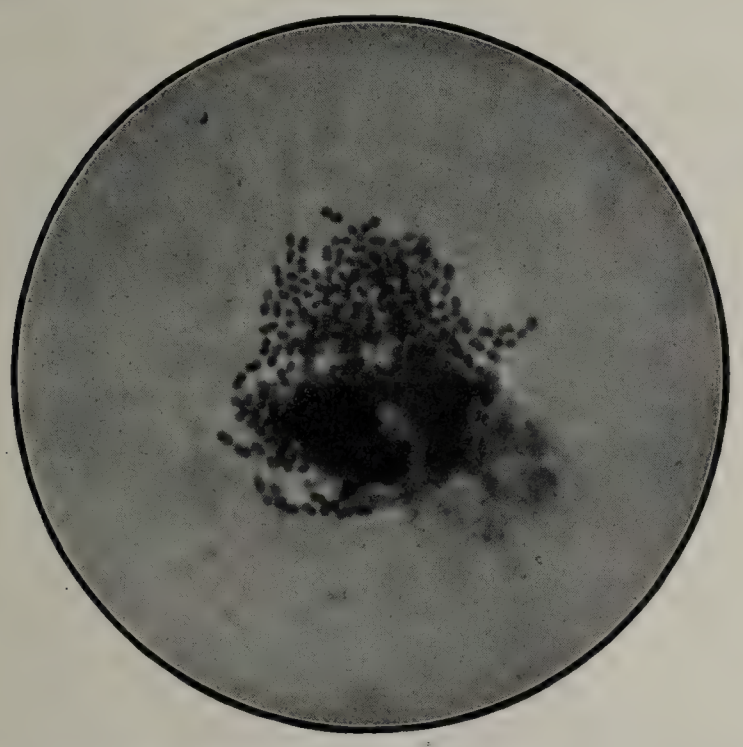


Fig. 5.—Photomicrograph × 1500. Multiplication of streptococci after their ingestion (*in vivo*) by a guinea-pig's leucocyte, in slightly later stage than Figure 4.

TABLE 4.

	Im.	4-5 hrs.	20 hrs.
Leucocytes + 2 c.c. filtrate B 104 †+ .3 c.c. normal serum	2000	3200	Many
Leucocytes + 2 c.c. filtrate 10 A + .3 c.c. normal serum	1200	2000	Many
Leucocytes + 2 c.c. filtrate 300 + .3 c.c. normal serum	1100	24	Many
Leucocytes + 2 c.c. ascites serum + .3 c.c. normal serum	1000	140	Many
Leucocytes + c.c. bouillon + .3 c.c. normal serum	1800	60	Many

†The numbers B 104, 10 A and 300 refer to different strains of streptococci. B 104 has a high virulence and 10 A a medium virulence; both these strains produce hemolysin in heated serum. Although 10 A has never been passed through animals. It was recently isolated from suppurating axiliary glands. 300 is non-virulent, and does not produce hemolysin.

The suspensions of leucocytes in filtrates from serum cultures of virulent streptococci have no effect on streptococci, while the suspensions in filtrates from non-virulent organisms, in heated ascites serum, and in bouillon destroy large numbers of cocci.

These experiments do not always give positive results, but there is a small percentage of tubes in which the filtrate has apparently no effect on the leucocytes. This is not surprising, however, when we consider the fact that in about 100 filtrates which I have tested for hemolysis, there were nearly 10 per cent. that had no hemolytic properties, whereas some of them were so active that .005 c.c. completely laked 1 c.c. of a 2½ per cent. suspension of rabbit's washed corpuscles in two hours.

In all these experiments with leucocytes it is necessary that no time should be lost after the exudate has been removed from the animal. It has been my custom to have all tubes ready and at incubator temperature before the exudate is taken from the animal, so that it can be immediately introduced into the warm tubes containing the serum or filtrates.

The addition of normal serum to the tubes in the last experiment was carried out because it was found that there is less destruction of streptococci by leucocytes when suspended in heated serum than when they are suspended in fresh normal serum. This is shown by the following experiment:

	Im.	3 hrs.	20 hrs.
Rabbit's leucocytes + 1 c.c. normal rabbit serum	750	17	Many
Rabbit's leucocytes + 1 c.c. rabbit serum 60 C. for one-half hour	700	320	Many

The leucocytes contained in each tube had been centrifugated out of 1 c.c. of exudate and were washed three times in .85 per cent. NaCl solution which had been warmed to 38 C.

This result agrees with those of Wright and Douglas,[25] who have shown that human washed leucocytes when suspended in heated serum take up less streptococci, colon bacilli and other organisms than when they are suspended in normal human serum.

Attempts have been made to determine whether the destruction of streptococci by the suspension of leucocytes in serum is a complement action, but these results are as yet unsatisfactory. It is evident that the rôle of the plasma in phagocytosis of streptococci needs to be further investigated.

SUMMARY.

It will be seen that my work corroborates and extends the work of most previous workers in this field.

Leucocytic exudate, the cell-free exudate and suspensions of leucocytes or of bone marrow in serum or in defibrinated blood kill non-virulent, but not virulent, streptococci. Suspensions of organ cells from guinea-pigs, in serum or in defibrinated blood, do not kill streptococci. Leucocytes in the animal body take up living streptococci.

Putting all facts together, it seems that we are warranted in concluding that the leucocytes and the bone marrow are the most important (if not the only) factors concerned in combating streptococcus infections in rabbits and in guinea-pigs. Dr. Weaver and I[26] have shown that normal human serum is a good culture medium for streptococci, and I have shown above that there was active phagocytosis of streptococci by the leucocytes in a case of streptococcus infection in man. It would seem, therefore, that in man also the leucocytes are an important factor in protecting the body against invasion by streptococci.

It was shown in the foregoing that the leucocytes take up living streptococci *in vivo*, and in all probability destroy them, but the fact that the cell-free exudate also destroys many organisms indicates that there may be destruction of cocci extracellularly as well as intracellularly.

Virulent streptococci when grown in heated serum

25. Proceedings of the Royal Society, 1903, vol. lxxii, p. 357, and 1904, vol lxxiii, p. 128.
26. Trans. Chicago Path. Soc., 1903, vol. v, p. 285; Medicine, 1903, vol. lx, p. 515.

secrete a substance which is toxic for leucocytes. This may throw some light on the question why virulent streptococci are not taken up by the phagocytes. The practical value of this demonstration is self-evident. If we accept the view that the leucocytes are the most important agent in combating streptococcus infections, we see at once that the destruction of these cells by the toxin, as they collect about the focus of infection, robs the body of its strongest defense against these organisms.

In conclusion, I wish to thank Professor Hektoen and Dr. Weaver for many suggestions.

ADDENDUM: Since this article was put in type there has appeared an important paper on experimental streptococcus infections by Neufeld and Rimpau.[27] These experimenters have shown that the leucocytes play an important rôle in combating streptococcus infections in rabbits. They have shown also that the addition of antistreptococcus serum to a suspension of leucocytes and streptococci aids phagocytosis, and that this is not due to a stimulation of the phagocytes but to an effect of the serum on the cocci.

CYSTS OF BARTHOLIN'S GLANDS,

WITH BRIEF REMARKS ON THE ANATOMY OF THE NORMAL GLAND STRUCTURE.*

THOMAS S. CULLEN, M.D.
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Bartholin's gland was named after Bartholinus, who described it in detail in the seventeenth century. In 1761 Duverney[1] gave in detail the results of further studies of the gland, and pointed out the resemblance between its tissue and that of the prostate gland; he also mentioned the duct of the gland and demonstrated its opening at the vulva. Huguier[2] (1850) published a most extensive and thorough article on diseases of this gland and referred to it as the vulvovaginal gland.

In 1892 Müller gave a résumé of the literature of the development of Bartholin's glands. He says that they are first recognized in the fetus when it has attained a length of 4.5 cm. Here they are seen as solid cords passing off from the *sinus urogenitalis*.

Pohlman, who has been giving this subject much study in Professor Mall's laboratory, tells me that the beginning of Bartholin's gland becomes apparent just as soon as the first differentiation of sex appears externally. Formerly it was not thought to be demonstrable before the fourth month, but Pohlman has found it in embryos 2 cm. in length. The glands at this time consist of simple pouchings out at the sides of the urogenital sinus. Bartholin's gland in the female corresponds to Cowper's gland in the male. It does not, however, develop so rapidly as the male gland. There is much difference of opinion as to whether Bartholin's gland is ecto- or endo-dermic. Pohlman thinks that it is probably ecto-dermic.

ANATOMY.

These glands are two in number and are situated in the para-vaginal tissue. They are 2 to 3 mm. in diameter and 3 to 5 mm. long. The gland duct passes down on the inner or vaginal aspect and opens into the vagina just below the outer side of the hymen. Huguier, who

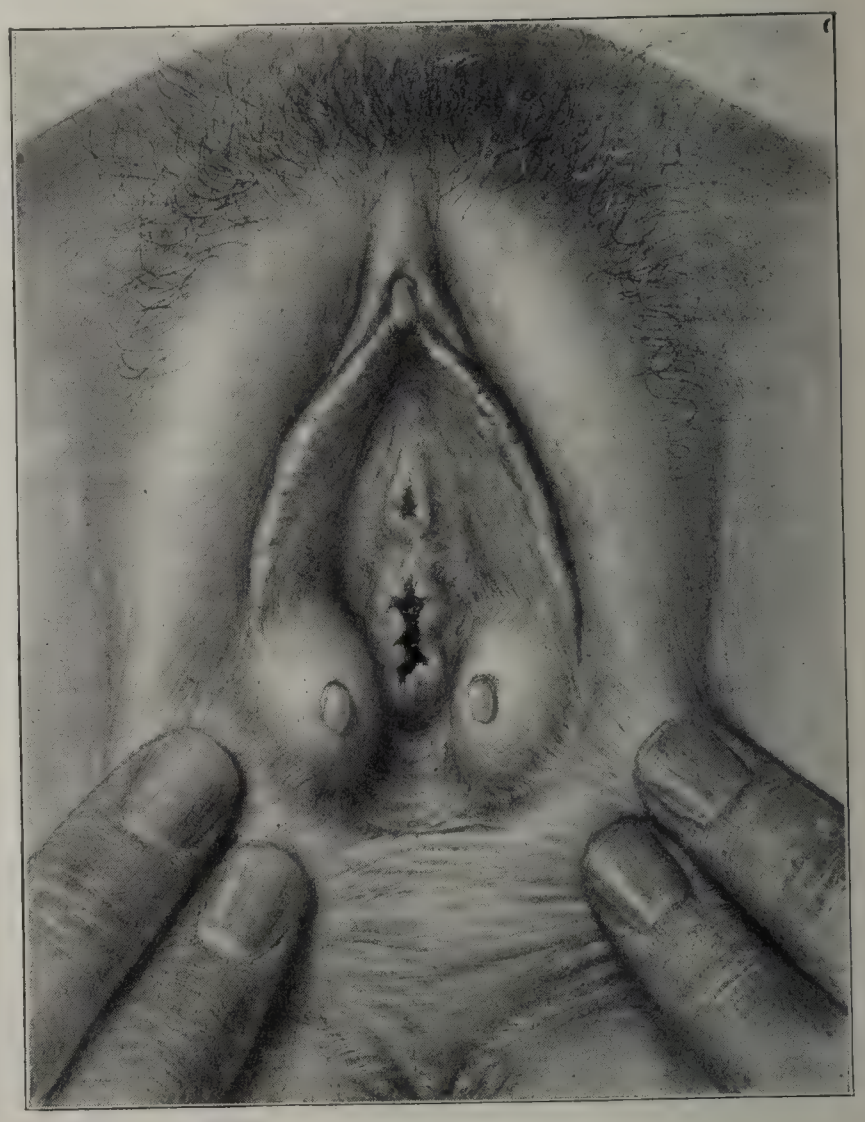


Fig. 1.—Relation of Bartholin's glands to the vagina. (Redrawn after Huguier.) In this case both glands show inflammatory enlargement and from the duct on each side a drop of pus is escaping. The glands are seen in the lateral vaginal walls, a short distance above the fourchette.

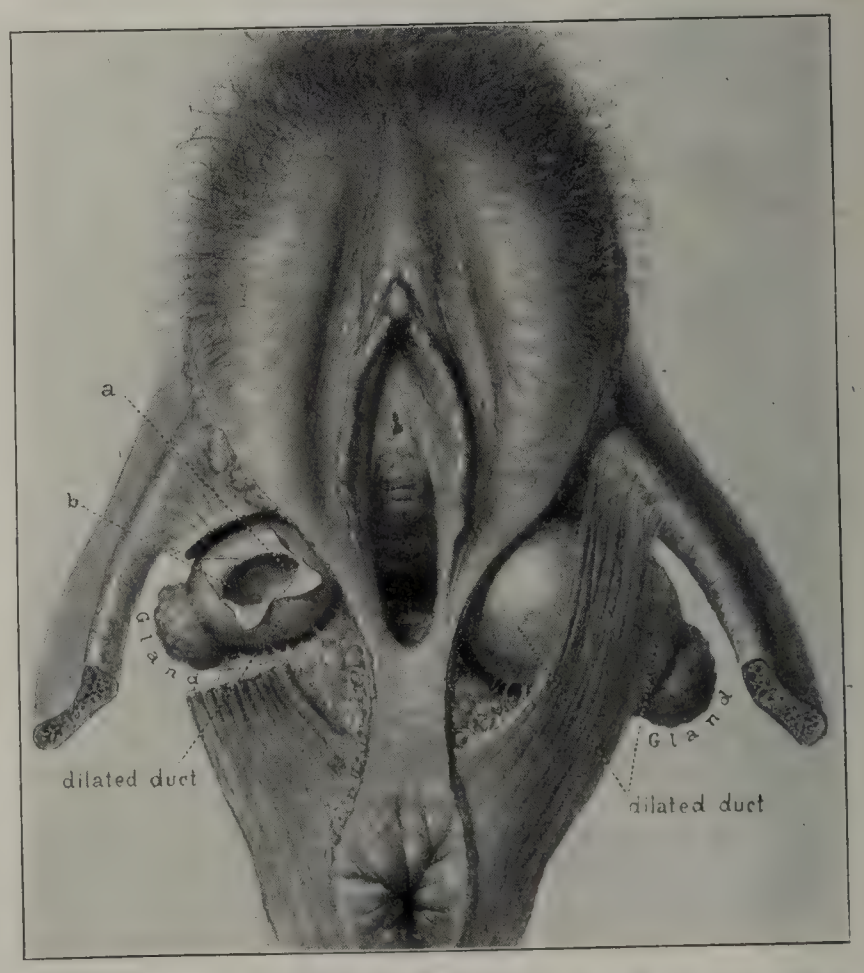


Fig. 2.—Deep relations of Bartholin's glands to the vagina. (Redrawn after Huguier.) In this case the duct to the right of the vagina has become occluded and is cystic, forcing the gland, which is considerably enlarged, further out than usual. On the left of the vagina the duct is also markedly cystic. Under ordinary circumstances the glands lie in the adipose tissue just external to the vagina and are partially covered by the band of muscle shown in the drawing.

27. Deutsche med. Woch., 1904, xxx, p. 1458.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Oeuvres anat., Paris, 1761, vol. ii, p. 319.

2. Mémoire sur les maladies des appareils sécréteurs des organes génitaux externes de la femme. Mémoires de l'Académie de Médecine, Paris, 1850, vol. xv, p. 531.

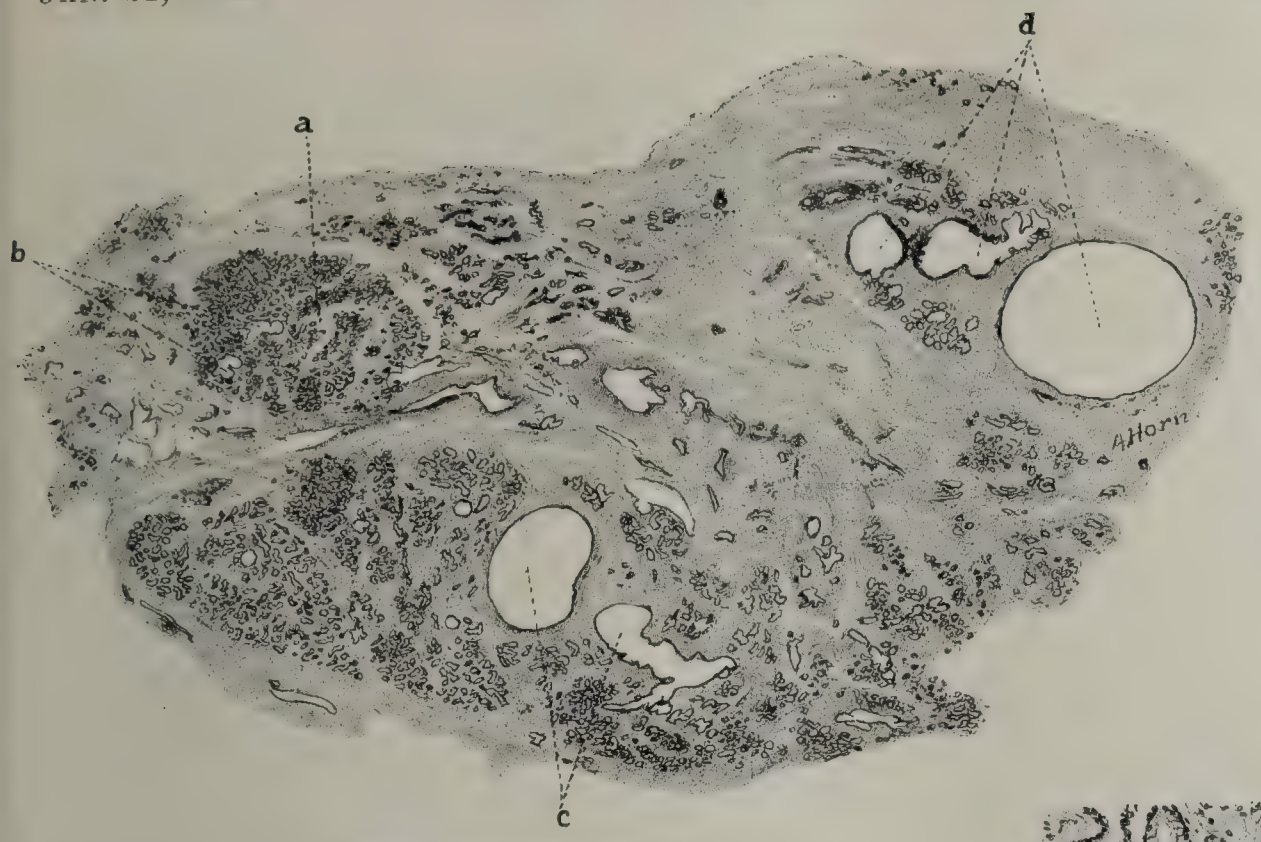


Fig. 3.—A section through the entire Bartholin gland (9 diameters). *a* gives us a clear idea of a lobule composed of many small glands and partially separated by stroma from the neighboring gland elements. At *b* are sections of this lobule's terminal duct. At *c* and *d* are sections of larger ducts.



Fig. 7.—A small cyst of Bartholin's gland. (1½ diameters.) The inner surface is smooth over a considerable area, but in the upper portion of the drawing are large, sickle-shaped openings of secondary ducts.

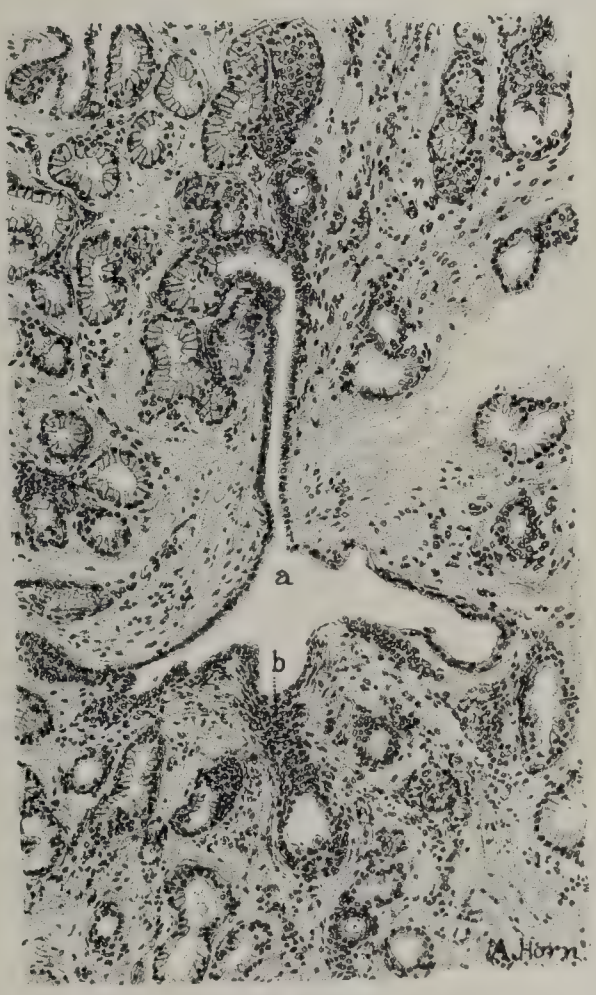


Fig. 5.—Terminal ducts in Bartholin's glands. *a* is a secondary duct dividing into four terminal ducts. These are lined by cuboidal epithelium. At several points the small glands are seen opening into these terminal ducts. The appearance of many layers of cells at *b* is due to the obliquity of the section. The major number of the glands are tubular. The gland epithelium is high cylindrical with the nuclei at the base.

Fig. 4.—Sections through the main duct of Bartholin's gland. In the center is a somewhat distorted main duct lined by many layers of squamous epithelium. Opening directly into it are several glands, A and B are secondary ducts. The secondary duct at *d* is lined by squamous epithelium; at *b* by transitional epithelium. At *c* a few small glands open into the duct. C is an isolated lobule of Bartholin's gland composed of its many small glands and its terminal duct *e*. (33 diameters.)



Fig. 8.—Cyst of Bartholin's gland. (1½ diameters.) The inner surface is smooth, but opening into the cavity are several sickle-shaped openings—secondary ducts. To the right is the substance of the gland and in it are two small cyst spaces.



Fig. 6.—A section of Bartholin's gland, showing the lining of a secondary and a terminal duct. (90 diameters.) *a* represents a secondary duct which at *b* is lined by transitional epithelium, the surface layer being cylindrical. Opening into the duct at *c* is a small gland. At *d* the duct epithelium is but one layer in thickness. The duct divides into the terminals *e* and *f*, the epithelium of the gland *g* shows well the goblet-shaped cells, indicating that they are filled with secretion.

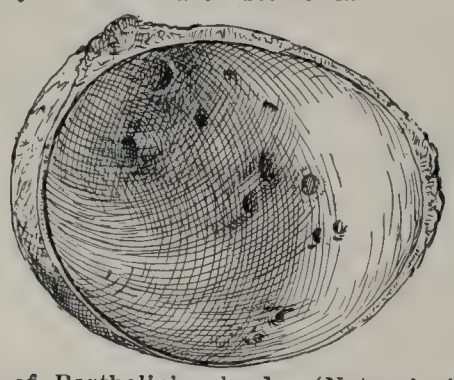


Fig. 9.—Cyst of Bartholin's gland. (Natural size.) The cyst is egg-shaped, has a smooth inner surface and at numerous points shows dilated sickle-shaped or round openings of the secondary ducts. To the left is the substance of the gland.



Fig. 10.

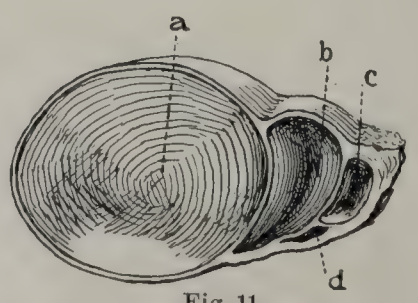


Fig. 11.

Fig. 10.—Double cyst of Bartholin's gland. (Natural size.) *a* appears to be a dilated duct as in its walls are the openings of several secondary ducts. *b* seems to be a cystic secondary duct.

Fig. 11.—Multiple cysts of Bartholin's gland. *a* is probably the cystic main duct. *b*, *c*, and *d*, dilatations of secondary ducts.

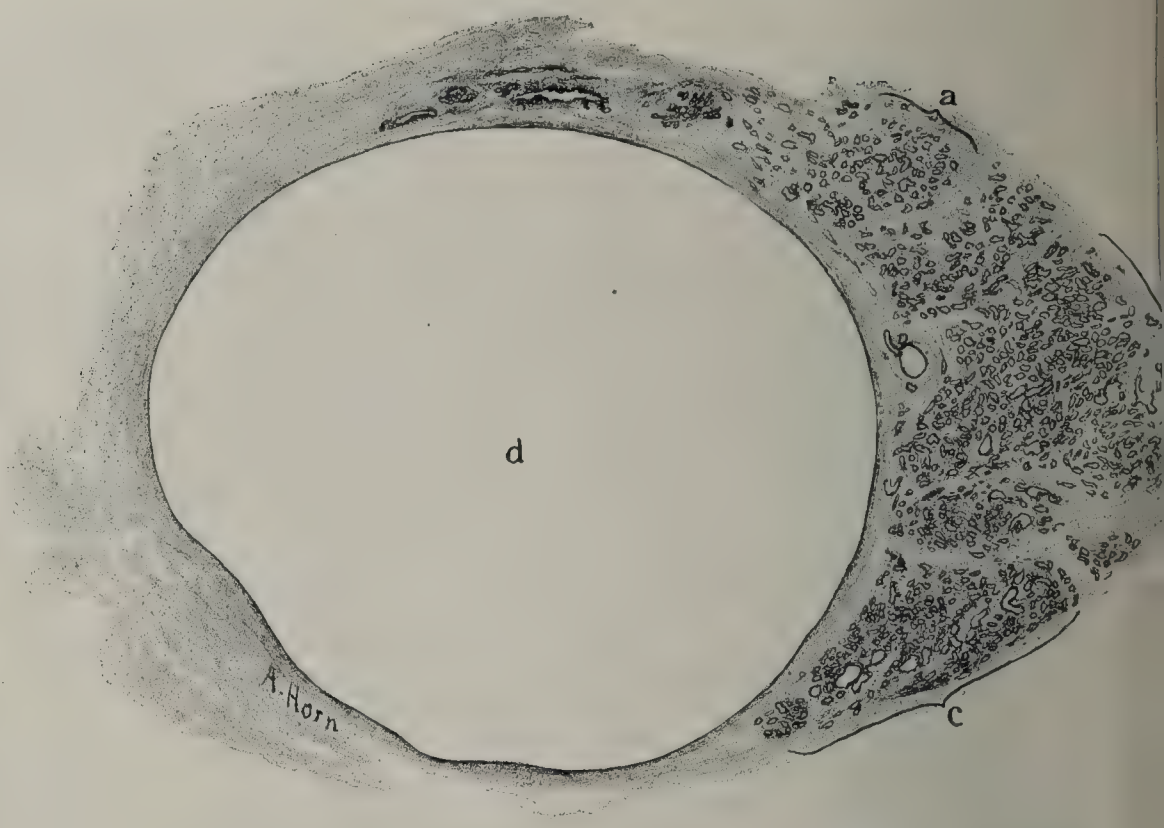


Fig. 12.—Cyst of the duct of Bartholin's gland. (6 diameters.) *d* is the cystic and almost spherical duct. The gland substance has been pushed to one side. The lobular arrangement of the gland is well shown by the three distinct lobules *a*, *b* and *c*.

CYST.

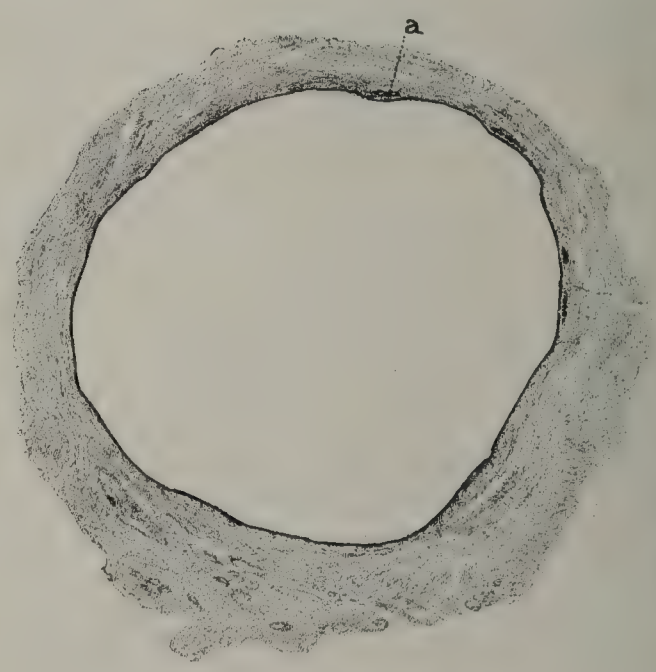


Fig. 13.

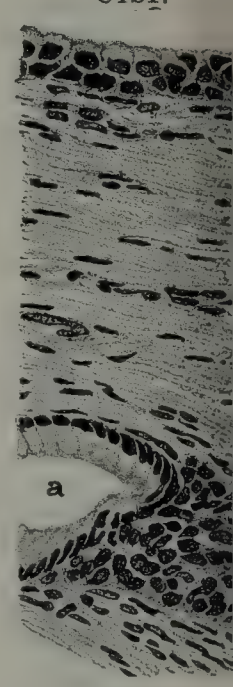


Fig. 14.

Fig. 13.—Small cyst of Bartholin's gland, with gland elements in the wall. (4 diameters.) This cyst originated from the duct and we have a few small gland elements in the wall, as seen at *a*. For the epithelial lining of the cyst see Figure 14.

Fig. 14.—Lining of cyst developed from Bartholin's duct. (400 diameters.) For the low power see Figure 13. The cyst is lined by two layers of transitional epithelium. *a* is a typical gland and closely resembles those of the cervix.

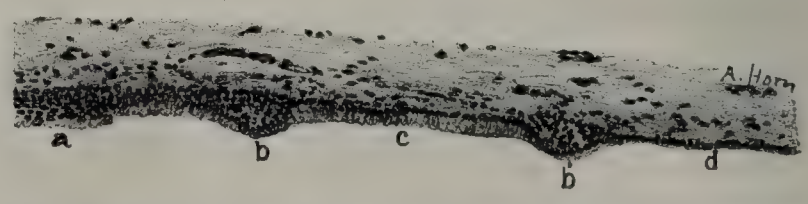


Fig. 15.—Wall of cyst developing from occlusion of a secondary duct and unfolding of the glands. (120 diameters.) At *a* we have transitional epithelium; at *b* and *b'*, transitional epithelium at the mouth of the gland *c*, which is unfolded and now forms part of the cyst wall. The epithelium at *d* also indicates the unfolding of a gland. Here there is considerable flattening of the cells making them cuboidal.

has examined many cases, found them opening in the lateral vaginal wall about 1 cm. above the fourchette. In health the gland may occasionally be recognized as a small pea-sized body which can be rolled between the fingers, when one is introduced into the vagina, while the other palpates the outer vaginal wall. Occasionally the vagina clearly outlined. The gland has, however been pushed away to the side by the cyst developing in the duct. The glands in this particular case are rather larger than usual.

Under normal conditions the gland secretes a small amount of whitish, slightly tenacious fluid, closely re-



Fig. 1.—An illustration of Hindu architecture. (Illustrating the article by Dr. Senn, page 240.)

the opening of the duct may be detected and a small probe introduced. If there be a vaginitis, the inflammatory process is prone to pass along the duct and involve the gland. Then, on gentle pressure, a drop of pus can be squeezed from the duct, as shown in Figure 1. In Figure 2 we have the relation of the gland to sembling the white of an egg. The gland function is complete at the fifth or sixth month, according to Müller. The gland diminishes in size from the ninth to the twelfth year, rapidly increases again between the sixteenth and eighteenth year, and in old age undergoes atrophy.

HISTOLOGIC APPEARANCES.

On carefully dissecting out the gland and examining it with very low power it is found that the duct after leaving the vagina gradually increases in diameter in the vicinity of the gland. It then divides into secondary ducts, and these in turn divide, forming terminal ducts which drain the secretion from the lobules. The entire gland may be likened to a bunch of grapes, developed more on the one side than on the other. The main duct corresponds to the stem; the secondary and terminal ducts to the branches; and the lobules represent the individual grapes. Figure 3 demonstrates very well the gland as seen on section; *c* and *d* are cross or oblique sections of the secondary ducts and *a* is a well-defined lobule.

The duct near the vagina is lined with many layers of squamous epithelium, as seen in the central portion of Figure 4. As we pass toward the gland, the duct lining is composed of transitional epithelium, still many layers in thickness. In the deeper layers the cells are squamous in type, but in the superficial layer—the one directly in contact with the lumen of the duct—they are of the high cylindrical type. The secondary ducts are likewise lined by transitional epithelium (Fig. 6 at *b*). But the number of layers is usually much less, as seen in Figure 6 between *c* and *d*, and in Figure 4 at *A* and *B*. The terminal ducts may be lined by transitional epithelium, but I have usually found them covered by but a single layer of epithelium. Sometimes the cells are high cylindrical in type, as seen in Figure 6 at *e*. At other times cuboidal, as represented in the four terminal ducts depicted in Figure 5 at *a*. The glands forming the lobules are tubular or slightly racemose, are round or oval on cross section and are lined by one layer of high cylindrical epithelium (Figs. 4, 5 and 6). The cells, if filled with mucus, may be goblet-shaped (Fig. 14). The cell nuclei are small, round or somewhat flattened, stain deeply and are situated at the base of the cell. They bear a very striking resemblance to the cylindrical epithelium of the cervix. Their protoplasm does not, however, take the hematoxylin stain, as is so often noted in cervical epithelium. While these small glands which make up the bulk of Bartholin's gland are for the most part confined to the lobules, isolated glands are found here and there opening directly into the main duct or into the secondary ducts, as shown in Figure 4 at *c* and in Figure 6 at *c*.

The elements of Bartholin's gland are held together by a definite connective-tissue framework rich in blood-vessels and in non-striped muscle fibers. This tissue is, according to Müller, amply supplied with nerves.

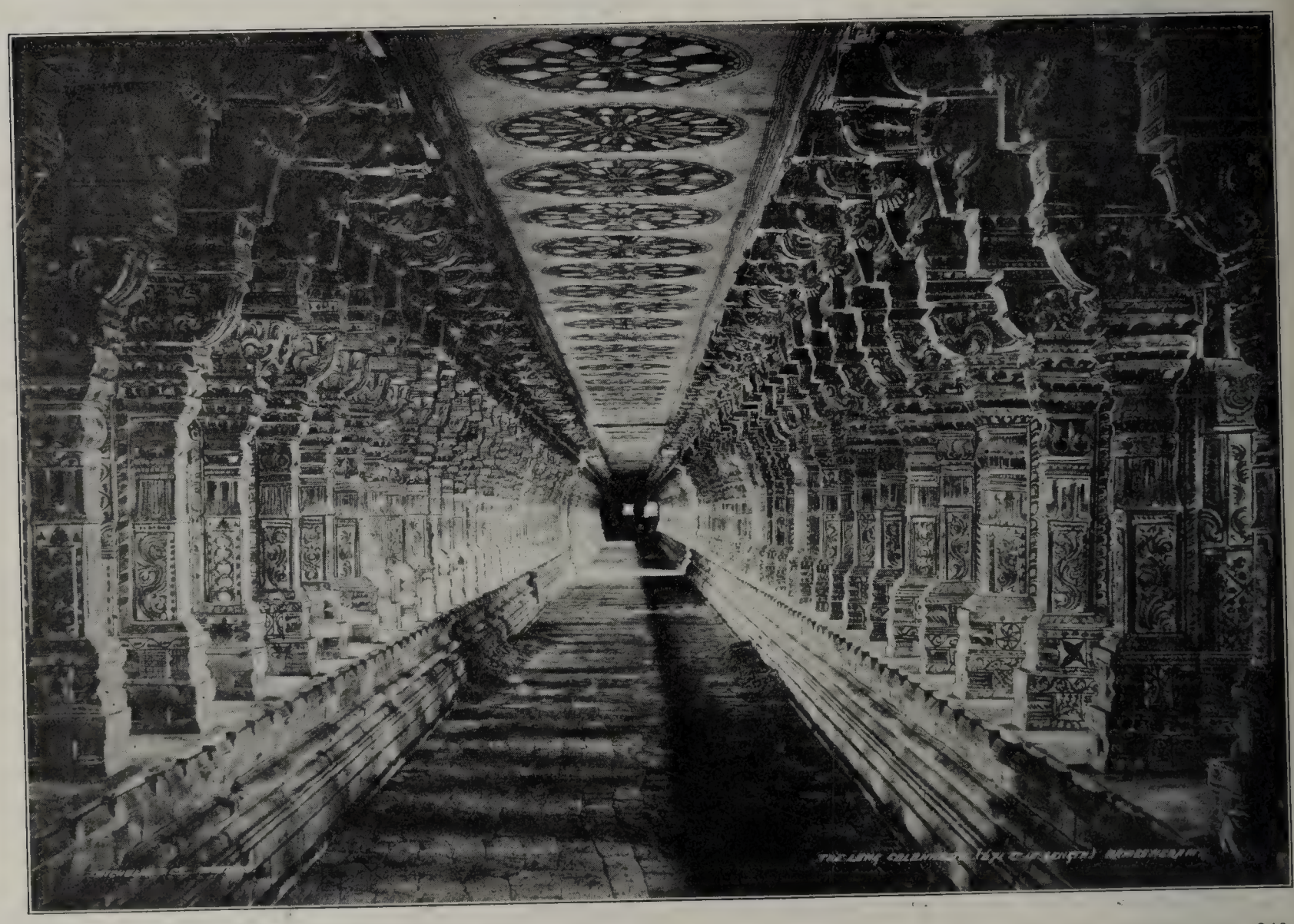


Fig. 2.—The colonnade, 671 feet in length, in the Hindu temple at Rameshwaram. (Illustrating the article by Dr. Senn, page 240.)

CYSTS OF BARTHOLIN'S GLAND.

From the observations of Müller we learn that the duct of Bartholin's gland at its exit is about .5 mm. in diameter and that in the neighborhood of the gland it may be fully 2 mm. in caliber. It is readily seen that any irritation producing a vaginitis might cause the two sides of this small duct to become glued together, entirely preventing the escape of the gland contents. This frequently happens, especially if there is a gonorrheal infection. If the inflammation be of a virulent character, an abscess of the gland is likely to follow, but if the infection be a mild one there is simply a reten-

tion of the secretion and a cyst develops. In some cases the secondary ducts are blocked, while the main duct remains patent. We then usually have multiple cysts in the substance of the gland.

CYSTS DUE TO OCCLUSION OF THE MAIN DUCT OF BARTHOLIN'S GLAND.

These cysts are superficial (Fig. 2) and vary from 1 to 4 or 5 cm. in diameter; they are tense and rather thin-walled at their most prominent points (Figs, 8, 9 and 11). The body of the gland is pushed outward into the surrounding adipose tissue, as shown in Figure 2.

The cysts may contain a clear and limpid fluid, which is often viscid, but when hemorrhage has taken place from the cyst wall is yellowish or chocolate-colored.

The inner surface of the cyst is smooth, but here and there small round or sickle-shaped openings are seen in the wall. These are the points at which the secondary and terminal ducts open into the main duct. They have naturally become somewhat dilated, owing to the damming back of the section which can not escape. Sometimes the large secondary ducts become completely disconnected from the main duct, and they in turn give rise to secondary cysts, as seen in Figures 10 and 11.

The character of the cyst lining will, of course, depend on the situation of the point of occlusion. If this is near the vagina the cyst wall will be lined by a varying number of layers of squamous epithelium, while that portion of the cyst originating from the duct near the body of the gland will show a lining of transitional epithelium. At numerous points over the inner cyst surface the lining will consist of only a single layer of cells, of the high cylindrical or cuboidal variety. This is due to the unfolding of the small glands that here and there open along the course of the duct.

CYSTS DEVELOPING FROM OCCLUSION OF THE SECONDARY DUCTS OR THE TERMINAL DUCTS.

These are naturally much less common. They are multiple and very small. Their contents are similar to those of the larger cysts. Their lining is at certain points composed of transitional epithelium and at other points of one layer of cylindrical cells (Fig. 15).

CLINICAL HISTORY OF BARTHOLIN'S CYSTS.

The patient usually gives a more or less definite history of an old inflammation of the vagina which, after an interval of weeks or months, is followed by the development of a swelling low down in one or both vaginal walls. As a rule, this swelling is not very painful, but if bilateral, is frequently associated with discomfort on locomotion. Not infrequently a patient will enter a hospital for a peritoneal operation and a small cyst which has never given the slightest trouble is detected.

TREATMENT.

If the cyst occasions no inconvenience and is not increasing in size it may be left alone. If any operative interference be deemed necessary, it is well to dissect out the entire gland, taking care not to injure the large plexus of veins closely hugging the outer side of the cyst.

DETAILED REPORT OF CASES OF CYSTS OF BARTHOLIN'S GLANDS.

The following is a report of the cysts of Bartholin's glands coming under my observation at the Johns Hopkins Hospital during the ten years, 1893 to 1903. It is, however, no index of the number that exists, as the majority of the patients with this condition are treated in the dispensary and do not come to operation. It will be noted that the youngest patient was 17, the eldest 50. Bartholin's cysts are naturally most common during the child-bearing period. It will also be seen from the cases here tabulated that the smallest cyst was 5 mm. in diameter, the largest 4 cm.

CASE 1 (Gyn. Path., 214).—Age 25. Cyst 1.5 cm. in diameter. The cyst wall was composed of fibrous tissue. The cyst was lined by one layer of high cylindrical pale staining epithelium with the nuclei at the base of the cells.

CASE 2. (Gyn. Path., 490).—Age 43. Cyst 2.5 cm. in diameter. The walls were very thin and were composed of fibrous tissue; three definite cyst cavities were found. The glands were somewhat dilated, and the cyst lining was composed of one layer of high cylindrical or cuboidal epithelium.

CASE 3 (Gyn. Path., 2951).—Age 38. Cyst 2.5 cm. in diameter. The cyst wall was of non-striped muscle and fibrous tissue. Typical Bartholin glands were found in the cyst wall, also sections of secondary ducts. The cyst lining was of columnar or cuboidal epithelium. Where it was two layers in thickness the deeper layer was cuboidal, the other cylindrical. This cyst was evidently due to dilatation of the duct, with secondary unfolding of the glands.

CASE 4 (Gyn. Path., 2971).—Age 44. Cyst 5 mm. in diameter. The walls were composed of fibrous tissue. The cyst lining varied in different places, one layer being of cylindrical epithelium, several layers with the superficial cells cylindrical; several layers of squamous epithelium dipping into the stroma, or one layer of cylindrical epithelium.

CASE 5 (Gyn. Path., 3133).—Age 50. The cyst wall was composed of fibrous tissue and had glands scattered throughout it. The cyst lining varied; in places there was one layer of epithelium; at other points two layers, with a superficial layer of cylindrical cells; here and there the epithelium was many layers thick.

CASE 6 (Gyn. Path., 3352).—Age 35. The cyst was 3x3x2 cm., and very thin walled, translucent; on the inner surface there were several smaller semilunar depressions, evidently where other small cysts had opened into the larger one. The cyst wall was of fibrous tissue, with glands in the wall, and the cyst lining consisted of one or two layers of epithelium, the superficial layer of which was composed of cuboidal cells.

CASE 7 (Gyn. Path., 3527).—Cyst 1.5 cm. in diameter; the walls were 1 mm. thick, transparent; there were small round or semilunar openings on the inner surface, indicating remnants of smaller cysts which had opened into the larger one—dilated secondary ducts. The cyst wall was of fibrous tissue, with some non-striped muscle; the greater part of the gland structure was forced to one side—one gland .5 mm. in diameter, one secondary duct 1 mm. The cyst lining was made up of from 2 to 8 layers of transitional epithelium; superficial layer cuboidal. The cyst had evidently developed in the duct.

CASE 8 (Gyn. Path., 3594).—Size 2.5 cm. The cyst wall was of fibrous tissue; at one end was a large amount of normal gland tissue; some glands were dilated to 3 or 4 times the natural size. A few secondary dilated ducts were seen. The cyst lining consisted of from 2 to 10 layers of epithelium; the superficial layer of which was cylindrical. This was evidently a cyst of the duct.

CASE 9 (Gyn. Path., 3910).—Age 26. Cyst 4 cm. in diameter; the walls thin and translucent, the inner surface smooth, with here and there round or sickle-shaped spaces indicating openings of dilated secondary ducts. The cyst wall was composed of fibrous tissue. The cyst lining consisted of one layer of cuboidal or almost flat cells; at places there were 10 or more layers of swollen, pale staining polyhedral cells. This patient had tubercular peritonitis.

CASE 10 (Gyn. Path., 4345).—Age 35. Cyst 1 cm. in diameter. The cyst wall was of fibrous tissue and the cyst lining of from 2 to 10 layers of transitional epithelium; the superficial layer being cylindrical and apparently ciliated.

CASE 11 (Gyn. Path., No. 4444).—Cyst 2x1.5 cm., transparent. The cyst wall was of fibrous tissue, containing gland structure, mostly normal, a few glands from three to four times the natural size, with flattened epithelium. The cyst

lining was of from two to eight layers of transitional epithelium, the superficial layer being cylindrical. This was a cyst of the duct.

CASE 12 (Gyn. Path., 4535).—Age 35. Cyst 4.5x3x3 cm., egg shaped, thin walled, transparent, and showing on the inner surface several small, shallow, sickle-like openings of the dilated secondary ducts. The cyst wall was of fibrous tissue; the gland elements were mostly normal, a few dilated. The cyst lining, in some places, consisted of one layer of high, pale staining cells, side by side, transitional epithelium from 2 to 6 r more layers thick. Unfolding of ducts and glands.

CASE 13 (Gyn. Path., 4643).—Age 23. Size 7 mm. The cyst was situated in the left labium and was very hard.

CASE 14 (Gyn. Path., 5019).—Age 39. Cyst 3 cm. in diameter. The cyst wall was of fibrous tissue, and the cyst lining was composed of one layer of cylindrical epithelium.

CASE 15 (Gyn. Path., 5174).—Age 34. Cyst small. The cyst wall was of fibrous tissue, and the cyst lining was made up of one layer of columnar epithelium, with the nuclei at the base of the cells.

CASE 16 (Gyn. Path., 5250).—Age 17. The cyst wall was of fibrous tissue and the cyst lining was composed of several layers of transitional epithelium; at some points there was one layer only.

CASE 17 (Gyn. Path., 5509).—Age 25. Cysts very small, multiple. The cyst wall was mostly of gland tissue; there were a few cysts varying from a pin point to 2 mm. in diameter. The cysts were mostly dilated secondary ducts, lined in part by transitional epithelium, and in part by one layer of cylindrical epithelium.

SOME NEW VIEWS RESPECTING THE HOROPTER.*

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No question in physiologic optics has been more attractive to investigators in that department of research than that of the horopter, yet, although the ablest thinkers have devoted themselves to it with great earnestness, the subject has remained an unsolved enigma. That the doctrines and theories which have been advanced have not solved the problem, no one who has studied it can doubt. The most notable of all these doctrines, that of the great master Helmholtz, is as unsatisfying, if not more unintelligible, than the others. So far as his marvellous array of abstruse mathematical formulæ served to indicate even a single horopter it was an impossible one both in form and position.

If we inquire into the cause of the failure to solve this interesting and, as I believe, this most important problem, we shall find that it is due to a misunderstanding of the two fundamental principles on which any doctrine of horopters must be formed.

These two principles are: 1. The doctrine of corresponding points. 2. The doctrine of the directions of the meridians of the retinas.

The first of these principles has been stated incorrectly by all investigators alike, while the second has been incorrectly affirmed by Helmholtz, and those who have accepted his conclusions drawn simply from his own peculiarities.

We have, then, first of all to examine these two fundamental principles.

The doctrine of corresponding points as stated by Helmholtz, who expresses the generally accepted view, is as follows:

1. "On apparent vertical concordant lines, points which are at the same distance from the vertical horizon are concordant."

2. "Points, which in the retinal horizons are at equal distances from a point of fixation, are corresponding points."

Le Conte expresses the law by saying that if a pair of dividers is opened until they are the exact distance apart of the central spots (maculæ) and, while being held level, touch many points, all these points are corresponding points.

Helmholtz proceeds to show that the corresponding points in the two visual fields are also at the same height and separated by the same angle. He illustrates his proposition by stereoscopic and other diagrams which are drawn on a flat surface.

It requires but a moment of consideration to discover that there is here a marked inconsistency.

If points equally distant in the plane of the visual field, as represented by these flat surfaces, are corresponding, as Helmholtz asserts and proves, then it is impossible that points equally distant in the retinal fields should also be correspondent.

Every proof that Helmholtz brings to sustain his interpretation of the law of corresponding points is positive evidence of the incorrectness of his view and the view which has been universally accepted.

If then, the accepted view is incorrect, what is the correct statement of the law? Accepting the law that points in the plane of the visual field, which are at equal distances and separated by equal angles are corresponding points in the visual field, it is at once apparent that the retinal corresponding points must be variable in distance depending on their relative distances from the points of fixation, the muculæ.

I have elsewhere defined corresponding points of the retinas as "those points in the retinas which answer to proportional degrees of rotations of the eyes about the centers of rotation." They represent, therefore, the relation between the muscular and the retinal senses.

The belief that for retinal spatial locations equal distances in space must be impressed on equally distant points of the retina is an entirely false conception of the functions of that organ.

That some recent observations have appeared to show that estimation of space may be, within very limited extents, made without corresponding movements of the eyes, does not invalidate the proposition that the corresponding points of the retinas represent the relation between the muscular and retinal senses. We shall presently see that another element enters into the ideas of space which emphasizes the psychologic side of the question to the modification of the purely mechanical side.

The second fundamental principle in the question of the horopter is the position of the meridians of the retina relative to the cranium.

Helmholtz, examining by a method not fully reliable, found that, as he believed, the vertical meridians of the retinas leaned outward, while the horizontal meridians remained exactly horizontal. This does not permit of a discussion of this proposition or the reason for these apparent peculiarities. I have elsewhere shown the probable reason for this error. It is sufficient to say that the conditions of adjustment of the great philosopher's eyes, which he has incidentally revealed, confirm the belief that his meridians leaned out, but there is no reason to suppose that his observations on his own horizontal meridians were correct. There is every reason to believe that they were erroneous.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

The leaning out of his vertical meridians did not, as he assumed, represent the typical adjustment of eyes; they were, in fact, rather exaggerated instances of an anomalous state.

The clinoscope has cleared this subject of all mystery and shows that there are various anomalies of the positions of the vertical—and, therefore, of all—meridians just as there are various anomalies of refraction. But the typical position for the vertical meridians is precisely vertical.

Now, assuming the law of corresponding points as I have stated it, and assuming the verticality of the vertical meridians, the necessity for all the involved and almost endless mathematical formulæ of Helmholtz in determining a horopter is eliminated and these intricate

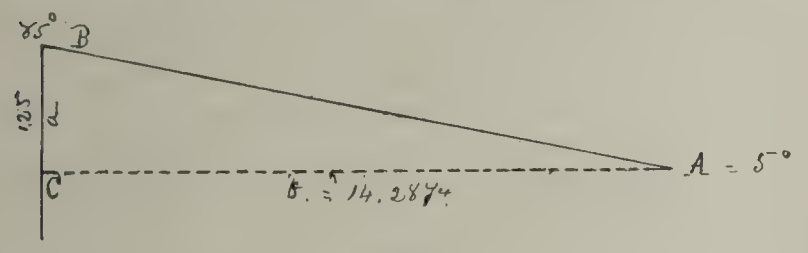
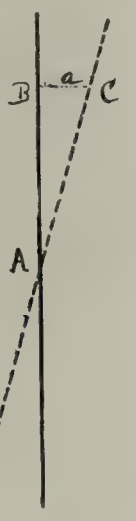


Fig. 1.

formulæ may be replaced by simple problems of plane trigonometry.

The horopters of former investigators have been based on a doctrine of corresponding points of equal measurements on the surface of the retina. The horopter, according to the present reasoning, is based on corresponding angular displacements which vary in the two eyes in



$A = 1° 35'$

$\frac{a}{b} = \text{Tan } A$

$\text{Tan } A = .02764$

$b = 5$

$a = 5 \times .02764$

$= 0°.1382$

Fig. 2.

proportion as a given object in the visual field is removed to one side of the point of fixation.

With the data at our command derived from these two basal principles, we may then compute a horopter when the eyes are directed straight forward to a point at infinite distance, the head being in the primary position, but for other positions further data are demanded. In convergence, and with depression of the plane of vision, the phenomena arising from the laws of torsions must enter into our computations.

For example, if the two eyes are in convergence and the plane of regard is depressed the horizontal meridians of each eye will tilt downward toward the temporal side, and the upper end of the vertical meridians will tilt out while the lower ends will tilt in. These tiltings in typically adjusted eyes are accurately proportioned to the lateral and ascensional displacements of the eyes. Here permit me to diverge from my topic long enough to allude to the absurd custom of some writers who confound the two absolutely different and independent conditions, torsions and declinations, the first physiologic rotations, the other anomalous adjustments.

Employing all these data we are then in position to determine the general positions of a horopter for different adjustments.

In the case we have already supposed, with the eyes directed to the horizon and at infinite distance, the

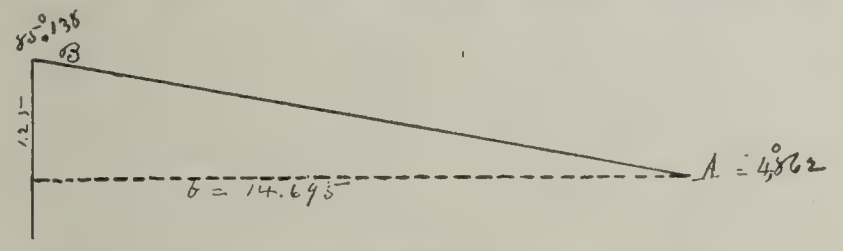


Fig. 3.

horopter will be formed in relation with the distant point of fixation and will be a plane surface at a right angle to the plane of regard. If we were to accept only a purely mechanical interpretation of visual phenomena, in this case all objects nearer than the point of fixation would be excluded from the horopter. As a matter of fact there is a subjective horopter, formed on the basis of such unconscious conclusions as enter into the experiment of Dove, where distinctly heteronymous images are seen not only single but correctly located as to distance.

The subjective horopter is of the utmost importance, and is governed by fixed laws. The physical horopter, including the points in space actually impressed at corresponding points of the two retinas may be regarded as the skeleton, while the subjective horopter, including points in space which are impressed at such points on the retinas as correspond to a demand for certain exact movements of the eyes necessary in order to place the image at the macula of each eye constitute a mental assemblage of the lineaments of harmonic visual impressions. In a rude way we may compare this subjective horopter to the overtones of a musical sound. The fun-

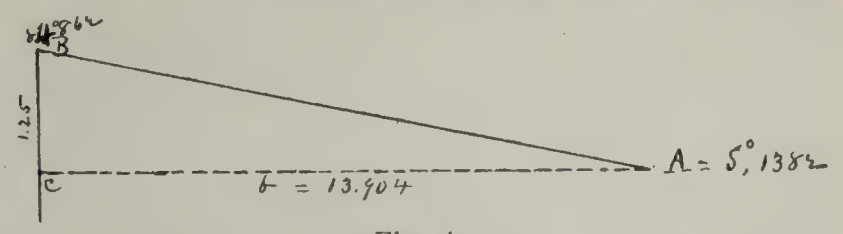


Fig. 4.

damental tone by itself is not pleasing; it is noise. It is the skeleton of the tone. But when combined with its multiplicity of overtones, tones which even the ear of the expert musician fails to differentiate, the musical tone finds its body and affords pleasure to the listener.

In the subjective horopter the consciousness of the required movements takes the place of the actual movement as it does in the Dove experiment.

This doctrine of a subjective horopter does not by any means provide for a confused jumble of space perceptions either in the retinas or in the mind. Every object in the subjective horopter is as much subject to the

laws of the angular valuation of muscular movements as are the objects in the physical horopter. Keep in mind the principle that while the image of a given point in space may fall on physically non-corresponding points of the retinas, a subliminal consciousness determines the relative positions of these two non-corresponding points to the maculæ of the two eyes and concludes on the movements which would be demanded to make an actual adjustment for the maculæ were such movements to be executed, and it is this unconscious conclusion, based on accurate data, that places the object, singly, in its appropriate position in the field of view and at the proper distance relative to other objects in that field.

In our horopter, objects less distant than the point of fixation may still be within this subjective horopter, their images being impressed on the two retinas at corresponding points for the lines of incidence on one or other side of the maculæ. Then they will appear, as in the spark in the Dove experiment, as single. The principles controlling the psychic phenomena in that experiment are, in this case, modified to meet the different conditions. Thus, a great number of objects within a fairly wide range may be brought within a perfect horopter.

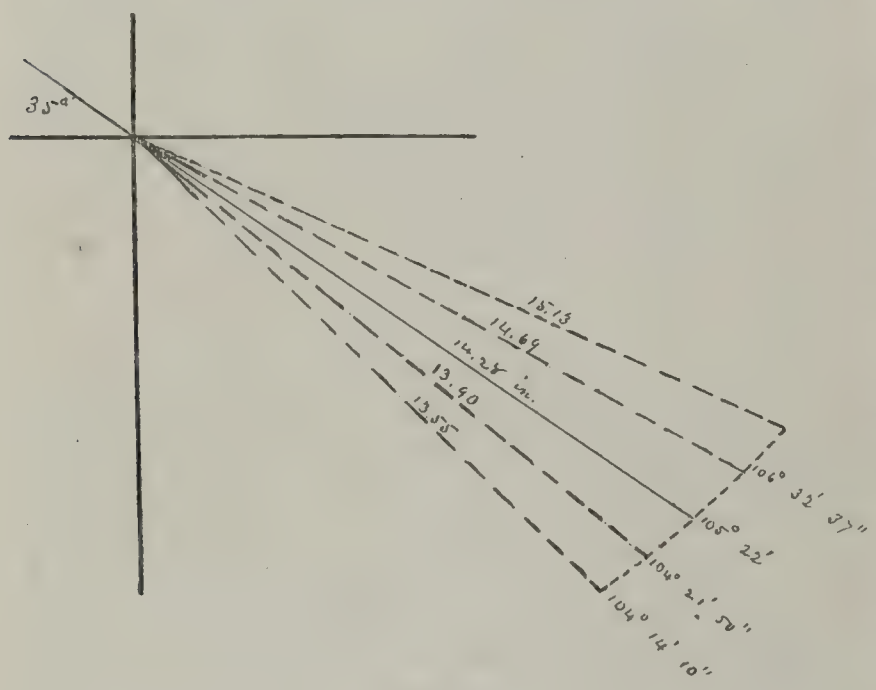


Fig. 5.

If the direction of the gaze is changed while the head remains in the primary position a new horopter must be and is formed.

Let the gaze be directed downward and to a point a few feet distant. The torsional element is so slight that the former calculations will very nearly give the position of the horopter. Should, however, the gaze be fixed on an object, as for example, the page of a book held in the ordinary position of reading, say, with the point of fixation in the median plane, the plane of regard depressed 35 degrees, and with the lateral deviation of the visual lines (the convergence) for each eye 5 degrees, while the distance between the nodal points is assumed to be 2½ inches, the problem becomes more complicated. We may determine, from these data, the distance of the horopter and, taking the torsions into consideration, the position of that horopter relative to the plane of regard.

The distance of the point of fixation from the base connecting the two nodal points is determined by the formula, b/a=Cot A, in which A=5° (the lateral angle), a=1.25 (½ the base line) and b the distance required (Fig. 1).

This distance is found to be 14.2875 inches, and at this distance the image of the point of fixation is exactly at the macula of each eye.

Images of points in the horizontal line passing through the point of fixation on the page require special consideration here, and there enters at once an apparent difficulty, for the horizontal meridians of the two retinas are no longer horizontal by the law of torsions. If we consult Helmholtz's table of torsions we find that the horizontal (and vertical) meridians have, by a convergence of 5° in each eye and a depression of the gaze of 35°, been tilted, the horizontal with the outer part down and the inner part up to the extent of 1°35′.

Is it possible now for the images of points of a horizontal line on the page to be impressed at the horizontal meridians of the two retinas, seeing that the former is exactly horizontal and the latter are tilted?

It is not only possible, but in fact exactly because of this tilting of the retinal meridians, that the images of points in the horizontal line of the visual field will be impressed precisely at the horizontal meridians of the retinas.

Without giving space to the mathematical demonstration of this statement, we pass to inquire in what position will lie a horopteric line running up the page and through the point of fixation.

Let us select a point of 5° above and another 5° below the point of fixation for the determination of the direction of this ascending line.

It has been shown that the point of fixation is distant from the base line 14.2875 inches. Will the distances to the points 5° above and 5° below be the same? Evidently not, for, in order that the image of the upper point on the page shall be impressed at the vertical meridians, the angle of incidence must be less, since owing to the tilting of the vertical meridians they are less widely separated below the maculæ (where the upper image is impressed) than at the maculæ; and because the vertical meridians separate above the maculæ the angle of incidence from the lower point will be greater.

Taking these facts with the given data, we find first the actual extent of the spreading at a point 5° above the macula. This is determined by the formula, a/b=Tan A, in which A=1°35′, b=5° and *a* is the distance through which the point B has been moved to C (Fig. 2) by the act of torsion.

The extent of change of position outward of this point then is, by the formula, 0°,1382. Hence, in determining the distance of the upper selected point we must subtract from the lateral angle of 5° the extent of the removal of the point B, or 0°,1382. Also for determination of the distance of the lower selected point, we must add, 0°,1382 to the 5° (Fig. 3). Then by the first formula, b/a=Cot A, in which A=4°,862, or 5°,1382, we obtain the distances 14.695 inches for the upper selected point, and 13.904 inches for the lower. Connecting these through the point of fixation we have a line representing the horopteric line running up the page of the book which will form an angle above the line from the fixation point of 105, which represents also the angle at which the book should be held in order to form a perfect horopter under the conditions given and with typically adjusted eyes (Fig. 4).

If these calculations are carried further, it is found that in the space of 10° up and down the page there is a very slight curve, as is shown by the diagram (Fig 5).

Experimental research has fully confirmed the results of these calculations.

The principles which have been shown in these calculations may be applied to any other line in the field of what may be called the objective horopter, while the innate conception of the comparative relations of objects not in this objective horopter serves for the formation of the subjective horopter.

A horopter will be formed in relation to every point of fixation and with as strong, if not with a much stronger, impulse than that of accommodation. Difficulties will be overcome when possible, at the expense of much effort and the habitual failure to make such adjustments of the eyes as to form a fairly complete horopter is attended by unpleasant and even serious results.

The horopter then, is not the over-refinement of scientific curiosity. It is a practical, even momentous subject worthy of the most earnest consideration.

In what has been said it has been assumed that the adjustments of the eyes are typical. Unfortunately such adjustments are not only not universal, but anomalous conditions of adjustments are of great frequency.

Such anomalies may serve as slight hindrances in the formation of a horopter or they may absolutely prevent it. In either case, the instinct to conquer the difficulty is present and efforts are made to overcome the obstacles.

In order to illustrate this proposition let us take our supposed case of one reading with a convergence of the eyes of 5° each, with a depression of the plane of regard of 35°. If there is perfect adjustment of the eyes the horopter is formed as we have shown.

Suppose, however, that the person thus engaged with the book has an adjustment of the eyes of 10° of arc higher than the typical adjustment; such cases are not rare, they are, on the contrary, very common. Consider what must occur. This person must depress the plane of regard, not 35°, but 45°. But with a convergence of 5° each eye, and a depression of 45° the torsion is no longer 1°35′, but much more, therefore no horopter will be formed if the head of this reader remains in the same position as that of the person at first supposed. Two contingencies present themselves, the field of view may remain confused or the reader may advance the head 10°. This he prefers to do, and by this means a compromise is made by which a fairly good horopter is obtained. The same person advances the head also in walking or in conversation.

But suppose again that this person has the eyes adjusted too low by 10°; in such a case no horopter can be formed at the proper position. It can be done by throwing the head backward. We see these people with their chins in the air everywhere.

Again, the reader may have anomalous declinations, and here an obstacle to the formation of the horopter is interposed and the anomalous adjustments just referred to may be and often are complicated with anomalous declinations.

Are these and other maladjustments simple inconveniences? They are, on the contrary, conditions of great moment.

Let us recall the person with the eyes adjusted too high and who throws the head forward in order to form a horopter. It is in this class that we find the consumptive. It is no accidental coincidence. The consumptive is, in almost all instances, a person who has by the malposition of the air passages induced by the automatic efforts to form the horopter, restricted the circulation of air in the upper bronchi and has thereby offered a hospitable welcome to the bacillus of consumption. I speak from experience when I say that if before the ravages of the parasite have become too extensive the pose of the head is favorably modified by a change in the ocular adjustments the introduction of full currents of fresh air into the upper part of the lungs will banish the intruder and save the victim.

So, too, we might point to the numerous ills induced by the opposite malposition of the head, but I need not dwell on this. It is proper to add, however, that certain forms of declination will induce these undesirable head positions as well as the high or low adjustments of the eyes.

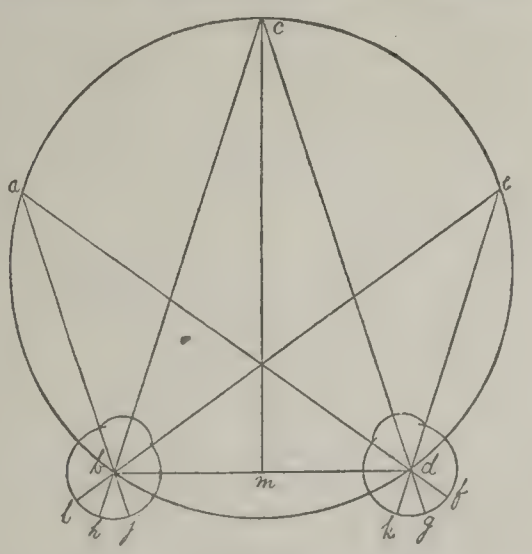
These are conditions to which I have more than once referred, but it will not be too often till greater importance is attached to the statements.

A word about strain. The results of these atypical conditions are not so much, as nearly all writers about them seem to think, due to strain. For example, it is not the strain on the inferior recti in the case of the too high adjustment. It is the confusion from the excess of torsion which induces a perplexing effort of all the muscles of the eyes as well as a modification of the pose of the head. It would serve the cause of correct thinking if the phrase "eye strain" were completely eliminated from our vocabularies.

I have endeavored to condense into an exceedingly brief space one of the most important subjects with which our ophthalmologist can occupy his attention. If the setting forth has been incomplete I trust that I may at least have created interest in the subject.

DISCUSSION.

DR. G. C. SAVAGE, Nashville, Tenn.—I will be able to prove, by means of this illustration, that corresponding retinal points are points similarly related to the two maculas, not by linear measurement but in degrees of arc. All are agreed that with rare exceptions the macula of one eye corresponds with the macula of the other eye. I had thought that we all likewise agreed that Helmholtz was right when he taught that all other corresponding retinal points bear a similar relationship to the maculas. If Helmholtz had correctly constructed his horopter he would have had at hand a mathematical proof of the correctness of his statement. The true horopter, the isogonal circle, or the monoscopter, is constructed through the point of fixation and through the centers of rotation of the two eyes. These three points, as shown in the illustration, are *c*, *b* and *d*, and the circle itself is *c-a-b-d-e*. Every point on this circle



capable of throwing light into the two eyes, will be seen singly by the two eyes, for the images will fall on retinal points that correspond. In the illustration the visual axes *h-c* and *g-c* and the indirect visual lines *j-a*, *f-a*, *l-e* and *k-e* all lie in the plane of the circle *a-b-d-e-c*. It is evident that this plane prolonged backward would include the horizontal retinal meridian of each eye. The arc *l-j* is a part of the one horizontal retinal meridian and the arc *k-f* is a part of the other horizontal retinal meridian. The macula in one eye is at *h* and in the other eye is at *g*. The macula *h* corresponds with macula *g*,

for the visual axis *h-b-c* intersects the visual axis *g-d-c* at *c*, therefore point *c* is one point for the two eyes. Point *l* in the one eye corresponds with point *k* in the other eye, for the visual line *l-b-e* intersects the visual line *k-d-e* at *e*, therefore point *e* is one for the two eyes. Since *l* and *k* are corresponding retinal points it only remains for me to prove that *l* bears the same relationship to *h* that *k* does to *g*. The inscribed angle *c-b-e* is equal to the inscribed angle *c-d-e*, for each is measured by half the arc *c-e*. The angle *l-b-h* is equal to the angle *c-b-e*, for they are opposite angles; and the angle *k-d-g* is equal to the angle *c-d-e*, for they are opposite angles. Therefore, the angle *l-b-h* is equal to the angle *k-d-g*. The angle *l-b-h* is at the center of retinal curvature and is measured by the arc *l-h*, and the angle *k-d-g* is at the center of the retinal curve and is measured by the arc *k-g*. The arc *l-h* must be equal to the arc *k-g*, therefore *l* is related to *h* as *k* is related to *g*. The same truth is shown as to retinal points *j* in the one eye and *f* in the other eye. And this would be true however much the radius of curvature of the one eye might differ from the radius of curvature of the other eye. The similarity of location of corresponding retinal points is in degrees of arc and not in millimeters. What has been proved of *l* and *k* and of *j* and *f* as corresponding retinal points, could be proved of all corresponding retinal points lying in the horizontal retinal meridians. Using the same figure, the proof can be applied to points lying in the vertical meridians. With the two eyes fixed, rotate the plane of the circle on the chord *b-d* as an axis, and thus generate a surface of binocular single vision. As the rotation is effected what were the visual axes (*h-b-c* and *g-d-c*) become indirect visual lines, the retinal ends of which are made to move in the vertical retinal meridians. Elevating this plane in front 5 degrees depresses it behind 5 degrees; elevating it in front 10 degrees depresses it behind 10 degrees, and so on for any extent of rotation. The retinal end of the visual line *h-b-c* and the retinal end of the visual line *g-d-c* are made to describe arcs of equal degree. What is true of corresponding retinal points in the two horizontal and the two vertical retinal meridians must be true of corresponding retinal points in any two oblique retinal meridians that are similarly related to the vertical and horizontal meridians. Therefore, I conclude that Helmholtz taught the truth concerning corresponding retinal points. Correct as to corresponding retinal points, Helmholtz was in error concerning the normal relationship of the vertical retinal meridians to each other. He should have known that, in accordance with the supreme law of corresponding retinal points, the vertical axes of the eyes, which lie in the planes of the vertical retinal meridians, must be kept parallel with each other, except in cases of non-symmetrical oblique astigmatism. Except for the oblique muscles, the vertical axes of the eyes would not always be correctly related. The law relating to the oblique muscles is that they shall compel the vertical axes of the eyes to remain parallel with the median plane of the head, regardless of the position of the point of fixation in space.

DR. GEORGE T. STEVENS—I think that every one who has been a student of physiologic optics recognizes the diagram which has just been thrown on the screen by Dr. Savage as the familiar diagram of Müller. It has figured in text-books for many years. As a practical horopter it was and is an impossibility. It is hardly worth while to discuss the merits of Müller's horopter, which was rejected by experts long ago. Nor has Helmholtz' horopter been any more satisfactory. Dr. Savage has told us that there is no torsion in the changing relations of the eyes except such as results from defects. If this were true, if there are no physiologic torsions, we must abandon the law of Listing. That law has stood for many years and is likely to remain for still many more years. According to that law, in the example which I have chosen, with a depression of 35 degrees and a lateral angle of 5 degrees each eye, there must be torsion of 3 degrees or there will not be single vision. We shall never abolish Listing's law nor shall we find the eyes unchanged in their meridianal relations by their various adjustments. Dr. Savage tells us that he some time since pointed out that the doctrine of Helmholtz relating to the meridians was incorrect. That was not difficult, since I had demonstrated the fact clearly, but it had not been demonstrated until the clinoscope was introduced, when immediately the error was clearly shown.

DENGUE IN THE ISTHMIAN CANAL ZONE.

INCLUDING A REPORT ON THE LABORATORY FINDINGS.*

DUDLEY NEWCOMB CARPENTER, M.D.
Surgeon U. S. Navy.
AND
RICHARD LIGHTBURN SUTTON, M.D.
Assistant Surgeon, U. S. Navy.

Of the several tropical diseases whose etiology is yet in question, dengue undoubtedly stands at the head of the list in importance. It has long been considered an infectious disease, as the writings of Ornstein,[1] Eulenberg,[2] Graham[3] and Hirsch[4] attest, while we find Leichenstein,[5] Malie,[6] von Duringe[7] and a half dozen others presenting almost indisputable evidence that it is contagious, in the technical sense of the word, as well.

TABLE 1.—Differential leucocytic count in dengue, showing changes in various stages of the disease.

Stage of Disease.	Poly-nuclears.	Large Mono-nuclears.	Trans-itionals.	Small Mono-nuclears.	Eosino-philes.	Mast Cells.
On admission	32.2	7.9	36.6	23.	0	.3
First drop	41.	5.4	6.7	46.8	0	0
Quiescent period	40.6	6.3	5.8	47.	.3	0
Second rise	50.8	7.6	5.2	33.6	4.	0
Second drop	52.5	5.9	5.4	25.1	11.	0
Convalescence	50.	5.3	4.2	30.3	9.7	0

McLaughlin[8] of Texas, in an exhaustive series of studies begun as far back as 1885, undoubtedly establishes the clearest claim to the discovery of the causative agent, but in spite of his clear and concise description of the method of procedure employed, very few investigators' have been able to verify the presence in dengue blood of the micrococcus which he found in such large numbers.

Our lack of exact knowledge concerning the morbid anatomy of this infection is principally due to the extremely low mortality, the death rate being 1 per cent. (Hare) or less.

TABLE 2.—Differential leucocytic count in dengue, showing changes in various stages of the disease.

Stage of Disease.	Poly-nuclears.	Large Mono-nuclears.	Trans-itionals.	Small Mono-nuclears.	Eosino-philes.	Mast Cells.
On admission	52.4	3.8	7.1	36.3	.4	0
First drop	54.	3.9	6.4	34.3	.3	.1
Second rise	69.4	6.9	5.6	17.8	0	.3
Second drop	52.1	6.9	2.4	38.2	.3	0
Convalescence	33.1	6.3	9.3	45.9	3.	0

Consequently we are forced to depend, in a great measure, on examinations of the blood and excreta for information concerning the pathologic changes which are occurring.

During the past spring and summer, while stationed on the Isthmus of Panama, it was our good fortune to be brought into intimate contact with some 200 cases of the disease, and, although no startling discoveries were made, the laboratory findings may serve to direct some future investigator toward the true cause.

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* A preliminary report appeared in THE JOURNAL, Dec. 17, 1904, p. 1869.

1. Zur Dengue, Frage, Deutsche med. Wochenschrift, 1890.
2. Realencyklopedie, 1886, v.
3. Journal of Tropical Medicine, July, 1903.
4. Chrysochoos in Smyrna.
5. Nothnagel's Specielle Pathologie und Therapie, No. 4, vol. i.
6. Diction. Encyclop. des Sciences Medicale.
7. Monatschrift für praktische Dermatologie, 1890.
8. New Orleans Med. and Surg. Jour., 1885, n. s., xiii; THE JOURNAL A. M. A., 1886, vi; Boston Med. and Surg. Jour., 1886, cxiv; Texas Med. News, 1895-6.

The results from only typical cases are given; in those instances where there was an abortive second rise or if there was the slightest doubt concerning the possible presence of malarial organisms, as evidenced by periodicity, the microscope or the effect of quinin, the record was not used. The selections could be carefully made as all laboratory data for every patient admitted to the hospitals at both Bos Obispo (after the identity of the disease became fully established) and Empirado was systematically placed on file from the time of admission until convalescence was well established.

In spite of the fact that repeated searches were made for micro-organisms in the blood, such as those described by McLaughlin, various stains and methods (Wright, eosin and methylene blue, Ehrlich's tri-acid and Romanowsky-Nocht) being employed, at no time was their presence demonstrated.

Occasionally the somewhat striking refractive changes incident to "stippling" (Schuffner) are somewhat puzzling, but it is hardly possible that this condition could have been mistaken for minute organisms by previous observers.

Our first blood examinations were all made from fresh specimens, encircled by vaselin rings to prevent evaporation. The use of unstained blood in searching for the plasmodium of malaria is not to be compared in value to the results obtained when reliably stained mounts are employed.

The non-pigmented, piroplasma-like bodies (?) seen by Graham were frequently found in many of the unstained specimens. Inasmuch as they were also present in blood from a large number of cases of epidemic catarrh examined while on board the U. S. S. *Illinois* at Newport News, some two years ago, it is probable that they are not foreign bodies, but that they are simply the result of necrobiotic changes within the red cell. A stained specimen from the same subject, no matter how careful the technic employed, invariably failed to show anything.

But little was learned regarding the mode of conveyance of the infection owing to the comparative rarity of the anopheles we were compelled to make use of various species of the culex:[9] *C. consobrinus* (Desv.) *C. stimulans* (Walk.), *C. tarsalis* (Coq.), and *C. taeniorhynchus*, the *Conchyliastes posticus* (Wied.) and the *Stegomyia fasciata.*

Young but well-grown insects of the above genera

9. Howard's classification of species is used.

TABLE 3.—Showing urinary findings at various stages of dengue.

Case.	Stage of Disease.	Color.	Specific Gravity.	Albumin.	Reaction.	Phosphates.	Chlorids.	Sulphates.	Urea.
1.	First drop	Light amber	1.032	no	acid	23.	13.	1.	1.404
	Second drop	Amber	1.015	no	acid+	10.	3.3	.5	1.026
2.	First drop	Amber	1.030	no	acid	20.	9.	1.	1.566
	Second drop	Dark straw	1.032	no	acid	16.	3.	1.	1.62
3.	First rise	Dark amber	1.030	no	acid	18.	9.	3.	1.728
	Convalescence	Straw	1.014	no	acid	6.	5.	1.	1.08
4.	First rise	Light straw	1.020	no	acid	10.	13.	1.	1.392
	Second rise	Amber	1.010	no	acid	8.	5.	.5	.977
5.	First drop	Amber	1.022	no	acid	12.	8.	.5	2.052
	Second drop	Amber	1.018	no	acid	10.	5.	1.	.648
6.	First rise	Light amber	1.020	no	acid	10.	6.	.5	4.32
	Second rise	Amber	1.032	no	acid	20.	10.	1.	1.638
7.	First drop	Reddish	1.026	no	acid	10.	4.	2.	1.756
	Convalescence	Reddish	1.020	no	acid+	11.	5.	.5	2.511
8.	First drop	Amber	1.030	no	acid	20.	5.	1.	2.862
	Second rise	Dark straw	1.022	no	acid	10.	5.	1.	2.322
9.	First drop	Dark amber	1.036	no	acid	5.	5.8	.2	1.646
	Second rise	Dark amber	1.026	no	acid	20.	15.	1.	3.074
10.	First drop	Dark straw	1.028	no	acid	15.	10.	1.5	2.886
	Quiescent stage	Amber	1.022	no	acid+	17.	7.	1.5	2.74

TABLE 4.—Showing number of red and white corpuscles, with hemoglobin percentage and differential leucocyte count at various stages of dengue.

Case.	Stage of Disease.	Red.	White.	Hb.	Polynuclears.	Large Mononuclears.	Transitionals.	Small Mononuclears.	Eosinophiles.	Mast Cells.
1.	First rise—top	5,385,520	3,132	100+	31.2	7.9	37.	23.3	0	0
	Second rise—top	4,425,000	3,156	100	29.4	6.3	7.	51.8	3.1	0.3
2.	First rise—top	5,040,000	5,422	100	73.5	1.3	9.4	17.1	3.2	0
	Convalescent	4,604,000	5,154	95	30.5	6.6	12.	40.	12.	0
3.	First rise—top	4,056,000	4,433	100	83.5	2.1	1,2	7.1	.7	0
	Second rise—top	5,040,000	1,866	100+	41.5	2.9	7.9	24.7	22.9	0
4.	First rise—top	4,395,510	6,422	100	73.8	6.4	2.2	16.7	.8	0
	Second rise	5,320,000	8,310	100+	34.4	1.9	9.	52.3	2.4	0
5.	First rise	3,875,000	2,488	100	50.7	7.4	5.1	36.8	0	0
	Second rise—top	5,904,000	4,022	100	34.9	8.8	3.3	7.2	7.2	0
6.	First rise	4,557,776	3,444	95	50.	5.2	6.9	36.3	1.6	0
	Second drop—beginning	5,266,900	7,778	100	30.9	10.2	9.2	45.3	4.4	0
7.	End first drop	5,172,228	4,800	100+	39.7	9.5	5.	44.9	.9	0
	End second drop	5,734,000	4,320	100	26.5	9.1	6.5	57.4	.5	0
8.	First rise—top	5,776,000	3,688	100	44.8	5.3	6.9	40.9	1.9	0
	Second rise	5,104,000	4,266	100+	30.	5.6	6.9	52.8	3.8	.9
9.	First rise—top	5,532,000	4,111	100	65.3	6.1	8.	19.5	.5	.3
	Second rise—top	5,040,000	3,622	100+	51.9	6.6	5.	33.5	4.	0
10.	First rise—top	4,152,000	4,344	95	69.4	6.9	5.6	17.8	0.	.3
	Convalescent	4,504,000	3,977	100	38.1	6.3	9.3	43.9	3.3	0
11.	First rise—top	4,942,216	3,622	100	62.5	4.2	8.8	24.3	.2	0
	Second rise	5,320,000	5,510	95	38.7	5.2	9.2	44.2	2.7	0
12.	First drop	4,640,000	4,210	100	40.	5.	8.8	45.7	.4	0
	Second drop	5,693,332	3,866	100+	40.3	3.6	8.9	47.	.2	0
13.	First drop	5,306,664	5,311	100+	42.3	4.2	6.9	46.5	0.	0
	Convalescent	5,404,400	7,310	100	23.2	7.2	6.2	51.4	12.	0
14.	First rise—top	5,040,500	3,576	95	61.3	2.4	9.2	25.8	.6	0
	Convalescent	5,404,000	5,866	100	49.9	4.4	5.2	31.1	9.4	0
15.	First rise	4,351,610	3,110	100	58.5	5.5	7.8	37.9	.3	0
	Convalescent	4,408,888	4,288	95	30.	5.2	6.8	53.	5.	0
16.	First drop	5,440,000	3,954	100	56.4	4.7	7.	31.	.9	0
	Second drop	4,524,440	3,266	100	53.6	5.8	4.5	24.	12.	0

were taken from the breeding jars and allowed to feed on dengue patients. Each group was then confined in a separate cage for periods of time varying from five to fourteen days, then taken out and carefully dissected on a glass slide.

The stomachs and salivary glands were then examined, both directly and after being treated with a solution of sodium chlorid and various simple stains. No bacteria, piroplasma or zygote forms were found.

The inoculation experiments were unsatisfactory and open to criticism, for the volunteer subjects were not only exposed to the bites of other mosquitoes at any time, but they were also brought into almost daily contact with dengue cases.

CASE 1.—Bitten by *Culex tarsalis* and *Culex consobrinus* that had been allowed to feed on a 4-day dengue patient 10 days previously. No fever appeared in 14 days.

CASE 2.—The experiment was repeated with similar virgin insects that had fed on first, second, third and fifth day patients and that had then been allowed to remain in isolation for from 8 to 14 days. The man bitten by the fifth-day mosquito was taken down with typical dengue 6 days later.

CASE 3.—Bitten by a similarly infected stegomyia which had been isolated 14 days previously. Patient, fourth day. An attack of dengue followed, but not until two full weeks had elapsed.

CASE 4.—The same procedure was carried out with a young *Culex stimulans* which had been infected 11 days prior to the experiment from a 3-day case. No infection resulted.

Other sources of a possible origin for the epidemic were investigated. Scheube[10] and Clayton[11] have fully covered the essential meteorologic factors in a few brief phrases: high temperature, moisture, low levels, lack of air space, dirt and overcrowding.

So many cases had catarrhal symptoms of the respiratory tract (bronchitis, pharyngitis, tonsillitis and coryza) that it seemed to be more than a coincidence and strongly suggested the epidemic fevers of overcrowding so frequently seen on shipboard.

The striking resemblance to influenza is also seen in the leucopenia and the selective action of the toxin on the nervous system. Many who did not complain of pain or soreness in the throat had marked congestion, with white patches, or even ulcerated areas, of the pharyngeal mucous membrane, and the peculiar putrefactive odor observed in cases of epidemic catarrh was characteristic of these cases also.

Swabs from eleven throats were examined simply by rolling on a slide and, after fixing, staining with Loeffler's solution of methylene blue, to determine the predominating bacteria present. More than the usual number of leptothrices and streptothrices were seen and many groups of tiny diplococci, free or in epithelial cells.

In preparations from the pus in a case of tropical bubo, occurring as a sequel to dengue, the small diplococci were again found in large numbers, and were seemingly the only organisms present. The increase of small, mononuclear lymphocytes points to an invasion of the lymphatic apparatus.

Unfortunately, our outfit for making bacteriologic cultures was incomplete, and no efforts at either isolation or cultivation were possible.

It would be extremely interesting to carry through a series of cultures, especially on blood serum and blood-streaked agar, from the blood, enlarged glands and throats of typical uncomplicated cases.

10. Diseases of Warm Countries.
11. Encyclopædia Medica.

The appended table of urine examinations shows decided increase in phosphates. They often appeared as a heavy cloud in freshly voided specimens. No experiments were made at the time to see if clear urine would have resulted from the previous internal administration of acids. The amount of urine passed in twenty-four hours was decreased. Albumin was hardly more than a trace when present. Two cases in which it appeared were atypical ones in the early part of the epidemic.

The estimation of phosphates, sulphates and chlorids was made by the use of the centrifuge. The urea was measured by the modified Davy's method and is open to criticism, as the low percentages of the first group were probably due to lime employed not being so good as that obtained later.

The urine in 122 cases of dengue gave albumin in six instances, about 4.9 per cent. In 41 cases of malaria it was found five times, or 12.2 per cent.

Our conclusions are as follows:

1. Dengue is one of the few fevers in which a leucopenia persists from the first.

2. Blood examinations are of great value in differentiating between malaria and dengue. Even though no parasites be found, a slight leucocytosis with decided increase in the percentage of large mononuclears and transitionals is indicative of the former, while a leucopenia, with a normal differential leucocytic count or varying degrees of a small mononuclear lymphocytosis and a marked eosinophilia late in the disease, is characteristic of the latter.

3. Albuminuria is seldom seen in an ordinary attack of dengue, and then only in small amounts. The exact opposite is true of yellow fever.

4. The period of convalescence in dengue is almost invariably ushered in by a pronounced small mononuclear lymphocytosis which persists for several days.

5. It is suggested that the causative agent is a small diplococcus or a delicate bipolar staining bacillus closely resembling Pfeiffer's organism. It is probably transmitted by the respiratory tract, and its virulence is much increased by the presence of the essential meteorologic factors and by overcrowding.

Clinical Report.

BILATERAL FACIAL PARALYSIS,

WITH SENSORY AND REFLEX DEFECTS, POSSIBLY DUE TO LA GRIPPE.*

F. W. LANGDON, M.D.
CINCINNATI, OHIO.

This case was referred to me by Dr. J. C. Oliver of Cincinnati, with request for examination and opinion.

Patient.—The subject of the conditions here reported was a teacher, 51 years of age, married, and the father of three healthy children, aged, respectively, 20, 18, 11.

I saw him at the Presbyterian Hospital, Cincinnati, in March, 1904. He was about 5 feet 10 inches in height, well developed, fairly nourished, of dark complexion and hair. Not evidently anemic. Family and personal history good.

Present Illness.—His chief complaint was of headache, which was located in the occipital and both mastoid regions; it was dull in character and had persisted since its onset, five weeks before. He also complained of inability to close either eye, which was evident.

The onset of his trouble he attributed to an attack of al-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

leged la grippe, five weeks previous, manifested by sneezing, chilliness and malaise. He kept at his work, however, for two weeks, then took to his bed for about two weeks. There was no facial or other paralysis up to this time. He then went on a journey of 50 miles by rail, and the next day noted that he could not close his right eye. Three days later there was inability to close his left eye.

Examination.—Three days after this he came under my observation and presented the following conditions: Patient in bed. Complete paralysis of both facials, upper and lower divisions, inability to close either eyelid. The eyeballs rolled up and outward when he attempted to close the lids. He could not wrinkle forehead, frown or smile. The lower lip drooped and could not be approximated to the upper, giving to the face an idiotic expression strangely at variance with the intelligence of the patient as manifested in his conversation. He could protrude his tongue well and move it in all directions but could not roll it up to form a longitudinal gutter; an interesting confirmation of the supposition that the tongue is supplied in part by the facial as well as largely by the hypoglossal.

His speech was blurred, owing to the defective lip movements, with some difficulty in swallowing, especially liquids.

As regards the other cranial nerves: The ocular movements and pupillary reactions were good. The masseters and temporals acted well. The mouth felt to him unduly dry.

Hearing was defective, watch tick heard at one inch. (This, he states, is an old defect.) He hears voices well. He could open his mouth forcibly against resistance. There was some tenderness on pressure in front of both mastoid processes.

Motor power in the trunk and extremities was good. Grasp, right, 105; left, 90 (normal). No evident muscular tremor or wasting. Sensation to touch, pain and temperature impressions were good.

Reflexes: The knee-jerk, March 7, was absolutely absent on both sides, even to re-enforcement. Plantar reflexes present and active, flexor in type. Visceral reflexes were normal. Vasomotor and trophic: There was free sweating of both legs from the knees down, without obvious cause.

Subsequent History.—Three days later, March 10, he came for further examination. He walked well but felt weak.

Pulse 72, of fair quality and volume. Heart clear. Grasp, right, 100; left, 95. Legs still sweating excessively.

Face still paralyzed, both sides, upper and lower divisions.

Taste absent on right side to salt, sweet and bitter. Present on left side, but dulled and uncertain. The knee-jerks had returned and were equal, but considerably reduced.

Four days later, March 14, he walked to my office, nine blocks; said he felt a little confused in his head, but did not indicate it in thought or action. Pulse 72, fair tension.

He could raise the right eyebrow slightly and draw the right angle of mouth slightly upwards. He could not close the eyes completely. Could not taste sweet on right or left sides of tongue. Calls bitter "sour" and salt "sour" on right side. Speech was better and food and liquids were managed with little difficulty.

Treatment.—The first electrical tests were made at this time. To faradism all facial muscles responded, very sluggishly. To galvanism, less sluggishly, but not quickly. Kathodal contraction was greater than the anodal contraction.

The knee-jerks were present, equal, and stronger than four days before, but not fully normal. At this period the patient decided that his interests demanded his return home.

Addendum.—A letter from the patient, dated August 12, 1904, states: "My recovery has been nearly complete, though when very tired can notice my eyes are not fully natural. I took full charge of my business May 1, and have had no interruptions from ill-health."

DISCUSSION.

DR. T. H. WEISENBURG, Philadelphia, emphasized the fact that bilateral facial palsy is rare. He recently saw three such cases in Dr. Spiller's service, in the Polyclinic Hospital. An interesting report of the etiology was made by Sarbo of a case of facial diplegia, where the patient's father, mother and brother had the same disease. Sarbo inclined to the view that in these cases there was a congenital narrowing of the fallopian canal, this acting as a predisposing cause, because of the interference with the blood supply of the facial nerve; the exciting cause was probably an infection, as "taking cold."

DR. HUGH T. PATRICK, Chicago, mentioned the case of a child he saw some months ago with complete double facial paralysis. The electric examination did not show the typical reaction of degeneration, so he was inclined to think it was a tumor, but the subsequent course of the case led him to believe that it could not be a tumor, because the child has not grown worse, being, if anything, a little better. Although he thinks syphilis could be excluded from the case, he put the child on antisyphilitic treatment with no beneficial result. He has come to the belief that the case is probably a very peculiar one of myasthenia gravis. The eye muscles are not involved and the muscles of the extremities are not involved to any great extent. There is simply general weakness, lassitude, ready fatigue and this bilateral facial paralysis. He knows of no other explanation that is adequate, and he does not think that this one is quite adequate.

DR. F. E. COULTER, Omaha, Neb., recently had a unilateral case, of similar origin, occurring in a physician. The knee-jerks became absent, and there was a great deal of sweating. Both plantar reflexes were flexor in type and there was a very marked toxic state with the paralysis that accompanied the infection. When this physician had la grippe he became exhausted, with soreness and aching all over the body. He attempted, as physicians will, to do his work, and one day's driving was quite sufficient to bring on this undesirable result, Bell's paralysis. We can not yet explain why certain nerve trunks are picked out as the seat of infection by certain micro-organisms and others apparently exactly similar in structure, so far as we know, go untouched, but this is certainly the case.

DR. ALBERT E. STERNE, Indianapolis, said that he regretted that Dr. Langdon failed to test the Achilles tap in reference to the patellar reflexes; it would be interesting to know if there was any disturbance of that reflex. Dr. Sterne mentioned two cases; one of them has been referred to in a written article but the other has not been published. The first was the case of a man who had been thrown from a wagon twenty years previously in Portland, Oregon, landing on the back of the head a little to the left side. At that time he was said, erroneously, to have sustained no fracture. However, he lost the hearing in the left ear and became paralyzed on the left half of the face and left external rectus; there was loss of sensation on the right half of the body completely. Twenty years afterward, under systematic, careful treatment, this man recovered to a great degree the use of the facial muscles on the left side; his hearing remained lost and sensations on the right half of the body became almost normal twenty years after the occurrence of the lesion. The other case was unique, and Dr. Sterne has never seen anything of the kind published. A man from Seattle, Washington, had gone to Saratoga to attend a postal convention and was on his way to visit a town in Indiana, when he became stricken with symptoms exactly similar to those we see in poliomyelitis. The question arises whether in this case it was poliomyelitis, or whether it was a peripheral lesion. The man was completely and absolutely paralyzed in every portion of the body; both arms, both legs and both halves of the face completely paralyzed, and all the symptoms seemed to be those of poliomyelitis. Later there was wasting of the muscles, which were absolutely paralyzed, and reaction of degeneration, which still exists in a large part of the trunk muscles and both halves of the face, but he can use his arms somewhat, very much as in cases of regeneration following poliomyelitis. Dr. Sterne has been in doubt as to whether he should make the diagnosis of involvement of the anterior horn. Whether it was due to such involvement or to a peripheral lesion, it was the most widespread paralysis he has ever seen, either in private practice or in the hospital.

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PUBLIC CARE OF THE INSANE PENDING COMMITMENT.

Some months ago, in one of the largest cities of the country, a young foreigner became suddenly insane at his boarding-house. He was hurriedly sent to the nearest police station in a patrol wagon, locked up as a prisoner for a day or so, growing constantly more maniacal, then sent in the patrol wagon again to another police station, where the city physician would find it more convenient to examine him. By the time he arrived at the second station he was in a state of intense maniacal excitement. After a struggle with half a dozen policemen, he was finally overpowered and thrust into a restraint chair, where he died within half an hour, without ever having been seen by a physician.

At about the same time in the same city a foreigner, equally obscure, became insane and shot at his roommate. He was taken at once to a police station in a patrol wagon, kept there for two days, then taken to another station more convenient for the city physician to visit, where he was kept another day, and finally was seen by the physician, who then ordered him sent to the detention hospital.

These incidents—illustrating the unmedical treatment which insane suspects frequently undergo—coming to our attention suggested an inquiry into the methods of various cities as regards public care of the insane pending commitment. Accordingly, we addressed inquiries to the mayors of a dozen leading cities as to the method by which insanity is determined in each—whether by jury trial or by medical examination, whether patients are arrested, how and where they are detained pending commitment, if patients are conveyed to the asylum by the sheriff, whether women attendants are required for women patients, and whether nurses are sent from the asylum to convey patients thither.

Accurate answers to these few questions would pretty fairly indicate the degree to which medical authority controls in a community; for we do not hesitate to say that the trial of insane patients by jury, the arrest of patients, their transportation in patrol wagons, their detention in police courts or jails, their conveyance to the asylum by the sheriff or by the police, the failure to furnish nurses from the asylum to escort patients, all indicate archaic conditions and show that in any city where they exist the intelligent physicians have been unable to influence public affairs as they should. The answers received show all grades of treatment. In one city, our letter was handed to a member of the detective force for reply. His answer would lead one to infer that our inquiry referred to the criminal class. He states that "insane suspects are arrested, detained in the Emergency Hospital, and are held there for observation; then they are tried by a board of physicians appointed by the Superior Court to try the case, and in the event of a verdict of guilty they are committed to an insane asylum. There are women attendants appointed by the sheriff who have the custody of the female patients. The sheriff has charge of all insane cases."

It will be seen that the writer entirely ignores the first step in the commitment process, namely, the manner in which patients reach the emergency hospital. In like manner, from the very city where the incidents occurred which are mentioned at the beginning of this article, we are cheerfully assured that patients are detained in an emergency hospital awaiting inquiry as to insanity. Various cities do not undertake to dodge the question, but frankly state that "suspects" are taken to the jail or police station at first.

In cities where there are detention or emergency hospitals the general public may suppose that patients are immediately taken there. As a matter of fact, patients in these cities also are taken first to the police station or to the jail by policemen, in patrol wagons, in precisely the same manner as a common drunk. In the majority of the replies, the expressions used are those associated with the treatment of criminals—patients are "arrested," held in police stations or jails, "tried" by jury or judge or even by a board of examiners, sent to the asylum in charge of the sheriff or his deputies. All this is so commonplace that it probably does not arouse in any of us the quick sense of shame which it should. Does it shock us that in one city the coroner determines the mental state of the patients, or that in another the probate judge performs the function of the alienist?

It is superfluous to point out again the long-since recognized impropriety of entrusting the diagnosis of a disease to a jury of laymen. Slowly but surely this anachronism will disappear, though it still survives in some of our greatest centers, notably in Chicago. Our purpose is to call attention to the fact that during the first few days, so critical in cases of acute mental disorder, the treatment of the patient is distinctly nonmedical and is precisely that accorded to a felon. The public and the profession at large consider the patient as magically transferred to the asylum, which we now call a hospital, without at all realizing the terrifying experiences often undergone in the comparatively brief period between removal from home and arrival at the hospital. Consider the effect on a delicate, refined woman in the early stage of melancholia, suddenly thrust for a night into a jail or the cell of a police station. Such an experience would infallibly exacerbate the malady, and might even make all the

difference between a favorable and unfavorable outcome.

In the small cities and in the country communities the treatment of patients is even more primitive than in the large towns. A patient is often brought many miles in an open wagon to the county seat, and placed in the county jail for varying periods before an examination is held. Jailers or sheriffs with the best will in the world are of course unfitted to give the care which insane patients need. We were lately told by a member of a state board of charities of a visit to a jail where many insane were received. The sheriff felt much aggrieved because he had been threatened with suit by the relatives of a patient who had been placed in the jail in a state of great excitement, and who had seriously injured his hands by beating against the bars of his cell door. When the sheriff's attention was called to good leather muff and wristers hanging in the office, whose use would have prevented the whole trouble, he said contemptuously: "O! them things; they've been there since before I came, but I've never touched 'em."

It is a relief to turn to instances of excellent management in some of the cities from which we have replies. Three cities seem to have nothing of the police method in their manner of dealing with the insane. These are New York, St. Louis and Baltimore. In the city of New York patients may be detained for examination as to their mental condition in but one place, the pavilion at Bellevue Hospital. Three examiners in lunacy are employed by the city of New York. They are physicians, holding their positions under the civil-service law. These examiners are stationed at Bellevue Hospital, and the patients are under their care pending commitment. Following an order for commitment, the state hospital authorities are notified, and they send trained nurses to accompany patients from the pavilion to the institution. Women patients are always accompanied by women nurses.

In Baltimore the procedure is very simple. The hospitals being in the suburbs of the city, the process of commitment need occupy but a few hours. Two physicians visit the patient in his home, and on their recommendation the board of charities makes out the commitment papers and notifies the hospital to send its ambulance, and, if necessary, a female attendant to convey the patient to the institution.

St Louis uses the observation ward at the City Hospital for the detention of patients previous to examination. On the certificate of two physicians, patients may be committed to the asylum. They are conveyed in a city ambulance, and attendants are sent from the hospital to accompany them. Doubtless there are other towns where the treatment of the insane has been divorced from the care of criminals. At any rate, the instances we have cited are cheering. We commend to county and district medical and state societies an inquiry into the actual conditions surrounding the care of the insane pending commitment in their respective communities.

THE PATHOLOGY OF ICTERUS.

In a condition like icterus, which is a symptom of many different diseases, there is always a desire to find a common factor underlying all cases. In the early days of pathology it was assumed that in all instances this common underlying factor was a mechanical obstruction of some sort, but it very soon became evident that in many cases no such mechanical obstruction could be found. In such cases the signs of biliary stasis in the liver itself, dilatation and overfilling of the bile ducts, stasis of bile in the interlobular bile passages and deposition of bile pigment in the liver cells, are entirely lacking. Inability to account for such cases on mechanical grounds led to the conception of hematogenous as opposed to hepatogenous icterus. It was thought that bile could be manufactured not only in the liver, but also in the blood. The latter form of bile formation was thought to occur in toxic and infectious conditions in which a large number of blood corpuscles were broken up in the circulation. As a result of this conception all cases of icterus which could not be classed as obstructive were ranged under hematogenous icterus, or as Naunyn and Minkowski called it, icterus from polycholia. Later it was shown that something more than excessive blood destruction was needed to account for such cases when the liver was acting normally, and in recent years many have held that the second necessary factor was a disturbance in the function of the liver cells themselves. This change in the liver cells has been compared to the disturbance in the kidney cells which produces albuminuria. This hypothesis explained especially well the icterus of infections or intoxications, and that of circulatory or nervous disturbances, because in just such conditions it was easy to imagine that the secretory powers of the liver cells might be affected. Some writers went so far at this time as to almost deny to mechanical factors any importance at all.

The recent work of Eppinger, which was based on painstaking histologic examinations and a method which rendered the walls of the bile capillaries easily visible, has led back once more to a mechanical theory of icterus. He found in various forms of icterus a dilatation of the bile capillaries with elongation, sinuosity, varicose swellings and even rupture of the walls. As a result, the bile was able to gain entrance into the perivascular lymph spaces. The obstruction, though mechanical, was not in the larger bile passages, but in the capillaries, which were either compressed by new-formed connective tissue or blocked by bile thrombi. These observations have been confirmed in the main by Abramow and Samoilowicz. Recently Winckelmann,[1] working at

1. Zeitschrift für klin. Medicin, vol. lv.

Minkowski's suggestion, has gone over the work afresh. The point in which Eppinger's conception differs most radically from the preceding theories of icterus is in the rôle played by the lymph spaces surrounding the bile capillaries. Doubt has been cast on the existence of such spaces, and even Eppinger himself does not describe them as definite vessels, but merely as spaces between the walls of the bile capillaries and the liver cells. According to Minkowski, there is little doubt that such spaces exist. Eppinger seems to think that in icterus the bile must reach the blood by means of the lymph channels, and there is some support to this view in the old observations of Harley and von Frey, who showed that if the thoracic duct be ligated at the same time as the ductus communis choledochus no icterus would occur. This, of course, necessitates the view that while the blood capillaries of the liver are permeable for some substances they are not permeable for bile, an idea which is by no means unthinkable in the light of our present knowledge of cell specificity. Another point in which Eppinger's conception differs from preceding ones is the recognition of the bile-stained plugs in the capillaries as bile thrombi. These are not made up of pure bile, but are bile-stained concrements which form when, as a result of disturbances in the liver cells, abnormal substances are excreted with the bile. These bodies can, perhaps, more reasonably be compared to the urinary casts than to thrombi.

While this work of Eppinger explains the pathology of many cases of icterus, Minkowski points out that all cases examined since its publication have not shown these lesions. This is especially true of cases of infectious icterus. In just such cases it has been shown that the bile is often abnormal, and may contain albumin. Such cases are probably due primarily to the liver cell changes, though the bile thrombi and mechanical stasis may occur as secondary phenomena. Minkowski thinks that though the work of Eppinger has greatly extended our knowledge of the pathology of icterus we must still recognize two forms—the true obstructive icterus, in which mechanical obstruction plays the main part, and the toxic, cyanotic and nervous forms, in which the disturbance in the function of the liver cells is the important factor.

TRUTH AND POETRY CONCERNING URIC ACID.

II.

The history of uric acid dates from a year easily remembered by Americans. In 1776 the substance was discovered by Karl W. Scheele as the constituent of a concrement, and in the same year T. Bergman found it in a stone from the bladder. Soon after it was recognized as a normal ingredient of the urine; it was fated to become the object of a long series of studies. Pure chemists busied themselves with it for a time, Fourcroy (1793) finding urea among its decomposition products, and Wöhler and Liebig (1838), showing that it is closely related to allantoin, urea and alloxan. The majority of the earlier studies on uric acid were undertaken by medical men, and one of the most interesting features of medical research during the past hundred years is the patient but tortuous course followed by those who had as their object the determining of the mode of formation of uric acid in the body. At times the pursuit seemed to be utterly futile, so ignorant were those engaged in it of the direction it should take; more than once it was necessary, to use a sportsman's expression, to "hunt change," to take a fresh scent as it were, and to seek in an entirely new quarter.

The relationship of uric acid to urea naturally suggested a similar origin for the two substances, and the earliest theories took it for granted that uric acid, like urea, is a product of albumin metabolism. Since uric acid yields urea as one of its oxidation products, two hypotheses seemed plausible—either all albumin on oxidation to urea passes, at some time or another, through a uric-acid stage, or albumin is normally oxidized directly to urea, but under certain pathologic conditions to uric acid instead. In case either hypothesis were true, a fault of oxidation would account for the appearance of increased amounts of uric acid.

Thus Lehmann, in his "Physiological Chemistry," published in 1853, advanced the first hypothesis, assuming that uric acid stands a rung higher on the ladder of descending albumin metabolism than does urea. This view was accepted by many, and the idea became prevalent that an increased excretion of uric acid must be due to disturbances of the circulation or respiration leading to interference with the normal oxidizing processes of the body. Feeding experiments (Neubauer, 1856; Meissner, 1868; Weintraud, 1896, and Spiegelberg, 1898) demonstrated that uric acid in dogs or human beings is given off largely as urea in the urine, one study showing that not more than 5 per cent. of the uric acid fed reappears unchanged in the urine. Haig (1894) asserted that, feeding small amounts of uric acid to healthy men, he could demonstrate prompt and complete excretion as such in the urine, but he is alone in this as in so many observations which contradict the work of more accurate investigators. Of course, the fact that uric acid, like other nitrogenous substances, burns in the body to urea, is no proof that all urea goes through a uric-acid forestage, and investigators were soon to learn this.

The first hypothesis received telling support from Bartels[1] (1866), who sought evidence in its favor in clinical experience, or rather, who looked for facts that were not out of harmony with the hypothesis. He laid emphasis on the "relative" amount of oxygen available; if there were "relative" insufficiency of oxygen, uric acid, he thought, instead of urea is formed. Thus in certain fevers, like that in pneumonia or those accom-

1. Bartels: Untersuchungen über die Ursache einer gesteigerten Ausscheidung der Harnsäure in Krankheiten, Deutsches Arch. f. klin. Med., vol. i, 1866, p. 13.

panying circulatory disturbances, there might be increase in uric-acid formation owing to "relatively" insufficient respiration. Excess of uric acid in leukemic urine he cited as evidence of his view. Virchow had called attention to this increase in uric acid in leukemia as early as 1847, and regarded it as due to imperfect oxidation.

In this connection it is of great interest to note that Scherer,[2] as long ago as 1851, had found hypoxanthin in the spleen and in the blood in leukemia, and had put forward the theory that leukemia is due to a sort of hypersecretion of the spleen. Five years later he found both hypoxanthin and uric acid in the blood in leukemia. The chemical relations of hypoxanthin and uric acid were beginning to be known, and a hypothesis that the spleen is the source of uric acid gained credence for a time, Ranke[3] marshaling as arguments in its favor, (1) the increase of uric-acid excretion with accompanying splenic swelling during digestion; (2) the increase of uric acid in leukemia; (3) the presence of uric acid in the splenic juice; and (4) the action of quinin which reduces the size of the spleen and diminishes uric-acid excretion. The possibility of an origin of uric acid from hypoxanthin—excessively interesting considering our present knowledge of the purin bases—seemed to threaten the view that it is derived from albumin, until some one suggested that hypoxanthin might come also from albumin and be simply a still earlier forestage of urea. Moreover, Bartels' authority was so great that his conception was the dominant one in the minds of medical men for a long time.

Telling blows against Bartels' view were struck later when it began to be shown (1) that conditions which diminish oxidation or interfere with respiration are not necessarily associated with increased uric-acid excretion; and (2) that in leukemia, where uric-acid excretion is sometimes increased, there is no evidence that the oxidizing processes are diminished. Senator (1868) constricted the thorax of dogs and rabbits, and got increased uric-acid excretion in only two out of many cases; Naunyn and Ries (1869) did not find the uric-acid excretion increased in anemia produced experimentally; Pettenkoffer and Voit (1869) showed that nitrogenous and carbon-dioxid equilibrium are maintained in leukemia in spite of uric-acid increase, and finally, in 1891, Kraus and Chwostek, and in 1893, Bohland and Geppert proved that there is absolutely no decrease in the oxygen-intake, nor any decrease in the output of carbon dioxid, in cases of leukemia.

It can be seen, therefore, how it came about that some of the oldest conceptions regarding the formation of uric acid had to be given up. These old views have had a sort of recrudescence, however, from time to time, as will be pointed out further on, when we come to deal with the ideas which supplanted them.

2. Scherer: Untersuchungen über das Blut bei Leukämie, Verhandl. d. phys.-med. Gesellsch. z. Würzburg, vol. II, 1851, p. 321.

3. Ranke, H.: Beobachtungen und Versuche über die Ausscheidung der Harnsäure beim Menschen, München, 1858.

LOEFFLER'S NEW METHOD OF PRODUCING ANTIBODIES.

It is a familiar fact that the injection into the animal body of gradually increasing quantities of many substances gives rise to the production of specific antibodies. Among the most carefully studied substances of this class may be mentioned bacterial toxins, living and dead bacteria, red blood corpuscles, blood serum, organ cells, etc. By heating these substances, or by treatment with various chemicals, they are easily deprived of the power of calling forth antibodies. It often is desirable, however, to kill the bacteria that are used in the process of immunization before they are injected, because some living organisms, as, for instance, the tubercle bacilli, are not well borne by any of the animals that are suited for the production of antiserums. In other instances it may be necessary to sterilize the substance before it is used, because of the great difficulty of obtaining it without accidental contamination.

In these cases it has been difficult to find a convenient and reliable method of killing the bacteria without, at the same time, depriving them, or the substance which is being sterilized, of the power of calling forth antibodies. These difficulties were partly overcome by grinding up the bacteria to such a fine state that the mass no longer contained organisms capable of growth, or by sterilizing the accidentally contaminated substance with chloroform. These methods of sterilization are not perfectly reliable, and it not infrequently happened that the animal under treatment died in consequence of an injection of an imperfectly sterilized substance.

We know that enzymes, when perfectly dry, may be heated to a high temperature without being deprived of their specific properties. This fact led Loeffler[1] to attempt to produce antibodies with bacteria that had been dried and killed by heating to 150 C. for one-half hour. He not only used bacteria that were thus treated, but also blood serum, organ cells and tumor cells, and his labors seem to have been crowned with success. He dried chicken serum at a low temperature and heated the dry residue to 150 C. for one-half an hour. The residue was suspended in salt solution, and several doses were injected into a rabbit. The serum of this rabbit formed a heavy precipitate with normal chicken serum. Other heated sera were injected into various animals, and all gave rise to the formation of a specific precipitin. Loeffler dried and heated bacteria to 150 C. for one-half an hour, and immunized animals by injecting them with suspensions of the heated organisms. In this way he produced agglutinating sera for *B. typhosus, B. coli communis, B. choleræ,* the bacillus of hog cholera and the tubercle bacillus. He also obtained a serum with high bacteriolytic powers for the bacillus of cholera. Carcinoma

1. Deutsch. med. Woch., Dec. 22, 1904.

cells were dried and heated, and suspensions of the dry powdered cells were injected into a mule. The serum of this mule gave a precipitate with a colloidal solution of carcinoma tissue, and also with such a solution of lymphoid tissue. A woman suffering with carcinoma of the breast was treated with this serum and also with a solution of the heated carcinoma cells. There was local reaction and apparent general improvement, but no arrest of the growth of the tumor.

Loeffler claims that this method of desiccation, heating and pulverizing will allow the material to be kept for indefinite periods, and will eliminate all danger for those handling it. Just how much can be expected from this discovery can hardly be conjectured at this time, but it seems that it may find wide application in the production of various antiserums.

WARNING AGAINST PANAMA LABOR.

The danger of misconception of the conditions in Panama[1] has led the American Federation of Labor to send circulars over the country calling attention to the real status of affairs at the Panama Isthmus. The federation declares that it is not true that the work will be easy and the wages above the normal, and urges especially that no one should go to the canal zone unless he has a position and knows under what conditions he is to labor. The warning is a timely one. The glamor naturally attendant on this great government enterprise is heightened by the illustrated articles in the papers and magazines, in spite of the frequent mention of the diseases that have been so great a factor in the mortality rate. Many who go to Panama with a little knowledge of conditions there, are liable to desire a speedy return when their knowledge is increased. The great enterprise will not lack for workers, and it will only be hindered by illy prepared adventure-seekers.

THE GROWING IMPORTANCE OF PHYSICS IN MEDICINE.

Coincident with the rapid application of chemical methods to the study of medical problems, there has been a growth of interest in more purely physical phenomena, and especially in the phenomena of that ever-widening domain which we now know as physical chemistry. The publications of Van t'Hoff, Arrhenius and Ostwald have stimulated a whole series of medical and biologic researches, like those of Pauli and Loeb, on the one hand, and those of Koranyi, Hamburger and Höber, on the other. Zikel, in 1902, published a volume on what he calls "Clinical Osmology," which deals with the osmotic states of the body fluids in health and disease. It is surprising how rapidly clinical concepts are being widened as a result of the application of these newer ideas of physical chemistry. Only a beginning has, of course, as yet been made, but the work which has been done is full of promise for the future. On page 184 of this issue Stern discusses the relations of the modern science of osmology to pharmacodynamics. In the latter field also, as will be seen by a perusal of his article, he believes that purely physical influences play an extremely important rôle. Osmotherapy is likely, he thinks, to be one of the coming developments in practical medicine.

1. Announcement of the Civil Service Commission concerning conditions of service in Panama was given in THE JOURNAL, Dec. 17, 1904, p. 1881.

NATIONAL INCORPORATION OF THE AMERICAN MEDICAL ASSOCIATION.

On January 9 Congressman Dwight of New York introduced a bill[1] for the national incorporation of the American Medical Association by special act of Congress. This is of special interest to the members of the American Medical Association, and, in fact, to the members of the medical profession of the country. Obtaining recognition by Congress will not only add dignity to the body which represents the medical profession of the United States, but will give it a power and an influence for good which it would not otherwise have. We hope that every physician who has at heart the betterment of sanitary affairs of our country, and the various matters in which the medical profession is interested, will use his influence where it will do the most good. The bill was referred to the Committee on the Judiciary, and at the present time the matter is wholly in its hands. Consequently, all legitimate efforts should be made to convince its members of the value and importance of the measure. The members of the Committee on the Judiciary are: John J. Jenkins, Wisconsin (chairman); R. W. Parker, New Jersey; D. S. Alexander, New York; Vespasian Warner, Illinois; Charles E. Littlefield, Maine; Lot Thomas, Iowa; Samuel L. Powers, Massachusetts; Robert M. Nevin, Ohio; Henry W. Palmer, Pennsylvania; George A. Pearre, Maryland; J. N. Gillett, California; David A. De Armond, Missouri; David K. Smith, Kentucky; Henry D. Clayton, Alabama; Robert L. Henry, Texas; J. S. Little, Arkansas, and William G. Brantley, Georgia.

LONGEVITY OF JEWS.

It is claimed that of all classes of New York City's population, the Jews are the longest lived. Considering the manner in which the majority of the Jewish population of our great cities live, this is a remarkable showing, if true. The poorer Jews, as a rule, are rigid followers of the Mosaic law, and this would indicate to some extent the excellence of the sanitary provisions of that ancient code. Insurance men, however, it is alleged, while recognizing the temperance of the Jews as a factor, are inclined to think that this longevity is a result of natural selection, the weaker elements of the Jewish race having been gradually eliminated during centuries of persecution. There is still another possible factor to be considered. For centuries the Jews have become acclimatized, so to speak, to city life, and therefore may represent the class most resistant to such environment. There are evidences, however, that modern civilization is telling through its stress and strain on the vitality of the Hebrew race. Paresis, which was formerly said to be rare among them, was found by Beadles to be particularly frequent among the London Jews. It would be a matter of much interest if a thorough study were

1. The bill is printed in the General News columns, page 227.

made of this racial peculiarity of the Jews with special reference to its causal factors, and in comparison with special classes of the non-Jewish population and of wider scope than any such study yet made, both as to time and territory. It may take years, however, to reach positive conclusions, and in the meantime evolutionary changes may be taking place that will materially alter the conditions. A hundred years from now, and in even less time in some countries, the present distinctive Jewish element may have become entirely absorbed in the general population.

TOTAL ABSTAINERS AND LIFE INSURANCE.

Jews are not the only long-lived class, according to the New York actuaries. While the well-to-do Hebrew who takes life insurance is said to be 15 per cent. better risk than the average, total abstainers from alcoholic drinks make a still better showing—from 20 to 50 per cent. over the moderate drinkers, including the Jews. The average Jew is probably not a total abstainer, and it would be of interest, if it were possible, to study out by comparison with the teetotalers the reason for the advantage of the latter. From 5 to 35 per cent. is therefore the percentage that can be credited in favor of abstinence. Of course, there are many elements that enter into the solution of the question beside the mere abstinence from alcohol, such as the probable relatively lesser frequency of accidents and exposure, etc. It seems pretty clear, however, that the advantage is with the total abstainers, and that even moderate drinking detracts from the tendency to longevity.

THE NOBEL AWARDS.

It has been a matter of some unfavorable comment that while nearly all of the European countries, except Italy and Austria, have been represented in the awards of the Nobel prizes, thus far America has been left out. It has been suggested that many of our inventors and investigators who have achieved special eminence have worked largely from practical and money-making motives, and have not been inspired sufficiently by the true scientific spirit. While this is true of a number of our great men, it has no reference whatever to a large number who ought to be mentioned as candidates for the Nobel prizes. The public here is inclined to think more of the practical side, to magnify the work of a Morse, rather than that of a Henry, on which it was based. The names of Edison, Tesla, Bell and others are everywhere familiar, while the names of those who established the principles on which the inventions depend are hardly known. In connection with this, it is of interest to note what is perhaps the principal reason—the real reason—why American workers have not been selected for the prizes. Under the conditions of the bequest of Nobel, personal applications are not received; the names of candidates must be presented for consideration by some recognized learned or scientific association or university faculty, thus relieving the awarding committee of the preliminary labor of searching out those who may be considered worthy by their compatriots or associates. When we look over the field of medicine, which is one of those in which the prizes are awarded, it does seem as if some disinterested work and some names worthy of consideration might be suggested to the awarding bodies. There has been no more fruitful or important work in the past few years than the discovery of the cause and means of prevention of yellow fever, and some survivors of that investigation have never received full recognition of their services except among their scientific brethren. The names of others whose work deserves this recognition will at once occur to scientific bodies. The American Medical Association and other organizations should see to it that their lack of activity on the subject no longer leaves an excuse for the committee to ignore America.

THE EFFICIENT JAPANESE ARMY MEDICAL DEPARTMENT.

World's Work for January contains an admirable note on "A New Epoch in Army Mortality," having for its text the effective work of the Japanese army medical corps. The Japanese medical officers are rightly praised for their work in superintending the personal hygiene of the soldier, as well as in superintending the sanitation of trench and camp. Comparing their work with that of our own army medical corps, our contemporary finds the difference in efficiency to lie "in organization and in the obedience of the men." This is a half truth. As we all know, the chief reason for the disgraceful sanitary regulations of the American Army in the Spanish war was the absence of authority in the hands of the medical officers. The Japanese medical officer can order the troops to obey certain hygienic rules. Our Army organization permits the surgeon merely to suggest. When, as at scourged Camp Chickamauga, a line officer, ignorant and self-sufficient, is in command, he can sneer at the medical recommendations which in his wisdom (?) he overrules, and may likewise be too callous to appreciate the disgrace and the personal responsibility for hundreds of needless deaths from preventable fever. The Japanese line officers may be better trained and may have a wide intelligence, but over all stands the fact that Japan provides her army medical corps with a sufficient number of members and with authority to execute those necessary precautions that are within the common knowledge of the medical profession of the world. Every American should feel chagrined that a yellow race should conduct a war with more scientific enlightenment and with greater care for the health of its soldiers than we ourselves are prepared to do. Congress has put our country far to the rear in one of the foremost characteristics of modern civilization. No fear of our soldiers not "obeying" if but an educated man is given command. No soldier is better, and whenever our authorities give the medical corps its due, it will show that the American medical officer, too, can save lives. To the closing question of our contemporary there is but one answer: the "general incredulity born of ignorance" is responsible for American disregard of medical advice. If our esteemed contemporary will for a time follow the medical press, it will readily discover that the medical profession is not to blame for public inattention to its endeavors to prolong life and to promote well-being.

Medical News.

ARKANSAS.

Asylum Report.—The biennial report of the superintendent of the Arkansas State Lunatic Asylum, Little Rock, shows that 3,631 have been admitted into the institution since it was established, and 236 in the last two years.

Smallpox in Pulaski County.—According to a statement issued by the county physician, there are about thirty-five cases of smallpox in the county, outside of the towns of Little Rock and Argenta. These cases were mostly among the negro population in the vicinity of Jacksonville and McAlmont.

CALIFORNIA.

Hospital Open.—Good Samaritan Hospital, Los Angeles, was formally reopened December 29 after improvements and enlargements had been made costing $1,000,000. It now can accommodate 100 patients.

Personal.—Dr. Hubert N. Rowell, Berkeley, has been appointed attending physician at the California State Home for the Adult Blind.——Dr. Jules A. Simion has been made a member of the San Francisco Board of Health, vice Dr. J. Coplin Stinson, resigned.——Dr. Luther M. Powers has been appointed health officer of Los Angeles, Dr. Harris Garcelon, assistant, and Dr. Sumner J. Quint, police surgeon.——Dr. Ferdinand Stabel, Redding, has been appointed physician and health officer of Shasta County.——Dr. John L. White has been made superintendent of the Sacramento County Hospital.

COLORADO.

Fire in Hospital.—Fire in the fifth floor of St. Mary's Hospital, Pueblo, nearly caused $25,000 damage and necessitated the removal of most of the patients, fortunately without casualty.

Sanitarium for La Junta.—The La Junta Sanitarium Company has been incorporated with a capital stock of $25,000, by Drs. James F. Kearns, Edward W. Ragsdale, Frank Finney, Jessie E. B. Stubbs, E. Gard Edwards, Benjamin F. Haskins and others. A hospital will be built, and a cottage sanitarium for tuberculosis will also be erected.

Self-Advertisement.—About a year ago the Otero County Medical Society requested the newspapers of the county to refrain from mentioning in any way the name of any member of the society in news items relative to illness or accident. In La Junta the request has been complied with except in two instances, and the editor has promised not again to offend.

CONNECTICUT.

Personal.—Dr. Joseph E. Root, Hartford, surgeon of the First Company, Governor's Horse Guard. has resigned.——Dr. Charles I. Page, Litchfield, and William J. Ford, Washington, have been appointed by the adjutant general post surgeons for Litchfield County.

Bequests.—An unknown benefactor has given $15,000 to Grace Hospital, New Haven, to be used for enlargement of the nurses' dormitory.——By the will of Miss Maria Terry, who died recently in Venice, Hartford Hospital will receive nearly $500,000.——Mrs. Israel Matson Lyme has bequeathed $5,000 for the use of Memorial Hospital, New Haven.

December Mortality.—During December 1,258 deaths were reported, equivalent to an annual death rate of 15.5 per 1,000. This was 96 more than in November, 89 less than in December, 1903, and 40 less than the December average for the preceding five years. Diseases of the nervous system caused 161 deaths; pneumonia, 153; heart disease, 135; consumption, 102; violence, 64; bronchitis, 33; and la grippe and diphtheria, each 26.

GEORGIA.

Donations for Hospital.—About $11,000 has been raised for the Wesleyan Memorial Hospital, Atlanta, and a prominent Methodist has, it is understood, offered to give $12,500 provided the Methodists of Atlanta would contribute a like sum.

Personal.—Drs. F. M. Ridley, La Grange, and W. Darracott Travis, Covington, have been appointed members of the Board of Medical Examiners for three years, beginning January 7. ——Dr. Bernard Wolff has been elected a member of the Atlanta Board of Health.

Kills Vaccinator.—Boss Garrett of Sandersville shot and killed Special Officer Gideon Mathews, December 23, while resisting arrest for refusing to submit to compulsory vaccination. Garrett was shot through the thigh while attempting to escape and is not expected to live.

Society Election.—At the annual meeting of the Chatham County Medical Society of Savannah, January 4, the following officers were elected: Dr. George R. White, president; Drs. Ralph M. Thompson and John L. Farmer, vice-presidents; Dr. J. L. Jackson, recording secretary; Dr. A. L. R. Avant, treasurer; Dr. J. Lawton Hiers, corresponding secretary; Dr. Gustaf H. Johnson, librarian, and Drs. Marion X. Corbin, John W. Daniel and Alpheus B. Simmons, censors.

ILLINOIS.

Bogus Doctor Fined.—"Dr." Black, Rockford, charged with practicing medicine without a license, was fined $100 and costs, January 6. Black claimed that he had a diploma, but that it was in the hands of a saloonkeeper in Janesville, Wis.

Personal.—Dr. James W. Pettit, Ottawa, was thrown from his buggy January 1 while making a late call and sustained a compound fracture of the left arm above the elbow.——Dr. Benjamin L. Euans, Watseka, returned from Europe January 7. ——Dr. Denslow Lewis, Chicago, is suffering from typhoid fever.

Hospital Elects Officers.—At the annual meeting of the officers and trustees of Brokaw Hospital, Bloomington, Dr. James B. Taylor was elected president; Dr. J. Whitefield Smith, vice-president; Dr. John W. Fulwiler, secretary and treasurer; Dr. Ernest S. Reedy, medical representative, and Drs. John H. Fenelon, Asa S. Fox and Covey were recommended as members of the staff.

Chicago.

Hospital to Expand.—The Passavant Memorial Hospital has acquired from O. B. Green, property adjacent to its present building, and will erect thereon a dormitory for nurses.

The Death List.—The total deaths reported, 542, were the same in the aggregate as for last week, but there were some curious changes in the individual causes of death. The following among the important show increases: Acute intestinal diseases, 7; apoplexy, 12; consumption, 11; cancer, 5; convulsions, 10; influenza, 12; suicide, 7, and typhoid fever, 3. Important causes showing decreases were: Diphtheria, 3; heart disease, 15; nervous diseases, 9; pneumonia, 27; whooping cough, 3, and measles and scarlet fever, 1 each.

The Dangers of Influenza.—The Health Department in the current issue of its Bulletin, warns strenuously against influenza, and says:

> Influenza is more prevalent and more fatal in Chicago this winter than at any time since the epidemic year 1891; twenty more deaths from this cause were reported during the week. In 1891 influenza was the chief agent in increasing the death rate more than one-fifth over that of 1890 and numbers of the survivors have never since regained their former condition of mental and physical health. This added terror of the disease makes it all the more important that nothing should be neglected which may tend to its restriction, and to this end the commissioner again points out that influenza or the "grip" is a germ disease, and therefore contagious. Hence the obvious thing to do is to follow the advice of the authorities: Keep out of the way of contagion.

The Hospital Staff.—The long-awaited announcement of the appointments to the attending staff of the Cook County Hospital has been made. The regular staff is as follows: Medicine —Drs. Robert H. Babcock, Maurice L. Goodkind, Winfield S. Harpole, James B. Herrick, Charles L. Mix, Joseph L. Miller, Robert B. Preble, Bertram W. Sippy, Samuel R. Slaymaker, Frederick Tice, Camillo Volini and Edward F. Wells. Obstetrics—Drs. Rudolph W. Holmes, Henry F. Lewis, Charles B. Reed and Rachelle Yarros. Children and Contagious Diseases —Drs. William L. Baum, Frank B. Earle, Isaac A. Abt, Frank S. Churchill, Frank X. Walls and George H. Weaver. Nervous and Mental Diseases—Drs. Sidney Kuh, Julius Grinker, L. Harrison Mettler and Harold N. Moyer. Surgery—Drs. E. Wyllys Andrews, Frederic A. Besley, Albert I. Bouffleur, Thomas A. Davis, Charles Davison, William E. Schroeder, C. W. Haywood, Aime P. Heineck, Orville W. Mackellar, B. Brindley Eads, Daniel N. Eisendrath, Malcolm L. Harris, A. E. Halstead, William Hessert, Frederick S. Hartman and Charles E. Humiston. Ophthalmology—Drs. William E. Gamble and Brown Pusey. Ear, Nose and Throat—Drs. Frank Allport and G. Paull Marquis. Skin and Venereal Diseases—Drs. L. Blake Baldwin and William A. Pusey. Pathology—Drs. William A. Evans and Edwin R. Le Count. Orthopedic Surgery—Dr. John L. Porter; and X-Ray, Dr. Edward A. Fischkin. Dr. William L. Baum was elected president of the staff.

INDIANA.

St. Mary's Hospital, Evansville, has recently been enlarged so that it can now accommodate 125 patients. An operating pavilion has also been added and a pathologic laboratory installed. At the annual meeting the following attending staff was appointed: Surgery—Drs. Pitt Y. McCoy, Charles P. Bacon and George W. Varner. Medicine—Drs. Joseph N. Jerome, Sidney J. Eichel, and Clarence Kelsay. Eye and Ear—Dr. Louis D. Brose; and Electrotherapeutics—Dr. William R. Davidson.

Suit Against Physicians Dismissed.—In the $5,000 damage suit brought against Drs. Frederick C. Eckelman and Metius M. Eckelman, Elkhart, for alleged malpractice in the treatment of a broken leg, the case against Dr. Frederick C. Eckelman was dismissed before the trial began on the ground that he was not in partnership with his son and had had nothing whatever to do with the treatment of the plaintiff; and after a three days' trial the jury returned a verdict for the remaining defendant, Dr. Metius M. Eckelman, completely exonerating him.

November Sickness and Death.—The most prevalent malady was bronchitis, which stood third in the preceding month. Typhoid fever dropped from second to fourth place. The order of prevalence was as follows: Bronchitis, tonsillitis, rheumatism, typhoid fever, scarlet fever, influenza, pneumonia, diarrhea, smallpox, pleuritis, diphtheria, inflammation of bowels, whooping cough, puerperal fever, measles, cerebrospinal meningitis. Smallpox was reported in 37 counties, with 335 cases and 12 deaths. Tuberculosis caused 337 deaths, 31 being non-pulmonary; females, 201; males, 136. Of the females 68 were married, between the ages of 18 and 40, and left 140 orphans under 12 years of age. Of the males 19 were married, of the same age period as above, and left 38 orphans. The total number of orphans caused by this disease in this month was 178. More than 300 homes were invaded. Of the 92 counties, 61 reported typhoid fever present, and probably it existed in every one of them. In the month 403 cases were reported, with 141 deaths. The disease was epidemic in Marion, Parke, Shelby, Vanderburg, Wabash, Clark, DeKalb and Grant counties. Pneumonia deaths numbered 229. The total number of deaths reported was 2,566, equivalent to an annual rate of 11.7 per 1,000. In the same month last year there were 2,516 deaths, a rate of 11.3 per 1,000.

MARYLAND.

Insane Hospital Report.—The one hundred and seventh annual report of the Maryland Hospital for the Insane shows the total number of patients under care during the year as 636. The average number of patients under treatment was the greatest in its history and its utmost capacity is reached.

New Staff Members.—The following have been added to the Cambridge Hospital staff: Orthopedic surgery, Dr. William S. Baer, Baltimore; surgery, Drs. Isaac R. Trimble, Baltimore, and William H. Noble, Philadelphia; obstetrics, Dr. Lewis M. Allen, Baltimore. A number of physicians from the Eastern Shore were made consultants.

Consumptive Hospital.—Dr. Henry Barton Jacobs has been re-elected president of the Hospital for Consumptives. The receipts for the year were $7.649, and expenditures $8,145, but of the deficit all has been raised except $500. There were 100 patients treated, 17 of whom remained only two weeks; 6 were discharged apparently cured; 16 died; 26 showed improvement. The average cost per patient for the year was $81.45.

Baltimore.

A Good Record.—There has been no case of smallpox in this city since July 1.

Coroners Busy.—Between May 1 and Dec. 31, 1904, the nine coroners of Baltimore investigated 830 deaths and held inquests in 65 cases, a total of 895.

The Herter Lectures.—Dr. Hans H. Meyer, professor of pharmacology in the University of Vienna, has accepted an invitation to deliver the second course of Herter lectures at the Johns Hopkins Medical School next October.

Disinfection of Library Books.—The Enoch Pratt Free Library has not installed any apparatus for the fumigation of books, as the Health Department provides for it. The department sends lists two or three times a week showing houses in which there are patients suffering from contagious diseases. These are kept for reference and when books are returned from any of them the assistants refuse to accept them unless either a physician's certificate is shown or a Health Department certificate that the volume has been fumigated. There has been no case of infectious disease among the employes in twenty years.

Hospital Reports.—At the Hebrew Hospital the receipts for the year were $20,020, leaving a deficit of $2,243. During the year 229 patients were admitted, of whom 101 were discharged cured, 90 improved, 10 unimproved and 10 died. In the dispensary 6,908 patients were treated and 7,532 prescriptions compounded. Improvements will be made in the operating room at a cost of $3,000. Dr. Samuel L. Frank was re-elected president of the association.——At the Presbyterian Eye, Ear and Throat Hospital last year 11,000 patients were treated. The visits to the out-patient department averaged 102 per day, and operations were performed as follows: Eye, 1,782; ear, 168; throat, 770.

Personal.—Dr. Howard A. Kelly has returned from a two weeks' hunting trip in the wilds of Florida.——Dr. George Y. Everhart, speaker of the last House of Delegates, has been appointed clerk in the state treasurer's office.——At the one hundred and fourth annual meeting of the managers of the Baltimore General Dispensary, held January 12, Drs. Haughton A. Baxley, Edward E. Mackenzie and Leonard E. Beach were elected attending physicians.——Dr. Curtis R. Burnam, resident gynecologist at the Johns Hopkins Hospital, has resigned and will go to St. Paul, Minn., to practice. Dr. G. R. Holden succeeds him.——Dr. Frank W. German fell on the ice January 7 and sustained a fracture of the left fibula.——Dr. William H. Baltzell is spending the winter in Egypt.

MICHIGAN.

Scarlet Fever Epidemic.—In East Tawas there are 18 cases and the disease is spreading rapidly. The public schools have been closed. One death has occurred.

Declines Appointment.—Dr. Thomas B. Cooley, Ann Arbor, who was selected by the Washtenaw County board of supervisors as consulting physician in cases of contagious disease, with a maximum fee of $15 and expenses for each case, has declined the appointment on account of the fixed fee and expenses.

The Most Dangerous Communicable Diseases.—Meningitis was reported during December at 5 places, whooping cough at 19 places, measles at 51 places, pneumonia at 82 places, diphtheria at 91 places, smallpox at 101 places, typhoid fever at 105 places, scarlet fever at 126 places, and consumption at 241 places. Meningitis was reported present at 1 place less, whooping cough at 1 place more, measles at 16 places more, pneumonia at 23 places more, diphtheria at 4 places more, smallpox at 2 places more, typhoid fever at 56 places less, scarlet fever at 21 places more and consumption at 6 places less, in the month of December, 1904, when compared with the preceding month.

Comparative Prevalence of Disease.—For December, 1904, compared with the average for December in the last 10 years, smallpox, dysentery and inflammation of brain were more than usually prevalent; and pleuritis, pneumonia, intermittent fever, erysipelas, diphtheria, whooping cough, remittent fever, cholera morbus, puerperal fever and meningitis were less than usually prevalent. In every month of 1904 six of the diseases which were less prevalent than usual in December—pneumonia, intermittent fever, erysipelas, whooping cough, remittent fever and cholera morbus—caused considerably less sickness than the average of corresponding months in preceding years. Also, excepting July and August, this was true of pleuritis. Ten diseases caused less sickness in December, 1904, than the average for the ten preceding Decembers.

Mortality of Michigan During December, 1904.—The total number of deaths reported to the department of state for the month of December was 2,782, corresponding to a death rate of 13.0 per 1,000 population. This rate is higher than that for the preceding month, which was 11.6 per 1,000, but lower than the rate for December, 1903, which was 14.1 per 1,000. By ages there were 519 deaths of infants under 1 year of age, 133 deaths of children aged 1 to 4 years, and 922 deaths of persons aged 65 years and over. A considerable increase is shown for the rate of mortality of infants and the aged as compared with November. Important causes of death were as follows: Tuberculosis of lungs, 176; other forms of tuberculosis, 26; typhoid fever, 51; diphtheria and croup, 50; scarlet fever, 12; measles, 5; whooping cough, 10; pneumonia, 234; diarrheal diseases of infants, 42; meningitis, 35; influenza, 34; cancer, 148; accidents and violence, 181. There were two deaths from smallpox.

NEW JERSEY.

Board of Health Election.—At the annual meeting of the Atlantic City Board of Health Dr. John R. Fleming was elected president; Dr. M. Le Roy Somers, vice-president, and Dr. Edward Guion, secretary.

Deaths Exceed Births.—The report of the Bureau of Vital Statistics of Camden shows that during the year just closed there were 1,869 marriages, 1,497 births and 1,532 deaths, thus showing 35 more deaths for the year than births, provided all births were reported.

Personal.—Dr. Henry W. Elmer of Bridgeton sailed January 12 for Port Antonio, Jamaica.——Dr. Emery Marvel, Atlantic City, had a septic wound of the finger from the puncture of a needle while operating, but is now rapidly recovering.——Dr. Leslie L. Hand, Millville, is seriously ill with diphtheria contracted from repeated exposures to the infection in his practice.

A Useful Circular.—The Atlantic City Board of Health has issued a leaflet of information for the family in case of contagious diseases, which takes up plainly and concisely the general precautions to be observed, and then gives special recommendations regarding typhoid fever, scarlet fever, diphtheria, measles, whooping cough, mumps, chickenpox and disinfection. This is intended "not to supplant but to supplement the advice of the family physician."

Cooper Hospital Report.—The annual report of the Cooper Hospital, Camden, for 1904 shows that 1,040 patients were treated in the wards; 772 were discharged cured, 85 improved, 85 not improved, and 17 left without permission. There were 115 deaths, and of these 46 occurred within forty-eight hours from the time of admission to the hospital. The average stay of each patient was 17 days. In the dispensaries 4,593 patients were treated, and 13,571 revisits were made, making a total of 18,164.

Medical Inspector's Report.—The report of Dr. Henry H. Davis, medical inspector of the Camden public schools, showed the following communicable diseases reported for investigation during December: Diphtheria, 13; scarlet fever, 16; chickenpox, 11; measles, 9; tonsillitis, 19; ophthalmia, 5, and variola, 1. The report further shows that there was a decided increase in the cases of scarlet fever and diphtheria over the corresponding month of last year. He attributes the spread of the disease to its mild form, as it was not recognized and not treated.

Society Elections.—At the annual meeting of the Atlantic County Medical Society, January 13, Dr. Emery Marvel, Atlantic City, was elected president; Dr. Edward H. Madden, Absecon, vice-president; Dr. Edward Guion, Atlantic City, secretary and treasurer, and Dr. A. Burton Shimer, Atlantic City, reporter.——At the regular meeting of the Atlantic City Academy of Medicine, January 13, the following officers were elected: President, Dr. William E. Darnall; vice-president, Dr. Edwin H. Harvey; secretary, Dr. Walt. P. Conaway, and treasurer, Dr. J. Addison Joy. A committee on ways and means was appointed, consisting of Drs. Philip Marvel, William E. Darnall and W. Blair Stewart, to take steps toward the establishment of a first-class medical library.——At the annual meeting of the Burlington County Medical Society, held January 12, the following officers were elected: President, Dr. J. Howard Pugh, Burlington; vice-president, Dr. Frank G. Stroud, Moorestown; secretary, Dr. George T. Tracy, Beverly; treasurer, Dr. Enoch Hollingshead, Pemberton, and censors, Drs. Alexander Marcy, Jr., Riverton; Elmer D. Prickitt, Mount Holly, and Alexander H. Small, Riverside.

NEW YORK.

Many Insane.—While the certified capacity of the New York State hospitals for the insane is 22,000, the number of patients is 25,019. The most serious condition is on Ward's Island, where, with a capacity of 3,100, there are over 4,100.

Ithaca Water Supply.—A commission has been appointed by Justice Lyon of Binghamton to determine the value of the property of the Ithaca Water Works Company, lately condemned by the city of Ithaca, for the purpose of installing an artesian water supply.

State Charities.—The State Charities Aid Association held its annual meeting January 10. The annual report called especial attention to the overcrowding of the hospitals for the insane. A bill passed by the last legislature through the influence of this association provides for the establishment of a psychopathic hospital for the reception and examination of the alleged insane in New York City. It is hoped that this will, in a very large degree, obviate the stigma which now attaches to a commitment to an insane asylum, and that by securing earlier treatment of incipient cases of mental disease permanent commitment in a certain number of cases will be unnecessary.

New York City.

Fewer Street Accidents.—A decrease of 23 per cent. in the number of street accidents from those of last year is shown. This is attributed to the new scheme of traffic regulation and to the work of the mounted squad.

Increase in Pneumonia.—There were more pneumonia cases reported at the hospitals January 14 than on any previous day this winter. The number of cases now reported is above the average of normal years, though not so high as last winter, when 12,366 persons died of the disease.

Pneumonia.—Bellevue Hospital is crowded to overflowing with cases of pneumonia, bronchitis and influenza. At Roosevelt Hospital there has been no such run of pneumonia cases. This hospital, however, has had more applications than it could accommodate. One medical ward, accommodating 28 patients, has been closed for lack of funds.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending January 7, 300 cases of diphtheria and croup, with 45 deaths; 282 cases of tuberculosis, with 168 deaths; 227 cases of scarlet fever, with 22 deaths; 122 cases of measles, with 11 deaths; 47 cases of typhoid fever, with 11 deaths; 138 cases of varicella, and 24 deaths from cerebrospinal meningitis.

To Prohibit Fireworks.—The chief of the fire department recommends that the sale of fireworks in this city be prohibited on July Fourth, because of the danger of numerous fires and because of loss of life and maiming of children. During the week of July 4, last year, 846 persons were taken to the various hospitals suffering from injuries from fireworks. This has been referred to the Municipal Explosive Commission.

Medical Society's Rights Questioned.—An application of importance has been made to Judge Leventritt, in the special term of the Supreme Court. It asserts that the law which gives the county medical society the fines imposed on persons prosecuted by its agents is unconstitutional. It is proposed to carry this case to the Court of Appeals. It has been asserted that benefits such as these conferred on the county medical society have already been pronounced unconstitutional. It is held that the fines are the property of the state.

New Red Cross Hospital.—This society is to have a new hospital which is to rival in completeness every other hospital in the city. William T. Wardwell has given $100,000 for the purchase of a site. John S. Huyler has donated all the brick necessary to construct the building, and an endowment fund has been started with a subscription of $3,000. Dr. A. Monae Lesser, who was surgeon-in-chief to the Red Cross Hospital during the Spanish-American War, will be surgeon-in-chief of the hospital. One of the objects of this institution will be to keep both physicians and nurses in readiness for government calls.

New York Water Supply.—James K. Apgar has a bill before the legislature excluding New York from tapping any of its streams in Westchester County for additional water supplies and also for repealing the Webster act, which enabled the city to secure land by condemnation for extension of its water-supply system. The passage of the Smith bill last year barred New York from seeking a water supply in Dutchess County, and it is stated that the representatives of Columbia and Ulster counties contemplate bringing in similar bills. These steps seem to complicate the difficulties of securing an adequate water supply for the city, but it is hoped that Governor Higgin's suggestion of appointing a state commission for the conservation of the waters of the Adirondacks and having also for its object the supply of water to the cities may hold the solution of this problem.

Buffalo.

Measles Epidemic.—There is no diminution in the number of measles cases in Buffalo. It is especially prevalent in the tenement districts among the Italians and Poles where exposure is almost a necessity because of overcrowding.

Personal.—Dr. H. Y. Grant has returned from Palm Beach.——Dr. Lawrence J. Hanley has been appointed obstetrician to the Maternity Hospital.——Dr. James Gallagher has been appointed visiting physician to the Emergency Hospital.——Dr.

Charles S. Jewett has been elected president of the medical staff of the Sisters of Charity Hospital.——Dr. Benjamin Grove has been elected president of the Emergency Hospital staff.——Dr. Thomas Crowe has been elected chairman of the Board of Civil Service Examiners.

OHIO.

The Academy of Medicine of Toledo and Lucas County elected officers January 13 as follows: President, Dr. Thomas Hubbard; vice-president, Dr. Dice; secretary, Dr. Levison; financial secretary, Dr. Duncan; treasurer, Dr. John Keller; board of censors, Dr. Hasencamp; delegate to state society, Dr. Myers.

Personal.—Dr. Dwight B. Taylor, Madison, has been appointed surgeon to the Marion (Ind.) Branch, National Home for Disabled Volunteer Soldiers.——Dr. James W. Miller, Cincinnati, has been appointed district physician in place of Dr. William Muhlberg, resigned.——Dr. Louis Ransohoff, interne in the Cincinnati Hospital, sustained a fracture of the patella.

Consolidation of Medical Schools.—Dr. Charles Dabney, president of the University of Cincinnati, as the guest of the Cincinnati Academy of Medicine, January 9, delivered an address on "Medical Education," in which he expressed the hope that there would shortly be a consolidation of all the medical schools of the city, and the establishment of a medical college which could compete with the larger institutions in the East.

Danger of Contamination of Cincinnati's Water Supply.—The movement to dam the Ohio river at Cullom's Ripple has met with opposition from some, who claim that such a structure would cause contamination of Cincinnati's water supply. Dr. Byron Stanton, member of the Ohio State Board of Health, believes, on the contrary, and in this belief was sustained by other experts, that a uniform stage of water would greatly improve the drinking water.

Cincinnati's Sources of Tuberculosis.—At the regular meeting of the Cincinnati Society for Medical Research Dr. B. F. Lyle, in a paper on "The Sources of Tubercular Infection in Cincinnati," declared that infection of infants by way of the intestines and through the medium of cow's milk is seemingly rare; that the death rate from tuberculosis among school children is small, and that death certificates are not a true index of the frequency of deaths from tuberculosis.

PENNSYLVANIA.

Philadelphia.

New Surgeon for Howard Hospital.—Dr. Francis D. Patterson was elected surgeon to the Howard Hospital, vice Dr. Charles H. Frazier, resigned.

Osler's Portrait for the University.—The graduates of the Medical Department of the University of Pennsylvania who studied under Dr. Osler have taken steps to have a life-size portrait of their teacher painted and placed in the university. Graduates of the classes from 1885 to 1892 will assist in securing the painting.

Hospital Reports.—During December 4,670 patients were treated in the Medico-Chirurgical Hospital——Eighty-three patients were admitted to the Jewish Hospital in December, which, with 52 under treatment at the beginning of the month, made a total of 135; 68 were discharged cured, 13 improved and 1 died.——At the Mathilde Adler Loeb Dispensary 1,014 patients were treated.—At the Jewish Maternity Hospital 19 patients were admitted and 13 infants born.

Cancer Annex Opened.—The new cancer annex of the Home for Incurables was opened for the treatment of patients January 11. It is a three-story brick structure. The floors are of tile, the walls of cement, covered with enamel paint. There are 16 rooms for patients, 4 for nurses, a smoking room, 2 dining rooms, diet kitchen on each floor and separate lavatories for patients and attendants. At one end are verandas 12 feet wide and 40 feet long.

Personal.—Dr. Alexander C. Abbott was the guest at the annual meeting of the Kansas City Alumni Association of the University of Pennsylvania, January 6.——Dr. Albert P. Francine, under the auspices of the Henry Phipps Institute, spoke in Carnegie Hall, Pittsburg, January 12, on "To-Day's Crusade Against Consumption."—Dr. Milton J. Greenman was elected director of the Wistar Institute of Anatomy and Biology to succeed Dr. Horace Jayne, resigned.

Medical Club Elects Officers.—The Medical Club of Philadelphia held its annual meeting January 13 and elected the following officers: President, Dr. Roland G. Curtin; vice-presidents, Drs. Wharton Sinkler and Thomas G. Potter; secretary, Dr. J. Gurney Taylor; treasurer, Dr. L. H. Adler, Jr.; governor, for five years, Dr. James Van Buskirk, and executive committee, Drs. Ernest Laplace, Ernest Whitcome, Edward E. Montgomery, Walter L. Pyle and Alexander McAllister.

Bequests.—By the will of James Beckman, Doylestown, the Methodist Hospital receives $1,000.——A legacy of $2,000 was left by the will of Hannah Adler to the Jewish Hospital Association for the Mathilde Adler Loeb Dispensary.——By the will of William S. Bunting $500 was left toward the establishment of a free bed in the Episcopal Hospital as a memorial to his mother, and $500 to the Home for Incurables.——A check for $5,000 has been given to the Jewish Hospital Association by Samuel M. Fridenberg and children to endow a room in the hospital in memory of Mrs. Fridenberg.——By the will of Henry Norris $5,000 each was bequeathed to the Hospital of the University of Pennsylvania, the Pennsylvania and the Children's Hospital.

Health Report.—Pneumonia continues present in a highly malignant type, 80 deaths being due to that disease during the week. This is an increase of 18 over those of last week, and an increase of 11 over those of the week before. The total death rate was also somewhat increased, the total reaching 500, as compared with 478 last week and 736 for the corresponding period of last year. The principal causes of death were as follows: Diphtheria, 10; pulmonary tuberculosis, 52; cancer, 15; apoplexy, 25; heart disease, 54; pneumonia, 95; enteritis, 22; Bright's disease, 43, and accidents, 12. The total number of contagious diseases reported was 222, with 24 deaths, as compared with 236 and 25 deaths for the preceding week. There were no cases of smallpox reported.

GENERAL.

Biologic Station in the Bermudas.—Harvard and New York universities have agreed to conduct a biologic station in the Bermuda Islands for ten years.

The Charities of 1904.—The record for the past year shows that $62,000,000 has been given to charities in the United States. Of this sum it is estimated that hospitals have received $2,543,000. These figures are only approximate, being a compilation of published announcements.

Beri-Beri in America.—Two cases of beri-beri were discovered at the quarantine station at Marcus Hook January 8. The vessel came from Koanapali, Hawaiian Islands. The men were placed in the quarantine hospital and the crew in the detention wards and the ship was fumigated. This is the second time within a year that beri-beri has been discovered at the Philadelphia quarantine station.

Army Appropriation Bill.—January 7 the House Committee on Military Affairs practically completed the Army Appropriation bill. It carries, in round numbers, $69,000,000, which is about $3,000,000 less than the estimates and $5,500,000 less than the appropriations for the current year. For the construction and repair of hospitals, $315,000 was appropriated, a reduction of $75,000 from the previous year; for the medical and hospital department, $600,000 was appropriated, an increase of $40,000.

Yellow Fever Suspects.—The Panama Railroad steamship which arrived from the isthmus had on board Mr. Seager, secretary to Chief Engineer Wallace of the Panama Canal Commission, who was bringing the body of his wife, who died of yellow fever, home for interment. Mr. Seager is also supposed to have the disease and has been sent to Hoffman Island for observation.——The purser of the Ward line steamship *Vigilancia*, arrived from Havana, is supposed to be a victim of yellow fever and has been removed to Swinburne Island for observation.

Want to Release Lepers.—An attempt has been made in Hawaii to secure the release of certain lepers from the settlement at Molokai, the basis of the attempt being the contention that a person can not be deprived of liberty without due judicial process. Objection is made to imprisonment by administrative process. This refers to the custom of simply having a suspect inspected by the government physician, then sending the suspect to the receiving hospital where a board appointed by the Board of Health decides whether or not the case is one of leprosy and deals accordingly.

Bill to Incorporate American Medical Association.—The bill to incorporate the American Medical Association (H. R. 17335), was introduced in the House of Representatives, Jan. 9, 1905, by Mr. Dwight. The bill was referred to the committee on the ju-

diciary and was ordered to be printed. It is as follows: A Bill to incorporate the American Medical Association. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Robert M. O'Reilly, doctor of medicine, Washington, D. C.; Presley M. Rixey, doctor of medicine, Washington, D. C.; Walter Wyman, doctor of medicine, Washington, D. C.; E. H. Gregory, doctor of medicine, St. Louis, Mo.; Henry O. Marcy, doctor of medicine, Boston, Mass.; Nicholas Senn, doctor of medicine, Chicago, Ill.; George M. Sternberg, doctor of medicine, Washington, D. C.; J. M. Mathews, doctor of medicine, Louisville, Ky.; W. W. Keen, doctor of medicine, Philadelphia, Pa.; Charles A. L. Reed, doctor of medicine, Cincinnati, Ohio; J. A. Wyeth, doctor of medicine, New York, N. Y.; Frank Billings, doctor of medicine, Chicago, Ill.; J. H. Musser, doctor of medicine, Philadelphia, Pa.; T. J. Happel, doctor of medicine, Trenton, Tenn.; Miles F. Porter, doctor of medicine, Ft. Wayne, Ind.; E. E. Montgomery, doctor of medicine, Philadelphia, Pa.; W. W. Grant, doctor of medicine, Denver, Colo.; H. L. E. Johnson, doctor of medicine, Washington, D. C.; A. L. Wright, doctor of medicine, Carroll, Iowa; William H. Welch, doctor of medicine, Baltimore, Md.; M. L. Harris, doctor of medicine, Chicago, Ill.; Philip Marvel, doctor of medicine, Atlantic City, N. J., and Lewis S. McMurtry, doctor of medicine, Louisville, Ky., and their successors, and those who may be associated with them, are hereby made and constituted a body politic and corporate by the name American Medical Association, with perpetual succession and power to take, for the purposes of its incorporation, by devise, bequest, grant, gift, purchase or otherwise, and hold or convey, both real and personal property and transact business anywhere within the United States. SEC. 2. That the object and purpose of such corporation shall be to promote the science and art of medicine and the public health throughout the United States. SEC. 3. That such corporation shall have power to make by-laws, rules and regulations, and choose officers for its government and the attainment of its purposes.

CANADA.

The Thunder Bay Medical Association was recently formed at Port Arthur, Ontario. The president is Dr. George W. Brown, Port Arthur; vice-president, Dr. W. W. Birdsall; secretary, Dr. H. E. Paul; treasurer, Dr. J. M. McGrady.

Fire in Royal Victoria Hospital, Montreal, January 14, did $40,000 damage. There were no fatalities. Lord Strathcona has cabled from London that he will bear the total cost of rebuilding the damaged portion. The number of patients admitted to the wards of this institution numbered during November 245; 229 were discharged and 11 died. In the outdoor departments there were 2,088 cases.

FOREIGN.

The Garcia Centennial.—The famous singing master, Manuel Garcia of London, who invented the laryngoscope fifty years ago, will be 100 years old March 17, 1905. The London Laryngological Society is collecting subscriptions for a present to be given to the venerable patriarch on that occasion.

German Congress for Amelioration of the Condition of Wage Earners.—The principal subject for discussion will be the protection of the workingman against industrial poisoning by enlightening him in regard to its dangers. The discussion will be opened with an address by L. Lewin. The congress will convene at Hagen June 6, 1905, and a number of the most prominent hygienists and medical authorities, as well as representatives of various industries, are actively engaged in its inception and promotion.

Plague in India.—The *Public Health Reports* state that with the advance of the cold weather, plague is again growing worse in Upper India. For the week ending December 3 the United Provinces had 4,425 deaths, an increase of 1,000 on the total of the previous week; the Punjaub, 2,446, an increase of 400; Mysore, 1,157, an increase of nearly 600; Hyderabad State, 768, an increase of 200. In the Bombay Presidency there were 6,770 deaths, an increase of 300. Elsewhere throughout India the disease remains about as before.

Fifth International Congress of Obstetrics and Gynecology.—The committee in charge of this congress has selected the following subjects for discussion: 1, Accouchement Forcé; 2, Operative Treatment of Fibromyomata of the Uterus; 3, The Vaginal Route in Obstetrics and Gynecology; 4, Critical Judgment of Operative Interventions in Case of Retrodisplacements of the Uterus, and 5, Chorio-epithelioma. The congress is expected to meet at St. Petersburg, Sept. 11-18, 1905. The chairman of the committee on organization is Prof. D. von Ott, Wassily-Ostow, University line 3, St. Petersburg. The committee has sent out a cordial appeal to all interested in obstetrics and gynecology to aid in making this congress a successful and memorable one.

Cure of Trachoma with Radium.—Herman Cohn, the well-known ophthalmologist of Breslau, writes to the *Berliner klin. Wochenschrift* of January 2 to report the rapid disappearance of the granulations in 3 cases of trachoma treated by exposure to radium. He used 1 mg. of radium bromid in a glass tube, 3 cm. long by 2 mm. in diameter, with daily exposures of ten to fifteen minutes. The granulations had been treated before with various measures by himself and others, without effect, while they were rapidly and painlessly banished by the radium, without a perceptible trace of any injurious consequences for the lid or the sight. These results confirm those obtained by R. Pardo of Turin in 2 cases of this hitherto intractable affection. His report was mentioned in THE JOURNAL of Sept. 17, 1904, page 850.

Ophthalmologist's Seal from Ancient Roman Colony.—Professor Ghirardini exhibited at a recent meeting of a Padua scientific society a seal which had been discovered in an ancient tomb at Este, the old Roman colony of Ateste. It is a fourfold seal, being square, with a different inscription on each side, signed with the name of the owner, Eseagato, a physician of Greek origin. Each one of the inscriptions is the formula for some specific for eye affections. Two are for conjunctivitis and one for affections of the eye in general. The inscription was designed to be stamped on the collyrium made according to the directions of the formula, shaped, dried and hardened. Two fragments of these collyrium sticks were found with the seal, still bearing the imprint of the stamp and accompanied by some surgical instruments.

German Congress for Internal Medicine.—The twenty-second German Congress for Internal Medicine will convene at Wiesbaden, April 12-15, 1905. Professor Erb of Heidelberg will preside. The first day will be devoted to a discussion of "Heredity," with addresses by Ziegler of Jena on "The Present Status of the Question of Hereditary Transmission in Biology," and by Martius of Rostock on "The Importance of Heredity, Especially in Pathology and in Tuberculosis." Several communications have been announced on the treatment of leukemia with the Röntgen rays; by Schütz of Wiesbaden on "The Mucous Secretion of the Intestines;" by Matthes of Jena on "Autolysis," and by Clemm of Darmstadt on "Adhesive Plaster Supports in Treatment of Abdominal Viscera." Dr. E. Pfeiffer of Wiesbaden, Parkstr. 13, is secretary of the congress, which will be accompanied by an exhibition of instruments and appliances of interest to internal medicine.

New Poisons Law Wanted in New South Wales.—The Pharmacy Board of New South Wales has asked the government to provide a new poisons law. The old poisons act is now about 30 years old, and is said to be utterly inadequate for the requirements of the community. It does not prevent any person giving poisons away. Abortifacients may be given free of charge. Any person may sell any poison he likes, stating that he deals wholesale, and the law may not interfere, because the old law exempts wholesale dealing without stating what that shall mean. The *Australasian Medical Gazette* states that the proposed new act provides that no person shall be allowed to sell or give or supply poison of any kind unless he is licensed to do so. Ample provision has been made to issue licenses to dealers in poisons necessary for pastoral, agricultural and industrial purposes. A small fee has been provided to enable the board to carry out the provisions of the act. All licenses are to be renewed annually.

Successful Radiotherapy.—Lassar of Berlin presented an array of patients cured of cancer by modern methods of treatment which aroused great interest at the meeting of the German Cancer Research Committee on December 13. He exhibited a number of patients who had been cured for years of small, recent cutaneous cancer by arsenic internally. He says that this has never failed him under such conditions during twelve years' experience with it. He then marshaled 4 patients completely cured by Röntgen or radium treatment, some of them for years. Large cancroids vanish without exception under the *x*-rays, even those of long standing. Smaller ones, especially such growths on the lips, subside permanently under radium. He demonstrated a number of inoculation cancers which had been invariably cured. He also exhibited a number of patients cured of mycosis fungoides and fibrolipoma

by the same measures, and also a large number of patients with sarcoma recurring after treatment by various other measures, the lack of permanent cure in these cases contrasting forcibly with the permanence of the results obtained with radiotherapy. A recent article by Lassar on the subject was reviewed in these columns on page 79. Béclère has been studying the radium rays in Curie's laboratory and announces a number of interesting points which he has learned in respect to dosage, etc. A report of his communication first comes to hand in the *Bull. Soc. Med. des Hop.*, December 22, No. 38. He finds the chromoradiometer a convenient means of determining the activity of radium, although the cutaneous reaction differs materially from that observed with the same dosage of Röntgen rays. He distinguishes between the true reaction, which sometimes does not appear until several weeks after the exposure, and the prereaction. He calls attention to the advantages of applying radioactive substances spread out in a thin, even layer between a square sheet of aluminum and one of platinum pivoting on a handle. By using a rectangular box of this kind it is possible to apply the rays evenly over a surface, none of the exposures overlapping or leaving gaps between them. He styles the radium salts "the pocket edition of the Röntgen tube," adding that they represent at the same time an extremely small and an extraordinarily soft tube. They are indicated chiefly for lesions of no great extent, either on the surface or in the depths, located at points difficult of access to the Röntgen rays. Danlos is convinced that the lack of penetration noted is due to the minute amounts of the radium salts employed. He has obtained effects on the screen through a silver dollar (five-franc piece), through a book with 1,000 pages, through a plank more than 2 cm. thick, and through his hand.

LONDON LETTER.

False Imprisonment (of Lepers) on a Large Scale.

Under the title of "False Imprisonment on a Large Scale," Mr. Jonathan Hutchinson protests in the *Times* against the detention of the lepers of Cape Colony in Robben Island, a rock-bound, sandy and treeless island near Capetown, as a blunder of pseudo-science and of a too credulous legislative authority. He compares this case with that of Mr. Beck, whose false imprisonment twice on a charge for which he has been shown to be innocent has created a great sensation in this country. It may be remembered that in his recent journey for the investigation of leprosy in South Africa Mr. Hutchinson visited Robben Island. Speaking from observation he says that the suffering which the lepers undergo in consequence of their detention is enough to make them wish for death. They sink into a condition of dull, hopeless apathy which knows no relief. Once a prisoner on the island a person is there for life. The leprosy law of Cape Colony consigns to that prison every one, without regard to sex, age or social position, who shows symptoms of leprosy in any stage or form. Release is only possible under a medical certificate of absolute cure. Until the last few years such certificates have scarcely ever been given and they are still very infrequent. Mr. Hutchinson points out that the creed that leprosy is contagious, which is held to justify this compulsory isolation, is with a certain definite exception refuted by a thousand facts. This exception is what he calls "commensal contagion"—taking food from a leper who has sores on the hands—a contingency which can easily be avoided.

Epidemic and Epizootic Plague.

An official report on plague by Dr. William Hunter, government bacteriologist in Hongkong, argues that the current views as to the etiology and pathology of the disease are erroneous. It is believed that the bacillus appears in the peripheral blood a few days before the fatal termination, that the bubonic is the typical variety of plague, that the bubo is an early manifestation of infection, and that gastrointestinal symptoms are of secondary importance. These views, it is urged, must be modified or discarded. The bacillus has been shown by Mr. J. Bell of the Government Civil Hospital, Hongkong, to be present in the peripheral blood from the initial stage of the disease. The application to plague of Ross' method of examining the blood in malaria shows that during the first or second day the bacillus can be found in numbers in the peripheral blood, in fact, before the bubo develops. This observation is confirmed by Dr. Hunter. This is opposed to the prevalent view that the bubo is an early if not an initial manifestation and an effort of the gland to arrest the bacillus. According to Dr. Hunter, plague is primarily a septicemia and the assumption of the bubonic, pneumonic or septicemic form is a secondary matter. Mr. Bell has found that by examination of the blood plague can be as easily diagnosed as malaria on the first or second day. The channel by which plague is conveyed to the human body, according to Dr. Hunter, is the gastrointestinal tract, and his evidence is very strong. If cases were seen at the earliest stage, before feverish symptoms have developed, in the vast majority diarrhea and vomiting would be noticed. Dr. Hunter also contends that pneumonic plague may be primary, i. e., that the bacillus may be inhaled. The importance of infection by the alimentary canal is great, for almost all domestic animals contract plague, birds are subject to it and, as proved by Dr. Hunter, flies, cockroaches and other non-suctorial insects harbor plague bacilli both on and within their bodies, rendering contamination of food easy. Dr. Hunter finds that epizootic plague always precedes epidemic plague, that the time between the initial cases of plague in the rat and in man is from 10 to 14 days, and that the disappearance of epizootic is followed in a week or two by the subsidence of the epidemic. Writing on the "Bridging of Epidemics," Dr. Hunter shows that plague in rats is present throughout the whole year, but that the disease becomes widespread at certain times of the year; in Hongkong during the first quarter of the year, and within a week or fortnight it becomes almost epidemic. Throughout the epizootic period the type of plague among rats is acute, but subsequent to the epizootic and epidemic periods and between the epidemics plague in rats occurs only in a chronic form. This explains the obstinate clinging of the disease to particular areas and its periodical recrudescence. About 75 per cent. of the rats caught alive are infected with chronic plague and the recrudescence of plague in rats in an acute form appears to depend on the infection of fresh generations of rats, the young animals being highly susceptible. Human plague is epidemic only during acute exacerbations of the epizootic and disappears or diminishes while chronic plague is present among rats.

Preservatives in Milk.

An important report on this subject has been presented to the Essex County Council by Mr. Dymond, lecturer on chemistry, Dr. Dyer, district agricultural analyst and joint public analyst, and Dr. Thresh, county health officer. The points considered by them were the effect of wet and dry weather on milk and the use of preservatives in dairy produce. With regard to the first question, they examined over 1,000 specimens and found that, although the richness of milk showed considerable variations, the average results were much above the limits of the Board of Agriculture and that there was no evidence that very dry weather or very wet weather produced any influence such as to render the board's limits unfair or onerous to the farmer. They were unanimous that it was to the interests of the farmer, as well as the consumer, that the board's regulations should be uniformly enforced. The use of preservatives was found to be unnecessary under the conditions of modern dairying with proper cooling appliances and due regard to cleanliness. The practice was further condemned as objectionable where infants are concerned. All the experts were of opinion that the use of preservatives in milk, including boracic acid and formalin, should be prohibited and that the quantities admissible in other dairy products should not exceed those permitted in the recommendations of the departmental committee.

Reformatories for Inebriates.

Dr. Branthwaite, inspector under the "inebriates act," has issued an instructive report for 1903 on the inmates of the reformatories provided under the act. The numbers have greatly increased in recent years as the working of the system is becoming appreciated. The number under detention at the end of 1903 was 1,012, against 88 five years before. Among these habitual drunkards there is a remarkable absence of the disease due to alcoholism. There has been one clear case of chronic Bright's disease. Many were suffering from symptoms of hepatic congestion, enlargement of the liver, slightly jaundiced conjunctiva and habitual constipation. But the symptoms disappeared under treatment. There was not one typical case of cirrhosis of the liver among these 1,000 worst drunkards in the country and no instance of ascites. Their mental condition was not so satisfactory. The majority were "feeble-minded," not amenable to jurisdiction as lunatics, but to a certain degree irresponsible. It would be difficult to find more than a third capable of passing muster as quite sane as compared with persons of average mental capacity.

Ice and Cold Storage.

The London County Council has issued a report on the fit-

ness for consumption of ice sold in this country and conditions under which the cold storage business is conducted. Most of the ice used in London comes from small lakes and ponds in Norway, which are said to be situated in such secluded sites as to render contamination highly improbable. But it is by no means certain that the sanitary conditions at the harvesting grounds or the means of transfer and storage are satisfactory from the hygienic standpoint. The council, therefore, recommends that ice required for consumption or brought into contact with food should be that made artificially from pure and preferably from distilled water.

Correspondence.

Medical Society for the Study of Alcohol and Narcotics.

HARTFORD, CONN., Jan. 9, 1905.

To the Editor:—The American Medical Society for the Study of Alcohol and Narcotics will hold its annual meeting at Portland, Oregon, July 12, 1905. This society is composed of members of the American Medical Association who are especially interested in the study of the alcoholic problem and the diseases which follow. The purpose of the society is to study medically the clinical, etiologic, therapeutic and medico-legal aspects of this subject. Every year the increasing prominence of the diseases and the injuries due directly to alcohol make it more and more imperative for medical men to become familiar with the general principles of these neuroses and to be able to advise wisely the best means of prevention and cure. This society is trying to build up a new and broader interest in the subject among physicians to enable them to become teachers rather than followers of the public opinion of to-day. Several excellent papers have been promised for this annual meeting, and an earnest appeal is made to all medical men to take up this subject from a scientific point of view and to assist by their contributions or presence at the coming meeting. T. D. CROTHERS, M.D., Secretary.

Preparation of the Parturient Patient.

FORT STANTON, N. M., Jan. 9, 1905.

To the Editor:—Why is it that the great majority of obstetricians are so neglectful of surgical cleanliness as applied to the external genitals of women in labor? The gynecologist shaves and scrubs the external genitals for every minor operation, and the surgeon does the same even when his field is in the abdomen six inches from the nearest of the pubic hair. But in a disgracefully large proportion of all deliveries no attempt whatever is made by the obstetrician to clean his field of operation, with the result of thousands of unnecessary deaths every year and an incalculable amount of chronic invalidism and sterility.

Location, anatomic conformation and functions of the vulva all combine to favor the accumulation there of a large and varied assortment of putrescible materials and pathogenic bacteria. Yet many an obstetrician allows his sterilized hand to come in contact with it at frequent intervals during labor, and so rubs bacteria into the stretching and splitting cervix. The full bath before labor is, of course, of some effect in reducing the possibilities of infection; but those familiar with surgical asepsis know that nothing but orthodox shaving and scrubbing can be relied on to prevent contamination of the birth canal during the examinations. It is not proposed to attempt to clean the vagina in ordinary cases. Theory and experience both show that the vagina can take good care of itself.

The passing of the finger through a septic vulva during labor is responsible for thousands of deaths and tens of thousands of cases of prolonged ill-health. That this state of affairs is still tolerated in obstetrics while it no longer is in surgery is due to a number of causes, not one of which is a real justification. In the first place surgery is practically a new art by reason of the revolutionary changes resulting from anesthesia and antisepsis; hence, patients expect surgeons to do things incomprehensible to the lay mind. But obstetrics, as many practice it, has changed little or none in the last fifty years. Every old woman considers herself a competent critic in the art, and frowns on all innovations, especially on those she can not understand or that make for her extra work. Thus, in contrast to the surgeon, whose patients come to him in a state of absolute helplessness, the obstetrician is often the most henpecked creature alive.

Fifty years ago the profession took a long step toward eradicating sepsis as a noteworthy cause of death after labor, and ever since has balked at the second and final one. Thanks to Holmes and Semmelweis, we no longer go from autopsies to deliveries without washing our hands. To remove the other constant source of infection, and so still further to reduce the mortality, it is necessary to scrub and to shave the vulva before labor, as the gynecologists do before an operation.

But it is easy to scrub one's own hands, while it requires more than ordinary tact and courage to succeed in inducing a frightened woman to submit to a disagreeable procedure which all her female friends assure her is unnecessary. Only by gradually and persistently educating the public and by arousing the conscience of the profession can this important reform be carried out. It is hoped that another Holmes with an inspired pen and another Semmelweis with an array of convincing statistics will come forward to do the work of awakening. In the meantime the rank and file of the profession will slumber on in the comfortable delusion that hand-scrubbing is the alpha and omega of obstetric asepsis and that the thousands of deaths and tens of thousands of cases of chronic invalidism from sepsis every year are an "irreducible minimum" and a necessary part of the curse of Eve.

NORMAN ROBERTS.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ALBUMINURIA.

BATH, ME., Jan. 2, 1905.

To the Editor:—In your answer, Dec. 31, 1904, to my query concerning the Spiegler-Jolles reaction, you say to filter the urine through asbestos. Do you mean asbestos paper? What is the character of this asbestos, and where can it be obtained?

HORACE FOX.

ANSWER.—Asbestos fiber comes in masses like cotton and should be readily obtained of any dealer in chemical supplies. The long fibers are best. Place a small, perforated porcelain disc in a funnel; suspend the asbestos in water and pour on the suspension until an even layer of asbestos is formed on the disc. The layer should be thick enough to yield a clear filtrate.

INJECTION TREATMENT OF HERNIA.

———, MINN., Jan. 4, 1905.

To the Editor:—Kindly give me the titles of about two good articles on the injection method for cure of inguinal hernia. Is this method used to any extent by reputable physicians?

MINNESOTA.

ANSWER.—Feid: "Treatment of Hernia by Injection," *Cincinnati Lancet-Clinic,* 1897, n. s., vol. xxxix, p, 182, Griffen: "Treatment of Inguinal Hernia by Injection," *International Journal of Surgery,* N. Y., 1897, vol. x, p. 355. Guim: "Injection Treatment of Hernia," *Texas Medical Journal,* 1900, vol. xvi, p. 71. These three are comparatively recent articles in English. A more elaborate article in German, "Treatment of Hernia with Alcohol Injections," by Steffen, may be found in *Samml. klin. Vortrage,* n. f., 1904, No. 369. The results of the injection treatment are so poor when compared with those of the modern operative procedures that the injection method finds little to recommend it.

SEQUELS OF GONORRHEA.

BROOKLYN, N. Y., Jan. 11, 1905.

To the Editor —In THE JOURNAL January 7, page 51, under the above heading, you answer the query in a way that gives an erroneous idea of the capabilities of the disease, inasmuch as you fail to mention any other than the acute—local—after-effects, and make no mention of the general life-long constitutional after-effects that most frequently result. These last are usually overlooked in the "years after," the physician usually ascribing same to other causes, when a careful study of the life history of a

series of such cases would force a careful observer, if put on the right track, to conclude that gonorrhea is a constitutional disease with secondary and tertiary as well as hereditary manifestations, and that it is a frequent etiologic factor in a large percentage of chronic conditions. Some few of the chronic after-effects that may be most frequently noted are the following: Chronic catarrhal states, nasal, bronchial, gastrointestinal, and genitourinary; chronic rheumatic and neuralgic tendencies and states; morbid mental conditions of all kinds and degrees; passive congestions due to sluggishness of the venous system and producing first catarrhal states, to be followed secondarily by hyperplasia, and still later by fibrosis of structures involved; tendency to new growths both benign and malignant—anything from warts to cancer; marasmus and gastrointestinal diseases of infants, most frequently seen in the offspring of a gonorrheal parent. Many infants, when old enough to do so, will persist in "lying on face with knees drawn up under belly," and in every such case you may be positive that one of the ancestors has had gonorrhea.

W. H. FREEMAN.

ANSWER.—Our correspondent does well to realize as fully as he does the immense and protracted evil consequences of gonorrheal infection. He is not correct, however, in stating that we failed "to mention any other than the acute—local—after-effects." We mentioned several that are either not local or not acute. We purposely confined our answer to "the diseases and conditions usually included" because that was the question asked.

Marriages.

JOHN W. CARICO, M.D., to Miss Effie Hill, both of Cloverdale, Cal., December 30.

ASA N. DE VAULT, M.D., to Miss Mary Anderson, both of Chicago, December 21.

GUY A. GRAFTON, M.D., Hayward, Wis., to Miss Josephine Heyer of Superior, Wis.

MAURICE PACKARD, M.D., to Miss Blanche Vogel, both of New York City, January 1.

EUGENE F. HOLLAND, M.D., to Miss Pearl Ingram, both of Mulberry, Tenn., January 4.

EUGENE H. SMITH, M.D., Ogden, Utah, to Miss Edith Burns of Omaha, Neb., January 4.

WALTER M. ELY, M.D., to Miss Nora Ingle, both of Walla Walla, Wash., December 31.

D. D. TALCOTT, M.D., Crofton, Neb., to Miss Ethel Milner of Belvidere, Ill., December 27.

EDWARD C. LEDMAN, M.D., to Miss Zella N. Buchanan, both of Norwich, Ohio, December 28.

J. MAGGARD, M.D., Wichita, Kan., to Miss Erna Barteldes of Lawrence, Kan., December 31.

JOSEPH R. ANDERSON, M.D., to Miss Georgia Lewis, both of Owensboro, Ky., December 27.

LEE WALLACE DEAN, M.D., to Miss Ella M. Bailey, both of Iowa City, Iowa, December 29.

ROLAND H. SHIPPEY, M.D., Rock, Kan., to Miss Angie Cecilia Gray of Denver, Colo., December 28.

ARVILLE W. BITTING, M.D., Lafayette, Ind., to Miss Katherine Eliza Golden of Wollaston, Mass.

ROBERT W. O'DONNELL, M.D., Monroe, La., to Miss Amelia Hardel of New Orleans, January 4.

ALFRED R. SEEBASS, M.D., to Miss Herta Thies, both of Denver, at Cheyenne, Wyo., December 19.

L. ROLLIN HUDELSON, M.D., Milroy, Ind., to Miss Maude Ellis of New Castle, Ind., January 4.

EDWARD JENNER BARRETT, M.D., Chicago, to Miss Julia Dennett of Sheboygan, Wis., January 11.

CAPT. THOMAS HENRY MATHEWS CLARKE, R.A.M.C., to Miss Susan Morrell Chapin of Pennsylvania.

LYNN MOORE BARNES, M.D., to Miss Donna Ullery Buckingham, both of Decatur, Ill., January 10.

THOMAS M. MERIWETHER, M.D., Elberton, Ga., to Miss Nita Kendrick of Dawson, Ga., December 29.

HARRY S. PRENTISS, M.D., De Soto, Mo., to Miss Edith Garsides of Little Rock, Ark., December 27.

W. V. STANFIELD, M.D., West Point, Ind., to Miss Edith Closson of Newtown, Ind., December 28.

CHARLES F. MCCOMB, M.D., to Miss Helen Jensen, both of Duluth, at Stillwater, Minn., January 17.

HOMER SYLVESTER, M.D., Milwaukee, Wis., to Miss Janette Atwood, at Edgerton, Wis., December 21.

E. VAN CAMP, M.D., Butler, Mich., to Miss Bessie May Gates of Red Wing, Minn., December 29.

CHARLES BERNSTEIN, M.D., Rome, N. Y., to Miss Lillian Watson Stebbins of Warsaw, N. Y., January 3.

GEORGE B. M. BOWER, M.D., Fort Wayne, Ind., to Miss Lillie Weld of Guthrie Center, Iowa, December 26.

THOMAS A. BUCHANAN, M.D., Oklahoma City, Okla., to Miss Winifred Brown of Virginia, Ill., January 3.

CLYDE VAN OSDOL, M.D., Milan, Ind., to FLORENCE M. OLMSTEAD, M.D., of Versailles, Ind., December 29.

LOUIS FULDNER, M.D., Milwaukee, to Miss Carolyn Elizabeth Blanchard of Lake Geneva, Wis., December 28.

JOHN RANDOLPH JORDAN, M.D., Ellaville, Ga., to Miss Elizabeth Williams of Buena Vista, Ga., December 31.

EDWARD THOMAS LAWLER, M.D., Cedar Rapids, Iowa, to Miss Laura Mae Green of West Union, Iowa, January 17.

CHRISTIAN WALDKOENIG, M.D., Baltimore, Md., to Miss Florence Aurora Mills of Douglasville, Ga., December 29.

WILLIAM CHARLES SCHROEDER, M.D., Portsmouth, Va., to Miss Margaret V. Hill of Raleigh, N. C., December 29.

WILLIAM WALLACE RALSTON, M.D., Houston, Texas, to Miss Ella Kate McCollum of Lockport, N. Y., December 28.

LEANDER ARMISTEAD RILEY, M.D., Oklahoma City, Okla., to Miss Gertrude Darrall of Galveston, Texas, January 11.

JOSEPH B. HARDY, M.D., St. Louis, Mo., to Miss Minnie B. Withers of Topeka, Kan., in Kansas City, Mo., January 3.

Deaths.

Churchill Carmalt, M.D. College of Physicians and Surgeons in the City of New York, 1891, a member of the American Medical Association, New York State Medical Association, Association of American Anatomists, and New York Academy of Medicine; assistant surgeon at the Woman's Hospital; one of the founders of the Hudson Street Hospital; demonstrator of anatomy in the College of Physicians and Surgeons; formerly assistant to the late Dr. T. Gaillard Thomas; a gynecologist of repute, died at his home in New York City, January 8, from pneumonia, after an illness of three days, aged 39.

William H. Prioleau, M.D. Medical College of the State of South Carolina, Charleston, 1893, a member of the American Medical Association; formerly acting assistant surgeon in the United States Public Health and Marine-Hospital Service; a member of the Mississippi Valley Medical Association, Medical Society of the State of North Carolina, and Duncombe County Medical Society, formerly of Asheville, N. C., died at his home in Charleston, S. C., January 4, after a long illness, aged 35.

James Walter Hervey, M.D. Indiana Central Medical College, Indianapolis, 1850, surgeon of the Fiftieth Indiana Volunteer Infantry in the Civil War; one of the oldest members of the Indiana State and Marion County medical societies; a member of the legislature in 1854; delegate to the International Medical Congress in 1892, died at his home in Indianapolis, January 5, from a severe cold, after an illness of three days, aged 85.

Henry Mallory, M.D. Medical Department of Western Reserve University, Cleveland, 1850, president of the Board of Health of Hamilton, Ohio, and one of the oldest practicing physicians in the state, died at his home, December 21, from pneumonia, after an illness of two days, aged 82. He served as surgeon to the Fourth Kentucky Infantry and afterward as division surgeon during the Civil War.

Warren Hunter, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1860, physician of Rock Island County for six years, assistant surgeon of the One Hundred and Sixteenth Maine Volunteer Infantry during the Civil War, died at his home in Oneida, Ill., January 6, from uremia, aged 72.

Joanis Orlando Harris, M.D. Geneva (N. Y.) Medical College, 1851, assistant surgeon of the Fifty-third and One Hundred and Thirty-eighth Illinois Volunteer Infantry in the Civil War, died at his home in Ottawa, Ill., January 10, from pneumonia, after an illness of only one day, aged 76.

George V. Convery, M.D. Long Island College Hospital, Brooklyn, N. Y., 1880, for many years surgeon in the merchant marine and later inspector of the Brooklyn Department of

Health, died at his home in South Brooklyn, N. Y., January 7, after an illness of four months, aged 44.

Richard Kidder Taylor, M.D. Medical College of Virginia, Richmond, 1846, medical purveyor in the Confederate service during the Civil War, died at his home in Keokuk, Iowa, January 6, from heart disease, after an illness of two months, aged 78.

D. Albert Barnum, M.D. Albany (N. Y.) Medical College, 1865, assistant surgeon in the Sixteenth New York Heavy Artillery during the Civil War, died at his home in Cassville, N. Y., from gastritis, January 1, after an illness of a few hours, aged 59.

Frank Chambers, M.D. University of Louisville Medical Department, 1875, a member of the American Medical Association and one of the best-known physicians of Hancock County, Ky., died at his country home near Chambers, January 5, from dropsy.

Harry D. Quarry, M.D. Trinity Medical College, Toronto, Ont., 1889, some-time secretary of the North Dakota State Board of Health, a specialist on the eye and ear, died at Mentone, Cal., December 27, from tuberculosis, after a long illness.

William A. Norred, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1902, committed suicide in his rooms in Minneapolis, January 12, by shooting himself through the heart while despondent, aged 34.

E. B. Freeman, M.D. Jefferson Medical College, Philadelphia, surgeon in the Confederate service during the Civil War, died at his home in East Rome, Ga., January 6, from the effects of carbolic acid accidentally administered, aged 74.

Edmund C. Purcell, M.D. Missouri Medical College, St. Louis, 1887, a member of the American Medical Association, died at his home in Elyria, Denver, Colo., from pneumonia, after a short illness, January 3, aged 49.

Frank L. Connerly, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1894, of Lake Village, Ark., was accidentally shot and killed while hunting near McGehee, Ark., December 20, aged 48.

Carl V. Scheuermann, M.D. Western Pennsylvania Medical College, Pittsburg, 1894, clergyman and physician, died at his home in Pittsburg, January 4, from pneumonia, after an illness of five days, aged 42.

John Hill, M.D., assistant surgeon of the Forty-first Ohio Volunteer Infantry in the Civil War, died at Vincennes, Ind., December 27, from cerebral hemorrhage, after an illness of two months, aged 62.

Noble C. McMorris, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1856, died at his home in Duncannon, Pa., December 27, from pneumonia, after a short illness, aged 68.

George P. Dobson, M.D., one of the oldest practitioners of Dickson County, Tenn., died at his home in White Bluff, December 31, from paralysis, after an illness of three days, aged 70.

James Edward Kempf, M.D. University of Louisville Medical Department, 1878, of Jasper, Ind., died at St. Anthony's Hospital, Louisville, January 8, after on operation for appendicitis, aged 48.

Achille Chouinard, M.D. Laval University Medical Department, Quebec, 1902, recently returned from studying in France, died at his father's home in Quebec, October 11, from tuberculosis.

Alfred Tygesson, M.D. University of Lund, Sweden, 1891, a morphin habitué, committed suicide at his home in Hartford, Conn., January 6, by taking 25 grains of morphin, aged 48.

Roosevelt H. Davis, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1852, died at his home in Eaton Rapids, Mich., January 7, aged about 80.

Charles A. McNulty, M.D. The College of Physicians and Surgeons of Chicago, 1887, committed suicide by shooting himself in his room at Harlem, Mont., Oct. 6, 1904.

John Reynolds Pomeroy, M.D. Toronto University Medical Faculty, 1878, died at his home in St. Louis, December 30, from septicemia following mastoid abscess, aged 55.

Joseph L. Hillmantel, M.D. Northwestern University Medical School, Chicago, 1887, formerly of Milwaukee, but more recently of Missoula, Mont., died December 21.

William de la Fletcher Ward, M.D. San Francisco, 1894, died from ptomain poisoning at his home in Santa Rosa, Cal., January 6, after an illness of two days, aged 53.

James W. Agee, M.D. St. Louis Medical College, for forty years a practitioner of Valley, Neb., died at his home in that place from pneumonia, January 8, aged 71.

Cyrus McCormick, M.D. University of Maryland School of Medicine, Baltimore, 1868, died at his home in Berryville, Va., January 3, after a long illness, aged 59.

Charles W. Goodale, M.D. Rush Medical College, Chicago, 1869, died at his home in Metz, Ind., from kidney disease, after a long illness, January 5, aged 60.

Jennie Brooks Hildebrand, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1870, died from pneumonia at her home in San Francisco, January 7.

David S. Minton, M.D. New York University, New York City, 1878, died at his home in New York City, January 2, from cerebral hemorrhage, aged 65.

W. P. Hough, M.D. Tulane University of Louisiana, New Orleans, 1883, of Columbia, La., died in Monroe, La., January 3, after an illness of several months.

William C. Cox, M.D. Cincinnati, 1848, died at his home in East Nashville, Tenn., January 6, from senile debility, after an illness of seven months, aged 88.

Peter Reid McMonagle, M.D. University of Vermont Medical Department, Burlington, 1859, died at his home in Prescott, Ont., December 20, aged 71.

George H. Cagle, M.D. St. Louis Medical College, 1875, of Mandeville, Ark., was shot and killed while hunting near Texarkana, January 8, aged 60.

Peter J. McCormick, M.D. New York University, New York City, 1858, died at his home in Yazoo City, Miss., January 3, from cerebral hemorrhage.

Henry Martyn Wells, M.D., medical director United States Navy from 1861 to 1897, died at his home in New York City, January 12, aged 70.

Andrew J. Brewer, M.D. University of Louisville Medical Department, 1879, of Muskogee, I. T., died December 30, at San Diego, Cal., aged 58.

George W. Gillette, M.D. University of Buffalo (N. Y.) 1888, died suddenly at his home in Buffalo from heart disease, December 17, aged 55.

Samuel B. Shaw, M.D. Beaumont Hospital Medical College, St. Louis, 1901, of Bowesmont, N. D., died recently in a hospital in Minnesota.

James J. Kerr, M.D. Cincinnati, 1878, died at his home in Cincinnati, Iowa, December 29, after an illness of several months, aged 84.

Jerome H. Hardcastle, M.D. Medical College of Virginia, Richmond, 1865, died at his home in Middletown, Del., December 31, aged 64.

M. W. Coffman, M.D. Colorado School of Medicine, Boulder, 1900, of Boulder, Colo., died in Denver from tuberculosis, June 9, 1904.

Hugh L. Ray, M.D. Years of Practice, Kentucky, 1894, of Vaughan's Mills, Ky., died suddenly in Bellevue, Ky., January 10, aged 68.

Axel M. Anderson, M.D. Cincinnati, 1899, of Erie, Pa., died recently in Chicago, and was buried in Jamestown, N. Y., December 28.

Monroe Wilkinson, M.D., formerly of New Haven, Ky., died at his home in Louisville, Ky., December 31, from pneumonia, aged 67.

J. L. Vowell, M.D. Missouri Medical College, St. Louis, 1878, formerly of Sunset, Texas, died at Bowie, Texas, December 28, aged 70.

James D. Landrum, Years of Practice, Kentucky, 1894, died at his home in Mayfield, Ky., January 9, from senile debility, aged 82.

Isaac Nock, M.D. Pennsylvania, 1867, died at the Canton (Ohio) County Infirmary, December 27, from pneumonia, aged 77.

James I. Ferron, M.D. Keokuk (Iowa) Medical College, died at his home in Council Bluffs, Iowa, December 28, from pneumonia.

William Harper Davis, M.D. New York City, 1896, died at his home in Brooklyn, January 8, after a long illness, aged 33.

John Lucas Meriwether, M.D., of Mathews Station, Ala., died at a private sanitarium in Atlanta, Ga., January 2, aged 55.

W. D. Young, M.D. College of Physicians and Surgeons, Baltimore, 1889, of East Durham, N. C., died Sept. 25, 1904.

John H. Crawford, M.D. St. Louis, 1879, died at his home in Santa Monica, Cal., after a long illness, Nov. 1, 1904.

John Greenbank, M.D. Pennsylvania, 1853, died at his home in Ocean Grove, N. J., December 29, aged 75.

R. Frank Eagon, M.D. Louisville Medical College, 1889, died at his home in Crawford, W. Va., January 2.

George L. Freeman, M.D. Ohio, 1852, of Glen Head, Long Island, N. Y., died December 27, aged 75.

Joseph A. Moke, M.D. Pennsylvania, 1870, died at his home in Crosswicks, N. J., January 1, aged 65.

William F. Stewart, M.D. Illinois, 1890, of Wabash, Ind., died January 8, in Indianapolis.

Book Notice.

DISEASES OF THE LIVER, GALL BLADDER AND BILE DUCTS. By H. D. Rolleston, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London. Fully Illustrated, Including Seven Colored Insert Plates. Cloth. Pp. 794. Price, $6.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

One is prepared to welcome a good book, especially one in English, on diseases of the liver. Budd, Harley and Murchison are out of date; the more recent work of Quincke and Hoppe-Seyler in Nothnagel's series is not entirely satisfactory. Probably books on this subject are not more numerous because there is still so much that is vague and misty in the physiology, pathology, and pathologic chemistry of the liver, and so much that is unsatisfactory in the matter of treatment. But disease of the liver is a something that is real and that has to be reckoned with by every practitioner, and a reliable guide is a necessity; such a guide will be found in Rolleston's work. The book is eminently practical; it is not overbalanced with theory, in fact we may question whether the author has acted wisely in some instances in omitting certain theories. Rolleston's contributions to the subject of the pathology and clinical course of diseases of the liver during the last decade have been numerous and he is known as a careful observer and a clear writer. These characteristics are seen in this book. A due sense of proportion prevails, not only in the space devoted to different diseases but in that devoted to the subheads under the various diseases. He lets no hobby run away with him; he does not fill pages with the exploiting of some pet notion. The case histories that are inserted, and there are many of them, are truly illustrative, concisely given and never obtrusive. The book is up to date. Such conditions as pericarditic pseudocirrhosis, hemachromatosis, Bante's disease, etc., are fully discussed. The author appreciates the difficulties of satisfactorily classifying the cirrhoses; he states the case fairly, including the modern views, gives various classifications, such as those of Adami and the elaborate one of Chauffard, as well as his own, and then sensibly comes back to the old clinical classification of the portal and biliary types of the disease, not by any means exact, but still workable. It is a pleasure to note the recognition of American and French writers. English writers are, of course, freely cited. We have become so accustomed to see in the bibliographies such a long string of German titles that it is a pleasant surprise, almost a shock, to read a list of ten or fifteen names that includes, perhaps, but one or two German ones. We trust our author has not gone too far in this respect. For while our German confréres are extremely aggravating and shortsighted, too, in the way in which they largely ignore work done elsewhere than in Germany, we do not gain by ignoring them; rather do we injure ourselves.

Miscellany.

The Army Medical Service.—The bill to increase the efficiency of the Medical Department of the United States Army has passed the Senate and is now before the House of Representatives. On January 9 the President of the United States sent the following message to Congress:

To the Senate and House of Representatives:

I have, in a former message, stated to the Congress my belief that our Army need not be large, but that it should in every part be brought to the highest point of efficiency. The Secretary of War has called to my attention the fact that the act approved Feb. 2, 1901, which accomplished so much to promote this result, failed to meet the needs of one staff department, in which all of our people are peculiarly interested and of which they have a right to demand a high degree of excellence. I refer to the Medical Department. Not only does a competent medical service by safeguarding the health of the Army contribute greatly to its power, but it gives to the families of the nation a guaranty that their fathers, brothers and sons who are wounded in battle or sicken in the camp shall have not only skilled medical aid, but also that prompt and well ordered attention to all their wants which can come only by an adequate and trained personnel.

I am satisfied that the Medical Corps is much too small for the needs of the present Army and therefore very much too small for its successful expansion in time of war to meet the needs of an enlarged Army, and, in addition, to furnish the volunteer service a certain number of officers trained in medical administration. A bill which, in the opinion of the Secretary of War, of the late Secretary of War, and of the General Staff of the Army, supplies these deficiencies was introduced at the last session of Congress and is now before you. I am also advised that it meets the cordial approval of the medical profession of the country. It provides an organization which, when compared with that of other nations, does not seem to err on the side of excessive liberality, but which is believed to be sufficient. I earnestly recommend its passage by the present Congress. If the Medical Department is left as it is, no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war.

I transmit herewith a memorandum which has been prepared for me by the Surgeon General of the Army, and also the remarks of the former and of the present Secretary of War with reference to this bill.

It is reported to me that the Ordnance Corps is in a position of disadvantage; that its personnel is inadequate to the performance of the duties with which it is charged, and that under existing conditions it is unable to recruit its numbers with officers of the class necessary for the conduct of its very technical work. It is unnecessary for me to lay stress on the desirability of having the design and manufacture of the material with which we are to fight in competent and sufficient hands, as there is no difference of opinion as to the intention of all concerned to have provided a proper supply of weapons, munitions, engines of war, equal in conception and construction to any in the world, and superior in any respects in which by skill and attention we may be able to compass such superiority.

The greatly increased utilization of the exact sciences in ordnance construction requires a larger personnel for their application, and the process of its selection should be severely and continuously discriminating, under conditions offering stimulus sufficient to cause officers of proper capacity, of whom it appears there are plenty, to wish to subject themselves to it. A bill embodying the necessary provisions and involving no radical departure from existing methods has been prepared by the War Department. I think it should be passed. THEODORE ROOSEVELT.

The following is Surgeon-General O'Reilly's memorandum sent to the President Dec. 7, 1904:

The fact that mortality from disease in armies in war time greatly exceeds that from losses in battle is well known. The noneffective rate from sickness is even more greatly in excess of that from wounds. The British army in the Peninsula, in spite of the many bloody battles, lost three times as many men from disease as from wounds. The infant French Republic was saved at Valmy more by the paralysis of Prussian efficiency by ravage of disease than by that rather bloodless victory. General Scott in the Mexican war lost by disease one-third of his effective strength. The loss from disease in the civil war was more than double that from the casualties of battle. The military efficiency of newly raised armies is specially liable to be gravely compromised or even destroyed from this cause.

The three primary duties of the Medical Department are:

1. To preserve the effective strength of armies (military sanitation).
2. To care for the sick and wounded.
3. To conduct the administrative work of the department.

To carry out these objects requires a highly specialized and complex organization and a numerous trained personnel. Military sanitation is now recognized to be a well-marked specialty in medicine of which the average practitioner knows little more than he does of the methods of military medical administration. The second duty is that for which civilian physicians can be used to advantage, while the first and third must in the main be in the hands of trained medical officers in order to secure efficiency. The standard of what is regarded as a satisfactory degree of efficiency in all of these directions has been greatly raised in late years.

In the Spanish war the country was scandalized by a monthly death rate from disease which rose from 2.15 per thousand in July to 4.08 in August, but fell again to 2.45 in September. During the civil war a higher death rate from disease than the highest maximum above mentioned persisted for many months, reaching in the spring of 1862 a maximum more than double it, without creating half as much popular clamor.

Nor would such occurrences be possible now in civilized warfare as for 600 wounded to lie for more than ten days on the battlefield, as happened after the second battle of Bull Run, on Aug. 30, 1862, when many of the wounded died of starvation. That this was not one of the unavoidable horrors of war, but was, as stated by the Surgeon General in reporting these facts, due to defective medical organization is evidenced by the fact that after the organization of the ambulance service of Letterman such occurrences ceased in the Army of the Potomac. After the great battles of Fredericksburg, Dec. 13, 1862, and Chancellorsville, May 2, 1863, for instance, although the Army was defeated, the field was cleared of wounded without confusion or delay.

The public sentiment of the civilized world therefore demands better organization and higher efficiency for the medical department of armies than at any time heretofore. Other nations, including

even so poor a nation as the Japanese, are willing to pay the cost of increased efficiency in the shape of a large and well organized medical service, and it is not to be believed that Congress or the American people will refuse for our Army what is demonstrated to be essential to avoid future failure and insure efficiency. For medical efficiency a certain number of trained medical officers is necessary to direct matters of military sanitation, and, in the words of Mr. Root, "to conduct the administration of the great and complicated medical service." The measure of this number is given by the Secretary of War in his report for this year as follows (p. 25):

"It is evident that a staff department which has a personnel insufficient to perform the duties required of it in time of peace can not be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the Medical Department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the department."

This principle was not recognized in the reorganization of the Army in 1901. The increase in the Medical Department at that time was so inadequate that the proportion of medical officers to the Army at large was not increased, but greatly diminished and was made considerably less than the proportion existing at the beginning of the Spanish war or the civil war—this in spite of the recommendation of the Dodge Commission that the regular corps be increased.

Instead of giving an advocate's discussion of the bill now before Congress I prefer to refer the President to the impartial opinion of the experts of the Third Division of the General Staff as given in their report on it made to the Chief of Staff, which is to be found on pages 6, 7 and 8 of the report of the Senate Military Committee. (Report No. 2420.)

The attention of the President is especially asked to the following points:

The Army is to-day officered for a strength of 100,000 men except the medical departments, which is only sufficient for 42,000.

An adequate increase in the Medical Corps was recommended by the Dodge Commission.

This bill offers, in the words of Secretary Taft, "a complete workable system."

With a less number than asked for, the Medical Department can not perform the duties with which it is charged by Army Regulations in time of peace, or be successfully expanded to meet the increased labors and responsibilities of war.

With a less proportion in the higher grades it can not attract properly qualified candidates to fill the vacancies created.

The Reserve Corps constitutes an eligible list of competent civil physicians who will reinforce the regular Medical Corps in time of war or other emergency.

The increase of cost is, when the enlargement is completed four years hence, only a little over 4 per cent. above the present cost of the Medical Corps, while next year it will be actually diminished under this act.

The increase of efficiency is as 320 is to 450, or about 40 per cent.

The bill has received the rigid scrutiny of the General Staff and the approval of Secretary Root, of Secretary Taft, of the Military Committee of the Senate, and of the American Medical Association.

Respectfully submitted, R. M. O'REILLY,
Surgeon General.

Mr. Bassett of New York, in discussing this subject, said that some attention should be given to the life-saving departments of the Army as well as to the life-destroying departments. He stated that in the civil war 80 per cent. of those who died succumbed to preventable disease. In the Spanish-American war, on the American side, thirteen men died from preventable disease for every one who died in battle or from wounds received in battle. He then compared this with the illustration furnished by the Japanese army and quoted Major Seaman, who studied the Japanese methods in the field, as follows:

Too much praise can not be bestowed on the medical departments of the army and navy for their splendid preparatory work in this war. The Japanese are the first to recognize the true value of an army medical corps. Care of the sick and wounded consumes but a small part of the time. The solution of the greater problem, preserving the health and fighting value of the army in the field—by preventing disease, by careful supervision of the smallest details of subsisting, clothing, and sheltering the units—is their first and most important duty. Their capacity for detail is something phenomenal; nothing seems too small to escape their vigilance or too tedious to weary their patience, and everywhere—in the field with the scouts or in the base hospitals at home—the one great prevailing idea is the prevention of disease. The medical officer is omnipresent. You will find him in countless places where in an American or British army he has no place. He is as much at the front as in the rear. He is with the first screen of scouts with his microscope and chemicals, testing and labeling wells so the army to follow shall drink no contaminated water.

Mr. Bassett went on to say that in the American Army not only is the Medical Corps insufficient, but they lack authority. A great many physicians who enter the Army, especially in time of war, are on temporary contract. They are called "contract doctors," and it has been held in a court-martial that they do not have authority, not being commissioned officers, and yet those who are regularly commissioned in the Army are so few in number that they can not do the sanitary work in advance that is done in the Japanese army; they can not do the chemical and biologic work that would save thousands of lives, and the result is that preventable diseases have wiped out a far greater number than the bullets of the enemy.

Mr. Bassett believes that the Medical Corps must have sufficient numbers and sufficient authority to enforce their orders in regard to sanitary regulations.

THE CHRISTIAN HOSPITAL FRAUD.

Report by the Medicolegal Committee of the Chicago Medical Society.

Decision Against the Christian Hospital and N. News Wood for Contempt of Court.

On May 17, 1903, Dr. J. B. Murphy came to the office of the Medicolegal Committee with a package of letters received from physicians of the West and Southwest. The writers of these letters had received announcements from the Christian Hospital, bearing Dr. Murphy's name and picture. They were indignant that Dr. Murphy should be a party to this scheme and they so wrote—sometimes in kindness and sometimes in hot, abusing anger. In the lot was a letter on the hospital paper bearing Murphy's picture and his name, asking him to join the staff; this was dated May 12. It was apparent that many of the circulars had been issued prior to May 12, since many replies were written Murphy under date of May 12, or earlier. Dr. Murphy asked the help of the Committee. We began an investigation. The following is a synopsis of the main points covered:

The plan of procedure of the Christian Hospital originated with A. C. Probert. Its details were executed by N. News Wood. Probert spent his earlier life in New Jersey. His first operations in the West were in northern Wisconsin. He did not then claim to be a physician. He had business careers in Ashland and vicinity, and finally landed in the Wisconsin penitentiary at Waupun. On his release he came to Chicago. We have no certain knowledge of his business until he appeared as Dr. Probert of St. Luke's Hospital of Niles, Michigan. That institution placed Dr. Senn's name on its literature. Dr. Senn publicly disclaimed the relation. Use was then made of the name of Dr. Kinsman of Boston, who published an affidavit setting forth that the use of his name was without authority. There were some complications as to women, notice of which appeared in the Chicago daily papers, and Chas. W. H. B. Granville left for the Southwest. Public sentiment and the Michigan authorities were too much for St. Luke's of Niles, under the Probert-Granville management. Probert went a few miles over the line, to Bourbon, Ind. He carried a letter from a Niles citizen since then arrested. He opened a bank at Bourbon. In a short time the bank failed. In 1903 indictments against Probert were still in existence in that county. A former editor of a Bourbon paper gave us the above facts. Probert told our informant that he intended coming to Chicago to work the physicians with a scheme similar to that of St. Luke's of Niles. He came to Chicago and went in with Wood on the Christian Hospital proposition. In June, 1903, he was arrested by the postal authorities for using the mails to defraud. His picture in prison garb, with a sketch of his career, was in the Chicago papers. In the same month he opened a bank at Eau Claire, Michigan, a small town near Chicago, supplied by the Chicago papers. In October, 1903, the Chicago papers contained an account of the suspension of this bank. In November, the United States courts found him guilty and fined him $500. He then went to New Mexico. In the spring of 1904 the Chicago papers announced the failure of his bank in New Mexico. He is said to be in Michigan now. Dr. Wood we first hear of as having a lying-in hospital at Des Moines, Iowa. Later he had another institution at Omaha. We were given a list of people, three of whom lived in Chicago, and the remainder in Iowa and Nebraska, who could tell us of the conduct of these institutions. None of these people responded to inquiries. Dr. Wood came to Chicago about 1892. He opened a hospital on La Salle avenue. The steps in the evolution of the Christian Hospital are set forth clearly in Judge Holdom's decision.

On Monday, May 18, Dr. Murphy and this committee conferred with State's Attorney Deneen. It was agreed that the

United States could get evidence more easily than could the State. We then conferred with United States Inspector Stewart. His men went to work at once. Evidence was gathered until June 1, when Wood and Probert were arrested. On June 2, Inspector Ketcham told us that the government had enough evidence. On June 3, Judge Holdom enjoined the institution and its officers from alleging that Dr. Murphy was, or ever had been, connected with the Christian Hospital, also from selling any more certificates bearing his name or picture, or from sending out advertisements similar to those formerly used. In March, 1904, Dr. Murphy received a large number of complaints that the Christian Hospital was again using his name. Especially kind letters were written by Drs. Crysler of Yazoo City, Miss., Murphy of Enterprise, Miss., and Persons of Montgomery, Ala. These letters came principally from the South. It was apparent, then, to all of us, that denials such as those of Drs. Senn, Kinsman, Delafield, Deaver, and Bernays, and even the more active course of Dr. Murphy and our committee during 1903, were ineffective. Mr. Dacy, the very able attorney of the Society, who had handled the case originally, was ill, so Dr. Murphy called in his attorney, Judge Geo. W. Brown. Again we started gathering information. We got track of some fifty men, more or less, who had secured certificates since the issuing of the injunction. These were distributed as follows: Pennsylvania, 8; Indian Territory, 1; Florida, 1; Bermuda, 1; West Virginia, 3; Ohio, 6; Alabama, 2; Indiana, 2; Michigan, 1; Tennessee, 1; California, 1; Missouri, 4; New York, 2; Kansas, 3; Kentucky, 2; Oklahoma, 1; Oregon, 1; Maine, 1; North Dakota, 1; Iowa, 1; Louisiana, 3; South Carolina, 1; Maryland, 1; California, 1; Texas, 2.

Men were sent out gathering affidavits from these purchasers. On the strength of these affidavits and accompanying certificates, Wood was brought into court.

The main defense centered around two points. The first was that Dr. Murphy's proper action was for libel, and that this court could not enjoin a libel. If you know that a man has been and still is libeling you, you can sue him for damages, but you can not enjoin him. The distinction made by Judge Holdom between a libel and a libelous action that is resulting in fraud is made clear to any layman.

The second was that no man can be restrained from using an uncopyrighted picture. Around most schools and hospitals pictures of physicians, clinics, etc., are usually on sale. If not copyrighted, any of these can be used to embellish anything, with this limitation, says Judge Holdom, that such use is improper if this use can be interpreted as meaning that anybody therein is endorsing or is in any way responsible for the institution making use of the picture.

As to the question of willfulness, Judge Holdom cited their use of the golden rule—the claim to effect Christian and humanitarian cure through the use of all means known to skilled physicians and surgeons, aided by magnetic and mental healers, etc., and their lack of consistency therewith; the misstatements embodied in a letter sent out after the injunction issued—but this is better read at first hand.

DECISION OF JUDGE HOLDOM.—(ORALLY.)

Murphy vs. Christian Hospital, N. News Wood, et al.
Proceeding for contempt for violation of injunctional order.

The environment of this case is somewhat peculiar. An institution known as the "Chicago Store" was first incorporated with a quarter of a million dollars of capital stock, upon its face, quite a business enterprise. Thereafter the corporate name was changed to "The Christian Medical Dispensary and Humane Hospital;" and then, on June 23, 1902, the latter name was changed to the "Christian Hospital."

We find that the "Christian Hospital," according to its designation in its literature, adopted as its beacon light the golden rule, "Do unto others as you would have others do unto you;" but from the nature of its peculiar methods, and the inducements held out to the unsophisticated and confiding doctors in the rural districts, it appeared in fact to conduct its affairs by the "David Harum" golden rule: "To do others before they have a chance to do you."

It is not necessary for me to pass upon the professional ethical condition which environed Dr. Wood and the "Christian Hospital," or his assistants, but the evidence shows that an eminent surgeon of this community, Dr. John B. Murphy, without his knowledge or consent, was subjected to the mortification of having his name, in facsimile of his signature, with his degrees following his name, together with a photograph of himself apparently about to engage in the performance of a surgical operation in a clinic, attached to the so-called certificate of membership in the "Christian Hospital."

Some criticism has been made of Dr. Murphy because he did not at once repudiate the action of Dr. Wood in connecting him, without warrant, with the "Christian Hospital." The letter of May 12, 1903, was the first intimation Dr. Murphy had of the liberties which had been taken with his name and professional standing. At the same time, Dr. Murphy received a very scathing letter from a Dallas, Texas, physician, which was inspired by the receipt of Dr. Wood's "Christian Hospital" literature. It was a very just and righteous expression of that doctor's indignation at Dr. Murphy for having, as it appeared to him from the literature received, deserted that high pedestal which he had theretofore occupied among his brethren in the medical profession, and stooped to connect himself in that way with this "Christian Hospital," which made propositions so unethical in its literature in an attempt to induce these rural doctors to become members of the hospital staff and receive the certificates which it offered for sale on a rising scale of from $5 to $25. When Dr. Murphy was confronted with what Dr. Wood had so audaciously done, and the unheard-of liberties he had taken with his name, it is not doing any violence to presume that Dr. Murphy was impressed with the utter futility of any attempt to do anything with a person of Wood's character, to head off further evil consequences to himself flowing from that which Dr. Wood had so unwarrantably done; and it is not at all surprising that instead of approaching Dr. Wood, he appealed at once to his lawyer to appeal to the courts to prevent further trouble for himself and his good name, and to prevent the sick and physically infirm from being further deceived through the alluring literature of Dr. Wood, or to entrust themselves to the so-called "Christian Hospital." It is apparent and self-evident from the facts in evidence that Dr. Wood had not connected with him or the Christian Hospital surgeons or physicians of the standing of Dr. Murphy, or any of the other gentlemen, whose names are so well known in medicine and whose pictures appear with Dr. Murphy in the clinic portrayed upon the certificates in evidence. It follows, therefore, that Dr. Murphy is excused and exonerated from any obligation to appeal to Dr. Wood before he filed this bill. The law requires no one to do a useless act before appealing to the law to right a wrong. I have no doubt that in the circumstances of this case, this court can give the relief that is prayed here, so far as to prevent the issuing of certificates with the name of Dr. Murphy, and in connection with it the picture of him about to engage in an operation in a clinic. However, the picture not being copyrighted, and having been given to the world free, any one may use it, but no one may, however, use it in connection with Dr. Murphy's name, so that the public may be deceived, defrauded or misled, and it is part of the province of a court of equity to prevent such frauds from being perpetuated.

Even assuming that this bill may not be sufficiently verified under the statute, still that would not make void the injunctional order, notwithstanding this court might, on proper application, dissolve the injunction. The court having jurisdiction of the parties and the subject matter, it is immaterial, howsoever erroneous the injunctional order may be; while it is in force, it must be obeyed, and he who willfully disregards it must pay the penalty of such rash and unlawful conduct.

What I may now say in relation to the evidential facts of this case is simply for the purpose of seeing where credence should be given, and who and what statements, if any, should be discredited, and in ascertaining the truth.

It is admitted that the first time Dr. Murphy knew of the unlawful use of his name was through the letter of Dr. Wood of May 12, 1903; that prior thereto Wood had no personal communication whatever with Dr. Murphy, nor was there any relationship between them, medically or otherwise. There is no evidence tending to show that Dr. Wood had any business, in any way, with Dr. Murphy, or that they operated together surgically at any time or place; or that Dr. Murphy was ever at the Christian Hospital, or even had a speaking acquaintance with Dr. Wood; so that no relationship existed between them which could, by the most liberal construction, lead Dr. Wood to the conclusion that he was at liberty, or might reasonably presume to take the liberty, to use Dr. Murphy's name and reputation in connection with the Christian Hospital as he did.

Now, Dr. Wood claims that the only authority for his actions rests on the statement of one Dr. Arthur C. Probert that Dr. Murphy had told him that his name might be so used. Probert appears as the vice-president of the Christian Hospital. Is such statement alleged to have been made by Probert borne out by the proofs? In that letter of May 12, Wood did not say anything about any arrangement or understanding with Dr. Probert. Wood simply told him in this letter to Murphy, that the Board of Directors had elected him, Murphy, to that position, and wanted him to accept of it in writing. There was not anything said in that letter, or at any other time, except upon this hearing, about Dr. Probert.

Now, Dr. Probert seems to be a mythical personage. He appears as vice-president of the Christian Hospital, and if he does exist——about which there is room for much doubt—he certainly must be, if he is entitled to the long string of degrees appearing after his name from regular collegiate institutions, a very learned gentleman; and a gentleman of so much learning as these degrees tend to indicate, would naturally be known, not only to many institutions, but to men of scholarly attainments and of high professional standing in this community, and he certainly could not be lost without creating considerable public notoriety. If Dr. Probert is not a myth, it is strange indeed that he has not been heard from; that his affidavit has not been tendered here, or that he has not come into court in person and by his testimony justify Dr. Wood in the use at least of Dr. Murphy's name. We do not hear from Dr. Probert at all, and now Dr. Wood disclaims any knowledge as to his whereabouts; neither does he vouchsafe any information as to the time or place where he last knew of him, or on what pretense he left this jurisdiction. The position of Dr. Wood is untenable; his representations in relation thereto glaringly false; his contentions are bald and shallow pretenses, which lack even the semblance of verity.

Has Dr. Wood or the Christian Hospital violated, willfully, the injunction of this court? Has Dr. Wood done any act in an en-

deavor to disclaim the right to do what he has done? To disclaim the verity of that which he has held out to those unsuspecting and confiding physicians all over this country? Not at all. Did he, by one word or insinuation, intimate to those gentlemen that Dr. John B. Murphy had never been connected with the Christian Hospital, or with him, and that the use of Murphy's name was absolutely and entirely unwarranted, and that he had presumed, without authority from Murphy, that he would be glad to be connected with the Christian Hospital, and therefore assumed to use his name? Not a word of truthful exposition escaped him. The only interpretation of which Wood's correspondence is susceptible, is, that through some disagreement between himself and Dr. Murphy, some disagreement that had arisen after and during the time of his assumed connection with the Christian Hospital, their relationship had been discontinued, and that in the future Dr. Murphy would cease to be what he had been to the Christian Hospital in the past.

I am unable to discover from these letters any willingness or desire on the part of Dr. Wood to either right the wrong he had done or to obey the injunction of this court. It does not appear from his actions that he was endeavoring to comply with or obey the injunction of the court, but that he was in fact endeavoring, in his own way, to evade the effect of that injunction, to evade the effect of it upon the persons to whom he wrote, by concealing from them the fact that this court had enjoined him from using the name of Dr. Murphy because he had assumed so to do, without warrant, and against law and right. I thoroughly agree with what Judge Brown has in effect said, viz.: that if there was no evidence in this record other than the letters which Wood wrote to Haynes and Clifford and those various other country medical men, that they would be sufficient in themselves to at least show the intentional and willful endeavor to evade the effect of this injunction. Dr. Wood was, by these letters, trying to induce the rural physicians to say that Dr. Murphy's name was not the magnet which drew them to his institution. It is self evident they were induced to join the Christian Hospital staff by the false representations and inducements held out by Dr. Wood, for it is self-evident the Christian Hospital, being very young, it had a reputation to establish, and nobody realized that probably more than Dr. Wood did, and it may well be, that such knowledge was one of the influences affecting his actions, and which prompted him to make this unwarranted use of Dr. Murphy's name; and there is abundant evidence here that certificates have been issued since the service of this injunction of June 3, 1903, upon Wood and the hospital, with the name of Dr. Murphy and with his picture in the surgical clinic, and I am of the opinion that the correspondence with Clifford and others was in effect a reissue of the certificates then in their hands. I am free to say that what appears to have been an attempt to obliterate the name of Dr. Murphy was simply a subterfuge, and it is too plain to admit of denial that the name of Dr. Murphy was more apparent after the attempted obliteration than it really was before, because the mark being so lightly drawn through it, instead of obliterating it, simply accentuated and attracted more particular attention to Dr. Murphy's name than if the mark had not been placed there, and Dr. Wood can not be excused because he claims to have delegated the task of erasing Dr. Murphys name to another.

Aside from Dr. Murphy, the public have a right to be protected, and if these things can be done, it seems to me that the law would be lacking in one of its great attributes if it was impotent to remedy so great a wrong. Can a man's professional reputation be slandered and outraged and the law afford no adequate relief? If there be a remedy—and surely there is—and the injury be irreparable at common law, is a court of equity without power to grant relief? I doubt not its beneficent arm will be outstretched to stay the hand that smites and shield the object of the assault from further harm. I base this conclusion on the law on broader grounds than taken by counsel for respondents—that is aside from the invasion of the rights of Dr. Murphy—on the broad humanitarian ground that the sick and afflicted will be protected from being deceived and misled, and perchance be lured to their death by the false representations that at the Christian Hospital they will find, not Dr. Wood, but Dr. Murphy, and other men of his caliber to minister to their diseased and afflicted bodies. Such charlatans as Dr. Wood, and such conglomerate affiliation of quackery and baser schools of medicine to be found in practice at the Christian Hospital, will not only be condemned, but restrained by law from pirating on the public when fraud and deceit are the alluring factors—and the court is asked to do so.

Now, Dr. Wood had no business to ignore this injunction. He had no business to go on in his own way and do just as he might see fit. The least he could have done after he was served with this injunctional order, if he desired to proceed further in the matter with the business in which he had started, was to have consulted a lawyer, and it is not to his credit that he neither saw a lawyer nor came to the court asking to have this injunction dissolved. But without the advice of counsel, he went his own way and kept along in the same illegal path, with only a subterfuge of a pretense to comply with the mandate of this court, and inserted the name of Dr. Somers as a pretended substitute for that of Dr. Murphy, while so far as can be seen, Somer's name appeared to be added, not Murphy's taken out.

I am more embarrassed in relation to the punishment which should be meted out to Dr. Wood and the Christian Hospital than I am about the other branch of the case. I am inclined to think, from what appears on this record, Dr. Wood is a dangerous man to any community. He is not free from suspicion, and a grave one, that the manner in which the name of Dr. Murphy appears is in law a forgery. A criminal act. It purports to be Dr. Murphy's signature, but I am not here to punish him for forging Dr. Murphy's name, but I may take into consideration the moral turpitude of Dr. Wood in determining the degree of punishment which should be meted out to him for his willful violation of the injunctional order.

I will fine the Christian Hospital two hundred and fifty ($250) dollars, and I will fine Dr. Wood one hundred ($100) dollars, and sentence him to ten days' imprisonment in the county jail, and it is so ordered.

We will not close without some personal references. Dr. Murphy has expended a large sum of money in accumulating evidence needed to rid himself, the profession, and the people from this menace. Our thanks are also due to Drs. Deaver and Taylor of Philadelphia, Wiggins of New York, McCormack and Wathen of Kentucky, Dinnen and Bruggeman of Indiana, Blanchard of Wisconsin, Sheldon of Iowa, beside a large number of others to whom we are just as grateful. Signed, W. A. Evans, H. A. Moyer, C. S. Bacon, Medicolegal Committee, Chicago Medical Society.

Treatment of Hernia.—Dr. J. M. Banister of the First Reserve Hospital, Manila, P. I., calls our attention to two errors which occurred in his manuscript and which also appeared in the publication of the article, "The Radical Treatment of Nonstrangulated Inguinal Hernia from the Standpoint of the Modern Surgeon," in THE JOURNAL, Oct. 22, 1904. On page 1226, in the remarks on Kocher's operation, the sentence should read: " . . . owing to the proximity of such important structures as the *external*" (not internal, as printed) "iliac vessels . . . ." In the last paragraph on the same page the name of Dr. Dawbarn of New York is erroneously given as "Dr. Newbern."

The Books of the Year 1904.—Those who were interested in the summary of the new books published during the year 1904 which we gave in THE JOURNAL, January 7, page 53, will be further interested in the following from the *Medical Book News*. Its summary, unlike our own, includes new editions and republications. "Were any reader of this magazine, possessing $1,489.58, desirous of expending it in the purchase of new books for his library, every standard American and English work on medicine in each of its various branches, and on dentistry, pharmacy, chemistry and the allied sciences, published during the current year, could be included. This would mean the acquisition of 575 titles, containing 193,094 pages, with 40,689 illustrations, many in colors. Reducing the different values to a like basis, the cost of each octavo book of 335 pages and 70 illustrations would cost an even $2.59." In this connection we may remark that the list which we published was so nearly complete that our attention has been called to only one book as having been omitted from our list. That one is "Semeiology and Diagnosis of Diseases of Children." N. Filatov and Frank B. Earle, 2 vol., $7, Cleveland Press, Ogden avenue and Lincoln street, Chicago.

State Boards of Registration.

COMING EXAMINATIONS.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Board of Medical Registration for Vermont, Burlington, February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Officers of Ohio Board.—The Ohio State Board of Medical Registration and Examination organized January 3 for the year by the election of the following officers: President, S. B. McGarvan, Cadiz; vice-president, H. H. Baxter, Cleveland; secretary, Frank Winders, Columbus; treasurer, S. M. Sherman, Columbus.

West Virginia 1904 Reports.—Dr. H. A. Barber, secretary of the State Board of Health of West Virginia, reports the examinations held at Clarksburg, Charleston and Wheeling, in April, July and November, respectively. At the oral and written examination, held at Charleston, April 12-14, the number of subjects examined in at each examination was 9; total number of questions asked, 120, and percentage required to pass, 75. The total number examined was 63, 33 of whom were undergraduates. Of the graduates 28 passed and 2 failed, and of the undergraduates 28 passed and 5 failed.

PASSED. College.	Year Grad.	Per Cent.
Coll. of P. and S., Baltimore	(1887)	75
Illinois Med. Coll	(1899)	76
Med. Coll. of Virginia	(1901) 81, (1903)	88, 88
Univ. of the South	(1903)	87
Miami Med. Coll	(1902) 81, 81; (1878)	84
Univ. of New York	(1897)	95
Eclectic Med. Inst	(1890)	75

Western University of Pa.	(1900)	87
Univ. of Berlin (Germany)	(1901)	86
Jefferson Med. Coll.	(1903)	87
Maryland Med. Coll	(1903) 84, (1901)	85, 85
Univ. Coll. of Med.	(1903)	82, 82
Univ. of Maryland	(1900)	87
Univ. of Virginia	(1901) 80, (1900)	88
Meharry Med. Coll.	(1904)	87
Johns Hopkins Med. Coll.	(1899)	89
Howard Med. Coll.	(1903)	87
Southern Homeo. Med. Coll.	(1904)	75
Shaw Univ.	(1902)	75
Toronto Univ.	(1903)	89

At the examination held at Charleston, July 19-21, the total number examined was 104, 36 of whom were undergraduates. Of the graduates 59 passed and 9 failed, and of the undergraduates 21 passed and 15 failed.

PASSED. College.	Year Grad.	Per Cent.
Med. Coll. of Virginia	(1904) 87, 87, 87 : (1897)	82
Univ. of Maryland, (1904) the grade of 86 was reached by four; (1903) 90, (1901) 80.		
Univ. of the South, (1903) 86, (1904) the grade of 80 was reached by three, 84 by one.		
Kentucky School of Med.	(1901) 76, (1904)	75
Univ. Coll. of Med., (1904) the grade of 87 was reached by three, (1903) 83.		
Pulte Med. Coll.	(1904)	79
Coll. of P. and S., Baltimore, (1904) the grade of 84 was reached by six, (1903) 79.		
Maryland Med. Coll., (1904) the grade of 83 was reached by eight.		
Kentucky Univ. Med. Coll., (1904) the grade of 79 was reached by three.		
Baltimore Med. Coll., (1904) the grade of 85 was reached by five.		
North Carolina Med. Coll.	(1904)	85
Western Pa. Med. Coll.	(1904)	90
Hospital Coll. of Med.	(1902)	80
Columbian Univ. Med. School	(1903)	87
Jefferson Med. Coll.	(1904)	85
Starling Med. Coll.	(1904)	80, 80
Univ. of Louisville	(1904)	79
Johns Hopkins Med. Coll.	(1902)	86
Ohio Med. Coll.	(1899)	79
Howard Univ.	(1903)	80
Lexington National Coll.	(1900)	77

At the examination held at Wheeling, November 22-24, the total number examined was 35, 7 of whom were undergraduates. Of the graduates 22 passed and 6 failed, and of the undergraduates 5 passed and 2 failed.

PASSED. College.	Year Grad.	Per Cent.
Univ. of Maryland	(1902) 94, (1904)	91
Detroit Coll. of Med.	(1904)	91, 91
Coll. of P. and S., Baltimore	(1904)	87
Univ. Coll. of Med.	(1904) 91, 91; (1901)	84
Maryland Med. Coll.	(1902) 88, (1904)	80, 80
Ohio Med. Univ.	(1904)	78, 78
Howard Univ.	(1904)	86, 86
Memphis Hosp. Med. Coll.	(1902)	80
Med. Coll. of Virginia, (1902) 90, (1903) 91, (1904) the grade of 87 was reached by three.		
Jefferson Med. Coll.	(1903)	91

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Jan. 14, 1905:

Stiles, Henry R., asst.-surgeon, ordered to report to Major William H. Arthur, surgeon, president examining board, Jan. 17, 1905, Washington, D. C., for examination for promotion.

Reilly, John J., asst.-surgeon, left Jackson Barracks, Louisiana, en route to Army and Navy General Hospital, Hot Springs, Ark., for treatment.

Ebert, R. G., surgeon, left Vancouver Barracks, Washington, with artillery en route to Fort D. A. Russell, Wyoming.

Morse, A. W., asst.-surgeon, ordered to accompany field artillery to San Francisco and then return to post.

Chidester, W. C., asst.-surgeon, left Fort Lawton, Washington, on ten days' leave of absence.

Coffey, Albion McD., contract surgeon, ordered from Joplin, Mo., to Fort Warden, Washington, for duty.

Porter, Elias H., contract surgeon, granted an extension of his leave of absence to Jan. 29, 1905.

Casaday, George H., dental surgeon, granted leave of absence for three months, with permission to visit the United States.

Freeman, Charles E., contract surgeon, granted leave of absence to include Jan. 31, 1905.

Foulkes, Bruce, contract surgeon, arrived at San Francisco January 2 for one month's leave of absence.

Truax, Jesse P., contract surgeon, left Fort Ward, Washington, January 5 for temporary duty at Fort Lawton, Washington.

Sparremberger, Frederick H., contract surgeon, left Fort Mott, New Jersey, January 7 on leave of absence for ten days.

Treuholtz, Clarence A., contract surgeon, returned to duty at the Army General Hospital, Fort Bayard, New Mexico, January 5 from leave of absence.

Wall, Francis M., contract surgeon, returned to duty at Fort Oglethorp, Georgia, January 9 from leave of absence.

McCall, James H., contract surgeon, left Fort Moultrie, South Carolina, January 10 for temporary duty at Key West Barracks, Florida.

Burr, Rollin T., contract surgeon, returned to duty January 10 at Fort Rodman, Mass., from leave of absence.

Hayes, Melville A., contract surgeon, left Washington, D. C., January 11 for duty at Vancouver Barracks, Washington.

Lemmon, Robert, contract surgeon, arrived, January 11, at Fort Terry, N. Y., for temporary duty.

Oliver, Robert T., examining and supervising dental surgeon, arrived at West Point, N. Y., January 14 for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 14, 1905:

Young, R. M., asst.-surgeon, resignation accepted to take effect Jan. 31, 1905.

Taylor, J. S., P. A. surgeon, detached from the *Relief* and ordered to the *Ohio*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 11, 1905:

White, J. H., surgeon, granted leave of absence for six days from January 17.

Wertenbaker, C. F., surgeon, to report at Washington, D. C., for special temporary duty.

Blue, Rupert, P. A. surgeon, detailed as inspector of unserviceable property at the Marine Hospital, San Francisco.

Fricks, L. D., P. A. surgeon, relieved from duty at LaGuayra, Venezuela, and directed to proceed to New York and report arrival by wire.

Korn, W. A., P. A., surgeon, Bureau letter of Dec. 27, 1904, granting leave of absence for seven days, amended so that said leave shall be for four days only.

Atiles, Pedro del Vallo, A. A. surgeon, granted leave of absence for seven days from Dec. 26, 1904, under Paragraph 210 of the Regulations.

Edwards, J. W., A. A. surgeon, granted leave of absence for twelve days from Dec. 20, 1904, and three days from Jan. 1, 1905.

Jackson, J. M., Jr., A. A. surgeon, Department letter of Dec. 8, 1904, amended so as to grant leave of absence for nineteen days instead of thirty days from Nov. 26, 1904.

Tuttle, Jay, A. A. surgeon, granted leave of absence for thirty days from January 9.

Wetmore, W. O., A. A. surgeon, granted leave of absence for ten days from January 4.

Stearns, W. L., pharmacist, to proceed to Washington, D. C., for special temporary duty.

Gibson, F. L., pharmacist, leave of absence granted for thirty days from Jan. 1, 1905, amended to read ten days from Jan. 1, 1905. Relieved from duty at Honolulu, T. H., and directed to proceed to San Francisco and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist Chas. Slough.

Slough, Chas., pharmacist, on being relieved from duty at San Francisco by Pharmacist F. L. Gibson, to proceed to Honolulu, T. H., and report to chief quarantine officer for assignment to duty.

CASUALTY.

Hanrath, F. R., pharmacist, died at Cleveland, Ohio, Jan. 7, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Jan. 13, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Jan. 1-7, 2 cases.
Illinois: Chicago, Jan. 1-7, 16 cases; Peoria, Dec. 1-31, 7 cases.
Louisiana: New Orleans, Jan. 1-7, 5 cases, 3 imported.
Massachusetts: Jan. 1-7, Everett, 2 cases; Hyde Park, 1 case.
Missouri: St. Louis, Dec. 25-Jan. 7, 35 cases, 6 deaths.
New Jersey: Camden, Jan. 1-7, 1 case.
Ohio: Cincinnati, Jan. 1-7, 7 cases.
South Carolina: Jan. 1-7, Charleston, 3 cases; Greenville, 6 cases, 1 death.
Tennessee: Nashville, Jan. 1-7, 6 cases.
Wisconsin: Milwaukee, Jan. 1-7, 3 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Dec. 11-24, 24 cases.
Brazil: Bahia, Nov. 29-Dec. 10, 27 cases, 1 death; Rio de Janeiro, Nov. 28-Dec. 4, 296 cases, 108 deaths.
Belgium: Brussels, Dec. 18-24, 1 death.
China: Shanghai, Nov. 13-26, 71 deaths.
France: Paris, Dec. 18 24, 17 cases.
Great Britain: Dec. 18-24, London, 9 cases; Newcastle-on-Tyne, 7 cases; Nottingham, 3 cases; South Shields, 3 cases.
India: Bombay, Dec. 7-13, 19 deaths.
Panama: Dec. 26-Jan. 1, Colon, 1 case; Panama, 1 case.
Russia: Moscow, Dec. 11-17, 7 cases; St. Petersburg, Dec. 18-24, 6 cases, 5 deaths.
Turkey: Constantinople, Dec. 19-25, 8 deaths.

YELLOW FEVER—UNITED STATES.

Texas: Galveston, Dec. 31, 2 cases from S. S. *Horatio* from Para, via Barbados.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, Nov. 28-Dec. 11, 2 cases, 1 death.
Cuba: Habana, Jan. 6, 3 cases, 2 from Austrian vessel *Dora*, from La Guaira and Colon.
Mexico: Dec. 25-31, Coatzacoalcos, 1 case; Juchitan, 1 case; Vera Cruz, 1 case, 1 death.
Panama: Panama, Dec. 25-31, 2 cases.

CHOLERA.

India: Bombay, Dec. 7-13, 2 deaths; Calcutta, Dec. 4-10, 72 deaths.
Russian Empire: Nov. 23-29, Astrachan District, 6 cases; Samara District, 162 cases; Saratov, 40 cases, 19 deaths; Trans-Caspian Territory and Central Asia, Serachs, 27 cases, 20 deaths; Jelisavetpol District, Nov. 22-26, 32 cases; Trans-Caucasia, Baku,

Nov. 14-23, 29 cases, 10 deaths; Batum, Dec. 1-7, 3 cases; Erivan, Nov. 23-29, 1,933 cases, 661 deaths.

PLAGUE.

Arabia: Dec. 1-16, Crater, 47 cases, 47 deaths; Maalla, 2 cases, 2 deaths; Hedjuff (hospitals), 2 cases, 2 deaths; Tawahi, 1 case, 1 death; Shaikh Othman, 3 cases, 4 deaths.

Egypt: Port Said, Dec. 3-10, 1 case, 1 death; Tukh District, Nov. 27-Dec. 10, 3 cases, 3 deaths.

Great Britain: London, Nov. 30, 1 case, from S. S. *Weybridge* from the Rio de la Plata.

India: Bombay, Dec. 7-13, 72 deaths; Calcutta, Dec. 4-10, 12 deaths; Karachi, Dec. 5-11, 27 cases, 22 deaths.

Straits Settlements: Singapore, Dec. 20-26, 1 case, 1 death.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

(*Concluded from page 153.*)

The Manufacture and Use of Tin Splints.

DR. ARTHUR T. MANN, Minneapolis, made a plea for the general utility of tin splints. He pointed out the simple equipment necessary to make them; also the ease of making the splints and patterns for them. He described several tin appliances which are useful, among them a device for regaining flexion and extension of the elbow joint after fractures and dislocations. This article will be published in THE JOURNAL later.

Syncytioma Malignum.

DR. H. C. CROWELL, Kansas City, Mo., reported a case and gave a detailed pathologic report of the specimen.

DR. ARCHIBALD MACLAREN reported a case of what he had supposed to be a soft edematous fibroid, but after operation the case proved to be one of syncytioma malignum.

Fractures of the Tarsal Bones.

DR. DANIEL N. EISENDRATH, Chicago, called attention to the surgical anatomy of these bones and to the mechanism of fractures. He reported six cases on which he had operated, and presented the following conclusions:

(1) The astragalus and os calcis bear the entire weight of the body. (2) They are most frequently broken in falls from a height directly on the feet (compression variety), or by tearing off of a portion of one of the bones, either when the heel is fixed or sudden supination or pronation, or in forcible dorsal flexion of the foot. (3) Early diagnosis, on account of the danger of sepsis from secondary skin necrosis, is of great importance. (4) If there is no displacement of fragments, treat the case by a cast for six weeks, with early massage. If displacement should threaten necrosis of skin, convert into an open fracture, and either remove the fragment or suture it.

Ptosis of the Abdominal and Pelvic Organs.

DR. R. C. COFFEE, Portland, Ore., drew the following conclusions:

(1) The peritoneum is attached firmly not only to the diaphragm, but loosely by all its outer surface to the abdominal and pelvic walls by means of loose connective tissue, which allows it to move freely, but holds it always in contact. This connective tissue is much increased around the attachment of the supports of each organ. The irritation underneath and back of the peritoneum is followed by an exudate which fixes it immovably to the abdominal wall. This exudate is soon displaced by an increase of normal connective tissue sufficient to meet the demands. The peritoneum itself is but slightly elastic, its seeming elasticity being due to the elasticity of the subperitoneal connective tissue. (2) Two peritoneal surfaces brought together and held firmly in an aseptic state blend and become one membrane. If suppuration or other disturbance occurs, blending does not take place, but inflammatory adhesions are formed. The former is permanent, while the latter is transitory and will be absorbed generally. This differentiation is all-important. (3) The uterus is suspended entirely by its peritoneum and connective tissue. (4) The so-called true ligaments are not such, but muscles, and therefore perform the same function as all other muscular fibers in the animal organism, which is intermittent contraction, but never constant action. Their function is to sustain the normal poise or balance of the uterus during the changing positions of the body. (5) Whatever may be the cause, the condition existing is a stretching of either or both the peritoneum and connective tissue. The condition may be local or general, and may involve the support of one, more than one, or all the abdominal and pelvic organs. (6) Treatment in a general way will be the shortening of the peritoneum at the points at fault by some method of plication and blending, or by bringing the peritoneum back to its normal contact with the abdominal wall. (7) The method (he described) for suspending the liver is, I believe, almost ideal theoretically, and so far in my experience clinically and experimentally, in that it shortens the normal suspensory ligament, and supplements it by extending the ligament to one or both lobes by blending of peritoneum. (8) None of the operations for gastroptosis so far is theoretically or practically ideal for all cases. The hammock operation, stitching the omentum to the abdominal wall, is best suited to those cases due to adhesions holding the stomach out of place by its omentum, in which the condition accompanies operations on the lower abdomen or pelvis only. No discomfort has been observed by any of my patients. Posterior gastroenterostomy is the best operation for those cases due to dilation or pyloric obstruction of any kind, and is all that is necessary, as it is held by its attachment high up and well back to the transverse meso-colon.

Appendicitis in Women.

DR. ARCHIBALD MACLAREN, St. Paul, Minn., stated that the only safe advice to both the patient and the physician is that the appendix should be removed in the early hours of every acute attack, and especially in the first attacks, when the symptoms last six hours. On the other hand, he does not believe that every case of appendicitis should be operated on as soon as the diagnosis is made, because the surgeon frequently does not see these cases until from the third to the sixth day. The favorable time has now passed, and some of these cases are in such a bad condition that the operation itself may be enough to take away the only remaining chance of recovery. He has done 422 appendectomies. In the first 241 there were 72 suppurative cases. Of these 42 were men and 30 were women. During the same time he removed appendices showing chronic inflammatory changes 153 times in women, and only 17 times in men. He does not believe that chronic appendicitis is as frequent in the male as in the female, but it probably is not twice as frequent in the latter sex. It is, he believes, only a curious accident that he has seen proportionately so many acute cases and so very few chronic cases in men.

Management of Hospitals in Large Cities.

DR. D. S. FAIRCHILD, Des Moines, Iowa, said that the problems involved in the management of hospitals in the smaller cities are difficult and complicated, growing out of two important facts: (1) The supposed self-interest of individual members of the medical profession; (2) the lack of experience and knowledge on the part of boards of management. Public hospitals are generally of three kinds, as determined by the auspices under which they are organized and in part supported: (a) Hospitals under the auspices of some church; (b) hospitals under the auspices of some society, and (c) city hospitals supported by public taxation. The method of appointment of physicians to hospitals is liable to abuse only when piety or church zeal is mistaken for competency. Dr. Fairchild discussed the management of hospitals at great length.

Arthrotomy.

DR. E. WYLLYS ANDREWS, Chicago, described a new method for treating old dislocations of the shoulder joint, and after mentioning the steps of the procedure at some length, he presented the following conclusions:

(1) It must be considered established that great force is never justifiable in old shoulder dislocations. (2) Few cases can be left unreduced, on account of pain and pressure symptoms, on the brachial plexus. (3) Resection is satisfactory, but not ideal or wholly safe. (4) Arthrotomy by the old incisions is tedious, and has never been widely practiced. (5) Arthrotomy by the author's method is simplified and made quicker and safe. It would possibly be as safe as resection, and much more ideal in results.

Curettage and Puerperal Sepsis.

DR. C. E. RUTH, Keokuk, Iowa, discussed the etiology of puerperal sepsis, the kinds of infection, prevention and dangers, and then spoke of curettage, drainage and hysterectomy in such cases.

Our Duty to the United States Army and to Its Medical Corps.

DR. DONALD MACRAE, JR., Council Bluffs, Iowa, pointed out the importance of having a more efficient medical corps in the United States Army.

A resolution was introduced and unanimously adopted, respectfully petitioning President Roosevelt to direct the military authorities to provide a field medical organization for our army at least equal in all respects to the best that exists in any army, and which will meet the approval of military

sanitarians generally, to the end that the sick and wounded in future wars may receive adequate care and attention.

The secretary was instructed to forward a copy of this resolution to President Roosevelt at once.

DR. G. G. EITEL, Minneapolis, read a paper on "Removal of the Covering of the Ovaries in Ovarian Dysmenorrhea," which is abstracted in THE JOURNAL, page 247.

The Diagnosis of Early Tubal Pregnancy.

DR. WILLIAM E. GROUND, Superior, Wis., bases his deductions on the histories and the gross appearance of the uterus and appendages at the time of operation in 28 cases. He is firmly convinced that ample pathology was present to cause the arrest of the fecundated ovum in the tube. Five of his cases were in primiparæ, who gave a history of painful menstruation and leucorrhea. Thirteen cases gave a history of sterility of three or more years' duration. The remaining 12 cases occurred in parous women, who had borne children or had been pregnant in less than three years. Many of these women gave unmistakable evidence of pre-existing pelvic disease. One primipara had been married three years, one five and another eleven years before tubal conception occurred. Two cases occurred in unmarried women, one of whom had had a criminal abortion. Complications arose necessitating abdominal section. An unruptured tube containing a six weeks' fetus was found. Another case, known to have had chronic appendicitis, was taken with sudden, severe pain in the right lower abdomen, followed by considerable shock, but she soon rallied. Menstrual irregularities were denied. Tenderness was present rather low in the iliac fossa. The uterus was enlarged, and a slight bloody discharge came from the vagina. There was an ill-defined tumor to the right of the uterus. The abdomen was opened and found to contain blood clots and bloody serum. The right tube was ruptured on its dorsum at about the middle, but the fetus was still in the tube. Chronic appendicitis was also present, and the appendix was removed. Two cases had small fibroids, and one had an ovarian cyst as large as an orange on the opposite side.

CLEVELAND ACADEMY OF MEDICINE.

Meeting of the Clinical and Pathologic Section, held Dec. 2, 1904.

Dr. C. A. Hamann in the Chair.

Hereditary Muscular Dystrophy.

DR. WALTER G. STERN presented cases of muscular dystrophy of the hereditary type occurring in the same family, girls of 15 and 12. They showed marked shortening of the tendo Achilles, causing them to walk on their tiptoes. The great-grandmother walked on her toes, the grandmother had spasms of the calf, and the grand aunt had contractions of the trunk and extremities. Two uncles were also affected, one so badly that he had to walk on his hands and knees. The father of the children had severe pes equinus. The muscles of the calf were wasted and contracted, and the muscles of the trunk so affected that when he picked up objects he was obliged to crawl up his thighs to regain his equilibrium. The family consists of three daughters and two sons. One of the sons died and before death was so afflicted that he had to crawl. The other son is only 7 and shows, as yet, no signs of the disease. The oldest of the girls was very much wasted, the contractions being almost general, the younger ones showing lesser grades. The pes equinus was so marked in the second daughter that tenotomy had been resorted to, with improvement in her condition.

Suppurative Pericarditis and Chylous Ascites.

DR. C. F. HOOVER cited a case in which the triangular area of dullness in the back was absent and discussed the differential diagnosis of such cases from pneumonia and other conditions. He also presented the notes of a case of true chylous ascites, in which chemical analysis showed the presence of actual chyle, thus distinguishing it from the many cases of ascites in which the fluid is chyliform, but contains no chyle, being due rather to other conditions, such as malignant growths not involving the lacteals. The two kinds of fluid may closely resemble each other, but the chemical analysis will always differentiate. The patient is still alive and has a mass centrally placed in the abdominal cavity, but so far no diagnosis of the lesion has been made.

Typhoid Necrosis of Pharynx.

DR. F. C. HERRICK described a case in which a large area of necrosis with extensive sloughing followed a case of typhoid, the ulceration being so deep as to expose the bone. The case recovered under appropriate treatment.

BOSTON MEDICAL LIBRARY ASSOCIATION.

Meeting of the Surgical Section, held Nov. 30, 1904.

Dr. F. B. Harrington in the Chair.

Enteroptosis and Nephroptosis.

DR. M. P. SMITHWICK emphasized the importance of considering ptosis of the viscera in nephroptosis. In 68 cases studied there was ptosis of the right kidney in all, and in 20 per cent. of the left as well. In 62 per cent. the stomach was depressed; in 7 per cent. the liver, and in 80 per cent. of the 34 cases examined for it there was displacement of the uterus, usually extreme retroversion. Nearly all had neuropathic tendencies, and he believes that this chances to be the point of least resistance. Many of these showed no symptoms whatever of the ptosis. In no case was there a disturbance of the renal function, and in only one case was there any dragging sensation.

DR. W. H. SMITH gave his experience in treatment with abdominal supporters. Unpadded abdominal bands proved failures except in cases associated with gastroptosis. But an accurately fitted corset-like belt, applied while the patient is lying down, will hold the intestines up against the liver and prevent the kidney from falling. Intelligent co-operation on the part of the patient and a proper fit are indispensable.

DR. F. G. BALCH reported the actual results at the Massachusetts General Hospital following operative treatment from 1890 to 1904. Of 92 cases treated 86 were females, 6 males; 61 married, 25 single; in 33 pregnancy was assigned by the patients as the starting point of her trouble and in 10 trauma. The patients remained in the hospital from 15 to 45 days, an average of 28 days. Seventeen had other operations done at the same time. Eight cases were found septic. Twenty-two had urinary symptoms before operation. Final results were ascertained in 41 cases. Twenty-eight were relieved, 13 not relieved. Balch considered operations of doubtful value in nervous cases and would try supporters first. Long rest and proper care are necessary for the success of the operation.

DR. J. H. CRANDON presented the records of the Boston City Hospital. During the last 10 years 17 cases were operated on. Their ages varied from 20 to 59 years. All were women. The trouble had lasted from five months to 13 years. Five patients reported themselves as cured, 1 better but not well, 2 have had a recurrence, and 2 were cured only after a subsequent operation for gallstones. No record was obtained in 7.

DR. H. D. CHADWICK said that two symptoms call for operation: first, a burning sensation along the ileo-hypogastric nerve, and second, distress and restlessness after going to bed. Apparatus adds to the discomfort. He has operated on 20 cases with but three failures. In two of these the symptoms continued, and the third did not stay fixed.

DR. A. T. CABOT suggested that, perhaps, the vein of the right kidney being shorter than the artery is why it is occluded more quickly. This suggestion appeared to be borne out by three cases of profuse hematuria seen by him. Early operation is important; late cases are often not benefited. He advised fixation with an insoluble suture, such as silk, putting the stitches only through the capsule. He did not approve of Edebohls' method which, he believes, causes pain. The kidney must be fixed so that the liver can not press on it.

DR. PAUL THORNDIKE examined 272 women, selected at random, for floating kidney, and found it present in 112 cases. None of these women had any symptoms attributable to the

ptosis. He advised care in choosing operative cases, but preferred operation to wearing a belt.

DR. A. K. STONE said that some cases seem to have inherited the trouble. He has noted a great variety of symptoms. Even though a kidney can be felt it may not be the cause of the trouble. He operates only when the displacement is the cause of all the symptoms. He has had good results from the use of apparatus, but it must be fitted accurately.

DR. W. B. CONANT makes a lateral incision and uses absorbable sutures, but does not split the capsule. He enters the peritoneal cavity and explores all other organs, treating them, if necessary. He fastens the kidney on a shelf between the muscles. A truss may be useful if pressure is rightly directed.

DR. R. C. LARRABEE thought that these cases are usually neurasthenics and that they suffer from crises of pain. Ptosis of the kidney, he said, is a very common anomaly and rarely productive of any harm. A corset-like bandage may tide over an attack and thus obviate the necessity of an operation.

DR. G. W. GAY approved of Osler's dictum, "If the patient does not know of the ptosis, do nothing."

DR. F. B. LUND said ptosis of the kidney is usually a part of a general visceral ptosis. Operation is safe, but any abdominal support will give relief.

DR. D. H. CRAIG said that a belt acts like a splint and that massage is necessary if the abdominal muscles are to fulfill their function.

DR. C. P. PUTNAM has obtained good results from manual manipulation, the patient standing upright. Congestion is relieved and the pain ceases.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.
CHICAGO.

(*Continued from page 65.*)

INDIAN SUMMER CLIMATE.

The hot season in India begins with the month of April and is expected to end with the month of October. It is said that April and May are the hottest and that November, December and January are the coolest months of the year. On the way from Tuticorin to Madras the shade and night temperature rose to 98 F. and the temperature in the sun to 119 F. Soon after leaving Madras rain set in and continued without interruption until we reached Calcutta and during the first day I remained in that city. The atmosphere was saturated with humidity and added greatly to the discomforts and actual suffering from heat, although the temperature at night and in the shade did not exceed 98 F. The air was not disturbed by the slightest breeze, it was motionless, paralyzed, stifling. Breathing required an effort and the sweat poured from the surface even when at rest.

> "'Heat, ma'am,' I said; 'it was so dreadful here that I found there was nothing left for it but to take off my flesh and sit in my bones.'"—Sydney Smith.

How often did I envy those natives, with their lithe, slender, fatless bodies and their long arms and legs and flexible joints. In squatting, the easiest resting position for these natives, the legs fold on themselves like a jackknife. The agony I experienced from a combination of humidity, heat, and the lazy, sleeping air during the two nights and days I spent in Calcutta would be difficult, yes, impossible, to describe; bathed in sweat, panting for breath, with only partial relief from ice and soda and from vigorous pulling of the bedroom punkah throughout the night, by men employed for that purpose.

A word concerning the punkah puller. Two men or two women, or one man and one woman are hired for the night, and they receive 8 cents each for their easy work and loss of sleep. One night I had two men at the ropes; about midnight the to and fro motions of the punkah became less and less and finally almost came to a standstill. I went to the door and found one of them sound asleep and the other barely awake. The slight jerks were directed by the spinal cord exclusively; the brain was sleeping. A few sharp words brought life to men and punkah.

I was made to comprehend by a trying experience the meaning of

> "A dem'd, damp, moist, unpleasant body."—Dickens.

I spent a whole forenoon in visiting the Calcutta Medical College and large government hospital connected with it, under the guidance of Major Drury, I.M.S., principal of the school. We inspected the laboratories, walked from ward to ward, climbed stairs innumerable and, although an attendant with an enormous fan accompanied us and gave us the full benefit of the useful article, I soon felt the sweat running in streams down my legs and into my shoes and, in spite of frequent wiping of face and neck, the collar soon wilted into a shapeless rag. It was then it occurred to me:

> "Ay, now am I in Arden; the more fool I. When I was at home I was in a good place, but travelers must be content."—Shakespeare.

For once I was glad when the visit was at an end and the courteous major took me to his private apartments, where a most luxurious breakfast was served and where my torturing thirst was quenched with ice and claret. As soon as we arrived in the room, the major suggested that I should make myself more comfortable by removing the coat. I did so most willingly and then discovered to what extent the clothing had become saturated by the profuse sweating. Judged by the clothing, and found near the Ganges, the suspicion would have been well founded that I had been rescued a few moments ago from drowning in the sacred river. Without rain and sweating the clothing would become moist from the excessive humidity of the atmosphere. What discomfort and annoyance this creates. Try under such circumstances to fetch in a hurry from the wet trousers pocket with a sweating hand a coin for a tip and you will find that the pocket becomes a veritable trap for the hand, which is with difficulty extricated without everting the pocket and scattering the coins.

It seemed to me strange that the temperature increased as I traveled north, but in leaving the coast the humidity gradually diminished, and in the interior the air was comparatively dry. The thermometer I carried with me registered 132 F.; on several occasions the mercury reached the maximum limit in the sun and would undoubtedly have gone higher had there been additional space. This high temperature was registered at Agra, Delhi and Jaipur. The night and shade temperature on the whole trip from Calcutta to Bombay ranged between 92 to 105 F. The Bombay weather was very much like that of Calcutta, rain and humidity, but the temperature was a little lower and occasional breezes diminished the sweating and relieved the intense sense of heat.

All through India the absence of a breeze made the heat distressing. Some days about 4 o'clock in the afternoon a slight agitation of the atmosphere would begin; enough to shake slightly the leaves of the omnipresent nim trees and would bring with it a decided relief, but even this slight attempt on the part of the atmosphere to counteract the effect of the burning sun was always of short duration. It was interesting to observe how the animals, wild and domestic, behaved during the hottest part of the day. The water buffalo is a great bather and he is not particular about the nature of the bath; if he has any preference, it is for the mud bath. In passing the many water and mud holes along the line of the railroad, I have often seen through the car window two long, flat, reclining horns and a pair of sleepy or closed eyes just above the level of the mud or water, and in looking closer might distinguish back of them the ridge of the spine, the balance of the body being completely immersed. The buffalo has three objects in view when he goes bathing:

To rid himself for the time being of pestering insects, to obtain relief from the intense heat and to obtain a soothing rest after his liberation from the hard, primitive yoke. Sometimes we saw a herd of these animals closely packed in a small pool or mud hole. It is a peaceable, tolerant animal, so that even when standing space is scarce, these animals of burden make room for each other without the slightest indication of selfishness. I fancy that the water buffalo prefers mud to water for his bath, for it leaves a thick layer of mud on the surface of his body, which soon dries into a crust, a further protection against flies and mosquitoes. The bullock, sheep and goats seek the shade of trees during the hottest part of the day, and if the trees are few and the animals numerous, every inch of it is made useful, and, as the shade moves, the family of animals shifts in the same direction to protect themselves against the scorching rays of the sun.

The proud peacock, so numerous all through India, but more especially in the eastern part, forgets for a time his vanity when the sun is in a position to send down on poor India its most scorching rays. He folds and hangs his gaudy tail and sneaks away into the shade of a clump of shrubs or cactus hedge and lowers his microcephalic head with half closed eyes in obedience to his majesty of the day. India swarms with turtle doves and the telegraph wires are their favorite perch. In many stretches of the country from one to a dozen of these tidy, innocent birds can be seen perched on a wire between two telegraph posts as the train rushes by. When the temperature rises to 130 F. and more, the wires become too hot for their tiny red feet and they are driven by the heat to find protection in the shade.

Man appears to possess the greatest resisting power against heat. The coolie, bareheaded or with a few pads of cotton cloth wrapped about his head in the form of a turban, can be seen at work any time of the day, no matter what the thermometer may say. From early morning until late at night he toils in the fields, plowing, sowing, harvesting, or dipping water, as the case may be, to earn his scanty livelihood. In many parts of India the month of September is the most trying one. My guide at Delhi called it the "sickness month," and informed me that during the month few escaped fever, which would last from one to several days. I presume a mild form of malaria.

The insects were not so troublesome as I expected. At Jaipur the flies were numerous and aggressive. In the hotel at Calcutta I found my bed screened with mosquito bar. As the evening was extremely sultry and as I heard no mosquito music, I removed it. Next morning I found the uncovered part of my body checkered with ugly mosquito bites, the noiseless minute had deceived me and wrought the mischief during the few snatches of sleep that came to me that awful night. I am glad that I have seen India at its worst, so far as the climate is concerned, and that I have escaped with my life and my health unimpaired, but I will never advise any of my friends to go through a similar experience, as it involves great suffering and is attended by no inconsiderable immediate and remote risk to life.

THE PEOPLE.

India has, approximately, 300,000,000 inhabitants, four to one of the United States. The population is a very mixed one, composed of Hindus, Afghans, Mohammedans, Parsees, Thibetans, and other Asiatic races, Europeans and a mixture of Europeans and Asiatics, called here Eurasians, in Ceylon half-castes. The original East Indians were an Aryan race, which came from Central Asia by way of the Cabul river. The present Hindu race represents Aryan and non-Aryan elements. The typical Hindu is above average size, fine, erect, slender physique, long, very thin legs and arms, straight black hair, beard of the same color, light or heavy. The color of the skin varies from yellow to coal black. Many of the men are handsome; others, especially the common coolies, are often not only ugly but absolutely hideous, their faces approaching the appearance of a monkey rather than that of a man. The women are homely almost without exception; much smaller than the men and very spare even during old age.

The handsomest men and women are found among the Parsees, the fire worshipers, who came from Persia to India centuries ago. They are a thrifty people, fond of dress. The men wear a very strange head covering, which does not answer to the description of either a hat or cap. Imagine a black piece of stovepipe a foot in length, speckled with minute yellow dots, and turn in the top obliquely and you have as complete a description of the headdress of the Parsee as can be given. The women are dressed in flowing silk of vivid colors, and display a wealth of jewels attached to ears, neck, fingers and wrists. Bombay is the center of the Parsee population, about 100,000 in number. Their principal temple and ghastly graveyard are located here.

Social distinction is drawn in India in more definite lines than in any other country. It is a land of castes. There are more than 1,000 of these castes, which have very little in common with each other. The Brahmins or priests take the first rank, the warriors the second, and the merchants the third; then follow the different professions and trades. The caste of warriors is the only one which is permitted to hunt and to eat meat. There is never an intermarriage between a high caste man or woman with a lower caste woman or man, but in exceptional cases a promotion from a lower to a higher caste with all privileges belonging to such advancement may take place. The lower castes make themselves known by stripes and dots of all colors and designs on the forehead or face. A study of these distinctive marks would prove a very thankless task to the foreigner owing to the endless number of castes.

The religious life in India is as mixed as its population. In 1891 there were 207,731,727 Brahma followers, 7,131,361 Buddhists, 57,321,164 Mohammedans, and only 2,284,380 Christians, a rather discouraging showing for the millions and millions of dollars that have been spent in efforts to christianize the people. The slow progress of christianity in India is due, at least in part, to the character of the people. The complicated class distinction is one of the greatest obstacles. The high caste Hindu prides himself on the antiquity of his religion. He is firmly convinced that:

> "Antiquity, the nearer it was to its divine origin, perhaps perceived more clearly what things were true."—Cicero.

A high-caste Hindu, a very learned man, a magistrate in one of the eastern districts of India, expressed himself to me on this subject about as follows: "My religion is the oldest in the world. It was old before the religion of the Christians was known. I spent five years in England. I made careful observations and in consequence came to the conclusion that my people are better people than the people I observed in England. Crime is more common in England than in India. Why should I change my religion? The essence of our religion consists in leading a useful, pure life. We believe in progression in spiritual as well as in worldly affairs. As the muscle is strengthened by exercise, so constant efforts to reach a higher spiritual existence will improve progressively the spiritual part of men until perfection is reached. We do not believe in perpetual punishment after death, but in a gradual elevation until nirvana, a state of perfection, is reached. Missionaries can not change the religious views of high caste Hindus. Then, too, the manner of living and the way in which the missionaries approach the low caste Hindus are not calculated to excite their interest or to gain their confidence." This is what the Hindu said.

In conversation with me a Roman Catholic priest who came to India 26 years ago said: "We can do nothing with the adults in the way of converting them. The people appreciate our works of charity and our efforts to educate their children. We must plant the seed of true religion in the hearts of the children, where it will grow, but their parents are out of our reach. The high caste, educated Hindus have their fixed religious ideas from which they can not be diverted, and the low castes are in the firm grasp of the Brahmin and the Buddhist priests."

The natives are suspicious of the Europeans and are naturally proud and not easily approached. The poorest of the

poor possess an inborn pride and manifest a spirit of reserve entirely unknown among the South Sea Islanders. There is no "Alloha" or "Talofa" greeting for the stranger in India. The faces are stern, the look shy, the bearing defiant and smiles few unless they are provoked by a liberal tip. The converted natives may conform on the surface with the teachings of the church to which they belong, but in their inner life they retain much of what they have been taught, and what they practiced before they changed their religious views; we can say of them as well as of their heathen brethren:

> "Some are good, some are middling, the greater part are bad."—Martialis.

And

> "Habit has produced the custom."—Ovidius.

Missionary work has done more good in supplying the starving with food, the sick with nursing and with medical treatment, the poor with clothing and in the education of children than in the christianization of the people. The door to the heart of the Hindu is charity.

The greatest virtue of the coolie is his willingness to work. It is the coolie who cultivates the fields, loads and unloads vessels and cars, cleans the streets, empties the cesspools and performs all other menial work, for wages which range from 8 to 32 cents a day. He has held his place in the competition for cheap labor against Chinese and Japanese, and against cheap workmen from other parts of the world. He meets the demand for labor in India and the low wages with which he is content has so far effectually prevented outside competition, and owing to the dense population and the severe struggle for existence which are in evidence everywhere, precludes the idea of a possible betterment of the condition of the laboring classes. The coolie has no desire to accumulate wealth; he is satisfied if by hard toil he is able to keep the wolf from the door. His needs are few, and what many a Chicago family spends every day for newspapers will support himself, his wife and children. From experience he can say:

> "Ye immortal gods, men know not how great a revenue economy is."—Cicero.

INDIAN ART.

India is a great art museum (Fig. 1, page 207). The ancient palaces, temples and tombs are the silent witnesses of the exquisite workmanship of native artists, who lived and worked here centuries before Solomon's temple was built. The masonry of many of these remnants of ancient architecture is the wonder of the leaders of the craft to-day (Fig. 2, page 208). The size of the stones, the cutting, placing them in positions, the fitting them together with such accuracy that cement of any kind was superfluous, in other instances the fitting together with metallic substances, are lost arts. The designs of the mosaics, the sculpturing and the wood carvings, the inlaid work are marvels of skill, patience and perseverance. The ancient artist and artisan made use of noble material on which to stamp indelibly the proofs of his skill. In short, nature supplies the material, art works on it.

> "Art can effect nothing without material, yet there is an inherent value in material, though untouched by the art of man. Perfection of art is superior to the best material."—Quintilianus.

Symmetry was above everything else the object of the ancient architect, mosaics, columns and arches were the details in carrying out his designs. The two pieces of architecture and design that impressed me most were the royal tomb, Taj Mahel at Benares and the Cave Temple in Elephanta Island near Bombay, the former noted for its exquisite beauty, the latter for its great age and wonderful mural statues, cut out of the hard rock, to which allusion will again be made further on.

It is a source of great regret that the influential and rich natives take so little interest in the preservation and maintenance of their works of art, which after all, are the great magnets that attract thousands of visitors to India annually. Palaces and palatial residences are now being built in imitation of what they have seen abroad. Painters from Italy and France do the decorating. Plush and silk covered furniture is brought from Europe, and the old beautifully carved chairs, tables and other articles of furniture are stored away, sold for a song or given away to make room for things that are not adapted to the climate and that can make no pretention to art. It is very fortunate that Lord Curzon has taken the necessary steps to preserve Indian art by the erection of a great museum of art in Calcutta, in blessed memory of the late Empress Victoria, where the most valuable and interesting specimens will find a permanent resting place for the benefit of future generations of natives and visitors.

It is high time that in the three great cities of Calcutta, Bombay and Madras, associations of Indian art should be founded for the purpose of collecting and preserving specimens of ancient Indian art, and with the object of encouraging the native artists of to-day by patronizing them instead of importing furniture from foreign countries and imitating the artless style of the buildings of the Europeans. For the benefit of natives as well as of travelers, India should remain specifically Indian in dress, customs, agriculture, and especially in art.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of a "Cold."

In speaking of the treatment of a "common cold" Dr. Leonard Williams, in the *Clinical Journal*, London, uses this expression for a catarrhal condition affecting the nasopharynx, larynx or the larger bronchial tubes, in that cold or chill is supposed to be the principal factor in the causation. However, the author thinks that cold has nothing to do with the causation of the condition, but that it is due to irritation of the air passages from bacterial invasion.

The therapeutics of this condition consists in aborting it by washing the microbes out of the nasopharynx by douching and gargling. After filling the nasal douche with an antiseptic solution, the patient should be directed to introduce the solution into one nostril and at the same time keep the mouth open. In this way the solution will flow out of the other nostril instead of into the mouth. If the mouth is kept closed it will find its way into the larynx and esophagus. Therefore, the patient should always be directed to keep the mouth open when using the nasal douche. The author recommends that the solution should be warm and of a temperature not below 98 F. He prefers zinc sulphocarbolate in weak solution as follows:

R.	Zinci sulphocarbolatis.....gr. vi		40
	Aquæ dest. q. s. ad.....ʒiii	90	

M. Sig.: To be used, warm, in the nasal douche.

A nasal catarrh, as suggested by the author, may be the beginning of whooping cough, and in this treatment the best measures are to be carried out to cut short the attack and to prevent grave sequelæ. So important is this form of treatment in the early stage of whooping cough that it is grave neglect when it is even delayed until the whoop has begun.

The following combination is recommended as a very efficient antiseptic used as a nasal douche:

R.	Acidi boracici 3ii	8	
	Or		
	Acidi carbolici.....gr. x		65
	Glycerini .....ʒss	15	
	Infusi rosæ acidi q. s. ad.....ʒviii	240	

M. Sig.: To be used as a nasal douche.

[Infusum rosæ acidum is composed of acid infusion of roses (red rose petals), 3vi (25.) and dilute sulphuric acid 3iii (12.); aqua destilata Oii (1,000).]

When the irritation is lower down in the air passages, in the larynx, the treatment can not be carried out so successfully. The most successful treatment here consists in the use of antiseptic oils such as eucalyptus, vaporized and inhaled frequently. In addition to this local treatment, mild purgatives should be given to keep the bowels well open, and a hot bath or hot wet pack given to increase the elimination from the skin. If headache is present, with a slight rise in temperature, a moderate dose of opium at bedtime is the best remedy. When administered early in influenza, the author regards opium as almost specific, and in ordinary colds its effect on the inflamed mucous membrane and irritated nervous system assists greatly in relieving the symptoms.

As a tonic after a cold no preparation is more beneficial than quinin, and it is recommended prescribed in the liquid form, as the powder is not so reliable in its action and has a greater tendency to disturb the stomach. When once there is failure in aborting the attack and active inflammation of the mucous membrane has set in, with a feeling of constriction, accompanied by a dry, hard cough, the proper treatment then consists in the administration of sedative or depressing expectorants and not stimulating expectorants. For this purpose the following combination is recommended:

℞. Vini antimonii
Vini ipecacuanhæ, āā.....m.x | 65
Spts. etheris nitrosi.....m. xxx 2
Liq. ammon. acetatis.....3ii 8
Syr. limonis 3i 4
Mist. amygdalæ q. s. ad.....ʒi 30

M. Sig.: To be taken at one dose and repeated in four hours, or half the quantity every two hours.

The foregoing combination should not be given when a valvular disease of the heart is present, as ipecacuanha and antimony are both very powerful heart depressants. After the congestion of the mucous membrane has subsided, stimulating expectorants are indicated, and for this purpose the following is recommended:

℞. Ammon. carb.....gr. v | 30
Tinct. camph. co. (B. P.).....m. xx 1 | 30
Syr. scillæ .....m. xxx 2
Syr. tolutani 3i 4
Infusi senegæ .....ʒi 30

M. Sig.: To be taken at one dose and repeated every four hours.

Opium is one of the best remedies in aborting a cold, according to Yeo in *Clinical Ther.*, and it acts best when combined with other diaphoretics. Its effects on the capillary circulation of the respiratory passages is very beneficial in the initial stage of the attack.

In those patients who are inclined to disturbances of liver function opium preparations should be avoided and other diaphoretics substituted as follows:

℞. Spts. etheris nitrosi.....3iv 15
Liq. ammon. acetatis.....ʒii 60
Salicini .....gr. xl 2 | 65
Vini ipecacuanhæ.....m. xl 2 | 65
Aquæ camphoræ q. s. ad.....ʒviii 240

M. Fiat mistura. Sig.: One tablespoonful every four hours.

After the first twenty-four hours quinin is recommended, given in the form of the following effervescing mixture:

℞. Potass. bicarb.
Sodii bicarb., āā.....3i 4
Ammonii carb. 3ss 2
Syr. aurantii .....ʒss 15
Aquæ q. s. ad.....ʒviii 240

M. Fiat mistura.

℞. Quininæ sulph.....gr. xii | 75
Pulv. acidi citrici.....3ii 8
Sacchari lactis 3i 4

M. et divide in pulv. No. vi. Sig.: One powder dissolved in water and mixed with one-sixth part of the mixture and taken three times a day.

As to local remedies to cut short an attack of coryza the following is recommended in the form of an inhalation:

℞. Liq. ammon. fortis.....3i 4
Spts. vini rectif.....3ii 8
Acidi carbolici 3i 4
Aquæ 3ii 8

M. Sig.: A few drops of the mixture to be dropped on absorbent cotton and the vapor inhaled. Or:

℞. Olei pini 3ii 8
Camphoræ .....gr. xl 2 | 65
Liq. ammon. fortis.....3i 4
Spts. rectif. .....ʒi 30

M. Sig.: To be used in the form of an inhalation.

As an anodyne spray, Shurley recommends the following:

℞. Mentholi .....gr. i | 06
Alcoholis .....m. v | 30
Calc. phos. precip.....gr. v | 30
Aquæ q. s. ad.....ʒii 60

M. Sig.: To be used as a spray.

As a sedative and astringent the following is of service:

℞. Cocainæ .....gr. v | 30
Alumini .....gr. x | 65
Aquæ mentholi .....ʒi 30

M. Sig.: To be used locally as a spray.

Kyle recommends in some cases the following oil spray:

℞. Camphoræ .....gr. i | 06
Mentholi .....gr. iii | 20
Acidi carbolici .....m. ii | 12
Liq. albolene .....ʒi 30

M. Sig.: As a spray.

As an inhalant the ordinary tincture benzoini comp. is very efficient; one teaspoonful is floated on a pint of hot water and the vapors inhaled.

Creosote may be used in the same manner, using from ten to fifteen drops (.65-1.00) to a pint of hot water.

Bartholow recommends the following combination:

℞. Acidi carbolici 3i 4
Tincturæ iodi .....ʒss 15

M. Sig.: From ten to fifteen drops in a pint of hot water as an inhalation.

As an abortive remedy the following is of service, but must be prescribed with care:

℞. Cocainæ hydrochlor.....gr. viii | 50
Mentholi .....gr. iv | 25
Salol .....gr. lxxv 5
Acidi boracici 3iv 15

M. Sig.: A small amount to be insufflated into the nares three or four times daily.

As a spray the following is recommended:

℞. Mentholi .....gr. viii | 50
Camphoræ .....gr. v | 30
Liq. petrolati .....ʒi 30

M. Sig.: To be used in the atomizer as a spray after thoroughly washing the affected areas. As a vapor to be inhaled the following is recommended:

℞. Mentholi 3iss 6
Eucalyptol 3i 4
Liq. albolene .....ʒi 30

M. Sig.: A few drops to be floated on a small amount of water, placed over a spirit lamp and inhaled.

Medicolegal.

Privilege Extends to All Proceedings of Judicial Nature.—The Supreme Court of Michigan says, in the case of Dick vs. Supreme Body of International Congress, that the by-laws of the defendant order provide that its decisions shall be final and binding on every member and his beneficiaries, and that no suit shall be commenced by either against it. In this case use was made, over objection, of an affidavit of a physician, consulted by the insured, to the effect that the latter had been sick prior to a certain date. Did the defendant violate a law which was prescribed for its guidance when it admitted in evidence the affidavit in question? The legislature has said: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may acquire in attending any patient."

Section 10,181, Compiled Laws of Michigan of 1897. The proceedings were in their nature judicial, and there can be no doubt that the legislature had power to prescribe rules which it was the defendant's duty to observe. The statute is one passed for the sole purpose of enabling persons to secure medical aid without betrayal of confidence. Did the legislature, in passing the statute, which prescribes a rule of evidence to be observed in judicial proceedings, intend to permit this confidence to be betrayed in any judicial proceedings which it had the power to regulate? To impute any such intention to the legislature was to assume that it designed to defeat its manifest purpose. There is nothing in the statute to limit its operation to any particular judicial tribunal or to any particular class of judicial proceedings. We must therefore assume that it was intended to extend to all proceedings of a judicial character which the legislature had the power to regulate. This statute was, therefore, violated when the physician's affidavit was used as testimony. When the defendant rejected the plaintiff's claim because of testimony admitted against objection, and which the law in positive terms forbade it to consider, there was a denial of the hearing to which the plaintiff was lawfully entitled. It was the defendant's duty to observe the law. prohibiting the use of this testimony. It was the plaintiff's right to have that law observed. This right and this duty were just as clear and obvious as if they had been expressly stated in the by-law which provided for the hearing of the plaintiff's claim. If such by-law had in express terms provided that this law excluding the physician's affidavit should be observed, no one would for a moment maintain that a determination by the defendant in violation of such provision was binding on the plaintiff. The only distinction between the supposed case and the actual one was this: In the supposed case the provision for the observance of the law was expressed; in the actual case that provision was necessarily implied. This distinction afforded no ground for the application of a different legal principle. The court thinks it may also be said that the statute in question not only forbade the use of the physician's affidavit as testimony, but by necessary implication forbade all judicial tribunals (including the judicial tribunal of the defendant) from determining controversies (at least without the consent of the parties) on such testimony, and that the law would not permit the defendant to retain the unlawful advantage obtained by violating its prohibitions.

Liability for Attendance on Employe and Assistance.—The Supreme Court of Montana says that in the case of Bond vs. Hurd an action brought by a physician, the physician was called to attend a man who had been sent by the party sued to receive some of the latter's horses gathered in a certain county, and was injured in moving the horses by being thrown from one of them, and the plaintiff, finding him seriously injured, called in another physician to assist him. The cause of action included, besides the plaintiff's own account for medical services, an account for medical services rendered by the assistant physician, which had been assigned to him. The only evidence in the record on which agency could possibly rest was that of two telegrams passing between another party and the defendant—a telegram of such other party to the defendant announcing that the man had been hurt, and asking if he would pay the "doctor's bill," and the defendant's telegram in reply, announcing that he would do so. The plaintiff saw this telegraphic answer of the defendant, accepted the offer therein contained, and acted on it. No direct authority was given this other party to employ a physician, so that any agency on his part was implied from the telegrams. However, the court says, no agency could be implied from these telegrams which would authorize this party to delegate to the plaintiff the right to engage the assistance of other physicians, and bind the defendant to liquidate their charges. The agent's power to delegate authority is statutory, in Montana; and the testimony did not disclose that this party referred to lawfully delegated to the plaintiff authority to employ an assistant, within any of the provisions of the statute. The court below took the ground that an emergency arose which justified the employment of the other physician. But, in the opinion of the Supreme Court, neither substituted agency nor emergency was sufficient to hold the defendant liable for the charges of the assistant physician. Presumptively, it says, the plaintiff, when he was employed, assumed that he was a competent physician and capable of taking care of the case for which he was employed without assistance. If he concluded that assistance was required, before procuring the same it was his duty, if he desired to hold the defendant liable for the payment of the bills of an assistant, to communicate with him and obtain his consent to the employment. If he had the right to employ the other physician and make the defendant liable for his services, he would have a like right to employ as many other physicians as he might have deemed necessary and compelled the defendant to have paid them all. Continuing, the court says that there would be very grave doubt as to the liability of the defendant to furnish to the injured man medical assistance on the facts disclosed in the record, aside from the above telegrams. The accident by which the man was injured may have arisen from his own personal negligence, or from a direct violation of the instructions given him by the defendant. The law is by no means settled that an employer is liable to furnish an employe with medical aid under all circumstances. Many courts of last resort have held that even a railroad company is not liable to furnish an employe with medical assistance in case of accident. There the work of the employe is at all time dangerous in its character, and the reason for holding the railroad company liable to furnish such medical assistance in case of accident is much stronger than it is when an individual employs another to perform a service which is not dangerous in itself. After an investigation of authorities, the court is of the opinion that the holding of the Supreme Court of Indiana in matters of this character is the correct one, and should be followed. That court, in the case of the Terre Haute & Indianapolis Railroad Co. vs. McMurray, 98 Ind. 358, seems to place the liability of a railroad company on the ground of emergency and urgent necessity. The case of Terre Haute & Indianapolis Railroad Co. vs. Brown, 107 Ind. 336, is also referred to, and as a much stronger case than the one at bar. And the Supreme Court of Montana says that it is satisfied that the record in this case failed to show any such emergency as authorized the employment of an assistant physician, or that the assistant physician was employed by any one having competent authority to that end.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below

American Medicine, Philadelphia.

January 7.

1 Behavior of Native Japanese Cattle in Regard to Tuberculosis. S. Kitasato, Tokio, Japan.
2 Is Mortality Necessarily Higher in Tropical Than in Temperate Climates. V. Havard, New York.
3 *Treatment of Cancer of the Cervix Uteri in Advanced Stages. J. Wesley Bovée, Washington.
4 *Experimental Study of Lactic Acid Formation, with Special Reference to the Stomach. E. Palier, New York.
5 Some Observations on Astigmatism. L. L. Doane, Butler, Pa.
6 Fatal Case of Cerebellar Abscess. John H. Allen, Portland, Maine.

3. Treatment of Carcinoma Cervicis Uteri in Advanced Stages.—Given a case of cancer of the cervix uteri, Bovée says that it is necessary to consider the age of the patient, the family history, the apparent duration of the disease, the variety of the disease, the amount of excavation already resulting from the disease, the amount of infiltration of adjacent tissue, the involvement of other, distant parts, and the presence of other physical disabilities that preclude radical surgical operations. Bovée finds that the disease makes more rapid progress in

young women than in those far advanced in years, and usually causes death in eighteen months, if left alone. The woman of from 60 to 90 usually will live much longer than the woman of 28. A family history of cancer has a deterring influence regarding radical surgery. Severe surgical operations, involving appreciable mortality rates or a marked degree of additional suffering, should not be employed in the treatment of carcinoma of the uterine cervix, except in very early cases. According to the reports of exhaustive microscopic examinations of the tissues surrounding the uterus in cancer of the cervix, we have no means of knowing before operation that eradication is certain in any given case of the disease; hence, such attempts must be reserved for the very earliest and most promising ones. Bovée believes that the galvanocautery and the curette combined furnish the very best local treatment, so far as influencing the progress of the disease is concerned. The curette should be used carefully but thoroughly, the flow of blood being controlled by either gauze or clamp compression. The galvanocautery is then carefully employed to destroy practically all tissue between the cul-de-sac of Douglas and the bladder and, laterally, between the ureters. Great care should be exercised that bladder, ureters, peritoneum, and rectum be not penetrated nor injured by overheating. Vaginal douches of from .5 to 2 per cent. solution of potassium permanganate he has found the most satisfactory to control a malodorous discharge following the use of the cautery. When the cervix is much infiltrated, the canal obstructed, and the discharges, becoming foul, are confined in the uterus, evacuation and provision for future drainage is the proper treatment.

4. **Study of Lactic Acid Formation.**—Palier bases the following laws on what takes place in the test tube and, as he believes, also in the stomach: 1. Lactic acid develops in all organic substances containing carbohydrates, whether sugar or starch; and in some substances even while yet in solid form, such as bread and meat; for instance, at certain seasons which are especially favorable to bacterial development, some lactic acid exists already. 2. Lactic acid formation is due in all cases to bacterial development, even the so-called sarcolactic acid of meat. 3. Lactic acid does not give the usual reaction with the usual test when an inorganic acid is also present in sufficient strength. 4. Its development is hindered when there is an antiseptic present such as HCl, for example, but the lactic acid formed before the HCl was added is not destroyed when the latter is added. 5. HCl enters in combination with albuminoids and after some time it does not give the usual reaction, though it was warmed when it was first added; and then bacteria appear and lactic acid begins to form, the latter in substances containing carbohydrates. The bacteria in the stomach bringing about lactic acid formation may be various; but whenever there is alimentary stasis with deficiency of HCl, there is usually found a bacillus, which Palier calls the *Vibrio geniculatus ventriculi*. Experiments have shown him that the presence or absence of lactic acid in the stomach contents can give us some information concerning the condition of that organ, but it is positively not pathognomonic of any particular affection, and any one who will rely much on this for making a diagnosis of cancer, for instance, is surely apt to err, though he may succeed in guessing right a few times. If the acid exists in the stomach contents in small quantity, it is absolutely of no significance; if it is in large quantity it can be easily detected by tests described. So long as the acidity is not very high there is not any alimentary stasis worth mentioning.

Medical News, New York.

January 7.

7 *Disturbances of Digestion in Infants Resulting from the Use of Too High Fat Percentages. L. Emmett Holt, New York.
8 Medical Quacks, Their Methods and Dangers. Champe S. Andrews, New York.
9 Anal Fissure. William M. Beach, Pittsburg, Pa.
10 The Physics and Chemistry of Drug Addiction. Edward C. Hill, Denver.
11 Some Recent Developments in Clinical Pathology. Frederic E. Sondrew, New York.

7. **Digestive Disturbances in Infants.**—Holt believes that disturbances of digestion resulting from an excess of fat are quite as serious, if not quite so obvious, as those which follow the use of too high proteids. Even those who give special attention to infant feeding have been slow to learn the infant's capacity with respect to the digestion of fat. Others, who have given the question less attention, have fallen into error in one of two ways: In following the formulas of the books instead of using an ordinary milk, with a fat content of 4 per cent., they have substituted rich Jersey milk, containing from 5 to 5.5 per cent. fat, thus giving more fat than was supposed to be given. Or, the mistake is made of intentionally increasing the fat, almost without limit, for the purpose of overcoming chronic constipation. Illustrative cases are cited by Holt, as follows: I. Overfeeding with high fats, rapid increase in weight and progress in development until eight months; then general convulsions, followed later by tetany, laryngismus stridulus, fatty liver (?). Recovery after three months' illness. The points of interest in this case were (1) the long period during which the child bore the high percentage of fat without any apparent disturbance; (2) the severity of the nervous symptoms, the suddenness with which they came on, and their long duration; (3) the prolonged disturbance of the digestion and general nutrition; (4) the large liver, and stools consisting of almost pure fat. II. Prolonged feeding with high fat, notwithstanding which constipation and the development of moderate rickets, followed by acute disturbances of digestion with repeated convulsions. III. Overfeeding with fat; convulsions. Recovery. IV. Habitual vomiting aggravated by high fat; serious gastric catarrh, finally cured by stomach washing. V. Feeding with high fat; eczema, habitual constipation, and finally habitual vomiting. Recovery after the fat was reduced to 3 per cent. Holt advises the examination of all milk to be used for feeding purposes and that the physician, in order to interpret correctly the result of these examinations, learn to think in percentages. Children differ very much in their capacity to digest fats, but there is a limit with each child which can not be exceeded without causing trouble. Holt believes that 4 per cent. of fat is about the limit for the average child. Whenever there are marked symptoms of either gastric or intestinal indigestion, the fat should be reduced much below the normal 3 or 4 per cent.

New York Medical Journal.

January 7.

13 The Proper Scope of Scientific (so-called expert) Testimony in Trials Involving Pharmacologic Questions. (To be concluded.) Solomon Solis-Cohen, Philadelphia.
14 Poisoning by Wood, or Methyl Alcohol and Its Preparations as a Cause of Death and Blindness. A Supplementary Report. Casey A. Wood, Chicago.
15 Treatment Following the Bloodless Reduction of Congenital Hip Dislocation. Dexter D. Ashley, New York, and Frederick Mueller, Chicago.
16 *Conservative Treatment of Affections of the Uterine Annexa. Its Indications and Limitations. George Tucker Harrison, New York.
17 *Management of Pneumonia. Oliver T. Osborne, New Haven, Conn.
18 Hemorrhoids. Samuel G. Gant, N. Y.
19 Pneumococcus Arthritis—Report of a Case. W. H. Witt, Nashville, Tenn. With Pathologic Report. William Litterer, Nashville.

16. **Conservative Gynecology.**—Harrison's article is a review of, and comment on, conservative gynecologic operations.

17. **Management of Pneumonia.**—The first consideration in the treatment of pneumonia, says Osborne, should be the establishment of hygienic surroundings, such as a well ventilated room, with plenty of fresh air. That pneumonia can abort itself and that it can also be assisted to abort, may not be frequently, but often is, true. He says: "The profuse sweating caused by a gram of antipyrin, with the action of some brisk purge, followed by morphin to stop the pain, and dry cupping, or, if preferred, a hot poultice, may and often does abort a case of pneumonia." The old treatment with aconite and veratrum viride will probably give the same results, although Osborne prefers not to use these

drugs because of the fear of prolonged cardiac depression. In cases not aborting, the nutrition should be sufficient, but not so forced as to cause gastric flatulence or tympanitis. The nutrition should consist of milk, a quart in twenty-four hours, two raw eggs a day, given in bouillon, with coffee or with sherry or brandy, as seems best. Expressed beef juice, which means more than the blood from meat, is one of the best heart muscle stimulants and should be given in ounce doses three or four times a day. For the bowels, use small glycerin enemas, or, if necessary, a small amount of some saline, such as Hunyadi water. Sponging the extremities and the abdomen (not the chest) with tepid water will reduce the temperature. Gentle massage of the extremities promotes excretion of muscle toxins. Insufficient leucocytosis demands some nuclein preparation, such as nucleic acid, in the dose of one grain, three or four times a day, or thymus, in doses of three grains. Osborne favors warm, moist applications, preferably the old flaxseed poultice, bound tightly to the chest during the first stage to mitigate pain and to add to the general comfort of the patient. Such applications should not be allowed to become cold. He doubts the value of such applications in children, believing that they play a part in causing an empyema. In stopping the use of the poultices, it is important to reduce their size gradually and then to put on some warm, dry absorbent cotton. For the irritating cough, he prefers codein in small doses so as not to depress the respiratory center. The best stimulant for the bronchial mucous membrane he believes to be ammonium chlorid in small doses, especially if combined with a very small amount of ipecac and put up in an acid preparation, such as syrup of citric acid or dilute phosphoric acid in watery solution. Alcohol should not be relied on for a long time in cardiac depression, although for a short time it will tide over such depression and whip up a flagging heart. The dose of whisky should be such as not to give strong odor to the breath, nor to cause a dry skin or a bounding pulse, but just enough to keep the surface of the body warm and the pulse regular. If the heart still fails, and the pulse is bad, not more whisky should be given, but other cardiac stimulants. Many cases of delirium are caused by an overdose of alcohol. Nitroglycerin, 1/200 of a grain, every three to six hours, or a hypodermic of 1/100 of a grain, will give a flagging heart a start and allow time to get the action of other drugs. Venesection of a few ounces of blood will relieve cyanosis, jugular throbbing and a laboring right heart. In any stage of the disease, an irregular pulse tension demands strychnin, 1/30 of a grain, every six hours. Caffein, in the form of coffee, should be given from the beginning of pneumonia, at least once a day, in the morning. Coffee is a food and a cardiac stimulant and tonic. Aromatic spirits of ammonia, or camphor water or spirits are good substitutes for caffein. In acute heart failure a hypodermic injection of a saturated solution of camphor in olive oil may be used. Adrenalin or suprarenalin solution 1 to 1,000, may be used in drops on the tongue, 5 drops every fifteen minutes, several times in an emergency, or 5 drops every three hours regularly. Osborne sounds a note of warning against using suprarenal extract in large doses, or for too long a time, as it may cause depression. Oxygen Osborne considers of undoubted value in emergencies, but says that it should not be considered curative. High injections of normal saline solution are indicated when the kidneys are not acting well or the patient not taking sufficient liquid, provided there is no edema anywhere. During convalescence from pneumonia, if the pulse and heart are weak, he favors the use of tincture of strophanthus in from 5 to 8 drop doses every six hours. To combat sleeplessness, chloral and hyoscin should be used. Ergot is indicated to strengthen a weakened circulation. Severe headache may be often well combated by an ice cap or a saline purge. Profuse perspiration should not be discouraged at any time. Osborne gives no opinion as to the value of the serum treatment of pneumonia.

Boston Medical and Surgical Journal.

January 5.

20 A Consideration of Autointoxication and Autoinfection as Cause of Various Mental Disorders. L. V. Briggs, Boston.
21 The Geographic Distribution of Tuberculosis in Boston in 1901-3 as Compared with the Distribution in 1885-90. A. K. Stone and Alexander M. Wilson, Boston.
22 *Improved Technic for Finney's Gastroduodenostomy. A. H. Gould, Boston.
23 *Cardiac Collapse During Examination of a Post-Pharyngeal Abscess; Incision; Circulation Re-established and Maintained for Four Hours by Massage of the Heart; Death. D. Cheever, Boston.

22. **Finney's Gastroduodenostomy.**—Gould calls attention to the following details, which differ from those in present use in the performance of this operation: 1. The placing of the clamps. 2. Opening of stomach and duodenum; trimming mucous membrane. 3. Omission of guide stitches. A fold of the anterior wall of the stomach, three to four inches long, is picked up parallel to and about one-half inch from the greater curvature. The ends of the clamp are not freed, but are pushed up tightly until the inner jaw rests against the pyloric sphincter, about one-quarter to one-half inch below the free edge of the fold, where they are made fast. The duodenal clamp encloses a similar fold, as it goes obliquely across the bowel from the free edge to the pylorus, and is pushed up until its inner jaw touches that of the stomach clamp, where it is fastened. The handles of the clamps are brought together, the pyloric angle is thus put on a stretch and incision can be made into any part of the area held by clamps or into the pyloric angle without hemorrhage. The duodenum and stomach folds lie side by side, thus obviating the necessity of guides. The two folds are fastened together with a continuous seromuscular stitch beginning at the pyloric angle. The stomach incision is made first and is carried down until the mucous membrane pouches freely between the cut muscular walls. The duodenum is then opened until the mucous membrane of the stomach is met at the pyloric angle. It is occasionally necessary to trim off the mucous membrane from the edges of the duodenal incision. The pouching of the mucous membrane is removed from the stomach by cutting with scissors close to one muscular edge, returning on the other side. The completed incision leaves a tongue-like process made up half of gastric and half of intestinal walls. The two edges of the tongue are sewed together with a continuous through-and-through stitch, which starts from the apex of the tongue and goes across to its base. At this point it is interrupted with a tie before continuing the suture across over the front. When within an inch from the pylorus and the suture over the front is nearly completed, the clamps are loosened to relieve the tension and to allow the last few stitches to be placed. Remove the clamps and bury the suture with a seromuscular stitch. The closing in of the inaccessible pyloric angle is made easy by the introduction of the writer's mattress stitch. The rest of the seromuscular stitch may be continuous.

23. **Cardiac Collapse and Circulation Re-established by Massage of Heart.**—In Cheever's case death was evidently caused by cardiac collapse due to shock, in a patient whose condition of extreme exhaustion made the necessary manipulations in preparing to open the abscess a source of grave danger. Death was not due to suffocation; there was no inhalation of pus, as the abscess was not evacuated until after effort at resuscitation had been begun. There was no serious mechanical obstruction to respiration, hence no indication for tracheotomy; but a rubber tube was introduced into the larynx to supplement the usual method of artificial respiration by direct insufflation, which proved very satisfactory. Later, a tracheotomy was done when the onset of rigor mortis made the reinsertion of the tube through the mouth difficult. Cardiac massage by rhythmical pressure at the rate of 60 to the minute over the third, fourth and fifth left costal cartilages was continued with the artificial respiration for four and one-half hours. It seemed that the circulation of the blood was restored and maintained and that the blood was fairly well oxygenated. The body warmth

was artificially kept up, stimulants supplied and efforts made to raise the blood pressure, but without avail.

Medical Record, New York.

January 7.

24 *The Healing of Tuberculosis (Clinical Features). Herbert Maxon King, Liberty, N. Y.
25 *The Art of Eating Properly (Euphagia) and the Harm of Eating Too Rapidly and Too Slowly (Tachyphagia and Bradyphagia). Max Einhorn, New York.
26 A Recent Epidemic of Typhoid Fever. John B. Briggs, Washington, D. C.
27 Three Cases of Excessive Fetal Development. Julius Rosenberg, New York.
28 *Spleenless Men. J. H. Carstens, Detroit.
29 An Experimental Study of the Movements Produced in the Stomach and Bowels by Electricity. G. G. Marshall, Wallinford, Vt.
30 Definition and Classification of Gastric Hemorrhage. F. Gregory Connell, Salida, Colo.
31 A Case of Sciatic Neuritis with Paralysis, Following Malaria. William G. Russell. New York.

24. **Healing of Tuberculosis.**—Why, asks King, if all are subjected to the infection, does the vast majority escape and only a comparatively small proportion develop a recognizable tuberculous lesion? The painstaking and exhaustive inquiry into the past history of a tuberculous invalid is often full of surprises. One feature, for instance, recurs with such persistent frequency that it merits some attention, and that is the striking difference in time between the presumptive evidence of disease and the first demonstrable evidence, so that at the onset of the rescrudescence the original outbreak has been forgotten or regarded as having no relation to the present trouble. So that it is extremely probable that the initial lesion following a tuberculous infection is often obscure in its clinical manifestations and frequently escapes identification. There is nearly always a prompt and very often successful tendency on the part of the organism to a more or less complete repair followed by an interval of apparent health. Following this interval, which may extend into a period of years, there is a strong tendency to relapse. More often than is supposed the real incipiency of the disease is marked by sharp constitutional disturbance. King calls attention to the frequency with which it is possible to trace in the history of a tuberculous patient a first presumptive evidence of disease, followed by a more or less extended interval of apparent health before arriving at the demonstrable onset, which, in the light of the history, must be considered a recrudescence. Whatever may be the facts in an individual case, the safest and most practical policy lies in regarding every apparent recovery from tuberculosis as merely an arrest of the disease, brought about by an acquired immunity which suitable conditions are very prone to destroy. King says that if we are ever to be able to recognize the presence of tubercle during the period of arrest following the first and unrecognized onset, we are most likely to do so through the discovery of definite reactions in the blood serum of the infected. The generally accepted prognostic significance of a Diazo reaction in tuberculosis has application chiefly, if not solely, to the last stages of the disease, and when temporarily present in the early acute manifestations, or in acute exacerbations of chronic lesions, need not necessarily indicate an unfavorable termination. Its disappearance, if present, would be one of the first clinical evidences of improvement.

25. **As to Eating.**—Under the name euphagia, Einhorn describes the correct manner of partaking of food. Violations of these laws are a frequent source of diseases of the digestive system. He mentions some of the factors, such as good company, pleasant conversation, attractive service, etc., which, in addition to a palatable mode of preparation, contribute to make eating the pleasure it normally should be. Tachyphagia, or hasty eating, is a common evil. It gives rise to gastric and intestinal catarrh, hyperchlorhydria and other digestive disturbances. Bradyphagia, eating too slowly, is a comparatively rare occurrence, and is observed mainly in neurasthenics. Two cases are cited illustrating this condition, one patient taking half an hour to consume a glass of milk. The difficulty in eating was explained by the psychic excitement subsequent to the sitophobia and bradyphagia. The patient was put on a more liberal diet and advised to eat more quickly. The second case required twenty minutes for the ingestion of half a plate of soup and twenty-five minutes for a cup of milk. On a more substantial diet and more rapid eating the patient improved. The treatment consists in suitable advice as to when, how and where to eat. The removal of bradyphagia will frequently smooth the path to convalescence and enable the patient to get entirely well.

28. **Spleenless Men.**—Carstens cites two cases, one of sarcoma of the spleen and one of splenic anemia, to prove the great value of splenectomy in some cases. Both patients are now in every way well. The histories also show the value of blood examinations in obscure cases, inasmuch as they enable us not only to make the diagnosis, as a rule, but also point the way to an operation or to non-interference, as the case may be. It has been demonstrated that spleenless men can live in perfect health and that there is no difference between the blood of such men and the blood of those who have not been subjected to splenectomy.

St. Louis Medical Review.

December 31.

32 *Cases Illustrating Certain Remote Dangers of Mechanical Ileus. Willard Bartlett, St. Louis.
33 Climate for Consumption. W. D. Halliburton, Moberly, Mo.

32. **Dangers of Mechanical Ileus.**—As causes of death in mechanical ileus, Bartlett mentions: 1. Autointoxication resulting from the decomposition of albuminous substances and the absorption from the intestinal tract of the products of bacterial development and activity. 2. Inspiration of vomited material while the patient is under the influence of a general anesthetic. 3. The patient's life may suddenly end as a result of drowning himself in his fetid stomach contents, and 4. That one or more multiple obstructions may be overlooked and the error be discovered only when the persistence of symptoms after operation is noted.

Northwestern Lancet, Minneapolis.

December 15.

34 The Surgical Treatment of Pancreatitis. A. T. Mann, Minneapolis.
35 Diphtheria. C. F. Osgood, Morgan, Utah.
36 Stomach Analysis and Its Value. C. F. Coulter, Wadena, Minn.

January 1.

37 *Stricture of the Lachrymonasal Duct. M. H. Hughes, Salt Lake City.
38 *Decapsulation of the Ovaries in Ovarian Dysmenorrhea. George G. Eitel, Minneapolis.
39 Feeding of Typhoid Patients. John Sutherland, Pierpont, S. D.

37. **Stricture of Lachrymonasal Duct.**—Hughes believes that this condition is more common than is supposed usually and that in the majority of instances it is due to disease of the nasal mucosa, to bony hypertrophy of the turbinated bodies, or to deviations of the nasal septum, and occasionally to error of refraction. A rather intimate knowledge of the conditions, with their proper treatment, is an essential factor to success in the care of disease of the tear channel. Many cases may be effectually treated by removing the primary cause. If relief is not obtained, then the punctum may be slit by the iris scissors. This failing, the entire duct should be slit up and graduated stretching resorted to. The galvanic or chemical cautery may be used with good results. The use of astringents is highly useful in the treatment of chronic inflammation of the tear sac. Proper attention should be given to the correction of any deviations from the normal as regards the general health. Locally, gradual dilation with Bowman's probes, from No. 1 to No. 6, is usually sufficient in the majority of cases.

38. **Decapsulation of Ovaries in Ovarian Dysmenorrhea.**—Eitel proposes this procedure for cases of dysmenorrhea of ovarian origin where the ovaries are covered with a tough and greatly thickened serous covering under which are found small cysts varying in size from that of a small pea to a small marble. The technic of the operation is as follows: The ovary is brought into clear view through a median abdominal incision, and one hemostatic forceps is placed at the

juncture of the utero-ovarian ligament and the ovary and another on the upper border of the broad ligament close to the ovary (lateral). By means of these two forceps the ovary is held by an assistant in the proper position while the operator makes an incision with a sharp scalpel from the ovarian ligament across the ovary to the attachment of the broad ligament, through the covering, and then carefully dissects one side and then the other down as far as cysts are encountered. The flaps of the covering of the ovary are now trimmed off, preferably by means of a pair of scissors. The utero-ovarian ligament then is shortened by doubling it on itself in a similar manner as is in vogue in shortening the round ligaments, in order to hold the uterus in a normal position. Hemorrhage can easily be controlled by pressure clamps and fine ligatures. Eitel says that there is absolutely no danger of adhesions forming, except perhaps in cases where there exists or has at some time existed an inflammatory condition which produced adhesions that had to be broken up at the time of the operation. In two cases where he had occasion to reopen the abdomen some months after the first operation, Eitel failed to find any adhesions. The result in every case in which this method has been tried has been an excellent one, and cases in point are cited.

Pacific Medical Journal, San Francisco.

December.

40 *Modern Methods of Hand Sterilization and Skin Disinfection. Winslow Anderson, San Francisco.
41 The Functions of the Nervous System. E. W. King, Ukiah, Cal.

40. Methods of Hand Sterilization.—Anderson describes in detail the methods of hand sterilization and skin disinfection favored by 65 prominent surgeons in this country and abroad.

St. Louis Courier of Medicine.

December.

42 The Baby Incubators on the "Pike." A Study of the Care of Premature Infants in Incubator Hospitals Erected for Show Purposes. (To be continued.) John Zahorsky, St. Louis.
43 Use and Abuse of the Syringe in Aural Practice. Selden Spencer, St. Louis.
44 *Buried Sutures. Edmund A. Babler, St. Louis.
45 Eyestrain as a Cause of Migraine. W. A. Shoemaker, St. Louis.

44. Buried Sutures.—Babler reviews the origin of the buried suture, considering silver wire, silk, linen and catgut, and expresses his preference for the latter, especially when prepared by the cumol method as laid down by N. B. Carson. He says he knows of no instance where chromicized gut prepared by this method has caused any subsequent trouble. He emphasizes the following points: 1. Do not dehydrate the catgut insufficiently or at too high a temperature or the gut will be brittle. Dehydrate slowly. 2. Do not tie the gut tightly. 3. Do not place the dehydrated gut in cold cumol; have the cumol at 100 C. but extinguish the flame under the cumol boiler before placing the gut in the cumol. 4. Use a large cumol boiler so that a large quantity of gut can be sterilized at one time. 5. Brittle catgut is due to insufficient dehydration or to placing the dehydrated gut in cumol below 100 C. 6. Every step in the technic must be carefully performed, and perfect asepsis must be duly observed. 7. Place the glass tubes and the cotton plugs in the sterilizer for one hour each day for three consecutive days before placing the sterile gut in them. 8. Non-absorbable chromicized gut is far more irritating than silver wire. 10. Chromicized gut prepared after the modified cumol method is readily absorbed and perfectly reliable.

Southern California Practitioner, Los Angeles.

December.

46 Rupture of the Urethra. Granville MacGowan, Los Angeles.
47 Pleurisy with Effusion and Empyema. Joseph K. Swindt, Pomona, Cal.
48 *Some Remarks on Hysterectomy, with Summary Report of 100 Cases. W. W. Beckett, Los Angeles.

48. Hysterectomy.—Beckett makes the following summary of 100 cases of hysterectomy: Of this number 46 were for fibroid growths, 18 for malignant disease, 27 for chronic endometritis, with diseased tubes; 8 for procidentia, 1 for imperforate os. The youngest patient was 16 years old, oldest, 71. Vaginal hysterectomy was performed 72 times; suprapubic, 28 times. Four patients died. One from pulmonary embolism the third day after operation; one from malignant stricture of the bowel seven days after operation; one from surgical shock, and one from exhaustion. Of the malignant cases, 6 have recurred; the earliest one month after operation, the latest one year after operation. In 3 cases there was alarming postoperative hemorrhage, one occurring six days after operation, one eight, and one nine days. In one case clamps only were used; in one case ligatures only, and in the other both clamps and ligatures were used. In each case clamps were reapplied for twenty-four hours. All recovered without further interruption. Whenever possible one ovary was left, and in some cases both. In the case of the 16-year-old girl with imperforate os, the uterus was dilated to the size of a seven months' pregnancy and its cavity filled with retained menstrual fluid. The right ovary was cystic and of about the size of a small orange. In the left side there was an ovarian cyst the size of a fetal head. The left fallopian tube was twelve inches long and distended with menstrual fluid. In 3 cases dermoid tumors complicated the operation. When hysterectomy was done for procidentia, anterior and posterior colporrhaphy was also performed. One patient, after a supravaginal hysterectomy, had a slight, irregular menstruation for nearly two years following the operation. In this case only one ovary was removed.

Medical Times, New York.

January.

49 Narcosomania, with Report of 21 Cases. Thomas H. Evans, Philadelphia.
50 Illustrative Cases Due to Eyestrain with Explanatory Remarks Concerning Them. Ambrose L. Ranney, New York.
51 *Review of Exophthalmic Goiter and Its Treatment. Wm. O. Hewitt, Attleboro, Mass.
52 *Abuse of the Cystoscope in Prostatic Disease. G. Frank Lydston, Chicago.
53 Some Practical Methods of Hydrotherapy for General Practice. Eliot Gorton, Summit, N. J.

51. Quinin in Exophthalmic Goiter.—Hewitt speaks well of the use of quinin in the form of sulphate and the neutral bromid in the treatment of this condition. According to Paulesco, quinin produces a vasoconstriction of the vessels of the head and neck, thereby rendering the goiter smaller, diminishing the pulse rate, and even reducing the exophthalmus. Of three cases under Hewitt's observation, all began with a 5-grain gelatin coated pill of the neutral bromid of quinin, morning and evening; two of the patients are taking twenty grains a day; the third fifteen grains. None have complained of symptoms of cinchonism. One patient under treatment for thirteen months has increased in weight, the nervous symptoms have largely disappeared, a troublesome diarrhea has improved, and the goiter and exophthalmus are much less noticeable. The other two cases show a decided gain in strength and general improvement.

52. Cystoscope in Prostatic Disease.—Lydston says that when the diagnosis of prostatic obstruction is clear the indication for radical operation is also clear, the application of this statement being modified only by the conditions governing the individual case. Any exploration of the bladder which is unnecessary to the establishment of a practical working diagnosis is not only useless but exceedingly dangerous. Cystoscopy is especially dangerous and, where not absolutely necessary, is especially to be avoided because of the traumatism and subsequent danger of infection which the insertion of the instrument necessitates, and the frequent necessity of anesthesia with prolonged exploration of the bladder. The use of the cystoscope, especially when anesthesia is employed, rapidly compounds the immediate danger to the patient, and the subsequent danger of operative procedures. A properly performed radical operation is much less dangerous than a cystoscopic exploration. The use of the cystoscope rarely accomplishes more than the gratification of the curiosity of the operator in the establishment of refinements of diagnosis. So far as the diagnosis of stone is concerned, the use of the cystoscope is superfluous. Whether the presence of stone be established or not, a radical operation for the removal of the

prostate is necessary. The stone can be removed at the same time. There are exceptional cases of posterior median obstruction and of prostatic overgrowths at the neck of the bladder in which the cystoscope is necessary. These cases are safer for exploration than the orthodox type of prostatic obstructions, but even in them diagnosis can usually be established without the cystoscope, and where this can be done the use of that instrument should be avoided.

Buffalo Medical Journal.

January.

54 *Complete Removal of the Shaft of the Tibia for Osteomyelitis, with Restoration of the Bone. George Ben Johnston, Richmond, Va.
55 Toxemia and Infections as Causes of Insanity. Frank Stephenson, Syracuse.
56 The Alexander Operation—Its Immediate and Remote Results. James E. King, Buffalo.

54. **Removal of Shaft of Tibia.**—All Johnston's cases occurred in young males and the trouble was always traceable to a trivial injury. The tibia was involved in five instances and the fibula in one. There was a remarkable variation in the degree of virulence of infection and the extent of destruction of tissue was dependent on the character of the infection. When the latter was severe there were profound constitutional symptoms. Sometimes the condition was mistaken for "growing pains," rheumatism, or erysipelas. Regeneration in all these cases was entirely of periosteal origin, was rapid and complete and deformity resulted only in such cases as had suffered destruction of the epiphyseal line. Deformity never results where a disc of bone is left between the shaft and the epiphysis. The companion bone invariably took on compensatory hypertrophy. In acute cases the time to operate is as soon as possible. In subacute or chronic cases, where the surgeon may elect the time of operation, it is well to defer it until new bone tissue has begun to appear. The operation should consist of free incision and a complete removal of all diseased bone, sparing the periosteum as much as possible. The curette should be avoided, or used very cautiously. The strictest antiseptic precautions must be observed. The after-treatment advocated by Johnston consists of the maintenance of aseptic conditions, avoiding too frequent and rough dressings, immobilization of the leg in a fracture box, carefully shaping the parts as bone tissue develops, by bandages or adhesive straps; protecting the young bone by means of plaster of paris; abstaining from use of the limb until the new bone is capable of sustaining the weight of the body, and looking after the general health.

Illinois Medical Journal, Springfield.

December.

57 A Phantom or Model for Illustrating Herniotomy and Suture Work on the Abdominal Parietes. E. Wyllys Andrews, Chicago.
58 Bronchoscopy for Foreign Bodies in the Bronchial Tubes. E. Fletcher Ingals, Chicago.
59 Practical Value of Blood Examinations. James B. Herrick, Chicago.
60 Immediate Abdominal Section. Denslow Lewis, Chicago.
61 *Pyoktanin and Its Uses as a Surgical Agent. Emanuel Friend, Chicago.
62 *Infant Mortality. William J. Butler, Chicago.
63 Successive Scientific Steps Establishing the Mosquito as the Definite Host of Malarial Fever. Thomas W. Bath, Bloomington, Ill.
64 Psychic Equivalents of Epilepsy. J. F. Hultgen, Chicago.
65 Some Newer Conceptions of the Nature and the Management of Bright's Disease. Alfred C. Croftan, Chicago.
66 Why Digital Exploration Through the Internal Inguinal Rings Should Be Made in Conjunction with Every Alexander Operation. A. Goldspohn, Chicago.

61. **Pyoktanin as a Surgical Agent.**—Friend has found pyoktanin useful in ulcers, burns, inflamed wounds and malignant neoplasms. It may be powdered directly on the surface of large purulent wounds and ulcers until a firm scab is formed, which must then be abandoned to spontaneous desquamation; or it may be employed as a dusting powder mixed with talcum, starch or sugar of milk in the strength of 2 per cent.; a 2 to 10 per cent. ointment, using lanolin, lard, cosmolin or vaselin as a base; pyoktanin pencils to be dipped in water and passed over the ulcerated surfaces, and solutions varying in strength from 1 to 1,000 to a saturated aqueous solution. Friend has made use mostly of the latter preparation. Burns of the second and third degree, quite extensive in size, as well as large varicose and specific ulcerations and osteomyelitic bone fistulæ, were treated with a saturated solution of the drug with excellent results. A solution of 1 to 1,000 was used in irrigating wounds, such as those following lymphadenitis, with good results. The chief advantages of the use of pyoktanin are: 1, The rapidity of action; 2, its drying tendencies of the weeping wound surface and consequent cutting short of the suppurating process; 3, the prevention of adherence of the gauze covering the ulcerated area, and in consequence, the minimum of disturbance to the newly-formed epithelial elements; 4, curbing of excessive granulation tissue; 5, non-irritating, non-poisonous and anodyne effects; 6, ease of application; 7, cheapness.

62. **Infant Mortality.**—Butler finds from a study of vital statistics that there has been a decided yearly increase in infant and early childhood mortality from all causes during the past decade in Chicago. It appears that there has been a decided reduction in the death rate from gastrointestinal and kindred diseases; this was most marked in 1900, since when the drinking water has been greatly improved. Prior to 1900 there seems to have been a variation in the yearly death rate, but since then an unvarying decrease. No one factor seems to explain fully all the figures given. The condition of the water, however, seems to bear an especially important relation. Milk inspection, too, has assisted greatly in so far as it has resulted in a pure, wholesome milk, undiluted and carefully and promptly handled. The education of the people by the profession and the greater interest taken in pediatrics have been of incalculable value. Lastly, the conditions of the poor, among whom infant mortality is by all odds the highest, has improved considerably.

Canadian Practitioner and Review, Toronto.

December.

67 Plea for the Voluntary Admission of Certain Types of Insanity to Institutions for the Insane. James Russell, Hamilton, Canada.
68 *Use of Intoxicating Liquors and Life Insurance. T. Millman, Toronto, Canada.
69 *Operative Treatment of Spina Bifida. E. R. Secord, Brantford.

68. **Liquors and Life Insurance.**—Millman makes the following deductions: 1. That total abstainers, other things being equal, are decidedly the best risks for life insurance. 2. That insurance companies are justified in accepting applicants who confine themselves to a glass of beer or wine, or a pony of whisky to each meal. 3. That such applicants, and those who take one or two glasses between meals should, if accepted, pay extra rates. As there is always danger that the habit will become more decided as time goes on, it is preferable that such applicants be rejected. 4. Those who get intoxicated for a few hours three or four times a year should also be rejected, as the habit is apt to increase. If accepted they should pay extra rates. 5. If more is consumed than in deduction 3, or of intoxication is more frequent and of longer duration than in deduction 4, the applicant should be rejected. 6. Officers and members of lodges should be careful in soliciting applicants who use intoxicating liquors. Medical examiners should carefully analyze the habit of each applicant in respect to the use of intoxicating liquors. They should not simply take the statement of the applicant, but ascertain just how much liquor he takes daily and what hours of the day. 7. As alcohol, taken to excess, damages the cells and the tissues of the body, care should be exercised in acting on the examination papers of applicants who state that one, or other, or both, of their parents were addicted to alcoholic excesses. The reproductive germs are damaged, and the health of the offspring, bodily and mentally, must be impaired. As a rule, they are not long-lived, and many criminals, idiots, etc., come from this class.

69. **Treatment of Spina Bifida.**—Secord believes that there are no absolute contraindications to the operative treatment of spina bifida. The worse the case the more marked becomes the futility of other than operative measures, and the greater the probability that the child will die if left alone. Paralysis, hydrocephalus and marasmus, often spoken of as contraindications, should not be so considered. Each has been and may be

improved. Absolute asepsis, combined with as little handling of nerve tissue as is essential, will give the best results. Loss of cerebrospinal fluid in moderate amounts is not of importance, neither is it necessary to operate on an inclined plane. The use of bony flaps is rarely, if ever, essential.

Wisconsin Medical Journal, Milwaukee.

December.

70 Hydronephrosis. G. D. Ladd, Milwaukee.
71 A Case of Typhoidal Perforation. Edmund W. Holmes, Philadelphia.
72 *Chronic Continuous Secretion of Gastric Juice. L. F. Jermain, Milwaukee.
73 *Estimation of Indemnity in the Case of Loss of Vision, Especially Loss of One or Both Eyes. H. V. Würdemann, Milwaukee.

72.—See abstract in THE JOURNAL, xliii, page 67.

73.—Ibid., page 66.

Medical Bulletin, Philadelphia.

December.

74 Aesculin. William F. Waugh, Chicago.
75 Use of Adrenalin Chlorid Solution in a Case of Collapse Following Administration of Chloroform. James L. Thompson, Castelmaine, Australia.

Nashville Journal of Medicine and Surgery, Nashville.

November.

76 Gastrointestinal Disorders in Children. E. H. Jones, Murfreesboro.
77 Lobar Pneumonia; Its Treatment. J. P. Bates, Clarksville, Tenn.

Richmond Journal of Practice, Richmond.

November.

78 Symptoms and Diagnosis of Cancer of the Stomach. H. S. MacLean, Richmond.
79 Diabetes Mellitis—With Report of a Case. A. G. Brown, Richmond.
80 Surgery of Typhoid Fever. W. W. Keen, Philadelphia.

The Alabama Medical Journal, Birmingham.

December.

81 Observations of Pyosalpinx. G. S. Brown, Birmingham.
82 Report of Abdominal Operations. W. M. Jordan, Birmingham.
83 Intestinal Perforation in Typhoid Fever and Its Treatment. C. Wilson, Birmingham.
84 Uncinariasis, Its Presence in the Birmingham District—Report of Cases. J. M. Mason, Birmingham.

The Journal of Nervous and Mental Disease, New York.

December.

85 A Case of Juvenile Tabes in a Family of Neuro Syphilitics. J. Grinker, Chicago.
86 An Additional Case of Precocious Tabes. J. Grinker, Chicago.
87 Subcortical Cyst and Fibroma Due to Trauma Producing Jacksonian Epilepsy, Cured by Operation. M. Schlapp and J. J. Walsh, New York.

The Kansas City Medical Record, Kansas City.

December.

89 Notes on a Case of Cerebral Hemorrhage. W. J. May, Baker City, Ore.

The Virginia Medical Semi-Monthly, Richmond.

December 9.

90 Practical Points in the Interpretation of Sanitary Water Analyses, from the Physician's Standpoint. E. C. Levy, Richmond.
91 The Appendix and Its Relation to Abdominal Hernia. W. B. DeGarno, New York.
92 Case of Mangled Limb Illustrating Value of Conservative Surgery. Wm. E. Anderson, Farmville, Va.
93 The Etiology of Pulmonary Tuberculosis Considered in Relation to Its Therapeutics. L. F. High, Southern Pines, N. C.
94 Typhoid Fever—I. Fatal Hemorrhage in a Child. II. Double Relapsing Typhoid. R. S. Martin, Stuart, Va.
95 The Early Recognition of Hypertension. H. W. Cook, Richmond.
96 Case of Post-Operative Hysteria Simulating Epilepsy. K. C. Corley, Washington, D. C.
97 Adeno-Carcinoma of Ileo-Cecal Valve, with Large Amount of Fibrous Tissue—Resembling Appendicitis. R. M. Slaughter, Theological Seminary, Va.

The Canada Lancet, Toronto.

December.

99 Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. A. W. M. Robson, England.
100 The Progress of Medical Science. J. Grant.
101 Presidential Address, American International Congress on Tuberculosis. E. J. Barrick, Toronto.
102 The Use of the Finsen Light and X-ray at the Old London Hospital. J. Price-Brown.

Brooklyn Medical Journal, Brooklyn.

December.

103 Haste and Delay in Surgical Operations; Both Equally Objectionable. E. D. Ferguson, Troy.
104 The Degenerative Changes in the Myocardium Which Give Rise to Serious Cardiac Disease. R. Clark.
105 The Relation Between Systemic Disorders and Skin Diseases. J. McF. Winfield, Brooklyn.
106 Diagnosis of Ectopic Gestation. A. M. Judd.
107 Fissure in Ano. E. H. Mayne.
108 Acute Catarrhal Otitis Media. L. A. McClelland, Brooklyn.
109 Acute Intestinal Obstruction. W. S. Simmons, Jr.
110 Cystic Goiter of Right Lobe in a Woman 24 years of age. W. A. Tomes.

The Journal of Advanced Therapeutics, New York.

December.

111 Clinical and Experimental Effects of Electrical Currents of High Potential and Frequency. J. H. Burch, Baldwinsville, N. Y.
113 Sensitization of Living Tissues. (Continued.) M. A. Cleaves, New York.
114 Sulphuric Acid as a Means of Drying the Interior of the Static Machine. R. D. Dobie, London.
115 Dietetics in the Treatment of Constipation. S. Cohn, New York.
116 Vibratory Treatment of Constipation. A. Snow, New York.
117 Constipation—Its Electrical Treatment. M. W. Brinkmann, New York.
118 Exercise in the Treatment of Constipation. W. L. Savage.

Memphis Medical Monthly, Memphis.

December.

119 A Higher Standard of Physical Manhood. How May It Be Attained? J. L. Crook, Jackson, Tenn.
120 What Can We Do to Prevent the Spread of Consumption by the Negro Race in the Southern States? J. S. Rawlins, Dancyville, Tenn.
121 Dangers of Infection Which Lurk in the Telephone. R. S. Stanley, Memphis.
122 Strabismus. G. H. Savage, Memphis.
123 Lesions of the Brain Affecting the Functions of Speech. B. F. Turner, Memphis.
124 Traumatic Insanity—Report of a Case. W. H. Deaderick, Marianna, Ark.

Toledo Medical and Surgical Reporter.

December.

125 Examination of the Pathologic Feces. R. C. Longfellow, Toledo.
126 What Should Be the Attitude of the State and the Medical Profession Toward the Individual Suffering from Tuberculosis? Wm. A. Dickey, Toledo.
127 Résumé of 100 Abdominal Operations. J. H. Jacobson, Toledo.
128 Granular Lids—Some General Facts. Mark D. Stevenson, Akron.

Journal of the Mississippi State Medical Association.

December.

130 Care of the Newborn. Alma L. Rowe, Forest.
131 Operation for Radical Cure of Inguinal Hernia. W. H. Harrison, Tutwiler.
132 Uncinaria Americana. H. M. Folkes, Biloxi.
133 Treatment of Typhoid Fever. R. B. Stapleton, Hattiesburg.
134 Patent and Proprietary Medicines. R. C. Elmore, Durant.

Medicine, Chicago.

December.

135 The Surgical Treatment of Infantile Paralysis. A. C. Wiener, Chicago.
136 Paretic Dementia and Depressing Delusions. James G. Kiernan, Chicago.
137 Report of a Case of Subphrenic Abscess, Illustrated by Skiagraph. G. E. Pfahler, Philadelphia.
138 A Note on Some Forms of Muscular Inco-ordination. Howard F. Hansell, Philadelphia.
139 Nephritis; Symptomatology and Diagnosis. Augustus A. Eshner, Philadelphia.
140 Fistula in Ano. J. M. Frankenburger, Kansas City.
142 Transmitted Irritability of the Bladder. G. Kolischer and L. E. Schmidt, Chicago.

Journal of Cutaneous Diseases, New York.

December.

143 The Relation of Certain Dermatoses to Each Other and to Changes in Vascular Equilibrium. James Nevins Hyde and Ernest L. McEwen, Chicago.
144 Parasitic Sycosis Communicated from Cattle. Wm. F. Breakey, Ann Arbor.
145 Lichen Planus Verrucosus. A. Ravogli, Cincinnati.
146 Report of a Case of Blastomycosis. Henry H. Koehler and Gaylord C. Hall, Louisville.

New York State Journal of Medicine, New York.

December.

147 Address of the President, New York County Medical Association. Francis J. Quinlan, New York.
148 The Value of Oxygen in Combination with the Different Anesthetics in Common Use. James T. Gwathmey, New York.
149 *An Old Specialty. Jane L. Greeley, Jamestown.
150 *Asthma and Its Relation to Environments from a Blood Etiologic Standpoint. George N. Jack, Buffalo.

149.—See abstract in THE JOURNAL of November 5, page 1409.

150.—Ibid.

Kentucky State Medical Journal, Louisville.

December.

151 Through and Through Gunshot Wound, with Perforation of the Liver. W. A. Quinn, Henderson.
152 Acute Intestinal Diseases of Summer. D. C. Bowen, Nolin.
153 Surgery in Country Practice, with Report of a Case of Fracture of Skull with Loss of Brain Substance. A. M. Crittenden, Ferguson.
154 The History of the Formation of Renal Calculi. O. L. Conrad, Wilsonville.
155 Cactus Grandiflora in Cardiac Derangements. S. L. Reed, Wilsonville.

156 Neurasthenia. J. C. Cassity, Eminence.
157 Tuberculosis of the Kidney. J. Garland Sherrill, Louisville.
158 The Management of Normal Labor. Nevil M. Garrett, Frankfort.
159 Nasal Catarrh. A. H. Edwards, Hopkinsville.
160 Placenta Previa Centralis with Excessive Hemorrhage. Successful Delivery at the Eighth Month. Report of a Case. R. B. Gilbert, Louisville.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

December 24.

1 Stone in the Kidney. H. Bertham Robinson, London.
2 *Notes on Local Anesthesia. Arthur E. Barker, London.
3 A Physiologic Contribution to the Problem of Chloroform Anesthesia. A. D. Waller.
4 An Operation for Fixing Movable Kidney. Andrew Fullerton.
5 *A Note on the Treatment of Thrombosis of the Superficial Veins of the Lower Extremities. C. Mansell Moullin.
6 The Anthropometric Investigation of Hospital Patients. F. C. Shrubsall.

2. **Local Analgesia.**—Barker describes his method of producing local anesthesia. He uses B-eucain, which is far less dangerous than cocain, while possessing analgesic properties little, if at all, inferior to it, and with the concurrent use of adrenalin for the purpose of securing a retardation of circulation equivalent to constriction of the part, he has removed some of the objections as to the duration of the analgesia, the extent of the area which can be dealt with and the amount of the toxic drug to be employed. It is necessary to keep within the safe dose of the drug, and to have at our disposal a large enough quantity of the fluid medium to render it possible to spread the analgesic agent over large areas. For ordinary surgical work Barker finds the following solution to answer well: Distilled water, 140 c.c.; B-eucain, 0.2 grams; sodium chlorid, 0.8 grams; 1 to 1,000 adrenalin chlorid solution, 10 minims. All this quantity of fluid can be used in an ordinary case if necessary and is quite sufficient for most. Twice as much may be injected without ill results. The duration of the insensibility is secured by the admixture of the adrenalin. Without it sensation is only abolished by eucain for about fifteen minutes; with it, for three to four hours. But the analgesia is produced more slowly when adrenalin is employed with the eucain. It is therefore well before all larger operations to wait some thirty minues after injection to allow time for the insensibility to become fully developed. After this the effect appears to deepen for a couple of hours. Waiting has another advantage. When eucain alone is employed the operation must be done at once. The tissues are still in a state of artificial edema which masks the anatomic details unpleasantly. By adding adrenalin to the eucain solution and waiting, the artificial edema has disappeared and details are very clearly seen. Rapid injection is to be avoided; sudden distention of the tissues is disagreeable, if not painful. The fluid should not be used cold nor too hot, for the same reason. All dragging on the parts is to be avoided, lest structures be pulled upon which lie beyond the area of infiltration. Barker has never seen any depressing effects follow the use of B-eucain in a long series of operations. A list of operations done under B-eucain analgesia is appended, and among these are the following: Abdominal sections, hernia operations, amputations, orchidectomy, removal of cyst of thyroid, removal of silver wire from around the patella, operations for fistula in ano, varicose veins, hydrocele, varicocele, etc.

5. **Treatment of Thrombosis of Superficial Veins of Leg.**—Moullin excises, at the very earliest opportunity, the whole thrombosed portion of the vein with the most excellent results. The wound is healed in a week and the patient can get up cured and freed from all the risks of embolism, deep thrombosis, or recurrence. He has not found that a moderate degree of inflammation makes any difference. It begins to subside as soon as the offending vein is removed; but, of course, in such a case, the wound should not be sewed up tightly, as there is sure to be a considerable amount of oozing afterward.

The Lancet, London.

December 24.

7 The Restoration of Hearing After Removal of the Drum and Ossicles by a Modification of the Radical Mastoid Operation for Suppurative Ear Disease. Founded on the Experiences of 400 Operations. Charles J. Heath, London.
8 *Congenital Intestinal Atresia. H. S. Clogg.
9 *The Intravenous Injection of Antitoxin in Diphtheria. John Biernacki and J. C. Muir.
10 The Parasites of Smallpox, Vaccinia and Varicella. W. E. De Korte, London.
11 *Some Observations on Convulsions in Children and Their Relation to Epilepsy. R. O. Moon, London.
12 Hemoconia. Andrew Love, Glasgow.
13 *An Unusual Case of Diaphragmatic Hernia. H. B. G. Newham.
14 A Case of Congenital Hypertrophic Stenosis of the Pylorus in which Pyloroplasty Was Unsuccessfully Performed. J. Rutherford Morison, Newcastle-on-Tyne.
15 Note on a Case of Acute Cerebral Abscess. A. L. Whitehead, Leeds.

8. **Congenital Intestinal Atresia.**—Two cases of this kind are reported by Clogg. The first was a female infant, aged 6 days. She had passed nothing by rectum and had passed very little urine. Vomiting commenced shortly after birth and persisted in increasing severity, becoming dark brown in color and very offensive. The navel was very prominent—a congenital umbilical hernia. At the necropsy it was found that the large intestine commenced just below the hepatic flexure; the transverse colon, sigmoid flexure and rectum were very shrunken. In the sac of the hernia was the lowest coil of small intestine, from which a diverticulum arose. Beyond this point the intestine which represented the cecum and ascending colon was much contracted; it was too small to permit of the onward passage of contents. The intestine ended blindly in the sac and the large intestine commenced just below the hepatic flexure of the colon. The second patient was a male infant, 4 days old. Shortly after birth he commenced to vomit, the vomitus becoming very offensive. The abdomen was distended. Nothing had been passed by rectum. Operation disclosed that the intestine ended blindly at the lower end of the ileum and was continued on as an impervious cord about half an inch in length into a much shrunken and contracted large intestine. The obstruction was situated about two inches above the ileum.

9. **Intravenous Injection of Diphtheria Antitoxin.**—In the course of nine months Biernacki and Muir treated 38 cases of diphtheria by intravenous injection of antitoxin. These cases are primarily grouped as nasopharyngeal, pharyngeal and laryngeal. In the first group there are 14 cases, with no deaths. In 5 cases intravenous injections only were used; in 6 cases relatively small supplementary doses were given by the subcutaneous method; in 2 cases both methods were equally employed, and in 1 case the greater part of the antitoxin was injected subcutaneously. Of pure pharyngeal cases there were 12, with 1 death. The administration of antitoxin was solely intravenous in 2 cases, mainly intravenous in 5, about equally intravenous and subcutaneous in 2, and chiefly subcutaneous in 3. The laryngeal cases fall into 3 groups—those not requiring operation, those intubated and those in which tracheotomy was performed. In the first group there are two ordinary cases, both ending in recovery. One was treated wholly and the other chiefly by the intravenous method. In a third case the lesion was mainly pharyngeal and nasal, but there was slight laryngeal involvement. It proved fatal. Six cases required intubation only, and all the patients recovered. In 4 cases the treatment was purely intravenous, in 1 mainly so; in the remaining case an equal subcutaneous dose was given. Tracheotomy was performed in 3 cases, with 1 death. In 1 all the antitoxin, and in a second half of it was given intravenously; in the third the intravenous dose was subsidiary. Two brands of serum (A and B) were employed in a previous series of 7 cases, 5 of which resulted fatally. Serum A was previously in use for hypodermic injection, and, when given intravenously, in 3 cases out of 4, it caused, within a short time, a varying degree of chill, pyrexia and circulatory depression. With neither serum was there any aggravation of the rash or of other later effects. In this second series of 38 cases only serum B was employed. The dose intravenously was 20,000 units. In the

entire series there was a fatality of 3 in 38 selected severe cases, a result which seems to favor the intravenous method. However, there has been a general fall in the fatality of diphtheria in the particular district cared for by the authors, and this leaves room for speculation as to whether the subcutaneous method might not have yielded better results. Nevertheless, it will be noted that of 9 cases operated on only 1 died. The authors conclude that even in cases other than laryngeal it seems very difficult, if not impossible, to say of any individual patient that a better result was obtained than might have followed subcutaneous injection.

11. **Relation of Epilepsy to Convulsions in Children.**—Moon urges that a serious view be taken of all convulsions occurring in infancy, and says that we are not justified in supposing that even a single convulsion in childhood will end with itself and have no further evil influence on the life of the child. For most of the cases which arise in connection with an extrinsic cause also have a history of heredity or alcoholism in the parents which are both predisposing causes of epilepsy. Even where there is no such history, and it is assumed that a peripheral irritation is adequate in itself to produce a convulsion in a perfectly normal brain, the mere fact of the convulsions being often repeated makes the brain cease to be normal and creates a distinct pathologic basis for the production of epilepsy. It is impossible to give the precise relation of such convulsions to epilepsy, but Moon believes that a much greater difference is made between these two affections than the facts seem to warrant.

13. **Unusual Case of Diaphragmatic Hernia.**—Newham's patient fell to the ground, a distance of some thirty feet, fracturing the left femur through the middle third and bruising the chest and abdomen considerably, but without signs of any fracture of the ribs. He was also vomiting and in a generally collapsed condition. Some dullness was made out in the flanks which shifted on moving the patient. A diagnosis was made of probably ruptured spleen, but owing to the general grave condition of the patient operative interference was out of the question. There was considerable pain over the cardiac region, somewhat increased on taking food. Later he was suddenly seized with most severe pain in the abdomen, accompanied by dry retching and intense thirst. The symptoms continued more or less severe for two days, when the patient suddenly became unconscious and died in about half an hour. On removing the chest wall at the autopsy, the first organ to present itself to view was the stomach, accompanied by part of the transverse colon, both greatly distended, and the latter showing signs of strangulation. These practically filled the left side of the thorax except for about ten ounces of blood-stained fluid which were present. The left lung was firmly pressed back against the spinal column, it was quite airless, small and deeply pigmented. The heart was healthy, though small and pushed over well to the right of the sternum. The right lung was small, congested and completely bound down by pleuritic adhesions. On examination of the diaphragm, an opening slightly to the left of the middle line, with smooth edges and easily admitting the index finger, was found, through which the stomach and intestines had escaped into the thoracic cavity. The hole in the diaphragm appears to have been made at the time of the accident and was probably caused by sudden, violent muscular contraction.

Semaine Médicale, Paris.

16 (XXIV, No. 51, December 21.) *De l'ostéotomie pubienne par la méthode de Gigli. R. de Bovis (Rheims).

16. **Extramedian Symphyseotomy.**—De Bovis makes out the balance sheet in regard to Gigli's "lateral section of the pelvis." He finds that the operation has been performed in 48 cases to date, and, with the exception of Baumm, all those who have performed it are much gratified with the results, both immediate and remote. Baumm's 2 patients died from infection resulting from laceration of the vagina. He does not give the particulars, and it is possible that the operation may not have been responsible for the fatalities. But even assuming that it was, this mortality of 2 in 48, or 4 per cent., is much less than the mortality of at least 10 per cent. after ordinary symphyseotomy. In every case the wound healed by primary intention. In De Bovis' 2 cases the callus was minimal and finally absorbed, so that a physician would not find a trace of the intervention on palpating the region or by digital examination through the vagina. The posterior articulations of the pelvis should be stretched beforehand to prevent pains later. The other indications are the same as for any symphyseotomy.

Archiv f. Gynäkologie, Berlin.

Last indexed XLIII, page 1585.

17 (LXXIII, No. 3.) *Zur schnellen Erweiterung des Muttermundes nach Bossi auf Grund von 30 weiteren Fällen (mechanical dilatation). B. Ehrlich (Leopold's clinic, Dresden).

18 *Ueber künstliche Frühgeburt bei engem Becken mittels des Bossi'schen Dilatationsverfahrens und daran sich anschliessender Metreuryse (mechanical dilatation). G. Heller (ibid.).

19 *Die Spinal-Analgesie mit besonderer Berücksichtigung ihrer Verwendung in der Gynäkologie und Geburtshilfe. M. Stolz (Graz).

20 Ueber das gleichzeitige Vorkommen von Sarkom und Karzinom im Uterus. O. Nebesky (Innsbruck).

21 Ueber die Dauer der Schwangerschaft (duration of pregnancy). T. Hockstetter (Stuttgart).

22 Zangen-Operationen bei hochstehendem Kopfe (forceps extraction with head up). T. V. Wenczel (Budapest).

17 and 18. **Mechanical Dilatation with Bossi's Dilator.**—Ehrlich states that not a single instance of any noticeable complication of the puerperium, due to the use of Bossi's dilator, was observed in 30 cases of eclampsia. Mechanical dilatation should be reserved for serious cases, but, when indicated, it can be used without dread of complications. Over 100 pages are devoted to the particulars of its application at Leopold's clinic, with analysis of 70 articles on the subject from the literature. Heller relates the details in 30 cases of contracted pelvis in which artificial premature delivery was accomplished with the Bossi, followed by the metreurynter. He emphasizes the importance of frequent external examination of the woman to watch the development of the fetal head during the last two months and that the child should not be taken out of the incubator too soon.

19. **Spinal Analgesia in Obstetrics and Gynecology.**—Stolz summarizes his conclusions on this theme as follows: Injection of .05 gm. tropacocain in 5 c.c. of cerebrospinal fluid is sufficient to induce analgesia in the external genitalia for an hour. The labor contractions are not reduced in frequency, length or intensity, but rather become more vigorous. The reflex action of the abdominal muscles is excluded, but voluntary action is possible and efficient. Spinal analgesia is suitable for operative intervention, but lumbar puncture is not so easy as in the non-pregnant subject. Spinal analgesia gave negative or dubious results in 2 cases of eclampsia. He reviews the particulars of 155 gynecologic and 25 obstetric cases in which it was applied. With only from .05 to .08 gm. of tropacocain the procedure is harmless. The larger the dose the longer and deeper the analgesia, while the larger the amount of cerebrospinal fluid used to dilute it, the greater the extent of the analgesia. A good rule is to use as many c.c. of the fluid as cg. of the tropacocain. In about 56.3 per cent. of the cases of laparotomy it gave sufficient analgesia for the purpose. About 31 per cent. required a little inhalation narcosis to complete the operation, and in 12.7 per cent. the spinal analgesia proved entirely inadequate and had to be supplemented at once by inhalation narcosis. A very small amount of the anesthetic answers the purpose in these circumstances. He has derived the impression that nervous affections and inflammatory processes seem to affect the spinal analgesia unfavorably.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 167.

23 (XLII, No. 3.) Die Einklemmungs-Luxation der Patella. H. Küttner.

24 Ueber Verletzungen der Handwurzel (Os lunatum). A. Wittek.

25 Doppelseitige Subluxation des Metacarpus (non-traumatischen Ursprungs). Ibid.

26 Fall von Luxatio pedis posterior inveterata und deren Reposition. O. Fäster.

27 Zur Technik der Nephropexie. M. Hofmann.

28 Ueber Sarkoms-Uebertragungs-Versuche (transmission of sarcoma). A. Vescher (Basle).

29 Zur Kenntniss der congen. Tumoren der Kreuzsteissbeingegend (in sacrococcygeal region). W. Hagen.
30 *Erfolge der Radikal-Behandlung des Mastdarmkrebses (rectal cancer). L. Küpferle.
31 Altes und Neues zur Behandlung von Knochenhöhlen (bone cavities). J. Wagenknecht.

30. **Radical Treatment of Rectal Cancer.**—Küpferle reviews 238 cases of rectal cancer treated by radical extirpation at Czerny's clinic during the last twenty-five years. About 36.4 per cent. of the patients were women. He states that 17.3 per cent. of the 196 patients operated on several years ago have remained well. This result was obtained in several cases in which the extent of the lesion rendered the outlook very unfavorable. The material is analyzed in detail and compared with the reports from other clinics.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 77.

32 (XXVIII, No. 49. December 10.) Zur Frage der Konvulsionen nephrektomierter Kaninchen (rabbits). Blumreich.
33 Kurze Bemerkung zur Lumbal Punktion bei Eklampsie. B. Krönig (Jena).
34 Zur operativen Behandlung der chronischen puerperalen Uterusinversion (Küstner technic). H. Thomson.
35 *Radioscopy of Fetus in Utero.—Ueber den Nachweis des Kindes in der Gebärmutter mittels Röntgenstrahlen Albers-Schönberg (Hamburg).

35. **Radioscopy of Fetus in Utero.**—Albers-Schonberg has succeeded in obtaining good radioscopic views of the fetus at eight months in 2 cases. He accomplishes this by using a special diaphragm which exerts light compression on the abdomen and prevents change of position by the fetus.

Mitteilungen a. d. Grenzgebieten, Mikulicz and Naunyn's, Jena.

Last indexed XLIII, page 1732.

36 (XIII, supplement.) Acute, Non-suppurative Thyroiditis.—Die acute, nicht eitrige Thyreoiditis und die Beteiligung der Schilddrüse an acuten Intoxicationen und Infectionen überhaupt. F. de Quervain (Switzerland).
37 (XIV, Nos. 1-2.) *Syphilis of Biliary Apparatus with Febrile Course.—Ueber die fieberhaft verlaufende Lues der Gallenblase und Gallengänge sowie der Leber. B. Riedel (Jena).
38 *Experimentelle Untersuchungen über die Einwirkung der Röntgen-Strahlen auf innere Organe. H. Heineke (Leipsic).
39 Zur Klinik und Pathologie der hämorrhagischen Pankreas-Nekrose. E. Rautenberg (Königsberg). Three cases.
40 Zur Hepato-Cholangio Enterostomie und zur Anatomie der Gallengänge (of biliary passages). Enderlen and Zumstein (Marburg).
41 Klinische und exp. Beiträge zur Physiologie der Schilddrüse und der Epithel-Körperchen (thyroid gland and epithelial bodies). F. Pineles (Vienna).
42 *Zur Kenntnis der Tumoren des Kleinhirnbrückenwinkels ("Zentrale Neurofibromatose," "Akustikus-Neurome). O. Funkenstein (Königsberg).
43 Ueber das Rinden-Zentrum für kontralaterale Augen- und Kopfdrehung (cortical center for deviation of eyes and head). Zur Verth.
44 *Ueber komplizierende Nephritis bei Perityphlitis. W. Hildebrandt (Freiburg).
45 *Mechanismus der Darmeinstulpung bei einem Kinde mit 3 Invaginationen, 2 descendierenden und 1 ascendierenden. B. Riedel.
46 Eine seit 3 Jahren sich wiederholende spontan zurückgehende, schliesslich irreponibele Invaginatio ileo-ileo-colica. Ibid.

37. **Febrile Luetic Cholecystitis.**—Riedel ten years ago had an opportunity to observe a case presenting the typical clinical picture of cholecystitis due to impaction of a gallstone in the neck of the gall bladder. An operation revealed merely thick bile in this organ, with adhesions connecting it to the duodenum and omentum. Fresh deposits of fibrin on the liver indicated that there must have been some recent and violent inflammatory process nearby. The liver contained a number of grayish nodules in the right lobe, unmistakable evidences of lues. This assumption was confirmed by the subsidence of all symptoms following the use of potassium iodid. The patient was a woman of 52 with no knowledge of a syphilitic infection, but who had 2 illegitimate children. In 2 other cases the syphilitic nature of the cholecystitis without icterus was recognized, but the pains were so intense that an operation was undertaken. It disclosed extensive adhesions and changes in the liver in both cases. The patients still have pains at times. In another case a febrile syphilitic process in the liver simulated cholecystitis. The patient was a physician of 37 and the intermittent colics with evening temperature of about 38 C., persisting for months, did not interfere with his practice nor debilitate him. Empyema of the gall bladder was his own diagnosis, and he clamored for an operation. A simple incision showed that this was a mistake, but the symptoms permanently subsided afterward. Syphilis of the liver is not rare, but it is frequently unrecognized. The patients generally belong to the upper classes, have consulted many authorities, and their disturbances have usually been ascribed to gallstones, or to cancer. One of his patients had been taking a course of treatment for a supposed inoperable cancer of the stomach; 6 bottles of potassium iodid caused a disappearance of all symptoms. Riedel has encountered only one serious case of acute cholecystitis *sine concremento*. All the others ran a harmless course. In another instance a child of 3 succumbed to an acute infection of the smaller biliary passages, originating in the papilla, with an abscess above the liver communicating with the pleural cavity. This case confirms the possibility that a perfectly healthy liver may become so infected that an abscess results without the presence of stones or of any lesion in the liver, and without any general constitutional disease. Several other unusual cases are described, among them that of a woman with febrile periods, icterus, liver dullness 18 cm., no tumor, no albuminuria, and not a trace of pain. The authorities discarded the idea of gallstones, but incision disclosed a large stone in the bile duct and pus in the gall bladder, the liver comparatively sound.

38. **Influence of Roentgen Rays on Internal Organs.**—Heineke's research on mice, rabbits, guinea-pigs and dogs has confirmed the statements of others in regard to the action of the Roentgen rays on the internal organs. The effect observed is entirely independent of that noted on the skin. With the exception of the testicles, the deep action of the Roentgen rays seems to be exclusively restricted to the organs concerned in the making of blood. The action is manifested in two ways: in the annihilation of the lymphoid tissue and in the destruction of the cells of the bone marrow and spleen pulp. This reaction of the lymphoid tissue is specific. It occurs long before any other organ or system of organs shows any changes from the exposure, and the dosage can be calculated to limit the action of the rays to this tissue alone. The reaction is further distinguished by the lack of any latent stage, by its sudden onset, its stormy course, its early termination, the absence of any after-effects and by the rapid restitution of what has been destroyed. In all these points the reaction is directly the reverse of what is observed in regard to the action of the Roentgen rays on other material. We must always reckon with this destruction of the lymphocytes as an inevitable accompaniment of any exposure. It does not seem to entail any undesired or dangerous by-effects.

42. **Tumors in the Groove Between Pons and Medulla.**—Funkenstein draws the clinical picture of a tumor in the recess between the pons, cerebellum and medulla, as illustrated in a number of cases. He asserts that tumors at this point are operable only when they are solitary and unilateral. Bilateral tumors are operable, but they are generally associated with a more or less extensive central neurofibromatosis. Unilateral deafness is an important sign of a unilateral tumor, usually solitary. Sternberg's is the only case on record in which it was associated with multiple tumors. When the deafness is bilateral and a tumor on both sides is probable, and with them central neurofibromatosis, the chances of an operation are far less favorable. As these tumors are of very slow growth, the life expectancy is actually lessened by any surgical intervention. The surgeon's hand may be forced, however, by the importunity of the subject begging to be released from his annoying symptoms. The article is a very complete study of the subject, based on 6 cases and 10 from the literature. The first of the writer's patients died after an operation by Krause's technic, the findings indicating central neurofibromatosis. The second patient succumbed unoperated on. A solitary neurofibroma was found on the right auditory nerve. A solitary neurofibroma involving the auditory and facial nerves on one side, with psammoma of the dura, was found in the cadaver of an elderly woman who had died from peritonitis. The fourth case was one of sarcoma in the cerebellum, the fifth of endothelioma in the left posterior fossa, both fatal. The symptomatology of each of the cases is carefully reviewed. Gibson's is the only one on record cured by operation, and the diagnosis of "acoustic neuroma" was dubious in this case.

44. **Complicating Nephritis in Appendicitis.**—This article from Bäumler's clinic emphasizes the seriousness of nephritis as a complication of appendicitis. It describes a case of acute hemorrhagic nephritis, the onset coinciding with that of appendicitis. The kidney affection gradually subsided as the other grew worse. Hildebrandt is convinced that he saved his patient only by refraining from operating on the appendix until the kidneys were able to functionate better by the subsidence of the nephritis. The cases on record in which operative treatment was undertaken—regardless of the concomitant nephritis—all terminated fatally. Complicating nephritis, therefore, modifies somewhat the indications for surgical treatment in appendicitis.

45. **Triple Invagination in an Infant.**—Riedel illustrates a case of triple invagination in a 5 months old infant. The ileum had become invaginated through the ileocecal valve into the cecum, while at the same time there was retrograde invagination of the sigmoid flexure in the descending colon, and the lower end of the sigmoid flexure had become invaginated in the rectum. Conditions were restored to normal by a laparotomy, but the child succumbed to an immediate double pneumonia. The abdominal viscera were found apparently quite normal at the necropsy.

Münchener medicinische Wochenschrift.

47 (LI, No. 48, November 29.) *Fatigue Antitoxin.—Ueber das Ermudungstoxin und -antitoxin. W. Weichardt.
48 Iodin Sulphuric Acid Test for Starch.—Zur Technik der Jod-Schwefelsäurereaktion auf Amyloid. E. Neumann.
49 *Zur Technik der Gruber-Widalschen Reaktion. C. Stäubli.
50 *Zur Serumdiagnose des Typhus abdominalis mittelst des Fickerschen Diagnostikums. J. v. Tiling.
51 Zur Differenzierung von Streptokokken aus Uterus-Lochien normaler Wöchnerinnen. F. Schenk and A. Scheib.
52 Ueber die diagnostische und prognostische Bedeutung der mikroskopischen Untersuchung des Lochial-Sekrets. A. Leo.
53 *Temperatur-Suggestionen bei Tuberkulösen. F. Köhler and M. Behr.
54 Dangers of Schultze's Swinging.—Gefahren der Schultzeschen Schwingungen. A. Hengge.
55 *Behandlung der Leukämie durch Röntgen-Strahlen. E. Schenck.
56 *Fall von Leukämie mit Röntgenstrahlen behandelt. Cahen.
57 Die Verwendung von Balsamum peruvianum bei der Wund-Behandlung. F. Burger.
58 Cure of Recurring Hydrocele with Adrenalin.—Eine neue Methode der Hydrocele-Behandlung. J. Rupfle.
59 Ein Apparat zur Herstellung jeder Art von Extension. E. Friedheim.
60 *Pessary Thermometer.—Bestimmung der Fieberhöhe durch Dauermessung. E. Oertmann.
61 *Breast Sucking and Bottle Sucking.—Brustsaugen und Flaschensaugen. A. Schmidt (Dresden).
62 Address at Opening of Amphitheater.—Lehren und Lernen in der Heilkunde. H. Fehling (Strassburg).
63 Polyclinic Abuse.—Zur Poliklinikenfrage. L. Heidenhain.

47. **Fatigue Toxin and Antitoxin.**—Weichardt is convinced that he has established the fact that the functioning muscles of warm-blooded animals form a toxin which can be separated by dialysis from the ordinary chemically definable products of disassimilation. Injection of this fatigue toxin into other animals induces the symptoms of extreme fatigue, torpor and death, the same as in animals succumbing to the effects of physical overexertion. This fatigue toxin is not found in the carcasses of unfatigued animals, and other animals injected with their muscle plasma are unaffected by it. The fatigue toxin has the properties of a true toxin, and injected in sufficient amounts causes the production of an antitoxin. This antitoxin differs from the bacterial antitoxins by its extreme stability and by the readiness with which it dialyzes. This explains the facility with which it is absorbed in the digestive tract. It thus displays properties which adapt it for therapeutic use as a restorative and invigorant.

49-50. **Technic of Agglutination Test.**—Stäubli gives illustrations of a "mixing block," etc., by which the agglutination test is simplified. He takes up a tiny drop of blood in a pipette and then fills the rest of the pipette with physiologic salt solution, centrifugalizing this mixture instead of the serum alone. Much less blood is required than by the ordinary technic. He thinks microscopic examination of the agglutination is indispensable. Tiling merely draws the blood on a scrap of blotting paper and dissolves it out again at his leisure with physiologic salt solution. Neither of the above writers regard the presence of the blood corpuscles as detracting from the accuracy of the test.

53. **Suggestion and Temperature in the Tuberculous.**—Köhler advises a sham injection before the true tuberculin test, to eliminate the influence of suggestion as far as possible. He also advises an occasional sham injection in the course of systematic tuberculin treatment, for the same reason. Tuberculous subjects should be guarded against emotions and moral impressions liable to raise the temperature by suggestion. A positive response to a tuberculin injection should not be estimated from the increased temperature alone, but from the general condition and changes in the local lung findings.

55-56. **Roentgen Treatment of Leukemia.**—Schenck's patient treated with the *x*-rays for severe lymphatic leukemia was only symptomatically benefited. She was 53 years old and had noted the spleen tumor for seven years. The spleen diminished in size and the leucocytes became less numerous, but the reds also diminished in numbers and the symptomatic improvement did not seem to retard the progress of the disease. In another case of acute leukemia the leucocytes dropped spontaneously during the week before death from 76,000 to 3,000. In the case treated with *x*-rays about 35 exposures of the spleen and sternum were made, the former for from 5 to 10 minutes, the latter only 4 or 5. The spleen showed no change during the first 20 exposures, but then rapidly diminished in size. Cahen reports the case of a man of 47 whose spleen was hard and so large that it almost filled the entire abdominal cavity, extending a hand breadth beyond the umbilicus on the right and above to the costal arch. The blood findings were 1 to 40. After 22 exposures to the *x*-rays the findings were 1 to 1,073 and the spleen had subsided until it was no longer accessible to palpation. The general health improved to correspond. The long bones were then exposed to the rays and at present, after 40 exposures in all, the patient has just been dismissed but with the understanding that constant surveillance will be necessary to maintain what has been accomplished. The exposures were from 8 to 15 minutes long, the tube hard and at a distance of about 25 cm. The leukemia had been first noticed one year before treatment was commenced.

60. **Permanent Pessary Thermometer.**—The advantages of a permanent thermometer in the rectum which allows the readings to be made without removal of the thermometer or without disturbing the patient, are obvious to every physician. Oertmann's illustration shows the form he recommends. It is of the same shape and size as an ordinary hemorrhoidal pessary, the mercury being in the bulging end inserted in the rectum. The maximal reading is thus obtained without disturbing the patient. The thermometer could also be made in the shape of or to be attached to an ordinary vaginal pessary.

61. **Improved Nipple for Nursing Bottles.**—Schmidt describes a hard rubber nipple which absolutely prevents the entrance of air into the nursing bottle, except when desired. It is also possible to regulate the amount of milk the child is getting by adjusting the nipple to regulate the negative pressure in the bottle after the infant has been sucking for a time. He thinks that this nipple approaches the ideal closely. The principal features are a roll of rubber on the inside of the nipple which prevents its being pulled over the neck of the bottle beyond a certain point. One side of the nipple below this roll is slit nearly to the roll. When the negative pressure in the bottle has reached a point where sucking becomes hard, the mother twists the nipple a trifle while the child is still sucking, and thus allows a little air to enter.

Wiener klinische Rundschau, Vienna.

Last indexed page 80.

64 (XVIII, No. 45, November 6.) Forty-six Cases of Frontal Sinusitis.—Ueber operative besonders osteoplastische Eingriffe an der Stirnhöhle wegen chronischer Eiterung derselben. R. Hoffman (Dresden).
65 (No. 46.) 4 Fälle von Sectio caesarea. P. T. Neustube.
66 Ueber Chloroform-Sauerstoff-Narkosen (oxygen). J. Meyer.
67 *Beitrag zur chirurgischen Behandlung der Bubonen. E. Hermann.

67. **Surgical Treatment of Inguinal Buboes.**—Hermann treated 61 cases of bubo consecutive to hard or soft chancre by injection of a 10 per cent. glycerin emulsion of iodoform. About 8 per cent. were completely cured in less than four

days; 31 per cent. in five days; 26 per cent. in six days, and a duration of from nine to ten days was observed in less than 8 per cent. He first evacuates the pus through a minute incision and then fills the cavity with the emulsion. As it is forced out by the pressure of the surrounding parts, he fills the cavity again two or three times, leaving it distended with the emulsion.

Sei-I-Kwai, Tokio.

Last indexed XLI, page 291.

68 (XXII, No. 6.) *Stature of Japanese.
70 (No. 7.) *Idiopathic Gangrene. U. Kojima. (Commenced in No. 5.)
71 (No. 8.) *Percussive Boundaries of the Lungs. K. Takata.
72 *A Method for Ascertaining the Presence of Carbon in the Blood of Beri-beri Patients; Ozonization the Proper Treatment for Beri-beri. Albert S. Ashmead (New York).
73 *Beri-beri Among the Chinese. Ibid.
74 (No. 9.) *Central Scotoma in Kakke. J. Komoto.
75 (XXIII, No. 1.) *The Causes of Carcinoma. A. Sata. (Commenced in XXII, No. 10.)
76 Spread of Leprosy by Mosquitoes and Fish. Albert S. Ashmead (New York).

68. **Stature of the Japanese.**—Nakamura's statistics sustain the assumption that the physique of the Japanese is advancing with the progress of the nation in general. The data cover the period of eleven years ending in 1902. An average of about 400,000 recruits were examined each year. The proportion of those 5 feet 4 inches or more in height has steadily increased from 10 to 12.67 per cent.; of those 5 feet 1.7 inches in height the proportion has increased from 31.84 to 35.06 per cent., while of those under 5 feet in height the proportion has dropped from over 20 to 16.20 per cent.

70. **Idiopathic Gangrene.**—Kojima reviews the occidental literature on this subject, and states that five Japanese monographs, with microscopic findings, have also been published. Haga's was based on 10 cases, all in males from 27 to 47 years old; Watsuji's on 5 male cases and 1 female case, the ages 31 to 48, and Tanaka's on 3 cases of gangrene of the foot and 1 of the thumb. Kojima's personal experience has included 2 cases in men, aged 44 and 48 respectively. The microscopic findings are those of sclerotic thickening of the intima of the artery and occasionally of the vein, with secondary thrombosis extending upward or downward from the area of thickening, entailing the occlusion of the vessel. The arteriosclerosis does not differ materially from ordinary arteriosclerosis, except that the subjects are younger. The gangrene is probably induced, he thinks, by predisposition, certain mechanical or chemical factors and others which produce sclerosis of the vessels. The left side is affected more frequently than the right, and males more than females. The process may run a chronic course or it may develop suddenly. Amputation is imperative when gangrene has begun, otherwise symptomatic treatment is indicated, with mercury if there is any suspición of syphilis. (See Stevens' article in THE JOURNAL, Dec. 31, 1904, page 2033.)

71. **Percussion Outline of the Lungs.**—Takata gives diagrams of the boundaries of the lungs as determined by percussion of healthy subjects. His findings differ in several respects from those taught in the text-books.

72-73. **Carbon Dioxid Intoxication Cause of Beri-beri.**—Ashmead presents evidence to show that the charcoal braziers used all the year around in Japanese houses are the cause of beri-beri. They generate carbon dioxid, which is the more injurious from the custom of sleeping on the floor. The Chinese have beri-beri when they burn charcoal, but when they burn other fuel there is no beri-beri.

74. **Central Scotoma in Kakke.**—The central scotoma in the case described preceded the other symptoms of the kakke. It was transverse elliptic in both eyes, as also the scotoma for colors. The eye findings corroborate the theory of a toxic polyneuritis as the essence of kakke.

75. **Causes of Cancer.**—Sata describes considerable experimental research which has not given any conclusive results, although suggesting the probability of a parasitic etiology. He calls attention to some of the questions to be solved before serum treatment can be practicable. Is the so-called cancer serum capable of destroying only the cancer cells, or will it simultaneously injure the normal epithelial cells which are alike in their histogenic structure, or will it not affect the cells in such vital organs as the kidneys, liver, etc.? His experiments failed to demonstrate such a specific action on certain cells with absence of action on others, as is affirmed by some French investigators. The kidney cells seem to suffer most from the action of these cytolytic sera.

Nordisches Medicinisches Archiv, Stockholm.

Last indexed XLII, pages 690 and 745.

77 (XXXVI, Internal Medicine, No. 4.) Die Diet bei der Nephritis. H. Köster.
78 *Weak Heart Action with Mitral Defects.—Ueber Herzschwäche bei Mitralfehlern. I. Stein (Copenhagen) (Commenced in No. 3.)
79 Study of the Gastric Juice.—Die Untersuchung des Magensaftes und ihre Bedeutung, illustriert durch 600 Fälle. H. P. T. Oerum (Copenhagen).
80 *Ueber Intoxikation mit per os eingenommenen Chloroform. H. Ernberg.
81 *Medical Literature of the Northland, 1902-3.
82 (Surgery, No. 4.) *Behandlung der Darm-Invagination. J. V. Wichmann (Copenhagen). (Commenced in No. 3.)
83 *Acute Suppuration in Tendon Sheaths of Palm.—Klinische Beiträge zur Kenntnis der akute septischen Eiterungen der Schnenscheiden der Hohlhand besonders mit Rücksicht auf die Therapie. W. Forssell. (Commenced in No. 3.)
84 *Ueber die Cephalocele der Augenhöhle (of orbit). A. Stadfeldt (Copenhagen). (Commenced in No. 3.)
85 *The Limits of Hearing Capacity.—Die Grenzen der Schwerhörigkeit. V. S. Stein (Copenhagen).

78. **Weak Heart with Mitral Defects.**—Stein's clinical experience and experimental research have conclusively demonstrated, he thinks, that the chronic insufficiency of the heart in case of a mitral defect may be due to chronic infection as well as to a functional disturbance of the heart's energy. Chronic myocarditis existed in only 4 of his 13 cases, and in none of Romberg's 7, while it was dubious in one of those reported by Krehl. The danger from a rheumatic valvular defect does not lie in the possibility of chronic myocarditis—resulting from the primary rheumatism, but rather in the relative or absolute extent of the valvular defect, and in the possibility of acute or chronic reinfections.

80. **Chloroform Intoxication Per Os.**—The symptoms in the case described had their counterpart in those exhibited by rabbits after ingestion of chloroform. The patient had swallowed from 20 to 30 c.c. of chloroform. Of 47 cases recorded in the literature 28 recovered. In 11 of the fatal cases consciousness was never regained.

81. **Current Medical Literature of the Scandinavian Countries.**—The *Nordische med. Archiv* makes a specialty of very complete and reliable abstracts of all the articles published in the current periodical literature of Norway, Sweden, Denmark and Finland. The abstracts are all in German, with the original titles in full and also translated. A complete oversight of the literature of the Northland is thus afforded every one who can read German. The literary output is extensive and valuable.

82. **Treatment of Invagination.**—In 1893 Wichmann published a monograph on this subject, and now brings it down to date. He groups the statistical material in a number of instructive tables, etc. In the adult, non-operative treatment is rarely successful. Invagination occurs more frequently in the small intestine. When the colon and ileum are involved—which occurs in from 45 to 55 per cent. of the cases—reduction is impossible. Fully 45 per cent. of the total invaginations were accompanied by complications. Early primary laparatomy is the standard procedure, but he warns that it is necessary to examine the patient again in the narcosis before using the knife, as in several cases spontaneous reduction had occurred at the last moment, and, at the laparotomy, the conditions were found normal. The material reviewed includes 1,184 cases. Of the 1,049 cases in which the age was mentioned, 502 were infants, 194 were between 2 and 10, 166 between 10 and 30, and 187 over 30. In the 502 infants only 4 cases are known of total expulsion of the invaginatum. If there is incarceration, operative treatment is the only resource. Opium or morphin generally has a favorable effect in infants, as it checks the progress of the invagination, although it prevents spontaneous reduction. If a good surgical clinic is

at hand the practitioner should send the infant there at once, not even attempting any examination in narcosis, leaving this to the surgeon, as also the decision whether to use the knife or not. In the absence of a good surgeon the practitioner should remember that non-operative treatment of quite recent cases is apt to be successful, but by the second or third day such measures are liable to be dangerous and rarely cure. Manipulations, artificial distension of the large intestine with air or fluids, are liable to cause harm when the intestine has suffered from two or three days or more of invagination. The distension should be moderate and kept up for about ten minutes at a time. Hirschsprung states that these measures proved successful in 37 out of 64 children under 7 in his experience. All with invagination in the small intestine or ileocolon died. The greatest difficulty with these bloodless measures is that it is almost impossible to tell whether reduction has been accomplished or not. The tumor may subside, the bowels move several times, and yet the invagination may still persist to a slight extent and gradually assume its former proportions. Or the tumor and constipation may persist after the invagination has been completely reduced. The temperature generally rises even after reduction. The uncertainty is, therefore, great, and laparotomy is the preferable procedure in favorable surroundings. Even when the physician thinks that the reduction is complete, it is well, if possible, to place the infant in the surgeon's care for surveillance and operation, if necessary.

83. **Suppuration in Tendon Sheaths of Palm.**—Forssell reports 92 cases of tendovaginitis and bursitis and describes his method of treatment applied since 1897. The results are most excellent, compared with those obtained by other technics. He became convinced that the almost inevitable necrosis observed in cases of acute suppurative bursitis of the palm is due mainly to the great pressure exerted by the ligamentum carpi. He established further that no functional harm resulted from slitting this ligament. The action of the hand and fingers was not interfered with in the least by so doing. Consequently treatment should aim to open up the field of infection as early, extensively and as completely as possible. His series of 63 cases thus treated shows the great superiority of the measure and the fine results attained, with the absence of the mutilations formerly noted. The article is accompanied by 15 plates showing the topography of the parts, the technic and the results.

84. **Cephalocele of the Orbit.**—Stadfeldt reports a case of pulsating exophthalmus which he assumed to be a cephalocele of the posterior orbit. He gives the particulars of the 28 similar cases he was able to find in the literature. All except Holmes' case are of European origin. Seven terminated fatally; in 4 after an operation. Two of the others were complicated with hydrocephalus or deformities. In the present case the exophthalmus could be transformed into enophthalmus by pressure on the eye, paralleled by slowing of the radial pulse at the same time. The pulse dropped from 84 to 68, without any brain symptoms. Compression of the left common carotid reduced the pulsation considerably, and there was no nausea. No abnormal murmur was heard and the tension of the eyeball was normal. The pulsation was permanently reduced by ligation of the carotid near the crico-thyroid ligament, and the ptosis of the lid was much relieved by lateral tarsorrhaphy. The ligation of the carotid evidently modified the circulation in the brain and reduced the amount of fluid in the cephalocele, thus inducing great improvement, permanent for a few months to date, at least. The retrospective diagnosis of cephalocele orbitæ posterior was based on the congenital origin, the soft tumefaction, the asymmetry of the skull in general, the presence of coloboma iridis on the same side, and the slight mental and moral apathy displayed by the patient, a young woman, whose speech was rather indistinct, although she appeared to be well developed and healthy.

85. **The Limits of Hearing Capacity.**—Stein insists that a distance of 100 cm. for the whispered voice is not enough of a test for the hearing. Male artisans should be able to hear the whispered voice at 200 cm., while the range should be from 300 to 700 cm. for public or other functionaries. School children, physicians, musicians and midwives should hear the whispered voice at a distance of more than 700 cm. His article is an attempt to show that the hearing capacity required as the standard in certain occupations may be far above or below the standard required in others. He remarks that housewives can get along with a minimal standard of 150 cm. When the size of the room does not allow a test beyond a certain distance, he adds + to the figure representing the distance.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

TEXT-BOOK OF INSANITY BASED ON CLINICAL OBSERVATIONS for Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized Translation from the Latest German Edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis, Mo., with an Introduction by Frederick Peterson, M.D., President of the New York State Commission in Lunacy. Pp. xvi—638. Price, $4.00 net. Philadelphia: F. A. Davis Company.

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT, VENEREAL AND SEXUAL DISEASES. A Text book for Students and Practitioners. By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Medical Department of the State University of Illinois (the College of Physicians and Surgeons). Second Revised Edition. Illustrated with 233 Engravings and 7 Colored Plates. Cloth. Pp. xv—1008. Price $5.00 net. Philadelphia: F. A. Davis Company.

A COMPEND OF THE PRACTICE OF MEDICINE. By Daniel E. Hughes, M.D., Late Chief Resident Physician Philadelphia Hospital. Seventh Revised Edition. Edited, Revised and in Parts Rewritten by Samuel Horton Brown, M.D., Assistant Dermatologist, Philadelphia Hospital. Including a Series on Mental Diseases and a Very Complete Section on Skin Diseases. Illustrated. Leather. Pp. 779. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co. 1904.

CLINICAL HEMATOLOGY. A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. DaCosta, Jr., M.D., Demonstrator of Clinical Medicine, Jefferson Medical College. Second Edition, Revised and Enlarged. Containing Nine Full-page Colored Plates, Three Charts and 64 Other Illustrations. Cloth. Pp. 591. Price, $5.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

A TREATISE ON DISEASES OF THE NERVOUS SYSTEM. By L. Harrison Mettler, A.M., M.D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Complete in One Volume; Profusely Illustrated; Two Color Plates; Full Indexes. Cloth. Pp. 1000. Price, $5.00. Chicago: Cleveland Press. 1905.

MANUAL OF ANTENATAL PATHOLOGY AND HYGIENE. The Embryo. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S. Edin., Lecturer on Midwifery and Gynecology, Medical College for Women, and Surgeon's Hall, Edinburgh. Cloth. Pp. 697. Price, $5.00. Edinburgh: William Green & Sons. 1904.

ÆQUANIMITAS with Other Addresses to Medical Students, Nurses and Practitioners of Medicine. By William Osler, M.D., F.R.S., Professor of Medicine, Johns Hopkins University, Baltimore. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

BACTERIOLOGY AND THE PUBLIC HEALTH. By George Newman, M.D., F.R.S.E., D.P.H., Formerly Demonstrator of Bacteriology in King's College, London. Illustrated. Third Edition. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

A MANUAL OF PRACTICAL OPHTHALMOLOGY. By George A. Berry, M.B., F.R.C.S. Ed., Senior Ophthalmic Surgeon, Royal Infirmary. With 223 Illustrations, Mostly from Original Drawings. Cloth. Pp. 570. Price, $3.00. Philadelphia: J. B. Lippincott Co. 1905.

TEN LECTURES ON BIOCHEMISTRY OF MUSCLE AND NERVE. By W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. With Illustrations. Cloth. Pp. 160. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

FOURTH ANNUAL REPORT OF THE NEW YORK STATE HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN for the Year Ending Sept. 30, 1904. Hospital Located at Tarrytown, N. Y. Paper. Pp. 30. Albany: J. B. Lyon Co. 1904.

ANNUAL REPORT OF THE SURGEON-GENERAL OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE OF THE UNITED STATES. For the Fiscal Year 1904. Cloth. Pp. 675. Washington: Government Printing Office.

PNEUMONIA AND PNEUMOCOCCUS INFECTIONS. By Robert B. Preble, A.B., M.D., Professor of Medicine, Northwestern University. Illustrated. Cloth. Pp. 211. Price, $1.00. Chicago: Cloyd J. Head & Co. 1905.

PUBLIC, SOCIETY AND SCHOOL LIBRARIES. U. S. Bureau of Education. Chapter XVIII. Paper. Pp. 1017. Washington: The Government Printing Office. 1904.

THIRTY-FIFTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Cloth. Pp. 646. Boston: Wright & Potter Printing Co. 1904.

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Original Articles.

THE NATURE AND SIGNIFICANCE OF LEUCOCYTOSIS.*

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When Cohnheim demonstrated that inflammation and suppuration are due to an emigration of the white corpuscles, a great advance was made in pathology. Since then the importance of the white blood corpuscles has been increasing with each year.

CELL TYPES.

If leucocytes consisted of but a single variety of cells, with common functions, the study of leucocytosis would be reduced to a simple process. It would then be sufficient simply to ascertain the degree of leucocytosis by estimating the total number of leucocytes to a cubic millimeter of blood.

It is well known, however, that the white blood corpuscles consist of several more or less distinct varieties. Many attempts have been made to differentiate these types, resulting in not a little confusion in the nomenclature thus introduced.

1. A classification has been based on the nature of the behavior of the cells to microchemic reagents, giving us acidophile, basophile and neutrophile cells.

2. Another has been based on the form and number of nuclei, giving us small and large mononuclear, transitional, polymorphonuclear and polynuclear forms.

3. A third classification has been made in accordance with the supposed origin of each type, giving lymphocytes, splenocytes, myelocytes and mast cells.

4. The nature of the granules has given us a fourth classification, non-granular, finely granular and coarsely granular cells.

5. A classification according to functions would probably be most useful if we knew more of their subtle nature. The functions of these small organisms are so obscure that such a classification must be left for further research to perfect. Metchnikoff, however, has made the nearest approach to a classification according to this method that has yet been attempted, and has brought to our notice phagocytes and non-phagocytic cells.

LACK OF UNIFORM STANDARDS.

In addition to a lack of uniformity in the classification of leucocytes, the relative percentages accepted as normal for each type have been given a comparatively large range of variation. There has also been a lack of uniformity among hematologists in the technic adopted. Many staining methods are in vogue, varying materially in their ability to reveal the characteristics of the cell elements, which further increases the difficulty in properly classifying cells. By adopting a definite technic uniform morphologic characteristics are revealed; a true picture of each cell type is formed, and a correct classification of leucocytes becomes an easy task.

(A) VARIATION OF THE CELL TYPES IN HEALTH.

Two factors govern the number of cells belonging to the various cell types in health as well as in disease: (*a*) The total leucocyte count, and (*b*) the relative percentages for the cell types.

Under changing conditions the normal leucocyte count may vary from 5,000 to 10,000 cells for each c.mm. of blood. These estimates are accepted as the minimum and maximum normal counts.

In health, the upper and lower percentage limits are moderately well established for each cell type. The following minimum and maximum normal percentages for the respective cell types may be accepted as representing the normal percentage range: Small lymphocytes, 22-30; large lymphocytes, 5-9; transitionals, 1-2; polymorphonuclears, 60-70; eosinophiles, 1-2.

The differential percentages taken alone are of little clinical value. It is only when the total leucocyte count is considered in connection with these percentages that the number of cells belonging to the respective cell types can be approximately estimated.

To estimate the cell variation for the respective cell types for normal blood, the calculation is made on the basis of the minimum and maximum normal leucocyte count (5,000-10,000), each count accompanied by the minimum and maximum differential percentages for each cell type. To illustrate, an estimate of the number of small lymphocytes will be made in accordance with these standards.

(*a*) The minimum normal leucocyte count (5,000), accompanied by the minimum differential percentage (22 per cent.), will place the minimum normal small lymphocyte count at 1,100 cells for each c.mm. of blood; the same count, accompanied by the maximum differential percentage (30 per cent.), will establish the maximum normal small lymphocyte count at 1,500 cells.

(*b*) The maximum normal leucocyte count (10,000), accompanied by the minimum differential percentage (22 per cent.), will place the minimum normal small lymphocyte count at 2,200 cells; the same count, accompanied by the maximum differential percentage (30 per cent.), will establish the maximum normal small lymphocyte count at 3,000 cells.

Therefore, according to these standards, any actual lymphocyte count that is included within these normal extremes (1,100-3,000) may be considered as falling within normal limits.

The following table gives the normal range of the

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

cell count for each cell type, based on the foregoing normal standards:

TABLE 1.

	S.L.	L.L.	Trans.	Poly.	Eos.
Minimum and maximum differential percentages for each cell type..	22-39	5-9	1-2	60-70	1-2
Minimum and maximum number of cells for each cell type estimated from the minimum normal leucocyte count (5000).	1100 1500	250 4350	50 100	3000 3500	50 100
Minimum and maximum number of cells for each cell type, estimated from the maximum normal leucocyte count (10,000).	2200 3000	500 900	100 200	6000 7000	100 200

To account for the wide normal variation of the number of cells for the various cell types, as shown in Table 1, we must consider:

1. Causes which affect the actual number of leucocytes.

2. Causes which affect the relative percentages for the various cell types.

First Factor.—It seems to be fairly well established by clinical data that the total leucocyte count varies in health according to the conditions of nutrition. Healthy and vigorous individuals furnish a leucocyte count near the maximum normal limit. On the other hand, persons in feeble health, with poor digestion and assimilation, and weak resisting power, generally furnish a leucocyte count near the minimum normal limit. Consequently, under certain conditions of nutrition, a leucocyte count of 5,000 may be considered normal, while under other metabolic conditions a count of 10,000 is normal.

Second Factor.—The wide normal range for the actual number of cells belonging to the respective cell types may be further explained on the ground that in certain apparently normal individuals the minimum differential percentage is present for certain types, such a condition always being accompanied by a corresponding relative increase in the percentage of certain other types. (*a*) This percentage reciprocity is almost always found to exist between the small lymphocytes and the polymorphonuclear cells; (*b*) it may, however, exist between the small lymphocytes and the large mononuclears.

It at once becomes apparent that the percentage reciprocity so often found in cell type study exists between a non-phagocytic cell type and some one or more of the phagocytic types.

The prevailing tendency, when there is a deviation from the normal percentages, is a fall in the small lymphocyte percentage. A low small lymphocyte percentage may result from various causes:

(*a*) From some cause which diminishes the actual number of small lymphocytes, without being accompanied by any apparent change in the total leucocyte count.

(*b*) From an increase in the leucocyte count, without being accompanied by any material change in the actual number of small lymphocytes.

(*c*) From causes which produce both a decrease in the actual number of small lymphocytes and an increase in the total leucocyte count.

To observe the relation which these respective conditions bear to the physical state of the patient, and to ascertain if these relations possess any significance as to the state of the resisting power, are problems which should receive our closest attention.

It is apparent that with a small lymphocyte count near the minimum normal limit (1,100), accompanied by a leucocyte count close to the maximum normal limit (10,000), the relative percentage of small lymphocytes will fall to 11 per cent. Furthermore, that with a small lymphocyte count near the maximum normal limit (3,000), accompanied by a leucocyte count close to the minimum normal limit (5,000), the relative percentage of the small lymphocytes will rise to 60 per cent. Therefore, if the normal range for the actual number of small lymphocytes lies between the extreme limits of 1,100 and 3,000 cells, and if the normal range for the total leucocyte count lies between the extreme limits of 5,000 and 10,000, the possible relative percentage limits for the small lymphocytes will fall between 11 per cent. and 60 per cent.

The following table shows the relative percentage variations for a definite cell type count (small lymphocytes), when accompanied by a varying leucocyte count:

TABLE 2.

	Minimum leucocyte count, 5000. Per cent.	Average leucocyte count, 7500. Per cent.	Maximum leucocyte count, 10000. Per cent.
Minimum small lymphocyte count—1100	22	14.66	11
[1]Average small lymphocyte count—1950	39	26	19.5
Maximum small lymphocyte count—3000	60	40	30

These facts make it imperative that we should not depend on relative percentages alone, but that we should ascertain the actual number of cells belonging to each cell type if we hope to correctly interpret the relations existing between cell types, or if we hope to ascertain the true relations which the cell types bear to the body or to its inherent vital forces. Relative percentage fluctuations are affected by any influences which call for phagocytic action on the part of the cells.

AVERAGE NORMAL STANDARDS.

For practical work it is necessary to adopt definite average normal standards. For this purpose 7,500 is generally accepted as the average normal leucocyte count. And for average normal relative percentages those suggested by Kanthack have been adopted, viz.: Small lymphocytes, 26 per cent.; large lymphocytes, 7 per cent.; transitionals, 1 per cent.; polymorphonuclears, 65 per cent.; eosinophiles, 1 per cent.

This table shows the cell count for each cell type, estimated from the foregoing average normal standards:

TABLE 3.

	S.L.	L.L.	Trans.	Poly.	Eos.
Average normal leucocyte count 7500.					
Average normal differential percentage for each cell type.....	26	7	1	65	1
Average normal number of cells for each cell type.....	1950	525	75	4875	75

(B) VARIATION OF THE CELL TYPES IN LEUCOCYTOSIS.

For our present purpose, leucocytosis will be interpreted as an increased functional activity of the body cells. This phenomenon exists normally within narrow limits in connection with the digestive process and other physiologic activities.

The many changes which take place in the food products from the time they are introduced into the body until they are rendered suitable for cell food are the result of cell activity. The processes of life seem to come and go in rhythmic cycles. A period of rest follows a period of activity; each period of activity is again followed by rest. This is apparently a universal law. To live, an organism must eat. If it eats, it must work. If it works, it must rest. Time has been divided in accordance with this principle. Day and night, the seasons of the year, are evidence of the rhythmic cycles of life.

Digestive leucocytosis is but the evidence of this law, revealed in cell phenomena. Whatever the mode of activity or the cause of the activity, this law is found to

1. For the average normal standards see Table 3.

exist. Whenever the law is broken, from whatever cause, a disequilibrium of the co-operative functions of the body is a natural result. The continuance of this resultant inharmonious relation between the co-operative functions brings about a transition from a normal to an abnormal state—a transition from health to disease.

Every organism, however, is endowed with an inherent tendency to obey this law, and resists any and all influences which tend to interfere with its action. The principle of self-preservation and self-protection, as universally revealed in living organisms, are but manifestations of the law of the rhythmic cycles of action and repose.

Pathogenic micro-organisms are cell foes. When they gain an entrance into the animal organism they at once antagonize, not only the fixed but the wandering cells of the body. They interfere with the normal cycle rhythm of cell life. The result is an increased and prolonged cell activity without normal quiescent states. The evidence of this constant cell activity is revealed in a continuous leucocytosis, a leucocytosis which often passes far beyond the bounds of a normal physiologic leucocytosis.

To correctly interpret a leucocytosis, one must consider the nature of the factors producing the disequilibrium of cell functions. It is but natural, therefore, that we should inquire into the nature of the cell changes found in leucocytosis, as well as the causes producing them.

It is equally important to ascertain if definite relations exist between these cell changes and the life potential of the larger organism.

The nature of the cells supplied, when an organism reacts in its own defense, may have more significance than we are inclined to give them. It can scarcely be questioned that distinct and independent functions belong to each of the cell types. It is important, therefore, to ascertain to what degree each cell group cooperates in an effort at organic self-protection.

It is generally conceded that most importance is attached to the cell types whose increase chiefly constitutes a leucocytosis. The impression prevails that the most significant cell phenomena in leucocytosis are confined to the polymorphonuclear variety. In recent studies I have been impressed with phenomena belonging to the small lymphocyte group; although not marked by such pronounced extremes as are observed in the polymorphonuclear types, they at least seem to convey a weightier significance.

It is conceded that the cell types owe their origin to distinct and independent sources. This being accepted, it would be but a natural step to infer a definite relation between these cell types and the cell-generating organs producing them.

The following tables show distinctly that the great bulk of cell increase in leucocytosis belongs to types possessing phagocytic power, namely, the large mononuclear, transitional and polymorphonuclear forms. These varieties possess the power of locomotion to a marked degree and are able to englobe foreign bodies.

The sudden and often profound increase in these varieties can not, therefore, be attributed to an increased functional activity of the organs producing these cells. On the other hand, their sudden disappearance as leucocytosis subsides can not be attributed to cell lysis, since the evidence of cell death and the débris of disintegrating cells is absent.

The sudden appearance and disappearance of the cells constituting leucocytosis must, therefore, be explained on other hypotheses. The most probable explanation for the sudden and profound variation in the number of cells should conform to the very nature of these cells—based on their ability to migrate to and fro from the circulating blood, to cling to the walls of the blood vessels, and to retire to and move from the deeper organs of the body.

Their presence or absence in the circulating blood, above or below the number normally found in this medium, would, therefore, seem to be governed by the presence or absence of certain imperfectly understood chemotactic influences. In reality, it can not be claimed on any means of interpretation at our command that the actual number of cells belonging to the phagocytic types found in the circulating blood in leucocytosis bears any significant relation to the state of the organs producing them, their great numerical variation depending largely on their ability to migrate.

This, however, can not be affirmed of the other cell types not included in the phagocytic forms, namely, the small lymphocytes and the eosinophiles. The eosinophile cells are frequently entirely absent when a crisis exists in the organism sufficient to produce a leucocytosis. These cells possess the power of locomotion and may pass to other regions for specific purposes. It has been claimed on good authority, however, that during the existence of a profound infection the eosinophile cells lose their granules, which cause them in turn to lose their identity. This fact makes it difficult to establish a definite relation between the actual number of eosinophiles in the circulating blood and the state of the organs producing them, or the organism as a whole.

This leaves but one other cell type to be considered—small lymphocytes. Small lymphocytes are not endowed with the power of locomotion to any definite degree, nor the power of englobing foreign bodies. These cells, therefore, can not in any degree be considered phagocytic.

Their number in the circulating blood, therefore, can not be increased or diminished by means of any inherent power possessed by the cells themselves. They are present in large or small numbers as a result of the functional activity of the organs producing them. There seems, therefore, to be good reason for assuming a significant relation between the actual number of these cells in the blood and the state of the cell-producing organs recognized as their source.

By most authorities small lymphocytes are recognized as young cells. Cell genesis being one of the most potent and one of the most important functions of an organism, it is naturally inferred that the state of this function sustains an important relation to the resisting power of the organism.

The following study has been made for the special purpose of ascertaining the possible existence of a definite relation between the number of young cells in the circulating blood and the inherent resisting power of the patient. The clinical material thus far accumulated has not been sufficiently extensive, nor the time sufficiently long, to enable the formation of mature and positive deductions.

The differential count of the small lymphocytes in leucocytosis is almost always relatively decreased. This accounts for the statement frequently made that their actual number is decreased. I was also of this opinion until I began to estimate the actual number of cells belonging to the various cell types in health and disease.

Having collected a series of cases in which inflammatory leucocytosis existed, it became apparent that, although the relative percentage of the small lymphocytes

is always reduced, their actual number frequently remains close to normal, and occasionally is found considerably increased.

In another set of cases in which leucocytosis existed, it was observed that, although the leucocytoses were well marked, the actual number of small lymphocytes to each c.mm. of blood was greatly reduced, often falling far below the minimum normal limit. It was soon recognized as a significant fact that the cases belonging to the latter class were critically ill, and often terminated fatally. This led to a more extended study of cell types for the purpose of ascertaining their diagnostic and prognostic significance.

The following cases are reported for the purpose of comparing the clinical histories with the blood changes accompanying them. The blood chart accompanying each case records the date of each blood study, accompanied by the leucocyte count, the relative percentages and the actual number of cells belonging to each cell type. Following the blood charts and clinical histories, each case is taken up separately with an attempt to interpret the associated cell type phenomena.

CASE 1.—Mrs. C. W. E. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
April 13, 1898	30,600	5	11	3	81	0
		1,530	3,366	918	24,786	0
April 14, 1898	22,200	15	10	1	73	1
		3,330	2,220	222	16,206	222
April 16, 1898	9,400	24	14	3	58	1
		2,256	1,316	282	5,452	94
May 21, 1898	20,400	7	8	0	85	0
		1,428	1,632	0	17,340	0
May 22, 1898	15,700	15	13	2	70	0
		2,355	2,041	314	10,990	0
May 24, 1898	10,500	24	12	2	51	1
		3,570	1,260	210	5,355	105
May 25, 1898	9,500	48	12	0	39	1
		4,560	1,140	0	3,705	95
May 28, 1898	8,400	41	7	0	51	1
		3,444	588	0	4,284	84
June 3, 1898	7,900	41	5	0	53	1
		3,239	395	0	4,187	79

History.—On April 8, 1898, the patient was seized with pain in lower abdomen, followed by chill, vomiting, tympanitis and fever; the pains centered in the right iliac region, but no palpable tumor could be detected. The symptoms continued until April 13, when a consultation was held. A blood study revealed a leucocytosis of 30,600. April 14, leucocytosis subsiding and symptoms abating. Improvement continued for one week. May 21, liberal diet allowed, followed by slight relapse. Steady improvement for two weeks.

Operation.—June 4. A chronically inflamed appendix found, bent at a right angle and bound down by an adhesion. Drainage had taken place into the intestine. At the angle of constriction the appendiceal wall had sloughed almost to the point of perforation. Another acute attack would probably have resulted in perforation and general peritonitis. Patient made rapid recovery.

CASE 2.—Mr. J. E. H. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 29, 1898	22,700	10	7	1	82	0
		2,270	1,589	227	18,614	0
March 30, 1898	17,200	12	7	1	80	0
		2,064	1,204	172	13,760	0
April 1, 1898	11,700	25	8	1	65	1
		2,925	936	117	7,605	117
April 4, 1898	17,300	13	13	0	73	1
		2,249	2,249	0	12,629	173
April 5, 1898	18,400	10	7	2	81	0
		1,840	1,288	368	14,904	0
April 6, 1898	17,500	15	9	0	76	0
		2,625	1,575	0	13,300	0
April 18, 1898	9,000	28	8	9	54	1
		2,520	720	810	4860	90

History.—Symptoms developed much the same as in Case 1. After numerous consultations doubt remained as to the nature of the trouble. A blood study finally revealed a leucocytosis of 22,700, which at once excluded typhoid fever.

Treatment.—The expectant plan of treatment was adopted. Daily blood studies were made and the clinical symptoms carefully watched. A good recovery followed without operation.

CASE 3.—Mr. S. N. C. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Dec. 5, 1898	23,000	10	6	0	83	1
		2,300	1,380	0	19,090	230
Dec. 6, 1898	25,000	5	4	0	90	1
		1,250	1,000	0	22,500	250
Dec. 7, 1898	19,700	Differential count not made.				
Dec. 8, 1898	16,300	Differential count not made.				
Dec. 10, 1898	14,800	8	10	0	80	2
		1,184	1,480	0	11,840	296

History.—In this case the trouble was recognized as appendicitis from the beginning. Patient's previous health had been impaired. Operation advised, but refused.

Treatment.—Expectant plan of treatment followed. The leucocytosis slowly subsided, but with each day the patient's strength seemed to be diminishing. Slow recovery without operation.

CASE 4.—Miss H. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 22, 1903	28,000	5	4	1	90	0
		1,400	1,120	280	25,200	0

History.—Patient treated for typhoid fever. At the expiration of two weeks, the symptoms being somewhat unusual, a blood study was requested, which revealed a leucocytosis of 28,000.

Treatment.—Patient immediately sent to hospital and operated on. Perforated, gangrenous appendix found and a large quantity of pus diffused throughout the abdominal cavity. Speedy recovery followed.

CASE 5.—Mr. H. D. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
July 30, 1897		5	5	0	90	0
Aug. 2, 1897		4	6	2	88	0
Aug. 4, 1897	47,500	7	5	1	87	0
		3,325	2,375	475	41,325	
Aug. 5, 1897		5	4	0	91	0

History.—The symptoms were obscure from the beginning, resembling in some respects both typhoid fever and appendicitis. A surgeon was called early in the attack and remained in attendance. Frequent examinations failed to reveal tenderness or induration in region of appendix.

Blood Examination.—The prevailing opinion favored typhoid until August 2, when blood films were taken, a study of which indicated a distinct leucocytosis. A second differential blood count gave evidence of a distinct leucocytosis. On August 4 a third blood study revealed a leucocytosis of 47,500. A careful examination at this time revealed a deep-seated tenderness in the right pelvis posteriorly, near the spine.

Treatment.—An immediate operation was suggested, but refused by the family. Consent was finally given and operation performed thirty-six hours later. A retroverted appendix with extensive gangrene and perforation, with large quantities of fecal pus in abdominal cavity, told the story which the leucocytosis had foretold six days before. Death speedily followed operation.

CASE 6.—Mr. J. H. S. Convalescent tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 21, 1898	18,200	15	13	2	50	20
		2,730	2,366	364	9,100	3,640
March 28, 1898	8,000	21	9	2	51	17
		1,680	720	160	4,080	1,360
Oct. 24, 1902		24	9	1	63	3

History.—Inflammatory leucocytosis developing in a tuberculous patient well advanced in convalescence, the result of a self-administered hypodermic injection of serum. Leucocytosis rapidly subsided. Patient continued to improve, and four years and six months later all evidence of the disease had disappeared.

CASE 7.—Mr. A. T. C. Advanced tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 17, 1898	15,000	8	13	2	73	4
		1,200	1,950	300	10,950	600
April 1, 1898	10,500	14	10	1	71	4
		1,470	1,050	105	7,455	420

History.—Acute moderate leucocytosis similar to that observed in Case 6, and produced in a similar manner. This patient, however, was well advanced in tuberculosis. The patient failed rapidly and died six months later.

CASE 8.—Mr. J. L. G. Pneumonia associated with advanced tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 20, 1900....		4	9	1	86	0
Oct. 22, 1900....		4	9	2	85	0
Oct. 23, 1900....	16,700	2	6	0	92	0
		334	1,002	0	15,364	0

History.—Patient in advanced stage of tuberculosis. After exposure pneumonia developed, with rapidly fatal termination.

CASE 9.—Mrs. F. E. S. Pyosalpinx.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Jan. 12, 1903....	25,000	9	5	1	84	1
		2,250	1,250	250	21,000	250
Jan. 13, 1903....	29,000	3	6	1	90	0
		870	1,740	290	26,100	0
Jan. 15, 1903....	33,000	4	6	1	89	0
		1,320	1,980	330	29,370	0
Jan. 17, 1903....	10,000	6	6	3	85	0
		600	600	300	8,500	0
Jan. 19, 1903....	20,000	9	5	1	85	0
		1,800	1,000	200	17,000	0
Jan. 21, 1903....	14,000	11	9	1	78	1
		1,540	1,260	140	10,920	140
Jan. 22, 1903....	16,000	6	11	1	82	0
		960	1,760	160	13,120	0
Jan. 27, 1903....	21,500	4	6	1	89	0
		860	1,290	215	19,135	0
Jan. 28, 1903....	18,000	4	6	1	89	0
		720	1,080	180	16,020	0
Jan. 29, 1903....	14,000	5	3	0	92	0
		700	420	0	12,880	0
Feb. 2, 1903....	13,000	8	8	0	84	0
		1,040	1,040	0	10,920	0

History.—Patient gave a history of frequent inflammatory attacks, confined to region of right tube and ovary. Evidence of an acute attack developed about one week before date of first blood study, accompanied by clinical symptoms of increasing severity. On January 12 the following clinical picture was given: High fever, rapid pulse, occasional chills, severe pain; symptoms continued to increase until January 15, when operation was performed.

Right ovary and tube were seriously involved, but the inflammatory condition was apparently localized. January 19 to 21, slight evidence of reaction. January 22, symptoms indicating a very critical condition, which continued with no evidence of improvement. Patient died February 23, twenty-four hours after the last blood study.

CASE 10.—Mrs. U. H. B. Subacute pyosalpinx.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
May 13, 1904....	19,000	11	9	2	78	0
		2,090	1,710	380	14,820	0
May 17, 1904....	27,000	8	5	1	86	0
		2,160	1,350	270	23,220	0

History.—Frequent attacks of pelvic inflammation. At the time of the blood study the patient had been confined to her bed for several days. The right tube was involved and the pelvic organs were cemented in a solid mass. Resolution was rapid. Recovery without operation.

INTERPRETATION OF CELL TYPE PHENOMENA.

It becomes apparent, on inspecting the blood charts of the foregoing cases presenting leucocytosis, that in certain cell types the actual count shows a more or less pronounced decrease, while for certain other types the count shows a pronounced increase.

The types showing a decrease invariably belong to the non-phagocytic groups (small lymphocytes and eosinophiles), while the types showing an increase belong to the phagocytic groups (large mononuclear, transitional and polymorphonuclear).

The interpretations and deductions which follow are founded on the following premises:

(*a*) That a leucocytosis is the evidence of an effort on the part of an organism to protect itself.

(*b*) That the cells supplied in a leucocytosis belong chiefly to the phagocytic groups.

(*c*) That the small lymphocytes, being non-phagocytic cells, indicate the condition of the organism's defense, and therefore may serve as a means of estimating the ability of the organism to endure a severe or prolonged resistance. In other words, the leucocytosis indicates the fighting strength of an organism, and the number of small lymphocytes indicates the character of the endurance.

For the purpose of ascertaining the value of these cell type phenomena a brief review of the foregoing cases will follow. In making comparisons and interpretations it will be necessary to refer frequently to Tables 1 and 3.

Case 1, April 13, presents a well-marked leucocytosis (30,600), accompanied by a small lymphocyte count close to the average normal standard (1,530), indicating a severe infection and a strong resisting power. April 14, presents a diminishing leucocytosis (22,200), accompanied by a pronounced increase in the small lymphocyte count (3,330), passing above the maximum normal limit (3,000), indicating diminishing infection and an increasing resisting power. April 16, presents a leucocyte count close to normal (9,400), accompanied by a slight fall in the small lymphocyte count (2,256), but considerably above the average normal standard (1,950). April 21, again presents a moderate leucocytosis (20,400), accompanied by a reduced small lymphocyte count (1,425), indicating a relapse. May 22, to the end of the case history, presents a decreasing leucocytosis and an increasing small lymphocyte count, passing above the maximum normal limit, indicating a decrease of the infection and a marked increase in the resisting power. Verification: Patient made a good recovery after operation.

Case 2 presents a fluctuating leucocytosis of moderate degree, accompanied by a small lymphocyte count ranging continuously between the average and maximum normal standard (1,950 to 3,000). Interpretation: Moderate infection and good resisting power.

Case 3, December 5, presents a well-established leucocytosis, accompanied by a small lymphocyte count above the average normal standard. December 6, slight increase in the leucocytosis and a distinct fall in the small lymphocyte count, indicating an increased infection and a diminished resisting power. December 10, diminishing leucocytosis and a small lymphocyte count close to the minimum normal standard, indicating a decrease in the infection, with a weak resisting power. Verification: Subsequent recovery after slow convalescence.

Case 4, October 22, presents a well-marked leucocytosis, accompanied by a moderately low small lymphocyte count. Interpretation: Infection moderate, resisting power good; verified by speedy recovery after operation.

Case 5, August 4, leucocytosis profound, small lymphocyte count high, infection severe, resisting power good. A blood study was not made after the infection became general, hence the state of the leucocytosis and the small lymphocyte count at this time is not known.

Too much emphasis can not be placed on the fact that the location and nature of the lesion should always be considered in connection with a leucocyte study. A leucocyte count ever so high, or a small lymphocyte count ever so great, will avail but little if the warnings they give are unheeded until the infection becomes so extensively spread that it has gone beyond the power of any leucocytosis to check, or the strongest resisting power to overcome. Except for the perforation in this case, which permitted the development of a general infection, the prognosis would probably have been favorable.

Case 6, March 21, presents a moderate leucocytosis, accompanied by a small lymphocyte count close to the maximum normal limit: Interpretation: Moderate infection, good resisting power; confirmed by ultimate recovery.

Case 7, March 17, presents a moderate leucocytosis, accompanied by a small lymphocyte count reduced close to the minimum normal limit. Interpretation: Moderate infection and feeble resisting power.

Comment: A comparison of Cases 6 and 7 reveals interesting facts. Both cases are accompanied by a moderate leucocytosis; Case 6 accompanied by a small lymphocyte count 780

above average normal, and Case 7 accompanied by a small lymphocyte count 750 below the average normal standard. The ultimate recovery of Case 6 and the rapidly fatal termination of Case 7 emphasize the significance of the small lymphocyte counts.

Case 8 presents moderate leucocytosis and very low small lymphocyte count. Interpretation: Profound sepsis, very feeble resisting power; case terminated fatally.

Case 9, January 12, presents a well-marked leucocytosis, accompanied by a small lymphocyte count above the average normal, indicating a severe infection and a moderate resisting power. As the case progressed, January 13 to 15, the leucocytosis increased and the small lymphocyte count diminished, indicating an increase in the virulence of the infection and a decrease in the resisting power. January 17, after the operation, the degree of leucocytosis diminished materially and the small lymphocyte count fell to a very low point. January 19 to 21, leucocytosis slightly increased, with distinct increase in the small lymphocyte count, indicating an effort to react. After January 21 the leucocytosis remained practically unchanged, but the small lymphocyte count again fell to a dangerously low point, with no apparent ability to react.

Case 10, May 13, presents a moderate leucocytosis, accompanied by a small lymphocyte count above the average normal standard; May 17, presents a distinct increase in the leucocytosis and a slight increase in the small lymphocyte count. Interpretation: Fighting strength and endurance good; confirmed by a speedy recovery.

RELATION BETWEEN THE SMALL LYMPHOCYTE COUNT AND LEUCOCYTOSIS.

The foregoing interpretations of the cell type phenomena presented in leucocytosis are based on the following possible relations between the small lymphocyte count and the degree and course of the leucocytosis:

A. The Relation of the Small Lymphocyte Count to a High or an Increasing Leucocytosis.—1. A high or increasing leucocytosis, associated with a high or increasing small lymphocyte count, indicates: (*a*) An infection of high or increasing virulency, accompanied by (*b*) a high or increasing resisting power.

2. A high or increasing leucocytosis, associated with a low or decreasing small lymphocyte count, indicates: (*a*) An infection of high or increasing virulence, accompanied by (*b*) a low or diminishing resisting power.

B. The Relation of the Small Lymphocyte Count to a Low or a Decreasing Leucocytosis.—3. A low or decreasing leucocytosis, associated with a high or increasing small lymphocyte count, indicates: (*a*) An infection of a low or decreasing virulence, accompanied by (*b*) a high or increasing resisting power.

4. A low or decreasing leucocytosis, associated with a low or decreasing small lymphocyte count, indicates: (*a*) An infection of a high or increasing virulence, accompanied by (*b*) a low or decreasing resisting power.

The actual number of small lymphocytes may be reduced to a very low point for a short period, but unless they soon show a tendency to materially increase in number, we must infer that the power to react has been exhausted. This observation seems to hold true notwithstanding the leucocytosis may remain at a very high point.

The resisting power of an organism is measured not so much by the degree of the leucocytosis as by the relation of the cell types to the leucocytosis (compare Cases 5 and 6).

It is probably true that each individual is a law unto himself as to his ability to respond in the production of a leucocytosis. The number of leucocytes held in reserve in the deeper tissues, ready to appear in a general call for co-operation, probably varies with each individual. The degree of leucocytosis necessary to protect any particular individual will depend on the nature of the infection. The infection may be too weak to stimulate a pronounced antagonism on the part of the leucocytes. On the other hand, it may be hypertoxic and paralyze the phagocytic or combative power of the cells. The nature of the infection, therefore, is a most essential factor in considering the development of the degree of leucocytosis. This will probably account for the existence of certain infections, without an attending leucocytosis, such as is found in typhoid fever and tuberculosis.

C. Variation of the Cell Types in Abnormal Blood States Unaccompanied by Leucocytosis.—Many important diseases are unaccompanied by leucocytosis, and yet the blood is characterized by pronounced cell type changes. Very little attention has been given to the observation of these changes with the purpose of interpreting their diagnostic or prognostic significance.

Important among the diseases unaccompanied by leucocytosis are typhoid fever and leucocytosis.

TYPHOID FEVER.

Cases 11 and 12 are typical typhoid cases, showing the relation of the cell types.

CASE 11.—Mr. C. W. E. Typhoid fever.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 15, 1903....	8,000	7	5	0	88	0
		560	400	0	7,040	0

This case presents a malignant form of typhoid in which intestinal hemorrhages developed, with final perforation and death. Blood study made at the end of the sixth week revealed a small lymphocyte count far below the minimum normal standard, indicating a state of exhaustion with no power to react, confirmed by a rapidly fatal termination.

CASE 12.—Mr. A. M. P. Typhoid fever.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 13, 1896....	8,500	12	15	0	70	3
		1,020	1,275	0	5,950	255

Blood study made at the end of the sixth week, when patient had already entered on convalescence. The small lymphocyte count registered near the minimum normal limit. Patient made good recovery.

The small lymphocyte counts, as shown in these two cases, become especially significant when interpreted in the light of subsequent results—the number of small lymphocytes in the convalescent case being double the number found in the case ending fatally.

TUBERCULOSIS.

Some eight years ago I became interested in the study of tuberculous blood. My attention at the beginning was confined chiefly to the morphologic appearance of the blood elements as revealed by special staining methods.

It soon became apparent that there was more than a chance relation existing between the percentages of the cell types and the actual condition of the patient. Preliminary reports have already been published on these earlier studies.[2]

After a lapse of these years and the accumulation of clinical material there has been ample opportunity to weigh the data and to arrive at deductions that should stand the test of time.

I wish to give a brief summary of 202 tuberculosis cases studied since my first report, whose subsequent histories have been followed to date. After a careful review of the blood records of these cases, accompanied by their histories as a guide to the interpretation, it became apparent that in almost every instance the small lymphocyte percentage was an accurate criterion of the

2. Med. Rec., Sept. 5, 1896; Med. Rec., Nov. 17, 1896; THE JOURNAL A. M. A., Oct. 23, 1897.

real condition of the patient at the time the blood count was made. These cases have been divided into three groups, governed by the state of their small lymphocyte percentages.

Class 1.—This includes all cases in which the small lymphocyte percentage went to 10 per cent. or lower. The subsequent histories of these cases have been carefully gathered, with the following significant results:

Apparent recoveries	1
Convalescent	8
Disease progressing	4
Deaths	56
Total	69

It should be especially noted that for the eight cases included as convalescents, and the single case of apparent recovery, the low small lymphocyte percentage was the exception. The low percentages in these cases were found when the patient first came to Colorado, or during a temporary relapse.

Class 2.—This includes all cases in which the small lymphocyte count was never found to pass above 20 per cent. or below 10 per cent. It should be noted that only a single blood study was made for a number of cases included in this class. Had repeated studies been made, higher counts would no doubt have been found in those showing apparent recovery or marked convalescence, and lower counts in those terminating fatally, or in which the disease advanced. Results to date:

Apparent recoveries	3
Convalescents	11
Disease progressing	7
Deaths	32
Total	53

Class 3.—This includes all cases in which the small lymphocyte count was found at any time to pass above 20 per cent. Results to date:

Apparent recoveries	39
Convalescents	15
Disease progressing	4
Deaths	22
Total	80

For the 22 fatal cases in this class the high small lymphocyte count was exceptional in 12; three made marked improvement and died suddenly of pneumonia as a result of exposure; two made rapid improvement and relapsed after assuming heavy business responsibilities before convalescence had been well established, and one died as the result of an operation.

CELL TYPE PHENOMENA IN TUBERCULOSIS.

(*a*) Well advanced tuberculous cases, or cases belonging to any stage of the disease, with feeble resisting power, give a low small lymphocyte count.

(*b*) Tuberculous patients well advanced in convalescence always show an increasing small lymphocyte count.

DEDUCTIONS.

A. Significance of a Low Small Lymphocyte Count.—(*a*) A gradual decrease in the small lymphocyte count is unfavorable. (*b*) When repeated examinations, extending over a long period, give a continuous low small lymphocyte count, an unfavorable prognosis is indicated. (*c*) A prevailing low small lymphocyte count, with an occasional higher count, indicates a temporary effort toward convalescence, with little chance for permanent recovery. (*d*) A gradual increase in the small lymphocyte count, with an occasional low count, indicates an uncertain convalescence.

B. Significance of a High Small Lymphocyte Count.—(*a*) A gradual increase in the small lymphocyte count is favorable. (*b*) When repeated examinations, extending over a long period, give a continuous high small lymphocyte count, a favorable prognosis is indicated.

It may be taken, therefore, as a safe conclusion: 1. That poverty in small lymphocytes exists in connection with a great impairment in body nutrition and cell metabolism. 2. That this condition exists in typhoid fever, tuberculosis, and a variety of debilitated conditions. 3. That it can not, therefore, be interpreted as being characteristic of any particular disease. 4. That whenever it exists it is always to be considered a potent factor when estimated in connection with the history of the case and the associated clinical symptoms.

On the other hand, the lymphocytosis that so frequently accompanies a well-marked convalescence, from a condition in which poverty of lymphocytes previously existed, would seem to indicate a condition of increased physiologic activity, thus corroborating Virchow's theory of a nutritive and formative hyperacidity of a convalescent organism.

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CHRONIC ARTERIAL HYPERTENSION.*

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The renewed interest in blood pressure, from a medical point of view, and the succession of articles by clinicians appearing on the subject, crowned by Janeway's book just off the press, indicate that the question is proving of more than scientific value, and that it is becoming an established element in diagnosis and treatment. The activity in this direction has necessarily been coincident with and limited by the development of practical methods for accurately estimating this symptom, and as these methods come more and more into general usage, the value of their application and the interpretation of the data derived therefrom will gradually assume their rightful position in the collective symposium of each carefully reviewed case. Two years ago, while resident at the Johns Hopkins Hospital, I emphasized the necessity for an accurate estimation of arterial tension, not only in the laboratory and in the especially desperate cases in hospitals and in operating rooms, but in the routine examinations of the general practitioner. At the same time I offered a simple modification of the Riva Rocci principle in the form of a compact portable instrument that could be conveniently used in office or visiting practice.[1]

One phase of this question is now claiming special attention. and has lately been prominently exploited by Dr. Clifford Allbutt,[2] Dr. J. H. Broadbent and Dr. Alfred Stengel, namely, the relation of arteriosclerosis to pulse tension and a differential classification of the former based in part on this relation.

With the advent of accurate clinical methods of studying pulse tension the many problems involving these conditions, which so long have been confused and obscure, are now being gradually elucidated.

The insufficiency of tactile impressions for the recog-

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. This instrument I continue to find most satisfactory, now made with a 9 cm. arm-piece. This and the instruments of Stanton and Janeway are the only sphygmomanometers manufactured in this country. It is to be hoped that other instruments will be successively perfected in order to hasten the general adoption of accurate methods for the estimation of this symptom.

2. Allbutt: Trans. Royal Med. and Chir. Soc., London, 1903.

nition of tension is responsible for this confusion, which will be eliminated in time by the application of exact and comparable standards of measurement. The result of this indefinite knowledge has been especially unfortunate, as it has given but slight recognition to the large group of cases which is, from a clinical standpoint, the most important, because most amenable to treatment. This group consists of those cases in which the only manifested sign of disease is an increased arterial tension, without or previous to the development of the organic changes, which alone the clinician usually recognizes as "nephritis" apoplexy, arteriosclerosis or myocarditis. It is true that in practically all these cases a certain degree of cardiac hypertrophy exists, but before the onset of dilatation this hypertrophy may be very difficult of recognition. It is with this class that my paper has principally to do.

Dr. Allbutt divides arteriosclerosis clinically from the view-point of etiology, into three classes: First, involutionary, common in old people, not necessarily dependent on high tension; second, mechanical, the result of long persistent high-blood pressure; third, toxic, resulting from lead or alcohol poisoning, or from syphilis; this form usually occurs in young persons with or without accompanying hypertension.

Primarily, I would insist on an absolute distinction between arteriosclerosis and hypertension. Arteriosclerosis is a pathologic change of tissue for which the physician has no remedy. Arterial tension is a cardiovascular function, the perversion and abnormalities of which the diagnostician can now recognize and should attempt to correct. What Dr. Osler says of cirrhosis of the liver applies to sclerosis of the blood vessels: "Many writers speaking of the curability of certain forms show a lack of appreciation of the essential condition on which the symptoms depend. So far as we have any knowledge, no remedies at our disposal can alter or renew the cicatricial connective tissue which constitutes the materia *peccans* in ordinary cirrhosis."

If we relieve a case of arteriosclerosis, with a vasodilator, we do not alter the amount of fibroid degeneration, we merely correct the hypertension, which may either bear a causal relation to the arteriosclerosis or may be associated with it merely as a distinct manifestation of a mutual causative condition. The value of an accurate and discriminating knowledge of this relationship and association between the organic change in vessel structure and the functional perversion of vascular tension is apparent when we consider that the latter is very amenable to treatment, and is a most potent factor in the production of the former incurable condition, as well as the train of other cardiovascular diseases.

Arteriosclerosis is really a pathologic condition, and has too long overshadowed and been confused with a correct recognition of hypertension as a distinct clinical entity. The more chronic hypertension is emphasized, and the more its presence is detected and its destructive tendencies corrected, the sooner will a large and increasing class of cases be brought under proper treatment; cases that now often are neglected until the kidneys pass albumin, the heart dilates, or a cerebral vessel ruptures. Only 12 per cent. of Broadbent's 16 cases of apoplexy showed senile degeneration of the cerebral vessels; the other 88 per cent. probably depended in greater part for their fatal termination on hypertension, not simply as a complicating or concomitant symptom, but as the underlying causative factor.

Almshouses and asylums afford in the subjects of senility excellent opportunities for the study of arteriosclerosis, and I have to thank the officers of those institutions in Richmond for permission to use the material. Here the arterial changes are often reflected by the poorly nourished brain in a weakened mental condition. Such an arterial alteration frequently persists for years, even at the age of 65 or 70, with an unenlarged heart, or, indeed, with cardiac atrophy, without albuminuria, and with fair general health. Apoplexy is not especially frequent in such cases, which are most typically represented by old women in whom tobacco, alcoholic nephritis, syphilis and overwork do not so frequently complicate the picture. The arterial tension does not usually exceed 140 or 160 mm. Hg, and this is not allowing for the 10 or 15 plus mm. of pressure necessary to compress the sclerosed artery. At postmortem, the arteries of both systemic and cerebral vessels may be in places so calcified as to break in the fingers; instances are not infrequent in these cases of such interference of circulation as to induce dry gangrene of an extremity. These patients may undergo a serious amputation, or perhaps several, and may live for years.

Let us consider quite a different group, typically represented by a large robust-looking man in active successful business life. He may be between 45 and 55, temperate as to alcoholic indulgence, and eats, as he says with some pride, three or even four large meals a day. He is readily accepted for life insurance, and the examiner probably adds in his zeal some complimentary additional remark to the fact that the applicant is an unusually fine specimen. Yet in from two to five years that man may be waterlogged and exhibit embryocardia, or his family physician is surprised to find albumin in the urine, or else without warning he may suffer a stroke of apoplexy, or some evening acute dilatation after dinner may demand payment of the policy. Postmortem, the arteries, excepting a few slight areas of degeneration in the aorta, some dilatation of the cerebral vessels, and more or less hypertrophy of the media in the systemic vessels, are normal. If it is quite true that a "man is as old as his arteries," why should this man die of vascular disease at 50, and another live with pipe-stem arteries for several decades past 60? As a matter of fact, the most extreme grades of arteriosclerosis and calcification are frequently found in those who have outlived the allotted time of man, and who finally die of old age or of a secondary infection, and do not seem particularly prone to fatal forms of vascular disease. Of course, where the sclerosis involves the valves of the heart, the case is quite different, and here the sclerosis, by inducing insufficiency, is the immediate cause of the progressively downward sequence. Further, except in the localized disease of syphilis or during the weakened transition period of beginning degeneration, the thickened vessels of advanced sclerosis do not seem especially to lack resistance, as evidenced, for instance, by the incidence of aneurismal formation.

Hence we must look farther than the arterial wall, *per se*, or the heart, for the primary etiologic factor in many of these cases of early cardiovascular failure. In an examination of a number of cases, there is one symptom which is common to them all; when removed, it is followed by improvement; it increases *pari passu* with the progress of the disease; when artificially in-

creased, it renders the disease worse. This symptom is hypertension, and it thus fulfills the requirements of a causal agent. Some of these patients have sclerosed arteries, but not the majority; some pass albumin in the urine, but only a few; yet all will register a pressure over 160 mm. Hg, and many over 180 mm. Hg.

Furthermore, we know the members, especially the males, of certain families, inherit a tendency toward the early development of this class of cardiovascular and renal disease, and for several generations two-thirds of the males may die before 60 of Bright's disease, apoplexy or heart disease. The members of such families almost invariably show more or less marked hypertension long before any organic lesion is made manifest.

The hypertensive diathesis, if I may use such an expression, is far more clear-cut and definite a condition than the strumous or uric-acid diathesis, of which we hear so much, and it should be so recognized. We can not estimate the tendency to tubercular disease nor to gout, but we can accurately determine the degree of hypertension, and what is better, follow year by year its progress and regulate its tendencies. We are not correct, then, in saying that a "man is as old as his arteries," but we can, I believe, usually prophesy that, other things being equal, longevity will be in inverse proportion to pulse tension.

Broadly speaking, of course, we may not divide organic from functional disease, as we must believe that there always exists some fundamental alteration in structure to account for every functional derangement. However, in the present indefinite state of our knowledge concerning the molecular alterations in living protoplasm, we may still be permitted, for the sake of clearness, a division which later researches may prohibit. In considering the possible underlying causal factors which produce this perversion of function, we find they fall under four main headings, which suggest a clinical classification of chronic hypertension from an etiologic standpoint, as follows: First, arteriosclerosis; second, cardiac, pulmonary, and cerebral compensatory; third, toxic; fourth, primary.

Necessarily, where such a classification of a chronic condition is attempted, the divisions will frequently overlap where more than one causal element is concerned in any fully developed case; for once given a disturbance of function, it may disorder the normal function of other organs, which, in turn, react on the primary condition. Nevertheless, this is the most fruitful method of studying a non-specific disease from a practical clinical point of view, as a recognition of the proper causal agents in any one case gives the only clue toward rational treatment. Thus etiology, though perhaps not admitting such absolutely distinct divisions, is a better basis for clinical classification than symptomology, pathology or empirical therapy.

Arteriosclerosis seems in some cases, perhaps especially in those where the small arterioles are involved, to cause a rise in tension through increased peripheral resistance. In the cases where the larger vessels are markedly affected, there may be no rise in tension.

For many years Dr. Allbutt and Dr. Broadbent alone have opposed the view that nearly all cases of hypertension fall under this head. Dr. Allbutt's classification is distinctly of arteriosclerosis, and must not be confused as representing hypertension. In going over the cases in the Richmond almshouses, few of the examples of advanced sclerosis showed a pressure over 160 mm. Hg, and one case, presenting probably the most advanced sclerosis of any seen, had a pressure in the brachial of 120 mm. Hg. The radial artery seemed to the touch as though made of quill, and was circled by marked ridges and rings. This woman was over 70, and is still active, though her mental condition showed marked senile weakening. The arteries in this case were not tortuous, but almost straight. This calls attention to distinction between actual degenerative sclerosis and the bending and thickening of the artery due to hypertension.

Many marked cases of sclerosis show no tortuosity at all, but, on the other hand, cases with persistent high-blood pressure, almost invariably show bending of the artery, with thickening of the walls, and this may be independent of any marked evidence of sclerosis. Where there is both bending and sclerosis, it would seem probable that this bending had occurred primarily from hypertension, and that the sclerosis had followed as secondary degeneration. It is not by any means correct, then, to consider all thickened tortuous arteries as examples of arteriosclerosis, as is so frequently done. As a matter of fact, early sclerosis seems to prevent marked tortuosity, as one would naturally expect from the relative elasticity of sclerosed and of normal artery wall.

I believe that many cases of thickened tortuous arteries, which are spoken of as cases of arteriosclerosis, are in reality cases of hypertension, with consequent hypertrophy and stretching of the wall, just as the heart hypertrophies and dilates, and that the presence of sclerosis should be considered an independent complicating condition rather than an essential factor. That hypertension favors and may even induce the development of arteriosclerosis, is unquestioned, but to designate every case of thickened bent arteries as an example of arteriosclerosis is a mistaken diagnosis, based on the not infrequent error of taking a resulting condition as the primary factor, especially where the true causal agent is not easily determined.

By the aid of more accurate clinical observation on pulse tension and on arteriosclerosis, I believe the latter will be found to occupy a much less important position in diagnosis and in prognosis than it obtains at present, and that the former will assume more and more of the responsibility of the various symptoms and terminal complications that are now credited to arteriosclerosis. According to my observations, cases of marked hypertension do not usually live long enough to develop a very high grade of arteriosclerosis.

The blood vessels of the brain are frequently unable to withstand rupture by hypertrophy, the heart is apt to dilate, or the kidneys to suffer serious damage, and this before the arterial degeneration has assumed an advanced condition.

The prognosis, in the case of a robust-looking man of 55, with a blood pressure of 200 mm. Hg, even with no arteriosclerosis, is not so good as in the case of a man of 65, with marked sclerosis and a blood pressure of 130 mm. Hg. The former is in daily danger of apoplexy or of cardiac dilatation, while the latter lives along year after year apparently unchanged.

The source of danger in the former case is not primarily the thickened artery or the arteriosclerosis, as the condition is frequently spoken of, but the hypertension. The thickened artery is a physiologic development for self-protection, rather than a source of danger, just as is the cardiac hypertrophy in a case of aortic

insufficiency. If the heart and arteries are able to meet the demands of the hypertension, they may endure the additional strain for years. So that, though we must give hypertension a prominent place in the etiology of arteriosclerosis, and conversely arteriosclerosis must be credited as a causal element in many cases of hypertension, the two conditions frequently interacting in a vicious circle, nevertheless we should carefully distinguish the one from the other.

Another group comprises those cases in which hypertension is dependent on cardiac hypertrophy, either from chronic muscular overexertion or from valvular disease, or on pulmonary obstruction, or cerebral compression. Cardiac hypertrophy is a necessary complication of hypertension; they interact on one another, each augmenting the other. But there are definite cases in which the chronic condition of hypertension depends immediately on the enlarged heart, although the hypertrophy was originally produced by a temporary hypertension, dependent on transitory causes. For example, athletes and worn-out pugilists almost invariably exhibit, previous to the final cardiac breakdown, a marked hypertension dependent on the enlarged heart, when they may have taken no violent exercise for years. There may be no sclerosis and no toxemia. The cardiac hypertrophy is merely the result of a physiologic response to the repeated temporary increase of tension from excessive physical exercise in earlier years, but sustains a chronic hypertension.

Ordinary laborers are subject to this form of hypertension. In these cases the engine has become too powerful for the rest of the machinery, which is gradually wrecked and destroyed, merely by the constant throbbing and pounding. Very large individuals are more prone to cardiac hypertrophy than the average, as the work to be accomplished is greater. Other similar cases are where the heart hypertrophies from some other temporary need for increased force, such, for instance, as a vasoconstrictor or cardiac stimulating toxin acting for sufficient period to produce hypertrophy and then being withdrawn ceases *per se* to be an immediate causal factor. From our knowledge of the temporary action of the drug, and without sufficiently prolonged clinical observation to justify a positive statement, we may suppose that prolonged use of digitalis, with its subsequent withdrawal, might present such a condition. Overindulgence in tobacco, apparently, induces cardiac hypertrophy. In the monograph by Dr. Briggs and myself, in a recent volume of The Johns Hopkins Hospital Reports, mention is made of the influence of tobacco in raising blood pressure, and it is there suggested as a causal factor in arteriosclerosis. Janeway confirms this observation. Further observation inclines me to the belief that tobacco does not primarily affect the arterial wall injuriously, but where sclerosis is induced, it is done indirectly through the induction of increased tension. I have found that many young men who smoke to excess uniformly exhibit hypertension ranging from 160 to 180 mm. Hg, and I have lately met with several cases of hypertension and cardiac hypertrophy in older men where the only etiologic factor obtainable was excessive indulgence in tobacco.

Alcohol has no such action. It is not a cardiovascular stimulant, and does not produce hypertension. As a factor in the production of hypertension, alcohol must act either indirectly by causing sclerosis of the arterial wall, as it apparently acts on the liver in cirrhosis, or else through the medium of a toxin produced by some metabolic disorder which the alcohol may have induced. This secondary toxin may either act as a vasoconstrictor, as is probably the case in alcoholic nephritis, or may directly injure the arterial walls. The alcohol itself does not act by inducing hypertension. In the production of cardiovascular disease, independent of a primary nephritis, I believe that the importance of alcohol has been exaggerated and that of tobacco relatively underestimated.

In compensated valvular insufficiencies, accompanied by cardiac hypertrophy, there is chronic hypertension at systole, even though the back-flow may induce a low diastolic pressure.

Certain cases of chronic pulmonary disease, such as emphysema, chronic fibrous changes and asthma, in which more or less obstruction to the pulmonary circulation probably occurs, are associated with high-tension pulse. Sansom is the authority for the suggestion that a chronic consolidation of a lung with high-tension pulse is probably not tuberculosis, at least in an active form, as that disease is constantly accompanied by low tension.

Certain cases of cerebral tumor produce a condition of hypertension in the systemic arteries, in order to prevent anemia of the vital centers.

In still other cases certain toxins induce hypertension by a constricting action on the arteries, either directly or through the vasomotor center; notably those contained in the blood in renal disease, in eclampsia, in diabetes, and in nicotine or lead poisoning.

Gout, syphilis and lead in part, at least, seem to cause hypertension, perhaps rather through the structural changes they produce in the arteries than through any constrictor influence. Typhoid fever causes hypertension, according to Dr. Thayer's[3] observations, apparently in the same way.

To openly avow ignorance of the exact nature of a condition does not necessarily preclude the value of its recognition nor of a tentative analysis of its manifestations. Though we are still ignorant of the exact etiology of primary pernicious anemia, the recognition of its claim to notice as a distinct disease has been productive of much good; and, further, gives a more correct and definite trend to any investigations concerning its etiology, than if it was still confused with other anemic conditions. Though the terms primary, idiopathic and autotoxic have undoubtedly been much abused, abuse should not necessarily prohibit moderate use and until more exact analyses shall permit greater accuracy, these terms will prove of assistance.

Whenever a symptom completely monopolizes the clinical picture and recurs over and over again in just the same way in the absence of any constant discoverable disease. it deserves individual recognition as a distinct clinical entity. In certain definite cases of hypertension no organic disease can be determined on as an etiologic factor, and where present evidently exists as a complication or a result, rather than as a cause of the condition.

Primary hypertension may be defined, then, as an affection in which a persistent increase in arterial tension gives rise to certain symptoms, preceding the development of any discoverable organic disease, unassociated with any constant pathologic lesion, and which,

3. Thayer: Jour. Med. Scien., March, 1904.

finally, produces organic changes, particularly in the heart, blood vessels and kidneys.

ETIOLOGY.

Heredity apparently plays an important part in the production of this affection. Certain families show a marked tendency to the early development of cardiovascular and renal diseases, the organic changes in the majority of cases being antedated by a gradual rise in arterial tension. This tendency is particularly common among the males of such families.

Between the ages of 45 and 60, these men begin to show signs of the wear and tear of life, while many of their compatriots are still in their prime. Advanced grades of arteriosclerosis are not common. The condition is particularly associated with certain forms of gastrointestinal intoxication, this tendency being present in two distinct types; one represented by the large plethoric individual who eats inordinately; the other by the sallow poorly nourished dyspeptic, in whom the catarrhal enteritis and defective elimination induce a condition of chronic toxemia. In both instances the condition is one of autotoxic contraction of the arteries; the former, with normal quality of digestion, poisons himself by the mere excess of digestive and bacterial products above the needs of healthy nutrition; in the latter, faulty digestion and disordered assimilation give favorable opportunity for the absorption of putrefactive products instead of the normal products of digestion.

Constipation in itself is not necessarily accompanied by toxemia, and, therefore, does not necessarily induce hypertension. Purgation as a means of elimination is a most valuable adjunct to the treatment of many toxemias, but the mere fact that the bowels do not move every day by no means indicates toxemia. Indeed, in many cases of extreme constipation, where the bowels are not emptied more than once in a week or so, there is no subjective symptoms of poisoning and no hypertension. The very sluggishness of the intestinal movements indicates a paucity of the decomposition products which normally stimulate peristalsis.[4] So far from the failure to defecate in these cases being a cause of injury, it is merely an indication of unusual freedom from a possible source of intoxication. Such instances are best illustrated among the poorer classes, where all the nourishing elements in the insufficient food supply are eagerly seized on by the healthy digestive apparatus and quickly absorbed, so that nothing is left by the time the colon is reached to afford media for the production of the bacterial products which normally induce expulsion. Of course, where digestive disturbances or excess in eating encourage undue bacterial decomposition, the constipation becomes a very active factor in increasing the amount of toxins absorbed.

Some people can regularly have intervals of a week or more without a stool and keep in excellent health; others suffer headache, giddiness and nausea, and exhibit marked increase in pulse tension if a single morning evacuation is omitted. Large frequent stools, which are a necessity for the wealthy gourmand or dyspeptic, would be for the healthy active poor an unnecessary extravagance.

Mental strain undoubtedly plays an important part in the development of hypertension. Mosso has shown that emotion causes a spasmodic contraction of the arterioles. Continued care, worry and emotion induce chronic hypertension, and this influence is especially shown by the prevalence of the disease in those occupations to which they are incident. Huchard[5] says: "Strong and repeated emotions can induce cardiac affections by their incessant action on the peripheral circulation; this is one of the reasons why, according to my observations, arteriosclerosis is so frequent in members of our profession. It is the disease of medical practitioners, because their profession is associated with emotional and nervous overstrain; for the same reasons, it is a disease of politicians and financiers."

Here, again, as so often occurs in the literature of vascular disease, arteriosclerosis and hypertension are apparently used either synonymously or with a very indistinct idea of their relation to each other.

Sedentary habits prevent elimination, and so add materially to the toxic and hypertensive tendency. This is especially true of the eliminative functions of the skin and the intestines. The relation of renal function and changes in tension within physiologic limits is so obscure that it can not be opened here. The subject has been carefully studied by Dr. Erlanger of the Johns Hopkins Hospital, and his results will be published later in the *Johns Hopkins Bulletin*.

Furthermore, the complicating factors of any of the other causes of hypertension, previously stated, will, of course, augment the primary condition, and both hasten and direct its termination.

PATHOLOGY.

I have begun further studies of the pathology of this condition, which will be detailed later. The most frequent and striking findings are cardiac hypertrophy and dilatation, hyperplasia of the media in the systemic arteries, which may be markedly tortuous; thinning of the cerebral arteries; hypertrophy and engorgement of the kidney, the so-called arteriosclerotic kidney, or in later cases atrophic cirrhosis of the kidney, small granular kidney.

SYMPTOMS.

Symptoms may be divided into two stages—before and after the onset of complications—which give definite signs in one or in another organ. In those cases, especially referable to autointoxication of digestive origin, the first symptoms may be merely lassitude, constipation, headache, throbbing of the temples on exertion, and the patient may look run down, and a tonic may seem to be indicated. These patients are usually young adult males, perhaps of neurotic tendency, and often excessive users of tobacco. No signs of organic disease can be made out. The pressure will average from 40 to 60 mm. Hg above normal. Frequently the first symptoms are complained of between 40 and 50 years of age. There may be slight mental changes and noticeable irritability of temper, and a tendency to become low-spirited and morose. The sleep is uneasy, and may be occasionally interrupted shortly after retiring, in a struggle for breath or with merely a distressed feeling around the heart. Heavy suppers and high living in general is not borne so well, and may be associated with dyspeptic symptoms. Exertion more readily induces shortness of breath.

Preliminary symptoms may be absent or neglected until an attack of vertigo, acute bronchorrhea, cardiac dilatation or apoplexy demand medical treatment, or end the case suddenly. Perhaps the applicant seeks

4. Strassburger: Ztschft. f. klin. Med., 1902, vol. xlvi, p. 413.

5. Huchard: Maladies du Coeur, p. 78.

his physician in surprise at being declined by some life-insurance company because of a trace of albumin in his urine. These cases average a pressure of 160 to 200 mm. Hg (9 cm. armpiece), and most frequently are in men in active business or professional life.

PHYSICAL EXAMINATION.

The one essential finding is systolic hypertension in the systemic arteries. This varies from an increase of 20 to 100 per cent. above normal. The arteries often pulsate visibly, tend to become more and more tortuous with the duration of the condition, and slow thickening. Evidence of sclerosis or of degenerated changes in the wall with hardening and ring formation is not present except inconstantly and in the later stages. Definite distinction must be made between the hypertrophied tortuous artery, so characteristic of chronic hypertension, and the hard, ringed quill or pipe-stem artery, often nearly straight, of arteriosclerosis, where an increase in tension is by no means essential. The frequent error of taking the two conditions to be evidences of the same process is to be deprecated.

After the blood current has been shut off by proximal compression, the artery of hypertension is found to be distinctly thickened, and makes a more palpable cord to roll between the finger and the bone, but the walls collapse easily, show no irregularities, and give the impression of softness in spite of the thickening. The sclerotic artery resists pressure, is irregular or ringed, and feels distinctly hard.

Professor Sansom considers when the pulse tracing shows an ample dicrotic wave, indicating on the part of the vessel lack of ability to accommodate caliber to its contents, that degenerative changes are present, rather than true muscular hypertrophy. My observations with the sphygmogram tend to confirm this deduction. Further, Dr. Oliver considers the loss of normal variation in caliber in response to changes in physiologic condition an important aid in distinguishing sclerosis. A decided loss of ability on the part of the artery to respond to vasodilator drugs is another condition which I have found associated with sclerosis.

Cardiac hypertrophy, which is always present as a physiologic response to increased peripheral resistance, in the earlier stages, and in fleshy individuals, particularly in women with pendulous breasts, may be difficult to determine definitely. Chronic hypertension is a surer indication of hypertrophy than the outline of percussion dullness.

The urine is variable. In the earlier stages with marked intoxication the urine may be of high specific gravity, and form a heavy sediment of urates. Later, with the more pronounced cardiac hypertrophy and higher tension, the blood supply to the kidney becomes excessive and the urine becomes of lower specific gravity, and may at times of extra strain show a trace of albumin. A systemic pressure in the neighborhood of 200 mm. Hg, obtained with a 9 cm. band, seems to indicate approximately the limit of renal resistance to albuminous exudation. The kidney is now enlarged and reddened, the so-called arteriosclerotic kidney, evidently not a true primary sclerosis. Later, sclerosis may develop, as in all chronic congestions, and the kidney may pass on to the stage of cirrhosis or small granular kidney.

Such a condition could not properly be called Bright's disease or nephritis. To quote from Mahommed,[6] the term is too general for scientific use, for, as applied by some, it has become synonymous with albuminuria. My observations tend to confirm his views that intermittent or chronic albuminuria does not necessarily mean nephritis, though his tendency to describe all urinary changes, usually attributed to nephritis as the result of hypertension, is extreme. But the element of truth in his deduction should not lose its value on account of the radical extent to which it is applied.

His crude methods of measuring tension with the sphygmogram led him to this significant conclusion which, on account of the coincidence with the results of my own work, I take the liberty of quoting at some length: "First, previous to the commencement of any kidney change or appearance of albumin in the urine, the first condition observable is high tension in the arterial systems, due to the presence of noxious material in the blood. If this condition be allowed to continue, albumin is subsequently found, and if still unchecked or uncontrollable, Bright's disease in one of its forms appears.

"I believe that the chronic condition of increased blood supply produces increased growth of the interlobular connective tissue, and if still continued, this must result in contraction, and induration, atrophy of the tubules from constant pressure, would now ensue. This sequence of kidney changes agrees with that described by most observers. In confirmation of this view of the commencement of these changes, I have frequently observed a condition of high tension in the pulse in cases that have subsequently developed albuminuria and symptoms of cirrhosis of the kidney."

He asks, "Can the term 'inflammatory' be fairly applied to this disease?"

Anemia is not a prominent symptom. The cases, in fact, frequently are examples of the Bardolphian fascies. Where there is pallor the anemia is apparent rather than real, caused by the peripheral constriction. Edema is a symptom of the complications, not of hypertension.

COMPLICATIONS.

Complications are determined by the organ that is least enduring of the strain. Cardiac dilatation and myocarditis, albuminuria, arteriosclerosis, apoplexy and bronchorrhea occur about as in order named. The compensatory cardiac hypertrophy can correct the evil for a certain length of time, but sooner or later must fail to endure the ever-increasing load.

Dana says: "It has been shown in many cases before the onset of cerebral hemorrhages, there has been for some time a gradual rise in general blood pressure which has thrown an undue weight on the work of cerebral blood vessels." Finally the limit is reached, and a vessel ruptures.

In the two decades in which hypertension usually reaches its maximum—from 45 to 65—43 per cent. of all deaths from apoplexy occur.

DIAGNOSIS.

A diagnosis of chronic primary hypertension is dependent on the demonstration of a chronic increased arterial pressure and the exclusion of organic disease, or evident toxemia, which could account for it. As accurate estimations of pulse tension come into more general use, the condition will more frequently be recognized during the early stages, and before some organic manifestation attracts notice to the hypertension which will then, in most cases, probably be regarded as a symp-

6. Mahomed: Med. Chir. Trans., 1874, p. 197.

tom rather than the underlying causative factor. After several organs show marked changes the sequence of events becomes obscure.

I have lately seen a case of vertigo in a financier of 60 treated by active stimulating drugs, and who died the same night of apoplexy. A course of nitrite based on an estimation of hypertension would almost surely have averted the attack. Also, I have seen a case of repeated attacks of acute pulmonary edema with intermittent albuminuria, variously diagnosed bronchitis, congestive chill, arteriosclerosis, etc., in which the pressure averaged 200 mm. Hg, and where eliminative and depressant treatment has so far prevented a further attack; also another case of so-called "weak heart," in which there was a blood pressure of 190 mm. Hg, with headache, nocturnal dyspnea, and suffocating feeling of impending death around the heart. No albuminuria nor casts nor arteriosclerosis. By reducing the tension to 160 mm., the symptoms were relieved. Except in an infectious disease, no judgment should be formed of a patient over 40 without a knowledge of the blood pressure, and the routine estimation of this symptom in every case will permit a more frequent recognition of the first stages of the primary form of hypertension.

TREATMENT.

Treatment may be divided into two parts:

First.—Early treatment where a correction of the tension usually may be accomplished by dietary and hygienic measures.

Second.—Late treatment where the administration of specific drugs supplementing the general treatment is necessary in order to overcome the condition.

The first division needs no comment here, except notice of the fact that a meat diet seems to have a very strong and direct influence on initiating and continuing a rise in arterial tension.

For the more persistent cases, where the cause can not be eradicated or where organic changes prevent restitution, we must have recourse to drugs and, fortunately, we have almost a specific for this condition.

To quinin for malaria, mercury for syphilis, iron for anemia, and adrenalin for vasomotor paralysis, we must add the nitrites for hypertension.

Drug treatment, however, should not be resorted to, except when more natural means fail, or where immediate relief is necessary (here prompt venesection is invaluable), and should be discontinued as soon as possible. In certain acute affections associated with hypertension, such as some forms of vertigo, angina pectoris, acute cardiac dilatation, tic douloureux and asthma, amyl nitrite may be inhaled quickly, preparatory to more permanent relief. The action of this drug is very transitory and ceases almost immediately with the termination of inhalation. Furthermore, the amount can be very indefinitely regulated, and the effect is proportionately uncertain. In some cases of hypertension I could discover little or no lowering of the blood pressure. In others I have observed a drop of 30 to 40 mm. Hg lasting about one to three minutes.

Nitroglycerin is likewise rather uncertain in its action and, though more constant and persistent than amyl nitrite, does not seem to deserve the prominent place it occupies in the therapeutics of various forms of hypertension. I have obtained a drop in blood pressure of 100 mm. Hg in less than ten minutes following 1/50 gr. of nitroglycerin, but there was a return to the former level of 200 mm. Hg in about an hour. In another case, after the same dose, the rhythm and tension became very irregular, and, while the rate rose to 110 from 60, there was no definite nor constant lowering of tension. There was some twitching of fingers noticed during the effect of the drug. This case and several similar ones incline me to believe that nitroglycerin must be subject to some chemical changes which may alter and impair its properties. In some cases the transitory depression only lasted 15 or 20 minutes after a hypodermic of gr. 1/100 to 1/50 nitroglycerin, and never much over an hour. The pulse is usually increased in frequency and sometimes alarmingly so. In several cases taking a 1/100 gr. triturate every three or four hours week in and week out I could find no definite effect from a single dose, nor from the aggregate doses. There seemed no instance in which the patient would not have been benefited by substituting sodium nitrite for nitroglycerin.

Sodium nitrite may lower the blood pressure for from two to three hours, occasionally as long as four. This is unaccompanied by more than a very slight increase in pulse rate. There may be a feeling of flushing and throbbing, as with other vasodilators. The reaction from 1 or 2 grains averages a fall of from 25 to 50 mm. Hg coming on rapidly in from 5 to 10 minutes on an empty stomach, and more slowly when taken after eating. Where a uniform permanent effect is desired, after meals seems the best time for administration, as the effect is not so abrupt and is more lasting.

I have obtained a fall in blood pressure from aconite, but my observations with this drug are so limited that I can not confirm Dr. Thompson's favorable report of its use as a vasodilator in nephritis.

CONCLUSIONS.

Chronic hypertension may be divided into 4 classes, according to etiology: (a) arteriosclerotic; (b) cardiac, pulmonary and cerebral compensatory; (c) toxic; (d) primary.

The primary form of hypertension deserves recognition as a distinct disease.

Early recognition of the tendency toward a progressive increase in pulse tension should prevent or delay the development of certain forms of cardiovascular and renal disease.

In correcting hypertension sodium nitrite has many advantages over nitroglycerin.

DISCUSSION.

DR. NOBLE P. BARNES, Washington, D. C., stated that vascular dilatation may be influenced by mental, physical or mechanical means. Systematic physical exercise is possibly the best method of accomplishing vascular dilatation, especially in mental and desk workers, with atonic hearts and contracted peripheral vessels. Here an hour of gymnasium work, followed by the gradually cooling shower bath every second day, will accomplish great good. Mechanical dilatation of the peripheral vessels suggests itself in the incipiency of pneumonia, convulsions of infants and conditions of shock. Counter-irritants, as the hot mustard bath or foot bath, are of recognized value in equalizing the circulation. Arteriosclerosis puts in its appearance about the time the thyroid gland begins to atrophy. As this gland has vasodilating properties, the administration of the extract might be useful in these cases. Amyl nitrite is a prompt, efficient and convenient drug, indicated in angina pectoris, epilepsy and similar emergencies. Nitroglycerin acts less promptly, but has more lasting effect; while sodium nitrite and erythrol nitrate are best for continued use, their action being less powerful and more permanent. Drugs acting centrally to produce vasodilatation most likely do so by depressing the vasoconstrictor centers.

DR. C. E. DE M. SAJOUS, Philadelphia, referred to the influence of the pituitary body on arterial hypertension. He said that Professor Cyon of Geneva, and more recently Masay, by stimulating this organ produced all the manifestations of increase of arterial pressure; in other words, they obtained an enormous rise of arterial pressure. The merest touch sufficed to raise the pressure, while the current brought it to a very high level. In the course of another experiment performed while studying the causes of cerebral pressure, Cyon observed that all the reflex phenomena obtained by stimulating the nasal mucous membrane, such as sneezing, coughing and increase in secretion, could not be obtained when the pituitary body had been removed.

DR. WILLIAM F. WAUGH, Chicago, objected to the use of the nitrites as vasodilators for chronic cases. He said that the nitrites are well suited to meet a temporary condition and produce a sudden rise, but from none of them can be obtained a continuous effect, not even from sodium nitrite. Their effect will pass off in a half-hour at most. For conditions in which a continued effect is required veratrin is useful. Its effects may be kept up for months. Another advantage of this drug is that it presents no possibility of accumulation, as it opens all the channels of elimination.

DR. H. C. WOOD, JR., Philadelphia, said that it has been experimentally shown that a greater amount of blood goes to the arms and legs when the mind is concentrated on them. He took exception to the statement of Dr. Cook that there is such a thing as "idiopathic" high tension, the cases called idiopathic being simply those whose cause we fail to determine. When the nitrites are employed in arterial hypertension it is for their temporary effect; their greatest use is where there is immediate danger from the vascular constriction, as in threatened apoplexy. He agreed with Dr. Cook that sodium nitrate is the best. Tetra-nitrate and potassium nitrate have been stated to be more permanent than the nitrites in their effects. Sodium iodid and potassium iodid may act, by bringing about a change in the arterial nutrition and may be valuable in prolonged administration. Diet is one of the best therapeutic measures and has an important place among other methods of treating arterial hypertension.

DR. WM. C. ROBINSON, New York, emphasized the value of veratrum viride as a permanent vasodilator and said that by this means the blood vessels can be kept dilated for weeks at a time. It has been used in nephritis and other conditions of high tension with good results. Dr. Lauder Brunton especially recommends the crude potassium nitrate, which has been found to contain a small proportion of potassium nitrite. Perhaps the good effects are due to this fact.

DR. JOSEPH CLEMENTS, Nutley, N. J., stated that he has a valvular lesion of the heart, and after walking several blocks he is liable to feel distress and pain in the pericardium and in the region of the liver. He always has with him some tablets of glonoin. One of these tablets will, in two minutes, begin to ease the distress. The hypertension is quickly relieved, and he is able to go on walking, or with whatever he may have been doing, which caused the tension of the blood vessels and the distress and pain. Even standing for any length of time to speak will sometimes induce this condition, which is usually relieved on taking a tablet or two.

W. W. TOMPKINS, Charleston, W. Va., recently had a patient who took a pearl of amyl nitrite and crushed it in his handkerchief and inhaled it. He immediately fell as if struck on his head and had such intense vertigo that he had to go to bed and remain there for ten days. Every time he lifted his head he had vertigo and if he tried to stand he fell to the floor. This may be a case of idiosyncrasy, as Dr. Tompkins never heard of another case in which amyl nitrite acted in this way. The man did not use the drug because he needed it, but it was ordered for another member of the family and he took it on his own account to see what effect it would have.

DR. O. T. OSBORNE, New Haven, Conn., agreed with Dr. Cook that the nitrites do good in these cases of hypertension by their prompt action in dilating the blood vessels and reducing tension. The iodids belong to the alterative treatment. The thyroid gland gives out a vasodilator substance and the adrenal glands give out a vasoconstrictor substance; these exercise an important influence on the circulation. The thyroid gives out an iodin substance, and we can understand how the iodin may do good when administered to these cases by stimulating the thyroid to extra secretion, especially at the age when this gland begins to atrophy. Dr. Sajous asked if the iodin stimulates the thyroid gland.

Dr. Osborne, in reply, said that all the iodids stimulate the thyroid of extra secretion, as can be demonstrated in Graves' disease.

DR. H. W. COOK stated that, owing to want of time, he was obliged to omit the hygienic part of the treatment in reading his paper, and perhaps this has given rise to a false impression of the effects of treatment. In his experimental work he has obtained a result of a fall of 120 milligrams, lasting for two hours, from a dose of sodium nitrite. He thinks that in these cases of chronic arterial hypertension, what is needed is decreased arterial resistance rather than decreased work of the heart.

THE THERAPEUTIC VALUE OF MASSAGE IN ACUTE DISEASES.*

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The question of nutrition underlies the activity of every organ and tissue of the body. In general, we may say that nutrition is dependent on circulation, and that this is a double process, or rather a single nutrient current that becomes divided into two in the capillary regions. At the point of division it is not only distributed by two entirely distinct sets of tubes, but the rate of flow is widely different, as is the quality of the contained nutrient stream. The blood is ordinarily looked on as the great nutrient tissue of the body. It has its well-defined cells which carry on individual functions of widely different character, according to the nature of the corpuscle, but the intervening plasma, or stroma substance, lying between these cells, is the carrier of most of the nutrition that the various structures of the body need, as it is also the remover of their waste products.

The speed of the blood flow is such that material gathered from it must be withdrawn by chemical activity rather than by the physical processes of diffusion and osmosis; but as the removal of waste requires rapidity of flow, it becomes desirable that the purveyor function should be to some extent separate from the eliminative function. For this purpose the blood vessels, at the areas where the blood flow is slowest, are so constructed that they permit the blood plasma to flow through into the intercellular spaces of the various organs, and these intercellular spaces are more or less filled with this leakage material that thus bathes the cells with a nutrient fluid which moves comparatively slowly and which permits free interchange with the protoplasm of the cell. In this way nutrition is maintained.

Near the periphery of the organ or any of its segments, the intercellular spaces take the form of well-defined ducts, and these are called lymph vessels, being supplied with valves at frequent intervals that permit the movement of their contained fluid in only one direction, which is toward the periphery of the organ. When we pass beyond the limits of any individual

* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

structure, we find that the lymph ducts in general are continued toward the center of the body, while along the course of the lymph vessels, or lymphatics as they are called, are found frequent glands into which the vessels pour their contents and from which fewer lymphatics lead on to the center of the body. In some regions, as in the neck, these glands are extremely frequent, so that the lymph is strained before it has passed any great distance from its point of origin. In other regions, like the arm and leg, considerable distance may be traversed before the lymph is poured into a gland, and it is interesting and important to note here that in general these lymph glands are located in the region of joints, and usually on the flexor sides of the joints, so that any movement of the limbs, neck, etc., tends to temporarily compress the glands and also to press on the lymphatics so as to drive the lymph along toward the center of the body. This may be called a natural massage of the lymphatic area, and its importance will be noticed when we compare the edematous condition of a limb that is kept perfectly free from movement with the fine circulation of a limb that is adequately exercised through the whole range of its possible motion.

This brings us to speak of the causes of the lymph flow, which are, in brief, the residual or leakage pressure which is carried through from the blood, and, more important under ordinary conditions of life, mechanical pressure. Under this latter head we must classify not only the pressure created by change in form of a part by muscular contraction, but muscular pressures produced in various regions by different physical acts, as in walking, sitting, carrying burdens, etc., and also the minus pressure produced in the thorax during inspiration.

In conditions of extreme inactivity, as when we are sleeping, the lymph flow is extremely slow, because every element of propulsion is reduced in quality, the aspirations of the thorax being more constant than any of the other forces. During violent physical exercise the lymphatic flow is greatly accelerated, because every element of propulsion is pushed toward its maximum, both the heart and respiratory organs responding in direct proportion to the amount of muscular work done.

The difference in lymphatic pressure and speed of flow has been beautifully illustrated by a case that has come under my notice that is worth recording.

Patient.—A young man, aged 20, came to me with a peculiar discharge from the upper part of the thigh over an area of about 7 cm. in diameter, lying immediately below Poupart's ligament on the left side.

History.—At about 8 years of age, he had suffered from a bubonocele, the cause of which was not absolutely certain, although he thinks it was due to a blow in that region. The inflammation at this time must have been excessive, and while medical care was given the patient surgical interference was not used until the cyst burst and evacuation took place by natural methods. The disintegration of tissue must have been extensive, as indicated by the size of the cicatricial relic of the inflammation. The abscess had not invaded the abdominal integument, and the line of Poupart's ligament removed a segment of what would otherwise have been a fairly circular scar.

Examination.—This young man was apparently in perfect general physical health, and had been playing football the afternoon before I saw him in the evening. He had a towel around his thigh, which was wet, and I found it was saturated with lymph that was exuding from the cicatricial area in perhaps a dozen places, and there were about as many more spots that looked like small blisters, from the size of the head of an ordinary pin up to a bulla 3 mm. in diameter. He told me that all these openings that were oozing first appeared as blisters, and that if I were to open one of those blisters it would leak a fluid such as the others were discharging. I found this to be the case, and that the discharge of one of these openings would amount to a drop in about from thirty to forty seconds, some of them oozing more rapidly than others. Any one could be easily isolated by lightly pressing a tube over it, and the discharge be thus collected. On microscopic and chemical examination, this fluid was found to be pure lymph, and the case afforded an unusual opportunity to observe the influence of active and passive exercise on lymph flow. This case had repeatedly gone through this leakage process, and the patient was in no way alarmed at his condition. He knew that if he remained quiet for a period of two or three days the scar would heal over and would remain intact until he indulged in fairly vigorous exercise again. He was of active temperament, and for a period of three years I had an opportunity to observe him under normal conditions, with the lymphatic flow just beginning, as well as at its height, and while subsiding.

A study of this case under the influence of various positions and forms of activity showed that a high elevation of the leg soon caused a marked diminution in the amount of flow, and this was the quickest method of relief that would permit the healing over of the opening of the cicatricial tissue. It was also demonstrated that a massage of the muscles of the leg produced an increased flow of lymph that was continued for some little time, and that appeared to be due to two causes: First, an immediate exit of lymph due to pressure on the lymphatic vessels and lymph spaces; and, second, a prolonged secondary flow apparently due to hyperemia of the structures that were massaged. The importance of this case in demonstrating the value of appropriate massage in stimulating the flow of lymph and blood is greater than the indirect evidence produced in the diminution in the size of parts and the reduction of edematous conditions, for the time relations existing between the movements and the flow could be readily recorded.

ACTION OF MASSAGE ON THE NERVOUS SYSTEM.

A second value of massage that I wish to mention is with reference to its action on the nervous system. Here we have a complex matter that is not completely understood, but that has certain salient points so definite in character that we may properly discuss them as scientific truths.

The first feature of nerve activity that is started by massage is a sensory impression that accomplishes several things. First, the attention of the patient is diverted from the seat of pain or of discomfort, with such psychic results as directly relieve the discomfort to a greater or less degree, according to the mental poise of the patient and the ability of the masseur to establish satisfactory sensory impressions. This relief of mental attention is highly favorable to reparative action. It was demonstrated several years ago that the centering of the attention on any given part of the body, like the hand, was capable of elevating its temperature to a very considerable extent, and it has been repeatedly demonstrated that the unfavorable mental anxiety regarding the pain of a part results in increased hyperemia of the part, with corresponding increase in pain from the stretching of sensory nerve fibers throughout the area involved. The converse of this proposition must be true, that if the blood be diverted to remote parts through nervous intervention the congested area will be appreciably relieved.

Second. The vasomotor nerves react to surface impressions, as well as to muscular movements, and the blood may be diverted to remote areas by such movements as will cause a reflex dilatation of the blood vessels in these parts. It should be noted in this connection that a vasodilator action over considerable areas will tend to diminish the total blood pressure, and for this reason massage has been used with such great success in cases of valvular lesions of the heart.

Third. The deep reflexes that control normal balance between parts are kept in action so that an approximation to general health is maintained while the body is undergoing local disease—for in a sense nearly all acute diseases are local—and the healthful functioning of one part assists in the normal activity of all.

When we consider how greatly the blood supply to any given part is dependent on nerve control of the vessels leading to that part, we shall appreciate at once how an appropriate appeal to nerve centers may so far modify circulation as to give relief from pain and promote healthful repair. By appropriate massage the blood supply may be distributed fairly evenly throughout the body, and all organs remain in a fair condition for functional activity, even when acute disease is strongly tending to dam it up in some definite locality.

MASSAGE IN PROLONGED ACUTE DISEASES.

Another important result of massage in prolonged acute disease is the improved nutrition that the system has through the crowding into the nutrient circuit of the material that is naturally provided by the retrograde metamorphosis of cells throughout the body. We are taught in our elementary physiology that in periods of starvation a sheep becomes an example of carnivorous feeding because its own cells give up the material that afford nourishment to such parts as must maintain a fairly regular degree of activity, such as the heart, respiratory muscles, etc.

When the muscles are called into action by volitional movements they consume in a catabolic way the material that might be given off by diffusion and osmosis to the lymph and blood vessels, and so be carried around to nourish the tissues whose activity must be fairly regular and constant. In this way life may be prolonged when the natural nutrient canal is unable to retain or absorb and appropriate the proper nutriment for the body. This phase of massage is more important than has usually been conceded, for it gives a possibility of rest to organs that are unable to functionate and carries the system along until the natural methods are restored. This process renders available much of the fatty tissue that is stored in the skin and in the abdominal cavity, and which, if left inactive and with poor blood circulation, could never be recalled as fuel, although its primary function is that of stored food.

With the above view of the physiologic grounds for advocating massage, the question will naturally arise as to what may be the value of the art in acute diseases. Already it has won a place for itself in the treatment of chronic cases where appropriate stimulation is needed if repair is to be encouraged and facilitated. There is a certain line of cases, like the zymotic diseases, where the benefits of massage may seem more or less problematical, and as this is a field which has not been occupied by any except the more expert and careful masseurs, we must appeal to our physiology in support of this means as a rational help in the treatment of these cases, especially at certain stages of the disease. In such a condition as pneumonia or typhoid fever, where the heart action becomes a matter of solicitude, there would be absolutely no contraindication to the use of massage, if properly applied, to diminish the burden carried by the heart and thus improve the patient's condition and ability to endure the other hardships of the disease.

In typhoid fever the failure in heat elimination can be partially remedied by appropriate manipulation, but I believe that the most favorable results will be produced on the circulation and nutrition. As it is a disease that locally affects the nutrient canal and renders it unfit for its work of digestion and absorption by reason of the high temperature and inflammation of the mucous membrane and intestinal glands, it is desirable, therefore, not to require more work of this particular organ than is absolutely necessary. So we may resort to the utilization of stored food that can be brought into the circulation from storage cells as well as from the muscles themselves. This will maintain the vitality of the patient through prolonged periods without the possibility of fermentation and decomposition changes going on inside of the intestine where their products will prove specially irritating to surfaces that are already tending to break down or that have broken down and present ulcers of rodent type. We know through experience with wounds on the external surface of the body how quickly their character changes when decomposition products are brought in contact with them, and we must believe that the same changes occur in parts that are not readily open to inspection. We have proved that these products produce increased inflammation, as shown by the elevation of temperature, tympanites and the poisoning of the central nervous system that formerly so frequently resulted in active delirium, but more recently rarely reaches this condition of toxemia.

EFFECT OF EXERCISE ON THE BLOOD.

An examination into the modifications of the blood that are caused by exercise has been made by Drs. Mitchell and Babbitt of Philadelphia, and Dr. McCurdy of Springfield. Their investigations seem to show that the corpuscular element of the blood is increased by both active and passive exercise, and while this is probably due to what may be considered a more even distribution of the corpuscles throughout the vascular system, it would appear that in any form of acute diseases such an even distribution is greatly to be desired from a physiologic standpoint. In the zymotic diseases the increase of leucocytes is highly desirable, and any process that does not produce injurious effects in other respects and that will cause an increased leucocytosis, would naturally be employed.

MASSAGE IN PARALYSIS.

My principal plea for the employment of massage is for the effect which it has on the nerve centers and as an assistant to the heart by relieving it of a considerable part of its work. Where disease is long continued another condition should not be overlooked, namely, where muscular tissue is likely to undergo atrophy and cause deformity and subsequent inefficiency of the part. Such cases are constantly recurring in the practice of every physician.

I remember vividly the first case of Bell's paralysis of the facial nerve that ever came under my professional care. The patient was a young man who was studying for the ministry, and the facial condition

was such as to cause great alarm and doubt as to the possible ability of the patient to carry out his plans for his life work. The paralysis was more than ordinarily severe, and yet by proper massage the tissues were not wasted nor seriously atrophied, and this man now holds a very important charge as pastor of a church in New England.

Another case that I saw afterward had not been treated for five months, and while the patient was a young man with everything favorable to repair he was unable to close his eyes or move the superficial muscles of the face, while the inability to eat with comfort and properly masticate food had led to a general condition of asthenia that was pitiable. This patient was put under massage treatment, but the tissues never recovered their normal action and form.

We have all seen many cases of muscular atrophy resulting from scarlatina, diphtheria and similar diseases. I am confident that with proper care such cases need not be left as a burden to themselves and society, but with proper intervention to prevent wasting and to improve the nutrition and innervation the great majority of cases would make a good recovery.

MASSAGE IN ACUTE INFLAMMATIONS.

In acute inflammations along the spinal tract much may be done to relieve the severity of the congestion by massage, and the assistance that may be given to Nature in establishing neuromuscular activity after a more or less severe disintegration of nerve tracts and centers is undoubtedly very great. In such acute diseases as rheumatism, the pain and congestion are greatly relieved by appropriate massage, and undoubtedly the elimination of waste matters can be greatly facilitated, for it has been demonstrated that not only will the circulation through a given part be greatly assisted, but the functional activity of the glands may be decidedly increased, as has been done in the massage of the kidneys. The sweat glands may be powerfully stimulated, and it is not uncommon to find the skin start a profuse perspiration after a few minutes of appropriate manipulation.

An important value of massage in the care of acute diseases lies in the great relief that the patient experiences from the discomfort that is due to the confinement of the disease. This is especially true of young and middle-aged people who are accustomed to a more or less active life. When disease suddenly stops muscular activity there is a tendency to nervous restlessness and actual pain due to the poor circulation through the muscles and their inability to perform their normal functions. The distaste for confinement in such cases often impels them to keep about when the physician advises a recumbent position and quiescence. By appropriate deep massage all this muscular discomfort is relieved, the circulation through the parts is established, and every condition for repair is improved, until it would almost seem that no element in the nursing of such a patient could be of greater importance than such manipulation.

At present the indication is met in the large majority of cases by superficial skin friction and the application of alcohol; and while this relieves the edema of the skin and subcutaneous areolar tissue, it only superficially accomplishes what is desired, and is to that extent inefficient.

MASSAGE IN HYPEREMIA OF MEMBRANES.

The same thing can be accomplished in diseases that is accomplished in traumatic injuries, although the ocular evidence may not be so well marked. It has always been my practice in treating fractures, dislocations, etc., to relieve edema by appropriate stimulation of the lymph vessels by massage, and I have never yet seen a case that was not greatly relieved from pain, and where the developing turgescence was not checked by this measure. It is fair and rational to assume that the inflammation excited by pain in any part of the body can be checked to a considerable extent by similar processes. If the appropriate massage of the knee joint can effectually promote the absorption of exudate, may it not equally be expected that appropriate manipulation will promote the absorption of an intrapleural effusion? Or, if the effusion is due to a prolonged hyperemia of the pleural membrane, is it not barely possible that appropriate attention given to the circulation of the blood and lymph in the thoracic wall may prevent effusion?

If any person doubts the derivative influence of massage on membranes that are untouched by the process, I ask any such person to experiment on himself the next time he has a severe coryza by vigorous massage of the skin around the base and over the bridge of the nose. The balance between what may be considered normal circulation in a part and hyperemia is so delicate that very slight nerve stimulation, if properly applied, may turn the system in one direction or the other.

MASSAGE IN NEURALGIAS.

In neuralgias the relief by appropriate manipulation is often very marked, and apparently the nutrition of the affected nerve trunk is so influenced that the normal balance is soon secured, and it is found that the pressure along the nerve trunks, to a certain extent, corresponds to a stretching that was long ago found to be an efficient method of treating persistent neuralgias. In sciatica the new method of nerve stretching has been found to be quite as efficient as the surgical method that has been to some extent in vogue. I may say in passing that this new method of stretching consists in flexing the thigh on the trunk as far as convenient, then extending the leg on the thigh so far as can be borne by the patient, and at the same time flexing the foot on the leg as a final part of the movement. This makes the course of the sciatic nerve as long as it can be made in any movement of the body, and where the nerve is extremely sensitive must be done under an anesthetic if carried to its complete extent, which is not always necessary or desirable. I think I am correct in saying that this method is essentially the only one used in the treatment of sciaticas among Scandinavian peoples, and is followed to a considerable extent in France and Germany.

Of course, the diseases mentioned are only illustrations of the general application of this great therapeutic means which has been so long neglected by our profession in this country.

TRAINING NECESSARY FOR THE APPLICATION OF MASSAGE.

It goes without saying that in acute diseases the manipulation should be applied by a person who understands the systemic needs that are to be met. This brings us to a consideration of the training necessary for the application of this method of treatment.

There is a too general feeling among the medical practitioners of the country that massage is allied with the so-called "magnetic" treatment that is practiced

by some of the most arrant humbugs to be found in the country; people who profess to be able to "fill the patient with vitality" from their own superabundant stock, and who feign to be greatly exhausted after half an hour's simple manipulation that would require comparatively little expenditure of energy; or they look on the work as being simply skin friction that has no other function than the soothing of nervous excitement, the control of the attention and the setting up of certain nerve reflexes that are allied to the normal nerve activities excited by contacts in normal exercises. Nothing is to be more regretted than this superficial view of the matter. It leads to every trained nurse being expected to be competent to massage a patient, and every athletic trainer and "rubber" being considered a suitable person to act as masseur in cases that are deemed suitable for this therapeutic method. I have noted illustrations of this, to which I wish to call your attention, as they are not unique but customary.

A surgeon of some prominence, in a city of over 100,000 inhabitants, had been advised to try massage in a case of rheumatism, and he sent for a young man of Hibernian extraction, who had carried water and various athletic paraphernalia for college teams, and had finally become a "rubber" for the football team, to take charge of this case, which he did, with results that were satisfactory to the patient and the physician, except that the next time the patient had an attack of rheumatism that happened to be of fairly acute form, he called in the rubber—I can not call him a masseur—and was treated for several weeks before it was deemed necessary to call in a physician to outline other therapeutic means that were of more immediate consequence than the superficial skin friction, accompanied by more or less oily liniment that had been used.

A second case illustrates the need of training for masseurs. A person suffering from constipation and muscular atony was advised to have massage, and a trained nurse was called in to attend to this phase of the treatment, as she was reputed to have considerable skill and a "magnetic" touch. She manipulated the case in a superficial way with considerable nervous satisfaction to the patient, who insisted that she was improving under the treatment; but her constipation received no benefit whatever, and the manipulation was not sufficiently deep to promote the circulation in the muscular tissues, and she finally became so weak and anemic that she gave up the treatment in despair, and was ordered South for a change of climate. There she fortunately fell into the hands of a physician at a sanitarium, where massage was prescribed, with passive exercise and resistive movements, by a physician who knew what ought to be done and had an attendant who was capable of doing it. The gain was immediate, and the lady returned to her home after two months in greatly improved condition, and her health has remained satisfactory.

I am frequently in communication with sanitariums and hospitals that are inquiring for masseurs to take up the work in their institutions, and I never yet have found but one such place where a masseur was treated as anything better than an ordinary ward master, and they are usually paid about the same wages.

In Sweden, which is the home of medical gymnastics, the government supports a school where three departments of physical training are taught. A course of military gymnastics for the training of the officers for their army and navy; a course in educational gymnastics to train teachers for public-school work; and a course in medical gymnastics for the training of experts in kinesitherapy. In addition to the educational and physical requirements for entrance to the school, there is a course of two years during which the pupil is trained in anatomy, including dissection, physiology, kinesiology, pathology, and practical work in both active and passive exercises in all forms that have been found advantageous from a therapeutic standpoint. During two years these pupils have the advantage of daily work in a clinic, where the new men are taught under the supervision of the senior class and the director, who is a trained physician. In the city of Stockholm there are at least five great clinics where patients are treated by this method, either at public or private expense. The work done in these clinics is co-ordinate with the work of the medical clinic. Cases that happen to go to a medical college are referred to the gymnastic clinic if this therapeutic method seems indicated; and, on the other hand, if a case reported to the gymnastic clinic that was obviously a case for medical treatment, it would be referred to the appropriate place. I happened to be in the Royal Central Gymnastic Institute when a sailor appeared for treatment, who evidently had what is so common in this country, but so rare in Sweden that it was not recognized, namely, a case of tertian malaria, with the characteristic chills and rise of temperature. This case was immediately referred to the medical clinic on my diagnosis; and, on the other hand, cases were daily appearing with cards from the medical clinic to the gymnastic clinic. From observation of work in this line in Stockholm I estimated that from 400 to 500 cases a day were thus treated in more or less public institutions.

Where the medical profession has been trained to an appreciation of scientific exercise, and where the masseur has a training in the proper application of exercise, the two work hand in hand with a most gratifying success. For the physician may direct a certain form of exercise that is indicated for the patient, and be sure that in dosage the masseur will be competent to execute his orders with exactness and a trained appreciation of what is to be done. The assistance given to the practitioner is akin to the assistance a trained surgical nurse gives in preparing for an operation and in the subsequent dressing of the wound—an assistance that makes modern surgery as efficient as it is.

May I suggest that in this country our needs lie in two directions?

First, instruction in the medical schools, that is now almost entirely omitted, that should put the students in possession of the theoretical basis of active and passive exercises, from a physiologic and from a therapeutic standpoint. Also, such practical instruction as would make the physician a competent judge of the quality of the work that should be expected of a masseur. A department for this form of instruction is certainly not unreasonable, for in the better class of medical schools courses in pharmacy are given in order to acquaint the student more thoroughly with the appearance and physical qualities of drugs in the various combinations in which they are ordinarily prescribed.

The second need is in the line of more thorough training of people who wish to practice kinesitherapy. May I suggest that the work done in training for this line of activity should cover at least two, and better three years, the theoretical instruction being parallel

with the instruction of the first two years in the best medical schools, except that the emphasis should be laid on physiology and anatomy, with the time now devoted to chemistry turned toward theoretical and practical demonstrations and practice of the technic of medical gymnastics. I believe they should have some training in materia medica in order that they may understand the physiologic effects of the commonly used drugs; they should also be made familiar with hydrotherapy and other forms of mechanical treatment. The person who completes such a course should be given a degree or professional title, like "Medical Gymnast," and be legally registered for practice, in order that the people at large may know that the practitioner has received a stated form of training for his work and passed definite examinations to establish his ability to practice. This would give the medical practitioner a trained assistant, whose ability might not always be of the highest grade, because even the title of "M.D." conferred by our largest institutions does not always guarantee a competent practitioner; yet on the whole it will raise the standard of work and give an assurance to the people that the person employed is qualified for the work for which he is paid; and the incompetent will be weeded out by the laws of the survival of the fittest as they enter into competition with each other. With the status of the masseur thus determined, the fakirs who now parade under other names but "wear the livery of Heaven to serve the devil in" would be forced into some other line of activity.

In many of our larger cities it is possible to find men and women of rare ability who have been thoroughly trained for the work that they do and whose relations to the medical practitioner are most loyal and satisfactory. I happen to know of such people whose character and attainments are of the very highest order, and whose professional earnestness and honor may well be a model for any of us.

I am not arguing for massage as a panacea, or as the only therapeutic means of value. I simply claim for it such a rational basis for its practice as is furnished by the most thorough knowledge of physiology, and a knowledge of the psychoneural control of many of the pathologic and physiologic processes of our bodies. By this neglect we have put in the hands of illegitimate practitioners an instrument that they have wielded to the advantage of many patients and to the much greater advantage of their own pocket books.

The chemical elements and their combinations are not the only means of awakening or subduing physiologic action. In fact their influence has undoubtedly been overestimated by the practitioners of the past; and while we may take well-deserved credit to ourselves for the beneficent results obtained through drug medication during the hundreds of years in which it has occupied the chief attention of the profession, we must also bear the onus of the extensive drug addiction that is to-day one of the great curses of the human family.

DISCUSSION.

DR. J. W. FOSS, Phoenix, Ariz., said that his experience confirms the statements made by Dr. Seaver. The suggestions made by Dr. Seaver, if adopted and carried out, would assist the practitioner to obtain greater success in the treatment of disease. By the aid of massage results are achieved which can not be obtained by other means.

DR. R. C. NEWTON, Montclair, N. J., considers that Dr. Seaver's paper opens up a large subject, much of which is little understood. Rubbing a patient vigorously during a bath is an essential part of the Brandt treatment of typhoid fever. If the patient is simply put in the bath and left there, the bath might do more harm than good. Owing to its beneficent effect on the circulation, rubbing might be made a part of the treatment in many other fevers besides typhoid. In old, helpless patients much good can be done by rubbing them thoroughly as well as by giving them baths. In cases of so-called sluggish fever with vascular congestion, and in neurasthenia and weak heart, this treatment should be carried out as a matter of routine. There is perhaps no more important phase of therapeutics to-day than massage; and there is no question that the average practitioner needs much enlightenment on its uses, limitations and dangers.

DR. HEINRICH STERN, New York City, in replying to a question, stated that the physiologic effects of massage are of quite a complex nature. They are for the greater part purely mechanical, but also thermal and electro-osmotic. Its total action is exerted on the circulation and the fluids of the deeper-seated tissues, modifying the processes of metabolism. Massage enhances the permeability of various organs, at least re-establishes normal semipermeability in those tissues which have lost their natural characteristics during certain inflammatory processes. By massage the exudate of the serous and synovial membranes, the consequence of acute articular rheumatism, is removed, the membranes resume their normal functions which to the greater extent are only those depending on their normal semipermeability. Every measure tending to re-establish the normal osmotic equilibrium must be considered an osmotherapeutic.

DR. JAY W. SEAVER stated that, owing to lack of time, he had to omit some matter in reading which would have covered the points suggested by Dr. Stern. It has been shown that there is a derivative action produced by these osmotic changes which have been set up. Massage of the kidney causes an increased flow of urine from it, as proved by physiologic experiment. This and other facts show that when we as practitioners neglect valuable means of treatment we leave a fertile field open for cultivation by irregular practitioners who are not slow to occupy it.

REPORT ON THE PROGRESS IN ACTINOTHERAPY DURING THE PAST YEAR.*

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My report will be comparatively brief, since the past year has not been marked by any very important changes or improvements in the actinotherapeutic method. The workers in the field are still few, and for obvious reasons. The apparatus required for its effective employment is, it must be confessed, large and expensive. It is essentially one for institution use; for the cost of installation, the room required, the length of time of treatment, and the restricted classes of patients for which it is useful, do not commend it to the general practitioner.

Nevertheless, in the cases for which it is suited it is pre-eminently useful; and this has been generally recognized in Europe, where all the larger cities now have special institutions for the Finsen light treatment. St. Petersburg, for instance, has no less than three,[1] and through the bounty of the queen a very perfectly equipped one has recently been opened in London. We are certainly behindhand in America. The light treatment is used by a few individuals, and some private institutions are equipped with facilities for its employ-

* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Von Petersen: Dermatologisches Centralblatt, March, 1903.

ment; but nothing has been done on a large and efficient scale for the sufferers for whom this method affords the best, and sometimes the only means of relief. I know of no institutions comparable to those on the continent, not to speak of the very large and excellent hospital at Copenhagen.

INDICATIONS FOR THE USE OF ACTINOTHERAPY.

The indications for the employment of actinotherapy have become more precise, though its field has been but little enlarged. The tubercular affections of the skin in all their varieties, lupus vulgaris, tuberculosis verrucosa, scrofuloderma, tubercular ulceration, post-mortem tubercle, etc., together with some possibly tubercular affections such as lupus erythematosus, are the diseases in which it is pre-eminently useful. It would lead us entirely too far to review all the reports that have appeared on this subject during the year. A publication of Finsen's, however,[2] must convince the most skeptical of its efficacy. It consists of about twenty-five reproductions of "before and after" photographs of cases, showing results in most virulent, extensive and long-standing cases that can only be characterized as wonderful. The most terrible deformities are definitely replaced by smooth and innocuous scars; and milder cases show hardly any traces of their past disease at all. It is worthy of note here, though of course no one would for an instant doubt the entire reliability of the reproductions, that the patients pictured do not, as has been the case with some of the cures published here, wear exactly the same clothes and trinkets, and have exactly the same arrangement of the hair, etc., in the two photographs taken six months or a year or more apart.

CURES REPORTED.

Series of cures have also been reported by Gunni Busck,[3] Morris and Doré,[4] Kaiser,[5] von Petersen,[6] Huber,[6] François,[6] Leredde and Pautrier,[7] Chatin and Carle,[8] Montgomery,[9] Schmidt,[10] Dryer,[11] Jansen,[12] de Beumann and Degrais,[13] Rogers,[14] and many others. My own testimony can only be confirmatory of these results. Tuberculosis of the skin in all forms can be cured by this method.

Millioz[15] claims to have cured tuberculosis of the joints by actinotherapy. Leredde[16] has employed it with great success in obstinate acne. A few experimenters have used it in tuberculoses of the internal organs, rodent ulcer, epithelioma and cancer, alopecia areata, nevus, etc. We are still not in a position to make any positive statements of its efficacy in these complaints.

In this connection, a word concerning the frequency of lupus and other dermal tuberculoses in this country will not be out of place. The impression prevails that they are of extremely rare occurrence. I very greatly doubt its correctness. We see a number of cases in New York, and by no means exclusively in the foreign-born population. It was believed to be extremely rare in Denmark until Finsen began his work. Yet of the 1,200 or more cases that he treated almost all were natives of that small kingdom. The difficulty is that almost all the cases occur in the very poor, and can not be subjected to a long and expensive office treatment. I have seen perhaps 30 cases in the last two or three years; only ten or twelve of them could undertake treatment, and in some even of these it could not be kept up for the requisite length of time.

THE CHEMICAL RAYS.

In the early efforts at elaboration of the actinotherapeutic methods the pre-eminently chemical rays in the violet and ultraviolet end of the spectrum were regarded as the chief or indeed the only ones that it was desirable to employ. It was evident, of course, that the thermic rays of the red end had to be eliminated as much as possible; the patient's sensibilities soon settled that. The ordinary visual rays of the yellow region and its neighborhood were also looked on as useless; and hence obstacles to their passage, violet or purple glass screens or water-baths with similarly colored media were extensively employed. The method was even called the blue light treatment; some still use that term for it, and others believe that any blue or violet light or spark, no matter from what source of energy, will be efficacious. That position has been virtually abandoned during the past year. The best operators use all the rays of concentrated light, excluding only the red thermic rays so far as may be possible. It is true that the violet and ultraviolet rays are most active, both chemically and bactericidally; but those of the central spectral region are also effective, and there is great loss of power from their absence.

VARIOUS FORMS OF APPARATUS IN USE.

As regards the various forms of apparatus that can be employed, a word of warning is urgently needed. It is a common mistake to take superficial surface reaction as a measure of the efficiency of a machine, and some of the manufacturers do not hesitate to exploit this argument for their advantage. It was attempted with me in the cases of the German dermo-lamp and some of its native imitations. As a matter of fact it would rather be proper to say that surface reaction is in inverse proportion to surface effect. A lamp that causes reddening of the skin after an application of a few seconds, is one in which all the chemotactic effects of the rays are spent on the superficial epidermic layers. Finsen, Bie, and others have taken occasion in a number of communications to emphasize these facts, and to protest against the employment of entirely insufficient and inefficient light sources. There are lamps on the market, both here and abroad, that are entirely useless from a dermatotherapeutic point of view, not to speak of action on the deeper tissues. Some of these are composed of collections of ordinary incandescent lamps run on the ordinary light wiring. They are a delusion and a snare so far as the Finsen method is concerned; for, no matter what their candle-power, or in what numbers they may be combined, their amperage is too low, and they give thermic and visual, but not chemical and bactericidal effects. This can be readily proved by testing with ordinary sensitized paper; chemical action is slow, weak and inefficient, and the very slightest obstacle interferes with it altogether.

Similar if not quite so severe strictures must be made

2. Die Bekampfung des Lupus Vulgaris, Fischer, Jena, 1903.
3. Dermatologisches Centralblatt, July, 1903.
4. Therapeutic Gazette, Aug. 15, 1903.
5. Wiener klin. Rundschau, vol. xvii, p. 17.
6. Dermatologisches Centralblatt, March, 1903.
7. Monograph, C. Naud, Paris, 1903.
8. Monograph, Masson & Cie, Paris, 1903.
9. Jour. of Cut. Dis., December, 1903.
10. THE JOURNAL A. M. A., Feb. 27, 1904.
11. Dermatologisches Centralblatt, February, 1904.
12. Monat. für praktische Dermat., July 15, 1903.
13. Annales de Dermatologie et de Syphiligraphie, May, 1903.
14. Amer. Jour. of Dermat. and Genito-Urinary Diseases, No. 6, 1903.
15. Diet. and Hyg. Gazette, July, 1903.
16. Monat. für praktische Dermat., Oct. 1, 1903.

on the smaller and cheaper arc lamps which are run on currents of from 5 to 10 amperes. There is not power enough in them to get deep effects. Arcs running on a 40-ampere current are as weak as can be used. I employ a 50-ampere arc; the regulation Finsen arcs need 60; and the originator of the method used a 100-ampere arc for his work.

With an efficient arc as the source of light, the surface reaction is usually very slight. There is a slight transitory erythema after each treatment, and a deep though not permanent pigmentation finally appears at the margin of the area that is subjected to it. But penetration occurs, and we can hope to affect not only the subcutaneous but also the deeper tissues. This point was settled by the experiments that I made some two years ago, and an account of which was published in the *Medical Record* at that time. Concentrated arc light, that had passed through the entire thickness of the human chest and abdomen, was successfully employed to make a print from a negative on a sensitive plate. The light had to pass through two layers of skin and subcutaneous tissue, fat, muscle, bone, and the red blood, before it could reach the plate; yet a distinctly marked chemical effect was obtained, and successful diapositives were made.

I have elsewhere described the apparatus that I employ, the actinolite, which is the only apparatus manufactured here that has sufficient power to be effective. A very important practical improvement has been made in it during the past year. The water bath required to cut off the heat rays is no longer a separate receptacle. The two condensing lenses are arranged to form the sides of the bath, the water being between them. Several important advantages are thus obtained. There is one piece less of accessory apparatus, and less weight. Then the entire optical part of the apparatus, the lens-waterbath, can be lifted out for changing the water and cleaning the lenses; it is all perfectly and readily accessible. Finally, and most important, all danger of cracking the lenses from their sudden heating up is entirely obviated by their being in contact with the water. It is decidedly discouraging to break lenses worth from $50 to $100 in one's work; and it is tedious to have to take ten minutes in running up the rheostat when one begins to work. I now go up to full power in 10 seconds or so without the slightest danger of damage. I have now used this modified lens-bath daily for five months, and am well satisfied with it.

The new iron carbons for the lamps that were proposed by Bang and others last year have not proved so effective as was hoped. Bogrow[17] claims that they burn irregularly, and are difficult to keep adjusted. I have found similar difficulties with the iron-manganese carbons that are on the market here; the white smoky vapor that they produce is objectionable. The idea underlying their employment, of course, is to obtain a more powerful blue-violet spectrum from the incandescence of these metals. As stated above, however, the tendency now is to employ almost the entire range of the spectrum; and there is no special reason for using a form of carbon otherwise disadvantageous for the purpose of obtaining a few more violet rays. I propose in the future to employ the ordinary arc carbons.

LIGHT PENETRATION OF THE SKIN.

Finally, there remains to be mentioned the efforts that have been made to favor light penetration of the skin by methods other than the inconvenient and often inapplicable compressors. Dreyr[18] found that the addition of a little erythrosin to nutrient media rendered the bacteria and infusoria in them sensitive to the yellow and green rays, just as it does the photographic plate. Thus, a layer of skin 1.25 mm. thick protected a non-sensitized prodigiosus culture, so that they lived under the light for 11 hours; when the medium was sensitized they were killed in 20 minutes by the same light. In lupus he got a much quicker and greater effect when he used a 1 to 1,000 sterile erythrosin-Grübler solution in physiologic (0.8 per cent.) salt solution. From 0.5 to 1 cubic centimeter was injected after Schleich's method to sensitize an area of from 4 to 6 square centimeters. Four to six hours later, the actinotherapy was applied; vigorous reaction was obtained in 15 minutes in well-vascularized tissue. I have had no personal experience with the procedure. It would probably be impracticable to give the injection several hours before each treatment in any but hospital cases; but if the erythrosin could be applied in some absorptive medium by the patient himself, it might be used.

144 West Forty-eighth Street.

17. Monat. für praktische Dermat., Aug. 15, 1903.

18. Monats. für praktische Dermat., Feb. 1, 1904.

THE DIVIDING LINE BETWEEN THE NEUROSES AND THE PSYCHOSES.*

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WAUWATOSA, WIS.

The temptation to mark out new lines in the field of psychiatry is one that assails all who write on this many-sided subject, and every writer yields to it, the difference being mainly in the completeness of the surrender.

One must classify indeed to write at all, and classification is an alluring and agreeable exercise. Yet I shall indulge in it only to a very limited extent, even though there are few barriers as yet erected in the neuronic territory to keep us from wandering at will. Classifications have, furthermore, contributed much to neurologic and psychologic gaiety, which, in itself, is perhaps a good thing. With all possible respect, one may liken the classifications to a flock of geese, each one of which, however, is to its particular proprietor, a beautiful swan.

Beside the enjoyment to be gotten out of classifications, there is a more substantial good. Doubtless each new effort contains a germ of truth or a new ray of light or a suggestion of interest, and we need discussion and clarification of ideas, admitting that there is as yet no finality, and will not be until we can say more exactly what the brain conditions are which produce mental changes. The disposition, therefore, is natural to shuffle the pack and deal the cards anew, and play the hand as well as one can. The faces of the cards are ever the same, yet the permutations and combinations are infinite in variety. This game, however, is unlike games of chance. The honors are never "easy" and do not come by accident.

Recently, in a meeting of the Section of Psychology of the British Medical Association, Dr. Charles Mercier[1] presented a paper on the classification of insani-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. British Medical Journal, Oct. 3, 1903, p. 830.

ties embodying his ingenious and familiar ideas as to forms and varieties. Dr. W. Lloyd Andriezen discussed the paper, or rather spoke after it had been read, but without referring to any of the points adduced, utilized the occasion to bring forward his own classification and explain its advantages.

More recently, in the Boston Society of Psychiatry and Neurology, Dr. Charles L. Dana[2] read a paper entitled "The Partial Passing of Neurasthenia," in which he proposed a reclassification of the insanities with inclusion among them of a large section of the hitherto so-called neurasthenias. Dr. Dana's lines of classification, like those of Andriezen, were drawn on an evolutionary basis, which, no doubt, is generally regarded as the safest and most practical foundation for present research. Dr. Dana states that there has been a "renaissance" in psychiatry, and that the good effect has been felt by the neurologist leading to a "more careful study of mental states," which has emphasized the fact that while insanity is "a morbid state, there is a large number of such states that are not insanities, though showing a kinship to them." He would, however, include the so-called neurasthenias which have mental weakness or disorder as their essential characteristic among the mental diseases.

Dr. Dana's proposal emphasizes the fact that insanity has never been satisfactorily defined. He thinks that one-half of the cases now called neurasthenia, including all the hysterias, would thus disappear from among the neuroses and reappear among the psychoses, but makes it clear that if there be a dividing line between neuroses and psychoses, insanity exists on both sides of this line, so far as the views now generally prevailing are concerned. It is also true that in adding certain cases of neurasthenia to the insanities he is adopting a view that has long been entertained by alienists.

Speaking only of recent American writers, I may allude to a very able discussion on "The Borderline Between Sanity and Insanity," in 1898, by our lately deceased confrère, Dr. E. C. Runge,[3] before the American Medico-Psychological Association, in which he uses the following language: "When we admit that a case of so-called cerebral neurasthenia may at times simulate the profound psychic changes of the prodromal phase of dementia paralytica so closely as to render an error of diagnosis not only possible but excusable, we put neurasthenia at once in its proper place. Every neurasthenic is, to a variable degree, a psychoasthenic. The question is one of degree only, the varying intensity of the disease can not possibly affect its fundamental character." Runge also shows that the only difference between delirium and postfebrile insanity is often simply one of duration. The conclusion which he formulated seems to me irresistible, namely, that "insanity is the symptom of any pathologic process implicating the psychic centers of the brain, hence the borderline between sanity and insanity lies at the point where brain disease parts ways with brain health; by brain being meant its psychic centers."

In this connection I may be pardoned an allusion to a discussion of this point by myself before this Section two years ago.[4] In writing on "Hospitals for the Neuropathic and Psychopathic," I said: "Either the two classes belong together to a great extent or their separate needs have been largely ignored." I then showed how a large proportion of the "neurotic" are really insane, and are found among the inmates of public asylums, while "nervous prostration" is often a polite misnomer for insanity, the only distinction between a large number of patients in any private sanitarium and those in public hospitals for insane being that the former are blessed with longer purses. The phobias, the obsessions, hysterias, hypochondrias, the confirmed drug and drink victims are certainly cases of mental as distinguished from nervous disease. No definition could be framed which would include insanity and exclude these cases. It is also true that the hemiplegias, the apoplexies, the toxemias and even the heart, kidney and arterial diseases, accompanied by disordered brain function, have insanity as a complication. Nevertheless, these cases are not generally regarded as insanities, either by the profession or the public, though technically they are such, for they are "a seriously [and persistently] impaired condition of the mental functions involving the intellect, emotions or will or one or more of these faculties, exclusive of temporary states produced by and accompanying acute intoxications or acute febrile diseases.[5]

And here the fact is strongly brought out that the word "insanity" means everything or nothing, according to the use made of it by different persons. Insanity is very generally accepted as a generic term for all abnormal mental action produced by disease or defect or disorder of brain. In another sense it is applied only to offensive or dangerous mental states, which causes a natural and nearly universal feeling that we do not wish it applied to ourselves or our friends, however appropriate it may be for others. It has, in a lesser degree, the suggestion about it of the older word "lunacy," which in its day was equivalent to possession by the devil. Hence, it is abhorrent to call neurasthenia and hysteria *et id genus omne*—"insanity." This confusion will, in my opinion, ultimately result in the abandonment of the word. Its meaning in law, in medicine, in common parlance and in psychology is variable and confused to the last degree. No complete nor generally acceptable definition of it has been or can be formulated. It is, we often remind ourselves, only a symptom of brain disease still more or less obscure in its nature, and yet we must, in a practical way, consider and treat it as a disease in and of itself. Psychosis is a preferable term. It is less objectionable and more indefinite, and I submit that an indefinite word is better calculated to define an indefinite thing. The meaning of insanity can not be properly limited to offensive or dangerous cases. The neurasthenias are, all will admit, psychoses, but the insanities are psychoses in precisely the same sense and it seems inaccurate to call one psychosis insane and another sane simply to please the ear unless there be some radical difference in fundamental nature. If "major" and "minor" are acceptable, no alienist would object, even though the word "psychosis," like "hysteria," may be mildly objected to. There are many patients who do not care to be told they have hysteria, either "major" or "minor," and of course nothing will overcome the objection felt by wounded pride to acknowledging infirmity in the highest faculties. If, however, psychosis be accepted, a gain in clearness will have been won and

2. Boston Medical and Surgical Journal, March 31, pp. 339, 352.
3. Transactions of the American Medico-Psychological Assn., 1898, vol. v, p. 114 et seq.
4. Hospitals for the Neuropathic and Psychopathic, THE JOURNAL A. M. A., Sept. 27, 1902.
5. Century Dictionary (["and persistently"] is added from the "Standard Dictionary").

the unnecessarily painful associations of "lunacy" and "insanity" will be avoided. Furthermore, along with the passing of neurasthenia, there should be a passing of the word insanity and with it an unnecessary opprobrium will also have disappeared.

I may advert here to another utterance showing the obscurity of the word insanity. In an ingenious article in a recent issue of the *Alienist and Neurologist*,[6] Dr. J. W. Wherry proposes that the word insanity shall be applied only to delusional states, but as insanity is fully as much a symptom of emotional and volitional, as of intellectual states, the proposal seems impracticable. Furthermore, all the phobias and obsessions belonging to conditions not generally regarded as insanity would have to be renamed.

The delirium of fever differs from insanity only in duration and not in kind. If it is insanity when continued three months, it is insanity when continued three hours, at least there is nothing to show at what point a dividing line exists, and to give widely different names to stages of the same disease leads only to confusion. We may correctly say a psychosis complicates a fever, whether the complication be of three hours' or of three months' duration. The phobias of the neurasthenic, the obsessions of the hysteric, the illusions of the hypochondriac differ only from the wildest delusions of the maniac in degree; at least, if they differ in kind, we are not yet prepared to demonstrate the fact. The "phobia" of the neurasthenic which transforms *muscæ volitantes* into threatened blindness or creates cancer or heart disease out of nothing is insanity, even though it has been unrecognized by our neurologic brethren.

I can agree, from my own experience, with Dr. Dana's statement that very many cases of so-called climacteric insanity have always been psychopathic and have had attacks of mania or severe neurasthenia in early life from which they have never fully recovered.

One further reflection and I am done. The last idea I wish to advance is that the progress made in classification in nervous and mental diseases of late has largely been in the direction of obliterating lines rather than in drawing new or closer ones.

In the classification of insanity, the views of Kraepelin which meet with general favor have been characterized by throwing together cases formerly classified separately. If there was formerly any agreement as to species of insanity, certainly "mania," "melancholia" and "dementia" were considered stable and well defined, but the line between the two first has been erased by forming one group, embracing largely the acquired insanities and terming them the "manic-depressive insanities" or "mania-melancholias," while dementia has been applied to another great group of the primary insanities with the prefix "precocious" and subdivisions into "hebephrenic," "catatonic" and "paranoid," thus leaving "paranoia," while in the differentiating stage, somewhat suspended in midair. This conception of "dementia precox" modifies greatly the meaning of "dementia" as formerly understood and includes an extensive class of cases formerly not classified as dementia, and, indeed, not possessing the character formerly attributed to dementia by English writers.

Now turning to Dr. Dana's proposal that the neurasthenias shall largely be classified as psycho-neuroses or "phrenasthenia," thus bringing them under the category of mental diseases—or, as one may say, with bated breath, "the insanities"—we see an opinion expressed by the neurologist with which the alienist can heartily concur and in fact a proposition which is not new to the latter. At the same time this means the destruction of lines formerly rather generally agreed on of distinction between insanity and various so-called neuroses (hysteria, neurasthenia, hypochondria. the various phobias and obsessions), and the transfer of a large group from the field of neurology to that of psychiatry.

On the whole, I fear I may be accused, in writing on this subject, of writing on something non-existent, or at least on a most vague and indefinite subject, and this I must admit, only urging in my own defense that we are not yet in a position to secure scientific accuracy and will not be until the changes from health to disease going on in the brain, of which insanity is the symptom, can be localized and qualitatively and quantitatively understood. We may appear at present to be going backward, changing and undoing the work of our predecessors, rather than advancing; nevertheless, true progress frequently requires such a process as new lines of investigation are discovered and new working hypotheses are adopted.

6. Alienist and Neurologist, April, 1904, p. 147.

MEDICAL PRACTICE IN SIBERIA.

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REQUIREMENTS FOR MEDICAL PRACTICE.

The rules of medical practice in Siberia are the same as in European Russia; that is, for the whole Russian Empire, from the Baltic Sea and the German-Austrian frontier up to the Pacific Ocean—Vladivostok and Port Arthur—there is one medical law: For the right of practicing medicine one must be graduated from one of the ten imperial universities of Russia. The university can be attended only by those graduated from a classical high school (eight years' studies), the so-called gymnasium, while the time of study in the university is not less than five years. After graduation, each student is permitted to take the state examinations, always oral. If the student be successful in these "final" examinations, he gets his diploma, and the right to practice medicine throughout the Russian empire and to fill any medical position in the army, navy or civil services, etc. For the higher medical positions, as well as for professorships, the physician must take new examinations on certain subjects, prepare a scientific work and defend the same openly. Then he gets the second, highest medical degree, *doctor medicinæ* (doctor of medicine).

Thus the medical practice in Siberia is in the hands of people who have received a complete preliminary general education and a special medical one from a university.

UNIVERSITY EDUCATIONAL DISTRICTS.

The Russian government decreed in 1899 that each university should accept only students belonging to the educational district in which the university is located, so that a graduate from the Siberian gymnasium can attend only the University of Tomsk, but by no means the University of Kazan or Moscow. These universities can be attended only by students from their respective educational districts. A graduate from the gymnasium in Odessa, for instance, can study medicine only in Odessa, but not in Moscow or Petersburg.

The majority of young physicians in Siberia are thus graduates from the University of Tomsk, although there

are very many physicians in active practice who were graduated from other universities.

GENERAL PRACTITIONERS AND MEDICAL OFFICIALS.

When a young physician in Russia gets his diploma, he has in view either to practice in some city as a general practitioner or specialist ("voluntary" practitioner), or to get a position as a district or county physician, military physician, etc. All these positions are more or less paid, so that the Russian physician is in very many cases practically independent of private practice, forming the class of so-called "serving" physicians. The latter class is in Russia quite numerous, especially in the small cities of central, north and east Russia, being comparatively less numerous in the larger cities. In Siberia, where the population is sparse, the acting physicians mainly belong to this class. For instance, to take the city where I was practicing (Yenisseysk, with a population of 10,000), there were seven physicians for the whole city. Three were general practitioners, and five held salaried positions as follows: One was a physician in the gold mines of the Yenisseysk district; one was city physician; one physician in the city hospital and for the prisoners; one was district physician, and one in the city dispensary. The same comparative proportion between these two classes of medical men exists in other cities of Siberia. Thus in Krasnoyarsk, the capital of the province of Yenisseysk, with a population of 30,000, there were in my time (1898-1901) twenty-four physicians, and all except one occupied some official medical position.

SALARIES OF MEDICAL OFFICERS.

Regarding the material part of the latter, I will give here the amount of salaries of my colleagues of the city Yenisseysk: The doctor of the gold mines received 2,500-4,000 roubles a year (about $1,250-$2,000), depending on the number of workmen in the mines, counting 1 rouble—50 cents—per capita; the city physician received 1,000 roubles a year; the physician of the city hospital and jail, 1,000 roubles (with a flat, heating and light); the district physician, 1,200 roubles; the dispensary physician (two hours daily), 600 roubles. It is obvious that the salary alone can not always secure a good living, therefore, some physicians also resort to private practice which, however, is entirely in the hands of the "voluntary" physicians.

SUPPLY OF PHYSICIANS IN THE CITIES.

From what was said above, it will be seen that a city of 10,000 population, with eight physicians, is quite sufficiently supplied with medical assistance. Generally speaking, the cities of Siberia, and still more so those in Russia, feel no lack of medical aid, while in some parts of Russia there is even an abundance of physicians.

SUPPLY OF PHYSICIANS IN RURAL DISTRICTS.

The same can not be said regarding the rural population. Siberia mostly consists of villages; there are but few cities. The villages are scattered at great distances from each other, the usual distance being 13 to 15 versts, or about 10 miles. In places remote from the populous districts the villages are 30 to 50 miles apart (so is it, for instance, in the province of Yenisseysk on the rivers of Chuna and Mura). It is evident that a physician can not live from private practice in a village, and the government can not afford to have even one physician for each three villages; therefore, each Siberian province is divided into medical districts.

THE DISTRICT PHYSICIAN.

Before the year 1898 the province Yenisseysk, which contains about 1,000,000 square miles, was divided into six districts. For each district there were two physicians—one for purely medical purposes, the other one for medicolegal ones. Both physicians used to live in the capital of the district. In case of need, as, for instance, an epidemic, the physician was notified by the authorities through a special messenger or mail which visits the villages once a week and the cities twice or three times a week (where the train passes through a village or town the mail may be obtained every day). The physician then started to the corresponding place on his *povoska* (traveling sleigh). On account of the long distances between the villages and the obsolete methods of communication, much time is lost before the necessary point is reached. It is obvious that good and prompt medical services are, under such conditions, entirely impossible.

OFFICIAL VISITATIONS OF THE DISTRICT PHYSICIAN.

The district was officially visited by the physicians once a year, usually during the summer time. Some parts of his district were visited oftener, depending on the distance, but practically the population was all the time without any medical assistance, as in urgent cases it was impossible to get the doctor. During epidemics, when many villages needed the doctor at the same time, he traveled from one village to another, merely recording the fact that such or such an epidemic exists, the number of the sick, and, finally, making a corresponding report to the medical authorities of the province. So it was with me.

PERSONAL EXPERIENCES.

In December, 1897, the medical board of the province of Yenisseysk sent me to one of the remote districts of this province to help out the district physician on account of an epidemic of typhoid fever. The district physician was busy in other parts of his vast district, and, therefore, could not himself visit the place where I was sent. I started immediately from Krasnoyarsk, traveled more than 800 miles, passed through numerous villages, having found but one case of acute tuberculosis, and very many cases of measles. Of course, I could not do anything good for the unhappy children, as I had to visit during one month a large district, and one or two hours on an average was all the time I could spend in each village; otherwise I would be unable to return to my medical duties at the necessary time.

UNHYGIENIC CONDITIONS.

The hygienic conditions of peasant life in Siberia are extremely bad. The whole dwelling often consists of a single large room, which is ventilated in the winter time by opening the door for a few seconds. A flood of cold air thus fills the room, so that the ventilation brings cold simultaneously with fresh air. The more well-to-do peasants have two or three rooms; one is kept always clean for occasional guests or officials. The crowded, dirty conditions of life, together with the absence of good and proper nourishment, are the cause why epidemic diseases prevail among the peasants in Siberian villages with high mortality and frequent complications.

MEDICAL AID.

The physician during his official trips carries a small "drug store," distributing medicines *gratis,* of course, to the patients. It is obvious that a patient with a chronic

disease, waiting about a year for the doctor's call, can not be even a little bit improved from taking a few powders or a tincture. The chronic diseases which prevail most are rheumatism, bronchitis, and all kinds of gastro-intestinal and venereal troubles. The existence of such a system of medical services was too absurd, and was recognized as such by every physician in charge of a district practice. When I returned from my trip, I asked my colleague, the district physician for about twelve years, what was the aim of his useless services for so many years. He answered: "The necessity to feed my family." Even if there were some dose of usefulness in this system of medical practice, it could in no way justify the immense expenses of government and the population.

Since 1898 some reforms have been made in the medical practice of Siberia, namely, each of the six districts was divided into smaller portions with one physician in each. The physician was given an assistant and one midwife. The Yenisseysk district, for instance, was divided into three smaller districts with three physicians, and the latter had to live, not in the capital of the district, but in the villages, according to the number of inhabitants. The office of a separate coroner physician was abolished, the medicolegal duties being placed in the hands of the district physician.

THE "FELDSHER" ASSISTANT.

The physician's assistant, the so-called "feldsher," is something like a trained nurse, but with a broader medical education. Each feldsher, according to the present laws of Russia, must have a fair preliminary education, attend three or four years a medical school, which is usually connected with some large hospital, and having passed successfully the examinations gets certain rights to practice medicine, namely, in localities where there are no physicians. The feldshers have, in the majority of cases, a good practical training, can sometimes make correct diagnosis and successfully carry out the corresponding treatment. They are very numerous in Russia, playing an important part in the medical life of the rural population, not only of Siberia, but even of Russia, as they supply the lack of physicians and medical assistance which is felt to such an extent in Siberia.

MEDICAL FACILITIES.

The reforms of medical practice in Siberia have been carried out, but the aim was not reached, as three physicians instead of one for a district larger than the State of Illinois and with obsolete methods of communication, can not be of much avail to the population. The latter does not benefit much, from the fact that the doctor instead of ten days or more has to travel (with horses) only three days, so that the result is an immense increase of the expenses with no practical good results. The physician in such circumstances passes most of his time in his traveling sleigh, has very little rest and no moral satisfaction. Therefore, more or less conscientious physicians, with good intentions, try to abandon such an useless play and to establish themselves in some city or not far from even a very small town. Some of the district or county physicians possess small hospitals with a few beds, but such hospitals are not of much use, as they lack proper accommodations and sufficient size.

THE DISTRICT PHYSICIAN AND MEDICAL SCIENCE.

The physician being entirely alone, far from his colleagues of the town, must work successfully in all branches of medical science, be, so to say, a specialist in all branches of medicine, so that there is absolutely no possibility or chance of becoming in time a useful contributor to the science.

THE ZEMSTVO OR PROVINCIAL COUNCIL.

In European Russia a similar system of medical practice in the villages exists, but in more perfect conditions, thanks to the fact that it is not in the hands of the government, but in those of the *zemstvos,* the provincial councils. The conditions of medical practice there are much better, and the so-called *zemstvo* physicians play in Russia a great rôle, not only in the medical or sanitary life of the country, but also in civilizing the population, as well as in contributing to medical science. Some of the zemstvo doctors have appeared as great physicians, as, for instance, Vladimiroff (the author of the so-called Mikulicz-Vladimiroff operation), Razumovsky (professor of surgery in the University of Kazan), Komarovich, Yakovenko, etc., but in Siberia medicine, one may say, exists as yet in an embryonic state, this largely depending on the ignorance and rarity of the population as well as on the lack of means.

THE HOSPITALS.

I would like to say a few words regarding the condition of Siberian hospitals. These may be divided into private (i. e., founded from private donations) and governmental ones. The latter are in the hands of an obsolete institution, "the department of public health." The private hospitals are conducted most satisfactorily and correspond completely to all needs of science, but such hospitals are very few, almost exclusively in Irkutsk and Tomsk, the two largest cities of Siberia. The governmental hospitals, which exist in every town of Siberia, are in such a horrible condition that I would like better to give here the description of one of them by Dr. Ssalishtcheff, late professor of clinical surgery in the Imperial University of Tomsk,[1] made by him in an article published in 1897.

DESCRIPTION OF A PUBLIC HOSPITAL.

"The surgical clinic," says Ssalishtcheff, "is, together with the hospital clinic for internal diseases, under the supervision of the Department of Public Health. This hospital consists of two one-story buildings—one for males, the other for females. For the male surgical patients there are three rooms in the former, while patients with internal diseases are also occasionally placed in the same rooms. The fourth room serves for surgical operations. In the female department there are no separate rooms for surgical patients, who are there placed together with patients suffering with other diseases—for instance, syphilis, internal diseases, etc. The hospital has no separate rooms for infectious diseases, so that patients with ulcerations, suppurations, erysipelas, gangrene and inoperable cancers and those who are going to be operated on are all accumulated in one large ward 'for the sake of isolation.' This ward opens into a corridor about six and a half feet wide, into which open also the other wards of the surgical department. This hall is 'ventilated' at both ends through the exits into the anterooms, while at the same time mephitic fumes pour in from the most primitive privies.

"Beside this, in this corridor there meet every morning a great many new patients, who gradually abandon this place toward 12 or 1 p. m., leaving their *aroma.* These patients are usually dressed in dirty sheepskin coats and dirty, wet felt boots. It is obvious that the

1. Arch. für klinische Chirurgie, 1897, liv, No. 1, p. 135, etc.

isolation of patients in the large ward can not even be thought of. The best room, the so-called 'paradise,' serves for operations as well as for examination of new patients, but the room is far from corresponding to the rules of hygiene. In this room there are eight patients; each of them has about 25 cubic yards of air and about 7 square yards of floor space, with the ceiling about 10.5 feet high—i. e., one-half the minimum required by hygiene. In the large ward the patients have considerably less cubic feet of air and floor space. The air is in all the rooms reeking with CO_2; according to Timasheff, the average proportion is about 2 per thousand. Such a horrible antihygienic condition of the hospitals is not encountered in the zemstvo (provincial council) hospitals of even the smallest towns of European Russia.

"On account of lack of beds, the patients often have to lie on the floor. The rooms are poorly lighted through small, frost-covered windows. The wards are cold during the winter time, while the nurses live constantly there with all their household effects. Near the beds of the patients there are placed the most primitive, malodorous night-stools, and everywhere there naturally reigns an unavoidable but yet tremendous dirt. Dr. Timasheff found that about 20,000 to 89,000 bacteria fall on the surface of each square meter, and in the surgical room, during operations, 295 bacteria fall on one square decimeter in the course of five minutes, and 600 bacteria in ten minutes. Despite the fact that it was so hazardous." Ssalishtcheff continues, "to operate among such circumstances, we gradually succeeded in performing the most difficult and complicated operations, and, in the great majority of cases, with the best results.

In the above-described sad conditions are the hospitals in the majority of small Siberian cities, although lately new hospitals have been erected, as, for instance, in Yenisseysk, but with such inadequate equipment and facilities that one can not even think of carrying out any scientific treatment, and still less any scientific researches.

CLINICAL AND HISTOLOGIC OBSERVATIONS ON SYMPATHETIC OPHTHALMIA.*

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PHILADELPHIA.

At a meeting of this Section five years ago, Gifford, of Omaha, advocated the employment of large doses of salicylate of sodium in the treatment of sympathetic ophthalmia, his experience with the remedy having been such that he said, "I do not hesitate to recommend it as the most important remedy that I know for the disease." His method of employing the drug is to administer from "10 to 13 grains in the course of 16 to 18 hours for each 10 pounds of the patient's weight," preferably in brandy, 15 grains to the teaspoonful, followed by a copious draught of water. If there is any indication of heart disease, it is, of course, necessary to begin with smaller doses. In the general discussion which followed, but one of the members present reported any experience in the use of the drug in this class of cases; and, as the number of cases of sympathetic ophthalmia observed by any ophthalmic surgeon during the course of the disease must be relatively small, I venture to report, in some detail, the histories of two cases treated within the past few years, with the hope that in the discussion, which I trust will follow, will be brought out the experience of the members regarding the best methods of dealing with this much-dreaded affection.

CASE 1.—F. S., male, aged 24 years, was first examined June 19, 1902.

History.—Eight years before he had been struck on the left eye, in the ciliary region, by a piece of glass which he thought had penetrated the eyeball. He was at once taken to a hospital, where an operation was performed, but the nature of the operation he does not know. The piece of glass was not found. The inflammatory symptoms continued for many months before the eye became white and quiet, and no vision remained. From this time on, at varied intervals, sometimes occurring as frequently as every two or three months, there appeared attacks of redness in the right eye, together with slight dread of light and inability to use the eye for continued near-work, always preceded by one or two days of redness and tenderness of the left eye. For this condition he had consulted ophthalmic surgeons at different hospitals, always being advised to have the left eye enucleated, and always declining to follow the advice. Four weeks before my examination he was struck by a baseball on the affected eye. At the time of the accident both eyes were perfectly quiet, but on the following day severe inflammatory symptoms appeared in the left, the eye being very red and painful on pressure. Three days before I was consulted, the vision of the right eye began to fail rapidly, and when I saw the patient was equal only to 6/45. It had commenced without any premonition, and there had been no symptoms of redness or irritation of any character in that eye, with the exception of a desire to avoid very bright light.

Examination.—There was found in the right eye a somewhat hazy cornea with numerous punctate spots on the posterior surface, especially in the lower part, a very sluggish moderately contracted pupil, scarcely any reaction to light being detected; more spots, or deposit, on the anterior lens capsule in the pupillary space, and a very hazy vitreous with only a red glare from the fundus There was slight ciliary injection and considerable photophobia, though no point of special tenderness could be detected in the ciliary region. In the left eye there was also moderate ciliary injection, considerable tenderness on pressure, especially over one point in the ciliary region and the tension was markedly diminished. The cornea was normal, and the pupil was entirely closed, the iris being drawn into a corneo-scleral wound below.

Evidently the piece of glass had entered the eye in the neighborhood of the corneal limbus below, involving the cornea and sclera, the iris had prolapsed and had been excised at the hospital, a portion of the prolapse had remained in the wound, a long siege of uveal inflammation had ensued, and this, in turn, followed by repeated attacks of sympathetic irritation for eight years. At the expiration of this time a severe blow had been received on the eyeball, followed immediately by a recurrence of the old uveitis, and three and a half weeks later by a typical attack of sympathetic uveitis in the other eye, the latter having appeared without any previous symptoms of irritation.

Treatment.—The offending eye was at once enucleated, atropin instilled in the right eye, and the patient given mercurial inunctions and potassium iodid to the point of tolerance. In spite of this, vision became rapidly worse. Subconjunctival injections of cyanid of mercury and pilocarpin sweats were now employed, but also without appreciable effect. Vision was now only 1/45 of normal. Salicylate of sodium in 20-grain doses four times a day was now ordered, and as no improvement was noted after four days' use, the dose was increased to 30 grains every three hours, or 150 grains during the twenty-four hours.

Result.—Within a week after beginning this amount the vitreous began to clear and the aqueous to become less turbid. The patient continued this amount daily for three weeks, the vision improving gradually all the time, and after this

*Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

for four days only in each week. At the expiration of two months from the time of beginning the administration of the salicylate of sodium, the cornea was clear, except a slight stippling in the lower part; a few minute spots of opacity remained on the anterior lens capsule, the pupil was somewhat more sluggish than normal, the vitreous was slightly hazy, the margin of the optic nerve was decidedly veiled, and vision equaled 6/9. For some weeks afterward the patient continued to take 150 grains of the drug one day in each week, and there had not been any relapse in a year and a half. Since this time the patient has not been seen.

CASE 2.—W. B., a boy aged 8 years, on July 3, 1903, exploded a dynamite cartridge which he had found around some quarries, several pieces of the shell striking him in the face and eyes. He was at once seen by a physician, who ordered some cleansing lotion. On July 6, three days later, he was brought to the Jefferson Medical College Hospital.

Examination.—An examination showed numerous cuts and burns on both sides of face and eyelids, a few pieces of shell being buried beneath the skin surface. In the right eye the ocular conjunctiva was somewhat chemotic, the anterior chamber entirely filled with blood and 3 mm. down and in from the corneal limbus, directly through the ciliary body, was a circular opening 2 mm. in diameter, through which a small prolapse of the ciliary body and choroid protruded. Tension was —2, and vision equaled the counting of fingers at 3 feet. In the left eye, 4 mm. down and out from the corneal limbus, directly through the ciliary body, was a circular opening 1 mm. in diameter. The cornea and aqueous were clear, the vitreous was very slightly hazy, down and in, but the fundus was normal in all respects. Atropin was instilled, and a later examination through the dilated pupil revealed two small pieces of brass, which could be seen not only with the ophthalmoscope, but by means of oblique illumination. One of the pieces was located just behind the lens, near the lower margin, and to the left of a vertical axis; the other, somewhat deeper in the vitreous, to the right of and somewhat below the optic axis. Both pieces were small, gave the bright reflex of brass, and were slightly mobile in the vitreous immediately surrounding them, the latter being the only portion of the vitreous that presented any haziness. The tension was —1, and vision equaled 15/LXX. The prolapsed portion of iris and choroid in the right eye was excised, the wound cauterized, atropin instilled, the constant application of cold compresses employed, and mercury administered internally.

A skiagraphic examination of the right eye was now made, and showed one large and possibly two very small doubtful shadows. We were, therefore, confronted with a most difficult problem. Both eyes contained foreign bodies, both had useful vision, and the right had suffered from a prolapse of the uvea, which had been excised. Should we, therefore, enucleate the right eye (by far the worse) in an effort to prevent sympathetic trouble in the left, or should we permit it to remain and watch for symptoms, inasmuch as the left eye also contained two foreign bodies? Dr. Howard F. Hansell, in whose service at the hospital the patient was seen, very kindly examined the patient with me, and agreed that the latter was the better plan to be pursued.

On July 27, three weeks from the time of admission to the hospital, the patient was discharged with instructions to return to the dispensary every other day for examination. At this time the right eye was still slightly red, but not painful. The anterior chamber was free from blood, but no view of the fundus could be obtained. Tension was normal. In the left, which was perfectly white and quiet, a slight cloudiness of the vitreous was noted in the immediate neighborhood of the foreign bodies (less than at the time of admission), but otherwise the vitreous was clear and the fundus normal, vision equaling 15/XX. On August 3, a week later, the patient was brought to the dispensary for the first time since being discharged. Examination showed a distinct optic neuritis in the left eye, with very minute deposits on the posterior corneal layer and on the anterior lens capsule. The vision was not so good as it was a week before, there was some dread of light, the eyeball was slightly congested, and the right eye also appeared more red and tender than when he had left the hospital.

Treatment.—It was believed that we were in the beginning of an attack of sympathetic ophthalmia, so the patient was again admitted to the house, the right eye enucleated, and the administration of mercurial inunctions and iodid of potassium begun at once. The eye had been under the influence of a mydriatic, and hot fomentations had been employed since leaving the hospital. On the following day the nerve was much swollen, the vitreous seemed to be filled with powder-like opacities, and there were many more spots on the cornea and lens capsule. On the latter the spots were arranged in a circle just within the border of the moderately dilated pupil. Vision was now 15/C, and in a few days more equaled only the counting of fingers at a few feet. No details of the fundus could be determined. As the eye had been growing rapidly worse under the use of mercury and the iodid, the patient was now ordered 80 grains of salicylate of sodium in the twenty-four hours, which was increased to 100 grains in a few days. Except for some dyspnea, this dose produced no disturbance, and in ten days' time the vitreous became sufficiently clear to permit a vessel to be seen here and there. This dose of salicylate was continued daily for about three weeks, the vision gradually improving as the vitreous cleared and the spots on the cornea and lens disappeared, at the end of which he was discharged from the hospital with a perfectly quiet eye and visual acuity of 15/L. The two pieces of brass could now be distinctly seen, and occupied relatively the same positions that they did at the time of the first examination. The salicylate was discontinued, but on the fourth day after leaving the hospital, the patient returned with a congested tender eyeball, a more hazy vitreous and vision again reduced. Within a week after resuming the use of the salicylate, the congestion disappeared, and the vitreous assumed the condition it had at the time of the patient's discharge; still somewhat hazy, but with vision equaling 15/L, and a subsidence of the neuritis. Between this time and January 12, a period of about four months, the administration of the drug was discontinued six times, and on each occasion the eye became worse, and immediately regained its former condition on resuming the use of the remedy. Toward the end of this period, the length of time the eye remained free from trouble when the salicylate was not being employed gradually increased, the last being of three weeks' duration. During one of the interims when salicylate was not being employed, pilocarpin sweats were tried, but without any appreciable effect. The remedy was now given in full doses on four days of each week for six weeks, and then one day of each week for a month, when it was discontinued.

Result.—Since this time there has been no recurrence. The vitreous is still somewhat hazy and there are some deposits on the cornea and lens capsule, but the neuritis has entirely subsided and the patient has a quiet eye with useful vision of 6/12. Whether further attacks will recur subsequently, or whether the pieces of brass will in course of time produce some intraocular reaction, it is impossible to say.[1]

Macroscopic Examination of Both Eyes.—When the eye of Case 1 was opened, a piece of glass was found which had broken loose partially from an extensive mass of exudate in the ciliary region, the latter extending forward to the original point of entrance. I regret that no inoculations of culture media were made from the end of the optic nerve at the time of enucleation, but, unfortunately, no facilities were at hand for doing so.

On opening the eye of Case 2, three pieces of brass were located; a very small piece in the cornea, another minute particle in the tissues surrounding the optic nerve which had probably been carried there at the time of bisecting the globe, and a third and large piece in the choroid just posterior to the equator of the eyeball. This last piece had entered through the ciliary body, and had ploughed a furrow from the point

1. Six months after presenting this paper there had been no further recurrence and the visual acuity was maintained.

of entrance to its resting place, through which the sclera was distinctly visible.

Microscopic Findings in Both Eyes.—Microscopically, each eye showed a dense infiltration with leucocytes of iris, ciliary body and choroid, all of these membranes being greatly thickened. The pupil in Case 2 was closed with exudate, between which and the iris it was almost impossible to differentiate. The retinæ were slightly infiltrated, very edematous and thickened, much more marked in the posterior portion of the eye. All the penetrating vessels and nerves showed marked increase in leucocytes and connective tissue cells. The vitreous was also filled with leucocytes. The optic nerve of Case 2 showed a slight degree of papillitis, and the central vessel, as far back as sections were obtained, also showed evidence of inflammation by the increase of leucocytes. Some leucocytes were also noted in the intervaginal space.

Cross-sections of the optic nerve of Case 2 showed a most peculiar condition. Scattered throughout the sections were areas of degenerated fibers, most marked in the immediate neighborhood of the trabeculæ, but occasionally involving a complete bundle of fibers, and more rarely two or three adjoining bundles. In none of the sections was the degeneration found in the center of a bundle alone. It always seemed to begin at the trabecula and pass inward toward the center. In some of the sections the degenerative areas were most marked in the immediate neighborhood of the central vessels, and from these similar areas spread outward in different directions. These sections were examined by Dr. William G. Spiller, professor of neuropathology in the University of Pennsylvania, who believed that the condition was due to the passage of toxins along the trabeculæ of the nerve, as is seen in nervous tissue elsewhere in the body.

As soon as the optic nerve of Case 2 was severed and the eyeball rotated forward, inoculations of culture media were made from the severed end and sent to the laboratory of the Jefferson Medical College for a report. In forty-eight hours a culture developed, which was composed of cocci, and which, morphologically, tinctorially and biologically, corresponded to the *Staphylococcus pyogenes aureus*. This same micro-organism has been found inside of some of the blood vessels adjoining the optic nerve.

REMARKS.

In these two cases there is a wide difference in the time of appearance of the disease in the sympathizing eye. In the first case the inflammation did not become manifest until eight years after the injury, the piece of glass remaining in the eye during this period. It seems quite plausible, however, that the blow on the eye, which was received three and a half weeks before the onset of the affection, disturbed the position of the piece of glass, that had remained quiescent for so long probably because it had been encysted, and brought about a recurrence of the old uveitis, which was followed by the sympathetic attack in the other eye. In the second case, the inflammation appeared at the end of the fourth week. It may be urged by some that the piece of brass in the affected eye may have had something to do with the subsequent symptoms as they presented themselves, but, beyond a slight localized inflammation of the vitreous immediately surrounding the foreign bodies, I do not believe that this was true. It is not likely that foreign bodies in the vitreous would give rise to the chain of symptoms above described, exactly simulating those of sympathetic ophthalmia, continuing the course of the latter disease and finally terminating in recovery. Besides, it is a well-known fact that pieces of brass may lie dormant in the vitreous indefinitely, and that when they do set up inflammatory reaction the symptoms are not like those of sympathetic uveitis.

The onset of the disease in both cases without any premonitory symptoms agrees with the experience of others on this point. In the first case there had been repeated attacks of irritation for several years, but when the typical sympathetic inflammation manifested itself, it did so suddenly, with no other symptoms observable to the patient than rapidly failing vision. This would indicate, as pointed out by Gifford, that the vision should be carefully ascertained each day, as its failure would seem to be among the first noticeable signs of the advent of the disease.

The value of the administration of large doses of salicylate of sodium demands especial mention, and corroborates the experience of Gifford and others who have given the remedy a trial. In both cases, mercurial inunctions, the iodids, subconjunctival injections and pilocarpin sweats not only failed to ameliorate, but even to check the progress of the affection. In the first case, the symptoms promptly abated after the administration of the remedy was commenced, and in the second case the symptoms were not only abated, but rapidly returned on each occasion that the use of the drug was discontinued during a period of several months. My experience fully concurs with that of Gifford, that the drug must be administered in large doses to be of value, and, should I have under my care a patient whose stomach would not tolerate such doses, I would attempt, as he has suggested, its administration by rectum, or perhaps by inunction. Should there be any heart or nephritic disease, smaller doses must be given at first and the effect carefully noted, but it is my belief that these small doses will not be found sufficient to control the sympathetic affection. The addition of a teaspoonful of brandy, as suggested by Gifford, or of a few drops of the tincture of nux vomica, or aromatic spirits of ammonia, to each dose has appeared of value, not only in increasing the tolerance of the stomach to the drug, but in relieving, to some extent, the more or less depressant effect on the heart.

As to the theory of the production of the affection, these cases, unfortunately, like so many others, do not throw much light on the subject. Both cases would seem to indicate that the disease is an infectious process arising in the primarily affected eye, and by some means of exit leaving that eye to obtain a resting place and a good breeding ground in the other. As to the manner of exit, the first case gives no information; but it seems to me that in the second case the condition of the optic nerve and the central vessels would indicate that at least some of the infectious material passed outward in this way.

THE GENESIS OF SYMPATHETIC OPHTHALMITIS.*

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Thirty years ago, it is safe to say, there was but one view held as to the genesis of sympathetic ophthalmitis. The doctrine of Mackenzie that the optic nerve played the chief rôle in the transference of the inflammation from the exciting to the sympathizing eye, had been universally abandoned, and the view that the pathologic changes in the secondarily affected eye were the product of an influence—an influence of a reflex char-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

acter—transmitted to it through the ciliary nerves, was as universally accepted. This view, which had been suggested by Mackenzie as an alternative but improbable explanation of the phenomena of sympathetic inflammation, and had been advanced previously by Tavignol, in 1845, was first brought prominently forward by Heinrich Müller, who published his conclusions—based on pathologico-anatomic observations—in 1858. His theory gained converts rapidly, and among those who accepted it, and who soon became its ardent advocates, were von Graefe, Donders, Arlt and Bowman. To them it seemed all sufficient, and through their labors it was fortified and strengthened. Numerous pathologic observations by Donders and many other competent observers, based on careful dissections of eyes enucleated because of sympathetic irritation or inflammation of the fellow-eye, and innumerable clinical facts were brought forward to sustain it, and, before long, it seemed if there was one question in ophthalmology settled beyond peradventure, that question was the genesis of sympathetic ophthalmitis. But time works many changes, and now, after the lapse of thirty years, it may be truthfully said, if there is one question in ophthalmology, seemingly, farthest from determination, and as to which least definite views are held, that question is the genesis of sympathetic ophthalmitis.

When pathology declared that an irritation transmitted through sensory nerves, or even through nerves containing sympathetic as well as sensory fibers, could not produce inflammation—could, at most, but cause vasomotor paralysis—and when it further told us that an inflammation such as occurs in a sympathetically affected eye must, almost of necessity, be the product, direct or indirect, of bacterial action, "something," to use a slang phrase, "had to give way," and that something, so far, at all events, as those were concerned who felt it incumbent on them to accept without question Pathology's dicta, was the doctrine of Heinrich Müller, of von Graefe, Donders and Bowman that sympathetic ophthalmitis was a neuropathic affection, and that the influence which brought it about was transmitted through the ciliary nerves.

And now it became the duty of the ophthalmologists who were pathologists as well, to construct a new theory of the origin of sympathetic ophthalmitis, which should take the place of the one that had been dethroned so unceremoniously. The first to undertake this task was Dr. Adolf Alt,[1] who, in a paper "On the Anatomical Causes and the Nature of Sympathetic Ophthalmia," argued in favor of the older view—the doctrine of Mackenzie—that the optic nerve furnishes the chief route by which the inflammation proceeds from the exciting to the sympathizing eye. His paper, which showed painstaking and laborious research, gave an account of the pathologic changes found in 112 eyes enucleated because of sympathetic disease of the fellow-eye; and his conclusion, in favor of the optic-nerve theory, was based mainly on the large percentage of pathologic changes in the retina and optic nerve, and the small percentage of changes in the ciliary nerves, which these eyes exhibited. His views attracted wide attention and gained many adherents. When, however, it was pointed out[2] that the "changes" in the retina and optic nerve, to which he attached so much significance, consisted in a large measure of detachment of the former and atrophy of the latter[3]—retinitis and neuritis being conspicuous by the infrequency of their mention—and, further, that in the whole series of 112 eyes there was but one instance (this single exception being a doubtful one, and probably due simply to the scantiness of the information supplied regarding it) in which it was not manifest that the uveal tract, as well as the optic nerve and retina, was the seat of pathologic changes, the inconclusive character of the evidence which he had brought forward, and its irrelevancy so far as the question of the etiology of sympathetic inflammation was concerned, became apparent; and, before long, his views received less consideration and his data were less frequently cited.

The next doctrine advanced, and the one still commonly in vogue, was that sympathetic ophthalmitis was a septic affection, and that it was caused by a hypothetical micro-organism, which traveled from the exciting to the sympathizing eye along the lymph spaces of the optic nerve. Leber and Snellen, in 1881, were among the first to advocate this view, a variant of which was suggested by Berlin, who thought it more probable that the infection of the second eye occurred through the general circulation, and, to account for the absence of pathologic manifestations in other organs, assumed for the hypothetical micro-organism a hypothetical affinity for the ocular tissues.

Schmidt-Rimpler later, in 1892, proposed a modification of Berlin's theory—which has the merit, it seems to me, of being less radically hypothetical—that the micro-organism, after reaching the second eye by way of the general circulation, attacked its tissues, rather than those of other organs, because they had been rendered less resistant in consequence of the congestion produced in them by the vasomotor reflex from the exciting eye, a view which had previously (1887) been advanced by Gifford.[4] The latest modification—for the rather fascinating cytotoxin idea of Brown Pusey[5] can not be classed under this head—of the germ theory, also first suggested by Gifford, but more formally put forth by Bellarminoff and Selenkowsky, is that it is the toxins produced by the bacteria in the exciting eye that pass over to the fellow-eye and cause the mischief with which we are all so familiar.

The experiments of Deutschmann, in which he endeavored to produce sympathetic ophthalmitis in rabbits by introducing into the eye a pyogenic micro-organism, attracted wide attention and, for a time, were regarded as affording strong evidence in favor of the germ theory of the disease; but, as is well known, Gifford, Randolph and others who repeated his experiments failed absolutely to confirm his results. Apart from this lack of confirmation, however, the result which he claimed to have obtained—an infection of the second eye as part of a general systemic infection, of which the rabbits soon died—was so wholly unlike true sympathetic ophthalmitis as we know it in man, that even had his experiments been confirmed at the hands of other investigators they really would have thrown little or no light on the etiology of the disease.

It is hardly necessary to point out that, although nearly a quarter of a century has elapsed since the germ

1. Archives of Ophthalmology and Otology, December, 1876.
2. "Some Recent Theories Regarding the Pathogeny of Sympathetic Ophthalmia, Viewed from a Macroscopic Standpoint." S. Theobald, Archives of Ophthal., vol. xiii, No. 1.
3. H. Müller had already expressed the view that an atrophied optic nerve "could hardly have the power of transmitting an irritation or any other process from the eye." Indeed, one of the arguments which he adduced in favor of his theory was that the ciliary nerves are less liable than the optic nerve to undergo atrophy.
4. Trans. International Med. Congress, 1887, vol. iii, p. 769.
5. Archives of Ophthal., vol. xxxii, No. 4, 1903.

theory of sympathetic ophthalmitis was first propounded, no positive evidence has been adduced to sustain it, and that to-day it must still be regarded as a mere hypothesis, resting on a far from substantial basis. As Gifford, one of its ablest supporters, has well expressed it[6]: "The most ardent advocates of the germ theory of the disease admit, on their part, that the nature of the germ which causes the disease, and the path which it takes in reaching the second eye, are as yet unknown. . . ." Not only is this true, but it is also true that only in rare instances have micro-organisms of any kind been found in eyes enucleated because of sympathetic disease of the fellow-eye.

But, beside this lack of positive evidence in favor of the view that sympathetic ophthalmitis is caused by a specific micro-organism, there are many clinical and pathologic facts which seem to weigh strongly against this doctrine. Among them may be mentioned the beginning of sympathetic inflammation so much oftener in the anterior than in the posterior structures of the eye; the extremely variable period of incubation of the disease; notwithstanding Alt's data to the contrary, its much more frequent occurrence as a result of injuries and disease of the iris and ciliary body than of affections of the retina and optic nerve; its development in consequence of non-penetrating wounds of the eye—burns of the cornea, for example[7]—and of loss of the eye from herpes zoster ophthalmicus (Noyes),[8] from non-traumatic iridocyclitis, etc.; and the well-established fact that enucleation of the exciting eye not very infrequently stops the progress of the disease in the sympathizing eye, a result which it would be difficult to explain if the mischief in this eye were really due to a micro-organism that had reached it, either by way of the lymph spaces of the optic nerves or through the general circulation.[9]

On the other hand, when we turn from the germ theory of sympathetic ophthalmitis to the discredited ciliary nerve theory—the theory which was so satisfying to those astute observers and logical reasoners who deserve to be, and always will be, looked back to as the founders of modern scientific ophthalmology—we no longer find discordance, but the completest harmony, it seems to me, between theory and observed facts. The absence of bacteria in the exciting eye; the variable period of incubation; the significance of disease and injuries involving the iris and ciliary body—those structures so richly supplied with sensory nerves, and inflammation of which almost always means intense suffering—the site at which the inflammation commonly begins in the sympathizing eye; the occurrence of sympathetic disease in consequence of non-penetrating injuries of the cornea, which, however, have given rise to painful and protracted keratitis; the arrest or favorable modification of the disease from enucleation of the primarily affected eye; its occasional development after enucleation of the exciting eye;[10] the long-continued existence of sympathetic irritation in some cases without the development of actual inflammation, and in others the occurrence of inflammation with but little precedent irritation—all these phenomena become explicable, are, indeed, but what the theory would lead us to expect.

It has been contended that if the ciliary nerve theory were true, sympathetic irritation should always lead to the development of sympathetic inflammation. Doubtless, if the opportunity were afforded, this is what, in the great majority of cases, would, sooner or later, happen; but as an argument against the theory this contention is as absurd as to insist that blepharitis marginalis can not be caused by strain of accommodation, because it is not present in every case of ametropia. As stated in my paper to which reference has already been made:

> That in some instances inflammatory changes occur in the second eye without sympathetic irritation, and that in others sympathetic irritation of the most marked character exists for a long time without inflammation, does not militate against the view that both of these conditions are dependent on a reflex influence transmitted through the ciliary nerves, as some would have us believe. In the first place, the ciliary nerves contain sympathetic as well as sensory fibers, and it is probable that the former have most to do with trophic changes, the latter with disturbances of sensation. In the second place, in view of the astonishing difference in the degree of pain inflicted in different persons by the same amount of violence done to the nerves, we are justified in assuming that in the eye, as well as in other parts of the body, these two kinds of fibers do not always exist in the same relative proportion, or, at least, that, in different individuals, sometimes the influence of one set, and sometimes the influence of the other, may predominate. Admitting this much, we shall have no difficulty in comprehending why a given lesion of the ciliary body, for example, should give rise, in one instance, to pronounced sympathetic irritation unaccompanied by structural changes; and, in another, to trophic changes in the sympathizing eye with little or no accompanying irritation.

The fact that, in some instances, sympathetic inflammation begins at the posterior pole of the eye, as a neuroretinitis or choroidoretinitis, has been regarded as being distinctly favorable to the theory that the disease is transmitted by way of the optic nerve or its lymph spaces; but, as I pointed out in my previous paper, this is only what the ciliary nerve doctrine would lead us to anticipate, since it is here, about the optic nerve, that the short ciliary nerves enter the eyeball, and the neighboring choroid coat—between the blood vessels of which and those of the papilla there is intimate anastomosis—is especially rich in its ciliary nerve supply.

Even the most uncompromising opponents of the doctrine that sympathetic *inflammation* is caused by a reflex irritation transmitted through the ciliary nerves, admit that the photophobia, lachrymation, incapacity for work, and, most significant of all, the vascular congestion, the vasomotor paralysis, which are the characteristic features of sympathetic *irritation,* are produced in this way; and the pathologists, who certainly can not claim that they have ever been able to reproduce experimentally a condition even approximately identical with that which exists when an eye sympathizes with its injured fellow, allow, on their part, that when the re-

6. Posey and Wright's Diseases of the Eye, Nose, Throat and Ear, p. 391.

7. I have met with one such case, where a severe and protracted keratitis was produced by the accidental instillation into the eye of aqua ammoniæ, and other cases have been observed.

8. Trans. Am. Ophthal. Soc., 1873, p. 71.

9. It must be admitted that this difficulty would not be so great as to either the bacterial toxin or the cytotoxin theory.

10. As to this phenomenon, I remarked in the paper already referred to: "It is quite unnecessary to adopt the progressive optic neuritis hypothesis in order to account for the origin of sympathetic inflammation . . . . after enucleation of the exciting eye; for it is altogether probable that the disturbances in nutrition in the second eye are preceded by and are dependent on molecular alterations (perhaps a slight myelitis, as suggested by Brecht) in the vasomotor or 'trophic' centers, and that these again are secondary to alterations of similar character in the gasserian and ophthalmic ganglia; so that we need only suppose that in exceptional instances these changes have progressed so far as not to be arrested by the enucleation of the eye, to obtain an entirely satisfactory explanation of the etiology of these anomalous cases."

flex congestion caused by irritation of sensory nerves lasts for a considerable time, as it does in a sympathetically affected eye, it places the cells of the part in a condition of instability, lowers the vitality of the capillary walls, and offers facilities for the emigration of leucocytes, so that on slight provocation inflammation may be precipitated. In a word, they admit that, solely through the influence of the ciliary nerves, we may have in the sympathizing eye a condition which is just short of actual inflammation.

At last, however, it would seem, the pathologists are willing to concede even more than this; to concede, in fact—if I rightly interpret the conclusions reached by Head and Campbell as a result of their carefully conducted investigations concerning the pathology of herpes zoster[11]—all that the advocates of the ciliary nerve theory of sympathetic ophthalmitis ever have claimed—that, without the intervention of bacteria or their products, inflammation may be set up in a distant part in consequence of an irritation of sensory nerves in relation with this part.

Among other conclusions drawn from their study of herpes zoster by Head and Campbell—and it should be remarked that their results have been widely accepted, and by pathologists of the highest distinction—are the following:

The eruption of herpes zoster is produced not "by disturbance of special trophic nerves, but by intense irritation of cells in the ganglion which normally subserve the function of pain. . . ."

There is no evidence that bacteria take part either in the ganglion lesion, which they describe as "an acute interstitial inflammation accompanied by necrosis of the ganglion cells," or in the secondary skin lesion, the contents of the vesicles whenever examined having been found sterile, or in the consequent inflammation of the lymphatic glands. "Thus," they comment as to the last-mentioned observation, "we are brought face to face with the curious fact that a collection of intensely inflamed vesicles containing a sterile fluid can be associated with enlargement of the lymphatic glands. Moreover, these glands have all the appearance of being inflamed, and yet show no sign of bacterial invasion."

Do not these concessions which, as yet, I believe, have not been controverted, dispose of the only serious objection which has ever been urged against the ciliary nerve theory of sympathetic ophthalmitis? If an "intense irritation" of ganglion cells "which normally subserve the function of pain" can produce, without bacterial or traumatic intervention, inflammatory changes in the skin areas supplied by the sensory nerves emanating from these cells, is there any reason why the "intense irritation" proceeding from an injured or diseased eye to its fellow may not, in like manner, produce inflammatory changes in it? Or, to put it more definitely, are we not warranted, reversing the sequence of events as described by Head and Campbell, in assuming that intense and long-continued irritation of sensory nerves, such as we have in a seriously injured and chronically inflamed eye, may cause inflammation in the ganglion cells with which these nerves are in relation, and that this, in turn, may bring about the inflammatory changes in the sympathizing eye? And this, as a glance at my previous paper will show,[2] is precisely the doctrine which I advocated twenty years ago, and which has always seemed to me more satisfying than any other that has yet been advanced in explanation of the genesis of sympathetic ophthalmitis.

I may add, in conclusion, that I have long held that sympathetic inflammation of the eye and herpes zoster ophthalmicus are related affections.[2] Indeed, in my lectures in the Johns Hopkins Medical School (and I have expressed the same views in published writings[12]), it has been my habit to lay stress on a group of diseases of the cornea and of the iris, which, for lack of a better name, I have spoken of as "trophic nerve" inflammations. In this group I have placed, besides sympathetic ophthalmitis and herpes zoster ophthalmicus, the keratitis which follows malarial fever, certain intractable forms of monocular keratitis and irido-keratitis, usually attended by anesthesia of the cornea, and of monocular plastic irido-choroiditis and, with less assurance, serious iritis or uveitis, which also, as is well known, is almost always limited to one eye.

These several "trophic nerve" affections which, it will be observed, are invariably unilateral, I have looked on as due to a common cause—disease of one or more of the ganglia in relation with the fifth nerve, oftenest, probably, of the ophthalmic ganglion, less often of the gasserian ganglion or of the central ganglia themselves. As the investigations of Head and Campbell seem to lend support to this teaching—which I realized was not in accord with the prevalent views regarding the genesis of inflammation—as well as to the ciliary nerve theory of sympathetic ophthalmitis for which I have so long contended, they have afforded me no little satisfaction.

11. Brain, vol. xxxiii, Part 3, 1900, pp. 353-395.

12. See article on "Iritis," contributed by me to the Reference Handbook of the Medical Sciences, first edition, vol. iv, p. 219, and second edition, vol. v, p. 218.

OPERATIVE PROCEDURE ON THE EXCITING AND THE SYMPATHIZING EYE IN CASES OF SYMPATHETIC OPHTHALMIA.*

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The object of this paper is to mention certain classes of conditions which are met with in eyes that produce, and in those that are affected by, sympathetic ophthalmia, as represented by the cases narrated, and to discuss briefly the treatment which seems to me to be indicated, trusting that the subject may meet with a full expression of opinion by the members of the Section.

1. Cases in which the exciting eye still preserves vision, the sympathizing eye being in the early stage of sympathetic ophthalmia. The following is a report of a case in point:

CASE 1.—E. B., aged 43, was admitted to the New York Eye and Ear Infirmary, Jan. 23, 1904. About Nov. 13, 1903, a piece of brick flew into his left eye. Three days later he went to a hospital in Brooklyn and was operated on. He says "there was pus in the eye and an ulcer which perforated." After being in the hospital five weeks he was discharged cured.

Examination.—Left eye, V = fingers at 4 feet. Conjunctiva injected; large macula in lower half of cornea, almost completely covering the pupillary area; remaining portion of cornea quite clear; iris adherent to cornea by a number of filiform shreds at lower portion; pupil not responsive to the stimulus of light, anterior chamber fairly deep; no ciliary tenderness; tension normal. Right eye, V = 20/30 +; conjunctiva injected; cornea clear; pupil dilates fairly regularly under atropin; anterior chamber clear and deep; no ciliary tenderness; three or four filiform posterior synechiæ.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Diagnosis.—Sympathetic ophthalmia.

Treatment—Mixed treatment and salicylates internally; inunctions every second day; atropin. On account of the early stage of the sympathetic ophthalmia and the fairly good condition of the exciting eye, I thought it best not to remove that eye, as it might possibly eventually be the better of the two. Thinking that perhaps the anterior synechiæ existing in the exciting eye were instrumental in causing the sympathetic inflammation, I thought that an operation for the relief of the traction on the iris might favorably influence the inflammation of the sympathizing eye. I therefore performed iridectomy, using a keratome for making the incision and dividing the greater number of the anterior synechiæ with the point of the keratome. A large iridectomy was performed without accident. The eye healed kindly and quickly without inflammatory reaction, but the operative procedure had no appreciable effect on the course of the ophthalmia in the sympathizing eye, which was a relatively mild one, but which affected the entire vascular coat of the eye.

Result.—March 15, a little more than seven weeks after the beginning of treatment, the sympathizing eye is rapidly improving. The exciting eye shows but little evidence of inflammation and V = fingers at 5 feet. However, the coloboma following the iridectomy is partly filled in by plastic lymph.

I feel that the course pursued in the treatment of this case was perfectly justifiable, but, because of the tendency to closure of the coloboma with plastic exudation, which proceeded in this case without appreciable inflammatory reaction, I can not say that much was gained by the iridectomy. It is my opinion that the sympathetic inflammation would not have been more favorably influenced had the exciting eye been enucleated, and that all that we might reasonably expect has been accomplished in the treatment of the sympathizing eye. The condition of the latter will undoubtedly continue to improve.

2. Cases in which the sympathizing eye has become quiet, with almost complete posterior synechia, pupil occluded, vision perception of light, projection good, tension normal or slightly below normal, the exciting eye not a factor. To this class belong the following cases:

CASE 2.—James C., aged 12, came under my observation in May, 1892. Three years previously he received an injury in the left eye, producing a wound through the ciliary region. Six months later sympathetic ophthalmia of the plastic variety occurred in the fellow eye. During treatment for the condition the exciting eye was enucleated.

Examination.—When the patient came under my observation the sympathizing eye was quiet, the pupil was blocked by a pseudomembrane, there was extensive posterior synechiæ, iris changed in color, slightly opaque and presenting some radial folds. Atropin had no effect on the pupil, except at one small point, where slight dilatation occurred. Tension was very little below normal. Vision equaled perception of light. Projection good. Since the eye was apparently quiet, I was of the opinion that a greater degree of vision might be obtained by performing iridectomy.

Treatment.—The patient was admitted to the New York Eye and Ear Infirmary and a broad iridectomy performed under general anesthesia. It was found that the pigment layer of the iris remained adherent to the capsule of the lens from the pupillary margin, two millimeters toward the equator of the lens; the lens appeared to be transparent. The wound closed readily, but within six weeks the coloboma was filled in with a pseudomembrane, its formation being accompanied by slight injection of the ciliary zone of the ocular conjunctiva, resulting vision being no better than before the operation. A second attempt to obtain a coloboma was made some months later without success.

CASE 3.—Frank H., aged 42, thirty years ago was struck in the right eye with a ball, which evidently ruptured the globe, the injury occurring in the ciliary zone. At the present time the globe is shrunken, painless and sightless. Six months after the injury to the right eye, sympathetic ophthalmia affected the fellow eye. The sympathizing eye has been free from inflammation for many years.

Examination.—Globe of normal size; cornea clear; pupil occluded; complete posterior synechia; iris atrophic; anterior chamber about one-half normal depth; —T. ½; vision perception of light in all parts of the field; projection uncertain. The patient was admitted to the New York Eye and Ear Infirmary Oct. 6, 1902.

Treatment.—Thinking that it might be possible eventually to obtain a clear pupillary opening, I made a broad iridectomy upward and succeeded in removing the anterior layers of the iris only. The pigment layer remained adherent to the underlying tissues. The wound was then permitted to heal. Slight ciliary irritation followed the operation.

October 30, eye quiet; —T. ½; defect in iris somewhat narrowed by the deposition of plastic lymph. Jan. 3, 1903, patient was again admitted to the infirmary; tension of globe slightly below normal; eye free from inflammation. An attempt was now made to clear the pupillary area and the area of the coloboma of the opaque mass which occluded it. An incision through the cornea was made with a keratome and by means of a sharp cystotome, De Wecker's iris scissors and forceps, the pseudomembrane was removed and what remained of the lens (which was found to be shrunken and opaque) was expressed and removed by irrigation. A thin cyclitic membrane which stretched across the posterior surface of the lens capsule was recognized, but was not removed, as it was thought best to deal with it later.

Result.—The wound closed, but the healing process was accompanied by ciliary injection and some ciliary tenderness. The coloboma gradually filled with plastic exudate and the scar became slightly indrawn. Tension remained below normal and the vision did not become greater than perception of light. He was discharged Jan. 24, 1903. At that time I did not think that there was any prospect of improvement in vision by subsequent operation. Although I have not seen the patient since his discharge from the infirmary, I have recently learned that his vision is the same.

3. Cases in which cataract has formed in the sympathizing eye as a result of sympathetic inflammation; posterior synechiæ; eye quiet; projection good; the exciting eye not a factor. A case in point is the following:

CASE 4.—Charles S., aged 29, was admitted to the New York Eye and Ear Infirmary, Jan. 27, 1903. At the age of 12 he was injured in the left eye by the explosion of a firecracker. The eye became very much inflamed and the vision was reduced to perception of light. Five years later sympathetic ophthalmia of the right eye developed. Vision became reduced to perception of light. Six years after loss of vision in the sympathizing eye, an iridectomy was performed on this eye by Dr. Howe of Buffalo, in the hope of improving the vision, but without success.

Examination.—Right eye, conjunctiva normal. Cornea clear in its upper two-thirds. Slight opacity at both margins of the cornea just below the horizontal meridian, measuring 2 mm. in width and 2½ mm. in length—ribbon-shaped keratitis in the early stage of development. —T. The anterior chamber is about two-thirds the normal depth. The iris is atrophic and adherent to the capsule of the lens throughout about two-thirds of its extent. Two or three radiating slits in the iris in addition to a small coloboma upward and outward. The pupillary area is occupied by a thickened mass of pseudomembrane. The lens presents a yellowish-white appearance and is of normal size. Perception of light good in all parts of the field of vision. Left eye, the conditions are similar to those in the right eye, except that they are a little more pronounced. Vision equals perception of light, but the projection is faulty, particularly in the lower nasal portion of the field.

Treatment.—As the eye had been quiet for some years and the projection was good, I told the patient that there was a possibility of improving his vision by removing the lens, which was done on the afternoon of January 27. An incision was made with a Graefe knife at the limbus, making a small conjunctival flap. With a small, sharp cystotome, the capsule of the lens close to the margin of the iris below was cut through and the iris liberated in its upper half. A broad iridectomy was then made, after which capsule forceps were introduced and a large portion of the anterior capsule, including the pseudomembrane, drawn out. The lens, which was rather hard and presented calcareous deposits in its cortical layers, was then removed. It was somewhat adherent to the remaining capsule and its expulsion was difficult. However, it came away fairly satisfactorily, and irrigation of the anterior chamber with normal salt solution sufficed to remove almost every particle of lens substance without loss of vitreous.

Result.—Progress was favorable and without untoward symptoms until the third day after the operation, when a small hyphema was present, the blood being bright red in color, apparently coming from the iris. Four days after the operation the patient was able to count fingers at one or two feet.

February 26, V. = fingers at four feet, eye quiet. The coloboma is not so large as it was immediately after the operation. Aside from a slight opacification of the posterior capsule of the lens, there is no evidence of the formation of a cicatricial pupillary membrane. A faint reflex from the fundus can be obtained, but the vitreous humor does not appear to be perfectly transparent. —T. ½.

Six weeks after the first operation the posterior capsule was divided vertically by means of a narrow Graefe knife and a large, clear opening obtained, which has remained.

Feb. 27, 1904, more than one year after the operation, vision with a correction lens equals 20/40; tension a very little below normal. Patient reads ordinary type with facility.

An interesting feature in this case is the formation of "ribbon-shaped" keratitis, which develops only in eyes that are degenerating. Since the operations were performed, the keratitis has ceased to develop in the seeing eye, and the whole aspect of the eye has changed for the better.

4. Cases in which, with occluded pupil, total posterior synechia exists in the sympathizing eye. The tension is plus and increasing (secondary glaucoma); projection still good; the inflammatory process in a subacute stage, the exciting eye not now a factor. The problem is how to retain vision in such an eye.

CASE 5.—David J., aged 15, came to my office April 10, 1903. Eleven weeks before he had had an operation for the removal of cataract from the left eye, which was followed by iridocyclitis.

Examination.—When seen the left eyeball was soft and tender on pressure; the iris was caught in the angles of the wound, and the cicatrix corresponding with the incision for the removal of the lens was indrawn. V = perception of light. Right eye, incipient cataract, transient increase of tension. May 30; very slight iritis; early stage of sympathetic ophthalmia.

Treatment.—Removal of the exciting eye advised and strongly urged. The patient disappeared, but returned June 29 and consented to have the exciting eye removed, which was done at once. The sympathetic ophthalmia, which was then well advanced, was favorably influenced by removal of the exciting eye.

September 1, two months after the exciting eye was removed, the condition of the sympathizing eye was as follows: Complete posterior synechia; tension plus and increasing; ocular conjunctiva slightly injected; anterior chamber shallow; pupil blocked by pseudomembrane; V = perception of light; projection fairly good; field perhaps a little narrowed.

Here was an eye in the last stage of sympathetic ophthalmia, with secondary glaucoma, about to become blind by increase in pressure. The anterior segment of the globe had apparently suffered most from the sympathetic ophthalmia. The question to decide was whether we should endeavor to save the vision by operative procedure for the purpose of relieving the tension. If operation was decided on, what operation should be performed?

A broad iridectomy was done and the lens removed.

Result.—The inflammatory process affecting the eye was not accelerated, but did not abate. The coloboma was slowly filled with plastic exudation and, by subsequent contraction of the exudation, was abolished. The scar became slightly sunken. Tension minus. Vision equaled perception of light. Eye slightly painful.

May 28, 1904, globe atrophic; no perception of light.

In view of what has preceded, it must be admitted that the tendency to plastic exudation in the exciting and in the sympathizing eye in sympathetic ophthalmia is very great, even after the actual inflammatory stage has passed; that it is sufficient to destroy the immediate results of operations on the iris if any degree of inflammation still exists. If increased tension does not exist, operation is not justifiable until all traces of inflammation have passed and even then the result will be uncertain.

If tension is increased and blindness sure to follow if this is not relieved, operation, however small the chances for success, should, in my opinion, be undertaken.

DISCUSSION

ON PAPERS OF DRS. VEASEY, THEOBALD AND WEEKS.

DR. LEARTUS CONNOR, Detroit, said that, while Dr. Theobald states that the ciliary route is the mode of communication from one eye to the other, other observers emphasize the other routes, such as the lymphatics, optic nerve, and blood vessels. Dr. Connor believes that probably all these routes are involved in many, if not all, of these cases. The ciliary theory assumes that it is a local irritation and in every case of sympathetic ophthalmia the ciliary body is involved. In that body there are not only ciliary nerves, blood vessels, and lymphatics, but also muscular tissue. It may be that changes in muscular metabolism will explain why, after ten or twenty years, other obscure phenomena of sympathetic ophthalmia may occur. Unfortunately, the evidence that bacteria are the sole cause is not conclusive. It may be that finer methods of research will throw more light on the subject. Study of toxins teaches that, directly or indirectly, they may produce the trouble. The history of sympathetic ophthalmia illustrates the evolution of great discoveries in medicine.

DR. C. H. WILLIAMS, Boston, stated that, whatever may be the cause of the condition, physicians are most concerned with the treatment. He referred to the case of a woman, about 30, who had severe uveitis in one eye, which later developed in the other, apparently from sympathetic action. It went on so badly in that eye that it had to be enucleated. Last fall she had a return of this uveitis in the first eye, and Dr. Williams tried everything that had been recommended—salicylates up to 1 gr. to the pound of weight, mercurials and all that. She had 4/10 vision when he first saw her, which gradually went down to fingers at fifteen feet. His brother, Dr. Francis Williams, had just returned from Paris with some pure radium bromid and they tried the radiations from that. They used the pure radium bromid, at first three times a week, then twice and then once, held within a quarter of an inch of the eye in one-minute periods with a rest between. The result was that the ciliary congestion lessened and the interstitial keratitis subsided and she now has a vision of 5/10 in that eye. One case does not show very much, but it at least illustrates this point: An eye can be exposed to the radiations of pure radium bromid without doing any harm, provided it is done with care.

DR. G. C. SAVAGE, Nashville, stated that he does not believe in the ciliary irritation theory. He has had two cases occur

after the exciting eye had been enucleated. If that theory were true it would be correct to tell patients that when the exciting eye is removed they are in no danger whatever of sympathetic ophthalmia, for the moment the eye is removed the danger is past. He does not believe that it is a toxin either, and yet he has not any very good reason for that belief. He believes that the migration theory is the true theory, and he will continue to believe it until some one demonstrates that it is not correct. If it is the correct theory, how long does it take the germs to travel through the lymph channels from one eye to the other? When he first accepted the germ theory he was taught to believe it would take about six weeks. In the last few years he had a case that occurred four weeks after the original lesion, so that if he holds to the germ theory he must believe that some germs can travel this course in from three to four weeks. Now, the exciting eye, if it is useless, should be removed, the sooner the better; and its removal should never be delayed beyond from four to six weeks without the patient taking the responsibility, because a delay beyond that time may be attended by migration of the germs and loss of the other eye. If the patient will not consent, let him take the responsibility; there will not be a moment when he will not be in danger. Then, too, he never says to a patient, or to his friends, that when the exciting eye is removed the other eye is absolutely free from danger. Dr. Savage has had two well-marked cases of sympathetic ophthalmia occur after enucleation of the exciting eye. He believes that at any time within from four to six weeks after enucleation of the exciting eye sympathetic trouble in the other eye may occur, the germs having commenced their journey before the enucleation. Later than this he would expect no sympathetic trouble.

DR. EDWARD JACKSON, Denver, said that the suggestion made in the *Archives of Ophthalmology* a year ago by Brown Pusey should not be passed over without something more than mere mention. The suggestion was based on the experiment of producing degeneration in one kidney by ligation of the vessels and ureter and which is followed by degeneration in the cells of the other kidney, something that does not occur when the first kidney is removed. When the kidney undergoing degeneration is retained in the body the cells develop some substance capable of causing degeneration in kidney cells elsewhere in the body. This seems to Dr. Jackson very suggestive in regard to sympathetic ophthalmia, and he thinks Pusey's suggestion worthy of careful consideration. Both of Dr. Veasey's cases recovered on salicylates, but after enucleation of the exciting eye. The operations in one of Dr. Weeks' cases failed to influence the course of the disease, the exciting eye being retained. The statistics show different prognoses after removal of the exciting eye. Of course, where both eyes are injured the decision as to what should be done is a difficult one. The retention of the eye may have significance from many points of view, but it is a practical point on which there is a good deal of evidence that it is dangerous to retain a damaged eye. In Dr. Weeks' most successful case, where he extracted the lens and got good vision, he speaks of using irrigation with the extraction of the lens. Within the past year Browne and Stevenson of Liverpool have used prolonged irrigation with good results.

DR. T. Y. SUTPHEN, Newark, N. J., stated that several years ago he brought to the notice of the American Ophthalmological Society the usefulness, in his experience, of salicylate of soda in secondary glaucoma. Since that time he has found it to be of great value in deep inflammations of the eye, not glaucomatous, whether the tension is increased or not. He is not surprised to find it of value in sympathetic ophthalmia. In support of the theory that the case of sympathetic ophthalmia reported may be due to irritation at the end of the optic nerve, he referred to a case, which he reported several years ago, in which sympathetic neuritis developed in the fellow eye three weeks after enucleation. Strong adhesions had formed between the stump and the under surface of the upper eyelid, which caused a pulling on the end of the nerve at every movement of the other eye. Recovery was prompt after these bands of adhesions were severed. The traumatism necessitating enucleation had been a wound of the upper lid and globe by a piece of blank cartridge.

DR. J. L. THOMPSON, Indianapolis, declared that very few men could take the bold stand Dr. Theobald takes in the matter. Dr. Thompson had a case in which the germs must have been twenty-five years traveling around. One case had calcareous degeneration occur and sympathetic ophthalmia was set up twenty-five years after.

DR. S. C. AYRES, Cincinnati, related a case relative to the subject of Dr. Weeks' paper. A young man, 20 years of age, came to him about eight years after the injury. The injured eye was shrunken and in the other there was a well-developed cataract. Dr. Ayres made an iridectomy and did an extraction. This was followed by exudate, and he did another iridectomy downward and incised the capsule. Then he made a V-shaped incision with De Wecker scissors and got a good open space with very good vision. That is one of the rare cases where sympathetic inflammation is followed by cataract and good vision obtained by an operation. In another case a man had an eye injured from a blow. The sympathetic eye and the other one were about equally imperfect. In course of time the sympathetic eye became blind and the injured eye regained good vision. That is an argument in favor of delay in operating. If the injured eye had been enucleated the man would have been entirely blind.

DR. ROBERT L. RANDOLPH, Baltimore, stated that during a long working experience in the pathologic laboratory of the Johns Hopkins University he has utilized numbers of the lower animals for the purpose of producing experimentally what is known as sympathetic ophthalmia and he has never seen in the second eye anything which was in the slightest degree suggestive of a sympathetic inflammation. He has frequently been asked by other workers in the laboratory to examine eyes of animals which had been used for other kinds of experiments; these animals showed eye symptoms, but in no case was the trouble anything more than either a conjunctivitis or keratitis, both of which diseases are, as we know, quite common among dogs and rabbits, especially when several are confined in close quarters. He has gradually reached the conclusion that the lower animals, certainly horses, dogs, rabbits and cats, do not have sympathetic ophthalmia, and he believes that all attempts to produce sympathetic ophthalmia experimentally will result in failure.

DR. CLARENCE A. VEASEY, Philadelphia, said that he trusted that the members present did not understand that his prognosis as to the ultimate result in the sympathetic eye of the second case was favorable. It was decidedly unfavorable. On the other hand, he is quite sure that a number of his Philadelphia confrères can recall the case exhibited before the College of Physicians by Dr. Zimmerman some years ago in which a large piece of brass had remained behind the lens fifteen years without producing any inflammatory symptoms. This also agrees with the statements of Leber on this subject. The point he wanted especially to make was that the disease in the second case was true sympathetic ophthalmia and that the condition was relieved by the use of large doses of salicylate of sodium. It has been the custom of Philadelphia oculists to employ the salicylates for many years in diseases of the uveal tracts other than those due to sympathetic trouble. Dr. Veasey got the idea from his friend and former teacher, Dr. de Schweinitz, and thinks that he received it from his former teacher, Dr. Wm. F. Norris, so that it dates back many years. The method is to give 80 gr. during the first twenty-four hours, 60 gr, during the second, and 40 gr. during the third twenty-four hours in most of the diseases of the uveal tract. In sympathetic ophthalmia, however, it is given in much larger doses, according to the body weight. Dr. Jackson says both cases recovered after removal of the exciting eye, but it should be noted

that the patients did not recover until after the use of the large doses of salicylates.

DR. JOHN E. WEEKS said that he should not think of saving the eye unless the chances or possibilities were that the vision in the exciting eye might finally be the better of the two. When an eye is attacked with sympathetic ophthalmia, one can not predict that the eye will recover with useful vision. In the cases that he reported, the resulting vision in the sympathizing eye is good to-day. In the cases of cataract following sympathetic ophthalmia, the exciting eye was not removed because he did not think it was in any way a factor at that time. It has not been his experience that removal of the exciting eye always stops the sympathetic process; in some cases it has no effect whatever. In regard to the third case, where cataract was removed, he remarked on a peculiar condition that was present as evidence of degeneration, namely, ribbon-shaped keratitis. The commencement of ribbon-shaped keratitis is an evidence of degeneration of the affected eye. This process ceased in the eye in which the operation was done. A year has elapsed. There has been an improvement in the condition of that eye and apparently a recession of the keratitis.

DR. SAMUEL THEOBALD, Baltimore, stated that he discussed the value of the cytotoxin theory with Dr. Welch of the Johns Hopkins Hospital, and he thought that the knowledge regarding cytotoxins was not definite enough to warrant the establishment of such a theory. In Dr. Veasey's case, where both eyes were badly injured, and he regarded the trouble as sympathetic, it seems to Dr. Theobald not improbable that the supposedly sympathetic inflammation was really due to the injury. The fact that sodium salicylate acted favorably would have no bearing on the question of etiology. As to the disturbing effect of sodium salicylate on the stomach, some of the members, perhaps, have not had occasion to note how very favorably the essence of pepsin acts in this regard when given in connection with the sodium salicylate. For some years he has given from 1 to 2 drams of essence of pepsin with each dose of the sodium salt, and with the happiest effect.

FIFTY CONSECUTIVE CASES OF PNEUMONIA WITHOUT A DEATH.

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In reporting the results of my method of treating pneumonia I wish to thank my many colleagues for the interest they have manifested in criticizing my article that appeared in THE JOURNAL, July 9, 1904, and to Drs. W. P. Haney, T. F. Butzow and T. R. McNab, my assistants. I am especially indebted for their untiring efforts to prove or to disprove the value of quinin and iron as I recommended them in pneumonia.

I believe pneumonia to be a septic, febrile disease, characterized, according to our present knowledge, primarily, by a severe lung inflammation and frequently by great cardiac weakness, which often causes death.

The present knowledge of the etiology (excepting exposure to wet, cold and alcohol) and pathology is somewhat limited, and I question the propriety of basing our management on the principles of theory alone. I am inclined to believe that an invasion of a combination of micro-organisms, or their products, are etiologic factors in pneumonia. However, there remains a doubt in my mind if there are not tissue changes elsewhere in the body that precede the active involvement of the lungs.

The fact that I have been able to detect in several cases tenderness and pain, from a mild to a severe degree, in the region of the gall bladder during the first stage of the disease, has strengthened my theory of primary gall bladder invasion. In those cases that are preceded by liver pain and bilious vomiting, troublesome tympanites invariably follow: What relation, if any, these preliminary symptoms have to pneumonia, and the factors that produce these symptoms, are difficult, or impossible, to explain.

I doubt if any disease has occasioned more discussion concerning its etiology and treatment than pneumonia, and, moreover, he who advocates a departure from a measure that is not based on some etiologic or pathologic finding is more formidable in the eyes of the profession than any medical measures he may present.

While differing from nearly every writer on pneumonia, I do not wish it understood that I look on their efforts as unavailing, as no disease presents more individual suggestions from a symptomatic standpoint, or necessitates more active attention. As my exceptions of the present consideration of pneumonia are based on my own experience, I feel at liberty to frankly express these views.

To those who believe my success is due to a modified form of pneumonia, or a malarial infection, I wish to state that I have never experienced more desperate cases in my life, as the report of the following cases, which are fair examples of the pneumonia we have in this section of the Southwest, will confirm. So far as malarial influence is concerned, I have never seen a case of malarial infection during my residence in this locality.

Dr. J. B. Showalter of Butler, Pa., was a frequent visitor to the bedside of Case 1 during the fifth, sixth and seventh days of the patient's illness.

CASE 1.—L. M., aged 34; single; Mexican; occupation, mine laborer.

History.—He was taken ill on the evening of Oct. 31, 1904, and was admitted to hospital November 1, at 11 a. m. The alleged cause of disability was exposure, due to change of clothing in a cold room after coming from the overheated mine.

Examination.—Axillary temperature 105.2; pulse, 110; respiration, 36, and somewhat labored; severe pain in left chest extending to left shoulder posteriorly; also pain and tenderness in the region of the gall bladder, with nausea, and vomiting of about six ounces of bilious matter.

Diagnosis.—Pneumonia involving the upper lobe of the left lung. Unusual depression was noticed in this case, which was greatly aggravated by almost constant coughing, and during the frequent paroxysms cyanosis was very much in evidence.

Treatment.—Forty-five grains of quinin were administered at 12 m. and 30 grains more were given at 1 p. m. At 5 p. m. his temperature was 104; pulse, 100; respiration, 32, at which time 20 grains more of quinin were given. Temperature, 7 p. m., 103.8; pulse, 98, full and strong; respiration, 30; 15 minims of the tincture of chlorid of iron was ordered every three hours.

November 2: 7 a. m., temperature, 103.8; pulse, 100; respiration, 30; iron continued. 12 m., temperature, 104; pulse, 100; respiration, 30; pain in left side somewhat relieved; 40 grains of quinin administered. 4 p. m., temperature, 102; pulse, 100; respiration, 36; patient very restless; sputum remaining clear; stomach rebellious and patient vomited about four ounces of bilious matter and milk about 7 p. m. Iron continued.

November 3: 7 a. m., temperature, 103; pulse, 98; sputum slightly streaked with blood. 4 p. m., temperature, 103.6; pulse, 100; respiration, 34.

November 4: 8 a. m., temperature, 103; pulse, 90; respiration, 32; profuse prune juice expectoration. 12 m., temperature, 104; pulse, 100; respiration, 30; entire lung and

right lower lobe involved; 45 grains of quinin administered. 8 p. m., temperature, 103; pulse, 100; respiration, 34; iron continued.

November 5: 7 a. m., temperature, 103; pulse, 104; respiration, 40; slightly delirious. 12 m., temperature, 104.6; pulse, 108; respiration, 40; complaining of pain in the region of right lower lobe. 5 p. m., temperature, 103; pulse, 100; respiration, 38, and of good character; complains of but little pain. Twenty-five grains of quinin were administered, which he immediately vomited. Twenty-five more were given 30 minutes later and were retained. Iron increased to 20 minims every 2 hours. 10 p. m., temperature, 101; pulse, 96; respiration, 30; demanding more nourishment.

November 6: 7 a. m., temperature, 100.4; pulse, 90; respiration, 24; 15 minims of iron ordered every 4 hours. 8 p. m., temperature, 101; pulse, 92; respiration, 32; slightly nervous; 30 grains of bromid and 10 of chloral ordered.

November 7: 8 a. m., temperature, 99; pulse, 88; respiration, 22; complains of being hungry and insists on being bolstered up in bed to eat his mush, poached eggs and milk toast. Evening temperature, pulse and respiration practically normal.

November 10: Advice from the patient states that he is practically well.

CASE 2.—J. M.; Mexican; aged 38; laborer; occupation, miner.

History.—He was taken ill July 5, and admitted to hospital July 9, after occupying a tent for four days where the rain almost constantly beat on him, and with practically no attention. His condition when admitted to the hospital was as follows:

Examination.—July 9: Axillary temperature, 106.4; pulse, 140, very weak and soft; respiration, 60; very cyanotic and semi-unconscious, and with a most distressing expiratory grunt. Extremities were cold and clammy, and it certainly looked as if he would die in a very few hours.

Treatment.—With difficulty he was aroused and 75 grains of quinin were administered. In one hour later 40 grains more were administered. At 5 p. m., two hours after the first dose of quinin was given, his temperature was 105.2; pulse, 122; respiration, 48; at which time he began to show a rational condition. Twenty minims of tincture of iron were ordered every hour for three doses. At 8 p. m. 40 grains more of quinin were given, with the result that at 8 a. m. the next morning, July 10, his temperature was 102.2; pulse, 110; respiration, 24; practically free from pain; very little expectoration, which was slightly prune juice in color. The patient was discharged from the hospital July 17, practically well.

CASE 3.—The following case was treated by one of my assistants, Dr. W. P. Haney.

History.—Mrs. M., aged 24; Mexican; weight, over 200 pounds; mother of two children; was taken ill Oct. 1, 1904. Slight chill about 10 a. m., followed with frontal headache; pain in the eyeballs and in the muscles and bones of the thighs and lumbar region; temperature, 104.6.

Diagnosis.—La grippe. A calomel purge, followed by Dover's poowder and salicylate of soda, was ordered.

October 2: 10 a. m., temperature, 103; pulse, 140; respiration, 26; salicylate of soda and salol ordered. During the day of October 2 she complained of but little pain in her bones and muscles, and at 8 p. m. she was fairly comfortable.

October 3: 11 a. m., the patient was seized with a chill, followed by severe pain in the region of the right lung, lower lobe, with extreme tenderness in the region of the gall bladder. Dyspnea was marked; temperature, 105.8; pulse, 120. All the physical signs of pneumonia were present, including profuse bloody expectoration. A diagnosis was made of pneumonia, right side, complicating grippe.

Treatment.—Fifty grains of quinin were administered at once, followed in one hour by 30 grains more; 15 minims tincture of iron were ordered at 10 p. m., to be repeated every two hours.

October 4: 8 a. m., temperature, 103; pulse, 102; respiration, 26; 35 grains of quinin were administered at 9 a. m., followed in one hour by 20 grains more; iron continued. At 9 p. m. the third complication was discovered by her aborting, at about the sixth or seventh week. Notwithstanding the serious complications, she was discharged October 7, practically well. I doubt if quinin had as much to do with this patient aborting as the high temperature, as my experience has been that women frequently abort from la grippe when the temperature reaches 105 or over.

CASE 4.—J. D., aged 38; Mexican; miner; was taken ill September 30; Dr. Haney first saw him October 2, 4 p. m.

Examination.—Axillary temperature, 105.8; pulse, 128; respiration, 56; profuse prune juice expectoration; pain in both sides of chest, severe in right side.

Diagnosis.—Double pneumonia.

Treatment.—Fifty grains of quinin were given at 4:15 p. m., followed by 30 grains more at 5:15 p. m.; 15 minims of iron were ordered every two hours. The patient was admitted to hospital the following morning, October 3, 10 a. m. Temperature, 102.2; pulse, 102; respiration, 34. Thirty-five grains of quinin were given at 11 a. m.; iron, 15 minims, every three hours.

October 4: Temperature and pulse were practically normal and remained so; he was discharged October 8, well.

A careful review of the above cases will show that in one hour or one hour and fifteen minutes after administering quinin the condition of the patient was improved. While improvement at this early period of the disease is gratifying, it is no comparison to the results achieved by the treatment in preventing the dangerous symptoms of cardiac failure, commonly called crisis. No selection of cases has been made for the purpose of this record, as I hastily took a synopsis of these few cases on the date of my departure for the United States.

Case 2 may be looked on as a lucky one, but it will take a great amount of evidence to convince me that the treatment did not save his life.

I have proved that quinin will not depress the heart in any stage of pneumonia; on the contrary, it is the most reliable stimulant, and produces the effect that we have so often looked for in strychnin and alcohol. Quinin, as I administer it, will not only reduce the frequency of the heart, but will increase its volume and the peripheral circulation as well. Again, to prove its indications, I have but to state that not in a single instance, where large doses have been administered during the active stages of the disease, has cinchonism been observed; in fact, not an unfavorable symptom has been recorded. That iron is a principal factor in maintaining the strength of the heart, as well as in acting as an antiseptic, there can hardly be a doubt.

I maintain that our principal efforts should be directed to applying measures that will fortify the heart and destroy the products of organisms that produce sepsis.

In quite a number of recent cases I have noticed that the rusty sputum has been delayed until the third or fourth day of the disease, and continues only one or two days, probably due to a mixed infection or the treatment.

Just what the blood count will show after the administration of large doses of quinin and iron in pneumonia is speculative on my part, but I venture to say a favorable report will be made.

The fact that many of the older practitioners claim to have given quinin in big doses, not alone in pneumonia but in nearly every inflammatory disease, does not interfere with my unique method of treatment,

that is based on clinical observation and specific conditions for its administration.

To enumerate the diseases that have been treated by large doses of quinin would be as difficult a task as it would be to recite the authorities on its use since its discovery by Dr. Duncan of Edinburgh in 1803.

The record of Case 2 shows that 115 grains of quinin were given the patient within one hour after his arrival at the hospital. This may impress many as an aggressive measure, but, regardless of any impression of this character, I believe the future will record many larger doses. Experience will, no doubt, demonstrate that the timid practitioner will reserve the application of this method as a substitute for strychnin and alcohol, which are so frequently administered during the excitement prior to dissolution.

I strongly maintain that the use of stimulants, alcohol and strychnin, prior to the stage of resolution, is a dangerous practice, as it increases the mechanical conditions that are distressing the patient instead of strengthening the disabled heart.

I find that bromid of lithium in combination with chloral controls the nervousness and delirium which is probably produced by toxemia, much better than does morphin, as the latter given in sufficient quantity to alleviate these conditions not only embarrasses respiration, but interferes with the secretions.

It would not be surprising if the near future revealed some interesting knowledge concerning the incubation period.

The absence of complications, with one exception, in the last 50 cases, has possibly been influenced by the treatment. I do not feel justified, however, in making any positive claims of this character on so limited a number of cases.

I have discarded all external applications, and dress my patients with as light-weight clothing as possible. Expectorants, excepting as a vehicle, are seldom used. A liquid diet, with plenty of plain alkaline drinking water, is advisable. The syrup of glycyrrhiza and yerba santa is an excellent agent in which to suspend quinin, and also acts as a pleasant cathartic. Carbonated waters and solid food should be avoided prior to beginning resolution, as any distension of the stomach will not only interfere with respiration, but will embarrass the heart action.

We have been taught that it is impossible to modify or to shorten the duration of this disease; but must we go on indefinitely and accept such an ultimatum, or should we, on our own responsibility, lend efforts that will secure more practical results?

To associate therapeutics with the expectant plan of treatment is objectionable on account of the lack of any specific agent; watching and waiting and expecting Nature to cure so formidable a disease as pneumonia does not impress me as rational or modern medicine.

In the 50 cases responsible for this article, the ages ranged from 7 to 56 years. In nearly 80 per cent. the right lung was attacked, principally the lower lobe.

The most prominent feature that recommends my treatment of pneumonia is the practical absence of cardiac depression and the early resolution that invariably follows. Broken or small doses of quinin and iron will not produce satisfactory results.

The 50 consecutive cases of pneumonia that I have now treated without a death were diagnosed in every instance by thorough examination.

The administration of quinin during the stage of resolution must be carefully watched, as small doses of from 5 to 10 grains will frequently produce cinchonism.

THE MOST ANCIENT MEDICAL PRACTICE LAWS.

THE CODE OF HAMMURABI, 2200 B. C.

BAYARD HOLMES, M.D.
CHICAGO.

It has long been known that there was a celebrated lawgiver in the valley of the Euphrates called Hammurabi or Amraphel.[1] He was king of Babylon, and his rule extended over the whole of Mesopotamia from the mouths of the Tigris and Euphrates to the Mediterranean coast. There are frequent references to the code of Hammurabi in the Chaldean and Assyrian writers, and a few of his laws have been more or less perfectly known for half a century. He is supposed to have lived between 2885 and 2242 B. C., or about the time of Abraham.

Every physician will have a certain interest in knowing that nine of the 282 laws of Hammurabi refer to surgeons. These laws were discovered written on a monument of stone, eight feet high. It was found at Susa, Persia, in January, 1902, and in October of the same year a superb reproduction and translation of this oldest code of laws was published by the French government. The medical reader will be interested in the translation made by C. H. W. Johns and published in Edinburgh in 1903, or if he be more of an archeologist he will be delighted with the magnificent transliteration and translation by Robert F. Harper and published by the University of Chicago. It is worth while here to reproduce the nine paragraphs referring to medicine.:

215. If a doctor has treated a rich man for a severe wound and used a bronze lancet, and has cured the man, or if he has opened the eye of a rich man with the bronze lancet and has cured the eye of the rich man, he shall receive ten shekels of silver.

216. If the patient be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a rich man for a severe wound with a lancet of bronze and has caused the rich man to die, or if he has opened an abscess of the eye of a rich man with a bronze lancet and has caused the loss of the rich man's eye, one of his hands shall be cut off.

219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet and has caused his death, he shall render slave for slave.

220. If he has opened the abscess of a slave with a bronze lancet and has made him lose his eye, he shall pay half the slave's price in money.

221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If the patient is a poor man, he shall give three shekels of silver.

223. If he is the servant of a gentleman, the master of the slave shall give two shekels of silver to the doctor.

It appears from these laws that the physician and surgeon occupied a distinct social position in the ancient Assyrian society, and that even in those remote periods the surgeon was considered worthy of compensation. He received from the rich man a larger fee than from the poor man. He evidently made a good living, because he is supposed to have a slave to render for a slave and the money to pay for half the value of a slave in case a slave should lose his eye at the surgeon's hand. We may believe that in those remote days the abdomen was occasionally opened, because the fee for treating the sick bowel of the gentleman is distinctly mentioned, but no penalty is given outside of the general one in paragraph 218 for a failure to cure.

In the succeeding paragraphs of this code the veterinary is

1. Genesis, xiv, 1.

mentioned, and he receives compensation in a much smaller degree for his services, and he is obliged also to suffer when he fails to cure.

In the preceding paragraph of the code, 209, an interesting law is promulgated: "If a man has struck the daughter of a gentleman and has caused her to miscarry, he shall pay ten shekels of silver for the miscarriage." It will be noticed that this is the price of a capital operation on a rich man.

Taking the code all in all, one is compelled to look on the civilization of the Euphrates 4,000 years ago as marvelously similar to our own except possibly for its lack of bookish culture. The view of life which is given in the code is imperfect, but many outlines of that civilization are sketched in a master hand. They had means of transportation, common carriers and public servants, who were under more obligation and stricter rules and regulations than private individuals. They had storehouses, commission merchants, money lenders and borrowers of money and renters of real estate, and in many respects their laws in relation to these economic factors were more humane, equitable and reasonable than our own.

At this particular juncture one might ask if the commission business existed among physicians and surgeons in the valley of the Euphrates. But on this point the code is silent. If the man with the bronze lancet had runners out, either in the guise of female booksellers and male peddlers of patent preventatives, or commission men practicing among the Elamites or in the suburbs of Babylon, no cases of the kind ever came to adjudication and monumental inscription in the market place of Susa.

A number of laws are devoted to the relations of man and wife, to fidelity and infidelity between them, and to other sexual and household economic affairs. They form a very considerable part of the code, paragraphs 129-184 inclusive. Noticing an abstract in THE JOURNAL, November 12, page 1485, in which Baudouin is said to be awaiting with interest the article yet to be written on the husband of the medical woman, I wish to recall the fact that a matter of this sort was recognized by the code of Hammurabi, and that several paragraphs were necessary to regulate the conflicting relations of such a husband and wife. In paragraph 144 is the first mention of the relations of such a husband to such a wife, namely: "If a man has espoused a votary and that votary has given a maid to her husband, and she has brought up children, and that man has set his face to take another wife, one shall not countenance that man; he shall not take another wife." Paragraph 145: "If a man has espoused a votary and she has not granted him children, and he has set his face to take another wife, that man shall take another wife; he shall cause her to enter into his house. That other wife he shall not put on an equality with his wife." In two succeeding paragraphs it denies the woman the privilege of selling such a maid who has borne children to her husband, but allows her to sell one who has not borne children.

If it were possible, if by any means it could be brought about, the attention of the conferences, dioceses and houses of bishops ought to be called to these paragraphs of the code, 129-184, and carefully considered in their bearing on the prevention of marriage of either party after divorce or the prevention of divorce itself.

Physicians as Statesmen.—The medical profession is fairly well represented in the Canadian Senate as well as in the Canadian House of Commons. According to the *British Medical Journal*, there are nine physicians in the former and fifteen in the latter body. France is still the country where medical men are most prominent in politics; in the Senate there are thirty-nine, and in the Chamber of Deputies fifty-one. Many of them, however, like M. Combes, M. Clemenceau, and M. de Lanessan, are politicians first and physicians only to the extent of holding a diploma. The *Lancet* states that in the Italian parliament, which was recently elected and is now in session, there are twenty-two medical deputies, representing wards in eighteen provinces of Italy. The list includes several well-known names, such as Baccelli and Santini for Rome, Celli for Cagli, Sanarelli for Bibbieno, and Rummo for Benevento.

Special Article.

IMMUNITY.

CHAPTER I.

PARASITISM, INFECTIOUSNESS, CONTAGIOUSNESS.

Parasitism.

Parasitism is the condition in which a plant, or an animal being, lives on or within another living organism. A true parasite always derives its sustenance from the tissues of its host.

Some parasites may live on a host without causing appreciable damage, that is, they are non-pathogenic parasites. In this case they may derive their nutrition from some of the excreted non-living products of the host, living as pure saprophytes,[1] or the amount of nutritious substance which they obtain from the host may be so little that the health of the latter is not impaired.

There is another large class of organisms, however, which under the proper conditions cause severe diseases in the host. For example, there are many pathogenic microbes which live in and on the skin without doing harm, but if certain ones reach the deeper tissues, they may institute pathologic processes. Any organism which is able to cause pathologic tissue changes or to set up abnormal symptoms is classed as a pathogenic parasite. The abnormal processes which they set up are our infectious diseases.

Infectious Disease.

An infectious disease is one which is caused by living organisms which have in some way been introduced into the tissues of the body. Accordingly the word has reference to the nature of the cause of the disease. It is from the Latin *inficire*, meaning to place in or into.

Infestation and Infection.

Where living organisms exist on a body surface, as the skin or intestinal tract, the surface is said to be infested; the skin, for example, is infested with pediculi. One may also say that the intestinal tract is infested with tape worms, but here the distinction between infestation and infection is not to be drawn so sharply; surely when the larvæ penetrate the intestinal wall and reach the circulation or distant organs we must speak of infection. But even the adult tenia as it exists in the intestines may cause erosions of the mucous membrane or may perhaps burrow a slight distance into the wall, a condition which approximates the action of the larvæ in passing through the wall; accordingly at some point the distinction between infestation and infection would have to be an arbitrary one. It is more convenient to confine one's self to the word infection.

Contagiousness and Infectiousness.

Confusion sometimes arises in using the words infectious and contagious. A contagious disease is one which may be transmitted to another by direct or by indirect contact with the one who is suffering from the infection; the word has reference to the manner of transmission of an infection. Non-infectious diseases are never contagious. Contagiousness is well illustrated in those diseases in which the transmission takes place through the air, as seems to be the case in smallpox and scarlet fever. Here there may be a contagious zone of atmosphere surrounding the patient, in which the virus is present, and by which the agent reaches the lungs of one within the zone. Contagiousness is even more striking when it takes place through the medium of some inanimate substance, such as clothing or toys, which were previously within the contagious zone or in direct contact with the patient. Such substances, fomites, were formerly thought to be of great importance in the spreading of yellow fever; a theory which has been entirely exploded by the [illegible] ease is spread by the bites of infected mos

1. A saphrophyte is defined as a vegetable organism which lives on dead organic matter. An organism which is habitually saphrophytic may be under the proper conditions a pathogenic organism (bacillus of malignant edema). And, on the other hand, a pathogenic parasite lives a saprophytic life, when it grows in our artificial culture media.

Typhoid fever is not highly contagious. There probably is no infected zone of atmosphere about the patient in the sense that there is about a scarlet fever patient. Yet it frequently happens that the nurse contracts the disease while caring for her patient. It is likely that she has in some way transferred the bacteria from the patient's sputum, urine, feces or skin to her lips or hands so that eventually they found their way to the intestines. At the same time it is not improbable that the point of entrance for the germs, i. e., the infection atrium, may at times be the lungs, the bacteria having been inhaled. However, typhoid fever is usually a "water borne" disease, seldom "air borne."

Contact Infection.

Infection Atrium.

We are to look on malaria as a strictly non-contagious disease, although no doubt is possible as to its infectiousness. No amount of personal contact with the patient will transmit it to another. To accomplish transmission the parasite must be actually injected into an individual, an event which happens exclusively, it is believed, through the bite of a mosquito which had previously fed on the blood of a malarial patient. In all probability the same is true of yellow fever.

Tetanus is another noted example of an infectious disease which is not acquired by contact with one suffering from it.

The special methods of transmission which are utilized by the different infectious agents will be taken up later in considering immunity to the individual diseases.

The various parasites have different ways of injuring the body. The itch mite burrows into and beneath the epidermis, causing mechanical irritation as well as the inflammatory reaction produced by its toxic excretions. The loss of blood caused by some intestinal parasites, and the hemorrhage which follows from the wounds, often leads to grave anemias and the general changes which are caused by such anemias. This is especially the case in the duodenal infection with *Ankylostoma duodenale* (ankylostomiasis).

Pathogenesis.

A certain variety of *Filaria sanguinis hominis* produces disorders by mechanically blocking the lymph channels.

The plasmodium of malaria, aside from the febrile disturbances seen in malaria, causes anemia by the destruction of blood cells.

It is generally said that the bacteria produce disturbances in both a mechanical and a toxic way. However, the more we learn about bacterial infections the more important do the toxic phenomena become. It is doubtful if any pathogenic bacterium is entirely devoid of toxic powers.

Mechanical and Toxic Injuries.

In lobar pneumonia we have a good example of a mechanical disturbance of importance. The alveoli become filled with a fibrinous and purulent exudate which makes a large area of pulmonary tissue unavailable for respiration. Yet, even here, the mechanical disturbance has arisen only as a result of the previous toxic action of the pneumococci on the capillary walls and the alveolar epithelium, permitting the escape of the blood and serum; and the accumulation of the leucocytes is no doubt due, in part, to the toxin of the coccus rather than to the bacterial cells alone.

It is probable that the emboli of bacteria which are sometimes found in the capillaries and small arteries cause disturbances through the shutting off of so much circulation, but still greater damage surely results from the toxins which are formed by the microbes making up the emboli.

The toxins of bacteria often show a remarkable selective action on one organ or another. Some bacteria through their toxins destroy the red blood cells to a great degree (staphylococcus and streptococcus); other toxins have a special affinity for the nervous tissue (tetanus); some attack particularly the endothelium of the vessels, causing many minute hemorrhages; in diphtheria and typhoid numerous areas of necrosis are found in the lymphatic structures. It is a somewhat common property of bacterial toxins to cause areas of necrosis in the parenchymatous organs, such as the liver and kidney. The consequences of such necroses depend naturally on their extent. It is said that in anthrax infections all the glycogen may disappear from the liver, and we would expect the functions of various organs to be affected through similar toxic actions. The albumin and casts which appear in the urine in many acute febrile diseases are, of course, the result of toxic action on the epithelium and endothelium of the kidneys.

Effects of Toxins.

A conspicuous effect of the micro-organisms which cause some chronic diseases is the development of new connective tissue and vessels; this is seen especially in tuberculosis, syphilis and actinomycosis. The import of the new connective tissue depends on its location. A large amount of it may form in the pre-existing connective tissues with no consequent harm, but if even a small amount of such tissue has been formed in a suitable place in the brain, as may happen in syphilis, the results may be grave.

It has been stated above that infectious diseases are caused by living pathogenic organisms. Investigations have shown, however, that the toxic products of some organisms can be obtained and separated from the organisms themselves by filtration, and that the microbe-free toxins when injected into animals will cause the same symptoms as the bacteria themselves (tetanus and diphtheria). Accordingly, for the sake of convenience, these toxins may also be considered among the infectious agents when they are separated from the bacteria. The various infectious agents, including these toxins, find their proper places in the following classification, which for the most part is that of von Behring:

Infectious Substances.

I. Living (i. e., pathogenic parasites).
   A. Macroparasites (e. g., intestinal worms, pediculi).
   B. Microparasites.
      1. Bacteria (fission fungi, i. e., each cell divides into two in proliferating).
      2. Fungi of more complex organization (e. g., aspergillum, oidia).
      3. Protozoa (e. g., *plasmodium malariæ, ameba coli*).

II. Non-living (i. e., toxins).
   A. Animal toxins (e. g., snake venom).
   B. Vegetable toxins.
      1. Non-bacterial (e. g., abrin, from the jequirity bean; ricin, from the castor oil bean; these are strong red corpuscle poisons, but are only of experimental interest).
      2. Bacterial.
         a. Soluble bacterial toxins (diphtheria and tetanus).
         b. Intracellular bacterial toxins, which are not separable from the cells in a soluble form.

(*To be continued.*)

Ozena.—Dionisio reports a number of cases treated by phototherapy and by radiotherapy with good results—amelioration or cure. In the *Rev. Hebd. de Laryngologie* he suggests the conclusion that light has a slow but constant curative effect on the ozenic process. Its immediate action is excitation of the mucosa, causing, when the light is intense, sneezing and hypersecretion. He has, however, never seen any serious inconveniences from this treatment except transient headache and vertigo. The effect of the light is evident not only in the parts most directly exposed but also elsewhere, and in most cases the sense of smell is either improved or fully restored. He attributes the effect to the antiseptic action, but still more to the improvement of nutrition by the action of the light. Similar good effects have been obtained by him in suppurative otitis and in certain forms of dry pharyngitis and catarrhs of the nose and posterior fossæ. There are certain difficulties in the treatment requiring special apparatus, which may embarrass the general practitioner and require or make more convenient the recourse to specialists or especial institutions for the light treatment.

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AUTOGENOUS REGENERATION OF NERVES.

The experiments of Bethe of Strassburg are attracting, and rightly, the attention of neurologists to an unusual degree. It would appear that Bethe has definitely established the fact that, on section of a peripheral nerve trunk, the distal portion can regenerate, in young animals at least, without any connection with the central stump. He has made a large series of experiments on the sciatic and other nerves. He excises long pieces and transplants the central stump so as to render any subsequent union with the distal trunk impossible. He has demonstrated that the myelin sheath and neurofibrils as well as the axon regenerate; he has shown that when regenerated the nerves are capable of conducting impulses; and more, that if the regenerated fiber be cut again the peripheral portion degenerates to the periphery, while its central portion, unconnected with either center or periphery, remains for a long time undegenerated. Conscientious autopsies have proved that the suggestions of Münzer and of Langley and Anderson that the regeneration can be accounted for by ingrowth of medullated fibers from branches of neighboring nerves to muscles, are without observational foundation. The regeneration occurs through the activity of the neurilemma cells in the course of the degenerating nerve. Regeneration is not due to the end organ, for Bethe has cut the sciatic high up and also in the popliteal space, has brought the two ends of this isolated piece together, has sutured them into a ring, and regeneration still occurred. Complete autogenous regeneration appears to be possible only in young animals. In adult animals the regeneration is incomplete if it occurs at all, owing, in all probability, to the lack of sufficient energy on the part of the tissues to carry on the process.

These recent experiments throw new light on the trophic function of the neuron. It was formerly supposed that regeneration occurs always by outgrowth of the axons in the central stump, and that it depends on trophic influences passed along the axons from the ganglion cells. Now we know that the peripheral fiber can regenerate when it is absolutely deprived of all influences reaching it from the central ganglion cell. Bethe admits that after autogenous regeneration occurs, connection with the center is necessary for the permanent welfare of the nerve, for otherwise it again undergoes slow atrophy and degeneration. The fact is established, however, beyond dispute, we think, that in young animals the dependence of the nutrition of a peripheral nerve fiber on the cell body of the neuron of which it forms a part is far less important than we have been accustomed to believe.

It should be noted that Bethe's work is in reality the continuation of some work done by Howell and Huber in 1892. These observers demonstrated autogenous regeneration of what they called "embryonal fibers," but they did not follow the process far enough to observe the complete regeneration of the fiber, as Bethe. by using young animals, has been able to do.

A review of the literature reveals the remarkable fact that the whole process of autogenous regeneration was accurately observed and described as long ago as 1859 by two French observers, Philipeaux and Vulpian. These investigators excised large pieces of the sciatic, median, hypoglossal and lingual nerves in young dogs, guinea-pigs and chickens, performing the experiments in a way that rendered union of the central and peripheral stumps difficult or impossible. They exposed the nerves after some months, and found that they did not have that shrunken appearance which is characteristic of degenerated nerve trunks; instead, they looked white and plump and felt firm. On mechanical and electrical stimulation of these peripheral nerve trunks, they were able in the case of motor nerves to cause contraction of the corresponding muscles, while the animal itself reacted in no other way to the stimulation. They examined the regenerated nerve trunks under the microscope and found large numbers of typical nerve fibers with myelin sheaths and axis cylinder processes. They further showed that if the regenerated nerve were cut a second time in its course, the peripheral portion underwent a second degeneration, while the central, now isolated, end remained intact. They felt sure that the nerves had really regenerated and had not simply remained undegenerated, for examination of control animals a few days after section demonstrated complete degeneration and entire loss of excitability. Philipeaux and Vulpian, therefore, concluded that autogenous uerve regeneration following complete degeneration is possible in young animals, and they put forward the view that, even in adult animals, no outgrowth of new fibers from the central stump occurs.

The findings of Philipeaux and Vulpian were not confirmed by other observers. Schiff seems to have repeated the experiments on animals 5 months old with negative results, and other writers denied the possibility of the results apparently without actually trying experiments for themselves. Vulpian himself took up the subject again in 1874. He repeated the experiments with results similar to those formerly [illegible] curiously enough, interpreted his findings differently. He concluded that the regenerated fibers found must have come in through anastomoses with neighboring nerves—anastomoses too small to be visible to the

naked eye. His interpretation was in accord with the views of Wallerian degeneration and regeneration which had come to prevail. Subsequently the new histologic methods were introduced which permitted of a better staining of the axis cylinder processes. Stroebe, von Notthaft and others thought that they brought irrefragable proof that in the repair of nerves the regenerated axons always grow out from the central stump into the degenerated nerve. The scientific world accepted their conclusions, especially as at about this time the neuron doctrine was developed, the supporters of which at first laid great emphasis on the cell as an absolutely independent histologic and physiologic unit.

We have pointed out in these columns at various times the gradual modifications which the neuron doctrine has undergone. Our readers will recall that many histologists now believe that the neurons, though still legitimately to be regarded as the most important architectural and physiologic units in the nervous system, are not as absolutely separated from one another structurally, nor as totally independent of one another physiologically, as it was thought that they were when Waldeyer formulated the doctrine in 1891. Indeed, many believe that the "contact doctrine" must be given up and that a more intimate interneuronal connection must be granted. Nissl and a few others, wrongly confusing the "contact doctrine" with the neuron doctrine as a whole, have advocated that the latter be abandoned. The majority of the anatomists, physiologists and clinicians working on the nervous system, however, hold as firmly as ever to the neuron doctrine in general, though they modify it in detail.

An important service has been done by Bethe in repeating and extending the experiments mentioned and thus rescuing from oblivion the valuable discoveries of Philipeaux and Vulpian.

THE PORTLAND SESSION AS AN ATTRACTIVE VACATION.

The American Medical Association will hold its next annual session at Portland, Oregon, July 11-14. This place of meeting—far to the West—will require a journey of unusual length for those living east of the Mississippi, and especially for those in the New England and Atlantic Coast states. Many who are in the habit of attending the Association sessions will naturally hesitate before deciding to take such a long journey simply to attend the session—valuable as that privilege is—but the occasion offers an unusual opportunity for a splendid vacation, and this was one of the reasons why the date was made a month later than usual.

Our object at this time is to emphasize this fact: The trip to Portland and return may be made a memorable one if those who propose to take it will study out the possibilities beforehand. The vast territory west of the Missouri River is an unknown country to the majority of the members of the Association, but it is a country so full of grand scenery, natural wonders and boundless, undeveloped, natural wealth that to see it alone is worth all the trip will cost. The railroads of the West are much more liberal than are those of the East in allowing passengers to break the journey at attractive points, and each road is already making preparations to accommodate and to please those who patronize it. Of course, no one will go and return the same way, and as there are fifteen or twenty different routes, and as each has some special attraction to offer, it will not be an easy matter to decide which two promise the most. The possibility of visiting Alaska, northwest territories, Hawaiian Islands, California, Mexico, etc., on this trip is also worth considering. We expect shortly[1] to give a brief description of the various routes, but we advise those interested to write to the various railroads for circulars and for any information they may desire. The rates, as we have before intimated, will be $45 from Missouri River points, to which must be added the fare from points east of the Missouri River, which will probably be one fare for the round trip.

One of the great attractions, if not the greatest, will be the Yellowstone Park. If a sufficient number can be secured, THE JOURNAL proposes to arrange for a special train to start from Chicago June 30; this will stop six days at the park, arriving in Portland Monday morning. We can promise those who patronize it a most enjoyable outward journey. Arrangements will have to be made with the park management some months ahead, and hence it is necessary to know very soon if a sufficient number can be depended on to warrant arranging for the dates. Will those who desire to visit the Yellowstone Park on the way to Portland write us?

CONGENITAL ICTERUS WITH SPLENOMEGALY.

The large amount of study which has been devoted to the spleen in the last few years has led to a reclassification of splenic diseases. The association of certain forms of splenomegaly with hyperglobulia, and of other forms with anemia has been well emphasized in recent literature. Some writers have classed with splenic anemia certain cases of icterus associated with enlargement of the spleen, which recent study teaches belong in a class by themselves. According to von Krannhals,[2] who has quite recently collected all of the published cases, the association of congenital icterus with chronic spleen tumor was first noted by Minkowski in 1900. One writer has remarked "the new things in medicine are the things which have been forgotten," and von Krannhals has overlooked the fact that sim-

1. Information regarding the Portland session, railroad rates, etc., appears frequently under "Association News." In this issue hotel arrangements are described. Under Queries and Minor Notes also is some information in reply to a correspondent.

2. Deutsches Archiv für klinische Medizin, vol lxxxi, Nos. 5 and 6.

ilar cases were reported by Claude Wilson[2] as early as 1890.

The disease seems to be one which must be added to the few perfectly definite family diseases, though it does not seem to follow such definite lines of transmission, as does hemophilia, for example. There is some evidence to show that it is usually transmitted from mother to son, and from father to daughter. The main lesions are icterus, congenital in character, and associated with more or less enlargement of the spleen. The icterus usually varies in intensity from time to time, and in some cases is markedly influenced by the emotions, especially anger, or by exposure to cold. In some cases overindulgence in food or in alcoholic drinks served to intensify the icterus. In some instances the patients complained of no interference with their health, in others more or less serious disturbances, usually in the form of gastroenteric derangements, occurred from time to time. In some of Wilson's cases these attacks were accompanied by fever, and in all in which they occurred the jaundice was generally intensified. Skin affections, such as usually accompany obstructive icterus, are uncommon; a few patients had at times urticaria, xanthelasma or pruritus. Nearly all were dark-haired, sallow individuals who would be classed under the bilious temperament. In some instances nervous disturbances in the form of neurasthenia or hysteria were present. In one or two cases pains in the joints and even rheumatoid arthritis occurred. Aside from the icterus, the only constant physical sign was the enlargement of the spleen, which was in nearly all cases palpable, usually hard and described on palpation as resembling the spleen of chronic malaria. The liver was usually unaffected, though in a few cases it was slightly enlarged and tender, and one or two patients suffered from gallstones as a complication. The urine was at times normal, though in many cases it contained traces of urobilin. The stools did not show lack of coloring matter except in one case of the 26 collected by v. Krannhals. The blood in all carefully observed cases has shown more or less anemia; v. Krannhals noticed also a considerable variation in the size of the red cells and that a great many cells showed polychromasia.

Only one autopsy has been performed in this condition and that was in the case of Minkowski. The important lesions were found in the spleen and kidneys. There was no cirrhosis of the liver and no mechanical blocking of the bile passages. The spleen was enlarged, but showed nothing microscopically except hyperplasia and hyperemia. The cortex of the kidneys showed a peculiar brownish color, which was shown microscopically to be due to the presence in the cells of the convoluted tubules of large quantities of pigment granules giving the iron reaction.

The exact nature of this peculiar disease is not clear. It is evident that it is not due to mechanical blocking of the bile passages, as the stools are always well colored, and even the urine may be completely normal. Certain French writers have advanced the idea that there is a low grade of angiocholitis due to mild infection of the bile passages. The single autopsy does not bear out this view. The fact that the blood always contains bile pigment and the constant involvement of the spleen suggests some disturbance of blood destruction as the cause of the condition. Minkowski suggests that the primary lesion may be in the spleen itself. Until our knowledge of the exact part played by the liver and spleen in blood physiology and pathology is more definite the true nature of the condition will probably remain obscure.

2. Clinical Society's Transactions, vol xxiii.

PROGNOSIS IN TUBERCULOSIS.

So much has been said in recent years of the curability of tuberculosis, if the disease is properly treated in the incipient stage, and of the confidence with which lasting improvement can be looked for, under favorable conditions, even in the more advanced cases, that a very salutary hopefulness has been inspired in both physicians and patients. This is of itself an excellent addition to any method of treatment. Of late, however, there are some signs of a reaction. At times physicians have seen their hopes fail of realization, even though patients have been faithful in following directions and though apparently they have been in the most favorable surroundings for a cure.

This has led many physicians to believe that the merits of the open-air, abundant food treatment are exaggerated, and this, like other methods of treatment, is destined to be a disappointment.

Perhaps the best antidote for this reactionary feeling is a frank consideration of the cases of tuberculosis which have not a favorable prognosis, even though the disease may not be far advanced when the patients come under consideration. It is comparatively easy to glean from recent literature the reasons why, in individual cases, the results from the open-air treatment are not satisfactory. Practically all agree that in patients in whom pulmonary tuberculosis has run a rapid course the outlook is seldom hopeful. If the history extends only over three months, and if there is considerable loss of weight, even though there be no cavity formation, and though not much of the lung be involved, the prognosis is never favorable. Such patients have little power of resistance against the tubercle bacillus and ultimately are almost certain to become its victims. Another class of cases in which the prognosis is always doubtful includes those patients with only mild lesions who present a rapid pulse. The tubercle bacillus seems especially to affect the pulse and, as a rule, does not cause much disturbance of temperature. A high temperature is generally due to secondary infection. Children with cold abscesses almost invari-

ably have rapid pulse, though they generally have very little fever. If a small number of bacilli, therefore, are capable of so affecting the pulse, there is evidently a similar lack of vitality to that which exists in the cases which lose weight rapidly. It is a curious contradiction of what is usually considered to be the case that high temperature in tuberculosis does not necessarily indicate a bad prognosis. If a short walk sends the pulse up 30 points in a tuberculous patient, it may be assumed that the patient lacks resistive vitality. It has been pointed out also that the tendency of an individual to be normally under weight is an unfavorable symptom. A man who has all his life been twenty pounds under normal weight is almost certain to be especially susceptible to infection by the tubercle bacillus. As a rule, insurance companies prefer to take a man whose weight is normal, even though he has a family history of tuberculosis, rather than one who is under normal weight without any history of tuberculosis in his family.

There are other symptoms in individual patients which, while not necessitating an unfavorable prognosis, always make the outlook more grave, even in the apparently favorable cases. Prof. Burney Yeo has pointed out that the most important climatic element for the cure of consumption is a daily variation in temperature of more than twenty degrees, which, he claims, acts on the organism in a way to produce a conservative reaction against further bacterial invasion.

There are some patients who can not stand such variations of temperature, however; they become so intensely uncomfortable under those conditions that their appetite suffers and, of course, a cure can not be expected when an abundance of food is not taken. Such patients, as well as those who have exaggerated catarrhal tendencies, so that variations of temperature cause them to have acute exacerbations of their tuberculosis and troublesome forms of bronchitis, will do best and live longest if sent to a mild, unvarying climate, such as is to be found in certain parts of the South. The most that can be hoped for from such climatic treatment, however, is a prolongation of life, not an enduring, absolute cure. These patients may be made very comfortable by such change of residence, but, as a rule, they will have to stay in their new homes the remainder of their lives, and probably the years left to them will not be many.

TRUTH AND POETRY CONCERNING URIC ACID.

III.

It has been seen how the hypothesis that uric-acid formation is due to an oxidation of albumin, which stops short of urea, gradually came to be discredited. The keen Salkowski, in 1870, had pointed out that if the uric acid in leukemia is due to faulty oxidation, other incomplete oxidation products must also be present. Those most likely to occur would be oxalic acid and allantoin, but careful studies of the urine in leukemia revealed no increase in these compounds. Salkowski, in 1871, therefore rejected Bartels' conception and inclined to view with favor Ranke's hypothesis that uric acid is derived from xanthin bases and the spleen. Against this was the observation that xanthin bases appeared to occur in only very minute quantities in the tissues, and, further, that feeding experiments made with xanthin on dogs (an unsuitable animal, as will be seen) caused no increase in uric-acid excretion.

About this time there developed that remarkable series of researches which led to our modern knowledge of the nucleins and their cleavage products—researches which, as they were destined to exercise an important influence on uric-acid studies, must here be briefly referred to. Miescher, in 1874, working on salmon sperm, had isolated nucleinic acid, and had shown that xanthin bases are formed when it is decomposed. Kossel, 1879, took hold where Miescher was all too early compelled to leave off, and showed that the xanthin bases, namely, xanthin, hypoxanthin, adenin and guanin can be obtained from nuclein; they are not present as free bases in the nuclein, but in organic union in the nucleinic acids. Kossel,[1] in 1881, immediately recalled the old ideas of Scherer and Ranke, and suggested again that the xanthin bases might be forestages of uric acid. The main argument to the contrary, as we pointed out above, had been the sparsity of xanthin bases in the tissues, but Kossel showed that if the organically combined bases be considered, the amounts present, especially in organs like the spleen, liver and kidney, are large. A year later[2] he emphasized in this connection two facts: (1) that the muscles of those animals (birds and reptiles), whose chief metabolic end product is uric acid, are much richer in hypoxanthin than those of mammals; and (2) that in leukemia the nuclein bases in the blood are increased. It is not surprising, therefore, that experimental feeding of the xanthin bases was again resorted to (Baginsky, 1883); but the results left the matter in doubt, and the problem was not to be easily solved.

An important paper by Stadthagen,[3] in 1887, reported experiments on the feeding of xanthin to dogs, with negative results, so far as an increase in uric acid was concerned. Stadthagen was of the opinion for a time that the nucleins of the food are split sometimes with formation of xanthin bases, at other times with formation of uric acid. He thought it possible that when xanthin bases are once formed from nuclein there can be no formation of uric acid. He therefore fed

1. Kossel, A.: Ueber die Verbreitung des Hypoxanthins im Tier- und Pflanzenreiche, Ztschr. f. physiol. Chem., vol. v, 1881, p. 267.

2. Kossel, A.: Zur Chemie des Zellkernes., Ztschr. f. physiol. Chem., vol. vii, 1882, p. 7.

3. Stadthagen: Ueber das Vorkommen der Harnsäure in verschiedenen tierischen Organen, ihr Verhalten bei der Leukämie und die Frage ihrer Entstehung aus den Stickstoffbasen, Arch. f. path. Anat., etc., Berl., vol. cix, 1887, p. 390.

nuclein directly to dogs with the hope of finding the uric acid increased; the results were, however, negative, though Stadthagen suggested that this might be due to the fact that the nucleins of food are "dead" and may behave differently in metabolism from the nuclein of living cells. This investigator finally, apparently reluctantly, returned to the old view that uric acid is derived from albumin. His studies had led him to the belief that an origin from nuclein or xanthin bases can not be proved. It seemed to him positively demonstrated (1) that an increase of uric acid is absolutely dependent on the albumin-intake (irrespective of nuclein or xanthin bases), and (2) that uric acid, so abundant in children, must be derived in them from the casein of milk which contains no xanthin bases.

The fallacy of Stadthagen's reasoning is obvious. In the first place, careful experiments have shown that uric-acid excretion is completely independent of the general nitrogen-metabolism.[4] Haig had asserted, it is true, that uric acid and urea are always formed in the same proportion (1:33); this view was entirely arbitrary in its origin, and Haig tried to explain the facts contradicting it by assuming that, when the proportion varies, the discrepancy is due not to differences in formation of uric acid, but to increase or diminution in the alkalinity of the blood, with correspondingly increased or diminished solubility and elimination of uric acid in the urine. Herringham and Davies, in 1891, showed that the excretion of uric acid varies independently of the blood alkalescence as determined by titration, and a year later Herringham and Growes stated that experiments proved that uric-acid excretion is independent of the ammonia excretion in the urine (which they regarded as a measure of the latent acidity). A review of the various experiments "after the event" shows that the investigators who found a definite dependence of uric-acid excretion on albumin-intake had used almost exclusively meat as food in the experiments; where other albumins were administered such dependence was not found to exist. In the second place, Stadthagen was wrong, as Wiener points out, in assuming that the formation of uric acid on a nuclein-free diet (such as milk fed to young infants) makes its origin from xanthin bases or nuclein impossible, for it has been proved that animal cells are capable of manufacturing nucleins from other nitrogenous substances,[5] and this synthesized nuclein may serve as a source of uric acid.

In 1888 Mares put forward the hypothesis that uric acid is a product of the activity of the cell-protoplasm, "of that chemical process which forms the basis of cell-activity." While urea, according to Mares, arises directly from the decomposed albumins of the food, uric acid, he thought, is formed only indirectly from the albumins of food, through gradual transformation of the organized albumins of the body cells.

The time had now come for a very important discovery. It had remained for Horbaczewski,[6] in 1889, to establish with certainty the direct relation of uric acid to the nucleins. He squeezed spleen pulp, mixed it with defibrinated blood, passed air through it and found that large amounts of uric acid are formed. He believed, therefore, that the forerunner of the uric acid exists in the spleen, and that this forerunner, probably nuclein or one of its cleavage products, yields uric acid on oxidation. Later he isolated nuclein from the spleen and prepared uric acid directly from it; in a similar manner he made uric acid from the nuclein derived from other organs, and these findings, with slight modifications, have been controlled and confirmed by Giacosa (1891), Spitzer (1899), and others. Horbaczewski next resorted to feeding experiments, using rabbits and human beings instead of dogs for the tests, and found an increase in uric acid two hours after the administration of nuclein. All subsequent observers confirm this origin of uric acid from nuclein.

In spite of the fact that Horbaczewski had made a very important discovery, he unfortunately soon strayed into a wrong path. He assumed, without adequate basis, that only the nucleins of leucocytes take part in uric-acid formation, and denied the direct relation of other nucleins to the substance. With this phase of the subject we expect to deal next week.

4. Salkowski, 1889, von Noorden, 1893.
5. Tichimiroff, 1885, Kossel, 1886, Burian and Schnur, 1897.
6. Horbaczewski: Untersuchungen über die Entstehung der Harnsäure im Säugetierorganismus, Monatshefte f. Chemie, vol. x, 1889, p. 624.

SOCIETY MEMBERSHIP AS A QUALIFICATION.

It is announced that a man of means is to build four hospitals along the line of a certain railway extending through four states. The general public is to be admitted to these hospitals, and may be under the care of any physician "who is a member of the state medical society." As the profession becomes better organized, it will be recognized in more and more lines of activity that membership in representative medical societies is a good indication of the standing of a physician.

CORRESPONDENCE SCHOOLS OF MEDICINE.

In addition to correspondence schools of nursing and of pharmacy, there are now schools which teach medicine by mail. It is bad enough to propose to teach nursing by correspondence; when it comes to medicine it seems that the limit has been reached. In view of the state laws, it is difficult to understand how students of medicine can be obtained by these "schools," unless the students are in the dark concerning the state regulations governing the practice of medicine. In the present condition of medical knowledge it is difficult in four years of personal contact with teachers for a student to equip himself fairly for the practice of medicine. And yet these correspondence schools are finding dupes, or it would not pay them to advertise.

A MEDICAL CONGRESS ON SHIPBOARD.

The misfortune which befell a party of physicians en route to the recent Pan-American Medical Congress at Panama, namely, the delay of the ship so that they were too late for the congress, did not prevent them from having a little congress of their own on board. It seems that the party sailed from Baltimore in what should have been ample time to reach Panama, but the weather was bad, fog prevailed, and the machinery broke. When the two-score physicians realized that they would miss all but the last day of the congress, they proved themselves equal to the emergency and held their own little congress on board the ship, and the pleasant sequel of their ability to meet this unusual situation was the acceptance by the Pan-American Medical Congress of their branch meeting as a part of the proceedings of the regular congress. A medical congress is not usually held on board ship, and hence this one had a particular zest and spice about it.

AN ANTICIGARETTE MOVEMENT IN SPAIN.

We learn from the *London Globe* that the government of Spain has had brought to its attention the evils of racial degeneration due to the excessive use of tobacco, especially by the young. The minister of the interior, it is said, has drafted a bill absolutely prohibiting the sale of tobacco, cigars or cigarettes to any person under 17 years of age, under penalty of fines of from $10 to $100 for each offense, and of imprisonment in aggravated cases. It is said that the youth of Spain, especially the working classes, are largely illy-nourished and of feeble constitutions, and that much of their scanty income is wasted on tobacco, thus keeping up and aggravating the evil. Tuberculosis makes great ravages among them, and the state of affairs is such that the government evidently thinks it full time to inaugurate a social reform to curb the evil, as far as the use of tobacco by the young is concerned.

WHEN ECONOMY AIDS HYGIENE.

When the requirements of sanitation and prophylaxis of disease demand additional expenditure of money by those who are interested in keeping down expense, sometimes regardless of other considerations, trouble ensues. There is then required a campaign of education and of enlightenment of the people and of the lawmakers so that proper legislation may be secured to enforce what may not be willingly done otherwise. We are much interested to note the report of the Central Railway of New Jersey, which has recently installed a system of car cleaning by the vacuum sweeping system. The dirt and dust is drawn from all the surfaces in the car by suction through a pipe. The work is done effectively, hygienically, and—a noteworthy fact—economically. The railroad management announces that this system reduces the cost of cleaning so that two cars can be thoroughly cleaned under the new system at the same expense of time and money as was formerly consumed in cleaning one. This fact, in connection with the increased sanitary value, is sure to cause a general introduction of this method within a short time, not only by other transportation companies, but by theaters, hotels and places of public resort.

THE HALL OF FAME.

The absence of the name of any physician in the Hall of Fame of the University of New York influences the editor of the *Western Medical Review* to remark that "it is the obvious duty, not only of physicians themselves, but of the public, to see to it that in the election this year not less than three physicians are selected." The editor proceeds to recommend Benjamin Rush, David Ramsay, John Collins Warren, J. Marion Sims, Oliver Wendell Holmes. Under the rules, only persons born in the United States, now dead ten years or more, and most eminent in their respective fields, are eligible for nomination. The original plan was to select names for fifty of the 150 panels in 1900, and five more every five years thereafter until the list would be completed in 2000. In 1900, out of 252 nominations made, only twenty-nine received the required majority (51) of the votes cast and were elected. This makes twenty-six to be selected this year. If the medical profession really wishes some of its illustrious men to be elected, the proper procedure, we suggest, is to place the matter in the hands of a committee, who will acquaint the members of the Council of the University of New York with the claims to greatness of certain physicians, so the vote on the nominations by the members of the council may be made with full knowledge concerning the medical candidates.

THE DEVELOPMENTAL OR MYELINOGENETIC REGIONS OF THE HUMAN CEREBRAL CORTEX.

A few years ago Flechsig interested neurologists greatly by his subdivision of the cerebral cortex into primary sense centers on the one hand and association areas on the other. Since that time he has been busily engaged in the further differentiation of the cortex on the basis of successive medullations of the fibers. He now recognizes between thirty and forty definite and distinctly different myelinogenetic regions. He thinks that each myelinogenetic region is provided with a conjugate pair of bundles, one bundle bringing impulses to the area, the other carrying impulses from it. A further view advanced by Flechsig concerns the close relation of the development of the sulci of the brain to that of the medullary sheaths of the various bundles going to the different areas. He distinguishes primary sulci, those which appear very early, from terminal sulci, which are the last to develop. The earliest sulci appear, he asserts, where the brain "ripens" first, while the latest sulci to appear correspond to areas of the cortex, the fibers of which become medullated late. In how far these views of Flechsig will be confirmed by other investigators can not yet be determined. His earlier statements concerning the association centers have been severely criticized by Dejerine, Hitzig and others. Bianchi agrees with Flechsig in as far as he recognizes that the anterior portion of the frontal lobes are devoid of projection fibers and are concerned wholly with processes of association.

Medical News.

DISTRICT OF COLUMBIA.

Health of the District.—The report of the health officer for the week ended January 14 shows the total number of deaths to have been 121, of which 78 were white and 43 colored. There were 109 births, of which 74 were white and 35 colored. At the close of the week there were under treatment 22 cases of diphtheria, 30 of scarlet fever, 118 of typhoid fever and 2 of smallpox.

Woman's Clinic Election.—At the annual meeting held January 4 the following officers were elected: President, Dr. E. L. Ragan; vice-president, Dr. Robert Reyburn; treasurer, Mary F. Case; secretary, Miss E. Clarke. Clinical staff—Drs. Ida J. Heiberger, Phoebe R. Norris, A. F. Faye, Ada R. Thomas, Mary L. Stroble, B. Rosalie Slaughter, Anna Bartsch and Robert S. Lamb. Consulting staff—Drs. H. L. E. Johnson, Mary Parsons, James F. Scott, Edward A. Balloch, George N. Perry, Albert L. Stanley and Randolph B. Carmichael.

Medical Society Election.—At the annual meeting of the Medical Society of the District of Columbia, held January 2, the following officers were elected: President, Dr. T. N. McLaughlin; vice-presidents, Drs. John D. Thomas and Murray G. Motter; corresponding secretary, Dr. Thomas C. Smith; recording secretary, Dr. Francis P. Morgan; treasurer, Dr. Charles W. Franzoni, and librarian, Dr. Edwin L. Morgan. At the meeting held January 11 Dr. James J. Walsh of New York addressed the society, and a smoker was afterward held at which he was the guest of honor.

ILLINOIS.

Influenza Epidemic in Peoria.—Peoria is said to be suffering from one of the most severe attacks of influenza in its history. More than 2,000 cases have been reported and the disease is spreading rapidly.

Hospital Staff Warned.—In his introductory remarks to the newly-appointed members of the Cook County Hospital staff President Bundage of the county board said:

> You have been selected as members of the county hospital staff without pull, political or otherwise. I want you to understand that if you do not live up to the rules governing the institution no pull of any kind will stand in the way of your resignation being asked for.

Chicago.

Professor Barker Appointed to a Professorship of Medicine.—The board of trustees of Rush Medical College has appointed Dr. Lewellys F. Barker to a professorship in medicine in that institution.

Mortality of the Week.—There were 591 deaths during the week ended January 21, equivalent to an annual death rate of 15.47 per 1,000. Pneumonia heads the list with 120; consumption follows with 79; Bright's disease with 51; heart disease with 37; violence with 35, and influenza with 22.

Honor Memory of Dr. Mary Harris Thompson.—On January 30 will be unveiled at the Art Institute with appropriate ceremonies the portrait bust of Dr. Mary Harris Thompson, done by Daniel French, which club women and other friends of Dr. Thompson are presenting to the Art Institute.

Decline of Tuberculosis.—In the Bulletin of the Department of Health the following record is given of the decline of consumption mortality:

> In the decade ended 1860 the annual deaths from consumption averaged 29.57 per 10,000 of population; in the decade ended 1870 they averaged 20.47; in 1880, average 16.74; in 1890, average 17.56; in 1900, average 15.89—a reduction of 46.2 per cent. in fifty years. In 1901 the rate was 14.19; in 1902 it was 14.04—the lowest point yet reached, and less than one-half the average of fifty years previous.

MARYLAND.

Recognition of Services.—Dr. John S. Fulton, secretary of the State Board of Health, has been presented with a handsome silver tea service in recognition of his services in the cause of public health. A letter signed with the names of the donors—physicians and others—accompanied the gift.

Talbot County Medical Society has elected the following officers: President, Dr Julius A Johnson, Easton; vice-president, Dr. James A. Stevens, Oxford; secretary and treasurer, Dr. Philip L. Travers, Easton; delegate to state society, Dr. E. R. Trippe, Easton; and censors, Drs. Samuel C. Trippe, Royal Oak; Joseph S. Garrison, Easton, and Charles H. Rose, Cordova.

Affairs at the University of Maryland.—At the annual meeting of the General Alumni Association, January 18, Wilmer Brinton was elected president, and Dr. Eugene F. Cordell secretary-treasurer and chairman of the endowment committee. A university button was adopted and an address was delivered by Dr. Thomas Fall, president of St. John's College, Annapolis, advocating the establishment of a State University. A committee of five members was appointed to consider the matter and also a union of the university and St. John's College. Dr. Eugene F. Cordell has founded a university monthly, the name of which is "Old Maryland." On the editorial staff are Dr. R. L. Mitchell, medicine; D. W. Burroughs, law; J. Clarence Allen, dentistry, and C. W. Hornbrook, pharmacy.

Baltimore.

School Inspection.—The medical inspection of public schools will begin February 1, Drs. R. Tunstall Taylor and I. R. Page having been appointed inspectors.

Personal.—Dr. John C. Hemmeter has been elected a foreign member of the Deutsche Gesellschaft für Innere Medizin.——Dr. William Lee Howard has gone to Jamaica.——Dr. M. M. Whitehurst has gone to Mexico and California.

For Isolation Hospital.—Health Commissioner Bosley hopes to secure a municipal infectious disease hospital on city property near Bayview Asylum. The board of estimates has allowed him $1,000 to commence the medical inspection of schools.

Surgeons for Confederate Veterans.—The Isaac R. Trimble Camp, No. 1025, United Confederate Veterans, elected the following medical officers: Surgeon, Dr. John H. Grimes; assistant surgeons, Drs. Alex. L. Bell, James G. Wiltshire and Louis W. Knight.

Deaths of the Week.—For the week ended January 21, there were only 167 deaths reported, a singularly low mortality. This was a rate of 15.22 per 1,000, or, according to color, for the white, 12; colored, 32.65. Pneumonia and consumption led, each causing 27 deaths.

Vital Statistics.—According to the annual report of the Health Commissioner for 1904, there were 10,818 deaths; males 5,654, females 5,164. The death rate per 1,000 was 19.26 (white, 17.02; colored, 31.44). There were 8,599 births reported—males, 4,444; females, 4,155. The principal causes of death were pulmonary tuberculosis, 1,349; pneumonia, 1,121; heart disease, 815; Bright's disease, 749; diarrhea, 743; cancer, 450, and apoplexy, 381.

Association Election.—At the annual meeting of the Baltimore Medical and Surgical Association, January 9, the following were elected to office: President, Dr. C. Urban Smith; vice presidents, Drs. Charles O'Donovan and Nathan Winslow; secretary, Dr. Eugene L. Crutchfield; treasurer, Dr. W. B. Perry; executive committee, Drs. James M. Craighill, Arthur Hebb, and D. Streett; and committee of honor, Drs. John Neff, John W. Linthicum, and John I. Pennington. After the election of officers a banquet was served.

MICHIGAN.

Anti-Spitting Law in Lansing.—The first conviction under the new anti-spitting ordinance in Lansing occurred January 17, when Perry Boughner was found guilty of spitting on a sidewalk.

Prescott Critically Ill.—It is reported that the venerable Prof. Albert B. Prescott, dean of the school of pharmacy and senior professor in the University of Michigan, is critically ill with pneumonia.

Cushny Goes to London.—It is announced that Dr. Arthur R. Cushny, professor of materia medica and therapeutics in the University of Michigan, has resigned to accept a similar chair in the University of London, England.

Academy Elects Officers.—The annual meeting of the Kalamazoo Academy of Medicine was held January 12, at which the following officers were elected: President, Dr. John Bosman, Kalamazoo; vice-presidents, Drs. Wilbur F. Hoyt, Pawpaw, and Edward P. Wilbur, Kalamazoo; secretary-treasurer, Dr. Walter den Bleyker, Kalamazoo; librarian, Dr. Edwin H. Van Deusen, Kalamazoo, and censors, Drs. Harris B. Osborne and Ralph E. Balch, Kalamazoo.

NEW YORK.

Site for State Hospital.—The State Lunacy Commission has accepted the Baker site for a new state insane hospital in Washington County.

County Society Honors Dead.—The eighty-fourth annual meeting of the Erie County Medical Society was held January 10. Dr. William C. Krauss, president, was in the chair. Memorials on the following deceased members were read, as follows: Dr. J. G. Thompson, by Dr. N. W. Wilson; Dr. H. S. Ingraham, by Dr. W. C. Phelps; Dr. R. S. Meyers, by Dr. Henry Lapp; Dr. S. Lynde, by Dr. G. W. Wende, and Dr. A. T. O'Hara, by Dr. Edward Clark. The board of censors presented a caustic report on the medical criminals—abortionists, fakers, mediums, and advertisers—of Erie County.

New York City.

Personal.—Dr. Livingston Farrand, professor of anthropology at Columbia University, has been named as head of the National Association for the Study and Prevention of Tuberculosis.

Decrease in the Death Rate.—Reports show that there has been a decrease in the death rate in this city of 2.8 per cent. as compared with the same week of last year. The conditions throughout the city are better than they were at this time a year ago.

Change in Bulkley Lectures.—Dr. Bulkley's usual clinical lecture at the New York Skin and Cancer Hospital will be replaced February 1 by a lecture by Dr. Boleslaw Lapowski on the "Treatment of Syphilis," and on February 8 by a lecture by Dr. Charles Mallory Williams on the "Treatment of Acne."

New Ophthalmic Institute Site.—At the annual meeting of the New York Ophthalmic and Aural Institute it was announced that the trustees and their friends had collected $200,000 toward the erection of a new building and that a site had been purchased at 64th Street and Central Park. Ground will not be broken until $350,000 has been raised.

Orthopedic Hospital.—The report of this institution presented at the annual meeting shows a prosperous condition. A standing deficit of $22,000 was wiped out, although running expenses were $7,000 greater than the income. During the year 4,017 cases were treated, and a country branch and industrial school was opened at White Plains for convalescents.

The Work of the Milk Commission.—The milk commission of the Medical Society of the County of New York has distributed a notice to its members, calling attention to the fact that, while it has supervision of only that portion of a dealer's milk which carries its certification, it does not intend to allow a dealer known to have adulterated milk to sell certified milk.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending January 14, 338 cases of tuberculosis, with 160 deaths; 307 cases of diphtheria, with 43 deaths; 281 cases of scarlet fever, with 17 deaths; 202 cases of varicella; 189 cases of measles, with 6 deaths; 56 cases of typhoid fever, with 9 deaths, and 26 deaths from cerebrospinal meningitis.

Memorial to Dr. Skene.—The sum of $5,000 has been given anonymously to the Kings County Medical Society for the founding of the Alexander J. C. Skene Memorial Fund. Dr. Skene was a former president of the society. The conditions of the fund are that the income from it shall be devoted to the purchase of books and journals relating to Dr. Skene's specialty—obstetrics and gynecology.

NORTH DAKOTA.

Appointments.—Dr. Edward M. Darrow, Fargo, as member Cass County Board of Insanity.——Dr. George A. Carpenter, Fargo, as superintendent of Cass County Board of Health.——Dr. John D. Henning, Fargo, as physician of Cass County.——Drs. F. B. Strauss, Glen Ullin, and George A. Stark, Mandan, physicians for Morton County.

Proposed State Laboratories.—Dr. J. D. Taylor of Grand Forks introduced a bill in the legislature providing "for the creating of a state bacteriologic and pathologic laboratory, for the control of such laboratory, and duties of the director, for the appointment of a director of such laboratory who shall be ex-officio state bacteriologist, and for an appropriation for the support of such a laboratory."

OHIO.

New Hospital Open.—The new hospital at East Liverpool was informally opened, January 2. It has been built wholly by private subscription.

Springfield Hospital Ready.—On December 29 the new City Hospital, erected at a cost of about $100,000, was formally opened. The staff has elected the following officers: Dr. John M. Buckingham, president; Dr. Bennetta D. Titlow, vice-president, and Dr. Jay D. Thomas, secretary and treasurer.

Society Election.—At the annual meeting of the Fairfield County Medical Society the following officers were elected: President, Dr. W. Stanley Samson, Lancaster; vice-president, Dr. George P. Haddell, Stoutsville; secretary, Dr. Henry R. Plumb, Lancaster; treasurer, Dr. John H. Axline, Lancaster, and censor, Dr. T. R. Mason, Sugar Grove.

Gift of Hospital.—Mr. J. F. Pocock has presented to Massillon a general hospital to be controlled by the Massillon Hospital Association, with a capital stock of $50,000. He has given a lot on which he will have erected suitable fireproof buildings, thoroughly equipped and furnished, all of which he will turn over to the city as a gift.

Personal.—Dr. August Schumacher, Hamilton, has succeeded Dr. Thomas D. Sharkey as coroner of Butler County.——Dr. Dan Millikin has been elected president of the Board of Education of Hamilton.——Dr. Kent B. Waite, Cleveland, has been adjudged insane and taken to the state hospital, Newburg.——Dr. Robert C. Chamberlain, Tiffin, has been appointed physician to Seneca County Infirmary.——Dr. Josiah Medbery, Columbus, has recovered from his recent operation and has resumed his work.

Cincinnati.

Deficit Does Not Alarm.—The deficit at Christ's Hospital for the year just ended will be about $1,600. Inasmuch as the hospital has used $15,000 for its charity work alone, this deficit is not regarded with alarm.

Hospital Directors Organize.—The Board of Medical Directors of the Cincinnati City Hospital has organized and elected Dr. Asa B. Isham, president; Dr. Louis Schwab, vice-president, and Dr. Byron Stanton, secretary.

Corpses Transported in Passenger Coaches.—The transportation of corpses in the smoking compartments of passenger cars of the Rapid Railway is to be fought by the newly-created Kennedy Heights Board of Health. Communications have been opened with the State Board of Health to see if the company has the right to carry corpses in the regular passenger cars.

Personal.—Dr. Otis L. Cameron has been appointed coroner, and Dr. Oliver L. Coe, deputy coroner, of Hamilton County.——Dr. Stephen E. Cone, secretary of the Academy of Medicine, has resigned, and Dr. Samuel Iglauer has been appointed temporary secretary.——Dr. James W. Miller has been appointed district physician vice Dr. William Muhlberg, resigned. He was appointed examining physician January 14, and Dr. Henry W. Albers appointed district physician in his stead.——Dr. Thaddeus A. Keamy was presented with a loving-cup on January 12 by the Beta Theta Pi fraternity.——Dr. Arthur Vos, house physician to the Cincinnati Hospital, is suffering from septicemia.

PENNSYLVANIA.

Erie County Medical Society, at its annual meeting in Erie, elected the following officers: President, Dr. George B. Kalb; vice-president, Dr. Thomas Purcell; secretary, Dr. Adella B. Woods; treasurer, Dr. George S. Ray; library committee, Drs. David N. Dennis, James H. Montgomery and Ira J. Dunn; censors, Drs. James E. Silliman, Frank A. Walsh and Ira J. Dunn, and reporter, Dr. Guy C. Boughton.

Hospitals at Steel Mills.—The great increase in accidents in the mills of the United States Steel Corporation have led the officials of the company to take steps toward the erection of two emergency hospitals in their mills at Donora. Previously all men injured had to be conveyed to the hospitals of Pittsburg or McKeesport before their injuries could be properly treated and their true character determined.

Mine Accidents.—From official information of the mine inspectors of the four anthracite districts in the Wyoming Valley it is shown that in all 537 men and boys were killed or injured during 1904. There were 199 fatal and 338 non-fatal accidents in the districts, leaving 109 women as widows and 212 children, orphans. In the tenth anthracite district an official report shows there were 37 fatal and 54 non-fatal accidents, an increase of 85 per cent. over the preceding year. These accidents left 19 widows and 44 orphans.

Society's Annual Meeting.—The Northampton County Medical Society held its fifty-sixth annual meeting in Easton, January 20. The following officers were elected: President,

Dr. George N. Schwartz, Pen Argyl; vice-presidents, Drs. Arthur D. Reagan, Easton and Harry C. Pohl, Nazareth; secretary, Dr. James J. Quincy, Easton; corresponding secretary, Dr. John E. Fretz, Easton; treasurer, Dr. Joseph S. Hunt, Easton; reporter, Dr. James J. Quincy, Easton; censors, Drs. Edgar M. Green, W. H. Duler and H. J. Lacier, and delegate to state society, Dr. Henry D. Michler, Easton.

Care of Tuberculous Sick.—The Philadelphia County Medical Society, at its meeting January 18, adopted the following resolutions:

WHEREAS, The state of Pennsylvania has not up to the present time provided adequate accommodation for the care and treatment of its tuberculous sick; and

WHEREAS, The plans now in projection throughout the state, even when successfully executed, will provide for but a mere fraction of the number of those who need skillful care and medical direction, both for the saving of their lives and the protection of the community; and

WHEREAS, Experience has shown that by properly directed open-air treatment the great majority of cases of incipient tuberculosis can be permanently cured, and that a large percentage of the daily new infections can be avoided if such patients are removed from close association with others not yet infected; be it

Resolved, That the Philadelphia County Medical Society does hereby petition the legislature of the state of Pennsylvania:

1. For the appropriation of a certain sum of money, not less than $500,000, to be devoted to the establishment of camps, sanatoria, hospitals and dispensaries, for the tuberculous sick of the commonwealth of Pennsylvania.

2. For the setting aside of such portions of the State Forestry Reserve as may be recommended with a view to accommodating camps and buildings, such as may be deemed necessary for the care of tuberculous patients, and for their scientific study and treatment; further be it

Resolved, That the president of this society be authorized and instructed to appoint a committee of three from the membership of the society to co-operate with similar committees that may be appointed from other societies in urging on the legislature the need of state aid in the suppression of tuberculosis.

Philadelphia.

Women's Hospital Report.—During last year there were 1,217 patients admitted, making a total of 1,281 patients treated. There were 20,000 cases treated in the clinics and 201 births in the maternity.

Jewish Hospital Staff.—The following physicians were elected to the staff of the hospital: Dr. Charles P. Noble, consulting surgeon; Dr. Lawrence F. Flick, consulting surgeon; Dr. William H. Randle, obstetrician; Dr. Joseph B. Potsdamer, pediatrist, and Dr. Sidney L. Feldstein, radiologist.

Talk on Consumption.—Efforts are being made by the Henry Phipps Institute to educate the textile workers of the city as to the danger of spreading consumption and the means of combating its propagation. A series of lectures will be delivered to the textile workers of Kensington by members of the staff of the Henry Phipps Institute on the home treatment of the disease, beginning January 30.

Chicagoan in Philadelphia.—Dr. Robert B. Preble, professor of medicine in the Northwestern University Medical School, will address the students of the Jefferson Medical College in the college building, February 1, under the auspices of the H. A. Hare Medical Society, on "The Extra-Pulmonary Localization of the Pneumococcus." He will be tendered a reception by the society immediately after the address.

Clinical Assistants Organize.—On January 4 the Association of Clinical Assistants of Wills Hospital was organized, with the object of bringing together all who have served in this capacity in the hospital for the informal discussion of ophthalmic subjects. Dr. S. H. Brown was elected secretary-treasurer, and an executive committee was elected, consisting of Drs. John T. Krall, Josephine P. U. Hildrup and S. H. Brown.

Health Report.—The total number of deaths reported for the week was 519, an increase of 19 over the preceding week and a decrease of 99 from those of the corresponding week of last year. Eighty-three deaths were due to acute inflammation of the respiratory tract, 12 to typhoid fever, 62 to pulmonary tuberculosis, 23 to cancer, 25 to apoplexy, 51 to heart disease, 11 to enteritis and 37 to Bright's disease. There were 236 cases of contagious disease reported, with 24 deaths, as compared with 222 cases and 24 deaths for the previous week. No smallpox was reported.

Oncologic Hospital Open.—The American Oncologic Hospital, the first institution in the country to be devoted exclusively to the study and treatment of cancer, was formally opened January 4. Dr. G. Betton Massey made the opening address. Both charity and pay patients will be admitted and it is the purpose of the staff to employ all methods of treatment that promise to be of service in this class of cases, including electrochemical sterilization and radiotherapy. Dr. Boardman Reed is attending physician, and Drs. Addinell Hewson, G. Betton Massey and Howard R. Swayne are the attending surgeons.

Medico-Chirurgical Alumni Election.—The alumni association of the Medico-Chirurgical College has elected the following officers: President, Dr. William L. Shindle; secretary, Dr. Stilwell C. Burns; treasurer, Dr. Emanuel S. Gans, and executive committee, Drs. W. Easterly Ashton, Arthur E. Blackburn, Arthur C. Buckley, L. Napoleon Boston, Joseph A. Cramp, John W. Croskey, Morton P. Dickeson, John H. Egan, L. Webster Fox, Andrew Godfrey, Charles H. Gubbins, S. Leon Gans, A. Wiese Hammer, W. Frank Haehnlen, Harry Lowenbury, Francis Lemmer, John A. McGlinn, John A. McKenna, George W. Pfromm, Joseph V. C. Roberts, Herbert J. Smith, John W. Shoemaker, Mitchell P. Warmuth, John W. Wilkins and J. L. Widmyer.

Bequests and Donations.—By the will of Selina Walker the Jewish Hospital Association receives $7,286.73, and the Jewish Maternity Hospital, $2,428.90.——By the will of the late Francis T. Fassitt $5,000 is bequeathed to the Children's Hospital for the establishment of a free bed, to be known as the Anne Avoir Fassitt bed.——The will of Adolph Heinman bequeaths $500 to the Jewish Hospital and $350 to the Jewish Maternity.——By the will of William McFatrick, on the death of his wife and sister, the remainder of the estate, valued at $62,800, will be divided among the Presbyterian, Episcopal, Jewish, Methodist and Howard hospitals for the establishment of free beds. The will also requests the widow to donate an amount sufficient to establish a free bed in St. Agnes' Hospital.——By the will of Margaret Sullivan $200 is donated to St. John's Orphan Asylum.——Benjamin Tousey of Syracuse, N. Y., has donated $5,000 to the University of Pennsylvania Hospital to endow a free bed for the use of employes of the Central News Company.

GENERAL.

Government Laboratory Building in Use.—A part of the new building for the Bureau of Government Laboratories, Manila, P. I., has been completed, so that a number of the branches have moved into their departments.

Panama Service Examination.—The examinations by the United States Civil Service Commission were held January 18, as announced in THE JOURNAL, Dec. 17, 1904, to select eligibles for service under the Isthmian Canal Commission. The attendance of physicians was not very large in many cities. In St. Louis there were twelve.

Health Report of the Philippine Islands.—The report of the Board of Health of the Philippine Islands and the City of Manila for September, 1904, states that 797 births were registered during the month. This is the largest number ever registered in any one month and gives a birth rate of 44.11 per thousand. During September there were 1,146 deaths in the city of Manila; of these 1,064 were residents and 82 transients. Fifty-four per cent. of all deaths occurred in children under one year of age, the number of deaths from infantile convulsions being 367. There were 5 cases of smallpox, with 2 deaths. One death from bubonic plague was registered. There were 96 deaths from tuberculosis and the same number from chronic diarrhea and enteritis.

CANADA.

Ontario Medical Association.—The annual meeting of this association will be held in Toronto, June 6-8, 1905, under the presidency of Dr. William Burt of Paris, the secretary being Dr. Charles P. Lusk, Toronto. Mr. I. H. Cameron is chairman of the committee of arrangements, and Dr. Alexander Primrose is chairman of the committee on papers and business. Dr. Ochsner of Chicago will deliver the address in surgery.

Northwest Territory Laboratory.—The government of the northwest territories of Canada is establishing a new bacteriologic and pathologic laboratory and has appointed Dr. George Charlton, formerly of the McGill University pathologic department, chief of the laboratory. Dr. Charlton will at first investigate swamp fever in horses, which die very rapidly once they contract this disease. Later he will investigate diphtheria and typhoid epidemics.

Canadian Medical Association.—The thirty-eighth annual meeting of the Canadian Medical Association will be held at Halifax, Nova Scotia, Aug. 22-25, 1905. Dr. John Stewart, Halifax, is the president, and Dr. George Elliott, Toronto, general secretary. The address in surgery will be delivered by Mr. Francis Caird of the Royal Infirmary, Edinburgh, while

Dr. Howard Kelly, Baltimore, will deliver the address in gynecology. Dr. J. W. Stirling, Montreal, will deliver an address in opththalmology, and there will be in addition addresses in medicine and in pathology. Dr. A. J. McCosh, New York, will also be asked to contribute a paper. The Medical Society of Nova Scotia will act as host to the Canadian Medical Association, and, therefore, will not hold its regular annual meeting.

Physicians Scarce in Newfoundland.—In the small settlements along the remote stretches of the Newfoundland coast there is lack of medical attendance. It is not uncommon for a physician to travel 100 miles by boat—there are no roads—to attend a patient. In many places the duties ordinarily fulfilled by a physician are performed by some man or woman who has picked up a little medical knowledge. The result in increased mortality statistics may be imagined. The government of Newfoundland is endeavoring to remedy this by appointing physicians or surgeons to the magistracies in the different townships. In the sparsely settled districts an allowance of $500 a year is made to a medical man who will settle there, on condition that he will undertake magisterial duties in addition to his professional ones. The former are not very onerous, usually having to do with fishery disputes, settlements and the like, for serious crime is unknown, and the other representative of the law is what is called a local constable, a person who acts for $2 a week in the capacity of process server and census enumerator.

FOREIGN.

Plague in Russia.—Plague has appeared in one of the Ural districts and has made rapid progress among the Kirghiz and cossack population. The epidemic of cholera in the Caucasus region has almost died out.

German Red Cross Mission to the Seat of War.—Professor Henle of Breslau is in charge of a Red Cross expedition from Germany to Japan. It was expected to sail from Genoa, January 15. Dr. Fittig and a trained nurse accompany the expedition. The rest of the personnel is to be supplied by the Japanese government.

Public Care for Tuberculous Children.—The new sanatoria in Germany are being constructed with a view to having a department for tuberculous children. The sanatorium near Hagen has made arrangements to board children under 14 during the winter months when lung trouble is suspected. The city of Charlottenburg has found the "school in the woods" such a success for weakly children that a second one is now planned. They are in the country, but close to the city limits, accessible by trolley.

The Madeira Sanatoria.—The first one of the sanatoria erected on the Madeira islands by German private enterprise, under the leadership of the Prince von Hohenlohe, has been formally inaugurated. It is at an elevation of nearly 1,000 feet, and has accommodations for sixty guests. It is planned to have accessory stations at various elevations higher up on the mountains, to determine the most favorable altitude for individual cases. The particulars of this new health resort were mentioned in the news columns of THE JOURNAL of April 2, 1904, page 903. Pannwitz, Rumpf, B. Fränkel, Wolf and Römer are among the physicians on the board of directors.

Progress of Cremation.—The number of cremations in France during 1904 was only 350, almost all at Paris. The crematory at Rheims has been ready for operation for more than two years, but not a single application has been made for cremation. In Germany the record of cremations for 1903 was less than 1,100, while in England the number was only 500. In Italy there were 400 cremations, and about the same number in Sweden and 300 in the Argentine Republic. The *Semaine Médicale* comments on these figures that cremation is not making much progress elsewhere than in the United States and in the Orient, where it has always been frequently employed. It cites at 4,000 to 5,000 the number of cremations in this country.

Report on Ankylostoma.—The committee appointed by the British Association for the Advancement of Science has made a preliminary report concerning ankylostoma, which is thus summarized by *Science:* There are many channels by which ankylostoma might be introduced into British coal mines. The conditions found underground in these mines are such that the worm would, in many cases at any rate, probably become firmly established. In view of the expense and difficulty of eradicating the worm from any mine in which it has become established it is of the greatest importance that preventive measures should be undertaken without delay. Complete eradication does not yet appear ever to have been accomplished. The necessary prevention is best accomplished by the provision of proper sanitary accommodation in the main roads underground and at the pit's mouth, by regulations to prevent pollution of the pit by human feces, and by the establishment of a limited quarantine system for work people from infected areas, with compulsory notification of cases to the home office.

School Contagion of Infectious Diseases.—M. Cohn is medical school inspector at Charlottenburg, and he has been studying the statistics of the four largest cities of Germany during the last ten years to learn whether infectious diseases are more prevalent or less so during the school vacations. If they are less prevalent at this time, it would be an argument in favor of closing the schools at the outbreak of an epidemic. He finds that the vacations do not seem to have any effect on the prevalence of diphtheria and scarlet fever. Measles, on the other hand, drops abruptly so soon as the schools close for a vacation. He explains this by the fact that scarlet fever and diphtheria are not so contagious in the early stages. The child is usually so sick that it is kept at home before the really contagious stage is reached. In measles the disease is highly contagious from the start, and he recommends to close the school room at once whenever measles is prevalent among the scholars. In the discussion which followed his address on the subject at the meeting of the German Public Health Society, December 6, the leading medical authorities reiterated that a child who has had scarlet fever should be kept at home for six weeks at least if transmission by way of the school is to be avoided.

Approaching International Anti-Tuberculosis Congress.—The French prime minister has asked for an appropriation of $20,000 for the approaching International Anti-tuberculosis Congress to be held at Paris in October of this year. The committee of organization comprises Casimir-Périer, ex-president of the republic, and L. Bourgeois, former prime minister, with Berthelot as acting president of the congress, and Chauveau, Herand and Brouardel as vice-presidents. The chairman of the section on medical pathology will be Bouchard, while Lannelongue will be chairman of the section of surgical pathology, Grancher of children's diseases, and Landouzy of the section for care and aid for the adult tuberculous. M. Letulle has been appointed secretary general of the congress and P. Masson, treasurer. Among the addresses already promised are some on the "Treatment of Lupus," "Early Diagnosis of Tuberculosis," "Comparative Study of Various Tuberculoses," "Ileocecal Tuberculosis," "Operative Treatment of Tuberculosis of Meninges and Brain," "Etiologic Factors,," and studies of sanatoria, etc. June 30, 1905, is the latest limit for the reception of communications. A tuberculosis exposition is planned in association with the congress. The exhibition will be arranged in two sections, a scientific and an industrial section.

Legislation Against Irregular Practices in Baden.—The bill to restrict quack practices, introduced into the Baden legislature, was described in THE JOURNAL of March 19, 1904. As finally adopted, the drastic measures first proposed were somewhat modified, but even under these circumstances the measure is regarded as a great advance in the protection of the public against irregular practices. Dr. Neustätter of Munich describes in the *Münchener med. Wochenschrift* of December 20 the history of the bill on its way through the upper and lower houses as extremely characteristic. The representatives of the people in congress assembled always seem to shrink with infinite dread from inflicting the slightest harm on the irregular practitioner. This is easily understood, he remarks, from the lay standpoint. It is impossible for laymen to believe that any one could be so dastardly as to play with the lives and the health of his fellow-men. This idea is remarkably firmly rooted in the popular mind. It is not shaken even by the testimony of facts which teach the contrary. The bill forbids extravagant statements in advertisements and "absent treatment." The latter clause is the first restriction of the kind, he adds, adopted by any state. Advertisement of aphrodisiac and anti-conception measures is likewise prohibited, as is also the case in Hamburg and Berlin. It is forbidden to advertise remedies which can not be sold without a physician's prescription. The bill is original in several points and not a mere imitation of what other states have adopted. It was prepared by the Carlsruhe board of health and its chairman, the mayor, with the co-operation of the local physicians.

Health Statistics of Malta.—The *British Medical Journal* states that a comprehensive scheme for the drainage of the

large towns and principal villages in the two islands has been drawn up, and the work is being carried out as rapidly as the resources of the government will permit. The drainage of the three cities is now practically completed, and that of the large suburbs of Sliema and St. Julian's is well advanced. The population on March 31 last was estimated at 197,070, and the number of births registered during the year was 7,173, representing a general birth rate ot 37.69 per mille. The general state of public health is recorded as "good," though it is stated that the percentage of deaths among children under 5 years of age was 51.8, and that the general death rate was 24.45 per mille. Zymotic diseases accounted for 288 deaths, or 5.7 per cent. of the total number of deaths. Two outbreaks of smallpox occurred, the disease having been imported in the one case from Tunis and in the other from Sicily, but in neither did it assume serious importance, though out of the 50 cases recorded 10 died. The mortality from diphtheria seems to be exceedingly high, the disease proving fatal in 57 cases out of the 124 attacked. No statistics, unfortunately, are given with regard to Malta fever, it being merely recorded that there were 706 cases of "fevers" and 99 deaths. The climatic conditions of the year were peculiar, the summer months being unusually cool, and the rainfall for the year reaching a total of only 14.695 inches, some 10 inches below that of the preceding record.

The Suit Against the Gelsenkirchen Waterworks.—The famous suit brought by the state against the directors of the waterworks supplying a district in Germany in which an epidemic of typhoid fever broke out, has ended in the condemnation of the defendants to a fine and the costs of the suit, which are in the neighborhood of $25,000. The prosecuting attorney (*Staatsanwalt*), in closing his address, remarked that the twenty-two days during which the suit had lasted to date had accomplished more in the way of promoting public health and sanitation than twenty-two years under ordinary circumstances. There were probably 5,000 cases of typhoid during the epidemic, with 9 per cent. mortality in the 3,235 officially reported cases. It was established that nearly all these cases occurred in a district in which the water supply was clandestinely augmented during dry seasons by a pipe bringing unfiltered river water into the supply. This pipe was opened usually the last three days of the week during the summer, but was closed up at other times. When the epidemic broke out and the existence of the side pipe became known to the authorities, it was walled up and the entire pipe system of the waterworks, 300 kilometers in length (about 186 miles), was disinfected with sulphuric acid. About 15,000 quarts of 60 per cent. sulphuric acid were poured into each of the reservoirs until the desired concentration of 1 per 1,000 was reached. The entire faucet system was tied up for eight or nine hours. This was done September 29, and scarcely a single new case developed after October, the epidemic subsiding as abruptly as it had begun early in September. The indictment against the directors of the waterworks was at first that they had induced the epidemic by willful use of unfiltered river water in the side pipe mentioned above. The authorities found that they were unable to prove this indictment, as a leak in the main pipe had occurred in July, and as there was a possibility of other sources of contamination, consequently the indictment was changed to an accusation of the adulteration or falsification of food, and under this caption the directors were condemned as stated above to fines of $300 to $375, with the costs of the suit, which amounted to about $25,000. The expert testimony in the case is reported in full in the *Münchener med. Wochenschrift*, Dec. 20, 1904.

LONDON LETTER.

Plague Inoculation in India.

The rapid spread of plague in the Punjab during the cold weather of 1901-2 led the government of India to make provision for the inoculation of no fewer than 7,000,000 persons during the following winter by the combined efforts of all the available medical establishments and of 37 doctors especially engaged in England. But when the scheme had been in operation only four or five weeks, it was brought to a summary close by a deplorable catastrophe, which has been previously referred to in THE JOURNAL. On Nov. 6, 1902, nineteen persons who had been inoculated at a certain village from a single bottle of the Haffkine serum were found to be suffering from tetanus and all subsequently died. The chief justice of Bombay and two medical officers of distinction were appointed as a commission of inquiry. After prolonged delay, due to the submission of the report of the commission for examination and to further experiment at the Lister Institute in London, an official report has been issued. It states that in September, 1902, the standard method of manufacturing the Haffkine serum was changed by the director of the Plague Institute on his own authority, with the object of expediting the process and thus meeting the enormous demand made by the Punjab government. The change involved the omission of a small proportion of the carbolic acid, which had up till then been added to the original fluid as a precaution against contamination. The commission found that the tetanus bacillus was introduced before the bottle was opened, and thought that this occurred owing either to insufficient sterilization or to the process of filling the bottle from a larger flask having been performed with defective precautions. They expressed the opinion that carbolic acid was a valuable agent in restraining the growth of the tetanus bacillus when added to the plague serum and that its omission was a grave mistake. Experiments undertaken in India by two independent investigators confirm this view. The conclusions of the Lister Institute also generally confirm those of the commission. With a view to re-establish public confidence in the safety of the serum, arrangements have been made for a series of public demonstrations of the process of manufacture by the director of the Plague Research Laboratory in connection with the Health Exhibition organized by the Bombay Sanitary Association.

Physical Degeneration.

The question of national physical degeneration has been much discussed recently, both in the lay and in the medical press. Alarmist views stating that the national physique is undergoing serious degeneration have been put forward, but have not been proved. They seem to have been largely due to the journalism of the day, which finds sensationalism more profitable than truth. However, it is perfectly true that the physique of a large portion of the inhabitants of towns is far from satisfactory. At a meeting of the Society of Medical Officers of Health, Sir Lauder Brunton read an important paper on "Physical Degeneration." He pointed out that 34.6 per cent. of recruits for the army are rejected on inspection, and 3 per cent. more are either rejected within three months or discharged as invalids before completing two years' service. He advocated the proposal that school children should be periodically inspected. He discussed the part which health officers might play in the work, suggesting that they should see that proper accommodation is provided for play in good weather and for exercise in bad weather; that they should advise on the problems of feeding school children, and should see that the schools become great object lessons in ventilation and dietetics. He advocated school kitchens, and anticipated that by the agency of lady visitors to the homes the health officers could work to great advantage and could also convey instruction as to the feeding of infants. Instead of the municipalization of milk depots, he recommended that the large dairy companies should be obliged, under a heavy penalty, to supply milk which would conform with the requirements laid down by the municipalities. The country must be made more attractive in order to draw people from crowded towns. Local authorities should exercise their powers to treat overcrowded houses as nuisances.

The Jews and Infantile Mortality.

In an address on the sanitary condition of Manchester, Dr. Rhodes pointed out that though the general death rate had fallen considerably, the infantile mortality was almost as high as it was fifty years ago. It is comparatively low in the Jews' quarter, where the mothers stay at home and look after their children. The publication of this address was followed by an interesting letter to the *Manchester Guardian*, by "A Jewess," who stated that it had been shown by several investigations that Jewish children are superior to gentile in stamina and physique. This she attributed primarily to the fact that Jewish mothers do not work in factories, for it is considered a disgrace for a man to let "the mother of his children go to the factory, working above her strength and depriving her children, before their birth and after it, of the care which is their right." In cleanliness she did not consider that the lower class Jews, many of whom came from the ghettos of Russia and Poland, had any superiority, but they had the advantage of freedom from alcoholism.

Plague and Other Infectious Diseases in Rats.

The annual report of the medical officer of the local government board contains an important paper by Dr. Klein on this

subject. He made a carefully conceived series of experiments to ascertain the channels by which plague is conveyed from rat to rat. His experiments do not support the generally accepted view that the disease is largely conveyed by fleas. He could not find, as Dr. Tidswell did, that an emulsion of fleas taken from a rat dead of plague is capable of conveying the disease to other rats. According to Dr. Klein, fleas may occasionally convey plague from rat to rat, but this is not the common method of conveyance. On numerous occasions he kept rats in the same cage for some time in order that their initial fights might cease, and then inoculated one with plague from which it died, but none of the others succumbed, and their susceptibility was subsequently proved by inoculation. Dr. Klein thinks that one of the most common causes of infection from rat to rat is by means of the wounds and abrasions which are to be found on nearly all rats in the wild state. Such abrasions may easily become inoculated by articles soiled by the excreta of rats ill with plague. He thinks that rats may also be inoculated owing to their fighting propensities and to the fact that when ill with plague they are extremely irritable. In the case of a rat afflicted with pneumonic plague, the oral mucus would thus be a ready means of infection. An interesting part of the report is that which relates to disease other than plague in rats. Dr. Klein refers to the disease caused among rats by the Danysz bacillus, by means of which it was sought to destroy the rats in the Paris sewers. This bacillus is easily distinguished from that of plague. In the case of the SS. George Royle, on board of which many dead rats were found while it was being unloaded at Bristol, the case was complicated by the fact that the vessel came from Smyrna, which was infected with plague. Much alarm was naturally caused, but it was eventually proved by Dr. Klein that the bacillus which presumably had caused the death of the rats was not that of plague, but a bacillus which he termed *Bacillus bristolense*. The report is valuable as indicating caution in concluding that a fatal disease among rats on board ship is necessarily due to plague.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TESTS FOR ACETONE AND INDICAN.

MT. VERNON, N. Y., Jan. 17, 1905.

To the Editor:—In your issue of January 7, page 53, reviewing Croftan's clinical urinology, you refer to Penzoldt's test for acetone and Strauss' method for quantitative indican determination. Will you kindly publish those methods and give reference to original papers? F.

ANSWER.—The indigo test of Penzoldt depends on the transformation of orthonitrobenzaldehyd into indigo blue. A few crystals of orthonitrobenzaldehyd are dissolved in hot water and, after cooling, a little of the fluid to be tested and some sodium hydrate solution are added. If acetone be present the fluid turns yellow, then green, and then blue (indigo formation). If desired, the indigo can be shaken out with chloroform and further tests for its identity made. The test can be applied directly to the urine, and will yield a positive reaction if acetone be present in abundance, but for the detection of small amounts of acetone it is necessary to distill off 30 to 40 c.c. from 250 c.c. of urine, using a cooler. The most of the acetone passes over in the first 10 to 20 c.c. of the distillate, and the test is applied to the distillate. Penzoldt's test is very reliable and free from objection. Many prefer it to Legal's test. Penzoldt's article will be found in the *Deutsches Archiv f. klin. Med.*, vol. xxxiv (1883), p. 132. Recent studies by Ellram and also by von Meickebecke confirm the reliability of the test. Strauss' method for the determination of indican, in a rough way, quantitatively, for clinical purposes, is as follows: Twenty c.c. of urine are mixed with 5 c.c. of a 20 per cent. solution of acetate of lead. Ten c.c. of the filtrate (equal to 8 c.c. urine), are placed in a separating funnel, which is closed below by a glass stopcock and above with a glass stopper; it is graduated to 5, 10, 15, 20 and 25 c.c. To the 10 c.c. of the filtrate are added 10 c.c. of Obermayer's reagent (concentrated hydrochloric acid containing 2 grams of perchlorid of iron per liter) and 5 c.c. chloroform; the tube is shaken gently several times, allowed to stand for some time and shaken again. The chloroform solution is then drawn off, more chloroform placed in the separating funnel, and the process repeated until the chloroform extracts no more color. After this 2 c.c. of the combined chloroform extracts are placed in a test tube of the same size and form as the test tube containing a control solution of indigotin in chloroform (1 mgr. in 1,000 c.cm.). The colored chloroform solution is diluted with pure chloroform until the color is the same as that of the control solution. The quantity of indican present is easily calculated. If x is the amount of chloroform in cubic centimeters used for extraction, and y the amount used for dilution, then $\frac{1}{2}xy$ would give the chloroform value from which the amount of indigo can be calculated, it being remembered that the test solution contains 0.001 gm. of chemically pure indigotin in 1,000 ccm. and that 8 ccm. of urine was used for the reaction. The control test tube of the standard solution should be kept in a dark cupboard. Strauss has published his method in the *Deutsche med. Wochenschrift*, vol. xxix (1902), p. 299. A somewhat similar colorimetric method has been introduced by J. Bouma (*Deutsche med. Wochenschrift*, vol. xxviii, 1902, p. 705). Bouma uses a so-called indicanurometer which consists of eleven test tubes of the same size and thickness arranged in a row. Six of these contain a solution of indigo red (of urinary origin) in chloroform, the strength varying so as to correspond to 5, 10, 15, 20, 30 and 40 mg. of indigo per liter of urine. The tubes are hermetically sealed and serve as control solutions. They must be kept in the dark. To make Bouma's test, 10 ccm. of urine are precipitated with 2 ccm. of lead acetate solution. One places 5.5 ccm. of the filtrate (= 5 ccm. urine) in a test tube and adds 10 ccm. of isatin-hydrochloric acid solution (20 mg. purest isatin [Merck] dissolved in 1 liter chemically pure, iron-free, concentrated hydrochloric acid). The tube is heated to boiling for some seconds, then cooled and the contents extracted by shaking with 5 ccm. chloroform. This chloroform extract is compared with the six control solutions and the quantity thus immediately determined. It must be emphasized that these tests give only approximately accurate results, though they are perhaps sufficient for clinical work. More accurate methods, but much more difficult of application, are those of Wang (*Zeitschr. f. physiol. Chemie*, vol. xxv, 1898, p. 406), and of J. Bouma (*Zeitschr. f. physiol. Chemie*, vol. xxxii, 1901, p. 82).

ANTIQUATED TEACHING IN MEDICAL COLLEGES.

————, ——, Jan. 18, 1905.

To the Editor:—Will you kindly suggest to me some way out of the following difficulty satisfactory both to the students and to the dignity of the professor involved? A colleague of mine is the professor of two branches in the medical curriculum of a certain college. He teaches one branch to second year men, the other to fourth-year men. The requirements of admission to the school have increased in the last few years to such a degree that many of the men who take their second year under him are better prepared in this particular subject than he is. Mutterings have occurred before, but I accidentally learned that the men were agitating a petition to have this particular man teach them the subject as it is to-day and not as it was ten years ago. The professor involved is the most influential member of this unendowed faculty and personally a warm-hearted, genial gentleman, as well as a good friend of mine, so I stopped the petition for these reasons and the fear that the ringleaders (the best-qualified men in their class) would be expelled. Now, two or more of us have recognized the antiquated teaching of this important subject. What can we do? If you desire to publish this, kindly withhold the city and my name and try to offer me a solution for the trouble. A. B. C.

ANSWER.—The case referred to is perhaps by no means an isolated instance. Although we withhold the name of the city, as our correspondent suggests, we think it wise to state that the college referred to is not located in Russia, in spite of the fear expressed lest the "ringleaders" be "expelled" for asking for a square deal. Could not the petition be framed so as not to speak disrespectfully of this evidently heavy stockholder? The matter, of course, ought never to have gone so far as to make it necessary for the students to risk being plucked by preparing this petition. The only right course to pursue now is for those who recognize the situation to explain it to the member referred to fairly and squarely, but in a gentlemanly and tactful manner, and afterward to bring the matter before the faculty. If this does not speedily secure the desired result, those who stand for honesty and for up-to-date medical instruction should not continue to be associated with the institution. In terminating their connection, they should state publicly the exact reason for their resignation. If a few men were to do this it would make a vast difference in the medical teaching of many schools in this country. For a physician to be connected with a school which gives out-of-date, insufficient and hence harmful instruction of this sort is to endorse that deficiency and is a discredit to the man.

SPELLING AMONG IRREGULARS.

————, ——, Dec. 26, 1904.

To the Editor:—The enclosed is an exact copy of an affidavit of "Dr." — — ————, which the county attorney gave me several years ago and which I know to be genuine. This old doctor lives

in the hills of ———— county. ———, and has been practicing medicine for over forty years. He never entered a medical college in his life, nor made a dissection. Although a very ignorant man, living in a little log house in a remote part of the country twenty miles from a railroad, he has patients from every state in the Union, and, like a great many quacks, performs some very miraculous cures (?). He is permitted to practice medicine in this state under the act of ——, having practiced medicine fifteen years prior to the above date. He became a member of the pharmaceutical association by sending that body $1. He is also on the staff of the St. Luke's Hospital, Niles, Mich., for the certificate of which he paid $10. C. Y.

——— ——— ——— co febuery th 10, 1884.

to th ko jug of th kort
of ———— Co ———.

Thys iz too sertafi tht i Hav Maid A fisikal Exam Of Willum D—— & find his Fisikal Helth vry week. he has skroflon ditis & asmos ditis his harte Is week & his blud Dont hav Kurrent Flo thro arters, i find he's Rupert in Grine and, and Abdom. his mind Wavers and he has Hall Lucy-nations and is Esy skert and he dont no howe too wurk kase His minde iz incent and i konsider hym A Fit subjick fer Silum

Dr. — — ————, md. p.m, m.p.s.

Our correspondent explains that "skroflon ditis" means scrofulous diathesis; "asmos ditis," asthmatic diathesis; "incent," insane; "arters," arteries; "Rupert," ruptured; "p.m," postmaster; "m.p.s.," member of pharmaceutical association. In this connection we will also quote a letter received by Dr. W. F. Morrow, secretary of the Missouri State Board of Health.

Dear Sir, I rite you these lines few lines to find out the requirements to Practis Medison in the state of Missouri i am a man that Thurruly understand dease. Lokate Dease By the appearance of the Tongue and other sins and the Different stages in the same manner also the Different Treatments in the Different stages. Thurruly understand all Kinds of Feavers, Inflemarity Deases in their Different forms, the Different Treatment as the Forms calls for also varioius Different affections of the Kidneys and their Different Treatments, also Different forms of Rumatic affections in their Different Tipes. Also Heart affections of various Forms as They appere and their Treatment also Dease of the Nearves, Fits of all carecters arising from the Brain Nerves and Mussels and their Different Treatments, also the many Different affections of the Throat such as Laringitas Diptheria and all other affections, Lung Troubles and all other Deases to numerous to mention. i received My Knowledge of Dease and the Practis of Medison under My Frends they were doctors. They Practese with the Benefit of Both Schools and that is what i have and thirty years instruction from a practice of sixty years. Please rite me.

IMMUNITY AND PHAGOCYTOSIS.

MILWAUKEE, WIS., Jan. 12, 1905.

To the Editor:—Please tell me where I can get some recent papers, in the English language, on "phagocytosis." I have Metchnikoff's latest article on that work in German, but am unable to translate it. Is there an English translation? Any recent article on "Immunity and Susceptibility" will probably answer my purpose as well if the theory of phagocytosis is well discussed.

DR. J. E. BINGHAM.

ANSWER.—Consult the special article on "Immunity," which begins in this issue of THE JOURNAL, page 294. The work of Metchnikoff on "Immunity in the Infectious Diseases," 1901, is the most authoritative and comprehensive treatise on the subject of phagocytosis. S. G. Binnie recently translated this work into English (The Macmillan Company, New York, 1904). Advances of the greatest importance in the study of phagocytosis have been made recently in England by Wright and Douglas (Proc. of the Royal Soc., London, 1903, vol. 72, p. 357; Ibid., 1904, vol. 73, p. 128; *Lancet*, London, 1904, vol. 2, p. 1138; *Brit. Med. Jour.*, 1902, vol. 1, p. 73). The work of Wright and Douglas has been extended in important particulars in this country by Hektoen and Ruediger (*Jour. of Infectious Diseases*, 1905, vol. 2, No. 1). See also: Wesbrook, "Phagocytosis," *Northwest Lancet*, 1903, vol. 23, pp. 182-184 (Minneapolis). Our correspondent can certainly get the article he refers to translated in Milwaukee; if not we shall be glad to have it done for him.

ESTIMATED EXPENSES TO PORTLAND.

CINCINNATI, Jan. 17, 1905.

To the Editor:—Will you kindly let me know what the probable expense of the trip to Portland for the next session of the American Medical Association will be, as I would like to have this and make my plans accordingly? H. W. B.

ANSWER.—The expenses of the trip will vary with the individual and his habits. From Cincinnati the railroad fare for the round trip will be about $60; sleeping car, double berth, both ways, $28; meals ($1 each), both ways, $20; hotel expenses at Portland, five days at $5, $25, or a total of $133. Of course, if one desires to be economical, these expenses can be reduced. By "doubling up," $14 can be deducted from the sleeping car expenses, or even more reduction is possible by taking a tourist sleeper. The dining car service is usually *a la carte*, and the average meal can be reduced below $1. Hotel accommodations can be obtained at much less than $5. These figures are based on a trip direct to Portland and return, without stopping on the way. We doubt if any will make such a long trip without taking advantage of some side excursion, and the expenses of this, of course, each individual must estimate for himself.

THE X-RAY IN PSORIASIS.

CAMBRIA, WIS., Jan. 13, 1905.

To the Editor:—1. What benefit, if any, is the *x*-ray in the treatment of psoriasis? 2. What number of exposures should be given in an average case of long standing before a noticeable improvement can be hoped for? 3. Are there any known cases recorded in which cures have been effected by the use of the *x*-ray? C. E. S.

ANSWER.—1. Psoriasis can be cleaned up with the *x*-ray; the treatment has been given a thorough trial by dermatologists, with very satisfactory results. 2. The second question can not be answered in the form in which it is propounded. The number of exposures required depends entirely on the quantity of *x*-rays used in the exposure. It is not necessary usually to carry the exposures to the point of producing any reaction in order to get rid of a patch of psoriasis. 3. Numerous references to recorded cases will be found in the text-books on *x*-ray work, under psoriasis; for example, Pusey & Caldwell, and Williams.

BOOKS ON DIAGNOSIS BY THE MICROSCOPE.

LA AURORA., PUEB., MEX., Jan. 15, 1905.

To the Editor:—What is the best book on laboratory diagnosis, including technic of staining, preparation of stains and use of the microscope in making such diagnoses? B. W. GREEN, M.D.

ANSWER.—Simon's "Clinical Diagnosis" (Lea Bros.); Lee's "Vade Mecum" (Blakiston); Oertel's "Medical Microscopy" (Blakiston); Mallory and Wright's "Pathologic Technique" (Saunders); Ewing's "Clinical Pathology of the Blood" (Lea Bros.). These can be ordered from any bookseller.

Marriages.

WILLIAM EARL HAMLIN, M.D., to Miss Fay Voohers, both of Pocahontas, Ark.

ANDREW J. WALLS, M.D., to Miss Ida Smith, both of Lonoke, Ark., January 4.

JOSEPH WEINBERG, M.D., to Miss Helen G. Kelly, both of Brooklyn, January 2.

CLARENCE E. APPLE, M.D., to Miss Emma P. Crowe, both of Philadelphia, January 8.

CHARLES F. DARNALL, M.D., to Miss Ona Parkhill, both of Llano, Texas, January 4.

JOSEPH DRIES, M.D., to Miss Marie Altmeier, both of Milwaukee, Wis., January 11.

J. HARRY CRAWFORD, M.D., to Miss Mary E. Madden, both of Castlewood, S. D., January 1.

JOHN H. MARTIN, M. D., to Miss Marie Glidden, both of Centerville, S. D., at Parker, S. D.

C. C. HATFIELD, M.D., Kingston, Ohio, to Miss Maud M. Grim of Columbus, December 28.

WILLIAM A. STARNES, M.D., to Miss Callie Barrow Torbett, both of Atlanta, Ga., January 11.

GEORGE S. EDMONSON, M.D., Clinton, Ill., to Miss Della B. Jones of Thawville, Ill., January 4.

W. W. LUCAS, M.D., New Washington, Ohio, to Miss Goldie Staley of Sidney, Ohio, December 25.

HALBERT F. NEAL, M.D., Meridian, Idaho, to Miss Grace Andrews of Peru, Neb., December 28.

EDWARD DANFORTH, M.D., New York City, to Miss Helen Mattice of Gilboa, N. Y., January 18.

OLIVER S. REILEY, M.D., Red Oak, Iowa, to Mrs. Estelle Whipple of Belvidere, Ill., January 17.

READDING LLOYD WILLIAMS, M.D., to Miss Eleanor Magdalen Henke, at Las Vegas, N. M., January 10.

ISAAC MARION BURNSIDE, M.D., to Miss Jessie May McDonald, both of Highmore, S. D., January 10.

SIDNEY J. HATFIELD, M.D., Indianapolis, to Miss Calhoun Peckinpaugh of Alton, Ind., December 28.

PRATHER B. CURLIN, M.D., Hickman, Ky., to Miss Ruth Seates of Union City, Tenn., January 13.

WILLIAM RUSSELL JONES, M.D., Richmond, Va., to Miss Jane Taylor Fisher of Norfolk, Va., January 6.

ANDREW R. G. SMITH, M.D., North Whitefield, Maine, to Mrs. Maude Allen of Jefferson, Maine, December 31.

JAMES HENRY FERRELL, M.D., Woodlawn, Ala., to Miss Marion Lucile Edwards of Sylacauga, Ala., January 25.

AURAL ALVA SANDY, M.D., Washington, Iowa, to Miss Blanche May Foshier of Harvey, Iowa, January 18.

WINFRED MORGAN HARTSHORN, M.D., New Haven, Conn., to Miss Edith May Lieb of New York City, January 11.

AUGUSTUS W. THOMPSON, M. D., Mineral Wells, Texas, to Miss Estelle Johnson of Jackson, Miss., January 11.

RUTHERFORD B. IRONES, M.D., San Francisco, to Miss Georgia E. Dow of San Diego, Cal., in Los Angeles, January 12.

BENJAMIN AUSTIN CHENEY, M.D., New Haven, Conn., to Miss Lillian Clark Farrel of Ansonia, Conn., January 11.

ALBERT RALSTON MATHENY, M.D., Pittsburg, Pa., to Miss Florence Belt Kitzmiller of Hawkins Station, Pa., January 24.

CHARLES A. HAUBER, M.D., Walla Walla, Wash., to Miss Elletta Lydia Wiltfi of San Jose, Cal., at San Francisco, December 31.

PERCY FITZGERALD MCMURDO, M.D., acting assistant surgeon United States Navy, Charlotteville, Va., to Miss Genevieve Le Duc of Philadelphia, January 11.

Deaths.

Thos. H. Manley, M.D. New York University, New York City, 1875, member of the Mississippi Valley Medical Association; New York Academy of Medicine, New York County Medical Society; professor of surgery and surgical pathology New York School of Clinical Medicine; visiting surgeon to Harlem and Metropolitan Hospitals, died from pneumonia at his home in New York City, January 13, aged 54.

Albert G. Carr, M.D. Bellevue Hospital Medical College, New York City, 1870, formerly surgeon of the North Carolina State Troops; first vice-president and treasurer for eight years of the Medical Society of the State of North Carolina; president of the Durham County Medical Society, committed suicide while despondent, by shooting himself at his home in Durham, January 13, aged 54.

Josiah Peltz, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1867, a member of the American Medical Association, Medical Society of the State of Pennsylvania and Philadelphia County Medical Society, died at his home in Philadelphia from valvular heart disease following a severe attack of influenza, January 13, aged 62.

Charles H. Norred, M.D. St. Louis College of Physicians and Surgeons, 1865; Jefferson Medical College, Philadelphia, 1886; surgeon of the Seventh Illinois Volunteer Cavalry in the Civil War; special quarantine officer of Minneapolis during the smallpox epidemic of 1900, died at the Landour Hotel, Minneapolis, January 11, a few days after an operation.

Emmet Perdue, M.D. Marion-Sims College of Medicine, St. Louis, 1896, surgeon to the North American Coffee Company and Carbon Lumber Company; deputy health officer of Carbon County, Wyo., was shot through the back of the head and killed while in bed at his father-in-law's house near Richmond, Mo., January 18.

Peter B. M. Miller, M.D. Royal College of Surgeons, Edinburgh, Scotland, 1858, surgeon in the British army in India for ten years, a practitioner in Australia and New Zealand; since 1882 a resident of Seattle, Wash., died at his home in that city, December 2, from cancer of the mouth, after an illness of four years, aged 69.

Duncan Reid, M.D. Rush Medical College, Chicago 1878, a member of the American Medical Association; for two years a self-supported medical missionary on the west coast of Africa, died at his home in New Hampton, Iowa, January 11, from valvular heart disease—aortic stenosis—aged 58.

Louis E. Foudruat, M.D. Faculté de Médecine, Montpellier, France, 1864, surgeon in the army of Maximilian in Mexico; coroner and parish physician for twenty-four years, and president of the local board of health for ten years, died at his home in St. Bernard, La., after a long illness, aged 63.

Arthur O'Leary, M.D. Jefferson Medical College, Philadelphia, 1866, while depressed from financial difficulties and suffering from injuries received in a street-car accident, ended his life, January 18, by shooting himself through the heart at his home in Cleveland, Ohio, aged 75.

Henry R. McComb, M.D. Rush Medical College, Chicago, 1881, for two years mayor of Shawano, Wis., and for four years county judge of Shawano County, died at his home in Shawano, January 10, from nephritis, after an illness of several years, aged 50.

William J. Gautier, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1850, for half a century a practitioner of Tuskogee, Ala., died at his home in that city, January 13, from heart disease, after an illness of one week, aged 79.

William Aills, M.D. Tulane University of Louisiana, Medical Department, 1853, surgeon of the Sixth Mississippi Infantry, C. S. A., and brigade surgeon in the Civil War, died at his home in Steen's Creek, Rankin County, Miss., January 14, aged 80.

Odelia Blinn, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1868, formerly prominent in professional and social circles in Chicago, died at the Cook County Infirmary, Dunning, January 20, after an illness of six years, aged 60.

George W. Harrison, M.D. Rush Medical College, Chicago, 1881, of Ashland, Wis., once a member of the Wisconsin State Board of Medical Examiners; second mayor of Ashland, died January 12 at Grand Rapids, Mich., from heart disease, aged 55.

Leonard J. Gordon, M.D. Bellevue Hospital Medical College, New York City, 1875, director of the Jersey City Public Library, died at his home in Jersey City from heart disease, January 17, after an illness of three months, aged 60.

Stephen M. Switzer, M.D. University of Vermont Medical Department, Burlington, 1880, died at his home in Bradford, N. Y., January 7, from paralysis following diphtheria, after an illness of several weeks, aged 56.

Daniel O. Polin, M.D. Medical Department of the St. Louis University, 1851, president of the Washington County (Ky.) Medical Society, died at his home in Springfield, January 14, from heart disease, aged 75.

John R. Howes, M.D. Medical College of Ohio, Cincinnati, 1879, of Las Comas, N. Mex., representative in the Minnesota Legislature in 1884 and 1885, died suddenly in El Paso, Tex., January 10, aged 56.

John McJunkins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879, died at his home in Tuccoa, Ga., January 10, from nephritis, after an illness of two months.

Franklin Byington, M.D. University of Georgetown, Washington, D. C., 1858, surgeon in the Confederate service during the Civil War, died at his home in Charlestown, W. Va., January 14, aged 66.

James Leslie Harding, M.D. Starling Medical College, Columbus, Ohio, 1883, died at his home in Blairsville, Pa., January 10, from cerebral hemorrhage, after an illness of several days, aged 45.

Edward D. Bernreuter, M.D. Missouri Medical College, St. Louis, 1880, a member of the American Medical Association, died at his home in Mount Olive, Ill., December 9, aged 46.

Charles E. Oatis, M.D. Transylvania University Medical Department, Lexington, Ky., 1846, died at his home in Hazlehurst, Miss., January 6, from cerebral hemorrhage, aged 81.

James D. McKnight, M.D. Memphis (Tenn.) Hospital Medical College, 1882, sheriff of St. Francis County, Ark., died suddenly at his home in Forrest City, January 8, aged 62.

J. P. Lowery, M.D. Vanderbilt University Medical Department, Nashville, 1879, died recently at his home in Renner, Texas, and was buried at Corsicana, Texas, January 15.

Michael R. Kelly, M.D. Rush Medical College, Chicago, afterward prominent as an educator, died at his home near Morrison, Ill., recently, and was buried January 7, aged 84.

Gustavus Nelson, M.D. Louisville Medical College, 1893, died at his home in Trufant, Mich., January 12, from hemorrhage of the stomach, after an illness of three days, aged 50.

John S. Smalley, M.D. Ohio Medical University, Columbus, 1893, died at his home in Newark, N. J., January 8, from nephritis, after an illness of three months, aged 49.

S. R. Hubbard, M.D. University of Nashville Medical Department, 1862, died at the home of his son in St. Augustine, Fla., January 1, after a long illness, aged 70.

James H. Cossaart, M.D. New York, 1870, of Otego, N. Y., died at a hospital in New York City, January 2, four days after an operation for cholelithiasis, aged 58.

John H. Donaldson, M.D. Starling Medical College, Columbus, Ohio, 1881, died at his home in Gore, Ohio, from cerebral hemorrhage, after an illness of a year, aged 56.

Robert B. Dupree, M.D. Bellevue Hospital Medical College, New York City, 1874, died at his home in Marlin, Texas, January 11, after a prolonged illness, aged 54.

William H. Ensminger, M.D. Jefferson Medical College, Philadelphia, 1871, died suddenly at his home in Chicago, January 17, from cerebral hemorrhage, aged 61.

Seth R. Beckwith, M.D. Ohio, 1853, of New York City, physician to the late President Garfield, died at Atlantic City, January 20, after an illness of a year, aged 72.

S. Cordelia Enos, M.D. Illinois, 1891, died at her home in Jerseyville, Ill., January 17, from injuries sustained in an explosion of gasoline the day before, aged 60.

Thomas M. Johns, M.D. Rush Medical College, Chicago, 1877, died at his home in Taylorsville, Ill., from liver disease, after a long illness, aged 58.

John B. Adams, M.D. Medical College of Alabama, Mobile, 1898, died at his home in Clanton, Ala., January 10, after amputation of both feet.

Robert P. Lake, M.D. University of Maryland School of Medicine, Baltimore, 1849, died at his home near Locust Dale, Va., recently, aged 83.

John A. Hamilton, M.D. Jefferson Medical College, Philadelphia, 1876, died at his home, Pollock, La., January 11, aged 70.

Thomas N. Livesay, M.D. Rush Medical College, Chicago, 1868, died at his home in Patoka, Ill., January 10, aged 68.

Ewing Peyton Biggs, M.D. Cincinnati, 1878, died at his home in Lutesville, Mo., January 4, from heart disease, aged 52.

Gustave Schmidt, M.D. University of Breslau, Germany, 1838, died at his home in Ingraham, Ill., December 1, aged 88.

Samuel G. Weagley, M.D. Years of Practice, Illinois, 1878, died at his home in Jacksonville, Ill., December 7, aged 78.

A. G. Wertman, M.D. Baltimore University School of Medicine, 1898, died at his home in Effort, Pa., January 18.

Jesse Chewning, M.D. St. Louis Medical College, 1863, died at his home in Canton, Ill., Sept. 21, 1904, aged 65.

George H. Winkelmann, M.D. Cincinnati College of Medicine and Surgery, died in Chicago, December 19, aged 52.

F. Virgil Westfall, M.D. Medical College of Ohio, Cincinnati, 1889, died at Dahlgren, Ill., Nov. 23, 1904, aged 49.

John Pearson Iliff, M.D. Pennsylvania, 1883, died at his home in Philadelphia, January 11, aged 54.

Jeremiah Phillips, M.D. Cincinnati, 1855, died at his home in Olney, Ill., Oct. 16, 1904, aged 88.

Miscellany.

The Cytology of General Paresis.—Fischer reports two cases of paresis, of which the diagnosis was unquestioned, which were examined as to the condition of their blood cells by lumbar puncture during life with strikingly different results. In one there was almost entire absence of lymphocytes, in the other marked lymphocytosis. The autopsy in both cases revealed typical paretic meningeal infiltration. The conclusion he draws, in the *Präger med. Woch.*, is that we can not determine by the cytologic findings whether or not the meninges are specially inflamed, but only how strongly and how far they are infiltrated and to some extent whether the process is slow or rapid. Of course, the quantitative determination of the cells of the cerebrospinal fluid is only an approximate one. Another point noted in his observation is that the cells found by lumbar puncture are either identical with or of the same type as those in the meninges, and probably originate in the meninges, and we must assume a downward flow from the brain carrying them into the lower spinal region. Infiltration of the spinal meninges is an accompaniment of this condition even though the spinal cord itself may apparently be intact.

Overpressure in School.—Commenting on the scarcity of cases of chorea in the summer and fall, and the abundance of such cases seen in the late winter and spring, Dr. La Fetra, in the *Archives of Pediatrics*, attributes this condition in great measure to overwork in school. During October or November it is often difficult, even in a large ambulatory service, to collect sufficient cases for a clinical lecture on the various phases of chorea. As the seasons proceed, the cases increase slowly in number until about March or April, when there is a sudden rise in the number of those affected. Pale, thin, ambitious children, the majority of them girls, then throng the nervous and pediatric clinics in all stages of the disease. Probably the most important exciting cause, at least in those cases that are not clearly rheumatic, is excessive stimulation of the cortical cells of the brain. This results in the gradual supervention of undernutrition and consequently in overexcitability of these cells. The nature of the stimulation varies. It may be the social excitement of children's parties, long waking hours, a bad fright, great grief, strenuous games, too many or too long school periods, home study at night, or the strain and anxiety of class recitations; or, it may be improper food or indigestion; at any rate, the result is much the same. The child's nervous system becomes debilitated, loses its power of inhibition, and manifests the overactivity of weakness. St. Vitus' dance is cited merely as one of the extreme types of this nervous exhaustion. In the treatment it is pointed out that careful attention to the number and character of the different subjects, the length of the lessons and the time of study is necessary. Change of study or the alternation of physical exercise, games or manual training with mental effort is desirable; but it must be remembered that change of work, or change from work to play is not rest, although the result may be added interest in the new occupation. Change of employment is not recreation; for all effort fatigues. Children that need especially to be watched during the school year are those of alcoholic, tuberculous or neurotic family history, those that are anemic, those that are growing rapidly, especially girls at the period of prepubertal acceleration in growth, from 11 to 13 years, and those that have recently suffered from whooping cough, measles and diphtheria. Only by the exercise of caution in their school work can such children be prevented from suffering the ill effects of overpressure. Persistent headaches, not due to eye defects, disturbed sleep, morning languor and loss of appetite, are warning symptoms; if they persist after modification of the school régime, the child should be withdrawn from school for three or four weeks, or until all signs of nervous exhaustion have disappeared. Disregard of these early symptoms risks the more serious results of overpressure, such as chorea, neurasthenia, hypochondriasis, hysteria, and even epilepsy and insanity in patients of neurotic heredity.

State Boards of Registration.

COMING EXAMINATIONS.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Board of Medical Registration for Vermont, Burlington, February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

California December Report.—Dr. C. L. Tisdale, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco Dec. 6, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 40, of whom 24 passed and 16 failed. The following colleges were represented:

PASSED. College.	Year Grad	Per Cent.
Cooper Medical College	(1904) 78.8, 82.1, 82.8, 84,	84.8
College of P. and S., Chicago.	(1895) 86.1, (1902) 75, (1904)	76.8
University of Michigan	(1903) 75.7,	85.3
Rush Medical College	(1901)	87.6
Howard Medical College	(1902)	83.3
Jefferson Medical College	(1902)	78.1
McGill University, Canada	(1904)	77.6

University of Missouri	(1904)	75
Hahnemann Med. Coll., San Francisco,	(1903) 75.7	(1904) 82.1, 82.6
Northwestern University	(1904)	82.2
University of California	(1904)	75
College of Med. and Surg., Minnesota	(1900)	85
Gross Medical College	(1902)	87.7
Starling Medical College	(1898)	82.1
Chicago Homeo. Med. Coll	(1888)	80.4
FAILED.		
Cooper Medical College	(1903)	65
University of Michigan	(1890)	62.3, 67
University of Berlin, Germany	(1899)	64.1
Rush Medical College	(1882)	69.3
Jefferson Medical College	(1902) 68.1,	(1893) 36.4
Tufts Medical College	(1902)	59.2
Marion Sims-Beaumont Med. Coll	(1903)	67.7
Medical College of South Carolina	(1897)	70.4
Bellevue Hospital Med. Coll	(1889) 69.7,	(1877) 66.4
University of Virginia	(1891)	62.6
University of Louisville	(1890)	68.5
College of P. and S., Chicago	(1901)	71.6
College of P. and S., San Francisco	(1904)	70.6

Oklahoma December Report.—Dr. E. E. Cowdrick, secretary of the Territorial Medical Examining Board of Oklahoma, reports the examination held at Guthrie, Dec. 2-8, 1904. The number of subjects examined in was 9; total number of questions asked, 85. No percentages are assigned by this board, but each candidate is required to attain a grade of 66.6 or over in each branch. The total number examined was 19, of whom 5 passed and 14 failed. The following colleges were represented:

PASSED.

University Medical College, Kansas City, Mo. (1904), had 1 representative; Northwestern University (1892), 1; Hahnemann Medical College, Chicago (1891), 1; Illinois Medical College (1904), 1, and Medical Department Drake University (1897), 1.

FAILED.

The following colleges had each one representative: American Medical Missionary College, Chicago (1903); Kansas City Medical College (1897); Baltimore University (1904); Baltimore Medical College (1896); College of Physicians and Surgeons, Baltimore (1885); University of Vermont (1904); University of Medicine, Kansas City, Mo. (1884); American Medical College, St. Louis (1904); Hospital Medical College, Kansas (1893); University of Michigan (1872); Rush Medical College (1900); Hospital College of Medicine, Kentucky (1889), and Barnes Medical College (1901).

Nebraska November Report.—Dr. George H. Brash, Beatrice, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 9-10, 1904. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number examined was 8, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Kentucky School of Medicine	(1904)	81.1
Kentucky Univ. Med. Dept	(1904)	78.1
Barnes Medical College	(1901)	78.1
Northwestern University	(1904)	85.1
Hahnemann Med. Coll., Chicago	(1882)	80.8
Baltimore Medical College	(1898)	86
Lincoln Medical College	(1902)	81.2
Creighton Medical College	(1900)	*77.1

*Second examination.

Maryland June, September and October Reports.—Dr. Joseph H. Garrison, secretary of the Board of Medical Examiners of Maryland, representing the Maryland State Homeopathic Medical Society, reports the examinations held at Baltimore, June 7-8, September 30, and Oct. 26, 1904. The number of subjects examined in was 9; total number of questions asked, 70; percentage required to pass, 75.

At the June examination the total number examined was 13, all of whom passed. The following colleges were represented:

Southern Homeopathic Med. Coll.,	(1904)	77.4, 78.7, 81, 82.7, 83.7, 86.4, 88.1, 88.5, 88.7, 88.8, 92.5, 93.1.
Hering Medical College, Chicago	(1904)	93.7

The general average of all representatives of the Southern Homeopathic Medical College was 85.8.

The examinations held September 30 and October 26 were oral. Only two persons were examined, both of whom passed.

Hahnemann Med. Coll., Philadelphia	(1904)	75, 75

Ohio December Report.—Dr. Frank J. Winders, secretary of the Ohio State Board of Medical Registration and Examination, reports the written examination held at Columbus, Dec. 13-15, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 42, of whom 40 passed and 2 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Columbian Univ., Washington, D. C.	(1904)	91
Univ. of Virginia Med. Dept	(1900) 94,	(1902) 83
Univ. of Moscow, Moscow, Russia	(1899)	90
Univ. of Munich, Munich, Germany	(1899)	82
Univ. of Buffalo	(1895)	85
Ohio Medical University	(1904)	91, 79, 75
Starling Medical College	(1904) 79, 78, 86,	(1903) 88
Hospital Coll. of Med., Louisville	(1903)	81
Detroit Medical College	(1887)	77
Howard Univ., Washington, D. C.	(1904)	78, 88, 84
Western Reserve Univ.	(1883)	83
Imperial Alexander Univ., Helsingfors, Finland	(1903)	80
Kentucky School of Medicine	(1904)	82
Univ. of Louisville	(1904)	90
Barnes Med. Coll., St. Louis	(1899)	83
Baltimore Med. Coll.	(1904)	91
Tufts Med. School, Boston	(1903)	84
Med. Coll. of Ohio	(1903)	88
McGill University, Montreal	(1895)	81
Cleveland Homeo. Med. Coll	(1904)	81, 80, 79
Eclectic Med. Coll., New York	(1899)	81
Univ. of Toronto, Ont., Can	(1901)	94
Univ. of Louisville	(1904)	80
Univ. of Southern California, Los Angeles	(1903)	94
Coll. of P. and S., Baltimore	(1902)	84
Jefferson Med. Coll., Philadelphia	(1903)	91, 84
Rush Med. Coll., Chicago	(1900)	86
Long Island Hospital Coll	(1902)	90
Univ. of Michigan	(1890)	78
FAILED.		
Toledo Med. Coll	(1904)	73
Eclectic Med. Inst., Cincinnati	(1904)	72

Association News.

The Portland Session.

Dr. Kenneth J. Mackenzie, Chairman of the Committee on Arrangements, writes concerning arrangements for the session of the American Medical Association in Portland:

HOTEL ARRANGEMENTS have been placed in the hands of a committee, at the head of which is Dr. William Jones, and consisting of the following: Drs. R. C. Coffey, W. H. Skeene, C. H. Wheeler, A. E. Mackey and Mr. H. C. Bowers (by courtesy).

Mr. H. C. Bowers, the manager of the Hotel Portland, has undertaken to provide accommodations for any number that will attend the session. Mr. Bowers has informed the committee that he can readily take care of 4,000 or 5,000 visitors, and those who contemplate coming are requested to communicate with him and to make contracts for their accommodations without any delay. In anticipation of the Lewis and Clark Fair, the success of which is now an assured fact, the hotel and room capacity of the city has been greatly increased by 7,000 rooms from last year.

The management of the Lewis and Clark Fair have made arrangements with Mrs. McCready, who managed the American Inn at the St. Louis Fair, to build, within the city limits and within convenient distance of the center of the city, a hotel with a capacity of over 500 rooms. It will be better built than any structure of the kind that was in use in St. Louis, and a great many of the rooms will be furnished with baths. A large number of moderate sized but high-class hotels are under construction.

EXCURSIONS are being arranged by the local committee to take place on the Columbia River, which will enable the visitors to witness the choicest scenery of the Pacific Coast, including the unrivaled mountain scenery of the Cascade Range. Plans are being considered for excursions to Alaska and to the Orient. These arrangements, of course, will depend on a sufficient number of visitors announcing their plans in advance, indicating their intentions of making these excursions.

The most admirable arrangements have been made for the Section sessions.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 21, 1905:

Turnbull, Wilfrid, asst.-surgeon, advanced to rank of captain, to date from Jan. 16, 1905.

Egbert, R. G., surgeon, left from detached duty at Fort D. A. Russell, Wyoming, on 15 days' leave of absence.

Sweazey, Verge E., asst.-surgeon, reported at U. S. Army General Hospital, Washington Barracks, D. C., for treatment, from leave of absence.

Smart, Charles, brigadier general, retired as colonel and asst.-surgeon general, and advanced to brigadier general on retired list.

Hess, John H., examining and supervising dental surgeon, left West Point, N. Y., January 16, for San Francisco, Cal., en route to Philippine service.

Sparrenberger, Frederick H., contract surgeon, returned January 16 to Fort Mott, N. J., from leave of absence.

Wythe, Stephen, contract surgeon, returned January 10 to San Francisco, Cal., from leave of absence.

Foulkes, Bruce, contract surgeon, granted an extension of one month to his leave of absence.

Reitz, Hugo C., dental surgeon, returned January 17 to duty at Fort Sheridan, Ill., from leave of absence.

Ware, William H., dental surgeon, ordered to visit in succession, to render professional service, Fort Wingate, N. M.; Fort Apache, Ariz.; Whipple Barracks, Ariz.; Fort Huachuca, Ariz., and Fort Grant, Ariz.

Truax, Jesse P., contract surgeon, left Fort Lawton, Wash., January 14 for his proper station, Fort Ward, Wash.

Long, Charles J., dental surgeon, ordered to proceed at the expiration of his present leave of absence to Fort Snelling, Minn., for duty.

Hussey, Samuel W., dental surgeon, relieved from duty in the Department of Dakota and ordered to San Francisco, Cal., to sail March 1 for Philippine service.

McAlister, John A., dental surgeon, relieved from duty in the Philippine Division March 10 and ordered to the United States for assignment.

Millikin, John D., dental surgeon, relieved from duty in the Philippine Division April 14 and ordered to the United States for assignment.

Casaday, George H., dental surgeon, relieved from duty in the Philippine Division April 21 and ordered to the United States for assignment.

Bernheim, Julien R., dental surgeon, relieved from duty in the Philippine Division May 27 and ordered to the United States for assignment.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 21, 1905:

Pleadwell, F. L., surgeon, detached from the Naval Dispensary, Washington, D. C., January 31, and ordered to duty at the Naval Hospital, Yokohama, Japan, sailing from San Francisco, Cal., February 14.

Plummer, R. W., P. A. surgeon, detached from the Naval Hospital, San Juan, P. R., and granted leave of absence until February 15.

Garton, W. M., P. A. surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered home.

Butler, C. S., P. A. surgeon, detached from the *Constellation*, Jannuary 18, and ordered to the Naval Hospital, San Juan, P. R., sailing from New York, N. Y., January 21.

Stuart, A., asst.-surgeon, detached from the Naval Hospital, San Juan, P. R., and ordered to Washingtoon, D. C., February 15 for examination for promotion, and thence home and to await orders.

Rodman, S. S., P. A. surgeon, ordered to the *Pensacola*.

Sellers, F. E., A. A. surgeon, detached from the *Gloucester* and ordered to the *Franklin*.

Alfred, A. R., surgeon, detached from the *Solace* and ordered to the Naval Station, Cavite, P. I.

McLarty, C., pharmacist, detached from the *Solace* and ordered to the Naval Hospital, Yokohama, Japan.

Public Health and Marine-Hospital Service.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending Jan. 18, 1905:

Greene, J. B., P. A. surgeon, seven days' extension of leave of absence from January 7, granted by Bureau telegram of January 4, revoked.

Townsend, W., A. A. surgeon, Department letter of Nov. 22, 1904, amended to grant A. A. Surgeon Townsend leave of absence for twelve days, instead of 30 days, from Dec. 15, 1904.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Jan. 19, 1905, for the physical examination of an applicant for the position of second assistant engineer, Revenue Cutter Service. Detail for the Board: Asst.-Surgeon General G. T. Vaughan, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 20, 1905;

Alabama: Mobile, Dec. 19-Jan. 9, 3 cases from vessels in port.
Arkansas: Fort Smith, Dec. 10-17, 1 case.
Illinois: Chicago, Jan 8 14, 16 cases, 1 death; Danville, Jan. 8-14, 2 cases; Peoria, Dec. 1-31, 7 cases.
Kansas: Topeka, Jan. 8-14, 1 case.
Louisiana: New Orleans, Jan. 8 14, 7 cases.
Massachusetts: Everett, Jan. 8-14, 3 cases, 1 death; Hyde Park, Jan. 8-14, 1 case from Steamship *Cymric*.
Massachusetts: Everett, Jan. 8-14, 3 cases.
Dec. 1-31, 1 death; Jackson Co., Dec. 1-31, 1 death.
Minnesota: Clay Co., Jan. 3-9, 1 case; Morrison Co., Jan. 3-9, 1 case; Otter Tail Co., Jan. 3-9, 8 cases; Rice Co., Jan. 3-9, 2 cases; St. Louis Co., Jan. 3-9, 3 cases; Todd Co., Jan 3-9, 3 cases; Wadena Co., Jan. 3-9, 5 cases.
Missouri: St. Louis, Jan. 8-14, 17 cases.
New York: New York, Jan. 8-14, 2 cases.
Ohio: Toledo, Jan. 10 17, 2 cases.
Pennsylvania: Homestead, Jan. 9-15, 1 case.
South Carolina: Georgetown, Jan. 1-14, 10 cases.
Tennessee: Memphis, Jan. 8-14, 2 cases; Nashville, Jan. 8-14, 4 cases.
Wisconsin: Milwaukee, Jan. 8-14, 8 cases.

SMALLPOX—FOREIGN.

Brazil: Para, Dec. 1-14, 54 deaths; Rio de Janeiro, Dec. 12-18, 102 cases, 34 deaths.
France: Lyons, Dec. 18-24, 1 case; Paris, Dec. 28-31, 14 cases, 4 deaths.
Great Britain: Hull, Dec. 25-31, 1 case; London, Dec. 25-31, 5 cases; Manchester, Dec. 25-31, 2 cases; Newcastle on Tyne, Dec. 25-31, 3 cases; Nottingham, Dec. 25-31, 2 cases.
India: Bombay, Dec. 14-20, 25 deaths; Calcutta, Dec. 10-16, 1 death; Karachi, Dec. 12-18, 4 cases.
Italy: Catani, Dec. 23-31, 2 deaths; Palermo, Dec. 18-24, 14 cases, 5 deaths.
Panama: Colon, Jan. 1-8, 1 case.
Spain: Barcelona, Dec. 21-31, 11 deaths.

YELLOW FEVER.

Brazil: Para, Dec. 1-14, 18 deaths.
Mexico: Coatzacoalcos, Dec. 28-31, 2 cases; Juchitan, Jan. 1-7, 1 case.
Venezuela: Maracaibo, Dec. 4-11, 1 case, 1 death.

CHOLERA.

India: Bombay, Dec. 14-20, 1 death; Calcutta, Dec. 10-17, 108 deaths.
Russia: Dshewat, Dec. 8-14, 264 cases, 203 deaths; Hedjuff Dec. 8-14, 177 cases, 152 deaths.

PLAGUE.

Arabia: Crater, Dec. 17-24, 43 cases, 28 deaths; Hedjuff (Plague hospitals), Dec. 17-24, 5 cases, 7 deaths; Shaikh Othman, Dec. 17-24, 7 cases, 3 deaths.
Chile: Iquique, Dec. 4-17, 2 cases, 2 deaths; Santiago, Dec. 2, 1 case.
Egypt: Port Said, Dec. 10-17, 1 case 1 death; Suez, Dec. 10-17, 1 case; Tukh District, Dec. 10-17, 1 case.
India: Bombay, Dec. 14-20, 102 deaths; Calcutta, Dec. 10-17, 15 deaths; Karachi, Dec. 12-18, 56 cases, 52 deaths.
Japan: Kobe, Dec. 16, 1 case.
Mauritius: Oct. 14-Nov. 3, 61 cases, 35 deaths.

Medical Organization.

Michigan.

ORGANIZATION IN MICHIGAN.—From a personal letter, dated January 23, received from Dr. Leartus Connor, chairman of the council of the Michigan State Medical Society, we quote the following: "Our Michigan council held its winter meeting last Friday. Work began at 8:30 a. m. and continued as rapidly as was possible till dark. We found ourselves ahead of last year in numbers and finances. Several knotty problems in different portions of our field had been solved pleasantly. Others are on the way to solution. The general tone of correspondence was higher than ever. But one complaining letter had been received during the past year. On the other hand, our advance has been small; several of our councilors had fainted with the work and wanted to give it up. Hence it was necessary to recharge them with enthusiasm, which was done, and they left determined to do better the coming year. Our limited time forbade a discussion of other than the necessary business and plan for the coming months. All this is better than I had anticipated. Five of the councilor districts have held district meetings, with profit to all in increasing enthusiasm and closer fellowship. Other district societies will be formed later."

Texas.

CENTRAL TEXAS (TWELFTH) DISTRICT MEDICAL ASSOCIATION.—The Central Texas Medical Association met at Waco, January 10 and 11 and reorganized on the standard plan as the Central Texas (Twelfth) District Medical Association, electing the following officers: President, Dr. Robert Alexander, Troy; vice-presidents, the presidents of the component county societies, and secretary-treasurer, Dr. John L. Burgess, Waco.

West Virginia.

GRANT, HARDY, HAMPSHIRE AND MINERAL MEDICAL SOCIETY.—At a meeting of 14 physicians of these counties, held at Keyser the first week of January, this society was organized with the following officers: Dr. Edgar H. Parsons, Piedmont, president; Drs. J. N. Judy, Petersburg, Grant Co., Robert W. Love, Moorefield, Hardy Co., George H. Thomas, Romney, Hampshire Co., and Lloyd L. Edgell, Keyser, vice-presidents; Dr. Percival Lantz, Alaska, secretary, and Dr. Monsell R. Bell, Keyser, treasurer.

Society Proceedings.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-Second Annual Meeting, held at Havana, Cuba, Jan. 9-13, 1905.

The President, Dr. Carlos J. Finlay of Havana, in the Chair.

Addresses of welcome were delivered by Dr. Cancio, secretary of public instruction to President Palma, representing the Cuban government, and by Dr. Lincoln de Zayas, representing the medical profession of Havana.

President's Address.

After thanking the association for the great honor conferred on him in electing him president, Dr. Finlay referred to the first Havana yellow fever commission, which was established a quarter of a century ago and came from Washington. So well did this commission accomplish its object that he could readily trace back to its immediate influence the discoveries which led the way to ultimate success. He stated that the sanitary experience in Cuba during the last twelve months, both with regard to yellow fever and to smallpox, had been somewhat more eventful and at the same time more instructive than in the preceding two years. In the district of Havana, notwithstanding the admission of imported cases of yellow fever from foreign ports, not a single case, originating on the island, had been recorded. With the experimental proofs that they now possess that fomites *per se* were incapable of transmitting the disease, the inevitable conclusion must be that in the cases mentioned infected mosquitoes had been conveyed on floating bodies by the ebb-tide. The fight against tuberculosis must be maintained at all costs as the most important factor in mortuary statistics of large towns almost all over the world. The study of causes and prevention of infant mortality is one which affects Cuba not only with reference to infantile enteritis, but also with regard to tetanus neonatorum, the occurrence of which is coupled with unpardonable ignorance or neglect both on the part of parents and of the attendants at the birth of children. The control of milk supplies in large cities is closely connected with infantile mortality, for the methods best calculated to carry the former into effect should undoubtedly lessen the latter. Finally, the subject of sanitary agreement between adjoining nations has become of paramount importance since the recent advance made in our knowledge of the etiology of certain quarantinable diseases, of yellow fever in particular. Hence the advisability that European nations holding possessions in the American yellow fever zone be represented at the meetings of the association.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. F. F. Wesbrook, Minneapolis, Minn.; vice-presidents, Dr. Juan Guiteras, Havana, Cuba; Dr. F. Lopez, Mexico City, Mexico: Dr. Geo. MacDonald, Brandon, Manitoba: executive council: Drs. Marcus Haas, Memphis, Tenn.; C. V. Chapin, Providence, R. I., and Wm. C. Chapman, Toledo, Ohio; secretary, Dr. Chas. O. Probst, Columbus, Ohio (re-elected); treasurer, Dr. Frank W. Wright, New Haven, Conn. (re-elected). Boston was selected as the next place of meeting.

Purification of the St. Louis Water Supply By Coagulation and Sedimentation.

DR. C. A. SNODGRASS, St. Louis, said that from the year 1832, the time at which the first water works system of St. Louis was installed, until 1904, the water supply of St. Louis had been unsatisfactory, and that in a few months' time a complete transformation of the quality of the water had been secured by using ferrous sulphate and calcium hydroxid as a coagulant, followed by plain sedimentation. The present plant cost only $10,000. The plan of operation costs $4.50 less per million gallons than any other proposed plan. The exact and extensive chemical and bacteriologic data added to the physical properties proved conclusively that a water of a high degree of potability was being secured. The removal of suspended matter was shown to average 96.9 per cent., while the bacterial removal averaged 95 per cent. in many weekly analyses, showing an efficiency of 99 per cent. Mineral analysis showed that there was nothing left in the water that could be inimical to health. The death rate from typhoid during the last year has been materially lowered, but owing to the limited time of operation of the present system no deductions from this point of view were insisted on. Reports from engineers and manufacturers showed that the treatment given the St. Louis water supply was highly satisfactory to their interests. The author claimed that, with contemplated changes of a minor character, the expense of operation would be lowered and the efficiency increased.

MR. F. S. HOLLIS, New Haven, Conn., described a practical test of the copper sulphate method for the removal of germs from water supplies.

Report on Purification and Preservation of Water Supplies.

MR. GEORGE W. FULLER, New York, stated that the principle of the use of sulphate of copper in treating water supplies was not a new one, as it had been used for thousands of years. With reference to filtration, he said the number of cities in the United States with a population of 25,000 now using the filtration plan was about 8 per cent.; those which had filters under construction, 11 per cent.; those in which filters had been authorized, 20 per cent., and those in which filters were being considered as necessary, 31 per cent. Statistics and arguments were advanced in favor of filtration as a method of purifying water supplies of cities.

DISCUSSION.

DR. FRANK WARNER, Columbus, Ohio, stated that more attention should be given to the better protection of the watershed. This feature was either neglected or overlooked in connection with modern purification plants. This was especially true of pollution near the purification works, and the water should be delivered to the purification plant in as pure condition as possible before purification.

MR. H. W. CLARK, Boston, said that since the introduction of filtration at Lawrence, Mass., the city had increased in population from 45,000 to 75,000, and the percentage of deaths from typhoid fever had been materially reduced.

Report of Committee on Disinfection and Disinfectants.

PROF, F. C. ROBINSON, Brunswick, Maine, reviewed the more important literature on the subject during the past year, especially in the foreign journals. As to experiments on disinfecting railway cars by formaldehyd, the results showed that it was practically impossible to completely sterilize all parts by the vapor of formalin, but still the experimenters think that it is the most practical thing to employ for that purpose. They recommend 1,000 c.c. of the liquid formalin to each car, but, of course, the foreign cars are much smaller than those in use in the United States. As to chemical methods for sterilizing drinking water, V. B. Nesfield recommends the use of tablets made from 1½ grains bleaching powder and ½ grain sodium bicarbonate. He claims that these will each sterilize a pint of water in five minutes, or better, ten. He removes the paste of chlorin by adding a tablet of sodium sulphite. He claims that by such use the most foul river water can be made free from disease germs and palatable. The report called attention to the danger of the spread of infectious diseases through library and school books. It was recommended that the danger should be met as far as possible by notices in libraries calling attention to the advisability of handling books with clean hands, of not touching the hands to the mouth after handling books until the hands are washed and, in addition, submitting books much used to the action of formaldehyd vapor once in a while. Remarkable results have followed the occasional use of weak solutions of formaldehyd on the floors of schoolhouses—solutions so weak that they gave no disagreeable odor. Infectious colds and other dust-borne diseases were much lessened among the scholars. The committee believes that the occasional use of such solutions on floors and surfaces in dwell-

ing houses, as well as in public buildings, would do a great deal toward improving public health.

Sulphate of Copper with Lime to Destroy Mosquito Larvae.

DR. A. H. DOTY, New York, considered, first, the use of copper alone or in combination with lime for the destruction of mosquito larvæ; second, as a deodorant, and, third, as a disinfectant. He stated that in the destruction of mosquito larvæ and as a deodorant the use of copper in combination with lime is more effective than when used alone. This mixture destroys mosquito larvæ by rapidly removing from the water in which they were contained the organic matter or nourishment on which they depended for life, and this result is not due to a toxic effect produced by the copper or lime. Therefore, the range of usefulness of these agents, either alone or in combination, in the destruction of mosquito larvæ is limited. As to copper and lime as a deodorant, he believed it to be the most valuable and practical agent we possess for this purpose. Its action as a deodorant is rapid and permanent. It is practically harmless, cheap and easily made, and seems to comply with the requirements of a typical deodorant. Its range of usefulness is extensive, as it can be employed equally well for deodorizing solids or fluids. Little can be said regarding the germicidal value of copper at the present time.

The Disinfection of Schoolbooks.

DR. WALTER D. GREEN, Buffalo, N. Y., stated that an examination of the public school books early in 1902 revealed the fact that they were filthy, especially those used by the lower grades. These books were furnished gratuitously by the city, and consequently there existed a tendency to use them until they were literally in pieces—a period covering several years. It was thought that these filthy books, worn and handled by so many diminutive individuals, might be, and probably were, a source of contagion, and it was decided to disinfect them. The books were placed on their edges, with covers widely separated, on tables and shelves in tightly sealed rooms. Formaldehyd gas was liberated in the room, six ounces of a comparatively fresh commercial formalin being used for every 1,000 cubic feet of air space, the vaporization being induced by the use of wood alcohol being burnt in a receptacle containing the formalin. Bacteriologic examinations were made of the soiled leaves of books both before and after the disinfection, and it was found that about 85 per cent. of all organisms were killed. For the three years immediately preceding this schoolbook disinfection—that is, 1899, 1900 and 1901—the average number of cases of scarlet fever reported yearly to the health department by physicians in Buffalo was 875, while the average yearly deaths for the same time were 36. For the three years following such disinfection the average number of cases reported yearly was 528, and the number of deaths yearly for the same time was 18.

The Sources of Infection.

DR. CHARLES V. CHAPIN, Providence, R. I., after pointing out various sources of infection, directed attention to isolation and disinfection. He said that it was perfectly plain, if we could isolate every case of a given contagious disease until all infection had disappeared, the disease would not merely decrease, but it would be exterminated. If we could only control one-half, one-quarter, or one-tenth of the foci of infection, it was equally clear that the disease would never be exterminated, and it was not even certain that it would diminish. The relation of probable success to the efforts made must decide the extent of those efforts.

Sanitary Conditions of Havana and Further Requirements for Their Improvement.

DR. ERASTUS WILSON, Havana, said that the prevailing annual mortality in the city of Havana previous to American intervention—1898-1902—approximated 40 per 1,000. The general cleaning up of public places and rigid house-to-house inspection and abatement of insanitary domestic conditions, together with filling the puddle holes and irregularities in the macadamized streets, with the prohibition of the ejection of domestic wastes into the by-ways, obtained immediate and notable reduction in the mortality rate in the city. The continuation of these sanitary measures reduced the type of mortality and morbidity to about 50 per cent. of its former rate, besides beautifying the city and making it infinitely more attractive for residents who were interested in health and general culture. The author called attention to a further requirement of sanitary science, which was radical and indispensable, namely, a modern system of sewers of proper section, regularly graduated in size and declivity from their incipience to outfall, impermeable throughout and connected with the closets of every house by lead-jointed, cast-iron pipes, uniting them to the sewer outside the domicile.

The following resolution was adopted:

Resolved, That the association congratulates the civic authorties, the physicians and the people of Havana in general on the gratifying improvement made in its sanitary condition, and especially on their work in freeing their beautiful city from any danger from that once-dreaded scourge, yellow fever, by their persistent and skillful campaign against the yellow fever mosquito. We are especially gratified also that they do not propose to rest contented with what has been done, great as it is, but have already planned other sanitary improvements of great importance, including an efficient system of sewerage, which we wish them godspeed in carrying out at the earliest practicable moment.

Bacillus Tuberculosis in Man and Animals.

The report of this committee was read by DR. V. C. MOORE. He said that since the last meeting several important pieces of work had been reported. These were detailed in the report. The committee carefully compared the disease set up in the bovine animal by material of human origin, and so far it had found the one, both in its broad, general features and in its wider histologic details, to be identical with the other. It had so far failed to discover any character by which it could distinguish one from the other; and its records contained accounts of the postmortem examinations of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of ordinary bovine tuberculosis. At the laboratory of the State Live Stock Sanitary Board of Pennsylvania, a third instance of infection with the bovine bacillus has been found. The patient was a child not quite 2 years old, that had been nourished the greater part of its life on cow's milk bought from the most convenient store. It developed a large abdominal tumor, which proved on autopsy to be a tuberculous new growth, involving the mesenteric glands and intestine. The lungs were not involved. Cultures were obtained from this tumor, which had the cultural and microscopic characteristics of the bovine bacillus, and proved fatal to a calf weighing 211 pounds in thirty-five days. The committee did not yet feel able to say with what frequency bovine infection of man took place, but it was evidently not a rare occurrence. The committee considered that the evidence going to show that such infection did take place was absolutely conclusive, and that it not only justified, but made imperative, the passage of stringent laws by municipal and state authorities for the suppression of tuberculosis in cattle, and the prohibition of the sale of meat and milk from tuberculous animals.

Report of the Committee on Tuberculosis.

The practical measures recommended years ago were since tested in part, and so far as tested were found of use. These recommendations were:

1. The notification to and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.
2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.
3. The establishment of special hospitals for the treatment of tuberculosis.
4. The organization of societies for the prevention of tuberculosis.
5. Government inspection of dairies and slaughter-houses and the extermination of tuberculosis among dairy cattle.
6. Appropriate legislation against spitting into places where the sputum is likely to infect others and against the sale or donation of objects which have been in use by consumptives unless they have been thoroughly disinfected.
7. Compulsory disinfection of hotel rooms, sleeping-car berths and steamer cabins, which have been occupied by consumptives before other persons are allowed to occupy them.

In addition to these specific recommendations, the committee urged on the public the importance of better housing of the poor in their places of abode and in their places of occupation; better control of the food supply at large, and more definite instructions in the schools and on the platform of diet for the working people. The home and workshop were really the centers from which the disease was distributed, and they at the same time were strong predisposing causes of the disease by reason of their unhealthiness. Bad and adulterated food and improper selection of food by the individual were also strong predisposing causes by lowering vitality. The committee suggested that every member act as a committee of one in his own home to help organize a campaign against this disease.

DISCUSSION.

DR. WALTER D. GREEN, Buffalo, N. Y., said that there were two things of special interest in combating the disease, one of which was notification of cases, and the other thorough disinfection of houses in which the disease occurred. In the city of Buffalo every house in which a case of tuberculosis develops is thoroughly disinfected. This has been the practice in that city for the last five years. A card index is of vital importance in keeping track of cases of the disease. The people should be educated in regard to the prevention and control of the disease. Pamphlets giving directions how to keep from getting the disease were printed in Buffalo in German, English, Polish and Italian. Directions were also given as to what to do when people contracted the disease.

DR. FRANK WARNER, Columbus, Ohio, said the reporting of cases of tuberculosis is an important factor in the prevention of the disease, but it is only the first step. Literature should be placed in the hands of families in which the disease developed. Information regarding the disease should also be published and put into the hands of men working in stores and shops. Articles relating to the disease should be published in the daily newspapers for the instruction of the public. The disinfection of houses after deaths had occurred in them is of great importance in order to destroy the germs of the disease. Testing for tuberculosis in cattle by tuberculin has proved a very important thing. At the Ohio State University there is an agricultural and dairy department, so that every cow is constantly tested with tuberculin for tuberculosis, and whenever the disease is found that animal is withdrawn from the herd.

DR. R. H. LEWIS, Raleigh, N. C., endorsed the position taken by the previous speaker. In his state pamphlets concerning the disease and its prevention are placed in the hands of superintendents of public instruction and of school teachers for distribution.

DR. MARCUS HAAS, Memphis, Tenn., referred to the thorough system of dairy and milk inspection in Memphis, from which gratifying results have been obtained.

DR. W. C. CHAPMAN, Toledo, Ohio, said that sanitarians should not demand too much of the physician, for in doing so they undo the benefit which they might otherwise receive. Physicians are reluctant in reporting cases of tuberculosis to city health departments, on account of the protests of families in which the disease occurs.

DR. MANUEL S. IGLESIA, Vera Cruz, Mexico, described the present hygienic conditions of that city, and expressed the hope that at no distant day this port would be one of the healthiest to be found.

DR. ARISTIDES AGRAMONTE, Havana, pointed out the practical utility of a medical board to aid local sanitary authorities in the investigation of infectious disease.

Diphtheria Infection in Minnesota.

DR. F. F. WESBROOK, Minneapolis, stated that in the work of the Minnesota State Board of Health the problems had arranged themselves into three main groups: First, the work of dealing with diphtheria as it occurs in family life, where one or more cases appear in a household; second, where infection was widespread and the day schools had to be closed; third, where infection gained entrance into institutions in which children or other inmates were housed, employed, taught or confined, and where great opportunity for the spread of infection was present. He said it was apparent that:

1. An adequate laboratory staff and equipment are essential, since only by thorough laboratory examination can the presence of possible danger be determined.
2. It has been found convenient to utilize institutional laboratories when available, as the members of the laboratory staff of the State Board of Health can examine cultures on the spot when there is urgent need of haste.
3. The repetition of examination of both nose and throat specimens is advisable in all cases, and especially when suspicious bacilli are found.
4. Every effort should be made to prevent the exchange of nose and throat bacteria between individuals until it is definitely known whether they are infected or not. In infected individuals the bacilli will be eliminated more quickly the greater the approximation to individual isolation.
5. It is unsafe to place hitherto uninfected individuals who develop sore throat with clinical cases of diphtheria.
6. Executive action must be taken on the basis afforded by the laboratory; therefore, it is essential that these two branches be kept in the closest touch, or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge.
7. That such methods give satisfactory results and are entirely practicable, has been shown in the experience of the Minnesota State Board of Health under conditions which presented the greatest possible variation. Three epidemics had thus been suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement were employed in the housework of the institution, where the babies were left in charge of different mothers at different times, and where also the almost daily admission of fresh inmates added to the opportunities for the introduction of infection.
8. The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of flora of the nose and throat.
9. In institutional and school life the more independent the individual and the greater the facilities for individual infection, the greater the freedom from diphtheria infection.

DR. SAMUEL H. DURGIN, Boston, read the report of the committee on the infectious period of communicable diseases.

Social Hygiene.

DR. ADOLPHO OLIVA, Guadalajara, Mexico, pointed out the effects of dress on the system. He also discussed the various forms of dress. He said that variations in temperature of the system, with the climate, seasons, age, constitution, and the conditions of health or of disease fully demonstrated the physiologic necessity of dress.

Yellow Fever in Mexico.

DR. E. LICEAGA, Mexico, described how houses that were infected with the disease are disinfected. As soon as a case of yellow fever is found, the patient is isolated and the mosquitoes and larvæ are destroyed. The Vera Cruz campaign against yellow fever has been very successful, in that there has not been any epidemic of the disease in that city for the last six months. He cited one case to prove, without doubt, that yellow fever is transmitted by mosquitoes alone.

Control of the Milk Supply in Large Cities.

DR. WILLIAM H. PARK, New York City, chairman of a committee, read a report on this subject. The topic was considered under three heads: 1. The proper conditions at the farms. 2. Proper conditions during transportation of the milk, and 3. Proper conditions at the delivery station and in the case of the milk in the homes. Until recently the conditions at the farms have been largely overlooked by the health officers of great cities, on account of the practical difficulties and the expense. The milk commission appointed by the Medical Society of the County of New York has undertaken to assist both the consumer and producer by fixing a standard of cleanliness and quality to which it could certify, and by giving information concerning measures needful for obtaining that degree of purity. The most practical standard for the estimation of cleanliness in the handling and care of milk is its relative freedom from germs or bacteria. Milk must not be sold as certified more than twenty-four hours after its arrival in New York City. The report discussed the duties and requirements of dealers in milk, the barnyard, the stable, the condition of the cows, the milkers, helpers other than milkers, small animals, the milk itself, the utensils for holding milk, as well as the examination of the milk and dairy inspection.

DR. GONZALO AROSTEGUI, Havana, discussed the importance of good quality and careful distribution of the milk supply.

Infantile Feeding by Nurses.

DR. ALFONSO PRUNEDA, Mexico, said it is necessary always to advocate the need of maternal lactation, but in the event of this being found impossible, we should not hesitate to adopt some other methods. Avoid the employment of wet nurses, who, as the writer pointed out, present many objections, but rather make use of sterilized milk, which, when properly and methodically used, would fulfill its purpose, and thus save the lives of many children who would under other conditions perish and increase the infant death rate.

Production of Animal Vaccine.

DR. W. F. ELGIN, Glenolden, Pa., described experiments and detailed his experience in the production of animal vaccine. The author pointed out that: 1. Virus exposed to cold below O. C. might remain active for an indefinite period, certainly for several years. 2. When it is removed from cold storage, it will retain its activity for a considerable period under conditions that usually obtained commercially. 3. When glycerinated lymph is exposed to O. C., or below, the destruction of germ life through the action of the glycerin is practically at a standstill. 4. The rapidity of the elimination of the contained bacteria depends on the temperature above 10 degrees C., in which the virus is stored. He showed that the life of the average commercial vaccine is only three months in winter, and in August and September only about one month. Two lessons might be learned from this: First, one should not vaccinate in the summer season unless compelled to do so by the presence of smallpox. Second, when compelled to vaccinate at this season, one should order the vaccine direct from the laboratory, and use it at once without regard to the dating on the package.

The author stated that dried vaccine in any form was short-lived, and not nearly so reliable as the glycerinated form. The most active virus is to be obtained from the deep curetting.

DISCUSSION.

DR. F. P. BERNALDEZ, Mexico, cited facts and arguments tending to demonstrate the superiority of humanized over animal vaccine for the prevention of smallpox. He claimed that persons who were vaccinated and revaccinated with humanized lymph enjoyed a longer immunity, according to his observations, and in Mexico he had never seen a case so vaccinated attacked by smallpox. His practice has taught him that in such persons revaccination did not take, or at most assumed the appearance of false vaccination, thus proving in his opinion that the individual was not susceptible. He urged that vaccination be practiced by physicians of experience in order to avoid the possibility of transmission of disease.

DR. VINCENTE DE LA GUARDIA, Havana, spoke of the necessity of vaccination and revaccination of individuals who had suffered from smallpox. He said that in most countries there is no vaccination requirement for individuals who had had smallpox. He had had the opportunity of vaccinating and revaccinating 1,599 persons, members of the police department, custom house inspectors, port policemen, persons confined in jails, males and females, etc. Of this number, 328 were branded with the smallpox trademark, and of 47 vaccinated for the first time in their lives, 17 were successful in taking. Two hundred and sixty-three were revaccinated, in 48 of whom it took successfully, giving a total of 65 successful vaccinations. The total result of the 328 who had had smallpox previously corresponded approximately to over 20 per cent. of the total figures. He urged that, as a general rule, all individuals, whether they be ex-victims of smallpox or not, should be vaccinated or revaccinated, as the case might be.

Stegomyia Fasciata.

DR. FERNANDO LOPEZ, Mexico, detailed some experimental studies on the acclimatization of this germ. The experiments seemed to prove that the *Stegomyia fasciata* could live, bite, and breed for at least three generations in Mexico City, notwithstanding the fact that this city has an altitude of more than 7,300 feet above sea level.

(To be continued.)

ILLINOIS STATE ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

Organized Jan. 19, 1905, at Chicago.

This meeting was attended by a large number of physicians, heads of charitable organizations, and professional nurses. The primary objects of the association are to impress the public with the importance of having a state sanatorium where consumptives may be properly treated, and to enact a law to compel cities, towns and villages to keep records of sufferers from the disease and of those who die from it, so that houses may be properly fumigated and disinfected. It is expected that an appropriation of at least $250,000 will be asked from the legislature. Governor Charles S. Deneen was made honorary president, and Dr. Edmund J. James, president of the University of Illinois, acting president, with Dr. Arnold C. Klebs of Chicago as secretary. The association voted in as affiliated branches of the main organization the Visiting Nurses' Association and the United Hebrew Charities of Chicago.

DR. WILLIAM E. QUINE, who called the meeting to order, referred to the lack of general information on the possibility of curbing consumption, to the infection from sputum, and to the lax enforcement of local laws on this and relative subjects. While every case of tuberculosis can not be cured, it is safe to say that 75 per cent. of the cases in the incipient stages, if properly attended to and treated, can be absolutely cured. He referred to the tent colony in Ottawa, and stated that while it does great work, the accommodations are limited.

DR. ARNOLD C. KLEBS said that Illinois is far behind other states in the matter of protecting the public against the ravages of consumption. While the number of consumptives in the state is variously estimated from forty thousand to fifty thousand, there are only 563 beds for such patients in the whole commonwealth. He spoke of what Canada is doing in the way of furnishing hospitals for the victims of the disease, and said that the dominion in some respects is ahead of this country. He advocated the formation of societies in every village, town, and city in Illinois, for the intelligent study of the question and for co-operation with the state body.

DR. WILLIAM A. EVANS said that while Chicago and other cities and towns have ordinances forbidding expectoration, these laws are not enforced, and disease is allowed to be spread broadcast. He pleaded for instruction to the public regarding better living conditions, and concerning more satisfactory conditions in factories and stores.

DR. GEORGE W. WEBSTER said that the Illinois State Board of Health is distributing literature on the prevention of consumption. More than 75,000 pamphlets have been sent out, and there is still a call for them from railroads and other corporations and business firms. Leaders in this movement have become convinced that Illinois should follow the lead of Massachusetts, New York and Rhode Island in the establishment of a state sanitarium. Investigation reveals that there are constantly as many as fifty thousand consumptive patients in Illinois, while Chicago alone averages about twenty thousand. Each year about one-fifth of the victims die, the number in Chicago last year being 3,500, so far as known. It is learned that many cases of consumption are not reported, and that physicians in some cases say the patient died of pneumonia. Taking Chicago's mortality from consumption in 1900 for a basis, figuring the loss of the individual's service per day at the low rate of $1.00, and expenses and maintenance, nursing and treatment at $1.50 additional, it is found that the cost to the city of Chicago caused by the death in one year of 2,682 tuberculous persons amounts to the startling sum of $2,011,500.

The executive committee consists of the president and secretary of the association, ex-officio, Dr. Wm. E. Quine, Dr. J. W. Pettit, Dr. George W. Webster, Ernest P. Bicknell, and Sherman C. Kingsley. The central committee comprises Drs. Wm. E. Quine, Frank Billings, N. S. Davis, Joseph E. Milligan, N. B. Delamater, N. A. Graves, George W. Webster, W. A. Evans, and Robert H. Babcock, and Mr. Ernest P. Bicknell.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held Dec. 5, 1904.

The President, Dr. L. L. McArthur, in the Chair.

Actinomycosis.

DR. ARTHUR DEAN BEVAN referred, first, to the early history of this disease, saying that von Langenbeck first noticed the sulphur-green bodies of actinomycosis as early as 1845, and that Bollinger recognized the ray fungus in lumpy jaw in cattle. Israel, in 1878, recognized the ray fungus as the cause of the disease in man. Belfield first recognized the ray fungus in lumpy jaw in cattle in this city, and Murphy reported the first case of actinomycosis in man in this country in 1883. Clinically the disease appears in four different forms, with four different groups of infection: 1, The head and neck actinomycosis, with infection from the mouth and pharynx; 2, actinomycosis of the chest through the respiratory tract; 3, abdominal actinomycosis, with infection probably always through the alimentary canal, possibly, however, in rare instances, through the female genital organs; 4, actinomycosis of the skin. The lymphatic glands are seldom involved, but he reported one case in his group of cases in which there was invasion of the lymphatics. Dr. Bevan reported cases illustrating each form of the disease, and showed numerous microscopic slides.

DISCUSSION.

DR. JOHN B. MURPHY said that an important feature brought out by the essayist was the demonstration of lymphatic involvement. In none of the cases that came under his observation was it shown that the lymphatic glands became involved, or that the infection was transmitted through the lymphatic chain and arrested in the lymphatic glands. Another point was the enormous infiltration that occurred around a small focus of suppuration. This is one of the first things that attracted Dr. Murphy's attention in the first case of actinomycosis he saw, in 1883. This was a typical case of actinomycosis of the jaw, in which the infiltration involved the neck to the extent of an inch or more on each side. There was apparently a small fluctuating focus. When the involved area was opened a number of yellow bodies escaped. These appeared molded. They were neither round nor oval. The infiltration described by Dr. Bevan in his case of actinomycosis of the pelvis was one of the classical conditions of the disease in the peritoneum. While the disease affects all the tissues, it elects fatty tissue, involving skin, muscle or bone, lifting its periosteum, attacking the periosteum, or sometimes attacking the fatty tissue close to the periosteum without attacking bone. Dr. Murphy's first, second and third cases recovered, but the fourth, one of peritoneal actinomycosis, terminated fatally. There was no perforation of the stomach wall nor of the large intestine, but there was infiltration of the fatty tissue on both sides, the micro-organisms having passed up into the diaphragm and beneath the surface of the liver. He has also seen two cases of actinomycosis of the appendix. In the first the actinomycotic process was confined practically within the appendix. The appendix was extirpated and the patient recovered. The second case pursued an entirely different course, although death has not yet occurred.

DR. E. WYLLYS ANDREWS said that the large percentage of recoveries referred to is quite contrary to his own experience. Most of the cases he has seen have either died or, if they were living, there is an increasing actinomycotic mass in other parts of the body. He recalled one man who has a mass in his chest, and who, he thinks, is going to die. An analysis of all the cases of actinomycosis of the alimentary canal would scarcely disclose one involving the stomach, and the probabilities are that the acidity of the stomach prevents the active generation of the germs there. A comparatively small number are found in the upper intestine. In nearly one-half of all cases reported the actinomyces are found in the cecum and in the appendix. He has not seen a case of actinomycosis involving the rectal region.

DR. M. L. HARRIS has seen during the past year three cases of actinomycosis, which apparently were hematogenous infections. The first case was in a country boy, who was admitted to the hospital with a slowly-developing swelling in the prevesical space. It had the characteristic hardness. He opened the mass and obtained a small amount of pus. Inoculations from the pus gave a pure culture of *Staphylococcus pyogenes albus*. In the first pus which was evacuated no granules were recognized, but on the dressings, a few days later, the characteristic granules were at once recognized, and when examined microscopically they were demonstrated to be actinomyces. The case progressed, sinuses and fistulæ were formed about the abdominal wall and into the lateral wall of the pelvis. The boy was operated on several times, these tracts thoroughly cleared out, and during the operations the abdominal cavity was opened, because the speaker was suspicious of a primary intestinal origin. The abscess did not originate in the appendix, nor could he find any point of the intestinal tract that was involved. He was unable to explain how the infection reached the prevesical space, except through the blood. The patient was subjected to all the recognized treatments for actinomycosis. Iodid of potash was given internally continually and interruptedly. He was given *x*-ray treatment very thoroughly, but in spite of all treatment he became progressively worse, and after a period of several months died. A peculiarity in this case was the very marked reduction of hemoglobin. The red cells were not reduced in number, but the hemoglobin was reduced to a low point before death. Dr. Harris said that all three cases seemed to be instances of hematogenous infection, the organisms having been carried in through the blood, as there was no local point of infection, so far as he could determine.

DR. A. J. OCHSNER said there are a great many cases of actinomycosis in Chicago and its vicinity, although most of them have not been accurately diagnosed. He is almost never without a case of actinomycosis. He has one under treatment at the present time. He recalled half a dozen cases in which the face and neck were involved; one in which the larynx was affected; in a number the abdomen was involved; in one the eighth rib, and in others the appendix. He has had two or three cases of actinomycosis of the lungs. He believes surgeons should follow the method of veterinary surgeons if they wish to succeed in treating this disease. In late cases of actinomycosis in cattle the veterinary surgeon has the animals killed. He never tries to cure a late case of this disease in cattle. In the early cases, however, an effort is made to remove the entire mass by thorough curettage, followed by the administration of large doses of iodid of potash. Veterinary surgeons give a large quantity of iodid of potash for several days in succession and then they interrupt its use, giving the spores time to develop into ray fungi, after which they repeat the dose for a day or two, then withdraw it for a day or two again, repeat it again, and so on, and in cases where the actinomycotic process is localized the cattle recover. Actinomycosis in the human being should be treated on the same principles. About eight or nine years ago the speaker followed the method of giving iodid of potash in increasingly large doses, but in several cases in succession there was apparently no effect on the disease until he reached the dose of a dram three times a day, and then the progress of the disease became arrested. His first case impressed him with the importance of giving large doses of iodid of potash. It was a case of actinomycosis of the scalp. The disease burrowed and burrowed, and every week or so he found it necessary to scrape the scalp and apply every remedy he could think of, without much improvement. However, when he reached 60 grains of iodid of potash three times a day the disease was arrested. The next case he had acted in a similar manner, and since then he has made it a rule to give 90 grains of iodid of potash in a half pint of hot milk at 2 in the morning, 2 in the afternoon and 10 at night, for as many days as the patient can stand it. After a week it is withdrawn for some days, when it is repeated for three or four days, withdrawn again, and later repeated once a month. The reason why he repeats iodid of potash once a month is that in one of his fatal cases he did this for a time and the patient was apparently well, but two years later the patient

had a recurrence and died of the disease. A circumscribed encysted abscess was found at autopsy in the lower end of the right pleura.

DR. L. L. MCARTHUR reported the case of a young woman, very fond of golf, who frequently was rebuked by her husband for chewing hay while playing golf. She developed actinomycosis of the alveolar process, which required three or four months' treatment by a dentist before it healed. Nine or ten months later she began to have pain in the right iliac region, and this pain being of a rather colicky character, she consulted her family physician, Dr. Carey, who, feeling a mass there, and noticing that she had elevation of temperature, sent her to Dr. McArthur's service at St. Luke's Hospital, believing it to be a probable appendiceal abscess. Dr. McArthur concurred in this diagnosis and advised operation. On opening the abdomen a tumor was found in the ileocecal region, involving the appendix, ileum and cecum, for a distance of four or five inches on the cecum. The tumor in its clinical aspect, although having no miliary bodies on it, seemed to him to be a hypertrophic tuberculosis, and on that basis, with the consent of the family physician, he made a resection of the entire ileocecal region, implanting the resected ileum in the side of the hepatic flexure of the colon. On lifting this mass up from the iliac fossa a few drops of pus were seen on the fascia covering the iliac muscles. This was mopped up, drainage provided for and the wound closed. The wound healed after a few weeks, the patient left the hospital, and for three months was quite well, when she began to have a cough and high temperature, with chills and night sweats. During his absence from the city she was seen by his assistant, Dr. Hollister, who considered the case—although he was unable to demonstrate tubercle bacilli in the sputum—one of acute tubercular trouble, the patient having lived in the house of a patient who had died a few months before of tuberculosis. On Dr. McArthur's return he saw her and found a tender area, with an enlargement in the neighborhood of Spigelius' lobe of the liver, and considered the condition one of hepatic abscess with burrowing through the diaphragm. He urged operative interference. The husband refused to have any operation performed until she had become extremely run down and had a temperature varying from 103 to 106 F. for three or four weeks. The patient was brought to the hospital, an incision was made over this area, and he found an abscess which had perforated the posterior sheath of the rectus muscle, and in which were then to be seen for the first time the typical granules, and the nature of the case became clear. The patient lingered along for about two weeks and finally died. A careful postmortem examination was made by Dr. Hektoen and a very thorough report of the case was made. In the sputum there were found the typical leptothrix-like threads, but never any suspicion was had of granules. In the stomach abscess opened there were typical granules to be found, and from them cultures were made which proved characteristic, so that here was a person in the habit of chewing grain and hay, who had disease of the jaw, who had a hypertrophic actinomycotic infection, which often is indistinguishable from tuberculosis, who recovered from that and later developed hepatic abscesses, with perforation of the diaphragm. Postmortem examination showed multiple stomach abscesses burrowing into the diaphragm and miliary abscesses along the bronchi.

CALIFORNIA ACADEMY OF MEDICINE.

Meeting held Dec. 27, 1904.

Dr. Dudley Tait in the Chair.

Unilateral Pulsus Paradoxus.

DR. A. W. HEWLETT exhibited a patient presenting a one-sided pulsus paradoxus. About eighteen months previously he had suffered from an acute illness, at the close of which the left side of his chest was noticed to be much smaller than the right side. At the present time the air enters only the upper front of the left chest, the remainder of this side being much retracted, flat on percussion and without breath sounds. The left pulse is normal, showing on deep inspiration a slight quickening accompanied by a slight diminution in the size of the individual beats. On deep inspiration the right radial pulse disappears entirely and does not return as long as the position of deep inspiration is maintained. If the right shoulder is passively elevated, however, the pulse does not disappear on deep inspiration. The brachial and axillary pulses disappear with the radial, but the subclavian above the clavicle continues to pulsate under all circumstances. The artery is, therefore, pressed out as it crosses beneath the clavicle, possibly between the clavicle and the first rib or by the fasciæ.

DR. OPHÜLS suggested that the disappearance of the pulse might be caused by an inspiratory dragging on the heart or blood vessels by adhesions and that this might cause a kink in the subclavian artery as it crossed the first rib.

An Epidemic of Diphtheria at Stanford University.

DR. R. L. WILBUR reported his personal experience in the recent epidemic of diphtheria at Stanford University and the neighboring town. The origin of the epidemic could not be definitely traced. Of the 43 cases which came under his observation, in four the infection involved the larynx; in three the mouth; in one the nose, and in one the conjunctiva. No deaths occurred and no intubations were necessary. It was often possible to make an early diagnosis by the use of a throat mirror and probe, thereby discovering small exudates on the tonsils which might otherwise have been overlooked. Cultures were made and in no case was a positive diagnosis made until the cultures were positive. Subnormal temperatures and slow pulse rates were frequent in this series. All patients with but one exception were treated with large doses of antitoxin, 4,000 to 36,000 units being given. The initial dose was 4,000 units, and this amount was repeated within six to eight hours unless marked improvement had followed. The results of the antitoxic treatment were often immediate and most striking, so much so that the correctness of the diagnosis might have been doubted in some cases had no cultures been made. Of 287 persons exposed to the disease and who received prophylactic doses of antitoxin, only one developed diphtheria and he had received only 500 units, whereas 1,000 were usually given.

DISCUSSION.

DR. G. H. EVANS approved of large doses of antitoxin. He said that since the introduction of antitoxin he had noticed many more rashes accompanying diphtheria, and believed that these were due to the use of the new treatment.

DR. WILBUR stated that he believed that the rash frequently resulted from the antiseptics added as preservatives to the serum. He has noticed that the serum put up by certain manufacturers seems more liable to cause rashes than that put up by others.

Abortive Treatment of Gonorrhea.

DR. GEORGE GROSS reported a case of gonorrhea which was aborted by the use of Engelbreth's method. The patient was seen three days after coitus and gonococci were demonstrated in the slight discharge. The anterior urethra was irrigated with 500 c.c. of a .5 per cent solution of silver nitrate under a pressure of 1.25 meters, and the fossa and meatus were swabbed with a 3 per cent. solution of the same salt. Six hours later the irrigation was repeated, using a .2 per cent. solution of silver nitrate. In the pus examined six hours after the first irrigation no gonococci were found and they remained permanently absent. The discharge had ceased entirely by the end of four days. The treatment caused some pain, but less than one would expect.

DISCUSSION.

DR. R. L. WILBUR said that there was danger of doing harm by the use of abortive treatments for gonorrhea.

DR. GROSS replied that these dangers were minimized by the use of large quantities of a relatively dilute solution, administered under a known pressure, thus eliminating the danger of having the irrigating fluid enter the posterior urethra.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.
CHICAGO.

(*Continued from page 242.*)

NOTABLE MEDICINAL TREES OF INDIA.

On landing at Tuticurin I came face to face with two trees that I never lost sight of on my long railway journey—the palmyra palm and the nim tree. The palmyra palm (*Borassus flabelliformis*) is a hardy, noble tree, and attains a height of 100 feet. The base of the stem is large and gradually tapers into the stem proper, which has a uniform thickness up to the very crown. The bark is almost black and indented with circular rings. The crown of fronds is small compared with the size of the tree. In southern India the leaves are used for roofing, and nearly all the trees have been pruned down to six or eight fronds. The pulp of the fruit serves as food. Enormous masses of sugar and toddy are produced in India from the sap which flows from incisions of the stalk of the unexpanded flowers. This tree is noted for its longevity, and trees 200 years old are by no means rare. The Mohammedans are supposed to be total abstainers, but not invariably so, as I learned from a little story related to me in India. A man who owned a number of these palm trees, and who had bled them for the purpose of supplying himself with the much cherished toddy, noticed that much of the precious juice disappeared mysteriously during the night. Not suspecting that the pilfering was done by human beings he poured aconite into the cuts into which the sap accumulated. The next morning in going for his toddy he found to his utter astonishment two followers of the prophet dead near the tree and several more very sick in an adjacent thicket. For obvious reasons a judicial investigation was not applied for. The leaves of this palm have been used for centuries as writing paper.

The nim tree (*Melia azadiraehta*) is one of the most beautiful and useful trees of India. It attains a height of 50 feet, has a short, black barked stem, strong, widely spreading branches and a dark, fresh green, rich foliage of long feathery leaves. At Jaipur I saw a boy climb one of these trees, and with pruning scissors sever enough of its leaves to feed a flock of sheep which had gathered around the base of the tree, anxiously awaiting the expected fodder. The leaves have a great reputation as a remedy for dysentery and malaria. Many wonderful stories have I heard concerning the curative powers of a decoction of the leaves of the nim tree. This popular reputation is sustained by the medical profession.

The tamarind (*Tamarindus india*) is a magnificent, large, expansive tree. It is one of the largest trees of southern India. An immense tamarind tree is in the court of the monkey temple at Benares, and it is in this tree that the monkeys take their gymnastic exercises. The monkeys are anxiously awaiting the ripening of its fruit. The acid pulp of the long pods forms the medicinal tamarind, rich in formic and butyric acid, irrespective of its other contents, cold made into a syrup, it can be kept for preparing a palatable acidulous drink.

The bâbul or gum arabic tree (*Acacia arabica*) is a very common tree in India. It is a small tree and is used sometimes for thorny hedges. Occasionally the stem attains a circumference of 10 feet. It furnishes one of the best kinds of gum arabic for medicinal and technical purposes. Cattle are fond of its leaves. The wood is hard and durable, and the pods and bark are used for tanning. One of the most interesting trees in India, although without medical interest, is the banyan tree (*Ficus bengalinsis*). While at Calcutta I made a special pilgrimage to see the famous banyan tree in the Botanical Garden, six miles from the center of the city. A label attached to the stem of the mother tree bears the following legend: "This tree is about 135 years old; the circumference of its trunk, at about 5½ feet from the ground, is 51 feet, and of its crown about 938 feet. It has 464 aerial roots actually rooted in the ground." The sight of this veteran of the Botanical Garden is inspiring. The daughter trees form a circular colonnade and their interweaving branches a roof under which a whole regiment of soldiers would find an ample camping ground. The mother tree shows signs of far advanced senile decay, but her offspring have gained an independent existence and will keep her memory fresh for many generations to come. Since I saw this wonder of the Indian forests I have learned that the banyan tree at Ahemabad is still larger and the largest in the world. Had I known this before I would have intercepted my itinerary at that ancient city.

For technical purposes, the most valuable tree in India is the teak tree (*Tectona grandis*). It is a superb timber tree. It sheds its very large leaves annually. Teakwood is held in the highest esteem by shipbuilders; for the backing of ironclad men-of-war it is preferred to any other wood; also for the panels of coaches and inside finishing of houses, and

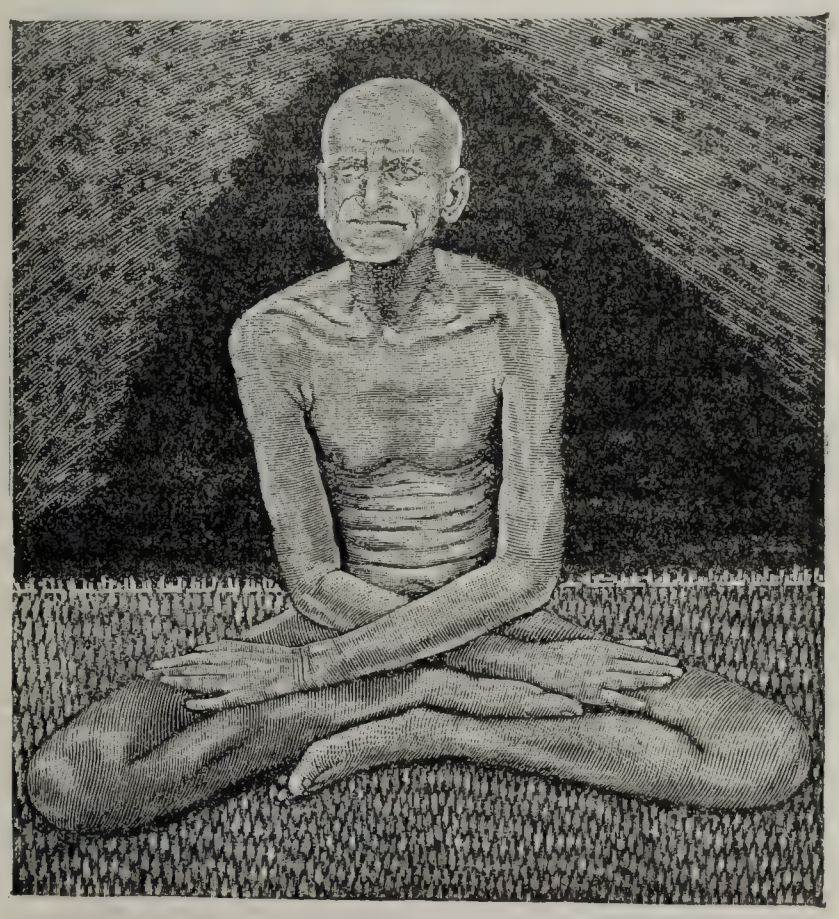


Fig 3.—Swami Bhaskara Nand Saraswati, the famous Ascetic of Benares.

for various other select purposes. The wood is extremely hard and scarcely shrinks. This wood is sold in London at $75 per 50 cubic feet.

The siris-acacia (*Albizzia lebbeck*) is a very common and beautiful shade tree. It produces also a good deal of useful gum. The blossoms are much sought by honey bees, as their pollen is rich in honey-producing material.

BENARES MONKEY TEMPLE.

Among the many things which interest the traveler at Benares is the Monkey Temple. Within the walled enclosure surrounding the temple is an immense tank which collects the rainwater. From the tank a series of wide stone steps lead to the famous temple. On entering the temple, we were met by the chief priest, Sree Swayam Prakashhashanand Maithila Auland Bag, the successor of the Benares saint recently deceased. His dress did not indicate his high Brahmin position. It consisted of a loin cloth and a few yards of yellow calico with which to obscure the left arm and a very limited

part of the chest. His short-cropped, grizzly hair and beard did not add much to his clerical appearance.

The moment we entered half a dozen young priests who surrounded him howled at the top of their voices, how, how, how. I thought I had committed a blunder by entering the sanctuary in my mud-stained shoes. This was not the case. It was a priestly greeting and a call for the monkeys, which came running from all directions, knowing well that the call meant the arrival of a stranger who would be willing to part with a few small silver coins, with some of which the good priests would buy food for them which they expected to eat in the presence of the visitor. They had calculated right; their expectations were realized. These miserable, treacherous, thievish, filthy beasts occupy a high position as objects of worship by the Hindus. To maltreat a monkey constitutes, in their estimation, a greater crime than the killing of a coolie. The monkeys in this temple are the same as the herds of monkeys in and all around Jaipur. They are very large, gray, with a black face and a tail as long and as thick as a broom handle. In a few moments we were surrounded by a large crowd of these pets of the priest, with whom they are very familiar, but they mistrust the white man and remain at a respectable distance from him. They eagerly devoured the proffered food, roasted peas and small crackers. The majestic tamarind tree behind the temple was alive with monkeys of all sizes and ages. Veteran monkeys of doubtful age and baby monkeys on the backs of their mothers, were all equally anxious to be benefited by the liberality of the visitor, as visitors during this season of the year are of rare occurrence. There are more than 300 of these monkey gods in this temple.

A BENARES SAINT.

The priest to whom I have first referred is, as he claims, the legitimate successor to the Benares Saint, Swami Bhaskara Nand Saraswati. (Fig. 3.) He has the advantage over his predecessor in the greater length of his name. The saint, or, as his successor calls him, "Holy Sage," died a few years ago and I visited his plain tomb near the temple. He was for many years a familiar Benares character. His deep learning, plain manner of living and ascetic disposition made him prominent in the priesthood and an object of curiosity to the visitors. He was born in the year 1833. He was invested with the sacred thread when he was 8 years old. He married at the age of 12 but left no issue, although a son had been born to him. Soon after the birth of his child he left his home and wife and devoted himself to the study of Sanscrit, visited shrines and became known to all as a profound Sanscrit scholar, a philosopher and a real Yogi. His successor says of him: "His dignified mien and venerable face silenced the onlookers who had doubted that a man could learn and practice Yoga at such an early age." And again, "His soul penetrated into the very heart of Being, by seeing reality as it is. He was a philosopher to whom God was not merely the creator of this universe, its protector and guide, but the life of his life, the soul of his soul—his very self. Such a sage was the Swami Bhaskara Nand—calm, silent, majestic, immersed in the glory of his own soul." What an enviable record to leave in this world of sin and corruption.

HINDU CREMATION.

Sitting on the deck of a river rowboat and gliding down the sacred Ganges near its border on the side of the ancient city of Benares, we passed the principal temple. I saw a number of burning funeral pyres at the very edge of the turbulent, dirty stream. It was too late to see the whole process of cremation as practiced by the Hindus. It was at Agra that I was given an opportunity to become a witness of this funeral rite. On the way to the Taj Mahal we passed a small procession, following a corpse carried on a litter of dry bamboo sticks on the shoulders of four men. The corpse was covered with a cloth of bright colors, red being the predominating one. The whole procession was made up of men, 24 in number. Women never attend funerals. The procession moved in quick steps and the mourners chanted a monotonous dirge, repeating over and over the same words, which the guide translated into "The name of God is true." Wishing to profit by this opportunity to witness an open-air cremation, I abandoned, for the time being, the visit to Taj Mahal and followed the procession. The procession continued its march until the border of the Jumna River was reached, where the corpse resting on the bamboo litter was deposited on the ground. I learned that the body was the corpse of a married coolie woman, 25 years old. She was sick 15 days with a diffuse swelling of the face (erysipelas?), and had died at 5 o'clock in the morning of the same day. It was now 9 a. m. Her husband was working in a place in the country, 20 miles from the city, and knew nothing of her illness and death. The only relative present was a brother, a lad about 17 years old, who officiated at the ceremony. The people were evidently extremely poor, so economy had to be practiced in cremating the corpse. The men squatted in a group on the banks of the river, smoked and chatted, and nothing but the presence of the corpse and the materials for building a fire reminded us that we were in the presence of death. The young brother was the only one whose face was earnest and expressive of grief, but not a tear was to be seen. Wood is very expensive in India, ¼ pie a pound (1/16 of a cent), hence it was used sparingly in this cremation. About two armsful had been procured. A pile of round dry chips, each about the size of a soup plate, was to be the principal fuel. These chips are made of stable manure mixed with rice straw. In the soft state, they are attached to walls and the outside of houses, where they are dried in the sun, and are used extensively as fuel. They are the prototype of the "buffalo chips" of our western prairies. The ground was first covered with several layers of these chips over an area a little in excess of the width and length of the corpse; pieces of dry wood were then laid across. The body was then prepared by the brother; the highly colored cloth was removed; the face was wrapped in a cloth and was never exposed while the brother washed it with water dipped from the nearby Jumna. Next the glass bracelets were broken with a piece of wood. The body, in a cheap, well-worn calico dress, was placed on the layer of wood and, lastly, chips were piled on all sides and over the corpse. A small bundle of dry brush was then purchased, for four annas, and distributed over the sides and top of the small mountain of chips. A handful of rice straw was then taken from the litter, twisted into a torch, ignited by one of the old men. swung by the brother until it burned in a bright flame, and with this the dry brush was set afire at the head of the corpse. The breeze was in the right direction, and in a few moments the entire pile was ablaze, the chips caught fire and soon the odor of burning flesh escaped with the smoke. It was at this stage of the cremation that I was as anxious to leave as I had been at first to witness it. We left the mourning party jabbering, laughing, smoking and looking lazily and unfeelingly into the smouldering fire maintained by the chips. During our stay, the ashes of the two corpses previously cremated were thrown into the Jumna River. On a knoll overlooking the river a Brahmin priest was perched, awaiting the funeral procession of a corpse attended by mourners who could pay him for his priestly functions. He did nothing for the poor young woman whose corpse was now being devoured by the smouldering fire furnished by the cheapest fuel. He did not have to wait long to assist in the happy incarnation of the soul of one of his faith. In returning to the city we met another funeral procession, chanting the same funeral dirge, but to outward appearances the mourners belonged to a higher cast. They were well dressed and undoubtedly expected to pay the priest liberally for his services.

"It is a brief period of life that is granted us by Nature, but the memory of a well-spent life never dies."—Cicero.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of Vaginal Gonorrhea.

The difficulties to be encountered in the treatment of vaginal gonorrhea, according to Dr. Daniel in *Med. Press*, are the peculiar anatomic structures of the female genital organs and the multiplication of microbes in the different segments of the uro-genital apparatus. Its oblique direction downward and forward renders the vagina difficult to disinfect. The treatment should consist of irrigation of the vulva, cervico-uterine, urethral and vaginal tracts. In very acute cases irrigations should be administered, consisting of six quarts of boiled water or a solution of potassium permanganate (1 to 10,000), associated with prolonged baths. After the acute stage has passed the treatment should be as follows:

The whole region inside and out should be washed with soap and warm water by means of a vaginal brush or sterilized wool, followed by rinsing the vagina with simple boiled water, and this followed by an injection of six quarts of warm potassium permanganate solution (1 to 4,000). The vagina should then be plugged with five or six plugs of sterilized gauze impregnated with the same solution. After twenty-four hours the plugs should be withdrawn and the injection repeated as before, followed by fresh plugs. These may then be permanently removed after twenty-four hours. The irrigations should be continued two or three times a day for ten or fifteen days. The os uteri should be painted every two days with a solution of silver nitrate (1 to 100). A pencil of the nitrate should be introduced into the urethra and immediately withdrawn every eighth day, for one month.

Gastric Vertigo.

The treatment of vertigo due to gastric disturbances, according to A. Robin in *Amer. Med.*, consists in directing the patient to take a cup of tea before arising to which has been added 30 grains (2.00) of quassia. The quassia is permitted to macerate in cold tea for two hours before it is drunk. The breakfast should consist of soft-boiled eggs, toasted bread and stewed fruit. No liquid should be given and the only liquid at other meals should be plain water or alkaline waters. No butter, fats, sauces, stews, fat fishes, pork, preserves, pastry, sweets, salads, raw fruits nor acids are permitted. Thin soup, broiled or roasted meat or fowl, vegetables, stale bread, eggs, boiled fish, stewed fruits and rice pudding should constitute the diet.

The tincture of nux vomica is prescribed in five-drop (.30) doses after each meal. And after lunch, dinner and before retiring the following powder is recommended:

℞. Magnesiæ calcinæ ..... gr. v |30
Sodii bicarb ..... gr. v |30
Cretæ preparatæ ..... gr. viiss |50

M. Fiat chart. No. i. Sig.: One such powder after lunch, dinner and before retiring.

The bowels should be regulated by the following pill:

℞. Aloes (cape) ..... gr. i |06
Cambogiæ ..... gr. ss |03
Ext. belladonnæ ..... gr. 1/12 |005
Ext. hyoscyami ..... gr. 1/12 |005
Ext. glycyrrhizæ ..... gr. ss |03

M. Fiat cap. No. i. Sig.: One such pill at bedtime for bowels.

If an attack of vertigo comes on the patient should be given the following combination:

℞. Pulv. serpentariæ ..... gr. iiss |15
Pulv. camphoræ ..... gr. 1/4 |015
Asafœtidæ ..... gr. 1/4 |015
Extracti opii ..... gr. 1/40 |0015

M. Fiat cap. No. i. Sig.: From three to six pills, to be taken at intervals during the twenty-four hours.

In cases of extreme nervousness the following is recommended:

℞. Potass. bromidi ..... 3iss 6|
Aq. laurocerasi ..... 3iiss 10|
Elix. simplicis q. s. ad ..... ℥iiss 75|

M. Sig.: One tablespoonful when an attack is threatened.

Hemoptysis.

The treatment of sudden and severe pulmonary hemorrhages, according to E. Hyslop Thomson in *British Medical Journal*, consists in producing conditions which favor the formation of a clot at the seat of hemorrhage by:

1. Diminishing the frequency of heart and lowering arterial tension.
2. By increasing the coagulable power of the blood.
3. By lessening the supply of blood to the diseased area.

To accomplish these conditions he advises that the head and shoulders be elevated and that a hypodermic injection of morphin grain 1/6 to 1/3 (.01 to .02) be given, and that from thirty to forty grains (2.00 to 2.65) of calcium chlorid dissolved in a small amount of water be given as a high injection.

An icebag should be applied to the chest and heat to the lower extremities.

The value of morphin, according to the author, consists in its stimulating the inhibitory center and slowing the heart's action. The calcium chlorid is of great service because, first, the active fibrin ferment is rich in calcium, and wherever coagulability takes place calcium is present; secondly, the conditions which favor coagulability in the lungs are feeble, for blood, after it has circulated several times through the pulmonary vessels without entering the systemic circulation, loses its power of coagulability.

The writer also states that in excessive menstrual flow the injections of ergotin are valuable and that heat should be applied to the lower abdomen. He has not seen such valuable results from the administration of adrenalin in hemorrhages.

Silver Nitrate in Purulent Ophthalmia.

The treatment of purulent ophthalmia, according to Scrini in an abstract in *Amer. Med.*, consists in thoroughly removing the secretions from the lids by means of absorbent cotton and the application of the following lotions:

℞. Potass. permangan ..... gr. v |30
Aquæ dest ..... Oii 1000|

M. Sig.: To be used as an irrigation to the lids.

Three or four hours later the following should be applied locally:

℞. Argenti nitratis (crys.) ..... gr. iii |20
Aquæ dest. ..... 3v 20|

M. Sig.: To be applied locally by means of an applicator. This should be neutralized by a solution of sodium chlorid.

If a 1 to 2 per cent. solution of silver nitrate gives no relief in two or three days it should be increased to 4 or 5 per cent. In case of corneal infiltration or ulceration, the silver nitrate should not be allowed to come in contact with the cornea. In such cases the following ointment should be applied:

℞. Iodoformi (dissolved in ether) ..... gr. iv |25
Vaselini (neutral) ..... 3iiss 10|

M. Sig.: Apply locally.

If perforation seems probable, instill a few drops of a 4 per cent. solution of atropin into the eye.

Leg Ulcers—Varicose and Others.

TREATMENT OF VARICOSE VEINS.

The principles underlying the treatment of varicose veins, according to W. C. Rucker in *N. Y. Med. Jour.*, are:

1. The relief of pressure from within the veins.
2. The upbuilding of the general health.

The first may be accomplished by palliative or radical means, and the second by proper attention to diet, regulation of the bowels, and the administration of iron, arsenic and similar tonics.

The palliative measures consist in elevation of the leg and the fitting of an elastic stocking. This treatment is of benefit in those cases where the patient refuses an operation and in those in which for some reasons an operation can not be performed. However, according to the author, if a case is not

far enough advanced to require an operation, no treatment is necessary, and if an operation is indicated by the conditions present, then other lines of treatment are useless. He, therefore, suggests that the saphenous vein be ligated to remove the weight of blood from the peripheral blood vessels, especially when the deep veins are involved and when the superficial veins alone are involved, multiple incision and ligation should also be done.

VARICOSE ULCERS.

Varicose ulcers are best treated by keeping the ulcer clean and stimulated, and by elevating the limb in addition to the above treatment. In order to render it impossible for the patient to lower the limb he should be put to bed, with the leg bandaged to a long posterior splint, which should be fastened to a box tied in the bed, as elevation must be constant in order to produce the proper results.

In order to cleanse and stimulate the ulcer the patient should be given an anesthetic and the wound thoroughly scrubbed with a brush, using a mixture of calcium chlorid, acetic acid and water, followed by a dressing of oiled silk, sterile gauze and a bandage applied from the toes to the knees. As soon as granulations have been established skin grafting should be performed.

This method, according to the author, is more rapid and certain than the use of various antiseptic powders, ointments, etc., as in wounds of low vitality antiseptics have a tendency to destroy granulations.

CHRONIC LEG ULCERS.

Blankenship, in the *Mobile Med. and Surg. Jour.*, says that in the milder cases of chronic leg ulcers rest, applications of various antiseptic and antiphlogistic remedies, accompanied by constitutional remedies and tonics may be all that is necessary. Strict cleanliness of the parts should always be carried out. Of the milder remedies he believes that one of the best is a weak solution of chloral hydrate (2 to 5 grs. to the ounce of water) applied on lint, with which he has had very good results in some cases. The more severe cases require more heroic treatment.

If inflammation is present, it should first be reduced by rest and appropriate means. Ichthyol applications are good for this purpose. One of the most common and perhaps one of the best methods is the adhesive plaster strappings of Baynton. This acts by affording support and compression, two of the cardinal principles in treatment of these cases, but if there is much discharge the strips would have to be removed so often that it would not answer very well. The best and most heroic plan, though it may confine the patient to his bed or to the house for five or six weeks, Blankenship believes, is in the long run the shortest course.

The method pursued is this: After a short preliminary treatment designed to disinfect the ulcer as much as possible and to reduce inflammation, the patient is given a general anesthetic, the ulcer and surrounding parts are scrubbed with a stiff nail brush and soft soap, then thoroughly curetted with a sharp curette, removing all the soft diseased tissue down to the hard, dense cicatricial base, exploring any pockets and scraping them. Then, with a scalpel, he makes incisions through the base and edges of the hardened fibrous tissue, cutting nearly or quite through the same. He crosses the incisions. If there is hemorrhage, it is stopped by hot water and pressure. With a mop of absorbent cotton he lightly and quickly touches the entire surface with pure carbolic acid, following it immediately by alcohol to limit the caustic action. He uses this not merely for its antiseptic action, but because it deadens pain. The patient does not suffer from pain after the operation. He fills the wound with boric acid in powder or scales, and applies a sterile gauze and cotton dressing, held firmly in place with a gauze bandage. If there is not much oozing this is allowed to remain on for two days. The subsequent dressing consists of cleansing with hydrogen peroxid in 50 per cent. solution and a dry dressing of an antiseptic powder combined with ichthyol, sterile gauze and cotton with bandage. If the granulations become too exuberant Blankenship uses nitrate of silver. Under this treatment there is usually a complete cure in from four to six weeks. The patients can be allowed to walk around the house a little after three or four weeks.

Eczema in Infants.

Zinc oxid is, as a rule, the best application in the treatment of moist eczema especially. It may be applied in the dry powder form or combined as follows, after thoroughly cleansing the parts involved:

℞.	Acidi salicylici	gr. ii	02
	Pulv. amyli	ʒii	8
	Zinci oxidi	ʒiv	15
	Adipis lanæ hydros. q. s. ad	ʒi	30

M. Fiat unguentum. Sig.: To be applied locally night and morning.

Efforts should be made, in case of infants, to prevent scratching by tying the hands.

Chronic Prostatitis.

The treatment of chronic prostatitis outlined in THE JOURNAL, Dec. 31, 1904, will more exactly correspond with that of Dr. E. G. Ballenger, if carried out with the following details: The sounds should be placed in ice water before being placed in the urethra, for the purpose of solidifying the ointments made with oleum theobromate. Instead of the knee-chest position on the table, Dr. Ballenger recommends a semi-stooping position in which the patient rests his arms on the chair. The prescription preferred is as follows:

℞.	Argenti nitratis	gr. v-x	30-.65
	Olei oliveæ	m. xv	1
	Lanolini	ʒi	30

This should be introduced with an ointment carrier.

Medicolegal.

When Certificate of Death Is Competent Evidence.—The appellate term of the Supreme Court of New York says, in the case of Carmichael vs. John Hancock Mutual Life Insurance Co., that the certificate of the attending physician, when made a part of the proofs of death, is competent evidence on the trial as an admission against interest (Donnelly vs. Ins. Co., 43 Misc. Rep. 87; Hanna vs. Ins. Co., 150 N. Y. 526); and the cases which hold that such a certificate, when offered as such, without the characteristics of an admission by the plaintiff, may be excluded as privileged (Robinson vs. Supreme Commandery, 77 App. Div. 219; Davis vs. Supreme Lodge, 165 N. Y. 159), do not apply. Where the certificate has been delivered among the proofs of death, its character as proof is derived not from what the physician declared, but from what the plaintiff has admitted to be the fact, i. e., the cause of death, and the privilege which she might assert to exclude the evidence of the physician does not extend to evidence of what she has herself admitted.

Things to Which a Physician May Testify.—The Third Appellate Division of the Supreme Court of New York says, in the case of Becker vs. Metropolitan Life Insurance Co., where a policy was issued April 20, 1900, that the insurance company sought to show by a physician that on Oct. 30, 1899, he was called to attend the insured in his professional capacity; also whether he at that time did so attend him; also whether he had any record of the dates when he attended the insured in Norwich or elsewhere; also if he remembered how long the insured was confined to his house in October, 1899; also to give the dates between Oct. 30, 1899, and April 1, 1900, when he was called in to attend the insured, or when the insured called at his (the physician's) office to receive medical attendance from him. His answers to these inquiries were excluded, on the ground that they were prohibited by section 834 of the Code of Civil Procedure. This, the court holds, was error. It says that neither of the questions called for information that was in violation of such section, while such information was manifestly pertinent to the issue being tried, and would doubtless have much weight in controlling the jury's verdict.

Promise for Town to Pay for Past Services.—The Supreme Court of Vermont says that in the case of Farmer vs. Town

of Salisbury, brought by a physician, it appeared that, February 3, he was requested to visit a poor woman by a neighbor who promised to pay for that visit. The physician made the visit and informed the neighbor that the woman would require attendance for a long time. The neighbor declined to be further responsible, and by his advice the physician saw another neighbor, who tried to communicate by telephone with the overseer of the poor of the town, but, failing to do so, advised the physician to continue his visits, saying that he would see the overseer about the matter; but he did not see him until February 15, when he had an interview with him in the physician's behalf. The overseer then used language from which it was found that this neighbor understood, and had the right to understand, that the town would assume payment of the physician's charges, and that he so informed the physician. The trial court found that after the first visit the physician rendered his services in the expectation that the town would pay him, and, after this second neighbor's report to him, in reliance on such payment. The Supreme Court says that it was apparent that the overseer undertook to assume payment of the physician's entire bill, but there was no consideration for the promise to pay for the services rendered prior to February 15. They were not rendered on the overseer's promise to pay, and did not inure to the town's benefit. Therefore, the town was not liable for them, but was liable for the charges made after that date.

Communications to Physicians Not Privileged.—The Supreme Court of Rhode Island says that in the divorce case of Banigan vs. Banigan while a master in chancery was taking the deposition of a physician who had treated the defendant professionally, the witness objected to stating the disease for which he had treated the defendant. The master decided that the witness should testify. Thereon, the witness suggesting that the question as to whether he should be compelled to testify was one of much importance and that it should be decided by the court, the master suspended the proceeding, and filed a petition before Mr. Justice Dubois asking advice as to whether the witness was privileged to refuse to testify. The justice formally advised the master that the witness was not privileged to refuse to testify as requested by counsel for the petitioner, communications to physicians not being privileged in Rhode Island, and hence that the witness should be required to answer the question. The Supreme Court says that the petition by the master for instruction and advice above referred to was clearly within the jurisdiction of Mr. Justice Dubois, and, he having passed thereon, there was no authority in the Supreme Court either to reverse or to review his finding. It further says that there was obviously no reason for the justice who heard the matter in question to refer it to the larger quorum, since the uniform practice of this court from the earliest times has followed the rule of the common law in refusing to recognize a confidential communication to a physician as privileged, so as to protect the physician from divulging it when called on to do so as a witness in court.

Damages for Mental Anguish Without Physical Suffering.—The Supreme Court of North Carolina, in the case of Green vs. Western Union Telegraph Co., says that a significant fact is the growing tendency of judicial opinion to allow compensatory damages for mental suffering even when disconnected with any physical suffering. Of course, in cases merely of slander or libel, the court says, there could be no physical pain except as the reaction of mental suffering. The mere fact that a shock to the feelings which goes directly to the mind, without ever touching the body, may produce such reaction on the physical system as even to endanger life itself, is *per se* (by itself) the surest proof of the existence of actual suffering, and the strongest argument for the allowance of compensatory damages. If such suffering actually results directly from the wrongful act of the defendant, it would seem to make but little difference what were the collateral circumstances. Again, the court says that when we remember that this doctrine of mental anguish in telegraph cases is of recent origin, having theretofore been deemed contrary to the principles of the common law, and has made constant progress in opposition to the preconceived ideas of courts and jurists, it seems that it must possess much inherent strength and merit. This is especially evident from the action of certain courts, some of them of the highest reputation, which, while denying the doctrine in telegraph cases that damages for mental suffering may be recovered in the absence of physical pain or injury, allow it in cases of a kindred nature, such, for instance, as insulting or humiliating a passenger. An examination as to the present status of the doctrine in the different states, so far as ascertainable, shows it adopted in telegraph cases in Texas, Tennessee, Alabama, Kentucky, Iowa, Louisiana, South Carolina, Nevada, Washington (indirectly). The doctrine is denied, as shown by the most recent cases in Florida, Georgia, Illinois, Indiana, Kansas, Minnesota, Mississippi, Ohio, West Virginia, Wisconsin, Virginia. In this case a statute was passed on the subject, which apparently failed of its purpose. In the following states there have apparently been no decisions in telegraph cases on the subject: Arizona, California, Colorado, Connecticut, Delaware, Idaho, Maine, Maryland, Massachusetts, Michigan, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, and Wyoming.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 14.

1 *The Foundations and Aims of Modern Pediatrics. Theodore von Escherich, Vienna, Austria.
2 Comparison of Roentgen Ray and Surgical Treatment of Tuberculosis. James R. Bullitt, Louisville, Ky.
3 The Early Recognition of Hypertension. Henry Wireman Cook, Richmond, Va.
4 *Intussusception of the Appendix Vermiformis. George Emerson Brewer, New York.
5 *Lithemia: Its Diagnosis and Local Treatment. F. M. Johnson, Boston.
6 Three Interesting Cases: Gastroptosis and Dilation; Chronic Tenosynovitis; Thoracic Abdominal Aneurism. G. Childs MacDonald, San Francisco.

1. **Modern Pediatrics.**—Escherich reviews the various steps taken by pediatrics in its development into a science and which have considerably extended and clarified the study of pediatrics. Modern pediatrics exhibits a scientific structure including all disturbances of the life processes, arranged according to scientific principles, and in its completeness not reached by any other specialty in medicine. Only a small number of diseases can be considered peculiar to childhood, because they are caused by events which can not occur in the life of adults, such as the change from intrauterine to extrauterine life, and growth and development. The key to the understanding of the special pathology of the infantile organism is to be found in the study of developmental processes. Between the growing organism of the child and that of the completely developed adult great differences exist in the reaction called forth by the diseased process, the variations, which change constantly in the course of childhood. The author also considers the threefold division of childhood accepted by Vierordt, which he accepts as the most scientific as well as practical.

4. **Intussusception of the Appendix.**—Brewer cites the case of a woman, aged 22, suffering from symptoms of acute appendicitis. The abdomen was opened, and a prolonged search made for the appendix, which proved futile. Five months later the patient again presented herself, complaining of constant pain and tenderness in the right iliac fossa. The abdomen was again opened, the ileo-cecal region was dissected free from a mass of adhesions and thoroughly inspected. No trace of the appendix was found, but on palpating the cecum an elongated oval body was felt within its lumen. The intestine was opened by a longitudinal incision, and the inverted appendix was found projecting into the cecum. The patient

made a satisfactory convalescence and is entirely relieved of all symptoms. Brewer suggests that the condition was a congenital one and that the acute attack was due primarily to the inflammation of the cecum which resulted in a stricture with secondary involvement of the appendix. Or, that as a result of a catarrhal appendicitis, with or without the presence of a foreign body, the muscular efforts of the appendix to rid itself of its contents became so violent as to produce an intussusception in the same manner as the lesion is produced in other portions of the intestine.

5. **Lithemia.**—Johnson emphasizes the great value in lithemia of the microscopic findings in the urinary sediment, not only because of their diagnostic importance, but also because they serve accurately to indicate certain essential lines of treatment. He says that if catarrhal inflammation of the kidney is present and the bladder is likewise involved, thorough washing out of the bladder and lavage of the kidneys are of great value. When carefully done the procedure is harmless. The invasion of an ascending inflammatory process is completely stopped and accumulating concretions are washed away. The treatment is discussed in full.

Medical Record, New York.

January 14.

7 *Diseases of the Isthmian Canal Zone. Richard L. Sutton, U. S. A.
8 Value of Publicity Regarding Tuberculosis. Denslow Lewis, Chicago.
9 Sudden Death, Especially from Embolism Following Surgical Intervention. Byron Robinson, Chicago.
10 Treatment of Digestive Disorders. James W. Hunter, Norfolk, Va.
11 Infections of the Gall Bladder. Thomas W. Harvey, Orange, N. J.
12 *Pneumonia in High Altitudes. Summary of 101 Cases of Lobar Pneumonia Treated at the American Hospital, Mexico City, from 1890 to 1904. Albert R. Goodman, Mexico City.

7. **Diseases of Isthmian Canal Zone.**—Sutton reviews the diseases to be encountered in this particular territory, and the conditions which must be met by medical men. He says that the practitioner who expects to find a case of "yellow jack" or black water fever in every native clinic he conducts, will be greatly disappointed. These diseases are present at times, but are encountered much more seldom than the average reader would be led to imagine. Malaria is probably more frequently seen than any other affection among the natives. Long-continued residence and many attacks of malaria have combined to render the older inhabitants partly or wholly immune to the infection. The disease is encountered very frequently, however, among children, from earliest infancy to adolescence. The estivo-autumnal type is the most common. Often the symptoms seen are not directly indicative of malaria at all. The onset may be very atypical. Mixed tertian and estivo-autumnal fever is seen rarely, and no case of quartan infection has been discovered. Patients suffering from advanced degrees of malarial cachexia are often met with. Dengue is the disease which most frequently attacks the new arrival in the Isthmus, and even the more acclimated natives do not wholly escape it. The disease is extremely contagious, and many persons in the same place are usually attacked at the same time. Beri-beri, seen most frequently in the wet lowlands and marshy districts, thrives in the Isthmus, especially affecting the Chinese contingent. Both the dropsical and paraplegic forms are seen, often the two are associated. Infection with intestinal parasites is the rule. The eggs of half a dozen different species can be found in nearly every specimen examined. The parasites found are the *oxyuris vermicularis*, *tricocephalus trichiuris*, *ascaris canis* and *ascaris lumbricoides*, *strongyloides intestinalis*, and *uncinaria duodenalis*. One of the most troublesome insects on the Isthmus is the "jigger," the *culex penetrans*. Snakes, centipedes and spiders are numerous, but the danger from them is not great. Heat exhaustion and sunstroke occur more often among the Americans than any other class. Dysentery is still much in evidence, especialy among the natives. The disease is of both types, the acute specific, due to Shiga's bacillus, and the amebic, with the former predominating. Acute and chronic articular rheumatism also occur, and myalgia, especially of the lumbar muscles, is frequently encountered, malarial infection probably being the causative agent in many cases and dengue in others. Smallpox makes occasional inroads. Yellow fever is not at present epidemic and sporadic cases are seldom seen. Sutton says that the Isthmus is now in better condition, from a hygienic standpoint, than it has ever been, and, taking even the peculiar character of the climate into consideration, the health of the inhabitants will soon compare favorably with that of the residents in any extreme southern country.

12. **Pneumonia in High Altitudes.**—Goodman gives a summary of 101 cases of lobar pneumonia treated at the American Hospital in Mexico City during the past fifteen years. Of this number, 91 were males and 10 were females. The greatest number of cases, 79, occurred during the first six months, only 22 cases occurring in the second half of the year. Pneumonia is frequent before the rainy season and decreases during the rains and directly afterward. The average mortality for all cases during this time was 39.8 per cent. Deducting 4 cases in which death occurred within twenty-four hours after entering the hospital, the mortality is 37.1 per cent. Of cases treated since 1898 (since when more accurate records have been kept)—68 in all—the mortality was 50.1 per cent.; of these 4 died within 24 hours after admission, leaving the mortality of the remaining 57 cases, 47.4. The average of these 4 mortality percentages is 43.5, which in Goodman's opinion represents fairly accurately the actual mortality of pneumonia as existing in the hospital.

Medical News, New York.

January 14.

13 *Care of Puerperæ. James D. Voorhees, New York.
14 *Trauma and Chronic Compression of the Epigastrium as Etiologic Factors of Gastric Ulcers. William Ackermann, Milwaukee.
15 Nervous Symptoms Accompanying Pernicious Anemia. Roy M. Van Wart, New Orleans.
16 *Prostatectomy in Emergency Cases. John F. Erdmann, New York.
17 Observations on the Blood Pressure in Disease. Roger S. Morris and Charles W. Edmunds. Ann Arbor, Mich.

13. **Care of Puerperae.**—Voorhees advises continued asepsis after delivery. For the first two or three days he places a piece of gauze wet with a 1 to 10,000 bichlorid solution over the vulva beneath the sterile vulva pad. Early vaginal examination and douching he condemns. After from ten to twelve days hot douches undoubtedly help the involution of the uterus. In some cases where the uterus continues to relax immediately after delivery, he often gives an intrauterine douche of acetic acid with good result. Voorhees says he often doubts the efficacy of the abdominal binder, although for the first two or three days it does keep down the gas and supports the abdominal walls. And in short-waisted women who have carried the child high and well out in front, it prevents an anterior relaxation of the abdominal walls. But for women who carry the child low and well backward, they are more or less unnecessary. Consequently, if such cases are bothered by the binder after the third to fifth day, he allows it to be discarded. To insure as complete involution as possible, Voorhees advises that on the second day the patient should be turned first on one side and then on the other; on the fifth day she should commence to lie on her abdomen for shorter or longer periods and be encouraged to sleep in this position, if possible. This change in posture favors the escape of the lochia and allows the uterine ligaments to contract, so favoring normal anteflexion. He advises keeping the patient in bed at least two weeks and longer if any signs of subinvolution persist. If involution is delayed, hot vaginal douches, boroglycerid tampons, ergot, quinin and strychnin are of service. The routine vaginal examination should be made before any case is discharged to determine the possible existence of erosions, inflammations, displacements, etc.

14. **Etiologic Factors of Gastric Ulcer.**—Ackermann discusses the influence of traumatism and epigastric compression, particularly long continued, in the causation of gastric ulcer. He says that, taking into consideration the fact that men, owing to their occupation, are more liable to epigastric compression than women, it is plain why ulcers occur more frequently in

men than in women during the latter years of life. And that in all probability many cases of gastric dilation thought to be due to perigastritis really owe their existence to cicatrices following traumatic ulcers. Sixteen cases are cited in which constant pressure on the epigastrium was followed by gastric ulcer. Both the occupation of the patient and the situation of the ulcers seemed to substantiate the author's view of the importance of compression, the ulcers usually being found near the pylorus, this part of the stomach being more exposed to pressure.

16. **Prostatectomy in Emergency Cases.**—Erdmann calls attention to the advantages of doing a prostatectomy in every instance possible, when the prostate is in part the cause of obstruction, in cases coming under the head of emergency drainage of the bladder. He cites records of eight cases that belong distinctly to this class in which relatively six different emergency indications are dealt with. The cases were as follows: 1. Impassable urethra due to stricture with rupture and gangrene of the entire scrotum and perineum. 2. Retrograde hemorrhage, bladder being full of clots and bloody urine, with malignancy of prostate. 3. False passage; retrograde hemorrhage; suprapubic aspiration, with infiltration of abdominal wall extending to the thorax and to the gluteal regions. 4. Acute obstruction due to eposure to cold and wet, inability to catheterize; trauma of the urethra. 5. Trauma of the urethra; catheterization for several days, retrograde hemorrhage, etc. 6. Deep stricture of the urethra; obstruction; catheterization cystitis with absorption. Erdmann is of the opinion that drainage by prostatectomy in these cases is the only method of procedure and that the perineal route is the one to be selected in practically every instance. Cases 1 and 3 died, but not because of anything in connection with the operation. Erdmann recommends emergency operative procedure because (a) only a few minutes more are required to remove the gland, the hemorrhage as a rule is not excessive, and the operative procedure itself does not increase the shock to any degree. (b) The removal of the prostate gives proper exit to the urinary outflow and admits of easy drainage. (c) Washing the bladder is much facilitated. The perineal route is recommended because (a) the opening is practically at the lowest point of the bladder and complicated devices for drainage, such as are necessary in suprapubic sections, are not required. (b) The old, being irritable and feeble and requiring to be moved frequently, the drainage in the suprapubic method is constantly interfered with, while in the perineal method it is controlled. (c) The after-soiling, when the tube is removed, is slight, and easily controlled in the perineal method as compared with the suprapubic. (d) Bladder irrigations are more readily done with less soiling of the bed, etc.

New York Medical Journal.

January 14.

18 The Present Status of Railway Emergency Work. U. F. Martin, New York.
19 *A Clinical Study of Myoidema with Especial Reference to Its Occurrence in Pulmonary Tuberculosis. Henry L. Shively, New York.
20. Radium; a Review of the Literature. Fred G. Hodson, Atlanta, Ga.
21 Differentiation in the Diagnosis of Non-deforming Club-foot. John Joseph Nutt, New York.
22 *Tic Douloureux and Other Neuralgias from Intranasal and Accessory Sinus Pressures. Sargent F. Snow, Syracuse, N. Y.
23 Biliary Colic Without Gallstones. John G. Sheldon, Telluride, Colo.
24 The Proper Scope of Scientific (So-called Expert Testimony in Trials Involving Pharmacologic Questions (concluded). Solomon Solis-Cohen, Philadelphia.

19. **Myoidema in Tuberculosis.**—Shively has found this symptom present not only in tuberculosis pulmonalis, but also in typhoid, lobar pneumonia, acute and chronic bronchitis, carcinoma of the breast, aneurism of the arch of the aorta, and in secondary syphilis, and he has also observed it in perfectly normal individuals. In a series of 750 consecutive cases of tuberculosis of the lungs, myoidema was present in 703. Of this number, 196 were incipient, 475 moderately advanced and 79 advanced cases. In the incipient cases the fibrillary and nodular variety of myoidema could be obtained in 135; the nodular alone, in 19; the fibrillary alone, in 24, and neither form in 18. In the moderately advanced cases both kinds were present in 379; the nodular alone, in 30; the fibrillary alone, in 37, and neither form, in 29 cases. In the advanced cases both varieties were obtained in 74; the nodular in 4 cases, and the fibrillary in 1 case. It would seem that a phenomenon found in such widely different conditions could have but little diagnostic significance in any one of them. Yet, it is apparent that it is present in the great majority of all cases of tuberculosis of the lungs, and that it is usually obtained even in the incipient stages of the disease. Therefore, it is not without some importance as an addition to the syndrome of signs and symptoms which makes the early diagnosis less difficult. Myoidema, says Shively, is one of the indications of departure from health which should receive some consideration.

22. **Pressure Neuralgias.**—Snow believes that many cases of tic douloureux arise from intranasal and sinus pressure, and that 80 per cent. would be a modest estimate. The intense aggravated forms of headaches characterized by convulsions, rigidity of muscles, etc., that he has observed have been in females where a combination of both marked nasal and uterine factors existed. He advises careful and thorough inspection of the intranasal and accessory sinuses in such cases.

Boston Medical and Surgical Journal.

January 12.

25 *Systemic Use of Work as a Remedy in Neurasthenia and Allied Conditions. Herbert J. Hall, Marblehead, Mass.
26 *Improved Technic for End-to-end Intestinal Anastomosis. Alfred H. Gould, Boston.
27 Observations on Experimental Drainage of the Peritoneal Cavity of Cats. Fred T. Murphy, Boston.
28 Consideration of Autointoxication and Autoinfection as a Cause of Various Mental Disorders (concluded). L. Vernon Briggs, Boston.

25. **Work as a Remedy in Neurasthenia.**—Hall protests against the almost universal application of rest in the treatment of neurasthenia and allied conditions. A study of the etiology of this rather indefinite disease has led him to some conclusions as to treatment that are a little at variance with the usually accepted ideas. Hall believes that some means must be devised whereby the neurasthenic or anyone who, for reasons of mental and nervous hygiene, might need to change his occupation and habits of life, could do so without the shock or failure which the usual desultory and spasmodic attempts at such an action imply. The great need seems to be to lift the neurasthenic out of his tangle of nervous symptoms, not by substituting another abnormality in the shape of unduly prolonged rest, but by bringing about, by a gradual process, the conditions of the normal life, a life of pleasant and progressive occupation, as different as possible from the previous life and resulting in self-forgetfulness. Manual work is best, for it is objective and wholesome, and trains to accuracy and precision of movement. In order to test the soundness of these preconceptions, Hall established a practical shop for the manufacture of pottery and for the production of a variety of fabrics by means of hand weaving. A competent teacher was secured, and she, with a few assistants, proceeded to make the shop practical and effective from a mechanical and artistic point of view. The shop was popular at once and had a very encouraging effect on the early patients. Basket-making has recently been introduced and is proving very useful. The work of the patients has been surprisingly good when judged by exacting standards. Having established this shop and made it practicable for those mildly affected, the next step was to attract and hold a confirmed neurasthenic and to enable them to escape the usual consequences of exertion. In the lighter cases there was no difficulty. The surroundings were so novel and the work so attractive that before they realized it themselves, these patients were hard at work. After eliminating as far as possible such evident sources of irritation as eyestrain, the problem seemed that of diminishing the prohibitive or anticipatory fatigue symptom. To do this Hall begins a treatment by a short period of rest in bed, perhaps a few days, perhaps a week, under the usual rest-cure conditions. Then, without any warning whatever, the patient

is required to do something. A very gradually progressive program is written out each day and intrusted to the nurse, the patient having no knowledge of what is expected of him. This device has proved exceedingly satisfactory. The progression leads to the shop and it depends on the work there, the actual living of a rational life, to fix and render permanent the improvement. The hours of rest are gradually made shorter and the hours of work longer until the day is full of interest and self-forgetfulness and the need of prolonged rest is lost. After a few weeks of work, when the inertia of months or years has been cast aside, it is remarkable to observe the change in facial expression, in precision and skill of movement, and in the whole morale of the patient. To encourage a feeling of independence, it has been decided that when a patient can turn out work of value the product may be sold through the agency of the shop and the proceeds credited to the maker. In order to test more thoroughly the efficiency of treatment by work, little or no use has been made of special baths, massage and electricity. The one great end to be obtained is self-forgetfulness and a pride and satisfaction in work and in life. While the agents mentioned are of value and are sometimes necessary, yet they constantly call the patient's attention to himself and to his symptoms. Hall hopes that the treatment by work will not only sidetrack the neurasthenic state, but will substitute a simple, but positive efficiency which will reorganize the life of the individual on better lines and which will do it substantially and speedily without undue mental strain on the part of the physician, nurse or patient.

26. **Improved End-to-End Intestinal Anastomosis.**—According to Gould, the only original feature of his technic is the method of beginning the first layer of continuous sutures. It is customary to start at the free edge of the bowel and sew toward the mesentery. This makes it necessary to work in a pocket while crossing the mesenteric border. For this reason it is preferable to place the first guides in such a manner that the mesenteric border will be first developed, and, when this has been sewed across, the rest is plain sailing. The size of the catgut is important. No. 0 chromic gut is amply strong and threads easily in a No. C milliner's needle, which is twice or three times the size of the usual needle employed. No. I Pagenstecher's celloidin thread and No. 0 chromic gut thread so easily that it can be done without any delay during the operation. The anastomosis is made with three separate stitches: 1. The mattress mesenteric stitch (Maunsell, Connell). 2. Continuous suture of all coats. 3. Interrupted or continuous seromuscular stitch (Cushing or Lembert). After the usual clearing of the lumen of the gut, short-jawed clamps are applied, leaving a margin of about three inches on either side of the area to be cut out. Handkerchief gauze is wrapped around the intestines beneath the clamps to isolate the field of operation. The resection is done by means of scalpel and scissors. Hemorrhage from the mesenteric vessels is checked at once. The placing of the Maunsell mesenteric mattress stitch forms the starting point of the anastomosis. This should enter and leave the bowel at least an eighth of an inch from the cut edge, but should penetrate the mesenteric space and peritoneum farther forward. The mesenteric third of the bowel circumference is rather inaccessible, and, to bring this portion forward, guide stitches are introduced with the ends left inside. On tightening the guides, the remaining circumference of the bowels falls away and the inverted edges are freely exposed at their mesenteric attachments. To control hemorrhage and to bring the cut edges together, a continuous chromic catgut stitch is used, size preferably No. 0. This stitch starts near one of the guides and is knotted on the outside where a long end is left to tie to the last stitch after it has completely approximated the circumference of the cut edges. The continuous through-and-through stitch passes across from one guide to the other. When the second guide has been reached, a third guide is introduced half way between the first two, on the free edge of the bowel opposite the mesenteric attachment. The ends of this guide are left outside. Traction on this and on the lower guides will make easy the completion of the continuous suture. The last stitch is knotted to the long end left on the first knot and the guide is removed. The continuity of the chromic stitch must be broken at points an inch or so apart. This makes it difficult to narrow the lumen by drawing the catgut into a purse-string and also gives greater security to the joint. The most important step is the seromuscular stitch. Both continuous and interrupted sutures are employed for this purpose, but the Lembert interrupted is the more reliable, on the whole. The first interrupted seromuscular stitch is placed opposite the mesenteric border, and this is followed by a stitch at the mesenteric edge on either side. The ends of these three stitches are left long, as they make excellent guides for the remaining stitches, which are introduced in the usual way. The mesentery is finally brought together by a few interrupted catgut stitches.

Lancet-Clinic, Cincinnati.

January 7.

29 A Study of the Mental Disorders of Adolescence. Frank Parsons Norbury, Jacksonville, Ill.
30 Indifference to Diagnosis One of the Dangers of Modern Surgery. Jacob Block, Kansas City, Mo.
31 The Tear-passages and Their Diseases. Mark D. Stevenson, Akron, Ohio.
32 Case of Tuberculosis with Some Unusual Points of Interest. Samuel E. Earp, Indianapolis, Ind.
33 The Ocular Manifestations of Cerebral Syphilis. Louis Stricker, Cincinnati.
34 Is the Practice of Producing Abortion Common Among Medical Men? T. B. Greenley, Meadow Lawn, Ky.

St. Louis Medical Review.

January 7

35 A Device for Making Forward Pressure on the Body of the Uterus. Frank P. Foster, New York.
36 Arizona Ticks. W. C. Barnard, Seneca, Mo.

Bulletin of the Johns Hopkins Hospital, Baltimore.

January.

37 *Some Newer Aspects of the Pathology of Fat and Fatty Degeneration. Henry [illegible], Boston.
38 Fabricius Guilhelmus Hildanus: the Father of German Surgery. Walter B. Platt.
39 Importance of Testing the Ocular Muscle Balance for Near, as Well as for Distant Vision. Samuel Theobald, Baltimore.
40 Infantile Paralysis of the Abdominal Muscles; with Report of a Case. Wm. Burgess Cornell, Towson.
41 *The Diagnostic Value of Tuberculin in Orthopedic Surgery. W. S. Baer and H. W. Kennard, Baltimore.
42 A Practical Method of Demonstration. W. J. Calvert, Co-
43 Effect of the Bile on the Ester-splitting Action of Pancreatic Juice. Albion W. Hewlett, San Francisco.
44 Case of Right-sided Infantile Hemiplegia, with a Description of the Pathologic Changes Found in the Brain and the Spinal Cord. Robert Reuling, Baltimore.

37. **Pathology of Fat and Fatty Degeneration.**—Christian has found that visually demonstrable fat is present normally in very many cells of the body, while extracted fat occurs in practically all of the tissues. Under abnormal conditions the visually demonstrable fat appears in the cells in increased amount and is always an index of cell injury. With regard to fatty infiltration and fatty degeneration, he says that fatty infiltration is the physiologic appearance of fat in normal cells, and that fatty degeneration is the appearance of fat in injured cells; the fat is an index rather than the direct result of cell degeneration. However, in both conditions the origin of the fat is probably the same, coming from without the cell by transport from fat depots elsewhere, but it may arise within the cell from fat related bodies, not from proteid.

41. **Tuberculin in Orthopedic Surgery.**—Baer and Kennard detail the results they have obtained from the use of tuberculin in orthopedic surgery. Forty private patients were injected. The cases were selected almost invariably in order to clear up the diagnosis. Twenty-five gave a positive and 15 a negative reaction. Of the former, 6 were subsequently operated on and all proved to be tubeculous. In 18 of the remaining 19 cases the diagnosis was verified by the subsequent history and the response to treatment. The remaining case is a recent one and therefore not available. Of the 15 patients who did not react, one was operated on and no evidence of tuberculosis was found; of the other 14, 8 have receovered under non-tuberculous treatment; the remaining 6 are improved and all suspicion of tuberculosis has been removed. Radiographs were taken of 15 of the 25 cases which reacted to tuberculin. Six

showed a focus, in 5 the disease was suspected only, and 4 showed no lesion. The authors consider tuberculin the best and most reliable diagnostic agent for incipient tuberculosis of bones and joints. Its proper administration is attended by no permanent, harmful effects. The dosage is variable, but it is rarely necessary to give more than six milligrams. The local signs following the use of tuberculin they consider of equal, if not greater, importance than the general reaction in bone and joint tuberculosis. Previous to the injection of tuberculin, the local seat of disease should be examined carefully for all signs of the suspected trouble. In response to the tuberculin, if tuberculosis be present, all the local signs of the disease will be distinctly increased; that is, motion will be more limited, the deformity will be greater; tendinous and muscle spasm will be exaggerated, and local temperature may be increased. Tuberculosis practically always reacts to tuberculin. Although radiography is of value in the diagnosis of these conditions, the use of tuberculin permits of an earlier and more positive diagnosis than the *x*-ray.

St. Paul Medical Journal.

January.

45 *A Method of Total Excision of the Ureter, with a Few Incidental Remarks on Kideny Tuberculosis. Arnold Schwyzer, St. Paul.
46 *The Control of Smallpox. H. M. Bracken, Minneapolis.

45. **Total Excision of the Ureter.**—The value of Schwyzer's method lies in the reduced amount of disturbance of the tissues, in the reduced size of the abdominal incision, and in the greater feasibility of a complete excision of the ureter, as compared with other methods. In cases of firm addhesions of the ureter to the surrounding tissues, or of advanced tuberculous periureteritis, it can not be employed. To better illustrate the method, Schwyzer mentions the case in which it was used. The patient, a woman, aged 23 years, was found to be suffering from a right-sided tuberculosis of kidney and ureter, with secondary infection of the bladder, and with the left kidney not beyond suspicion. Inasmuch as something had to be done, he decided on a preliminary exposure and exploration of the kidney. An incision was made four inches long, parallel to the costal border and an inch below the twelfth rib, beginning just outside the sacrolumbalis muscle. The fat capsule of the kidney was very dense, so that it was with difficulty that the kidney was separated from it. The kidney was rather large, and the fibrous capsule was ragged. A small incision was made into the convex border of the kidney. Through this a very soft silver probe was passed well down into the ureter, nothing but blood escaping from the wound. A large, soft-rubber catheter was passed through this opening and down about three inches into the ureter. It was left there for drainage. The abdominal walls were closed up to one inch for drainage. A week after the nephrotomy, he excised the kidney and ureter. With the patient in the lithotomy position, an incision, a little over one inch long, was made into the right vaginal vault over the region of the ureter. The ureter was somewhat freed, and a blunt hook was introduced over it. It was then dissected out of the bladder wall. Its end was caught and the bladder wall sutured with catgut. A string was tied to the free end of the ureter. The stitches were removed from the former lumbar incision, which was extended to five and a half inches in length, the anterior end of the incision being two cm. and seven cm. above the anterior superior spine. The kidney was freed and the ureter dissected out with the fingers for a considerable distance. The renal vessels were tied and the kidney cut off from them. The kidney was now outside of the wound and free, except from its attachment to the ureter. Two fingers of the left hand were next inserted down along the ureter, while two fingers of the right hand worked themselves through the incision in the right vaginal vault, also following the ureter. The fingers of the two hands worked about the ureter until they met. They were helped in their freeing action by the assistants pulling on the lower end of the ureter and alternately on the kidney. A small drainage tube was left in the vaginal opening. A drainage tube with gauze was placed in the upper wound, and the lumbar incision was closed, except about the drain. The patient is having a troublesome convalescence. Where the distance from the nephrectomy incision to the incision in the vaginal vault is much too great for the fingers of the operator, a small incision, just allowing two fingers to pass, could be made above Poupart's ligament, and the ureter, held in tension by pulling, can easily be reached and found extraperitoneally over the border of the iliac vessels. From there the fingers of the two hands will reach each other with ease and work bimanually. In order to use the same method in male patients, a perineal section would be necessitated, a much more complicated operation than the one in the female.

46. **Control of Smallpox.**—Bracken believes that statistics the world over have demonstrated fully that the proper enforcement of vaccination will prevent the occurrence of smallpox. And that it has also been demonstrated, that it is impossible to control smallpox by any known method of quarantine. Recognizing these facts as true, efforts to control this disease should be based on vaccination rather than on quarantine. Without vaccination there is no reason why smallpox in time should not again become as great a scourge throughout the world as it was in the prevaccination era. Compulsory vaccination laws are important. These should be demanded by the laity. Physicians should use their influence in favor of vaccination, but they should not place themselves in a false light by trying to force legislation demanding compulsory vaccination laws. Such laws should be demanded by the people as a means of self protection. However, if the people choose to follow the leadership of faddists against vaccination, rather than the scientific teaching and actual demonstrations in favor of vaccination, then on the people should rest the responsibility for the consequences resulting from failure to protect against smallpox by means of thorough vaccination. Bracken states emphatically that quarantine is either evidence of a lack of scientific knowledge as to the proper means to be employed in the control of a communicable disease, or inability to apply such knowledge. Therefore, the attempt to control smallpox by means of quarantine should be abandoned, for it is unscientific, impracticable, expensive and an absolute failure. The present methods of quarantine for smallpox should not be discontinued suddenly, but after a sufficient time has elapsed to permit of the creation of compulsory vaccination laws.

Ophthalmic Record, Chicago.

December.

47 Glioma of the Pons, with the Eye Symptoms and Report of the Autopsy in a Child Seven Years Old. Casey A. Wood, Chicago.
48 Tuberculosis of the Choroid; Perforation of the Sclera; Extension Posteriorly with Involvement of the Optic Nerve; Histologic and Bacteriologic Examination of the Specimen. G. E. de Schweinitz and E. A. Shumway, Philadelphia.
49 Case of Cephalic Tetanus Following a Contusion Wound of the Outer Canthus. A. Maitland Ramsay, Glasgow.
50 *The Combined Treatment in Diseases of the Eye, Especially in That of the Uveal Tract. G. Herbert Burnham, Toronto.
51 Report of a Case of Glaucoma with Operation with Unintentional Result, Which Suggests a Possible Improvement on the Operation of Iridectomy as It Is Ordinarily Performed. J. C. McAllister, Ridgway, Pa.

50. **Combined Treatment in Eye Disease.**—Burnham considers the treatment of various diseases of the eye by a combined method, that is, the internal administration of mercury and potassium iodid, associated with the hypodermic injection of pilocarpin, which he has been using for fifteen years. He finds that it stimulates the nerve centers to a remarkable degree, and through them the ordinary physiologic processes of the affected part or parts especially are aroused to an activity far in excess of the normal, and thus the diseased condition is acted upon and removed. Moreover, this hyperactivity can be regulated and sustained for years, if necessary, by the manner in which the combined treatment is administered. The method has proved unusually successful in the treatment of cases of very severe cyclo-irido-keratitis, failing vision in a rheumatic, acquired syphilitic cyclo-iriditis, hypopyon keratoiritis of the worst type, albuminuric neuroretinitis, cerebral syphilis, choroido-retinitis, and corneal nebula, specific or nonspecific.

American Journal of the Medical Sciences, Philadelphia.

January.

52 Osteogenesis Imperfecta (So-called Fragilitas Ossium). P. William Nathan, New York.
53 *Erythema Infectiosum. Henry Larned K. Shaw, Albany.
54 Case of Amaurotic Family Idiocy. James H. McKee, Philadelphia.
55 Ocular Manifestations in Amaurotic Family Idiocy. Mary Buchanan, Philadelphia.
56 Histologic Examination of the Eyes in a Case of Amaurotic Family Idiocy. Edward A. Shumway and Mary Buchanan, Philadelphia.
57 Pathologic Study of Amaurotic Family Idiocy. William G. Spiller.
58 Case of Carcinoma of the Ureter Apparently Induced by a Calculus Lodged in Its Juxtavesical Portion. William F. Metcalf and Homer E. Safford, Detroit.
59 *Primary Sarcoma of the Bladder, with a Report of Three Cases and Review of the Literature. J. A. Wilder, Denver.
60 *Case of Spontaneous Arrest of Growth in an Endothelioma, with Subsequent Inflammatory Absorption. B. M. Randolph, Philadelphia.
61 The Mental State Associated with Chorea. With Report of Two Cases of Dementia Choreica. A. W. Hoisholt, Stockton, Cal.
62 A Report of 281 Mastoid Operations, with Subsequent Results. Hill Hastings, Los Angeles.
63 The Effect of Suprarenal Preparations on Living Protoplasm. Beaman Douglass, New York.
64 The Influence of Suprarenal Extract on Absorption and Transudation. S. J. Meltzer and John Auer.
65 A Study of the Brain Tumors, with Report of Four Cases. Newton Evans, Battle Creek, Mich., and Benton Colver, Dayton, Ohio.
66 Some Practical Observations on Suppurative Hepatitis. William W. Ashhurst, Chihuahua, Mexico.

53. **Erythema Infectiosum.**—Shaw calls attention to a disease which he says has been described independently by several well-known pediatrists and which, in his opinion, has clinical features distinct enough to justify its classification with the acute exanthemata. The priority of recognition as a separate disease entity belongs to Escherich. Erythema infectiosum is a feebly contagious disease, occurring chiefly in children between the ages of 4 and 12 years, with very slight subjective symptoms, and characterized by a maculopapular, rose-red rash, pronounced on the cheeks, legs, and outer surface of the arms. The specific agent is unknown. The disease occurs in epidemics and often follows an outbreak of measles or rötheln. Both sexes are equally affected. It occurs most frequently in the spring and summer months. The period of incubation varies from six to fourteen days. The disease may be ushered in by a slight feeling of malaise, weakness and sore throat, but in the majority of cases the first symptom noticed is the eruption. This is the most important and often the only symptom. It appears invariably on the external skin, usually first on the face, chiefly the cheeks. The skin is hot to the touch, is swollen, but is not sensitive; nor does it itch. The whole appearance is suggestive of erysipelas. The eruption is confluent over the cheeks, and the edges are well defined, slightly raised and distinct from the normal skin. The area of confluent eruption is rather sharply limited in front by the nasolabial folds and above by the temples. Laterally, it extends to the angles of the jaws. Discrete spots are often seen on the forehead and chin. The rash fades from the face after four or five days. On about the second day the eruption makes its appearance on the body, where it is most marked on the outer surface of the legs and arms. The trunk is involved to a much less degree, and may be almost free. The hands and feet are the last portions of the body to be affected. An evanescence is often observed which is perhaps peculiar to the disease. The eruption is not followed by desquamation. No hemorrhage results on pinching the skin. The lymph glands are not enlarged. The subjective symptoms are conspicuous by their absence. Measles can be excluded by the absence of involvement of the mucous membranes, of all constitutional symptoms and of Koplik's spots. In rötheln the rash spreads rapidly over the entire body and is of a different character from that seen in erythema infectiosum. There are also constitutional symptoms.

59. **Primary Sarcoma of Bladder.**—Three cases of this kind are reported by Wilder: 1, a round-celled sarcoma in a man, aged 48 years; 2, a fibro-sarcoma in a man, aged 53 years; 3, a mixed-celled (spindle and round) sarcoma in a man, aged 62 years. While sarcoma of the bladder is most common after middle life and during childhood, it may occur at any age. Of 50 cases studied, 26 occurred after the age of 40, and 14 cases under the age of 10. It is more common in males than in females. The most constant symptom is hematuria. Next in order are the symptoms of cystitis and vesical irritation—strangury, frequent and difficult micturition, small stream, retention, and purulent urine. Emaciation consecutive to the growth is present in advanced cases only. A calculus may or may not be present. As a rule, the disease is more rapidly fatal in children than in adults. The most common location of the tumor is at the base of the bladder in the vicinity of the urethral orifice. It is usually sessile, with a broad base, soft and friable, more or less lobulated, and in some cases has a cauliflower or villous appearance. Metastases, as compared with sarcoma of other parts of the body, seem rare, except in quite advanced cases. At the present time, the only hope for cure appears to lie in the early detection of the neoplasm by means of the cystoscope, or by exploratory incision, and its complete removal at this stage of the disease.

60. **Arrest of Growth and Absorption of Epithelioma.**—Randolph reports a case of endothelioma appearing on the posterior aspect of the left forearm which started in the subcutaneous connective tissue, grew steadily and painlessly for six months, and then, for some unknown reason, became arrested. Necrosis or atrophy of the cells of the tumor took place, and later this inactive tissue began to act as an irritant, exciting a productive inflammatory process which endeavored to remove the foreign mass. There was active hyperplasia, with a very marked round-celled infiltration. Very charcteristic was the development of numerous giant cells. Their peculiar arrangement seemed to show that the function of these cells is an absorptive or phagocytic one.

Pennsylvania Medical Journal, Athens.

November.

67 Address in Medicine, Medical Society of State of Pennsylvania. H. Beates, Jr., Philadelphia.
68 Specialism—Its Evils and the Remedy. B. Reed, Philadelphia.
69 Drugs Versus Other Methods of Treatment. T. W. Grayson, Pittsburg.
70 Medical Life in Arctic Alaska. E. W. Kelsey, Philadelphia.
71 Mushroom Poisoning. E. S. Berry, Shippensburg.
72 A Study of Progress in Treatment of Skin Diseases. J. R. McCurdy, Pittsburg.
73 Asthma—Its Varieties and Their Treatment. S. S. Cohen, Philadelphia.
74 The Disturbances of Menstruation and Their Significance. E. E. Montgomery, Philadelphia.
75 Remarks on Some New Clinical Methods. H. E. Wetherill, Philadelphia.
76 The Contract Physician: His Use and Abuse. S. Sherrer, Bangor.

December.

77 Damage Suits Against Surgeons. Winters D. Hamaker, Meadville.
78 Treatment of Skin and Glandular Diseases by X-ray. Russell H. Boggs, Pittsburg.
79 Inhibitory Action of the X-ray on Malignant Growths. George C. Johnston, Pittsburg.
80 Tubercular Adenitis Treated by the X-ray. George E. Pfahler, Philadelphia.
81 The Post-operative Treatment of Malignant Disease. R. W. Stewart, Pittsburg.
82 Amnesia, Clinical Report of a Case. C. C. Hersman, Pittsburg.
83 Lax Sanitation—the Cost of It. S. P. Heilman, Heilman Dale.
84 Diagnosis of Major Hysteria. Theodore Diller, Pittsburg.
85 Two Cases of Polyuria Following an Identical Traumatism. J. Chris Lange, Pittsburg.
86 Outdoor Treatment of Tuberculosis at Mont Alto. J. T. Rothrock, West Chester.
87 A Bird's Eye View of the Anti-tuberculosis Work in the United States and Canada. J. T. Rothrock, West Chester.

Ophthalmic Record, Chicago.

November.

88 European Eye Clinics. F. E. Brawley, Chicago.
89 *Carbolic Acid and Ammonia Burns of the Eye. E. Stieren, Pittsburg.
90 Three Cases of Vernal Conjunctivitis. N. Remen, Chicago.

89. See abstract in THE JOURNAL of October 29, p. 1331.

Laryngoscope, St. Louis.

December.

91 Diseases of Salivary Ducts and Glands and Their Treatment; Report of Cases. Robert C. Myles, New York.
92 Grave Hemorrhage Following Tonsillotomy. L. C. Cline, Indianapolis.
93 Note on the Uses of Rubber in the Treatment of Nasal and Antral Disease. J. Price-Brown, Toronto.
94 What constitutes Proper Nasal Treatment in Chronic Ear Diseases. John A. Donovan, Butte, Mont.
95 Ordinary Tonsillotomy. Edwin Pynchon, Chicago.

96 Case of Chronic Purulent Otitis Media, Complicated by Chronic Mastoiditis and Jugular Bulb Thrombosis; Operation; Death. James F. McKernon, New York.
97 Tympano-mastoid Operation in Chronic Suppurative Otitis Media. Albert H. Andrews, Chicago.
98 Purulent Otitis Media Complicating Typhoid Fever. Ewing W. Day and Chevalier Jackson, Pittsburg.
99 Diseases of the Maxillary Antrum; Diagnosis and Treatment. Emil Mayer, New York.

Columbus Medical Journal.

December.

100 Diagnosis of Malarial Fever, with Report of Two Cases. John Dudley Dunham, Columbus.
101 Natural and Artificial Immunity. J. Robert Caywood, Piqua, Ohio.
102 Biliary Obstruction. Dan Gray, Ironton, Ohio.
103 A Study of Metabolism in Five Cases of Dementia Precox (concluded). Eugene F. McCampbell, Columbus.
104 Acute Gastro-enteritis (Acute Gastrointestinal Catarrh) in Infancy and Childhood. J. R. Lyon, Zanesville, Ohio.
105 Angina Pectoris—Report of a Case. Mark Milliken, Hamilton, Ohio.

Iowa Medical Journal, Des Moines.

December 15.

106 What Can We Do to Prevent the Sacrifice of the Innocents? D. C. Brockman, Ottumwa.
107 The Iowa State Board of Health Bacteriological Laboratory. Henry Albert, Iowa City.
108 The Psychic Element in Accident Cases. S. A. Spilman, Ottumwa.
109 Traumatic Neuritis. A. O. Williams, Ottumwa.
110 The Railway Eye: Requirements of and Injuries To. Clark W. Hawley, Chicago.
111 Ununited Fractures. L. Schooler, Des Moines.

Woman's Medical Journal, Toledo.

December.

112 Sanitation in Tuberculosis. Sara E. Greenfield, Topeka, Kan.
113 Preventive Legislation in Forensic Medicine. Clark Bell, New York.
114 "Change of Climate" for the Tubercular. Eliza H. Root, Chicago.
115 Tuberculosis in Hospitals for the Insane. Anne Burnett, Mt. Pleasant, Iowa.
116 Over-feeding and Exposure to Cold in a Case of Tuberculosis. Eleanor Lawney, Denver.

Virginia Medical Semi-Monthly, Richmond.

December 23.

117 Bowel Repair in Accidental and Pathologic Lesions in Pelvic and Intra-abdominal Operations. Joseph Price, Philadelphia.
118 Surgical Treatment of Cirrhosis of the Liver. Southgate Leigh, Norfolk, Va.
119 Differential Diagnosis Between Streptococcic and Gonorrheal Pelvic Infections. G. Brown Miller, Washington, D. C.
120 Recent Advances in Anesthesia. Reynolds W. Wilcox, New York.
121 Sarcoma of the Orbit; Report of Cases. E. Oliver Belt, Washington, D. C.
122 Perineorrhaphy and Curettage in a Case of Uterus Septus Three Months Pregnant. Edward T. Hargrave, Norfolk, Va.
123 Case of Monstrosity. Wm. Claiborne Powell, Petersburg, Va.

Central States Medical Magazine, Anderson, Ind.

December.

124 Arteriosclerosis. J. H. Musser, Philadelphia.
125 Nephritis a Curable Disease. J. W. Crismond, Anderson, Ind.

The Medical Fortnightly, St. Louis.

December 10.

126 Physiology and Pathology of Biliary Secretion. H. Richardson, Baltimore.
127 Mumps—Epidemic Parotitis. J. F. Chandler, Forest City, Mo.
128 Metabolism: A Miniature Study of a Miniature (i. e., Microscopic and +) Phenomenon. J. Clements, Nutley, N. J.

Journal of Medical Research, Boston.

December.

129 Fermentative and Agglutinative Characters of Bacilli of the "Dysentery Group." Philip Hanson Hiss, Jr., New York.
130 Life Cycle of the Organism of "Dermatitis Coccidioides." S. B. Wolbach, Boston.
131 Comparative Study of the Blood Corpuscles of Vertebrates. Ernest Linwood Walker.
132 On the Autolysis of Yeasts and Bacteria. Leo F. Rettger.
133 Porous Tops for Petri Dishes. Hibbert Winslow Hill, Boston.
134 Preparation of Broth Cultures for Flagella Staining. Hibbert W. Hill.
135 Effect of Severe Hemorrhage on the Number of Blood Plates in Blood from the Peripheral Circulation of Rabbits. F. L. Richardson.
136 Influence of Cholic Acid on the Excretion of Sulphur in the Urine. Carl L. Alsberg.

Archives of Otology, New Rochelle, N. Y.

December.

137 Surgical Anatomy of the Facial Nerve. H. A. Alderton, Brooklyn.
138 Case of Chronic Purulent Otitis with Cholesteatoma and Numerous Endocranial Complications—Operation—Recovery—Diagnostic Value of Lumbar Puncture. Arnold Knapp, New York.

Medical Examiner and Practitioner, New York.

December.

139 Remarks on the Methods and Purposes of Pension Examinations. S. Houston, Washington, D. C.
140 The Relation of Myocardial and Arterial Changes to Valvular Lesions. H. A. Hare, Philadelphia.
141 Pension Examinations from the Standpoint of the General Practitioner. L. J. Gibbs, Chicopee Falls, Mass.
142 Incidents in the Work of a Medical Examiner. T. H. Bradford, Philadelphia.
143 The Vagus Reflex in Its Practical Application to Life Insurance Examinations. T. A. Mays, Philadelphia.
144 The Function of the Cecum and Appendix. W. MacEwen, Glasgow.

Southern Medicine and Surgery, Chattanooga, Tenn.

December.

145 Chronic Suppuration of the Middle Ear. Frank M. Cunningham, Macon, Ga.
146 Diabetes Mellitus Following Trauma. Alexander G. Brown, Richmond.
147 Fractures at and Near the Elbow Joint. J. B. Murfree, Murfreesboro, Tenn.

Dominion Medical Monthly, Toronto.

December.

148 Address, Canadian Medical Association. R. E. McKechnie.

University of Pennsylvania Medical Bulletin, Philadelphia.

December.

149 The Charity School of 1740—The Foundation of the University of Pennsylvania. C. W. Dulles, Philadelphia.
150 Central Perforation of the Perineum. W. R. Nicholson, Philadelphia.
151 Care of Surgical Cases in the Gynecological Department of the University Hospital. B. M. Anspach, Philadelphia.
152 Value of Anatomy in the Training of the Surgeon. G. G. Davis, Philadelphia.
153 The Course in Physical Diagnosis for Second-year Students in the University of Pennsylvania. A. A. Stevens, Philadelphia.
154 Case of Cancer of the Esophagus Simulating Thoracic Aneurysm. J. A. Scott, Philadelphia.
155 Wire Nail in the Appendix Removed Postmortem. J. A. Lyon, Philadelphia.
156 Case of Uncinariasis. M. H. Purcell and C. A. Fife, Philadelphia.

California State Journal of Medicine, San Francisco.

December.

157 The Ideal of Accuracy in Medical Work: Its Importance and Its Limitations. Richard C. Cabot, Boston.
158 A Contribution to the Study of Varicocele. Dudley Tait, San Francisco.
159 Treatment of Typhoid Fever (Continued). Ray Lyman Wilbur.
160 Myocarditis, with Special Reference to Disordered Metabolism (Continued). W. W. Kerr, San Francisco.
161 Posterior Gastroenterostomy for Simple Conditions of the Stomach. Thomas W. Huntington, San Francisco.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

December 31.

1 Operations for Diseases of the Uterus and Solid Ovarian Tumors. James Swain.
2 *A Tubal Pregnancy of Some Years' (?) Duration. Sac Containing Macerated Fetus; Fistulæ Between Sac and Bowel and Between Sac and Bladder; Laparotomy; Death. E. H. Fenwick, London
3 The Value and Significance of Certain Signs and Symptoms of Pancreatic Disease. B. G. A. Moynihan.
4 The Lymph Flow from the Pancreas. F. A. Bainbridge, London.
5 *Preliminary Note on the Bacteriologic Findings in Seven Cases of Enlarged Prostate. L. S. Dudgeon and Cuthbert Wallace, London.
6 Remarks on a Case of Gummata of the Heart: Death from Heart-Block; Rhythmical Contraction of the Auricles During the Long Pauses. Henry Handford.
7 Anthropometric Investigation of Hospital Patients (concluded). F. C. Shrubsall.

2. **Tubal Pregnancy of Years' Duration.**—Fenwick's patient, aged 45, had a large abdominal tumor, fecal urine, pneumaturia, hectic temperature of long duration, and great emaciation and cachexia. On cystoscopy the bladder was found comparatively healthy, but was bulging forward, and under the prominence was a fistulous opening. He made a diagnosis of suppurating ovarian dermoid and cut into the tumor above the pubes. It was evidently intraperitoneal, but adherent to the abdominal wall so that the peritoneal cavity was not opened. Pus, feces and gas escaped in large quantities. After thorough irrigation a bare fetal femur appeared at the incision and then a humerus. A macerated fetus was felt lying in a puddle of feces, pus and liquid rottenness. Parts of the skull bones were adherent to the walls of the sac and had to be peeled off with some force. The bowels were adherent to the sac and greatly softened. Fenwick packed the cavity of the sac, but the patient died in a few hours. Shortly before her death the patient stated that eight years ago she became

pregnant, and when she was decidedly big she made arrangements for her confinement. The various symptoms of pregnancy, however, gradually disappeared and her abdominal swelling subsided slightly, but for the last seven years she had a large lump in the right side. Three months ago she received a severe blow on this lump, and two days later she had great pain which persisted, causing her to seek medical aid. Postmortem examination showed a left tubal pregnancy which had suppurated, become adherent in every direction and perforated into the bladder and the sigmoid bowel. The sac which had contained the fetus could not be dissected away from the hollow viscera which surrounded it. The bones of the fetus were examined and found to be about the fifth month.

5. **Bacteriology of Enlarged Prostate.**—Dudgeon and Wallace made careful examinations of seven enlarged prostates, with a view to ascertaining whether the condition is the result of infection or not. In 5 of the 7 cases unmistakable signs of infection were found, consisting of pure cultures of the staphylococcus albus in 3 cases and bacillus coli communis in 2. In one of the latter diplococci were also found present. In some instances the infecting organisms were the same as those found in the urine. The authors conclude that, to a certain extent, the results obtained support the view that the initial lesion in prostatic enlargement may, in certain cases, be a septic infection from the bladder.

The Lancet, London.

December 31.

8 The Treatment of Phthisis. Hector W. G. Mackenzie.
9 *Treatment of Streptococcic Puerperal Fever by Antitoxic Serum. Alexander G. R. Foulerton.
10 *Case of Streptococcic Puerperal Infection Treated with a Special Puerperal Antistreptococcic Serum; Recovery. Thomas Rose.
11 *Administration of Antistreptococcic Serum. J. W. Thomson Walker.

9. **Antitoxic Serum in Streptococcic Puerperal Fever.**—Foulerton has found that the relative importance of streptococci in puerperal infections is even more marked than a consideration of previous bacteriologic researches on the subject appears to indicate. He and his associate, Dr. Bonney, have found streptococci of one sort or another in the uterus in 46.3 per cent. of a series of 54 cases examined, and in these cases the organisms were found under conditions which indicated that they were the primary cause of the fever. Excluding the less severe cases of fever occurring after childbirth, and considering only those which either ended in death or were clinically of a distinctly serious nature, they found streptococci present as the presumable cause of disease in 62.5 per cent. Up to the present time they have dealt with 25 stains of streptococci isolated from the same number of cases of puerperal fever, and they have satisfied themselves that among these 25 strains there is more than one distinct species. An antistreptococcus serum was prepared in the ordinary way, the horse having been vaccinated with 5 of the strains. As yet this serum has been used in only a few cases, but among them there have been 2 cases of recovery after extremely severe forms of streptococcus infection. Apart from the failure of serum treatment in puerperal fever arising from uncertainty as to the particular strain of streptococcus which is present, the question of the dosage of the serum employed is of considerable importance. Regarding the matter entirely from the clinical point of view, it would seem that the action of an antistreptococcic serum is purely antitoxic and that the infecting bacteria remain unaffected by the serum and continue to elaborate their specific toxins. In order to neutralize these toxins which are being continuously thrown into the patient's circulation, repeated doses of the serum must be given until the infection comes to a natural termination. Foulerton says it is advisable to commence treatment with an injection of at least 20 c.c., and one must be prepared to repeat this dose, if necessary, at least every twenty-four hours. If no improvement follows two doses of 20 c.c. each, administered within twelve hours, it is useless to persist in administering it. Another brand of serum should at once be tried. Large doses are necessary for any success.

10. **Ibid.**—Rose reports a case of an extremely severe type of streptococcic infection in which there seemed to be no doubt that ultimately recovery was due to the action of an antistreptococcic serum.

11. **Administration of Antistreptococcic Serum.**—Walker finds that the injection of antistreptococcic serum in cases of pure streptococcal infection has been followed by strikingly beneficial results. The variability in the results of the serum unquestionably has been due to the selective activity displayed by the antitoxin of each variety of streptococcus, or to the serum being used too late or having lost its activity from staleness. More uniform results are likely to be obtained from the present compound antistreptococcic serum than from the earlier forms, from the prompt injection of serum at the commencement instead of near the close of a severe infection, and from the use only of serum which has been recently prepared. The administration of the serum for some days after the general symptoms have disappeared in order to avoid a recrudescence. The question of dosage must be judged by the nature of each case and the effect obtained by the injection, but it is important to know that large doses spread over several days have been used without ill effect. The most rational method would seem to be that of a large injection (from 20 to 25 c.c.) on the first occasion, followed by smaller doses as the case may require.

Indian Medical Gazette, Calcutta.

December.

12 *Further Notes on the Treatment of Leprosy by Injections of Leprolin. E. R. Rost, Rangoon.
13 A Short Account of the Various Trypanosomata. A. Lingard.

12. **Leprolin in Leprosy.**—Rost makes a further report on the treatment of leprosy by injections of leprolin. About 120 cases are being treated in Burma. Up to date 14 cases have been discharged as cured at Rangoon. Of 56 cases being treated by Rost 20 have so much improved that they may be said to be almost cured. In every case there has been marked improvement. The order of improvement is usually, first, a return of perspiration in a part previously dry, and then a return of sensation. This return of sensation may be only transient or it may be permanent. But ultimately it always returns on continuing the treatment. Second, there is a gain of strength and loosening of the contractions of the fingers and toes. Cases which have had very severe deformity and loss of power through contraction have completely regained their power and lost the deformity. Ulceration may give way to healing at once. In some cases thickened, hard epidermis has to be cut away before the ulcer heals. Nodules are usually slow to disappear. The color of the skin returns slowly. The pains in the limbs generally vanish early. The mental condition improves remarkably and with this the physiognomy improves. Local reactions after injection vary very much. Rost has given over 1,000 injections, and in no case was there any bad result nor was the disease enhanced thereby. In nearly all the cases the improvement has been obvious; in a few it is rapid, but in the majority the improvement has been slow, but steadily maintained. In some cases he has given as many as sixteen injections, and some cases did not show any sign of improvement until after the sixth injection. The difficulty in making a leprolin of constant strength makes it imperative to increase the dose if it is not found to cause a reactionary fever of over 100 F. The interval between the injections has been restricted to ten days, as some few days seem necessary to allow the patient to recover after the fever, besides which a too rapid recovery must not be expected in a disease which is so remarkably chronic. Evidently the action of leprolin is an antitoxic one and not an auto-antitoxic one. A detailed report of cases pronounced cured is appended to the article.

Revue de Chirurgie, Paris.

Last indexed XLIII, page 1007.

14 (Year XXIV, No. 12, December.) Cas de fistula du canal thyréoglosse (etude clinique et histologique). V. Cornil and Ed. Schwartz.
15 *Influence of Displacement of Kidney on Colon.—Dispositions vicieuses du colon ascendant provoquées par l'abaissement du rein droit; leur mécanisme et les conséquences probables de leur traitement rational. P. Alglave.

16 *Les plaies operatoires du canal thoracique dans la région cervicale (operative injury of thoracic duct). P. Lecène.
17 *Perforation de l'estomac par ulcère (of stomach). F. Gross and G. Gross (Nancy). (Commenced in No. 2.)
18 *Cancer de la thyroide (fréquence, formes cliniques, traitement). Xavier Delore. (First part in Nos. 5 and 10.)

15. **Influence of Displacement of Kidney on the Ascending Colon.**—Alglave noticed in dissecting a cadaver that the cecum was displaced, swollen and compressed by a movable kidney. The functions of the cecum must have been seriously interfered with during life. Search for similar conditions in other cadavers showed 4 cases in the course of a few days, all in female subjects. He gives a number of illustrations of the findings, showing how the kidney, as it becomes displaced downward, drags down with it the adherent organs and especially the right angle formed by the colon. This kinks the colon. The consequent digestive and intestinal disturbances are not due directly to the displacement of the kidney, but the latter is the indirect cause. Nephropexy removes this cause, but, he adds, it is not always sufficient to remedy the conditions that have become installed, the kink in the colon frequently persisting unmodified by the nephropexy alone. If the kinked loop is much damaged, it may be necessary to exclude the ascending part of the colon by ileo-colostomy or ileo-sigmoidostomy. The latter is especially indicated when the liver is also displaced downward, and does not permit the intestine to resume its normal place.

16. **Operative Injury of Thoracic Duct.**—Lecène reports a personal case and reviews 21 in the literature. Operative injury of the cervical thoracic duct is not always perceived at the time of the operation, although the escape of lymph or chyle from the wound usually attracts attention. The patient suffers from thirst, emaciation, general asthenia and sometimes oliguria, the dehydration of the organism causing choleriform symptoms. Only one of the cases on record terminated fatally, and this was in 1875. If the injury is discovered at once, a ligature should be thrown around the peripheral stump of the severed duct. Ligature of the central stump is generally superfluous, as the valves are sufficient. Ligation of the peripheral stump does no harm, as has been established by clinical and experimental experience. The duct was sutured in one instance (Cushing), but this is indicated only in exceptional cases. If the injury is not discovered until later, pressure applied to the wound after removing the drain will generally result in a rapid cure. The wound may be opened and a ligature applied on the duct, and this has been done in some instances, but it is rather difficult and it is easy to cure without it. The success realized by simple, firm tamponing has been so complete that many authors advocate it, instead of ligation, for all cases, but Lecène would reserve it for the cases in which the injury was not noticed until later.

17. **Perforation from Gastric Ulcer.**—Gross' monograph has been running through the year, with an exhaustive survey of the literature, concluding with summaries of the details of 403 surgical cases. He has operated on 2 cases, with fine results in one instance. In this case there had been no melena nor hematemesis, and no bleeding point was found near the perforation, consequently the latter was merely sutured, without excision, in two tiers with fine silk. The peritoneum was then sponged dry. A drain was left in contact with the wound and another in the Douglas cul-de-sac. The patient was a farmer, 47 years old, a hard drinker, with stomach symptoms for two years. The success was evidently due to the fact that the operation was undertaken within three hours of the perforation. The stomach contents had not had time to induce inflammation of the peritoneum.

18. **Cancer of the Thyroid.**—Delore of Lyons states that cancer of the thyroid gland is particularly frequent there. He has observed 14 cases during the last three years, and Billiard has collected 83 from the hospital records, 15 in one-half year. The overwhelming majority are in women, and the subjects are generally younger than those with other forms of cancer. In a few cases developing at puberty, the course was fulminating. There is evidently a close connection between the cancer and preceding goiter.

Semaine Médicale, Paris.

19 (XXIV, No. 52, December 28.) Application des principes de la Convention de Genève aux navires hospitaliers (to hospital ships).
20 *Des dangers de l'emploi du naphthol camphré dans la pratique courante. Cazin and Hallion.
21 *Les formes graves de la constipation et leur traitement chirurgical. F. Lejars.

20. **Dangers of Camphorated Naphthol.**—Guinard has recently reported a case of death less than an hour after injection of 25 c.c. of camphorated naphthol into a supra-clavicular cold, ganglionary abscess. The patient was a young man of 28. Guinard has found records of 12 similar fatalities after the use of this substance. There is a still larger number of cases on record in which convulsions and other symptoms of intoxication occurred, although the patients recovered. The doses were usually large, but in some of these cases not more than .5 c.c. had been injected, and half this amount in the case of one child. Desesquelle, who first used camphorated naphthol, expressly insisted that .2 c.c. for an adult and .1 c.c. for a child was the maximum daily dose. Disregard of his directions has led to accidents. Cazin and Hallion have been studying its toxic action on laboratory animals, and their results corroborate the experiences in the clinic. They conclude that one or two drops are enough for a ganglionary abscess, and a few drops in the drain tube leading to the peritoneum or pleura—no more under any circumstances. With these restrictions, camphorated naphthol can retain its place in the treatment of various affections in which it has proved its usefulness.

21. **Surgical Treatment of Severe Forms of Constipation.**—Lejars reviews some recent articles on this subject and styles constipation the "ill of the century." Surgical intervention, suppressing part of the large intestine, excluding or excising it, is a comparatively simple and benign operation, when done in two operations, first curing the stercoremia before completing the task. He adds that the large intestine, like the appendix, is an ancestral organ, ill suited for the conditions of modern life, and that it is destined to retrogress, atrophy and finally disappear. Like the appendix, its only function is becoming more and more merely a pathologic function. Surgery, in removing these organs, merely hastens the natural progress of evolution.

Berliner klinische Wochenschrift.

22 (XLI, No. 51, December 19.) Digalen, ein Ersatzmittel des Digitalis-Infuses (substitute). E. Bibergeil.
23 *5 Fälle von Tumoren des Central-Nerven-Systems. Graeffner.
24 *Ueber hysterische Schlafzustände (sleep). Raecke (Kiel).
25 *Ueber Hypochondrie und hypochondrische Zustände. A. Schott.
26 *Psyche und Psychose. P. Kronthal. (Commenced in No. 50.)
27 Vorläufige Mittheilung über Syphilis-Impfung am Pferde (inoculation of horse). Piorkowski.
28 *Zur Prognose und Therapie des Diabetes mellitus. de la Camp.
29 (No. 52.) Mechanismus der inneren Darmstrangulation (strangulation of intestine). J. Kertesz.
30 *Syphilis as Professional Affection of Physicians.—Syphilis als Berufskrankheit der Aerzte. A. Blaschko (Berlin).
31 Tests of Illumination of Rooms.—Vereinfachung der Helligkeitsprüfung in geschlossenen Räumen. W. Albrand.
32 Vortheile und Nachtheile des Ficker'schen Typhus Diagnostikums (advantages and disadvantages). W. J. Guttler. (Commenced in No. 51.)
33 Practical Progress in Physicotherapy.—Staungshyperämie; Wärme und Kälte; Gas- und Wechselstrombäder. A. Laquer.

23. **Brain Tumors.**—In 2 of the 5 cases described the tumor was a cholesteatoma at the base of the brain. The patients were 40 and 45 years old; the structure of the tumors, their location and relations to the brain, and the microscopic and chemico-microscopic findings, sustain the assumption that cholesteatomata of the central nervous system originate in aberrant fetal epidermis germinal tissue.

24. **Hysteric Sleep.**—Raecke reviews 23 cases of hysteric sleep or somnolency. In 10 it had been preceded by hysteric convulsions; in 7 there were attacks of lethargy, while 6 others presented a protracted hysteric stupor which only at times appeared to be sleep, and alternated with periods of delirious confusion or general inhibitions with partial loss of consciousness. Hysteric conditions may be differentiated from

epileptic similar conditions by the behavior during the intervals and by the history of the case, with examination of the pupil and of the tendon reflexes and evidences of old injuries, scars on the tongue, recent bruises or ecchymoses and the Babinski sign. It is difficult sometimes to distinguish between hysteric and catatonic stupor, but hysterics are more liable to assume comfortable positions, to attend to their bodily needs, to rouse at mealtimes and to display a certain amount of interest in their surroundings. Positive differentiation is possible only when the existence of hysteria can be determined aside from the stupor.

25. **Hypochondria.**—Schott regards hypochondria as an expression of degeneration, and warns against medication for it as a rule. When it accompanies a curable psychosis, it generally presages a protracted course. All peripheral sources of irritation should be removed in case of hypochondria so far as possible, and it should be borne in mind that the hypochondriac is liable to commit suicide or to injure himself or those around him.

26. **Psyche and Psychoses.**—Kronthal argues that the nervous system is a collection of innumerable routes for reflex action. The centers in the brain are merely the points where the circuit is closed between the sensory and the motor nerves. He asserts that the entire nervous system is merely a combination for the conduction of stimuli. This explains the decussation of nerves, as their crossing multiplies the number of possible reflexes. The sum of all the reflexes is the psyche. When an individual reacts in an abnormal manner to the impressions of the outer world we call the condition a psychosis. He adds further that sleeping and waking have nothing to do with the central nervous system. The individual sleeps when his cells are weary, intoxicated and unable to react further. He wakes when his cells have recuperated. He dreams when his cells react imperfectly to stimuli. Psychoses can occur without any participation of the nervous system. As the psyche is the sum of all the reflexes, a psychosis is inevitable when a number of the elementary organisms, the cells constituting the individual, respond to stimuli with an abnormal reaction. The reactions throughout the body become different with a varying temperature. In fever we should, therefore, expect an altered sum of reflexes, an altered psyche, and we find it in the delirium of fever. In alcohol intoxication likewise, the cells behave differently from normal, and the sum of the reflexes—the psyche—is likewise abnormal. When certain of the cells respond sluggishly and others with excessive excitability, we call this condition hysteria. He reviews the conditions in other affections viewed from this standpoint, affirming that this theory supplies a solid scientific basis for treatment of psychoses. They are merely the morbidly altered reaction of the individual, the result of a morbidly altered condition of the body. If we can succeed in making the body react normally once more then the psyche, the sum of the reflexes, will become normal again. There is nothing mystic about the psyche. It is merely the sum of the reflexes, and study of physiology and allied sciences is making physicians better and better acquainted with the reflexes and with the means of influencing them.

28. **Prognosis and Treatment of Diabetes.**—De la Camp reviews recent progress in this line, dwelling particularly on Naunyn's axioms: "The assimilating capacity of a diabetic decreases with persistent glycosuria," and "The assimilating capacity improves with persisting aglycosuria." They emphasize the importance of reducing the output of sugar as the main essential in treatment. Naunyn further affirms that every diabetic who requires treatment at all, should have his diet regulated both as to quality and quantity. It often happens that a patient is seen for the first time after some trauma, excess or other injurious influence, and the affection is supposed to be severe when it subsides afterward into a much milder form. Others give the impression of being mild, but grow rapidly worse. Such subjects are generally young. Even when the diabetes apparently subsides completely, it probably still persists in a latent form. The glycosuria may vanish when nephritis becomes installed, but this is no gain for the diabetic. Pregnancy is an unfavorable complication. Roff states that 50 per cent. of pregnant women suffering from diabetes succumb in coma. Progress has been realized in the dietetics of diabetes by von Noorden's discovery of the remarkable tolerance of diabetics for oatmeal. (See THE JOURNAL, xli, page 1374.) De la Camp has observed a case in which a woman, 35 years old, gained over ten pounds in weight in three weeks on a daily ration of 250 gm. oatmeal, 100 gm. butter and 4 eggs, a total of 2,500 calories. She had 8.1 per cent. sugar in 3,200 c.c. urine smelling strongly of acetone. The output of carbohydrates was 259, with an intake of 293. She was given from 20 to 60 gm. of sodium bicarbonate a day, the larger amount being necessary to render the urine alkaline. The output of sugar and the acidosis remained at the same figures, without retention of water.

30. **Syphilis Acquired by Physicians in the Exercise of Their Profession.**—Blaschko states that he has had occasion to observe 12 cases of syphilis in physicians during the last ten years, acquired in the exercise of their profession, 10 in Berlin alone. As the primary sore develops on the fingers as a rule in these cases, it is generally unrecognized and taken for a panaritium. Its nature is first suspected by its protracted course, the bluish infiltration and the aspect of the depths of the lesion. In 2 cases there was mixed streptococcus infection, with a torpid lymphangitis and numerous small superposed buboes. Herpes on the finger, cadaver tubercle and soft chancre present different symptoms, the first being preceded by neuralgia in the nerve involved and the entire process terminating in about ten days. Soft chancre rapidly heals under carbolic acid and iodoform. In other cases the syphilitic primary sore was very small and soon healed without a scar. The outbreak of general symptoms or the development of very large indolent buboes was the first sign that attracted attention In one case the primary sore was on the face. In another instance a roseola broke out over the entire body without any premonitory signs of trouble, and not a single point of entry for the virus could be discovered on the patient. He was a very careful, conscientious and painstaking physician, and the fact that such a trained observer was unable to discover the portal of entry for the virus suggests the possibility of a syphilis without the primary lesion, the "*syphilis d'emblée*" of the French. The infection seems to have been generally acquired during the extirpation of a bubo or something of the kind. None was referable to infection from an instrument which had recently been used on a syphilitic subject, although such a possibility should never be ignored. The erosions at the base of the nails from scrubbing were generally the entering point. The danger from this source is particularly great in case of abortions or of premature births, as these so frequently occur in syphilitic women. In one case infection was unmistakably derived from dissection of a syphilitic cadaver twenty-four hours after death. Blaschko urges that every physician should bear in mind the possibility that the patient before him may be a syphilitic in every case in which he has to use the knife or to make a bimanual examination. At present only those particularly engaged in practice among syphilitics ever seem to think of this possibility. Modern methods of cleaning the hands invite erosions, etc., and he thinks that too little stress is placed on cleansing the hands *after* operations, and that they suffer from the excessive scrubbing before. Every wound, every crack, should be carefully covered. His practice is to touch them with a 2 to 3 per cent. solution of silver and thus produce an impermeable covering of silver albuminate. This he covers with a small scrap of adhesive plaster with collodion outside or, better still, a finger cot. He advises rubber gloves or cots for all gynecologic examinations in the interests of both patients and physician. When infection has once occurred, silver nitrate and sublimate, even at once, have proved ineffectual to abort the process. His practice is to rinse the scratch copiously with water and then pour tincture of iodin into the wound. Possibly hydrogen dioxid might be effectual. He once used on himself an electrolytic needle when he received a scratch while

puncturing a bubo. He burned out the spot the next day with the actual cautery and never has heard anything further from it. He believes in treating syphilis only when indicated by symptoms. His medical patients were inclined to err on the side of excessive treatment, and severe physical and psychical depression was the result in some instances. He thinks that the fact of the existence of the syphilis need not interfere with the subject's professional work under certain obvious restrictions as, for instance, when there are lesions on the hands. The physician himself is usually the best judge as to this. He does not know of any instance in which the disease was transmitted farther by the physician affected. His family life suffers more than his professional, but the medical profession, Blaschko adds, frequently requires great sacrifices from its members, and experience has shown that they are borne with courage and dignity even under these circumstances.

Münchener medicinische Wochenschrift.

34 (LI, No. 49, December 6.) *Zur vaginalen Ovariotomie. O. Bürger.
35 Ueber die Anwendung des Pyramidon beim abdominal-Typhus. H. v. Krannhals (Riga).
36 No Restriction of Visual Field by Suppuration in Accessory Cavities.—Bedingen Eiterungen der Nasennebenhöhlen eine Einengung des Gesichtsfeldes? Henrici und Haeffner.
37 Zur Kasuistik der kongenitalen Onychogryphosis. C. Müller.
38 Ueber die Gefahren der Sublimat-Anwendung in der Geburtshilfe (dangers of sublimate in obstetrics). E. Toff.
39 Kollargol-Pinselungen bei Angina und Diphtherie. K. Justi.
40 Ein Universal-Suspensorium. Bernstein.
41 (No. 50.) *Was leistet die Leukozyten-Untersuchung im Frühstadium der Appendizitis. Federmann.
42 *Ueber intermittierende cystiche Dilatation der vesikalen Ureter-Enden. F. König.
43 *Zur Behandlung der knöchernen Versteifung des Ellbogengelenkes (ankylosis of elbow). A. Schanz.
44 *Ueber Klima und Lungen-Tuberkulose. G. Besold.
45 Antipyrin Colored Sweat.—Ueber einen Fall eigentümlicher Schweissabsonderung. N. Platter.
46 *To Prevent Overlooking Sponges in Operations.—Zur Verhütung des Zurücklassens von Kompressen in der Bauchhöhle. Calmann.
47 Ein neuer dermatologischer Universal-Thermokauter. J. Weinberg (Berlin).
48 *Heredity of Syphilis.—Ein Beitrag zur Lehre von der Vererbung der Syphilis. Jesionek. (Commenced in No. 49.)
49 Vaccination in Bavaria.—Bericht über die Ergebnisse der Schutzpockenimpfung im Königreiche Bayern im Jahre 1903. L. Stumpf.

34. **Vaginal Ovariotomy.**—Bürger reports from Schauta's clinic 110 cases of ovariotomy by the vaginal route. The contraindications accepted are the same as in other clinics, with the exception that Schauta prefers the vaginal operation even for cysts filling the entire abdominal cavity, if there are no contraindications of other kinds. The particulars of the various groups of cases are described, the results, immediate and remote, confirming the opinion that vaginal ovariotomy is a harmless operation, with a rapid and smooth recovery, which does not entail any appreciable consecutive disturbances. Menstruation recurred in the 22 women examined in this respect in an average of about five weeks, while the average after abdominal ovariotomy has been ten and eleven weeks in his experience.

41. **Leucocyte Count in Appendicitis.**—Federmann emphasizes that a high leucocytosis in the first days of appendicitis indicates that the organism is actively at work struggling with its invaders. An operation undertaken in these conditions has a good prognosis. His experience has been that a high leucocyte count indicates a severe infection, but is no criterion as to the presence of pus.

42. **Intermittent Dilatation of End of Ureters.**—König writes from Altona to describe a case of urinary disturbances in which the cystoscope showed that the vesical end of the ureters became intermittently dilated, forming a cyst, which finally emptied its contents under vigorous contractions of the bladder wall, the cyst subsiding completely, leaving the orifice normal. The lower end of both ureters was evidently dilated and as urine accumulated the cyst formed. He has found 50 similar cases recorded in the literature. His patient was an otherwise healthy man who had suffered from childhood with desires to urinate and difficulty in urinating. During the last year blood and hemoglobin were noted in the urine after exertion. Garré operated on such a case, curing his patient, a young man, of serious urinary disturbances.

43. **Cure of Stiff Elbow.**—Schanz operated on the elbow as usual, but to prevent recurrence of the ankylosis, he interposed between the raw surfaces of the bones a pedunculated flap of subcutaneous adipose tissue, tying it in place so that it could not slip out. The cast was removed in about a month; in three weeks the patient could use her arm freely and in three months after the operation could brush her hair, eat, etc., with apparently normal function of the arm. There was no pain at any time. The thick flap prevented the growth of connective tissue adhesions, while its porous character allowed movements impossible with a denser tissue. It is possible that a kind of bursa may have formed in the fat. He expects to apply this technic to other joints as occasion arises.

44. **Climate and Tuberculosis.**—Besold thinks that better results will be realized when more attention is paid to individualized treatment and less to climate in tuberculous cases.

46. **To Prevent Leaving Sponges in Abdomen.**—Calmann has a long tape fastened to each of his compresses and sponges. The ends of the tapes are taken up in a bunch and tied around one of the legs of the table, at the head, on the side where the instruments are handed to the operator. The tapes are long enough not to interfere with the use of the sponges in any way.

48. **Heredity of Syphilis.**—Jesionek has had occasion to observe several occurrences which have convinced him that the semen of a syphilitic is able to induce contact infection. Also that the semen can transmit the syphilis of the father to the offspring. He thus accepts paternal transmission of the disease and the "choc en retour," that is, infection of the mother from the infected fetus. Among the evidence which he cites to support this view is the family experience of a physician—a trained observer—after professional infection from an obstetric case.

Zeitschrift f. klinische Medicin, von Leyden's, Berlin.

Last indexed XLIII, page 1668.

50 (LIV, Nos. 3-4.) Variations in Experimental Toxic Anemias According to the Age of Organism.—Ueber die durch das Alter der Organismen bedingten Verscheidenheiten der experimentell erzeugten Blutgiftanämien. P. Reckzeh.
52 Vital and Postvital Blood Staining.—Ueber vitale Blutfärbung und deren Ergebnisse bei Erythrocyten und Blutplättchen. H. Rosin and E. Bibergeil.
53 Iodin Reaction of Blood and Blood-forming Organs.—Untersuchungen über die Iodreaction des Blutes und der hemätopoietischen Organe. A. Hirschberg.
54 *Das "kachektische" Leuckocytose: das Verhalten der neutrophilen Leukocyten beim Carcinom. J. Arneth.
55 Fatigue of the Visual Field.—Ueber Gesichtsfeldermüdung. K. Kroner.
56 Acute isolirte interstitielle Myocarditis. L. Sellentin. Two cases.
57 Causes of Death After Removal of Both Kidneys.—Die Ursachen des Todes nach doppelseitiger Nephrectomie. H. Couvée (Utrecht).
58 Colica intestini coeci, ein wohlcharakterisirter, selbstsändig auftretender Symptomencomplex. A. A. Christomanos.
59 Iodic Acid Reaction of Acetic Acid in Diabetic Urine.—Iodsäurereaction auf Acetessigsäure im diabetischen Harn. E. Riegler.
60 (Nos. 5 6.) *Der Blutdruck im Verlaufe der Arteriosklerose (blood pressure). T. Dunin (Warsaw).
61 *Verfahren zur Messung des diastolischen Blutdrucks und seine Bedeutung für die Klinik (measurements of diastolic blood pressure). J. Strasburger (Bonn).
62 *Ueber die Bakteriämie und die Bedeutung der bakt. Untersuchung für die Klinik. G. Jochmann (Breslau).
63 Tumor der Hypophysen Gegend mit Obductions-Befund. R. Berger.
64 Die Analyse des Phlebogrammes eines Falles von Herz-Allorhythmie. A. Belski (Pskow).
65 *Ueber Sigmoiditis. T. Rosenheim.
66 *Hematology of Infectious and Other Diseases.—Ueber das Auftreten der Myelocyten im Blute. C. Schindler (Berne).

54. **Cachectic Leucocytosis.**—Arneth tabulates the blood findings in 12 cases of cancer, mostly gastric cancer. They show that secondary anemia and cachexia may develop in case of uncomplicated cancer without much impairment of the leucocytes or influence on their numbers. But the coincidence of a complication affects the leucocytes materially, the blood then presenting the aspect which he has previously described as anisohypocytosis or anisohypercytosis. In one extreme case, the carcinosis involving the entire body, the reds presented the aspect of true pernicious anemia, while the neutrophile leucocytes presented that of leukemia. In future a distinction must be made between the blood findings of uncomplicated cancer and those for which the complications are responsible.

60. **Blood Pressure in Arteriosclerosis.**—Dunin has measured the blood pressure 1,000 times in 440 patients with arteriosclerosis, in his private practice. He used Gaertner's tonometer exclusively. In 120 out of 420 arteriosclerotic subjects he found the blood pressure normal or below. In all the other patients the blood pressure was above normal. In 36 out of 80 cases with low blood pressure angina pectoris was observed. In 8 cases the sharp accentuation of the aortic second sound was the only symptom on the part of the vascular system. The blood pressure in this group was only 90 mm. to 140 mm. The first sound was weak. In 2 patients there was also a diastolic murmur. None in this group complained of any heart trouble. In another group of 14 cases there were pronounced subjective disturbances and corpulence, and changes were found in the heart, or aorta, with signs indicating dilatation of the arch of the aorta and sometimes also of the aortic orifice. A further group of 22 presented the same findings with the exception of the corpulence. In all his cases of normal or low blood pressure the arteriosclerosis was evidently restricted to the large arteries, while the smaller were intact. Most of the patients were middle-aged, although some were quite young. In 35.7 per cent. of 380 cases of arteriosclerosis corpulence was noted, the proportion being higher among the subjects with high blood pressure. Reduction of the corpulence frequently restored the pressure to normal. Functional over-pressure he found very rare. Therapeutic measures to reduce the blood pressure were seldom successful except in cases of corpulence, although the general condition was much benefited by hygiene and measures to tone up the nervous system and the heart muscle. So long as the heart is sound and vigorous the changes in the arteries are effectually compensated. Long-continued over-pressure entails hypertrophy of the left ventricle, although it may not be clinically evident. Measurement of the blood pressure may thus determine the size of the heart better than mere percussion. He found the pulse rapid in 40 out of 136 cases of high pressure. In one instance the pressure was 240, the pulse 200; in another, with a pressure of 250, the pulse was 120. Fully 25 per cent. of these patients were neurasthenics. Tachycardia with high pressure presages the approach of disturbances in compensation.

61. **Measurement of Diastolic Blood Pressure.**—Strasburger's technic differs from Janeway's and Masing's in that he uses the palpating finger instead of the sphygmograph, and, instead of determining the average blood pressure, lays most stress on the extremes found. Comparison of the height of the diastolic pressure with that of the systolic pressure, and determination of the blood-pressure quotient, show the reciprocal relations between the tension of the vessels and what the heart is able to accomplish. The condition of the circulatory system can be ascertained by study of the systolic pressure and of the blood-pressure quotient better than by any means known to date, especially in respect to the functional capacity of the heart and the blood supply in the tissues. He states that such results have been obtainable hitherto only by measuring the blood pressure in the severed artery of a living animal. His "pressure quotient" is obtained by subtracting the diastolic pressure from the systolic, the remainder found being what he calls the "pulse pressure." The ratio between the pulse pressure and the maximal pressure is his "blood pressure quotient." It affords an insight into the relations between the work accomplished by the heart and the resistance in the arterial system. He tabulates the findings in a large number of cases of various affections and in normal subjects. He also shows in a diagram the various conclusions that may be deduced from the different groups of findings.

62. **Bacteriemia.**—Jochmann reviews the results of bacteriologic examination of the blood on a large clinical material. They demonstrate the great importance of this means of investigation, both from a diagnostic and prognostic standpoint and also as a guide for treatment. His findings in 161 clinical cases and 70 cadavers have convinced him that scarlet fever is not a streptococcus affection. As germs in the blood increase rapidly immediately after death, the frequent negative postmortem findings, even in the fulminating cases of scarlet fever, were very significant. His findings were also negative in 18 cases of acute articular rheumatism. Even the exudation aspirated from the joints in 11 cases always proved sterile. The bacteriemia is sometimes the only sign of typhoid fever, and is almost constant during the acme of typhoid. Gonococci were found in the blood in 2 out of 3 cases of gonorrhea, one patient recovering.

65. **Sigmoiditis.**—Rosenheim relates the particulars of 11 cases, showing the importance of direct inspection of the sigmoid flexure in dubious cases of intestinal trouble. It may reveal a local inflammatory process restricted to this region and amenable to treatment. Rest, oil injections, belladonna and morphin aid in inducing a complete cure. Pains in the left side, diarrhea or constipation and fever, sometimes local hemorrhages, may be the principal symptoms. He uses the endoscope when introducing the tube for local medication.

66. **Myelocytes in the Blood.**—Schindler's extensive research has shown that conditions inducing leucocytosis may cause the myelocytes to pass into the blood. This is currently observed in infectious diseases, and has no special significance if the myelocytes vanish as the leucocytosis subsides. If they persist, their presence indicates functional exhaustion of the elements of the marrow. The toxins of certain diseases, typhoid fever and malaria, have an inhibiting action on the leucocyte-forming tissues. The myelocytes appear in this case as the evidences of abnormal reaction on the part of the marrow to the irritation. In malaria, his findings show that the leucocytes increase as the temperature rises and diminish during the intervals. In some cases of malaria the blood findings are exactly like those of pernicious anemia.

Riforma Medica, Palermo.

Last indexed XLIII, page 1830.

67 (XX, No. 43. October 26.) *Sul valore semeiologico dell' urea e dell' ammoniaca nelle lesioni epatiche. S. De Rossi (Baccelli's clinic, Rome).
68 *Per la cura radicale dell' estrofia della vescica (exstrophy of bladder). G. Muscatello (Pavia).
69 Considerazioni terapeutiche intorno a 2 casi di flebite degli arte inferiori (of legs). R. Ottolenghi (Turin).
70 (No. 44.) L'influenza dell' anemia sperimentale nelle infezione. G. Dragotti.
71 Sul carcinoma delle grande vie biliari (of large biliary passages). G. Scagliosi.
72 Influence of Exclusive Milk Diet on the Circulation of the Blood.—Influenza del regime latteo assoluto sulla circolazione del sangue. C. Colombo (Rome).
73 (No. 45.) Ulteriori richerche sui corpi di Negri in rapporto all' etiologia della rabbia (of rabies). L. d'Amato (Naples).
74 Convoluted Tubules in Formol Intoxication.—Le alterazioni dei processi di secrezione dell' epitelio dei tubuli contorti nell' avvelenamento da formolo. L. Girolamo (Palermo).
75 *Su l'efficacia terapeutica del cloruro di bario (barum chlorid). E. Pesci (Turin).

67. **Urea and Ammonia in Symptomatology of Liver Lesions.**—De Rossi reviews the present status of our knowledge on this subject, and analyzes four instructive cases. He thinks that it is established that all the organs form urea in proportion to their size and their nutrient interchanges. It is not the property of the liver alone. Also that the albumin molecule takes various ways to form urea, and not merely that of the ammonium salts alone. Also that the elaboration of urea is, in all probability, not a simple process and, above all, not a single one. The nitrogenous compounds in the urine vary in individual cases of liver affections according to the general conditions of metabolism, not necessarily merely according to the lesion in the liver. The only finding that occurs with any regularity in these cases is an increased amount of NH^3. But even this finding is not directly proportional to the liver lesion, but depends more on the condition of the circulation and on the acidity of the tissues. The practical conclusion from the above is that alimentary ammoniuria is not a reliable test of the functioning of the liver.

68. **Operation for Exstrophy of Bladder.**—Müller proposed in 1903 a mode of operating on subjects with extroversion of

the bladder, but he had not attempted to execute it on the living subject. Muscatello here reports a case in which he followed the suggested technic with one slight modification. The results compel him to rank it above all other methods yet presented. Its principal advantage is that it protects the ureters against contact with feces after they have been transplanted in the sigmoid colon. This is accomplished by dividing the colon and suturing it together again after exclusion of a short portion. The part of the bladder containing the trigone and the mouths of the ureters is then transplanted in the excluded portion of the colon. This brings the ureters into a blind pouch at some distance above the point where the mouth of the pouch opens into the sigmoid colon. The top of the blind pouch formed by the excluded part of the gut is fastened with a few stitches to the colon above the anastomosis, thus retaining the connection between the excluded portion and the rest of the bowel. Müller proposed to fasten the excluded portion to the anterior abdominal wall, which might result in the kinking of the ureters, etc. The patient in the case described had been treated by the Maydl technic at first, but without success. The second intervention, according to the Müller technic, resulted in a complete cure of his deformity. The wound had healed completely in less than four weeks. The article is illustrated.

75. **Barium Chlorid in Therapeutics.**—Pesci has been testing barium chlorid in 40 cases of various affections, including 11 of pleurisy, 8 of valvular defects, 4 of myocarditis, 3 of typhoid, etc. He studied the temperature, pulse, respiration, arterial pressure, urine and ingestion of fluids in the various cases while under the influence of the drug. The results confirm those reported by Schedel, Tabora and others in respect to the efficacy of barium chlorid as a pressure-raising drug and diuretic. The pressure was raised from a few mm. to a maximum of 60 mm. in his experiences, both clinical and experimental. It rose a few hours after taking the chlorid, and constantly increased to a maximum at which it persisted for three or four days, then gradually subsided, but still kept for a time longer above the previous figure. In the very severe cases the pressure sank after the first rise—a sign of grave prognosis. In some cases there was no appreciable action on the pressure, but the general condition showed marked improvement, sometimes with diuresis. In every case, however, the pulse tracings assumed a more normal type, the pulse findings explaining the general improvement that followed the use of the drug. No injurious action was noted in any case. The prompt diuresis that followed in cases of pleurisy was the most gratifying result noted, in some instances the benefit being truly marvelous, the amount of urine excreted increasing from 1,000 to 4,000 c.c. The dosage was 43 cg. in three days, 60 cg. in four days, or 32 cg. in three days. He advocates the drug, therefore, as the best diuretic for pleurisy, the benefit being prompt, constant and superior to that of any other diuretic with which he is familiar. The drug is also indicated in the first stage of disturbance of compensation in a valvular affection, when the circulation is sluggish and the relaxed walls of the arteries allow infiltration of the tissues. Barium chlorid stimulates the musculature of the walls of the arteries. It is also useful for the same reason in infectious disease when the pulse is becoming dicrotic from relaxation of the walls of the vessels and weakness of the intoxicated myocardium. Barium chlorid arrests these disturbances or prevents them by its beneficent influence on the disease itself. Excessively high blood pressure with weak heart is the only contraindication.

Sei-I-Kwai, Tokio.

Last indexed page 255.

76 (XXIII, No. 2.) Tubercular Disease of Breast. Nakamura.
77 Japanese Casualties at the Battle of Port Arthur.
78 (No. 3.) The Japanese Red Cross.
79 (No. 4.) Observations of Infective Myositis in Japan. Ito and Kaminaka. (Concluded.)
80 (No. 6.) *Study of the Anopheles During Hibernation—Untersuchungen über die Anopheles im Winterschlaf. K. Suzuki. (Concluded.)
81 (No. 7.) The Wounded in the Naval Battles. Ibid.
82 (No. 8.) *General Sketch of Equipment of Naval Hospital Ship Kobe-Maru. Arrangements for Conveyance of Patients.
83 (No. 9.) Case of Whooping Cough and Its Pathologic Anatomy.
84 (No. 10.) *Statistics of Japanese Naval Officers and Men Killed or Wounded in Present War.

80. **The Anopheles During Hibernation.**—The results of extensive personal research are given in this illustrated article. Suzuki thinks that the female alone survives the winter. It usually contains fertilized eggs, and as soon as it regains its vitality, when thawed out by warm weather, it lays the eggs. He found mature eggs in both the anopheles and culex during their hibernation.

82. **The Japanese Hospital Ship.**—This floating hospital has been described previously in THE JOURNAL. It did good service during the war of 1894-5 conveying the wounded from the seat of war to the home hospitals. In the illustrated description we note that 126.5 cubic feet of space are allotted to each patient in the general room, while the seriously wounded have each 416 cubic feet and the infectious cases 266.5. The Sei-I-Kwai urges the necessity for installation of a refrigerating machine and electric fans, to complete the equipment.

84. **Killed and Wounded in Japanese Navy.**—The tables give 1,022 killed and 556 severely wounded, the total injured being 2,321. Six navy surgeons have been killed and six have had dysentery or typhoid fever. Thirteen "medical attendants" were also killed and the same number have had some infectious disease. The medical cases all recovered. The statistics cover the period from Feb. 9 to Oct. 10, 1904. They are grouped by the various engagements, almost all at Port Arthur.

Medicinskoe Obozryenie, Moscow.

Last indexed XLIII, page 642.

85 (LX, No. 21.) *Malarial Affections of Nervous System.—K voprosu o malariinik zabolyevaniyakh nervoi systemi. V. P. Dobrokhotoff.
86 *Ob etiologii i pathologitcheskoi anatomii ostrago endocardita. E. I. Martzinovsky.
87 (No. 22.) *Perineal Prostatectomy.—O polnoi promezhnostnoi prostatektomii. P. A. Gertzen.
88 *Chronic Suppurative Epididymitis.—K etiologii chronitcheskago gnoinika pridatka yaitchka i k kazuistikye aneurizmi arteriæ spermaticæ. A. P. Krimoff.
89 K voprosu o fistula gastro-colica carcinomatosa. M. P. Kandolovsky.
90 *Cancer ampullæ Vateri. N. E. Kusheff.
91 Yohimbin in 20 Cases of Nervous Impotency.—O terapeutitcheskom dyestvoi yohimbina Riedel'a pri myzhskom bezsilii na nervoi potchyv. E. Hellmer (Vienna).
92 Three Cases of Coincidence of Cancer and Tuberculosis.—K voprosu o sovmyestnosti raka i tuberculeza. M. O. Guberman.
93 (No. 23.) *Sudden Death in Diphtheria.—O pritchinye smerti pri diphtherii. V. Krasnoff.
94 *Ocular Symptom of Diffuse Sclerodermia.—Novii glaznoi symptom razlitoi sklerodermii. C. N. Lozhetchnikoff.
95 *Bone Growth in Heart Valves.—4 slutchai obrazovaniya kosti v serdetchnikh zaslonkakh. I. F. Pozharisky.
96 (No. 24.) *Ob etiologii i patogenezii chorea. Tcherno-Schwartz and Lunz.
97 Pemphigus acutus. L. Rotchmaninoff.

85. **Malarial Affections of Nervous System.**—Dobrokhotoff's article reviews the various nervous affections due to the malarial parasite, the clinical pictures drawn from his own experience and study of the literature. The malarial psychoses generally develop with depression; neuralgia, neuritis and localized focal affections of the central nervous system are not rare. More diffuse troubles, such as multiple sclerosis, also occur as the result of malaria. He gives the details of a striking case of malarial multiple sclerosis. The parasites in the circulation injure the endothelium of the vessels either directly or by their toxins, or by the products of the destroyed red corpuscles. The changes thus induced in the endothelium cause thrombosis in the capillaries, and injure the walls of these vessels. The capillaries in the brain are particularly liable to these injuries, with consecutive hemorrhages. He thinks that these changes in the capillaries explain the conditions noted in the parenchymatous elements of the liver, spleen, kidneys and ganglion cells in malaria. The prognosis is favorable for these nervous affections on a malarial basis, with the exception of the comatous form. They gradually subside under quinin to apparently complete restitution.

86. **Acute Endocarditis.**—Martzinovsky believes that acute endocarditis may result from the action of one or more of several bacteria. At least 10 c.c. of blood should be taken for bacteriologic examination, as the number of microbes in the blood is not necessarily large. Both aërobic and anaërobic cultures should be made, and a negative result does not exclude endocarditis. He was able to discover a connection between the endocarditis and erysipelas, with streptococci, in one case, and between a diplococcus endocarditis and croupous pneumonia in another. He found acute endocarditis in about half of his cases of rheumatism, but the bacteria differed in the various cases, so that the assumption of a single causal germ for acute articular rheumatism seems highly improbable. In his experience, acute endocarditis was frequently followed by progressive anemia and icterus, with urobilin, albumin and casts in the urine. The most promising treatment for acute endocarditis seems to be with an appropriate serum, but this will require early and repeated examination of the blood to disclose the kind of antiserum needed. His article is based on a study of 30 cases.

87. **Perineal Prostatectomy.**—Gerzen reviews the literature on this subject, including much of the American, and describes a case of his own. He commends the perineal operation to his countrymen as destined to an important place in the treatment of enlarged prostate.

88. **Epididymitis.**—In a case described by Krimoff a trauma had induced aneurism of the spermatic artery and epididymitis. The latter may be due to gonorrhea, tuberculosis, syphilis or to casual microbes, as he demonstrates from his experience.

90. **Cancer of Vater's Ampulla.**—Kusheff asserts that cancer at this point can be diagnosed from the progressive emaciation of the subject with icterus but no fever nor catarrhal symptoms on the part of the stomach or intestines. In 2 cases described, cholelithiasis could be excluded as also hypertrophic cirrhosis of the liver. There was no ascites, and no tumor could be palpated. His patients were men of 57 and 75, respectively. The cancer in each was an adenocarcinoma.

93. **Sudden Death in Diphtheria.**—Krasnoff's experimental researches have resulted in a confirmation of his belief that sudden death in diphtheria is due to paralysis of the diaphragm.

94. **Eye Symptom of Diffuse Sclerodermia.**—Lozhetchnikoff calls attention to the bilateral, symmetric immovability of the eyeball in diffuse sclerodermia. The process has evidently involved the muscles of the eye when this stage is reached. He observed this symptom in a girl of 17, and she improved under hot baths and massage until even the eye symptom entirely disappeared. He reports the case as one of cured sclerodermia.

95. **Bone Formation in Heart Valves.**—In the 4 cases described there was an unmistakable formation of bone in some of the valves and even in the heart itself. The subjects were elderly men.

96. **Etiology of Chorea.**—Study of 124 cases of chorea at the Moscow hospitals has established, to the satisfaction of these authors, that articular rheumatism, endocarditis and chorea form a triad for which one and the same cause is responsible.

Roussky Vratch, St. Petersburg.

Last indexed XLIII, page 851.

98 (II, No. 48.) O hedonal-chloroform narcozye. N. P. Kravkoff.
99 Primary Cancer in Vagina with Metastasis Probably by Contact.—O pervitchnom rakye vlagalishtcha v svyazi s utcheniem o previvaemosti raka. V. V. Diakonoff.
100 Varying Capacity of Pravaz Syringes.—Po povodu emkosti prodazhnykh shprintzev Pravaz'a. I. V. Sokhatzki.
101 *Experiences with Talma Operation.—Klinitcheski materiali po operatzii prishivaniya bolshogo salnika k perednoi briushnoi stvenkye. I. I. Kozkovski.
102 *Retinal Hemorrhages in Parasitic Pernicious Anemia.—O krovoizliyaniyakh v syetchatkye pri zlokatchenstvennom glistnom (sherokii lentetz) malakrovii. A. S. Tchemolosoff.
103 Action of Electricity on Microbes.—Isslyedovaniya nad dyestviem electritchestva na mikrobov. S. M. Burak. (Concluded.)
104 (No. 49.) Taste and the Needs of the Organism.—Vkuss i potrebnosti organizma. L. B. Popelsky.
105 Cicatricial Stenosis of Small Intestine.—K kazuistikye rubtzovikh suzhenii tonkikh kishek. B. N. Kholtzoff. One case.
106 Apparatus for Measuring Spinal Curvature. Novii pribor dlya izmyereniya gorbov. N. F. Gun (St. Petersburg).
107 Credé's Ointment in Treatment of Puerperal Fever and Scarlet Fever.—Unguentum Credé pri gnilostnikh zabolyevaniyakh v poslyerodovom periodye i o poslyerodovoi skarlatinye. G. L. Davidoff.
108 To Detect Simulated Deafness.—Novii sposob raspoznavaniya pritvornoi glukhoti. A. A. Govsyeff.
109 Third Tonsil in Infants.—3-ii mindalik v grudnom vozrastye. I. M. Potanoff.
110 *Action of Radium on Typhoid Serum.—O vliyanii radii na agglutiniryiushtchyiu sposobnost sivorotki krovi briushnotyphoznikh bolnikh. P. P. Yagn.

101. **Experiences with Talma Operation.**—Kozlovski gives the particulars of 5 cases of ascites from cirrhosis of the liver, treated by omentopexy. Two patients were apparently much improved but their ultimate fate is not known. Two others were much improved and lived five and eleven months. In one the ascites recurred after a few months. One patient died in less than a month. The particulars of seven similar operations by other Russian surgeons are also given.

102. **Retinal Hemorrhages in Parasitic Anemia.**—Tchemolosoff adds two cases to his first series of four with anemia and retinal hemorrhages due to the presence of the *Ankylostomum duodenale*. All the cases terminated fatally, notwithstanding prompt differentiation and treatment. The eye of one of these patients was submitted to minute microscopic examination, the results of which are given in detail.

110. **Action of Radium on Typhoid Serum.**—Yagn made 19 tests of the serum of typhoid patients, exposing it to the action of the radium rays. He found that long exposure completely checked agglutination. Exposures less than two or three days in length inhibited, but did not completely arrest the agglutinating property.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A COMPEND OF THE DISEASES OF THE EYE AND REFRACTION, Including Treatment and Surgery. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D., Assistant Surgeon to Wills Eye Hospital, Philadelphia. Third Edition, Revised and Corrected. 109 Illustrations, Several of Which Are in Colors. Cloth. Pp. 295. Price $1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

A DIRECTORY OF INSTITUTIONS AND SOCIETIES DEALING WITH TUBERCULOSIS IN THE UNITED STATES AND CANADA. Compiled by Lilian Brandt. Cloth. Pp. 270. Published by the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York and the National Association for the Study and Prevention of Tuberculosis. 1904.

MANUAL OF OPERATIVE SURGERY. By John Fairbairn Binnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas City Medical College. With 559 Illustrations, a Number of Which Are Printed in Colors. Cloth. Pp. 644. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

ZEITSCHRIFT FUER ORTHOPADISCHE CHIRURGIE Einschliesslich der Heilgymnastik und Massage. Dr. Albert Hoffa. XIII. Band. 4. Heft. Mit 74 in den text Gedruckten Arbildungen. Paper. Pp. 862. Stuttgart. Verlag von Ferdinand Enke. 1904.

THE DISEASES OF SOCIETY (The Vice and Crime Problem). By G. Frank Lydston, M.D., Professor of Genito-urinary Surgery, State University of Illinois. Cloth. Pp. 624. Price, $3.00 net. Philadelphia: J. B. Lippincott Co. 1904.

THE SIXTH ANNUAL REPORT OF THE INDIANA STATE BOARD OF MEDICAL REGISTRATION AND EXAMINATION for the Year Ending Dec. 31, 1903. To the Governor. Cloth. Pp. 272. Indianapolis: Wm. B. Burford. 1904.

THIRTEENTH REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF MAINE for the Two Years Ending Dec. 31, 1903. 1902-1903. Paper. Pp. 270. Augusta, Maine: Kennebec Journal Print. 1904.

TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION FOR THE YEARS 1903-1904. Paper. Pp. 128. Published by the Association. Aberdeen, S. D.: News Printing Co. 1904.

FIRST BIENNIAL REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS OF THE STATE OF SOUTH DAKOTA. March 27, 1904, to the Present Time. Aberdeen: News Printing Co. 1904.

NEW CLINICAL REPORTS. RESULTS OBTAINED BY THE USE OF GARDNER'S PERFECTED PHARMACEUTICAL PRODUCTS. New York. 1904. Cloth. Pp. 108.

EIGHTH BIENNIAL REPORT OF THE DELAWARE STATE HOSPITAL AT FARNHURST, December, 1904. Paper. Pp. 94. Wilmington: Sunday Star Print.

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Original Articles.

CONSERVATIVE PERINEAL PROSTATECTOMY.

A REPORT OF FIFTY CASES.*

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BALTIMORE.

One year ago I presented to the American Association of Genitourinary Surgeons a paper entitled "Conservative Perineal Prostatectomy—A Presentation of New Instruments and Technic."[1] Since then I have further elaborated the technic, and it is my purpose to-day to outline the results obtained in 50 cases in which I have employed this method.

In using the word conservative, I do not wish it to be understood as opposing radical surgery for the prostate, but simply as an advocate of the conservation of those structures which are in no way concerned in the obstruction to free micturition, and are of themselves of independent importance, viz., the preservation of the urethra and of the ejaculatory ducts. By means of the 50 cases which I report I hope to make it clear that both of these structures need not be uselessly sacrificed or injured and that their preservation in no way detracts from a perfect functional result, so far as the restoration of normal urination is concerned, but also that the virility of the sexual powers will be generally left unimpaired.

I hope I will be pardoned for outlining here briefly the principal features of the technic already described. The form of perineal incision is of no particular consequence but, as the operation which I employ is carried out between the bulb of the urethra and the anterior surface of the rectum, I have usually made my cutaneous incision so as to give the best exposure to this region—an inverted V, with the apex over the posterior part of the bulb and the branches extending to a point between the anus and the ischial spine on each side (Fig. 1). This incision, although only carried through the skin and superficial fascia, allows the rectum to be retracted backward with ease, giving a splendid exposure. The only muscular structures divided are the central tendon of the perineum (Fig. 2) and the rectourethralis muscle which lies immediately beneath it (Fig. 3) and covers the membranous urethra and apex of the prostate. This small muscle, as Proust has shown, is the key to the situation, because it draws the rectum forward nearly up to the triangular ligament, where it is in great danger of being injured, if the rectourethralis is not carefully divided before going deeper, and because it also covers the entrance to the retroprostatic space which forms the field of work. The membranous urethra having been exposed, a small longitudinal incision is made on the grooved staff in the urethra (Fig. 4), the edges are carefully caught with forceps, an ordinary sound is passed through into the bladder to enlarge the canal, after which the prostatic tractor (Fig. 5) is inserted and opened out (Fig. 6).

When traction is made, the posterior surface of the prostate emerges at once from its hidden site in the depths of the wound, and the operator is free to carry out any maneuvers which he may desire (Fig. 7).

After having previously performed many suprapubic and perineal operations in the dark, depending entirely on the sense of touch, and glad enough to remove almost any portion of the prostate that I could get hold of, regardless of the urethra, etc., it occurred to me in the third perineal case with this tractor that it was a pity to sacrifice undoubtedly valuable structures, portions of the urethra and ejaculatory ducts, when the prostate could be so drawn down that it lay almost in the surface of the wound ripe for any nicer procedure which one might wish to execute.

I determined, by study of anatomic and pathologic specimens of the prostate, that two divergent incisions (Fig. 7) could be so made through the posterior surface of the prostate as to preserve between them the ejaculatory ducts and the floor of the urethra, without retaining any obstructive tissue (Figs. 8 and 9), and that if a median bar or lobe were present, it could be easily drawn by the tractor so as to project into one of the lateral cavities, and there be enucleated from its side, without disturbing the ejaculatory ducts, or even the urethra (Fig. 10).

That this assertion, which I offered at first with considerable hesitation, is undoubtedly true, I can now, on an experience of many middle lobe cases, affirm with great positiveness—and this without leaving behind any portion of hypertrophied tissue sufficient to produce obstruction of free urination. It has also, contrary to my expectation, proved applicable to all forms of median lobe enlargement, including even enormous intravesical outgrowths (one of which was as large as an orange and weighed 240 grams.) I am free to admit that in some of these cases the median enucleation might have been done more quickly from a suprapubic wound, but the middle lobe was always often associated with lateral enlargements which would have been more difficult to remove by that route, and the prospect of a much shorter convalescence and less operative risk, put me on my mettle to accomplish the more ideal, though more difficult, feat. Another reason has been that I have always been able by spinal cocainization to get excellent anesthesia of the perineum and prostate, whereas I have failed to get like good results for the suprapubic route.

* Read in the Section on Surgery of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904. The discussion on the symposium on prostatectomy, of which this article was a part, appeared in THE JOURNAL, Nov. 12, 1904, page 1452.

1. Published in THE JOURNAL A. M. A., Oct. 26, 1903.

THE USE OF THE INDEX FINGER AS A TRACTOR.

There are some cases, however, in which the median enlargement is in the shape of a small bar or lobe, so adherent that it is difficult to engage it with the blade of the tractor, as described in my first paper, and for these I have of late employed the index finger of the left hand in place of the tractor in the urethra, to push the lobe into the lateral cavity. After the tractor has been withdrawn the finger is inserted gently through the opening, down the prostatic urethra, until the end is free in the bladder. Examination will then reveal the median bar or lobe which remains, and it is an easy matter, by crooking the finger over it, to carry it into the left lateral cavity where it can be enucleated (Fig. 11). If an adherent bar is encountered a fairly sharp periosteal elevator is a good instrument with which to peel

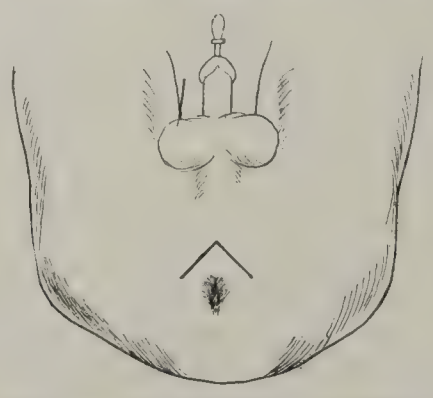


Fig. 1.—The inverted V incision.

it out. Occasionally it may be necessary to use scissors for this purpose, and to get hold of the mass to be removed as it begins to be separated, some long forceps may be required.

A very small rounded or pedunculated median lobe has been, in several of my cases, impossible to engage with the blade of the tractor, but I have been able, by using the finger instead of the tractor, to successfully remove it without injuring the urethra or the ejaculatory ducts. The technic described above is entirely different from that of Albarran, who draws the median lobe into the widely opened urethra with the finger, the portion of the

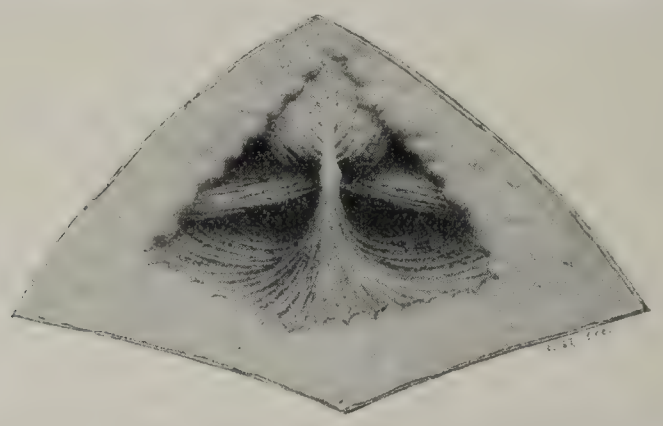


Fig. 2.—Central tendon of perineum exposed by blunt dissection.

prostate containing the ejaculatory ducts being destroyed, as he admits. He even goes so far as to ligate the vasa-deferentia in the groin after perineal prostatectomy has been completed, on the ground that the ejaculatory ducts have already been destroyed, and vasectomy will prevent epididymitis, which occurred in a large percentage of his cases.

The following case illustrates the value of the modification of technic described above:

No. 493.—J. T. M., 54 years. Admitted Oct. 23, 1903.

History.—Frequency of urination beginning 15 years ago; considerable difficulty in voiding urine for past 10 years. One year ago he urinated every hour night and day—after that incontinence. He has been using a catheter for a short time.

Examination.—Prostate small and hard. Cystoscope showed small median lobe and slight lateral enlargements. The urine was acid and purulent. Residual urine, 500 c.c.

Operation.—Ether anesthesia. Enucleation of lateral lobes, which proved very small, a median bar and a pedunculated middle lobe the size of a pea. Urethra, bladder and ducts were left intact. Lateral lobes and median bar were easily removed with the assistance of the tractor in the bladder. The pedunculated median lobe was so small that it could not be engaged with the blade of the tractor, but after this instrument had been removed the index finger was introduced, as shown in

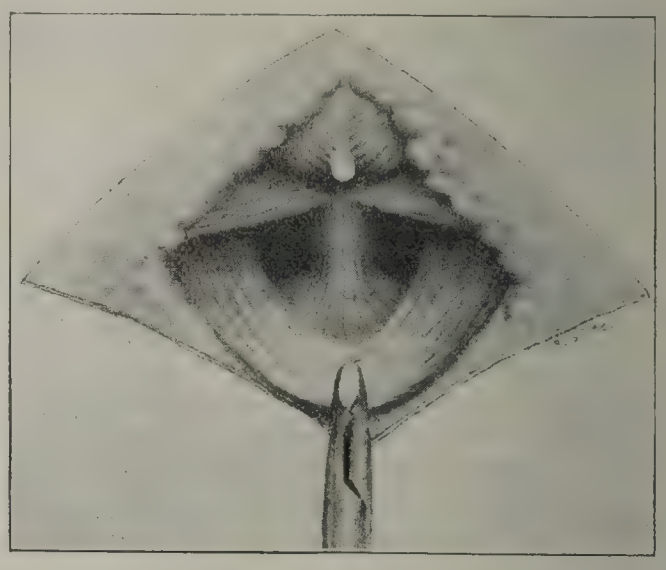


Fig. 3.—Central tendon divided, exposing rectourethralis muscle.

Figure 11, when it was easily shelled out, although only about 8 mm. in diameter (Fig. 12). Total weight of prostate was less than 15 gm. Median lobe, about 2 gm. Double drainage. No shock.

Result.—Convalescence was rapid. The patient left for home in third week. Interval between urinations was then 4 hours; residual urine 40 c.c., erections had returned. Perineal wound closed in the fourth week.

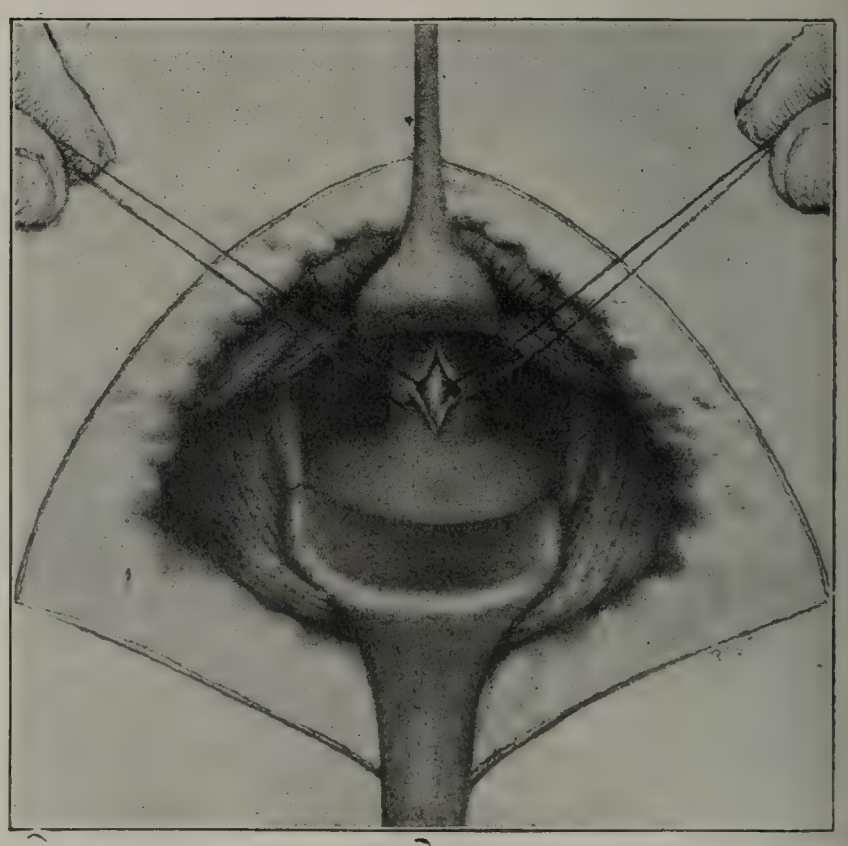


Fig. 4.—Incision of membranous urethra for introduction of tractor.

Report several months later: Urination free, about 500 c.c. at a time, at intervals of three hours. No residual urine, no incontinence. Erections, coitus and ejaculations normal.

A very pedunculated middle lobe may evade both the finger and the tractor, and in such instances it may be

best to insert a curved clamp and draw the middle lobe down the dilated urethra where it may be enucleated or divided with scissors. This is the technic employed by Albarran.

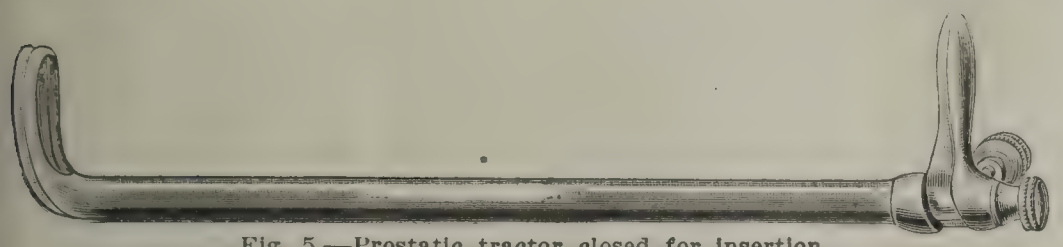


Fig. 5.—Prostatic tractor closed for insertion.

A SUBURETHRAL METHOD OF REMOVING A MEDIAN BAR OR LOBE.

In case the patient has already lost his sexual powers the reason for preserving the ejaculatory ducts does not hold, and in such cases, when the median bar or lobe is too small or too adherent to be delivered into a lateral cavity with the tractor, I have removed the mass suburethrally, after transverse division of the ejaculatory bridge as shown in Figure 13.

After stripping back the capsule (Fig. 14), it is an easy matter to shell out or to excise the median bar or lobe without opening the urethral or vesical mucous membrane covering it, as shown by the following case:

No. 528.—R. M. W., 78 years of age. Admitted Jan. 9, 1904.

***History.*—Onset occurred 18 years ago, with gradual increase in difficulty of urination. In 1901, he often voided urine 30 times during a night; he used a catheter only occasionally. In April, 1901, double castration was performed by another surgeon with only slight benefit. He now voids urine very frequently, at times, every hour.**

***Examination.*—Condition was good for his age. Arteriosclerosis slight. Urine was acid and moderately purulent. Prostate was considerably enlarged. Catheter was difficult to pass—urethral distance eleven inches. The cystoscope showed a median bar, a fairly large left, and a similar right lobe.**

***Operation.*—Spinal anesthesia by cocain, gr. 1/3. Enucleation of large lateral lobes and small median bar, as shown in photograph (Fig. 15). The "ejaculatory bridge" was purposely cut to remove the bar, which was enucleated as described above. Urethral and vesical mucosa covering the bar was not torn. The lobes weighed 74 gm.; the median, 7 gm. The patient was up in a wheel-chair on the third day, tubes out on the fourth day.**

Report: Five months later, he does not have to use a catheter—can empty bladder. Fistula closed. No incontinence. No residual urine, but cystitis and some vesical contracture are present. Micturition about every two hours. The patient had no after-treatment, and the frequency of urination could be relieved by dilatation of the bladder by hydraulic pressure.

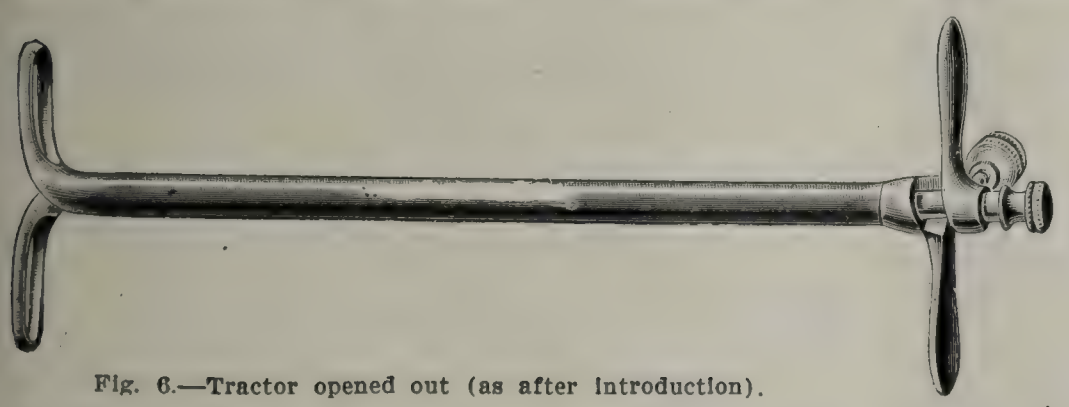


Fig. 6.—Tractor opened out (as after introduction).

TREATMENT OF VESICAL CALCULUS AS A COMPLICATION OF ENLARGED PROSTATE.

In the great majority of cases the median mass can be enucleated through the lateral cavity—the larger the lobe, the easier it is.

In my first 100 cases of prostatic hypertrophy, calculus was present in about 30 per cent., and, although the proportion has not been so great in these 50 cases of perineal prostatectomy it has occurred frequently enough to be an important factor in the operation. Either litholapaxy, before or during the prostatectomy operation, or suprapubic or perineal lithotomy may be performed. Without going into the arguments for or against either of these procedures, it is evident that if a perineal prostatectomy is to be performed the ideal

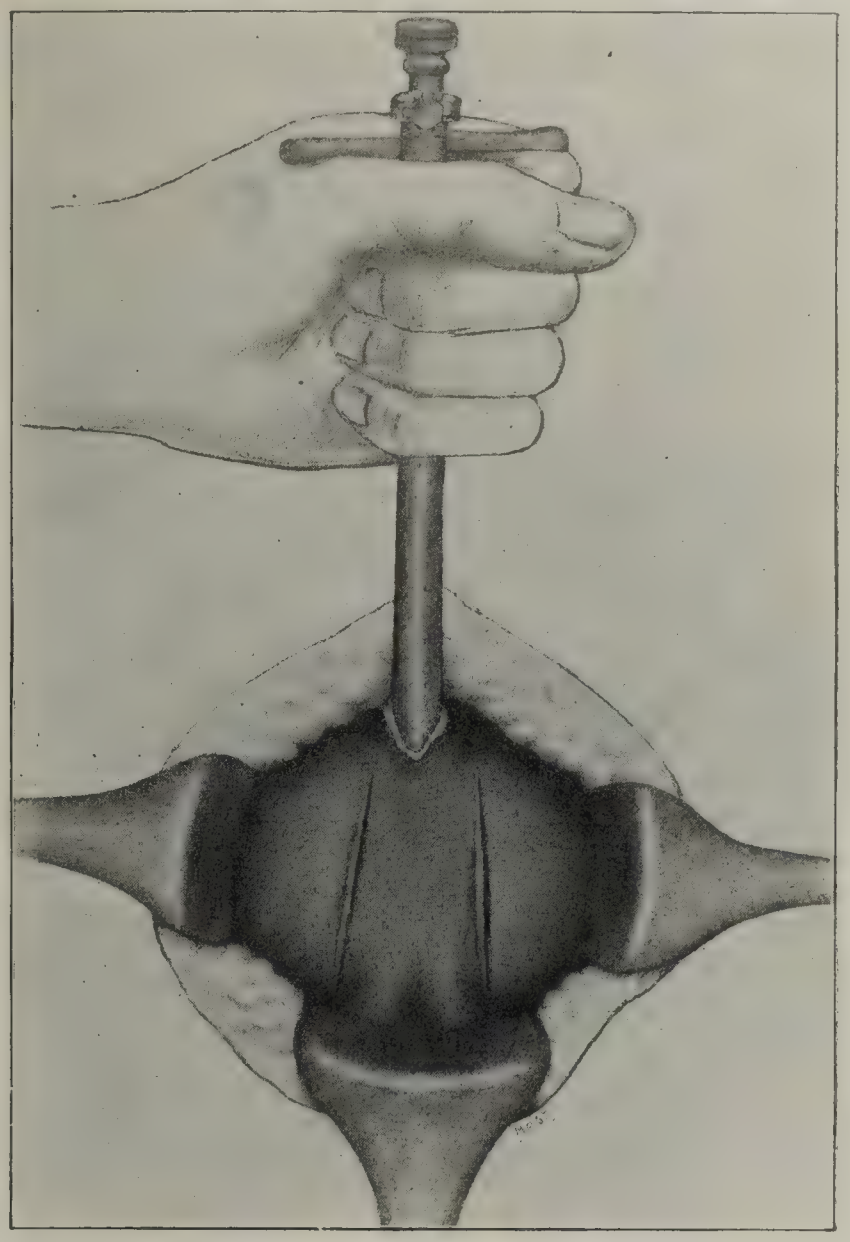


Fig. 7.—The prostate drawn down by tractor.

procedure is to remove the calculus at the same sitting, without crushing it, for litholapaxy is in these cases a tedious procedure. If, however, the removal of the calculus intact will seriously injure the urethra, the ejaculatory ducts or the neck of the bladder, such a method is contraindicated. To drag a calculus by main force out through the urethra, as it is left by the technic which I follow, would be at once dangerous and destructive, except when it is small.

I have therefore endeavored to devise a method which would be free from the dangers mentioned above, and which would also provide for the removal of moderately large stones. The technic which I have found most satisfactory is graphically shown in the accompanying drawing (Fig. 16).

As seen here, the urethra is split with scissors along

its left lateral wall, from the urethrotomy wound in the membranous urethra up to its vesical orifice. By this procedure, the urethra becomes a common cavity with that left by the enucleation of the left lateral lobe, and abundant room is furnished for the extraction of calculi. If the cystoscope has shown the calculus to be only a moderately large one, it is usually only necessary to dilate the vesical orifice with a uterine dilator in order to extract it with the forceps. If the calculus is too large to be thus withdrawn, a probe-pointed bistoury may be inserted, and the orifice enlarged by a cut through the vesical mucous membrane covering the left lateral cavity of the prostate.

I have followed the technic described above in five cases; in three cases removing one calculus, in one, two, and in another seven, with success in all. The ejaculatory bridge containing the ducts was not injured, no urethral nor vesical mucous membrane removed, and the perineal wound healed just as rapidly as after the simple prostatectomy; in one case, perineal leakage ceased after the ninth day. I have not found it necessary to close

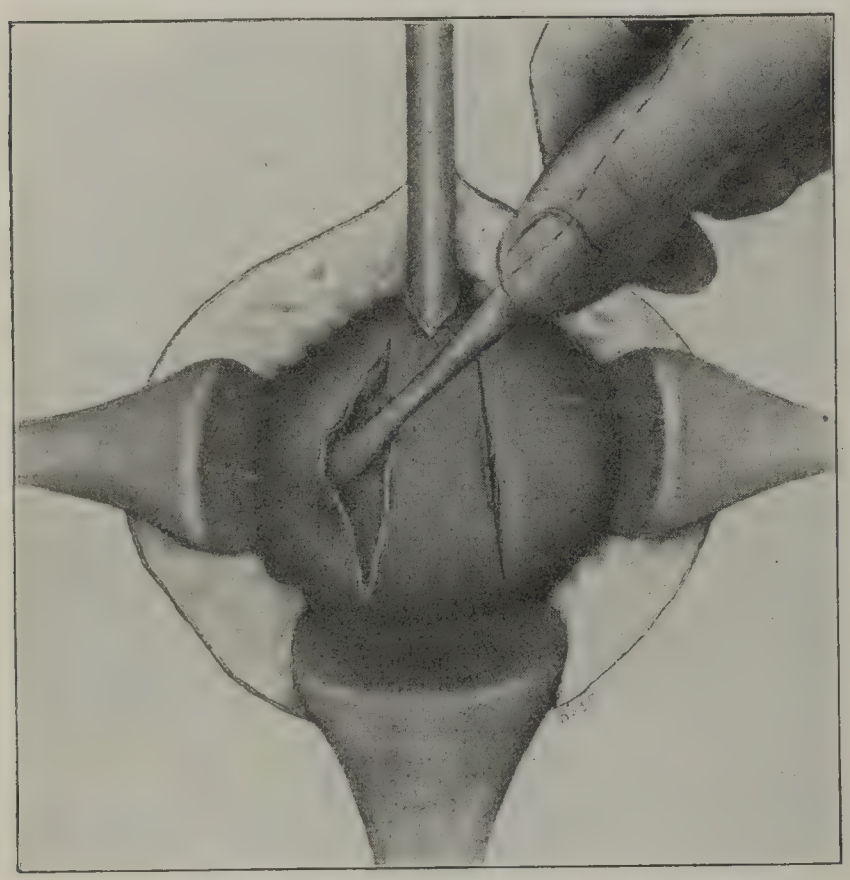


Fig. 8.—Stripping back the capsule with blunt dissector.

the divided urethra with sutures, but have simply provided the double urethral catheter drainage through the urethrotomy wound and the gauze packing for the lateral cavities as usual. The great advantage of perineal over suprapubic lithotomy is that the patient can be propped up in bed at once, and moved into a wheeled chair on the third or fourth day. The secret of success in these cases, is to flush the kidneys and to get the patients out of bed quickly, and this can not be done after the suprapubic operation with the same impunity and rapidity as in the perineal cases. In some cases *sectio alta* may be necessary, though an attempt to crush the stone through the perineal wound may be a decided one.

The following case shows that a very large calculus may be removed through a lateral cavity by the technic described above:

Patient.—S., male, aged 65.

Examination.—On cystoscopic examination a moderately enlarged prostate was found, complicated by a very large, rough vesical calculus.

Operation.—Perineal prostatectomy was performed by the usual technic, the urethra and "ejaculatory bridge" preserved, and the moderately hypertrophied right, left and median lobes enucleated. The left lateral wall of the urethra was then divided longitudinally up to the vesical orifice, with scissors. (Fig. 16). Large stone forceps were inserted into the bladder, and a calculus of great size caught. On withdrawing the forceps the calculus was found to be too large to pass through the dilated vesical orifice, but by making traction the vesical mucosa in front of the stone was drawn into the left lateral cavity, where it was divided with a scalpel, on the stone as a bobbin. After this, the calculus (Fig. 17) was easily extracted. The divided vesical neck was then approximated with two catgut sutures, and the lateral wall of the urethra easily closed.

Result.—The patient made an excellent recovery. The urine ceased coming through the perineum on the sixteenth day; no incontinence of urine followed; and normal micturition was established.

The stone, which is apparently oxalate of lime, has a very rough surface, and measures 4.5x3.5x3.5 cm.

PRELIMINARY TREATMENT.

This is of very great importance for successful results in these very delicate patients, and it is often wonderful how careful nursing will carry one over a crisis and get him finally into condition for operation, as shown by the following case:

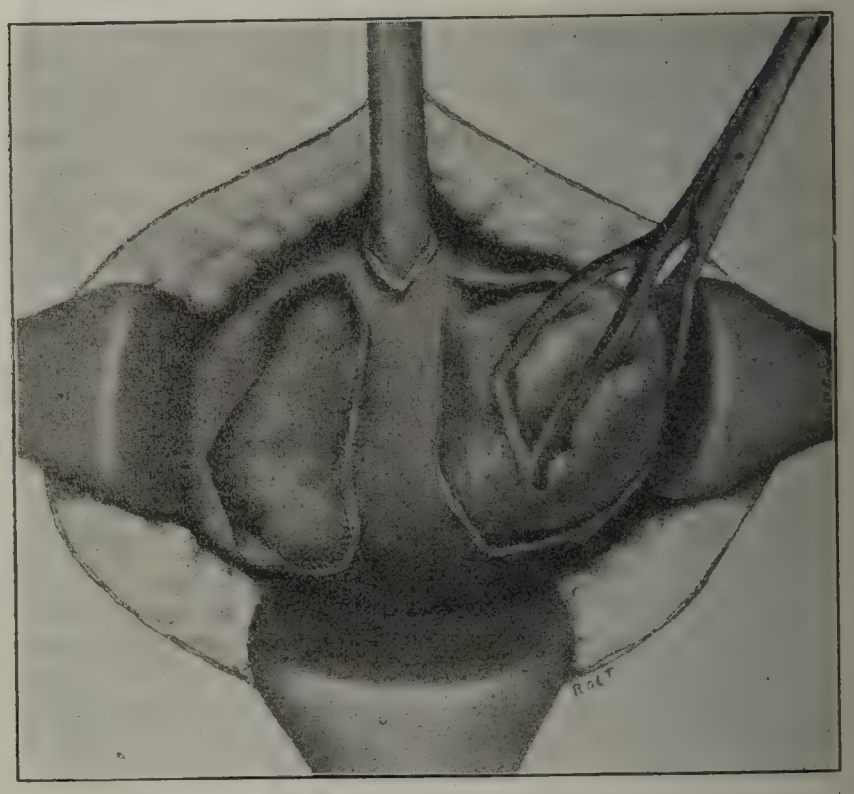


Fig. 9.—The enucleation of lateral lobes.

No. 576—D. C., aged 72, was admitted April 22, 1904, in a desperate condition.

History.—For five months he had been compelled to urinate every half hour, and ten days previously complete retention developed, but his physician was unable to catheterize him for 24 hours, when he found 1,500 c.c. of urine present. In a few days he had fever, nausea and a severe pain in left kidney. On entrance to the hospital he was emaciated, had fever, and showed evidences of uremia. His bladder was greatly distended and the left kidney was enlarged and tender. After two or three days be became desperately uremic.

Preliminary Treatment.—A rubber catheter was fastened in the urethra, and he was given submammary infusions and salt solution by rectum. Forced liquid diet was given for several days.

Result.—Under this treatment he gradually became rational, uremia disappeared, and finally, after six weeks of "internal hydrotherapy," perineal prostatectomy was performed under spinal anesthesia, cocain, gr. 1/3, being used. He was very little shocked by the operation, and made a satisfactory recovery. The fistula closed in 5 weeks, and examination six weeks after operation showed 20 c.c. residual urine, urination free, bladder contracted by long drainage, and holding only 150 c.c.,

for which he will be treated by hydraulic dilatation. His general condition is excellent, and one would not think that only a few weeks previously he had been so desperately ill.

CYSTOSCOPY.

Cystoscopy is, I think, of very great importance, for it tells us the size, character and disposition of the prostatic enlargements in the bladder and thus indicates what we must look for at operation and the best means of attack. If the cystoscopy shows that the lateral portions are alone enlarged, there being no median lobe nor even bar present, we know at once that after the lateral lobes have been enucleated, nothing further is necessary. When on the other hand a definite median lobe is shown by the cystoscope, we should not rest content until it has been removed by the usual technic or by the modifications described above. The cystoscope has also shown other conditions, such as calculi, and vesical tumors, when such were little to be expected from the symptoms. The important rôle played by diverticula of the bladder, and demonstrated by the cystoscope is shown by the following case:

Patient.—E. J. I., aged 60, had had complete retention of urine and used a catheter for several years. He saw a surgeon in another city, who passed a catheter, and told him that he was suffering from prostatic hypertrophy, for which vasectomy would be the appropriate treatment.

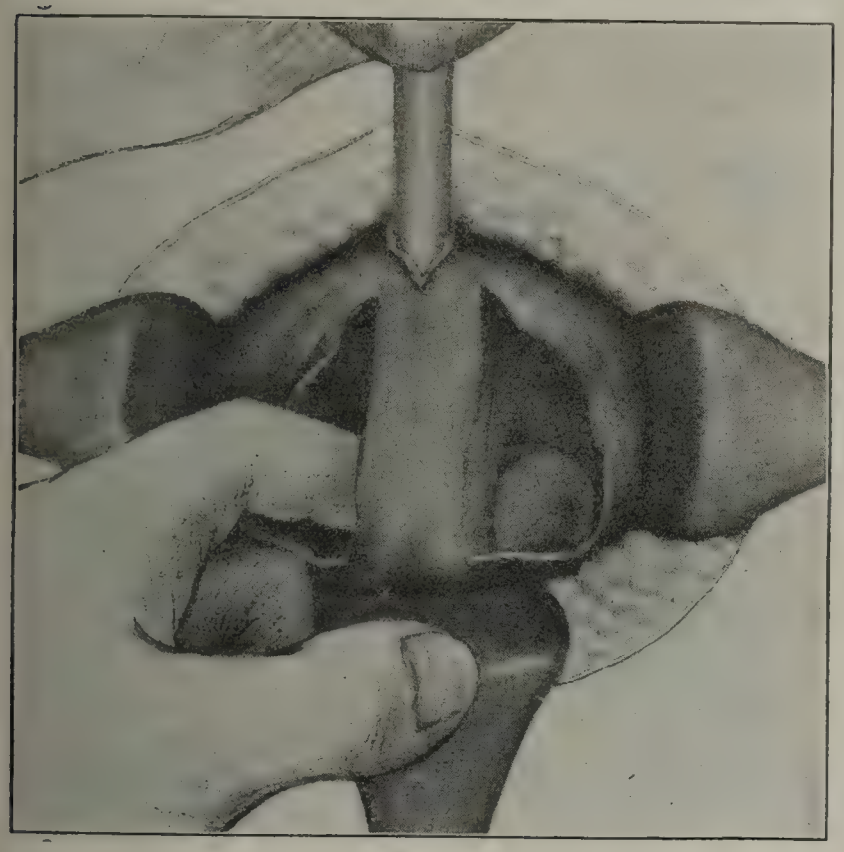


Fig. 10.—Delivery of the middle lobe into left lateral cavity.

Examination.—On examination I found no prostatic enlargement, but the cystoscope showed that the obstruction to urination was due to two diverticula beneath the trigone, which was so elevated by them that it acted as an obstruction to the egress of urine through the prostatic orifice.

Treatment.—He was restored to voluntary urination by a suprapubic operation, in which the septa between the diverticula and bladder were divided and the cut edges sutured.

In another case, the cystoscope showed a small opening in the anterior wall of the bladder, which communicated with a very large diverticulum. The prostate was bilaterally enlarged, and 1,200 c.c. residual urine was present. Prostatectomy was performed, but as it seemed dangerous to leave the diverticulum I made a suprapubic incision, exposed the anterior wall of the bladder, found that the diverticulum had a neck like a gourd and extended backward beneath the peritoneum, and along the rectum, and contained about 500 c.c. of fluid. After division of its neck at the bladder wall the diverticular sac was easily extirpated, and the vesical opening closed like the stump of an appendix. The bladder was not opened in either procedure. There was no subsequent leakage and the patient is perfectly cured. Without the cystoscope, the diverticulum would not have been discovered, until at some late date when possibly occlusion of its orifice and perivesical abscess would have furnished an interesting autopsy. I might cite numerous instances showing the great importance of cystoscopy in every case before operation, where the condition permits. The cystoscopic views obtained of the different segments of the prostatic urethral margin I record in diagrams devised especially for this purpose as shown in Figure 18.[2]

SPINAL ANESTHESIA.

The use of spinal cocainization has proved of very great value in those cases in which, on account of old age or renal disease, ether or chloroform would be dangerous. I now use one-third of a grain of dry sterile cocain, and allow it to dissolve in the spinal fluid which has been drawn into the barrel of a Luer all-glass syringe, which has been so successful in the hands of

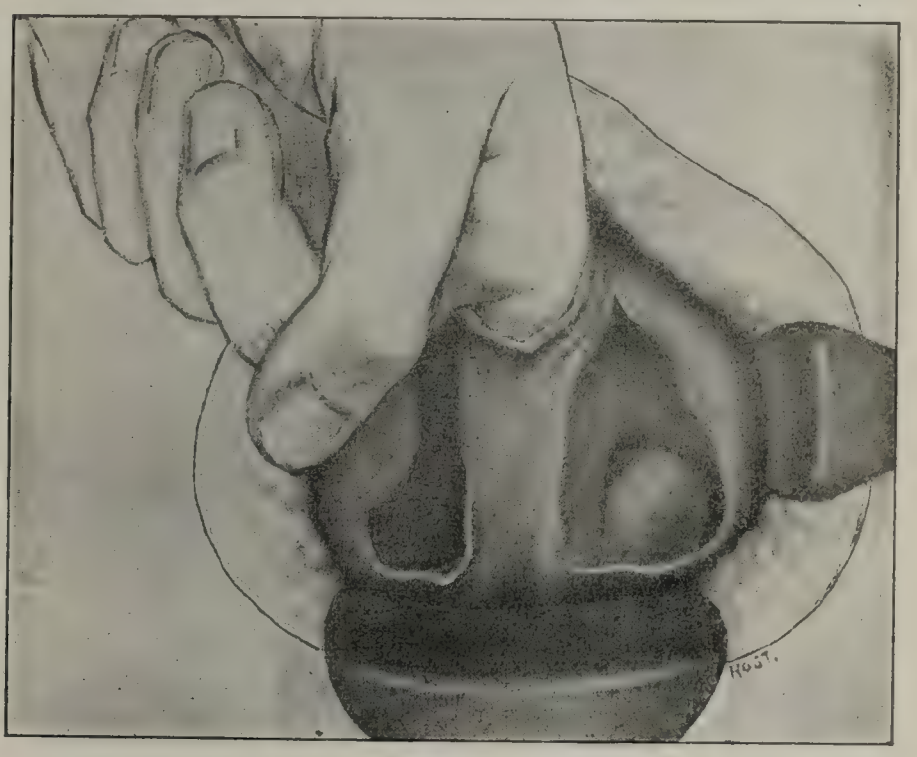


Fig. 11.—The use of index finger to deliver a small median lobe into lateral cavity.

Goodfellow. In my cases, now numbering ten, there have been none of the unpleasant sequelæ which we used to have when an aqueous cocain solution was injected into the canal. In several instances there has been a very slight nausea and vomiting on the table, but this is all, and the anesthesia has been perfect. Two of my patients were over 80 years of age, and others were either very old or very weak. In one case, already mentioned when speaking of preliminary treatment, one kidney and possibly both were diseased, and the patient was very uremic. In several of these cases I would not have dared to give a general anesthetic, and I firmly believe that through the use of spinal anesthesia the radical removal of the prostate through the perineum has been made a very much safer procedure than it was when ether or chloroform was necessary, and that the Bottini operation has been robbed of the strongest argument in its favor, viz.: that it could be done under local cocain an-

2. The Use of the Cystoscope in Prostatic Hypertrophy, Bulletin of the Johns Hopkins Hospital, November, 1904.

esthesia. One-fourth of a grain, I believe, is sufficient to insure excellent results.

AFTER-TREATMENT.

This has been so fully described in my previous article that I have little to add. As stated above, my guiding rules are:

1. To keep the kidneys very active, by means of water by mouth (from two to four quarts a day), and, if necessary, by subcutaneous infusions, or rectal injections of normal salt solution.

2. To get the patient up as soon as possible (propped up the second day, out of bed the fourth day, and walking as soon as possible).

3. Early removal of the gauze and tube drains. The former had best be removed on the second day and the tubes on the third or fourth day. The earlier the tubes are removed, the earlier the perineal fistula will close. Continuous irrigation of the bladder is now rarely continued longer than two or three days, sometimes only one. Since using it, however, I have not been troubled by the tubes becoming blocked by blood clots, as often happened before.

4. Avoidance of instrumentation: The cases in which I used a retained urethral catheter, in the hope of facilitating the closure of the perineal fistula, have not proved the value of this procedure. In fact, in those cases in which the fistula closed in from 6 to 10 days, no catheter was inserted after the withdrawal of the perineal tubes. The wound is now allowed to close without additional packing after removal of the original gauze packs on the second or third day. I practically never pass sounds after operation. None of my 50 cases have shown any tendency to stricture formation, and a silver catheter will nearly always pass in without even detecting any roughness along the membranous urethra at the site of the urethrotomy. The use of the retained catheter, and dilatation by sounds are, I believe, the inciting causes of epididymitis. Cystitis and contracture of the bladder are the most important and common complaints with which we have to deal after the patient has been relieved of his prostatic obstruction. This is particularly true of patients who have suffered from severe interstitial cystitis or vesical calculus, or where the bladder has become contracted by a prolonged use of the retained catheter. In many of these cases the bladder may be distinctly enlarged by the patient voluntarily holding his urine as long as possible, and imbibing freely in water. It is often necessary to spend several weeks in forcibly distending the bladder by hydraulic pressure in order to restore that viscus to its normal size. In a paper on the subject[3] in 1898, I showed the simplicity and efficacy of this method, and in numerous cases recently I have demonstrated its necessity to obtain a functional cure; restoration to urination at normal intervals, after prostatectomy. The accompanying chart (Fig. 19), is the record of a case in which the largest amount of urine voided at a time was 60 c.c., the bladder on forced distention held only 80 c.c., and the interval between urination was one hour and ten minutes. The rapid improvement in vesical capacity, amount voided and the interval under "the hydraulic pressure treatment" is graphically shown in the chart.

RESULTS.

I have thus far (May, 1904) operated on 50 cases by this method. The ages of these patients were as follows:

Over 80 years	2	Between 60 and 65	13
Between 75 and 80	7	Between 55 and 60	6
Between 70 and 75	8	Between 50 and 55	2
Between 65 and 70	7	Under 50 years	5

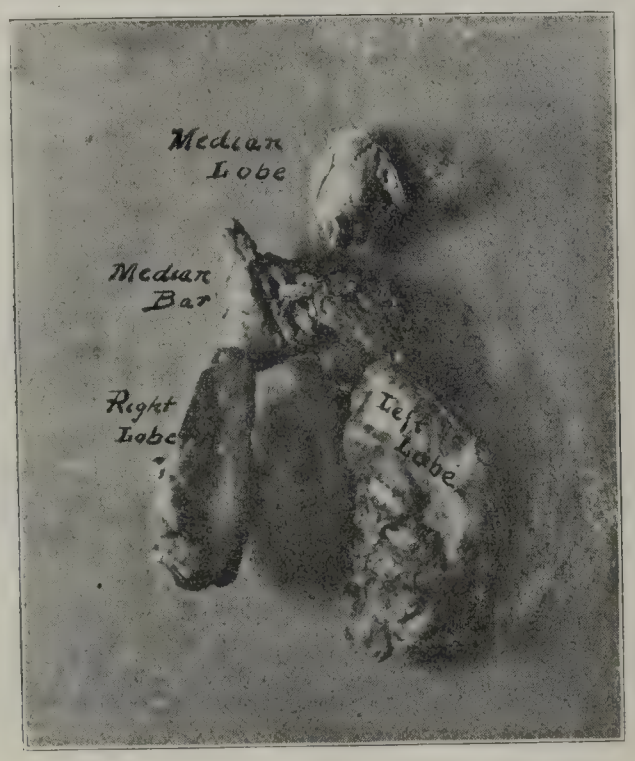


Fig. 12.—Photograph, actual size. Small pedunculated median lobe, small median bar. Two lateral lobes. Weight 15 gm.

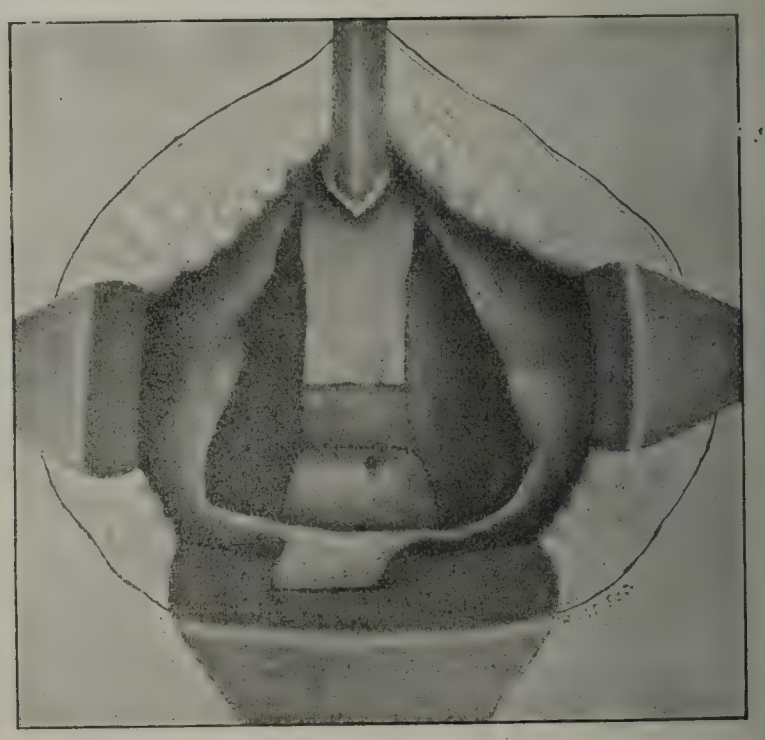


Fig. 13.—Division "ejaculatory bridge" suburethral enucleation of median bar.

MORTALITY.

There have been no deaths which, in my judgment, can be justly charged against the operation.

One man, aged 72, was in excellent condition two weeks after the operation, when, after an enema he died very suddenly and autopsy showed pulmonary embolism. The second death occurred one month after the operation, in a patient aged 82 years, who did well for two weeks, but after that grew gradually weaker and died, apparently, as much from old age as from anything else. The list of ages as given in the table shows at a glance the benignity of the operation, and the absence of operative deaths speak for its wider employment in severe cases.

In five cases a Bottini operation had been previously done (by me in three). One of these required prostatectomy on account of alarming hemorrhages from the intravesical prostatic enlargements, the other two, on ac-

3. Bulletin of the Johns Hopkins Hospital, May, 1898.

count of difficulty of urination, due to persistence of prostatic obstruction. One case had incontinence of urine, which was not relieved by prostatectomy. The fifth case had been operated on by another surgeon without result, and was cured by prostatectomy.

RELIEF OF OBSTRUCTION.

Eighteen cases had complete retention of urine and led catheter lives. Thirteen used the catheter, but were able to void some urine naturally; the frequency of using the catheter varied greatly. In 14 cases the patient did not use a catheter, although, in one case, the residual urine



Fig. 14.—Schematic longitudinal section of the urethra, showing the median enlargement enucleated beneath the urethra.

was 1,200 c.c. In 5 cases the urine escaped through suprapubic fistulæ. I have heard from all of these cases. None of them is using a catheter. The suprapubic fistulæ are all healed, and voluntary urination is present in all cases and but two or three complain that the stream is smaller than normal.



Fig. 15.—Photograph of large lateral lobes and median bar removed by suburethral method.

RESIDUAL URINE.

I know of no case that has more than 35 c.c. of residual urine. I have been able to examine about one-half of the cases and have found only once as much as that present, and in the majority there is no residuum. Those whom I have not seen have written me that they have every reason to believe that they can empty the bladder.

CAPACITY OF THE BLADDER.

The capacity of the bladder has much to do with the functional result.

In 10 of my cases the bladder was more or less markedly contracted before operation. In 3 cases calculi were present; the bladder held 50, 65 and 100 c.c., respectively; the first two were voiding urine very frequently and the third used the catheter every hour. After operation, all suffered from frequent urination. One remained for treatment and in one month his bladder capacity had been increased from 160 to 310 c.c., and the interval from one hour to three hours; residual urine, 8 c.c. One of the other cases, not treated, is able to void urine well and to empty his bladder, but the capacity is so small that he is compelled to urinate every half hour.

A very instructive case was that of a patient who came to the hospital very uremic, with a greatly distended bladder and pyonephrosis. Under continual catheterization, infusions and liquids he finally became strong enough for operation, but his bladder had contracted until it held only 30 c.c. Five weeks after operation he voided urine in a large stream, and there was only 20 c.c. of residual urine present. The bladder, however, will not hold over 150 c.c. on forced distension, and the patient has to void urine every hour and a half.

Another case had a vesical capacity of only 210 c.c. after operation but in four weeks the bladder was enlarged by twice daily forcible hydraulic dilatations up

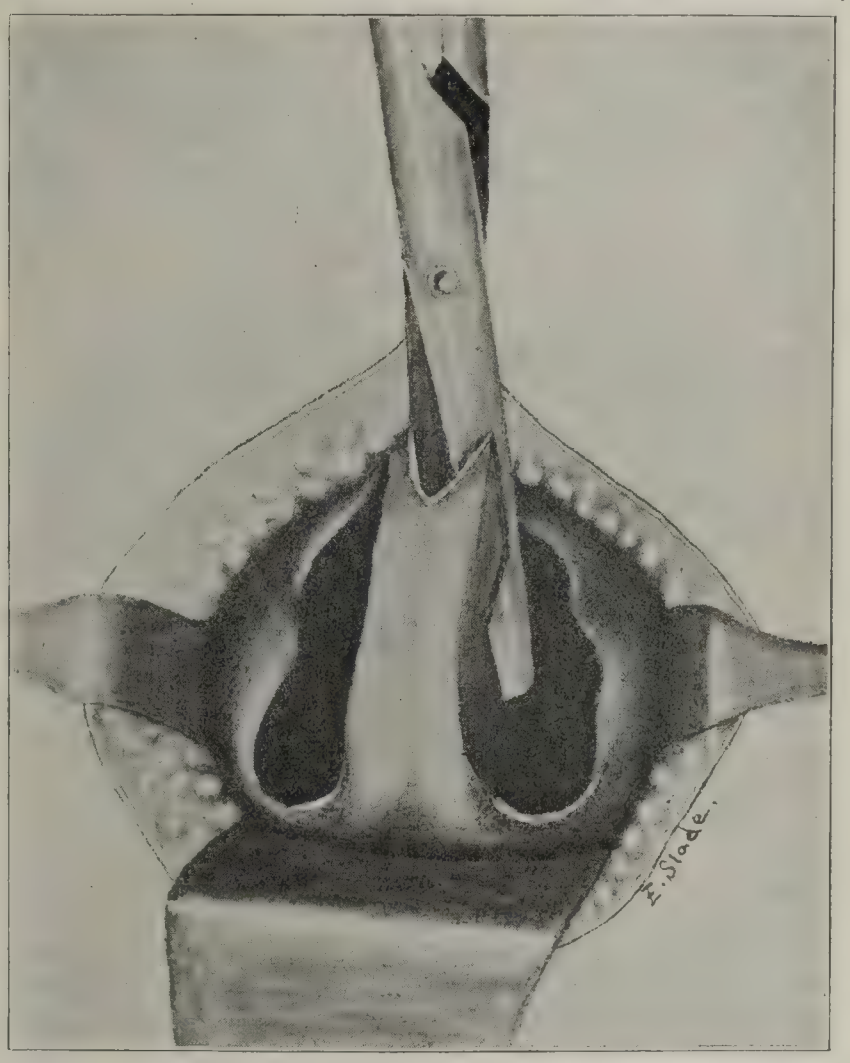


Fig. 16.—Division of lateral wall of urethra to allow extraction of large calculus through left lateral cavity.

to 460 c.c., and 19 months after operation he voided urine every six to eight hours.

I am convinced that several of my patients who now report frequency of urination could be restored to a normal interval by the dilatation treatment. This generally should not be begun until 5 or 6 weeks after the operation, when the fistula is firmly closed. Considerable pressure must be used, and it is necessary for the patient to endure a good deal of pain in order to accomplish results.

PRESERVATION OF SEXUAL POWERS.

I have tried hard to find out the exact status of the patients' *puissance* before and since the operation. This is a delicate question always, and one about which personal testimony is very likely to be slightly untrust-

worthy, perhaps unduly boastful on the one hand, or too melancholic on the other.

Of the 50 patients 22 claimed to have normal sexual powers. I have tabulated the answers received from these as follows:

Under 50 years of age, 4: Erections present in 3, two of whom reported coitus normal. The third has not yet attempted intercourse. The fourth, who has had no erections, suffered severely from sexual neurasthenia which was aggravated by the operation, and he now claims to be unable to ride in a buggy on account of the pain produced, although he is apparently well.

Between 50 and 59 years of age, 6: Erections present in all. Coitus normal in 5, not attempted in the sixth.

Between 60 and 70 years of age, 7: No answer from two. Erections present in 3, of whom 2 have not attempted coitus, and the third reports intercourse and ejaculations normal, although he is 67 years of age.

Between 70 and 79 years of age, 5: Erections present in 2, one of whom, although 78 years of age, still indulges in intercourse. Erections not present in one. Two cases too recent to be included.

Ten patients reported the sexual powers impaired before operation; of these four are too recent to be counted (under three months). Three have had erections, one nocturnal pollutions, but none have attempted sexual intercourse. Seven cases who acknowledged to have lost their *puissance* before operation were aged, respectively, 60, 63, 70, 72, 77, 78 and 82.

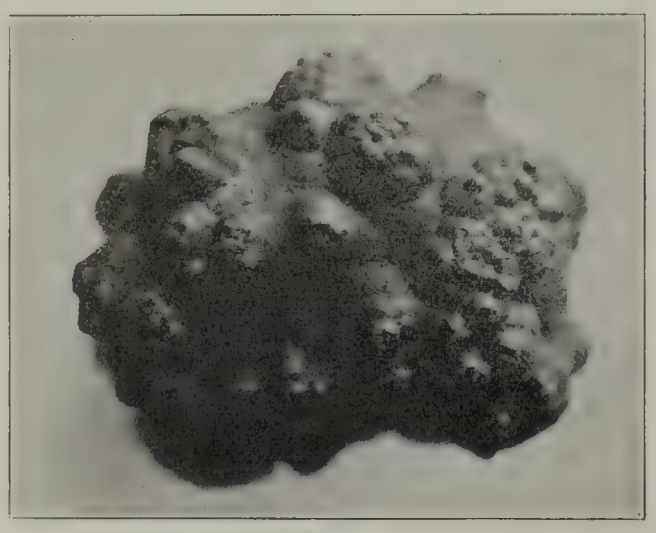


Fig. 17.—Photograph of stone (natural size) removed through lateral cavity.

In thirteen cases, unfortunately, no notes are obtainable on these points. In several of these prostatectomy cases I have found spermatozoa in the ejaculated fluid, in two cases the spermatozoa being actively motile. These results are certainly in marked contradiction to the experience of Proust, who says: "It (prostatectomy) suppresses totally, not only the ejaculations, but also the erection. Certain exceptions have beeen cited, but they have treated probably of incomplete operations. The erections which these patients have before operation are generally congestive. The *impuissance* of prostatics not only is probable before operation, but it is certain after. When the disease is in its incipiency and the patient is relatively young, this operative consequence should dictate abstention (from operation)."

When one considers the fact that most of my cases have been operated on in the past year and that in several of the early cases erections were absent for more than six months before they returned after operation, I think the prospect is very good for obtaining a high percentage in the preservation of the sexual *puissance* by the technic which I have here presented.

CLOSURE OF FISTULA.

Complete and final closure of the perineal urinary fistula occurred:

Within 2 weeks in 6 cases.
Within 3 weeks in 6 cases.
Within 4 weeks in 5 cases.
Within 5 weeks in 3 cases.
Within 6 weeks in 3 cases.
Within 8 weeks in 6 cases.
Within 12 weeks in 2 cases.
Within 17 weeks in 1 case.
Within 20 weeks in 1 case.

Closed but no note as to time .....7 cases.
Fistula still open.....3 cases.
Recently operated on....4 cases.
Rectal fistula present...4 cases.

In most of the cases the urine began to come through the penile urethra in a few days after removal of the perineal catheters, and in two cases, none escaped through the perineal wound after the eighth day. When the fistula persisted after three weeks, it was in nearly all cases a pin-point affair, through which very little urine escaped. In two of the three cases in which a fistula is still present only two or three drops of urine escape through it, but in the third about 15 c.c., came through. In one of these three cases a piece of gauze was unfortunately left in the wound for two months; none of them has been treated by me since the operation and I believe all would close promptly with appropriate treatment. In the third case it has been shown microscopically that the prostatic enlargement was carcinomatous.

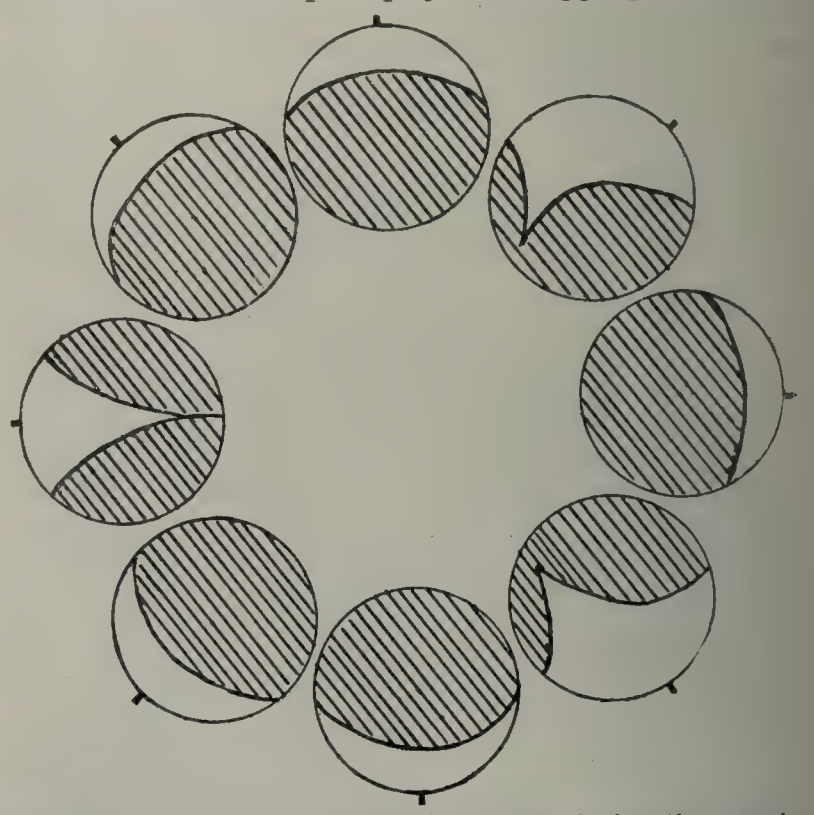


Fig. 18.—Record of cystoscopic views made during the examination of a case of median and bilateral hypertrophy.

In a recent case in which a fistula persisted for 5 weeks I employed with great success an instrument which I call a "fistula gimlet," which has been recently made for me (Fig. 20). It can be screwed into a very fine fistula and then forcibly drawn out, bringing with it the unhealthy granulations which line the fistulous tract and prevent its closure. In this case, the fistula closed at once after one such "gimlet curettage." The screw is made slanting so as to present cutting edges when drawn out without rotation. This trivial expedient, I believe, will prove of much use in hastening the closure of small fistulæ.

The presence of four cases of rectal fistulæ are results which I am extremely sorry to have to report. In two cases I am sure that no tear was made into the rectum at operation, as I made a careful examination to determine this before closing up. One of these patients had diabetes mellitus and the other was an extremely emaciated, weak old man. In the other two cases I am reasonably sure that the rectum was not torn into. One of these

patients was also very old, weak and emaciated, but the other was a sturdy subject, and we had every reason to expect his tissues to heal well. I believe that decubitus was responsible for the result in all cases, probably owing to too great pressure of the beak of the posterior retractor during operation, but possibly to an overabundance of gauze packing in the wound. Since having these bad results, I have been careful to place gauze only in the lateral cavities of the prostate, and not to allow any pressure to be made by it against the rectal wall.

In the fairly strong individual subsequent breaking down of the rectal wall ought never to occur; and, if one proceeds with care, hugs the bulb of the urethra, carefully divides the recto-urethralis muscle, which draws

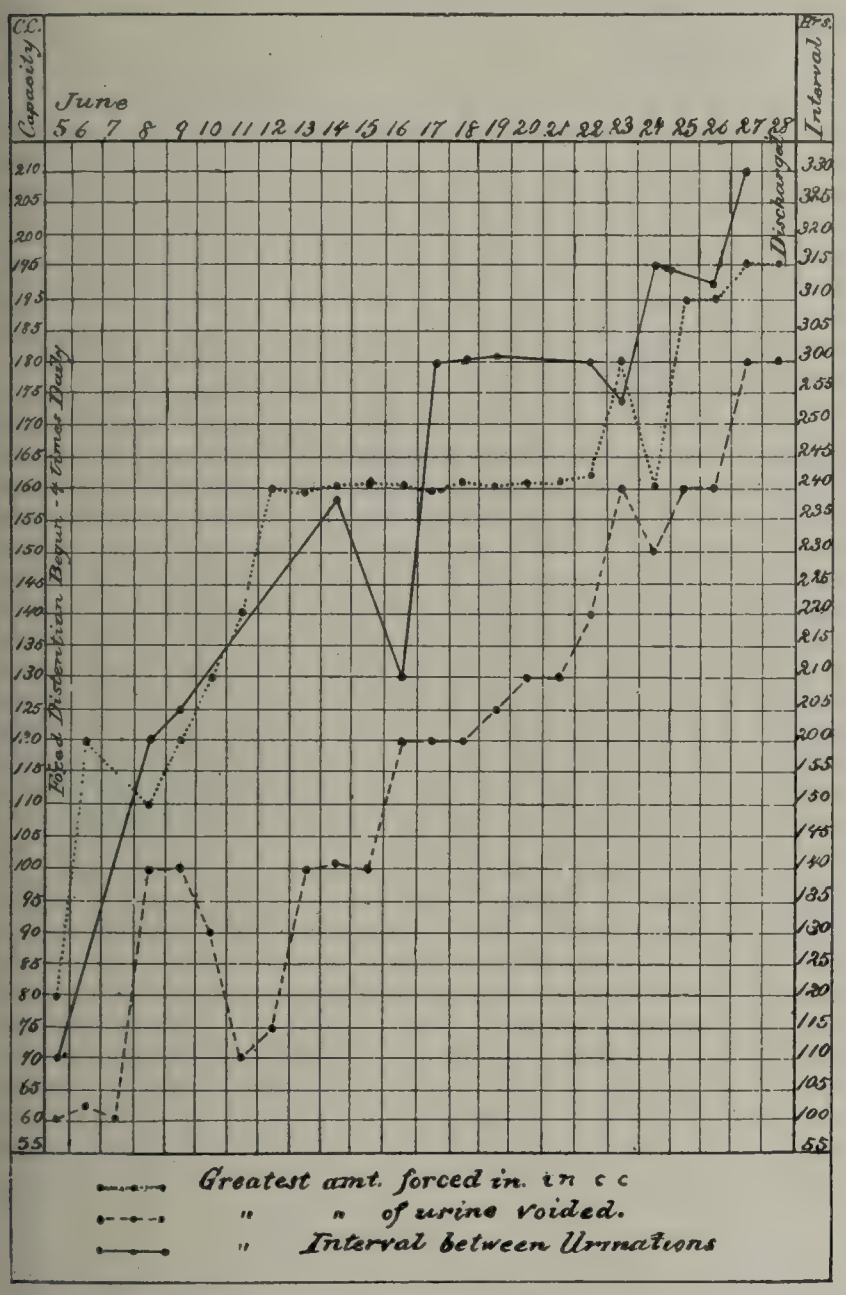


Fig. 19.—Chart showing dilatation of contracted bladder by hydraulic pressure.

the rectum forward, close to the membranous urethra and then retracts it with care, the rectum ought never to be injured in this operation. The great advantage in this anatomic technic is that it should be a safeguard against rectal injury and do away with the necessity of placing a finger in the rectum during the dissection, as is done by some.

In extremely feeble subjects, such as three of my patients were, decubitus may occur on slight provocation, and, on this account, the greatest care should be taken to give the rectum a wide berth and to avoid any great disturbance to its surrounding structures.

During the past five months I have been drawing the separated levator muscles together in front of the rectum, just before closing the skin wound, and during this time I have not had a case of rectal breakdown or fistula in about 25 cases. After the lobes have been enucleated and the rubber drains and the strip of gauze for each lateral cavity have been inserted, I draw a rubber glove on my right hand, insert the index finger into the rectum, and with the left index finger in the wound carefully examine the rectal wall by bidigital palpation. It is surprising to find how thin it is, as it lies in the bottom of the wound uncovered by the levators and it is easy to see how, if a mass of gauze is packed against it and no external muscular support is afforded (which it has normally), necrosis can occur, and fistula result. Rectourethral fistula has occurred after all the various methods of attacking the prostate through the perineum. Rydygier and Zuckerkandl, abroad, and Horwitz, Watson, Lydston and Morton of this country, have mentioned cases. It is the commonly accepted *bête noire* of the perineal route, has been since the days of the early lithotomists and will always remain so in the blind operations both of lithotomy and prostatectomy. I firmly believe, however, that if we see what we are doing, hug the bulb and the membranous urethra carefully, separate and push back the rectum with a broad flat retractor, pack only the lateral cavities and these lightly, and bring the levators together again in front of the rectum (restore the perineum, in fact), there will be no more cases of rectal fistula.

CONTINENCE OF URINE.

In many cases complete continence of urine is present as soon as the perineal tubes are withdrawn, the patient

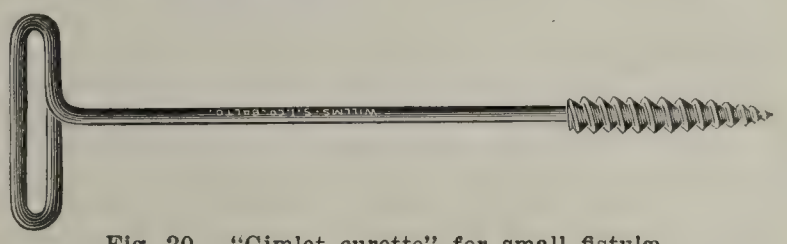


Fig. 20.—"Gimlet curette" for small fistulæ.

voiding urine through the wound voluntarily at stated intervals, and no incontinence being present. In other cases, slight incontinence may persist for a while, but it is generally weakness of the sphincters, appreciated only when the desire to urinate comes on. In only two of my cases does this persist, after seven months in both cases. In one, the interval between urinations is from five to seven hours, and in the other four hours. Neither have incontinence, but when the desire comes on there is likely to be a slight leakage unless the patient heeds the warning at once.

Only one case of even slight incontinence is present, and this is my oldest patient, a man of 83 years, who had a prostate weighing 240 grams, and a contracted bladder. He voids urine naturally at intervals of from 3 to 8 hours, but when the bladder becomes full, there is at times a slight involuntary escape of a little urine, but by wearing a small pad beneath a jock-strap, he is able to prevent any wetting of his clothes.

These results show that the incision into the membranous urethra does not weaken the sphincter and can not be considered an objectionable procedure. On the contrary, the direct dependent drainage provided through the urethrotomy is of very great value to both bladder and kidneys.

EPIDIDYMITIS.

This occurred in 12 out of 30 cases in Albarran's clinic, and led him to adopt the practice of ligating the vasa deferentia in the scrotum after completion of pros-

tatectomy. On this account Proust recommended ligation of the ampullæ of the vasa, back of the prostate, during operation, on the ground, in both cases, that the ejaculatory ducts, and along with them the sexual powers, had already been destroyed by the operation.

Epididymitis occurred among my 50 cases after operation—in two weeks in two cases, in three weeks in three cases, and after two months in one case. The bladder was infected in every case. In all these cases, only one side was involved, and four report that their sexual powers are now normal, and in one case I have found spermatozoa in the semen. In the past six months (during which I have removed the perineal drains in much shorter time), there has not been one epididymitis in about 20 cases. The preservation of the ejaculatory ducts intact and the abstention from instrumentation after operation seems well justified.

CONCLUSIONS.

In conclusion I may say, after about 200 operations for enlarged prostate, that perineal prostatectomy has proved, in my hands, the safest method for relieving prostatic obstruction; that it is a comparatively benign operation and can be employed in very aged patients (one was aged 85 years); that spinal anesthesia is a valuable adjuvant in feeble cases; that with appropriate retractors and tractor the prostate can be exposed almost by blunt dissection, no important structures being divided, and the enucleation of the enlarged lobes can be carried out under visual inspection in a shallow wound; that all forms of enlargement, even great intravesical middle lobes, can be drawn down and removed through the perineum, and generally without tearing the bladder, the urethra or the ejaculatory ducts; that the sexual *puissance* is thereby preserved in the majority of cases; that normal urination is established (may be after more than ten years of catheter life), and that incontinence is almost unknown; that the time has come for blind operations and the foolish fad of removing as much as possible of the prostatic urethra to end and for the surgery of the prostate to be done according to the dicta of modern surgery, under visual inspection and with due care of useful and non-obstructive tissues—the urethra and the ejaculatory ducts.

THE OPERATIVE TREATMENT OF CHRONIC SUPPURATION OF THE FRONTAL SINUS

WITH SPECIAL REFERENCE TO THE METHOD OF KILLIAN.*

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The present aspect of surgical interference in chronic suppuration of the frontal sinus is, from several points of view, a subject of deep interest to all of us, and, along with the surgery of the other nasal sinuses, the history of its gradual development is a very engrossing one. In connection with the advances in this department Americans have taken a prominent place, in proof of which I need only mention the names of Holmes and Lothrop, Douglass and Mosher, Howard, Ingersoll, Pearce and Bryan.

INDICATIONS FOR OPENING THE SINUS.

Before discussing the lines of treatment which may be adopted it will be advisable to briefly consider the indications which should guide us in opening the sinus. Recently there has been a tendency, at any rate in some quarters, to follow more conservative methods, and perhaps to refrain from operative interference unless there is present some definite indication for so doing. The somewhat numerous fatalities which have occurred after operation, the fact that relapses are not infrequently met with, and the possibility of considerable disfigurement attending a radical procedure are all factors which must naturally cause the surgeon to weigh carefully the circumstances connected with each case before he urges operation on his patient. The time, I hope, may come when a more extended experience and improvements in our operative technic will make it possible for us to confidently recommend operation in every case, with the almost certain knowledge not only of obtaining a permanent cure, but of doing so with the smallest amount of disfigurement. In the meantime, however, we must recognize certain symptoms and local conditions which make surgical interference imperative; these are symptoms suggesting cerebral complication; pain usually of the nature of headache, which may be of a very severe and persistent type; distension of one of the bony walls of the cavity or the presence of a fistula discharging externally. If the general bodily health of the patient is evidently affected by the continued suppuration, or if he should suffer from great mental depression and anxiety regarding his condition, a state of affairs which sometimes exists in these cases, we should not refrain from urging the operation.

We frequently, however, meet with cases in which there are no symptoms present save a persistent nasal discharge of greater or lesser amount, which may cause comparatively little annoyance to the patient.

Are we to make it a routine practice to operate in all cases of this kind? Under circumstances such as these we should take the patient into our confidence, lay the pros and cons before him and leave the decision so far as possible in his own hands. In the event of his purposing to reside where surgical skill can not be readily obtained or if he meditates applying for life insurance, then our influence ought to be used in favor of operation. The question whether applicants for life insurance suffering from purulent discharge from one or more of the nasal accessory sinuses, should be accepted on ordinary terms has not hitherto received special attention. It is, however, a matter worthy of the consideration of the life assurance offices.

INTRACRANIAL COMPLICATIONS.

It seems to me that our attitude toward the class of cases in which a purulent discharge is practically the only symptom, would be considerably assisted by a better knowledge of the risk of the possible occurrence of intracranial complications.

Can we arrive at any definite conclusions regarding this? Opinions differ regarding the relative frequency of the onset of complications of this kind. Comprehensive data on the subject are difficult to obtain, consequently it is not easy to make a definite statement on the matter. It is true that since the publication of the valuable monograph of Dreyfuss in 1896 more attention has been paid to the nasal cavities as a primary seat of infection, but for a long time no systematic postmortem examination of the nose was made in cases of death from septic intracranial mischief. We have not here the same data to reason from as in the case of the ear, and a comparison between the relative frequency of the occur-

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904. This paper and that of Dr. Freudenthal were discussed together. The discussion and Dr. Freudenthal's paper will appear next week.

rence of endocranial complications following aural and nasal suppuration is hardly possible. The difficulty previously experienced in examining the accessory sinuses at the autopsy without disfiguring the face was doubtless one reason for overlooking this region. Possibly brain abscesses which have been regarded as "idiopathic," may have had their origin in nasal suppuration. All observers will, I think, agree in saying that suppurative middle ear disease is a more common affection than suppuration in the nasal accessory sinuses. This will still be admitted even if we exclude the large number of children among whom ear suppuration is so prevalent, a group of patients which can not fairly be used for comparison because the nasal sinuses have not yet developed. The statistics of most hospital clinics will, I think, prove this. A point which is less easy to determine is whether, granted that there are fewer cases of nasal sinus suppuration than of middle ear suppuration, does the same proportion of endocranial complications arise in the former as in the latter? Unfortunately we do not possess sufficient statistics to enable us to answer this with any degree of exactness.

The postmortem evidence of intracranial infection is somewhat meager. Newton Pitt,[1] who gives an analysis



Fig. 1.—Right frontal sinus, showing mesial recess and extension above left eyebrow. Patient twice operated on unsuccessfully by opening and draining. (Ogston-Luc method.) Failure due to non-recognition of recesses.

of 9,000 autopsies, found only one case of cerebral abscess due to nasal suppuration; the patient had had nasal polypi and ethmoid disease. Gowers[2] considers that chronic nasal disease is an occasional but rare cause of cerebral abscess. He states that in 240 instances of brain abscess the nose was the primary seat of infection in six, but the sinuses implicated are not specified. Treitel[3] found in 6,000 postmortem examinations three cases in which the intracranial mischief had its origin in the nose, namely, two of cerebral abscess and one with purulent meningitis. Wertheim[4] had access to the records of 10,394 autopsies; among these were 127 cases of endocranial suppuration. Fourteen were stated to be of nasal origin, but in six only was the exact mode of infection specified. In only three of these again was the frontal sinus the probable primary source of the complication.

The above figures contrast with those obtained post-

1. Brit. Med. Jour., vol. i, 1890.
2. Diseases of the Nervous System, 2d ed.
3. Berl. klin. Woch., No. 51, 1896.
4. Arch. f. Laryngol., 1901.

mortem in connection with middle ear disease. Thus in Pitt's examinations there were 57 cases of intracranial mischief consequent on aural suppuration. In the 240 cases of brain abscess referred to by Gowers, 102 were secondary to ear disease. Of 21 brain abscesses occurring in Treitel's statistics, seven were otitic in origin.

As the subject of this paper relates to the frontal sinus only, we will restrict ourselves in discussing the clinical evidence bearing on this point to the complications arising in connection with that cavity. If the other sinuses were included in our figures the total would undoubtedly be considerably increased, as a number of fatalities have now been recorded in connection with the sphenoidal and ethmoidal cells. Owing to the fact that different writers on this subject repeat the observations of previous authors the same fatalities are recorded more than once, so that the real total is overestimated.

In 1895 Kuhnt, in his work on the frontal sinus, collected seventeen cases of intracranial complication associated with suppuration in that sinus. In twelve of these the frontal sinus only was diseased, while of the remaining five there was associated suppuration in other

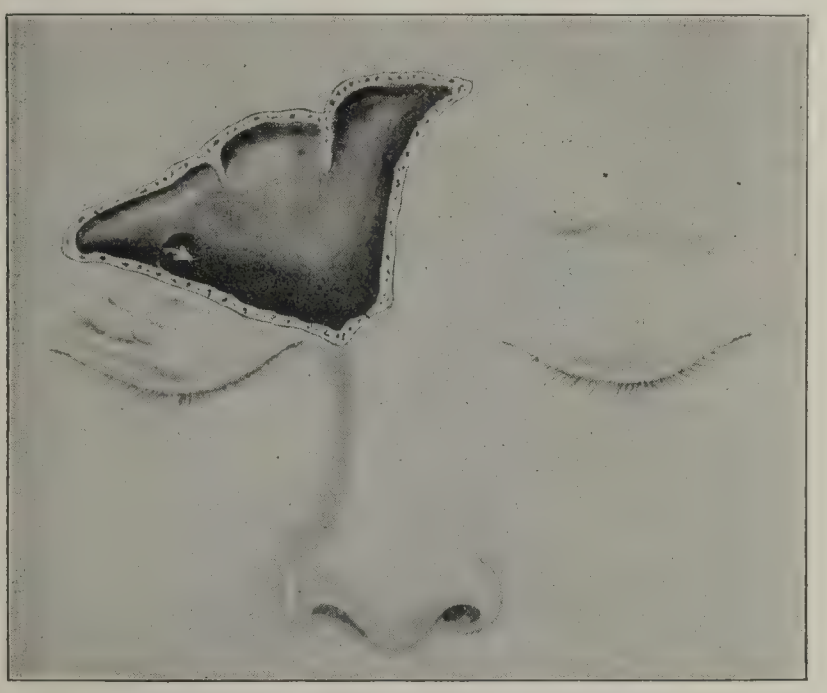


Fig. 2.—Right frontal sinus, showing orbital recess externally. Patient twice operated on unsuccessfully by opening and draining. (Ogston-Luc method.) Failure due to non-recognition of recess.

accessory cavities. Dreyfuss, in his monograph published in 1896, reported nineteen cases of a like nature following frontal sinus suppuration. These latter, however, are not to be regarded as being all additional to those reported by Kuhnt. Killian,[5] in his article on the frontal sinus, brings the total number of frontal sinus complications up to thirty. Since that date I have been able to add twelve additional cases not included in the statistics of the above named writers, making the total number forty-two.

So far as I have been able to ascertain, these are the main facts at our disposal, and therefore, unfortunately, we can not draw any definite conclusions as to the percentage of cases of frontal sinus suppuration in which intracranial complications arise. That they do occur there is ample evidence to show, and there is the possibility that they may even occur more frequently than the above figures would indicate. That, I think, is all that we can say, and looking, therefore, to this fact, it is our duty to keep in view the possibility of the occurrence of intracranial complications.

5. Heymann's Handbuch der Laryngologie, 1900.

INTRANASAL TREATMENT.

If we are not going to operate on our patient we must endeavor to maintain free drainage in the nose and not permit him to pass altogether from our observation. There is no doubt that in some cases the more aggravated symptoms are relieved and the state of the patient becomes more satisfactory when the intranasal condition is carefully attended to. If nasal polypi are thoroughly removed along with the anterior end of the middle turbinated bone, and the anterior ethmoidal cells opened into, better drainage may be established and the outflow of secretion rendered more easy. We have probably all seen cases in which the carrying out of this procedure has made the patient's condition more comfortable. In what proportion of cases a cure, as has been alleged, may result from intranasal treatment of this kind, is a matter which might form an interesting point for discussion. I am of the opinion that the number of such cases must be very small because both the anatomic configuration of the sinus and the pathologic changes which occur in its lining membrane in chronic suppuration militate against the chance of a cure merely from better drainage. It is necessary to bear in mind that the intranasal treatment outlined above should be carried out as a preliminary to an external operation on the sinus. Hajek,[6] however, takes a more favorable view of intranasal treatment; out of twenty-seven cases of chronic suppuration treated by intranasal methods, nine were completely cured; in eleven a mucopurulent secretion remained, while in seven no improvement was effected. In all of them, with three exceptions, the headaches disappeared. There were thus nine cases healed, while in eighteen the discharge continued. If, however, freer drainage from the sinus can be established in this way, it is possible that the risk of serious intracranial complications arising may be lessened.



Fig. 3.—A large anterior ethmoidal cell is seen invading the orbital plate of the frontal bone and lying below the frontal sinus.

OPERATIVE PROCEDURES.

Having decided on operation, what procedure are we to adopt? Notwithstanding the numerous operations and their various modifications that have been described, many of which are associated with the names of different surgeons, there are only two main principles involved. First, the sinus is opened and drained into the nose, but its cavity is preserved; or secondly, the sinus is obliterated by the removal of one or more of its bony walls, so that there is no longer a cavity to deal with. If the first principle is adopted whatever be the precise mode of procedure, we still have a sinus remaining, which may subsequently become the seat of fresh infection. Little or no disfigurement follows this method of operating. If, however, we carry out the second principle and obliterate the sinus, we remove all possibility of further suppuration in this locality. At the same time by doing this we encounter a drawback, viz., a varying amount of disfigurement, which in this region of the body is one of no small moment and which sometimes, indeed, assumes very considerable proportions. The questions, therefore, which have to be considered are, what cases, if any, are suitable for treatment by preserving the sinus, and secondly, how may we best obliterate the cavity and at the same time produce the minimum of disfigurement. Again, can any method be adopted by which we may combine all the advantages associated with each of these procedures and at the same time eliminate their defects? These are the main points to which I would ask your consideration in this paper.

6. Nebenhöhlen der Nase, 2d ed., 1903.

PRESERVATION OF THE SINUS.

The Ogston-Luc Operation.—It is quite unnecessary to present you with a detailed description of the operation so widely known under this title. Suffice it to say that it consists in opening the frontal sinus through its anterior wall, the size of the opening being relative to the dimensions of the cavity, in careful curetting of its interior and in establishing a large communication between the sinus and the nose, at the same time destroying the anterior ethmoidal cells in the region of the nasofrontal duct. Drainage into the nose is insured by the introduction of a strip of gauze through the nasofrontal aperture and the operation is completed by immediate suture of the skin incision.



Fig. 4.—Patient, young man, after opening and draining left frontal sinus. (Ogston-Luc.)

Probably no operation, or a slight modification of it, has been more generally accepted and performed on the frontal sinus, yet more extended experience and a careful consideration of the results obtained from it go to show that the class of cases which is really suitable for this procedure appears to be a comparatively small one. This is due mainly to anatomic causes. If we consider the variations in the configuration of the frontal sinus, its variable extension vertically as well as outward toward the temporal region, and, not the least important, backward along the roof of the orbit, we can readily appreciate the difficulty of thoroughly inspecting the cavity through a somewhat limited opening in its anterior wall. If we bear in mind, further, that the frontal sinus is not always a simple chamber, but, on account of the existence in many instances of incomplete bony septa and partitions in its interior giving rise to one or more

diverticula or recesses, it is difficult, and sometimes even impossible, to deal effectively with the whole cavity in this operation. These recesses are commonly met with in the external angle of the sinus and frequently in its horizontal or orbital portion. Both these situations are from their anatomic position very difficult of access. In consequence of this, pus and diseased mucous membrane may be overlooked and foci are left to cause fresh infection of the surface which has been curetted. Recesses may also exist in the vicinity of the septum between the two sinuses, and the non-recognition of these may cause the operation to fail.

Figures 1 and 2 illustrate some of these points. Figure 1 is an example of a case in which a recess formed by a partition lying close to and parallel with the septum led to an unsuccessful result. The patient had been operated on by two surgeons by the Luc method, and I believe that on each occasion the narrow mesial recess was overlooked and proved to be the cause of subsequent reinfection of the whole sinus. It was not until the entire anterior wall was removed that its existence was determined. It was then found that in addition to this the cavity (right sinus) extended into the left supra-orbital region. This latter diverticulum had also doubtless been overlooked. Figure 2 represents another sinus



Fig. 5.—Patient, young man, after opening and draining left frontal sinus. (Ogston-Luc.)

which had been twice operated on without success by merely opening and draining the cavity. After removal of the whole anterior wall at a subsequent operation, a well-marked diverticulum was discovered in the external part of the horizontal portion of the cavity.

Another difficulty which may present itself and which, if not recognized, must obviously lead to the failure of the operation, is the existence of a communication between the two sinuses through the intervening septum. Such an intercommunication, although it may doubtless occur, is not a usual anatomic condition, and I have never observed the septum to be incomplete in the normal skull. As the result of a pathologic process, however, the communication is sometimes found in cases of chronic suppuration and the opposite sinus becomes infected through it. It may not be easy to recognize the existence of such a communication through the limited opening which is made in the Luc operation, consequently the opposite sinus continues to discharge its purulent contents into the cavity which one has attempted to render aseptic.

There is still another point which calls for attention, since it may prove a source of weakness in this method of operating, and that is the difficulty of gaining sufficient access to the anterior ethmoidal cells. In a proportion of cases one or more of these cells extends outward into the orbital roof beneath the floor of the frontal sinus. An example of this is seen in Figure 3. Under these circumstances considerable dissection not only of the anterior wall, but also of the floor of the sinus is necessary before these cells can be recognized. Suppuration in the ethmoidal cells may be concomitant of chronic suppuration in the frontal sinus. Consequently, in seeking to establish a free communication between the sinus and the nose, an attempt must be made to destroy or remove the diseased ethmoidal air spaces which may otherwise prove a source of reinfection. As we shall see later the importance of dealing with these, has led Killian to resect the ascending process of the superior maxilla and thus gain more ready access to them.

ASSOCIATION OF FRONTAL AND ETHMOIDAL SUPPURATION.

It will not be out of place at this stage to examine

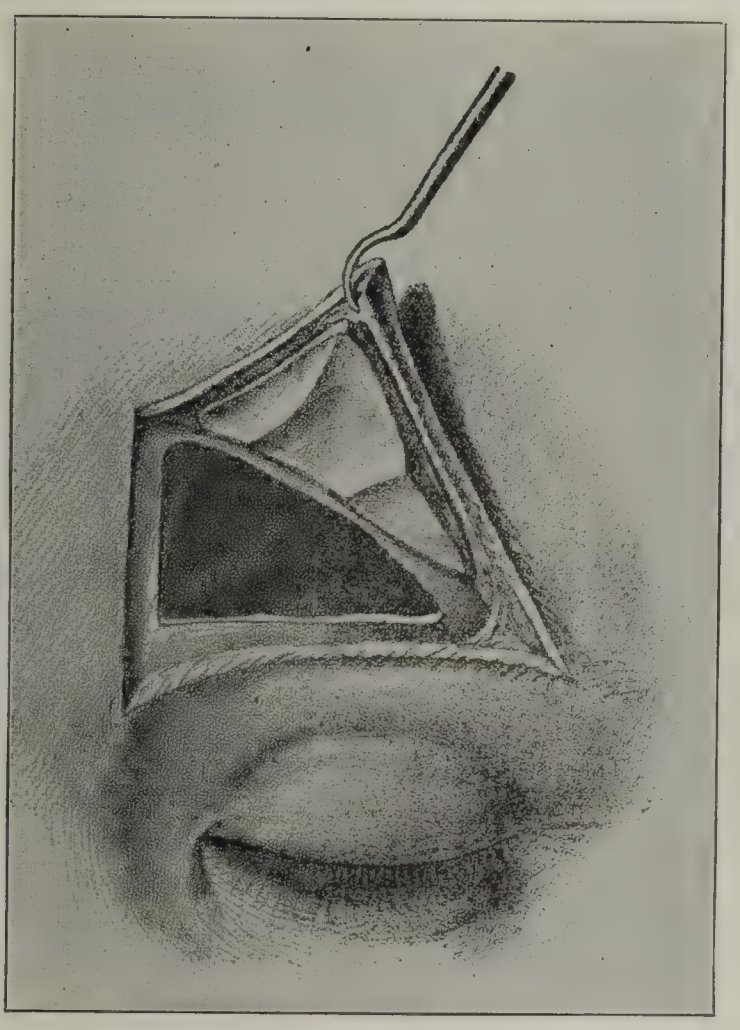


Fig. 6.—Osteoplastic operation on frontal sinus. Bone flap recommended by Hajek.

some of the published records bearing on the association of frontal and ethmoidal suppuration, and learn how frequently the two conditions coexist. When we come to study such figures as I have been able to obtain, relative to this point, we find that the experience of surgeons varies. Thus Jansen[7] in ten instances, Röpke[8] in thirty-seven, Killian[9] in sixteen and Luc[10] in four instances found the ethmoidal cells affected along with the frontal sinus. Walker Downie[11] in six cases has noted ethmoidal disease in five of them. On the other hand, Lermoyez[12] in thirty-six instances in which the frontal sinus was affected found only two with associated ethmoidal dis-

7. Arch. f. Laryngol., Berlin, 1894.
8. Jour. of Laryngol., London, 1899.
9. Arch. f. Laryngol., vol. xiii, No. 4, p. 1, 1902.
10. Ann. des Mal. de l'Oreille, December, 1902.
11. Glasgow Medical Journal, March, 1899.
12. Ann. des Mal. de l'Oreille, November, 1902.

ease; while Herbert Tilley[13] in twenty-five diseased frontal sinuses has noted six with ethmoidal suppuration. Milligan[14] has described in seventeen instances affection of the ethmoidal cells in nine, while of nineteen diseased frontal sinuses observed by myself the ethmoidal cells were also affected in eleven. In Wertheim's[15] post-mortem observations the ethmoidal cells were found affected in seven out of twelve cases.

We find on adding these figures together that in 172 instances in which chronic suppuration of the frontal sinus existed the ethmoidal cells were implicated in 107—i. e., 62 per cent. In other words, in 40 per cent. or less than half of the total number of cases of chronic frontal sinus suppuration, the ethmoidal cells were healthy, a larger proportion than perhaps is generally believed. It is difficult, however, to assign a cause for the great disproportion observed between the figures recorded by such observers as Jansen, Röpke, Killian and Luc on the one hand and those of Lermoyez and Tilley on the other.

RESULTS OF THE LUC OPERATION.

We have thus far indicated the anatomic features which may conduce to the non-success of the Ogston-Luc operation. It is necessary, however, to consider whether clinical observations justify us in regarding this operative procedure in an unfavorable light. In endeavoring to collect reliable statistics on this point a difficulty was at once met with, namely, information as to the exact method adopted by each operator. The kind of drainage employed and the treatment of the skin flap must be regarded as factors of considerable moment in the success or non-success of the operation. It is obviously unfair to adversely criticise a recognized operative procedure when in some not unimportant details the operation has differed from the lines laid down by the originator of it. For this reason the figures which follow are not large, as I have limited myself to those cases which undoubtedly appear to have been treated by the Ogston-Luc method. They may possibly be considered by some to afford a too limited basis for reliable deductions to be drawn from them. In all there are fifty-five cases. Of these seventeen are reported by Lermoyez[12] in the paper already referred to, nine of which were cured and eight relapsed. Lambert Lack,[16] who does not take a favorable view of this operation, treated eleven cases by this method, not one of which was completely successful. In four of them headache and pain were relieved, but the discharge, although much diminished, continued. In five no relief was obtained. Two cases terminated fatally. Luc himself has been disappointed with his results, having found it necessary to operate again more than once in some of his cases. An analysis of ten cases which came under my own care shows that six were completely successful. The cavity in all of these did not exceed ordinary dimensions, and in two of them it was of specially small size. In two there was also associated ethmoidal suppuration. Of the four unsuccessful cases, one had associated ethmoidal disease, while two others had been already operated on twice; neither of these had ethmoidal suppuration.

We find, however, that the operation has met with more success in some hands. Kuhnt[17] operated successfully in three cases, Grünwald[18] had six cases all successful, while Barbor and Furet[19] had no failures in eight cases. In summarizing these fifty-five cases we find that there are thirty-two cures and twenty-three failures, that is to say, a percentage of 58 successful operations. We shall see later how these results compare with the statistics of the obliteration method. Luc[10] himself now admits that the operation associated with his name has not given general satisfaction either in his own hands or in the hands of other operators. He considers it an ideal operation, however, only in certain cases, namely, when the dimensions of the sinus are limited, provided that the fronto-nasal canal is roomy, when the ethmoidal labyrinth is free from suppuration, and lastly, when the inflammation without being actually acute, has not persisted for more than a few months.



Fig. 7.—Patient, woman, two months after radical operation on large left frontal sinus (Killian method). A vertical incision was found necessary.



Fig. 8.—Profile view of patient, woman, three months after radical operation on large left frontal sinus. (Killian method.)

OPERATION FOR OBLITERATING THE SINUS. THE METHOD OF KUHNT.

Both anatomic and clinical evidence appear to be against the performance of an operation which does not permit of thorough inspection of the sinus and of the possibility of establishing a free communication with the nasal cavity by destroying the anterior ethmoidal cells should they also be diseased. In the majority of cases,

13. The Lancet, London, July, 1900, and Trans. London Lar. Soc., March 4, 1904.
14. The Lancet, London, February, 1898.
15. Arch. f. Laryngol., vol. ii, No. 4, p. 2, Berlin, 1901.
16. Edinburgh Med. Jour., vol. xi, 1902.
17. Die entzündlichen Erkrankungen der Stirnhöhlen, 1895.
18. Die Naseneiterungen.
19. Ann. des Malad. de l'Oreille, June, 1899.

therefore, we must seek for an alternative procedure by the carrying out of which the chances of failure and the risks of fatality are diminished. Experience goes to show that this is to be attained by obliterating the cavity of the sinus. In order to bring this about it is necessary to remove the whole of its anterior wall and also to a greater or less extent its floor. The removal of the floor is a valuable addition to the operation, I think, in those cases in which there is considerable extension of the sinus along the orbital roof. The removal of all the bone between the sinus and the soft tissues of the orbit is a guarantee that any ethmoidal cell extension into the roof of the orbit has been destroyed. Some operators, however, consider the removal of the osseous floor unnecessary. By this radical procedure we are able to thoroughly inspect the whole interior of the cavity, however large it may be, and no recesses can escape our observation. Further, the septum between the two cavities may be examined, and, as I have already said, the presence of ethmoidal cell extension into the orbital roof will thus not be overlooked. By this means also easier access is obtained to the ostium frontale and the diseased ethmoidal labyrinth may be more freely dealt with. Finally, we have the satisfaction of knowing that there is no longer a frontal sinus in which to fear recurrence of suppuration. In other words, therefore, if an operation of this kind, or some slight modification of it, such as the individual operator may think fit to apply, be performed, we eliminate all the defects and weaknesses of the less radical procedure.

If we now consider the curative results from the more radical methods, that is to say, in those cases in which the cavity of the sinus is obliterated, we find that the figures compare very favorably with those obtained after the Luc operation. My statistics are based on the results obtained in sixty-seven cases. Kuhnt has reported ten successes in ten cases operated on, and Röpke[8] was successful in all of his twenty-five cases. Lermoyez[12] had eleven cures in eleven cases of chronic fontal sinus suppuration; five of these had been operated on by the Ogston-Luc method, but had had recurrence of suppuration in the cavity. Lambert Lack[16] operated successfully in nine cases, and expresses the opinion that this method of dealing with the sinus is the most reliable. Hajek[6] obtained eight cures in nine cases, and Herbert Tilley[13] has recently published three cases, in all of which ethmoidal suppuration was present, and in which an excellent result was obtained. Of the sixty-seven cases here referred to a cure was effected in all but one, thus showing a very marked difference in the results as compared with the percentage of cures by the previous method. These figures are striking and though the total number of cases recorded here is not large, yet collectively they furnish sufficient evidence as to the respective merits of the two operations, so far, at any rate, as regards the cure of the condition. The question of comparative cosmetic results will be discussed later.

POSTOPERATIVE MORTALITY.

The comparison of the relative value of the two methods of operating is not complete, however, without consideration of the fatalities which have occurred after operative interference. Probably there are few surgeons, experienced in dealing with this class of cases, who have not had the misfortune either to lose a patient themselves, or to see a fatal result occur in the practice of one of their colleagues. A very considerable number of deaths have followed operation on the frontal sinus, and on that account we must necessarily regard it as one of the major operations in surgery. It is impossible to state with any degree of certainty how many fatalities have occurred, as there must be many cases which remain unrecorded. I have succeeded in collecting twenty-four, in which death followed operation on the frontal sinus. Of these sixteen have already been published, while I have information regarding eight others. Possibly others have been published, but I have not been able to obtain access to the literature dealing with them. The fatalities have been recorded by Luc,[20] Lermoyez,[12] Tilley,[21] Lack,[16] Rudloff,[22] Jaques,[23] Knapp,[24] Gibson,[25] Thiele,[26] Bryan and Gruening.[27] It is possible that in the cases reported by the two last mentioned observers the infection may have spread to the intracranial structures from the ethmoid cells, which were affected along with the frontal sinus.

The clinical picture presented by the majority of these cases is very similar. The infection which finally leads to the fatal result occurs, I think, at or within two or three days of the operation. The diploë of the frontal bone is invaded by the organisms and an osteomyelitis is in the first place set up. The infection spreads thence, on the one hand, through the outer table of the bone, giving rise to subperiosteal abscesses beneath the scalp; on the other hand it passes inward and may subsequently give rise to extradural or subdural abscess, general meningitis or cerebral abscess, the patient succumbing to one or more of these conditions, or to a general septicemia or pyemia after a varying number of weeks or months. Once an osteomyelitis of the frontal bone has become established, the prospect of cure by surgical interference is apparently hopeless. It commences insidiously and before the general symptoms and local signs are such as to permit of an exact diagnosis being arrived at the disease in the bone has made considerable progress. Even the most active treatment and apparently thorough removal of the bone in the neighborhood of the sinus fails to stem the slow but steady advance of the inflammatory process. In a case of this nature occurring under my own care no untoward symptoms supervened until the tenth day after the operation, when the temperature, which was previously normal, suddenly rose and some edema of the scalp was visible above the limits of the sinus. Subperiosteal and extradural abscesses formed and in spite of extensive removal of the frontal bone the patient finally died from pyemia after three months' illness. In Tilley's[13] case also symptoms developed ten days after the operation on the sinus and death took place after a protracted illness lasting for nine months.

An analysis of the fatal cases affords instructive reading when considered from the point of view of the nature of the operation performed. Of the twenty-four fatal cases there are twenty-three in which I have information regarding the operative procedure adopted. Of these seventeen, or 74 per cent., occurred after opening and draining the sinus (Ogston-Luc). Further analysis of this number brings out the fact that in fifteen death followed a single operation, while in two, more than one operation had been performed owing to the failure of the first to effect a cure of the suppurative condition. Of the remaining six of which we have notes all proved fatal after an operation for obliteration of the sinus, i. e., 26

20. Arch. de Laryngol., Jour. of Laryngol., 1899.
21. The Lancet, August, 1899.
22. Jour. of Laryngol., 1899.
23. Rev. Hebd. de Laryngol., August, 1903.
24. Arch. of Otology, 1903.
25. Ann. Jour. Med. Ses.
26. Arch. f. Laryngol., vol. iv, No. 3, 1903.
27. N. Y. Med. Record, 1904.

per cent.; in three of these, however, simple opening and draining had been previously performed without success, the more radical method having been a secondary procedure. It is evident, therefore, that a considerably larger proportion of fatalities have occurred after the Ogston-Luc operation than after the operation of obliteration. I think that the question of a second operation on the same patient is one of some importance relative to the mortality. We naturally ask ourselves, Is the patient placed in a worse condition for further interference if the previous operation has proved a failure? Of the comparatively small number of fatalities quoted above, no fewer than five of the patients had been subjected to two or more operations by the Luc method. Three of these subsequently underwent the obliteration operation and died. I am, therefore, inclined to think that multiple operations exercise a detrimental effect, although we know of cases which have successfully undergone the simpler procedure and have been finally cured by more radical methods.

The presence of a discharging fistula in the forehead as the result of failure to cure the sinus suppuration must place the patient in a less satisfactory condition for further interference than if the skin remains unbroken. In the fatal case under my own care, to which I have already referred, there remained as the result of two unsuccessful Luc operations a permanent fistula in the line of the eyebrow discharging pus. At intervals there was considerable phlegmonous swelling of the scalp covering the lower part of the forehead, and it is possible that the bone forming the anterior wall of the sinus had already become the seat of septic infection. If we can satisfy ourselves that a patient in this condition is more prone to such fatal complications as we have enumerated, and if further operative measures are undertaken, then we have still another argument against the Ogston-Luc procedure. Not only does it give a greater number of failures, but it jeopardizes the non-successful case which will subsequently require more radical treatment.

In order to avoid the occurrence of such fatalities it is very necessary to try and determine when and how the infection takes place which leads to the spread of the septic process. A careful study of failures in the past should be the stepping-stone to future success.

I am of the opinion that in those unfortunate cases in which death results the inflammatory condition is lit up during the operation. The granulation tissue in the sinus which has hitherto formed a barrier to the invasion of the organism is broken down, and thus a path is opened which readily admits of their further spread in the frontal bone. I am now in the habit of using small flushing spoons while removing the diseased mucous membrane, a constant stream of warm sterile saline or boracic acid solution thus constantly playing on the surface of the bone. In this way an attempt is made to remove all septic material at once from the wound and thus to lessen the risk of further spread. If the patient's head is at the same time kept dependent the lotion readily flows over the vertex, so that the eyes are not exposed to the risk of infection. When curetting of the sinus is not complete we have a state of affairs present which must necessarily increase the chance of a dangerous complication arising. Foci of septic material are left, which may readily contaminate the newly exposed bone in the neighborhood. It is possible, as Lack has suggested, that the organisms may invade the anterior osseous wall of the sinus and thence spread directly into the vertical portion of the frontal bone. The density of the bone forming the anterior wall of the sinus varies considerably and in some instances presents a markedly diploic appearance. In neither of Lack's fatal cases was the mucous membrane of the sinus curetted, yet an osteomyelitis of the frontal bone supervened and death followed from intracranial complications. Tilley blames defective drainage into the nose, coupled with complete closure of the skin incision, as causes of disaster in these cases. Most surgeons will probably agree with the necessity of establishing free drainage, a point which has from time to time been insisted on by the majority of writers on the subject. In two of the unpublished fatal cases the operator informs me that no sutures were placed in the skin incision. In one case he attributes the fatal result to defective nasal drainage; in the other, numerous ethmoidal cells extending into the orbital roof were overlooked and bone sepsis was thus set up.

Do statistics show that the mortality occurring after operation is less in the last two or three years than it was previously? Is a riper experience leading to uniformly better results? While I think we may certainly answer the second question in the affirmative, one must admit that of the twenty-four fatal cases which have formed a basis for my remarks, no fewer than nine have occurred during the last two years. It is not my intention to overestimate the grave risks which may attend operation on the frontal sinus, nor would I have it inferred that because any one procedure has been followed by a certain number of fatalities that consequently it must no longer be attempted in suitable cases. Further, unfortunate accidents of this nature should not lead us to decline to operate on our patients should they desire relief at our hands. On the contrary, our failures should stimulate us to better work, because there is no better school than the school of experience. They should be the means of insuring more certain success in the future and we should do all in our power to improve our operative technic and at the same time be careful to carry out the most rigid asepsis in its minutest detail.

DISFIGUREMENT.

There is, however, another very important aspect of this subject, and that is the question of disfigurement. No operation on the frontal sinus can be undertaken without this point presenting itself, and it is mainly for this reason that the subject has been so much debated. Were it not for this important consideration, much that has been published on the surgery of the frontal sinus would never have been written. If the surgeon is given a free hand by his patient and is asked to effect a cure regardless of disfigurement, there is no question that he will prefer to obliterate the sinus entirely and thus make any further trouble impossible. It is only occasionally, however, that the position of affairs is so satisfactory, the question of age, sex and social relations as a rule playing an important part. Consequently it is our duty to seek to obtain the maximum amount of success with the minimum of disfigurement. There is no doubt about the cosmetic advantages of the operation performed according to the method first practiced by Ogston-Luc. The preservation of the anterior wall of the sinus and the immediate closure of the eyebrow incision may be followed by such excellent results that in the course of time it may be impossible to observe any difference between the two sides of the face. Figures 4 and 5 illustrate patients whom I have operated on by the Luc method. It is unfortunate that equally satisfactory curative results can not always be obtained by this procedure.

With the obliteration of the sinus, on the other hand,

and the necessary removal of its anterior osseous wall, the contour of the forehead is to a certain extent destroyed. There consequently follows a greater or lesser degree of disfigurement, depending more on the antero-posterior depth of the cavity than on its superficial extent. The deeper the sinus the greater is the amount of the sinking in of the overlying soft tissues, and consequently the more pronounced is the subsequent depression. There is, however, undoubtedly considerable difference to be observed in the results obtained, a difference depending partly on the natural contour of the forehead in different individuals, the depth of the sinus and undoubtedly also on the possibility of the surgeon being able to leave more of the bony floor in one case than in another. As regards the skin incisions, if made in the line of the eyebrows, or even when a vertical incision is employed in one of the natural hollows, they are practically invisible, so excellent is the healing in this vascular region.

It is sometimes advanced as an argument against interference with the osseous floor of the sinus that diplopia or double vision may be produced from interference with the pulley attachment of the superior oblique muscle. This complication undoubtedly occurs in some cases. In one case detachment of the pulley may be followed by temporary interference with vision; in another no such effect is produced. It does not, however, as a rule, appear to be more than a transitory complication, and we must not regard it in the light of a contraindication to radical treatment. My own experience would lead me rather to regard detachment of the superior oblique muscle in a less serious light than some have done.

We have now discussed more or less thoroughly the arguments for and against carrying out one or other of the two principles formulated in the early part of this paper. We naturally ask ourselves whether there is not some procedure which will give us all the advantages which attend the obliteration method of operating and which will, at the same time, give as nearly as possible the excellent cosmetic results obtained by the method associated with the name of Luc. Such an operation, if applicable to every case, would certainly be ideal and would terminate the many discussions which have been held on this subject.

OSTEOPLASTIC OPERATION.

By means of an osteoplastic operation an attempt has been made to overcome some of the difficulties, and Schönhorn, Czerny, Brieger and Winkler have practiced such a procedure by raising a bone flap from the anterior wall of the sinus. Hajek,[6] too, describes this method as the one which he has frequently adopted. Having previously defined the limits of the cavity by means of the *x*-rays, he proceeds to raise a triangular flap of bone from the anterior wall along with the superimposed soft parts as illustrated in Figure 6, taken from his work. Good inspection of the interior of the sinus is thus obtained and the small pockets and recesses can be dealt with. In order to gain access to and deal with the anterior ethmoidal cells, he has found it necessary to partially resect the nasal process of the frontal bone, and he finally completes the operation by introducing a large drainage tube into the nose. The bone flap with its superficial covering is replaced and the drainage tube is worn for a period varying from six to twelve weeks.

In a sinus treated in this manner the healing process is necessarily slow, considerable time being required before the new epithelium completely covers the interior of the cavity. The cosmetic results are good, but as the sinus is not obliterated there still remains the possibility of reinfection. Hajek does not give any detailed account of his results, but merely states that since he adopted this method of operating they have been better. He carefully guards against making any definite pronouncement regarding the value of the procedure or as to the duration of the cure after osteoplastic resection. In two of his cases operated on in this way and treated for some months, recurrence of suppuration took place eight and nine months respectively after the operation.

KILLIAN'S OPERATION.

There still remains for our consideration another procedure which, although first described in 1895,[28] has only recently come more prominently before our notice.[9] I refer to the operation which is associated with the name of Gustave Killian of Freiburg. In the author's opinion it fulfills the two main requirements in these cases more than any other method does, namely, the radical treatment of the disease with a minimum of disfigurement. Satisfied on these points himself, Killian is prepared to recommend and carry out treatment even in cases of suppuration where there is no discomfort experienced by the patient beyond the presence of slight nasal discharge. Should a more general and extended experience prove equally satisfactory, it is possible that in the "Killian operation" we have at last obtained a method of dealing with chronic frontal sinus suppuration in large and complicated cavities, which may be regarded as the method par excellence.

The whole sinus with its recesses and partitions is thoroughly inspected and the cavity is almost completely obliterated by the resection of its anterior and inferior bony walls. Further, by the removal of the ascending or frontal process of the superior maxilla, excellent access is obtained to the ethmoidal cells and a large opening of communication is thus made between the frontal sinus and the nasal cavity, so that good drainage through the nose can be established. In order to reduce to a minimum the deformity which may follow so extensive a dissection, the supraorbital bony margin is preserved as a bridge between the gap formed by the removal of the anterior sinus wall on the one hand and the floor on the other.

The results of this procedure have apparently proved eminently satisfactory both as regards the cure of the condition and the final cosmetic appearances. This has been the case not only in Killian's own hands, but also in the hands of others who have employed it. Thus we find that of twelve cases operated on in this way by him all, with but one exception, healed satisfactorily. The failure was due to the fact that the opposite sinus discharged through an aperture in the septum and so reinfected the area of operation. After this had been attended to a cure resulted, so that we may regard all the twelve cases as successful. Luc,[10] who has of late adopted this method of operating, informs me that of ten cases treated in this way nine were cured. In the tenth a fistula remained at the inner end of the scar, which he was unable to close owing to the patient being obliged to leave Paris. Thiele[26] reports six cases; in four a cure was obtained after one operation; in one, owing to failure in removing a part of the floor of the sinus and a pocket being thus left, a second operation was necessary, but at the time of writing sufficient time had not elapsed to admit of his recording it as a satisfactory result. In the remaining case death occurred

28. Münch. med. Woch., No. 28, 1895.

apparently from meningitis four days after the operation. This case is included among the deaths already referred to. Siebenmann[29] has been thoroughly satisfied with the results which he has obtained by this method. In a case operated on by myself a few months ago an excellent result has been obtained. Of the twenty-nine cases above specified in which Killian's method was practiced, twenty-six were cured, or 83 per cent.

The cosmetic results have also proved to be very encouraging. By leaving the supraorbital margin, the contour of the eyebrow is preserved and the depression which attends complete removal of the anterior and inferior walls of the sinus is undoubtedly minimized. Killian considers that there is less disfigurement after the removal of both the anterior and inferior walls than when the anterior only is resected. The orbital tissues take a considerable share in the filling up of the sinus area, so that the sinking in of the soft parts covering the vertical portion of the sinus is thereby reduced. One can not fail to be struck while carrying out the operation, both in the living and on the cadaver, with the ready manner in which the orbital fat rises up into the horizontal part of the cavity on removal of the bony floor of the sinus.

If the cavity is a deep one it is impossible to avoid some degree of flattening above the supraorbital margin; in order to diminish this as far as possible it is advisable to bevel the cut edge of the anterior wall at the upper margin of the sinus. In some cases where the sinus is deep and the septum between the two cavities is consequently prominent, the scalp may not fall satisfactorily against the posterior osseous wall of the sinus, so that a small cavity may persist in this situation. When the operation is performed on both frontal sinuses Killian advises the removal of the intervening septum on the ground that the depression which follows presents a more uniform appearance than when the septal ridge is preserved. Both Luc and Thiele comment favorably on the cosmetic results in their cases. Figures 7 and 8 represent a patient as seen three months after operation and the disfigurement is not marked. The removal of the ascending process of the superior maxilla does not lead to deformity. It has been urged against the Killian method that the incision carried downward on to the face is a disadvantage, but the skin wound there, like a vertical incision on the forehead which is sometimes practiced in frontal sinus operations, heals so readily that no appreciable scar is left.

The remarks which we have already made regarding the occurrence of diplopia apply equally in this connection. It may occur as a temporary drawback, but I am inclined to the opinion that there is an exaggerated fear regarding the production of this complication. Killian met with slight transient iritis in three of his cases, but by the prophylactic use of atropin this can be avoided. I have never met with this complication after extensive operations on the sinus. Great care, however, should be taken to handle the eye as little as possible and to avoid any undue pressure on it. The operation no doubt exposes the eye to the risk of injury and is more delicate to execute, is more laborious, and also occupies a longer time, but if better cosmetic results and a permanent cure can be obtained by it, such disadvantages must not be regarded as contraindications.

If exception is to be taken to any one point in the procedure, it seems to me that it lies in the fact that the cavity is not completely obliterated. A space remains behind the inner end of the bridge which continues to secrete and discharge a certain quantity of pus until a new lining membrane growing upward from the nasal cavity has completely covered the granulations. It is true that this cavity is merely a diverticulum of the nasal chamber and is accessible from it, but it prolongs the healing process, and two, three or more months may elapse before that is completed. Luc pays considerable attention to the after-treatment of these cases. The crusts which form in the frontonasal region are removed daily and a tampon of wool soaked in peroxid of hydrogen or in a weak iodin solution is carried upward into the cavity which is left. He lays considerable stress on the necessity of keeping the scalp in close apposition with the posterior wall of the sinus by means of a firm bandage maintained for a considerable period of time, a procedure which I would certainly indorse. It is very necessary that this apposition of surfaces should be accurate, so that the upper part of the cavity may be completely obliterated.

29. Arch. f. Laryngol., vol. xv, 1904.

GENERAL CONCLUSIONS.

Certain general conclusions may be drawn from a study of this subject. In the first place it will be admitted, I think, that there is no single method of procedure applicable to all cases of chronic suppuration in the frontal sinus. When the sinus is a small one and we feel confident that we have thoroughly inspected it through the aperture made in the anterior wall, and when no ethmoidal disease coexists, simple opening and draining by the Ogston-Luc method may prove satisfactory. In these cases it is very necessary to insure a permanent communication between the sinus and the nose. On the other hand, we may prefer to obliterate such a cavity without incurring the risk of much disfigurement. In every other class of cases I would recommend and practice obliteration of the sinus.

The whole cavity may thus be thoroughly inspected and its recesses and bony partitions dealt with; better access to the ethmoidal cells may at the same time be obtained and a large communication made with the nose by resecting the frontal process of the superior maxilla. If the sinus is shallow and the supraorbital region is not prominent, it is unnecessary to preserve the bridge of bone. If more extended experience will show that the operation suggested by Killian provides satisfactory curative results with less disfigurement than is associated with other radical methods, then we probably have at our command an operative procedure which will take the first place. Whatever be the exact radical procedure adopted, there is no doubt of the value of removing the ascending process of the superior maxilla in order to gain better access to the ethmoid labyrinth and nasal cavity.

I am fully aware of the fact that this paper can not be regarded as a complete exposition of the subject. There are some points which have only been briefly touched on, and there are others which have not been considered at all. I have endeavored to place before you the broad principles which should guide us in dealing with these important and often troublesome cases. Questions of detail depend to some extent on individual operators and are points which may be conveniently taken up in the subsequent discussion.

It seems to me that the time has come when a collective investigation into the results of surgical interference on the frontal sinus and possibly also on the antrum might prove of the greatest value. Lack of sufficient opportunity has hitherto prevented me from undertaking

this, but if we could obtain a really accurate report of the chronicity of the cases, the number of sinuses affected, the surgical method employed in operating, the treatment of the wound and the results obtained as regards cure, relapse, the amount of disfigurement produced and a fatal issue, we would possess a valuable guide for our future work. The statistics which I have quoted here are of a somewhat fragmentary nature and are gathered from the work of a comparatively small number of men. Perhaps the time is not far distant when we may be the fortunate possessors of the information to which I refer. It should be the aim of all of us to so perfect our methods that we are able to operate on every patient with frontal sinus suppuration, confident that we will effect a cure with the minimum of disfigurement.

In conclusion I wish to acknowledge the valuable assistance which I have received from my friend, Mr. John Grieve, in the preparation of a number of my photographs, and to express my thanks to Prof. D. J. Cunningham of the University of Edinburgh for the opportunity kindly afforded me for dissection on the cadaver.

DEMENTIA PRÆCOX.*

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PHILADELPHIA.

In the writings of some of the earlier authors, notably Pinel, Spurzheim and Esquirol, we find that they recognized the affection now so widely known as dementia præcox. This recognition was, to be sure, vague and imperfect; the affection was naturally confounded with other dementias, paretic, organic and alcoholic and yet these early writers were aware that there was a form of idiocy which was not congenital, and which supervened only after the organism had attained a certain degree of development. Spurzheim, for instance, speaks of an "accidental idiocy," while Esquirol speaks of "accidental and acquired" idiocy; thus the latter says that there are children who are very well at birth, who increase in stature at the same time that their intelligence develops and who are very sensitive, lively, irritable, passionate and possessed of a brilliant imagination, a developed intelligence and an active spirit. This activity, not being in relation to the physical strength, these creatures use themselves up, they rapidly exhaust themselves, the intelligence becomes stationary, they acquire nothing more, the hopes to which have given rise vanish, while they finally pass into a terminal period of dementia. Subsequent writers recognized similar conditions, e. g., Rousseau and Moreau, though the former regarded primary dementia of the period of puberty as very rare, while the latter declares that such cases (early mental maturity and later idiocy) are very frequent. Morel,[1] under the title of "Hereditary Insanity, with Limited Intellectual Existence, Tendencies, Precocious and Innate to Disease, Transition to Idiotism, the most Irremediable, under the Influence of Certain Intercurrent Causes, etc.," describes cases which clearly belong to the hebephrenic or simple form of dementia præcox, and in commenting upon them, he says that a sudden immobilization of all of the faculties, *une démence précoce,* indicates that the young subjects have reached the termination of the intellectual lives of which they are capable. They live intellectually only up to a certain age, after which arrest takes place and they fall progressively into a state which he can only compare to idiocy. To Morel belongs the credit of having first made use of the expressive designation *démence précoce,* and it was Arnold Pick of Prague who first employed its Latin equivalent, *dementia præcox,* now so largely used. Pick described a number of cases clearly belonging to this group of affections.

It is not necessary to dwell here on the epoch-making studies of Kahlbaum, who first differentiated hebephrenia and catatonia (1863, 1874) from the great mass of demented cases, nor is it necessary to speak of Hecker's historical study of hebephrenia (1877). Time and the object of this paper also forbid comment on the writings of subsequent authors.

There is one author, however, whose name must be mentioned, for he has made the domain of dementia præcox peculiarly his own. His views, novel and striking, at one and the same time excite our admiration and challenge our criticism. It was Kraepelin who first gave to the term dementia præcox a broad interpretation. His point of view appears to have been reached by a process of gradual development. In the fifth edition of his Psychiatry, he still makes use of the term dementia præcox as designating a form of mental disease practically the equivalent of the hebephrenia of Hecker and Kahlbaum, and he limits the term to this designation. In this edition (the fifth) catatonia is still treated separately and not embraced under the heading of dementia præcox, and the like treatment is accorded to dementia paranoides. In the sixth edition, however, of his work, Kraepelin greatly expands the term dementia præcox; in fact, he gives it a new meaning. He no longer describes a specific form under this name, but applies it equally to hebephrenia, catatonia and dementia paranoides; in other words, these diseases are now treated by him as only so many different forms of one affection. It is difficult to speak in moderate terms of the value and importance of this brilliant generalization. It has served to greatly reduce the difficulty of study and classification, and even of prognosis. Furthermore, it has enabled us to give to certain symptoms a fundamental value and to others a value merely secondary—in other words, to properly co-ordinate related facts.

However, this change, and the present status of the subject, makes it imperative that certain important points should be considered. To begin, the name itself, dementia præcox, demands discussion. The term "dementia" implies of necessity a downward or degenerative process; in the psychiatric mind it is associated with the mass of hopeless terminal demented states which are met with in the asylums, and yet, as a matter of fact, it is known that a history of persistent or permanent mental loss by no means always obtains in dementia præcox. Every asylum will bear witness to the fact that cases of hebephrenia and catatonia do recover, while even a larger percentage of recoveries (among hebephrenics) is noted among the milder cases, whose condition does not demand asylum commitment, i. e., the extra-mural cases. While it is true that in the great majority a hopeless dementia is the final outcome, still Kraepelin himself admits a not small percentage of recoveries, 8 per cent. for hebephrenics and as high as 20 per cent. for cata-

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Traité de Maladies Mentales, pp. 562 to 566.

tonics—though he considers the possibility of recurrences.

If recovery takes place at all in dementia præcox, surely the term dementia is inappropriate; the objection to its use is not only scientific but ethical. Far better is it to employ a term such as *das Jugendirresein* of German writers,[2] a term the English equivalent of which is the insanity of youth, or better still, the insanity of adolescence. The term dementia præcox conveys, in its very sound, an unfavorable prognosis; not so with the term insanity of adolescence. This presupposes nothing as regards the future, and leaves the question of recovery to be determined by the course of the case; sentence is not pronounced on the patient at the time of the making of the diagnosis, but is charitably as well as scientifically withheld. Finally, the fact that youthful patients are also liable to suffer from the various infectious or toxic psychoses and to manic-depressive insanity can offer no objection to confining the term insanity of adolescence to the field occupied by hebephrenia, catatonia and dementia paranoides. Neither the infectious and toxic insanities nor the manic-depressive form are peculiar to youth. Further they already have distinguishing appellations.

Another point of importance is the use of the term hebephrenia. Hebephrenia implies of necessity a disease of puberty, and while there can be no doubt that the time at, near or about this epoch is the most favorable period for the development of this affection, it is equally well established that hebephrenia may occur much later. Furthermore, the term hebephrenia is apt to convey to the mind of the student that there are special and distinguishing features presented by its history and symptoms, whereas it is in reality the simple expression of dementia præcox, and it should be so designated. It is certainly far less confusing to the mind of the student to speak of the simple form of dementia præcox or insanity of adolescence than to speak of hebephrenia. In fact, J. Rogues de Fursac, one of the French disciples of Kraepelin, has already adopted this term. Instead, therefore, of speaking of the different forms of dementia præcox as hebephrenia, catatonia and dementia paranoides, we would merely speak of the simple form, the catatonic form and the paranoid form. Terminology is often confusing, and whenever possible clearness should be aimed at.

Holding now clearly before our minds these three forms, let us briefly analyze their elements. In reading Hecker's historical paper on hebephrenia, one gleans three essential symptoms; first, an initial period of variable duration during which the patient is in a phase of depression; second, a period during which the depression fades and elements of expansion become manifest; third, and most important of all, a progressive dementia noticeable early and becoming gradually more and more marked; this is a clinical description which I need hardly point out accords closely with our experiences of to-day.

If we subject the symptom group of catatonia to a similar process of analysis, we find that there are present, as in hebephrenia, the same cardinal factors—the initial wave of depression, the subsequent wave of expansion, or mingled expansion and depression, and a progressive dementia, together with definite and characteristic motor symptoms which give to the disease its specific peculiarities and name, i. e., the fixed attitudes, the stereotypy, catatonia, automatism, automatic resistance, etc. When we turn our attention to dementia paranoides, and I now use the term in Kraepelin's original application—as employed in his fifth edition—we come to a group of cases in whom there is as before an initial wave of depression, a subsequent wave of expansion and progressive dementia, but added to which there are not now special motor phenomena, but special psychic phenomena in the shape of delusions, persecutory or expansive, which in their character—though unsystematized—suggest or simulate paranoia.

In studying the group of insanities of adolescence as a whole, certain other facts also become evident; first we learn, as was pointed out several years ago by Pickett, that the various forms tend to occur by preference at certain ages; that is, other things equal, cases of hebephrenia begin at a younger average age than do cases of catatonia; second, cases of catatonia begin at an earlier average age than cases of dementia paranoides, and thirdly, cases of dementia paranoides constitute the oldest group of all. That this generalization is not detailed in its application goes without saying. It is as are other scientific truths, general in its character, but is of the most decided significance. To some extent, the phenomena observed are in keeping with the facts of age, that is, the symptoms largely correspond to the degree of mental development to which the patient has attained at the time of the inception of the disease.

In the early, the hebephrenic or simple form, we have a wave of depression and a wave of exaltation, which is usually of a moderate altitude. It is unusual for the emotional wave to assume the depth or height seen in older cases. Sometimes, indeed, the depression and expansion are so slight that they are described by such terms as "mild depression," "mild hypochondriasis" or are merely characterized by a neurasthenoid group of symptoms. Indeed, the wave of expansion or exaltation may be so mild that its manifestations may be revealed only by physical elation, or boisterous and noisy conduct.

Again in hebephrenia the delusive beliefs are manifold and without attempt at definite arrangement; in other words, there are present the symptoms of moderate initial depression, moderate expansion with a simple dementia. When we turn our attention to catatonia we find that the phases of depression and expansion are somewhat more marked, while the psychic content of the delusions is somewhat higher—less childish or puerile on the whole—than in hebephrenia and a tendency to some arrangement of ideas, however loose, is frequently observed. In dementia paranoides, phases of depression and expansion are likewise marked, though the most prominent features now present are the delusions and hallucinations which both in their content and persistence suggest paranoia.

Let us now consider briefly the position of dementia paranoides. In his fifth edition, Kraepelin, to whom we owe this term, limits it to cases characterized by disconnected persecutory and expansive ideas, which rapidly pass into a persistent terminal confusion or dementia. In his sixth edition he made a decided change; this consisted in including under dementia paranoides the group of cases which he had formerly designated as the "phantastic form" of paranoia. The change was a very radical one, for it disposed at one blow of a large mass of cases universally regarded as belonging to paranoia. It includes almost the totality of the *délires systemtématisés* of French writers—the *delire chronique*

2. Troemner and Ilberg.

of Magnan—and leaves nothing of paranoia proper except the form corresponding to Magnan's "insanity of the degenerates," or Kraepelin's *"combinirte Form."* In his fifth edition, Kraepelin depicted as phantastic paranoia, the form in which the delusions gradually withdraw themselves from the influence of actual perceptions, and are based more and more on hallucinations and independent invention; the disease presents the usual phases of depression, transformation and expansion. In his seventh edition, Kraepelin adheres to this radical substitution.

I can not but feel that this change has been an unfortunate one, and that by it Kraepelin does violence to facts. It is certainly absurd to speak of a dementia as precocious which may begin as late as 40, 45, 50 or 55 years of age. Equally inapplicable is the term "Jugendirresein." In concluding his very excellent description of this form of paranoia in his fifth edition[3], Kraepelin says that the majority of the cases occur between 25 and 40 years of age; he adds that there are a group of cases which begin at a more advanced age—between the fiftieth and sixty-fifth year. In his description of the phantastic form of paranoia, in the sixth and seventh editions of his work, included now under dementia paranoides, this paragraph as to age is omitted. Why? Are the facts which were true in 1896 no longer true in 1899 or 1904? That they are still true will be admitted by every physician of asylum experience. Do such facts warrant the forcing of this group of cases into the frame of precocious dementia? That this group of cases really belongs under the head of paranoia we believe is established by the following: In the first place, it is impossible to sharply differentiate them from those to which Kraepelin has now limited the term—a group which, as we have already stated, corresponds to that designated at one time by Magnan as the insanity of the degenerate, and which was formerly designated by Kraepelin as the *"combinirte Form."* The latter constitute a group which is characterized by a very slow evolution of symptoms and by a very prolonged course, but in which the stages of depression, transformation and expansion are alike discernible. The cases are characterized by the fact that their delusions are based more or less largely on misinterpreted perceptions rather than on hallucinations, and that the delusions are perhaps better defined, better systematized and more firmly fixed than in the "phantastic form" or *délire chronique,* and yet these differences are only relative. They are, after all, only variations of degree and not of kind. Even if we take the point in regard to the absence of hallucinations in the *"combinirte Form"* as the standard of differentiation, we find that the moment we analyze it, it breaks down. Not only is it a fact that special sense hallucinations—hallucinations of hearing and of sight—do occur in some cases of this form, but my own observation has convinced me that while special sense hallucinations are relatively uncommon, general coenesthetic and psycho-motor hallucinations are by no means infrequent, and that the latter, as in the other forms of paranoia, form the foundation stone on which is based the mental attitude and the emotional tone of the patient. To define paranoia as a disease of the logical apparatus is a bizarre misstatement, which leaves out the intrinsic and fundamental features of the affection. That there is in all probability an underlying unity in all of the auto-degenerative psychoses which binds together all of the various forms of mental disease beginning with hebephrenia and ending in Magnan's paranoia (insanity of the degenerate, *"combinirte Form"*) is very probable. Perhaps there is an underlying unity of cause; indeed, it seems to me that this is probable. The mental picture presented is so varied by the elements of age and other factors that special clinical pictures are inevitable. If a term be devised (dementia præcox being abandoned) which would include all of these progressive degenerative changes under one head it would perhaps be right to consider them together and to treat of them as one disease. In such case, there would not only be included the phantastic paranoia, but the other form of the paranoia as well. I believe, however, that such a generalization as this would be scientifically and practically very disadvantageous, and would be as objectionable as is the present inclusion of the phantastic form of paranoia under dementia præcox.

We have in the solar spectrum seven colors, each color passing by a most gradual transition into another. Shall we, because it is impossible to draw hard and fast lines—because we can not say, for instance, where violet ends and blue begins, say that violet and blue are the same; or that green and yellow—most opposite in their reaction on the human sensorium—are the same because they pass by insensible transition one into the other? Surely nothing can be gained by wiping out well established lines of demarcation. Change does not always mean progress; it sometimes means error. Practical experience teaches us that no sharp differentiation can be drawn between the various forms of dementia præcox—hebephrenia, catatonia and dementia paranoides. Every now and then we meet with cases of hebephrenia in which passing motor phenomena, convulsions, transitory rigidity or stereotypy is noted, or again cases of dementia paranoides in which like features cause an approximation to catatonia. Similarly I believe that it is often difficult, if not impossible, to draw a differentiation between a dementia paranoides and a phantastic paranoia just as it is impossible always to make an absolute differentiation between the latter and the paranoia of Magnan, the "combinirte" form of Kraepelin.

DISCUSSION.

DR. F. W. LANGDON, Cincinnati, said that dementia præcox as a name, apparently, does not apply to a considerable number of these cases. When this condition develops at 30 or 40, or even at 50 years of age, and when it is not terminal dementia nor paretic dementia, nor post-organic dementia, they are classed as dementia præcox. If it can be shown that some of these patients had their original attack at adolescence and that what was looked on as a recovery has really been only a remission, then perhaps they are correctly called dementia præcox. Dr. Langdon considers that this condition is primary degenerative psychosis, which may be arrested for a time at various periods, and which, in most cases, eventually tends toward complete dementia. While no sharp lines of demarcation can be drawn in the psychoses, yet there must be some kind of demarcation for practical purposes, just as in the colors of the spectrum artificial lines must be drawn where the natural do not exist. Dr. Langdon thinks that while the term insanity of adolescence may be applicable to cases of dementia præcox, it does not clear up matters very much, because cases occur at 30, 40, or at 50 years of age, which can not be called insanity of adolescence unless it can be shown that they began at an earlier age. Experience seems to attach a significance to the term dementia præcox, though probably there is no reason why primary or idiopathic dementia would not be just as suitable.

DR. F. X. DERCUM stated that he believes that the older

3. Page 697.

cases should not be classified with the younger ones. He believes that the original designation ought to stand and to stand unmodified; otherwise it loses a great deal of its clinical value. He does not believe that we ought to wipe out distinctions where they exist, just because the cases merge one into the other. The early cases are a distinct group by themselves; they are different from the adult cases of paranoia. It seems to him that it mars the picture, and certainly makes the term meaningless to include the adult cases of paranoia with those of dementia præcox. He thinks that it would be better to classify the juvenile cases under the term insanity of adolescence and leave off the term dementia præcox.

THE NATURE OF TRAUMATIC SCLEROSIS.*

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BROOKLYN, NEW YORK CITY.

Though most of the confusion which once surrounded the results of trauma to the nervous system has been dispelled, so that we are able to recognize definitely most of the functional and organic diseases for which trauma is a competent producing cause, the nature of the condition in question is still open to investigation. The questions at issue at the present time seem to be, is this pathologic entity with an organic basis, is it only a grave type of hystero-neurasthenia, is it a distinct functional neurosis, or is it a type of true multiple sclerosis?

The evidence on which rests the claim for an organic basis for this condition dates back to the findings of Westphal, who, in 1878, described disseminated foci of sclerosis in the cerebrospinal axis as a result of trauma. Bramwell also described these lesions as secondary to minute hemorrhages. Sterling Kranthal, Dumenil, Petit and Edges confirmed these findings in their descriptions of degenerations of the columns of the cord, minute hemorrhages into its gray matter, and arterial sclerosis of both spinal and cerebral arteries as a result of trauma.

The evidence furnished by these pathologic findings is further supported by the results furnished by the experiments of Mendal, who fastened dogs to a rapidly revolving table and thus produced adhesions of the cerebral membranes, increase in the glia nuclei, vascular congestion and degenerative cell changes. Fustener, by continuing the experiment for a greater time, was able to produce besides these changes sclerosis of the posterior columns and optic nerves. Schmaus, by diffuse violence applied to the spine, was able to produce degenerations in the spinal neurons and vascular degenerations. His conclusions, as summed up by Knapp, are: that there is a distinct traumatic necrosis of nerve fibers; that more fibers die than can be recognized; that the fibers may be merely fatigued (fatal cases with no lesions and recoverable ones); that this fatigue of fibers may cause their death (gradually produced lesions), and that a gliosis ending in tumor formation may occur.

Since the time of these writers their findings have been so often confirmed that there seems to be no conflict of evidence as to the theory that trauma is a competent producing cause for these findings.

Our present knowledge of the results of diffuse violence to the cerebrospinal axis can be summed up as follows: That said violence can produce a condition known as concussion or commotion; that in this condition there may be localized hemorrhages, laceration or contusion of nerve tissue, multiple minute hemorrhages or thrombi scattered throughout the cerebrospinal axis, general edema, distension and infiltration of the blood vessels; that from these lesions the following secondary changes may occur: The vascular hyperemia and infiltration of the vessel walls not only decreases the amount of nutrient lymph supplied to the nerve tissue, but also interferes with its return by a proliferation of the adventitia and a collection of débris and leucocytes in the perivascular spaces.

This then deprives the nerve cells of nutriment, and at the same time they are poisoned by waste products. Monti's observations show that the nerve cells die in a few hours when their nutrition is entirely cut off, and that defective nutrition causes the same changes after longer periods; the degenerative changes beginning in the distal parts of the cell and finally destroying the nucleus.

The effect of rupture of an axion is to cause swelling of its cell body, an eccentric position of nucleus, a disappearance of the chromaphilic elements, a loss of the striped appearance, and finally disintegration. In embolism and thrombosis the cells in the affected areas become edematous, the chromatin particles collect in the centers and finally disintegration occurs. In all forms of injury to the nerve cells its dendrites are first to degenerate, then its axon, and finally the cell body. The changes shown in the nucleus of these cells are a more deeply staining of the nucleus, which becomes vacuolated and finally small and angular. Coarse, granular changes are said to be characteristic of the chronic forms of degeneration, and depigmentation of sclerotic processes. The changes described in the neuroglia cells consist of swelling, an engorgement with granular detritis, and finally disintegration. The spider cells are said to resist the longest. There seems to be no conflict of evidence as to the theory that a nerve cell which has undergone degeneration is ever replaced, but we seem to have as yet no facts to show how far this process can be developed so as to forbid recovery.

The final results then of commotion or concussion of the cerebrospinal axis, in which the damage has been severe enough to forbid recovery would appear to be the production of areas of degeneration, areas of sclerosis and possibly arteriosclerosis, Bailey and Meyer considering the latter finding to be a coincidence.

Five cases of my own, which illustrate the various stages of the development of these lesions, have come to autopsy.

CASE 1.—This case, showing the primary lesions, was that of a woman, aged 49, seen in the Kings County Hospital. Family and previous personal history, negative.

History.—Two weeks before admission she fell down a flight of stairs, received bruises about the body and limbs, and for a few hours suffered from shock. After one week she became unable to work.

Examination.—Examination showed the patient to be very stout and to lie with the limbs flexed. When made to stand, she slowly sank to the floor. Her speech was indistinct, and she would laugh or cry without obvious cause: memory and volition were poor. There was an intention tremor of the face and limbs, with loss of muscular power. The deep reflexes were exaggerated: anesthesia with ill-defined outline existed below the elbows and knees. The pupils were dilated, but responsive.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Course of Disease.—She developed a feeble heart, numerous small bedsores, incontinence of urine and feces, and died at the end of four weeks.

Autopsy.—The brain and cord were found congested and edematous, and the pia cloudy. The vascular walls were thickened by infiltration of leucocytes. Scattered through the brain and in the gray matter of the cord were numerous small hemorrhages, and thrombotic areas of degeneration. In certain areas no nerve cells were to be found, and they were replaced by newly-formed neuroglia tissue. The neuroglia cells were swollen, and the lymph spaces choked with cells and granular matter.

CASE 2.—This case, showing the intermediate stages, was that of a man, aged 40, seen in the Kings County Hospital.

History.—He worked as a laborer, and is said to have been in good health until two months before admission, when he fell down a flight of stairs. He was stunned, bruised about the head and body, and rapidly developed a spastic paraplegia.

Examination and Course of Disease.—Examination showed speech to be slow and indistinct. There was rigid muscular atrophy with flexion of the limbs, and an intention tremor of the face, tongue and hands. There was fibrillary twitching in the calves at times. The deep reflexes in the limbs were increased with absence of the plantar reflex. There were ill-defined anesthetic areas below the middle of the forearms and in the legs. There were several small bedsores and retention of urine. Death occurred after five weeks.

Autopsy.—The autopsy findings were similar to those in the first case, but the hemorrhagic areas were in a more advanced state of degeneration, the sclerotic areas were more fully organized, systemic regeneration was present in the cord, and the arterial walls were much thickened.

The three fully developed cases in which an autopsy was obtained presented the following pathologic findings:

The cerebral cortex was flattened and the pia thickened, opaque and infiltrated with serum, leucocytes and granular matter. The veins were dilated and their walls infiltrated with cells. The arterial walls were much thickened. The cortex was thin and pale on section. The cortical nerve cells were much diminished in number, and as a rule degenerated. In variously sized areas no cells were to be found. The neuroglia was much increased and the lymph spaces were dilated and choked, and scattered throughout the brain; in the cords were small areas of sclerotic tissue. Systemic sclerosis was present in both brain and cord.

ETIOLOGY.

This seems to be all the pathologic evidence which we possess to support the theory of an organic basis for this confidence. The evidence furnished the following facts: True cases of this type are not common, for personally, I have been able to find only fifteen in over three thousand cases which have come under my care where some injury to the nervous system existed for which injury was the cause claimed. Nine of these were males and six females. The age at the time of the receipts of the injury varied from 19 to 50. The assigned causes were in three, severe blows on the head, injury to the head and back from falls in three, general contusions from similar falls in two, and five had been thrown about railroad or trolley cars as the result of collisions. In three cases of head injury and in three of general contusion coma was the immediate result, and in the others shock seemed to have been well marked.

As would be expected from the pathologic findings, the development of the symptoms is insidious and the real nature of the condition is only recognizable after a considerable period of time. In my cases this varied between three and twenty-four months, the average being about eight months. During this period thirteen of my cases gave only a history of hysteria or neurasthenia, and of the remaining, one gave the history of an organic paralysis of the arm and the other of an atrophy of the shoulder girdle.

SYMPTOMS.

The symptoms vary both as to number, relative development, and time of appearance. Headache, varying in character and intensity, was present in eleven. Vertigo, either subjective or objective, was also present in eleven. The mental condition showed defective memory and volition, with easily produced laughter or crying in ten. Insomnia was present in ten. The speech was slow, indistinct or syllabic in ten. Nystagmus was present in ten and in three of these associated with strabismus. The pupils were found to be contracted in three, dilated in three, unequal in three, and irresponsive in two. A coarse intention tremor was present in all and rendered the patient's movements trembling, slow and uncertain. This was associated with some loss of muscular strength. Spastic paraplegia was present in eight. The deep reflexes were found to be exaggerated in eight and diminished in six. Areas of partial anesthesia, involving the extremities, never well defined, were present in ten. The visual fields were contracted in eight, and optic atrophy existed in four. Incontinence and retention of urine was present in nine. Besides these symptoms, which are those usually assigned to this condition, thirteen presented also the symptoms ordinarily found in hysteria, one atrophy of the testes, two auditory hallucinations, two epileptic convulsions, one a cerebral hemiplegia, and one a progressive muscular atrophy.

COURSE OF THE DISEASE.

The course of this condition is slow and progressive, with periods of remission. In my three fatal cases, the duration of the disease varied from six to thirty-nine years. Of the other cases, five have progressed, two have developed epilepsy, two have become insane, and of the remaining, their present condition is unknown.

RESUME OF THE LITERATURE.

It will be seen, then, that my cases present the same clinical picture as those described by Dana, Knapp, and Bailey; and form, at least clinically, a distinct group of cases as the result of trauma, but the real nature of these cases, as shown by recent writers on this subject, is still a question open to discussion.

The evidence furnished us by these authorities may be summed up as follows: Bailey, in his work on Accident and Injury, describes them under the title of the "Unclassified Forms," and states that there is no definite knowledge as to their pathology; that he does not claim a common pathology; that some owe their origin to scattered foci of morbid tissue in the brain and possibly the cord, such as occur in the brain in cerebral enteritis, or in the whole cerebrospinal axis in multiple sclerosis; that it is reasonable to suppose that, in these cases, the injury added to the activity of a process already existing rather than caused a sclerosis in previously healthy vessels; that there can be no doubt that minute multiple lesions can occur in the brain and cord from injury giving evidence of commotion, without indicating any particular part injured; that these disseminated areas of hemorrhage best ex-

plain the tremor, increased reflexes and psychic inhibition and that in many cases hysterical and organic symptoms co-exist.

Dana[1] states that in some rare cases traumatism may produce multiple minute hemorrhages throughout the nervous centers; that there are usually neurasthenic and hysterical symptoms with those of organic disease; that these cases eventually resemble disseminated sclerosis, and, in Hamilton's System of Legal Medicine, he describes them under the title of the "Grave Neuroses," and further states that, in his opinion, all cases of multiple sclerosis are either traumatic neuroses or the result of acute infectious disease, and that it must be the multiple minute hemorrhages which set up foci of softening, which are followed by the formation of connective tissue nodules.

Oppenheim[2] states that shock may be followed by arterial sclerosis, enteritis, and hyaline degeneration.

Knapp[3] describes this condition under the title of "Traumatic Sclerosis;" states that the evidence that these obscure affections are due to structural lesions is very slight, and that cases of disseminated sclerosis may be caused by injury.

Strümpel[4] states that if a disseminated myelitis should actually follow an acute disease and lead to the formation of multiple sclerotic nodules, this would be an affection similar to multiple sclerosis and yet essentially different.

Starr,[5] in writing on multiple sclerosis, states that the recently reported cases of Gaupp and Blencke are undoubtedly traumatic.

CONCLUSIONS.

This brief résumé, then, presents to us all the real evidence which is furnished by the pathologic findings, clinical observation, and the opinions of recent writers on this subject. It now remains for us to consider the facts in evidence and to apply such rules of exactness as our medical science furnishes in determining the nature of the condition in question. The marked part which neurasthenia and hysteria, as has been said, play in this class of cases, as they do in many other forms of organic nervous disease and especially those cases which follow trauma, has undoubtedly caused some to classify this condition as a type of these neuroses, but when we take into consideration the nature of the real symptoms, such as the syllabic speech, true nystagmus, the pupillary reactions and optic atrophy, the character of the tremor, the character of the reflexes, the true ataxia, the character of the anesthesia, the vesicle paralysis, the bed sores, the fatal course of the disease, and the pathologic findings, it can not be disputed that we are dealing with an organic disease of the nervous system rather than with a neurosis.

The consideration of the nature of this condition has been complicated by the occurrence of a class of cases, first described by Westphal and later by Strümpell, under the name of pseudo-sclerosis. This condition is said to closely resemble multiple sclerosis, to run a long and fatal course, and for which no pathologic basis can be demonstrated. This condition, it is said by Strümpell, can be distinguished from multiple sclerosis by its very marked oscillatory tremor, by the absence of real ataxia, and by its mental condition, in which there are causeless outbursts of wrath and actual maniacal attacks. Personally, I have seen but one such case, but these clinical differences and absence of pathologic findings sharply distinguish it from the condition under consideration. It would appear, then, that beyond a reasonable certainty, this condition in question is one of organic disease of the central nervous system, and that the sole question left at issue is: Is it a form of multiple sclerosis or a distinct pathologic entity?

Taking the pathologic description given by Starr[5] of multiple sclerosis as a standard, it appears that the condition now under consideration differs from that disease in certain pathologic findings. This writer states that multiple sclerosis is never limited to definite tracts; that it does not lead to secondary degenerations in the various tracts because it spares the axons; that the patches consist of neuroglia fibers and glia cells, and that the essential factor is the production of neuroglia fibers and the disappearance of the myelin sheaths of the nerve fiber. It is in evidence, then, from the facts furnished by the pathologic findings in the class of cases in question, that these cases differ from true multiple sclerosis in the fact that secondary and systematic degenerations do occur; that the axons are destroyed, and that the patches of morbid tissue consist more of fibrous and less of cellular tissue than those found in true multiple sclerosis. This supports the theory of Strümpell, that this condition is similar to and yet essentially different from true multiple sclerosis.

The contention of Bailey and Meyer, that the diseased condition found in the arteries is due to an accidental predisposition and is not one of the essential pathologic processes belonging to the disease, seems to be contradicted by the facts in evidence, for, as it has been shown, this arteriosclerosis is a constant occurrence which is improbable were it only an interposed condition; that vaso-motor paresis with dilatation is one of the natural results of cerebral commotion[6], and that this dilatation may be followed by infiltration and thickening of the vascular walls. It appears, then, from the facts in evidence as furnished by pathologic and clinical observation and from the opinions of recent writers on this subject, that traumatic sclerosis is an organic disease of the cerebrospinal axis; that trauma is a competent producing cause, and that it is not a type of multiple sclerosis but a distinct pathologic entity.

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DISCUSSION.

DR. EDWARD B. ANGELL, Rochester, N. Y., said that pathologic conclusions from these cases are unusual because few cases reach autopsy. The period of time during which the degenerative changes occur sometimes lasts so long that the patient passes from under observation. In a certain limited number of cases of trauma there are organic changes in the cerebrospinal axis, but there are a large number in which there are no such changes. Dr. Angell believes that a great deal of confusion has been brought about by trying to establish a new symptom-complex in traumatic diseases of the nervous system. The term "railway spine," as used by Ericson, expresses injuries of the spine due to trauma and is a very misleading term. Dr. Brush's work will help to clear up a great deal of misunderstanding. A man recently came to Dr. Angell's office who had been injured in a railroad wreck. He was thrown from the train, striking on his back in an adjoining canal, and

1. Dana: Text-book of Nervous Diseases.
2. Oppenheim: Diseases of the Nervous System.
3. Knapp: Text-book of Nervous Diseases by American Authors.
4. Strumpell: Text-book of Medicine.
5. Starr: Organic Diseases of the Nervous System.
6. Phelps: Traumatic Injuries of the Brain.

apparently suffered no injury, being a strong, healthy, robust man. Six months after the accident he noticed a disturbance of the muscular system and at the present time there is a well-developed case of muscular dystocia. In this case the symptoms did not follow the usual course. Undoubtedly, primarily, the organic changes are very minute, but the secondary degenerative changes are sometimes very extensive and not usually accompanied with definite symptoms until some time after the date of the injury. In Dr. Angell's experience in medicolegal matters he has found that many clinicians and neurologists are misled by the appearance of the patient who receives the injury and by the various symptoms of which he complains. The cases should be studied carefully, irrespective of this specific injury, and in this way the truth will be arrived at. In another case, illustrative of the other type, a man received an injury in a railway collision by being thrown down an embankment. There was marked evidence of hysteria and some suggestions of organic trouble. After the settlement of the suit, in which he got about $10,000 or $12,000 in damages, he rapidly recovered. Two years after the trial he was practically a well man and nearly all these pathologic symptoms had disappeared. Dr. Angell believes that the subsequent organic changes depend very largely on the previous health of the neuron receiving the injury. Not all people have a nervous system that is equal in longevity to their arterial system and in minor accidents at times there may be degenerative changes in the nervous system which are not wholly due to the injury.

PREVALENCE AND PROPHYLAXIS OF PNEUMONIA.*

EDWARD F. WELLS, M.D.,

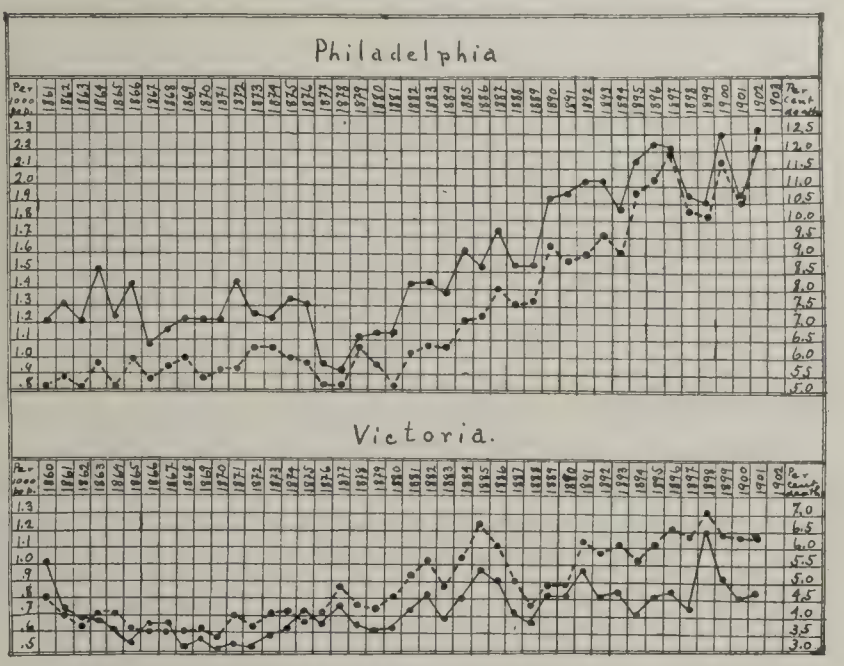
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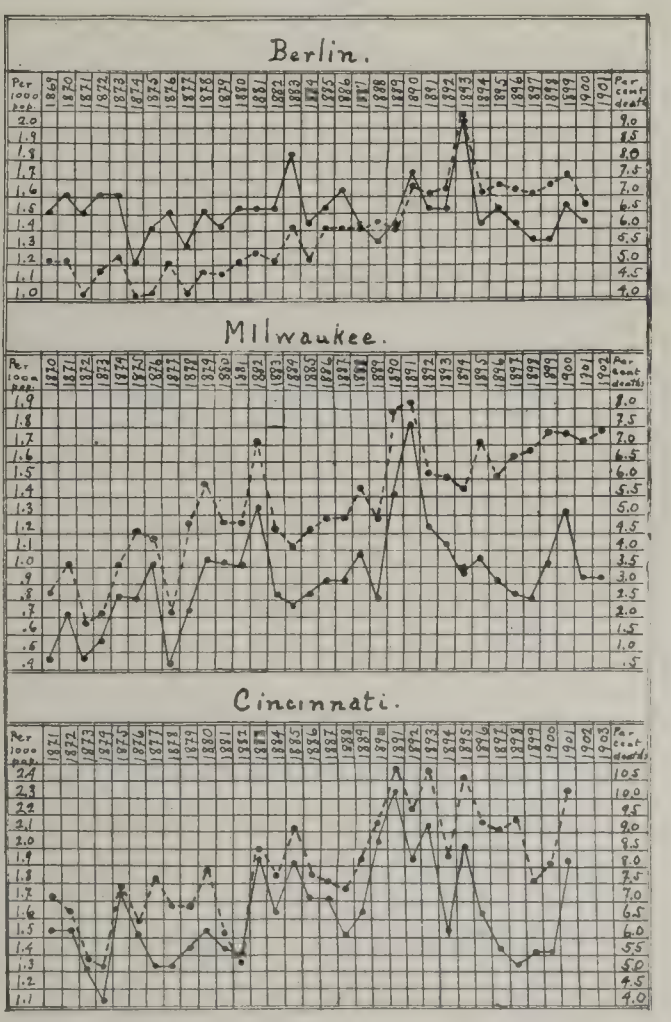
Two years ago I presented to this Section a paper on the fatality and increasing prevalence of pneumonia, with suggestions for individual and communal prophylaxis, and this communication should be considered as being supplemental to that paper.

When we subtract from our mortality bills the deaths caused by infectious diseases, e. g., tuberculosis, malaria, typhoid fever, dysentery, diphtheria, scarlatina, plague, etc., it will be found that comparatively few remain. Such infectious diseases are all essentially preventable, and might well be theoretically wiped off the face of the earth. In the case of some of these this will surely come to pass within a measureable time, but in the case of others this happy period is yet in the indefinitely far-distant future. In the case of some of the great infections, notably tuberculosis, malaria and typhoid fever, the causes, modes of conveyance and methods of prevention are so well known and available that we can contemplate their future with considerable complacency.

Pneumonia is the one great infection in which no systematic and strenuous efforts have, as yet, been made toward prevention. Clearly this has been due to our ignorance of the manner in which the pneumococcus acts as an efficient cause of pneumonia; of avenues of infection and manner of germ diffusion; of efficient and available methods of prevention. The time is now at hand, however, when, with a wider and more exact knowledge of fundamental facts, we are probably in a position to inaugurate a great forward movement in the prophylaxis of pneumonia. In my opinion, we can formulate rules for prevention which will appeal to the reasoning mind of the practitioner of medicine and to the common sense of the layman and which are sufficiently available to meet the exigencies of every-day life. Certainly the conditions are such as to invite a very careful consideration of the subject from every point of view.

Pneumonia is a very prevalent disease and its prevalence is markedly increasing. This increase applies to the deaths per 1,000 of population and to the percentage of total deaths. It probably also applies to the morbidity of the disease, but we lack statistics to positively prove the assertion. The increasing mortality prevalence of pneumonia is graphically shown by the above curves. In these curves the solid line indicates deaths per 1,000 of population. the dotted line per cent. of total deaths.





To what influences may this increased prevalence of pneumonia be attributed? That it is due to any general deterioration of the resisting powers of the populace to morbid infections is disproved by the fact that the av-

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

erage duration of life has been distinctly lengthened during the period of years covered by our inquiry. It is likewise improbable that there has been any general increased vulnerability to this particular bacterial infection. We are, therefore, driven to the conclusion that the pneumococcus has become more prevalent, probably more virulent, or that our opportunities for encountering the germ have been multiplied, or, more likely, that each of these is operative in bringing about the results mentioned. With the pneumococcus as a common parasite in the upper respiratory passages of man, and with pneumococcus-laden secretions from these parts extruded in such manner that they find entrance, as spray or dust, into the respiratory passages of other and unaffected persons, the very general absolute and proportional increase of urban populations and the augmented facilities for travel and the universal tendency for people everywhere to congregate and mingle together, is amply sufficient to account for much, if not the whole, of the increased prevalence of pneumonia.

During several months I have carefully examined the secretions from the respiratory passages, oftenest from the throat, in 135 persons, and found the pneumococcus present in 61, or 45 per cent. This proportion, it will be noted, is very much greater than that usually found by other observers. In this connection it may be stated that in a considerable number of cases repeated examinations were made, and that in the majority both smears and cultures were examined. The specimens were stained by the Gram method, using a freshly made gentian violet solution and counter staining with pyronin. In the instances in which both smears and cultures were made the pneumococcus was found most readily and oftenest in the smears. The preparations were subjected to careful and prolonged examination, the pneumococcus being the object sought for it was probably found oftener than it would have been were it noted only incidentally. In the majority of the cases the number of pneumococci found were either few or moderate. In some instances the pneumococci were numerous and in a few they were very numerous. In one case, a man who had had pneumonia six years before, and now ill with severe tonsillitis, the germ was present in extraordinary abundance.

At my request Dr. Reynolds, commissioner of health for Chicago, had a special report made on this subject by the director of the municipal laboratory, which is herewith appended:

CHICAGO, May 26, 1904.

Arthur R. Reynolds, M.D., Commissioner of Health.

DEAR SIR:—In reply to your note of yesterday regarding the number of times pneumococci were found in the laboratory specimens, I beg to say that during the month of April ninety-six throat cultures were examined in the laboratory, and pneumococci were found in large numbers in six of these cultures. This would be a little over 6 per cent. I think, however, that if we made a special stain each time we would find a few pneumococci present in a greater percentage of the cases.

I had hoped to make a special stain of each culture in order to give Dr. E. F. Wells, 4744 Woodlawn avenue, a complete report as to the number of times pneumococci are found, whether they be the predominating organism or not. However, the moderating weather that we have had lately has produced a marked decrease in both pneumococci and influenza bacilli, so that 6 per cent of the cultures is about the average for the present. Very truly yours,

J. F. BIEHN, M.D., Director of the Laboratory.

In making these observations there was early noted a peculiar and, I believe, important fact, namely, that in some families every, or nearly every, member had the pneumococcus in the throat, while in some other families no member showed the organism. Comparing these various observations, it was further noted that the majority of the families in which the pneumococcus was peculiarly prevalent had had, more or less recently, one or more cases of pneumonia, while the families in which the germ was not found were, as a rule, without such history. For example:

CASE 1.—In 1899 a man, aged 57, had pneumonia. His sputum, examined several times and as recently as last November, always showed pneumococci. He died in December from valvular disease of the heart. On December 10 smears were made from the throat secretions in the case of the widow and also a servant who had been in the family for many years, and in both a few pneumococci were found. They were both suffering from influenza at the time.

CASE 2. A man, aged 40, had pneumonia in 1898. In April, 1904, he had a very severe attack of tonsillitis, with the pneumococci as the pathogenic germ present in immense numbers. A few days later smears and cultures were made from the throats of the three other members of the family, and pneumococci were found in each.

CASE 3. A man, aged 57, had pneumonia in April, 1904. Of three other members of the family two had pneumococci in their throats. Two other persons who had been in the same house for several weeks did not show the organism.

CASE 4. In February, 1904, a man died of pneumonia. A few weeks later examination showed pneumococci in the throats of his widow and a servant who had long been in the house.

CASE 5. Two years ago a child had two attacks of pneumonia within a year. The throats of four other members of the family contained pneumococci, while they were absent in the case of the servant who had been long in the house.

CASE 6. Four years ago a man, aged 66, had pneumonia. One year ago his wife died with the same disease. Pneumococci are present in the throats of the gentleman and also in another member of the family. Two other persons who have recently become members of the family appear to be free from the organism.

There are exceptions, some of them marked, to the rule:

In one family a boy had pneumonia with middle-ear and mastoid suppuration three years ago. Of the three other members of the family all appear to be free from the pneumococcus. In another family a child had pneumonia three years ago. Of the four other members of the family two have and two have not the germ in their throats. In yet another family the mother has recently had pneumonia, while the pneumococcus has been found in the throat of only one of the other seven members. In yet another family the pneumococcus was found in the throats of each of the four members, although no case of pneumonia has ever occurred in that family.

It would seem that this fact, if confirmed by further observation, offers a plausible explanation for the house epidemics and consecutive family cases which are sometimes encountered.

At the present moment, with an increasing prevalence and case mortality and an unsatisfactory therapeusis, the hope for the immediate future in pneumonia lies in the line of prevention. What can we do to prevent this disease? I answer as follows:

1. For the Individual:—The nasal, pharyngeal and oral cavities should be kept as clean as possible and especially free from accumulations of mucus. When it has been demonstrated that such secretions contain the pneumococcus these efforts should be particularly well directed and maintained. In coughing and sneezing a protective cloth, preferably moistened, should be held

before the mouth and nose. This is especially necessary in the case of pneumonic patients and in those harboring the pneumococcus. The sputum and other secretions of the respiratory tract of such persons should be destroyed before they have become dried. Individuals should, so far as practicable, keep out of range of the extruded pneumococcus-laden secretions of infected persons.

2. For the Public:—The above advice, properly formulated into plainly and succinctly stated rules, should be widely and persistently circulated by the communal health authorities among the laity, and practicing physicians should be furnished a supply of these rules, neatly printed and without imprint, with the request that they give it as their instructions to their patients and clientele. And further, by every means, the interest of physicians and humanitarians in this subject should be aroused and fostered. For this purpose special societies and committees might be formed for the purpose of studying the problem and furthering the efforts of the various health bodies, as has so successfully been done in the case of tuberculosis.

DISCUSSION.

SURGEON-GENERAL STERNBERG, Washington, D. C., stated that he made a good many experiments as long ago as the winter of 1880, when he first discovered this micrococcus of pneumonia, and he found that it was very pathogenic for rabbits. He went to Philadelphia during that winter for the special purpose of finding out whether this micro-organism was to be found in the mouths of other healthy individuals or whether it was peculiar to himself. He made numerous experiments with the saliva of students in Philadelphia and in Baltimore. The organism was found in a considerable proportion of the cases examined, and there seemed to be quite a difference regarding its virulence as obtained from different individuals. Subsequent observations made in Germany and in this country have shown that it is a widely distributed organism quite as common as the streptococcus pyogenes and other pyogenic micrococci. All these pathogenic bacteria lose their virulence when they lead a saprophytic life for some time. As the pneumococcus is found in the mouths of healthy individuals it must be considered a saprophyte. The pneumococcus found in the sputum of pneumonia patients, as a rule, is more virulent than when found in the mouths of persons who have not suffered from pneumonia. Dr. Sternberg is a little in doubt as to the ability of bacteriologists to say positively that they find the micrococcus of pneumonia in smear preparations. There are other organisms which resemble it so closely morphologically that he could hardly say that he had it unless he had found it in cultures or had obtained it from inoculations of susceptible animals. Referring to the danger of persons carrying this micrococcus in the salivary secretions, Dr. Sternberg stated that he had made frequent inoculations in rabbits with fatal results, showing that he carried this micro-organism in a virulent form in his salivary secretions. It is evident that something more than the micrococcus is necessary in order to induce the disease—a lowered vitality from insufficient nutrition, loss of blood, overwork, alcoholism, insanitary surroundings, etc. Dr. Sternberg considers that the prevention of pneumonia by disinfection is a difficult thing to carry out on a large scale when it is considered how widely the pneumococcus is distributed. Prophylaxis must depend largely on combating those causes which make the individual susceptible and Dr. Sternberg considered that the micrococci in the sputum of pneumonia patients should always be destroyed, but he doubts whether it is practical to destroy the micrococcus in the mouths of healthy individuals, or of those convalescent from pneumonia as a general measure of prophylaxis.

DR. GEORGE M. KOBER, Washington, D. C., said that he thinks that sufficient importance has not been given to the predisposing causes of pneumonia. The exciting causes have been pointed out by the preceding speakers. The increased consumption of alcohol in the United States is one of the most important predisposing factors. Students of the United States census statistics will observe that while the general death rate has decreased there has been a positive increase in all diseases that are believed to be caused, or at least influenced, by the habitual and undue consumption of alcohol. It is also a fact that the national drink bill has increased from year to year, and that the amount of liquor consumed per capita is simply enormous. Dr. Kober thinks that there are statistics indicating that the consumption has increased, so that the amount now consumed is about eighteen gallons per year per capita in the United States. At all events the general statistics clearly point to an increased consumption of alcohol, and he believes that it is not only a question of alcohol, but a question of the purity of the alcohol. The heavier alcohols are toxic and affect the tissues of the body, lowering the vitality to a great extent, first destroying the moral, intellectual and physical sensibilities. One of the most common effects is, perhaps, an impure blood supply and degenerative changes, because alcohol, apart from increasing connective tissue, favors the conversion of albuminoid tissues into fats, and, therefore, there is an increase of chronic affections of the kidneys, cirrhosis, hepatic diseases, heart disease and all other diseases caused by alcoholism. The vital statistics of 1900 give an increased death rate from these diseases, and Dr. Kober believes that the secret, after all, lies in the increased consumption of alcohol in the United States, and possibly in a general tendency to adulteration of liquors. While Washington is exempt from an increase of pneumonia, it is, perhaps, due to the fact that it has a large negro population, and there seems to be among them a racial distaste for alcoholic liquors; at all events, the negro is not a drunkard. The ratio of diseases believed to be caused by alcohol among the negro in Washington is infinitely less than among the whites, and yet in all other diseases the death rate among the negroes is very much higher than among the whites. They seldom have a death from cirrhosis or from arteriosclerosis. Indeed, all of those diseases that are influenced by alcohol are scarce among the negroes, and yet their general death rate is far in excess in all other diseases.

DR. JOHN S. FULTON, Baltimore, said that if it is true that pneumonia has increased, which he is inclined to doubt, it would be very interesting to discover the cause, and it is necessary to learn first what parts of the population have suffered the increased mortality; for the mortality has not been equally distributed either according to age or locality. The particular point of interest to him at the present time concerns the exceptions, and especially the one to which Dr. Kober has alluded, the District of Columbia. Dr. Fulton believes that the residents of the District of Columbia have overlooked one fact which may explain their exemption from an apparent rise of pneumonia rather better than to attribute it to the non-use of alcohol by the negroes. Very likely the increasing use of alcohol is in part responsible for the fact that pneumonia is not diminishing as rapidly as it should at some periods of life, if it be true that the per capita consumption of alcoholic beverages is increasing. He has no doubt that between the ages of 15 and 60 the mortality in pneumonia has been decreasing, and here, if anywhere, the influence of alcohol should appear. The age distribution in the District of Columbia, to his mind, explains the apparent exemption of the district from the increased death rate of pneumonia. He is not sure that there has not been a rise in the District of Columbia in the mortality from pneumonia at certain periods of life. The population in the district lacks those elements of population which contribute to the increase of pneumonia. There are fewer people in Washington under the age of 15 years than in any other part of the United States save only the very newest settlements. Above the age of 60, also, Washington has a relatively small population, while between the ages of 15 and 60 the population is proportionately large. Political conditions dominate the age distribution of the population of the District. It has not and never will have an age distribution comparable with any other urban population. Washing-

ton will always have a relatively excessive population in the active period of life. It has also a very considerable excess of females between 20 and 40. Pneumonia at the most important period of life appears to be diminishing, and Washington has precisely the elements of population which enable her to profit by this decline. If the mortality of the District could be equated so as to be comparable with that of such cities as New York, Chicago, Richmond and Baltimore, the true state of affairs would not be found just such as the raw figures indicate. It might appear that Washington has had an increased mortality from pneumonia at a certain period of life, namely, below the age of 5. If pneumonia has really increased, Dr. Fulton's opinion is that the increase has fallen on very early life.

DR. E. F. WELLS said that in presenting this paper he intentionally allowed every mooted question, as he thought, to remain out of the paper. The basis of the belief, for example, that the pneumococcus is the cause of pneumonia, the bearing which different strains of pneumonia have on the characteristics of the disease, the possibility of infinitely increasing or decreasing the virulency of each of these individual strains, the connection between the organism which Surgeon-General Sternberg found in his own mouth, and in the mouths of others, and that of the organism found in pneumonia, and the evidence on which we believe one to be the same as the other, he entirely omitted, and intentionally, because he did not wish to take up time. He desired to present as clearly as possible certain facts which he believes have a bearing on the propagation and increasing prevalence of pneumonia, and to offer some suggestions by which it might probably be diminished. In another section he presented some facts along these lines, which, however, are well known, that not only are the pneumococcus and other pathogenic organisms distributed by means of the sputum from the throat and nose of men and women, but in a more insidious manner, by coughing and sneezing, and throwing a minute number of particles into the air, with a possible and probable bearing on the dissemination of this organism and the increasing prevalence of pneumonia. Dr. Wells said that he feels fairly sure of the ground on which he stands, and will continue his efforts to find a public ready for reasonable and available methods for the prophylaxis of pneumonia.

THE RELATION OF THE INTERNAL SECRETIONS TO EPILEPSY, PUERPERAL ECLAMPSIA AND KINDRED DISORDERS.*

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A suggestive coincidence bearing directly on the disorders referred to in this paper, epilepsy, puerperal septicemia, tetanus and hydrophobia, is that several investigators have been led to conclude by experiments, in which each organ was studied individually, that the adrenals, the pituitary body and thyroid not only influence metabolism, but that they are also concerned with the destruction of toxic waste-products. Thus, in 1891, Abelous and Langlois[1] advanced the view that the function of the adrenals was to "neutralize or destroy toxic substances produced or elaborated during chemical interchanges, and particularly those resulting from muscular work." In 1894 Lloyd Andriezen[2] concluded that "the pituitary gland exercises a trophic action on the nerve tissues, which, in more definite terms, means enabling them, *a*, to take up and assimilate oxygen from the blood stream, and, *b*, to destroy and render innocuous the waste-products of metabolism." As to the thyroid, it may be said to have been connected with both these processes almost since any function was ascribed to this gland. "According to one hypothesis," says Howell,[3] "the function of the secretion is antitoxic. In some way it antagonizes toxic substances supposed to be formed in the body in the course of normal metabolism."

The interpretation of the functions of these three organs which I submitted last year,[4] merges all these hypotheses into a coherent whole; it explains, also, the manner in which metabolism is sustained by all three organs simultaneously, and how the toxic waste products are destroyed. When we consider the vast array of facts on record attesting to a close relationship between these toxic wastes and the diseases in question, it can not but appear that the interpretation referred to may serve to throw some light on the pathogenesis of these diseases, and, perhaps, open new lines of thought in the direction of their treatment.

Since my views were published considerable personal work and new facts contributed by experimenters have only served to strengthen the position then taken as to the functional relationship between the adrenals, the pituitary body and the thyroid. To illustrate the connection between the interial secretions and the diseases mentioned, it is necessary to briefly review the evidence attesting the existence of what I have termed the "adrenal system" as it appears enriched by these new facts.

The marked blood pressure raising power of adrenal extractives and their action on the heart are well known. That the secretion of the adrenals produces identical effects has been established experimentally.

Gottschau,[5] Stilling,[6] Manasse[7] and Auld[8] observed that hyaline masses were secreted by rows of cells in the medullary canal of the organ, and that pressure on the latter caused these masses to pass into the blood vessels. Pfaundler[9] discovered similar masses in the latter and in the suprarenal vein where it opens into the vena cava. Cybulski, Szymonowicz[10] and Langlois[11] then ascertained that blood drawn from the suprarenal veins produced effects similar to those that follow injections of adrenal extracts, and Biedl[12] found that, while blood taken from other veins produced no effect when injected intravenously, blood taken from the adrenal veins used in the same way produced the characteristic effects of adrenal extracts, i. e., slowing of the pulse followed by a rise of blood pressure.

How is the functional activity of the adrenals increased? To ascertain the identity of their secretory nerves, Biedl tied the vena cava below the adrenal veins, inserted a small canula above the latter, and registered the number of drops of blood that escaped from it. On

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Abelous and Langlois: Arch. de Physiol. norm. et Path., 1891.
2. Andriezen: Brit. Med. Jour., Jan. 13, 1894.
3. Howell: Trans. Cong. Amer. Phys. and Surgs., vol. iv, p. 70, 1897.
4. Sajous: Internal Secretions and the Principles of Medicine, vol. i, Philadelphia, 1903.
5. Gottschau: Archiv f. Anatomie u. Physiol., 1883.
6. Stilling: Archiv f. path. Anat., vol. cix, p. 324, 1887.
7. Manasse: Virchow's Archiv f. Path. u. Physiol., vol. cxxxv, p. 263, 1894.
8. Auld: Brit. Med. Jour., May 4, 1894.
9. Pfaundler: Sitzung.-Ber. d. k. Akad. d. Wissensch.-mathem., vol. cl, p. 3, 1892.
10. Cybulski and Szymonowicz: Gazeta Lekarska, March 25, 1895, and Archiv f. die gesammte Physiol., vol. lxiv, Nos. 3 and 4, p. 97, 1896.
11. Langlois: Revue Scientifique, p. 303, 1897.
12. Biedl: Archiv f. d. gesammte Physiol., vol. lxvii, Nos. 9 and 10, p. 443, 1897.

dividing the splanchnic and stimulating its peripheral end, the number of drops increased, but only after from seven to ten seconds, then gradually to from three to five times the normal number. The increased flow continued from ten to twenty seconds after stimulation had ceased. Stimulation produced no effect when the suprarenal nerves were cut. This showed that the splanchnic contained nerves which increased the blood flow through the adrenals—as does the chorda tympani in the submaxillary gland—but did not disclose the identity of the secretory nerves. This was accomplished by Dreyer[13] of Johns Hopkins. He ligated the adrenal vein so as to secure, through a canula, only blood derived from the gland. In eight experiments a given bulk of adrenal blood taken during stimulation of the splanchnic produced decidedly greater effect than the same blood before stimulation. The greater splanchnic was thus shown to contain fibers which, on excitation, increase the functional activity of the adrenals.

Biedl also tried to prove experimentally the presence of vasoconstrictor nerves in the adrenals. Stimulation of the (cut) splanchnic, vagus and of the suprarenal nerves failed to show the least constriction; asphyxia, which causes marked vasoconstriction in the intestines, also failed to cause it in the adrenals. He then exposed and divided all the spinal roots from the third thoracic to the third lumbar, and stimulated both their anterior and posterior segments "with a strong induction current." No vasoconstriction occurred in the adrenals, though the usual effects were noted elsewhere, and the rapidity of the blood flow from the adrenal veins was never increased.

This experiment was repeated three times, and always gave similar results. It shows not only that the adrenals are not supplied with vasomotor nerves, but also that the secretory nerves to the adrenals do not originate in the spinal cord up to the third thoracic.

Again, if the adrenals' secretory fibers are present in the greater splanchnic, which arises from the sixth ganglion of the sympathetic cord, some splanchnic fibers —those to the adrenals—must ascend in the sympathetic cord at least to the level of the second thoracic. Quain[14] states that some fibers of the splanchnic's higher roots "may be traced upward in the sympathetic cord as far as the first or second thoracic ganglia." Gray[15] gives the same limits; Curveilhier[16] says that these upper filaments "are merely in contact with the sympathetic," a statement which obviously suggests that they constitute an autonomous path.

Stimulation of the sympathetic cord alone above the origin of the splanchnic nerve, i. e., up to the first thoracic ganglion, increases the functional activity of the adrenals.

We have seen that when Biedl stimulated the splanchnic the functional activity of the adrenals increased only after from seven to ten seconds had elapsed, and that it continued from ten to twenty seconds after the excitation ceased. The intestines react in a similar way. If "a galvanic current be passed through the splanchnic nerve," says Brubaker,[17] "no instantaneous effect is noticed, as in the case of the cerebrospinal nerves, but in the course of a few seconds a slow, progressive contraction of the muscular coat of the intestine is established, which continues some time after the irritation is removed." If this is due to hypersecretion of the adrenals, the intestines are thus subjected to two experimental vasoconstricting influences: the adrenal secretion and their own vasoconstrictor nerves. Intestinal "inhibition" affords evidence of this dual action. Schiff, Ludwig and Kupffner, Bechterew and Mislawsky[18] have observed both a motor effect, i. e., increased peristalsis sometimes, and inhibition at others. Bunch[19] has given graphic records of intestinal movements in which stimulation of the splanchnics caused in some animals augmentation, in others inhibition of the intestinal tone." Starling[20] says in this connection that Jacobi[21] found that "section of the nerves running from the suprarenals to the solar plexus annuls the inhibitory action of the splanchnics (on the intestines) without affecting their vasoconstrictor effects." This plainly shows that when the adrenals are no longer stimulated through section of their secretory nerves the constrictor (experimental) effects caused by the vasomotor nerves continue alone.

The same dual action occurs in all other organs supplied with vasomotor nerves. In the liver, for instance, two forms of experimental vasoconstriction are discernible; one due to the true vasoconstrictors, which nerves, as shown by François-Franck and Hallion[22] and confirmed by others, leave the spinal cord from the sixth thoracic to the second lumbar, inclusive; the other due to stimulation of the sympathetic cord above the sixth thoracic. The above-named physiologists found that stimulation of the sympathetic chain where, they state, "it has not as yet received from the spinal cord the first hepatic vasoconstrictor rami," caused "a marked rise of aortic pressure." They then divided the rami containing all the hepatic vasomotor nerves, thus isolating the sympathetic chain, and stimulated the latter above the origin of the upper root of the splanchnic. This provoked, as stated by them, and as shown by their tracings, "the maximum vasomotor effect," while division of their upper root was followed by "marked reduction of the vasoconstrictor effect." The upper root referred to, however, being the identical one which, we have seen, anatomists trace up to the first thoracic ganglion, similar effects should be obtained higher up in the sympathetic chain.

Referring to experiments recorded by Pavy, Cyon and Aladoff, and François-Franck, some twenty years before. François-Franck and Hallion remark that they had "led to the supposition that the hepatic vasomotor nerves passed down to the loop of Vieussens by the cervical sympathetic cord, and thence to the thoracic chain through the stellate inferior cervical ganglion." Unable, of course, to account for their results, they ascribed them to "reflex action" or to some unexplained "indirect influence."

Still, the loop of Vieussens, to which these physiologists refer, forms part of the cervical sympathetic, and lies above, therefore, the upper limit of the splanchnic

13. Dreyer: American Journal of Physiology, vol. ii, p. 203, 1899.
14. Quain: Anatomy, 7th ed., vol. ii.
15. Gray: Anatomy, Philadelphia and New York, 1901.
16. Cruveilhier: Anatomy, American ed., New York, 1844.
17. Brubaker: Compend of Physiology, Philadelphia, 1900.
18. Schiff, Ludwig and Kupffner, Bechterew and Mislawsky: quoted by L. H. Starling in article on "Mechanism of the Digestive Tract," in Schäfer's Text-book of Physiology, vol. ii, p. 313, Edinburgh, London, New York, 1900.
19. Bunch: Quoted in E. H. Starling's article on "Mechanism of the Digestive Tract," in Schäfer's Text-book of Physiology, vol. ii, p. 313, Edinburgh, London, New York, 1900.
20. Starling: "Mechanism of the Digestive Tract," Schäfer's Text-book of Physiology, vol. ii, p. 313, Edinburgh, London, New York, 1900.
21. Jacobi: Archiv f. exper. Path. u. Pharm., vol. xxix, p. 171, 1892.
22. François-Franck and Hallion: Arch. de Physiol. norm. et Path., vol. viii, No. 5, p. 923, 1896.

fibers, the first thoracic. How account for the effects noted?

In 1859 Pavy[23] found that "division, on both sides of the neck, of the ascending branches of the superior thoracic ganglion" in the vertebral canal caused "an intensely marked diabetes." Francois-Franck and Hallion refer to these branches collectively as the vertebral nerve, composed of the rami of the sixth, seventh and eighth spinal nerves, and the one which on stimulation caused hepatic vasoconstriction. Glycosuria is now generally attributed to a too rapid conversion of the liver glycogen into sugar, i. e., to excessive functional activity. Even Bernard's puncture is ascribed to localized irritation.

This interpretation is sustained by the fact that adrenal extract, as shown by Blum,[24] Croftan[25] and others, cause glycosuria. Herter,[26] for example, found that intravenous injections of adrenalin were followed by a large excretion of sugar, and states in this connection that "a rise of blood pressure is an accompaniment of glycosuria." Stimulation of the adrenals can alone, therefore, bring about glycosuria and its corollary a rise of blood pressure. Moreover, Claude Bernard found that experimental diabetes was prevented by division of the splanchnic. It follows, therefore, that division of the vertebral nerve should prevent diabetes if it were the secretory nerve of the adrenals. Indeed, the vertebral nerve is what Pavy termed it from the start, namely, a sympathetic nerve—an important one, as we will see, since it terminates in the organ from which the nerve to the adrenals originates.

Cyon and Aladoff[27] found that lesions or removal of the upper thoracic or inferior cervical ganglia, or division of the loop of Vieussens, also caused diabetes. All these contain, as is well known, sympathetic fibers which ascend to the superior cervical ganglion. Again, Pavy states that "of all the operations on the sympathetic of the dog that have as yet been performed, removal of the superior cervical ganglion the most rapidly and strongly produces diabetes." Hence, some of the ascending fibers referred to must transmit their vasomotor impulses to some cranial organ which, when passively congested and overactive through section of these fibers, can in turn stimulate the bulbar centers and produce glycosuria. That we are dealing with a vasomotor path is further emphasized by the "temporary nature" of the diabetes witnessed by Pavy.

Which is the cerebral organ thus influenced? Langley[28] refers to three bundles of fibers given off by the superior cervical ganglion, the distribution of which is uncertain. Two of these pass toward the eye muscles; of the third he says: "there is that which accompanies the internal carotid; it would naturally be supposed to convey vasomotor fibers to the vessels of the brain, but this view, as we have said, is contested." The carotid plexus is connected with the pituitary body. So distinct is this connection, and so direct is the anatomic relationship between this organ and the sympathetic chain, that Bourquery, a French anatomist, looked on it some forty years ago as the general center of the sympathetic system. Hirschfeld[29] says in this connection: "I am all the more inclined to adopt this view, since I have always seen in my dissections a great number of nerve fibers extend from the superior cervical ganglia to this organ." Among the anatomists who have also found these fibers are Pourfour du Petit, Fontana, Bok, Sappey, Hirzel, Warrentropp and Bazin, and among the more modern works which refer to them are those of Testut,[30] Morris[31] and Gerrish.[32] On the other hand, Berkley,[33] after an exhaustive histologic study of the nervous supply of the pituitary body, says, referring to its anterior lobe: "All nerves belonging to it appear to be derived from branches of the carotid sympathetic plexus."

To control this evidence, it should be possible to show that overactivity of the pituitary body, hyperemia of the bulbar center caused by Bernard's puncture and injections of adrenal extractives can cause diabetes. We have seen that Bernard prevented experimental glycosuria by dividing the splanchnics; Loeb[34] states that glycosuria does not occur during the post-operative life of animals deprived of the pituitary, and that it is a frequent symptom of pituitary growths. Again, Berkley, as stated, traced the fibers of the carotid plexus to the anterior lobe. Sternberg[35] found that this lobe was chiefly involved in acromegaly. Tamburini,[36] in a study of acromegaly which included twenty-four autopsies, lays stress on the fact that exaggeration of the functions of the pituitary attends the first stage. The excessive and often ravenous appetite, the thirst, polyuria, the full and hard pulse, cutaneous hyperesthesia, abnormal superficial heat, etc., and the typical muscular and osseous hypernutrition, all indicate excessive functional activity—the underlying factor, we have seen, of glycosuria. Hinsdale[37] mentions fourteen clinicians who have observed glycosuria in this disease.

Again, if overactivity of the pituitary body provokes glycosuria by stimulating the adrenals, we should obtain, on stimulating the pituitary, the characteristic symptoms of overactivity of the adrenals. De Cyon[38] observed, in the course of experiments in a large number of animals (in support of his theory that the pituitary body serves through the thyroid gland to regulate the cerebral blood pressure) that "any, even slight pressure on the pituitary body immediately gives rise to a sudden variation of the blood pressure, and to a marked reduction of the beats of the heart, the strength of which is at the same time considerably increased." He also found that "electrical stimulation of the pituitary body, even with extremely weak currents, produces exactly the same phenomena as mechanical pressure, but in a much more intense manner."

These experiments have been repeated recently by F. Masay and amplified in such a manner as to distinctly locate in the pituitary the origin of the phenomena witnessed. His investigations showed that mechanical and electrical excitation of the pituitary body caused a marked rise of blood pressure—from 81 mm. Hg to 200.

23. Pavy: Proceedings Royal Soc. of London, vol. x, p. 27, 1860.
24. Blum: Deutsch. Arch. f. klin. Med., vol. lxxi, Nos. 2-3, p. 146. 1901.
25. Croftan: Amer. Med., Jan. 18, 1902.
26. Herter: Amer. Med., May 10, 1902.
27. Cyon and Aladoff: Bulletin de l'Acad. des Sciences de St. Pétersbourg, vol. vii, 1871.
28. Langley: Sympathetic and Other Related Systems of Nerves, in Schäfer's Text-book of Physiol., vol. ii, p. 616, Edinburgh, London, New York, 1900.
29. Hirschfeld: Système Nerveux et Organes des Sens de l'Homme, Paris, 1866.
30. Testut: Traité d'Anatomie Humaine, 3d ed., vol. ii, Paris, 1896.
31. Morris: Treatise of Anatomy, Philadelphia, 1893.
32. Gerrish: Text-book of Anatomy, Philadelphia and New York, 1899.
33. Berkley: Brain, Winter, p. 515, 1894.
34. Loeb: Centralblatt f. innere Med., vol. xix, p. 892, 1898.
35. Sternberg: Acromegaly, Nothnagel's Encyklopedia, p. 30.
36. Tamburini: Revista Sperimentale de Freniatria, p. 559, 1894, and p. 414, 1895.
37. Hinsdale: Acromegaly, p. 20, Detroit, 1898.
38. De Cyon: Arch. de Physiol. norm. et Path., vol. x, No. 5, p. 618, 1898.

in one instance—and that this effect was not prevented by section of both vagi. He also found that very soon after excitation the power of the heart became "greater than normal." We thus have a marked rise of blood pressure followed by an increase of cardiac power—precisely the physiologic characteristics not only of adrenal extractives, but also of blood taken from the suprarenal veins.

How does the pituitary body transmit its impulses to the adrenals?

Last year[4] I advanced the view that the anterior pituitary body was a sensory organ. This has been fully sustained by recent researches. Paremeschko[39] described a transverse slit or cavity between the glandular elements and the partition, which cavity communicated with the infundibulum, and was lined throughout with ciliated epithelium. Cadiat[40] observed a similar cavity communicating above with the tuber cinereum and lined with pavement epithelium. Müller[41] states that the internal wall of this slit, which forms part of the partition, is composed of a network of lymphatics lined with ciliated epithelium. Recently this region of the anterior lobe has been studied by the Golgi method by Gentès,[42] who found that this lobe was in reality composed of two parts, the glandular and the neural, the latter forming the inner wall of the cavity described by Paremeschko, Cadiat and Müller, which cavity he found to exist in the animals used, i. e., the cat and dog. Ordinary methods of staining suggested that this structure was composed of several layers of cylindrical stratified epithelium, but the Golgi method showed in addition that the interstices between these elements were penetrated throughout by sensory cells, each cell sending broad processes to the free surface and into the depths of the epithelial layer. The latter recalled "precisely that of the olfactory area of the nasal membrane."

Lloyd Andriezen,[2] after tracing the phylogenetic history of the pituitary body in all vertebrates, concluded that "the posterior lobe represents little beyond a neuroglia remnant of what was once a functional portion of the nerve tissue in ancestral vertebrata." My own researches having suggested that neuroglia fibers were not insignificant functionally as now believed, and that they were neural capillaries containing blood-plasma, under the dependence of neuroglia "cells," the posterior pituitary no longer appeared to me as a vestigial organ.

Berkley,[33] after examining about 2,500 slides of this organ, found different types of cells, and expressed surprise to find therein "beautiful specimens of several types of ependymal neuroglia cells extending from all portions of the middle and inferior regions of the cavity of the third ventricle." Kölliker[43] also observed such elements in human pituitaries. Even its outer layer was found by Luschka[44] and Müller,[45] who studied the pituitary body from myxine to man, and others, to be composed of gray substance recalling that of the cortex cerebri and similar to that found in the infundibulum.

As to the relations of the pituitary body with the base of the brain, i. e., the third ventricle, Ramon y Cajal[46] found that the posterior lobe was filled with a close and thick plexus of fine varicose fibers which ramify among the nerve cells. Longitudinal sections showed that these fibers were "terminal arborizations of a bundle which passes downward in the infundibulum." Some fibers were also observed to pass upward from the organ by way of its epithelial walls and to terminate in a mass of gray matter located behind the optic chiasm. Cajal also found that this group of cells (the giant-celled supra-infundibular nucleus) also sent some of their axons into the anterior lobe, terminals of which penetrated between the epithelial cells. This agrees with the description of older anatomists and histologists (Sappey, Luschka, Müller, etc.). Both the anterior and posterior lobes thus communicate through the infundibulum with the central gray substance, a region which Foster terms "a bed for the development of the nuclei of the cranial nerves and a continuation of the spinal gray matter."

The great nucleus above the optic chiasm and the infundibular structures is not only connected with the pituitary body, but also with: 1, the structures anterior to it; 2, the gray walls of the third ventricle on each side of it; and 3, the tuber cinereum or floor of this ventricle (of which the infundibulum forms part), which extends up to the mammillary bodies, two small organs immediately behind the pituitary body. Van Gehuchten,[47] for instance, recently found, in teleosts, that cells in the anterior lobe, which is composed mainly of the olfactory and visual organs, sent some of their "neuraxons" by way of the anterior basal bundle to the anterior portion of the infundibulum where they terminated, while neurons whose cell-bodies were in the infundibular structures sent theirs to the anterior lobe. He characterizes these nerves, respectively, as "motor" and "sensory." This coincides with results obtained in the monkeys by W. Spencer.[48] He slowed and arrested respiration by stimulating an area adjoining the olfactory tract in the orbital surface of the frontal area. The fibers traced by him seem to form part, he thought, of the olfactory tract bundle which passes over the optic chiasm around the infundibulum. Munk[49] has observed a close connection between the frontal respiratory area and the olfactory paths, and on exciting it, could arrest respiration, deepen the thoracic inspiration, and even cause diaphragmatic tetanus. Cyon also caused tetanic spasm by stimulating the pituitary body.

Important in this connection is the fact that anterior connections with the central gray matter exist which are independent of the hemispheres, including the striated bodies and optic thalami. Edinger[50] emphasizes the fact that the prominent olfactory tract runs backward to the level of the mamillary bodies, and "must pass through the most ventral regions of the corpus striatum; but it receives no fibers from this, as has been supposed." In fact, he states that in Goltz's dog—which lived eighteen months after removal of both

39. Paremeschko: Virchow's Archiv f. path. Anat. u. Physiol., vol. xxxviii, p. 429, 1867.
40. Cadiat: Anatomie Générale.
41. Müller: Jenaische Zeitschrift, vol. vi, 1891.
42. Gentès: Comptes-rend. de la Soc. de Biol., vol. lv, p. 100, 1903.
43. Kölliker: Handb. der Gewebelehre d. Menschen., p. 605, Leipzig, 1896.
44. Luschka: Der Hirnanhang und die Schildrüse des Menschens, 1860.
45. Müller: Jenaische Zeitschrift, vol. vii, 1891.
46. Ramon y Cajal: Anales de la soc. esp. d'hist. nat., 2d series, vol. iii (xxiii), Madrid, pp. 214-15, 1894.
47. Van Gehuchten: Anatomie du Système Nerveux, vol. ii, Louvain, 1900.
48. W. Spencer: Philosophical Trans. of the Royal Soc. of London, p. 605, 1894.
49. Munk: Ueber die Functionen der Grosshirnrinde, Berlin, 1890.
50. Edinger: Anatomy of the Central Nervous System in Man and in Vertebrates in General, Transl. by W. S. Hall, Philadelphia, 1899.

hemispheres and in which the optic thalami were partially destroyed—"the great tract of fibers from the olfactory field could be traced backward very clearly and distinctly to the corpus mamillare." So are all the structures of the central gray matter independent of the hemispheres. Von Monakow found that removal of the cortex did not cause primary degeneration of the tuber cinereum which contains the infundibulum, or even of the gray substance overlying the optic thalami.

This entails the need of cellular connections in the various regions of the third ventricle, including its walls, to receive impulses from various directions, irrespective of the hemispheres. Edinger found that in reptiles, amphibians and birds, the nucleus of the infundibulum extends around the walls of the ventricle, and he considers it as the probable source of the "supra-infundibular decussation formed of large fibers, which," he says, "descend to it from the gray matter of the ventricular walls." Again, Van Gehuchten found that while the bipolar cells (which, as is well known, are also present under the rods and cones of the retina, the olfactory membrane and other sensory organs) in the infundibular tissues, sent a tuft of dendrites to the surface of the latter, another tuft of "short irregular extensions terminate on the free surface of the ventricular cavity."

The central gray substance is thus supplied with direct paths from sensory organs and nervous extensions capable of forming links or synapses with others, all so arranged as to concentrate their impulses in the infundibular walls, and thence, judging from the cellular connections, into the pituitary body.

The spinal cord sensory impulses are no exception in this connection. A pigeon deprived of its hemispheres feels a fly that happens to alight on its head, and shakes it off; Goltz's dog, in which, beside the hemispheres, the optic thalami were functionally destroyed, refused food made bitter with quinin; Vulpian has shown that when the hemispheres, optic thalami, striated bodies, the corpora quadrigemina and the cerebellum were removed, animals still cry out when a foot or an exposed nerve is strongly pinched. The central gray axis alone remained here to receive impulses through at least a portion of the fillet, which, according to Foster,[51] is "a probable path of sensations of one kind or another from the body at large."

Two divisions of the fillet are so disposed anatomically as to reach the central gray substance, the fillet layer and the mesial fillet.

Edinger[50] states that the greater part of the former can be traced up from the nuclei of the sensory nerves and the posterior columns. "Meynert," adds this anatomist, "first demonstrated that in it we have a segment of the sensory tract. Embryology and comparative anatomy equally substantiate this position." This layer, also termed the "deep gray-white layer," after decussating in the medulla, passes upward in the gray substance of the aqueduct of Sylvius to the threshhold of the third ventricle. The other or mesial fillet also reaches up to this region; while some of its fibers go to the optic thalami, others terminate in the subthalmic region, i. e., beneath the walls of the third ventricle, which, we have seen, contain dendritic tufts of infundibular nerves. Now the fillet, from which both these tracts originate, not only contains, as emphasized by Edinger, fibers from all the sensory bulbar nuclei, but degeneration experiments have shown, he says, that "it may be separated into its various bundles for the different nerves, trigeminus, acusticus," etc. Stewart[52] refers to the mesial fillet as being enlarged in the medulla "by the accession of fibers from the sensory nuclei of the cranial nerves." In other words, this division of the fillet contains fibers of all sensory nerves, the vagus, glossopharyngeus, trigeminus, etc., and transmits them to the base of the brain.

The central gray substance *per se* can thus receive sensory impulses from all parts of the organism. It can likewise transmit motor impulses to all organs.

Van Gehuchten traced motor fibers to the anterior organs of the head. The motor paths to the spinal cord are clearly defined through the posterior longitudinal bundle, which passes down to the anterior columns of the cord. It is only traced usually to the motor oculi nucleus. Edinger says in this connection: "The posterior longitudinal fascicle sends its most anterior fibers much farther forward than to the nucleus of the oculomotorius. In the central gray matter, just anterior to the beginning of the aqueduct, is a collection of large ganglion cells, from which a number of such fibers (referring to the fibers destined for other cranial nerves) arise—the nucleus fasciculi longitudinalis posterioris.[53] This nucleus is demonstrable in all vertebrates. In mammals it lies in those places which ventrally intersect the posterior part of the corpus mamillare." Moreover, he found that in the human fetus, as well as in the lower vertebrates, it received fibers "from all motor nuclei throughout its long course." Finally, the vast functional importance of this motor path is emphasized by the words: "Inasmuch as it is found in all vertebrates, and always from the interbrain to the region of the anterior columns of the spinal cord, it must be recognized as one of the fundamental features of the brain."

While the central gray substance is evidently endowed with an autonomous mechanism through which it can receive all impressions from the periphery and transmit motor stimuli in every direction, what is the influence of the pituitary body in this connection? We know that it was by passing a current from the nasal cavities to the bulb that brothers Weber[54] arrested the heart. Cyon,[55] while studying experimentally the influence of a supposed secretion of the pituitary body in the cerebral blood pressure, found that inhibitory slowing of the heart could no longer be obtained after extirpation of the pituitary body. Even the reflex phenomena, sneezing, coughing, lachrymation, etc., provoked by irritation of the nasal mucous membrane, could no longer be obtained, irritants of the most active kind, ammonia, for instance, having lost all influence. "All the nerves connected with the nasal mucous membrane capable of causing reflex phenomena," says this physiologist, "that is to say, the end-organs of the trigeminus, olfactory, optic, auditory and glosso-pharyngeus, had lost their influence after the pituitary body had been removed."

When we realize how many different sensory and

51. Foster: Text-book of Physiology, 6th Amer. ed., Philadelphia, 1895.

52. Stewart: Manual of Physiology, 4th ed., Philadelphia and London, 1900.

53. An error in the original text causes the latter word to appear as "superioris"; the description and all illustrations to which the author alludes, however, refer to the posterior bundle. S. (See Figures 179, 43 and 44.)

54. Weber: Handwörterbuch d. Physiologie, vol. ii, 1846.

55. Cyon: Archiv fur die gesammte Physiologie, vol. lxxi, Nos. 7-8, p. 370, 1898, and vol. lxxii, Nos. 9-10, p. 431, 1898.

motor paths are involved in the production of the reflex phenomena referred to, and also that a high mammal deprived of its hemispheres will live months, whereas removal of the pituitary body in an adult animal inevitably causes death, the commanding importance of this organ can not but assert itself. Indeed, I have advanced the view that we have in this organ the governing center of the nervous system, meaning thereby the co-ordination center of the vasomotor and cranial nerves. It is when we observe the perfection with which all purely physical functions are performed in the absence of the hemispheres that the need of such an organ asserts itself, and that the identity of the pituitary body as such becomes apparent.

All this has also served to indicate the path of the secretory nerves to the adrenals.

The vertebral nerve being purely a vasomotor path, it need no longer be considered as a possible secretory nerve to the adrenals. Indeed, François-Franck and Hallion found that section of the five upper thoracic rami communicantes arrested the hepatic vasoconstrictor effects. They justly contend that if the impulses from the upper spinal cord actually passed to the sympathetic chain by way of the vertebral nerve, the vasoconstrictor effects should have persisted notwithstanding division of the thoracic rami.

There is a feature of their experimental result which these physiologists overlooked, however, namely, that if division of these rami, all of which are above the origin of what they rightly consider as the uppermost path (the sixth thoracic) for the true hepatic vasoconstrictors, arrested their constrictor effects, the five severed rami must have controlled these effects. In other words, the functional activity of these vasomotor nerves. must have depended on the functional integrity of some organ dominated by the five upper rami. The solution of this problem is easily found, in view of the fact that the portion of the sympathetic chain to which these five rami run is the only portion of this chain in which the nerves traced upward from the adrenals occur alone. It is plain, therefore, that it is by way of these five rami that the impulses, which produced the typical effects of adrenal extractions when the pituitary body was stimulated by Cyon and Masay, were transmitted to the adrenals by way of the sympathetic chain.

What is the nature of the process through which the pituitary body controls the functional activity of the adrenals? I can only recall that I have adduced evidence to show that the secretion of the adrenals, owing to its marked affinity for oxygen, took up this gas from the pulmonary air and became transformed into a compound I termed "adrenoxin." This was found to correspond with the substance which Salkowski[56] Schmiedeberg,[57] and subsequently Jaquet[58] and Abelous and Biarnés,[59] found in the blood, and which they specifically characterized an "oxidizing ferment." It is a constituent of blood serum and of the red corpuscles, and it yields its oxygen to sufficiently potent reducing agents. Its hold on the oxygen is sufficient to present its dispersion and not too great to resist the normal affinity of the tissue with which it comes into contact. The blood plasma laden with adrenoxin can thus circulate in microscopic capillaries, where corpuscles can not reach and sustain metabolism. Methylene-blue stain which, according to Ehrlich, requires oxygen saturation and alkalinity, indicate its presence in all nervous elements, including the nerve cell.

The manner in which the adrenals sustain the functional activity of the vasomotor nerves now suggests itself. The adrenoxin-laden blood plasma sustains the vital process of the vasomotor center, as well as that of the other organs. We have seen that when Cyon and Masay stimulated the pituitary body, the characteristic effects of adrenal secretion or extracts were produced. The blood's adrenoxin acts on it in a similar way, and the effects witnessed are in reality those of overstimulation of the same organ, and the effects evoked point to it as the chief vasomotor center.

Under these conditions the effects of adrenal extracts should coincide with those of the overactive vasomotor nerves. Langley,[60] after an exhaustive experimental study of the physiologic action of adrenal extract, remarks that it "runs parallel with the action of the sympathetic nerves on the blood vessels." He also deems it "noteworthy that the effects produced by suprarenal extract are almost all such as are produced by stimulation of some one or other sympathetic nerve. In many cases," he adds, "the effects produced by the extract and by electrical stimulation of the sympathtic nerve correspond exactly."

Important in this connection also is the fact that it is through some of these rami that the heart is supposed to receive its augmentor nerves, i. e., the three uppermost thoracic. Brown-Séquard,[61] in 1853, emphasized the predominating influence of the venous blood in cardiac dyamism. Oliver and Schäfer[62] and others have demonstrated that intravenous injections of adrenal extract had a powerful physiologic action on all muscles, but particularly on the heart muscle. In my work on the "Internal Secretions," I lay stress on the fact that the heart's contractile power depends to a great extent on the adrenal secretion which enters it by way of the inferior or vena cava, and that the secretion penetrates into the myocardium by way of its Thebesian foramina. This accounts: 1, for the augmentor effects; 2, for a part, at least of the rise of blood pressure which occurs, as is well known, when all the nerves to the heart are cut, and shows that the secretory nerve to the adrenals is a bundle formed of the three upper thoracic spinal nerves, which reach the splanchnic through the upper portion of the sympathetic chain in the thorax.

Biedl, we have seen, only stimulated the spinal nerves up to and including the third thoracic, but as he was trying to ascertain the presence of vasomotor nerves, he doubtless stimulated the third thoracic (which is not usually regarded as belonging to the vasomotor field of the splanchnic) too short a time to obtain secretory effects.

This also alters my own belief that the cervical sympathetic also serves as a link between the pituitary body and the upper end of the sympathetic cord in the thorax.

All this accounts for the fact long ago recorded by von Bezold and Bensen,[63] that section of both splanchnics lowered the blood pressure as much as section of

56. Salkowski: Virchow's Archiv f. path. Anat. u. Physiol., vol. cxlvii, No. 1. p. 1, 1897.
57 Schmiedeberg: Archiv f. exper. Path., vol. xiv, Nos. 4-5, p. 288, and No. 6, p. 379, 1881.
58. Jaquet: Arch. f. exp. Pathol., vol. xxix, Nos. 5-6, p. 386, 1892.
59. Abelous and Biarnès: Archives de Physiol., vol. vii, No. 5, p. 195, 1895.
60. Langley: Journal of Physiology, vol. xxvii, p. 237, 1901.
61. Brown-Séquard: Exper. Researches Applied to Phys. and Path., p. 104, New York, London and Paris, 1853.
62. Oliver and Schäfer: Journal of Physiology, vol. xvi, p. 1, 1894, and vol. xvii, p. 9, 1895.
63. Von Bezold and Bensen: Neue Würzburger Zeitung, 1866; Verh. d. Phys. Med. Gesells., Würzburg, January, 1867.

the spinal cord in the cervical region. It also explains why Strehl and Weiss found that, after removing one adrenal, the blood pressure could be lowered by clamping the suprarenal vein of the remaining organ, thus depriving the blood of any adrenal secretion, and that by releasing this vein the blood pressure was soon restored to its previous level.

Another organ closely related functionally with the pituitary body is the thyroid gland.

The secretion of the adrenals, by taking up oxygen in the lungs and carrying this gas to all parts of the organism, becomes the underlying factor not only of the pulmonary respiration, but also of tissue respiration. Last year I advanced the view that the purpose of the thyroid gland was to sustain the functional efficiency of the anterior pituitary body by means of its internal secretion. As such, therefore, this organ becomes itself associated with the general respiratory process. Suggestive, in this connection, is the fact that Andriezen,[61] after a study of the thyroid in lower animals and the results of its extirpation, reached the conclusion (although not aware of the nervous connection between the pituitary and the adrenals and the rôle of the latter in respiratory processes) that the morbid phenomena observed were ascribable to perturbations of the gaseous interchanges in the tissues. That the administration of thyroid extract enhances all oxidation processes of the organism, increasing the proportion of waste products in proportion, is now a familiar fact. The view that a functional—though undefined—relationship between the pituitary body and the thyroid exists, has long been defended by Stieda, Hofmeister, Gley and Andriezen, among others. Removal of the pituitary produces symptoms similar to those caused by extirpation of the thyroid, and the morbid symptoms of extirpation of this organ can be arrested by administering thyroid extract.

Again, as shown by Baumann, Hutchinson, Fränkel, Oswald and others, the active principle of thyroid extractive is an iodin compound. Considerable iodin has also been found in the pituitary body by Schnitzler and Ewald.[65] The presence in the latter organ of hypersensitive structures, and particularly of that recently described by Gentès, in which the end organs typify precisely those of olfactory end organs, adds further evidence to that already submitted by me, showing that it is through its secretion that the thyroid sustains the functional activity of the anterior lobe of the pituitary in which this structure was found.

Summing up the facts adduced, they seem to me to sustain the contention that the pituitary body, the adrenals and the thyroid jointly govern all oxidation processes, and, therefore, the functional efficiency of all organs.

If, as stated, the functions of the pituitary, the adrenals and the thyroid are interdependent—thus constituting what I have termed the "adrenal system"—impairment of the functional integrity of either one of them must morbidly influence that of the others. Overactivity of the thyroid, for example, by surcharging the blood with this organ's internal secretion, will overstimulate the pituitary body and through them the adrenals, thus causing the symptom-complex of general hyperoxidation: exophthalmic goiter. Conversely, lowering of the activity of the thyroid correspondingly lowers all oxidation processes, as instanced by the hypothermia of myxedema, cretinism, etc.

64. Andriezen: Soury, Système Nerveux Central, Paris, 1899.
65. Schnitzler and Ewald: Wiener klin. Woch., July 16, 1898.

The bearing of these various functions on the convulsive disorders mentioned may now be outlined.

Munk provoked diaphragmatic tetanus when he stimulated the respiratory area adjoining the olfactory organs, the fibers of which traverse the central gray substance, and Cyon caused tetanic spasm on stimulating the pituitary body. Prus,[66] after a very large number of experiments, concluded that the spasmogenic impulses were not transmitted by the pyramidal tracts, but by others which he termed "extrapyramidal" and which passed below, i. e., by way of the midbrain or tegmentum—structures through which, I may add, the motor impulses from the central gray substances pass. Hering has since confirmed these results, and produced epileptic seizures after dividing both upper motor tracts, and it may be said that evidence to this effect is rapidly accumulating. Very recently Nino Samaja[67] showed by electrical stimulation of the region below the cortex, and decortication in newly born and adult animals of various kinds, that while in the higher adult mammals the motor cortical zone could alone evoke clonic convulsions, the lower brain was the source of stimuli which caused tonic spasm; and, furthermore, that while in man clonic convulsions were also of cortical origin, "the seat of tonic convulsions is exclusively basilar."

The predominant rôle with which the central gray axis (which extends from the pituitary body to the end of the spinal cord) is shown to be endowed in the foregoing pages readily accounts for these observations. Indeed, Magnan[68] caused epileptic seizures in guinea-pigs, pups and kittens deprived of their hemispheres. We can not conclude from this, however, that because Cyon caused tetanic spasm by exciting the pituitary body, the seizures in Magnan's animals were due to a similar cause. In the first place, as is well known, irritation of the fourth ventricle will cause convulsions, and, as shown by Brown-Séquard, Maier and others,[69] convulsions caused by various toxics, including strychnin, may include the lower limbs after division of the cord. In fact, Kussmaul and Tenner[70] found that removal of both hemispheres and the central gray substance, including the pituitary body, did not arrest convulsions caused by toxics.

It seems to me that we are dealing with two sources of convulsions: The first, a toxic in the plasma circulating in the nervous elements; the second, excessive activity in the pituitary body, leading to a correspondingly marked oxidation in all organs, including the muscles. The first is certainly pathogenic, while the most that can be said of the second is that it is an exaggerated manifestation of normal functional activity, and, perhaps, protective.

We do not have to go beyond the symptoms that follow extirpation of the organs involved to show that this is true. After removal of the pituitary body the symptoms are, in Schäfer's words: "1, Diminution of the body temperature; 2, anorexia and lassitude; 3, muscular twitchings and tremors developing later into spasms; 4, dyspnea." After removal of the thyroid in the monkey, "the most characteristic symptoms," says the same physiologist, are "muscular tremors passing gradually into clonic spasms, and finally into convulsive attacks

66. Prus: Wiener klin. Woch., vol. xi, No. 38, p. 857, 1898.
67. Nino Samaja: Revue Méd. de la Suisse Romande, Feb. 20, p. 77, and March 20, p. 173, 1904.
68. Magnan: Arch. de Physiol. norm. u. Path., vol. v, No. 5, p. 115, 1873.
69. Maier: Rapport de l'Acad. de Vienne, vol. lxiv, 1871.
70. Kussmaul and Tenner: Jour. de la Physiologie de l'Homme, etc. vol. i, p. 201, 1858.

(tetany); there is also apathy and unsteadiness of gait, and, with the advance of time, the gradual supervention of a cretinic condition, together with a lowering of the body temperature and cutaneous sensibility." As to the adrenals, death occurs very soon after the removal of both organs, but long enough sometimes to indicate the kinship to the effects just outlined, including low respiration, anesthesia and hypothermia. "The animal lies on its side in a state of intense weakness," writes Auld, "is very drowsy, refusing to move, and may have convulsions."

In all three procedures we have diminution of the temperature and other signs of lowered oxygenation, and along with these, convulsions. We are evidently dealing, as a cause of the latter, with the first or pathogenic factor, i. e., a toxic. The identity of this toxic is readily accounted for: the avidity of the tissues for oxygen is such that it practically depletes not only the red corpuscles, but the plasma also, of this gas. Metabolism continuing in the tissues—though at a lower rate, as shown by the lowered temperature, the lassitude, the muscular weakness—waste products accumulate in the blood. Convulsions then appear, but as a terminal sign. Whether the supply of oxygen be reduced by removal of either of the three organs in question, or by withholding the air supply, as in asphyxiation, the one and same cause prevails, in my opinion, i. e., an accumulation of waste products in the blood plasma, including that which circulates within the neurons of the cortex and the central gray axis, and especially in their sensory terminals.

"In some animals, as in most carnivora," says Chittenden,[71] "complete removal of the thyroidal tissue is followed by a rapid development of symptoms indicating a marked irritation of the nervous and muscular systems, as manifested by tetanus, epileptiform convulsions, etc., and terminating in death."

Why do these products accumulate in the blood stream? The answer to this is afforded by the action of thyroid extract on the symptom-complex that thyroidectomy insures. Hoffmeister[72] found iodothyrin cuts short the symptoms that follow removal of the thyroid, including the convulsions. Baumann and Goldmann[73] showed that thyroidectomized dogs do not suffer from tetanic convulsions so long as adequate doses of iodothyrin are administered, and that they recur when the iodothyrin is withdrawn. Since, as emphasized by Hutchinson[74] and many other investigators, all the systemic oxidation processes are increased by the use of thyroid extractives, it is plain that oxidation is the underlying factor which prevents, either directly or indirectly, the accumulation of spasmogenic elements. Magnus Levy[75] and Scholz[76] found that thyroid extract increases the consumption of oxygen and the proportion of carbonic acid excreted. Mendel, Roos, Napier, Ord, Voit[77] and many other physiologic chemists have noted that it increased the excretion of the end-products of metabolism.

But the paramount point to us, therapeutists, is the fact that the convulsions ceased when under the influence of thyroid extract and the oxidation processes were brought to a sufficiently high level. Evidently the blood was purged of its toxic elements, the increased tissue respiration having entailed their conversion into benign eliminable products. In other words, the spasmogenic poison was overcome by the protective element of the organism, a product of its ductless glands. And this applies to any form of convulsion, whether it be due to accumulated waste products or to a specific toxic; whether, in a word, it occur during puerperal septicemia, epilepsy, hydrophobia or tetanus.

Now, what are the present mainstays in the treatment of these disorders? The bromids and chloral hydrate. "On mammals," says H. C. Wood, "the bromid acts very much as on frogs, inducing progressive paralysis, depression of temperature, and death by asphyxia when given in small poisonous doses." Of chloral, the same distinguished therapeutist says: "A most remarkable action of chloral is on the temperature; in this point all observers are in accord with Richardson of London, who has seen the temperature fall 6 F. in a rabbit. . . . Hammerstein has found that the fall of temperature is very rapid, 6 C. in an hour, and that it occurs in animals well wrapped up and laid in a warm place." If the protective, curative element in these dread diseases is hyperoxidation, what may we expect of induced hypooxidation? The mortality ratio of rabies, tetanus and puerperal eclampsia, treated on those lines, answers that question. These drugs reduce, it is true, the excitability of the sensory elements, but they aid the accumulation of the spasmogenic toxics by inhibiting the oxidation process through which these are destroyed.

Last year I advocated precisely the opposite course; lines of treatment which increase the functional activity of the adrenal system doing precisely what thyroid extract does after removal of the thyroid. Nicholson[78] has not only found that in puerperal eclampsia the normal enlargement of the thyroid—to which Lange called attention after examining 133 women—which betokens increased functional activity, was not present, but that the nitrogenous metabolism was lowered. He obtained excellent results by the use, with a pure milk, of 7½ grain doses of thyroid extract every three or four hours, and morphin (a drug which in therapeutic doses stimulates the adrenal system) as an adjunct. Now, if the adrenal system is involved in such processes, its general center, the pituitary body, should give evidence of excessive activity. In 1898, L. Comte[79] examined the pituitary body in a number of women who had died during pregnancy and found not only that this organ was hypertrophied in every case, but that the anterior lobe was alone the seat of the hypertrophy. P. E. Launois and P. Mulon[80] recently examined histologically the pituitary of two eclamptic women, each aged about 30, and were brought to conclude by histologic examination that during pregnancy the pituitary body gives evidence of marked overactivity.

This exemplifies, it seems to me, the condition involved in all toxemias attended with convulsions. The increasing tendency to use iodin, mercurial inunctions and other agents which tend powerfully to increase oxidation and general metabolism by enhancing the functional activity of the organism's protective system, seems to me, therefore, to merit encouragement.

The views advanced by me in January, 1903, in this

71. Chittenden: Trans. Cong. Amer. Phys. and Surgs., vol. iv, p. 87, 1897.
72. Hoffmeister: Deutsche med. Woch., No. 22, 1896.
73. Baumann and Goldmann: Münch. med. Woch., vol. xliii, p. 1153, 1896.
74. Hutchinson: British Medical Journal, July 16, p. 142, 1898.
75. Magnus Levy: Berliner klin. Woch., vol. xxxii, p. 650, 1895.
76. Scholz: Centralb. f. innere Med., vol. xvi, pp. 1041, 1069, 1895.
77. Mendel, Roos, Napier, Ord, Voit, quoted by Chittenden, Trans. Amer. Congress of Phys. and Surgs., vol. iv, p. 87, 1897.
78. Nicholson: Jour. Obstet. and Gynec. for British Empire, July, p. 40, 1902.
79. Comte: Thèse de doctorat, Lausanne, 1898.
80. Launois and Mulon: Annales de Gynéc. et d'Obstét, January, 1904, p. 2.

connection have recently received a striking confirmation in England. A. E. Wright,[81] formerly professor of pathology at the Netley School, referred to the presence "in considerable quantities in the blood" of a secretion the source of which he deemed unknown, and of which he thought diphtheria antitoxin was the most familiar example. Believing that, as he says, "all the protective substances" in the cure of disease "were to be regarded as produced by internal secretion," he employed Koch's new tuberculin in various conditions, to induce the appearance in the blood of the "antidotal substances" referred to, and obtained what he terms "extraordinarily good results" in some thirty cases of various kinds. "Patients with tuberculosis recovered," he is quoted as saying, "if they produced enough of the internal secretion to render their bodies uninhabitable by the tubercle bacillus." In the light of my own views, the tuberculin used by Dr. Wright merely did what several of our familiar drugs can do, provided, however, they be considered, not as direct antagonists of the morbid process that may be present, but as agents which, once in the blood, enhance the activity of the body's autoprotective resources, through the most sensitive of its sensory organs, the pituitary body.

DISCUSSION.

DR. HEINRICH STERN, New York City—In the investigations of the adrenal system so-called, physiologic investigation is by no means everything. The views and deductions of Dr. Sajous are so comprehensive and so revolutionizing that the bulk of the profession can not follow him. A good deal of the apathy of the profession as regards the acceptance of the ideas advanced by Dr. Sajous is due to the ill will borne him as an independent thinker. Those really opposed to his views are the professional laboratory laborers whose sterility of ideas is proverbial. However, many of the views advanced by Dr. Sajous still lack experimental confirmation. Again, it was Blum who first noticed glycosuria after injection of adrenalin. As a matter of fact, this and similar experiments do not explain anything. Their importance is always exaggerated. Glycosuria may follow the subcutaneous or intravenous injection of quite a number of other animal products, or that of a variety of drugs. To single out adrenalin as a specific glycosuria-producing substance is, therefore, an illogical undertaking. Beside, the administration of adrenalin, as practiced by Blum, is just as often not followed by glycosuria as it is followed by it.

DR. C. E. DE M. SAJOUS—Dr. Stern overlooks the facts that I mentioned Blum first among the observers who had found that adrenal extract caused glycosuria, and that his experiments were confirmed in this country by Croftan and Herter. I can not say that I have to contend with any of the ill will on the part of the profession to which Dr. Stern refers. New lines of thought require time for their development, and mine can not be expected to form an exception. All I can assert is, that they would never have been advanced had I not been certain that they were poised on a solid foundation.

THE AXIS OF ASTIGMATISM.*

J. HERBERT CLAIBORNE, M.D.
NEW YORK CITY.

Twelve years ago[1] I presented some views on the axis of astigmatism. Those views consisted partly of propositions to be verified or denied by experience, partly of facts as developed in my practice.

I set forth the initial proposition that the axis of astigmatism does not occur at haphazard, that there is a regularity in its occurrence in a given eye, and that there is a certain definite relationship between the axes in two eyes when both happen to be astigmatic.

The experience of the last twelve years has amply verified both the propositions and the facts set forth at that time. This experience embraces 1,176 cases of astigmatism taken from my private practice.

I desire to state that I shall employ the nomenclature indicated by the trial frames ordinarily in use, in which the circle is divided into halves of 180° each, with the 0° starting on the right on both sides in the horizontal plane as one looks at the frame. (Fig. 1.)

I consider this method eminently simple and reasonable, and if it were adopted universally to the exclusion of all others it would add greatly to the accuracy of the surgeon and optician, and would make a prescription written in one country easily, quickly and accurately comprehended in all others.

Inasmuch as I have adopted this method, I shall not discuss that one by which the tilting of the upper or lower end of the glass toward, or away from, the median line is indicated. I consider the method open to many and obviously sound objections.

In order, therefore, that I may pass at once to the discussion of my subject, permit me to take up the consideration of the axis of that cylindrical glass in the various forms of astigmatism *seriatim*.

I shall use the term "axis of astigmatism" synonymously with the axis of the glass that corrects it.

ASTIGMATISM IN A SINGLE EYE.

1. Simple hyperopic astigmatism in a single eye.

In the great majority of cases the axis of this form of astigmatism is vertical—that is, 90°. If a deviation from this position takes place, it must be in the direction of the horizontal axis on either of the two sides of the vertical, and the first position assured by such a deviation is the axis 75° or the axis 105°, which in this case is a deviation of 15° from the vertical position. The next axis of preference is either 135° or 45° on the other side of the vertical.

Now, the point which I wish to emphasize is that these five position, 90°, 75°, 45°, 105° and 135°, are the positions of preference in hyperopic astigmatism. When other axes than these are found they are irregular and unusual, and are the exceptions that prove the rule.

The arc of 90° extending from 135° to 45°, I describe as the realm of hyperopic astigmatism.

In this arc, as stated, 90° is the most usual, 105° and 75° less, and 135° and 45° the least usual.

The percentage of irregularities in this realm will be referred to later.

The axis 0° occurs by exception, and has been called the axis against the rule. It should be called simply horizontal, for any axis that lies beyond 135° or 45° toward the horizontal plane, is against the rule I would, therefore, suggest that the expression, "against the rule," in hyperopic astigmatism, be used to describe any axis that lies beyond 135° or 45° toward the horizontal plane. (Fig. 2.)

2. Simple myopic astigmatism in a single eye.

The axis of simple myopic astigmatism is, in the large majority of cases, horizontal. If the astigmatism selects a deviation from this axis, it selects the axis that is 15° from the horizontal on one side or the other; in other words, the axis 165° or the axis 15° is chosen.

The arc of 30° extending 15° to 165° I describe as the realm of myopic astigmatism.

In this realm the horizontal is by far the most frequent, and the axes 15° and 165° occur with nearly equal frequency.

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81. Wright: Brit. Med. Jour., March 19, p. 667, 1904.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. New York Med. Jour., June 25 and July 2, 1892.

When, as in rare exceptions, the axis lies vertical, it is said to be against the rule. Whenever the axis lies beyond 15° or 165°, toward the vertical plane, it is against the rule. I, therefore, suggest that the expression, "against the rule," in myopic astigmatism be used whenever the axis lies beyond 15° or 165°, toward the vertical meridian.

The percentage of irregularities in this realm will be referred to later. (Fig. 3.)

3. Compound hyperopic astigmatism in a single eye.

Statements made with reference to the axis in simple hyperopic astigmatism, hold in compound hyperopic astigmatism, for obvious reasons.

4. Compound myopic astigmatism in a single eye.

The axes of compound myopic astigmatism are the axes of simple myopic astigmatism.

5. Mixed astigmatism in a single eye.

It may be broadly said that the rules which obtain in hyperopic and myopic astigmatism hold good when these conditions occur in the same eye, as in mixed astigmatism. The axis of the hyperopic astigmatism is restricted, as a rule, to the realm marked out for this error, and to the axes of preference in this realm. The axis of the myopic astigmatism is restricted to its realm and the axes of preference contained therein, so long as this is permitted by the axis of the hyperopic astigmatism. The two axes invariably, and of necessity, lie at right angles to each other.

If the hyperopic axis lies at 75°, the myopic axis will

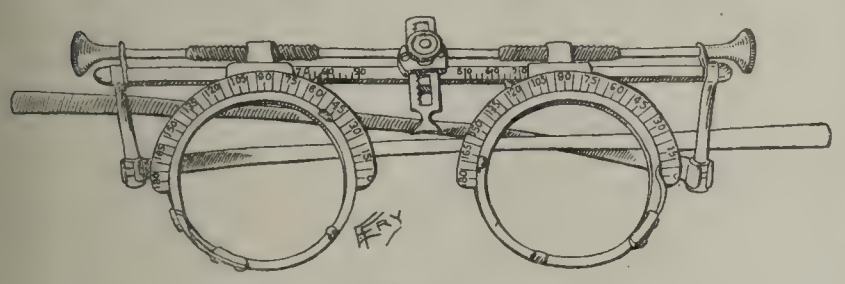


Figure 1.

lie at 165°; if the myopic at 15°, the hyperopic will lie at 105°. If, however, the hyperopic axis lies at 135° or 45°, the myopic axis will be forced from its proper realm and will be compelled to invade the realm of the hyperopic axis. For example, if the hyperopic axis lies at 135°, the myopic will be at 45°, or *vice versa.*

The following are the regular positions of the axes in mixed astigmatism in a single eye. (Fig. 4.)

ASTIGMATISM IN BOTH EYES.

We come next to the consideration of the axis of astigmatism in each eye with relation to that of its fellow.

Before entering this subject, I would refer to the initial proposition relative to the definite relationship existing between the axes in the two eyes when each is astigmatic.

Experience has shown me that without a doubt the axes in the two eyes have a definite relationship to each other, and, indeed, this is necessary if the positions of preference in each eye separately be admitted or proved.

When the axes in the two eyes have the same position, I call them correspondent or in correspondence. If each be at 90°, they are correspondent. If each be at 180°, they are correspondent. When the axes lie off the horizontal or vertical and occupy the same position as indicated by the nomenclature of the half disc of the trial frame, they are no less correspondent, and it is when this phenomenon arises that the value of this nomenclature over the other is demonstrated. Suppose, for example, the axis in each eye is found to be at 75°, the axes will be tilted, the upper end of one toward the median line, the upper end of the other toward the temple. But the statement that the axes are "75° in correspondence," or simply the statement that they are both 75°, makes the facts perfectly clear.

When each axis is 135° or 45°, the bare statement of the fact is similarly clear.

At first sight the adjective, parallel, would appear, under these conditions, to be appropriate, but it would obviously be inadequate and inaccurate when each axis is horizontal or vertical. For, while they might be said,

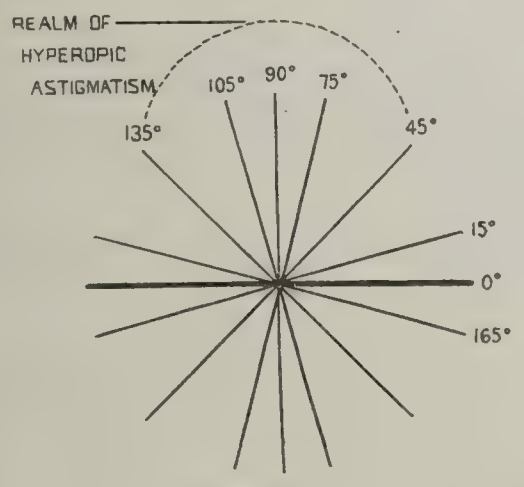


Figure 2.

in the case of 90°, to be parallel, in the case of 180° or 0° they could not be said to be parallel; for, if each axis is continued toward its fellow, they will meet in the same plane and become coincident. The multiplication of terms is ill advised, and inasmuch as the expression, "in correspondence," covers all the cases cited above, I suggest this to indicate the fact that the axis of astigmatism lies in the same plane in the same meridian in each eye. I, myself, have used and taught this expression for the last twelve years.

1. Simple hyperopic astigmatism in both eyes.

In broad terms, the axes correspond or are at angles to each other. If, for example, the axis of one eye is vertical, that of its fellow is vertical. If the rare occurrence of the axis in the horizontal be found in one eye, the axis of the fellow is also horizontal. If the right axis be found to be 75°, the axis in the left eye is usually

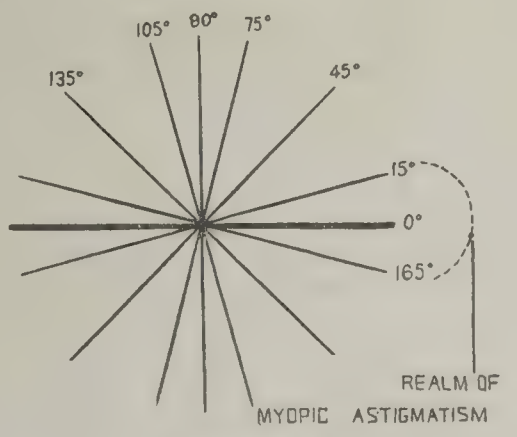


Figure 3.

105°. If, therefore, these two axes be prolonged upward and inward in straight lines, they will both converge toward the median line and intersect one another at the angle of 30.° (Fig. 5, B.)

If the right axis be found at 105°, the left will lie at 75°, and a continuation of these axes downward and inward, in straight lines, will cause them to converge toward the median line and intersect at the angle of 30°. (Fig. 5, C.)

If the right axis lies at 135° and the left at 45°, a

continuation of these lines downward and inward will cause them to intersect at an angle of 90°. (Fig. 5, D.)

If the right axis lies at 45° and the left at 135°, they will intersect at the angle of 90°, if continued upward and inward.

These five positions are, as heretofore set forth, the axes of preference lying within the realm of hyperopic astigmatism; and the position of the axis in each eye relative to its fellow in the opposite, is the usual one. Nevertheless, it is possible for the axes in the two eyes to be in correspondence. This is exceedingly rare, but it nevertheless occurs.

The following correspondent axes of 105° occurred four times in 1,176 cases of astigmatism. (Fig. 5, G.)

The following correspondent axes, 135°, occurred once in 1,176 cases of astigmatism. (Fig. 5, H.)

Correspondence in 45° and in 75° did not occur at all in 1,176 cases.

It has been stated that the myopic axis may invade the realm of the hyperopic axis.

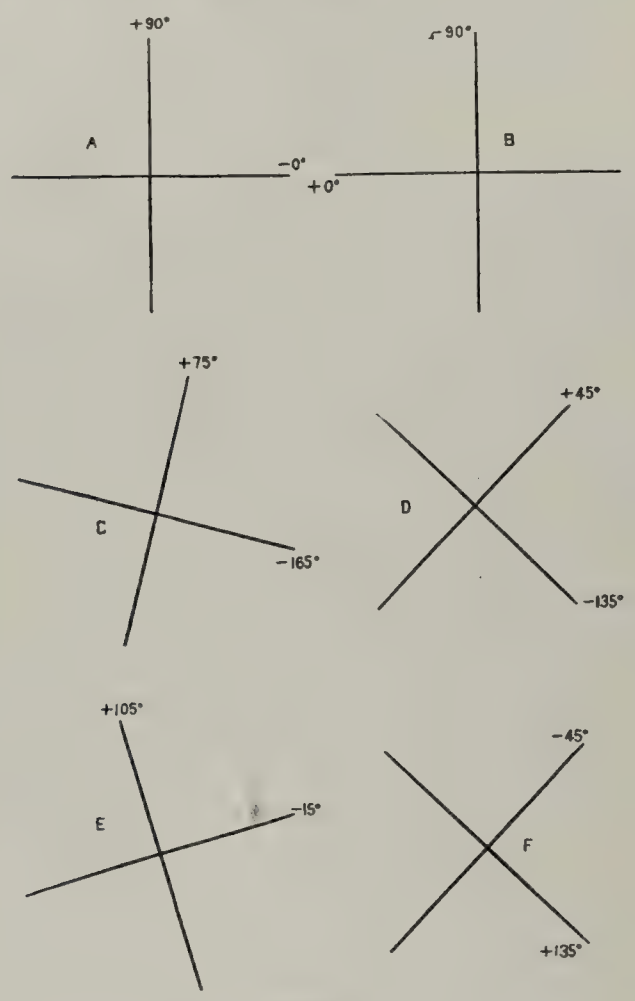


Figure 4.

The following case, which occurred once in the above-mentioned number of cases, is remarkable (Fig. 6):

2. Simple myopic astigatism in both eyes.

If the axis of one eye lies horizontal, the axis of the fellow is usually horizontal. If the axis of the right eye is 15°, the axis of the other is usually 165°, and if these two axes be continued in straight lines upward and inward they will intersect at an angle of 30°. (Fig. 7, B.)

It is possible, however, for the oblique axes to be in correspondence.

The following axes in correspondence occurred 3 times in 1,176 times (Fig. 7, C.):

Hyperopic astigmatism in correspondence invaded the myopic realm once in 1,176 times. (Fig. 8.)

The axes 15° in correspondence occurred twice in 1,176 times. (Fig. 7, D.)

At times the axes in each eye lie at 90°. (Fig. 7, E.)

There are three regular positions, then, for the axes in myopic astigmatism in both eyes, 180°, 15° and 165°.

When the axes are oblique they will intersect when prolonged toward each other at an angle of 30°.

3. Compound hyperopic astigmatism in both eyes.

The rules that have been drawn for the axes in simple hyperopic astigmatism in both eyes obtain for the axes of compound hyperopic astigmatism in both eyes.

4. Compound myopic astigmatism in both eyes.

The rules that have been drawn for the axes in simple myopic astigmatism in both eyes obtain for the axes of compound myopic astigmatism in both eyes.

5. Mixed astigmatism in both eyes.

In mixed astigmatism in both eyes the hyperopic axis is usually vertical in each eye, and the myopic axis is usually horizontal in each eye.

Matters, however, become somewhat complicated the moment any departure from the most usual position takes place in mixed astigmatism.

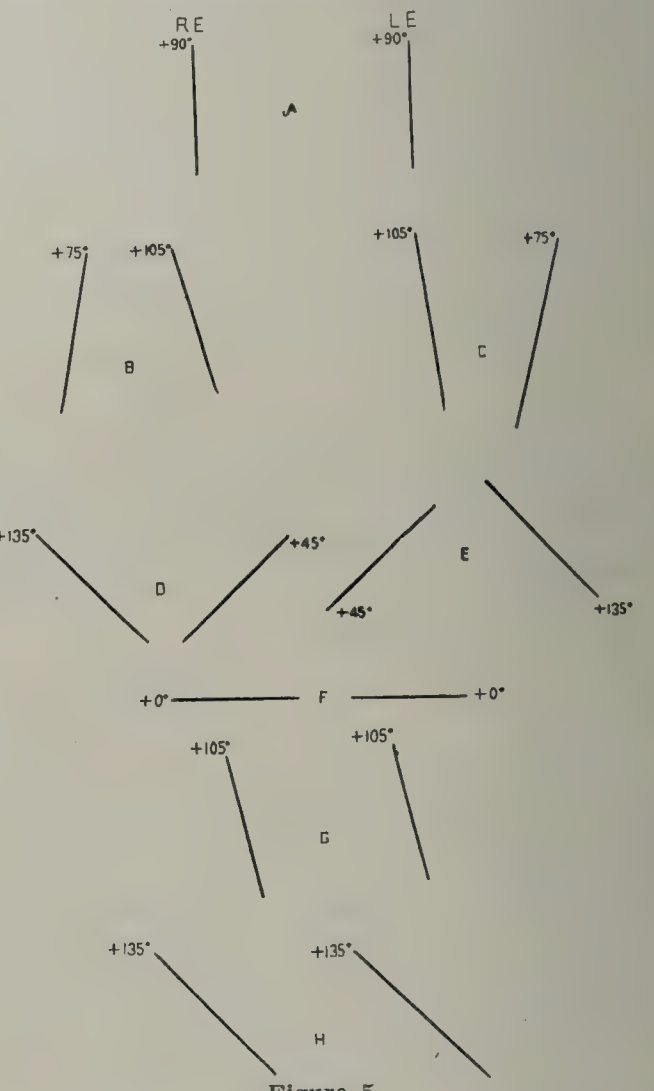


Figure 5.

The following are the usual positions of the axes in mixed astigmatism in both eyes (Fig. 9):

It is, of course, possible for correspondence to take place similarly in the two eyes. This, however, is so exceedingly rare that I found it but once in 1,176 cases. (Fig. 10.)

We come on now to the consideration of irregular cases—that is, those in which the axis occurred within the confines of its own realm, but at unusual positions, not the positions of preference.

Eighty of these irregular cases were found among 1,176 cases of astigmatism, .68 per cent.

These figures prove conclusively that there are axes of preference for hyperopic and myopic astigmatism within the realm proper of each, and amply justify the propositions and views set forth by me in 1892.

The percentage of irregularity (.68 per cent.) is so small, and the percentage of regularity, 99.32 per cent.,

so great, that a conclusive, definite statement is warwanted.

IRREGULARITIES WITHIN THE REALM OF HYPEROPIC ASTIGMATISM.

The axis of 60° occurred 25 times in 80 irregular cases; that is, 31 per cent.

The axis 120° occurred 24 times in 80 irregular cases; that is, 30 per cent.

The axis 110½° occurred once in 80 irregular cases.

Myopic astigmatism once in the irregular cases invaded the realm of hyperopia; this axis was exceedingly erratic; it was at 70°.

With the exception of the just mentioned erratic axis of myopic astigmatism, it is shown by the above figures that only 49 cases of irregularities occurred in the realm of hyperopia, out of 1,176 cases, and that of these the axes lay: 25 at 60° and 24 at 120°. This shows conclusively that if the ordinary axes of preference in hyperopic astigmatism are not chosen, the axis 60° or 120° is preferred.



Figure 6.

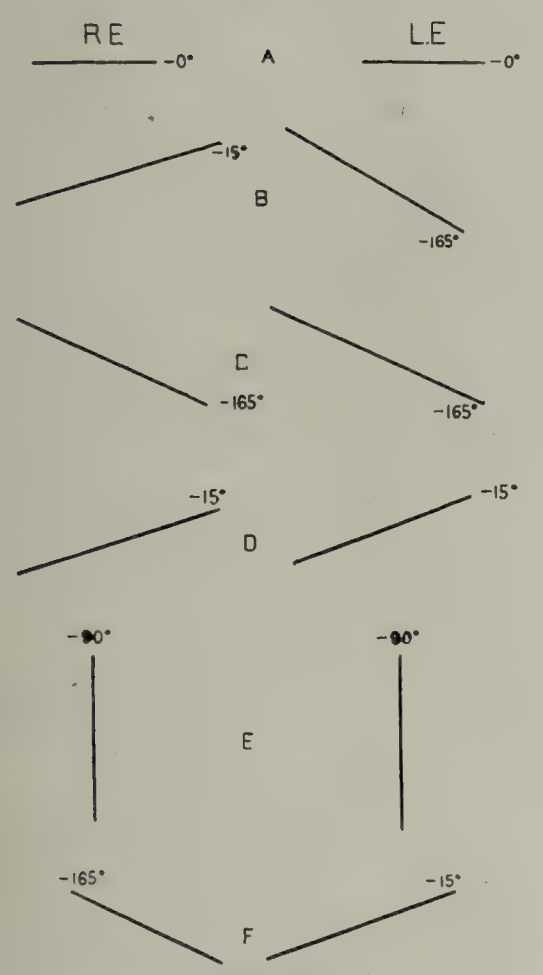


Figure 7.

We have already pointed out the realm of hypermetropic astigmatism and that of myopic astigmatism. The areas occupied by these two realms, however, do not comprise the entire circle. For lying between 135° and 165° on the one side is an arc of 30°, and between 45° and 15°, on the other, another arc of 30°, which may be denominated the realms of neutrality, and which may be invaded by either the myopic or hyperopic axes. (Fig. 11.)

We shall regard first the axes which lie within the arc of 30° to be found between 15° and 45°.

Hyperopic astigmatism, with the axis at 30°, occurred fourteen times in the 80 irregular cases referred to, 17 per cent.

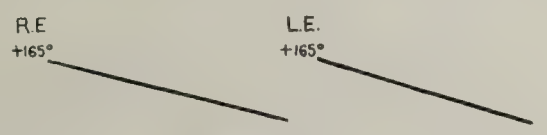


Figure 8.

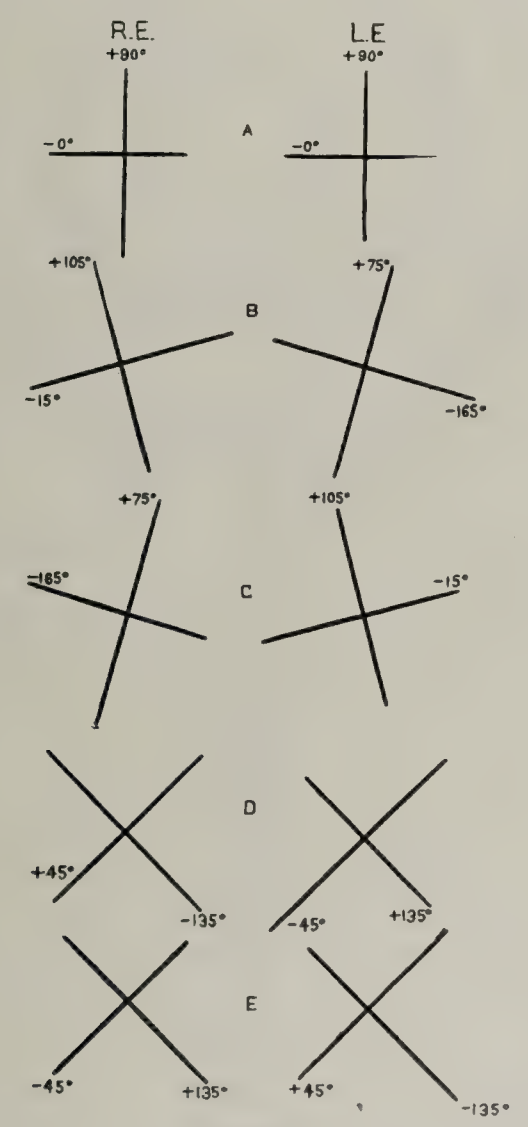


Figure 9.

Myopic astigmatism, with the axis at 30°, occurred seven times in the 80 irregular cases, 8 per cent.

Myopic astigmatism occupied the axis at 20° four times in the 80 irregular cases, 5 per cent.

The axis 30° and 20° were the only two axes selected in this arc of neutrality, hyperopic astigmatism occurring fourteen times at 30°, myopic astigmatism occurring seven times at 30°, and only myopic astigmatism occurring four times at 20°.

From these facts it appears that there are two axes of preference in this arc of neutrality, 30° and 20°,

IRREGULARITIES IN THE REALM OF MYOPIC ASTIGMATISM.

The axis 170° occurred five times in 80 irregular cases—that is, 6 per cent.

The axis 10° occurred once in 80 irregular cases.

The axis 2½° occurred once in 80 irregular cases.

It is conclusively shown by the figures that only 7 cases of irregularity occurred in the realm of myopic

and that 30° is twice as usual in hyperopia as in myopia and that myopia alone occurs at 20°.

We shall now consider the arc lying between 135° and 165°.

Hyperopic astigmatism occupied the axis 150° seven times in the 80 irregular cases, 8 per cent.

Myopic astigmatism occupied the axis 150° seven times in the 80 irregular cases, 8 per cent.

Myopic astigmatism occupied the extremely erratic axis 155° once in these cases.

From the above it appears that there is only one axis of preference in the arc of neutrality lying between 135° and 165°, and that that axis is 150°.

The axis 155° occurred only once, while the axis 150° occurred fourteen times, being occupied seven times by

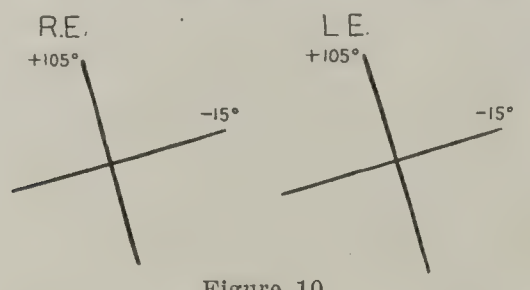


Figure 10.

myopic astigmatism and seven times by hyperopic astigmatism.

No other axes occurred in the arc in the 1,176 cases of astigmatism.

It is interesting to note that correspondence occurred five times in the 80 irregular cases, 6 per cent., and in these five times 60° occurred twice, 30° twice and 120° once.

It has been stated that there is a regular relationship between the axes of astigmatism in the two eyes when the axes occupy the positions of preference in the regular realms of myopia and hyperopia.

It is interesting to observe that the same regular relationship exists when the axes are irregular, as, for example, in Figure 12. The intersection of these two axes form an angle of 90°. Again, in Figures 13 and 14. an angle of 60° is found.

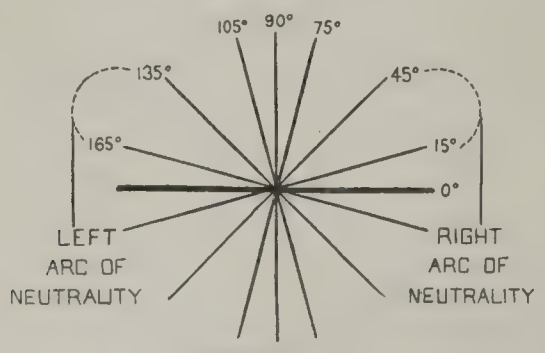


Figure 11.

The following axes in the two eyes occurred twice in 1,176 cases, but though these axes were proved correct time after time by separate tests of each eye, the patient in one case could not wear the glasses and was compelled to wear the axis at 180°. (Fig. 15.)

There were 1,042 cases of bilateral astigmatism. In 142 cases there was non-conformance with the rule in the relationship of the axes, 13 per cent. *Per contra,* there were 901 cases of conformance, 87 per cent. This percentage of conformance establishes the rule.

It is plainly shown by all these facts that when astigmatism occurs in the two eyes, the axes bear a definite relationship to each other, whether the astigmatism occurs in its proper realm, whether it invades that of its fellow, or whether it occurs in the realms of neutrality.

It is further shown that the axes in the two eyes when continued toward the median line, intersect each other at 30°, 60° or 90°, i. e., in the multiples of 30°.

The routine which I am accustomed to use in determining the quality, amount and axis of astigmatism, is to use skiascopy first, then the direct method, and finally the ophthalmometer.

In clinical work, and frequently in private practice, I use a modification of Placido's disc, constructed on the lines laid down above with reference to the realms of myopic and hyperopic astigmatism. I have employed the ophthalmometer regularly in private practice for eight years only. Antecedent to that time, I used it irregularly or not at all.

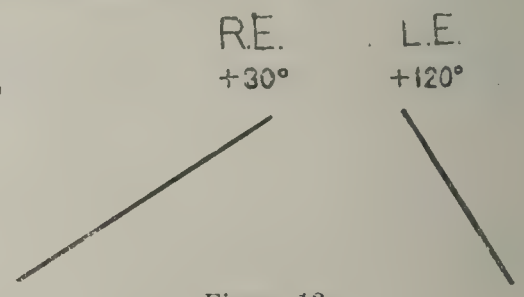


Figure 12.

I rely on the shadow test for the axis of astigmatism as confidently, if not more confidently, than I do on the ophthalmometer. The latter instrument frequently fails to give the exact axis as established by the subjective test, when the astigmatism is oblique. When, however, the axis lies horizontal or vertical, I have found the ophthalmometer true. All who use skiascopy know it is possible to see when the shadow is just off the vertical or horizontal, and when this is the case it may with reasonable certainty, be assumed to be at 75° or 105° in the case of hypermetropic astigmatism, or at 15° or 165° in the case of myopic astigmatism.

If the shadow moves in a plane more than 15° beyond the vertical or horizontal, it will be found, as shown by my statistics, in one of the positions of preference which lie beyond these planes.

I wish to state emphatically, however, that I consider the subjective test the crucial test, and I regard its decision as final.

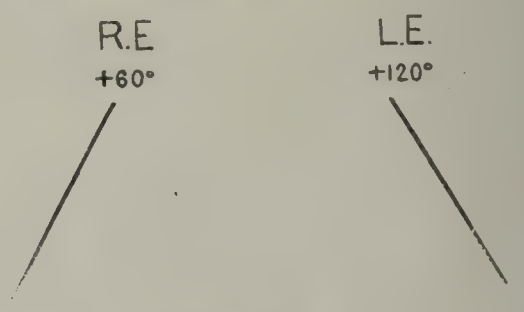


Figure 13.

When the patient is not intelligent enough to establish the fact conclusively, that axis is selected which is indicated by the sum of the evidence furnished by all the methods.

In using my modification of Placido's disc (Fig. 16) I use a + 4 D., held in one hand, behind the aperture.

CONCLUSIONS.

1. The axis of astigmatism does not occur at haphazard.

2. There is a realm of preference and there are positions of preference within the realm for hyperopic and myopic astigmatism, respectively.

3. The realm of hyperopic astigmatism is the arc of

the circle, inclusive of the axes, 45° and 135°, and the positions of preference in this realm are the axes 90°, 105,° 135°, 75° and 45°. The realm of hyperopic astigmatism is, therefore an arc of 90°.

4. The realm of myopic astigmatism is the arc inclusive of the axes 15° and 165°, and the positions of preference in this realm are the axes 180°, 15° and 165°. The realm of myopic astigmatism is, therefore, an arc of 30°.

5. There is a realm or arc of neutrality of 30°, lying between 15° and 45° on the one side of the circle, and 135° and 165° on the other.

The arc of 30° lying between 15° and 45° may be called the right arc of neutrality, since it lies on each side to the right as one looks at the spectacle frame.

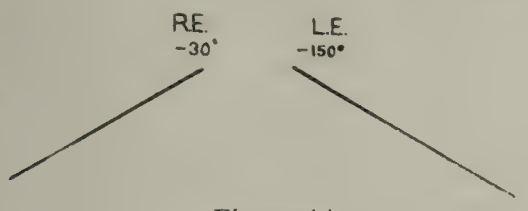


Figure 14.

The arc of 30° lying between 135° and 165° may be called the left arc of neutrality, since it lies to the left on each side as one looks at the spectacle frame.

Within the right arc of neutrality, 15° to 45°, the axes of preference are 30° and 20°, and 30° occurs twice as usual in hyperopia as in myopia, and myopia alone occurs at 20°.

Within the left arc of neutrality, 135° to 165°, there is one axis of preference, viz., 150°, and this occurs with equal frequency in myopia and hyperopia.

6. Of 1,176 cases of astigmatism, 80 cases were found in the realms of hyperopia and myopia in which the axes did not lie in the positions of preference. These are exceptional irregular cases.

The percentage of irregularity within the realms of hyperopia and myopia was 0.68 per cent.

Per contra, the percentage of preference was 99.72 per cent.

These facts establish the correctness of the preceding statements touching the positions of preference within the realms of hyperopia and myopia.

7. If the ordinary axes of preference in the realm of hyperopia are not chosen, the axes 60° and 120° are selected with equal frequency.

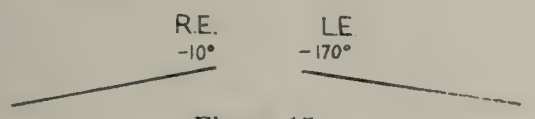


Figure 15.

8. If the ordinary axes of preference in the realm of myopia are not chosen, the axis 170° is selected.

9. Of 1,176 cases, 54 were found in which the hyperopic axis lay at 180°, .4+ per cent.

10. Of 1,176 cases, 21 were found in which the myopic axis lay at 90°, 1.8 per cent.

11. From these facts it is obvious that the hyperopic axis is found twice as frequently in the horizontal meridian as the myopic in the vertical meridian.

12. When astigmatism occurs in each eye, the axes bear a definite relationship to each other.

13. They may occupy the same position, in which case they are correspondent or in correspondence, or they may be inclined to the median line at a certain definite angle which is the same in each eye.

14. The angles at which they are inclined to the median line are 30°, 60° or 90°, or multiples of 30.

15. This obtains whether the axis lies in its own proper realm, in the realm of opposite quality, or in either of the realms of neutrality.

16. Of 1,043 cases of astigmatism in both eyes, there were 142 cases of non-conformity with the above statement, i. e., 13 per cent. *Per contra,* there were 901 cases in which there was conformity, i. e., 87 per cent.

These facts establish the correctness of the preceding conclusions touching the relationship of the axis in each eye to its fellow in the other eye.

17. There were 16 cases of correspondence all told, in 1,176 cases, 1.4 per cent. Of these 16 cases, 11 occurred in the axes of preference; of the remaining 5 cases, correspondence at 30° occurred twice, at 60° twice, and at 120° once.

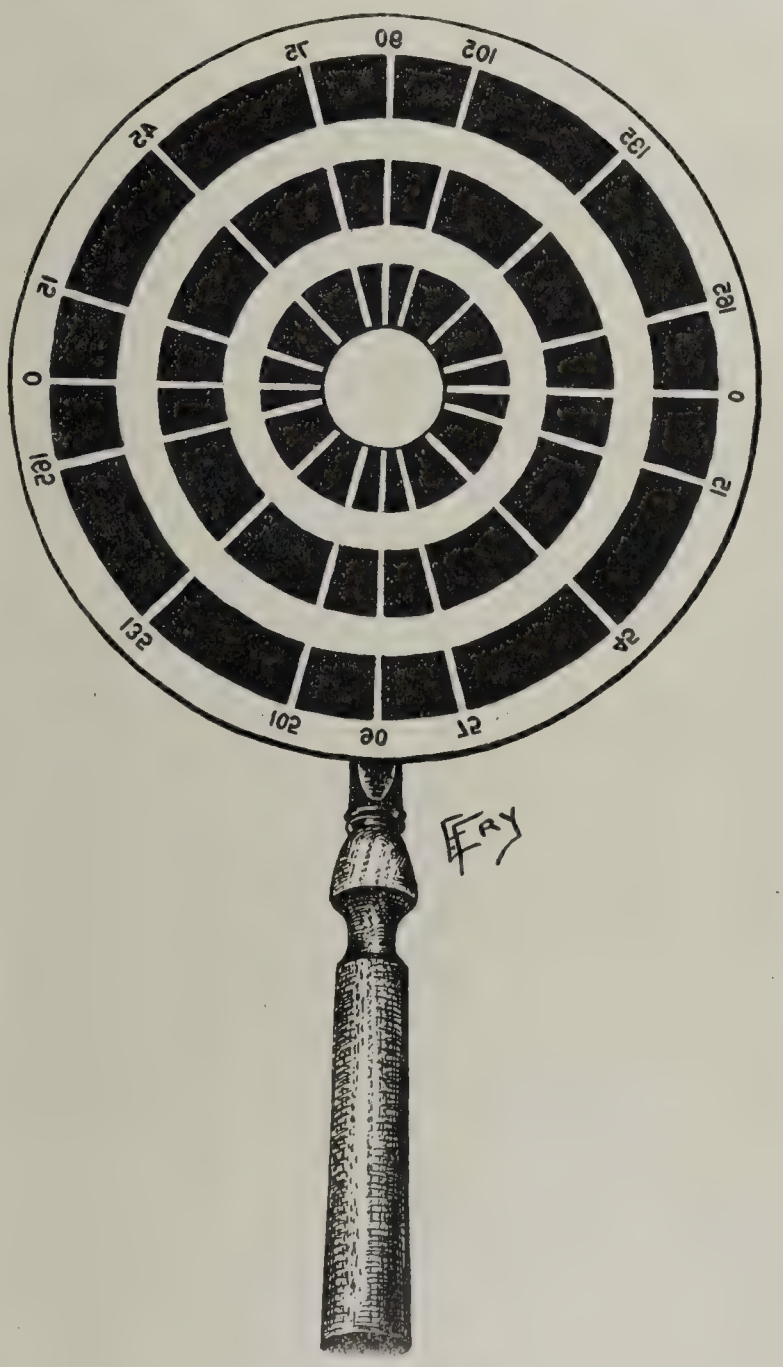


Figure 16.

18. The occurrence of the number 15, or its multiples, in the axis of astigmatism in each eye separately, as indicated in the positions of preference in every realm, and in the relationship of the axes in the two eyes toward each other, is remarkable, and warrants the conclusion that the axis of astigmatism does not occur at haphazard; that the law which governs it is a law of multiples, and that 15 is the common multiple.

19. The method of indicating the axis of astigmatism furnished by the ordinary trial frame in common use, is without doubt the simplest and most accurate, and should be universally employed.

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THE RELATION OF CORNEAL CURVATURES TO THE REFRACTION OF THE EYE.*

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I have included in this report all cases of refraction examined under a cycloplegic that came under my care from December, 1901, to December, 1903. The errors of refraction were estimated in the usual manner with trial lenses. The instrument used in making the corneal measurements was the ophthalmometer of Chambers, Inskeep & Co. On the side of one of the recording wheels the curvature of the corneal meridians can be read off in millimeters. This instrument, so far as I know, is accurate. It does not measure corneal meridians whose radii of curvature are shorter than 6.85 mm., nor of those longer than 9.00 mm.

TABLE 1.

Radius of Corneal Curvature Measured in Millimeters.	Number of Meridians Found with This Curvature.	Number of These Meridians Found To Be Hyperopic in Refraction.	Number Found To Be Myopic in Refraction.	Number Found Emmetropic.	Aggregate Amount of Hyperopia.	Aggregate Amount of Myopia.	Average Hyperopia.	Average Myopia.
9.00	....	....	...	...	.....	.....	....	....
8.93	....	....	...	...	.....	.....	....	....
8.87	....	....	...	...	.....	.....	....	....
8.80	....	....	...	...	.....	.....	....	....
8.75	2	2	...	...	6.50	.....	3.25	....
8.70	....	....	...	...	.....	.....	....	....
8.65	....	....	...	...	.....	.....	....	....
8.60	....	....	...	...	.....	.....	....	....
8.55	6	4	...	2	9.50	.....	1.58	....
8.50	7	5	...	2	7.25	.....	1.03	....
8.45	13	11	2	...	12.50	7.00	0.96	0.54
8.41	11	8	3	...	19.75	12.00	1.79	1.09
8.36	31	24	3	4	64.25	9.50	2.17	0.36
8.31	17	11	2	4	15.25	4.00	.90	.25
8.26	37	25	7	5	42.00	15.25	1.10	.41
8.21	39	25	10	4	47.75	30.00	1.22	.80
8.16	71	47	15	9	70.75	58.75	.90	.80
8.11	38	24	10	4	41.50	32.75	1.08	.85
8.05	74	52	12	10	68.25	24.00	.90	.30
8.00	54	35	12	7	44.25	30.75	.80	.50
7.95	122	91	12	19	107.50	18.25	.80	.10
7.90	80	59	12	9	83.00	12.25	1.05	.10
7.86	117	72	27	18	70.75	38.00	.60	.30
7.82	115	83	14	18	76.50	43.50	.60	.30
7.78	168	101	35	32	102.25	86.25	.60	.50
7.74	83	54	13	16	62.00	46.50	.70	.50
7.70	149	98	29	22	105.75	47.50	.70	.30
7.66	91	56	17	18	53.50	41.75	.58	.40
7.62	145	81	41	23	97.75	86.00	.67	.60
7.58	58	36	12	10	31.00	16.25	.53	.28
7.52	119	81	21	17	48.75	27.75	.40	.22
7.48	58	31	18	9	31.25	33.25	.54	.59
7.44	154	59	83	12	57.50	89.00	.37	.58
7.40	37	23	8	6	22.75	7.75	.60	.20
7.37	49	23	14	12	19.75	29.75	.40	.60
7.34	29	12	13	4	10.00	30.50	.34	1.05
7.31	45	19	22	4	19.00	62.75	.42	1.38
7.27	13	5	4	4	4.50	8.25	.34	.63
7.23	8	3	4	1	2.50	20.75	.31	2.59
7.19	8	3	3	2	4.50	15.00	.62	1.87
7.15	14	4	8	2	5.25	27.75	.37	1.97
7.11	4	2	2	...	3.00	3.00	.75	.75
7.07	9	4	3	2	4.25	7.75	.47	.80
7.03	5	....	4	1	.....	5.50	....	1.10
7.00	4	....	4	...	.....	3.75	....	.93
6.97	1	....	1	...	.....	1.00	....	1.00
6.93	1	....	1	...	.....	2.75	....	2.75
6.90	5	....	5	...	.....	22.75	....	4.55
6.85	1	....	1	...	.....	1.50	....	1.50
	2092	1273	507	312				

Reference to Table 1 shows that out of 2,092 corneal meridians examined, 1,273 were hypermetropic in refraction, 507 myopic and 312 emmetropic. It was found that the instrument measured all corneæ that came under my observation, except one case of conical cornea and one cornea examined soon after cataract extraction. Its field of measurement was found to be more than sufficient for all practical purposes. The table shows that of the 2,092 meridians examined none was found of a shorter radius of curvature than 6.85 and none longer than 8.75 mm.

Some explanation of my tables is necessary. The first column shows the radius of each corneal curvature as measured in millimeters. Columns 2, 3, 4 and 5 are self-explanatory. Column 6 is the total meridional refraction found to be hypermetropic, and is expressed in dioptries. Column 7 records the total refraction of the meridians found to be myopic. In Column 8 the aggregate amount of hypermetropia is divided by the total number of meridians recorded in Column 2. In Column 9 the same division is carried out with the myopic meridians. It may be asked why the aggregate hypermetropia was not divided simply by the number of meridians found hypermetropic, and the aggregate myopia by the number of meridians found myopic. If this had been done the number of meridians found to be emmetropic would not have entered into the equation, nor would we have the true average of ametropia of the total number of meridians with a given curvature. You will observe that out of 2,092 meridians examined, there were 168 meridians whose radius of curvature was 7 78 mm. This meridian stands about midway between the extreme curvatures. It was hypermetropic in refraction in 101 instances and emmetropic in 32. These figures record the greatest number of hypermetropic and emmetropic meridians. It will also be observed that the number of hypermetropic and emmetropic meridians recorded increases gradually from the center toward the top and bottom of the table.

TABLE 2.

Radius of Corneal Curvature Measured in Millimeters.	Number of Meridians Found with This Curvature.	Number of These Meridians Found To Be Hyperopic in Refraction.	Number Found To Be Myopic in Refraction.	Number Found Emmetropic.	Aggregate Amount of Hyperopia.	Aggregate Amount of Myopia.	Average Hyperopia.	Average Myopia.
9.00 to 8.80	....	....	...	...	.....	.....	....	....
8.75 to 8.60	2	2	...	...	6.50	.....	3.25	....
8.55 to 8.41	37	28	5	4	49.00	19.00	1.33	.51
8.36 to 8.21	124	85	22	17	169.25	58.75	1.36	.48
8.16 to 8.00	237	158	49	30	224.75	146.25	.95	.61
7.95 to 7.82	434	305	65	64	337.75	111.50	.80	.25
7.78 to 7.66	491	309	94	88	427.50	222 00	.90	.45
7.62 to 7.48	380	229	92	59	208.75	163.25	.55	.45
7.44 to 7.34	269	117	118	34	110.00	157.00	.41	.60
7.31 to 7.19	74	30	33	11	30.50	106.75	.41	1.44
7.15 to 7.03	32	10	17	5	12.50	44.00	.39	1.37
7.00 to 6.85	12	....	12	...	.....	31.75	....	2.64
	2092	1273	507	312				

Table 2 groups the meridians of the first table in fours. In this way the averages of hypermetropia and myopia are more striking. The longer the radius of corneal curvature, the greater is the average of hypermetropia, and the shorter the radius of corneal curvature, the greater the average of myopia. This is striking enough in Table 1, but in Table 2 the reduction in the average hypermetropia from the meridian of greater to that of lesser radius is very striking indeed. The av-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

erage myopia gradually increases in the same ratio that the hypermetropia decreases.

It seems to me that these 2,092 meridians examined serve to show conclusively that the radius of corneal curvature has a very marked influence on the refraction of the eye. I can understand how a great many cases of axial myopia that have reached a high degree of progression would upset such relations as shown in my table, but fortunately for my conclusions, we do not see very many such cases in our western country.

I regret that my table of statistics is not larger, and that I did not begin making record of the radius of the corneal curvature more than two years ago. I hope at some future time to report further on this subject.

DISCUSSION

ON PAPERS OF DRS. CLAIBORNE AND BLACK.

DR. O. A. GRIFFIN, Ann Arbor—I would add a word in explanation of why the realms of hyperopic and myopic astigmatism are quite constant. In my opinion, this is due to the fact that the shortest diameter of the orbital cavity is usually placed vertically, which would tend to make the vertical curvature of the cornea greater than that of the horizontal. This tendency is augmented by the constant pressure of the lids on the upper and lower margins of the cornea. If the orbital axis and palpebral aperture are placed obliquely, the pressure on the cornea will be correspondingly exerted with a resulting obliquity in the axis of astigatism; but, inasmuch as this is not the rule, the axes are usually symmetrical and the vertical curvature of the cornea is greatest. Not infrequently asymmetry of the axes obtains its origin in asymmetry of the lenticular curvatures, as is shown by the fact that the axis as determined subjectively does not correspond to the ophthalmometric findings. That the axis of astigmatism is not constant should be remembered in ordering correcting glasses, especially when the axes are oblique and a subsequent check test is not made after a cycloplegic determination of the refraction which, in many instances, reveals a wholly different position of the axis. These changes may be due to a false position of the lens, produced by paralysis of the ciliary muscle or action of the obliques. In the latter instance change of axis is usually observed in those cases in which the axes are slightly inclined from the vertical or horizontal positions, when there is an effort on the part of the oblique muscles to make the axes correspond in each eye, thus finally producing hypertrophy of the acting muscle or insufficiency of its opponent. With constant use of correcting glasses, the hypertrophy diminishes with a subsequent change in the axis of astigmatism—thus illustrating the importance of always determining the condition of the ocular muscles and its effect on the refractive condition before prescribing glasses.

DR. A. G. BENNETT, Buffalo, N. Y.—I agree with Dr. Claiborne that there is a realm of predilection for the axis to fall in, but I think it must be taken with reservation because age has considerable effect. In a study I made last year of 7,665 eyes I took my cases and divided them into decades. I spoke of the axes as falling in the meridian of greatest refraction. I found that in the first decade it occurred in nearly 90 per cent. in what I called the vertical region, which takes in 25 degrees on each side of the absolute vertical. In the first decade nearly 90 per cent. were in this region and 4 per cent. only in the horizontal. In the next decade, from ten to twenty, the vertical axis prevailed in 77 per cent.; in the next, from twenty to thirty, in 75 per cent.; from forty to fifty, 54 per cent.; after the patients reach fifty the axis will not occur in the vertical region half the time; it is about 37 per cent. When over seventy I found only 29 per cent. vertical. This is true within certain limitations of myopia, but I do not find variations so pronounced as in hypermetropia.

DR. G. C. HARLAN, Philadelphia—With reference to the relation of the axes in the two eyes: A few years ago I had 500 cases collated from the Wills Hospital records and in 70 per cent. the axes were exactly symmetrical, and in 78 per cent. within ten degrees of exact symmetry.

DR. J. L. BORSCH, Philadelphia—I would like to ask Dr. Black to explain his modification of the Placido disc. I have been using the de Wecker keratometer and will briefly describe it, as it is the most accurate, simple and rapid means of ascertaining astigmatism, besides having the advantage of being very inexpensive, costing from $12 to $14. It consists of a black disc with a central perforation; on one side of the instrument are white strips that form a perfect square when the pointer indicates zero. These strips are so arranged as to overlap and are movable; on the other side is a register marked from 0 to 18 diopters and a pointer attached to a screw which moves the white strips. Around the central perforation in the disc is a brass circle marked in degrees from 0 to 180, and on the plate an arrow to indicate the axis of astigmatism. The disc is held in one hand at 30 cm. from the patient's face and he is asked to look into the perforation with one eye, the other being covered with the hand. The observer on looking at the patient's cornea through the perforation will see an image of the white strips; if they form a perfect square there is no astigmatism; if they form an oblong—turn the instrument 90 degrees—turn the screw until the strips form a perfect square and then read off the amount of astigmatism, the degree and axis.

DR. J. H. CLAIBORNE—My modification of Placido's disc is represented in one of the pictures. You simply observe whether the picture is round or oblong. The instrument which I show here is practically the same thing. I have termed these positions of preference. I judge about where it is by means of the reflection. The ophthalmometer is not an accurate instrument; it often misses the axis by 15 degrees, especially where the astigmatism is oblique. With this instrument and a convex lens I can tell the astigmatism within three-quarters of a diopter. That is the result of ten years' constant practice with the instrument. I think I have a little facility in the examination of refraction; I have this because I bear these outlines in mind. After using skiascopy and the ophthalmometer, I put the cylinder at the first position of preference and then in a few minutes, if necessary, run up all these axes. It follows the rules which I evolved about ten or twelve years ago and have proved to my satisfaction. Dr. Griffin says that after the mydriatic the axis may be different; of course, but the subjective post-mydriatic test is the final test in all these cases. Concerning the axes of neutrality I think there are axes within that arc that are chosen. I would like to have the section observe these things. My 1,200 cases proved it to me conclusively and I would like to have the corroboration of the members of the section. I am sure they are largely true, if not in the exact percentage I have found.

THE MECHANICAL TREATMENT OF HIP DISEASE.*

ADOLPH LORENZ, M.D.

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Gentlemen:—Your friendly greeting reminds me of the splendid time which it was permitted me to spend in your great, free country. As that period was the most beautiful in my whole life, I naturally am glad to be reminded thereof, and, before everything else, let me thank you for having brought to my memory those reminiscences of America. Indeed, as I look over this meeting I can once more feel myself back in that time when I was permitted to describe and demonstrate my bloodless orthopedic operations to large audiences of my American colleagues. My American brethren were indeed very amiable, but they also let me work very hard. I may say that never in my life have I

* Address delivered before the Anglo-American Medical Association of Vienna, 1904.

labored as in America. It was there that I learned what it meant to lead a "strenuous life."

I have chosen as the subject of my discourse one which will, perhaps, be of especial interest to you, because the views concerning it in America are entirely at variance with our conception of the subject. But I must emphasize that my own point of view in regard to the question of the mechanical treatment of hip disease differs very materially, not only from that held by Americans, but also from that held by many Europeans. I must, therefore, be prepared to be opposed and contradicted by some of my orthopedic colleagues in Europe.

In order to be able to judge of the value of mechanical treatment of hip disease, it is very important, as well as instructive, to take a look at such cases as have never been treated mechanically. Such cases are by no means rare. How often, indeed, is complicated and costly treatment impossible on account of the poverty of the parents, or oftener, on account of the great distance to the place where such treatment is offered. No less frequently does it happen that the parents become wearied of the lengthy treatment and give it up, letting the disease take its own course.

These cases all find their way to the physician in the end; oftenest after the disease has as good as run its course. What is it that impels the patient, or his parents, to seek the physician? It is the contraction deformity, as a rule, the flexion-adduction contraction, the shortened leg that becomes troublesome on account of the impediment to the gait. I must openly admit that to me such patients are not only the most interesting, but also the most desirable. They cause neither worry nor difficulty; they suffer no pain, their treatment is perfectly simple, lasts but a short time, and is usually followed by excellent results.

The intra-articular modeling redressement, a central or a subtrochanteric osteotomy, according to circumstances, corrects the contracted position of the joint and improves the patient's gait, usually to his complete satisfaction. In such cases, therefore, we are not treating tuberculosis of the hip, but rather a condition subsequent thereto, namely, the coxitic contracture. I have followed, with greatest interest, those cases in which the course of the disease was not influenced by any physician's mechanical intervention.

The history of one of these cases is about as follows: Many months, perhaps one or two years, before the first onset of the disease, the child limps slightly for a time. Motion in one leg is guarded during walking, lameness appears soon after, or, indeed, it is often apparent toward evening, when the child had previously been quite active. The next morning no trace of lameness is to be noted. After such an attack of limping, there often ensues a period of quiescence, which may be of several months' duration. Then limping once more comes on, to again disappear. One might get the impression that a trick of the child was at the bottom of this temporary lameness.

The lay expression, "voluntary limp," seems to have its origin in this idea. We know that there is nothing more involuntary, that there can be no more absolute constraint than the limp of beginning coxitis. After a whole series of such periods of limping (coxitic attacks), lameness finally becomes permanent. At the same time, it is only rarely that the child manifests pain in the hip or knee. As a rule, the child is active during the day, and sleeps well at night. Gradually, however, the picture changes, the child becomes more careful in its movements, it runs and jumps about less, but can still walk without pain. After greater exertion, pain, which passes away, however, asserts itself, especially in the knee. For a long time the knee is considered the diseased part. By and by sleep becomes restless; the child cries out at times, hardly awaking, however, and if asked why it cries it can not give a definite answer. During the day the child is comparatively or perhaps completely quiet. Gradually the nights become worse, the child awakes screaming, cries for awhile, and then falls asleep only to awaken again with a cry. The following morning the child is comparatively lively, has no pain, and runs about, perhaps limping a little. Toward the end, the child screams more than it sleeps during the night, and is not entirely free from pain during the day, but still manages to hobble about.

After many months, the little patient finally is forced to remain in bed because he can no longer use the diseased leg. During several weeks the child endures severe pain by day and still more by night. At last, however, the condition improves. The child asks to leave the bed, and again begins to get about with the aid of a cane or crutch. In time the pain departs and the child is lively again. During the course of the disease a swelling might have been noticed, which sooner or later opened and discharged pus, or the region about the joint may never have shown any swelling or pus formation. Finally, the crutch is discarded, and the child once more learns to walk fairly well, usually treading on the front part of the foot. The period during which the child can not walk at all lasts from several months to a year, according to the nature of the case, but seldom lasts more than one year. Some exceptional cases never leave off walking at all.

Such is the history of an untreated case. On examination one finds the leg in marked flexion, adduction-contracture; at times the joint is ankylotic. Perhaps scars of sinuses or discharging sinuses are present; perhaps there has been no pus formation. It seems a certainty, to me, that cases, untreated as they are, do not arrive at abscess formation any oftener than those treated mechanically.

So far as the existing contracture is concerned, the capacity for walking remains; the firmer the contracture the better the endurance in walking. The bones are firm and capable of bearing weight; the muscles of the limb are comparatively well developed.

Thus, you see, apart from the contracture, the result of a case, thus spontaneously cured by Nature, is not a poor one. In fact, I believe it is a good one. It is true, moreover, that these never-treated children attain an independent, enduring gait more quickly than the mechanically treated coxitic patients. This is not to be wondered at when we consider the manner in which the strictly mechanical treatment is carried out.

A great number of physicians—and to these belong most of my American colleagues—consider it absolutely necessary to confine coxitic patients to bed for more or less time, and there to carry out the treatment by extension. Such bed treatment is protracted for a number of months or even years. Not until the more alarming manifestations have disappeared are the children permitted to get up. They then get an extension apparatus which fixes the joint and which takes the weight of the body off the hip joint.

Other physicians—to this class belong foremost the English physicians who came under the influence of

Thomas of Liverpool—do not consider extension necessary, but content themselves with removing the weight of the body. However, they hold the same views as the Americans in regard to bed treatment, systematically conducted. A third group of physicians—to this belong the Germans—lay no great stress on bed treatment, but are, for the most part, believers in the ambulatory treatment. In order to carry this out there is applied to the diseased leg, from the pelvis to the sole of the foot, a closely fitting apparatus, precisely constructed, which fixes the joint in the correct position, thereby holding it extended and excluding every contact between foot and floor. Provided with such an apparatus, the sick children may enjoy fresh air and sunlight, and are able to move about fairly well without suffering pain. They are rescued from the confinement to bed and the sick room, which, in itself, is always damaging to health. For the limb, the apparatus is preferable to bed treatment, while the whole organism has the benefit of light, sun and motion, and thus conditions are offered for better nourishment.

Opinions are at variance as to whether extension is absolutely necessary to keep the leg as quiet as possible or whether simple fixation is sufficient. The Americans, and the Germans no less, swear by extension; the English have almost entirely abandoned extension and carry out the treatment of coxitis by fixation alone.

My standpoint in this question is that extension is useful to a certain degree, but is in no case necessary. At any rate, the mechanical treatment of coxitis is extraordinarily simplified by omitting extension. In the last ten years I have used extension practically not at all.

Before describing my treatment I will try to delineate an average case of coxitis which, having been seen at the very beginning of the symptoms, has been treated in the most careful way by all the expedients of mechanical therapy.

Let us assume, for example, that the child in question had been treated from the start by extension in bed for a considerable period which fixed the joint, not only taking the weight off the leg, but also extending the limb and which was worn day and night; say that this treatment has been carried out for all the years which the disease lasted.

We will assume, for the sake of simplicity, that the case was a mild one and that no pus formation had taken place. The pains were slight all through; night cries occurred, to be sure, but they were never bothersome. The child could always move about, with the exception, perhaps, of a longer or shorter period of especial sensitiveness. Accordingly there can be no doubt that this strict mechanical treatment has materially influenced the course of the wearisome disease. Now, to continue with this case, let us remove the "Hülsen-Apparat" and examine the position of the joint and the condition of the leg.

We probably find the joint in good position; perhaps there exists a very slight degree of adduction and flexion, or the joint has an apparent tendency to assume this position after the apparatus is removed. The joint is movable within a very small arc; there is always more or less shortening. On the whole the result of the examination of the joint is favorable.

Now let us look at the leg itself, and we will find it very much emaciated; the muscles flabby and without power; the knee joint has become lax under the long-continued influence of extension. The whole leg appears as a loose wobbling appendage of the trunk. Experience shows that the bones of such a leg are brittle and fragile. If we investigate the independent function of such a leg, there is shown an absolute inability to support, unaided, the weight of the body even for a moment.

This unfitness for function is not caused by pain, but is due to the extreme atrophy of the muscles and bones. Without the apparatus the patient is absolutely unable to walk even one step. He has become a slave to his machine or his crutches. This state of affairs after a while becomes unbearable to the patient. Finally he rids himself of the machine and is satisfied if he is able to walk independently; whether it be poorly or well; if he only does not have to resort to "his machine" again. Should such a patient have learned to emancipate himself from his "Hülsen-Apparat," then in nine out of ten cases an adduction contracture will have supervened in the course of a short time. I will even go so far as to state that this contracture must follow for obvious reasons, unless the patient takes special precautions against it.

If we now compare the two cases, the one which had no mechanical treatment and the other which was treated by the most careful mechanical method, we are forced to acknowledge that, in the latter case, the end result of our efforts of years is disproportionately small. The only noticeable advantage of this strict mechanical treatment is probably a diminution of the coxitic pain. But this is counterbalanced by the great discomfort occasioned the patient by a narrow, tightly fitting apparatus.

The course of the disease is not shortened by the strictest mechanical treatment, the frequency of abscess formation is hardly lessened, whereas the leg will unquestionably remain unfit for independent functional use for a much longer time than if the mechanical treatment had never been used at all. Another so-called advantage is the good position obtained, but this prevails only so long as the apparatus is worn. Let the patient discard the same and he will not often escape the resulting contracture caused by the walking. The advantages thus gained, therefore, are certainly problematic.

The disadvantages which go hand in hand with this extension treatment are very real. The shortening due to lack of growth must necessarily be greater, as the limb is excluded from motion for years. For the same reason the bones will be more brittle and incapable of weight-bearing than if no treatment had been carried out. The muscles of the whole limb are completely atrophied and functionally powerless. Moreover, the knee joint, which had no share in the disease, has suffered from the strict mechanical treatment; it has become loose and unstable and too weak for any function. These consequences, following strict mechanical fixation and extension treatment, arise from the fact that the limb has continually been restrained from use for a period of years. The child is almost in the position of one whose leg is altogether wanting as a result of an amputation at the hip joint.

Absolute functional restraint, continued for many years, is bound to be avenged and does the limb more harm than the disease of the hip joint itself. If, therefore, one compares the two cases referred to above, the one never treated mechanically and the other treated mechanically, in the most painstaking way, it is manifest that the first patient got off better than the latter. Perhaps the first patient has suffered a little more pain, but he has regained the independent use of his limb more rapidly. My view as to the mechanical treatment is that it does too much; it goes too far; it is an overtreatment, which, beside its few advantages, also entails unnecessary damages. No one can criticize the mechanical

treatment because it has little effect on local tuberculosis. To cure tuberculosis we will require a serum, which up to the present has not been obtained. But we have a right to demand from mechanical treatment that it allow the general health to be bettered in order to influence the tuberculosis in an indirect way. Beside this we may also demand that the capacity for active locomotion on the part of the patient be guaranteed without the aforementioned after effects of mechanical overtreatment. Any one who has watched coxitis cases which have healed without the intervention of a physician, must finally arrive at these conclusions. From my observation of Nature I have formed my own mechanical treatment. This observation of Nature shows that the diseased joint is sensitive to weight bearing only during a relatively short period of time. During the far greater part of the disease the joint is practically not sensitive to weight bearing. Observation of Nature shows further that the diseased hip joint is extraordinarily sensitive to motion for nearly the entire duration of the disease. Every case not treated mechanically offers evidence for this assertion.

On this observation, my simple mechanical treatment is founded. This consists in obtaining the greatest possible security against movement in the joint, that is, the best possible fixation. I apply no extension, but in extreme cases use suspension for the time being. In most cases it is sufficient to protect a leg, which is sensitive on bearing weight from the shock of the weight. The object of this "physiologic mechanical treatment" is that the diseased joint is sufficiently protected without excluding from function the rest of the limb, which is otherwise healthy. On the contrary, the limb should fulfill the function of weight bearing during the whole course of the disease, regulated according to the amount of sensitiveness at any given time.

The physiologic mechanical treatment consists, in short, of the following measures. During the abduction period of the disease the joint is slightly or not at all sensitive against pressure. Therefore, during this stage, which lasts many months, perhaps a year or more, I simply fix the joint in its pathologic position by applying a firm plaster dressing which is renewed every three or four months. The knee joint remains free and the lower part of the leg is accessible to massage. The skin may be kept clean and healthy by means of a scratching band under the plaster. This fixation protects the joint against motion, especially at night, when the reflex muscle spasm is lessened. During weight bearing the pain is relieved. On the healthy side the shoe is raised to equalize the abduction lengthening. A plaster cast fulfills the purpose of rigid fixation better than a removable "Hülsen-Apparat," made of leather, because the elasticity of the latter allows the joint too much excursion.

With a cast of this sort the child goes about as long as treading on the limb is painless. If walking causes pain I fasten a leather splint to the lower end of the plaster which embraces the leg and foot and which is jointed at the knee and ankle. Thus in walking, the jar is intercepted by the steel sole piece of this lower leg splint, and is transferred to the apparatus, diminishing to such an extent that no pain is brought about. In cases where great sensitiveness prevails, the steel sole is placed somewhat lower so that the leg is in suspension in the apparatus. Extension is superfluous. As soon as the sensitiveness to weight bearing ceases I give the lower leg its freedom again. In place of the plaster cast, a removable leather splint is applied which embraces pelvis and thigh. One may now begin with massage of the thigh and commence active abductive movements, always with caution, however. It goes without saying that no pain should be caused by these attempts to regenerate the pelvic trochanteric muscles. The exercises used in after treatment should confine themselves to active and passive abduction movements and to passive extension of the joint.

This set of gymnastics is for the purpose of counteracting the flexion-adduction contracture and to give the joint the position of extension as in standing; I call this position *"indifferente streckstellung."*

The joint is never moved in the sense of flexion, or in any other direction than mentioned above; no advantage is given the patient by a very movable joint. Our everyday experience shows that the looser and more movable a healed coxitis joint is, the worse it functionates. Exhaustion quickly supervenes which is augmented to actual pain, loose joints are easily traumatized and readily subject to accidental violence.

Seeing that the bones constituting the hip joint have usually undergone anatomic changes, and that the muscles about the joint are usually insufficient and powerless to properly support the affected joint, it is my opinion that the goal to be striven for in the treatment of coxitis is the position of "indifferent extension," with as much rigidity in the joint as possible, in other words, bony ankylosis of the hip in the indifferent position.

Bony ankylosis is not subject to traumatization, muscular insufficiency is harmless because muscular power is no more required and the danger of the "flexion-adduction" contracture is past.

Patients with such a result of treatment hardly limp at all and are not easily tired.

It is not in our power to modify the course of a case of coxitis that we may be sure to obtain bony ankylosis.

As it was not my place to talk of the operative treatment of hip disease, I have chosen for example cases without pus formation, and ones which could never have offered an indication for operative interference.

CONCLUSIONS.

In conclusion I wish to review in a few words the principles of the physiologic mechanical treatment of coxitis.

Knowing that mechanical treatment is unable to attack the disease (tuberculosis) itself, it must be constituted so that it is ambulatory, so that it allows of a certain freedom of locomotion and the enjoyment of fresh air, thus improving the general health of the patient. This mechanical treatment should not degenerate into an overtreatment, and must not lead to the result that the remaining healthy portion of the leg becomes withered and incapacitated for function.

I call the above described manner and means of treatment the physiologic one because it permits the physiologic function of the leg.

I believe I may assume that you, my honored colleagues, will take great interest in this, my conception of the principles of the rational treatment of coxitis, as these principles differ essentially from those generally accepted in your country. I can recommend my method of treatment, as it is much simpler than all others, and can be used by every physician in the land.

Perhaps I may offer as further recommendation that in fifteen years' experience this treatment has proved itself the best. I believe the simplicity of the method will find favor in the eyes of the practical Americans, and I would consider myself fortunate if I dared to hope to see my views planted in American soil by one or another of my honored colleagues.

THE MANAGEMENT OF PRISON TUBERCULOSIS,

WITH THE AID OF TUBERCULIN AS A DIAGNOSTIC AGENT.*

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The object of this paper is not to give any new facts in regard to tuberculosis or the use of tuberculin, but merely to give the methods used and results obtained in an attempt to combat the spread of tuberculosis from one point of this many-sided question, and in the hope that the suggestions here given will lead to similar work in other institutions of the kind. The question is not one that concerns the welfare of the inmates only, but the community at large. Men who are perfectly well, on entering these institutions, run a greater risk of contracting the diseases than if they remained out, and on leaving the institution a few years later become additional foci of contagion in other communities.

The following work was carried out in the Indiana Reformatory by Dr. H. C. Sharp, physician and surgeon in charge, and myself, during the summer of 1903. The reformatory, which is practically a penitentiary, averages about 950 male inmates of ages varying from 17 to 35 years, whose sentences are from one to twenty-one years. Those inmates who are not employed in the services of the reformatory are contracted out to several manufacturers whose plants are within the walls.

Tuberculosis has always been the chief cause of sickness and death in the institution, the form in which the disease most often manifests itself being the pulmonary and glandular type. In many of these cases the diagnosis of tuberculosis was evident, but in a large group of men who complained of cough, expectoration, pains in the chest, gastrointestinal disturbances, weakness, etc., a positive diagnosis was difficult to obtain.

The problem before us was: 1, To diagnose every case of tuberculosis; 2, to separate the tubercular from the non-tubercular, and to take every precaution for the prevention of the spread of the disease; 3, to give those suffering from the disease the best treatment available.

In order to obtain a diagnosis in all cases, it was necessary for every man in the institution to receive a physical examination, and the first question to arise was in regard to the examination of the sputum for the tubercle bacilli. If this were carried out it would mean a task too great for practical purposes, and moreover, a certain number of very early cases might be overlooked in which tubercular sputa had not begun to appear, and also in cases where tuberculosis existed in other parts of the body. Therefore, we made no routine sputum examinations, but relied altogether on the administration of tuberculin to give the diagnosis in all doubtful cases. Many cases definitely tubercular, who were not running an elevated temperature, were given tuberculin in order to corroborate our results.

To begin with, every man in the institution was examined as follows: He was asked how he was feeling at the present time and when he was sick last. The following questions referred to the past as well as the present regarding pain, pain in the chest, cough, expectoration, bloody expectoration, hemorrhages, night sweats, loss of weight and strength, pain in stomach, indigestion and condition of bowels. He was stripped to the waist and examined for enlarged glands, symmetry and expansion of chest, vocal fremitus, percussion and auscultation over the apex, back and front of chest. If any of the above symptoms were present, or if any one sign of pulmonary disease was found, no matter how slight, such as change in pitch or quality of note, harsh breath sounds, râles or prolonged expiration, the man was put on the list to receive the tuberculin test, and notes were kept as to the conditions found. In taking the above history the question of sputum was found to be very unsatisfactory. In this part of the country almost everyone suffers more or less with naso-pharyngeal catarrh, and the average man found difficulty in telling whether it came from his lungs or his pharynx. As the great majority of men examined gave a history of expectoration, the above was not

GROUP 1.

Those giving symptoms pointing to pulmonary tuberculosis but no signs.

Number of Convict.	Pain in Chest.	Cough.	Bloody Expectoration.	Night Sweats.	Loss of Weight.	Chronic Indigestion.	Miscellaneous Symptoms.	Temperature of Reaction.	Maximum temp. Hrs. after Injec.
3819	+	+	. . .	. . .	. . .	+	Constant Headache.	103.2	6
3516	. . .	+	. . .	. . .	+	+	. . . . .	104	10
2031	+	+	. . .	+	. . .	+	. . . . .	102	5
4060	. . .	. . .	+	. . .	. . .	. . .	. . . . .	100.2*	9
3687	+	. . .	. . .	. . .	+	. . .	. . . . .	102.2	13
3610	. . .	+	+	. . .	. . .	. . .	. . . . .	101.2	11
3801	+	+	+	. . .	. . .	. . .	. . . . .	101.2	9
3876	. . .	. . .	+	. . .	. . .	. . .	. . . . .	101	8
2955	+	+	+	. . .	. . .	+	. . . . .	101.2	10
3860	+	. . .	+	. . .	. . .	+	. . . . .	101	8
3423	+	. . .	+	. . .	. . .	. . .	. . . . .	102	5
4199	+	. . .	. . .	. . .	. . .	. . .	. . . . .	103	6
3500	+	+	+	. . .	. . .	. . .	. . . . .	101.4	8
3913	+	. . .	+	. . .	. . .	. . .	. . . . .	101.4	8
3432	+	+	+	. . .	. . .	. . .	. . . . .	102.2	9
2910	+	+	+	. . .	. . .	. . .	. . . . .	102.2	6
3642	+	+	+	. . .	+	. . .	. . . . .	103.4	13
3455	+	. . .	+	+	+	+	. . . . .	102.3	20
4076	+	+	+	. . .	. . .	. . .	. . . . .	102.1	6
3778	. . .	+	+	+	. . .	. . .	. . . . .	102.4	3
3949	+	+	+	+	. . .	. . .	. . . . .	101	6
4169	. . .	+	+	. . .	. . .	. . .	. . . . .	101	5
3465	+	+	. . .	. . .	. . .	+	Chronic Diarrhea.	101	16
2929	. . .	. . .	+	. . .	. . .	+	Chronic Diarrhea.	100 *	7
3258	+	+	+	. . .	+	. . .	. . . . .	100 4	9
4098	. . .	. . .	+	+	. . .	. . .	. . . . .	101.2	9
3525	. . .	+	+	+	. . .	. . .	Chronic Diarrhea.	101.4	9
3356	. . .	+	. . .	. . .	. . .	. . .	. . . . .	101.2	17
3735	. . .	+	. . .	. . .	. . .	. . .	. . . . .	100.4	13
3920	. . .	. . .	+	. . .	. . .	. . .	. . . . .	100 *	13
3979	. . .	+	. . .	. . .	. . .	. . .	. . . . .	100.4	9
3544	. . .	+	. . .	+	. . .	. . .	. . . . .	102 2	11
3286	. . .	+	. . .	. . .	. . .	. . .	. . . . .	100.4	12
3878	+	+	. . .	+	. . .	+	. . . . .	101	18
4138	+	. . .	. . .	+	. . .	. . .	. . . . .	103.4	17
3429	. . .	. . .	+	. . .	. . .	. . .	. . . . .	102.8	20
4176	+	+	. . .	+	. . .	+	. . . . .	102 4	17
4030	+	+	+	. . .	+	. . .	. . . . .	103.4	11
3347	+	+	+	. . .	. . .	. . .	. . . . .	101.4	10
4215	Had hemorrhage 3 years ago.						No symptoms at present.	102.4	10
1738	. . .	. . .	+	. . .	+	. . .	. . . . .	103	19
4009	+	+	. . .	+	. . .	+	. . . . .	103	13
3240	+	+	. . .	. . .	. . .	. . .	. . . . .	101.2	15
4007	. . .	+	+	. . .	. . .	. . .	. . . . .	101	13
4051	. . .	+	+	+	+	. . .	. . . . .	102	14
4078	. . .	+	+	+	+	. . .	. . . . .	100.4	11
3522	. . .	+	+	. . .	. . .	+	. . . . .	101.2	13
2878	+	. . .	+	. . .	. . .	. . .	. . . . .	101.4	13
3705	. . .	+	+	. . .	. . .	. . .	. . . . .	102.4	17
3666	+	+	+	. . .	. . .	. . .	. . . . .	101.2	17
3883	+	+	. . .	+	+	+	. . . . .	103.6	12
2807	. . .	+	. . .	. . .	. . .	. . .	Had measles 4 months ago.	102	15
3184	+	. . .	. . .	. . .	. . .	. . .	. . . . .	104	18
3247	+	+	. . .	+	. . .	. . .	. . . . .	105	9
3921	+	. . .	. . .	. . .	. . .	. . .	. . . . .	101.2	13
3260	+	. . .	. . .	. . .	. . .	. . .	Very weak . . .	101	10
3933	. . .	+	+	. . .	. . .	. . .	. . . . .	101.2	10
3338	. . .	+	+	. . .	. . .	. . .	. . . . .	100.2*	14
3541	+	+	. . .	. . .	+	. . .	. . . . .	100 *	7
59	33	41	36	15	11	13	. . . . .	Total	. . .

*Temp. had been subnormal so that the rise obtained was over 2° associated with febrile symptoms.

* Under the direction of H. C. Sharp, physician and surgeon of Indiana Reformatory.

taken into consideration unless it had at some time been bloody.

Before starting the tuberculin test it was thought best to experiment with the dosage. The dose for diagnostic purposes was from 5 to 10 milligrams.[1] The larger dose was first tried, diluted in 1 c.c. of water, on a patient with definite tubercular adenitis, and for a control test another man, who was apparently perfectly healthy, was chosen to receive the administration at the same time. The former gave a typical tuberculin reaction with a rise of temperature of 104 degrees, while the latter felt perfectly well and his temperature remained normal. Other tubercular patients were tested with smaller doses of tuberculin, but the reaction was not so definite as when the 10-milligram dose was given; therefore, this maximum dose was employed throughout the series of tests.

In giving the tuberculin test nineteen men were tested at a time. They were taken into the hospital and a one hour temperature record was taken for about 36 hours so that a morning and evening temperature could be recorded. If any of the men were running an elevated temperature the test had to be postponed until it became normal, the tuberculin reaction being valueless unless given during a period of apyrexia. After the temperature record had been taken for the proper length of time 10 milligrams of tuberculin diluted with 1 c.c. of distilled water was injected deep into the left deltoid, the skin having been previously washed with soap and water, ether and alcohol. The injection was made at midnight so that the reaction could be watched on the following day.

GROUP 2.

Those giving both symptoms and signs suggestive of pulmonary tuberculosis.

Number of Convict.	Pain in Chest.	Cough.	Bloody Expectoration.	Night Sweats.	Loss of Weight.	Chronic Indigestion.	Miscellaneous Symptoms.	Percussion.	Auscultation.	Miscellaneous Signs.	Temp. of Reaction.	Maximum Temperature hrs. after Injec.
2609	+	+	Vom. Bl'od	+	. . .	+	. . . . .	Dull right apex.	Harsh breathing over both apices	. . . . .	103	8
3908	+	+	. . .	+	. . .	. . .	. . . . .	Right front higher pitch.	. . . . .	. . . . .	100.2	3
1529	+	. . .	*	. . .	. . .	. . .	*Had one hemorrhage.	Dull left apex.	. . . . .	. . . . .	104	15
3832	+	+	+	. . .	+	. . .	. . . . .	. . . . .	Harsh breath sounds over both lungs.	. . . . .	102.4	12
3988	. . .	No symptoms.		. . .	. . .	. . .	. . . . .	. . . . .	Rough breath sounds over right apex.	. . . . .	101.2	17
3894	. . .	+	+	. . .	. . .	+	. . . . .	Dull right apex.	Sibilant râles over both lungs. .	. . . . .	103.2	14
3194	+	. . .	. . .	. . .	. . .	. . .	. . . . .	. . . . .	Sibilant râles over both lungs . .	. . . . .	100.2	19
2137	No pulmonary symptoms.			+	+	. . .	. . . . .	Dull right apex and upper left lung.	Breath sounds harsh over dull area.	. . . . .	104.4	14
3435	+	. . .	. . .	. . .	. . .	. . .	. . . . .	Higher pitch over left apex.	Sibilant râles over left apex. . .	. . . . .	104.2	16
2934	+	+	. . .	. . .	. . .	+	. . . . .	Dull area over left side.	. . . . .	. . . . .	103.4	14
2966	+	+	+	+	+	+	Very weak	Left apex higher pitch...	Harsh breath sounds over left apex and side.	Vocal fremitus mr. on lt. side	102	16
4225	. . .	No symptoms.		. . .	. . .	. . .	. . . . .	Higher pitch over left apex and side.	. . . . .	. . . . .	101.4	5
3744	+	+	. . .	. . .	. . .	. . .	. . . . .	. . . . .	Harsh breath sounds and sibilant râles over both lungs.	. . . . .	101.2	7
3099	+	. . .	+	. . .	. . .	. . .	. . . . .	. . . . .	Harsh breath sounds, both apices	. . . . .	102.6	18
4139	No pulmonary symptoms.			+	+	+	. . . . .	Right apex higher pitch.	Tubular breathing over right apex.	. . . . .	102.4	11
3325	. . .	+	+	+	. . .	. . .	. . . . .	Dull over right side . . .	Harsh breath sounds over right side and apex.	Dim. exp. of right side.	105.2	14
2364	. . .	+	+	. . .	. . .	+	Had right-sided pleurisy 1 year ago. Recovered. Chronic diarrhea.	. . . . .	Harsh breathing over both apices	. . . . .	100.4	17
3981	+	. . .	. . .	. . .	. . .	. . .	C'nstipation alternating with diarr.	Higher pitch over right apex.	Harsh breathing over right apex. Sibilant râles over both lungs.	. . . . .	100.4	8
3306	+	+	+	. . .	+	+	Chronic diarrhea.	Abdomen distended and tympanitic; no fluid.	Breath sounds harsh over right apex.	. . . . .	101 2	16
3997	+	+	+	. . .	+	+	. . . . .	Left lung and apex higher pitch.	. . . . .	. . . . .	104.2	2
3776	+	. .	. . .	. . .	+	+	. . . . .	. . . . .	Expiration prolonged over left apex and side.	. . . . .	101.4	15
3631	+	+	+	. . .	. . .	+	. . . . .	. . . . .	Harsh breath sounds over left lung.	. . . . .	102	20
2234	+	+	. . .	. . .	. . .	. . .	. . . . .	Higher pitched over right side.	Enfeebled breath sounds over right side.	Sl. frictions rub at base.	102.2	13
3756	+ in both sides for last 5 months; weak and anemic.							June 12, '03, acute pain at base of both lungs. Friction rub at both bases that lasted for a week. August 3. '03, pain continued, rub heard, tubercular reaction 105.4 13 hours after injection (delirious). Next day pain not so severe. September 19, '03, very little pain since day of reaction; returns occasionally and is slight. Patient good color and says that he feels O K. Fine friction rub at lower right base.				

Out of the 965 men in the institution who received a physical examination, 24 were found to be definitely tubercular and were not tested with tuberculin. Two hundred and seventy-eight men gave either one or many of the symptoms or signs of tubercular disease and received an injection. Of course, all of these were not thought to be tubercular, but by testing every suggestive case, no matter how slight his symptoms or signs, seemed to be the only sure way of picking out every case of tuberculosis. Out of this total number tested, 102 gave a definite tuberculin reaction, a definite reaction consisting in a rise of temperature two degrees above the maximum temperature previously recorded.

1. The product used was the Mulford tuberculin. (It is necessary to mention this, as the dose varies greatly with the product used.)

accompanied with at least one febrile symptom, such as chill, headache, pain in back, etc.

These 102 men who gave a positive reaction may be divided into the following groups:

Group 1.—Those giving symptoms of pulmonary tuberculosis, but in whom no physical signs could be obtained after repeated examinations made before, during and after the tuberculin reaction.

Group 2.—Those giving both symptoms and signs of pulmonary tuberculosis.

Group 3.—Those without symptoms and whose only sign was enlarged glands.

Group 4.—Miscellaneous cases.

In this first group of 59 cases, 41 gave a history of cough, 36 gave a history of the sputum being bloody or blood tinged at one time or another, 33 of pains in some part of the chest, 15 of night sweats, 13 of chronic gastrointestinal disturbances and 11 gave a history of loss of weight.

It will be noticed that several of the maximum temperatures recorded are only between 100 degrees and 101 degrees, and the objection might be raised that this elevation is not sufficient to contribute a definite tuberculin reaction. It was a curious fact that the great majority of the men ran a temperature of about 1 degree below normal, for which we could find no explanation. However, a rise from this subnormal temperature to 100 degrees gave the required amount to constitute a reaction. As mentioned above a positive reaction consisted of a rise of temperature 2 degrees above the maximum temperature previously recorded, associated with at least one febrile symptom.

Ten out of the number tested gave a slight rise of temperature, but not enough to constitute a definite reaction. In these a second injection was to be made at a later time, a report of which has not been made.

GROUP 3.

Those where only signs of tuberculosis was enlarged submaxillary or cervical glands.

Number of Convict.	Local Reaction. Tender and Painful Glands.	Temperature of Reaction.	Maximum Temp. Hours after Injection.
4059	+	164	8
4029	. . . . .	101	6
4004	. . . . .	101	15
3945	. . . . .	102.4	11
2451	+	103	15
3474	. . . . .	102.6	11
2024	+	105	11
4246	. . . . .	101	9
3569	. . . . .	104	12
3707	+	104	12

Total, 10.

SUMMARY.

From the above results we feel very strongly that as a diagnostic agent tuberculin is of great value, not only in surgical tuberculosis, but in the early pulmonary form, where the finding of the tubercle bacilli in the sputum is very difficult or even impossible. In none of our cases, whether a positive reaction was obtained or not, did we find any ill effects following the administration of tuberculin, and this corresponds with the results of others, showing that the danger from the use of tuberculin is practically *nil*.

The result of our examination of 965 inmates showed 24 to be in an advanced stage of tubercular disease, and 102 who gave a definite tuberculin reaction, making a total of 126, or nearly 13 per cent.

PROTECTION OF THE NON-TUBERCULAR.

The next question was the protection of the non-tubercular, and the method of treatment of those infected with the disease. In regard to the prophylaxis our plans were as follows: The tubercular were separated from the non-tubercular by giving them a separate cell house and having them eat at separate tables. Receptacles for sputum containing sawdust dampened with a solution of crude carbolic acid, were placed in convenient locations throughout the grounds and shops. The dust about the grounds was done away with by sprinkling once a day. All sweeping in the cell houses and halls was done after first sprinkling sawdust wet with a solution of crude carbolic acid. This gave the whole place a strong odor of carbolic acid, but it is much more agreeable than the musty and dirty odor that formerly prevailed.

TREATMENT OF THE TUBERCULAR.

As to the treatment of the tubercular, those who were able to work were given an occupation suitable to their condition, while those too weak to work were given benches in a sunny part of the grounds where they could sit out of doors all day. All who were able were compelled to take regular exercise. Better food was supplied, and drugs administered such as cod liver oil, syrup of the iodid of iron and others as the case required.

GROUP 4.

Miscellaneous tubercular cases.

Number of Convict.		Temp. of Reaction.	Maximum Temp. Hrs. after Injec.
3094	Complaint: great weakness; no physical signs	102.4	11
3707	Comp.: chronic indigestion; measles 4 months ago	103.4	11
4125	Signs and symptoms of tubercular peritonitis	100.6	10
2993	Signs and symptoms of tubercular peritonitis. Local reaction, abdominal pains and tenderness	102.6	8
3800	Tubercular abscess in muscles of back	104.6	12
3077	Arm amputated 1 year ago for tuberculosis. No local signs or symptoms at present.	103	18
2885	Otitis media	101.6	10
3689	Pott's disease of long standing	102	15
3760	Necrosis of nasal bone with discharging sinus	102	9

9 cases total.

The therapeutic use of tuberculin has not yet been tried, but as to its value one case is very suggestive. Convict No. 3,756 (see chart of Group 2), who had suffered with bilateral pleurisy with constant and severe pain for two months, on receiving tuberculin, gave a reaction of 105.4. A few days later his pain was very much better, and six weeks later he said that the pains seldom bothered him, and he was feeling better in every way. However, a friction rub still remained.

CONCLUSIONS.

A year has now passed since the above work was done, and while we do not possess accurate statistics as to the number of inmates afflicted with tuberculosis at present in the institution, many facts go to show that there has been a decrease in the disease. During the year ending Aug. 1, 1904, there have been ten deaths from tuberculosis, which contrast favorably with the eighteen deaths that occurred the previous year. After making our tuberculin tests we found that the great majority of men who gave a reaction were those who were constantly coming to morning sick-call. During

the past year the total number of inmates attending sick-call has been 40 per cent. less than the year before.

These few facts are enough to convince us that we are working in the right direction toward the management of prison tuberculosis, and we feel that the results thus far obtained fully repay us for our work.

TONSILLECTOMY, THOROUGH, PAINLESS AND SAFE.*

E. FLETCHER INGALS, M.D.
CHICAGO.

"What is worth doing at all is worth doing well," is a truism especially applicable to surgical procedures, for no operation should ever be undertaken excepting for the patient's best interests. We are all searching, therefore, for something that is better, whether it be new or whether it be simply a modification of the old. That the ancient operation for tonsillectomy is susceptible of improvement goes without saying when we consider some of the important conditions and when we witness some of its lamentable results. An unusual case which recently came under my observation induces me to bring up again this well-worn subject in the belief that there are many surgeons, even among laryngologists, who are not familiar with the technic of an operation that to me appears more thorough and much safer than the methods generally adopted.

The case referred to was that of a gentleman about 30 years of age who had suffered from frequent attacks of severe tonsillitis and in whom both tonsils were enlarged to the size of a small English walnut. From the history there was no doubt of the desirability of removing these glands, but on inspection I discovered on both sides large branches of the carotid artery pulsating at the base of the tonsil immediately beneath the mucous membrane, so that the operation with a tonsillotome, which might have been easily done, would have been attended with great risk; whereas the operation that I have in mind and that I prefer, for nearly all cases, could have been done with safety.

In any case of hypertrophy of the tonsils the questions to be considered are: Is an operation necessary? And, what operation would yield the best results in this particular case, with the minimum amount of danger and discomfort to the patient?

In the great majority of cases in which the tonsil is not larger than an almond, provided it is not subject to frequent acute attacks of inflammation, no operation is desirable; but in many cases tonsils even much smaller than this by reason of acute attacks are a source of danger and of great discomfort to the patient; therefore, their extirpation becomes important. There are some tonsils even larger than this that give the patient no inconvenience and that never will become a source of any considerable danger; but in the majority of cases these hypertrophied glands, because of their liability to infection and acute inflammation, are a constant menace and should, therefore, be removed.

In many cases the so-called submerged or buried tonsil is scarcely perceptible on inspecting the fauces when at rest; but they are rolled out so as to show considerable dimensions with the act of retching. Whether these be small or large, if subject to frequent acute attacks of inflammation, they should be removed.

In children we may reasonably expect hypertrophied tonsils to gradually atrophy and disappear before puberty, but it should be remembered that in the meantime they offer an open portal for the entrance of numerous germs of disease, and in the majority of cases they are associated with hypertrophy of the pharyngeal or Luschka's tonsil, with all its painful results; therefore, when a child has suffered two or three attacks of acute tonsillitis, whatever the size of the glands, it is usually best to advise their removal.

The operation to be selected necessarily depends on various conditions which may be present in individual cases. The old operation performed by seizing the tonsil with a vulsellum forceps and dissecting it out with a bistoury is now seldom employed, but it would undoubtedly yield better results than frequently obtained from some more modern methods. An operation by means of some one of several good tonsillotomes is best in adults, and sometimes also in children in those cases where the tonsil is not adherent to the anterior pillar of the fauces and when it is of such form and in such position that it can be readily engaged and thoroughly removed; in children, in the majority of cases, Luschka's tonsil is also enlarged and should be removed at the same time, which fact may induce us to adopt some other operation. Furthermore, we should not forget that the fright and pain to the little one caused by tonsillectomy is often fully as great as that an adult would suffer from amputation of the arm.

In cases where the tonsil is hidden by the adherent

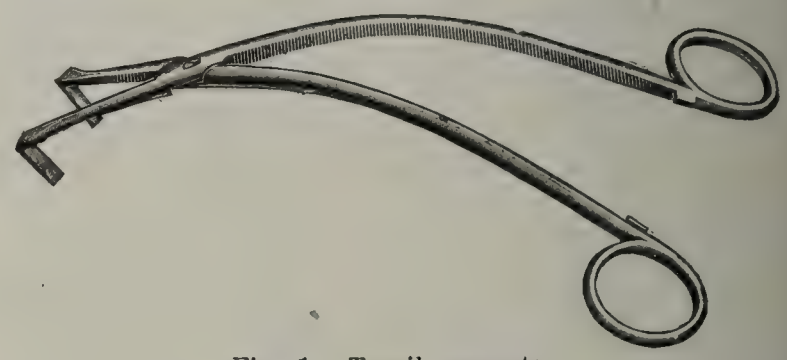


Fig. 1.—Tonsil separator.

anterior pillar of the fauces, a thorough operation is impossible with the ordinary tonsillotome unless the gland is first lifted out with forceps, and then serious hemorrhage is likely to result either from division of some large blood vessel within the tonsil or from cutting the anterior pillar. In these cases the glands may be cut out with biting forceps, but this operation is peculiarly liable to cause serious bleeding. In such cases we often resort to repeated cauterization, with gradual destruction of the gland rather than incur the dangers of tonsillectomy. Such cauterization, when properly performed and when the gland is not large, usually yields satisfactory results. It has also been recommended to dissect out these glands with the galvano cautery, but the large area that is burned in this operation causes much pain and such extensive cicatrices that this procedure appears to me seldom justifiable.

The operation that I wish to recommend appears to me the best in most cases in children, and in many cases of the so-called buried or submerged tonsil in adults. It was first recommended by me several years ago and has since been adopted by a considerable number of laryngologists, but I fear that the technic is not thoroughly understood by most laryngologists or general surgeons. The instruments required for the operation are a mouth gag, tongue depressor, blunt hook, tonsil forceps, long

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

pincette and two snares with wire. One should also have proper sponges. In most cases one should also have at hand Lowenberg's forceps or some modification of the same for removing the pharyngeal tonsil, or such other instrument as one may prefer for this purpose. I have also for use, when Luschka's tonsil is to be removed, a nasal bone forcep that I pass through the nostril to the nasopharynx for removing pieces of Luschka's tonsil from the vault of the pharynx close to the choanæ, which may be difficult to catch with the instrument in the nasopharynx; and also for the purpose of opening the posterior nares, which will be found considerably contracted in a considerable number of cases. Any good mouth-gag may be used, but I prefer the Allingham, or some of its modifications. Any satisfactory tongue depressor may be employed. I formerly used, for separating the anterior pillar of the fauces from the tonsil, a blunt hook originally designed for a palate retractor, but I have recently had made for this purpose a much better instrument, with two blades, which when closed and locked form a blunt hook. (Fig. 1.) When the catch is loosened the blades may be opened out so that the two ends forming the blunt hook thoroughly separate the anterior pillar of the fauces from the tonsil by a single movement, thus considerably facilitating the operation. The tonsil forceps is an instrument that I had made for this special purpose. (Fig. 2.) It is about eight inches in length, with a catch on the handles so that it can be locked after the tonsil has been seized. The blades of this forceps turn at an angle of 45 degrees to the long axis. They are nearly an inch in breadth at their broadest part and are rounded down toward the end so that when the loop of wire has been slipped over their broadest part it must necessarily slide toward their end to the base of the gland. The end of the blade consists of two blunt points, each about an eighth of an inch in width, separated about three-eighths of an inch from each other by a crescentric depression, which leaves an elliptical opening about three-eighths of an inch long by one-fourth inch in width, when the points of the two blades are brought into contact. At Dr. O. T. Freer's suggestion these forceps are sometimes made with three points at the end of the blade. The instrument is so made that when the handles are locked the points of the blades press firmly against each other, and the handles have enough spring to allow for what we might call the root of the tonsil between the ends of the blades. The pincette is about eight inches in length; it is designed to hold the end of the uvula to prevent it from being caught in the loop of the snare. The snare for removing the tonsil is the same as used for nasal polypi, but I have the handle five inches in length so that it will not be necessary to shorten the wire before the tonsil is cut off. With the snare I use No. 5 steel piano wire. For removing the pharyngeal tonsil I like best John N. Mackenzie's modification of Loewenberg's forceps. The nasal forceps (Fig. 3) are the bone forceps that I have recommended for trimming up spicula of bone in operations on spurs of the septum. I give the patient a general anesthetic and prefer chloroform for children. The patient is placed in the prone position, with the face drawn out over the edge of the table, in which position there is no danger of blood flowing into the trachea. I prefer removing the right tonsil first, the patient being placed, when daylight is used, in front of a window; I seat myself, with my left hand toward the head of the table, on the opposite side of the table from the window, and reflect the light into the throat from a head reflector. After the first tonsil is removed the patient's face is turned toward the window, the face being kept downward during the turning so that no blood runs into the trachea, and the reflector is dispensed with. It is usually more convenient to use artificial light when we have an electric lamp that can be worn on the forehead, but even then I prefer to remove the right tonsil first, because this leaves the patient, when the left tonsil has been removed, in the position with my right hand toward the head of the table, in which I want him for removal of the pharyngeal tonsil.

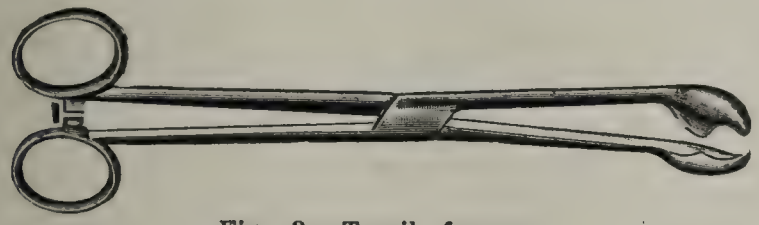


Fig. 2.—Tonsil forceps.



Fig. 3.—Nasal bone forceps.

TECHNIC OF THE OPERATION.

When anesthesia is nearly complete the patient is placed in the prone position, and the mouth-gag is placed between the jaws on the upper side of the face, and opened as widely as necessary. It is usually found necessary to continue the anesthetic for a few minutes afterward to complete the anesthesia, because these patients do not breathe well on account of the nasopharynx being filled with adenoid growth, and they do not come fully under the anesthetic until the gag is put in to hold the mouth open. For the right tonsil, sitting with my left hand toward the patient's head, I introduce the blunt hook between the anterior pillar of the fauces and the tonsil, while the tongue is kept down by the depressor held in the left hand. I then remove the tongue depressor and open the blades that terminate in the blunt hook widely enough to separate the anterior pillar thoroughly from the tonsil, by which act the tonsil is freed from a considerable part of its bed, so that it may be easily caught by the forceps. In cases where the anterior pillar is not attached to the tonsil this is not necessary, but the gland may be grasped at once with the tonsil forceps. In applying the tonsil forceps it is usually best to have an assistant press the tonsil inward with the fingers applied just back of the angle of the jaw, so as to make the gland as prominent as possible. In seizing the tonsil one should pass the blades of the forceps beyond the anterior pillar; otherwise it is apt to be slightly injured. When the tonsil has been seized the handles of the forceps are locked, the tip of the uvula is then secured with the pincette, which may be held by an assistant, and the loop of the wire of the snare is slipped over the handles and carried along them into the mouth and over the end of the forceps. If the tonsil is of fair size, so that it is held firmly, it may now be drawn on and lifted up so as to make certain that the wire slips under it; otherwise a little care will be necessary to make sure that the wire is beyond the broadest part of the blade, so that when it is tightened it will slide down to the end of the blade and slip under the gland, to cut it off at the lowest point. The wire loop is now drawn

tightly about the base of the tonsil by a moving bar on the handle of the snare; the pincette is then removed and the milled wheel on the handle of the snare is brought into use for the final tightening of the loop. In nearly all cases, if care has been taken in grasping the tonsil, every portion of the gland will be removed at once, and if it has not been necessary to separate the anterior pillar the bleeding will not have exceeded a dram. The patient is then turned so that the face projects over the left edge of the table, the blood is wiped out of the mouth, the left tonsil is caught and extirpated in a similar way; then, if the pharyngeal tonsil is enlarged, it is also thoroughly removed. In the latter case the after-treatment consists of the application through the nares four or five times a day of an antiseptic oily spray or of a 1-4,000 solution of adrenalin chlorid or suprarenalin in a saturated solution of boric acid, and if the child is large enough an antiseptic gargle is used several times daily. When only the faucial tonsils are removed it is desirable to have the throat sprayed or gargled with some non-irritating antiseptic about once an hour for two or three days, and afterward about half as frequently until healing is complete. The child should be kept in the house for nearly a week, for the whole wound can not be expected to heal within less than ten or twelve days.

34 Washington Street.

DISCUSSION.

DR. G. HUDSON MAKUEN, Philadelphia—Some years ago I saw Dr. Ingals do this operation in his office and was so impressed with the thoroughness of it that I immediately secured the instruments. The first case on which I operated was a child of five years, and I removed the tonsil with great satisfaction, but three or four days later, to my surprise, I found that the child had no uvula. I was interested in hearing that Dr. Ingals has had similar experiences and I should like him to explain how and why these accidents occur.

DR. WILLIAM E. CASSELBERRY, Chicago—In speaking of tonsillectomy before my classes, I divide it into tonsillectomy in children and tonsillectomy in adults. In children I divide again into operations with general anesthesia and those without it. Take first tonsillectomy in children with general anesthesia, I determine whether to use the snare or other instrument, observing whether the tonsil is of the pedunculated or of the submerged type. It is with the pedunculated type that I have found the snare particularly applicable. When they are loose and project well toward the median line, not being tied down to the triangular space, I find very little difficulty in enveloping them with the snare and making the enucleation of the tonsil. The method adopted in such cases on children under general anesthesia is by means of the curved vulsellum forceps, which occupies much less space than the one exhibited. I use No. 7 piano wire because it maintains its resiliency and cuts sufficiently well. The loop is applied to the tonsil and the vulsellum forceps takes it up, the tonsil is drawn into the loop of the snare; the same procedure is then repeated on the opposite side. This operation is usually done in conjunction with the removal of adenoids. In the second type of cases with general anesthesia we more frequently find the flat, adherent or submerged tonsil. I often find it difficult to break up these attachments and for this class of cases I believe the instrument exhibited would work admirably. All the easy cases seem to go to other men, leaving the more difficult cases for those of us who are specialists. They are usually divided into segments, one-half of which is adherent to the anterior pillar and the other to the posterior pillar. I find also that the lobe is higher developed and is covered with muscular tissue. I have not found it wise to use the snare to a great extent in these cases, but prefer to dissect them out. If there is any considerable part that the tonsillotome will take in bulk, I use that first and then supplement it with the forceps in order to make a thorough tonsillectomy.

DR. J. A. STUCKY, Lexington, Ky.—I do not think I have used the guillotine a dozen times in the last three years. I use the snare entirely. I find I can do a cleaner operation in the first place, and that it diminishes the danger of subsequent hemorrhage. There is one difficulty I hope Drs. Ingals and Casselberry will tell us how to overcome; I refer to the necessity for an assistant to hold the tongue down. I find I have trouble in removing the right tonsil, where I have to hold one hand over the other; I need an assistant to hold the tongue down and use the forceps. It is astonishing how dexterity develops in the use of the snare, and after using it a number of times with a heavy wire it will be found much superior to the guillotine or scissors.

DR. GEORGE L. RICHARDS, Fall River, Mass.—I like this method very well, but, except in children, I do my operations without anesthesia. I have done it a number of times by injecting the tonsil with local anesthetics, using the Schleich anesthesia tablet, the operation is practically painless. I use the vulsellum forceps, drawing the tonsil through the loops and maintaining traction as the snare is tightened. The form of tonsil snare with a groove in the side of the ring, in which groove the wire loop is formed, answers admirably. It is somewhat awkward to use, but allows one to exert much firmer pressure against the side of the throat without bending of the wire loop, and is sufficiently powerful for all tonsils. I have found the tonsillar wound to be much more painful and the healing much slower than after operations with the guillotine. This would seem of necessity to be the case, as a wound made with a sharp instrument like the knife will heal quicker and be less sore than one made with a No. 7 or No. 8 piano wire.

DR. GEORGE B. WOOD, Philadelphia—I have had some experience in removing tonsils with a snare, and I want to indorse what Dr. Richards says about the reaction following the operation. I have found it to be almost threefold as great as that following the use of the tonsillotome.

DR. P. S. DONNELLAN, Philadelphia—As my experience with the treatment of enlarged tonsils becomes more extensive, I get more and more away from the use of the guillotine and use the snare or the forceps and scissors. I do not believe that any one operation can be used in every case. I believe the snare operation to be one of the very best.

DR. S. H. LARGE, Cleveland—Two months ago I recorded 100 cases of operations on the nose and throat with ethyl chlorid anesthesia, but the guillotine was used. This method of anesthesia would not do for the snare operation, since the anesthesia would not be sufficiently prolonged. We had no bad results and the patients experienced no unpleasant symptoms in taking it.

DR. E. PYNCHON, Chicago—In my experience the indications for this operation can be classified into, first, those appreciated by the patient, and secondly, those recognized by the physician. The call for operation may be recognized by observing the escape of secretions from the diseased tonsils, or by some condition of the gastrointestinal tract, due to the swallowing of such secretions. The size of the tonsil is no criterion for its removal. I understand Dr. Ingals to advocate the use of a general anesthetic. I think the dangers of anesthesia are sufficiently grave to contraindicate its use except in cases where it is absolutely necessary. If the patient is 13 years old, or older, I invariably use cocain. At this time we are much at sea as to the physiology of the tonsil. I have operated on as many as a thousand cases and never yet have had a patient afterward make any complaint due to the loss of the tonsil. As to the line where the separation from the anterior pillar should be made, I would call attention to the line of demarcation where the redness of the tonsil changes to the pinkness of the pillar: that is my line of separation. As to the method of procedure, I am guided by the age and tolerance of the patient. With small children I do a tonsillotomy. The tendency of the snare is to cut along the line of least resistance and, therefore, the dissection must be made sufficiently deep to leave only a pedicle re-

maining. The greatest disadvantage of the cutting operation in adults is the matter of hemorrhage, and for that reason a bloodless operation is better if it can be done. Dr. Ingals mentions the use of electricity; by the use of the cautery I am frequently able to do a bloodless operation. Dr. Ballinger of Chicago has been using the snare a great deal, and he says that one of the worst hemorrhages he ever had was following the use of the cold snare.

DR. OTTO J. FREER, Chicago—I have done this operation many times and think that it is an ideal method for the removal of the class of tonsils called buried or submerged. It takes these out so cleanly from the very bottom of the tonsillar niche that nothing could be more perfect. It removes projecting hypertrophied tonsils quite as well and in children, where adenoid vegetations are to be cut away simultaneously under an anesthetic, it is the method I prefer to all others, but where projecting tonsils alone need ablation the tonsillotome is preferable. I added the third tooth to the forceps because I found that the two-pronged one slipped off from the tonsil at times. The kind with the third tooth does not let go. I also cut off the uvula once, but since I have used Dr. Ingals' uvula forceps I have no fear of a repetition of the accident. The operation is a good one for submerged tonsils, because the tonsillar forceps is a strong instrument and may be crowded in above the velar lobe and under the bottom of the tonsil and thus be made to lift the tonsil completely from its bed. My greatest trouble used to be the application of the snare, because I seized the forceps with it instead of the tonsil. To overcome this I devised a snare guard which contains the wire while it is being carried over the forceps on to the tonsil. The wire used in this guard should be No. 6 piano wire, so that it may have stiffness enough to be crowded into the groove of the guard to keep it from slipping out. Many other operators have mentioned to me this same trouble of catching the forceps with the snare. I never have the tonsil pressed up, but prefer to crowd in beneath it with the tonsillar forceps. As to the anesthetic, I prefer ether to chloroform because I have had several cases where the latter anesthetic caused me much alarm. I have never had any trouble from ether and find that children often go to sleep more rapidly under ether than under chloroform. Tonsillectomy by cautery dissection is a bloodless operation so far as its immediate results are concerned, but I know from personal experience that secondary hemorrhages of an alarming nature quite often follow it.

DR. ROBERT C. MYLES, New York City.—Dr. Ingals has originated and explained the use of the snare, and when we shall have mastered all the details, this operation will be considered the best of all. He speaks of separating the anterior pillar from the tonsil. If the throat be examined carefully, it will be found that the tonsil does not touch the anterior pillar except at one spot; in the upper portion inferiorly it is not more than half an inch from the anterior pillar. If the tonsil can be cut from its surroundings, mucous membrane and investing sheath, there will be very little reaction. This is the most perfect operation, but it is limited in its application.

DR. J. A. STUCKY, Lexington, Ky.—What is Dr. Ingals' experience with the self-retaining tongue depressor?

DR. E. FLETCHER INGALS—I have one, but never use it. I did not speak of the benefits of a general anesthetic in the case of hemorrhage. I formerly thought a hemorrhage would never occur when the tonsils were removed with the snare, but I had one case in which it would have been very difficult to control had not the patient been under a general anesthetic which enabled me to grasp and tie the bleeding point. I think the uvula gets into the snare, especially in cases where the tonsils are large and in close apposition. I cut it off in my early cases before I adopted the plan of catching it with a pincette, but never have the accident occur now. One of the speakers suggested that there would be great difficulty in using the forceps in submerged tonsils, but it is in these very cases that it is of the utmost value. With the use of the hook, or tonsil dissector, the glands are dissected out with one motion, and they can then be easily grasped with the forceps. The anterior pillar should be caught with the hook at the upper part at the point where it is in apposition with the capsule. I very rarely use an assistant excepting to give the anesthetic. I used to have some one press up the tonsil just as I caught it with the forceps, but I seldom do this now, as in nearly all cases it is easy to catch it without. The use of heavier wire in order to avoid catching the forceps might possibly be some help. I have had the wire catch the forceps a good many times, but when the tonsil is large enough to be grasped firmly it can be lifted out so that the wire loop must necessarily slip under it. I am not sure about the reaction being greater by this method, but it has not seemed so to me.

Special Article.

IMMUNITY.

CHAPTER II.

INFECTIOUS ETIOLOGY.

The microbic cause of a disease must be in hand before any logical attempt can be made to prepare an immune serum for the disease. It is not in all cases necessary that the organism be cultivated artificially, however; the conditions in rinderpest may be cited in which the body fluids of a diseased animal, known to contain the infectious agent, are used for immunization, although the microbe itself can not as yet be cultivated or recognized.

There are so many possibilities of error, and so many errors have actually been made in regard to infectious etiology, that certain requirements in the way of proof are now habitually demanded before an organism can be accepted as the cause of a disease. These requirements are most frequently expressed in the form of Koch's laws, which may be stated as follows: 1. The suspected organism must be found constantly in the proper tissues of an animal suffering from the disease, or which has died from it. 2. The organism must be cultivated artificially in a pure state. 3. It must be possible to reproduce the disease in a suitable animal by inoculation with the pure culture. 4. The organism must again be cultivated in a pure state from the tissues of the experiment animal.

Koch's Laws.

Since these laws were formulated another procedure has been developed which may give valuable evidence as to etiology. This pertains to the agglutination test, or as we speak of it in connection with typhoid fever, the Gruber-Widal reaction. This principle, that in the acquiring of immunity to a microbic infection the serum of an individual gains in agglutinating power for the micro-organism, has been found to hold true in many infections. Consequently, if one has in hand the specific micro-organism for a disease, he would expect the patient's serum to have a stronger agglutinating power for this micro-organism than for others which were accidentally present; and this power would also be greater than that possessed by the serum of one who had not had this particular disease. In spite of some possibilities of error this test has been of distinct value in enabling us to recognize the specific microbe of a disease, as was the case in the identification of the germ of epidemic dysentery (Shiga).

Agglutination Test.

All Koch's laws have not been complied with in certain cases, because of various difficulties which have been encountered. First, the pathogenic protozoa can not be cultivated on artificial media (we must except the success of Novy and McNeal with certain trypanosomas); second, certain bacteria which may be found constantly in a given disease (spirillum of recurrent fever) have not been cultivated artificially; third, there are a few diseases which are peculiar to man and accordingly can not be reproduced in experiment animals (leprosy, influenza, scarlet fever, measles, etc.); fourth, some infectious agents are pathogenic for experiment animals, but do not reproduce in them a clinical or ana-

Obstacles to Koch's Laws.

tomic condition identical with that found in the original animal (typhoid).

Furthermore, failure to comply with all the requirements enumerated does not in some cases disqualify the organism as the causal factor. If an organism is found constantly in characteristic sites in a given disease and not in other infections, and if at the same time other microbes are not present or are present only by accident, there could be little or no hesitation in accepting this organism as the cause of the disease, even if it were impossible to cultivate it or to transfer the disease to animals. The typhoid bacillus has been cultivated from characteristic foci (stools, blood, spleen, urine, rose spots) in such a large number of cases, and the bactericidal and agglutinating powers of the patient's serum against this organism are so distinctive, that compliance with the third law, though desirable, is not now essential. The conditions are similar in reference to cholera and the cholera vibrio.

The conditions are so unique in some diseases that, although all Koch's laws have not been literally met, certain equivalents have been met. To illustrate, we may consider an anopheles mosquito which has become infected with the plasmodium of malaria by biting a malarial patient, as a culture medium; and the transferring of the infection to another patient by the bite of this mosquito as the inoculation experiment which is desired.

Specific Infectious Diseases.

The term "specific infectious disease" has come to have a very special meaning. It is applied to a disease having characteristic clinical and anatomic phenomena, which can be caused only by one particular micro-organism. Among the diseases which come within the limits of this brief definition, the following may be enumerated (the micro-organism which is the cause of each disease being also given):

Diphtheria	*Bacillus diphtheriæ*
Tetanus	*Bacillus tetani*
Typhoid fever	*Bacillus typhosus*
Cholera	*Vibrio choleræ*
Anthrax	*Bacillus anthracis*
Tuberculosis	*Bacillus tuberculosis*
Leprosy	*Bacillus lepræ*
Plague	*Bacillus pestis*
Dysentery (bacillary)	*Bacillus dysenteriæ*
Influenza	*Bacillus influenzæ*
Glanders (farcy)	*Bacillus mallei*
Chancroid	*Bacillus chancri mollis* (Ducrey)
Recurrent fever	*Spirillum obermeieri*
Gonorrhea	*Micrococcus gonorrheæ*
Epidemic cerebrospinal meningitis	*Diplococcus intracellularis meningitidis* (of Weichselbaum)
Actinomycosis	*Actinomyces bovis et hominis*
Blastomycosis	*Blastomycetes* and *Oidia*
Malaria	*Plasmodium malariæ*
Tick or mountain fever	*Pyroplasma hominis* (Wilson and Chowning)

A large number of animal diseases have their specific microbes, as do certain other human diseases which hardly concern us as to the subject in hand.

In addition to the diseases mentioned, there are several which from analogy we must place in the same group. Scarlet fever, measles, German measles, chicken-pox, smallpox, yellow fever, typhus fever, hydrophobia and syphilis, are undoubtedly due to micro-organisms. Mallory recently found in the skin of four scarlet fever patients a protozoön-like body which he believes to be the cause of the disease, although he admits that much desired proof has not been obtained.[1] The *Diplococcus scarlatinæ* of Class, which a few years ago acquired some notoriety, has not been able to stand as the cause of scarlet fever in the face of rigid investigation.

Unknown Etiology.

Parker, Beyer and Pothier have announced the discovery of a protozoön, *Myxococcidium stegomyiæ*, in the mosquitoes which infect man with yellow fever; but Carroll maintains that this organism has no relation to the production of the disease. The *Bacillus icteroides*, which Sanarelli found in a rather high percentage of cases, is now generally considered as a contaminating organism.

It is possible that smallpox and vaccinia will be eliminated from the diseases of unknown causation, owing to the evidence of protozoön etiology that Councilman and his colaborers have obtained; however, for the present, the question may be considered *sub judice*[2] in view of the fact that the forms described bear a close resemblance to certain well-known types of cell degeneration.

The following animal diseases, of unknown etiology, may also be mentioned in this connection: Foot and mouth disease, peripneumonia, bovine pest, sheep-pox (clavelee), chicken-typhus or chicken-pest and epithelioma contagiosum of fowls.

Obstacles to Discovery of Microbes.

The following appear to be the chief reasons for the failure to discover the organisms of these diseases: 1. Inability to cultivate the microbe. (The spirillum of Obermeyer, and the leptothrix are examples of known organisms which have not been cultivated.) 2. Mixed, or symbiotic infections. It is conceivable that in some case the combined action of two micro-organisms may be necessary to cause the disease. The non-toxic products of the two may synthesize to form a toxic substance. 3. Unstainability of the microbe. 4. Ultramicroscopic size. The organism of the peripneumonia of cattle was cultivated by Nocard and Roux by growing it in a closed collodion sac which was placed in the peritoneal cavity of suitable animals. It is so small that its form can not be made out, and growth is recognized only by the clouding of the culture medium, and the increased virulence of the latter for animals.

Filterability of Viruses.

Some valuable information has been obtained by observing whether these infectious agents are so small that they will pass through dense filters of porcelain or infusorial earth. It has been found that the viruses of foot and mouth disease, peripneumonia, rinderpest, sheep-pox, chicken-typhus, horse sickness, epithelioma contagiosum of fowls, and yellow fever are filterable. This is determined by injecting the filtered culture medium or serum into susceptible animals. The viruses of smallpox and vaccinia are said to be non-filterable. Success in filtering the hydrophobia virus has recently been claimed by Remlinger. Inasmuch as scarlet fever, measles, chicken-pox, typhus fever and syphilis* can not be produced in animals, the filterability of their viruses is not at present susceptible of demonstration.

Non-Specific Infectious Processes.

There is a marked tendency in many diseases, typhoid, cholera, malaria, etc., for characteristic organs or groups of organs to be involved in some particular manner. These are features which stamp them as specific diseases. On the other hand, there is a large number of micro-organisms which cause no well-defined clinical and anatomic disease, but depending on various accidents, cause an inflammation now in one organ, now in another. Suppuration is not a specific disease because the pyogenic power is common to a large number of microbes.

A diphtheritic or pseudo-diphtheritic process in the mouth and throat may be caused by the diphtheria bacillus, streptococcus, staphylococcus, oidium or yeasts; bronchitis may be caused by the influenza, tubercle, plague and typhoid bacilli, and by the infecting agents of the acute exanthemata, etc.; pulmonitis by the pneumococcus, streptococcus, tubercle, plague, Friedlander and influenza bacilli, oidium, actinomyces, etc.; meningitis by the tubercle and influenza bacilli, streptococcus, staphylococcus, pneumococcus, gonococcus, diplococcus of epidemic meningitis, the syphilis virus, etc.; arthritis by the streptococcus, staphylococcus, tubercle bacillus, gonococcus, the virus of rheumatic fever, etc.; endocarditis by the streptococcus, staphylococcus, gonococcus, pneumococcus, tu-

1. Jour. of Med. Research, No. 4, 1904.

2. Jour. of Med. Research, No. 1, 1904.

*Recently syphilis has been inoculated successfully into anthropoid apes.

bercle bacillus, etc.; and septicemia by a whole host of organisms aside from those mentioned as causing specific diseases.

Within certain limits, however, there is often a degree of specificity in the processes produced by some of the organisms mentioned, which sometimes allows of clinical and anatomic differentiation. The infiltrating and rapidly extending invasion of the subcutaneous and connective tissues caused by the streptococcus can often be distinguished clinically from the slower, more circumscribed process of the staphylococcus. The conditions induced by the *Bacillus aerogenes capsulatus*, or bacillus of malignant edema, are in turn different from those of the streptococcus and staphylococcus. The membranous inflammation of diphtheria may in favorable cases be distinguished from that of the pyogenic organisms without bacteriologic aids. In this possibility, however, there lies no justification for neglect of the bacteriologic examination.

The coexistence of two or more micro-organisms in a morbid condition is of very frequent occurrence, and some of the most interesting and important phenomena seen in infectious diseases are referable to mixed, secondary or superimposed infections.

Mixed Infections.

Two exogenous infections may attack an individual at the same time. Measles and scarlet fever and diphtheria and scarlet fever have been known to coexist. Pneumococcus pneumonia and typhoid fever, chancre and soft chancre, chancre with pus cocci, syphilis and gonorrhea, diphtheria with streptococci, tetanus with gangrene-producing organisms, are common observations. One organism may intensify the virulence of another. Diphtheria accompanied by streptococcus infection seems to be more virulent than diphtheria alone. It is also believed that the presence of aërobic organisms (those which demand oxygen for their development) in a wound infected with the tetanus bacillus or the bacillus of malignant edema (anaërobic organisms), may increase the virulence of these infections. Streptococci are probably important organisms in scarlet fever for they are present in unusual numbers in the throat lesions and are often found in fatal cases in all the organs, yet it is believed that they constitute only a mixed or secondary infection superimposed on that of the scarlatina virus. The conditions are somewhat similar in smallpox, the pustules of which invariably contain streptococci, staphylococci, or both. In both scarlatina and smallpox these secondary infections may be responsible for many fatalities.

Pneumococcus pneumonia occurring during the course of, or during convalescence from the eruptive fevers, diphtheria, typhoid fever, erysipelas, a streptococcus septicemia developing during typhoid (giving rise to an irregular temperature curve), streptococcus infection of tubercular cavities, and the development of acute tuberculosis following or during measles —these are important examples of secondary infections.

We should naturally expect that the presence of a severe secondary infection might embarrass attempts at serum therapy. Experience on this point is practically limited to diphtheria, and there is no lack of evidence to show that the disease when complicated by severe streptococcus infections often can not be controlled by antitoxin treatment.

It may be emphasized that there are certain diseases where a wide dissemination of the bacteria is not necessary for the production of morbid phenomena; where, in fact, they may be entirely localized (diphtheria, tetanus), and the symptoms produced by virulent toxins which are readily dissolved in the body fluids and carried to important organs. More especially, those microbes are placed in this class which, in our artificial culture media (bouillon), produce their specific disease-producing toxins in a soluble form. The bacilli of diphtheria, tetanus, botulism and the pyocyaneus bacillus belong distinctively to this group.

Infectious Intoxications.

Snake venom and arachnolysin (spider poison) are the best known examples of soluble animal toxins. As will appear later, the serums of all animals probably contain a variety of toxins injurious to one or more species of animals.

(To be continued.)

Good Advice to the Young Graduate.—We clip the following from the *Tulane Phagocyte*, which is published in the interests of the alumni and students of the medical department of Tulane University, New Orleans: "We trust that our recent graduates, who have gone to take their places in doing the work and carrying the burdens of the profession, will devote some thought to the subject of this brief article. The man who enters the medical profession to-day, safeguarded as it is by proper legislation, equipped with excellent schools, given in some degree its proper place as a factor in the community, does not always realize that these things have not come of their own accord, but have resulted from the earnest and continuous efforts of his elder colleagues and their predecessors. The newcomers who fall heirs to the present state of the medical profession, social, political and scientific, owe a duty to that profession—to keep at least undiminished its present possessions and to add as much as may be proper and possible in each and every direction. Graduate of 1904, join your county or parish, your state, and finally the national society as the first step in the performance of this duty. Without organization very little is ever accomplished. Remember, too, that in thus doing your duty to the profession you will place yourself in the most advantageous position for doing your duty to yourself and to your patients. You will learn much that is valuable by rubbing against your colaborers, at the same time that you contribute to their acquisitions of medical lore. Again, your close acquaintance with them will give opportunities for co-operation to mutual advantage and eliminate unnecessary friction. Propinquity, they say, is the best matchmaker; it might be added that it is essential to friend-making. Send in your application for membership in your local society and then go on up, through your state society, into the American Medical Association, without membership in which you ought to be unwilling to rest satisfied."

Wounds of the Cervical Portion of the Thoracic Duct.—P. Lecené (*Revue de Chirurgie*) reports a case in which the thoracic duct was divided in its cervical portion in the course of an operation for the removal of enlarged lymphatic glands in the neck. He has collected twenty-one cases of like character from the literature and he reaches the conclusion that such wounds, without being frequent, are not of exceptional rarity. They fall into two classes, according as they are observed in the course of an operation, or as the symptoms make their appearance afterward. In the first instance, the characteristic sign is the escape into the wound of clear or milky liquid, at times ejected rhythmically. In the second instance, the characteristic signs are the escape of chyle, either through the drain in the wound of operation, which often must be reopened; marked thirst, wasting, general asthenia and at times also oliguria. Among the twenty-two cases studied, death was noted in but one, and this occurred in the preantiseptic period. In all of the others, recovery ensued more or less rapidly as a result of the therapeutic measures employed. The prognosis as to life is, accordingly, not grave, although serious accidents may result from the loss of considerable amounts of chyle. The treatment varies in accordance with the conditions present. If the wound is discovered in the course of an operation, the peripheral portion of the duct should be ligated; the application of a ligature to the central portion is unnecessary in the vast majority of cases, as the valve in the duct is sufficient to prevent the escape of fluid. Ligation of the peripheral portion is unattended with injurious results, as has been shown by clinical observations on man and experimental observations on animals. Suture of the duct has been successfully effected in but one instance. The operation is applicable only in rare instances, in which the wound in the duct is incomplete. If the wound in the duct is not discovered until some time after the operation, a tampon may be applied, and recovery usually ensues rapidly. Reopening of the wound and exposure of the duct and its compression or ligation are permissible procedures and may prove successful, but they are always difficult and usually unnecessary, as simpler means generally suffice.

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NOTIFICATION IN PULMONARY TUBERCULOSIS.

In the January nmber of *McClure's* an article on the warfare against tuberculosis contains a severe arraignment of the medical profession. According to the author, physicians have not only, with a very few exceptions, played an insignificant part in the recent campaign to exterminate tuberculosis, but have actually hampered the work by their persistent opposition to the registration of cases and to the compulsory disinfection of infected dwellings. The author speaks of the "blind bitterness of prejudice" of the medical profession, "which is one of the most potent allies of the disease." The medical department of the University of Pennsylvania is credited with having defeated the compulsory registration law in that state, and in other states the opposition to such a law has always been headed by physicians. Chicago physicians are accused of sending such untrustworthy reports as to deaths from tuberculosis that the department of health is forced to depend on undertakers' certificates for its mortality statistics. The same opposition on the part of the profession is said to stand in the way of compulsory disinfection. As a single instance, Indiana is said to have a state law providing for compulsory disinfection, but "public sentiment led by medical sentiment" is against it.

Such criticism, absurdly unjust as it seems, should not be passed over lightly, for it may contain some slight element of truth. Of course, a popular writer can hardly be expected to realize that no progress would ever have been possible in the warfare against tuberculosis had the medical profession shown the indifference with which he charges it. On the contrary, all popular movement in this direction must necessarily follow the lines laid down by medical science.

The reason why laymen have taken so prominent a part in this movement is that tuberculosis is a disease depending largely on social conditions which can be corrected only by the efforts of the community at large. The profession has recognized this social element in tuberculosis for almost twenty years and, had the laity been prompt to follow the teachings of physicians, the disease would have been half conquered by now. The point in these charges which is worthy of serious attention is the alleged opposition to compulsory registration and disinfection on the part of the medical profession. It is perfectly true that there is a widespread feeling of opposition to registration, which must have some reasonable basis or it would not exist. The cause given by the author of the article is that physicians object to making official reports for which they are not paid. This objection may exist in the minds of some physicians, yet undoubtedly the majority are actuated by motives of a quite different order; they fear, and perhaps justly, that the compulsory reporting of cases will so attract public attention to the infectiousness of tuberculosis as to increase in the popular mind the already exaggerated fear of contact with tuberculous persons, and also that this measure will subject their patients to annoying interference and publicity.

As to the first objection, namely, that physicians decline to report because they are not paid for doing so, the most obvious counter-argument is that the state confers special privileges on physicians, for example, freedom from jury duty and preference in the payment of claims against an estate, and in return for these the state may reasonably demand such a service as the reporting of contagious diseases, even if it had not the supreme right to demand any service which the public health required.

The other two objections must be treated with far more respect. Phthisiophobia is a real danger. We are all aware of the fact that the chief progress the laity has so far made in the understanding of tuberculosis is to acquire an exaggerated idea of its infectious nature. Indeed, thus far the "tuberculosis crusade" seems to have doubled the hardship to a great number of consumptives by making them objects of fear and suspicion, while it has succeeded in alleviating the lot of only a small minority. If it were true that registration could not be carried on without increasing this undue dread of the consumptive, then the measure could not be justified, however useful it might prove in the gaining of important information. It is, however, perfectly possible to devise a practicable method which shall furnish the desired information without violating the physician's confidence. The practice has been tested and found to work successfully of furnishing to physicians postal cards on which the name and address of the patient is to be written and a statement made as to whether or not the physician desires to have an inspector sent from the board of health to visit and instruct the patient and his family. In case the inspector's visit is not required the matter ends there; the board of health has gained its information, and the patient is not even aware that a report has been made. It is true that complaints have sometimes been made that after a report has been sent in the patient is assailed by advertisements of proprietary remedies and so-called cures for consumption. If such complaints are in any degree justified by the facts, they do not at all impeach a proper system of registration, but only impeach the board or bureau, through the connivance of whose officials lists of tuberculous patients are obtainable.

The value to the public health of a system of registration of all tuberculous cases can hardly be denied by any one who has at all concerned himself with the modern warfare against this disease. The same may be said of the corollary of this measure, namely, compulsory disinfection of dwellings. The first essential in combating any infectious disease is definite knowledge of its extent and distribution, and how is this knowledge possible unless all cases of the disease are reported? The importance of house infection in the spread of tuberculosis is receiving more attention all the time, and it is difficult to see how any one familiar with the poorer part of our population, whether in country or city, can object to a measure which aims to remove this particular source of infection.

New York City, after several years of compulsory registration of tuberculosis, has succeeded in collecting a most valuable series of statistics which enable her to find the plague spots in that city, and to inaugurate rational sanitary reform. It is not by covering up the actual facts as to the extent of the disease, while encouraging a general agitation as to its infectiousness, that we may hope to rid the popular mind of phthisiophobia. General apprehension as to the dangers of tuberculosis has been enough aroused, it is now time to turn this feeling into constructive channels.

As a basis for sanitary reform of the poorer parts of a city, for compulsory disinfection of infected houses, for the proper location of dispensaries for the tuberculous poor and for the consequent erection of appropriate sanatoria for different classes of patients, a knowledge of the distribution of the disease, which can only be gained by a good system of registration, is essential.

ALBUMINURIA DUE TO PALPATION.

The prompt reaction of the kidneys to circulatory disturbances has long been known, and albuminuria of a transitory character dependent on such changes is not infrequently seen. It has also been shown experimentally that thoracic compression, general, or confined to the lower thorax, and general abdominal compression will cause transitory albuminuria. That direct manual compression of the kidneys may, under certain circumstances, cause albuminuria has not been so widely recognized.

Schreiber[1] has recently called attention to this form of albuminuria, which he characterizes as renal palpatory albuminuria. It was first described by Menge in 1880, but its clinical possibilities do not seem to have been appreciated at that time. Schreiber restudied the phenomenon, and endeavored to find out how normal and movable kidneys reacted under palpation. Dividing movable kidneys into three grades, according to the classification suggested by Hilbert, he found that in the medium and severe grades palpation was always followed by albuminuria, and in the mild grades palpatory albuminuria was almost constant.

The degree of albuminuria varied in different cases, and did not necessarily correspond to the grade of dislocation, to the palpability of the kidney, nor to the duration of the palpation, as might have been expected *a priori*. In 41 cases in which albuminuria was present, there was only a trace in 14, while in the other 27 the amount varied from a slight flocculent precipitate to 3 per mille by Esbach's method. The duration of the albuminuria was usually very short, and in this it differed from the albuminuria of organic disease. Schreiber states that the urine should never be examined later than ten minutes after the palpation has been done, as in one of his cases the albumin had disappeared after twelve minutes. In some cases albumin was still present two hours after the palpation, but such cases were exceptional.

The urine generally showed physical and microscopic changes when albumin was present. After palpation it was often lighter in color than previously, and in some cases an excess of phosphates was present. The microscope always showed an increase in the epithelial cells, and frequently red blood cells and leucocytes were found. The leucocytes were generally partly polynuclears and partly mononuclears, but in one or two instances were almost entirely lymphocytes. In no instance were true casts found, though occasionally pseudo casts were present.

Schreiber discusses various possibilities regarding the origin of the albumin. It can not be due, he thinks, to actual injury to the kidney tissue, for it is too transient, nor can it be due to injury of the vessels with rhexis, because red blood cells are not constantly present. He inclines to the belief that a variety of factors are concerned, and he cites, as the most important, pressure of blood serum from the blood vessels, pressure of lymph from the lymph channels and changes in the blood pressure. The not infrequent presence of blood cells shows the likelihood of the first cause, the occasional exclusive presence of lymphocytes the second, and the fact that the albuminuria is at times out of all proportion to the intensity of palpation the third.

In the latter part of his article Schreiber discusses the effect on the kidney of indirect compression such as is exerted on the right kidney in palpating the liver. He also cites cases to show the value of the procedure in dystopia of the kidney and in doubtful abdominal tumors. So far as indirect palpation is concerned he comes to the conclusion that it very seldom produces albuminuria, and when it does the albumin is very slight in amount. His cases demonstrate that palpatory albuminuria may be of distinct value in differentiating obscure abdominal tumors. He suggests that in some cases the use of his method may obviate the necessity of more serious procedures, such as catheterization of the ureters, or exploratory laparotomy. Schreiber does not

1. Zeits. für klin. Med., p. 55.

claim marvelous results from his method, but simply regards it as an aid to other methods which at times may be of value; as such it is worthy of extended trial.

EXPERIMENTAL STREPTOCOCCUS ARTHRITIS IN RELATION TO THE ETIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

In England the view seems to be gaining ground that acute articular rheumatism is caused by a special microorganism—*Micrococcus rheumaticus*—which has been isolated by various investigators from the blood, the urine and the joints of cases clinically regarded as acute articular rheumatism. Naturally, this view was materially strengthened when it was found that this coccus, which does not present any decisive cultural and morphologic differences from ordinary streptococci, produces arthritis and endocarditis when injected into rabbits. Most recently Beattie,[1] for example, after working with an organism obtained from the synovial membrane of a girl with acute rheumatism, came to the conclusion that *Micrococcus rheumaticus* is a distinct microbe, and the special cause of acute rheumatism.

There seems, however, to be good reason to go slowly in accepting this conclusion as final. There are, indeed, two very weighty objections in particular that must be removed before such acceptance can become possible. The first is that competent observers in various countries—Cole in Baltimore and Jochmann in Breslau, among others—have failed to find *Micrococcus rheumaticus* or any other microbe in the joints or in the blood of typical cases of acute articular rheumatism. The second objection is that Cole[2] has been able without any particular difficulty to produce in rabbits arthritis and endocarditis by means of intravenous injections of streptococci from diverse sources.

The results obtained by Cole were in every way quite similar to those obtained by the English observers on injection of the so-called *Micrococcus rheumaticus,* and regarded by them as sufficiently distinctive effects to justify them in regarding this microbe as a definite variety or species of streptococcus. Manifestly, the faculty of producing arthritis and endocarditis in rabbits by itself does not warrant the establishment of a distinct form of streptococcus. In view of these two objections we clearly are not warranted in regarding the etiology of acute rheumatic fever as solved in the sense of the English observers. Of course, it must be acknowledged that their work seems to emphasize the importance of streptococci in causing articular and endocardial lesions similar to those of acute rheumatism. Whether streptococci are the real cause of acute rheumatic fever—much might be cited that speaks for such a view—is, however, a question that can be solved only by continued investigation. The negative results obtained by Cole, Jochmann and others from their cultural experiments indicate at least that the complete solution of the problems connected with the etiology of acute rheumatism is not such an easy matter as it might appear at first sight.

1. Brit. Med. Jour., Dec. 3, 1904.
2. Jour. of Infec. Dis., 1904, vol. 1, p. 714.

TRUTH AND POETRY CONCERNING URIC ACID.

IV.

Horbaczewski, as we have pointed out, demonstrated the very important fact that uric acid may be derived from nucleins, but went off at a tangent and maintained that it does not come from all nucleins, but only from the nucleins of leucocytes. His arguments, it must be admitted, sounded plausible enough. He maintained that his studies showed, as a rule, a parallelism between leucocyte counts and uric-acid excretion. Where the parallelism failed he explained the discrepancy by assuming a class of leucocytoses without leucocytic destruction. The blood of children contains more leucocytes than that of adults and this, he believed, accounts for the relatively great excretion of uric acid in the former. Further, he brought the increased excretion of uric acid after eating, especially after a meat diet, into relation with the digestive leucocytosis. Feeding nucleins increased uric-acid excretion, but so convinced was he of his new view, that he assumed that the nucleins fed acted only indirectly by first producing a leucocytosis. Quinin diminishes leucocytosis, accordingly Horbaczewski thought it diminishes uric-acid excretion. Pilocarpin, he stated, increases both uric-acid excretion and the leucocyte count.

Medical men for a time rushed like a flock of sheep after Horbaczewski. Hypnotized, as it were, by the brilliant proof of the origin of the uric acid from nuclein, they were eminently susceptible to any suggestion that came from him. Thus Horbaczewski's theory of an origin of all uric acid from leucocytic nuclein alone, despite its flimsy foundation, met with remarkably general approval and acceptance. Many confirmatory reports of uric-acid determinations running parallel to leucocytoses were made; discordant findings were lightly explained away.

A new impetus to work on the urine was given in 1895 by Krüger and Wulff, who introduced a method for easily and quickly determining the amount of alloxuric bodies (uric acid plus xanthin bases) excreted. The idea gained ground that some of the discrepancies in the results above referred to might depend on the fact that in the decomposition of leucocytic nucleins both xanthin bases and uric acid are formed and that the relative amounts of these vary under different conditions of metabolism; if the total alloxuric bodies could be easily determined a parallelism of their excretion with the leucocyte count might, it was hoped, prove to be more constant than that of the uric acid alone. Leukemia was the disease which invited a special investigation in this regard, and between 1894 and 1898

we find a number of researches bearing on this subject. The results were, however, very conflicting, and in 1897 Hüppert and, in the same year, independently, Salkowski proved the total unreliability of the method of Krüger and Wulff; no importance, therefore, is to be attached to results based on its application to the study of our subject unless they are also supported by more accurate analytical methods.

Even when more exact methods were employed, very contradictory results were obtained by equally good observers. In the study of pneumonia, especially, there was no concordance. While some maintained that the uric-acid excretion is increased at the height of the leucocytosis, others asserted that it is only after beginning absorption of the exudate that uric acid is excreted in larger amounts. The studies by Kühnau[1] were among the most elaborate. He corroborated Horbaczewski's view as a result of his examination of the metabolism in pneumonia and pleurisy and where a leucocytosis appeared with no corresponding increase in uric-acid excretion he even thought it probable that the leucocytes wander gradually back into the tissues without undergoing destruction.

A modification of Horbaczewski's view was suggested by Dunin and Nowaczek.[2] These investigators denied that the increased uric-acid excretion in pneumonia keeps pace with the increase of leucocytes in the blood, but attributed it solely to the absorption of the resolving exudate, and Carlyle Pope's findings in 1899 may be similarly interpreted.

Richter,[3] in 1895, had published a long series of observations which indicated that no constant relation between leucocytosis and uric-acid excretion can exist; in spite of his results he still leaned more or less on Horbaczewski's view.

Enough has been said, perhaps, to show what a sorry state the subject was in at this time. Some workers felt sure that the presence of a leucocytosis in the peripheral blood indicates an increased destruction of leucocytes; others were equally sure that a hypoleucocytosis is a certain indication that leucocytes are being destroyed, both sides apparently forgetting two important facts (1) that the number of leucocytes existent at any time represents the algebraic sum of the leucocytes manufactured and the leucocytes destroyed, and (2) that the number of leucocytes present in a peripheral vessel often depends on abnormal distribution rather than on abnormal production or destruction.

The factor of distribution of leucocytes in relation to leucocytosis was emphasized by Rieder in 1892 and later by Goldscheider and Jakob in 1894. John Billings, Jr., at the Johns Hopkins Hospital proved how the cold baths given to typhoid patients temporarily lead to accumulations of leucocytes in the cutaneous blood vessels, and Bohland,[4] in 1899, showed that atropin causes hypoleucocytosis in peripheral vessels, while the capillaries of the lungs are dilated and crowded with leucocytes; pilocarpin causes diminution of the leucocytes in the lung capillaries. Pilocarpin, it is said, increases uric-acid excretion, while atropin does not. His explanation was that pilocarpin increases the decomposition of nuclein, in spite of the absence of leucocytosis, and so more uric acid is excreted.

The sum of all these researches shows that while destruction of leucocytes in the body leads to increased uric-acid excretion, the number of leucocytes in the peripheral vessels is no gauge for the amount of leucocyte destruction going on nor for the amount of uric-acid formation. Moreover, a whole series of conditions has been studied in which there is increased uric-acid excretion without leucocytosis or evidence of leucocytic destruction. In many of these conditions nucleated cells other than leucocytes are destroyed. Again, as Minkowski[5] states, there is good reason to believe that an increased function of nucleated cells, without actual cell destruction, may be sufficient to augment nuclein cleavage and uric-acid formation. Indeed, it is not impossible, as Melis-Schirru[6] suggests, that increased uric-acid excretion and leucocytosis may be due to one and the same cause. If the activity of the hemopoietic organs be increased from any cause, the first expression may be an augmented nuclein metabolism; if the activity be still further exaggerated, leucocytosis results.

Strangely enough, as far back as 1892, Mares[7] had recognized the fallacies of Horbaczewski's arguments and made their insufficiency clear. At that time he accepted an origin from nuclein, but urged (1) that uric acid may be formed by a vital chemical process through gradual metabolic decompositions of nuclein instead of by the passive process of cell-death and nuclear destruction and (2) that the nuclein of any of the body-cells, and not simply that of the leucocytes, may give rise to uric acid. Horbaczewski's star was, however, so in the ascendant at that time that but little attention was paid to these keen observations of Mares. And even Mares did not see the whole truth, for he denied the direct transformation of the nucleins of the food into uric acid; as to the possibility of the latter process we shall have something to say in a succeeding issue.

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2. Dunin, T., u. Nowaczek, S.: Ueber Harnsäureausscheidung bei croupöser Pneumonie. Ztschr. f. klin. Med., vol. xxxii, 1897, p. 1.

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5. Minkowski, O.: Ueber Leukämie und Leukocytose. Verhandl. des xvii Kongr. f. inn. Med., 1899, p. 158.

6. Melis-Schirru: Sulla genesi dell'acido urico. Centralbl. f. inn. Med., vol. xx, 1899, p. 1042.

7. Mares: Zur Theorie der Harnsäurebildung im Säugetierorganismus. Monatsh. f. Chem., vol. xiii, 1892, p. 101.

DAWN?

The "divine healing" business seems to be going awry. So long as there is "money in the business," divine healing is a fine thing to dole out to the other fellow. Of late there have been unmistakable signs that when the "healer," the "Elijah," the "apostle," gets ill the faith business appears depressed. Dowie and his family are seeking health in the Bahamas, where probably they are plucking "leaves of healing" from the tropic vegetation. At least, as a coincidence, apparently as a not unnatural sequence, we see in the newspapers of late no stories of remarkable "cures" performed by "the prophet." There are not lacking signs that a portion of the public is getting its eyes opened.

AN ENCOURAGING SIGN.

A comforting sign of the time in Chicago is the very general and respectful attention given by the public to the excellent hygienic suggestions offered weekly by the *Bulletin of the Health Department* of Chicago, and willingly reprinted by the newspapers. Seldom has it been the case that advice of this sort has been so respectfully received by American communities. The fact is a most encouraging omen to those medical men to whom it seems, at times, as if the public cared naught for their hard work for the good of the community. Other reward is largely denied the sanitarian. At least, it is for him a comfort to know that a community has learned to listen attentively and to give heed, to a certain extent at least, to advice and suggestions offered by medical men.

TEA DRINKING.

Every little while there is an outcry against the practices of tea and coffee drinking. Lately it has been alleged that the degeneracy observed in the lower classes of Great Britain is largely due to the immense quantities of tea which is drunk in that kingdom. Without any doubt, a few people do drink too much tea and would be better without it. But tea drinking, as in China, may be the salvation of a people from much greater evils. The decoction has at least the advantage of having been sterilized by heat, and water drinking in China has its dangers, as many an old traveler can testify. The immense quantities of tea used without apparent damage by some of the most robust peoples in the world other than the Chinese, such, for example, as the Russians, the Hudson Bay voyageurs and the lumbermen of the North, does not testify to its evil effects on general health, under proper conditions. For a cold country it is almost an ideal stimulant, reviving the energies, even after almost apparently complete exhaustion, and affording a feeling of comfort that hardly anything else can give, and this without any noticeable uncomfortable after-effects. Of course, in our civilization there are some who take too much of many things for their own good, but even in these cases it is hard to say that the evil is as great as sometimes charged. The practice of giving large quantities of strong tea to mere infants, which is common among certain of the poorer classes of our cities, of course can not be too much condemned, but it is astonishing how many infants seem to thrive on it. There should be some discrimination in the general condemnation of such stimulants as tea and coffee. They probably do more good than harm, and we should welcome their use if by any means or to any extent they can be made a substitute for things that are worse, and if the habit were universal in some of our insanitary communities we might find it here, as among the earthly Celestials, the safeguard against many serious evils. If the question is asked, "What is the poor man to drink?" there need be no hesitation in answering: "Tea."

NATIONAL DIET AND ITS CHANGES.

The diet of a country is popularly supposed to be an important element in making and fixing the character of its population, and yet it may be that we overestimate its importance in this regard. According to census statistics, there has been a large decrease in meat consumption and a corresponding increase in that of cereals and vegetables. Thus in 1850 the consumption of wheat was 4.30 bushels to each American. In 1900 it was 6.23 bushels. The Scotch diet of oatmeal has been adopted by the Americans within the last fifty years to a very great extent, as shown by the increase of from 0.90 bushels in 1850 to 3.86 bushels per capita consumption in 1890. There has been a corresponding increase in the item of vegetables, though the use of potatoes seems somewhat to have decreased. The use of sugar has nearly tripled per capita in the last fifty years, showing the importance of this carbohydrate in our diet. All this does not mean that we are becoming a nation of vegetarians, for we are still large meat-eaters and probably will continue to be such. It means, however, that the country is growing older, and is assimilating itself more and more in the matter of diet with other older countries. How far this will affect the national character no one can absolutely foresee, but that it will seriously modify it may be doubted.

THE PERIODICITY OF DREAMS.

Dreams are experiences shared by all mankind and their pathologic importance in some cases has always been recognized. They seem, however, to follow no laws. At least this has been the generally accepted opinion. Recently, however, an Austrian investigator, Dr. Herman Swoboda, has claimed that dreams follow a certain periodicity, that certain impressions or events are revived in the visions of the night at regular intervals; in men usually every twenty-three and in women every twenty-eight days. He has been able to predict certain specified dreams, he claims, according to this law, and gives instances which, he thinks, substantiate his position. He also utilizes this periodicity to explain certain peculiar phenomena, such as premonitions of facts occurring at multiples of the stated periods. The suggestion is an interesting one, but it appears to us that it will require a very much more extensive series of observations before it can be accepted as a law. There are comparatively few of us that can recall our dreams unless they are especially impressive, and even such

dreams are apt to be forgotten quickly. That they are connected with certain bodily conditions is generally agreed, and when these are of a cyclic or periodic character it would not be remarkable if they were accompanied with certain modifications of the subconscious intellection of the slumbering state. Even here, however, we have certain difficulties in the study. A German medical man of some prominence in science once reported that he and another colleague made a special study as to the periodicity of certain classes of dreams, but came to the conclusion that there was no general law controlling their appearance. It would be unorthodox to assert that premonitory dreams have not occurred in the past, but it would be exceedingly uncomfortable if we had to admit their frequent occurrence in the present. While the line of study opened up by Swoboda is a captivating one, we still prefer to keep our expectations moderate as to its results.

ORGANIZATION OF HEALTH BOARDS.

As a direct result of the growth of our knowledge of the nature and cause of preventable diseases, infectious and otherwise, the work of our boards of health and public health officers is assuming constantly increasing scope and importance. Practically every state, every city, every village and every township in the United States has adopted various regulations and has established certain procedures looking to the preservation of health and prevention of disease, and has placed the carrying out of these measures in the hands of officials such as the members of the boards of health and the health officers. In most states, however, these various officials are working more or less by themselves, with comparatively little opportunity for helpful discussion of common problems with fellow-officials. It would seem that the time is ripe for discussion of the desirability of drawing together into voluntary associations for mutual and public benefit all the health officers in a state. The work which is being done by the Association of Massachusetts Boards of Health shows that much good may be accomplished in this way. The journal of this Association can not but be a direct stimulus to the Massachusetts health official. There are so many details in connection with public-health work in regard to which the public must be educated that, on this account, concerted action is required by those best acquainted with the situation, if satisfactory progress is to be made. For example, in many places the legal status of the health officer is far from satisfactory, and in view of the importance of his work the pay is generally inadequate. Lawmakers must be educated to understand that in matters of public health the best available expert service is none too good, and that expert service means expert pay. Again, concerted action of officials directly interested is needed to secure as promptly as possible adequate state and municipal bacteriologic and pathologic laboratories. In this important respect the first step is still to be taken in many states and cities. Naturally, associations of this kind would aid in securing intelligent, harmonious, well-organized administration of well-considered regulations in regard to matters of public health. For these, and for other reasons, state associations of boards of health would seem to be an important step in the development of public health in this country.

Medical News.

DISTRICT OF COLUMBIA.

Personal.—Dr. Carl H. A. Kleinschmidt, ex-president of the Medical Association of the District of Columbia, who has been seriously ill for some time, is now reported to be out of danger.

Incorporation Bill Referred.—The bill to incorporate the American Medical Association has been referred to the subcommittee of the judiciary committee, composed of Hon. Richard Wayne Parker, New Jersey; Hon. H. W. Palmer, Pennsylvania, and Hon. D. A. Armond, Mississippi, for consideration and report.

Health Report.—The report of the health officers for the week ended January 21 shows the total number of deaths to have been 138, of which number 80 were white and 58 colored. There were 90 births and 17 stillbirths. At the close of the week there were under treatment 22 cases of diphtheria, 34 of scarlet fever, 72 of typhoid fever and 2 of smallpox.

ILLINOIS.

Change in Wards.—The old contagious disease ward in Cook County Hospital is to be transformed into a medical ward with a capacity of 100 beds. The necessary alterations will cost about $4,000.

Personal.—Dr. Charles F. Smith, Kankakee, was painfully injured by being thrown from his sleigh in a runaway, January 17.——Dr. Charles M. Bumstead, Monticello, underwent an operation for fistula, at St. Mary's Hospital, Decatur, January 20.

Suit Dropped.—In the suit of J. L. Owens against Dr. Henry J. De Haan, East St. Louis, in which $10,000 damages was claimed for alleged malpractice in the treatment of a fracture of the thumb, the plaintiff's attorneys took a non-suit, after witnesses for the defense had testified.

Itinerant in Trouble.—"Dr." Bixler, a traveling "tape-worm doctor," is under charges, at Kankakee, of practicing medicine without a license. It is alleged that he gave medicine to "induce" a cancer of the stomach to pass through the bowels. The cancer was not complaisant and the patient died.

State Board Re-election.—At the annual meeting of the State Board of Health, held in Springfield, January 31, the following officers were re-elected: Dr. George W. Webster, Chicago, president; Dr. James A. Egan, Springfield, secretary, and Dr. Peter H. Wessel, Moline, treasurer. Plans for the board's crusade against tuberculosis were mapped out, and a bill recently introduced in the legislature providing for the establishment of a state hospital for consumptives was approved.

Chicago.

New Hospital.—A building site, 100 by 280 feet, at 1222-1224 North Clark Street, has been purchased by Dr. Emil G. Beck, on which he purposes to erect a hospital to cost $80,000.

Physician Held Up.—Dr. Erasmus M. Hill, a physician of the health department, while coming from the disinfection of a house which he had superintended, on account of smallpox, was held up by two men, January 27, and robbed of his money, revolver and pocket case.

The Week's Mortality.—During the week ended January 28, 558 deaths were reported, equivalent to an annual death rate of 14.61 per 1,000. During the previous week there were 591 deaths, and in the corresponding week of 1904, 549 deaths. The principal death causes were as follows: Pneumonia, 96; consumption, 60; Bright's disease, 44; violence, 39; heart diseases, 36; and nervous diseases, 30.

Increase in Pneumonia Mortality.—During November, the first month of the current pneumonia season, there were 260 deaths reported to the department of health, from this cause—a daily average of 8.6. In December there were 451 reported—a daily average of 14.5 and an increase of 40 per cent. During the 28 days of January there were 459 pneumonia deaths—a daily average of 16.4 and an increase of 11.5 per cent. over the December rate.

INDIANA.

A Four Per Cent. Verdict.—In the damage suit for $5,000 brought by Charles E. Gallimore against Dr. Oliver James Cory for alleged malpractice, the jury awarded the plaintiff $198 damages.

Asylum Physician Exonerated.—Dr. John F. Glover, assistant physician at the Southern Indiana Hospital for the Insane, Evansville, was exonerated on the charges of cruelty to inmates of the institution, after an investigation made by the governor and the State Board of Charities.

Has Mental Disease.—Dr. Monroe W. Webster, South Whitley, township trustee, has asked that a guardian be appointed, as he realizes that he is at times unaccountable for and unconscious of his actions. The disability is due to business and financial worries. He has been sent to a sanitarium for treatment.

Teachers' Society Organized.—About seventy of the instructors in the various deparments of the Medical College of Indiana have organized the Teachers' Society of the Medical College of Indiana, with the following officers: Dr. Frank B. Wynn, president; Dr. Norman E. Jobes, vice-president, and Dr. William T. S. Dodds, secretary-treasurer.

Property Goes to Hospital.—Mrs. Harriet Jones, New Albany, who died January 16 at St. Edward's Hospital, has provided in her will that after all just debts are paid, her home property shall be given to the institution.——In default of heirs, the property of the late Rev. John A. Mack has been awarded to St. Joseph's Hospital, Logansport.

Osteopath Fined.—Edward C. Crow, Elkhart, was convicted in the Circuit Court, January 4, of practicing medicine without a license, and was fined $25 and costs, amounting in all to $61.25. The court instructed the jury that it was unlawful for any person in Indiana to practice what is known as osteopathy without having first secured a license to practice medicine, of a limited license, or a license to practice osteopathy.

December Morbidity and Mortality.—Bronchitis, tonsillitis, influenza and pneumonia were the prevailing diseases in December. The exact order of prevalence was: Bronchitis, tonsillitis, rheumatism, influenza, pneumonia, scarlet fever, pleuritis, smallpox, typhoid fever, intermittent fever, diphtheria, erysipelas, diarrhea, inflammation of bowels, whooping cough, puerperal fever, typho-malarial fever, dysentery, cholera morbus, cerebrospinal meningitis and cholera infantum. Smallpox was less prevalent than in the same month last year. There were reported 472 cases in 38 counties, with 8 deaths. In the same month last year 523 cases in 50 counties, with 2 deaths. There was, therefore, a decrease of 9.7 per cent. in cases, of 5 per cent. in area invaded, and an increase of 300 per cent. in deaths. Not until deaths appear in a local smallpox epidemic can physicians induce the people to be vaccinated. Vanderburg County had 122 cases of smallpox; Dubois, 53 cases, 3 deaths; Clay, 12 cases, 1 death; Vigo, 53 cases, 4 deaths; Clinton, 12 cases; Floyd, 41 cases, and Boone, 12. The total number of deaths in the month was 8,856, equivalent to an annual rate of 12.6. In the same month last year 2,854, rate 12.6. The principal causes of death were: Consumption, 368; pneumonia, 351; violence, 163; cancer, 121; typhoid fever, 67; diphtheria, 33; scarlet fever, 22; diarrheal diseases, 28, and cerebrospinal meningitis, 30.

Personal.—Dr. Lewis L. Williams, Brazil, has been reappointed secretary of the Clay County Board of Health.——Dr. David L. Kahn and family, Indianapolis, have returned after a year in Europe.——Dr. John B. Fattic, Anderson, local surgeon for the Big Four System, has resigned.——Dr. Solomon D. Kell has been re-elected for the fourth time, secretary of the Liberty Board of Health.——Dr. James W. Milligan, South Bend, has been appointed physician and surgeon to the state penitentiary at Michigan City, vice Dr. H. Lee Streaker, resigned on account of ill health.——Dr. Nicholas A. Kremer, Madison, has been made secretary of the Jefferson County Board of Health.——Dr. Harry H. Weist, Richmond, was painfully injured in a collision between his buggy and an electric car, January 2.——Dr. P. Livy Schuyler, Evansville, was painfully injured in a collision between his bicycle and a cab, December 29.——Dr. Charles F. C. Hancock, Jeffersonville, has been elected state senator.——Dr. John Halton and family, Muncie, have moved to Sarasoto, Fla., where he will have charge of a new hospital.——Dr. Charles M. Brown, New Marion, treasurer-elect of Ripley County, has filed a bond of $400,000.—Dr. Anthony E. Otto, Alexandria, fell on the ice at Orestes and broke his leg, January 16, while making a professional call.——On the occasion of the eighty-ninth birthday anniversary of Dr. W. H. Wishard, January 17, about 100 members of the Indianapolis Medical Society called on him and presented him with a testimonial engrossed on parchment.

IOWA.

Shelby County Medical Society held its annual meeting in Harlan, December 6. Dr. Mary C. Heilesen, Elkhorn, was elected president; Dr. Edwin B. Moore, Harlan, vice-president, and Dr. Frank H. Allen, Shelby, secretary-treasurer.

Marion County Medical Society held its annual meeting at Knoxville, December 8. Dr. Gaylord Worstell, Knoxville, was elected president; Dr. James L. Miller, Pleasantville, vice-president; Dr. Corwin W. Cornell, Knoxville, secretary, and Dr. John V. Brann, Knoxville, treasurer.

Hospital Control Transferred.—The Woman's Christian Association Hospital, Council Bluffs, has surrendered its control and management to the medical men of the city, who were represented by a committee consisting of Drs. Donald Macrae, Jr., Mathew A. Tinley and F. W. Dean.

Staff of Children's Home.—The following were elected as the medical staff of the Iowa Children's Home, Des Moines, at a meeting held January 16: Dr. James W. Cokenower, president and surgeon; Dr. James W. Osborn, secretary; Dr. William W. Pearson, ophthalmologist; Dr. Clifton Scott, neurologist, and Drs. Bernard J. Callahan, Wilbur S. Conkling, Roderic F. Watts, Francis A. Ely and C. A. Ayres, attending physicians.

New Hospital at Creston.—A new hospital, thoroughly outfitted, to be known as Mercy Hospital, is to be established in Creston, in the building formerly occupied by the Tait Sanitarium. The officers of the hospital association are: Hon. D. W. Higbee, president and counsel; Dr. Harry E. W. Barnes, vice-president; Dr. T. Elliot Tait, treasurer; Dr. John W. Reynolds, secretary, and Dr. J. W. Coakley, superintendent. The institution can accommodate forty patients.

KANSAS.

Personal.—Dr. Chilton W. McLaughlin, Kansas City, has returned after a trip to Europe.

Unlicensed Practitioner in Jail.—G. W. Knox has been convicted in Labette County of practicing medicine without a license and has been fined $50 and costs. On his refusal to pay the fine he was remanded to jail.

Communicable Diseases.—For the month of December there were reported to the State Board of Health 271 cases of diphtheria in 28 counties, with 35 deaths; 222 cases of scarlet fever in 32 counties, with 15 deaths; 426 cases of smallpox in 29 counties, with 1 death, and 120 cases of typhoid fever in 27 counties, with 31 deaths.

Acquitted.—In the case of Drs. Christopher C. Kesner and Gilbert G. Kesner, Leroy, charged with criminal carelessness in administering chloroform to and in performing an operation on Mrs. M. Short, the county attorney dismissed the suit, January 13.——Dr. E. P. Chase, Shawnee, charged with killing John Cahill, Aug. 22, 1904, was found not guilty, January 15.

New Hospitals.—The Salina Hospital and Training School for Nurses has been incorporated by Dr. William H. Winterbotham, Nathan D. Tobey, W. Scott Harvey, James R. Crawford, Manuel J. Brown, J. Harvey Winterbotham, Howard N. Moses, Andrew G. Anderson, Francis G. Lagerstrom, Edwin R. Tuttle, George Seitz and O. R. Britain. The staff is made up of the stockholders, but all licensed and ethical practitioners may send their cases to the hospital and attend them.——The new Arkansas City Hospital was opened for patients January 2.

KENTUCKY.

Senior Student Dies.—Hugh Adams, Madisonville, a senior student at the University of Nashville Medical Department, died January 16 at his home from tuberculosis, after an illness of a year.

Exonerated for Shooting.—Dr. Walter B. Gossett, Louisville, accused of unjustifiable assault on Dr. Henry B. Green and with shooting him twice, Nov. 7, 1904, was acquitted by a jury in the Circuit Court, January 19.

Smallpox Warning.—The State Board of Health estimates that in seven years there have been 25.000 cases of smallpox in the state, with 300 deaths, with a direct and indirect money loss to the commonwealth of $2,000,000, all of which might

have been avoided and lives saved had vaccination systematically been practiced.

Personal.—Dr. Clyde Brady, Greenup, has been appointed an interne at the City Hospital, Louisville, succeeding Dr. William Fullbright, resigned.——Dr. William D. Powell, Harrodsburg, suffered a fracture of the clavicle and fractures of three ribs in an accident January 13, in which he was thrown from his buggy to the frozen ground.——Dr. Harry A. Davidson, Louisville, has been elected professor of physiology, embryology and chief of the gynecologic clinic in the Hospital College of Medicine.——Dr. Frederick G. Larue, Smithland, physician of Livingston County, fell and fractured his scapula and arm, January 11.

Railroads Will Clean Cars.—The controversy between the State Board of Health and the railroads of the state, in which it was claimed that the passenger cars were so superficially cleaned that they were common carriers of disease, has ended in the acceptance by the railroads of the following rules regulating the cleaning and care of cars used in the state, which have been drawn up by the board, and which will at once go into effect:

All day coaches engaged in regular traffic shall be thoroughly cleansed after each trip at such points as facilities for the same have been provided. In no case shall such cleansing be less frequently performed than on every third day of use. In such cleansing, all rugs, mattings and upholstered seats and back rests, when practicable, shall be removed from the coach to the open air for mechanical cleansing, and be exposed to sunlight when the prevailing meteorological conditions will permit.

All interior surfaces in coaches are to be mopped, scrubbed or cleansed at intervals of not more than ten days, with solutions of mercury bichlorid, carbolic acid, tricreosol or other disinfecting preparations preferred by any corporation, and approved by this board as to ingredients and strength.

Spittoons are to be provided in numbers of not less than one for each seat in all smoking cars and toilet rooms, and one at each end of all other day coaches, and in all waiting rooms. Placards provided by this board shall be displayed at each end of all such coaches and in all waiting rooms, indicating the importance of using the spittoons, and it shall be unlawful for any person to spit on the floor or platform of any railway car, or other public conveyance or on the floor of any waiting room or platform in any station or depot.

All coaches of any kind in which an acute infectious disease has been carried shall remain closed and unoccupied after such person has been removed until it has been thoroughly cleansed and disinfected by the use of formaldehyde gas in quantities of not less than forty fluid ounces of formalin to each coach. All day coaches in regular use for through travel are to be disinfected after cleansing by some method approved by this board at intervals of not more than ten days.

All toilet rooms, water closets, urinals, spittoons and toilet appliances are to be scrubbed with soap and hot water and disinfected with formalin, or other approved method, after each trip's use, and shall be kept as clean as possible when on the road, and all similar rooms and in stations shall be cleansed daily in the same way, and when vaults or surface receptacles are used in stations these shall be disinfected daily with fresh lime.

All preceding regulations in regard to cleanliness and disinfection shall apply equally to sleeping, dining, buffet and parlor cars used in the service of the public.

All blankets, curtains and hangings used in sleeping cars shall be exposed to superheated steam, or other means of disinfection approved by this board at intervals of not more than ten days, and all mattresses shall be so treated at intervals of not more than sixty days.

MAINE.

Two-Thirds Insured.—In the fire at Brunswick, January 18, Dr. Goldbridge G. A. Stetson suffered loss amounting to $750, of which $500 was covered by insurance.

Bequest to Hospitals.—Macy S. Cope, Brookline, Mass., left by will $10,000 to Maine hospitals for free beds for patients from Washington County and specially from East Machias, his native town.

Epidemic Spinal Meningitis.—A camp of thirty lumbermen at Dover has been attacked by spinal meningitis. Five cases have occurred and three patients have died. The State Board of Health has assigned Dr. Galen M. Woodcock, Bangor, to investigate.

Eastman Sentenced.—Dr. Charles A. Eastman, Old Orchard, found guilty last July of manslaughter by an unlawful operation, withdrew his exceptions and was sentenced to be imprisoned one year at labor in the Alfred jail, the sentence to begin January 3.

MARYLAND.

Will Increase Medical Staff.—The medical staff of the Peninsula General Hospital, Salisbury, will be increased to include all the members of the local medical associations in Wicomico, Somerset and Worcester counties.

Personal.—Dr. Daniel P. Fahrney had a stroke of paralysis at Hagerstown, January 25.——Dr. Charles A. Wells, Hyattsville, who has been in active practice for the past 42 years, has retired to enjoy the fruits of his professional labors. Since retiring he has been elected president of the First National Bank of Lander, president of the Maryland Title Insurance and Investment Company, and president of the Maryland House of Correction.

Sheppard and Enoch Pratt Hospital Report.—The thirteenth annual report shows that 114 were admitted, 113 discharged and 105 remained under treatment at the end of the year. By the great fire last February thirteen pieces of the hospital's property were destroyed, and although the trustees had safeguarded their income by rental insurance, there will be a temporary impairment of income. Dr. Stewart Paton, who had been director of the hospital laboratory since 1899, went abroad in June and has since resigned, and Dr. Clarence B. Farrar has been made assistant physician and director of the laboratory. Dr. James H. Randolph of Florida was appointed clinical assistant, Dr. Chinn resigning to engage in private practice. Early in the summer the trustees authorized Dr. Brush to plan and equip apartments for hydrotherapy. Rooms, accordingly, were selected in the basement of one of the wings and the apartments will soon be ready for use.

Baltimore.

Osler Memorial Number.—The *Maryland Medical Journal* is preparing to publish an "Osler Memorial Number," June 1.

Personal.—William F. Frick, the founder and benefactor of the Frick Medical Library of the Medical and Chirurgical Faculty, died here January 26, aged 87.——Dr. S. Weir Mitchell delivered a lecture on "Lecturers," at Johns Hopkins, January 27.——Dr. Louis McLane Tiffany has gone to Florida on a hunting and fishing trip.

Hospital Report.—The annual meeting of the South Baltimore Eye, Ear, Nose and Throat Hospital was held January 25. During the year 2,065 patients were treated, white 1,917, colored 148; 10,878 visits to hospital and dispensary were made; 643 surgical operations were performed. A new site has been purchased for $13,000, consisting of a lot 90 by 200 feet, improved by a large brick residence.

The Dispensary's Work.—At the annual meeting of the board of directors of the Northwestern Dispensary the secretary reported 8,031 new patients, namely, 4,230 white and 3,801 colored; 1,166 patients were visited at their homes, and the total number of patients treated was 20,346. In the eye department 236 operations were performed; in the ear department, 51; in the nose and throat department, 30; in the surgical department, 134, and in the gynecologic department, 950. The following officers were elected: President, Dr. Arthur Wegefarth; secretary, Dr. Alexander D. McConachie; treasurer, Mr. William J. Klug; executive committee, Drs. A. D. McConachie, Frank A. Persohn and J. F. Travers.

MASSACHUSETTS.

Half Have Public Water Supply.—The State Board of Health has reported to the state senate that 172 of the 333 cities and towns of the state have now public water supplies.

Medical Inspection of Schools Demanded.—Another bill has been introduced into the state senate which authorizes the State Board of Education to provide medical inspection in all schools, such as is now provided by many cities and towns.

Brigham Will Valid.—The Supreme Court of the state has approved the validity of the will of Peter Bent Brigham, whose estate now amounts to $6,000,000, and unless the heirs carry the case to the United States Supreme Court this money will soon be applied to found and maintain a hospital for the poor, according to the terms of the will.

Medical Student Dies.—The dangers of medical practice or even study are exemplified in the sudden death of Joseph H. Converse, a student of Harvard Medical School. In the course of his work he exposed himself to cerebrospinal meningitis at the Boston City Hospital and within thirty-six hours of the first appearance of symptoms died from the disease.

Dispensary Report for 1904.—Reports from the 14 district physicians and the house staff of the Boston Dispensary shows that 93,578 patients were received at the dispensary during 1904, and 19,977 visits made at houses. They cordially commend the work of the nurses of the Instructive District Nurses' Association who work under them. Urgent need of new buildings is felt and efforts are being made to raise $100,000 for this purpose.

Embalmed Steak.—Six market-men in Boston were each fined $100 for selling hamburger steak which had been treated by preservatives. Their conviction was based on investigations of Dr. Harrington of the State Board of Health, who detected sulphite of soda. Experiments made by feeding cats with meat so preserved demonstrated marked degenerative disease of the kidneys and implies that this form of adulteration may be largely responsible for Bright's disease.

Would Abolish Noise and Smoke.—The topic of the annual meeting of the Association of Massachusetts Boards of Health, January 27, was "Noise." Prof. E. S. Morse read a paper on "Unnecessary City Noises;" Dr. Philip Coombs Knapp one on "The Effect of Noises on the Weak and Nervous," and Dr. James J. Patnam one on "A Comparison of the Different Sorts of Noises in Regard to Their Injurious Effect on the Nervous System." Strong resolutions were passed approving the bills now before the legislature for the abatement of the smoke nuisance in the metropolitan district.

Another Leper in Boston.—Another case of leprosy has been detected in Boston and the patient is quarantined on Gallop's Island. He is a Chinaman who has until recently been living in Newburyport. This makes four cases under care of the State Board of Health, three of whom, by courtesy of the Boston Board of Health, are quarantined on Gallop's Island, the fourth being in Harwich. The board has abandoned its plan to build a leper hospital on Cape Cod and has filed a petition with the state senate asking for a resolution calling on Congress to establish a national leprosaria.

Long Island for Chronic Diseases.—Dr. William T. Councilman of Harvard Medical School proposes that Long Island, in Boston harbor, be devoted exclusively to the care of chronic cases of disease. There is at present on the island a hospital of 300 beds. By removing the paupers now housed on the island their dormitories could readily be remodeled into wards to care for 400 other chronic invalids, and additional buildings erected and maintained at moderate expense. The main purpose of this change would be to furnish some adequate care for tubercular patients, a class now almost wholly neglected by the city authorities.

Milk Inspection Efficient.—To fill the place of Dr. Charles Harrington, who has succeeded Dr. Samuel W. Abbott as secretary of the Massachusetts State Board of Health, James O. Jordan has been appointed inspector of milk for Boston. So efficient has the work of this department become that there are a number of places in the city where milk comes by the carload daily, and where only a sample shows more than the 500,000 bacteria per c.c. allowed by the law, which went into force last June. Repeated warnings have been sent out and from this time on prosecutions will be started against violators, whether contractors, pedlers or shop keepers.

Deaths of the Last Fourteen Weeks.—Boston had during the ten weeks ended January 14, 2,060 deaths reported to the Board of Health, as against 2,077 during the same period a year ago, and an average death rate of 17.42 per 1,000 per annum. The report for the last week in 1904 was unusually low, as only 169 deaths occurred as compared with 231 last year, a rate of only 14.35 per 1,000. During this period of ten weeks there were reported 459 cases of diphtheria, with 45 deaths; 238 of scarlet fever, with 11 deaths; 145 of typhoid fever, with 31 deaths; 81 of measles, with 3 deaths, and 403 of tuberculosis, with 241 deaths. There were 322 deaths from pneumonia, 7 from whooping cough, 247 from heart disease, 82 from bronchitis, and 32 from marasmus. Of the fatalities 357 occurred in infants under 1 year old, 461 in those under 5 years of age, and 537 in individuals over 60.

NEW JERSEY.

Physician Injured.—Dr. Harry H. Sherk of Camden was severely injured as the result of his carriage colliding with an automobile, January 25.

To Combat Lodge Practice.—The physicians of Trenton have organized in order to break up the practice of treating lodge members and other organization people at contract rates. This method of treatment has become so general in Trenton as to warrant the step thus taken.

Hospital Report.—The annual report of the Camden City Dispensary shows that during 1904 1,266 patients were treated in the dispensary, 344 cases were treated at home, 1,933 visits were made to the dispensary, and 1,861 visits were made to residences; 10,664 prescriptions were dispensed.

Medical Society Election.—At the annual meeting of the Gloucester County Medical Society the following officers were elected: Dr. E. Mortimer Duffield, Glassboro, president; Dr. C. Frank Fisler, Clayton, vice-president; Dr. George E. Reading, Woodbury, secretary and treasurer, and Dr. W. Grant Simmons, Swedesboro, reporter.

NEW YORK.

Report on Niagara River Water.—Dr. Walter A. Scott, health officer of Niagara Falls, reported 288 cases of typhoid fever in the last year. Of this number 29 died of the disease. Of 266 medical cases in the Memorial Hospital 156 were typhoid fever. He classed Niagara River water as unfit to drink.

Stony Wold Sanatorium.—At the annual meeting of the officers of this sanatorium, which is located at Lake Kushaqua, in the Adirondacks, and was incorporated for the treatment of incipient tuberculosis of women, young girls and children, it was reported that 131 cases had been cared for since 1901, some staying over a year. It is the object of the institution to reach self-respecting persons who do without treatment rather than seek aid. There is the usual complaint that there are more to be cared for than present facilities can accommodate.

Care of Crippled and Deformed Children.—The fourth annual report of the New York State Hospital for the Care of Crippled and Deformed Children for the year ended Sept. 30, 1904, gives the following classification of diseases: Hip-joint disease, 16; white swelling, 3; major deformities of infantile paralysis, 5; Pott's disease of the spine, 4; congenital dislocation of the hip, 5; bowlegs, 2, and clubfoot, 7. Of these patients 17 were discharged; 5 of them were cured, 7 much improved, 3 as improved, 2 unimproved. There remained 25 in the hospital; of these 1 has congenital hip dislocation, 11 have hip-joint disease, 4 Pott's disease, 2 white swelling of the knee, 4 deformity from infantile paralysis, 2 bowlegs, 1 case of clubfoot. Of these patients 9 are girls and 16 boys. Out of the 42 cases treated 28 came from counties outside of New York and Queens. A new hospital is to be built at West Haverstraw, Rockland County, to cost $50,000, on a site of 50 acres overlooking the Hudson River.

Bills Before the Assembly.—Among the bills before the legislature are the following: A bill prohibiting the sale of proprietary medicines in the state, unless an analysis or formula specifying ingredients contained is printed on the label of the bottle or package. False analysis or failure to place formula on the outside of package is made punishable by a fine of not less than $50 nor more than $500, or by imprisonment of not less than one month nor more than six months. A bill providing for the establishment of a hospital for the treatment of habitual drunkards and victims of opium, chloral, cocain and other narcotics in New York City. This new hospital is designed to take the place of the alcoholic ward at Bellevue Hospital. A bill providing for an investigation into the purchase of a farm at Comstock, Washington County, as a site for the new State Hospital for the Insane and for which an exorbitant price was paid. It calls for the enactment of a law that will protect the treasury and its charitable and philanthropic interests from future injurious contracts and purchases. Senator Elberg again introduced his bill to abolish the office of coroner in New York City. This bill has been drawn up by Drs. Stephen Smith, Harry R. Purdy, E. Eliot Harris and James Taylor Lewis, counsel for the State Medical Association. It has been submitted to and approved by the legislative committee of the New York State Medical Association. The present coroners' physicians may become members of the new board of medical examiners under the civil service rules. The board is to be headed by a chief medical examiner, who will be directly responsible to the health commissioner for the work of the board. The duties of the board will be strictly those of physicians, leaving the legal and suspicious cases to be dealt with by the district attorney's office. This bill provides that a full report of each case must be sent at once to the district attorney's office, which will bring such cases as warrant it before a city magistrate. At present a coroner may be taken from any profession or trade. The members of the proposed board will have to prove their fitness by passing a rigid civil service examination. The recent arrest of Coroner Jackson, charged with having offered a bribe of $200 to one of the assistants of the district attorney if he would so shape a case of abortion that it could not be presented to the grand jury, and the defendant would have to be discharged by the coroner, illustrates how the office may be abused at present and may aid the cause of this bill, which has been defeated on two previous occasions.

Buffalo.

The Boy Wonder Again in Trouble.—Anthony Weichert, known as "Antonius the Boy Wonder," recently released from the penitentiary having served one year for conspiracy in defrauding people by promising to heal by the laying on of hands, etc., was rearrested on the charge of practicing without a license and remanded to jail.

Personal.—Dr. Frederic C. Busch resigned as assistant surgeon of the Sixty-fifth Regiment, N. G. N. Y., and Dr. Marshall Clinton was appointed to take his place.——Dr. Edward C. W. O'Brien, surgeon to the Fire Department, is critically ill with influenza.——Dr. James E. King, instructor in obstetrics, University of Buffalo, will spend a year in New York City in study.

December Statistics.—The monthly report of the Department of Health for December shows an annual death rate of 15.06 per 1,000. The principal causes were consumption, 39; measles, 12; septicemia, 6; typhoid fever, 8; debility, 44; alcoholism, 5; cancer, 20; apoplexy, 25; dementia, 7; meningitis, 7; valvular disease of the heart, 33; pneumonia, 68; gastro-enteritis, 6; nephritis, 36, and violence 29.

New York City.

Research Chemical Laboratory.—The department of health has decided to establish a research laboratory in the new laboratory building which is being erected where food and drugs will be examined by competent men and studies in purity made which will be of universal interest.

Anti-Spitting Brigade.—At a mass meeting of Brooklyn boys, designed as a missionary meeting to spread information relative to the spread of tuberculosis, an anti-spitting brigade was formed, with Dr. Darlington's approval, who announced on this occasion that Brooklyn was to have a new health department building.

Diphtheria on Staten Island.—There were 40 cases of diphtheria reported from Elm Park in a little over twenty-four hours, and an epidemic is feared. One public school has been closed. The health authorities say that a serious epidemic need not be feared as at this time last year there were 97 cases reported in the same period.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended January 20, 1905, 404 cases of tuberculosis, with 153 deaths; 360 cases of diphtheria, with 40 deaths; 289 cases of scarlet fever, with 14 deaths; 194 cases of measles, with 4 deaths; 179 cases of varicella; 50 cases of typhoid fever, with 12 deaths, and 30 deaths from cerebrospinal meningitis.

Effects of the Blizzard.—As a result of the severe weather there were six deaths from exposure and twenty street accidents, three of which were fatal. Cases of frostbite were treated by the hundreds at the various hospitals. The ears and hands of nearly two thousand of the street cleaners were frozen. The lobby of the Metropolitan Opera House was converted into a species of emergency hospital, where for a time policemen escorted those suffering from frostbite.

Work of the Pneumonia Commission.—Four additional workers have been added to the pneumonia commission. Dr. Norris of Bellevue has begun a series of experiments to determine how commonly the pneumonia germs are present in the air passages of persons who have died of some other disease and whether they are present in the air passages of persons who are killed when in good health. They are also experimenting in fifty different public school buildings in this city on methods of cleaning and the dust danger.

Not Pneumonic Plague.—The Red Star steamer *Vaderland* was sent back to quarantine by Dr. Doty, health officer of the port, because eleven deaths occurred in one compartment during the passage. The deaths were ascribed to pneumonia, but it was feared that the disease might be pneumonic plague, although this disease has heretofore only come from India. Bacteriologic examination failed to show the presence of anything other than ordinary pneumonia, and after thorough dis infection the passengers will be allowed to land.

Radium Cure Swindle.—The New York County Medical Society, with the assistance of a woman detective, have succeeded in having "Dr." H. H. Kane and his associates, "Drs." William H. Hale and William F. Horton, arrested and indicted on the charge of having swindled a carpenter out of $10,000. They claimed that his life could be saved by radium, and pretended to have used that drug. The alleged radium tube was analyzed at Lederle Laboratory, and found to contain ginseng, strychnin and a few other drugs found in most tonics, but no radium. There are a number of cases against these men by persons who have been swindled out of sums ranging from $100 to $2,500. They have been practicing under state licenses. The counsel for the county medical society secured an injunction restraining banks holding deposits of the men from paying out any money, and it is probable that some of the victims may be reimbursed.

Hospital News.—The proceeds of the German Charity ball, amounting to about $12,000, will be distributed among the German hospitals of the city.——Isaac Guggenheim has contributed $1,000 to Sydenham Hospital and has agreed to give monthly an amount equal to such sums as the board of directors succeed in raising through gifts up to and including the sum of $10,000 each year.——The plans have been filed for the new building of the Manhattan Eye, Ear and Throat Hospital, which is to be erected in East Sixty-third Street. The building will be twelve stories high, will accommodate about four hundred ward patients and fifty private patients. A feature of this hospital is its postgraduate department.——The New York Foundling Hospital has lost its case against eighteen citizens of Clifton, Ariz. The authorities of the hospital endeavored to recover children who had been placed in families in Phoenix, Ariz., by three sisters of charity. The Supreme Court has unanimously decided that as the children have homes, their best interests have been subserved. The attorneys for the petitioner preferred an appeal to the United States Supreme Court.

PENNSYLVANIA.

Personal.—Dr. Oscar Kniffler, Pittsburg, has moved to Göttingen, Germany, and will eventually settle in Wiesbaden.——Dr. Reinoehl Knipe, Norristown, has been re-elected physician to the Montgomery County prison.

Large Sum Asked for Charity.—The State Board of Charities in its biennial report recommends that $9,406,923.75 be appropriated to the state, semi-state and private institutions in the state for 1905 and 1906. The report stipulates that $7,227,804.10 shall be applied for maintenance, and that $2,179,119.65 for building. The total amount applied for by the various institutions throughout the state was $15,033,462.09, of which $8,947,264.34 was for maintenance and $6,086,197.75 for building. The board also recommended that $2,000,000 be appropriated for the maintenance and clothing of the indigent insane for the two years beginning June 1, 1905; that $50,000 be appropriated for the erection of an institution for the criminal insane on the grounds of one of the existing penitentiaries. In all 119 asked aid and 17 applications for assistance were disapproved by the board.

Crusade of Education Against Consumption.—The free lectures on consumption to be delivered under the auspices of the Henry Phipps Institute are now going on. The movement also will be started in the towns circumjacent to Philadelphia. Dr. Horace Cairncross of the Phipps Institute lectured before the Glassblowers' Union in Woodbury, N. J., on this subject, January 27; Dr. Ward Brinton lectured to the textile workers on "The Home Treatment of the Disease," January 28, and Dr. Daniel J. McCarthy delivered a lecture on "Tuberculosis" in Oil City, February 1. Dr. McCarthy also lectured on this subject in the Deaconesses' Home, Philadelphia, January 25. Dr. Lawrence F. Flick of the Phipps Institute said that the institute is for the study, treatment and prevention of tuberculosis, and these lectures constitute one part of the educational side of the work. The lectures, he said, were requested by the lay organizations and this shows an enlightened interest in the subject, and that people are looking for truth in the matter.

Philadelphia.

Malpractitioner Sentenced.—Mrs. Elizabeth Ashmead, who was committed to jail by the coroner March 30, charged with malpractice, and who was recently found guilty, was sentenced on January 26 to three years in the penitentiary from date of commitment.

New Society Officers.—The Philadelphia County Medical Society, at its annual meeting January 18, elected the following officers: President, Dr. James M. Anders; vice-presidents, Drs. M. Howard Fussell, Alfred M. Eaton, Hilary M. Christian, Franklin Brady and Milton B. Hartzell; secretary, Dr. William S. Wray; assistant secretary, Dr. Ross H. Skillern; treasurer, Dr. Collier L. Bower, and censor, Dr. Judson Daland.

Personals.—Dr. Samuel Bolton was thrown from his sleigh in a runaway and sustained a slight concussion of the brain. He is slowly recovering.——Dr. John H. Jopson was recently elected to the surgical staff of the Presbyterian Hospital.——Dr. Milton J. Rosenau of the United States Public Health and Marine-Hospital Service, and director of the Hygienic laboratory at Washington, delivered a lecture at the Medico-Chirurgical College January 27 on "Tropical Anemia, with Special Reference to the Hookworm in Tropical Malaria."

Health Report.—The total number of deaths reported for the week aggregated 499. This is a decrease of 20 from those of last week, and a falling off of 63 from the corresponding period of last year. The deaths from pneumonia numbered 67, an increase of one over the previous week. There was a notable decrease in the number of diphtheria cases. In all 62 were reported, 33 less than last week. The principal causes of death were: Typhoid fever, 11; tuberculosis, 40; cancer, 12; apoplexy, 20; heart disease, 58; acute diseases of the respiratory tract, 155; enteritis, 23, and Bright's disease, 46. The total number of contagious disease cases aggregated 207, with 21 deaths, as compared with 231 cases and 24 deaths for the preceding week.

Free Public Lectures on Hygiene.—The Department of Medicine of the University of Pennsylvania has announced a series of free public lectures on the subjects of hygiene and medicine of general interest to practitioners and the public, to be delivered on Monday afternoons in the medical laboratories. This course was arranged especially for the fourth-year students, but invitations to attend the lectures are extended to the members of the medical profession of the city. Dr. Leonard Pearson, dean of the veterinary department, will deliver the first two lectures, February 6 and 13, on "Milk Supplies of Cities." On February 20 Dr. Jay F. Schamberg will speak on "Vaccination," and on February 27 will give a demonstration on the subject of "Eruptive Fevers." On March 6 and 13 Dr. Edward C. Kirk, dean of the dental department, will speak on "The Medical Relationship of Certain Dental and Oral Disorders." On March 20 Dr. A. P. Francine will speak on "The Restriction and Prevention of Pulmonary Tuberculosis." On March 27 Dr. R. Tait McKenzie, director of physical education at the university, will speak on "The Therapeutics of Exercise." Dr. Joseph Sailer will deliver the two closing lectures April 3 and 10 on "Hydrotherapy."

Course in Public Health.—The University of Pennsylvania will introduce into its curriculum, beginning October 1, a course in public health which will include instruction under the following headings:

Sanitary Engineering.—Including the subject of water supplies, sewerage systems, street cleaning, disposal of waste, etc.

Sanitary Legislation.—A study of the movement for sanitary reform and of the laws enacted relating to public health, and the methods of enforcement employed in Great Britain and the United States.

Inspection of Meat, Milk and Other Animal Products.—The methods of preparation and preservation of the same, the conduct of dairies, creameries, etc., and demonstrations of the diseases of animals transmissible to man.

The Sanitary Engineering of Buildings.—Including demonstrations of systems of heating, ventilation, plumbing and drainage, the study of plans, etc.

Social and Vital Statistics in the United States.—An examination of statistical methods and their results, with special reference to vital statistics and to city populations.

Practical Methods Used in Sanitary Work.—Including water, air and milk analyses, studies in ventilation and heating, investigation of the soil, methods of disinfection, sterilization, etc. (This is purely laboratory instruction.)

General Hygiene.—As applied to the community, including lectures on the causation of disease—exciting and predisposing, methods of prevention—including isolation, quarantine, natural and acquired immunity, protective inoculation, vaccination and the antitoxic state, methods of house disinfection and the means employed, suggestions for the organization of sanitary work, the influence of water supplies and sewage disposal on the public health, etc.

Personal Hygiene—Including the physiology of exercise, the adaptation of exercise to the various physical requirements, the use of exercise for the prevention and correction of deformities, the methods of examination and record keeping, the routine physical examination of growing children and the relation of air, food, bathing, etc., to health and development; the hygiene of the school room.

SOUTH DAKOTA.

Hospital Report.—Since its foundation in 1900, St. Luke's Hospital, Aberdeen, has cared for 845 in-patients, with 25 deaths.

Law Regarding Vital Statistics.—The legislature of South Dakota has passed a bill providing for the collection, preservation and publication of census and vital statistics and appropriating money for carrying this into effect. This is the first law in the state relating to vital statistics.

Compulsory Reports Recommended.—The Black Hills District Medical Association, which met at Deadwood, January 8, for its annual session, has proposed a bill advocating the compulsory report of all births and deaths under a penalty of $100 for failure, the physician making reports to receive a fee of 25 cents for each birth or death so reported. The following officers were elected: Dr. Adelbert H. Bowman, Deadwood, president; Dr. C. W. Hargens, Hot Springs, vice-president; Dr. Felix E. Ashcroft, Deadwood, secretary; Dr. Frank S. Howe, Deadwood, treasurer, and Dr. John W. Freeman, Lead, delegate to the state medical association.

GENERAL.

Yellow Fever on Naval Ship.—The U. S. cruiser *Boston* arrived at Panama from coast ports, January 25, with yellow fever on board. Two men are reported to have died, but no new cases have occurred beyond the seven reported first. The ship has been ordered north because of this occurrence.

Yellow Fever at the Isthmus.—The canal officials are reported to be taking extra measures to prevent the spread of yellow fever at the isthmus. They have a large problem to deal with, as the laborers and skilled employes, including women, who are arriving from the United States, are for the most part inexperienced and careless concerning tropical life and its dangers.

Dr. Kelly Asks for Material for Study.—Dr. Howard A. Kelly, 1418 Eutaw Place, Baltimore, writes that he is studying membranous dysmenorrhea, and says that since he is greatly in need of material, he will be indebted to any physician who will mail him casts of the interior portion of the uterus discharged by dysmenorrheic patients. The fresh specimen should be put in a bottle containing a 10 per cent. solution of formalin.

Pneumonia Rates of Chicago and New York.—The bulletin of the Department of Health of Chicago, compares the pneumonia mortality in New York and Chicago. For years New York has had a lower pneumonia rate than Chicago, but the recent increase there has temporarily reversed the conditions. In Chicago, in November, 1904, 260 deaths were reported from pneumonia, a daily average of 8.6. In New York, for the same month, 802 deaths from pneumonia were reported, a daily average of 26.7. In Chicago, during December, 451 were reported, a daily average of 14.5, while in New York 1,452 were reported, a daily average of 46.8.

Dr. Cushny Goes to England.—Dr. Arthur R. Cushny, for the past twelve years professor of pharmacology in the Department of Medicine and Surgery of the University of Michigan, has been made professor of pharmacology in the Medical Department of University College, London, as was announced in THE JOURNAL last week. Dr. Cushny graduated in arts and in medicine in the University of Aberdeen and then took up the special study of pharmacology with Professor Schmiedeberg at Strassburg, in whose laboratory he became privat docent. When Professor Abel left the University of Michigan in 1893 and went to John Hopkins, Dr. Cushny, whose research work had already attracted attention on account of its high degree of excellence, was called to Michigan to fill the chair of pharmacology. During his twelve years of residence in this country he has made many valuable original contributions to the science of his special subject. Some of his most important papers have been those bearing on the action of digitalis, caffein, spartein, saline cathartics and the atropin group. He has recently contributed to the *English Journal of Physiology* a series of researches on the physiology of, and the effect of medicinal agents on the action of, the kidney. He has made valuable contributions on the physiology of the mammalian heart and the interpretation of pulse tracings. His text-book on pharmacology received immediate recognition, and has already passed through several editions. In his departure from this country, America loses and England gains one of the most thorough scientific investigators in medical science.

CANADA.

Tuberculosis in Montreal.—Last year there were 634 deaths in Montreal from tuberculosis. It is expected that in the next few years the deaths from this disease may be materially decreased, owing to the work of the Montreal League for the Prevention of Tuberculosis, and to the adoption of stringent measures against people spitting on the streets and in public places.

An Association of Ex-House Surgeons of Toronto General Hospital.—Speaking of the reunion of the house staff of Toronto General Hospital of 1892-1893, Dr. Charles O'Reilly, the medical superintendent, said that since 1876 there had been 220 house surgeons in that institution, and of this number in the twenty-eight years but eight had died. The work of organizing an association of ex-house surgeons in connection with this hospital is progressing.

Typhoid Fever in Winnipeg.—The health authorities state that 135 deaths from typhoid fever were reported in Winnipeg during 1904, and Winnipeg has an estimated population of 75,000. The total deaths from all causes numbered 1,436. It is estimated that during the year over 2,000 cases of typhoid were reported. One of the Winnipeg newspapers counted 226 deaths reported from typhoid fever during 1904, as shown on the official register. This would make a rate of 3.01 deaths per 1,000 of population from typhoid, while the figures of the health authorities would make a rate of 1.8 per 1,000.

Personal.—Dr. J. F. W. Ross, Toronto, is spending the remainder of the winter in Southern California.——Dr. J. N. E. Brown, secretary of the Gold Territory, Dawson, has left Toronto to spend the next three months in Southern California.——Dr. George R. McDonagh, Toronto, has gone to the south of Italy, to remain three months.——Dr. W. H. B. Aikins, one of the editors of the *Canadian Practitioner and Review*, will spend the next three months in Vienna.——Dr. W. J. O. Malloch, Toronto, demonstrator of anatomy in the Medical Faculty of Toronto University, leaves March 1 for a two years' course in England.——Dr. Glen Campbell, Vancouver, B. C., has gone to Europe for a year's study.——Dr. Barrett of Dawson is visiting the hospitals of New York.——Dr. G. H. Manchester, medical superintendent of the New Westminster (B. C.) Insane Asylum, will resign and a new superintendent will be appointed March 1. Dr. W. T. Williams of St. Thomas, Ont., will go to the Bahama Islands shortly, having been appointed quarantine officer and medical health officer for the island of Inagua.

FOREIGN.

German Naturforscher Congress.—The German Naturforscher Congress is to meet this year at Meran, September 24 to 30.

Vaccination in the Ottoman Empire.—On April 18, 1904, a law went into force in Turkey making vaccination and revaccination compulsory.

French Congress of Climatotherapy.—The second French Congress of Climatotherapy and Urban Hygiene will convene at Arcachon April 24, and will adjourn to Pau for the closing meeting, April 29. The French railroads allow half-fare rates to members and their families. Dr. Dechamp, Villa Tibur, Arcachon, has charge of the arrangements.

Hirschberg's Anniversary.—Prof. J. Hirschberg of Berlin, the well-known ophthalmologist, recently received a *Festschrift* from his friends and pupils on the twenty-fifth anniversary of his professorship. It contains a number of works by prominent ophthalmologists of various countries. One of the cabinet ministers and delegates from a number of scientific societies were present at the ceremony of presentation.

International Congress of Anatomy.—The international committee representing the foremost societies of anatomy in the world, met at Geneva, December 20, and made arrangements for the first international federative congress of anatomy. The date was appointed as Aug. 7 to 10, 1905, with Geneva as the place. Cristiani and Batelli of Italy are members of this committee. Romiti of Pisa is the official delegate.

Results of Antimalaria Campaign on Roman Campagna.—In the official annual report of the Red Cross, which has charge of this work, we note that 11,962 persons received prophylactic quinin treatment and only 67 exhibited primary malarial fever. There were 313 cases in which malaria recurred in persons formerly subject to it. This is a total of only 380 cases in one of the worst hotbeds of malaria in Italy.

Life Insurance of Children Forbidden in France.—The Académie de Médecine of France and the Société Royale de Médecine of Belgium have proclaimed the abuses liable to follow the insurance of the lives of infants and children. Communications were presented before these bodies showing the evil results of this custom, which seems to be widely prevalent in northern France. The French government has enacted a law which prohibits all insurance payable at the death of children under 12.

Opening of the Vegetarian Orphan Asylum.—Berlin declined the legacy left by Baron, a member of the law faculty at Bonn, for the erection and maintenance of a home for destitute children to be conducted on vegetarian principles. The city of Breslau offered to accept it, basing its acceptance on Flügge's statements that the small amount of meat which the poor are able to afford can be effectually substituted and surpassed by milk and eggs. The asylum is now complete and was recently inaugurated.

Campaign Against Irregulars in Germany.—The medical profession in Germany has been conducting a more or less well organized campaign against irregulars for the last few years. Germany has been made too hot for many of the latter, and recent letters from Switzerland complain that they are flocking into that country. We mentioned in these columns recently the bold attempt made by the irregulars located at Zurich to influence legislation to allow them a free hand. The matter was decided by popular ballot and the measure was defeated by a large majority. One of the most potent means used by the profession in Germany in their campaign is what they call "press committees." A number of the large cities now have these committees, and the one at Munich has been in operation since 1901. It was founded by Cramer's efforts, and consists of nine physicians, who are thoroughly posted and ready writers. Medical meetings, etc., to which the lay press was in the habit of sending a reporter, were written up by a member of the committee and copies were sent to the newspapers. The latter were urged to refer to the committee all copy relating to medical matters, dubious ads, etc., and the press clipping bureaus kept the committee posted on what might otherwise escape them. The newspapers consented to this arrangement, and co-operated in most instances with the committee. Excellent results have been obtained in the matter of swindling advertisements. Many of them were discontinued by the papers on the recommendations of the committee. Others that were still carried were accompanied by a warning in the editorial pages. The committee investigated the standing of irregulars and wrote them up for the papers, and when criminal or other proceedings were instituted against them the committee sent in articles discussing the case and emphasizing its instructive points. A member of the comtee was also appointed to attend the assemblies of irregulars, to join in the discussions and to report the meeting for the newspapers. Dr. Max Nassauer's detailed account of the work of the Munich committee was published in the *Aerztl. Vereinsbl. f. Deutschland*, 1903, No. 498. An epitome of it is given in the last *Prag. med. Wochft.*, accompanied by an urgent appeal from Kantor for the organization of a similar committee in Bohemia. The idea is for each town and county to form a network of similar committees to unite for a common campaign against irregular practices. The Munich committee did not hesitate to write up disparagingly the unethical advertising of one colleague, a lung specialist, and another who advertised his "ocularium" in an undignified manner. The prompt and solid organization of the profession in Munich when the troubles with the sickness insurance societies (*Krankenkassen*) were impending a year ago, was undoubtedly one of the results of the work of the press committee. The equally prompt acquiescence of the insurance societies in the just demands of their medical officers, forestalling their resignation, may likewise be attributed to the influence exerted on the public by the untiring labors of the press committees. The *Allg. med. Cent.-Ztg.* publishes each week the suits instituted against the irregulars throughout Germany. There are always at least two or three; they are brought for swindling advertisements or for cheating by selling medicines at prices altogether out of proportion to their cost, or for personal injury from their practices. The sentences are fines of from $10 to $300 and imprisonment for from a week to six months or even two years. The last issue brings an account of a suit brought by Dr. P. Manasse of Berlin against an editor, R. Gerling, who has championed the cause of the "nature healers," and at a public meeting at which Manasse was present, he denounced the medical profession, remarking that he considered the majority of physicians as capable of any crime, any treachery and any wickedness. The prosecuting attorney (*Staatsanwalt*) demanded the imprisonment of the speaker, as a money fine was not adequate punishment for such assertions. The defendant was sentenced to one month in prison and the costs of the suit, which were large, and he was ordered to publish the account of the proceedings in his own journal.

Correspondence.

Iodin-Carbon-Disulphid Inhalations in Respiratory Diseases.

COLUMBIA, ALA., Dec. 3, 1904.

To the Editor:—In the *New York Medical Journal*,[1] April 25, 1896, Drs. Stovall and Twitty report results from the use of iodin-carbon-disulphid inhalations in respiratory diseases. I have tested the remedy in my practice and offer the results to the profession in the interest of a subject which is closely related to the welfare of all classes of people. The profession is slow to accept new theories or methods of treatment, but this treatment has proved in my hands a most useful agent in combating the various laryngeal, bronchial and pulmonary disorders; and physicians elsewhere, after testing its merits, have spoken in unmistakable terms with reference to its practical value.[2]

Professor Coromilas,[3] at a meeting of the Chicago Medical Society, gave his conclusions, reached after treating a test series of 66 cases by the hypodermic administration of carbon disulphid. The results were eminently satisfactory, enabling him to use the word "specific" in estimating the value of the compound. The following is a summary of his investigations:

1. The disulphid of carbon as administered by him has no disagreeable results.

2. Because of its parasitic, antizymotic, antiseptic and inoffensive action, it is capable of penetrating all tissues and in this manner cures tuberculosis.

3. It has a strong action against the bacillus of tuberculosis.

4. It should not remain unknown, but should take its place in therapeutics as one of the specifics of our time, capable of doing immense service to suffering humanity.

While I am disposed to discredit the use of the word "specific," yet the professor's conclusions are practically identical with my own, as well as with those previously enunciated by Drs. Stovall and Twitty. There can be no doubt of the value of the hypodermic administration of this preparation as a means of impressing the system, but as the professor claims that the disulphid is strongly antagonistic to the tubercle bacillus, it would seem reasonable to suppose that inhalation would be the most direct method of application in phthisis pulmonalis. My colleagues in this city advance this argument, in writing on the subject, claiming, as they do, the superiority of the direct method by inhalation. In my own opinion the addition of iodin, as they suggest, adds very much to the therapeutic value of the remedy; this combination precludes its use hypodermically, and has an agreeable effect on the solution when used as an inhalant.

Because of the difficulty of performing intratracheal injections the services of a laryngologist are often required when this procedure is necessary.

It is not my intention to go into details appertaining to any particular phase of the subject, but rather to impress on the profession the great value of this new remedy, which, with hygienic measures, is of great assistance in battling against respiratory diseases. The physicians to whom I have referred as originators of the idea have given their experiences in detail in contributions to different journals, as well as having issued a pamphlet explanatory of the method. I will not consume time and space with clinical histories, but will say in conclusion that physicians who are interested in the treatment of respiratory diseases will do well to study closely this method of treatment, and that Drs. Stovall and Twitty will take pleasure in replying to any correspondence.

C. L. C. ATKESON, M.D.

[EDITOR'S NOTE.—Dr. Atkeson does not give instructions nor technic regarding the use of this preparation. To remedy this omission we repeat the description which was quoted from Drs. Stovall and Twitty in THE JOURNAL, June 13, 1896: "We are quite positive that by deep inspiration the remotest recesses and apical caseations are reached. The good effects are manifest during the first day's trial, and the night cough which is so troublesome and exhausting is much improved; and this is among the first benefits derived. Expectoration is lessened in quantity and the quality is made decidedly better in a short time. The sulpho-carbon compound is put down as poisonous, and we have watched very closely for any untoward symptoms attributable to its inhalation, but, so far, have failed to note any objection to its use under proper precautions and directions from the physicians. About a 12 per cent. solution, or, more accurately, one of a dram of iodin to the ounce of disulphid, is what we have used in practice. (Later recommendation is as follows: The strength of the solution varies from 10 to 60 grains of iodin to the ounce, according to special requirements, deep-seated disease indicating a stronger percentage of iodin than does catarrh of the upper tract. The weaker solutions also admit of nasal inhalation as well as oral.) Owing to the solubility of rubber and kindred matter in the disulphid, it is rendered inadmissible as material for an inhaler, which should be made of glass preferably. A cheap, convenient instrument may be improvised by using a small test tube with a sponge in the bottom saturated with the liquid; it will be necessary to replace the sponge frequently, because of the corrosive action of the medicine. For lung and laryngeal treatment, the inhalation is to be made through the mouth with the instrument pushed far back, approximating the opening of the larynx. The frequency with which it may be used is variable according to the individual condition and effects; we may say, on an average, once every two hours during the day. The disulphid has a bad odor which is objectionable to some patients. We have experimented with a view to rendering it more agreeable and have made various additions and modifications, resulting with no advantage considerable enough to justify the use of anything additional, inasmuch as such a change might possibly lessen the practical value of the original formula. Menthol is perhaps the best harmless addition that we have attempted (15 grains to the ounce). We should be very glad if the profession would prove the efficacy of the treatment and report the results." Drs. Stovall and Twitty have since advised the use of the bent tube inhaler, known as the Giarth modification. They give the following directions for use: "The fluid is dropped to saturation on the gauze, avoiding using an excess; also being careful that it does not come in contact with the cork inserted in the end of the inhaler. When ready for use (mouth inhalation) hold the tube two or three inches from mouth, inhaling carefully, avoiding as far as possible the induction of violent fits of coughing which a too vigorous application of the fluid might produce. By beginning cautiously the patient will be more easily controlled and the sooner will become accustomed to its vigorous application. It is very necessary to know and to inform the patient that a few inhalations even may give rise to unpleasant sensations, such as vertigo, or fullness about the head, which should serve as a warning to stop inhaling until these sensations pass off. Usually the vertigo is only transient, and a few moments will witness a return to the normal state. As a rule, one can draw five or six deep inspirations, rest a short time and repeat. Unless the cough is too violent or other bad effects supervene, the patient may be allowed to repeat the inhaling act five or six times at one sitting. It is always advisable to have the patient in half reclining or sitting posture. Every four hours during the day is often enough, in the beginning, to take the treatment. As toleration is established, it may be advisable to use every two hours, if no contraindication presents itself."]

1. Drs. Stovall and Twitty: "Inhalations of Iodin and Carbon Disulphid in Tuberculous Pulmonary Disease."
2. E. g., Dr. Giarth: Philadelphia Med. Council, Aug., 1904.
3. Prof Coromilas, Athens, Greece: THE JOURNAL, Nov. 26, 1904.

Insane Wards in General Hospitals.

PITTSBURG, PA., Jan. 27, 1905.

To the Editor:—In his interesting description of the new City Hospital of Nuremburg,[1] Dr. Barker mentions that 31 of its 946 beds are allotted to insane patients. One could

1. THE JOURNAL A. M. A., Jan. 14, 1905.

wish that he had furnished some information as to just how this division of the hospital is equipped and how it is managed, for, in my opinion, the attempt to treat disease which exhibits "insanity" as a symptom or group of symptoms in a general hospital marks a distinct step in advance. It is an effort to follow out in practice the theory that "insanity" is a manifestation of sickness, as is headache or edema or convulsions or vomiting or paralysis, dependent, like any of these symptoms, on underlying bodily alterations. To treat "insanity" in a general hospital is an object lesson, to the profession and laity alike, of immense value. In no other way, I believe, is it so apt to be studied on a proper basis by physicians; and by no other method may we hope to do so much to combat the old idea of the laity that "insanity" is a curse or disgrace, and to teach them that it is one of many manifestations of bodily disease in which the brain shares. By no other plan are "insane" patients so apt to be brought early for hospital treatment. The plan has far more to commend it than that of pure psychopathic hospitals unattached to general hospitals, which by the laymen will doubtless be called "insane asylums" no matter how modern their methods, and to which the old-time stigmata will doubtless attach. For some ten years I have been one of the visiting physicians to the insane department of St. Francis Hospital of this city, and on the basis of this experience I have ventured the foregoing observations. I do not know of another general hospital in this country like St. Francis of Pittsburg with an insane department as an intimate part of a general hospital. I am convinced that much good would result if one or more hospitals in each large city of the country would provide wards (properly equipped, of course) for a few insane patients. Acute cases only should be taken. THEODORE DILLER.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ANTIQUATED TEACHING IN MEDICAL COLLEGES.

PHILADELPHIA, Jan. 28, 1905.

To the Editor:—I have been much interested in the letter in THE JOURNAL, Jan. 28, 1905, p. 307. It is not necessary for the correspondent to make known his local habitation or his name. It is, indeed, a condition that confronts us, not a theory. Many a gray-haired college professor will recognize the picture, and say sadly, with Sir Andrew Aguecheek, "That's me, I warrant you." In the present rapid onward rush of scientific progress few, if any, teachers at the end of twenty years can represent the existing state of their science. The question, however, arises at once as to what constitutes up-to-date teaching. The charges that A. B. C. brings are not entitled to consideration unless itemized. It is easy for some junior to assert flippantly that "Dr. X. is an old fogy," and it is also easy to develop a spirit among students that will lead to murmurs against the senior teacher. Instructors, demonstrators and quiz teachers are brought into close personal relations with students and are often possessed of considerable personal magnetism. The desire to succeed to the chair may be very strong, and the medieval method of poisoning the "old man" being no longer available, the safer and often effective method of poisoning the minds of his pupils and his colleagues is carried out. The charge of the teaching being behind the times could be used to vacate the larger proportion of professional chairs. How many competent teachers of botany are still teaching that stamens and pistils are sexual organs? Yet the view is quite abandoned by many biologists. On the other hand, the periodic system in the classification of elements practically dominates chemistry to-day, yet Berthelot considers it as comparable in its absurdity to the views held by the alchemists. When I was a student at Jefferson College Dr. S. D. Gross, easily first among American surgeons, taught with great positiveness that soft and hard chancre are due to the same virus. He stood almost alone in this respect. His colleagues and his principal assistant knew his error, and knew the practical objection to the view, yet an effort to displace him on this account would have found very few supporters. I fear that from the very nature of the case your correspondent can not give us the data. The name and place, as I have said, are of no moment. We ought to have specific instances of shortcoming. Does the professor teach the uric acid theory of gout? Does he hesitate to accept the recent views as to the nature of the proteid molecule? Does he insist that some of the long-known vegetable alkaloids are as efficient as the popular coal-tar synthetics? You are right, Mr. Editor, in pointing out that the sore spot in A. B. C.'s college is in the weakness of the colleagues. What is the condition in a college when a respectful petition presented by students could lead to their expulsion? I fear that if the accused professor is not up-to-date in his science he is quite so in some of his business methods. It is not necessary to say that the college is not in Russia; in every large city in this country at least one representative of the type will be found. HENRY LEFFMANN.

GRATUITOUS SERVICES BETWEEN PHYSICIANS AND DENTISTS.

X. says that he attended a dentist's wife and that the dentist objected to the bill for services, claiming at first that the charge was too large and later claiming that it is improper for physicians to charge anything for services rendered dentists. X. says he can not find that any of the physicians in his city have ever been treated gratuitously by physicians or have been in the habit of rendering gratuitous services to dentists. X. asks for information. In some localities physicians and dentists render services to one another gratuitously. The usual custom is to give a discount. X. also details the operations, etc., included in the services referred to, and asks if his charges were not very moderate. We prefer not to express an opinion, but to leave this point to be decided on the basis of the custom of the profession of X.'s city, both as to scale of fees and as to discounts, etc., to the dental profession.

LICENSE TO PRACTICE IS PERMANENT.

HEBBARDSVILLE, KY., Dec. 27, 1904.

To the Editor:—Feb. 11, 1903, the State Board of South Dakota granted me license to practice medicine in that state. Since then they have passed some stringent laws. Have I the right to practice medicine under the license I hold without any further examination? L. O. JONES.

ANSWER.—Yes; although Section 22 of the medical practice act of South Dakota states specifically that the new act, which went into force March, 1903, is not applicable (among others) "to resident physicians and surgeons of this state regularly licensed and practicing in this state at the time of the taking effect of this act."

Marriages.

CHARLES H. SHERMAN, M.D., to Mrs. M. E. Herrington, both of Dallas, Texas, January 15.

BASIL M. TAYLOR, M.D., to Miss Cora Bartlette Corte, both of Greensburg, Ky., January 18.

HENRY T. BRAY, M.D., to Miss Elizabeth V. O'Connell, both of New Britain, Conn., January 11.

GEORGE F. PAINE, M.D., St. Louis, to Miss Dorothy Frye of Salida, Colo., at St. Louis, January 22.

GEORGE W. CROSBY, M.D., to Miss Rosa Hall, both of Sheboygan, Wis., at Milwaukee, January 16.

J. ALEXANDER ST. PIERRE, M.D., Three Rivers, Que., to Miss Blanche Barsalon of Montreal, January 26.

BERT RODENBAUGH, M.D., Barberton, Ohio, to Miss Grace Robinson of Youngstown, Ohio, January 3.

ROMEO RODERICK STEVENSON, M.D., Sioux Falls, S. D., to Miss Emilie F. Avery of Chicago, January 25.

WILLIAM A. BROCK, M.D., Leesburg, Ky., to Miss Sallie E. Nichols of Silas, Ky., at Lexington, Ky., January 18.

SETH MARION BILLINGS SMITH, M.D., Crandon, Wis., to Miss Elizabeth Porter of Wausau, Wis., January 25.

E. JULIUS BOEBER, M.D., Kansas City, Mo., to Miss Helen Moeller of Kiel, Germany, at El Paso, Texas, January 18.

T. ROBERT W. WILSON, M.D., Baltimore, to Miss Lillian B. Thackston of Greenville, S. C., at Baltimore, January 17.

Deaths.

William Harrison Jones, M.D. Howard University Medical Department, Washington, D. C., 1887, a prominent colored physician of Harrisburg; a member of the American Medical Association, and at one time president of the Harrisburg Academy of Medicine, died at his home in Harrisburg, January 19, from pneumonia, after a short illness, aged 46. At a special meeting of the Academy of Medicine, remarks eulogistic of the deceased member's private and professional life were made by Drs. Hugh Hamilton, Hiram McGowan, David S. Funk, John W. Ellenberger, John F. Culp and Jerome Z. Gerhard.

Cordelia A. Greene, M.D. Medical Department of Western Reserve University, Cleveland, Ohio, 1857, of Castile, N. Y., a member of the American Medical Association, New York State Medical Association, Wyoming County Medical Society and Physicians' League of Buffalo, died January 28 in the Presbyterian Hospital, New York City, a week after an operation.

Patrick J. McGrath, M.D. Northwestern University Medical School, Chicago, 1894, until a short time ago a member of the staff of the Manhattan State Hospital, Central Islip, Long Island, N. Y., and waiting orders to go to Panama as surgeon in the Canal Zone, was killed January 28 by falling from a sloop near his boarding place in New York City.

Francis D. Edgerton, M.D. College of Physicians and Surgeons in the City of New York, 1864, formerly president of the Connecticut Medical Society; consulting surgeon to Middlesex County Hospital; assistant surgeon of the Twenty-first Connecticut Volunteer Infantry during the Civil War, died at his home in Middletown, January 19, aged 67.

Otis Eugene Hunt, M.D. Berkshire Medical College, Pittsfield, Mass., 1847; for several years secretary of the South District Middlesex Medical Society, and president or secretary or a member of the Newton Hospital Medical Board since its foundation, died at his home in Newtonville, Mass., January 20, aged 82.

Richard Cheatham, M.D. Bellevue Hospital Medical College, New York City, 1877, a member of the American Medical Association; member of the Nashville Board of Health and city health officer for several years, died suddenly from cerebral hemorrhage, January 21, after a long period of ill health, aged 49.

Virginius G. Hitt, M.D. University of Virginia, Richmond, 1863, of Atlanta, Ga., for several years secretary of the Association of Surgeons of the Confederate Army and Navy, died in the Presbyterian Hospital, Atlanta, January 15, from organic heart disease, aged 63.

Edwin Hellyer, M.D. Long Island College Hospital, 1864, died at his home in Kensington, Philadelphia, January 16, from pneumonia. He served as surgeon in the National Guards Hospital during the Civil War, and was visiting physician of the Penn Widows' Asylum.

Joseph R. Duncan, M.D. Cincinnati, 1859, assistant surgeon of the Eleventh Iowa Volunteer Infantry and surgeon of the Forty-sixth Iowa Volunteer Infantry during the Civil War, died at his home in Crawfordsville, Ind., January 21, after a lingering illness, aged 77.

George Whitaker Reed, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1895, a member of the American Medical Association, postmaster at Biltmore, N. C., died January 10 at his home in South Biltmore, after a long illness, aged 46.

Samuel J. Weaver, M.D. Jefferson Medical College, Philadelphia, 1872, died suddenly at his home in Bethlehem, Pa., January 18, from angina pectoris, aged 54. Dr. Weaver was surgeon to the Lehigh Valley Railroad and coroner of Northampton County.

Frederick W. Richardson, M.D. Long Island College Hospital, Brooklyn, N. Y., 1885, acting assistant surgeon United States Army, formerly of St. Paul, Minn., died at Ligao, Albay, Philippine Islands, January 26, from accidental wood alcohol poisoning.

Edward Valencourt Deuell, M.D. University of Louisville, Ky., 1864, surgeon in the Army from 1863 to 1869, of Saratoga Springs, N. Y., died suddenly, January 20, while giving testimony in court at Saratoga, from cerebral hemorrhage, aged 63.

George C. McFarland, M.D. Rush Medical College, Chicago, 1863, surgeon during the Civil War, for many years proprietor of Oak Lawn Retreat, Jacksonville, Ill., died suddenly in his room in Jacksonville from heart disease, January 16, aged 64.

Joseph A. Cantrelle, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1850, physician of the Howard Society during the yellow fever epidemics of 1857 and 1878, died at his home in New Orleans, January 19, aged 77.

Robert Murray Riddell, M.D. Manitoba Medical College, Winnipeg, and for two years a member of the house staff of Winnipeg General Hospital, died in that institution January 22 from typhoid fever, after an illness of two weeks, aged 38.

George Andrew Campbell, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1859, deputy inspector-general of hospitals and fleets, Royal Navy, died at his home in Ealing, near London, England, January 16, aged 68.

Jacob W. Lowman, M.D. Medical College of Georgia, Augusta, 1858, some-time representative in the legislature from Lexington County, S. C., died at his home in Orangeburg, January 15, after a prolonged illness, aged 68.

Joseph A. O'Neill, M.D. Albany (N. Y.) Medical College, 1897, acting assistant surgeon United States Army, was killed during an attack of ladrones on the town of San Francisco de Malabon, Philippine Island, January 24.

Thomas M. Weadock, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1872, a member of the Allen County (Ohio) Medical Society, died from cholemia at his home in Lima, January 20, aged 66.

Phineas S. Rose, M.D. Albany (N. Y.) Medical College, 1863, surgeon of the One Hundred and Seventy-ninth New York Volunteer Artillery in the Civil War, died at his home in Pasadena, Cal., January 19, aged 66.

Robert Wolfgang Schoenle, M.D. University of Louisville Medical Department, 1890, formerly of Seattle, Wash., died at Pasadena, Cal., January 24, from tuberculosis, after an illness of several years, aged 36.

Nathaniel Stacy Tafft, M.D. Cincinnati, 1852, who served several times in the state legislature, and was the oldest practitioner in Wabasha County, Minn., died at his home in Plainview, January 21, aged 74.

Alfred M. Bird, M.D. Illinois State Board, 1878, twice alderman and twice mayor of Mason City, Ill., died at his home in that city, January 25, from cerebral hemorrhage, after an illness of one year, aged 62.

Augustus J. Hofling, M.D. Miami Medical College, Cincinnati, 1899, secretary of the West End Medical Association, and district physician, died at his home in Cincinnati, January 22, from diabetes, aged 47.

James C. Bowser, M.D. McGill University Medical Department, Montreal, 1883, died at his home in Rexton, N. B., Canada, January 12, from consumption, after an illness of three years, aged 45.

Harry W. Spence, M.D. Toronto University Medical Faculty, 1898, M.R.C.S. England, who served with an English regiment in the South African War, died at his home in Ottawa, Ont., January 24, aged 29.

William M. McKemy, M.D. Bellevue Hospital Medical College, New York City, 1891, died from the effects of a self-inflicted bullet wound through the lungs, at his home in Pecos, Texas, January 23.

John B. Fuller, M.D. Texas Medical College and Hospital, Galveston, 1874, died at the house of his son in Jacksonville, Texas, January 18, after a prolonged period of ill health, aged 78.

Thomas Lafayette Lafon, M.D. Jefferson Medical College, Philadelphia, 1885, died at his home in La Grange, Mo., January 25, from consumption, after an illness of five years, aged 41.

Henry F. Hendrix, M.D. St. Louis Medical College, 1874, a strong advocate of hydrotherapy in infantile disease, died at his home in St. Louis, January 29, from cerebral hemorrhage, aged 61.

Storrs Hall, M.D. Medical Institution of Yale College, New Haven, Conn., for many years a practitioner of Rosendale, Wis., died at the home of his son in Ripon, Wis., January 13, aged 90.

Eugene S. Rice, M.D. New York City, 1879, coroner of Fountain County, died at his home in Wallace, Ind., January 14, from injuries received in a fall three days before, aged 47.

Jonathan Nichols, M.D. Albany (N. Y.) Medical College, 1848, a pioneer resident of Atlantic, Iowa, died at Los Angeles, Cal., from hypertrophy of the heart, January 17, aged 78.

Mark Harrison Ragsdale, M.D. Medical College, Indianapolis, 1875, of Alfordsville, Ind., died at the home of his son in Washington, Ind., January 14, from pneumonia, aged 68.

G. Granville Faught, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879, died suddenly at his home in Philadelphia, January 25, aged 52.

James R. Brewer, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1878, a pioneer of Muskogee, I. T., died Dec. 30, 1904, at Santiago, Cal.

Joseph A. Anthony, M.D., a veteran of the Mexican War, died January 20 at his home in Terrell, Texas, from the effects of a fracture of the hip, aged 77.

Henry Ullyot, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1869, died at his home in Elmira, Ont., January 18, from pneumonia, aged 61.

Edward Howard Craven, M.D. Jefferson Medical College, Philadelphia, a retired physician, died at his home in Philadelphia, January 19, aged 82.

Frank McCormick, M.D. Toledo Medical College, 1895, of Fremont, Ohio, died at the home of his sister in Muncie, Ind., after a long illness, aged 53.

Reginald Percy Vivian, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1900, died at his home in Barrie, Ont., Dec. 8, 1904, aged 30.

Hugh B. McConnell, M.D. Trinity Medical College, Toronto, Ont., 1891, of Boston, died at his home in West Somerville, Mass., January 25, aged 34.

Wesley R. Davis, M. D., a retired physician of Stephens City, Frederick County, Va., died January 26 at Memorial Hospital, Winchester, Va., aged 60.

Eli W. Free, M.D. College of Physicians and Surgeons, Baltimore, 1847, died at his home in Baltimore, January 27, from heart disease, aged 80.

Lyman Wells Ranney, M.D., retired, died at his home in New Castle, Pa., January 12, from the effects of morphin taken accidentally, aged 85.

W. J. Dobbins, M.D. 1844, a practitioner of California in 1850, died at his home in Vacaville, Cal., January 3, from kidney disease, aged 81.

Archibald S. Kirkland, M.D. University of the Victoria College, Coburg, Ont., 1869, died at his home in Collingwood, Ont., Dec. 9, 1904, aged 60.

John W. Futrell, M.D. University of Louisville, Ky., 1872, died at Shawnee, Okla., January 20, after an illness of a year, aged 53.

Frank B. Jones, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1872, of Petersburg, Mich., died recently.

William Jackson, M.D. Chicago, 1891, died at his home in Climax, Mich., January 14, after an illness of three days, aged 59.

Albert Ellison, M.D. New York University, New York City, 1888, died at his home in Benton Center, N. Y., Dec. 20, 1904, aged 45.

Charles G. Sprague, M.D. New York, 1880, of Omaha, died at his farm near Leroy, Neb., after a long illness, January 18, aged 66.

Arthur Toal, M.D. Detroit College of Medicine, 1887, died at his home in Peck, Mich., January 24, from angina pectoris, aged 49.

Henry M. Flanigan, M.D. Philadelphia, 1875, died suddenly from heart disease at his home in Penn's Grove, N. J., January 9.

John F. Heinze, M.D. Missouri, 1878, died at his home in St. Joseph, Mo., January 20, from cerebral hemorrhage, aged 76.

Horace G. Anderson, M.D. Iowa, 1881, died suddenly at his home in Nathrop, Colo., January 11, from nephritis, aged 46.

John W. McAllister, M.D. Medical College of Indiana, Indianapolis, 1895, died at his home in Idaville, Ind., January 20.

John B. Brooker, M.D. New York City, 1894, died at his home in Mayfield, N. J., last week, after a long illness.

William Grant Mitchell, M.D. Gay's Hospital, London, England, died recently in Victoria, B. C., aged 37.

Charles C. Olmsted, M.D. Ohio, 1860, died at his home in Kansas City, Mo., January 25, aged 65.

Davidson Macdonald, M.D. Toronto School of Medicine, 1873, died in Toronto January 3.

Christian A. Hermann, M.D. Illinois, 1894, died at his home in Chicago, January 22, aged 59.

Death Abroad.

N. Sklifossovski, M.D., one of the leading surgeons of Russia, and president of the International Medical Congress at Moscow in 1896, died December 12 at his country home, aged 68. The list of his contributions to the literature is a long one.

Book Notices.

MENTAL DEFECTIVES; THEIR HISTORY, TREATMENT AND TRAINING. By Martin W. Barr, M.D., Chief Physician Pennsylvania Training School for Feeble-minded Children, Elwyn, Pa. Illustrated by 53 Full-page Plates. Cloth. Pp. 368. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

This book is based on knowledge and extensive experience. It is encumbered by no fads, and is biased by no pet theories; it is the product of a well-balanced mind and is a safe guide. Strictly speaking, it can scarcely be called a medical work, still no neurologist, alienist, or physician having to do with feeble-minded or defective children can afford to be without it. But the medical man does miss a chapter on pathology. He has learned to think of disease in terms of pathologic processes if not of pathologic anatomy. With the clinical picture he correlates a vision of abnormal tissue or deranged function. And this is well. To read a book, then, of more than three hundred pages on the mentally defective and find nothing of the causative brain conditions gives the physician an acute feeling of incompleteness. In his preface the author states that the work "addresses itself primarily to anxious parents and to earnest teachers." For the latter, meaning teachers of defectives, it is invaluable. So far as we are aware, there is no work in any language which can take its place. For the average parent the book is much too complete, too technical, too erudite. To sift from the mass the particular facts and advice applicable to his own child would require a layman of unusual education and intelligence. The different chapters are of most unequal value. Chapter 2 on history is very complete (53 pages) and would make a fitting introduction to a work three times the size of this one. The chapter on training and treatment is particularly good, but it might well be two or three times as long. There are well-considered chapters on craniectomy and asexualization, cretinism, microcephalus and hydrocephalus, and epilepsy. The author has seen fit to introduce a chapter on echolalia, one on adenoma sebaceum and one on Samuel Henderson, murderer—all reprints of published articles which properly have no place in this volume. They are simply padding, good padding, but padding none the less. Sixty-four pages are devoted to condensed statements of illustrative cases. They are very good and serve excellently well as sketches of types. There are about 135 of these cases and there is a half-tone reproduction of a very good photograph of each patient, but the arrangement of the pictures is abominable. The text is pages 249 to 313, the pictures are scattered through the book from page 36 to page 308. There are no cross references, so that a considerable search is necessary to find illustration going with description and vice versa. The defects are superficial, the excellencies are fundamental, and the work is sincerely commended to all interested in the subjects it covers.

PNEUMONIA AND PNEUMOCOCCUS INFECTIONS. By Robert B. Preble, A.B., M.D., Professor of Medicine, Northwestern University. Illustrated. Cloth. Pp. 211. Price, $1.00. Chicago: Cloyd J. Head & Co. 1905.

This monograph of 211 pages is timely. When pneumonia is destroying annually, in some parts of our country, more lives than tuberculosis, when new facts concerning its diagnosis and pathogenesis are being brought to light, and when confusing, conflicting, muddled and extravagant views are held as to treatment, it is well to have a résumé of the facts brought to our attention. This has been done by Preble. If one looks here for the latest views concerning the bacteriology of the pneumococcus, for the finer histologic details of the diseased lung or for the latest theoretic and experimental work on pneumonia along the line of Ehrlich's side-chain theory, he will be disappointed. And we take it the omission is made because the book is intended for the general practitioner and not for the expert, for the research man nor for the original investigator. Preble emphasizes the value of early blood examinations in suspected pneumococcus infections; the importance of paying attention to slight and atypical symptoms in the diagnosis of pneumonia; and above all to the inexcusability of an error in diagnosis made because of failure to examine

the chest. The influence of the book as regards therapy will be good. We are a little disappointed that treatment does not receive more attention and that more details as to drugs, remedial measures, diet and nursing are not given. But the introductory remarks on the subject of treatment, regarding the uselessness or even harmfulness of giving the so-called specifics are well put and should do much to discourage the reckless though well-intended maltreatment by overdrugging. Statistics concerning therapy, unless they be carefully and scientifically compiled, are almost worthless. As Preble well says: "A judicious selection of cases will enable one to have a mortality at any desired point between 2 or 3 per cent. and 100 per cent." There is a healthful skepticism, not pessimism, about Preble's therapy that will do good in many quarters. While most of the facts are the old, familiar ones, some are emphasized and have attracted our attention because they are not always as clearly recognized as they should be. As illustrations we might mention the importance of making bacteriologic cultures from the blood; the possibility of recovery from pneumococcus meningitis; the aid to diagnosis from lumbar puncture in suspected meningitis complicating pneumonia; the distinctness with which bronchial breathing is heard by the direct method as compared to mediate, i. e., stethoscopic, auscultation. The points made regarding the value of the three symptoms, sudden onset with chill and high fever, herpes and leucocytosis as significant of pneumococcus infection (with or without pulmonary localization) are worth consideration and more extended observation. There is not, we think, enough emphasis laid on the probable conveyance of pneumonia from patient to patient by means of sputum, by coughing, etc., nor to the proper disposal of the sputum suggested under treatment. The alimentary symptoms, tympany, diarrhea, etc., deserve fuller mention. Post-pneumonic psychoses are not so rare that they should be passed unnoticed. The book is only in fairly attractive form. It could be improved in this respect. There are a few mediocre illustrations. There are not a few typographical errors —temperature for temptation, communis for commune, preturbatis for preturbatic, etc. From page 76 to the end of the book there are 33 lines to the page instead of 31 as found in the first 76 pages. While this, and other mechanical defects mentioned, do not seriously mar the book, they are blemishes that should not be allowed to pass without criticism.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhräh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Cloth. Pp. 689. $4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This work discusses, first, the physiology and chemistry of digestion. In this relation the authors mention the quantity of food required for infants and adults under the various conditions by giving standard dietaries containing the important articles of food, with their relative food values expressed in heat units or calories. Mention is also made of the influence produced by different factors on digestion, such as the hours, order and frequency of meals, variety in diet, rest, and exercise before and after meals. The relative values of the different waters are also shown by their chemical composition presented in tabulated form. A small space is devoted to food adulteration. That part given to infant feeding includes the views and tables of the most important writers on the subject. The discussions on diet in diseases of the gastro-intestinal tract, circulatory system, genitourinary system, skin, etc., include the ideas of the leading authorities on these lines. The literature on the subject of diet has been thoroughly reviewed and so compiled and arranged in a systematic manner as to render it practical, simple and easily accessible to the physician. We believe the statement to be true that the instructions given to patients by the physician as to what should be included in, or restricted from his diet during treatment are, as a rule, not so definite and explicit as they should be. This book is of value in assisting the physician in outlining a proper diet list to meet the demands and needs of those cases which may require a special diet or a change in diet suitable to the different stages of the disease.

A DICTIONARY OF NEW MEDICAL TERMS, Including Upward of 38,000 Words and Many Useful Tables, Being a Supplement to "An Illustrated Dictionary of Medicine Biology and Allied Sciences." By George M. Gould, A.M., M.D., Editor of *American Medicine*. Based on Recent Scientific Literature. Half Morocco. Pp. 571. Price, $5.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

In the progress that is being made in medical science and in the sciences related to medicine new words must be coined to meet new conditions and new things. Gould tells us in the work before us that in a decade over 30,000 new terms have been devised, and this is believable, although he, of course, includes the terms covering all literature. The progress being made in experimental medicine, pathology, bacteriology, etc., makes new terms especially necessary, and those who desire to keep up find one of the stumbling blocks to be the new words that are in many instances meaningless. A critical examination of Gould's book shows that he has incorporated all new terms that relate to medicine, making it a valuable supplement not only to his "Illustrated Dictionary of Medicine," but to all other dictionaries. Not only have the new words been included, but old words which had become obsolete and which have now been revived are also incorporated in the book. The definitions in many instances are really descriptive in character and this adds to the value of the book. The lists of stains and tests are particularly worthy of commendation. This dictionary is commended to those who are anxious to be in touch with the progress which is being made and the literature pertaining to this progress.

THE PHYSIOLOGICAL FEEDING OF INFANTS. A Practical Hand-Book of Infant Feeding, and Key to the "Physiological Nursery Chart." By Eric Pritchard, M.A., M.D. (Oxon.), M.R.C.P. (Lond.). Second Edition, Greatly Enlarged and Entirely Rewritten. Cloth. Pp. 202. Price, $1.50 net. Chicago: W. T. Keener & Co. 1904.

In this book, Pritchard emphasizes the impracticability of using one formula for all children. In the case of breast-fed infants he lays stress on the importance of regular meals for the mother as well as on the necessity of regular intervals between feedings for the child. Explicit directions are given for the preparation of artificial food and for modifying cow's milk, not only for infants but for sickly and delicate children. The development and physiology of the infant is also given careful attention. The book is complete and practical.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By J. A. Milroy, M.A., M.D., Demonstrator of Physiology, Queen's College, Belfast, and T. H. Milroy, M.D., B.Sc., F.R.S.E., Professor of Physiology, Queen's College, Belfast. Cloth. Pp. 200. Price, $1.60 net. New York: Longmans, Green & Co. 1904.

This is a practical, concise and intelligible book for the use of students. Methods of work and technic are alone considered. The proteids and proteid reactions are fully dealt with. The chapters on the blood and on the urine are particularly good and should prove of value not only to students, but to general practitioners. Experiments are described fully, and there are numerous cross references which add to the value of the work.

Miscellany.

Annual Progress Number.—The last issue of the *Interstate Medical Journal* is the "Annual Progress Number," which reviews the medical literature of the past year. It contains several comprehensive and scholarly articles reviewing the progress made in all branches of medicine during 1904.

Charas Poisoning.—From Delhi, India, according to *Albany Medical Annals*, several cases are reported of poisoning by charas, a resin of cannabis indica. Eight Hindu prisoners in the jail became suddenly ill and confessed that they had managed to secure this drug, which they smoked in pipes. They vomited, complained of headache, nausea, giddiness and faintness of vision and of dryness in the mouth and throat. The conjunctiva was suffused and the pupils of all were

extremely contracted. The pulse was full and bounding and 120 per minute. One symptom was peculiar and noteworthy. While in a sitting posture the patient was constantly turning round and round from the left to right in a circular fashion. Ordinary remedies were resorted to and the patients were all right in the morning.

Encouragement and Sympathy for Patients.—Every practitioner of the highest position in surgery and medicine, said Lord Kelvin, addressing a body of physicians, has to administer spiritual consolation to his pttients. Do not run away with words and think I am encroaching on theological ground. When you keep up a patient's spirit you are administering spiritual consolation to him. Many a poor fellow, laid up with a broken leg in a splint, looks for the moment of the weary twenty-four hours when the physician gives him a kindly word, although only in passing. Let your natural feelings prompt you in your dealings with your patients and you can not go wrong, and you will be spiritual helps to your patients as well as physicians and surgeons. As men can not live on bread alone, patients can not get cured on drugs and splints alone.

Nomenclature of Synthetic Chemicals.—Pharmacists are frequently directed to dispense preparations about which they know absolutely nothing more than the fanciful name ending in al, en, ic, in or ol, says Golaz-Vevey (in *Schweiz. Woch. f. Chem. u. Phar.*). The names usually consist of (1) some arbitrary abbreviation of the descriptive chemical title; (2) some real or imaginary reference to the possible therapeutic uses of the remedy; or (3) some fanciful and usually far-fetched discovery of the manufacturer. Pharmaceutic and medical societies should demand that manufacturers furnish information on (a) the commercial as well as the exact chemical constitution of the preparation; (b) reliable tests for identity; (c) melting and boiling points; (d) solubility; (e) special incompatibility; (f) dose and therapeutic action; (g) necessary precautions that are to be observed in keeping the preparation. If this really necessary information were forthcoming in all cases, new preparations might be dispensed and used with some prospect of a more rational advance in therapeutics.

Ocean Voyage for Invalids.—From the *British Medical Journal* we learn that a large sailing vessel will leave Great Britain about the end of January for a long voyage in the Atlantic in warm latitudes. It will carry about fifty tubercular patients and a number of inebriate and other invalids. The consumptives will live on deck in the open air night and day, constantly breathing absolutely pure air containing much ozone. During the voyage the vessel will call at such ports as Gibraltar, Canary Islands, Rio Janeiro, River Plate, Table Bay, St. Helena, Pernambuco, West Indies, etc. Time will be given to the passengers to see something of the countries and their peoples, and to learn something of their customs and manners. Everything will be done on board to make time pass pleasantly, music, games of all kinds, books, fishing and boat sailing when possible, and it is also proposed to teach a foreign language (French or Spanish). There will be an efficient staff of physicians and nurses. This example might be advantageously followed in this country. Many patients who shrink from sanatorium treatment would enjoy such a voyage and would be greatly benefited thereby. The countries visited and the novelty of life aboard ship would be of sufficient interest to keep the patient's mind diverted from his physical condition—a most difficult matter to accomplish in a sanatorium.

Imagination as a Cause of Death.—Two or three stories in British newspapers illustrate the powerful effect the imagination can exercise over the phenomena of life. The *Medical Press* reports that in one case a girl, suffering from despondency of spirits, is said to have swallowed some harmless fluid in mistake for carbolic acid. She immediately declared that she had poisoned herself, and soon died, though we are left without any information as to the nature of the equally peculiar case, a young woman asked a druggist for laudanum, but the clerk, noticing her excited condition, supplied port wine. Shortly afterward she was discovered apparently suffering from opium poisoning, and the usual anti-opium treatment was successful. Though we have no authority beyond newspaper currency for either of these stories, says the paper cited above, there is nothing in them inherently impossible. Apart from the extraordinary mimicry of which hysterical subjects are capable, there are several well-authenticated instances in which death has been the result of quite imaginary causes, or rather of the fright resulting therefrom. Perhaps the best known of these is the case of the janitor of a Scottish university, who, being threatened with being beheaded by a party of students, was made to kneel before an improvised block, and was struck on the neck with a wet towel. To the astonishment of the students, he did not move, and was actually found to be dead.

Effects of Borax and Boracic Acid on Health.—Dr. H. W. Wiley, chief of the bureau of chemistry of the Department of Agriculture, in his report (recently issued) of the experiments undertaken by the bureau to ascertain the effects of borax and boracic acid on digestion and health, gives some interesting information regarding the experiments. The persons volunteering were required to sign a pledge agreeing to follow implicitly the rules and regulations governing the "hygienic table" and to take no other food or drink—water excepted—than that provided. Regular meals and regular hours and habits of life were prescribed and the individuals were examined every ten days by a physician of the Public Health and Marine-Hospital Service. Systematic examinations of blood, urine and feces were made to determine the amount of boric acid excreted and the method of excretion. The mental attitude of the individuals was also carefully noted. All the young men followed their usual vocations during the experiments. Dr. Wiley states that while some of "the members of the table were made temporarily ill by the quantities of the preservative administered, it is nevertheless an interesting fact to note that at the end of the year, after the final 'after-period' had been passed, they appeared to be, and declared themselves to be, in better physical condition than when they entered on the experimental work seven months before." This probably may be explained by the self-restraint, temperance and regularity in meals and in hours for sleep and work which were insisted on during the course of the experiments. It is evident that the tendency toward a good physical state and good health produced by the regular habits of life counteracted the unfavorable tendency of any preservative ingested, so that, though the preservative might have produced injurious effects, judged by the condition of the subject, the results of the experiment might be pronounced negative.

State Boards of Registration.

COMING EXAMINATIONS.

Board of Medical Registration for Vermont, Burlington. February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Colorado Report for 1904.—Dr. S. D. Van Meter, secretary of the Colorado State Board of Medical Examiners, reports the examinations held in Colorado during 1904. At each examination 70 questions were asked in 7 subjects, and percentage required to pass was 70. During the quarter ending March 31, 5 persons were examined, of whom 2 passed and 3 failed. Forty-six persons were licensed on diploma, 4 duplicate certificates were issued and 2 persons were refused license on diploma. During the quarter ending June 30, 4 persons were

examined, of whom 1 passed and 3 failed. One hundred and eighteen persons were licensed on diploma, 2 were refused on diploma, 1 was refused on the "ten-year clause," and one examination was deferred by request. During the quarter ending September 30, 2 persons were examined, both of whom failed. One hundred and sixteen licenses were granted on diploma, 3 duplicate certificates were issued, 5 were refused on diploma, one examination was deferred by request and one deferred, "ten-year clause." During the quarter ending December 31, 86 licenses were granted on diploma, 2 duplicates were issued, 3 licenses were refused on diploma, 2 persons were examined and failed, 2 applications on diploma were deferred and 2 examinations were deferred. All applicants who are refused a license on diploma have the privilege of taking the examination.

Indian Territory Reports.—Dr. B. W. Caldwell, secretary of the Board of Medical Examiners of the Central District, reports the written examinations held at South McAlester, July and October, 1904. At both examinations the number of subjects examined in was 13; questions asked, 130; percentage required to pass, 70, and not below 60 in any subject. At the examination July 5-7 the total number examined was 18, of whom 6 passed and 12 failed. Seventeen were undergraduates. At the examination held October 4-6, 1904, 34 were examined, of whom 16 passed and 18 failed.

Dr. E. E. Owens, secretary of the Medical Examining Board, Southern District, reports the written examinations held at Ardmore July 4-5, at Chickasha October 3-4, and at Paulo Valley November 7-8, 1904. At the examination held at Ardmore the number examined was 32, all undergraduates, of whom 9 passed and 23 failed. At the examination at Chickasha the number examined was 17, all undergraduates, of whom 6 passed and 11 failed. At the examination held at Paulo Valley the number examined was 33, all undergraduates, of whom 6 passed and 27 failed.

Kentucky October Report.—Dr. J. N. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination, held at Louisville, Oct. 3, 1904. The number of subjects examined in was 10; total questions asked, 100; percentage required to pass, 70, and not less than 60 in any one subject. The total number examined was 10, of whom 4 passed, 4 failed, and 2 withdrew from the examination. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Western Reserve Med. Coll	(1901)	92
Cleveland Homeo. Med. Coll	(1904)	85
Baltimore Med. Coll	(1904)	75
Miami Med. Coll	(1904)	80
FAILED.		
Baltimore Med. Coll	(1903)	60
Univ. of Maryland	(1904)	65
Louisville Hosp. Med. Coll	(1900)	49
Knoxville Med. Coll	(1901)	48
WITHDREW.		
Hosp. Coll. of Med	(1904)	
Louisville Med. Coll	(1903)	

Maine November Report.—Dr. W. J. Maybury, secretary of the State of Maine Board of Registration of Medicine, reports the oral and written examination held at Augusta, Nov. 15, 1904. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number examined was 17, all of whom passed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Coll. of P. and S., Boston	(1904)	85.8, 86.6
Med. School of Maine	(1904)	89.9, 87.5, 85.5
Harvard Med. School	(1904) 93.7, (1894) 93.2 (1892)	94.3
Univ. of Michigan	(1903)	95.9
Baltimore Med. Coll	(1904)	87.3
McGill Univ.	(1904)	84
Tufts Coll. Med. School	(1902)	92
Eclectic Med. Coll., Milwaukee	(1895)	84.5
Hahnemann Med. Coll., Chicago	(1901)	87
Medico-Chirurgical Coll., Philadelphia	(1904)	88.5
Boston Univ. Med. School	(1904)	92
Coll. of P. and S., Baltimore	(1904)	87.3

Missouri Report for 1904.—Dr. W. F. Morrow, secretary of the Missouri State Board of Health, reports the written examinations held in Missouri during 1904. The number of questions asked at each examination was 12, and percentage required to pass, 75. At the examination held in Kansas City in April 25 persons were examined, of whom 19 passed and 6 failed. The following colleges were represented:

	Per Cent.
PASSED.	
Medico-Chirurgical Coll., Kansas City	75, 76, 81
University of Michigan	80
College of P. and S., Chicago	78, 75
Eclectic Medical University	75
Barnes Medical College	77
University Med. Coll., Kansas City	75, 78, 75, 79, 80
Woman's Med. Coll., Kansas City	85, 78
University of Louisville	78
Creighton Medical College	84, 77
Tennessee Medical College	80
FAILED.	
University of Louisville	68
Eclectic Medical University	60
Barnes Medical College	65
Central Medical College, St. Joe	70
Medico-Chirurgical College, Kansas City	69, 60

At the examination held in St. Louis, April 19-21, 69 persons were examined, of whom 52 passed and 17 failed. The following colleges were represented:

	Per Cent.
PASSED.	
Marion Sims-Beamont Med. Coll	83, 82, 79, 77, 77, 76
St. Louis University	80, 79, 76, 84, 81
St. Louis Homeo. Med. Coll	78
Barnes Medical College	85, 85, 80, 77, 78, 75, 75
College of P. and S., St. Louis	81, 75, 75, 76
University of Michigan	80
Washington University	80, 78, 81, 82, 79, 75
Meharry Medical College	78, 85
Rush Medical College	77
Hospital College of Medicine	76
Harvard Medical Department	77
Medico-Chirurgical College, Philadelphia	79
University of Kentucky	76, 75
Kentucky School of Medicine	75, 76, 77
American Medical College	78, 77, 79, 75, 76, 80, 78
College of P. and S., Chicago	78
Homeopathic College of Medicine	77, 79
University of the City of New York	79
FAILED.	
Barnes Medical College	68, 71, 70, 67, 70, 69
Marion Sims-Beaumont Medical College	69
American Eclectic Medical College	60, 70
Meharry Medical College	68
Washington University	71, 70
University of Kentucky	69
Louisville Medical College	55
College of P. and S., St. Louis	67, 70
University of the South	70

The general average attained by all representatives of the Marion Sims-Beaumont Medical College who passed at this examination was 79; of all representatives of Barnes Medical College who passed, 79.4; of Washington University, 79.1.

At the examination held in Kansas City, June 20-22, 25 persons were examined, of whom 19 passed and 5 failed. The following colleges were represented:

	Per Cent.
PASSED.	
University of Tennessee	78
Rush Medical College	80, 84, 80
Hering Medical College, Chicago	75
Central Medical College, St. Joe	81
Western Reserve University	79
Barnes Medical College	77
Jefferson Medical College	86
Keokuk Medical College	78
Hahnemann Medical College, Philadelphia	81
Chicago Homeopathic Medical College	75
University of Nashville	76, 78
Washington University	76
Louisville Medical College	75, 81
Creighton Medical College	76
College of P. and S., Keokuk	75
FAILED.	
Miami Medical College, Cincinnati	60
Kansas City Medical College	70
Eclectic Medical University, Kansas City	69
Keokuk Medical College	60
College of P. and S., Keokuk	68

At the examination held in St. Louis, September 19-21, 41 persons were examined, of whom 31 passed and 10 failed. The following colleges were represented:

	Per Cent.
PASSED.	
Northwestern University	77, 76
University of Missouri	79, 84
Johns Hopkins University	80
Medical College of Ohio	76
Rush Medical College	80, 77
Harvard University	83
Illinois Medical College	78, 80
University of Michigan	79
Missouri Homeopathic Medical College	75
Milwaukee Medical College	75
University of Kentucky	76, 79
Keokuk Medical College	76
University of Maryland	77
American Medical College	78
University of Iowa	78
St. Louis University	76, 76, 78
University Medical College, Kansas City	78
Barnes Medical College	78, 75, 80
College of P. and S., Chicago	75
Harvey Medical College, Chicago	77
Marion Sims-Beaumont Medical College	78, 79
FAILED.	
Kentucky School of Medicine	65, 71
College of P. and S., St. Louis	69, 71

Grant University	68
St. Louis University	69
Eclectic Medical College, Kansas City	70
College of P. and S., Keokuk	50
Keokuk Medical College	65
American Medical College	69

At the examination held in St. Louis, December 19-21, 82 persons were examined, of whom 42 passed and 40 failed. The following colleges were represented:

PASSED.

	Per Cent.
Barnes Medical College, the grade of 75 was reached by two, 76 by three, 77 by three and 80 by one.	
Missouri Homeopathic Medical College	79
Kentucky School of Medicine	77, 77
Starling Medical College	78
Rush Medical College	77
Louisville Medical College	76
St. Louis University, the grade of 75 was reached by three, 76 by two, 77 by three, 78 by one and 81 by one.	
College of P. and S., Keokuk	76
College of P. and S., St. Louis	77, 75, 75
Washington University	80, 76
Northwestern University	79
Eclectic Medical Institute	78
College of P. and S., Chicago	75
Woman's Medical College, Pennsylvania	85
American Medical College	76, 75
Marion Sims-Beaumont Medical College	80, 76, 75, 80

FAILED.

Barnes Medical College, the grade of 52 was reached by one, 54 by one, 55 by two, 60 by three, 63 by one, 65 by one, 66 by four, 67 by two, 68 by five, 69 by four, 70 by one.	
University of Louisville	60, 54
Marion Sims-Beaumont Medical College	62, 68
Medical College of Alabama	68
College of P. and S., St. Louis	69, 69, 66, 70, 63, 40
Ohio Medical University	63
Missouri Homeopathic Medical College	60
American Medical College	64, 65

The general average attained at this examination by all representatives of Barnes Medical College who passed was 76.5; of all representatives of St. Louis University who passed, 77.3.

During the year 300 persons were registered on diploma.

New York Report for 1904.—Dr. Charles F. Wheelock, secretary of the New York State Board of Medical Examiners, reports the examinations held at Albany, Buffalo, New York and Syracuse during 1904. The total number of persons examined during the year was 793, of whom 667 passed and 126 failed. The following colleges were represented:

PASSED.

Albany Medical College had 40 representatives; Bellevue Medical College and Hospital, 49; College of P. & S., New York City, 160; Cornell University, 58; Eclectic Med. Coll. of the City of New York, 9; Long Island College Hospital, 45; New York Homeo. Medical College and Hospital, 27; New York Medical College and Hospital for Women, 9; New York University Medical College (1897), 1, 30; Syracuse Medical College, 30; University of Buffalo, 43; Yale, 9; Columbia University, 2; Georgetown University, 3; Howard University, 1; Harvard University, 6; Chicago Homeopathic Medical College, 1; College of P. & S., Chicago, 1; Northwestern University, 3; Rush Medical College, 3; Bowdoin Medical College, 1; Baltimore Medical College, 12; Baltimore University School of Medicine, 4; College of P. & S., Baltimore, 4; Johns Hopkins University, 14; University of Maryland, 1; Boston University School of Medicine, 4; Tufts Medical College, 1; Detroit College of Medicine, 2; University of Michigan, 5; University of Minnesota, 1; Omaha University, 1; Dartmouth Medical College, 1; College of P. & S., Cleveland, 2; Eclectic Medical Institute, Cincinnati, 1; Hahnemann Medical College and Hospital, Philadelphia, 6; Jefferson Medical College, 11; Medico-Chirurgical College, Philadelphia, 1; University of Pennsylvania,, 15; Western Pennsylvania Medical College, 2; Woman's Medical College, Philadelphia, 10; South Carolina Medical College, 1; University of Nashville, 2; University of Vermont, 3; University College of Medicine, Richmond, Va., 1; University of Virginia, 4; University of Vienna, 2; Laval University, Canada, 1; McGill University, 5; Ontario Medical College for Women, 2; Queens University, Kingston, Canada, 2; Trinity University, Canada, 1; University of Toronto, 5; University of Berlin, 2; University of Bonn, 1; University of Erlangen, 2; University of Munich, 2; University of Wurzburg, 1; University of Naples, 15; University of Palermo, 3; University of Rome, 2; University of Siena, 1; University of Turin, 1; University of Moscow, 2; University of St. Vladimir, 1; University of Edinburgh, 1; University of Glasgow, 1; University of Zurich, 1; American School of Medicine of the Syrian Protestant College, Beirut, Turkey, 1. License to practice medicine in the German Empire, 1.

FAILED.

Albany Medical College, 1 representative; College of P. & S., New York City, 5; Cornell University, 1; Long Island College Hospital, 1; University and Bellevue Hospital Medical College, 2; University of Buffalo, 4; Howard University, 1; College of P. & S., Chicago, 1; Illinois Medical College, 1; Keokuk Medical College, 1; Kentucky School of Medicine, 1; University of Kentucky, 1; University of Louisville, 1; Baltimore Medical College, 1; Baltimore University School of Medicine, 4; Tufts Medical College, 1; University of Michigan 1; Marion Sims Medical College, 1; Cleveland University of Medicine and Surgery, 1; Jefferson Medical College, 2; University of Pennsylvania, 1; University of Vermont, 3; University of Budapest, 1; University of Koenigsberg, 1; University of Athens, 1; University of Naples, 19; University of Bucharest, 2; University of Dorpat, Russia, 1; Karolinsko Medico-Chirurgical Institute, Stockholm, 1.

Vermont April and October Reports.—Dr. W. Scott, secretary of the Vermont State Board of Medical Registration, reports the written examinations held at Burlington in April and October, 1904. At each examination the number of subjects examined in was 8; total questions asked, 80; percentage required to pass, 70. At the April examination 4 persons were examined, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Vermont	(1901) 78, (1902)	76
Amer. Med. Miss. Coll., Chicago	(1901)	81
Ohio Medical College	(1897)	77

At the October examination 8 persons were examined, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
McGill University	(1902)	87
University of Vermont	(1904)	76, 70
Baltimore Med. Coll.	(1904)	86
Jefferson Med. Coll.	(1903) 80, (1904)	74
Dartmouth Med. Coll.	(1901)	84
Cornell University	(1904)	85

Washington Will Not Reciprocate.—The Washington State Board of Medical Examiners is said to have declined the request of the Illinois State Board of Health to establish reciprocity. The board is quoted as saying that it desires to treat all applicants alike, and that it will require all newcomers from whatever state to take the examination.

Association News.

Yellowstone Park and Portland Special.

As announced last week, it is proposed to run a special train to Portland, leaving Chicago June 30, stopping six days at the Yellowstone Park, and arriving at Portland on Monday morning, July 10. It is necessary to arrange with the park management some months beforehand for the dates required and for this reason it is essential to know at once whether a sufficient number will probably go to warrant running such a train. Will those who think they would like to go on such a train notify THE JOURNAL at once? Several letters have been received in response to the notice last week, and, as questions asked in these may be asked by others, we answer them here. One member asks if he can stop off for a month at Denver on his return; another wants to stop over at Glenwood Springs, and another at Dickenson, N. D. All these privileges can be obtained. The time limit to the tickets is fixed at 90 days from the time of starting until returning, and the railroads will be liberal in giving stopovers on the return trip, but probably not on the outward trip. One member asks if something can not be done to avoid the trouble usually met with in getting tickets endorsed for the return trip; in other words, as the correspondent puts it, "can not there be less red tape?" Replying to this: The western roads are not given to so much "red tape" as is the case with those of the East, for it is not necessary. Possibly one or two roads will issue tickets that will have to be deposited, but the majority of the roads will not require this.

The extra expense necessary for the week at the park will be less than $50. This will include coaches, hotel expenses —in fact, everything. The number will be limited to 250.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Jan. 28, 1905:

Ford, Clyde S., asst.-surgeon, ordered to proceed from Fort Barrancas to Ormond, Florida, on public business.

Brechemin, Louis, Jr., asst.-surgeon, left Fort Baker, California, on thirty days' leave of absence.

Wythe, Stephen, contract surgeon, assigned to duty January 11 at Fort Baker, California.

Merrick, John N., contract surgeon, returned to duty at Fort Missoula, Montana, January 16 from leave of absence.

Brooks, John D., contract surgeon, returned to duty at Fort Meade, South Dakota, January 18 from leave of absence.

Whinnery, Jean C., dental surgeon, arrived at Vancouver Barracks, Washington, January 17 from leave of absence.

Ware, William H., dental surgeon, left Fort Logan, Colorado, January 21 for temporary duty at Fort Wingate, New Mexico.

Wing, Franklin F., dental surgeon, arrived at Fort Meade, South Dakota, January 20 for temporary duty.

Adair, George W., contract surgeon, granted leave of absence for two months about February 1.

Lemmon, Robert, contract surgeon, ordered from Fort Terry, New York, to Fort Wadsworth, New York, for temporary duty.

Holmes, Thomas G., contract surgeon, arrived January 24 at Fort Sheridan, Illinois, for temporary duty.

Marvin, Marion H., contract surgeon, arrived at San Francisco January 15 on one month's leave of absence from the Philippine Division.

Casaday, George H., dental surgeon, arrived at San Francisco January 15 on three months' leave of absence from the Philippine Division.

Sparrenberger, Frederick H., contract surgeon, granted leave of absence for ten days.

Nash, Francis S., contract surgeon, availed himself January 25 of leave of absence for four months.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending January 28, 1905:

Henneberger, L. G., medical inspector, detached from the *Olympia* and ordered home to wait orders.

Graove, W. B., surgeon, ordered to the Naval Hospital, Chelsea, Mass., January 30.

Wilson, G. B., surgeon, detached from the Naval Hospital, Chelsea, Mass., and ordered to the *Colorado*.

Steele, John M., surgeon, detached from the *Colorado* and ordered to the *Olympia*.

Odell, H. E., P. A. surgeon, ordered to the Naval Hospital, New York.

Taylor, J. L., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant (J. G.) from Dec. 17, 1904.

Crandall, R. P., surgeon, detached from the *New Orleans* and ordered home to wait orders.

Geiger, A. J., asst.-surgeon, detached from the *Prairie* and ordered to the Naval Station, Port Royal, S. C., for temporary duty.

Curl, H. C., P. A. surgeon, detached from duty with the Isthmian Canal Commission on the Isthmus of Panama and ordered to the *Boston*.

Guthrie, J. A., P. A. surgeon, ordered to the *Dixie*, sailing from New York on or about February 4.

Leys, J. F., P. A. surgeon, detached from the Naval Station, Guam, L. I., and ordered home to wait orders via *Solace*.

Stepp, J., asst.-surgeon, ordered to the *Constellation* and to additional duty at the Naval Training Station, Newport, R. I.

Ely, C. F., asst.-surgeon, detached from the Naval Academy and ordered to duty with the Marine Detachment on the Isthmus of Panama, sailing from New York January 31.

Baker, M. W., asst.-surgeon, detached from the *Brooklyn* and ordered to the Naval Hospital, San Juan, P. R.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 25, 1905:

Earle, B. H., asst.-surgeon, granted leave of absence for three days from Jan. 21, 1905. Granted extension of leave of absence for four days from January 25.

Foster, S. B., A. A. surgeon, granted leave of absence for twelve days from January 24.

Goodman, F. S., pharmacist, granted leave of absence for seven days from January 24.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Jan. 27, 1905:

SMALLPOX—UNITED STATES.

Colorado: Dec. 1-31, Garfield Co., 11 cases; Lake Co., 5 cases; Larimer Co., 18 cases; Las Animas, 1 case; Weld Co., 1 case.
District of Columbia: Washington, Jan. 8-21, 4 cases.
Florida: Jacksonville, Jan. 8-14, 1 case.
Illinois: Chicago, Jan. 15-21, 18 cases, 1 death.
Louisiana: New Orleans, Jan. 15-21, 13 cases, 4 imported.
Michigan: Detroit, Jan. 15-21, 2 cases.
Missouri: St. Louis, Jan. 15-21, 24 cases, 1 death.
Tennessee: Jan. 15-21, Memphis, 10 cases, 3 imported; Nashville, 3 cases.
Wisconsin: Milwaukee: Jan. 15-21, 6 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Prague, Dec. 25-31, 5 cases.
Brazil: Pernambuco, Dec. 2-15, 85 deaths; Rio de Janeiro, Dec. 26-Jan. 1, 73 cases, 23 deaths.
France: Paris, Jan. 1-7, 10 cases, 1 death.
Great Britain: Dundee, Dec. 25-31, 3 cases; Jan. 1-7, Leeds, 4 cases; London, 1 case; Manchester, 1 case; Newcastle-on-Tyne, 4 cases; Nottingham, 1 case.
India: Karachi, Dec. 17-25, 2 cases.
Italy: Catania, Dec. 30-Jan. 5, 4 cases.
Peru: Callao, Dec. 17, 1 case from S. S. *Leo Valparaiso* via immediate ports.
Russia: Moscow, Dec. 8-14, 2 cases, 1 death; Dec. 25-31, Odessa, 1 case, 1 death; St. Petersburg, 3 cases, 3 deaths.
Straits Settlements: Singapore, Dec. 4-10, 2 deaths.
Turkey: Constantinople, Dec. 26-Jan. 1, 24 deaths; Smyrna, Nov. 20-27, 1 death.
Venezuela: Vicinity of Macuto, Jan. 1-7, 15 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, ec. 26-Jan. 1, 1 case.
Cuba: Habana, Jan. 10, 1 death from S. S. *Dora* from Laguayra and Colon.
Panama: Panama, Jan. 1-15, 5 cases, 1 death.
Venezuela: Caracas, Dec. 17-Jan. 7, 1 death; vicinity of Laguayra, Jan. 1-7, 6 deaths.

CHOLERA.

Russian Empire: Astrakan government, Nov. 23-29, 6 cases; Nov. 23-Dec. 7, Baku government, 66 cases; Erivan government, 502 cases, 238 deaths; Samara government, 32 cases; Saratov government, Nov. 23-29, 40 cases, 19 deaths; Telisavetpol government, Nov. 23-Dec. 7, 68 cases; Transcaspian territory, Serachs province, Nov. 23-Dec. 7, 47 cases, 27 deaths; Uralsk, Dec. 28, epidemic.
Turkey: General, Nov. 28-Dec. 12, 396 cases, 287 deaths.

PLAGUE.

Arabia: Dec. 25-31, Crater (hospital), 41 cases, 33 deaths; Maalla, 2 cases, 2 deaths; Hadjuff (hospital), 2 cases, 2 deaths; Alia Islands, 5 cases, 2 deaths.
Argentina: Salta State, Dec. 14, 1 case.
Brazil: Rio de Janeiro, Dec. 26-Jan. 1, 20 cases, 11 deaths.
Cape Colony: Port Elizabeth, Dec. 4-10, 2 cases.
Chile: Arica, Dec. 1, present.
Formosa: Dec. 5-11, 44 cases, 35 deaths.
India: Karachi, Dec. 19-25, 54 cases, 51 deaths.
Peru: Eten, Nov. 1-Dec. 11, 24 cases; Lambayeque, Nov.-Dec. 11, 13 cases; Lima, Nov. 16-Dec. 11, 14 cases; Pacasmayo, Dec. 11, present.

Society Proceedings.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, held Jan. 3, 1905.

Dr. J. Arthur Booth, President pro tem., in the Chair.

Exophthalmic Goiter in a Child.

DR. J. ARTHUR BOOTH reported the case of a girl, 13 years old, whose family history was negative. The child had suffered from measles, whooping cough and scarlet fever in infancy, but there was no history of fright, nor could any other etiologic factor be discovered. The exophthalmos was first noticed when the child was 11 years old. Six months later the enlargement of the thyroid became noticeable. The exophthalmos and thyroid enlargement were very marked, as well as the tachycardia, the pulse ranging between 120 and 140 per minute. There was also tremor, general nervousness, sweating, insomnia and occasional headaches. The interesting feature of the case was the early age at which the disease manifested itself.

Adenoma of the Pineal Gland.

DR. ADOLF MEYER presented a man who, when diving, struck the top of his head. Following this he complained of headache. He became blind in 1898, with chiasma symptoms. In 1899 he had transitory attacks of numbness on the left side of the face, except in the area of the middle branch. From that time on there was difficulty in moving the lower jaw toward the left. There was no atrophy of the masseter. In August, 1900, cerebrospinal fluid began to drip from the right nostril, with considerable relief of the general symptoms. On the few occasions when the flow stopped the patient would become sleepy and stuporous for two or three days. During May and October, 1902, the patient, who was then 22 years old, had several general convulsions. In January, 1904, death occurred in a status epilepticus. The only permanent symptoms had been weakness of the left side of the jaw, a small area of loss of pain sensation of the left lower corner of the mouth, and subjective numbness in the left side of the tongue. The gait remained normal; the knee jerks were both increased; there was no clonus. At the autopsy an adenoma of the pineal gland was found. It had pressed itself through the roof of the midbrain behind the posterior commissure, protruding into the third and fourth ventricle and displacing the posterior corpora quadrigemina; the adenoma had practically no sand and but slight pigmentation. The right lateral ventricle had a funnel-shaped depression in its anterior end, with a perforation through the cortex.

A Unique Case of Fracture Dislocation of the Spine.

DR. J. RAMSAY HUNT reported the case of a man, 45 years old, who gave a history of syphilis followed by suppurating bubo and numerous attacks of gonorrhea. In 1895 he fell three stories through an air-shaft. He was unconscious for a few

minutes. Following the accident he complained of severe pains in the back. Both legs were partially paralyzed. After the accident an angular deformity of the spine was noted, which still exists. It is located about the level of the twelfth dorsal vertebra, and it was safe to assume that the spine had suffered a fracture—dislocation at that point—and that the spinal cord had been injured at the same time. After remaining in bed for two months the legs began to improve, and six or seven months later he was able to resume his occupation as a truck driver. One year after the injury he was suffering no pain or inconvenience, although his legs were not quite as strong as they were before the accident. He could not run as fast as formerly, owing to a slight stiffness in the knees. There was no sensory nor vesical symptoms during this period. For four years or more the patient remained in this condition. About three years ago he began to complain of sensations of numbness and cold in the feet and legs, accompanied by stiffness and weakness. On stooping he felt a numbness in the lower portion of the back, extending down the posterior aspects of the thighs and legs. During the past two years these symptoms progressed slowly and steadily, without any sudden exacerbation, and without acute pain. The left leg was weaker than the right, and it was important to note that this was true of the initial paralysis and the long period of disability during convalescence. The patient now has a well-marked kyphosis, the tip of which corresponds to the twelfth dorsal vertebra. There is a posterior bilateral band of hyperesthesia at the same level. The spinal column is fairly mobile and is not tender to pressure. There is spastic paraplegia of the lower extremities, with the spasticity and clonus more marked on the left side. Babinsky phenomenon on both sides. The skin reflexes are present and there are distinct objective sensory disturbances in the lower extremities. The man is able to stand fairly well with his eyes closed. He has considerable difficulty in urination, with occasional incontinence. His sexual power apparently was unaffected. Coarse myokymic twitchings are present in the back below the level of the lesion; also in the buttocks, thighs and legs, especially their posterior aspect, after exertion and exposure to the cold. Occasionally during the past year he has had sharp shooting pains in the course of the sciatic nerves, causing reflex movements in the legs. These are more pronounced on the left side.

Dr. Hunt's second patient was an elevator operator, 22 years old, who about two months ago fell six stories with his elevator. He was unconscious fifteen minutes after the fall. On examination it was found that he had suffered a fracture-dislocation of the spine, the deformity extending from the eleventh dorsal to the second lumbar vertebra. Six weeks later there was an oval area of anesthesia over the anterior and lateral surfaces of the right thigh. The right knee jerk was absent. The left leg was weak and spastic, with clonus. The Babinsky reflex was not elicitable on either side. A girdle sensation was felt in the lower abdominal region, especially on the right side. There was difficulty on urination.

DISCUSSION.

DR. JOSEPH FRAENKEL thought that pressure on the cord due to an osseous lesion would give rise to more severe symptoms than were present in the first case. He suggested the possibility of a post-traumatic hematomyelia.

Diffuse Cauliflower-Like Puckering of the Cortex in Arteriosclerotic Epilepsy.

DR. ADOLF MEYER showed a brain which showed a form of vascular affection, principally of the cortical terminals, in a syphilitic, 55 years old. There was mental deterioration, with epilepsy, for twelve years, and slowly progressing left hemiplegia during the last year of life. The small vessels of the pia in the affected regions were diffusely occluded. The lesions affected principally the occipital lobes. In the temporal and parieto-frontal regions the convolutions bordering on the sylvian fossa were intact.

DISCUSSION.

DR. T. P. PROUT found that one case he had observed belonged to the realm of the infantile cerebral palsies, on which epilepsy was subsequently ingrafted.

DR. FRAENKEL said that he had seen quite a number of cases in which epileptiform seizures developed late in life, accompanied by some mental deterioration. The diagnosis was of importance, because in a younger person such a condition would be regarded as a general paresis. These seizures could usually be differentiated from those of ordinary epilepsy by the slight focal symptoms.

Officers Elected.

The annual election resulted as follows: President, Dr. Joseph Fraenkel; vice-presidents, Drs. J. Arthur Booth and Smith Ely Jelliffe; recording secretary, Dr. J. Ramsay Hunt; treasurer, Dr. G. M. Hammond; corresponding secretary, Dr. F. K. Hallock.

AMERICAN PUBLIC HEALTH ASSOCIATION.

(*Continued from page 316.*)

Meeting of the Laboratory Section, held at the General Wood Laboratory, Havana, Cuba, Jan. 9, 1905.

The Chairman, Dr. V. A. Moore, Ithaca, N. Y., in the Chair.

The session was devoted largely to water and sewage. Mr. George W. Fuller of New York, chairman of the Committee on Standard Methods of Water Analysis, submitted an exhaustive report on the changes and improvements in the methods that are being used in bacteriologic tests of water. The report was ordered to be distributed to bacteriologists both in this country and in Europe.

Reports of committees on a variety of technical subjects and several papers on bacteriologic topics were read.

The Persistence of Agglutinability in Typhoid Bacilli in Water.

PROF. EDWIN O. JORDAN, Chicago, drew the following conclusions: (1) That the typhoid bacillus may be isolated without special difficulty after association with bacillus coli in tap water and sewage for from at least twelve to twenty days. (2) That some strains of bacillus typhosus retain their property of agglutinability absolutely intact under these conditions.

A Cause of the Formation of Gas in Cans of Condensed Milk.

MR. CHARLES W. DODGE, Rochester, N. Y., stated that bacteriologic investigations of the condensed milk in cans, which were found to bulge shortly after their preparation, failed to find any micro-organisms which, either singly or in combination, would cause the fermentation of either dextrose or lactose under a variety of conditions usually favorable to such fermentations. Neither would the milk itself from such cans cause fermentation in fresh milk. It was found, however, that when dilute solutions of butyric or lactic acid, varying from 1:200 to 1:500 in distilled water, were allowed to act upon the metal of which the cans were made, a slow evolution of gas took place, its rapidity being inversely as the dilution of the acid. It is probable that in the instance cited, the gas was formed not by the bacteria directly, but by the electrolytic action between the metal of which the cans were composed and the acids generated by the growth of bacteria in the milk before the latter was condensed.

An Unusual Channel of Infection with the Shiga Bacillus.

MR. DODGE stated that a laboratory worker accidentally broke a test tube containing a culture of the Shiga bacillus, and some of the fluid was carried to his eye and was probably washed down into the pharynx. Twenty-four hours later typical clinical symptoms of acute dysentery appeared, and lasted for several days. This occurrence of the accident and the infection may be merely a coincidence, but, if not, the occurrence throws light on the rapidity of infection in dysentery in man.

An Improvement in the Technic of the Indol Test.

DR. JOSEPH MCFARLAND and DR. J. HAMILTON SMALL, Philadelphia, devised the following improved technic for determin-

ing the presence of small quantities of indol in bouillon cultures: The culture to be tested receives an addition of one drop of chemically pure sulphuric acid for each cubic centimeter of fluid, this being well shaken. In case the microorganisms produce both indol and nitrites, the red color now makes its appearance. When, however, the organisms produce no nitrites, the usual dilute solution of potassium nitrite is allowed to trickle slowly down the side of the tube and form a layer on the surface of the fluid it already contains. The red color of the nitroso-indol now makes its appearance at the line of contact of the two fluids. Tests on artificially prepared solutions of indol of upwards of 1:750,000 gave positive results. The authors stated that this improved method is applicable for showing the presence of indol in melted gelatin cultures. After the gelatin has hardened, the color ring is fixed for a period of from twelve to twenty-four hours, when the color becomes diffuse.

MR. FREELAND HOWE, JR., detailed some results in the use of different kinds of nutrient media with different periods of incubation, and gave the results of observations on the water of the Susquehanna river at Harrisburg, Pa.

DR. F. C. HARRISON, Guelph, Ont., gave the results of an examination of the water supply of Frederickton, N. B. He discussed briefly the sewerage and water supply systems of that city.

MR. EARL B. PHELPS, Boston, contributed some notes on the determination of the organic nitrogen in sewage by the Kjeldahl process.

Election of Officers of the Laboratory Section.

Chairman, Dr. Wm. H. Park, New York; vice-chairman, Mr. H. W. Clark, Boston; secretary, Dr. John S. Fulton, Baltimore; recorder, Dr. H. D. Pease, Albany.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.,
CHICAGO.

(*Concluded from page 320.*)

TAJ MAHAL.

The Royal Tomb, Taj Mahal, at Agra, is the most costly and the most beautiful mausoleum in the world. It was built by Emperor Shahjehan Jeman for his wife, Bagum. It was commenced in 1629 and completed in 1648. It is the most significant landmark of the power, glory and wealth of Turkish rule in India, and Agra to-day is a very important stronghold of Mohammedanism in India, as one-half of its population of 150,000 are Mussulmen. How so much money could be spent in memory of even a beloved empress surpasses all understanding. The entrance to the building which contains the tomb is a specimen of exquisite architectural art. From the entrance a pathway, paved with the purest white marble, leads to the main building, lined by columns of the same material and on each side a row of arbor vitæ, the tree so constantly found in Mohammedan cemeteries.

> "Thou must leave thy lands, house and beloved wife, nor shall any of those trees follow thee, their short-lived master, except the hated cypress."—Horatius.

The passage between pools and fountains and lovely flowers and shrubbery up to the steps of the magnificent marble building characterized by symmetry and beauty in which the precious ashes of the empress have found their last resting place, is unequaled in the world for its exquisite architectural design. The real tomb is in the basement, side by side with that of her husband. The emperor had planned a separate mausoleum for himself of black marble on the opposite side of the Jumna. The building was commenced on a large scale, but death overcame him prematurely and he now shares the ample space of the mausoleum which was intended exclusively for the last resting place of his wife.

DELHI.

Delhi is unquestionably the most interesting city in India. I mean by this not Delhi of to-day with its 300,000 inhabitants, but the Delhi of long, long ago with its ruins of palaces, temples and tombs spreading over a length of ten miles by a breadth averaging a little less than six. In this area are comprised the traditional "seven castles and fifty-two gates" spoken of as far back as 1611 by the merchant Finch. This entire area is literally strewn with remnants of the glory of the Delhi of the past. The palace of the Moguls within the fortress of Delhi is a magnificent specimen of Indian architecture, a combination of symmetry and beauty of design. The road from Delhi to the old town of Qutab, twelve miles distant, passes over and on each side as far as the eye can reach ruins of former wealth and power come into view. In this great stretch of country millions and millions of people have lived and struggled centuries ago when Delhi was the Rome of India. The most conspicuous landmark of ancient history here is the minaret Qutab, 238 feet high, sloping from the foot. Although struck twice by lightning, it remains in a good condition of preservation, a strong reminder of the former powerful Mohammedan reign. The remaining historical ruins of Old Delhi in the immediate neighborhood of the colossal minaret are the mosque and tombs of Altamsh and Adham Khan, noted for their simplicity and architectural beauty. I met here a guard, a native, an old veteran who served under Lord Roberts during the Cabul war. He was proud of the decoration he wore on his breast, but, like all other guards in charge of public institutions, his right hand was converted into a big shallow cup for the reception of a handsome tip when I was ready to say goodbye. I took breakfast at the Rest House, kept by a Turk. In view of the nationality of the host, I expected to enjoy a good cup of coffee. The stuff that was served as coffee was absolutely beyond criticism. I asked to be shown the coffee used in its preparation. I was handed a package wrapped in a yellow paper and containing a pitch black pasty mass. It bore the following delusive label: "Symington's French coffee, prepared as in Paris and blended with the finest chicory." Judging from the taste and smell of the black infusion I became satisfied that it was made from poor chicory without even a blending of coffee. During our return trip the mercury in the thermometer went up to 126 F.

The Royal Palace in Delhi, within the great fort on the bank of the Jumna river, is in a good state of preservation and an imposing example of ancient Indian architecture. The great temples, old and new, scattered all over India, remind one very forcibly of:

> "No nation is so barbarous, no one so savage, whose mind is not imbued with some idea of the gods. Many entertain foolish ideas respecting them, yet all think that there is some divine power and nature."—Cicero.

Their grandeur and beauty suggest:

> "There's nothing ill can dwell in such a temple; if the ill-spirit have so fair a house, good things will strive to dwell within it."—Shakespeare.

A PARSEE WOMAN DOCTOR.

On my arrival at Jaipur the proprietor of the Rustem Family Hotel informed me that the only other guest in the house was a very distinguished Parsee woman doctor. He said that her reputation has spread all over India and that she was well known in the medical circles of Europe. Naturally these statements excited my interest. I was anxious to get some particulars of the medical and surgical work of women in India and to obtain additional information regarding the status of gynecology and obstetrics in that country. At dinner she occupied a seat opposite me at the table. She was a woman well beyond blooming youth with a yellow, freckled face, coal black eyes and hair. She was dressed in flowing silk of different colors, with ruby red in the lead, and displayed a profusion of what

appeared to me cheap jewelry. She displayed a nervous disposition. She brought a new book with her, which she seemed not to read, but glance over in a very nervous manner during and between courses. The attention paid to her by the waiters proved to me that she was no stranger in the house. The proprietor of the house was, like her, a Parsee, a fire worshiper. From the appearance and behavior of the woman I became satisfied that I had a colleague to deal with from whom I had little to expect in the way of professional courtesy, and yet a possible opportunity to increase my stock of medical and surgical knowledge from such a rare source was too tempting not to make an effort to obtain it. With many misgivings I made the attempt very cautiously. Nothing but an occasional timid, lightning glance was exchanged during dinner. After dinner I sent my servant to her room with my card. He returned a few moments later with the discouraging information, "The lady is too tired." Disappointed as I was in receiving this not entirely unexpected news, I had the satisfaction of knowing that I had done what I deemed my duty. The next day I was "too tired," because in the meantime I had ascertained that the much famed Parsee woman doctor knew more about fire worship than medicine. A strict armed neutrality was maintained on both sides during the remaining time we were obliged to live under the same roof and to eat at the same table. A red cloth-bound book was her invariable silent table companion. It was not a medical book. It must have been either a novel or some occult treatise on fire worship. Of the meeting with this woman I can not say, as of all other members of the medical profession that I had the pleasure of meeting on my long journey:

"Friendship, mysterious cement of the soul.
Sweet'ner of life and solder of society."—Blair.

A SICK ELEPHANT.

From Jaipur I made a trip to the old capital city, Amer, its palace and wonderful mountain fortifications, eight miles distant from the present seat of government of Jaipur state. The old city is enclosed by mountain ridges 1,500 to 2,000 feet high, all strongly fortified. The city is now in ruins and nearly deserted. The palace and fortifications are in good repair. It was arranged the evening before that I should go by carriage as far as the base of the mountain, where an elephant would be in waiting, who would take me over the mountain ridge to the old city, and from there up the steep incline to the palace and fortification. When morning came I was informed that the elephant was sick and that a bullock cart would be sent instead. In making inquiry regarding the elephant's sickness I ascertained that the huge beast, quite old, had for several years been suffering at intervals from acute attacks of illness. He would fall down suddenly, with great pain. These attacks would last from three to four hours, when he would recover and remain in apparently good health until the next attack. I am quite confident that this giant beast is the subject of gallstone of enormous size and that it is only a question of a short time before he will die from a complicating suppurative inflammation of the bile ducts. When we came to the foot of the mountain the bull cart was conspicuous for its absence. I was determined to see the old city, palace and fortification, and there was no other alternative left but to make the trip of two miles and the climb of 1,500 feet on foot in a temperature of 132 F. as registered by my thermometer. It is needless to say that when I reached the palace my clothes were not only wet through and through, but my feet and socks were soaked in sweat that ran down the legs in streams.

After seeing the sights the belated bullock cart arrived, and on it I made the return trip. The cart was a first-class one, but what a vehicle! I first tried to ride à la native by doubling myself up in monkey style. As the springless rough cart jumped over stones, into and out of ruts, this position soon became unendurable. If it had not been for my inborn pride to surmount hardships I would gladly have jumped out, paid the owner and his old wife, who accompanied us and who helped her spouse in keeping the bullocks in motion for their trouble, and returned as I came, on foot. As it was, I rendered my position endurable by sitting crosswise in the cart with the numb legs hanging over one of the immense wooden wheels. I made up my mind at the time that as long as I remained in India I would ride on anything else but a bullock cart. It was my first and last experience with this rude antiquated native vehicle.

A CROCODILE TANK.

In the rear of the palace of the mahajarah of Jaipur is a tank covering several acres and containing a greenish turbid water covered for the most part with the scum of algae. It is inhabited by crocodiles and turtles. Stone steps lead down from the palace to the edge of the water. On the advice of the guide we had brought with us from a neighboring butcher-shop delicacies with which to feed the crocodiles. As soon as we reached the edge of the tank a palace guard commenced to make a barking noise and in a few minutes something appeared on the surface of the water which looked like a black log about fifteen feet long. The scuttling motion of the smaller end of the log showed that it was a crocodile on the way to accept the proffered invitation for tiffin. Slowly, lazily, the monster approached, and as it came up to the steps an immense moss-covered head with small slit-like eyes came above the surface of the water with the cavernous mouth wide open, displaying two rows of sawlike teeth. With unerring aim he caught the fragments of meat, which at once disappeared from the tongueless mouth. In less than ten minutes four other crocodiles and a large turtle were our guests. One of the largest of the beasts, a monster at least twenty feet long, took the liberty to climb the steps in order, I presume, to cultivate a closer acquaintance with us. A few blows with a club administered over the skull by the guard brought him to a standstill, and with a tremendous splash he returned to his proper element and disappeared from sight.

A BELATED BRIDAL CEREMONY.

One Sunday afternoon, while driving through one of the principal streets of Jaipur, I heard the ear-killing strains of native musicians. I brought the carriage to a standstill and a procession soon made its appearance, headed by the band. It was made up exclusively of women, from four to six abreast, each of them carrying on the head a basket containing sweets and other small presents. It was explained to me that this procession was in honor of a woman who in four weeks would make her first addition to the census of the city. It was not difficult to locate the bride of eight months in the first row of the procession. The husband was not there. He was at home awaiting the presents from his father-in-law, conveyed to him by the members of the procession. Later in the day I saw another procession on a larger scale announcing to the public a similar event. This custom, which to me appeared a praiseworthy one, is generally observed, and if the census taker of Jaipur keeps his ears ready and his eyes open, he has no difficulty in keeping track of the increase of the population.

FEAST OF THE NEW MOON.

As I was elbowing my way through the crowded streets of Jaipur, on Sunday evening, soon after sundown, I saw thousands of eyes looking in the direction in which the scorching sun had so recently disappeared. I was told that it was the feast of the new moon. It was a long time before I could see the goddess that was the object of worship that evening. I finally could make out the faintest outlines of a pale little sickle—it was the new moon. A great procession formed in honor of the event, headed by a native band, a gaudily caparisoned elephant, a squad of police, and followed by a company of native soldiers. The moon is held in high esteem as a goddess by both Brahmins and Buddhists, and the new moon is always greeted with joy and heralded by a religious procession.

A FAITHFUL ROMAN CATHOLIC PRIEST.

At Abu Road a gentleman, plainly dressed, with full beard well peppered with gray, entered my compartment and at once entered into a lively conversation. He spoke English as it is spoken in England and I took him for an Englishman, probably an employe in the civil service. In removing his cheap gray

helmet I noticed that the top of his head as large as the palm of the hand was shaved. There was now no doubt in my mind concerning the vocation of my new companion. He informed me that he was a Roman Catholic priest, and furthermore, that he was a native of Switzerland, had been in India since he entered the priesthood 26 years ago, and that for eight years he had served as chaplain in the army, and was now on his way to visit a detachment of troops at Ahemabad. It further developed that our birthplaces in Switzerland were not far apart. It was a strange coincidence that I should find here in the wilds of India a countryman whose cradle was so near to mine. Rev. B. Jost, S.J.R.C., chaplain, has spent his whole professional life in India as a missionary and chaplain. He has never taken a vacation. He has seen the horrors of famine and the ravages of cholera, and other devastating epidemic diseases and has but once left his post when, stricken by fever and dysentery, his physician insisted on his being taken to Bombay to save his life. He was tenderly nursed by his brother priests, who for a long time had no hope that he would recover. His vigorous Helvetian constitution and determined will triumphed. He recovered and at once returned to his station. During the last famine, which extended over four years, he spent the money sent to him by friends in buying food, and dealt out rice and peas with his own hands during the hottest months of the year and was the means of saving 600 lives from starvation. He has exposed himself to all kinds of privations and dangers. In one day he dispatched four of the most deadly vipers in his yard and bungalow. All honor to such a brave, faithful servant of the Roman Catholic church.

> "Calamity is an opportunity to show one's virtue."—Seneca.
>
> "Fire tries gold, misery tries brave men."—Ibid.

ELEPHANTA CAVES.

The most interesting place I visited during my stay at Bombay was the Cave Temple in Elephanta Island, one hour and a half by sailboat from the city. The elephants' island is about three miles in circumference, is forest-clad and interlaced with a very pretty creeper, which blossoms more than half of the year. The caves, which in reality are a large Brahmin cave temple, are, according to Hindu tradition, 4,000 years old. There are five caves, but the one usually visited is the Great Cave, which is located about 250 feet above the level of the sea. It is hewn out of solid, hard rock. It is about 130 feet long and of the same width, and 17 feet high. At present it is only used as a place of worship on occasions of Shiva festivals, and in the middle of February a religious fair is held here. The sculptures which ornament the walls are cut out of the rock as well as the columns which support the stone ceiling. All of them show the ravages of time. Some of the columns are destroyed whole or in part, and large pieces have been split off from many of the mural figures.

> "In short, do you not see stones even yield to the power of time; lofty towers fall to decay and rocks molder away? Temples and statues of the gods go to ruin, nor can the gods themselves prolong their dates or give reprieve from fate."—Lucretius.

Of the nine allegorical figures illustrating the Brahmin cult I will only briefly describe the central one which represents Brahma, the creator; that on the right is Vishnu, the preserver, and Shiva, the destroyer, on the left. This is the most elaborate and striking of the sculptures. Brahma's face is expressive of peace, kindness and reflection. If the artist of this exquisite work of art made any mistake it was in sparing stone in forming the thick everted lips. Brahma holds a lotus flower in his left hand; Shiva holds the deadly serpent, the cobra. The significance of the pomegranate is creation; that of the lotus flower preservation, and that of the ugly snake in threatening attitude, destruction. The figures on each side are supposed to be doorkeepers, each attended by a dwarf. The figures of this masterpiece of the sculptor's art of 4,000 years ago are well preserved and a study of them will satisfy any observer of the great skill of Indian artists of that remote period. In front of the open temple is a small tank, in the shallow water of which a number of pigmy frogs enjoyed their childish frolic. No one can visit this venerable cave temple without becoming deeply impressed with the art of India long before the infant Moses was rescued from the crocodile infested Nile and long before Romulus was weaned from the breast of his ferocious wet nurse.

A GREWSOME CHARNEL HOUSE.

The Parsee people who came from Persia to India centuries ago, and of whom there are now about 100,000 in Bombay, are fire worshipers, and neither burn nor cremate their dead. They dispose of their dead by exposing them in a place where vultures can devour them in peace and safety. The Towers of Silence is the place where the hundreds of vultures are fed by the bodies of the dead Parsee. These towers, five in number, and the Fire Temple, the place of Parsee worship, are located on Malabar Hill, in elevated beautiful grounds which have an area of over 75,000 square yards. These grounds are surrounded by a high stone wall and strangers are not admitted without a special permit. The Towers of Silence, the largest of which measures 276 feet in circumference, are all surrounded by high walls, about 25 feet in height, and have an opening on the ground level, through which the dead bodies are carried. The corpse bearers are the only persons allowed to enter the towers. The bodies of the deceased are laid in grooves around the well, which is in the center of the tower. The corpses of children are laid in the center circle, those of the women in the second and those of the men in the outer ring. The bodies exposed in this manner are in a short time stripped of the flesh by the hundreds of vultures that are always in waiting for the arrival of the dead, and then the bones are thrown into the well, where they are allowed to decompose. On the day I visited this grewsome spot I saw hundreds of these bird cannibals perched in neighboring trees and on top of the towers, their gizzards evidently gorged with human flesh, motionless, hanging heads, drooping eyelids, sleeping, dreaming of the next feast on the first corpse of the community of fire worshipers. Should the interval between the dead marches be a long one, these cannibals of the air will be very hungry, a lively struggle will ensue for a share of the body exposed, fingers, toes and other parts of the body will be torn off and carried away to some quiet retreat, to be devoured at leisure. It is in this way that parts of the skeletons of the Parsee dead find their way into the dooryards, streets, gardens and on to house tops, grewsome relics of a grewsome practice of disposing of the dead.

CONCLUSION.

In conclusion, it is to me a source of great pleasure to extend my sincerest thanks to the members of our noble profession whom I had the opportunity to meet and to whom I am deeply indebted for their uniform courtesy and charming hospitality.

ON BOARD S. S. KRONPRINZ WILHELM,
HARBOR OF NEW YORK, Oct. 11, 1904.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Enuresis in Children.

After enumerating and excluding the many possible causes of enuresis and assuming it to be a neurosis, Ullman, in *New York Med. Jour.*, states that an atony of the muscle, an insufficient innervation and hypersensitiveness of the lumbar centers exist and recommends the following outline of treatment:

HYGIENIC.

The child should have an outdoor life and should eat nutritious food at regular intervals. Stimulants, such as coffee and tea, should be interdicted and no liquids should be drunk before retiring. The sleeping room should be well ventilated and the bed should be hard. The child should be taken up once in the night to empty the bladder.

PSYCHICAL AND SUGGESTIVE.

Suggestion in combination with other treatment produces good results in these cases, according to the author. Corporal punishment should not be allowed, as the child's sleep becomes disturbed and he becomes fretful and goes to bed in fear. On the other hand, it is more reasonable to reward the child for not wetting the bed rather than to punish him when he does so. It is just as reasonable to inflict punishment for the involuntary movements of chorea or athetosis as in cases of enuresis. In order to obtain the best results the confidence of the patient must be obtained.

PHYSICAL AND MECHANICAL.

In this connection the different authors recommend massage, sponging with alcohol, friction and sea bathing. Kellogg recommends that the patient be placed in a sitz bath, his feet in a hot foot bath, the head cooled by a wet towel and vigorous friction applied to the hips, back and thighs and continued for three or four minutes at a temperature of 65 degrees F.

Ullman also outlines the method of Csellag, which consists of the following movements:

1. The rectum is freed of feces and massage is applied by means of the index finger to the sphincter vesicæ, the child lying in the lithotomy position. This should be continued by sphincter vesicæ for from half to one minute.

2. A deep circular massage is applied over the hypogastric region for two or three minutes.

3. The patient is placed in the dorsal position, with the knees tightly drawn together, and resists the attempt to separate them and then resists adduction. The same resistance of adduction and abduction is also carried out from the thighs. These movements should occupy two minutes.

4. The patient is then directed to stand against the wall or door and cross and recross one thigh over the other for a period of five minutes.

5. He is then taken across the knee and the lumbar and sacral regions are sharply tapped, producing rapid vibrations. The galvanic current is recommended by some authorities; the negative electrode is placed over the lower dorsal region and the positive is applied to the perineum by means of a small button electrode, using a weak current for a period of eight minutes daily.

MEDICINAL.

The medicinal treatment of enuresis given alone produces negative results. The fluid extract of rhus aromatica, given in five-drop doses three times a day to infants, and increasing the dose with the age to fifteen drops three times daily. Atropin, one grain to two ounces of water, and giving five drops of this solution at 4, 7 and 10 p. m., is recommended. This preparation, according to the author, in connection with the movements mentioned, will produce good results.

A frequent cause of enuresis, according to Holt, is preputial adhesions, which should be broken up and the smegma removed. If phimosis is present it should be relieved by stretching or by circumcision. A narrow meatus should be cut to the proper dimensions. If stone in the bladder is suspected and if micturition is accompanied by straining and painful spasm, the bladder should be sounded. Pinworms in the rectum should be treated by salt water injections or other preparations. The reaction of the urine should be ascertained and if uric acid crystals are found, alkalies are indicated with a great deal of water.

The child should not be overtaxed at school and all excitement must be avoided. The diet must be carefully regulated and coffee, tea and beer prohibited. Sweets and all highly seasoned foods must be eliminated from the diet. Dr. Holt's experience is that the exclusion of meat is not indicated. The amount of water should not be limited except, perhaps, late in the afternoon a less quantity should be taken. The best diet is composed of milk, vegetables, fruits, meat and cereals. Punishment is of no value, and in most cases is harmful. The moral treatment is recommended, appealing to the child's pride and endeavoring to strengthen his will. When the incontinence is only at night the child should be instructed to retain the urine as long as possible during the day in order to accustom the bladder to a greater amount of water. Any anemia, malnutrition, indigestion and constipation must be corrected. Adenoids must be looked for and removed, as they tend to increase the irritability of the nervous system.

As to medicinal agents Dr. Holt ranks belladonna first; it is given in full doses until the physiologic effects are produced and it must be continued, in most cases, for many months. Atropin may be used instead of belladonna and is, perhaps, preferable, as its strength is more uniform. The proper dose should be obtained, as shown by its physiologic effects and continued for at least two months, and then gradually decreased if the incontinence has ceased. Strychnin may be added to the treatment in cases not yielding to the atropin alone. This preparation is especially useful where there is diurnal as well as nocturnal incontinence, for in such cases there is generally a lack of tone to the sphincter and also an increased irritability of the mucous membrane of the bladder. This latter preparation may be given in initial doses of grain 1/100 (.0006) twice daily, gradually increased to grain 1/50 (.0012) three times a day.

Other measures may be resorted to, such as elevating the foot of the bed at night, to keep the urine away from the neck of the bladder, and efforts should be made to keep the child from sleeping on his back. If a contracted bladder is suspected, as shown by a history of incontinence for several years and inability to retain more than one or two ounces at a time, the bladder should be distended daily to its normal capacity by means of warm water.

Sore Throat.

The term sore throat, according to Dr. Leonard Williams in the *Clinical Jour.*, London, includes the several varieties of bacterial involvement, such as the streptococcus and diphtheria bacillus. Aside from the bacterial examination, the knee jerks should be tested and the urine examined for albumin when diphtheria is suspected, as these phenomena, as a rule, occur early in the disease. If diphtheria is found to be the cause of the sore throat and antitoxin can not be obtained early, the author recommends that isolation be carried out in the usual way and a mixture containing the biniodid of mercury be given. This preparation is insoluble in water alone, but is freely soluble in an excess of potassium iodid. The following combination is recommended:

R.	Hydrarg. perchlor.	gr. i	|06
	Potassii iodidi.	gr. xx	1|30
	Glycerini	ʒii	8|
	Aquæ q. s. ad.	ʒviii	240|

M. Sig.: One teaspoonful to a tablespoonful three or four times daily.

In the foregoing mixture a double decomposition occurs, forming the biniodid of mercury about grain 1/8 (.008) to the ounce. The glycerin is added in order to increase the tendency to adhere to the fauces and thus increase its local effects. As a bactericide the biniodid is said to be four times as powerful as the perchlorid, and it does not have the tendency to throw down an inert albuminate when coming in contact with the tissues.

The author is emphatic in his statement that this preparation of mercury, excepting, of course, antitoxin, is a more effective foe of the Klebs-Loeffler bacillus than any other drug or inhalation or local application which has ever been used. In all forms of sore throat the heart should be frequently examined as in rheumatism and chorea.

In an ordinary case of sore throat the first thing to be observed is the degree of temperature. The tincture of aconite in one drop (.06) doses every hour, when the effect can be

watched, is very valuable in reducing the fever and in making the patient more comfortable. The author prefers to administer aconite with other preparations which have also a local effect. In cases where a rheumatic origin is suspected, guaiac is recommended as a fair substitute for the salicylates, combined as follows:

℞.	Potassii chloratis	gr. x	65
	Tinct. aconiti	m. v	30
	Tinct. guaiaci ammon	ʒi	4
	Mucil. acaciæ	m. xx	1 30
	Aquæ q. s. ad	℥i	30

M. Sig.: This amount to be taken at one dose and repeated every four hours.

As soon as the temperature has fallen the aconite should be discontinued, but the other ingredients kept up for a time. When rheumatism and diphtheria are absent the author recommends rather a complicated combination, including the tincture of iron, which is of value in such cases:

℞.	Tinct. aconiti	m. ii-v	12-.30
	Potass. chloratis	gr. x	65
	Liq. ferri perchlor	m. xx	1 30
	Liq. hydrarg. perchlor	m. x	65
	Glycerini	ʒii	8
	Aq. chloroformi	℥ss	15

M. Sig.: At one dose and repeated every four hours. Or half the quantity every two hours.

[The dose of potassium chlorate is larger than is usually recommended.]

The mercurial preparation is added to combat any cocci which escape the iron preparation. And the glycerin is added to prolong its local effect in the fauces.

Sciatica.

The disturbances in the sciatic nerve resulting in the symptom complex recognized clinically as sciatica is due to a variety of influences, traumatic, infectious, toxic and circulatory, and, accordingly, no one method of treatment can be expected to be serviceable in all cases. For this reason, when the causative factors can not be directly attacked and removed, the affection is likely to be long continued and attended with exacerbations. The large number of remedies employed is an index of the difficulties with which the treatment of the condition is surrounded. Excellent results have been obtained in a considerable number of instances from the injection of various substances about the nerve at its point of exit from the pelvis and in its course. Dr. J. Lange, in the *Münchener med. Woch.*, reports the successful employment of a modification of the method of infiltration-anesthesia introduced by Schleich. He first produces a wheal over the sciatic foramen and then introduces deeply through a long needle from 70 to 100 c.c. of a solution containing 1 part of eucain-B. and 8 parts of sodium chlorid in 1,000 parts of water. There is no pain as the needle passes through the skin and muscle, but the patient winces when the nerve or its sheath is reached. There is almost immediate relief, although some tenderness and induration persist for a day or two. Sometimes it becomes necessary to repeat the injection in the course of a few days. The treatment should naturally be reserved until other means have proved inefficacious; nor is it to be expected that it should be successful in all cases. The good permanent results observed in the cases treated by the means described are attributed not to the small amount of eucain introduced, but rather to the mechanical effects of the isotonic solution employed.

De Blois of Trois-Rivières lauds the fine results he has obtained with electricity in old, rebellious cases of sciatica. He uses the Morton current combined with static douches and sparks. In one of the six cases he describes in detail in the *Bulletin Méd. de Quebec*, the sciatica had persisted for two years, rebellious to the salicylates, massage and other measures, including other forms of electricity. During three months and a half he gave static douches for twenty minutes every second day, with sparks on the spine and over the affected nerves. Alternate days the Morton current was applied and superheated air locally for thirty minutes three times a week. By the second week the patient was so much improved that he could return to business, and by the end of three months and a half he was permanently cured. No recurrence has been observed in any case thus treated. His experience with the Morton induced static current has been equally favorable in neuralgia, lumbago and all kinds of muscular pains, as he relates in detail.

Medicolegal.

Contract with Health Officer to Care for Smallpox Cases.—The Supreme Court of Iowa says, in the case of Dewitt vs. Mills County, that, in December, 1901, an epidemic of smallpox broke out in the city of Glenwood, and the plaintiff was employed to render all necessary medical services to those afflicted with the disease. In an action brought to recover for such services, that part of the answer alleging that at the time of entering into the contract the plaintiff was a member of the city council of Glenwood, and also health officer of its board of health, was stricken out, on motion, as being immaterial and irrelevant. The ruling was correct. Glenwood is a city under special charter, and the board of health consisted of five members designated by the mayor. The plaintiff was not one of these, and there is nothing in the statutes prohibiting him, in an emergency, from being employed by the board of health at an agreed compensation. Section 1026, Code. This was not subject to the approval of the council, and the contract was not invalidated by Section 943 of the Code, prohibiting any member of the council from becoming "interested directly or indirectly in any contract for work or service to be performed for the corporation." The corporation referred to is the city, and, as the service was not to be rendered for it, but at the expense of the county, the statute does not apply.

Pregnancy and Miscarriage Not to Be Anticipated.—The Court of Appeals of Colorado says, in town of Florence vs. Snook, a personal injury case brought against the town, that pregnancy is not a usual and natural condition of women. It is an unusual and peculiar condition or state of health. A miscarriage can only result from an injury to a woman when in this unusual and peculiar condition, and, when relied on to increase the damages claimed, must be pleaded. The only authority cited opposed to the above doctrine was Tobin vs. Fairport, N. Y., 12 Supp. 224—a ruling by the judge of the Circuit Court of Monroe County, New York, on a motion for a new trial. But the Court of Appeals of Colorado says that the reasoning of the judge in the case cited was not at all convincing, and it is not inclined to be controlled thereby. No authority other than the Tobin case, it says, was cited, and an exhaustive examination failed to discover one in which the point under consideration has been expressly ruled. However, in a great many of the cases examined it appeared that the pregnancy of the plaintiff and the resultant miscarriage were alleged in the complaint, which would indicate that such allegation was deemed necessary.

Treatment of Dislocation of the Clavicle.—The Supreme Court of Iowa says, in the malpractice case of Tomer vs. Aiken and another, that the plaintiff suffered a dislocation of the clavicle from the acromion process. Dr. Aiken was called, but refused to treat the patient unless another physician were present. The family explained that they had been unable to get any one else, and the physician then sent for Dr. Trout to assist him. On his arrival Tomer was examined, and, according to four witnesses, the physicians announced that the collar-bone had been fractured or broken. Two of these were uncertain of the language used, while the physicians testified they concluded that it was a dislocation only, and Dr. Aiken that he had explained to Tomer that the collar-bone was broken away from the scapula; and in this he was confirmed by another witness. While the physician, in trying to explain the injury so as to be within the comprehension of those not familiar with medical terms, may have been misunderstood, yet, the court says, the evidence was such as to leave the question as to whether the case was properly diagnosed an open one for the jury's

determination. If it be conceded, however, that the physicians declared it a case of fracture of the clavicle rather than dislocation, they were not liable unless improper treatment followed. No one claimed on the trial that the clavicle had been fractured, nor was there any evidence that the dressing applied was adapted peculiarly to remedying that defect. If suitable at all, it was as appropriate to the reduction of a dislocation. In these circumstances there was no occasion to submit the issue raised in the first count of the petition that, because of a mistake in the diagnosis, the plaintiff had been treated for a fracture rather than a dislocation, to the jury. If the treatment was such as reasonable skill and care exacted for the cure of a dislocated clavicle, the defendants were not liable, regardless of what their diagnosis may have been; otherwise they were. Was the dressing such as should have been used in reducing the dislocation and securing rearticulation? Ordinarily, little difficulty is experienced in reducing the dislocation. The trouble is to retain the bones in a position so that articulation will be effected. The narrow extremity of the articulating surface, the movability of the shoulder, the contraction of the muscles, and the possibility of ligaments falling between render the result somewhat experimental. In applying the dressing difficulty is experienced in securing a purchase which will hold the bones on the same level. A physician on whose testimony as an expert the plaintiff relied, freely admitted that "there is no assurance under any form of treatment that the bone is going to stay there," and testified further that "the results are not always satisfactory under any form of treatment, but the majority of them get well. Complete is more difficult than incomplete dislocation, but is sometimes successful. The majority are successful under modern methods." In this view all the physicians concurred. Failure to effect a cure under such circumstances, the court continues, furnishes no evidence of want of care or skill. The patient suffered considerable pain, but this, as the evidence showed, may have been incident to the character of the injury. The accident occurred on Wednesday, and Dr. Aiken did not call again until the Sunday following, and not again until a week from that day. If the injury required no attention during the intervals, he was not chargeable for neglect, if any there was; and in determining whether he was negligent, another physician's custom in his own practice could not be accepted as the criterion. That must necessarily depend on the custom or practice in similar localities in the treatment of such injuries. But if Dr. Aiken was negligent in not attending his patient as frequently as he should, this was no fault of Dr. Trout. He had nothing to do with the case after the first dressing was applied, and was in no way responsible for anything that happened thereafter, unless resulting from some defect therein; and the jury should have been so instructed. The dressing was put on at about 3 o'clock in the afternoon, and in the evening the plaintiff's attendant tried to reach Dr. Aiken, but could not do so, by telephone. She then telephoned for Dr. Trout, who responded that he could not come, and, on a second inquiry, that he was in bed and could not come. Without other showing save that Tomer was suffering much pain, which is usual in such cases, a physician was asked, in substance, whether under the circumstances disclosed, it would be proper treatment for a doctor to refuse to attend a patient. There was no claim that any relapse or evil consequences resulted. Another physician, in fact, called and thinned the wad under the arm. The employment of Dr. Trout had terminated at the completion of the dressing. He had the perfect right to refuse to be employed further, especially while the attending physician was still in charge of the case. Moreover, he was not advised that Dr. Aiken, who was at home, but temporarily without telephone connection, could not be found. As the case stood then, Dr. Aiken knew nothing of the plaintiff's wish that he call, and did not learn of it till Sunday, the day he had set for his next visit; and Dr. Trout was not in the plaintiff's employment, and was under no legal obligation to attend him. Manifestly, then, the objection to the question should have been sustained. That the answer, consisting of a somewhat extended discourse on medical ethics, was prejudicial, the court entertains no doubt. The court concludes that if the defendants were negligent, it was in the method of dressing adopted. But there was a difference of expert opinion on the subject, and the court decides nothing with reference thereto, except that the value of expert opinion can not be determined by counting noses, and, even though six physicians took one view and one the other, the issue was for the jury to decide. A judgment for the plaintiff is reversed.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 21.

1 *Psychiatry in Its Relation to Other Sciences. C. L. Dana, New York City.
2 Subnormal Accommodation and Premature Presbyopia. G. M. Gould, Philadelphia.
3 *Erotomania; Considerations on Its Manifestations and Pathogenesis, with the History of an Instructive Case. J. L. Corning, New York City.
4 *Occupations with Relation to Tuberculosis. J. B. Huber, New York City.
5 *Is Cesarean Section Ever Justifiable in the Management of Placenta Previa? R. Douglas, Nashville, Tenn.
6 *Radiotherapeutic Nihilism. G. G. Burdick, Chicago.

1. **Psychiatry and Other Sciences.**—Dana discusses the relations of psychiatry to economics, psychology, physics, psychotherapy, neurology and internal medicine, pathology and physiologic chemistry, criminology, forensic or legal medicine, and anthropology, and indicates the lines along which work can be carried with mutual help to all, but to the special advancement of a sounder knowledge of the pathology of the mind, the capstone of all the medical sciences.

3. **Erotomania.**—Corning defines erotomania as an enormous erethism of the psychic centers, with its morbid psychosexual ideation, co-existing with depression of the mechanism of normal sexual animality, and constant inhibition of desire. Like other monomanias, erotomania has its root in degeneracy. Consequently, the various physical and mental stigmata may be found in the erotomaniac. Among the more striking physical stigmata are deformities of various kinds, such as malformations or incomplete development, or enormous overgrowth. Hence, malformation of the external ear, asymmetry of the face, unequal development of the two halves of the cranium, harelip, strabismus, irregularity in the shape and position of the teeth, flat, ridged or pointed palate; enormous development of the jaw, observed in criminals, and webbed or supernumerary fingers. Prominent among the mental stigmata are lack of mental equilibrium, hyperemotionality, inordinate impulsiveness, powers of imagination so extraordinary as to attain the dimensions of veritable hallucinations, domination of the mental sphere by delirious ideas, culminating in impulsive, explosive acts; impairment of the will, imperfect development of the moral sense, with consequent impairment of the ability to distinguish right and wrong; and, finally, inordinate egoism and total lack of power to take an impersonal view of anything. The affection may occur in either men or women, but is more common in the former. It is to be confounded neither with nymphomania nor satyriasis, because the generative instinct seems to be entirely wanting. It is an affection of the imagination, a morbid extravagance of the ideal. In its individual manifestations it presents the characters of a love, pathologic and essentially psychic, and devoid of carnal appetite. There is nearly always a tendency to personification. The subject foists his ideality on a living person, or on an inanimate object. Though his intelligence may show him the consequence of yielding to his obsession, he is powerless to resist it. His obsession is usually for one of the opposite sex. Erotomania may disclose itself in youth, but it is really a disease of adult life, coming on after puberty and often ending in dementia. It may

co-exist with nymphomania or some other form of sexual aberration or with mysticism.

4. **Occupation and Tuberculosis.**—The diagram which forms the basis of Huber's paper was prepared by the statistician of the Charity Organization Society of New York City. Fifty-three occupations are considered. The tuberculous death rate of marble and stone cutters is shown to be six times that of bankers, brokers and officials of companies, and is undoubtedly due to the irritation of the respiratory tract by remote, inhaled particles of stone. The mortality among cigarmakers is five times as great as that of bankers, and is due largely to the irritating effects of tobacco on the mucous membranes; but the bad air and the wretchedly insanitary conditions under which these people work are essential factors. Saloon keepers, hotel servants and bartenders show a heavy mortality, as do the hat and cap makers. The tailors and the garment makers, however, have a death rate which would be surprisingly low were it not for the fact that Jews, who, as a race, enjoy a comparative immunity to tuberculosis, monopolize these trades. Glassblowers show the influence of exposure to extreme heat; they are, also, apt to sit for many hours in constrained positions. Among the musicians, the irregular, bohemian life led by many of them is largely responsible for the large death rate, 350 per 100,000. The mortality extremes per 100,000 living in the same occupation are, 92 for the bankers and 540 for the marble and stone cutters.

5. **Cesarean Section in Placenta Previa.**—Douglas attempts to determine the justifiability of cesarean section in the management of placenta previa by presenting a study of methods and results, as follows: De Lee, 30 cases without a maternal death; Fry, equally successful in 14. Hirst collected 104 cases, with a death of only one mother. Sloan Maternity, New York, maternal mortality, 12 per cent. Boston Lying-in Hospital, 75 cases, maternal mortality, 10.16 per cent. Strassmann, in a series of 231 cases, found a maternal mortality of 9.25 per cent. Douglas, 12 cases, with a death of two mothers. Dorland collected 88 cases of central attachment of the placenta, with a maternal mortality of 22 8/11 per cent. Schauta finds 18 per cent. of mothers lost in 50 cases of placenta previa centralis. As to infantile mortality, Douglas quotes these figures: Hirst, 50 per cent.; Sloan Maternity, 45 per cent.; Strassmann, 6 per cent.; Schauta, 70 per cent. Fry lost 9 children in his 14 cases, in which all the mothers were saved. Douglas says that in a series of cases of placenta previa one may expect a maternal mortality of 10 per cent. and a fetal mortality of 50 per cent. In central attachment of the placenta, maternal mortality, 20 per cent., and fetal mortality, 75 to 85 per cent. As to the subsequent history of 80 patients who had suffered from placenta previa, Radtke found that 30 per cent. were sterile, 23 per cent. aborted at subsequent pregnancies, 57 per cent. suffered from anemia, vertigo, headache, etc. Endometritis, laceration of the cervix and of the perineum and other pathologic conditions were found present. As to cesarean section for placenta previa, Deaver, in 24 cases, had a maternal mortality of 20 per cent. By selecting from these cases the patients that were proper subjects for the operation, the maternal mortality is reduced to 18.75 per cent. The fetal mortality is reduced to 56 per cent. These are the results in placenta previa with rigid cervices and other unfavorable conditions. Douglas is firmly convinced that the maternal mortality can be reduced below 10 per cent., but does not anticipate a reduction in the fetal mortality below 50 per cent. He says that cesarean section is indicated in cases of central attachment of the placenta in a primagravidia with an undilated and rigid cervix, with moderate hemorrhage, a viable child, and when the operator is a capable abdominal surgeon. The contraindications to the operation are an exsanguinated patient, or one who has been subject to various obstetric efforts, the presence or probability of infection, a dead fetus, and an unskilled operator.

6. See abstract in THE JOURNAL, xliii, p. 908.

Medical Record, New York.
January 21.

7 Contribution to the Etiology of Malaria, and to the Analysis of Some Relations of Meteorology to Chemical Pathology. H. Wakefield, New York.
8 *Use of Sulphate of Copper Alone and in Combination with Lime for the Destruction of Mosquito Larvæ, as a Deodorant, and as a Disinfectant. A. H. Doty, New York.
9 The Subconscious Self. J. A. Gilbert, Portland, Ore.
10 *Some Painful Affections of the Feet; Their Diagnosis and Treatment. C. Ogilvy, New York.
11 *Inflamed Appendix in an Inguinal Hernia, Simulating Strangulation. J. E. Golding, Brooklyn, N. Y.

8. **Sulphate of Copper as a Destroyer.**—The investigation carried on by Doty at the New York Quarantine Station covered the following points: 1, The use of copper alone, or in combination with lime, for the destruction of mosquito larvæ; 2, as a deodorant; 3, as a disinfectant. He found that in the destruction of mosquito larvæ and as a deodorant the use of copper in combination with lime is more effective than when used alone. This mixture destroys the larvæ by rapidly removing from the water in which they are contained the organic matter or nourishment on which they depend for life, and that this result is not due to a toxic effect produced by the copper or lime. In swamps or bodies of water covering large areas, where fresh water and organic matter are constantly being added, the use of the mixture is hardly practicable, and its value in these instances is not very apparent. However, in collections of stagnant and offensive water, where the mosquito larvæ are frequently found in enormous numbers, the mixture of copper and lime, one pound of copper and one pound of lime to ten gallons of water added to 500 gallons of water to be experimented with, is of great value, inasmuch as it not only destroys larvæ but deodorizes the offensive fluid. In swamps, etc., where there is usually but little sunlight, and where there is the most active propagation of the mosquito, there is no doubt, says Doty, as to the superiority of petroleum, not only for the destruction of the larvæ but in driving away the winged insects. Doty suggests the use of copper and lime, or petroleum, only when it is impossible to carry out the scientific and radical measures for the extermination of the mosquito; that is, proper drainage and the observance of the laws of modern sanitation. The action of the mixture as a deodorant is rapid and permanent; it is practically harmless, and is cheap and easily made, and seems to comply with the requirements of a typical deodorant. Furthermore, its range of usefulness is extensive, as it can be employed equally well for deodorizing solids or fluids. Experiments to determine the germicidal value of sulphate of copper are now under way in the laboratory of the quarantine station. In tests made with typhoid bacilli in distilled water, tap water, water from sewers, and broth, it was found that in distilled and tap water a solution of 1 to 10,000 killed in one hour. In distilled water a 1 to 100,000 solution killed in two hours, while in tap water it required from six to eight hours to produce the same result. In water taken from street sewers a 1 to 1,000 solution was required to kill typhoid bacilli in one hour, while in broth it required a 1 to 300 solution for this purpose. A 1 to 10,000 solution in distilled water killed the cholera organism in twenty minutes.

10. **Painful Affections of the Feet.**—Ogilvy emphasizes the importance of proper care and treatment of affections of the feet, describing, in particular, eversion, flatfoot, metatarsophalangeal pain, and painful heel. Eversion is the most common deformity. It is usually termed weak ankle. It results in a breaking down of the arch of the foot and flatfoot. An early diagnosis is of importance, for it is very difficult to transform an everted, painful foot with a broken down arch into one which is capable of performing all its functions without pain or discomfort. The treatment of these various conditions is described in detail. The anatomy of the foot and the subject of proper footwear are also considered.

11. **Appendix in Hernial Sac.**—Golding's patient complained of pain in the right inguinal and scrotal regions, vomiting and constipation. Examination revealed a firm, tender tumor in

the right side of the scrotum, over which the skin was red and glazed. The tumor was irreducible, dull on percussion, not translucent nor fluctuating, and gave no impulse on coughing. Temperature, 99.2; pulse, 88. On opening the sac, about eight ounces of clear straw-colored fluid escaped, and the sac was seen to contain an elongated body about ten inches long and one inch in diameter, which was intimately adherent to it. This body was separated, and on incising it it was found that the appendix occupied its center and was surrounded by a thick mass of inflammatory connective tissue. Golding deems two points in the case worthy of note: 1. The unusual length of the appendix. 2. The similarity in the symptomatology of strangulation and an acutely inflamed appendix occupying a hernial sac.

Medical News, New York.

January 21.

12 *Precautions Used by the New York City Department of Health to Prevent the Spread of Contagious Diseases in the Schools of the City. Thomas Darlington, New York.
13 Relation of Cholin to Epilepsy. (To be continued.) Julius Donath, Budapest, Hungary.
14 Some Ocular Reflexes (Psychoses). S. W. S. Toms, Nyack-on-Hudson.
15 Case of Postdiphtheritic Paralysis. W. J. Butler, Chicago.
16 Cystoscope as an Aid in Genitourinary Surgery. Follen Cabot, New York.

12. **Medical Inspection of New York City Schools.**—Darlington describes the medical supervision of the schools of the city of New York and the precautions that are taken to prevent the spread of contagious diseases. The Board of Health appropriates annually a sufficient sum to appoint 150 school inspectors at the rate of $30 a month, each inspector being assigned one or two schools. The schools are visited daily, and the inspector examines all children, whom the teacher has sent to his office in the school, suspected of having any contagious disease. Any case of measles or scarlet fever is visited at once by a diagnostician of the department; if the diagnosis is confirmed the usual steps are taken to prevent the spread of the disease. In the case of diphtheria, the inspector secures the material for making a culture. A daily list of all contagious diseases is sent each day to each school in the city, thus enabling the school to send home any child from a family where contagion is reported. Each inspector has about 5,000 children under his charge, whom he is required to inspect once a week. Inspectors must visit all public schools assigned to them before 10 a. m. each school day. The first visit is called the morning inspection, and consists in calling at the schools to inspect all children isolated by the principal as possibly sick with some contagious disease; all children who have been absent from school for a few days; all children excluded from school attendance. A routine inspection consists of a class-to-class examination of each child present. The children march by the inspector, pull down their own eyelids and open their mouths wide, the inspector making a visual inspection as the child passes him. If the child is suspected of having any trouble which is not quite evident, it is ordered to the inspector's office in the school for a more thorough examination. Each child excluded from school is given a properly filled out exclusion card in a sealed envelope furnished by the department. The inspectors are required to make daily reports. The inspector must ascertain from the principal the names and addresses of all children absent from school for a few days for no known reason. These addresses are visited by the inspector to ascertain the cause of absence. Thus many unreported cases of contagious diseases have been found. Janitors and their families are not allowed to occupy apartments in the school buildings. Children with acute eye disease and pediculosis, showing signs that they are under treatment, are allowed to attend class. The nursing system in force in New York was established for the purpose of caring for communicable diseases, such as pediculosis and conjunctivitis. Each nurse is required to keep a record of all cases treated by her and she has to visit at their homes all children excluded from school when they did not return for reinspection on the day appointed by the school inspector; also to instruct parents in the proper way of caring for children's heads at home. Cases attended by the school nurse are pediculosis, conjunctivitis, ringworm, impetigo, favus, molluscum contagiosum and scabies. The diagnosis is sent to the nurse by the school inspector and she treats the cases accordingly, the supplies required for such treatment being furnished by the department of education. At the present time there are nineteen school nurses in the borough of Manhattan. In order that children excluded from school could be followed and watched closely to see that the instructions given them by the medical inspector were observed, a card-index system was adopted. This system provides a card for each class in each school. On this record is kept of every case of contagious disease, with complete data. Because of the many cases of trachoma existing among school children, it became necessary to give the inspectors special instruction for the purpose of becoming better qualified in the diagnosis of this disease, and to establish an eye hospital and dispensary of the department of health. During the school months there were four operators and four clinicians, also two anesthetists. The total number of children treated at this hospital during the year 1903 was 15,936. The inspectors also are required to make throat cultures of all children showing the slightest redness and hypertrophy of the tonsils. Two inspectors are assigned for the work of vaccinating school children. No child is accepted in the public schools unless it can show either a white certificate stating the age on which vaccination was performed, or a yellow certificate of successful vaccination. While the department does not directly compel a child to be vaccinated, it does enforce the law that if the inspector in charge of the school deems vaccination necessary the child must be vaccinated or it will not be allowed to attend school. Darlington mentions the following as being outside of department control: 1. Proper care of the children's outer garments at schools; 2, proper aëration of classrooms; 3, proper lighting; 4, ample accommodation for each child; 5, sufficient playground facilities; 6, establishments of baths in public schools; 7, examination and compulsory care of the children's teeth and aural cavities. Examination and correction of refractive errors; 8, correction of deformity of locomotor apparatus; 9, exclusion of all cases of nervous disease; 10, segregation of children with inferior mentality.

New York Medical Journal.

January 21.

17 *Abuse of Water-Drinking in Disease. Maurice Manges, New York.
18 Surgical Cure of Intractable Dyspepsia, Depending on Gastric Ulcer and Its Complications. Wm. D. Haggard, Nashville, Tenn.
19 Pathology and Treatment of Diabetic Gangrene of the Lower Extremity. H. J. Whitacre, Cincinnati.
20 Use of Rubidian Iodid in Optic Atrophy. P. Bartholow, New York.
21 Present Status of Railway Emergency Work. (Concluded.) U. F. Martin, New York.
22 *Meralgia Parasthetica Following Typhoid. L. L. Von Wedekind, Washington, D. C.
23 Vasodilators and Contractors. G. W. Greene, Auburn, N. Y.
24 *Delayed Results of a Wound of the Brain. P. F. O'Hanlon, New York.

17. **Abuse of Water Drinking in Disease.**—Manges calls attention to some facts in this connection that are not heeded as well as they might be by physicians. The normal quantity of water for a healthy adult, exclusive of the water contained in food, is about 1½ to 2 liters a day. Only a small portion of the water ingested is absorbed by the stomach, the maximum quantity being 10 per cent. The other 90 per cent. is passed on into the intestines. Every drop of water introduced into the system must be excreted from it, directly or indirectly, by the heart; hence, the larger the quantity of liquid introduced, the greater the amount of energy demanded of the heart for its disposal. The functions which are principally affected by water drinking are, first, metabolism; second, temperature; third, circulation, especially the heart; fourth, glandular secretions, and fifth, peristalsis. Diuresis does not depend on the quantity of water introduced into the body, but on the blood pressure from the kidneys. When the heart is no longer competent, the daily quantity of water should be restricted to 1¼ liters, not including the water con-

tained in food. In the earlier stages of nephritis, when good compensation exists, this restriction is advisable as a prophylactic measure. On one day in the week the patient is allowed to drink as much as he pleases. This insures the removal of any nitrogenous salts which might have accumulated. Manges' experience has proved that the results obtained from such restriction of water are decidedly better than those following the unrestricted use of water. In heart disease, the abuse of fluids is less evident, but none the less serious, in its consequences. A routine use of stenciled treatments wrecks many a compensation or converts latent into actual cardiac disease. This is especially true at the various spas. The chronic hyperemia of the kidney, the existence of dropsy and the hydremic plethora and anemia in advanced cardiac conditions are sufficient indications of the need of great care in warning patients against too much liquid in these conditions. The object should be to regulate the blood pressure in the kidney rather than to crowd more work on the already struggling heart by carelessness in fluid regulation. In chronic gastric and intestinal disorders the significance of this abuse can be more regularly recognized. Water has little effect on metabolic disorders. As regards free flushing for the removal of calculi or gravel, etc., Manges advises that we always first ascertain the condition of the circulation and then be sure that the increased intake of water be represented by an adequately greater amount of urine. In acute infectious diseases and in septic conditions we must also guard against the dangers which may follow from crowding too much water at ordinary temperatures. The water should always be given cold, and in frequent, small quantities. He strongly condemns the practice of simply directing the patient to drink as much water as possible without considering the condition of the heart, circulation and kidneys.

22. **Meralgia Paresthetica Following Typhoid.**—In this patient Wedekind found almost complete anesthesia of the external and anterior aspects of each thigh, the outline on each being identical, one spot about the size of a silver dollar, of exquisite hyperesthesia, along the inferior line of demarcation on the right thigh only. Digital pressure produced deep-seated pain like that in the subperiosteal abscess. Myalgesia was general in both thighs and legs after continued xercise, but disappeared completely after a long rest. A spot on the right side of the chest, three inches below and to the right of the nipple, suddenly flared up and burnt for a moment and as suddenly ceased. There was awkwardness and uncertainty in his gait, suggesting partial loss of control of co-ordination. The treatment has been rest, strychnin and massage; the results, not great. The personal history is absolutely negative.

24. **Delayed Results of Wound of Brain.**—O'Hanlon relates the case of a man who, during an altercation, was shot in the head, the bullet entering through the temporal bone. No ill results followed until about the third month afterward, when the man was taken with fits, which recurred at irregular intervals for a period of about fifteen months, when the patient died. Autopsy revealed a bullet resting beneath the anterior lobe of the right hemisphere at the base. The track of the bullet was plainly visible through the brain tissue, beginning at the left frontal lobe. An examination of that part of the brain, broken down into an abscess, showed a small piece of lead, to which adhered a sharp piece of bone, which had set up the irritation resulting in the formation of the abscess.

Boston Medical and Surgical Journal.

January 19.

25 Humane Treatment of Malignant Disease from a Surgical Point of View. J. C. Munro, Boston.
26 Brief Consideration of Some of the Results of the Surgical Treatment of Cancer of the Stomach. R. H. Fitz, Boston.
27 *New Method of Performing Gastroenterostomy. A. H. Gould, Boston.
28 Management of Diabetic and Non-Diabetic Glycosuria. (To be continued.) Heinrich Stern, New York.
29 The Brown-tail Moth Eruption. H. P. Towle, Boston.

27. **New Gastroenterostomy.**—Gould has devised an operation for gastroenterostomy which is founded on the following principles: 1. That the pylorus should never be closed merely to insure the patency of the artificial opening. 2. That the gastroenterostomy opening should be so constructed that it will remain open of itself. 3. That an enteroenterostomy should be performed between the proximal and the distal coils of the jejunum. 4. That as much as possible of the food should be prevented from entering the stomach without entirely cutting off the jejunal patch from the protection of the bile against the eroding effect of the gastric juice. The stomach is delivered, and the posterior wall is exposed in the usual way. The mesocolon is torn through for a distance of two and a half inches in a direction parallel with the blood vessels and opposite the lowermost point of the greater curvature. The stomach clamp is applied at right angles to this curvature, taking up a fold about three and a half inches in length, and leaving a margin of one inch between the end of the fold and the greater curvature. The fold is incised and the redundant mucous membrane is removed in the usual way. The edges of the incision are seized with forceps at points midway between the two angles and pulled apart as far as possible, thus making the incision run parallel to the greater curvature. The stomach clamp is again put on, leaving a good margin of free edge for subsequent sewing. The ends of the incision, as originally made, will now be placed in the middle, and will have a tendency to sag unless clamped tightly. The jejunum is brought out and a longitudinal fold three inches long is clamped about ten inches from the beginning of the jejunum. The first seromuscular stitch is next placed. Each end of the continuous stitch is left long for future use. The jejunum is opened at a point opposite the middle of the stomach incision and enlarged a short distance either way gradually, until the corners of the stomach and jejunal openings are exactly matched. The cut edges are sewed together with a No. 0 chromic continuous stitch, which starts in the middle of the incision, half way between the two corners, and goes outward to the corners on either side. The first corner is turned and the thread tied. After turning the second corner the stitch is carried over the front and tied to the end left at the first corner, making a perfectly firm and accurate approximation of both corners. The clamps are removed and the rough edges on the front of the suture are buried with a continuous seromuscular stitch. The long end left by the first seromuscular stitch is commonly used for this stitch over the front. An interrupted seromuscular stitch is placed at either angle of the anastomosis, about one-quarter of an inch away, as an extra support. The edges of the incised mesocolon are finally caught down with interrupted stitches to the stomach around the anastomosis. Gould next makes what he deems a successful and permanent valve by inverting the intestine transversely instead of longitudinally. This technic requires three or more layers of sutures; the first are interrupted mattress stitches placed around the circumference of the gut as if an end-to-end suture had been made. This rolls in the bowel circumference and forms a circular constriction. The interrupted stitches are followed by two layers of continuous stitches, which turn in still more of the bowel and thus make a small diaphragm across the lumen. By this procedure the proximal coil is shortened about three-quarters of an inch. The site of the valve should be about three and a half inches below the gastroenterostomy. A lateral anastomosis is made about one inch below the valve. Before closing the anastomosis, the clamp is removed and a blunt instrument introduced upward in the coil to ascertain whether the artificial diaphragm is wide enough to obstruct the lumen. If the inturned edge is too scanty, another continuous stitch is placed around the bowel until exactly the proper amount of obstruction has been made. The enteroenterostomy is then completed and the abdomen closed.

St. Louis Medical Review.

January 14.

30 Control of Municipal Medical Institutions; with Special Reference to the City of St. Louis. John Green, Jr., St. Louis.

31 Woman, Education and Maternity. William Lee Howard, Baltimore.
32 Synopsis of the Nutrition of Man. (To be continued.) Walther Nic Clemm, Darmstadt, Germany.

Lancet-Clinic, Cincinnati.

January 21.

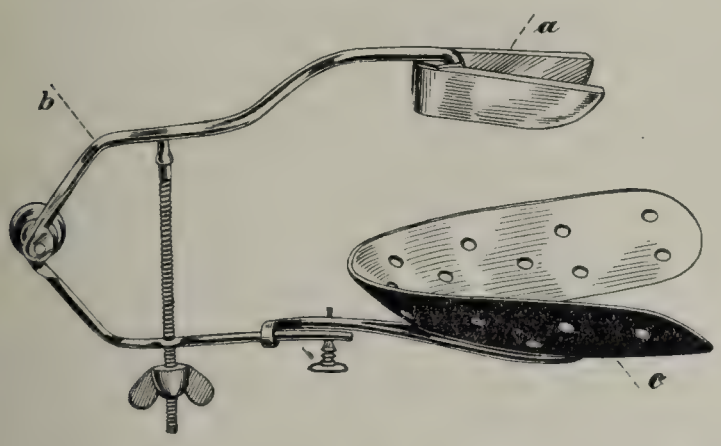
33 Criticism of Recent Surgical Literature on Diseases of the Stomach. Henry W. Bettmann, Cincinnati.
34 Tenotomy of the Tendo-achilles in Partial Amputations of the Foot, also in Oblique, Compound and Comminuted Fractures of the Tibia and Fibula. J. P. Webster, Chicago.
35 The Radiogram in Orthopedic Diagnosis. Albert H. Freiberg, Cincinnati.
36 Ethics of Gonorrhea in the Female. E. S. McKee, Cincinnati.

Annals of Surgery, Philadelphia.

January.

37 *An Adjustable Metallic Interdental Splint for the Treatment of Fracture of the Lower Jaw. Rudolph Matas, New Orleans.
38 *Wounds of the Liver. B. T. Tilton, New York.
39 Congenital Elongation of the Left Lobe of the Liver. L. J. Hammond, Philadelphia.
40 Surgical Treatment of Chronic Dyspepsia Due to Defective Drainage, and Chronic Inflammation of the Stomach Resulting from Gastric Atony and Dilatation. J. G. Sheldon, Telluride, Colo.
41 Contribution to Surgery of Gastric Ulcer. J. Niemack, Charles City, Iowa.
42 *Penetrating Wounds of the Abdomen. F. L. Hupp, Wheeling, W. Va.
43 *Hepato-cholangio-jejunostomy. A. E. Maylard, Glasgow.
44 Volvulus of the Cecum. E. M. Corner and P. W. G. Sargent, London.
45 *An Operation for Inguinal Hernia. C. L. Scudder, Boston.
46 Luys' Instrument for the Intravesical Separation of the Two Urines. F. P. Vale, Washington.
47 Dislocations of the Patella, with Rotation on Its Horizontal Axis. W. S. Cheesman, Auburn, N. Y.
48 *Matas' Operation for Aneurism. H. B. Gessner, New Orleans.
49 Loss of Entire Lower Lip. S. Watts, Baltimore.
50 Regulable Combined Dropping and Pouring Device for the Administration of Anesthetics. B. C. Pedersen, New York.

37. **Adjustable Metallic Interdental Splint.**—Matas' splint is constructed on the principle of a clamp which holds the entire projecting arch of the jaw (from the chin to the angles) firmly in the grip of a flexible mouthpiece which fits like a gutter over the entire dental arch; and of an external plate or chin cup, which extends from the symphysis to the angle. The mouthpiece and chin plate are both detachable. The chin cup is made adjustable to various degrees of prognathism by a sliding joint fixed by a pin and thumbscrew. The appliance consists of three component parts: 1. The mouth-



piece or dental splint proper (*a*), which is hollowed in three planes to fit loosely over the crowns of the teeth, the groove or gutter broadening from before backward to correspond with the increasing diameters of the molars. The edges of the splint form two flanges or rims, which project downward; the outer flange extending to the neck of the teeth on the outer or buccal side, the inner flange or rim dipping to a lower level, almost touching the gums on the inner or lingual side. This splint is made of block tin and is indented approximately on a level with the bicuspids by two deep cuts which penetrate the gutter to its outer rim, leaving a narrow wedge-like space which is closed at the apex by the outer or labial rim of the splint. The softness and flexibility of the metal of which the splint is made, together with these (Wiley) cuts, allow the operator to adjust the splint to the varying contour of the lower dental arch as it is met in different individuals. The splint is made in three different sizes, for children, for young persons and for full-grown adults. The breadth of the gutter can be altered by stretching and modeling the flanges. The dental gutter is also provided with a deep groove or slot in the center of its inner or labial surface, which fits the hook at the tip of the clamp and holds it very firmly in position when it is locked. 2. The chin piece (*c*) is made of perforated aluminum and is shaped to fit the contour of the jaw. It can be moved backward and forward on a sliding joint, which is adjusted by a thumbscrew and is attached to the lower limb of the clamp. In order to prevent injurious pressure on the skin of the chin, it is padded with cotton, covered with a layer of gauze, and smeared with zinc oxid ointment. 3. The clamp (*b*) which holds the mouth and chin pieces together is made of soft steel and consists of an upper and lower limb, screwed together at a considerable distance in front of the mouth. The upper limb projects from the middle of the mouth and is curved over the lower lip so as to allow the mouth to be closed, a very necessary provision to prevent salivary dribbling and to permit a complete control of the mouth in eating and drinking. The pressure required to hold the jaw firmly in the grasp of the intrabuccal and extrabuccal pieces is obtained by a screw attached by a swivel joint to the upper limb of the clamp, the pressure being regulated by a thumbscrew which acts on the lower limb of the appliance. The chief object of this splint is to immobilize the broken fragments of the jaw without restricting its movements as a whole. It is especially intended for compound fractures of the maxillary arch, whether single or multiple, in which there is a marked tendency to recurrent displacement, and which require frequent inspection and antiseptic irrigation of the aural cavity.

38. **Wounds of the Liver.**—Tilton considers the injuries of the liver and discusses their special signs, prognosis and indications for treatment. The modern tendency is toward early laparotomy. Open wounds should, without exception, be treated by enlargement of the wound, exposure of the liver, and determination of the site and extent of the injury. Care should be taken to examine the entire liver, as a second wound may remain unnoticed and give rise to fatal bleeding. The best methods of stopping hemorrhage are by the use of sutures or gauze packing. If the former are used they should include considerable liver tissue at the edges of the wound and, if possible, go down to its full depth. Gauze packing is particularly suitable for contused wounds, gunshot wounds, and punctured wounds, and is, furthermore, a useful addition to suture. The thermocautery is of very little value in arresting hemorrhage from the liver. The blood and bile can easily be removed by flushing the abdomen with hot saline solution or by dry sponging. Drainage is employed in subcutaneous wounds chiefly for the purpose of arresting hemorrhage. In gunshot and stab wounds with a dirty instrument, it is a valuable means of preventing local infection of the organ or general infection of the peritoneal cavity. As regards subcutaneous ruptures, the mild cases without marked symptoms of collapse or of internal hemorrhage should be treated expectantly.

42. **Penetrating Wounds of Abdomen.**—Hupp reports six cases, 5 of them pistol shot wounds and 1 a stab wound.

43. **Hepato-Cholangio-Jejunostomy.**—Maylard's case was a man, aged 52 years, who complained of pain in the epigastrium and vomiting. The onset of the symptoms was attributed to an accident which occurred twenty-two years previously, when he was struck over the lower ribs on the right side. This was immediately followed by severe pain at the seat of the injury, which continued for several weeks. After that he was subject to intermittent attacks of pain, some of which were exceptionally severe, and on one occasion the attack was accompanied by hiccough and vomiting lasting for twelve days. He generally noticed, after an attack, some yellowness of the skin and conjunctiva, and once there was severe jaundice which lasted for three weeks. On opening the abdomen, Maylard found that the gall bladder was replaced by a shrunken, indurated mass of tissue, embracing the liver, the pyloric end of the stomach and the hepatic end of the

transverse colon. The stomach was not dilated. Neither the pylorus nor the first two inches of the duodenum were obstructed. No constriction could be detected in the colon, but directly opposite the most marked indurated mass a slight indentation was felt, suggestive of the possible healing of an opening through which a gallstone might have passed. There being no obstruction anywhere, the wound was closed. The patient continued in good health for nearly four years, when jaundice set in and he also commenced to suffer from a general constitutional deterioration. There was a marked ventral hernia at the upper part of the median cicatrix. The urine was deeply bile stained and the feces clay colored. Seven months later Maylard undertook to establish a communication between the dilated ducts in the liver substance and the duodenum. The abdomen was opened along the course of the old transverse cicatrix and the incision extended. Extreme matting was encountered. The liver was much shrunken, of a deep mottled purple color and lay high up under the ribs. With much difficulty the jejunum was stitched to the margin of the liver for about two inches by means of a continuous sulphochromic-gut stitch. The liver was then incised for about one and one-half inches, the bowel opened for the same extent, and the opposing surfaces beyond the two cuts were united by interrupted stitches. In order to avoid tension on the stitched gut, the bowel was anchored at the upper part to some adherent omentum. A separate incision was made posteriorly to drain the right lumbar fossa. The patient made an uninterrupted recovery from the operation, but died about a month later from slowly increasing emaciation and weakness. There was no postmortem. On the second day after operation the stools were somewhat darker in color, but further than this no change seemed to have occurred in the general condition of the patient. Maylard concludes that this operation may be safely undertaken without fear of any immediate or comparatively remote dangerous results.

45. **Operation for Inguinal Hernia.**—The facts which Scudder considers important in the operation for the cure of an inguinal hernia are: An ample cutaneous incision; absolute hemostasis; an anatomic dissection of the parts concerned, so that every structure is clearly recognized; the complete isolation of the neck or abdominal portion of the sac; the complete emptying of the sac of both adherent and non-adherent contents; the suture of the hernial sac at the level of the peritoneum of the anterior abdominal wall; the exact suture of the abdominal wall superficial to the peritoneal sutures, including always one or two sutures placed over and above the sutured sac; the minimum of trauma to the cord. He says he has never yet found it necessary or advisable to excise the veins of the cord. Occasionally he has not transplanted the cord in children, and under certain circumstances has not transplanted it in adults. He considers it of comparatively little importance whether the cord is or is not transplanted. He says that he is more and more inclined not to transplant it. He has utilized the fascia of the rectus abdominis a few times to re-enforce the abdominal wall above the inner end of Poupart's ligament, as illustrated by Halsted, but the elaborate method of suture used by Halsted he considers unnecessary, except in unusual cases. After operation by his method the patient is in bed two weeks, on a bed-rest the third week and out of bed the fourth week. A bandage is worn for one month, after being up and about, for the comfort it affords. The operation is described in detail.

48. **Matas Operation for Aneurism.**—Gessner reports the case of a negro, aged 32, suffering from an aneurism of the right popliteal artery, involving the middle and lower portions of that vessel. The tumor was five inches in the long axis of the limb, by four and a quarter inches transversely. He gave a history of syphilis four years before with one year's treatment. The aneurism was treated after the method advocated by Matas, slightly modified to the extent that the walls of the aneurismal sac were brought together directly instead of being turned in on themselves after the method of Neuber. The operation proved successful.

Interstate Medical Journal, St. Louis.

December.

51 German Medical Exhibit at World's Fair. Bacteriology and Experimental Therapeutics. A. Wassermann, Berlin.
52 American Pathologic Exhibit at World's Fair. W. T. Eckley, Chicago.
53 Surgical Lessons from the St. Louis Exposition. Willard Bartlett, St. Louis.
54 The German Hygienic Exhibit at World's Fair. Dr. Breger, Berlin.
55 Remarks on the German Exhibit at World's Fair of Methods to Prevent Infectious Diseases. Carl Fisch, St. Louis.
56 The Fight Against Tuberculosis at the Louisiana Purchase Exposition. Albert E. Taussig, St. Louis.
57 Radiography and Roentgen Apparatus at World's Fair. Bockenheimer, Berlin.
58 "Moulagen" Reproduction of Disease in Plaster of Paris and in Wax Models at World's Fair. M. F. Engman, St. Louis.

Canadian Journal of Medicine and Surgery, Toronto.

January.

59 Treatment of Lupus Vulgaris by Phototherapy, Radiotherapy and Otherwise. Charles R. Dickson, Toronto.
60 Case of Malignant Endocarditis in a Child. W. H. Pepler, Toronto.
61 Coughs and Colds. William F. Waugh, Chicago.

California State Journal of Medicine, San Francisco.

January.

62 Prevention of Tuberculosis. George H. Evans, San Francisco.
63 Diagnosis and Management of Transverse Presentation in the Later Months of Pregnancy. Charlotte J. Baker, San Diego.
64 Second and Fourth Positions of the Vertex. Henry Gibbons, Jr., San Francisco.
65 Appendicitis. Some Points in Its Diagnosis and Treatment from the View-point That Its Cause Is a Strangulation Produced by Distention Behind a Ball-valve. C. Van Zwalenburg, Riverside.
66 Myocarditis, with Special Reference to Disordered Metabolism. (Continued.) W. W. Kerr, San Francisco.
67 Chronic Otorrhea as Viewed by the Life Insurance Companies and the Medical Recruiting Officer. A. Barkan, San Francisco.
68 The Surgical Treatment of Chronic Nephritis. J. Henry Barbat, San Francisco.
69 Unity of the Medical Profession. Edward Ulrich, San Jose.
70 Odor Humane. Charles Anderson, Santa Barbara.
71 Use of the Phorometer in the Centering and Decentering of Glasses. Louis C. Deane, San Francisco.

International Journal of Surgery, New York.

January.

72 Practical Gynecology. W. A. B. Sellman, Baltimore.
73 Relation of Deep Linear Stricture of Large Caliber to Disturbances of Micturition and Recurrent Posterior Urethral Inflammation. G. F. Lydston, Chicago.
74 Essential Remedies in Emergency Surgery. W. C. Abbott, Chicago.
75 Practical Treatment of Diseases of the Eye. T. Cooke, Jr., Baltimore.
76 The Mastoid Operation in Infants and Children. H. Jerecky, New York City.

Journal of the Michigan State Medical Society, Detroit.

January.

77 Ascites and Pelvic Disease. R. Peterson, Ann Arbor.
78 Treatment of Compound Fractures. A. I. Lawbaugh, Calumet.
79 Renal Hematuria of Unexplained Origin; Cessation After Nephrotomy. B. R. Schenck, Detroit.
80 Chronic Proctitis and Sigmoiditis. W. L. Dickinson, Saginaw.
81 Myelitis Complicating Cancer of the Breast; Report of a Case. F. B. Walker, Detroit.
82 Case of Recurrent Vomiting. C. H. Johnston, Grand Rapids.

Maryland Medical Journal, Baltimore.

January.

83 The Midwife Problem and Its Legal Control. G. Steele, Cambridge.
84 Four Great Anglo-American Medical Discoveries. W. R. Stokes, Baltimore.

New Orleans Medical and Surgical Journal, New Orleans.

January.

85 Contract Medical Practice. B. A. Colomb, Union, La.

New York State Journal of Medicine, New York.

January.

86 An Atypical Case of Appendicitis. Presenting Some Unusual Features Found at the Operation. W. B. Reid, Rome, N. Y.
87 Involution Melancholia. Thomas J. Currie, Willard.

Colorado Medicine, Denver.

December.

88 Tympanites, Eructation, Merycism and Aerophagia. C. D. Spivak, Denver.
89 Narcotic Drug Addictions: Pathology, Treatment, Prognosis. Geo. E. Pettey, Memphis, Tenn.
90 Etiologic Aspects of Puerperal Fever. Charles B. Dyde. Greeley.

Medical Standard, Chicago.

January.

91 The Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
92 The Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. (Concluded.) Homer M. Thomas, Chicago.
93 Autointoxication and Its Treatment. (Concluded.) Heinrich Stern, New York.
94 Observations on the Medical Uses of the Continuous Galvanic Current. Daniel R. Brower, Chicago.

95 Instrumental Treatment of Chronic Gonorrhea. A. E. Fischkin, Chicago.

Journal of the Mississippi State Medical Association, Vicksburg.

January.

96 Microscopic Diagnosis of Gonorrhea. J. B. McElroy, Memphis, Tenn.
97 Scurvy. H. L. Sutherland, Rosedale.
98 Report of a Case of Streptococcus Infection of the Lungs. C. O. Buck, Lexington.
99 Suggestive Therapeutics. H. H. West, Gulfport.
100 Typhoid and Malarial Fevers. I. Edwards, Morton.
101 The Complications of Gonorrhea. S. Myers, Vicksburg.
102 Are We True to Each Other and Ourselves? H. X. Richardson, Dundee.

Journal of the Missouri State Medical Association, St. Louis.

January.

103 Treatment of Epilepsy. Given Campbell, St. Louis.
104 Scarlet Fever. Robert D. Haire, Clinton, Mo.
105 The Early Diagnosis of Pulmonary Tuberculosis. H. C. Shuttee, West Plains, Mo.

Journal of the Kansas Medical Society, Lawrence.

January.

106 Vascular Keratitis. A. C. Graves, Pittsburg, Kan.
107 Dipterous Parasites of the Intestine. F. E. Schenck, Burlingame.
108 Physiologic Action of *X*-ray. E. M. Brockett, Topeka.
109 The *X* ray. Ida C. Barnes, Topeka.
110 Methods of Detecting Bacillus Tuberculosis in Sputum in Doubtful Cases. Charles M. Gibson, Pittsburg, Kan.

Louisville Monthly Journal of Medicine and Surgery.

January.

111 The Operative Treatment of Hydrocephalus. A. M. Cartledge, Louisville.
112 Orbital Cellulitis, Frontal Sinus Disease, Abscess of Brain—Death. S. G. Dabney, Louisville.
113 Foreign Bodies in the Cornea. Dudley S. Reynolds, Louisville.
114 Hepatitis. D. L. Field, Jeffersonville, Ind.

Journal of Advanced Therapeutics, New York.

January.

115 Some Aspects of Phototherapy. Charles S. Dickson, Toronto.
116 Remarks on High Frequency Currents and Their Therapeutic Action. Walter H. White, Boston.
117 Clinical and Experimental Effects of Electrical Currents of High Potential and Frequency. (Continued.) John H. Burch, Baldwinsville, N. Y.
118 Radiography. (Continued.) Herman Grad, New York.

Albany Medical Annals.

January.

119 The Scientific Method in Medicine. Richard M. Pearce, Albany.
120 Pyloric Stenosis in Infancy; Report of a Case; Gastroenterostomy; Recovery. Henry L. K. Shaw and Arthur W. Elting, Albany.

Indiana Medical Journal, Indianapolis.

January.

121 Cerumen. Fletcher Hodges, Indianapolis.

Kansas City Medical Index-Lancet.

January.

122 Ectopic Pregnancy—A Case Report. H. C. Crowell, Kansas City.
123 Prosthetic Surgery, with Report of a Case, Illustrative. Flavel B. Tiffany, Kansas City.
124 Rectal Valves. J. M. Frankenburger, Kansas City.
125 Bright's Disease. J. McB. Johnson, West Plains, Mo.

Memphis Medical Monthly.

January.

126 Significance of Tube Casts in the Urine. William D. Burns, Memphis.
127 Observations on Abdominal Surgery. E. E. Haynes, Memphis.
128 Some Medical Deductions. G. G. Buford, Memphis.
129 Facts and Fancies in Otology. Richmond McKinney, Memphis.
130 Vulnerable Points in the Human Abdomen. E. M. Holder, Memphis.
131 Shock. Battle Malone, Memphis.
132 Meningitis of Otitic Origin—Recovery. Report of Case. J. D. Hopper, Jackson, Tenn.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

January 7.

1 Pains of Tabes. Wm. R. Gowers.
2 Soft Fibroma of the Larynx and Neck Removed by External Operation Without Opening the Cavity of the Larynx. Felix Semon.
3 Some Thoughts on Pleurisy. G. A. Gibson.
4 *A New Blood Fluke of Man. John Catto.
5 Nature of the Follicle Cells of the Mammalian Ovary. V. Chastel de Boinbille.
6 *Ambidexterity. N. B. Harman.
7 *Case of Cutaneous Anthrax Successfully Treated by Sclavo's Serum. C. B. Lockwood and F. W. Andrewes.
8 *Value of Nitroglycerin in Surgery. Frank Elvy.

4. **A New Blood Fluke.**—When Catto was quarantine officer at Singapore cholera broke out on a passenger ship from China. Some 400 coolies were quarantined. Among them was a Chinaman who presumably had never been away from China before. He died after three days' illness. During life it was found that the right lobe of the liver extended two finger-breadths below the costal arch. The left lobe was a hand-breadth below the sternum, and its percussion dullness merged into the splenic. The spleen was palpable one inch from the iliac crest, and its notch was in line with the anterior axillary fold. The autopsy was held an hour and a half after death. The adipose tissue throughout the body was a prominent feature. The appearance of the peritoneum suggested repeated attacks of peritonitis. The appendices epiploicæ were thickened and in some places matted together. The rectovesical pouch was almost obliterated. Encasing the large intestine was a coat of fat, most marked at the mesenteric attachment. The mesenteric tissues were all thickened and loaded with fat. The liver was uniformly enlarged. Its surfaces were markedly nodular, its borders sharp and irregular, the whole presenting the appearance of a very coarse cirrhosis. Its consistence was greatly increased, but its color was not appreciably altered. The coats of the gall bladder were thickened, and a layer of fat almost completely encased this viscus, which was distended with clear, mucoid, apple-jelly-like material, containing several minute black gallstones. The colon was much thickened. The mucous membrane was swollen, hyperemic and friable, presenting numerous small, circular, superficial erosions and patches of necrosis. The outer coats were very tough, almost cartilaginous, and showed no tendency to ulcerate. The rectum was three-quarters of an inch thick all around and was adherent to the bladder. It nearly filled the true pelvis. Where adhesions had formed, the bladder walls were thickened, but elsewhere it was healthy and nowhere was the vesical mucosa diseased. The sigmoid was uniformly thickened; in tracing the bowel upward the thickening became less marked and more patchy. The coats of the cecum and the appendix vermiformis were hypertrophied, the mucous membrane presenting small patches of ulceration and necrosis. The appendix was provided with a mesentery, and a distended lymphatic could be recognized running along its free surface. The liver and bowel cut gritty on section. The enlarged spleen was pigmented. The stomach, pancreas, suprarenals, kidneys, heart and lungs showed no signs of coarse disease. Sections of the liver and mesenteric lymph glands involved were found to contain numerous small oval bodies having a smooth, stout capsule. Sections of the intestine made later showed ova and filariform embryos in bundles in the mucosa and villi of the large intestine. Subsequently, in sections of the mesocolon, Catto found adult trematodes, male and female, in the blood vessels, the ova in the uterus of the female corresponding in every particular with the oval bodies found in the various viscera. The life-history of this new schistosome corresponds with that of other trematodes, especially the *S. hematobium*. It differs from the latter in that (1) the habitat of *S. hematobium* is said to be venous only, whereas the habitat of the new schistosome is mainly arterial; (2) the ova of *S. hematobium* affect mainly the urinary system and escape from their human host by this channel. In the new species the ova apparently affect exclusively the alimentary system, escaping by this route from their human host. The geographical distribution differs, for no case of bilharziosis has yet been met in China. Catto describes the new organism in detail.

6. **Ambidexterity.**—Harman considers the influences determining our general right-handedness and, incidentally, the persistence of cases of left-handedness. He also demonstrates the present existence of a very general degree of ambidexterity or, rather, co-ordination of function in the arms.

7. **Cutaneous Anthrax Treated by Sclavo's Serum.**—Lockwood and Andrewes report the case of a worker in horsehair suffering from malignant pustule of the cheek. Forty c.c. of Sclavo's serum were injected subcutaneously into the flank and abdomen, and no other treatment was adopted. The tem-

perature was then 102.4, and it rose in the evening to 103; the pulse was 92. During the night the temperature fell to 98.6. For the next two days the patient showed little improvement. The slough increased somewhat in size, and the surrounding edema became much more marked, at times almost closing the eye. The enlargement of the glands at the angle of the jaw increased considerably. There was also some swelling and redness of the fauces. The patient's general condition was good, and no further dose of the serum was given. Three days afterward there was distinct improvement. Seventeen days after the administration of the serum only a small granulating surface was left, which appeared likely to leave a scar scarcely more serious than that resulting from vaccination. The serum treatment thus proved completely successful.

8. **Nitroglycerin in Surgery.**—Elvy calls attention to the value of nitroglycerin in surgical cases, administered in doses of gr. 1/100. He advises its use in incipient senile gangrene and in all cases of impaired circulation in which contracted arterial walls are present. Even when the arteries seemed to be normal he has used the drug with benefit in local congestion.

The Lancet, London.

January 7.

9 *Recurrent Effusion Into the Knee-Joint After Injury. William H. Bennett.
10 Simple Method of Separating and Collecting the Urine Which Is Secreted by Each of the Two Kidneys. W. Bruce Clarke.
11 Pathology and Treatment of the Herniæ of Children and Their Relation to the Condition in the Adult. R. Hamilton Russell.
12 *Influence of Rainy Winds on Phthisis. William Gordon.
13 Cultivation of Trypanosoma Out of the Leishman-Donovan Body by the Method of Captain L. Rogers, I. M. S. G. C. Chatterjee.
14 Child Study and the Treatment of Paralysis in Children. Alfred A. Mumford.
15 Diet in Chronic Diseases. John Haddon.

9. **Recurrent Effusion into Knee Joint.**—Bennett considers 750 cases in which the effusion was recurrent, either spontaneously or after another injury, generally so slight that its effect on the normal joint probably would have been unnoticed. He divides his cases into two groups: 1, those entirely independent of any constitutional conditions (509), and 2, those influenced by constitutional conditions (241). In 428 cases in Group I the proportion of males to females was 16 to 1. The youngest patient seen was 9 years old and the oldest was 72. The left knee was concerned in considerably more than half the cases, while in 15 both sides were involved. With one exception, the trouble in the second knee followed that in the first after an interval. The symptoms arising from lesions of the outer side of the joint were less acute than those connected with defects on the inner side; it was also noticed that when the outer semilunar cartilage seemed at fault the symptoms of pain and locking were referred to the popliteal space in at least half the cases. In all such cases operated on recovery followed the removal of the obviously displaced anterior part of the semilunar cartilage. In the total number of 428 cases the symptoms pointed to the inner side of the joint being concerned in 304; to the outer side in 113, and to both sides in 11. Eighty patients were operated on (see Group 2). Fifty-six cases presented no other symptoms than mere recurrence of effusion without noticeable further injury. The affected knee occasionally swelled up without any apparent reason and without inconvenience beyond a slight feeling of weakness. The original effusion had, with two exceptions, come on after a twist or sprain of so slight a kind that it attracted little or no attention at the time. In 12 of these cases which were subjected to operation the internal semilunar cartilage was found to be detached and displaced in 5, the external in 1, and in 1 both cartilages were displaced. In the remaining 5 cases operated on nothing abnormal was detected. Of the 44 cases which were not operated on 30 were treated with complete success by massage, exercises, electricity, etc.; in the remaining 14 the ultimate effect of the same treatment is not known. Bennett says that in recurrent effusion into the knee-joint after injury, independent of constitutional conditions, when the usual methods of treatment had failed to effect a cure, exploratory operation is indicated on the grounds of the probability of internal derangement existing and that extensive displacement of one or even both semilunar cartilages may take place without the recurrence of any of the symptoms which are commonly regarded as characteristic of the lesion. In 21 cases loose bodies were found in the joint. The injury in each case was severe and was followed by excessive immediate swelling. In 14 cases operated on a single fibrous loose body was found in each, the smallest being of the size of a horse-bean and the largest of the size of a cherry. In one of the two remaining cases two ovoid bodies were found; in the other it was evident that the body had been broken off the edge of the articular surface of the femur. Generally speaking, the larger the body the less acute were the symptoms, although the attacks appeared to be more frequent. Only 4 cases of genu valgum were met with in the series. The injury in all cases was indirect, and in each a rapid increase in the deformity followed. In the second group of cases the existence of a constitutional dyscrasia exercised a considerable influence (1) in leading to the occurrence of symptoms from very slight causes and (2) in rendering recovery difficult or impossible unless the constitutional conditions are treated or, at all events, taken into account. In 107 of the 241 cases comprising Group 2, a diagnosis of osteoarthritis was made. In about 50 per cent. the diagnosis was only arrived at with certainty after repeated recurrence of effusion had been followed by some characteristic sign of articular change. The initial injury was invariably slight and generally indirect. In only two cases was a loose body felt before operation; in the remainder attacks of acute pain led to operative investigation; in all the cases explored the loose bodies were found and removed through a longitudinal incision at the inner side of the joint. Males were affected largely in excess of females (4 to 1), the right knee being concerned more frequently than the left. In the treatment of these cases nothing seemed to have more than a palliative effect, excepting the radiant heat bath, massage and electric vibration, which in 23 cases of comparatively recent origin appeared to effect an actual cure. In 30 cases rheumatism and gout acted as underlying causes. In the rheumatic cases a cure was effected, as a rule, by the usual constitutional treatment combined with massage. Operations were performed for the relief of acute pain due to tension; incision appeared to possess no advantage over aspiration, while the healing of the wound after incision was slow. Forty-two cases gave a history of syphilis, the longest period between the original infection and the injury causing the effusion into the knee was 28 years; the shortest period was 3 years. The syphilis in all cases appeared to have been cured. The injury was direct and, as a rule, slight. The right knee was affected more often than the left. In no case was permanent benefit derived until a course of antisyphilitic treatment was adopted. Gonorrheal rheumatism was a factor in 28 cases, malaria in 18, and hemophilia in 3. In 13 cases there was a passive effusion into the joint, such as is prone to occur in young girls during adolescence, if the menstrual arrangements are irregular and, especially, if they are delayed in their onset.

12. **Rainy Winds and Phthisis.**—Gordon finds on investigation that strong rainy winds appear to be remarkably associated with increased prevalence of phthisis, while absence of such winds seems to correspond strikingly with rarity of phthisis.

Bulletin de l'Académie de Medécine, Paris.

Last indexed page 165.

16 (Year LXVIII, No. 41, December 13.) Report of the Distribution of Prizes. Particulars of the Prizes Offered for 1905, 1906 and 1907. About 40 open to the competition of the world. See THE JOURNAL of January 14, page 138.
17 (No. 42.) *Le perborate de soude. G. F. Jaubert.
18 (No. 43.) Alcoholisme, tuberculose, syphilis. Proposition de réforme des statistiques mortuaires officielles. C. Fernet.

17. **Hydrogen Dioxid in Form of a Stable Powder: Sodium Perborate.**—Jaubert announces the production of a powder which, dissolved in water, generates pure hydrogen dioxid. The powder is obtained by the action of boracic acid on sodium peroxid, and he proposes to call it "sodium perborate." The peroxid of hydrogen generated when this powder is dis-

solved in water is chemically pure, and its action is reinforced by the antiseptic properties of the sodium borate. Two pounds of the sodium perborate contain nearly 80 liters of active oxygen. The powder keeps perfectly and can be applied dry to wounds, cavities, etc., the nascent oxygen escaping as it comes in contact with the secretions, or it can be dissolved and thus produce a fresh and potent supply of hydrogen dioxid as required. The perborates of zinc, strontium and calcium can be made in the same way. Robin supplemented this communication with a reference to his suggestion that hydrogen dioxid be used for the water of crystallization, mentioned in these columns on page 83 of the last volume, with reiteration of the importance of the nascent state for the efficacy of drugs.

Revue de Gynécologie, Paris.

Last indexed XLIII, page 1731.

19 (VIII, No. 5, September-October.) *Périvaginite phlegmoneuse disséquante. G. Acconci (Florence).
20 De la jéjunostomie en Y dans la gastrite ulcéreuse grave. A. Monprofit (Angers).
21 *Prophylaxie de la récidive hydatique post-opératoire. A. Martin and F. Dévé (Rouen).
22 *Perforations spontanées de la vésicule biliaire calculeuse dans la cavité péritoneale libre. A. Hallet (Liège).

19. **Dissecting Phlegmonous Perivaginitis.**—Acconci reviews 29 cases in the literature and describes one personally observed. The patient was a healthy iii-para of 29, who was taken sick with evening chills and fever, intense headache, cough and blood-stained sputa. A month later there was a fetid discharge from the vagina with protrusion of what appeared to be a cancerous growth, projecting for from 6 to 7 cm. The fever became higher, the chills more severe, with subdelirium and profound prostration suggesting the typhoid state. This continued for a few days, when suddenly the entire mucous lining of the vagina came away in one piece. After the expulsion of the mass formed by the detached vaginal mucosa the patient rapidly recovered, except for hematometra and two fistulæ, which were cured by an operation later. The affection was evidently primary. The vast perivaginal infiltration did not involve the peritoneum. Only 5 of the cases on record terminated fatally, one probably from pyemia, the others from resulting complications. If diagnosed in time, the perivaginal infiltration might be drained away by scarifications or by incision. This has been done in a few cases and the vagina saved. If seen too late for this, measures to prevent strictures or to cure the consequences are all that can be done.

21. **Prophylaxis of Postoperative Recurrence of Hydatid Cysts.**—Injection of some fluid capable of killing the echinococci before attempting the extirpation of the cyst is a most important means to prevent recurrence later. Its efficacy is confirmed by the experimental tests reported.

22. **Perforation of Gall Bladder into Abdominal Cavity.**—Eleven patients recovered out of 15 operated on after spontaneous perforation of the gall bladder containing stones. This list includes 2 recoveries in Hallet's experience. The conclusions of his monograph on the subject emphasize the importance of prompt operative treatment when cholelithiasis does not yield to medical measures. This is the only certain safeguard against the dangers of perforation later.

Semaine Médicale, Paris.

23 (XXV, No. 1, January 4.) *Comment il faut faire l'appareil de mal de Pott. Calot.

23. **How to Apply the Cast in Pott's Disease.**—Calot is in charge of the Berck-sur-mer children's sanatorium, and he asserts that the successful treatment of Pott's disease is merely a question of applying the cast properly. He describes in detail his simple and practicable method of applying the cast. The article is illustrated by 24 cuts. He reiterates that with casts prepared by this technic he is able to cure every case of the disease wherever its location, even when paralysis is present.

Berliner klinische Wochenschrift.

24 (XLII, No. 1, January 2.) *Zur Kenntnis des Lungen-Emphysems. J. Orth.
25 Urticaria (experimental study). J. Baum.
26 *Objective Heart Findings After Angina Pectoris.—Ueber objektiv nachweisbare Veränderungen am Herzen, namentlich auch über Pericarditis nach Anfällen von Angina pectoris. W. Kernig (St. Petersburg).
27 Zum therapeutischen Wert des Griserins. Schomburg.
28 Der Säuglings-Skorbut in Berlin (in infants). H. Neumann.
29 *Die Anwendung des Adrenalins in der chirurgischen Praxis. Hildebrandt.

24. **Origin of Emphysema.**—Orth has observed 2 cadavers in which the findings indicated that emphysematous degeneration had developed on a basis of congenital hypoplasia of the lung. One lung exhibited this condition with no traces of coal dust in one case, while the other lung was hypertrophied and contained coal dust and no traces of emphysema. He regards this absence of coal dust as conclusive that the lung had not participated in the breathing at any time. He thinks it probable that some injury of the lung tissue, reducing its resistance and elasticity, must precede the development of emphysema.

26. **Objective Heart Findings After Angina Pectoris.**—Kernig has long taught that angina pectoris is due to thrombotic and embolic processes in the coronary arteries, and that the coronary sclerosis is liable to induce foci of softening or infarct in the myocardium or to involve the pericardium in inflammation by allowing the passage of bacteria through the walls of the smaller vessels. The heart findings frequently confirm this assumption and impose the necessity for repose as the proper treatment of thrombosis and embolism. It is only in the severer forms of angina pectoris that such positive findings can be obtained, as a rule. He describes typical examples of such findings. In one group slight fever was noticed after the attack, with appreciable enlargement of the heart, both subsiding under complete repose. In one case the attack was followed by temperature of 37.5 C., with pulse of 84, 90 and 96, the heart found progressively broader after each attack. In another case there was dullness in the left second interspace, but this dullness was not apparent immediately after the attack, but developed in the course of the second day. The heart sounds were very loud in this interspace, close to the sternum, while they were very weak in the fifth interspace. No pericardial friction sounds were heard at any time. He accepts these findings as evidence that the left auricle had become enlarged. This enlargement has been experimentally established as an almost inevitable consequence of occlusion of the coronaries. Circumscribed dullness in the second left interspace, close to the edge of the sternum, is one of the most constant signs of mitral stenosis, according to his experience. The third group includes 5 cases in which acute pericarditis followed the day after the attack of angina pectoris. Huchard found 7 cases of recent pericarditis in his compilation of 185 cases of angina pectoris which came to dissection. The list included also 11 cases of chronic pericarditis and 14 of rupture of the heart. In 2 other cases in Kernig's experience the heart did not present any physical findings, but functional disturbances were manifest after the attack of angina pectoris, oliguria, edema, etc. They illustrate the transitional forms between the cases with positive findings and those in which the angina pectoris does not seem to be followed by any disturbances. In 9 cases published by Pawinski an attack of angina pectoris had preceded the pericarditis, and yet he ascribes the angina to neuritis of the cardiac plexus, although no other evidences of such neuritis were forthcoming. Kernig is convinced that he has saved many patients from sudden death by ordering absolute rest in bed for days or weeks after a severe attack of angina pectoris, when the objective findings suggested the possibility of impending trouble.

29. **Adrenalin in Surgery.**—Hildebrandt reviews the history of adrenalin and extols its advantages for the surgeon. Combined with cocain it insures anesthesia with very much smaller doses, while it prolongs the action of the anesthetic and reduces its toxicity. Subdural injection of cocain is fatal for the rat in a dose of .018 gm., while addition of adrenalin raises the lethal limit to .11 gm. Bier has announced that the addition of adrenalin robs spinal cocainization of all danger, but some fatalities have been reported from this technic. In one obstetric case Bier's directions were closely followed, but the

patient succumbed. König has frequently found adrenalin a great help in plastic operations on the urethra, to prevent the annoying bleeding from the bulb. Analgesia of the mucous membranes is readily attained in five minutes by dabbing the part with a 5 per cent. solution of cocain or beta eucain to which a few drops of 1 to 1,000 adrenalin have been added. To anesthetize the bladder 1 c.c. of suprarenin is added to a .1 or .2 per cent. solution of cocain, analgesia being complete in about fifteen minutes. The fluid must be withdrawn afterward. In operating on the skin or subjacent tissue, Schleich's infiltration method can be used, adding 10 drops of adrenalin to 50 c.c. of the fluid. A still better technic is to make a circle of injections of the fluid around the field of operation. This requires a little stronger concentration, about .05 to .1 per cent. solution of cocain or eucain, with from 5 to 10 drops of adrenalin to the 50 c.c. A circle of blisters is made around the field, at some little distance from it, and the canula is then inserted in the subcutis and the surrounding tissue infiltrated, thus enclosing the field in a complete ring. By this technic it is possible to resect the ribs without pain, infiltrating the subcutaneous cellular tissue and the musculature down to the pleura, in the interspace just above and below. A longer interval is required, however, when such extensive excision is contemplated. The larger, superficial nerves can be deadened in ten minutes by injecting across their course a few c.c. of a .2 per cent. cocain-adrenalin solution. There is danger of later necrosis of the tissues if strong concentrations of adrenalin are used. Gangrenous phlegmons have been known to occur after injection of a few drops of a 1 to 5,000 solution. Afterhemorrhage is also possible, as its effect subsides, if in such strength that the lumen of large vessels is closed. Both of these evils are avoided when the circulation in the capillaries alone is interrupted. For this a dilution under 1 to 10,000 is sufficient.

Centralblatt für Chirurgie, Leipsic.

Last indexed page 77.

30 (XXXI, No. 49, December 10.) *Behandlung des tuberkulösen Ascites. Schömann.
31 *Die ambulante Behandlung der Oberschenkel-Frakturen (of femur). S. Kofmann (Odessa).
32 (No. 50.) *Large, Pointed Foreign Bodies in Upper Esophagus.—Zur Behandlung grosser spitzer Fremdkörper im Halsteile der Speiseröhre. W. Kramer (Glogau).
33 (No. 51.) *Ein neues Ureteren-Kystoskop für den Katheterismus eines oder beider Ureteren. A. Freudenberg (Berlin).
34 (No. 52.) Automatic, Hinged Extension Pulley.—Eine automatisch drehbare Extensionsrolle. A. Hofmann (Freiburg).

30. **Treatment of Tuberculous Ascites.**—Schömann used to treat tuberculous ascites by laparotomy in appropriate cases and found the results of the operation always gratifying. But the necessary narcosis and the long rest in bed afterward render it a serious intervention for debilitated patients, and he has found that the same or even better results are attained by mere puncture and injection of a 1 to 5 per cent. glycerin emulsion of iodoform. The slow withdrawal of the ascitic fluid does not harm the weakest patient, and the symptoms rapidly subside after injection into the free abdominal cavity of from 1 to 2 cg. of the emulsion, repeated in from four to eight days, increasing the concentration and dose. He has treated by this technic 7 girls from 2 to 19 years old, all out-patients, and all could be regarded as cured in the course of from three to ten weeks. In 2 cases the serous exudation did not recur, but the oldest patient required five injections and the others three or four. She presented an apical infiltration with evening temperature and night sweats. The fever vanished after the third injection, the night sweats ceased and the lung lesion healed. She has been in good health since the end of treatment in September, 1902. There were no indications of iodoform intoxication in any instance and no complications or inconveniences of any kind.

31. **Ambulant Treatment of Fractures of Femur.**—Kofmann applies to fractures of the femur the cast used by Lorenz for coxitis. It extends below the knee and is applied in deep narcosis. The foot is held a little distance above the ground by side irons fastened in the cast with a crosspiece below the sole. He keeps a number of these irons constantly on hand, with an assortment of wooden sandals with soles and heels about two inches thick. One of these sandals is tied over the patient's shoe on the sound side. Thus equipped, the patient is able to walk about by the second day and is dismissed from the hospital by the third. In five or six weeks he returns to have the cast removed. In every instance the fracture has been found to be healed perfectly without the slightest deformity of the limb. In a few cases hemorrhage prevented the immediate application of the cast. He applied two sacks of sand on each side of the fractured limb. Their constant pressure soothed the pain and arrested further hemorrhage; the cast was then applied as usual. If the tissues appear too much compromised to be enclosed in the cast, he leaves an opening in the cast over this part for supervision of the healing processes.

32. **Large Pointed Foreign Bodies in Upper Esophagus.**—Kramer was able to accomplish the removal of a plate of false teeth which had lodged in the esophagus, without opening the latter. The corner of the plate had caught in the mucosa and all efforts to dislodge it had proved unsuccessful. He exposed the esophagus through an incision about 9 cm. long on the left side of the neck. The point of the plate could be readily palpated through the wall, and by manipulations through the wound with two fingers of the right hand and pressure with the left hand on the right side of the neck, he was able to dislodge the plate. The patient's retching then brought the plate up into the throat, whence it was readily extracted through the mouth. In the second case there was no effort at retching. When the plate was once dislodged by the manipulations it was extracted with a long, curving pair of forceps. The latest compilation of cases of foreign bodies in the esophagus (Balacescu) states that 69 out of the total 326 cases terminated fatally.

33. **A New Cystoscope.**—Freudenberg calls attention to two features which, he thinks, commend his cystoscope. The lamp and lens are on the convex side of the shaft, which has many advantages. The other new feature is that the optical part can be removed and with it the dividing wall between the optical part and the rest of the interior. Three illustrations show the details of the instrument.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 253.

35 (XXVIII, No. 50, December 17.) *Injuries of Uterus and Rupture.—Uterusverletzungen und Schwangerschaftsruptur. K. Baisch (Tübingen).
36 Zur Kasuistik der Mesenterial-Cysten. W. Haas.
37 Ulcus rotundum simplex vaginæ. H. Thomson (Odessa).
37½ Ueber einen operativ geheilten Fall von ausgetragener Extra-uterin-Gravidität (at term). L. v. Lingen.
38 (No. 51.) *Early Fetal Heart Sounds.—Zur Hörbarkeit der Herztöne im vierten und fünften Schwangerschaftsmonat. O. Sarwey.
39 *Zur Behandlung der klimakterischen Bluntungen (hemorrhages). A. H. Queisner.
40 *Der Gebrauch des galvanischen Stromes mit Kolpeuryse als Behandlungsmethode der chronischen Inversionen (des Uterus). J. v. Jaworski.
41 *Minor Points in Antisepsis.—Antiseptische Kleinigkeiten. O. Wille (Braunschweig).
42 (No. 52.) Ein neues Cystoscop-Stativ (standard). O. Polano.
43 Ueber Inversio uteri totalis. R. Wanner. Two cases.
44 Beitrag zur Histo- und Pathogenese des Chorionepithelioma malignum. T. Burdzinsky (St. Petersburg).
45 *New Principles and Instrument for Measurement of Pelvis.—Eine neue Theorie über Beckenmessung und die Beschreibung eines neuen Pelvimeters. S. v. Gaszynski (Warsaw).

35. **Injury of the Uterus and Rupture During Pregnancy.**—Baisch thinks that the weak spot resulting from some previous injury is responsible for the occurrence of rupture during pregnancy. He reports a case in which the wall of the uterus had been perforated with the finger during the extirpation of a placental polyp. The woman recovered without further intervention, but excessive hemorrhage from placenta previa at a delivery two years later compelled hysterectomy. At the spot of the former perforation there was a thin scar, free from muscle tissue. If rupture had occurred at this weak point the scar would probably have escaped attention.

38. **Early Diagnosis of Pregnancy.**—Sarwey's communication on the possibility of detecting the fetal heart sounds long before the time accepted as possible in the text-books, was summarized in THE JOURNAL, on page 1425 of the last volume.

He here describes 2 additional cases, which bring the number to 14, in which he was able to diagnose the pregnancy before the eighteenth week. The auscultation has to be perseveringly kept up, with all the precautions enumerated, the bladder completely emptied. In one case auscultation of the heart sounds at the sixth month revealed the existence of twins and established further that the trauma of birth is able to affect the heart to some degree.

39. **Treatment of Climacteric Hemorrhages.**—Queisner has cured 2 cases of climacteric hemorrhage, rebellious to all other measures, by slitting the lower segment of the uterus and suturing the two halves to the freshened roof of the anterior vagina. This allowed easy access to its entire interior and the mucosa was then cauterized with the actual cautery, with the complete arrest of the hemorrhages. This operation is less radical than hysterectomy, and answers the purpose fully as well in these cases. The patients were kept in bed only for four days.

40. **Galvanism as Supplement to Colpeurynter in Treatment of Chronic Inversion.**—Jaworski combines the electrode with the colpeurynter, the tip of the cathode terminating in a bag filled with water, the whole covered with a square of gauze. He gives illustrations of the instrument and relates its successful application in an old, inveterate case of inversion.

41. **Minor Points in Antisepsis.**—The fluid in which Wille keeps his instruments is water containing 1.5 per cent. borax, 3 per cent. carbolic acid and 2 per cent. formalin. The borax prevents rusting, the carbolic acid disinfects, and the formalin disguises the odor of the latter and probably enhances its antiseptic action. Rubber and metal instruments, syringes and brushes, keep perfectly in this fluid and are ready for use at any moment. The receptacle can be of enameled iron, tin or glass. He soaps and rinses the articles after using before replacing them in the fluid. Four years' experience with this fluid have fully established that this antisepsis is all that is necessary. For boiling instruments he uses .5 per cent. borax, wrapping the instruments in a cloth fastened with safety pins. He lifts the package out of the boiling water with bulldog forceps and hangs the package with the same forceps over a nail which projects far from the wall, where the contents dry out, or the package can be wrapped wet in parchment paper to be taken out of the house. After using, they are merely cleansed from blood and wrapped up, ready to be boiled again, thus saving much time. For convenience in wrapping he has his sounds made no longer than the curette, and the speculum is also a third shorter than usual. He keeps his basins in a wooden tub, like a butter tub, in a solution of sublimate. The basins are all of the same size so they fit together. The sublimate solution, with equal parts of salt, does not deteriorate in wood, as in an enameled vessel. For a lubricant, he has discarded oil, vaselin and soap, and uses a jelly made from Irish moss which has exactly the right consistency and is a superior lubricant, while the antiseptics retain their potency in it, as it is made with water. Its greatest advantage, however, is that it washes off immediately without leaving a trace. He keeps it in a wide-mouthed jar in which he can readily insert his hand; it usually has a little salicylic acid or stronger antiseptic incorporated with it.

45. **Pelvimeter on New Principle.**—The relations between the walls of the pelvis, their slant, the position of the symphysis in respect to the promontory and numerous other factors should enter into the measurement of the pelvis from the obstetric standpoint. The new pelvimeter described is an attempt to take advantage of all the various factors which have been established by anatomic-pathologic research. Not a single measurement, but the mutual relations between the various measurements form the criterion. The details of the pelvimeter constructed on these principles are shown in four illustrations. The longitudinal diameter of the symphysis is the base for the calculations. They are simple and when transferred to paper form a complete diagram of the entire interior of the pelvis, obtained without inconvenience to examiner or subject.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

46 (XXX, No. 49, December 1.) *Bacteriology and Puerperal Fever.—Die Erfolge der bacteriologischen Forschung in Erkennung, Verhütung und Behandlung des Kindbettfiebers. Döderlein (Tübingen).
47 *Ueber multiple Primär-Tumoren. P. Grawitz (Greifswald).
48 *Behandlung der Leukämie mit Röntgen-Strahlen. Joachim und Kurpjuweit (Königsberg).
49 *Wearing Out of the Nerves.—Die Aufbrauchkrankheiten des Nerven-Systems. L. Edinger (Frankfurt a. M.).
50 *Ueber den Typus A des Bacterium paratyphi; Typhus Serum Erfahrungen, und zur Mischinfektions-Frage. H. Kayser (Strasburg).
51 *To Enhance Resisting Powers.—Experimentelle Untersuchungen zur Frage der Erhöhung der natürlichen Resistenz des Peritoneums gegen operative Infektionen. L. Borchardt.
52 *Intraperitoneale Serum- und Kochsalzlösung-Injektionen zur Verhütung operativer Infektionen des Bauchfells (of peritoneum). A. Schmidt (Dresden).
53 Zur Pathogenese des Laktophenin-Icterus. S. Laache.
54 (No. 50.) *Ueber physiologische und pathologische Albuminurie. H. Senator.
55 Placenta-Lösung und Gummihandschühe (rubber gloves). F. Ahlfeld.
56 Verwendung der Gummihandschühe bei der manuellen Placentarlösung nebst Bemerkungen über die Ursache der Retentio placentæ (rubber gloves). Mende.
57 Zur Frage der gemischten Hedonal-Chloroform-Narkose. E. D. Podhoretzki.
58 Diagnose und Behandlung der Kieferhöhleneiterung (maxillary sinusitis). E. P. Friedrich (Kiel).
59 Tests of Hearing.—Prüfung der Gehörfunktion. Ostmann.
60 Extension Bed for Infants with Fractured Femur.—Streckbett für Säuglinge mit Oberschenkelbruch. H. Landau.
61 Durchdringung der Larven des Ankylostomum duodenale durch die Haut (penetration through skin). Lambinet.

46. **Prevention and Treatment of Puerperal Fever.**—Döderlein expatiates on the great value of the aid afforded by bacteriology in the prophylaxis of puerperal fever and in its treatment. About two-thirds of all cases are due to pyogenic germs, we have learned, but there is a large number caused by the putrefaction bacteria alone. He thus distinguishes between the septic and what he calls the sapric puerperal fevers from the Greek term *sapros*, rotten. Prophylaxis is required along different lines for these two varieties. They are very rarely associated. Septic infection is prevented by preventing the access of foreign pathogenic germs, the same as in surgical work. Sapric intoxication is prevented by removing the conditions which the putrefaction bacteria require for their development. These ubiquitous and unavoidable germs are unable to proliferate in an unfavorable environment. The more natural and complete the detachment and expulsion of the placenta the less foreign matter will remain in the uterus to attract bacteria. All measures which require long retention of foreign bodies in the uterus, such as gauze, tampons, laminaria, bougies, metreurynter, etc., afford particularly favorable conditions for the growth of these bacteria and are, therefore, liable to be more dangerous than more forcible measures which are of briefer duration. Puerperal affections will become less frequent the less artificial assistance is rendered and the more the natural defensive and protective processes are allowed to work undisturbed. The primary focus of both septic and sapric puerperal affections is generally in the uterus. Careful supervision of the temperature and prompt disinfection of the focus at the first warning rise will frequently abort the process in its inception, especially if of the sapric variety with fetid lochia. He prefers for the disinfectant a 3 per cent. alcoholic solution of lysoform, and thinks that antistreptococcus serum is indispensable in severe septic cases not too far advanced. Operative treatment of puerperal peritonitis has never proved successful. In selected cases of severe, localized infection of the uterus extirpation of the organ may save an otherwise doomed life. The Trendelenburg technic of resection of septic thrombosed vessels will only exceptionally find application.

47. **Multiple Primary Tumors.**—Grawitz has always contended that it is highly improbable that a single cause can be responsible for all malignant tumors. A parasitic etiology is incompatible with the clinical experiences of multiple primary tumors in the same subject. Even in case of generalized carcinosis or sarcomatosis, in which the blood would be swarming with parasites—if such existed—yet multiple primary tumors are rarely encountered and when found they usually bear the characteristics of metastases, due to deportation of cells and not to the settling of parasites. He recently discovered at the autopsy of a woman of 67 several benign myomas in the

uterus, a malignant sarcoma of the broad ligament with metastases, and a cancer in the small intestine, likewise with metastases. The latter were located in the ovaries, and he emphasizes the importance of search for a primary tumor in the stomach or small intestine in case of bilateral malignant disease of the ovaries. The woman had been in an insane asylum for nearly thirty years, but her physical health had been good until the last year. The microscopic findings speak convincingly, Grawitz thinks, against any parasitic etiology for the tumors observed.

48. **Roentgen Treatment of Leukemia.**—In the 2 cases reported the leukemic features of the blood and the leukemic enlargement of the spleen and of the glands all rapidly returned to normal under the influence of the *x*-rays. The general health showed marked improvement in the first case, one of myelemia. The other was a case of chronic lymphemia. A patient with splenic anemia treated with the same technic was not influenced. Hard tubes are best adapted for treatment of leukemia, and it might be well to protect the exposed area with a thin sheet of metal foil to filter out any soft rays that may be present.

49. **Wear and Tear of the Nerves Without Normal Repair.**—In this second article Edinger discusses the abnormal wearing out of the peripheral nervous system without normal repair. The wearing out may be due to relative or absolute excessive functioning or to the influence of some toxin or to a combination of both factors. The resulting neuritis in these cases is a painless affection, sometimes not giving rise to any symptoms or, at most, to a little paresthesia or motor weakness. There is no need to distinguish between the neuritis of old age, of diabetes, infectious diseases or of pregnancy. All belong, Edinger asserts, in this category of wear and tear of the nerves without normal repair, entailing a painless neuritis. Alcohol, lead and arsenic do not attack the nerves directly, but they weaken them so that wear and tear use them up more quickly. No case of acute paralysis after lead, alcohol or arsenic poisoning is on record. In the course of time a hard drinker is liable to present such a using up of so many nerves that the clinical picture of tabes, with or without muscular atrophy, is apt to result, or else a condition resembling progressive neurotic atrophy. This peripheral pseudotabes has many points in common with true tabes. It is due to the wearing out of nerves injured by alcohol, while in true tabes the abnormal wearing out of the nerves is due to their having been injured by the syphilitic virus.

50. **Mixed Typhoid and Paratyphoid Infection.**—Kayser writes from the "typhoid station" established at Strasburg to help in carrying out the Koch method of combating typhoid by eradicating each focus. He states that the paratyphoid bacterium, type A has been found in pure cultures in 3 cases and type B in 8 cases during the last year. In 15 cases the presumptive diagnosis of typhoid was based solely on the positive findings of 1 to 100 or higher in the agglutination test with the paratyphoid bacillus, type A. Suitable prophylactic measures were at once instituted, although the clinical findings were dubious and all other tests were negative. The course of the disease confirmed the diagnosis of typhoid in every instance except one case, in which the disease proved to be paratyphoid. The specificity of the highest agglutination value is not absolutely reliable unless corroborated by corresponding tests on animals. In typhoid or allied diseases the serum of the patient is liable to be capable of agglutinating not only the bacteria causing the disease, but also others resembling it, the values for the latter sometimes being higher even than those for the specific microbe.

51-52. **To Enhance Resisting Power of Peritoneum Before Operations.**—Borchardt has been long engaged in study of this problem and now announces that it is possible to materially enhance the resistance of the peritoneum by preliminary injection of physiologic salt solution. He commenced his researches independently of Mikulicz. (See THE JOURNAL, xliii, page 1733.) They have established that a preliminary injection of nucleinic acid, horse serum or physiologic salt solution is able to increase the resisting powers of the peritoneum and thus render conditions more favorable for the surgeon. He found that salt solution is fully as effectual as nucleinic acid, and consequently prefers it to the more toxic acid. This preliminary treatment proved most effectual with an interval of forty-eight hours before the operation. The increase noted in the resisting powers persisted for about four days. His results confirm those obtained by Petit, mentioned in these columns, page 1731, of the last volume.

Schmidt writes from the same clinic to report 5 cases in which the foregoing experimental findings were practically applied in the clinic. The preliminary injection of horse serum and salt solution evidently causes a slight irritation of the peritoneum which temporarily enhances its resisting powers. In one of the cases related the abdominal wound after the gastroenterostomy separated the seventh day and the bowels protruded, but there was no inflammation and the wound healed without any evidences of reaction. He thinks it is possible that injection of serum or salt solution might be used in the treatment of morbid processes in the peritoneum. It seems to be already established, he concludes, that the dangers may be lessened by it in incipient appendicitis, annexitis, ulcers, etc., re-enforcing the natural resisting powers as an aid to other medical or surgical measures. He gives an illustration of a little instrument which he has devised for injecting the fluid without danger of injury to the viscera. It is in two parts, one resembling an apple corer, a short cylinder trocar, 1 to 1.25 cm. long, with a sharp, slanting, cutting edge and crossbar handle. The other part is a long, round-tipped sound, with a lumen of 2 mm. and openings near the tip. When the short trocar has been introduced through the abdominal wall, the tube is passed through it, and a hole is bored with the blunt tube through the parietal peritoneum, and the fluid allowed to flow through it. Numerous tests on the living subject and on the cadaver have demonstrated that there is no danger from the use of these instruments under normal conditions, but in case of adhesions there is a possibility that in detaching them some of the intestinal content might escape into the peritoneum. He injected always from 5 to 10 c.c. of horse serum in .9 per cent. salt solution (250-500 c.c.) He used this amount of fluid, fearing that a smaller quantity would not spread evenly over the peritoneum. The preliminary injection was generally made from seventeen to nineteen hours before the operation. When the abdomen was opened, part or the whole of the peritoneum was found more or less congested, but there was little free fluid. The leucocytes had increased to about double the previous figure and by the next day to four times.

54. **Physiologic and Pathologic Albuminuria.**—Senator presents arguments to sustain his assumption that the appearance of physiologic and the closely allied pathologic albuminurias is due to a predisposition which may be congenital or acquired. This predisposition may be the result of an abnormal constitution of various organs, either the kidneys, the digestive tract, the blood vessels or the blood itself.

Münchener medicinische Wochenschrift.

62 (LI, No. 51, December 20.) *Ueber Herz Bigeminie nach Digitalis-Gebrauch. C. J. Fauconnet.
63 Die Augensymptome bei der Myasthenie (eye symptoms). A. Bielschowsky.
64 *Further Research on Causes of Eclampsia.—Weitere Untersuchungen zur modernen Lehre der Eklampsie. E. Wormser und A. Labbardt.
65 Ein Fall von Situs inversus des Magens, des Duodenums und der Milz bei einem 63-jährigen, weiblichen Individuum. J. Halff.
66 Zur Landryschen Paralyse. J. Jul.
67 Akute Kompression der Cauda equina durch ein Projektil. Operation. Heilung. F. Engelmann.
68 Ueber Sanatogen. J. Hoppe.
69 Packing Dressings and Tampons Ready to Use.—Abgepasste gebrauchsfertige sterilisierte Verbandmaterialien in sterilhaltender Verpackung. L. Grunwald.
70 Leukozyten-Zählung und Früh-Operation bei Epityphlitis. F. Berndt. (Commenced in No. 50.)
72 *Legislation Against Irregular Practices in Baden.—Gesetzliche Massnahmen gegen die Kurpfuscherei in Baden. O. Neustätter.

62. **"Heart Bigeminus" After Administration of Digitalis.**—Fauconnet describes a case diagnosed as recurring endocarditis and mitral insufficiency, in which great irregularity was in-

duced in the heart action by administration of moderate doses of digitalis. The tracings show the prompt effect of the digitalis in inducing "heart bigeminus," with pseudo-bradycardia. The apex beat indicated 84 systoles, with a 42 radial pulse. Review of the European literature shows that 22 authors have reported double heart beat after the use of digitalis in valvular affections. A number of others have observed it in infectious diseases and during convalescence, one in a case of nephritis, another in catarrhal icterus, one in epilepsy, and one in diphtheria. Three writers have reported it in a valvular affection without digitalis, and 2 without mention of the existing disease. Doll has also reported a case of double beat due to an aneurism in the heart. In the case described in the article the connection between the digitalis and the consequent "heart bigeminus" was strikingly apparent. Fauconnet suggests, in explanation, that the drug exerted its usual effect by inducing more powerful contractions of the heart muscle, filling the cavities better, but the anatomic condition in the heart in severe valvular affections causes this increased action of the heart to be ultimately unfavorable for the organism. The extra systole indicates a maximal contraction of all the muscular elements, while all this expenditure of energy is almost entirely wasted so far as the circulation is concerned. The effects observed have nothing in common with ordinary digitalis intoxication, but they indicate the immediate suspension of the drug. Death may result from disregard of the warning pulsus bigeminus. Salaghi published last July an account of experimental study of the influence of the bigeminal action of the heart on the general circulation. He demonstrated that the double heart action, associated with mitral insufficiency or stenosis, would have the effect—by purely physical laws—of further increasing the stasis in the pulmonary circulation.

64. **Further Research on Causes of Eclampsia.**—This article relates a series of experiments based on the theory of the deportation of villi and syncytiolysis, as connected with the etiology of eclampsia. The results were practically negative.

72. **New Regulations in Baden Against Irregular Practices.**—See news columns.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed XLIII, page 1666.

73 (XVIII, No. 4.) Der akute Gelenk-Rheumatismus und die intravenöse Salizyl-Behandlung. F. Mendel (Essen-Ruhr).
74 Neuere Behandlungs-Methoden des Heufiebers (of hay fever). E. Fink (Hamburg).
75 Ueber Fetron-Salbe (ointment). E. Saalfeld.
76 Zur diuretischen Wirkung des Theocins speziell bei akuter Nephritis. Hundt.
77 *Untersuchungen über subdurale Injektion von Adrenalin und Cocain. Zeigan.
78 Scrofula and Brine Baths.—Skrofulose und Solbad. Kabié.
79 Etiology of Tabes.—Ist für die Enstehung der Tabes die Syphilis oder die Anlage und ein sozialer Faktor massgebend? O. Rosenbach (Berlin). (Commenced in No. 3.)
80 Action of Mud Baths.—Wirkungen der Moorbäder. A. Loebel.

77. **Analgesia from Subdural Injection of Adrenalin.**—Zeigan found that complete anesthesia below the point was induced in animals by subdural injection of 1 mg. adrenalin in 1 c.c. of physiologic salt solution. When the same amount was injected in 5 c.c. of fluid, it spread to the medulla and brain and caused severe symptoms on their part. The anesthesia of the parts below the spot is as complete as when cocain is used, but it does not last longer than eight to twelve minutes. The effects observed indicate mere anemia, not intoxication of the nerve cells. The animals were all lively afterward.

Hospitalstidende, Copenhagen.

Last indexed XLII, page 1345.

81 (Year XLVII, Nos. 17-18.) *Mechanical Dilatation.—Nyere Metoder til Behandling af Födslens Udvidningsperiode. Muus (Leopold Meyer's clinic, Copenhagen).
82 (No. 19.) Syphilis corymbosa. K. Gron and J. Haavaldsen (Christiania). Four cases.
83 (No. 20.) *Excochleatio uteri. H. Kaarsberg.
84 (No. 21.) Om Difteri-Statistik. H. I. Bing and V. Ellermann.
85 (No. 22.) Pericarditisk Pseudo-Lever-Cirrhose og dens Behandling. K. Faber (Copenhagen).
86 Report of International Anti-Tuberculosis Conference. Copenhagen, May 26-29, 1904.
87 Treatment of Accidental Wounds in Private Practice.—Om Behandlingen af accidentelle Saar i privat Praxis. T. Schultz.
88 (No. 24.) Experiences with Hospital Infections.—Hospitalsinfektioner paa Blegdams-Hospitalet 1879-1903. Sörensen.
89 (No. 25.) *Fibromyoma uteri med Thrombophlebitis. R. Paulli.
90 (No. 26.) Autoinfection During Childbirth.—Om Selvinfektion under Fodslen. A. Johansen. (Commenced in No. 20.)
91 *Ett Tilfaelde af intermitterende Tyndtarms-Invagination. P. A. Fenger Just.

81. **Mechanical Dilatation.**—Muus states that Bossi's dilator had been applied at date of writing 35 times in Meyer's maternity, a larger experience than had been reported from any other clinic outside of Italy. There were 22 primiparæ, and in 7 the cervix was not obliterated, the os allowing the entrance only of a single finger. His experience has convinced him that the Bossi method is able to accomplish delivery rapidly and effectually without causing any appreciable lesions and without danger for the child. The latter can thus be removed from the influences (eclampsia, etc.) for which the rapid delivery is indicated. His impressions from the 15 cases of eclampsia were decidedly in favor of this method of dilatation. Eclampsia before 1890, when delivery was left to nature, gave a mortality of 20 per cent. The mortality during the last six years, in which delivery was hastened as soon as possible after commencement of the convulsions, has been less than 11 per cent. in 43 cases. In 20 in which delivery occurred unassisted 4 of the patients died. In 3 cases of placenta previa 2 patients were promptly and safely delivered by the Bossi method, but the third patient succumbed to pre-existing infection. Muus thinks that rigidity of the cervix is a very serious complication of delivery, and he now follows the rule that if the os remains closed, notwithstanding good labor pains, after the escape of the water, it is not wise to wait too long. Twelve hours should be the maximum expectancy, and the Bossi dilator will then be found more useful than any of the old-style instruments. Four patients with pyelonephritis and 3 with heart disease were smoothly and safely delivered by this means. One woman was admitted moribund and a living child was safely delivered. One of the cardiac patients presented cyanosis and edema, pulse 84, the findings suggesting a congenital valvular affection. As the symptoms were not pressing, nothing was done until labor commenced. Then the cervix was dilated with the Bossi dilator under ether from 2 to 11 cm. in fifteen minutes, and a living child extracted with forceps. The patient has been in good health since, better than for some years previously. Muus regards this case as one of those that best demonstrate the advantages of mechanical dilatation. Without it such demands would have been made on the woman's system in delivering her child that she could scarcely have survived, while with it the delivery was smoothly accomplished in less than half an hour.

83. **Examination of Uterine Scrapings.**—Kaarsberg emphasizes the importance of microscopic examination of the scrapings whenever the uterus is curetted for any cause. He quotes Landau to the effect that 99 out of every 100 women with postclimacteric hemorrhage have a cancer. Whenever curetting is done, the physician should be prepared for any eventual operation as in case of taxis of an incarcerated hernia.

89. **Fibromyoma Uteri, with Thrombophlebitis.**—Paulli describes a case of fibromyoma of the uterus with thrombophlebitis alternately in legs and arms. The patient was a woman of 46. She recovered under symptomatic treatment and has been in comparative health during the year since. He believes that a developing myoma is not only a local affection, but that the organism suffers generally, possibly with a tendency to a triad of symptoms, like the triad in exophthalmic goiter, in Addison's and in Bright's disease. The triad with myoma is the tumor in the uterus, a series of nervous symptoms—neurasthenic, neuralgic or mental—and a general vascular disturbance entailing a tendency to thrombophlebitis. It is impossible to say positively which element of this triad is the primary. An anatomic heart lesion was found in 40.8 per cent. of 71 cases of myoma at the Berlin Charité as reported in 1894. Kaarsberg found pigmented degeneration of the myocardium in 4 out of 8 myoma cadavers, 2 of the deaths being due to embolism in the pulmonary artery. Kessler of Dorpat found myofibroma of the heart in a patient who had succumbed the seventh day after extirpation of a myoma in the fundus weighing 56 pounds. He thinks that this coincidence of myofibrosis and myoma probably occurs frequently. In 3 out of 5 cases

of death from embolism of the pulmonary artery observed at the hospital in Paulli's charge the patients succumbed the second week after ablation of a myomatous uterus, the fatality coming like lightning from a clear sky. Two other myoma operations were followed by death, one from secondary hemorrhage with consecutive peritonitis and one from local peritonitis with ileus. The total mortality has been 5 in 83 myoma operations during the last five years. Embolism of the pulmonary artery was not observed, except in these 3 myoma cases, in the experience of 362 laparotomies. Rosthorn had one death from embolism in 66 abdominal radical operations for myoma; Michel, 2 in 586; Burckhardt, 7 in 236; Hofmeier, 3 from embolism and 1 from "heart stroke" in 223 laparotomies for myoma, and Czempin, 2 in 82, but Engstrom had no deaths from this cause in a mortality of 5 in 100 operations. In Paulli's 3 cases of fatal embolism, slight evening temperature had been noted. Other circumstances observed indicate, he thinks, that prophylactic elevation of the foot of the bed may not prove effectual, although its importance can not be overestimated for most cases; that the heart should be stimulated before the operation with digitalis, camphor or strychnin, and that ether, and not chloroform, should be used with saline infusion of a liter a day during the first few days, with nutrient enemata. It is extremely important that the intestinal peristalsis should be promoted to prevent tympany. The rectum should be rinsed out several times a day for this purpose.

91. **Recurrent Intussusception.**—In the case related a girl of 17 had been treated for symptoms of gastric ulcer, but without improvement. A laparotomy was then undertaken on the presumptive diagnosis of gallstones, but nothing was found to indicate lithiasis. After ten days of calm the symptoms recurred, suggesting ileus this time, until the discovery of a tumor corrected the diagnosis to invagination of the small intestine. The intussusception was reduced by a laparotomy and the intestine sutured to prevent recurrence. Again the invagination recurred, this time at a higher point, reduced by a third laparotomy with resection of a loop 7 cm. long. The patient has been in good health since.

Medicinskoe Obozryenie, Moscow.

Last indexed page 335.

92 (LXI, No. 1.) *K kazuistikye ostrago staphylo-mycoza. N. Bereznegovsky.
93 Case of Thrombosis of Sinus Transversus and Internal Jugular Vein, Secondary to Otitis Media; Recovery.—K kazuistikye tromboza poperetchnoi pazukhi i vnutrennei yaremnoi veny. A. M. Arkhinoff.
94 *K voprosu o hemophilii. V. A. Geyer.
95 *Hot Baths in Treatment of Epidemic Cerebrospinal Meningitis.—Goryatchiya vanni pri letchenii epid. cerebrospin. meningita. V. M. Rozhansky.
96 Technic for Differentiation of Tubercle and Smegma Bacilli.—K voprosu ob otlitchitelnom raspoznavanii tub. bac. ot bac. smegmy. O. M. Nevyadomsky.
97 (No. 2.) *Favorable Action of Atropin in Two Cases of Hemoptysis.—2 slutchai udatchnago primyeneniya atrophina pri upornom krovokharkanye. W. O. Woltke.
98 O dyestvii formalina na parshu (formalin in favus). Scharzhinsky and Bogroff.
99 *Study of Red Corpuscles.—Ob izmyerenii obshago obema krasnikh tyeletz v krovi tchelovyeka pri normalykh i patologitcheskikh usloviyakh. E. V. Gote.
100 (No. 3.) Gonorrheal Urethritis in Boys.—O pereloinom uretritye maltchikov. A. P. Rudsky.
101 K voprosu ob etiologii vostotchnoi yazvy (parasitology of oriental sore). E. I. Martzinovsky and S. L. Bogroff.

92. **Acute Staphylomycosis.**—A girl of 10 succumbed in a few days to what was apparently an acute infectious osteomyelitis. Pure cultures of the staphylococcus aureus were derived from the exudates, tissues, etc., the case being best described as an acute metastatic staphylomycosis. The clinical and autopsy findings are given in detail, with a review of the literature on the subject, especially the Russian. The general conclusions seem to be that the mortality of staphylomycosis is high and that the further necrosis of the bones is not always arrested by surgical intervention.

94. **Hemophilia.**—Bobroff had occasion to operate on a young man whose knee was swollen and painful. A similar condition had been noted a few years before after a trauma, but had spontaneously subsided. The urine was occasionally blood-stained, without known cause, and the patient's brothers suffered also from swellings in the knees and hip joints. The hemorrhage was continuous, as the knee was incised, and the blood showed no signs of coagulating. Applications of 20 per cent. ferropyrin and liq. ferri sesquichlorid internally, with ergotin, failed to arrest the bleeding, as also compression on the femoral artery for twenty-four hours. The autopsy revealed no cause for the hemorrhage. Bobroff thinks that hemophilia is due to the composition of the blood itself, probably to an abnormal proportion of cytoglobin, a product of the destruction of the red corpuscles. Another cause may be the thinness of the walls of the arteries from defective development of the musculature in the blood vessels. The elastic fibers in the skin also show a defective development in these cases and thus fail to exert the normal pressure on the capillaries, while the lumen of the arteries is unable to contract. The majority of hemophilics are slight, with light hair, white and transparent skin, blue eyes and transparent teeth, although a few cases have been published of hemophilia in the brunette and even in the negro.

95. **Hot Baths in Treatment of Epidemic Cerebrospinal Meningitis.**—Fifty-one patients out of 62 were treated with the hot baths. They were given once or twice a day for from fifteen to twenty minutes each, the water at a temperature of 32 R. (104 F.). Ice was applied to the head during the bath. The benefits were purely symptomatic, but they helped to tide the patient past the dangerous phases. The general mortality in the 62 cases was 45 per cent., but among those treated with the hot baths it was only 33 per cent. and it was zero in the 4 cases in which treatment was instituted during the first three days. One died out of 6 treated the fourth day and 6 out of 8 in which treatment was commenced the fifth day. The total mortality was thus 10 per cent. in the first four days and 39 per cent. in the 41 in which treatment could not be instituted till later. Out of 50 patients treated in another pavilion in the same hospital during the same period, but without the hot baths, 40 succumbed, a mortality of 80 per cent.

97. **Atropin in Hemoptysis.**—In the 2 cases reported nothing was able to arrest the severe hemoptysis until atropin was injected subcutaneously, when the blood rapidly disappeared from the sputa. The doses were from .0002 to .0006 gm. of atropin, repeated on six consecutive days. One patient had been ineffectually treated with innumerable measures, including ergotin, hydrastis, morphin, liq. ferri sesquichlorid and terebinthin, before atropin was tried, the rebellious hemorrhages from the lungs threatening speedy dissolution.

99. **Red Corpuscles.**—Gote asserts that very characteristic and instructive findings can be obtained by study of the proportions between the number of red corpuscles and their mass, that is, the general content of the blood in red corpuscles. He uses the hematocrit, and tabulates the findings in a large number of cases of various diseases, as also in healthy subjects. To cite a few typical cases from his tables we note in a case of croupous pneumonia that the reds numbered 4,980,000; the hemoglobin, 90; the proportional content of reds was 41; the absolute content, 8.5.. In a case of chlorosis the reds numbered 2,500,000; the hemoglobin, 37; the proportional content of reds was 17, and the absolute content, 6.8. In one of myxedema the reds numbered 3,730,000; the hemoglobin, 80; the proportional content, 44, and the absolute content, 11.8, while in one case of pernicious anemia the absolute content was 16.4, with 1,212,000 reds.

Revista de Medicina y Cirugia, Havana.

Last indexed page 168.

102 (VIII. No. 13.) *Apendice, appendicitis y apendicectomia. F. Dominguez Roldan.
103 (No. 14.) Special Dangers Incurred by a Country from Its Proximity to Another Great Republic.—Peligros especiales que corre un pais por su inmediata vecindad a alguna otra republica. F. Torralbas.

102. **Appendicectomy.**—A number of plates show the technic adopted by Roldan for seeking and removing the appendix. He remarks that it takes longer to describe the technic than to execute it, as he has frequently commenced the search for and completed the extraction of the appendix in fifty-five seconds. The incision is made according to Jalagier and is only long enough to introduce two fingers comfortably.

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SYMPTOMATOLOGY, PATHOLOGY AND TREATMENT OF CHOREIFORM MOVEMENTS.*

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In discussing the subject of chorea and choreiform movements, I can not hope to present to you any very startling new facts, but possibly I may be able to bring forward some observations which may not be generally known.

Lees,[1] in a discussion on chorea before the British Medical Association in 1903, remarked that chorea is often the first of a series of rheumatic attacks, and said that Batten, in 115 cases of chorea, found that whereas the percentage of previous rheumatism was stated to be only 32.2 per cent., three years later so many patients had subsequently suffered from rheumatism that the percentage rose to 43.5, and three years later still it had risen to 53.2 per cent., so that the lapse of six years had increased the percentage by 21 per cent.

Lees said further that pain and swelling of joints, which alone constitute the ordinary idea of rheumatism, are slight and infrequent in the rheumatism of childhood, and the sole but conclusive manifestation may be a subcutaneous nodule, or a small patch of erythema, or a dilated heart with a soft mitral murmur. This seems to make the diagnosis of rheumatism very comprehensive.

Lees seems inclined to believe that chorea is caused by the diplococcus of rheumatism, and that chorea is cerebral rheumatism in the great majority of cases. Indeed, he goes so far as to say that every case of chorea, however mild, ought to be looked on as presumably rheumatic, and that many a mitral stenosis in later life, with its distressful years and its premature death, might have been averted if the practitioner who attended the case of slight chorea in childhood had treated it vigorously as rheumatic.

Chiefly on the authority of G. Sée,[2] at least in France, chorea has been regarded since 1850 as of rheumatic nature, and rheumatism has been supposed to precede it, accompany it, or follow it. Numerous observations have convinced Gilles de la Tourette, Charcot, and others that this relation does not exist, and it seems to me that this relationship has been much exaggerated. In most of my cases I am unable to establish it.

Sydenham's chorea, according to Gilles de la Tourette, does not begin after puberty, and in two of his cases, in which it began at the ages of 16 and 18, respectively, menstruation had not begun. This statement, that chorea does not begin after puberty, I can not accept, and Dr. McCarthy has published some cases in refutation of it, from my service at the Polyclinic Hospital.

Chorea of pregnancy is not Sydenham's chorea, according to Gilles de la Tourette, because the latter does not appear after puberty. Chorea of pregnancy is said to be rare in France, and the cases of chorea of pregnancy are supposed to be examples of the *maladie des tics convulsifs* or of hysterical movements. This opinion is not accepted by Joffroy. He believes there is no specific infectious agent of chorea, and that various infections or auto-intoxications may cause chorea in a person with an abnormal nervous system. One of Joffroy's patients had Sydenham's chorea in early life, and in her first pregnancy the symptoms of typical chorea reappeared. One remark made by Joffroy is of especial interest, viz.: Sydenham's chorea may develop in a hysterical patient, and therefore should not be regarded as hysterical chorea. It is not improbable that many of us would have difficulty in making the proper diagnosis in some cases of this character.

Risien Russell remarks that no properly authenticated case of chorea in a third pregnancy is on record, but Copeman[3] reports a case of this character, although he is in doubt whether it really was chorea gravidarum or whether the chorea should be attributed to the more ordinary causes and the pregnancy regarded as a mere accidental complication.

Wall and Andrews[4] have discussed the causes and treatment of chorea in pregnancy, and give an account of 40 cases, occurring in 37 women, seen at the London Hospital. The cases were believed to be truly choreic in character, as the movements were indistinguishable from those of Sydenham's chorea. In 16 out of the 37 patients, there was a previous history of rheumatism; 23 out of the 37 had previously suffered from chorea. Five only of the 40 cases ended fatally, 2 spontaneous aborted, and in 3 abortion or premature labor was induced. Both patients who spontaneously aborted, and 2 of the 3 in whom labor was induced, died. The mortality reported after induction of labor in these cases, and in those of other authors, is such as to render this procedure undesirable, and it has been discontinued at the London Hospital since 1895.

It seems strange to attribute chorea to syphilis, and

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. British Med. Jour., vol. ii, 1903, p. 449.
2. Revue Neurologique, 1900, No. 11, p. 521.
3. A. H. Copeman: British Med. Jour., vol. ii, 1903, p. 17.
4. Wall and Andrews: Abstract in Epitome of Current Medical Literature, British Med. Jour., vol. ii, 1903, p. 7.

yet this is what Mettler[5] has done. Chorea first appeared in a patient of his when the boy, who had inherited syphilis, was 7 years of age. Four attacks occurred, about a year apart, and each attack was more severe than the previous one. All the usual remedies for chorea failed. Two weeks after the administration of iodid of potassium had been commenced there was a noticeable diminution in the movements, and in a week or two more they ceased entirely.

Sutherland[6] has recently discussed the relation of chorea to Graves' disease. All are agreed, he says, that movements of a choreiform type are sometimes manifested in Graves' disease. He quotes Gowers as saying that such movements must be regarded in some cases as a complication, although in a few cases in childhood true chorea has been supposed to exist. Dieulafoy has expressed the opinion that choreiform movements may occur in Graves' disease, but that there is no true chorea associated with Graves' disease, and that Graves' disease always occurs first.

Sutherland reports two cases to show that Graves' disease may follow chorea. One of the cases came under his observation during the transitional period between chorea and Graves' disease, and he had difficulty in deciding which disease the patient was suffering form. Choreic twitching, goiter, tachycardia, and slight staring of the eyes were the symptoms present.

Sutherland thinks these two diseases depend on a somewhat similar affection of the central nervous system, but the pathology of neither is known.

The association of chorea with epilepsy is uncommon, according to Wollenberg,[7] but hysteria is often found with chorea.

Some neurologists believe a peculiar facies exists in chorea. I have not been able to convince myself that it is common, and in expressing myself in this manner I know that I am not in accord with some whose opinion I value. The description of this choreic facies as given by B. Sachs[8] is as follows: "In advanced cases, if the tongue is protruded the mouth is opened much more widely than necessary, the eyelids and eyebrows are raised in the same effort, and then through a choreic movement of the masseters the tongue may be caught between the teeth." This, I think, is not what is meant by "choreic facies" by all who employ this term.

The choreiform movements of the external ocular muscles may be considered here because, according to Wollenberg, they are not uncommon. They are especially noticeable, he says, when the patient attempts to fix an object, at which time the bulbs are moved forcibly. The pupils are said to be often dilated, but the pupil only on the side of the choreiform movements when these are unilateral; this Wollenberg can not confirm.

A condition of spasms of the levator palpebræ that Posey[9] regarded as choreiform consisted of clonic and rhythmical contractions of these muscles so that widening of the palpebral fissures occurred about fifteen to twenty times in the minute. The contractions were entirely under the control of the will, the patient being able to initiate them or to cause them to cease when commanded to do so. The excursions of both eyes were normal; there was no nystagmus, and vision and accommodation were normal. The movements in Posey's case disappeared as soon as atropin was instilled for refractive purposes. It seems uncertain whether it would be better to class such a case as this among the tics or under chorea.

Choreic spasm of the vocal cords has been described as laryngeal chorea.

Chorea electrica I do not discuss, as most cases described under this title probably belong to convulsive tic.

W. Gordon[10] has found a change in the patellar reflex in chorea in some cases. When the patient is recumbent, if one raises the knee, allowing the heel to rest on the couch, making sure that all the muscles of the limbs are relaxed for the time being, and if then one tests the patellar reflex in the usual way, the foot is found to rise more or less smartly, but instead of falling back immediately it remains suspended for a variable time and then slowly sinks back to its initial position.

Eshner, in this country, has made some observations on the tendon reflexes in chorea, which lead him to support Gordon's views, but I have been unable to convince myself that there is anything characteristic in the patellar reflex in chorea.

In regard to the treatment of Sydenham's chorea, I think confinement to bed is of the greatest importance in severe cases. It is only in this way that we can obtain quiet and freedom from excitement in many of the cases of chorea, and it is especially valuable in severe cases.

Von Bechterew[11] seeks to put the administration of arsenic in chorea on a scientific basis. It has been demonstrated experimentally, he thinks, that arsenic causes a temporary excitability, but later a diminution of the reflexes, and affects first the nerve centers, then the nerves, and finally the muscles. He does not approve of the method recommended by Comby, viz., the administration of large doses of arsenic, and Comby himself had paralysis in one case treated in this way. Von Bechterew gives arsenic, bromid of sodium or potassium and antipyrin together in treating chorea, and in severe cases he adds salicylate of soda, on account of the supposed relation of chorea to rheumatism.

The administration of arsenic should be watched very carefully when the drug is given in chorea, and it is my custom, in prescribing Fowler's solution, to order about two fluid drams and to give directions that it is not to be renewed without permission. A number of cases of arsenical neuritis from Fowler's solution have been reported, and I myself have seen this occurrence. Heubner[12] speaks of a case of chorea followed by neuritis of the lower limbs, in his opinion not due to arsenic because not more than five drops had been given three times daily, and no other signs of arsenical poisoning were detected. The report of this case, though brief, reads as though Heubner believed that the chorea was the cause of the neuritis. Some people show idiosyncrasies toward arsenic, and I have seen herpes zoster develop after Fowler's solution had been given for a week or ten days in small doses, and it is more

5. Mettler: Amer. Jour. of the Med. Sciences, September, 1903, p. 481.
6. Sutherland: Brain, 1903, p. 210.
7. Wollenberg: Nothnagel's System, vol. xii, No. 2.
8. Sachs: Nervous Diseases of Children, Wm. Wood & Co., New York, 1895.
9. Posey: Journal of Nervous and Mental Disease, July, 1902, p. 419.
10. Gordon: British Med. Jour., March 30, 1901, p. 765.
11. Von Bechterew: Centralblatt. f. Nervenheilkunde und Psychiatrie, August, 1900, p. 417.
12. Heubner: Berl. klin. Woch., Dec. 2, 1901, p. 1215.

probable that it was the arsenic and not the chorea that caused the neuritis in Heubner's case.

R. T. Williamson[13] says that in mild cases of chorea he has seen decided improvement by treatment with five minims of peppermint water three times a day, or with very small doses of quinin, one-quarter of a grain. Therefore, while his mild cases have done well on aspirin, he hesitates to attribute the improvement to this drug. In severe and persisting cases, he believes aspirin is of distinct service in diminishing the duration of the affection. Though the drug does not immediately check the choreic movements, its administration is usually followed by distinct improvement in six or seven days after a dose of ten or fifteen grains four times a day has been reached. He has noticed steady and marked improvement following the use of aspirin in severe cases of long duration which have resisted other drugs and methods of treatment.

He usually commences with ten grains, as a powder, twice daily in children over 7 years of age, and rapidly increases up to ten or fifteen grains, according to age, four times a day. Toxic symptoms, like those caused by salicylates, do not often occur, and most children take the large doses without ill effects, but occasionally the drug causes gastric irritation or vomiting, even in doses of five grains. It is important that no alkali should be taken just after the aspirin, otherwise the drug is likely to decompose in the stomach.

Lees[1] thinks that the failure of an antirheumatic treatment in chorea may be because the doses have been too small. The dose of sodium salicylate for a child of from 6 to 10 years should be at first 10 gr., with 20 gr. of sodium bicarbonate. After two or three days the quantity should be increased to 15 gr. and 30 gr., respectively. After two or three days more it may, if necessary, be increased to 20 gr. and 40 gr. These doses should be given every two hours during the day, and every three hours during the night, 10 doses in the 24 hours. Thus the total amount of salicylate given at first is 100 gr. daily, increased to 150 gr., and finally to 200 gr.

A careful watch must be kept for any symptoms of salicylate poisoning, and especially for a peculiar, deep inspiration simulating the "air-hunger" of diabetes. If this occurs, the medicine must be immediately given up. The association of the alkali (sodium bicarbonate) seems to lessen the danger of poisoning.

The large doses of salicylate recommended by Lees did not meet the unconditional approval of the members of the British Medical Association who heard his paper.

The results of the treatment of 180 cases of chorea minor by various methods brought before the Moscow Society for the Study of Children's Diseases,[14] were as follows: The cases (86 in number) treated with arsenic were of the shortest duration, but simple rest lying down, in new surroundings (29 cases) without medicament, proved to be little inferior as a method of cure. Antipyrin (20 cases) was less useful, and bromid (47 cases) and quinin (31 cases) quite useless. The average time of recovery with the arsenical treatment was 63 days. Stress is laid on the great importance of treatment being commenced during the first three weeks of the disease.

The mortality of ordinary chorea is low, but that of chorea gravidarum has been placed by Oppenheim at about 25 per cent., and by Gowers at from 20 to 25 per cent. Death from chorea is usually through exhaustion, and, as exhaustion is not common in simple chorea, the opportunity to study the pathology of the affection is not often given.

Hudovernig examined the nervous tissues from a case of chorea.

The patient, a girl, 16 years old, had chorea about six or seven weeks, when it terminated fatally. Scattered hemorrhages were found throughout the body. The bacteriologic examination of the blood and spinal cord was negative. The vessels of the central nervous system showed some thickening of their walls and there were new formations of vessels and perivascular round-cell infiltration. These changes were most pronounced in the medulla oblongata and pons, especially in the area of the motor tracts. The so-called chorea bodies (*Choreakörperchen*) were found near and remote from the vessels. These are round or oval, structureless formations, varying from the size of a neurogliar cell to ten times this size. They were found especially numerous in the pyramidal tracts. A slight leptomeningitis and ependymitis were observed. The nerve cells of the cerebral cortex showed granular change of the chromophilic elements.

Hudovernig thinks that the toxic and infectious nature of chorea is generally accepted, and he attributes this theory to Leube. Some, however, do not believe that all cases of chorea are of this nature, but especially so are the postpuerperal or postrheumatic cases. This opinion has been strengthened by the finding of diplococci or staphylococci in cases of chorea (Pianese, Dana, H. Meyer, Geddes and Clinch).

Hudovernig has not found any case of chorea with a chemical examination of the blood reported, but he finds that encephalitis and meningitis are common in chorea. In his case the alteration of the nerve cells of the cerebral cortex was intense and in all parts of the cortex, and this indicated that all parts of the brain were exposed to the injurious substance.

The only other case of chorea in which the method of Nissl was employed that Hudovernig knows of is the case of Silvestrini and Daddi. These investigators found rounding off of the pyramidal cells, chromatolysis and pigment formation within the cells.

Elischer seems to have been the first to find the "chorea bodies" in the brain in chorea, although this author did not attribute much importance to them. He found these bodies in rows or groups, having a faintly concentric arrangement, and always near blood vessels. Flechsig found similar bodies in the globus pallidus and in the lymph sheaths in four cases of chorea. Jakowenko, in six cases of chorea gravis, found these bodies in the lenticular nucleus, and in one case also in the optic thalamus and caudate nucleus. All six patients had also acute delirium.

Jakowenko studied the brain in a case of acute delirium without chorea and found some similar bodies, with, however, a different chemical reaction. Laufenauer also found these bodies in the brain from five cases of chorea; they were chiefly in the basal ganglia, but were found in the entire central nervous system. Wollenberg found these bodies in cases not of chorea as well as in chorea, and he concludes that in some cases of chorea, simple chorea, as well as chorea with delirium, they are found in the globus pallidus; they are not characteristic of chorea, as they may occur in other diseases. These bodies are probably caused by calcification of an organic ground substance (*Grundsubstanz*), concerning the nature of which a positive opinion can not be formed. Von Bechterew and Dana also have found the chorea

13. Williamson: Lancet, Aug. 22, 1903, p. 526.
14. Abstract in Epitome of Current Medical Literature, British Med. Jour., vol. ii, 1903, p. 27.

bodies in chorea, but they are not present in every case of chorea.

Hudovernig[15] believes that the lesions of chorea minor are not confined to the same part of the brain in every case, although the basal ganglia are often affected; but that in every case the motor tracts are irritated in some part of their course.

His conclusions are: Chorea minor is an infectious disease and the infection is hematogenous. In the mild cases the infection causes a disturbance of nutrition, but in more severe cases it causes changes in the blood vessels and formation of colloid bodies, the latter being an evidence of a severe form of the disease. "Chorea bodies" are characteristic of chorea, although they are not found in every case. Choreiform movements are always the expression of direct or indirect irritation of the pyramidal tracts at some part of their course.

Hudovernig found that the "chorea bodies" have a great affinity for hematoxylin, stain pale red with carmin, remain unstained by the Nissl method, and do not give the amyloid reaction. He does not discuss the resemblance of these bodies to the so-called amyloid bodies, but from his description and drawings they seem to resemble them closely.

In examining some sections from a case of Sydenham's chorea, prepared by Dr. J. H. W. Rhein, we found small, recent hemorrhages in the cerebral cortex.

Dana,[16] in a case of Sydenham's chorea, found chronic leptomeningitis of the convexity of the brain, hyaline bodies in the brain cortex, slight meningitis of the upper part of the spinal cord, slight meningo-encephalitis, and diplococci in the proliferating tissue between the meninges and the brain.

In a case of chorea gravis, Geddes and Clinch[17] found great congestion of the meninges, which had resulted in severe hemorrhages. The basal ganglia showed no congestion to the naked eye. Intense degeneration of cells and of the myelin sheaths in the brain was found, but the appearances were regarded as a result, rather than as a cause, of the symptoms, and resembled the findings obtained in animals deprived of sleep. Some of the blood vessels were much thickened.

A case in which I have been able to make a microscopic examination of the brain is as follows: The patient, a girl, 16 years old, had had chorea for about five weeks. She had inframammary tenderness and was unable to talk coherently. A systolic murmur was heard at the apex. She had violent choreiform movements of the entire body, including the face. The head was tossed from side to side, the arms and legs were violently moved. At times she was comparatively quiet, while at other times the whole body was tossed violently from side to side, the head and limbs striking against the side of the bed. These violent attacks did not occur at regular intervals and were increased by observation.

Family History.—The family was neurotic, and the father had been in an insane asylum. About six weeks before the girl came to the hospital her household goods had been sold by the sheriff, and she had been much worried by this.

Present Illness.—She had had chorea only about ten days before admission (May 30, 1901). It began with twitching of the muscles on one side of the body, but within a few days the other side became involved.

Progress of Disease.—While in the hospital the girl had delusions. She believed her mother and uncle had visited her, although they had not. The movements were absent during sleep. Later she became unconscious of her surroundings, and the movements became exceedingly violent.

She died May 31, 1901. The nurse found the patient dead, although five minutes previously she had been sleeping and seemed better. Directly after death the temperature was 109.

Necropsy.—June 1, 1901. Pathologist, Dr. Pearce. The pathologic findings were chronic mitral endocarditis, acute parenchymatous nephritis, fatty degeneration of liver, edema and congestion of lungs, hypoplasia of heart and aorta.

The nerve cells of the paracentral lobules stained very diffusely with thionin and a small round cell infiltration was found about the small vessels of the cortex, but not within the pia. The microscopical examination has not been completed.

Huntingdon's chorea is regarded now by most physicians as distinct from the Sydenham form, although Charcot held a different opinion.

It has been pointed out that intentional movements sometimes diminish the jerkings of Huntingdon's chorea, whereas they do not in Sydenham's chorea (Ewald, Peretti, Lannois, and others); and that the muscles of the eyeball are not implicated in Huntingdon's chorea, whereas they are in Sydenham's form. The tendon reflexes often have been found exaggerated in Huntingdon's chorea (Biernacki, v. Sölder, Wollenberg).

In many cases of Huntingdon's chorea the neuroglia has been found proliferated and the gyri atrophied, and a resemblance has been pointed out to the alteration of paretic dementia, although in the latter the frontal lobe is chiefly affected and in the former the motor area.

In a case of Huntingdon's chorea examined by Stier, the brain was atrophied, the small, round cells were more numerous in the second and third cortical layers, especially in the motor regions, the neuroglia cells also were more numerous, the tangential fibers were diminished in number, and the small, pyramidal cells of the second and third cortical layers presented degeneration and diminution in number. He was unable to find the accumulation of small, round cells especially about the vessels, and the alteration of the membranes described by others. He says that, in all cases, an increase of the glia cells, or of small, round cells, was found. In some cases hemorrhages have been observed. In most cases the cortical motor region has been affected, and in all cases the nerve cells have been diseased, even though the alteration was slight in some cases. The cells of Betz escape, or are little degenerated. In most cases the walls of the vessels have been thickened.

Stier[18] goes so far as to say that no one in the last twenty years has doubted that the cerebral cortex is the seat of Huntingdon's chorea.

The disease begins late in life, with proliferation of the neuroglia in the motor centers, either diffusely or in areas, and is found especially in the second and third cortical layers; simultaneously, the vessels become diseased, and cellular infiltration into the perivascular and pericellular spaces, and sometimes hemorrhages occur. The small and medium size ganglion cells become diseased, whereas the large nerve cells remain intact.

In a case of Huntingdon's chorea that I examined small collections of round nuclei were seen about some of the capillaries of the cortex of the paracentral lobule, and also elsewhere in the cortex not about the vessels.

It is difficult to form a judgment concerning the cells of Betz, as the sections were not stained by Nissl's

15. Hudovernig: Arch. für Psych., vol. xxxvii, No. 1, p. 86.
16. Amer. Jour. of the Med. Sci., January, 1894, p. 31.
17. Journal of Mental Sciences, 1898, p. 811.
18. E. Stier: Arch. für Psych., vol. xxxvii, No. 1, p. 62.

method, but some of them were smaller than normal and contained eccentric nuclei.

The condition of postapoplectic hemihypertonia, so far as I know, has been reported in this country only by me and later in a case from my clinic described by McCarthy. This form of spasm is very different from athetosis. It is of tonic character, affecting one side of the body, is associated with a little weakness, but not with contractures, develops after an apoplectic insult, and probably is due to irritation of the motor fibers at some point below the motor cortex.

Von Bechterew deserves the credit for clearly recognizing and first describing the condition, and has spoken of it as hemitonia apoplectica, but inasmuch as it affects only one side of the body and develops after an apoplectic attack, I have suggested that it might be called more appropriately hemihypertonia postapoplectica. The disorder is such a remarkable one that I cite a portion of the report of my case.[19]

The patient is a well-developed woman with no distinct atrophy of any of the muscles. Her gait is a little spastic on account of the spastic condition of the right lower limb, but she does not swing this limb from the hip, as is so commonly seen in hemiplegia, nor does she drag it. Her station is good. The right knee-jerk is restrained on account of the spasticity of the lower limb; the left is normal. The toes of the right foot are usually flexed, but the condition is not one of contracture; it is one of tonic spasm and every few moments the degree of tonicity varies. No athetoid movements are seen in the toes. The right foot appears to be about the same size as the left.

When the right hand is at rest in her lap it is often slightly flexed at the wrist, and the fingers slightly flexed at all the articulations. The hand may remain in this position a long time, while the limb is at rest, without any evidence of athetoid movement. If she attempts to elevate the right upper limb from the shoulder she accomplishes the movement without difficulty, but the right wrist becomes strongly flexed, the hand may be drawn around so that the back of the hand is turned away from the body of the patient, or at other times the palm may be turned away from her body. The condition is one of tonic spasm, and the spasms vary greatly in degree from time to time, and are increased by excitement. When she was told to make some movement with her left hand, such as removing her shoe, the position of the right hand and fingers changed from one of flexion to one of extension; the fingers were fully extended, but still in tonic spasm. At no time did this condition of great hypertonicity disappear from the right hand; it varied merely in degree, and the position of the hand changed according as the spasm predominated in one group of muscles or another, but the flexors were always most involved. It was impossible at any time to detect any athetoid movement. She is able to carry objects suspended from her right hand, and can perform such work as wringing clothes, the powerful grasp of the right hand enabling her to hold the clothes firmly. She can not venture to hold anything breakable with the right hand, as the spasm may relax and the object fall to the floor. When quiet and unobserved the spasm in the right hand is much lessened in intensity, and she may be able to use the hand to a surprising extent, according to the statement of her sister. At times the hand is forcibly flexed at the wrist, the fingers are flexed, and the thumb is firmly held between the middle and ring fingers; the hand may then be rotated towards the right or left; at other times the hand is rotated at the wrist and the fingers are partially extended; at other times the hand is extended at the wrist, the thumb flexed into the palm and the fingers firmly flexed on the thumb. At no time has the spasm of the extensors predominated over that of the flexors.

Involuntary movements in the paralyzed side, truly choreiform in character, occurring after hemiplegia in the adult must be very rare.

Bonhoeffer remarks that Charcot called attention to the frequent association of hemianesthesia with posthemiplegic chorea, and concluded that in front of the *carrefour sensitif* is a bundle of fibers, a lesion of which causes hemichorea. Gowers thought that a lesion of the optic thalamus is followed by chorea. Kahler and Pick believed that the choreiform movements are caused by irritation of the pyramidal tract. In Bonhoeffer's case of chorea resulting from carcinoma in the superior cerebellar peduncles the movements were chiefly unilateral, but the case differs from most of those of hemichorea reported in the absence of hemiplegia or hemiparesis and of sensory disturbances.

In some cases of hemichorea the movements at times are more choreiform, at other times more athetotic.

The cases of choreiform movements resulting from lesions of the cerebral cortex collected by Bonhoeffer are not very convincing. In the cases cited by him in which hemichorea occurred from lesions below the optic thalamus the lesions involved the nucleus ruber or superior cerebellar peduncles. Lesions in the lower part of the medulla oblongata or in the spinal cord, without associated cerebral lesions, apparently never cause choreiform movements, and this is against Kahler and Pick's theory. Lesions in front of the knee of the internal capsule and in front of the projection fibers of the central gyri, do not seem to cause choreiform movements.

Hemiplegia is common, hemichorea is rare; it is hard to understand why the latter should be so if Kahler and Pick's theory be correct.

Lesions of the cerebellum, Bonhoeffer[20] finds, cause choreiform movements, and he says that in all cases of chorea caused by lesions the fibers of the superior cerebellar peduncles have been implicated.

19. Spiller: Philadelphia Med. Jour., Dec. 16, 1899.

20. Bonhoeffer: Monatsschrift für Psychiatrie und Neurologie, vol. 1, p. 6.

CONVULSIVE TIC.*

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From the great and rather confused mass of affections characterized by excess or perversion of movement, one group or sub-group is coming to be pretty well defined: a variety of hyperkinesia which might well be called simply tic if it were not for the occasional use of this word as a contraction of *tic douloureux,* painful tic, to designate trifacial neuralgia. This being the case, it seems best to call the tic of movement convulsive tic. I believe that ultimately the qualifying word convulsive will be dropped and that the term tic will come to mean motor tic exclusively. In this paper I shall often so use it.

Convulsive tic embraces movements varying as regards location, extent, violence, amplitude, frequence and

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duration. It may affect any part of the voluntary muscular system, and in the cases of extreme severity, called by Gilles de la Tourette *maladie des tics*—the disease of tics—the entire body is affected by peculiar, sudden, more or less violent, intempestive, malapropos gestures, grimaces, contortions.

Although the tic group embraces such a great variety of movements, and although now and again an individual case may present great difficulties of diagnosis, and show that here, as elsewhere, the dividing line may be hard to draw, none the less are the great traits of tic characteristic and the diagnosis generally easy.

I shall attempt no definition of tic, as doubtless it would be too faulty to be useful. A brief description of the disease, with a few comments, will serve the present purpose.

In the main, convulsive tic may be said to be a habit spasm, but it is more than a habit, less than a spasm. Strictly speaking, it is no spasm at all. It is a movement based on an uncontrolled and, except for a brief space, uncontrollable impulsion. It is the motor impersonation of an imperative inclination, the motor gratification of an imperative appetite. To state it another way, the motor phenomena are the objective manifestation of tic; they do not constitute the disease. While the movements of tic are for the greater part fairly beyond the control of the patient, they are not entirely so, and in this they are trenchantly separated from true spasm. In its inception I believe that a tic is always voluntary. With time it becomes more and more automatic, passes more and more into the subconscious, more and more beyond the will, but a volitional element always remains. In other words, tic is of psychic origin. When Brissaud called spasmodic torticollis, which is a variety of tic, "mental torticollis," he coined an illuminating term.

The expression convulsive tic implies a motor malady. This is only half of the truth, and, if one may be pardoned a hibernianism, the lesser half. In nearly every case of tic the original cause is sensory. Not only that; very often it is the sensory element which perpetuates the spasmodic movement and makes it hard to cure. Even though each movement be not the direct response to a sensation, one is pretty sure to find that the execution of the movement gives the patient a certain sense of relief or satisfaction, which shows a sensory foundation for the trouble.

Let me illustrate. In crossing the great American desert a man suffers greatly from alkali dust. It irritates his eyes, he develops some conjunctivitis and blinks constantly. Having reached the coast, the palpebral spasm continues even after the conjunctivitis is cured. The constantly recurring spasm irritates the conjunctiva, the sensation from the conjunctiva starts the spasm, and thus is developed a most rebellious habit spasm, blepharospasm, tic.

In one of my clinics I saw an exactly analogous case caused by a workman digging a ditch in dry sand during windy weather. The vicious sequence was as follows: Repeated puffs of sand in the eyes, repeated violent closing of the lids, repetition of this closure after work, when there was no sand in the eyes, still some slight discomfort, enough to start the impulse to close the lids, perpetuation of an uncontrollable impulse to blink the lids tightly together.

A boy has an ill-fitting collar or a coat too tight in the armhole. This begets a twisting drawing of the neck, with tilting of the chin or a writhing shrug of the shoulder. The collar is removed, the armhole enlarged, but the abnormal movement continues.

A child has nasal catarrh which causes a sense of discomfort about the nostrils. In consequence there is a twitching and drawing of the nose and lips. The catarrh is cured, the movements remain.

Because of an ordinary "stiff neck" a man repeatedly turns his head in a certain direction. Putting a little strain on certain muscles affords a certain degree or sort of relief. Or, in consequence of the sore muscles, he carries the head in a constrained, unnatural position. After recovery of the myalgia the patient continues to carry the head to one side or to repeatedly twist it in a certain direction. This tendency becomes more than a habit. It is a veritable obsession, not to be resisted, causes a sense of acute dissatisfaction when resisted and when yielded to affords a certain sense of relief. This is tic.

A number of times I have known some peculiar motion incidental to the patient's occupation to develop into a tic. For instance, within a few days I have examined a waiter with spasmodic torticollis. His affection draws the head over and tilts the chin into just the attitude he assumes in carrying a tray, heavy with dishes. However, in such cases I think the discomfort of fatigue or strain has much more to do with the genesis of tic than does the mere repetition of certain muscular contractions.

In a few instances, especially in children, the inception of a tic lies in imitation. Afterward the sense of relief attained by executing the movement or the sensory result of the movement itself serves to perpetuate it. In other cases it is simply impossible to discover what the exciting cause has been. It has been so slight or so transient, or both, as to escape the memory of the patient if, indeed, he was conscious of it at the time.

A most important element in the genesis of tic, and equally a matter of paramount importance in prognosis and treatment, is the psychic state or mental constitution of the patient. Tens of thousands of children have nasal catarrh and ill-fitting clothes, thousands of adults have rheumatic stiffness about the neck and shoulders, very few acquire tic. At present hundreds of thousands of women are wearing large hats so poorly balanced on the head as to cause a feeling of insecurity or slight discomfort. Any one who will take the trouble to look may see many of these women give the head a little jerk or shake because of the sensations produced by this maladjusted headgear. Of these many, assuredly a few will develop a tic. I have seen it—a tic which will continue when fashion shall have returned to the compact close-fitting toque.

But why, of the very many, do only some twitch the head? Because they are more sensitive to impressions and more readily translate a sensation into motion. Of the relatively few who jerk, why will only very few, indeed, develop a jerk neurosis? Simply because of a still higher degree of hypersensitiveness and nervous instability. The subjects of tic are too sensitive, too impressionable, their sensori-motor mechanism is too glib and they lack in instinctive as well as voluntary inhibition; else they would not have tic. Of this I shall have something more to say in connection with prognosis and treatment.

CHARACTERISTICS OF THE MOVEMENTS.

Now, as to the characteristics of the movements themselves, it may first be said that they represent natural acts or that they are imitations of natural acts.

I had almost said physiologic acts, but the term is too strong. It may be physiologic to pinch the eyelids tightly together when a foreign body is blown into the eye, but to wriggle the shoulder about because the sleeve is too tight, to rotate and twist the head about because of a discomfort in the neck, or to make grimaces because of dessicated mucus within the nostrils is scarcely within the bounds of physiology. Still these acts are hardly pathologic. They are strictly logical, they are co-ordinate, the legitimate result of a given cause. If the source of irritation having been removed the movement is continued, it is unnatural, pathologic. If, in addition, it grows more imperative, can not be resisted, becomes automatic or subconscious and carries with it a sense of relief, or at least relief as compared with the tension and discomfort of resistance, it constitutes a tic.

But the movement itself remains the same. The same muscles act in the same way. The movement is purposive. It is an action perfectly adapted to an imaginary end or to an object which has disappeared. It shows the same co-ordination, generally the same duration, but may become more tempestuous. Such a movement is in marked contrast to the inco-ordinate purposeless jerkings and writhings of chorea, the vermicular twistings of athetosis, the rhythmic oscillations of hysteria, the fascicular twitching of paramyoclonus and the anatomically localized true spasm.

The movements of a tic are always a repetition of the same act. This statement needs some explanation: *a.* The movements may vary in degree, some of them being more or less abortive, others more or less complete *b.* As time passes they incline to become more intense or violent. *c.* A tic also tends to spread to adjoining muscles or muscular groups and to add to itself correlated physiologic acts. A tic of the nose is apt to soon involve the lips and adjoining facial muscles. When sounds of snuffing or sniffling are produced, pharyngeal and laryngeal sounds may be expected, if the disease continues. *d.* In the *maladie des tics,* in which the whole body is affected, the abnormal movement may be now of this part, now of that. A grimace is followed by a shrug, that by a grunting sound and this by a kick.

With these qualifications the dictum beginning the foregoing paragraph holds good; that is, a tic is the repetition of the same sort of thing in the same place. This, again, is in marked contrast to chorea in which no two movements are exactly alike.

The third trait of tic to which I beg to call attention is one already mentioned; namely, it can be voluntarily restrained to some extent, and in many cases can be quite controlled for a time by some maneuver which the patient has instinctively or deliberately hit on. These tricks of control are oftenest seen in cases of spasmodic torticollis. Frequently they are done unconsciously by the patient, but may nearly always be found. A few examples will illustrate:

An orthopedist friend was exhibiting to a medical society an apparatus for torticollis, and, incidentally, a patient. I asked the latter in what way he could control his spasm. He said "in no way;" that he couldn't control it at all. Even as he spoke he passed his right hand to the back of his head and grasped the occipital region in the hollow of his hand. With this mere semblance of restraint, the drawing and rotation of the head ceased at once. A patient of my own, when asked to undress for the first examination, stood with his head propped against the edge of an open door, as he slowly got out of his clothes. I asked him why he did that. He replied that it was the only way of steadying his head while he was on his feet with both hands occupied.

Many of these patients are comparatively comfortable while seated in a high-backed chair, where the head can be rested. With numerous others a favorite posture is with the chin resting in the crotch between thumb and flexed second finger, while the index is extended upward along the cheek. One of my patients had not for years appeared on the street without a certain straight-handled umbrella. This he held perpendicularly, with the handle alongside his nose, and with this mere trick of restraint was able to go about with his head relatively straight and quiet. In a remarkable lecture, Brissaud[1] has given some interesting examples of the restraining action of the touch of a finger, etc., and Meige and Feindel[2] quote many more; but one of my own cases showed the potency of an idea in restraining tic to a degree that, I think, must be unique.

The patient was a man of 41 years, who had been suffering for eight months with spasmodic torticollis, which had become very bad. His head rotated to the right. During my examination, as one of the strong contractions came on, I asked him to turn his head to the left. He said he could not possibly do so during the spasm. I told him that he could, and, opening a blade of my pocket knife, said I would immediately demonstrate that I was right. He at once saw that I meant to prick the side of his face to make him turn it the other way, and assured me that that was not necessary; that he had an easier and more comfortable way. He extended his right arm to the right, crooked the elbow and wrist so as to point the extended index finger at his face, just as he would have held a pistol to shoot off the end of his nose, and then moved this hand rather quickly toward the nose. As he did so the head rotated toward the left, as if moved by an invisible power, and assumed a normal position. At no time was the finger nearer than eight inches from the face.

In accord with the foregoing is the fact that tic does not derange voluntary movements. A man with a tic, never so severe, of the right arm and shoulder shows nothing of it in his writing. The tic does not catch him unawares. When the impulsion to tic can no longer be bridled, he takes pen from paper, executes his tic, and then resumes writing. I know a successful artist who is afflicted with a bad tic of the head and arms. It delays his work more or less, but never deflects stroke of pencil or touch of brush. This alternation of constraint and compliance is something very striking. After unusually prolonged or complete voluntary control of the abnormal movements, especially if the patient can escape observation for a few moments, he will often recompense himself by a perfect debauch of tics until the craving is satisfied.

Tic is diminished by rest, quiet, preoccupation or mental diversion. On the other hand, it is made worse by self-consciousness, observation by others, excitement and other emotional states, pain and fatigue. During sleep it disappears entirely.

PROGNOSIS.

The prognosis of convulsive tic conforms to no rule. In children, ordinarily it is good. In fact, most of these little patients recover without treatment or with treatment for chorea, which amounts to no treatment

1. Leçons sur les maladies nerveuses, 1895, p. 502.
2. Les Tics et Leur Traitement, Paris, 1902.

at all. Nevertheless, a tic begun in childhood may continue through life. Most frequently when it begins at an early age and continues for many years, the location changes. Many of my cases have shown this. A tic about the nose ceases, or nearly so, to be succeeded by a lifting of the eyebrows. This passes away, the patient becomes possessed of an impulsion to shrug a shoulder, and this is followed by a sniffing or hemming tic. Finally, after years of "ticing," such a patient's tendency may crystallize into one permanent set of movements that continue to the end or until the degenerative age of dullness and slow reaction.

In adults, tic is a most rebellious disease. The more severe and chronic cases are seldom cured. The slighter ones yield to treatment fairly well. Occasionally the trouble disappears of itself or is simply controlled by the efforts of the patient. Of the tics more difficult to cure, spasmodic torticollis is the most frequent. In spite of a few favorable reports, Gilles de la Tourette's disease may be said to be incurable.

To consider the why and wherefore of this sinister outlook would involve a discussion of the nature, etiology and genesis of the affection. Such a discussion is not for a short paper, but I may mention two elements that bear on the prognosis. First, the nature of the patient; second, the nature of the disorder.

The patient is generally a nervous, impatient, hypersensitive individual in unstable equilibrium. Small things upset him and every upsetting makes him the more unstable. Mentally, he is unsatisfactory. His emotions are uncontrolled and he confuses desire with judgment. Ignorant of premises, he forms opinions none the less positive because groundless. The victim of impulse, appetite and feelings, he never knows what he is going to do or be.*

The disease has been called a psychomotor neurosis. I would prefer to call it a sensori-psychomotor derangement. Sensation is the beginning. This acts as a psychic excitant and the psychic state, or maybe the sensation and this together, as a motor excitant. The movement gives rise to sensation, which again starts the endless chain. Each step in the order of events incites the next, so that it seems as natural for a tic to continue as for the planets to pursue their orbits.

To these two elemental factors of a bad prognosis, I might add a third, applicable to cases in children: unstable, unreasonable parents. A child with tic is likely to be the spoiled child of spoiled parents. To an unfortunate heritage is added unwise rearing. What began as a natural, but unnecessary, movement is allowed to become a habit and then an infirmity.

In connection with the prognosis I may note that I knew one patient with severe generalized tic who committed suicide rather than longer endure his malady. Another patient, a lady with spasmodic torticollis which had not responded to rather prolonged treatment, died suddenly under circumstances strongly indicative of suicide. She had assured me that if she were not cured within a certain time, she would terminate her life, and she died at the end of the appointed time.

TREATMENT.

Given the above dubious prognosis, the question of treatment is somewhat embarrassing. It is the more so because my own efforts to cure severe tic, notably spasmodic torticollis, have been anything but satisfactory.

In children, if directions can be and will be carried out, most cases yield promptly. In accordance with what I have said concerning the cause of the affection, I begin with a careful search for any sensory state which would naturally cause the movement exhibited by the patient. About the face, the eyes and nose are the most fruitful sources of trouble, but all parts must be scrutinized. About the neck and shoulders, rheumatism is a frequent cause. Skin eruptions, ill-fitting clothing, traumatism are not unusual. Having removed the sensory excitant, I ordinarily adopt one of two methods: hypnotism or systematic stimulation of inhibition. The latter means constantly reminding the child of his tic, together with a judicious combination of penalty and reward. For successful effort he is recompensed, for letting go of himself he is punished, but both must be arranged so as to keep consciousness vigilant. That is, every single movement is to be accounted for. Rewards and penalties alike must be frequent and small. I have never known whipping a child to cure a tic. Many times I have known it to fail. But simply to prick the patient with a pin every time he made a grimace or jerked his head I have known to be perfectly effective.

To rephrase it: the tic is the result of a strong but subconscious impulse. It is followed by a certain amount of satisfaction or relief, likewise scarcely appreciated. It is, if you please, the instinctive gratification of an unconscious craving. Now, if with each and every gratification there occurs a disagreeable or painful impression, this soon impresses itself on consciousness and coincident with the impulse to tic comes the impulse to forbear. As soon as the latter impulse regularly exceeds the former, the tic ceases. When the former ceases to be, the tic is cured.

This method I prefer to hypnotism if parents or attendants will carry it out. It is the more natural and, I think, the more permanently effective. Sometimes it is easier and quicker to hypnotize. Under some circumstances it is about the only available way. Most children may be hypnotized, and if the sittings can be sufficiently frequent, a tic may be expected to improve rapidly.

As before stated, treatment of adults is unsatisfactory. To enumerate the almost countless forms of tic and then consider all the means of controlling them would require a treatise as tedious as it would be lengthy.

Principles of treatment must be the same for the adult as for the child. The material to work on, however, is vastly different. Putting aside the mild tics which are scarcely more than habits, stereotypes, as the French call them, excluding the more complex syndrome of Gilles de la Tourette and taking spasmodic torticollis as a type of the more severe and refractory tic of the adult, I beg to submit a few remarks on its treatment. Before doing so, however, I should state that while spasmodic torticollis conforms to all of the essential standards of tic, it seems in some respects to be in a class by itself. It is the only tic which, with any frequency, is consistently tonic. Sometimes the nervous instability, upon which I have laid much stress, is scarcely apparent. The discomfort may amount to decided pain; very rare in other tics. Finally, this form of tic, after persisting for many years, may gradually take on characters suggestive of degenerative

* It seems proper to add that this impressionability and emotional instability may not be very apparent and their presence sincerely denied by patient and friends. More than once I have been unable to uncover the neurotic tendency in one interview. Repeated observation has never failed to reveal it.

disease of the nervous system. I[3] have now under observation a man who many years ago began to have what was apparently an ordinary spasmodic torticollis. Indeed, an eminent surgeon operated on him for this affection. He has gradually grown worse until now nearly all the muscles of the body are involved in irregular clonic and tonic contractions. He walks but poorly, has quite imperfect use of the arms, and the trunk is distorted with what appear to be permanent organic deformities.

Operative treatment has been notoriously unsatisfactory. Indeed, torticollis is the only tic for which operation has been done with any frequency. Based on the erroneous idea that spasmodic wry neck is a local spasm and that paralysis of the contracting muscles will render the movement impossible, the procedure was, from the first, doomed to failure. The affection is a physiologic, not an anatomic hyperkinesia, and no operation yet devised can abolish movements of the head when the patient, consciously or unconsciously, chooses to make them. About two years ago I saw a case of progressive muscular atrophy in which both sternomastoids and both trapezii, as well as some other neck muscles, had quite disappeared. There was no normal movement of the head or neck which the patient could not execute.

This is not to say that operation has never succeeded. It has. Personally, I have never seen a success, but I have heard of one or two and some are on record. When operation succeeds it is not by way of paralysis but because the pain, fixation, and psychic impression inseparable from the operation serve to break up the habit. Practically the same conditions may be attained by milder means without the danger of aggravating the trouble. That operation makes these cases worse is no uncommon experience.

I have known a typical tic of the neck muscles to be caused *de novo* by operation on the spinal accessory nerve. Nearly two years ago a gentleman of 36 years was referred to me for an opinion. The case was a sufficiently typical one of congenital cerebral quadriplegia (Little's disease) of the very mildest type and without mental impairment. As in so many of these cases, there was some excess of associated movement and considerable, though not severe, irregular rolling, jerking movement of the head and neck. This was increased by conversation, by active use of the hands, and by excitement. It constituted no disability, was somewhat annoying, but hurt the patient's vanity more than anything else. The question of operation had arisen. It was easy to see that the sternomastoid and upper trapezius on one side were the muscles most active in causing the movements, and I told the patient that paralyzing these muscles might make the movement somewhat less noticeable. The operation was well done, but it served only to add a new trouble to the old. The discomfort of the wound, together with the anxiety and uncertainty regarding the result, or some other effect, were sufficient to start a spasmodic torticollis in an individual already nervous, impressionable and unstable. The new disorder showed all of the typical characteristics of "mental torticollis," or tic.

My own idea of the surgical treatment of spasmodic torticollis would be section of the sensory roots of the cervical spinal nerves. All sensation from the affected area having been cut off. I believe that the so-called "spasm," the result of sensory stimuli, could easily be controlled. Of course, this operation is too serious to be recommended for a disease not dangerous to life.

So far as I can ascertain, the mechanical or orthopedic treatment of spasmodic torticollis has been no more successful than the operative. I know of no case thus cured, although I have learned of a very few that have been improved.

My own attempts have been along various lines. Some years ago injections of atropin into the affected muscles were advised. I tried them, and they made my patients worse. The muscular soreness produced by the injection simply increased the local discomfort and the patient's self-consciousness. The ordinary sedatives I have tried, and they have constantly failed in my hands, as in others. A few years ago, in a discussion before the American Neurological Association, conium was highly spoken of. In my next case I gave it a faithful trial. At first there was some relief, but this was transient, and subsequent doses, carried to the toxic limit, accomplished nothing.

In one bad case I tried the opium-bromid treatment, as advised by Flechsig for epilepsy. It was of no avail.[4] During the course of opium the patient was not uncomfortable. When I changed to the bromid he did not take it well, and was soon as bad as ever. Once I nearly cured a bad case of many years standing by means of hypnotism. For several weeks the case progressed in a way most satisfactory to me and wonderful to the patient. Then, contrary to my strict injunctions, he had a long interview with a relative. This made him more nervous, which I at once noticed and finally elicited the cause. My reprimand was resented. Because of his frame of mind, the following sitting was less successful than the preceding ones. The lack of success engendered lack of confidence, and the next sitting accomplished nothing. Disappointment, regret, loss of hope, despair, followed in turn and the patient returned to his home nearly as bad as when he came.

Two years ago I saw, in London, a case of Bastian's practically, not absolutely, cured by keeping the patient asleep most of the time for several weeks. I came home and tried the method on an old and very rebellious case. The result was gratifying. At the end of the sleep period the patient was very much better and then, under the exercises to be mentioned presently, he continued to improve. He returned to work with only a trace of his trouble, but a perfect recovery was not obtained.

The very next time I used this treatment, dismal failure was the result. Even when the patient was asleep 18 hours out of the 24, during waking moments the spasm asserted itself with a vengeance. And, as the effect of the drugs wore off, the trouble resumed its wonted severity.

My friend, Dr. Singer, formerly of London, now of Omaha, recently informed me that in two cases he had had excellent results from suspension. I immediately tried it, but before the treatment was well under way, the patient got homesick and left the hospital.

Meige and Feindel have elaborated a system of exercises advocated by Brissaud and have treated a great many cases in this way. Their results have been good, the method is rational and constitutes a real addition to our means of combating a most troublesome disorder. To go into detail would require a separate paper. A full description will be found in the excellent and

3. Revue Neurologique, April 30, 1902, p. 351. For a remarkable and wonderfully full discussion of tic, see Revue Neurologique, Aug. 31, 1902, p. 766, et seq.

4. I have lately learned that the same treatment has been advised by others.

exhaustive treatise by these gentlemen.[5] Stated simply, the system is one of dynamic and static exercises, gradually teaching the patient to move and hold his head properly. This is no easy task. Great patience, persistence, tact and good judgment on the part of the physician; patience, persistence, courage and confidence on the part of the patient are the requisites for success. While the advocates of the treatment are loud in its praises, not to say enthusiastic in their propaganda, their statements will be found to contain sundry qualifying terms and conservative cautions. I must confess that their reports seem to lack definite statement of complete cures.

With this, as with all other methods of treating spasmodic torticollis, the great drawback is the patient himself. As I have before indicated, he is generally a neuropath *par excellence*. He is hypersensitive, too impressionable, erratic, poorly balanced. His enthusiasm is transient, his faith evanescent, his disappointment overwhelming, his desires paramount. Although he may be intellectually brilliant, he is mentally puerile; he can not control himself and is most difficult to control. Just when the treatment, whatever it may be, is running smoothly, some whim, feeling, emotion, desire or opinion of the patient intervenes to derange the whole plan and withhold success. Within an hour such a patient's whole mental attitude may be quite reversed. From hearty co-operation with his physician he changes to skepticism, distrust, mutiny, perhaps as quickly to return to allegiance and obedience.

My present opinion is that the soporific treatment, followed by the educational exercises of Brissaud, will be found effective in more cases than any other method of treatment. By means of veronal, trional, chloral and bromid, the drug to be changed every few days, the patient is kept asleep nearly all of the time for three or four weeks. As the waking time increases, he is shown how to practice moving the head slowly, rhythmically and normally in every direction. He is also to practice holding it quietly in any given position. At first the exercises must be executed under supervision. Later he can manage them himself, preferably with the aid of a mirror.

HYSTERICAL MOVEMENTS.*

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I understand that in assigning me the subject of hysterical movements it was not intended to include the phenomena of the ordinary hysterical convulsion, but rather to bring up for discussion such motions of hysterical origin as may best be considered in comparison with chorea and convulsive tic. Thus restricted the subject is a very important but very difficult one. I would not undertake to say anything about it had it not been assigned to me.

Certain general principles are applicable to all such movements, and to avoid needless repetition they may first be briefly stated.

The possibility of organic disease must always be considered and the signs that would reveal it carefully looked for in the examination; only when it has been excluded are we safe in attempting to discriminate among the functional diseases.

Hysteria being a functional disease of the cortex, the motions caused by it are always such as may voluntarily be imitated or may occur in a healthy person under strong emotion. In movements that are certainly hysterical we never see single muscles not separately under the control of the will act alone; still less do we see a part of a muscle act alone as in myoclonus. The converse, however, is not true; pathologic movements involving the whole of a group of muscles which normally act together under control of the will are not necessarily hysterical, for other functional and even organic diseases may so act on the cortex as to cause motions of the same character.

The more regularly a movement recurs in time, the greater the probability that it is hysterical. Prominence of ideas or emotions as exciting causes makes it probable, but not certain that the disease is hysteria.

Although the movements themselves seem to be characteristic of some other disease, chorea, for instance, any marked deviation from the mode of onset and course of evolution usual in that disease should suggest hysteria as a possible cause. The presence of other symptoms characteristic of hysteria adds greatly to the probability that the movements in question are hysterical, but it must never be forgotten that hysteria may be added to any other disease.

The most characteristic hysterical movement is a rhythmical oscillation affecting one part. For example, the elbow or any other joint may at regular intervals of time be alternately flexed and extended, the hand opened and closed, the head nodded to and fro or from side to side, the tongue thrust out and retracted, and so on. These motions may be slow and apparently deliberate or they may be rapid; their range may be great or small and is often irregular; it is simply the regularity in time that distinguishes them. In a typical case of this kind the diagnosis is easy, for, excepting post-hemiplegic mobile spasm and athetosis, no other disease causes such rhythmic motions. Post-hemiplegic mobile spasm is easily recognized, because the history and physical signs together indicate organic disease, and even the rare cases of athetosis not preceded by paralysis are not likely to be confounded with hysteria on account of less regularity of rhythm, the age and general condition of the patient and difference in mode of onset and course.

Hysteria, however, may cause motions in which rhythm is less conspicuous, a quick clonic spasm perhaps being combined with tonic spasm. In the neck this may simulate true, spasmodic torticollis, the bilateral form of which constitutes retrocollic spasm. The non-hysterical form of this spasm is a formidable malady which generally begins in the second half of life, only very rarely before thirty; although it is more common in females and may be aggravated by worry and grief, the history does not indicate a definite emotional cause: the onset is almost always gradual and chronic; the spasm is limited to the neck; the disease is not markedly affected by mental treatment and other signs of hysteria are generally absent. In the hysterical imitation of torticollis or retrocollic spasm the patient is commonly under thirty; the history, if complete, does indicate emotion or imitation as an exciting cause; the onset is likely to be acute; the spasm tends to spread to the muscles of the shoulder and trunk; it is markedly affected by mental changes and may occur only in paroxysms; other signs of hysteria are almost always manifest.

5. Les Tics et Leur Traitement, Paris, 1902.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Next to the rhythmic movements those most characteristic of hysteria are certain highly co-ordinated ones, such as jumping, dancing, gestures of greeting, running about on all fours, acrobatic performances and the like. These may also be rhythmical, and as a large psychic factor is obviously essential to their production the diagnosis of hysteria is at once suggested. In some cases mania may have to be considered, especially if the acts are accompanied by shouting, singing or declamation, and such actions following an epileptic attack, although perhaps hysterical in themselves, must not be mistaken for hysteria alone. The cases of saltatoric spasm described by Bamberger and others, in which the patient makes jumping motions whenever placed on his feet, are regarded by Loewenfeld as mostly hysterical, although increase in reflex excitability has been advanced as an explanation. Any organic disease causing so great an exaggeration of the reflexes would certainly give other signs of its presence. In some of these cases of co-ordinated movements consciousness is impaired and the movement seems to be part of an hysterical convulsion. In others consciousness is fully preserved.

Chorea may be so closely imitated by hysteria as to make the diagnosis difficult; indeed, it is quite probable that the descriptions of chorea have in part been drawn from hysterical cases. Both diseases are cortical, so the motions are such as may occur voluntarily or under emotional stress, and in both the symptoms are aggravated by emotion or attention. In true chorea the motions succeed each other with no regularity as to time, as to the part of the body affected, or as to range of motion.

In hysteria the motions are more regular as to time, being the rhythmic motions already described, but affecting a larger part of the body. They are also more nearly regular in the order in which they succeed each other and in their range. Hysterical motions are also likely to have more of a staccato character as though produced by isolated faradic shocks. Beyond this I know of no rule that does not require qualification. Hysterical movements are more likely to be grouped in distinct paroxysms with intervals of complete or relative freedom from spasm, but they may be continuous and true chorea may almost disappear during rest and quiet, even in the waking hours. A gradual onset, in a child or pregnant woman, without emotion or imitation as a probable cause. with involvement of the face and tongue, with voluntary motions and speech characteristically embarrassed in the early stages and prevented in the later ones, with rheumatism or endocarditis as a complication, would, of course, be proof of the genuineness of the chorea. But an abrupt onset after an emotional disturbance is by no means proof of hysteria, since, according to Gowers, from 20 to 25 per cent. of the cases of true chorea have fright as the exciting cause, and while the onset is generally gradual, beginning some days after the fright, it may be abrupt without any interval at all, the tremor of fright passing directly into the choreic motions. Loewenfeld thinks that these cases will ultimately be separated from those of infectious origin, and this seems probable, but the line has not yet been drawn. Even the presence of unequivocal signs of hysteria, although of great importance, could not be conclusive, since hysteria confers no immunity to chorea.

Hysterical movements of a limb may occasionally simulate Jacksonian epilepsy. As both diseases are cortical the character of the movements and the order in which they spread may be the same in each, and, in the absence of unequivocal signs of organic disease on the one hand and of signs of hysteria on the other, the diagnosis may be difficult. Under the influence of Charcot, Ballet and Crespin made a careful study of the means of differentiation. According to their researches, in true Jacksonian epilepsy, if many attacks come close together, there is a notable rise of temperature, the part convulsed remains more or less paralyzed for from a few hours to a few days, and there is rapid mental deterioration. In the hysterical imitation the attacks are especially likely to be numerous and close together, but there is no rise of temperature, no paralysis and no mental deterioration. Moreover, according to Gilles de la Tourette and Cathelineau, after an hysterical attack in any form, the urine for 24 hours shows a diminution in the total solids, a diminution in the total phosphates and an increase in the proportion of earthy phosphates to alkaline phosphates, whereas after an epileptic attack the total solids are increased and the relation of earthy to alkaline phosphates is unchanged.

Two of my patients have suffered from spasmodic closure of both eyes, occurring especially when fatigued, worried or in any way agitated and often at the most inopportune time, sometimes involving danger. Both cases seemed to be hysterical, as no sign of organic disease could be found, and as the neurasthenia, which was present, could not alone account for a spasm. But as between hysteria and some other form of functional spasm I could not be certain, as unequivocal signs of hysteria were lacking.

In prognosis and treatment we must be guided mainly by the principles applicable to hysteria in general. The disease being functional and having its origin in idea and emotion, a cure is always possible, provided false ideas may be corrected and emotional serenity obtained. On the other hand, hysterical movements are generally obstinate in their persistence; hysterical chorea, for example, has a longer average duration than genuine chorea.

The patient must be encouraged to expect a cure. A straightforward physician may be at a disadvantage in not being ready to promise as much as a charlatan, but he should choose to err, if at all, on the side of cheerfulness and overconfidence, for this is a case where "he who doubteth is damned." The patient should be taught to be vigorous in carrying out his voluntary actions, but to relax the muscles when at rest, and not to attempt to hold back the objectionable motions by force, but rather to let them go on as they may while trying to divert attention to something else. When any action is harmful it ought not to be thought of at all; even resolving not to do it makes the idea of it vivid and tends to start the prearranged mechanism into action. Systematic gymnastic exercises may be made very useful, but they must not be excessive, and their oversight can not safely be entrusted to a "professor" of physical culture. Any local disease or defect causing irritation should be properly treated without magnifying its importance. Impairment in general health may require attention, and the systematic rest cure may be the best means of improving nutrition, but mental influences will always be paramount in importance. If the patient's mental processes can not be happily directed all the rest will be of no avail; if they are so directed the rest will be easy.

DISCUSSION

ON PAPERS OF DRS. SPILLER, PATRICK AND PERSHING.

DR. CHARLES K. MILLS, Philadelphia, declared that he believed Sydenham's chorea to be due to the action of some infection or toxin on a nervous system exhausted by such causes as the severe cold of a protracted winter, overwork, or a nervous strain of some kind. He said that he believes Huntingdon's chorea to be one of the so-called developmental or family affections. It usually comes on at a certain decade, at about the age of puberty or of adolescence or even before puberty. It begins insidiously, with an imperative or semi-imperative movement, which increases gradually until the whole body is involved, and eventually mental deterioration takes place. Dr. Mills thinks that in many cases of chorea there is a disseminated neuritis in certain stages, just as there may be arthritis or endocarditis. He considers that rest is one of the best methods of treatment of Sydenham's chorea, and that even in the minor cases every attention should be given to hygienic treatment. The most useful drugs are the old-time remedies like arsenic. Dr. Mills has had some success with the use of conium combined with arsenic and with both drugs combined with the rest treatment. He believes that some form of carefully regulated exercise should be used as complement to this treatment. He did not agree with Dr. Patrick that torticollis comes within the domain of the tics.

DR. B. ONUF, Sonyea, N. Y., mentioned briefly a patient who at intervals for about fifteen years had had blepharospasm and spasm of the internal recti muscles, of the pupil, and of the accommodations. She was unable to read at any distance greater than two or three inches. On ophthalmoscopic examination, the fundus would at one moment be clear and at another become dim, or would disappear almost entirely; after atropinization of the eyes the picture of the fundus became stationary and the patient showed then a fair vision for a distance. Dr. Onuf discovered that about fifteen years ago, when the disease apparently first began, she went to an oculist who prescribed some "white" glasses and that after a time the spasm disappeared. She said that she had worn dark glasses previous to that time. Dr. Onuf concluded that this spasm was due to an error of refraction, giving rise to strong efforts of accommodation in order to see better. The accommodation, on the other hand, caused convergence of the ocular axes and also contraction of the pupil. The thing that puzzled him was how the blepharospasm started. He did not know whether it was a phenomenon of its own or whether it was also due to the refractive error. On studying the case more closely he found that the blepharospasm was not always present, but that it occurred chiefly when the influx of light into the eye was increased very rapidly. For instance, when she took off her dark glasses the spasm would at once set in, while it had been entirely absent while she had them on. He therefore explained the blepharospasm on the ground that the very frequent state of contraction of the pupil, due reflexly to the accommodative spasm or spasm of fixation, made the retina hypersensitive, so that as soon as slight dilatation of the pupil took place the light was much too strong to be born and caused the lids to be closed. The assumption that this was a hysterical condition was confirmed by the fact that she had very marked anesthesia over the entire body with the exception of a small area around the abdomen and another on the inner surface of the knees. The spasm disappeared almost suddenly through some psychic agency, to reappear again, however, after a time, and the fact of its persistency through fifteen years, at longer or shorter intervals, makes it a very interesting case. That refractive errors were really present was shown by the result of examination by Dr. Arthur G. Bennett of Buffalo, who found in both eyes a myopia combined with myopic astigmatism.

DR. F. E. COULTER, Omaha, Neb., referred to the observations made by Dr. Russell in cases of chorea occurring in pregnancy, in which he reported that the cases most likely to suffer from choreiform movements are those which are pregnant illegitimately, and makes this one of his leading points. Dr. Coulter stated that he has treated several cases of tic with good results. One patient was an old gentleman of 64, the condition being of four or five years' duration. Dr. Coulter used the static spark and suggestive therapeutic measures. Beyond small doses of fluid extract of gelsemium, the patient received no other treatment.

DR. ROBERT MCGREGOR, Saginaw, Mich., stated that many of the cases that he has had have occurred from fright. One girl, aged about 10 years, had an attack dating from a night when she saw for the first time the flashing of a searchlight. Another case occurred from an experience with a runaway horse. It is difficult to deduce any conclusive idea as to why chorea should result from fright. Of course, it may be assumed that when such a case occurs there is to begin with an unstable condition of the nerve centers and that the equilibrium is easily disturbed. He has had patients also who became melancholic as a result of fright. In those cases of melancholia resulting from fright the trouble is very often ascribed to malnutrition of the nerve centers in the brain as a consequence of shock, and this explanation may be used to show why chorea results from fright. Dr. McGregor's experience with chorea has led him to believe that in the majority of cases it is due to some toxic or autotoxic influence. He has had cases where the chorea appeared to be due to some article of diet. For instance, in one case, in a girl 12 years of age, who was particularly fond of veal, he treated her for about three months before he discovered the effect veal had on her system. As soon as the veal was stopped she became well and free from the chorea and remained so for about eighteen months, when she again indulged in her liking for veal and again became choreic. This might be regarded as an idiosyncrasy, but idiosyncrasies are factors in these cases.

DR. ARTHUR S. HAMILTON, Independence, Iowa, stated that the cases of chronic chorea to which Dr. Spiller referred were observed in a service at the State Hospital for the Insane at Independence, Iowa. Dr. Hamilton has been struck with the rather large number of cases seen at the hospital and he has been inclined to think that the disease is possibly not so rare as it is generally supposed to be. In a practically continuous series of 634 deaths, the six cases with which he was working occurred, with two others which he was unable to report. It seemed to him that the name "chronic progressive chorea," as has been suggested by several, is preferable to "hereditary chorea," particularly since, so far as his observation goes, all cases of chronic chorea in the aged, except certain ones said to be associated with gross organic lesion such as cerebral hemorrhage, belong to the same class. If one accepts the term hereditary chorea, it, in a way, requires the production of a history of hereditary predisposition and this, he knows from experience, is not always easy to elicit, even when it exists, and besides, like all other hereditary diseases, this one must have a beginning somewhere and even if the most careful search of the ancestry fails to reveal anything, it can not be said that the disease will not appear in the offspring of the patient when they are sufficiently advanced in years. Nevertheless, hereditary predisposition is often a striking feature and it has been present in all of his cases except two. In one of these the disease has occurred in the children, and of the other patient he has no family history. In a patient still living, whom he has had opportunity to study, the history is rather remarkable. The chorea began with the maternal grandmother, who, with two sisters, was affected. All the female descendants of these women except two have had the disease and in each instance it is said to have come on after a pregnancy. The two women who constitute the exceptions have never been married. The maternal grandmother had two brothers and these, with all the male descendants of the three women, have always been free from the disorder. That the chorea has always been confined to the female members of the family, Dr. Hamilton thinks,

is sufficiently established, but he is inclined to doubt that in each instance it appeared after a pregnancy. It seems to him more likely that, in some of the cases at least, the pregnancy simply caused the symptoms to become worse and in that way enabled the disease to be recognized.

Of the six cases before referred to, three died with a more or less well-marked pneumonia, probably due to aspiration, as swallowing was difficult in all cases. One died of streptococcus infection. In two instances the patients became unconscious and died without apparent cause other than the progress of the disorder. In one patient, 63 years old, autopsy showed extreme atrophy of the convolutions of the brain; in another, who died at 85, the atrophy was certainly not greater than one would expect at that age. In the others, who all died at about middle life, the atrophy was fairly well marked. Reduction in the number of cortical cells was quite pronounced in some instances and intracellular changes have been quite common, though many of these are such as are seen in other conditions and, doubtless, they are frequently the result of the progress of the disorder rather than its cause. These changes are such as chromatolysis, displacement of the nucleus and pigmentation of the cell. Round-cell infiltration of the perivascular lymph spaces was present in at least one case. In one case—the patient of whom he has practically no history except that his chorea had been present for many years, and in whom the movements were much worse on one side than the other—the cells of all parts of the cord were more or less diseased but in the anterior horns the degeneration was much more marked than elsewhere and in one anterior horn almost no cells could be found. Bodies which appear a good deal like the so-called chorea bodies were quite common in this cord.

DR. S. M. CROWELL, Charlotte, N. C., emphasized the importance of suggestive therapeutics in the treatment of this condition. He said that he thinks that a working knowledge of psychology should be required of all graduates in medicine.

DR. D. J. MCCARTHY, Philadelphia, stated that he made a careful examination of one case of Sydenham's chorea, in which the microscopic examination of the brain showed very marked chromatolysis. There were no hemorrhages, but very marked congestion of the gray matter of the spinal cord and cerebral cortex. He examined three cases of Huntingdon's chorea and found in all three cases a granular degeneration of the cells of the cortex, a very marked atrophy of the cerebral cortex and changes in the cerebral tissues, practically the same thing as those found in general paralysis. In that case the patient showed delusions of grandeur, tremor, and the speech very closely resembled that of paresis. He has also had other cases of Huntingdon's chorea presenting the same symptoms. In one case he used the suggestive treatment for two or three months and the patient was able to gain sufficient self-control to be able to go back to his work, which was that of a carpenter, and worked at his trade for several months, after which he became very much worse.

An interesting case in which the cerebellum was probably involved was that of a child, the eldest in a family, and which was reputed to have weighed 20 pounds at birth. The labor was prolonged, and at the age of 16 months the child developed epilepsy. The patient was admitted to the Philadelphia Hospital with marked chorea and delusions and the diagnosis of chorea *insaniens* was made. Choreiform movements were present. Examination showed marked depression on the occiput and very marked nystagmus. The condition persisted and, if an epileptic attack would develop, the choreic symptoms would become very severe, last one or two days and then clear up. In the interval between the attacks choreiform movements would occur. A very interesting case of tic was that of a little girl who developed the habit of moving her ear voluntarily; she developed a habit spasm affecting these muscles and the ears would move up and down every two or three minutes, because of the habit chorea.

In connection with Gilles de la Tourette's disease, there is a condition due to the excessive use of tea and coffee which gives rise to distinct difficulty in reading and interferes with the use of the eyes. This condition is a condition of intoxication from the use of tea and coffee and is not a condition of chorea at all; it usually clears up with removal of the intoxication and also from rest of the eyes. It is manifested at first by an occasional fibrillary tremor, which increases until practically all of the individual fibers are in active motion—an irregular orbicular-electrical chorea. There is practically no movement of the lids, merely the constant movement of the individual muscle fibers. The patient usually complains of a feeling of tension about the eyes and the contractions become very annoying. This local phenomenon about the eyes corresponds to the electrical choreas, myoclonias, etc., and, like them, is a muscular manifestation of an underlying intoxication.

DR. JOHN PUNTON, Kansas City, Mo., emphasized the importance of suggestive therapeutics in the treatment of tic. He cited the case of a Denver saloon keeper, who was on his way to Philadelphia to be operated on for the sixth time for tic. He was intercepted by some friends and advised to consult Dr. Punton. His history was of tic of the most marked character, and the scars on his face indicated that he had been operated on. He was under the influence of morphin and was taking six grains a day; he also had a saturated solution of cocain with which he bathed his gums every few moments. The case appeared to be a very difficult one, as the paroxysms seemed to be almost continuous, and the standing of the various surgeons who had operated on the patient led Dr. Punton to decide that there was not much that he could do. The patient also said that before leaving Denver he had consulted Dr. Pershing, who advised operation. A surgeon was consulted in reference to extirpation of the gasserian ganglion, but the patient would not consent to that operation. After keeping him under observation for a week, Dr. Punton lost sight of him for about three months. The patient was then purchasing a ticket for Denver, and claimed to be cured. He said that he had been cured by a quack in Kansas City, simply by "magnetic healing." Dr. Punton said that this case showed the marked influence of suggestive therapeutics in tic. The case surprised him, and now before he advises surgery he always tries to see if he can influence such conditions by suggestive therapeutics.

DR. JOHN H. W. RHEIN, Philadelphia, reported the pathologic findings of a case of Sydenham's chorea which came under his care recently. The patient, a boy of 12, died during the second week of the second attack of the disease, the result of a sharp attack of pneumonia of two days' duration. By an examination of the specimens so far Dr. Rhein has been able to demonstrate the presence of capillary hemorrhages in the cortex, and in the muscle a few fibers were found in which there was loss of striatum and slight vacuolation of the muscle substance. Dr. Rhein stated that he has had the opportunity of studying a great many cases at the Orthopedic Hospital and Infirmary for Nervous Diseases in Philadelphia, and he believes it can be concluded that all reflexes are increased in a great many cases and diminished in a certain number, and that if there is anything characteristic at all in reflexes it is that they are capricious. He has seen a great many cases treated by arsenic and has had an opportunity to study the histories of a great many more (probably over 1,000 in all), and is forced to conclude that the development of neuritis during treatment by arsenic is very rare indeed. Choreiform movements may exist in certain rare cases of locomotor ataxia, and two years ago he reported a case of this character at the Saratoga session of the American Medical Association.

DR. WHARTON SINKLER, Philadelphia, said that he thinks that one of the reasons why there is so much diversity of opinion of the nature of chorea is that there is a tendency to include under one head many varieties of the disease, some of which have little in common except that one of the symptoms consists in movements of an irregular and spas-

modic form. It must be remembered, too, that there are many diverse causes of chorea. Some cases of Sydenham's chorea may be of infectious origin, but they are not by any means all of infectious origin. One could not for a moment believe that cases of chorea induced by fright, as many are, could be due to infection, nor can the numerous cases due to an overstrain of study or school be of infectious origin. There are also met with several types of Sydenham's chorea in which the symptoms vary to a marked extent, so it seems important that in the study of chorea and of choreiform affections one should discriminate more fully between the different forms of the disease which are met with.

DR. J. A. HODGES, Richmond, Va., emphasized the causal relation of rheumatism and chorea. Having been impressed as a student with the theory that this disease is almost inseparably connected with rheumatism as a causal factor, Dr. Hodges expected to find it in a great majority of his cases; however, during an experience of ten years he has not seen a single case of chorea associated with rheumatism. Likewise, he has only seen two cases suffering with heart lesions and only two that were supposedly due to toxins, though he is not absolutely positive about these, as neither case died and he did not have the opportunity of extending his investigations into the definite cause of the disease. Many neurasthenic conditions, he believes, may be the cause of this disease. Dr. Hodges referred to the calmative effect of iron on muscular tissues. In a number of cases in which neither small nor large doses of arsenic would control the spasmodic manifestations, iron caused marked improvement.

DR. ALBERT E. STERNE, Indianapolis, stated that a great many cases of tic of the convulsive sort have absolutely failed to be benefited by any method that he has ever employed. The older the patient is the poorer the prognosis becomes. The prognosis is very much better in children and decreases as the patients advance in age. There must be a fundamental weakness for the manifestations exhibited in chorea, because the same elements which produce chorea in these individuals have absolutely no effect on persons not predisposed to the condition through fundamental nervous weakness. He believes that there is a very distinct relationship, in a large percentage of cases, between Sydenham's chorea and acute arthritis. It is perfectly natural in a predisposed case that there be a joint manifestation which is frequently overlooked. He has seen many cases beginning in chorea which have developed heart disease only, or arthritis and endocarditis, successively. Chorea may be either the first or the last in the trinity of diseases. In the case of a child which had injured itself by cutting with a piece of tin, the wound would not heal, but remained open, and the child successively developed arthritis, endocarditis and chorea; all disappeared under treatment, but again she developed arthritis, endocarditis and chorea, and died. Dr. Sterne could not recall a single case where tuberculosis was associated with chorea.

DR. W. C. JONES, Walnut Springs, Texas, declared that in his state there is a great deal of chorea and very little rheumatism, and still less cardiac trouble.

DR. WM. G. SPILLER, Philadelphia, briefly referred to a case which at first was under the charge of Dr. Mills and which then passed under his care. The patient was operated on, the spinal accessory nerve being resected and two inches removed. The man continued to jerk his head, and a Keen operation was performed and the nerve supply of the muscles of the back of the neck and finally the nerve supply of the corresponding muscles on the other side of the neck cut also. The patient left the hospital very much improved. Dr. Spiller recently saw a patient who had convulsive movements of the muscles of the neck and of the face, who was discharged from the hospital cured after resection on each side of the spinal accessory nerve, but he stated that he failed to see how this could have cured the movements unless by suggestion. Dr. Spiller regards senile chorea as a more serious condition than Sydenham's chorea and thinks it may be difficult at times to diagnose the senile forms from Huntingdon's chorea. He thinks that at times there is a relation between Sydenham's chorea and rheumatism but that it is often much exaggerated.

DR. HUGH T. PATRICK, Chicago, confirmed Dr. Spiller's statement that implication of the muscles of the eye is very unusual in chorea. Aside from occasional choreiform rolling of the eyeballs, he had never seen marked implication of the eye muscles until recently. A few months ago he saw a boy of 5 with very severe chorea, confining him to bed, and the eyeballs were in constant, irregular, jerky motion. He had never seen anything approaching it except in a few cases of very grave organic disease, and when he first looked at the boy he supposed he had to deal with some serious lesion. The case, however, proved to be a typical one of Sydenham's chorea, and the child gradually recovered. In the treatment, he favors very large doses of arsenic. His opinion is that large doses will produce effect when smaller ones will not. He has had only one case of arsenical multiple neuritis caused by administration of the drug in large doses. That he thinks was not all his fault. He was giving arsenic at that time hypodermically in large doses, which he has since stopped. He went away on a vacation and the case, he thinks, was not watched as carefully as it should have been. He always watches the knee-jerks with extreme care, and if he sees any sign of their disappearance or weakening, he stops the drug at once, as this is a sign of beginning neuritis. It never occurred to him to treat a case of chorea by hypnotism.

DR. HOWELL T. PERSHING, Denver, stated that he believes in large doses of arsenic for chorea, but that he has long since ceased to use Fowler's solution. He now gives cacodylate of sodium in a 1 to 60 solution, which corresponds in arsenical strength to Fowler's solution. It can be given in doses up to 20 and even to 30 minims three times daily without causing any gastrointestinal disturbance. He has had no cases of arsenical neuritis since he began using it, five years ago. He stated that he has never recommended an operation in any case of that kind, though he has been present at and has consented to such operations.

THE RADICAL OPERATION FOR EMPYEMA OF THE FRONTAL SINUS.*

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The practice of rhinology some years ago was in great danger of becoming monotonous. At our conventions the papers on reflex neuroses, adenoids and deviated septa were too numerous and were discussed over and over. What a pleasant change has taken place since, and how differently we treated "nasal catarrh" in the past from what we do now! Each case of atrophic rhinitis and of ozena is a study in itself, and every disease of the accessory sinuses means good judgment and labor. But just this change has lent new interest to our work. Foremost in this respect are the affections of the frontal sinus.

In the paper which I have the honor of presenting to you, principally the chronic forms of suppurative frontal sinusitis are dealt with. In order not to be misunderstood in my conclusions, it will be wise to state from the start that by far the great majority of cases improve under intranasal treatment. And thus the patients are enabled to live for many years, now and then suffering little or more discomfort. In other patients the symptoms are somewhat more pronounced, but many would rather endure them than to undergo a serious operation.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Before we decide on radical treatment by external operation we should exhaust all means possible to afford relief by intranasal procedures. It is an experience common to all of us that acute cases readily yield to a mild treatment, the exceptions only proving the rule. And I have nothing to add to this, excepting one case that occurred in the practice of a well-known colleague in a neighboring city.

CASE 1.—On Feb. 20, 1893, I was called to see Mrs. ——, who had been treated a week for typhoid fever. She had fever ranging between 101 and 102 F., and suffered greatly from a constant deep-seated pain over the right eye; constipation was also present. From the start she insisted on consulting a rhinologist, but the attending colleague objected on the ground that the frontal headache was due solely to the typhoid fever. Finally he was discharged, and his successor called me in. The pain was so pronounced that one could hardly touch the affected parts. The patient was unable to sit up in bed, and under the circumstances the examination was rather difficult.

Examination.—I found the spleen somewhat enlarged, no roseola and no pain over the abdomen. Anterior rhinoscopy revealed a highly congested and enlarged middle turbinal, between which and the septum, after cocainization, pus oozed out.

Treatment.—Removal of the anterior ethmoidal cells, followed by washing out of the frontal sinus, which was the seat of the acute empyema, brought great relief to the patient at once. Subsequent daily irrigations of the sinus and applications of silver nitrate removed all difficulties within five days, the patient being completely restored to health. The shortsightedness of the first attending physician is incomprehensible.

During and after an epidemic of influenza, we have all seen cases that yielded to mild treatment. I am fully convinced, however, that many a case failed to improve and puzzled the attending physician by simulating acute mania or the like. But we are not to discuss these today, and I shall now pass to the chronic forms of frontal sinusitis.

CHRONIC FRONTAL SINUSITIS.

Diagnosis.—The diagnosis of these cases is not always simple, and I wish we had some safe method by which we could always determine at the first examination whether or not an empyema of the frontal sinus exists. Of the different symptoms mentioned in textbooks, the tenderness over the sinus on slight or strong tapping or on pressure was absent in some of my most characteristic cases, while in others it was quite marked. Asthenopia was sometimes a prominent feature, and I agree with H. Manning Fish that this sign comes more in evidence when the flow of pus from the sinus is temporarily checked.

Transillumination is mentioned here only on account of the peculiar behavior in one case. This was a gentleman with distinct empyema of the right frontal sinus, who was under my observation for nearly four years. The flow of pus continued day after day for years, the middle turbinal was absent, and one could easily reach with a probe far up into the sinus, which apparently extended a good distance above the eyebrow. Irrigation of the sinus was also very easy. Now, in applying the electric lamp for the purpose of transillumination, a large, bright area could be seen on the affected side, which was in strong contrast to the healthy side, which appeared much darker—just the opposite to what was to be expected. The affected sinus was apparently much distended, and, since the flow of pus was no longer obstructed and the sinus emptied constantly, there was nothing to prevent the rays of light from penetrating the sinus walls and producing the translucency.

The most reliable evidence is afforded by probing and washing out the pus from the sinus. This is by far the safest way of reaching a diagnosis. The probing itself is difficult. Indeed, it is rarely possible to enter a sinus by passing a probe along the frontonasal duct, and I agree fully with Charles H. Knight[1] when he says that "one is quite likely to get into the anterior, or frontoethmoidal cells, or even altogether fail to find the orifice of the canal." A perfectly thorough exploration of the sinus cavity can not be made with the probe. We are handicapped in many ways by the narrowness of the field in which we have to work, by copious hemorrhages, etc. Even on the cadaver it is impossible to do this or any operation completely through the nose. The reappearance of pus in the middle meatus after syringing the antrum of Highmore signifies that its origin lies higher.

Another important point arises now, as Hajek correctly says, viz., we have to decide whether the pus comes from the frontal sinus alone, from the anterior ethmoidal cells discharging into the infundibulum, or from both. It is sometimes extremely difficult to decide this, and mistakes in this direction are not infrequently made.

CHOICE OF METHODS OF TREATMENT.

Having reached a definite conclusion regarding the condition of the frontal sinus, what are we to do? Are we to treat our patients by intranasal methods, and how long are we justified in following up that course?

It is but natural that we should attempt to establish free drainage intranasally. If we succeed in that way by simply washing out the sinus, we run no risk in continuing this treatment for some time. But in most cases we have to remove the ethmoidal cells, and herein lies the great difficulty. The ethmoidal labyrinth, as Hajek correctly points out, can be freely opened through the nose, but not totally resected. The cribriform plate is dreaded, as a perforation of it will lead us directly into the cranial cavity.

Although, in a discussion on this topic before the Section on Laryngology of the New York Academy of Medicine, several colleagues reported that they had met with this accident and the patients nevertheless recovered perfectly, still it is at least unpleasant and does not bring the patient nearer to a cure. Still, we can give a good deal of relief to the patient by intranasal methods and are justified in continuing it—of course, with the consent of the patient—until threatening symptoms set in. But do not let us forget that such an empyema is in some instances a constant menace to the patient, and that other infections may arise from it. Permit me to quote the following case, which, though no positive proof of that theory, is nevertheless very suggestive:

CASE 2.—Mr. R. N., aged 45 years, had the grippe four years ago. Directly afterward he began to suffer from "nasal catarrh" and headache. Two years later he caught a cold and became hoarse, which condition lasted for several weeks. From that time on he occasionally suffered with sore throat. He came to me on account of hoarseness, which hindered him in business.

Examination.—On my first examination a dyspnea and a constant cough, with long inspiratory stridor, was noticed; little expectoration. In the larynx I found perichondritis of both arytenoids, which was the cause of the dyspnea. Examination of lungs and sputum, negative. In both nostrils there was marked atrophy of all structures; he removed masses of scabs by daily syringing. Probing and washing out of both frontal sinuses was done immediately, and at once he told me he had less difficulty in breathing. From that time on I frequently repeated irrigation of the sinus, and then the patient

1. Knight: Diseases of the Nose and Throat, p. 94.

generally felt the same relief. But this was only a subjective sensation. Objectively, in the discharge from the frontal sinus, tubercle bacilli were detected at a time when the findings of the sputum were negative. Later on the sputum also showed tubercle bacilli, and finally physical signs of tuberculosis developed over the lungs. Although there is no direct proof of a communication between the affections of the frontal sinus and the larynx, it is only natural to associate both under the same etiology, as the possibility of a lymphogenetic infection of the latter from the sinus is very great. Therefore, I proposed to perform tracheotomy and immediately afterward do radical operation on both frontal sinuses. This seemed to me the only rational way of rendering a cure possible. The patient, however, lost two valuable months in delaying the operation and afterward disappeared.

Formerly a radical operation was considered necessary only when one of three symptoms was present, viz., brain pressure, swelling of the frontal region due to expansion of the frontal sinus, or dislocation of the eye, or all three. Since the genial Berlin surgeon, Dieffenbach, first performed that operation we have changed our views as to its indications. Nowadays, after treating the patient for several months and exhausting all kinds of intranasal treatment, it is our duty to propose an external operation under the following conditions:

1. When the purulent discharge is copious and the patient apparently loses ground.
2. When the discharge is fetid and combined with persistent headaches.
3. When the above-mentioned "classical" symptoms are present.

A combination of any of these symptoms naturally makes the indication so much more imperative.

After coming to a conclusion as to the necessity of an operation another difficulty arises, viz., which method is to be followed? Let me emphasize at once that there is no operation that will answer all purposes. Each case has to be treated individually, and each operation requires special rules.

ANOMALIES IN THE SINUSES.

The more I operate in this field, and the more sinuses I open in the cadaver, the more do I see that the variations in the size and shape of the frontal sinus are extreme. It is not very unusual to find the sinus entirely absent, or only rudimentary on one side and very large on the other. In 24 cadavers which I dissected I have found the sinus absent on one side three times. Repeatedly a cell was found between the two sinuses. In one case this cell extended quite a distance up on the left side, although there was no sinus at all. On the other side the sinus extended sharply from the median line all along the supraorbital margin.

A. Logan Turner,[2] our esteemed guest from Edinburgh, in his comparative studies found that the absence of one or both sinuses was not so very uncommon as may be thought; in other words, there was no cavity extending into the vertical portion of the frontal bone. "This, however, does not exclude the possibility of the existence of a small frontal air space between the two laminæ of the orbital plate." Whether this air space is identical or similar to the above-mentioned cell which I found I can not decide, but it is probable. The difference in the size of the sinuses is sometimes very pronounced. More important, however, in case of operative intervention, is the difference in their height. In many cases the upper wall of the sinus does not even reach the supraorbital margin. This I consider of such extreme importance for Killian's operation that we always should be on our guard against any such occurrences. Mistakes can often be avoided, but certainly not always. We shall speak about this later on.

2. A. Logan Turner: The Accessory Sinuses of the Nose, Edinburgh, 1901.

METHODS OF OPERATION.

A colleague who has done good work along this line is Arthur Hartmann[3] of Berlin. In his atlas he recommends an operation which is very much like the one we now frequently use.

One of the first to perform this operation radically and on a larger scale was Jansen. His incision along the eyebrow to the supraorbital notch is well known. The bony wall is opened just above the internal angular process of the frontal bone. At this point the bone is thinner than on the anterior surface and can be easily perforated. Then he removes the lower wall of the sinus, and in large cavities the edge of the anterior wall, and closes the external wound. There is no doubt that with this method the ethmoidal cells can easily be reached, but the exploration of the frontal sinus is not so easily accomplished.

In this respect the method of Riedel, who removes the anterior and orbital wall, offers greater advantages, but most authors agree that the cosmetic effect is a bad one. I omit here the description of the well-known methods of Ogston-Luc and Kuhnt, since they have been discussed frequently. Kuhnt's method is surely one of the best, but lesions of the infundibular cells of the labyrinth are not accessible. This is a great drawback, as the fontal sinus affections are almost invariably combined with diseases of the ethmoidal cells. According to Hajek's and my experience, the nasofrontal duct is so intimately connected with some of the ethmoidal cells that, in all probability, we can expect an affection of the latter when the frontal sinus is diseased.

Killian's Operation.—Killian of Freiburg, in order to reach all diseased parts, establish perfect drainage and make the cosmetic effect perfect, modified the former methods in vogue and claims excellent results for his own. As his procedure does not seem well known on this side of the Atlantic, you will permit me to give you a short résumé of it:

Killian's method is as follows: 1. Start incision at the temporal end of the eyebrow, cutting directly through the latter to its median end; extend the incision in a graceful curve around to the side of the nose, and cut through the middle of the nasal process of the superior maxilla.

2. Incision of the periosteum about 5 to 6 mm. above the supraorbital margin and parallel to it, followed by a second incision through the periosteum exactly in the center of the frontal process. His idea is to remove the anterior and the lower wall of the sinus with the preservation of a bony bridge, believing that this gives an excellent cosmetic appearance after the operation. In the line of the first periosteal incision he outlines the upper border of the osseous bridge he intends to preserve by light taps with the chisel.

3. Opening of the frontal sinus, either above or below the bridge and probing.

4. With chisel and hammer a furrow is made along the first periosteal incision, and principally with bone forceps the entire anterior wall is removed, followed, of course, by curetting of all diseased mucous membrane.

5. The supraorbital margin is next outlined from the floor of the sinus, and the whole floor resected, thus leaving a part of the bone about 5 to 6 mm. wide.

3. Atlas der Anatomie der Stirnhöhle, Wiesbaden, 1900.

6. Resection of the frontal process of the superior maxilla and the rest of the floor of the sinus.

7. Resection of the anterior and middle ethmoidal cells and the respective parts of the middle turbinal.

8. Formation of a flap from the rest of the nasal mucosa, so that there remains a permanent and large opening into the sinus.

There is no doubt but that this operation is the most radical one, and that it apparently offers the best advantages for a permanent cure. But even this method will have to be modified to suit every variety of cases, if such a thing will ever be possible. For the present, I am not ready to recommend it for all cases; and, indeed, opinions differ widely as to the removal of the various parts.

While Riedel advocates the resection of the entire anterior and lower wall and Killian the same with the retention of a small bridge, Jaques leaves the vertical part of the bony wall intact, but removes the orbital part totally. Burchardt,[4] a former assistant of B. Fränkel's, says: "It is contrary to general experience that cavities do not heal without partial removal of the orbital vault." I confess openly that so far as my experience goes, we can not as yet lay down such general rules.

In one case the whole anterior wall was affected and had to be removed *in toto*. On the other hand, in a case which had been operated on nine months previously by a general surgeon, all the symptoms had returned. On opening the sinus I found the lower wall intact but necrotic, and on removing it there was seen near the outer angle of the orbit a small pocket which was almost entirely partitioned off from the rest of the sinus. I have observed similar formations on the cadaver. It must be admitted that I could not have seen this pocket without following Killian's technic, and it is evident that in this case a cure could never have been effected without removing the lower wall.

Siebenmann of Basel praises Killian's operation as an advance in unilateral affections, but claims that his cosmetic results in double sinusitis were not good where the sinuses were very deep anteroposteriorly. We shall have to await his further communications before being able to judge of his proposed modifications.

Before opening the frontal cavity we are very often misled as to its dimensions. Even when we succeed in probing the sinus, we are mostly not able to judge of its height. We may believe that the sinus reaches upward above the eyebrow, and in trying to operate after Killian and open the sinus in this manner, we may get into the cranial cavity. Such a case has occurred in my own practice, and according to private information in that of others as well. It may be briefly mentioned here as an illustration and a warning to others:

Case 3.—Miss ——, aged 45, born in England, consulted me on account of a constant purulent discharge from the nose and severe headaches.

Examination.—Both middle turbinated bodies had been removed, and it was easy to probe both frontal sinuses, as well as to wash them out. The flow of pus was very great. I recommended a double radical operation. As this had been proposed already by another colleague, she consented readily, being happy to be freed of her troubles.

Operation.—In the presence of several colleagues, I tried to follow Killian's method exactly. After marking the bony bridge, part of the bone above it was chiseled away, when to our surprise the dura mater presented itself.

4. Arch. für Laryngologie, vol. xv, p. 496.

The patient made a rapid recovery and left the hospital, the wound being entirely closed. I have not seen her since.

Now, what had happened here? We either had probed an ethmoidal cell, or there was some communication with the sinus of the other side, which was the sole cavity discharging the pus. Or we were misled in judging the distance which the probe had entered. I am inclined to believe the first mentioned.

The variations in the size of the sinus are so great that we should enter it only at the safest point, and that is not above the eyebrow. The most extreme variations I have found in my autopsies on 24 cadavers I shall report here. The first one was in a male cadaver, apparently of Indian type. Here the left sinus that did not reach beyond the middle line was very much larger than the other. Its greatest height near the septum amounted to one inch, while on the other side it did not reach the supraorbital margin and was hardly half an inch in height. The second specimen (Fig. 1) is a characteristic type of another variety. The right sinus in this specimen is quite small, similar to the former case, while above it is a large cavity that belongs to the left sinus. You will observe I commenced Killian's operation on that sinus; the bridge has been prepared and

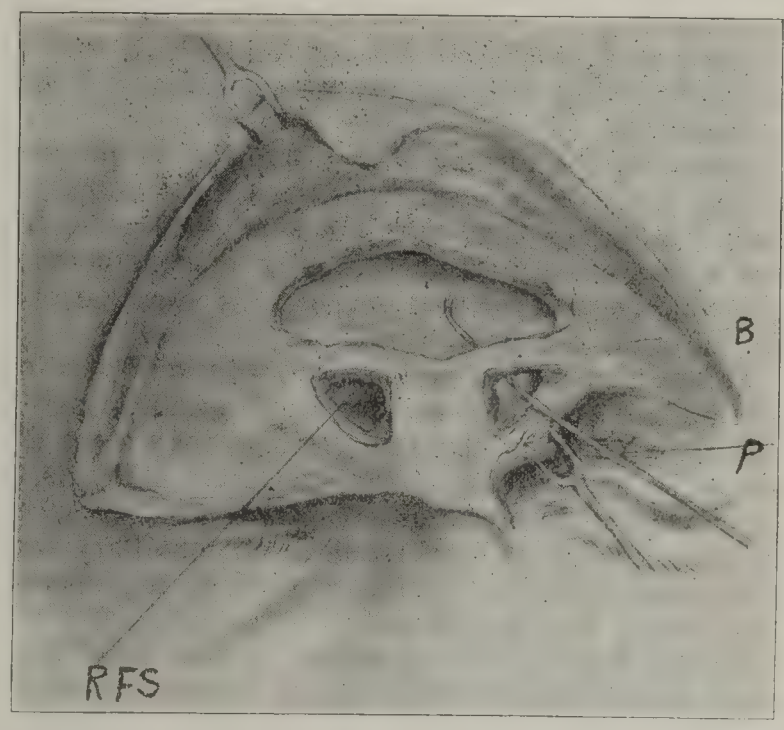


Fig. 1.—B, bridge between the two parts of left frontal sinus; P, probe in left sinus; RFS, right frontal sinus.

a probe is inserted from the smaller lower section of the sinus into the large upper one, which extends further toward the external canthus of the right eye than of the left.

Now, if we should have made an opening on the right side above the bridge, we would, in the first case, have entered the cranial cavity, and in the second we would have opened the sinus of the other side, neither of which was desired. At any rate, the above experience has taught me a lesson, viz., never to open the sinus first above the eyebrow. I always start the opening now near the upper inner canthus. Then I can probe the sinus readily and measure its dimensions. This is the only safe way to proceed. My experience on the cadaver has taught me the same, and I would advocate it here emphatically.

After opening the sinus as mentioned, I can easily probe my way and then prepare the bridge from above, if that be feasible. If the sinus ends upward at the

eyebrow, we must naturally be satisfied to remove only the lower wall and then there can be no bridge. But when the sinus is large enough I believe in preserving a bony bridge, thus improving greatly the cosmetic effect. It must be mentioned, however, that in some exceptional cases the bone is so affected that it is not advisable to leave any behind. In spite of this, the cosmetic effect is sometimes good, as in one case of mine in which the entire anterior wall had been removed and in which no perceptible depression was left. In another case of mine the bridge broke off during chiseling, but here, too, the result was so good that you can hardly say which side was the affected one. Still, we should not rely on such fortunate occurrences, and be on the safe side by leaving a bridge. The main thing in all these cases is to preserve the periosteum and let Nature do the rest.

If during the operation the horizontal incision alone does not give enough space, I do not hesitate for a moment to make another vertical incision after Kuhnt. This is, in men especially, of no importance, and makes the operation easier.

Regarding the removal of the frontal process of the maxillary bone, it is usually easier on the living than on the cadaver, where the bone is healthy and much more resistant. I would sound a note of warning to be careful lest a fracture of the maxillary bone might occur in the living, as happened, on the cadaver, to one of my assistants.

Regarding the formation of a flap for the purpose of keeping the passage open from the frontal sinus to the nose, I must say that this is a very good plan, but I have seen a case where there was no mucous membrane that could be used for that purpose. It was so atrophied that it could not be utilized.

Whatever operation we perform, we should not forget that we are treading on dangerous ground, and that with or without our fault an accident may occur. The case of so experienced a man as Castex of Paris, who lost a patient from meningitis whom he had operated on for empyema of both frontal and maxillary sinuses four weeks after entire recovery from the operation, should be a warning to us.[5]

Having finished the operation, I now close the external wound after putting in a drainage tube that can be removed at will. The primary healing of the wound is preferable, as healing by granulations often, or perhaps always, causes a depressed cicatrix, which is more or less conspicuous. The more we leave the external wound alone, the better will be the appearance afterward. And again, the more we plug the cavity from the outside and the longer we try to keep it open, the more marked will be the disfigurement.

Since the reactive secretion is practically *nil,* no tamponade of the cavity is necessary, and the wound generally heals *per primam.* Sometimes a slight retention of serous fluid causes a rise in temperature. This happened in the case of a young Greek. On the fourth day after the operation he felt pain on touching the wound near the inner canthus. His temperature had varied between 98.6 and 100, when on the fourth day it rose to 104.6. The inner canthus was a little more swollen than on the previous day. On opening it simply with a probe, washing it out with a saline solution and keeping the wound open for a few days, the patient quickly recovered. This place, i. e., the region of the inner canthus, seems to be a favored one for the retention of secretions, as abscesses will develop here also. These abscesses are sometimes of no importance, but usually a spontaneous reopening of the wound will follow with the formation of a fistula. Such a fistula will seldom close, no matter what we try. It means, as a rule, a new operation, and indicates that the first one was faulty in some way. I imagine we all have had such cases, and the wider our experience grows the less frequently will they be encountered. I am convinced that Killian's method is a step further in the direction toward an ideal operation, but it is surely not ideal yet.

And now, permit me to report the histories of some of the most significant of my cases, and I beg your indulgence for narrating first a case on which external operation had not been performed. It may be illustrative of a series of similar cases.

CASE 1.—Mr. J. K., aged 60, native of Austria, came to me on account of throat trouble on Nov. 2, 1899. On questioning him, he told me that for the last three years he had had a tickling in his throat, which had grown worse during the last month. He expectorated profusely and his appetite was failing. He had been operated on for nasal polypi about two years before.

Examination.—I found a postnasal catarrh and numerous polypi in both nostrils. The treatment was carried out accordingly, but the patient steadily grew worse. He had lost 25 pounds in weight, had no appetite at all, and slept very poorly.

Treatment.—As pus continued to flow in large quantities, the middle turbinal was removed, and then granulations from the anterior and middle ethmoidal cells curetted. I did this in the beginning quite often and also curetted the lateral cells with a curved ring-knife. The tissues were so friable and the adjacent orbital wall so thin that I always dreaded perforation of the latter. Afterward I was also able to scrape out granulations from the frontal sinus. Only after that was accomplished symptoms commenced to improve. The tissues broke down like paper, but there was no sign of any luetic infection. Although the patient was, and still is, suffering occasionally from dizziness, bad taste in the mouth and consequently loss of appetite, he has refused any radical operation up to the present time. When these symptoms show up I curette the nose and free him of all the accessible pus; then he goes to the country and feels better for some time, until the symptoms reappear. I have had him under observation for five years, and he feels grateful for the relief obtained thus far.

CASE 2.—Mr. E. A., aged 39, a musician, called on me first Feb. 4, 1898. He complained of a cold in his head which had lasted for several years. Fifteen years ago, while in South Africa, he had contracted lues, had afterward married, and his wife had given birth to a healthy child.

Examination.—His nose was clogged with a mass of foul-smelling scabs and crusts, after the removal of which a large perforation of the septum with ulcerations on its border could be seen. The left lower turbinal was atrophied, and on the anterior portion of the middle turbinal bare bone could be felt.

Treatment.—This was scraped away, and gradually the whole turbinated body removed. The antrum was washed out repeatedly, and always quite a mass of pus and débris brought away. But pus continued to flow from further up. After curetting away a mass of broken-down tissue I could finally pass a probe into the frontal sinus (June 14, 1898). There was no doubt that an empyema was also present here. It need hardly be mentioned that antisyphilitic treatment had been initiated the first time the patient had called.

The man led a rather irregular life, and disappeared for three months. On Sept. 18, 1898, he returned to me and said he had been playing in a country hotel and had used the potassium iodid sol. 100 drops t. i. d., but had given up the inunctions for obvious reasons. An edema had appeared over the left eye, and the patient felt some pain in that region. Other-

5. Intern. Centralbl. f. Lar., p. 166, 1904.

wise he considered himself perfectly healthy. I must confess I was not very anxious to do a radical operation in this case, as I was doubtful about the outcome, and I tried my best to bring this process to a standstill by intranasal methods and by pushing the antiluetic treatment to its limit. It seemed as if we were to be successful. But our friend then absented himself again, and returned only when the pus had made an opening through the forehead. Without general narcosis, I enlarged this opening and found an exceptionally big cavity. It reached above the eyebrow surely one inch and extended outward as far as the orbit. There were several sequestra, which were removed, and all the affected parts touched with nitrate of silver in substance. Drainage into the nose was then established and the wound dressed without suture. I am glad to say it healed very nicely within about three weeks and that the scars on the forehead are not very conspicuous now.

CASE 3.—Mr. C. M., aged 40, a wholesale merchant, consulted me, with quite acute symptoms. He told me he had been unable to breath well through his nose for the last three or four years. Whether there was pus present during all that time he did not know. Three months ago nasal polypi had been removed in several sittings by a colleague. After the last séance he had "dreadful" headaches. But later it seemed as if something had broken, and an abscess opened, and he then felt easier. About ten days ago this pain returned. It was so severe that he could not sleep at all. For the last two days he felt, on the contrary, like sleeping all the time, although the pain had not left him. He was somewhat dizzy, so that his wife had to lead him into my office, his mind did not seem to be perfectly clear, and he answered questions put to him rather slowly and hesitatingly. Temperature, 101 F. No appetite.

Examination.—On examination I found the parts over the right frontal sinus swollen, and the right eye somewhat closed. Great tenderness to touch at supraorbital margin. Transillumination showed shadow on the right side. In the nose there were several polypi and a mass of pus. Considering the seriousness of the symptoms, I advised an immediate radical operation, but the patient preferred to wait. This gave me an opportunity to remove the polypi. I was not able, however, to probe or syringe the frontal sinus, as the slightest touch further up above the middle meatus caused a fainting spell. Nevertheless, the diagnosis was beyond doubt. He was growing weaker, felt like vomiting, etc., when, after eight days, his family consented to an operation.

Operation.—Oct. 4, 1902, 7 a. m. Radical operation after Kuhnt. Eyebrows shaved, horizontal and vertical incision. Periosteum drawn upward and downward; sinus opened above the eyebrow. The cavity, which was filled with pus and granulations, was not very large. The entire anterior wall was affected, and consequently removed, and the rest of the cavity thoroughly scraped out. Drainage into the nose; Myle's tube inserted and sinus packed with gauze. Patient made an uneventful recovery and left the hospital on October 17. The wound was kept open for two weeks longer, when it was allowed to close, which it did within a few days.

Result.—Although the entire anterior wall was taken away, there is hardly any visible difference between the two sides, with the exception of a small retraction where the wound had been drained. I have seen more marked retractions in other cases, and find it best now to close up the external wound immediately following the operation.

One of the most interesting cases I have seen is the following:

CASE 4.—Mr. O. W., aged 59, in the wholesale business, has a most peculiar anamnesis. He had been suffering for the last ten to fifteen years from headache on the left side. It used to "creep up and all over," and then was most severe under and behind the left eye.

History.—His digestion has always been poor, and grew worse two years ago after he had an attack of sunstroke. He became very nervous and sometimes felt like jumping out of the window. His family physician, a well-known and able colleague, took him to different nerve specialists of this city, who are recognized authorities. He went through different cures without experiencing the least relief. Finally he was advised to get away from business and take a trip to Europe. He went to Giessen, in Germany, to visit relatives, to whom he told his different ailments. He snuffled constantly at that time, and somebody advised him to consult a rhinologist. Dr. Reinewald of Giessen saw him and found pus in the middle meatus. He resected the anterior portion of the middle turbinated body and the anterior bulla cells, and advised him to see me after his return to New York. For business reasons he had to remain for a while in Germany, and consulted another specialist, Dr. Warnecke, in Hanover. The latter found an empyema of the left antrum, which he opened with Krause's trocar from the lower meatus. He treated him for a week and again advised him to call on me immediately after his return to New York.

He consulted me first on Dec. 11, 1903, and on being questioned told me that he had had pain in the nose for years and also "catarrh."

Examination.—The opening made by Dr. Warnecke had closed and pus in the antrum was again found. The next day the antrum was opened from the alveolar process, whereupon a great deal of pus was washed out. This, however, according to Mr. W., was not so putrid as that discharged after the first incision by Dr. Warnecke. The daily irrigations of the antrum met with some difficulties, the patient being a potator and of a very nervous temperament, which grew steadily worse. In spite of the irrigations, and every time after them, pus was noticed in the middle meatus. The cause of the disease, therefore, had to be looked for higher up. The removal of granulations and some ethmoidal cells could not be accomplished thoroughly, as the patient objected to it without general narcosis, but probing of the frontal sinus could be done after thorough cocainization. In transillumination the left sinus appeared darker than the other.

Operation.—The diagnosis of chronic frontal sinusitis was made and radical operation proposed. This was performed on Jan. 24, 1904. Both eyebrows were shaved and a horizontal incision made, reaching to the external margin of the eye. Then the periosteum was incised and pushed upward and downward. Very near the middle line, right above the eyebrow, the bony wall was opened with chisel and hammer. The whole anterior wall was found to be affected and removed *in toto*, mostly with bone forceps. The mucous membrane could be lifted up in pieces. The whole sinus was curetted and cleansed with hot sterile water. Then every part of it could be examined thoroughly. As the entrance to the nasal cavity was easily enlarged with a ring knife, and apparently every diseased particle removed, I saw no reason for performing here Killian's operation, but inserted a Myles drainage tube and packed the external wound with iodoform gauze.

I have to mention again that the patient was an alcoholic, and consequently the free use of wine and whisky was permitted.

Hospital Record.—During the day he was greatly distressed with gas, but relieved by enema. Further on during his convalescence a rectal tube always made him feel easier. Temperature in the evening, 99 degrees; pulse, 60.

January 26, 8 a. m., pulse, 68; temperature, 99 degrees; 9 p. m., pulse, 66; temperature, 100 degrees. Passed the day comfortably, but felt somewhat dizzy.

January 27, highest temperature, 99.6 degrees.

January 28, wound dressed, after which he was very nervous for several hours, but comfortable later on.

January 29, 8 a. m., pulse, 60; temperature, 98.2 degrees. Complains of "cloudiness of vision." 7 p. m., pulse, 64; temperature, 99.6 degrees. Is slightly delirious; alcohol rub and plenty of whisky. During the following night nurse remarked, "Very vivid imagination."

January 30, wound dressed and looks healthy. No double vision. Patient rests easily.

January 31, complains of a disagreeable smell. Temperature

normal. Patient gets out of bed for an hour. After that his recovery was uneventful. Granulations had to be removed on and off from the cavity, which closed up slowly.

Patient never noticed a smell again and felt like a new being. His residence being out of town, I kept him in the hospital until February 9. The external wound was almost closed and water injected into the rest of the cavity ran out through the nose.

Later History.—There is still some discharge from the nose, but the patient feels perfectly comfortable. Goes south for a few weeks and returns with the wound closed and feels well. The region of the frontal sinus feels to the touch like hard newly-formed bony tissue, and the only thing that shows a sign of the operation is a slight depression above the eyebrow.

The remarkable features in this case were the obscure symptoms during all the years of his sufferings, which did not lead any of his physicians to examine his nose. I believe the neurologist especially ought to learn the one lesson from this case, that in every instance of persistent headache not only the eyes, ears, etc., have to be examined, but also the nose. It is, perhaps, not amiss to believe that many a patient who died under "obscure brain" symptoms might have been saved by looking into the accessory sinuses.

Postscriptum.—May 30. Patient has always felt well and still feels well, but noticed a slight purulent discharge through the former wound. The probe enters not quite one-quarter of an inch and there is a little pus in the middle meatus. Whether we shall have to reopen and do another operation can not be said for the present.

CASE 5.—In this instance I did for the first time a typical Killian operation. The history is as follows:

History.—C. L., a young Greek, 20 years of age, was sent to me by Dr. A. Rose. His complaints mainly consisted in not being able to breathe through the nose. Besides, he expectorated occasionally thick pieces of phlegm from the back of his nose.

Examination.—On examination he presented the typical picture of ozena, both sides of the nose being clogged with the characteristic dried-in scabs, these also being present in the pharynx. He had noticed the bad odor himself, but did not like to talk about it.

Treatment.—After cleansing the parts it was seen that only the right side was affected, and the diagnosis of empyema of the right maxillary sinus and most likely of other sinuses as well was made. Consequently the antrum was opened through the alveolar process and a mass of putrid discharge was evacuated. Shortly, however, the water came out quite clear, but more pus was seen in the middle meatus and in the retropharynx. The next step was the cutting away of the anterior ethmoidal cells and some polypoid granulations, after which I could syringe the frontal sinus. With the probe I could also go up a good distance into the frontal sinus, apparently above the eyebrow. The odor still being present, and to a marked degree, and seeing no other way of getting rid of it, I proposed to make a Killian operation.

Operation.—April 14, at 7:30 a. m., we began the operation, after giving him morphin, ¼ gr. hypodermically, and putting atropin into the eye. Both eyebrows were shaved, as the hair afterward grows more symmetrically and it looks better. Horizontal incision, curving around the inner canthus to the nose, preservation of the periosteum, outlining the osseous bridge, and chiseling an opening through the anterior wall above it. The cavity was filled with granulations and cheesy masses, the curetting of all of which caused quite a profuse hemorrhage. Then the lower wall was opened and cut away, mostly with bone forceps. Although we did it carefully, part of the bridge broke off. But we left that as it was, only smoothing off the edges a little. After cleaning the whole lower part of the sinus, we removed the frontal process of the superior maxillary bone and curetted the ethmoidal cells. This stage of the operation took the longest time, as the bleeding in this strong young man was at this point more profuse than before. After stopping the flow of blood I could get into the sphenoidal sinus without difficulty and scrape it out. Finally the outer wound was closed by sutures, no packing put into the cavity and only a Myles rubber tube left to establish drainage between the frontal sinus and the nose. The operation lasted two hours, which was longer than usual. This can only be accounted for by the severe bleeding. During the day the patient complained of a great deal of pain in the stomach, which was somewhat relieved after vomiting a good deal of blood. Did not pass urine and had to be catheterized repeatedly. The temperature during the next three days ranged between 99 and 100.4 and the pulse was accordingly.

Hospital Record.—April 17, 7 a. m., dressing changed for the first time. No reaction at the wound; slight edema of upper eyelid. No double vision. Stitches taken out and no more atropin used. Patient feels comfortable. Highest temperature, 99 degrees.

April 18, 8 a. m., temperature, 98.6 degrees; pulse, 70; 6 p. m., temperature, 101; pulse, 96. Complains of headache, but slept well.

April 19, 7 a. m., temperature, 99.6 degrees; pulse, 78. Dressing changed; wound looks well; tenderness and slight swelling near inner canthus; 3 p. m., temperature, 104.6; pulse, 110. Dressings changed; tenderness more marked. As there was no other symptom to account for the sudden rise in temperature, the possibility of retention of pus or serum was brought to my mind. With the end of a probe the wound was opened and a few drops of a serous fluid escaped. The saline solution was injected and came out through the nose quite clear. Wound kept open. Patient slept restlessly and awoke at 3:30 a. m. in profuse perspiration.

April 20. During the night the temperature had gone down gradually so that at 8 a. m. it was 98.8; pulse, 80; 4 p. m., temperature, 100.2; pulse, 80.

April 21 and 22, temperature normal.

April 23, pain in right eye; edema of eyelid gone; acute conjunctivitis, which brought up the temperature to 101 degrees and once to 102 degrees. Instillations of sulphate of zinc removed the conjunctivitis entirely by April 26.

It must be mentioned here that the patient had been suffering for years from an eczema over the whole body. This appeared on the forehead and it seemed that in rubbing his eye he brought some of the eczematous secretion into the conjunctival sac, thus producing conjunctivitis.

From April 26, normal temperature. Patient discharged from sanatorium on April 27. April 29, rubber tube taken out and wound allowed to heal. There remained a small fistula for two weeks. After touching the borders with pure nitrate of silver this closed too.

Result.—The final result so far is excellent. Externally there is no disfigurement and only a very small scar visible. The discharge from the nose has not stopped entirely, but the patient feels no discomfort whatsoever. The remarkable features in this case were, firstly, that no disfigurement took place, although a part of the bridge had broken off. The periosteum, of course, had been kept intact and the newly formed tissue seems now as strong as that of the other side. Secondly, the sudden rise of temperature to 104.6 degrees F. on the fourth day was somewhat startling. There was nothing to account for it, excepting the retention of a small quantity of serous exudation. This is an unusual occurrence in our cases, but of no account, since the fever generally subsides after letting out the fluid, just as it did in our case.

I want to remark that this was not a case of ozena, as I understand it, and as described by me at the Madrid Congress, but one of frontal and maxillary sinusitis with a bad odor.

CASE 6.—Miss B. S., aged 28, actress, had had influenza three years ago, after which a "catarrh" set in. A year later the right maxillary sinus had been opened by a dentist. There is now a great deal of purulent discharge from the nose, as well as a bad odor, that annoys her greatly. She also suffers very much from headache.

Examination.—On examination I found polypi in the nose

and much pus. After removing the polypi the diagnosis of empyema of the antrum was made and radical operation proposed.

Operation.—This was performed on September 5, under general anesthesia. The bleeding was quite profuse and could only be stopped by pressure on the facial artery. This did away with the necessity of having to plug the antrum and wait for a day or two to complete the operation. The entire mucous membrane had to be removed, as it was necrotic. She experienced much relief after the operation, but pus continued to flow. About six weeks later I removed the middle turbinal and also some small polypi and found the frontal sinus to be also affected. Bare bone could be felt and the tissues broke down easily on touching them with the ring knife. After trying this intranasal curetting for weeks and the headache still being very persistent, the radical operation was proposed and accepted.

Second Operation.—Dec. 6, 1903, at 2:30 p. m. She had received morphin, gr. 1/6, hypodermically and atropin into the eye. Both eyebrows had been shaved previously. The horizontal incision was made and the bridge outlined after Killian's method. As I had decided to enter the sinus first always below the bridge, I did so here. I must say I am not sorry for it, as the sinus just reached as far upward as the supraorbital margin. I would have gotten into the cranial cavity had I tried to chisel first from above the bridge. The operation was performed in the same way as in Case 5, but, of course, there was no bridge preserved. The whole sinus, which was small, was scraped out, the nose entered and a drainage tube inserted. The septum interfrontale was intact. Wound closed entirely by sutures and dressed. By 3:45 p. m. the operation was over, i. e., after one hour and a quarter.

Hospital Record.—At midnight the temperature was 100.6 degrees; pulse, 108. She was catheterized and vomited three times during the night. No sleep.

December 7, 8 a. m., temperature, 100.6; pulse, 108; voided 5 ounces of urine; 8 p. m., temperature, 99; pulse, 100; morph. sulph., ¼. At midnight catheterized (6 ounces). Slept very little.

December 8, temperature 99 degrees (mouth); pulse, 94; 4 p. m., temperature 98.4 degrees; pulse, 94; voided urine; vomited at 5.

December 9, temperature 99 degrees (mouth); pulse, 94; wound dressed; no reaction. After that the healing of the wound was uneventful, there being no fever and no unpleasant symptoms.

Result.—On December 24 she left the hospital. I saw her at my office and I discharged her entirely cured six weeks later. There is now, a year later, so little to be seen externally that it is noticeable only on close inspection. There is no more discharge of pus. Indeed, this case healed in an ideal way.

In a further case I performed the typical Killian operation with preservation of the bridge, etc., but I shall await the result before publishing it in detail.

CONCLUSIONS.

In formulating conclusions, I would say:

1. Regarding the conservative treatment of these cases, the remarks made by A. Kuttner[6] of Berlin are much to the point. Everyone of us ought to try to live up to this conservatism as much as feasible.

2. In those cases in which we have to operate, Killian's method seems at present to give the best results.

3. The first opening into the frontal sinus must always be made below the outlined bridge, and only after exploring the sinus should another above it be made.

4. In the latter case we leave a bony bridge which helps toward improving the cosmetic effect.

5. Closing of the external wound immediately after the operation is by far preferable for such cosmetic effect.

6. Berliner klin. Woch., p. 370, 1904.

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DISCUSSION

ON PAPERS OF DRS. FREUDENTHAL AND TURNER.*

DR. GEORGE L. RICHARDS, Fall River, Mass.—I have had considerable experience with what is known as the Ogston-Luc operation and I published the results of a number of cases three or four years ago. Later experience has led me to the conclusion reached by Dr. Turner, that obliteration of the sinus must be brought about. One case which went along without symptoms for three years became reinfected and another operation was necessary. This time the sinus was obliterated. The question of the character of the operation can not be decided in advance of the time when the patient is on the table. As a rule, the question of deformity is not likely to be considered. But I have noticed that although the patient says beforehand that it makes no difference as regards the deformity, he is likely to wonder if it could not have been done with less deformity. Paraffin might be used to advantage, but has not been tried long enough yet to determine.

As to the statistics of the Ogston-Luc operation, if these cases could be analyzed, would it not be found that in the cured cases the ethmoidal cells were not affected? A certain amount of time must be allowed to elapse before one can tell whether the case is cured or not. I have gone over Killian's thirteen published cases.[1] Case 1 was six months under treatment, and he says that when discharged there was only a little pus in the nose. I do not think that can be called a cure. He makes the statement that there is no deformity except when you look closely. Case 2 was sixteen days under treatment. Case 3 was treated for two months, with some resultant deformity, but evidently not enough to prevent marriage. He says the deformity was due to the use of too strong carbolic acid. One point as to the degree of deformity should be remembered—what we would consider great deformity would be considered slight in Germany. Case 4 had been a year under treatment and still had double vision and double abscess. Case 5 was a double frontal, under treatment for one month, with pus still present in the nose. We must consider that in these early cases he may not have obliterated all the cells of the nose. Case 6 was treated for fourteen days, with good cosmetic effect. Case 7 was treated sixteen days, and the right frontal region was deeper than the left. Case 8 had recurrence and he found at the second operation that a small fistula leading into the other sinus had been overlooked at the first, showing that great care must be exercised, since it is so easy to make such mistakes. After nearly two years he operated on the other sinus and effected a cure after about a month and a half. Case 9 had double vision and was treated for five months. Case 10 was treated twelve days. Case 11 was treated three months and two days and had temporary double vision. Case 12, treated for two months and eleven days, was not yet healed. So I question whether any sinus trouble can be reported as absolutely healed until sufficient time has elapsed to be sure that recurrence will not take place.

The last word has not yet been spoken on the subject, nor the best method of operation absolutely determined. If we would publish a careful record of all our cases, noting the method of operation and when the case healed, then our statistics would be worth something. The first thing to do is to get an opening under the supraorbital plate at the inner angle of the eyes and explore the sinus; if it is small, then obliterate it; if large, go up and down and do a complete Killian operation and take off the nasal process. When Killian works he stands behind the patient in order to obviate injury to the superior oblique and to get the relation of the cells better.

DR. R. C. MYLES, New York City—For the last fifteen years I have been working along this line, but I have not yet made a report of my cases, except individual ones. Cases should not be counted as cures unless we are sure there is no pus in the cells

*The paper of Dr. Turner appeared in THE JOURNAL, February 4.

1. Archives f. Laryngologie, vol. xiii, No.

from one to four years afterward. I have done nearly all the operations except the complete Killian, and my most brilliant results have been accomplished through an operation I have not heard mentioned to-day. That is the thorough removal of the anterior ethmoidal cells and part of the floor of the frontal sinus through the nose. I can show cases with the most obstinate history which have recovered and are well to-day. Killian speaks of his operation as a radical one. I do not see how it can be called that, when a large cavity is left which often contains pus. I have had difficulties with the eye in removing the floor far back beyond the optic nerve. We are liable to have abscess form which may destroy the sight. I think the secret of our success in many cases depends not so much on the amount of scraping and packing, as on securing a good, large opening from the nose into the frontal sinus. The anatomy is more favorable for this and where the ethmoidal cells are large and other conditions are favorable, if the parts can be broken down easily and the ethmoidal cells all removed, we will get our most satisfactory and brilliant results, whether we do the operation beneath the brow or above it. We may be able to educate people to consent to an operation, leaving such deformity as we have seen, and this I am trying to do, injecting some of the cases with paraffin.

As to the difficulty of diagnosis spoken of by Dr. Freudenthal, I have had but little difficulty in getting a small tube in. I wrote a paper on this point along in 1890 and have been doing this work almost daily. One can not do this in a healthy sinus, but usually it can be done in a diseased sinus, and that is where it is desirable. When water is injected and returns full of pus, the diagnosis is differentiated and then one can measure how far up the instrument goes. The morning pain, which goes away in the afternoon, is due to the frontal sinus being half full of pus. Gas forms, and when this gas forces the thickened muco-pus out and escapes itself the pain disappears. I have never had a death under treatment, though one man died who refused operation for a long time and afterward consented. After three or four days he suddenly became unconscious and died.

DR. E. E. FOSTER, New Bedford, Mass.—Last fall and winter I saw twelve radical operations on the frontal sinus, done by Professor Killian and his assistant, Doscent van Eiken. The results were excellent. There was one death of an old woman who was practically moribund at the time of the operation. Dr. Freudenthal mentioned the fact that Professor Killian does not shave the eyebrow; Professor Killian's reasons for not doing so are that he has had a few cases where the hair did not return, leaving a very objectionable appearance and cases where the hair grew so long that it was also objectionable. He cleans the brow with soap, alcohol and corrosive sublimate. I did not see an infection of the wound from the hair. He is very careful to remove all cut-off hairs from the skin incision before he continues the incision through the periosteum. An important point regarding the cosmetic results is to make several short superficial cuts at right angles to the long incision, thus enabling the operator, at the end of the operation, to accurately appose the much stretched edges of the incision. Diplopia occurred in several cases, but it was of only short duration. Professor Killian uses a long, narrow strip of iodoform gauze for drainage. He doubles the strip, placing the double end in the temporal side of the frontal cavity; the cavity is loosely packed; the two ends are pushed through the opening made in the floor of the frontal sinus. One end is used for packing in the nose, while the other end is brought out through the nasal orifice. A V-shaped chisel is used in making the supraorbital bridge and the boundaries of the opening through the nasal process of the maxillary bone. It has been stated that a large depression remains after the operation. I did not see any objectionable depressions in Killian's cases. In those cases where the depression is noticeable paraffin is used with excellent results. Post nasal tampons are not used, but the meati on the side to be operated on are packed with long rolls of cotton. The tampon in the middle meatus is removed when the flap is made. The flap is the mucous membrane from the nasal surface of the frontal process of the maxillary bone. The external wound is closed with aluminum wire sutures, except when there has been a fistula or the tissues over the bone have been involved in the inflammatory process, then the wound is only partly closed with a drain. The cases referred to by Dr. Richards were the cases first reported by Killian. Since then he has improved his operation in several important points, and, of course, developed greater skill. The Killian radical operation is not an operation to be attempted by the average operator.

DR. EMIL MAYER, New York City—Does Dr. Turner follow the method of Jansen in using the electrotrephine? Jansen is very fond of using this in his frontal sinus and mastoid work, and it seemed to me the stress laid on avoiding raw surfaces of bone was important.

DR. G. E. SEAMAN, Milwaukee, Wis.—My colleague, Dr. Hitz, and myself have been doing work on these cases during the last year, and we had several cases which seemed to be favorable for the Killian operation. We first did the operation on the cadaver a number of times, and were very careful to avoid wounding the pulley of the superior oblique muscle, and succeeded in most instances. In one case operated on, where the frontal sinus was very large, the resulting deformity was considerable at first; this has improved. In that case there was disturbance of motility of the eyes which persisted for some time, but at the end of three months it had passed away. In discussing these cases with Dr. Sifton of Milwaukee he told me that he had operated on a frontal sinus case several years ago and had found the hemorrhage very troublesome. He put a temporary ligature on the common carotid. Does Dr. Turner consider this a recognized procedure? Is it ever necessary or justifiable in his experience?

DR. C. R. HOLMES, Cincinnati—I fail to see how obliteration of the cavity can be done in a large per cent. of cases. In the last ten or twelve years I have dissected a great many heads, and I have had a large number of specimens where the frontal sinus extends back over the orbit and some where it extended back almost to the optic foramen. In such cases I do not see how a radical operation can ever be successfully performed if we have any regard at all for appearance. I think the disfigurement is a very important factor, especially in young women. Even some men are not willing to take the chances of a radical operation if thereby they are to be disfigured for life. The oculist finds evil results from this condition on the eye. I have seen quite a number of cases of diplopia result and while after a time this becomes less, it is because there is a readjustment of the muscle. This, however, means a constant strain on the eyes for the rest of life, due to the effort of both eyes to work together. These people often suffer greatly with headache and exhaustion.

DR. KASPAR PISCHEL, San Francisco—Allow me to put on record a case of optic neuritis and paralytic divergent strabismus caused by a suppurative frontal sinus. In spite of an early successful operation atrophy of the optic nerve followed. In order to inform ourselves, before the operation, of the size of the frontal sinus I would suggest taking a skiagram. That will assist in the selection of the method of operation. In Killian's operation the "sinu-nasal" canal might be covered with skin grafts to keep it well open. To prevent a depression of the skin above the eyebrow, part of the sinus might be filled with paraffin covered with absorbable Cargile membrane. The bone flap shown on the screen by Dr. Turner seems to give an ideal cosmetic result. The sinus might then be lined by skin grafts as we cover the bone trough in radical mastoid operations.

DR. F. C. ARD, Plainfield, N. J.—During the past winter I have assisted Dr. Coakley in a number of operations on the frontal sinus, and his method of operating has not been mentioned in this discussion. He removes the anterior wall, without disturbing the floor of the sinus, and curettes the walls of the cavity with great care, under illumination, and then packs with iodoform gauze. He aims to obliterate the nasofrontal duct, and to allow the cavity to fill up by granulation. Sufficient time has not elapsed in these cases to make sure there will be no recurrences, but there is apparent recovery in

all that I have examined, as is evidenced by the fact that the wounds have healed, and there is no pus in the nasal cavities. A case that I operated on early in March by this method has just healed, but it was a very large sinus.

DR. W. FREUDENTHAL—Dr. Turner has brought up the osteoplastic operations, though he has not done any himself. In some cases I find it impossible to do this because of the broken-down tissue which must be removed. I remember one case where I removed the whole anterior wall, and a new wall formed. I have not seen a case of diplopia. I use atropin before the operation. But these cases of diplopia go more to the ophthalmologist than to us. I must admit that Dr. Myles has had a larger experience than I and he is able to do more with these cases than most of us. In many cases I could not reach the frontal sinus, and it is often impossible to measure the distance. Dr. Turner himself mentions having attempted to enter the right sinus and got into the left one instead. Dr. Foster's point was well taken. The disfigurement in my cases was very slight, probably due to the periosteum being preserved. The last word has not yet been spoken on these operations and we shall have to learn a great deal more. Yet if we can save a few of those cases like the one mentioned in my paper, who was contemplating suicide, we have done a great deal.

DR. A. LOGAN TURNER—Much more was omitted from the paper that might have been said. We are not yet at the bottom of this question; there is still much to learn, but some day we shall be in better position to deal with these cases. I have not been educated to Dr. Myles' view that we can treat these cases through the nose. As regards treatment by drainage through the nose, I know that there are cases in which satisfactory results have been obtained, but if we consider the anatomic configuration of the sinus, I do not see how we are to expect a cure by this method. There were many points of detail which I did not give fully for lack of time. One point about which I wanted information was in regard to the formation of a flap of mucous membrane described by Killian. Others as well as myself have had difficulty in understanding this point. With regard to the osteoplastic operation, I introduced this procedure from Hajek's new edition. There seems to be something in the Killian method of operating which is approaching more nearly to the result desired, giving excellent curative results with the minimum of disfigurement. I have had no experience with the use of the electric trephine. We can obtain good, smooth edges by the careful use of the chisel. I have always found hemorrhage to be well controlled with peroxid of hydrogen. This stops it very rapidly, just as it does in mastoid work. I do not know whether the common carotid has ever been ligated in these cases or not.

Dr. Holmes said he felt difficulty in seeing how the sinus could be obliterated. I have had no difficulty whatever in doing this, either on the living person or on the cadaver. It is astonishing to see how readily the soft tissues of the orbit rise up while you are removing the floor of the sinus and obliterate the orbital portion of the cavity. It is wise to remove all of the bony floor and not to leave any bone at the apex of the orbit. Further, what Dr. Holmes said about the future of these cases is important. I shall take occasion to find out whether my old cases have developed any eye strain. I did not refer to the method spoken of by Dr. Ard, viz., preservation of the osseous floor. Dr. Coakley probably obliterates the orbital part of the sinus by gradually filling it up with granulations.

Prophylaxis in Surgery.—It has always been my idea, wrote Dr. L. Sexton of New Orleans, that if surgeons would spend more time in getting the patient in proper condition to stand the operation, in having everything in readiness, in having assistants trained in what they are expected to do, and also if the least possible time were consumed in performing the operation, and if all lectures and explanations were suspended until the operation is finished, much less of the first necessary poison, viz., the anesthetic, would be required, and we would have fewer cases *in extremis* to deal with after operations.

PRESENT STATUS OF ANTITUBERCULOSIS WORK IN THE UNITED STATES.

SUGGESTIONS FOR A MORE EFFECTUAL CO-OPERATION OF AUTHORITIES, PHILANTHROPISTS, PHYSICIANS AND LAYMEN.*

S. A. KNOPF, M.D.
NEW YORK CITY.

The kind interest with which my first report in 1897 and my second report in 1902 on the tuberculosis problem in the United States was received by the members of the Section on Hygiene and Sanitary Science and of the American profession at large encourages me again to give a bird's-eye view of what is being done in our country in the combat of the great white plague. Between my first and second reports five years had intervened; between my second and third only two years have elapsed. My reasons for reporting after this shorter interval are to be found in the unusual activity of sanitary authorities of the medical profession at large, and of the philanthropic societies and individuals engaged in antituberculosis work. Far greater progress has been made during the last two years than in the preceding five or ten.

There are now no less than forty-eight American and five Canadian associations for the prevention of tuberculosis, working under the names of societies, committees or commissions. The following is as complete a list as I have been able to collect myself up to this date[1] and to Miss Lillian Brandt, the very efficient statistician of our tuberculosis committee in the New York Charity Organization Society, I am indebted for such statistical material as was at her disposal.

SOCIETIES AND COMMITTEES FOR THE PREVENTION OF TUBERCULOSIS, AND STATE COMMISSIONS.

CALIFORNIA.

Southern California Antituberculosis League—F. M. Pottenger, M.D., president, 226 Bradbury Bldg., Los Angeles, Cal.

Tuberculosis Committee of the Medical Society of the State of California—Dr. F. M. Pottenger, secretary, 226 Bradbury Bldg., Los Angeles, Cal.

COLORADO.

Evangelican Lutheran Sanitarium Association of Denver, Colo.—Frederick d'Amour, president; Dr. Henry G. Merz, secretary, 632 17th St., Denver.

Jewish Consumptives Relief Society.—Dr. C. D. Spivak, secretary, 1421 Court Place, Denver, Colo.

CONNECTICUT.

New Haven County Antituberculosis Association—Dr. Francis Bacon, president, New Haven, Conn.

DISTRICT OF COLUMBIA.

Committee on the Prevention of Consumption of the Associated Charities—Dr. Wm. C. Woodward, chairman, 811 G St., N. W., Washington, D. C.

GEORGIA.

Georgia Medical Commission to Investigate the Extent of Tuberculosis in Georgia, and Means of Stamping Out the Disease.—Dr. Charles Hicks, chairman, Dublin, Ga.

ILLINOIS.

Committee on the Prevention of Tuberculosis of the Visiting Nurses' Association.—Dr. Alice Hamilton, 79 Dearborn St., Chicago.

Illinois State Association for the Prevention of Tuberculosis.—Dr. Edmund J. James, president; Dr. Arnold C. Klebs, secretary, Chicago.

Committee on Tuberculosis of the Illinois State Medical Society.—Dr. J. W. Pettit, chairman, Ottawa, Ill.

National Antituberculosis Association, Incorporated in Springfield, Ill.—Incorporators: Dr. W. B. Metcalf, Rev. F. M. Carson, C. O. Hanford, Alderman Butterworth, W. R. McDonough, all of Chicago.

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*The discussion on the papers of Drs. Knopf and Price, in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904, will appear in a later issue with the paper of Dr. Price.

1. Owing to the large number of papers read at Atlantic City it was impossible to have this report appear before. During the six months since the paper was read a number of new societies have been formed and several new institutions established. Through the courtesy of the editor of THE JOURNAL, the manuscript was returned to me in order that I might bring the statistical portion as nearly as possible up to date (January, 1905).

INDIANA.

Indiana Committee of Tuberculosis of the State Medical Society.—Dr. J. N. Hurty, secretary, Indianapolis.

The Antituberculosis Society of Indiana.—Dr. Theodore Potter, secretary, Indianapolis, Ind.

MAINE.

The Maine State Sanatorium Association.—Portland, Me.

MARYLAND.

Maryland State Commission.—Dr. Marshall Langton Price, medical officer, 10 South St., Baltimore.

The State Association for the Prevention and Relief of Tuberculosis in Maryland.—Dr. H. B. Jacobs, president; Dr. Joseph S. Ames, secretary.

MASSACHUSETTS.

The Boston Association for the Relief and Control of Tuberculosis.—A. M. Wilson, secretary, 6 Beacon St., Boston.

Tuberculosis Aid and Education Association.—Miss Edna A. Woolson, secretary, 277 Howard St., Cambridge, Mass.

The Springfield Association for the Prevention of Tuberculosis.—Dr. H. C. Emerson, president. Springfield, Mass.

Worcester Association for the Relief and Control of Tuberculosis.—Earle Brown, secretary, Worcester, Mass.

American Invalid Aid Society.—Mrs. E. W. Waite, secretary, 73 Tremont St., Boston.

MINNESOTA.

Society for the Prevention of Tuberculosis.—Dr. H. M. Bracken, Pioneer Press Bldg., St. Paul, Minn.

Minnesota State Commission (in regard to Sanatoria).—Dr. H. L. Taylor, Chairman, 75 Lowry Arcade, St. Paul, Minn.

The Antituberculosis Committee of the Associated Charities of Minneapolis.—Edwin D. Solenberger, secretary, 738 Boston block, Minneapolis, Minn.

MISSOURI.

St. Louis Society for the Prevention of Tuberculosis.—Mr. F. E. Eaton, president; Mr. G. A. Blickhahn, secretary; Dr. Wm. Porter, chairman, St. Louis.

NEW HAMPSHIRE.

New Hampshire State Commission (in regard to a sanatorium).—Dr. Irvin A. Watson, chairman, Concord, N. H.

New Hampshire Society for the Prevention of Consumption.—Dr. O. B. Douglas, chairman, Concord N. H.

Suncook Association for the Prevention of Tuberculosis.—Suncook, N. H.

NEW JERSEY.

New Jersey State Commission (in regard to Sanatorium).—Edwin A. Stevens, treasurer, 1 Newark St., Hoboken, N. J.

Antituberculosis Committee of the Oranges.—Miss Louisa R. Pierson, secretary, Orange, N. J.

NEW YORK.

Binghamton Society for the Prevention and Cure of Tuberculosis.—Charles W. Fetherolf, secretary, 9 Linden Ave., Binghamton, N. Y.

Tuberculosis Committee of the Buffalo Charity Organization Society.—Dr. P. W. Van Peyma, chairman; Frederik Almy, secretary, 165 Swan St., Buffalo, N. Y.

Committee on the Prevention of Tuberculosis of the New York Charity Organization Society.—Paul Kennaday, secretary, 105 E. 22d St., New York City.

Tuberculosis Committee of the United Hebrew Charities.—Dr. Lee K. Frankel, secretary, 365 Second Ave., New York City.

Committee on the Prevention of Consumption of the United Garment Workers of America.—Henry White, chairman, Bible House, New York City.

Tuberculosis Committee of the Rochester Public Health Association.—Dr. M. E. Leary, 32 South Washington St., Rochester, N. Y.

OHIO.

Ohio Society for the Prevention of Tuberculosis.—Dr. C. O. Probst, secretary, State Board of Health, Columbus, Ohio.

Ohio Commission, appointed by the Governor to investigate the desirability of a State Sanatorium.—Dr. C. O. Probst, secretary, Columbus, Ohio.

PENNSYLVANIA.

Pennsylvania Society for the Prevention of Tuberculosis.—Dr. Lewis Brinton, secretary, 1423 Spruce St., Philadelphia.

The White League.—Mr. Edwin W. Perot, secretary, 1515 Arch St., Philadelphia.

Scranton Society for the Prevention and Cure of Consumption.—Dr. J. M. Wainwright, secretary and treasurer, 627 Linden St., Scranton, Pa.

Henry Phipps Institute.—Dr. Lawrence F. Flick, president, 238 Pine St., Philadelphia.

RHODE ISLAND.

Newport Association for the Relief, Control and Prevention of Tuberculosis.—President, Mr. Robert Frame (president Newport Board of Health); secretary, Mr. Clarence C. Moore, Newport, R. I.

VERMONT.

Vermont Society for the Study and Prevention of Tuberculosis.—Dr. H. E. Lewis, secretary, Burlington, Vt.

Vermont State Tuberculosis Commission.—Dr. H. E. Lewis, secretary, Burlington, Vt.

WISCONSIN.

Wisconsin State Commission for the Prevention of Tuberculosis.—Dr. Gustav Schmitt, 1206 Walnut St., Milwaukee, Wis.

NATIONAL.

National Association for the Study and Prevention of Tuberculosis.—Dr. E. L. Trudeau, president; Dr. Wm. Osler, first vice-president; Dr. Hermann M. Biggs, second vice-president; Dr. H. Barton Jacobs, honorary secretary; Prof. Livingston Farrand executive secretary; Dr. George M. Sternberg, surgeon-general, treasurer. The board of directors is composed of 20 men from all over the states who are particularly interested in the study and prevention of tuberculosis. The following is the present composition of the board: California, Dr. Norman Bridge; Colorado, Dr. S. E. Solly; Connecticut, Dr. John C. P. Foster; Washington, D. C., Dr. George M. Sternberg; Illinois, Drs. Arnold C. Klebs and Robert H. Babcock; Indiana, Dr. J. N. Hurty; Maryland, Drs. Wm. H. Welch, William Osler, H. B. Jacobs and John S. Fulton; Minnesota, Dr. Henry B. Bracken; Missouri, Dr. William Porter; Massachusetts, Drs. Edward O. Otis and Vincent Y. Bowditch; New Jersey, Mr. Frederick L. Hoffman; New York, Drs. Hermann M. Biggs, S. A. Knopf, Edward L. Trudeau and Mr. Edward T. Devine; North Carolina, Dr. Charles L. Minor; Ohio, Dr. Charles O. Probst; Pennsylvania, Drs. Lawrence F. Flick, Mazyk P. Ravenel, H. S. Anders and Leonard Pearson; Texas, Dr. N. M. Smith and Dr. George E. Bushnell of the United States Army Hospital, and Surgeon-General Walter Wyman of the United States Marine Hospital; Dr. H. Barton Jacobs, secretary, 11 Mt. Vernon Place, Baltimore.

CANADA.

The Canadian Association for the Prevention of Consumption and Other Forms of Tuberculosis.—Rev. M. Moore, D.D., secretary, 128 Wellington St., Ottawa, Canada.

Ontario Anticonsumption League.—Rev. C. S. Eby, D.D., secretary, Toronto, Canada.

Montreal League for the Prevention of Tuberculosis.—Dr. A. J. Richer, honorary secretary, 11 Bleury St., Montreal, Quebec.

The St. Francis District League for the Prevention of Tuberculosis.—Dr. E. J. Williams, honorary secretary, Sherbrooke, Quebec, Canada.

The New Brunswick Association for the Prevention and Cure of Consumption.—Dr. William Bayard, St. John, N. B.

BRITISH COLUMBIA.

The British Columbia Society for the Prevention of Tuberculosis.—Dr. J. C. Fagan, secretary, Victoria, B. C.

Before proceeding with the statistical information, permit me first to say a word or two on the work and mission of such organizations. They are, as a rule, composed of medical men and of laymen. Many do educational work alone, others incorporate in their work the establishment of sanatoria; still others make this their exclusive purpose; others again make it their main object to take care of the patients at their homes; but nearly all these associations study the social aspect of tuberculosis in its various forms which are inevitably connected with work of that kind.

A little over two years ago, when I thought the time ripe to form an association or committee of that kind in New York, I laid down the following objects and aims for such an association in a call which was issued at the time, and which finally resulted in the formation of the New York Charity Organization Society's Committee for the Prevention of Tuberculosis:

1. The promulgation of the doctrine that tuberculosis is a communicable, preventable and curable disease.

2. The dissemination of knowledge concerning the means and methods to be adopted for the prevention of tuberculosis.

3. The advancement of movements to provide special hospitals, sanatoria and dispensary facilities for consumptive adults and scrofulous and tuberculous children among the poor.

4. The initiation and encouragement of measures which tend to prevent the development of scrofula and of other forms of tuberculous diseases.

To this call were attached the signatures of Prof. Hermann M. Biggs, Prof. Joseph D. Bryant, Dr. John H. Huddleston, Prof. A. Jacobi, Prof. Walter B. James, Prof. Edward G. Janeway, Prof. Alexander Lambert, Prof. Henry B. Loomis, Prof. T. Mitchell Prudden, Prof. Andrew H. Smith, Prof. Stephen Smith, and my own. Owing to the difficulty of finding a layman with the proper qualification for president of the society, the medical men who had signed the appeal, joined with the New York Charity Organization Society, to form a special committee, of which Mr. Charles F. Cox became president, and Mr. Edward T. Devine, secretary *pro tem.* A number of other prominent physicians, philanthropists and trained charity workers joined the committee, and it has now its regular paid secretary and its paid statistician.

Concerning the work it has done during the few years of existence, permit me to quote the following items

from the handbook issued by the committee: During the winter of 1902-1903, 91 lectures were delivered under the auspices of the committee in the various settlements, Young Men's Christian Associations, Young Men's Hebrew Associations, churches, public schools, etc. Most of these were in English, but a number of them were delivered in German, Bohemian, Italian, French and Hebrew (Yiddish). During the same period this committee has distributed 77,000 printed lectures and leaflets of instruction. One of the most important circulars of all I consider the one issued in regard to the frequently advertised "absolute consumption cures." I consider this so important that you will permit me to reproduce it here in the hope that other organizations may copy it and thus protect many unfortunate people.

WHEREAS, It has come to the knowledge of the Committee on Tuberculosis of the Charity Organization Society that many so-called specific medicines and special methods of cure for tuberculosis have been and are being exploited and widely advertised; and

WHEREAS, The advertisements of some of these cures have made such reference to the Tuberculosis Committee of the Charity Organization Society, or to some of its members, as to create the inference that this committee, or its members, recommend or advocate the use of many such so-called specifics or special methods of cure for pulmonary tuberculosis, or consumption; and

WHEREAS, There is no specific medicine for this disease known, and the so-called cures and specifics and special methods of treatment widely advertised in the daily papers are, in the opinion of the committee, without special value, and do not at all justify the extravagant claims made for them, and serve chiefly to enrich the promoters at the expense of the poor and frequently ignorant and credulous consumptives; therefore be it

Resolved, That a public announcement be made that it is the unanimous opinion of the members of this committee that there exists no specific medicine for the treatment of pulmonary tuberculosis, and that no cure can be expected from any kind of medicine or method except the regularly accepted treatment, which relies mainly upon pure air and nourishing food.

Add to this the nearly 50,000 circulars distributed by the medical inspectors of the board of health, and an idea may be obtained of the really enormous educational work done in New York. Of the other work done by the tuberculosis committee, we must note its protest to the governor against the signing of the Goodsell-Bedell bill, the protest against dwarfing the present tenement-house laws, the urging of the destruction of the celebrated "lung block," and the constant urging of the establishment of sanatoria for the consumptive poor of New York.

Besides this work, the sub-committee on treatment of our larger committee has during the first year of its existence taken care of 211 families having tuberculous members. The handbook above mentioned will give those who desire to learn more of the New York Tuberculosis Committee and what it has done much additional information. All I hope to have shown in this present meager report is what a tuberculosis committee can do when it has the support of the medical profession, the philanthropist and the municipal authorities.

I must not leave the subject of tuberculosis organizations without referring to one which has just been formed[2] under the name of "The National Association for the Study and Prevention of Tuberculosis." As those who have followed this movement will know, this association is the outcome of the earnest desire on the part of many American physicians interested to have a representative American Association for the study and the prevention of tuberculosis. The movement started with a conference called together at the occasion of the Tuberculosis Exposition in Baltimore and the subsequent appointment of committees and the framing of constitutions and by-laws. The objects of the association are (*a*) the study of tuberculosis in all its forms and relations; (*b*) the spreading of knowledge about the causes, treatment and prevention of tuberculosis; (*c*) the encouragement of the prevention and scientific treatment of tuberculosis.

I know that I express the sentiment of this Section, which has always been so deeply interested in the tuberculosis subject, in wishing this new organization God speed and a useful and glorious career. The calling into life of this national society is, to my mind, one of the most important events in the history of American medicine.

The next most important point concerning the present status of the antituberculosis work in the United States would be a list of sanatoria, special hospitals and homes devoted to the exclusive treatment of patients suffering from tuberculous diseases. I append herewith a list of such institutions existing at the present time in the United States and Canada:

LIST OF SANATORIA, SPECIAL HOSPITALS AND CAMPS FOR THE TREATMENT OF PULMONARY TUBERCULOSIS.

ARIZONA.

Mercy Hospital, at Phoenix, Ariz.; 20 beds.

St. Mary's Hospital and Sanatorium of the Sisters of St. Joseph, at Tucson; 30 beds.

"Palm Lodge" Sanatorium and Tent Colony for Incipient Tuberculosis, at Phoenix, Ariz.; Dr. Henry M. Stone, res. phys.; 55 beds; private.

CALIFORNIA.

Dr. J. W. Barlow's Sanatorium, at Los Angeles; 15 beds.

Esperanza Sanatorium, the Sierra Home of the Open-air Cure for Pulmonary Diseases, at Altadena, Cal.; Dr. F. C. Melton, res. phys.; private; 50 beds.

Ranch of Mr. N. O. Nelson, at Indio, Cal.; private.

Pottenger Sanatorium for Diseases of the Lungs and Throat, at Monrovia, Cal., Dr. F. M. Pottenger, med. dir.; 50 beds; private.

Trinity Settlement, at Redlands, Cal.; private; Dr. Moseley, med. dir.

Ballard Pulmonary Sanatorium at Pasadena, Cal.; Dr. W. H. Ballard, phys.-in-chief; 25 beds; private.

The Mentone Sanatorium, near Redlands, Cal.; A. R. Schultz, manager; Dr. Fred J. Koepke, res. phys.; 50 beds.

Tents for Tuberculous Patients of the Mendocino State Hospital for Insane, at Talmage, Cal.; Dr. E. W. Wing, supt.

COLORADO.

Glockner Sanatorium, at Colorado Springs; conducted by the Sisters of Charity; medical staff; 80 beds; private.

The Nordrach Ranch, at Colorado Springs; Dr. J. E. White, med. dir.; 50 beds; private.

Emma Booth Tucker Memorial Sanitarium for Consumptives; Salvation Army Tent Colony, at Amity, Prowers Co., Colo.; Dr. Greenard, res. phys.; 100 beds; charitable.

National Jewish Hospital for Consumptives, at Denver; Dr. Moses Collins, supt.; 90 beds; philanthropic.

Y. M. C. A. Health Farm, at Denver; semi-philanthropic; Dr. John Wethered, res. phys.; 45 beds.

Agnes Memorial Sanatorium, at Denver; Dr. G. W. Holden, sec.; 150 beds; semi-philanthropic.

Home for Consumptives, at Denver; Rev. Frederick W. Oakes, supt.; 150 beds; semi-philanthropic.

Resthaven (Home for Consumptives), Park Hill Addition, Denver; Dr. I. S. Garthwaite, president; 50 beds; semi-philanthropic.

Colorado Sanatorium, at Boulder, Colo.; Dr. H. F. Rand, med. supt.; 200 beds; private.

"Foxhall," A Private Home for Pulmonary Invalids; Dr. Wm. N. Beggs, med. dir., 133 West Colfax Ave., Denver; private.

Colorado Tent Colony Sanatorium, at Bennett, Colo.; Dr. W. K. Robinson, phys.-in-chief; 100 beds; private.

Mrs. Lare's Private Sanatorium for Consumptives, 4633 Bert St., Denver; private.

Rocky Mountain Industrial Sanatorium, at Wellington Lake, Denver; Dr. A. M. Holmes, med. dir.; semi-philanthropic.

Ballard Sanatorium, at Pueblo; Mrs. L. B. Wright, matron; 40 beds.

"Tented City," Under Auspices of the Jewish Consumptives' Relief Society, near Denver; philanthropic; Dr. C. D. Spivak, sec.; 12 beds.

CONNECTICUT.

Gaylord Farm Sanatorium, at Wallingford; Dr. David R. Lyman, med. supt.; 40 beds; semi-philanthropic.

New Canaan Pulmonary Sanatorium, at New Canaan; Dr. M. J. Brooks, phys. in charge; 30 beds; private.

Separate Wards for Tuberculous Prisoners, at Westerfield, Conn.

2. At the time of the Fifty-fifth Annual Meeting of the American Medical Association, at Atlantic City, N. J., June, 1904.

DISTRICT OF COLUMBIA.

State Hospital for Consumptives, at Hartford; public.
Tuberculosis Division of Government Hospital for the Insane, at Washington, D. C.; Dr. Wm. A. White, supt.; 70 beds.
Washington Asylum Hospital, Tent Wards for Consumptives; Dr. D. Percy Hickling, phys.; Washington, D. C.; 34 beds.

DELAWARE.

Division for Tuberculous Patients at State Hospital for the Insane; Dr. Wm. H. Hancker, supt., Farnhurst, Del.; public.

FLORIDA.

Naval Hospital; Tuberculosis Camp, at Pensacola, Fla.; 50 beds.

HAWAII.

Honolulu Home for Incurables; Dr. A. H. Sinclair, med. supt.; 24 beds; semi-philanthropic.

ILLINOIS.

The Alexian Brothers' Hospital—Consumptives' Ward, Chicago; semi-philanthropic.
St. Anne's Sanatorium for Consumptives, 49th and Thomas Sts., Chicago; Dr. A. F. Kramps, phys.; Sister Superior, supt.; 125 beds; private; and 15 free beds.
Cook County Hospital for Consumptives, at Dunning, Ill.; Dr. M. S. McHugh; public; 560 beds.
Illinois Camp for the Tuberculous, near Ottawa, Ill.; under the Auspices of the Illinois State Med. Soc.; Dr. James W. Pettit, phys. in charge; semi-philanthropic; 40 beds.

INDIANA.

St. Rochus Hospital for Consumptives, West End Main St., Fort Wayne, Ind.
Flower Mission Pavilion, City Hospital, Indianapolis; philanthropic; Dr. P. F. Martin, supt.; 26 beds.
Special Wards for Tuberculous Prisoners at the State Reformatory at Indianapolis; Dr. H. C. Sharp, phys. in charge.

IOWA.

Boulder Lodge Sanatorium for Tuberculosis, at Fort Dodge; Dr. John W. Kime, phys.-in-chief; 20 beds; private.

KENTUCKY.

Separate Wards for Tuberculous Prisoners at the Prison Hospital, at Frankfort, Ky.; 20 beds.

LOUISIANA.

Dr. G. R. Tolson's Private Sanatorium, at Covington, La.; private.
Separate Pavilion for Tuberculous Patients of the State Insane Asylum, at Jackson, La.; Dr. Geo. A. B. Hays, supt.; 32 beds.

MAINE.

The Maine Sanatorium, at Greenwood Mountain, near Hebron, Me.; Dr. Estes Nichols, med. [illegible] beds; semi-philanthropic.

MARYLAND.

Eudowood Sanatorium, Hospital for Consumptives of Maryland, near Towson, Md.; Dr. Harry P. Jarrett, res. phys.; 31 beds; philanthropic.
Bay View Asylum Hospital, Baltimore; Dr. W. H. Smith, phys.; Rev. L. F. Zinkham, supt.; 250 beds; public.
Tents for Tuberculous Patients of the Springfield State Hospital for the Insane, at Sykesville, Md.; Dr. J. C. Clark, supt.

MASSACHUSETTS.

Almshouse Hospital, at Boston; public; Dr. S. F. Cox, res. phys.; 60 beds.
Channing Home, 30 McLean St., Boston; Mrs. C. P. Fennel, supt.; 17 beds; philanthropic.
House of the Good Samaritan, 6 McLean St., Boston; Miss F. A. Jack, supt.; 27 beds.
Sharon Sanatorium, at Sharon, Mass.; Dr. V. Y. Bowditch, phys.-in-chief; 21 beds; semi-philanthropic.
Cullis Home for Consumptives, Blue Hill Ave., Dorchester, Mass.; Rev. E. D. Mallory, supt.; 40 beds.
Free Home for Consumptives, 428 Quincy St., Dorchester, Mass.; Jeanette Campbell, supt.; 30 beds; philanthropic.
The Millet Sanatorium, at East Bridgewater, Mass.; Dr. C. S. Millet, phys.-in-chief; 20 beds; private.
Massachusetts State Sanatorium, at Rutland, Mass.; Dr. Walter J. Marclay, supt.; public; 250 beds.
Boston Children's Hospital, Tuberculosis division at Wellesley Hills; 12 beds (including surgical cases).
Private Sanatorium of Dr. David P. Butler, at Rutland, Mass.
State Hospital, at Tewkesbury, Mass.; Dr. John H. Nichols, supt.; 100 beds; public.
Holy Ghost Hospital for Incurables, at Cambridge, Mass.; Sister A. M. Purcell, supt.; 35 beds; private.

MICHIGAN.

Wayne County Hospital, at Eloise, Mich.; tents for 30 tuberculous patients; public; Dr. R. H. Earle, res. phys.

MINNESOTA.

Luther Hospital, at St. Paul, Minn.; Dr. H. G. Steeb, manager; 100 beds.
State Sanatorium for Consumptives, at Walker, Cass Co., Minn.
Special Wards for Tuberculous Prisoners, at the State Prison at Stillwater, Minn.

MISSISSIPPI.

Special Hospital for the Tuberculous Insane, at Jackson, Miss.; Dr. T. J. Mitchell, supt.; 40 beds.

MISSOURI.

Mount St. Rose Throat and Chest Hospital, 9200 S. Broadway, St. Louis; conducted by Sisters of St. Mary; Dr. Wm. Porter, phys.; 100 beds; philanthropic.
Emergency City Hospital, No. 2, St. Louis; Dr. J. Y. Brown, res. phys.; 34 beds.

NEBRASKA.

Green Gables, Lincoln, Neb.; Dr. Benjamin F. Bailey, 53d and South Sts.; 35 beds.

NEW HAMPSHIRE.

Pembroke Sanatorium for Consumptives, at Concord, N. H.; Dr. H. T. Fontaine, phys.; 35 beds; private.
White Mountain Tuberculosis Sanatorium, at North Conway, N. H.; Dr. S. Dryden Snow, phys.; Clifton J. Bailey, supt.; 50 beds; philanthropic.

NEW JERSEY.

Memorial Hospital, at Orange, N. J.; Mary I. Chambers, supt.; special building for tuberculous patients; 18 beds.
State Sanatorium, at Glen Gardner, Hunterdon Co., N. J.

NEW MEXICO.

St. Joseph's Sanitarium, at Albuquerque; conducted by Sisters of Charity; 100 beds; private.
Chico Springs Sanatorium; Dr. H. B. Masten, med. supt.; 25 beds; private.
St. Antony's Sanatorium, at East Las Vegas; conducted by Sisters of Charity; 32 beds; semi-philanthropic.
"The Montezuma," at Las Vegas Hot Springs, N. Mex.; Dr. J. W. Coon, res. phys.; 200 beds.
St. Vincent's Sanatorium, at Santa Fe; conducted by Sisters of Charity; 28 rooms; semi-philanthropic; Dr. J. Massie, res. phys.
Sun Mount Tent City ("for lung troubles only"), at Santa Fe; Dr. W. M. Popplewell, phys.-in-chief; private.
St. Joseph Sanatorium, at Silver City; Dr. E. S. Bullock, med. dir.; private; 50 beds.
Pines Cottages, at Silver City; T. S. Parker, propr.; private.
The Alameda, at Las Cruces, N. Mex.; 40 beds; private.
The Las Cruces Sanatorium, at Las Cruces; Dr. R. E. McBride, supt.; private; 40 beds.
General Hospital for Soldiers of U. S. Army, at Fort Bayard: Lt.-Col. E. T. Comegys, Deputy Surg.-Gen. U. S. A., phys.; 300 beds.
U. S. Public Health and Marine Hospital Service Sanatorium, at Fort Stanton, N. Mex.; Surgeon P. M. Carrington in command; 225 beds.

NEW YORK.

Montefiore Home Country Sanatorium, at Bedford Station, N. Y.; Dr. L. Rosenberg, supt.; 160 beds; philanthropic.
Sanatorium Gabriels, at Gabriels, near Paul Smith's, N. Y.; Sister Mary of Mercy, supt.; R. L. Strong, house phys.; 100 beds; Drs. S. A. Knopf and J. J. Walsh, cons. phys.; semi-philanthropic.
Stony Wold Sanatorium (for Incipient Tuberculosis in Women and Children), at Lake Kushaqua, Franklin Co., N. Y.; Dr. H. S. Goodall, phys.-in-charge; semi-philanthropic; 150 beds.
Loomis Sanatorium, at Liberty, N. Y.; Dr. Herbert M. King, phys.; 100 beds; private and semi-philanthropic.
The Edgemont, at Liberty, N. Y.; private.
"Mountain Sanatorium," at Binghamton, N. Y.; Miss Grace C. Wagner, supt.; public.
State Hospital for the Insane, at Binghampton, N. Y.; special pavillon for the tuberculous; 100 beds.
Erie County Hospital, tuberculosis wards, at Buffalo; Dr. E. J. Gilray, phys.; 54 beds; public.
Buffalo State Hospital, at Forest Ave., Buffalo; Dr. Arthur W. Hurd, med. supt.; tuberculosis wards; public.
Hospital for Incipient Tuberculosis, at Rochester, N. Y.; Dr. G. W. Coler, phys. in charge; 40 beds; semi-public.
State Hospital for Incipient Tuberculosis, at Raybrook, Franklin Co., N. Y.; Dr. John H. Pryor, phys.; $5.00 per week; 120 beds.
Adirondack Cottage Sanatorium, at Saranac Lake, N. Y.; Dr. E. L. Trudeau, phys.-in-charge; Dr. Lawrason Brown, res. phys.; 100 beds; semi-philanthropic.
Reception Cottage, at Saranac Lake, N. Y.; Dr. E. R. Baldwin, phys.; semi-philanthropic; 15 beds.
Raymond Cottage, at Saranac Lake; in charge of Mrs. Josephine R. Raymond; Dr. E. R. Baldwin, phys.; 14 beds.
Rumanapp Cottage, at Saranac Lake; in charge of Miss Rumanapp; Dr. Lawrason Brown, phys.; 20 beds.
Hill Crest, at Santa Clara, Franklin Co., N. Y.; for working girls and women; Dr. Caroline M. Hengel, res. phys.; 56 beds; private.
Springside Sanitarium, at Auburn, N. Y.; Dr. Nettie E. Jenkins, res. phys.; 15 beds; private.
All Saints' Home, at Verkank, Duchess Co., N. Y.; Pavilion for Tuberculous Patients; in charge of the Brothers of Nazareth; 10 beds.
Westchester County Hospital (Pavilion for Consumptives); Dr. Fred'k Baker, house phys.; 24 beds; public.
Brooklyn Home for Consumptives, 240 Kingston Ave., Brooklyn; Dr. E. Reynolds, phys.; Elizabeth A. Doyle, supt.; 120 beds; semi-philanthropic.
Seton Hospital, at Spuyten Duyvil, New York City; Dr. B. B. Steedly, phys.; 200 beds; semi-philanthropic.
St. Joseph's Hospital for Consumptives, East 143d St., New York City; Dr. Charles M. Cauldwell, phys.-in-chief; 350 beds; semi-philanthropic.
The House of Rest for Consumptives, Bolton Road and 209th St., New York City; George Sauer, supt.; philanthropic; 39 beds.
St. Peter's Hospital, at Henry, Congress and Warren Sts., New York City; Five Wards Reserved for Consumptives; conducted by the Sisters of the Poor of St. Francis; Dr. T. P. Corbally, phys. in charge; 75 beds; philanthropic.
Home for Incurables, Third Ave. and 181st St., New York City; Dr. Israel C. Jones, supt.; 275 beds; tuberculosis wards.
New York Postgraduate Hospital Annex for the Treatment of Tuberculosis (for poor patients only), at 322 E. 19th St., New York City; Dr. John F. Russell, phys. in charge; 12 beds; philanthropic.
Kings County Hospital Infirmary, Clarkson St., New York City; tuberculosis wards; Dr. F. W. Smith, res. phys.; 65 beds.
Montefiore Home (Ward for Consumptives), Broadway and 138th St., New York City; Dr. S. Wachsmann, phys.; A. Hausmann, supt.; philanthropic; 40 beds.
The Riverside Sanatorium for Pulmonary Diseases; Health Dept. of the City of New York, at North Brother Island; Drs. S. A. Knopf, W. J. Pulley and John H. Huddleston, visit. phys.; Dr. Samuel T. Watson, res. phys.; 60 beds; public; free.
Lincoln Hospital and Home (Tuberculosis Ward), 141st St. and South Boulevard, New York City; Amzi Lake, supt.; for colored; free; 40 beds.
Manhattan State Hospital East for the Insane, at Wards Island, New York City; Dr. A. E. McDonald, supt.; tuberculosis division.
Tent Colony for Tuberculous Men and Women of the Willard State Hospital for the Insane, at Willard, Seneca Co., N. Y.; Dr. Robert M. Elliott, supt.
County Hospital (Tuberculosis Ward), East View, Yonkers, N. Y.; public.

Phthisis Infirmary of the Metropolitan Hospital, at Blackwells Island, New York City; under homeopathic management; public; free; Dr. J. B. Mickle, chief of med. staff; 450 beds.

Seaside Tent Sanatorium for Scrofulous and Tuberculous Children of the Society for Improving the Condition of the Poor, at Seabreeze, Coney Island, N. Y.; Dr. M. Burnham, res. phys.; philanthropic; 54 beds.

Wards for Tuberculous Prisoners of Clinton Prison, at the Dannemora State Hospital, Dannemora, N. Y.; Dr. J. B. Ransom, med. officer.

NORTH CAROLINA.

The Winyah Sanitarium, at Asheville, N. C.; Dr. Karl von Ruck, med. director; 70 beds; private.

Southern Pines Sanitarium, at Southern Pines, N. C.; Dr. Edwin Gladmon, phys.; 30 beds; private.

Pineshire Sanitarium, at Southern Pines; Dr. L. F. High, phys.; 25 beds; private.

Franklin Humanitarian Home, at Black Mountain, N. C.; philanthropic; 12 beds.

St. Joseph's Sanatorium, at Asheville; conducted by the Sisters of Mercy; 25 beds; private.

Dr. Stevens' Home for Incipient Tuberculous Patients, at Asheville, N. C.; Dr. Martin L. Stevens; 8 beds; private.

Dr. Dunn's Sanitarium for Diseases of Throat and Lungs, Sunny Side, Sunset Mountain, Asheville, N. C.; private.

NORTH DAKOTA.

Oakpark Sanatorium for Consumptives, at Minot, N. D.; Dr. V. Mohn, phys.; 25 beds; private.

OHIO.

Cincinnati Branch Hospital for Consumptives, Cincinnati, Ohio; public; Dr. B. F. Lyle, phys.; 120 beds.

Municipal Tuberculosis Sanatorium, at Cleveland, Ohio; Dr. J. C. Placak, res. phys.; F. C. Emde, supt.; 75 beds; public.

Miami Valley Hospital, at Dayton, Ohio; Ella P. Crandall, supt.; tuberculosis division.

Western Hill Hospital and Sanatorium, at Price Hill, Cincinnati; Dr. Oswald Katz, res. phys.; 30 beds; semi-philanthropic.

PENNSYLVANIA.

West Mountain Consumptive Hospital, at Scranton; philanthropic. Dr. J. M. Wainwright, phys.; 26 beds.

South Mountain Camp Sanitarium, at Mt. Alto, Franklin Co., Pa.; Major Oliver B. Simmons in charge.

Bide-Awhile Sanatorium, at Perkiomenville, Pa.

Tent Camp for Tuberculosis Patients of the Columbus State Hospital for the Insane; 100 beds.

Mt. Jefferson Sanatorium at Lansford (Summit Hill P. O.), Pa.; Dr. W. H. Clewell, res. phys.; 25 beds; private.

Private Sanatorium of Drs. J. T. and A. M. Rothrock, at Mont Alto, Franklin Co., Pa.; 10 beds.

The Darmady Sanatorium at Mt. Airy, Philadelphia, Pa.; Miss Margaret G. O'Hara, matron; 25 beds; private.

Sunnyrest Sanatorium, at White Haven, Pa.; Elwell Stockdale, supt.; L. F. Flick, Joseph Walsh and William Stanton, vis. phys.; 50 beds; private.

White Haven Sanatorium of the Free Hospital for Poor Consumptives, at White Haven, Pa.; Drs. Shoemaker and Heller, phys.; Dr. Jas. H. Heller, supt.; 126 beds; philanthropic.

Switch Back Sanatorium, at Lansford, Pa.

Kane Summit Hospital, at Kane, Pa.; Mary J. Hayes, supt.; 50 beds.

Chestnut Hill Hospital for Female Consumptives, at Philadelphia; Dr. A. L. Bacon, res. phys.; Rev. H. L. Duhring, supt.; 65 beds; philanthropic.

House of Mercy for Male Consumptives, 411 Spruce St., Philadelphia; Dr. W. M. Agney, house phys.; Rev. H. L. Duhring, supt.; 12 beds; philanthropic.

Philadelphia Hospital (Wards for Consumptives), Thirty-fourth and Pine Sts., Philadelphia; Dr. M. H. Briggs, chief res. phys.; 174 beds; public.

Rush Hospital for Consumptives, 44 W. 33d St., Philadelphia; Elizabeth M. Brophy, supt.; 60 beds; philanthropic.

Henry Phipps Institute Hospital, 238 Pine St., Philadelphia; Lawrence F. Flick, phys.-in-chief; Mary Mahoney, supt.; 52 beds; philanthropic.

Free Tuberculosis Hospital for Consumptives of Pittsburg and Allegheny, 253 Shady Ave., Pittsburg, Pa.; Dr. Henry N. Hall, phys.; 50 beds; philanthropic.

Tent Camp in the Pocono Mountains for the Treatment of Consumption, at Greentown, Pike Co., Pa.; Dr. Albert S. Ashmead, phys.; private.

Lucien Moss Home of Jewish Hospital, at Philadelphia; Dr. Edwin D. Jareckey, res. phys.; 31 beds; philanthropic.

Reading Sanatorium for Tuberculosis, at Reading, Pa.

RHODE ISLAND.

St. Joseph's Hospital, at Providence; Wards for Consumptives; Sister Superior, supt.; Dr. Wm. Hindle, res. phys.; philanthropic; 24 beds.

Pine Ridge Camp for Consumptives, at Foster, R. I.; Dr. W. H. Peters, phys.; semi-philanthropic; 60 beds.

State Sanatorium, at Pascoag, R. I.; 100 beds.

State Almshouse, Tuberculosis Division, at Howard, R. I.; Dr. Geo. F. Keene, phys. in charge; 40 beds.

Tuberculosis Division of the State Hospital for the Insane, at Howard, R. I.; Dr. George F. Keene, supt.

SOUTH CAROLINA.

Aiken Cottage Sanatorium, at Aiken, S. C.; Dr. C. F. McGahan, phys.; 15 beds; semi-philanthropic.

Separate Building for Tuberculous Prisoners of the State Penitentiary, at Columbia, S. C.; Dr. D. J. Griffith, supt.; 50 beds.

TEXAS.

Camp Reliance, at Comfort, Texas; Dr. C. H. Wilkinson; private.

Wynne Farm Agricultural Colony for Tuberculous Prisoners, at Huntsville, Texas; Dr. W. E. Fowler.

White Gables, S. W. Texas Sanitarium, at Boerne, Kendall Co., Texas.

Sisters' Hospital, Hotel Dieu, at El Paso, Texa.; Tuberculosis Wing, 50 beds; conducted by the Sisters of Charity.

Dr. L. W. Cook's Sanatorium, at Boerne, Texas; private.

Dr. Briggs' Private Sanatorium for Diseases of Throat and Lungs, at Dallas, Texas; Dr. J. R. Briggs, phys.; 60 beds; private.

VERMONT.

The Champlain Open air Sanitarium, at South Hero, Vt.; Dr. H. E. Lewis, med. dir.; 30 beds; private.

Ward for Tuberculous Patients of the Vermont State Hospital for the Insane, at Waterbury, Vt.; Dr. M. Hutchinson, supt.; 22 beds.

VIRGINIA.

Camp for Tuberculous Patients of the Central State Hospital for the Insane, at Petersburg, Va.; Dr. Wm. T. Drewry, supt.; 70 beds.

WASHINGTON.

King County Hospital, at Seattle, Wash.; tuberculosis wards; 15 beds; Dr. Wm. T. O'Rourke, supt.; public.

WISCONSIN.

Evergreen Park Cottage Sanatorium, at Lake Nebagamon, Wis.; Dr. W. B. Hopkins, med. dir.; private; 15 beds.

Wisconsin Deals Sanatorium, at Kilbourn, Wis.

The Wisconsin Health Park Association, at Tomahawk, Lincoln Co.; Dr. W. T. Roberts, field secretary.

CANADA.

Free Home for Consumptives, at Gravenhurst, Ont.; Dr. Chas. D. Parfitt, phys. in charge: 75 beds; philanthropic.

Muskoka Cottage Sanatorium, at Gravenhurst, Ont.; Dr. J. H. Elliott, phys. in charge; 75 beds; semi-philanthropic.

Toronto New Consumption Hospital of the National Sanitarium Association, near Toronto, Ont.; Dr. Allan H. Adams, phys.; philanthropic.

Lhal Ghur Private Sanatorium, at Ste. Agathe des Monts, Quebec; Dr. Howard D. Kemp, phys. in charge; 16 beds.

Montreal Sanatorium for Consumptives, at Montreal, Quebec.

Provincial Sanatorium for Consumptives, at Montreal, Quebec.

Wolfville Highlands Sanatorium, Nova Scotia.—Dr. G. E. DeWitt, med. dir.; 8 beds; private.

LIST OF DISPENSARIES AND CLINICS FOR PULMONARY TUBERCULOSIS.

CONNECTICUT.

New Haven Dispensary Tuberculosis Clinic, Congress Ave., New Haven, Conn.; Dr. H. M. Steele, phys. in charge.

ILLINOIS.

Dispensaries of the Committee on the Prevention of Tuberculosis of the Visiting Nurses' Association, 79 Dearborn St., Chicago, Ill.; Dr. Arnold C. Klebs, med. dir.

MARYLAND.

Out-patient Department, Johns Hopkins Hospital, Baltimore, Md.

DISTRICT OF COLUMBIA.

Tuberculosis Dispensary, 605 4½ St. S. W., Washington, D. C.

MASSACHUSETTS.

Boston Dispensary, at Bennet and Ash Sts., Boston, Mass.; Dr. Edward O. Otis, supt.

Tuberculosis Clinic—twice a week—at City Hospital, Worcester, Mass.; Dr. Albert C. Gotshell, phys. in charge.

MINNESOTA.

Hamlin University Free Dispensary, at Minneapolis; Dr. G. G. Poehler, phys. in charge.

State University Free Tuberculosis Dispensary, S. Washington Ave., Minneapolis; Dr. Henry L. Ulrich, phys. in charge.

NEW JERSEY.

Orange Memorial Hospital Dispensary, at Orange, N. J.; Dr. Henry A. Tulsford, phys. in charge.

NEW YORK.

Gouverneur Hospital Dispensary, Front St., New York City; Drs. Gilbert and Bradford in charge.

Clinic for Pulmonary Diseases of the Health Department of New York City, at 6th Ave. and 55th St.; Dr. Herm. M. Biggs, director; Drs. J. S. Billings, Jr., and S. A. Knopf, assoc. directors.

Special Classes at the Vanderbilt Clinic for the Treatment of Tuberculosis; Dr. Linsey R. Williams, phys.

Special Classes at Bellevue Hospital Dispensary; Dr. James Alexander Miller, phys.

New York Postgraduate Hospital Dispensary (Dr. Russell's Classes).

Dispensary for Consumptive Poor of the New York Throat, Nose and Lung Hospital, 59th St., near 2d Ave.; Drs. Birmingham, Barton, Goldstein and Wheeler, phys.

Presbyterian Hospital Dispensary, New York City.

Harlem Hospital Dispensary, Foot of East 120th St., New York City; Dr. Charles H. Moak, phys. in charge.

OHIO.

Tuberculosis Dispensary of the Western Reserve University, at Cleveland, Ohio; Dr. T. H. Lowman, phys. in charge.

PENNSYLVANIA.

Tuberculosis Dispensary of the Scranton Society for the Prevention and Cure of Consumption, 203 Linden St., Scranton, Pa.

Henry Phipps Institute Dispensary, 238 Pine St., Philadelphia.

Rush Hospital Dispensary, Lancaster Ave. and Thirty-third St., Philadelphia; Dr. John D. McLean.

Dispensary of the White League, 1515 Arch St., Philadelphia; Dr. Joseph P. Craney, phys.

RHODE ISLAND.

Out-patient Department of the Rhode Island Hospital, at Providence; Dr. Jay Perkins, supt.

I hope that the foregoing list is a complete one, and still the possibility of errors of omission and commission exists. Worthy institutions may have been established since of which I have not heard, and thus they may have been inadvertently omitted; some institutions

may have been reported to me as sanatoria, taking care of tuberculous cases exclusively, while in reality they are sanitaria or homes where all classes of patients are received. If these are mentioned in my list, they ought not to have been included. In this list we read the names sanatorium, sanitarium, hospital, home, etc. This brings me to a subject of which I like to speak in connection with the designation or naming of institutions consecrated to the exclusive treatment of tuberculous invalids.

The proper designation for an institution which receives patients afflicted with pulmonary or laryngeal tuberculosis only is, in my humble opinion, sanatorium. May I be permitted to state why I prefer the word sanatorium to sanitarium? Brehmer, the founder of the first institution of that kind, called it *Heilanstalt,* which means healing institution; and the word "sanatorium," from the Latin *sanare,* to heal, gives certainly a better equivalent for the German word than the word "sanitarium." This latter word is derived from the Latin, *sanitas,* health, and is usually employed in this country to designate a place considered as especially healthy, a favorite resort for convalescent patients, or an institution for the treatment of mental or nervous diseases. It is well and useful from all points of view to make a distinction that the special uses and purposes of the tuberculosis institution may be understood readily.

The word "sanitorium," so frequently used, is simply incorrect. May I say in addition that the word sanatorium has been adopted as an official name by the United States Government for the institutions for its consumptive sailors and soldiers; also that the name of the Massachusetts state institution is sanatorium and not sanitarium, and that the former Loomis Sanitarium has been changed to Loomis Sanatorium, Sharon Sanitarium to Sharon Sanatorium, and that all the more recently established institutions for the exclusive treatment of tuberculous patients in this country, Canada and England have adopted the name sanatorium? As mentioned above, Germany calls these institutions *Heilanstalten,* and all other European nations call institutions of that kind sanatoria.

Special hospitals for the treatment of tuberculous patients are particularly useful institutions, because they are, as a rule, located in or very near large centers of population. They are supposed to receive the more advanced and hopeless cases which in their home environment can not or do not receive the necessary care, and often constitute centers of infection. Of the value of such institutions I can not speak too highly, and personal experience at the Riverside institution of the health department of the City of New York has made me quite enthusiastic over the work which can be done in such establishments. This institution, which we call Riverside Sanatorium, located on North Brother Island, opposite East 138th St., was established on the urgent appeals of Dr. Hermann M. Biggs, the general medical officer and his colleagues of the board of health. Thanks to a law, which I believe exists only in New York, and which Dr. Biggs promulgated, we have in New York a right to remove any tuberculous patient from his home to one of the city tuberculosis institutions if in the opinion of the medical inspector the patient constitutes a danger to his environment.

The results obtained with these patients, forcibly removed from their unhygienic surroundings to our Riverside Sanatorium, which is, of course, only a city sanatorium, is surprising. It is very often one of the hardest things to induce patients to leave the institution, when, in our opinion, the disease has been sufficiently arrested and warrants the discharge of the patient. The clean, sanitary surroundings, the regular mode of life, and the personal interest which is taken in every case, makes most of these patients become attached to the institution, and the prospect of being obliged to return to unsanitary environments and other former unpleasant conditions is the cause of their disinclination to leave.

The difficult problem of what to do with the cured consumptive, of which I will speak later on, has never come to me with more seriousness than when I am about to discharge a patient from the Riverside Sanatorium. Yet I would suggest that the law which gives our health department the right to forcibly remove to a special tuberculosis institution a patient who plainly constitutes a danger to his environment, is a wise one and well worth trying in other large American cities. Even if we are not able, for the present, to provide work for all our discharged consumptives (we strive to give employment to as many as possible as helpers and orderlies), the training they have received and the orderly life they have been forced to live, will rarely fail to leave its impression. I can modestly claim that a goodly number of the men and women sent out from the health department's institution at North Brother Island, whether cured or only improved, on their return to their former homes constitute themselves missionaries and hygienic examples among the members of their families, their neighbors and friends.

The "Homes for Consumptives" I have never liked, for, from my experience of a visit to a number of them I gained the impression that the so important hygienic and sanitary measures in these institutions are never so rigidly adhered to as in sanatoria and special hospitals. There are, as a rule, fewer nurses and fewer attendants, and herein, I believe, lies the mistake, for if the patient ever needs the constant care of a watchful nurse it is in the last stages of the disease. Now, the word "Home" indicates that the unfortunate consumptive will remain there until his dissolution. This is another important reason why I do not like the word "Home." I am convinced many enter the home for consumptives who before were perhaps full of hopes for a recovery, and many even enter it in a condition when recovery would seem possible. Why may we not just as well call every home a sanatorium and make it such? This is what it should be—a sanatorium—a healing institution.

The next class of institutions which we wish to speak of are seaside sanatoria for tuberculous and scrofulous children. I have only a single one on my list; they are worth our consideration. Seaside sanatoria for scrofulous and tuberculous children serve to take care, throughout the whole year, of children afflicted with joint, osseous and cutaneous tuberculous troubles, and all children afflicted with milder manifestations of tuberculous character, generally designated as scrofulosis. Another important factor of such seaside sanatoria is to attend to the after-treatment of children operated on for tuberculous joint troubles in the city, and to keep them during their convalescing stage. It was my privilege to serve for some time as assistant to such an institution in France. There, in the celebrated institution at Berck-sur-Mer, belonging to the city of Paris, we received weekly from ten to twenty-five little ones who

had been operated on. The change which was wrought in the faces of these children after a few weeks' sojourn at the seaside was something hard to believe. These pale-faced, underfed children, coming mainly from the homes of the poor of Paris, became rosy-cheeked and healthy looking youngsters in the ozone-laden atmosphere of the sea coast. A school with a number of teachers is attached to that institution so that the intellectual development of the children may not suffer during their sojourn in the sanatorium. I trust that the example given by the New York Society for improving the Condition of the Poor in the creation of such an institution at Seabreeze near New York, will find numerous imitators among the philanthropists and municipalities of our country.

It must be evident to every physician and sanitarian that multiple sanatoria for the treatment and care of tuberculous children is one of the most important factors in the fight against consumption. The child thoroughly cured from its tuberculous affliction by the best of surgical, orthopedic, hygienic, dietetic and climatic treatment is not likely to become a consumptive adult, while every child with a neglected local tuberculosis must always be considered a candidate for consumption.

Pulmonary tuberculosis is relatively rare in little ones, but even for those few, I am happy to say, we have some provisions in the State of New York. As you will have noticed in my statistics, the Seton Hospital as well as the Loomis Sanatorium, have made special provisions to treat children suffering from pulmonary tuberculosis.

The next kind of institution to be considered as an important factor toward the solution of the tuberculosis problem is the special tuberculosis dispensary. As a definition of this institution permit me to use here the same words which I used as introductory remarks in my address recently delivered before the New York Academy of Medicine to open the discussion at a symposium on special tuberculous dispensaries ,

A modern tuberculosis dispensary is an institution created, built, equipped and managed for the exclusive treatment of indigent persons afflicted with pulmonary or laryngeal tuberculosis. The modern conception of the treatment and management of ambulatory tuberculous cases demands the creation of such institutions. Those of us who began our medical career fifteen or twenty years ago will remember the almost universal indifference of our teachers as well as ourselves when in our dispensary practice we came across a tuberculous case. The sooner we could dispose of it the better we thought we did our duty. Some cough mixture and some cod-liver oil was the routine treatment. There was no time, nor did we think it necessary, to teach the patient to take any precaution with his infectious sputum, or to give him any other hygienic instruction. The value of breathing exercises in such cases was thought of by but few.

How different is it to-day. To avoid as far as practicable the contact of the tuberculous patient with other patients, separate classes are created in many of our general dispensaries; but the ideal, of course, must always be the entirely separate and especially constructed tuberculosis dispensary.

Besides the institution with which I have the honor of being connected, and which, to the best of my knowledge, is the first municipal dispensary especially built for that purpose in the United States, there are at this moment in New York six other dispensaries which have special classes for tuberculous cases. From my list you will see that Boston, Baltimore, Philadelphia, New Haven, Scranton, Minneapolis, Chicago, Worcester and Providence are the other cities in the United States which have thus far created special tuberculosis dispensaries.

The setting aside of a ward for tuberculous patients in a general hospital, an insane asylum or prison seems to me, while not nearly as good as a sanatorium, special hospital or special camp, the next best thing to it. Quite satisfactory results can often be obtained when in a general hospital the best ventilated and best lighted ward—which is usually the upper story—can be used for that purpose. The results in a special tuberculosis ward at a general hospital can be enhanced when there is a roof garden in connection with the ward, and outdoor life and outdoor sleeping can thus be inaugurated in the city. This is very desirable during hot weather, and in connection with it I would suggest that on the top of nearly every hospital a roof garden can be improvised with a covering of canvas to which are attached side flaps when protection from sun and rain is necessary; with a few flowers and shrubs here and there this improvised roof garden can be made very attractive, and the whole installation accomplished with relatively little expense.

By an exhaustive inquiry, previous to the publication of my article, "A Plea for Justice to the Consumptive," I learned from authorities well qualified to speak on this subject that tuberculosis more frequently follows the development of insanity than precedes it. Or, if I may use here the words of Prof. Edward D. Fisher, who kindly wrote me at the time: "Tuberculosis is more common in the insane as a result of lowered vital condition than as a cause of the mental disease." When the insane individual, with a thus lowered vital condition, comes in close prolonged contact with another insane person who is tuberculous, is it a wonder when a non-tuberculous insane person in an overcrowded insane asylum contracts tuberculosis?

That something can be done for even the insane tuberculous patient, that all can be isolated and a number of them cured of both their physical and mental infirmities, has been beautifully demonstrated by the tent life inaugurated by Dr. McDonald and his associates at the Manhattan State Hospital for the Insane on Ward's Island.

Concerning tuberculosis in prisons, I wish to speak with particular emphasis, for while here and there provisions for the treatment of tuberculous prisoners have been made, there is still much and urgent work in this direction before our public sanitarians and the managers of prisons and reformatories in many of the states of the Union. For the good of society we must confine the criminal and punish him, and above all, we seek to reform him by years of seclusion, according to the gravity of his offense. But however great the crime he may have committed, we have no right to sentence him to contracting tuberculosis, which, as prison life is now in many of our states, must almost invariably result in death. The best solution of the tuberculosis problem in regard to prisons is, to my mind, that which has been successfully tried by the Texas Agricultural Colony for Tuberculous Prisoners. Instead of letting them linger and suffer in isolation and die in degradation, the Agricultural Colony of Texas strives to make of its tuberculous prisoners useful and healthy members of society. It is always a pleasure to note that the

most humane undertakings are blessed with financial success; $25,000 remained as net earnings during the first year of the existence of the Texas Agricultural Colony for Tuberculous Prisoners. May the example of this state lead to the establishment of many such colonies.

My suggestions for the establishment of agricultural and horticultural colonies are, however, not only intended for tuberculous prisoners. I plead with equal emphasis for the establishment of such for the honest tuberculous patients who have faithfully passed through the schooling in a sanatorium; who have learned to prevent infecting others or reinfecting themselves; who leave the sanatorium virtually cured, but by no means strong enough to take up the old occupations which, in many instances, had rendered them tuberculous. It is a grave and serious problem what to do with the cured tuberculous patient, who was formerly a stone cutter, a printer, a tailor or a hat maker, etc. Shall we return him to his former unhygienic occupation—to his insanitary work or sweat shop? The time and money expended for sanatorium treatment would have been spent in vain if these toilers must return to the same environments. It is a medical, social and financial problem, and those who provide sanitary occupation for cured consumptives so that they may live and labor after their restoration to health and remain well, will do as much for the solution of the tuberculosis problem as the founders of sanatoria and special hospitals.

This report on the antituberculosis work done during the last few years would indeed be incomplete without mentioning the first tuberculosis exposition in the United States, held in Baltimore from Jan. 25 to Feb. 1, 1904. From a local attempt to give the people of Maryland an object lesson in the prevention of tuberculosis, this exposition grew to be a national enterprise, an educational center of the history, distribution, variation, causes, cost, prevention and cure of tuberculosis.

The exposition was held under the auspices of the Tuberculosis Commission of Maryland conjointly with the board of health of the same state and the Maryland Public Health Association. There were exhibits from all parts of the United States, from Canada and from other foreign countries. The exposition was divided into numerous divisions, one of the most instructive being the statistical section. Mortality and morbidity of tuberculosis and their relation to race, age. sex, occupation, heredity, marriage, topography and geography were graphically demonstrated. The charts exhibited by the Prudential Life Insurance Company, showing the variations of the occurrence of tuberculosis in different races, sexes and classes of people, were particularly interesting. A large map had been prepared by the Baltimore health board, showing all the houses in which there has been a death from tuberculosis in the ten years from 1890 to 1900. Each of these 11,582 deaths was indicated by a red dot; the worst area, consisting of ten squares crowded with negroes, showed 175 deaths. Another section of the exhibit showed sanitary and insanitary tenements, factories and workshops. Pictures of "lung blocks," that is to say, buildings which are particularly infected by tuberculosis, were shown from the city of New York and Baltimore. They taught a fearful object lesson of overcrowding, filth, lack of air and light.

The committees for the prevention of tuberculosis of New York, Chicago, Boston and Baltimore showed by statistics, literature and photographs the work they had accomplished independently of municipal aid. Nearly all the states of the Union and the provinces of Canada, where state and municipal health boards are engaged in the prevention of tuberculosis, sent charts, drawings and pictures, showing their really surprising activity during the last few years. New York City took the lead by showing a reduction in the mortality from tuberculosis by one-third of what it was ten years ago. The health department of New York City also exhibited its celebrated "Circular of Instruction to Consumptives and Those Living with Them," besides photographs of its Riverside Sanatorium and the new Clinic for Pulmonary Diseases.

The directors of nearly all the American and Canadian sanatoria and special hospitals for the treatment of consumption sent photographs of their institutions. It was my privilege to send my collection of views—German, English, French, Swiss, Scandinavian and Austrian sanatoria, and also the excellent photographs of Brehmer, Dettweiler, Koch and Trudeau. (The latter is the pioneer of the sanatorium treatment in America.)

There were a large number of tents, model cottages, reclining chairs, elevated, fixed, pocket and other kinds of spittoons. Of great interest was the excellent collection of books and portraits sent by Professors Osler and Jacobs. The pathologic exhibit, which owed its existence to Professor Welch of Johns Hopkins Pathologic Department, was unusually interesting. It was visited by many physicians and students. Trained demonstrators were constantly present to explain the pathologic specimens and bacteriologic exhibits. A very unique way of making the exposition a thorough educational center for the laity was arranged by Dr. Fulton. He divided the visitors in groups of twenty or twenty-five, and assigned to each of these one of the young enthusiastic physicians who had volunteered their services as guides and demonstrators. A very important and interesting feature of the exposition was the evening lectures by a number of specialists.

The tuberculosis exposition was an unqualified success. It had not only the support of the best men of the Baltimore medical profession, but His Excellency, the Governor of Maryland, His Honor, the Mayor of Baltimore, and a number of distinguished Baltimore citizens lent their moral and financial support to the success of the undertaking.

A similar exhibition, although on a much smaller scale, took place recently in Boston (October 1904), in connection with the Mechanics Fair. The Association for the Relief and Control of Tuberculosis of Boston had arranged a most creditable and instructive exhibit of things and literature relating to the modern modes of prevention and treatment of tuberculosis. The citizens of Boston and the surrounding country paid unusual attention to the tuberculosis corner. It would seem that such object lessons in the prevention of tuberculosis might well be imitated by other large cities.

I do not report this time anything concerning laws to combat bovine tuberculosis, nor have I enumerated special regulations or ordinances issued concerning the prevention of tuberculosis in man. Few changes have occurred since my last report (November, 1902.) I wish to state, however, that an additional number of cities have enacted antispitting laws. Koch's declaration at the last international tuberculosis congress in London, concerning the relative rarity of the transmission of bovine tuberculosis to man, has not influ-

enced American authorities to lessen existing measures to prevent the spread of bovine tuberculosis or its transmission to man; yet there is a great variety in these bovine laws in the different states, and perhaps a greater variety existing concerning the laws and regulations to prevent tuberculosis in man.

As in my previous report, so must I say in this one that a "ministry of health" at Washington, a "United States Board of Health," to be in constant touch with all the state and city boards of health in the Union, with effective laws to combat tuberculosis in man and beast throughout the Union, is the only remedy for the lack of uniformity and effectiveness of antituberculosis laws in this country.

To any one who has studied the tuberculosis problem in its social as well as in its medical aspect, it must be evident that its solution can only be accomplished by effectual co-operation. I have just expressed my views as to how the work of the state and city boards of health could be made more effective by co-operation with a national board of health. The purely medical aspect of the disease will, I know, be intelligently studied by our new organization above referred to; but what I plead for most insistently is that the philanthropists, laymen and physicians, composing the various organizations, commissions and committees, may be in constant co-operation with a "Federal Committee" or permanent "National Bureau for the Prevention of Tuberculosis," to which the new society, I trust, will give the incentive, in order to avoid useless multiplication of work on the one hand, and increase effectiveness of needed work on the other. For example, if two adjoining states find it advantageous to combine in establishing a state sanatorium, let them not hesitate for reason of local pride to carry out the project. A large city may have a dozen associations, commissions or committees on the prevention of tuberculosis. When it comes to establishing an institution, let them be united in the project: and when it comes to taking care of a needy patient, let him be referred to a single subcommittee, whose duty it should be to investigate the case and provide for the patient in such a way as is best for his own interest and that of the community. The philanthropist should not give blindly, but should inform himself first where the need of his help is greatest, for there are many phases in the solution of the tuberculosis problem. While in one city it might be wiser to establish a dispensary for tuberculosis; in another it may be wiser to start a sanatorium, and in another an agricultural colony may be needed; while in others the creation of more playgrounds, parks, public baths and model tenements may be of the greatest importance and the greatest necessity.

The little motto with which I prefaced, some years ago, an essay entitled "Tuberculosis as a Disease of the Masses and How to Combat It," is applicable to-day, and I believe will be as long as there is a tuberculosis problem: "To combat tuberculosis as a disease of the masses successfully requires the combined action of a wise government, well-trained physicians and an intelligent people."

Alcoholic Nostrums Too Strong for Lumbermen.—Loggers in the northern woods seek to discourage the use of patent medicines in their camps, as the "lumber-jack" is inclined to use them as a substitute for alcoholic exhilaration, to the subsequent disturbance of his working powers.—*Northwestern Druggist.*

THE ASSOCIATION OF OPTIC NEURITIS AND FACIAL PARALYSIS.*

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The relative infrequency with which optic neuritis occurs in association with facial paralysis makes the following case worthy of record:

The Patient.—Miss G. W., age 19, came to the eye dispensary of the University Hospital, Philadelphia, Dec. 8, 1903, in the service of Dr. George E. de Schweinitz, to whose courtesy I am indebted for permission to publish the case. She complained of blurring of print and aching in the eyes in reading or other close work. She was unaware that her eyesight had failed, but examination showed that vision of the right eye was 6/15 and of the left eye only 6/30. She was able to read Jaeger 0.50 D. with each eye at 13 cm. slowly.

Ophthalmoscopic Examination.—There was atrophy of each optic nerve, more advanced on the left side. The nerve heads were covered with a delicate, white tissue, which blurred their edges, and could be traced in the form of white lines along the central vessels of the retina. The veins were of good caliber, but the arteries were reduced to mere threads at the disc, though they were somewhat fuller at a distanc from it. The fundus in each eye was otherwise normal. The picture was, therefore, a typical one of post-papillitic atrophy. The pupils were equal and responded rather sluggishly. The visual fields are shown in the accompanying chart (Fig. 1). They were moderately contracted, both for form and color, but showed no color scotomas. Under reduced illumination O. D. vision was only 6/30, and O. S. 2/60. With de Wecker and Masselon's photometric test the light sense was 4/10 in the right and 1/10 in the left eye. There was in addition a flattening of the right side of the face and a decided enophthalmus on this side.

History.—Careful questioning as to previous history brought out the following facts: She was the youngest of ten children, two of whom died in early childhood, one of diphtheria and the other of "enlargement of the heart." The rest were healthy and had had no eye trouble. She had always been very pale, and suffered from irregular menstruation, the amenorrhea lasting sometimes for several months. She had had measles alone of children's diseases, and no recent acute illness of any kind. On Nov. 1, 1902, she consulted Dr. James E. Talley of Philadelphia for paralysis of the right side of the face, which appeared after exposure to a draught, and was preceded and accompanied by severe pain in the lower jaw and teeth, and in front of the ear, on the same side. Dr. Talley found a typical facial paralysis of the peripheral type, but noted no areas of anesthesia. The face was flaccid, the mouth was drawn to the left and she was unable to close the right eye. There was no ear disease present, but she was very anemic, and gave the history of menstrual disturbance. Blood examination showed red blood corpuscles 4,268,000, white blood corpuscles 5,200, and hemoglobin 90 per cent. Dr. Talley thought the blood examination incorrect, especially as to the percentage of hemoglobin, owing to a defect in the instrument, but she did not return for further examination. The urine was alkaline, specific gravity 1,022, and contained neither albumin nor sugar; microscopically it was negative, except for phosphates.

Treatment.—She was treated with salicylates, strychnia, massage, electricity, and later iron. Three weeks afterward there was some return of motion in the face and the mouth was straighter, but the eye could not be closed. Early in December, 1902, she left the city, and was under the care of Dr. R. P. Heilman of Emporium, Pa., who prescribed iron and general tonic treatment. Dr. Heilman reports that he detected some anesthesia of the right side of the face, but no complaint was made of any disturbance of vision. The patient says, however, that on one occasion, when sent to the library for a book, she was unable to see the title in the poorly lighted

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

room, but aside from this did not have her attention called to her eyes, which were neither painful nor in any way inflamed. On her return to the city in March, 1903, the motion of the face had become nearly normal, but her mother stated that the right eye was "smaller" at the time than the left, although they had been of the same size before. Dr. Talley saw her in October, 1903, and again treated her for irregular menstruation.

Examination.—Examination by Dr. William G. Spiller showed a slight stiffness of the right side of the mouth; the

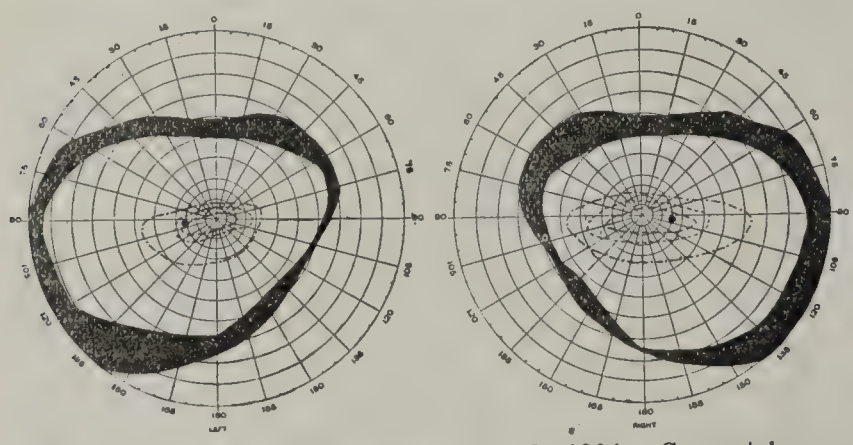


Fig. 1.—Case 1. Fields taken Jan. 6, 1904. Concentric contraction for form and color. No scotomas.

eye could be readily closed; there were no areas of anesthesia of the face or conjunctiva; the skin was entirely normal in appearance, but there was a distinct loss of subcutaneous fat which made the face flatter on the right side, and a sinking backward of the eyeball, as the accompanying photograph shows (Fig. 2). The electrical reactions, tested by Dr. C. S. Potts, were normal and no weakness of the muscles of mastication could be detected.

Examination by Dr. William B. Stanton in the medical dis-



Fig. 2.—Case 1. Flattening of face and enophthalmus after facial paralysis associated with double optic neuritis.

pensary showed normal lungs, slight extension upward of the heart dullness, on the left of the sternum, and a soft systolic murmur on lying down, heard best at about the third interspace, just to the left of the sternum, which disappeared on standing, and was probably hemic. The pulse was rapid but regular. Blood examination showed red blood corpuscles 4,248,000, white blood corpuscles 13,500, and hemoglobin 58 per cent. The urine was slightly cloudy, 1,030, no albumin or sugar; numerous epithelial cells but no casts.

Treatment.—Under atropin a vision of 8/22 was obtained in each eye, with + 0.25 s + 0.25 c ax. 90°. The patient was given strychnia sulphate, gr. 1/40, and Blaud's mass, gr, iii, three times daily. Subsequent examination showed a decided improvement in her general condition; her color became better, menses were regular and free from pain, and the blood test on April 6, 1904, showed red blood corpuscles 5,790,000 and hemoglobin 70 per cent. The vision at present is 6/20 in the right and 1/45 in the left, and the fields, taken May 20 (Fig. 3), show a slight reduction of the form field, and a marked reduction for red and green, but no color scotomas.

Summing up, we have an anemic girl with menstrual disturbance, who developed a peripheral facial paralysis of the right side, followed by flattening of the face and enophthalmus, which was associated with double optic neuritis and atrophy.

Several questions suggest themselves in considering the history of the case. In the first place, the etiology of the optic neuritis and the relation between it and the facial paralysis; secondly, the cause of the flattening of the face and the enophthalmus. Unfortunately, it is impossible to determine definitely the time of occurrence of the optic neuritis. The girl, however, had no trouble with vision or in the use of her eyes while at school, or in her occupation as a stenographer, and no deterioration in vision was noted until her absence from the city, during the attack of facial paralysis. This history is vague, but as no asthenopic symptoms were present until she commenced to use her eyes, on her return, we may assume, although without certain proof, that the neuritis

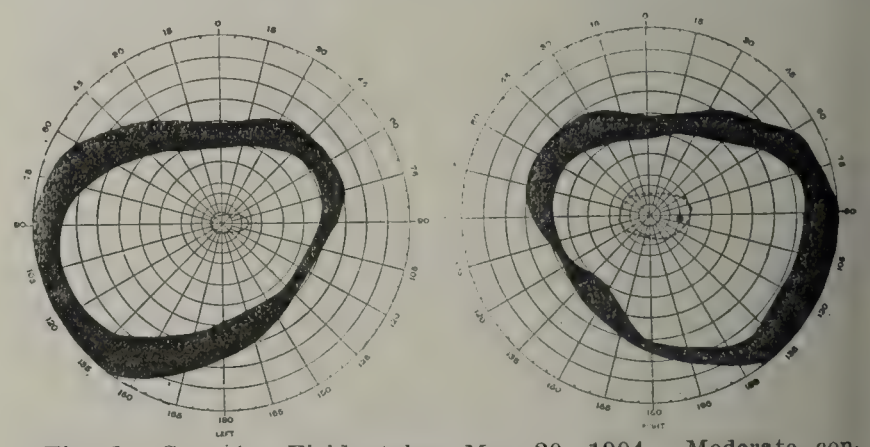


Fig. 3.—Case 1. Fields taken May 20, 1904. Moderate contraction of form fields. Marked contraction of color fields.

and facial paralysis occurred about the same time. The association of the two conditions is quite uncommon. In 1894 Hoffmann[1] described two cases of facial paralysis, associated with low-grade optic neuritis, retrobulbar in type, with central scotomas for colors, and considered them as cases of multiple neuritis due to cold. He said that optic neuritis was very rarely associated with facial paralysis, and that Gowers had seen three cases of rheumatic optic neuritis in women, two of whom had suffered from neuritis of the facial nerve and other rheumatic affections previously. De Schweinitz[2] reported two cases in 1899, in which the optic neuritis, which was retrobulbar in type, with central scotomas, occurred two years after an attack of facial paralysis. In the first case, both eyes were affected, but not at the same time; in the second, there had been several attacks of sclerokeratitis, two attacks of right facial paralysis, and finally left-sided optic neuritis. Leszynsky[3] reported a case before the New York Neurological Society in 1900, in which, during an attack of facial paralysis, severe pain appeared in the supraorbital and temporal regions on the left side, which lasted about one week, when the

1. Hoffmann: Deutsche Zeitschr. f. Nervenheilkunde. 1894, vol. v.
2. De Schweinitz: Jour. Mental and Nervous Diseases, May, 1899.
3. Leszynsky: Jour. Mental and Nervous Diseases, March, 1900.

patient became blind in this eye; the ophthalmoscopic examination revealed a well-marked papillitis. He attributed the optic neuritis to periostitis in the optic canal, so that the condition was a multiple neuritis, probably due to rheumatism, although syphilis could not be positively excluded.

These 7 cases added to the present one, make a total of only 8 reported; the association is, therefore, quite rare. A number of cases of optic neuritis, however, has been reported in polyneuritis. According to Remak[4] in Nothnagel's System, it has been found by E. Remak, Goldscheider and Fuchs in spontaneous (infectious) polyneuritis, by Schanz in puerperal forms, with carcinoma (autointoxication) by Miura, in alcoholic polyneuritis by Lillienfeld, Giese and Pagenstecher, and Jolly. Other cases have been reported since Remak's article was written. For example, Wetz, in his inaugural dissertation, Giessen, 1903, gives a case of bilateral recurring retrobulbar neuritis, appearing at long intervals, associated with polyneuritis. But even the number of such cases is limited, and, with but few exceptions, the neuritis is retrobulbar in type, in both series.

Facial paralysis, according to Bernhardt,[5] is caused in about 72 per cent. of all cases by rheumatism or cold, and in our case the history of taking cold after exposure to a draught, points perhaps to this cause as the etiologic factor. Rheumatic optic neuritis was first carefully described by Parinaud[6] in 1884, and we owe most of our knowledge of these cases to his studies. In the majority of instances there is a family and personal history of rheumatism; the acute cases usually commence with deep orbital pains, and pain in movement of the eyeballs, which is increased by pressure on the eye. Very often it is accompanied by conjunctival and scleral congestion. The neuritis may be simple in type, or of the character of a choked disc; it is ordinarily monocular, and when it attacks both eyes it is successive. The most characteristic feature is the complete amelioration, which may follow a state of affairs apparently very grave, as the visual acuity may fall to zero, during the attacks, and yet return nearly to normal afterward. In several important respects, therefore, our case differs from the typical one of rheumatic neuritis. The absence of a rheumatic history, of spontaneous pain in the eyes, or on movement, the bilateral occurrence, and the permanent reduction in vision to 6/20 on one side and 1/45 on the other, with the formation of considerable connective tissue on the surface of the disc, would point to some other factor. Two conditions must be considered here—the chloranemia and the menstrual disturbances, in both of which optic neuritis may occur, and in which complete or partial recovery is possible, in contradistinction to the cases due to brain tumor, where the ultimate result is usually complete blindness, with marked atrophy of the papilla. The blood condition in our patient did not show a sufficient reduction in the hemoglobin to warrant a diagnosis of chlorosis, however, so that we must assume either that the menstrual disturbance was the direct cause, or else that the facial paralysis and optic neuritis were due to one and the same, still undetermined, perhaps bacterial, infection, a belief which is shared at present by many neurologists.

The other question as to the causation of the enophthalmus and flattening of the face opens up problems which are still under debate in neurologic circles. I have been unable to find any mention of such a condition following facial paralysis. Gowers,[7] in his well-known text-book, says that "muscular wasting follows the nerve degeneration in the face, as elsewhere, and in those who have but little subcutaneous fat, the oss of tissue may be perceptible." But "the nutrition of the subcutaneous tissues in unaffected, and true facial hemiatrophy never results from disease of the facial nerve." Nothing is said, however, of the occurrence of enophthalmus. Through the kindness of Dr. Wm. G. Spiller of Philadelphia I was able to examine a case of his, presenting the same condition, and I am permitted to refer to it here:

> The patient, Mrs. Rosa K., aged 52, suffered from peripheral right-sided facial paralysis after exposure to cold, in July, 1902. At the time of the attack she had severe pain on this side of the face. On examination in February, 1904, nineteen months afterward, the paralysis had disappeared except for slight stiffness of the face, but there was a decided flattening of this side, and distinct enophthalmus. The eyes, however, showed no ophthalmoscopic changes, and vision was normal in each eye, with the proper correction of a low refractive error.

The two cases have a history in common of paralysis following exposure to cold or draught, and of severe pain in the face and jaw lasting for several days. Neither presents a picture of typical facial hemiatrophy, for atrophy of the skin, with discoloration and thinning, constitutes the chief sign in this disease, and is absent in both. Simple wasting of the muscular tissue, as described by Gowers, would not account for the enophthalmus, and we are forced to look for some other cause. Sensory disturbances in facial paralysis, both subjective and objective, have long been known. Pains in the head and corresponding side of the face very commonly precede or accompany the attack, and some authors (Testaz[8]) ascribe a prognostic value to them. Disturbance of sensation is less rarely mentioned. Gowers has observed an anesthetic area in front of and behind the auricle, and, in more recent times von Frankl-Hochwart[9] and his pupil, Hatschek, have found decrease in general sensitiveness, pain and temperature perception in moderate degree in about 50 per cent. of their cases. More rarely vasomotor secretory changes are observed. There exists, further, in literature, according to Bernhardt,[5] a number of observations in which, simultaneously with more or less severe facial paralysis, there appeared an eruption of herpes zoster facialis or occipito-collaris, or both together. Von Frankl-Hochwart[9] believes that the seventh nerve carries a number of sensory fibers at its exit from the mastoid foramen, in addition to those which have passed into the chorda tympani, during its passage through the fallopian canal. This view has been strongly contested by many, but has received additional proof from experiments of Van Gehuchten,[10] who has shown that the nerve contains a certain number of sensory fibers which arise in the geniculate ganglion, and he believes that the nerve of Wrisberg is its sensory root. This question is still a matter of dispute, which we can leave to the neurologists to settle.

In our cases the assumption of involvement of possible sensory fibers in the seventh nerve will not be sufficient, as it would not account for the enophthalmus. This must be due to some nutritional disturbance of the

4. Remak and Flatow: Nothnagel's Specielle Pathologie u. Therapie, vol. xi, p. 111, No. 4; full literature given here.
5. Bernhardt: Ibid., vol. xi, No. 1, Erkrankungen der peripherischen Nerven.
6. Parinaud: Report in Annales d'Oculistique, vol. cv, Nos. 5 and 6.
7. Gowers: Diseases of the Nervous System, second edition.
8. Testaz: Paralysie douleureuse de la septième paire. These de Paris, 1887.
9. v. Frankl-Hochwart: Neurologisches Centralblatt, 1891.
10. Van Gehuchten: Jour. de Neurologie, xiv and xv.

orbital tissues, and as these are dependent on the supply from the fifth nerve, we must assume, I think, a neuritis of this nerve on the affected side. This, moreover, would explain the severe pain experienced by both patients, and the disturbance of sensation in the first. In the presence of polyneuritis involving the fifth and seventh nerves in both, I believe it would be justifiable to consider the optic neuritis in the first as due also to the same cause, infectious in character, rather than to invoke the additional factor of the menstrual disturbance or of the alteration in the blood.

CONCLUSIONS.

1. Optic neuritis is occasionally associated with facial paralysis, either alone or as part of a multiple neuritis; the etiologic factor may be rheumatism, but at times appears to be an infection, the nature of which is as yet undetermined. The optic neuritis is usually of the retrobulbar type, but a decided papillitis may be present, and be followed by more or less marked atrophy. In cases of multiple neuritis, of the cranial nerves, the eyegrounds should be examined for possible optic nerve complication.

2. In facial paralysis, flattening of the face and enophthalmus may appear, and are to be considered as due to a neuritis of the fifth nerve, and not to involvement of possible sensory fibers in the facial nerve.

DISCUSSION.

DR. JOHN E. WEEKS, New York City, said that an interesting feature is the enophthalmus and the approach to facial hemiatrophy. He has recently observed a case in which this was a pronounced feature. There was no affection of the optic nerve, only of the facial nerve. It was a case in which the lesion was primarily an affection of the fifth nerve and, in this case, not only was there a disappearance of the fatty tissue of the face on the right side, but the bony structure was also reduced and the enophthalmus was marked. There was also atrophy of the iris which has not previously been noticed in cases of this kind. The pupil was widely dilated and immobile.

DR. EDWARD SHUMWAY said that, of course, true hemiatrophy is very different, because in such cases the essential condition is an atrophy of the skin itself, which is later followed by atrophy of the subcutaneous tissue and of the bony skeleton. Here the skin is unaffected.

A BACTERIOLOGIC STUDY OF THE BLANK CARTRIDGE.*

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It appears from statistics in THE JOURNAL of the American Medical Association, August 29, 1903, that of 392 cases of tetanus incident to accidents on the previous July 4, 363 followed wounds from the blank cartridge and the toy pistol. In other words, 92 per cent. of the tetanus cases were apparently attributable to wounds from blank cartridges.

Dr. A. I. Ludlow, assistant resident surgeon at the Lakeside Hospital, succeeded in isolating *B. tetani* from the blank cartridge wounds in one out of five fatal cases of tetanus, but cultivated the *B. aerogenes capsulatus* in four. In none of these cases was there emphysema nor emphysematous gangrene of the wounds, which were routinely treated by free incision and packing with iodoform gauze. In one of these which came to autopsy I failed to isolate *B. tetani* from the wound of the hand, but obtained *B. aerogenes capsulatus* from the local lesion and heart's blood. There was no gaseous emphysema of any organ.

These findings led me to investigate several makes of blank cartridges, and the results of these investigations form the basis of the present paper. The infectious agents concerned in these wounds (apart from the contents of the cartridge), may come from the skin and parts of clothing introduced. These latter sources of infection were not considered.

SOURCE OF MATERIAL.

The cartridges used were manufactured by the Peters Cartridge Co., the Winchester Arms Co., and the Union Metallic Cartridge Co., and were bought in the open market at various times and places.

CULTURAL EXPERIMENTS.

(*A*) *Wads.*—In both the cultural and animal experiments the wads were extracted with a sterile instrument, every care being taken to exclude accidental contamination.

The wads were placed in a 1 per cent. glucose bouillon, and incubated under anaërobic conditions (usually in Novy jars) at body temperature, for from 3 to 5 days, when coverslip preparations were studied. Not infrequently slender bacilli with end spores suggestive of *B. tetani* were seen. Nine cultures containing these tetanus-like bacilli were inoculated in fresh hematoma in the thigh of guinea-pigs. All of these animals survived but one, which died at the end of a month without symptoms of tetanus. These tetanus-like bacilli decolorized by Gram and were proved by cultural methods to be identical with a pseudo-tetanus bacillus discovered by Bain in blank cartridges. Many cultures contained a stout bacillus with square ends, apparently encapsulated, and subcultures made on glucose agar showed abundant gas formation. Nine rabbits injected with these gas-forming cultures, and killed ten minutes afterward, showed after from 8 to 20 hours' incubation marked gaseous emphysema, and *B. aerogenes capsulatus* was isolated from them all in pure culture. All efforts to demonstrate the presence of *B. tetani* failed. In a total of 250 wads examined by culture, the *B. aerogenes capsulatus* was demonstrated in sixty-six, or 26.4 per cent., and from sixty-one it was isolated in pure culture. Two of these were worked through all media, but in general the cultural characteristics on glucose agar, milk, and blood serum, together with the morphology, the capsule formation, the positive Gram stain, and the failure to grow aërobically, were deemed sufficient for identification. It is interesting to note that spore formation occurred in old milk and agar cultures, as well as on blood-serum. Some difficulty was experienced in separating *B. aerogenes capsulatus* from the other anaërobic organisms present in wads until Kitasato's method of heating for one hour at 80 degrees C. was adopted. It invariably survived this. That the explosion of cartridges neither kills nor inhibits the growth of *B. aerogenes capsulatus* was demonstrated by shooting the wads into jars containing melted glucose agar, which on incubation gave abundant growth of this organism in four out of five experiments.

The following table gives the proportion in which *B. aerogenes capsulatus* was found in wads of the different makes:

	Wads examined.	B. A. C.	Per cent.
Peters .32 caliber	54	32	50.9
Peters .22 caliber	50	21	.....
U. M. C. .32 caliber	49	7	7.0
U. M. C. .22 caliber	50	0	.....
Winchester .22 caliber	47	6	12.7
	250		

* Read before the Association of American Pathologists and Bacteriologists, New York City, 1904.

(*B*) *Powder.*—Cultures from the powder of 101 cartridges were usually sterile. Neither *B. tetani* nor *B. aerogenes capsulatus* was isolated.

INOCULATION OF ANIMALS.

At the suggestion of Prof. William H. Welch, the rat was used as being probably the animal most susceptible to tetanus.

To give *B. tetani*, if present, the most favorable environment possible, use was made of two procedures, the second one of which has not been employed in similar investigations. The first is inoculation of fresh hematoma, which increases greatly the chances of growth of *B. tetani*. As to the second one, Vaillard and Rouget established that "tetanus spores when free from toxin are innocuous when not accompanied by another bacterium, unless protected from phagocytes." Twelve white rats were inoculated under strict aseptic precautions with wads from the Peters Co. 32 caliber cartridges. In addition, a loop of a pure aërobic culture was added, in six an attenuated *Staphylococcus pyogenes aureus* and in the remaining six *B. coli communis*. The skin was then closed by a stitch and covered with celloidin.

Nine of these rats died in convulsions, the tenth quietly, while the other two survived. The incubation period varied from sixty to seventy hours. The character of the convulsions differed from that usually described for animals. The first symptom was a marked spastic condition of the inoculated leg, which was held in extreme flexion, explainable by the laceration of the extensor muscles. Gradually this spastic state extended to the whole body, so that the animal would retain its distorted shape in any position. In all, there was emprosthotonos, in two associated with pleurothotonos. The forelegs were held closely against the abdomen and the non-inoculated leg in extension. At short, irregular intervals there were definite convulsions, the most typical of which started with several rapid nods of the head, followed in order by clonic spasms of forelegs and hindlegs, passing in a few seconds into a tonic spasm of the whole body. In several, clonic spasms alone appeared. The convulsions lasted from one and a half to three hours, the animals all dying at the end of a spasm. At autopsy no lesions of internal organs were found. Smears from the meninges were negative for leucocytes and bacteria. Bearing in mind previous failures to cultivate *B. tetani* from wounds, it was thought wiser to subinoculate from these animals. Accordingly, the wads, with some necrotic tissue, were removed from six of the rats and inoculated into three guinea-pigs and three rabbits. The guinea-pigs died during the night, but the rabbits developed tetanus in about thirty hours. The character of the convulsions corresponded to the description in text-books.

In smears from the rats and guinea-pigs, a few spore-bearing bacilli morphologically resembling *B. tetani* appeared. These were somewhat more numerous from the rabbits. From one rat, only one such bacillus was seen after an hour's search. In all smears bacilli morphologically identical with *B. aerogenes capsulatus* were recognizable, together with numerous other organisms. Cultures were made from the wounds and wads on glucose bouillon and glucose agar, as well as blood serum. There was marked gas production, but repeated search failed to disclose *B. tetani*. Numerous subcultures, made both with and without Kitasato's method, were likewise negative. *B. aerogenes capsulatus* grew so rapidly and vigorously that it apparently crowded out *B. tetani*. Many anaërobic plates were also unsuccessful as regards *B. tetani*. In explanation of these failures, it may be said that the tetanus-like bacilli were extremely scanty, while *B. aerogenes capsulatus* was relatively abundant; and, further, that several other bacilli were present in the Peters wad, which resisted heating as well, one of these forming colonies much resembling those of *B. tetani*.

However, of five rabbits inoculated with five or six loops of the original cultures, three died in convulsions. Smears and cultures from their wounds were also entirely negative for *B. tetani*, though made as soon as symptoms of tetanus appeared.

The experiment was next tried of adding several crystals of urea to the material inoculated for its antichemotactic effect. In this rabbit the exudate was poor in leucocytes, and tetanus-like bacilli more numerous than in previous experiments, but *B. aerogenes capsulatus* had also increased proportionately and several series of plates were again negative for *B. tetani*.

A second series of inoculations with the Peters wads was next made. Three rats and three guinea-pigs were each inoculated with two wads, together with *Staphylococcus pyogenes mucus*, and several small crystals of urea. One rat and two pigs developed tetanus. As in the previous experiment, tetanus-like bacilli appeared in greater numbers than in the first series, but have not yet been isolated.

Inoculation experiments were also tried with the other brands of cartridges. In the case of the Union Metallic cartridges, the wads from the seven original bouillon cultures which yielded *B. aerogenes capsulatus* were used. One rat died without tetanic symptoms, the others survived. Likewise, thirteen wads of the Winchester cartridges, distributed among three rats and three guinea-pigs, produced no symptoms, and the animals survived the local suppuration produced by the staphylococcus.

Previous work has been done on this subject by Le Garde, Taylor, Wells, and the Boston Health Department, a total of 759 cartridges having been examined, both by cultures and animal inoculations, all with negative results for *B. tetani*. The only report of the finding of *B. tetani* in cartridges is made by R. N. Connolly, bacteriologist to the board of health of Newark, N. J. He bases his diagnosis, apparently, on the morphology and odor of cultures, and no inoculation of animals is reported. With regard to *B. aerogenes capsulatus*, Wells alone describes an obligate anaërobe which corresponds closely to this organism, but says it seemed to have motility, and it is not identified.

My thanks are due to Dr. W. T. Howard, Jr., and to Dr. Roger G. Perkins, for their valuable suggestions.

CONCLUSIONS.

1. *B. aerogenes capsulatus* (Welch) was present in a large proportion of the wads of the three makes of cartridges examined.

2. The wads of the Peters Company, inoculated in rats, guinea-pigs and rabbits, produced characteristic symptoms of tetanus.

3. The powder of the three varieties of cartridges examined was negative for *B. tetani* and *B. aerogenes capsulatus*.

4. My efforts at isolation of *B. tetani* from the wads have so far been unsuccessful.

5. There is abundant evidence, from clinical observations and animal experiments, that the wads of certain blank cartridges contain *B. tetani.* Dr. Welch told me that he considered it diagnostic to see an animal in convulsions.

THE PRESENT STATUS OF SURGICAL INTERVENTION IN RETRODEVIATIONS OF THE UTERUS.*

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The business world has learned the value of frequent inventories of the stock on hand with a view to discarding the old-fashioned and shop-worn articles to make room for the new and up-to-date goods. It would be well if we of the professional world would follow their example, and take more frequent and accurate inventories of our work and be equally ready and anxious to discard methods which have proved useless and harmful.

The time has certainly come for the gynecologic surgeon to take a retrospective view of his work and ask himself honestly and seriously what operations have proven successful and beneficial to women as a whole, and what methods need revising or relegating entirely to the museum of surgical antiquities. No region of the anatomy offers so alluring a field for experimental surgery as the female pelvis, the practical immunity of the pelvic peritoneum from fatal peritonitis making it possible to do a great variety of operations in this region with a low mortality.

The ease with which the round ligaments can be reached by three different routes has given rise to so great a variety of methods of shortening this little cord that even an enumeration of them would be tiresome.

The different operative procedures which rescue the uterus from its safe retreat in the pelvis and suspend or fix it in an unnatural and dangerous position in the abdomen are also numerous. These various methods have naturally led to much operating in this direction, as each operator is bound to prove the advantage of his particular method, which can only be done by a dazzling array of statistics.

With the decline of oöphorectomy as a routine operation in pelvic disturbances it was but natural that some other procedure should take its place, and this time the surgical craze lighted on the uterus, and demanded that it be "hung up" by some one of at least fifty different methods. Several years of active operating in this field have now passed, and the testimony is beginning to come in. The examination and analysis of these reports is the object of this paper.

The following pertinent questions suggest themselves: 1. Are these operations necessary? 2. Are they safe surgical procedures? 3. Have they proven successful in a sufficiently large percentage of cases to warrant their continuance?

The answer to the first question depends largely on a second. What is the normal position of the uterus? Schultze[1] threw the first real light on this subject when he announced that a normal uterus must be mobile. Theilhaber,[2] Winters,[3] Winternitz[4] and many others have followed up his work and established the fact that uncomplicated retrodeviations of the uterus produce no symptoms, and, therefore, need no treatment, surgical or otherwise. Theilhaber distinctly says that by far the greater number of cases of retrodeviations produce no symptoms, and that gynecologists have mistaken the symptoms produced by the complications for the deviation in position. He lodges a severe indictment against the modern gynecologists, saying that many do not understand the new teaching of the clinical significance of retroflexion, and, moreover, many do not wish to know; *"viele nicht kennen und manche auch nicht kennen wollen."* He states that Schultze, Winckel, Landau, Freudenberg, Winters, Krönig and Fenwanger have made similar experiments, and that all have come to the same conclusion as himself, namely, that the majority of retroflexions cause no symptoms.

Winternitz says that retrodeviations are not the cause of the symptoms, and we have, therefore, to consider only the complications, and backs up this statement with the following statistics: In 710 apparently healthy women, 154 had retroflexed uteri; of these 154, 90 (60 per cent.) complained absolutely of no gynecologic symptoms. A closer examination of symptoms in the remaining 40 per cent. revealed the fact that in nearly all cases the symptoms were due to co-existing complications. He says that retrodeviation does not create congestions, and concludes: "To operate on a healthy woman because she has retroflexion is absolutely uncalled for."

In 396 cases, 39 per cent., out of 1,000, taken from the records of my clinic at the Mary Thompson Hospital, the uterus was found in retroposition, 62, 15 per cent. of these cases presented no gynecologic symptoms and were referred to the medical clinic. Without exception, the remaining 334 cases presenting symptoms were recorded as complicated with definite pelvic or abdominal pathologic conditions. These were classified as follows: Myomata, 24, 8 per cent.; ovarian tumor, 17, 6 per cent.; acute pyosalpinx, 8, 3 per cent.; chronic disease of ovaries and oviducts, 116, 35 per cent. In a large percentage of these cases pelvic exudates and extensive adhesions were found. Myometritis, 104, 30 per cent., one-third of this number being complicated with pathologic laceration of the cervix and consequent cellulitis; 8, 3 per cent., were pregnant at time of examination, and there were 6 cases, 2 per cent., of carcinoma uteri. In the remaining 55, 17 per cent., there were other complications, as appendicitis, hernia, nephroptosia, hemorrhoids and recent puerperal cases. There were among the entire number twenty-three extensive lacerations of the perineum, but as these were in every instance in complication with one or more of the conditions mentioned, I have not made separate account of them. These records were made without any reference to the subject under discussion, and many cases presenting no gynecologic symptoms were referred to other clinics without a pelvic examination. Therefore, the cases of retrodeviation presenting no pelvic symptoms, 15 per cent. may be said to have been discovered by accident. I am indebted to my associate on the staff of the Mary Thompson Hospital, Dr. Alice Conklin, for assistance in compiling these statistics.

Olshausen says that uterine catarrh does not come as a result of flexion. He says that it is only a coincident complication. Emil Reis,[5] in a discussion of the subject before the gynecologic society of our city, says that he does not consider retroversion in itself an indication

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* Read before the Chicago Medical Society, 1904.

1. Schultze: Displacements of the Uterus. p. 26.
2. Theilhaber: München. med. Woch., 1902, vol. xlix, p. 1264.
3. Winters: Wiener klin. Therap. Woch., 1904, No. 1.
4. Winternitz: Therap. Monatsh., Berlin, 1903, vol. xvii.
5. Emil Reis: Amer. Jour. of Obst., April, 1904.

for operation, and that in cases of retroversion complaining of pain he looks for the cause elsewhere.

If we accept Schultze's definition of the normal position of the uterus, that of perfect mobility, it would effectually do away with a large number of the operations under consideration, as it certainly could not be claimed that a uterus is in a more normal position fixed in the abdomen than if left a fixed organ in the pelvis, especially as the uterus is essentially a pelvic organ and leaves this region only to perform a physiologic function, to which it again retires unless prevented by some pathologic condition or by the ruthless hand of the surgeon.

The fixation of any viscus compromises its circulatory apparatus, both blood and lymph, interferes with its peristalsis, traumatizes its nerve supply, and with how much more force would this apply to a viscus removed entirely from the anatomic region assigned to it by Nature and forcibly detained permanently in a region remote from its anatomic and physiologic home. The conclusions of Thielhaber and others that uncomplicated retrodeviations are not subjects for surgical intervention rules out, without further discussion, Alexander's and all similar operations, as these can only be performed in uncomplicated cases, and, therefore, in those cases only needing no surgical interference whatever.

We may conclude, therefore: 1. That the normal position of the uterus is one of perfect mobility, and that a non-metritic, freely movable uterus may lie in any position in the pelvis without producing symptoms.

2. That when retrodeviation of the uterus is found in any given case of pelvic disturbance, further investigation will reveal complications which have produced symptoms.

3. It is, therefore, the complications which should be subjected to treatment and not the retrodeviation.

Our first question is, therefore, answered. Surgical procedures for the correction of retrodeviations of the uterus are unnecessary.

In regard to the second question: Are they safe surgical procedures? The testimony against these operations I have found so extensive that it will be impossible to give more than a brief summary. As surgical procedures they are all open to the same criticism; the gravity of the operation is out of all proportion to the results obtained. No surgeon can deny that in opening the abdomen there is always a possibility of infecting the peritoneal cavity no matter how rigid the asepsis or how skillful the operator, leaving behind if not fatal sepsis, pelvic exudates which can not fail to leave the patient worse off than when she came into the hands of the surgeon. The Alexander operation, which is, no doubt, of all this class of operations most extensively performed, practically weakens the abdominal wall at its already weakest points and leaves the patient in constant danger of hernia.

Milander[6] collected 54 cases of pregnancy and labor after ventrofixation; 11 of these cases, or 20 per cent., required severe operative delivery. Of Noble's[7] 76 collected cases, 30 per cent. experienced unusually severe labors. W. A. N. Dorland[8] collected 179 cases, in which 111, or nearly two-thirds of the whole number, experienced some uncommon abnormality in gestation or labor, or in both. In 38 per cent. of these cases disturbances occurred as complications of labor. Four cesarean sections and two Porro operations, which ended fatally, were performed on these cases, and in the remaining, other severe and uncommon operative aid was required. Bidone[9] publishes reports of four cases, out of six pregnancies following ventrofixation, of severe complications as the result of the fixation, and goes so far as to advise an abdominal section for the removal of the fixation two months before term in every case. Gradenwitz[10] cites six cases of complications. In two he re-operated some months after the first operation to relieve fixation. In two he operated for enormous hernias. The other two had very difficult labors, requiring instrumental deliveries.

Guerard of Dusseldorf says that fixation of the uterus is an unnatural procedure, and cites several cases where the fixation was excised before the patient recovered from the unpleasant nervous symptoms. Kreutzmann[11] reports that he made a careful study of the results of these operations during two years, and has come to the conclusion that ventrofixation is unphysiologic, unnatural and dangerous. Montgomery[12] has opened the abdomen during pregnancy to cut the band produced by a fixation before the uterus could develop normally. Dr. Edward Ricketts[13] of Cincinnati says: "After ventral suspension the woman takes her life into her own hands, and if she ever becomes pregnant she ought to agree to surgical intervention."

In a recent paper, Frank W. Lynch[14] of Baltimore collected a large number of cases of serious distocia following ventrofixation and suspension, among them 21 cases of cesarean section and ten ruptures of the uterus. A. Palmer Dudley[15] of New York says: Ventrofixation is a pernicious thing, and should never be done, from the obstetrical standpoint. Byron Robinson[16] reports a case seen in consultation with W. E. Holland, of labor at term following ventrofixation performed three years previously. The patient died of shock three hours following the delivery, and postmortem revealed invagination of uterus due to atrophy of the fundus caused by tension of the fixation bands on the fundus.

Reports of cases of ileus following these operations are just beginning to appear, and it is safe to say that there are others which have not found their way into print. Olshausen,[17] Rheul,[18] Jacobs,[19] and A. L Smith[20] each report one case. Rufus B. Hall[21] said he had to deal with three cases, and thinks the operation of ventrosuspension has had its day. Montgomery cites a case where a large portion of the intestine slipped below the band of adhesion immediately following the operation, causing strangulation and death. Similar cases, he says, have been reported by Lindfors, Jacobi, Olshausen and others. Fihling's[22] statistics show a mortality of 5 per cent. after all these operations, and that ventral hernia has followed them more frequently than all other operative procedures.

The operation which ranks next to ventrosuspension and fixation in point of dangerous results is undoubt-

6. Milander: Ztschr. f. Gyn. u. Geb., vol. xxxiii, No. 3.
7. Noble: Jour. Amer. Gyn. and Obst., February, 1896.
8. W. A. N. Dorland: Amer. Jour. of Obst., January, 1897.
9. Bidone: Atti della soc. Ital. di ost egin, 1897.
10. Gradenwitz: Centralbl. f. Gyn., Leipsic, 1903, vol. xxvii.
11. Kreutzmann: Centralbl. f. Gyn., Leipsic, 1903, vol. xxvi.
12. Montgomery: Practical Gynecology, p. 494.
13. Ricketts: THE JOURNAL A. M. A., 1903, vol. xli, No. 20.
14. Lynch: Amer. Jour. of Obst. and Gyn., April, 1904.
15. Dudley: THE JOURNAL A. M. A., 1903, vol. xli, No. 20.
16. Robinson: American Medicine, 1903.
17. Ohlshausen: Zeitschr. f. Geb. u. Gyn., vol. xxxvi, No. 1.
18. Ruehl: Samml. klin. Vortrage, N. F. Nos. 185 and 186.
19. Jacobs: Zeitschr. f. Geb. u. Gyn. vol. xxx, p. 550.
20. A. L. Smith: Amer. Jour. Gyn. and Obst., September, 1897.
21. R. B. Hall: Amer. Jour. Obst., 1896, vol. xxxvi.
22. Fihling: Deutsch. med. Woch., 1896, p. 773.

edly vaginal fixation. The fact that both Mackenrodt[23] and Dührssen[24] have abandoned their methods of vaginal fixation on account of disastrous distocia following, ought to be sufficient to condemn this class of operative procedures; however, there are not lacking statistics. Edebohls[25] says that there were 25 per cent. of abortions in Dührssen's cases and 27 per cent. in his own, and that vesical pain and disturbances of micturition follow in a large per cent. of cases. Strassman[26] reports a case of transverse position, prolapse of funis, difficult version, postpartum hemorrhage; rupture at site of cicatrix and death from intraperitoneal hemorrhage; also one case of impossible delivery *per vaginam,* necessitating a Porro operation. Graefe[27] reports a case of transverse presentation; the cervix was above the pelvic brim and directed upward; cesarean section was necessary. Wertheim[28] reports a difficult and dangerous version made necessary by the same condition. Ruehl[29] reports 235 vaginal fixations performed by himself, with twelve subsequent pregnancies. In three version was necessary; in two bloody incision of cicatrix; in one craniotomy in addition, the second child also being lost. Leo von Lingen[30] goes very thoroughly over the subject of vaginal fixation, and says the operation does not evidently appeal to Russian surgeons, as he has failed to find a single case reported by them. He cites the cases I have already given, and, in addition, cases of disaster reported by Veldi, Donhoff, Urban, Kallmorgan, Dielrich, Fuchs, Pape and Rieck. Among these cases were ten cesarean sections, six resulting fatally, and numerous abortions.

The various methods of shortening the round ligaments can not be classed as dangerous operations. The worst that can be said of them is that they are unnecessary, and have proven failures in a large percentage of cases. They will, therefore, be considered under my third and last question: Have these various operative procedures been successful in a sufficiently large percentage of cases to warrant their continuance?

It would seem hardly necessary to discuss the operations of ventrofixation and suspension from this point of view after the overwhelming testimony condemning them from the obstetrical standpoint. However, statistics are not wanting to prove that not only disasters follow in the train of these procedures, but a small percentage of anatomic failures. The greatest objection indeed, which can be raised against them, is that in a large percentage of cases they are a success orthopedically, as the Germans express it.

The percentage of disasters would be less if the percentage of failures in technic was greater. I have, however, performed five vaginal hysterectomies in cases where a ventrosuspension had been performed, and in only one case was the operation complicated by the previous operation. In one case of double pyosalpinx with dense pelvic adhesions, the fundus of the uterus was so firmly adhered to the abdominal wall that I was obliged to free the uterus through the abdomen before finishing the operation *per vaginam.* In the remaining four, the suspensory bands had elongated and thinned, and were only discovered when the fundus was reached in the course of the operation. In one case the band measured five inches. Edebohls[31] found the cervix protruding from the vulva, in one case where he removed the uterus, while the suspensory ligament was still firmly attached to the fundus.

Knorre[32] gives the following interesting statistics: In 4 only, of 24 cases of vaginal fixation, were the orthopedic and functional results good. In 5 the orthopedic results were good, the functional bad. In 4 cases the uterus was retroverted as before the operation. but the patients reported all the symptoms improved. In 11 of the 24 the operation had failed utterly to correct the retrodeviation, and symptomatically the patients remained the same. An interesting report comes from C. W. Oviatt[33] of Oshkosh. He says he has done Noble's operation for retroversion 23 times. In 20 of these there were complications, such as recurring appendicitis and pelvic tumors and diseased appendages, all of which complications were attended to at the time of fixing the uterus. He states that in three uncomplicated cases of retroversion there has been no improvement in the dysmenorrhea, and little or none in the general conditions.

A most significant report comes from the St. Petersburg clinics. T. Dolbert[34] gives the results in 79 cases where ventrofixation was performed, and concludes with the statement that the fine objective results were not paralleled by the subjective, as these returned in more than a third of all the cases, indicating that the neurosis apparently attributable to the displacements is in reality more or less independent of it. Richard C. Wadsworth[35] reports 22 cases of ventral fixation performed at the Massachusetts General Hospital. Only 23 per cent. of these received symptomatic relief. Theilhaber[36] has examined a large number of cases of hysteropexy, and found that the operation does not diminish leucorrhea or hemorrhage.

The many later and newer methods of shortening the round ligament, many of them necessitating the opening of the abdominal cavity, are the severest criticism which can be made on the Alexander operation. Certainly, with the exception of the danger of subsequent hernia. the Alexander offers the least objections of all the numerous methods, and unless it has been found lamentably wanting, there would be no excuse for the innumerable and more objectionable methods. Kleinwächter[37] says that the Alexander operation is illusive, the retroversion recurs, and that the per cent. of hernia following is too large to warrant the operation. I have examined six cases where the uterus was found in retroposition. In one case there was a double hernia. This operation was performed by one of the most skillful operators of our city, and the result can not be blamed to faulty technic.

A great point is made by the advocates of the round ligament operations that no disasters follow in subsequent pregnancies. There is no reason why pregnancy and labor should not proceed normally in these cases, especially in those where the operation has failed to

23. Mackenrodt: Monatschr. f. Geb. u. Gyn., 1895, vol. ii, p. 35.
24. Dührssen: Ges. f. Geb. u. Gyn. zu Berlin, Oct. 25, 1895.
25. Edebohls: Sec. Obst. and Gyn. N. Y. Acad. Med., Feb. 27, 1896.
26. Strassman: Ges. f. Geb. u. Gyn. zu Berlin, Oct. 25, 1895.
27. Graefe: Monatschr. f. Geb. u. Gyn., vol. ii, No. 6.
28. Wertheim: Centralbl. f. Gyn., 1896, No. 2.
29. Ruehl: Centralbl. f. Gyn., 1896, No. 5.
30. v. Lingen: St. Petersburg. med. Woch., 1902, n. F. xix.
31. Edebohls: Sec. Obst. and Gyn. N. Y. Acad. Med., Feb. 27, 1896.
32. Knorre: Centralbl. f. Gyn., No. 51.
33. Oviatt: THE JOURNAL A. M. A., 1904, vol. xlii, No. 16.
34. T. Dolbert: St. Petersburg. med. Woch., vol. xxviii, No. 20, p. 190.
35. Wadsworth: Harvard Med. School Bulletin, No. 11, March, 1904.
36. Theilhaber: Centralbl. f. Gyn., 1902, vol. xxvi.
37. Kleinwachter: Wein. Med. Presse, 1902, vol. xliii.

change the conditions in the pelvis. Andersch[38] reports 37 cases of vaginal shortening of the round ligament with anterior and posterior colporrhaphy. Of these, 29 were examined subsequently after two or three years. He found good results in 15, and recurrences in 14. Halban[39] reports a large number of round ligament shortening by different methods, and says that there were more anatomic cures than cases where subjective symptoms were relieved, as the latter were not due to the retroposition.

From the statistics cited and the testimony presented by the numerous witnesses quoted in my paper, as well as from the results of my own clinical observations, I feel warranted in answering the questions asked in the negative. Surgical procedures in retrodeviations of the uterus are unnecessary. They are unsafe, and have not proven successful in a sufficiently large percentage of cases to warrant their continuance.

BLOODLESS PERINEAL PROSTATECTOMY UNDER LOCAL ANESTHESIA.

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ITHACA, N. Y.

The problem of prostatic hypertrophy, even with the many resources recently introduced and developed, still offers in certain cases many difficulties in its solution. Patients are practically always of advanced age, weakened through pain and loss of sleep for months, and are very unfavorable subjects for any anesthetic or any form of treatment. Catheterization is often difficult and even when easy it is almost impossible to teach the average patient the details of aseptic catheter technic, and to impress him with the importance of its careful observance. Comparatively few patients survive catheter life for many years, and the development of more or less severe cystitis, with its dangers and discomforts, is the rule. Even if the patient gets on with the catheter with comparative comfort, it is not difficult to understand how irksome it must be to depend on the catheter constantly. The Bottini operation has not been without a high death rate, even in the hands of the most experienced and successful of its advocates; it is sometimes followed by incontinence of urine and not unfrequently fails to give relief. Even if its disadvantages were less, the idea of burning a channel through the tissues blindly, with all the possibilities of infiltration of urine, does not appeal to one as a very desirable surgical procedure.

Prostatectomy, when carefully performed, is generally recognized to be the ideal procedure; it gives perfect and permanent relief, and a condition nearer the normal than can be attained in any other way. The dangers of the operation are from the general anesthesia in old and weakened patients and the loss of blood. Before the operation was perfected, as it has been recently, the loss of blood was undoubtedly a factor greatly to be dreaded, but through the introduction of various forms of prostatic tractors it has been possible to greatly reduce the depth of the perineal wound and to make the control of hemorrhage much easier. Of these various forms of tractors devised by Syms, Murphy, Ferguson, Bryson and Young, it has seemed to me that Young's instrument has some advantages. But even with the almost perfect control of hemorrhage the administration of general anesthesia to these greatly weakened, old men is a dangerous matter, and for some months I have been considering the possibility of performing prostatectomy under local anesthesia and devising the means for this purpose. In the weakened and most run-down of my patients I have employed permanent suprapubic drainage of the bladder to save the life of men too much weakened to undergo the more serious operation. This operation can be done in a very few minutes under eucain, and, I believe, is the safest of all procedures. But for men not in absolutely desperate condition I believe that prostatectomy under local anesthesia is an operation which can be performed, as a rule, quite as safely as the Bottini operation and with only the slightest risk as compared with the operation under general anesthesia. Spinal anesthesia has been used by some surgeons in these cases, but even its most enthusiastic advocates are forced to admit that the death rate, reported from many sources, shows it to be unsafe in the hands of the average man. No series of a thousand cases or over without one or more deaths has been reported, while many careful men have lost larger numbers out of a hundred or less spinal anesthesias. General anesthetics, even when carelessly used by untrained men, have not given such a mortality, and this has led nearly all those who adopted spinal anesthesia a few years ago to abandon its routine use. On the other hand, I am not aware that a single death has ever been reported from among the many thousands of cases in which the infiltration of weak solutions of anesthetic drugs has been used. As a local anesthetic, I have been using recently a solution of beta eucain, 1 to 500, with an addition of adrenalin chlorid to make 1 to 120,000, or, in cases where large quantities of fluid are used for infiltration, even weaker solutions. The addition of adrenalin chlorid, by constricting the capillary vessels, arrests even the oozing and makes the operation an almost bloodless one. In these cases I believe that the saving of even this small amount of blood may make the difference between life and death for some of our patients. The eucain is estimated to be five times less poisonous than cocain, and in over one hundred major operations in which I have used it I have never seen symptoms of poisoning from the drug. The use of adrenalin has additional advantages besides saving blood; it prevents the absorption of the anesthetic drug and, by rendering the part bloodless, it also greatly prolongs and adds to the efficiency of the anesthesia; it prevents the congestion and pain after the operation, which is sometimes seen with the use of ordinary Schleich's solution and, from its action on the general circulation, Crile has shown it to be one of our best circulatory stimulants.

In the use of local anesthesia a most thorough knowledge of the anatomy of the parts is desirable. Through the kindness of Prof. Abram T. Kerr, I have had the privilege of examining a number of dissections of the region of the perineum and prostate in the Cornell University Medical College anatomic laboratory, and I wish to acknowledge the value of this privilege and the helpful suggestions from Dr. Kerr in working out the steps of the operation.

DISTRIBUTION OF NERVES.

An accurate knowledge of the location of the nerves supplying the skin and deeper structures of the perineum and a thorough anesthetization of these nerves at the start is the key to the whole situation, in performing a painless prostatectomy under local anesthesia. Examination of a dissection of the perineum shows numer-

38. Andersch: Arch. f. Gyn., Berlin, 1902, vol. lxv, p. 217.
39. Halban: Mon. f. Geb. u. Gyn., January, 1900.

ous nerve branches ramifying in various directions, and at first sight the nerve supply of the perineum seems very complicated. Following these smaller branches back to their main trunks, we see that it is comparatively simple, for the entire nerve supply of this region comes from two main trunks, the pudic nerve, which is formed chiefly from the third cord of the sacral plexus, but also receives communicating branches from the second and fourth sacral nerves, and the long pudendal nerve, which is a branch of the smaller sciatic nerve. References to these nerves in different text-books and atlases of anatomy show differences of opinion as to exact position, but the latest and most accurate authorities are agreed, in the main, as to the location of the nerves of the perineum. In the dissecting room I have found considerable variation in these nerves. But whether the nerves supplying the different parts of the perineum come from two main trunks or from several branches it will be found practically always the case that these nerves take their origin from the main stem or stems, which lie very close to the base of the tuberosity of the ischium. The depth from the surface varies slightly, but it can be estimated quite accurately, within a limit of half an inch, I believe, and this is not too wide a range of error to interfere with thorough anesthetization of the main nerve trunks. The perineal branches of the pudic nerve are by far the most important of these perineal nerves. Superficial fibers run more or less nearly parallel to the transversus perinei muscle. Other small fibers run obliquely forward to the region of the front of the anus, while anterior fibers run to the region of the base of the scrotum and the bulb. The pudendal nerve supplies only the outer region of the perineum and the region far forward, near the base of the scrotum.

METHOD OF ANESTHETIZING MAIN TRUNKS OF PERINEAL NERVES.

After the usual antiseptic preparations, the first step of the local anesthesia operation is the infiltration of the main trunks from which these various nerve branches take their origin. Taking the tuberosity of the ischium as a landmark, the needle of the infiltrating syringe is inserted in the skin about one inch in front and internal to the tuberosity. It is not necessary to infiltrate a large area in this region and the weaker solution of eucain, 1 to 500, with adrenalin, 1 to 120,000, is used to infiltrate the skin and outer layers. Injecting small quantities of fluid before the needle as it is pushed forward, the point of the needle is carried downward and outward toward the front of the base of the tuberosity of the ischium. The superficial tissues are thus thoroughly infiltrated and the needle is pushed forward until it comes in contact with the bone. From 30 to 60 minims of a stronger solution, 0.5 per cent. eucain with adrenalin, are then injected at a depth of from one to two inches, varying with the thickness of fat and muscle in the region of the ischiorecta fossa in front of the tuberosity of the ischium. Experimental injection of a fluid containing coloring matter into muscles or fat and loose cellular tissues, such as is found in the ischiorectal fossa, will demonstrate very conclusively to anyone interested enough to try it how wide an area around the point of the needle is affected by the solution. Thirty minims of the 0.5 per cent. solution is soon so diffused through the tissues that it affects an area from 1½ inches to 2 inches in diameter and is almost certain to thoroughly anesthetize the main trunks of the perineal nerves. In order to make absolutely sure that the patient suffers no pain during the division of the tissues, the skin in the medium line of the perineum or in the direction of whatever line of incision may be considered desirable, is thoroughly infiltrated with the weak solution, 1 to 500 eucain with adrenalin 1 to 120,000. The influence of the adrenalin in preventing absorption of the anesthetic drug and the very weak solution used makes it possible to employ large quantities of solution without any poisonous symptoms. Adrenalin solution also effectually prevents oozing from small blood vessels, and, with a little care in controlling the larger blood vessels, the loss of blood can be reduced to the minimum. I doubt if in my first operation over a tablespoonful of blood was lost throughout the entire operation.

TECHNIC OF OPERATION.

After infiltrating the main nerve trunks and injecting a large quantity of the weak solution in the region of the proposed incision, a sound is introduced into the bladder and partially withdrawn so that the tip remains in the prostatic urethra. The time taken to thoroughly irrigate the urethra and insert the sound gives the eucain solution time to take effect. It is desirable not to begin the incision too soon after infiltration, for it should be remembered that it takes the solution from three to five minutes to thoroughly numb the parts. After the introduction of the sound, the operator should change his operating gloves. He is then ready to make the skin incision.[1]

I am sure that the testimony of my patient, a judge in a neighboring state, will be accepted as trustworthy. In speaking of the operation, he has repeatedly expressed wonder and satisfaction that throughout the steps of the operation, from the time that the needle was introduced, he felt absolutely no pain. The operation proceeded without any delay because of sensitiveness of the parts which were being divided. As the deeper tissues were exposed, the infiltration of the weak solution was carried deeper into the wound. In opening the prostatic urethra and inserting the tractor, slight discomfort was complained of, but this was only transient. The firm traction, which is possible with the use of Young's instrument, absolutely controls hemorrhage from the deeper vessels and they are brought so near to the surface they can be readily secured before they are divided. Exposure of the anterior part of the capsule and enucleation along the sides is carried out in an area that can be thoroughly infiltrated. The deeper enucleation, a matter of but a few minutes, has to be performed in a region which can not be reached satisfactorily with the infiltrating solution. This region of the neck of the bladder and the prostate itself, is supplied by the hypogastric plexus of the sympathetic nerves, and the discomfort of enucleation is not great. In many cases I believe it would be possible to complete the entire operation under local anesthesia. In the cases of extremely nervous or sensitive patients it will be found wise to use a little nitrous oxid gas or primary ether anesthesia. This part of the operation need not consume five minutes' time and is a matter of far less importance in these cases than the use of general anesthesia throughout the entire operation, which can not be performed in much less than one-half hour at the best.

ILLUSTRATIVE CASE.

The following is the history of a case in which the local anesthesia method was employed with great satisfaction to the patient and to me. When the patient's

1. In the further steps of the operation I follow in almost all details the method described by Young in THE JOURNAL A. M. A., Oct. 26, 1903.

condition before the operation is considered, it does not seem too much to say that the use of local anesthesia was the means of saving his life.

Patient.—The patient was an extremely emaciated man, who had been suffering from bladder trouble for over ten years.

History.—For the past three years the difficulty in urination has been very great. During a year previous to the operation, the patient had not been able to retain his urine longer than an hour at any time, and, for the most part, he has been up every hour during the night for months past. He had lost over thirty pounds in weight, and was so weak that he was scarcely able to be about. The pain and constant loss of sleep greatly interfered with his digestion. He had scarcely any appetite; his stomach at times was unable to retain even the most simple food. The prostatic enlargement considerably interfered with movements of the bowels.

Examination.—When first seen, his bladder was distended to the level of the umbilicus, and, on catheterization, 1,250 c.c. of urine was withdrawn. Both the soft and metallic catheter passed readily. The urine had a very foul odor; was pale in color; specific gravity, 1,005. Heavy ring of albumin; no sugar. On microscopic examination, it was found to be filled with pus, numerous triple phosphate crystals, a few red blood cells. No casts were seen. On rectal examination, the prostate was felt as a rounded mass, the size of a medium-sized orange; by pressure it almost closed the rectum and was tender on rectal examination.

Preparatory Treatment.—Three days before the operation, a permanent catheter was fastened in the bladder, but the patient found it so disagreeable that it was discontinued. He was impatient with the idea of palliative treatment by drainage, and arrangements were made for operation. During the time before the operation he was catheterized twice daily, and his bladder was irrigated with boric acid solution. Under this treatment, the blood disappeared from his urine and the amount of pus was greatly reduced. The patient slept somewhat better, although, of course, he was obliged to be up nearly every hour during the night. On the morning of the operation, the bladder was irrigated on the operating table and a small amount of solution was left in the bladder.

Operation.—April 14, 1904. Anesthetic, eucain, 1 to 500; adrenalin, 1 to 120,000. The patient was placed in the lithotomy position, and the parts were anesthetized as above described. An incision was made in the median line, exposing the membranous portion of the urethra. The field of operation was rendered practically bloodless by the use of the adrenalin solution. The few vessels from which there was bleeding were secured without difficulty, and a perfectly dry, clean dissection was possible. A sound was passed into the bladder and on this the urethra was opened. The urethra was secured on either side by stay sutures of heavy linen and was held open while Young's prostatic tractor was inserted into the bladder. This was accomplished without any difficulty. Moderate traction was possible after the instrument was in place without causing discomfort, but firm traction caused considerable pain. The dissection was then continued until the capsule of the prostate was opened. The capsule was dissected off by blunt dissection, well down to the side of both the right and left lobes. A little extra fluid was infiltrated along the sides of the capsule. Up to this time the patient did not complain of pain from the operation itself, but said he suffered more discomfort from his cramped position on the table. It was evident, however, that it would be impossible to make firm traction on the prostate so as to bring it well down to complete the enucleation without causing a good deal of pain, hence primary ether was administered by Dr. Sanders. Only a small amount of ether was used, and the patient took it quietly, without change of the lithotomy position. The wound was covered with wet bichlorid towels and all instruments were taken off before the ether was begun, but the patient did not struggle at all, and this was really an unnecessary precaution. Enucleation of the deeper part of the gland was without special difficulty, but Young's lobe forceps were found of service in grasping it and drawing it down into the wound. The right lobe was enucleated first, then the left lobe was attacked, and finally the middle lobe, which was not very greatly enlarged, was also enucleated. The duration of anesthesia for enucleation of the deeper parts of the gland did not exceed ten minutes, and in another operation, with the experience of this one, it would be perfectly possible to remove the gland in five minutes or less of general anesthesia. A glass and a rubber drainage tube were inserted, the glass tube entering the bladder and the rubber tube being carried into the large cavity left between the rectum and the neck of the bladder. The hemorrhage during enucleation was insignificant; it is doubtful if a tablespoonful of blood was lost. The cavity was packed with iodoform gauze strips, and the perineal opening was partially closed with catgut sutures. While on the carriage and after cleaning up the skin, an infusion needle was inserted beneath the pectoral muscle on the right side and 1,150 c.c. of warm normal saline solution were run in. The fluid was quite readily absorbed. On the operating table, the patient had one-thirtieth of strychnin, with a preliminary dose of morphin, gr. 1/6, and after being put to bed, a second hypodermic injection of one-fortieth of strychnin was administered. The pulse was very good, though it showed some shock, and hence a hypodermic of one-thirtieth of digitalin was given after the strychnin. The pulse soon improved, and was better than before beginning the operation. Urine drained freely from the perineal incision after the operation, but, in spite of this, the patient remained in a rather comatose condition well into the evening, and it was feared that uremia was developing. Infusions of salt solution were used freely and were rapidly absorbed. In all, five infusions were given, 1,000 c.c. being used at each time except the first infusion. The patient's condition steadily improved during the day of the fifteenth. Urine drained profusely from the perineal wound, rapidly saturating pads. The patient retained liquid nourishment from the start without difficulty; no nausea or vomiting at any time. The quantities of nourishment were very rapidly increased and solid food was soon added. In addition to three hearty meals a day, the patient took large quantities of liquid nourishment at intervals between his regular meals. The albumin of not less than two dozen eggs was given him daily. The extra nourishment was given him for over four weeks, and, whereas before the operation the patient had found great difficulty in digesting even simple food, he was soon able to take very hearty meals with great relish and without the slightest trouble from indigestion. The urine drained freely from the wound and with the complete relief from pain, the patient showed very rapid improvement.

Result.—Six weeks after operation he was in excellent general condition, still taking large quantities of nourishment, gaining rapidly in weight and strength, and passing urine through the urethra.*

At the time of writing, over four months after the operation, the patient is apparently in perfect general health; he walks five miles with ease, has gained over 30 pounds, looks and says he feels like a new man. With the exception of a pin-point opening, from which occasionally a few drops of urine escape, sometimes at intervals of several days, the large perineal wound is perfectly healed.

In this case I believe that the operation under local anesthesia made it possible to save a life. Operation had been considered inadvisable by surgeons of repute in a neighboring large city. The use of large quantities of

*As this paper goes to press a second patient is recovering from local anesthesia prostatectomy. He also was in extremely bad general condition; unable to void any urine without a catheter, bladder distended above umbilicus when first seen, greatly reduced in flesh and strength. A number of visiting physicians are ready to testify as to the freedom from suffering of the patient under the local anesthesia. Patient doing well five days after operation.

salt solution subcutaneously to stimulate the action of the kidneys is a matter of great importance, which has been previously emphasized by others. In the further after-treatment, the use of tonics and of large quantities of nourishing food are the main points to be remembered.

In conclusion, I would say that for the surgeon who does not consider his own time and trouble a matter of greater importance than the life which the patient entrusts to his care, the local anesthesia operation offers a means of greatly reducing the dangers of prostatectomy in critical cases.

Special Article.

IMMUNITY.

CHAPTER III.

GENERAL CONSIDERATIONS.

Definition.

By immunity we understand that phenomenon in which an individual or a whole class of animals exhibits such resistance to an infection as to withstand it, while under the same conditions another individual or another class of animals may yield to it. Immune is from the Latin *immunis*, which meant exempt from a public service, exempt from tribute, or free. Although the word retained this civil meaning for centuries, and still retains it in certain connections, it also had in ancient times a limited application to the protection which an individual might possess against poisons. It is seen, for example, in descriptions of the Psylli, a tribe inhabiting Northern Africa, which possessed a natural immunity to the bites of poisonous snakes. Although the fact of immunity was known in very ancient times, the present significance of the term has developed largely from a better understanding of the nature of infectious diseases and of the resistance of the body against them.

Diseases Concerned in Immunity.

As the definition of immunity suggests, we do not think of immunity to such processes as Bright's disease, arteriosclerosis or the metabolic diseases, but only those which we have learned to recognize as infectious.

Immunity to an infectious disease has no necessary relationship to the degree of its contagiousness, although some of the most striking and certainly the most common examples of immunity follow some of the contagious diseases (as scarlet fever and smallpox). Tetanus, on the other hand, which is absolutely non-contagious, can equally give rise to a high degree of immunity.

Acquired Immunity.

No medical fact is more widely known among intelligent people than that an attack of certain of our infectious diseases brings about some kind of change in the patient's tissues which protects him, or renders him immune, against further attacks of the same disease. Inasmuch as he was previously susceptible, the new property is an acquired one, and he is now said to possess an acquired immunity against this disease.

Natural Immunity.

It is also well known that many diseases which attack man can not be inoculated into the lower animals, and biologists are familiar with many other examples of immunity which are confined to a species. The lower animals apparently can not be infected with scarlet fever or measles, nor man with chicken cholera. The negro is less susceptible to yellow fever than the white man. The resistance which these examples illustrate has occurred naturally, not through having the disease; it is a natural immunity.

Family Susceptibility and Immunity.

Natural immunity is for the most part an inherited condition; this certainly is the case where a whole class of animals is involved. Similarly, the susceptibility which is peculiar to a species must be hereditary. It is often said of some diseases that they run in families; e. g., carcinoma, gout, insanity. This appears to be just as true of some infectious diseases, the most noteworthy example of which is probably tuberculosis. In contrast to this inherited susceptibility is an inherited immunity, which may also run in families. It is not so easy to adduce examples of this. We are in the habit of thinking of the individual who can resist all infections as representing a standard. He, however, is above the average in resistance, and the average is our proper standard for estimating the resistance of a species or race of animals. It is undoubtedly true that some families possess an unusual resistance to tuberculosis. Furthermore, experimental work with animals has proved that, within limits, an immunity to certain infections (e. g., tetanus) acquired by a female may be transmitted to her offspring. Even in a given family, however, there are often marked variations in susceptibility and resistance. One child may contract scarlet fever, while his brother, living under exactly the same conditions, may escape it. There is, moreover, much reason to believe that the same individual varies greatly in his resistance at different times and under different conditions. Hence, the personal equation, as shown by individual immunity or individual susceptibility, is of no small consequence.

The facts mentioned were familiar long before anything was known regarding the principles on which they depend. Subsequent to the discovery of some of these principles (to be considered later), it became convenient and necessary to recognize other special types of immunity, although any type which can be conceived must still find a place under either natural or acquired immunity.

Antibacterial and Antitoxic Immunity.

It seems certain that such diseases as typhoid and cholera can occur only when the microbes themselves are present in characteristic localities. Although these diseases are accompanied by pronounced toxic symptoms, the poisonous substances seem to be integrally associated with the bacterial protoplasm and not secreted in a soluble or diffusible form. Observations point to the belief that their toxins are liberated only after the bacteria are killed and dissolved. Hence cholera, typhoid and many other diseases which resemble them in this respect, are in a peculiar sense bacterial diseases. On the other hand, the symptoms which are so characteristic of tetanus are produced not by contact of the bacteria with the nervous system, but through the poison secreted by the tetanus bacilli in the wound where they reside. This poison, or toxin, goes into solution and is carried from the wound to the nervous system. Therefore, although tetanus is a bacterial disease, it is at the same time and in a peculiar sense a toxic disease. Bacteria which conduct themselves like the organisms of typhoid and cholera are said to possess intracellular toxins. Now experiments show that the serum of an animal which has an immunity against typhoid or cholera infection is able to kill the respective bacterium, but apparently is not able to neutralize the toxic substance in the bacterium. Hence, immunity to such diseases is spoken of as antibacterial.

On the other hand, the serum of an animal which is immune to diphtheria or tetanus, diseases caused by the soluble, extracellular microbic toxins, will neutralize these toxins without having any necessarily injurious action on the bacteria themselves. That is to say, the immunity is antitoxic. Experience has shown that this distinction between antibacterial and antitoxic immunity is an important one, and the differentiation seems to be a very sharp one. As a good illustration of its importance, we may say that no one has ever obtained a successful antitoxin for typhoid by the immunization of animals, the resultant serum being antibacterial rather than antitoxic. It is obvious that natural immunity may be in one case antibacterial and in another antitoxic; and the same is true of acquired immunity.

Immunity which is acquired as a result of an infection depends on a specific reaction on the part of the tissue cells in response to the chemical injury produced by the bacteria or their toxins. In view of the active part played by the body in establishing this new resistance, the condition is referred to as an active immunity. In the preparation of our various antitoxic and antibacterial sera for commercial purposes, a condition of active immunity is deliberately produced in the animals (the horse, for example,) by the injection of the toxins or of the bacteria.

Active Immunity.

Contrariwise, the resistance which is established in an individual through the injection of an immune serum (such as diphtheria antitoxin) is a passive immunity, since it depends on the introduction of ready-made immunizing substances rather than on their production through an active process on the part of the one injected. Active and passive immunity, then, are varieties of acquired immunity. Depending on the disease which caused the immunity, or on the character of the serum injected, they may be either antibacterial or antitoxic.

Passive Immunity.

Any one of the types mentioned may be either relative or absolute; synonyms are partial and complete. If absolute, infection is impossible. If only relative, different conditions may be made to prevail which would render infection possible; for example, a large number of bacteria will often cause an infection where a smaller number fails to do so. There may also be a temporary decrease in one's resistance through overwork, hunger or exposure. Immunity is usually relative.

Relative and Absolute Immunity.

By proper combinations of the terms which have been enumerated, one may describe somewhat accurately the different forms of immunity. Thus, a child which has received a prophylactic injection of diphtheria antitoxin is in a state of acquired passive antitoxic immunity to diphtheria. If immunity to typhoid has developed as a result of the disease, the condition is that of an acquired active antibacterial immunity, etc. Accordingly, although the terms may be somewhat confusing, it is seen that they are in no sense contradictory.

Classification of Types.

In tabular form, the different types may be placed as follows:

IMMUNITY.	Natural.	Antibacterial or Antitoxic.
	The inherited immunity of species and varieties of animals.	
	Inherited family or individual immunity.	
	Acquired.	
	Active.	
	Passive.	

In many of these conditions proper biologic experiments will demonstrate the presence of the antibacterial or antitoxic substance in the serum of the animal which possesses the immunity. The technic of such experiments will be illustrated later.

There is another kind of acquired resistance which properly may be mentioned here. It is a well-known fact that one may gradually accustom himself to enormous doses of morphin, arsenic, alcohol and some other drugs. *A priori*, it would seem that this condition of resistance should be analogous to that which is present in antitoxic immunity. But, on the contrary, the serum of a morphin or alcohol habitué has no power of neutralizing the effects of morphin or alcohol. The conditions on which this resistance depends are not understood.

Drug Habituation.

CHAPTER IV.

HISTORY AND DEVELOPMENT.

The conception of the nature of immunity which was current at one period or another of history had some relationship to the conception of the etiology of diseases at those times. It will be remembered that at one time diseases were supposed to be imposed by an angry deity, and to avert them various mysticisms were resorted to, such as the utterance of incantations and the wearing of talismans. On the other hand, a more logical attempt to explain the natural immunity of the Psylli against snake poison was made by Pliny, who suggested that it might be due to their habit of drinking water from wells in which poisonous snakes dwelt. This is not unlike our present conception of active immunization.

Early Times and Practices.

Von Behring quotes literature to show that among some primitive races of to-day, artificial immunization is carried on; a Mozambique tribe is said to inoculate against snake poison by rubbing into a small cutaneous incision a paste which contains venom. Probably non-fatal quantities are introduced in this way, resulting in the formation of venom antitoxin, a method comparable to that used in the production of diphtheria antitoxin.

A type of immunity which we call drug habituation early became known. We learn that Mithridates by taking gradually increasing doses of poisons established in himself resistance of this sort. It is stated also that he fed ducks with poisons and then proposed to use their blood as an antidote (serumtherapy). The importance of antidotes in the minds of the ancients may be appreciated from the fact that epidemic diseases, such as plague, cholera and smallpox, were at one time considered as due to unknown poisons, which might be comparable in nature to some known poisons, as aconite. Mercury for syphilis, quinin for malaria, and salicylic acid for rheumatism would certainly have fallen into the category of antidotes, and mercury may have been so considered.

A historic illustration of the treatment of disease on an etiologic basis is found in a theory which was prevalent in the seventeenth century, according to which diseases were either acid or basic in character, and hence should be treated, the one with an alkali, the other with an acid. Sylvius considered plague to be of acid nature and administered alkalies, while Etmüller took the opposite view.

Manifestly, rational treatment and prophylaxis of the infectious diseases could not be undertaken until their etiology was correctly understood. Yet here, as has so often happened in medicine, empiricism preceded rationalism. For example, protective inoculation did not become a principle until the time of Pasteur, yet it had been practiced against smallpox for centuries, and the method put on its present basis by Jenner long before there was a clear idea as to the *modus operandi* of the protection which resulted.

(To be continued.)

Football.—Prof. Burt G. Wilder, of Cornell University, who opposes intercollegiate football games and favors intracollegiate football, said. Some day the national sense of humor will vie with mortification over the record that our universities were once known most widely through the prowess and mishaps of a few score football champions. For the most part those men were intended by Nature and environment for simple and useful lives as students and citizens. They were endowed with the strength and activity that daily moderate exercise would maintain as the most perfect basis for mental work. Yet they were persuaded that the honor of the university called on them to be excused from constant attendance and regular duties as if in the public service; fed at double rates; trained to the verge of "staleness"; portrayed more often than college presidents; wagered on like race horses; bathed and rubbed like cripples; attended by surgeons like duelists; nay, if experts are to be credited, occasionally disabled by methods as unfair and cowardly as those of the savage and the assassin. The university that shall first restrict football to its own members and grounds and abolish gate receipts, may lose some income and a few nominal students; but posterity will award it honor higher than for any other corporate achievement.—*Am. Medicine.*

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REGENERATION OF PERIPHERAL NERVES.

It is not so very long since it was generally believed that the series of events that occurred in a peripheral nerve after it had been divided were fairly well understood and established. It was generally taught that the axis cylinder in the peripheral part rapidly underwent degeneration throughout its entire length, while the peripheral end, because it was still connected with the nerve cells of which it formed a part, degenerated but little, as far as the nearest node of Ranvier. Regeneration, it was believed, must come entirely from the central portion, for here alone was the axis cylinder still in continuity with its cell. All of the new-formed axis cylinders in the peripheral portion of the injured nerve were believed to have been entirely derived from the central portion, which pushed its way down along the old nerve sheaths that were left after the degenerated peripheral fibers had been absorbed. Continued investigations have failed to establish the accuracy of this comparatively simple conception, and have tended rather to confuse the picture. Hence an exhaustive review of the literature on this important subject, recently published by Schütte,[1] and the conclusions reached therefrom, are of considerable interest.

It seems to be fully established, in the first place, that the peripheral segment of a divided nerve degenerates completely, and that healing of the nerve by primary union of the cut ends does not occur, no matter how clean cut the incision and how perfect the apposition. The physiologic or functional degeneration precedes the appearance of demonstrable anatomic degeneration. Both sensory and motor fibers degenerate; the sensory fibers probably the more rapidly. The dogma that the degeneration of the axis cylinders in the central end is limited by the nearest node of Ranvier is evidently unwarranted, for degeneration as far as from the third to the sixth nodes is usual, and not infrequently single fibers degenerate for long distances toward the center, although surrounded by other intact fibers. If the nerve end becomes infected the ascending degeneration may be very extensive. The degeneration first begins in the axis-cylinder fibers, the myelin sheath degenerating secondarily, and the process extends from the point of division toward the periphery, but regeneration begins long before the completion of the retrogressive changes. One of the most important points still seems unsettled, namely: Why does the degeneration occur, and why so much more in the peripheral than in the central portion? The dependence of the degeneration on separation from a trophic center, an idea formerly held almost universally, seems now far from established; Schütte, indeed, regards the evidence, on the whole, as opposed to this theory, and pointing rather toward the trauma as the sole cause of the degeneration. Not all will agree with this conclusion, however. It certainly does not satisfactorily explain the relative escape of the central portion.

The following experiment may be cited, on the other hand, as weighty evidence against the trophic-center idea: If a nerve is divided and the ends separated completely, regeneration of the peripheral end will eventually occur, independently of connection with the ganglion cells of the cord; now, if this regenerated peripheral portion be divided, complete degeneration of the lower segment will again occur, but in the upper segment the degeneration will be limited to the few lowest segments, exactly as in a nerve that is still in contact with the cord. An explanation for this process is still wanting, but it strongly recalls similar phenomena seen in regeneration in some of the lower forms of animal life, such as the hydroidea, and attributed to a phenomenon of "polarization."

Also the conception that regeneration of peripheral nerves is accomplished by an outgrowth of the axis cylinder of the central end, which follows the old nerve sheath as a path, has met with many opponents who seem to have succeeded in establishing the theory that nerve fibrils can regenerate in sections of nerves entirely separated from the ganglion cells. These new fibers are developed from the cells of the sheath of Schwann in numerous separate segments which later fuse to form the fibers. In young animals, at least, these fibers may become medullated to some extent, and, perhaps, capable of transmitting stimuli along their course, but it is possible that they may later spontaneously degenerate again. In other words, true nerve fibers can be developed from the cells of the nerve sheath, independently of connection with the ganglion cells. On the other hand, it has been shown that this regeneration is much slower, is incomplete, and perhaps is not permanent, as contrasted with the more nearly perfect regeneration possible when peripheral and central ends are well united. How the connection of central and peripheral ends modifies the rate and results of regeneration is still unknown, and the idea of a "trophic center" is not easily downed. Of course, for establishment of functional results, such union is absolutely essential, but it may well be that time intervening between the traumatic division of a nerve and its reunion by operative measures is not entirely lost, for in the separated peripheral portion nerve fibers may be forming ready to develop rapidly to functional serviceability when the gap in the nerve is finally bridged. It is

1. Cent. f. allgemeine Pathologie, 1904, vol. xv, p. 917.

also apparent that regeneration will be more nearly complete the sooner and more accurately the divided ends are united.

THE RED-LIGHT TREATMENT OF SMALLPOX.

In 1893 Finsen came forward with the proposition to place smallpox patients in rooms from which the chemical rays of light are rigidly excluded by means of red glass, red curtains, etc. He claimed that if the patient during the appearance and the growth of the exanthem is protected from the chemical rays, then the exanthem will be less pronounced than otherwise and suppuration with its attendant dangers largely avoided. This is Finsen's red-light treatment of smallpox. Without entering into any discussion of the physics of light involved in the method, let it suffice to say that Finsen was led to advocate the treatment from the following considerations: Chemical rays are irritating to normal skin, and hence, in all probability, they serve to increase the inflammatory processes set up in the skin in the course of variola. He presented considerable evidence from various sources that tends strongly to show that, under certain conditions, the red-light treatment, conscientiously carried out, actually does abort pustulation, and lessens or prevents secondary fever and scarring.[1]

In spite of the interest that this mode of treatment naturally awakened, in reality, so far, it has received only superficial consideration outside the Scandinavian countries, with the possible exception of one or two observers in France. Especially is this true of our own country and of England, notwithstanding that it is from these countries that what purports to be the most destructive criticisms of the treatment have come. It is in order to call attention to the lack in this country of adequate, unprejudiced trial of the red-light treatment, under rigidly controlled conditions, that we here discuss the subject.

Our therapeutic helplessness in smallpox does not warrant that promising departures along new lines be abandoned without decisive investigation. Schamberg[2] condemns the method unreservedly after its failure in two cases, which Finsen[3] subsequently pointed out were put under red light too late in the course of the disease, namely, after the fifth day. Schamberg's cases were placed in red light on the seventh day. Furthermore, there is no evidence in Schamberg's article that the chemical rays were completely and continuously shut out; at all events, we are not told by what means, if any, their exclusion was demonstrated definitely. Years ago Finsen insisted that "smallpox patients must be protected from the chemical rays with as much care as the photographer uses for his plates and paper." In his answer to Finsen, Schamberg[4] endeavors to show that because variola in the negro leads to just as severe pitting as in white persons in spite of the pigmentation, which in the negro would offer a complete barrier against the chemical rays, these rays can have nothing to do with pustulation.

It does not necessarily follow, however, that because the pigment normally protects against the chemical rays it must do so also in variola; for all we know, the pigment-carrying cells may be destroyed and displaced as the vesicles develop. Better to try the red light conscientiously in suitable cases of variola in black as well as in white before reaching definitive conclusions in roundabout ways beset with pitfalls. Still more recently, Schamberg[5] again discusses the red light, the passing of which he now regards as settled because of the unfavorable results obtained by Nelson A. Brayton,[6] and Ricketts and Byles.[7] But the reports of these men appear to suffer from the same inherent defects as already noted in Schamberg's. Brayton's report is silent as to the period in the disease when the patients were placed in red light, silent as to how long the treatment was continued, silent, too, as to the methods by which he demonstrated that the chemical rays were wholly and continuously excluded. How, then, can any one know from this article that the red-light treatment was given adequate trial? Ricketts and Byles' thirteen cases, as pointed out by Finsen[8] himself, were placed in red light on or after the fifth day, except one, which was so treated from the fourth day. Finsen's original statement in regard to this important point reads: "When the patients come under treatment early enough, before the fourth or fifth day of the disease, suppuration of the vesicles, even in unvaccinated persons and in confluent smallpox, will be avoided with one exception out of about 70." Further, "should the patient come under treatment after the fifth day of the disease it is uncertain whether the suppuration can be avoided; sometimes this is the case, sometimes not." It would seem that the experiments of Schamberg, of Brayton, and of Ricketts and Byles can not be given much weight in deciding on the merits of Finsen's red-light treatment of smallpox because these observers failed to recognize the limitations, and to show that they fufilled all the requirements established by Finsen, and insisted on by him. The conditions to be fulfilled are simple enough: 1. The patient must come under treatment early—before the fourth or fifth day—and must remain, without interruption, under treatment until the vesicles have dried up. 2. The chemical rays of light must be shut out absolutely, photographic plates or sensitized paper being used for test; if these show influence of white light, the technic is imperfect somewhere. In view of the simplicity of the conditions and of the general prevalence of smallpox in our large cities, it is hoped that

1. Finsen's Phototherapy, Sequeira's English translation, 1901, contains the details.
2. THE JOURNAL, May 2, 1903.
3. Ibid., Nov. 14, 1903.
4. Ibid., Nov. 21, 1903.
5. Ibid., Nov. 26, 1904.
6. Ibid., July 25, 1904.
7. The Lancet, July 30, 1904.
8. Ibid., Nov. 5, 1904.

the red light may soon be given adequate trial on a large scale, so that its real merits may be determined more definitely. Finally, it may be well to emphasize again that it is not now here claimed that red light prevents suppuration even when used as outlined by Finsen, but it is claimed that, so far, in this country, the treatment has not received such trial that we are in position to say that Finsen was wholly deceived as to its value under the restrictions by him outlined. In justice to smallpox patients, new investigations should be instituted.

ANEMIA IN PORTO RICO.

In February, 1904, the legislative assembly of Porto Rico authorized the governor to take steps to encourage the study and cure of "tropical anemia" in Porto Rico. For this commendable purpose $5,000 was appropriated. A commission was appointed, composed of Bailey K. Ashford, captain, assistant suregon, U. S. Army, who really was the first to show that the tropical anemia in this island is due to hookworm; W. W. King, passed assistant surgeon, U. S. Public Health and Marine-Hospital Service; and Dr. P. G. Igaravidez, health officer of Bayamon, Porto Rico. A tent hospital was erected at Bayamon near San Juan in which treatment was begun in March last year and continued until April 30, when no less than 951 cases of anemia had been treated; in 947 the uncinaria was present as practically the sole cause of the anemia. The hospital was now moved to Utuado, and no sooner were the tents pitched than patients began to arrive in large numbers. At times, from 300 to 600 patients presented themselves in one day. By August 15, 4,543 cases of uncinariasis had been treated. In this way the commission gathered the material necessary for study at the same time that the treatment instituted by its success drove out the well-nigh universal skepticism in Porto Rico regarding the curability of the disease. Such, in brief, were the operations of this commission whose report was published Dec. 1, 1904.[1] Certainly the commission merits the highest commendation for its arduous labors and its prompt and valuable service. The value of its work to the people of Porto Rico can not be estimated. Hundreds and thousands of human lives have been made happier and longer as the direct result of an expenditure of $5,000!

The main results of the investigations of the commission which have been anticipated somewhat are that the anemia of Porto Rico, which affects about 90 per cent. of the rural population of the island, and is marked by profound anemia and chronic invalidism, is due to uncinariasis, and that the disease in the great majority of the cases is curable and preventable. In the treatment the essential feature, of course, is the expulsion of the worm. Three drugs merit serious mention: thymol, male fern, betanaphthol. We can not here enter on details of the treatment. Thymol was used with satisfactory results. Betanaphthol, introduced in the treatment of uncinariasis by Bentley,[1] was used toward the end of the work. Except for causing some dizziness, the commission regards this drug, which is only one-tenth the cost of thymol, as an ideal vermifuge in this disease, destined to eclipse thymol and male fern. For the many valuable observations on various features of the disease, such as the mazamorra or uncinarial dermatitis caused most likely by the penetration of the skin by the larvæ in infected soil and water, the diagnosis by examination of the feces, the remarkable eosinophilia, the suggestions in the line of prevention, etc., reference must be made to the full report which will always constitute a landmark in the history of uncinariasis. It is hoped that this report will prove stimulating to the study and cure of anemia in the lower classes in other tropical countries. The day of blind reliance on iron, quinin and tonics in general in the treatment of anemic conditions in tropical countries is past, never to return. Treatment must be directed against the cause and, in the case of uncinariasis, the specific cause is not difficult to find and to remove. Undoubtedly, Porto Rico will continue the humanitarian work, so well commenced, to the end that another preventable disease will be prevented in fact as well as in theory.

1. Report of the Commission for the Study and Treatment of Anemia in Porto Rico, San Juan, P. R.

THE LYMPHOCYTES IN TUBERCULOUS INFECTIONS.

The relation which exists between certain forms of bacterial infection and the increase in certain varieties of leucocytes in the blood has been known for many years, and has been taken advantage of in diagnosis. We know that septic infection is generally associated with a polynuclear leucocytosis, that in typhoid fever the mononuclear leucocytes are relatively increased, and that infection with intestinal parasites often causes eosinophilia. In recent years, the use of cytodiagnosis has brought out the fact that tuberculous effusions usually show an excess of lymphocytes, and has suggested that the tubercle bacillus elaborates a poison which is positively chemotactic to lymphocytes.

This suggestion is not a new one; in fact, a number of observers have claimed a lymphocytosis following the use of tuberculin. These observations are not numerous, and recently Fauconnet[2] has deemed the subject worthy of more extended investigation. He states that in the early stages of tuberculosis the blood is unchanged, and that his main aim in his experiments was to find out whether a sudden flooding of the body with tuberculous toxins would lead to recognizable changes in the blood. He first took cases in the early stages of tuberculosis and injected them with tuberculin, examining the blood before and after the injection. He found that in all these cases there was an immediate increase

1. Indian Medical Gazette, 1904, vol. xxix, No. 4.
2. Deutsches Archiv für klin. Medizin, vol. lxxxii, Nos. 1 and 2.

in the leucocytes, the average increase being 2,000 leucocytes per cubic millimeter. It was the polynuclears which were increased, however, and not the lymphocytes. After a few days the leucocytes were slightly decreased, but the relative increase in polynuclears persisted. The examination of the blood and also of the exudate, in several cases of serous-membrane tuberculosis with effusion, showed that while the lymphocytes predominated in the effusion their number in the blood was not increased. The experimental injection of healthy guinea-pigs with tuberculin gave less positive results. In all cases there was a leucocytosis, but in some the polynuclears were increased, while in others the lymphocytes were the cells affected. In guinea-pigs, which had been injected for a long time with tuberculin, there was a decided increase in the lymphocytes. Fauconnet does not regard this as a chemotactic phenomenon, though he does not give any adequate reason for this standpoint. The effect of introducing capillary tubes beneath the skin of guinea-pigs after filling the tubes with tuberculin differed according to the strength of the tuberculin. Strong tuberculin led to destruction of leucocytes, but when these were preserved it was always the polynuclears which wandered into the tubes. The same results followed the introduction of tuberculin directly into the peritoneal cavity, the cells found in the exudate were polynuclears.

Fauconnet concludes as a result of these experiments and clinical observations that the tubercle bacillus, like most other bacteria, possesses chemotactic power only over the polynuclear leucocytes, so that, as far as the blood is concerned, we can expect no changes which will be of diagnostic value in the early stages. So far as the presence of cells of the lymphocyte type in tubercular effusions and in tubercles themselves is concerned, Fauconnet thinks that their presence is not explained by chemotaxis. In the case of the effusions into serous cavities, he thinks that the close relation of the serous cavities to the lymphatic system may explain the excess of lymphocytes. Fauconnet's work is mainly of negative value, as it shows that little is to be expected from the blood examination in the early stages of tuberculosis; it upholds, however, our present views regarding the character of the cells in tubercular exudates.

TRUTH AND POETRY CONCERNING URIC ACID.

V.

Mares' hypothesis assumed that all uric acid excreted comes from the nucleins of the cells of the body; it denied any direct origin from the nucleins of the food.

The incorrectness of this assumption has since been shown by many researches. Thus it was soon demonstrated that foods rich in nuclein or in xanthin bases exercise a powerful effect on the excretion of uric acid (Horbaczewski, Richter, Weintraud, Lütje). A difference, however, in the action of the nucleins of individual foods is discernible. Umber showed that while the feeding of thymus and liver increases uric-acid excretion, the feeding of brain and kidney, which are almost equally rich in nucleins, does not increase it, at any rate to the same extent; the mode of chemical union in the various nucleinic acids, therefore, Umber thought, can be of great importance. Similar experiments were made by P. Mayer, Jakob and Bergell, Rosenfeld and Orgler, Carlyle Pope and Minkowski. It must be considered as established that nuclein in the food can increase uric-acid excretion.

Despite these researches, the reason for increased uric-acid excretion after the eating of meat still remained obscure, for meat, Kossel showed, contains but little nuclein; further, it had already been proved that there is no direct relation between albumin intake and uric-acid excretion. That meat eating does significantly increase the uric-acid output had been repeatedly demonstrated (Strauss, Smith and Jerome, Zagari and Pace, Sivén). The explanation came with the discovery by Kossel of the existence of an abundance of free xanthin bases in meat, and with the bringing of the proof by Burian and Schur, that of the 0.06 per cent. of purin bodies present in meat, no less than 0.045 per cent. are in a free state. If free xanthin bases can give rise to uric acid, as would seem probable, since the synthetic studies of Emil Fischer have shown their near relations to one another chemically, the increased uric-acid excretion after meat eating is easily accounted for.

And yet, the older experiments, it will be recalled, indicated that the feeding of free xanthin bases alone does not increase uric-acid excretion. It was time that that observation should be subjected again to an experimental test, and this work was undertaken by Minkowski.[1] His studies showed that the feeding of xanthin bases, especially hypoxanthin, leads in man to marked increase of uric-acid excretion. The earlier experiments, which had been negative, had been made chiefly on dogs; Minkowski discovered that in the dog the xanthin bases fed are excreted not as uric acid, but as allantoin; this explains how the idea had arisen that the feeding of xanthin bases does not increase uric-acid excretion. This proof of the possibility in man of a direct transformation of the xanthin bases of the food into uric acid independently of any intermediation of the leucocytes of the body, marks the next important step forward in the progress of knowledge in connection with our subject.

It had by now become perfectly clear that the uric acid excreted can be derived from at least two sources—first from the nucleins of the cells of the body itself, and second, from the nucleins and xanthin bases of the ingested food. From this time on, it became customary

1. Minkowski, O.: Ueber den Einfluss der Leber-Exstirpation auf den Stoffwechsel, Arch. f. exper. Path. u. Pharmak., vol. xxi, 1886, p. 89; Untersuchung zur Physiologie und Pathologie der Harnsäure bei Säugetieren, ibid., vol. xli, 1898, p. 375.

to speak of the excretion of "purin bodies" (xanthin bases plus uric acid) in the urine, rather than simply of the excretion of uric acid. Burian and Schur[2] refer to that portion derived from the metabolism of the body cells as "endogenous" urinary purin bodies, and to that portion derived from the nuclein and xanthin bases of the food as "exogenous" urinary purin bodies.

An interesting attempt was made by Burian and Schur to determine more exactly the actual relative amounts of endogenous and exogenous purin bodies. They believed that by estimating the purin content of the urine of well-fed human beings, whose diet was kept free from purin bodies, that they had determined the amount of endogenous purin bodies excreted. Their findings indicated individual differences for this value. The increase in the amount of purin bodies excreted when nucleins or xanthin bases are fed to the same individual indicates, they thought, the amount of exogenous purin bodies excreted. The latter amount, they believed, is dependent wholly on the quantity and quality of purin bodies fed. They asserted that 50 per cent. of the hypoxanthin ingested as food (either free hypoxanthin or that combined in nuclein) is given out in the form of purin bodies in the urine, while only 25 per cent. of the adenin ingested is excreted as urinary purin.

Extremely valuable as have been the contributions of Burian and Schur to the physiology and pathology of uric-acid excretion, they have, it appears, gone too far in their later assumptions. The matter is not so simple and diagrammatic as their work would lead us to believe. Some of the objections to their views have been well formulated by O. Löwi.[3] He points out that it is really impossible by our present methods to determine accurately how much of the purin bodies excreted is endogenous and how much is exogenous in origin.

In all probability, the endogenous purin bodies can be derived from several different sources. Thus under physiologic conditions it seems probable that in mammals they are derived chiefly from the nuclein metabolism of all the body cells and, principally, of those body cells which undergo most active chemical changes, namely, the cells of the secreting glands and of the muscles. A further possible source of endogenous purin bodies, even in mammals, is by way of direct synthesis. So much attention had thus far been directed to the origin of uric acid by the oxidation of complex compounds that but little consideration had been given to the possibility of its formation in the organism by the union of simpler bodies. We shall turn in our next article to a consideration of the possibility of such a synthetic origin of uric acid.

2. Burian, R., and Schur, H.: Ueber die Stellung der Purin körper im menschlichen Stoffwechsel, Pflüger's Archiv, vol. lxxx, 1900, p. 241, and vol. lxxxi, 1901, p. 239.

3. Löwi, O.: Beiträge zur Kenntniss des Nukleinstoffwechsels, Arch. f. exper. Path. u. Pharmak., vol. xliv, 1901, p. 1, and vol. xlv, 1901, p. 157.

A NOTABLE ACHIEVEMENT.

A news item in THE JOURNAL, Feb. 4, 1905, deserves emphasis. Every reader of THE JOURNAL, every member of a local or state board of health, and, indeed, every American citizen should fully appreciate the fact that the Kentucky State Board of Health has succeeded in requiring all the railroads of the state to regularly disinfect all passenger cars. When the proposal first was made, the railroad officials smiled, but after they understood the powers of the State Board of Health they took the matter soberly and ended by agreeing to enforce the regulations regarding car sanitation and sterilization, that were published in detail in a former issue. This reform applies not only to cars used in short runs and in local service, but also to the sleeping, dining, buffet and parlor cars on the through trains which merely traverse Kentucky soil. If persistence and persuasion, supported by some show of authority, can accomplish this in Kentucky, what prevents other states from following this admirable example. Experiment and experience have shown that railroad cars frequently act as carriers of infection. Kentucky has shown how to meet this danger to the health of the community, and other states can not afford to be too far behind.

FIGHTING MEDICAL FRAUDS.

We have published in our news columns, from time to time, accounts of the measures adopted by our German confrères to fight medical frauds. It would be well if we would follow their example, and through our medical organizations institute more active proceedings against all sorts of irregular practitioners. Whether we can get the full co-operation of the public press in the work, as seems to be the case in Munich and in other German cities, may seem at first a little doubtful. But we believe that if the same methods were employed here they would be equally effective. It only requires a certain amount of effort on the part of the medical profession to persuade all respectable newspapers to exclude fake and fraudulent medical advertisements. So far as we know, however, we have nothing in this country exactly corresponding to the "press committees" of the Germans. If our county societies would take the matter up with vigor, a decided impression could be made on public opinion which would necessarily be followed by a great reduction in the ranks of medical pretenders and humbugs. An active committee, keeping the lay press properly instructed in medical matters, and unsparing in its exposures of fraud, wherever found, would work wonders. The public only want the truth and to be convinced that it is the truth, and the success of medical impostors would terminate. Let the medical profession make it clear that it has the real interest of the public at heart and the success of the movement will be certain.

A HANDBOOK ON THE PREVENTION OF CONSUMPTION.

The Committee on the Prevention of Tuberculosis of the New York Charity Organization Society has issued a valuable report entitled "A Handbook on the Prevention of Tuberculosis." It contains, beside the usual review of the year's work and the financial report, a number

of valuable papers on the various questions which arise in regard to tuberculosis, including essays on the social and statistical aspects of the subject, on the causes of consumption and on the proper methods of treatment; it includes elaborate plans for sanatoria, lists of institutions in the United States and Canada, and a bibliography of the principal works on tuberculosis. These appendices form the bulk of the volume, and their authors have done excellent work. One of the most interesting chapters is that on the social aspects of tuberculosis by the statistician of the committee. This chapter points out that special perils exist in cities rather than in the country districts, and that certain races and occupations appear to be specially liable. The conclusion is that we must look more and more to the apparently indirect methods of dealing with the disease. The report says: "The problem would soon disappear of itself if it were possible for everybody to breathe fairly pure air, to be clean with a reasonable effort, and to have enough of the right sort of food to eat." It will require a great deal more than is being done to bring this about, but that is the main line on which we will probably make our most effective attack on the disease. One thing is encouraging: statistics show that the mortality from consumption is decreasing, and that this decrease is more marked in just those localities where, at least, an approach to the necessary sanitary reforms is being made.

THE PAINS OF TABES.

As is well known, locomotor ataxia, while not of itself a fatal disease, is often attended with symptoms or complications of a most distressing and even serious character. Motor inco-ordination is not always the most conspicuous manifestation, and it may at times be so little marked as to escape cursory observation. Not less common than ataxia, and earlier in appearance, are pains of one kind or another, and which may at times be so severe as to dominate the clinical picture. They are often mistaken for rheumatism or gout or neuritis, but their real origin can usually be determined from a study of the other symptoms present in the individual case. Sir William Gowers,[1] in a recent clinical lecture, took up for consideration the pains of tabes, discussing at some length a condition to which he gives the name of tabetic neuralgia. He makes two divisions of the pains attending tabes, namely, those that are brief, commonly momentary, but succeeding each other at short intervals in the same place, for hours, sometimes for days; and those that are prolonged, lasting for hours or days or even longer in the same place. The first variety may be superficial or deep; those of the second variety are usually deep, although diffuse surface sensations of this character are not uncommon. In some cases of tabes, pain is the only prominent symptom, the knee jerks and co-ordination being preserved. Such cases are thought to constitute a special and uncommon variety of the disease and to be due to a peculiar character of the toxic etiologic factor; and for them the designation tabetic neuralgia is considered appropriate and unobjectionable. Eleven cases of this kind analyzed by Gowers all occurred in adult men, 9 of whom presented a clear specific history, which, further, could not be excluded in the remaining 2. The interval between the primary disease and the onset of the pain varied from seven to nineteen years, the average being twelve years. The knee jerks were normal in degree and equal on the two sides in 8 cases and unequal in 2; while in 1 the reaction disappeared entirely on one side. In 2 cases, the reaction of the pupils to light was absent; in 2 it was enfeebled; in 2 it was completely wanting on one side; and in 1 there was instant contraction followed by dilatation to its former size. One patient presented characteristic atrophy of the optic nerve, with preservation of the knee jerks, of co-ordination and of cutaneous sensibility. In one patient, sensibility to pain was lost on the feet and lower legs and lower parts of the thigh; in 1 it was delayed on the legs and lost on some parts of the trunk; and in 1 it was lessened on the left leg and foot. One patient suffered from gastric crises, and he and one other complained of girdle sensation. The pains were the symptom for which all of the patients sought relief, except the subject of optic nerve atrophy. They had been present in 3 patients for one year, in 1 for two years, in 3 for three years, in 1 for four years, and in 3 for ten years. They had variously been ascribed to gout, rheumatism and neuritis. From a prognostic standpoint the outlook is favorable with respect to the development of ataxia, but the pains, although their severity can often be mitigated, can seldom be altogether arrested. There is, however, no relation between the severity of the pain and the progress or the gravity of the underlying disease. The pains are believed to originate in the extremities of the peripheral nerves. The superficial pains can be relieved temporarily by the local application of chloroform sprinkled on lint and covered by oiled silk. A more prolonged effect is produced by the hypodermic injection of cocain at the upper part of the area in which the pains are felt. The sensibility of the skin to both touch and pain can be abolished by the application of the positive anode of a galvanic battery saturated with a solution of cocain of from 6 to 8 per cent. The deep, as well as the superficial, pains, as a rule, are amenable to treatment, and the coal-tar preparations are recommended. Sometimes morphin may be required, but it should be used with caution. To lessen the tendency to the occurrence of tabetic pains, Gowers has found aluminum chlorid, in doses of 5, 8 or 10 grains thrice daily, a most efficient agent. The salicylates, also, are sometimes useful for this purpose.

1. British Med. Jour., Jan. 7, 1905, p. 1.

Medical News.

ALASKA.

A Summer Resort.—Sitka Hot Springs is soon to be opened as a health and summer resort. Drs. Henry W. Coe, Robert L. Gillespie and Walter T. Williamson of Portland, Ore., are interested in the venture and will spend about $20,000 in buildings.

ARIZONA.

County Physician Indicted.—As a result of its investigations, the grand jury of Cochise County found a true bill for manslaughter against County Physician Marshall D. Johnson, Bisbee, and he is held in bonds of $3,000.

Grand Jury Arraigns Officials.—The December grand jury of Cochise County alleges gross irregularities and willful violations of law in the conduct of county institutions; finds the food provided at the county hospital insufficient in quantity and inferior in quality; the bedding filthy; the steward, brutal and abusive, and the county physician neglectful of his duties.

New Officers Elected.—At the annual meeting of the Yavapai County Medical Society, held Dec. 10, 1904, the following officers were elected: President, Dr. John S. Barrett, Prescott; vice-president, Dr. Henry D. Thomason, U. S. Army, Whipple Barracks; secretary-treasurer, Dr. Clarence E. Yount, Prescott, and Drs. John W. Flinn and Samuel V. Fitzsimmons censors.

ARKANSAS.

Medical Building Assured.—The Medical Realty Company has been incorporated at Little Rock, with a capital of $50,000, to erect a three-story building 140x50 feet designed expressly for the use of physicians.

Federal Board Report Approved.—The Secretary of the Interior has approved the report of the Federal Medical Board in which 126 practitioners are placed on the registered list of those entitled to prescribe the waters of Hot Springs.

Would Change Name.—In the biennial report of the Arkansas State Lunatic Asylum, the superintendent, Dr. Harry C. Stinson, Little Rock, recommends that the name of the institution be changed to the Arkansas State Hospital for Nervous Diseases. During 1903 146 patients were admitted, and in 1904 90, a total of 236 new cases.

Smallpox.—A death occurred at Warren, January 28, and several cases among negroes are reported.——The Argenta Board of Health has adopted a resolution requiring the employes of all stores, mills, factories and compresses to exhibit to their respective employers a certificate of vaccination. The police have been instructed to see that this resolution is complied with. There are now 60 cases of the disease in the city, principally among negroes.——Little Rock has at present 15 cases.

CALIFORNIA.

Hospital Notes.—A hospital is to be erected in Los Angeles to cost $35,000, for the exclusive use of Mexicans of the laboring class.——The reconstructed Children's Hospital at Los Angeles was formally reopened January 28.——By the will of the late Winifrede Martin, Los Angeles, nearly $80,000 is devised to charitable institutions, including several hospitals.——The trustees of the Samuel Merrett Hospital Fund, which now amounts to $630,000, have filed a petition asking that they be allowed to build part of the hospital at Oakland, to cost $75,000, as provided in the will of the late Mrs. Catherine M. Garcelon.

Under the Ban.—"Dr." James McLean, Los Angeles, was fined $100, January 3, for practicing without a license.——"Dr." C. A. Richmond, San Francisco, was fined $100, January 17, for practicing without a license.——"Dr." Edward H. Diehl, East Los Angeles, pleaded guilty, January 21, to practicing without license and will be sentenced.——"Dr." Charles Scavazzo, Los Angeles, was found guilty, January 17, of practicing without license and fined $100.——A jury in Sacramento on January 26 disagreed in the case of T. Wah Hing, holder of an alleged Hongkong diploma, who, it was proved, practices medicine and advertises himself as a practitioner.

Personal.—Col. Alfred C. Girard, U. S. Army, has been offered the superintendency of the Children's Hospital, San Francisco, to become effective on his retirement from the service in July, and has accepted the position.——Drs. William J. Walsh and James B. Hannah, inspecting physicians of the San Francisco Board of Health, have resigned.——Dr. Palmerston C. Campbell, Point Richmond, has been appointed lieutenant-colonel on the governor's staff.——Dr. James R. Curnow, San Jose, has been adjudged insane, and was committed to the Agnew State Hospital for the Insane, January 28.——Dr. Pavlo De Vecchi, San Francisco, has been honored by the King of Italy with the title of commendatore of the order of the crown of Italy.

ILLINOIS.

Smallpox.—There are said to be 25 cases of the disease in East Smithfield, Ill.

St. Francis Hospital, Evanston, during 1904, treated 212 cases, 23 of which were of appendicitis.

Guilty of Abortion.—Dr. Wade D. Stevens, Paw Paw, was found guilty of performing a criminal operation and will receive an indeterminate sentence, unless the new trial, which he is attempting to obtain, is granted.

Joint Meeting.—Winnebago County Medical Society and the Central Wisconsin Medical Society held a joint meeting in Rockford, January 31, followed by a banquet, over which Dr. Walter B. Helm presided as toastmaster.

Changes in Sanatorium Bill.—As the result of a conference of Hon. Edward J. Glacking, who introduced a bill for the establishment of a state sanatorium for consumptives, and Dr. James A. Egan, secretary of the State Board of Health, many minor changes will be made in the bill, although its main provisions remain unchanged. The county and district medical societies of the state will be invited to co-operate in the movement and will be asked to interest the representatives from their respective districts in this bill.

Chicago.

Hospital Purchases Site.—Chicago Baptist Hospital has purchased for $37,500 the property it has occupied for many years at Thirty-fourth Street and Rhodes Avenue.

To Enlarge Building.—Passavant Hospital Association has been organized for the purpose of enlarging the building of Passavant Memorial Hospital. A building and lot have been donated, and about $30,000 additional is required for construction purposes.

White Cross First Aid.—The first of the series of public lectures under the auspices of the American White Cross First Aid Society was given by Dr. Nicholas Senn, in the public library building, February 3. Dr. Senn compared the work to be done by this society in time of peace to that of the Red Cross in time of war, and then spoke briefly on the first dressing of gunshot wounds.

January Deaths.—The death rate of January was at the annual rate of 14.70 per 1,000. Deaths from all causes numbered 2,487, 146 more than in the preceding month, and 126 more than for January, 1903. The chief contributing causes were pneumonia, 515; consumption, 272; Bright's disease, 183; violence, 175, and heart diseases, 164. Diphtheria caused 52 deaths; typhoid fever, 29; scarlet fever, 8; and smallpox 7.

Comparative Mortality.—The total of 530 deaths reported during the week, equivalent to an annual mortality of 13.88 per 1,000, are 28 fewer than reported during the previous week and 66 fewer than for the corresponding week of one year ago. Compared with that week, there were 10 more deaths reported from the acute intestinal diseases, 13 more from consumption, 5 more from measles, 6 more from smallpox and 7 more from whooping cough. On the other hand, there were 18 fewer from Bright's disease, 3 from bronchitis, 6 from cancer, 7 from convulsions, 6 from influenza, 12 from heart disease, 46 from pneumonia, 5 from scarlet fever, and 2 fewer from typhoid fever—the 3 deaths from this last-named disease being the fewest for any January week in twenty-three years.

MARYLAND.

Railway Hospital Open.—The Baltimore and Ohio Emergency Hospital at Brunswick has been formally opened.

Honor Grand Master.—The masons of Maryland are about to erect a monument to the late Dr. Charles H. Ohr, Cumberland, past grand master of the order.

Ancient History.—Dr. Bernard Steiner, Baltimore, read a paper on the life of Dr. James McHenry, January 30, before the Frederick County Historical Society. Dr. McHenry was on Washington's staff and was also secretary of war. Fort McHenry was named after him.

Baltimore.

Pneumonia Leads.—The deaths from pneumonia ran up to 34 last week, and only 23 were due to consumption.

Physician Non-suited.—Dr. George A. Strauss, who brought suit for $1,000 against the United Railway and Electric Company for alleged injuries in being thrown from a street car, failed to prove his case.

New University Journal.—There will be issued at the University of Maryland, about the first of March, a monthly medical journal, to be known as the *University Hospital Bulletin*, which will be edited by Dr. Eugene F. Cordell.

Personal.—Dr. W. Lee Howard has returned from Jamaica. ——Dr. Hugh H. Young has been on a pleasure trip to Nassau, W. I.——Dr. Champe S. Bradfute, who disappeared from his home here on May 11, 1904, has returned. For five months his mind was a blank, and when he recovered his mind he found himself in Virginia. He expects to resume practice.

MASSACHUSETTS.

Fire at Sanatorium.—The New England Sanatorium at Stoneham was damaged by fire to the extent of $25,000, January 1. The medical staff and nurses succeeded in removing all the patients without casualty.

Bequests.—By the will of the late E. W. Corman, Boston, Harvard University and Massachusetts General Hospital are named as beneficiaries to the extent of more than a million dollars.——Lawrence General Hospital has been bequeathed $1,000 by the late George E. P. Dodge of Chicago.

Hospital Notes.—Brockton Hospital Corporation, at its annual meeting, elected Dr. A. E. Elliott Paine, vice-president. During the year the governor of the state presented to the corporation a fully-equipped surgical building, at an expense of about $25,000. Dr. Nathaniel C. King was added to the executive committee.——At the annual meeting of the staff of St. Vincent Hospital, Worcester, held January 19, Dr. John T. Duggan was re-elected chairman, and Dr. David B. Lovell was elected secretary.

Personal.—Dr. Timothy F. Daly, Lawrence, was given a chest of silverware by the Galen Medical Club, January 2.——Dr. Charles N. Raymond, Rehoboth, was murderously assaulted on January 1 by a Frenchman whom he had befriended. ——Dr. Carl H. Eidam, Lawrence, has been appointed a member of the board of health.——Dr. Elliott Washburn has been reappointed chairman of the Taunton Board of Health.——Dr. Clarence B. Livingston has been appointed physician of District No. 1, Lowell.——Dr. Walter A. Smith, Springfield, has been appointed medical director of the First Brigade, M. V. M., with rank of lieutenant colonel.

MINNESOTA.

Hospital Incorporated.—Mennonite Hospital of Mountain Lake has been incorporated with a capital stock of $25,000.

Acquitted of Murder.—Dr. Rudolphe T. Germain, Barnesville, charged with murder in the second degree, was found not guilty, at Moorhead, January 16.

Personal.—Dr. Alexander J. Stone, St. Paul, has been reappointed surgeon general of the Minnesota National Guard.——Dr. George E. Benson, Minneapolis, has gone to Europe for six months.——Dr. Edward Benham, Amboy, has been elected physician for the seventh district of Blue Earth County.

State Aid for Local Laboratories.—The State Board of Health, at its meeting, January 31, passed a resolution to the effect that "when cities of ten thousand population or upward have established a laboratory within the state, which in the opinion of the State Board of Health is an efficient one, it may then be made a branch of the State Board of Health laboratory and receive financial aid from the state. The application for affiliation with the State Board of Health is to be made by the local board of health under the approval of its city council. The amount of state aid to be given such a laboratory is to be determined by the State Board of Health." Under this provision a branch laboratory will probably be established at an early date at Duluth.

MISSOURI.

Physician Imprisoned.—Dr. J. D. Todd, Richards, formerly a member of the legislature, who shot and killed R. T. Wall in May last, was found guilty of murder in the second degree and sentenced to imprisonment for twelve years in the state penitentiary.

School Children To Be Examined.—The 35 physicians recently appointed to examine school children in Kansas City commenced their work January 30. They will examine and report any case of communicable disease, but will not treat the children.

New Medical Practice Act.—The general assembly, now in session, is considering a new medical practice act, the essential feature of which is the provision that applicants for licensure must present a diploma from a reputable college before they will be admitted to examination.

Personal.—Dr. Leonidas H. Laidlaw, resigned as medical director of the Louisiana Purchase Exposition, Dec. 31, 1904. ——Dr. Charles W. Chastain, Plattsburg, has been appointed physician to the state penitentiary.——Dr. R. Leon Hill, Boonville, has been made a member of the Cooper County Medical Board of Pension Examiners.——Dr. J. Phillip Knoche, Kansas City, has been granted the right to change the spelling of his name to Kanoky.

MONTANA.

Isolation Hospital Opened.—The new isolation hospital for Billings was opened, January 19, and Dr. C. B. Miller has been appointed superintendent.

Diphtheria Prevails at Slockett.—On account of the prevalence of diphtheria at Slockett, the Cascade County Board of Health has decided to turn the jail into a quarantine station, where all diphtheria patients will be left until danger of infection is removed.

State Board Report.—The biennial report of the State Board of Health shows that smallpox has been greatly reduced. In 1902 there were 764 cases in the state; in 1904, only 122. Diphtheria increased 141 cases, as compared with 1903; scarlet fever decreased from 339 to 179, and there was also a decrease in typhoid fever cases of 42 for the year.

NEBRASKA.

Hospital Acquires Land.—The South Omaha Hospital Association has purchased two lots on which it proposes to erect a brick building to cost $25,000.

Physician Wins Suit.—Dr. Milton H. Everett, Lincoln, was given the decision in the suit brought against him for damages by reason of an operation alleged to have been unsuccessful.

Smallpox in Beatrice.—There are about 24 cases of smallpox in Beatrice, most of which are of a very mild type. The city council has passed an ordinance which provides a heavy fine for individuals violating the smallpox quarantine regulations.

State Capitol Insanitary.—A report has been made to the adjutant general that the Nebraska State Capitol, on which the state has expended $1,500,000, is in an insanitary condition, and is unsafe for the state officials whose duties compel them to remain in the building.

Personal.—Drs. John B. Lichtenwallner, Dunbar, and Will T. Neil, Nebraska City, have been appointed physicians of Otoe County.——Dr. James L. Alden, Pierce, will be superintendent of the new state hospital at Norfolk, when it is completed, and Dr. Frank S. Nicholson, St. Paul, will be assistant superintendent.——Dr. Artie Folsom, Beatrice, is now in London.

NEW YORK.

Fire in Hospital.—St. Mary's Hospital, Jamaica, L. I., narrowly escaped a serious fire. Through the efforts of one of the physicians and two attendants the flames were held in check until assistance arrived.

Influenza Among Life-Savers.—An epidemic of influenza prevails among the members of the Long Island coast life-saving crews. Some of the stations have more than one-half their members incapacitated. Hardships encountered during the recent storms are said to have aggravated the cases.

Medical Society of the State of New York.—This body convened at Albany on January 31, February 1 and 2. The officers for the ensuing year are: President, Dr. Joseph D. Bryant, New York City; vice-president, Dr. Herman R. Ainsworth, Addison; secretary, Dr. Frederick C. Curtis, Albany; treasurer, Dr. Ogilvie D. Ball, Albany.

High Death Rate.—The State Board of Health reports 141,564 deaths in the state during 1904, the largest number ever officially recorded. This is a death rate of 18.2 per thousand, as against an average of 17.2 for the past five years. Consumption caused 14,000 deaths, or about 10 per cent., and there were 8.000 deaths from pneumonia during the first five months of the year.

Tuberculosis Hospital a Success.—The first report of the state hospital for the treatment of incipient tuberculosis, which was established by an act of legislature at Raybrook, in the Adirondacks, was presented to the New York State Medical Society. Although the institution has only been open since July 1, 82 patients have been admitted, 11 have been discharged as cured, 19 have apparently recovered, in 34 the disease has been arrested and the remainder show improvement, with the exception of 5 who have not been there long enough to justify conclusions.

Duffy's Malt Whisky Declared Not Medicine.—The State Excise Department has won its case against a New York City druggist, the principal point involved being whether Duffy's malt whisky was a liquor within the meaning of the liquor tax law, or whether it was a patent or proprietary medicine, not subject to its provisions. At the trial in the lower court, the defense showed testimonials to the medicinal effects of the

liquor, but the chemists, C. A. Crampton, chief chemist of the United States International Revenue Department, Joseph Du Guehuee, chief chemist of the Health Department of New York City, and Edward W. Wheeler, chemist for the State Agricultural Department, showed that the whisky contained 45 per cent. alcohol, and that it did not contain any appreciable quantity of any drug or medicine other than alcohol. The lower court gave a verdict for the excise department, declaring the $500 bond of the druggist forfeited for violation of his pledge not to sell liquor except on the prescription of a physician. The Appellate Division of the Supreme Court sustained this finding.

More Bills Before the Legislature.—Taxing Alcohol—A measure, interesting in view of the tragedy attending the adulteration of cheap whisky with wood alcohol in New York City, taxes all sellers one-third of the price of all alcohol sold, compels them to report to the State Department of Health monthly, and imposes a fine of $50 for each violation of the law. ——To Change Management of State Institutions—A representative of the State Charities Aid Association has prepared a bill providing for the administration of the state insane asylums as it existed before the Odell régime. This means that local boards of managers are to be re-established for each institution, with full powers of supervision and control, aside from administering the finances of the institutions, which will be taken care of, as now, from Albany.——Optometry Bill—Efforts are being made by an organization of opticians known as the Optical Society of the State of New York to secure the enactment of a law to regulate and define the practice of optometry. With this object in view the optical society distributed to members of the medical profession 8,000 copies of a pamphlet entitled "Facts About the Optometry Bill," as well as copies to the state officials and members of the legislature and to all leading newspapers of the state. Following this it mailed subscription blanks to opticians asking for money contributions to defray the expenses of the campaign. The Medical Society of the State of New York will, through its committee on legislation, institute a vigorous opposition to the efforts of the optical society. The co-operation of the medical profession is solicited and the Opticians' League of the State of New York will join in the opposition, as they believe that the fitting of glasses for the relief of headache, dizziness, diplopia and other symptoms is no part of the work of opticians, but should be restricted to educated and licensed physicians.

New York City.

Gift to Academy of Medicine.—The complete collection of monographs possessed by the late Prof. Gerhardt has been purchased and presented to the library of the Academy of Medicine by Dr. A. Jacobi.

Fireworks Ordinance Shelved.—There has been an indefinite postponement of the hearing on the ordinance prohibiting the use of fireworks in this city. Many other cities have such ordinances and it is a source of regret that this city should neglect a matter which affects life and property to so great an extent.

Coroner Found Guilty.—Dr. Jackson, convicted on the charge of soliciting a bribe of $500 to clear "Dr." John W. Alexander, who was arrested on the charge of having caused the death of a woman by a criminal operation, has been found guilty. There is another indictment against him for having attempted to bribe the deputy assistant district attorney.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended January 30 389 cases of tuberculosis, with 167 deaths; 272 cases of diphtheria, with 40 deaths; 248 cases of scarlet fever, with 13 deaths; 174 cases of measles, with 7 deaths; 174 cases of varicella; 41 cases of typhoid fever, with 14 deaths; 8 cases of smallpox, and 28 deaths from cerebrospinal meningitis.

Order for the Health Board.—In the Supreme Court of Brooklyn an order has been granted directing the Health Board of the City of New York to show cause why a peremptory writ of mandamus should not be issued commanding the appointment of an assistant superintendent for the borough of Brooklyn. The Brooklyn assistant was removed last August, and druggists and others wishing to confer with the health board have been compelled to come to the central office in New York.

Free Meals for School Children.—The statement that there are 70,000 ill-nourished children in the schools of New York, many of whom are in the habit of coming breakfastless to school, led to a conference of the Charities Organization Society, the Society for the Improvement of the Condition of the Poor, the Children's Aid Society, and others, for a discussion of the subject. It was the consensus of opinion that there was no abnormal destitution nor that there were many children who were sent to school without breakfast because of the inability of the parents to provide for them. It was agreed, however, that there were many underfed children, and a committee was appointed to investigate and ascertain the real causes. The Salvation Army has already established several stations where breakfast is served to school children.

Special Courses Continued.—Cornell University Medical College will continue this year the courses instituted last season in lectures on special subjects connected with general medicine and general surgery. Drs. Charles L. Gibson, Ellsworth Eliot, Jr., and E. L. Keyes, Jr., will each give about six lectures on topics connected with general surgery. Drs. L. A. Conner, M. G. Schlapp, C. N. B. Camac and O. H. Schultze will lecture on topics connected with general medicine. Dr. John McGaw Woodbury, the present commissioner of street cleaning, has promised to deliver several lectures on municipal sanitation. These lectures are given to the third and fourth-year students and have been found of great value in the elucidation of subjects in which the lecturers have demonstrated their proficiency. At the same time they are of value to the faculty who are thus able to obtain knowledge of the latest advancement made in the college laboratories.

OKLAHOMA.

Change of Name.—The Protestant Hospital, Oklahoma City, has changed its name and will hereafter be known as the Oklahoma Hospital.

Personal.—Dr. Elmer E. Cowdrick, Enid, resigned as superintendent of the Territorial Board of Health February 1.——Dr. George A. La Motte, Oklahoma City, has been appointed physician of Oklahoma County.

Physicians Need Not Pay Fee.—The Territorial Board of Health and Medical Examining Board to-day lost an important case in the courts wherein is involved the payment of a $30 fee by applicants to practice medicine in Oklahoma. Physicians who have secured such certificates sued for the recovery of their fee and secured judgment. As the law has been in force for some time, the total fees to be returned to applicants aggregated a large sum. The board will appeal.

PENNSYLVANIA.

Named for Medical Board.—The governor has presented the following names to the senate for members of the State Board of Medical Governors, to serve three years: Dr. W. D. Hamaker of Meadville, and Dr. M. P. Dickeson of Glen Riddle, representing the Medical Society of Pennsylvania; Drs. J. C. Guernsey and Edward Cranch of Erie, Pa., representing the Homeopathic Medical Society; Dr. William Rauch of Johnstown, and Dr. J. M. Louther of Somerset, representing the Eclectic Medical Society.

To Treat Consumptives.—A bill has been introduced in the legislature for the selection of a site and the erection of a state hospital for the treatment of incipient tuberculosis. The bill provides that the institution be located within the limits of the state forestry reservation in Franklin County. From 500 to 1,000 acres are to be set aside for the use of the institution. A commission of nine persons is created to select the site and to build the hospital. The commission is to be composed of the auditor general, the commissioner of forestry, the president of the senate, the speaker of the house, and three practicing physicians to be appointed by the governor, one senator, and one representative. The bill provides for an appropriation of $200,000. Patients who can pay for treatment will be required to do so by direct application to the board of trustees. Those who can not pay are to be admitted on the recommendation of county commissioners, directors of the poor, or the departments of charities of counties and cities.

Philadelphia.

Personal.—Dr. Alfred Gordon, on January 23, was appointed chief of the clinic of nervous and mental diseases in Jefferson Medical College Hospital.——Dr. Benjamin Horn and Dr. H. R. M. Landis have been appointed demonstrators of medicine in Jefferson Medical College.——Dr. John Kuestner sailed for Jamaica January 26.——Dr. S. Weir Mitchell has been selected to present the candidates for honorary degrees of the University of Pennsylvania on February 22. President Roosevelt will deliver the oration.——Dr. David L. Edsall and Dr. Alfred Stengel addressed the annual meeting of the Medical and Surgical Society of the District of Columbia in Washington, February 2.

GENERAL.

Life Insurance Statistics.—The report of the medical department of the Mutual Life Insurance Company of New York, in its sixty-second annual statement, shows that the total deaths exceeded those of 1903 by 434, the average age at death being 51.96 years. The classification of causes of death is interesting, owing to the presumption that policy holders are more careful of their health than others. This classification shows 510 deaths from organic disease of the heart; 504 from consumption; 477 from pneumonia; 438 from Bright's disease; 387 from apoplexy, and 112 from old age.

Nathan Lewis Hatfield Prize.—Five hundred dollars will be awarded by the College of Physicians of Philadelphia to the author of the best essay submitted on or before March 1, 1906, on "The Clinical and Pathologic Diagnosis of Sarcoma." Essays must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device, and containing the name and address of the author. They must embody original observations and researches. The committee reserves the right to make no award if none of the essays submitted is considered worthy of the prize. For further information address Francis R. Packard, M.D., chairman, College of Physicians, 219 South Thirteenth Street, Philadelphia.

FOREIGN.

Mikulicz' Operation.—Von Eiselsberg of Vienna operated in January on Professor Mikulicz on account of an umbilical hernia. Recovery has been uneventful.

Influenza in Berlin.—The Public Health and Marine-Hospital Reports state that influenza is very prevalent in Berlin. The epidemic seems to be more virulent than usual, and a number of deaths have occurred.

Preventive Circular.—The faculty of the Budapest university has offered three prizes of $20 to $60 for the best article written in a popular style, designed to enlighten youth in regard to the nature, the consequences and the prophylaxis of venereal diseases.

Sleeping Sickness in a European.—Dr. C. França of Porto reports a case of trypanosomiasis in a man of 25 returning from Portuguese Africa after an absence of thirteen years. The subject had previously had malaria, beri-beri and blackwater fever. Trypanosomata were found in the blood.

Kaiserling Now a Professor.—Dr. K. Kaiserling was graduated only twelve years ago, and he has been privat docent and custodian of the pathologic museum at Berlin since 1901. He has now been made professor. In these few years he has won international fame by his method of preserving anatomic specimens in their natural colors. Some of his specimens have been on exhibition at all the large expositions of the last few years.

Death of the Improver of the Microscope.—E. Abbe died recently at Jena, aged 64. He was the inventor of numerous improvements in instrumental optics, and to him bacteriology owes its marvellous strides in late years. He has been connected with the Zeiss factory, since 1860, and at the same time was honorary professor of astronomy and meteorology at Jena. His successful reorganization of the Zeiss establishment was on a basis which tends to solve some of the more pressing social problems of the day.

Medicine in the Prussian Budget.—According to our German exchanges, the Prussian government is much more liberal in its medical appropriations than is the case in this country. In the appropriations for the universities the effort is everywhere apparent to make practical use of the later achievements of medicine, some of which require costly equipment. In Berlin the new Polyclinic Institute for internal medicine is to be equipped with instruments and apparatus to cost over $5,000. The Anatomic Institute is to be enlarged at an expense of over $50,000, and about $25.000 is to be spent on the clinic for cutaneous and venereal affections, besides large amounts on other medical institutes, etc. For the campaign against trachoma this year nearly $88,000 has been again appropriated; $7,500 for research on foot and mouth disease; the same amount for the campaign against typhoid in the Trier district; $2,500 for cancer research, and $2,500 for the Berlin Cancer Hospital. A special laboratory is to be erected for Robert Koch, with $750 for its yearly maintenance. An innovation is an appropriation of $11,000 for supervision of harbors and shipping to keep out plague and cholera. New buildings are planned for seven university clinics and institutes, and a number of new assistants are to be appointed. Comparatively large amounts have been appropriated to bring the *x*-ray departments of the universities to a higher grade of excellence, and for the purchase of new instruments for the polyclinics, etc. A deficit of $52,400 at the Berlin surgical clinic is to be made up, and another at Göttingen of $7,500 and one at Marburg of nearly $1,400 in the ophthalmic clinic. The appropriation for postgraduate courses has been increased from $1,500 to $2,250.

Correspondence.

Panama—The Congress—The Canal.

PANAMA, Jan. 7, 1905.

To the Editor:—The fourth Pan-American Medical Congress was held at Panama, Jan. 2-6, 1905. In some respects Panama was a good place to hold a meeting. While geographically the country lies at nearly the hub of the western hemisphere, and is, perhaps, rather inaccessible to the majority of the represented nations, the congress was attended by representatives from Peru, Mexico, Guatemala, Nicaragua and Cuba, as well as from the United States.

As the specially chartered steamer *Athos*, which was unfortunately delayed and did not reach Panama until the afternoon of the last day of the meeting, carried some of the officers and about half those who attended, these physicians took no real part in the proceedings. Some papers of a thoroughly scientific nature were read, such as Frank's "Experiments and Experience in Liver Surgery," Senn's description of "Coxa Vara," Dr. W. C. Gorgas' résumé of "Sanitary and Hygienic Work in Havana," and Dr. Carlos Finlay's paper on "Sanitary Conditions in Cuba." The paper of Dr. Liceaga of Mexico, read by Dr. Ramon, gave the methods adopted by the Mexican government to stamp out plague in Mazatlan.

It was decided to hold the next meeting three years hence in Guatemala City, as this republic is very anxious to become the hostess. She has appropriated money for the purpose and promises to have ready the railway to the gulf, so that the journey from the United States will be comparatively easy. American delegates would have preferred the United States, Canada or Jamaica, but their opposition was not well enough organized to carry the point, and it is to be hoped that the expressed fear that the congress will become too Latin-American is unfounded.

Though Panama had little to show the visitors in the way of hospitals and laboratories, such as physicians usually expect in visiting foreign countries, there was the stupendous engineering problem involved in the construction of the canal, hand in hand with which goes the attempt to wipe out of existence the two diseases—malaria and yellow fever—which have hitherto been considered to be actually part of the soil and climate. In previous attempts at construction of the canal it was necessary to accept conditions as they were found, to dole out quinin, to treat individuals when they fell ill, and to give advice as to food, air and water. But here, for the first time, science is working on demonstrable medical as well as engineering facts. The microscope and instruments of precision are applied with as great accuracy as the steam dredge and there is a plan of sanitation as carefully outlined, estimated and undertaken as is the engineering plan itself.

Panama and Colon are probably the hottest places within the canal zone, while Culebra and Empire seem dryer and cooler. Panama has probably one or more cases of yellow fever nearly the whole year through, and to stamp it out of Panama, as has been done in Havana, the same methods must be adopted. Panama must be drained, the streets cleaned, and its houses fumigated. Colon must be equally well cared for and the whole canal area must be policed and inspected. Plans for this are already under consideration. The United States marines on the Isthmus live in barracks at Empire. They are picked men and are living under the strictest medical surveillance. Their food, water, clothing and hours of work and rest are rigidly controlled. They must be in bed at an early hour, they must sleep under mosquito netting, and they must

take quinin. Even the better class of canal employes, the office force, have no such regimen. Each employe lives where he wishes or must, eats what he can get and exposes himself unrestrainedly. We wish to avoid the want and waste of the French, but not to fall into sinful economy, and to do justice to unacclimated employes a plain, comfortable barracks should be built on Ancon Hill or on the outskirts of Panama, where they not only may but must live. Some accessory zest and recreation such as clubs, gymnasiums and games should be added to the daily life of the employes to stimulate them to overcome the moral and physical enervation which has been so dreaded in tropical districts. The sanitary department is compelled to work under the old system of army contract surgeons, which may be well enough in its place, but on the Isthmus is not leading to the best results.

There were many excursions to various points of interest, two of the most enjoyable being to the island of Taboga, about eight miles across the bay, and to Culebra, where the practical and most decisive work on the canal is now in progress.

ALBERT B. HALE.

Fifty Consecutive Cases of Pneumonia Without a Death.

SCOTLAND, PA., Feb. 2, 1905.

To the Editor:—I just read with much interest the article by W. J. Galbraith, M. D., in THE JOURNAL, January 28, page 291, also the article by the same writer in THE JOURNAL, July 9, 1904, page 108. Dr. Galbraith has certainly been most fortunate in his treatment of pneumonia by the heroic use of sulphate of quinin, and he certainly deserves credit for the fearless expression of his convictions. With the march which this disease, "the captain of the men of death," is making annually, it is of the greatest moment that any successful manner of combating the power of the disease be recognized by the profession. With such apparently fortunate results by use of these large doses of sulphate of quinin that Dr. Galbraith reports, one naturally feels an honest desire to know whether this method might be the sheet anchor of the disease, or whether Dr. Galbraith was simply fortunate in the results. I am convinced that many members of the profession would be glad to read the opinions or conclusions of others regarding the probable success by this manner of using quinin in pneumonia.

JOHN J. COFFMAN.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

THE ADMINISTRATION OF NITROGLYCERIN.

ROCKPORT, KY., Jan. 24, 1905.

To the Editor:—Referring to your editorial Oct. 22, 1904, on this subject, I find you state that von Noorden advises larger doses "than has hitherto been thought warrantable," stating that "when begun with small doses, as much as 1/6 gr., or even 1/5 gr. of nitroglycerin may be given in 24 hours." Please permit me to say, that in April and May, 1897, I began giving a man with chronic parenchymatous nephritis one drop of a 1 per cent. alcoholic solution of nitroglycerin (1/100 gr.) three times a day. I increased the dose as could be tolerated until more than 25 drops (1/4 gr.)—I do not remember just how much more, but more I know—were given three times a day (3/4 gr. a day). There were no bad effects at any time. Improvement and complete recovery accompanied its use.

I wish to say, also, that I dared to give these doses because of a case which I saw in Da Costa's clinic at Jefferson Medical College Hospital in October, 1888. A note made when attending these clinics reads: "Saw a young man on Oct. 20, 1888, who was taking 20 grains of pure nitroglycerin in 24 hours, for chronic parenchymatous nephritis, with good results and no bad effects. (See notes on clinics.)" This is no fiction. When the young man was presented, Dr. Stewart, chief of the clinic, read, "He is now taking 5 grains of nitroglycerin four times a day." Prof. Da Costa, interrupting, said, "You mean five hundredths of a grain." Dr. Stewart, blandly replied, "I mean five grains of the pure drug." Prof. Da Costa grew interested. Smilingly he said, "Let's see him take it." A dose of five grains was prepared in the presence of all. A sphygmograph was applied, and the dose was administered. Within less than three minutes the sphygmogram began to change in appearance. The effect, however, was not very great. The face flushed and the patient said there was just a slight fullness of the head. The records of Jefferson Hospital will corroborate me. And here is von Noorden, in 1904, saying that nitroglycerin may be increased in dosage to even 1/5 grain in 24 hours.

J. D. MADDOX.

ANSWER.—In spite of the large amounts of nitroglycerin which can be given to animals without fatal result, medical men generally have been very cautious regarding its administration to human beings. This wariness is doubtless due to the fact that alarming symptoms are sometimes produced by relatively small quantities of the drug. A dose of 1/8 of a grain (2 1/2 gtt. of a 5 per cent. solution) has been known to cause vertigo and collapse. The literature indicates that when a patient begins with very small doses and gradually increases the amount, a marked degree of tolerance may be developed. The large doses referred to by our correspondent are truly remarkable, and would doubtless make even v. Noorden shudder. Our advice would be to go very slowly always until the tolerance in a given case has been made out. The main point to which we desired to draw attention by our editorial was the uncertainty of dosage of nitroglycerin in tablet form and the desirability of prescribing it always in alcoholic solution.

ANTIQUATED TEACHING IN MEDICAL COLLEGES.

A. B. C. writes that he can not agree with Dr. Leffmann's statement in THE JOURNAL of February 4, p. 405, "that few if any teachers at the end of twenty years can represent the existing state of their science." A. B. C. says that men such as Osler, Welch, Halsted, Remsen and Kelly, of Johns Hopkins, and instructors, equally as long or longer in practice, in such institutions as Harvard, Chicago, Columbia, Ann Arbor, Pennsylvania and other universities, not only represent "existing" science, but are compelled to do so or original research would not progress; in fact, that no teacher would be tolerated at the leading colleges for more than a semester if he did not represent the "existing state" of his science. A. B. C. says that the teacher to whom he referred in his first letter teaches the physiology of years ago, and apparently knows nothing of electrotonus, or rather never mentions it in his lectures; that he never speaks of the neuron doctrine, or of regeneration of nerve fibers from the separated peripheral endings; that he attributes everything to "uric acid diathesis," while such products of metabolism as leucin, tyrosin, xanthin, nuclein, hypoxanthin, etc., appear to be mere words to him; that adenin and guanin are unknown; that he never mentions Flechsig's association centers in his lectures on cerebral localizations; that he seems unaware of the importance of oxybutyric acid in diabetes; that he still teaches the old idea of leucocytes producing the blood plaques; that his lectures indicate that he knows nothing of the internal ferment of the pancreas, or the presence of cholin in the cerebrospinal fluid, or the derivation of cholin from lecithin; and that Foster's Physiology and Howell's American text-books are apparently unknown to him except by name. He adds: "If, as Dr. Leffmann says, the charge of being behind the times could be used to vacate most professional chairs, why, then, I say, they should be vacated. Would any university tolerate an 'antique' teaching the chemistry, physics or biology of twenty years ago? Would any of our schools of pure science retain the teacher who teaches such physiology as I have cited? Why, then, are our medical schools so complacent and satisfied with themselves?"

Marriages.

JOHN K. JAMIESON, M.D., Chicago, to Miss Ethel Gibson of Waukesha, Wis., January 19.

ANDREW C. LAWRENCE, M.D., Baltimore, to Miss Rosa Levin, at Ellicott City, May 11, 1904.

CHARLES C. BRITT, M.D., to Miss Esther Tracey, both of Conshohocken, Pa., January 26.

FREMONT C. KNIGHT, M.D., Waukegan, Ill., to Mrs. Mary Holman, at Chicago, January 25.

RALPH S. MITCHELL, M.D., to Miss Mabel H. Lucas, both of Eden Prairie, Minn., January 25.

THOMAS S. LIPPINCOTT, M.D., Pottstown, Pa., to Miss Viola White of Mount Holly, N. J., January 30.

FRANK G. CARLSON, M.D., Thornton, Iowa, to Miss Mary Atwater of Iowa City, Iowa, February 1.

WILLIAM FORD WARD, M.D., to Miss Winifred Belle Farrington, both of Binghamton, N. Y., January 26.

EDWIN LINCOLN GOSS, M.D., Carrington, N. D., to Miss Nellie Della Standish of Sanborn, N. D., January 15.

FRANCIS W. DREW, M.D., Ethel, Mo., to Mrs. Lorena Lillian Cross of St. Louis, at Macon, Mo., January 26.

BEVERLY RANDOLPH KENNON, M.D., Norfolk, Va., to Miss Ruth Alexander Ferebee, at Oxford, N. C., February 1.

Deaths.

William Johnston, M.D. Transylvania University Medical Department, Lexington, Ky., 1838, the oldest practitioner in St. Louis, and third of the quartette of octogenarians honored two years ago by the St. Louis Medical Society at a banquet, to die; president of the St. Louis Medical Society for several years, died at his home in St. Louis, January 31, from senile debility, after an illness of nine weeks, aged 90. Eight ex-presidents of the society acted as honorary pall-bearers.

Phillip Long Dieffenbacher, M.D. Jefferson Medical College, Philadelphia, 1855; a member of the American Medical Association; the oldest practitioner in Mason County, Ill.; assistant surgeon and surgeon of the Eighty-fifth Illinois Volunteer Infantry in the Civil War; president of the Mason County Medical Society, and member of the Illinois State Medical Society, died at his home in Havana, Ill., January 29, aged 74.

John H. Doughty, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1863; surgeon during the Civil War; health officer of Matteawan and Fishkill, N. Y.; for several terms president of the Dutchess County Medical Society, died at his home in Matteawan, January 28, from pneumonia, after an illness of four days, aged 74.

John Shore, M.D. Jefferson Medical College, Philadelphia, 1842, formerly a member of the St. Louis city council and board of health, and a pioneer practitioner of that city, died at his home in St. Charles, Mo., from catarrhal pneumonia, after a long illness, aged 85.

Frederick Otis Spooner, M.D. University of Vermont Medical Department, Burlington, 1892, of Sherburne, N. Y., died at Faxton Hospital, Utica, N. Y., January 30, a few hours after an operation for obstruction of the common duct, aged 38.

Mathew R. Hall, M.D. New York University, New York City, 1857, colonel in the Confederate service during the Civil War, died suddenly at his home in Warrenton, Ga., January 28, from heart disease, aged 62.

Henry Boynton, M.D., Vermont Medical College, Woodstock, 1852, surgeon during the Civil War; author and lecturer on historical subjects, died at his home in Woodstock, Vt., January 30, aged 81.

Charles C. Ellis, M.D. University of Vermont Medical Department, Burlington, 1867, died at his home in Somerville, Mass., January 28, from pneumonia, after an illness of two weeks, aged 57.

Eugene C. French, M.D. University of Michigan Department of Medicine and Surgery, 1882, died at his home in Orlando, January 26, after an illness of four years, from chronic bronchitis, aged 50.

Edward Linzee Cunningham, M.D. Harvard University Medical School, Boston, 1832, said to have been the oldest graduate of that institution, died at his home in Newport, R. I., January 29, aged 95.

John Bagby, M.D. University of Maryland School of Medicine, Baltimore, 1867, died suddenly from heart disease at the residence of his daughter in Lake Village, Ark., January 29, aged 61.

Henry C. Herring, M.D. University of Louisville (Ky.) Medical Department, 1859, died at his home in Lancaster, Ky., January 19, from septicemia, after an illness of three weeks, aged 72.

John M. Donlan, M.D. Harvard University Medical School, Boston, 1897, a noted athlete, died at his home in Fitchburg, Mass., from consumption, after a long illness, January 26, aged 31.

Walter Day Otis Kellogg Strong, M.D. University of Buffalo (N. Y.) Medical Department, 1847, died suddenly at his home in Fishkill Landing, N. Y., January 26, from heart disease, aged 81.

Jesse C. Waldo, M.D. College of Medicine, Syracuse (N. Y.) University, 1897, died at his home in Hulburton, N. Y., January 24, from pneumonia, after an illness of nine days, aged 32.

Jephtha Phelps Haynes, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, died at his home in Beaumont, Texas, January 26, after a long illness, aged 78.

Francis J. Lemoyne Johnson, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1897, died suddenly at his home in Washington, Pa., January 25, aged 33.

Samuel Johnson Mathews, M.D. University of Nashville, 1859-1860, died at his home in Mayfield, Ky., January 21, from septicemia, after an illness of seven weeks, aged 70.

Virgil W. Conner, M.D. Illinois, 1890, died at his home in Lansing, Mich., of which he was city physician for two years, from paresis, after an illness of one year, aged 57.

Lucinda Dille, M.D. Cincinnati, Ohio, 1855, medical missionary in Jamaica for three years, died at the home of her nephew in Red Oak, Iowa, June 17, 1904, aged 83.

James McElderry Mullikin, M.D. University of Maryland, Baltimore, 1842, died at his residence near Collington, Prince George's County, Md., February 1, aged 85.

Andrew H. Askew, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1869, died at his home in Harrellsville, N. C., February 1, aged 61.

John Stoddard, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900, died suddenly at his home in Silver Creek, Neb., January 30.

Louis De Plasse, M.D. University of Louvain, Belgium, 1866, died at his home in New York City, January 24, from the effects of a runaway accident two years before.

William B. Squire, M.D. Cincinnati, 1857, surgeon during the Civil War, died suddenly from heart disease, January 28, at his office in Worthington, Ind., aged 74.

Dwight W. Chase, M.D. Jefferson Medical College, Philadelphia, 1846, formerly of Delphos, Kan., died at the home of his daughter in Salina, Kan., January 18.

Henry Vidal, M.D. University of Berlin, Germany, 1873, died at his apartments in Tacoma, January 21, from nephritis, after an illness of two years, aged 55.

Homer L. Bartlett, M.D. College of Physicians and Surgeons in the City of New York, 1858, of Brooklyn, died at Thomasville, Ga., February 3, aged 74.

Squire S. Dilley, M.D. Cincinnati, 1894, died at his home in Pemberville, Ohio, January 28, from pneumonia, after an illness of four days, aged 45.

William W. Wilson, M.D. University of Maryland School of Medicine, Baltimore, 1866, died at his home in Glenarm, Md., February 2, aged 78.

William A. Mitchell, M.D. Medical School of Virginia, Richmond, 1873, died at his home in Mangohick, Va., February 2, aged 63.

Callohill M. Stigleman, M.D. Medical College of Virginia, Richmond, 1857, died January 30 at his home in Floyd, Va., aged 75.

Jennie Low Lynch, M.D. New York City, 1897, died recently from pneumonia at the home of her mother in Liberty, N. Y., aged 40.

Andrew J. Wesco, M.D. Ohio, 1881, mayor of Seven Mile, Ohio, died at his home in that place, January 30, after a long illness.

Leonidas M. Jones, M.D. Ohio, 1857, died at his home in Brooklyn, Mich., from senile debility, January 30, aged 82.

State Boards of Registration.

COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Alabama Report for 1904.—Dr. W. H. Sanders, chairman of the State Board of Examiners, reports the written examinations held in Alabama during 1904. The number of subjects examined in was 10, and percentage required to pass, 75. The total number examined was 138, of whom 13 were undergraduates. One hundred and eighteen passed, including 4 undergraduates, and 20 failed, of whom 9 were undergraduates. The following colleges were represented:

	PASSED.		
College.		Year Grad.	Per Cent.
Medical College of Alabama,	(1884) 90, (1892) 78, (1900) 96, (1901) 84, (1902) 87, (1903) 90, 91. In 1904 the grade of 77 was reached by three, 79 by one, 81 by one, 82 by one, 83 by four, 84 by two, 86 by three, 87 by two, 88 by one, 89 by three, 90 by two, 91, 94, 95 and 96 by one each.		

Tulane University.....(1904) 79, 79, 81, 87, 89, 89, 90, 96
Chattanooga Med. Coll., (1902) 78, (1904) 78, 78, 80, 83, 84, 84, 84, 86, 91.
University of Tennessee.....(1893) 80, (1904) 94, 95
University of Nashville.....(1903) 88, (1904) 75, 76, 78, 86, 86
Memphis Hosp. Med. Coll., (1903) 75, 79; (1904) 75, 78, 79, 80, 85, 86, 87, 87, 90.
Vanderbilt University.....(1903) 93, (1904) 82, 86, 88
Univ. of Virginia..(1897) 88, (1900) 90, (1901) 80, (1904) 79
Columbia University.....(1904) 84, 89
University of Naples.....(1900) 81
Meharry Medical College.....(1904) 82, 85; (*) 81
Maryland Medical College, (1904) 75, 77, 78, 79, 81, 81, 83, 89
Harvey Med. Coll., Chicago.....(1898) 79
Birmingham Med. Coll.....(1904) 94, 94, 96
Atlanta College of P. and S.....(1902) 88, (1904) 91, 93
University of Michigan.....(1903) 81
College of P. and S., Chicago.....(1898) 91
University of the South.....(1904) 85
Louisville Medical College.....(1903) 75, (1904) 82
Eclectic Med. Inst., Cincinnati.....(1902) 76
Georgia Coll. of Med. and Surg.....(1894) 76
Georgia Coll. Ecl. Med. and Surg.....(1904) 96
Leonard Medical College.....(1904) 89
University of Pennsylvania.....(1904) 90
Louisville Medical College.....(1903) 89
Illinois Medical College.....(1904) 78
University of Texas.....(1904) 81
Undergraduates.....76, 76, 79, 79

*Year of graduation not given.

FAILED.

Tulane University.....(1904) 73
University of Michigan.....(1904) 52
Medical College of Alabama.....(1904) 67
Eclectic Med. Coll., Atlanta.....(1904) 74, 50
Chattanooga Med. Coll.....(1903) 73, (1904) 54
University of Tennessee.....(1903) 73
Howard Medical College.....(1903) 72, (1904) 72
Louisville Hosp. Med. Coll.....(1904) 65
Maryland Med. Coll.....(1904) 51
Undergraduates.....69, 60, 58, 71, 74, 69, 73, 63, 54

The general average of all representatives of the Medical College of Alabama who passed was 86.2; of Tulane University, 86.2; of Chattanooga Medical College, 82.6; of University of Nashville, 81.5; of Memphis Hospital Medical College, 81.9.

Arizona January Report.—Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 2-4, 1905. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 80. The total number examined was 15, of whom 12 passed and 3 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Barnes Medical College	(1900)	80.5
Jefferson Medical College	(1903)	85
University of Iowa	(1900)	92
Illinois Medical College	(1901)	80
Cornell University	(1903) 89, (1904)	88
American Medical Missionary College, Chicago	(1901)	94
Bennett Medical College	(1895)	80
University of Southern California	(1904)	85, 81.6
College of P. and S., New York	(1888)	80.5
College of P. and S., Ontario	(1903)	89
FAILED.		
Illinois Medical College	(1901)	65.5
College of Medicine and Surgery, Keokuk	(1889)	50.6
Michigan College of Medicine and Surgery	(1902)	44

Association News.

Yellowstone Park—Portland Special.

A sufficient number have indicated their desire to take in the Yellowstone Park on the way to the next session of the American Medical Association at Portland to warrant engaging the park for the party. As indicated last week, the number will be limited to 250, and it will be well for those who intend to go to send in their names as early as possible. Mention of this special was made editorially in THE JOURNAL, January 28, and under "Association News" in last week's issue. Further information in regard to this and other trips will be published week by week as information reaches this office.

Bill to Incorporate the American Medical Association.

On February 2 Senator McComas of Maryland introduced in the senate the bill to incorporate the American Medical Association (S. 7040). It was read twice by its title and referred to the committee on the judiciary, which is composed of Messrs. Platt of Connecticut (chairman), Clark of Wyoming, Fairbanks, Nelson, McComas, Depew, Mitchell, Spooner, Bacon, Pettus, Culberson, Blackburn and Patterson. The introduction of the bill in the House was mentioned in THE JOURNAL, January 21, p. 227. The bill, therefore, is in both the Senate and the House.

The Senn Prize Essay.

The committee on the Senn Medal begs leave to call attention to the following conditions governing the competition for this medal for 1905: A gold medal of suitable design is to be conferred on the member of the American Medical Association who shall present the best essay on some surgical subject. The award will be made under the following conditions: (*a*) The name of the author of each competing essay must be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device is to be read at the session at which the award is made, and the corresponding envelope is to be then and there opened and the name of the successful author announced. (*b*) All successful essays become the property of the Association. (*c*) The medal shall be conferred and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the Association. (*d*) The competition is to be confined to those who, at the time of entering the competition, as well as at the time of conferring the medal, shall be members of the American Medical Association. (*e*) The competition for the medal will be closed on, and no essays received after, April 1, 1905. Communications may be addressed to any member of the committee, which consists of the following: Dr. James E. Moore, chairman, 704 Pillsbury building, Minneapolis; Dr. M. L. Harris, 100 State Street, Chicago; Dr. Floyd McRae, Atlanta, Ga.

NEW MEMBERS.

List of members for the month of January, 1905:

ALABAMA.

Mason, F. H., Brewton.
McDowell, Wm. P., Eufala.

ARIZONA.

Purcell, W. B., Tucson.
Rodgers, M. A., Tucson.

ARKANSAS.

Alexander, Frank Stan, Houston.
Baker, J. P., Morrell.
Counts, G. D., Wesley.
Hardin, A. E., Fort Smith.
Jordan, J. F., McNeil.
King, Marion N., Texarkana.
Moore, W. A., Hindsville.
Martin, J. E., Hindsville.
Neighbors, G. G., Warm Springs.
Paddock, C. B., Fayetteville.
Rieff, W. L., Perryville.
Stark, C. B., Little Rock.
Throgmorton, H. L., Pocahontas.

CALIFORNIA.

Anthony, R. Seldon, Fresno.
Burlew, Jesse M., Santa Ana.
Brink, H. O., Lakeport.
Blake, Wm. F., San Francisco.
Bertola, Mariana, San Francisco.
Benton, Julian J., Berkeley.
Bates, Homer O., Long Beach.
Brennan, T. F., San Francisco.
Clark, J. Emmet, Alameda.
Clark, John Ingram, Santa Ana.
deChantreau, J. D., San Francisco.
Day, Robt. V., Los Angeles.
Dawley, Chas. G., Los Angeles.
Franch, Chas. E., San Francisco.
Gerson, T. P., Los Angeles.
Hubbell, Geo. R., San Francisco.
Hull, Leonard C., Hollister.
Hastings, Hill, Los Angeles.
Inman, Thomas G., San Francisco.
Lartigau, August Jerome, San Francisco.
Leith, H. Ovonder, San Francisco.
Moulton, D. H., Chico.
Medlock, James Randolph, Santa Ana.
Moore, E. C., Los Angeles.
McCue, James Edw., San Francisco.
Ophuls, William, San Francisco.
Perry, C. D., Fresno.
Plymire, A. G., South San Francisco.
Pryor, F. O., Scotia.
Phelan, Henry R., San Francisco.
Robarts, H. P., San Francisco.
Rankin, J. E., Gonzales.
Reed, J. D., Covina.
Ritchie, A. M., Pacific Grove.
Shurtleff, F. C., Los Angeles.
Spalding, Alfred B., San Francisco.
Smith, R. K., San Francisco.
Thorpe, Lewis Sanborn, Los Angeles.
Thompson, Allen Milo, Sonoma.
Witter, G. F., San Jose.
Wilson, A. P., Los Angeles.
Wernigk, R., Los Angeles.

COLORADO.

Dyde, Charles B., Greeley.
Foster, W. C., Gulch.
Haggart, J., Durango.
Lathrop, H. R., Como.
Monroe, Duncan Daniel, Hillrose.
Midgley, Arthur E., Denver.

CONNECTICUT.

Beebe, George H., Guilford.
Dumortier, Jean, So. Norwalk.
Glynn, D. L., Portland.
Robinson, Paul S., New Haven.
Stanton, T. Francis, Bridgeport.
Turner, Arthur Robert, Norwalk.

DISTRICT OF COLUMBIA.

Heller, Joseph M., Washington.
Karpeles, S. R., Washington.
McLean, N. T., Washington.
Nichols, J. B., Washington.
Stitt, E. R., Washington.
Stromberger, Henry H., Washington.
Seibert, E. G., Washington.

FLORIDA.

McKee, W. P., Eustis.

GEORGIA.

Alexander, Geo. L., Forsyth.
Buxton, T. A., Girard.
Gostin, B. S., Macon.
Jeffords, H. M., Sylvester.
Tankersley, J. S., Ellijay.

IDAHO.

Cooper, A. J., Nez Perce.
Louis, J. D., Saint Anthony.

ILLINOIS.

Anderson, H. V., Westfield.
Brown, J. Archibald, Kankakee.
Burtt, A. S., Momence.
Benson, John P., Joliet.
Barton, Francis W., Danville.
Culter, F. O., Gibson City.
deTarnowsky, George, Chicago.
Ehle, C. E., Quincy.
Fitzpatrick, M. W., Decatur.
Fowler, J. V., Chicago.
Fantus, Bernard, Chicago.
Herzog, A. E., Ottawa.
Hedger, Caroline, Chicago.
Hartman, A., Chicago.
Hill, Chas., Chicago.
Hall, Geo. W., Chicago.
Hoiby, Chas. O., Chicago.
Ingalls, Frank M., Highland Pk.
Isaacs, L. J., Chicago.
Johnson, R. P., Chicago.
Jones, Walter C., Chicago.
Knox, William T., Manchester.
Kingsley, V. C. T., Danville.
Kurtz, Charles J., Chicago.
Kell, A. P., Kell.
Lovell, John Gibbs, Chicago.
McRoberts, Wm. A., Joliet.
Miller, David Warren, Gilman.
McCormick, Franklin L., Carthage.
Milligan, Geo. W., Edinburg.
McComas, George U., New Canton.
Munch, Louise L., Joliet.
McDonald, James T., Mattoon.
Miller, A. Merrill, Danville.
Malcolm, Janet, Chicago.
Mowry, A. E., Chicago.
McGown, Jno. D., Chicago.
Pollock, Arthur D., Rushville.
Porter, F. D., Chicago.
Rivard, Geo. J., Assumption.
Rhodes, S. Ora M., Bloomington.
Richter, Arthur J., Chicago.
Scheve, Elmer F., Mascoutah.
Servass, A. G., Havana.
Schoennesholfer, Wm., Lostant.
Smith, J. W., Cutler.
Smith, Orman E., Bushton.
Taylor, J. B., Bloomington.
Voight, C. B., Mattoon.
Wray, Austin L., Alexis.
Whitlock, C. E., Columbus.
Weir, Chas. F., Chicago.
Wassall, Joseph W., Chicago.

INDIANA.

Abel, O. E., Modoc.
Bird, Joseph E., New Albany.
Birchfield, James William, Guilford.
Berkley, A. L., Rensselaer.
Bulla, Joseph M., Richmond.
Courtney, Thomas E., Indianapolis.
Cluthe, Wm., Tell City.
Carter, Laura, Shelbyville.
Collins, C. C., Roachdale.
Coleman, Walter H., Evansville.
Duncan, Wm. F., Manchester.
Gardner, Lucy Woodward, Bloomington.
Hinkle, E. I., Goldsmith.
Hoggett, W. W., French Lick.
Hunter, F. S., Bedford.
Moroney, James H., Winchester.
McKee, Charles E., Dublin.
MacCammon, J. W., Laurel.
Poland, Ulysses G., Muncie.
Revis, George, Lafayette.
Robinson, George M., Loogootee.
Rose, Bishop A., Linton.
Roark, Charles A., Milton.
Reynolds, O. M., Clayton.
Shanklin, E. M., Hammond.
Schneider, A. L., Fort Wayne.
Spoor, John Sellers, Brooklyn.
Walters, C. R., Paxton.
Walter, Frederick J., Kramer.
Ward, Jno. P., Vevay.
Wybourn, D. C., Sheldon.

INDIAN TERRITORY.

Callaway, James R., Paul's Valley.
Martin, A. E., Marietta.

IOWA.

Choate, Cora Williams, Marshalltown.
Heald, Clarence L., South English.
Huffman, F. G., Gowrie.
Lambert, E. J., Ottumwa.
Lord, Frederic P., Iowa City.
Maxwell, J. P., Clearfield.
Pascol, M. D., Ottumwa.
Rennison, Allen Geo., W. Union.
Stoker, Wm. B., Hawarden.
Torpey, J. F., New Hampton.

KANSAS.

Axtell, J. T., Newton.
Algie, Robert, Linn.
Dykes, J. B., Lebanon.
Dykes, H. A., Lebanon.
Mason, E. G., Cawker City.
Riley, B. R., Coyville.
Taylor, N. J., Berryton.

KENTUCKY.

Agnew, C. L., Harrodsburg.
Anderson, W. H., Louisville.
Avritt, Beauford E., Bradfordsville.
Barber, J. L., Pembroke.
Barnhill, Jno. W., Owensboro.
Beard, J. H., Livermore.
English, Jno. Morris, Elizabethtown.
Erkiletian, Dickson H., Laytonsville.
Gore, R. C., Lone Oak.
Griffith, Daniel M., Owensboro.
Jackson, Jno. D., Danville.
Lee, F. W., Boxville.
Morrison, J. Rowan, Louisville.
McGary, J. R., St. Mary's College, St. Mary.
Mahoffey, J. A., Sturgeon.
Orendorf, Henry, Louisville.
Pack, John E., Georgetown.
Smith, Wm. Hereford, Lexington.
Scholl, Joel Buford, Jabez.
Sauter, Chas., Louisville.
Sublette, S. O., Mortonsville.
Travis, D. J., Eddyville.
Turner, Thomas H., Owensboro.

LOUISIANA.

McConnico, C. V., Kentwood.
Purnell, Millard R., Shreveport.
Willis, D. O., Leesville.
White, Ernest A., New Orleans.

MAINE.

Burr, Chauncey Rea, Portland.
Cochrane, Jasper Duncan, Saco.
Horr, Jacob L., Westbrook.
Lombard, Herbert A., Bridgton.
Littlefield, J. G., S. Paris.
Miller, Geo. W., Kennebunkport.
Milliken, Walter S., Madison.
Nichols, Jno. W., Farmington.
Prescott, Harry L., Kennebunkport.
Smith, Thos. P., Westbrook.
Stanhope, Alvin H., Dover.

MARYLAND.

Boyer, H. R., Accident.
Cole, Rufus I., Baltimore.
Cohen, Lee, Baltimore.
Emerson, Charles P., Baltimore
Hedges, H. S., Brunswick.
Mitchell, H. Arthur, Elkton.
Mullinix, Elisha E., Urbana.
Nalley, Harry, Accokeek.
Pennington, Jno. I., Baltimore.
Pound, Jno. C., Baltimore.
Sprecher, Daniel B., Sykesville.
Thornton, Jessie M., Baltimore.
Todd, M. L., Baltimore.
Todd, Geo. W., Salisbury.
Wegefarth, Geo. C., Baltimore.
Waters, Mary A., Baltimore.

MASSACHUSETTS.

Andrews, E. A., Newton Centre.
Blake, Allen Hanson, N. Cambridge.
Bailey, W. T., Boston.
Bond, W. L., W. Somerville.
Crowley, J. F., Adams.
Chase, Richard Fitch, Boston.
Drury, D. W., Lowell.
Donoghue, Jno. Joseph, Clinton.
Draper, Alexis L., Boston.
Dwyer, Jno. E., Cambridge.
Edmonds, Louis, Harwich.
Ely, Richard S., W. Townsend.
Fuller, Frederick H., Walpole.
French, C. E., Lowell.
Greenough, R. B., Boston.
Howe, J. D., Cheshire.
Haskell, Harris B., Auburndale.
Howland, Clarence E., N. Dartmouth.
Hurd, W. W., Adams.
Keene, Chas. H., Lowell.
Mead, Louis Guy, Boston.
McCarthy, T. F., Marlboro.
Markham, E. W., Lee.
Martin, Jno. M., Boston.
Norwood, E. W., Spencer.
Norris, Albert Perley, Cambridge.
Parker, Harry Caldwell, Boston.
Patterson, William Francis, Charlestown.
Smyser, Chas. J., Harwich.
Saunders, J. H., Brookline.
Warren, Henry Stanley, Boston.
Withington, Alfreda B., Pittsfield.
Wilbur, Hubert G., Fall River.

MICHIGAN.

Bruegal, Oscar A., Agricultural College.
Carroll, M. A., Ludington.
Daudna, J. F., Lake City.
Duguid, Lee H., Custer.
Fox, Jno. W., Orion.
Gregg, Wm. T. S., Calumet.
Godfrey, A. T., Holland.
Howell, M. L., Hastings.
Johnson, J. H., Midland.
Lawton, D. G., Cheboygan.
Livingston, G. M., Manistique.
Martin, Adelbert W., Howard City.
Olmsted, Stephen G., Kawkawlin.
Quick, P. H., Olivet.
Quick, Paul A., Muskegon.
Rowley, James Arthur, Durand.
Snyder, John, Mecosta.
Sprague, Frederick P., Wyandotte.
Sleight, R. D., Battle Creek.
Savage, A. E., Gowen.
Vernier, Jean A., Detroit.
Whitney, W. A., Big Rapids.
West, Arthur Eddy, Eaton Rapids.

MINNESOTA.

Aurness, P. A., Minneapolis.
Bendeke, Karl, Minneapolis.
Green, Eugene K., Minneapolis.
Hughes, Helen, Mankato.
Henry, Clufford E., Minneapolis.
Lewis, J. Davidson, St. Paul.
Livingstone, J. L., Wells.
Morell, Harry, Litchfield.
Mee, P. H., Gaylord.
Olson, O. Hansteen, Erskine.
Reineke, G. F., New Ulm.
Rogers, G. M. F., Buffalo.
Thomas, David Owen, Minneapolis.
Van Slyke, Chas. A., St. Paul.

MISSISSIPPI.

Anderson, Wm. C., Forest.
Donaldson, J. S., Algoma.
Flowers, H. J., Kilmichael.
French, J. C., Natchez.
Grady, William Jackson, Mettleton.
Hughston, W. L., Red Banks.
Henderson, J. W., Lyon.
Moody, W. E., Lake.
Rainey, P. T., Cascilla.
Williams, H. G., Mt. Carmel.
West, H. H., Gulf Port.

MISSOURI.

Apperson, Edwin L., St. Louis.
Ashley, John, Bloomfield.
Briney, E. A. P., Bloomfield.
Balsley, J. A., Kansas City.
DeLorme, Homer A., St. Louis.
Eure, J. B., Brookfield.
Goldman, Max, Kansas City.
Hammer, Marshall D., Bertrand.
Jacobs, Benj., Kansas City.
McClanahan, John M., Guilford.
Maynard, Geo. K., Hitt.
Pitney, Orville, Forest Green.
Platter, A. E., Memphis.
Rosebraugh, F. H., St. Louis.
Staats, Ethan F., Beaman.
Webster, Chas. L., Trenton.

MONTANA.

Lees, A. T., Whitefish.
Sullivan, J. B., Butte.

NEBRASKA.

Emerson, A. G., Lewiston.
Fitzsimmons, A. P., Tecumseh.
Hauser, Byron B., Hooper.
Hall, Byron W., Bennington.
Lucas, Charles, Shelton.
Moriarty, P. C., Omaha.
Rork, L. Wallace, Oxford.
Singer, Harold Douglas, Omaha.
Slusser, F. B., Greenwood.
Thurston, E. D., Burwell.
Van Keuren, Jno., Fullerton.

NEW HAMPSHIRE.

Brownrigg, A. E., Nashua.
Gilman, L. L., Rochester.
Jones, E. E., Colebrook.
Johnson, Francis E., Erving.
Knowlton, Jno. G. W., Exeter.
Little, C. S., Laconia.
Russell, Julia Wallace, Concord.
Taylor, Herbert Leonel, Portsmouth.

NEW JERSEY.

Adsit, N. H., Succasunna.
Burt, N. Howard, Ocean City.
Barrington, R. C., Mount Holly.
Cater Douglas Aymar, East Orange.
Clark, A. Schuyler, New Brunswick.
Hunt, Ralph H., E. Orange.
Hetherington, William, Jersey City.
Hughes, Frederick J., Plainfield.
Lawrence, I. Alfred, Elizabeth.
Leyenberger, S. B. Whitman, Newark.
Menk, Paul E., Newark.
Pechin, Edward C., Camden.
Simpson, Maxwell S., Middle Valley.
Staehlin, Edward, Newark.
Traub, Paul, Bordentown.

NEW MEXICO.

Clarke, S. C., Madrid.
Fest, Francis T. B., Las Vegas.
Radcliffe, Wm. D., Belen.

NEW YORK.

Aronson, M., New York City.
Blanchard, Geo. W., Highland Falls.
Belt, Henry, New York City.
Branth, J. H., New York City.
Bauer, Frederick E., New York city.
Friedman, Sam'l, New York City.
Foerster, F., New York City.
Hoving, Johannes, New York City.
Laidlaw, Frank W., Hurleyville.
Mayne, Henry H., Lockport.
Ochs, Benjamin, New York City.
Price, Norman W., Niagara Falls.
Sohmer, A. E., Buffalo.
Schneider, L. H. A., New York City.
Stocker, Geo. B., Buffalo.
Wilkins, E., New York City.
Ybarra, A. M. Fernandez, New York City.

NORTH DAKOTA.

Brustad, L. A., Park River.
Thompson, Roy C., Wilton.
Thelen, Wm. P., Carpio.

OHIO.

Bauer, Arthur C., Cincinnati.
Caris, T., Lykens.
Carney, A. C., Eldorado.
Faller, Albert, Cincinnati.
Gillette, A. E., Cincinnati.
Graefe, W., Sandusky.
Hall, Edward M., Delaware.
Harpster, C. M., Toledo.
Love, Wesley, Higginsport.
Langholz, H., Oak Harbor.
Miller, Jno., Cincinnati.
Osburn, C. W., Samantha.
Roebuck, Linn L., Richwood.
Sturgiss, A. G., Lower Salem.
Shirey, O. M., Cleveland.
Stix, Walter Henry, Cincinnati.
Schuffell, Harry M., Canton.
Soyer, Geo. P., Cleveland.
Smith, Frank, Lovett.
Tucker, N., Mt. Gilead.
Thomas, J. J., Cleveland.
Ward, Joseph, Cortland.

OKLAHOMA.

Cullum, Arthur B., Hennessey.
Clark, Fred H., El Reno.
Colby, Geo. Biscoe, Cloud Chief.
Hartford, Jno. S., Colony.
Kerley, James W., Cordell.
Pungardt, A. H., Cordell.
Sherburne, Alberto M., Cordell.
Tidball, Wm., Sentinel.

OREGON.

Herdien, Elmer F., Baker City.
Klopper, Henry, Kerby.
Parker, Ivan B., Grants Pass.
Smith, W. Carlton, Salem.

PENNSYLVANIA.

Anderson, Geo. R., Easton.
Adams, Charles T., Philadelphia.
Anders, J. Wesley, Philadelphia.
Beardwood, Matthew, Philadelphia.
Boyle, P. F., So. Bethlehem.
Dodson, Boyd, Wilkesbarre.
DeMuth, Jesse Smith, Grafton.
Dale, David, Currensville.
Ewing, G. J., Washington.
Eaton, Paul, Wilkinsburg.
Evans, Geo. O., Uniontown.
Falkowsky, Chas., Scranton.
Frey, Lewis, Scranton.
Faddis, Thomas M., Charlerol.
Graves, C. T., Monongahela City.
Hirsch, Charles S., Philadelphia.
Hosmer, Chas. M., Philadelphia.

Highley, Geo. E., Conshohocken.
Hausman, William A., Sr., Allentown.
Hubley, B. F., Norristown.
Hertzog, Chas. H., Pittsburg.
Heller, S. H., Lancaster.
Hartzell, R. K., Allentown.
Harris, Amos J., Hellertown.
Jordan, Henry D., Philadelphia.
Kirk, Geo. B., Kylertown.
Knowles, Frank Crozer, Philadelphia.
Laird, J. Packard, Devon.
Liggett, Samuel J., Philadelphia.
Mollmann, Rudolph C., Philadelphia.
Macfarlane, Catharine, Philadelphia.
Mann, Enos S., Dallastown.
Merrick, Geo. E., Genesee.
Noecker, Chas. B., Scranton.
Nesbit, Jno. C., South Burgettstown.
Otto, C. J., Allentown.
Price, Geo. E., Philadelphia.
Parker, Frank C., Morristown.
Pownall, Elmer E., Richboro.
Schumann, E. A., Philadelphia.
Scholler, C. W., Philadelphia.
Shimer, Sterling D., Easton.
Shope, Jacob W., Harrisburg.
Smith, John Green, Philadelphia.
Schamberg, Morris I., Philadelphia.
Shields, M. J., Scranton.
Schoffstall, Joseph Wellington, Sunbury.
Schultz, C., Danville.
Walter, J., Lebanon.
Weider, Henry S., Philadelphia.
Warmuth, M. P., Philadelphia.
Weeks, Albert, Phoenixville.
Wolff, W. E., Arendtsville.

PHILIPPINE ISLANDS.

Dudley, Frank Wilburn, San Fernando, Pampanga Province, Luzon.
Thomas, Jerome B., Jr., Baguio Benguet.

RHODE ISLAND.

Kennon, C. E. V., Providence.
Lovewell, H. P., Providence.
Miller, Albert H., Providence.

SOUTH DAKOTA.

Clauser, G. A., Bridgewater.
Jennings, R. D., Hot Springs.
Kalayjian, D. S., Parker.

TENNESSEE.

Erwin, W. T., Erwin.
Love, C. T., McLemoresville.
Lowry, Jas. B., McCays.
Peete, Edwin Morris, Memphis.
Roberts, T. M., Sweetwater.
Smith, J. H., Trimble.
Sevier, Jno. H., Brownsville.
Williams, Jno. P., Ravenscroft.

TEXAS.

Ahlers, O. C., Sherman.
Burditt, J. B., Brenham.
Beckmeyer, J. F., Hondo.
Bryan, O. J., Park.
Cantrell, C. E., Greenville.
Carter, Thomas Jay, League City.
Callan, G. P., Hasse.
Dobbs, J. C., Ganado.
Finney, William D., Wrightsboro.
Farrington, J. B., Chillicothe.
Fowler, Bradley A., Brownwood.
Fowler, Davis D., Paint Rock.
Greenwood, Jas., Jr., San Antonio.
Hanks, M. L., Barry.
Harral, Whitefield, Dallas.
Harris, R. A., Pleasant Grove.
Howard, Elmer M., Batesville.
Honeycut, Joseph B., Hookerville.
Hutchinson, G. W., Ebony.
Hearn, R. E., Mabank.
Jenkins, G. H., Howard.
Justice, A. L., El Paso.
Kruger, F. R., Galveston.
Kusch, L., Pottsboro.
Lemmon, W. N., Commerce.
Leach, Elisha, Galveston.
Lowry, Stanley T., San Antonio.
McCall, J. G., Brady.
McCracken, Joe Hill, Mineral Wells.
Miller, Felix P., El Paso.
Nibling, G. W., Miles.
Parks, J. M., Elkhart.
Phenix, N. J., Colorado.
Paxton, J. H., Elkhart.
Pedigo, H. B., Dearborn.
Proctor, T. K., Sulphur Springs.
Robertson, H. W., Waelder.
Reagan, W. H., Channing.
Simmons, D. H., Southmayde.
Sadler, Jos. G., Henderson.
Smith, I. S., Burgess.
Thornton, Charles W., Channing.
Thomas, E. M., Georgetown.
Walcott, H. G., Dallas.
Washburn, W. R., DeSoto.

UTAH.

Bickford, Frederick D., Salt Lake City.
Snyder, C. C., Salt Lake City.

VERMONT.

Arnold, Francis J., Burlington.
Bidwell, Geo. S., Waterbury.
Couter, G. O., Burlington.
Dalton, Chas. F., Burlington.
Gregg, J. W., Brattleboro.
Heidel, L. A., Rutland.
Johnson, C. K., Burlington.
Johnson, Robert W., Burlington.
Miner, R. H., Rutland.
Stone, B. H., Burlington.

VIRGINIA.

Burns, Oliver S., Lebanon.
Baptist, H. L., Ivy Depot.
Call, Manfred, Richmond.
Cottingham, G. R., Remington.
Delaney, Martin D., Alexandria.
Field, M. C., Independence.
Jett, E. T., Fredericksburg.
Osborne, J. D., Petersburg.
Ruffin, Kirkland, Norfolk.
Robbins, Chas. R., Richmond.
Taliaferro, B. L., Richmond.
Tompkins, J. Edwards, Fredericksburg.

WASHINGTON.

Austin, A. S., Aberdeen.
Hathaway, Jno. R., Everett.
Nelms, M. A., Walla Walla.
Reed, Connor O., Bellingham.
Russell, Montgomery, Seattle.
Thompson, J. D., Winlock.
Tripp, Geo. A., South Bend.
Yarnell, Silas, Spokane.

WEST VIRGINIA.

Dupuy, E. S., Parral.
Few, S. D., Parsons.
Riggs, C. W., Cameron.
Shawkey, A. A., Charleston.
Varner, H. V., Clarksburg.

WISCONSIN.

Bayer, Wm. H., Gleason.
Butler, F. E., Menomonie.
Denham, Jno. F., Downsville.
Gordon, W. A., Jr., Oshkosh.
Haddy, G. H., Park Falls.
Lothrop, Charles Arthur, Wautoma.
MacDonald, Ed., Cuba City.
Meyst, Chas. H., East Troy.
Muenzer, Richard Jno., Allenton.
Morse, E. A., Appleton.
Merritt, W. D., Janesville.
May, J. V., Red Granite.
Ruhland, G. C., Milwaukee.
Rowles, J. A., LaCrosse.
Ribenack, Geo. A., Menomonie.
Sleicher, J. M., Watertown.
Steves, Bert J., Menomonie.
Stubenvell, Carl E., Oshkosh.
Thayer, C. E., Markesan.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 4, 1905:

Brechemin, Louis, Jr., asst.-surgeon, reports as on temporary duty as examiner of recruits, San Francisco since Jan. 18, 1905.

Owen, William O., surgeon, ordered to proceed from Fort Logan, Colo., to U. S. Army General Hospital, Presidio of San Francisco for treatment.

Girard, A. C., asst.-surgeon, granted thirty days' leave of absence with permission to apply for thirty days' extension.

Torney, George H., deputy surgeon general, ordered in addition to present duties, to take charge of chief surgeon's office, Department of California, during leave of the latter.

Hoff, John Van R., asst.-surgeon general, promoted colonel, to date from Jan. 19, 1905.

Davis, William B., deputy surgeon general, promoted lieutenant-colonel, to date from January 19, 1905.

McCulloch, C. C., Jr., surgeon, promoted major, to date from Jan. 19, 1905.

Halliday, Francis A., contract surgeon, left World's Fair grounds, St. Louis, January 27, for his proper station, Fort McPherson, Ga.

McMillan, Clemens W., contract surgeon, returned to duty January 26, at Fort Terry, N. Y., from leave of absence.

Whinnery, Jean C., dental surgeon, ordered from Vancouver Barracks, Wash., to Forts Walla Walla and Wright, for temporary duty.

Adair, George F., contract surgeon, left Fort Wadsworth, N. Y., February 2, on two months' leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 4, 1905:

Miller, J., Jr., asst.-surgeon, detached from duty with marines on the Isthmus of Panama and ordered to the *Boston*.

McDonnold, P. E., P. A. surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Dispensary, Washington, D. C.

Webb, U. R., asst.-surgeon, ordered to the Bureau of Medicine and Surgery, Navy Department.

Elmore, B., A. A. surgeon, appointed A. A. surgeon from Jan. 24, 1905.

Ross, John W., medical director, retired, detached from duty under the Isthmian Canal Commission.

Smith, R. K., surgeon, detached from the Naval Recruiting Station, San Francisco, resignation accepted, to take effect February 28.

Means, V. C. B., surgeon, detached from the Naval Hospital, Philadelphia, and ordered to duty at the Naval and Marine Recruiting Station, San Francisco.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Feb. 1, 1905:

Brooks, S. D., surgeon, placed on waiting orders effective January 27.

Magruder, G. M., surgeon, granted extension of leave of absence for thirty days from January 22 on account of sickness.

Rosenau, M. J., P. A. surgeon, one day's leave of absence, Jan. 28, 1905, under Paragraph 189 of the Regulations.

Wickes, H. W., P. A. surgeon, granted leave of absence for one day, January 30. To proceed to Philadelphia and report to Surgeon Fairfax Irwin for special temporary duty.

Lavinder, C. H., P. A. surgeon, detailed as inspector of unserviceable property at the Purveying depot, New York.

Gwyn, M. K., P. A. surgeon, granted leave of absence for four months from January 19.

Long, J. D., asst.-surgeon, granted leave of absence for seven days from Dec. 21, 1904, under Paragraph 191 of the Regulations.

Robertson, H. McG., asst.-surgeon, granted leave of absence for six days from February 6.

Frost, Wade H., asst.-surgeon, directed to proceed to Baltimore and report to the medical officer in command for duty and assignment to quarters.

Mullen, E. H., asst.-surgeon, directed to proceed to New York (Stapleton) and report to the medical officer in command for duty and assignment to quarters.

Linley, W. J., A. A. surgeon, Department letter of Jan. 3, 1905, granting leave of absence for thirty days from Jan. 16, 1905, revoked.

Moncure, J. A., A. A. surgeon, granted leave of absence for thirty days from February 1.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, San Francisco, Feb. 1, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon W. G. Stimpson, chairman; P. A. surgeon J. M. Holt, recorder.

APPOINTMENTS.

Dr. Wade H. Frost, of Virginia, commissioned as asst.-surgeon in the Public Health and Marine-Hospital Service.

Dr. Eugene H. Mullen, of Maryland, commissioned as asst.-surgeon in the Public Health and Marine-Hospital Service.

RESIGNATION.

A. A. Surgeon A. C. Fraser resigned, to take effect Jan. 31, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Feb. 3, 1905:

SMALLPOX—UNITED STATES.

Arkansas: Jan. 21, Jacksonville, present; Helena, present; Little Rock, present; Lonoke Co., present; McAlmont, present; North Little Rock, present; Pulaski, present; Sweet Home, present; Ward, present; Wrightsville, present.

Illinois, Jan. 21-28, Chicago, 22 cases, 1 death; Danville, 3 cases.

Kansas: Topeka, Jan. 21-28, 1 case.
Massachusetts: Boston, Jan. 21-28, 2 cases.
Mississippi: Gulfport, Jan. 20, 2 cases.
Missouri: St. Louis, Jan. 21-28, 20 cases, 4 deaths.
Ohio: Toledo, Jan. 14-28, 6 cases.
South Carolina: Greenville, Jan. 7-14, 5 cases, 2 deaths.
Tennessee: Jan. 21-28, Memphis, 12 cases, 2 imported; Nashville, 5 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Dec. 1-31, 64 cases.
France: Paris, Jan. 7-14, 21 cases.
Great Britain and Ireland: Jan. 7-14, Belfast, 1 death; Dundee, 1 case; Hull, 6 cases; Leeds, 21 cases; London, 1 case; Manchester, 1 case; Newcastle-on-Tyne, 8 cases; Nottingham, 1 case; South Shields, 6 cases, 1 death; Glasgow, Jan. 13-20, 1 case.
Italy: Palermo, Dec. 24-Jan. 7, 31 cases, 6 deaths.
Norway: Christiania, Jan. 7-14, 10 cases.
Russia: Dec. 31-Jan. 7, Odessa, 2 cases; St. Petersburg, 7 cases, 2 deaths; Warsaw, Nov. 12-19, 1 death.
Spain: Cadiz, Dec. 1-31, 3 deaths.
Straits Settlements: Singapore, Dec. 24-31, 30 deaths.
West Indies: Island of Grenada, Dec. 29-Jan. 11, 4 cases.

YELLOW FEVER.

Mexico: Jan. 15-21, Merida, 1 case, 1 death; Tehuantepec, 1 case.
Panama: Panama, Jan. 25, 1 death.

CHOLERA.

Russia: Erivan, Dec. 21-28, 25 cases, 26 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, Dec. 3-10, 1 case, 1 death.

PLAGUE—FOREIGN.

Argentina: Santa Fe, Dec. 27, 1 death.
Australia: Townsville, Dec. 9, 1 case.
British East Africa: Port Florence, Jan. 1, 3 cases.
British South Africa: Durban, Nov. 27-Jan. 3, 1 case, 1 death.
Egypt: Dec. 24-31, Port Said, 1 case; Suez, 7 cases, 4 deaths; Tukh, 5 cases, 3 deaths.
Russia: Ural Territory, Dec. 26-28, 35 cases, 35 deaths.

Society Proceedings.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Dec. 14, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Differential Diagnosis and Treatment of Acute Pelvic Peritonitis Associated with Gonorrheal Salpingitis.

DR. BROOKE M. ANSPACH drew attention to the fact that while acute pelvic peritonitis of gonorrheal origin is best treated expectantly during the acute stage, it occasionally bears a close resemblance to acute appendicitis in which the expectant plan of treatment would be dangerous. The diagnosis is based largely on the mode of onset, the history of the patient and the presence of gonorrhea. Bimanual palpation in an initial attack of acute pelvic peritonitis due to the gonococcus is often negative because of rigidity of the abdominal walls and the slight structural change found early in these cases. After rest in bed, the use of salines, and hot applications to the abdominal wall, the symptoms subside in from three to ten days. At this time examination is painless, the structural lesions are plainly evident and operation should be performed. In case the expectant plan fails and the patient becomes progressively worse no time should be lost in opening the abdomen.

DISCUSSION.

DR. CHARLES P. NOBLE said increased experience led him to expect less from conservatism in gonorrheal salpingitis than formerly. His views regarding operation in acute gonorrheal peritonitis coincided with Dr. Anspach's. He recalled having operated twice in the acute stage; one was a case of diffuse peritonitis; the other, of a large abscess to the left of the sigmoid. Both patients recovered. One case in which the result of conservatism was a good one was that of a young woman who had acquired gonorrhea, and in whom peritonitis resulted in the formation of an extra-peritoneal abscess. He operated in the acute attack, drained per vaginam, and the patient made an excellent recovery. The woman has since married and borne children. Unless the patient is a young woman, it is Noble's rule to take out both tubes, the uterus and ovaries. He has never seen a patient die of gonorrheal peritonitis.

DR. JOHN G. CLARK said that the reason the gonococcus did not produce general peritonitis was because its chief habitat is the mucous membrane. As soon as the gonococcus leaves the fallopian tubes and enters Douglas' cul-de-sac, the peritonitis is merely toxic, due to the toxins of the gonococcus. He believes it unwise to operate during an attack of gonorrheal peritonitis. Illustrative of this he cited a case in which the symptoms had increased in severity and the question arose whether there was simply a gonorrheal peritonitis or involvement of the tubes and ovaries. Operation was done, the tubes and uterus being removed, and the ovaries left. Subsequently the woman developed a large abscess involving the ovary. Opening of the incision and further drainage were necessary. He emphasized the necessity of a close differential diagnosis and the importance of knowing when to wait until the acute attack had passed, and when not to wait but to operate for a more lethal type of infection. Dr. Clark believes in conserving all tissue possible, because the individual who usually contracts gonorrhea is a young woman. He feels that the conservative policy in some instances works splendidly, but in the majority of cases, badly.

DR. EDWARD MARTIN said that his experience in this class of cases in recent years had been only as long as was requisite to transfer the patient to the hands of a competent gynecologist, but that in earlier days he had seen many such cases which had made a prompt recovery under conservative treatment of the acute attack.

The Significance of Abulic Symptoms in Cases of Mental Disease.

DR. ROBERT H. CHASE, superintendent of the Friends' Asylum for the Insane, Frankford, Philadelphia, stated that besides hysteria where it strongly prevails, abulia is common in all forms of nervous and mental disease in which the chief characteristic is a weakening or exhaustion of the mental processes. It is particularly conspicuous in melancholia, dementia præcox, and in the depressive types of general paresis; in some conditions of neurasthenia and psychasthenia; in the intoxication of opium and alcohol, and in the retardation of manic-depressive insanity. He divides it into systematized, localized and general abulia. Under the systematized he gives the abulia of sleep. Among the forms of general abulia was given the intellectual type, in which the trouble lies in a defect of the attention. He spoke of the rôle that attention played in the normal mechanism of the mind, and under the term aprosexia he gave its various defects in disease.

The Advisability of a National Department of Public Health and a Medical Cabinet Officer.

DR. T. H. EVANS said this was suggested by the late Dr. William Pepper. He favors it as a means to centralize and to render more effective the many interests of the country that are medical. The supervision of education of children, so as to suit individual tastes, needs and abilities, is indicated. Physicians ought to control all matters which concern the physiologic welfare of the citizen. The care of criminals, once apprehended by the law, belongs properly to medicine. Colonies for mental and moral degenerates, if established, would materially reduce crime. The physical defects of children should be understood as productive of later immorality, or conducive to it, if suitable education does not intervene. Education and licensing of practitioners of medicine and surgery belong to a central office, whose executive head should have a place in the cabinet of the President.

DISCUSSION.

DR. EDWARD MARTIN thought that the question of education should be a matter of state control. In regard to criminals, imprisonment is not so much a punishment as it is a protection for the rest of the community. Too much leniency has been allowed criminals on a basis of mental defect. The idea of centralization is applicable to the subjects of sanitation and prophylaxis, particularly against contagious diseases.

DR. CHARLES K. MILLS believes that much could be accomplished by the establishment of a central health department of some description. He would be very glad to see the medical profession represented in the cabinet and believed much good

might come from such movement. It might, however, be better if a department of science were created with bureaus of different kinds, including a national bureau of health which would unify methods concerning matters of health in all parts of the country. With such a national organization much might be accomplished in matters of quarantine, the pollution of rivers, the registration and examination of physicians, and such questions as physicians have the first right to consider. Those who have committed crime, if their mental and physical health is a matter of question, should receive that attention which is often not given them both before and after trial and after conviction. Such questions as the care of the insane, the care of epileptics, the commission of crime by the young, would receive more humane attention if there were some method of regulating their consideration, and if that method were, in part at least, national and centralized.

DR. WILLIAM S. WADSWORTH said that questions which should come under the head of such a national executive department are the adulteration of foods, the study of sewage, the protection of life on railroads and in factories, child labor, the importation of hides and such materials, the quality of drugs and patent medicines. He regards as highly desirable the presence of a medical man in the cabinet.

Regular Meeting, held Dec. 28, 1904, at 8:30 P. M.

The First Vice-President, Dr. B. Franklin Stahl, in the Chair.

Food Preservatives and Food Adulteration.

DR. H. W. WILEY, chief of the Bureau of Chemistry of the United States Department of Agriculture, said that the necessity of preserving food in some way had been recognized since man emerged from his savage state. The development of the science of chemistry had placed in the hands of the manufacturer the means of preserving food and the means of matching foods in tints and colors. He believes the education of the public in regard to artificial coloring of foods to be quite as effective as legislation. After Feb. 2, 1905, the food law will require that all food products entering this country artificially colored should bear a label so stating. The material for coloring need not be declared, except when sulphate of copper is used. His advice to food makers is to cease using colors, and especially if the coloring is under suspicion of any kind. Concerning antiseptics he believes that there never should be an antiseptic admitted to foods, except when absolutely necessary, or when ordered by the consumer. There is, he thinks, a legitimate use for sulphurous acid, as employed in the fumigation of dried fruits, and the burning of the sulphur match in wine barrels, but when it is used for preserving a poor wine, and for putting on the market a new wine before it is ripened, its use is unpardonable.

Defects in Pennsylvania Food Legislation.

MR. W. W. SMITHERS said that the laws on this subject now being enforced in Pennsylvania are not the expression of the wishes of the people, and that they result in unnecessary interference with manufacturers and merchants. He advocated the repeal of the Act of 1895 and the enactment of laws based on the preservation of health and protection against fraud. He stated that the office of dairy and food commissioner is unconstitutional; that the existing food statutes are imperfect and open to many just complaints, and that every effort should be made to secure reasonable and adequate legislation on this important subject.

The Evaluation of Evidence as to the Pharmacologic Action of Food Preservatives.

DR. THOMAS LUTHER COLEY stated that as an economic principle it is apparent that a nation of eighty million people could not be fed from the farm to the table or from the local abattoir to the table. There arises the complex problem of transportation of food in an edible condition. The use of chemical preservatives therefore becomes a necessity. Dr. Coley went over the grounds on which these are used, and reviewed the chief objections against their use. The dangers arising from reputably prepared food to which preservatives have been added, he said, are as nothing compared to the dangers from foods having undergone putrefactive changes. A problem of such importance should be settled by medical men and not by a lay jury in courts of law. Legislative enactments should not be made in advance of scientific knowledge. There must be disabuse of the mind of the criminality of intent on the part of reputable manufacturers and a sharp line should be drawn between adulteration and food preservation. The question to be decided is the action of very minute doses of food preservatives over a protracted period. In order to illustrate the faulty interpretations from research work undertaken on a wrong basis, Dr. Coley cited the papers of Pfeiffer, Kionka and Harrington dealing with sulphite of soda. In all these studies the amount of the drug used was higher than that employed for preservative purposes; too great quantities of meat were fed to the animals, and no variety of diet was allowed. Further, the animals were confined, of questionable health in the beginning of the experiments, and the deductions of these authors were not warranted so far as the use of sulphite of soda as a food preservative is concerned.

BUFFALO ACADEMY OF MEDICINE.

Regular Meeting of the Medical Section, held Jan. 10, 1905.

Dr. Allen A. Jones, Presiding.

The Treatment of Pneumonia.

DR. DELANCEY ROCHESTER based his remarks on a series of 201 cases, with 16 deaths, a mortality of 8 per cent. Twenty-five of these cases were under 20 years of age; mortality, 4 per cent. Between 20 and 50, 115 cases, with 6 deaths; over 50, 61 cases, with 9 deaths. Rochester counseled against the early use of digitalis for the purpose of aborting the disease, because once the chill has occurred the disease is well established; and, furthermore, digitalis does not overcome the toxemia. In his opinion the Brand bath meets few of the indications. He does not use anti-pneumococcic serum because as manufactured in this country it is not reliable, and its cost is so high as to be prohibitive, in many cases. Creosote and guaiacol, used in large amounts by mouth and as an inhalation, are toxic and irritate the kidney, hence their use as stimulating diuretics is contraindicated. The nutrition is sustained by milk, raw eggs, plenty of fresh air and sunlight, and boiled or sterilized water. The toxemia is relieved by diuresis—induced by the administration of large amounts of milk and sterilized water; diaphoresis—hot mustard footbaths every four hours; catharsis—calomel followed by a saturated solution of Epsom salts. The mouth should be cleansed often by an antiseptic wash. The heart should be examined as often and as thoroughly as the lungs. It should be stimulated sufficiently early in the disease. For this purpose Rochester recommends strychnin—two milligrams every four hours, increased, if necessary, to four milligrams, every two hours; brandy—because of the ether it contains, and the carbonate of ammonia. To combat the pulmonary congestion, leeches and wet or dry cups are applied to the affected lung. Dry cups should be applied every four to six hours and kept on for one-half hour each time. Rochester has been able to verify, post-mortem, the value of dry cupping. He condemns the use of poultices, ice locally, and the old pneumonia jackets. He uses a light woolen jacket. The application of leeches and the ice bag over the precordium often will prevent a complicating pericarditis. Endocarditis may be combated by the hypodermic administration of nuclein. For the accompanying pleurisy, dry cupping, codein or morphin is given. If there is a pleural effusion, paracentesis is indicated, and empyema demands surgical intervention. In meningitis leeches are applied, sodium bromid is given and lumbar puncture may be done. With an enlarged right heart, frequent small pulse, arrhythmia, dyspnea and cyanosis the withdrawal of 10 to 16 ounces of blood from the median vein of the forearm will yield results in cases which otherwise

would prove fatal. In severe cases, hypodermoclysis is also of value. For prevention, the stools and urine should be disinfected; the mouth washed, frequently with an antiseptic solution and the sputum destroyed.

DISCUSSION.

DR. TARTARO said he used the antipneumococcus serum prepared by Paul of Naples in three cases, and believes it to be of value. He said that the reason why the profession in this country has not had the good results reported by European physicians is because the serum manufactured here is not a good one.

DR. VAN PEYMA strongly advocated plenty of fresh air.

DR. THOMA saw no reason why strychnin should be used as a heart stimulant instead of camphor.

DR. DEWITT SHERMAN prefers nitroglycerin because of its capillary dilating effect.

DR. BLAAUW expressed himself as being a believer in the efficacy of antipneumococcus serum.

DR. J. ULLMAN stated that he had often noticed the excessive bleeding following the application of leeches. The salivary gland of the leech secretes a substance which prevents the coagulation of the blood at the site of the application of the leech, and it is possible that the beneficial result obtained from such applications is, in part, to be accounted for by the injection into the blood of an anti-agglutinating substance. The Germans have separated a leech extract by crushing the heads of the animals and making an emulsion in glycerin. The good results noted in normal saline hypodermoclysis may be explained by the anti-agglutinating effect of sodium chlorid.

DR. ALLEN JONES deprecated the use of antipyretics because they crippled the heart by their depressant action.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.
CHICAGO.

(*Continued from page 156.*)

WÜRZBURG.

One of the most deservedly celebrated of the institutions of learning in Germany is the Royal Julius Maximilian University of Würzburg. Especially in medicine and in the natural sciences has this university a fair fame. It would be difficult to conceive of a better place for quiet work, for Würzburg is a small city of less than 80,000 inhabitants, beautifully situated among the vineyards in the valley of the Main, and the medical and philosophical faculties have for years included many of the most distinguished teachers and investigators in Germany. It was here that Emil Fischer did some of his best work on the synthesis of the sugars; it was in the physical laboratory nearby that Roentgen, in the course of his everyday work and in the middle of his otherwise relatively uneventful life, suddenly made that happy observation which set the world agog. The venerable v. Kölliker, who still lives in Würzburg, has given us an account in his autobiography of his own activities there. Boveri, the zoologist, has a world-wide fame; Medicus, Tafel and Manchot are names familiar to every investigating chemist.

The medical faculty is fortunate in having excellent laboratory buildings, beautifully situated on the Pleicher Ring and admirable clinical facilities in the large, well-organized, richly endowed Julius Hospital. Of the 1,400 students in attendance at the university last year, 461 were medical. The subjects of the first two years are extremely well taught, anatomy now under Stöhr's, physiology under v. Frey's, pathology under v. Kindfleisch's and pharmacology under Kunkel's direction.

Professor Stöhr, so well known to us in America through the translation of his admirable text-book, was called to Würzburg from Zürich and inherited the large modern Anatomical Institute from v. Kölliker. When an American enters the huge laboratories built for anatomy in Germany and in Austria, with their capacious and handsomely decorated entrance halls, their wide corridors, roomy amphitheaters, well-lighted dissecting rooms, elaborately organized study rooms and liberally outfitted research rooms for professors, assistants and advanced students, he realizes forcibly the advantages which accrue to the science in a country where for a long time it has been in the hands of men who have devoted themselves exclusively to it, and where it is studied for its own sake as well as taught to medical students as a foundation for their subsequent studies. In single institutions in America anatomy has been similarly recognized, living professorships have been established, adequate laboratories have been built, appropriations for staff and equipment have been made and work of the highest order is being carried on—but, in general, America has yet a long way to go in order to put this fundamental science on a level with that of continental Europe. But American universities and medical faculties seem to be wonderfully alive to the importance and needs of anatomy, and there seems every reason to believe that the excellent example set by a few of the leading institutions will soon be followed by the rank and file. And when this will have taken place, the European anatomists declare that they feel that they will be compelled to look to their laurels.

Stöhr's laboratory, so far as anatomic teaching (aside from research) is concerned, is one of the best organized I have seen. Here, if anywhere, one finds "anatomy made easy." Everything one can think of is done to help the student in his acquisition of the facts of the gross and the microscopic structure of the body. In the dissecting room, in the lectures, in the histologic laboratory, in the study-room and in the museum, no effort is spared that can contribute to the speedy, easy and accurate grasp of the multitudinous form relations which confront the beginning medical student in his study of the human cadaver. The leading principle with Stöhr (as with many modern teachers of anatomy), is that the student shall actually see as many structures as possible himself. And so he demonstrates *ad maximum*. In the lectures, the structures isolated by prosectors, are shown to the class; on the board careful pictures of the more important relations are drawn; on the walls are charts copied from the most accurate illustrations of current atlases. In the study room from day to day special demonstrations are made; special dissections or models of the same are exhibited, each part being ingeniously labelled for the occasion so that confusion of structures or names is scarcely possible; even the Steger models are placed beside life-size photographs of the same, each structure in the photographs being properly characterized by inscription in order to facilitate its recognition in the model.

A similar process of elaborate help is followed in the histologic instruction. With every section given out to the class for study a special demonstration is associated; in this demonstration a slide is placed under the microscope and beside it is a camera lucida drawing of the same field in which each structure has its appropriate legend. These drawings and legends are all controlled so that the student need not doubt their accuracy. In this way a difficulty is obviated—one which every teacher of histology who has had to deal with a large group of young assistants, has more than once keenly felt—I mean that of false instruction. Only too often does one find that a student who has applied to a young instructor for guidance has been led along a wrong path. The conditions in anatomic laboratories are such that young men with insufficient training have to be used as class-room instructors. Nothing is more discouraging to a student, or more likely to lead him to think a subject unimportant, than to find that the man who has been set to teach him can not tell the periphery of a lobule of the liver from its center, or the tractus solitarius from the descending root of the vestibular nerve. Much can be done to avoid the evil by systematic "instruction of the instructors" before the class meets. The real remedy is to furnish better trained instructors, and this will be possible when more money is available, when more men are drawn to the more purely scientific careers in medicine, and when the condi-

tions become such that it will be possible to draw a sufficient number of instructors from a class of men who, beside having done the "required" work for medicine, have had a prolonged course in "non-required" advanced work. One of the things most needed now in American laboratories is provision for advanced anatomic work. The organization of a number of courses suited to those who, having taken the regular courses in anatomy in the medical school, desire to develop themselves more perfectly in the subject, would be hailed with gratitude by many. It should be possible for a gynecologist-in-training, for example, to find a well-planned advanced course on the anatomy of the organs of the female pelvis. Courses on the anatomy of the eye, of the ear, of the nose and throat, also might be especially organized. Such courses are already offered in a few institutions, it is true; but might they not advantageously be introduced in many more places? There is a field also for the working out of advanced courses in general anatomy and histology in which the student could repeat some of the work already done by great anatomic investigators. If anatomic curricula were thus enriched, marked progress ought to be made and real anatomic research should quickly be forwarded —much more rapidly, perhaps, than by setting immature intelligences at so-called "original work."

I have spoken of the immense amount of help given to the students in the department of anatomy at Würzburg. In connection with this and similarly organized laboratories it may be asked: "Is not too much help given? Is there not danger of 'spoon-feeding' there? Is it not true that it is only that which a student acquires with a certain amount of difficulty and personal exertion which he will retain? Does not such a method of instruction make too great demands on the time and energies of the teaching staff? Is it not possible that the research work of the professor and his assistants will suffer in laboratories where teaching is so highly developed?" These are questions which can scarcely be satisfactorily answered offhand; that they should be asked, it must be admitted, is natural. So much depends on the quality of the students to be taught and on the character and ability of the teaching staff, especially of the head of the department in each instance, that no answer can be given which would hold generally. It is probably safe to say that students can not be helped too much, provided they are always helped in the right way, and it is nearly always the right way when they are helped to learn how to help themselves. The sea of anatomy—if I may be permitted to make a time-worn figure do service once again—is too wide and the time for its exploration too short for the student's boat to be permitted to drift aimlessly about on its surface; the teacher must stand beside the student at the helm and teach him how to guide it; he must accompany him into the more important harbors, pointing out to him the best modes of approach, the channels which experience has proved to be the shortest and safest, the landmarks which serve as guides and the hidden dangers which threaten the passage of the novice. It is his duty as quickly as possible to make the apprentice so familiar with the apparatus of the ship, with the use of the charts and the books of other navigators that he may by himself, unattended by an experienced seaman, visit any known anatomic port. He will see that the learner does actually visit and observe all those more important harbors with which every well-trained medical man must perforce be familiar, and he will encourage him to explore thoroughly even the very smallest landing places in some selected region of the body which may especially interest him. For the study of the charts and the descriptions of the voyages of others alone will never make a navigator; the most complete familiarity with anatomic pictures and the most thorough learning by heart of anatomic descriptions can never take the place of personal work in the dissecting room and in the histologic laboratory. If in his training the student learns how many different kinds of vessels may be employed and how variously each may be worked, if he practices charting his different voyages for himself and becomes skilled in the keeping of a brief and accurate log, it should not take him long to acquire that degree of knowledge and skill which will afterwards be sufficient for him in his work. The majority of medical students will never in their subsequent careers make journeys in anatomy outside of charted waters; indeed, practical medicine and surgery has commerce as yet with only a small fraction of the termini to be found on the anatomist's maps, though every day some terminus, hitherto neglected, becomes important. But the good anatomic captain will see to it that his pupil knows which waters are charted and which are not; to impress the facts on the learner he will occasionally make a short trip with him into an unknown bay, feeling his way continuously as he goes, sounding here and calculating there, filling in a new area on the chart or correcting an old one; now and then, his heart will be gladdened when an adventurous spirit turns up in the crew, who, in love with the sailor's life, and not satisfied with repeating the voyages made by others, is fired with the ambition to travel on and on into the unknown—a new anatomist may develop with the strength and courage to lay out his own course.

Professor Stöhr is ably supported by two associate professors, Oskar Schultze and Johannes Sobotta, both of whom are known to American medical men, the latter through his embryologic studies and his atlas of anatomy just published in Lehmann's series. Though Schultze's studies, notably those on the nature and origin of the peripheral nerves, have apparently led him temporarily into false paths, his work as a whole is most promising, and he is generally regarded as one of the very best of the younger school of German anatomists. Sobotta's new atlas, it must be admitted, is somewhat disappointing; moreover, it was scarcely needed, the field being sufficiently filled, for the present at least, by the magnificent anatomic atlases of Spalteholz and Toldt. Men with investigative power are so uncommon that the spending of their time in the unnecessary multiplication of text-books is deplorable.

The department of physiology in Würzburg is now one of the strongest in the institution. Under the direction of von Frey, so long associated with the distinguished Ludwig in Leipzig, this is no surprise. A most painstaking, reliable investigator himself, von Frey has understood how to attract to his laboratory a number of other investigators, among them men who stand in the front rank in contemporary physiologic research. The physiology building is excellently suited to its purpose; the equipment is adequate and the yearly budget relatively liberal. The teaching is carried on by means of lectures and laboratory work, the latter being made a main feature, Professor von Frey having been one of the first to introduce into Germany the admirable methods of practical physiologic instruction which had their origin in the medical schools connected with American universities, and which, among others, Porter of Harvard and Howell of Johns Hopkins have done much to develop and to systematize. Von Frey himself has a leaning toward mathematics and physics; excellently trained in these basal sciences himself, his original researches have enriched physiologic knowledge mainly along physical lines. I need only refer to his exquisitely delicate investigations into the nature of the functions of the sense organs of the skin, including his establishment of the spatial independence of the organs underlying the sensation of pain from those underlying the sensation of touch, and to his many contributions to the methodical and graphic study of the circulatory apparatus, to recall to American physicians the importance of his work.

Mention was made above of the high grade of physiologic investigators who have been attracted to v. Frey's laboratory. The most brilliant, perhaps, of these is the young Englishman, Overton, who, though academic positions have been offered him, prefers to keep himself unentangled from teaching responsibilities in order to devote his undivided attention to the labor of original research. His studies of the mode and action of narcotics, begun with Hans Meyer, the excellent pharmacologist at Marburg, have been most far-reaching in their results. No better example, perhaps, could be brought forward of how work begun on a specific problem in a limited field

may suddenly widen and permit of unexpectedly broad applications. Meyer and Overton began by asking themselves, How do narcotics act? The researches undertaken soon led to the putting of the more general question, How do substances of the most various sorts enter the cells of the body? Any substance, to act as a narcotic, must be able to enter the cells. Overton found that water can enter and leave cells quickly, and that of the organic substances, those penetrate the cells most quickly which, besides being soluble in water, are easily soluble in fats, such as the various fatty oils and certain allied substances like cholesterin, lecithin and protagon. Since the latter substances are known to occur very generally in animal and vegetable cells, it occurred to Overton that it is their presence in the cell which in large part determines the behavior of the cell as regards the reception into it of substances dissolved in the solution bathing it. If this were true, then the distribution of the substance in solution between the lymph on the one hand and the cell on the other will depend on the relation of its solubility in the water of the lymph to that in the fat-like substances in the cell. If the solubility of the substance in the cell fats or so-called "lipoids," be great, it will accumulate there and alter the function of the cell; if it be insoluble in the cell fats but easily soluble in water, it will not easily enter the cell.

An examination of narcotics showed that they could be divided into two great groups, (a) those that are chemically neither acids nor bases, but so-called "indifferent" substances, and (b) basic substances. To the first group, according to Overton's estimate, about one-half of all organic substances belong; the group also includes carbon dioxid, carbon bisulphid and nitrous oxid. When the concentration of the solution of a member of the group sufficient to cause narcosis of a given group of cells has been established, it is found that the same concentration of solution will generally exercise a similar narcotic effect on cell groups of the most various kinds. Further, the narcosis is temporary; when cells are removed from the narcotizing solution and placed in normal lymph or salt solution the narcotic effects quickly disappear and the normal function is restored; only when the concentration has been too great or the action too prolonged is the cell permanently injured.

To the second group of narcotics belong the organic bases and those salt-like compounds of them which on aqueous solution undergo hydrolytic cleavage, with reformation of the base. Ammonia belongs here also, but not solutions of sodium or potassium hydroxid. The nature of the cell membrane, its holding in lipoid substances, determines apparently its impermeability to dissolved electrolytes on the one hand and its easy permeability by substances soluble in fat on the other. The action of the organic bases of this second group of narcotics is wholly different from that of the substances of the first group in that the concentrations effectively narcotic for one group of cells may be totally ineffective for a cell group of a different kind, the concentrations necessary varying in some instances in the proportions of 1 to 10. Further, the action is not temporary, but prolonged, even when the cells are placed again in normal lymph or salt solution. And again, the narcotic effect does not take place so quickly after the penetration of the substance into the cell; it appears more slowly and tends to be progressive in its intensity. The conclusion is drawn that the basic narcotics in all probability form tolerably firm chemical compounds inside the cells with certain of the cell constituents. Though they can penetrate the cells tolerably quickly on account of their solubility in lipoids, they are not easy to remove from the cells, once inside. This, perhaps, explains how it is that so small a quantity as 1/3 of a milligram (1/200 grain) of curarin per kilo of rabbit, as Böhm showed, will suffice by its accumulation in the motor end plates to totally paralyze the skeletal muscles of the body.

The action of the so-called indifferent narcotics appears, on the other hand, to be physical rather than chemical. This view is supported by their lack of specificity of effect, by the relative chemical inertness of most of the narcotics concerned and by the speedy recovery of the cell when its normal environment is restored. The richer a cell variety is in contained fats, the more narcotic it will take up. This explains, perhaps, the affinity of such narcotics for nervous tissues, especially for medullated nerve fibers.

The opportunities for the application of the doctrine to the practical experience of the physician are obvious. One recalls at once the relatively large amount of chloroform or ether an obese patient may require before narcosis is established; with great masses of adipose tissue in the skin and omentum, each fat cell dissolving out of the lymph its store of the circulating anesthetic, a much larger amount of the substance may have to be administered before the effectively narcotic concentration in the lipoids of the nerve cells is attained, than would be necessary in an emaciated patient, where, as is well known, the nerve cells are among the last to yield up their store of fat. It must ever be kept in mind that solubility in fat is not the only factor concerned in connection with the behavior of the indifferent narcotics; just as important is the coefficient of distribution of the substance between lipoid and water. If this coefficient, lipoid water, is great, then the narcotic will penetrate the cell quickly; if it is small, only slowly. The remarkable results of Overton's studies thus far make us look forward with eagerness to his further publications. He is now engaged on a study of the phenomena of imbibition, and we may, therefore, expect before long to have new light thrown on this process, so obscure and yet so important for the function of cells.

Another investigator in v. Frey's laboratory whose results merit close attention is Gurber. His studies of crystallized serum albumin from the horse have assumed especial interest now that chemists as well as physiologists are beginning to concentrate their minds on the problems connected with the nature of the proteid substances.

A new text-book of physiology by Professor v. Frey has just been published.[1] I am wondering if it might not be a good rule for every medical man, no matter what his special branch of work may be, to read carefully every few years the newest and best text-books of physiology as they come out. Physiology stands closer, perhaps, than any other of the so-called fundamental sciences to the practicing physician, to whom its relation is that of anatomy to the surgeon. How many medical men greeted with delight and read with instruction Howell's American Text-Book, Stewart's Physiology, Loeb's Lectures and Schaefer's English Text-Book of Physiology, as they appeared! These books gave us renewed stimulus; in a connected fashion we were able to get a grasp of the progress science had made since our student days. We went back to our daily work with clearer ideas, with a new insight into the processes which go on in those bodies we have to treat. A rational therapy of disturbed function is impossible when the normal activities are not understood; the more sharply the processes which go on in health are stamped on our minds, the less likely are we to go astray in combating disease. This new book of von Frey's can be warmly recommended as a guide for the better class of medical students; as a succinct, interesting epitome of the science as it stands to-day, it should be of the greatest service to the busy practitioner. I wish it could be translated into English.

In less than 400 pages von Frey has brought together the more salient features of modern vertebrate physiology. I say vertebrate physiology, for von Frey is a greater friend of the physiology of higher animals than of that of the protozoa. The two schools of physiologists appear to have difficulty in understanding and fully appreciating one another. But each school has its brilliant representatives, and we as medical men probably do best to neglect the strife of the schools and to assimilate to our own uses the contributions of each. Some day a higher, more philosophical physiology will unify the facts of the science. I have been reading von Frey's book in the

1. Von Frey, M.: Vorlesungen über Physiologie, Berlin (Springer), 1904, pp. i-x and 1-392.

train in those long, lazy intervals between stopping places, so characteristic of European railways. Typical of the book is the opening chapter, which deals at once with the application of the doctrines of the conservation of energy and of mass to the processes which go on in living beings. The student has his physiology presented directly as a continuation, with utilization, of his studies in chemistry, physics and anatomy. The dynamic conception of the body is impressed from the beginning. The modernity of the presentation is made obvious by the use of the cm., gr., sec. system of units; the systematic application of the dyne, the erg and the other members of this system of units to all scientific measurements is now a matter of duty; medicine has been too long blameworthy in this regard.

The original research of von Frey on the circulatory apparatus would lead us to expect that the sections of the book dealing with the blood, the work of the heart and the movement of the blood and lymph will be particularly strong and a perusal of them shows that the expectation is not disappointed. The series of beautiful experiments which physiology owes to Ludwig and his pupils are here successively presented and the results of subsequent investigators are carefully epitomized. The newer studies on the heart muscle and on the action of the valves of the heart can not fail to interest every clinician. The graphic methods for recording the evidences of activity in the various parts of the heart have undergone marked improvement of late. Especially valuable in this connection are the experiments of Einthoven, who registers the heart sounds synchronously with the apex beat. A whole series of new facts and a valuable critique of the older observations have resulted. Still more interesting and probably capable of greater application clinically is the method of studying the activity of the living heart by measuring the electric currents which originate at each beat. The capillary electrometer is the instrument used and the registered curve is known as the electrokardiogram. Some of our better American physiologists now give instruction in the use of the instrument in their practical courses, and it may be hoped that before long it will be more extensively employed at the bedside, especially as a method of correction of the original curves obtained has been introduced which permits one to eliminate the differences between individual instruments.

The section on the study of the pulse is largely an epitome of von Frey's former book on the subject; the three pulse-measuring instruments — sphygmograph, tachograph and sphygmomanometer—for the more accurate valuation of the various characters of the beat, are carefully described; von Frey's own contributions here to the improvement of the instruments are of high worth. The chapter on the vascular tonus will be of especial interest to medical men, now that clinicians are becoming more and more convinced of the vast importance of the condition of the small vessels at the periphery in all cases of disturbance of the circulatory apparatus. The chapter on this subject has been written with great care; the most important facts in a huge literature are given in résumé, and well-selected bibliographic references point the student to original sources of information. The fifth part of von Frey's book, that dealing with respiration, includes an interesting account of the studies of Bohr, who has, as is well known, revolutionized physiologic ideas in that domain during the past few years. Bohr has studied more exactly than had been done before the mode of combination of the oxygen in the circulating blood, and he and his pupils have shown that a fixed relation between the amount of hemoglobin present and the combined oxygen does not exist. His experiments also indicate that the hemoglobin of the circulating blood is a substance, the capacity of which for taking up oxygen is variable within certain limits which are as yet not fully understood. His studies of the compound which carbon dioxid forms with hemoglobin, the so-called carbohemoglobin, have shown that its formation is independent of the simultaneous presence of oxygen, and leads to no alteration of color that can be recognized either by the naked eye or the spectroscope; in all probability, therefore, the carbon dioxid unites with a totally different part of the hemoglobin molecule than that with which the oxygen combines. No less important, perhaps, are the studies of Bohr and Henriques on "internal respiration," through which they have been able to bring forward new facts concerning the exchange of oxygen and carbon dioxid between the blood and the tissues, and especially concerning the exact localization of the combustion processes. The discussion of the significance of the so-called "respiratory quotient" will be welcomed by many, for the clinicians who busy themselves with the study of diseases in which metabolism is markedly disturbed tend more and more to help themselves by calling to their aid the apparatus of Zuntz, or, better, that of Jaquet. It would seem a pity that so many metabolism experiments have had to be carried on, especially in clinical work, in a one-sided way. The measuring of the gas exchange alone suffices no more than a determination of the intake and output of nitrogen alone; but the great practical difficulty of comprehensive metabolic studies and the limited number of adequately trained assistants for the work probably explains the slowness with which progress is made along these lines. It must be pleasing to Americans to realize that thus far the experiments of Atwater are the best that have been made.

The sections of the book dealing with the physiology of digestion, absorption and assimilation are excellent. They could have been written only by one who has followed closely and with understanding the vast number of original researches dealing with the histology of the digestive and absorptive organs, the nature and action of ferments, and the organic and physical chemistry of the decomposition and synthesis of the proteid and carbohydrate substances. The more peculiarly biologic experiments, too, have been fully valued; the researches of Pawlow in Russia and of Cannon in Boston are given due prominence. Knowledge is moving with automobile speed in these districts; it is hard for a scientist to keep pace with it even in a "runabout;" he who will be abreast of everything must, of necessity, ride a "big machine."

The seventh and eighth parts of the book deal with the urine, with metabolism in general and with the maintenance of the body temperature; the remainder of the volume is devoted to a discussion of the functions of the muscles and nerves. Where all is good, it seems invidious to select any part for especial praise; I must state, however, that nowhere else to my knowledge is a better description given in so small a space of the functions of the organs of general and special sense. The central nervous system is dismissed, on the other hand, with a relatively meager account, a behavior for which, however, we can scarcely blame a physiologist when we recall how much of what is ordinarily given on the brain in text-books of physiology is really not physiology but anatomy. An American is somewhat surprised also to find no chapter in the book on reproduction; in Germany this subject is left to the text-books on anatomy. I have written chiefly, as will be seen, of the merits of the book, which seem to me unusual; it is a book which must appeal to those whose wish it is to see medicine brought more and more into accord with the exact sciences. But the book is not devoid of faults; the account given of the white blood corpuscles is defective and should be improved in another edition; there is no discussion of the theory of katalysis in connection with the description of the activities of enzymes, an omission which many will find hard to forgive, especially since the theory as put forward by Ostwald stimulates to important experimental work; and there are misprints here and there which mar the book. I miss, too, any reference to the important experiments of Stoklasa on the relation between the process of "internal respiration" and that of alcoholic fermentation. But these faults are such as can be easily corrected; the book as a whole is excellent and worthy of repeated reading and careful abstracting.

It is interesting to look over the list of names of younger men cited in the book. The names of Germany's former physiologists form a galaxy, in which Brücke, DuBois Reymond, Helmholtz, Ludwig and Weber were among the most illustri-

ous persons. Engelmann, Gad, Hering, Hermann, Hürthle, von Kries, Munk, Pflüger, Rosenthal and Voit are living, but can no longer be regarded as young men. Now we hear of Bethe, Bohr, O. Cohnheim, Cremer, Ewald, Einthoven, O. Franck, von Frey, Tucke, von Grützner, Gürber, Hofman, Kossel, Overton, Schulz, Siegfried, Steinbach and Verworn. Some of these are really not German; Bohr is a professor in Denmark; Einthoven is a professor in Holland; Overton is an Englishman working in Germany. Will the German physiologists of to-day rank with their predecessors, is a question which many are asking. The answer must be left to the future.

In Würzburg, von Leube is the professor of internal medicine. He is everywhere regarded as one of the best diagnosticians in Germany and his text-book on diagnosis has long been used and highly prized by American physicians who read German. I note that the last edition of this useful book has been translated into English by Dr. Salinger; it is certainly matter for congratulation that its contents have now been made generally accessible to English and American readers.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pneumonia.

The specific organism which is the cause of pneumonia, the *Micrococcus lanceolatus*, can be found in any part of the respiratory passages in normal individuals. In pathologic conditions it finds its way into the blood of patients and in this way gives rise to various complications. Unless the pneumococci, therefore, are found in the sputum in pure culture their presence is of no diagnostic value. In many cases of lobar pneumonia other organisms are present, such as the streptococcus and Eberth's bacillus. The bacillus of influenza may be the etiologic factor in pneumonia; alone it never causes a true lobar pneumonia, but a lobular pneumonia which may be confined to one lobe as shown on autopsy.

PROPHYLAXIS.

The treatment of pneumonia may be divided into the prophylactic treatment and the treatment of the attack. The prophylaxis as recommended in the bulletin of the Department of Health, Chicago, consists in:

1. Destruction of the sputa.
2. Prevention of soiling the patient's surroundings and thorough disinfection of the room afterward.
3. Thorough ventilation.

GENERAL TREATMENT.

H. P. Loomis, in the Practical Medicine Series of Year Books, gives an account of the following general line of treatment of pneumonia in four of the leading hospitals of New York:

Calomel is first given in small doses, often repeated, followed by a saline in the morning. This is repeated during the course of the disease if necessary.

Flaxseed poultices are applied as local measures. In some cases the pneumonia jacket is used. The treatment of the fever varies. In some cases the tub bath is used at a temperature of 103 F. and over, when the patients are alcoholics or are delirious, and they are sponged regularly when the temperature is 102 F. For the very severe pain poultices are applied or a hypodermic injection of morphin is given if necessary.

For the insomnia, codein, trional or bromids are employed, and for cardiac weakness alcohol, strychnia and digitalis. Alcohol is administered in doses of one dram (4.00) at intervals of from one to four hours, according to indications.

Strychnia is used for two indications: 1. As a heart stimulant secondary to whisky. 2. Where there is evidence of pulmonary edema and cyanosis. It is given hypodermically in doses of grain 1/20 (.003) each. Digitalis is given in cases that do not respond to whisky and strychnia.

Although statistics have been gathered from various sources to prove the value of this or that drug as a specific in pneumonia the fact must not be lost sight of that pneumonia is a self-limited disease, and terminates suddenly in recovery. The reasoning, therefore, is not good that such results are due to certain specific lines of treatment, as statistics may show. But there are a few preparations which have proved so universally of value in the hands of competent observers that they are worthy of mention, among these may be mentioned quinin, creosote carbonate, digitalis, calomel and alcohol.

Rochester, in *Med. News*, Feb. 13, 1904, states that the present antitoxic sera are of no value in the treatment of pneumonia, and until a reliable antitoxin is obtained the treatment must continue along the lines of elimination and support of the patient. Large amounts of pure water should be given to increase the elimination. The eliminative action of the liver and bowels must be kept up through the vigorous use of calomel and salts. The skin must promote elimination through sweats induced by external heat. If indicated, the work on the right heart may be lessened by blood-letting. Stimulation to the heart may be obtained by administering strychnin, alcohol, ammonium carbonate, and, in suitable cases, the subcutaneous injection of the normal saline solution and local treatment applied by leeching and dry or wet cupping.

Sweating may be induced by the hot mustard footbath given in bed without any disturbance to the patient. The patient, in a nude condition, lies between blankets with his knees flexed, his feet in the tub which has been placed under the blanket, the long axis being in the line of the patient's body and legs; another blanket passes from under the tub up over the end and over the knees of the patient. From two to five blankets or a fewer number of blankets and a rubber sheet are then placed over the patient, extending from head to foot and tucked around the patient. The tub is at first filled half full of hot water, in which a heaping tablespoonful of mustard has been dissolved and hot water added as indicated. The bath is kept up for from thirty to forty-five minutes, according to the amount of sweating produced.

During the bath, cold cloths wrung out of ice water are kept constantly on the head of the patient.

The mouth should frequently be thoroughly cleansed with an antiseptic solution. In wet cupping, the author recommends that the cups be left on for half an hour and the process repeated every four or six hours. He relates the value of this procedure by anatomic conditions observed postmortem. He is not enthusiastic over the applications of ice locally.

The dangers of tympanites in pneumonia are regarded by some authors as being of as great a danger as its presence in typhoid fever, both in a mechanical way through pressure upward and embarrassment of the respirations and through the increased tendency to absorption of toxins. Therefore, the same treatment of this complication should be carried out as in typhoid by change of diet, irrigation of the bowel, salol and laxatives and local application of turpentine stupes.

The embarrassment shown by the lungs in any infection producing tympanites may be demonstrated on autopsy. Oestreich has shown that the atelectatic condition of the base of the lungs in young infants dying from acute intestinal troubles is the probable cause of the extreme prostration and death in these cases rather than the toxemia which is so frequently looked on as the cause.

The rules laid down by Lees for the use of the ice bag in pneumonia, as quoted in the *Sys. of Physiologic Ther.*, are as follows:

1. Apply the ice bag over the dull area and especially over the advancing edge of the consolidation.
2. If the area is large, use two ice bags, or even three.
3. Expect to find a distinct local effect (less bronchial breath-

ing and looser râles) on careful physical examination after the ice has been applied for twenty-four hours.

4. If fresh areas of consolidation develop use additional ice bags; four or even more may be used in a bad case. Correct dosage is as important as with drugs.

5. Apply hot water bottles to the feet and legs. In children apply these before applying the ice.

6. Examine the signs twice daily and shift the ice bags accordingly.

7. If pericarditis is present as a complication, place an ice bag over the heart.

8. If the temperature is below 99 F. or if the hands are cold or the lips blue, remove the bags for an hour, then replace them and use them for two or three-hour periods, with one or two-hour intervals.

9. In severe cases with cyanosis and with a rapid, feeble pulse, consider whether leeches would not relieve the right heart.

10. Pneumonia treated with ice within twenty-four hours after the rigor may sometimes be aborted.

In considering the efficacy of any treatment of pneumonia, Preble, in his recent work on "Pneumonia," states that the variations in the degree of malignancy in the different years must be taken into account; also the previous condition of the patient. Alcoholics, as a rule, are overworked and underfed. In any case, empiricism is not likely to succeed in the treatment of this disease. From a theoretical standpoint, the ideal treatment would be: 1. To destroy the infective agent; 2, to neutralize the toxic products. In this connection he states that no certain progress in the experiments with sera has been made. While some have claimed good results and success from such treatment, others have failed, and consequently any opinion concerning the benefits derived from their use must be held in reserve. He mentions the experience of others in the use of quinin, administered in the form of the tannate, and especially the hypodermic administration of the hydrochlorid in one-half gram doses, administered to patients who are delirous with a small, soft and rapid pulse. And while there is as yet no specific for pneumonia, as this author states, it does not mean that the physician must sit idly by; but, on the other hand, active, thoughtful, careful attention must be given to the patient, who should be placed in a large airy room, with a free circulation of air through one, or better, through two windows. The number of attendants should be limited to one or two. The temperature of the room should be held at 65 F. or less. The patient should be placed on a single bed, with firm springs and mattress. The clothing should be light, proportionate to the temperature of the room. The cotton jacket is of no benefit. The diet should be properly regulated and water offered the patient frequently.

No alcoholics are recommended except in extreme cases and in alcoholic patients. A proper amount of sleep must be obtained, and, if necessary, trional, chloral or whisky may be administered if absolutely necessary.

Fever.—The fever, when ranging under 105 F. in the young or 103 F. in the old, rarely requires more than the ordinary sponging or bath at 90 F. gradually cooled to 80 or 75.

Pain.—Pain can usually be controlled by the application of cold to the parts or counter-irritation by means of iodin, mustard, leeches, or cupping. If these measures fail, strapping the chest is recommended, as in case of a broken rib, using tape from one-half to one inch wide, and placing the lowest strip at the twelfth rib; each succeeding strip should lap over the one below. These should be carried up until the shoulder-chest muscles are reached, then strips should be carried from before backward over the shoulder.

As a last resort to stop the pain morphin may be given hypodermically in doses of grain ⅛ (.008) each.

Cough.—The cough should be treated only when persistent and when the patient is deprived of his rest. In such cases give morphin. The stimulating cough mixtures should never be given early and not until after resolution has commenced. Even in that stage Dr. Preble recommends in their stead guaiacol carbonate in five-grain doses (.30) three or four times a day, or combined with apomorphin, gr. 1/20 (.003).

Dyspnea.—Dyspnea, if it occurs before the second stage is reached, is best treated by venesection. If the patient is not too weak or anemic 18 to 20 ounces may be withdrawn with splendid results. The benefit of oxygen administration is very doubtful, and when it is given the cone should not be held too tightly against the patient's mouth, but some distance away.

Cardiac Failure.—Cardiac failure is the cause of death of the patient. The treatment for this condition consists in the local application of the ice bag, the administration of digitalis in the form of the infusion or fat-free tincture. The alkaloid digitalin has given negative results in Dr. Preble's hands, but he recommends digitoxin as a very valuable heart stimulant. He is of the opinion that the usually prescribed dose of grain 1/250 (.00025) is too large, and he has derived better results from the administration of grain 1/500, and even then the heart must be watched while under its influence.

In old heart lesions, digitalis and nitroglycerin are the ordinary preparations relied on. Cold baths, as a rule, will govern the nervous symptoms. In alcoholics, daily doses of chloral, grains 60 (4.00) may be given.

Small doses of morphin are of benefit in relieving the insomnia.

Delayed Resolution.—Delayed resolution requires a climate where the patient can get out every day along with the employment of the iodids, massage of the chest muscles and the practicing of breathing exercises.

DIET IN PNEUMONIA.

In pneumonia the diet is of the greatest importance. That form of diet should be prescribed which will not increase the cough in swallowing, and will not disturb the stomach and thus aggravate the dyspnea. During the height of the disease the patient should be kept on a liquid diet composed of milk, whey, meat juice, broths and egg albumin. The amount of starchy and saccharine foods should be limited. An abundance of water should be given either plain or carbonated, in order to increase the activity of the kidneys and promote toxin elimination. It is stated by some authorities that carbonated waters reduce the viscidity of the sputum, which, as a rule, is very tenacious in pneumonia.

The liquid diet should be continued until after resolution has commenced unless resolution is postponed, as sometimes happens, and if the patient shows failing strength other food may be added in the way of milk toast, scraped beef, and soft-boiled egg or eggnog. In some cases predigested foods must be substituted when the milk is not well borne.

Fruit may be allowed during the course of the disease, depending on the individual case, and especially is it of benefit during convalescence. Orange juice, lemonade and grape juice are of value during the severest stages. In children even more care must be given to diet, as the appetite is very variable and many resources must be at hand to meet their desires and needs.

Dyspnea in Bronchial Asthma.

Dr. W. F. Wagner, Washington, D. C., writes to THE JOURNAL concerning the use of suprarenalin solution for the relief of the distressing paroxysms of dyspnea in bronchial asthma. He administers, hypodermically, from two to ten drops of the solution diluted in from ten to twenty drops of normal salt solution or sterile water. He states that in a few minutes the distressing shortness of breath is relieved and the patient is able to breathe in a perfectly normal manner. Dr. Wagner finds that when given by the mouth the same results are not experienced. One injection may give complete relief or it may be necessary to repeat the dose in from eight to twenty-four hours. This treatment relieves the paroxysm, but no curative effect has been observed.

[To guard against accident, it would be well to commence with a small dose, as some patients are more susceptible to the drug than others.—ED.]

Medicolegal.

Sale of Liquor by Physician to One with Sickness in Family.—The Supreme Court of Arkansas says, in Blakeley vs. State, where it confirms a conviction of a practicing physician of selling whiskey without a license, that the statute of the state forbids the sale of whiskey without a license and makes no exception, but under certain conditions it permits regular practicing physicians to prescribe and to furnish such stimulants to patients under their charge in prohibited districts when deemed necessary for their treatment. If it be admitted that the sale of whisky by a physician for the purposes named, and after he has complied with the conditions of the statute as to the filing of his affidavit, would not be unlawful, still the statute clearly does not authorize the sale of whisky to a man simply because some member of his family was sick.

Liability for Malpractice. X-Ray Evidence.—The Supreme Court of Arkansas says that, in the malpractice case of Miller vs. Minturn, brought by the latter party, the injury was diagnosed as "a compound dislocation of the tibia at the ankle joint, complicated with a Potts fracture." The evidence on the part of the plaintiff fully sustained the charge of malpractice. That on part of the plaintiff approved his treatment, and exonerated him from negligence and unskillfulness. The jury settled the conflict in favor of the plaintiff. It was then insisted that the verdict for $1,500 was excessive. Mrs. Minturn suffered great pain for many months. At the time of the trial she was still unable to bear any weight on the injured limb, and the indications were strong that it would be years, if ever, before she regained use of her ankle. It was suppurating for many months after the physician treated it, and it was apparent that the bones were not properly brought together. The jury was convinced, from legally sufficient evidence, that this unfortunate condition was directly due to the unskillful and negligent treatment of the physician. The verdict was not excessive. Nor does the court consider that the physician could claim the exemption allowed by the constitution of Arkansas against execution on a judgment "on debt by contract," the action, in substance, being for the wrongful act (tort) of the physician. It says that the action could have been brought for breach of contract or for the tort (wrongful act)—in the former case relying wholly on the contract, express or implied, to treat skillfully and carefully, and waiving the tort, or, in the latter, the contract could be ignored, or pleaded as an inducement, and the action sound in tort alone. Again, the court says that the objection was made to the introduction of *x*-ray photographs of the injured ankle, on account of the alleged inherent weakness of such evidence, and lack of expert knowledge of those making them. The photographs were taken by a professor of the university, with an apparatus belonging to the university, and one of the best made. One of the plates was developed by the professor, and the other by an experienced photographer. The professor's knowledge of radiography was acquired from reading and experimentation. He was frank in admitting this was a subject not thoroughly understood by him, nor any one else. Counsel quoted medical authority to the effect that "radiography, though useful, is at times dangerous, by misleading; by no means to be assumed infallible by a jury or a court." Giving full sweep to this caution in regard to this new science, it did not prove the photographs inadmissible, but merely that they were not infallible and might be misleading. The frankness of the witness was a sufficient guard against their being treated as infallible, and there was nothing to indicate wherein they were misleading. There was no error in admitting them in evidence.

Malpractice Liability of Christian Scientist.—The Supreme Court of New Hampshire, speaking through Bingham, J., says that what the parties mutually expected, in the malpractice case of Spead vs. Tomlinson, was that the defendant would treat the plaintiff for appendicitis according to Christian Science methods; and it necessarily followed that the defendant, in the treatment of the plaintiff was to be judged by the standard of care, skill and knowledge of the ordinary Christian Scientist, in so far as he confined himself to those methods. Had the plaintiff been an infant, non compos, or had never assented to Christian Science treatment, then the question whether the practice of Christian Science, as applied to the treatment of appendicitis, is so contrary to common sense and reason that it would be negligent for such a practitioner to undertake to treat the disease, might be open to consideration by a jury. But being a person of mature years, and having sought such treatment, she could not complain that the method itself was improper. After the filing of the opinion by Bingham, J., on the request of the parties, they were further heard by brief and oral argument, and Young, J., prepared an additional opinion for the court, in which the conclusion is reaffirmed that plaintiff's intelligent and voluntary consent to follow the defendant's advice and to abide the result of his prayers was an answer, under the circumstances, to her claim for damages on account of negligence. It is said that nothing is opposed to public policy which is not forbidden by some provision of law, the contention that it would be contrary to sound public policy to permit the defendant to escape without paying damages must mean that there was some provision of the constitution or statute of the state, or of the common law, which made it illegal for the defendant to rely solely on prayer to heal the plaintiff when he knew she had chronic appendicitis, and which gave her an action to recover all the damages she sustained because of such reliance. The courts were not authorized to allow an action against the defendant, even if they thought he ought to have known that Christian Science must fail when applied to the treatment of chronic appendicitis, unless there was a general rule of law which gave such an action. If the plaintiff was to recover on the ground of public policy, she must establish (1) that it was illegal for the defendant to give her such treatment; (2) that the duty of not giving it was imposed on him for her benefit; and (3) that no illegal act of hers contributed to cause her injuries. Assuming (without deciding) that such treatment is forbidden by the provisions of section 8, chapter 278 of the Public Statutes of New Hampshire of 1891, which makes the killing of a human being by culpable negligence manslaughter, or by the provision of the common law which makes it unlawful for any one to do what is liable to endanger the life or health of others, and that the duty of not doing what is forbidden by either provision was imposed on the defendant for the plaintiff's benefit, the question still remained whether the plaintiff's own wrong contributed to cause her injuries. It is elementary that, if it was illegal for the defendant to treat the plaintiff as he did, it was equally illegal for her either knowingly to employ him to give her such treatment or to consent to be so treated. It did not follow, as a matter of law, from the fact that the plaintiff could not recover in this action on the claim of negligence, that the defendant would not have been guilty of manslaughter if the plaintiff had died from the effects of his treatment. If he had been indicted under the provisions of Sec. 8, C. 278, Pub. St. 1891, the state would base its right of action on his failure to perform a duty the law imposed on him for its benefit. The state has a direct interest in the lives and health of all its citizens. Every one who has to do with the lives and health of others not only owes the individuals with whom he comes in contact a legal duty, but also owes the state the duty of using ordinary care to do nothing which will endanger their lives or health. In an action by the state it would be no answer to show that, if the deceased had used ordinary care to avoid being injured, he would not have died; for the defendant is not indicted for his failure to perform a duty the law imposed on him for the deceased's benefit, but for his failure to perform one imposed on him for the benefit of the state. Assuming that the defendant's statement that he

could and would cure the plaintiff might be the foundation of an action of deceit, her case failed, for there was no evidence that he made it with a fraudulent intent. Although a jury could find from their knowledge of human affairs, their own experience, and the evidence in the case, that the defendant's statement that he could cure the plaintiff without the aid of any material agency, when he knew she had appendicitis, was untrue, it did not follow that they could infer, from the single fact that they were convinced of its untruth, that the defendant did not believe he could induce God to heal her when he made the statement. The plaintiff failed because of the insufficiency of her evidence to prove the facts necessary to maintain her case.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 28.

1 History and Development of Surgery During the Past Century. (To be continued.) F. S. Dennis, New York City.
2 Hepatic Abscess. N. W. Sharpe, St. Louis.
3 *Theory and Practice of Percentage Feeding in Infancy. W. P. Northrup, New York City.
4 *Lobar Pneumonia in Infancy. J. L. Morse, Boston.
5 *Foreign Bodies in the Esophagus. C. E. Black, Jacksonville, Ill.
6 Strabismus and Its Treatment. C. M. Harris, Philadelphia.

3. **Percentage Feeding in Infancy.**—Northrup discusses the question of infant feeding, especially with modified cow's milk. For those turning their attention for the first time to the subject, he offers the following guiding points to serve as a basis in the feeding of healthy infants: 1. *Sugar solution.*—For the first three to five days of life a normal infant may take a 5 per cent. watery solution of sugar of milk, 3 to 4 drams, every three hours. From the fifth to the seventh day, the infant may be given fats, 2 per cent.; sugar, 5 per cent.; total proteids, 0.5 per cent., or whey proteids, 0.25 per cent.; caseinogen, 0.25 per cent.; feedings, 10; amount in each feeding, 1 ounce; alkalinity, 5 per cent. Heated to 155 F. for twenty minutes, or raw, if preferred. Feed every two hours by day, twice at night. 2. *Low average breast milk.*—From the first fortnight to the first month, according to its ability to digest, the average infant may take this, which consists of fats, 3 per cent.; sugar, 6 per cent.; whey proteids, 0.5 per cent.; caseinogen, 0.25 per cent; feedings, 10; amount in each feeding, 1½ to 2 ounces; alkalinity, 5 per cent. Heated to 155 F. for twenty minutes, or raw. Feed every two hours. 3. *High average breast milk.*—For the second or third month this may be taken. It consists of fats, 4 per cent.; sugar, 7 per cent.; total proteids, 1 to 2 per cent., or whey proteids, 0.9 per cent.; caseinogen, 0.5 per cent.; feedings, 8; amount in each feeding, 3 to 4 ounces; alkalinity, 5 per cent. Take raw, if weather is not too warm. Intervals of feeding, 2½ hours. At 6 months, 6 feedings, 6 ounces; intervals, 3 hours; total in 24 hours, 36 ounces. Against constipation, give raw, unboiled proteids. Never consign a baby to a definite prescription, especially a weak one, and then forget it for months. Develop the feedings to the maximum (a good, full diet), especially the proteids, and give raw. Proteids can be given in clean, laboratory-modified milk to a higher percentage than earlier teachings lead us to believe. The feedings of an infant under a year old should be inspected every two weeks.

4. **Lobar Pneumonia in Infancy.**—Morse believes that the course and prognosis of this disease differ materially from the descriptions given in many text-books, and that the affection is far more common than is generally supposed. The clinical history and treatment of the condition are discussed in full.

5. **Foreign Bodies in the Esophagus.**—Black reports two cases of this kind and comments on the value of the Roentgen ray in arriving at a correct diagnosis, disclosing the nature and location of the body in the esophagus. He also emphasizes the value of fluoroscopy, not only as an aid to diagnosis but in directing and controlling the handling of instruments in the esophagus. One of his patients had swallowed an ordinary pin and the other a half-inch iron washer. The pin was removed with forceps under the guidance of the fluoroscope, but the washer could not be budged, owing to the extremely swollen tissues. This second patient expired suddenly, after vomiting a dark fluid consisting of partly digested blood and stomach fluids.

Medical Record, New York.

January 28.

7 *Pathologic Characters, Diagnosis and Epidemiology of Bubonic Plague. M. J. White, Washington.
8 *Limitations of the Office Treatment of Rectal Diseases. C. B. Kelsey, New York.
9 *Use and Abuse of Curettage of the Uterus. E. J. Browd, New York City.
10 *Gluttony or Food Poisoning as a Cause of Symptomatic Epileptic Convulsions. W. P. Spratling, Sonyea, N. Y.
11 Marked Mental Improvement Following Operation for Depressed Fracture of Skull. B. V. D. Hedges, Plainfield, N. J.
12 Geheimrath Dr. Dettweiler. Eulogy Pronounced on the Occasion of the first Anniversary of His Death. S. A. Knopf, New York City.

7. **Bubonic Plague.**—White describes in full the biology of the plague bacillus and its pathogenesis; the pathologic characters of the clinical varieties of plague, the bubonic, the pneumonic, and the septicemic; the postmortem appearances of the plague rat, insects, and other animals; the clinical and bacteriologic diagnosis of plague; the hosts and distributors of the infection, and the manner of its transmission from one place to another. As the principal transmitters of infection from port to port he recognizes: 1. Imports likely to be eaten or infested by insects and rats; 2, persons, wearing apparel and bedding; 3, scavenger and, possibly, granary insects; 4, rats and other animals.

8. **Limitations of Office Treatment. of Rectal Diseases.**—Kelsey says that a very large proportion of all cases of piles, fissures, superficial ulcers, and pruritus, and a certain proportion of abscesses and fistulæ may be radically cured in one's office without resorting to the use of ether or confinement to bed, but much judgment is necessary in selecting the proper cases. In general, it may be said that it is often simpler in the end and safer and more comfortable for the patient to operate at home or in the hospital.

9. **Use and Abuse of Curettage.**—Browd pleads for a more careful, discrete and scientific application of curettage: discusses the method of performance, its indications and contraindications, and cites several cases in which a disregard of necessary precautions resulted in serious consequences.

10. **Gluttony as Cause of Symptomatic Epilepsy.**—Spratling cites a case of epileptic convulsions due to dietetic errors, a fairly common condition, and one generally amenable to treatment. The patients are usually middle-aged men, leading inactive lives and eating and drinking to excess. The primary cause of the convulsive attacks in these cases seems to lie, first, in a weak stomach and, second, in some obscure disorder of metabolism. The type of convulsion is usually of the grand mal variety. The treatment consists of the elimination of waste and toxic products and the prevention of the recurrence of such products. Put the patient on a low diet, one that is easily digested, insist on absolute regularity in taking food, and going to bed on an empty stomach. Cut off all meat for supper and breakfast, and teach the patient to have a wholesome respect for cooked fruits, bread and butter, toast, milk, chocolate and cocoa, eggs, and other such things for supper. If there is a tendency to constipation, correct it by daily doses of the fluid extract of cascara, given some time before breakfast. Stop all use of alcohol, and if the patient is irritable or nervous, and if his attacks show a tendency to recur under the low dietetic régime, put him on a nerve sedative made up so that each dose represents from 10 to 15 grains of an equivalent of bromid of potassium. Let the patient take as much outdoor life as possible. Hydrotherapy is of great value.

Medical News, New York.

January 28.

13 *Irregular Features of Lobar Pneumonia. C. K. Law, Jersey City, N. J.
14 *Excision of Superior Cervical Ganglion of Sympathetic for Simple Glaucoma. C. W. Cutler, New York.

15 Homicide During a State of Somnambulistic Automatism. T. M. T. McKennan, Pittsburg, and W. K. Walker, Dixmont, Pa.
16 Diagnosis of Diseases of the Upper Abdominal Region. C. D. Hill, Jersey City, N. J.
17 Relation of Cholin to Epilepsy. (Concluded.) J. Donath, Budapest.
18 *Ruptured Ectopic Pregnancy, with Reference to Cases of the Acute Intraperitoneal Type. G. Walsh, Chicago.

13. **Irregular Features of Pneumonia.**—The irregularities to which Law calls attention are empyema, as a sequel; central pneumonia, or pneumonia with late localization; migratory pneumonia, and the sensation of the initial pain of the involved pleura in various parts of the abdomen.

14. **Excision of Superior Cervical Ganglion for Glaucoma.**—Cutler expresses the hope that this operation will not be allowed to fall into disuse because of any fancied difficulties it presents to patient or surgeon. The risk and discomfort is trifling in skillful hands, and the danger to the eye itself is entirely negligible. Whether this can be said of iridectomy, especially in chronic simple glaucoma, with the field near the fixation point, is open to discussion. Several cases are cited by the author to confirm his position.

18. **Ruptured Ectopic Pregnancy.**—Walsh merely emphasizes a single point in the treatment of acute, ruptured ectopic pregnancy, namely, the mistake of wasting time in the attempted removal of the blood clots.

New York Medical Journal.

January 28.

19 *Relation of Radiographic Appearances to Clinical Symptoms in Hip Disease. R. W. Lovett and P. Brown, Boston.
20 Vesicorectal Anastomosis. B. M. Ricketts, Cincinnati.
21 Ovarian Angioma. B. M. Ricketts, Cincinnati.
22 Case of Brown-Sequard's Paralysis Following Gunshot Wound in the Neck. A. Gordon, Philadelphia.
23 Significance of Abulic Symptoms in Mental Disease. R. H. Chase, Philadelphia.
24 Pathology and Treatment of Diabetic Gangrene of the Lower Extremity. (Concluded.) H. J. Whitacre, Cincinnati.
25 *New Stain for Bacillus Tuberculosis. I. S. Wile, New York City.
26 Some Abuses in the Intranasal Surgery of To-day. J. M. Mackenzie, Baltimore.
27 Recurrent Perinephritic Abscess of 26 Years' Standing, Presenting Clinical Picture of Addison's Disease. G. E. Moreen, Denver.

19. **Radiograph and Hip Disease.**—Lovett and Brown undertook to determine what value radiographs possessed, taken by themselves, in the diagnosis of hip disease, and especially in the detection of early disease. One hundred consecutive negatives of the hip joint were examined. The clinical history of each case was looked up later and the value of the opinion formed from the radiograph tested in this way. These cases included practically every obscure and difficult case of trouble in the hips seen during the last three or four years at the hospital in which these investigations were made, for such cases were likely to be *x*-rayed, whereas routine cases might not be. The 100 cases classed by the opinions expressed from examination of radiographs may be tabulated as follows: Normal, 20 cases; hip disease or probable hip disease, 61; old hip disease, 4; destructive disease, not tuberculous, 2; coxa vara, 2; doubtful or questionable, 4; abnormal, but not hip disease, 2; probable hip disease (proving to be abscesses of groin), 2; various diagnoses not borne out by clinical history, 3. Of the normal cases, 8 were radiographed for other affections, such as Pott's disease or stone in the bladder, and the hips were included incidentally. Seven cases were radiographed for suspected disease, but recovered so speedily that the affection was probably synovial. Two cases with a normal radiograph showed a typical history of hip disease. Three cases pursued a history not characteristic of hip disease. Therefore, the fact that the radiograph is normal is of much significance and should make one delay about diagnosticating hip disease in such cases. Of the 61 cases diagnosticated as hip disease from the radiograph, the clinical history was typical, and the subsequent course of the affection confirmed the radiographic diagnosis. The radiographic diagnosis of old hip disease was borne out by the clinical history. That of destructive disease not tuberculous proved to be osteomyelitis of both hips in one case, and in the other a hip following typhoid. The diagnosis of coxa vara was substantiated by the clinical diagnosis. In the two cases diagnosed as probable hip disease, the clinical records showed that these cases had suffered from an acute abscess of the groin in no way connected with the hip. The clinical history of the four questionable cases showed that in one there was atrophy, in another slight atrophy with some enlargement of the head and neck, in the third there was thickening of the head and neck and dislocation; in the fourth, slight atrophy with thickening of the head. The two cases classified as abnormal but not hip disease were found to be suffering from some acute affection of the hip, from which they recovered in a few weeks. In the remaining three cases the *x*-ray appearances did not agree with the clinical history. In two what appeared to be marked signs in the hip went with the history of a slight affection, and in the third an opinion was expressed that a destructive affection was osteomyelitis, while bacteriologically it proved to be tuberculous. The authors conclude that the value of the radiograph in the diagnosis of hip disease is great in the hands of persons of average experience. That a radiograph free from abnormal appearances does not show that hip disease is absent or will not develop, but that in a case of doubtful clinical diagnosis a normal *x*-ray is a matter of weight and makes the likelihood of speedy recovery greater than will a radiograph with abnormal appearances. In 95 of these cases the opinion formed from the *x*-ray was borne out clinically.

25. **New Stain for Tubercle Bacillus.**—Wile's method is as follows: The film is prepared and stained with carbolfuchsin in the usual way, but, instead of using Gabbet's solution, or decolorizing with acid alcohol and counterstaining with Bismarck brown, the smear is drained of excess of carbolfuchsin stain, washed in distilled water, and then plunged repeatedly into Labarraque's solution until the slide presents a uniform brown appearance. The slide is thoroughly washed in distilled water to remove an excess of hypochlorite solution, dried between blotting or filter papers, and examined with a 1/12 immersion lens. The tubercle bacilli appear as red rods on a brown field. Other bacterial forms, with the possible exception of the smegma and lepra bacilli, are brown in color—the red having been altered to brown by the action of Lebarraque's solution.

Boston Medical and Surgical Journal.

January 26.

28 Psycholeptic Crises. Pierre Janet, Paris.
29 *Gastroenterostomy (a preliminary note). J. G. Mumford, Boston.
30 Prophylaxis of Syphilis. W. G. MacDonald, Boston.
31 *Etiology of Pulmonary Tuberculosis Considered in Relation to Its Therapeutics. L. F. High, Southern Pines, N. C.
32 Points Pertaining to the Management of Diabetic and Non-diabetic Glycosuria. (Concluded.) H. Stern, New York City.

29. **Gastroenterostomy.**—Mumford proposes an operation he has practiced of late in cases of gastric cancer, which returns the parts to an essentially normal anatomic condition. The operation is an elaboration of the well-known procedure of Chabut. Mumford adds a fourth step to the operation, that of invariable, routine section of the pylorus. He says that it adds nothing to the risk, the vicious circle is rendered impossible, and the duodenum, being side-tracked, becomes a mere duct, a continuation of the common bile duct.

31. **Etiology of Tuberculosis in Relation to Therapeutics.**—High urges going beyond the findings of the microscope, and considers as a reason for the universal prevalence of the disease the incalculable extent of physical degeneration of median degree due to the simple lack of clean, pure, unbreathed outdoor air, on account of which tuberculosis finds a foothold. Treatment should be directed that way, in addition to efforts made to destroy the tubercle germ.

St. Louis Medical Review.

January 21.

33 Hydatid Cysts of the Liver. N. Macphatter, New York.
34 Case of Typhoid Perforation. J. Y. Brown, St. Louis.
35 Ibid. W. C. G. Kirchner, St. Louis.

University of Pennsylvania Medical Bulletin, Philadelphia.

January.

36 General or Localized Hypotonia of the Muscles in Childhood. W. G. Spiller, Philadelphia.
37 Congenital Spastic Rigidity of the Limbs. W. G. Spiller, Philadelphia.
38 *Pseudo bulbar Palsy. T. H. Weisenburg, Philadelphia.
39 Muscular Atrophy, Degeneration of the Trigeminus Nerve and of the Lateral Columns and Anemic Changes in the Spinal Cord Occurring in Tabes Dorsalis. C. D. Camp, Philadelphia.
40 Pathologic Study of Acute Myelitis. J., H. W. Rhein, Philadelphia.
41 Combined Pseudosystemic Disease with Special Reference to Annular Degeneration. A. R. Allen, Philadelphia.
42 Bulbar Symptoms Occurring with Carcinoma of Parts Other Than the Nervous System and Resulting from Intoxication. T. H. Weisenburg, Philadelphia.
43 Fibrous Nodules in the Cerebral Pia-Arachnoid Causing Appearance of Tuberculous Meningitis. C. D. Camp, Philadelphia.
44 Primary Degeneration of Pyramidal Tracts. Study of 8 Cases with Necropsy. W. G. Spiller, Philadelphia.

38. Pseudobulbar Palsy.—Weisenburg reports the following cases: 1. Man, aged 56, syphilitic. History of several attacks of hemiplegia involving the left side of the body, but no distinct history of a right hemiplegia, although the patient had subsequently slight attacks, and examination showed a weakness of all the extremities, distinctly more marked, however, on the left side. The reflexes were also more exaggerated on the left side. Sensation was normal. Speech was bulbar in character; there was difficulty in swallowing and eating; dribbling of saliva, forced crying and dementia. Microscopically, on the right side, an area of secondary degeneration was found in the middle part of the posterior limb of the internal capsule, and a sclerotic area in the outer portion of the lenticular nucleus. The middle part of the foot of the right cerebral peduncle was degenerated. Degeneration of motor fibers was traced through the pons and medulla into the lumbar region of the cord. In the cervical and thoracic regions the degeneration of the right direct pyramidal tract was more intense than that of the left crossed pyramidal tract. On the left side of the brain an area of softening was found in the knee of the internal capsule. The innermost part of the foot of the left cerebral peduncle was degenerated. The degeneration in the pons was limited to one or two bundles quite near the raphe and in the ventral part of the pons. In the medulla oblongata it was confined to the outer part of the pyramidal tract. In the cervical and in the mid-thoracic regions the degeneration was confined to the direct pyramidal tract. The nuclei and the intramedullary fibers of the different cranial nerves were normal. The optic and oculo-motor nerves were normal. The tongue and the laryngeal muscles were normal. Syphilitic round-celled infiltration of the pia was apparent in the cord and brain. 2. Man, aged 52 years, not syphilitic, had a number of attacks of hemiplegia, involving first the left side and later the right. Difficulty in speech and in swallowing became apparent after the second attack. All the extremities were weak, especially those on the left side. Sensation was normal. The patient was demented, had bulbar speech, difficulty in swallowing and chewing, and dribbling of saliva. An area of softening was found in the knee of the right internal capsule. Microscopically, an area of softening was found in the medulla, confined to the left pyramid, and a small part of the adjacent fibers of the left lemniscus. Other areas of softening were found in the knee and in the anterior part of the posterior limb of the left internal capsule, and in the ventral part of the red nucleus on the same side. Secondary degeneration of the pyramidal fibers was traced on both sides to the lumbar region of the spinal cord. 3. Man, aged 55 years, not syphilitic had several attacks of hemiplegia, confined to the left side. Examination showed a weakness of all the extremities, more so, however, on the left side. There was difficulty in speech, in chewing and in swallowing. Saliva dribbled from the mouth. The mentality was poor. Areas of softening were found on the right side of the brain, in the anterior limb of the internal capsule near the knee, and in the outer part of the lenticular nucleus, also involving the fibers passing to the posterior limb of the internal capsule. On the left side there was a scar of an old area of softening in the substantia nigra of the left cerebral peduncle. The median and adjacent part of the foot of the right cerebral peduncle was degenerated. The secondary degeneration of the motor fibers was traced to the crossed pyramidal tract of the cervical region of the spinal cord.

American Journal of Obstetrics, New York.

January.

45 Conception of the Sphere of Gynecology. J. Wesley Bovée, Washington.
46 *Further Results in the Use of a Modified Champetier de Ribes Balloon. J. D. Voorhees, New York City.
47 Accidental Perforation of the Uterus During Curettage; with Bowel Injury and Resection of Four Feet of Small Intestine. W. Hessert, Chicago.
48 *New Self-retaining Catheter and Vesical Irrigator. H. G. Wetherill, Denver.
49 *Suture and Ligature Material. C. E. Congdon, Buffalo.
50 Removal of a Dermoid Cyst and a Decomposing Fetus from the Uterus by Abdominal Section. J. A. Sutcliffe, Indianapolis.
51 Physometra; Pyometra; Hematometra. E. J. Mellish, El Paso, Texas.
52 Pregnancy Complicating Fibroids. D. W. Basham, Wichita, Kan.
53 Albuminuria and Nephritis of Pregnancy and Labor. R. W. Stewart, Cincinnati.
54 Dermoid Cyst of the Ovary Complicating Labor. W. M. Thompson, Chicago.
55 Early Diagnosis of Cancer of the Fundus. Hunter Robb, Cleveland.
56 Cystadenoma of the Pancreas Removed by Abdominal Section. L. H. Dunning, Indianapolis.

46. Use of Modified Champetier de Ribes Balloon.—Voorhees says that of the many measures in use for starting labor and for shortening its duration none is of more value in certain cases than the use of a conical cervical dilator—Champetier de Ribes balloon. The operation for the insertion of the balloon is very simple, except in a few instances, and can be done with one assistant—the nurse. An anesthetic is employed only in those cases where a preliminary divulsion or a manual dilatation of the cervix is necessary to get enough room for the insertion of the bag, where the cervix is so high that it is difficult to reach when the patient is very nervous and excitable, or where the vulvar orifice is very narrow and sensitive. Here light chloroform narcosis is all that is required. The bags employed by Voorhees differ very little from those of Champetier. They are identically the same in shape and are made with his principles—to be impermeable, to be inextensible beyond a certain volume, to be long enough to fill the cervix—in short, to simulate nature's bag as nearly as practicable. Voorhees' balloons differ somewhat in size and are made stronger in order to withstand the uterine and abdominal contractions, to resist the tension when filled with a fluid, and to permit a certain amount of traction on the tube without rupture. This required a foundation of thin canvas, instead of silk, covered by a thicker rubber outside, but, more than all, that the seams be firmly sewed and cemented, especially where the tube joins the ampulla. Some of the objections to the balloons are: 1. They may rupture the membranes. This happens rarely, and it makes little difference if they do, says Voorhees. If the fluid does escape, the dilatation is rapid enough to do little harm. 2. They may separate the placenta—only in placenta previa, but the bag arrests the hemorrhage. 3. They may increase the tension in the interior of the uterus, which is neither painful nor harmful. 4. They may displace the presenting part, but by slow distention of the bag and by watching the presenting part, it can be kept in place. This is more apt to occur in cases of flat pelvis. 5. The cord may prolapse, if it is long or loosely coiled about the neck. 6. Sepsis. If the aseptic technic is correct there should be no infection. Voorhees is convinced that the modified balloon is the best artificial hydrostatic dilator of the cervix; that it is especially effective in dry labors to start pains; that labor, if prolonged and protracted from whatever cause, is hastened and in a large percentage of the cases terminates spontaneously after their use: that the balloon is the best and most certain method of inducing labor for all indications, and that in eclampsia and in placenta previa the balloon has a field of usefulness which

diminishes markedly maternal and fetal mortality. In his private practice Voorhees has used the balloon in 39 out of 200 cases. One of these 39 cases was a dry labor. All the children did well. The balloon was used in 4 out of 19 prolonged or protracted labors. Three were primiparæ with occipito-posterior positions, and in 1 the pelvis was a flat justa-minor. In all, the membranes had been ruptured for some hours. Oxytocics and chloral had been used without success after the patients had been in labor from 13 to 39 hours. The cervix was tough in all cases and undilated beyond two fingers at the time of introduction of the balloons. Complete dilatation was accomplished in from 5 to 32 hours. All the mothers and babies did well. In the 200 cases, labor was induced 32 times. A bougie was used in 8, but had to be supplemented by a balloon. In 24 cases the bag was employed alone. Ten were primiparæ, 19 were multiparæ. The indications for the induction of labor were contracted pelvis, chronic endocarditis, prolonged gestation, accidental hemorrhage, albuminuria and threatened eclampsia and a history of previous difficult deliveries and still-births. All the children were born alive except one, a craniotomy case. Two subsequently died—a non-viable child in a case of accidental hemorrhage, and one of a case of premature twins. The balloon was also successfully used in two cases of marginal placenta previa. Statistics are also quoted in detail of 4,272 cases occurring at the Sloan Maternity Hospital during the four years ending Sept. 1, 1903, for which we must refer our readers to the original article.

48. See abstract in THE JOURNAL, vol. xvii, p. 487, ¶6.

49. **Suture and Ligature Material.**—Congdon has for several years employed catgut, which is modified so that it may be boiled like silk, and is, therefore, rendered thoroughly dependable for deep sutures and ligatures without destroying its ultimate absorbability or interfering with its natural adaptability for handling and tying. He takes dry catgut, which comes in strands ten feet long, carefully tests for imperfections by passing through the hands and noting its strength and inspecting it for weak points and irregularities, fastens one end to the end of a glass cylinder, for instance, an ordinary drainage tube which has a hole drilled near each end, winds snugly in a single layer, and fastens the other end similarly. Then completely submerges in a 3 per cent. formalin solution. No. 4 is allowed to remain in the solution for four hours, No. 3 for three hours and five minutes, No. 2 for two hours and fifteen minutes, and No. 1 for one hour and thirty-five minutes. The catgut is then removed and immediately placed in running water for the same length of time that it has been in the formalin solution. It is then dried in the open air at ordinary temperature, labeled and put away for future use. The catgut thus prepared may be handled precisely like silk, from which it differs only in its ultimate absorbability. The approximate time for which material thus prepared may be depended on to furnish support to the tissues is as follows: No. 4, seven days; No. 3, five days; No. 2, three days; No. 1, thirty-six hours. Where it is desirable to support and maintain the tissues in apposition for a long time, a 5 per cent. formalin solution is employed instead of a 3 per cent., and the gut is left in the solution for as long a time as is compatible with the preservation of a fair degree of flexibility. This time has been found to be approximately double that stated for the respective sizes of gut when treated by the 3 per cent. solution. In any case, the washing in running water is carried on for the same length of time used in the immersion in formalin solution. No. 4 gut, treated according to the latter specifications, will remain in the tissues for from four to six weeks, but is subsequently completely absorbed. No. 1 gut prepared by the second process may be used in surgery of the biliary or urinary bladder or their tracts with perfect safety. In obstetric practice No. 3 or No. 4 gut, prepared by the first process, is to be selected. In hernia operations, where there is likely to be considerable traction on the fascia, No. 4 gut will meet all expectations.

Archives of Pediatrics, New York.
January.

57 *Nervous Exhaustion in Infants. W. P. Northrup, New York.
58 Hodgkin's Disease Diagnosed as Malignant Lymphoma; Final Complication; Pulmonary Tuberculosis. D. H. Sherman and H. R. Gaylord, Buffalo.
59 Chorea Minor. Clinical and Therapeutic Data. H. W. Berg, New York.
60 *Hemorrhage of Syphilitic Origin in the New-born. W. R. Wilson, Philadelphia.
61 Duration of the Prodromal Period in Roetheln. D. J. M. Miller, Philadelphia.

57. **Nervous Exhaustion in Infants.**—Attention is called to this condition by Northrup, and a case is cited of a four-months baby suffering from nervous exhaustion, nervous dyspepsia and prostration, the condition being cured finally by instituting rest treatment and by providing an intelligent nurse. The baby made a good start in life, but after a few months social demands began to wear on the mother and the milk suffered. In addition to all this was the incessant wear on the child's nerves by the noise made by trolley cars and other street traffic and other injudicious excitement, such as waking the baby from sleep, jumping it in the air, etc. Quiet surroundings were provided, the infant was fed in a dark room, all unnecessary noises were either muffled or reduced, and, above all, a wise nurse was given sole charge of the infant. The result was that in a fortnight the baby was feeding on maximum diet, sleeping perfectly, and gaining in weight. It has thrived ever since.

60. **Hemorrhage of Syphilitic Origin in Newborn.**—Wilson says that the clinical manifestations which accompany hemorrhage are various, depending on the development of the infant as to prematurity, on the degree of blood dyscrasia, and probably on the thoroughness of the specific infection. He relates the following cases: 1. Death following umbilical hemorrhage, with wasting and signs of cerebral pressure. Autopsy revealed intracranial hemorrhage. History of syphilis in the mother. 2. Death in a premature infant following umbilical hemorrhage. Clinical evidences of syphilis during life in the form of vesicular eruption on the plantar surfaces. Autopsy revealed subarachnoid hemorrhage; infarction of both kidneys. A history in the mother of previous miscarriage in the third month. 3. Death from asphyxia. Skin hemorrhages in the form of more or less extensive extravasation. Syphilitic enlargement of the liver. Autopsy revealed nothing of interest beyond the liver condition. History of syphilis in the mother. 4. Death immediately following birth in a premature infant. Bleeding from cord; petechial eruption; marked syphilitic degeneration of placenta. 5. Ecchymosis of serous membrane and minute apoplectic areas in lungs. Tubercular syphiloderm in palmar surfaces. Laryngeal obstruction and marked scaling of skin during life. 6. Hemorrhage from mouth and cord complicated by icterus. Typical manifestation of congenital syphilis in the form of emaciation and pallor. Autopsy showed chronic hepatitis and suprarenal hemorrhage. 7. Hemorrhage from cord. Death followed inanition in the course of suppurating gummata of the scrotum and great toe. 8. Still-born infant. Gumma on external border of both feet. Scleral hemorrhage. Autopsy showed subarachnoid hemorrhage; enlargement of the thymus. 9. Still-born infant. Subcutaneous extravasation. Evidence of leakage from the cord after ligation. Bullous eruption of the palmar and plantar surfaces. 10. Still-born infant. Cutaneous hemorrhage. Autopsy showed pericranial and subperiosteal hemorrhage; subcapsular hemorrhage of the liver; syphilitic periostitis and necrosis of the cartilage of the nose existed in the mother.

Physician and Surgeon, Detroit and Ann Arbor, Mich.
December.

62 Pancreas in Amyloid Disease. E. E. Butterfield, Ann Arbor.
63 *Advantages of the Short Incision in Ideal Laparotomies. Bayard Holmes, Chicago.
64 Surgery of the Hand. Hal C. Wyman, Detroit.
65 Accidental Multiple Vaccination of the Face Associated with Psoriasis. D. M. Cowie, Ann Arbor.
66 *Duodenal Ulcer Caused by Pressure from Stones in Gall Bladder. G. H. Cattermole, Boulder, Colo.

63. **Short Incision in Laparotomies.**—Holmes points out that surgical incisions are made for the purpose of securing drainage and to give access to the parts. In the former instance there is every reason for a liberal gash, while in the latter case the wound must be closed again, and many reasons exist for an incision as short as possible. In the former case drainage must be adequate, and a longer incision will not detract from this end, while a shorter one is fatal to its purpose. In the latter case the cut must be long enough to reach the protected part, and if it is longer it only adds to the mutilation of the patients and to the disadvantages of closure. In operations about the face, cosmetic reasons exist for making a short incision, and in abdominal incisions for various purposes an extremely short incision prevents at once the disfiguring scar, prevents waste of time and suture, shortens the anesthesia, prevents the operation hernia, allows the patient an almost immediate erect posture and shortens the stay in the hospital. All these advantages encourage early, and therefore safe, operative procedure, diminish greatly the number of years of suffering by the multitude of patients who are deterred from seeking surgical relief by the long period of confinement, the risk of hernia, and the disfiguring scar which a long incision entails.

66. **Duodenal Ulcer and Gallstones.**—Cattermole's patient was suddenly seized with pain in the region of the liver, extending behind to the right shoulder. He soon became moribund; there was no pulse at the wrist; he could not swallow water; the abdomen was very much distended and tympanitic, especially over the liver; there was no peristalsis nor tumor. Death ensued within twenty-four hours. In cutting through the peritoneum, just below the ensiform cartilage, a large amount of gas and brownish fluid escaped. All serous surfaces were congested and there was considerable deposit of fibrin on the intestines and parietal walls. About the liver, stomach and duodenum there were adhesions, showing where fluid had been walled off. The gall bladder was contracted down over two large gallstones, and where the gall bladder came in contact with the duodenum an ulcer had formed, perforating the bowel. This ulcer was on the upper surface of the duodenum, about one-half inch from the pyloric opening of the stomach. The edges of the ulcer were hard and fibrous, showing a long-continued irritation. Evidently, the ulcer was caused by pressure from the gall bladder. The ulcer was largest on the peritoneal surface, sloping toward the opening in the mucosa. The patient had for years led a very sedentary life. thus probably lessening the danger of early perforation.

Journal of Infectious Diseases, Chicago.

January.

67 Some Physical Properties of Enzymes. E. J. Levi, Ann Arbor.
68 *Fatal Infection by a Hitherto Undescribed Chromogenic Bacterium Bacillus Aureus Fœtidus. M. Herzog, Manila, P. I.
69 Observations on the Bionomics of Anopheles. E. O. Jordan and M. Hefferan, Chicago.
70 *Summer Diarrhea in Infants. G. H. Weaver, R. M. Tunnicliff, P. G. Heinemann and Mae Michael, Chicago.
71 Identification of Alcohol, Soluble, Hemolysins in Blood Serum. A. Woelfel, Chicago.
72 Protective Inoculation Against Asiatic Cholera. R. P. Strong, Manila, P. I.
73 Studies in Phagocytosis. L. Hektoen and G. F. Ruediger, Chicago.

68. **Fatal Infection by Bacillus Aureus Foetidus.**—The observations reported by Herzog refer to a case of fatal human infection by a hitherto undescribed organism, which is evidently not very pathogenic in ordinary conditions and, as a rule, is probably a harmless saprophyte, which, however, in circumstances especially favorable may become parasitic and cause a fatal issue. The patient died rather suddenly, and it was suspected that he had died of plague, having an open wound on his right leg and a marked swelling of the inguinal glands of the right side. Cultures made from the liver and heart developed pure cultures of a short, small bacillus which produced a golden-yellow pigment. The name *Bacillus aureus fœtidus* was selected for this microorganism because of its chromogenic and malodorous properties. It is a short bacillus with rounded ends, varying in size from 0.6 to 2 microns long and from 0.55 to 0.8 microns in thickness. It frequently presents itself as a diplo-bacillus, and occasionally is differentiated with difficulty from true diplococci. It possesses a capsule of moderate size. Spore formation was not observed. The organism is not motile. It stains readily by the watery anilin stains, and when lightly stained it may show polar granules. Gram's method decolorizes the bacillus. In culture it produces an intense golden-yellow pigment, and all cultures where aërobic or anaërobic have a fetid, cheesy and somewhat cadaverous smell. The thermo death point of the organism was determined to be 62 C. It grows readily on all culture media.

70. **Summer Diarrhea in Infants.**—With a view to solving some of the problems connected with the intestinal diseases in children, the authors undertook to study all the cases of summer diarrhea presenting themselves at a Chicago sanitarium. Cultures were made and studied from 102 cases. From 76 cases no bacilli corresponding to any of the types included in the dysentery bacillus group were found. From 26 cases (25.4 per cent.) bacilli were cultivated which possess the cultural properties shown by one or the other member of the dysentery bacillus group. No culture was obtained which corresponded to the true Shiga bacillus. Grouped according to the classification of Flexner, 15 cultures from 11 cases correspond to the Flexner-Harris type, and 18 cultures from 17 cases to the bacillus Y type. From 2 cases both these types were obtained. The methods employed in testing the agglutinative properties of organisms obtained from these cases made use of four different strains of dysentery bacilli: 1, Shiga; 2, Kruse; 3, Flexner, and 4, the Y type. Of the 33 organisms examined, 29 gave positive results with one or more of the sera. Of these 29, 9 agglutinated with a single serum, as follows: 3 with Shiga's serum, 1 with Kruse serum, 4 with Flexner serum and 1 with Y serum; 12 agglutinated with two kinds of sera, as follows: 3 with Shiga and Flexner sera; 2 with Shiga and Y sera; 4 with Kruse and Y sera; 3 with Flexner and Y sera. Six agglutinated with three kinds of sera: 2 with Shiga, Kruse and Flexner sera; 1 with Shiga, Kruse and Y sera; 2 with Shiga, Flexner and Y sera; 1 with Kruse, Flexner and Y sera. Two organisms agglutinated with the four different sera employed. So far as the clinical features of these cases are concerned, dysentery bacilli were not found in all cases characterized by mucus and blood stools. The group of cases in which dysentery bacilli were isolated from the stools presented the clinical picture of ileocolitis, but these cases did not differ clinically from cases of iliocolitis in which these bacilli were not found.

Brooklyn Medical Journal.

January.

74 Lecture on Acute Septic Inflammations of the Throat and Neck. Felix Semon.
75 Cholecystitis: Its Diagnosis and Treatment. John B. Deaver, Philadelphia.
76 The Pathology of Cholecystitis. George P. Muller, Philadelphia.
77 Transillumination of the Stomach. H. W. Lincoln.
78 Some Thoughts on the After-care of Laparotomies. Clarence Reginald Hyde.
79 Colles' Fracture. William F. Campbell, Brooklyn.
80 The Clinical Significance of Tube Casts in the Urine. (To be continued.) Thomas C. Craig.
81 Surgical Anesthesia in Childhood. A. F. Erdmann.

Medicine, Chicago.

January.

82 Remarks on a Case of Severe Appendicitis Ending in Recovery Without Operation. Herman B. Allyn, Philadelphia.
83 Air, Food and Exercise in the Prevention of Tuberculosis. A. M. Fernandez De Ybarra, New York.
84 Skiagraph of an Old Ununited Fracture of the Scaphoid Bone Illustrating the Value of the X-ray in the Diagnosis of Such Fractures. Levi J. Hammond, Philadelphia.
85 Three Cases of Acute Hematemesis. F. Gregory Connell, Salida, Colo.
86 Modern Treatment of Specific Urethritis. H. M. Christian, Philadelphia.
87 Lecture on Tropical Medicine. George G. Groff, Porto Rico.

Denver Medical Times.

January.

88 Surgical Treatment of Displacements of the Uterus. R. C. Coffey, Portland, Ore.
89 The Diagnosis of Pregnancy. T. M. Burns, Denver, Colo.

The Vermont Medical Monthly, Burlington.

November 25.

90 Empyema. M. L. Chandler, Barre, Vt.
91 Typhoid Fever. Its Etiology, Modes of Dissemination and Treatment. E. H. Ross, St. Johnsbury, Vt.
92 Chlorosis. W. E. Lazell, Barre, Vt.
93 Conduct of Normal Labor. W. S. Marshall, Montpelier.

Nashville Journal of Medicine and Surgery.

December.

94 Ethics of Gonorrhea in Females. E. S. McKee, Cincinnati, O.

Pacific Medical Journal, San Francisco.

January.

95 Impotency; Medically and Legally Considered. R. W. Shufeldt.
96 Treatment of Localized Tuberculosis Lesions. E. H. Smith, San Francisco.
97 Active Principle Therapy. R. J. Smith, Smithfield, Utah.

The Texas Medical Journal, Austin.

January.

98 Some Remarks on the Operation for Hernia. T. J. Bennett, Austin.
99 Moccasin Bite Treated with Adrenalin Chlorid. R. Menger, San Antonio.

Northwest Medicine, Seattle, Wash.

January.

100 The Technic of Pelvic Operations by Vaginal Section. J. R. Goffe, New York City.
101 Periodic Headache. R. W. Perry, Seattle, Wash.
102 Injuries of the Spine with Report of a Case. W. C. Cox, Everett, Wash.
103 The Electrical Treatment of Chronic Constipation. J. R. Harvey, Sunnyside, Wash.

Virginia Medical Semi-Monthly, Richmond.

January 13.

104 Pneumonia—From the Practitioner's Standpoint. W. E. Anderson, Farmville, Va.
105 Catarrh of the Seminal Vesicles. F. C. Walsh, Washington, D. C.
106 Some Suggestions to the General Practitioners as to the Care of Certain Eye Cases. J. L. Kent, Lynchburg, Va.
107 Papilloma of the Conjunctiva and Cornea. H. H. McGuire, Winchester, Va.
108 Use of Bisulphate of Soda in the Treatment of Typhoid Fever—A Report of Cases. J. E. Cannady, Paint Creek, W. Va.
109 Vaccination—A Few Practical Reflections. W. J. Innes, Aspenwall, Va.
110 Management of Acute General Peritonitis. D. G. Sherrill, Louisville, Ky.

Washington Medical Annals, Washington, D. C.

January.

111 Address, Medical Society of the District of Columbia. Charles W. Richardson.
112 The Importance of Middle-ear Suppuration from the Standpoint of the General Practitioner. Edward B. Dench, New York.
113 A Plea for the Early Treatment of Strabismus. Oscar Wilkinson, Washington, D. C.
114 Case of Patent Urachus; Operation. George T. Vaughan, Washington.
115 Ovarian Cyst, with Abscess, Salpingitis and Appendicitis. J. Ford Thompson, Washington.
116 New Etiology and Prophylaxis of Appendicitis. A. F. A. King, Washington.
117 Pott's Paraplegia, with Report of Three Typical Cases. A. R. Shands, Washington.
118 Case of Extra-uterine Pregnancy, Operation. G. Brown Miller, Washington.
119 Case of Chronic Inflammation of Larynx. D. S. Lamb, Washington.
120 Case of Round-celled Sarcoma of Kidney in a Child; Enucleation. James Kerr, Washington.
121 Case of Appendicitis and Ovarian Cyst with Twisted Pedicle, Complicating Pregnancy. H. D. Fry, Washington.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

January 14.

1 Arteriosclerosis. James Barr.
2 Effect of Salts of Potassium, Ammonium and Bile Salts on Blood Pressure. Arthur Edmunds, London.
3 *Sanatorium Treatment of Phthisis. Is It Worth While? W. B. Ransom.
4 *Results of Four Years' Sanatorium Work in Treatment of Phthisis. Rowland Thurnam and Charles E. Wheeler, Nordrach-upon-Mendip.
5 *Further Report on the Treatment of Phthisis by Iodoform Infusion. Thomas W. Dewar, Dunblane.
6 Treatment of Hemoptysis. C. H. Cattle.
7 Operative Methods—New and Old—in Tuberculosis of Knee joint. William Thomson, Dublin.
8 Tuberculosis and Mortality in Childhood. William P. S. Branson.

3. Sanatorium Treatment of Phthisis.—Ransom says that the evidence at hand shows that in sanatoriums as now managed from one-fourth to one-third of the patients regain their working capacity for at least four years, and is strongly of the opinion that those who survive that period will live longer. Moreover, it is certain that when patients are sent to sanatoriums earlier in the disease a larger number of recoveries will occur. If consumptives are to be treated at all, they are best treated in a special hospital, and such a hospital is best placed on a dry, bracing spot, with plenty of pure country air. Such a hospital is a sanatorium. It would be an advantage if each sanatorium had one or more special out-nurses with special training in hygiene to visit patients at their own homes.

4. Results of Sanatorium Work in Phthisis.—The total number of cases available for use in this report is 289. The authors divide these into three main classes: (a) Severe (disease affecting either the whole of one lung or considerable areas in both, often complicated with disease of the larynx). (b) Moderately severe (disease affecting not more than one-half of one lung, with or without slight affection of the other—laryngeal diseases occurring in this class also fairly frequent). (c) Slight (disease confined to one lobe of one lung). Class A included 183 cases. Of these 56 died either in the sanatorium or at home within twelve months of commencing treatment. Twenty-three patients died within two years; 30 patients were followed for two years and then lost sight of; 39 patients are in fair health in 1904, and 35 patients are absolutely well (cured). Class B includes 84 cases. Of these 2 died within twelve months, 3 within two years, 19 alive after two years; 11 are in fair health and 40 cases are cured. Class C includes 22 cases. Of these 1 was alive after two years, 1 is in fair health and 20 cases are reported as cured. Taking all the classes together, the percentages are as follows: Died in 12 months, 58 cases, 20.06 per cent. Died within 2 years, 26 cases, 8.9 per cent. Alive after 2 years, 50 cases, 17.3 per cent. In fair health, 51 cases, 17.6 per cent. Cured, 104 cases, 35.9 per cent.

5. Iodoform Infusion in Phthisis.—Dewar makes a further report on the treatment of advanced pulmonary tuberculosis by the intravenous injection of iodoform. Since publishing his first paper, he has modified the solution by adding 40 per cent. of liquid paraffin to it. (The original solution was a not quite saturated solution of iodoform in ether.) Liquid paraffin is perfectly soluble in ether, and the resulting solution is blander and less irritating to the veins. It further makes it possible to use much smaller vessels; in fact, the limit is only defined by the size of the needles and the operator's dexterity. Before using, Dewar filters an ounce or so through cotton wool. He has occasionally used iodoform in liquid paraffin alone in the proportion of one-half grain to 10 minims. This preparation is perfectly workable through fine needles and can be used in tuberculous joints or hypodermically in tubercle of the skin and glands and peritoneum. It is painless on injection, and is prepared by crushing the iodoform in the liquid paraffin with a probe in a conical minim glass. It is essential to use a non-actinic all-glass syringe. Dewar uses a half-grain tabloid of iodoform, which is placed in the syringe, crushed with a piston, the ether drawn in and shaken until the powder is dissolved, when a few minims of liquid paraffin are drawn up and the whole is well shaken. To facilitate introduction, to avoid haste and to prevent any escape the point of the needle is sealed by dipping it in hazeline cream. It is desirable, when possible, to inject in daylight, preferably after 3 p. m., because then the veins are generally fullest. Enter the needle vertically and try to pin the top of the curve of the vessel with the point of the needle, and then, pushing it gently on and bringing it into line with the caliber of the tube, insert it halfway. The sensation of going into a space is felt at once. Dewar reports 9 cases, in five of which the disease was arrested, that is, the condition was changed from a state of danger to one of comparative safety. The patients have lost their cough, and in the occasional sputa only a very few tubercle bacilli can be found, although Dewar attaches no especial importance to this. On the whole, however, Dewar feels that the result in these 5 cases is a good one, as the one

and only factor in the treatment was the infusion of iodoform, and to this he attributes their immediate recoveries. In 2 cases the treatment retarded the advance of the disease. The remaining 2 cases are examples of the severe type of the disease and the slight improvement obtained is all that can possibly be expected. Dewar still contends that the continuous successful injection of an ethereal solution of iodoform is followed by improvement, that it is innocuous in moderate doses, and powerful to arrest pulmonary tuberculosis.

The Lancet, London.

January 14.

9 Emergencies in Ophthalmic Practice. A. Maitland Ramsay, Glasgow.
10 *The X-ray Treatment of Leukemia. Report of a Case, with an Abstract of the Literature. J. C. G. Ledingham and R. G. McKerron, Aberdeen.
11 Influence of Rainy Winds on Phthisis. (Continued.) William Gordon.
12 Some Clinical Observations with New Remedies. Nestor Tirard, London.
13 *Hemorrhagic Typhoid Fever. David Blair, Lancaster.
14 Injuries to the Eye by Penetrating Foreign Bodies and the Results After Magnet Operations. Leslie Buchanan, Glasgow.

10. **X-Ray Treatment of Leukemia.**—Ledingham and McKerron report the case of a boy, aged 11, suffering from splenomedullary leukemia, who was markedly benefited by exposures to the action of the *x*-ray. Before beginning treatment there was marked distension of the abdomen, due to an enormous enlargement of the spleen, the lower border of which reached to within a finger's breadth of the pubes, while the anterior border extended two inches beyond the middle line. Examination of the blood showed the characteristic changes of leucocythemia of the splenomedullary type, red cells, 3,570,000; white cells, 234,000, and hemoglobin, 80 per cent. Differential count: Myelocytes, 48 per cent.; polymorphonuclears, 39 per cent.; small and large lymphocytes, 8 per cent.; mast cells, 6 per cent., and nucleated red cells, 4 per 100 white cells. The *x*-rays were applied over the splenic tumor and the lower epiphyses of the femor. Occasionally they were applied over the sternum and vertebræ. The exposures lasted ten to fifteen minutes every alternate day, but for a period daily exposures were given with no bad effects. In fact, throughout the three months of *x*-ray treatment no constitutional effects were noted apart from slight prickling sensations, lasting for a short time after the applications. There was never any nausea, headache, nor rise of temperature traceable to the *x*-ray treatment. The vacuum tube was always fixed at a distance of somewhat over five inches from the area exposed. One month after the treatment was begun a marked erythema appeared over the splenic area, but it subsided in a few days. Within six weeks the leucocytes dropped to 23,000. On one occasion they dropped to 17,800. The mean of the red cells was about 4,500,000, and on several occasions counts of over 5,000,000 were recorded. The hemoglobin appeared to remain fairly stationary at from 55 to 60 per cent. The ratio of polynuclears to myelocytes rose from 0.5 before the *x*-ray treatment to 2. The myelocytes, however, showed no tendency to disappear altogether, and the blood did not return to normal proportions. Previous to this treatment the patient was more or less bedridden, walking was always difficult and breathlessness with face flushings exceedingly troublesome. Within a month after the commencement of treatment he felt better and was able to walk, and even climbed stairs, without any bad effect. The abdominal girth was diminished about two and a half inches within four months. In the same length of time he gained 12 pounds in weight. The splenic tumor was markedly softer on palpation and is constantly diminishing in size.

13. **Hemorrhagic Typhoid Fever.**—Blair's patient became ill suddenly. She passed blood by rectum, looked drowsy and ill, and complained of pains all over the body. Her pulse rate was 140; respiration, 44; temperature, nearly 105. She was frequently purged during the day, while some of the stools seemed to consist of nothing but blood. Physical examination revealed nothing abnormal. There was no rash, and no enlargement of the spleen could be felt. The temperature gradually dropped to 101.6, but on the third day again rose to 104.8. On the following day a considerable increase in the tumescence of the abdomen was noted. The urine contained blood; petechiæ had come out on the legs and arms. At the basis of both lungs râles were audible, bronchophony was well marked and there were small areas of tubular breathing. On the sixth day there was considerable epistaxis and bleeding from the gums. At night she had one "fit" and was purged three times, pure blood being passed on each occasion. She died on the seventh day, after having had six more "fits." In attempting to arrive at a diagnosis, Blair considered purpura hemorrhagica, that form of ulcerative colitis known as acute diphtheritic dysentery, and latent typhoid fever. The autopsy disclosed, in the lower eighteen inches of the small intestine, extensive ulceration of Peyer's patches, several of the ulcers having penetrated down to the peritoneal coat. The ulcers were typical of the third stage of enteric fever, and they stopped abruptly at the ileocecal valve. The disease, therefore, was obviously one of those extremely unusual types of typhoid fever exhibiting a hemorrhagic diathesis. The most remarkable feature of the case was the latency of the early symptoms.

Annales des Mal. Génito-urinaires, Paris.

Last indexed XLIII, page 1825.

15 (XXII, No. 13.) Les calculs phosphatiques de la vessie (urinary calculi). F. P. Guiard.
16 De la chirurgie urétérale dans le traitement de la fistule urétéro-vaginale. L. Garovi (Plaisance, Italy).
17 Dilatateur hydraulique modifié pour faire pénétrer la chaleur et le froid secs dans l'uréthre (dilator for application of dry heat or cold). P. Bakaleinik (Kiev).

Presse Médicale, Paris.

Last indexed page 74.

18 (No. 98, December 7.) *Serosa-Fatty Fringe Apparatus of the Heart; the "Apex Joint."—L'appareil séro-graisseux du coeur. P. Poirier.
19 *Le diabète conjugal, existe-t-il? A. Martinet.
20 (No. 99.) Indications de la prostatectomie. E. Desnos.
21 Les progrès de la vaccination. M. Labbé.
22 Les deux indications de la trachéotomie dans la tuberculose laryngée. M. Lermoyez.
23 (No. 100.) Réflexe oesophago-salivaire. H. Roger.
24 *Les lésions cardiaques et les affections rénales. F. Bronowski.
25 (No. 101.) *Traitement du cancer de la langue (of tongue). J. L. Faure.
26 *Sur l'épreuve bactériologique du catgut (tests). Hallion and Carrion.
27 (No. 102.) La tuberculose à la campagne (in French rural districts). R. de Gantijac.
28 Gigantisme et infantilisme. Pagniez.
29 *Traitement des néphrites par la "maceratio" renalina porci. M. Page and Dardelin.
30 (No. 103.) Traitement chirurgical des néphrites chroniques. Le Dentu.
31 Réflexe oesophago-salivaire et réflexe oesophago-lacrymal. P. Carnot.
32 La prétendue hérédite du rachitisme. J. Comby.
33 (No. 104.) *X-ray Treatment of Tinea.—Traitement des teignes tondantes par les rayons. X. R. Sabouraud and H. Noiré.
34 Traitement des nourrissons en état de croissance retardée (atrophie, athrepsie infantile). E. Terrien.
35 (No. 105.) Examen clinique du dos d'un enfant (of child's back). P. Desfosses.
36 Climate as Test for Diagnosis and Prognosis.—Le climat Méditerranéen français considéré au point de vue clinique G. Sardou (Nice).
37 La réflexe oesophago-lacrymal. H. Delaunay.

18. **Fatty Processes at Apex to Facilitate Its Movements.**—Poirier is professor of anatomy at Paris, and here calls attention to a concentric arrangement of fringe-like, fatty processes in that portion of the pericardium which corresponds to the apex. He thinks that they are designed to serve the same purpose as the fatty processes in the knee, to obviate concussions and to facilitate movement. Inflammatory processes, by soldering these leaflets together, must hamper the movements of the apex. In examining the heart of three persons immediately after execution, and in a number of other cadavers, he always found a certain amount of liquid in the pericardium, showing that it is considerably larger than the heart itself. Radioscopy of 50 subjects also always showed traces of an open space during inspiration between the heart and the diaphragm, as if the heart separated from the diaphragm. This he believes is rendered possible by the serofatty processes he describes and illustrates. There are usually three, from 4 to 5 cm. long, and they look like a solid mass of sero-fatty tissue, but they can be separated and the

three leaflets turned back, exposing an area of the pericardium, 6x10 cm., over the apex.

19. **Conjugal Diabetes.**—Martinet has encountered 5 cases of diabetes in both man and wife among 25 diabetic patients in his city practice. Debove has found 6 cases among 50 diabetics. This is a far larger proportion than that mentioned by Schmitz and Deléage, who noted only 1.12 and 3.55 per cent. among 2,320 and 478 cases of diabetes, respectively. The discrepancy in the statistics, Martinet thinks, is due to the fact that the latter physicians practice in watering places where they see the patients only for a short time and know little of their family life.

24. **Heart Lesions and Kidney Affections.**—Bronowski has been studying the reciprocal action of heart defects and kidney affections, and has become convinced that the routine method of treating heart affections is based on false premises. In 165 cadavers at Warsaw in which some heart or aortic affection had been the principal malady, he found only 6 in which the kidneys did not show some pathologic changes. In 119 there was chronic and in 3 acute nephritis; in 24 there was cyanotic induration, in 13 parenchymatous congestion, and 1 mere hyperemia. Mitral lesions preponderated, 54 mitral to 50 aortic, and 18 in which the two were associated, a total of 122 accompanying unmistakable nephritis. This is a proportion of 74 per cent. He produced artificial heart lesions in 30 dogs, introducing into the left ventricle a fine needle terminating in a hook, with which he tore some of the valves. Only 4 survived the operation long enough for definite conclusions to be drawn. Two of these presented distinct nephritis. He accepts as established the fact that any interference with the circulation in the heart modifies the composition of the blood, and by inducing stasis in the kidneys depresses their vitality. This favors the development of disease, as the toxins are not eliminated naturally by the kidneys. They pile up in the blood and react on the heart in turn. Bronowski believes that the heart lesion is frequently the first link in the chain which leads to kidney disease. The latter may likewise induce heart disease, but this occurs less frequently. The practical conclusions are that the customary treatment of heart affections is irrational and injurious. Instead of trying to stimulate the kidneys to extra work, they should be spared and the patient should be treated as if nephritis were already established. Drugs to regulate the circulation should be prescribed (iodin, iron), mineral waters, dieting, etc. On the other hand, in case of kidney disease, disturbance in the heart functions should be feared, and treatment should aim to prevent extra demands on the heart. Hot baths, exercise and pilocarpin should be avoided, and greater stress be laid on mineral waters, dieting and a dry, tempered climate at a low altitude. The chief aim of treatment in both the heart and kidney disturbances should be to regulate the circulation.

25. **Treatment of Cancer of Tongue.**—Faure insists on the necessity for operating in two sittings in case of cancer of the tongue, unless the lesion is very small. When the glands have to be excised, this should be done first from without, reserving the direct intervention on the tongue for the very last.

26. **Tests of Catgut.**—Hallion and Carrion found that no cultures developed from certain specimens of catgut in the first bouillon, while some developed as soon as the catgut was transferred to fresh bouillon. They discovered that this was due to the fact that the manufacturer had used some antiseptic—sublimate—in the production of the catgut. This had checked the growth of bacteria. When it had dissolved out the bacteria proliferated unchecked.

29. **Successful Treatment of Nephritis with Pigs' Kidneys.**—Page and Dardelin have treated 18 cases of nephritis by giving a maceration of fresh pigs' kidneys. They say that the results have been so remarkable that they do not hesitate to proclaim that this is the most certain and the most powerful weapon at our disposal in fighting with nephritis. The nephritis was of various types in their cases, some long rebellious to other measures and some with pronounced arteriosclerosis. Some of the patients have been examined one, three and eight months afterward, not a trace of recurrence of albumin having been found in any instance. Arrangements are made with a druggist to have him fill the prescription, which reads: "Maceratio renalina porci, No. 1." The remedy might become repugnant to the patients if they prepared it for themselves. The kidney of a freshly slaughtered pig is cut up, rinsed carefully to remove all traces of urine, and then chopped fine and ground to a pulp. This is placed in 300 gm. of cold physiologic salt solution (7.5 gm. per 1,000). It is set aside in a cold place for three hours, stirred occasionally, and is then ready to use. The patient sips all the reddish fluid in three portions during the day, leaving the sediment. The taste is not bad, especially if it is mixed with a little julienne soup. It should be taken for ten consecutive days with milk or milk-vegetable diet, or merely in addition to the ordinary diet. One of his patients had the nephritis of pregnancy, recurring during three pregnancies; albumin in the third month .17 gm. to the liter. The albumin vanished completely and permanently after eight days of the maceration.

Case 1.—Woman of 35, infectious nephritis; albumin 2 gm. to the liter. On exclusive milk diet for eight days, albumin 1.5 gm. Macerated kidney given for ten days: albumin .2 gm.; milk for fifteen days, and after this, albumin 0. Case 2. Man of 58, lead nephritis; albumin .5 gm. on a milk diet. Macerated kidney for ten days with ordinary diet; albumin 0. Case 3. Man of 78 with infectious nephritis and slight arteriosclerosis; albumin 55 gm. to the liter. After a month of milk-vegetable, unsalted food, albumin .51. Macerated kidney: albumin 0. Case 10. Man of 31, infectious nephritis. Scarlet fever six months previously. Macerated kidney for ten days: albumin 0. Case 15. Woman of 60 with arteriosclerosis and uremia; albumin 2.15 gm. to the liter. Under ten days of macerated kidney, milk, intestinal lavage and serum, the albumin dropped to 1.85 gm. and to 0 the week after.

Several other patients had been addicted to morphin and the nephritis was evidently of a toxic nature, with albumin of .4 to 1 gm. In every instance the albumin vanished completely under ten days' treatment with macerated kidney.

33. **X-Ray Treatment of Tinea.**—Sabouraud's communications on the successful application of the *x*-rays to the treatment of parasitic alopecia areata have been summarized in these columns, page 1265 of the last volume. His report for 1904 is even more encouraging. It is no longer necessary to take the children with tinea into the hospital. Ambulant treatment is proving ample, and instead of the two years formerly required, the cure is complete in three months at farthest. The tube should be at a distance of 15 cm. from the patch to be treated, and a scrap of platino-cyanid paper should be exposed to the action of the center of the tube at the same time (equal to 5 Holzknecht units), but at a shorter distance—8 cm. When the thin sensitized paper has changed to the tint B of the radiometer the exposure is terminated. By watching the shade of the sensitized paper the operator can be confident that there is no danger of a burn, erythem or permanent baldness as long as the shade is below the tint B or the 5 Holzknecht units. After the exposure the part is rubbed with a salve containing oil of cade, which is washed off each morning. The entire scalp is then rubbed with a 10 per cent. alcoholic solution of tincture of iodin, to prevent reinfection from the hairs as they drop out of the exposed patch. Each patch requires a separate exposure. There are no by-effects, not even a headache when the entire scalp has thus been exposed.

Semaine Médicale, Paris.

38 (XXV, No. 2, January 11.) *La néphrite par le sublimé. A. Chauffard.

39 La mortalité de l'anesthésie générale par la scopolamine-morphine.

38. **Nephritis from Use of Corrosive Sublimate.**—Chauffard's patient was a young woman who had ingested a concentrated solution of corrosive sublimate ordered for vaginal injections. In another case a young woman had taken 5 gm. of the sublimate and 10 c.c. of laudanum. There was complete anuria for five days, then emission of 70 c.c. of an acid urine, very slightly albuminous, but containing casts and epithelial cells. The amount increased to 900 c.c. the ninth day, with death on the twentieth from acute pericarditis and heart failure. The first patient recovered after a period of five days of complete anuria. The urine contained merely traces of albumin. Every case of sudden and complete anuria occurring in a healthy subject, free from any kidney history and without

known cause, should suggest an intoxication, especially if accompanied by serious symptoms of acute gastroenteritis. Mercurial intoxication should be among those suspected, even in the absence of stomatitis and salivation, neither of which were noted in the above cases until after several days. Even if the patients recover, a tendency to nephrosclerosis will probably be left. In the patient who recovered, functional tests of the kidney indicated reduced permeability on the part of the kidneys and progressively rising blood pressure. The anatomic lesions in the kidneys in the fatal case reported were such as to indicate that the glomeruli were the only parts of the kidneys spared by the poison. Consequently, in treating a case of sublimate poisoning, it is useless to give ordinary diuretics. The only one that can be expected to act is salt solution. More than 3 quarts were injected in four days in the case reported, with eminently favorable results. No one need fear to induce anasarca by injecting these large amounts of salt solution in the complete anuria of these patients. They have lost such large amounts of water by their excessive vomiting and diarrhea that they are in need of water. The arterial pressure is low. The condition resembles that of the anuria in cholera, but the saline infusion should be suspended if the blood pressure rises above normal or if edema develops. Toxic anuria never indicates surgical interference. The only thing that can be done is to overcome the renal obstacle immediately, while the tolerance of the organism still persists. It is a question of life or death, and no temporizing is allowable in anuria.

Archiv f. Verdauungs-Krankheiten, Berlin.

Last indexed XLIII, page 2053.

40 (X, No. 6, December.) *Enteralgie und Kolik. Pathogenese und Behandlung des arteriosklerotischen Leibwehs (colic). Max Buch (Helsingfors).
41 *Determination of Proteolytic Power of Gastric Juice, with Description of a Modification of Hammerschlag's Method and of a New Method.—Bestimmung der proteolytischen Kraft des Magensaftes, nebst Beschreibung einer Modifikation des Hammerschlagschen Methode und einer neuen Methode. H. W. Bettman and J. H. Schroeder (Cincinnati).
42 *Ueber die Resorption von Atropin, Salol, Salizyl-säure und Rhabarber im Magen (gastric absorption of salicylic acid, rhubarb, etc.). Z. Inouye and T. K. Kashiwado (Chiba, Japan).
43 *Ueber Oesophagitis dissecans superficialis. N. Stern (Saratov).
44 Detection of Dissolved Albuminoids in Feces.—Zur Frage des Nachweises gelöster Eiweisskörper in den Fäzes. O. Simon (Carlsbad). Reply. H. Ury.

40. **Arteriosclerotic Abdominal Colic.**—Buch concludes his monograph on this subject with a discussion of the pathogenesis and treatment. From a material of 25 cases he preaches that arteriosclerotic colic is in reality neuralgia of the lumbar sympathetic. This fact is established by the exact similarity between the spontaneous pains and those induced by pressure on the sympathetic. Even the irradiations of the pain are identical, showing that the colic is, in fact, neuralgia of this portion of the sympathetic nerve, with possible involvement of the celiac, aortic and hypogastric plexuses. The neuralgia is due to irritation. The aortic plexus lies close to the aorta, and any inflammation of the adventitia is liable to affect the plexus also. Inflammation of the adventitia is a common occurrence in arteriosclerosis. Periarteritis is an almost constant accompaniment of arteriosclerosis, and the involvement of the adjacent nerve is almost inevitable. The superior mesenteric ganglion actually surrounds the origin of the superior mesenteric artery, and this is probably the reason why the epigastrium is so frequently the location of the arteriosclerotic pains. The sclerosis of the splanchnic vessels entails, further, hyperemia or inflammation of the lumbar sympathetic as an inevitable consequence, either from sclerosis of the nerve vessels or collateral congestion. The fact that arteriosclerotic colic usually comes on after physical exertion sustains this assumption. The additional congestion in the vessels of the plexuses, induced by exercise, superposed on the hyperalgesia resulting from the permanent congestion, must necessarily result in pain. A further factor in the colic is the occurrence of spasms in the vessels. It is possible the congestion may entail excessive functioning on the part of the suprarenals. This hypersecretion of adrenalin may induce cramps, as is seen in experimental research with it. Vaquez reported last year that his experiments revealed a marked tendency to cramps on the part of sclerosed vessels, and, further, that hyperplasia of the suprarenals was unmistakably evident in such cases. Others have reported corroborating findings in nearly a dozen cases of arteriosclerosis, the hyperplasia of the suprarenals observed indicating hyperfunction of these organs. Buch concludes that the process in angina pectoris is much like that in arteriosclerotic colic, and they may occur together. Treatment of arteriosclerotic colic based on these premises is remarkably effectual. Strophanthus may not only abort an attack, but may ward off recurrences. As the pain is relieved by pressure on the abdominal plexuses and aorta, massage seems to be indicated, combined with Swedish movements. More or less permanently favorable results were obtained in his cases by the medicinal and general treatment outlined. In some of the patients the manifestations of the arteriosclerotic condition were banished for several years. The prevailing pessimism in regard to arteriosclerosis is not justified. The cases on record of local arteriosclerosis of the extremities, from nervous influences alone, teach that the nervous system should not be ignored in the treatment. Both Edels and Basch have observed cases in which the blood pressure was permanently raised by nervous influences, and the latter had occasion to note the development of arteriosclerosis later in such patients. He calls the condition "latent arteriosclerosis," but Buch thinks that in reality it is one of actual sclerosis, but at this stage is limited to the splanchnic vessels only.

41. **Determination of Digestive Activity of Gastric Juice.**—See THE JOURNAL, xli, page 1229, 1903.

42. **Absorption of Atropin, Salol, Salicylic Acid and Rhubarb in Stomach.**—Experiments on dogs and cats demonstrated that atropin and rhubarb are not absorbed in the stomach. Salol taken into the isolated stomach of dogs or injected subcutaneously was evidently absorbed, decomposed in the blood and its cleavage product, salicylic acid, eliminated in the urine. Salicylic acid was also absorbed in the stomach and appeared promptly in the urine.

43. **Superficial Dissecting Esophagitis.**—Stern describes a case of this rare affection of which he found only 4 cases recorded in the accessible literature, one from Moscow and one from Warsaw. Birch-Hirschfeld's patient was a hysteric woman who expelled a membranous tube 20 cm. long after three days of illness. She stated that she had vomited a similar mass several years before. He explained the affection as a pseudo-croupous inflammation of the esophagus, the process most acute in the subepithelial tissues, resulting in the casting off of the epithelial lining. All the patients recovered without formation of cicatricial tissue. The regeneration of the epithelium commences probably under the membrane formation.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

45 (XXX, No. 51, December 15.) *Syphilitische Erkrankungen der Circulations-Organe. von Düring (Kiel).
46 *Aetiologie und Pathogenese des Erythema nodosum. E. Hoffmann.
47 *Apparatus for Narcosis During Operations Under Plus Pressure. H. G. Engelken (Czerny's clinic, Heidelberg).
48 Perforation of Living Child Indispensable Under Certain Conditions.—Die Unentbehrlichkeit der Perforation des lebenden Kindes. K. Baisch.
49 *Pseudo-Sclerose. A. Fickler.
50 Zur Kasuistik des Exsudatum pleuriticum pulsans und Exsudatum pleuriticum adiposum. K. Engel (Budapest).
51 Action of Sea Climate on Asthma.—Zur Wirkung des Seeklimas auf das Asthma. Ide (Amrun).
52 Injektions-Therapie bei Syphilis. Schnabel (Magdeburg).
53 Proposed Anti-Tuberculosis Bill in Denmark.—Entwurf, etc. Böttcher.
54 *The Russian Wounded at Chemulpo.—Zum Bericht von Dr. Wada über die russichen Verwundeten. M. Bantschikoff.

45. **Syphilitic Vascular Affections.**—This address, read by von Düring at the recent International Congress of Dermatology, deals especially with syphilitic aortitis and its two forms, the arteritis leading to partial or total occlusion of the vessel, and that which reduces the resistance of the walls of the vessels by cicatricial changes. The latter variety he calls Doehle-Heller's syphilitic aortitis, and regards it as by far the most frequent cause of aneurisms. It is so characteristic that a retrospective diagnosis of syphilis can be based on it alone.

Syphilis has been demonstrated in the antecedents of from 56 to 85 per cent. of the cases of aneurism on record. He emphasizes that the syphilitic aortitis entailing aneurism has nothing to do with chronic deforming endaortitis, although they may be associated in elderly subjects. The latter may entail rupture, hematoma or dissecting aneurism, but not the true aneurism observed in syphilitics, which develops in young subjects, almost invariably before 50. The wall of the vessel in true syphilitic aortitis consists almost exclusively of a normal or thickened intima with cicatricial connective tissue, lined with endothelium. The media, the musculature and its elastic tissue have been destroyed. The wall of the artery does not offer the normal resistance, and it stretches, even under normal blood pressure, entailing the formation of an aneurism in time. Primary syphilitic lesions of the heart, gummata in the musculature, are rare and generally casual findings. Their slow development and the variability of their site lead to indefinite clinical manifestations. A history of lues and the lack of any other findings may sometimes suggest a gumma in the walls or septum as explanation of vague heart disturbances in younger subjects. Interstitial syphilitic myocarditis is more frequent and more definite. It is usually secondary to aortitis and the consecutive narrowing or occlusion of the coronary arteries. This affection of the coronaries accompanying the dilatation of the aorta and with resulting insufficiency of the aortic valves, and the sequence of cardiac insufficiency, angina pectoris and sudden death form a chain of ills for which the syphilitic aortitis is directly responsible. The benefits obtained by potassium iodid and mercury in the treatment of many affections of the circulatory organs furnish the final demonstration as to their syphilitic nature. Quincke and others have published many instances of remarkable benefit obtained with mercury and iodid in aneurisms when there was apparently nothing to indicate syphilis in the case. Runeberg has reported complete resorption of gummata in the heart walls and muscle under specific treatment. The syphilitic basis also explains the fine results attained in angina pectoris and aortitis with mercury and iodid, especially the latter, given systematically and perseveringly. Even in case of large aneurisms of the aorta and advanced gummatous or indurative myocarditis, great relief is liable to be obtained, although a complete cure can not be anticipated. True syphilitic aortitis should not be classed as arteriosclerosis, as there is no calcification of the artery.

46. **Erythema Nodosum.**—Hoffmann has invariably found an inflammation in the walls of the larger subcutaneous veins in every case of erythema nodosum in his experience. This occurs in both the idiopathic and the symptomatic forms. There is no actual thrombosis, and the process may subside without leaving appreciable traces. In one idiopathic case he found the staphylococcus albus. The inflammation always seemed to start at the forking of the vein.

47. **Plus Pressure Narcosis.**—Engelken adds another to the four modes of applying narcosis while the subject is breathing under plus pressure. His apparatus is designed to allow the anesthetist to sit in the cabinet into which the head of the subject projects. This leaves the operator and his assistants free to operate under normal conditions, with access to instruments, etc., and allows the operation to be done before spectators. The large box or chamber is made light and movable, and the ventilation is so contrived that the fumes of the anesthetic are conducted away without reaching the anesthetist. The other modes of applying narcosis under plus pressure that have been suggested are the use of a diver's helmet for the subject, or of a mask which closes mouth and nose airtight, or Kuhn's intubation, or tracheotomy. The air introduced through the tracheal tube can be under the required plus pressure, as Petersen has practically demonstrated. The details of Engelken's box and its workings are illustrated.

49. **Pseudo-Sclerosis.**—Fickler describes 2 cases which clinically presented the picture of multiple sclerosis of the central nervous system, but anatomically, all the signs of it were lacking. He explains the cases as a psycho-neurosis which, clinically exhibited a great analogy to multiple sclerosis. Important points for differentiation are the pronounced tremor, frequently of the oscillating type, while the spastic phenomena are less striking than in true multiple sclerosis. Further points are the peculiar changes in the mentality, the emotional excitability and the eventual development of hallucinations. There are only 11 cases of this pseudo-sclerosis in the literature, to his knowledge. The subjects are usually nervous predisposed, either by heredity, syphilis, alcohol or typhoid, although in some cases no inciting cause could be determined. The first symptom is usually a weakness of the legs. The arms may also become weak, and there is sometimes numbness in the hands, strabismus, headaches, pains in the limbs, vertigo or double vision. Permanent paralysis was not observed in any instance, although the main feature of the affection as it progressed was the disturbance in the motor functions. The tremor is the most constant and striking symptom, with twitchings and sometimes disturbances in speech. The tendon reflexes were always more or less exaggerated, but the bladder and rectal functions were not affected. The affection progresses slowly but surely, death generally occurring from exhaustion or intercurrent disease. Thirteen years was the longest limit in any case, the general weakness or exacerbations entailing a fatal termination in about a year in some instances. Certain traits of hysteria may be noticeable in the clinical picture, but Strümpell protests against classing pseudo-sclerosis as hysteria.

54. **Reply to Wada's Article on the Russian Wounded.**—The Japanese surgeon's account of the surgical aid rendered the Russian wounded at Chemulpo was mentioned in these columns on page 433 of the last volume. Banschtikoff produces evidence to show the inconsistencies of the Japanese account, the omissions of certain important data from Wada's personal report, which place some of the results in another light, but he mentions with appreciation the care given the Russian wounded in the Japanese hospitals and their sincere gratitude. He adds that the alleged statements made by the Russians to the Japanese were probably due more to the zeal of the Japanese interpreter than to the Russian speakers.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed XLIII, page 167.

55 (LXXV, No. 1.) Die Mobilisierung des Duodenum nach Kocher zur Entfernung retroduodenal liegender Gallen-Steine. E. Payr (Graz).
56 Ueber die Beziehungen der Enchondrome zu den multiplen cartilaginären Exostosen. A. Läwen. 3 cases.
57 Ueber Stauungsblutungen nach Rumpf-Kompression (hemorrhage from stasis). H. Wienecke. 1 case.
58 Pyonephrose bei Verdoppelung der rechten Niere (2 kidneys on right side). A. Linck.
59 *Zur Diagnose der syphilitischen Affektionen des Pankreas. N. Trinkler (Kharkov).
60 Schuss durch das Ventrikel-Septum des Herzens. Herznaht. Heilung. (successful suture of firearm heart wound). W. Schubert (Hamburg).
61 Beitrag zur Aetiologie der gutartigen Pylorusstenose: Pylorusstenose bedingt durch Leber Echinococcus. Axhausen.
62 Endresultate der Radicaloperation von Hernien, speziell der Inguinalhernien. P. Daiches (Berne).
63 Hyperemesis lactentium (Meinhard Schmidt) oder congenitale Pylorusstenose durch Operation geheilt. H. Grisson.

59. **Syphilitic Affections of the Pancreas.**—In Trinkler's case a gummatous affection of the pancreas was diagnosed as cholelithiasis, and an operation was performed. The patient was a very emaciated woman of 28. The organs were found to be comparatively sound—with the exception of the pancreas—and as the findings in this organ suggested gummata, the abdomen was sutured without further interference. Specific treatment was commenced the sixth day, and the icterus and other symptoms which had been ascribed to gallstones gradually subsided.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed XLII, page 1526.

64 (LVIII, No. 4.) Zur Aetiologie und Pathogenese des Keuchhustens (bacteriology of whooping cough). P. Reyher (Heubner's clinic, Berlin).
65 Ausbruch tuberkulöser Meningitis im Anschluss an acute eitrige Otitis media, in dem einen Falle compliciert mit chron. Hydrocephalus internus. Haike.
66 *Human Milk in Treatment of Acute Catarrh of Small Intestine.—Die Frauenmilch in der Therapie des akuten Dunndarmkatarrhs. B. Salge.
67 *Limit of Assimilation of Sugar in Children.—Die Assimilationsgrenze für Zucker im Kindesalter. A. Greenfield.

66. **Human Milk in Catarrh of Small Intestine.**—Salge insists on the necessity for individualizing cases of gastrointestinal disturbances in infants. What is beneficial in certain forms may be harmful in others. Catarrhal conditions in the small intestine cause a clinical picture which suggests that food rich in fat should be avoided as tending to magnify the toxic manifestations. For this reason, breast milk is almost sure to have a highly unfavorable action in such cases. He relates a number of typical experiences to sustain this view.

67. **Limit of Assimilation of Sugar in Children.**—Greenfield's tabulated statistics demonstrate that the assimilation of sugar in children is a matter of age. Neither the weight, nourishment nor certain morbid conditions affect it, but it is directly proportional to the age. By the tenth year it has attained the same limit as in adults.

Monatsschrift f. Geb. u. Gynäkologie.

Last indexed XLIII, page 168.

68 (XX, No. 4, October.) *Erfolge und Aussichten der künstlichen Frühgeburt (artificial premature delivery). Krömer.
69 Fetal Urination.—Experimentelle Beiträge zur Lehre von der Absonderung und Entleerung des Harnes im fötalen Leben. A. Kreidl und L. Mandl (Vienna).
70 Weitere Beiträge zur Technik der mechanischen Dilatation mit spezieller Berücksichtigung ihrer Erfolge in der Eklampsie-Behandlung. E. Pollak (Vienna).
71 Die Histologie des Eierstockes im Klimakterium (ovary in menopause). A. Weber (Greifswald).
72 *Anatomische Untersuchungen über den Infektionsweg bei der Genital Tuberkulose des Weibes. (Concluded.) P. Rosenstein (Königsberg).

68. **Results and Prospects of Artificial Premature Delivery.**—Kroemer reviews the experiences at Giessen and deduces the indications to be learned from them. He accepts a true conjugate diameter up to 7 cm. as indication in case of a shallow pelvis, and up to 7.5 cm. in case of a generally contracted pelvis. The bougie and spontaneous delivery are generally sufficient in case version is contraindicated. The hystereurynter with subsequent version and forceps are adapted for all flat pelves, especially for multiparæ. He thinks that the thirty-sixth week is the earliest limit for interference. The average duration of the birth, after the use of bougies, was from twenty-four to forty-eight hours, while with the hystereurynter it was only fifteen. The morbidity in 92 cases of contracted pelvis was 15.4 per cent., but in only 7.5 per cent. were the genital organs responsible for the fever. The mortality was zero. Out of the 82 children born alive, 66 were dismissed in good condition. The generally contracted, shallow pelves gave the highest mortality among the children.

72. **Genital Tuberculosis in the Female.**—Rosenstein's examination of 7 cases of tuberculous affections of the female genitalia always resulted in the discovery that the peritoneum and tubes were affected as well as the ovaries. He doubts whether a tuberculous affection of the ovaries can exist alone. He adds that tuberculosis in the tubes is always bilateral and locates first in the mucosa. Caseous degeneration occurs early in both the tubes and the ovaries. The proliferations suggesting adenoma, which are sometimes found in the tubal mucosa, do not necessarily imply a tuberculous affection. The histologic changes in the tissues of the adnexa affected by tuberculosis are so characteristic that it is unnecessary to stain for bacilli.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed page 431.

73 (XVIII, No. 5.) *Behandlung der Bubonen-Pest mittels intravenöser Anwendung von Yersin's Serum. L. Cairns.
74 Balneotherapy During Period Preceding and Following Puberty in Girls.—Ueber Bäderbehandlung in der Geschlechtsperiode der Menarche. E. H. Kisch (Prague-Marienbad).
75 *External Application of Salicylic Acid for Internal Affections. —Behandlung gewisser innerer Erkrankungen durch äusserliche Anwendung des Salizyls in Form von "Rheumasan." M. Behr.
77 *"Insect-Bite Icterus," and Treatment of Gallstone Affections. —Ueber Insectenstich-Ikterus, nebst Beiträgen zur Therapie der Gallenstein-, etc., Krankheiten. W. Bauermeister.
78 Hydrogen Dioxid for Cutaneous and Venereal Affections.—Ueber die Verwendung von chemisch reinen Wasserstoffsuperoxyd besonders bei Haut- und Geschlechtskrankheiten. P. Richter (Berlin).
79 Influence of Formaldehyd on Determination of Elements of Urine.—Einfluss des Formaldehyds auf den Nachweis der normalen und pathologischen Harnbestandtheile. C. Strzyzowski.

73. **Yersin's Serum in Plague.**—Cairns' experience with serum treatment was eminently favorable.

75. **Salicylic Medication Through the Skin for Internal Affections.**—Behr has applied a salicylic preparation in the form of a soft soap in 30 cases of acute rheumatism, chronic arthritis, intercostal or trigeminal neuralgia, migraine, lumbago or pleurisy. He is enthusiastic over the fine therapeutic results obtained when the preparation is massaged into the skin at the most painful points. The presence of salicylic acid in the urine was soon apparent afterward, but it did not cause the usual sweating, and the stomach was spared the irritation from the drug. He applied it once a day for from six to eight weeks, as a rule. His subjects were all tuberculous, as he is assistant in a sanatorium.

77. **"Insect-Bite Icterus."**—Bauermeister had occasion to study in his own person a severe case of icterus with general dyspepsia and gastrointestinal catarrh, preceded by urticaria. The entire syndrome developed while traveling, after a night in which he had been bitten by numerous bedbugs. His trouble proved rebellious, but finally yielded to systematic stimulation of the bile secretion. This he accomplished with salicylic acid and sodium oleate. His personal experience and clinical observation compel him to extol this combination as remarkably effectual for gallstone and similar affections. His formula is .1 gm. each of salicylic acid and the sodium oleate, to which he adds a little menthol and phenolphthalein. He took three or four of these pills morning and evening, with a glass of hot water, sipped slowly, supplemented by a hot-water bottle to the gall-bladder region for an hour or so. He is convinced that systematic use of these therapeutic measures might succeed in many cases where all others fail. He calls attention to Kuhn's recent indorsement of salicylic acid as a bile-promoting remedy. Both he and Kuhn came to this conclusion independently. (Kuhn's work in this line was reviewed in these columns on page 1095 of the last volume.)

Grèce Médicale, Syra, Greece.

80 (IV, No. 23.) *Coloration du bacille de la tuberculose. A. Gabriélidés (Constantinople).
81 *Sur 3 cas de lepra tuberculeuse traités par la méthode mixte de Unna. N. Moraites (Athens).
82 (Nos. 26-27.) *Contact Infection of Typhus. A. Panayotatou (Alexandria).
83 Report of II Panhellenic Congress, Athens, May 17-23, 1903. (Continued.)
84 (V, No. 2.) Oysters and Typhoid Fever in Constantinople. C. D. Remlinger.
85 (Nos. 3-6.) *Systematic Exploration by Large Opening in Case of Abscess in Right Lobe of Liver.—Sur 25 cas d'exploration chirurgicale méthodique des abcès du lobe droit du foie à ciel ouvert. A. P. Petridis (Alexandria).
86 (Nos. 7-10.) Sur quelques troubles de la menopause. M. N. Cairis.
87 Sur 2 cas de chylurie filarienne. C. D. Remlinger (Constantinople).
88 (Nos. 11-12.) *Relations Between Malaria and the Circulatory System. Triantaphyllides, Kanellis and others.

80. **Rapid Stain for Tubercle Bacillus.**—Gabriélidés' technic allows the whole procedure to be done in less than thirty seconds. He modifies the Ziehl formula to the following: 1 gm. fuchsin, 10 c.c. of absolute alcohol, 5 gm. of phenic acid and 40 c.c. of distilled water. He dissolves the fuchsin in the alcohol and mixes the acid with the water, then combines the two and filters. Three drops of this mixture are added to the specimen of sputum, and it is heated for twelve seconds until it steams without burning. The slide is then rinsed and decolorized with 25 per cent. nitric acid in alcohol, rinsed again and stained in methylene blue. The nitric acid decolorizes instantaneously all the elements of the sputum except the bacilli, and the whole process is so rapid that fifteen seconds are ample for the heated sputa and thirty seconds when cold.

81. **Unna's Mixed Treatment of Leprosy.**—Ichthyol internally and externally with sulphur baths and friction of the lesions with ichthyol soap formed the treatment adopted in the 3 severe cases reported. One was apparently entirely cured and the 2 others were very much improved.

82. **Contact Infection of Typhus.**—Panayotatou's patient was a physician attending some cases of typhus in the Alexandria prisons. In giving one of his patients an injection the patient pushed the syringe away and it pricked the physician

in the arm. The spot was disinfected at once, but symptoms of typhus developed after a typical incubation, and the physician succumbed.

85. **Large Exploratory Incision in Case of Abscess in Liver.**—Petridis gives the particulars of 25 cases of abscess in the liver in which the exact site of the lesion or its character could not be determined, or in which there was a suspicion that there might be more than one abscess. He incises with the actual cautery—seldom with the knife—from the mammary line at the seventh rib toward the axillary line for from 12 to 15 cm. or more, and resects three or four ribs for a distance of from 2 to 3 cm. He then incises the diaphragm with the actual cautery and sutures it with the soft parts to the upper lip of the original incision. Compresses are then worked under the concave surface of the liver, and the organ then can be inspected at ease, palpated and a needle inserted for exploratory puncture as indicated. He gives the details of his 25 cases, insisting especially on the fine results attained by this technic even in extremely debilitated subjects. An illustration of one case shows the gaping wound extending from the mammary line well beyond the axillary line, the incision held open with a retractor, gaping as wide as the diameter of the patient's arm. The horizontal incision along the center of the area of liver dullness allows easy examination of this organ, while the pleural cavity is scarcely infringed on. The benignity of this operation and the extensive oversight it allows over the conditions, permitting the discovery of otherwise inaccessible abscesses, commend it to such a degree that he urges physicians to advise it in the early stages so that the surgeon will be able to interfere in time. The essential features of the operation might be expressed in the term "horizontal polypleurodiaphragmotomy."

88. **Relations Between Malaria and the Circulatory System.**—This was one of the questions discussed at the last Panhellenic Medical Congress at Athens. Triantaphyllides of Batoum mentioned that in an experience of 12,000 cases of malaria he had encountered 67 in which there was a cardiopathy for which the malaria was apparently directly responsible. Of this number 30 were affections of the endocardium, complicated by pericarditis in 3; 26 were cases of myocarditis; 1 of aortitis and 1 of pericarditis. About 23 of the patients with an affection in the endocardium had some mitral complication, and in 16 there was ulcerative endocarditis. Mantonakis of Crete has found that the heart fibers become atrophied. Manoussos of Athens attributes merely a predisposing influence to the malaria in the production of endocarditis and phlebitis in malarial subjects. He thinks that the hypertrophy of the heart noted in chronic malaria is generally due to interference with the circulation from the enlargement of organs below. He thinks it probable that chronic aortitis may be induced by malaria, and Kanellis of Athens believes that diffuse or, at least, very extensive sclerosis of the vessels is liable to result from malarial infection. He mentions among the functional disturbances encountered in malaria slow or intermittent pulse, gallop rhythm, soft souffles, mesosystolic or mesodiastolic and reduplication of the second pulmonary sound. In very rare instances the malaria may induce an actual organic lesion in the circulatory organs, endocarditis, myocarditis, hypertrophy or dilatation of the heart.

Roussky Vratch, St. Petersburg.

Last indexed page 336.

89 (II, No. 50.) Toxic Manifestations During Development and Resorption of Effusions of Cardiac Origin.—O toxinitcheskikh yavleniyakh pri razvitii i vsasyvanii vodyanok serdetchnago proiskhozhdeniya. A. I. Kostkevitch.
90 Conditions for Development of Endogenous Suppuration in Operations on the Eyeball.—O nyekotorikh usloviyakh pri razvitiya nagnoeniya endogennago proiskhoxhdeniya pri operatziakh na glaznom yablokye. T. A. Korolkoff.
91 Advantages of Cesarean Section with Fritsch Incision in Case of Deformed Pelvis.—Kesarskoe syetchenie po povodu obshtche- i koso-suzhennago taza. M. M. Mirinoff.
92 *Spinal Analgesia in Gynecology.—Spinno-mozgoboi obezbolevanie v gynecologii. A. U. Katz.
93 Successes of Modern Cystoscopy.—Uspyekhi sovremennoi cystoscopii. N. A. Mikhaeloff.
94 (No. 52.) Ob etiologii raka (of cancer). S. I. Serkovsky.
95 *K lyetcheniu placentæ previæ centralis. B. A. Liboff.
96 (III, No. 1.) *Surgery of Biliary Passages.—K khirurgii zheltchnikh putei. S. P. Fedoroff.
97 Pathogenesis of Hypertrophic Biliary Cirrhosis of Liver.—K voprosu o patogenezi t. naz. hypertr. zheltushnikh cirrhosov petcheni. N. N. Kirikoff.
98 Bacteriologic Differentiation of Diphtheria.—Bakteriologitcheskii sposob v raspoznavaniya difterii. B. N. Tcherno-Schwartz.
99 *Sea Bathing for Certain Eye Affections.—O lyetchenii nyekotorikh glaznykh zabolyevanii morskimi kupaniyami. S. P. Roshtchevsky.

92. **Spinal Analgesia in Gynecology.**—Katz advocates spinal analgesia in gynecology when an operation is needed at once and the patient's condition renders either chloroform or ether hazardous.

95. **Treatment of Central Placenta Previa.**—Liboff agrees with those who advocate cesarean section as the routine treatment in threatening cases of central placenta previa. He describes 3 cases in which it was applied with the best results for both mothers and children. He thinks that a laparotomy is indicated for this serious condition to the same extent as for rupture of an extrauterine pregnancy. The only difference is that in the former case the hemorrhage is external, while in the other, it is internal.

96. **Surgery of the Biliary Passages.**—Fedoroff analyzes a number of instructive cases from his extensive experience and emphasizes the necessity for co-operation between the physician and the surgeon in this borderland of the affections of the biliary apparatus.

99. **The Seashore for Certain Eye Affections.**—Roshtchevsky urges that the building up of the general health by a stay at the seashore is a most important factor in the cure of certain affections of the eyes. Beside this, an unmistakably favorable action on the eyes from the sea bathing and from certain mineral waters is unmistakably apparent. He recommends the seashore in a temperate climate as particularly beneficial in case of trachoma.

Hygiea, Stockholm.

Last indexed XLIII, page 1430.

100 (LXVII, No. 6, June.) Om nagra former af kronisk peritonit i bukens vänstra sidoregion. B. Carlson.
101 Om difteri i Kisa 1899-1902. G. Thollander.
102 *Medical Report of the Swedish South Pole Expedition, 1901-1904.—Hälso- och sjukvarden under den svenska sydpolarexpeditionen Okt., 1901-Jan., 1904. E. Ekelöf.
103 (No. 7.) *School Myopia in Sweden.—Om förekomsten af närsynthet i Djutsholms skola jämte nagra därtill knutna betraktelser. J. Widmark.
104 Iakttagelser vid gonorré hos män. M. Möller.
105 Innervation of the Peritoneum.—En undersökning öfver nervfördelningen i främre bukväggen i synnerhet i dess peritoneum. M. Ramström.
106 *Nagra ord om den sa kallade Morbus Banti. E. Aspelin.
107 (No. 8.) Christian Loven. Obituary.
108 *Indications in Appendicitis.—Om indikationerna for operation vid appendicit samt redogorelse for a Sabbatsbergs sjukhus opererade fall. E. S. Perman.
109 *Diazo-Reaction in Pulmonary Tuberculosis.—Studier öfver diazo-reaktion vid lungtuberkulos och dess prognostika betydelse. A. Widstrand.
110 *Ibid. I. Holmgren.
111 Nagra komplikationer vid herpes zoster ophthalmicus. G. Ahlstrom (Göteborg).
112 *Chronic Arsenic Poisoning from Wall Paper and Paint and Biologic Test for Arsenic.—Om kroniska arsenikförgiftningar särdeles genom tapeter och färger samt om denn biologiska metoden att upptäcka arsenik. F. E. v. Sydow (Göteborg).

102. **Report of Physician Accompanying Polar Expedition.**—Ekelöf was the medical officer attached to the Swedish Antarctic expeditions of 1902 and 1903. He here gives a detailed report of sanitary and health matters, the food and other particulars, with the morbidity. The general health of the party was good for the most part. He gives a number of suggestions important for those contemplating trips to cold regions, especially in regard to prevention of scurvy.

103. **School Myopia in Sweden.**—Widmark tabulates the statistics from a number of schools and colleges, the proportion of shortsighted pupils constantly increasing with the school demands, as in other countries. He found that girls were more subject to myopia than boys, or at least to its severer degrees, and thinks that this should be borne in mind in selecting a life work. He found normal visual acuity in 97 per cent. of the 418 children in the Djursholms schools (1903), while the proportion was not over 79 in any of the Stockholm schools (1884).

106. **Banti's Disease.**—Aspelin enumerates among the diagnostic points in this disease the lack of anything in the his-

tory to explain the symptoms, their insidious onset in previously healthy or nearly healthy subjects in early middle age, and their chronic course; the moderate anemia of the secondary type without increased leucocytosis, but with increase in the mononuclear elements; the tendency to hemorrhages, and the evening temperature. He has had occasion to observe 3 cases at Helsingfors; the subjects were from 24 to 27 years old, and subjective improvement was obtained with iron, quinin, methylene blue, salicylic acid, or arsenic. One case suggested malaria, which was very prevalent in Finland at the time, but no plasmodia could be discovered in the blood, and its aspect was not that of malaria. Berg's case also coincides with the type established by Banti and Osler, and the patient, a man of 36, recovered complete health after splenectomy in 1897. Lindfors has also reported a case cured by splenectomy.

108. **Appendicitis.**—Perman tabulates the particulars of the 268 cases of appendicitis operated on during the last five years at the Sabbatsberg hospital. The results, he thinks, confirm the benefits of early operating, and of an interval operation after subsidence of even a slight attack.

109-110. **Diazo Reaction in Tuberculosis.**—Widstrand has made more than 2,000 examinations of the urine for the diazo test in 204 consumptives. Forty died in the hospital, and in 37 of these the diazo reaction was constant. In the 3 others the clinical diagnosis of pulmonary tuberculosis was not confirmed by the autopsy. In the mild or chronically latent cases the reaction was almost invariably negative. It is thus valuable for the prognosis and sometimes also for the differentiation. It is especially important when circumstances, such as frequent hemorrhages, forbid physical investigation. The positive reaction may turn the scale in favor of the assumption that the case is too far advanced for hope of a cure.

Holmgren gives excerpts from the hospital records of 158 cases of pulmonary tuberculosis, the results confirming the preceding conclusions. He adds that the stronger the reaction the nearer impending death, the interval not longer than from six to eight weeks. When the diazo is distinct but not strong, the maximal life expectancy can be placed, with great probability, at eighteen months, the average at six months. Among the patients in the third and in the advanced second stage, who presented a dubious or negative reaction, only 16 and 9 per cent., respectively, died within this average limit. A single positive reaction is sufficient for these deductions, and, as the test is so simple and easy, it should be currently adopted as a practical and valuable guide to prognosis. It enables those with a specially unfavorable outlook to be distinguished among the advanced cases and their life expectancy to be stated with greater exactness than by the physical findings alone.

112. **Chronic Arsenic Poisoning.**—Sydow reviews the literature on the subject of arsenic poisoning from wall papers, paint, etc., and advocates, as both convenient and accurate, Gosio's method of detecting the presence of arsenic by the growth of the *Penicillium brevicaule* on the suspected substance. In the presence of arsenic it disseminates a gas resembling the odor of garlic.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PRACTICAL PEDIATRICS. A Manual of the Medical and Surgical Diseases of Infancy and Childhood. By Dr. E. Graetzer, Editor of the *Centralblatt fur Kinderheilkunde* and the *Excerpta Medica*. Authorized Translation, with Numerous Additions and Notes, by Herman B. Sheffield, M.D., Instructor in Diseases of Children, and Attending Pediatrist (O.P.D.). Flexible Cloth. Pp. XII-544. Price, $3.00 net. Philadelphia: F. A. Davis Co.

A PRACTICAL TREATISE ON NERVOUS EXHAUSTION (Neurasthenia), Its Symptoms, Nature, Sequences, Treatment. By George M. Beard, A.M., M.D., Fellow of the New York Academy of Medicine. Edited, with Notes and Additions, by A. D. Rockwell, A.M., M.D., Neurologist and Electro-therapeutist to the Flushing Hospital. Fifth Edition—Enlarged. Cloth. Pp. 288. Price, $2.00. New York: E. B. Treat & Co. 1905.

EYE, EAR, NOSE AND THROAT NURSING. By A. Edward Davis, A.M., M.D., Professor of Diseases of the Eye in the New York Post-Graduate Medical School and Hospital, and Beaman Douglass, M.D., Professor of Diseases of the Nose and Throat in the New York Post-Graduate Medical School and Hospital. With 32 Illustrations. Extra Cloth. Pp. XVI-318. Price $1.25 net. Philadelphia: F. A. Davis Co.

INFLUENCE OF FOOD PRESERVATIVES AND ARTIFICIAL COLORS ON DIGESTION AND HEALTH. I.—Boric Acid and Borax. (U. S. Department of Agriculture.) By H. W. Wiley, M.D., with the Collaboration of W. D. Bigelow, Chief of the Division of Foods and Others. Paper. Pp. 477. Washington: Government Printing Office. 1904.

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NEW PATENTS.

Recent patents of interest to physicians:

777886. Eyesight testing device. Wm. H. Ely, Middletown, Conn.
778127. Catamenial bandage supporter. Lura B. Greenan, Bristol, Ind.
778062. Forceps. Isaac O. Mullison, Shenandoah, Iowa.
777744. Apparatus for the manufacture of medical or like capsules. Robert Paul, Vienna, Austria-Hungary.
778077. Catamenial appliance. Helen E. Scott, Baltimore, Md.
777826. Apparatus for heating or sterilizing liquids. Joseph Willmann, Chicago.
778621. Electromechanical vibratory massage apparatus. Charles Adams-Randall, New York.
778771. Electromechanical apparatus for vibratory massage. Charles Adams-Randall, New York.
778308. Therapeutic electrode. George H. Day and F. J. Stein, Louisville, Ky.
778570. Invalid bed. James A. Devore, Pittsburg, and S. C. Yount, Wilkinsburg, Pa.
778644. Obstetrical device. Mary A. Easterly, Ava, Ill.
778311. Fountain siphon syringe. Linley S. Grisell, Clyde, Kan.
778783. Producing a nutritive substance from blood. Julius Hofmeier, Vienna, Austria-Hungary.
778667. Blackleg vaccine and making same. Elijah M. Houghton, Detroit, Mich.
778750. Pill or tablet machine. Frank P. Kirzinger, Louisville, Ky.
778684. Surgical knife. Leopold Lewis, Strasburg, Germany.
778268. Instrument or other case. Gustave Rehmann, Newark, N. J.
779174. Syringe. Alcinous B. Jamison, New York.
779290. Making sodium acetate. Iens P. Lihme, Cleveland, Ohio.
778879. Syringe. Anton Molinari, Woodridge, N. J.
779178. Liquid dropper. Louis Perotti, Newark, N. J.
778896. Pneumatic massage apparatus. Irvin Rhodes, Kalamazoo, Mich.
779144. Stethoscope. Henry G. A. I. Wieder, London, England.
779338. Tube for containing surgical articles. Seward W. Williams, East Orange, N. J.

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Original Articles.

CHYLOUS ASCITES WITH EOSINOPHILIA.

AN ANALYSIS OF REPORTED CASES.*

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PHILADELPHIA.

Entering on the subject of chylous ascites, it appears necessary that we consider both chylous and chyloid effusions into the peritoneal cavity, since these two forms of ascites are dependent on entirely different pathologic processes.

True chylous ascites results from the escape of chyle into the peritoneal cavity, this condition resulting from some obstruction to the chyliferous channels. A variety of pathologic conditions may be responsible for the effusion of chyle into the peritoneal cavity; and among these may be mentioned traumatism to the abdomen with rupture of the receptaculum chyli, or of the thoracic duct; obstruction to the flow of chyle through its normal channels, e. g., organic heart disease, as a result of which there is stasis of the innominate vein and venous congestion of the liver; venous thrombosis and peritoneal adhesions surrounding and compressing the thoracic duct, pressure of mediastinal tumors on the thoracic duct; abdominal tumors pressing on the receptacle for the chyle; tumors situated so as to offer obstruction to the flow of chyle in the smaller chyle branches. In this connection malignant growths and tuberculosis of any portion of the peritoneum and of the abdominal viscera may, at times, produce a true chylous ascites, yet such conditions are, as a rule, the cause of pseudochylous ascites. Theoretically, one would expect chylous ascites as a complication during the course of filariasis, although I have found reference to only three such cases.

CHYLIFORM ASCITES.

Chyliform ascites is dependent for its fat on the degeneration of epithelial cells, leucocytes and tissue débris. Such degenerated débris is found in the peritoneal fluid in cases where there are either cancerous or tuberculous nodules of the peritoneum. It is possible to have a true chylous ascites in conjunction with tuberculosis of the peritoneum, as is exemplified in the reported case under my own observation:

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

DISTINCTIVE FEATURES OF CHYLOUS AND PSEUDOCHYLOUS FLUIDS.

TRUE CHYLOUS EFFUSION.	PSEUDOCHYLOUS EFFUSION.
1. The fluid consists of a fine emulsion containing but few cellular elements.	1. A less perfect emulsion containing large numbers of epithelial cells, and granular débris which is seen to display the various stages of degeneration, and to contain few fat droplets.
2. Accumulates rapidly after tapping.	2. Collects more slowly, varying with the exciting pathologic cause.
3. Contains sugar.	3. Sugar absent as a rule.
4. The melting point of the fat present in the fluid will be found to vary with the melting point of the fat taken as food.	4. Fatty foods have no effect on the melting fats contained in the fluid.
5. The amount of fat present is in direct relation with the amount of fats ingested.	5. Not affected by diet.
6. On standing a distinct creamy layer does not collect on the surface of the liquid.	6. A layer may collect which varies with the number of oil droplets present. A heavy sediment is liable to collect at the bottom of the liquid.
7. Fluid obtained by paracentesis may emit the odor of foods that have been ingested.	7. Does not emit the odor of foods.

While true chylous fluid always results from an admixture of chyle, Pagenstecher states that the milky appearance of ascitic fluid may depend on fatty degeneration of cells derived from the serous membrane, or on an alteration in an inflammatory exudate—an admixture of mucoid substances. This observer has found true chylous ascitic fluid to display a specific gravity of 1013; to contain 3.6 per cent. of albumin; 2.87 per cent. of fat; and 0.32 per cent. of sugar.

T. V., male, colored, age 11 years, was brought to me for treatment June 11, 1902, on account of loss of flesh and strength. At this time there was no evidence of ascites, the boy's general appearance was that of malnutrition, and he was decidedly nervous. The mother gave me the history that he had been complaining for some weeks past and had lost considerable flesh. His mind was becoming enfeebled, so that when he wandered away from home he was unable to return; he also lost his way about the house, and when sent to one portion of the building would, in many instances, go aimlessly about the house.

When first seen he complained of pain and soreness in the calves of the legs, loins and the arms. Pressure near the tendinous insertions of the calf muscles elicited tenderness and there appeared to be slight edema in the frontal region. I obtained a history of the boy having eaten a large amount of sausage, much of which had not been well cooked, and in view of this fact and the above symptoms I made an examination of his blood the following day.

Blood.—The hemoglobin was found to be 68 per cent.; red cells, 4,760,000, and white cells, 8,000 per c.mm. A differential leucocyte count (600 counted) gave:

	Per cent.
Polymorphonuclear cells	66.0
Basophilic polynuclear	1.5
Transitionals	0.5
Lymphocytes	2.5
Small lymphocytes	1.5
Large mononuclear	2.5
Eosinophiles	25.0
Myelocytes	0.5

During the counting of 600 leucocytes five nucleated red cells were observed (three normoblasts and two megaloblasts). The existence of a high-grade eosinophilia (25 per cent.), further supported my original suspicion that the boy was suffering from trichinosis. It was not until June 21, 1902 (nine days later), that I was able to persuade the family that an examination of the muscle tissue was necessary.

Examination of Muscle Tissue.—The skin was thoroughly cleansed with bichlorid solution and then with ether, and thoroughly injected with a 2 per cent. solution of cocain hydrochlorate. An incision two and one-half inches long was made over the tendinous insertion of the right soleus muscle, dividing all tissues down to the sheath of the tendon. The tendon was then grasped with a rat-toothed forceps and a longitudinal incision made for about one and one-half inches. The margins of the incised tendon were grasped by forceps and drawn apart by the assistant while I removed a small portion of the muscle.

This muscle tissue was at once placed in water, and later studied for the larval trichinæ, with negative results.

On June 24 (three days later) the wound appeared to be doing nicely and the boy was able to go about the room, but he complained of great weakness and shortness of breath, and of pain and tenderness over the abdomen. An examination of the blood showed red cells, 4,510,000; white cells, 11,500 per c.mm., and hemoglobin, 60 per cent. A differential leucocyte count gave: Eosinophiles, 10 per cent.; myelocytes, 2 per cent. All red cells stained pale, poikilocytosis was rather marked, and there was a slight amount of crenation of the red cells. Few microcytes and a similar number of macrocytes were to be observed.

Treatment and Results.—The patient was placed on predigested foods and tonics. July 22 the blood was again examined and gave the following: Red cells, 5,150,000, increase due to cyanosis(?); white cells, 5,600 per c.mm.; hemoglobin, 52 per cent. A differential leucocyte count gave:

	Per cent.
Polymorphonuclears	71.0
Lymphocytes (small)	13.0
Lymphocytes (large)	6.5
Large mononuclears	2.0
Eosinophiles	5.5
Transitionals	2.0

Film stained with eosin and hematoxylin showed decided decrease in the staining power of the red cells; and these cells were also greatly distorted. There were a number of microcytes and a few macrocytes present. Films stained with carbolthionin displayed well-marked punctate basophilia.

Termination of Case.—The patient continued to grow weaker and the abdominal distension became more and more marked until he was unable to retain his food. There was great pain over the abdomen and repeated paroxysmal attacks of vomiting.

A blood examination, July 26, four days later, gave hemoglobin, 66 per cent.; red cells, 3,390,000; white cells, 3,600 per c.mm. The differential leucocyte count gave eosinophiles, 7.3 per cent. During the counting of 600 leucocytes twenty nucleated red cells were found, three of which were megaloblasts. The red cells stained feebly with eosin, were greatly distorted, and a number of cells, in addition to having given up their hemoglobin, were much swollen. These cells displayed little or no affinity for the eosin stain, except a narrow peripheral band of the protoplasm, which was stained of about normal intensity.

September 4, eleven days later, two days prior to death, the hemoglobin was found to have risen to 70 per cent.; the red cells 3,110,000, a loss of 2,280,000 per c.mm.; the white cells, 9,600. The stained blood presented practically the same change displayed in the previous examination, except that the red cells showed slightly greater affinity for the eosin stain. Distortion of the red cells and punctate basophilia were equally well marked at this time, and the eosinophiles composed 13.3 per cent. of the leucocytes.

Urine.—The urine was examined repeatedly and was always found to be mildly acid in reaction and to display a specific gravity between 1022 and 1028. The quantity of urine for the twenty-four hours was about three pints. The amount of urea and phosphates present varied greatly in different specimens, but appeared to bear no direct correlation to the severity of his condition. Albumin and sugar were never present. On microscopic examination epithelial cells, few leucocytes, granular débris, crystals of uric acid, and of calcium oxalate were found.

Postmortem Examination.—The body showed decided emaciation, rigor mortis present. The abdomen somewhat distended; there was no swelling of the extremities, and the thorax presented nothing abnormal except emaciation. On opening the thoracic cavity the viscera were found to bear the normal relation to one another.

The pericardium contained about 20 c.c. of clear straw-colored fluid. Its surface appeared as normal. The heart was found to be normal for that of a child of 10 years.

Each pleural cavity contained about 20 c.c. of straw-colored fluid. In other respects the lungs and pleura displayed no gross pathologic conditions.

Abdominal Cavity: On opening the abdominal cavity it was found to be filled with about five and one-half pints of milky fluid. The intestines were covered with lymph-like exudate. In many places the intestines were matted together and portions of the chylous exudate were entirely separated from the general peritoneal cavity by rather well-organized adhesions. It was found necessary to break these adhesions before removing the chylous fluid. The peritoneum covering the intestine, mesentery and peritoneal wall was studded with fine tubercles, the largest of which was the size of a small pin's head; and on using a handglass the entire peritoneal surface was seen to be studded with minute tubercles.

The mesenteric lymph channels were greatly distended, and in many places stood out as small white wires underneath the peritoneum. Some of these distended vessels were almost white, while others were much darker in appearance; and this variation in shade appeared to depend, for the most part, on the amount of tissue overlying the distended lymph duct.

The renal and peritoneal lymphatic plexuses were everywhere greatly enlarged, and some of them were tortuous in their course and appeared to display fine nodules, but it was very difficult to show conclusively that these nodular masses were not small tubercles. The mesenteric lymph glands were slightly enlarged and on microscopic study gave evidence of tuberculous involvement.

The receptaculum chyli was not greatly distended, although it was possible to outline it rather easily. The thoracic duct was found with some difficulty, and was patulous throughout its entire length. At no point did the peritoneal adhesions appear to obstruct the lumen of the duct.

The liver was of normal size, its capsule studded with small tubercles. On section the parenchyma appeared to be fatty, pale and displayed few small tuberculous growths. The hepatic ducts were apparently normal. The spleen was but slightly enlarged, and its capsule showed many tubercles, which on section were found to extend into the splenic pulp.

The kidneys were surrounded by plexuses of greatly distended lymph channels. On section the right kidney was somewhat cyanosed and contained two small tubercles. The left kidney was like its fellow.

The adrenals were apparently normal.

Reports of 126 cases were collected from the literature and these in conjunction with two additional cases have been tabulated as to age, sex, existing abdominal conditions, treatment and result (Table 7).

The cases have been classified also as to exciting cause, e. g., Table 1 setting forth the characteristic features, primary seat of disease, and remarks in 24 cases of chylous ascites complicating carcinoma; Table 2 describing in a like manner 17 cases resulting from tuberculosis; Table 3, 11 cases accompanying cardiovascular conditions; Table 4. 8 cases due to disease of the liver; Table 5, 7 cases following puerperal sepsis; Table 6, 4 cases, the result of congenital cysts.

In addition, there were three instances where chylous

ascites followed infection with the filaria sanguinis hominis. Obstruction to the thoracic duct was observed postmortem in 11 of the cases, and the duct or receptaculum was found to be ruptured as the result of traumatism in 7 of the cases.

Sixty-one of the cases were females, 50 males, and in the remaining reports the sex was not given. A further analysis as to the number of cases occurring at the various periods in life gave 6 under 1 year of age; 3 between 1 and 5 years; 13 between 5 and 10 years; 9 between 10 and 20 years; 12 between 20 and 30 years; 34 between 30 and 50 years; and 24 after the age of 50.

TABLE NO. 1.

CASES OF CHYLOUS AND CHYLIFORM ASCITES COMPLICATING CANCER OF THE ABDOMINAL VISCERA, PERITONEUM, OR WITH METASTASIS TO ABDOMINAL STRUCTURES.

No. 1. The peritoneal effusion was purely chylous. Thought to have been caused by pressure on the thoracic duct. The growth involved the peritoneum surrounding the thoracic duct.

No. 2, 39 years, female. Effusion chylous. Pressure on the thoracic duct the result of metastasis, and consequent enlargement of the mesenteric glands.

No. 3, 39 years, female. Character of effusion not stated. There were present infiltration of the stomach and also of the mesentery with occlusion of the lacteals.

No. 4, 56 years, female. Carcinoma of the stomach which caused questionable pressure on the thoracic duct. The peritoneum was normal, as was also the receptaculum chyli. The kidneys gave evidence of chronic interstitial nephritis.

No. 5, 52 years, female. Carcinomatous growth, probably from the pancreas, causing pressure on the thoracic duct. Peritoneum not involved.

No. 6, 57 years, female. Carcinoma of the stomach, which probably pressed on the thoracic duct. No mention is made of involvement of the peritoneum.

No. 7, 43 years, female. Cancer of the pancreas with involvement of the peritoneum. Pressure on the thoracic duct questionable.

No. 8. Cancerous involvement of the mesentery—secondary (?). There was present obstruction to the lacteals.

No. 9, 58 years, male. Malignant disease of both the peritoneum and of the pleura. Probably carcinoma.

No. 10. The lesions described point to cancer of the mesenteric portion of the peritoneum. These changes may have been secondary (?).

No. 11, 42 years, male. Metastatic carcinoma of the peritoneum. There was enlargement of the abdominal glands and thought to be pressure on the thoracic duct. The peritoneal fluid was regarded as chylous.

No. 12, 59 years, male. Cancerous infiltration of the liver, mesenteric glands and peritoneum. The peritoneal fluid was chyliform in character.

No. 13, 44 years, female. Metastatic carcinoma of the peritoneum; effusion probably chyliform.

No. 14, 50 years, female. General carcinoma of the mesentery and of the peritoneum, with questionable obstruction to the thoracic duct.

No. 15, 59 years, female. Primary carcinoma of the gall bladder, with secondary involvement of the liver. There was also cancerous involvement of the mesenteric glands.

No. 16, 67 years, female. Carcinomatous involvement of the peritoneum. The report was now clear as to pressure on the thoracic duct. The ascitic fluid was regarded as chylous.

No. 17, 39 years, male. Metastatic carcinoma of the peritoneal glands. There was pressure on the thoracic duct, as the result of glandular enlargement. The fluid was chylous.

No. 18, 35 years, female. Carcinoma involving the peritoneum. Obstruction to the thoracic duct, probably caused by adhesions. The peritoneal fluid was regarded as chylous.

No. 19, 67 years, female. Diffuse carcinoma of the peritoneum. There was no evidence of pressure on the receptaculum chyli or on the thoracic duct.

No. 20, 47 years, female. Carcinoma of the ovary with metastasis to the adjacent peritoneum.

No. 21, 39 years, female. Carcinoma of the stomach with secondary involvement of the peritoneum and contiguous structures. Occlusion of the thoracic duct.

No. 22, 53 years, male. Obstruction of the smaller chyle vessels, as the result of metastatic carcinoma of the mesentery.

No. 23. Gastric carcinoma. It was thought that the thoracic duct had become involved in the growth. Chylous fluid escaped into the peritoneal and pleural cavities.

No. 24. Cancerous growth of the abdomen. The thoracic duct was compressed by the growth and there was a chylous effusion into both the peritoneal and pleural cavities.

TABLE NO. 2.

CASES OF CHYLOUS AND CHYLIFORM ASCITES COMPLICATING TUBERCULOSIS.

No. 1, 59 years, male. Tuberculosis of the lung and of the peritoneum. Diagnosis confirmed at autopsy.

No. 2, 59 years, male. Pulmonary tuberculosis with tuberculosis of the peritoneum. Ascitic fluid milky.

No. 3, 8 years, female. Tuberculosis of the peritoneum with a large chyliform effusion into the peritoneal sac. Tuberculous involvement of the lung found at autopsy.

No. 4, 27 years, female. There had been involvement of the glands of the neck during childhood, and later tuberculosis of the lung. At postmortem the abdominal cavity contained 3,400 c.c. of chyliform fluid. There were present extensive peritoneal adhesions.

No. 5, 33 years, female. The condition of the peritoneum appeared to be primary, and from the description given it was probably of tuberculous nature. Fluid regarded as chylous (?).

No. 6, 10 years, female. Reported as a case of tubercular peritonitis, from which 5,000 c.c. of milky fluid were removed during life.

No. 7, 39 years, female. Tuberculosis of the peritoneum. Everywhere the peritoneum was found to be studded with small tubercles. There were also extensive peritoneal adhesions.

No. 8, 12 years, female. There had been tuberculosis of the superficial glands for a long period. Miliary tuberculosis ensued and was complicated with chyliform ascites.

No. 9, 13 years, male. History of pulmonary tuberculosis, with secondary involvement of the peritoneum. Character of fluid probably chyliform.

No. 10, 7 years, female. At postmortem the peritoneum and peritoneal glands were found to be tuberculous. On section many of these glands were caseous, and contained the characteristic features of tuberculous disease. The fluid was referred to as being oily.

No. 11, 7 years. At postmortem the mesentery was found to be thickened. There were also nodules in the abdominal cavity which, on section, presented the characteristic features of tubercles.

No. 12, 59 years, male. Tuberculosis of the peritoneal sac following tuberculosis of the lung.

No. 13, 10 years, male. There was found at autopsy a chronic tuberculous process involving the peritoneum. At various tappings 6.350 c.c. of fluid were removed.

No. 14, 58 years, female. Tuberculosis of the genital tract, followed by tuberculosis of the peritoneum and of the liver. The patient was tapped four times, and 3,250 c.c. of milky fluid removed.

No. 15, 10 years, male. Autopsy disclosed tuberculosis of the peritoneum, and many adhesions. The chylous effusion was thought to have been caused by adhesion constricting the receptaculum chyli. About 1,000 c.c. of peritoneal fluid were removed at section.

No. 16, 45 years, female. There was present at autopsy miliary tuberculosis of the pleura, peritoneum and pericardium. The patient was tapped repeatedly, and a large quantity of fluid removed from the different sacs at each tapping; the specific gravity of the fluid was 1015.

No. 17, 11 years, male, negro. Tuberculosis of the peritoneum and obstruction to the lacteals. Peritoneal adhesions which divided the peritoneal cavity into many compartments. Peritoneum covered with plastic exudate. Omentum shrunken; 1,200 c.c. of chylous effusion; specific gravity, 1014. The blood showed a high-grade eosinophilia.

TABLE NO. 3.

RECORDED CASES IN WHICH CHYLOUS ASCITES WAS FOUND TO FOLLOW VALVULAR HEART DISEASE.

No. 1, 43 years, female. At autopsy there was found to be mitral and tricuspid insufficiency. The thoracic duct was obstructed at its point of opening into the vein, the result of a large fibrinous clot. The lumen of the thoracic duct was expanded and its walls thickened; the vein was also dilated at this point.

No. 2, 3 months, male. There existed congenital insufficiency of the cardiac valves.

No. 3, female. History of valvular heart disease of long duration. There was present during life stasis of the venous system.

No. 4, male. Valvular heart disease with venous stasis.

No. 5, 24 years, male. General arterial sclerosis; insufficiency of the cardiac valves. Chronic parenchymatous nephritis.

No. 6, 19 years, male. The thoracic duct was obstructed near its opening into the vein by pressure the result of a fibrinous clot surrounding vegetation which developed from the subclavian vein. At postmortem the receptaculum chyli was found to be ruptured.

No. 7, 19 years, male. Pressure on the thoracic duct by a clot occupying the subclavian vein. This clot was light in color, ragged and rather well organized. There were present, antemortem, cardiac insufficiency and venous stasis.

No. 8, 24 years, male. At autopsy the left subclavian vein was found to contain a large clot. The symptoms were those of cardiac insufficiency, with cardiac dilatation (?).

No 9, 80 years, male. The reporter of this case attributed the chylous ascites to pressure on the thoracic duct, the result of adipose tissue. From the general description of the case, and in view of the fact that there was no autopsy, I have classified it as one of cardiac insufficiency.

No. 10, male. At autopsy there was found to be embolus of the pulmonary artery. There was also a questionable statement as to cardio-vascular disease. The thoracic duct was ruptured.

No. 11, 8 years, male. Disease of mitral and aortic valves. There had been three attacks of acute rheumatism several years before.

TABLE NO. 4.

CHYLOUS ASCITES COMPLICATING DISEASE OF THE LIVER.

No. 1, male. Reported as a case of disease of the liver (?) complicated with chylous ascites.

No. 2, 28 years, female. Fatty degeneration of the liver, with fatty effusion into the peritoneal cavity.

No. 3, 47 years, male. Reported as a case of atrophic cirrhosis of the liver.

No. 4, 39 years, male. Atrophic cirrhosis of the liver. History of alcoholism.

No. 5, 38 years, male. Cirrhosis of the liver, with a history of alcoholism.

No. 6. Cirrhosis of liver with a history of alcoholism.

No. 7, 52 years, female. Cancer of the liver, probably secondary to cancer of the peritoneum.

No. 8, male. Cirrhosis of the liver; cause obscure.

TABLE NO. 5.

RECORDED CASES OF CHYLOUS AND CHYLIFORM ASCITES COMPLICATING PUERPERAL SEPSIS.

No. 1, female. There was abortion with delivery of twins. The patient did badly, and probably had puerperal sepsis. The report of the autopsy does not throw further light on the case.

No. 2, female. Following a miscarriage chylous ascites developed. More than 7 liters of chylous fluid were removed by tapping. The patient made an uninterrupted recovery.

No. 3, female. Following labor (with twins) a questionable abdominal tumor developed, which proved to be chylous ascites.

No. 4, 55 years, male. Following an unusually difficult labor there developed abdominal distension, which proved to depend on a chylous cyst. This cyst was evacuated by aspiration, and recovery followed.

No. 5, female. During the first week following delivery the mammary secretion lessened and became abnormal. Other evidences of puerperal sepsis appeared to be wanting. The chylous effusion was removed by aspiration and recovery followed.

No. 6, 24 years, female. Following puerperal sepsis there was abdominal distension due to chylous ascites. The abdominal cavity was drained through the vagina and five pints of chylous fluid recovered. Recovery followed.

No. 7, 33 years, female. Abortion at the third month followed by sepsis, with a temperature of 104 degrees, and a pulse of 140 per minute. Chylous fluid accumulated in the peritoneal cavity. Dr. George I. McKelway opened the peritoneal cavity through the posterior cul-de-sac, and one and one-half pints of chylous fluid escaped. Recovery.[1]

TABLE NO. 6.

CHYLOUS ASCITES THE RESULT OF CONGENITAL CYSTS.

No. 1, birth, female. A large congenital cyst ruptured, probably during birth. The chylous effusion into the peritoneal cavity is said to have been large. Fluid removed by tapping and the child made a perfect recovery.

No. 2, male. Laparotomy for removal of a large tumor which proved to be a chylous cyst. Patient made an uneventful recovery.

No. 3, 5 months, female. The patient was tapped and chylous fluid removed. Laparotomy showed the mesentery to contain several chylous cysts. The condition was probably congenital. Convalescence was soon established and recovery followed.

No. 4, 5 weeks, male. Reported as a case of lymphangioma of the peritoneum. The fluid was evacuated by aspiration, and for this reason it appears probable that this case should be considered as one of chylous ascites due to a congenital cyst. Recovery.

TABLE NO. 7.

REFERENCE TO CHYLOUS ASCITES.

No. 1, female. Obstruction of lymphatic glands and vessels. Medicine and tapping; died.

No. 2, 2 years, male. Compression of thoracic duct near subclavian vein by large tumor, producing rupture of lacteals. Tapping; died.

No. 3, 24 years, female. Childbed, rupture of chyle channels, five pints milky fluid escaped. Counter-opening; recovery.

No. 4, 39 years, male. Calculus in receptaculum chyli. Tapping; died.

No. 5, female. Effort to raise burden, with questionable rupture. Tapping.

No. 6, female. Abnormal mammary secretion during first week of puerperium. Medicine and tapping; recovery.

No. 7, female. Metrorrhagia, miscarriage, unusual exercise, 7.3 liters of chylous fluid were removed; s. g. 1022. Tapping; recovery.

No. 8, 29 years, female. Arrest of secretion of milk from mammary glands and derangement of intestinal canal. Tonics; recovery.

No. 9, female. Premature birth of twins, septic infection questionable. Found at autopsy.

No. 10, 8 years, female. Rupture of lacteal vessels; protracted illness. Tapping; recovery.

No. 11, male. Supposed to be liver disease with large chylous effusion into peritoneal cavity. Medicine; died.

No. 12, female. Abdominal tumor following pregnancy with twins. Rupture at navel; died.

No. 13, 20 years, male. Tumor of mesenteric glands, lacteals large and tortuous. Died.

No. 14, 59 years, male. Chronic bronchitis, asthma, tuberculosis. Questionable tuberculosis of peritoneum. Died.

No. 15, 59 years, male. Tuberculosis. Died.

No. 16, 28 years, female. Chronic peritonitis with fat in effusion. Fatty degeneration of liver and lipemia. Died.

No. 17, 8 years, female. Symptoms of tuberculous peritonitis, numerous tubercle in lungs. Died.

No. 18. Milky fluid obtained from abdomen, cause questionable.

No. 19, 62 years, female. Occlusion of thoracic duct with soapy peritoneal fluid; cause obscure.

No. 20, 19 years, male. Partial obstruction of duct near its termination due to adhesions and pressure. Died.

No. 21, 24 years, male. Left subclavian vein plugged with ragged clot. Tapping; died.

No. 22, 43 years, female. Mitral and tricuspid insufficiency, thoracic duct plugged at outlet with pale and red fibrous coagula; walls thickened; lumen dilated with thrombi. Died.

No. 23. Rupture of chyle vessels from pressure of tumor. Died.

No. 24, 27 years, female. Scrofula, pulmonary tuberculosis, olly ascites, peritoneal adhesions, 3400 c.c. of fluid were recovered. Died.

No. 25, 2 months. Abdominal tumor, causing rupture of thoracic duct. Tapping; died.

No. 26, 30 years, female. Obstruction of thoracic duct due to infarction. Thickening of ureters, 13,500, c.c. of chylous fluid were recovered, probably by repeated tappings. Tapping; died.

No. 27, 50 years, male. Traumatic rupture of thoracic duct, effusion into peritoneal and pleural cavities, 20,000 c.c. of chylous fluid were recovered by a number of tappings. Tapping; died.

No. 28, 33 years, female. Primary peritonitis with hydropsadiposus and 8,000 c.c. of chylous fluid were removed. Tapping; died.

No. 29, 10 years, female. Tuberculous peritonitis, 5,000 c.c. of chylous fluid were recovered. Tapping; died.

No. 30, female. Chylous fluid vomited; also found in peritoneal and pleural cavities; cause obscure. Tapping; recovery.

No. 31, 39 years, female. Peritoneum studded with tubercles. Tapping; died.

No. 32, 39 years, female. Puncture of chyle vessels by parasites. Tapping.

No. 33, birth, female. Rupture of a congenital chylous cyst with large chylous effusion. Tapping; recovery.

No. 34, 11 years, male. Ascites following infectious diseases; cause obscure. Tapping. Died.

No. 35, 50 years, female. Rupture of mesenteric and lymphatic lacteals; cause questionable. Tapping.

No. 36, 25 years, male. Syphilis. Tapping; died.

No. 37, 12 years, female. Scrofula and miliary tuberculosis, milky fluid containing fat and the fatty acids. Died.

No. 38, 47 years, male. Cirrhosis of liver; abdominal fluid milky and contained fat. Died.

No. 39, 39 years, male. Alcoholism with cirrhosis of liver; fluid first two tappings ordinary, afterward milky and fatty. Tapping; died.

No. 40, 8 years, male. History of acute attacks of rheumatism, valvular heart disease. Tapping; died.

No. 41, 2 years 8 months, male. Syphilis. The patient had diabetes, 13,000 c.c. of fluid were removed. Four tappings; died.

No. 42, 55 years, male. Chylous cyst of abdomen when fluid was found following hard labor. Tapping; recovery.

No. 43, 3 months, male. Chronic peritonitis with congenital heart disease. Tapping; recovery.

No. 44, 13 years, male. Pulmonary tuberculosis with tuberculosis of the peritoneum and chylous peritoneal effusion. Tapping; died.

No. 45, 61 years, male. Extensive peritoneal effusion of chylous fluid. Exciting cause undetermined. Tapping; died.

No. 46, 19 years, female. Violent exercise followed by an effusion of chylous fluid. Laparotomy; recovery.

No. 47, 39 years, male. Chylous cyst of the mesentery, which was evacuated. Laparotomy; recovery.

No. 48, 80 years, male. Stasis of the thoracic duct induced by pressure exerted from an accumulation of fatty tissue. Chylous exudate into the peritoneum recovered at postmortem. No autopsy; died.

No. 49, 47 year, male. Chylous effusion into the peritoneal cavity. Exciting cause questionable. History of alcoholism. Tapping.

No. 50, 38 years, male. Alcoholism, cirrhosis of liver with chylous effusion. Tapping.

No. 51, 11 years, child. Sarcoma of omentum. Died.

No. 52, 28 years, male. Traumatic rupture of receptaculum chyli. Tapping; died.

No. 53. Carcinoma of peritoneum with obliteration of thoracic duct as the result of pressure (?). Tapping; died.

No. 54, 39 years, female. Carcinoma of mesenteric glands, with pressure on the thoracic duct and receptaculum chyli. Tapping; died.

No. 55, 61 years, male. Chronic lymphangitis of the thoracic duct. Tapping; died.

No. 56, 39 years, female. Cancerous infiltration of the lymphatics of the stomach, intestine and mesentery. Lacteals were occluded. Tapping; died.

No. 57. Hepatic cirrhosis and chronic peritonitis with obstruction of lacteals and stasis. Tapping; died.

No. 58, 52 years, female. Peritoneal carcinoma with involvement of the liver. There was obstruction of the lacteals of the mesentery. Tapping; died.

No. 59, 5 months, female. Numerous congenital (?) cysts of the mesentery which were excised and drained. Tapping and laparotomy; recovery.

No. 60, 42 years, female. Thought to have been either cancer or tuberculosis of the peritoneum. Tapping; died.

No. 61, 61 years, male. The renal and peritoneal lymph plexuses were greatly enlarged, as were also those of the intestine. These lymph vessels were tortuous in their course, constricted in places and displayed a varicose appearance. Tapping; died.

No. 62, 34 years, female. No autopsy, large peritoneal effusion of chylous fluid. Died.

No. 63, 54 years, male. Profuse peritoneal effusion of chylous fluid, which reappeared rapidly after tapping. Said to have been tapped 49 times; died.

No. 64, 31 years, female. Thought to have been a minute perforation of thoracic duct. There was also effusion into the pleura. The abdominal effusion of chylous material was removed and soon reappeared after each removal. Five tappings; died.

No. 65, 61 years, female. Cause questionable, supposed to be rupture of lacteals as the result of traumatism, or possibly the condition depended on infection through the wound. Tapping; died.

No. 66, 41, male. Exciting cause not known; fluid reappeared after tapping. Two tappings; died.

No. 67, 56 years, female. No lesion found in the chyliferous vessels. Gastric cancer present and sclerotic kidney. Two tappings; died.

No. 68, 53 years, female. Carcinoma involving the thoracic duct, but no sight of rupture could be detected. Laparotomy; died.

No. 69, female. Cause doubtful; fluid reappeared after tapping. Tapping; died.

No. 70, 57 years, female. Cancer of the stomach; thoracic duct could not be found, probably involved in the growth. Tapping; died.

No. 71, 21 years, female. No autopsy. Thought to have been caused by pressure on the thoracic duct. Tapping; died.

No. 72, 18 years, female. Angiosarcoma of ovaries, fluid accumulated rapidly after removal. Three tappings and laparotomy; died.

No. 73, 46 years, male. Enlargement of the abdomen with obliteration of the thoracic duct. There was also chylous effusion into the pleural cavity. Tappings and medicines.

No. 74, 7 years, female. There was enlargement of the mesenteric glands, many of them showing degeneration and chalky deposits on section. Died.

No. 75, 21 years, female. Prolonged attack of chylorosis. The effusion of chylous liquid into the abdominal cavity was thought to be due to pressure on the lymph channels by enlarged spleen. Tappings and medicines; recovery.

No. 76, child. Abdominal cavity filled with milky fluid evidently derived from rupture of chyliferous vessels. No lesion of the vessels was found. Died.

No. 77, 7 years, male. Mesentery cirrhosed and showed many areas, which on sectioning were white and chalk-like—tubercles (?). Died.

1. I am not aware that Dr. McKelway has reported this case and it should be credited to him. I was his resident physician at the time of this observation, and made a chemical and microscopic study of the chylous fluid.

No. 78, 19 years, male. Fibrinous vegetations attached to intima of subclavian vein; partial obliteration of thoracic duct near its outlet; rupture of receptaculum chyli. Died.

No. 79, 24 years, male. Left subclavian and its effluent branches plugged with a light colored and ragged blood clot. No lesion of abdomen found. Tapping; died.

No. 80, 9 years, male. General health fair, no cause discovered. Twenty-eight pints of fluid were recovered from the abdominal cavity during the period of 28 days. The fluid was chylous and had a specific gravity of 1015. Tapping; under observation when reported.

No. 81, 2 years, male. Previous health good, no cause discovered. Abdominal fluid milky and contained lymph cells. Tapping; under observation when reported.

No. 82, male. Chronic lymphangitis involving the peritoneal lymph channels. Died.

No. 83, 59 years, male. Pulmonary tuberculosis, with probable involvement of the peritoneum (?). Died.

No. 84. Lesion of the thoracic duct. (I was unable to ascertain the exact nature of this lesion from an abstract.) Died.

No. 85. Chronic peritonitis with obstruction of the lacteals of the mesentery, resulting in a questionable chylous effusion. Died.

No. 86, 43 years, female. Cancer of the pancreas with cancerous involvement of the peritoneum, 1400 c.c. of chylous fluid were removed at operation. Laparotomy; died.

No. 87, male. Rupture of the thoracic duct; there was also an embolus of the pulmonary artery. Died.

No. 88, female. Chylous effusion—valvular heart disease with stasis of the vena cava.

No. 89, male. Hepatic cirrhosis with chylous effusion into the peritoneum. Died.

No. 90, male. Chylous effusion following valvular heart disease. Died.

No. 91, 54 years, female. Lymphangitis involving peritoneal vessels. Died.

No. 92, male. Questionable chylous. Tapping; died.

No. 93, 10 years, male. Chronic tubercular peritonitis with chylous effusion of 6,350 c.c. of fluid. Tapping; died.

No. 94. Obstruction to the thoracic duct of questionable origin. died.

No. 95. Cancer of the mesentery with obstruction of lacteals. died.

No. 96, 56 years, male. Cause unknown; 28,700 c.c. of fluid were recovered. Five tappings; died.

No. 97, 58 years, female. Tubercular peritonitis, tuberculosis of liver and of the genitalia; 3,250 c.c. of fluid were removed. Four tappings; died.

No. 98, 58 years, male. Malignant lymphoma of peritoneum and pleura; 17,750 c.c. of milky fluid were removed from both serous cavities. Three tappings; died.

No. 99. Malignancy of the peritoneum with chylous effusion.

No. 100. Sarcoma of the mesentery with removal of 50,000 c.c. of chyliform fluid. The S. G. 1011-1014. Four tappings; died.

No. 101. 42 years, male. Carcinoma with metastasis to the peritoneum, mesenteric glands, etc., with pressure on the thoracic duct; 9,600 c.c. of chylous fluid were removed. S. G. 1015-1017. Two tappings; died.

No. 102, 59 years, male. Carcinoma with metastasis to the lymph glands, liver and peritoneum; 400 c.c. of chyliform fluid were removed. S. G. 1020. The fats averaged .31 per cent. Section; died.

No. 103, 24 years, female. Traumatism with rupture of the chyle vessels. Died.

No. 104, 35 years, female. Chronic peritonitis, uterine fibroid with chylous effusions. Tapping; recovery.

No. 105, 35 years, female. Cancerous peritonitis; 8,500 c.c. of chylous fluid removed. Four tappings; died.

No. 106, 67 years, female. Peritonitis and general carcinomatosis: 6,000 c.c. of fluid were removed. Three tappings; died.

No. 107, 67 years, female. Chronic peritonitis with distention of the thoracic duct and chyle receptacle. Three tappings; died.

No. 108, female. Chronic peritonitis with cirrhosis of the liver. Tapping; recovery.

No. 109, 15 months, female. Chronic peritonitis. Nineteen tappings; recovered.

No. 110, 10 years, female. Tuberculosis of the peritoneum with distention of the receptaculum chyli; one gallon of fluid was recovered. Laparotomy; recovered.

No. 111, 46 years, female. Valvular heart disease with parenchymatous nephritis: 1,200 c.c. of fluid were removed. Died.

No. 112, 47 years, female. Cancer of the ovary. S. G. of fluid 1011-1015. Died.

No. 113, 44 years, female. Carcinoma with metastasis to the peritoneum and large chylous effusion: 17,000 c.c. of chyliform fluid were removed. S. G. 1020, containing 3.98 per cent. of fat. Three tappings; died.

No. 114, 50 years, female. Cancer of the peritoneum and mesentery; 19,000 c.c. of milky fluid were removed antemortem. Tapping; died.

No. 115, 45 years, female. Miliary tuberculosis of the peritoneum, pleura and pericardium, with obstruction to the chyle vessels; 10,000 liters of milky fluid were removed. S. G. 1015. Three tappings; died.

No. 116, 59 years, female. Carcinoma of the gall bladder with cancerous involvement of the mesentery and liver. S. G. 1012; the fat averaged 1.15 per cent. Three tappings: died.

No. 117, 10 years, male. Enlargements of retroperitoneal glands, with pressure on the thoracic duct and a large chylous effusion. Section; died.

No. 118, 67 years, female. Carcinoma of the peritoneum with 17,500 c.c. of chylous fluid. S. G. 1020. Four tappings; died.

No. 119, 39 years, female. Gastric carcinoma with involvement of the liver, peritoneum and infiltration causing obstruction to the thoracic duct; 4,500 c.c. of fluid were removed. S. G. 1012. Tapping; died.

No. 120, 36 years, male. Carcinoma with metastasis to the retroperitoneal gland and to the mesentery with pressure on the thoracic duct; 7,300 c.c. of chylous fluid were removed. S. G. 1012. Tapping; died.

No. 121, 53 years, male. Cancer of the mesentery due to metastasis, obstruction of the smaller chyle vessels; 600 c.c. of chylous fluid were removed. Section; died.

No. 122. Gastric carcinoma with thrombosis of the venous system and resulting in obstruction to the thoracic duct with an effusion of chylous fluid into the pleura. Died.

No. 123. Carcinoma involving the thoracic duct, which was probably compressed in the mass. There was a chylous effusion into both the peritoneal and pleural cavities. Died.

No. 124, 5 weeks, male. Lymphangioma of the peritoneum; 750 c.c. of chylous fluid were removed. The specific gravity of the fluid was 1007, and it contained 4.756 per cent. of fats. Tapping; recovery.

No. 125, 35 years, male. Chylous ascites with chyluria. The patient had lived in South America and filaria were found in blood, but not in the chylous fluid. Tapping; recovery.

No. 126, 16 years, female. Chronic nephritis, with marasmus and thrombosis of the innominate veins. There was a large chylous effusion into the peritoneum. Its specific gravity was 1005. Two tappings; died.

No. 127, 11 years, male. Tuberculosis of the peritoneum and obstruction of the lacteals. Thoracic duct patulous. The fluid was walled off in many small compartments by firm and plastic adhesions. Omentum shrunken and its lacteals tortuous. Chylous effusion 1,200 c.c. at autopsy. S. G. 1014. Medicines; died.

No. 128, 33 years, female. Puerperal sepsis with pelvic peritonitis. One and one-half pints of chylous fluid were removed from the peritoneal cavity. Specific gravity of the fluid 1014. Puncture through the vaginal wall; recovery.

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Radioactive Wool.—Cotton-wool which has been submitted to the action of radium emanation is convenient for easy distribution over the body; it may be packed in hermetically sealed jars, as it loses radioactivity very slowly, and can be sent to any distance desired. From a few milligrams of radium, according to the *Medical Age*, a large quantity of wool may be prepared, and thus widely extend the use of a small amount of radium, whose cost is so great as to interfere with its widespread use. The effects of the radium emanation and of the direct action of the radium are in all probability the same. Radioactive wool, therefore, may become a stock pharmaceutic preparation.

THE ENVIRONMENT AND VISUAL REQUIREMENTS OF RAILWAY ENGINEMEN AND FIREMEN.

PERSONAL OBSERVATIONS FROM AN ENGINE CAB.*

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Of the total railroad mileage of the United States (approximately 302,000 miles), nearly 13 per cent., or 39,263.9 miles,[1] are using a block system of signaling for the protection and spacing of trains. This system of controlling trains requires, in the daytime, the determination of the position of a semaphore arm, about 4 feet long by 6 inches wide, or distinguishing the color of a disc about 17 inches in diameter, displayed on a pole about 26 feet high. At night the color of a 6-inch lens, lighted by a kerosene lamp, must be observed. These must be determined by the enginemen at sufficient distance in which to control their trains. Mr. R. Quayle, superintendent of motive power of the Chicago & Northwestern Railway, kindly furnishes the following data, which are the result of some recent experiments in controlling fast trains:

With the ordinary brake, 70 pounds train-line pressure, a six-car train running 70 miles an hour can be stopped inside of 2,000 feet, approximately 1,900 feet, and when the high-speed brake, 110 pounds train-line pressure, is used on the same train and running at the same speed, the train can be stopped in 1,450 feet.

It will be seen that a signal must be read at not much less than one-half mile (2,640 feet), as a few seconds are necessary for the engineman to shut off his steam and apply his air, and in each one of these seconds a train, traveling 70 miles an hour, is covering 88 feet.

There is no question that next to the necessary practical knowledge of his engine, the vision and color perception of enginemen is the most important.

The latest obtainable statistics of railroad accidents (June 30, 1902, from the report of the Interstate Commerce Committee),[2] gives the terrific number of 8,588 killed and 64,662 injured from June 30, 1901, to June 30, 1902. Collisions and a large percentage of derailments are the only class of accidents in which defective vision or color perception can be regarded as a causative factor. Collisions caused 617 deaths and 5,350 injuries, derailments caused 293 deaths and 2,504 injuries. There seems to be no classification of accidents up to date which gives those caused by defective vision or color perception.

During 1902, in Illinois, there were 138 derailments due to trains running against signals.

None of the writers on the visual requirements of trainmen have given the subject of their environment much, if any, consideration. Dr. H. B. Young's paper,[3] "The Visual Requirements of Trainmen, Based on Personal Observations from an Engine Cab," was the first to do this, and suggested to me that deductions from a large series of observations made in the same environment and under the same conditions as enginemen work, would be of material value. I was governed in

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

EDITOR'S NOTE.—A portion of this article, including eight illustrations, is omitted. This will explain the absence of certain footnotes, etc. The entire article appears in the transactions of the section and in the author's reprints.

1. Railroad Gazette, Jan. 22, 1904, p. 63.
2. Report of Interstate Commerce Commission, 1903.
3. Young, Dr. H. B.: The Visual Requirements of Trainmen, Based on Personal Observations from an Engine Cab, Annals Ophth., January, 1904.

these experiments by the standards required in the reports adopted by the American Medical Association, the American Ophthalmological Society, and the American Academy of Railway Surgeons. A careful examination of my eyes resulted in vision with either eye (without glasses) 6/V (20/15), perfect color vision and muscular balance, refraction O. D. +.50 cyl. ax. 85°, O. S. +.62 cyl. ax. 135°.

DAY SIGNALS.

Trainmen and enginemen on steam roads are governed in their manipulation or movement of trains very largely by signals.

Railway signaling is of two kinds, visible and audible. This paper will deal only with visible signals.

Visible signals are divided into two grand classes, fixed and moving. This division also applies to night as well as day signals. It is quite generally accepted that red designates danger, green or yellow caution, and white or green clear. This scheme usually applies to flags (Fig. 1), switch targets (Fig. 2), gates (Fig. 3) and bars, but color in block, interlocking and signal department work does not indicate much in day signaling, as practically all signals are position signals. This, however, makes the test for color vision none the less important.[4]

It is to be remembered that the function of all fixed signals, whether called block signals or by some other name, is to inform the engineman whether or not he may proceed beyond the signal, or on what conditions he may proceed, and to convey the information some seconds before it will have to be acted on. This last is a vital feature, for the essential difference between driving a horse in the street and driving a locomotive, the difference which makes costly signals necessary, is that the engine driver, controlling a heavy body moving at high speed, must have ample preliminary notice of any requirement to stop.



Fig. 2.—High switch target, Kansas City yards.



Fig. 3.—Crossing gate, C. & G. W. R. R.

Day-fixed signals are whistling posts, road-crossing signs, flags, switch targets, train order signals, gates or bars, interlocking and block signals (Figs. 4 and 5).

If the speed of the trains is much increased, as the experiments in Germany with the electrical road indicate, and a maximum of 100 to 120 miles an hour maintained, the semaphores will have to be much larger, to enable them to be seen at a sufficient distance to control the train, or some automatic arrangement used which will cut off the current for an obstruction signal.

NIGHT SIGNALS.

As the trainmen are almost entirely dependent on signals at night for information as to track obstructions, location, warnings and means of communication, this is the most important part of railway signaling—it should be the simplest, the surest, and should have the contrasts most marked. The colors used are red, white, green, and on some roads yellow.

The fixed night signals are white, red, yellow and green lamps or lanterns, with purple or dark blue in use for back lights at interlocking plants. Red and green fuzees are used for emergency signals and to indicate track conditions.

In all night signaling, while the color is the main indication, the location of the lights has something to do with determining the meaning of signals, i. e., a red above a white or green will indicate one thing, and a white or green above a red another; hence the necessity for perfect color perception. Yellow is used as a caution signal on roads where green is used for clear. Its usefulness is in case a glass should break in any signal, a white light would show when it should be yellow, red or green, and indicates that something is wrong.

The arrangement of night signals, green and red on the home signal and green and yellow on the distant, has been the practice on the New York, New Haven & Hartford for about two years, and is being adopted by a few other roads. The use of green for "Proceed" relieves the enginemen of the risk of taking a street or house light for an all-right signal. Yellow lights, to be always quickly distinguished from common "white" lights, must be so dark as to look a little like red, but this likeness is not found to cause any difficulty in practice. Even if a distant signal were to be taken for a stop signal, no harm would ensue.[4]

Night-motion signals are made with white, red, yellow and green lanterns swung by hand.

There has been some effort made to get a position signal for night, but so far nothing satisfactory has been accomplished.

TRAIN ORDERS.

The fact that the time schedule of trains must be so closely followed and telegraphic permission must be obtained by enginemen and conductors to proceed if their train is late, also adds greatly to the safety of trains running under the block system.

Train orders written on different colored paper, which designates the class, is in use on some roads. For instance, the Baltimore & Ohio uses yellow for general, green for caution and white for clearance orders.

Some roads use signals which stand normally in the clear position, while others use those which are normally in the danger position. Both have their advantages and disadvantages; normally at danger position would seem the safest, however.

4. Adams, B. B.: The Block System, pp. 123, 139, 173.

THE ENGINEER.

"A few years ago the profession of engine driver was one which did not require such an amount of skill as is necessary to-day. Men who entered the ranks were brought up from the brakemen and firemen class and were rather men of superior intelligence. To-day, however, all is changed, for the reason that a higher grade of ability is demanded and high speed locomotives are infinitely intricate and demand a higher grade of scientific knowledge."

CONDITIONS ABOUT ENGINE AND RAILROAD YARDS.

Conditions existing about an engine, such as the escape of steam when an injector is used, when the whistle is blown, from leaking valves or connections, from the poorly packed piston rods of air pumps, cylinders and steam chests, will often completely envelope the engine and cab (Fig. 13). Steam and soot from the smoke-stack is often blown back against the cab windows, covering them with steam and dirt and making it next to impossible to see through them, to say nothing of obtaining a view of anything through the condensed steam and smoke. This is especially true in passing under the viaducts or bridges entering the railroad yards of large cities, where there are many moving engines and trains, and signals must be closely watched for (Fig. 14). In freezing weather the escaping steam is especially bad, as the windows are coated with ice, and vision through them is out of the question. The escape of steam inside the cab in cold weather often coats the side windows with frost and ice, but rarely the front ones, as the rush of cold air against them while in motion keeps them clear. Double glass is also used, with an air space between, which prevents their freezing. The dust raised by passing trains often coats the windows, especially if they are damp from escaping steam; the engineman's position, being on the right side, escapes most of this, however, on roads which run their trains right-handed on double tracks. The cloud raised from ploughing through snow drifts shuts off all vision for the time. Some considerable complaint is made of the drivers throwing mud and dirt on the front windows in moist weather.

THE FIREMAN.

The glare from the furnace door when the engine is stoked makes the reading of signals much more difficult. There is an iron shield above the furnace door on the engineman's side, which protects him somewhat. Many enginemen have their seat curtained off to relieve them of this glare. After looking into this glow from the position of a fireman during the time required to shovel in five or six shovels of coal, it is an utter impossibility for a novice to read a signal. There was a black scotoma before my eyes, the size of the furnace door, for fully ten minutes, and I could distinguish nothing except eccentrically. Firemen have told me they could not even see their steam gauge for several minutes after a stoking, and when one takes into consideration that from three to ten tons of coal are handled in a two to five hours' run, there is not much let up from looking into the fire-box, and when this is done daily for five or six years, or even longer, before a fireman can expect to become an engineman, it must be a good pair of eyes that can stand it and pass the required standard examination for promotion, without a rest or change.

Again quoting from Mr. Quayle's letter:

I think you are correct in this matter—that is, it is quite difficult for a new fireman to do this, and it would affect one's eyes who is not accustomed to it, but the firemen who are accustomed to this kind of work have a method of shielding their eyes by the manner in which they guard them with their eyelids, and closing the eyes. They can look into a fire and distinguish things you and I could not do. The same is true of a blacksmith. Take a blacksmith and let him have a piece of iron in the fire, and when it is pretty nearly up to the temperature of the fire, the blacksmith, with his trained eye, can see the difference there is between the color of the iron and the color of the surrounding body of fire, while the eyes of the novice would be so affected by the brightness of the light that he would not be able to see anything in the fire. This is true with a locomotive fireman. When he gets accustomed to it, he can use his eyes advantageously to the light conditions before him.

HEADLIGHTS.

The divergent rays from the headlight make it more difficult to read signals if there is fog, snow or mist in the air; with the electric headlights, while they are of the greatest advantage in all other ways, this is much more aggravated, an immense disc of reflecting and refracting particles is directly before one, and it is almost impossible to distinguish signals through it. If these headlights were built on the same principle as the searchlights of the Navy, so that they would throw parallel rays and could be deflected to strike the track at say 100 yards' distance in front of the engine, they would be greatly improved. This effect was obtained for Dr. Young and myself on the Burlington Road by Mr. J. A. Carney,[7] the master mechanic of the Burlington Division, by making an extension to cut off the divergent rays and stopping the light down with a diaphragm. An 18-inch extension with the light stopped down to a pencil about 9 inches in diameter made a perfect light.

Mr. Mark A. Ross,[8] general manager of the Pyle-National Electric Headlight Co., in discussing Mr. Carney's paper before the Western Railway Club, said:

I have a great many letters, too, from engineers who are running the electric headlights, who state that they strain their eyes more in running an engine with an oil headlight in one night than they do with the electric headlight, for the reason that they are always gazing fixedly ahead, trying to find or pick up something, and with the electric headlight they can sit back in the cab; they do not have to put their heads outside of the cab, and they can see anything just as they can in the daytime.

It is impossible to estimate distances accurately behind an electric headlight, or to tell how far off an oncoming train lighted with one is.

The effect on the eyes of looking into an approaching electric headlight on double tracks is very much the same as looking into a searchlight, but it is unnecessary for enginemen to look directly into the source of light.

MOTION OF THE ENGINE.

The constant jarring, swaying and rolling of an engine traveling at a high rate of speed, is another factor in making signal reading difficult.

The constant supervision of an engine takes no small part of an engineman's time and attention, and his duties are far more than sitting on the seat and watching for signals. This is especially true when there is any trouble with the various mechanisms under his care.

ATMOSPHERIC CONDITIONS.

Certain atmospheric conditions are not only a source of great annoyance in reading signals, but often com-

7. Carney, J. A.: The Electric Headlight, West. Railway Club, May 17, 1904.

8. Ross, Mark A.: The Electric Headlight, West. Railway Club. May 17, 1904.

pletely obscure them at a distance sufficient to control a train. Fog, snow, mist and rain take precedence in the order given, and when it is necessary for better vision to have the head out of the cab window, the impingement of the fine particles of snow, mist or rain against the eyes blinds one almost instantly. The force of the wind traveling at a high rate of speed causes the tears to flow and blurs the vision after a very short exposure.

Night signals are seen at a greater distance in these atmospheric conditions than day. The foreground and background of day signals make a great difference with their being easily seen. A sky background is the ideal (Fig. 15); the kind of day does not seem to make much difference. Signals displayed on roads running through mountainous country, and especially where there are many curves in valleys, are very hard to distinguish from the elevated positions on either side (Fig. 16). Woods stripped of their leaves or in full foliage, the proximity to buildings and bridges, all tend to make the position signals less distinct, while the cross-bars of telegraph poles are very confusing (Figs. 17, 18, 19, 20). Undoubtedly night signals are much easier read, as the contrast is so much greater, but as to their being seen any farther, or so far, atmospheric conditions being the same, is questionable.

The reflection from snow, from a body of water, from the solid green of foliage, running toward the sun when near the horizon, the shimmer in the atmosphere on hot summer days, all are features which add much to the difficulty of seeing signals.

Thus it will be seen from the factors enumerated above requiring good vision and those tending to interfere with it, the best known standard of binocular single vision and color perception is none too good, and not only must a man have this, but it must be "quick vision" (referred to by Dr. A. H. Andrews[9] and Dr. J. E. Minney[10]), for he may for an instant be able to see through some break in the interfering media, and must be able to read his signal in that instant.

There seems to be no means of overcoming the interference with vision by escaping steam. An engine may come from the roundhouse in perfect condition, but when partly through its run something occurs which allows a leak, and the enginemen have this to contend with.

EXPERIMENTS WITH LENSES.

Lenses of various colors were experimented with in looking into the fire-box from the fireman's position, and then trying to read day and night signals. The night signals were harder to see because of the glare being more intense in the surrounding darkness, the daylight relieving part of its intensity. Smoke lenses of the deeper shades allowed one to look into the fire-box without producing a scotoma before the eyes, but distinguishing signals with them and seeing the various mechanism about the cab distinctly, is out of the question; the color signals are made very indistinct. Green lenses are very good, but they blot out the red lights entirely, making one blind to red. Red lenses make the green appear dirty white, producing green blindness. Blue lenses do not cut out enough of the bright rays, and one is troubled with scotoma. A light amber lens, such as referred to in the German abstracts in the *Annals of Ophthalmology*[11] and by Dr. H. H. Seabrook,[12] as having been tried in the German army for target practice, gave a perfect result. I could look into the fire-box of the large type engines, see all parts distinctly, relieved of the blinding glare, see about the cab perfectly, climb on the seat with no spot before my eyes, and the signal lights maintain their clear definition of color, white being tinged a slight yellowish. The green light can not be seen at so great a distance as with the naked eye, but red and white can be seen an equal distance and with equal distinctness. The effect produced by watching the lights with green lenses before the eyes was rather weird, as red lights were practically blotted out, and on removing the lenses flash into view in a startling manner; the white and green lights were not affected. With red lenses the green lights were observed as white coming through dirty glass; the white lights were tinged with a faint red.

EFFECT OF THE FURNACE GLARE ON THE EYES.

As to the effect on the eyes of looking directly into the white heat of a furnace, various authorities disagree. Snell[13] says:

> There is, I think, no definite evidence that men exposed to the heat and glare of the furnaces or from the molten metal suffer materially in their eyesight, though some assert that disease of the background of the eye is occasioned in some instances.

Fuchs mentions retinitis due to a dazzling produced by gazing at sun and electric arc lights.

The following questions were sent to a number of ophthalmic surgeons who come more or less in contact with men working under these conditions:

> 1. Have you found among furnacemen, glassblowers, railroad firemen or iron mill workers ocular conditions the result of looking into the glare of furnaces, which have caused any reduction in vision? 2. If so, was the injury permanent?

Many answers were negative. A few replies from conservative men are quoted:

Dr. Ledbetter, Birmingham, Ala., reports two or three cases of chorioidal irritation among brass furnace workers.

Dr. Edward Jackson says:

> I have seen early opacity of the lens in a glassblower and several cases of inflammation and subsequent atrophy of the chorioid in blacksmiths and rolling mill workers which caused impairment of vision. In all cases the injury seemed to be permanent and directly connected with the exposure to heat.

Dr. de Schweinitz, after the examination of puddlers for incipient cataract, concluded that:

> These puddlers are apt to show a good deal of low-grade disturbance of the chorioid, the condition which is sometimes vaguely called congestion of the chorioid, the "ripe peach chorioid" of Risley's phraseology, and it seems possible to tell by ophthalmoscopic examination whether a man was a right-handed or a left-handed puddler; in other words, that eye which was more directly exposed to the glare from the furnace was the one more apt to show the condition to which I have referred.

Dr. Posey, after examination of several hundred glassblowers and men working about the furnaces in glass establishments, says:

> I am convinced that working over furnaces does produce cataracts, for I have found opacities of the lens at an age far earlier in men engaged in this work than could be accounted for by senility. In looking over my ophthalmoscopic findings

9. Ahdrews, Dr. A. H.: Discussion of Dr. Allport's paper, "Some Remarks Concerning the Requirements of R. R. Employes," The Railway Surgeon, January, 1904.

10. Minney, Dr. J. B.: Discussion of Dr. Allport's paper, "Some Remarks Concerning the Requirements of R. R. Employes," The Railway Surgeon, January, 1904.

11. Dolganow and Klimowitsch: On Yellow and Yellow-green Glasses, Annals Ophth., October, 1901, July, 1903.

12 Seabrook, Dr. H. H.: Amber Yellow Glasses in the Examination and Treatment of the Eye, Medical News, Aug. 22, 1903.

13. Snell, Simeon: Dangerous Trades.

of the cases, I noted that I thought the chorioids were congested and the optic nerves grayer than they should be in many instances. Whether the cataracts are due to the chorioidal changes or whether they are due to the heat or light emanating from the furnaces or from the action of some rays whose existence is unknown to us at present, I can not say.

Dr. Casey A. Wood reports a case from an electric welding furnace, and says:

In answer to your circular note, I know that I have had a number of cases of injury to the eye from looking into furnaces without the protection of glasses. In one case the injury lasted at least a year, and, so far as my information goes, was permanent.

Dr. Charles A. Oliver said:

I have had a number of cases; not only uveal tract and retinal disturbance, but with both associated and consequent lenticular swelling and opacification. The interesting point of my findings has been that the left eye was the one which was either primarily or alone affected in right-handed men, this eye, by reason of the right arm being the governing one, being that which was situated near the fire. The injury was permanent, but never absolute, as proved by studying the eyegrounds after extraction of cataract.

Dr. Minnehan, Topeka, reports many complaints from firemen, but no permanent trouble.

Dr. Chas. H. Williams has never seen a case, but remarks: "It is easy to believe such work would aggravate such existing conditions," and Dr. Burry's[14] recent paper, "Electrical Ophthalmias," mentions several from electric welding. The reports show no permanent injury resulting from electric flashing.



Fig. 4.—Combination disc and semaphore block, C. & N. W. R. R.

A number of firemen have volunteered the information that they had passed their entrance examination all right, but when they were re-examined after four or five years' service their left eye was not so good as the right, which is the one next to the fire-box in stoking.

MECHANICAL PROTECTION OF THE EYES.

Protection of some kind is the only method of overcoming the effect produced by the impact of snow, mist, rain and wind against the eye, and all sorts of devices are resorted to. Fully 90 per cent. of the men questioned admitted they carried some form of a protection glass for such an emergency. With lenses before my eyes I found no difficulty in facing the worst storms; the glasses did not become dimmed enough to prevent sufficient vision to read signals at any distance they could be made out with prevailing weather conditions, and the condition of the eyes was infinitely better. The larger the lenses the more perfect the protection. The question of fogging, as Dr. Young[3] says, "may be dismissed if we only stop to consider that fogging only occurs when going from a cold air into a warm one," and within five seconds after contact with cold air the lenses are clear again. This point, however, is one small factor against the use of glasses by trainmen, as the engineer is unable to see distinctly about his cab for the few moments his glasses are fogged, after contact with cold, but he is equally unable to see for the same length of time as a result of coming in contact with snow, rain and wind with the naked eye. The lenses also protect the eyes from the flying coal dust in the cab.

The reflection from snow, from a body of water, the sun near the horizon and the shimmer on hot days was best overcome with the amber lenses.

CARE OF THE LAMPS IN NIGHT SIGNALING.

A very great deal depends, in night signaling, on the care taken of the lamps used, and the lenses in the spectacle frame of the semaphore arm must be kept clean. A lamp not properly trimmed or turned too high will smoke its lenses, and as a consequence the signal is dim or almost invisible. Under such conditions enginemen with defective color perception or a tendency toward color confusion can not distinguish between red, green or white; even with normal color perception the signal can not be seen at sufficient distance to control a train. The difference in the care taken of the lamps is very marked in going over 40 or 50 miles of road.



Fig. 5.—Disc block signal, C. & N. W. R. R.

With 20/20 (6/VI) V., under good atmospheric conditions, with good backgrounds (Fig. 14), semaphores could be distinguished at 2 to 3 miles. With night signals, under the same conditions, the white could be seen at 1 to 2 miles, the red at 1 to 1½ miles, and the green and yellow at ½ to 1 mile. When I became familiar with the location, position, and background of a signal, I could distinguish it at a greater distance, showing that the enginemen, knowing just where to look for the signals, can distinguish them much more quickly and at a greater distance than a novice with equally good vision.

14. Burry, Dr. James: Electrical Ophthalmia, Chicago Medical Recorder, March, 1904.

With +1.00 D. before each eye, my vision was reduced to 20/40 (6/XII) with the Snellen test type with which I could make out day-position signals at about 2,800 feet, night signals at about 3,000 feet. Plus 1.50 gave me 20/80 (6/XXIV) vision. With these I could not make out a signal until within 200 to 500 feet.

Dr. Young[3] states:

> The lamp signals stand out better with 20/40 than with 20/20. This is explained when one considers that with 20/20 the effulgent rays can be made out. These effulgent rays give a twinkling unsteady effect, which is still farther accentuated by the jolting of the engine. With 20/40 these effulgent rays are blotted out and the lamps stand out as illuminated discs.

This was also my experience. At the much-lessened distance I could make out the lights with 20/40 (6/XII) V.; but I could make them out much more clearly and at a much greater distance with 20/20 (6/VI) V., as cited above, and again, if there were a number of lights displayed, as are usually seen in railroad yards, the proximity of these illuminated discs were very confusing.

MEDICAL REPORTS REGARDING THE STANDARD OF VISION.

There are at present four reports as to the standard of vision and hearing required by trainmen, which have been adopted by four representative medical societies of the United States, i. e., Section on Ophthalmology of the American Medical Association, the House of Delegates of the American Medical Association, the American Ophthalmological Society, and the American Academy of Railway Surgeons. There is a fifth report, which I have been unable to obtain so far, adopted by the American Railway Association; the work of the committee has not been completed.



Fig. 13.—Conditions about engine interfering with vision of signals.

These reports are all the result of careful and painstaking work, by men who have devoted a great deal of time to the subject. Dr. William Thomson[15] was the first in the United States to inaugurate a system of practical examination of railway employes, and in 1881 this was adopted by the Pennsylvania Railroad Company. All here are familiar with the good work done by Dr. Frank Allport[16] and Dr. Chas. H. Williams.[17] In 1901 the committee appointed three years previously by the Section on Ophthalmology[18] of the American Medical Association made their report, which was adopted by that Section. The following year the House of Delegates[19] adopted a somewhat modified report. The American Ophthalmological Society[20] report was adopted in 1901. The report of the American Academy of Railway Surgeons[21] was adopted in 1903.

EXAMINATION OF EMPLOYES.

Many roads are using a set of rules for the examination of their employes, modeled after some one of these reports, and it is my opinion that if what we wish to arrive at is uniformity in examinations among the various railroads, the medical organizations must have a uniform report. These reports vary but little in the essential features, and any one could well be adopted by all.

There is no reason why they can not be merged (as some railroads are trying to do at the present time) into one, and we could then have a uniform standard in practice as well as name; and it seems feasible that if four representative societies combine on one report the railroad officials will be much more willing to adopt the same. Then, as Dr. Chamberlain remarks: "We shall be working in harmony with others, and when a man comes off the C., B. & Q. to the Northern Pacific, he can not be employed if he has been discharged from the Q. road."



Fig. 14.—Block signal with smoke background, C. & N. W. R. R.

Regarding the sections of the four reports, all agree as to the necessity of examination for vision and hearing.

In Section 2 there is a slight bone of contention, and while it must be admitted that examinations by ophthalmic surgeons would be more scientific and more nearly correct, it has been conclusively shown that examinations carried out under the instruction of an ophthalmic surgeon, by men selected by the company, who

15. Thomson, Dr. Wm.: The Practical Examination of Railway Employes as to Color Blindness, Acuteness of Vision and Hearing, "Nettleship, Diseases of the Eye."

16. Allport, Dr. Frank: The Eyes and Ears of Employes of Transportation Companies, THE JOURNAL A. M. A., Dec. 16, 1899; What Amount of Visual Defect Should Disqualify in Railroad Service, THE JOURNAL A. M. A., Oct. 13, 1900; Some Remarks Concerning the Ocular and Aural Requirements of Railroad Employes, THE JOURNAL A. M. A., Feb. 27, 1904.

17. Williams, Dr. Chas. H.: Vision, Color-Sense and Hearing, Western Railway Club, Feb. 8, 1902; The Need of a Supplementary Lantern Test for the Proper Examination of Color Perception, Boston Med. and Surg. Jour., July 30, 1903.

18. Report of Section of Ophthalmology of the American Medical Association, Vision and Color-Sense of Railway Employes, Transactions Section on Ophthalmology, A. M. A., 1901.

19. Report Adopted by House of Delegates Amer. Med. Assn. Regarding Tests of Sight and Hearing for Railway Employes, Transactions House of Delegates Amer. Med. Assn., 1902.

20. Report of the Committee of the American Ophthalmological Society on Standards and Methods of Examining the Acuteness of Vision, Color-Sense and Hearing for Railway and Marine Service, Transactions Amer. Ophth. Soc., 1902.

21. Report adopted by American Academy of Railway Surgeons, Uniform Standard for the Examination of Railway Employes, Transactions Amer. Acad. Railway Surgeons, 1903.

refer doubtful cases to such surgeon, have resulted in perfect satisfaction to all concerned.

The reports all agree as to the standard of test types used. A word may be said here regarding uniformity of illumination of test type, inasmuch as uniformity is the watchword. We all know what a variation there is in the intensity of illumination of test charts, and this results in a very great difference in the grade of visual acuity obtained by different examiners. A transilluminated or self-luminous test cabinet is the only means of overcoming this difficulty. Such a one is described in the *Ophthalmic Record*.[22]

The section referring to the minimum requirements for acuteness of vision is the most important clause, and all the reports agree that 20/20 (6/VI) vision in each eye without glasses shall be required for entrance into service or promotion.

STANDARD OF REQUIREMENTS.

The standard of 20/20 (6/VI) V. for entrance into service for Class "A" is the least that should be required; but when it comes to promotion in service, there should be some concession made, for firemen who have stoked from five to eight years show, as a rule, some loss of vision, especially in the left eye, which improves, according to the records, after the change in environment. Dr. Williams[17] says:



Fig. 15.—Bracket pole semaphore block, C., M. & St. P. R. R. Ideal background.

A fireman who has worked for some six years satisfactorily as fireman comes up for promotion to engineer. He has only 20/30 vision; the rule requires 20/20, the object being that when a man first began his work as engineman or fireman you wanted to begin with a man who had normal vision. It seems to me that it is hardly fair as it works out. If he has 20/30 on re-examination you will allow him to continue to run as fireman, and if he has 20/30 on re-examination you will allow him to continue to work as engineman; then, why not allow him to be transferred from one side of the cab to the other with the same amount of vision, 20/30?

The House of Delegates' report and that of the American Ophthalmological Society require for re-examination of those in the service, "20/30 with both eyes open, without glasses," with the additional requirement that "each eye should be tested separately and the vision of each noted." Under this ruling a man with one blind eye could be retained in service, and Dr. Williams[17] brings the following argument forward in support of what he acknowledges to be a fact:

This rule allows a man to continue running who has 20/30 of normal vision in one eye and little or none in the other. The fact of such defect is brought to the notice of the operating officer in the report of the examination, and a man with this defect would naturally be assigned to less trying runs than would be given to those with perfect sight. A standard has sometimes been recommended which provides that in this class a man must have vision of 20/30, or better, in one eye, and 20/40, or better, in the other in order to be passed as satisfactory. Suppose a man had 20/20, or normal vision, in one eye, and 20/50 in the other. This rule would reject him, which seems unfair. In such a case the man, for all practical purposes, uses only the visual impressions which he gets from his good eye, and it makes little difference to him in his work whether the poor eye has a vision of 20/50, or 20/70, or 20/40. The work he is able to do is measured by the capacity of the better eye, and he becomes so accustomed to the monocular vision that it gives him little inconvenience. It has been urged that if an engineman with only one good eye got a hot cinder in it he would be of little use. That is true; but it must be remembered that in the cab there is always a fireman with a second pair of good eyes, ready to take up the work in any such emergency until assistance can be obtained, and also, even if the engineman had two good eyes, the pain and flow of tears which would be caused by the hot cinder in one eye, would prevent a satisfactory use of the other.

In reply to this, in the first place, Dr. Williams admits that the man is not so safe a man and should be



Fig. 16.—Disc home signal for tunnel with bad background, U. P. R. R.

"assigned a less trying run." Further, I contend that with 20/30 in one eye, 20/40, 20/50 or even 20/70 in the other, helps the vision of the better eye. With my vision reduced to 20/40 I could read day signals perfectly at ½ mile, night signals at 4,000 feet, and with 20/80 at 500 feet and 800 feet, respectively. The fireman has about all he can attend to on a limited train without assuming an engineman's responsibility; further, there should be no excuse for using him in such an emergency, by simply changing the clause to read as it does in the other reports, or as it does in the reports from which it was evidently adopted, i. e., that of the Dutch State Railway.[23]

For the post of engine driver or stoker, . . . on looking with both eyes open, visual acuteness of at least 3/4 (without glasses) . . . with each eye separately, the other eye being covered, visual acuteness of at least 1/3 (without glasses). . . .

This would fully cover the entire field of contention. Dr. Allport's[24] stand against this clause is well taken:

22. Black, Dr. Nelson M.: Luminous Test Cabinet, Ophth. Record, April, 1904.

23. Transactions Amer. Ophth. Soc., 1902.

24. Allport, Dr. Frank: Some Remarks Concerning the Ocular and Aural Requirements of Railway Employes, Railway Surgeon, December, 1903.

Under Section 5, House of Delegates' report, under the requirements for re-examinations of those in the service "belonging to Class A," it says: "The employe shall possess a vision of 20/30 with both eyes open, without glasses. Each eye should also be tested separately and the vision of each noted." This opens a wide avenue of discussion. The report of the Section on Ophthalmology concerning this same point says that "Employes enumerated in Class A shall not be retained in such positions if vision sinks below 20/3[illegible] ne eye and 20/40 in the other." In other words, a reasonab[illegible]tandard is required of each eye, and it seems as if this must appeal to the judgment of anyone at all familiar with such work. Would anyone in this society care to travel on a train at the rate of 50 or 60 miles an hour with an engineer wearing a glass eye? I think not; the idea is untenable, and yet this is exactly what the House of Delegates' report permits, for it says that vision must be 20/30 with both eyes open. To be sure, it also says: "Each eye should be tested separately, and the vision of each noted," but it goes no further. It does not inflict any penalty in case an engineer has one blind eye. While disposed to be most liberal with the old employes of a road, and while recognizing its advisability and almost necessity if good service and freedom from labor union complications are to be encouraged, I still can not indorse the idea of testing with both eyes open, and of ignoring the condition of a man's worst eye. The idea is evidently conceived from the action of the International Congress, which met in Amsterdam in 1879, and which in formulating rules for the ocular condition of transportation employes, under the guidance of Professor Donders, repeatedly



Fig. 17.—Semaphores with bars of telegraph poles interfering, Kansas City yards.

speaks of testing with "both eyes open." This was evidently recommended, because it is well known that one eye assists the other to see, and the committee desired to treat all employes with all possible clemency, but they did not in their recommendations ignore the condition of either eye.

Magnus and Würdemann[25] give as the minimum amount of vision for enginemen 75 per cent. of the scientific standard (6/VI), which is equal to 6/VIII, or approximately 20/XXX, "which is practically a perfect working or economic standard of vision."

Applicants for entrance into service possessing 1½ D. of hyperopia or over, should not be accepted, for the reason that they will need glasses to bring their vision up to the required standard at the age of 35 or 40.

At this point the subject of glasses must be considered, and from my experience I would heartily indorse a clause to the effect that if the vision of those examined for promotion after five years' service and those re-examined in service fell below the standard required, and such vision could be brought up to the required standard by glasses, they be promoted or retained in service. "Glasses must be worn if they are necessary

25. Magnus and Würdemann: Visual Economics.

to secure adequate vision." It is my unbiased opinion that protection to the eyes by lenses, more especially if needed to correct any refractive error, are of great benefit, and such opinion has been arrived at with a great deal of thought and careful study of the few objections to glasses for trainmen. The reports of Dr. J. de Lantshure[26] and Dr. J. A. Denney[27] as to the diminution of vision after long runs, I think can be easily explained. The men undoubtedly had more or less latent hyperopia, and the constant accommodative effort so tired the ciliary muscle that vision was somewhat reduced after a long run.

The color tests are of equal importance with visual acuity, and all reports agree in the use of the Holmgren wools.

The use of a lantern for a control test is a good idea, but why in the examination with the Holmgren wools is the following rule given: "No names should be mentioned in connection with any color in the above worsted tests; the tests should be based only on a comparison of colors," and with the lantern test, "have the person being examined call the names of the colors shown."

The value of the color test is to determine whether the person examined can distinguish between various



Fig. 18.—Block signal with bad background, C., M. & St. P. R. R.

shades and degrees of intensity of color, so they can be sure of a signal if its intensity is reduced by atmospheric conditions, smoky or dirty lenses, or improperly regulated illumination. It has been stated many times that men can distinguish without any hesitation between danger, caution or clear colors, displayed of varying degrees of intensity, but fall down at once if required to name the colors:

Again quoting Dr. Williams:[17]

I have found personally in the last few years four cases of men who passed the worsted test without any difficulty, who picked out these colors quickly and accurately, but when they looked at a distant signal, or when they looked at the testing lantern, especially with small openings, they would often call a red light green, or a green light red; they were just as likely to mix up red and green as they were to get them right. This is due to a defect in the central portion of the retina. In such cases, when the colored object is large enough, or when it is placed near enough to the eyes, its image will extend beyond the affected parts of the retina, and its color can be at once recognized; but when the retinal image is small, as is the case with the light from a distant signal, which falls wholly within the affected area, it is easily mistaken. In order to get at the

26. de Lantshure, J.: Trans. Amer. Ophth. Soc., 1902.
27. Denney, J. A.: Trans. Amer. Ophth. Soc., 1902.

fact as to whether a man is thoroughly able to recognize his signals you need both a worsted test and a lantern test, the lantern coming nearer to the actual condition of night signals, where the man has nothing except the color to guide him.

Replying to this, I do not think a person with scotoma of sufficient magnitude to pass the worsted test and fail on the lantern test would have sufficient vision to pass the required visual standard. There is no doubt the lantern test is more nearly a road test and will seem more fair to railroad men, but it should be used only as a control test, not as a substitute for the worsted test.

The sections relating to the time of re-examination are unanimous, as also are those regarding the use of liquor.

The report should be accompanied with instructions for making the various tests and the use of the apparatus required.

CONCLUSIONS.

The result of my observations has been, in brief:

1. The best known standard of visual acuity and color perception should be required of men concerned in the active operation of trains.

2. The signal systems now in vogue, while they are not perfect, are sufficiently adequate for the standard of vision required and the present speed of trains.



Fig. 19.—Block signal with bad foreground, C., M. & St. P. R. R.

3. Certain physical and accidental conditions about engines interfering with vision can not be overcome unless the position of the enginemen can be changed.

4. Certain atmospheric conditions interfering with vision can not be overcome; others can be mitigated or entirely relieved by the use of some form of protection to the eyes.

5. Glasses are not a hindrance to enginemen, and their use should be allowed when required to protect the eyes or to bring the vision up to required standard, but no person should be accepted into service requiring them or who will accept a plus lens of 1½ or 2 D.

6. With four reports emanating from four different sources of equal merit and standing, and all different in small details, the obtaining of perfect uniformity in examination of railway employes is out of the question, as it can not be expected that the officials of different roads will all decide on the same report.

7. Furthermore, state legislation on the subject of vision and color perception of railway employes is being seriously considered, two states, Massachusetts and Ohio, having statutes regulating this. As nearly all railroads pass through a number of states, it would be well for the societies from which these reports emanate to agree in all details, as the state laws will necessarily be based on them, and if different states have different standards, an engineman qualifying in one and not in another, with his run extending in both, would be in serious difficulty.

9,816. Sec. 1. Be it enacted by the general assent of the state of Ohio that no railroad company shall hereafter contract to employ any person in a position which requires him to distinguish form or color signals, unless such person within two years next preceding has been examined for color blindness in the distinct colors in actual use by such railroad company by some competent person employed and paid by the railroad company, and has received a certificate that he is not disqualified for such position by color blindness in the colors used by a railroad company. Every railroad company shall require such employe to be re-examined at least once within every two years at the expense of the railroad company, provided that nothing in this section shall prevent any railroad company from continuing in its employment any employe having defective sight in all cases where such defective sight can be fully remedied by the use of glasses or by other means satisfactory to the person making such examinations. (As amended March 3, 1888.)



Fig. 20.—Block signal with bad background, C. & N. W. R. R.

The law in Massachusetts is practically the same as the above.

I am greatly obliged to Dr. H. B. Young for a great many suggestions and for engine permit on a portion of the Chicago, Burlington & Quincy Railway; to Dr. J. W. Chamberlain for engine permits on the Great Northern and Northern Pacific Railways; to Dr. Haldor Sneve for engine permit on the Chicago & Great Western; to Mr. A. J. Earling, president, Mr. J. N. Barr, assistant to president, Mr. A. E. Manchester, superintendent motive power, and Mr. L. R. Clausen, signal engineer, of the Chicago, Milwaukee & St. Paul Railway, for engine permits and much information relating to engines and railway signaling; to Mr. W. A. Gardner, general manager, Mr. R. Quayle, superintendent motive power, Mr. H. T. Bentley, assistant superintendent motive power, and Mr. W. E. Dunham, Chicago & Northwestern Railway, for engine permit and information; to Mr. T. Lowry, president, and Mr. E. Pennington, general manager, the Soo Railway, for engine permit; and to Mr. A. J. Carney, master mechanic of the Chicago, Burlington & Quincy Railway, for suggestions; Mr. H. L. Hollister, engineer Hall Signal Company, for pictures of signals and general information; Mr. Chas. Dunham, signal engineer Illinois Central Railway, for engine permit and suggestions; Mr. Mark A. Ross, general manager Pyle National Electric Headlight Company, for pictures and suggestions; Mr. Jos. W. Taylor, secretary Western Railway Club; Mr. F. P. Patenall, signal engineer, Mr. D. D. Carothers, chief engineer, and Mr. E. J. Schwellenbach, trainmaster Baltimore & Ohio Railway, for suggestions and engine permit.

DISCUSSION.

DR. C. H. WILLIAMS, Boston—Dr. Black comes to very much the same conclusions as have been arrived at before. In some of the smaller points he differs a little. As to the last thing

he mentioned, in regard to legislation, it seems to me there is little use in trying to do anything in that way. The next legislature can repeal the laws made by the former one. That was done in Connecticut, and that is likely to be the fate of any legislation on the subject. In Massachusetts and Ohio the law practically amounts to nothing. In Alabama there is a little better law, but even that does not specify how the examination shall be made. In regard to the question of the lantern as a substitute for the worsted test, I have never advised it as a substitute, but simply as a supplementary test. I had a man who picked out the worsteds in the Thompson and Holmgren sets, but who in the lantern test called red green oftener than he called it red. He used tobacco to excess and had a small central scotoma for red and green, which was not large enough to cover all the retinal image of the worsteds, but the light from a distant signal came entirely within the scotoma. Men entering the service should come up to a high standard. If you have a lot of men coming into the service without any examination, and later require examinations, some of the men fail to pass, and there is trouble; but if a proper examination had been made of those men when they applied for work most of them would not have been accepted. For the post of engine driver or stoker, on looking with both eyes open, visual acuteness of at least three-fourths, without glasses; with each eye separately, the other being covered, visual acuteness of at least one-third, without glasses. This is the requirement of the Dutch railways for re-examination. The requirement for candidates entering the service is much more severe.

DR. J. H. CLAIBORNE, New York City—I have never done any work particularly along the line Dr. Black has outlined, but many years ago there was a commission which met in Washington to determine means for preventing disasters at sea, and on that occasion I suggested the idea of eliminating red and green entirely from the lighting of ships. I endeavored to find out when the system of red and green lights had been instituted. I suggested that on the starboard side a parallelogram of the shape of a star or diamond be placed, and on the other side a different figure, in white lights. That commission went out of session after having done nothing except to change the depth of the water line. My paper was read and commented on and then laid aside. I have never suggested its use for railways. The difficulty lies in seeing the red and green colors under certain conditions. If we could use white light with geometrical figures, or blue, which is a rare color, it would simplify matters to some extent. There should be three men on a cab—one to drive, one to stoke, and a third to be on watch all the time.

DR. W. E. LAMBERT, New York City—There is one point not particularly emphasized, and that is the importance of having all the employes examined by competent ophthalmologists. The method in use by most of the roads of having the man passed on by one of their own employes is not sufficient. There is no system perhaps more particular than the Pennsylvania, and yet there came under my observation within the last year two men who had been employed by that road who had been passed by their examiners, and who had left to go to another road, in both of whom there was distinct color blindness. These men should be examined by ophthalmologists. It is very difficult to lay down a standard. The intelligent ophthalmologist should be able to decide that point. There are many cases where men with 20/30 or even 20/40 vision, when due to a slight astigmatism, might be accepted. It is the cause of the poor vision which is of importance. As to the lantern, I have only found one case which showed any color blindness with it that had not been discovered by the wool tests, and that was where it was due to a central color scotoma, and in that respect the lantern test is of value.

DR. JOHN S. KIRKENDALL, Ithaca, N. Y.—There is one thing which has been omitted in this most interesting paper of Dr. Black—lack of education on the part of railroad employes as to colors. I have tried men with the wool test, and they could select the colors, but with the lantern test they failed. Failure to pass is a serious thing for these workingmen; very often a little instruction in the names of colors means a great deal. Recently I had three faithful employes fail with the lantern test. I sent them home to return in four weeks, and in the meantime told them to take some lessons. They all returned and passed a perfect examination.

DR. H. V. WÜRDEMANN, Milwaukee—As to the points of difference between the committees, I am glad that Dr. Black and Dr. Williams have reconciled the differences that existed as to the examination of color vision. I defy any one to find a person defective so far as central scotomata and visual acuity are concerned where examination with both the woolens and Snellen tests will not reveal the defect. As Dr. Williams has allowed, I think the lantern should be a supplementary test. There are a few cases where I am convinced that the final test should be the use to which they are to put their eyes, i. e., as our final test in refraction is the experience of the patient with the glasses; so in some of our doubtful railroad cases it is necessary to examine the man on the train. Either the superintendent or one of the employes can perform that duty. If he can pass that test he is a safe man. As to legislation, I think we should have the same standard for all the states of the Union.

DR. F. C. TODD, Minneapolis—There is one point which has not been mentioned, i. e., the possible presence of diplopia. I was consulted several years ago by an engineer who had been examined by one of the regular lay railway examiners, stating that he had discovered that at times he saw double, and that it was confusing, as he could not tell whether a signal was meant for his track or not, and could not tell on which track another train might be running. He had no fear of passing the examination, because he had perfect color vision and visual acuity of 20/20. Such cases, I presume, are rare, but it would seem that they would not be discovered by the ordinary tests made by the railway employes, and these men should certainly be retired or suspended until the diplopia is corrected.

DR. C. F. CLARK, Columbus, Ohio—These cases come to the oculist finally for examination. We have found it valuable on the Pennsylvania system to make a comparative light sense test. Dr. Rogers, I think, first instituted the plan. It is found that, irrespective of scotoma, some men have defective light sense, although with good visual acuity. Put them in a dark room at long distance, have an observer at the side of the patient to check the test, and allow them to count fingers. This method is of great value as bringing out a defective light sense that is often surprising. Such a defect is sometimes due to tobacco poisoning or to some nerve lesion.

DR. NELSON M. BLACK—The question of legislation as to amount of vision and color perception required of trainmen was brought to my notice by railroad men and is something that is worrying them considerably. Regarding the lantern test for color perception, the men being examined should be required to tell whether the color shown indicates caution, danger or safety. This would be far better than naming the colors, as so many men are ignorant of the names of colors, especially the shades, and make all sorts of mistakes in attempting to name them. In examining men for the Army at the beginning of the Spanish-American War, all I had to use for color testing was paint samples, and pointing to well-defined shades, requested them to name the colors; many could not do so. When asked if there was anything a certain color resembled, as, for instance, green, they would answer readily that it was the color of grass, etc. Several superintendents have informed me that they have taken men over the roads who have failed to pass the color tests, particularly on re-examination, and found in every instance that, while the men could not pass the lantern color tests in the office, they made no mistake on the road as to what the color indicated. A high standard of vision for entrance must be required. The lessened standard for re-examination is made more for the old men, enginemen and trainmen, who came into the service without passing any examination or before examinations were required, and so the requirements must be made less than otherwise. The idea is to get men as nearly perfect as possible into service now, and later on the standard for re-examination may be raised.

Dr. Claiborne referred to the use of white lights; the majority of roads object to the use of white light in signaling entirely, as it is so easily mistaken for the lights illuminating the cities and towns the roads run through. They are now using yellow to some extent as a caution color, with green as clear. The use of blue lenses is out of the question with the kerosene lamps used to illuminate them, as they can not be distinguished at sufficient distance to be of use as a signal. With my vision reduced to one-half of normal, I could make out signals at one-half mile, and so I think enginemen with 20/40 vision should be retained in service, even if with but 20/40 in both eyes, and especially if a clause be inserted to take them from the more trying runs and give them service about the yards, where such a high standard of vision is not necessary.

THE SANATORIUM FOR INCIPIENT PULMONARY TUBERCULOSIS.

ITS AIMS, METHODS AND RESULTS.

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HOME AND SANATORIUM TREATMENT.

The open-air treatment of tuberculosis is to-day an established fact. Its curative value is proven beyond cavil. It is not an experiment. It does not mean, however, that the patient is to be restored simply by a few weeks' or months' sojourn in a "lodge in some vast wilderness" or out-of-door life at a fashionable mountain resort or a tent life in his own back yard under the simple guidance of his own sweet will. It means rather a systematic regulated life under rigid discipline and routine. It means the constant watchfulness of every symptom, not by the patient himself, for this leads to introspection and consequent defeat, but by a well-trained nurse and a physician of experience. It means expense to the individual in time, in patience and in money. To the rich or the well-to-do this may be possible in his own house. For even the most favorably circumstanced, however, the proper régime at home is difficult if not well-nigh impossible. The family or friends of the patient can not give intelligent co-operation, and in laudable attempts to help will hinder advance by over-indulgence. Well-nourished, incipient cases with fair bodily strength do not impress their friends or themselves as invalids and are easily tempted to over-exercise, injurious amusements or other undue expenditure of energy, seriously handicapping the best efforts of even a thoroughly trained medical attendant.

Even when private grounds and houses can be adapted to the requirements of an out-of-door life the patient will often find himself unable to make full use of them because of the exaggerated impression such living makes on his neighbors and friends, much to his embarrassment, and it may be to the serious detriment to his present or future business interests. We live too close to the radiator in our northern homes to give intelligent appreciation to the man sitting on his veranda wrapped in rugs and reading his morning paper with the mercury at zero, even though later in the day we meet that man in office or store. Such things can not fail to provoke unwarranted remarks until we have been more liberally educated as to the value of oxygen and good red blood.

In such sanatoria as exist to-day the patient can find most congenial surroundings and agreeable companionship among persons of his own social class. He readily enters into the routine to the observation of which he is helped by the example of his fellows. He is stimulated by the spirit of hope which is everywhere manifest, and by the sight of others as ill or worse than himself steadily improving and returning to their work restored.

To be sure, all do not get well; some he sees slowly decline, occasionally some one dies, but these are exceptional cases and in spite of them the spirit of hopefulness is dominant and an inspiration to each to put forth his best efforts toward recovery. The medical supervision is here such as it is not possible to provide in the patient's home. A hospital with properly trained physicians and nurses, with the appliances and equipment for all details of treatment and all possible contingencies, is to-day recognized as the only rational method of treating the vast majority of diseases. Similarly equipped sanatoria are to-day recognized as indispensable to the curative treatment of tuberculosis.

STATE SANATORIA FOR CONSUMPTIVE POOR.

It is now everywhere conceded that it is the duty of the state to take a hand in this crusade against man's most insidious enemy by the education of the masses in hygiene, the enforcement of judicious sanitary laws and the provision of sanatoria for the treatment of the poorer people who form so large a percentage of her citizens, and for the protection and fostering care of whom she is responsible. Many countries abroad and several states in the United States and Canada have opened such sanatoria. That established at Rutland, Mass., has been in successful operation since 1898 and was the first institution of the kind supported by the state in America. New York has erected a state sanatorium at Raybrook in the Adirondacks and other states, among them Maine, Vermont, Rhode Island, Connecticut, New Jersey, Pennsylvania, Maryland, Louisiana, Minnesota and Ohio, have taken active measures for the erection and opening of similar institutions. The establishment of a state sanatorium for the treatment of tuberculosis in the state of New Hampshire, so ably discussed and warmly advocated by the commission of 1901, and subsequently endorsed by legislative action, let us hope, is soon to be accomplished.

The functions of such a sanatorium should be not only curative, but educational. It should aim to so instruct its patients that they may go from it as missionaries of hygiene, that they may instruct their families in the sanitary conduct of home life, and by their personal example help in bringing about much needed reform in the hygiene of the home. It should afford opportunity for health officers and physicians to study the sanitation of tuberculosis and should be equipped for the scientific study of the tuberculosis question in all its phases.

REQUIREMENTS FOR A STATE SANATORIUM.

Location.—The site selected for a sanatorium should be at an elevation of from 1,000 feet to 1,500 feet above sea level, and should contain from 200 to 500 acres, according to the number of patients it may be planned to accommodate, and should be on dry, porous soil. That part on which the buildings are to be located should be protected on the north from the prevailing winds, and should be open and gradually sloping toward the south, permitting exposure to the largest possible amount of sunshine. There should be sufficient tillable land to provide for the needs of the institution, and ample pasturage for cattle. The location should be near enough to a railroad to be readily reached by patients and to facilitate the handling of supplies. The building site

should be sufficiently remote from a public highway as to avoid contamination of the air by dust. Proper attention must be given to the presence of an abundant water supply from a source above suspicion and to efficient drainage.

Buildings.—These should consist of a central block, containing administrative building, store-house, kitchen, laundry and power-house. Grouped about this administrative block should be pavilions for the patients, including an infirmary for each sex, congregate dining-room and wards, accommodating from twelve to twenty patients each. The buildings should be connected by covered corridors, should be heated from a central plant, and lighted by electricity. The bathing and sanitary accommodations should be of the most approved pattern. The wards should be so built as to receive the greatest possible amount of direct sunlight, and there should be an allowance of 2,000 cubic feet of air space for each patient. Such ventilation should be provided as will change this air several times an hour. There should be ample accommodation of wide verandas with a southern exposure. The sexes should be separated by the administrative block. Inexpensive shacks opened on three sides, of sufficient size to hold ten beds, and furnished with a dressing-room containing lockers and bathing facilities should be provided for sleeping in the open air. There should be a nurses' home at a distance of several hundred feet from the other buildings. A disinfecting plant and crematory for sputum, etc., should be provided. Laboratories for chemical and research work should be provided in connection with the administrative group or in a separate structure.

The outlook from the infirmaries and wards should be unobstructed by buildings, and the site should be so chosen that the views may be pleasing and restful to the patient.

In addition to the usual farm buildings, especial attention should be given to the erection of sanitary cow barns, and every facility provided for the cleanly collection of the milk and for its proper cooling. Patients should not have access to the cow barns or pastures.

Grounds.—The grounds about the building should be laid out with carefully graded walks, that the earliest exercise may be graduated and readily adapted to the patient's strength. Frequent seats and resting places should be provided where the patient may rest sheltered from the wind or direct rays of the sun. There should be an abundance of shrubs and flowering plants, which will not only be a source of pleasure to the patients, but the care of which may be made a means of employment and interest to those who are sufficiently convalescent to be benefited by some light work. On the well-sodded lawns such out-of-door amusements may be allowed as do not call for too active exercise, and here such games as lawn-bowls, croquet, archery, tether-ball, quoits, etc., may be enjoyed when prescribed by the physician.

ADMISSION OF PATIENTS.

The sanatorium being designed for the treatment of incipient cases only, it is of vital importance to the success of the undertaking that none but suitable cases be received. There should be two or three examining physicians appointed in each county to whom applicants for admission should be sent for physical examination. The reports on such cases as are found suitable for admission should be sent to the superintendent of the sanatorium and placed on file. As rapidly as vacancies occur these patients should be admitted in the order in which the reports from the examining physicians have been received. No patient should be retained in the sanatorium who is found, on further observation, to be unsuitable for treatment. Those cases should be excluded which have intestinal, renal or joint complications; a temperature running above 103 F., active laryngeal tuberculosis; extensive consolidation in both lungs; cavities, with constitutional disturbances, excessive in proportion to the area of lung involved. The favorable cases are those with slight constitutional disturbance and fair nutrition; pleuritic cases; cases beginning with hemoptysis without constitutional impairment; incipient cases. These are the classes of patients received by Dr. Trudeau at the Adirondack Cottage Sanatorium.

CLASSIFICATION OF PATIENTS.

For best carrying out the treatment and for the regulation of routine the patients should be classified according to their physical condition as follows:

1. Infirmary cases, including those with active lesions, the new patient under preliminary observation, and those suffering from intercurrent affections and exacerbations of temperature, hemorrhage or other incident of the disease.

2. Patients not on exercise, but who may be allowed some association with other patients.

3. Patients on limited exercise.

4. Patients who are sufficiently convalescent to be allowed full exercise and who are capable of performing some light occupation.

So far as possible this classification should be observed in the housing of the patients. Too free intercourse between the patients whose activity is restricted and those in the free exercise class creates an unreasoning and unreasonable discontent among the former, disarranges the discipline of the sanatorium and is a bar to progress in treatment.

The lines on which classification are drawn and the rules governing each class should be made so far as possible with a view to the patient's comfort and happiness, and a spirit of kindliness should prevail in all our dealings with them, but the classification must be rigidly adhered to and the rules strictly enforced. The whole environment should be made cheerful and the patient brought to have an interest both in his own welfare and in the best interests of his neighbors, but with the mutual understanding that the ultimate good to all concerned can be attained only by a careful observance of the discipline by every individual.

GENERAL PLAN OF TREATMENT.

In the practical application of the treatment each case must be considered separately, and the methods followed be adapted in a large measure to the needs of the individual, as determined by a rigid physical examination and a careful observation for several days under the care of a trained nurse (one trained for this particular work). Every patient on admission should, then, be thoroughly observed and the details of his treatment carefully formulated that he may follow a carefully prescribed course from the beginning.

The following general plan of treatment is subject to such individual modifications as may be from time to time judged to be desirable.

1. *Rest.*—The recumbent or semi-recumbent position and bodily and mental repose must be insisted on so long as the rectal temperature remains above 100 degrees F. All things which have a tendency to raise the pulse rate above 100 must be forbidden At times mental rest must be absolute. At others a little light

reading, a game of chess, of cards or other quiet pastime may be enjoyed. The effect of all these things must be watched, and everything denied which is followed by any undesirable result. We must guard against too long continued or exciting conversation, tiresome visiting with friends, etc. It is the careful, judicious regulation of these little things that make for success in our management of the case.

The patient may be in bed or in a reclining chair. His position should be changed at intervals of an hour. If his condition is such that he can be dressed and use a reclining or steamer chair, he should get up and walk eight or ten paces every hour.

2. *Open Air.*—The patient must be in the open air as many hours as possible. He should average eight hours out of doors every day; in summer ten hours may easily be thus spent, in winter often not more than six; but at all seasons his attempt must be to attain the maximum in this regard. When possible, he should sleep in the open air also, and if he sleeps indoors it must be with windows open wide and the bed screened from draughts. This he must do, no matter what the weather, always, of course, with proper protection from wind, rain and cold. The infirmary should be provided with such means of egress and covered verandas that bed patients may be taken out into the open air whenever there is not a positive contraindication to such a procedure, the bed being wheeled directly out on the veranda. (Fig. A.)

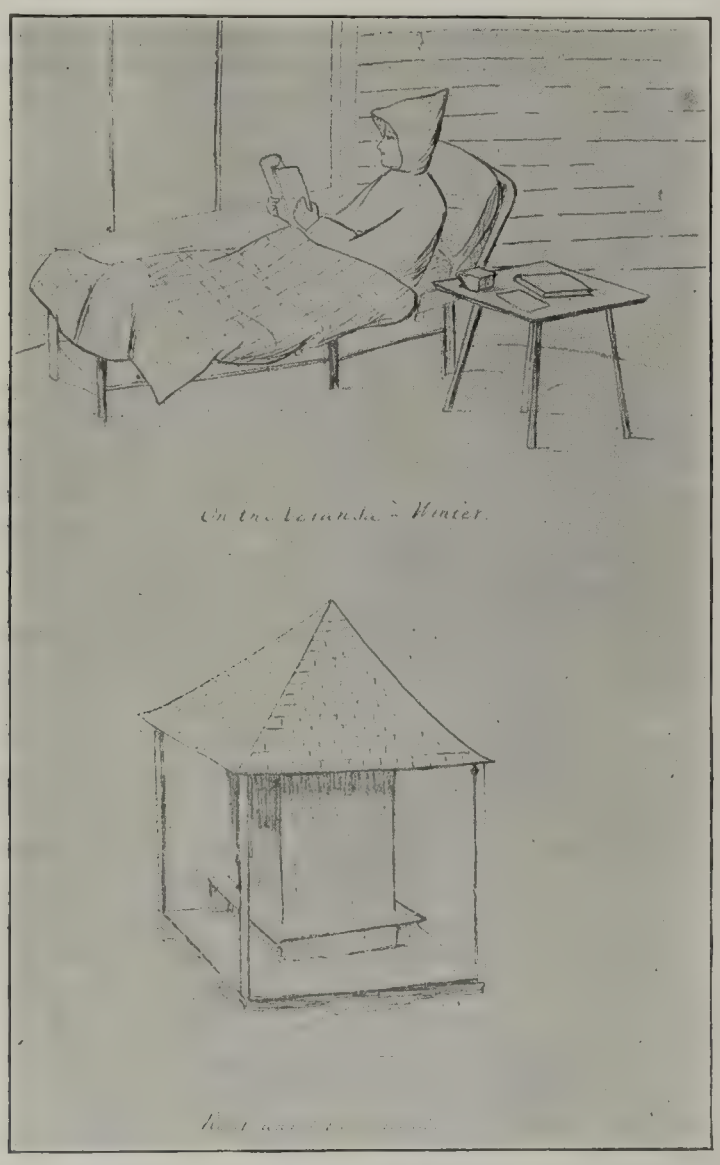


Figure A.

3. *Diet.*—The arrangement of the dietary and the preparation of the food should receive the careful personal attention of the physician. This is a matter of vital importance to the successful management of the tubercular patient. A person thoroughly trained in dietetics should be in immediate charge of the food preparation, giving attention not only to the quality of the food and its proper cooking, but also to the details of its service at proper temperature, and in a tempting, appetizing manner. As a rule, the appetite is poor without an actual digestive derangement, and the patient must be stimulated to eat by persistent persuasion, attractive service and sometimes catering to his fancy, before resorting to medication.

Fat and fat-forming foods must be administered freely, carbohydrates and proteids being given in due proportion. Milk, cream, butter, eggs and potatoes served in varied and pleasing ways offer the best means of attaining this end. Fresh meats, fish, vegetables, cereals and fruits should be freely supplied. The diet should be mixed and varied from day to day. The following dietary is given by Lucas to indicate the amount of the various forms of food necessary:

Breakfast.—Half a pint of porridge, with two ounces of sugar; two rashers of bacon, and two eggs (or chop, steak or fish), bread, four ounces; butter, two ounces; half pint of tea or coffee; milk, one pint.

Mid-day Meal.—Soup; fish, three ounces (or poultry), with butter, two ounces; two or three slices of meat, four ounces; potatoes, four ounces; cabbage and other vegetables, four ounces; pudding, six ounces; cheese, two ounces; bread, four ounces; butter, two ounces; milk, one pint.

Evening Meal.—Two eggs (or cold meat or fish), bread, six ounces; butter, two ounces; jam; half a pint of tea; milk, one pint.

The diet must be largely modified, according to individual needs. During febrile attacks a liquid diet must be prescribed and should consist of milk, raw eggs, meat broths, cocoa, meat juice and other concentrated liquid foods. At times the predigestion of food will be called for and sometimes lavage. Patients much reduced in flesh should be given milk with eggs between meals, and the feeding should be forced until the normal weight is gained. This being attained the diet should be but little in excess of the ordinary, as too much stuffing is liable to lead to digestive disturbance, with consequent loss of weight and a temporary relapse.

4. *Exercise.*—From the beginning of the treatment routine, systematic exercise should be practiced in order to increase the lung expansion and the volume of air habitually respired. A patient in bed may be taught to take eight or ten slow, deep inspirations, hold the breath a moment and then forcibly expire. He should breathe through his nose and take the exercise several times a day at stated intervals. The following respiratory exercise, given by Knopf,* is excellent for increasing the chest expansion, and can be practiced by nearly all class of patients.

Stand straight, with heels together, chest out and head erect.

1. Take a deep, slow inspiration, beginning with the abdominal muscles, and then expanding the chest to its fullest capacity, at the same time raising the arms from the sides to a horizontal position (Fig. 1). Hold the breath a moment and then lower the arms, at the same time making a somewhat forcible expiration.

2. A similar exercise, except that the upward movement of the arms is continued until the hands meet above the head. (Fig. 2.)

3. Stretch the arms out as in swimming, the dorsal surfaces of the hands touching each other. During inspiration move the arms outward until they meet behind the back, bringing them forward again during expiration. (Fig. 3.) This

*S. A. Knopf: Prophylaxis and Treatment of Pulmonary Tuberculosis, P. Blakiston's Sons & Co. 1899.

exercise may be made more effective by the patient rising on his toes during inspiration, and descending during expiration.

4. Place the hands on the hips with the thumbs toward the front. Bend slowly backward as far as possible during inspiration. Hold the breath and remain in this position a few seconds, then rise somewhat rapidly during the expiration. (Fig. 4.)

Follow each respiratory act by a forcible secondary expiratory effort, pressing the thorax with the supinated arms to expel as much as possible of the supplemental air.

Massage and Swedish movements should be considered as forms of exercise and be brought into service during the first part of the treatment.

When the rectal temperature does not go above 100 F. in the afternoon the patient may be allowed limited walking exercise. At first a walk of a few rods may be taken and the rectal temperature determined one-half hour thereafter. If it is not elevated the exercise may be allowed regularly, and gradually increased, but must always be under careful regulation by the physician, and due regard paid to the effect on the temperature and other symptoms. No active muscular exertion must be indulged in until convalescence is established, but limited participation may be allowed in the various forms of less active lawn games, provision for which has been previously mentioned. Exercise may also be obtained by occupation of the patients in light gardening, the care of lawns and flowers, some of the farm work, and also, in the case of women, in the work of the household.

5. *Bathing.*—On rising in the morning the patient should take a cold sponge bath or at least sponge the body to the waist with cold water. He should then rub himself briskly with a coarse towel until the skin is red and warm. If at first the cold water produces too much shock and there is no proper reaction, the use of a dry rub with a coarse towel should be substituted for the cold sponging. After a few days the dry rub should be preceded by sponging with lukewarm water, a few days later by alcohol and water, and then by water the temperature of which is reduced about 5 degrees each day until cold water at a temperature of 45 to 50 is used, or as it comes from the tap. The same method of bathing should be used for infirmary patients; the water and the friction being applied by the nurse. For cleansing purposes a moderately warm bath should be used twice a week and this should be followed by a cold affusion and friction of the skin of the whole body. Shower, spray and needle baths are excellent for stimulating nutrition and hardening the tissues or increasing the resistance to cold. The sanatorium should be equipped with hydrotherapeutic appliances for the administration of various forms of baths and douches in selected cases.

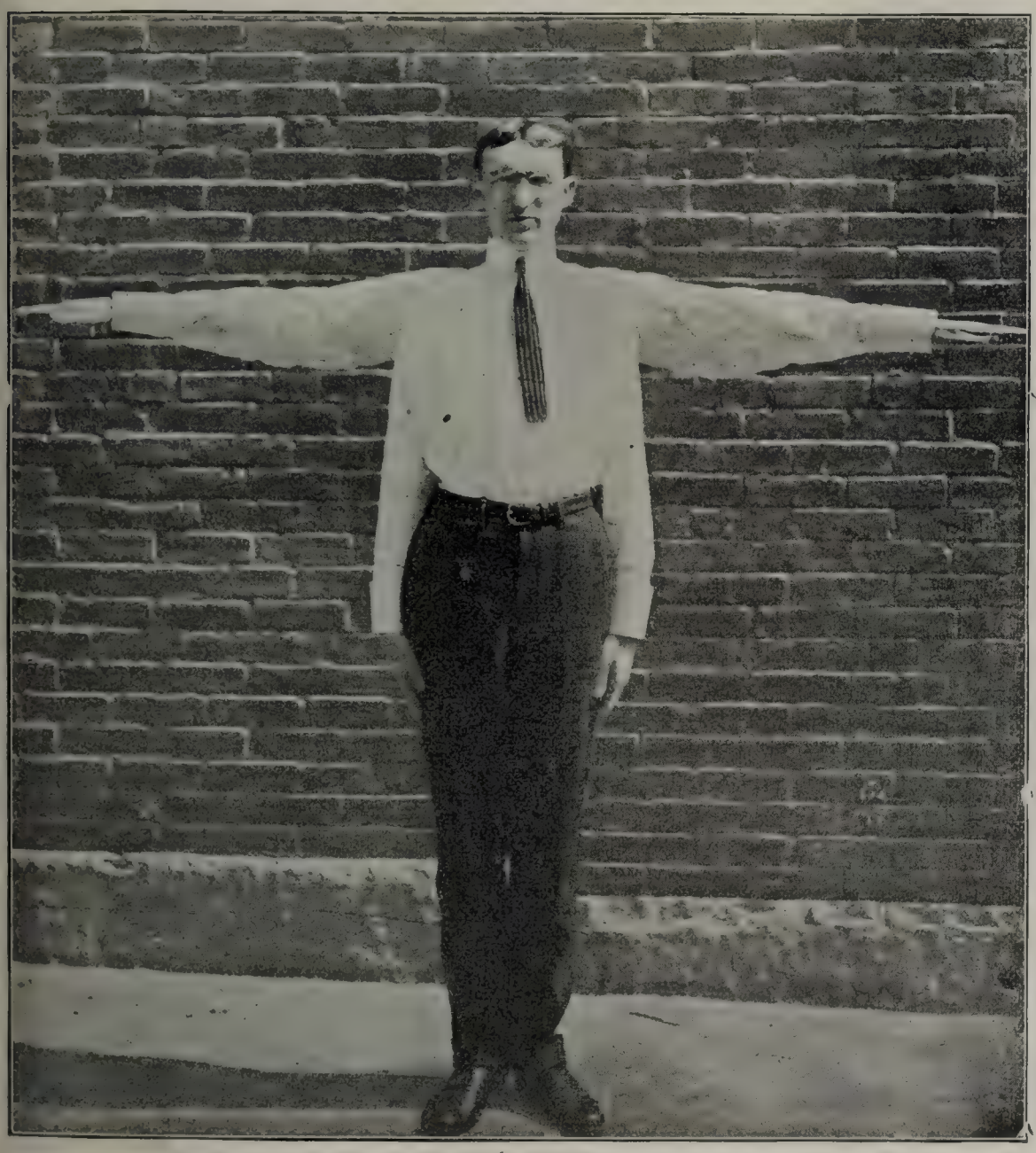


Figure 1.



Figure 2.

6. *Sleep.*—The patient should retire at 9 o'clock and remain in bed until 6:30 a. m., between which hours absolute quiet should prevail in the sleeping quarter, thus allowing nine and one-half hours for sleep. Those who have suffered from insomnia generally rest well when taking the open-air treatment, particularly when sleeping out of doors. Being constantly in the open air during the day is conducive to sleep, and hypnotics will seldom be required. Gentle, cool sponging of the head and shoulders, or of the entire body, or cold compresses applied to the abdomen or extremities and covered with a flannel bandage are often efficient in inducing sleep. In more obstinate cases, wet packs, or massage, local or general, should be tried before resorting to hypnotic remedies.

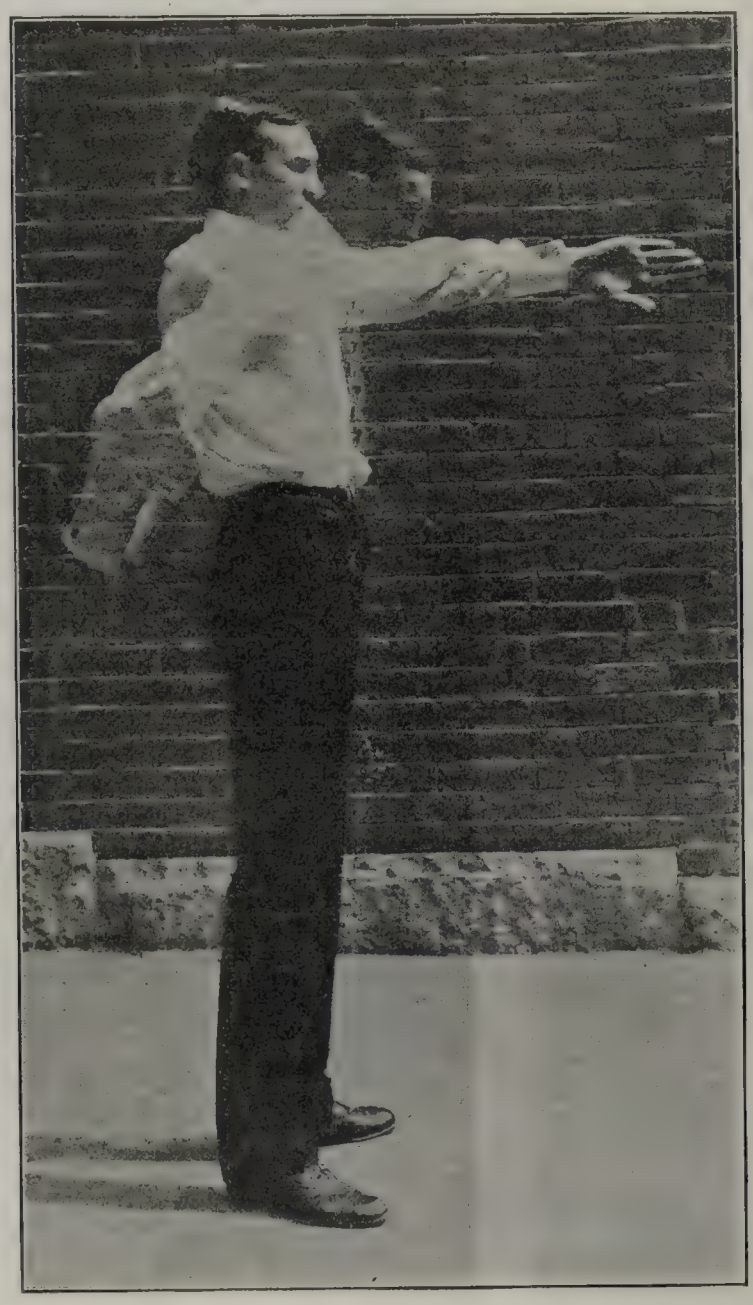


Figure 3.

7. *Symptomatic Treatment.*—In every case there is present, or constantly arising, some condition, anemia, malnutrition, digestive disorder, cough, hemorrhage, pleurisy, or other symptoms which require careful remedial treatment, but the discussion of which does not come within the scope of this paper. I would call attention, however, to the importance of maintaining the entire digestive tract in a healthy condition for the proper digestion of the increased amount of food taken and the thorough removal of waste Constipation and consequent autointoxication must be guarded against. The teeth should be put and kept in good repair, and systematic attention given to the hygiene of the mouth.

DISPOSAL OF SPUTUM.

The thing of greatest importance in the sanitation of tuberculosis is the systematic and complete destruction of the tubercle bacilli. Since the bacilli are confined to the sputum in cases of incipient pulmonary tuberculosis, the thorough destruction of this excretion will effectually prevent the spread of the infection. Not only must great care be exercised in the collection of the sputum, but also the utmost cleanliness must be observed in the care of the utensils used and the cleansing of the hands, person and clothing, both of patients and nurses.

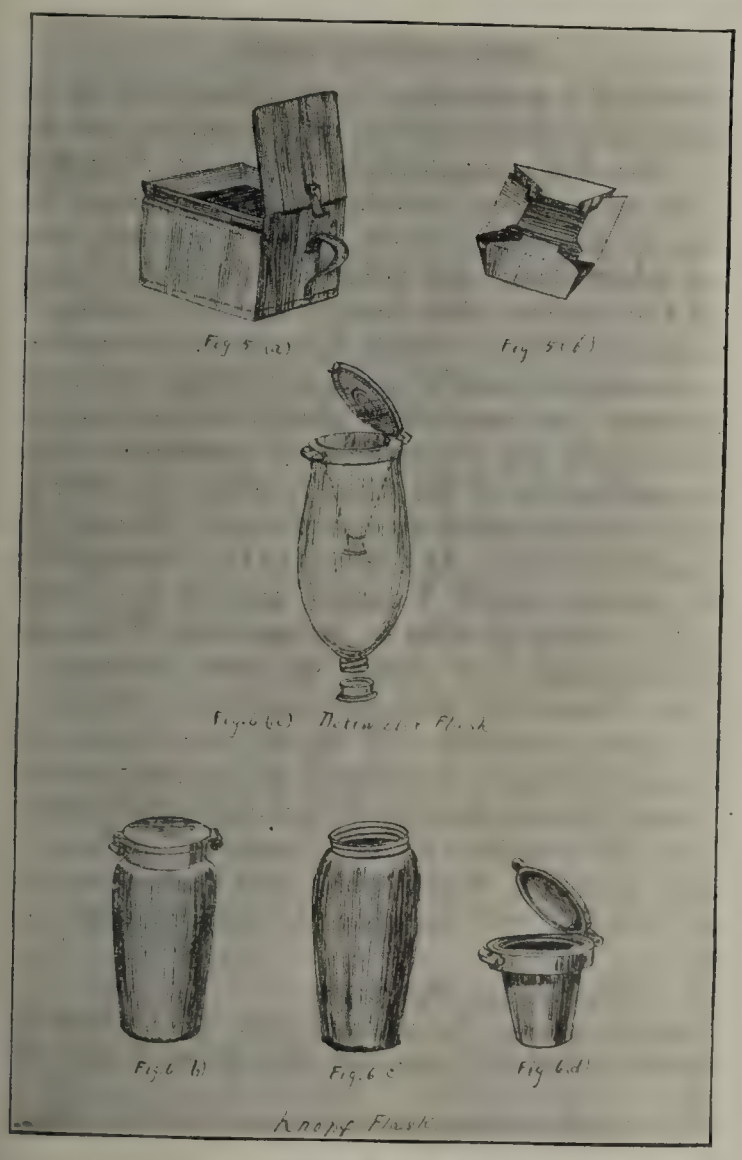
Every patient must be provided with a small sputum cup or flask, made of such material that it can be economically destroyed or thoroughly cleansed by antiseptics or by boiling. A useful form of cup is one made of manila paper, which is supported in a metal frame with handle and cover. (Fig. 5). This cup is inexpensive and can be burned after use, and the frame well disinfected. When the patient is taking exercise and is off on a walk a more convenient receptacle is a pocket flask like the Detweiler or the Knopf flask. (Fig. 6.) These may be made of glass, but preferably of metal (aluminum) as the glass flasks are liable to be broken in the pocket, by dropping or otherwise, and are therefore less sanitary. A metal flask with tight joints and a properly fitting cover can be carried in the pocket, is light, inconspicuous, cleanly and can be sterilized by boiling.



Figure 4.

The patient must be taught to always use his cup or flask for expectoration wherever he may be, and whether for the reception of sputum from the lungs or saliva from the mouth. He must never be without it. It must be at his bedside at night ready for immediate use; always by him during the day, at rest in his room, among his fellows on the veranda and in his pocket on his daily walks. The flask should be used only when away from the building, the cup at all other times.

Twice a day the paper cups should be emptied, their contents mixed with sawdust and burned in a furnace or sputum crematory. The paper cup should also be burned. The metal frames should be washed in a 10 per cent. solution of carbolic acid and refilled with fresh paper cups. The contents of the pocket flasks should be mixed likewise with sawdust and cremated, the flask being washed in a 10 per cent. carbolic acid solution, and boiled for one-half hour in a 1 per cent. solution



Figures 5 and 6.

of carbonate of soda. The nurse who has charge of this operation—and it should always be done by a completely trained person—must wear rubber gloves and a washable sleeved apron during the procedures.

The use of stationary cuspidors about the buildings and grounds is not to be commended. Although many individuals pride themselves on their ability always to expectorate in the cuspidor, many are they who fall wide of the mark and even miss the target altogether. In respect to the memory of these delinquents it is well to insist on the individual use of sputum cups on all occasions. An exception might be made on the use of a cuspidor in the toilet rooms. Here is a strong temptation, which is seldom resisted, to use the hopper for expectoration. This must be forbidden, and that the restriction may be well obeyed, it is well to have a cuspidor in a convenient location raised two and one-half or three feet from the floor. Cuspidors, if used at all, should be of iron, which can be sterilized by heat; should always contain a quantity of an antiseptic solution and should have well-fitted covers to prevent evaporation or the access of flies and other insects to the contents.

If the sputum cup is spilled or sputum is deposited in any way on the furniture, floor or about the grounds or on the clothing of patients, the nurse, being notified at once, should immediately remove the infectious material and properly disinfect the place before the sputum has time to dry.

If a patient is suffering from intestinal or bladder tuberculosis, or if there are any infectious discharges whatever, these should receive the same thorough antiseptic treatment as in a case of typhoid fever.

KITCHEN AND LAUNDRY STERILIZATION.

All knives, forks, spoons and dishes on which the patients are served must be disinfected after every meal. This can be accomplished by means of a sterilizer after the pattern of a dish washing machine, in which the dishes may be immersed, first in a strong, hot caustic lye and then in boiling water, on being removed from which they dry rapidly by evaporation.

At the table each patient should have his own napkin and rings or other device should be used so that these do not become mixed. The table linen and all bed and body linen should be sterilized by steam before going through the usual laundry operations. Clothing soiled with tubercular sputum, vomitus, etc., should be soaked in 10 per cent. solution of carbolic acid for an hour before being sent to the laundry. The patient's outer garments should be subjected to sterilization by formaldehyd gas at stated intervals, and on discharge from the sanatorium all his belongings and his wearing apparel should be similarly treated.

HOUSE DISINFECTION.

Experiment and careful observation have demonstrated that the wall and floors of properly conducted sanatoria are comparatively free from tubercle bacilli. Also that the walls seldom become infected above a distance of three feet from the floor. The floor should be gone over daily with a mop moistened with a 1 per cent. solution of chlorinated lime and the mop put into boiling water after use. Once a week the furniture and the walls, to a height of three or four feet, should be wiped with cloths moistened with 1 per cent. solution of chlorinated lime, and the cloths burned. The floors and walls to a height of six feet should receive a weekly scrubbing with soap and water. Once a month the rooms should be disinfected with formaldehyd gas. The various articles in the room should be left in place and books should be stood on end and opened so as to separate the leaves freely. Any one seeing a tubercular patient reading and coughing as he reads and noting in this act the spraying of the open page with fine droplets of mucus, will realize the danger which arises from the drying of these droplets containing, as many of them do, the tubercle bacilli. The frequent disinfecting of books used by patients, then, becomes a matter of importance. All rugs, mattresses and pillows should be exposed weekly to the bright sunlight for several hours.

In the construction of the building all corners should be made round for most efficient cleansing.

PERSONAL HYGIENE.

Mention has been made previously of the proper care of the skin and the hygiene of the mouth. The use of

an antiseptic mouth wash with a tooth brush before and after meals should be enjoined, and also the proper cleansing of the hands and face before each meal, to avoid ingestion of bacilli in saliva dried on the skin. The nails, being such frequent harborers of bacteria, must be kept well manicured, and the use of the nail brush go with every washing of the hands. It is best that the patient be clean shaven, but when the retention of a mustache or beard is preferable to the patient, it should be kept closely trimmed and washed several times daily. The patient must be instructed in the danger of swallowing sputum, and the habit broken up, if present.

The clothing should be as light as is consistent with proper warmth. Over-burdening the body with clothing must be avoided, as it provokes perspiration, increasing the danger of "taking cold," is not cleanly and limits respiratory expansion. Mufflers, chest protectors, leather vests and jackets must be discarded. Absorbent materials should be worn next the skin and changed frequently. The underclothing worn during the day should be entirely replaced at night. The skirts of the women patients and employes should be of such length that they do not sweep the ground in walking. So long as corsets are made they will be worn, but their construction and adjustment should be such as will allow a measure of abdominal breathing and good chest expansion. The feet should be warmly clad with closely woven stockings and comfortable, well-fitting shoes and carefully protected from moisture.

METHODS OF RECORDING PROGRESS.

On admission of the patient to the sanatorium a full record of the case should be started on suitable forms. Hospital experience has demonstrated the superiority of the envelope system of loose leaf records, which may be fastened together in book form, over the older case book system. The former system is more flexible and allows of a full and complete record in compact form and available for ready reference. The accompanying forms are patterned closely after those designed by Dr. Herbert Maxon King for use in the Loomis Sanatorium. Form No. 1 is a general summary of the case valuable for reference and for statistical purposes, and is not fully filled up until after the discharge of the patient. The other forms are self-explanatory, giving in order a full family and personal history; history and symptomatology of the present illness; results of examination of the entire body covering two or more forms; records of temperature, pulse and respiration; weight and sputum records; results of examination of urine, blood and stomach contents together with blank forms for record of symptoms, treatment and the régime followed.

The weight should be recorded regularly every one or two weeks, always at the same time of day, the patient being weighed stripped, and clad only in a dressing gown of known weight. The sputum should be weighed every two weeks and a record made of the amount in cubic centimeters. Once a month the sputum should be examined for tubercle bacilli, elastic tissue and note should also be made of its character, whether mucoid, mucopurulent or purulent; the presence of staphylococci, streptococci or other bacteria, with their relative number. In case of failure to find the tubercle bacilli in any examination, specimens should be obtained on three successive days, and several smears from each specimen carefully examined.

The blood should be examined on admission and once a month thereafter in cases showing any abnormality in red or white corpuscles or hemoglobin content.

The urine should receive a thorough examination on admission, both chemical and microscopic. Once a month thereafter a record should be made of the twenty-four-hour amount, the color, reaction, specific gravity; the presence or absence of albumin, sugar, indican and the diazo-reaction, the latter being of considerable prognostic importance.

The thorax should be examined once a month and at such other times as the symptoms may suggest, the physical signs being recorded on a diagram readily made by means of a rubber stamp, thus showing graphically the exact extent of the lesion and the location of the physical signs found. Previous to discharge the patient should receive the same thorough physical examination of the whole body as on admission for purposes of study and comparison. The first and last examination should include a careful system of measurements of chest expansion, lung capacity and physical development.

EDUCATIONAL WORK.

The work of a sanatorium for the treatment of incipient tuberculosis should not be only curative, but educational. The daily sanatorium life is an education in itself, but in addition simple, clear instruction should be given on personal hygiene, home sanitation, prophylaxis of tuberculosis, and rules laid down for the guidance of the patient after leaving the institution. The vast majority of the patients have too little realization of the necessity of careful sputum disposal and hygienic surroundings, and every effort should be made to impress on their minds the importance of prevention and the possible eradication of the disease, which can only be accomplished by the active co-operation of the enlightened and educated public. As a means to the accomplishment of this utopian result I would suggest the following topics of a course of talks to the patients. These should be very informal, and should be given in simple language and illustrated whenever possible by models, diagrams, charts, pictures and in all other ways which would add to their educational value and popularity. They should be supplemented by a pamphlet containing directions for carrying on the treatment at home, prophylactic measures, health notes and facts about tuberculosis, which should be given to each patient on discharge.

1. Air and sunshine. Ventilation.
2. Structure of nose, throat and lungs. Proper breathing.
3. Bacteria, what they are; how they grow; diseases caused by them.
4. The tubercle bacillus; how it enters the body; condition favoring its growth, etc.
5. Disposal of sputum at home.
6. House disinfection.
7. Food and digestion.
8. Exercise.
9. Bathing and care of skin.
10. Clothing day and night.
11. Personal hygiene and habits.
12. Rearing of children of tuberculous parents.
13. Amusements, things and places to avoid.
14. Occupation for consumptives.
15. The life régime of the consumptive.

These talks should be short, not more than one-half hour in duration and should be so arranged that every patient may attend them before his discharge.

DURATION OF SANATORIUM RESIDENCE.

The following data should be taken into consideration in determining the arrest of the morbid process in the lungs:

1. Absence of symptoms and physical signs of active disease.
2. Absence of tubercle bacilli from the sputum in repeated examinations.
3. Return to normal strength and maintenance of body weight at or above normal.

The length of time necessary for the accomplishment of these results will depend on the progress made by the disease before admission and the zeal which the patient displays in carrying out the prescribed treatment. The more conscientious he is in living up to the spirit and the letter of the régime, the more immediate and certain will be the results. Except in the most incipient cases six months should be put down as the minimum time to be spent in the sanatorium. There are occasional patients whose symptoms become quiescent and who can be discharged after a residence of three months, continuing at home the routine which they have learned. Many cases will show signs of active disease after twelve months' residence. This, as a rule, should be the maximum duration of residence in a public sanatorium where there is constant great pressure for the admission of recent cases. After this length of time any person of ordinary intelligence should be able to carry out in practice at home the principles with which he has become familiar by association and teaching, and the way should be made for the reception of others who may be waiting and losing ground for want of proper guidance.

RESULTS OF SANATORIUM TREATMENT.

Some such classification as the following is usually observed on discharging patients from sanatorium treatment: Apparently cured. Lesion arrested. Improved. Not improved. Those patients are discharged as "arrested" in whom all active symptoms have disappeared, who have no cough, no bacilli, and whose temperature and weight are normal. The patients discharged as cured are those who have passed a considerable interval, usually from six to twelve months, in apparently good health.

The following figures are taken from the Seventh Annual Report of the Massachusetts Sanatorium for the year ending September 30, 1903:

	Per cent.
"Arrested" and "apparently cured"	48.97+
Improved (including all shades of improvement)	43.00+
Not improved (including one death)	7.90+

Of the incipient cases treated, 72.6 per cent. were arrested or apparently cured. There has been a steady increase in the number of arrested and apparently cured cases during the five years of the work. "The replies from former patients to our annual letter of inquiry up to the present date (Oct. 1, 1903) enable us to say that the large majority of those who were discharged from the sanatorium as arrested or apparently cured in the year preceding this, are well, and are actively at work."

The imperial health office at Berlin published in 1901 a statement as to the results of the sanatorium treatment in Germany. Out of 6,108 cases, 67.3 per cent. were able to follow their former occupation; 7.1 per cent. were fitted to earn a living at a different occupation; 14.6 per cent. were partly able to earn a living, and 11 per cent. were unfitted for work. The older institutions of Germany, Gorbersdorf and Falkenstein, report apparent arrests in 60 per cent. of the cases treated. Results at the Adirondack Cottage Sanatorium show over 70 per cent. of arrests or apparent cures.

These are the results, of course, in selected cases, only the incipient cases or those not far advanced in the disease being received in these sanatoria. The same methods applied to more advanced cases, however, leads to very favorable results, about 50 per cent. of such cases being very greatly benefited, and some cures resulting even in cases seeming most unpromising. Statistics drawn from resorts receiving all classes of cases, even the most far advanced, show an increase in weight and general health, and decrease in fever, cough and expectoration in 80 per cent. with a return in approximately normal health in over 30 per cent. Thus we see that while the sanatorium treatment is beneficial in all stages of tuberculosis it is the earliest incipient cases which derive the greatest benefit, and are returned with the least delay to their homes and occupation. Thus, the very great importance of an early diagnosis is emphasized, and there is no question but that with earlier recognition of the disease by the use of all diagnostic measures on the slightest suspicion, and the immediate resort to sanatorium treatment a very much larger proportion of cures will be effected, and much time, expense and many valuable lives saved.

FOLLOWING OF PATIENTS AFTER DISCHARGE.

It is important to keep track of patients after their discharge, and to ascertain from time to time their condition and the ultimate result. At intervals of three, six and twelve months after discharge the patient should be required to report to the sanatorium his present condition on a printed form mailed to him for the purpose; or to report in person to the nearest examining physician and a physical examination made, the findings of which should be sent to the sanatorium and put on file with the record of the patient. Thus there would be obtained a record covering a period of two years following his discharge. To supplement this, inquiry should be instituted as to the whereabouts and condition of discharged patients at intervals of two or three years. In this way there would be collected in time valuable statistics as to the ultimate results of sanatorium treatment showing the per cent. of permanent cures, the duration of arrests, the frequency of relapses, the length of life, the causes of death and other facts of importance in the guidance of future therapeutic work.

CONCLUSION.

In conclusion I would call attention to the importance of continuance by the patient of a hygienic life after he leaves the sanatorium. In his home and place of work there must be proper ventilation and cleanliness, the latter term including adequate disinfection. These things are necessary for his own safety, for the protection of his family and his business associates. His food must be of the most nourishing, and his whole life well ordered and lived after the manner his institution experience has taught him. Not only should he practice these things himself, but he should be an apostle of the gospel of fresh air and sunlight to his fellowmen. And to the accomplishment of all this he should be strenuously aided by the physicians and sanitary officers of every community. "If," says Knopf, "we wage a vigorous war on all that is insanitary in our cities, towns and villages; if we endeavor to raise the coming generation to be a strong people, able to resist the invasion of the pathogenic micro-organism which may escape the watchful eye of the sanitarian; if we can, by the creation of sanatoria for all classes, rich and poor, and by carrying out the hygienic, dietetic, educational and symptomatic treatment of all consumptives outside of such institution, cure the curable and make harmless the incurable tuberculous patients, the problem of dealing with the most widely spread of all diseases will have been solved."

PULSATING EXOPHTHALMOS; SUCCESSIVE LIGATION OF BOTH COMMON CAROTID ARTERIES; DEATH.*

HOWARD F. HANSELL, M.D.

PHILADELPHIA.

Patient.—S. C., a strong, healthy-looking girl, 22 years of age, applied at the eye dispensary of the Jefferson Medical College Hospital July 30, 1903. She complained of pain in the left eye and left side of the head, and of a constant subjective noise.

History.—On the evening of July 3 she was struck on the inner angle of the right orbit, between the internal canthus and the nasal bone, by the handle of a heavy butcher knife, thrown from a distance of about 15 feet. Both lids of the right eye were bruised and slightly cut, and the nose bled, but other than these insignificant injuries she suffered no immediate ill effects. On the following day she noticed a noise in the head, which she referred more particularly to the *left* side. Two weeks later the left eye became prominent.

Examination.—At the time of the first examination proptosis was marked, pulsation of the eyeball was present, and a bruit was distinctly heard by applying a stethoscope to any part of the head, or over the large vessels on both sides of the neck, and louder over the closed lid of the left eye. It was diminished by pressure on the vessels of the neck. A distinct thrill was communicated to the finger, laid on the termination of the nasal artery on the nasal bone. A superficial vein in the outer half of the left upper lid was greatly dilated and tortuous and the lid was discolored and swollen. The eye was dislocated outward and downward. Movements in all directions were limited, particularly inward and upward, and diplopia was noticed in all parts of the binocular field. The sclera was deeply injected, the media clear, the pupil dilated and slowly reacting and the interior of the eye healthy. Tension normal. The pain in the orbit was constant and severe and increased by the recumbent position. The eyeball could easily be replaced in the orbit, but the exophthalmos returned immediately after the compression was relaxed.

September 3. L., pupil measure, 5 mm.; R., 3 mm. The left reacts sluggishly to light and accommodation, V. = 6/6, with correction of + 3 D. There is no change in the appearance of the fundus; the optic papilla and the retinal and choroidal vessels remain perfectly normal. There was a slight systolic murmur over the apex of the heart.

Course of the Disease.—After observation in the out-patient department for several days, the symptoms increasing in severity, Miss C. was admitted to the hospital. She was put to bed, kept absolutely quiet, and free from all physical exertion, and given large doses of potassium iodid.

During this time Dr. W. W. Keen and Dr. S. S. Cohen confirmed my diagnosis of arteriovenous aneurism in the cavernous sinus. The eye became more prominent and less mobile, the veins of the lid more and more injected, the largest measuring 2-3 mm. in diameter, the noise and pain more unendurable in spite of treatment. Pulsation and bruit could be readily observed at the nasal side of the internal canthus, and with the stethoscope applied to the closed lids, a continuous pulsation with distinct increase in the sound with each contraction of the heart was heard. This bruit could be detected not only over the left eyeball and temple, but on the entire left neck, cheek and over the right eye and cheek, and at a point under the right jaw.

Urine.—Amber, 1,012, neutral, a trace of albumin. No sugar, urea 1.3 per cent., triple and amorphous phosphates, squamous and columnar epithelium, a few leucocytes and erythrocytes. No casts.

After a few days of rest and medical treatment she left the hospital, unimproved. She re-entered Sept. 24, 1903,

SURGICAL REPORT BY DR. KEEN.

I saw her again on September 25. I confirmed the observations made by Dr. Hansell, and agreed with him in the suggestion that the left carotid should be tied. Before this could be done, the exophthalmos had evidently increased and the vein in the upper lid was distinctly more pronounced and more tortuous. The thrill and bruit also were more marked than before.

Operation.—September 30. I ligated the carotid with silk on a level with the cricoid cartilage. I did not see the descendens noni nerve, the jugular vein, nor the pneumogastric nerve. Dr. Hansell examined the eye-ground by the ophthalmoscope as I tied the carotid. The instant that the ligature was tightened all the arteries faded so that they were invisible. Both he and I afterward examined for bruit and thrill and found both gone. At the time of the ligation of the artery also the blood pressure was observed, by the Riva Rocci apparatus. It rose 15 mm. and the rise was maintained after the operation.

Result.—Her temperature never rose above the normal and she made a perfect operative recovery in a few days. (The aneurismal bruit returned, so that it was perceived through the stethoscope as a faint continuous murmur at 4 p. m. on the day after the operation, 25 hours after the operation was concluded. The exophthalmos diminished greatly immediately after the operation, though the eyeball was still somewhat more prominent than the other, so that it was only moderately noticeable. She said she subjectively perceived the sound, but that it was very slight and far less annoying than it had been before the operation. She left the hospital Oct. 10, 1903.

She re-entered the hospital on November 8, on account of the recurrence of all her symptoms, especially the annoyance caused by the bruit. The exophthalmos, also was distinctly greater than when she left the hospital. Dr. Hansell observed for the first time, also, distinct retinal hemorrhages so that she was going from bad to worse, and the integrity of the eye was threatened. This forced us to a second operation immediately, though I had hoped not to tie the other carotid at all, or at least, to defer the ligature for several months, so as to allow of the establishment of the collateral circulation.

Second Operation.—November 11. In view of the retinal hemorrhages, increase of bruit and of the exophthalmos I ligated the right carotid, under local anesthesia, by a solution of adrenalin and eucain. The only time when she had the least pain was when I was separating the sternocleido from the tissues about it by blunt dissection, so as to expose the artery. The solution had not infiltrated so deeply as this. She expressed herself as much better satisfied with this method of anesthesia than with the ether. When I had sutured the wound, I was very much struck with the absolutely blanched appearance of the skin as a result of the adrenalin. It was a dead white over an area which extended above, below, and to a considerable distanee both to right and left of the incision. At the moment of tightening the ligature, Dr. Hansell observed the eye ground of the right eye. The moment the ligature was tied, the arteries disappeared as before.

Result.—So far as the wound was concerned, it healed by primary union without any rise of temperature whatsoever. On the second day after the operation she showed a little drowsiness. This deepened and on the third day was very marked. That day, November 14, she had a series of convulsions during the afternoon and evening. On the 15th (the fourth day), she was paralyzed on the left side, and a number of convulsions occurred, becoming finally almost continuous. She died at 10:26 a. m., November 16. Dr. Hansell and I urgently requested a postmortem, and saw the family personally, but they absolutely refused it.

While there may be other causes for pulsating exophthalmos, rupture of the carotid artery in its passage through the cavernous sinus is stated by de Schweinitz to be the pathologic condition in about 60 per cent. of the 200 cases reported up to 1899. In the present case

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

it is impossible in the absence of a postmortem to be absolutely certain that this was the condition, but it is probable for the following reasons: First, the pulsating exophthalmos; second, the continuous throbbing bruit which was markedly increased during systole and diminished, but did not disappear during diastole of the heart; this would seem to be the most important reason; third, the thrill which accompanies an arteriovenous aneurism; fourth, the passive enlargement of the veins.

I regretted extremely the necessity of ligating the opposite carotid so early as six weeks after the first ligature, for I greatly feared that the collateral intracranial circulation might not be well established, and that so early a ligation might prove fatal. The increasing retinal hemorrhages which threatened the integrity of the eye, however, compelled us to do the second operation.

Murray[1] reviews the subject of pulsating exophthalmos at some length. Seventy-one per cent. of the 197 cases reported up to 1898 followed traumatism, and 29 per cent. are due to existing chronic endarteritis of the internal carotid artery. In speaking of the therapeutics, he says that of 53 cases treated by digital compression, 15 were cured or improved; by ligature of the common carotid 51 per cent. were cured, 17 per cent. improved, 17 per cent. unimproved, 10 per cent. died. The mortality following the operation is only 10 per cent., while the death rate following the same operations for the cure of other conditions than pulsating exophthalmos is 25 per cent. (Wyeth gives 43 per cent. in 789 cases). He quotes Boden in reference to the frequency and mortality of double operation, who reported in 1899 that there had only been 6 cases of ligature of both common carotids, the interval between the two operations in 4 of the 6 cases being thirty days, fifty-four days, sixty days, thirty-two days. Five of the six patients were cured or improved, and none died.

The most recent compilation of the papers that have been published on the subject is that by Barnard and Rugby.[2] These writers report a case in which a bullet passed through the roof of the mouth to the base of the skull, which was perforated and smashed. The left side of the face was paralyzed and the left pupil was dilated and fixed. The lids were swollen and very prominent, all the external ocular muscles paralyzed, the cornea insensitive and the eye pulsated vigorously. A thrill was felt and a bruit heard over the closed lids. Ligature of the left common carotid artery was performed. The proptosis diminished and the pulsation disappeared for four days, recurred and disappeared again in ten days, but the eye was blind from opacity of the cornea. Two months later the patient complained of headache. The bullet, which was located by the *x*-rays above the petrous bone in the temperosphenoidal lobe, was probably surrounded by purulent degeneration of the cerebral matter. The postmortem showed the presence of a double sacculated aneurismal dilatation in the intracranial course of the internal carotid artery. There was no arteriovenous communication in the cavernous sinus. The interest in this case lies in the presence of all the typical signs of traumatic pulsating exophthalmos due to the unusual lesion of a sacculated aneurism of the carotid artery. The authors collate statistics both in favor of and against ligation of the common carotid. Rivington[3] in 44 cases, both idiopathic and traumatic claimed about 50 per cent. of cures. LeFort[4] claimed 61 per cent. successful, of which 54 per cent. were cured. The results of compression are much less favorable, according to LeFort, who gives 86 per cent. of failures.

This author says: "If the exophthalmos is double and ligation on one side has failed, and if pressure on the other side checks pulsation and bruit, one should not hesitate to tie the other carotid." C. S. Bull[5] says: "Ligation of the carotid is the oldest operation for the relief of pulsating exophthalmos, and has given the most satisfactory results. As a rule, the pulsation and bruit disappear immediately, any existing tumor collapses, the eye often sinks back into the orbit, and the tension and distension of the veins in the orbit diminish. Faint subjective sounds may return after a few hours, but the other symptoms soon entirely disappear. The swelling of the lids and the chemosis vanish, the exophthalmos lessens, the motility of the eyeball returns, and the vision is gradually restored. The swelling and cloudiness of the optic disc subside, the retinal veins become less engorged and tortuous and the hemorrhages are absorbed. Paresis of one or more of the ocular muscles sometimes remains for a long period unchanged. In most of the cases, the cure is complete in six weeks."

REMARKS.

The return of the affection after ligation may be due to deficient coagulation of blood, or the veins may close on the same side, but the blood finds its way to the other side through the circular sinus, or there may be a fresh aneurism, or the superior ophthalmic vein of the side first affected has been obliterated at its opening into the cavernous sinus by the thrombosis of the sinus produced by the ligation of the carotid. The cavernous sinus subsequently regains its permeability, and the still yielding cicatrix in the arterial wall yields and opens again. The arterial blood again enters the sinus, passes through the circular sinus into the cavernous sinus of the opposite side, and produces here the symptoms of pulsating exophthalmos.

As against ligation, it is urged that there are records of several cases in which the physical signs and symptoms had existed a long period with little marked effect on the well-being of the patient or little danger of death. Among them is a traumatic case by Williamson[6] that had persisted twenty-three years; one by Frost,[7] twenty-one years; one by Brown,[8] sixty-five years.

As a second argument is the recurrence of the signs and symptoms after ligation, and as a third is the possibility of a spontaneous cure.[9] Rivington's statements of postmortem findings in 12 cases are interesting. In no case was there simple traumatic aneurism; in 3 direct communication between the artery and vein in the cavernous sinus; in 1, aneurism of each ophthalmic artery; in 1 simple dilatation of the carotid artery; in 8, the ophthalmic veins enlarged and varicose. Up to 1898, 197 cases were published without settling the question of cause, course or treatment.

1. Annals of Surgery, March, 1904.
2. Ibid., May, 1904.
3. Medico-Chirurgical Trans., 1875.
4. Rev. de Chirurgie, 1890.
5. Norris and Oliver's System.
6. British Med. Jour., 1894.
7. Ophthal. Soc. Great Britain.
8. Ophthal. Trans., vol. ix.
9. C. A. Silver: New York Med. Jour., April 9, 1904.

INTERMITTENT EXOPHTHALMUS, WITH REPORT OF A CASE.*

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Patient.—C. McL., a drug clerk, 21 years of age, consulted me eighteen months ago at the Wills Eye Hospital, on account of a feeling of "looseness" in the left eye, and for the correction of a tendency which the eye had to drop forward when he inclined his head forward or made slight muscular exertion.

History.—The patient said that his mother had noticed when he was but 4 years old that when he stooped to tie his shoe laces the left eye became swollen, but recovered its natural appearance as soon as he regained the upright posture. This tendency to protrusion of the eyeball persisted until he was 12 years of age, when he had a severe fall, striking his head, after which it was thought that the eye fell forward oftener and to a greater degree than before the accident. Of late years he had remarked that the eye could be made to protrude by simply holding his breath. There had been no pain nor inflammatory symptoms in either eye at any time and vision was unaffected except for a slight blurring in the left eye at the time of the protrusion. It was elicited that the patient had had diphtheria when he was 3 years of age, but it could not be ascertained whether the peculiar behavior of his left eye antedated this affection or not. Other than this attack of diphtheria, his health had been good. His family history was also good and there was no record of an ocular affection similar to his own in any of his relatives or ancestors.

Examination.—With the patient sitting quietly in a chair (Fig. 1), with his muscles relaxed, both eyes presented a normal appearance, save for a slight dilatation of the palpebral fissure of the left eye; the moment, however, that the head was bowed forward, or the breath held for a time, or pressure made on the jugular vein, the left eye began slowly to protrude from the orbit, being driven straightforward in the axis of the orbit. As the globe was proptosed, the upper lid drooped slightly, covering about 2 mm. of the upper portion of the cornea, while the lower lid fell away from the globe, showing about 6 mm. of clear sclera. If the muscular strain was continued the proptosis became even more marked, the lids becoming blue and swollen, the inferior tarso-orbital sulcus bulged out and was obliterated, and the superficial veins about the orbit became much distended (Fig. 2). Finally, the degree of the exophthalmus became so marked that there appeared danger of the globe becoming dislocated in front of the lids. The moment the strain was removed, however, the eye sank rapidly back into its place and in a few moments had resumed its natural position in the orbit.

The position of the right eye was unaffected throughout. No bruit could be felt or heard over the left eye at the time of the proptosis, and it was noted that even light pressure on the globe was followed by a remarkably easy recedure of the globe, the eye seeming to drop back further into the orbit than is the case under normal conditions. In the quiescent state the excursions of both eyes were normal, the pupils were of slightly different size, that of the right eye being 2½ mm., that of the left 3 mm.; both reacted normally to light and convergent stimuli. The ophthalmoscope revealed slight hypermetropia in both eyes and normal and similar fundi with nothing unusual in the course or distribution of the retinal vessels. At the time of the proptosis, however, it was noted that the vessels in the left eye became rounder and fuller and more cordlike, this being particularly true of the veins. The vision in each eye equaled 5/5, but at the time of the proptosis the vision in the left eye fell to 5/7½. The patient was sent to the Polyclinic Hospital for further study, and, at my request, an examination was made of the general condition by Dr. Riesman, and of the throat and nose by Dr. Freeman. Dr. Riesman's report is as follows:

"The patient is somewhat undersized and of spare build. The forehead is low; there are dark rings under the eyes; the tongue is clean and moist. The neck is large and broad, especially at the level of the thyroid cartilage, becoming narrower above. In the quiescent state, this enlargement of the neck appears to be principally due to a bulging of the sternocleidomastoid muscles in their middle third. The thyroid is palpable but not enlarged. The chest is well formed; there is a delicate fringe of distended capillaries across its lower portion, in the hypochondriac region.

"The heart boundaries are: On the right, a little to the left of the right sternal border; above, the top of the fourth rib; on the left, a line one inch within the nipple-line; below, the fifth interspace. The apex-beat is indistinctly palpable in the fifth interspace, an inch and a half within the nipple-line. Auscultation shows slight accentuation of the second aortic sound. The pulse is 92, and distinctly dicrotic. The radial artery is a little thickened.

"The liver dullness extends from the fifth interspace in the right mammary line to the costal margin. The spleen is not enlarged.

"When the patient is asked to proptose the eye, he takes a deep inspiration and holds his breath. For a short time no movement is observed in the eye; then it is forced forward, the patient's face becoming, at the same time, red and congested. The pulse slows down during the bulging, and is eventually arrested. At that time the heart sounds can not be heard; on auscultation nothing is detected except a continuous, faint hum, produced by the chest muscles, which are in a state of high tension. The cardiac arrest lasts about fifteen seconds. Rather suddenly, the heart sounds again become audible, but they are feeble and show a marked increase in rate (144). The sounds gradually become stronger and slower, until they fall to the normal number. During the proptosis, the neck becomes greatly enlarged, and the patient looks as though he had a huge goiter of the lateral thyroid lobes. The neck measurements are as follows:

	During rest. cm.	During proptosis. cm.
At the top	36	37
At the middle	36	38
At the base	38	39.5

"During the respiratory arrest, the lung expands in all directions and the percussion note becomes more tympanitic. The boundary of the lung descends posteriorly about 2 cm.; anteriorly, in the right nipple-line, 3.5 cm., so that the upper border of the liver dullness is at the seventh rib. The heart dullness becomes diminished, the left border being 1 cm. within the line previously given. During the asphyxia there is also a marked distension of the veins on the backs of the hands, with increase in congestion. These veins are, however, even during rest, abnormally conspicuous."

The examination of the throat and nose by Dr. Freeman was reported as follows:

"The neck is very large at the base, so that a fifteen-inch neck band is tight. Above the collar, the neck appears normal; it is even quite small. The neck band raises decidedly with each pulsation of the heart and there is considerable throbbing of the blood vessels of the neck, chiefly marked on the left side. Pressure on the jugular near the larynx causes the left eye to protrude. The eyes are rather sunken, especially the left. The left fossa is rather obstructed by full turbinals, and the mucous membrane on that side is abnormally hyperemic. This is most unusual, as active congestion of the superficial blood vessels is seldom seen limited to one side. The mouth, throat and rhinopharynx are practically normal. The transillumination test shows both antra perfectly clear and a faint glow is seen through the pupils. When, however, the effort is made to protrude the eyeball, as by pressure on the neck, or holding the breath, the light entirely disappears from the upper part of the face, this being more slowly apparent on the right side. The condition, whether of a varicose nature or not, seems to affect both or-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

bits and the upper part of the nose, though it is much more pronounced in the left eye. I believe the enlarged condition of his neck exerts a marked influence on the return circulation from the head, bringing the veins directly under his muscular control."

The case which has just been described is an instance of that rare condition known as intermittent exophthalmus, the chief characteristic of which is an abnormal mobility of the eye in an antero-posterior direction, in consequence of changing volume in the contents of certain of the orbital veins. The name *"Exophthalmus a volonté"* has also been given to the condition, as subjects of this affection are able to change the position of the globe at will. Others designate it as "alternating enophthalmus and exophthalmus," as descriptive of the condition which exists in some cases. Of these three names, the one chosen as the title of this paper is to be preferred, for voluntary exophthalmus is a misnomer in those cases where the globe proptoses involuntarily, while the title can not be applied to all cases, since enophthalmus is not always found.

That the affection is a rare one is attested by the fact that I was able to collect but 39 other cases in all ophthalmic literature. It is probable, however, by reason of the greater number of cases reported in recent years, that the disease is not so rare after all, and that the infrequency with which one encounters reports of cases of intermittent exophthalmus in the literature is attributable to ignorance of its peculiar characteristics and to its being classed among the ordinary angioma of the orbit. Popular text-books in the English language make no mention of it, indeed, a rather careful search through German and French textbooks as well discovered references to the affection in but two of these. All the monographs have been written by German or French observers. Although cases which were undoubtedly instances of intermittent exophthalmus had appeared in the literature much earlier, Dupont was the first to give a satisfactory description of the affection, in a monograph which appeared in 1865. This author referred to four cases which had already appeared in the literature, and gave a full description of the symptomatology, course, diagnosis and etiology of the affection. The next article of importance was that of Sattlers[1] in 1880, and a year later Yvest[2] referred to the four cases already reported by Dupont[3] and added three others. In 1893, Sergent[4] collected most of the cases which had been already reported, wrote of their symptomatology in a comprehensive manner, and divided the cases into three groups. The next contribution of importance was in 1894, and appeared in Panas'[5] text-book. A year later, 1895, Van Duyse[6] reported a case and dwelt at length on the symptomatology of the affection. In the same year, April, 1895, Becker[7] published the most complete article which had appeared up to that time, citing nineteen cases from the literature, and reported two additional cases of his own. Two years later, 1897, Vossius gave another masterful exposition, but, being ignorant of Becker's article, repeated much of the contents of that author's paper. Vossius rejected the earlier cases referred to by Dupont and Sattler and included by Becker in his list, either on the ground of insufficient data or as manifestly of a different nature from typical cases of intermittent exophthalmus. In 1898 Scheffels[8] reported another case and rearranged the cases into groups differing somewhat from the previous authors.

In addition to these more or less elaborate monographs, reports of individual cases have appeared from time to time, without particular comment by their authors on the pathogenesis or symptomatology of the affection. But two cases, in addition to the one which I report, have been described by American authors, one by R. Sattler[9] and one by Grüning,[10] and only three by Englishmen, i. e., Collins,[11] Lang[12] and Bickerton, the remaining thirty-five having been seen in Europe.

The last article on the subject was by Hitschmann,[13] in July, 1900, and in conjunction with one by the same author which appeared six months earlier, is the most exhaustive treatise on intermittent exophthalmus which has yet appeared.

SYMPTOMOLOGY.

As already noted in the case which has been reported by me, and which may be regarded as a typical instance of intermittent exophthalmus, the characteristic symptoms of this affection consist in a more or less rapid, steadily forward movement of one eye when the body assumes a position which places the head in a dependent position, or when the flow of blood from the head to the trunk is impeded to any extent, either by voluntary act of the subject, as holding of the breath, or by pressure on the jugulars, coughing, sneezing, binding the neck with tight collars, etc.

The proptosis is either directly forwards or the globe may deviate to some extent from the anteroposterior axis of the orbit. The exophthalmus attains its maximum as a rule in about five seconds, and the eyeball rapidly recedes as soon as the conditions favoring it have been removed. Actual measurements show that the globe is driven forwards from 10 to 15 mm.; in one case the degree of the proptosis was so great that the globe was actually dislocated in front of the lids (Lacompte).[14] As in the case I reported, ptosis may appear when the exophthalmus is beginning to be marked, and may attain a degree sufficient to cover the upper part of the cornea.

1. Sattler, H.: Pulsierender Exophthalmus, Gräfe-Saemisch Handbuch der Augenheilkunde, vol. vi, p. 879. (Varikose Venengeschwülste in der Orbita.)

2. Yvert: Des tumeurs de l'orbite en communication directe avec la circulation intracranielle. Recueil d'Ophthal., 1881, pp. 1-93; ref., Michell's Jahresbericht, 1881, p. 453.

3. Dupont: Des tumeurs de l'orbite formées par du sang en communication avec la circulation veineuse intracranienne, Thèse de Paris, 1865.

4. Sergent, E.: De l'exophthalmus intermittent ou exophthalmie à volonté, Gazette des Hôpitaux, 1893, No. 60.

5. Panas: Traité des maladies des yeux, vol. ii, p. 401.

6. Van Duyse, Daniel, et Bribosia, Edmond: Enophthalmos avec exophthalmie intermittente à volonté. Arch. d'Ophthal. V. Panas, etc., vol. xv, pp. 159-170, 1895.

7. Becker, H.: Ein Beitrag zur Kenntnis der Schleimcysten und Gefässgeschwülste der Orbita, Arch f. Ophth., vol. xli, No. 1, p. 119.

8. Scheffels, O.: Ueber intermittierenden Exoph. und Enoph., Deutsche med. Wochen., 1898, No. 22, p. 347.

9. Sauter, R.: A Case of One-sided Transitory Exophthalmus with Undisturbed Function and Muscular Movements of the Eye and the Co-existence of Enophthalmus or Recession of the Globe, Amer. Jour. of Med. Sciences, vol. lxxxix, 1885, p. 486.

10. Grüning: Exophthalmus dexter bei vorwärts-bewegung des Körpers, Arch. f. Augen- und Ohrenheilkunde, V. Knapps-Moos, vol. iii, p. 168.

11. Collins, H. Treacher: A Case of Enophthalmus Becoming Exophthalmus on Stooping, Trans. Ophth. Soc., vol. xv, 1895; ref., Revue Générale, 1896, p. 379.

12. Lang and Thompson: Proptosis Occurring on Stooping or Compressing the Jugular Vein, Oph. Soc. of the United Kingdom, 1897; Ophthal. Review, 1897, p. 161.

13. Hitschmann, R.: 1. Demonstration Eines Falles von Exophthalmus Intermittens und Ausgebreiteten Phlebektasien in Bereiche der Venae Jugulare, K. K. Gesellschaft der Aerzte in Wien., Sitzung vom 12 Jan., 1900; Wien. klin. Wochen., 1900, No. 3, u. Ophth. Klin., 1900, No. 5; 2 Centraibl. f. d. Grenzgebiete der Medizin und Chirurg., vol. iii, No. 13.

14. Lacompte: Exophthal. a volonté, La Belgique Méd., 1897, 28 Oktober; Revue Générale d'Ophth., 1898, No. 2; Nagel's Jahresberichte, 1897.

As was well shown in the case which has just been described, even when the exophthalmus had attained its greatest degree, there was little or no alteration visible either in the exterior or in the interior of the eyeball itself; the lids, however, became distended and a bluish tinge was imparted to them and to the skin surrounding the orbit. If there are any varicosities of the veins of the skin and conjunctiva, they become filled at the same time with the proptosis of the globe. Sometimes a venous tumor can be seen and felt, either behind or alongside of the globe; in most of the cases, however, no such tumor can be demonstrated. Bruit and pulsation over the eye are absent. The proptosis is usually unaccompanied by pain and in many cases the subjects themselves are unaware of the protrusion of the eye until their attention has been called to the fact by



Figure 1.

another. Usually, however, there is an unpleasant sensation of pressure and fullness in the orbit when the head is bowed forward, as though the eye were starting out of its socket. In some of the cases, especially those in which the exophthalmus is of extreme degree or persists unusually long, there is quite severe pain and tenderness in the orbital region, which may be accompanied by vertigo.

When the head is held in the upright position and the conditions which favor exophthalmus are absent, the eye presents either a normal appearance or one of slight enophthalmus, so that it resembles an artificial eye. In some cases there is slight proptosis and the tarso-orbital fold is deeper. The size of the pupil is usually unaltered, though in several of the cases it was noted as being dilated and in others contracted. Vision may not be affected, even at the height of the exophthalmus; generally, however, it is lowered when the proptosis is extreme, but becomes normal with the return of the eyeball to its normal position in the orbit. In a few cases vision may be much affected permanently, or even absolutely lost; in all such there are complications of various kinds, such as retinal hemorrhages which occasion disease of the optic nerve. Vision may be disturbed by derangement of the balance of the extraocular muscles, and diplopia has been recorded in several instances.

In many of the cases no change could be noted in the fundus, either during the exophthalmus or in the interim; in others, on the other hand, there was a dilatation and tortuosity of the retinal veins, the retinal vessels became empty and much reduced in size and the head of the nerve veiled, the normal appearance quickly returning to the fundus, however, as soon as the globe regained its normal position. Phlebectasia of the retinal vessels and of the conjunctiva was observed in a case by Hitschmann, and retinal hemorrhages have been noted by several observers. The tension is normal. Pressure on the eye, however, causes it to sink back deep into the orbit, and this occurs whether the eye is in its natural state or in that of exophthalmus.

Several cases have been reported where there was pulsation of the eyeball itself, synchronous with the beat of the heart. In other cases retrobulbar hemorrhages came on suddenly with marked constitutional symptoms, such as nausea, vomiting, dizziness, and at times coma. The exophthalmus in these cases was attended by great pain; movements of the globe were restricted; the eyeball did not recede when the patient stood upright, and ecchymosis appeared in the lower lid, after a few days, and the globe went back into its normal position, either with normal or restricted vision. Such hemorrhages are ascribed to sudden changes in the circulation in the venous system, and to a certain thinning and weakening of the orbital veins and their branches. Neustätter[15] recorded a case in which the exophthalmus, which had been intermittent, became permanent, due to thrombosis of the dilated orbital veins from typhoid fever.

The exophthalmus is limited to one eye, and in the cases reported in the literature, each eye was affected about an equal number of times.

As already mentioned, at the time of the protrusion of the eyeball, in a number of cases, a tumor appears in the orbit, which attains its maximum size when the proptosis is at its height and disappears with the exophthalmus when the conditions which occasion the protrusion of the eye are removed. This tumor varies in size from a pea to a large bean and may occupy any portion of the orbit.

In addition to this class of cases, there is also another, where a tumor appears in some part of the orbit or lids under the conditions which favor an intermittent exophthalmus and disappears when these conditions are removed. Some of the authors have grouped all three types of cases, i. e., those with exophthalmus without a visible tumor, those with exophthalmus and an associated tumor of the orbit, and finally vascular tumors of the orbit without exophthalmus, under the one heading of intermittent exophthalmus; while others have arranged the cases according to the site of the various veins in the orbit.

As the genesis of the three classes of cases is the same, and as the presence or absence of exophthalmus or orbital tumor is accidental in any given case, depending

15. Neustätter, O.: Disskuss zu Vosius am. 26. Nieden, A.: Zwei seltene Fälle von orbitaler Krankungen, Zehender's klin. Monatsbl. f. Augenheilkunde, vol. xix, p. 72 75.

on the position of the dilated veins in the orbit, it is impossible to disassociate these groups in describing the disease, though for purposes of classification and description it may be well to do so. Scheffel's classification is as follows:

1. Cases in which the varix is posterior to the globe and there is a simple exophthalmus, either directly forward or with slight lateral deviations.
2. Cases in which the varix is more anterior and may become visible and palpable alongside the eyeball, which has also been proptosed.
3. Cases in which the varix is still more anterior, and where no exophthalmus manifests itself, only the varix appearing.

PATHOLOGY.

As no autopsy has been made on a case of intermittent exophthalmus, it is impossible to assert definitely the pathologic lesion which occasions it, but the clinical symptoms are so striking and so manifestly due to a change in the volume of the veins of the orbit that almost all writers on the subject assign this as the cause of the disease. The structure of the superior ophthalmic vein favors the formation of a varix, for it is without valves and contains a great many constrictions in its course and especially where it empties into the cavernous sinus.

In addition to this, there are certain local conditions which favor a stoppage of the circulation of the blood in the orbit; these have been summarized by Sergent[4] as follows:

1. Anomalies in the bony configuration of the orbit (narrowness of the supraorbital fissure at the point of passage of the veins).
2. Anomalies in the muscles, ligaments and fat bolster of the orbit.
3. Anomalies in the resisting power of the vein walls.

Finally, most authors agree with Sattler that there is an individual predisposition to venous dilatation in many of the cases, as is further evidenced by the varicosities which appear on the face and in other parts of the body in many of them. It has been asserted by a number that a dilatation of the veins alone could not explain the conditions, and they believe that there is in addition a relaxation of the fascia, which holds the globe in the anterior position of the orbit. Van Duyse,[6] Bribos and Terson[16] explain the condition as a trophoneurosis of the orbit as a result of an affection of the sympathetic of the head, and Trombetter,[17] who called particular attention to the facial asymmetry, considers the affection as a commencing and a typical form of hemiatrophia facialis progressiva. Vieussen[18] explained his case by a congenital connection between the arachnoid space and Tenon's capsule, through the medium of the supraorbital fissure. While, as has been stated, in the absence of autopsy it is impossible to do more than hypothesize concerning the origin of the affection, from the clinical manifestations it seems proper to assign the varicosities of the orbit as the primary change and regard the absorption of the fat of the orbit and the looseness of the fascia which occasions, as secondary.

16. Terson, A.: Maladies des Yeux, Tome V des Traité de Chirurg. clin. et opérat. dirgé par Messrs. le Deuter et Delbet.
17. Trombetta, E.: Stato enoftalmico associato ad esoftalmo intermittente, Giornale d. R. Accad. med. di Torino, 1897, vol. xv, p. 537.
18. Vieussen: Communication entre le carté arachnoidienne et la capsule de Tenon. Reculel d'Ophthalmol., 1878, p. 314; ref. in Hirschberg's Centralbl. f. Augenheilkunde, 1878, p. 312, und in Nagel's Jahresbericht, 1879, p. 437.

ETIOLOGY AND PATHOGENESIS.

Intermittent exophthalmus may be congenital, or it may develop in childhood; in the great majority of cases, however, it manifests itself at an age when violent physical force is expended and an impediment offered to the ready escape of the blood from the head, with consequent dilatation of the orbital veins. It is probably by reason of the greater physical strain to which men are subjected that the condition occurs more frequently among them than among women; thus, of the 40 cases recorded, about 65 per cent. occurred among men. When women are affected, the period of the appearance of the menses seems to have had a causal connection in a number of instances.

It is often possible to elicit the history of a fall or of a blow on the head, and many authors mention such



Figure 2.

incidents as etiologic factors, though the length of time which elapses in some of them before the exophthalmus appeared would render such a connection doubtful.

DIAGNOSIS.

The diagnosis is not difficult, there being no other affection where the exophthalmus appears and disappears so rapidly and under such conditions. Thus intermittent exophthalmus can readily be differentiated from true cavernous tumors of the orbit by the exophthalmus in the latter class of cases persisting when the head is in an upright position, by the occurrence of angiomatous tumors elsewhere in the orbit, by the presence of pulsations and of bruit, and by the slow appearance of the exophthalmus.

The diagnosis, however, from retrobulbar cavernous angioma is not always so readily made, and a number of cases in the literature which have been described as cases of intermittent exophthalmus really belong to this

group. Although the exophthalmus may in certain cases of intermittent exophthalmus become permanent (Grüning,[10] Dolgenkow,[19] Van Duyse[6] and Moyart,[20] Hitschmann[13] and Ostrowitski[21]), this is the rule in cavernous tumors; pulsation and bruit are also usually present. Finally, while compression of the jugular in cavernous tumors exerts some influence on the degree of the exophthalmus, it is but slight in comparison with that which follows interference with its circulation in the class of cases under discussion. Intermittent exophthalmus may be differentiated from hemorrhages of the orbit by the history, by the discoloration of the globe and lids, and by the rapid disappearance of the exophthalmus; from emphysema of the orbit after fracture, by crepitation and the relatively rapid healing; from exophthalmic goiter by the other cardinal symptoms of that disease, and by the permanent character of the exophthalmus.

PROGNOSIS.

The prognosis may be stated in general terms to be good, for though the tendency to protrusion of the eyeball may grow more and more marked with advancing years, as the result of a greater dilation of the veins and an increased laxity of the fascia, vision, as a rule, remains unimpaired, no inflammatory symptoms set in and the fellow eye is never affected. As monocular blindness may result from hemorrhage into the orbit or from pressure of the varicosities on the optic nerve, or from hemorrhage into the retina itself, the prognosis, however, should not be too favorable and the possibility of such serious complications should always be borne in mind.

TREATMENT.

The patient should avoid the conditions which cause the eye to proptose and all severe muscular strain should be prohibited; rest in the recumbent or sitting posture should be enjoined, and a bandage should be applied over the affected eye for several hours daily. Though Nélaton obtained a cure by injecting a few drops of the perchlorid of iron into the veins, this procedure can hardly be advised, on account of the danger to provoking thrombosis of the cavernous sinus. The radical healing by extirpation of the mass of veins, as proposed by Chelius, is not without danger, and electropuncture should be first essayed.

In cases uncomplicated by orbital hemorrhage or by visual disturbance, non-operative interference, in our present state of ignorance regarding the pathology of the affection, should be advised, but in cases where hemorrhage has occurred and where the loss of vision is threatened in the affected eye, then, perhaps, Hitschmann's counsel of laying bare and resecting the affected veins should be followed. Krönlein's operation being resorted to if necessary.

A LIST OF ALL TRUE CASES OF INTERMITTENT EXOPHTHALMUS IN THE LITERATURE.

All the authors of whom mention was made in the earlier part of this paper referred to the cases in the literature, and compiled lists of all cases which had appeared up to the time of the publication of their articles, but owing to some difficulty in classification or to a failure to consult the entire literature of this comparatively unknown form of disease, none of the lists is complete. In his final paper Hitschmann gives the most complete list of all, and very properly does not include the cases of varicose veins of the lids or conjunctiva which appear without exophthalmus on stooping, etc., which have been included by Becker[7] and Vossius in their lists. Of the cases cited by him, however, two should be excluded, namely, that of Axenfeld[22] and that of Vossius; that of the former, as it had already been reported by O. Meyers,[23] and that of the latter, as it, too, had already been described. Five additional cases should be added, namely, those reported by Bickerton, Leitner, Lesshoft, Mackenzie, P. Smith, as they are all true instances of intermittent exophthalmus. With these corrections, the list would comprise 39 cases in all, and with the addition of the one I record, 40. After a careful study of all the cases in the literature, I believe the following is a complete list of those who have reported cases of exophthalmus:

1. Becker.[7]
2. Bickerton.
3. Böhm.[24]
4. Collins.[11]
5. DeVincentiis.[25]
6. Dolgenkow.[19]
7. Dunkel.[26]
8. Elschnig.[27]
9. Gersner.[28]
10. Grüning.[10]
11. Hitschmann.[13]
12. Lacompte.[14]
13. Lang.[12]
14. Leitner.
15. Lesshaft.[29]
16. Magnus.[30]
17. L. Mayer.[31]
18. Mackenzie.
19. O. Meyer.[23]
20. Mulder.
21. Neustatter.[15]
22. Ostrowitski.[2]
23. Panas.[5]
24. Posey.
25. Radzwitzky.[32]
26. P. V. Richter.[33]
27. R. Sattler.[9]
28. Scheffel.[8]
29. Schmidt.[34]
30. Schwarzschild.[35]
31. Sergent.[4]
32. Siebold.[36]
33. Terson.[16]
34. Trombetta.[17]
35. Van Duyse and Bribosia.[6]
36. Van Duyse and Moyart.[20]
37. Van Zanten.
38. Vieusse,[18] and
39. Vossius.

To these 40 typical cases should be added 11 cases of venous tumors of the orbit, which behaved like intermittent exophthalmus, but where there was no exophthalmus.[37] These were reported by:

- Andræ.[38]
- Foucher and Nélaton.[39]
- Magel and Bonfon.[40]
- Richet.
- Chisolm.[41]
- Becker.[7]
- Denig
- Graefe.[42]
- Parrish.
- Velpeau.
- Morgagni.[43]

19. Dolgenkow, W.: Tumor cavernosus orbital sin, Weshuk Ophth., 1886; ref., Michel's Jabresbericht, 1886, p. 473.
20. Moyart and Van Duyse: Zehender's klin. Monats., 1897, p. 168.
21. Ostrowitski, H.: Ueber den intermittierenden exophthal, Inaug. Dissert., Griefswald, 1900.
22. Axenfeld: Diskussion zu Vosius' Vortag über Exophthalmus intermittens auf dem. Ophth. Kongress in Heidelberg, 1897.
23. Meyer, O.: Intermittierenden Exoph. mit. Erbildung und teilweisser Lähmung der äusseren Augemnuskeln klin. Monatsbl. f. Augenh., 1898, vol. xxxvi, p. 435.
24. Böhm: Ein Fall von Spontanem Exophthalmus während der Geburt. Ophthal. Klinik, 1899, p. 3.
25. De Vincentiis, C.: Sull esoftalmo da neoplasio dell' orbitada ematoma orbitario-pulsante spontaneo e traumatico, etc., Lavori della clinica ocul. della R. Univ. di Napoli, vol. iv, No. 1, 1894; ref., Michel's Jahresbericht f. Ophthalmol., 1894, p. 522.
26. Dunkel: Ueber exophthal. infolge varicöse Erweiterung der orbitalvenen, Inaug. Diss., Eschweiler, 1891.
27. Elschnig, A.: Allgemeine Wiener med. Zeitung. vol. xxxvii, 1892, p. 61; ref., Hirschberg's Centrabl. f. Augenheilkunde, 1892, p. 558.
28. Gessner, C.: Enophthalmos dexter übergehend in exophthalmus bei vorwärts beungen des Kopfes, Hirschberg's Centralbl. f. Augenheilkunde, 1889, p. 161.
29. Lesshaft, A.: Periodischen Exophthal. des rechten Auges bei beugung des Kopfes, Centralbl. f. prak., Augenheilkunde, 1898, p. 264.
30. Magnus, H.: Periodischer Exophthalmus sinister bei beugen des Kopfes. Zehend, klin. Monatsbl. f. Augenheilkunde, 1889, p. 62.
31. Mayer, Ludwig: Ein Fall von Exophthalmus intermittens, Inaug. Diss., München, 1896.
32. Radzwitzki, P.: Ein Fall von Enoph. mit intermittierenden exophth. Sitzungsbericht des Mosk. Ophth. Vereines Westruk Ophth., xiv, 3, p. 294; ref. in Nagel's Jahres., über die Leistungen der Ophthal., 1898, vol. xxviii.
33. Richter, P. V.: Ueber intermittierenden Exophthalmus, Arch. f. Augenheilkunde von Knapp Schweigger, vol. xxxi, pp. 31-44, 1895.
34. Schmidt: Ein mit dem Akte anhalterenden Inspiration zusammentreqender exophth. von Angeborenen varix der Hirnaugenvene, Ophthal. Bibliothek, 1805, vol. iii, p. 173.
35. Schwarzchild, H.: A Case of Palimptosis Alternating with Proptosis Following Injury, Med. Record, vol. xii, p. 544; ref. in Panas' Traité des Maladies des Yeux, vol. ii, Art. Enophthalmie.
36. V. Siebold-Chiron: Eine der theoretischen, praktischen, lit-

DISCUSSION

ON PAPERS OF DRS. HANSELL AND POSEY.

DR. C. R. HOLMES, Cincinnati, stated that Mr. Horner, aged 35, in 1892 was treated by him for a chronic catarrhal conjunctivitis. One day Mr. Horner volunteered to give a demonstration, which Dr. Holmes afterwards had him repeat a number of times. Patient stated that this condition had existed for many years and came without any known cause. The eye is rapidly protruded when he holds his breath, stoops forward, or attempts to lift any object from the floor; the ocular conjunctiva becomes congested and the veins of the lids prominent. There is no bruit nor pulsation present, nor could any varix be detected at any point around the globe. Maximum protrusion was about 10 mm. On resuming the erect posture and relaxing the muscles the eye rapidly receded, and there was then, as in nearly all these cases, enophthalmos. The patient stated that he had never suffered any pain, but that when the eye was protruding he experienced a feeling of pressure about the orbit. Ophthalmic examination was negative. Vision equaled 20/20. Dr. Holmes said that the majority of these cases have developed without any known cause, without pain, or any untoward symptom. Some developed in the act of performing labor not at all different from that which they had undertaken hundreds and perhaps thousands of times before and under exactly the same conditions. In Dr. Gruening's case, a man of 45, it came on suddenly, while he was laying a carpet, with a sensation of weight and falling of the eye. On returning to the erect posture the eye returned to normal. In Dr. Elsching's case, a soldier, aged 23, sudden proptosis occurred, with severe pain in the right eye while cleaning his horse. The eye receded on assuming the erect posture. In Dr. Van Santen's case, a woman, 30 years of age, sudden and enormous exophthalmos occurred with hemorrhage into the orbit. The patient had, however, noticed for a year and a half a slight prominence upon stooping. Dr. Holmes stated that the amount of protrusion varies from a very slight prominence to almost complete dislocation of the globe. In Dr. Robert Sattler's case and in Lacompt's case, actual dislocation of the globe took place. That the disease is rare is manifest, as only 40 cases have been reported. Dr. Holmes considers that it is due to a weakening of the coats, and resulting dilatation of the veins, and perhaps of the lymphatics of the orbit, and in the majority of cases causes no serious circulatory disturbances of the globe. It may also be due to a local anatomic defect in the veins and possibly in the muscles, fascia and ligaments of the orbit. Dr. Holmes considers Hugo Sattler's view that there is a predisposition to a general venous dilatation as doubtful, and agrees with Dr. Posey that there must be congenital predisposition of the orbital veins on the affected side favored by the size of the supra-orbital fissure, variations in the valves of the veins and the over or under development of the fascia, muscles, etc. Dr. Holmes considers that it may be readily understood how in some of these cases there is sudden violent attacks of pain with partial immobility of the eye, and at times very severe cerebral symptoms, followed later by hemorrhage and discoloration of the lids—all of which tells very plainly that there is a rupture of the veins with resulting hemorrhage into the orbit, which may or may not lead to choked disc with temporary interference with vision, or permanent atrophy, as in Dr. Meyer's case. The enophthalmos is explained by the atrophy of the orbital contents from pressure.

DR. J. L. BORSCH, Philadelphia, mentioned a case of this kind. The patient, a young woman, consulted him for an exophthalmos, which she said resulted from a severe muscular effort. She had been trying to lift a bureau in her room and immediately experienced a sensation of fullness in her left eye. On looking in the mirror she observed that the eye protruded more than its fellow. At the end of the day the eye assumed its normal position, but would immediately protrude on muscular effort. Dr. Borsch found a venous pulsation in the affected eye—otherwise it was normal; there was no bruit, and vision was normal in both eyes. The patient was quite nervous. Dr. Borsch prescribed tincture of gelsemium and advised prolonged rest in the country. After eight months the condition entirely disappeared.

DR. G. E. SEAMAN, Milwaukee, Wis., stated that he has come in contact with four cases of pulsating exophthalmos from injury, fractures of the skull. All four were operated on by ligation of the common carotid, and in three a good result was obtained. In the fourth case, which he saw only incidentally, there was an enormous exophthalmos, the symptoms were very pressing and the eye was removed and the orbit packed, but the hemorrhage immediately following was so severe that an immediate operation, ligation of the common carotid, was done. Almost immediately following this there was a complete hemiplegia of the opposite side, which has persisted to this day, although the operation was several years ago.

DR. W. H. WILDER, Chicago, referred to three cases of pulsating exophthalmos. One of these was particularly interesting, because the only cause that could be assigned for it was syphilis—fifteen years previously; the pulsating exophthalmos came on suddenly without any traumatism. It was suspected that there was an arteriovenous aneurism as a result of

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erarischen und historischen, Bearbeitung der Chirurgie gewidmete Zeitschrift, vol. iii, Stück 2, Sulzbach, 1814, p. 373.

37. Taken with the other footnotes, the following references make a bibliography that is believed to be complete: Albert, E.: Lehrbuch der Chirurgie u. Operationslehre, 4 Aufl., vol. iii, p. 599, vol. i, p. 125. Artt, F.: Die Krankheiten des Auges, vol. iii, p. 178, Prag., 1856. Gayet: Un cas d'exophtalmic intermittente societe de Chirurgie de Lyon, 1898, 2 June; ref. in ophthal. Klinik, 1899, No. 6, p. 94. Grüss: Wiener med. Presse, 1887, No. 25, p. 884. Himly, E. A. W.: Die Krankheiten und Missbildungen des menschlichen Auges und deren Heilung, vol. i, p. 393, Berlin, 1843. Joequs, R.: Contribution au diagnostic des tumeurs vasculaires de l'orbite, Clinique Ophtalmologique, May, 1895. Idem: Sur un nouveau cas de dilatation veineuse de l'orbite, Clinique Ophtalmologique, August, 1895. Knapp, J. H.: Klin. Monatsbl. f. Augenheilkunde, 1863, p. 163. Koryker, H. A., u. Molder, M. E.: Ein Fall von intermittierendum exophthalmus mit palsationen des Auges, Leitschrift f. Klin. Medecin, 1899, vol. —, p. 335. Le Moine: Observation de tumeur varigueuse; naevus de la paupiére superieure; cauterization ignee, Recueil d' Ophthalmol., 1887, p. 416; Revue Générale d'ophthalmol., 1887, p. 475, und Michel's Jahresbericht, 1887, p. 433. Cohn, H.: Messungen der Prominenz der Augen Mittelst eines neuen Instrumentes, des exophthalmometers Zehenders klin. Monatsblätt. f. Augenheilkunde, vol. 7, pp. 393, 394. Dictionnaire de Médecin ou Repertoire générale des sciences medicales, Deuxieme edition, vol. xxx, Paris, 1840; Article Maladies de l'orbite, velpeau, vol. xxii, p. 310. Donders, F. C.: Ueber die Stützung der Augen bei Blutandrang durch Atmungsdruck, Gräfe's Arch. f. ophthalmol., vol. xvii, No. 1, pp. 80, 106. Festal: Recherches anatomiques sur les veines de l'orbite, Thése de Paris, 1887. Fischer, J. N.: Lehrbuch der gesammten entzündungen und organischen, Krankheiten des menschlichen Auges., etc., Prag., 1846, p. 361. Ferrari, P.: Ueber die experimentelle verstopfung des sinus Durae Matris, Wiener med. Jahrbücher, 1888, p. 81. Grunert, K.: Ein Fall pulsierendem Enophthal Opthal, Klinik, 1898, No. 15, p. 272, Natchtrag. dazu, No. 23, p. 437. Merkel, Fr.: Handbuch der topographischen Anatomie, vol. i, Braunschweig, 1885-1890. Medicus, Frederick Casimir: Geschichte Periode haltenden, Krankheiten, 1894, pp. 73-82; Frankfurt u. Leipzig bei G. L. Macklot. McKay, R. J.: Nonpulsating Exophthalmus with Recurring Thrombosis of Orbital Veins, Trans. of the Am. Soc., eighteenth annual meeting, 1882, p. 351. Rosas, A.: Handbuch der theoretischen und prak., Augenh., p. 423, Wien, 1830. Schon, M. J. A.: Handbuch der Pathologischen Anatomie des menschl., Auges., Hamburg, 1828. Stellwag, V. Carion: Die Ophthalmologie von naturwissenschaftlichen Standpunke, vol. ii, No. 2, p. 1275. Seggel: Erwähnt in Richter's Aufsatz. Tellias: De l'exopthalmie transitoire ou intermittente. Wecker de Traité complet d'ophthal., vol. iv, article xiii. von Kempf, J.: Periodischen Vorfall des Bulbus Allgem., Wien., med. Zeitung, 1864, vol. ix, p. 131. Weiss, L.: Beiträge zur Anatomie der Orbita. No. 1, Tübingeff, 1888. Terson, Jean: De l'enopthalmie et de l'exophthalmic alternantes, Paris, 1897. Van Zantan: Spontane Hämorrhagie in die orbita Nederl. Tydschr. V. Geneesk afd. 1, No. 3; ref., Nagel's Jahresbericht, 1872, p. 427.

38. Andrea, A.: Grundriss der gesamten Augenheilkunde, No. 11, p. 145, Magdeburg, 1837.

39. Foucher: Sur une variété de tumeur l'orbite, Gazette des Hôpitaux, 1858, No. 141.

40. Mayel et A. Boniface d' Anduge: Tumeur veineuse réductible de la paupiére inférieure. Union Medic., 1861, p. 163; ref., d'Annales d'Oculistique, vol. xlv, p. 273.

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42. v. Gräfe: Vereinzeltes über Tumoren, Gräfe's Arch. f. Ophthalmol., vol. xii, No. 2, p. 222.

43. Morgagni, J. B.: De sedibus et causis morborum per anatomen indagatis libii quinque Venetii, 1761, T. I., vol. xiii, No. 6.

syphilitic degeneration of the walls of the internal carotid in the sinus. The patient refused operation and was kept under observation for one year, during which time large doses of iodids were given him which seemed to cause slight improvement. One of the other cases was treated by ligation of the right common carotid, but collateral circulation was established within three days and the proptosis and pain returned, so that it was necessary to ligate the left carotid. This resulted in a cure of the pulsating exophthalmos, but the sight of the eye was lost. In the great majority of these cases the pathology is that of arteriovenous aneurism in the cavernous sinus. In some cases, as in those of spontaneous origin, it is possible that the syphilitic endarteritis, allowing a dilatation of the artery, is the active cause.

DR. GEO. C. SAVAGE, Nashville, believes that some of these cases referred to are cases of angioneurotic edema, a condition that Dr. Osler has so well described. He has had three cases of this kind. The first was that of a young girl, whose left eye suddenly protruded far beyond its normal position; so far that the lids could not possibly close, nor could the eye be rotated. She remained in this condition for several days, and then came to town with the understanding that the eye was to be removed. Dr. Savage pronounced the case one of hemorrhage into the orbit behind the eye, and thought that the hemorrhage had caused the eye to protrude. He put her on absorbents and the eye returned to its normal position. She was blind in the eye from pressure, tension on the optic nerve due to the protrusion of the eyeball, but she recovered her vision as the globe resumed its normal position. About six months ago the same girl developed the condition again. Another case was one in which there had been repeated attacks on one side of the face. Later the condition developed on both sides. In this case the family physician sent for Dr. Savage, because the lids were the parts involved. He pronounced it a case of angioneurotic edema. About the third day he received a message that she was dead. The same condition as to effusion had occurred in the cranial cavity, possibly in the ventricles of the brain. She had a sudden pain in the head, became unconscious and died quickly. The other case was characterized by swelling of the upper lid, and occurred in a young man who had had repeated attacks. Dr. Savage believes these cases are angioneurotic edema, a condition that is not well understood.

DR. WALTER L. PYLE, Philadelphia, mentioned the case of a woman, aged 45, subject to attacks of angioneurotic edema, with aggravation of exophthalmos, who died of edema of the glottis.

DR. ROBERT L. RANDOLPH, Baltimore, stated that he had an opportunity in consultation recently to observe a case of this kind. The patient was a woman of 60. There was marked exophthalmos and a distinct bruit. The history extended over twenty years and dated from her last pregnancy, at which time she had puerperal convulsions. It was determined finally to make an incision over the lid and dissect it out as an ordinary orbital tumor. The operation was performed by Dr. John Finney and lasted about two hours. Early the next morning she had a convulsion, and an hour later five convulsions, and death ensued. Dr. Randolph said that she never came out from under the ether. The possibility of a termination like this in individuals whose blood vessels are old should be a warning in regard to prognosis. The successful cases are those which are operated on under 40. Dr. Randolph believes that this is the oldest patient with this condition to come to operation.

DR. WILLIAM C. POSEY said that his reason for omitting the case referred to by Dr. Holmes was because careful study of it convinced him that it was one of cavernous angioma, and it and several others of a similar character were dropped from the list. Dr. Posey does not believe that any of these cases were instances of angioneurotic edema, as was suggested by Dr. Savage.

Camphor in Shock.—The *Critic and Guide* states that from 15 to 30 minims of a 10 per cent. sterilized solution of camphor in olive oil injected hypodermically is of great benefit in shock.

AN ENCOURAGING CASE OF LOCOMOTOR ATAXIA.*

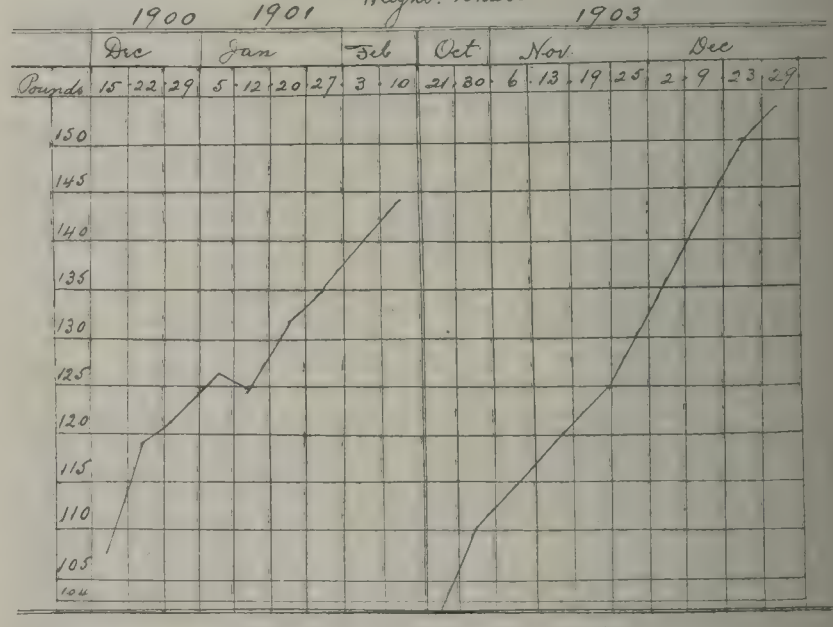
GUY HINSDALE, A.M., M.D.,
HOT SPRINGS, VA.

The case of locomotor ataxia which I report is worthy of record, not because of any extraordinary feature of the disease, but on account of the remarkable improvement in the patient in a short space of time.

Patient.—A man, J. C., aged 42, has been twice under my care. In 1899, when he first came under observation, he was engaged in the office of a large tanning establishment in Cincinnati.

History.—His mother died of nervous prostration, and his father of apoplexy; he had been married 18 years but had no children, and his wife had had no miscarriages. He had been well and strong until five years before he first came under observation. He used alcohol and tobacco in moderation, and had had gonorrhea but denied syphilis.

Examination.—The scalp was partly bald. The first symptom was attacks of abdominal pain, with vomiting and occasional diarrhea. These attacks kept him in bed for perhaps a day. They gradually became worse and more frequent. One year previously he began to lose sexual desire and power. Six months later he occasionally had difficulty in passing water, but micturition was not painful. He then began to have lancinating pains in the calves; the gastric crises became worse and "band sense" appeared above the level of the ensiform cartilage; he vomited for hours at a time, and



Case of J. C., locomotor ataxia.

had to be kept under the influence of opiates. He began to have difficulty in walking in the dark; his eyesight became poor; there was lachrymation and stinging sensation in the eyes, but no retinal changes. His pupils were contracted and reacted very sluggishly to light and accommodation. The knee jerks were absent and not re-enforceable. Romberg's symptom was present and gait was ataxic. Temperature sense was somewhat faulty, as cold was mistaken for heat on the legs and thighs. Sensation was normal on arms and chest. Sense of heat normal all over. There was incoördination of the movements of the arms. Blood count, from 2,800,000 to 3,740,000 red cells; leucocytes, 9,370.

Treatment.—The patient was put to bed and given the usual rest treatment, massage, electricity (sinusoidal), and educational movements. In eight weeks he rose in weight from 108 pounds to 144 pounds. His pains gradually left him, his gait improved, and he returned to his usual occupation in three months from beginning treatment. During this time his urine, which had contained albumin, hyaline and granular casts, became normal.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

The medical treatment was chiefly nitrate of silver and extract of belladonna; five drops of the saturated solution of potassium iodid was administered at various times, but was badly borne, and after two or three days' trial had to be given up. Extract of opium and antipyrin were used to relieve the pain.

Subsequent History.—After nearly three years of usefulness he returned to Philadelphia with similar symptoms and was put to bed as before under my care in the Presbyterian Hospital. The gastric crises were very distressing and he was reduced to 104 pounds. Under treatment he again improved, and at the end of nine weeks he had risen in weight from 104 to 150 pounds. The same inability to take iodids was noted and the same improvement under nitrate of silver and belladonna was observed in connection with the treatment. Mercuric chlorid, 1/20 gr. twice daily, was administered hypodermically for 5 weeks.

There were no febrile crises in this case. The object in citing so typical a case is to emphasize the great advantage in carrying out the rest treatment in these cases. They should be taken off their feet before they weary themselves by wandering around the streets unconscious of the ordinary sense of muscular fatigue. Massage and electricity supply all the needs of exercise. The faradic or the sinusoidal form of faradic electricity is probably the best for these cases. As they gain flesh and strength, graduated educational exercises should be employed and are very easily carried out. In this case faradism was applied by a rectal electrode for a few minutes daily to relieve the atony and anesthesia of the rectum and anus. This was a trying symptom and gas escaped when it was impossible for the patient to control it. It was not considered necessary in this case to use lavage. The vomiting ceased under the use of a pepsin preparation, with phenacetin and deodorized tincture of opium. How long an interval may be expected before the patient reverts to the unfortunate condition in which I found him, it is impossible to tell. A quiescent period of two or three years is, of course, a great gain, and I have ventured to cite his history to encourage others to confidently treat these cases along similar lines, even in the face of such frightful symptoms as this man presented.

Under date of May 27, 1904, this patient reports "improvement along all lines. I have had very little pain. The attacks are so far apart and so light in comparison with the old ones that I pay little attention to them. My walking I consider good. I do not think my defects would be noticeable to any one outside of the profession. I have grown much stronger and weigh 145 pounds. The rectal trouble is the most stubborn, still there is a big improvement."

The Action of Poisoned Arrows.—Frank Charteris, in the *Glasgow Medical Journal*, reports the results of examinations of two sets of poisoned arrows which were sent to Glasgow University with the request that the nature and action of the poison be determined. The arrows were collected in an expedition against the Aros; they were of two sizes, the smallest were dreaded for the poisonous action and the larger for the wounds which they inflicted. The poison from the smaller arrows, when injected, in solution, into frogs caused death within an hour. The ventricle was found to be firmly contracted in extreme systole, and was white in color, as if all the blood had been squeezed out. The poison was probably strophanthus, as this drug in various forms is extensively used in western Africa for poisoning weapons. The larger arrows were poisoned with a substance which acted similarly on frogs, though the active principle was different—probably pseudo-strophanthin or ouabaine.

Special Article.

IMMUNITY.

CHAPTER IV—CONCLUDED.

The belief that invisible "animalcules" were able to cause morbid processes in man is a very old one. A passage from Varro (116-27 B. C.) reads as follows: "There are swampy places in which grow animals never so small which may not be recognized by the naked eye, and through the air gain access to the body and bring about severe diseases."

Micro-organisms.

The discovery and use of the compound microscope in the seventeenth century disclosed the reality of the minute living forms which had been so often suspected. Kircher, with his first crude microscope (1646), examined the tissues of various diseases, and was the prolific author of many theories as to their etiology. It is now believed that the magnification of Kircher's microscope was so small that many of the "worms" which he saw were really larger fungus cells and in some instances the as yet undiscovered blood and pus cells.

The Microscope.

Leeuwenhoek, with his compound microscope, magnifying 1,000 diameters, described accurately many microscopic forms, but made no application of his discoveries to medical problems. Such application was by no means wanting, however, and the succeeding century and a half saw such voluminous descriptions of microbes, so many contradictory theories and statements, that the "infinitesimally small" fell into disfavor in many quarters as the cause of diseases. The attractions and reasonableness of the theory, however, were such that it continued to gain exponents, and in the early part of the nineteenth century reached a degree of definiteness. In 1855, the great French physician, Brétonneau, affirmed that a specific germ was the cause of every contagious disease. "An epidemic disease can originate and extend only through the agency of the germ producing it." Yet at this time no infection had been proved to be of microbic origin.

Anthrax.

In 1850 Rayer and Devaine made an observation, which probably would have fallen into the oblivion of many preceding ones had it not been confirmed by later observations of importance. They found "small filiform bodies" in the blood of sheep which had died of anthrax, and were naturally inclined to believe that these forms caused the disease. Other students, especially Pasteur and Koch, soon took up the study of this disease with the result that the small rods of Devaine were scientifically proved to be its cause.

Fermentations.

Two great minds dominated medical research at this time—Pasteur and Koch. Pasteur, in his early career as a chemist, had had his attention called to the processes of fermentation. He recurred to this subject at a time when the theory of the spontaneous generation of small living forms was widely discussed, and in 1857-1861 proved beyond any possibility of doubt that lactic acid, alcoholic and butyric acid fermentations were due to the action of minute living cells; and, furthermore, that each particular kind of fermentation had its own peculiar microbe as the cause. This was an example of what we term to-day microbic specificity. Pasteur then applied what he had learned about fermentations to the study of the diseases of wines and beers.

Microbic Specificity.

He found their causes, and devised a preventive measure, which consisted merely in the application of the proper degree of heat to the wine before it was stored. At the instance of the French government, he then studied certain diseases of silkworms. His success in discovering their causes and prevention must always remain for us one of the landmarks of the world's progress. It was at this time that he took up the study of anthrax. The specific microbe having been dis-

covered, and the methods of transmission of the malady made clear, he turned his attention to methods of prevention and, if possible, of cure.

Pasteur pondered the question of smallpox vaccination. He came to believe that varioloid was smallpox, the virus of which had been attenuated by its passage through the cow, and that consequently when man was vaccinated he was inoculated with a benign form of the disease. Might not this be an example of a law which would be general in its application? The protective inoculation (active immunization) against the pleuropneumonia of cattle which had long been practiced gave encouragement to this hope. Some work by Toussaint was important in the answer to this question. It was evident that a weakening or attenuation of the bacteria or virus must first be obtained before it could be safely injected into animals for the purpose of producing immunity. Accordingly, Toussaint heated virulent anthrax blood to a temperature of 55 degrees C. for ten minutes and injected the product into a number of sheep. Some animals died of anthrax, while others suffered only a mild attack from which they recovered; the latter were found to be immune to a subsequent inoculation with virulent blood. Inasmuch, however, as some of Toussaint's animals had died of anthrax, Pasteur concluded that there was some grave error in technic. He considered that Toussaint's method probably killed or attenuated the fully-developed bacilli, but did not injure the spores of the parasite (Koch had previously shown the existence of anthrax spores). After much experimentation, Pasteur hit on the plan of growing the bacillus at a temperature of 42 degrees C., obtaining in this way a culture of the fully developed organism which had a low virulence, but which did not form the dangerous spores. When sheep were inoculated with the proper amount of this culture, which became known as anthrax vaccine, they had a mild attack of the disease, which rendered them immune to virulent inoculations. With the possibility of protective inoculation with a known virus actually demonstrated, similar procedures were tried with other animal diseases of known bacterial etiology, with the result that successful vaccines against chicken cholera and swine plague were developed. Pasteur and his co-workers having failed to discover the microbes of plague and cholera, soon turned to the study of another disease which not only destroys many domestic animals, but is at the same time one of the most dreaded diseases which attack man, hydrophobia. All efforts to cultivate the virus from the spinal cord of rabid dogs, which surely is its seat in the affected animal, failed. The unique idea then occurred to consider the infected spinal cord as a fully developed culture of the virus. It remained to subject such a culture to the proper attenuating conditions to weaken or actually to destroy its virulence in order to make it fit for protective injections. This was accomplished by drying the cords in a closed vessel over a hygroscopic substance (solid potassium hydroxid), the final virulence of the cord depending on the length of time it had been subjected to the drying process. The technic of the protective injections, the success of which is household knowledge, will be the subject of later consideration.

Vaccination.

Anthrax.

Hydrophobia.

By no means of secondary importance, during this period, was the work of Koch on the specific bacteria of tuberculosis, cholera, typhoid and the pyogenic diseases; and not least his improved methods of obtaining pure cultures through the use of solid media (gelatin) on plates. Through his work and that of Pasteur two great principles had been set in motion: the microbic specificity of infectious diseases, and protective inoculation in its generalized form, through the use of attenuated virus.

Two Important Principles.

The scientific mind turned at once to the inquiry, What changes take place in an animal's body as the result of the protective inoculation, which render it immune to an infection to which it was formerly susceptible (acquired immunity)? And again, what properties of the tissues or body fluids render one type of animal immune to an infection while another species is subject to attacks of this disease (natural immunity)? Pasteur had observed that if he grew the microbe of chicken cholera in a liquid medium for some time, then removed the bacteria by filtration, the fluid became unfit for the further growth of the organism on subsequent reinoculation. That is, the nutrient material had been used up; and he suggested that this is the case in the animal body. Having undergone the infection, suitable nutrient material for the microbe is used up, and the patient recovers. The disappearance of the proper nutritious substances is assumed to be more or less permanent and consequently renders the animals immune to further attacks. This conception, the exhaustion theory, at one time shared by Koch and Klebs, is still represented in an altered form by Baumgarten, who speaks of an unfavorable culture medium as representing the condition of the immune body, which, of course, is broadly true.

Theories of the Cause of Immunity.

Exhaustion Theory.

Chauveau was the author of another historic theory of acquired immunity (the noxious retention theory), which was to the effect that during the course of a disease the bacteria produced substances in the presence of which they could not develop further; consequently recovery took place, and the continued presence of these noxious substances made another attack of the disease impossible. Although it is true that bacteria do not grow well in their own metabolic products, theories of immunity on this and similar bases are not in accord with the fact that immunity may be of great duration, and that it may be conferred by the injection of the killed bacteria, or, in some cases, of their non-living soluble products.

Noxious Retention Theory.

Metchnikoff may be credited with having first offered a plausible explanation of natural resistance, founded on observation. As a zoologist he had studied the subject of intracellular digestion in the lower animals, and it was while working on this problem that he observed the fate of a yeast fungus (*Monospora*), which caused epidemics among the daphnia, small, transparent animals with which he was working. In the alimentary tract, which was the infection atrium, some large mesoblastic cells, which are perhaps analogous to the white blood cells, were seen to ingest the parasites and dissolve them. If this took place to a sufficient extent the animals recovered; if, however, the infecting organisms were too numerous or the reaction on the part of the animal insufficient, the body became overwhelmed with parasites and death resulted. Since that time Metchnikoff has evolved his well-known theory of phagocytosis as the essential factor in both natural and acquired immunity, a theory which Pasteur, in his later years, looked on with favor. We may speak of this as the cellular theory of immunity; a theory which has had to undergo important modifications in order to bring it into accord with new facts.

Phagocytosis.

Considering that natural or acquired immunity must exist because of certain qualities of the body cells, or of the body fluids, or possibly of both, investigators began to make analyses of the tissues; and of all the analyses, that which we may term the biologic has been the most fruitful. In this case biologic analysis means the detection of reactions which may occur when bacteria or their products are placed in contact with tissue cells or fluids. The chief of these are the determination of the ability of the serum of an animal to kill bacteria or to neutralize bacterial toxins. These important investigations, still in their infancy, were inaugurated by the findings of Fodor, Nuttall, Nissen, v. Behring and Buchner, which

Investigations of the Properties of Serums.

Bactericidal Power.

showed that fresh defibrinated blood, and the blood serum of various animals, were able to kill bacteria in the reagent glass. In contrast to the action of ordinary antiseptics, this power is often selective, killing one variety of bacterium and leaving another unharmed. This is of enormous importance, as it would seem to identify the factor on which natural immunity depends. Then followed the discovery of Nissen and v. Behring (*Vibrio metchnikovi*) and of Bouchard (*B. pyocyaneus*), that if an animal is systematically injected, i. e., immunized, with a micro-organism, the power of its serum to kill the bacterium used in the immunization is greatly increased; from which it would seem that acquired immunity depends on the increase of powers which are normally present to a certain degree. These phenomena have to do with the antibacterial or bactericidal power of serum.

Toxins and Antitoxins.

It was a most important step when it was found that the tetanus bacillus (Brieger and Fränkel) and the diphtheria bacillus (Roux and Yersin) secrete each a powerful, specific, soluble toxin, which may be separated from the bacteria by filtration. Immunization with these bacterium-free toxins was undertaken (Behring and Kitasato) with the familiar result of the production of the specific antitoxins.

With these facts in hand, the vigor with which investigations have been pushed may be readily imagined. The hope naturally prevailed that physicians might become the masters of all infectious diseases, through the possession of specific antibacterial and antitoxic serums. But failures, with which we are only too familiar, met the attempts to produce adequate antitoxins for many diseases. Nevertheless, these failures have stimulated investigators to a closer study of various aspects of immunity and the methods by which bacteria cause disease. This has resulted in the acquiring of much knowledge concerning the properties of bacteria, toxins and the immune serums, out of which has grown a new theory of immunity, the "side-chain" theory of Ehrlich.

(To be continued.)

Clinical Report.

EXTENSIVE INJURY TO THE SKULL AND BRAIN, PATIENT LIVING NINE DAYS.

EVERETT MINGUS, M.D.

MARSHFIELD, ORE.

I am indebted to Walter Culin, M.D., Coquille, Ore., in whose practice it occurred, for the report of the following case.

I was called August 26 to see a man five miles in the country who had been struck on the head, while working in a logging camp, by an iron hook attached to a heavy chain, the whole weighing about 75 pounds. The accident was occasioned by the hook suddenly giving way while strong traction was being made on it in the direction of the injured person, by a steam engine.

Examination.—On reaching the patient I found an extensive laceration of the scalp covering the left frontal region and brain matter oozing from the wound. A considerable piece of the frontal bone was gone from over the eye. This piece of bone measured 1¼ by 1¾ inches and was lying on the ground some ten feet away from the place where the man was injured. There was also a compound depressed fracture over the anterior superior angle of the left parietal bone. The condition of the patient was that of impending death. Pulse 180, small and thready; Cheyne-Stokes respiration; cold extremities; subnormal temperature and clammy skin. There was injury to the teeth and tongue and escape of blood from the mouth and nose. The scalp wound over the eye extended downward across the inner canthus and involved the lower lid of the left eye. The eyeball was intact but cloudy, and there were signs of interocular hemorrhage. The right eye was unimpaired; the pupil was normal and responded to light. No paralysis of extremities. He passed urine voluntarily and controlled rectal evacuations. Hearing in both ears was normal. Patient was somewhat restless, but obeyed orders from attendants.

Treatment.—In view of the hourly expectation of his death, the extensive nature of his injury, and unfavorable surroundings, nothing was done to the wound with the exception of inserting a few provisional stitches and applying a light dressing.

Subsequent History.—Toward morning of the next day the patient's condition showed improvement, and by 2 p. m., 21 hours after receiving the injury, his pulse fell to 85; temperature, 98.5; respiration, 26, and regular. He responded "yes" and "no" to questions promptly. No vomiting. August 28: Pulse, 85, full and regular; temperature, 100; respiration, 26, and regular. Mental condition unchanged. Tongue swollen and protruding slightly between the teeth. No vomiting. No paralysis of face or of other groups of muscles. No twitching; sensation normal; reflexes intact. August 29: Pulse, 85, full and regular; respiration, 20 and regular; temperature, 100. The wound over the orbit was opened and a considerable mass of protruding brain substance in a necrotic condition was removed by gentle irrigation and sponging. During these manipulations a large blood clot plugging the superior longitudinal sinus became loose, which prohibited further work in that neighborhood. Irritation of the brain substance over the injured area did not elicit any response, while the same degree of irritation applied to the membranes or skin would cause him to wince his face and raise his hand for protection. He complained of headache. He took 12 ounces of liquid nourishment at one feeding. August 30: No change. He took nourishment freely and attempted to explain his feelings, but articulated with difficulty, which was apparently due to injury to his tongue. Edema about right eye and wound is disappearing. He recognizes his friends and calls them by name indistinctly. Says he feels very good with the exception of headache. August 31: No change from previous day. Scalp wounds uniting and swelling about left eye going down. September 1: Pulse, 85; temperature, 100; respiration, 20. He took a newspaper in his hand, read for a half-hour with apparent interest. September 2: Pulse, 120; temperature, 98; respiration, 20. No other change from previous day. September 3: Pulse, 140 and regular; temperature, 100; respiration, 26. September 4: Pulse, 144, irregular and dicrotic; temperature, 99; respiration, 30. Died at 2 p. m. without manifesting any cerebral symptoms.

Autopsy.—An irregular wound of the skin beginning on lower eyelid on left side, thence across inner canthus to the root of the nose, thence upward and outward over the frontal bone to a point corresponding to the beginning of the temporal ridge. A second wound on the left side four inches in length, just behind and parallel to the coronal suture.

Cranium: Two compound comminuted depressed fractures united by a linear fracture. The first and most serious involved the vertical portion of the frontal, orbital ridge, anterior three-fourths of the orbital roof, great wing of the sphenoid, nasal bones, horizontal plate and crista galli of the ethmoid; the second was situated just behind the coronal suture, of irregular outline and one inch square. From it extended a linear fracture into the first one and also one passing over the top of the skull into the right parietal bone for a distance of one and a half inches. The spiculæ of bone from this fracture were driven well into the brain substance.

Brain: Complete destruction of the left frontal lobe. The posterior line of injury passed through the precentral fissure downward and forward, skirting over the ascending and horizontal branches of the anterior limb of the Sylvian fissure. On the basal surface the destruction extended as far back as the middle of the olfactory bulb and on the mesial surface as far as the genu. The superior longitudinal sinus was torn across and thrombosed to a point opposite the coronal suture. The substance of the brain in the injured area was pulpified to such a degree that it could be removed by gentle sponging. The peculiar interest in this case is the survival of the initial shock and the complete absence of sensory, motor and psychical symptoms.

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BREWER'S YEAST FOR PYOGENIC INFECTIONS.

It is stated that the workers in some breweries in France have for many years made use of brewer's yeast in the treatment of acne, furunculosis and malignant pustules. The first mention of this remedy in medical literature is by Mosse, in 1852. Brocq claims that he used yeast on himself in the treatment of recurrent malignant pustules, and was entirely cured, although he had tried many other remedies without obtaining relief. He reports in detail one other case of malignant pustules, three cases of furunculosis and one case of acne, all of which it is alleged were cured with brewer's yeast. Lassar used it in the treatment of furunculosis complicating diabetes, and reports equally satisfactory results. Many other reports may be found in the recent literature, nearly all of which speak highly of this simple remedy. The best results are obtained with fresh brewer's yeast (*Saccharomyces cerevisiæ*), although baker's yeast has also been used. It is taken internally in doses of from a teaspoonful to a dessertspoonful dissolved in a glass of water. This may be drunk during or at the beginning of each meal, three times a day. It is important that the yeast should be fresh, because slight digestive disturbances, and occasionally diarrhea, are produced even by perfectly fresh yeast.

Recently yeast has been locally applied in the treatment of gonorrheal affections in women. It has been used in the form of balls which are introduced into the vagina and also in the form of suppositories which are introduced into the cervix. Some very satisfactory results have been reported from this treatment by Abraham[1] and others. Cronbach,[2] however, does not think that it has any great advantage over the older treatment with antiseptics.

The exact mode of action of this remedy is not clearly understood, although several attempts have been made to throw light on this question by test-tube and animal experiments. Sergent inoculated rabbits with staphylococcus aureus by rubbing the cultures into the shaved skin. This inoculation produced many small furuncles, which healed rapidly under the administration of yeast. The controls always required from four to five days longer for recovery. When large doses of staphylococcus were injected under the skin the rabbits invariably died from the infection. McNair Scott could not notice any difference in favor of the treated rabbits when observing a large number of animals that had been inoculated with staphylococcus. Turro, Tarruella and Presta[3] inoculated six rabbits under the skin of the ear with several drops of a virulent streptococcus. Four of these rabbits were treated with yeast by subcutaneous injections, and the other two got no treatment. All of the animals developed erysipelas of the ear, but those that were treated soon improved and were practically well on the seventh day, while both controls were still becoming worse. One of the controls showed signs of improvement on the tenth day, and made a slow recovery, but the other died of a generalized infection on the eleventh day. Somewhat similar results were obtained from inoculation with *Staphylococcus pyogenes aureus* and *albus*. These investigators, as well as Sergent, were able to produce a fair degree of immunity in rabbits. to the pyogenic micrococci, by treating the animals with yeast for a number of days before the inoculation. This immunity, however, was soon lost after discontinuation of the treatment. The serum of animals thus treated acquired high agglutinative properties for streptococci and staphylococci, but was not bactericidal. Extract of yeast cells has not given as satisfactory results as the whole yeast. It would seem from these reports that the administration of yeast has a favorable influence over many mild forms of pyogenic infection, and as it is a very simple and harmless remedy its use can be safely recommended.

1. Centralbl. f. Gynäkologie, 1904, xxviii, p. 249. Abstracted in THE JOURNAL, April 2, 1904, p. 931.

2. Ibid., 1904, xxviii, p. 1356. Abstracted in THE JOURNAL, Dec. 31, 1904, p. 2054.

WATER DRINKING INDICATIONS AND CONTRA-INDICATIONS.

It is well known that artificial, dry heat causes evaporation of moisture from the bindings of books and from joints of furniture, etc. That it should also cause increased surface evaporation in human beings is not surprising. Hence the necessity for drinking water at intervals during the day, especially for those in whom a certain amount of constipation with a tendency to hard stools shows that there is a diminished amount of water in the system, and that nature is only with difficulty able to carry on certain of her functions requiring water.

As the result of the successful employment of water to relieve many ordinary symptoms, it has become the custom to recommend water very generally and sometimes without sufficient deliberation. For the comparatively well, who need only to supply an equivalent for the moisture that is being lost—particularly through the skin and the lungs—the simple advice to drink plentifully of water is almost sure to be good. In many diseases, moreover, the ingestion of water is an efficient aid to other treatment. For example, in bronchitis, espe-

3. Centralbl. f. Bakt., 1903, vol. xxxiv, p. 22.

cially if the accompanying cough be hard and ineffective, the taking of large amounts of fluid is usually productive of good results. In fact, it is on this therapeutic principle that the reputation acquired by many of the old home remedies depends. A warm drink taken just before going to bed will often keep a patient from being annoyed by a cough during the night.

On the other hand, to recommend abundant drinking of water may be, for patients suffering with some diseases, decidedly poor advice. For example, in the case of cardiac affections with failing compensation, the necessity for an already weakened heart to overcome the resistance of a large amount of fluid in the circulation is certain to invite further deterioration of the heart muscle. One of the well-known and very serious forms of heart disease is the degenerative type which occurs in connection with the drinking of large quantities of such liquors as beer; the result is degeneration of the heart muscle and an extensive dilatation of the heart on account of overwork. It is easy to understand that a large amount of even so innocuous a fluid as water would tend to produce similar results. Whenever, then, there is loss of compensation in a heart that is laboring under some valvular defect, or under some degenerative process, the advice to drink plenty of water should be given with caution.

There is one class of cases, however, in which the unfortunately common custom of recommending the liberal drinking of water is likely to prove even more harmful than in heart disease. The first recommendation that too many physicians make to a patient suffering from almost any form of nephritis, unless there is marked ascites present, is to drink water abundantly. The idea is that in this way the system will be thoroughly "flushed out" and that the toxins in the circulation which may injure the kidneys will be diluted and made less harmful. The exclusive milk diet so often suggested for nephritis is really one expression of this old tradition. It must be remembered, however, that the value of this old-time advice lacks confirmation. Professor von Noorden, in his monograph on nephritis, has particularly insisted on the fact that this advice is often fruitful of more harm than good. In the American edition of his work on nephritis he says that water is always very badly excreted by the kidneys when they are acutely diseased, and frequently also in subacute and in subchronic forms of nephritis, though individual cases differ greatly in this respect. He insists that the only possible way to determine whether water, which is in many cases one of the best diuretics we have, is indicated or not, is to determine whether the output of water bears a definite relation to the amount ingested. He adds: "A condition of hydremia must be regarded as a constant source of irritation of the kidneys, and the problem that confronts us is to prevent excessive stimulation of these organs as much as possible."

It is evident, therefore, that water drinking, usually a physiologic, a hygienic and a remedial procedure of great value, in special cases may be attended with harm, and that the physician's advice to individuals should be given with reference to the particular case under consideration.

TUMORS OF THE CAROTID GLAND.

For complete obscurity of purpose there is no organ in the body that surpasses, in our present state of knowledge, the carotid gland. The sum total of information concerning its function may be considered as zero. Concerning its structure we are much better informed, thanks particularly to Marchand. Situated in or a trifle behind the bifurcation of the carotid, its greatest dimensions usually are between two and four millimeters, or about the size and shape of a kernel of rice, but it may be much smaller, and, according to some writers, it may be impossible to find it on one or both sides. It is most intimately connected with the sheath of the carotid artery, from which it appears to be developed, appearing rather early and reaching its maximum size in the sixth month of fetal life. Structurally, it is quite vascular, consisting largely of glomerular tufts of small vessels, surrounded by considerable numbers of cells of a distinctly endothelial type derived from the perivascular endothelial structures of the carotid. Such a structure hardly seems to indicate any considerable secretory activity, for the amount of cellular protoplasm is not such as we usually associate with glandular action, although the large number of vessels might lead to a different conclusion. Probably on account of their extremely small size, and a location that renders them practically unavailable for experimental studies, little seems to have been learned about them by the physiologists.

Pathologically, however, they are of interest as the possible starting point for tumor growth, and these tumors present particularly interesting problems to the surgeon. Although the literature contains only about a score of reported cases, yet there is every reason to believe that they are much more frequent than has been generally appreciated. During the past two years, since the special features of these growths have become a little more known, more cases have been reported than can be found in the entire literature before this period. In 1888, Jonathan Hutchinson described them well under the name of "Potato Tumors of the Neck," because of their shape, and brought out their chief characteristics: the location under the sterno-mastoid, the solitary nature, the potato- or kidney-like shape with frequent nodosities, the entirely local nature of the growth, occurrence particularly in men past middle life, and fatal termination usually in from one year to eighteen months. He mentions having seen at least eight cases up to that time. It is only within a very

recent time that we have had any general understanding of the characteristics of endothelial tumors, to which these tumors of the carotid gland belong, and this fact accounts for many of the failures to recognize the nature of the growths when they have been removed by surgeons; they can easily be mistaken for hyperplastic or lymphomatous glands in some cases, for sarcomatous glands in others, and even for carcinoma arising in branchial remains. Whenever a surgeon meets a solitary growth arising in close relation with the bifurcation of the carotid, in which it often lies, "like a meal sack," he should consider the possibility of a tumor of the carotid gland. In common with endothelial growths of different origin, these tumors seem to vary greatly in their degree of malignancy. Hutchinson speaks of a fatal occurrence as usual in from twelve to eighteen months, but, on the other hand, many of the reported cases seem to pursue a comparatively benign course; recently, indeed, certain French writers, after a review of the literature, questioned the advisability of operation in view of this apparent benignancy. Because of the intimate relation of the growth with the carotids, it is often impossible to remove it without ligation and resection of the common carotid, a procedure of no inconsiderable danger at the advanced age at which it usually occurs. Even where resection without ligation of the carotid is possible, its advisability is questionable in view of the possibility of recurrence in the carotid sheath within which the tumor originates. Gilford and Davis[1] report three typical and instructive cases which they have observed. In one, the common carotid was ligated and resected with the tumor; hemiplegia resulted and death from pneumonia followed in seven days. In the second case, the tumor was dissected away from the arteries, but in six weeks recurrence in the scar was observed, the growth developing rapidly, ulcerating, and causing death in five months. The third was inoperable, and was unique in being bilateral and in producing metastases in the liver; the patient, a man of 74, died from exhaustion eighteen months after the first appearance of the growth. Here we have illustrated three possible courses for the surgeon, but all failed to save the patient.

It is evidently, in view of these facts, extremely difficult to decide on the proper course of procedure in these cases. Operation is evidently hazardous; non-interference in some cases may be preferable, but in which cases will the growth be malignant and in which benign? Hence it is of the utmost importance that these peculiar tumors should be recognized as entirely different from all other growths arising in the neck, and that every case should be carefully studied and reported until the proper course of management can be determined; a thing now impossible because of our scanty information.

1. The Practitioner, 1904, p. 729.

TRUTH AND POETRY CONCERNING URIC ACID.

VI.

Slowly but surely, as we have seen, the truth concerning the formation of uric acid in the body was being found out. An origin from the metabolism of the nuclein of the body cells had been established; the possibility of the formation of uric acid directly from the nucleins or xanthin bases of the foods had been definitely demonstrated; and, as was hinted in the concluding paragraph of our last article, the possibility of a third mode of formation, namely, through synthesis of simpler chemical compounds, began to be considered.

Efforts to solve the problem as to whether or not synthetic formation of uric acid occurs in the body were made in various ways. Some tried to increase uric-acid excretion by feeding substances from which uric acid can be manufactured synthetically outside the body; others by feeding substances which are known to be derived from the decomposition of uric acid within the organism. The earlier experiments of this sort were negative. Horbaczewski, in 1882, tried feeding experiments with glycocoll, but got no marked increase in uric-acid excretion; a similar experiment by Weiss, in 1899, yielded negative results. Minkowski, in 1898, fed lactic acid and urea to dogs in the hope that these bodies might be synthesized to uric acid, but without obvious success. He was led to try the experiment by the fact that in birds from which the liver has been extirpated, the uric acid of the urine is replaced by lactate of ammonia, and, beside, Horbaczewski had synthesized uric acid *in vitro* from trichlorlactic acid and urea. Nor were experiments in which men were fed with these substances more successful (Hermann, 1888; Weiss, 1898).

Despite the discouraging influence of these early attempts at intracorporeal synthesis of uric acid, investigators continued to hope that the proof of the synthetic formation might yet be shown. This hope was fostered by a group of facts which made it seem improbable that the total formation of uric acid in the body can be accounted for without synthesis. Thus it had been shown that the feeding of glycerin increases the amount of uric acid excreted, and some feeding experiments made with fats and carbohydrates pointed to the probable synthetic formation of uric acid, under certain circumstances. The studies of Hopkins and Hope, in 1898, indicated that the excretion of uric acid after meat-eating occurs earlier and ceases sooner than that of other nitrogen compounds. The increase occurs too quickly to be accounted for by the absorption of nuclein, and, further, is not due to sudden excretion dependent on removal of preformed uric acid rendered more soluble. They thought, therefore, that some substance in meat, which can increase the excretion of uric acid, is absorbed by the stomach. Again, in 1899, Wiener showed the capacity of isolated organs to synthesize uric acid. Thus the isolated liver of animals

is capable of manufacturing uric acid from an alcoholic extract of various organs, even when this extract is free from nuclein and xanthin bases:

It was to comparative physiology, however, that investigators had to turn for help, in connection with the synthesis of uric acid in the animal body. It had long been known that certain animals, like birds and reptiles, excrete most of their nitrogen not as urea, as in mammals, but as uric acid. In these animals the amount of uric acid excreted varies with the amount of food ingested. It sinks in inanition; it is increased in all conditions which augment proteid metabolism. Substances which, when fed to mammals, are oxidized to urea are excreted in birds as uric acid. All these facts indicated that in birds and reptiles synthesis plays an important rôle in uric-acid formation.

A very important publication was made on this subject in 1886 by Minkowski.[1] This investigator, on extirpating the livers of birds, found that the nitrogen of the urine was present as ammonia, not as uric acid. And since ammonium lactate was present in the urine, he thought it probable that ammonia and lactic acid are important forestages in uric-acid synthesis, and that this synthesis is effected in the liver in birds. The idea soon gained ground that in the synthesis of uric acid two molecules of urea unite with some atom complex containing three carbon atoms, but no nitrogen. Minkowski thought that this non-nitrogenous atom complex is furnished by lactic acid, and his view received some support through the facts that the feeding of lactic acid to birds increases uric-acid excretion (Wiener, 1902), and that when lactic acid is passed through the isolated bird's liver uric acid is formed from it (Kowalewski and Salaskin, 1901).

In view of the high degree of probability that lactic acid takes part in the synthesis of uric acid in birds, it became important that the process should be more closely examined with special reference to its exact nature. Wiener,[2] in 1902, demonstrated that the administration of glycerin of various oxyacids, and especially of dibasic acids (of the aliphatic series) containing three carbon atoms, along with urea, increases markedly the formation of uric acid. Laboratory experiments had shown that urea can unite with dibasic acids containing three carbon atoms to form compounds called ureids, and that certain of these ureids can combine with another molecule of urea to form uric acid. While the feeding of any dibasic acid containing three carbon atoms to birds increases the uric-acid formation, Wiener found that when he used isolated organs only one dibasic acid, namely, tartronic acid (or its ureid) was effectual. He concluded, therefore, that other dibasic acids or their ureids are transformed into the ureid of tartronic acid in the process of uric-acid synthesis. Thus lactic acid (CH_3-CHOH-COOH), he thinks, is first transformed to tartronic acid (COOH-CHOH-COOH), and later unites with urea to form a ureid (dialuric acid), after which the addition of another urea molecule gives rise to uric acid. When the liver of the bird is removed, not only is the synthesis of uric acid itself prevented, but, in addition, the oxidation of lactic acid to tartronic acid is interfered with and ammonium lactate appears in the urine.

The principal mode of formation of uric acid in birds, then, is by the method of synthesis. Birds, however, do form some uric acid in the way in which it is chiefly formed in mammals, namely, through nuclein metabolism and through the transformation of the nucleins and xanthin bases of the food. We feel confident of this, because even after the removal of the liver in birds a little uric acid is excreted, and the feeding of hypoxanthin to birds deprived of their livers increases the amount of uric acid excreted (von Mach, 1888).

The question of a synthetic formation of uric acid in mammals and man now grew more interesting. If there are two modes of formation of the substance in birds, it would seem very probable that there are also two modes in mammals. On feeding lactic acid or dialuric acid (the ureid of tartronic acid) to human beings, Wiener, in 1902, found a slight but distinct increase in the uric-acid output. Now, since lactic acid is known to be one of the intermediary products of metabolism, he concluded that uric acid, under normal conditions, is synthesized, to a certain extent at least, even in man.

Another possible mode of formation of uric acid by the chemical union of simpler bodies is conceivable. It had been known since Strecker's work (1868) that uric acid can be broken up into glycocoll, carbon dioxid and ammonia. Maly suggested, as early as 1872, the possibility of a synthetic production of uric acid in the body from glycocoll, and ten years later Horbaczewski showed that, at any rate *in vitro,* glycocoll and urea can be synthesized to uric acid.

A beautiful experiment in physiologic chemistry, the synthesis by the kidney of benzoic acid and glycocoll with formation of hippuric acid, has for some time been known; it stimulated the imagination of investigators, and the relative excretion of hippuric acid and uric acid began to be watched. Weiss,[3] in 1898, asserted that after eating fruit the uric acid of the urine is decreased and the hippuric acid increased. He sought an explanation in the presence of China acid (tetraoxyhexahydrobenzoic acid) in the fruit, and assumed that the China acid in the body becoming changed into benzoic acid, unites with the available glycocoll to form hippuric acid, and so prevents the synthesis of uric acid from glycocoll. If this idea of Weiss were correct, then, as Wiener points out, all acids which can unite with glycocoll in the body

1. Minkowski, O.: Ueber den Einfluss der Leberextirpation auf den Stoffwechsel, Arch. f. exper. Path. u. Pharmakol., Leipz., vol. xxi, 1886, pp. 41-87.

2. Wiener, H.: Ueber synthetische Bildung der Harnsäure im Thierkörper, Beitr. z. chem. Physiol. u. Path., vol. ii, 1902, p. 42.

3. Weiss, J.: Beiträge zur Erforschung der Bedingungen der Harnsäurebildung, Ztschr. f. physiol. chem., vol. xxv, 1898, p. 393.

should have the same effect, and benzoic acid itself should act even more definitely than China acid. On administration of benzoic acid, however, though the hippuric acid is increased, there is no decrease in uric-acid excretion (Weiss, Lewandowsky); moreover, salicylic acid, which pairs easily with glycocoll and, according to Weiss' theory, should diminish uric-acid excretion, is held by a whole series of observers to be one of the few drugs which increases it. It has also been shown that hippuric-acid formation goes on entirely independently of uric-acid formation (Weintraud, 1900), so that the doctrine of a competition for the available glycocoll can scarcely longer be held.

The question of the synthesis of uric acid from glycocoll in the body, for the present, must be left open. That uric acid is formed, however, to a certain extent synthetically in man and mammals, we think, must be regarded as proved, even though the details of the combining processes are not yet fully understood. Minkowski's and Wiener's ideas have much in their favor, and we should not be surprised if the proof were ultimately brought that the synthesis of uric acid in the liver results from the union of tartronic acid, successively, with two molecules of urea. We are irresistibly led to the conclusion, therefore, that uric acid in the vertebrate animal body is formed both by an analytic and a synthetic process, the former predominating in man and mammals, the latter in birds and reptiles.

THE SMALL DEATH RATE FROM DISEASE IN THE JAPANESE ARMY.

If the facts reported in the newspapers are correct, the present war in Manchuria, especially as regards the Japanese losses, stands alone among the conflicts of modern times. It is said, on the authority of the chief surgeon of General Oku's army, that, out of presumably 100,000 combatants, only 40 died of disease during the seven months' active campaigning ending December 1. Out of 24,642 cases of disease treated, 18,578 recovered in field hospitals or while on duty; 5,609 were sent home for treatment, leaving only a little over 300 still on the army sick list at date of report. Allowing for considerable mortality among the cases sent to base hospitals in Japan these figures are almost if not absolutely record breaking. The fact is still more remarkable when we notice the record of typhoid fever and dysentery, ordinarily two of the most serious disorders of armies in the field. The Japanese figures are given as only 193 cases of the former and 342 of the latter. The medical department of the Japanese army must certainly have the secret of army sanitation. How much is due to racial peculiarities of the Japanese, whom we know to be a specially hardy and reasonably temperate people, is also an interesting question, but one that can not be satisfactorily answered. Of course, due allowance must be made for the fact that the figures on which we comment are by no means official, but it is quite evident that Japan has not had to contend with any very serious illness in the army in the field.

EFFECTIVE LOCAL ORGANIZATION.

Cleveland offered some of the earliest examples of progressive methods in medical organization, and proof of development in this line has been offered in a little brochure, just issued, entitled "The Academy of Medicine of Cleveland—Reports of Officers and Committees—1904." This pamphlet is an inspiration to hearty co-operative work, and should be read especially by those connected with similar societies. The reports can not adequately be summarized, but a few points may be noted to show the range of the work done. A special committee interviewed the newspaper editors regarding the protection of the members of the society from objectionable publicity. The regulation of ambulance service was considered, unethical medical institutions were investigated by a committee, and a city ordinance was secured that reduced the casualties of the Fourth of July celebration. The project for the academy and library to own a permanent home that would conveniently house all the medical activities also was considered. Remarkably good results were attained by a systematic canvass for new members, and the financial report is excellent. The report of the legislative committee is peculiarly interesting and instructive. The work of the committee on public health continues to be a model of efficiency. It holds regular weekly meetings, to which the president of the board of health and the health officer have a standing invitation. Thus the society has kept in close touch with the civic health, and it has exerted great influence in this direction on the city officials and citizens generally. The work of the academy, as a whole, has been crowned with success, and this success should stimulate like efforts in other towns and cities.

ERRORS IN OBSERVATION.

The physician is thoroughly conversant with the fact that observation is apt to be erroneous, and that the patient's story must often be liberally interpreted in accordance with other facts observed. Some interesting experiments are reported in the Berlin *Blätter für Volksgesundheitspflege*. Dr. L. W. Stern of Breslau examined twenty-four pupils concerning the details of an assembly room in which the class had met eight days before. The questions concerned the number of windows and doors, whether or not the windows were barred, etc. The results showed that every fifth statement was positively false; but that statements under oath were slightly more accurate. For example, the percentage of error was from 18 to 27 per cent. in ordinary statements, and from 8 to 10 per cent. under oath. In another experiment, a man entered the room, spoke to the instructor, handed him a manuscript, asked permission to consult a case of books in the room; took from this case a book which he read for five minutes, left the room with the book in his possession, etc. Eight days later, the spectators were asked to describe the whole proceeding. The positive statements were one-fourth false; statements as to what was said, one-third false. Dr. Stern says that the reports taken together formed "such a chaos of contradictory statements that if a judge had merely these statements to form an opinion by he could not possibly reach any

conclusion." These experiments are interesting. We have before referred to a similar experiment in which a quarrel took place in a clinical amphitheater, and the students were examined concerning the details some days afterward. These results lend emphasis to the necessity for careful consideration of all facts in diagnosis, and the danger of placing too great dependence on any one statement by the patient which may be the crucial point of any decision.

THE DEPENDENT EPILEPTIC.

While it is gratifying to note the increased interest shown in late years in the public care of epileptics, the care of these patients still lacks much of being what it should be. To Ohio belongs the credit of taking the lead in this matter, when she established, in 1890, the Ohio Hospital for Epileptics at Gallipolis, where 1,000 patients are now being cared for. According to recent reports, the capacity of the Ohio Hospital should be increased, for on Feb. 1, 1905, there were 250 patients awaiting admission, while the total epileptic population of the state, most of whom will probably become public charges sooner or later, is estimated at 2,750. New York State followed next in order, by founding, in 1894, the Craig Colony at Sonyea in Livingston County, which is still the only institution in the United States strictly along colony lines. At the Sonyea institution there are 1,006 patients, and nearly as many more are on the waiting list. The estimated epileptic population in New York State is 14,000. Sonyea is about to make provision for 250 additional patients, and it expects ultimately to care for 1,800 or 2,000 on its extensive area of 1,895 acres. Almost coincidently with New York, Massachusetts took up the question, and the Hospital for Epileptics at Palmer reflects the practical interest shown in that state. The number of patients at Palmer has reached 500, and there are 200 awaiting admission. The estimated epileptic population of Massachusetts is 10,000. The New Jersey Village for Epileptics at Skillman, near Princeton, was the fourth state institution to be founded. It now has 150 patients with 450 on the waiting list. The estimated number of epileptics in New Jersey is computed at not less than 2,500. Texas and Kansas are the most recent recruits among the states in this work. On a tract of 640 acres at Abilene, Texas, there has recently been established an epileptic colony that now has 220 patients, with a waiting list of 300, while it is estimated that there are 1,000 other dependent epileptics in the "Lone Star State." The State Hospital for Epileptics at Parsons, Kans., was opened a short time ago. It already has 200 patients, and, like the other institutions mentioned, it has a large waiting list. Indiana is now in line, for the higher branch of its legislature has appropriated $150,000 with which to begin the building of a colony for epileptics in that state. The Indiana bill provides a tract of not less than 1,000 acres of land at the outset. Most public institutions of this kind start with too small an acreage, and it is gratifying to learn that Indiana intends to avoid this particular mistake.

THE EARLY PUBLICATION OF THE RESULTS OF ORIGINAL RESEARCH.

Of all the various kinds of articles published in medical journals, the most important, all things considered, is the article embodying results of real investigative work, whatever the field occupied may be, in which a real effort has been made to enlarge the bounds of knowledge concerning the problems studied. This is the kind of article that the great American medical public as yet appreciates the least, and we fear that sometimes even medical editors are a little slow in grasping its value. In this country, in particular, medicine needs work of this kind, because we have been so much occupied with organization and with the necessary teaching of old knowledge that there has not been energy and opportunity enough to furnish what would seem to be a creditable share of new knowledge. Consequently, we have become good compilers and facile writers, which at times may be detrimental to critical penetration. It may be taken for granted that no well-educated physician will ever doubt the ultimate practical value of "the knowledge that ripens on the tree of medical science." It takes so long before the new fact, the new point of view, become part and parcel of general medical knowledge that no time should be lost in starting the new fact, or the new idea, on its career of increasing the usefulness of the medical profession. In many quarters doubt, uncertainty and opposition may be aroused by the publication of new work, and this may result in quickening of the investigative activities in many laboratories and clinics. Almost without exception, good new work is sure to prove of direct benefit to other workers in the same and in related fields. A large share of excellent, often epoch-making, investigative work in medicine has been done, and no doubt will continue to be done by comparatively young investigators. To many of them, the satisfaction incident to publicity may be the sole, immediate reward for many hours of patient toil in some obscure corner. Consequently, there is no good reason for unnecessary delay in the publication of the results of investigative work carried to a proper and natural finish. Everything speaks in favor of prompt publication, and in the case of general medical journals, articles of this kind, especially when it concerns problems in preventive and practical medicine, should have the right of way over those that do not present original work at first hand.

Medical News.

DELAWARE.

Voodoo Doctor Sentenced.—Daniel Hector, a colored voodoo doctor, pleaded guilty of witchcraft and fortune telling. He was sentenced, February 10, to be imprisoned for nine months and to stand in the pillory for one hour.

Personal.—Dr. Charles P. White, Wilmington, has been appointed assistant medical examiner for the Pennsylvania system at Pittsburg.——Dr. Samuel G. Elberts was thrown from his carriage, February 7, and broke his arm.——Dr. Joseph M. Martin, Lewes, was operated on for appendicitis, January 28.——Dr. John C. Fahey, former mayor of Wilmington, was operated on for abscess of the throat, February 3.

ILLINOIS.

Measles is reported to be epidemic at Curran.

Epidemic Disease at Lacon.—For the second time within three months, Lacon is suffering from an epidemic of scarlet fever, and now diphtheria also has appeared. The public schools have been ordered closed.

Board Increases Scope.—The scope of the work of the laboratory of the State Board of Health is to be so increased that it will become of greater benefit to the physicians of the state. With this end in view, container stations will be established in every county of the state where containers for bacteriologic specimens and blank forms for transmission may be secured in the shortest possible time. It is probable that these containers will be placed in the hands of the secretaries of county medical societies for distribution.

Chicago.

President Harper Ill.—President William R. Harper of the University of Chicago, who was operated on for appendicitis in March last, and who has been ill since September, is suffering from a tumor of the cecum. Dr. Harper's condition is causing his medical advisers great concern, and it is possible that operative interference may be necessary.

Smallpox is Marching On.—During the week 27 cases of smallpox were sent to the Isolation Hospital. Four had old scars said to be from vaccinations made in childhood, but had never been revaccinated; 23 never had been vaccinated at all; 7 were unvaccinated children under the school age of 6 years. Twelve of the patients came from the downtown lodging-houses.

Deaths of the Week.—During the week ended February 11 there were 554 deaths reported, equivalent to an annual mortality of 14.50 per 1,000. The rate for the previous week was 13.88, and for the corresponding week of 1904, 17.88. Pneumonia, as usual, leads, with 118 deaths; then follow consumption, with 68; bronchitis with 40; heart disease with 37; Bright's disease with 32, and violence with 30. Smallpox caused 2 deaths; scarlet fever, 3; measles, 8; diphtheria 11 and influenza 12.

Comparative Infectious Disease Mortality.—Since the first of the year there have been 76 deaths from diphtheria, 42 from whooping cough and 30 from measles, as compared with 63 from diphtheria and 1 each from measles and whooping cough during the corresponding period last year. On the other hand, there have been only 12 deaths from scarlet fever, as against 27 last year, and both bronchitis and pneumonia show marked reductions—the respective figures being 164 and 184 for bronchitis and 748 and 827 for pneumonia.

MARYLAND.

Personal.—Dr. Bertha D. Berger, physician in charge of the Good Samaritan Hospital, Baltimore, has recovered from an operation for appendicitis.

Alumni Incorporate.—The General Alumni Association of the University of Maryland was incorporated on February 4 for the purpose of creating closer relations between the alumni of the various departments of the university and the advancement of its interests.

State Board Election.—The following election of medical officers of the State Board of Health is announced: President, Dr. William H. Welch, Baltimore; executive committee, Drs. James Bosley, Baltimore, Dr. Edwin J. Dirickson, Berlin, Douglas H. Thomas, Jr.; medical assistant, Dr. Marshall L. Price; bacteriologist, Dr. William R. Stokes, and assistant bacteriologist, Dr. C. W. G. Rohrer, all of Baltimore.

Hospital Opens.—A formal opening of the Baltimore Eye, Ear and Throat Charity Hospital, Baltimore, was held February 9. This marks the completion of extensive improvements and additions to both buildings, including erection of a fire escape, installation of electric elevator, changes in main building affording accommodations for more patients, and the reconstruction of a part of the original dwelling in the rear of the new portion of the hospital in which commodious and comfortable wards have been provided for colored patients.

Medical Library Report.—The report of the medical library of the University of Maryland, prepared for a government publication, shows the present size to be 5,000 volunteers, with 50 current journals, 400 duplicates, and 3,000 pamphlets. The additions since July 1, 1903, have been 1,800 volumes. There are two librarians and the collection is open to readers from 9 a. m. to 5 p. m. daily. The library is a circulating one, and all the privileges of it can be secured by any physician by the payment of $2 a year. The collection has had a continuous existence since 1813, and is, therefore, one of the oldest medical libraries in America. It is also one of the best and best conducted, having a very complete card catalogue. Recent additions have been the library of the late Dr. A. H. Powell, and a large part of that of the late Dr. Julian J. Chisolm. At present it occupies a suite of rooms in the main university building, but it will be moved in the spring to larger and better quarters. The collection is especially rich in rare works of the sixteenth and seventeenth centuries, the original nucleus purchased on the death of Dr. John Crawford.

MASSACHUSETTS.

Hospital Improvements at Waltham.—Several improvements are to be made in the Waltham Hospital. About $75,000 will be expended in remodeling the interior of the administration building and the addition of an engineer's room.

Died Outside Hospital Gate.—Newspapers have been criticizing the management of the Massachusetts General Hospital because of the refusal of the office attendant to do anything for a man who had fallen unconscious just outside their gate. When the police were summoned and he was carried in by them he was found to be dead.

Health Appropriations.—Mayor Collins of Boston recommends the following appropriations: Bath Department, $160,000; Health Department, $200,000; Hospital Department, $485,000; Children's Institution Department, $188,000; Insane Hospital Department, $169,000; Pauper Institutions Department, $205,100, and Water Department, $904,309. This is an increase of $5,000 to the Bath Department and of $4,000 to the Health Department, while the Hospital Department remains unchanged, and there is a net decrease in the Insane Hospital Department of $36,000, owing to the assumption of the state of the care of some of this class of patients.

NEW YORK.

Typhoid in Poughkeepsie.—Poughkeepsie has a typhoid fever epidemic. It takes its water from the Hudson River and filters it. The state hospital sewer enters the river just above the intake.

Site Without Water.—It is reported that the site for a state insane hospital in the wilds of Washington County purchased for $42,000 has no water supply and that $30,000 additional will be required for this purpose.

Adulterated Jelly in Buffalo.—Dr. G. Hudson Grant of the State Agricultural Department has found adulterated food in Buffalo. It was sold in currant jelly for three cents per pound. On examination it was found to be composed of cornstarch and glucose and colored with anilin dye. The manufacturer was fined.

Illegal Practitioners.—The board of censors of the Medical Society of the County of Erie appeared before the state board of regents regarding the illegal practice in Erie County by two practitioners who have medical degrees but have not passed the state board examinations. One of the accused cheated in the state examinations, so had his papers rejected.

Stony Wold Sanatorium Needs Money.—At a meeting of the directors, the chairmen of the finance committee announced that $96,000 must be raised for improvements and for current expenses if they were to carry on the work of combating tuberculosis successfully. They were in pressing need of a new dormitory which would cost $50,000, and $5,000 would be required to assist in its maintenance.

Osteopaths Demand Recognition.—With a determination to secure recognition from the state at the present session of the legislature, the osteopaths of New York state have had prepared an act regulating the practice of osteopathy and fixing the penalties for violation. The bill will be vigorously fought by the legislative committees of all the state medical societies, as has been done successfully for the past seven years.

Still More Bills Before the Legislature.—The problem of securing proper legislation increasing the source and supply of water for New York City, on the one hand, and the scramble of rural legislators to build a Chinese wall around their respective counties, on the other, have resulted in the most remarkable aggregation of water measures that have ever come

before this body, and have dwarfed every other issue now before the legislature. The whole subject of water supply, as it affects New York City, will be thrashed out before the several committees or joint hearings next week.——A bill has been introduced to regulate the practice of osteopathy along the lines prescribed for regular medicine. It provides for the appointment by the regents of a board of five examiners from a list to be submitted each year by the New York Osteopathic Society. It specifies in what subjects candidates shall be examined, and provides that such candidates must be graduates of a twenty-seven months' course at a regular school of osteopathy. The maximum penalty for practicing osteopathy without a license is fixed at $250 fine or six months' imprisonment for the first offense, and twice that amount for subsequent offenses. A similar bill was defeated two years ago in committee.——The Senate Cities Committee has reported favorably on the Elsberg bill abolishing the coroners in New York City. The bill will probably pass the senate next week. ——A bill has been introduced in the legislature which abolishes the boards of visitation and creates local boards of seven members each, to be appointed by the governor and removed by him, to serve without compensation. Control of expenditures and the general supervision are still to rest in the State Commission in Lunacy.

Buffalo.

Measles in Asylum.—There are 62 cases of measles at the Buffalo Orphan Asylum.

Appointments.—Mayor Knight has appointed Drs. Lawrence G. Hanley and George H. McMichael civil service commissioners.

Cigar Makers Have Phthisis.—It is stated that 50 per cent. of all workers in cigar factories in Buffalo ultimately die of consumption.

Consumptive Domiciles.—A list of all houses showing more than one death from consumption has been submitted to the health department by the charity organization committee on tenements, there being 146 houses of the kind. Much work has been done in fumigating such places. The committee has a card index of all such cases.

Milk Inspection.—According to investigations made by Health Commissioner Greene there are about 800 milk dealers outside of the city who send their milk to Buffalo. The aggregate amount of milk thus obtained is 9,000,000 gallons per year. He desires the ordinance changed so that five additional milk inspectors and one assistant bacteriologist may be appointed for Buffalo.

New York City.

New Health Officer for Brooklyn.—Dr. Thomas L. Fogarty has been appointed assistant sanitary superintendent for the Borough of Brooklyn.

Cerebrospinal Meningitis.—This disease has gained such prevalence during the past month among the children that physicians fear a return of the epidemic of a year ago.

City Raises Salaries.—The salaries of many employes in city departments have been materially increased. The health department has received $15,494 for this purpose; Bellevue and the allied hospitals $6,868, and the department of charities $11,000.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended February 4, 343 cases of tuberculosis, with 180 deaths; 311 cases of diphtheria, with 49 deaths; 233 cases of scarlet fever, with 15 deaths; 185 cases of measles, with 8 deaths; 135 cases of chickenpox; 32 cases of typhoid fever, with 10 deaths; 1 case of smallpox, with 1 death; and 33 deaths from cerebrospinal meningitis. This is a total of 1,240 cases and 296 deaths.

War Against Spitters.—The health department has begun work against the spitters in earnest. Twenty-five sanitary squad policemen have been detailed to look after this class of offenders during the evenings in the streets of the city. A large number of arrests were made during the first evening, among them two in the lobby of the Metropolitan Opera House. Hitherto offenders have been warned and only arrested when they failed to obey, but henceforth no warning will be given.

Food Adulteration.—At a meeting of the New York Health Protective Association, February 8, Dr. R. E. Doolittle of the United States Department of Agriculture showed samples of various adulterated articles of food. He said that most of the jellies sold by grocers came from the refuse of dried apple factories and consisted of starch paste, sweetened with glucose, colored with coal-tar dyes, flavored with chemicals and preserved with salicylic acid. Coffee was adulterated with chicory, pea hulls and wheat middlings, many flavorings are about 90 per cent. wood alcohol, cream of tartar is plaster and phosphate of lime, etc. The members of the association thought that as we were protected against adulterated imported articles, it would be better to use imported products of this class, and thus bring our home manufacturers to see that it would be to their advantage to furnish a pure article. The influence of the Health Protective Association was sought for the purpose of urging the passage of the food bill now before congress.

OHIO.

Hospital Notes.—Elyria Hospital was formally opened January 23, with a public reception. The institution has accommodation for twenty patients.——Columbus Children's Hospital will receive more than a quarter of a million dollars by the will of the late William W. Franklin.

Library Association Meeting.—At the second annual meeting of the Cincinnati Medical Library Association, Dr. Henry W. Bettmann was elected president; Dr. Joseph Eichberg, vice-president; Dr. Alfred Friedlander, secretary; Dr. William H. Crane, treasurer, and Dr. Arch I. Carson, librarian.

State Board Will Aid in Diagnosis.—To aid physicians in making a diagnosis in suspected or doubtful cases of certain of the infectious diseases, and thereby to enable the health authorities better to control them, the State Board of Health offers to make examinations free of charge, on the request of any physician, of specimens from suspected cases of pulmonary tuberculosis, diphtheria or typhoid fever.

Academy Election.—At the annual meeting of the Academy of Medicine of Toledo and Lucas County, January 18, the following officers were elected: Dr. Thomas Hubbard, president; Dr. William G. Dice, vice-president; Dr. Louis A. Levison, secretary; Dr. John G. Keller, treasurer; Dr. James A. Duncan, financial secretary, and Drs. William J. Gillette, Oscar Hasencamp, Herbert E. Smead and William H. Fisher, censors, all of Toledo.

Personal.—Dr. Joel B. Taylor has been appointed a member of the Marion Board of Health, vice Dr. Elmer O. Richardson, resigned.——Dr. William C. Heintz, Columbus, is ill with typhoid fever at Grant Hospital in that city.——Dr. John C. Reeve, Dayton, was the guest of honor at a banquet, February 9.——Dr. Kent B. Waite, Cleveland, has been adjudged insane and committed to the State Hospital for the Insane.——Dr. Robert C. Chamberlain, Tiffin, has been elected physician to the Seneca County Infirmary.——Dr. Harry E. Welch, Youngstown, has been made local surgeon for the Erie Railway, between Girard and Hubbard.——Dr. George C. Altmeier, Cincinnati, has been appointed district physician of the twenty-second ward, vice Dr. Augustus J. Hofling, deceased.——Dr. Edward S. Johnston, Cincinnati, who was recently operated on for appendicitis, is making satisfactory progress toward recovery.

PENNSYLVANIA.

Personal.—Dr. J. C. Biddle, superintendent of the State Miners' Hospital at Ashland, was thrown from his sleigh on January 30, and severely injured.

Norristown's Vital Statistics.—The annual report of the bureau of vital statistics shows that there were 402 deaths last year, an increase of 68 over the preceding year, and 350 births, an increase of 50 over 1903.

Smallpox at Portage.—Smallpox threatens to become epidemic at Portage, Cambria County. Several new cases have been reported, and it is asserted that more than a score of patients are afflicted. The State Board of Health has ordered the town authorities to provide an isolation hospital, and unless this order is complied with, the town may be quarantined.

Chicken-pox at Gettysburg.—The cases of supposed smallpox reported in Gettysburg College have been pronounced by Dr. William M. Welch, of the Municipal Hospital, Philadelphia, to be typical cases of chicken-pox. Dr. Welch made the investigation for the board of health at the request of the college faculty. The cases were first reported in the lay press to be smallpox.

Philadelphia.

Personal.—Dr. Frank C. Parker was elected assistant surgeon at the Wills Eye Hospital, vice Dr. Archibald G. Thomson, resigned.

Lectures on Care of Teeth.—On Fridays in March the public school children and their parents are to be enlightened on the care of the teeth by a series of talks, to be given in the school buildings throughout the city by Dr. J. Ashley Faught.

Spring Will Soon Be Here.—As a result of the persistent complaints of the patrons of the city trolley cars as to their unheated and insanitary condition, the president of the traction company has promised that in a short time all cars of the city shall be properly heated.

Bequests.—By the will of Mary C. Dulles, a contingent bequest of $10,000 is made for the maintenance of the Margaret Welch Dulles Memorial ward in the Presbyterian Hospital. The will also bequeathes $2,000 for improvements to the Presbyterian Hospital; the Childrens' Seashore Home receives $1,000, and Day Nursery $1,000, and the Presbyterian Orphanage, $2,500.

Explosion at Samaritan Hospital.—An explosion of ether occurred in the operating room in the Samaritan Hospital, February 10, during a tracheotomy. Oxygen used in the operation blew the ether into the gas flame, resulting in its explosion. Dr. H. C. Cunningham, the resident physician and anesthetizer, and Dr. H. A. Duncan were rather severely burned. Two medical students were also slightly burned. The patient was uninjured.

Hospital Reports.—Report of the hospitals for January are as follows: The Polyclinic Hospital admitted 124 patients to the wards, and treated 1,280 new cases in the dispensary; a total of 6,103 patients were treated in the different dispensaries, and 593 accident cases were received.——The Medico-Chirurgical Hospital treated a total of 5,438 patients.——One hundred and eighty-three patients were admitted to the wards of St. Agnes Hospital, and the total number treated in the different dispensaries aggregated 2,366.

Health Report.—The total number of deaths from all causes for the week ended February 4 aggregated 538. This is an increase of 39 over those of last week and a decrease of 85 as compared with those of the corresponding period of last year. About one-third of the deaths resulted from lung affections. Of these, 100 deaths resulted from pneumonia and 56 from pulmonary tuberculosis. There were 22 deaths from cancer, 25 from apoplexy, 61 from heart disease, 47 from Bright's disease, 20 from enteritis, and 7 from typhoid fever. There were 188 cases of contagious disease reported, with 20 deaths, as compared with 207 cases and 23 deaths for the preceding 7 days. The total number of deaths reported for last week was 612. This is an increase of 74 over those of last week, and an increase of 44 over the corresponding period of last year. One hundred and seventeen deaths resulted from pneumonia alone, which is an increase of 35 over those of last week. The deaths from tuberculosis were also unusually high, numbering 67. Influenza caused 13 deaths. Several other deaths resulted from acute inflammation of the respiratory tract, which also should probably be classified with the deaths resulting from pneumonia; 15 of these were reported as congestion of the lung, and 19 from acute bronchitis. The deaths from disease of the respiratory tract aggregate more than one-fourth of the entire number of deaths from all causes. The principal causes of death were as follows: typhoid fever, 8; diphtheria, 11; influenza, 13; tuberculosis, 67; cancer, 13; apoplexy, 26; heart disease, 71; inflammation of respiratory tract, 152; Bright's disease, 50; senility, 24. The contagious disease cases reported number 199, with 23 deaths, as compared with 208 cases and 20 deaths for the preceding week. There were 19 cases of typhoid fever reported.

Jewish Hospital Staff.—The following physicians have been appointed for the ensuing year to the staff of the Jewish Hospital by the president, William B. Hackenburg: Consulting surgeons—Drs. William W. Keen, J. William White, John B. Roberts, Edward E. Montgomery, Orville Horwitz, John M. Baldy, and Charles P. Noble. Surgeons—Drs. Benjamin B. Wilson, Lewis W. Steinbach, William H. Teller, William L. Rodman, Max J. Stern, and Melvin M. Franklin. Orthopedic surgeon—Dr. DeForest Willard. Ophthalmologists—Drs. Isaac Leopold and Jay C. Knipe. Neurologists—Drs. Francis X. Dercum and Max H. Bochroch. Otologists—Drs. S. MacCuen Smith and Eli L. Klopp. Laryngologists—Drs. Arthur W. Watson and Louis Jurist. Obstetrician—Dr. William H. Randle. Pediatrists—Drs. Thompson S. Wescott, Ludwig Loeb and Joseph B. Potsdamer. Pathologist—Dr. Courtland Y. White. Dermatologist—Dr. Jay F. Schamberg. Radiologist—Dr. Sydney L. Feldstein. Consulting physicians—Drs. John H. Musser, James Tyson, James C. Wilson, Roland G. Curtin, Alfred Stengel, James M. Anders, and Lawrence F. Flick. Consulting pediatrist—Dr. J. P. Crozer Griffith. Physicians—Drs. Adolph Feldstein, Thomas Betts, Solomon Solis-Cohen, William A. Cross, Francis X. Dercum, David Riesman and Courtland Y. White. Assistant physicians—Drs. Moses H. Behrend, Bernard Kohn, William A. Roeap, Edwin I. Becker, Victor A. Loeb, Maurice J. Karpeles, Harry F. Webster, Myer Solis-Cohen, George P. Katzenstein, Louis H. Jacobs, Milton K. Myers, William Shields, George W. Cook, Samuel Leopold, Mortimer Herzberg and Robert F. Ridpath. Chief resident physician—Dr. Edwin A. Jarecki.

Bills Before the Legislature.—A bill suggested by Coroner Dugan, as a result of several recent sensational murder trials, will be introduced into the legislature asking the prohibition of the use of embalming fluids containing arsenic, mercury or carbolic acid, and asking that these agents shall not be used in the preservation of dead bodies and shall not be used in embalming fluids. Among other bills introduced is one making vaccination compulsory on all persons who have not been successfully vaccinated within 5 years, and providing for arrest and fine for violation of the law. Another health bill requires the examination and licensing of midwives. A bill relating to vital statistics has been presented, making failure of midwives or physicians to report births, clergymen or magistrates to report marriages, or physicians to report deaths a misdemeanor. The most important bill introduced is one giving absolute power to the boards of health of all cities, counties, townships and boroughs, in dealing with cases of contagious disease. There are included in the list of contagious disease, beside smallpox, diphtheria and scarlet fever, such maladies as chicken-pox, measles, mumps, whooping cough, influenza and pneumonia. In all cases the boards are to have power to make rules and regulations governing reports to be made by persons attending the sick, the quarantining and disinfecting of persons and premises, the posting of notices, and the placing of guards to enforce the same; the total destruction of infected bedding, clothing or other articles; the care and burial of persons who may have died of these diseases; fixing the limit of time for burial; methods to be used in advertising the funeral; the disinfection of all conveyances used in the burial; the attendance of persons at public and private schools, and the compulsory vaccination of all persons employed therein.

Tuberculosis Decreasing.—According to the statement made in the first annual report of the Henry Phipps Institute, tuberculosis is on the decrease in this city. This statement is based on the results of investigation of the official records from 1861 to 1903, inclusive. The report shows a rapid decrease from 1887 to 1897, inclusive, a slight decrease prior to 1887 and a slight increase after 1897. In 1870 the mortality from the disease was the highest, the death rate being 3.78 for 1,000. The report attributes this to the influence of the Civil War, which had just closed. From 1871 to 1874 there was a steady decline, but from 1874 to 1876 there was an increase of 0.37 per 1,000. This may have been accounted for, they claim, by the large number of persons visiting the city during the exposition and by the epidemic of smallpox in 1872. The apparent decrease from 1876 to 1880 is not a true one. It was estimated on the figures published by the board of health, which were disproved by the census of 1880. The mortality in 1880 was 3.27 per 1,000. From that time to 1902 there has been a continual decrease, but in 1903 there was an increase of 0.12 per 1,000. This slight increase may be due in part to a great increase in emigration from Russia and Poland, it having been double that of the ten previous years. The principal cause, however, they believe, is the accuracy in diagnosis through the bacteriologic department of the board of health. The report further shows that in 1903, 2,039 patients were received and treated in the Henry Phipps Institute; of these 1,130 were native born, 769 were foreign born, and 140 had no nativity record. Many of the foreign-born had been in this country so short a time that it was assumed they had the disease when they landed here. The number of negroes admitted was about 6½ per cent. of the whole number, but the proportion of negro admissions to white admissions was greater than is the proportion of the negro to the white population of the city. The longest stay of any patient in the hospital was 286 days, and although this was an advanced case the patient improved steadily. The results of treatment show that 537 cases were reported improved, 583 unimproved, 884 not recorded, and 153 died. The report also contains a paper on "The History of the Tuberculosis Work at Saranac Lake," by

Dr. Edward L. Trudeau; one on the "Home and Its Relation to the Tuberculosis Problem," by Dr. William Osler; "Pulmonary Tuberculosis," by Dr. G. Sims Woodhead of London, Eng.; "The Administrative Control of Tuberculosis," by Dr. Herman M. Biggs, and "Specific Therapy of Tuberculosis," and "Vaccination Against the Disease," by Dr. Edward Maragliano of Italy. The first report is very complete, and shows that the work of the year has been most thorough.

RHODE ISLAND.

Accidental Asphyxiation.—Dr. Elmer B. Eddy, Olneyville, Providence, was found unconscious in his office, January 30, from gas asphyxiation. After an hour's work Dr. Austin H. Longfellow pronounced Dr. Eddy out of danger.

Election at Newport.—The Newport Medical Society, at its annual meeting, elected the following officers: Dr. Christopher F. Barker, president; Dr. V. Mott Francis, vice-president; Dr. Mary E. Baldwin, secretary; Dr. Douglas P. A. Jacoby, treasurer; Dr. Harry J. Knapp, curator; Dr. William A. Sherman, bacteriologist; Drs. V. Mott Francis, William S. Sherman, and Samuel P. Cottrell, executive committee, and Drs. William S. Sherman, Douglas P. A. Jacoby, and Stephen C. Powell, censors.

TENNESSEE.

Hospital To Be Built.—A permit has been issued for the building of a hospital for the Tennessee Medical College, Knoxville, to cost $30,000.

Personal.—Dr. J. Sinclair Dye has been appointed to succeed himself as city physician of Chattanooga.——F. Emmett Downey, a member of the senior class of the medical department of Grant University, Chattanooga, died recently at the Erlanger Hospital in that city, after an illness of two weeks, aged 22.

Trouble at Knoxville General Hospital.—In consideration of the open antagonism of W. P. Chamberlain, chairman of the board of governors of the Knoxville General Hospital, Drs. Charles P. McNabb, Samuel M. Miller, Benjamin B. Cates, Ernest R. Zemp, Walter S. Nash, Samuel [illegible]ones, Benjamin F. Young, and A. G. Kern have resigned [illegible]he staff of the institution.

Hospital Staff Enlarged.—The staff [illegible]anger Hospital, Chattanooga, has been increased by ten, five of whom, Drs. William T. Hope, William A. Applegate, Frank T. Smith, Philander D. Sims and L. Y. Green are selected from the faculty of the medical department of the Grant University, and will serve from October, 1905, to April, 1906. The other five, selected from the Chattanooga and Hamilton County Medical Society, will go on duty April 1, 1905, and serve until October 1. They are Drs. Clarence A. Cobleigh, Abraham W. Boyd, Thomas E. Abernathy, Edward B. Wise and Young L. Abernathy.

Society News.—Humphreys County Medical Association, at its annual meeting, elected Dr. James J. Teas, Bakerville, president; Dr. W. R. Horner, Clydeton, vice-president, and Dr. Claude C. Sullivan, Waverly, secretary and treasurer.——At its annual meeting, the Rutherford County Medical Society elected Dr. Enoch H. Jones, Murfreesboro, president; Dr. Edgar C. Freas, Lascassas, vice-president; Dr. Rufus Pitts, Murfreesboro, secretary; Dr. Vernon K. Earthman, treasurer; Dr. Edgar C. Freas, Lascassas, delegate to the Tennessee State Medical Association; Dr. Harry C. Reese, Murfreesboro, alternate, and Dr. James B. Murfree, Sr., Murfreesboro, censor.

TEXAS.

La Grippe is said to be epidemic at Denton, where 1,200 cases are reported, and at Taylor, where, it is said, there are 700 cases.

Sanitarium Opened.—Providence Sanitarium, Waco, built and equipped by the Sisters of St. Vincent de Paul at Dallas, at a cost of $150,000, was formally opened January 11.

Smallpox.—At Eddy the disease is prevalent and a strict quarantine is maintained.——Miles has had about 50 cases, without a death.——The city health officer of Rockdale, on January 29, in a house-to-house visitation, vaccinated 200 negroes. The disease is confined to the negro population.——Mail delivery at Hartzo has been stopped by the postoffice department on account of the prevalence of the disease, which made its appearance at the postoffice building.

Quarantine Officers Named.—On the recommendation of Dr. George R. Tabor, state health officer, the governor has appointed the following state quarantine officers: Dr. Edgar F. McClendon of Bastrop County, at Galveston; Bartlett N. Sims of Kendall County, at El Paso; P. J. Shaver of Hunt County, at Sabine; John M. McKnight of Webb County, at Laredo; Isaac H. Brewton of Val Verde County, at Eagle Pass; J. H. Florence of Dallas County, at Brownsville; T. J. McFarland of Lavaca County, at Pass Cavallo; John F. Eaves of Brazos County, at Aransas Pass, and Benjamin H. Carleton of Brazoria County, at Velasco.

Personal.—Dr. John S. Turner, Ferrell, has been re-elected superintendent; Dr. James R. Nichols, Terrell, first assistant physician, and Dr. George F. Powell, Terrell, second assistant; Dr. W. M. Fullbright, Mount Vernon, has been elected third assistant, vice Dr. Scott Appleby, resigned, and Dr. C. M. Poff, Ellis County, fourth assistant, vice Dr. A. LaP. Thomas, resigned, all of the North Texas Hospital for the Insane, Terrell.——Dr. A. B. Gardner, Denison, was thrown out of his buggy, in a runaway, January 5, and fractured his clavicle.——Dr. Thomas J. Bennett, Austin, to avoid running over a boy, January 29, turned his automobile so suddenly that it overturned, wrecking the machine and severely bruising Dr. Bennett.

VERMONT.

Personal.—Dr. Summer E. Darling, Hardwick, has been elected a member of the state tuberculosis commission, vice Dr. Lorenzo W. Hubbard, Lyndon, resigned.

New State Board.—The State Board of Medical Registration created by act of the legislature last year, and consisting of Drs. W. Scott, Nay, Underhill and F. H. Godfrey, Chelsea, each for six years; Drs. Elroy B. Whitaker, Barre, and J. Sutcliffe Hill, Bellows Falls, each for four years, and Drs. Sam Sparhawk, Burlington, Henry Janes, Waterbury, and A. E. Parlin, Barton's Landing, each for two years, met January 10 and organized, electing Dr. Janes chairman, Dr. Nay secretary, and Dr. Whitaker treasurer.

Care of Eyes and Ears of School Children.—A bill has been passed by the legislature, to take effect July 1, providing for the better care of the health of pupils in public schools, which provides:

> The State Board of Health and the Superintendent of Education shall prepare suitable test cards, blanks, record books, etc., to be used in testing the sight and hearing of pupils in public schools and necessary instructions for their use; and the Superintendent of Education shall furnish the same, free of expense, to every school in the state. The superintendent, principal or teacher in every school, during September in each year, shall test the sight and hearing of all pupils under his charge and keep a record of such examinations according to the instructions furnished; and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or hearing or disease of eyes or ears, with a brief statement of such defect or disease; and shall make a written report of all such examinations to the Superintendent of Education as he may require.
>
> The State Auditor is directed to draw his order on the State Treasurer for such sums and at such times as the Superintendent of Education, with the approval of the State Board of Health, may require to carry out the provisions of this act. The total expense under this act shall not exceed $600 in any biennial term.

GENERAL.

Annual Conference of the Gulf States Quarantine Boards.—The annual conference of the Gulf States Quarantine Boards, for the regulation of quarantine matters, will be held in Mobile early in March.

The Samuel D. Gross Prize, of the Philadelphia Academy of Surgery for 1905, amounting to $1,200, has been awarded to Dr. James Homer Wright, Boston, for his essay, "The Biology of the Micro-organism of Actinomycosis."

Sanitarium for Lepers.—Senator Crane of Massachusetts introduced a bill in the senate, appropriating $250,000 for the establishment of an institution for the segregation of lepers, and prevent the spread of leprosy in the United States. The bill provides that the institution shall be located on some abandoned military reservation or other suitable site owned by the United States. The house committee on interstate commerce also considered two bills regarding the care of lepers. One provides for the establishment of a sanitarium in this country, to which may be sent all lepers in the United States, and another appropriates $150,000, to be used in Hawaii for the scientific study of the disease.

Panama Health Conditions.—In a cablegram to the War Department Gov. Davis of Panama gives the following summary of Isthmus conditions: In the families of the Americans employed on the Isthmus, only three cases of yellow fever have occurred, and one death. Of the employes hired on the Isthmus five have had yellow fever and one has died. Among the Americans not employed on the Isthmus, including those of the cruiser Boston, there have been nine cases of yellow fever

and five deaths. The total number of cases originating on the Isthmus is thirty-two, of which nine have proved fatal. Six cases are now convalescing. Since the American occupation, the dispatch says, two cases of smallpox have been reported, but none has originated there. There is no typhoid or plague. Of the 4,000 employes only 3 per cent. are ill of any disease. Governor Davis says that the sanitation of Panama is progressing as efficiently as in any city of the United States.

CANADA.

The "Canadian Nurse" is a new publication shortly to be issued from Toronto.

The Peterboro, Ontario, Sanitarium Association was formed, February 9, to erect a sanitarium.

Personal.—Dr. A. E. Douglas, Hunter River, Prince Edward Island, has been chosen speaker of the Prince Edward Island legislature.——Dr. J. M. Lefevre, Vancouver, B.C., has returned to Canada from England.

Closer Relations Wanted at McGill.—The faculty of medicine of McGill University, in the interests of medical education in Montreal, has asked for full union with the university. The board of governors welcomed the proposal, and will arrange for a special meeting to consider details.

Toronto's Health During January.—The following cases of contagious diseases were reported in Toronto during January, 1905, as compared with January, 1904: Diphtheria, 187, 1904, 146; scarlet fever, 48, 1904, 37; typhoid fever, 14, 1904, 2. The births, marriages and deaths during January were 412, 293 and 333 respectively. The deaths under five years were 109, over 70, 54.

The Lepers of Canada.—Dr. Smith, medical superintendent of the Leper Hospital at Tracadie, N. B., has made his annual report to the federal parliament. There are now fifteen residents in the institution, ten males and five females, the youngest patient being ten years and the oldest 62 years. The use of Chaulmoogra oil was introduced two years ago with some success. Dr. Smith, after careful investigation, is convinced that leprosy is communicable through contagion.

Searching a Maternity Hospital.—An unheard of proceeding took place recently in Montreal, when a deputy high constable and a special constable obtained admission to the Montreal Maternity Hospital, and in spite of assurances on the part of physicians and nurses that the individual they sought was not there, wantonly searched every bed in the institution, both private and public, but without locating the person sought. The legal adviser of the hospital has been instructed to take proceedings against these two men.

To Establish British Columbia Board of Health.—An important conference in Vancouver, February 3, will probably result in the establishment of a properly constituted board of health for the province, as suggested by Dr. Brydone-Jack of Vancouver, the members of which will be medical men. At present the arrangements provide a health officer who consults with the provincial cabinet. It is announced that a thorough revision of the health regulations of the province may take place at the present meeting of the legislature.

Canadian Physicians and the British Medical Act.—General Laurie, member of the British house of commons, and formerly a member of the Canadian house of commons, is the author of a bill, which seeks to amend the British Medical Act of 1858. This measure has been before the English house of commons both in 1903 and 1904, in the latter year being supported by two representatives of the general medical council, Sir Walter Foster and Sir John Tuke. This amendment to the medical act seeks to remove those disabilities under which colonially trained physicians and surgeons lie, in that they are not permitted to serve as such in either the British army or navy. The matter is before the local medical societies of Canada, and resolutions are being forwarded to Lieutenant-General Laurie, so that when he next brings the measure before the house of commons he will have evidence to prove that Canadians desire such disabilities removed.

Ontario Board of Health.—At the regular quarterly meeting of the Ontario Board of Health in Toronto recently, the chairman, Dr. E. E. Kitchen of St. George, presented his annual report. The past year has been a satisfactory one, so far as the health of the province was concerned. There was a great difference in the deaths from scarlet fever over those of 1903, when 529 died from that disease alone. In 1904, the deaths from scarlet fever numbered 129. The deaths from diphtheria remained about the same, viz., 438, while the deaths from typhoid fever ran from 298 in 1903 to 397 in 1904. The deaths from tuberculosis also show an increase from 2,072 in 1903 to 2,168 in 1904. Dr. Amyot, the bacteriologist of the board, in presenting his report, stated that during the past year a number of patent medicines had been subjected to examination, in which a large amount of alcohol had been found. The secretary reported the number of deaths for 1904 as 25,415, a rate of 12.8 per 1,000.

FOREIGN.

Medal for Ramon y Cajal.—The Prussian Academy of Sciences has presented the Helmholtz medal this year to Ramon y Cajal of Madrid.

New Hospital in City of Mexico.—President Diaz opened the new General Hospital in the City of Mexico February 5. The construction of the hospital was commenced several years ago, and has cost many thousand dollars. It consists of many pavilions, because many of the hospitals in the city will be merged in this new hospital.

Hospital Administration at Berlin.—The new Virchow hospital at Berlin is to have a similar administrative body as the three other city hospitals there. This body consists of the chief of the surgical department, the chief of the internal medicine department, and an administrative director. This triple head is found the best working organization for the management of these institutions.

Cancer Research in Baden.—A number of physicians and surgeons gathered, January 21, at Heidelberg to organize a cancer research committee. The minister of the interior for Baden was chairman of the meeting and Prof. V. Czerny of Heidelberg was appointed chairman of the committee. A collective inquiry is to be undertaken throughout Baden, and a number of special questions are to be investigated.

Patent Medicine Laws in Venezuela.—It is reported that the Venezuelan government has adopted regulations whereby all medicines not duly authorized and approved by the board of physicians shall be excluded from the republic. Large quantities of patent medicines have been annually exported from the United States and from other countries to Venezuela, and need of some action to protect the people has been imperative.

New Hospital in Pekin.—A hospital has just been completed by the Presbyterian Board of Foreign Missions in Pekin, to replace the one destroyed by the Boxers several years ago. The good feeling that the native merchants have for the hospital was made evident by the fact that they were present in large numbers at the dedication exercises, at which the United States Minister, Mr. Conger, made one of the addresses. There were also present a number of Chinese officials.

Reform in Exhibitions at Medical and Surgical Congresses.—The German manufacturers of surgical appliances held a conference at Berlin recently, in which resolutions were adopted urging that those in charge of exhibitions connected with medical and surgical congresses should be more discriminating in accepting exhibits. The committee passing on the exhibits should contain at least one technical expert, and the exhibitions should be held less often—once in three years was considered often enough.

Vital Statistics in Italy.—The *Riforma Medica* states that the number of deaths in Italy from scarlet fever has dropped from 14,000 in 1887 to 1,500 in 1900; from 28,000 to less than 6,000 deaths from diphtheria; from 24,000 to about 9,000 from measles; from 28,000 to 15,000 from typhoid fever, and from 16,000 to 316 from smallpox. On the other hand, the mortality from pulmonary tuberculosis has increased from 32,000 to 40,000, and that from pneumonia has risen from 63,701 in 1887 to 76,101 in 1900.

Tuberculosis Winter Day-Resort.—A winter day-sanatorium for the treatment of tuberculosis has been opened at Eichkamp, in the Grünwald, the great pine forest near Berlin. The *British Medical Journal* states that eight such institutions are open to the Berlin working classes during the summer, but this is the first that has been fitted up for the reception of patients in winter. In acknowledgment of the unwearying efforts in behalf of the sanatorium movement of Frau Studt, wife of the Prussian minister for home affairs, this institution is to bear the name "Luise Studt Erholungstätte."

Dispensary Abuses at Berlin.—The Prussian budget for this year contains an appropriation of about $52,400 solely to make up the deficit at von Bergmann's surgical policlinic from the past year. The fame of the operator attracts crowds to this clinic, many of them probably able to pay for surgical at-

tendance. The authorities are taking steps to prevent this overcrowding of the clinic, which is far beyond what is needed for teaching purposes. They are devising means to sift out those able to pay for surgical work, and to make the clinic more self-supporting.

Information Bureau at Berlin.—An office has been opened on the ground floor of the university building at Berlin, near the main entrance, to serve as an information bureau for scientific educational matters. Students and others can obtain all possible information in regard to courses, lectures, prices, etc., and every possible information will be afforded for the prosecution of special scientific research by foreigners. Questions sent by mail will be answered. The office is to be open mornings and evenings, except during vacations, when the morning hours only will be retained. The official name of the bureau is the "Akademische Auskunftsstelle." The similar information bureau at Paris has fully established its usefulness during the year or so it has been in operation. It has been previously described in these columns.

School Inspector Dismissed.—Dr. Goldfeld has been medical inspector of the schools at Schöneberg near Berlin, and last July he read an article before the Woman's Temperance Union of the town on the use of liquor by the school children. His article was based on personal investigations, and it was published in several temperance journals, and extracts from it were given in some of the daily papers at home and abroad. The citizens association (Bürgerverein) became enraged at this publicity, bringing scandal on the town, and the city authorities were petitioned to discharge Dr. Goldfeld. In collecting his statistics he was said to have overstepped his line of duty as medical school inspector. The mayor (Stadtmagistrat) summarily dismissed Dr. Goldfeld. The city council passed a unanimous resolution asking that the physician be reinstated. The mayor has refused to do this. Physicians throughout Germany are watching with great interest the outcome of this serious disagreement between the municipal authorities over the medical school inspector.

Fund for Original Research in Australia.—Mr. David Syme of Melbourne, has given $15,000 to found a prize for the encouragement of original research. The *Australasian Medical Gazette* states that the council of the University of Melbourne has decided on the regulations for awarding the prize, which is to consist of $500 and a medal. It will be open to competition in March, 1906, and similarly in each succeeding year. Any person, resident in Australia for not less than five years, is eligible, except professors in Australian universities or heads of scientific departments under any Australian government. The prize is to be awarded to the candidate who, in the opinion of the examiners, submits the best thesis based on original work in one or other of the following branches of science: Biology, chemistry, geology or natural philosophy. Other things being equal, preference will be given to original research connected with the material and industrial development of Australia. If a thesis submitted as the joint work of two or more authors be awarded the prize, it will be equally divided between such authors.

The Berne Serum Institute and the Typhoid Epidemic.—A letter from Switzerland in the *Deutsche med. Wochft.* of January 12, relates particulars in regard to the last typhoid epidemic at Berne which had a tendency to discredit the medical profession in the eyes of the laity. The serum institute there, which is supported by the state, has been in the habit of sending to the slaughter-house the animals for which it had no further use. It happened and the public learned that the meat of a horse which had been inoculated with typhoid bacilli was sold in the market two or three days before the outbreak of the epidemic. Notwithstanding that the incubation period and other conditions did not harmonize with the facts observed, the public at once ascribed the epidemic to this meat, and the city authorities endorsed this assumption to divert attention from the waterworks. The state has now forbidden the sale of animals from the serum institute, but the ghost of that typhoid-inoculated horse, butchered and eaten, is invoked now by the irregulars on every possible occasion. The writer adds that considerable harm from this incident might have been avoided if the local physicians had refrained from disparaging criticism and sought to shield their confrères in the institute instead of joining in the cry against them.

Scarcity of Antitoxin in Buenos Ayres.—Dr. J. Penna is director of the isolation hospital at Buenos Ayres, and he expresses concern at the way in which antidiphtheria serum is being heralded and pushed there as a remedy for tuberculosis. He comments on the great harm that results when any remedy is advertised as a cure for tuberculosis. The poor consumptives, seeing the display ads of the pretended cure, waste their last and precious means in buying the advertised medicine, instead of keeping the money to make them more comfortable and to buy them nourishing food. He exclaims: "Is it not the height of cruelty thus to delude these unfortunates!" The present craze for antidiphtheria serum as a remedy for tuberculosis has exhausted the supply, and this condemns children with diphtheria to do without this potent remedy in the one disease for which it has proved its efficacy. He mentions specific instances, among them that of the child of very wealthy parents brought to the isolation hospital the day before as no antitoxin was to be obtained in town at any price, and it was known that there was still a small supply in this otherwise dreaded hospital. He adds that diphtheria is endemic in Buenos Ayres, and epidemics of it are not infrequent. While consumptives are trying the antitoxin, children are liable to be dying for want of it.

LONDON LETTER.

The Health of London in 1903.

The annual report of Sir Shirely Murphy, the health officer of the London County Council, for 1903, has just been published, and is highly satisfactory. As usual, it furnishes interesting figures. It is estimated that another 34,000 persons were added to the population of London, making a total of 4,613,812. The marriage rate was 17.4 per 1,000, a slight decrease since 1902, but more than in 1894, when it was 17.0, the lowest on record. The birth rate still continues to decline, and was only 28.4, the lowest on record. The death rate was 15.2, also the lowest on record. This remarkably low rate was not peculiar to London, and was partly due to favorable meteorologic conditions. The corrected death rate (16.5) is lower than that of any of the large towns except Bristol, which was 14.7, and compares favorably with foreign capitals, which show the following rates: Paris, 17.9; New York, 18.2; Rome, 19.8, and St. Petersburg, 23.8. By life table methods the health officer calculates that during 1903, compared with the decennium 1891 to 1900, there was a saving of 18,742 lives, representing a gain of 665,333 years of "life capital." The infant mortality was 130, one of the lowest recorded, and also lower than that of any other large town in England, except Bristol. Turning to the chief causes of death the greatest diminution was in diseases of the respiratory, nervous, and circulatory systems, and in diphtheria and phthisis. There was an increase in the deaths due to cancer, suicide, and diseases of the urinary system. Cancer was given as the cause of 4,695 deaths, the annual average of the preceding 10 years being 3,964. The rate per 1,000 living rose to 1.02.

Munificent Gift to the Royal College of Surgeons.

Mrs. Macloghlin, the widow of a deceased physician, has, in accordance with the intention of her husband, proposed to give $50,000 to the Royal College of Surgeons for the purpose of endowing scholarships in his memory. They are intended to assist young students in need of financial aid to proceed with their studies. The council of the college have gratefully accepted the offer and agreed to administer the trust which has been arranged by the presidents and vice-presidents in consultation with Mrs. Macloghlin.

The Dangers of Flannelette.

From time to time public attention is attracted to the dangers of flannelette by inquests on the bodies of persons who have been burnt in consequence of flannelette garments catching fire. The popularity of this material, however, does not appear to have been affected nor any means taken to combat the danger. In an editorial on the subject the *Lancet* says that the days of inflammable flannelette should be numbered. The death-rate roll of children who have been injured by its ignition is appalling. It catches fire and burns as easily as alcohol. The following is an example: A boy, aged 2 years, was left to play in a room while his mother was absent. He was clad in a flannelette nightshirt. The mother heard screams and returned to find the boy in flames. He was terribly burned, and died within twenty-four hours. The British government has requested coroners to make returns of these cases. One coroner states that last year he held no less than seventy-three inquests on children burned to death, a large proportion of the deaths being due to flannelette igniting. The *Lancet* very pertinently asks: "Why wait for more evidence; are not the returns sufficient?"

Correspondence.

Card Indexing for Preserving Useful Medical Information.

PHILADELPHIA, Feb. 11, 1905.

To the Editor:—Among the difficulties which beset the physician is to preserve useful informa ion on various subjects in systematic shape for ready reference. The best method of doing this, coming steadily into vogue, is the card index. Much of useful data is offered in the form of advertisements, prospectuses, book notices, booklets, leaflets, circulars or cards of irregular size, making it utterly impossible to arrange them comfortably, hence to preserve them in such a fashion that they can be readily consulted.

I made the suggestion long ago to the drug manufacturers that if they desired, or expected, us to bear in our minds descrip.ions of their preparations, some of which contain much merit, they should make it practicable by giving us printed information, much or little, on cards of the ordinary size used in the card indexes. This is the best way.

Thus a card index could be kept especially for "therapeutic suggestions," notes on treatment gleaned from divers sources. Some of the drug houses have adopted this suggestion, and are sending out cards containing a list of their special preparations which can be convenien'ly filed. Two sides of a card provide much space.

If the proprietors of the various sanitaria designed for rest or recuperation or special treatment would adopt the card index system in addition to 'heir regular circulars, these would be put on file alphabetically under the heading "Sanitaria" or health resort, coastwise or mountain hotels, springs, spas, etc., and would thus be promptly called to the mind of the physician when groping vaguely to find a suitable place to send a patient for rest, recreation or special treatment. The same card index plan would serve publishers of books.

The card index system for keeping notes of cases is recognized to be the best which has so far been offered, likewise for the keeping of accounts and other matters requiring useful record.

These are now offered in such cheap convenient forms that there should be no difficulty in securing and keeping, and the possibility is thus made easy to sys ematize references so that various other data could thus be preserved in such a fashion that no important facts need be far distant from our daily work.

A single drawer in an ordinary desk could easily contain two such card indexes, at least in the forward end, and thus an ordinary desk of three or four drawers could be well equipped with six or eight card indexes.

There is too much labor in taking a blank card and writing out the data, but if cards were supplied suitably printed and black lettered which could slip in the proper alphabetical order, there would follow a great economy of time and trouble and attention, and an immense saving of useful information.

J. MADISON TAYLOR, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

VALUE OF ALBUMOSURIA AS A MEANS OF DIAGNOSIS.

TRENTON, N. J., Jan. 10, 1905.

To the Editor:—What dependence is to be placed on albumosuria as a means of diagnosticating concealed pus in either of the great cavities, or in deep-seated muscular structures of the body? Please give the most reliable and accurate test, or tests, for this substance in the urine.

C. H. GORDON, M.D.

ANSWER.—By albumosuria is meant the appearance in the urine of those higher soluble cleavage products of the albumins which, though they are not coagulable, can be removed from solution by "out-salting"—the so-called "albumoses." Physiologic chemists distinguish two classes of albumoses, the primary albumoses (protalbumose and heteroalbumose), which stand very close to the albumins proper, and the secondary or deuteroalbumoses which stand close to the peptones. The albumoses which occur in the urine appear to be chiefly deuteroalbumoses. The condition so often described as "peptonuria" is in the majority of cases really "albumosuria." The amounts of albumose in the urine vary from 0.06 to 0.6 per cent., the larger amount occurring usually in cases of empyema or croupous pneumonia. Albumoses occur in the urine in various pathologic circumstances. The so-called "enterogenous albumosuria" is met with in cases of ulcer of the stomach, ulceration of the intestine and carcinoma of the stomach. The so-called "pyogenous albumosuria" is encountered in various suppurative processes—large abscesses, empyema, croupous pneumonia, mixed infections with tuberculosis, etc. The so-called "endogenous albumosuria" is met with where body-tissues are breaking down, e. g., in phosphorus poisoning, in acute yellow atrophy of the liver, in carcinoma of the liver, etc. Beside, deuteroalbumoses have been demonstrated in the urine in many febrile processes, e. g., pneumonia, scarlet fever, influenza, diphtheria, measles, typhoid fever and tuberculosis. In order to be absolutely sure of the presence or absence of albumoses in the urine, especially of small amounts, it is necessary to remove any albumin, globulin, mucin or nucleoalbumin that may be present. But, roughly, for clinical purposes, the following preliminary tests may be made: (1) Heating acidified urine. Heat five or ten c.c. of urine to which a trace of acetic acid has been added in a test tube to boiling and filter hot. If albumoses are present the filtrate becomes turbid, and this turbidity will increase on the addition of ammonium sulphate. When the filtrate is cooled, add some caustic potash and one drop of copper sulphate solution (5 per cent.); if albumoses are present the reddish-violet biuret reaction is obtained. (2) Ferrocyanid of potassium and acetic acid test. To 10 c.c. of urine add 5 drops acetic acid; should a precipitate form (urates, mucin, etc.), filter and add from one to three drops of a 5 per cent. solution of ferrocyanid of potassium. If a precipitate forms, which vanishes on heating to reappear on cooling, the presence of albumoses is demonstrated. A safer clinical test is that of A. Jolles (Pharmaceutisches Centralblatt, vol. xxxvii, 1896, p. 432). About 10 c.c. of urine are thoroughly shaken with a little animal charcoal, the filtrate mixed with two drops of solution of lead acetate and filtered again. If albumin is present, it should be first removed by adding a few drops of a 10 per cent. solution of acetic acid, boiling, neutralizing w.th 10 per cent. NaOH, shaking with animal charcoal, filtering, precipitating with lead acetate and filtering again. The filtrate is now free from urobilin and almost colorless; apply the biuret reaction. Of the strictly scientific methods that of F. Hofmeister is as good as any. To half a liter of urine are added 10 c.c. of a concentrated solution of sodium acetate, and then, drop by drop, a concentrated solution of ferric chlorid until the fluid remains permanently red. If the urine is strongly acid, it is nearly neutralized, then boiled and, after cooling, filtered. The filtrate must contain no iron or albumin. To this filtrate is now added one-tenth of its volume of concentrated hydrochloric acid and then an acid solution of phosphotungstic acid (200 grams phosphotungstate of soda and 120 grams phosphate of soda dissolved in 1,000 c.c. water and 100 c.c. concentrated sulphuric acid added) as long as it continues to throw down a precipitate. Collect the precipitate on a filter, wash it with a 5 per cent. solution of sulphuric acid, rub it up while still moist with solid barium hydrate, add a little water, warm for a short time until the original greenish color is changed to pure yellow and then filter the mixture. Free the filtrate from barium by means of dilute sulphuric acid, concentrate the filtrate, make the solution alkaline, and add cautiously, drop by drop, shaking constantly, some diluted 1 per cent. solution of copper sulphate; if albumoses be present, the biuret-reaction is obtained, first a rose color and later a violet tint. If the urine contains mucin it should be first removed by the addition of a small amount of lead-acetate solution. The so-called "Bence-Jones body" is often spoken of as an albumose, but more recent studies have proved that it is a native albumin. The best description of it is to be found in the article by Magnus-Levy (*Ztschr. f. physiol. Chem.*, vol. xxx, 1900, p. 200). It occurs in the urine in cases of osteomalacia, often in very large quantities, sometimes as much as 6.7 per cent. If acid urine containing the Bence-Jones body be heated with a little concentrated solution of common salt to 50 degrees C., the urine first turns milky and at 60 degrees gives a sticky (not flocculent) precipitate, which adheres to the walls of the test tube or swims on the surface of the fluid. On heating further, the turbidity and precipitate disappear and the solution becomes clear; on cooling, the albumin body again separates out, and under the microscope appears in the form of spheres, occasionally in the form of crystals. That it is really an albumin (and not an albumose) is shown by the facts (1) that when pure it can be completely coagulated; (2) that with alcohol it can be denaturalized; (3) that strong acids or alkalies convert it into acid albumin or alkali

albuminate, and (4) that on pepsin-digestion it yields the ordinary albumoses and peptone (with the exception of heteroalbumose). The diagnostic value of albumosuria is very slight except in conjunction with other symptoms. In case there were a deep-seated abscess anywhere, the leucocytosis and the "choppy" temperature chart would be far more decisive symptoms than the albumosuria. The presence of the Bence-Jones albumin is believed to be highly characteristic of osteomalacia.

A BOOK OF PORTRAITS OF PHYSICIANS.

In THE JOURNAL, July 2, 1904, page 43, we mentioned the fact that a number of readers had asked us for information concerning a circular letter which had been sent to those who had registered at the Atlantic City session of the American Medical Association, asking for photographs and subscriptions for a book of portraits of those in attendance at the session. We suggested caution in dealing with the firm, and we closed with the following comment: "We also call attention to the printed order blank which is to be signed ordering the engraving made. No charge for this is named, and there is a possibility of the charge being any amount the company wishes." Here the matter rested until recently, when, coming across some of the circulars which had been laid away for future reference, we wondered whether or not the book had been issued, and wrote to the company asking about it. We received no reply, but during the next few days two subscribers wrote us for information concerning the company, having paid for the book and never having received it. The statement of one of the two carries out the prediction which we made in the last sentence of our remark, July 2, which we have quoted above. He received a bill of $11 for the making of the engraving; this was from a separate company, and the order blank which was signed by the subscriber gives the company a perfectly legal right to collect the charge. On receipt of these letters we wrote to our representative in New York City, and he has reported absolute failure to get into communication with either the portrait company or the engraving company. They did not reply to his letters and could not be definitely located. The portrait company had moved to a new address, but on calling at the new address our representative found no one connected with the firm and no equipment was apparent, but he was told that mail would be forwarded. The result of his search for the engraving company was similar. The person who stated that mail would be forwarded also stated that the book referred to had been issued, but, because certain men had objected to receiving it because some of the prominent men of the Association had not been included, another edition was expected soon with those men included. If any one has received the book we would appreciate being informed to that effect.

SUGGESTIVE THERAPEUTICS.

L. E. H. asks: "What are the best works on suggestion, its practice, etc.? Is there a place of good standing where this branch of study is taught?"

H. J. N. asks for the address of any school which gives instruction in hypnotic suggestion, with the cost and time needed for the course. "If no such school exists, please give names of authorized works on the subject."

ANSWER.—The question of suggestion and its practice has been exhaustively reviewed, as far as current medical literature is concerned, in the "Practical Medicine Series of Year Books, Chicago, Vol. VIII, 1903, and Vol. VIII, 1904. Works of value on the subject are: "Influence of the Mind on the Body in Health and Disease," Daniel Hack Tuke, M.D., 1884. "Suggestive Therapeutics," H. Bernheim, M.D., 1889. "Hypnotism and Suggestion," by Osgood Mason, M.D., 1901. "The Force of Mind or the Mental Factor in Medicine," A. T. Schoefield, 1902. "Psychotherapy in Practice of Medicine and Surgery," S. Leavitt, M.D., 1903, and a very excellent article by F. X. Dercum, M.D., in Vol. VIII of "System of Physiological Therapeutics." We know of no place in good standing where this line of study is specially taught, but more or less attention is usually given to it by the professors of therapeutics.

DEADBEAT LIST.

GALESBURG, ILL., Feb. 17, 1905.

To the Editor:—Any information or advice on the best method of procedure in forming a physicians' "delinquent list" will be gratefully received by the undersigned. Members of the Knox County Medical Society feel that there are many professional deadbeats who are imposing on them, and what we want is some plan which will be legal, not cumbersome, and which at the same time will protect us from the undeserving.

WILLIAM H. MALEY.

SCHOTT TREATMENT OF CHRONIC HEART DISEASE.

C. W. A. can obtain a copy of Dr. Bezly Thorne's book, "The Schott Methods of Treatment of Chronic Diseases of the Heart" (referred to by Dr. Anders in THE JOURNAL, Jan. 14, 1905), from Blakiston's Son & Co., Philadelphia. The price is $2.00.

Marriages.

AUGUSTUS KORNDOERFER, M.D., to Miss Mary M. Jones, both of Philadelphia, February 1.

WILLIAM E. DOWNING, M.D., Suison, Cal., to Miss Baugh of San Francisco, January 31.

RUSSELL C. MCNEILL, M.D., to Miss Anna Blair, both of Bellecenter, Ohio, January 25.

CLYDE J. SAYLOR, M.D., Womelsdorf, Pa., to Miss Rena A. Miller of Lebanon, Pa., January 31.

BOYD W. SCHAFFNER, M.D., Templeton, Pa., to Miss Grace Fearl of Johnstown, Pa., January 24.

CHARLES THADDEUS BELL, M.D., to Miss Esther Hampton Brock, both of New York City, January 30.

JOSEPH H. HATHAWAY, M.D., Rochester, N. Y., to Miss Ethel H. S. Baird of Woodstock, N. B., January 25.

R. MARVIN WINN, M.D., Saverton, Mo., to Miss Rebecca Jones of Ashburn, Mo., at Louisiana, Mo., February 1.

BELLE F. ORR, M.D., Belton, Mo., and ROBERT A. WILLIAMS, M.D., Washington, Kan., at Kansas City, Mo., January 26.

Deaths.

Michael O'Hara, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1852, a member of the American Medical Association, died at his home in Philadelphia, January 31, aged 72. He served as assistant surgeon in the United States Navy, and as surgeon of the One Hundred and Fiftieth Pennsylvania Volunteer Infantry during the Civil War; was attending physician for many years to St. Mary's Hospital and the House of the Good Shepherd; from 1894 to 1898 he was director of St. Agnes' Hospital. He served as vice-president and librarian of the Philadelphia County Medical Society, and in 1876 he was a delegate to the International Medical Congress.

Freeman Dwight Case, M.D. Cleveland Medical College, Medical Department of Western Reserve College, 1870, a member of the American Medical Association, a member of the Ashtabula City council for several terms, and an organizer and member of the executive board of the Ashtabula General Hospital; a member of the Ashtabula County Medical Association, died at his home in Ashtabula, February 7, from septicemia following a fall in December last, in which he injured his knee and leg, aged 58.

T. H. Brenneman, M.D. University of Virginia Medical Department, Charlottesville, 1900, house surgeon of the Princess Anne Hotel, Virginia Beach, Va., a member of the local and state medical societies, died from septicemia following an operation wound, January 28, at Sarah Leigh Hospital, Norfolk, Va., after an illness of six weeks, aged 34.

Mary Alice Brownell, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885, a member of the American Medical Association; for nine years a physician in the State Custodial Asylum, Newark, N. Y., and afterward a practitioner in that village, died in the Rochester City Hospital, January 30, after an operation, aged 49.

George K. Rodebaugh, M.D. Jefferson Medical College, Philadelphia, 1901, house physician of the Park View Sanitarium, Columbus, Ohio, and for a time professor of practice of medicine in the Ohio Medical University, died at his home in Columbus, February 6, from nephritis, after an illness of more than a year, aged 27.

Frederick P. Tuxbury, M.D. Dartmouth Medical School, Hanover, N. H., 1899, died at his home in Denver, Colo., February 5, from nephritis, after an illness of ten days, aged 37. At a special meeting of the Denver City and County Medical Society, February 7, resolutions of regret and respect were adopted.

William H. Risk, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, president of the Summit (N. J.) Board of Health for two years, and a member of the county and state medical societies, died at his home in summit, February 7, after a long illness, aged 62.

Clarence W. DeLannoy, M.D. Jefferson Medical College, Philadelphia, 1881, chief surgeon of Telluride City Hospital, and health commissioner of the city, died at his home in Tel-

luride, Colo., February 7, from septicemia due to an operation wound, after an illness of four months, aged 50.

Humphrey B. Anderson, M.D. Detroit (Mich.) College of Medicine, 1888, a member of the American Medical Association; a charter member and at the time of his death president of the Grand Traverse Medical Association, died at his home in Traverse City, Mich., February 8, aged 46.

Richard G. Lightle, M.D. Kentucky School of Medicine, Louisville, 1898, under indictment for defrauding life insurance companies of $21,000, burning a barn, and robbing a grave, died at the home of his mother in Searcy, Ark., February 7, from pneumonia.

William S. Wheelwright, M.D. Rush Medical College, Chicago, 1878, of Belleville, Wis., suffered a cerebral hemorrhage while making a professional call at New Glarus, and died four days later, February 5, aged about 60.

John H. McBrayer, M.D. Atlanta (Ga.) Medical College, 1882, died at his home in Shelby, N. C., January 30, from nephritis, after an illness of several years, aged about 60. He served as postmaster of Shelby for two terms.

Addison R. Tarkington, M.D. Memphis (Tenn.) Hospital Medical College, 1891, of Hot Springs, Ark., died at Benton, Ark., while on his way to San Antonio, Texas, for his health, from an affection of the throat.

Emmett A. Sprowls, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1898, formerly a practitioner of Claysville and West Alexander, Pa., died at his home in Elgin, Ill., February 1, aged 30.

Howard Edgar Bowman, M.D. State University of Iowa College of Medicine, Iowa City, 1904, died at his home in Hills, Iowa, February 1, from pneumonia, after an illness of ten days, aged 39.

Thomas Hill Ellis, M.D. Medical College of South Carolina, Charleston, 1894, died at his home in Hartsville, S. C., Dec. 26, 1904, from typhoid fever, after an illness of three weeks, aged 33.

James McGregor Stevenson, M.D. McGill University Medical Department, Montreal, 1856, died at his home in Denfield, Ont., January 31, from pneumonia, after an illness of two days, aged 67.

James David Hoyl, M.D. Harvard University Medical School, Boston, 1857, died at his home in Fort Valley, Ga., Dec. 26, 1904, from chronic bronchitis, after an illness of one year, aged 70.

Frank H. Sims, M.D. Atlanta (Ga.) Medical College, 1883, of Atlanta, Ga., died at the Elkin-Cooper Sanitarium in that city, February 5, from pneumonia, after an illness of a few days, aged 42.

Francis Norton Phelan, M.D. University of Wooster Medical Department, Cleveland, 1884, died at his home in Duluth, Minn., February 11, from pneumonia, after an illness of a few days.

Sidney M. Abbay, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1866, of Centerville, La., died at the sanitarium in Franklin, La., February 6, aged 67.

John B. McEwen, M.D. University of Nashville Medical Department, 1861, thrice treasurer of Lafayette County, Miss., died at his home in Oxford, February 6, from pneumonia.

E. M. Schelde, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1904, died at Blooming Prairie, Minn., from consumption, January 25, aged 36.

Albert O. Mundhenk, M.D. Medical College of Ohio, Cincinnati, 1903, of West Alexandria, Ohio, died in Denver, February 6, from tuberculosis, after an illness of a year, aged 30.

Allen F. Hagadorn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1875, died at his home in West Bay City, Mich., February 8, from apoplexy.

Edson H. Young, M.D. University of Vermont Medical Department, Burlington, 1884, died at his home in Buffalo, N. Y., February 5, after an illness of one week, aged 44.

Edward Dudley Arnold, M.D. Rush Medical College, Chicago, 1878, died at his home in Omaha, February 5, from pneumonia, after an illness of six days, aged 46.

Wooster Beach Preston, M.D. Cincinnati, 1867, died at his home in Dansville, N. Y., February 4, after an illness of more than a year, from Bright's disease, aged 60.

George W. Ebrite, M.D. Dartmouth Medical School, Hanover, N. H., 1868, died suddenly at his home near Gainesville, Mo., January 14, from angina pectoris, aged 64.

Jacob A. Gilder, M.D. New Orleans School of Medicine, 1868, a pioneer of Beaumont, Texas, died in that city, February 4, after an illness of six months, aged 67.

Moses M. Curtis, M.D., certificate, died at his home in Miles Station, Texas, January 10, from the rupture of an aneurism, after an illness of two weeks, aged 63.

Augusta Smith, M.D. Chicago, 1883, was struck by an electric car near her home in St. Louis, February 4, and died a few hours later from her injuries, aged 73.

James Madison, M.D. State Board of Health, 1878, a pioneer of Clark County, Ill., died at his home near Marshall, February 2, from senile debility, aged 83.

James A. Freer, M.D. New York, 1885, of Washington, D. C., was found dead in a country inn near that city, February 5, from morphin poisoning, aged 46.

Alfred Lindsay Shapleigh, M.D. Harvard University Medical School, Boston, 1894, a medical missionary in China, died in Shanghai, February 3, aged 35.

Jacob L. Gebhart, M.D. University of Heidelberg, Germany, died at his home in Hot Springs, Ark., February 3, from senile debility, aged more than 80.

Joseph N. Hetzler, M.D. Medical College of Ohio, Cincinnati, 1875, died at his home in Celina, Ohio, from cerebral hemorrhage, February 6, aged 76.

Albert G. Anthony, M.D. Ohio, 1880, died from the effects of carbolic acid taken with suicidal intent, at a hotel in Syracuse, N. Y., February 1, aged 45.

John Schmidt, M.D. Marion Sims College of Medicine, St. Louis, 1898, died at his home in St. Louis, February 6, after a lingering illness, aged 29.

George W. Yokum, M.D. Jefferson Medical College, Philadelphia, 1854, died at his home in Beverly, W. Va., January 30, after a protracted illness.

Don Quincy Sims, M.D. 1850, of Joshua, Texas, died at Morgan, Texas, December 17, from brain disease, after an illness of three months, aged 78.

Thomas J. Robinson, M.D. University of Louisville (Ky.) Medical Department, 1869, died at his home in Marianna, Ark., January 15, aged 63.

Samuel E. Thayer, M.D. University of Buffalo Medical Department, 1869, died at his home in Hamilton, Mass., February 5, aged 62.

Baxter Haynes, M.D. St. Louis College of Physicians and Surgeons, 1880, died at his home, Harricane, Ill., January 27, aged 77.

Patrick H. Kelly, M.D. Medical College of Ohio, Cincinnati, 1850, died at his home in Waterford, Ohio, February 6, aged 80.

Samuel R. Woods, M.D. St. Louis Medical College, 1867, died at his home in Clearwater, Fla., January 23, aged 75.

William D. Babcock, M.D. New York, 1885, of East Hampton, Conn., died in Florida, February 1, aged 57.

Benjamin F. Cory, M.D. Cincinnati, died at his home in Takoma Park, D. C., January 27, aged 85.

Royal R. Lacey, M.D. Cincinnati, 1878, died at his home in Carbondale, Ill., February 2, aged 68.

Book Notices.

TEXT-BOOK OF INSANITY BASED ON CLINICAL OBSERVATIONS, for Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing, late Professor of Psychiatry and Nervous Diseases in the University of Vienna. Authorized Translation from the Latest German Edition by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System in the Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University, St. Louis. Pp. xvi—638. Price, $4.00 net. Philadelphia: F. A. Davis Company. 1904.

Those who have had the rare pleasure of listening to Krafft-Ebing's remarkably clear exposition of psychiatric types and later have drawn from the clinical riches of his text-book will rejoice that readers of English are to be introduced to this great descriptive writer. For many years his work has been a standard text-book and nowhere are to be found better word pictures of the various symptom-groups of insanity. It is essentially clinical. Even the 230 pages on the "General Pathology and Therapy of Insanity" are practical, the matter evidently being the product of experience with

insane people. Krafft-Ebing has shown neither the analytic nor synthetic power of Kraepelin, but no writer has known better how to put the reader in the place of one who visits an asylum, sees the faces of the patients, observes their acts, hears their talk and then follows their course day by day. Indeed, there is very little of what an asylum physician may see and learn in years of active service that is omitted from this text-book. The amount of information contained in the six hundred and twenty-odd pages is astonishing. Notwithstanding the completeness of the work, it can not to-day fill the demands of the student of psychiatry. Live and serious questions as to the nature of certain forms of insanity have arisen; questions involving diagnosis, prognosis and treatment: questions not broached in the work before us. Notably the practical issues in connection with dementia præcox, so-called manic-depressive insanity and paranoia, not to mention Korssakow's psychosis, are entirely ignored. This being the case, it is to be regretted that the translator did not also assume the prerogative of editor and add some discussion of new matter brought into the psychiatric field by observers and writers other than the author. The translator has done his work well and has earned the gratitude of many.

NORMAL HISTOLOGY AND MICROSCOPICAL ANATOMY. By Jeremiah S. Ferguson, M.Sc., M.D., Instructor in Normal Histology, Cornell University Medical College, New York City. With 462 Illustrations in the Text, Many in Colors. Cloth. Pp. 738. Price, $5.00. New York and London: D. Appleton & Co. 1905.

This book appears to cover in a satisfactory manner the field it occupies. Perhaps more space, relatively speaking, than usual has been devoted to special organ systems, especially the nervous system. The illustrations are in general creditable. Figures 165 and 361 should be replaced by other and better ones in the next edition. There is a very limited chapter on technic which might as well have been omitted in view of the various authoritative books on histologic technic now obtainable and copies of some of which surely are present in every well-equipped laboratory. It is somewhat startling to read in the preface that the field of normal histology is inadequately covered as regards text-books. This becomes still more puzzling when we find that in his list of references the author cites nearly a dozen works that have been issued since 1900 and several of which are recognized as standard text-books. Dearth of books dealing with normal microscopic anatomy and histology is, therefore, hardly an adequate reason for a new book on this subject. In this case, however, it seems as if the author had a real interest in his subject and that his book, which has been prepared with care, will be found useful.

BACTERIOLOGY AND THE PUBLIC HEALTH. By George Newman, M.D., F.R.S.E., D.P.H., Formerly Demonstrator of Bacteriology in King's College, London. Illustrated. Third Edition. Cloth. Pp. 497. Price, $5.00. Philadelphia: P. Blakiston's Son & Co. 1904.

Several new chapters have been added to this book, and the whole revised and enlarged. The book aims to give a simple general statement of our present knowledge of microbiology in relation to public health for the special benefit of the general student of hygiene and of the medical officer of health. Inasmuch as malaria and other diseases caused by microbes, other than bacteria, in the usual sense of the word, are considered, objection might be made to the present title. Microbiology would seem to fit the case better. Take it all in all, the book is well written and has a distinct field of usefulness. We think that the account given of yellow fever is unsatisfactory because of the relatively large amount of space given to Sanarelli's bacillus and the wholly inadequate statement of the significance and the results of the work of Reed and his colleagues. The citation of streptococcus and pneumococcus infections as good examples of the value of antitoxic treatment is, of course, not in accord with our present state of knowledge. Lobar or croupous pneumonia is said to be associated with two organisms, "Fränkel's diplococcus and Friedländer's pneumobacillus," a statement that one would least expect to meet in this place. The "ray fungus" is given the absurd name of "streptothrix actinomyces." The bacteriology of sewage, soil and food seems to be discussed very satisfactorily.

Miscellany.

WINNIPEG TYPHOID EPIDEMIC.

Expert's Report to the Municipal Authorities on the Causes and His Recommendations for Future Prophylaxis.

An excessive prevalence of typhoid fever is no new thing in Winnipeg. Table 1 shows the death rates calculated from the cases and the deaths reported to the city board of health and from the deaths reported to the Department of Agriculture through the office of the city clerk.

TABLE 1.—CASES AND DEATH RATES FROM TYPHOID FEVER IN WINNIPEG.

Year.	Est. Pop'n.	Cases.	Death Rate per 10,000 Pop'n. Bd. of Health.	Dep't of Agricult.
1900.....	42,500	582	7.99	11.75
1901.....	44,800	349	8.04	11.83
1902.....	48,400	356	5.99	9.50
1903.....	56,700	409	8.11	8.48
1904.....	67,300	1,276	19.74	24.85

Whichever mortality record be accepted as more nearly correct, it is apparent that the death rate from typhoid fever in Winnipeg has for some years been in marked excess, and in 1904 in alarming excess, as compared with that in the majority of other American and European cities. This is true, even if the population estimate be increased 20 per cent. in the years named and the death rate correspondingly lowered. To facilitate comparison, recent average death rates for a number of other cities are given in Table 2.

TABLE 2.—TYPHOID DEATH RATE OF VARIOUS CITIES.

City.	Death-rate per 10,000 Pop'n.	City.	Death-rate per 10,000 Pop'n.
Lawrence	2.6	Louisville	6.0
Albany	5.1	Milwaukee	1.8
Baltimore	3.5	Minneapolis	3.9
Boston	3.0	New York	1.9
Buffalo	2.7	Omaha	2.8
Chicago	2.8	Philadelphia	5.4
Cincinnati	3.5	Pittsburg	10.6
Cleveland.	4.0	Providence	2.4
Columbus	3.1	St. Louis	2.3
Denver	3.8	St. Paul	2.3
Fall River	1.5	San Francisco	3.7
Detroit	1.9	Washington	8.8
Indianapolis	3.8	Berlin, Germany	0.5
Jersey City	2.4	London, England	1.4
Kansas City	3.1	Hamburg, Germany	0.9
Los Angeles	4.3	Rotterdam, Holland	0.2

A critical examination of the available data in Winnipeg showed an interesting and significant distribution of the cases both in time and space. It soon became evident that several factors had conspired to produce the abnormally large amount of typhoid fever that occurred in Winnipeg in 1904. For the sake of clearness these may be considered under separate heads.

I. CONTACT INFECTION.

A very serious feature of the situation in Winnipeg is the occurrence of a large number of cases in house groups. In perhaps the majority of dwellings in which typhoid fever appeared, the first case was followed more or less promptly by other cases in the same household. In nearly all instances in which more than one case occurred in a house the dates of infection are such as to point unmistakably to a more or less direct transfer of the specific disease germ from the individuals first attacked to other members of the household.

The reason for this is that the typhoid bacillus may multiply in the body of the patient in immense numbers. Both the discharges from the bowels and from the bladder may contain countless millions of living microbes, and a very small amount of infectious material, therefore, is capable of infecting many persons. One element of peculiar danger is the fact that typhoid germs occasionally persist in the urine of typhoid convalescents for weeks and even months after complete recovery has taken place. Special vigilance is necessary to combat the peril from this source.

Abundant evidence has been secured that in Winnipeg, as in

[EDITOR'S NOTE.—The typhoid epidemic in Winnipeg, Manitoba, has been mentioned from time to time in our news columns. The municipal authorities of Winnipeg engaged Edwin O. Jordan, associate professor of bacteriology in the University of Chicago, to make an investigation of the situation. This article is an abstract of his official report, presented to the Winnipeg City Council, Feb. 8, 1905.]

many other American cities, the household precautions against the spread of infection from case to case have not been as rigorous as is desirable. In some instances food has been prepared for the members of a family by the individual who was at the same time performing some of the duties of nurse to a typhoid fever patient. Members of a patient's family and even outside visitors have in some instances associated more or less freely with a patient or convalescent, and in more than one household disinfection of the excreta and of the bedding and other articles used by the patient has not been carried out with the rigor necessary to stamp out all trace of infection.

[As an illustration of the nature of the precautions considered essential by modern authorities, Mr. Jordan quoted the regulations of the German government concerning the supervision of typhoid fever cases. We omit this from the abstract.—Ed.]

II. LACK OF SEWER CONNECTIONS.

The large number of outside privies in Winnipeg is undoubtedly favorable to the maintenance of typhoid fever, and in the past has been largely responsible for the prevalence of the disease in the warmer months of the year. Winnipeg contains approximately 12,000 buildings, and only 5,600 sewer connections. Some of these privies must occasionally be used by persons suffering from mild or unrecognized cases of typhoid fever or by convalescents. Under the conditions that prevail in more than one section of the city the transfer of infectious material from these outhouses to the dwellings and to the persons of neighbors is not only possible, but in greater or less degree certain to occur. Fecal material from some of these privies was seen scattered over the whole width of the alley. Children play in the alleys on which these privies abut, and may readily soil their shoes, clothing and even fingers with infectious material. Dogs and other animals may convey infection into houses in various ways.

Perhaps the most mischievous carrier of infection under the circumstances described is the common house-fly. It has been repeatedly shown that this pestiferous insect is a common purveyor of infection. The house-fly is bred in large numbers in horse manure, and the intermingling of stables and privy vaults seen in some of the back lanes of Winnipeg affords peculiarly favorable conditions for the spread of infection by this means.

The past history of typhoid fever in Winnipeg bears out this plain inference from the sanitarry conditions. During the five years for which record has been obtained, typhoid fever has prevailed most extensively in August, September and October, the very months when infection in the ways indicated would be most likely to take place. The local distribution of cases is wholly in accord with the assumption of this mode of infection.

III. MILK INFECTION.

A house-to-house canvass[1] showed that many more cases developed in families supplied with milk from some milkmen than from others. It must not be forgotten that in every locality where typhoid fever is prevalent and where opportunities for infection are so numerous as they have been in the city of Winnipeg in the last six months, infection of some one or more of the milk supplies is not only probable, but almost certain to occur. This is one of the recognized evils that follow in the wake of a great accumulation of infectious material in a community. Danger from this source can be much diminished, however, by frequent inquiry into the health of those engaged in producing and distributing the milk, and especially by preventing the infection of the milk or of the milk vessels en route.

IV. WATER SUPPLY.

The main water supply of Winnipeg, derived from an artesian well, has been frequently tested in the past by competent analysts, and with uniformly favorable results. There is nothing in the sources of this water, in the softening treatment to which it is subjected, or in its epidemiologic relations, to cast suspicion on its wholesomeness. The water of the Assiniboine River, however, which has been used at times as an accessory source of supply, comes from a watershed exposed to pollution at many points, and it has been generally recognized that the use of raw Assiniboine water was to be avoided as much as possible. On two occasions, in 1904, raw Assiniboine water was turned into the city mains to increase the inadequate supply and to meet the emergency caused by large fires. Examination of a table of the reported cases of typhoid fever tabulated by weekly and fortnightlty periods, reveals several very interesting facts. There is noted first a rapid rise in the amount of typhoid fever, reaching its maximum in September, at the time when fly infection might reasonably be supposed to manifest its greatest effect. A decline in the number of cases reported then sets in precisely as was the case in four preceding years. This decline is abruptly checked in the fortnight October 24 to November 6, when the number of cases reported rises to 110 as compared with 83 in the preceding fortnight. In the succeeding bi-weekly periods the decline again continues with considerable regularity until in the period December 19 to January 1 a minimum of 45 cases is reached. Instead of continuing to decline, however, a striking increase of almost explosive character is shown in the next fortnight when the cases reported registered 120. It is a highly suspicious circumstance that the dates on which the Assiniboine water was pumped into the city mains, namely, October 10 and December 28, correspond with the dates of probable infection of the cases reported in the two periods referred to.

Supposing, however, that infected water played no part in the production of typhoid fever on the occasions mentioned, it must be strongly emphasized that even the occasional use of the raw Assiniboine water is an unwholesome and dangerous practice. Bacterial examinations made by the writer of the river water collected at the intake of the pumping-station showed the presence of fecal bacteria in the water in considerable numbers. On days when the Assiniboine water was being pumped, water drawn from the taps in the southern portion of the city showed likewise the presence of fecal bacteria. The northern portions which, from their location, were presumably receiving chiefly or wholly water from the artesian well, did not contain any objectionable bacteria in the tap water at the time the examination was made.

OTHER CONSIDERATIONS.

The condition of the city sewers in Winnipeg has been such as to give rise to the conjecture that the emanations from the manholes or from defective plumbing might account in some way for the prevalence of typhoid fever. It is difficult, however, to find support for this view in the known facts of typhoid epidemiology; and the ascertained facts regarding the distribution of typhoid fever in Winnipeg lend no countenance to the view that sewer air has been a direct means of transmission in the present outbreak.

At the same time, it must be remembered that the highly offensive stenches arising from decomposing matter in sewers have often been shown to exercise a depressing and weaken-

1. Incidentally, this canvass showed that in this particular district only 70 out of 89 cases had been reported to the Board of Health, or about 78 per cent. of the number actually existing. If the same ratio was maintained throughout the city, several hundred cases of typhoid fever actually occurred of which the Board of Health received no record. Furthermore, it must be noted that the dates on which the cases are reported to the Health Office are in some instances not to be taken as the dates of inception of the disease. Twenty-five cases that had been reported to the Board of Health but regarding which more accurate information was obtained by canvass, were selected at random for comparison. Seven of these had been reported to the Board of Health within three days after the beginning of the disease, so far as the latter could be fixed by the date of taking to bed and summoning a physician; eight more were reported within ten days, and the remaining ten cases were not reported to the Board of Health until 10 to 15 days had elapsed. From these facts it can be readily seen how greatly the work of local officials must be hampered by the lack of precise information concerning the occurrence and date of onset of the disease. Prompt action on the part of the health authorities would be greatly aided by a further systematization in the methods of reporting and supervising cases of typhoid fever. In any attempt to combat further epidemic spread, the advantages of a full knowledge concerning the occurrence and distribution of all cases is so obvious as hardlly to need comment.

ing influence on human vitality. It is in some such way, if at all, that we must conceive the peculiar condition of the Winnipeg sewerage system to have influenced the spread and maintenance of typhoid fever.

No reason was found for attaching suspicion to the ice supply.

In view of the facts that have been instanced regarding the frequency of contact infection, it is desirable to emphasize once more the multifarious ways in which infection can occur when once typhoid fever has become firmly established in a community. During the whole course of the illness and often far into convalescence immense numbers of typhoid bacilli leave the body of the patient. The dangers to which the whole community is exposed from unrecognized or unsupervised cases of typhoid fever are therefore countless. Almost any raw foodstuff may be the vehicle for infection. Milk, butter, raw vegetables, fruit, bread, if handled by typhoid convalescents or peddled by persons dwelling in infected houses, may become a means of spreading the disease. Under some conditions it is apparent that laundries may aid in dissemination of the infection. In short, it is unnecessary to enumerate all the possible ways in which infection can be transmitted, and typhoid fever become fastened to the shoulders of a community as an endemic disease. Experience and common sense will serve to point the way to these dangers and to discover means for their avoidance. Thorough disinfection is the key to the situation.

SPECIFIC RECOMMENDATIONS.

1. To deal with the prevention of contact infection the health officer should be in the possession of ample power and financial resources for isolating, disinfecting and carrying out such other measures as are in his judgment necessary to prevent spread of the disease from the case under supervision. Every fresh case of typhoid fever is a new focus of infection, and unless stringently controlled, is a more or less direct menace to the whole city. Prompt notification of new cases is imperative.

2. In those parts of the city where sewers exist, connection of all houses with the sewers should be enforced and that as speedily as practicable. Until such time as this is accomplished, temporary measures, such as thorough disinfection with milk of lime, should be promptly applied. Of foremost importance is the abolition of the open outhouses. It is evident that it is not consonant with the public safety that any person ill with typhoid fever should be allowed to remain in a house without sewer connection.

3. Milk-measuring vessels or general receptacles of any sort should not be carried into or removed from houses in which typhoid fever is present. The daily delivery of milk must be made with suitable precautions. Inspection of the sources and routes of milk supply can not be too vigilant at times when typhoid fever is known to prevail.

4. The existence of private wells renders efficient control of the city's drinking water more difficult than if a single source of water supply existed. The use of such wells should be restricted and their number reduced as rapidly as possible. It should be made physically impossible for the employes of the Canadian Pacific Railway Company and for those of the City Railway Company to draw water for drinking purposes from taps connected directly with the Assiniboine or Red River. Experience under similar conditions in many cities has shown the futility of merely providing hortatory placards. In this connection it may be once more pointed out that a single case of typhoid fever due to drinking impure water may become a center from which scores or even hundreds of other cases will arise.

Water from the Assiniboine River should be used as little as possible.

5. I would recommend finally the employment of a man who has had experience in the management of epidemics to take charge of the whole situation, and to institute and enforce the necessary measures for stamping out all traces of infection.

In conclusion, I wish to acknowledge my deep obligation for the effective assistance rendered during the investigation by the various municipal departments and officials who have placed at my disposal all available data, and to express especially my indebtedness to Dr. Gordon Bell, who has afforded me valuable laboratory facilities and has greatly aided me in various ways.

The Downfall of Therapeutics.—The following editorial from *American Medicine* shows clearly the present status of therapeutics and materia medica: "Before the development of the natural sciences placed medicine as an art among the applied sciences, therapeutics was the most important branch of medical study and practice. Among the medical sects the same observation holds true at the present time. During the last half century medical progress, however, the pursuit of exact medical knowledge, has led students chiefly into surgery, diagnosis, pathology and bacteriology. Definite knowledge of the intimate reactions of the metabolic processes of our bodies with foreign agents introduced as drugs is just coming into sight with the growth of the new science of pharmacology, and so necessarily therapeutics at present lags behind. All of which is new to no one who sees, and is introduced simply to draw attention to an unfortunate practical result of this state of affairs. For some years progress in materia medica and therapeutics has seemed almost to lie in the hands of lay manufacturers. With their new compounds and their disguised old ones, the drug makers have kept the materia medica expanding at an alarming rate. This condition is by no means wholly to be deplored, as the pharmaceutists have contributed much to the comfort of physician and patient. However, the tremendous preponderance of commercialism in recent therapeutic progress has brought with it some ill conditions. Money-making attracts the unscrupulous, and the medical profession has difficulty in separating the wheat from the tares. Any good new laboratory product of therapeutic value is immediately imitated or attacked. There develops intense feeling between foreign and domestic manufacturers, and all the while the poor doctor, as the bone of contention, is overwhelmed with 'literature' and 'medical journals' (*sic*) and agents. Contradictions multiply until mercury and quinin appear to be about the only agents of whose qualities the physician may feel reasonably sure! The prize—the patronage of the profession—being of great commercial value, many subterfuges are employed by some to enable them to share in it. Official positions in medical bodies at times are sought, and at other times are appropriated by not too nice strategy. Medical journals are subsidized and new ones are published. A number of makers pay a regular stipend secretly to complaisant doctors here and there over the country, who, in return, are expected to read 'useful' papers and at every possible turn to uphold the wares of the benefactor. Thus it comes that therapeutics has reached its present low estate. Scientific physicians give their time to diagnosis and pathology, and limit themselves to simplest measures of treatment. Others make a diagnosis and then choose the remedy that the maker says is best for that condition. Many among us who love the study of means to alleviate suffering have endeavored faithfully to recreate professional interest in pure therapeutics, but the combat with intrenched wealth and monopoly is an unequal one in the face of general professional lethargy. But hope is not to be abandoned."

Sudden whitening of the hair is well authenticated, being known for centuries as recorded poetically by Byron in the "Prisoner of Chillon," says the *Med. Times*. Darwin tells of a man who, while being led to execution, became gray before the eyes of the spectators. Laycock records the case of a Sepoy who became gray in a half-hour. Cantrell reported an interesting case in his clinic, a man of 45, whose moustache became white in twenty-four hours and in ten days his whole head of hair changed its color to white. Brown-Séquard watched his own hair change; it occurred so rapidly that he could note the change daily. Henry of Navarre had his hair change in twenty-four hours.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

District of Columbia January Report.—Dr. W. C. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports the examination held at Washington, Jan. 12, 1905. The number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number examined was 14, of whom 12 passed and 2 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Columbian University	(1904)	82.06, 83.31, 79
Georgetown University	(1904)	85.03
Howard University	(1903)	75.18
	(1904)	79.68*, 81.31*
Johns Hopkins University	(1902)	86, 88.09
University of Pennsylvania	(1883)	92.18
University of Virginia	(1901)	96.18
Woman's Med. Coll. of Pennsylvania	(1903)	95.15
FAILED.		
Georgetown University	(1904)	74.18
Howard University	(1904)	60.03

*Second examination.

Iowa Report for 1904.—Dr. J. F. Kennedy, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Des Moines during 1904. At each examination the number of subjects examined in was 8; total number of questions asked, 80, and percentage required to pass, 75. At the examination held in April, 80 persons were examined, of whom 69 passed and 11 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Barnes Medical College, St. Louis	(1903)	75
College of P. and S., Baltimore	(1902)	87
College of P. and S., New York City	(1891)	87
Ensworth Medical College, St. Joseph, Mo	(1904)	76, 77, 81
Creighton Medical College, Omaha, Neb	(1901)	77
College of P. and S., Keokuk, (1904) the grade of 75 was reached by one, 76 by two, 77 by five, 78 by one, 79 by three, 80 by three, 81 by two, 82 by three, 83 by three, 84 by five, 85 by two, 86 by three and 87 by four.		
McGill University, Montreal, Canada	(1903)	88
Rush Medical College, Chicago, (1895) 90, (1901) 87, (1903) 85, 86, (1904) 85.		
Coll. of P. and S., St. Louis, (1902) 75, (1903) 78, (1904)		88.89
Sioux City College of Medicine, (1904) the grade of 81 was reached by one, 82 by one, 84 by two, 85 by one, 86 by one, 87 by three, 88 by one, 89 by one and 90 by one.		
University of Iowa	(1897)	81
University Medical College, Kansas City, Mo	(1903)	76
University of Michigan	(1894)	87
FAILED.		
Homeopathic Medical College, St. Louis	(1904)	74
St. Louis College of P. and S	(1904)	63
Keokuk Medical College	(1903)	69, (1904) 70, 70, 73, 74
Eclectic Medical Institute, Cincinnati	(1904)	65†
University of Nebraska	(1903)	68
St. Louis College of P. and S	(1902)	62*
University Medical College, Kansas City	(1902)	64

*Second examination. †Fourth examination.

At the examination held in June 136 applicants were examined, of whom 120 passed and 16 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Baltimore Medical College	(1900)	87
Barnes Medical College, St. Louis	(1904)	75, 80, 80
Bennett Eclectic Coll. of Med. and Surg	(1904)	93
Denver and Gross Medical College, Denver	(1903)	89
Iowa College of P. and S., Des Moines	(1904)	82
Drake University, Des Moines, (1904) the grade of 76 was reached by two, 77 by one, 80 by one, 83 by two, 84 by two, 85 by one, 87 by one and 88 by one.		
Hahnemann Medical College, Chicago	(1904)	76, 79, 86
Hering Medical College, Chicago	(1904)	77
Jefferson Medical College	(1904)	82, 84, 85, 86, 87, 88
John A. Creighton Medical College, Omaha	(1904)	80, 81
Marion Sims-Beaumont, St. Louis	(1904)	76
Medico-Chirurgical College, Philadelphia	(1904)	86
Northwestern University, (1904) the grade of 78 was reached by one, 82 by two, 83 by one, 84 by one, 85 by three, 87 by two, 88 by two, 89 by one, 90 by one and 92 by one.		
Rush Medical College, Chicago	(1904)	81
St. Louis College of P. and S	(1901) 75, (1904)	77
University of Bellevue, New York City	(1904)	90
College of P. and S., Chicago, (1903) the grade of 75 was reached by one, (1904) 78 by one, 79 by one, 80 by one, 83 by two, 84 by one, 85 by one, 88 by one and 89 by one.		
University of Iowa, (1904) the grade of 76 was reached by one, 77 by two, 79 by three, 80 by four, 81 by five, 82 by five, 83 by four, 84 by ten, 85 by three, 86 by four, 87 by six, 88 by three, 89 by four and 90 by one.		
University of Minnesota	(1901) 79, (1904)	82, 85
University of Nebraska	(1904)	80
FAILED.		
Keokuk Medical College	(1904)	71*
Homeopathic Medical College, St. Louis	(1904)	73*
St. Louis College of P. and S	(1904)	59*
Barnes Medical College, St. Louis	(1901)	62, 71
Marion Sims Medical College, St. Louis	(1904)	63, 72
University of Iowa	(1904)	71
College of P. and S., Chicago	(1904)	64
Eclectic Medical Institute, Cincinnati	(1883) 44, (1903)	69††
American Medical College, St. Louis	(1903)	43
Chicago Homeopathic Medical College	(1904)	72
University of Iowa	(1899)	72
Meharry Medical College, Nashville, Tenn	(1895)	68†
University of Iowa	(1904)	74

*Second examination. †Fourth examination. ††Fifth examination.

At the examination held in September 37 applicants were examined, of whom 25 passed and 12 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
American Medical Missionary College, Chicago	(1904)	81
Barnes Medical College, St. Louis	(1904)	75
Dartmouth Medical College, Hanover, N. H	(1903)	88
Drake University, Des Moines	(1904)	90
Hahnemann Medical College, Chicago	(1904)	90
Illinois Medical College, Chicago	(1904)	81, 86
Jefferson Med. College, Philadelphia, (1896) 90,	(1904)	82, 85, 86
Creighton Medical College	(1904)	89
National Medical University, Chicago	(1904)	77
Northwestern University	(1904)	83, 90
Rush Med. Coll., (1895) 91, (1899) 91, (1903) 83,	(1904)	84, 86
College of P. and S., Chicago	(1899)	91
University of Iowa	(1904)	82
University of Michigan	(1904)	85
University of Nebraska	(1903)	76
University of Pennsylvania, Philadelphia	(1903)	81
Washington University, St. Louis	(1903)	77
FAILED.		
College of P. and S., Chicago	(1899)	66
Pulte Medical College	(1888)	64
Drake University, Des Moines	(1903)	66**
Chicago Homeopathic Medical College	(1904)	72*
Eclectic Medical Institute, Cincinnati	(1883)	57*
Barnes Medical College, St. Louis	(1901)	60*
University of Iowa	(1904)	71*
College of P. and S., Chicago	(1904)	64
Eclectic Medical Institute, Cincinnati	(1903)	70††
Keokuk Medical College	(1904)	71*
Barnes Medical College, St. Louis	(1904)	70*
Jenner Medical College, Chicago	(1902)	72

*Second examination. **Third examination. ††Sixth examination.

At the December examination 17 applicants were examined, of whom 12 passed and 5 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Rush Medical College	(1904)	86
Illinois Medical College, Chicago	(1905)	85
Northwestern University	(1904)	84
University of Nebraska	(1904)	77
College of P. and S., Chicago	(1904)	82
National Medical University, Chicago	(1903)	75
University of Michigan	(1880)	79
Jefferson Medical College	(1904)	81, 86, 87
College of P. and S., Keokuk	(1903)	77
Toronto School of Medicine, Canada	(1904)	88
FAILED.		
Eclectic Medical Institute, Cincinnati	(1883)	61**
Chicago Homeopathic Medical College	(1904)	71*
University Medical College, Kansas City	(1902)	69*
Barnes Medical College, St. Louis	(1904)	65*
Jenner Medical College, Chicago	(1902)	72*

*Second examination. **Third examination.

The general average attained by all graduates of the College of P. and S., Keokuk, who passed during the year, was 81.5; of Rush Medical College, 82.9; of Sioux City College of Medicine, 86.9; of Drake University, 82.9; of Jefferson Medical College, 85.3; of Northwestern University, 85.6; of College of P. and S., Chicago, 83; of the University of Iowa, 83.4.

Oregon January Report.—Dr. Byron E. Miller, secretary of the State Board of Medical Examiners of Oregon, reports the written examination held at Portland, Jan. 3-5, 1905. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of persons examined was 23, of whom 19 passed and 4 failed.

PASSED. College.	Year Grad.	Per Cent.
Barnes Medical College	(1896) 80, (1898)	81
Kansas City Medical College	(1903)	89
Eclectic Medical Institute	(1904)	82
University of Minnesota	(1903) 84, 79; (1904)	84
Rush Medical College	(1902) 79, 81; (1903) 83, (1904)	83
Starling Medical College	(1888) 82, (1896)	82
Trinity Medical College	(1901)	82
American Medical Missionary College	(1904)	86
University and Bellevue Hospital Medical College	(1875)	83
Vanderbilt University	(1900)	85
Marion Sims-Beaumont College of Medicine	(1904)	84
Bennett College of Eclectic Medicine	(1902)	80

FAILED.

Pulte Medical College	(1879)	57
Northwestern University	(1884)	72
Kings and Queens College of Physicians	(1888)	59
University of Michigan	(1885)	*

*Withdrew from examination.

Wyoming Report for 1904.—Dr. George P. Johnstone, secretary of the State Board of Medical Examiners of Wyoming, reports that during 1904 sixty-five persons were licensed to practice medicine and that seven persons were refused license because they were unable to furnish satisfactory credentials.

Rush Medical College had 11 representatives; Jefferson Medical College, 2; Eclectic Medical Institute, Cincinnati, 1; Kansas Medical College, 1; University of Colorado, 3; Barnes Medical College, 2; University of State of New York, 1; College of P. and S., Keokuk, 1; Bennett Medical College, 1; Lincoln Medical College, 2; McGill University, 1; Dalhousie University, Nova Scotia, 1; Denver and Gross Medical College, 4; Marion-Sims-Beaumont, 1; Washington University, Medical Department, St. Louis, 1; College of P. and S., Chicago, 3; Trinity College, Toronto, 1; Baltimore University, 4; Missouri Medical College, 1; University of Nebraska, 2; University of Japan, 1; University Medical College, Kansas City, 2; Eclectic Medical University, Kansas City, 1; Medico-Chirurgical College, Kansas City, 1; Homeopathic Medical College, Kansas City, 1; Columbia University, 1; National University, Washington, 1; College of P. and S., St. Louis, 1; University of Vermont, 1; University of Michigan, 1; Alexander University, 1; Germany, 1; Hospital College of Medicine, Louisville, 1; Hering Medical College, Chicago, 1; Baltimore Medical College, 1; University of Minnesota, 1; University of Buffalo, 1; Eclectic Medical College, Penn., 1; Omaha Medical College, 2; University of Iowa, 1; Kansas City Medical College, 1.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 11, 1905:

Winn, Robert N., and Thomason, Henry D., asst.-surgeons, ordered to report to Lieut.-Col. George H. Torney, deputy surgeon general, U. S. Army, General Hospital, Presidio of San Francisco, for examination for promotion not later than March 3, 1905.

Mathews, Geo. W., asst.-surgeon, retired as captain, to date Feb. 2, 1905.

Smart, Robert, asst.-surgeon, order changing station from Fort Du Pont, Del., to Fort Sheridan, Ill., is revoked.

Jean, Geo. W., asst.-surgeon, granted two months' leave of absence.

Banister, Wm. B., surgeon, ordered to accompany Second Squadron, Eighth Cavalry, from Jefferson Barracks, Mo., to San Francisco, and then return to proper station.

Thornburgh, R. M., asst.-surgeon, left Fort Warren, Mass., on ten days' leave of absence.

Baker, David, and Buck, Carroll D., asst.-surgeons, ordered to accompany Sixth Infantry from Fort Leavenworth, Kan., to San Francisco.

Torney, George H., deputy surgeon general, reports in temporary charge of C. S. O. Department of California.

Smart, Robert, asst.-surgeon, ordered to proceed from Fort Du Pont, Del., to Fort Myer, Va., for duty.

Wilson, James S., asst.-surgeon, ordered to proceed from Fort Myer, Va., to Fort Oglethorpe, Ga., for duty.

Little, Wm. L., asst.-surgeon, ordered to proceed from Fort Oglethorpe, Ga., to Jackson Barracks, La., for duty.

Marvin, Marion F., contract surgeon, granted an extension of one month to his leave of absence.

Sanford, Joseph L., contract surgeon, ordered from Clinton, Va., to Fort Leavenworth, Kan., to accompany the Sixth Infantry thence to Philippine service.

Anderson, Everett, A., contract surgeon, ordered from Georgetown, Ky., to Fort Leavenworth, Kan., to accompany the Sixth Infantry thence to Philippine service.

Hewitt, John M., contract surgeon, ordered from Kewanee, Ill., to Jefferson Barracks, Mo., to accompany the Second Squadron, Eighth Cavalry, thence to Philippine service.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 11, 1905:

Wells, H., medical director, commissioned medical director, with rank of captain, from Jan. 1, 1905.

Drake, N. H., medical inspector, commissioned medical inspector, with rank of commander, from Jan. 1, 1905.

Stepp, J., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from June 7, 1904.

Bishop, L. W., asst.-surgeon, detached from the Naval Hospital, New York, and ordered to continue duties at the Navy Yard, N. Y.

Blue, J. H., and Foster, T. G., asst.-surgeons, appointed asst.-surgeons, with rank of lieutenant (J. G.), from Jan. 16, 1905.

Harmon, G. E. H., medical director, commissioned medical director, with rank of captain, from Dec. 15, 1904.

Hibbett, C. H., medical inspector, commissioned medical inspector, with rank of commander, from Dec. 15, 1904.

Guest, M. S., surgeon, commissioned surgeon, with rank of lieutenant commander, from **Jan. 20, 1903.**

Mayers, G. M., asst.-surgeon, ordered to the Naval Hospital, New York.

Elmore, B., A. A. surgeon, ordered to the Navy Yard, Washington, D. C., for duty at the Naval Hospital.

Von Wedekind, L. L., surgeon, ordered to the Naval Training Station, Newport, R. I., with additional duty on board the *Constellation*.

Barber, G. H., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to the *Ohio* Feb. 25, 1905.

High, W. E. G., asst.-surgeon, detached from duty with Marine detachment, Midway Island, and ordered to the Naval Training Station, San Francisco.

Tyree, F. W., A. A. surgeon, detached from the Navy Yard, Charleston, S. C., ordered to duty with Marine detachment on Midway Island.

Grunwell, A. G., surgeon, when discharged from treatment at the Naval Hospital, New York, ordered to duty at that hospital.

Odell, H. E., P. A. surgeon, detached from the Naval Hospital, New York, February 15, and ordered to the *Galveston* Feb. 15, 1905.

DeValin, C. M., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan.. 31, 1903.

Plummer, R. W., P. A. surgeon, ordered to the Navy Yard, Charleston, S. C., February 17.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Feb. 5, 1905:

Gassaway, J. M., surgeon, granted leave of absence for ten days from February 9.

Richardson, T. F., P. A. surgeon, to proceed to Savannah Quarantine and assume temporary charge of the Service during the absence, on leave, of A. A. Surgeon W. J. Linley.

Wilson, R. L., P. A. surgeon, granted leave of absence for one month from March 1.

Francis, Edward, asst.-surgeon, granted leave of absence for seven days from Feb. 2, 1905, under Paragraph 191 of the Regulations. Granted extension of leave of absence for twenty-three days from February 9.

Duffy, F., A. A. surgeon, granted leave of absence for seven days from February 8.

Hargis, J. W., A. A. surgeon, granted leave of absence for twenty days from February 8.

Linley, W. J., A. A. surgeon, granted leave of absence for thirty days from February 13.

McConnell, E. F., A. A. surgeon, granted leave of absence for thirty days from February 1.

Morris, G. A., pharmacist, relieved from duty at Fort Stanton, N. M., and directed to proceed to St. Louis, Mo., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist J. M. Bell.

Bell, J. M., pharmacist, on being relieved from duty at St. Louis by Pharmacist G. A. Morris, to proceed to Fort Stanton, N. M,. and report to the medical officer in command for duty and assignment to quarters.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, Baltimore, Feb. 3, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon C. W. Wille, chairman; A. A. Surgeon G. H. Steuart, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 3 to Feb. 11, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Jan. 28-Feb. 4, 1 case.
Georgia: Macon, Jan. 21-28, 1 death.
Illinois: Jan. 28-Feb. 4, Chicago, 13 cases, 6 deaths; Galesburg, 1 case.
Kansas: Topeka, Jan. 28-Feb. 4, 1 case.
Louisiana: New Orleans, Jan. 21-Feb. 4, 23 cases, 1 death, 9 cases imported.
Maine: Perry, Feb. 1, 1 case.
Michigan: Detroit, Jan. 28-Feb. 4, 3 cases.
Missouri: St. Louis, Jan. 28-Feb. 4, 38 cases.
New York: New York City: Jan. 21-Feb. 4, 9 cases, 1 death.
Ohio: Toledo, Jan. 28-Feb. 4, 5 cases.
South Carolina: Charleston, Jan. 28-Feb. 4, 5 cases.
Tennessee: Jan. 28-Feb. 4, Memphis, 14 cases; Nashville, 8 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Dec. 10-24, 2 cases.

SMALLPOX—FOREIGN.

Bosnia and Herzegovina, Nov. 1-30, 22 cases, 3 deaths.
Brazil: Pernambuco, Dec. 15-31, 116 deaths; Rio de Janeiro, Jan. 1-8, 45 cases, 15 deaths.
Ecuador: Guayaquil, Jan. 4-18, 3 cases; Manabi Province, Jan. 4, present.
France: Paris, Jan. 14-21, 17 cases, 3 deaths.
Germany: Bremen, Jan. 7-14, 1 case.
Great Britain: Glasgow, Jan. 20-27, 1 death; Jan. 14-21, Hull, 4 cases; Liverpool, 1 case; London, 1 case; Newcastle-on-Tyne, 11 cases; South Shields, 11 cases.
India: Bombay, Dec. 20-Jan. 10, 102 deaths; Calcutta, Dec. 17-Jan. 7, 5 deaths; Karachi, Dec. 24-Jan. 8, 6 cases, 1 death; Madras, Dec. 17-Jan. 6, 5 deaths.
Italy: Catania, Jan. 12-26, 4 deaths; Palermo, Jan. 7-21, 43 cases, 9 deaths.
Luxemburg: Dec. 1-15, 3 cases.
Mexico: City of Mexico, Dec. 17-Jan. 7, 4 cases, 4 deaths.
Netherlands: Rotterdam, Jan. 21-28, 2 cases.
Russia: Jan. 7-14, Odessa, 1 case; St. Petersburg, 2 cases, 3 deaths; Warsaw, Nov. 26-Dec. 3, 3 deaths.
Spain: Barcelona, Jan. 10-20, 12 deaths.
Straits Settlements: Singapore, Dec. 17-31, 2 deaths.
Turkey: Constantinople, Jan. 15-22, 17 deaths.
Venezuela: La Guaira, Jan. 21, epidemic.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 1-8, 1 case.
Mexico: Coatzacoalcos, Jan. 21-28, 1 case; Merida, Jan. 22-28, 1 case.
Panama: Colon, Jan. 28, 1 case, probably imported.

PLAGUE—INSULAR.

Philippine Islands, Manila, Dec. 3, 1 death.

PLAGUE—FOREIGN.

Africa: Cape Colony (East London), Dec. 25, 1 death.
Arabia: Aden, Dec. 31-Jan. 14, 161 cases, 116 deaths.
Brazil: Guaratingueta, Nov. 30-Dec. 18, 11 cases; Rio de Janeiro, Jan. 1-8, 22 cases, 11 deaths.
Egypt: Dec. 31-Jan. 7, Suez, 2 cases, 3 deaths; Tukh, 1 case, 1 death.
India: Bombay, Dec. 20-Jan. 10, 374 deaths; Calcutta, Dec. 15-Jan. 7, 67 deaths; Karachi, Dec. 25-Jan. 8, 120 cases, 105 deaths.
Siam: Bangkok, Dec. 17-24, present.
Siberia: Slobodskoi and Vigatka districts, Oct. 18-Dec. 14, 227 cases.

CHOLERA.

India: Bombay, Dec. 20-Jan. 10, 1 death; Calcutta, Dec. 15-Jan. 7, 304 deaths.
Russia: Dec. 7-14, Astrachan, 1 case; Baku province and city, 459 cases, 355 deaths; Erivan province and City, 1,506 cases, 1,265 deaths; Samara, 17 cases; Saratov, 10 cases; Trans-Caspian province, 40 cases, 1 death.
Turkey in Asia: Jan.-Dec. 26, 10,466 cases, 9,192 deaths.

Medical Organization.

Delaware.

This state now has a medical society in each county, every one of which has adopted the standard constitution and by-laws.

SUSSEX COUNTY MEDICAL SOCIETY.—This society has elected Dr. Robert B. Hopkins, Milton, president, and Dr. Roland G. Paynter, Georgetown, secretary.

KENT COUNTY MEDICAL SOCIETY.—At the annual meeting, Dr. James H. Wilson was elected president, and Dr. L. August H. Bishop, secretary, both of Dover.

NEWCASTLE COUNTY MEDICAL SOCIETY.—At the annual meeting, Dr. Peter W. Tomlinson was elected president; Dr. Joseph P. Wales, vice-president; Dr. Harold L. Springer, secretary, and Dr. William G. Winner, treasurer, all of Wilmington. The society endorsed any and all measures looking toward establishing a high standard of purity of the milk supply. At a previous meeting the standard constitution and by-laws had been adopted.

Nevada.

NEVADA STATE MEDICAL SOCIETY.—At the annual meeting of the Nevada State Medical Society, held in Reno, Dec. 19, 1904, the society was reorganized on the standard plan with the following officers: Dr. W. Lee Moore, Verdi, president; Drs. Charles E. Mooser, Reno, and M. R. Walker, Reno, vice-presidents, and Dr. John L. Robinson, Reno, secretary-treasurer.

South Carolina.

GEORGETOWN COUNTY MEDICAL SOCIETY.—Physicians of the county met at Georgetown, February 6, and after addresses by Dr. Walter Cheyne, councilor of the district, and Dr. J. N. McCormack, organized a county society on the standard plan, with the following officers: Dr. M. P. Moorer, president; Dr. H. D. Beckman, vice-president; Dr. Olin Sawyer, secretary-treasurer; Drs. F. C. Clark, W. M. Gaillard and L. B. Salters, censors, and Dr. William E. Sparkman, delegate to the state association, all of Georgetown.

GREENWOOD COUNTY MEDICAL SOCIETY.—Dr. J. N. McCormack addressed a meeting of physicians of the county at Greenwood, February 10, after which a county society was organized on the standard plan with the following officers: Dr. G. Pressly Neal, Greenwood, president; Dr. John Lyon, Ninety-six, vice-president; Dr. R. B. Epting, Greenwood, secretary; Drs. James B. Hughey, Greenwood, William T. Jones, Jones, and F. G. Moss, Verdery, censors, and Dr. Sanders L. Swygert, Greenwood, delegate to the state medical association. Dr. Mayer, councilor of the district, was unable to be present owing to serious illness.

Society Proceedings.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Jan. 11, 1905.

The First Vice-President, Dr. Franklin B. Stahl, in the Chair.

The Practice of Medicine in India.

DR. ANNA M. FULLERTON gave an account of the difficulties attending the practice of medicine in India in consequence of social and religious customs. This, with the dense ignorance and grinding poverty of the mass of the people, are responsible for the widespread epidemics which prevail and which have baffled all the efforts of the English government to suppress. High caste women can never see a male physician, but must be treated by ignorant native midwives, and shocking mutilations often occur, for which repair of any kind is impossible. The hospitals established by the English government, and especially mission hospitals and dispensaries, are creating a sentiment in favor of western medicine.

The Antitoxin Treatment of Diphtheria.

DR. B. FRANKLIN ROYER of the Municipal Hospital, by statistics of the Board of Health of Chicago, New York City, Brooklyn and Philadelphia, proved an actual decrease in the loss of life in each city respectively at 5,400, 8,204, 951, and 1,853, a total for these four cities, without allowing for increased population, of 16,408 lives. By a table including 67,748 patients treated in the Metropolitan Asylums Board Hospital, a decrease in death rate of 15.24 per cent. was shown. By a table from the South Department in Boston, reporting 16,544 cases, a decrease of 29.26 per cent. was shown. In the Municipal Hospital, reporting 10,219 cases, there was a decrease of 10 per cent. He recommended that the dose of antitoxin be in proportion to the amount and location of exudate. He recommended large doses of antitoxin in nasal, naso-pharyngeal and laryngeal diphtheria, and urged a more general use of antitoxin as an immunizing agent, and earlier in the disease, without waiting for culture returns. The dose in use at the Municipal Hospital is: for tonsillar exudate (single), 2,500 units; purely tonsillar (double), 5,000 units; tonsillar exudate with pillars and uvula or pharynx involved, 7,500 to 10,000 units; nasal and any other part involved or for laryngeal diphtheria, 7,500 to 10,000 units. Repeat the dose in each type of disease in from 12 to 24 hours, depending on the sign of improvement, and every 24 hours thereafter; when a large amount of exudate persists, a dose of 5,000 to 7,500 units is given until a good part of the exudate has disappeared.

Severe Case of Acute Chorea Treated Successfully with Apomorphin.

DR. MONTROSE GRAHAM TULL reported a case of acute chorea coming on gradually in a girl, fifteen years of age, with menstruation not fully established, presenting symptoms of acute mania, thickened tongue, gutteral and unintelligible articulation and with incessant choreic movements. The body was covered with a confluent, morbilliform rash. After all the accepted forms of treatment had been tried with absolutely no effect, he concluded to try apomorphin in tentative doses: one-fortieth of a grain was administered hypodermically with remarkable result. The choreic movements ceased in about three minutes, and the child slept peacefully and quietly. One-twentieth of a grain of apomorphin, every three hours, by the mouth, was continued for three or four days, in addition to the arsenic which she had taken from the beginning, and the patient made an uninterrupted recovery.

Regular Meeting, held Jan. 25, 1905.

The President, Dr. James M. Anders, in the Chair.

The Need of Early Operation in Surgical Diseases of the Abdomen.

DR. JOHN B. ROBERTS exhibited a specimen of stricture of the sigmoid flexure due to ulceration of the mucous membrane. A diagnosis of obstruction of the gastrointestinal canal in the neighborhood of the pylorus and duodenum had been made. The condition of the patient was so bad that a jejunostomy was performed for the purpose of feeding the patient prior to a more extensive examination of the abdomen. Death occurred after a few days from exhaustion. It was then found that the obstruction was in the sigmoid flexure. Early operative relief

would almost certainly have been accomplished by excision of the gut or by intestinal anastomosis. The second specimen showed a perforated duodenal ulcer close to the pylorus. A time for operation was appointed, but before that time perforation occurred. Immediate operation was then advised as a last resort, but the patient and his friends would not consent. Dr. Roberts believed that a gastrojejunostomy, done a day or two prior to the time of perforation, would have saved this patient's life. Specimen No. 3 was a perforated appendix removed from a case which had come under Dr. Roberts' care about forty hours after an attack of abdominal pain. When he saw the man his pulse was 160 and very feeble. His hands were cold; his face was covered with a clammy sweat, and the abdomen was distended and painful. Believing that operation would almost certainly result in death, Dr. Roberts abstained from even opening the abdomen. Autopsy showed the lower abdomen full of pus, with a gangrenous opening in the appendix big enough to admit a lead pencil. The fourth specimen was a large gallstone, measuring an inch and a half by three-quarters of an inch, from the gall bladder of a woman who for a number of years had suffered repeated attacks of pain in the region of the gall bladder. Operation showed the stomach, gall bladder, liver and omentum to be bound together by old and firm adhesions. The gall bladder was dragged backward until its fundus pointed toward the spinal column. It was entirely filled by this large stone. The patient had, in addition, a bent and adherent appendix from former attacks of appendicitis. The gall bladder was opened, the calculus removed, and the appendix excised. Drainage through the lumbar region was employed and a large drainage tube was introduced through the abdominal incision. The patient did moderately well for about two days and then died from asthenia. The case illustrated the importance of cholecystotomy in the early stage of all cases of gallstone disease. The fifth specimen was a globular gallstone, about three-quarters of an inch in diameter, removed from the junction of the hepatic, cystic and common gall ducts. The patient had great pain, and persistent jaundice, which at the time of operation gave her a dark bronze color. Choledochotomy was required for extraction of the stone and was followed by hepatic and abdominal drainage. The specimens were shown to call attention to the importance of operating on gall-bladder disease, inflammations of the appendix, and obscure lesions of the stomach and intestines early. Dr. Roberts believes that the best results will undoubtedly be obtained in such cases by early exploratory incision, followed by operations for relief, even if such surgical methods are employed before definite diagnosis can be made. He stated that the profession and the public should realize that this is the teaching of modern surgery.

A New Saw for Cranial Surgery.

DR. H. C. MASLAND exhibited a skull saw, which will be illustrated in THE JOURNAL.

DISCUSSION.

DR. JOHN B. ROBERTS said the saw seemed to be a very efficient instrument, and agreed with Dr. Masland that it did not need the guard, since in cutting through bone one can tell by the feeling when it is cut through.

DR. T. H. WEISENBURG did not agree with Dr. Masland that it was not necessary to have the saw set to cut thicker than a quarter of an inch, since he had seen some skulls in which a deeper cut was required. Neither did he agree that it was unnecessary to have a circular incision. The circular flap, in his opinion, is more easily replaced and is better for cosmetic reasons. He further disagreed with Dr. Masland in regard to the matter of time, and referred to Dr. Frazier's operations in the University Hospital, in which he opened the skull in two minutes and seldom exceeded three or four minutes, which Dr. Weisenburg thought could scarcely be improved on.

DR. MASLAND said that the instrument used by Dr. Frazier made an incision an eighth of an inch wide, which does not offer so great a probability of union through the line of incision as a cut one millimeter in width. This also guarantees a minimum waste of bone, and replacement without sinking.

The Limitations and Possibilities of Electricity in the Treatment of Diseases of Women.

DR. BARTON COOKE HIRST has found an advantage in the use of galvanism and faradism in a limited number of diseases of women. As a hemostatic agent, in uncomplicated small fibroid tumors, with no other symptoms than metrorrhagia, it is one of the most efficient. He finds electricity useful also in the treatment of amenorrhea and sterility the result of imperfect development, or atrophy of the uterus. Two illustrative cases were reported in which normal menstruation was restored and conception occurred, following this treatment. In one woman there had been amenorrhea for a year. In the other the menstruation had been reduced to a scanty discharge, lasting less than a day, the result of lactation atrophy. The third indication is to restore tone to a paretic sphincter ani muscle after its restoration by surgical means, in cases in which repeated attempts had been made to restore the muscle, with failure, and in which there had been no contractile power exercised for a number of years. A fourth indication for the use of electric currents was found in certain types of dysmenorrhea associated with a poorly-developed uterus. Local treatment, however, he believes, is very rarely practicable in such cases. This comprises all the conditions in which it can be hoped to accomplish much by electricity.

Toxic Changes in Brain and Spinal Cord Due to Carcinoma.

DR. T. H. WEISENBURG said that the influence of carcinoma of parts other than the brain and spinal cord on the nervous system is becoming better recognized. Metastasis may occur in the brain, where it may be either in the form of a tumor or as an infiltration of cancer cells of the pia of the cortex or of the base of the brain. A case is recorded where basal syphilis was diagnosed, but at the autopsy a metastatic cancer was found. This teaches that whenever cerebral symptoms occur in the course of carcinoma, no matter in what form they appear, metastasis should be thought of in the diagnosis. In the spinal cord, metastasis generally involves the spinal vertebræ, causing a pressure myelitis. Cases are recorded where during the course of the disease such symptoms as mental apathy, dementia, hemiplegia and aphasia occurred. These are undoubtedly of toxic origin. Dr. Weisenburg stated that he has recorded cases of bulbar symptoms and dementia in which a careful microscopic examination of the brain and spinal cord demonstrated alterations in the nerve cells of the medulla oblongata and pons. In another case, where there were no cerebral symptoms, changes were also found in the nerve cells of the cortex. Such findings have not been previously recorded.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Jan. 25, 1905.

The President, Dr. John B. Murphy, in the Chair.

The Therapeutic Use of the X-Rays.

DR. WILLIAM ALLEN PUSEY read a paper with this title which will appear in THE JOURNAL.

The Treatment of Lymphatic Leukemia with the X-Ray.

DR. JOSEPH A. CAPPS and DR. JOSEPH F. SMITH reviewed the progress made in this field.

The first case was treated by Dr. Pusey for one month, but without improvement. In 1903 Dr. Nicholas Senn reported a case of leukemia symptomatically cured. The patient presented the typical symptoms of splenomyelogenous leukemia, and had been ill for fourteen months. Treatment was begun daily and was given every other day, through the latter part of January, and during February, March, April and May, and at the time of Senn's last observation, the white count came down to 10,000, and the spleen was almost of normal size. The patient felt perfectly well, but died later with symptoms of toxemia. Cases of lymphatic leukemia treated by Senn, Churchill and Pusey died inside of seventeen months.

The authors reported three cases of lymphatic leukemia treated by the *x*-rays, two of which were of the acute form. One patient died in six days, and the other in ten days. Of

the subacute cases there were two. While the *x*-ray exerted a beneficial effect, it did not control the disease. Better results were obtained in treating the chronic cases, and of these the authors reported three instances. They stated that patients with splenomyelogenous leukemia should receive *x*-ray treatment because they are greatly benefited thereby. They respond more slowly than do patients with chronic lymphatic leukemia. These patients feel that they are cured, but in the light of Senn's case and of other cases reported as symptomatically cured, some of which have since died, physicians must not be too sanguine in regard to pronouncing cures. It is altogether probable that some of these cases are not cured, but that the process is held in abeyance. Oftentimes in leukemia the spleen will diminish in size and the blood count come down under *x*-ray treatment, and the patient, so far as the leukemia is concerned, is very much better symptomatically, but the disease reasserts itself always.

DISCUSSION.

DR. OLIVER S. ORMSBY referred to observations of more than two hundred cases of epithelioma treated by the *x*-ray. The cases that had been relieved most were of the superficial rodent ulcer type. The results were uniformly good. In two cases there was a mild recurrence. Nineteen cases of superficial epithelioma of the lip were treated with excellent results. Psoriasis of the scalp can be removed with the *x*-ray without removing the hair. The results in eczema and in acne rosacea are excellent. In seventeen cases of sycosis the results were good, one-half of the patients being entirely well. In two obstinate recurrences took place. In keloid their results in eleven cases were the same as those mentioned by Dr. Pusey. Thirty-five cases of lupus erythematosus were treated, combining radial with phototherapy, with excellent results.

DR. E. A. FISCHKIN stated that cases of sycosis and keloid reacted beautifully to *x*-ray treatment. He spoke of the idiosyncrasy of different patients to the *x*-ray. He mentioned two patients who had psoriasis, a brother and a sister; the sister was cured after six or eight treatments, with no recurrence after two years. Although the brother has had over one hundred treatments, the psoriasis has increased all over the body. There is no evidence of cure of any of the lesions. This case illustrates that there is a decided difference in the reaction of patients to the *x*-ray.

DR. R. R. CAMPBELL stated that in two cases of blastomycosis which he had treated by the *x*-ray without the administration of iodid of potassium his results had been the same as those of Dr. Pusey. The cases of epithelioma of the lip he had selected for *x*-ray treatment were of the superficial type. In two cases out of twelve, in which there was some slight induration, he failed to get any beneficial results from the *x*-ray. In a case of epithelioma of the lip, in which it becomes necessary to curette, he thinks the domain of the *x*-ray ceases, and the case properly belongs to surgery. His results in lupus erythematosus have not been satisfactory. In lupus vulgaris the *x*-ray is eminently the best treatment. In acne his experience has been gratifying.

DR. DAVID LIEBERTHAL corroborated what the other speakers said in regard to the treatment of acne, lupus vulgaris, acne rosacea, etc., with the *x*-ray. He emphasized the importance of carefully selecting and classifying cases.

Administration of Oxygen Gas.

DR. H. J. BURWASH referred to a paper by Kellogg of Battle Creek, Mich., entitled "Oxygen Gas Per Enema," which was published in 1887. In this paper, Kellogg discusses at length experiments on guinea-pigs, showing that this gas per enemata is readily absorbed, and that dark venous blood is noticed to be immediately changed into bright arterial blood by its application. He, therefore, recommends this method for the treatment of diseases of the liver and digestive organs. He reports many cases, nearly all being of digestive troubles. Dr. Burwash has made a new application of this method by using it in the treatment of the acute respiratory diseases, particularly pneumonia. He first used it in August, 1891, in a severe typhoid case, after failing to resuscitate the patient by the usual method of inhalation. The patient was a young girl, sixteen years of age, who became profoundly toxic, delirious and cyanotic. The gas by inhalation did not appear to revive her from the stupor, and then it occurred to him to administer the gas per enema. He gave her one gallon; after two minutes' duration the respiration became more exhilarated, and the deep cyanosis disappeared. The patient recovered after a very protracted illness.

Since that time he has continued to use oxygen per enema in all his critical cases, especially pneumonia. It is plainly apparent that the introduction of a large quantity of oxygen into the intestinal canal not only neutralizes and deodorizes the noxious gases that are frequently present there, but also introduces oxygen through the portal system to the liver, whose cells are not only stimulated to greater activity, but are nourished as well. Besides this, the already overcharged lungs are assisted in their function of aëration of the blood.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held Dec. 9, 1904.

Dr. Samuel Wolfe in the Chair.

Report of a Case of Pancreatic Cyst.

DR. M. J. KARPELES reported the case of a male, aged 68, with a negative family and personal history. He first complained of discomfiture in the left side, the principal symptoms being marked nausea, with occasional vomiting of a dark green, non-odorous, thin watery fluid, in an amount out of proportion to that ingested; general pruritus, especially of the hands; dyspnea on least exertion; profound weakness; epistaxis; colicky pains, and frequent attacks of diarrhea and insomnia. The stools were found to be free from fat. The urine showed a low specific gravity, a trace of albumin and the presence of bile. On physical examination a tender area was elicited at the costal margin in the left mammillary line. Ten days later, it was possible to outline in this region a mass the size of an egg which, at the time of the patient's death, about three weeks later, involved the left half of the epigastrium, the left hypochondrium, the umbilical and the left lumbar regions. As this fluctuating mass, which was diagnosed as a pancreatic cyst, enlarged, the gastrointestinal symptoms proved more rebellious, the jaundice became more marked, the insomnia required hypnotics, and the general discomfiture increased. In view of the marked prostration and jaundice, operation was not deemed advisable. At autopsy a large pancreatic cyst was found, containing about two liters of a grayish fluid. The cyst wall was thin and the inner lining smooth. It was impossible to determine the part of the gland in which the cyst originated.

DISCUSSION.

DR. DAVID RIESMAN stated that in the differential diagnosis we should consider (1) cystic gall bladder; (2) hydronephrosis; (3) echinococcus cyst in women, and (4) ovarian cyst. He stated that jaundice is not so prominent in cases of cystic gall bladder, but may be present. In hydronephrosis with renal crises and long history of pain, floating kidney should be taken into consideration; ovarian cyst should be differentiated by vaginal examination, and echinococcus cyst by the patient's habits. In the case reported, exhaustion and epistaxis rendered operation inadvisable, although possibly tapping of the sac, after sewing or stitching it to the abdominal wall, might have been of value, if the epistaxis had not been so great. Where the tumor occurs in the epigastrium, extending into the left hypochondrium, and is accompanied by pains in the celiac plexus, these symptoms are sufficient to warrant a provisional diagnosis of pancreatic cyst. The danger of fat necrosis occurring by reason of the fluid getting into the abdominal cavity is quite small, although cases have occurred in which the tumor evacuated itself into the intestinal canal. The surgical treatment is the one that should be employed.

The Etiology and Diagnosis of Cholelithiasis.

DR. WILLIAM RUOFF stated that no common etiologic factor could be assigned to all cases. Age is an important factor, the majority of cases occurring between the ages of 40 and 60, and the more frequent occurrences in females he laid to the mode of dress and pregnancy. The influence of age might be manifested through the loss of contractile power of the bladder, thus favoring retention and the lack of resisting power of the body fluids. He felt that too much importance is attached to temperament, gluttony, excessive indulgence in meats and fats, heredity and climate. He discussed in detail the different varieties: (1) Pure cholesterin stone; (2) laminated cholesterin stone; (3) ordinary gallstones; (4) mixed bilirubin-calcium stones; (5) the rarer forms, such as (a) amorphous stones, resembling pearls; (b) chalk stones; (c) concretions surrounding foreign bodies; (d) casts of bile ducts. He then considered in detail the infective causes through the medium of the portal circulation and through an ascending infection from the common duct, and the influence of appendicitis, salpingitis, peritonitis, etc. The diagnosis was considered under three heads: (1) cases in which no symptoms have been produced and which are usually discovered at autopsy; (2) transitory symptoms of dyspepsia and abdominal and liver symptoms; (3) those cases causing severe and, at times, almost fatal illness, which are most frequently met with. The symptoms of jaundice, vomiting, hepatic and cystic infection were considered, as was also the symptom of impaction.

Gallstone Disease, Remote Effects and Treatment.

DR. SAMUEL P. GERHARD stated that our efforts must be mainly surgical; that the gallstones, as long as they remained in the bladder, are perfectly harmless, but that the danger is due to the liability of accidents in their passage through the common duct, considering under this head cholecystitis, empyema and gangrene, pancreatitis, fistula into a neighboring organ, peritonitis, etc. The medical treatment should be prophylactic, directed to preventing rather than curing the disease.

DISCUSSION.

DR. DAVID RIESMAN stated that the youngest patient he had ever seen was 11 years, and the oldest 70 years. He said that the essential features in the diagnosis are pain in the region of the gall bladder below the costal cartilage in the right parasternal line, although the location of the pain is not absolutely necessary, and vomiting and jaundice. He referred to the case of a man, 37 years of age, who had suffered from crampike pains for a number of months, chiefly in the epigastric and left hypochondriac regions, unassociated with vomiting. He had lost 20 pounds in weight. At operation, gallstones were found in the cystic duct; there was no jaundice and no tenderness in the gall bladder region. He also referred to several other cases in which the characteristic symptoms were not present. In his experience the *x*-ray has not been of value in the diagnosis of these cases. He referred to the method of Dr. DaCosta of placing a cylindrical pad under the patient, so that the patient forms an inclined plane with the table, and then by gently rubbing with the hand, an enlarged gall bladder may be felt. Referring to the pathogenesis, he stated that, without infection, the passage of the stone would cause inflammation of the gall bladder and ducts. He believes that many of the cases which were called biliousness were really due to gallstone attacks. He referred to the occurrence of the condition after infectious diseases, and referred to a case diagnosed as duodenal ulcer, which on operation proved to be an infected gall bladder. The persistence of jaundice should suggest a stone or malignant disease. He expressed the belief that the surgical treatment would assume the same place it had in appendicitis.

DR. JOHN B. DEAVER stated that he had never seen nor operated on a case of gallstones in a colored subject. He divided the condition into two classes: cholelithiasis of the gall bladder and affections of the common duct. The pain and tenderness in the epigastrium are less frequent in disease of the common duct than in gall-bladder inflammation. He believes that the pain in the majority of instances is due to infection. Jaundice as a diagnostic factor is very misleading. He never operated on acute cases, but if the symptoms persist, then the value of operation must be considered. The *x*-ray is not of much value in diagnosis. He did not recommend operation in cases of acute common duct obstruction. The operation, if performed, should be done early. He does not approve of operating in private houses. He emphasized the value of careful preparation of the patient prior to operation, including careful urinalysis. Stomach analysis is not of much value, except in cases of acute leucocytosis. He favored drainage of the gall bladder rather than its removal, unless there was some indication for the latter procedure.

DR. WILMER KRUSEN referred to the case of a woman, 32 years of age, who had suffered with gall-bladder disease for a period of eight years without the true condition being suspected. The *x*-ray failed to reveal the seat of the trouble. At the operation for removal of a cystic ovary, forty-three stones were removed from the gall bladder and the woman made a good recovery. Another case was reported, in which an operation was done for appendicitis and the appendix was found not to be diseased. Two days later the patient had a pulse of 140, temperature of 103 to 104, and a marked enlargement over the gall bladder. Operation showed an empyema of the gall bladder, and 420 stones were removed therefrom, but the patient died within twenty-four hours from general peritonitis. He believes that gall-bladder disease is as much a surgical procedure as appendicitis, and that the sooner the operation is done the better for the patient.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.
CHICAGO.

(*Continued from page 497.*)

Vienna.

One of the first questions a medical traveler is likely to be asked by his colleagues on his return to America is: "How did you like Vienna?" And a layman hearing that a physician has spent some months in Europe almost invariably remarks, "I presume that you spent most of your time in Vienna," such a fame has that city had as a medical center. Although in Europe twice before, on neither trip had I been able to visit the Austrian capital; I was all the more anxious, therefore, this time to arrange to visit the city and its hospitals and to meet some of its famous medical men.

UNIVERSITY OF VIENNA.

The University of Vienna, founded as long ago as 1365, compels on account of its remarkable history the veneration and respect of every visitor. And in that history the medical faculty has played a very important part, not only in the development of medical teaching and practice, but also in the forwarding of the interests of science and arts in general. One has only to read that best of books on medical education, Billroth's "Ueber Lehren und Lernen," to become impressed with the influence of the medical faculty on the progress and development of the University of Vienna as a whole. Great organizing minds like that of the distinguished Van Swieten are rare, even in the greatest of universities; fortunate are those institutions within which they occasionally develop. One such man may shape the destiny of a university for generations; this has been true in Vienna, and it is pleasing to find that the Viennese, conscious of their debt to a great master, have in more than one artistic movement done their best to perpetuate the memory of Van Swieten in the city he loved and for which he worked.

VIENNA AS A MEDICAL CENTER.

While Vienna has long enjoyed the reputation of being the most important medical center in Europe, and is still doubt-

less very great, there are some who think that it can no longer justly lay claim to the first place. That honor, they think, now belongs to Berlin. The latter city has in the last ten years made enormous strides forward; one would scarcely believe the change without actually observing it for himself; Vienna seems—some have even dared to say—a little provincial by comparison. The explanation in all probability lies in the growing prosperity of Germany, the increase in material means in the capital of the German empire, the determination to seek the best men for university chairs irrespective of their nationality, and the encouragement of original research in the various departments rather than directing too much effort toward increasing the number of under graduate students and of the less advanced class of postgraduate workers. Vienna, it is asserted, is not as prosperous a city now as Berlin, the finances of Austria are not in as satisfactory a condition as those of Germany, the money available for university purposes is less,[2] there has been, these critics hold, a tendency to "in-breeding" in the faculty, the average Austrian and especially the average Viennese is no lover of travel, is prone to be satisfied with "good old Vienna," and to know but little and care less of what goes on in the world outside it; finally, it is maintained that, with notable exceptions, of course, the efforts of the faculty have been devoted too exclusively toward teaching the known and too little toward the discovery of the hitherto unknown. But even if these critics are right, it should be remembered that it is difficult to make a statement which is just in general without appearing to be unjust in particular. There are undoubtedly in Vienna to-day a number of the most energetic and productive scientific investigators that exist in the world, widely-traveled men of broad training, men with the highest ideals and with great capacity for work who are demonstrating constantly their right to positions in the front rank of medical research.

The material for clinical, anatomic and pathologic work in Vienna is superabundant; its concentration in and about the huge *Allgemeine Krankenhaus* has made medical work there very convenient for the student. Recently a more centrifugal tendency has been noticeable; the work at the Rudolf Spital, the Kaiser Franz-Josef Spital and the Kk. Wilhelminer Spital is rapidly increasing in importance.

Anatomy and histology are well taught in Vienna in the two anatomic institutes, one under the direction of Prof. Carl Toldt, the founder of modern conceptions concerning the development of the alimentary tract and the peritoneal cavity, and the author of the magnificent anatomic atlas which bears his name, the other under the leadership of Prof. Emil Zuckerkandl, well known through his book on topographic anatomy and his original researches on the comparative anatomy of the brain. Dalla Rosa, Tandler and Grosser are active members of the staff. The histologic courses are ably conducted by Professor von Ebner and his assistants, Schaffer and A. Rabl. The anatomic museum is rich in beautiful preparations; the amusing skeleton groups designed and erected by Hyrtl, are among the curiosities to be seen there.

Toldt's atlas, like Spalteholz' Atlas of Human Anatomy, is a triumph of modern bookmaking art; these two works have gone far and will go farther toward making anatomic ideas more exact than ever before and toward unifying and simplifying anatomic nomenclature. The illustrations in both atlases are excellent and are invaluable not only as an aid to dissection, but as a reference book in the practical work of the physician and surgeon. Every practitioner would find it profitable to own and use at least one of these atlases. Both Spalteholz and Toldt have already been translated into English.

Physiology (under Professor Exner's direction) is just moving into a fine new laboratory in Vienna. The new building is adjacent to the older structure; the latter is now to be given over to neurology (under Obersteiner) and to one or two other sub-departments.

It seemed to me that the best organized and most actively productive department in the medical faculty of the University of Vienna was that of pathology, with Richard Paltauf as professor of general and experimental pathology and Anton Weichselbaum as professor of pathological anatomy. Along with these two well-known investigators are associated Gustav Gaertner, Arthur Biedl, H. Albrecht, Anton Gohn, Richard Kretz, F. Schlangenhaufer, Rud. Kraus, H. Winterberg, O. Stoerk, and K. Sternberg, a list of names from which the fame of the university has really much to hope. Biedl's experimental studies on the nervous system, Kretz's investigations on the liver, and Kraus' original researches on bacteriological problems and curative serums are among the most interesting of current conduction. The accounts of their results have to be read by all who keep abreast with progress in these fields.

THE SEROTHERAPEUTIC INSTITUTE.

Professor Paltauf is also the director of the State Serotherapeutic Institute of Vienna and one of the most interesting forenoons I spent in the city was devoted to visiting it in his company. The institute is divided into two parts, one for the strictly scientific work of the institute and the business office, the other for the preparation of serum in large quantities. The former should be situated close to other scientific institutes and close to the postoffice, express office and telegraph station; the latter should be placed where room for extensive stables is available, and where the animals can be exercised in the open air. These different needs were met by establishing the scientific work of the institute and the business office for the distribution of serum temporarily in the bacteriologic institute of the "Rudolfstiftung," while the department for the preparation of serum on a large scale was instituted in the Court of the Kaiser Franz Joseph Hospital in the extreme outskirts of the city. Here stalls have been built for 50 horses, a piece of ground has been set aside for a riding ring in which the horses are saddled and ridden for a certain length of time each day for exercise, and a very complete serum-institute, occupying an area of 360 square meters, has been constructed. On the south side of the latter, an operating room 51 meters square has been built. The description of the Institute given by the resident assistant, Dr. Jellinek[3], should be helpful to any planning a similar structure.

In drawing the plans for the institute, the principle of separating as completely as possible from one another the individual departments with their laboratories for the different kinds of work was adhered to. The various staircases together with the entrance corridor occupy the middle of the building; the machine-rooms are in the cellar; on the ground floor on the left are the rooms for collecting and preparing serum, on the right the laboratories for chemical work and the small rooms used for testing and standardizing the sera. Upstairs, on the right, completely isolated from the other parts of the building, are the laboratories for bacteriologic and histologic work, with all necessary equipment; on the same floor, on the left, are two apartments for resident assistants. Each part of the building has its separate entrance from the central halls.

The institute has been fitted up with the most modern appliances in the way of thermostats, sterilizers, autoclaves, vacuum-pumps, etc. The arrangements for leading the horses in and out of the operating room and for drawing the serum have been made most convenient and simple. The blood obtained by sterile puncture of the vena jugularis is received in sterilized glass cylinders (provided with an ingenious cover, so arranged that the jars can be filled without entrance of air), and placed in a cooling-room for two days to let the serum separate well. The serum is then transferred under aseptic precautions into large flasks and again allowed to sediment for six weeks in the cool room, nothing being added to the serum as yet. By this time the serum has become quite clear; through quiet standing nearly all of the blood corpuscles and flocculi of fibrin have fallen to the bottom. The serum is

2. The income of the University of Berlin for the year 1903 was 3,406,914½ marks; that of the University of Vienna for 1897 was only 1,159,594 florins.

3. Jellinek, O.: Die Abteilung für Serumgewinnung des stadtserotherapeutischen Institutes in Wien. Wien. klin. Wchnschr., 1903, pp. 1403-1405.

then transferred to other flasks, in which it is treated with carbolic acid (0.5 per cent.), a precipitate of albumin, phosphates and cholesterin forms, and is filtered off, and the filtrate is preserved in large, flat-bottomed flasks in the cooling chamber.

The chemical laboratory has been well-planned and though not large, has in it everything necessary for the work, including hood for gases, work tables, sets of reagents, precision-balances, water and gas, vacuum-pump connection, compressed-air connection, centrifugal machine and contact for electrical power for motors.

The bacteriologic laboratories have broad, high windows, lighted from the north; the work tables at the windows rest on iron brackets set into the wall, so that the floor-space remains entirely free; the tables are covered with white enamelled lava, a material which resists chemicals and dyes better than glass or oak, and which on account of its white color makes for cleanliness. The largest thermostat measures nine square meters and is two and one-half meters high; it is heated by gas, can be exactly regulated for any temperature between 33 and 40° C.; that it works well is shown by the curve of the self-registering thermometer attached. A special wash-room has been provided for this laboratory with its own sterilizing apparatus, in order that tubes, glass vessels and other objects used here need not be removed for cleaning to other parts of the building; this is one of the many safeguards against contamination of the laboratory in which the serum is prepared. The machinery in a sero-therapeutic institute is rather complex and a good mechanic is essential to the establishment. A four-horse power electric motor runs a small ammonia refrigerating machine, and a half-horse power motor runs a salt-water pump which pumps the concentrated solution of magnesium chlorid cooled by the machine to —10 degrees C. from the refrigerator to the tubes which cool the rooms in which the serum is kept in the parterre. To the larger motor can be attached when desired the air-pump, which supplies air under pressure on the one hand, and a vacuum-conduction on the other for use in the laboratories; the same motor also drives a pump for hot-water circulation in the building. A vacuum apparatus for concentrating serum, or for evaporating it to dryness, is situated in a special room near by. Inside it are a number of horizontally placed iron plates, in which hot water circulates. The serum in a thin layer in flat sterile glass evaporating dishes is placed on these iron plates; the apparatus is closed air-tight, and the air inside exhausted by the vacuum pump; the temperature is maintained at from 27 to 30 degrees C., and the evaporation goes on with great rapidity and without any injury to the labile constituents of the serum. After the evaporation has been carried far enough, filtered air is allowed to enter the apparatus and the product removed. When necessary the whole apparatus can be sterilized by passing a stream of superheated steam through it.

A large Buchner's press, capable of exerting a pressure of 350 atmospheres, forms a part of the outfit. My attention was also drawn to a special kind of protective paint which has proved very serviceable. As is well known, it is extremely difficult in bacteriologic workrooms to find a covering that will stand steam sterilization. In the Vienna Institute a Dutch-French substance called "ripolin" has been found very satisfactory. It has often been subjected to temperatures of 100 degrees C., and while the original white color has turned a little yellow, blistering or scaling has not occurred. The ripolin is therefore far more durable than Japan black or enamel paint.

The stables for the horses are models of cleanliness and order. It is discouraging to an American to think of how expensive it would be to keep the horses and the stalls at home in the princely way they are cared for here. It is easily possible in Austria and Germany to obtain a skillful, conscientious *Dienerschaft* with a moderate money-outlay; in America the cost of the same skill and help is almost prohibitive. The newer stables are so constructed that they can be subdivided into small, completely isolated compartments; the desirability of this arrangement is obvious when one remembers the necessity of isolating newly purchased horses until they have been proven to be free from disease, the separate stabling of especially inoculated animals, and the quarantine of infected animals. The institute has its own blacksmith constantly in attendance. Regular weekly visits are made by a veterinary surgeon, and he may be called on at any time in case of need. Professor Paltauf told me that many of the best horses used in serum manufacture developed amyloid; they have hemorrhages into the liver, become icteric and die. Nearly a dozen fine animals have been lost from this cause.

In view of the disappointing results with antistreptococcus serum elsewhere, it was a surprise to me to find that the particular antistreptococcus sera prepared in Vienna under Paltauf's direction are highly valued. The opinion there seemed to be unanimously in favor of the use of Moser's serum in scarlet fever and of Paltauf's new serum against streptococcus infections of the puerperium. The difference between these sera and that of Marmorek is this: The Vienna sera are prepared by direct inoculations of streptococci of human origin, the serum for scarlet fever by immunization against streptococci from the throats of actual scarlatina patients, the serum against puerperal infection by immunization against streptococci taken directly from human puerperal infections. The Viennese believe that the passage of a race of streptococci through animals makes it incapable of yielding results such as they get by their direct inoculations from human cases. An assistant of Chrobak's at a meeting of the *Aerztliche Verein* which I attended, reported a series of puerperal infections treated with the new serum, in which the favorable results obtained were truly striking. Every case in the series in which the infection was due to streptococci alone, it is asserted, was cured; bacteriologic study of the few fatal cases demonstrated mixed infections with other bacteria.

THE AERZTLICHE VEREIN.

The *Aerztliche Verein*, by the way, is superbly housed in Vienna, and it says much for the enterprise, generosity, and artistic sense of the medical profession of that city that it should have provided itself with such a home. The reception-rooms, auditorium, and library are admirably arranged, and it is not the practical needs alone of the busy medical men that have been considered; the exquisite furnishings, the balustrades, the group of busts of famous Vienna medical men, give the place an air of elegance and ease. I could not help but wish that the profession of Chicago and of other great American cities might soon, with the help of the excellent organization which has recently been going on in connection with the medical societies, see its way clear to supply the money for and to build similarly practical and beautiful buildings. The advantages of a permanent headquarters for the profession in a large city are almost incalculable. The benefits derived extend in a whole series of directions—not the least important of which is the social. Such a professional home goes far to elevate the standards of a group of men; it is an influence which tends to dignify, ennoble and refine the profession. At the time of my visit the Vienna gynecologist, Professor Chrobak, was president of the *Verein*, and Professor Paltauf was its secretary.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Acute and Chronic Nephritis.

In considering the treatment of nephritis it must be ascertained whether or not the condition is an acute or a chronic

process; and if acute the cause of involvement of the kidney structure must be taken into consideration in outlining the treatment. If the process is a chronic one the clinical findings should show whether the tubal system is diseased to the greater extent or the toxic substances have chiefly involved the vessels along with an increase in the connective tissue formation; in other words, whether the diseased condition is chiefly parenchymatous or interstitial. The prognosis, of course, depends on whether it is acute or chronic. Even in the acute form it is a difficult task to forecast the outcome of the patient, as all patients are not alike, so for this reason, according to Sir Dyce Duckworth in the *Clinical Jour.*, London, the prognosis of any form of nephritis should be guarded, as all patients have their peculiarities and temperaments, diatheses or qualities which are peculiar to them. One man has a tendency in one direction and another in another. There is no medicine for disease, as this author tersely states, but for individuals. We do not treat disease, but patients. Some patients are much more vulnerable than others, especially those of a strumous diathesis. This sort of individual is vulnerable at all points, and if such a patient suffers from an acute nephritis the prognosis is not good, and may end in chronic nephritis. On the other hand, if a man suffering from acute nephritis is of good constitution and can obey the instructions of his physician and not expose himself to wet and cold, and observes care in regard to his diet the prognosis for complete recovery is good. In the treatment of acute nephritis the author recommends a warm bed, bread and milk diet, barley water and whey. Of the latter the patient may take two or three pints a day. He may also have arrowroot, bread and butter, crackers, and if he is very hungry he may be allowed a small amount of mashed potato. These patients should not have meat nor strong food.

If the urine contains much blood, as may be the case in acute nephritis, dry cupping should be employed. If he is strong, the author recommends that wet cupping be employed, and that from 12 to 15 ounces of blood be taken from the loins in this way, as there is direct vascular connection between the skin of the loin and the interior of the kidney. Warm poultices over the loins are also of great service. Antimony in the form of the wine is very good given in one-half dram (2.00) doses, combined with spirits of nitrous ether, and a solution of ammonium acetate.

At the onset of the disease, a calomel purge should be given, two grains combined with half a dram (2.00) of compound jalap powder and afterward give two teaspoonfuls of a confection containing from a half to one dram of the compound jalap powder. This treatment, according to Duckworth, clears the renal tubes and diminishes the dropsy of the limbs and face. The patient should be confined to the hospital until all the albumin has disappeared from the urine. Iron is another preparation which is of value in these cases given in the form of ammonio-chlorid of iron or Basham's mixture, and may sometimes be combined with digitalis. Fuchsin is also recommended in doses of from one to ten grains (.06-.65) daily, as it sometimes decreases the amount of albumin, and at any rate does no harm if it does no good.

CHRONIC BRIGHT'S DISEASE.

Croftan, in the *Ill. Med. Jour.*, is of the opinion that Bright's disease is produced by circulating toxins and that the cardiovascular changes precede the kidney changes, as the result. The source of these toxins is two-fold, the gastrointestinal tract and the products of metabolism. The liver does not functionate properly, and as a result there is incomplete elaboration of the food before it reaches the circulation. The management of a case of Bright's disease according to Dr. Croftan should be considered under: 1, prophylactic treatment; 2, symptomatic, directed primarily against the development of cardiovascular changes, and secondarily, against the nephritic changes. 3. The treatment of the patient as a whole.

TO PREVENT INTESTINAL PUTREFACTION.

The diet should be properly guarded and the stomach washed out if necessary. The author recommends especially in this connection the use of zinc sulphocarbolate given in doses of one grain (.06) each at frequent intervals, together with about twenty grains (1.30) of bismuth daily. If the zinc preparation is used in sufficiently large doses it will prevent the black stools of the bismuth, as it checks putrefaction, and thus prevents the formation of bismuth sulphid. The color of the stools, therefore, should govern the amount of the zinc salt given daily and when this is obtained the urinary evidence of bowel putrefaction will disappear, as shown by the reduction of indican, etc. The bile salts are also of value in this same connection.

To strengthen the heart and to reduce the blood pressure, small doses of digitalis are recommended, one drop (.06) of the tincture, three times a day, is a sufficiently large dose to render the heart less susceptible to the disturbing stimulation of the circulating toxins. Large doses of digitalis are contraindicated. Nitroglycerin is the best remedy to reduce the blood pressure. As adjuvants to these preparations the hot bath, rest in a warm bed, life in a warm, dry climate and massage are of value.

The author believes in a liberal diet and one which will least irritate the kidney and at the same time adequately nourish the patient. He condemns the use of an exclusive milk diet, as it must be given in enormous quantities to properly nourish the patient. If administered in such large quantities it causes flooding of the heart and arteries with water, and thus overtaxes them. It is deficient in iron, and in time leads to deficient hemoglobin, and its use, sooner or later, becomes monotonous. The diet, therefore, should be a mixed one, and should contain a moderate amount of albumin.

The amount of water should be restricted; for the kidney, when it becomes diseased, stops eliminating water as the first thing, consequently the practice of "flushing out" the kidney should not be encouraged. The chief advantage of "sweating" is to get rid of the water.

WITHDRAWAL OF SODIUM CHLORID.

The nephritic kidney fails in properly eliminating sodium chlorid, and, therefore, favors edema, as the salt draws water from the tissue by the process of osmosis. Consequently, the ingestion of salt should be restricted. The surgical treatment of decapsulating or splitting the capsule is condemned by this author.

USE OF WATER IN NEPHRITIS.

Broadbent, in an abstract in *Amer. Med.*, states that the use of water depends on the time when it is taken. A glassful taken night and morning makes it effective as an eliminant. Specific growth of the urine is a more important factor in this disease than the amount of albumin. The tension of the pulse is an indication in the prognosis and treatment. When a high tensioned pulse is present he employs a mild mercurial aperient. According to his statement, the effect on the arterial tension of a single grain of a mercurial preparation with slight aperient action is much greater than repeated liquid motions induced by saline; and the renal elimination is increased by the mercurials. This author believes, also, that the starting point of chronic nephritis is some impurity in the blood which acts as an irritant, that by its elimination the renal trouble may be prevented, and that calomel aids in this elimination. Acting on the basis that uremic convulsions are caused by interference with the cortical circulation of the brain, he frequently advises venesection in this condition, but when there is only threatened uremia he orders free purgation by calomel, which usually causes the symptoms to disappear, and the tension of the pulse to be reduced.

SURGICAL TREATMENT.

An account is given in the same periodical of six cases of Bright's disease operated on by P. Rosenstein, and decapsulation of the kidney performed with negative results in every case. The author's conclusions are as follows: Decapsulation of the kidney in grave Bright's disease is a dangerous operation; a permanent cure has not been recorded in any case; improvements were noted, but in one of the improved cases the albumin and casts continued to exist, only the edema disappearing; in the other, headache and scotoma persisted.

INDICATIONS FOR TREATMENT.

The indications for treatment of chronic Bright's disease may be summed up as follows:

1. Early in the disease, to reduce the effect of the toxic substances, in the circulation, on the heart, arteries and kidney substance.

2. When the arterial tension becomes pronounced, to use means to reduce it.

3. Support the heart in well-advanced cases and promote elimination by bowels, skin and kidney.

In carrying out the first point the diet should be light, non-irritating, but not confined to a strictly milk diet. It should include well-cooked vegetables and a small amount of farinaceous and animal food; at the same time produce free elimination by the bowels. The arterial tension may be lessened by the use of calomel aperients and nitroglycerin. To check the progress of arteriosclerosis, potassium iodid is recommended by some authorities.

In the treatment of the anemia Weir-Mitchell recommends large doses of the tincture of ferric chlorid, from 30 to 60 minums (2.-4.) three times a day.

To support the heart early in the disease, caffein, spartein sulphate or moderate doses of strychnia are of value. Later in the disease, when the heart has become greatly enlarged as the result of its efforts to overcome the great tension in the arteries and vessels of the kidney, strophanthus and later digitalis are necessary. Strophanthus has the advantage over digitalis in that it is a good heart stimulant and does not contract the arteries as does digitalis, but it has the disadvantage, as stated by some authorities, of irritating the kidneys. The ordinary pill of calomel, squills and digitalis is a valuable combination in the treatment of this disease.

Hydrogen Dioxid in Dyspepsia.

Gallois and Courcoux of Paris have been studying the action of hydrogen dioxid on the digestion, experimenting on dogs with a Pawlow fistula. They claim that it has a pronounced effect in increasing the amount of gastric juice secreted and the proportion of free hydrochloric acid, thus secondarily enhancing the digestive power of the gastric juice, the proportion of pepsin being always higher than under other conditions. Clinical experience also showed that it arrested the vomiting of pregnancy, the effects not being apparent at once, but suggesting that it removed the cause. This seemed to be the case also in certain gastrointestinal troubles, especially hypopepsia and diarrhea. As it combines the properties of promoting digestion and disinfecting the bowels, it is thus especially indicated in hypopeptic dyspepsia with abnormal fermentation, and is particularly useful for infants. The results seem to be better the more recent the onset of the diarrhea. They add in their article in the *Gaz. Med. Belge*, Jan. 5, 1905, that a Russian physician, Novicor, prescribes it in dyspepsia in the formula of 6 gm. (℥iss) of hydrogen dioxid at 12 volumes; 85 gm. (℥iiss) of distilled water, and 15 gm. (gr. iv) of syrup of orange flowers, giving a tablespoonful every two hours. They prefer to give it in milk or water, 10 drops of the dioxid to 100 gm. (qt. i) of milk, for infants; for adults, about a tablespoonful in a quart of water, sipped as a beverage.

Atropin in Too Strong Solution.

Our attention has been called to an error. An abstract on "the treatment of purulent ophthalmia," Jan. 28, 1905, was quoted from *American Medicine*, Dec. 31, 1904, in which the statement is made that "a 4 per cent. solution of atropin can be used in the eye." It is probable that "4 grains to the ounce" is what was meant.

Medicolegal.

Duty of Injured Person.—The Supreme Court of Illinois says, in Chicago City Railway Company vs. Saxby, a personal injury case brought by the latter party, that it was the duty of such party to use reasonable care to effect a speedy and complete cure of the injury which she sustained by being thrown on the street from the company's car, and, to that end, she was required to exercise reasonable care to employ physicians of ordinary skill and experience to treat her, and other means to effect a cure of her injuries. She was not, however, required to employ the highest medical skill which might be found. All the law required was that she exercise such prudence as men and women of ordinary judgment, under like circumstances, would exercise in the choice of physicians and the means to be used to effect a recovery. She was not an insurer, bound to act at her peril; and if she exercised reasonable care in selecting her physicians, and in the employ of other means for her recovery, if her physicians made a mistake in the treatment applied by them to her, or by the means employed failed to effect a cure, then she might recover for the entire injury which she had sustained, as the law, if the injured person uses ordinary care in selecting a physician, and in the employment of other means to effect a cure, regards an injury resulting from the mistake of a physician, or from a failure of the means employed to effect a cure, as a part of the immediate and direct damages which naturally flow from the injury. If it be conceded that she had tuberculosis in her system, and that the same was developed in the knee by reason of the injury thereto, or from the treatment she received in the endeavors made to effect a cure of the fracture of the neck of the femur, it could not be said that the diseased condition of the knee was not a consequence which naturally and ordinarily might not follow as a result of the injury caused by the negligent act of the company.

Admissibility and Use of Skiagraphs.—The Supreme Court of Illinois says, in Chicago and Joliet Electric Railroad Company vs. Spence, a personal injury case brought by the latter party, that, as the case might be again heard, it was necessary it should consider the insistence that the trial court erred in permitting the introduction in evidence of a skiagraph, or *x*-ray photograph, of a portion of the chest and body of the party suing. The skiagraph was made by an expert, who testified he was an *x*-ray expert, and was regularly engaged in taking such photographs for physicians; that he took the negative from which the photograph was developed, and that he developed the photograph; and that it was an accurate and correct representation, etc. It was intended to show by the skiagraph that the party's heart had been displaced, that the walls of that organ had become thick, and that an abnormally heavy tissue had formed on the walls of his heart. The testimony of the *x*-ray expert who had taken the skiagraph tended to show the picture correctly represented the condition of the heart of the party. Photographs taken by the *x*-ray process are admissible in evidence after proper preliminary proof of their correctness and accuracy has been produced. And the Supreme Court thinks the testimony of the *x*-ray expert who made the skiagraph was sufficient to justify the court in ruling that the picture should be admitted in proof. Subsequently, when the company was introducing testimony in chief, another *x*-ray expert was produced in its behalf. This witness gave testimony tending to show that the skiagraph had not been properly taken, and expressed the opinion that the picture was of little or no value as a representation of the heart and other portions of the body of the party suing. But the court was not asked to exclude the picture because of this adverse criticism; nor does the Supreme Court think the motion to exclude should have been granted, had it been interposed. It further says that it was not error to allow the jury to take the skiagraph with them when they retired to consider their verdict. Paragraph 56 of the practice act authorizes "papers read in evidence, other than depositions," to "be carried from the bar by the jury." "Papers in evidence" clearly embrace photographs or skiagraphs offered and received in evidence. One of the definitions of the word "read" given by Mr. Webster is "to discover or understand by characters, marks, features, etc.; to gather the meaning of by inspection; to learn by observation." Photographs or skiagraphs produced in evidence on a trial before a jury are, within this definition, "read" in evidence, and may be taken by the jury on their treatment to consider and deter-

mine the cause. 12 Ency. of Pl. and Pr. 591, 592; Barker vs. Perry, 67 Iowa, 146.

Liability of City for Smallpox Expenses.—The Appellate Court of Indiana, Division No. 1, says, in City of Frankfort vs. Irvin, that the statute of that state makes the mayor and common council of an incorporated city, not having a board of health by statute or ordinance, a board of health for the city. The record in this case contained evidence from which it could be said that there was some danger of an epidemic of smallpox in the city. At a special meeting of the common council, called to consider the situation, a special committee was appointed, consisting of three councilmen, one of whom was designated as chairman, and to this committee was referred the matter of looking after the smallpox in the city. It appeared that soon afterward there were a number of cases of smallpox in the city, and that most of the acts done with reference thereto were done by the chairman of this committee. It did not appear that this chairman did anything that the city council, acting as a board of health, might not have done itself. It did not appear what authority was given this committee, or its chairman, in the matter; but it did appear that the city ratified a part of the work of this committee by afterward paying bills contracted in relation to the management of the pesthouse. The court thinks it appeared from the evidence that what this committee and its chairman did was one entire transaction, which should be repudiated or ratified as a whole. It says that the statute makes it the duty of the board of health to take prompt action in all cases to arrest the spread of contagious and infectious diseases. It is left to the discretion of the board as to how this may best be done. What power the board has, as against the individual, to confine a person afflicted with smallpox in a pesthouse, the court says that it had nothing to do with in this case. The board took such measures as it thought best to protect the health of the people at large, and was liable for such expenses as were properly attributable to measures taken for the prevention of the spread of the disease. And the court thinks it can be said that the employment of a nurse to care for a person afflicted with smallpox is an essential precautionary measure to prevent the spread of the disease. Under the circumstances disclosed by the record, the common council, acting as a board of health, could have legally contracted with a party for his services as a nurse. Such a contract made through the agency of a committee or other authorized person is no less binding than if made by the city itself. The extent of the authority of the person or persons empowered to act must necessarily depend to a large extent on the conditions existing in the particular case. It was immaterial that the pesthouse was located outside the city limits. The fact that it is the duty of the overseer of the poor, and not of the city, to make provision for poor and indigent persons, does not relieve the city from liability for necessary expenses incurred by it in preventing the spread of the disease. Nor does it prevent the city from legally contracting to pay the services of a person who assists in the burial of a person who has died of the disease while under the control and charge of the city's health board. The proper and prompt burial of a person who has died of smallpox may be as necessary in preventing the spread of the disease as the proper care of a person while afflicted with the disease.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 4.

1 History and Development of Surgery During the Past Century. (Continued.) Frederic S. Dennis, New York City.
2 *Some Further Experiments on Rectal Alimentation. David L. Edsall and Caspar W. Miller, Philadelphia.
3 *Diagnosis of Tuberculous Cavities in the Lung. Herman B. Allyn, Philadelphia.
4 *Diet After the Age of One Year. J. P. Crozer Griffith, Philadelphia.
5 Acute Postoperative Thyroidism; Report of a Case; Recovery. S. Edward Sanderson, Detroit.
6 Fibrolipomatous Tumor of the Pharynx and Larynx. E. Fletcher Ingals, Chicago.

2. Rectal Alimentation.—Edsall and Miller have continued their experiments in the matter of rectal feeding, especially in the direction of finding some method of artificially preparing fats so that a greater degree of absorption may be secured. With this purpose in view they carried out experiments on two different lines: 1. They tried to provide their fats in the form of a soap that would be easily prepared and administered, and to investigate its absorption when given by rectum. 2. Search was made for a good emulsion of fat that would remain emulsified after its introduction into the bowel. Their results were such as to convince them that it is impossible by any methods now available to administer successfully sufficient soap to make it of decided nutritive value. They were unable, after repeated attempts, to find any method of making a soap that could be readily prepared for clinical purposes or would be unirritating. Their results with an artificial fat emulsion, a mixture of alkali albumin and cod-liver oil, were somewhat more encouraging. They believe that further study may determine that the clinical value of nutritive enemas may be increased, though it is still a question whether it ever will be possible to maintain nutrition in this way. They believe that the functions at present served in most cases by nutritive enemas are: first and most important, to provide fluids and various inorganic salts for the tissues; 2, to provide, perhaps, from a third to a sixth of the requisite amount of food; 3, to prevent the anxiety of friends and patients that would be produced by giving no food.

3. Tuberculous Cavities in the Lung.—Allyn insists on the importance of a thorough examination and following an orderly progression in developing physical signs in attempting to arrive at a diagnosis of tuberculous cavities in the lung. The most trustworthy signs are to be found in deficient expansion and flattening of the chest wall over the cavity; in a percussion note which is often a high-pitched tympany, especially if percussion is made with the mouth open, but which may be only a muffled sound or a dull or flat sound; in pectoriloquy, particularly the whispering variety; in breath sounds which are cavernous, tubulo-cavernous, tubulo-amorphic or amorphic; and in a multiplicity of râles, chiefly moist râles, which, after coughing, may have a resonating quality.

4. Diet After the Age of One Year.—Griffith advises that the infant should be weaned at from the age of ten to twelve months. When possible this should be accomplished gradually, only one bottle of food being given at first, and this of a strength less than mother's milk, thus enabling the child to accustom itself to the new food. The number of bottles and the strength of the mixture are increased gradually until at the age of a year the food should consist of milk slightly diluted. The child should be weighed systematically twice a week during the weaning, in order that no undiscovered loss of weight takes place. After the child has been weaned entirely and has become accustomed to the new artificial food, it is well to add to the food a concentrated amylaceous substance such as barley jelly or arrowroot jelly. The proportion of two rounded tablespoonfuls of barley flour or arrowroot to a pint of water, cooked in a double boiler for ten or fifteen minutes, makes the proper strength. This may be added to the food in the proportion first of one and later of several teaspoonfuls to each bottle, the addition to be made while the cereal substance is still hot. The number of feedings during this period has been reduced from three hours to three and a half or four hours, depending on the requirements and habits of the child. The amount of nourishment should be from 8 to 10 ounces at a feeding. After the first year Griffith advises the following diet:

DIET FROM 1 YEAR TO 18 MONTHS.

Breakfast (6 to 7 a. m.).—1. A glass of milk with stale bread broken in it, or one of the numerous good breakfast foods on the market. 2. Oatmeal, arrowroot, wheaten grits, farina, hominy grits, etc., made into a porridge and well cooked, and with the milk mixture in use poured over it. 3. A soft-boiled or poached egg with broken bread in it, and a glass of milk.

Second Meal (10 a. m.).—A glass of milk.

Dinner (1:30 to 2 p. m.).—1. Bread moistened with dish gravy (no fat) beef tea or beef juice; a glass of milk. 2. Rice or grits moistened in the same way; a glass of milk. 3. A soft-boiled egg and stale bread thinly buttered; a glass of milk. Rice, sago or tapioca pudding or junket, in small quantities as dessert with any of these diets.

Fourth Meal (5 p. m.).—A glass of milk or some bread and milk.

Fifth Meal (9 to 10 p. m.).—A glass of milk.

DIET FROM 18 MONTHS TO 2 YEARS.

Breakfast (7 a. m.).—1. A glass of milk with a slice of bread and butter or a soda, graham, oatmeal or similar unsweetened biscuit. 2. A soft-boiled egg with bread and butter and a glass of milk. 3. Porridge, as described in the previous list.

Second Meal (10 a. m.).—1. Bread broken in milk. 2. Bread and butter or a soda or other biscuit with a glass of milk.

Dinner (2 p. m.).—1. Boiled rice or a baked potato, mashed and moistened with dish gravy or beef juice; a glass of milk. 2. Mutton or chicken broth with barley rice in it; some bread and butter, and some sago or rice pudding made with milk. 3. A small portion of minced white meat of chicken or turkey, or rare roast beef, beefsteak, lamb, mutton or fish; bread and butter; a glass of milk.

Fourth meal (5 p. m.).—1. Bread and milk. 2. Bread and butter and a glass of milk.

DIET FROM 2 TO 3 YEARS.

Breakfast (7 to 8 a. m.).—1. A small portion of beefsteak, with oatmeal, hominy grits, wheaten grits, cornmeal or other cereal porridge with plenty of milk. 2. A soft-boiled egg, bread and butter and a glass of milk.

Second Meal (11 a. m.).—1. A glass of milk with bread and butter or with a soda or other biscuit. 2. Bread and milk. 3. Chicken or mutton broth.

Dinner (2 p. m.).—Roasted fowl, mutton or beef cut fine; mashed baked potato with butter or dish gravy on it; bread and butter. As dessert, tapioca, sago or rice pudding, junket or a small quantity of raspberries, peaches, grapes without seeds, orange juice or of stewed apples or prunes.

Supper (6 p. m.).—1. Bread and butter. 2. Milk with soda or similar biscuit or with bread and butter.

DIET AFTER THREE YEARS.

FOODS PERMITTED.

Meats.—Broiled beefsteak, lamb chops and chicken; broiled liver; roasted or boiled beef, mutton, lamb, chicken and turkey; broiled or boiled fish; raw or stewed oysters.

Eggs.—Soft-boiled, poached, scrambled, omelet.

Cereals.—Light and not too fresh wheaten and graham bread, toast, zwieback; plain unsweetened biscuit, as oatmeal, graham, soda, water, etc.; hominy grits, wheaten grits, cornmeal, barley, rice, oatmeal, macaroni, etc.

Soups.—Plain soup and broth of nearly any kind.

Vegetables.—White potatoes, boiled onions, spinach, peas, asparagus except the hard parts, string and other beans, salsify, lettuce, stewed celery, young beets, arrowroot, tapioca, sago, etc.

Fruits.—Nearly all if stewed and sweetened; of raw fruits, peaches are one of the best; pears, well-ripened and fresh raspberries, strawberries, blackberries, grapes without the skin and seeds, oranges.

Desserts.—Light puddings, as rice pudding without raisins, bread puddings, etc., plain custards, wine jelly, ice cream, junket.

FOODS TO BE TAKEN WITH CAUTION.

Kidney, muffins, hot rolls, sweet potatoes, baked beans, squash, turnips, parsnips, carrots, egg-plant, stewed tomatoes, green corn, cherries, plums, apples, huckleberries, gooseberries, currants.

FOODS TO BE AVOIDED.

Fried food of any kind; griddle cakes; pork; sausage, highly-seasoned food; pastry; all heavy, doughy or very sweet puddings; unripe, sour or wilted fruit; bananas, pineapples, cucumbers, raw celery, raw tomatoes, cabbage, cauliflower, nuts, candies, preserved fruits, jams, tea, coffee, alcoholic beverages.

It is important that milk remains the chief article of diet throughout early childhood. Broths are serviceable as food only through the cereal addition with which they are thickened. Although rashness on the part of the mother in experiments on new foods is to be condemned, too great caution resulting in too long a continuance with insufficient food is equally harmful. Children should not be fed too frequently nor should they be given too much starch, as that is a frequent cause of illness. The age and need of the child rather than the teeth should be the guide in determining when the giving of meat may be commenced. No candies, cakes or other such articles should be given. No food should be allowed between meals, although if there clearly be real hunger a small glass of milk may be given at times, but even this is to be discouraged as a custom. During very hot weather the diet should be reduced greatly in variety and in amount. The child of 2 years had better be put temporarily on the diet of a child of one year. Illness may often be avoided by following this plan.

New York Medical Journal.

February 4.

7 *Observations on the Diagnosis of Renal Calculus, with Special Reference to Diagnosis by Means of the X-rays. Alexander B. Johnson, New York.

8 Binasal Hemianopsia; Case of Neuritic Optic Atrophy with Binasal Hemianopic Fields. William T. Shoemaker, Philadelphia.

9 *Insects; the Rôle They Play in the Transmission of Disease. Henry Albert, Iowa City.

10 Gonorrhea in Its Female Pelvic Relations. Ely Van De Warker, Syracuse.

11 *Practical Value of Litten's "Diaphragm Phenomenon" in Diagnosis. William N. Berkeley, New York.

12 Report of a Case of Cerebrospinal Meningitis, Lumbar Puncture, Purulent Cerebrospinal Fluid, Perfect Recovery. Sigmund A. Agatston, New York.

13 Dry Gangrene Following the Application of Carbolic Acid Dressing Covered with Oiled Silk. Vertner Kenerson, Buffalo.

14 Cause of Seasickness. Charles W. Hogg.

7. **Diagnosis of Renal Calculus.**—Johnson discusses the clinical history of renal calculus, especially with reference to diagnosis. He details his experiences in 125 cases with the *x*-ray used as a diagnostic agent and has found that a positive diagnosis of kidney stone by the *x*-rays is reliable and of great practical value. The same may be said of a negative diagnosis, up to a certain limit. If pictures of the proper quality are obtained, calculi of oxalate of lime and phosphates can be excluded. Pure uric acid calculi can not. Failures are due to: 1, The great thickness of the body of the patient; 2, imperfect working of electrical apparatus; 3, improper handling of the photographic plate in the dark room, and 4, imperfect photographic plates. To insure success in the radiography of kidney stones the following conditions must be fulfilled: The electrical current used to excite the tube must be of high voltage and of considerable amperage. The best coils and large static machines answer this requirement perfectly. The *x*-ray tube used must permit the passage of such a current continuously for several minutes without much change in internal resistance, although the resistance or vacuum of the tube is relatively low at the start. A tube of relatively low resistance produces rays showing on the photographic plate slighter differences of density in the structures through which the rays are passed, but, as the result of the passage through such a tube of a powerful current the tube usually becomes heated with a further fall of resistance and the production of rays of inadequate penetrative power. A tube of high resistance tends to preserve its vacuum resistance better, but the *x*-rays given off from a tube, the resistance of which is very high, possess the penetrative power to a high degree; they penetrate all the structures of the body more nearly in an equal manner and thus produce radiographs showing but little contrast betwen tisssues of different densities. His best pictures have been taken with the Wehnelt electrolytic interrupter, with rather a heavy platinum electrode having a considerable amount of platinum exposed in the acid, thereby permitting the use of a current of considerable amperage and relatively slow interruptions. The exposures for large, stout people have varied from ten to fifteen minutes, with anticathode about thirty inches from the photographic plate. For thin individuals these exposures have been shortened one-half.

9. **Insects in Transmission of Disease.**—Albert discusses the diseases transmitted by insects: the insects responsible for such transmission: the manner in which such transmission may occur, and the agents that may be used to eliminate the insect factor in the transmission of disease.

11. **Litten's Diaphragm Phenomenon.**—Berkeley suggests the term "phrenic wave" for this phenomenon, which is the visible descending and ascending wave associated with the respiratory movemen's of the diaphragm in the lower zone of the thorax. To students in physiology the phrenic wave is useful as a demonstration of the respiratory movements of the diaphragm. When unbroken and over three inches in extent on both sides it is a good indication of healthy lungs, and should be incorporated as such into life insurance examinations. It is an easy and practical substitute in many cases for the expensive and laborious *x*-ray examination of the movements of the diaphragm, when such an examination is desired. When diminished markedly on both sides, low down in the thorax, and more marked behind than in front, it is an excellent sign of asthma and emphysema. When absent or nearly absent, on one side only, it is a useful confirmatory sign of a variety

of conditions which may be suspected from other signs, particularly pleurisy and early tuberculosis. When absent on both sides no conclusion of any kind is really justifiable, unless the patient has been known to have had good waves previously.

Medical News, New York.

February 4.

15 Presidential Address. Charles L. Dana, New York.
16 *Partially Afebrile Estivo-Autumnal Malarial Infection, Having Its Origin in New York City. J. L. Pomeroy, New York.
17 Summer Infant Mortality. L. C. Ager, Brooklyn.
18 Serum Diagnosis of Typhoid by Means of Ficker's Method. J. H. Von Tiling, Poughkeepsie, N. Y.
19 Inflammatory Stricture of the Rectum. J. M. Frankenburger, Kansas City.
20 *Case of So-called Traumatic Asphyxia. R. Winslow, Baltimore.

16. **Afebrile Estivo-Autumnal Malaria.**—Pomeroy reports the case of a man who contracted estivo-autumnal malaria in New York City, not having been outside of the city in fifteen years. His regular work was unloading vessels from all parts of the world. During the fall of 1900 he began to sufferr from chills and sweats. The attack lasted about three weeks, during which time he was bed-ridden and his skin became yellow. Recovery was slow, and from time to time he suffered from chills followed by sweats. Loss in weight became quite apparent. The affection was pronounced malaria and his physician gave him some pills, after taking which he invariably improved. Recently the chills and sweats recurred with renewed severity. While they were very irregular, they occurred some time between 5 a. m. and 9 p. m. Shortly after entering the hospital he had a violent chill, followed by a profuse sweat, but his temperature was normal, both before and after chill, not going above 99. These chills proved very irregular, appearing often without being followed by a definite sweat, and, again, the reverse would be the case. Examination of the blood showed the presence of extracellular crescentic and ovoid bodies, the latter preponderating during the afternoon and the former during the forenoon. The patient was placed on quinin sulphate in perforated capsules, 15 grains every four hours, and one-half ounce of Warburg's tincture before meals to stimulate his appetite. Saline catharsis was used to relieve constipation and to increase elimination. Under this treatment, recovery was prompt. The points of interest in the case are: 1. An estivo-autumnal infection having its origin in New York City. 2. Chills and sweats without temperature—the latter appearing only when quinin had been administered and then not rising above 100.2.

20. **Traumatic Asphyxia.**—The history of Winslow's case is as follows: An elevator conductor had occasion to get on top of a car and told an assistant to lower it, but by mistake the elevator was raised and the man was caught between the ceiling and the top of the car. He was forcibly bent down so that he sat on his heels, while his head was forced down to the roof of the car. He was kept in this position for some moments, during which time he felt as if his head and chest would burst and he could not breathe. He did not lose consciousness, but suffered considerable pain. After his release he had bloody expectoration and some epistaxis. Examination of the chest revealed fractures of the fourth, fifth and sixth ribs on the left side, with some emphysematous infiltration of the subcutaneous connective tissues. There was some cough. A contusion was seen on the right ear. There was no blood in the urine nor was he unable to empty the bladder. A lacerated wound was found around the rectum, which had evidently been made by the heel of his shoe as he was doubled up by the pressure. Sight and hearing were not impaired. The pupils were equal and responded to light. There was an extensive extravasation of blood under each conjunctiva and a bluish discoloration of the head, face and neck to the level of the cricoid cartilage. It was punctiform in character, like the eruption of scarlet fever, but blue instead of red. It did not disappear nor change materially on pressure. The temperature rose to 100.8, dropping to normal in three days. The pulse rate was 120 and gradually dropped to 80. The color of the skin gradually faded but had not entirely disappeared when he was discharged, on the twelfth day. No special treatment was instituted except an ice bag to the chest and, subsequently, adhesive strips, with enough morphin to relieve the pain. Microscopic examination of a piece of skin removed from the side of the neck showed practically no alterations. The capillaries here and there were more or less distended with blood, but no blood was found anywhere in the tissues outside of the blood vessels.

Medical Record, New York.

February 4.

21 *Sanitary Conditions as Encountered in Cuba and Panama, and What Is Being Done to Render the Canal Zone Healthy. William C. Gorgas, U. S. A.
22 *Intramuscular Hemorrhage from Muscular Action. Andrew H. Smith, New York.
23 Review of Some Recent Papers on the Surgical Treatment of Prostatic Hypertrophy. E. G. Ballenger, Atlanta, Ga.
24 *Diagnosis of Renal and Ureteral Calculi. H. A. Fowler, Washington, D. C.
25 *Growth of Bone in the Tonsil. William W. Carter, New York.
26 *Report of Three Cases of Intestinal Anastomosis by the Connell Suture. H. H. Sinclair, Walkerton, Ont.

21. **Sanitary Conditions in Cuba and Panama.**—Gorgas discusses the progress and results of sanitary measures in Cuba, particularly with reference to the extermination of yellow fever, and outlines the steps that will be taken to render the Isthmian Canal zone as free from malaria and yellow fever as is Havana.

22. **Intramuscular Hemorrhage from Muscular Action.**—Smith emphasizes the distinction to be drawn between those cases in which the escape of blood within the intact sheath of a muscle is the important factor and those in which laceration of muscle and sheath plays the principal part. He says the former variety may give rise to greater immediate suffering and to more lasting impairment of function than the latter. Rupture of individual muscle fibrillæ, the result of a violent contraction, is comparatively common, even in a healthy muscle. Almost any muscle may be involved, but those that act through tendon of achilles suffer most because of the greater strain to which they are subjected. Other causes of rupture are excessive stimulation, irregular contraction and inco-ordination of the muscle fibers. The amount of hemorrhage depends more on the freedom with which the effused blood can escape into the neighboring tissues than on the size of the vessel torn across. The degree of pain felt by the patient depends on the amount of pressure or tension within the blood sac. Smith cites two cases of hemorrhage into the calf muscles due to muscular action in which a limited amount of blood was effused into a confined space, with the result of causing much pain and protracted disability. In two other cases cited the muscle was torn completely across, the calf muscles in one and the sterno-cleidomastoid in the other, but the suffering was comparatively slight and the disability of short duration.

24. **Diagnosis of Renal and Ureteral Calculi.**—Fowler emphasizes the importance of early diagnosis in these cases because by early surgical interference we can save the kidney and also procure relief for the patient. Moreover, we avoid alarming and distressing complications and a final resort to more serious operations. In the early stages, nephrolithotomy offers a perfect cure, is not dangerous, and is attended by a very low mortality.

25. **Growth of Bone in Tonsil.**—Carter narrates a case, female, aged 22, in which one tonsil was found to contain areas of hyalin cartilage undergoing osseous transformation, and other areas in which bone was being formed directly from fibrous tissue; while in still others the transitional stages from fibrous tissue through cartilage to bone were observed. Carter expresses the belief that in these cases the bone originates from metaplastic changes in connective tissue and not from the branchial arch, but since bone does not develop in every tonsil that has been subject to proliferative connective tisue changes, we must assume, when it does occur, some local predisposing tendency to its formation.

26. **Experience with the Connell Suture.**—Sinclair relates

three cases in which he made use of the Connell suture. The first was a case of strangulated inguinal hernia; the second, gangrene, the result of a volvulus; the third, a retrocolic gastrojejunostomy for perforated gastric ulcer. The three cases made uneventful recoveries.

St. Louis Medical Review.

January 28.

27 Malformation of the Bladder. Herman Tuholske, St. Louis.
28 Case of Potassium Iodid Eruption. M. J. Epstein, St. Louis.
29 Hydatid Cysts of the Liver. (Continued.) Neill MacPhatter, New York.

Boston Medical and Surgical Journal.

February 2.

30 Relation of the Epileptic to the Community. William N. Bullard.
31 *State's Relation to the Epileptic. Owen Copp, Boston.
32 *Tuberculosis Problem and Some Suggestions in Dealing with It. Edward O. Otis, Boston.
33 *Treatment of Hemorrhoids by the General Practitioner. T. Chittenden Hill, Boston.
34 Consumption and Its Borderland, Public and Professional Concern. Paul Paquin.

31. State's Relation to the Epileptic.—Copp discusses the obligation of the state to epileptics and the protection it requires for its own welfare. In addition to legislative efforts, he advises that the state should provide the following:

1. A center for study, research and teaching in relation to epilepsy, well officered and equipped, to afford scientific treatment to patients both within its care and at home, through advice to indigent parents and friends who may wish to avail themselves of the aid, and, in conjunction therewith, schools for elementary education, manual training and persistent drilling into habits of doing simple, everyday acts of helpfulness to the family or the institution.
2. Colonies, independent or associated with such a center, which the adult epileptic, thus trained, may enter and find a home in place of isolation in society, and industrial opportunities graduated to his capabilities under conditions suited to his peculiarities and to the utilization of his productive energy.
3. Custodial provision for the infirm, intractable and insane epileptic.

The trend of this policy is toward segregation of epileptics, both in the classification for public wards and apart from the general community. Its successful issue would afford the chief check on hereditary transmission of the degenerative taint.

32. Tuberculosis Problem.—Otis says that in order to stamp out tuberculosis it is essential, in addition to the measures usually followed, to promote conditions of wholesome living, to teach the people the elements of personal and house hygiene, and to teach what wholesome living is and how to obtain it.

33. Treatment of Hemorrhoids.—Hill says that the great majority of cases of hemorrhoids, of whatever form, can be treated radically, satisfactorily and with little discomfort to the patient at the physician's office. The after-treatment of these cases requires careful attention. The bowels, as a rule, should be confined for forty-eight hours. On the second night half a dram of fluid extract of cascara should be given, and sufficient thereafter to secure daily evacuations. The anal region should be kept scrupulously clean, and a pad of cotton-wool wrung out of bichlorid of mercury solution, 1 to 1,000, placed over the anal orifice is more acceptable to most persons than a dry dressing. Good drainage must be secured and the necessary topical applications made to induce rapid healing. Should there be much pain or soreness (which is rarely the case), it can be relieved by anodyne suppositories, morphia, cocain, or combinations of both. An irritable or hypertrophied external sphincter is occasionally the cause of pain after these operations. This complication can be avoided by a complete division of both layers of the muscle, a painless operation, under local anesthesia. On no account should the internal sphincter be damaged, as incontinence might follow.

Lancet-Clinic, Cincinnati.

January 28.

35 Systematic Examination of Sick Children. James W. Rowe, Cincinnati.
36 Appendicitis. Horace J. Whitacre, Cincinnati.

February 4.

37 Pain in the Back—A Clinical Lecture. F. W. Langdon, Cincinnati.
38 *Typhoid Fever and Appendicitis. John C. Oliver, Cincinnati.
39 *Macular Atrophy of the Skin. Edw. H. Shields, Cincinnati.

38. See abstract in THE JOURNAL of January 7, p. 60.
39. Ibid., vol. xliii, p. 1251.

The Laryngoscope, St. Louis.

January.

40 *Throat Complications in Typhoid. F. J. Quinlan, New York
41 Acute Suppurative Otitis Media Complicated by Double Pneumonia, Septic Thrombosis of Jugular Bulb; General Systemic Infection. E. B. Dench, New York.
42 Difficulties in Diagnosis of Intracranial Extension of Suppurative Otitis in the Presence of a Pulmonary Complication. A. B. Duel, New York.
43 Bezold's Mastoiditis; Report of Three Cases. S. Oppenheimer, New York.

40. Throat Complications in Typhoid.—Quinlan calls attention to throat complications of typhoid, such as pharyngitis, laryngitis and tonsillitis. The clinical history of these affections is described at great length and the literature on the subject is reviewed carefully. Quinlan asks that more attention be given these complications by the general practitioner, as they are of greater importance than is usually believed. A laryngitis occurring in the course of typhoid always modifies the prognosis. Therefore, any symptom pointing to an involvement of the throat should be investigated thoroughly and proper treatment instituted.

Annals of Ophthalmology, St. Louis.

January.

44 Direct Action of Drugs on the Extrinsic Muscles of the Eyeball. C. A. Oliver and D. M. Hoyt, Philadelphia.
45 Posterior Cortical Cataract of Traumatic Origin. C. Koller, New York.
46 Contribution to the Technic of May's Symblepharon Operation. A. Natanson, Jr., Moscow, Russia.
47 School Influence on the Eye and Spinal Column. J. Liebreich, Paris.
48 John Taylor, Charlatan Oculist. M. Frank, Chicago.
49 Treatment of Infection After Cataract Operation. A. Bourgeois, Rheim, Germany.
50 Corneal Laceration with Cilia in Anterior Chamber; Pupillary Occlusion; Four Operations; Recovery. A. J. Bedell, Albany, N. Y.
51 *Operation for Entropion of the Lower Eyelid. J. M. Ball, St. Louis.
52 Four Cases of Sympathectomy. F. L. Henderson, St. Louis.
53 Common Misconception of Astigmic Retraction. W. N. Souter, Washington.
54 Rheumatism Tenonitis. F. C. Heath, Indianapolis.

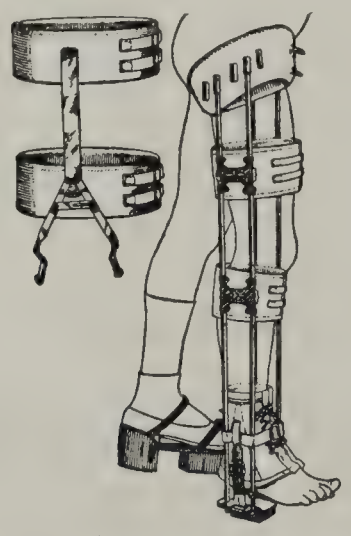
51. Operation for Entropion.—Hall describes an operation devised by him which he says is efficient for the relief of trichiasis and of organic entropion of the lower eyelid, and does not require excision of any tissue. The procedure consists of three steps: 1. Incision of the conjunctiva and tarsal plate.—The writer's, or preferably Ewing's, modification of Desmarres' *pince anneau* is applied, the base plate being in contact with the skin of the lid. An incision parallel with the lid margin is made at a distance of two millimeters from the margin, extending from a point one or two millimeters external to the lower punctum lachrymaliæ to a point one or two millimeters from the external canthus. The incision is made with a cataract knife or with a small scalpel, and includes the conjunctiva and entire depth of the tarsus. The cut is made obliquely from behind downward and forward. 2. Exposure of the lower margin of the tarsal plate.—The lid clamp is released and reversed, that is, the base plate is applied to the conjunctival surface. An incision is made along the whole extent of the lower margin of the tarsal plate. The lower border of the tarsus is then exposed by dissection and retraction of the tissues. 3. The placing of the sutures.—Three or four silk (English black, No. 1) sutures are then passed. The needle is entered from the conjunctival surface of the first wound and is passed obliquely from behind upward and forward, the upper part of the lid being held firmly with ordinary fixation forceps. The needle is then made to bite in the lower margin of the tarsus, and, lastly, it is passed through the lower lip of the cutaneous wound. The sutures are then tied. The effect of tying them is to produce a *renversement* of the upper segment of the lid, the cilia being directed forward, or forward and downward. The gaping wound in the tarsus heals by granulation. The sutures are removed at the end of four days.

Therapeutic Gazette, Detroit.

January 15.

55 Removal of Foreign Bodies and Substances from the Eyeball and Inner Surface of the Lids. M. D. Stevenson, Akron, O.
56 Adenoid Vegetations of the Pharynx. C. W. M. Brown, Elmira, N. Y.
57 *New Ambulatory Splint for Fractures of the Thigh or Leg. A. R. Taylor, Blano, Ill.
58 New Maternity Gown. H. Lowenburg, Philadelphia.

57. New Ambulatory Splint.—Taylor describes his ambulatory splint, which he has used successfully in the treatment of fractures of the thigh and leg. It consists of four rods, two placed on each lateral aspect of the leg, which are adjustable as to position and length and can be fitted to either limb. At the hip and ankle are placed pneumatic pads which can be either tightened or loosened at will with



an ordinary bicycle pump. The ankle pad is secured over a Levis splint and tightly laced, then the strap and the heel extension are buckled on either side, to make any traction unnecessary, even for hip fractures. A fourth pad is placed just below the knee. It secures the Levis splint and helps to retain the limb from any side play. It is not necessary to do much bandaging, as the pads hold the parts perfectly in apposition.

Chicago Medical Recorder.

January.

59 *Congenital Deformities of the Knee. J. Ridlon, Chicago.
60 *Prevention of Appendicitis. W. H. Harsha, Chicago.
61 Thoracoplasty. K. Sandberg, Chicago.
62 Diagnosis and Methods of Treatment in Chronic Prostatitis. F. A. Leusman, Chicago.
63 Two Cases of Hereditary Contracture of the Feet with Operation. J. L. Porter, Chicago.
64 Cardiac and Renal Aspects of Pneumonia. A. R. Elliott, Chicago.

59. Congenital Deformities of Knee.—Ridlon says that so far as he knows true congenital dislocation does not occur at this joint. The congenital defects and deformities of the knee are: Slipping patella, displaced patella, elongated patellar tendon, in-knee, out-knee, flexed knee, hyperextended knee and outward rotation of the tibia on the femur. The cause of these conditions is not known, but he believes that they are some of the many instances of defective development of the embryo. The symptoms are the deformities present and the disabilities that these deformities entail. In the treatment of slipping patella Ridlon has tried trusses and braces, but without success. Hammering of the outer condyle, to stimulate the subperiosteal development of bone, he has tried in two instances, once successfully. In one case of congenital in-knee the deformity was corrected by forcible hand-straightening and prolonged retention in a plaster splint. The treatment of flexion deformity consists in forcible manual straightening, with prolonged retention in plaster splints followed by massage and passive flexion exercises. Congenital out-knee should be treated on the same principles as in-knee. Ridlon has seen seven congenitally hyperextended knees in four patients. In all the patella was absent at birth, and only appeared when, after treatment by passive motion, it was possible to fully straighten or somewhat flex the legs on the thighs. Treatment consisted of daily massage and strong passive flexion of the legs on the thighs. The history of a case of outward rotation of the tibiæ on the femora was given in detail. The tibiæ were rotated outward on the femora about 45 degrees. The patellæ lay directly to the outer side of the outer condyles and were of normal size. The treatment consisted in an attempt to over-correct the flexion deformity, and to rotate the tibiæ to their normal relations. The operation was so far successful that the patient is now able to walk with a cane, showing that it is possible to gain a functionally good limb in these cases without a radical cutting operation.

60. Prevention of Appendicitis.—Harsha reviews the probable causes of appendicitis, such as errors of diet, intestinal disturbances and traumatism, and outlines the treatment in each case.

Ophthalmic Record, Chicago.

January.

65 *Injuries to the Eye from Particles of a Copying Pencil Getting Into the Conjunctival Sac. J. M. Ray, Louisville.
66 Relative Virulencies of Differently Tinted Colonies of Chromogenic Bacteria. C. A. Oliver, Philadelphia.
67 Eye Instruments. Three New Models. C. H. Beard, Chicago.
68 Operative Treatment of Myopia. J. A. Donovan, Butte, Mont.
69 Parinaud's Conjunctivitis; Report of Three Cases. E. C. Ellett, Memphis, Tenn.
70 Visual and Oculomotor Neurons. G. C. Savage, Nashville, Tenn.
71 Exophthalmos and Sphenoidal Abscess. H. V. Würdemann, Milwaukee.

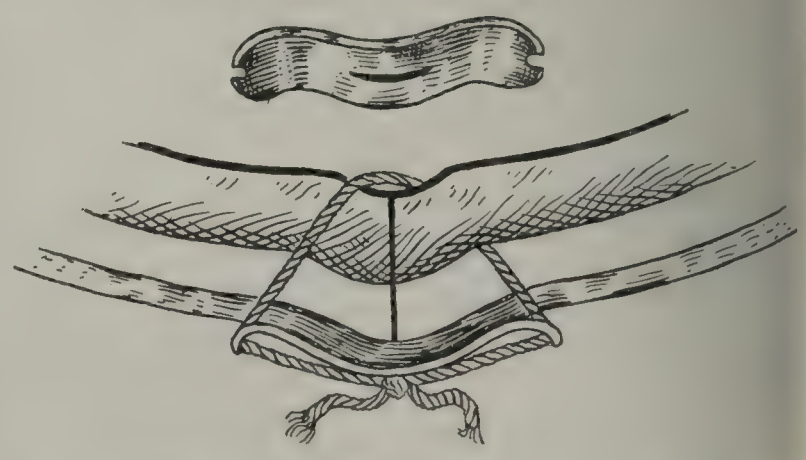
65. Anilin Conjunctivitis.—Ray reports two cases in which rather severe reaction followed an apparently simple accident. While sharpening an indelible pencil a particle of the point lodged on the conjunctiva. Considerable smarting and lachrymation followed, but in a short while the pain subsided and the only discomfort left was the excessive lachrymation, which was stained a deep blue. Later the lids became much swollen and edematous, and there was considerable photophobia. The corneal epithelium was colored blue and so steamy that only a blurred iris could be seen. In one case a large ulcer formed, involving the cornea and conjunctiva and extending into the upper cul-de-sac. The conjunctiva, in addition to being stained and thickened, also presented a peculiar dry appearance and was partly anesthetized.

International Journal of Surgery, New York.

February.

72 Some Common Deformities and Their Prevention. D. T. Bowden, Paterson, N. J.
73 *The Chambers Suture in Abdominal Surgery. J. E. Chambers St. Louis.
74 Temperature as a Guide to the Existence of Suppuration. L. Allen, Burlington, Vt.

73. Chambers' Suture.—The suture devised by Chambers carries the thread across the wound over a silver bridge. There is no chance for the suture to become infected by skin secretions, and there are no cross scars, no cutting threads, no stitch abscess, no infection. It is easy to adjust and remove. In the accompanying illustration it will be noted



that the method obviates the making of a trough into which the perspiration and skin excrement might flow and thus furnish a suitable culture medium for bacteria. The Chambers suture removes the danger of autoinfection. The apex of the triangle lifts the abdominal muscles off the wounded peri

toneum and exerts a greater force on the muscular section of the wall than elsewhere, thereby removing danger of hernias. The suture unites the wound margins evenly and firmly without inversion anywhere. It lifts the skin surface into the arch of the bridge, which causes the perspiration and excrement to flow away from the wound. The silver bridge prevents the thread from cutting into the skin. Chambers suggests that this suture, in midget size, should be valuable in surgery of the face to prevent scars, but he has not yet had an opportunity to make a practical test.

Annals of Gynecology and Pediatry, Boston.
January.

75 Postoperative Anuria. Pathogenesis of Anuria in a Case of Vaginal Hysterectomy for Cancer, with Experimental Research on the Cadaver. Giuseppe Betagh, Sicily.
76 Management of Acute General Peritonitis. J. Garland Sherrill, Louisville.

Colorado Medicine, Denver.
January.

77 Case of Infantile Scorbutus with Remarks on the General Features of This Affection. H. B. Whitney, Denver.
78 Transplantation of the Cord in the Radical Cure of Inguinal Hernia. F. Gregory Connell, Salida.
79 Extensive Bone Regeneration After Gunshot Injury Involving the Leg. George W. Miel, Denver.
80 Improved X-ray Method for the Study of Bone Injuries and for Foreign Bodies. G. H. Stover, Denver.
81 Final Report of Cases of Congenital Dislocation of the Hip and Exhibition of Patients. George B. Packard, Denver.
82 Education vs. Legislation. R. W. Corwin, Pueblo.

Western Medical Review, Lincoln.
January.

83 The Palsies of Children. J. M. Aikin, Omaha.
84 Medical Bibliography. H. Winnett Orr, Lincoln.
85 Some Further Notes on Intestinal Paralysis and Peritonitis. George Haslam, Fremont, Neb.
86 The Management of Infancy. C. D. Barnes, Tecumseh, Neb.

Journal of Cutaneous Diseases, New York.
January.

87 Melanoma. James C. Johnston.
88 Observations Concerning Some Palmar Eruptions. Henry W. Stelwagon, Philadelphia.
89 Porokeratosis (Mibelli). M. L. Heidingsfeld, Cincinnati.

Medical Fortnightly, St. Louis.
January 25.

90 Lung Complications in Influenza. J. T. Pratt, Philadelphia.

Medical Herald, St. Joseph, Mo.
January.

91 Prostatic Surgery. T. E. Potter, St. Joseph.
92 When Not to Operate in Appendicitis. J. E. Summers, Jr., Omaha.
93 Tinea Trichophyton. R. C. Moore, Omaha.
94 Horseshoe Kidney. W. L. Curtis, South Omaha.

Cleveland Medical Journal.
January.

95 Special Field of Neurological Surgery. Harvey Cushing, Baltimore.
96 Prognosis and Treatment of Aortic Regurgitation, with Report of Four Cases. M. J. Lichty, Cleveland.

Northwestern Lancet, Minneapolis.
January 15.

97 Hereditary and Maternal Influences as Factors in Health and Disease. Christian Johnson, Willmar.
98 Medical Ethics and Medical Organization. E. Viko, Salt Lake City.

American Practitioner and News, Louisville, Ky.
January 1.

99 A Few Thoughts on Medical Life Insurance. W. Ed. Grant, Louisville.
100 Tonsillar Hypertrophies. John K. Morris, Louisville.
101 Acute Anterior Poliomyelitis. Philip F. Barbour.

Southern Medicine and Surgery, Chattanooga, Tenn.
January.

102 Chronic Ulcer of the Stomach and Duodenum, from a Surgical Standpoint, with Remarks on Gastric Cancer. William J. Mayo, Rochester, Minn.
103 Stomach Tube—Its Origin, Use and Abuse. L. Amster, Atlanta, Ga.
104 Some of the Difficulties in Obstetrical Practice. W. G. Bogart, Chattanooga, Tenn.

Dominion Medical Journal, Toronto.
January.

105 Report of a Case of Fracture of the Base of the Skull with Middle Meningeal Hemorrhage Between Dura Mater and Skull. Edgar Brandon.
106 Wood Alcohol. J. S. Sprague, Stirling, Ont.

Fort Wayne Medical Journal-Magazine.
January.

107 Hernia. E. H. Griswold, Peru, Ind.
108 The Organization of an Anti-tuberculosis Crusade in Fort Wayne. G. W. McCaskey, Fort Wayne, Ind.

Atlanta Journal-Record of Medicine.
January.

109 Tuberculosis as a Sociologic Factor. R. R. Kime, Atlanta.
110 Cerebrasthenia the Bane of the American Brain-worker. E. Van Goigtsnoven, Atlanta.
111 Address, Atlanta Medical Society. A. W. Stirling.

Medical Sentinel, Portland, Ore.
January.

112 When Should the Stomach be Treated Surgically? Andrew C. Smith, Portland, Ore.
113 The Syphilitic. Being Part of a Symposium on Nervous Diseases. William House, Crystal Springs.
114 Discussion of Some of the Newer Aids in Surgical Diagnosis. Park W. Willis, Seattle.
115 Osteomyelitis Necessitating Hip-joint Amputation. E. B. McDaniel, Baker City, Ore.

Columbus Medical Journal.
January.

116 The Science of Life. Isaac Kay, Springfield, Ohio.
117 Management of Acute Pelvic Inflammation. R. E. Skeel, Cleveland.
118 Medical Jurisprudence. Noah J. Dever, Portsmouth.
119 Dr. Benjamin Rush and the Unveiling of His Monument. James U. Barnhill.

Providence Medical Journal.
January.

120 Two Cases of Chronic Anemia with Splenic Enlargement. Mary S. Packard, Providence.
121 Mucous Colitis. Halsey DeWolf, Providence.
122 The Correspondence Method of Treating Disease. F. T. Rogers, Providence.
123 The Business End of Medicine. W. A. Risk, Providence.

Post-Graduate, New York.
January.

124 Treatment of Typhoid Fever by the Brand Bath. Leonard Weber, New York City.
125 Angioma Simplex of the Ovary. Rupture Causing Death. S. D. Jacobson, New York City.
126 Galvanization. Properties of the Galvanic Current. Wm. J. Morton, New York City.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.
January 21.

1 *Treatment of Inveterate Pruritus Ani. Charles Ball.
2 Treatment of Appendicitis. Rushton Parker.
3 *Operation for Appendicectomy. A. W. Mayo Robson.
4 Unusual Case of Suppurative Appendicitis. George A. Clarkson.
5 Perforated Duodenal Ulcer; with a Report of Three Cases. H. S. Clogg.
6 Operation of Gastro-duodenostomy; Especially in Reference to Finney's Operation of Gastro-pyloduodenostomy. Donald Armour.
7 Kidney Which Contained More Than 40,000 Iridectomy Calculi. J. Bland Sutton.
8 Cancer of Gall Bladder Due to Irritation of Gallstones; Cholecystectomy and Partial Hepatectomy. J. Hutchinson.
9 Two Cases of Suppuration of Goiter. Thomas Evans, New Quay.
10 *Reasons for Abandoning the Uric Acid Theory of Gout. Chalmers Watson.
11 Note on Senile Symmetrical Atrophy of the Skull. F. Parkes Weber.
12 *Significance of Scars of the Genital Region in the Retrospective Diagnosis of Syphilis. Arthur Cooper.

1. **Treatment of Inveterate Pruritus Ani.**—Ball's method, a surgical one, is as follows: The skin having been cleansed, a curved incision is made on each side of the affected area, enclosing the entire ellipse, with the exception of a narrow neck in front and behind; these incisions are carried down the sphincter muscles and the flaps raised by careful dissection with scissors from the surface of the muscle, round its anal origin, and up the anal canal to above the muco-cutaneous junction, the dissection extending round the entire circumference, all connections with the subjacent tissue being divided. The pedicles in front and behind are now undercut to a point well beyond the area of irritation, and the outer concave edges of the incision are also undercut to a distance of at least a quarter of an inch free of the involved skin all round. Care must be taken to stop all bleeding before the flap is replaced, as the formation of a hematoma in the wound might interfere with the vitality of the flaps. The flaps are finally replaced and retained by sutures, a few intervals being left between them for drainage. The immediate result of this operation is to render the entire ellipse included between the incision, the pedicles and outer edges as far as they have been undercut, superficially anesthetic, and the itching is at once relieved.

Three cases in which this method was used demonstrate that the operation gives immediate relief and that superficial sensation may be restored without recurrence of the pruritus. Should recurrence of pruritus supervene after the operation, Ball thinks removal of the posterior roots of the third and fourth sacral nerves, with their ganglia, would have to be considered.

3. **Operation for Appendicectomy.**—Robson describes his method as follows: An oblique incision of from three to four inches is made about two inches internally to the right anterior superior spine of the ileum down to the aponeurosis of the external oblique, which is then split in the direction of its fibers to an extent equal to the external incision. The fascia over the internal oblique, the internal oblique and the transversalis muscles are split in the direction of their fibers, so as to make a lozenge-shaped opening, with the peritoneum as its floor, when the margins are forcibly stretched. Bleeding points, if any, are tied. The peritoneum is caught up by two pairs of pressure forceps and brought to the surface, when it is incised between the forceps and the opening is increased to the extent of an inch or an inch and a half. Through the opening the cecum is drawn out, the appendix is located, and any adhesions are separated by the finger; or, if necessary, ligated. As soon as the appendix is brought to the surface any protruded cecum or colon is returned into the abdomen, leaving the appendix and the apex of the cecum protruding through the lozenge-shaped aperture in the abdominal wall. The mesentery of the appendix is seized with pressure forceps and is divided between the forceps and the appendix, a ligature being applied to the stump. If the mesentery is very long, it may have to be ligated in two or even in three portions. As a rule, one ligature is sufficient. The root of the appendix close to the cecum is then seized between the blades of a pair of ordinary Spencer-Wells pressure forceps and crushed, the forceps being taken off and reapplied at right angles in order to make the crushing more complete, so as to leave only the peritoneal coat in the crushed portion. To this crushed base of the appendix, close to the cecum, an ordinary thin catgut ligature is applied and cut short. A purse-string suture is then inserted around the root of the appendix, but not tightened until the appendix has been removed, which is effected by seizing it with the pressure forceps just above the crushed portion and cutting it through between the ligature and the forceps. The ligated stump of the appendix, consisting merely of a little nipple of tissue, is depressed by means of a probe or a pair of Lister's sinus forceps, and the purse-string suture tightened. This entirely buries the root of the appendix. For additional security another purse-string suture may be applied, this taking up the root of the mesentery so as to make it form an additional cover to the tip of the cecum. The ligature of the crushed stump of the appendix is not absolutely necessary, as the crushing quite seals the lumen of the appendix. The cecum is then returned, the peritoneum closed by circular suture, the inner two muscles fall together, two or three interrupted catgut sutures unite the separated margins of the internal oblique and then several sutures are in like manner applied to the edges of the aponeurosis of the internal oblique muscle to secure active apposition, after which the skin is united by several interrupted sutures. A dry dressing is applied and left in place for ten days, at which time the patient may be moved to a sofa. The damage to the abdominal wall is so slight that no belt is necessary or even desirable. In acute cases, where the root of the appendix can not always be safely brought to the surface, crushing the root of the appendix and applying a catgut suture to the stump has been sufficient to insure freedom from a fecal fistula. The operation can usually be completed in from ten to fifteen minutes. Where the diagnosis is doubtful a vertical incision through the outer part of the rectus sheath is employed and the muscles displaced inward, when the posterior sheath of the rectus and the peritoneum are divided together in a vertical direction. In this way a free opening can be made, which is large enough to admit the fingers or even the hand without dividing any muscle. When the operation is finished the posterior and anterior parts of the rectus sheath are united separately and a strong abdominal wall is left.

10. **Uric Acid Theory of Gout.**—Watson concludes that the evidence of the laboratory is in harmony with the teaching of clinical experience, and shows that uric acid is not an important etiologic factor in the production of gout. He believes that there is an infective element in the disease, and that the uric acid is the feature which gives the inflammation its specific character. According to this view, the chief source of infection is the alimentary tract, and an injudicious dietary—meat or drink—acts mainly in virtue of its influence on the bacteria present in the digestive tract. This view, he says, by no means minimizes the importance of the hereditary factor in the disease.

12. **Significance of Genital Scars.**—Cooper says that the diagnostic value of genital scars is not always easy to determine, and although no hard-and-fast rules can be laid down, still the retrospective diagnosis of syphilis is a matter of such importance that an attempt ought always to be made to get information from every available source. Excluding non-venereal cases, the following rough summary may be found useful:

1. Genital scars are more common and more marked in hospital than in private practice.
2. In many cases of nervous or other late form of internal syphilis the genital region is free from scars.
3. A single scar on the skin of the penis suggests syphilis.
4. A single scar on the mucous membrane also suggests syphilis as a rule—occasionally the local chancre.
5. Multiple scars on the mucous surface of the penis only suggest the local chancre.
6. Multiple scars on both mucous membrane and skin also suggest the local chancre.
7. Inguinal scars, together with scars on the penis, suggest the local chancre.
8. An inguinal scar without any penile scar (if venereal at all) suggests gonorrhea.
9. Extensive scarring of penis or groin, or both, suggests phagedena.
10. Genital scars, with scars on other parts of the body, suggest an ulcerating syphilide.

The Lancet, London.

January 21.

13 Convulsions During Infancy and Childhood. Henry Ashby.
14 *Principles of Treatment of Pneumonia. William Ewart.
15 *Some Clinical Uses of Iodic Acid and the Iodates. William Mackie.
16 *Experiences with Iodoform Bone Plugging. Von Mosetig Moorhof and B. Seymour Jones.
17 Case of Acute Leukemia, with Remarks on Its Clinical Features and Diagnosis. W. Mitchell Stevens.
18 Case of Contracture and Ankylosis at the Knee Treated by Steel-bar Traction and Hessing's Splint Case Appliance. T. H. Openshaw.
19 Human Piroplasmosis. (Concluded.) C. Donovan.
20 Suppurative Pericarditis. R. W. Murray, Liverpool.
21 Congenital Multilocular Cyst of the Omentum. W. McGregor Young.
22 Fracture of the Anterior Fossa of the Skull Dividing the Optic Nerve. Frank J. Hathaway.

14. **Treatment of Pneumonia.**—Ewart believes in an early and active treatment of pneumonia based on the pathology of the disease and having in view the warding off of disastrous consequences. He scores roundly the so-called expectant treatment. The object should be to arrest the morbid process by other abortive measures than the missing antitoxin; to restrict the invading host, though we can not stop it; to destroy or to neutralize the poison by the vital energies, and to hasten its elimination. For the shock of the invasion, immediate recumbency, warmth, and a small dose of ether or brandy, with hot water, are indispensable. A soothing draught is desirable, such as ammonium bromid with aromatic spirits of ammonia. A dose of calomel is given at once, to be followed half an hour or an hour later with a senna draught. Arrangements must be made for the immediate supply of oxygen, which is to be administered continuously as an aid to the heart. It has the advantage over alcohol in being harmless and in not complicating the alimentary situation. He makes leeching a routine of treatment quite apart from the question of pain. The stronger measure of venesection may be required in some cases, but viewed all round it is not, perhaps, so desirable as leeching. He doubts that it should be resorted to after consolidation has occurred except as a desperate remedy when heart failure is threatened. The abstraction of blood, preferably by leeching, is of great value in proportion to the early date of its employment before the deposition of fibrin. Sweating may

be promoted by the hot-air bath, confined to the lower extremities, or by Rochester's hot mustard footbath. The chief aims of medication are diaphoresis, diuresis, antifibrinosis and absorption. Ewart trusts to the free use of ammonium citrate, to which sweet spirits of niter may be added. Sweating is encouraged by warm beverages. Divided doses of calomel are also given. Fluidity of the blood is brought about by the administration of citric acid, which precipitates the calcium which is essential to clotting, or large doses of iodid of potassium. The administration of the iodid of potassium is continued throughout to the end of the attack. Ewart has prescribed it to the extent of 60 gr. per day with good result. The prescription which he uses for the first day, for adults, is as follows:

℞.	Potassii iodidi .....gr. v		03
	Liq. ammon. citratis.....3ii	8	
	Spts. etheris nitrosi.....3ss	2	
	Spts. ammon. arom. .....m. xx	1	25
	Aquæ chloroformi q. s. .....℥ss	15	

One tablespoonful of this mixture, diluted, is given every hour for six doses, and subsequently every three hours; 1/6 of a grain of calomel is taken every four hours. He thinks alcohol in moderation is indispensable from the first as a stimulant and as a food substitute. The diet should be made as watery as possible. Whey is preferable to milk, as it gives no heavy coagula to keep up fermentation. During the second day the same medicine may be continued. Three grains of quinin, in pill or powder, will be a useful addition to each dose. Four ounces of alcohol, or perhaps six, will be required. The whites of two or three eggs can be added to the whey and the yolks beaten up with gin or brandy. A quarter of a pound of sugar should also be given in the whey. A sleeping draught may be required if the patient is restless. On the following days support is the main indication. Raw meat juice, strong gravy, predigested foods and eggs beaten up should be substituted for the whey, and good milk given in tea or thickened with cocoa. Oxygen must be continued and strychnin frequently injected in anxious cases. In safe cases the latter may be included in a fresh mixture with carminatives, and iodid of potassium and quinin should also be administered. In the worst cases a second leeching or even venesection may be indicated. As a preliminary to the latter, two single doses of digitalis might be given at an interval of two hours, and the venesection immediately preceded by a 10-minim dose of a 1 in 1,000 solution of adrenalin under the skin. The further treatment must be dictated by the progress of the case. For the gin or brandy, whisky, rum, champagne, port wine or burgundy may be substituted as long as there is need for a stimulant. Ewart says that the virtues of red wines, particularly when administered hot, and with plenty of sugar, are too much neglected in pneumonia. He regards hot lemonade as of value in the early stages, particularly when the outer glandular layer of the lemon is also made to yield its precious contents.

15. **Iodic Acid and the Iodates.**—Mackie makes a further report of his experiences with these substances. Calcium iodate is useful as a dressing powder to all cicatrizing surfaces; in a warm saturated solution as a vaginal douche; in tuberculous bladder; as a mouth wash and gargle; as an irrigating solution in empyema of the chest, and as a dentrifice in pyorrhea alveolaris. It has been found to be all but a specific applied as an ointment, 10 gr. to the ounce, for the eczemas of infants. It is also useful as an emulsion (3 drams of calcium iodate to the ounce of glycerin) for the treatment of tuberculous joints. In one case of typhoid the results obtained from its use were such as to encourage further trial. It was ordered in half-ounce doses of the saturated solution diluted with water, to be given twice daily, and was increased to one and a half ounces, three times a day, diluted as before. Mackie now orders iodic acid in place of the iodate in typhoid. Iodic acid is a much better antiseptic than calcium iodate. It is also a powerful deodorant. It has the additional advantage of not staining the hands or the tissues, as is the case when potassium permanganate is used. He has used it in irrigating, in the case of a burn; in ozena; in an infected amputation stump; in empyema of the chest; as an application to clean and deodorize two very offensive leg ulcers; in an ataxic female; as a mouth wash in a case of recurrent and inoperable epithelioma of the mouth and cheek; as a vaginal douche in a case of inoperable cancer of the uterus and vagina; as a throat application in diphtheria and in scarlet fever; internally for gastrointestinal sepsis or fermentation; in typhoid fever; and as a surgical disinfectant and antiseptic. The results in all these cases were such as to warrant the further use of iodic acid. The iodate of zinc is useful where a stronger solution of calcium iodate than the natural insolubility of that salt admits of being prepared, appeared to be indicated, and it has been used in various strengths, up to full saturation, in the following cases: For injecting chronic sinuses left after curetting tuberculous glands, phalanges and metacarpal bones; for washing out deep abscess cavity of the palm, and for irrigation in offensive otorrhea. Subiodid of bismuth has been used with unexpected but perhaps not always permanent results in lupus vulgaris, lupus erythematosus and curetted scrofulous glands. Mercuric iodate proved particularly useful, in the form of an ointment, in sycosis, and in 8 consecutive cases of tinea barbæ.

16. **Iodoform Bone Plugging.**—The material which is used for bone plugging by Moorhoff and Jones consists of a mixture of 60 parts of the finest pulverized iodoform and 40 parts each of spermaceti and oil of sesame—a compound which at the ordinary room temperature forms a stiff yellow mass. At 50 C. the substance becomes fluid, and on allowing it to stand and cool, the oily constituents separate above while the heavier iodoform sinks to the bottom. In order to obtain a homogeneous emulsion, the substance, after being melted by warming, must be well shaken up and then it is ready for use. The shape of the cavity in the bone to be filled is of no consequence. To achieve success a hermetical and perfect filling of the cavity is essential, and this desideratum can only be attained by pouring in a fluid substance which solidifies *in situ*. The solid mass must be in contact with and adherent to every portion of the walls, penetrating every fissure and interstice filling the cavity completely. Hence, the cavity must be dry. Blood or fluid used for syringing would prevent the intimate apposition of the mass with the walls. For drying the cavities, hot air is employed. Furthermore, the walls of the cavity should contain no diseased tissue and should be perfectly aseptic. The plugging material is poured in and sets in a few minutes. The superficial soft parts can then be united after a previous complete arrest of all bleeding points by ligation. No especial drainage is required, for well plugged and filled cavities neither bleed nor discharge. Existing fistulous tracts covering soft parts suffice for the escape of lymph, which the soft parts secrete. If no sinuses are present, it is sufficient if the sutures are not inserted close together. The protective dressing should not be regarded as a pressure pad; circulatory disturbances ought to be avoided. The iodoform filling substance has only a provisional sojourn in the wound cavity. It may be either pressed up and expelled by the new connective tissue formation, or it may be absorbed. In the latter event, iodin can be demonstrated in the urine during the course of the healing of the wound. Defects in the bone disappear and the normal shape and size of the bone are restored in a given time. The principal class for plugging comprises the common osteomyelitic affections and tuberculous disease of the articulations and bones; although it may also be used in the case of cavities the walls of which are not exclusively constituted of bony substance, such as a cavity resulting from extirpation of the calcaneum, after resection of the wrist, etc.

Therapie der Gegenwart.

October.

23 Syphilis of the Circulatory Apparatus. R. Renvers.
24 Refracto-metric Determination of Egg Albumin for the Control of Therapeutic Measures. B. Chages.
25 Diagnosis and Treatment of Conjugal Gonorrhea. R. Asch.
26 Symptoms and Treatment of Chronic Otitis Media. B. Heine.

November.

27 Physical Therapy in Heart Disease. C. Baeumler.
28 *Experiences with the Gastric Juice of Dogs. F Rollin.

31 Abdominal Hysterectomy for Carcinoma with Exhibition of a Case Operated on July 28, 1878. W. A. Freund.

December.

32 *Dietetic Treatment of Chronic Diffuse Intestinal Catarrh. T. H. Rosenheim.
33 *Therapy of Stomach Affections. H. Leo.
34 Morphin in Heart Disease. H. Rosin.
35 Sodium Chlorid and Nephritis. H. Strauss.
36 A New Pharmacodynamic Method for Determining the Value of Diuretics. P. F. Richter.
37 Significance of Pain in the Back. M. Mosse.
38 *Alcoholic Cirrhosis of Liver in Eight-year-old Child; Talma Operation. R. Milchner.

28. **Natural Gastric Juice as a Therapeutic Agent.**—Rollin has made use of the gastric juice obtained from dogs in the treatment of stomach affections during the past three years. He obtained the gastric juice directly from Pawlow and repeated tests confirmed its efficiency as a digestant. With the exception of one patient, a woman, who complained that the gastric juice of a dog was too sour and who preferred the gastric juice of the pig, none of the patients objected to the taste of the fluid, even after partaking of it for several years. The 12 cases treated consisted of nervous dyspepsias, subacid and anacid gastric catarrhs. The average dose was 200 c.c. a day taken with the noon and evening meals. On several occasions, two of his patients had to substitute dilute hydrochloric acid for the gastric juice, the supply having given out, and they both stated emphatically that the therapeutic effect of the acid was not as great as that of the gastric juice. Rollin obtained equally good results from the gastric juice in all the cases treated and unhesitatingly subscribes to Pawlow's statement that the natural gastric juice of the dog is the digitalis of the stomach. The history of 10 cases is given in detail. Results were good in all.

32. **Diet in Chronic Diffuse Intestinal Catarrh.**—Rosenheim states that it is impossible to lay down a diet for all cases which is non-irritating and easily assimilable. So far as milk is concerned, although it oftentimes proves exceedingly useful in these cases when given in small quantities, yet, for the majority of patients, it had best not be given. Experience has shown him that if the small bowel is put at rest for a short time by giving some mild diet, other than milk, it is possible to give milk later, and with good result. In many cases, even very mild ones, it is advisable to abstain from milk for months. Rosenheim goes so far as to forbid using milk in the preparation of foods and drinks until the bowel has become perfectly quiet. During the first few weeks of the dieting of all his patients, milk never enters into the bill of fare. Disease of the large bowel, even though it may be advanced, does not contraindicate the use of milk; on the contrary, milk, specially when it is the only food taken, is exceedingly useful. In achylia gastrica and in hyperchlorhydria, milk, as a diet, occupies first place, but it should be omitted when there is an associated catarrh of the small bowel. In the majority of these cases, it is well to begin by prescribing a diet containing 120 or more grams of egg albumin, 200 to 250 grams carbohydrate; 40 to 50 grams fat and consisting of meat, fish, eggs, some sugar, wheat bread or zweibach, rice, farina, sago, macaroni, bouillon, broths, butter, tea, and red wine. Meat ought to form a considerable part of the diet in the majority of these cases. Although the small bowel, even when diseased, is well able to digest albumins, yet care must be taken not to give this in too large amounts, so as not to overtax the digestive capacity of the bowel. Changes in the diet must be made carefully and slowly, watching for the slightest manifestation of disturbances due to the change in diet. In those cases in which a neurosis is an etiologic factor, proper hygienic treatment must be given in addition to the dietetic.

33. **Therapy of Stomach Affections.**—Leo cites a case of gastroxynsis in which all the usual therapeutic measures failed to give any relief. Finally, he resorted to the use of cold douches for two or three minutes, the patient going to bed immediately afterward. This controlled the pain and vomiting for about two hours, and inasmuch as the man took four or five of these cold douches every day he experienced considerable relief. The second case cited is one of very severe gastralgia accompanying a chronic gastritis with subacidity. Lavage with solution of silver nitrate and other medicinal agents, including hydrochloric acid by mouth, proved futile. A mixture of pepsin and hydrochloric acid (10 parts of each in 50 of distilled water) yielded immediate relief and the patient is improving steadily. Leo calls attention to the anesthetic effect of this mixture, a most unusual one, due probably to its peptonizing action.

38. **Talma Operation in Eight-Year-Old Child.**—Milchner cites the case of a girl, 8 years old, suffering from an atrophic alcoholic cirrhosis of the liver, slight jaundice, extreme grave anemia and ascites. Medicinal treatment proving futile, he decided to do a Talma operation. The omentum was very thin and anemic, and showed no adhesions. The phlebectasia so common in liver cirrhosis was absent. An omentopexy did not relieve the ascites. Nevertheless the veins of the chest and abdomen soon became considerably dilated, and a typical caput medusæ formed. Milchner calls special attention to the absence of venous dilatation in the omentum as a probable cause of failure in producing the desired results by performing a Talma operation. On the other hand, his case proves that the success of the Talma operation is not dependent entirely on dilatation of the omental veins, and that the ascites accompanying cirrhosis of the liver is not always the result of congestion in the portal system.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 252.

39 (XLIII, No. 2.) *Ueber embolische Lungen-Affektionen nach Bauch-Operationen (after laparotomies). Gebele.
40 *Ueber complizierte Frakturen der Extremitäten. O. Klauber.
41 Zur Kasuistik der Knochenbrüche (benefits of hospital treatment of fractures). R. Klaus.
42 Kropf-Operationen am städtischen Hospital in Schw. Gmund (108 goiter operations). H. Closs.
43 *Ueber ein differential-diagnostisches Symptom zwischen Hernia cruralis und Varix der Vena saphena magna. J. Hertle.
44 Slowly Absorbed Suture Material.—Nahtmaterial mit verzögerter Resorption. H. Miyake. See THE JOURNAL, XLIII, page 1507.
45 (No. 3.) Die Behandlung des Carcinoms des Pharynx und der Tonsillen. K. Lindenborn.
46 Zur Operation der Aneurysmen insbes. der Total Exstirpation. R. Kolb.
47 Versorgung des Bruch-Sackes bei der Radikal-Operation von Leistenhernien (inguinal hernia). Bunge.
48 Muskel-Sequester nach Pneumokokken-Infektion. Paetzold.
49 Ueber ausgedehnte Mesenterial-Abreissungen bei Kontusion des Abdomens (lacerations of mesentery). R. Neumann.
50 *Klinische Beiträge zur Kenntnis der Pankreas-Nekrose. C. Boehm.
51 *Gastroenterostomie mittelst elastischer Ligatur. G. Tiefenthal
52 *Verwendung der Killian'schen Bronchoskopie bei der Pneumotomie. E. Schefold.
53 Myxofibrom des Nervus peroneus. Custodes.

39. **Embolism of the Lung Following Laparotomy.**—Gebele reports clinical and experimental experiences which show that a large percentage of the lung affections observed after laparotomy are due to embolism. In experimenting on 40 rabbits he noted after laparotomy an embolic lung affection in 12, and an embolic pneumonia in 4. Embolism, therefore, should be regarded as an important factor in the development of lung complications after abdominal operations. About a third of the lung infarcts are followed by pneumonia. Infection is indispensable, but this may occur primarily with the embolus or may follow later. Embolic pneumonia is hemorrhagic at first, before there is abscess formation, and it is usually insular, the foci generally locating beneath the pleura. He reviews the experiences of others, especially Mikulicz' report of 143 cases of pneumonia occurring consecutive to 1,781 laparotomies, almost half of the pneumonias terminating fatally. Gebele's article issues from von Angerer's clinic at Munich, and reports 77 or 6.43 per cent. cases of pneumonia following the laparotomies between 1892 and 1902. Out of the 77 cases 14 (1.17 per cent.) were of embolic origin, and 8 were suppurative pneumonia. He was unable to detect any special connection between the nature of the operation and the embolic complications.

40. **Complicated Fractures.**—Klauber reviews the experiences at the Prague clinic (Wölfler's) during the last nine years. The proportion of cases treated conservatively is increasing every year.

43. **Differential Sign of Varix and Femoral Hernia.**—Hertle states that when the varix is compressed with the fingers

and then the compression is abruptly removed, but with the fingers still in contact, a distinct buzzing is felt similar to that felt over the thorax in certain cardiac defects.

50. **Pancreas Necrosis.**—Boehm regards gallstones as an important factor in the development of necrotic processes in the pancreas. He reports 6 new cases of necrosis of this organ, and emphasizes the necessity for prompt surgical intervention, even in the apparently hopeless cases. He describes the care necessary to prevent complications, etc.

51. **McGraw Elastic Ligature.**—Tiefenthal commends the elastic ligature, as his experimental tests with it were all pre-eminently favorable.

52. **Bronchoscopy and Pneumotomy.**—Schefold relates that a young man who presented some of the symptoms of tuberculosis was treated in a sanatorium and referred to a hospital with the diagnosis of abscess in the lung. Bronchoscopy revealed a shirt stud in the lung. The stud was removed by operation, but recovery was delayed by empyema. The bronchoscope rendered valuable services during evacuation of the abscess.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

54 (XXX, No. 52, December 22.) *New Method of Obtaining Antibodies.—Ueber ein neues Verfahren zur Gewinnung von Antikörpern. F. Loeffles.
55 *Beitrag zur Frage der appendicularen Perforations-Peritonitis nach Trauma. Henning.
56 *Wearing Out of Nervous Apparatus Without Due Repair.—Die Aufbrauchkrankheiten des Nerven-Systems. L. Edinger.
57 Influence on Action of Sunlight by Sea Water.—Ueber die Beeinflussung der Sonnenlichtwirkung durch Meerwasser. H. Leo.
58 Die Elektrotherapie der Herzkrankheiten in Verbindung mit der Nauheimer Kur (in heart disease). P. C. Franze.
59 *Protection of Wounds by Zinc Chlorid Eschar.—Schutzt der Chlorzinkschorf aseptische Wunden gegen eine Infektion mit virulenten Bakterien? P. Bröse.
60 Antikörper des Streptococcen- und Pneumococcen-Immun-Serums (antibodies). E. A. Wright (London).
61 Zur Kenntnis und Behandlung des Gallensteinleidens (biliary lithiasis). H. Kober.
62 Patents of Interest to Physicians.—Technische Neuheiten aus den Gebieten der Medizin, öffentlichen Gesundheitspflege und Krankenpflege. Kalckhoff.

54. **New Technic for Obtaining Curative Sera.**—Loeffler's new method for obtaining antibodies was described in an editorial in THE JOURNAL, page 221.

55. **Appendiceal Perforation Peritonitis After Trauma.**—Henning found two fecal concretions in an appendix removed on account of peritonitis following perforation of an ulceration. The patient had been kicked in the abdomen by a horse a few days previously. The fecal concretions in the appendix were evidently old ones, the lumen between them and proximal to both being entirely obliterated, showing their age, and yet they had never caused symptoms. These fecal concretions might never have caused trouble if it had not been for the trauma.

56. **Wearing Out of Parts of Central Nervous Apparatus Without Normal Repair.**—In this third article Edinger considers the wearing out of predisposed nerves from mere functional use. The postsyphilitic affections are analyzed in detail. The anatomic lesion in these seems to be the simple disappearance of the nerve tracts and their substitution by neuroglia. This functional using up of the true nerve substance might be expected in these cases to affect principally the nerves which have most functional demands made on them, and this is what is observed in reality. Sleeping or waking, the spinal cord is constantly receiving impressions from bones, muscles, joints and skin, and the spinal cord suffers first and most. Excessive functioning can be traced in nearly every case of ataxia. It seems difficult to recognize this when a tailor, for example, suffers from ataxia of the legs, but it will probably be found that he lives in an upper story and for years has had to climb several long flights of stairs several times a day. In one instance a syphilitic had had no symptoms of ataxia, but a pedestrian tour, during which he carried a satchel, brought them on, the arm carrying the satchel being first affected and then the legs. After complete rest he recovered, but any over-exercise caused a recurrence of the ataxia. Writers have described cases of tabes without ataxia, but the subjects were women or men with sedentary occupations, none exposed to overexertion. Excessive functioning would probably bring it on in these cases also. The same is true of the postsyphilitic motor symptoms, the pupil reflexes and the disturbances in the eye muscles. Bone and joint affections are also observed from this same wearing out of the nerves without normal repair, and in this respect must be noted the possibility of mechanical destruction of the tissues, which have lost their sensitiveness from the lack of the normal protecting nerve reflexes. In confirmation of this assumption that a connection between the spinal cord and the bones is indispensable for the normal maintenance of the latter, he cites Goltz' experiments. At different sittings long stretches of the spinal cord were resected at intervals of several weeks. At each succeeding operation the vertebræ were easier to cut, until at the last they could be cut with ordinary scissors.

59. **Protection of Wounds with Zinc Chlorid.**—Bröse's researches were conducted on rabbits and demonstrated convincingly that a wound cauterized with a 50 per cent. solution of zinc chlorid is protected against infection. Even with extremely virulent infection, and when an interval of a minute had elapsed between the wound and the cauterizing, the animals were absolutely protected. Notwithstanding this his researches failed to show that zinc chlorid can be regarded as a disinfectant, even in the strongest solutions. His researches further demonstrated that the results of infection differ accordingly as the germs come in light contact with the wound or are driven forcibly into it.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed page 510.

63 (LVIII, No. 5.) *Infantile Gastrointestinal Catarrh.—Studien über Magen-Darmkatarrh bei Säuglingen. C. E. Bloch.
64 *Ueber Pollakiurie und Enuresis im Kindesalter (in childhood). O. Reinach.
65 *Ueber Spondylitis mit bes. Berücksichtigung des späteren Verlaufs derselben (later course). A. Hugelshofer.
66 (No. 6.) Zur Kenntnis der Cerebrospinal-Flüssigkeit in einem Fall von chron. Hydrocephalus. L. Langstein.
67 Zur Lehre von der Rachitis. F. Siegert (Strasburg).
68 *Die Hysterie im Kindesalter (in children). Bruns (Hanover).
69 *Ibid. M. Thiemich (Breslau).

63. **Gastrointestinal Catarrh in Infants.**—The findings in the cadavers of 10 infants indicated that the inflammation in the intestinal mucosa had been mainly restricted to the ileocecal valve. It rarely extended into the small intestine and then but a short distance. In the large intestine the inflammation spread more. In a few cases there was slight inflammation in the duodenum, but, as a rule, the small intestine was free from any decided inflammation. The superficial epithelium and the glands were generally in good order. Bloch's study of the subject is illustrated and the details of his material are carefully sifted.

64. **Enuresis and Pollakiuria in Children.**—When these conditions have no organic cause, Reinach refers them to a neurosis on a psychic basis as the single cause in the majority of cases. Even when hysteria is not evident in the child it can usually be traced—or alcoholism—in the parents. The enuresis may be the only symptom of hysteria, as in children this is apt to be limited to one or two symptoms. There may be merely a latent tendency to hysteria and some inciting cause may arouse it. The nervous centers that control the evacuation of the bladder seem to be especially unstable during childhood. When measures directed against hysteria fail, the condition is probably more of the neurasthenic order, and weak electric currents, hydrotherapy, tonics and country air will gradually put an end to the trouble. Local measures, such as massage from the rectum, raising the foot of the bed, etc., have not proved very successful in his hands.

65. **Later Course of Spondylitis.**—Hugelshofer observed abscesses in two-fifths of the cases of spondylitis at the Children's Hospital at Basle. There was paralysis later in 10 per cent. As this occurs predominantly in cervical spondylitis, and as two-thirds of the cases terminated fatally, this must be regarded as the most dangerous type. Amyloid dege-

eration occurred in about one-tenth, and tubercular complications in two-fifths of all the cases. Complete recovery was attained in only 31.3 per cent. The definite results were satisfactory so far as function was concerned, but the deformity persisted. His material includes 215 children with tuberculous spondylitis, but the final outcome could be learned only in 68. He gives the history and findings in 35 patients whom he personally examined many years after their treatment in the hospital.

68-69. **Hysteria in Children.**—Thiemich has been impressed with the number of cases of hysteric manifestations in children which are relics of a past organic affection, perpetuated by autoimitation. The manifestations are mostly the involuntary, constipation, diarrhea, anal prolapse, coughing, or something of the kind, persisting from sheer autoimitation long after the original morbid condition had been restored to normal. Hysteria in these cases is apt to be overlooked. The cure by suggestion reveals the hysteric nature of many cases of enuresis, etc. Bruns has observed 144 cases of hysteria in children in the course of seventeen years of practice as a neurologist. They form 2 per cent. of his total clientèle, and about one-fifth of his total of hysteria patients. Neither he nor Thiemich admit the possibility of hysteria in infants. His youngest patients were 3 years old. The hysteria was always more severe in boys. Only 60 per cent. of the total 144 cases were in city children. The more severe types were all in country children. In his practice, which embraces a large country district, neurasthenia is not rare, especially among farm hands. Severe hypochondria is much more frequent than in the cities and melancholic conditions are often encountered in small, remote villages. Attacks of chorea major are almost specific for hysteria in children. He has had 13 such cases and 15 of astasia-abasia. The manifestations of hysteria are generally more severe than in the hysteria of puberty or of adult life, but the classic stigmata of adult hysteria are seldom present. Cutaneous anesthesia was noted only in 3 of the children, and they were from 13 to 15 years old. In fact, these stigmata are absent in adults so often that he does not attribute so much importance to them now as formerly. The grouping of the symptoms is characteristic of hysteria, as it so frequently contradicts our knowledge of the anatomy of the parts and their relations. Any unusual or dubious morbid manifestations should suggest the possibility of hysteria whether the patient is an adult or a child. Eighty-five out of 95 children were cured. In 7 the condition persisted unmodified, and in 3 it was improved. This is a proportion of 90 per cent. cured—a much larger percentage than is obtained in the hysteria of adults. He mentions parenthetically the almost absolutely unfavorable prognosis of traumatic hysteria. In treatment he speaks of the "antihysteric atmosphere" that prevails in the establishment in his charge. The "hysteria bacillus" soon succumbs in that unfavorable environment, its downfall aided by "systematic neglect" or what he calls *"Ueberrumpelung,"* that is, taking by surprise. The latter is applied in the paralytic cases, and consists in making aggressive suggestion, hurrying the child along, giving him no chance or time for morbid ideas or memories. One rebellious case of paralysis in an intelligent girl was cured by suspension in a Sayre's sling which the assistants allowed to fall at a given signal. The girl, taken by surprise, forgot her paralysis, and he exclaimed: "See, you can stand all right; now walk!" which she did. Others were cured by a cold douche, others by electricity suddenly applied. The main point is to act rapidly, to follow up the first gain at once, and to complete the cure in a single sitting. If the child is to be used for demonstration, it is wiser to defer treatment until afterward, so as to condense all the necessary measures into a single sitting, not allowing the little patient any time to think things over. The final measures may be entrusted to an assistant.

Münchener medicinische Wochenschrift.

70 (LI, No. 52, December 27.) *Therapie der Ischias (sciatica). J. Lange.
71 Zur physikalischen Diagnostik der Pleura Exsudate. v. Tabora.
72 Akzidentelle Vakzination der Nasenschleimhaut (nasal mucosa). Lublinski.
73 Zur Kasuistik der Littréschen Hernie. P. Pfaehler.
74 Die Radikal-Behandlung des Rhinophymas durch Galvanokaustik. F. Bloebaum.
75 Die Verwendung des Balsamum peruvianum bei der Wund Behandlung (in treatment of wounds). R. Petretto.
76 Stereoscopic Radiograms of Lumbar Vertebræ and Sacrum.—Die stereoskopische Aufnahme der Lendenwirbelsäule und des Kreuzbeines mittelst Kompressionsblende. Wiesner and Dessauer.
77 Zur Frage der Häufigkeit homosexueller Vergehen (statistics of frequency of homosexual practices). Bumke.
78 (LII, No. 1.) Die Behandlung der Skoliose durch die aktive und passive Ueber-Korrektur. F. Lange.
79 Weitere Bemerkungen zur Trachom-Frage und zur Therapie chronischer Konjunktival-Erkrankungen. A. Peters.
80 *Endemisches Auftreten von myeloider Leukämie. L. Arnsperger.
81 Importance of Pawlow's Work for the Clinic of Digestive Diseases.—Die Forschungen Pawlows und ihre Bedeutung für die Klinik der Verdaungskrankheiten. E. Stadler.
82 Behandlung des Morbus Basedowii mit Antithyreoidin-Serum (Möbius). H. Hempel. Ibid. K. Thienger.
83 Eine neue Methode zur Diagnose und Therapie der Nasenerkrankungen (nasal affections). Sondermann.
84 Beitrag zur Operation des Kieferhöhlen-Empyems (maxillary sinus). F. Kretschmann.
85 *Ueber neuere medikamentös-therapeutische Bestrebungen. H. Hildebrandt.
86 Fall von traumatischer Lungenhernie ohne äussere Verletzung (without external injury). Cahen.
87 Surgeon's Case and Sterilizer.—Operation-Besteck mit Einrichtung zur Sterilisation von Instrumenten und Verbandstoffen. H. Küttner (Marburg).
88 Karl Koester. Obituary.

70. **Treatment of Sciatica.**—Lange describes a modification of the injection treatment of sciatica which has given surprisingly fine results in his hands. To date he has applied it in only 11 cases, but the results have been so favorable that he does not wait for further confirmation. In one case a patient during seven weeks of frantic pain had been able to sleep only under the influence of morphin. Since a single injection by the technic described he has had no trace of the sciatica. One patient was a working man who for four months had suffered from sciatica and atrophy of the leg, and was only able to limp with a cane. In less than forty-eight hours he was entirely relieved and walked normally. The results were similarly perfect in 6 cases. Four other patients were essentially improved, and there was only one entire failure in the list. The latter case was distinguished by the suden onset and severity of the attacks of sciatic pain. The technic consists in the injection of from 70 to 100 c.c. of a solution of 1 per 1,000 beta eucain in 8 per 1,000 salt solution. The needle is inserted through the muscle down to the sciatic nerve at its point of emergence from the sacro-sciatic foramen. There is no pain as the needle passes through the muscle, but the patient jumps the moment the nerve is touched. The pain is instantaneously deadened by the eucain injected. The patient is told not to lie on that side for a few hours. Except for a slightly painful sense of pressure, the sciatic affection is banished at one stroke in some cases, but a second injection may be required in others. Notwithstanding the small amount of eucain used—not more than from .1 to .15 gm.—sometimes slight, transient signs of intoxication were manifested. There was slight nausea and in one case transient loss of appetite for nearly three days. Lange also noticed that the taste was dulled for from one to three hours in some instances. No alarming symptoms of any kind were apparent in any case. In a few cases he observed distinct rise of temperature, never above 38.9 C., with a chill in one neurasthenic subject. He ascribes this temperature to an aseptic reaction to the mechanical lesion. He advocates trial of this method after failure of other measures. Its simplicity and harmlessness commend it for general adoption. The eucain is probably soon swept away and the permanent benefit derived must be due to the changes in the condition of the parts induced by the injected fluid, similar to the benefit derived from stretching the nerve.

80. **Endemic of Myeloid Leukemia.**—Arnsperger writes of 11 cases of myeloid leukemia which all occurred within a few years in a small district of six villages along the Enz river. One of the cases was observed at Pforzheim, a little farther down the river. One village had 3, two had 2 and the others 1 each. No family antecedents could be discovered, except in

one case, in which a younger sister had died of leukemia. The subjects were 5 women, 4 men and 2 children, some of the men farmers, others factory hands. Direct contact could not be demonstrated in any case. The district has had several epidemics of typhoid, but the sanitary conditions have been improved of late years. Spring water is used in the villages, but not the same spring by any of the families affected. A history of typhoid was established in 3 cases, and in one the enlargement of the spleen had not subsided. In another case death followed rupture of the spleen, although the symptoms of the rupture had entirely subsided. Five of the cases were very carefully observed, all in 1903 or 1904. The others are known only from the communications of the attending physicians. The latter group was distinguished by the excessively large spleen.

85. **Efforts in the Line of New Drugs, Organ Extracts, Etc.**—Hildebrandt is privat docent for pharmacology and forensic medicine at Halle, and in this opening lecture he reviews some of the tendencies of the day in pharmacology. He refers to the evils of proprietary medicines, the custom of rebaptizing old remedies with new names, and the various devices of manufacturing chemists to protect their products. The idea of having all new remedies tested in a government institute before they are allowed to be offered in the market was discussed at the Naturforscher Congress in 1901, but met with strenuous opposition. The experts employed by the manufacturing chemists in Germany are under contract not to publish anything without its passing through the "office." Consequently any unfavorable features in their reports in regard to the drugs they are testing are liable to be struck out before the report reaches the public. The lecturer urges physicians to write in their prescriptions the scientific name of the substances as given in the pharmacopeia, for example, "theobromin, natrio-salicylic," instead of the same substance under its protected name of diuretin. The price of the patented article is much higher than that of the former. The German authorities have long recognized this, and have ordered physicians in their practice among the poor and the sickness insurance societies (*Krankenkassen*) to prescribe medicines by their scientific name, not the proprietary articles. Hildebrandt wants to have more of the proprietary drugs included in the pharmacopeia under their true scientific name. He advocates that the protection of a patented name should be granted only to those drugs that are made by a patent process. A pharmaceutic preparation should never be given a patent. Another point which he mentions is that the experts testing the proposed new drugs are liable to be compelled to use certain animals for their tests which react more favorably to the proposed drug than others. He mentions a specific instance of this from the history of theocin. Cats were used for the tests and the results published to demonstrate the harmlessness of the drug. Not until after two patients had been seriously injured by its use did Allard give the drug a thorough test on rabbits last year, with the result that the effect on these animals was the same as on his patients—convulsions, hemorrhages and ulcers in the stomach.

Wiener klinische Wochenschrift, Vienna.

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89 (XVII, No. 48, December 1.) Inkarzeration einer Zwerchfells-Hernie (hernia of diaphragm). J. Stein.
90 *Mutual Dependence of Certain Properties of Feces.—Zur gegenseitigen Abhängigkeit einzelner Koteigenschaften. F. Oefele (Neuenahr).
91 Modifikation bei der Herstellung der Gipshanfschiene (hemp plaster casts). H. Nettel.
92 Protection for Physician and Patient in Röntgen Treatment.—Schutz für Arzt und Patienten bei Röntgen-Behandlung. R. Stegmann.
93 *Zur Behandlung der Kolpitis mit Hefe (yeast). K. Czerwenka. (Concluded.)
94 (No. 49.) *Therapie der Gelenkstuberkulose (of joints). Mosetig-Moorhof.
95 Heilversuche an sublimatvergifteten roten Blutkörperchen. Ein weiterer Beitrag zur Kenntniss der Sublimat-Hämolyse. L. Detre und J. Sellei.
96 Zur Aetiologie halbseitiger Störungen der Schweissekretion (Hyper- und Anhidrosis unilateralis). E. Urbantschitsch.
97 Should Operations on External Genitalia Be Done During Pregnancy?—Darf man während der Gravidität am äussern Genitale operieren? R. Volk.
98 (No. 50.) *Von den Armstellungen beeinflusste Differenzen der Radialispulse bei schrumpfenden Prozessen im Thoraxraume. J. Sorgo.
99 *Untersuchungsmethoden der Leber und Gallenblase bei Cholelithiasis (examination of liver and gall bladder). F. Fink.
100 *Ein Fall von Trichobezoar im Magen. E. Ranzi.
101 *Die Radikaloperation bei tuberkulösen Ileocoecaltumoren. H. Fröhlich.
102 *Ueber die verschiedenen klinischen Formen der Prostatahypertrophie und über ihre Behandlung. G. Nicolich.
103 *Die medizinische Radiologie als selbständiger Zweig der medizinischen Wissenschaft. G. Holzknecht und R. Kienböck.
104 (No. 51.) *Ueber die operative Therapie des Mammakarzinoms und deren Dauererfolge (permanent results). T. Meibl.
105 Ueber das Quinquaudsche Phänomen. A. Levicnik.
106 Ueber Prophylaxe des Radiologen gegen Beschädigung beim Beruf (protection of radiologist). R. Kienböck.
107 *Langsamstes Narkotisieren (slowest anesthetization). O. Effertz.
108 (No. 52.) *Pathologie und Therapie der Fibromyome des graviden Uterus. E. B. v. Fernwald.
109 Ueber postoperative Parotitis. G. A. Wagner.
110 *Die Malaria-Assanierung der Aussenwerke der Seefestung Pola. O. Lenz.
111 (XVIII, No. 1.) Theory of Heredity.—Assimilation und Vererbung. (Eine energetische Vererbungstheorie.) F. Hamburger.
112 Ueber spezifische Agglutination von Streptokokken aus Scharlachanginen und extrabukkalem Primäraffekt. E. Rossiwall und B. Schick.
113 *Zur Therapie der operativen Verletzungen des Ductus thoracicus. E. von Graff.
114 (No. 2.) *Zur Aetiologie des Frühjahrskatarrhs der Conjunctiva (spring catarrh). F. Dimmer.
115 Influence of Tubercle Bacillus Toxins on Other Bacteria.—Ueber den Einfluss der Tuberkelbazillengifte auf Wachstum und Giftigkeit anderer Bakterien speziell des Bacterium coli commune. L. R. v. Korczynski.
116 *Grundlagen aus der modernen Verdauungslehre zur praktischen Verwertung der Koprologie. F. Oefele.
117 Recurring Euphorism in Case of Brain Tumors.—Ueber anfallsweise auftretende euphorische Stimmung bei Hirntumor. A. Pick.

90. **Mutual Dependence of Certain Properties of the Feces.**—Oefele believes that his experience of 1,200 different analyses of feces justifies him in making certain sweeping assertions. He publishes two tables, one of which shows the mutual relations between the solids in the feces and the content in the substances that can be extracted with ether, that is, the percentage of ethereal extracts. In the second table he shows the similar relations between the solids and the thiosinamin extract. The latter includes the albumin and allied coagulatable substances. These mutual proportional relations form a basis for the further development of scientific study of the feces, or "coprology," as he prefers to call it. His tables are based on so many hundreds of examinations that two general laws become evident from them. One is that the proportion of ethereal extract keeps within narrow limits when the proportion of solids is high, while the figures vary widely with a low proportion of solids. This occurs still more noticeably with the thiosinamin extract. The percentage of this extract, which includes the coagulatable substances, ranged from 2 to 50 per cent. in the feces with less than 10 per cent. solids, while the range grew less and less as the proportion of solids was higher. The average may be traced on the tables as 7.5 per cent. albumin for 10 per cent. solids, and .5 per cent. with 50 per cent. solids. The average for the ethereal extract is about 21 per cent. with 21 per cent. solids.

93. **Yeast in Local Treatment of Gonorrheal Vaginitis.**—Czerwenka states that 22 were favorably influenced by the applications, but only 10 were cured, and only 4 were cured by yeast in its pure state. The majority of the cures were in cases of gonorrhea.

94. **Treatment of Tuberculous Joints.**—Mosetig claims that he was the first to inject iodoform into a tuberculous knee. This was in 1879. He emphasizes that the only true healing of a tuberculous joint process consists in the substitution of osteoid substance for the focus. This aim is artificially realized by excision of the diseased tissue and plugging the cavity with iodoform filling. He has had occasion since 1899 to treat 537 cases of tuberculous affections of the joints, and has followed this technic in all except the cases that were past all relief. The details have been given in THE JOURNAL as Mosetig-Moorhof has published them. Mutilating operations were done in 137 cases, as they were

seen too late for conservative treatment. In 29 of the patients the process was too advanced for any intervention. About 371 patients were treated with resection followed by pouring his iodoform filling into the cavity. This list includes 67 children under 10. All were cured and dismissed in a relatively short time with completely healed wounds and usable limbs. Owing to the infectious nature of the tubercular focus, the danger of its spread should impose its prompt removal as the only rational means of treatment. (See 16 above.)

98. **Significance of Differences in Radial Pulse as Arm is Raised.**—Sorgo is physician in chief to the sanatorium at Alland. He noted in certain of the inmates that the radial pulse in one arm differed from that of the other as the arms were raised or lowered. Comparison of the findings with the known anatomic and physiologic conditions has shown that this difference is due to some pathologic process involving the apex. In a case of endothelioma of the pleura the radial pulse was much stronger on the sound side when the arms were hanging, but this difference vanished as both arms were raised above the head. This vanishing of the difference as the arms are brought into certain symmetrical positions excludes the possibility that the phenomenon is due to anything abnormal in the origin or course of the vessels involved. He has examined 398 patients for this sign, and 31 were found who showed these differences in the radial pulse influenced by the position of the arm. In 10 patients, the difference was marked, but vanished as the arms were raised. In one patient the radial pulse became stronger as the arms were raised above the head, strongest on the left side. In 10 patients there was no difference in the radial pulse as the arms hung down, but a difference became evident as the arms were raised. In 6 there was no difference as the arms hung down, but when they were raised the pulse became very weak, and showed a great difference. In 5 others the difference was marked all the time, but became still more pronounced as the arms were raised vertically. It was instructive to see in some of the cases how this difference in the radial pulse developed under the physician's eyes as the pathologic process in the lungs progressed. The difference noted is probably due to adhesion of the pathologic apex to the subclavian artery. As the arm is raised, the traction on the vessel from the adhesions is corrected as the parts are brought into other positions, and the pulse becomes alike in both arms. A difference in the pulse, therefore, in a case of tuberculosis may be accepted as a sign that retraction of the lung is commencing or has continued for some time.

99. **Physical Investigation in Cholelithiasis.**—Fink's experience at Carlsbad has shown that 66 per cent. of gallstone cases are accompanied by icterus. This emphasizes the necessity for examination of the liver in such cases. Better information is derived when one hand is placed at the back and the liver is pushed up from below toward the palpating fingers of the other hand applied to the liver in front. The hand underneath should not exert an even pressure on the liver, but should push it up in a series of light, gentle upward movements. The special ways to hold the fingers and to take advantage of all the possible findings, even in very corpulent subjects, are described in detail.

100. **Hair Ball in Stomach.**—Ranzi recently had occasion to remove a concretion of hair, threads and rubber bands from the stomach of a young woman. The concretion nearly filled the stomach and duodenum down to the ascending portion, and when removed presented a perfect cast of these organs, weighing after drying, 440 gm., and measuring 22 cm. in the stomach and 44 cm. in the duodenum or 66 cm. in all, about 24 inches. He has found in the literature 15 similar cases, 11 of which were operated on, with the recovery of all but one of the patients. The symptoms in the present case were referable to the stomach, and there was a history of the passage by rectum of a hair ball four years before, and a habit of swallowing hairs, threads, etc., since childhood. The movability of the tumor also aided in the differentiation. One surgeon removed a hair ball through a lumbar incision.

101. **Radical Operation for Tubercular Ileocecal Tumors.**—Fröhlich has removed an ileocecal tumor in 3 cases, with recovery of 2 of the patients. In one case the affection was evidently primary; in the others it probably originated from swallowed sputa, the primary lung process not being very far advanced. Complete removal of a primary tumor is urgently indicated, and, even in the secondary cases, it is indicated likewise, as the primary focus is liable to heal. This was the satisfactory result in one of his cases. In the fatal case, death resulted from gangrene of an adjacent loop of intestine, after the resection of the tumor.

102. **Treatment of Hypertrophied Prostate.**—Nicholich's success in treating a case of complete retention from hypertrophied prostate was described, with his technic, on page 2,005 of the last volume of THE JOURNAL. He has only one patient still alive and healthy out of 10 prostatics operated on by other technics; all the others succumbed to acute or chronic pyelonephritis. His new technic consists in transvesical prostatectomy, after which the bladder is distended with a large amount of iodoform gauze packed in and left for two or three days. This prevents too rapid retraction of the bladder, compresses the walls and thus prevents hemorrhage, while it ensures antisepsis and drains away the urine as soon as it accumulates. He here reports a second case operated on by this technic. The patient's bladder reached above the umbilicus, and he was rapidly restored to health by the operation described.

103. **Medical Radiology as a Separate Branch of the Medical Sciences.**—This article was presented by Holzknecht and Kienböck to sustain their plea for a separate chair for radiology in the medical faculty. Their request was granted, and Vienna is the first city to have special instruction in medical radiology. The two authors were duly appointed instructors in the new branch.

104. **Operative Treatment of Mammary Cancer.**—Meissl reviews the 247 cases of mammary cancer operated on at von Eiselsberg's clinic at Vienna. About 18 per cent. of the patients were permanently cured. The comparative value of the various methods of operating can be determined only by reference to the stage in which the operation was undertaken. As a measure for comparison, he suggests that the percentage of patients who succumb to internal metastasis after an operation, without local recurrence, might prove useful as a criterion for determining the actual comparative value of various technics. The proportion of permanent cures with the Volkmann technic was much higher than with the Heidenhain, and approaches closely that obtained by Halsted.

107. **Slow Chloroforming.**—Effertz has observed in Mexico a mode of administering chloroform which was free from the slightest trace of the stage of agitation and nausea. A few drops of chloroform were poured on a cloth and held at a distance of about four inches from the patient's face. The chloroform was renewed from time to time, and the patient was ready for the operation in two or three hours. This length of time was required before the narcosis was complete. Nearly ten ounces of chloroform were used in each case.

108. **Fibromyomata in Pregnant Uterus.**—Fernwald analyzes his results and the findings in 6 cases of pregnancy in a myomatous uterus. In one instance a living child was extracted with forceps, notwithstanding the existence of a myoma as large as a child's head. The mother recovered. In another case conservative myotomy during the third month did not interfere with the normal course of the pregnancy. In 2 others, good results were obtained by supravaginal amputation of the myomatous uterus during the fourth month. In the 2 others, the mothers recovered with living children after conservative cesarean section with myomotomy at normal term. He discusses the views of other writers on the subject, and the indications offered in individual cases.

110. **The Stamping Out of Malaria at Pola.—Lenz con-**

tinued last year his efforts to stamp out malaria at certain points on the Austrian shore of the Adriatic, described in these columns a year ago. The results confirm the possibility of eradicating the disease in a protected zone in the midst of a hotbed of malaria, and keeping that zone free from its reimportation.

113. **Injuries of Thoracic Duct.**—Graff calls attention to the fact that 75 per cent. of the 26 cases of operative injury of the thoracic duct on record resulted in recovery when the duct was ligated, with or without suture. On the other hand, only 19 per cent. recovered out of those treated by tamponing alone. A ligature can be thrown around the thoracic duct in the neck without the slightest injurious consequences for the organism in general.

114. **Etiology of Spring Catarrh of the Conjunctivae.**—Kreibich reported last year several cases of summer eruptions in which the eyes showed the condition of spring catarrh at the same time as the skin developed the summer prurigo or *hydroa vacciniforme*. He proclaimed then that the findings in the eyes suggested the probability that they were due likewise to the action of sunlight. Dimmer treated a recent severe case on this assumption. The patient was a young man, a miller, who presented a typical bulbar catarrh, with exacerbations during the summer, not entirely subsiding through the cold months. One eye was covered with a black bandage, and under this the eye recovered its normal aspect in two weeks, except for a slight congestion of the bulbar conjunctiva. Special spectacles were then worn which protected the eyes completely against sunlight while not interfering with the lids or access of air, and the patient has since been permanently cured. Dimmer reviews the literature to determine the geographical distribution of spring catarrh. It seems to harmonize with the assumption of the importance of sunlight in its etiology, or, at least, does not contradict it.

116. **Modern Theories in Regard to Digestion.**—Oefele's previous communications on the scientific analysis of the feces have been mentioned in these columns. (See 90 above.) He here comments on the multiplicity of the processes that occur on the long route from the mouth to the anus, the action of teeth, mouth, throat, gullet, stomach, etc., and the secretions of the various glands and organs on the way. In our study of these various processes we must not forget to study the digestive function as a whole. Coprology must learn the composition of the feces under all kinds of normal conditions, and study all the influences which are liable to disturb its average composition, before it is possible to detect the pathologic conditions and base treatment on their indications.

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118 (XXXIV, No. 12.) Die pathogenen Trypanosomen des Menschen und der Tiere. A. Carini.
119 (No. 13.) *Ueber funktionelle Nierendiagnostik (kidney tests). H. Wildbolz.
120 *Elimination of Chloroform by Vomiting.—Ausscheidung von Chloroform durch den Brechakt. Gelpke.
121 *Congenital Heart Affections.—Zur lehre von den angeborenen Herzkrankheiten. H. Müller. (Commenced in No. 13.)
122 (No. 14.) Die Identifizierung der Tuberkel-Bazillen bei Mensch und Tier. W. Silberschmidt.
123 Zur Kenntnis der primären Peritonitis im Säuglingsalter (in infants). E. Dobeli.
124 (No.15.) *Zur Frage der chirurgischen Behandlung der chronischen Nephritis. Gelpke.
125 Beiträge zur Pathologie des Scharlachs (scarlet fever). H. Naegeli.
126 (No. 17.) Intervals in Infant Feeding.—Ueber grosse Pausen in der Säuglingsernährung. E. Dobeli.
127 (No. 18.) Tests of Kidney Functioning.—Ueber den Harnscheider von Luys und die Ausscheidung von Indigokarmin durch die Nieren. F. Suter.
128 Significance of Albuminuria in Children.—Die Bedeutung der Albuminurie im Kindesalter. G. Rheiner. (Commenced in No. 16.)
129 (No. 19.) *Behandlung der Varicen durch die Ligatur und die künstliche Thrombose. Tavel.
130 Die Prognose der traumatischen Neurosen. Huguenin.
131 Spontaneous Subsidence of Cancer on Neck.—Merkwürdiges Verschwinden einer krebsartigen Geschwulst im Halse. T. Zangger.
132 (No. 20.) Ueber das Wesen der Röntgenstrahlen und der Radioaktivität. E. Sommer.

119. **Functional Kidney Tests.**—In Wildbolz' experience, determination of the freezing point of the urine invariably gave results which corresponded in every respect with those of other functional tests and with clinical experience. He describes the details of his most instructive cases. Catheterization of the ureters was always able to locate the site of the lesion, which it would have been impossible to determine by any other means at his command. The freeezing point of the urine then revealed whether the other kidney was functioning normally. The results of the operation, both immediate and remote, invariably confirmed the findings.

120. **Elimination of Chloroform by Vomiting.**—It is Gelpke's practice to promote vomiting after most operations requiring chloroform narcosis. He is convinced that this is an important means of elimination of the chloroform. He has the subjects drink copiously of chamomile tea, and observes that the discomfort following the narcosis is much more fleeting when the vomiting is free and unchecked. In 22 cases in which the chloroform narcosis lasted from 20 to 60 minutes, the test for chloroform was always positive. He filters the vomitus and adds a drop of anilin and a little caustic soda, then heats to the boiling point. In the presence of chloroform, there is an unmistakable, pungent odor of isonitrit. This test was devised by Bunge of Basle, and is very accurate and sensitive. The vomitus must be kept in an airtight receptacle until the test is applied to prevent evaporation of the chloroform.

121. **Congenital Defect in the Septum of the Ventricles.**—Müller has had a case of congenital defect in the interventricular septum under observation for nineteen years. There has been apparently no disturbances from the defect, not even during a pregnancy. In 8 other cases, the subjects have been seen constantly at intervals for from three to twelve years. The defect in the septum was unmistakably apparent by the physical signs, but there was no cyanosis, and the general health of the subjects did not appear to suffer from this cause. In 2 cases, the diagnosis of persistent ductus arteriosus had been made during life, but examination after death revealed an opening in the interventricular septum. In all these cases the auscultation findings were characteristic, a long, loud, clear bubbling or blowing murmur which terminated with the diastolic sound without any interval. The murmur is characteristic of a jet being forced through a narrow opening under great pressure. A murmur of such loud, rough, rasping quality is never encountered in mitral incompetency nor in case of congenital pulmonary stenosis. It resembles more the murmur frequently heard in case of aortic stenosis. It never had a musical character, but was sometimes audible at a distance of several centimeters. Simultaneously with the murmur, the systolic sound is louder, heard when the ear is slightly raised from the stethoscope. The maximum of the murmur is heard over the left margin of the sternum, below the third rib, exactly over the defect in the septum of the ventricles. In 2 instances it was also loud in the right second interspace. As the murmur is so loud it is audible over the mitral and pulmonary or aortic areas, but its maximal point does not correspond with that of either of these. With a single exception, a fine systolic thrill was felt at the point where the murmur was the loudest. In one instance, the thrill was felt also in the second right interspace, in another above the sternum and along the right margin of the sternum below the third and fourth ribs. Another characteristic point is the long stationary persistence of the physical signs. Both sides of the heart are liable to become somewhat enlarged in the course of time. In one of his cases he was able to diagnose dilatation of the pulmonary artery, confirmed by radioscopy, but mistakenly accepted this as a sign of persisting ductus arteriosus. Dilatation of the pulmonary artery was found postmortem in 4 cases on record, and of the pulmonary artery and aorta in 2 others. Eight of his 9 cases were females, and all presented the aspect of good health. In 3 cases severe pulmonary disease developed, in the course of which pronounced cyanosis became manifest, as also in a case of a complicating heart affection. In his patients, the congenital defect was noted

at birth or soon after, and in none was there any record of preceding disease, either of the child or of the mother during pregnancy. The practical importance of a correct diagnosis is in regard to the prognosis. This form of congenital defect does not appreciably shorten life. His oldest patient is now 28 and perfectly healthy. A number of cases are on record in which the subjects were 40 or more, and Roger's one female patient, among his 5 cases, was a woman of 50, who had borne four children. The congenital heart defect had been recognized in her case almost immediately after birth.

124. **Surgical Treatment of Chronic Nephritis.**—Gelpke describes a case in which he applied to chronic nephritis the same principles which underlie the Talma operation for cirrhosis of the liver. This was in October, 1901, and he had heard nothing of Edebohls' work in this line at the time. He adds that Sahli ten years ago proposed surgical treatment for a case of chronic nephritis, and the operation was done by Kocher, under his directions. The results were negative. Gelpke proceeds differently from Edebohls, his idea being to imitate the Talma technic of omentopexy, removing the capsule and supplying new vessels for the circulation over the entire surface of the diseased kidney. The attempt is made to supply a continuous free channel for the circulation of the blood. The omentum was used to make a new envelope for the kidney. The idea was suggested by the conditions noted in case of torsion of an ovarian tumor. The arrest of the circulation by the torsion causes alarming symptoms, but these subside as the peritoneum becomes adherent to the tumor and ample circulation thus becomes ensured. The results in the case thus operated on were excellent, as also in a second, quite recent case. Research on the cadaver and on dogs further corroborated the benefits to be derived from this operation, and its comparative harmlessness. In his last case, the albuminuria has dropped from 5 per 1,000 to .5 per 1,000 already. He adds that if we are able to cure by surgical interference even from 30 to 40 per cent. of the cases operated on, we should regard this as a great achievement in Bright's disease. It is especially indicated in certain cases of contracted kidney, and above all, in the severe congestion with oliguria entailed by certain cardiac defects.

129. **Treatment of Varices by Ligature and Artificial Thrombosis.**—Ligature of the saphena, with or without resection of the vein, has a record of one death from embolism in 500 cases, besides a number of cases in which thrombosis occurred. The latter is regarded as a disagreeable complication by most authors, and advice is given how to avoid it. Tavel takes the opposite view, and asserts that thrombosis should be promoted, as it is an effectual barrier against recurrence later. He advises applying the ligature high on the limb, above the knee when the leg alone is involved, and near the junction with the femoral when the varices are on the thigh. The ligature is only the preliminary, the essential feature of the treatment being the obliteration of the vein by the spontaneous or the induced thrombosis. Double ligature and resection of the vein are superfluous, unless subcutaneous ligature is impossible for any reason, such as great corpulence. Search should be made for a parallel vein, which is frequently encountered, and this should be likewise ligated. After application of the ligature, if there are no signs of spontaneous thrombosis by the end of two days, he proceeds to induce artificial thrombosis by injecting 1, 2 or 3 syringefuls of 5 per cent. solution of carbolic acid into the segment of the vein which it is desired to obliterate. By the next day thrombosis has occurred. Several points can be treated at once. In one of his cases he made 39 injections in the course of eighteen days. He first treats all the varices visible when the patient reclines. In a week or two he makes a few injections in the varices which become visible in the erect position. The reaction is merely local, never febrile. The injections can be made every two or three days or daily if the inflammation is not very severe. The patient can be allowed to get up much earlier than with other technics, and there is no necessity for elastic stockings or other devices afterward. The injections sometimes are painful for a minute or two, but not in every case. He gives the details of 4 cases thus treated, and in conclusion recommends ligature of the saphena as the best means of treating phlebitis. In 4 cases of phlebectasia the patients were rapidly cured by this means, the ligature being always applied above the lesion. Embolism need not be feared as the ligature obviates danger from this source.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES. By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Second Edition, Thoroughly Revised and Much Enlarged. By Frederick R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. Fully Illustrated. Cloth. Pp. 278. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

MANUAL OF GYNECOLOGY. By D. Berry Hart, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynecology, School of the Royal College, Edinburgh, and A. H. Freeland Barbour, M.A., B.Sc., M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Diseases of Women, School of the Royal Colleges, Edinburgh. With 12 Lithographs and 359 Woodcuts. Sixth Edition. Cloth. Pp. 736. Price, $6.00. Chicago: W. T. Keener & Co. 1905.

ATLAS AND EPITOME OF OPERATIVE OPHTHALMOLOGY. By Dr. O. Haab, of Zürich. Edited, with Additions, by George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. With 30 Colored Lithographic Plates and 154 Text Cuts. Cloth. Pp. 377. Price, $3.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

PRINCIPLES OF PHYSIOLOGICAL PSYCHOLOGY. By Wilhelm Wundt, Professor of Philosophy in the University of Leipsic. Translated from the Fifth German Edition (1902) by Edward Bradford Titchener, Sage Professor of Psychology in the Cornell University. Vol. I. With 105 Figures in the Text. Cloth. Pp. 345. Price, $3.00. New York: The Macmillan Co. 1904.

AN INTRODUCTION TO PHARMACOGNOSY. By Smith Ely Jelliffe, Ph.D., M.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in the Columbia University (College of Physicians and Surgeons), New York. Fully Illustrated. Cloth. Pp. 265. Price, $2.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

TWENTY-SEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF CONNECTICUT, for the Year 1904, with the Registration Report for 1903 Relating to Births, Marriages, Divorces and Deaths. Printed by Order of the Legislature. Cloth. Pp. 296. New Haven: The Tuttle, Morehouse & Taylor Co. 1905.

LIFE INSURANCE EXAMINATIONS. A Manual for the Medical Examiner and for All Interested in Life Insurance. By Brandreth Symonds, A.M., M.D., Medical Director Mutual Life Insurance Co. of New York. Cloth. Pp. 213. Price, $1.00. New York and London: G. P. Putnam's Sons. 1905.

THE INFLUENCE OF GROWTH ON CONGENITAL AND ACQUIRED DEFORMITIES. By Adoniram Brown Judson, A.M., M.D., Orthopedic Surgeon to the Out-patient Department, New York Hospital, 1878-1903. Profusely Illustrated. Cloth. Pp. 276. Price, $2.00. New York: Wm. Wood & Co. 1905.

THE AFTER-TREATMENT OF OPERATIONS. A Manual for Practitioners and House Surgeons. By P. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab., Hunterian Professor, Royal College of Surgeons. Second Edition. Cloth. Pp. 240. Price, $2.25. New York: Wm. Wood & Co. 1905.

GUIDE TO THE EXAMINATION OF THE THROAT, NOSE AND EAR, for Senior Students and Junior Practitioners. By William Lamb, M.D., C.M. Edin., M.R.C.P. Lond., Honorary Surgeon, Birmingham Ear and Throat Hospital. Cloth. Pp. 152. Price, $1.75. New York: Wm. Wood & Co. 1905.

PRACTICAL MANUAL OF DISEASES OF WOMEN AND UTERINE THERAPEUTICS. By H. Macnaughton-Jones, M.D., M.Ch., Master of Obstetrics (Honoris Causa), Royal University of Ireland. Ninth Edition. Cloth. Pp. 1,044. Price, $5.50. New York: Wm. Wood & Co. 1905.

MALIGNANT DISEASE OF THE LARYNX (Carcinoma and Sarcoma). By Philip R. W. De Santi, F.R.C.S., Surgeon to the Throat, Nose and Ear Departments, Westminster Hospital. Cloth. Pp. 104. Price, $1.50. New York: Wm. Wood & Co. 1905.

A TEXT-BOOK OF LEGAL MEDICINE. By Frank Winthrop Draper, A.M., M.D., Professor of Legal Medicine in Harvard University. Fully Illustrated. Cloth. Pp. 573. Price, $4.00 net. Philadelphia: New York, London: W. B. Saunders & Co. 1905.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA (The State Board of Health), Organized 1847—Meeting of 1904, Mobile, April 19-22. Cloth. Pp. 580. Montgomery: Brown Printing Co. 1904.

SURGERY OF THE PROSTATE, PANCREAS, DIAPHRAGM, SPLEEN, THYROID AND HYDROCEPHALUS. A Historical Review. By Benjamin Merrill Ricketts, Ph.B., M.D., Cincinnati. Cloth. 1904.

FOURTEENTH ANNUAL REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY, 1904. Paper. Pp. 48. Trenton, N. J.: MacCrellish & Quigley. 1904.

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Original Articles.

THE REGISTRATION OF VITAL STATISTICS IN THE UNITED STATES.

WHAT THE CENSUS BUREAU IS DOING TO IMPROVE IT.*

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The study of the development of registration methods in this country and of their relation to other branches of public health work will be an interesting part of the labors of the future historian of sanitary science. It is generally accepted as a fact that accurate vital statistics are absolutely indispensable to a satisfactory public health administration, and accordingly state and municipal boards of health are charged with the enforcement of registration laws. Nevertheless, while nearly every state in the Union is provided with a state board of health, less than a dozen states possess and enforce in a fairly effective way laws for the registration of deaths.

States having approximately complete returns of deaths are designated "registration states" by the Census Bureau. The standard is not a high one, only about 90 per cent. of accuracy being required for admission to the class. Even thus, there were only nine states entitled to inclusion for the last census year, 1899-1900. These states were the six New England states, New York, New Jersey and Michigan. The District of Columbia, which is identical with the city of Washington, is not included as a state area in the above statement. Indiana's excellent system for the immediate registration of deaths was not in effect for the entire census year 1899-1900, although available for the calendar year 1900.

The returns from the registration states, together with the deaths collected in the registration cities of over 8,000 population in non-registration states, constitute the records for the total registration area of the United States.

All of the registration states, with the exception of Michigan and Indiana, belonged, in 1900, to the North Atlantic division, and this geographic section of the country was completely a registration area except for the state of Pennsylvania. The only other division containing any registration states was the North Central, to which Michigan and Indiana belong.

The non-registration states, which include, territorially, by far the larger portion of the country, were represented only by their registration cities of 8,000 inhabitants or more. These cities increased in number from 83 in 1890 to 153 in 1900, but even then immense portions of the country were entirely without adequate representation in mortality statistics. Many of them were clustered in Pennsylvania and Ohio, Illinois, Wisconsin, Iowa and Minnesota. There are only about a score to represent the entire south, and as many for the entire country west of the Mississippi river. It should be understood that not all cities of 8,000 population or over are considered as registration cities, but only such as have effective registration in force.

The extension of the registration area, and more particularly the increase of the number of registration states, is one of the most important objects with which the Census Bureau is concerned in its relations to vital statistics. Since 1850, the subject of vital statistics has been one of the chief branches of the census investigation, but not until the organization of the service on a permanent basis was it possible to systematically undertake the improvement of registration methods in this country. We stand, therefore, at the beginning of a new era in registration work, and a thorough study of the conditions of accurate registration and the practical difficulties in the way of its achievement should result in extensive additions to the registration area before the date of another decennial enumeration.

There has been much waste of effort in this direction in the past. Many states have passed laws intended to secure the complete registration of deaths, but have speedily found that they failed to do so. Such laws either became practically dead letters or remained in futile operation—the latter, perhaps, the more disastrous condition, as it deceived some into the belief that adequate registration laws were in force. Under the conditions of government in this country, the accuracy of registration depends entirely on the enlightened character of state laws or municipal ordinances in cities in non-registration states; the government has never undertaken to collect births and deaths directly, by continuous registration, in the states. Congress has strongly urged the passage of such laws by the state legislatures, and the Census Bureau is prepared to aid by advice as to the necessary details of a successful registration law and by utilization of the data returned under it for national purposes as soon as results are available.

IMPROVEMENT OF REGISTRATION METHODS SINCE 1900.

In addition to the list of states having effective registration in 1900, at least for the calendar year, there are certain others that require special mention as showing the active tendency toward the adoption of improved methods of registration in this country. In Colorado, beginning with January 1, 1902, the State Board of Health issued rigid regulations, under the authority of the state law, providing that undertakers or those acting as such should file certificates of death and obtain burial or removal permits from the local registrars. Certificates are of the standard form recommended by

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

the United States Census Bureau and American Public Health Association, and are made out in duplicate, one to be filed with the local registrar as his permanent record, the other being returned at once directly from the undertaker to the secretary of the State Board of Health. Permission of the local registrar for the burial or removal of the body is entered on each certificate. By means of this system of immediate returns, Colorado secures more timely information of the occurrence of deaths, and the distribution of mortality from important causes, than is ordinarily obtained in registration states, while the general results of registration, as given from month to month in the bulletin issued by the board, would seem to indicate that a large proportion of all deaths is secured. The Colorado system deserves careful study and may serve to point out the way to secure accurate results in states having very sparsely settled populations.

Illinois has had a long and interesting history with respect to registration legislation, and as evidence of the pressing demand for satisfactory provisions for the collection of such data, and the necessity for very careful adjustment of methods so that the minimum amount of trouble will result to the undertakers and the people, the passage of the act of 1901 and its displacement by the act of 1903 may be cited. The act of 1901 was intended to obtain fully complete and accurate statistics of births and deaths for the entire state, the thoroughness of the registration of deaths being insured by the rigid requirement of burial and removal permits before any disposition could be made of the bodies of deceased persons. This provision, without which no state has heretofore succeeded in obtaining accurate mortality statistics, was undoubtedly entirely feasible for Illinois, as it is regularly employed in Michigan and Indiana, adjacent states presenting very similar conditions, as well as in all of the other registration states. Unfortunately, however, the law did not provide for a sufficient number of local registrars in some of the sparsely settled portions of the state, and it was found difficult or impossible to comply with the requirement of permits. This difficulty caused the repeal of the law, as a substitute for which the present system was adopted, by which physicians send certificates directly to the State Board of Health. Burial or removal permits are not required except in cities having local ordinances to that effect. Whatever may be the effectiveness of this plan, which is now under trial, it will doubtless be prudent to defer any further attempts at improved legislation until the capabilities of the present system have been thoroughly demonstrated.

Maryland was not accepted as a registration state at the date of the last census. Since that time, much work has been done by the Maryland State Board of Health in improving the character of the returns, and I am very glad to state that in the judgment of the secretary, Dr. John S. Fulton, whose valuable services as member and chairman of the committee on demography of the American Public Health Association have contributed greatly to the advancement of registration work in this country, Maryland has fully reached the standard of completeness required for admission to the list of registration states. If this be so, it is a sign of peculiar interest and hopefulness, because it means the accession of the first state of the South, with a considerable proportion of colored population, to the registration area.

IOWA'S NEW REGISTRATION LAW.

It is not possible, of course, to precisely determine the results of the operation of a law before it goes into effect, much depending on the efficiency of its administration as well as on the amount of moral support lent to its enforcement by the people among whom it is to operate. The people of the state of Iowa, however, have for a long time displayed a deep interest in the establishment of adequate methods of registration of vital statistics in that state, and from the first organization of the State Board of Health in 1880, the collection of vital statistics has been an important part of its duties. The original l[illegible] law required reports of births and deaths to be m[illegible]y physicians to the county clerks, who in turn re[illegible]d to the State Board of Health. This system was [illegible]ure, and the substitute, passed in 1897, whereby a[illegible]sors were required to collect information in regard to births and deaths when making the annual assessment of property, was equally worthless. Wherever this plan has been tried, as in laws in force today in Ohio, Pennsylvania, Michigan (for births), and other states, no good results ever have or ever can be obtained. It is therefore very fortunate that the Iowa legislature of 1904, a joint session of whose committees on public health I attended on February 17, as a representative of the Census Bureau at the request of the State Board of Health, entirely discarded the methods that have been proved of no value by past experience, and adopted a law calling for all the essential requirements of accurate registration as formulated by the leading sanitary and registration authorities of this country.

Under the [illegible]w Iowa law, taking effect July 4, 1904, certificates of [illegible]he standard form recommended by the Unite[illegible]us Bureau and the American Public Heal[illegible]nd indorsed by the American Medica[illegible]quired for all deaths in the state; b[illegible]al permits being issued thereon by local reg[illegible]nese officials, whose work is of the first import[illegible] the practical conduct of a registration system, [illegible]rovided for every township and city in the state, burial or removal permits being issued thereon pointed in sufficient number so that no difficulty or hardship should result to undertakers or to the people in any part of the state on account of the thorough enforcement of the law. This is an important matter. It should be made as easy as possible to file the certificates and to obtain the permits without delay or without being compelled to go any great distance. The people of this country will not submit to unnecessary "red tape" nor undergo hardships in complying with the provisions of a law whose great usefulness, at first, they may not fully comprehend. Every unnecessary source of friction should be carefully avoided in framing the provisions of such a law, while at the same time the fundamental requirements must be included or else the law will not be a success.

The certificates, when filed with the local registrars, are recorded at once, and on the fifth day of the following month are returned directly to the secretary of the State Board of Health at Des Moines, who is thus enabled to keep in constant touch with the variations in mortality from different diseases throughout the state. The central office has direct control over local registrars, whose compensation of twenty-five cents for each certificate properly filled out and promptly returned depends on the faithfulness of their work. Payment for certificates originally registered with subregistrars is divided, while registrars receive compensation for making monthly returns of "No births" and "No deaths," which enable the central office to know that each district in the state

is included in the monthly returns. With these provisions effectively administered throughout the state, there should be no doubt as to the approximate completeness of results from the first day of the operation of the law, and Iowa will at last posssess, after nearly a quarter of a century of futile efforts, statistics of mortality that will be entitled to full faith and credit as authentic data, without discount for imperfections in returns.

THE MOVEMENT IN PENNSYLVANIA.

It is very gratifying that an active aggressive campaign has been begun, through the Associated Health Authorities of Pennsylvania, to bring about the adoption of an efficient system of registration and to add that state to the registration column. At the recent meeting at Gettysburg, held on May 26-27, 1904, the following resolutions were unanimously adopted:

WHEREAS, The accurate registration of vital statistics is an indispensable requisite of an efficient modern public health service; and

WHEREAS, The congress of the United States, by joint resolution, has called on the authorities of the various states to co-operate in establishing such registration; therefore be it

Resolved, That we, the Associated Health Authorities and Sanitarians of Pennsylvania, assembled in annual meeting at Gettysburg, May 26-27, 1904, do hereby most earnestly recommend to the next legislature of Pennsylvania that a law be enacted which shall provide for the thorough and complete registration of vital statistics throughout the entire state, and especially that all deaths, with the causes of deaths, be recorded by means of standard certificates as recommended by the U. S. Census Bureau and the Pennsylvania Public Health Association, and that burial permits be issued prior to any disposition of the dead;

Resolved, That a special committee of members of this association be appointed to confer with the State Board of Health and Vital Statistics of Pennsylvania, committees from the Pennsylvania State Medical Society, of the American Medical Association, and with the U. S. Census Bureau, in drafting and supporting a satisfactory bill for this purpose; and

Resolved, That the achievement of the registration of all deaths, with their causes, immediately after their occurrence, and the prompt return of certificates of death from local registrars directly to the central bureau of vital statistics, which shall constitute a part of the organization of the State Board of Health, thereby giving the sanitary authorities of the state timely information of the exact prevalence and distribution of disease, is the most important of all sanitary measures and should be unremittingly urged until successfully carried out in this state.

The committee was immediately appointed, consisting of Dr. Wilmer R. Batt, chairman; Dr. Benjamin Lee and Hon. Milton A. Embick. Dr. Batt, who, as state quarantine officer at large in sole charge of the operations of the Pennsylvania State Board of Health for the suppression of the recent terrible epidemic of typhoid fever at Butler, has gained a national reputation for his prompt and effective work, will use the same unremitting energy to obtain what the sanitarians of Pennsylvania have unequivocally recognized as the most important of all sanitary measures, namely, the providing of a firm and lasting foundation for all the future sanitary work of the state by means of the collection of trustworthy vital statistics.

PROSPECTS IN OTHER STATES.

When we consider the large blank areas on the map of the United States that are totally unrepresented by accurate mortality statistics, the outlook seems a little discouraging as to the early approach of the time when the United States shall have, like other civilized countries, a system of registration of vital data in which the entire nation is represented. Probably sufficient efforts have been wasted in the past to nearly or quite achieve this result, were it possible to employ all the misapplied energy, and the fact that there are now movements in many states, besides those in Colorado, Illinois, Maryland and Iowa already referred to, gives fair prospect for hoping that the census of 1910 will include a larger list of newly-added registration states than has ever been obtained during an intercensal period.

In Ohio a bill was introduced at the recent session of the legislature and supported by the sanitary authorities of the state. For various reasons it did not succeed in passing, but the necessity of such legislation as a *sine qua non* of efficient public health work was fully recognized, and it is only a matter of a short time when Ohio, with Pennsylvania, must inevitably adopt modern methods and bridge over the gap now existing between the registration states of the East and West.

California will make an effort to secure an improved and fully efficient law next year. The State Board of Health is considering legislation for this purpose, and its efforts will undoubtedly be strongly supported by the medical profession and by the enlightened public of the state. The interest of the California State Medical Society in the movement may be shown by the following extract from the presidential address of Dr. H. Bert Ellis at the annual meeting of this year:

It should be almost unnecessary to recount to a society of physicians the numerous reasons why an accurate registration of vital statistics is absolutely essential to the proper sanitary administration of a state. Vital statistics, and especially correct mortality statistics, are fundamental to a progressive public health administration. It is as unsatisfactory to attempt to conduct a public health service, either of a city, a state or a nation, without reliable statistics of mortality, based on the immediate registration of all deaths as they occur, as it would be to manage a large business enterprise without some adequate system of bookkeeping. To know the influence of modern methods of sanitation and prevention of disease on the public health, the statistics of deaths must be accurately known. The progressive health officer must be on the alert to watch the movement of mortality from important diseases, and he can only judge of his success at restricting these diseases by studying variations in mortality and in sickness.

Nearly every state in the country has attempted to secure a satisfactory system of recording vital statistics, yet up to the present time less than a dozen have adequate laws for the registration of deaths alone, and I believe that there is not a single state, and probably not even a single city in the United States, that has to-day a complete registration of births. This should receive the attention and the active support of every physician in the state, and especially the consideration of our members and of our county societies. I therefore recommend to this society that a committee of three be appointed on vital statistics, to co-operate with the public health committee of the American Medical Association.

At a recent meeting of the Louisiana State Medical Society, held in New Orleans May 9-10, 1904, the committee on vital statistics, through its chairman, Dr. E. J. Granor, made a report which was adopted by the society in favor of co-operation with the state and national authorities for the improvement of vital statistics in that state. A bill was introduced in the last session of the Florida legislature by Dr. Porter, state health officer, which was closely in accord with the forms of law recommended for adoption by the Census Bureau: unfortunately it did not pass, but renewed

efforts will be made to bring registration in Florida up to the proper standard. A bill was also introduced by the State Board of Health at the last session of the Mississippi legislature, but, for various reasons, it did not become a law. Texas has recently changed the title of its quarantine department to the "Department of Public Health and Vital Statistics," a law having been enacted requiring the return of births and deaths through the county clerks to the State Board of Health—a plan similar to that of the old Iowa law, which was not a success in practice. The work of the recently created Georgia State Board of Health will depend on the accurate registration of vital statistics. This was fully recognized by the promoters of the law, as seen in the resolutions passed by the Medical Association of Georgia:

Resolved, That in the interest of the public health and a better study of the prevention of disease, the Medical Association of Georgia, through its legislative committee, urges the Georgia legislature to enact laws for the registration of vital statistics, as outlined in the joint resolution approved by the Senate and House of Representatives of the United States, Feb. 11, 1903.

Resolved further, That the Medical Association of Georgia co-operate with the American Public Health Association and the United States Census Office in efforts to extend the benefits of registration of vital statistics.

In many other states the problem of securing effective registration of vital statistics is receiving much attention from sanitary authorities. There are two classes of states which would seem to present unusual difficulties in the way of execution of proper laws, namely: 1, States having very sparsely settled populations; 2, states having a considerable proportion of colored population. Other things being equal, the facility of registration and the ease of enforcement of registration laws depend somewhat on the density of population. Associated factors are readiness of communication by rail and other roads, wealth, intelligence and absence of a large illiterate element. From a diagram showing the states ranged in order of density of population, with some distinction of their various constituent elements, we can gain an idea of the probable limitations of the extension of accurate registration methods, as well as form some judgment as to the states where such efforts ought to meet with early success. Pennsylvania and Ohio, nearly at the head of the list in thickness of settlement, ought at once, from every conceivable point of view, to qualify themselves as registration states. If Michigan and Maine, low on the scale of density, can execute effectively laws for the immediate registration of deaths, including the requirement of burial permits, then all of the states above except such as have many negroes included, ought to be able to do the same. Colorado, if the registration of that state is in fact effective, carries the limit of possibility still further. And then the states of the South, where a large colored population, largely illiterate, has rendered accurate registration difficult or impossible—will it be necessary to devise new measures for securing their vital statistics or will the general methods heretofore recommended be found practicable? The conditions in each state require most careful consideration, with the help of the local authorities, and while earnest efforts should be made to secure effective results wherever reasonably possible to do so, it should be remembered that methods adapted to densely populated, wealthy and educated communities can not always be applied, without radical changes, to sparsely settled, poor and ignorant ones.

So far I have chiefly given attention to the questions affecting the extension of the registration area. this being a matter of fundamental importance, and also the particular line of effort to which the American Medical Association is lending its aid. At the last session of the Association at New Orleans a paper was presented to this section by Mr. W. A. King, Chief Statistician of the United States Census Bureau, on "Co-operative Work in Registration Methods and Vital Statistics," which fully stated the various ways in which the Census Bureau is endeavoring to improve the registration of vital statistics in this country, and resolutions were adopted by this section and transmitted to the House of Delegates calling for the appointment of a special committee to co-operate with the committees of the American Public Health Association, Conference of State and Provincial Boards of Health of North America, and with the United State Census Bureau and other government authorities interested in this work. The special committee was not appointed as the section desired, but the resolutions themselves were indorsed and the matter referred for action to the already existing Committee on Public Health. A circular was printed by the committee entitled "Co-operative Agencies for the Extension of the Registration Area and Improvement of Vital Statistics in the United States," which was addressed to the officers and members of state and county medical societies asking their interest and active co-operation in the adoption of better laws for the registration of births and deaths. The recent reorganization of the medical profession should be of special value in promoting the effective expression of medical opinion on this subject.

In the division of labor among the various national organizations, the question of uniform and comparable tables for the presentation of vital statistics in official reports and bulletins, and also the adoption of uniform methods in estimating populations and computation of rates, fell to the Conference of State and Provincial Boards of Health of North America.

The very important subject of the relation of morbidity to mortality statistics has been undertaken by the official Conference of State and Territorial Boards of Health, whose second annual meeting was held at Washington, June 3, 1904, on the call of Surgeon-General Wyman of the United States Public Health and Marine-Hospital Service.

An important practical condition for obtaining uni- from statistics of deaths is the use of a standard form of certificate containing all the information desired by the government. Over a dozen states have already adopted this blank, prepared by the United States Census Bureau in co-operation with the American Public Health Association, and many cities in non-registration states use the same form. The employment of the international classification of causes of deaths, together with the preliminary work for its revision and the adoption of a uniform method of rating several causes of death when jointly returned for the same death, is also being conducted by the Census Bureau in special connection with this association.

Taken altogether, it is the purpose of the Census Bureau to keep in touch with all classes of effort to improve the registration service of this country and to make vital statistics a more influential factor in the practical work of sanitary administration, recognizing

the accurate registration of births and deaths as the absolutely indispensable basis of satisfactory public-health work. The full appreciation of this fact, the education of the people to the value of vital statistics and the necessity, if they be collected at all, that they be collected with such completeness and precision that they may be fully depended on, rests with the medical profession. All the systems of registration in this country owe their existence to the efforts of medical men, and now that it is possible to systematize and direct such efforts, through the thoroughly organized profession as embraced in the American Medical Association, the number of registration states and cities ought to be rapidly increased and the usefulness and ready comparability of vital data be greatly enhanced in the immediate future.

DISCUSSION.

DR. SENECA EGBERT, Philadelphia, stated that he has tried to impress on his students the importance of the proper registration of all vital statistics and their duty as physicians to return such data to whatever authority may be specified by the law. In 1903 he delivered an address on this subject before the Pennsylvania State Medical Society. He was led to select this subject by going over the volumes on vital statistics which comprise part of the United States Census Reports for 1900. One of the facts which appealed forcibly to him at that time was that Penpsylvania's registration returns were incomplete and unsatisfactory. Wherever the registration of vital statistics is improved the general sanitary conditions are also improved. Every physician should realize that there is only a comparatively small area of the country which is able to supply satisfactory vital data for use, and that it is important that the remainder of the states should adopt adequate and uniform registration systems at the earliest possible date.

DR. C. C. BROWNING, Highland, Cal., asked Dr. Wilbur if he has given consideration to the topography of the country with reference to the probable cost and ability to secure vital statistics. For instance, Colorado is well down in the list in population per square mile. From there is a long break, which includes a large number of states of the middle west. Now there is an essential difference in population per square mile in Colorado and those other states. The other states are comparatively level states, with an agricultural country, where the population naturally is isolated, but fairly evenly distributed over the entire territory. In Colorado, and from there west, there is a comparatively small portion of each state that is habitable: the inhabitants are grouped together in fertile valleys to a certain extent, under irrigation systems. Of course there are mining industries, and in certain parts of California and Oregon there are large wheat-growing districts, but there one will find a country more analogous to Rhode Island, and Dr. Browning asked if that would have any bearing on the final result.

DR. CRESSY L. WILBUR said that registration would be certainly very much easier in the states that Dr. Browning last referred to, and he very recently made a comparison of the distribution in the states of California and Colorado on that basis, showing the number of towns and the density of population in the different areas. Of course it is easier to get registration of deaths where the people are aggregated in somewhat densely settled communities. Dr. Wilbur said possibly it might be of use to have the resolution passed by the sanitary authorities of Pennsylvania indorsed by the section. The resolution is as follows:

RESOLVED, That the registration of vital statistics is of paramount importance in sanitary administration, and that the Section on Hygiene and Sanitary Science earnestly commends the resolution of the Associated Sanitary Authorities of Pennsylvania in proposing the achievement of such statistics for Pennsylvania as the most pressing object for immediate effort by sanitary workers in that state.

On motion the resolution was approved. This resolution was later referred to the House of Delegates and was approved by that body.

SOME TYPHOID EPIDEMICS STUDIED BY LABORATORY METHODS.*

WM. ROYAL STOKES, M.D.

BALTIMORE.

[From the Bacteriologic Laboratory of the State and the City Boards of Health.]

The object of the present paper is to briefly describe several epidemics of typhoid fever, in which the bacteriologic examinations enabled the State Board of Health to locate the sources of the infection, and in most of the cases to prevent further trouble.

The first outbreak of typhoid fever to be described occurred in a city numbering about 12,000 persons, in which one side of the city was in one state, and the other side was in a neighboring state. This circumstance gave each portion of the town a separate water supply, and in the portion which we shall call the south end, inhabited by about 6,000 persons, an outbreak of typhoid fever broke out, which affected several hundred persons.

The north side of the town, as mentioned above, was not supplied by the same water supply, and practically no fever occurred in this portion of the town. The towns were divided by a certain street, and it was said that the line of demarcation between the infected and non-infected portion of the city was a striking feature of the outbreak.

I did not visit the place personally, but was informed that the water supplying the infected portion of the town was obtained from a spring in a hollow, while the uninfected portion was supplied with water from a spring some distance away in the hills. I did not get any statement concerning the sewerage, and can not account for the pollution of the supply, but the bacteriologic examination from the spring showed 9,600 bacteria per cubic centimeter, and the colon bacillus was present in 1/10, 1, and 50 cubic centimeters of water. Two examinations of the tap water of the infected town showed 6,500 and 1,000 bacteria per cubic centimeter, and the colon bacillus was again demonstrated as above.

The interesting feature of this epidemic was the confirmation of the well-grounded suspicion that the water was infected. This was proved by the bacteriologic demonstration of the colon bacillus in the water.

The second epidemic was somewhat similar to the first one, since, in this instance, two suburban towns immediately adjoining each other formed a marked contrast. R—— P——, a town of about 2,000 inhabitants, was furnished with water from a spring, which only contained 15 bacteria per cubic centimeter, and in which the colon bacillus was not detected even in 50 cubic centimeters. About one month after this examination was made, an outbreak of typhoid fever occurred in the adjoining town. This town numbered about 750 inhabitants, and there were 33 cases of typhoid fever. The water supply of the first town was again examined, and only 35 bacteria per cc. were found, and no colon bacilli were detected in 50 ccs. of water. Not a single case occurred in this place, but in E—— P—— the contrast was marked.

On investigating the water supply, it was found that the water was supplied from artesian wells, and the bacteriologic findings were at first quite difficult to reconcile with this fact. Seven specimens were examined, from various houses in the town, and *Bacillus coli com-*

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

munis was found in three instances. Two of the houses not showing the colon bacillus, however, were supplied by the pure water of R—— P——. The bacteria were never over 50 per c.c., thus retaining the count characteristic of deep ground water. The water from the pumping station and the water tower was next examined, and the colon bacillus was found in one cubic centimeter in both samples of water. The bacteria had now increased to 600 per cubic centimeter.

The sanitary survey explained the source of the contamination, and the following description of this investigation is therefore of some interest:

In addition to the artesian wells referred to above, there was a spring located in a ravine between the two villages. This spring was used occasionally to flush out the artesian wells when they became clogged with sand and gravel.

The water in the tower was not used constantly throughout the service, but was drawn on when an excessive demand was made on the wells. This accounts for the fact that the colon bacillus was not always found when examinations were made of the water from the various houses.

A later examination than that noted above showed colon bacilli in the spring, in the water tower, and in six houses, but demonstrated its absence in water drawn directly from the artesian wells when the spring was disconnected from the wells.

As a result of these findings, the spring was entirely disconnected from the service, and all water was drawn from the water tower. The water tower and pumps were filled with a 1 to 1,000 solution of formalin, which was allowed to stand for 48 hours, then drawn off, and the same flushed for 24 hours with water from the pure wells. After a week, the bacteriologic examination showed the absence of colon bacilli from the tower, wells, and service, and 10 bacteria per cc.

Since that time, monthly examinations have demonstrated a continuation of this condition of the water, and no cases of typhoid have since occurred in any household supplied by this service.

A contributory confirmation of the fact that the water caused the typhoid fever was observed in a slight outbreak that occurred in a convent about one mile from this town. On investigation, it was found that this convent obtained water by a pipe-line from the infected spring mentioned above. The colon bacillus was found in the water, and the bacteria per cubic centimeter numbered 3,000. The colon bacillus disappeared from this supply after the remedies were applied which have been mentioned above.

Just after this outbreak subsided in E—— P——, three cases were reported in the same house at R—— P——. An examination of the water again showed very few bacteria, and no colon bacilli. It was found that the milk was served to this house by a milkman whose son was the last person to develop typhoid fever in the epidemic just described. The well which was used for washing the cans, and, perhaps, for watering the milk, was examined, and the colon bacillus was demonstrated in 1 cc.

It is very probable that this localized outbreak was caused by infected milk, since the patients were young people who did not leave the park for any considerable time, and the water they drank was proved to be pure by several examinations.

As is well known, milk furnishes an ideal culture medium for the typhoid bacillus, and even if a few are originally introduced into the milk, they will often enormously increase in numbers before they reach the consumer.

AN OUTBREAK OF TYPHOID TRACED TO THE MILK SUPPLY.

The next epidemic to be described could be clearly traced to the milk supply, and it is my opinion that infected milk is more frequently the cause of typhoid fever than is generally supposed.

Although there are a number of so-called milk epidemics of typhoid fever on record, yet the most conclusive study that was ever published was recorded by Fulton in the *Journal of Hygiene,* October, 1901.

These cases occurred in the town of Elkton, Md., which was supplied by water from a river in which the colon bacillus was not demonstrated in tests made at the time. This town had 2,542 inhabitants, and milk was supplied by four dairymen. A. had the largest number of customers, and during the fall Mrs. A. and her son both had typhoid fever, but they both continued to milk the cows and handle the milk during the early part of their attacks.

We were not allowed to examine the blood for the presence of the Widal reaction at the time, but after the patients had recovered, we received a specimen of the blood of Mrs. A., which still gave the reaction for typhoid fever. The presence of typhoid fever was thus proved, and a bacteriologic examination of the well on the dairy farm demonstrated the presence of the colon bacillus.

The milk might have been infected by the typhoid bacillus, either by watering the milk from the infected well, washing the utensils in the infected water, or by the direct infection of the milk with the typhoid bacillus by means of fingers soiled with typhoid intestinal material.

A few days after these persons took to bed, three cases of typhoid fever were recognized in the town, all of which cases were on the milk route of this dairyman. During the next month, 61 cases developed, and in every case these persons were supplied with A.'s milk. Three cases occurred at this time, which were either imported or which could be traced to other causes.

This epidemic is a striking study, since these 61 cases all took milk from the one source, and a series of cases studied by the sub-department of health recently in Baltimore also showed that these cases were traceable to an infected milk supply.

It was noticed that a large number of cases of typhoid fever were occurring in a factory in the city which employed 1,500 young girls and women, and 400 males. Several physicians called the attention of the department to the cases that they were getting from this factory, but we had no method of finding out the exact number of cases which developed from the factory. On investigation, the number of absentees was reported as 200, but the manager thought that many of these employes were absent from other causes than sickness. Several deaths occurred, but here, again, we could not obtain exact numbers.

The water supply was obtained from the city mains, but is run through a coil of pipes in ice. All the employes used this for drinking purposes, but it was noted that practically all the cases of typhoid fever were females.

This made us think of some special article of diet which was only used by the girls and young women, and on inquiry we learned that a light lunch, consisting of a sandwich and milk, was furnished to the employes.

Practically all the women took their lunch in the factory, but the men preferred the beer of a neighboring restaurant, and did not take lunch in the factory.

This milk was furnished in 20-gallon lots by a dairyman just outside the city limits. In company with an inspector, I visited the farm, and found it in the following condition:

The house was in a valley about 50 feet from the road, but we could not get any history of typhoid fever there or in the neighborhood. The well was 25 feet from the house, and 100 feet deep. It was not protected from surface drainage, and the privy was about 50 feet from the well, the ground being level. There was a boggy stream of water flowing from the well towards the privy, which contained a box full of fluid fecal material, and the place for cooling the milk was next to this place. Many flies were about the box, and could easily enter the cooling room from this place. Chickens were found in the cooling room, jumping over bottles. The cooling box for cans contained a slimy, rusty lot of water.

The bacteriologic examinations made from the factory showed that the water did not contain any colon bacilli, and only 450 bacteria per cubic centimeter, and the ice was also free from intestinal pollution, but contained 1,800 bacteria per cubic centimeter.

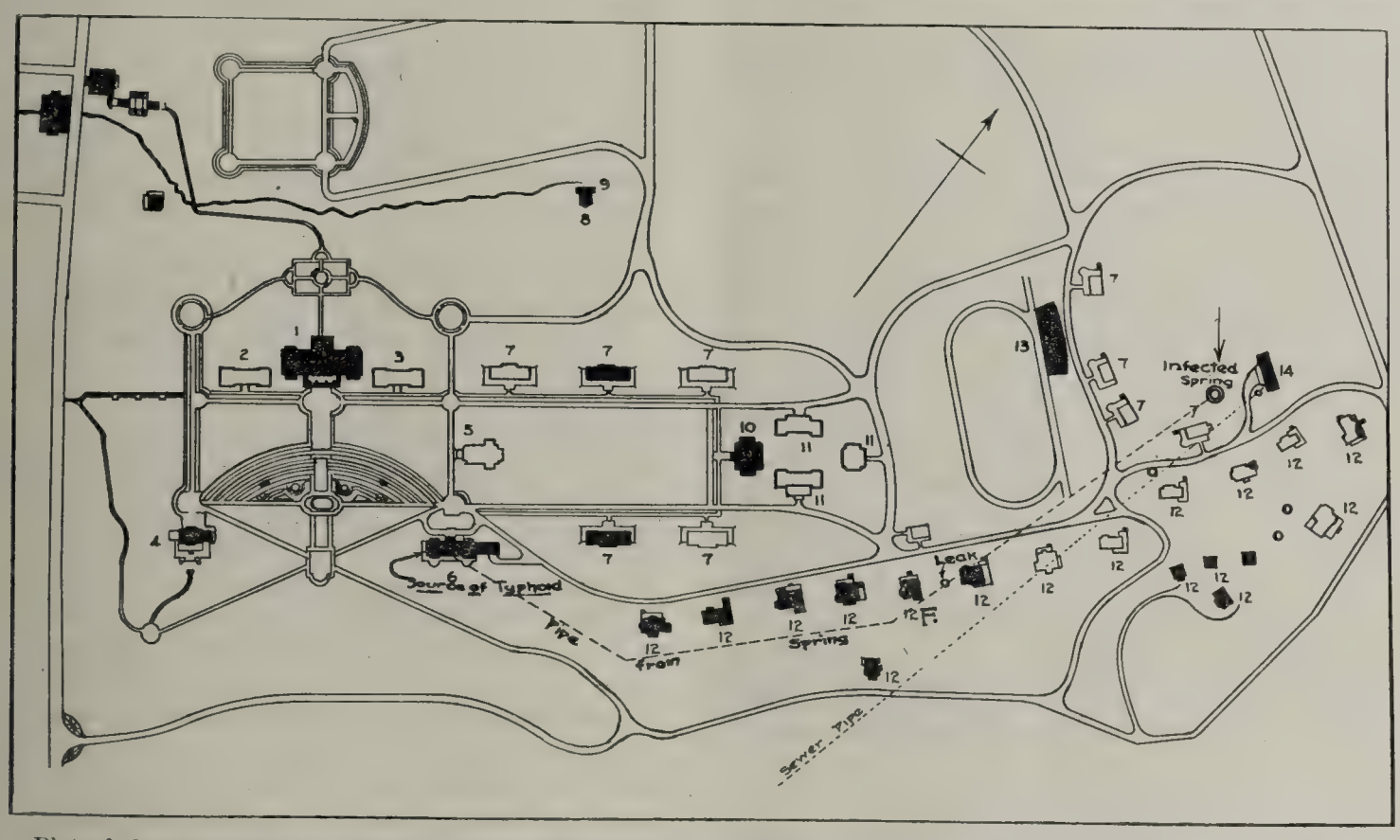
The milk contained 4,500,000 bacteria per cubic centimeter, and the colon bacillus was found in 1/1000 of a cubic centimeter. This showed concentrated fecal pollution of the milk supply, and the water from the well on the dairy farm also contained the colon bacillus and 6,000 bacteria per cubic centimeter. The ice contained the colon bacillus in 1 cubic centimeter, and ran 5,000 bacteria per cubic centimeter.

It will be seen that all of these findings confirmed the suspicion that the milk was the cause of the epidemic, and explained the exclusive incidence of the outbreak among the females, since these were the only employes of the factory that drank the infected material. The milk was discontinued, and we had no further complaint from the factory.

In the suburban community of S——, numbering 400 persons, we were able to prove a rather long period of incubation by a study of the outbreak.

The pump from the deep well which supplied good drinking water became disabled on the night of July 3. Several examinations of this water showed about 250 bacteria per cubic centimeter and the colon bacillus was not found in 1 or 50 cubic centimeters.

The supply for July 4 was drawn from a well which contained 3,000 bacteria per cubic centimeter and the colon bacillus. On July 5, the regular supply was restored. The use of infected water was therefore confined to July 4. On July 9, 10 and 11, some 25 persons were seized with gastrointestinal symptoms. All had diarrhea, and nearly all had fever. One had fever, bloody stools and loss of weight; two had delirium, chills, fever, and diarrhea. All recovered in from three to seven days. None of these were regarded as cases of typhoid fever. On July 27, two young ladies, and on August 1, a third, fell ill of typhoid fever. Other sources of infection than the water supply of July 4 were carefully excluded. Here, after one day's exposure, we have incubation periods of 23 and 28 days. The attack rate was .75 per cent. among 400 people of all ages.



Plot of the grounds and buildings: 1. Memorial Hall. 2. Library. 3. Science. 4. Directors' residence. 5. Chapel. 6. Institute Inn. 7. Dormitory. 8. Power house. 9. Laundry. 10. Gymnasium. 11. Dining hall. 12. Instructors' residences. 13. Grandstand. 14. Infirmary. The buildings in solid black are completed, those in outline are proposed.

The last outbreak of typhoid fever which I shall describe occurred at ——, a large college situated on a high bluff overlooking a river. The community numbered about 300 persons, including professors, students, day scholars, and attendants.

The diagram shows the situation of the principal buildings, and a general description of the plan of the institution is unnecessary. It is important to mention the situation of several buildings, however, in order to describe the interesting points concerning the conveyance of the typhoid infection.

It will be noticed that No. 14 indicates the infirmary, and that the line marked "S" indicates the course of the sewage pipe from the infirmary down a slope, to empty later into the river. At the point marked "Spring," the

sewage pipe passed within 20 feet of this spring, and the circumstances to follow are so suspicious that it seems probable that the spring was infected by seepage from the sewer pipe through the ground to the spring. It was reported at the place that the pipes were dug up, and no gross leakage discovered, but this does not entirely preclude the existence of a break or slight seepage farther away from the spring.

W. P., aged 16 years, visited Pittsburg, Pa., for the Christmas holidays, 1903. Returning to school, he was attacked the middle of January and sent to the infirmary, where he went through an ordinary attack of typhoid fever, and was discharged March 5. The subsequent cases occurred as follows: March 3, 1 case; March 5, 1 case; March 7, 2 cases; March 8, 1 case; March 10, 3 cases; March 13, 1 case; March 14, 2 cases; March 15, 3 cases; March 16, 1 case; March 18, 1 case; March 19, 2 cases; March 21, 2 cases. This whole group all took their meals at the institute inn, except one teacher and his child of 2 years, and a young woman visitor of 26 years. No servants were attacked in any part of the institution.

The sewer pipe from the infirmary ran down the terrace and passed within 20 feet of the spring, and continued thence down to the bottom of a ravine, about one-quarter of a mile.

Among the day pupils there was but one case reported, a girl of 14 years, who had good opportunities to get an infection at home, in an adjoining village.

It will also be noted in the diagram that 12 F indicates the residence of Prof. F., and he was the only professor who developed the fever. Two cases occurred in his house, and on inquiry we found that he had been drinking the water which had appeared above ground as a leak in the pipe from the spring which has just been mentioned, and which was situated down the hill about 100 yards from the infirmary. This spring also furnished the inn, marked No. 6, with water. It will thus be seen that the only persons who developed typhoid fever drank water from this special spring; and it may be mentioned in passing that those who escaped the fever obtained their drinking water from other springs or sources which it is not necessary to mention in this report.

In order to eliminate other causes, so far as possible, the ice which had been occasionally used by a druggist for ice-cream sodas sold to students, was examined, and it was found to contain 1,350 bacteria per cubic centimeter, but no colon bacilli were found. The milk from the inn from which all the cases of typhoid fever had developed was also examined, and only 45,000 bacteria per cubic centimeter and no colon bacilli were demonstrated. Samples from four springs, which supplied the students who did not develop typhoid fever, did not show any colon bacilli in 1 or 50 cubic centimeters, and the bacteria varied from 3 to 150 per cubic centimeter. The spring at the foot of the hill from the infirmary, and which supplied the inn with water, contained 300 bacteria per cubic centimeter, and Dr. W. W. Ford found that it contained the colon bacillus.

I isolated an organism from this spring, which was first thought to be the typhoid bacillus, as it was very motile, did not produce indol or gas, did not liquefy gelatin, decolorized by Gram's method, grew invisibly on potato, and was similar to the typhoid bacillus in its microscopic appearance and the appearance of its colonies. It slowly rendered milk alkaline, however, and was not pathogenic for guinea-pigs by intraperitoneal injection. It only agglutinated at a dilution of 1 to 10 in an immune serum of the agglutinative strength of 10,000, and did not agglutinate at 1 to 50 with typhoid fever specimens which readily agglutinated known typhoid organisms at this dilution. Although similar to the typhoid bacillus, it was not regarded finally as a true typhoid bacillus.

It is impossible to state positively that the first case of typhoid fever, which had been contracted in Pittsburg, was the cause of the outbreak, but it seems probable that the sewage from the infirmary that housed this case infected the spring. It is certain that the cases of typhoid fever which occurred after this were caused by this infected spring, since no cases occurred in persons who did not use this water. The outbreak ceased as soon as the use of the spring was discontinued.

It might be stated in conclusion that a careful sanitary survey in cases of typhoid outbreaks is of great importance, but that bacteriologic examinations of water and of other fluid foods will frequently confirm well-grounded suspicions by positive evidence. I am indebted to Dr. J. S. Fulton for much information found in this report.

DISCUSSION.

DR. HENRY B. BAKER, Lansing, Mich., asked Dr. Stokes if he followed the investigation any further than finding the colon bacillus. In the state laboratory of hygiene at the University of Michigan white rats are injected with inoculated cultures.

DR. G. T. SWARTS, Providence, R. I., asked whether chemical analyses were made, and in how many instances examinations of the locality were made as to pollution. The three factors called for are bacteriologic, chemical examination and sanitary inspection.

DR. WILLIAM R. STOKES stated that the test in the laboratory was only for bacteria per c.c. and the presence of the colon bacillus in one and in 50 c.c. of water. The three examinations were nearly always made. The State Board of Health has a regular form to be filled out by the inspector. The sanitary surveys are usually confirmed by the laboratory analysis. Dr. Stokes was unable to say how often the chemical examination agrees with the bacteriologic and in this particular epidemic he does not remember any chemical analysis, but they usually make three, the chemical, bacteriologic and sanitary surveys.

SOME UNCOMMON FORMS OF MULTIPLE NEURITIS,

INCLUDING FOUR CASES OF PUERPERAL ORIGIN.*

WHARTON SINKLER, M.D.

PHILADELPHIA.

It is only within a comparatively few years that multiple neuritis has been recognized as a disease. Twenty-five or thirty years ago it was an open question whether even diphtheria and lead palsy were due to a muscular affection or to disease of the nerves. As recently as 1879 Bristowe, in his Practice of Medicine, remarks, in connection with the pathology of lead poisoning: "But as regards the paralysis of the voluntary muscles, there is no doubt that Ducheane is right in regarding it as a consequence of nervous disorder. For if it were muscular not only should we find the muscular fibers degenerated in proportion to their loss of power, but we should find faradic contractility surviving as long as any healthy muscle was left. On the other hand, the rapid

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

shrinking of the muscles, without degeneration, and their speedy loss of faradic contractility, obviously point to lesion either of the nerve-trunk or of their nuclei of origin." As soon as it was pointed out that there was such a disease as an inflammation of the peripheral nerves, the knowledge of the subject rapidly advanced and the various forms of polyneuritis became well known.

By far the most common variety of multiple neuritis is that due to alcohol. This was described by Samuel Jackson, Sr., of Boston in 1822 as alcoholic paraplegia, but it has only been since the researches of Ross, Buzzard, Hun and others that the paralysis resulting from the excessive use of alcohol was known to be due to inflammation of the peripheral motor and sensory nerves. Alcoholic multiple neuritis is a comparatively common disease and may result from the excessive use of any beverages which contain alcohol. It was formerly thought that only spirits like brandy, whiskey and gin were capable of causing it, but it is now a recognized fact that even beer and light wines, if taken in sufficient amount, are capable of causing this affection. It is likely that persons leading a sedentary life are more liable to alcoholic neuritis than persons actively employed. This may account for the relatively greater frequency of alcoholic neuritis in women. Granted that the proportion of women who drink to excess is small as compared to the number of men who do so, there is a much greater number of cases of alcoholic neuritis among women than in the other sex. Starr says that of 250 cases of alcoholic neuritis which he has collected, there were 89 women. It is evident, therefore, that this is a large proportion compared with the ratio of drinking women to drinking men. It is most important, therefore, to bear in mind the fact of the comparatively frequent occurrence of alcoholic neuritis in women, especially in those who would not be suspected of the use of alcoholic stimulants. There is no doubt, however, that the habit of tippling in women exists to a considerable extent and one should always consider the possibility of alcoholism as a cause of neuritis in women.

One sometimes meets with cases in which there is only numbness of the extremities with a certain amount of impaired power, which must be considered as a mild form of multiple neuritis, and these cases are often observed in drinkers. They do not progress to the point of complete loss of power nor to very great sensory disturbance, but would undoubtedly reach a serious degree if unchecked.

The enormous consumption of various patent medicines, which are advertised as "nerve tonics," "health restorers," "blood purifiers," etc., is a much more frequent cause of alcoholism than is generally realized. Most of these preparations contain a larger percentage of alcohol than is found in wine or beer. In a recent number of the *Ladies' Home Journal,* the able editor, Mr. Edward Bok, points out in a straightforward way the dangers of using patent medicines, and shows that many of them contain alcohol, cocain, opium and other dangerous drugs, and quotes the Massachusetts State Board analyst in furnishing a list of patent medicines, with the percentage of alcohol each contains, ranging from 14 to 47 per cent.

Another cause of multiple neuritis which is becoming quite frequent in the large cities is the result of coal gas poisoning. In New York a large number of cases of coal gas poisoning are admitted to the hospitals every year, and a considerable proportion of these is followed by a severe type of sensory neuritis, which is very obstinate in responding to treatment.

Another and increasing cause of neuritis is poisoning by carbon disulphid. This is absorbed in the system by workers in rubber, from the inhalation of fumes from the heated rubber or from the dust containing particles of rubber which are inhaled. The earlier symptoms are general anemia and disturbance of the digestion. Following this, are paralytic and ataxic symptoms, with other evidences of neuritis.

Metallic poisons may produce multiple neuritis when taken internally or absorbed through the skin or lungs by workers in these substances. Among the most frequent of these is lead. As is well known, painters and manufacturers of white lead are frequently affected by this substance, but plumbism is also observed in other workmen. For example, those employed in china factories in which the glaze used contains lead are liable to lead neuritis.

An unusual source of poisoning is white lead in powder when used as a cosmetic. Some years ago I saw a young girl who had been in the habit of applying to her face a powder of lead carbonate, and she had, as a result, paralysis of the extensors in both the upper and lower extremities and was almost entirely helpless.

Copper, phosphorus and mercury may produce lead neuritis in those who work in these metals. Among hatters who handle nitrate of mercury in one of the felting processes, neuritis is not uncommon. Arsenical neuritis has been recognized for many years, but it is only occasionally seen as a result of the internal administration of arsenic for medical purposes. I have seen two or three cases of chorea which had been treated with Fowler's solution, in which multiple neuritis was produced. The following case is an example of this:

CASE 1.—Multiple neuritis following the administration of Fowler's solution.

Patient.—G. S., aged 7, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases, January 19, 1900.

History.—The child has been healthy and normal, with the exception of knock-knees, for which he was treated successfully several years ago. A few weeks before admission he had an attack of rheumatism in the knees, associated with catarrhal jaundice. Following this, he had pronounced chorea, which was general. He was treated by the family physician with Fowler's solution of arsenic, given in increasing doses, and in a few days was taking twelve drops three times a day. About two weeks previous to admission, he began to have difficulty in walking, and finally became so weak in the lower extremities that he was unable to walk.

Examination.—On admission the child was found to be thin and there was marked discoloration of the skin in the groins and on inner side of the thighs. There was foot drop and he was unable to walk. The arms were weak, but he could feebly use the hands. Heart and lungs were normal; appetite was good. Electrical examination showed distinct reaction of degeneration in the anterior tibial and peroneal muscles, and very slight response to the faradic current in the anterior tibial and in the calf muscles. The knee jerks were absent, but there was no loss of sensation.

Treatment.—Massage and electricity were ordered and the boy gradually improved, but slowly. It was not until October, 1900, eight months after his admission, that he had entirely recovered. By this time he walked perfectly well and had full strength in his arms.

An epidemic of multiple neuritis occurred in England in 1899, as a result of drinking beer which was contaminated with arsenic. It was found on investigation that the source of the arsenic was the glucose which had

been used in the manufacture of the beer. Starr,[1] in an interesting article on the causation of multiple neuritis, referring to this epidemic in England, says: "Glucose, as is well known, is derived from corn and other kinds of starch by the action of sulphuric acid. Sulphuric acid is now manufactured from arsenical pyrites, and such acid is rarely free from arsenic."

Multiple neuritis is known to accompany or to be a sequel of diphtheria, grippe, typhoid and malarial fevers, and, in fact, any of the infectious diseases. Spiller has recently reported an interesting case of general neuritis following an attack of gonorrhea.

I have not seen reported any cases of multiple neuritis following puerperal septicemia,* and I will therefore record four cases which have come under my own observation:

CASE 2.—Multiple neuritis following uncomplicated labor.

Patient.—Mrs. O. G. H., aged 21, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases, March 20, 1900.

History.—The family history is unimportant. The patient had smallpox many years ago, and in the summer of 1898 she had an attack of appendicitis, from which she recovered without operation. She has always enjoyed good health, but has been of a nervous temperament. She was married in November, 1898. Her child was born February 15, 1900. She had been perfectly well during the whole period of gestation. The labor was hard, lasting thirteen hours, but terminated without the use of instruments or anesthetics. There was no laceration. Patient did well, and there was no rise of temperature nor any evidences of septicemia. On the eighth day, she was able to sit up in bed and was feeling quite well. She had an abundance of milk and nursed her baby. At this time she noticed a difficulty about raising the left hand to the head and that there was a sensation of pins and needles in the fingers and tingling in both hands and face. Some hours afterward, she found that there was weakness in the right arm, and by evening it was found that the feet and legs were in the same condition as the upper extremities. On the ninth day, the patient sat up out of bed in a chair, but she could not move the hands, arms, legs or feet, and the extremities felt as though they were asleep.

Examination.—Her condition remained about the same until March 1, when she was seen by Dr. Ott. He noted at that time that the skin was hyperesthetic, that there was some loss of electro-faradic contractility and complete loss of power in the upper and lower extremities. There was also weakness of the voice. On admission to the hospital, she was found to be well nourished, her color was good, and there were no evidences of anemia. She was absolutely helpless and could not move either the upper or lower extremities. Sensation was normal as to touch and localization, and there was no thermal anesthesia. There was no decrease in the rate of transmission of pain sense, and the pain sense was acute. Dr. A. G. Thomson examined the eyes and reported: "The pupils are slightly dilated, but react to light and accommodation. Media is clear; disc in right fundus is normal; left temporal side of the disc is a little pale, but otherwise there is absolutely no change. There is complete paralysis of the right externus muscle and also complete paralysis of the left internus. Form fields are normal." The urine contained no albumin nor sugar; it was alkaline and contained a phosphatic deposit. There was no loss of vesical or of rectal control. An electrical examination by Dr. H. P. Boyer resulted as follows: "Reaction of degeneration in all of the muscles of the legs and arms; faradic response very poor in all of these muscles; in the tibialis anticus there is no faradic response."

Treatment.—The patient was treated by means of gentle massage and electricity, and was given strychnia internally. There was a gradual but steady improvement. On October 15, 1900, it was noted that she had improved in every respect; she was able to stand with a little support, but could not walk. She had full use of her arms and hands and was able both to feed herself and to do some sewing.

Result.—The patient was discharged November 21, able to walk and improved in every respect. Muscular wasting was still present to some extent. An electrical examination was made by Dr. Boyer, January 13, 1902, nearly two years after the onset of the neuritis. There was normal galvanic reaction in all of the muscles, with the exception of the tibialis anticus, in which there was reaction of degeneration. The faradic response was very slight in the tibialis anticus and in the calf muscles, but it could be elicited with a strong current. The faradic reaction in the forearm and other muscles was good. There was still some atrophy of the arms and legs.

CASE 3.—General neuritis following labor—septic.

Patient.—Mrs. M. S. R., aged 40, was seen in consultation with Dr. John M. Swan, to whom I am indebted for the following notes.

Family History.—Father living and well; mother died at the birth of the patient, of puerperal fever. No tuberculosis in the family, nor any other hereditary disease. Father is subject to violent headaches, and the patient has also been subject to severe headaches all her life.

History.—She had nearly all the diseases of childhood, but otherwise no serious illness. On February 10, 1899, after an apparently normal labor, she gave birth to a child. For two months previous to labor, patient complained of what she called "stitches" in her right side, feeling, she says, as if her "intestines were twisted." There had been pain in both legs for three weeks previous, and she was nervous and irritable. Soon after delivery, she had severe pain in the right inguinal region, which was so violent that it was impossible for her to sleep without being chloroformed, although morphia was used, but without relief. For some time, this pain was supposed to be neuralgic, and she was treated accordingly. The day after delivery, she was delirious and had a temperature of 103; the temperature continued high, ranging between 103 and 105 for three weeks. She was more or less delirious all of this time. At the end of three weeks, a mass was discovered in the right iliac region, which was painted with iodin and apparently dispersed. The temperature then fell to normal and remained so for several days, but it again rose, and for the next three weeks ranged between 101 and 103. The mass on the right side was again observed. On April 7, 1899, nearly three months after delivery, she was operated on for appendicitis, and a large amount of pus was found in the right iliac fossa. After the operation, she improved and her mind became more or less clear. It is a little difficult to determine exactly when the loss of power in the lower extremities appeared, as the patient's condition was such that she has no recollection of what occurred during the first three weeks, but the husband's impression is that the loss of power was discovered soon after labor. At all events, the patient complained much of pain and dull aching in both legs from time to time after her delivery, and when she began to improve in her general condition after the operation for appendicitis, it was found that there was total and complete loss of power in both legs.

Examination.—When seen in August, 1899, the following was her condition: A well nourished woman, 5 feet 4 inches in height, and weighing probably her normal weight, which is 148 pounds. The skin and mucous membrane were normal in appearance. The pupils were equal and responded to light; the tongue was moist and steady. The pulse was rather rapid, but the volume was fair and tension low. The heart and lungs were normal. The liver was noted by Dr. Swan to extend from the fifth rib to 1½ inches above the costal margin. The abdominal walls were extremely flabby, and the subcutaneous fat very thick. At McBurney's point there is a scar, 3½ inches long, which is still red, the result of the operation for appendicitis. Both thighs were atrophied, especially the lower part. The feet were extended and somewhat averted.

1. Med. News, January, 1902.

* Since writing the above I have read an interesting article on "Neuritis as a Complication of Some Portion to the Child-bearing Process," by W. R. Nicholson, M.D., American Medicine, May 28, 1904.

The joints seemed to be free, and sensation in both legs was good. The calf muscles were somewhat contracted, prohibiting free flexion of the feet. Knee jerk was absent on both sides. Temperature and tactile sense were preserved. There was no tenderness over the nerve trunks and no edema of the ankles. There was total loss of power in both legs below the knee, but the patient could flex the thighs.

Electrical examination: No muscles below the knee, with the exception of the right gastrocnemius group, respond to the strongest faradic current. Galvanic current, 21 cells. In the left leg, the posterior muscles show reaction of degeneration. Otherwise the reaction is normal. There was no loss of power in the upper extremities when the patient was seen, and it is her impresion, as well as that of her husband, that she was able at all times to use the arms. At the same time, this is not an accurate observation, owing to the patient's extreme illness and delirium for three weeks, as above stated.

CASE 4.—Multiple neuritis following abortion and septicemia; death.

History.—Mrs. A. B., the patient, became pregnant about six months after marriage, and suffered excessively from morning sickness. At the end of two months, she had an abortion. Following this was a rise of temperature and general symptoms of infection. The attending physician curetted the patient and removed some portions of the placenta, but evidently did not clean out the uterus thoroughly, because, several days later, a large fragment of decomposed substance was passed per vagina. About a month after this, the patient began to complain of numbness in both the upper and lower extremities, and associated with this was loss of power. There was also some mental confusion and delirium at times.

Examination.—When seen by me, two months later, there was marked wrist and ankle drop. The patient complained greatly of subjective sensations of pins and needles in the feet and hands; she was unable to use the hands to any extent, and there was almost complete loss of power in both legs. She had not been out of bed for two months, and her temperature was between 101 and 102 constantly. There was constant rambling and delirium. The patient slept badly and was in a distressed and unhappy condition constantly. There was no abdominal tenderness or other evidence of pelvic disease. Her condition gradually but steadily grew worse, and she died about a month after I saw her.

CASE 5.—Neuritis following abortion.

Patient.—Mrs. N. R., aged 40, was seen by me April 24, 1900.

History.—She has two children, the youngest of whom is 17. Dr. Robinson of Danville, Va., sent her to me, with the following statement: "In April, 1895, I was called to see Mrs. R., who had been vomiting for some time, from pregnancy, and although she was a woman of extraordinary constitution, it weakened her greatly. I used all the usual remedies, and, failing to give relief, I attempted to bring about a miscarriage by the introduction of the catheter. The vomiting and purging, with the general aspect of the case, appeared septic, and I think the profound inertia of the uterus in non-response to my efforts was also due to sepsis. I finally forcibly dilated and emptied the uterus, not of a fetus, but of a foul-smelling mole. I irrigated with bichlorid solution, and then painted the inside of the womb with iodin and carbolic acid. The septic diarrhea continued, but the nausea ceased and did not return until some effort was made to check the bowels. About a week after the operation, small, deep-seated, septic abscesses appeared in the buttocks and thighs, following the one after the other in regular succession, and finally there appeared paralysis of the extensors of both legs. She was unable to walk for months. She was finally placed under the care of Dr. Bartholow, who treated her for many months. When she returned home, she had improved to the extent of standing with the aid of crutches, but she had no motion nor power in the extensors of the feet. I continued to use hypodermics of strychnia and to apply electricity for a long time, and finally she got able to walk about with her cane." The patient states that hyperesthesia in both legs was a marked symptom at the onset and that for many months they were very tender on pressure. At the beginning, the right index finger was also slightly hyperesthetic, but this soon passed off. She states that there was never any loss of power in the bladder or rectum.

Examination.—On examination, the patient was found to be a well-nourished and a healthy looking woman. She walked quite well and without the aid of a cane, but she was unable to flex the thighs when she walked. She can slightly flex the toes, but cannot flex the feet. Knee jerks were absent.

Electrical examination: Muscles all respond feebly to the faradic current, but there is no reaction of degeneration in the muscles of either the legs or the thighs. Muscles respond fairly well to a strong faradic current. The patient's weight, 171 pounds, seemed to be a factor in her walking, and she was therefore placed on diet to reduce weight.

Treatment.—She was treated by means of faradism, massage and the use of dry heat locally. The patient improved in a very marked degree and recovered a considerable amount of power in flexing the thighs and also in flexing the feet, so that she walked much better after a course of treatment lasting seven weeks. The patient again placed herself under my care in April, 1902. At this time, there was a marked improvement in the electrical reactions, compared with two years previously. There was no reaction of degeneration, and it took from 4 to 8 ma. instead of from 14 to 18 ma. to get response in the anterior tibials and calf muscles. After another period of six weeks' treatment, there was improvement in the muscles of the legs, so that she walked considerably better. There was still slight foot drop in both sides, but this did not interfere with the walk.

Beri-beri or kakke is an epidemic form of multiple neuritis which occurs in Japan, in the Philippines, and in other hot countries. It is a question as to whether it is due to diet or to some form of infection. It seems quite possible that there may be two sources of this epidemic form, as cases have been reported among fishermen and seamen, who have lived for a long while on a scorbutic diet, who have suffered from multiple neuritis, and, on the other hand, an epidemic of this disease has been seen in others who have lived on wholesome food.

Another class of cases is due to some dyscrasia, such as tuberculosis, carcinoma, rheumatism or diabetes. In many cases of rheumatoid arthritis, the muscular atrophy is clearly due to peripheral neuritis.

A short time ago a boy of six years of age was sent to my clinic at the Orthopedic Hospital and Infirmary for Nervous Diseases, as a case of poliomyelitis. There was marked atrophy of the arms and legs, with loss of power of motion and absence of knee jerks. There was, however, great tenderness on any movement, and this led to a close examination of the joints, which were found to be inflamed and swollen, and the child also had a temperature considerably above normal. It was, therefore, decided that the case was one of peripheral neuritis resulting from articular rheumatism.

Starr[1] describes a case of multiple neuritis in a gouty subject.

Cases of multiple neuritis are met with in which infection of some kind is evidently the cause, but exactly what the nature of the infection is cannot be determined. In some cases, it may be due to an autointoxication from gastrointestinal decomposition, and in others it seems to be the result of taking cold. These cases are closely allied to Landry's paralysis, and the diagnosis between this disease and multiple neuritis is difficult or impossible. The only difference between them seems to be that in Landry's paralysis the bulb becomes involved, and in multiple neuritis it does not. The following case is an illustration of this form of multiple neuritis:

CASE 6.—Case of infectious multiple neuritis of unknown origin.

Patient.—E. D. H., aged 17, male, was seen Feb. 6, 1903.

History.—Father died from an acident; mother living and in good health. Several members of the mother's family have had tuberculosis. He had measles, chickenpox and whooping-cough in childhood, but never diphtheria nor scarlet fever. He had never used tobacco, alcohol, tea or coffee, and has always been regular in all his habits. He has worked rather hard since he was 10 or 12 years of age, but does not know of having injured himself by overexertion. In September, 1902, he was seized with a sharp pain in the right hypochondrium, which interfered with his breathing for a short time. He was in bed for two days for this reason, when he was relieved from the pain and was able to get up and go about. Three days later, he was awakened in the middle of the night with violent headache and fever. This continued for five or six days, his temperature being as high as 104 most of the time. On the third or fourth day from the beginning of the fever, he noticed weakness in the arms and legs, and it seemed to him that the muscles were wasted. In the course of a week, the loss of power rapidly increased and at the end of this time he was unable to walk and could use the arms very little. During this time there was no bladder nor rectal incompetency, and there was no pain nor paresthesia in the extremities. He gradually improved and after a month began to walk about and to use the arms a little.

Examination.—He was found to be very thin and generally poorly developed. There was marked anemia. There was general wasting of all of the muscles; the deltoids, more especially on the right, the biceps, triceps and, in fact, all of the muscles of the upper extremities, including marked atrophy of the intrinsic hand muscles. The legs also seemed atrophied but not to the same extent as the upper extremities; the right leg was more atrophied than the left. The muscles of the face, eyes and tongue were not involved. The grip was very weak on both sides, but weakest on the left. Flexion and extension of the forearms was good. The deltoid was completely paralyzed on the right side and the patient was unable to extend this arm; he could raise the left arm from the side, however. The muscular power of the legs was well preserved. He walked without difficulty.

Reflexes: Biceps, triceps and wrist jerks were all absent. The knee jerk was increased on the left side and on the right there was but slight response, but it was re-enforcable. Ankle clonus was absent; cremasteric and abdominal reflexes were present. The pupils were equal and reacted to light and to accommodation. The heart and lungs were normal.

Electrical examination: No reaction of degeneration was found, and there was good response to the faradic current in all of the muscles.

DISCUSSION.

DR. JOHN H. W. RHEIN, Philadelphia, stated that in 1897 he reported a case of neuritis in a woman of 30 who developed, after childbirth, a neuritis affecting the muscles of both arms. Similar cases, however, had been previously reported by Kast, Moebius and others. Although in some cases there is fever, there was none in his case, nor was there present any evidence of puerperal infection. In these cases the onset is usually within two weeks after labor, and the paralysis may be in the distribution of either the brachial plexus or in the muscles supplied by the perineal nerve.

DR. E. B. ANGELL, Rochester, N. Y., reported a case of lead paralysis. A young man, engaged in a tobacco factory, developed the curious habit of chewing lead car seals. He chewed two or three daily for a period of two or three years, when there followed one of the most marked types of lead neuritis Dr. Angell has ever seen. The patient now is quite recovered. Dr. Angell considers that in a great many of these instances, not only does the disease produce multiple neuritis, but that it makes possible neuritis from other causes. He believes that some of the cases, in which arsenic administered for chorea has been regarded as the cause of the neuritis, have been due to the depressing effects of influenza. He mentioned one case of chorea where the child was taking only five or six drops of Fowler's solution three times a day, yet neuritis occurred. He has seen mild cases of multiple neuritis in which vasomotor disturbance was shown by the presence of a slight vesicular eruption. In one case he noticed these spots on the child's fingers, and found that there was some sensory disturbance. As soon as the arsenic was removed the spots disappeared, and in the course of two or three weeks the sensibility was re-established. He saw a case last autumn that came absolutely from cold alone. A farmer had been in the habit of getting down on his knees in doing some of his work. He had been kneeling on the cold ground all day long, from early morning until late at night, and was rewarded by the most serious form of neuritis due to cold Dr. Angell has ever seen. The diagnosis of neuritis was made because the other symptoms were associated with tenderness of the nerve trunks. Since that time the case has become worse, and Dr. Angell is satisfied that there is now some cord involvement.

DR. DAVID I. WOLFSTEIN, Cincinnati, reported a case of difficult diagnosis; for a time he could not decide whether it was a case of articular rheumatism or multiple neuritis without influenza, or influenza accompanied by multiple neuritis. It was further complicated by a very high fever and a valvular heart lesion, which made the diagnosis of articular rheumatism more plausible. However, after going about for a week or two he became nervous and weak and when Dr. Wolfstein saw him he had marked sensory symptoms, also pain along the course of the nerve trunks, and foot drop. After two or three days the symptoms left the leg to a considerable extent, but were present in other joints so much that articular rheumatism was suspected. There was no redness in the joints, but the pain was confined to the joints and to the muscles around the joints. The diagnosis of multiple neuritis complicating influenza was confirmed by the presence of the type of temperature so often seen in influenza, and by the further fact that a week or ten days afterward he was taken with double catarrhal pneumonia, so that Dr. Wolfstein thought his diagnosis was justified and that articular rheumatism could be excluded, notwithstanding that there was also present a valvular lesion of the heart. He has seen several cases of the sensory form of neuritis following influenza.

DR. T. H. WEISENBURG, Philadelphia, stated that, as an army surgeon, he spent several years in the Philippines, where he had abundant opportunity to study beri-beri. There are three forms, the dropsical, where the extremities are much swollen and all the serous cavities are filled with fluid; the dry form, where there is much atrophy combined with all the symptoms of multiple neuritis, and lastly, the mixed type, which combines the symptoms of the first two. It is impossible to obtain many autopsies. The etiology of the disease is still very much in doubt. Manson regards it a place disease, that is, the infection is caused by a toxin which is generated by a germ living in the patient's surroundings. This, probably, is the true explanation, for it is common to see in prisons the infection localized to certain localities. Rice and fish diet have also been given as a cause, but this, probably, is not so, for beri-beri exists where rice and fish diet are not exclusive.

DR. C. C. HERSMAN, Pittsburg, Pa., said that it is possible that beri-beri has its nidus in the soil. Some writers on leprosy also claim that leprosy has its nidus in the soil. Dr. Hersman has seen one patient (a young man), who was so helpless that, if sitting on the floor, he was unable to rise, make a complete recovery. He has seen one case of multiple neuritis following a large dose of arsenic (rough on rats), which the woman had taken with suicidal intent. She developed multiple neuritis, extending to all the extremities, leaving her almost helpless, from which she made a good recovery after several months.

DR. WHARTON SINKLER, Philadelphia, declared that it is more than probable that the case to which Dr. Moore refers was due to an infection from the abscess in the right iliac

region. Whether that was salpingitis or appendicitis he is, of course, unable to say, as he did not see the patient until six months after the onset of the neuritis. Dr. Swan, with whom Dr. Sinkler saw the patient, did not see her at the time of the onset of the trouble, as she was not from Philadelphia, but from many hundred miles away.

A CLINICAL STUDY OF HEMIPLEGIA IN THE ADULT.*

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PHILADELPHIA.

(From the Philadelphia General Hospital.)

There is no organic nervous disease more common than hemiplegia or a disease of which there has been more written, and yet the study of hemiplegia is always interesting and profitable. Advantage was taken of the excellent opportunities offered by the nervous wards of the Philadelphia General Hospital to make a study of hemiplegia. A number of cases were also studied in the nervous services of the University and the Polyclinic hospitals.

In all 160 cases were observed. Particular attention was paid to the following subjects: Heredity, prehemiplegic and posthemiplegic pain, atrophy of the muscles of the paralyzed and of the sound side, respiration, the various trophic phenomena, as edema and the arthropathies, vasomotor disturbances and hemichorea.

Of the 160 clinical cases, only 109 were considered in the study of heredity, prehemiplegic and posthemiplegic pain and sensation, because of the unreliability of some of the statements or the aphasic conditions. All of the cases were in the adult.

A greater portion were in the male sex, but the conditions were such that it was hardly fair to draw conclusions regarding the frequency of the disease in the sexes. It is, however, well recognized that hemiplegia occurs more often in the male than in the female. Of the 160 cases, 97 were right-sided. This proportion is, perhaps, not so great as one would expect, for most writers insist on the preponderance of right-sided hemiplegia.

HEREDITY.

Hereditary predisposition for hemiplegia in certain families has been observed, and it probably depends on a tendency to inherit a diseased condition of the blood vessels. Fourteen of the 109 cases gave such a history. In five the mother had hemiplegia, in five others the father, in one case both of the parents died of a stroke, in another the grandfather and the father had hemiplegia, while in two cases the grandmother and the mother each died of apoplexy.

Dr. Wm. G. Spiller has very kindly furnished me the details of a most interesting history of a patient who recently had a slight hemiplegia. Eight brothers and sisters of the patient's mother died of apoplexy, but his mother did not. The mother of the patient's mother also died of apoplexy. The patient himself has had two children, both of whom are living and well. This is a very extraordinary family history and shows how strongly the hereditary tendency may be. I have been unable to obtain the details of a similar instance in the literature.

In the histories obtained of most of these patients, a number of other children in the families were said to be healthy. It is necessary, therefore, to have an active contributory cause. It can be assumed that in the first ten cases the occurrence of hemiplegia in either the father or the mother was accidental, but in the last five instances the hereditary tendency was strongly manifest, especially in the last instance. There was neither a special tendency for the paralysis to involve the same side in the parent and the child, nor involve the same sex.

PREHEMIPLEGIC PAIN.

Weir Mitchell,[1] in 1893, called attention to the occurrence of prehemiplegic pain. He then recorded three such cases. In one the pain appeared two years before the onset of the hemiplegia and was violent in character. This patient had three strokes, all of which were preceded by pain. In another case the pains were accompanied by a painful swelling of the joints. Subsequently there was a cerebral hemorrhage and a resulting hemiplegia on the same side as the pains. The joint lesions persisted. Férre,[2] in a study of 126 cases of hemiplegia, found that 14 had prehemiplegic pain.

Seventeen cases of the 109 had pains of varying character before the onset of the hemiplegia. Of these in seven instances the pain was described as a violent, shooting, cutting pain, in two as a dull, aching feeling, and in five as a tingling, tired, numb, or a pins-and-needle sensation. In all these cases the pains occurred on the side of the subsequent paralysis, in one instance, as in Weir Mitchell's case, two years before, in another one year before, and in others six, three and two months respectively before the onset of the hemiplegia. Except in the above cases the pains were mostly felt for from twenty-four to forty-eight hours before or just before the onset of the paralysis. One patient complained of sharp, persistent headache for six months, another of a feeling like an electric shock just before his stroke.

The pains were manifested mostly in the muscular tissues and the articulations of the upper extremity, and less often of the lower extremity. Sometimes they were present in the chest and side of the face. In one instance the pain was present for six months only in the distribution of the sciatic nerve. Férré records three similar cases. In another case of an intelligent physician they were localized to the distribution of the median nerve for two days. Dr. A. S. Hamilton, of the Independence State Hospital of Iowa, has kindly furnished me with the record of a most interesting case of a man who was "aroused by something he knows not what, and almost immediately afterward it seemed to him as if an explosion had occurred very close at hand. He heard a terrific noise and saw a bright flash and at the same time felt as if he had been struck a very heavy blow in the side of the head. This was the beginning of an apoplectic seizure. About two hours after his stroke he became conscious, and since has persistently given the above facts."

In five of these cases the pains ceased after the onset of the hemiplegia. The pains occurring with hemiplegia are undoubtedly of cortical origin and several theories have been advanced to explain them. It has been thought that the congestion of the cerebral vessels which is supposed to precede the attack may be the

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Weir Mitchell: Medical News, p. 421, 1893.
2. Férré and Brissaud: Quoted by Marie, P., Hémiplégie, in Traité de Médecine et de Therapeutique, vol. viii, Paris, 1901.

cause. It is not to be denied that there may be cerebral congestion previous to an apopleptic attack, but it has seemed to me from the study of these cases that the so-called premonitory symptoms, as headache, fullness of the head, roaring in the ears and dizziness, are, on the whole, not so common as described. Most of the attacks come on without the slightest premonitory symptoms, either while the patient is at rest, or, as in a large number of cases, during sleep.

Brissaud has explained these pains by an involvement of the meninges. This may be a satisfactory explanation for those cases in which the pains occur for some time before the onset of the hemiplegia, for in all of my cases in which the pains occurred for some time before the attack, in five, the pains persisted with equal severity after the attack began. In five of the milder instances, those in which the pains occurred one or two days before, they ceased after the attack began. In these cases and for the other similar ones in which the pain persisted it may be that cerebral congestion, or rather an actual small hemorrhage in the region of the sensory pathway, would explain the condition. No satisfactory explanation can be given, however, for the occurrence of pains limited to one nerve, as the sciatic, unless this was an accidental complication, probably a neuritis.

Still another explanation may be given. It is possible that in a hemiplegia due to a thrombosis a gradually diminishing blood supply to a part of the cortex would cause nutritional disturbance, which would account for the pain. In the cases under consideration, however, this did not seem to be the explanation.

POSTHEMIPLEGIC PAIN.

Hemiplegia can be said to be a painful disease. It is rare, indeed, for a person suffering from this affection not to complain of some form of ache or pain. In the 109 clinical cases studied, twenty-seven had distinct pain of a sharp, shooting character, twelve of different forms of paresthesia, and the other seventy patients complained of soreness in the muscles and joints of the paralyzed side, and in only five of the series was there no pain or ache complained of.

A subdivision may be made of these pains according to their character. In the largest class belong those persons in whom there is an uneasiness or feeling of soreness in the various joints and muscles of the paralyzed side, especially of the shoulder joint. This is not so apparent in the hemiplegics where there are little or no contractures, or where the spasticity is not marked, but in the patients in whom these conditions are prominent there is always some pain on movement. Then, again, there is the pain which is due to the weight of the arm dragging on an ankylosed joint.

A second subdivision may be made for those cases in which the patients complain of the different forms of paresthesia, as a feeling of tingling or numbness, a "growing" or a dull feeling, or an itching sensation. These may be present either in the whole affected side or only in the distal parts of the extremities. Twelve of my cases showed these phenomena. In the marked instances there was always an accompanying hypesthesia of the affected side either for touch and pain or for both. There are several explanations for these symptoms. Lessened blood supply and a consequent nutritional disturbance, and at times accidental injuries causing a neuritis, as by dragging of a limb, are very often the cause, but they are doubtless sometimes due to a cortical or subcortical lesion, especially in the cases where there are accompanying sensory changes.

In the third subdivision may be placed the pains of the more severe type. These are variously described as sharp, shooting, cutting, aching, twisting and so forth. Of the 109 cases, twenty-seven had more or less severe pain. These were mostly present in the upper extremity, and were more marked in the cases where ankylosis was extreme. They did not bear a special relation to the degree of atrophy present, as Brissaud and lately Marie have held.

I did not make any special study of the state of the sensation in the paralyzed side, but the following conditions were noted: There were two cases of total hemianesthesia for all forms of sensation and twenty-eight cases of hypesthesia for either touch or pain or both. Of these thirty cases, eight had little or no pain, five complained of paresthetic phenomena and seventeen of various pains. It may be said, therefore, that pain in hemiplegia is more liable to occur where there are sensory changes.

The pains were present mostly from the shoulder to the wrist, and from the hip to the knee and sometimes to the ankle. Again, they were at times manifested in the side of the chest. In most of these instances movement did not increase the pain. Diminished vascular supply, spasticity and sometimes an accompanying neuritis explains many of these conditions, but in a number of my cases the pains were undoubtedly due to a central origin.

It is my intention to take up the subject of central pain in a subsequent paper where posthemiplegic central pain will be more fully discussed.

RESPIRATION.

Hughlings Jackson,[3] in 1891, called attention to the fact that in the respiratory movements of hemiplegics the superior intercostal muscles of the paralyzed side have a greater amplitude in quiet or automatic respiration, but that in forced or extraordinary respiration the movements on the sound side are always greater. Since that time these observations have been confirmed, and lately by Clarke[4] and Bury.[5] Gowers,[6] however, does not think that there is any difference in the respiratory movements, and Boeri[7] believes that in most instances the respiratory movements are held back not only in quiet, but also in forced respiration.

In nearly every case of the 160 examined I was able to confirm Jackson's observation that in quiet or ordinary respiration the upper part of the chest of the paralyzed side expands more than does the corresponding part of the sound side, but that in forced respiration the movements on the sound side are always greater. The movements vary in different patients, sometimes the difference being hardly perceptible. The observation is made while the patient is either standing or sitting.

I have, however, observed that at the end of ordinary or quiet expiration the chest on the sound side has a longer range of movement, that is, that it retracts more than does the chest on the paralyzed side. If the patient is asked to lie down, this phenomenon is shown even more distinctly. Dr. Spiller was good enough to confirm this observation. This being so, it means that the amount of air expelled from the lung on the sound

3. Jackson, Hughlings: The Lancet, Jan. 14, 1893.
4. Clark, L. P.: Am. Jour. Med. Scien., December, 1903.
5. Bury: The Lancet, Dec. 19, 1903.
6. Gowers: Dis. of Nervous System, pp. 75, 89, vol. II.
7. Boert: Gaz. Hebd. de Med., No. 7, p. 73.

side is greater, that there is more remaining residual air at the end of expiration in the lung of the paralyzed side, and that the movement of the lung is actually weaker on the affected side.

If the lungs are percussed at the end of expiration, the note obtained on the paralyzed side is always deeper.

The amount of air breathed in during the inspiratory act is probably the same in either lung, but the lung on the hemiplegic side has to accommodate the same amount of air as the healthy lung, plus the increased quantity of residual air, hence the increased superior intercostal excursion. In forced respiration the diminished respiratory movements of the lung of the paralyzed side are easily seen. We must come to the conclusion, therefore, that both in quiet and in forced respiration the respiratory movements are diminished on the paralyzed side of the body.

The usual explanation offered has been the loss of the cortical inhibitory control over the medullary respiratory centers, and, as a result of this withdrawal of inhibition, the medullary center overacts in ordinary or automatic respiration.

It is well known that movements, not muscles, are represented in the cortex, and it may be expected, therefore, that in a lesion, such as would result in a hemiplegia, there would be total loss of function on the opposite side. That this is not so in muscles, which habitually act together, as in the elevation of the brow, in respiratory and laryngeal movements, is well known. Broadbent has explained this by the hypothesis that such functions are represented in both sides of the brain, and that in destruction of one cortical center the movements are controlled by the remaining center. This explanation has been generally accepted.

It is a fact, however, that the function of the muscles on the side opposite the lesion are always somewhat impaired, as, for instance, in looking upward, the brow on the affected side is not wrinkled so much, nor can a hemiplegic shut the upper eyelid alone on the affected side. It is to be expected, therefore, that the function of the respiratory muscles on the paralyzed side should be diminished.

The explanation of loss of inhibitory control is a purely theoretical one. We do not really know what loss of inhibition means. It is much more logical to believe that in a lesion, such as would result in hemiplegia, there would be loss of function of the opposite side, but that in bilateral functions, instead of a paralysis, there would be only a paresis of function, consequent to the still remaining cortical control of the sound side.

EDEMA.

A slight amount of edema in hemiplegia is not a rare condition. Mills,[8] in a study of sixty cases, found edema in seven. In only two cases did I find a great deal of edema. Allen[9] recently reported a case of extensive edema of the paralyzed side and was only able to collect three similar cases in the literature, those of Hare,[10] Preobrajensky[11] and Gilbert and Garnier.[12] In Hare's[10] case the edema was limited to the upper extremity and was sharply defined, there being a line of demarcation. Preobrajensky's case was complicated by an aneurism of the aorta and thrombosis of the vessels, while in Gilbert and Garnier's[12] case the edema was limited to a "succulent" hand.

The following history of a patient with intense edema of the paralyzed side is, therefore, of interest:

Patient.—S. B., aged 52. The family history is unimportant. Had syphilis twenty years before his stroke.

History of Attack.—Three years ago, without any symptoms of illness, he suddenly had an apoplectic attack which rendered him unconscious. Since that time he has had a left hemiplegia. Directly after his attack the whole paralyzed side became swollen, this being marked on the side of the face and chest, the swelling fading away as the median line was approached. The upper extremity was more swollen than the lower. The skin looked shiny and tense and there was no pitting to pressure. At the same time the joints of the affected side, especially the wrist and elbow joints, became much swollen and exceedingly tender to the slightest pressure. This edema gradually disappeared, leaving, however, a swelling of the elbow and wrist joints.

Subsequent History.—Examination three years after shows a left hemiplegia, with hardly any edema; the joints mentioned, however, are still a little swollen. Examination of the urine shows albumin, but no casts.

Two other cases were observed where the edema was confined to the paralyzed hand, giving it the appearance of a "succulent hand," similar to the case reported by Gilbert and Garnier.

No definite explanation has been given for this phenomenon. Vasomotor disturbance probably plays an important rôle, but it does not explain why in some cases we do have edema, no matter how slight, and not in others. It is probable, as has been pointed out, that any tendency to edema will be increased by an accompanying nephritis. This has recently been called attention to by Spiller.[13]

VASOMOTOR DISTURBANCES.

Vasomotor disturbances are very common in hemiplegia. The patient usually complains of a feeling of coldness in the paralyzed limbs, and very rarely of a feeling of warmth. It is not uncommon to see a blue condition of the paralyzed extremities brought on by the lessened circulation. Such phenomena, however, as a hemi-skin eruption and sweating are rare. A patient who had a hemiplegia of some years' duration called my attention to the fact that he did not perspire on the paralyzed side and, more curiously still, that the affected side of the face and arm did not tan in the sun so much as the healthy side. Another patient had an eczematous skin eruption which was limited to the paralyzed side.

POSTHEMIPLEGIC CHOREA.

The occurrence of various disorders of movement after an apoplectic attack are rare. Von Monakow[14] states that in twelve years he saw only two cases of posthemiplegic chorea. Spiller[15] states that he never saw a true instance of posthemiplegic chorea in an adult, and it has seemed to him that the term posthemiplegic chorea is a bad one, for the movements are not choreiform in character. Gowers[6] also calls attention to this, and does not use the term posthemiplegic chorea, but speaks of the various disorders of movement following hemiplegia. Marie also has recently spoken of the infrequency of posthemiplegic chorea.

A number of explanations have been offered for these phenomena. Charcot[16] was the first to call attention to

8. Mills: The Nervous System and Its Diseases, p. 583.
9. Allen: Jour. of Nerv. and Ment. Dis., p. 471, 1899.
10. Hare: Jour. of Nerv. and Ment. Dis., p. 389, 1898.
11. Preobrajensky: Ref. in Révue Neurolog., p. 73, 1897.
12. Gilbert and Garnier: Comptus rend. de la Soc. de Biol., 1897.
13. Spiller: Prog. Med., p. 201, 1900.
14. Von Monakow: Gehirnpathologie, 1897.
15. Spiller: Amer. Med. Assn., 1904, Proceedings Section of Neurology.
16. Charcot: Quoted by Bonhoeffer, Monatsch. f. Psych. und Neurologie, vol. i, No. 1.

this symptom and thought that there was in the internal capsule in the region of the *carrefour sensitif* a certain tract, a lesion of which would cause choreic movements. Kahler and Pick[17] thought that an irritation of the pyramidal tracts anywhere would explain the condition. Gowers[6] is of the opinion that these symptoms are caused by a lesion of the optic thalamus. Bonhoeffer has, perhaps, given us the best explanation. He believes that a lesion involving the anterior cerebellar peduncle of its continuation into the subcortical ganglia causes disorders of movement. Since Bonhoeffer's[18] paper other cases have been reported which support this observation.

The following case is of much interest in this connection:

Patient.—J. E., aged 63.

History of Attack.—In September, 1899, the patient had a slight stroke which affected his left side. He improved somewhat, but had a second attack two months afterward. It was not until two months after the second stroke that he developed an irregular movement of his left arm. His condition at present is practically the same, except that the irregular movements have become worse and have involved all of the limbs.

Subsequent History.—The last examination of the patient by Dr. Spiller is as follows: Power in the left upper and lower limbs is diminished, and these limbs are distinctly weaker than those of the right side. All the reflexes in the left side are increased, and Babinski's sign is present. The reflexes on the right side are normal. Sensation for touch and pain is diminished over the left upper and lower extremities. The patient has no knowledge where his left upper limb is, and, to find his left hand, he has to put first his right hand on the left shoulder. The sense of position is also lost in the toes of the left foot. He does not recognize a pencil, a key and a watch in his left hand, calling these objects a crucifix, but at other times he recognizes objects properly. There is marked ataxia of his left upper limb. The tremor in his left upper limb varies in intensity from time to time, sometimes it is only a movement from the shoulder, at other times the whole upper limb is involved. The movement is chiefly a lateral one from the shoulder, but there is at times a rotatory, flail-like movement. There is some tremor of the right upper limb at times, but it is much less important than that of the left upper limb. There is occasionally a tremor of both thighs, especially the left, consisting of a flexion and extension of the hip.

We have in this case a left hemiplegia of five years' duration, where, besides the ordinary symptoms, there are hypesthesia for touch and pain, ataxia, loss of the sense of position, asteriognosis, and a violent irregular movement of the affected upper limb, with milder movements of the other limbs. It is impossible to test him for hemianopsia, as he lost the sight of both eyes some years ago. A lesion in the parietal area would explain all of these symptoms, except the irregular movements. These movements probably are not hysterical, for suggestive treatment and static electricity have had no influence on him for the past five years.

A lesion involving the superior cerebellar peduncle and the posterior limb of the internal capsule would easily explain all the symptoms, and would correspond to Bonhoeffer's view. The slight tremor of the opposite side could be explained by a partial involvement of the other superior cerebellar peduncle.

The tremor which is present in this case could hardly be called choreiform in character. This was the only instance in which this symptom was observed in the series studied.

17. Kahler and Pick: Vierteljahrschrift f. Praktisch, Heilkunde, Prag., 1879.
18. Bonhoeffer: Monatschr. f. Psych. and Neurolog., vol. i, No. 1.

Dr. A. J. Smith has kindly furnished me with the record of a case of hemiplegia where violent movements occurred preceding the apoplectic attack. In this instance the movements were confined to the left arm and the left leg and the lower part of the face on the left side, the tremor being clonic in character, resembling a Jacksonian convulsion. This lasted for about two hours, after which there was a complete left-side hemiplegia.

Such convulsions, while not uncommon in uremic conditions, are rare in organic hemiplegia. Various disorders of movement are liable to occur preceding an apoplectic attack, but we rarely have the opportunity to observe them.

CEREBRAL MUSCULAR ATROPHY.

A great deal has been written concerning atrophy of the muscles in hemiplegia, and yet the cause of this atrophy still remains in doubt. It has been said that atrophy accompanies every case of hemiplegia, that it is not a complication but a symptom. Lately Marinesco[19] and Steinert[20] have confirmed this observation. In my own cases I also found that atrophy was present in every case. The degree of atrophy varies in different cases, sometimes coming on very early after the onset, and again not for some months.

The atrophy probably first manifests itself in the small muscles of the hand and in the muscles of the shoulder, it being, perhaps, more easily seen in the latter situation because of the bulk of the muscles and the bony prominences. It is more marked in those cases in which the paralysis is marked, and, as it has been pointed out by Mills,[8] it is greater in the distal part of the extremity. The lower limb is never so much affected as the upper limb. In the majority of cases sensory changes were found, this agreeing with other observers. In quite a large number of my cases considerable atrophy was also observed on the so-called sound side.

Charcot[21] in 1874 recorded his classic case of atrophy in hemiplegia, where microscopically secondary degeneration and atrophy of the cells of the anterior horns of the spinal cord was found. Since then his observation has been confirmed by a number of investigators. This has not been accepted, however, as an explanation for the atrophy, because later methods have failed to show atrophy of the cells of the anterior horn.

Borgherini,[22] Quincke[23] and Eisenlohr[24] believe that the atrophy in hemiplegia is due to an alteration of the trophic centers in the brain, these centers being situated either in the cortex or near the optic thalamus.

Darkschewitsch[25] and later Gilles de la Tourette[26] believed that the arthropathies which are so common in hemiplegia were the sole cause of the atrophy.

Steiner[27] thinks that there must be a congenital predisposition to disease in the cells of the anterior horn, for, he says, there is not atrophy nor alterations in the cells of the anterior horn in every case.

Roth and Muratow[28] believed that a destruction of the vasomotor tracts caused a disturbance of the blood supply to the muscles, thereby interfering with the

19. Marinesco: Semaine Méd., Nov. 23, 1898.
20. Steinert: Deutsch. Zeitschr. f. Nervenh., vol. xxiv, 1903.
21. Charcot: Lec. sur les localisations, Oeuvres compl., vol. iv.
22. Borgherini: Arch. f. klin. Med., vol. lxv, Nos. 5, 6.
23. Quincke: Arch. f. klin. Med., vol. xlii, p. 492, 1888.
24. Eisenlohr: Neurolog. Centralbl., 1891.
25. Darkschewitsch: Neurolog. Centralbl., 1891.
26. Gilles de la Tourette: Soc. Méd. des Hôpitaux, 9, 4, 1897; ref. in Semaine Méd., 1897, p. 130.
27. Steiner: Deutsch. Zeitschr. f. Nervenh., vol. iii, p. 280.
28. Roth and Muratow: Ref. Archiv. de Neurologie, p. 300, 1891.

nutrition and causing atrophy. Lately Luzzatto[29] has supported this view. Marinesco[19] thinks that normally the pyramidal tracts carry vasomotor impulses which act on the medullary center of the sympathetic system, and that in a hemiplegia these influences are destroyed, and there is a consequent stasis in the blood vessels, a lessened blood supply and atrophy. Oppenheim[30] and Von Monakow[14] also support the vasomotor theory.

Steinert[27] has very recently supported the theory that atrophy in hemiplegia is the result of the trophic influence of one neuron upon another. He believes that the cortico-spinal motor tract or the upper neuron has a direct influence on the lower neuron, and that in a lesion of the former there should be alterations in the latter.

ARTHROPATHIES.

Recently Marie[2] defined for us what is to be understood as an arthropathy in hemiplegia. It is, according to him, a disturbance of function in the articulations of the paralyzed side, especially of the shoulder; the voluntary movements are very limited, and pain is caused by the attempt to move the limb passively, but there is neither reddening nor tumefaction except, perhaps, in some tendinous sheaths.

That this condition was not quite understood by the older writers is evident by the description of Charcot,[31] according to whom the arthropathies of hemiplegia are a late manifestation and are characterized by pain of greater or less intensity closely resembling the painful crises of rheumatism, and are accompanied by reddening of the skin, tumefaction of the articulations, with an increase in the synovial fluid.

Weir Mitchell[1] described a similar condition, but in his case the painful swelling of the joint came on four days after the onset of hemiplegia. The same author also described a painful condition of the joints preceding the attack of apoplexy.

Marie does not consider these as pure nervous arthropathies, but as arthrites of probably infectious origin, and he further justly remarks that there is no resemblance between these neurospinal arthropathies and the simple arthropathies so common in hemiplegia, and that at the autopsy one finds in the latter only a slight degree of synovitis without lesion of the cartilages, but marked participation of the synovial tendon sheaths.

I have found in only one case the arthropathy Charcot speaks of, viz.: in the patient previously referred to, when discussing edema. This man, a few days after his seizure, had great edema on the paralyzed side with marked swelling of the elbow and wrist joints and a lesser involvement of the shoulder joints. These joints were very painful and tender to pressure, the skin was reddened and there was tumefaction of the articulations. The joints of the lower extremity were not involved. The pain persisted about one year, and at present, three years after the attack, there is still a swelling of the elbow and wrist joints, it being possible to move the articulations in any direction.

I have observed still another patient, in whom it was possible to move the wrist and all the finger joints freely in any direction. This woman gave no history of pain nor tenderness in the affected parts, but said the flexibility came on gradually. In two more instances I have observed a similar condition in the articulations of the fingers only.

29. Luzzatto: Deutsch. Zeitschr. f. Nervenh., vol. xxiii, 1903.
30. Oppenheim: Lehrbuch der Nervenkrankheiten, 3d ed., p. 612, 1902.
31. Charcot: Quoted by Marie.

It may be that the painful joints spoken of by Charcot and also present in one of my cases are caused by an infection. It has seemed to me, as Gowers[6] has already pointed out, that there is an analogy between this condition and the similar inflammation which is secondary to acute myelitis.

There is also a similarity between the painless arthritic conditions present in three of my cases and the arthropathies found in chronic spinal diseases.

In the majority of hemiplegias we find the condition described by Marie. The shoulder joint is usually most affected, but in cases where the contractures are marked all of the joints may be involved. Many theories have been advanced to explain the cause of these arthropathies. Charcot and Joffroy believed that they were due to a secondary alteration in the cells of the anterior horns; Hitzig,[32] to the pulling on the articulations and the tendons by the weight of the paralyzed extremities; Gilles de la Tourette,[33] to the forced immobility; Marinesco,[34] to vasomotor disturbances, and by others to rheumatism.

Most probably the cause can be ascribed to the forced immobility plus the pulling on the articulations and tendons by the weight of the paralyzed member. Alterations in the cells of the anterior horns are not common in hemiplegia. I have examined the cells of the anterior horns in eight cases of hemiplegia. In most of these there were marked contractures and arthropathies, without finding any pathologic changes. Spiller[35] reported a very interesting case of unilateral internal hydrocephalus, where the contractures were very marked, but the cells of the anterior horns of the spinal cord were perfectly normal. Vasomotor disturbances probably play no important rôle in these arthropathies and there is no reason to expect a greater tendency to rheumatic conditions in hemiplegia than in other organic nervous diseases.

This paper will be followed by a pathologic study of hemiplegia.

I am indebted to Drs. Wm. G. Spiller and Chas. S. Potts for the privilege of studying their cases and to Dr. G. Walter, the resident physician, for her assistance.

DISCUSSION.

DR. GUY HINSDALE, Hot Springs, Va., stated that some cases of hemiplegia which he has seen have been accompanied by the rather curious feature of yawning. At the same time there is a decided tendency to move the paralyzed arm and the paralyzed leg. He has never been able to understand why the process of yawning should start motion in the paralyzed limb, but supposes that it is reflex, though the movement is not a sudden, quick movement, as seen in the knee jerk, but is a much more deliberate one, such as putting the hand up to the head and down again.

DR. HUGH T. PATRICK, Chicago, asked whether the pre-apoplectic pain in the paralyzed parts occurred previous to thrombotic or hemorrhagic apoplexy. If that pain precedes the development of the apoplexy from the hemorrhage, then he does not understand it all. If it precedes the thrombotic variety, then it seems to him that it is quite naturally in line with other symptoms. Dr. Patrick said that, according to Hughlings Jackson, in using the extremities on one side the action of the trunk muscles is more especially on the opposite side. For instance, using the muscles of the right arm naturally produces as a balancing factor a contraction of the trunk muscles on the other side. In carrying a pail of water or in lifting, the resistance must be on the side of the trunk opposite

32. Hitzig: Quoted by Marie.
33. Gilles de la Tourette: Nouv. Iconoge., p. 287, 1897.
34. Marinesco: Revue Neurolog., No. 14, 1894.
35. Spiller: Am. Jour. Med. Sci., July, 1902.

to the extremity used. Consequently the muscles of the trunk are involved with the muscles of the extremity on the opposite side. Dr. Patrick asked whether in cases where the pains and tenderness were greater above or below, showed any variation in regard to the degree of the paralysis. Ordinarily the paralysis is greater at the distal end of the extremity, but there are cases in which the paralysis is greater at the shoulder than at the fingers.

DR. THEODORE DILLER, Pittsburg, Pa., declared that this study offers another evidence of a fact that is sometimes lost sight of, viz., the very intimate association between sensory and motor functions. He is not sure but that if other so-called pure motor diseases were to be investigated in the same fashion there would be a greater amount of evidence than is now possessed as to the existence of sensory phenomena. For instance, in paralysis agitans there are sensory phenomena and in the muscular dystrophies and atrophies they are sometimes present. Landry's paralysis is spoken of as if it were a pure motor disease; and yet the studies of recent cases (within the last five years) have shown that sensory phenomena nearly always precede or accompany the motor manifestations. Dr. Weisenburg called attention to this fact in a paper published two or three years ago. He went over the published cases very carefully, and found that sensory phenomena were nearly always present. He doubts whether any of the so-called motor diseases are entirely free from sensory signs or symptoms.

DR. DAVID I. WOLFSTEIN, Cincinnati, stated his experience with the Babinski sign, namely, the extrême rapidity with which it comes on, and its usefulness in enabling the physician to make a positive diagnosis when coma is present, or where paralysis has occurred. In a case which occurred at 5:30 p. m., and which he saw at 6:30 p. m., the Babinski sign was marked. In another case which occurred at 9:30 and which he saw at 10:15, the Babinski sign was present, and in another case, in which he was in doubt, the diagnosis was confirmed by the presence of the Babinski sign.

DR. F. E. COULTER, Omaha, Neb., stated that he saw a case of undoubted fracture of the base of the skull very soon after the accident occurred. There was complete coma and hemorrhage from both ears; the patient died, but no postmortem was allowed, and it was difficult to determine the exact location of the lesion. The Babinski sign was present on both sides within three hours from the time of the accident.

DR. FRANK P. NORBURY, Jacksonville, Ill., stated that a physician, who was associated with him for a number of years in hospital work, had hemiplegia about four years ago and died in apoplectic coma. His father died a victim of hemiplegia, as did also his grandfather, which made three cases in direct succession occurring about the same age. This patient lived about four years after the onset of the hemiplegia before he died. He also presented the phenomena of which Dr. Diller has spoken, edema on the right side.

DR. ALBERT E. STERNE, Indianapolis, inquired whether Dr. Weisenburg had made any observations on the temperature of the body one either side, and whether there was any perceptible difference in temperature between the two sides of the body. It is certain that in cases observed shortly after the apoplectic attack the temperature on the paralyzed side rises, frequently showing a difference of a full degree.

DR. ARTHUR CONKLIN BRUSH, Brooklyn, N. Y., thinks that a good deal of importance should be given to these feelings of weakness and numbness, especially in women over 45, as he has learned from experience that they often precede an attack of cerebral thrombosis. He has never noticed them before a cerebral hemorrhage; but in these cases these premonitory symptoms are often replaced by pain.

DR. H. G. BRAINERD, Los Angeles, Cal., stated that some years ago he had an opportunity of holding postmortems on two cases of hemiplegia which were accompanied by great hemiplegic pains. One was the case of a young woman who had hemiplegia occurring during her menstrual period. There were no cardiac lesions found, either during life or after death, and he concluded that the source of the clot might have been from the endometrium. She had a left-sided paralysis with intense pain in the arm and some in the leg. The lesion was found in the internal capsule posteriorly. The other case was that of a woman, aged about 60, who had a cerebral hemorrhage into the disturbed area about the same part of the capsule, most marked posteriorly. In other words, there was an irritation of the fibers between the cortex and the periphery causing "referred pains." Dr. Brainerd remembered being called one morning to see a man who had a slight seizure: what little aphasia there was soon passed off. The patient said: "I shall go in the next succeeding one; my father died from apoplexy; his father died from apoplexy, and his father died from apoplexy." A few weeks later his prediction came true, making four successive generations in which death from apoplexy occurred.

DR. T. H. WEISENBURG, in reply to a question, stated that he did not observe the yawning spoken of and that most of the cases were hemorrhagic in character. In the case of bone pain, where the pain was more marked in the upper arm than in the hand, the degree of paralysis was greater in the hand. Out of 109 cases studied, only 30 showed sensory disturbances. He has also observed the Babinski sign within 24 hours after the onset of the hemiplegia and in a case of uremic hemiplegia within 12 hours. In 3 out of the 149 clinical cases studied, the Babinski sign was not obtained; this is not remarkable, however, for Babinski himself states that this reflex may not be present in every organic case. In two cases, with autopsy, where the hemiplegia was caused by lesions of the pyramidal fibers in the pons. The Babinski sign was not obtained. He did not make any study of the difference of the temperature on the paralyzed and the sound sides, but Dr. Mills in his book gives a very careful study of this phenomenon in 60 cases. He found the temperature to be diminished in almost every case on the paralyzed side.

A CASE OF LOCOMOTOR ATAXIA WITH A TREMOR RESEMBLING THAT OF PARALYSIS AGITANS.*

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At a session of the American Medical Association in June, 1902, I reported three cases of involuntary movements in ataxia. Since that time one of these patients has died, and I was fortunate enough to obtain an autopsy. The case was one in which a tremor of both arms existed from the early stages of the disease. This tremor was like that of paralysis agitans.

Patient.—A man, aged 57; family history good. He himself had always been healthy, having never had any serious illness of any sort, and has always been temperate in alcohol and tobacco.

History.—In 1883 he contracted syphilis. The first tabetic symptoms consisted of the characteristic pains of ataxia, from which he suffered for nine years before the other symptoms of the disease made their appearance. Then there gradually developed numbness of the hands, unsteadiness in walking, and the tremor in both hands before referred to. The ataxia gradually increased until in February, 1898, it had become so intense that he could not walk at all, even with assistance.

Examination.—When I examined the patient for the first time, in May, 1898, he was greatly emaciated. He was unable to stand, and every effort at voluntary movements of the legs developed intense ataxia. There was also a marked degree of ataxia of both arms. On the side of the sensory symptoms

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

there were the characteristic changes of locomotor ataxia. His pain sense was greatly diminished in both legs; he confused heat and cold; and deep pressure was not always recognized. Moreover, he complained of a pronounced pressure sensation over his bladder, and of intense lightning-like pains in his limbs. There was incontinence of urine and he was very constipated. The Argyll-Robertson pupil was present and the discs were gray. The heart and lungs were not conspicuously diseased, and the examination of the urine was negative.

The symptom which makes the case interesting and unusual was the presence of a fine rhythmical tremor of both hands and arms. The pill-rolling position of the fingers was well illustrated. Voluntary effort temporarily quieted this movement, after which it became more intense. It was absent during sleep and was helped by rest. After muscular effort in one hand the tremor was first quieted and then increased. There were no other symptoms of paralysis agitans. The mask-like face was absent, as well as the stiffness and contractures. The patient died from apoplexy.

Autopsy.—The autopsy revealed the presence of a large hemorrhage into the right lateral ventricle. The spinal cord, brain, peripheral nerves, muscles and ganglia were removed and hardened in formalin for study. The cortex, stained by the Weigert method and by hematoxylin and acid fuchsin, showed no pathologic change. In the pons, the fibers of the pyramidal tract were less distinct than in the lemniscus, which, however, may not be of much importance. The posterior columns were intensely degenerated throughout the length of the cord. In the thoracic and lumbar regions the degeneration was almost complete. At the sixth cervical segment the degeneration was still intense, but the number of healthy fibers was greater than in the thoracic regions. The posterior roots were intensely degenerated at all levels, while the anterior roots were intact. In the lumbar region the cells in the anterior horns showed distinct change, and this was also true—though to a less degree—in the cervical region. The nucleus of the nerve cell was much swollen, and the cells had lost their dendrites. The columns of Clark were well preserved. In one spinal ganglion there was some round-celled infiltration, but apparently no change in the cell. The other tracts of the spinal cord appeared to be intact.

I was unable to find any of the changes described by Dana in his case of paralysis agitans reported in 1899, except in the cells of the anterior horns in which the dendrites had disappeared, and the nuclei were swollen and displaced. In Dana's case there was fatty degeneration of the muscle, but I was unable to find this in my case.

The pathologic findings in this case are what one would expect to find in a fairly well-advanced case of tabes, and I do not feel justified in claiming that any part of the lesion present accounted for the presence of the tremor. I can not even say that the arterial change was sufficiently advanced to warrant any comparison with those cases of paralysis agitans in which it has been claimed that lesions resembling those of old age were found. But the pathology of paralysis agitans is still a matter of much doubt.

I was unable to find in my case lesions resembling those described by Schifferdecker, who found degeneration of the muscle spindles. The case that I have just described is possibly one of tabes associated with paralysis agitans.

1732 Pine Street.

Ten Thousand Photographs a Second.—Photographs taken in one-ten-thousandth part of a second are an achievement of the Institute for Technico-scientific Investigations in Neubablesberg, near Berlin. The destruction of bone by a modern small-bore bullet is shown by a series of photographs taken during the progress of the bullet.

HAVE DRUG ADDICTIONS A PATHOLOGIC BASIS?*

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In studying the pathology of drug addiction, it seems to me we have a threefold problem to solve. First, there is the hereditary abnormal aspect—the psycho-cellular pathology; second, the acquired abnormal conditions of the individual, which lead to the use of drug stimulants—the pseudo-pathology; and, third, the effect on the system of the particular drug used—the true pathology of the addiction.

PSYCHO-CELLULAR PATHOLOGY.

I am perfectly well aware that good authorities deny the influence of heredity among drug habitués, but I do not believe that this ground can well be maintained. First of all, it is a matter of record in the study of the histories of a large percentage of habitués of all kinds, that we find taints of varying degree among the ancestors of these individuals. It is a matter of very common occurrence to learn that either one or both parents, or some immediate ancestor, had been the victim of chronic nervous or mental affections, or had been addicted to the habitual use of alcohol, morphin or some other narcotic. When we consider the especial meaning of heredity, it should become apparent that the influence on the individuality and innate characteristics of the nerve cells of the offspring should be distinct.

In all probability, in the light of modern scientific research, we must admit that there is no such thing as hereditary disease, but it is equally certain that the conditions, characteristics and environments of the parent cell may be conveyed to the fetal cell to a disproportionate degree. True heredity must reach back to the very initial fertilization of the male and female cell. It must exist in the primary conception of fertilization. The particular development of this individual fertilizing cell undoubtedly modifies either in the one or the other direction, the manifestations which may be, at the beginning, inherent in this cell. After fetal life, conditions of environment and education, and the development of associations, further serve to modify for good or for evil the inherent characteristics of the primal cell. On this basis of reasoning, it seems to me that it would be impossible to conceive of malignant disease as existent in the primal fertilization, else would the ovum never develop into maturity. This would not necessarily obtain where we were dealing merely with tendencies of the parent cell, which might later develop through circumstance or environment into a nervous diathesis, resulting finally in a state of atavism. It is a well-known fact that the progeny of chronic invalids, of epileptics or of alcoholists, and mental and moral wrecks, develop the tendencies of ancestry to an augmented degree. The annals of criminology, as well as of the great charitable institutions of the world, reveal this to a remarkable degree. It is my belief that the same thing can be demonstrated in the peculiarities of the offspring of those addicted to the inordinate use of the various drugs.

We will all of us grant without question, I believe, the effects on the mental and moral sphere of the progeny of drug habitués; yet the mental and moral deter-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

mination of these cells must be dependent on the healthy organic conditions of these cells, on their ability to exhibit the normal characteristics of brain cells, especially as regards their motility—that is, their power to alternataely become active and to fall into repose.

In the histories of those drug habitués who take up the, so to speak, inherent tendency to the use of the drug, it is remarkable to find the constantly recurring fact that either one or both parents or immediate relatives were also drug users.

PSEUDOPATHOLOGY.

The occasional causes for the acquirement of drug habits are too numerous to classify, but, taken as a whole, they may be subdivided into, first, the use of drugs purely as a stimulant; and, second, their use to efface some physical or mental distress, whether this be in the nature of pain, worry, grief or shock. Ultimately, the main factor in the causation of all drug habits, whether they be based on hereditary influences, on physical or mental weakness, or on physical or mental pain, is always the same, namely, the weakness of the nerve cell and the lack of vital force, which make the individual powerless to combat the strenuousness of existence. In the one or the other direction, the victim seeks to fortify his failing mental or physical power through the aid of a stimulant.

Unless the individual be burdened by extremely strong hereditary taints, or be the subject of innate, vicious moral principles and of the lowest and lower grades of intellectuality, there is usually some element of physical weakness in play, which he endeavors to overcome by artificial means. A study of the individual histories of such persons will almost invariably show that there has been some definite cause which has brought about a physical incapacity to deal with the problems confronting him. It is not at all unusual to find that a previous illness has resulted in bodily prostration, not infrequently associated with a greater or less degree of insomnia, to overcome which the patient has had recourse to alcohol in some form to sustain the physical vigor, and to opium in some form to bring on sleep. It is almost as frequently true that mental or psychic pain has been the source of the drug addiction.

In this connection, it is but just to say that members of our own profession have often been derelict in their attitude toward their patients, in that they themselves have thoughtlessly prescribed stimulants of the alcoholic variety and used narcotics of the morphin variety in a careless manner, and in individuals whose resisting power was so low that they readily became the victims of a habit which had been found to bring such material relief. I take this occasion to condemn the practice, wherever it may exist, of using opium to induce sleep. Opium and its derivatives should be used only for the definite purpose of relieving intense pain, and then only as a last resort and under circumstances which warrant the physician in the belief that his patient will not become addicted to its use.

To the ever-increasing army of alcoholics and drug users, men and women of the higher social strata are bringing a vast contingent, certainly as large, if not even greater, than the total number of recruits from the lower classes. The reason for this is not hard to find, when we consider for a moment the vast amount of intellectual and vital force necessary to keep up with the advance and demands of civilization. While it is equally true of lawyers, clergymen, and social idlers, perhaps the best example and the one which appeals most to us, is that of the physician who himself becomes a drug habitué. Unfortunately, a greater and greater number among our profession are seeking assistance and solace in that direction. We are especially unfortunate in that our knowledge of medicine and of the various drugs, and the readiness with which we find them constantly at hand, make the physician the easiest victim of all.

The physician, with a large amount of work and worry, with the ceaseless mental strain, often associated with physical hardships and loss of sleep through the demands of his professional duty, who misses this week one night of sleep and the next week two or three, feels that he needs something to stimulate and keep him in professional harness. He says to himself that he knows all about the drug he is using, that he knows its influence, that he knows its effects and its side effects, that he can stop when the latter show themselves; but it is for all the world like getting on a toboggan slide and determining to step off when you are half way or three-fourths down the course. It is a very easy thing to determine to do, but an extremely hard one to accomplish. It has always seemed strange to me that physicians who need such stimulants do not seek the safe refuge of strychnia, instead of the dangerous solace of opium and alcohol.

TRUE PATHOLOGY.

In considering the third problem before us, namely, the effects on the tissues of the system as a whole, and on various organs, notably the central nervous system in particular, we have a peculiar difficulty to overcome.

It must be remembered that most users of drugs have been addicted to the habit for longer or shorter periods of time, during which processes other than those induced by the drug used may have concurrently been in play. To arrive at the true pathology of any addiction, therefore, it would be necessary to exclude all factors other than that of the drug employed. Unfortunately for the solution of this particular problem, few persons, relatively speaking, die from the effects of drugs used in habitual wise. Intercurrent diseases usually bring on death. In acute poisoning, as in cases of suicide, the effect is so rapid on the vital centers that cellular changes have had no opportunity to occur, and in those cases rescued by immediate efforts, presumably few, if any, develop; at least, we are unable to study them.

We must, therefore, confine our inquiry into such pathologic conditions as may be found in individuals who have been habitués for periods of time, and here again we are confronted with a universal difficulty, for the ultimate effects on chronic users of the common drugs, like alcohol and opium, is that the entire system becomes highly acid. This really in itself constitutes a true pathology, and, in my opinion, it is the true pathologic basis. Just in this feature, however, we encounter another problem. We know that acidity of the organism, if that state exist through a space of time, in itself induces cellular changes within the various organs. So far as the minute and even the gross alterations of tissues are concerned, these are very similar in all conditions of an acid character, no matter what particular factor may have produced the hyperacidity. This is as true of the use of opium as of alcohol, the effects of which have been well studied and are clearly understood.

It has been claimed that the pathology of chronic morphinism differs materially from that of chronic alcoholism. On this ground it has been claimed that the effect on the offspring of morphin habitués is in no

wise similar to that of the effect on the offspring of chronic alcoholics. To this doctrine I am absolutely opposed. If it be granted, as it undoubtedly will be, that addiction to any drug through a long period of time brings with it a deterioration of cellular activity in the higher nerve centers of the user, then we must also admit that the character of the fetal cell would be determined in analogous wise to that exhibited by the cellular deterioration in other affections. This is especially manifest when we consider the development of the ovum in utero of a mother whose system is impregnated by the physiologic effect of opium. Examples of this malignant and characteristic effect have repeatedly been found in newborn infants of mothers who, during the period of gestation, had been using morphin, either alone or in combination with other drugs, constantly. Such infants, immediately after birth, differ from ordinarily healthy children in that they are very apt to be inordinately drowsy, refuse to nurse, and have been known to sleep steadily for twenty-four hours. After the period of somnolence, the stupor disappears and these infants show excessive irritability, have colic pains, and are liable to become very cyanotic. These are the so-called "blue" children (Happel). The cyanosis is probably due to a lack of closure of the ductus arteriosus and foramen ovale in the heart. The administration of opium in those instances where the development of the child has not been irreparably arrested, promptly relieves not only the irritability and the colic-like pains, but also the cyanosis, and, moreover, the opium must be administered constantly and the child must be weaned away from it, in the same way as in adult narcotism.

It must be understood that the foramen ovale is never closed until after the birth of the child, that it is the very last remnant of fetal existence which remains to be completed. If so malignant an organic defect can result from habitual use of morphin, then I cannot conceive of any valid ground on which to dispute the effect on nerve cells in the brain, notably in the presence of the evidence which is manifest in the relief of the symptoms through the administration of opium in any of its forms.

In many instances, we are dealing with the finest, most minute details of the anatomic and physiologic structures of the body. The effects of alcoholism in this respect are well understood. We know that alcohol, used in constant and varying quantities, exercises an extremely deleterious influence on the vascular system throughout its entirety. Secondarily, we know that it extends its pathological effect to the various cellular tissues of the body, notably that of the nervous system. I am referring here especially to the individual who is denominated a "steady drinker," the man who always drinks and who prides himself on the fact that he never becomes intoxicated. It is just this man in whom the effects of the stimulant are most manifest. The occasional or periodic drinker—unless these occasions become so frequent as practically to form a continuity—comes to little or no grief, but the steady drinker is the one in whom the delicate regulatory mechanism of the vascular system becomes early impaired. From this point onward, the pathologic process is constant and destructive, and ends in the hardening of the blood vessels, which predisposes to tissue inanition and faulty metabolism. In consequence, we note the general disturbance of the emunctories, with disease of the kidneys, liver and the other organs of the body. In the nervous system, the effect is especially bad. Here we note not only vascular changes with degeneration of the blood vessel walls, but we have characteristic cellular changes in the brain; disarrangement of the chromophyl-granules, with distortion and dislocation of the nuclei and nucleoli. and vacuolization of the cells.

If the process does not go too far, we find in such cases manifestations of the disturbance of the function of the nerve cell, with a loss of power for activity and repose, which is indicated by a general neurasthenia and cerebrasthenia. If, however, the process passes beyond this point, which I should designate that of "recoverability," then we have exhibited the paralysis of power of the cells in whatever field of function they may represent.

What has been said of the pathologic effect of alcohol is, I believe, equally true, though probably in far less degree, of other drugs used to excess. While many good authorities contend that this is not the case and that morphinism and its sister vices are purely diseases of the moral and mental sphere, it seems to me that they forget the essential power of motility in the brain cells. It seems to me that it makes no difference whether we are dealing with a brain cell of motor function, or moral function, or intellectual function, the same principles must hold good in any or all of these cases. I am an adherent of the doctrine of the motility of the nerve cell, which in its normal condition has the power to change somewhat its form by withdrawing its dendritic processes from contact with other processes, but in nowise has the power of changing its concrete location. If, therefore, for any cause this loss of motility in the nerve cell, which is a structural thing, becomes impaired beyond the power of recovery, then we have a pathologic basis of a structural nature in the cell itself. I believe, therefore, that not only chronic alcoholism, but also chronic drug addictions of every kind have a physical basis. We must not lose sight of the fact that structural changes of the cell, heretofore beyond our limits of vision, are now known to be possible of study by means of intense lateral illumination, which has increased the power of our microscopes many hundred-fold.

In the near future we may justly hope to acquire definite knowledge of pathologic cellular and other changes, of which at the present time we have no adequate conception.

Just as the fundamental factor for the necessity of all stimulation by drugs lies in the innate loss of force within the nerve cells, so the universal ultimate pathologic effect of almost all drugs used to excess is to render the entire organism highly acid. Certainly this is true of alcohol and of opium, the most common addictions. Whether or not many of the pathologic tissue changes do not depend directly on the hyperacidity of the system remains as yet a matter of doubt and study.

While this is undoubtedly true, it seems to me that we may even now assume that drug addictions have a pathologic basis, expressed as follows:

1. By the hyperacidity of the system.
2. By minute structural changes within the cerebral cells in particular, and probably also alterations in the vascular tissue.

In addition, we must admit that hereditary influences and the presence of faulty conditions—physical, mental and moral—play a most important rôle in the development of narcotic habits, but that, while they may have a pathology all their own, this must in nowise be considered an intrinsic feature of the true pathology of drug addiction itself.

DISCUSSION.

DR. A. J. PRESSEY, Cleveland, stated that probably what is really inherited from parents addicted to alcohol or morphin is a feeble constitution, a neurasthenic condition, and a lowered vitality. But it is perhaps doubtful if such a person is much more liable to acquire a habit than a child born of parents who have given to their offspring the same condition from some other cause. Persons only get alcoholism from alcoholics and morphinism from morphin. During the past ten years Dr. Sterne has treated from 50 to 75 morphin patients each year. A very large per cent. of these patients have been persons who were born of parents of average health and who were free from either alcohol or morphin addiction. A large per cent. of these patients acquired the habit from taking morphin for the relief of severe and long-continued pain. One-half of his patients year after year are physicians; this is not a reflection on the profession. He is sure, judging by observation and by patients' statements, that more than three-fourths of these physicians acquired the habit from severe pain long continued; they were not born degenerates. A man is not necessarily a degenerate because he takes morphin. Dr. Sterne claimed five years ago that an acid condition of the patient is the cause which produces the extreme nervousness during the withdrawal of the morphin. Dr. Pressey has since that time given various forms of the alkalies, but with the one exception of phosphate of soda, has received no benefit, and asked Dr. Sterne if he still believes there is a hyperacidity and from what form of alkali he receives the most benefit.

DR. RICHARD DEWEY, Wauwatosa, Wis., referred to the chemical union of the alcohol or the morphin and other narcotic products with the nerve cells. He stated that about two years ago he read an article by a Russian, who published the results of some researches in which he claimed to demonstrate the chemical union of the morphin with the nerve cells, and it has always seemed to him that researches in that direction would be of value.

DR. S. M. CROWELL, Charlotte, N. C., declared that he has come to the conclusion that we, as American physicians, know but very little about the pathology of either alcohol or drug addictions because so few physicians have studied these conditions scientifically or made clinical researches. They have been too prone to look on them as malicious habits which could be abandoned at will, and most physicians try to get rid of such cases as quickly as possible, as they are so difficult to treat in general practice. As a consequence of this attitude of the profession little positively is known of the pathology of this condition. Dr. Crowell does not believe that the pathology is the same in alcoholism, opiumism and cocainism. He thinks that the pathology in these cases is due, not so much to a hyperacidity of the system as to a toxemia of some kind. He does not believe in the alkaline treatment of opiumism as advocated by an English author, though occasionally some alkaline preparation may be given as indicated. He considers that the rational method is to eliminate whatever this effete material may be from the system by the various emunctories and not to rely on the alkaline treatment.

DR. SMITH ELY JELLIFFE, New York, said that one of the greatest troubles in the way of pathology is the lack of facts concerning the actual conditions. Physicians suspect a great deal, and talk very glibly of acid conditions, alkaline states, suboxidations, lack of elimination, insufficient water in the system, etc., but there are practically no recorded data available beyond a few really good studies by Faust and his colleagues. He made a motion that the section have a committee appointed to investigate one of these subjects and apportion among the members work in some particular line. He suggested that some one investigate the nerve cell changes in acute morphin poisoning, as has been partly investigated by Ewing; another, the state of the leucocytes or distribution of the blood elements. Another fruitful line of inquiry opened up by Faust concerns the development of antitoxins for morphin. These are some of the problems, none of which has ever been thoroughly worked out. By this means something definite may be obtained in the line of rational pathology of drug habits.

DR. ALBERT E. STERNE, Indianapolis, stated that the paper was an inquiry into the pathology of drug addictions and that naturally some etiologic factors were included. He believes that when more is known of the true pathology of drug addictions the condition suggested by Dr. Dewey of the chemical union of drugs with nerve cells may be found. In cases in which the fetus is affected by the use of drugs by the mother it must be by means of some kind of chemical action, but whether it is a chemical union with the nerve cells or a chemical union with the fluid tissues of the blood is not known. The only agency that carries chemical power in the body is in the blood corpuscles themselves. Dr. Sterne can not see wherein the system can escape acidity, though a great degree of hyperacidity must not be expected in these conditions. The system never becomes so intensely acid that the secretions of the body will have a decidedly acid reaction unless it be secretions from the stomach. The secretions which are normally alkaline have lost their alkalinity and, therefore, there must be a hyperacidity. In Dr. Sterne's opinion it is revelations of this character which account for the so-called characteristic abstinence symptoms of these cases. If the stomach is washed out repeatedly these abstinence symptoms are frequently absent. It is his practice to use a large amount of some saline solution or bicarbonate of soda. This promotes elimination and it brings fluid into the body and into the tissue which are practically water hungry and promotes metabolism. Dr. Sterne admits that he believes these symptoms have a physical basis, but he is uncertain just what that basis is. Everything external to the effect which the drug itself exercises on the system must be eliminated.

The chairman announced later in the day that he had appointed the following committee: Dr. Smith Ely Jelliffe, New York; Dr. Brooks F. Beebe, Cincinnati, and Dr. Albert E. Sterne, Indianapolis.

FAT EMBOLISM OF THE LUNG, FOLLOWING FRACTURES.

WITH REPORT OF TWO CASES.*

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The study of fat embolism has been comparatively neglected by Americans. It has never been the subject of a paper read before the American Medical Association, and in the perhaps 250 cases that have been reported in the literature not over a dozen have been contributed by writers of this country.

These facts, with an experience of two cases in as many years, led to a study of the subject and to the belief that it is deserving of more consideration than is usually given it, and to a presentation of the subject, at this time, in the hope of stimulating an interest that might result in more definite knowledge.

HISTORY.

Magendie,[1] in 1827, was the first to demonstrate, experimentally, that the injection of oil into a vein might produce dyspnea and even death. In 1839 R. W. Smith[2] noted two cases of fatty heart with free oil in the blood. MacGibbon,[3] in 1856, reported an instance in which delirium tremens was complicated by sudden dyspnea,

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Magendie: Vgl. dessen Lecons sur les Phenomenes Physiques de la vie, vol. i, p. 139, 1827.
2. Smith: Dublin Jour. Med. Sci., n. s., vol. ix, 1854.
3. MacGibbon: Amer. Jour. Med. Sci., January, 1856.

pallor and coma, which terminated in death. At autopsy all of the organs, especially the heart, were fatty, and free fat was found in the blood.

The first instance in which this fat was found to interfere with the circulation, by embolism, was in the case observed by Müller,[4] in 1860. At the autopsy the vessels of the choroid were found plugged with fat, which was supposed to have arisen from an atheromatous plaque of the aorta. That some of the pulmonary vessels might be obstructed by fat following fracture was first noted by Zenker[5] in 1862, and at about the same time E. Wagner[6] made similar observations, but supposed that this fat was the result of pyogenic processes. Bergmann,[7] in 1863, injected oil into the circulation of animals and clearly established a distinction between fat embolism and pyemic processes.

In 1864 Flournoy[8] met with the first case in which the condition was recognized as the immediate cause of death, and at the autopsy by Von Recklinghausen established fat embolism as a possible cause of death after fracture. Wagner[9] made a second study of the subject, and in 1865 published 48 cases in which he had found embolism of this character, in 15 of which death rapidly followed severe injury to the bones. In the following year Busch[10] collected 43 cases, and with a study of these presented a series of experiments in which cinnabar was injected into the marrow of the bone, and after fracture this substance was found in the peripheral capillaries.

These different and fundamental studies cleared up the subject considerably, but perhaps the most notable contributions were to follow. Czerny,[11] in 1875, reported a case that has become classic, and made a most extensive study of the subject.

The first report of a case in America was during the following year by Fitz[12] of Boston In 1877 Hahn[13] made extensive experiments on the lower animals and found that fat embolism existed in all cases in which the marrow of the bone had been interfered with. Reidel[14] presented an analysis of 12 cases met at autopsy, while Boettcher[15] reported an instance in which it followed gunshot of the knee, and Hamilton[16] one as a result of rupture of the liver. Bailey,[17] in America, observed a case following contusion with punctured wound of the leg.

In 1879 many important articles on the subject appeared. In France Dejerine[18] demonstrated the effect of pressure as a causative factor, by the introduction of a laminaria tent into the medulla of the long bones in dogs, and found that embolism occurred much more frequently when this was done. He also reports 12 cases that he noticed in his own practice. Duret[19] at about the same time reported a fatal case and called attention to the condition.

In Germany, Sinclair[20] collected 140 cases and gave a very comprehensive analysis of them. Flournoy[8] published his work on the subject. Jolly[21] described 3 cases in which fat embolism was found after simple rupture of the fat cells of the subcutaneous tissue.

Weiner,[22] from Cohnheim's laboratory, proved that the oil might be absorbed by the lymphatics of the connective tissues or even from the serous cavities. Scriba,[23] who, perhaps, has made the most thorough study of the subject, likewise published his work in this same year. After many experiments, and a review of 177 cases from the literature and records, his most striking conclusion is that death in these cases is not due to interference with the heart or lung, but to the presence of large numbers of emboli in the brain or spinal cord. In America, at the conclusion of that remarkably prolific year, the late Christian Fenger[24] reported a case that he diagnosed during life and which was corroborated at the autopsy, this being in all probability the third case reported in this country and the first to be recognized during the life of the patient.

In England, in 1880, F. A. Southam[25] was the first to report a case and to call attention to the subject. In the following year Mr. C. W. M. Moullin[26] made an extensive study of this condition from postmortem material. Saundby and Barling[27] also reviewed the literature, reported a case and found fat embolism in a large proportion of autopsies following traumatism, and Skirving[28] in 1882 reports three cases.

In 1884 Roswell Park[29] was the fourth American to call attention to the subject, and in a report of one case, and two other possible but unverified instances of this kind, he discusses the question *pro* and *con* and urges on the profession an appreciation of its importance.

Since the early 80's, while a large number of cases have been noted abroad, there has been but little practical advance made. The important work of Colley,[30] in 1893, followed by that of Eberth[31] and Payr,[32] in showing the relationship between orthopedic operations and fat embolism, is an exception, and a marked addition to our knowledge of the subject.

ANATOMY.

A brief review or consideration of the anatomic parts involved in fat embolism will be an aid toward a better understanding and a more comprehensive discussion of the subject.

At the site of the fracture there is a break in the continuity of the bone, with more or less comminution and injury to the adjoining soft parts. The bone, especially the compact tissue, is very profusely supplied with blood vessels. The veins are more numerous than the arteries, have thin walls and are often supported by a bony canal. These veins when divided have little tendency to close, and the bony surroundings protect them from lateral pressure.

The medullary canal is likewise very freely supplied by one or more nutrient arteries, each artery being frequently accompanied by two veins.

4. Mueller: Wurzburg Med. Zeit., 1860.
5. Zenker: Beit. z. Norm. and Path. Anat. d. Lunge, 1862.
6. Wagner: Arch. d. Heilkunde, vol. iii, No. 3, 1862.
7. Bergmann: Zur Lehre von der Fettembolie Dorpat, 1863.
8. Flournoy: Cont. a latude de lembolie graisseuse, Strasburgh, 1879.
9. Wagner: Arch. d. Heilkunde, vol. vi, p. 146.
10. Busch: Virchow's Archiv, 1866.
11. Czerny: Berl. klin. Woch., Nos. 44-45, 1875.
12. Fitz: Boston Med. and Surg. Jour., 1876, vol. xciv, p. 192.
13. Hahn: Wein. med. Woch., No. 37, 1877.
14. Reidel: Deut. Zeit. f. Chir., vol. viii, 1877.
15. Boettcher: Jour. Anat. and Phys., vol. xvi, Saundby and Barling.
16. Hamilton: Boston Med. Jour., Oct. 6, 1877.
17. Bailey: Trans. Med. Soc., New York, 1877, p. 293.
18. Dejerine: Progress Med., March 1, 1879.
19. Duret: Progress Med., March 8, 1879.
20. Sinclair: Corresp. Bl. f. Schweizerische Aerzte, No. 6, 1879.
21. Jolly: Jour. of Mental Science, 1881-82, vol. xxvii, translated by T. W. MacDowell.
22. Weiner: Archiv. f. Exp. Path., vol. xi.
23. Scriba: Deut. Zeit. f. Chir., 1879-80, vol. xii.
24. Fenger: Med. Rec., Jan. 3, 1880, p. 127.
25. Southam: Lancet, July 10, 1880.
26. Moullin: Lancet, 1881, vol. ii, p. 364.
27. Saundby and Barling: Jour. Anat and Phys., 1881-82, vol. xvi.
28. Skirving: Lancet, Oct. 7, 1882, p. 567.
29. Park: N. Y. Med. Jour., Aug. 16, 1884.
30. Colley: Deut. Zeit. f. Chir., 1893, vol. xxxvi, p. 323.
31. Eberth: Fortsch. der Med., 1898, vol. xvi, p. 251.
32. Payr: Zeit. f. Orth. Chir., 1899-90, vol. vii, p. 338.

The marrow is of different varieties, but usually, in the adult long bone, there is to be found the so-called yellow marrow, which is 96 per cent. fat, supported by connective tissue trabeculæ in which there is a large number of blood vessels. This fat exists in cells—that is, a mass of fat within a distinct cell membrane, and before the fat can enter the circulation this cell membrane must be broken and the liquid fat set free.

This rupture of the cell membrane is accomplished by the force of the traumatism. After fracture the broken ends or spiculæ of variable size may be forced into the marrow, so that at the same time that the vessels are torn the fat is liberated.

This fluid fat is taken up by the veins and carried to the right heart by the vena cava and thence to the lung by the pulmonary artery.

The entrance of the fat into the circulation must take place comparatively soon after the injury, for the openings in the vessels are soon plugged by thrombi which to a large extent prevent the further admission of fat.

Lateral or incomplete tears of the vessel walls will, of course, become occluded more slowly than will complete ruptures, and in a large number of fractures such a condition is frequently found. It has been claimed that the fat may enter the blood stream directly through the venous wall, but this point has not yet been perfectly worked out.

Another and uncommon route by which the fat may gain entrance to the circulation is by way of the lymphatics. That this substance might be taken up by injured lymphatic vessels has long been known, but it has been demonstrated that absorption may take place from the serous sacs or even from the connective tissue spaces.

The transit through the lymphatic glands is slow and is thought by some to exert an emulsifying action which makes the fat inert and unable to form an embolus. This has been contradicted by Weiner[22] in his very convincing experiments.

TRANSIT THROUGH THE LUNGS.

The foreign body, the fat, enters the lung with the blood from the right heart by means of the pulmonary artery and proceeds with the blood through the branches, which gradually decrease in size and multiply in number till the network of capillaries surrounding the air sacs is reached.

It has been claimed that the forceful impact of the globules of oil against the walls of the vessels, especially at the numerous divisions, results in a breaking up of the drop into many smaller ones which are able to pass through the finer ramifications of the pulmonary artery.

It is here, in the capillary network of the alveolar wall, that the progress of the embolus is first interfered with. Owing to the diminished caliber of the vessel, the fat meets with difficulty in effecting a passage, and as a result there is interference with the circulation of the blood in this particular region, hyperemia behind and anemia in front of the obstruction, with sometimes the formation of typical hemorrhagic infarcts, a condition of edema, and with it all an imperfect and unsatisfactory aeration of the blood.

The importance of this pulmonary obstruction has been variously estimated. Scriba[23] has shown that sufficient fat to seriously obstruct the circulation of the lung, experimentally, at least, is practically an impossible result of any accident that may give rise to fat embolism. He considers the cause of the disturbance in the lung to be due to interference with the respiratory centers of the central nervous system.

Practically always some part of this fat does pass through the capillaries of the lung, either at first without difficulty, or later, after the heart's action has been augmented and made itself felt. These droplets of oil easily gain entrance to the systemic circulation by way of the pulmonary vein, the left heart and the aorta.

FAT IN THE SYSTEMIC CIRCULATION.

The particles of fat pass along with the blood stream, giving rise to no symptoms till they once more meet with resistance to their farther passage in the capillaries. But even with such obstruction of the ordinary capillary there will be little disturbance or appreciable symptoms because of the profuse collateral circulation. It is only after the obliteration of the lumen, together with a shutting off of a terminal artery, that serious manifestations are noted. These arteries, called "terminal" by Cohnheim, do not have a collateral circulation, the branches of such an artery communicate only with the branches of a corresponding vein.

Typical arteries of this character are to be found in the kidney and the spleen; atypical ones—that is, arteries in which there is a very small collateral circulation—are found in the brain, spinal cord, lung, stomach and intestine.

When embolism, by fat or any other substance, of these arteries occurs there follows infarction and a disturbance of function of that part of the organ which is deprived of its circulation. The importance of this loss of function depends on the organ involved; for instance, all things being equal, a larger area of the lung or kidney could be interfered with than could the same area of the brain or medulla.

The lung, the brain and the kidney are most often found to be the seat of fat embolism. The frequency with which the brain is involved possibly may be explained by the close relationship to the heart or the more direct flow of the blood from the aorta into the carotids.

ETIOLOGY.

Fracture is not the only cause of fat embolism, although in practically all fractures there is fat embolism to a greater or less extent. In 43 cases collected by Busch,[10] 24 were due to fracture; in 140 reviewed by Sinclair,[20] 84 followed fracture; Scriba[23] found 177 cases, 93 of which occurred after fracture; of 12 cases reported by Moullin,[26] fracture was the cause in 7; in 10 cases of death following injury, examined by Saundby and Barling,[27] fat embolism was found 8 times, in each instance following severe injury to bone; and in 17 cases of fracture Carrara[33] found fat embolism in 76 per cent. The fracture may be either simple or compound; other conditions being equal, it is thought to occur more frequently after a simple than after a compound fracture because of a lack of drainage, and, therefore, an increase in the tension at the site of the injury.

With comminution, the symptoms of fat embolism occur more frequently than after those in which there is no comminution, because of the greater damage to the marrow of the bone and to the opening of additional vessels.

Rough handling of the fractured limb, as in transportation, because of the additional injury to the fat cells in the marrow, is prone to favor the occurrence of fat embolism.

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33. Carrara: Freidreich's Blatter, July, 1898.

Extension into a joint is also conducive to the occurrence of these symptoms, as the fat may be absorbed by the serous surfaces.

Fat embolism follows fracture of the extremities more often than of the bones of other parts of the body, but it may follow the fracture of any bone, as in the case cited by Moullin, in which the lung was found filled with fat in a case that died almost instantly after fracture of the cervical vertebra. The long bones are filled with yellow marrow which is almost entirely fat, while most of the other bones, such as the vertebra, sternum, ribs, etc., have comparatively little fat in the composition of their marrow. It has been found as a complication of fracture of the lower extremity more often than of like injury to the upper extremity, and more frequently after a break of the femur than of the bones of the leg.

It is a complication that occurs in the strong, robust, middle-aged patients, and in males more frequently than in females, for the very obvious reason that the former are more exposed to severe physical injury. In the weak, emaciated or exhausted it is less likely to occur, as the fat in the marrow of such individuals is not excessive.

Minich[34] has pointed out that the fat in the marrow of children is very small in amount, and that fat embolism is rarely seen in children A similar condition and a similar immunity, though not quite so certain, is found in the aged.

Ribbert,[35] in a recent communication, claims and experimentally proves that this phenomena is caused by any jar or severe concussion of the skeleton, and that fractures or the forcible reduction of an ankylosis in respect to fat embolism is merely an indication that the bones of the body have received a severe jar.

Hahn,[13] very early in the history of the subject, made experiments in which he caused fat embolism by fractures of varying extent and severity, but after the simple removal of a V-shaped piece of the shaft of the femur, without opening into the fat-containing medullary canal, he was unable to detect any evidence of fat embolism.

OTHER CONDITIONS CAUSING FAT EMBOLISM.

Among the conditions other than fracture that may be followed by symptoms of fat embolism are the following: 1, Orthopedic operations; 2, open operations on bones or joints; 3, surgical operations on structures other than bone; 4, inflammation of bone or periosteum; 5, laceration, bruising or suppuration of the fat-containing soft parts, extensive burns or scaldings; 6, rupture of fatty liver; 7, causes arising within the circulation, as: (*a*) Atheromatous changes of the vascular wall; (*b*) fatty changes of thrombi, of various origin and location; (*c*) diabetes, icterus.

Orthopedic Operations. Cases in Which the Bone is Not Fractured.—Colley,[30] in 1893, was one of the first to attract attention to this phase of the subject. In 1900 Payr[32] was able to collect 9 fatal cases, and since that time additional instances have been reported.

Open Operations on Bones or Joints.—Paul Vogt[36] was, perhaps, the first to report the occurrence of fat embolism after resection of the knee joint; since then, however, it has been noted by many as a sequel to resections and operations on bone.

Surgical Operations on Structures Other Than Bone.—Roswell Park.[29] in 1884, mentioned a case of sudden inexplicable death, after amputation of the breast in a very fleshy woman, and believes that this death was due to fat embolism. It has also been suggested that some of the so-called postoperative pneumonias may be explained by the supposition that the disturbance in the lung was caused by fatty emboli.

Inflammation of Bone or Periosteum.—In the early investigations, such as those of Wagner,[6] Busch[10] and Flournoy,[8] fat embolism was found in varying proportions in connection with diseases of the bone and periosteum. Niederstadt,[37] in 1869, was the first to consider this relationship in length.

Laceration, Bruising or Suppuration.—Bailey,[17] in 1877, and Fitz,[38] in 1878, called attention to the possibility of fat embolism occurring without injury to the bone. Flournoy,[8] in the following year, mentioned an obscure case of this character, and in 1879, Jolly[21] considers the question at length, and especially in relation to the acutely insane. It may be mentioned, in this connection, that Hahn,[13] in his experiments, could not produce fat embolism by breaking up the subcutaneous fat, or that of the mesentery. In 13 cases of death due to burns and scalds, Carrara[33] found fat embolism in 44 per cent.

Rupture of Fatty Liver.—This as a cause of fatty embolism was noted by Hamilton[16] in 1877; a somewhat similar case was reported by Engel[39] in 1901.

Causes Arising Within the Circulation.—Another class of conditions may give rise to fat embolism, but they differ from those above, in that their origin is within the lumen of the blood vessels.

Atheromatous Changes of the Vascular Wall.—This condition was the cause given to explain the presence of fat in the capillaries in perhaps the first clinical observation of this condition, Müller,[4] 1860.

Fatty changes of thrombi: The fatty degeneration of thrombi is apparently a condition that does not often give rise to serious symptoms of fat embolism.

The thrombi may lie in various situations, and may be due to various causes, such as thrombosis at the site of fracture or other injury after operation or pathologic changes or in the uterus after delivery.

Virchow[40] has called attention to the relationship between fat embolism and puerperal eclampsia. All of these may undergo fatty change and give rise to the presence of fat in the blood, but it is usually in such small quantity that it rarely gives rise to noticeable symptoms.

Diabetes, grave icterus and other conditions: These sometimes are accompanied by lipemia, but the occurrence of embolism is comparatively rare.

It has been suggested that the terminal coma of diabetes is due to fat embolism of the brain. The first case of this character was reported by Saunders and Hamilton[41] in 1879, and in 1881 Saundby and Barling[27] consider the subject, and conclude that the finding of fat embolism of the brain in these cases is not constant, and that the question is still an unsettled one.

E. Payr[42] has called especial attention to the presence of the status lymphaticus in his fatal cases following orthopedic manipulations. He points out that with such a condition there is greater danger of the occurrence of embolism, and when once instituted the prognosis is much more grave. The same is undoubt-

34. Minich: La Sperimentale, March and April, 1882, vol. xlix, pp. 253, 270, 337, 359.
35. Ribbert: Deut. med. Woch., June 28, 1900.
36. Vogt: Cent. f. Chir., 1883, No. 10, p. 67.
37. Neiderstadt: Dissert. Gottingen, 1869.
38. Fitz: Boston Med. and Surg. Jour., 1878.
39. Engel: Muen. med. Woch., 1901, No. 26.
40. Virchow: Deut. med. Woch., July 15, 1886, p. 448.
41. Saunders and Hamilton: Edin. Med \Jour., 1879, p. 47.
42. Payr: Muen. med. Woch., July 12, 1898.

edly true in any weakening condition of the individual. The increased danger of anesthetics in these cases of status lymphaticus has been recognized for a long time, and the subject is still rather obscure, as can be seen from the recent contribution to the subject by Gwyer.[43]

SYMPTOMATOLOGY.

The symptoms of fat embolism vary greatly, as will be readily understood when it is remembered that embolism of this character, to a greater or less degree, follows practically all fractures of the long bone. In the vast majority of such instances no symptoms, worthy of the name, are noticeable. Fat embolism may also cause death practically instantaneously in a manner closely simulating that caused by the introduction of air into the circulation. There may be present many modifying circumstances or complicating conditions which make the symptomatology rather vague and indefinite.

The milder form is rarely diagnosed, and is of little importance. The moderate degree of restlessness, anxiety and slight dyspnea which frequently follows fractures, has been explained as being due to small pulmonary or cerebral fat emboli. When fat in the urine is found with these symptoms, such an explanation is well substantiated and the diagnosis is more certain. Occasionally these are followed by more serious symptoms, but usually in a few hours they pass away and are forgotten. The other extreme is the acute and rapidly fatal form which is rarely differentiated from shock or collapse, is frequently unsuspected, and even if suspected, can rarely be diagnosed without an autopsy.

Between these two extremes there may be encountered the ordinary form of fat embolism. As an example of the symptoms to be met in a case of this kind, the history of Case 1 will be of interest, as it is, in most respects, typical.

The following symptoms and signs may be met with in the ordinary course of fat embolism:

An interval of euphoria; fat in the urine or sputum; extreme debility, anxiety, malaise, somnolence, pallor, cyanosis, cold extremities; respiration, rapid and irregular; dyspnea, cough, pain in side, hemoptysis, râles, edema or consolidation; pulse feeble, irregular and rapid; temperature, unreliable; loss or diminution of sensibility of the skin and reflexes, pupils contracted, Cheyne-Stokes respiration, spasm, convulsions, collapse, paralysis, coma.

These symptoms have been divided into cerebral and respiratory, but the division is not satisfactory, as the symptoms overlap so often that it is with the greatest difficulty that a given case may be confined to one of these groups. Such a differentiation may at times, at the onset, be satisfactorily established, but in the great majority of cases in a very short time both cerebral and pulmonary symptoms are present.

INTERVAL OF EUPHORIA.

Perhaps the most striking feature of fat embolism is the period of comparative well-being, in which there are no symptoms nor anything that might be construed as a warning. This interval, between the accident and the onset of the symptoms, is as characteristic as it is in the case of extradural hemorrhage, but not so easily accounted for. At first thought one would expect fat to act as does air when introduced into the circulation; that is, at once if it is to have any noticeable effect. But not so, the symptoms develop after a longer or shorter interval, and the interference with the blood stream is not at the center, the heart, but at the periphery of the circulation, the capillaries. There are various more or less plausible reasons to account for this delay in action, and, as is usual with numerous theories, none are entirely satisfactory.

One of the most commonly accepted is that a certain amount of pressure is necessary at the site of the trauma, before the liquid fat will or can enter the veins. This may be produced by the reparative action at the wound, by a continual bleeding from an artery, by a spasm of the muscles, a displacement of the fragments or various other causes.

Dejerine,[18] to show the influence of pressure *vis-a-tergo,* made experiments in which he introduced a laminaria tent into the marrow of the bone, and in such cases he found that the fat embolism was much greater than in those animals in which no tent was inserted.

Southam,[25] in this connection, says: "The taking up of the fat by the blood vessels from the medulla of the bone begins immediately after the receipt of the injury; and when an interval of time elapses before the symptoms of pulmonary embolism suddenly appear, may it not be explained on the supposition that the fatty matter, temporarily arrested or stranded in the vessels in the neighborhood of the wound, is after a time, when the patient has recovered from the shock of the injury and when reaction has set in, suddenly carried on with the blood stream under the influence of the renewed circulation until it is arrested in the vessels of the lung."

The fact that the fatty matter, when experimentally injected directly into the blood stream is rapidly carried to the remotest part of the body, is shown by Scriba,[23] when he found fat in the capillaries of the lung and in the tongue forty-two seconds after the injection. Flournoy[8] found fat in the capillaries in from one to two minutes after. And as showing this rapid absorption when not injected directly into the vessels, Hahn[13] reports an instance in which the animal was killed by chloroform asphyxia immediately after fracture, and he found numerous fat emboli in the lung, heart, liver and kidney. The entrance of the fat into the circulation must occur comparatively soon after the injury, because in the ordinary case the openings of the vessels would soon be closed by coagulation. The direct passage of the fat through the intact venous wall has been suggested.

Tillmann[44] says that, as a rule, death occurs in about three or four days after fracture, and in such cases there is a continual accumulation of the fat during the several days in the capillaries of the lung and brain which finally causes a more or less sudden functional incapacity of these organs. This explanation seems to be strengthened by the fatal case of Fibiger,[45] in which death occurred quite suddenly after the twentieth injection of olive oil (Leube's method).

Scriba[23] believes that at the end of seven or eight days the emboli in the different organs are set free and re-enter the circulation to form secondary emboli.

He also found by experimentation that the symptoms depended not only on the amount of fat injected, but also on the force and the relation (the nearness or remoteness) of the heart to the site of the injection.

43. Gwyer: Annals of Surgery, May, 1904.

44. Tillmann: Principles of Surgery and Surgical Pathology, 1894, p. 590.

45. Fibiger: Nord. Med. Archiv, March 10, 1900; editorial THE JOURNAL A. M. A., Aug. 11, 1900.

Another possible explanation for the delay in the appearance of the symptoms is that the fat is absorbed and brought into the blood stream by means of the lymphatics, instead of by the veins.

Busch[10] has shown that the fat might enter the circulation by the indirect route of the lymphatics. Weiner,[22] in 1879, was the first to demonstrate that fat might be absorbed from the serous sacs and by the lymphatics of the connective tissue spaces, even though these were unaltered.

The passage through the lymphatic glands, by this route, is time consuming, and accounts for the delay in the appearance of the symptoms. The effect on the fat by this transit through the lymphatic gland is somewhat of a question. Many authorities, notably Reidel[14] and Flournoy,[8] believe that the fat is emulsified and so rendered harmless by the lymphatic gland. But Weiner[22] has shown that the fat globules, after passing through the gland may unite and form drops capable of doing harm by obstructing the capillaries.

Clinically, the symptoms have appeared anywhere from six hours to the fifteenth day after injury.

FAT IN THE URINE AND SPUTUM.

A most important clinical sign of fat embolism is the presence of fat in the urine. It may appear in one or two forms: In one, the more grave, the fat or oil globule may be seen with the naked eye floating on the surface of the urine, a short time after it has been voided. In the other, the milder type, the fat can not be detected with the naked eye except as a cloudy layer on the surface after the urine has been allowed to stand for some time. This cloudy layer, when examined with the microscope, will be found to be composed of small globules of oil. They are often smaller than the red corpuscles, and seem to have no tendency to unite. If there is any doubt as to the identity of these round, highly refractive bodies, the addition of osmic acid causes a typical dark coloration.

As some fat gains admittance to the blood stream in practically all fractures, and as the bulk of this foreign material is eliminated by the kidney (some undoubtedly passes into the perivascular tissue and is oxidized, and some is taken care of by the leucocytes), therefore some degree of lipuria is to be found after all fractures.

Scriba[23] found fat in the urine of nearly all the fracture cases examined, Reidel[14] in 48 per cent., and Hahn[13] in 28 per cent.; the last two did not look for the fat in emulsion.

Fat is rarely found in the urine before the second or third day, and after that will be found at varying intervals of from two to ten days. It is only when the fat in the urine occurs with other symptoms of fat embolism that it should give rise to alarm. When found with other signs it will clear up the question of diagnosis, though, to be sure, other complicating conditions may be present also.

When in large amounts it has been considered as dangerous, even without other symptoms, and, on the other hand, it has been said that so long as there was a large amount of fat in the urine, the patient was in no danger from this source, as "the more fat in the urine the less in the circulation." It would seem that the accuracy of the last statement might reasonably be questioned.

In the absence of pulmonary or cerebral symptoms, the presence of lipuria may be looked on as a sign that the foreign substance is being eliminated satisfactorily.

Fat in the sputum may be recognized with the naked eye, or more frequently with the microscope. It will, generally, be mixed with blood, and is of great diagnostic import, as showing that the trouble in the lung has been caused by fat from one source or another.

DEBILITY, MALAISE AND ANXIETY.

The anxiety, pallor, cyanosis, followed by debility, malaise and somnolence, occurring among the first symptoms are rather difficult to explain unless it be on the supposition that they are due to embolic interference with the circulation of the cerebrum or medulla. Scriba,[23] after painstaking experiments, concludes that fatal fat embolism is due to multiple emboli, causing interference with the blood supply of the important centers of the brain or medulla.

RESPIRATION.

As regards the action of the lung, Scriba[23] has shown that all the fat in the marrow of a femur, when injected into the circulation was not sufficient to block enough of the capillaries of the lung to cause death.

Five-sixths of the arteries of the lung must be ligated before an animal will die, and at least three-fourths of the entire pulmonary circulation must be shut out before the least effect is noticed.

He concludes, therefore, that it is the fat that passes through the lung and lodges in the brain or spinal cord, which is the cause of the respiratory difficulty.

It is undoubtedly true that practically all of the signs and symptoms of the respiratory form may be caused by direct interference with the respiratory centers of the central nervous system. On the other hand, however, there is no question but that cases do occur in which the symptoms are practically entirely pulmonary.

The dyspnea is due to the deficient oxidation of the blood, be it due to either central or pulmonary changes; the hemoptysis is caused by infarction of the lung. The râles, the consolidation or the edema have been usually absent in experiments, but in the majority of clinical cases these changes in the lung have been marked.

Meeh[46] believes that the amount of embolism in the lungs may be sufficient cause for death in many instances, but that death may be due to embolism of different organs, and the brain is frequently involved.

HEART.

The heart's action becomes irregular, rapid and weak. The cause of this is more or less of a question. Bergmann,[7] Panum[47] and others considered the symptoms and death to be due to paralysis of the heart; and Rasmann found a decrease of arterial pressure, slowing of the pulse, and even arrest of the heart in diastole, to follow the injection of oil. Scriba,[23] by means of elaborate experiments, has shown that the presence of fat in the blood stream has no important effect on the heart's action, and that the only effect of this addition to the circulation was to give the heart more fluid to force onward.

Foxt,[48] in 1900, in his experiments showed that interference with the heart's action and even death might be caused by embolism of the coronary arteries. If

46. Meeh: Schmidt's Jahrbucher der Gesammten Med., 1892, vol. ccxxxiii xxxiv, p. 174.
47. Panum: Virchow's Archiv, 1862.
48. Foxt: THE JOURNAL A. M. A., March 2, 1901, p. 607.

the large trunks were obliterated, death might ensue very rapidly, and if the smaller branches, it might be delayed for an indefinite time. The interference with the normal heart action in fat embolism is evidently due to capillary embolism, be it coronary or pulmonary, or occurring in the capillaries of the brain or cord.

TEMPERATURE.

The temperature is, perhaps, the most perplexing and unsettled symptom of fat embolism. It is notoriously erratic and unreliable, and opinion is divided as to whether it is more often increased or decreased.

In most of the animal experiments with fat embolism, such as those of Czerny,[11] Hahn,[13] Scriba[23] and others, the temperature has been depressed.

Clinically, the temperature frequently has been found to be elevated in cases of this character. It is true there are often complications present which in measure might account for the hyperpyrexia. Wagner,[9] Busch,[10] Bergmann,[7] Stricker, Albert and Bilroth and many others believe that fat embolism is always accompanied by an elevation of the temperature.

Schwick, C. O. Webbe and Scriba,[23] on the other hand, emphasized a lowering of the temperature as a symptom of fat embolism, and Senn says:[49] "A high temperature always excludes fat embolism as the sole or principal source of danger and should always remind the surgeon of the necessity for searching for other complications that are responsible for the febrile disturbance." The increase of temperature in such cases is explained as being due to other causes, such as sepsis or ferment intoxication.

Roswell Park,[29] on the other hand, says, and is, perhaps, the more nearly accurate: "The temperature range is by no means constant; usually it is at first below the normal, and may in some cases remain so; in other cases it fluctuates from hour to hour, and may vary from the normal, by wide limits, either above or below. In other words, its range is atypical." Welch[50] likewise asserts that the temperature may either fall or rise.

Those who claim that the temperature is always normal or subnormal in cases of simple fat embolism do not present conclusive reasons why this should be the case.

It has been suggested that, possibly, this lowering of the temperature might be due to the deficient oxidation of the blood following the blocking of numerous capillaries of the lung. The intravenous injection of inert sterile foreign matter, such as flour, charcoal and other substances, has been found to be followed by an increase of temperature.

Schultze,[51] in 1897, reports a not uncommon case in which the subcutaneous injection of mercury was followed by a great dyspnea, with high fever but no pulmonary dullness. The attack was soon over and there were no bad results. Dimisch[52] found about 30 per cent. of subcutaneous fractures were accompanied by fever. It has been said that the only way to explain the occurrence of a temperature after the injection of foreign aseptic material is that this foreign matter destroys the corpuscles of the blood with a consequent liberation of fibrin ferment, which is capable of causing a rise in the temperature.

The early work of Magendie[1] and others on the viscosity of the blood has shown that after shaking a mixture of freshly drawn blood and oil there resulted a breaking up of the red cells. Other experimenters have failed to note any marked change in the composition or the character of the blood after the addition of oil to the circulation in the body, this discrepancy being explained on the supposition that the agitation, and not the addition of the oil, was the cause of the alteration in the red cells. If the injection of sterile substances other than oil is followed by a temperature it would seem reasonable that the injection of oil might act in the same manner.

The frequent association of fat embolism and sepsis is readily admitted, as is also the difficulty at times in satisfactorily separating the two conditions. In many cases of fat embolism with elevated temperature sepsis may be practically excluded, and it is difficult to understand the cause of the temperature if it is not due to the emboli.

Scriba[23] considers a rise of temperature in these cases to be due to sepsis, and even looks on the condition of fat embolism as advantageous in preventing or retarding the entrance of this sepsis into the general circulation, by obstructing the capillaries. Again, the subnormal temperature in simple fat embolism may be due to an interference with the centers of the nervous system which regulate the production and dissipation of the body heat. This seems to be the most rational explanation, but if such were the real conditions it would seem that occasionally, at least, the interference with the blood supply of these centers by embolism might cause an increase instead of a lowering of the temperature.

Hamig[53] in all of his five cases found a rise of temperature similar to that which occurs in aseptic fever, and in explanation gives as a cause some alteration of the heat centers.

As showing that clinically, in fat embolism, the temperature may be elevated, we find that authors report as follows:

Egli Sinclair[20] stated in the symptoms, "the temperature is high." Smirnoff[54] likewise considers high fever to be a symptom. Skirving[28] found a temperature of from 100 to 104. and after death, 105. Czerny,[11] 103.4; Fenger,[24] 101.3; Southam,[25] 101.2, 103, 105; Southam,[55] 100.4, 100, 98.6; Lowe,[56] 101.8; Bard,[57] 102; Zwick,[58] 99.5; Svetchnikoff,[59] temperature rose; Bonine and Belknap,[60] 103; Flournoy,[8] 104, 102.9, 102; Minich,[31] 104, 99.6, 98.6; Whitney,[61] 99, 101.5, 100, 101,98; Preidelsberger,[62] 101; De Groube,[63] temperature dropped just before death; Colley,[30] 101.3, 106; Colley, 100.5, 102.5, 104; Hamig,[53] 99, 101, 103.5, 104.5; 101.8, 104, after death 109; 101.8, 105, 106; 101.6, 104, 104; 102, 104.5, after death 106; Pomatti, 99.6, 103.6, 105.8; Demisch,[52] 104.3; Ribbert,[37] 98.6, 100, 100; 98.2, 102.3, 103.8, 103.2; 86, 103.4, 103.6, 103.8; Bailey,[17] 104, 103; Bergmann,[64] 103.

In these 29 cases fat embolism occurred 18 times after simple fracture, 6 times after compound, and once after a fracture the variety of which was not mentioned. It occurred after orthopedic manipulations three times and once after a punctured wound of the soft parts of the leg.

49. Senn: Principles of Surgery, 1890; Practical Surgery, 1901, p. 347.
50. Welch: Allbutt System of Medicine, 1899, vol. vii, p. 228.
51. Schultze: Cent. f. Chir., Aug. 21, 1897.
52. Dimisch: Cent. f. Chir., 1886, p. 182.
53. Hamig: Cent. f. Chir., No. 35, 1900.
54. Smirnoff: Chirurgia, July, 1903.
55. Southam: Lancet, May 3, 1902.
56. Lowe: Jour. Anat. and Phys., vol. xvi, Saundby and Barling.
57. Bard: Trans. Med. Soc. of California, 1894, p. 128.
58. Zwick: Deut. med. Woch., No. 32, Aug. 8, 1883, p. 469.
59. Svetchnikoff: Mediziniskiva Prob., June, October, 1899.
60. Bonine and Belknap: The Phys. and Surgeon, February, 1886.
61. Whitney: Boston Med. and Surg. Jour., 1892, No. 7, p. 159.
62. Preidelsberger: Zeit. f. Heilkunde, vol. xxiv, 1903, No. 3.
63. De Groube: Revue de Chir., 1895, vol. xv, p. 577.
64. Bergmann: Berl. klin. Woch., Aug. 18, 1873.

While searching for these cases of fat embolism in which there was a temperature, there was noted reports of eight cases in which the temperature was normal or subnormal.

With my two cases, the temperature was, therefore, noted in 39 cases, and of these 31 were accompanied by a rise of temperature and 8 by a normal or subnormal temperature.

LOSS OR DIMINUTION OF SENSIBILITY OF THE SKIN AND REFLEXES.

The symptoms to be classed under this division are unquestionably to be explained as being due to interference with the central nervous system. They are in a great majority of fatal cases the terminal symptoms.

DIFFERENTIAL DIAGNOSIS.

In 1864 Flournoy[8] was the first to recognize this condition as a cause of death. Lucke was the first to make a diagnosis during life in a case of fracture of the leg in which there occurred acute interference with the respiration. Bergmann[64] made a diagnosis of this condition during the life of the patient in the same year, 1873.

In America, the first diagnosis was made by the late Christian Fenger[24] in 1879. Since then it has been recognized with increasing frequency, but is evidently still frequently overlooked or mistaken for some other condition. Among the conditions more likely to be confused with fat embolism may be mentioned: Shock, septicemia, pulmonary embolism and less commonly the effects of anesthetics, congestion of the lung or kidneys, cerebral hemorrhages, concussion of the brain, or atheroma of the coronary arteries.

The symptoms of shock will have practically disappeared by the time that those of fat embolism are beginning to make themselves manifest. In the rapidly fatal cases of shock after fractures it has been suggested that fat embolism in some cases may be an important element.

Septicemia is usually a later development than is fat embolism, but we have seen that a low temperature is neither a constant nor an established symptom of fat embolism. An irregular and at times a marked elevation of the temperature is to be noted.

The occurrence of shock, to which is added fat embolism, and on which is engrafted a sepsis, is not uncommon after a severe traumatism, and when it does exist it is a formidable combination to recognize and separate.

In this connection the case of Southam,[55] in 1880, is of interest. On the second day after compound fractures of both legs, followed by double amputation, the patient developed typical symptoms of fat embolism and the temperature went up to 105 F. Discoloration of the stumps, with a characteristic odor, showed that putrefactive changes had taken place. Microscopic examination of the lung showed fat embolism. In his mind the diagnosis lay between fat embolism of the lung and the acute form of septicemia, the "collapse with cyanosis" of Bilroth.

Embolism due to the dislodgement of a portion of a venous thrombus may resemble fat embolism very closely, but its onset is usually very sudden; on about the third week after the accident the symptoms are almost entirely pulmonary and cardiac, and the course is usually rapidly fatal. The time of these complications of fractures has been well emphasized by Dennis[65] in the following manner: Shock, 3 hours; fat embolism, 3 days; pulmonary embolism, 3 weeks.

In cases where an anesthetic has been administered the irritation of the lung and kidney may cause symptoms resembling those of fat embolism; also congestion of these organs from causes other than anesthetic or fat embolism sometimes may give rise to confusion, as may likewise the affections of the brain and heart mentioned above; usually, however, the symptom complex and a careful physical examination will clear up the cause of the condition.

Welch[50] considers the detection of fat emboli in the pulmonary vessels to be of medicolegal value in determining whether injuries have been inflicted before or after death.

PROGNOSIS.

The prognosis of fat embolism is most uncertain; perhaps the chief factor in this uncertainty is that its frequency is unknown. Baum, in 366 cases of fracture, found death due to fat embolism in 7 instances. Lucke,[64] in 232 fractures, found only one death due to this cause. Mumford, in 300 cases of compound fracture at the Massachusetts General Hospital, found three deaths due to fat embolism.

It undoubtedly occurs in a mild form, and, therefore, is not recognized, after a large proportion of fractures. The reason why this fat does not cause serious embolism of the lung in many cases is explained by Moullin[26] in the following manner: The globule of oil in the blood stream, by the force of the heart's action and impact against the vascular wall, especially at the dichotomous division, is broken up into very small droplets that are able to go through the pulmonary capillaries without causing obstruction.

The presence of the oil in the circulation has no deleterious effect on the constituents of the blood; its sole action is a mechanical one, in obstructing some of the finer capillaries of the periphery, and is finally removed from the circulation by the leucocytes, by phagocytosis, by passing into the perivascular structures and there being oxidized, or by the manner in which the largest part is eliminated, by the kidney.

Lipuria has been found to be an almost constant accompaniment of fractures, and operations on bones, but only rarely does it give rise to serious symptoms.

Fat embolism also escapes detection when it occurs in a severe type and is confused with shock, collapse, the effects of anesthetics or sepsis.

Flournoy[8] and von Recklinghausen searched for evidence of fat embolism in 250 consecutive autopsies, and found it more or less diffuse in 10 per cent. Carrara[33] examined 102 bodies and found fat embolism in 28. C. W. M. Moullin[26] found fatty emboli in 12 out of 14 consecutive postmortems, in which, with one possible exception, there was no suspicion of its existence during life. Saundby and Barling[27] examined 8 cases in which death followed injury to the bone, and found fat embolism in all.

The mortality rate is very indefinite, and, it might be said, unknown. Meeh,[46] in 1891, was able to collect 111 cases in which the death was attributed to fat embolism, and after an analysis of these cases he could only find 13 that, in his opinion, were not fatal because of some other complication. Flournoy[8] was able to collect 140 cases of fat embolism, 13 per cent. of which died because of this condition. In 300 cases of compound fracture at the Massachusetts General Hospital, from 1887 to 1895, Mumford found a mortality of 30, 10 per cent.

65. Dennis: Surgery.

Of these 30, 3 (10 per cent.) died because of fat embolism. Scriba[23] found, experimentally, that the result depended on the amount of fat, the force and rapidity with which it was introduced, and the proximity to the heart to the site of the injection.

TREATMENT.

The treatment of fat embolism is most unsatisfactory; in fact, it may be said that there is no treatment.

Prophylactic treatment should be instituted immediately after the injury has been received and will consist of careful handling of the limb, so as to do as little additional injury to the fat cells as possible. All of this is demanded by Nature because of the pain that results when these precautions are not carried out. But when the patient is unconscious, and no pain is felt, the same care should be exercised in moving or manipulating the limb. The proper approximation of the fragments and their immobility are, perhaps, the only effort that can be made to prevent the occurrence of fat embolism.

Many theories have been advanced as to the proper line of treatment, but, unfortunately, none are of great practical value. If a closed wound, drainage should be established, in the hope of relieving the tension, and so preventing the further absorption of the fat. The proximal ligation of the veins, and even phlebotomy, have been recommended, with about the same object in view.

Attempts have been made to emulsify the fat in the blood by the injection of a weak solution of sodium bicarbonate. Normal salt solution has been injected with the object of diluting the blood, and ether has been injected for the purpose of absorbing the fat. Oxygen is most certainly indicated for the carbonic acid poisoning. As the chief part of the fat is eliminated by the kidney, attention should be given to these organs. But perhaps the all-important element of the treatment is to watch the heart's action and keep it going by stimulants as long as possible. If the force of the heart can overcome the fatty capillary obstruction, then the outcome is much more favorable. First the fat must be forced through the pulmonary capillaries and then through the capillaries of the systemic circulation.

Therefore, it would seem that judicious heart stimulation is about the only treatment available for this condition at this time, as it is of numerous other conditions.

CASE 1.—Compound comminuted fracture of left tibia and fibula. No medical attention for nine hours after accident; rough transportation. On the fifth day respiratory symptoms appeared, the temperature was high; on the sixth day sudden and marked fall of temperature and the onset of cerebral symptoms. Fat found in sputum and urine. Symptoms persisted for about five days, and then gradually disappeared; ultimate recovery.

Patient.—Mr. I. W., 33 years; Scandinavian, lumber man. Family, personal and previous histories negative.

Present History.—While engaged in moving timber at about 8 o'clock on the morning of Dec. 15, 1902, he slipped and a heavy log rolled over his left leg. He was thrown into the snow, and was unconscious for about an hour; he then regained consciousness and called for help, but it was not until five hours after the accident that he was found. In the meantime he had suffered extremely from the cold and believed that his foot was frozen. As there was no means of transportation other than horseback, his leg was crudely bound up with some sticks, and he got into the saddle, and, with a companion on each side, rode for two miles to the nearest railroad station. After a ride of 50 miles on the train he arrived at St. Vincent's Hospital at 5 o'clock in the afternoon, having received no medical attention of any description since his injury.

Examination.—Examination revealed a muscular, well-developed man, somewhat pale, but cool and collected. The clothing of the damaged limb, which had not been disturbed, was saturated with blood, the foot was strongly inverted, and there was a false point of motion and crepitus, with pain. After the removal of the clothing, the tibia was found to be broken at about the junction of the middle with the lower third, and the fibula about three inches higher. The skin covering the crest of the tibia at the site of the fracture was torn in a direction transverse to the long axis of the limb. About two inches of the upper fragment of the tibia protruded from this wound and rested on the skin of its lower lip.

Treatment.—After an ineffectual attempt to reduce this protruding end of the tibia, the inferior margin of the wound was incised parallel to the long axis, and the bone replaced. On digital examination there was found considerable clotted blood, and a large piece of the crest of the tibia. These were removed, the fragment of the tibia was entirely denuded of periosteum; it was two inches long, an inch wide and a quarter of an inch in thicknesss. A blunt forceps was now introduced through the soft parts and made to present on the posterior surface of the leg, and by means of a button-hole the forceps were passed through and tubular drainage effected. The wound was thoroughly irrigated and cleansed, the ends of the bones placed in apposition, an ample wet dressing applied and the leg put in lateral splints.

All of this was done without any anesthetic, either local or general.

Subsequent History.—On admission to the hospital the temperature was 99. The second day, in the evening, there was a slight rise of temperature to 100.2. On the third day there was no marked change in his condition, except that the temperature reached 102.6 and the pulse had slightly increased. On the fourth day the temperature became alarming, 103.4, but the pulse did not go above 118 and was full and strong. The dressings were changed and the wound examined, but no accumulation of pus could be found, nor was there any evidence of infection; the drainage tube was open. After the renewal of the dressings and free evacuation of the bowels the temperature dropped 2 degrees. Previously his nights had been fairly comfortable and he had been able to sleep as well as could be expected, but in the night between the fourth and fifth day he was unable to sleep, was very restless and seemed short of breath. During the fifth day he manifested signs of interference with respiration, complained of slight pain on both sides of the chest, dyspnea, slight cough with scanty blood-stained sputum; his face became cyanotic and the expression worried. He did not complain of pain in his leg. The temperature was again high. The dressings were removed and the wound once more inspected, but no evidence of any retention of pus or wound secretion. Physical examination of the heart and lungs was negative. He passed a very restless night. Early in the sixth day the pulse and temperature dropped, the temperature descending from 103.6 to 99.4 between 2 a. m. and 1 p. m. The dyspnea increased, and in the afternoon he sank into a sleep and could only with difficulty be aroused sufficiently to take nourishment or medicine. A very profuse bloody froth accumulated in his mouth, the breathing was irregular, there was marked pulsation of the jugulars, the pupils were contracted but responded to light, the reflexes were apparently [illegible], large moist râles, were heard over both lungs, but there was no dullness. For the first time fat was noticed in the frothy sputum, and an examination of the urine revealed the presence of fat in large globules.

The seventh day was quite similar, there being little if any change in the condition of the patient. He slept all of the time, but could be roused, and at times seemed quite rational; in answer to questions, he was always feeling "pretty good," and had no pain.

The eighth day was about the same as the two preceding days. Fat was no longer to be found in the sputum, which also seemed to be diminished, and the dyspnea seemed not so marked. The temperature was irregular.

During the ninth day all of the symptoms improved; he became wakeful and more rational, but had no recollection of the

time since he had been hurt. From then on he gradually improved, and by the twelfth day he was about as well as could be expected.

The leg finally united after about eight months, during which time various procedures not germane to this subject were gone through with.

The ultimate result was a good union, with about an inch of shortening.

The appended chart of the time that the symptoms of fat embolism were prominent, may be of interest. (Chart 1.)

CASE 2.—Compound fracture of left femur; did well for 15 days, then for one week had pulmonary symptoms of fat embolism, with lipuria and fat in the sputum and an inguinal phlebitis. Recovery. On the forty-third day after the receipt of his injury, after sitting up for the third time, he had a return of all the embolic symptoms, which persisted for about a week, terminating in recovery.

Patient.—Mr. E. J., 35 years, Scandinavian, miner. Family, personal and previous histories negative.

Present History.—While at work, slipped and fell, his left thigh being caught between a platform and a heavily loaded descending "cage." He was held, pinned in this manner, for some few minutes, before the cage was lifted and he could be taken out. He experienced great pain and was unable to stand or walk. He was removed as soon as possible to St. Vincent's Hospital, a distance of about four miles, over rough mountain roads.

Examination.—On admission, about two hours after the accident, pulse was good, the patient seemed in good general condition, and there was present no evidence of shock. Examination revealed crepitus and a false point of motion in the thigh at about the junction of the lower with the middle third. There was a marked deformity; the upper fragment was displaced forward and outward, causing shortening and eversion of the foot. There was a bruise of the soft parts on the internal aspect of the thigh; on the outer side of the thigh, and higher, there was a similar bruise, with a punctured wound about one-half inch in diameter. From this wound the blood was flowing, but in a moderate amount.

Treatment.—The limb was cleansed, shaved and the wound swabbed out with carbolic acid, followed by alcohol. A wet dressing was applied, the limb put in splints, and the next day a Buck's extension applied.

Subsequent History.—The wound of the soft parts healed by first intention, and the bony union seemed to be progressing favorably. During the afternoon of the fifteenth day, the intervening days being practically normal, he complained of not feeling well, was short of breath, restless and uneasy. His temperature in the morning was normal and in the afternoon 99.6. At about midnight he began to cough and have a sharp pain on the left side under the shoulder blade. The next morning his temperature was normal, but it gradually crept up till on the eighteenth day it reached 102.6, after which it gradually declined. The cough and expectoration, containing blood and fat, with dyspnea, rapid and irregular action of the lungs and heart, with restlessness, anxiety and sleeplessness, all of which continued for about one week.

Physical examination of the chest during this time showed at first large, moist râles, with slight tympany; later there was evidence of consolidation over the base of each lung. Fat in the sputum persisted for two days, and then could be detected in small amounts for two more days. In the urine fat was detected every day for a week.

At no time did the patient have any marked manifestations attributable to interference with the central nervous system.

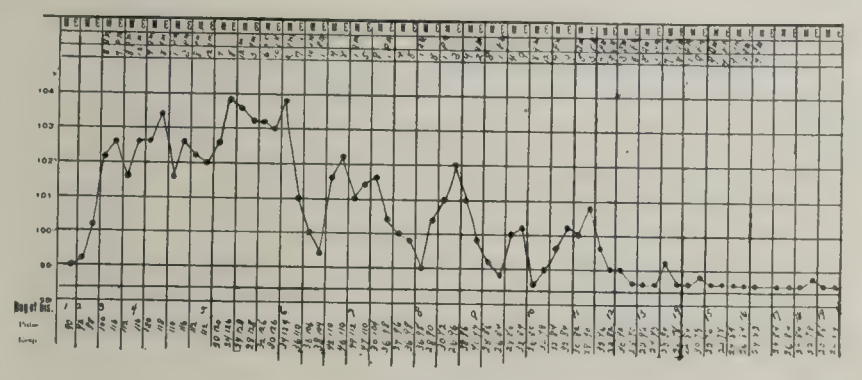


Chart 1.

He was extremely anxious, restless and apprehensive of a fatal termination, but these were the only symptoms that could possibly be considered as originating in the nerve centers.

On the day following the onset of these symptoms, the sixteenth, he complained of pain in the left groin; examination at this time revealed nothing, but the next morning there was a distinct swelling of the entire limb, more noticeable in the thigh than in the leg. The skin was slightly darker in color and a marked tenderness in the neighborhood of the saphenous opening. Under appropriate treatment the pain disappeared in a few days, but the swelling remained, diminishing slowly, for a number of months.

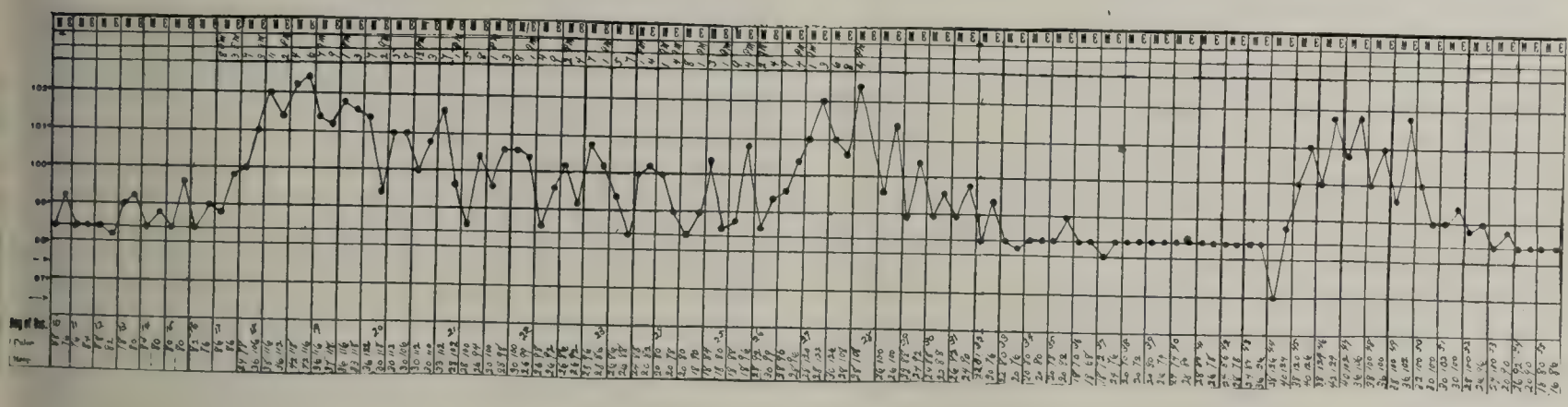


Chart 2.

An irregular temperature persisted after the lung and other symptoms had entirely passed away. No rational explanation for the persistency of the temperature could be given; and in spite of it the patient seemed to be progressing very favorably, and finally it became normal.

He had been sitting up in bed, with the aid of a head rest, for some time, and on the forty-second day he was allowed to sit in a chair, half an hour in the morning and the same time in the afternoon. No bad effects were noticeable. On the forty-third day he sat up in the morning, but did not do so in the afternoon, as he did not feel well; it seemed difficult for him to breathe, and he had a slight pain on the left side of the chest in the anterior axillary line. He said that he did not fall or slip in any manner, nor did he jerk the leg. The leg and groin felt just the same as they had for the past weeks, nor did an examination show any change. Temperature was normal and a physical examination of the chest failed to give a reason for his pain.

The next morning the temperature was subnormal, pulse rapid, and the dyspnea, cough, pain and other lung symptoms practicallly the same as those experienced in the third week. Fat was found in the sputum during the morning of the forty-

fourth day, but not so abundantly as it was in the previous attack, nor was it found after this morning. In the urine fat was found, in small amounts, for three days. Within six days these symptoms had diminished so as to be practically unimportant. (See Chart 2.)

Nervous symptoms, except those of anxiety, worry and restlessness, were also present in this second attack, as they had been during the first. The final result of the case was a perfect rcovery.

Up to the year 1884, Reiter[66] was able to collect 207 cases. Since that time we have noted the following cases:

1884. Roth:[67] Fracture; death.
1884. Roth: Fracture; death.
1884. Park:[29] Fracture; death.
1884. Park: Operation on bone; death.
1884. Park: Operation on breast; death.
1884. Socin:[68] Fracture; death.
1886. Bonine and Belknap:[60] Fracture; recovery.
1186. Wahncan:[69] Fracture; death.
1886. Demisch:[52] Fracture; recovery.
1888. Coats:[70] Fracture; recovery.
1892. Whitney[61] Fracture; recovery.
1893. Colley:[30] Orth. operation; death.
1893. Colley: Orth. operation; death.
1893. Colley: Fracture; death.
1893. Colley: Fracture; death.
1894. Bard:[57] Fracture; death.
1894. Ribbert:[71] Fracture; death.
1894. Hirsch:[72] Fracture; death.
1894. Ribbert: Fracture; death.
1894. Finnotti:[73] Fracture; death.
1894. Ribbert: Fracture; death.
1895. DeGroube:[65] Fracture; death.
1895. Ahrens:[74] Orth. operation; death.
1896. Lympius:[75] Orth. operation; death.
1898. Payr:[76] Orth. operation; death.
1898. Payr: Resection of knee; recovery.
1898. Payr: Resection of knee; recovery.
1898. Payr: Resection of knee; recovery.
1898. Eberth:[31] Orth. operation; death.
1899. Payr:[30] Orth. operation; death.
1899. Payr: Orth. operation; death.
1899. Payr: Orth. operation; death.
1900. Fibiger:[45] Leube's method; death.
1900. Svetchnikoff:[59] Fracture; death.
1900. Pomatti: Fracture; death.
1901. Engel:[39] Rupture of liver; death.
1902. Euphrat:[77] Fracture; death.
1902. Southam:[55] Fracture: recovery.
1903. Preindelsberger:[62] Orth. operation; death.

		Recoveries.	Deaths.
Fractures	22	3	19
Writer's cases	2	2	0
	24	5	19
Orth. operations	14	3	11
Amputation of breast	1	0	1
Rupture of liver	1	0	1
Leube's method	1	0	1
	41	8	33

DISCUSSION.

DR. C. H. LEMON, Milwaukee, Wis.—I have had two cases of fat embolism of the lung following multiple fractures, and it has been surprising to me how few of these cases have been recognized. I am satisfied that many cases of fat embolism occur, but the symptoms are not recognized or are attributed to other causes. I was interested to learn that fat globules are so frequently found in the urine. In both of Dr. Connell's cases the fat embolism occurred in compound fractures, but the cases in which it occurred in my practice were simple fractures. It is rather astonishing to learn that fat embolism occurred in compound fractures, as we would expect the fat to escape with the wound secretion. In my cases the temperature was not higher at any time than 103. The lung symptoms appeared on the third day in one case and on the fourth day in the other. One case had considerable cough and expectorated a bright, bloody fluid. These symptoms lasted but two days and then subsided.

DR. JABEZ N. JACKSON, Kansas City, Mo.—This is a condition which very frequently passes unrecognized, and it is important that more attention should be given to its recognition. I have seen several cases of this condition and have heard others reported under various erroneous diagnoses. Frequently it is difficult to make a positive differential diagnosis except by close exclusion. In one of my cases the symptoms were apparently identical with those of a very severe hemorrhage, and a diagnosis of this character was made by my hospital internes. The case in point was one of extensive comminuted fracture of the femur, and the signs of embolism presented themselves about eight hours after the injury. These signs of embolism came on very suddenly and consisted of a very rapid and feeble pulse and a correspondingly shallow and rapid respiratory rate, with the anxious expression so often seen in shock or hemorrhage. The diagnosis of hemorrhage was only excluded after a thorough examination of the seat of fracture, where no hematoma nor other evidence of hemorrhage was present and where there was no other injury to cause a hemorrhage elsewhere. There was, however, a little swelling and tension beneath the fascia of the thigh. I think that the character of the fracture has much to do with the occurrence of fat embolism. Two conditions are certainly favorable to embolism, first, fat globules in a free state, and, second, tension to force these globules into the circulation. Comminution of the fracture by crushing liberates the free fat. If now, from contusion locally, the extravasation is increased without rupture of the fascia, it will have a condition of extreme tension, which will favor the forcible squeezing of the fat into the mouths of open vessels. The period at which the signs of embolism appear will likewise be modified to some extent by these same conditions. Where the exudation or extravasation occurs rapidly and rapid local tension is produced, it is probable that the signs of embolism will appear more early, as was the fact in the case of my own to which I have alluded. Correspondingly, in a simple fracture with little local extravasation, the signs of embolism would probably appear later, if at all. I feel assured that this is worthy of more attention by the profession, as many cases at present undoubtedly occur and are not recognized.

DR. J. E. SUMMERS, JR., Omaha, Neb.—I believe rough manipulation and improper fixation have something to do with the causation of this condition. We can surely help some of these conditions. Manipulation should be reduced to a minimum and the fixation should be as good as possible.

66. Reiter: Jahresbericht der Medicin, 1886, vol. i, p. 267.
67. Roth: Revue de Chir., vol. xv, 1895.
68. Socin: Jahresbericht über die Chir. Abteilung des Spitals zu Basil Fur., 1883-84.
69. Wahncau: Inaug. Diss., Halle, 1896.
70. Coats: Glasgow Med. Jour., 1888, vol. xxix, p. 431.
71. Ribbert: Corresblat. f. Schweizeerzte. 1894.
72. Hirsch: Brit. Med. Jour., July 7, 1894, p. 13.
73. Finotti: Deut. Zeit. f. Chir., 1894, vol. xxxix, p. 508.
74. Ahrens: Beit. f. klin. Chir., vol. xv.
75. Lympius: Cent. f. Chir., 1896, p. 800.
76. Payr: Munch. med. Woch, July 28, 1898, No. 28, p. 885.
77. Euphrat; eut. med. Woch., July, 1902, No. 29.

DANGERS FROM INDISCRIMINATE USE OF CATHARTICS IN ACUTE INTESTINAL CONDITIONS.

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Almost from the beginning of time man seems to have been possessed of an intuitive feeling that an acute abdominal affection, accompanied by an arrest of intestinal action, is an extremely serious condition which, if not soon relieved, must lead to a fatal issue.

In such cases, the laity realize the importance of proper bowel movements, and, having observed the relief which is often experienced when the interrupted bowel action is resumed, immediately resort to the use of cathartics to bring about the desired end, namely, a movement of the bowels.

Unfortunately, this intuitive feeling seems to be so deeply rooted in the mind of man that even a study of the science and art of medicine at times fails to dislodge it; for one too often sees otherwise intelligent physicians following it blindly, to the destruction of their patients, and without regard to the cause of the arrest

of the bowel action which they seek to restore. Not much is to be hoped for from the laity in this matter, but something should be expected from the intelligent physician.

In considering the numerous acute affections of the abdominal viscera, which are accompanied by a suspension of bowel movements, it should be understood and remembered, and never forgotten, that no patient ever dies simply because the bowels do not move.

It is well known that a person may go for days or even for weeks without a bowel movement and still continue at his usual vocation with little or no apparent inconvenience. But let the intraintestinal current be suddenly arrested by some acute affection, and the individual is at once brought low and the seriousness of the condition is so visibly stamped on every feature that he who runs may read. Wherein does this latter case differ so materially from the former?

It differs from it in this important fact, namely, that some distinct pathologic condition has placed its grip on some portion of that intestinal tract and thereby produced such a trauma as not only to interrupt its function, but also, if unrelieved, to lead to its local destruction.

The particular pathologic condition may assume a variety of forms which will be mentioned later. The fact which it is desired to emphasize as strongly as possible at this point, is that the patient's danger lies not in the fact that his bowels do not move, but in the condition which produces the obstruction, and as a corollary to this it follows that the administration of cathartics of any and of all kinds under these circumstances, with the idea in view of attempting to force a bowel movement, is not only irrational and illogical, but often productive of the greatest harm to the patient.

So far as the conditions at present under discussion are concerned, cathartics may be described as acting in two ways, namely, by stimulating peristalsis and by increasing the amount of fluid in the intestinal tract.

Let us consider first, then, those cases in which there is a complete mechanical closure of the lumen of the bowel, such as occurs in strangulated hernia, either external or internal; in compression of the bowel beneath peritoneal bands; in strangulation by reason of a loop of bowel becoming caught in an omental or mesenteric opening; in adhesions of the bowel producing kinking; in volvulus, etc. It is very evident in these cases that no cathartic, however strong it may be, is capable of overcoming the obstruction.

Under these circumstances the effect of all cathartics is harmful. That portion of the intestine lying cephalad of the obstruction is filled with fluid which favors the putrefactive changes constantly taking place. The intestinal contents are churned back and forth by the increased peristalsis, and, finally, not being able to pass the seat of the obstruction, are forced in a reverse direction back into the stomach, thus giving rise to the foul, offensive vomiting so characteristic of the condition. The stimulated peristalsis forcing the intestinal contents against the obstruction increases the strangulation and hastens the sloughing or cutting through of the bowel at that point. It produces dilatation and congestion of the proximal loops of the bowel, with small mucous and submucous hemorrhages and venous thromboses which lead to the formation of small ulcers, if time permit, often with minute or pin-point perforations, all of which permit and favor the passage of microbes into and through the intestinal wall into the peritoneal cavity, with the production of a fatal peritonitis.

In invagination also the harmful effects of cathartics readily may be seen, for the increased peristalsis can have no other effect than to still further increase the invagination; and the intestinal contractions must augment the congestion and swelling of the intussusceptum, and thereby earlier lead to complete obstruction and sloughing.

It is well known that complete paralysis of a portion of the intestine, such as occurs in somewhat localized inflammatory conditions, as, for instance, a sigmoiditis, or where a portion of the intestine has been suddenly deprived of its blood supply as in thrombosis of the mesenteric arteries, may block the passage of the intestinal contents at times almost as effectually and completely as if a mechanical obstruction were present.

The harmfulness of cathartics in the former case will be shown presently while their futility in the latter is apparent, as these patients all die within a short time from sloughing of the bowel and peritonitis, unless relieved by early operation.

We now come to that rather indefinite class of cases in which intestinal obstruction is due to a paralysis of the intestinal wall, or to a more or less localized spastic contraction of the same from unknown causes. To this class, undoubtedly, belong those cases of obstruction which undergo a spontaneous recovery or which recover under medical treatment.

It can not be said that the exact pathology of these cases is clearly understood, but that such cases occur seems certain. We are led to this conclusion, not only by force of reasoning from the cases that recover, but also by the fact that cases presenting symptoms of mechanical obstruction have been operated on and nothing but a paralytic or a spastic condition as mentioned above found.

Heidenhain[1] has collected some of these cases and presented them in a very interesting manner. The failure of repeated doses of cathartics to bring about a bowel movement is particularly noted, while, on the other hand, the beneficial effects of antispasmodics, such as opium, were shown in some cases. It is probable that to this class of cases belong those which have apparently recovered after the hypodermic injection of large doses of atropin, as has recently been recommended.

The last class of cases to be mentioned is that in which an acute peritonitis, more or less circumscribed, is the chief pathologic condition, be its origin in the appendix, the fallopian tube, the gall bladder, an intestinal perforation or other structure.

The increased peristalsis produced by cathartics in the early stages of these cases may not only break up the delicate circumscribing adhesions just forming, but may also favor and aid the distribution of the infection throughout the peritoneum.

It will thus be seen that in the great class of cases herein under consideration, the use of cathartics, as a rule, is positively injurious to the patient.

But there is another very important reason why they should not be given. For years the surgeon fought against the indiscriminate use of opium in these cases because it so masked the symptoms as to lead to an erroneous diagnosis or induced in the patient an apparent feeling of betterment which was but false and which but too often led to a fatal procrastination in seeking the necessary surgical relief.

1. Arch. für Chir., vol. lv, p. 211.

So, too, the administration of cathartics in these cases frequently so clouds the clinical picture as to make an accurate diagnosis of the case impossible. This was very forcibly illustrated to me during the past year.

Patient.—A strong, healthy young man, aged 30.

History.—After a few days of general malaise and irregular diarrhea he was seized on July 9, 1904, with chilly sensations followed by nausea, vomiting, rise of temperature and complete constipation with general abdominal pain. Toward evening of the same day he experienced severe pain in the lower left side of the abdomen, radiating upward toward the chest. The pain was paroxysmal in character and was somewhat relieved by an enema.

Examination.—A tender, elongated mass easily could be made out in the region of the sigmoid flexure. The next day he was brought to the hospital with a diagnosis of probable invagination, and I saw him in consultation that evening.

Diagnosis.—I made a diagnosis of sigmoiditis, based on the location and general outline of the mass in the abdomen, the tenderness, vomiting, rise of temperature and complete constipation. Intussusception was excluded because there had been no mucous or bloody stools which most likely would have been present in an intussusception of that portion of the bowel. Operation was, therefore, not advised. Unfortunately, during that day he had taken cathartics in the shape of repeated doses of calomel and Epsom salts. During the night these began to work and he had some mucous stools containing blood. When these stools were shown to me the next morning they cast enough doubt on the diagnosis of sigmoiditis to induce me to open the abdomen, thinking, perhaps, that I had made a mistake and that the mass was really an invagination.

Operation.—I found a simple sigmoiditis. The sigmoid and lower end of the descending colon were inflamed, thickened and somewhat edematous, but there was no sign whatever of an invagination. The abdomen was closed and the patient recovered without any unfavorable symptoms.

Had this patient not been given the cathartics, which could have done him no good under any circumstances, he would not have had his clinical picture clouded and would have escaped an unnecessary operation.

The time to make a correct diagnosis in acute surgical affections of the abdomen is in the beginning of the trouble. In the early stage of the large majority of these cases a careful examination of the abdomen by sight, palpation and percussion, will enable one to make a correct diagnosis of the conditions present.

The exact point of greatest tenderness, the location of an inflammatory mass, a distended loop of bowel, a loop of bowel which is tender or one which is fixed to some particular spot, the presence of collapsed or distended loops to be felt on rectal examination, visible peristaltic waves which are general or limited, a mass in the region of hernial openings, are all points of the greatest importance in making up a diagnosis, but they are also points which are lost during the later stages or when the intestine has become distended and disturbed in its relations by the injudicious administration of cathartics.

How often the surgeon is called in near the end to find a patient with an abdomen so distended as to render it absolutely impossible to outline anything within it; a patient so restless as to be unable to remain quiet a minute; with hollow, sunken, tired, wide-awake eyes from which sleep has been banished for many hours; a mind clear and active to all that transpires about him, but totally indifferent to his own hopeless condition; with lips that are red, parched and hot, made doubly so by the constant sucking and swallowing of cracked ice, which is but heaping coals on the fire. By his side there is a bowl into which every few minutes he vomits a quantity of dark greenish or blackish foul, offensive fluid; indeed, it seems to run out so easily that it can scarcely be called vomiting, and while one sits and meditates on the lost opportunity and the almost hopelessness of the situation, he listens to the tale of the patient or of the nurse, or alas! at times of the attending physician, of the repeated doses of castor oil, of calomel, of salts, of magnesia, etc., *ad nauseam,* which have been poured down the poor patient's throat only to be promptly returned with interest.

This is not an overdrawn picture. I have seen it many times, but in the majority of the cases it must be said that the picture is an unnecessary one.

Let it be remembered that in every case of acute abdominal trouble an accurate history should be obtained and a most careful examination of the abdominal contents should be made at the earliest opportunity.

Do not forget that in strangulation of the bowel or other mechanical obstruction, or when the bowel is paralytic or spastically contracted, that cathartics of all kinds, however they may be administered, are almost always positively harmful.

Remember that the stomach and intestine in these conditions absorb very reluctantly or not at all anything put in them. They even secrete an increased amount of fluid which is forced back into the stomach and ejected by vomiting. The treatment in these cases is easily outlined.

Wash out the stomach with warm physiologic salt solution or dilute soda solution, and then keep it empty. Do not permit anything to enter it, not even water. The beneficial effect of gastric lavage in these cases was thoroughly demonstrated by Kussmaul years ago. Then empty the lower bowel by means of enemata so that the entire intestinal tract may be placed as nearly at rest as possible.

It is unnecessary to feed these patients for a time, for they never die of starvation, but they do need water, and this should be administered subcutaneously in the form of physiologic salt solution from 1,000 to 2,000 c.c. in the twenty-four hours. Such subcutaneous injections may be repeated any number of times by changing the location of the injection. It is to be understood, of course, that this treatment is but preliminary, and is to be supplemented by the proper operative measures at once in all cases in which a mechanical obstruction can be diagnosed or even found probable.

The treatment outlined places the patient in the best possible condition to undergo an operation, or in case an operation is deemed undesirable, it places him in the most favorable condition to aid nature in bringing about a cure.

It is not my intention at this time to enter into a description of the various operative procedures applicable to the numerous conditions above mentioned, for they are tolerably well defined, but I desire:

1. To enter a protest against the very common practice of indiscriminately administering cathartics in acute surgical affections of the abdomen.

2. To emphasize the diagnostic importance of a careful and thorough examination of the abdomen at the earliest possible opportunity.

3. To urge the importance of placing the entire intestinal tract at rest in the manner above described.

4. To operate at once on all cases of mechanical obstruction just as soon as the diagnosis can be made.

Special Article.

IMMUNITY.

CHAPTER V.

NATURAL IMMUNITY: (A) PROTECTION OF THE BODY SURFACES; (B) THE RÔLE OF INFLAMMATION.

(A) Virulent organism (e. g., staphylococci and streptococci) exist normally on the skin or between the superficial horny cells, some exceptional circumstance being necessary to enable them to penetrate deeper and to cause disease (wounds). It is evident, then, that the physiologic shedding of the superficial horny cells and their continual reformation at a deeper level is a process calculated to rid the surface of the body of many micro-organisms.

The Skin.

The question whether micro-organisms can ever penetrate the unbroken skin has been much discussed. Although experiments have shown that traumatism is not absolutely necessary, clinical experience indicates that these so-called cryptogenetic infections are not of ready occurrence. When they do occur, the infection atrium is probably one of the glandular orifices.

Soluble poisons such as aconite and bacterial toxins are not absorbed through the unbroken skin.

The sweat glands with their ducts, and the hair follicles with their appended sebaceous glands, are vulnerable points in the defense which the cutaneous surface represents. Although both these structures are somewhat protected by the flow of their excretions, especially in warm weather, and although the entrance of germs is made more difficult by the contraction of the skin and consequent narrowing of the orifices in cold weather, yet various incidents may lead to the introduction and retention of virulent micro-organisms in these structures. When this occurs there is little difficulty in the way of their producing necrosis of the epithelium and invasion of the surrounding tissue, causing a pustule, boil, carbuncle, cellulitis, or even a generalized infection. The secretion of the sebaceous glands appears to be not germicidal. On the other hand, the acid nature and certain salts found in perspiration render this fluid antagonistic to the development and virulence of some micro-organisms.

Cutaneous Orifices.

The serous exudate and the crust which forms subsequent to an abrasion antagonize infection. The serum itself contains germicidal substances, while the crust mechanically excludes microbic invasion.

Even after germs penetrate the epidermis, the subcutaneous connective tissue is often an obstacle to their further extension. The subcutaneous injection into animals of some micro-organisms (e. g., cholera) is tolerated better than one given into the abdominal cavity or blood circulation. We are also familiar with the benign course of lupus compared with visceral tuberculosis; the same is true of cutaneous and visceral glanders. These phenomena are explainable, at least in part, by the rapidity with which new connective tissue forms in this locality, offering a mechanical limitation to the infection, and by the rich lymph supply which makes possible the rapid accumulation of bactericidal lymph and of phagocytic cells. On the other hand, it must be mentioned that in some cases the subcutaneous tissue offers no perceptible resistance to bacterial invasion (plague), and that toxins may be more virulent when introduced into this tissue than when injected into the abdominal cavity or the general circulation (tetanus).

Subcutaneous Connective Tissue.

The moist condition of mucous membranes has been found to favor the multiplication of many microbes. Mucus is not in itself actively germicidal, but is said to attenuate the virulence of some micro-organisms, as the pneumococcus. A layer of mucus, however, is a mechanical protection, and its constant excretion is a means of steadily removing bacteria from mucous surfaces.

Mucous Membranes.

The conjunctiva is protected against infection by the mechanical interference of the eyebrows, eyelashes, eyelids, irrigation of the conjunctival surface by tears which carry germs through the lachrymal duct into the nasal cavity, the ability of the conjunctival epithelium to repair itself rapidly, and the mild germicidal action of the salts which are present in the tears. These protective agencies, however, are often surmounted by micro-organisms, such as the pneumococcus, staphylococcus and the influenza bacillus. Many soluble poisons, aconite, diphtheria toxin and the toxin of hay fever are readily absorbed from the conjunctiva.

Conjunctiva.

Compared with the anterior nares, the posterior are poor in micro-organisms. This is no doubt due to the filtering of the air by the hairs, the tortuosity of the channel causing dust and bacteria to strike the walls where they are held by a moist surface, and the action of the ciliated epithelium in carrying them imbedded in mucus again toward the anterior nares. Nevertheless, the nasal mucous membrane is a common infection atrium for streptococci, staphylococci, diphtheria and influenza bacilli, the virus of hay fever, and, probably, for other infectious agents.

Nasal Cavity.

At least thirty species of micro-organisms flourish in the oral cavity, some of them being pathogenic: staphylococci, streptococci, pneumococci, and often diphtheria bacilli. They are constantly removed with the saliva, and through the extensive desquamation of the epidermis occasioned by mastication. Saliva is not germicidal, but inhibits the growth and weakens the virulence of some bacteria. The fetid breath and the sordidity observed in fevers where the mouth is dry, at least in part, is attributable to the lack of saliva with its anti-infectious properties. The great rapidity with which wounds of the mouth heal is a potent factor in preventing serious infections.

Mouth.

Micro-organisms do not readily reach the ultimate ramifications of the bronchioles. In ordinary respiration the velocity of the inspired air is so reduced as it nears the alveoli that the further movements of the gases is one of gradual diffusion more than of violent admixture. Consequently there are greater opportunities for germs to come in contact with the bronchial walls where they become imbedded in mucus with which they may be expelled by coughing and the action of the ciliated epithelium. Both the alveolar epithelial cells and the leucocytes which enter the air sacs and bronchioles have been shown to take up bacteria. The conditions in the lungs which favor the development of infections, bronchitis, pneumonia, influenza, tuberculosis, etc., are by no means clearly understood. Variations in individual resistance, here as in other parts of the body, are certainly of great importance. It has been demonstrated that systemic infections, as with anthrax bacilli, may be caused by the inhalation of the germs; and it is probable that the lung is the infection atrium for a number of our acute infectious diseases.

Lungs.

The gastric juice, through the hydrochloric acid it contains, is able to kill anthrax, typhoid, tubercle bacilli, cholera vibrio and other organisms. Clinical and experimental evidence shows that this power is often inadequate, virulent micro-organisms reaching the intestines in spite of it (typhoid, cholera, dysentery, tuberculosis, etc.). It is probable that bacteria in the stomach are often protected against the action of the gastric juice to some extent by being imbedded in solid particles of food. Certain acidiphilic germs, as well as yeasts and torulæ seem to flourish in the gastric secretions; these are largely non-pathogenic, but the regularity with which peritonitis follows perforating wounds of the stomach indicates that it probably always contains pathogenic bacteria, though it may be only their temporary habitat. The gastric juice may render some bacteria harmless by digesting their toxins; one

Stomach.

gram of the gastric juice of a dog will neutralize fifty fatal doses of diphtheria toxin, or 10,000 of tetanus toxin, using the guinea-pig as the test animal. On the other hand, the toxin of the bacillus of botulism (causing a form of meat poisoning) seems to be uninfluenced by the stomach contents, as the development of the intoxication indicates. Vomiting is often a means of ridding the stomach of toxic substances, including bacteria. The stomach itself is exceptionally free from infections.

Intestines.

The bile is moderately bactericidal for some germs, but on the whole the intestinal secretions have low germicidal powers; this is indicated by the fact that the colon contains many more bacteria than the duodenum, great proliferation having occurred. On the other hand, the pancreatic juice destroys some toxins (diphtheria, tetanus) more powerfully than the gastric juice. This ability of the pancreatic juice to destroy toxic bacterial products may explain why enteritis is more frequently found in the ileum than in the duodenum. The bile also has a neutralizing power for some toxins. Although a number of pathogenic bacteria inhabit the intestinal tract, colon bacillus, streptococci, etc., in the adult they do not often set up inflammatory processes nor penetrate the mucosa to set up recognizable changes. The tissues become accustomed to their presence. The pathogenic bacteria which do not normally exist in the intestines are those which, on introduction, cause disease (typhoid, cholera, dysentery, etc.). The intestinal tract of the infant, on the other hand, is frequently inflamed by some micro-organisms (streptococcus, colon bacillus, bacillus pyocyaneus), which in the same locality in the adult appear harmless. The fact that many individuals are not stricken in an epidemic, where all are equally exposed to infection, indicates that such pathogenic organisms as those of typhoid, cholera and dysentery often traverse the intestinal canal without inducing disease. Naturally, microbes are eliminated in enormous quantities in the feces, and in inflammatory states this elimination is increased by diarrhea. It is also not to be forgotten that the intestinal tract is to a considerable extent a lymphoid organ, and that consequently in the presence of infection enormous quantities of phagocytes can quickly be called into action.

The protective properties of the genito-urinary surfaces are not different in principle from those already mentioned, for example, vaginal acidity, urinary irrigation.

(B) Although there are many chemical and physical causes of inflammation, we are interested here only in those of infectious etiology.

Nature of Inflammation.

We are to look on inflammation as a reactive process on the part of the tissues, which is induced by some injurious agent. The process may be beneficial in some instances, while in others it may be pernicious from the beginning to the end. The thickening of the endothelium of the cerebral vessels as one sees it in syphilis, for example, is a progressive, reactive change which in no sense can be of benefit to the individual, and which can have no conceivable function in overcoming the syphilitic infection. Likewise, the new formed connective tissue seen in alcoholic cirrhosis of the liver is of no benefit to the hepatic tissue, though it may serve in some degree to protect the liver cells from the alcohol which continues to be ingested. In an ulcer of the cornea the presence of serum and of leucocytes, as well as the proliferation of connective tissue, may be the *sine qua non* for the healing of the ulcer, yet the resulting scar may greatly impair the vision. On the other hand, an extensive scar which has formed in the skin and subcutaneous tissue as the result of a wound or an infection, may be harmless because of its situation.

It is then to be recognized that there are certain consequences of the inflammatory reaction, the seriousness of which depends on the situation, severity, duration and extent of the process, and that these consequences are independent of any protective function the inflammation may have exercised previously.

Variations in the Reaction.

The amount and character of the reaction are subject to many variations, depending on a number of conditions:

1. It varies with the nature of the microbe. Non-pathogenic organisms induce little more inflammation than so many minute, inanimate, non-toxic particles. The tubercle bacillus causes especially the formation of connective tissue, giant cells and the accumulation of lymphoid cells, aside from some retrogressive changes characteristic of the disease. The streptococcus, pneumococcus, etc., induce the formation of pus, fibrin, the accumulation of serum and of polymorphonuclear leucocytes more than mononuclears; while proliferation of fixed tissue elements is secondary. The tetanus bacillus alone causes almost no local inflammatory change.

2. The reaction is influenced by the virulence of a particular bacterium. A streptococcus which has lost its virulence is disposed of by the animal tissues with a minimum tissue reaction, perhaps no more than slight congestion and the wandering in of a few leucocytes; one of average virulence causes an intense reaction, manifested by congestion, edema, hemorrhages, necrosis and pus formation; then streptococci with such great virulence are occasionally encountered that they destroy life in the course of a few hours, having elicited barely perceptible inflammatory changes (seen sometimes in wound infections and peritonitis).

3. It has a relation to the resistance of the individual. Metchnikoff, in particular, has shown that animals of high resistance to a particular microbe destroy the germ quickly by phagocytosis (the ingestion of particles by cells, especially the leucocytes), while in susceptible animals the accumulation of phagocytic leucocytes is deficient.

The features of inflammation to which we attribute a protective effect in infections, on the one hand, are those of a progressive nature, as the proliferation of connective tissue, blood and lymph vessels, epithelium and lymphoid tissue; and, on the other hand, some conditions which are not essentially progressive, but which may be valuable adjuvants both in the formation of new tissue and in antagonizing the injurious agent, as accumulations of plasma or serum, fibrin and leucocytes.

Leucocytes.

The function of the leucocytes and lymphocytes in an infectious inflammation is one of the most interesting and problematic in pathology. It is a long known fact that some microbes attract one kind of leucocyte, while others attract another kind. Thus, in tuberculosis one finds lymphocytes and plasma cells—mononuclears—predominating greatly over the polymorphonuclears. In the acute purulent infections, on the other hand—streptococcus, staphylococcus, pneumococcus—the latter type of leucocyte predominates, while the mononuclears are fewer and tend to remain at a respectful distance from the center of action. Then, again, the aggregate of leucocytes attracted by a given micro-organism varies a great deal in different cases; this probably depends on variations both in the properties of the microbe and of the cells of the individual.

Chemiotaxis.

This phenomenon of living cells moving toward or away from certain other cells or substances is termed chemiotaxis: the former is positive, the latter negative, chemiotaxis. There is a somewhat general law, but one to which well-marked exceptions exist, that, regardless of the microbe involved, the more acute the inflammatory process the more do polymorphonuclear leucocytes accumulate, while in the more chronic infections, with much connective tissue formation, the mononuclear leucocytes predominate; and there is reason to believe that the latter cells play an important, though perhaps indirect, rôle in the formation of the connective tissue.

Phagocytosis.

The ingestion of particles by living cells, phagocytosis, is a property which many cells possess. Although micro-organisms and inanimate particles are sometimes found in epithelial cells, certain of the mesoblastic cells have this function pre-eminently: Polymorphonuclear leucocytes, large mononuclear leuco-

cytes (lymphocytes), connective tissue and endothelial cells, named in order of importance. Of these the polymorphonuclear leucocytes, the microphages of Metchnikoff, have the greatest phagocytic power; the others, the macrophages, are more exceptionally phagocytic. Now, the mere ingestion of the bacteria by such cells would not be of necessity injurious to the microbes; indeed, opponents of Metchnikoff's phagocytic theory of immunity hold that phagocytosis by wandering cells may be, and often is, pernicious, as the cells may return to the circulation and spread the infection to other parts. But when we learn that after ingesting the bacteria the phagocytes are often able to kill and digest them, it is realized that the process may be a very salutary one. It is also represented that such cells have the power of excreting their germicidal substances into the plasma and serum and lending to the latter a bactericidal power. Furthermore, it is held that they may absorb liquid poisons, bacterial toxins, and by a similar process destroy their toxicity. Granting these points, which are essential tenets of the phagocytic theory of immunity, the importance of positive chemiotaxis in the recovery from an infection becomes manifest.

Influence of Plasma and Serum.

Serum, even when entirely free of leucocytes, has bactericidal powers; it need not be discussed at present whether this power exists primarily in the serum or is one conferred on it by the leucocytes. In view of its presence, however, it is evident that the serous exudate which is usually present in inflammations, especially the acute, may be of influence in combating the infection. Serum also contains natural antitoxins, and, in addition, it may be of value in lessening the toxicity of poisons by diluting them and by washing them away.

Fibrin.

The abundant deposit of fibrin in some inflammations is of mechanical value in hemming in the infection and in offering a barrier to the rapid diffusion of toxins. We are all familiar with the part played by fibrinous and fibrous adhesions in preventing a localized peritonitis from becoming generalized. In prolonged inflammations fibrin furnishes a ground substance into which new connective tissue and vessels grow (organization).

Inflammatory Connective Tissue.

The new formed connective tissue seen in many inflammations, especially the chronic, as in tuberculosis and actinomycosis, offers an important barrier to the extension of an infection. Perhaps no better example of this could be cited than the dense tissue which forms around a tuberculous sinus or abscess.

To sum up: An inflammatory reaction antagonizes an infectious process, mechanically, through the presence of fibrin, leucocytes and new formed connective tissue, chemically, or physicochemically, through local antitoxic and bactericidal agencies contained in the fluid and cells—phagocytes.

The value of hot applications in local inflammations, in that they increase congestion, which hastens the exudation of plasma and leucocytes and the proliferation of cells, finds a logical explanation in view of the facts mentioned. Also increase in local temperature probably favors chemical actions.

There are many details in reference to the part played by phagocytic cells in inflammation and immunity which it is impossible to consider here. Adami's[1] classic article on inflammation treats of many of these details in an admirable manner.

(To be continued.)

1. Allbutt's System of Medicine, vol. I.

The Training of the Surgeon.—Dr. Senn, in the *Monthly Cyclopedia of Practical Medicine*, sums up the training of a surgeon as follows: Master the elementary branches in college, do general practice for several years, return to laboratory work and surgical anatomy, attend the clinics of different operators, and never cease to be a physician. If this advice is followed there will be less unnecessary operating done in the future than has been the case in the past.

Clinical Report.

A CASE OF ARTHRITIS DEFORMANS IN WHICH LARGE DOSES OF ARSENIC WERE TAKEN.*

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Patient.—A. M., aged 24, single, farmer, American; was admitted to the medical clinic of the University Hospital, Oct. 29, 1901. Patient complained of dull, heavy pain, stiffness and deformity of many joints. Family history negative. Previous history negative. Diphtheria at 6, measles at 15. Denies venereal disease.

History.—The present disease began six years ago with a dull, heavy pain, swelling and grating on movement of the left knee. The same condition manifested itself in the left hip, left elbow and wrist, in rapid succession. Two years ago, the temporo-maxillary joints became stiff, with a click on movement and much swelling over the glenoid fossæ. At the same time there was stiffness of the neck; soreness, and pain on swallowing, in the region of the thyroid cartilage and hyoid bone. At the articulations of the costal cartilages with the sternum there was soreness and a dull ache, which became aggravated on deep breathing.

The right hand, elbow, hip, knee and ankle were attacked in the same manner one year later. The feet were the seat of a burning sensation, became swollen and sore and stiff, especially in the region of the tendo Achillis. The swelling in the various joints was not constant. There was much twitching of the muscles of the lower extremities, more pronounced before a storm.

About two years after the appearance of the joint condition, the skin gradually became pigmented. The color was a yellowish brown and diffuse, more marked over the shoulders, nipples, back, buttocks and genitals. Often there was a feeling of uncomfortable warmth about the upper part of the body, followed by perspiration or coldness. All the symptoms have gradually progressed up to the present time except the swelling.

Examination.—The patient limps about with the aid of crutches; removes his clothes with difficulty, and is unable to raise the lower extremities on lying down. His frame is slightly above medium size. There is considerable atrophy of all the muscles of both upper extremities, especially on the left side. The left thigh and leg muscles show moderate atrophy. There is much pain and tenderness in all the muscles.

The temporo-maxillary joint is weak and stiff and gives a click on motion. The shoulders are normal. The left elbow is partially ankylosed, allowing 5° motion; all the tissues are thickened. The right elbow is normal except for a slight grating. The left wrist is slightly enlarged and ankylosed, permitting a movement of 3°. The right wrist is swollen, red and tender, allowing only 5° of motion. The left hand has fusiform bony enlargements of the second phalangeal joints of the index and middle fingers. The metacarpal-phalangeal joints of the little finger present an elastic swelling and stiffness. All the joints of the right hand show enlargement and stiffness. The metacarpal-phalangeal joints of the first and second fingers show fusiform elastic enlargement, suggestive of fluid.

Both hips are partially ankylosed, sore and painful on movement. The left knee is stiffened, but not enlarged; the loss of movement is apparently due to contraction of the thigh muscles. The right knee is normal. The feet give grating on movement. The entire spinal column allows free motion.

*From the Medical Clinic of Dr. Dock.

The thorax is normal. Heart and lungs, normal. Radial pulse, 80 a minute. Temperature, 99 F. Abdomen, normal; bowels, regular. Examination of the stomach contents shows normal condition. The blood count, 4,480,000 red cells, 8,912 leucocytes per c.mm.; hemoglobin, 80 per cent. Five m.g. Koch's tuberculin gave no reaction.

Diagnosis.—From the history of the insidious onset of the disease, the pain, the symmetrical involvements of the joints and of all the structures, the destructive changes therein, the twitching, tenderness and atrophy of the muscles, the pigmentation, the sensation of heat and coldness, the unnatural sweating and the absence of specific or tuberculous disease, a diagnosis of arthritis deformans was made.

Treatment.—The treatment consisted of rest in bed, with oil of gaultheria over the joints. Internally, small doses of salol and phenacetin were given for the muscular pain. Liquor potassi arsenitis was ordered in increasing doses.

Result.—While under observation, the swelling and soreness of the hands improved; the pain and tenderness of the muscles decreased. The temperature ran an irregular course between 97.4 and 100.2 F. The pulse ranged between 72 and 112. The patient was discharged Nov. 17, 1901, with instructions to continue the treatment which he had been receiving.

Subsequent History.—He returned to the hospital Oct. 2, 1903, and stated that after leaving here he remained in bed the following winter, applying passive exercise to the joints; massage to the muscles; vapor baths for the acute attacks of pain, and medication as above. Improvement was gradual except in the right hip; the effusion in the joints disappeared; the ankyloses improved, but he still complained of the heavy pain in the joints, twitching of the muscles and of general stiffness, especially before storms. Improvement continued up to the spring of 1903, when the patient was able to walk with the aid of a cane.

During all this time the pigment over the body increased, mostly on back, axilla, buttocks, nipples and genital region. During the first three months of medication the pigmentation increased most rapidly. This was especially noticeable as the dose of Fowler's solution was between 10 and 16 drops t. i. d. Dosage above 16 drops t. i. d. could not be borne without swelling of lids, suffusion of the conjunctiva, nausea, and a tendency to diarrhea. Some months later, the skin of the palms of the hands and soles of the feet became thickened. Later, the openings of the sudoriparous glands of palms of hands, shoulders and soles of the feet became reddened, enlarged and protruded above the surface.

Weather seemed to have a marked influence on the disease. Clear, cold winter or hot, dry summer weather was most comfortable. Two or three days before a southern or eastern storm there would be much pain in the upper part of the body, accompanied by a diffuse erythema and followed by a branny desquamation. The latter condition was also seen to a less extent when the dose of Fowler's solution was the highest.

Later, there was an eruption on the scrotum, described as beginning with redness and blisters of small size, which became scaly and painful. This has entirely disappeared. At the present time there is still some pain in the joints; more severe in the right hip, thigh and knee. The patient is well nourished. Musculature moderately developed, more on left than on right, although the cane is used in right hand. The skin is elastic over the upper part of body, arms and thighs. The face has a rather swarthy appearance, unlike that of tan. Over the right eye, there is a shiny, brownish, irregular area about 2 by 2.5 c.m, of diffuse pigmentation, with small areas of varying size at the periphery, giving the appearance of a splash of stain. The conjunctivæ are suffused and the under lids puffy. The skin of the body is more deeply pigmented than the face, this being especially true of areas normally pigmented. The color resembles that of a mulatto. On the upper part of the arms, shoulders, back and buttock there is a stippling produced by numerous small white circular spots from 1 to 3 m.m. in diameter with no deeper ring of pigment around them, giving the appearance of the pigment having been washed out by individual drops of water.

The dorsal surfaces of the hands are unpigmented; the skin is abnormally thin and shiny; there is no hair on the radial sides.

Over the thigh there is a deep bronze pigmentation, more marked just above the knees. The inner surfaces of the legs show a lighter diffuse pigmentation with several small, round, deeply pigmented spots the size of freckles. The outer surfaces are less pigmented; the skin is thin, glossy, with no hair, giving the appearance found on the hands.

The feet have a pinkish blue color, the soles and also the palms of the hands are thickened and rough, resembling ichthyosis. On the shoulders there are red papular eruptions caused by the inflamed orifices of the sudoriparous ducts. On the balls and heels of the feet are numerous hornlike elevations 2 m.m. wide and 3 m.m. high, caused apparently by hypertrophy around the orifices of the ducts. There is unusual sweating on hands and feet. There is a slight transverse notching of all the nails.

The temporo-maxillary and shoulder joints are normal except for a slight grating. The left elbow presents slight bony enlargement with movement of 70°; about one-half supination and pronation is possible. The right elbow gives grating on movement. Both wrists show enlargement of the styloid processes of the radii, and allow 25° movement. The left hand shows stiffness and enlargement of all the phalangeal joints. The little finger shows marked shortening of the proximal phalangeal bone. The first finger shows bony enlargement of the metacarpal-phalangeal joint. There is partial ankylosis of the sacroiliac joint. The left iliac bone is higher and protrudes more forward than on the right. The thighs can be flexed to a right angle with the body; the flexing causes a pushing of the pelvis backward so that the hand can not be placed under the back. The left femur is 1½ inches shorter than the right. The knees are not altered in shape; the limitation of movement in the right is due apparently to spasm of the thigh muscles. The feet are normal, except for slight enlargements of the metatarsal-phalangeal joints of the great toes.

The thorax is normal in shape; lungs and heart, normal. No palpable sclerosis of the vessels; pulse, 72; temperature, 99.

There is severe neuritis of both anterior crural and inguinal nerves; less severe in the circumflex and sciatics. The tendon reflexes are slightly exaggerated at the knees. All sensory tests give normal result. The urine is normal. The blood shows improvement over condition when first observed, giving 5,080,000 red cells; 8,657 white cells to c.mm.; Hb. 90 to 100 per cent.

In summing up this case there are some interesting points to be noted. The treatment consisted principally of the continued use of liquor potassii arsenitis for a period of nearly two years. At no time could a dose above 16 drops t. i. d. be borne without showing symptoms of acute arsenical intoxication, such as suffusion of the conjunctiva, puffiness of the lids, nausea and a tendency to diarrhea. This would indicate that in this case no tolerance was produced, as is usually the rule in the internal administration of arsenic. In all, 27 fluid ounces of Fowler's solution have been taken, which represents about 130 grains of arsenious acid in two years, or an average of 1/6 grain daily, only enough, according to authorities, to cause the mildest signs of chronic intoxication.

The general improvement of arthritis deformans for such a length of time is of interest. The morbid processes in and around the joints have largely disappeared; the pain and movements are much improved, even in those joints where destructive change was produced as shown by the shortening of the bones and grating. It has been mentioned before that the right hip has not shown the improvement of the other joints. Such improvement may be due to treatment, of may be spontaneous. No doubt, a part was accomplished by treatment.

The muscular system as a whole shows improvement. There is less twitching, pain and atrophy. The atrophy remains most marked on the right side, although these muscles are exercised, especially in the upper extremity, by using a cane.

Of the remaining changes which should be mentioned part are entirely due to disease, part to the arsenic, and part probably to both. There is a slight neuritis of both the circumflex and sciatics, more marked in the inguinals and anterior crurals. The question arises whether or not this neuritis is of arsenical nature. A definite answer is impossible, but it seems to be no more severe than is present in many cases of arthritis deformans.

The patellar tendon reflexes are slightly exaggerated, as might easily arise from the neuritis present, or result from the arsenic, as such a condition is found in mild forms of this intoxication and in the earlier stages of the severer forms preceding paralysis. The normal condition of the sensory nerves shows that there has been no effect on their powers of transmission. However, cases in the recent Manchester, England, epidemic were found in which there was paralysis of the muscles and normal sensation.

The burning sensations of the skin on the feet are commonly found in both conditions, but as it was present before the treatment was instituted it is fair to assume that a large part at least is due to the disease.

The changes in the skin are the most difficult to interpret. The presence of the patch of pigmentation over the right eye, which the patient says is a "birth-mark," is of interest, as such patches on the forehead or temples form one of the earliest signs of arthritis deformans.

The diffuse pigmentation was present in part before any medication, and is a very common sign of the disease. The marked increase during the first months of medication was no doubt due to the arsenic. It might be well to call attention here to the fact that a temporary increase of this pigment appeared just previous to oncoming storms from the south or east, and that the pigment was most pronounced in the regions of the body having the most pain (usually the thorax). This pigmentation was always accompanied by a diffuse erythema and followed by a branny desquamation. These conditions may have been due to a change in the vasomotor system allowing increased blood supply and apparently a darker color and desquamation; or the desquamation may have resulted from the effects of the arsenic, as such is common with or without erythema.

The atrophic condition of the skin on the dorsum of the hands and outer surfaces of the legs is no doubt due to the effects of the disease, although in one stage of arsenical intoxication these changes are present.

The small, more darkly pigmented spots on the inner surfaces of the legs have been reported in both conditions. The stippling of the skin over the shoulders and buttocks is due to the effect of the arsenic producing atrophic changes. Many of the cases in the Manchester epidemic showed similar marking. Nothing of the kind has been reported in connection with arthritis deformans; however, larger irregular patches of absence of pigment gradually shading into pigmented parts are seen in improved cases.

The general thickening of the epithelial layer of the palms of hands and soles of feet is present in both conditions. No doubt this has been influenced by arsenic as it has increased in the past two years, producing an appearance of ichthyosis. The unnatural perspiration is equally common in both.

The redness and hypertrophy of the sudoriparous glands of the palms of the hands, back of shoulders and soles of the feet, with a condition resembling corneal horns on the heels and on the balls of the toes, is due entirely to the stimulative action of the arsenic.

The eczematous condition which appeared on the scrotum is common in affection of the skin by arsenic, as is also the puffiness of the lids, suffusion of the conjunctivæ, and the irritability of the alimentary canal.

The notching of the nails may have resulted from disturbance in nutrition in either case.

In the recent English epidemic arsenious acid is reported to have caused enlargement and tenderness of the metacarpal joints. This explanation could not be applied here, as these joints were all affected before and it is only of interest in showing the marked likeness in these two conditions.

Surgical Spinal Analgesia in Mexico.—Mexican surgeons long ago adopted this method of anesthesia, and Villareal, Urrutia and others use it frequently for operations on the legs, genital organs and urinary passages, as well as for various gynecologic and abdominal operations and in obstetrics. A recent thesis on the subject by J. Adalid y Castillo is published in the *Revista Medica*, vol. xv, No. 21, Nov. 15, 1904, with numerous illustrations. He mentions several minor technical points worth noting. If the needle is inserted with the bevel held horizontally the fibers of the dura mater, being longitudinal, are severed and a much larger hole results than when the bevel is held vertically. Another point is to caution the patient not to make the slightest movement while the needle is in place. If he bends his trunk in any direction the fibers of the dura mater are lacerated and the hole enlarged. The Mexican surgeons consider it important to leave the needle in place for ten or fifteen minutes. This plugs the hole made in the dura mater, and prevents the escape of th anesthetic fluid into the surrounding tissues, which mishap is responsible for the accidents observed. A stopcock in the nozzle of the syringe prevents any reflux of the fluid, and also allows the body of the syringe to be detached and removed as soon as the needle is in place. They know of no contraindications to spinal analgesia for subjects over 12, except the disadvantage of having certain patients witness or be conscious of the procedures.

Pernicious Anemia.—From an elaborate study of the subject and of the theories advanced by various authorities Syllaba offers the following explanation of this disorder. His communication appeared in the *Archives Gén. de Méd.*, cxciv, No. 38, 1904. There are certain toxemias the first and immediate effect of which is an abundant destruction of the red corpuscles occurring in part in the general circulation, and in part, perhaps, in certain organs. This hemocytolysis as such incites the hemopoietic organs to a powerful reaction and a deadly war occurs between the exaggerated hemolytic and the reinforced hemopoietic processes. If the toxic agent is the least active the destruction of red corpuscles is less intense and the hemopoietic organs are sufficient to restore the destroyed elements. This is what occurs in bronzed diabetes and in similar conditions. There is here no grave anemia, but sometimes a slight plethora and the chief, if not the only, proof of the exaggerated hemolysis is the pigmentation. If the toxic agent is more active the destruction of the reds is also more intense, and hemopoiesis, even when stimulated, is insufficient to repair the damage. There results a grave anemia as the principal symptom of the syndrome of Biermer. The relationship of this syndrome with bronzed diabetes and similar conditions is proved by the analogies which exist in the visceral pigmentations. Moreover, although the hemolysis always prevails in Biermer's disease, there are nevertheless from time to time, periods in which the hemopoietic activity appears to prevail temporarily. This occurs especially after marked exacerbations of the hemolytic process, during which also the irritation of the hemopoietic organs, caused by products of the destruction of the corpuscles, attains its highest degree. With arsenical treatment we imitate the natural process. We artificially increase the destruction of red corpuscles, already rather intense, so as to stimulate the hemopoietic organs into a salutary reaction. He compares these processes with those occurring in the overtaxed heart, its compensatory hypertrophy, and the stimulation of respiratory activity by obstruction of the air passages. Each pathologic process like that in the blood-producing organs excites a compensatory stimulation to save the organism. The automatic regulation of the composition of the blood by way of hemocytolysis is, therefore, a tetelogic phenomenon of the first order.

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PHYSIOLOGY OF UTERINE CONTRACTIONS.

Our readers are probably familiar with the observations of the Russian physiologists on the possibility of "revival" of the activity of the mammalian heart, by transfusion through its vessels of nutrient saline solutions even after astonishingly long periods of quiescence or "death." These experiments formed the basis for most remarkable newspaper articles on "resurrection of the dead," at the time of their publication.

In Pawlow's laboratory experiments of similar nature on the uterus have recently yielded interesting if less sensational results.[1] By removing the uterus and its adnexa, together with the broad and round ligaments, the cellular tissues, and a piece of the aorta and vena cava of rabbits, after having previously washed out all the blood with a saline solution (Locke's), it is possible to secure the organ in a condition for study independently of the action of the central nervous system. When such a uterus is kept in a specially prepared moist chamber apparently normal contractions take place independently of any external stimuli; a short period of rest follows each period of contraction, and so on alternately for an hour or more. This automatic contractility is observable in the virgin uterus, as well as in multiparous animals, but the sensitiveness of the uterus is greater and its action more vigorous and prolonged in pregnancy. Furthermore, in organs removed toward the end of pregnancy the entire birth mechanism can be observed to occur in all its details, independently of the central nervous system. The vagina contracts independently of the uterus, and the broad and round ligaments appear to take an active part in uterine contractions, particularly in parturition. After excision of such a uterus it could be "revived," i. e., made to resume contractions, even after from twenty-four to forty-eight hours, if kept in a cool vessel of saline solution. This merely means that the uterine muscle cell does not lose its power of contractility when kept without nourishment for this length of time, provided that disintegration, which probably is a result of autolysis of the cells, is prevented by keeping it at a low temperature at which the ferments are inactive.

Pharmacologic observations on such isolated uteri show conclusively that the action of such drugs as ergot is entirely local and not through nervous influences. Sphacelinic acid causes exactly similar changes in the isolated organ as it does in the uterus of the intact animal, as shown by tracings of the contractions, but it has no effect on the blood vessels of the isolated organ. Hydrastinin produces exactly similar results. Adrenalin, even in the most dilute solutions, acts more energetically on the uterus, whether isolated or intact, than those remedies which are usually regarded as specific for that organ, according to Kurdinowski, while it energetically constricts the blood vessels even of the isolated uterus. Narcotic poisons, such as chloral hydrate and alcohol, have relatively little influence on the isolated uterus. As the phenomena observed in these experiments on the uterus are also seen in smooth-muscled organs generally. the degree of independence of smooth-muscle tissue from outside nervous influences seems well established.

1. A summary of this work by Kurdinowski in English will be found in the Dublin Journal of Medical Sciences, December, 1904. Also in THE JOURNAL, xliii, page 1586.

ZOMOTHERAPY IN TUBERCULOSIS.

About four years ago, Richet published his observations on tuberculous dogs which had been fed on large quantities of raw meat or raw meat juice. He concluded that the disease can be arrested, in the great majority of instances, if a sufficient quantity of meat is given and hazarded the opinion that, in all probability, a similar method of treatment would be of value in human beings. A few months later, Héricourt published his observations on twenty-five cases of human tuberculosis. He showed that in the first two stages of the disease, the treatment is often of great benefit, but suggested that it should be used with caution in the third stage, especially when there is evidence that the liver is performing its work imperfectly.

Recently Philip[1] has published the results of his experience with this form of treatment, together with the results of some work on the effect of zomotherapy on metabolism which was done by Galbraith under his direction. Galbraith's observations were made on healthy and on tuberculous patients, in whom the nitrogenous value of the food was maintained as nearly constant as possible throughout. The experiments showed that under raw meat feeding there was a marked increase in nitrogen retention, provided that the heat value of the nitrogen in the diet exceeded the actual requirements of the individual per kilo of body weight. They also showed improved intestinal metabolism and a marked digestive leucocytosis. These results were probably not from overfeeding *per se,* for if this were the case cooked meat should have had the same effect. Philip thinks that there is probably some enzyme in the raw meat which is destroyed by heating, and that this explains the difference in action between raw and cooked meat.

The results obtained by Philip were encouraging, even, in some cases, in the third stage of the disease;

1. Practitioner, January, 1905. Abstracted at length in THE JOURNAL, p. 663, No. 17.

but the best results were obtained in the earlier stages. The patients almost without exception improved in general appearance, there was a gain in weight of from 10 to 30 pounds, and the new-formed tissue was firm and not largely in the form of fat, as is the case with some other forms of overfeeding. There was an increase in muscularity, and at the same time a decrease in the myotatic irritability which is so commonly present in tuberculosis. The pulse rate generally slowed and the blood pressure increased, while the blood itself showed a great increase in hemoglobin and a more marked digestion leucocytosis. The temperature was favorably influenced, the digestive processes proceeded with greater ease. and the local signs regressed, and in some cases disappeared.

Some recent work of Richet[2] throws some light on the philosophy of this form of superalimentation. By means of experiments on dogs he shows that the amount of nitrogenous material required in the food during the first stages of tuberculosis is from 25 to 100 per cent. more than is required by the normal individual. If there is a loss of weight this shows that the calories excreted are greater than those taken; if there is a gain in weight the contrary is the case. In dogs with tuberculosis, two dietary considerations are necessary, food enough to produce at least 12 calories per cubic decimeter of surface, and at least 15 centigrams of nitrogen per cubic decimeter of surface. It is probable that similar dietary considerations are necessary in tuberculous human beings.

THE VALUE OF SUSPENSION OF DEAD TYPHOID BACILLI FOR THE WIDAL REACTION.

The reliance which the profession in general places on the Widal reaction is shown by the fact that in many states the country practitioner is able to have blood from suspected cases tested by a state laboratory, and frequently avails himself of this opportunity. In many large cities a similar condition exists. In the case of the country practitioner, the distance from the laboratory frequently entails a considerable loss of time before a report is received. It is obvious, too, that under certain other conditions, such as those which prevail on shipboard, or with an army in the field, the ordinary method of making the Widal test will not avail. It will be remembered that in the early history of the Widal reaction it was proposed to make the test a macroscopic one, but this form of the reaction, though perfectly feasible, was subsequently abandoned because the microscopic test was found to be more delicate. It was further noted by Widal himself that in cultures of the typhoid bacillus killed with formalin, clumping took place with typhoid sera almost as well as if living cultures were used. These facts were not put to practical use until late in 1903, when Ficker proposed the use of dead cultures, and the macroscopic instead of the microscopic method, when the circumstances prevented the use of living cultures. The fluid containing the suspension of dead typhoid bacilli Ficker called the diagnosticum, and since he published his original article a number of reports bearing on the value of the procedure have been published.

The important questions to be determined are whether the diagnosticum is to be compared in accuracy with the ordinary method of performing the Widal reaction, whether the procedure is simple enough and the results obvious enough to be available to one without a special laboratory training, and whether the test fluid will keep for a reasonable length of time under varying climatic conditions. These queries have recently been answered in three articles by Selter, Flatau and Wilke, and Eichler.[1] The studies of Selter, and those of Flatau and Wilke, had to do, for the most part, with the determination of the reliability of the test. The studies of Selter were conducted during a small typhoid epidemic, during which he was able to obtain blood from cases in various stages of the disease. He came to the conclusion that the use of the diagnosticum was as satisfactory as the ordinary Widal reaction during the height of the disease, but was not so reliable early in the disease and during convalescence. He states that he considers the diagnosticum to be a valuable aid to our methods of diagnosis in typhoid fever, but that some writers go too far when they state that it will take the place of the Widal reaction, as it does not appear till later and disappears earlier. Flatau and Wilke give a more favorable account of the value of the diagnosticum. In their series of cases it gave a positive result on every occasion that the Widal reaction gave a positive result. It also gave a good reaction in some cases as long as nine years after the attack of typhoid. The researches of Eichler bearing on the keeping properties of the solution, especially in tropical countries, showed that the fluid was good for as long as nine months.

The net result of these observations—and preceding ones agree with them in the main—is to show that dead cultures of the typhoid bacillus used in conjunction with the naked-eye method of observation, are of great practical value in the diagnosis of typhoid fever. Inasmuch as the use of this method requires neither a microscope nor an incubator, and does not necessitate the keeping on hand of a fresh typhoid culture, it might be of great value in remote country districts, on shipboard and in the field.

TRUTH AND POETRY CONCERNING URIC ACID.

VII.

Thus far in the discussion of uric-acid formation we have gone on the general assumption that uric-acid excretion is an index therefor. We have followed this plan in order not to make the discussion too complex,

2. Revue de Médecine, vol. xxv, No. 1.

1. Münchener med. Woch., No. 3, 1905.

but it must now be pointed out that uric-acid formation and uric-acid excretion do not always go on parallel to each other. Uric-acid excretion depends not on uric-acid formation alone, but probably on two other conditions: First, on retention due to the difficult solubility of the substance; second, on the decomposition of uric acid, once it has been formed inside the body.

While uric acid is a difficult soluble substance and is easily precipitated from solution, under normal circumstances the factor of retention from this cause probably influences uric-acid excretion very little. Haig, it is true, in order to bolster up his theoretical conceptions when the facts contradicted them, has made a great point of uric-acid retention. He brings forward no convincing evidence in favor of his view, and other investigators do not support him. In disease, on the other hand, there may be marked retention of uric acid and precipitation in the tissues; under these conditions it would be fallacious to suppose that the amount of uric acid excreted is an index to the amount formed. The literature on gout shows how prone physicians are to fall into this error, and the conflicting theories of gout have largely arisen as a result.

Much more important under normal conditions is the fact that a certain amount of uric acid is destroyed in the body after it is formed. We have known for more than fifty years[1] that most of the uric acid fed as such is transformed in the body to urea, and recently this fact has been established beyond doubt.[2] Different animals behave somewhat differently in this regard, dogs converting more of the uric acid to urea than rabbits.[3] Newborn dogs, on the other hand, do not decompose the uric acid to any extent.

Since uric acid introduced as such is largely destroyed in the organism, it was natural, reasoning by analogy, to think that uric acid formed as an intermediary product of metabolism in the body, should undergo a similar decomposition. Many researches have been made to test this point, with conflicting results, Loewi denying such a decomposition, Burian and Schur maintaining it. So far as we can judge, the latter investigators are right. One experiment of theirs makes their idea very probable. On injection of a given amount of uric acid into an animal, the same amount of uric acid is excreted in the urine as when equivalent amounts of purin bases are given to the same animal, either subcutaneously or by the mouth. The most plausible explanation seems to be that all the purin bases are converted into uric acid, and that a part of this is destroyed just as when uric acid itself is administered.

According to Burian and Schur, it is possible to calculate from the uric acid excreted in twenty-four hours, the amount which has been formed during this time. Their rule is to multiply the amount excreted by a fraction whose numerator is 100 and whose denominator is that percentage of the purin nitrogen taken in which is given out as uric-acid nitrogen. Reducing this fraction we obtain the so-called integrative factor; in the dog it is 22; in the rabbit, 6; in man, 2.

Besides having proved the decomposition of uric acid of exogenous origin in this way, Burian and Schur believe that they have shown that a similar fate awaits the purin of the uric acid of endogenous origin. Thus the blood of dogs on a purin-free diet, after extirpation of the kidneys, contains no uric acid. This might mean either that the kidneys form uric acid, or that the uric acid in the blood is in a combined state, or that under the conditions mentioned the uric acid formed is destroyed. Now, on excluding the liver from the circulation in such animals, uric acid appears in the blood at once. Thus Burian and Schur believe that in nephrotomized dogs, and probably also in normal dogs, the liver destroys the uric acid of endogenous origin. Further experiments by the same investigators, less well founded, we fear, indicate that the human kidney, unlike the dog's, has the power of destroying uric acid, and that the human liver is far less capable of decomposing uric acid than is that of the dog. Burian and Schur reach the general conclusion that the uric acid of endogenous origin is always destroyed, and therefore that uric acid is to be regarded not as a terminal product of metabolism of the purin bodies. but as an intermediary product of that metabolism. We present these conclusions, but are as yet unable to accept them as proved.

The question now arises: What is the exact nature of the decomposition of uric acid in the body, and what are the products of its cleavage? It has been shown by laboratory experiments that uric acid can be broken up *in vitro* in at least three different ways: First, on treatment with concentrated hydrochloric acid, under special conditions, it yields glycocoll, carbon dioxid and ammonia. Second, on treatment with nitric acid, it yields first alloxan and later parabanic acid and carbon dioxid; the parabanic acid then goes to oxaluric acid and later still to oxalic acid and urea. Third, on treatment with permanganate of potash, uric acid is split to allantoin and carbon dioxid, and the allantoin on oxidation yields urea and oxalic acid.

Physiologic chemists have been interested in finding out whether uric-acid decomposition in the body follows any one of the above three routes. or travels along a path of its own. Urea, glycocoll, oxalic acid and allantoin have all been demonstrated in the animal body, and all have at one time or another been supposed to be related to the decomposition of uric acid. It will be noted that no matter which of the three modes of decomposition mentioned above were followed in the

1. Wöhler u. Frerichs: Ueber Veränderungen, welche namentlich organische Stoffe beim Uebergang in den Harn erfahren, Ann. d. Chem. u. Pharm., lxv, p. 335, 1848.

2. Weintraud, W.: Ueber Harnsäure im Blut und ihre Bedeutung für die Entstehung der Gicht, Wiener klin. Rundschau, x, 1896, Nos. 1 and 2.

3. Ebstein u. Nikolaier: Ueber die Ausscheidung der Harnsäure durch die Niere, Virch. Arch., cxliii, 1896, p. 337.

body, urea would always arise, since in the second and third methods urea is formed directly and by the first method the glycocoll would burn to urea; so the evidence of an increased urea formation after feeding uric acid affords no clue as to the way in which the uric acid breaks down. It would take too long here to review in detail the many experiments which have been made to settle this question, but it may be stated that thus far it has not been demonstrated with certainty that either oxalic acid or allantoin is produced in the animal body as a result of the decomposition of uric acid. It has been definitely proved, however, that glycocoll arises in man and animals as a result of the cleavage of uric acid.[4] It seems probable, therefore, that when uric acid is decomposed inside the body it undergoes cleavage by the first method described; that is to say, it is split into glycocoll, carbon dioxid and ammonia. The possibility of the occurrence of decomposition by other methods, however, is by no means positively excluded.

Just how the cleavage is brought about is a point which is beginning to be studied. Croftan,[5] as a result of a series of careful experiments, suggests that an albumose-like body loosens the affinities of the uric-acid molecule, and that a nucleo-proteid, acting as an oxygen carrier, facilitates the subsequent oxidation. At any rate, there seems to be a catalyzer concerned in the process that is destroyed by heat.

We have next to consider the exact localization in the body of the processes of uric-acid formation and decomposition. To the work which has been done on this subject we hope to refer next week.

TESTIMONIALS.

A booklet recently issued by a proprietary medicine firm contains interesting subjects for reflection. About a score of "testimonials" are presented, and those from a good-sized western city are peculiarly noteworthy. Certificates from two physicians in good standing alternate with certificates from three notorious quacks. The position of these physicians is certainly neither enviable nor comfortable, but it is an admirable object lesson to those who are tempted at times to write a testimonial.

COMPULSORY VACCINATION CONSTITUTIONAL.

One of the stock arguments of the antivaccinationists has been that compulsory vaccination is contrary to the Constitution of the United States. They have prated of "personal liberty," and have made dire threats of what they would do. In some states, weak-kneed courts have encouraged them in their delusions at the expense of public health and at the cost of the lives of the innocent. In Massachusetts especially they have fought compulsory vaccination, finally carrying the fight to the highest tribunal. And they have lost! February 20 the Supreme Court of the United States, speaking through Mr. Justice Harlan, held the Massachusetts compulsory vaccination law to be constitutional on the ground that in the protection of the health of the community compulsory vaccination may be exercised by the state as a police regulation. So those boards of health that have been timid in the past may now take courage. Proper state legislation for the abolishment of smallpox is made possible without any fear as to the constitutionality of such action.

POLITICIANS WIN TEMPORARILY IN OHIO.

It is reported that the governor of Ohio has directed the board of trustees of the Ohio Hospital for Epileptics to ask for the resignation of the superintendent, Dr. A. P. Ohlmacher. By those who knew the strength and methods of the political ring that sought his removal, this action is received without surprise. It is not to the credit of the governor that he should take his action without waiting to investigate the superintendent's specific charges that some of the subordinate officers of the hospital have been conniving with outside politicians to defraud the state through the sale to the institution of many articles at prices above their real value. Dr. Ohlmacher has publicly submitted for investigation the items of graft, and has asked a public investigation of all the institution's affairs before his departure on March 15. By complicating the issue, the time-worn method of their kind, the grafters have won. It is announced that the post will not be filled before July 1. The medical profession of Ohio should use every influence to force the trustees to choose for the place another man as capable and as uncompromising in his attitude toward graft as has been Dr. Ohlmacher.

A MARKED DECREASE IN TUBERCULOSIS MORTALITY.

One of the achievements of the International Cigarmakers' Union that redounds to its credit is the fact that it has reduced the death rate from pulmonary tuberculosis among its members from 51 per cent. to 24 per cent. This reduction has taken place since 1888, or two years and eight months after the eight-hour law went into effect, and during the same period the length of lives of the members has been increased from 31 years, 4 months and 20 days to 47 years, 3 months and 12 days. The latest government statistics place the number of cigarmakers who die from pulmonary tuberculosis at 62 per cent., and places them second in the list. The government figures, however, include both union and non-union workers, and as the death rate from pulmonary tuberculosis of union men is 24 per cent., it follows that the death rate of non-union workers is even greater than 62 per cent., or, approximately, 76 per cent. The probable reason for this difference in mortality from tuberculosis between union and non-union cigarmakers is to be found in (1) shorter hours, (2) better sanitary conditions, (3) better treatment, (4) more independence, (5) better education, and (6)

4. Wiener, H.: Ueber das Glycocoll als intermediäres Stoffwechselprodukt, Arch. f. exper. Path. u. Pharmakol., xl, 1897, p. 313; Ueber Zerzetzung und Bildung der Harnsäure im Tierkörper, ibid., vol. xlii, 1899, p. 375.

5. Croftan, A. C.: Synopsis of Experiments on the Transformation of Circulating Uric Acid in the Organism of Man and Animals, Med. Rec., New York, lxiv, 1903, pp. 6-11.

better wages. Such excellent achievements as this deserve the approbation of medical men, and the emulation of laborers in other employments which tend toward impairment of health.

INSANE SELECTION OF INSANE HOSPITAL SITES.

The newspapers, with some political motives, are severely criticising the New York State Lunacy Commission for purchasing a hospital site, at a cost of $42,000, which will require the expenditure of $30,000 more for a water supply. *Charities* does not spare severe words in its discussion of several hospital sites in New York. It seems that a committee of the New York Assembly has been appointed to investigate the last blunder, the purchase of the Baker farm at Comstock, Washington County. The editor remarks that it would be extravagant for the state to receive the site as a gift, in view of the necessity for all time to come of hauling supplies and of transporting patients and their friends from markets and centers of population to this out-of-the-way spot. In the interests of economy, the Buffalo *News* recommends putting the Baker farm on the market and purchasing a site elsewhere, rather than trying to utilize this undesirable piece of property. Reference is made to the blunders in the location of the Willard, the St. Lawrence and the Gowanda State hospitals. Out-of-the-way sites were chosen, and the opportunity for viewing these blunders in the light of later experience would appear to make this latest blunder inexcusable. The criticisms of partisan papers may not always be depended on, but the arraignment by the editor of *Charities* is a severe indictment of the New York State Lunacy Commission.

THE NATURE OF THE LEISHMAN-DONOVAN BODIES.

In a previous editorial[1] we called attention to these peculiar bodies found in the splenic blood of cases of kala-azar and so-called dum-dum fever. At the time of their discovery they were supposed to be an entirely new form of parasite, since they did not correspond to any of the known forms. We believe it was Leishman who suggested at this time that they represented a form of trypanosoma, but this idea did not gain foothold, as it was discountenanced by such an eminent authority as Laveran. Later Rogers, and still more recently Chatterjee, showed by cultivation that the parasite was, in fact, closely allied to the trypanosomes. In his last communication, Chatterjee[2] shows that if the splenic blood from an infected case is introduced into a 5 per cent. solution of citrate of sodium there develop in a few days bodies which closely resemble the trypanosomes. The Leishman-Donovan bodies gradually become more elongated, the micronucleus moves to one end of the body, and a thick flagellum is formed at this end. The organism differs from the true trypanosomes in the fact that the posterior flagellum is only rudimentary, as is the undulating membrane. This places the organism in a class with the genus *Trypanopsis,* of which one or two other members have been described.

1. THE JOURNAL A. M. A., Aug. 6, 1904.
2. Lancet, Jan. 7, 1905.

THE PROPHYLACTIC AND CURATIVE VALUE OF DIPHTHERIA ANTITOXIN.

The marvelous saving of life that has been effected by means of the prompt and vigorous employment of antitoxin in the prevention and treatment of diphtheria is one of the triumphs of scientific medicine. That antitoxin has reduced the mortality in this disease enormously is an established fact, and we have become so convinced of this that nowadays little is said regarding it. However, it is well occasionally to call attention to this fact, and to emphasize its importance. Last week we published an abstract of a paper by Dr. Franklin Royer,[1] read before the Philadelphia County Medical Society, in which the author presents some convincing statistics by making a comparison of the mortality between the number of cases of diphtheria recorded in the larger cities of this country, by decades, before and after the introduction of the antitoxin treatment. These statistics are an added proof that since antitoxin has been used there has been a marked decrease in the number of deaths from diphtheria. By the use of antitoxin, a disease, which a few years ago was one of the most deadly and dreaded, has been brought under control, and is now one of the simplest with which the physician has to deal. The former mortality of from 30 to 50 per cent. has been reduced exactly one-half, and there is reason to believe that, if antitoxin were administered early enough and in sufficiently large doses, this mortality might be reduced still further.

INTERNATIONAL EXCHANGE OF PROFESSORS.

The proposed international exchange of professors between the United States, Germany and France has been discussed with much interest recently, and we understand that one university in this country has taken the initiative in such an arrangement with a German university. There is much that is commendable in the plan. It enables students who have not the means for study in foreign universities to profit by the teaching of men who are recognized as authorities in their subjects. The public would be benefited, not only through the effects of the spread of knowledge which come to them indirectly, but also through the influence exerted on the press by the teachings of such men, and thus useful knowledge would be popularized. Intimate contact between men of different nationalities influences public sentiment and increases friendly feeling between nations. Few professors would fail to appreciate the opportunity of gaining a larger audience and of greatly extending their influence in this way; this in itself is one of the greatest rewards of an academic career for many men who choose to teach. The professors themselves would also be broadened by contact with fellow-workers of a different nationality, and would almost certainly become more valuable in the work of their home university. In the past it has been customary for ambitious students to go to the sources of knowledge, and this has been specially true of medical students. The number of American medical students who have availed themselves of the opportunities for study in the clinics, laboratories and lecture halls of leading

1. THE JOURNAL, Feb. 18, p. 568.

foreign universities has always been great and the number seems to be increasing in spite of the fact that there has recently been such great improvement in the methods of teaching and the opportunities for medical study at home.

AMBIDEXTERITY.

The faculty of being able to use the right and left hands interchangeably has long been considered desirable in surgeons, and by some has been urged as a desideratum for all engaged in work requiring manual dexterity. In England the matter has been carried so far that an "Ambidextral Culture Society" has been formed, which distributes considerable literature on the subject. At first sight such a faculty seems eminently desirable, and undoubtedly is so in a limited number of callings. In any attempt to supersede a natural and instinctive manner of doing things it is well to dispassionately review the why and wherefore of the process before suggesting sweeping changes, and it is doubtful whether the Ambidextral Culture Society has done this. Harman[1] has recently sought to explain why we are naturally righthanded, and to show that our apparent righthandedness is in reality a form of ambidexterity. He suggests that our righthandedness comes down to us from the period when human ascendency was dependent on physical prowess, and depends on the knowledge of the vulnerable heart region. Under such circumstances, he suggests, man learned to use his right arm as a fighting arm and his left arm as a shield arm. This tendency has been inherited, and is seen to-day in the use of the right hand as the active agency, while the left is used as a supplementary assistant. Harman's argument is that the supplementary work performed by the left hand is, in its way, just as important as the active work performed by the right. In other words, while we are not ambidextrous in the strict sense of the word, we are eminently gifted with co-ordination of bimanual action. This being the case, it would seem undesirable to advocate any widespread training such as the Ambidextral Culture Society suggests.

CONGENITAL MYATONIA.

Myatonia—as opposed to myotonia or motor spasm—is the term applied by Oppenheim to a condition of deficiency or absence of muscular tone that he has observed especially in children during the first year or two of life. It may involve the entire body or it may be confined to certain portions, the affected parts being flaccid and motionless. The tendon-reflexes are diminished or abolished, and the involved joints are unduly movable, while active motion is impaired. The muscles supplied by the cranial nerves usually escape, as does also the diaphragm. The affected muscles are flaccid, soft and thin, and the electrical reactions are diminished quantitatively. Intelligence, sensibility and the special senses do not suffer, and the functions of the sphincters are preserved. The condition appears to be of congenital origin, and it is thought to be due to an arrest in the development of the muscles. It differs from progressive muscular dystrophy in the absence of a familial tendency and in a failure of the symptoms to progress; from acute anterior poliomyelitis in its congenital origin and in the absence of true muscular atrophy, of degenerative electrical reactions and of changes in the ganglion cells of the anterior horns of the spinal cord; from amaurotic family idiocy in the tendency to improvement rather than to a fatal termination, in the absence of changes in the eyegrounds and of gross pathologic alterations in the nervous system. A case of congenital myatonia with necropsy has recently been reported by Dr. William G. Spiller.[1] The patient was a male child, 22 months old, born without complication at term and breastfed. Nothing was noticed until the age of 5 months, when he did not seem normally to take notice of things about him. He was at no time able to hold objects in his hand. He was fairly well developed, and the muscles appeared not to be wasted, though soft and flabby. Muscular power was diminished and the knee jerks and the heel jerks were absent. The legs could be overextended on the thighs. The child was able to sit unaided only for a minute or two, though the head would fall slightly forward. He had always been unable to stand. Death resulted from some intercurrent febrile disorder. On postmortem examination, the absence of muscular rigidity was striking, the hypotonicity being not less than during life. There was an excess of subcutaneous fat, and the muscles were pale, flabby and small in size, and they contained a large amount of fatty connective tissue, with a considerable increase in the nuclei. The muscle-fibers were reduced in size, with well-preserved transverse striation and less distinct longitudinal striation. The brain, the nervous system, the cord and the peripheral nerves were found normal, both macroscopically and microscopically. The essential lesion would thus appear to consist in an arrest in the development of the muscle-fibers, and, accordingly, some measure of improvement may be hoped for in cases subjected early to appropriate treatment, including, in addition to a nutritious diet, passive and active exercise and electrical stimulation of the affected parts.

1. British Medical Journal. Jan. 7. 1905.

1. University of Pennsylvania Med. Bull., January, 1905, p. 342.

Medical News.

CALIFORNIA.

Unlicensed Practitioner Fined.—"Dr." Annie D. Howe, Oakland, was fined $300, January 30, for practicing medicine without a license, and paid the fine.

Personal.—Dr. Thomas N. Sample, Fresno, has been elected physician of Fresno County.——Dr. P. C. Campbell, Point Richmond, has been appointed a member of the governor's staff.

Anti-Vaccination Bill Goes to House.—Senator Leavitt's anti-vaccination bill, after a strenuous fight, was passed by the senate, February 8, by a vote of 22 to 15, and has now gone to the assembly.

Automobile Sterilizer.—San Francisco is to have an automobile sterilizer weighing four tons, with a maximum speed of five miles an hour, and to cost $4.000. The disinfecting compartment is large enough to hold all the bedding of the household.

CONNECTICUT.

Emergency Hospital.—Dr. John W. Johnson, Torrington, opened on February 11 an emergency hospital with a capacity of two beds, later to be increased to four.

Personal.—Dr. Elmer F. Blank has been re-elected president of the Bridgeport Board of Health.——Dr. Samuel D. Otis, Meriden, slipped on the ice and fell, January 30, dislocating one knee.——On February 1 Dr. George L. Beardsley entered on his two years' duty as health officer of Derby.

Bequests to Grace Hospital.—The Probate Court has decided that $10,000 shall be paid to Grace Hospital from the estate of the late Charles D. Hall, and that, on the death of Miss Amelia M. Stannard, who holds a life interest in the estate, $30,000 from the estate of the late Mrs. Sylvia C. Hall will be available for the hospital.

January Deaths.—During January 1,402 deaths were reported, 141 more than in December, 38 less than in January, 1904, and 35 more than the January average for the five previous years. The death-rate was equivalent to an annual mortality of 17.3 per 1,000. Pneumonia caused 189 deaths; diseases of the nervous system, 168; heart disease, 135; consumption, 134; influenza, 66; violence, 64; bronchitis, 39, and diphtheria, 37.

DISTRICT OF COLUMBIA.

Government Clerks Must Pay Their Physicians.—A bill has been introduced in the house requiring government clerks to pay their debts, including medical fees. The measure provides that whenever any civil service employe of the United States shall, after three demands in writing, refuse to pay an indebtedness for house rent, fuel, groceries, household necessities, clothing, physicians' services, etc., "consistent with such employe's social position in life," provided the indebtedness shall have been contracted after entrance into the service, such refusal shall be cause for immediate suspension. Suspension shall continue until settlement is made. If a satisfactory settlement is not made within three months, the employe "shall be stricken from the rolls as incompetent and unworthy."

GEORGIA.

Wesley Hospital Assured.—The Christmas offering of more than $27,000 made by Georgia Methodists for the benefit of Wesley Memorial Hospital, Atlanta, has assured the success of the enterprise. Work on the building will be commenced in a few weeks.

Personal.—Dr. Charles F. Benson has been re-elected president of the Atlanta Board of Health.——Dr. William L. Gilbert, Atlanta, has been appointed surgeon of the First Cavalry, Georgia State Troops, with the rank of major, vice Dr. William W. Owens, Savannah, resigned.

Medical Training School Opens.—The Southern Medical Training School, designed primarily for the training of medical missionaries, but also offering instruction to students of medicine and nurses, was opened February 2 in Atlanta. Dr. J. McFadden Gaston is chairman of the trustees of the institution.

Ill and Injured.—Dr. Samuel A. Visanka, Atlanta, has been seriously ill with typhoid fever.——Dr. James C. Fussell, Fitzgerald, was injured, February 8, in a runaway accident.——Dr. Henry W. Clements, Lenox, while hunting, February 3, shot himself through the left foot, necessitating the amputation of two toes.

ILLINOIS.

Hospital Sunday in Evanston.—On February 12 nearly $4,000 was contributed by the churchgoers of Evanston for the benefit of the Evanston Hospital.

Fire Destroys Office.—In a fire in East St. Louis, February 10, the office of Dr. James W. Rendleman was destroyed, and also the furniture and instruments of the late Dr. A. C. Corr of Carlinville, which had not yet been removed.

Early Diagnosis of Tuberculosis.—The State Board of Health has issued for distribution to physicians throughout the state a circular on "The Early Diagnosis of Tuberculosis," which includes in concise and systematic form all the information on the diagnosis of the disease to be obtained from a review of American and foreign medical literature.

Aerial Disinfection.—The State Board of Health is preparing to make an elaborate series of investigations on aerial disinfection by formaldehyd to ascertain definitely the value of a process recently recommended by the State Board of Health of Maine. This process is simple, and requires no lamp or other heat which might be a source of danger from fire. It consists simply of pouring formaldehyd solution on permanganate of potash, the only requirement being that the formaldehyd solution be of good and reliable quality and used in proper proportion to the permanganate of potash.

Chicago.

Antispitting Crusade.—Acting on orders from the chief of police, violators of the antispitting ordinance were arrested February 20. On the first day 171 arrests were made.

Library Bequeathed to Rush.—By the will of the widow of the late George P. A. Healy, the fine medical library collected by the late artist is bequeathed to Rush Medical College.

Deaths of the Week.—During the week ended February 18, 630 deaths were reported. Pneumonia led the death causes with 136; consumption caused 73 deaths; heart diseases, 45; Bright's disease, 36; bronchitis, 35; violence 34, and smallpox 4.

Many Deaths.—A total of 426 deaths was recorded during the first four days of the week—a total which represents an annual death rate of 30.2 per 1,000. This is a figure not reached before since 1866, and the officials were apprehensive of a record-breaking week. Fortunately, the returns fell from this daily average of 106.5 to an average of 68 during the last three days, and the mean mortality rate of the week was only 16.50, as compared with 17.61 for the corresponding week of last year, and of 16.83 for the average February death rate of the previous decennium. There was a marked reduction in the reported deaths from the contagious diseases of childhood, from influenza and from typhoid fever, as compared with the preceding week. The respective totals of these deaths are 20 for the week and 38 for the week ended February 18. Laboratory indications point to a continued decrease of diphtheria; only 1 out of 32 cultures showed the presence of the diphtheria bacillus, while during the week before it was found in 7 cultures out of 34. On the other hand, the influenza bacillus was found in 13 of the 32 cases of suspected diphtheria, and the bacteriologists believe that influenza is frequently diagnosed as diphtheria.

INDIANA.

Aimed at Patent Medicine Men.—A bill has been introduced by Senator Mountz which provides that it shall be unlawful to sell or to offer for sale any proprietary medicine, unless the correct formula shall be printed on each package. The fine for violation of this law is elastic, ranging from $5 to $1,000.

Personal.—Dr. John F. Robertson, Indianapolis, has been appointed assistant deputy coroner of Marion County.——Dr. C. Homer Stalker has resigned as surgeon of the Indiana State Soldiers' Home.——Dr. Samuel M. Ried, Muncie, is critically ill.——Dr. Noah S. Wood, Anderson, is seriously ill.——Dr. John N. Parr, Jolietville, who has been ill with influenza, has had a relapse and is in a critical condition.——Dr. Francis M. Warford, Cicero, is reported to be critically ill.

Verdict for Defendant.—In a suit in which Dr. David Gardner, acting health officer, Lehigh, Ind., and the City of Lehigh were sued by Cyrus Miller for the value of property destroyed through the alleged negligence and carelessness of the first defendant, the jury found for the defeudants. In order to fumigate clothing of a smallpox patient residing outside the city limits, Dr. Gardner brought the clothing to a vacant store, and proceeded to employ disinfection by formalin vapor. The building took fire, and, with ten other buildings, was destroyed. The court decided that the physician had not been negligent, and that the city was not liable.

January Disease and Death.—In January influenza was the most prevalent disease; in December bronchitis was most prevalent. Pneumonia, which stood fifth in December, rose to second place in January and scarlet fever and diphtheria increased. The order of disease prevalence was: Influenza, pneumonia, tonsillitis, bronchitis, rheumatism, scarlet fever, diphtheria, typhoid fever, smallpox, measles, whooping cough and cerebrospinal meningitis. A decrease appears for smallpox, as compared with the corresponding month last year. The figures are: 480 cases, with 8 deaths in 38 counties in January, 1904, and 218 cases with 7 deaths in 27 counties in 1905. The cases of typhoid fever numbered 173, with 50 deaths in 41 counties. The same month of last year there were 182 cases, with 38 deaths in 53 counties. This is an increase by this comparison. Three hundred and ninety-six deaths from tuberculosis occurred, as against 361 in January, 1904. Of the deaths 177 were males and 219 females. Two hundred and sixty-seven, or 67.5 per cent. were in the prime of life period of 18 to 50. Of the females, 82 were mothers between the ages of 18 and 40, and they left 168 orphans under 12 years of age. Of the males, 20 were fathers in the same

age period, and they left 48 children under 12. Consumption, therefore, in the one month made 216 orphans under 12, made 20 young widows and 82 young widowers, and invaded over 300 homes. Pneumonia caused 558 deaths; in the same month last year, 540. Deaths from all causes in January numbered 3,309, an annual rate of 14.7 per 1,000. In the same month of last year the number was 3,117, the rate of 14.8 per 1,000.

MARYLAND.

Baltimore.

Pneumonia Leads.—There were 43 deaths last week from pneumonia, only 21 being ascribed to consumption.

Book and Journal Club.—The Book and Journal Club of the Medical and Chirurgical Faculty has been in existence nine years, during which time it has collected and spent for the library about $4,300. In addition to paying for the binding of many journals, this money has purchased 57 journals yearly and 258 books. The faculty was able last year to appropriate only $1,200 to the expenses of its library. Of this $825 was spent in salaries, $288 in journal subscriptions, $300 in binding, $100 for typewriter and $75 for supplies, making the total expenditures $1,588 and leaving a deficit of $388. The club held its midwinter meeting February 15, when Dr. William Osler gave a reception to Dr. William W. Keen of Philadelphia, who spoke of his surgical reminiscences of the war, and Dr. William H. Welch spoke on medical literature of the Civil War.

Tuberculosis Dispensary Open.—The opening of the new dispensary for tuberculous patients at the Johns Hopkins Hospital, built through the generosity of Mr. Henry Phipps, took place February 21. The Laennec Society, founded some years ago by Dr. William Osler for the study of tuberculosis and of measures for its prevention, had charge of the ceremonies, holding its monthly meeting at the same time. Dr. Henry Barton Jacobs, the president of the Laennec Society, presided and delivered an address on "The Origin and Rise of Tuberculosis Dispensaries"; Dr. Herman M. Biggs of the City Health Department of New York spoke on "The Advantages of a Tuberculosis Dispensary," and Dr. William Osler spoke on "Tuberculosis in the General Hospital." The building is substantial and in keeping with the architecture of the other Johns Hopkins buildings. Its erection has consumed the entire gift of $20.000. It is a dispensary pure and simple and in no sense a sanatorium. Its chief purpose is to segregate tuberculous from other patients. Mr. Phipps himself attended the ceremonies. The dispensary will be under the charge of Dr. Louis V. Hamman and assistants. Patients will be admitted after March 1.

Johns Hopkins Hospital Work.—At the annual meeting of the board of trustees of the Johns Hopkins Hospital, February 14, the report of the superintendent was presented. During the year about $200,000 has been expended on improvements. This includes the erection of the new surgical ward and the tuberculosis dispensary; also reconstruction of the laundry, with installation of a lot of new machinery, electric wiring of the buildings and the installation of several dynamos, which will make it possible to light the entire hospital with electricity by June 1. The establishment of new quarters for the orthopedic department, including a gymnasium, examining rooms, plaster rooms, operating and dressing rooms, the opening of a new private ward and the building of a stable. During the year ended January 31, 4,531 patients were treated, 2,296 males and 2,235 females, of whom 3,482 were white and 1.049 colored. Of these 3,327 were discharged as well or improved and 280 died, the percentage of mortality being 6.18. In the dispensary about 61,000 visits were made by patients. Dr. G. R. Holden was appointed resident gynecologist to succeed Dr. F. C. Burnam, resigned, and Dr. Stephen Rushmore was appointed assistant. Miss E. Blanche Sterling was appointed assistant medical gymnast in the orthopedic dispensary. Mrs. William Osler presented to the hospital a bronze profile of her husband.

MASSACHUSETTS.

Beginning of Brigham Hospital.—The Peter Bent Brigham Corporation has begun to acquire property on Bowdoin Street, near Cambridge Street, in the West End, Boston.

Cremation in Favor.—Cremation is gaining in favor with people of Boston and vicinity, as shown by the increased number of cremations at Mount Auburn cemetery. In 1904 there were 180, as against 153 in 1903.

Dipsomaniacs Cured.—At a legislative hearing relative to the abolition of the Massachusetts Hospital for Dipsomaniacs and Inebriates at Foxboro, the trustees testified that during the past five years 21 per cent. of those admitted had been discharged cured.

Waltham Medical Examiner.—A strong petition has been filed with Gov. Douglass against the re-appointment of Dr. Julian A. Mead of Watertown as medical examiner. Objection is based chiefly on Dr. Mead's testimony in a recent murder trial. Petitions favoring three Waltham practitioners are being circulated.

Examination for Bacteriologists.—The position of bacteriologist to the Cambridge Board of Health will be filled by a competitive examination to be conducted by Drs. Harold Ernst and Hibbert Hills. Dr. John R. Sennot, who at present holds the position, was appointed two years ago, and was not reappointed when his term expired February 1.

Street Car Air.—In a hearing before the legislative committee on street railways on a petition asking for laws for improved ventilation, John P. Fox maintained that he had experimentally tested the air in the street cars of Boston on bad days and had found that it contained only 9 parts of carbon dioxid to 10,000, which he considered not at all injurious.

Personal.—Dr. W. R. Brinkerhoff, who was Dr. Tizzer's associate at Manila, has arrived at Alexandria, Egypt, en route to join the Carnegie Archeologic Expedition to the Trans-Caucasus, of which he is physician.——Dr. Albert L. Norris, Cambridge, is seriously ill at the Corey Hill Surgical Hospital, Brookline.——Dr. and Mrs. William N. Swift, New Bedford, celebrated their silver wedding February 15.

Municipality Wins.—The Board of Health of Everett has won in a suit brought against it by a Mrs. Salinger, in whose house a case of smallpox occurred in 1901. The house was at once taken for a pest-house, being rented at the full regular rates. She brought suit to recover $3.000 more than the rent because of "wear and tear and fumigation and the evil reputation of a pest-house," which she alleged had lessened the value of the property.

Board of Health Changes.—Cambridge has a recurrence of its board of health troubles. Dr. Felix McGirr, who has been in charge of the contagious hospital the past year, was refused a re-election, and Dr. David C. Dow, who preceded him, was again elected. Dr. Edwin Farnham was re-elected medical inspector and physician of the board of health, and Dr. C. P. Feeley was elected school inspector in place of Dr. John P. Nelligan. Dr. Charles G. Weeks was re-elected chairman of the board.

Tufts Medical Announcements.—President Capin of Tufts College reports that there are this year in the medical school 409 students and 107 instructors. The following new appointments have been made: Dr. Henry B. Chandler, professor of ophthalmology; Dr. Walter Elmore Fernald, clinical lecturer in mental diseases; Dr. Charles Melville Whitney, instructor in genito-urinary diseases. and Dr. Ralph Clinton Larrabee, instructor in clinical medicine and hematology.

Hospital Concerts.—Six hospital concerts will be given during March, under the personal supervision of Dr. John Dixwell, by trained professionals, under the auspices of the Hospital Music Fund: March 1, at the Church Home for Orphan and Destitute Children; March 5, at the Children's Hospital: March 10, at the Mt. Hope Home for Children; March 12, at the Brookline Free Hospital for Women; March 19, at the Woman's Charity Club Hospital, and the Cushing Hospital, and March 26, at the New England Baptist Hospital.

Newton Hospital Report.—During 1904, 927 patients were cared for in the Newton Hospital, an increase of 13 per cent. over 1903. The cost per patient in the general wards was $13.51 per week, and in the contagious wards $16. The endowment fund has been increased by $7,000 during the year, and $10,109 was contributed by the churches on Hospital Sunday. The hospital itself has earned during the year $32,210 out of the total receipts of $56,871, a balance over expenses of $2,895. The total assets as reported by the treasurer are $231,681.

State Registration of Nurses.—Energetic efforts are being made by the Massachusetts State Nurses' Association and its friends to secure the passage of a bill for the registration of nurses. Their measure is strongly supported by nurses and physicians, but opposed by others who find fault with the requirements of the bill, which would exclude nurses who are graduates of many of the smaller hospitals and also object to the stipulation that the board of registration shall be appointed

by the governor from a list to be submitted to him by the association.

Dealers in Pure Food Crusade.—The activity of the State Board of Health in prosecutions for sale of impure food has induced the dealers in the Faneuil Hall Market, Boston, to adopt the following resolution: "We will not knowingly sell or have in our possession with intent to sell any article of food that contains any preservative or foreign substance intended to improve the condition or appearance of the same, and we will notify all manufacturers from whom we are purchasing our supplies, that we will not receive or handle goods so prepared."

Children's Hospital Report.—During the last year there were treated at the Boston Children's Hospital 1,505 cases in the hospital proper, and 28,008 in the out-patient department, of which 6,341 were new cases. The great increase since 1890, when there were 442 house patients and 1,712 new out-patients, emphasizes the fact that the work of the hospital has outgrown its accommodations. There is an annual deficit of $13,000. Plans for a new hospital to be located near the new Harvard Medical School are near completion. The Convalescent Home in Wellesley is now nearly finished.

Technology Students Healthy.—Dr. Franklin White, medical adviser to the Massachusetts Institute of Technology, reports that during the last year only 185 out of the 1,600 students consulted him. Two left their work because of pulmonary tuberculosis and two because of heart disease. A few were sent to the Massachusetts General Hospital, where the institute has free beds. His investigations of the general health of the students shows that two-thirds of the members of the junior and senior classes are never absent a day because of illness, that only about 10 per cent. had any important illness during their four years' course, and that nearly all finished in good general health. Lack of physical exercise and inefficient sleep are the common causes of illness among the students.

MICHIGAN.

State Board Appointments.—Dr. Angus McLean, Detroit, has been appointed a member of the State Board of Health, vice Dr. Daniel A. MacLachlan, term expired. Dr. Malcolm Sinclair, Grand Rapids, succeeds Dr. Collins H. Johnston as a member of the board.

Comparative Disease Prevalence.—For January, compared with the average for January in the ten years, 1895-1904, smallpox, measles and cholera morbus were more than usually prevalent; scarlet fever, pneumonia, intermittent fever, erysipelas, diphtheria, whooping cough, puerperal fever, remittent fever and dysentery were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Whooping cough was reported in Michigan during January at 10 places; meningitis at 15 places; measles at 63 places; diphtheria at 83 places; scarlet fever at 109 places; pneumonia at 101 places; smallpox at 104 places; typhoid fever at 108 places; and consumption at 267 places. Whooping cough was reported present at 9 places less; meningitis at 10 places more; measles at 12 places more; diphtheria at 8 places less; scarlet fever at 17 places less; pneumonia at 19 places more; smallpox at 3 places more; typhoid fever at 3 places more, and consumption at 26 places more in January than in the preceding month.

Mortality of Michigan During January.—The total number of deaths for January was 3,084, corresponding to an annual death rate of 14.2 per 1,000. This rate is higher than that for the preceding month, which was 13.0 per 1,000, but lower than that for January, 1904, which was 14.7 per 1,000. Important causes of deaths were as follows: Tuberculosis, 222; typhoid fever, 37; diphtheria, 56; scarlet fever, 16; measles, 14; whooping cough, 3; pneumonia, 352; diarrheal diseases of infants under 2 years of age, 54; meningitis, 38; influenza, 120; cancer, 142, and accidents and violence, 139. There was an unusually large number of deaths from smallpox during the month, distributed as follows: 1 in Battle Creek City, Calhoun County; 2 in Hillsdale City, Hillsdale County, 5 in Jackson City, and 2 in Columbia township, Jackson County.

NEW JERSEY.

Montclair Hospital Opens.—Mountainside Hospital, Montclair, opened its new building, February 7. By the completion of the new building, which cost $30,000, the hospital has now separate buildings for medical and surgical cases.

Medical Examiners Reappointed.—The senate confirmed the nomination of Drs. Davis P. Borden, Paterson, Charles A. Groves, Orange, and E. L. B. Godfrey, Camden, for reappointment as members of the State Board of Medical Examiners.

Camden's Health.—The report of contagious diseases for the month ended February 15, is as follows: Scarlet fever, 7; diphtheria, 19; tuberculosis, 7, making a total of 33. Last month cases of a contagious disease reported aggregated 64, making a decrease of 31. Tuberculosis is now classed among contagious diseases.

Bequests.—By the will of the late Dr. James D. Tantum, Trenton, $20,000 was devised to Mercer Hospital; $10,000 to St. Francis' Hospital, Trenton; $5,000 to McKinley Hospital, and $5,000 to the German Hospital, Philadelphia, all for the endowment of free beds.——Mrs. Mary E. Ryle, Paterson, left $20,000 to the Paterson General Hospital.

Physician vs. Medical Society.—Dr. Wilson G. Bailey, who was charged with violating the Principles of Ethics, and who was to have been tried before the board of censors of the Camden County Medical Society, has tendered his resignation as a member thereof. Dr. Bailey was charged with testifying in court against a fellow practitioner in violation of the Principles of Ethics.

Personal.—Dr. Onan B. Gross, Camden, and family, have gone to California for the winter.——Drs. Herman C. H. Herold and L. Eugene Hollister have been confirmed as members of the Newark Board of Health.——The staff of the Elizabeth General Hospital and Dispensary gave a banquet at the Astor House, New York City, January 19, in honor of Dr. Alonzo Pettit, president of the staff, who retired after a service of 27 years, at which he was presented with a silver loving cup.——Dr. W. Blair Stewart has been elected president of the medical staff of the Atlantic City Hospital, vice Dr. Byron C. Pennington, deceased; Dr. Elisha C. Chew, vice-president, and Dr. William Edgar Darnall, secretary.——Dr. William C. Sandy, Newark, has been appointed fourth assistant physician of the State Hospital for the Insane.

NEW YORK.

Typhoid in Poughkeepsie.—There are at present 26 cases of typhoid fever in Vassar Hospital. The cases are of a much more severe type than those of last year.

Scarlet Fever Epidemic.—There are 69 cases of scarlet fever in Mount Vernon, and new cases are being reported at the rate of six to seven daily. New Rochelle and White Plains are also suffering from an epidemic of the same disease. The Board of Health of Mount Vernon has passed a resolution compelling all milk companies to sterilize and disinfect bottles before refilling them; failure to comply is punishable by a fine of $50.

News from the Legislature.—The following resolution aims at an investigation of the present situation with reference to the adulteration of foods and medicines: "Resolved, That the commissioner of health be and hereby is requested to furnish to this house a statement of what effort has been made on the part of the Department of Health for the enforcement of said statute, and whether, in his opinion, other or increased facilities or enactments are essential for the proper enforcement of the pure food law within the state."——A measure has been introduced which provides drastic regulations for the employes of milk stations where, it is alleged, most of the adulteration is done. The bill provides that every person employed at a milk station shall take out a license from the state commissioner of agriculture. He must pledge himself under oath not to adulterate nor to permit the adulteration of milk. Violation carries with it disqualification for work in a milk station, in addition to the other penalties now provided.——The annual report of the state fiscal supervisor recommends appropriations for new buildings, improvements, etc., for the state charitable institutions that will aggregate $517,075, and the total appropriations for maintenance, etc., will aggregate over $2,000,000. ——In the absence of Senator Elsberg, another coroner's bill has been originated and advanced to the third reading by unanimous consent. This measure reduces the number of coroners in Manhattan from four to two, in Queens and in the Bronx from two to one, and leaves the number unchanged in Kings and Richmond. It fixes the salaries at an increased figure.

Buffalo.

Found Guilty.—Isaac A. Finch was found guilty in the County Court of practicing medicine without a license. He treated Otilia Hoffman before her death for cancer and then sent in a bill to the surrogate against the estate. The bill was disallowed on the discovery that Finch was not a physician.

Personal.—Dr. Roswell Park gave an informal party in honor of Hon. Charles Jerome Bonaparte of Baltimore.——Dr. DeVillo

W. Harrington, who has been ill, is in Washington, D. C., convalescing.——Dr. Julius Ullman was host of the evening at the regular monthly meeting of the Æsculapian Club. A paper on "Nephrolithiasis" was read by Dr. Charles Hoffman.

Central Union Library Wanted.—There is considerable agitation for a club home of the various clubs and societies of Buffalo where also the large medical library now distributed in the University of Buffalo library and the Grosvenor library could be amalgamated into one large and useful library and where lecture-rooms and club rooms could be at the disposal of physicians and medical clubs. Liberal offers of cash donations have already been made by a few physicians, and the subscriptions, in addition to the reserve fund of the Buffalo Academy of Medicine, amounting to $2,000 or $3,000, would be a nucleus for the acquisition of property.

New York City.

Maternity Opened.—The Manhattan Maternity and Dispensary at 327 East Sixtieth Street was formally opened February 15.

Death from Yellow Fever.—A sailor on the steamer *Orizaba*, from Colon, on February 10, developed yellow fever and died at the Swinburne Island Hospital.

More Spitters Caught.—Again the police squad attached to the Health Department have been on a hunt for these offenders. Thirty arrests were made in one evening in the theater district.

German Hospital Dispensary to Build.—The German Hospital has sold its dispensary at One Hundred and Thirty-seventh Street and Second Avenue, and will build a new one near the site of the hospital building at Park Avenue and Seventy-sixth Street.

Personal.—Dr. Emil Mayer has been appointed chief of clinic to the ear, nose and throat department of the Mount Sinai Hospital Dispensary.——Dr. James J. Walsh, who was in the wreck on the New York Central at Whitesboro, February 4, received a severe scalp wound requiring four stitches.

A Hospital for Insanity.—At a meeting in the interests of the American Institute for Scientific Research it was announced that the society had received a gift of $5,000, on condition that it raised $20,000, no limit being set as to the time required to secure this sum. As soon as the amount in the treasury warrants, it is planned to open a hospital where insanity may be treated as in hospitals on the continent.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended February 11, 368 cases of tuberculosis, with 181 deaths; 275 cases of diphtheria, with 42 deaths; 246 cases of scarlet fever, with 14 deaths; 201 cases of measles, with 3 deaths; 28 cases of typhoid fever, with 4 deaths; 3 cases of smallpox, with 1 death; 101 cases of chickenpox, and 29 deaths from cerebrospinal meningitis.

First Aid.—The annual report of the Society for Instruction in First Aid to the Injured showed that 1,979 persons had received instruction from the society's agents. The total number instructed since organization is 19,435, of which 14,231 have passed examinations and received diplomas. At present the society is conducting 21 classes, 11 of which are in the public schools.

Cerebrospinal Meningitis.—The health commissioner states that while there are more deaths from this disease than there should be, they are probably due to the carrying over of cases from last year into this. During an epidemic thirty years ago the cases carried over from the year of the epidemic into the following year. A series of experiments with a proposed new cure for cerebrospinal meningitis are being carried on at Gouverneur Hospital, the report of which will be presented to the county medical society in due time.

Leprosy in New York.—Dr. Charles F. Roberts, the leprosy expert of the Health Department, denies the allegation of Dr. Dyer, consulting expert of the Louisiana leprosy camp, that there are two hundred lepers walking about the city. Dr. Roberts says that there are only three cases known to the health officials, and that these are public charges on Blackwell's Island. All the cases came here from other places. Dr. Roberts has never seen a case contracted in this country, and says that there is no reason for alarm.

The Subway Dust.—Among the arguments made for and against the continuance of a temporary injunction restraining city officials from removing the signs, slot machines and newspaper stands from the subway, George A. Soper, sanitary engineer, claimed that the subway is a dust pocket and its stations traps for the retention of microbes and bacteria. The diseases that are to be apprehended from this dust are pneumonia, bronchitis, whooping cough, diphtheria, influenza and tonsillitis. On the other side it was claimed that the metal frames used on the signs, instead of harboring bacteria, actually destroyed them.

PENNSYLVANIA.

Personal.—Dr. Addison M. Rothrock has resigned as anesthetist of the Chester County Hospital.——Dr. H. Melvin Allen, Reading, has been elected captain of Company A, Fourth Infantry, N. G. Pa.

Convicted of Illegal Practice.—Joseph C. Densten, Scranton, who claimed to have graduated from Jefferson Medical College in 1869, was found guilty, February 8, of practicing medicine without a license.

Sentenced for Malpractice.—Dr. Nathan Penrose, Allegheny, who was found guilty of criminal malpractice whereby the death of a young woman resulted in 1903, was sentenced February 3 to imprisonment for three years in the Western Penitentiary.

State Sanitarians Favor Free Antitoxin.—The free distribution of antitoxin by the state for the treatment of diphtheria was discussed at the closing session of the Associated Health Authorities and Sanitarians at its annual meeting in Harrisburg, February 15. It was advised that the committee on legislation should draft a bill for the attainment of this object and present it to the present session of the legislature if possible. The following officers were elected: President ex-officio, Governor Samuel Pennypacker; vice-presidents, Drs. Thomas N. McKee, Kittanning, Robert S. Maison, Chester, and H. E. Heiler, Hilltown; treasurer, Dr. Jesse Green, West Chester, and secretary, Dr. W. R. Batt, Philadelphia.

Philadelphia.

Bequests.—By the will of Isaac Rosskam the Jewish Hospital Association receives $2,500; the Jewish Foster Home and Orphan Asylum, $2,000; National Jewish Home for Consumptives, Denver, Colo., $2,000, and Free Hospital for Consumptives, White Haven, $1,000.

Municipal Hospital Report.—During January 146 patients were received at the hospital, 104 were discharged, and 24 died. The total number in the institution, January 31, was 188. The deaths for the month were as follows: Diphtheria 18, scarlet fever 5, other disease (not specified) 1. There is no smallpox in the institution at this time.

Health Report.—The total number of deaths reported for the week was 599. This is a decrease of 13 from last week, and a decrease of 4 from the corresponding period of last year. Of the 599 deaths reported, 122 were caused by pneumonia, 14 by influenza, 63 by pulmonary tuberculosis, 20 by bronchitis, and 3 by pleurisy, making a total of 222 deaths due to disease of the respiratory tract. The principal causes of death were typhoid fever 13, diphtheria 2, cancer 23, paralysis 29, heart disease 59, enteritis 16, and Bright's disease 51. The contagious disease cases reported numbered 224, with 30 deaths, as compared with 199 cases and 23 deaths for the preceding week.

Work of Health Bureau for January.—In the division of medical inspection the number of inspections made, excluding schools, aggregated 2,932. The total number of visits to schools was 5,154; 1,111 children were excluded from school; 1,551 persons were vaccinated; 123 injections of antitoxin were administered; 768 cultures were taken; 536 fumigations were ordered; and 97 cases were examined for special diagnosis. The report from the bacteriologic laboratory shows that 2,295 cultures were examined for diphtheria, 346 specimens of blood for Widal's reaction, 240 specimens of milk, 112 specimens of sputum, 1,676 bottles of antitoxin were supplied, and in the chemical laboratory 184 analyses were made. The division of vital statistics reports 1,996 deaths and 2,774 births.

New Hospital Opened.—The Union Mission Hospital at Fourth Street and Columbia Avenue was opened with formal ceremonies, February 22. This hospital has been established largely through the munificence and efforts of Mr. John B. Stetson. It is a three-story brick building, with a roof garden, especially arranged for the treatment of heat cases during the summer months, tents and tubs being erected for the special care of such conditions. The hospital will accommodate about 50 ward patients, and has 11 private rooms. An electrical department has been instituted in the building, with an *x*-ray and Finsen light plant. The following gentlemen compose the major staff of the institution: Medicine, Dr. John H. Dripps;

surgery, Dr. Harry C. Deaver; gynecology, Dr. Charles P. Noble; neurology, Dr. Henry P. Boyer; ophthalmology, Dr. Isaac Leopold; otology and laryngology, Dr. Charles B. Warder; dermatology, Dr. Jay F. Schamberg, and pathologist, Dr. Lewis S. Somers.

GENERAL.

American Anti-Tuberculosis League to Meet.—This body will hold its next meeting at Atlanta, Ga., April 17-19. The president is Dr. George Brown, Atlanta, Ga.

Medical Journal Suffers from a Fire.—The *Medical Library and Historical Journal* announces that the almost total destruction by fire of the establishment of its printers will delay the publication of the January number. This issue was being printed and it will be duplicated as soon as possible.

The Social Evil.—The American Society for Sanitary and Moral Prophylaxis was organized February 15 at a meeting of thirty physicians, clergymen and men of public spirit at the New York Academy of Medicine. It was stated that the society proposed to make an endeavor to have the social evil dealt with by the health department just as they handled other contagious and infectious diseases. It is suggested that circulars and pamphlets by competent authorities be distributed in colleges and schools where young men may get some idea of the extent of the peril to which they submit themselves. There is already $10,000 pledged to start the work. Officers will be elected at the next meeting.

Favor Bill to Organize the Army Medical Corps.—The House Committee on Military Affairs has authorized a favorable report on the Senate bill reorganizing the Medical Corps of the Army. The committee amended the bill by reducing the number of officers provided in the Senate bill in the regular corps, but making an actual increase in the present corps, as follows: Four colonels, 6 lieutenant-colonels, 25 majors, 60 captains or first lieutenants. By the terms of the bill these additional officers displace 135 contract surgeons now a part of the corps. The provision of the bill establishing a reserve medical corps by commissioning civilian physicians was amended by a provision forfeiting such commissions in case their holders refuse to perform service. The four members of the committee who opposed the bill in committee, on the ground that the auxiliary corps would be used as a means of securing promotions and further legislation for the active corps. gave notice of amendments to be offered in the House.

Army Medical Corps Examinations.—Preliminary examinations for appointment of assistant surgeons in the Army will be held May 1 and Aug. 1, 1905, at points to be hereafter designated. Full information and permission to appear for examination can be obtained from the Surgeon General, U. S. Army, Washington, D. C. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to the localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examinations of May 1, applications must be complete and in possession of the Surgeon General by April 1, and for the examination of August 1, by July 1. There are at present twenty vacancies in the Medical Corps of the Army.

CANADA.

The Canadian Association for the Prevention of Consumption.—The annual meeting of the Canadian Association for the Prevention of Tuberculosis is to be held at Ottawa on March 15.

Vital Statistics of St. John, N. B., 1904.—There were 739 deaths in St. John, N. B., in 1904, as compared with 771 for 1903. Of the total number of deaths 358 were males and 381 females. Two hundred and fifty-eight cases of contagious diseases were registered, with eighteen deaths.

A Union Banquet in Montreal.—It is good to be able to announce that the profession of Montreal, English and French, are drawing closer together day by day. February 21, both sections of the profession will enjoy a banquet under the joint patronage of the Montreal Medico-Chirurgical Society and the Montreal La Société Médicale.

Winnipeg News.—Dr. Neill J. McLean, Winnipeg, who went to London over a year ago, has been enrolled as a licentiate of the Royal College of Physicians and Surgeons of London, England.——Dr. Frank Wesbrook, Minneapolis, formerly of Winnipeg, recently visited Winnipeg.——Dr. Bracken, secretary of the Board of Health of Minnesota, has been in Winnipeg recently gathering some statistics regarding the health of that city.

Special Report Regarding Tuberculosis in Montreal.—Last June, Dr. de Martigny, Montreal, was sent to Paris by the hygienic committee of Montreal to study the Marmorek system of curing consumption. After some months of work, he has returned to Montreal and states in his report that he is thoroughly convinced of the wonderful efficacy of this serum, and feels positive that if the treatment were applied to the consumptives of Montreal that in ten years tuberculosis would be as rare in that city as smallpox.

Some Reminiscences of the Toronto General Hospital.—Dr. Charles O'Reilly, medical superintendent of the Toronto General Hospital, was appointed to that office in 1876, and has ever since filled the position in an able manner. During his administration there have been 4,000 births in the institution, and the number of patients admitted annually has increased from 972 in 1876 to 3,811 in 1904. During that time Dr. O'Reilly has supervised the training of 220 house surgeons, some of whom have since gained wide distinction in the ranks of medicine.

Hospital News.—Dr. A. M. Campbell has been appointed medical superintendent of the Winnipeg General Hospital. The number of patients treated in this institution during January, 1905, was 593; the number of deaths 40.——The number of patients treated in the Dauphin, Man., General Hospital, during 1904, was 334; 247 males and 87 females. The death rate was 3.8 per cent.——On February 14, the addition to the Woodstock, Ont., hospital was formally opened. The new operating room is said to be one of the finest in Canada.——The annual meeting of the Vancouver, B. C., General Hospital was held February 8, and Dr. A. M. Robertson, the general superintendent, reported that 851 patients were admitted to the wards during 1904; 785 were discharged, and 58 remained. The deaths numbered 63.

Personal.—Dr. Oskar Klotz has resigned from the governor's fellowship in pathology at McGill University. During the tenure of the fellowship by Dr. Klotz he has done much valuable research work. This fellowship is open to graduates in medicine who have done some research work, is tenable for two years and is worth $500 per annum.——Dr. R. A. Pyne, for many years registrar of the College of Physicians and Surgeons of Ontario, has been admitted to the Whitney cabinet as minister of education.——Drs. Walter Maybury and E. H. Adams, Toronto, who have been in Jamaica studying the climate, have returned to Toronto.——Dr. T. G. Roddick, dean of the medical faculty of McGill University, is spending a vacation in the Bahama Islands.——Prof. J. George Adami of McGill University, has been elected chairman of the board of management of the Montreal League for the Prevention of Tuberculosis to succeed Dr. Roddick, who has resigned.——Dr. H. B. Cameron of Atlin, B. C., has returned from a visit in Honolulu.——Dr. J. O. Reaume, Windsor, Ont., has been appointed minister of public works of that province.

FOREIGN.

Medal in Honor of a French Victim to Professional Duty.—The Paris Mint has just struck off a medal in honor of Dr. B. Teissier, who died at the age of 23 from the consequences of an official medical mission to Egypt. The design for the medal is the work of Dr. P. Richer, the artist-physician of Paris, and interweaves the dates, 1880-1903, with the outlines of the pyramids.

Physicians In the French Cabinet.—The new French Cabinet contains two physicians, Dr. A. E. Gauthier, who is at the head of the department of public works which includes railroads, etc., and Dr. J. Dubief, minister of commerce. The latter was chief of the Marseilles Insane Asylum, 1886-1893, and then of the Rhone Asylum until elected deputy a year or so later. He has been a member of the Committee on Labor since 1902. The under-secretary of finance is also a physician, Dr. Merlou, who has served as deputy since 1889.

Consultations Concerning Infants.—Vienna has opened a small establishment where mothers can bring their infants for inspection and advice. It is similar to the *Consultations de Nourissons*, which have done such good service in Paris and in other French towns. Printed circulars and pure milk are

given to the mothers, and the infant is weighed and inspected generally at each visit. The consultation is intended only for healthy infants, and is founded in the hope to keep the infants healthy by intelligent supervision. A physician is in attendance every morning.

Campaign Against Tuberculosis in Switzerland.—Under the presidency of Dr. Schmidt, director of sanitation at Berne, a reunion of delegates of the various Swiss Cantons was held at Olden for the purpose of discussing measures for combating tuberculosis. The *Public Health Reports* state that a general program was approved having for its object the instruction of the people regarding the means of diffusion of tuberculosis and of defense against the disease. Legislative measures recommended for adoption by the government of Switzerland were outlined, and a committee was appointed to represent Switzerland at the International Tuberculosis Congress to be held at Paris, October, 1905.

Some Ethical Questions In Germany.—The Medical Society of Salzburg, Germany, has tried in every way to put an end to the unlimited advertising in the local papers of dentists in adjacent towns. The local dentists were under ethical restrictions not to advertise, and the outsiders were the only ones known to the general public. Under these conditions the medical society voted to remove the restrictions to the advertising of their dental colleagues. The same body was recently warned by the authorities, *à propos* of a certain occurrence, that any physician who referred a patient to a layman for venesection or for any similar procedure, rendered himself liable to prosecution for co-operating in irregular practices.

Suit for Publishing Facts on Atavism.—A Paris publisher, Jouve, has been sued for $20,000 damages for selling to a layman a copy of a graduation thesis by Cousin of Paris, entitled "The Impregnation of the Mother," which discussed the subject of indirect atavism. Soon after the pamphlet appeared, a young man of Ardennes wrote for a copy of the pamphlet. The publisher refused to sell him a copy at first, but finally yielded to his urgent request and mailed to his unknown customer a copy of the thesis. After reading it the young man broke his engagement with his fiancée, a widow, under the pretext that he did not wish to risk having offspring which might resemble the woman's first husband. Hence the damage suit brought by the widow against the publisher of the thesis, holding him responsible for the rupture. The *Progrès Médical* gives the above details without comment in a recent issue.

Municipal Contract Practice.—An item has been going the rounds of the lay and medical press to the effect that the experiment of socializing medical attendance had been inaugurated at Zurich, Switzerland. Each taxpayer was to pay an additional dollar or less a year, and forty physicians were to be appointed by the city, at a salary of $2,500, to care for all the sick. Many editorials have been written on this news, which was generally qualified as "important if true," but our Swiss exchanges have never referred to the matter, and it has never been mentioned in the letters from correspondents at Zurich. Direct inquiry, we learn, has elicited that the item has no foundation. It was first launched in an obscure German journal and was copied in the dailies, whence it found its way into the medical press. Zurich has made no change in its present system of city physician, school inspector and his assistant, these three physicians devoting their attention to matters of hygiene and not practicing.

Prizes for Anti-Alcohol Literature.—In Germany there is a total abstinence society among physicians which gives prizes every year for the best anti-alcohol work presented. The theme in 1903 was "Influence of Alcohol on the Heart of Warm-Blooded Animals." The article which won the prize was written by M. Kochman of Ghent, and the committee regard the research on which it is based as representing a decided progress in our knowledge of the action of alcohol on the heart. Another work presented by O. Loeb of Heidelberg was also deemed so fine that a second prize was raised and presented to him. The theme for the current year is "Influence of Very Small Amounts of Alcohol on the Functions of Mind and Senses." Especial attention should be paid to the differences in sensation and the threshold values, under alcohol. The judges are Kraepelin of Munich, Grützner of Tübingen and Aschaffenburg of Cologne. The competing articles should be sent to Dr. G. Keferstein at Lüneburg before April 1, 1906.

Honors to a Spanish Physician.—A Madrid exchange, the *Siglo Medico*, relates in a recent issue that the community of Villamartin de Campos recently had a celebration in honor of the local physician, R. Fernandez y Rodriguez. He had served for twenty-four years as "medico titular," and in token of gratitude for his innumerable and important services, the town changed the name of one of its principal streets to name it after him. December 14 the authorities of the entire township and others gathered in this street and officially fastened in place the plates bearing the new name of the street. The procession then adjourned to the town hall, where four appreciative discourses were made, and Dr. Fernandez was officially declared the "adopted son" of the town. He replied personally to each of the four speakers. The *Siglo Medico* remarks that this simple and touching ceremony does honor both to the physician and to the town which conceived and carried it into execution.

LONDON LETTER.

Premature Burial.

The subject of premature burial has been much discussed in the papers in consequence of the following gruesome occurrence: A married woman, aged 28, was believed to be dead, and her body clad only in a nightdress and covered by a sheet was laid out in a cold room in the usual way. Six hours later the undertaker, while measuring her for her coffin observed a twitching movement of the eyelids and resorted to artificial respiration, with the result that the woman was resuscitated, and ultimately recovered. Of the fact that the woman was believed to be dead there is ample proof. Funeral coaches were ordered, an insurance company was notified, and a physician's certificate was obtained. The woman's history throws some light on the case. She had been ill for a long time, and for several weeks had been confined to bed. She had taken but little food, and had been subjected to the depressing influence of cold. There also appears to have been a predisposition to the cataleptic state, as twice before, once when an infant, and again at the age of 15, she was said to have lain as if dead. The danger of premature burial has taken strong hold of the minds of certain persons who order in their wills that a vein shall be opened by a physician after death or that their bodies shall be kept for a certain period before burial. A society for the prevention of premature burial was founded in London eight years ago, and has just held its annual meeting, at which Dr. Walter Hadwen delivered an address, entitled "The Need of Legislation Concerning Burial Reform." He said that the idea of premature burial is in no way mythical; it is a fact that many persons have been rescued from the tomb at the last moment. Physicians should be held responsible for the certificates which they give, and waiting mortuaries, like those in Germany, should be established to prevent any possible mistake. A resolution was passed urging the importance of impressing the subject on members of Parliament.

Medical Research in Egypt.

The Records of the Egyptian Government School of Medicine, vol. ii, recently published, contain important contributions to tropical medicine. The three scourges of Egypt are malaria, ankylostoma, and bilharzia. The last is accountable for a large proportion of the surgical cases, 16 per cent. of the in-patients at the hospital of the school suffering directly from lesions produced by this parasite, and, according to the pathologic report by Dr. Symmers, 7 per cent. of the deaths are directly due to it. In 100 consecutive admissions to the medical wards 35 patients were found to have the eggs in their urine, although only 2 of these were suffering in any way from the infection. At one period or other of life practically the whole native population is infected. Dr. Philips contributes an interesting article on the relation of malaria to ascites. In at least a third of the cases of ascites no cause other than malaria could be found, but the connection was not clearly established. A definite malarial cirrhosis of the liver occurred in a certain number of cases. Dr. Wilson follows up his observations on the poisons of spiders by an interesting study of the venom of Egyptian scorpions. By treating an aqueous extract of the poison gland with excess of alcohol he obtained a precipitate, from which he extracted with normal saline solution a very toxic substance. Its toxic value was ten millions, that is a milligram will kill 10 kilograms of guinea-pig. A full-grown specimen of the common Egyptian species (*Buthus quinque-striatus*) contains about 3½ milligrams of this toxin. If the susceptibility of man is the same as that of laboratory animals it follows that a single sting will kill at most 35 kilograms. This calculation corresponds with the fact that fatal cases of scorpion sting in adults are very rare, though the mortality in young children reaches 60 per cent. The report also shows that the incidence and distri-

bution of phthisis in Egypt do not differ from those of European countries.

Visit of British Physicians and Surgeons to Paris.

Arrangements are being made for a party of British physicians to visit Paris to inspect the laboratories, hospitals, and teaching institutions. The French physicians, who recently visited London, at that time expressed the hope of receiving a return visit in the near future. For this purpose, a committee was formed in Paris, with Professor Bouchard as president, and M. Lucas-Championnière as vice-president, and in December Sir William Broadbent, president of the London executive committee, received a formal invitation. May 11-13 has been decided on as the most suitable time for the visit.

Conference on School Hygiene.

A conference on school hygiene was held in London, February 7-10, under the auspices of the Royal Sanitary Institute. This conference is intended to prepare for the International Congress on School Hygiene, which is to be held in London in 1907. The president's address was entitled "The Co-ordination of the Teaching of Hygiene." Other subjects considered were the physical and mental development of scholars, buildings, equipment and sanitary inspection of schools, and training of teachers and scholars in hygiene.

The Prevalence of Syphilis.

The inter-departmental committee on physical deterioration has taken a considerable amount of evidence on the prevalence of syphilis. Most of the witnesses, including Sir Alfred Cooper and Surgeon-General Taylor, agreed that it showed some decrease. Sir Victor Horsley, while stating that there are no available data to decide whether the prevalence of syphilis is greater or less than it was twenty years ago, was positive in stating that its virulence has diminished. He thought that, in order to prevent the spread of syphilis, the medical officers of infirmaries and hospitals should be given statutory powers to detain patients who entered suffering from this disease. Following the resolution adopted at the International Congress held at Brussels, the committee expressed the opinion that "the moment is ripe for a searching and exhaustive investigation into the extent of the malady and for a definite pronouncement on the steps which should be taken to arrest its progress and to trace and counteract its effects."

Cremation in Great Britain.

Though cremation is far from popular in Great Britain, it has made steady progress since the first crematorium was opened in Woking (near London) in 1885. In succession crematoriums have been opened in the following cities: Manchester, in 1892; Glasgow, in 1895; Liverpool, in 1896; Hull, in 1896, the first municipal crematorium; Darlington, in 1901; Leicester, municipal; Golder's Green (near London), Hampstead Heath, near London, in 1902; Birmingham, 1903; Leeds, 1904. In the present year two more will be opened, one by the City of London at Ilford, and the other at Bradford. The number of cremations performed in Great Britain since the establishment of the practice amounts to 4,407. The numbers for 1903 and 1904 were respectively 475 and 566. The success of the movement was largely due to the able and untiring advocacy of the late Sir Henry Thompson. The fact that it has made so little progress is due to theological objections and to the natural conservatism of the English people.

Correspondence.

The Red-Light Treatment of Smallpox.

NEW YORK CITY, Feb. 15, 1905.

To the Editor:—Your editorial comment (February 11, page 477) on the so-called red-light treatment of smallpox is eminently sound and just. In Dr. Schamberg's original article he stated that he used "ruby-colored" glass, but failed to state that he had tested the same for actinism either spectroscopically or photographically. The old style of genuine pot-metal ruby is, I believe, no longer to be found in trade—at least I have not succeeded in getting any, even from sources that supplied me some years ago. All of the so-called ruby glass that I have examined admits an abundance of actinic light, running up even to the blue of the spectrum. The negative experiences of Dr. Schamberg, therefore, have no weight with me and I much prefer to rely on the positive evidence afforded by Finsen and others. The idea, however, of excluding light in the treatment of smallpox is by no means new, as when I had charge of the smallpox hospital in Blackwell's Island in 1864 it was the custom to cover the lesions thickly with mercurial ointment with the express purpose of excluding the light.

H. G. PIFFARD.

Indoor Humidity.

BROOKLYN, Feb. 14, 1905.

To the Editor:—Since the publication of my paper on "Indoor Humidity," which you were good enough to review in the columns of THE JOURNAL, a firm engaged in the manufacture of a well-known and widely advertised disinfectant, namely, "Platt's Chlorides," has, without my permission, and much to my annoyance, used my name and extracts from my paper in its advertisements. The omission of quotation marks and the clever wording make me appear responsible for recommending that preparation in connection with humidification. I wish to disclaim all responsibility for the use this firm has seen fit to make of the material contained in my paper. I have requested them to discontinue all such references.

HENRY MITCHELL SMITH.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

FIGHTING MEDICAL FRAUDS.

MONA, W. Va., Feb. 14, 1905.

To the Editor:—1. In your editorial on "Fighting Medical Frauds" mention is made of the press committees of the Germans, and that it would be commendable for our county societies to follow in their path. I have felt for some time that much should be done for the education of the public in medical matters. I would be under obligations if you would indicate to me where I could secure an outline of the work of such above committee. 2. Has a county society the right to establish a minimum or average fee-bill for its use, at least as a standard for minimum charges? 3. Would our society be within its rights and privileges in preparing a list of those who can pay and will not? I see in some of my journals that some such action has been taken by some county societies.

F. T. H.

ANSWER.—1. You will find a long account of the German method of fighting medical frauds in THE JOURNAL, May 28, 1904, p. 1435, and Feb. 4, 1905, p. 403. 2. Yes. While Section 3, of Chapter II, of the Standard Constitution and By-Laws for County Societies says: "Agreements and schedules of fees shall not be made by this society," it must be understood that this and several other provisions are suggestive and not fundamental. Many excellent societies have adopted schedules of fees and we see no objection to it. 3. Yes, if it is managed with care so as to avoid doing injustice to the worthy poor or to public health, and if the principle is not carried to extremes. It must be recognized that there are those in some communities who can pay but who will not pay either their physician or others. The butcher and the baker demand pay in advance from these and get it. The medical man can not do this always, and yet nothing is more aggravating to a physician than to give his time and his knowledge, often at great personal sacrifice, knowing that he will get nothing for it, simply because the individual he is aiding is too unprincipled or too dishonest to pay. There certainly is an excuse to make provisions that will bring such persons to time. Hence a blacklist, while contrary to the high ideals of physicians, is sometimes almost a necessity. It is a provision, however, that can work a reflection on the profession, and one which can be abused. Under no circumstances should one be placed on the list who would pay if he could; only the real deadbeats should be found there, and there are usually few of these in a community.

LIQUOR STIBII COMPOSITUS.

SHEBOYGAN, WIS., Feb. 14, 1905.

To the Editor:—Please let me know the composition and strength of the German liquor stibii comp. This is referred to in Hyde's "Diseases of the Skin." The solution is employed by Unna in the thorn treatment of lupus nodules.

A. G.

ANSWER.—Dr. Hyde informs us that the formula for the liquor stibii comp. is published in Dieterich's Manual (eighth edition) under the name of liquor stibii chlorati. It is prepared as follows: Antimony sulphid (pure black antimony) is digested with five times its weight of HCl in a flask until reaction ceases. The solution is filtered through glass wool and placed in a glass retort on a sand bath, from which about one-half is distilled off and rejected. The residue is then distilled into a receiver containing an equal weight of distilled water so long as the distillate produces turbidity. This distillate is set aside for several days and the supernatant liquid decanted and mixed with sufficient dilute HCl to give the liquor a sp. gr. of from 1,345 to 1,360. The solution appears to be similar to the solution of chlorid of antimony, known in this country under the commercial name of butter of antimony.

ANTISEPTIC MOUTH WASHES.

ALBUQUERQUE, N. M., Feb. 17, 1905.

To the Editor:—Can you suggest a good, reliable aseptic mouth wash that is not a patent medicine and which can be prepared in quantity at a minimum expense? W. H. BURR.

ANSWER.—The following may be used:

Quillaja, in coarse powder	3xi	35
Cochineal, in powder	gr. xv	1
Glycerin	fl. ℥iii	90
Oil of gaultheria	gtt. xxv	1
Alcohol	fl. ℥x	300
Peppermint water q. s. to make	fl. ℥xxxii	960

Macerate the quillaja with the alcohol and 12 fluid ounces (360) of peppermint water for several days; add the cochineal, glycerin and oil of gaultheria, let stand for one more day, shaking occasionally, then filter, adding the remainder of the peppermint water, through the filter to make 32 fluid ounces (960 c.c.).

Another formula is a eucalyptus mouth wash:

Eucalyptol	fl. 3v	20
Menthol	3v	20
Oil of cloves	m. lxxx	5
Oil of gaultheria	m. xvi	1
Heliotropin	gr. iss	1
Acetic ether	fl. 3iii	10
Alcohol	fl. ℥xxx	900
Water q. s. to make	fl. ℥xxxiv	1000

Castile soap may be used instead of quillaja in the first formula given.

Marriages.

OTTO C. GAUB, M.D., to Miss Claudia Hax, both of Pittsburg, Pa., February 23.

JOHN E. HAMPTON, M.D., to Miss Emma Cogdill, both of Asheville, N. C., February 7.

WILLIAM H. DAVIS, M.D., to Miss Flora C. Fuhs, both of Brooklyn, N. Y., February 1.

CHARLES A. O'REILLY, M.D., Philadelphia, to Miss Kate Sproull of Rome, Ga., February 11.

CYRUS M. HARRIS, M.D., Bourbon, Ind., to Miss Mary Remola Yanaway of Casey, Ill., February 7.

ROBERT MILTON TALIAFERRO, M.D., to Miss Rebecca Morton, both of Lynchburg, Va., February 15.

JOSEPH COLLINS, M.D., New York City, to Miss Edith Davies of Gordon Square, London, February 7.

FRANCIS MURRAY PHILLIPS, M.D., to Miss Harriet Twyford Bagwell, both of Baltimore, February 15.

EDWARD JENNINGS CLARK, M.D., to Miss Grace Edith Tunstead, both of Minneapolis, Minn., February 22.

THOMAS WILLIAMS NAVE, M.D., to Miss Clemence Marie Tacquard, both of Galveston, Texas, February 15.

ARTHUR LAWRENCE HOLLAND, M.D., New York City, to Mrs. Ethel DeMitkiewitz of Cambridge, Md., February 15.

HARRY W. HOWLAND, M.D., Keeneyville, Pa., to Miss Helen P. Gaddis of Baltimore, at Wilmington, Del., June 30, 1903.

Deaths.

William Nichols Platt, M.D. University of Vermont Medical Department, Burlington, 1870, prominent as a practitioner in Addison County, Vt.; senator from that district in 1894; representative in the legislature from Shoreham in 1892; for a long time trustee of the Vermont State Hospital for the Insane; a member of the American Medical Association, Vermont State Medical Society and Addison County Medical Society, died at his home in Shoreham, Vt., Nov. 14, 1904, from cerebral hemorrhage, after an illness of a year and a half, aged 55.

Samuel J. S. Rogers, M.D. Berkshire Medical College, Pittsfield, Mass., 1847, for nearly 55 years a practitioner of California; county physician of Yuba County for two years; city councilman of Marysville for two terms; a member of the American Medical Association, Medical Society of the State of California, California Northern District Medical Society and the Medical Society of Yuba and Sutter counties, died at his home in North Bloomfield, Cal., Nov. 7, 1904, from senile debility, aged 80.

Alexander Ramsay, M.D. Medico-Chirurgical College of Philadelphia, 1892, a member of the American Medical Association: formerly a policeman assigned to duty at Philadelphia Hospital; then a medical student, and later superintendent of the Medico-Chirurgical Hospital; one of the most successful practitioners of Kensington, Philadelphia, died at his home in that city, February 11, from pneumonia, aged 54.

Thomas H. Sherwood, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858; assistant surgeon of the Third and Twenty-seventh Pennsylvania Volunteer Cavalry in the Civil War; for many years a medical referee in the U. S. Pension Office, Washington, died at his home in that city, February 9, from heart disease, aged 71.

Albert A. Johnston, M.D. University of Louisville Medical Department, 1856; surgeon in the Confederate service during the Civil War; for several years president of the Dallas County Medical Society, and a member of the State Medical Association of Texas, died at his home in Dallas, February 10, after an illness of two days, aged 70.

William E. Bessey, M.D. McGill University Medical Department, Montreal, 1863, a member of the American Medical Association and of the British Medical Association; one of the oldest practitioners of Grand Rapids, Mich., died at St. Mary's Hospital in that city, February 15, after an illness of several weeks, from a carbuncle, aged 87.

William H. Heath, M.D. Starling Medical College, Columbus, Ohio, 1852, of Scranton, Pa., a veteran of the Mexican War, died at Lackawanna Hospital, Scranton, February 8, two weeks after an accidental fall on the ice by which he suffered a fracture of the skull, aged more than 80.

Frank Cowan, M.D. University of Georgetown Medical Department, Washington, D. C., 1869, physician, lawyer, journalist, traveler, lecturer, poet and author, died at his home in Greensburg, Pa., February 12, after an illness of several months, aged 60.

Frank Raymond Young, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1899, of Smethport, Pa., a member of the American Medical Association, McKean County Medical Society, and Smethport Board of Health, died May 23, 1904.

John A. Hall, M.D. Jefferson Medical College, Philadelphia, 1859, formerly of Knobnoster and Nevada, Mo., died at the home of his daughter in Lamonte, Mo., February 6, from cerebral hemorrhage, after an invalidism of several years, aged 73.

Timothy Melville Lippitt, M.D. Starling Medical College, Columbus, Ohio, 1897, died at his home in Columbus, February 10, from long-standing disease of the throat, for which recent operation had given only temporary relief, aged 32.

John A. Henry, M.D. New York University, New York City, 1890, formerly assistant health commissioner of Denver, died at St. Joseph's Hospital, Denver, January 23, from tuberculosis, after an illness of several years, aged 40.

John D. Butler, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1841, formerly a member of the legislature, died at his home near Sparta, Va., February 9, after an illness of several weeks, aged 86.

Joseph Haas, M.D. Jefferson Medical College, Philadelphia, 1850, of Mahanoy, Pa., for 55 years a practitioner of the Mahanoy Valley, died suddenly in his sleigh while making a professional call, January 27, aged 75.

John Beale Howard Gittings, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1863, died at his home in Philadelphia from lobar pneumonia, February 9, after an illness of five days, aged 67.

John W. Goodwin, M.D., formerly of Greenup, Ill., treasurer of Cumberland County, Ill., and of Pomona, Cal., died, January 27, at his home in Los Angeles, Cal., after an illness of three months, from heart disease.

Harry Lester Small, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1904, died at his home in Burnham, Maine, Dec. 26, 1904, from typhoid fever, after an illness of twelve days, aged 32.

John Sappington, M.D. Jefferson Medical College, Philadelphia, 1868, senator from Harford County from 1886 to 1888, died at his home in Darlington, Md., February 10, from cerebral hemorrhage, aged 56.

John Rockwell McLelland, M.D. College of Physicians and Surgeons, Baltimore, 1873, representative in the state legislature in 1892 and 1896, died at his home in Mooresville, N. C., January 30, aged 54.

Sydney E. Tiner, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1904, of Kingston, died in the Orthopedic Hospital, New York City, February 14, from spinal meningitis, aged 25.

William P. Chapman, M.D. University of Nashville (Tenn.) Medical Department, 1860, died at his home in Woodville, Texas, February 10, after an illness of several months, aged 68.

H. S. Goodwin, M.D., of Sedalia, Mo., assistant surgeon in the Army in the Philippine Islands for three years, died in the University Hospital, Kansas City, Mo., Nov. 3, 1904, aged 35.

Samuel Jay Mills, M.D., of Toledo, assistant surgeon in the Army during the Civil War, died in the Lucas County Infirmary, Toledo, February 2, after an illness of a week, aged 71.

Joseph T. Sloan, M.D. University of Nashville (Tenn.) Medical Department, 1861, died at his home in Tehuacana, Texas, from influenza, February 9, after a short illness, aged 64.

John A. Vixtrum, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1883, of Princeton, Ill., died from tuberculosis at Colorado Springs, Colo., February 9.

Robert A. Ellis, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1871, died at his home in Hot Springs, Ark., February 11, after a long illness.

Ava M. Carroll, M.D. University of Buffalo (N. Y.) Medical Department, 1888, died at her home in Niobe, near Jamestown, N. Y., February 9, after a long illness, aged 48.

Waitman W. Morgan, M.D. College of Physicians and Surgeons, Baltimore, 1883, died at his home in Mingo Junction, Ohio, February 14, from pneumonia, aged 49.

Charles Walter Wilkerson, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1898, died at his home in Montgomery, Ala., February 9, aged 39.

Francis Anson Evans, M.D. St. Louis, 1877, poet and journalist, died at his home in Tell City, Ind., February 9, after an illness of more than a year, aged 51.

Cuthbert Bullitt, M.D. Kentucky School of Medicine, Louisville, 1859; veteran of the Mexican and Civil wars, died at San Antonio, Texas, February 11, aged 83.

Thomas F. Padula, M.D. Harvard University Medical School, Boston, 1887, died suddenly at his home in Quincy, Mass., February 9, from heart disease, aged 45.

Samuel B. Smith, M.D. University of Nashville (Tenn.) Medical Department, 1882, died suddenly from heart disease at his home in Naples, Texas, February 10.

Peter Roosevelt Johnson, M.D. College of Physicians and Surgeons in the City of New York, died at his home in Sag Harbor, L. I., February 13, aged 76.

William W. Leggett, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1859, of Lamar, Ark., died recently in Danville, Ark.

James R. Bracken, M.D. Cincinnati, 1852, died at his home in Warren, Ohio, February 14, after an illness of five days, from influenza, aged 79.

DeWitt Clinton Senter, M.D. Vanderbilt University Medical Department, Nashville, 1886, died suddenly in Middleboro, Ky., February 15.

Elliott Detchon, M.D. Cleveland Medical College, 1851, died at his home in Crawfordsville, Ind., January 29, after a short illness, aged 76.

Richard Joseph Nagle, M.D. College of Physicians and Surgeons of Chicago, 1895, died at his home in Dixon, Ill., February 12, aged 39.

Thomas Moore, M.D. King's College, London, England, 1845, died at his home in Indianapolis, February 8, from senile debility, aged 83.

Joseph H. Lawrence, M.D. University of Louisville Medical Department, 1894, died suddenly in a bank at Hyden, Ky., February 8.

John H. Gale, M.D., Illinois, 1893, of Chicago, died at the Chicago Union Hospital February 18, from heart disease, aged 68.

J. N. Ridley, M.D. Atlanta (Ga.) Medical College, 1880, died at his home in Warwick, Ga., February 8, after a lingering illness.

H. H. McLendon, M.D. Louisville Medical College, 1886, of Floyd, Texas, died, February 8, at Greenville, Texas, aged 40.

J. C. Crandall, M.D., Minnesota, died suddenly at his home in Witoka, Minn., February 14, from senile debility, aged 81.

Samuel J. Hole, M.D., Examination, 1855, died at his home in Hanoverton, Ohio, February 13, aged 75.

George Keeslar, M.D. County License, 1897, died at his home in Orland, Ind., February 2, aged 75.

William B. Jones, M.D. Kansas City, Mo., died at his home in Galena, Kan., February 3.

Miscellany.

The Oldest Medical Works and Prescriptions.—The oldest medical works in existence are those of the Chinese, and date back to nearly 3,000 years B. C., says the *Practical Druggist.* Then, as now, they divided their subjects under the captions of healing, cooling, refreshing and temperate. They have everything divided into classes, and their prescriptions are classified under seven headings, as follows: (1) The great prescription; (2) the little prescription; (3) the slow prescription; (4) the quick prescription; (5) the odd prescription; (6) the even prescription; (7) the double prescription. These are applied under four special circumstances and conditions, which in turn are classified. Fire is an agent in which they have great faith, as also they have in mineral waters.

How to Succeed in Medicine.—The following has been prescribed to insure success in the practice of medicine, and long years of experience have fully demonstrated that the formula may safely be given the highest degree of confidence, says the *Clinical Review:*

Be enthusiastic about your work.
Be sympathetic with the sick.
Be pleasant and agreeable.
Have confidence in yourself.
Exercise good business tact.
Beware of ruts, and
Remain a life long student.

The editor adds a further injunction which he thinks merits the dignity of being at least second in the list. That is: Be divinely patient at all times.

Evils of Contract Practice.—A good illustration of the evils of the so-called club, or contract practice, according to the *Clinical Review,* was recently mentioned by a physician resident in a neighborhood where such a degrading state of things exists. It appears that in a talk with one of the laity, who clearly had a keen sense of comparison, this physician was told by the layman that his "family could get doctored cheaper than he could get shaved." And in explanation it was brought out that the workman paid a dollar per month to his barber, for which a ticket was given entitling him to three shaves a week and one hair cut a month. On the other hand, he paid 75 cents per month to the contract doctor, and in return received for himself and entire family all needed medical attention and medicine.

Botryomycosis.—The following are, in brief, the conclusions of a paper by V. Ball of Lyons, based on experimental work in regard to this disease of animals which has been recognized also in the human species. His article was published in *Archives Gén. de Méd.* cxciv, No. 31, 1904. Botryomycosis is purely a microbic disorder due to a special staphylococcus. The tumors are *sui generis,* thus suggesting a specific agent in their causation. Botryomycoses appear only tardily in the tumors. The muriform masses in the horse appear to be of cellular structure. The ball-like formations (boules) are the result of botryosic degeneration. The term botryomycosis is incor-

rect, as the disease is not a mycosis. He agrees with Poncet and Dor that there occurs in man an affection which, from an anatomic and bacteriologic point of view, affords a close analogy with the animal disorder.

Disposal of Dejecta in Small Communities.—Dr. Seneca Egbert, in the *Medico-Chirurgical Journal*, mentions the widespread influence for harm of the domestic privy-vault or cesspool in villages and small communities throughout the country. He condemns the "fatuous blindness" of the home-builder who, for convenience sake, locates both the privy and the well near the dwelling and, therefore, near each other. He states that too often the physician himself fails to note the obvious source of the disease which he is treating. Dr. Egbert says that doing away with the privy will not immediately remove the harmful influence from the water supply, as the soil is saturated, and that a new and unpolluted water supply must be secured before the improvement for sewage and disposal of excrement is begun. He calls attention to the fact that in communities without a good water supply the cost of a single epidemic of typhoid or similar disease often far exceeds the expenditure necessary for the purchase or lease of reservoirs, dams, mains, etc.

How to Make the Society Meeting Valuable.—Not more than one society paper out of ten is suitable for the columns of a live medical journal. The other nine are usually compiled articles rehashed from text-book research, according to the editor of the *Medical Council.*. The article which is really worth publishing deals with the author's own experience, either involving points that have not been published before in journals or books, or specially emphasizing some point not well known, or exposing some mistake common in our present practice or literature. If this idea were kept in view in preparing society articles, our medical society meetings would all be worth attending. They generally are any way—on account of the good fellowship promoted, if not on account of the value of papers read. A paper two minutes in length showing some practical point is of more value than the average compiled article of a half-hour to an hour's length. Make a resolution to give your hearers something they can not get in text-books or not to read a paper at all.

Fresh Eggs.—The question of convenient transportation and prompt delivery is not so important in the case of eggs as of milk, but it is nevertheless worth considering. The *Scientific American* describes a tray-like metal holder in which one dozen eggs are retained by projecting spring-like rings. In transportation the eggs are kept from being broken far more successfully than by the old pasteboard method. The eggs placed in the holder by the farmer need not be removed until they reach the consumer; for example, they may be examined by holding the entire dozen in the holder to the light, and the package can be placed in a refrigerator or placed entire in water for cooking. To assure the quality, a strip label may be placed across each row of eggs so that the eggs can not be removed without destroying the label. This label may be dated, instead of the method now sometimes employed of using a rubber dating stamp on each egg. This will aid in providing "morning eggs" for infants and invalids. The method seems to have much to commend it, especially to those who do not relish the common store eggs which "ought only to be scrambled."

Immigration in Canada from the Medical Standpoint.—Dr. J. M. Aumont addressed the last Congress of French-Speaking Physicians on the above subject, declaring that Canada is the dumping-ground of all the immigrants rejected by other countries. The consequences are that the hospitals are filled with imported sick, the country is infested with the contagious diseases of Europe, and the prisons are crowded with the criminals that have escaped their just deserts elsewhere. He urges legislation to insure more careful medical inspection of immigrants, and measures to attract desirable immigrants. The Canadian government spent only $494,842 in 1902 and $642,913 in 1903 for the latter purpose, while the quarantine and public-health service was allowed $144,074 and the veterinary service $106,529. During the year 1903, 128,365 immigrants entered Canada, and of the 31,383 settling in western Canada only 899 were Canadians returning from the United States. He applied recently to the immigration bureau for a housemaid. The first sent to him, just arrived, was consumptive; the second had trachoma. Both were from England. He wrote up the matter in the lay press and the immigration bureau replied, denying the facts, and absolutely refused to send him another maid at his further requests.

A Sign of Death.—In commenting on premature burial the *British Medical Journal* states that the horrors of the accident are probably more imaginary than real. If a person in a state of trance were to be buried while life still persisted in a latent state, it is scarcely conceivable that the victim could awake; the unconsciousness of catalepsy would simply deepen until it became fixed in the dreamless sleep of death. The danger of premature burial is, of course, greatest in time of epidemic, when the disposal of the dead becomes a matter of urgency, and the risk of infection may conceivably cause undue haste in the verification of the fact of death. The test recently published by Icard,[1] and claimed by him to furnish absolute proof of death, is referred to. After the injection of a solution of fluorescin deeply into the cellular tissue, if circulation still goes on, intense jaundice of the skin and mucous membranes follows the absorption of that substance, whilst the eye becomes green "like an emerald set in the orbit," to use the author's phrase. If the circulation has completely stopped nothing of the kind is seen. When, therefore, after some time has elapsed from the time of the injection, none of these phenomena of coloration are seen, it may safely be concluded that death has occurred. A return to life would be manifested by renewal of circulation, and this would automatically be followed by yellow staining of the skin and green coloration of the eye. In time of epidemic Dr. Icard thinks it would be expedient, at least two hours before a body is placed in the coffin, to make a subcutaneous injection of fluorescin. If the person is dead this causes no disfigurement; if he is alive only a transient discoloration is produced.

The Sunflower Vice.—A peculiar indulgence of the Russian peasant, noted by Marcou in *Archives Generales de Médicine*, is the habit of eating sunflower seeds, which is almost universal among the lower classes of that country, and which is credited by him as responsible for the propagation of infections to a very serious extent. The seed, which has an oily kernel of a rather agreeable taste, has a harder envelope, which is split by the teeth and which is expectorated in the streets, public conveyances, places of amusement, etc. Covered with saliva, it carries whatever germs may exist in the mouth and quickly drying puts them in a condition for doing the most harm. He found, by actual examination of samples collected, that most of these ensalivated husks were rich in pathogenic germs. In nearly all staphylococci were found, very frequently streptococci, in twenty cases Koch's bacilli, and in ten the bacillus of diphtheria. The universality of the habit is very noticeable, and he reports that the empress, recognizing this little indulgence, has had sent to the army in Manchuria $150,000 (the article says 800,000 francs) worth of these seeds to encourage the soldiers in their arduous campaign. Sunflower seed seems comparatively innocent. The fact that its usage has become so widespread as this French author reports is significant and suggests that there must be something more than a mere gustatory gratification in the indulgence. When asked why they so indulged, the answer of the users was always the same: It does not especially nourish; it even makes the mouth sore after a time, but it occupies the attention and distracts from other matters. In its way, Marcou says, it is a veritable minor social scourge and one pathologic factor to be added to the numerous others that exist in the Russian empire.

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1. Ann. d'Hygiene Publique et de Méd. Lég., October, 1904.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Examinations in Hawaii.—The Hawaiian Territorial Board of Medical Examiners has ruled that all examinations for license to practice medicine and surgery in the Territory of Hawaii shall be conducted in the English language; and that examinations shall be held four times a year, in January, April, July and October. These regulations went into effect Jan. 1, 1905.

Indiana January Report.—Dr. W. T. Gott, secretary of the State Board of Medical Registration and Examination reports the written examination held at Indianapolis, Jan. 10-12, 1905. The number of subjects examined in was 18; number of questions asked, 100; percentage reuired to pass, 75. The total number of applicants examined was 61, of whom 50 passed and 11 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Rush Medical College...(1903) 75.1, 87.2; (1904)	82.6, 83.5,	87.2
American Medical College, Missouri	(1904)	86.2
Eclectic Medical Institute, Cincinnati	(1904)	81.4
Miami Medical College	(1903)	88.5
Barnes Medical College	(1904)	84.8
Howard University	(1904)	75.5
Johns Hopkins Medical School	(1902)	86.7
Jenner Medical College	(1904)	82.1
Cornell Medical College	(1902)	90.6
Trinity University, Toronto	(1904)	80.9
Indiana Medical College	(1904) 75.2, 83.1,	83.3
Woman's Medical College, Pennsylvania	(1904)	82.3
Yale Medical School	(1900)	83.5
University Medical College	(1904)	77.9
Hosp. Coll. of Med., Kentucky	(1904) 75.8,	83.2
Southwestern Homeopathic Medical College	(1904)	85.1
Northwestern University. (1902) 86.8, (1903) 88.4.	(1904)	82.9
University of Michigan	(1902) 88.9, (1903)	78.7
Medical College of Ohio	(1902)	88.9
College of P. and S., Chicago. (1902) 75.5, 80.1; (1903) (1904) 77.5, 80.1, 80.1, 83.4, 84.8, 80.		85.4,
Harvey Medical College	(1901)	78.7
Illinois Medical College	(1904) 79.1, 80, 81.1, 83.3,	84.1
Chicago Homeopathic Med. College...(1903) 78.2	(1904)	84.2
University of Hungary	(1894)	76
Louisville National Medical College	(1903)	75.9
University of Louisville	(1903)	79.6
Kentucky School of Medicine	(1904)	76.5
FAILED.		
Hospital College of Medicine	(1904) 48.5, 58.4, 62.7,	65.5
University of Louisville	(1891) 48.1, (1904)	67.5
Kentucky University	(1904)	64.3
Medical College of Indiana	(1904)	65.1
Eclectic Medical Institute, Cincinnati	(1903)	66.7
Kentucky School of Medicine	(1889)	52.5
Illinois Medical College	(1902)	57.8

New Mexico December Report.—Dr. B. D. Black, secretary of the New Mexico Board of Health, reports the oral and written examination held at Santa Fe, Dec. 5, 1904. Two persons were examined. A graduate of Vanderbilt University (1893) passed, and a graduate of the National Medical University, Chicago (1903), failed for the second time. Twenty-three applicants were licensed under the present law by registration of diplomas from schools in good standing.

North Dakota January Report.—Dr. H. M. Wheeler, secretary of the North Dakota State Medical Examining Board, reports the written examination held at Grand Forks, in January. The number of subjects examined in was 13; percentage required to pass, 75. The total number examined was 8, of whom 6 passed and two failed (Chicago Homeo. Med. Coll., 1895, and Hamline University, 1904, percentages not given). The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Hamline University	(1903)	80
Trinity University	(1902)	75
University of Minnesota	(——)	78
Rush Medical College	(1903)	86
Marion Sims-Beaumont Medical College	(1904)	77
Hahnemann Medical College, Chicago	(1904)	81

Rhode Island January Report.—Dr. Gardiner T. Swartz, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, Jan. 5-6, 1905. The number of subjects examined in was 7; total number of questions asked 70, percentage required to pass, 75. The total number examined was 5, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Baltimore University	(1904)	79.1
Tuft's Medical College	(1904)	82.8
Georgetown University	(1903)	80.6
College of P. and S., Boston	(1904)	80.4
College of P. and S., New York	(1899)	86.5

South Dakota January Report.—Dr. H. E. McNutt, secretary of the South Dakota Board of Medical Examiners, reports the written examination held at Aberdeen, Jan. 11 and 12, 1905. At each examination the number of subjects examined in was 12; total number of questions, 99; percentage required to pass, 75. The total number examined was 23, of whom 19 passed and 4 failed.

PASSED. College.	Year Grad	Per Cent.
Rush Medical College. (1882) 78.56, (1903) 84.33,	(1904)	78.16
College of P. and S., Chicago	(1902)	79.41
University of Iowa	(1897)	80.75
University of Minnesota	(1902) 84.5, (1904)	78.08
Hering Medical College, Chicago	(1904)	86.17
Chicago Homeopathic Medical College	(1904)	79
University of Pennsylvania	(1895)	82.08
Detroit College of Medicine	(1904)	76.75
University of Nebraska	(1904)	82.91
Hamline University	(1896) 75,* (1903)	84
Keokuk Medical College	(1903)	79.66
American College of Med. and Surg., Chicago	(1904)	83.58
Ohio Medical University	(1902)	82.16
Washington University	(1903)	83.33
University of Bishop's College, Montreal	(1902)	86.08
FAILED.		
Wisconsin College of Medicine	(1896)	35.25
Starling Medical College	(1903)	70.8
New York Medical University	(1890)	70.8*
Washington University	(1904)	71.8

*Second examination.

Association News.

THE PORTLAND SESSION.

Contracts Closed for the Main Auditorium and Rooms for All Sections Arranged Near.

The following announcements are made in the *Medical Sentinel* concerning the Portland session of the American Medical Association:

MEETING PLACES ARRANGED.

Contracts have now been made for a large auditorium and galleries for exhibitors in the Portland Exposition building; the central auditorium for the General Meetings will easily seat 3,000 people and has good acoustic properties. This is situated on three different car lines and has two others within two or three blocks. It is also in the center of the main school and academy district of the city, so that rooms for all the sections have been obtained within a radius of not to exceed six blocks from the central building.

This will provide abundant and comfortable accommodations for both the General Meetings and the different sections during their meetings in Portland. The Exposition building is within five or six minutes' walk of most of the leading hotels and is on a direct line from the center of the city to the Lewis and Clark Fair grounds. The two chief car lines to the fair grounds pass its doors.

ACCOMMODATIONS FOR ALL VISITORS ASSURED.

A large number of requests for accommodations have already been received and promptly responded to, and their wishes fulfilled by the bureau, of which Mr. H. C. Bowers has charge. The committee of arrangements again wish to urge all who are intending to come to the session to send in their requests for accommodations at an early date. A number of new, smaller hotels are going up all over the city, the boarding schools and academies are being converted into summer hotels, and with the Inside Inn and the thousands of private rooms that will be for rent during the fair, there need be no fear of any one failing to secure comfortable quarters at reasonable rates.

The committee on finances is also receiving most encouraging support with its subscription lists, and, taking it altogether, with commodious central places of meeting all secured, a list of 5,000 rooms at the disposal of intending visitors, and a large attendance on the part of the profession of the United

States to make this an opportunity for a gala trip of exploration and sightseeing, the success of the Portland session of the American Medical Association is assured.

Rates to Portland.

We are daily receiving requests for information regarding the rates to Portland for the next session of the American Medical Association. There is nothing further to announce than what has already been announced, namely, that the rates thus far made are $45 for the round trip from Missouri River points, St. Paul, Omaha, St. Joseph and Kansas City. The rate from Chicago is $56.50, this rate being $5 less than the regular one-fare rate now prevailing. While no official action has been taken by many of the passenger associations, undoubtedly one-half rates will prevail from all points east of those mentioned. One will have the option of returning by a different route, no matter by what road one may go. For instance, one may go by any of the extreme southern routes and may return by the Canadian Pacific or by any of the routes between these two extremes. The return route must be designated on ticket, hence it must be decided on before starting. Stop-over privileges will be given at important points, the time limit being 90 days. It is to be understood, however, that a passenger is always sent to his destination by the shortest route. If he wishes to go through a point not on this direct route an extra charge is usually made. For example, if one wishes to return by the Southern Pacific from Portland to St. Louis, one can not expect to be routed through San Francisco and Los Angeles, unless it is so specified, because the railroad can send its passengers by the direct line through Oregon, Idaho, Wyoming and Nebraska. Thus on some lines, one who visits San Francisco or other coast points and starts back from there will probably have to pay something between $7 and $11, no special rate having thus far been made, although an extremely low one may be expected. We speak particularly of this point, so that purchasers of tickets will decide on routes carefully and will secure a full understanding from the ticket agents of whom they purchase. The exact route should be specified on the tickets as stated above. These rates can be obtained by anyone, so that physicians can be accompanied by friends. Further information can be obtained by applying to the agents of the railroads all over the country, although official announcements in regard to many of the points mentioned above have not been issued.

The Yellowstone Park-Portland Special.

As announced in a previous issue, arrangements have been made for running a special train from Chicago by way of Yellowstone Park. This train will run over the Chicago, Burlington and Quincy Railroad to Minneapolis, and thence over the Northern Pacific. As first announced, the number will be limited to 250. It has been decided, however, that this number is too large for one party in the park, consequently the train will be divided into two sections, each limited to 125. The first section will leave Chicago, June 30, arriving at the Yellowstone Park July 2. This train will reach Portland on the morning of July 10. The second section will leave Chicago July 1, reach the park July 3, and Portland on the afternoon of July 10. The extra expense connected with the Yellowstone Park trip will be $49.50. This will include all expenses from the time of leaving Livingston, at which point a branch leaves the main road for the park, until the return to Livingston, including hotel expenses, stage transportation, etc. A dining car will be attached to each of these trains during the entire trip. There will also be an observation car on each of the sections. A much larger number have registered for this special than was expected, and we would suggest that those who are thinking of taking advantage of this occasion to visit the park should send in their names at once. We repeat, the number will be limited absolutely to 250, 125 to leave on the first section and 125 on the second. Those going by this train will have the privilege of returning by another route.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 18, 1905:

Kendall, Wm. P., granted twenty-two days' leave, to take effect Feb. 5, 1905; on expiration to proceed to Manila, P. I.

Torney, Geo. H., deputy surgeon general, left U. S. Army General Hospital, Presidio of San Francisco, on thirty days' leave of absence.

Stephenson, Wm., surgeon, assumed temporary charge of chief surgeon's office, San Francisco.

Owen, Wm. O., surgeon, left Fort Logan, Colo., en route to Washington, D. C., on delay in reporting for treatment at U. S. Army General Hospital, Presidio of San Francisco.

Wells, Geo. M., surgeon, relieved from duty in Philippine Division and ordered to proceed to San Francisco and report for orders.

George, William R. S., contract surgeon, returned February 4 to his proper station, San Juan, P. R., from detached service at Cayey, P. R.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 18, 1905:

Williams, R. B., P. A. surgeon, detached from the Naval Hospital, Norfolk, Va., February 14 and ordered to the *West Virginia*.

Dunn, H. A., asst.-surgeon, detached from the Naval Hospital, New York, February 20, and granted leave for six weeks.

Bagg, C. P., surgeon, detached from the Naval Hospital, Mare Island, Cal., February 21, and ordered to the Naval Station, Guam, L. I., sailing from San Francisco February 25.

Backus, J. W., asst.-surgeon, ordered to the Naval Hospital, Portsmouth, N. H., and to additional duty on the *Southery*.

Bogan, F. M., P. A. surgeon, detached from the *Decatur* and ordered to the Naval Hospital, Yokohama, Japan, for treatment.

Munson, F. M., asst.-surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the Naval Station, Guam, L. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Feb. 15, 1905:

Gassaway, J. M., surgeon, Bureau letter of Feb. 3, 1905, granting leave of absence for ten days from February 9, amended to read ten days from February 14.

Wertenbaker, C. P., surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Havana, Cuba, for duty in the office of the United States Consul General. Granted leave of absence for twenty days from January 22.

Wickes, H. W., P. A. surgeon, leave of absence for one day granted by Bureau telegram of January 28 revoked.

Fricks, L. D., P. A. surgeon, to report to Surgeon G. W. Stoner, Immigration Depot, New York, for duty.

Earle, B. H., asst.-surgeon, granted leave of absence for seven days.

Fowler, J. B., A. A. surgeon, granted leave of absence for thirty days from March 7.

Richardson, S. W., pharmacist, relieved from duty at Boston, and directed to proceed to Wilmington, N. C., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist Malcolm McKay.

McKay, Malcolm, pharmacist, on being relieved at Wilmington, N. C., by Pharmacist S. W. Richardson, to proceed to Boston, and report to the medical officer in command for duty and assignment to quarters.

BOARD CONVENED.

Board convened to meet at Fortress Monroe, Va., for the purpose of making an investigation as to the cause of the damage to the launch *Spray*. Detail for the board: Surgeon J. B. Stoner, chairman; A. A. Surgeon H. W. Keatley, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 11 to Feb. 17, 1905:

SMALLPOX—UNITED STATES.

California: San Francisco, Jan. 21-28, 1 case.

Illinois: Feb. 4-11, Chicago, 26 cases, 2 deaths; Galesburg, 1 case.

Kentucky: Louisville, Feb. 2-9, 2 cases.

Louisiana: New Orleans, Feb. 4-11, 8 cases, 4 imported.

Michigan: Detroit, Feb. 4-11, 1 case.

Missouri: St. Louis, Feb. 4 11, 41 cases, 2 deaths.

New York: New York City, Feb. 4-11, 3 cases, 1 death.

Ohio: Dayton, Feb. 4-11, 1 case.

Pennsylvania: Altoona, Feb. 4-11, 1 case imported from Portage; Lancaster, Jan. 28-Feb. 4, 1 case.

Tennessee: Feb. 4-11, Memphis, 3 cases; Nashville, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Aires, Nov. 1-30, 18 deaths.

China: Shanghai, Dec. 24-Jan. 7, 15 cases, 18 foreigners, 130 deaths, natives.

Ecuador: Guayaquil, Jan. 18-25, 1 death.

France: Paris, Jan. 21-28, 17 cases, 4 deaths.

Germany: Bremen, Jan. 14-21, 4 cases.

Great Britain: Jan. 21-28, Hull, 7 cases; South Shields, 2 cases; Leeds, Jan. 28-Feb. 4, 20 cases, 1 death; Newcastle-on-Tyne, Jan. 1-28, 7 cases, 1 death.

India: Bombay, Jan. 10-17, 62 deaths; Calcutta, Jan. 7-14, 2 deaths; Karachi, Jan. 8-15, 1 case; Madras, Dec. 31-Jan. 13, 4 deaths.

Italy: Lecce Province, Jan. 12-26, 95 cases; Palermo, Jan. 21 28, 31 cases, 5 deaths.
Norway: Christiania, Jan. 21-28, 2 cases.
Russia: Warsaw, Dec. 3-10, 4 deaths.
Turkey: Constantinople, Jan. 22-29, 9 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Jan. 18-25, 3 deaths.
Mexico: Coatzacoalcos, Jan. 28-Feb. 4, 1 death; Juchitan, Jan. 29-Feb. 4, 2 cases.
Panama: Colon, Jan. 23-29, 1 case, 1 death; Panama, Jan. 1-28, 13 cases, 4 deaths.

CHOLERA.

India: Calcutta, Jan. 7-14, 106 cases.
Russia: Don Territory, Dec. 31, 2 deaths; Government of Astrachan, Nov. 14-21, 3 cases, Dec. 21-27, 1 case; Government of Baku, Nov. 14 21, 168 cases, 5 deaths, Dec. 14-21, 273 deaths; Government of Erivan, Nov. 14-21, 324 cases, 279 deaths; Government of Samara, Dec. 21-27, 1 case; Government of Saratow, Nov. 14-21, 11 cases, Dec. 21-27, 8 cases, 3 deaths; Trans-Caspian Territory, Nov. 14-21, 37 cases, Dec. 21-24, 3 cases; Volga Province, Nov. 14-21, 69 cases.
Turkey in Asia: Van, Dec. 31, 27 cases, 12 deaths.

PLAGUE—FOREIGN.

Brazil: Para, Jan. 1-9, 1 death.
Egypt: Jan. 7-14, Suez, 5 cases, 4 deaths: Tukh District, 4 cases, 3 deaths.
India: Bombay, Jan. 10-17, 208 deaths; Calcutta, Jan. 7-14, 33 deaths; Karachi, Jan. 8-15, 61 cases, 54 deaths.
Mauritius, Nov. 4-Dec. 1, 97 cases, 60 deaths.
Russia: Ural Territory, Dec. 26-28, 34 cases, 35 deaths.
Straits Settlements: Singapore, Dec. 24-31, 5 deaths.

Medical Organization.

THE NEED FOR MEDICAL ORGANIZATION IN GEORGIA.

By J. N. McCormack, M.D.

CHAIRMAN OF THE COMMITTEE ON MEDICAL ORGANIZATION.

BOWLING GREEN, KY.

After a pleasant vacation in Cuba and Florida, during which just enough work was done to relieve the monotony, I began to meet the appointments previously made for me by the Georgia State Medical Society. Beginning at Savannah, in the southeastern part of the state, I crossed from city to city to the southwestern side, then up to Columbus and across by Atlanta, Athens and Madison, closing at Augusta February 2, and then taking up a similar itinerary in South Carolina.

Aside from the unusual and extreme weather, and long and often unseasonable hours of travel necessary to keep the engagements, the personal experience was most agreeable. Cordial, old-fashioned hospitality greeted me everywhere, and in the families of physicians I met some of the finest and most interesting women to be seen in any country.

The condition of the profession of Georgia constantly impressed me as most unique. In one of the great states of the union, well denominated "the Empire State of the South," with its leaders ranking with the best class in this country, there never has been any real, practical attempt at organization. As a result, although in proportion to population there seemed to be less overcrowding of the profession than usual, poverty among its members, with all of the attendant evils to them, and still greater danger to the public, seemed, after careful inquiry, to be more general and pronounced than in any other state I have visited. For instance, although there were notable individual exceptions, a smaller percentage of the physicians than usual owned their own homes, or had ever taken postgraduate instruction, always in my experience fair tests of professional conditions. Several gentlemen courteously called on me to explain that they were too busy to attend the meetings or to give the time necessary for membership in county societies, and yet in nearly every case of this kind it developed on inquiry that these worthy, well-meaning, middle-aged men, most of whom frankly said they had never attended a medical meeting of any kind since their graduation, not only lived in rented houses, but, what was still more important to them and to their patrons, had never been able to avail themselves of the cheap, and to those not in touch with an active local society the almost essential postgraduate instruction to be had in every medical center. As a lifetime student of medical sociology these observations were most instructive, each conveying its own lesson and suggesting its own remedy.

The lack of organization was forcibly illustrated in another and a larger way. The executive boards, the State Board of Health and the State Board of Medical Examiners, the legal arms through which a properly organized profession must make itself effective in all public matters, although made up of good men, are not only subject to political appointment and tenure, but have no connection or means of co-operation with each other or with the Georgia State Medical Society, a co-operation now recognized as essential between all of the bodies managing professional interests in any state. This means, of course, that such boards are practically deprived of the moral support of their medical constituency in their everyday work, that quackery in all its most flagrant forms is rampant, with the press and public sentiment on its side, while a profession capable of great strength, if organized and united, is helpless to secure or to enforce remedial legislation.

The State Medical Society, on the other hand—and this will be a surprise to those of the old régime who have given undue importance to large central societies, state, interstate or national, as factors in organization work—is in a flourishing condition, largely owing to the efforts of its most efficient secretary. It has a membership of 700 out of a total eligible medical population of 3,000; it always has a fair attendance and an interesting program, and is in every way fully up to the average of bodies of this kind under the old order of things. That such a large, worthy and long-established organization has exerted so little influence on either the profession or the public will be readily understood when it is known that it has no real foundation, having no local societies in affiliation with it, and that no systematic attempt has ever been made to foster these or to reach and benefit the rank and file of the profession, that large and important element everywhere which can not hope to attend state meetings regularly, but which is none the less entitled to representation and a voice. Beside, they have practically but a two days' session, meeting usually about noon the first day and adjourning at the same hour on the third, and the short business sessions are really mass meetings of those present, who do not claim to represent any one but themselves, almost of necessity limited to the transaction of routine business, with neither the time nor the opportunity for considering the real needs of the profession and the state in a broad way which their importance demand.

All of this seems the more remarkable in a state divided only by an arbitrary line from Alabama, where for more than a generation every county, some of them containing but three or four physicians, has had an effective county society in full legal control of its medical and health affairs, with over 92 per cent. of the entire profession enrolled as permanent members of both these and the state association, and with its organized profession made by law as much a part of the warp and woof of the county and state governments as the legislative, judicial or executive departments. As has been more recently demonstrated in many other states, the organization has been so effective in Alabama not so much on account of its strong state association, as because it is rooted and grounded in the body of the profession in every section, and that it exists and unselfishly exercises the great powers which years of harmony and co-operation have given it, for the benefit not only of its own members, but of the public also, whose interests are inseparable from ours.

As the question of reorganization is now pending before the Georgia State Society, I did not deem it proper for me to discuss this phase of the subject in any of my talks, confining myself to an exposition of the methods, purposes and possibilities of local or county societies as the only feasible foundation for such a far-reaching, comprehensive organization of the profession of this country as is demanded to minimize the evils which have so long dominated it, and give it that voice and influence in the control of all affairs within its realm of which it has heretofore been deprived by dissensions within its own ranks. I explained and urged that these dissensions had never existed except between local men, those who think they have competing interests, and that they can only be minimized and finally cured, as has now been abundantly demonstrated, by such systematic, all-pervading local organizations, as will

bring these worthy men together in frequent and unrestricted consultation over the condition and needs of the profession and people of their jurisdiction. I insisted that the American Medical Association, aside from the scientific work done in the sections during four days of the year, was only an essential factor in this work as a bond of union between the states, for concentrating and making effective the instructions coming to it through the delegates from the states, and for the maintenance and distribution of its great journal; that the state societies, in session but two or three days, in addition to the scientific work done, were important only as a bond of union between the counties, as a help in promoting organization in these, and for voicing and putting into operation the instructions of delegates from its constituent bodies; but that the county societies, which must be the foundation and groundwork of any real organization, could meet monthly, or even weekly, as many of them are doing, not only for scientific and modern postgraduate work, but for the cultivation of such personal relations as will make the profession a credit to itself and to the community, and ultimately will unite it in the study and promotion of every interest in which it is concerned. I advised them frankly that this would be difficult work at the outset, that no plan which could be proposed for such local societies would be found either perfect or self-operating, that local medical organization is a tree rather than a vine, and that the Alabama plan, simplified and made more democratic by the Association, was intended only as a trellis or framework for the assistance and support of such organizations during the evolutionary period of their growth.

While I did not feel at liberty to talk on the subject of state reorganization in my addresses, in the discussion which nearly always followed, and in private conversation, no such restriction could be imposed, and others expressed themselves freely, as they had a right to do. Inquiries were made as to every detail of the methods suggested for local improvement, and the interest and enthusiasm were almost universal. In fact, the only discordant note I heard was from a little journal whose editor was expelled from the state society at it's last meeting, after I had, without his knowledge, urged a milder sentence, and who naturally feels resentful toward everything in the way of medical organization. When it is known that the proposed constitution expressly provides that only white physicians are eligible for membership, and that affiliation with the American Medical Association is entirely voluntary, and can be severed by Georgia or by any other state the first day it becomes undesirable for any reason, and that the Association can have no possible interest in the profession of any state except for the mutual help to come from such relations, his criticisms, in so far as they had any weight, only served to strengthen the position of those who want to put Georgia in the ranks of organized medicine.

Under a proper system of organization the possibilities before this profession are almost beyond the conception of its members, so long has the state been under the almost complete domination of the quack interests. Not an obstacle suggested, in the way of small and sparsely settled counties, difficulties in travel and other like things, but have been met and overcome in Texas, Arkansas, Michigan, Kentucky and other states, which have already tried this plan with such good results. Experience has demonstrated, over and over again, that even the fear that a single member of the present state socity might be lost is groundless. As there are now practically no county societies, such members would return home and become the natural centers around which these would be formed, and the state society could easily have 2,000 members by the next annual meeting. In one year Texas increased the membership from 309 to 2,510, Michigan from 452 to 2,100, and so on through the list of states. A percentage equal to Alabama would give Georgia 2,760 members, but this could only be hoped for after several years of painstaking work. With such prospects possible under the plan proposed it is submitted to this great profession that no one should raise his voice in opposition unless he has something better to offer.

Society Proceedings.

ACADEMY OF MEDICINE OF CLEVELAND.

Twenty-fourth Regular Meeting, held Jan. 20, 1905.

The President, Dr. C. J. Aldrich, in the Chair.

Cesarean Section in a Case of Torsion Due to Ventrofixation.

DRS. H. H. POWELL and F. E. BUNTS reported the case of a woman, aged 27, who had had a ventrofixation of the uterus performed six years previously. When first seen the patient was about five months pregnant and showed great debility and depression. The pelvic measurements were normal. The abdominal scar was about eight inches long, deeply depressed and adherent to the uterus. Under appropriate treatment her condition improved, although she had almost continuous pain and occasional flowing. Finally, at about full term, the pains became so severe that an attempt was made to bring on labor. As expulsive efforts could not be induced in the uterus, cesarean section was performed. The abdominal wall was much attenuated. Extending from it to a point on the uterus six inches below the fundus was a short, strong ligament about one and one-half inches wide. This ligament was severed and the uterus incised on its anteriorly presenting surface from a point just below the fundus downward to below the attachment of this band. The child and placenta were readily delivered and the incision closed by tier sutures of silk, plain and chromicized catgut. When uterine contractions began the uterus was seen to rotate on its cervical axis so that the incised uterine wall which was thought to be the anterior one, proved to be in reality the posterior. The rotation was probably due to the low point of fixation on the posterior uterine wall. When the enlargement of the uterus began the fundus escaped laterally from beneath the band, thus rotating the uterine body on its perpendicular axis. The silkworm gut used for the fixation was found in the band of adhesions.

DISCUSSION.

DR. HUNTER ROBB said that care was necessary in stitching the uterus forward. The operation is indicated when other means of retaining the uterus in position prove insufficient. The suspension is radically different from a fixation; in the former a strong band is rarely formed except after infection. Most complications requiring section follow fixation.

DR. POWELL said he had recently seen two cases of suspension that proved to be fixations, and each caused serious complications during labor. High forceps or turning are required in many of these cases.

DR. W. H. HUMISTON, who saw this case at operation, said he was astonished by the size of the band of adhesion. It was as thick as the tendo Achilles and twice as wide. For the past three years he has never performed a suspension or fixation if any ovarian tissue has been left. In such cases he has shortened the round ligaments by the Gilliam operation, and the results have been very good.

DR. C. D. WILLIAMS drew attention to the difference between fixation and suspension; the former produces a pathologic position while the latter allows a normal mobility of the uterus. Fixation is only allowable in prolapse or after removal of the tubes or ovaries. Fixation resulting from a suspension operation is usually due to infection of the abdominal wall. It can usually be avoided by making the abdominal incision rather high up and stitching the uterus to the abdominal wall well below the lower angle of the incision.

DR. A. F. HOUSE thought that the operation of suspension itself was not dangerous, but that a faulty method of performing it may cause trouble. It is, of course, impossible in some cases to be sure that a fixation will not result.

Diagnosis and Treatment of Intestinal Perforations in Typhoid.

DR. RICHARD H. HARTE of Philadelphia read a paper which was a thorough review of this subject.

DISCUSSION.

DR. LOWMAN thought that speed in operating is most essential. The diagnosis of a perforation is a very essential point.

All the classical symptoms may be absent and no single symptom is invariably found. A valuable sign is the absence of the usual undulatory abdominal movement; the whole abdomen moves at once and even this motion is lost later. Exploratory laparotomy is justifiable when the diagnosis is in doubt; a small incision may be sufficient. If no perforation be found and a culture prove sterile the gut is usually intact.

DR. C. E. BRIGGS said it was necessary to distinguish between the signs and symptoms of perforation as the latter are useless in lethargic patients. The altered pulse rate, abdominal rigidity and altered type of respiration are the most important signs. He thinks enterostomy preferable to suture in some cases. It is very simple, relieves flatus, and the septic absorption is less than if the lumen be constricted by an extensive infolding of the edges.

DR. N. ROSEWATER thought that ergot with strychnia was useful in some cases. He had seen its good effects in a case which he had recently had. There were symptoms of perforation which cleared up. Twelve days later the patient died, nine perforations being found, two walled off, showing the possibility of recovery in perforation.

DR. G. W. CRILE said there was a marked antithesis between the toxic action of typhoid and pyogenic infections. With a stimulation or an inhibition of the vasomotor center there results a fall or a rise of blood pressure. In typhoid the vasomotor center is depressed, the venous circulation is congested and the blood pressure is low; the skin is of a dusky color. There is a great contrast in pyogenic infections; the vasomotor center is stimulated, the blood pressure is high, the peripheral venous circulation is contracted and there is marked pallor. It is difficult to estimate the changes that perforations should cause in the blood pressure. In perforation there is a determination of blood to the splanchnic area with marked pallor and a peculiar facies.

DR. HUNTER ROBB inquired as to the occurrence of acute appendicitis with typhoid and whether a typhoid perforation had been reported in the appendix.

DR. HARTE said that the altered type of abdominal respiration must be an important symptom. Speed is valuable in all operations, and he regretted that surgeons do not insist on this point. Time can be saved if the surgeon and his assistant simultaneously examine opposite sides of the gut. On finding the perforation, the assistant can proceed with the irrigation while the surgeon closes the opening. He has performed the operation in twelve minutes, and fifteen should usually suffice. He uses a large amount of gauze drainage so that at times it is unnecessary to suture the abdominal wound. The changes in blood pressure are probably of value, but he has had no personal experience with them. He has seen several cases of perforating appendicitis and ordinary appendicitis during typhoid. He insisted on the advisability of the surgeon being familiar with the general condition and aspect of the seriously ill typhoid patients in the hospital, and the value of obtaining the patient's consent to operation in advance whenever typhoid perforation is feared.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Feb. 8, 1905.

Dr. William T. Belfield in the Chair.

Present Limitations in Serumtherapy.

DR. H. T. RICKETTS said that inquiry into the value of diphtheria and tetanus antitoxins reveals the fact that the latter falls far below the former as to its therapeutic value. The antitoxin treatment of tetanus may be considered hopeless at present. The chief value of tetanus antitoxin is its prophylactic use, as it has been clearly demonstrated that if the antitoxin is given to a patient in whom there is any suspicion or likelihood of the development of tetanus, the disease does not develop. A striking example of this is seen in Fourth of July wounds. In some of the eastern hospitals, patients who received wounds on the Fourth of July and who were injected with tetanus antitoxin as a prophylactic, did not develop the disease. In a hospital in Prague a threatened epidemic of te anus was controlled by giving prophylactic injections of te anus antitoxin to all inmates in the institution. The ther peutic value of diphtheria antitoxin is so well establishe that little or nothing need be said regarding it. In regard t bactericidal serums, practically no results of value have bee obtained in the treatment of established infections, as, fo instance, antityphoid serum, anticholera serum or antiplag serum. Published statistics do not warrant the conclusio that so-called bactericidal serums are of any value in trea ing diseases. Antistreptococcic and pneumococcic sera are very little value.

Plague and Late Cholera Epidemic in the Philippine Island

DR. PAUL C. FREER, superintendent of laboratories of th Philippine Islands, said that the Philippine Islands were vi ited by two cholera epidemics before American occupatio one in 1882 and the other in 1888, and in these years th mortality was very high. In Manila alone the records showe that there were as many as a thousand cases at one tim Both of these epidemics were serious, and, so far as could b discovered, very little was done to check them. During bot of these epidemics Manila had no water supply except fro wells, and it was after the second epidemic of 1888 that on of the former governor-generals gave a donation to start th Manila water supply works, which was completed afterwar The third cholera epidemic occurred during the American o cupation and about three years after Americans landed o the islands. Dr. Freer referred to the organizations in th Philippine Islands and the scant means at hand for limitin the epidemic. In order to secure complete co-operation th Philippine Commission established the Board of Health. Thi was composed of a commissioner of public health, a secretar who was a Filipino, a chief health inspector, a sanitary en gineer who took charge of the engineering department, and superintendent of laboratories. When the Board of Healt was organized, in 1901, it was without ambulances; it had n contagious disease hospital; it had no disinfecting apparatu and wagons, and means of transportation were very poo The city of Manila was divided into seven districts, each i charge of a medical officer taken from the contract medica service. These officers, together with a corps of medical in spectors, began a system of house-to-house inspection. A this time the most serious disease was bubonic plague. A though the number had diminished markedly since America occupation, a recrudescence of the epidemic was feared. Man of the facilities acquired for controlling the plague epidemi were put to good use subsequently in dealing with cholera. large barracks was constructed which would hold 2,500 peopl When plague occurred in a house the patients were taken fro it to the hospital, thus leaving the premises free for disinfe tion, etc. About December, 1901, three months after the pla was first discussed, there were constructed six barracks whic accommodated a thousand people comfortably, and during th cholera epidemic they took in as many as 2,400 at one tim The Board of Health procured eight or nine ambulances an equipped itself as well as it could with disinfecting apparatu etc. Whenever plague was suspected in a certain house member of the laboratory staff was called in for diagnosis, an if the case proved to be plague the patient was taken to th hospital, or, if dead, to the morgue, and a radical alteration o the house undertaken; either its destruction by fire, if beyon repair, or complete rebuilding. It became necessary to destro and rebuild whole districts in the city, and in this way plagu was eradicated completely from the districts where it wa prevalent. The main weapon against plague was the destruc tion of rats. In the first month the Board of Health destroye about 2,000 rats, after which the number ran up to 20,000 month. Fifty thousand rats were caught in the first thre months. A large number of rats were examined at the lab oratory for the plague bacillus. Two hundred and seventy-tw rats were found to be infected with plague and had come fro various houses. One-half of these houses were disinfecte burned down, if necessary, or altered. They managed t

diminish the number of cases of plague by these measures so that in March, 1902, there was not a case of plague in the city, nor had there been one for three weeks.

Cholera patients were isolated in a contagious disease hospital. The houses in which cholera was most prevalent were burned first and the property appraised afterward. Two thousand people were taken out of the infected district and transported in wagons, ambulances, etc. The number of cases soon diminished until finally the disease was entirely controlled and eventually wiped out.

A serum laboratory has been established which produces all of the antitoxins and sera necessary for work in the tropics, including rinderpest serum. The Board of Health has procured new ambulances, has enlarged its disinfecting corps and has perfected district organization.

Chlorid Retention in Nephritis.

DR. JOSEPH L. MILLER said that a review of the literature since Widal and Javal's original communication shows quite uniform confirmation of their views, that patients with acute and chronic parenchymatous nephritis have marked inability to eliminate chlorids. As a result of the retention, the patient increases in weight, due to edema. The albumin in the urine, following the ingestion of 10 grams of sodium chlorid daily, is increased and the patient may develop symptoms resembling uremia. In animals with artificial nephritis the use of salt increases the albumin. The organs of patients with nephritis show an excess of sodium chlorid. Kovesi has shown that nephritics, after the ingestion of large amounts of NaCl, do not perspire, due to increased osmotic pressure of the blood, and the edema is the result of this retained fluid. As it has been shown that ingestion of large amounts of salt may increase the edema due to portal obstruction, cardiac insufficiency and even the inflammatory edema, many believe the chlorid retention may be of extrarenal origin. Miller studied two cases of acute and seven of chronic parenchymatous nephritis. The chlorids were estimated by the Salkowski-Volhard method, for nine consecutive days. For three days in the middle of this period the patients received, in addition to their food, ten grams of sodium chlorid daily. All showed a retention of ten to twenty-five grams during the three days. The edema became more marked, the patients gained in weight, and the amount of albumin increased. Two patients showed uremic symptoms following the extra sodium chlorid. Four normal individuals were examined in the same manner, and all showed a chlorid retention equal to the nephritis. They also gained in weight. From this it is concluded that these patients developed an undetectable edema, while in the nephritics with the tissues already waterlogged a moderate increase in edema could be detected. These patients did not show any albuminuria or uremic symptoms. As a final conclusion on this matter there is no doubt that sodium chlorid should be restricted in nephritis. The broths and soups contain very large amounts of salt. Subcutaneous injections of salt solution must be used with caution, if at all.

ASSOCIATION OF CLINICAL ASSISTANTS OF WILLS HOSPITAL.

Regular Meeting, held Jan. 18, 1905.

Dr. J. Hiland Dewey in the Chair.

Gumma of Iris and Ciliary Body.

DR. STANLEY S. SMITH reported a case which presented all the characteristic symptoms of the condition, and which was fast becoming well. Dr. Smith stated that it was very instructive to note the secondary, rapid diminution of vision produced by haze in the media which probably had been caused by a deposition of the gummy infiltrates into the chambers of the eye.

DR. JOHN T. KRALL commented on the comparative painlessness of specific cyclitis and the character of the infiltration into the aqueous and the vitreous which was chiefly composed of round-cell exudates. In support of the belief of others that gummata of the ciliary body usually occur on the upper border of the cornea, he had seen but one in which the swelling was situated on the lower side.

The various methods of administering mercury were informally discussed, the consensus of opinion being in favor of the use of mercurial ointment by inunctions.

Interstitial Keratitis.

DR. JOSEPHINE W. HILDRUP reported ten cases of interstitial keratitis. The ages of the patients varied from 6 to 58 years. The dyscrasia had been very carefully studied in all. Females had been preponderant in the series. With but one or two exceptions all of the cases had passed on to resolution.

DISCUSSION.

DR. JAMES A. KEARNEY stated that he had seen much good accrue from the use of inunctions of protoiodid of mercury.

DR. DEWEY had not had much experience with subconjunctival injections and had seen some unfortunate results, such as conjunctival ulceration, giving rise to disfigurement from their use.

DR. KEARNEY exhibited a case in which the right eye was being treated by the ordinary routine methods, supplementing these by subconjunctival injections of common salt solution in the left eye, the latter organ (although the first involved) seeming to improve much more rapidly than its fellow.

DR. KRALL stated that he had learned to share the opinion of others that if injections were made under the conjunctiva their effects would be to produce a number of adhesions between the bulbar conjunctiva and Tenon's capsule, and stated that even though the injections were made into the capsule their good results were but transitory, as adhesions were sure to occur. He believed that such injections did more harm than good.

Double Pterygium.

DR. KEARNEY presented a case of double pterygium in which one eye had been operated on by the von Arlt method and the other by the McReynolds.

DISCUSSION.

DR. KRALL was of the opinion that the McReynolds operation had no advantage over the von Arlt. He believed that every case should be treated on its own merits, one method of operation not being applicable to all.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(Continued from page 573.)

MEDICAL CLINICS.

The three great clinics of internal medicine in Vienna are led by Professor Hermann Nothnagel, Leopold Schröter and Eduard Neusser, respectively, and with these chief professors are associated a veritable host of younger assistant professors and privat docents, among whom may be mentioned Leopold Oser, Emil Ritt, v. Stoffela, Franz Chovstek, W. Winternitz, M. Heitler, N. Ortner, J. Pal, J. Mannaberg, H. Schlesinger, J. Drozda, A. Biach, A. Pick, F. Kovács, A. Hammerschlag, M. Sternberg, E. Schütz, M. Herz, A. Klein, F. Obermayer, R. Kolisch, J. Weiss, E. Schwarz, A. Strasser, A. v. Weismayr, W. Pauli, G. Singer, L. Braun, A. Katz, S. Erben, F. Pinelles, A. Schiff, W. Türk, E. v. Czylharz, R. Schmidt, F. Wechsberg, J. Donath and M. Weinberger.

Nothnagel has the first medical clinic, Neusser the second, and Schrötter the third. All three are at the Allgemeine Krankenhaus, Nothnagel's clinic being in the eighth hof, Neusser's in his special auditorium, and Schrötter's in the second hof. Each chief holds a clinic of two hours on five mornings of the week, nominally from 7 to 9 a. m., in which the courses on general clinical medicine are given. Assistants in each of the three clinics give courses on physical diagnosis (ausculta-

tion and percussion), and in addition courses in great number and variety on a multitude of special subjects in internal medicine are offered by assistants and docents. It has long added to Vienna's attractiveness, especially to American students, that one can at any time get a definite, cut-and-dried six weeks' course on almost any subject in the field of clinical medicine and surgery. Berlin has not gone so far in the provision of such courses, and I have heard many a student fresh from "finished" courses in Vienna complain on arriving in Berlin that he could find "nothing to do." There are advantages and disadvantages in the provision of courses of this kind; the advantages are obvious to all; to those to whom the disadvantages are not obvious, there would perhaps be but little use in explaining what they are. But I have always felt sorry for the student who on reaching Berlin could find "nothing to do."

One of the docents in internal medicine, especially, is held in very high esteem by American students who have worked with him. I mean Dr. Franz Kovâcs. Though in the university, he has never been advanced in rank beyond his docentship, he has a high hospital position, being Primärarzt to the fourth medical section of the Allgemeine Krankenhaus. Having heard so much of him as a teacher, I was especially interested in meeting him and in following him through his wards. He has an abundant material and studies it carefully. A quiet, earnest, and very serious man, he sets an excellent example of steady, systematic, conscientious clinical work. I was much impressed by the thoroughness of his routine, his careful analysis of the anamnesis, his very complete objective examination, his brief but sufficient description of the *status praesens*, the comprehensiveness of his diagnoses, his guarded prognoses and his efforts at rational therapy. His course entitled "Diagnostik innerer Krankheiten," which he repeats every four or six weeks, is always full to overflowing with men who need a fundamental training in the methods of clinical examination. He teaches his men to be orderly and systematic; he knows how to teach auscultation and percussion; how to make students properly palpate a spleen, etc.; and he also knows how, having made the objective examination, to teach them to differentiate between diseases which have physical signs more or less in common; in other words, his course includes just the sort of work that every medical student should do in the third and fourth years in the medical school; unfortunately, as yet the work is done as thoroughly as he does it in only a very few of our American medical schools. This course, then, is one which can be warmly recommended to many American physicians who go to Vienna for medical work, to anyone, in fact, who has not already had a thorough drill in the elementary facts and methods of internal medicine. For it is only after having had such a course somewhere that the physician is prepared to undertake higher work in internal medicine in clinics where studies of a more original character are carried on.

LABORATORY WORK.

The courses dealing with the clinical study of the blood and the chemical study of the stomach juice and feces are always popular in Vienna; those given by W. Türk and R. Schmidt, both docents in Neusser's clinic, I heard highly spoken of.

Of the assistants in internal medicine engaged in actual original research in Vienna, the privat docent Wolfgang Pauli is one of the most important. Thanks to a thorough training in physics under Mach, in chemistry under Hofmeister, and in physiology under Hering, he has brought to medicine a mind unusually well suited for attacking medical problems of a physical or physico-chemical nature. His studies of the phenomena of imbibition and of the alteration of the physical condition of colloid substances under the action of various reagents, and recently his pharmacodynamic investigations have compelled attention in a wide circle of those who interest themselves in the progress of higher experimental medicine. While the first two series of researches are at present of most interest to physiologists and physiologic chemists, the third series, dealing with pharmacodynamics, promises to be of fundamental importance for the practical medical man.[4] Pauli's studies, like those of Meyer and Overton on the theory of narcosis and Straub's work on the validity of the law of mass action for the distribution of certain poisons in the organism, go far toward showing that the methods of physical chemistry are to throw new light on, and to give to the physician a deeper understanding than can be obtained in any other way, of the action of drugs in the body. Dr. Pauli's work, like that of Professor Jacques Loeb, has to do largely with the action of ions, those electrically charged particles into which the various salts (electrolytes) dissociate when they are dissolved in water. As is well known, the mineral substances dissolved in the animal juices in the concentration in which they exist there are in largest part dissociated into their constituent ions. Professor G. N. Stewart's work on the electrical conductivity of the blood serum will be recalled in this connection. It is just as true that, if salts of the metals or alkalies be prescribed for patients, they act in the body through the ions into which they dissociate on solution in water. Even certain substances of pharmacologic importance which scarcely become ionized at all in aqueous solution, for example, the esters, may, inside the organism, be converted into ionizable substances.

Of all the constituents of the protoplasm of the cells, the proteid substances appear to stand in the most striking relation to the salts. Thus the solution of proteids, their precipitation, their coagulation by heat—are all remarkably influenced by the presence of salts, and Pauli has through a long series of experiments endeavored to determine more exactly the exact relations which exist.

It is known that the neutral salts of the alkali metals, of ammonium and magnesium, for example, stand in a very simple relation to the problems here under consideration; though these salts throw down precipitates of albumin, by dialysis of the salts the albumin can be reobtained almost entirely unaltered. The most important laws (according to Pauli) for these reversibilities of condition are as follows: If the salts be arranged according to their relative precipitating power, for every metal-ion (kation) the same series of acid-ions (anions) holds good, and, *vice versa*, for every acid-ion (anion) the same arrangement of kations. The precipitating effect of salt is therefore the resultant of the precipitating effects of its constituent ions and these ion-properties are in high degree independent of one another.

A second law refers to the nature of the influence of the ions. It has been found that the ions of the salts when acting on proteid substances may antagonize one another, one acting as a precipitant, the other as a solvent, and accordingly as the influence of the one or the other ion predominates, the salt concerned causes or hinders the precipitation of albumin. The ions of salts arranged according to their respective value make the following series:

Kations (according to decreasing precipitating power): Natrium, kalium, ammonium, magnesium.

Anions (according to increasing capacity for preventing precipitation): Sulphate, citrate, tartrate, acetate, chlorid, nitrate, bromid, iodid, sulpho-cyanid (or rhodanate).

The salts of the alkaline earth metals differ in their effect from those of the neutral salts of the alkali metals. Thus the salts of the alkaline earth metals bring about a precipitation of albumin that is irreversible in the sense that a precipitation once set in is difficult to inhibit; a return to unaltered albumin is scarcely possible. The effect of calcium, stronium and barium is in high degree variable, according to the presence or absence of other ions. Curiously enough, here the ions composing the alkali salts though opposed to one another in action, have an effect exactly opposite to that observable in precipitation of albumin with the pure neutral salts of the alkalies. Thus precipitation produced by the earth-alkalies is favored by anions and hindered by kations. The anions arranged in order of increasing power of favoring precipitation

4. Cf. Pauli, W. Ueber den Zusammenhang physiko-chemischer Eigenschaften und arzneilicher Wirkung. Vorgetragen auf dem Kongress f. innere Medizin in Leipzig, 1904.

form the series: Acetate, chlorid, nitrate, bromid, iodid, and sulpho-cyanid; kations arranged in decreasing dissolving power form the series: Magnesium, ammonium, kalium, natrium.

But how, it may be asked, can these facts, learned from test-tube experiments, be applied to the study of ion action on the albuminous substances of the protoplasm of living cells? In studying the physiologic effects of the ions of salts, it has been found that the additive and antagonistic effects of ions are similarly observable in the living body. For example, it is a property common to all kations that they increase to a greater or less extent the excitability of muscles and nerves, that they stimulate the activity of the gastrointestinal tract[5], and, usually, they increase the blood pressure. And again, the physiologic effects of anions, like their albumin dissolving power, become more and more marked as the above series is descended; the sulphates, citrates, and tartrates which precipitate albumin also act as purgatives; the other salts, especially the nitrates, bromids, iodids, and sulphocyanids, act, on the contrary, as sedatives and, further, tend to lower the blood pressure. The allied nature of the latter anions is also shown by the production by all of them in certain susceptible individuals of unpleasant complications like acne and coryza. The similarity of behavior of the sulphocyanids to that of the iodids and bromids in experiments *in vitro* led Pauli to expect a similar pharmacologic effect, and his experiments on the treatment of tertiary syphilis with sulphocyanid of soda (*Rhodan-natrium*) have shown that much may be hoped from "rhodantherapy" in some cases.[6] In one patient, with syphilis of the bones of the skull and syphilitic involvement of the sternoclavicular articulation, the administration of small doses of rhodan-natrium led to a rapid recovery.

The sulphocyanid anion or "sulphocyanion" stands at the end of the series of the monovalent anions and appears to be the most powerful of them all. Pauli made an interesting series of experiments to determine the difference in action between the salt, sodium sulphocyanid, and the ester, amylsulphocyanid. In aqueous solution, the salt dissociates into its ions, natrium and sulphocyanion, the ester scarcely if at all. But the ester, by virtue of its solubility in fats, can, as Overton's studies have shown, easily penetrate into the interior of the cells, while the soda salt (or its ions) cannot enter easily. But inside the cells an ester is saponified, so that, from the amylsulphocyanid, sulphocyanic acid would be set free, and as this acid dissociates into its ions, viz.: hydrion and sulphocyanion, it might be expected that the physiologic effect of the sulphocyanion would, under favorable conditions, be obtained. The experiments proved that with both sodium sulphocyanid and amylsulphocyanid, that is to say, with both the salt and the ester, a typical sulphocyanid poisoning can be produced. But the following remarkable observations were made: While two or three drops of the ester given intravenously rapidly killed the animal, to get the same effect from the sodium salt, some eight or ten grams had to be injected. The explanation of the enormous difference in action doubtless lies in the solubility of the ester in the cell lipoids, permitting quick penetration; the ions of the dissociated salt penetrating only with great difficulty into the interior of the cells, a far greater amount of the substance had to be introduced to produce the same effect.

It seems further that substances that act as local anesthetics have anions united in an ester-like combination; as undissociated ester they enter the cells quickly; once inside they are saponified and as the resulting acid dissociates into hydrion and anion, the latter can exercise its anesthetic influence on the sensory nerve-ending. Thus cocain itself is the methylester of benzoylecgonin, one of the tropin-carbonic acids. The acid alone is twenty times less active than the ester. And many other examples might be given.

Mention was made above of the fact that certain ions increase the precipitating power of the alkaline-earth kations, others inhibit it. It occurred to Pauli that the same combinations which *in vitro* increase the precipitation of albumin, ought to increase the toxicity in the animal body; and experiment supported this hypothesis. Thus, for example, the toxicity of an amount of sulphocyanid that would ordinarily have only a slight and temporary effect can be so increased by the exhibition of small doses of salts of the alkaline earths, doses in themselves non-toxic, that the beat of the heart will be suddenly arrested.

The results of the experiments of Loeb, made in an entirely different field namely that of experimental embryology, are so closely in accord with those of Pauli that one can not help but feel that this new path which is being blazed through the forest is sure to lead us to new possessions, the value of which we can as yet scarcely guess. And in making these new possessions accessible to us American investigators, if present indications are an index to the future, are to play no inactive part. In addition to the brilliant experiments of Loeb himself, and those of J. B. MacCallum already referred to, we have the work of Ralph Lillie on the antagonism of the kation effect on the movement of cilia, that of Martin Fischer on the suppression of a glycosuria due to the action of natrium ions by the administration of calcium, that of Brown in which it was shown that the calcium could be replaced by strontium, and that of Sollmann of Cleveland on the effects of other anions on the excretion of chlorin in the urine.

(To be continued.)

5. The reader will recall the interesting results obtained by J. B. MacCallum of Berkeley in his study of the mode of action of the saline cathartics.

6. Pauli W., Zur Kenntnis der Rhodantherapie, Centralbl. f. d. ges. Therap., vol. xxii, 1904.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Bronchitis.

The different forms of bronchitis may be classified as follows:

1. Acute bronchitis.
   a. Of the larger tubes.
   b. Of the smaller tubes.
2. Chronic bronchitis.

In making a finer division of the different forms of bronchitis Hoffmann, in "Nothnagel's Encyc. of Med.," enumerates thirteen different forms of bronchitis depending on the etiology rather than on the pathologic basis. Among these is "catching cold." One contracts "a cold," according to Hoffmann, because the body or some part of it suffers a sudden deprivation of heat and fails to react as vigorously as it would under normal conditions. The nervous system is not always sufficiently vigilant and the mechanisms which regulate these changes are not always energetic enough, consequently abnormal conditions arise. So in taking cold, he goes on to state, one can suppose that there is a loosening of the epithelium of the bronchi, with the development of small, thin places, in consequence of this sudden change of temperature, in people who are not properly hardened; as a result dust and micro-organisms penetrate into and cause desquamation of these thinner layers of the epithelium and thus produce a catarrhal inflammation. It must not be overlooked, however, that one individual does not show the same degree of susceptibility that may be shown by another.

TREATMENT.

In regard to internal medication, the author mentions those drugs which act on the respiratory centers as sedatives, such as opium and hydrocyanic acid; and those which act as stimulants, such as belladonna, strychnia, ammonia, ipecacuanha and senega. He also mentions drugs which influence the activity of the glands as sedatives—acids, belladonna, senega and scilla;

and those which stimulate—alkalies, pilocarpin, apomorphin, ipecac and tartar emetic.

Musser recommends the following outline of treatment in those cases of acute bronchitis which begin with a cold and coryza followed by laryngitis and bronchitis. In the beginning a brisk hydragogue cathartic is given, such as elaterium if the patient is robust, or with a full dose of Dover's powder at bedtime and a hot footbath. If there is much headache and frontal pain the following is recommended:

℞. Camphoræ ..... gr. i |06
Ext. belladonnæ ..... gr. i-iss |06-.09
Quin. sulph. ..... gr. i-ii |06-.12
Morph. Sulph. ..... gr. 1/40 |0015

M. Ft. cap. No. i. Sig.: One capsule every half hour for four doses; then every three hours.

If the skin is hot and dry and the patient is restless, one grain (.06) of Dover's powder may be substituted for the morphin. The nares should be well irrigated with an antiseptic solution such as boric acid, or carbolic acid lotions and cocain may be used, if applied carefully, to relieve the congested nares. In cases accompanied by laryngitis, a cold compress should be used at night and an inhalation of benzoin, using the tincture, dram one (4.00) in a pint of boiling water. A purgative and diaphoretic should be employed also, as that is very efficient treatment in these cases. When a bronchitis has developed and when there is a feeling of oppression in the chest, with a tight, dry cough, the following combinations are recommended:

℞. Quin. sulph. ..... gr. i-ii |06-.12
Pulv. ipecac. et opii ..... gr. i |06
Salicin ..... gr. i |06

M. Ft. cap. No. i. Sig.: Two such capsules to be taken at one dose, two in two hours, then one every three hours. Or:

℞. Mist. potass. cit. ..... ℥ii 60|

Sig.: One tablespoonful every two hours. Or:

℞. Pot. iodidi ..... gr. xlv 3|
Vini ipecacuanhæ ..... ℥ii 8|
Misturæ glycyrrhizæ co. q. s. ad..... ℥iii 90|

M. Sig.: One teaspoonful every two or three hours.

The following may, in some cases, have to be resorted to in order to relieve the severe cough and oppression:

℞. Syr. ipecacuanhæ. |
Syr. sanguinariæ. |
Syr. scillæ, āā..... ℥ii 8|
Syr. pruni virg. q. s. ad. ..... ℥ii 60|

M. Sig.: From one-half to one teaspoonful every two or three hours.

In the moist stage he recommends ammonium chlorid, terpin hydrate and tar preparations combined as follows:

℞. Ammonii chloridi ..... ℥i 4|
Terpin hydratis ..... ℥i 4|
Pulv. opii et ipecacuanhæ ..... gr. xxiv 1|60

M. Ft. cap. No. xxiv. Sig.: One or two capsules, according to age, every two or three hours.

If the cough is easy and the expectoration free, the opiate may be omitted or tar in doses of grains two (.12) may be substituted or the following combination employed:

℞. Ammonii chloridi ..... ℥i 4|
Vini picis liquidæ ..... ℥iss 45|
Syr. glycyrrhizæ co. ..... ℥iss 45|

M. Sig.: Two teaspoonfuls every two or three hours.

If there is venous rather than arterial hyperemia, stimulants such as strychnia and digitalis are of service. Otherwise they may aggravate the condition.

At the onset of a cold leading up to a bronchitis, Dr. R. W. Parsons of Ossining, N. Y., recommends the following outline of treatment:

℞. Spts. camphoræ ..... ℥ss 2|
Aquæ ..... ℥iv 120|

M. Sig.: Shake; two teaspoonfuls every hour until relieved.

He recommends as a spray the following combination containing adrenalin:

℞. Sol. adrenalin chloridi (1-1,000) ..... ℥ii 8|
Sol. sodii chloridi (normal) ..... ℥iiss 75|

M. Sig.: Use as a spray in the nose every hour until relieved. Keep the atomizer in a dark place when not in use.

For patients who reside in cities and for those whose business requires them to travel, the use of a very mild alkaline and antiseptic spray is recommended, to be used twice daily.

In cases of chronic bronchitis with bronchorrhea the following is recommended by Bartholow:

℞. Ext. eucalypti fl. ..... ℥i 30|
Ammonii chloridi ..... ℥ii 8|
Ext. glycyrrhizæ fl. ..... ℥i 30|
Glycerini ..... ℥iii 90|

M. Sig.: One teaspoonful in water four or five times daily.

In some cases he recommends the following as an expectorant:

℞. Tinct. sanguinariæ ..... ℥i 4|
Tinct. lobeliæ ..... ℥i 4|
Vini ipecacuanhæ ..... ℥ii 8|
Syr. tolutani ..... ℥ss 15|

M. Sig.: One teaspoonful every three hours.

Where there is chronic bronchial catarrh with profuse secretion, the following combination is recommended:

℞. Terpin. hydratis ..... gr. xv 1|
Alcoholis ..... ℥iv 15|
Syr. simplicis ..... ℥iss 45|
Aquæ q. s. ad. ..... ℥iv 120|

M. Sig.: Two teaspoonfuls every three hours.

When the cough is dry the following is recommended:

℞. Potass. iodidi ..... ℥ss 2|
Sodii bicarb ..... ℥ii 8|
Ammonii chloridi ..... ℥i 4|
Aq. chloroformi q. s. ad. ..... ℥iv 120|

M. Sig.: One tablespoonful every four hours in water.

A combination of tar and benzoin is of value in cases of chronic bronchial catarrh:

℞. Picis. |
Pulv. benzoini, āā..... gr. xxx 2|
Pulv. ipecacuanhæ comp. ..... gr. x |65

M. Ft. pil. No. xv. Sig.: One or two pills to be taken three times a day.

In catarrhal conditions confined to the larger bronchi the following combination is of value:

℞. Terpin hydratis ..... gr. iv |25
Heroin hydrochlor. ..... gr. 1/24 |0025

M. Ft. cap. No. i. Sig.: One such capsule four times a day.

In the chronic form of winter cough terebene is recommended, given in capsule form or dropped on sugar, in doses ranging from 5 to 20 minims (.30-1.30), or, as Yeo advises, made into an emulsion as follows:

℞. Terebene ..... ℥ii 8|
Mucilaginis tragacanthæ q. s. ad..... ℥iii 90|

M. Sig.: Two teaspoonfuls four times a day.

It can be used in the form of a spray or on a sponge.

In certain cases of the chronic forms of bronchitis accompanied by bronchorrhea Wilson, in the "Textbook of Applied Ther." states that stimulating expectorants may be useful, but that the majority are rapidly relieved by the "alterative" use of balsams and allied remedies.

Inhalations of atomized mixtures are of value and the following combinations are recommended by this writer:

℞. Acidi gallici ..... gr. xxx 2|
Tinct. opii deod. ..... ℥iv 15|
Glycerini ..... ℥i 30|
Aquæ menth. pip. q. s. ad..... ℥iv 120|

M. and filter. Sig.: Inhale from an atomizer three or four times daily.

Internally the following may be given:

℞. Ammon. chloridi ..... ℥ii 8|
Tinct. opii camph. |
Syrupi senegæ, āā..... ℥i 30|
Syr. tolutani q. s. ad..... ℥iv 120|

M. Sig.: One teaspoonful every three hours, unless asleep. Or:

℞. Copaibæ ..... gtt. xx 1|30
Pulv. opii ..... gr. ii |12
Pulv. acaciæ q. s. |

M. Ft. cap. No. x. Sig.: One capsule every three hours.

In cases of bronchiectasis, where the sputum is expectorated once or twice a day in large quantities and is offensive, antiseptics should be employed. Turpentine should be given in

emulsion in doses of five minims (.30) every three or four hours. Terebene may be given in capsule in doses of five minims (.30) every four or five hours.

Benzoic acid, in doses of five grains (.30), every three or four hours is a very efficient remedy. The intratracheal injection of menthol and guaiacol with olive oil is a well recommended remedy where there is dilatation of the bronchi:

℞.	Menthol	℥i	4
	Guaiacol	℥ii	8
	Ol. olivæ	℥i-℥iss	30-45

M. Sig.: Inject one dram into the trachea twice daily.

The idea of "coughing downward" in these cases may prove valuable, directing the patient to lie on the bed with one hand on the floor and the head almost reaching the floor, so that the fluid will run out of the dilated bronchi assisted by coughing.

Preventive Treatment of False Croup.

The *Gaz. Med. Belge* states that a French physician, Dr. Couder of Alençon, advises mothers to wake up their children every hour during the night when they are threatened with false croup. The catarrhal condition causes a viscous, adherent secretion. During the day the secretion is constantly removed by the swallowing and coughing of the child, but at night, during heavy sleep, the secretion becomes dry and hard. The passages are more or less swollen, and the hardening of the secretion obstructs them more and more until the child wakes suffocating. When its breathing becomes sibilant or choked, it should be aroused, set up and coaxed to drink some warm fluid. This softens the secretions and they are swallowed or coughed up, and all trouble from this cause is avoided. It is seldom necessary to rouse the child oftener than once an hour, and not at all after 2 a. m.

Treatment of Whooping Cough.

R. Millon of Paris is amazed at the way in which his confrères generally neglect the treatment of whooping cough. He thinks this is due partially to the saying of J. Franck, long ago, to the effect that "you can kill a whooping-cough child before the affection has run its course, but you can never cure him." This saying elicited from Cadet de Grassicourt the remark that there is nothing more dangerous in medicine than physicians who like to make witty epigrams. Millon treats whooping cough by keeping the patient in his room during the febrile, catarrhal stage, when the paroxysms are progressively frequent. After the paroxysms have reached a stationary phase he allows the patient to leave his room and go out of doors, if the weather is favorable, when the râles have vanished. When the paroxysms begin to subside he advises out-of-door life, strolls and change of air.

℞.	Potass. brom.	gr. xxx	2
	Antipyrini	gr. xv	1
	Syr. codeinæ	℥v	20
	Syr. tolutani	℥iv	120

M. Sig.: Dose, one teaspoonful.

Syrup of codein is composed of: Codein phos, gr. xl; aqua, drams 2, and syrup, drams 20.

Antipyrin alone is peculiarly efficient for infants. He has sometimes been able to abort a paroxysm by the Naegeli maneuver, pulling the lower jaw forward. He teaches the child to control the impulse to cough, and he treats the nasopharyngeal inflammation with iodized glycerin or with some other tonic.

Medicolegal.

Questions that May Be Asked Experts in Injury Cases.—The St. Louis Court of Appeals says, in the personal injury case of Holden vs. Missouri Railroad Co., that on examination of an expert concerning a personal injury, a question may be either as to the cause of the injury or condition, or, conversely, what would be the effect on the body of such a force or blow, or, in the presence of a given effect, what would cause it or might result therefrom.

Corporation Not Liable for Services to Employes.—The Appellate term of the Supreme Court says that judgment was rendered in the case of Harris vs. Vienna Ice Cream Co. in favor of the plaintiff, a physician, for professional services rendered to two of the employes of the company, as alleged, "at the special request" of the latter. Granting (which was disputed) that the president and secretary of the company requested the services, and on behalf of the company promised remuneration therefor, the record was without evidence to show that the services rendered were for its benefit or in satisfaction of a claim, if any there might be, against it. Persons dealing with the officers of a corporation, or with persons assuming to represent it, are chargeable with notice of the purpose of its creation and its powers, and with the authority, actual or apparent, of its officers or agents with whom they deal. The contract in suit could not be said to fall within the purpose of the creation of the Vienna Ice Cream Company, nor did the evidence disclose corporate benefit, or authority, actual or apparent, in its president or secretary, to obligate it in the particular instance. Individually liable they might be, but not the corporation whose officers they may be. The judgment must therefore be reversed, and a new trial ordered, with costs to the company to abide the event.

Belief in Future Life is No Evidence of Insane Delusion.—The Supreme Court of Illinois says, in Scott vs. Scott, that the great majority of civilized human beings believe in the existence of a life beyond the grave. The fact that an individual holds any particular belief in regard to a future state of existence can not, of itself, be evidence of an insane delusion or of monomania. An insane delusion is a belief in something impossible in the nature of things, or impossible under the circumstances surrounding the afflicted individual, and which refuses to yield either to evidence or reason. Such a delusion does not exist unless it is one whose fallacy can be certainly demonstrated, for, except such demonstration can be made, it can not be said that no rational person would entertain the belief. Consequently, no creed or religious belief, in so far as it pertains to an existence after death, can be regarded as a delusion, because there is no test by which it can be tried and its truth or falsity demonstrated. It follows, therefore, the court holds with reference to this particular case, that a belief in Swedenborgianism, and enthusiasm manifested in propagating that faith, furnish no evidence of monomania, insane delusion, or insanity.

Use of Mortuary Tables—Proof in Injury Cases.—The Supreme Court of Nebraska holds, in City of South Omaha vs. Sutliffe, a personal injury case brought by the latter party, that, while the Carlisle and other mortuary tables of accepted accuracy and in general use are always properly admissible in evidence for the purpose of aiding a court or jury in determining the probable expectancy of life, when such fact is in issue, yet, when admitted these mortuary tables are not binding on the estimate of the triers of such fact. They may, without such tables, make their own estimate from the age, health, habits, physical condition and appearance of the person whose expectancy is at issue. In actions for personal injuries it is not necessary to specially allege every direct injury to each part of the body, to lay the foundation for such proof on the trial. Such proof may be admitted when the injury alleged is shown to have been the natural and proximate cause of the injury proven. When medical testimony is relied on to prove the cause or effect of a physical injury, it seldom goes further than an opinion based on the experience of the witness and the general learning of the profession. Positive statements of fact are seldom indulged in by physicians when testifying as experts, and yet this character of testimony is universally admitted by the courts of this country.

Proper Questions as to Sudden Development of Diphtheria.—The Second Appellate Division of the Supreme Court of New York reverses, for error in the exclusion of evidence, a judgment for $500 damages in the malpractice case of Purcell vs.

Jessup. When the physician was called in the first instance to see the plaintiff's little daughter she appeared to have been suffering from an attack of the measles. The physician admitted that she died about a week later of diphtheria, "joined to bronchopneumonia and measles." The theory of the plaintiff's case, as presented on trial, was that the diphtheria which caused the patient's death was developed at least two days before she died; that the physician ignorantly or negligently failed to detect the presence of the disease, and that, if he had possessed the knowledge and skill which the law requires on the part of a medical man, and had exercised the same, he could and would have effected a cure. The physician maintained that the diphtheria developed twelve hours before the girl's death, and was first manifest after a visit which he had paid to her on the day previous to the one on which she died, on which latter day he found her in a dying condition, beyond help by any means in his power. A physician and surgeon of thirty years' practice, residing on Staten Island and connected for twenty-five years with the Smith Infirmary, was called as an expert witness in his behalf, and testified, in answer to a hypothetical question, that the treatment of the child was proper and everything that it should have been. After stating that a fatal result, according to the experience of the medical profession, could occur in a case of diphtheria in a period varying from a few hours to days in length, he was asked: "In your opinion and medical experience, is it possible for a child to show no symptoms of diphtheria on one day, and develop a fatal case of diphtheria the next?" This question was objected to, and the objections sustained. The court thinks it quite clear that the evidence which it sought to elicit was material and important, and that the exclusion of such evidence may well have operated to the injury of the defendant. The essential feature of his defense was that the fatal attack of diphtheria had developed within a few hours after he last saw the child before the day of her death, and he insisted that there were no indications of the existence of the malady on the occasion of his previous visit. In accepting or rejecting this defense, the jury might properly be largely influenced by what was proved to have been the experience of the medical profession in regard to the probability or possibility that diphtheria could manifest itself thus suddenly and without previous sign. The question called not only for the opinion of the expert witness on that subject, but also for his actual experience. Both should have been permitted to be laid before the jury. The opinion of a medical man is admissible, as a general rule, on questions peculiarly within his knowledge as such. The witness was certainly competent to give opinion evidence, as well as to state his actual personal experience in regard to the suddenness of the onset in cases of diphtheria, the absence of any signs of the development of the disease preceding such onset, and the rapidity of the progress of the malady to a fatal result after its development. In a case of this character it can not fairly be held that such evidence would not have effect and weight with a jury. It is not difficult to see that, if it had been admitted, it might have relieved the defendant from a verdict which, if allowed to stand, would constitute a permanent injury to his professional standing, inasmuch as it involved the conclusion that a human life had been lost through his incompetency or carelessness.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 11.

1 *Some Forms of Insanity Due to Alcohol. C. K. Mills, Philadelphia.
2 History and Development of Surgery During the Past Century. (To be concluded.) F. S. Dennis, New York City.
3 *Subcutaneous Alimentation. A. E. Barker, London.
4 *Bezold's Variety of Mastoid Disease Complicating Diabetes Mellitus. S. M. Smith, Philadelphia.
5 *Pneumonia and Pregnancy. R. C. Ransdell, Washington.

1. **Insanity Due to Alcohol.**—Mills discusses the different forms of acute and chronic alcoholic insanity with medicolegal bearings; these including, although in relative degree, almost all types of alcoholic mental disorder. He classes dipsomania with the impulsive insanities, and emphasizes the distinction between dipsomania and inebriety with periods of great excess, and also between dipsomania and other forms of alcoholism.

3. **Subcutaneous Alimentation.**—Barker relates his experience with the use of subcutaneous and intravenous infusions of physiologic saline solution and of glucose, the latter being added as a food. The saline infusion introduces water into the body, dilutes the toxins and increases their elimination. Saline solution may also be made the means of conveying oxygen to the blood directly, thus stimulating the heart in cases of shock. The method is to shake up with warm saline solution about one-tenth of its volume of pure oxygen and to introduce this by puncture into a vein. So far, it has been only a question of supplying water to the tissues, the sodium chlorid being added for the purpose of rendering the solution isotonic with the blood. An almost equally important consideration remains. Is it possible to supply subcutaneously, or intravenously, a fluid which will take the part of a food? Such a fluid should be easily made, easily absorbed and assimilated, and otherwise harmless. Glucose is a food of considerable value; it is easy to procure, is very soluble and, in proper amount, is perfectly safe when injected under the skin. In order that water or sugar may be introduced into the tissues safely, it is necessary to have the solution absolutely sterile. To do this, the substances used must be able to withstand boiling without alteration. The fluid must be first carefully graduated, so that its osmotic tension is actually, or very nearly, that of the blood. A 5 per cent. solution of glucose in pure distilled water will lower the freezing point to —0.56 C, thus making it isotonic with the blood. Such a solution will keep for a considerable time, if sterilized by boiling, but it is best not to trust the sterility of such solutions too much. They should be injected at about blood heat. For injecting the solution, Barker uses a hollow needle of 1 mm. bore, three feet of small-sized rubber tubing attached to it, with a four-ounce glass syringe, without a piston, fixed to the other end. This latter is held about two feet above the patient's bed and is filled with the solution and covered with a piece of sterile gauze. When the tubing and needle are quite full and free from air, the needle is thrust through a fold of skin on the inner aspect of the upper arm toward the axilla and the fluid is allowed to run in, being replaced from above without removing the needle. This method has proved uniformly satisfactory.

4. **Mastoid Disease Complicating Diabetes Mellitus.**—In support of the view that the pathologic process in diabetes mellitus involving the organ of hearing begins as a primary osteitis of the mastoid process, extending secondarily to the tympanic cavity, Smith cites one case. The patient, a male, aged 41, had been suffering from diabetes for one year when he developed severe pain on the left side of the head and mastoid. A swelling developed immediately below the mastoid tip, which gradually enlarged until it reached a point about an inch above the clavicle. Pain never was referred to the middle ear, and there was not at any time swelling or redness over the process. A Schwartze-Stacke operation was done. A large carious opening was found perforating the tip of the mastoid process, and the antrum and superior part of the cells presented the dry, gangrenous or necrotic appearance so characteristic of the diabetic diathesis. The tip was bathed in pus, which covered a mass of foul-smelling granulation tissue. Smith concludes: 1. That aural complications of diabetes mellitus may be manifested by the classic mastoid symptoms without involving the tympanic cavity. 2. That this condition is peculiar to diabetes mellitus. 3. That the term "diabetic ear" should be limited to those cases in which the disease begins as a primary osteitis of the mastoid, or in which primary tympanic involvement and rapid mastoid complications seem simultaneous.

5. **Pneumonia and Pregnancy.**—Ransdell collected 350 cases from the literature and found that the death rate from pneumonia is appreciably higher in the pregnant woman than in the ordinary patient. Abortion takes place in more than half the patients, and the mortality is much higher when abortion does occur than when it does not. The mortality also is higher in the last three months of pregnancy. The causes of death can be attributed to: 1. Diminution in hemoglobin; 2, degenerative changes in the heart muscle; 3, overloading of the right heart and pulmonary circulation after birth. It is evident that the high percentage of abortions is due to accumulation of carbonic acid in the blood.

Boston Medical and Surgical Journal.

February 9.

6 *Case of Chylous Cyst of the Abdomen. M. H. Richardson, Boston.
7 *Active Treatment of Gonorrhea in Its Early Stages. F. J. Cotton, Boston.
8 Glycosuria in Pregnancy. J. M. Jackson and James R. Torbert, Boston.
9 *I. K. I. Method of Sterilizing Catgut. F. W. Johnson, Boston.

6. **Chylous Cyst of Abdomen.**—The symptoms presented by Richardson's patient were those of nervousness and, at times, acute indigestion. Occasionally he could not get his breath, and about a year before his presentment began to have what seemed to be "falling spells," which the family interpreted as choreic manifestations. Over the epigastrium, on both sides, the thorax was much dilated, the fluid pushed out the costal margins in all directions. The abdomen was much distended and contained fluid. A diagnosis of tubercular peritonitis was made and operation was advised. On opening the peritoneal cavity, Richardson came on a white, fragile-walled cyst covered with small blood vessels, most of which ran transversely. The tumor was retroperitoneal, extending up under the liver and to the right, and contained eight pints of a chylous fluid. It was impossible to make out whether the cyst was a dilatation of the receptaculum chyli or one of its tributaries. No dilated lymph vessels were seen. The patient made an uneventful recovery.

7. **Treatment of Gonorrhea in Early Stages.**—Cotton believes that all cases of early acute gonorrhea, except in the presence of some complication such as phimosis or acute folliculitis, do better under active irrigation, and that the organic silver preparations, used in combination with profuse bland irrigations, accomplish definite results by germicidal action.

9. **I. K. I. Method of Sterilizing Catgut.**—Johnson describes his method as follows: Get clean, strong gut that has no odor and is free from fat. Before sterilization each strand should be thoroughly stretched. The gut should be wound on wide reels, if possible, and too much gut must not be put on any one reel, so that the solution will have ready access to the deeper layers of the gut. Before using, the gut should be washed in sterile water—not allowed to soak in it. The reel or spool can then be placed on a sterile sponge or gauze and, when the operation is finished, dropped back into the common jar, to be used at the next operation. The solution used consists of iodin, 1 part; iodid of potassium, sufficient quantity to saturate, and distilled water sufficient to make 100 parts. Gut sealed in tubes in the I. K. I. solution and kept from the light will become friable in about three months. I. K. I. gut should not be used in plastic work in the vagina, as iodin irritates the mucous membrane, making it an excellent culture medium for micro-organisms. The reels used by Johnson are made of papier maché. They can be made of the desired size and notched so that the size wanted can be seen before removal from the I. K. I. solution. The advantages of this method are the absolute certainty of a sterile gut, ease of preparation, healing by first intention and an animal suture material that will not slip and that will tie like silk.

Medical News, New York.

February 11.

10 *Report of a Sporadic Outbreak of Typhoid Fever at Lawrence, N. Y., Due to Oysters. George A. Soper, New York.
11 *Hematuria as a Symptom of Hydronephrosis. Nephrectomy. Cure. L. Bangs, New York.
12 *Two Cases of Tracheal Stenosis from New Growth. George E. Brewer, New York.
13 *Management of Acute General Peritonitis. J. Garland Sherrill, Louisville.
14 Clinical Manifestations of Uterine Fibroids, as Indications for Early Operative Intervention. Arnold Sturmdorf, New York.

10. **Typhoid Epidemic Due to Oysters.**—Soper reports the results of his investigations into the cause of the outbreak of typhoid at Lawrence, N. Y., which was found to be due to the pollution of oyster beds by sewage.

11. **Hematuria in Hydronephrosis.**—Bangs discusses hematuria as a symptom of hydronephrosis. A thorough and careful review of the literature failed to discover any cases of this kind, except in one instance, in a series of 40 cases, among them being 9 cases in which hematuria was a symptom. He adds one case to the list. The patient was a male, aged 19. The presence of blood in the urine was intermittent and variable in quantity, the latter being increased by slight trauma, such as jolting in a wagon and by the manipulations of the kidneys necessary to a diagnosis. It was also suddenly increased by unknown causes, but at no time was there a serious amount of blood in the urine. The Harris separator was used, disclosing that the left kidney was the seat of disease. Based on all the symptoms present, the diagnosis of hydronephrosis was made. The kidney was reached by means of the Mayo-Robson method and was found to contain about a quart of fluid. Comparatively little renal tissue was left. There was a moderately free hemorrhage from the interior of the sac, which was controlled by free irrigation with very hot water. A nephrectomy was not performed until some months later. During the operation the sac bled freely from its interior. The hemorrhage continued free and uncontrollable until the liberated parts of the sac were folded on themselves, and the amount of hemorrhage from the thin and expanded kidney tissue was sufficiently great to cause a very serious condition of collapse. The patient made an uneventful recovery. A small flexible bougie was passed through the ureter to the bladder to demonstrate the absence of any obstruction between the kidney and bladder. At the time of the nephrotomy there was no calculus either in the kidney or its pelvis, and no obstruction of any kind elsewhere. The microscopic appearance of the tissues was typical of hydronephrosis. The etiology of the condition in this case was very obscure. The patient had had unusually good health from his infancy up; there was no history of traumatism; no history of renal colic nor of pain in the left side, and no symptom indicating the beginning of the malady until it was fully developed. Bangs lays special stress on hematuria as a symptom of hydronephrosis and repeatedly calls attention to the degree of hemorrhage during the two operations.

12. **Tracheal Stenosis.**—The two cases of tracheal stenosis reported by Brewer, and which necessitated grave operative procedures for their relief, were a papilloma of the trachea following tracheotomy for the relief of papillomatous degeneration of the laryngeal mucous membrane, occurring in a boy 11 years old, and an adenocarcinoma of the accessory thyroid gland occurring in a man, aged 52.

13. See abstract in THE JOURNAL, Jan. 7, p. 60. (Sherrill.)

Medical Record, New York.

February 11.

15 *Attractive Features of Graduated Tenotomies on the Eye Muscles. A. L. Ranney, New York City.
16 Some Relations of Medicine and Surgery to Jurisprudence. Carl Beck, New York.
17 *Choice of a General Anesthetic and Selection of Method of Administration. V. C. Pedersen, New York.
18 *Cryoscopy of Cerebrospinal Fluid in Epidemic Cerebrospinal Meningitis. J. H. Bailey, New York.
19 *Foreign Body in Bronchus Removed with Bronchoscope; Recovery. S. Yankauer, New York.
20 *Spindle-cell Sarcoma of Bowel Operated on Successfully. J. B. Boucher, Hartford, Conn.

15. **Graduated Tenotomies on Eye Muscles.**—Ranney cites 20 cases illustrating the curative effects that a complete relief of eye strain by graduated tenotomies can afford in many

forms of nervous derangement which had no apparent connection with eyestrain and which had proved to be incurable by drugs. Some of the patients were not aware of the existence of any symptoms that had indicated to themselves or to their medical advisors that the eyes were in any way abnormal. Among the patients treated were cases of asthenopia, associated with repeated physical breakdowns; epiphora of years' duration, extreme deformity from wryneck, epilepsy, insanity, nervous prostration, chorea, followed by paralysis; progressive atrophy of muscles in both hands, with partial loss of use of right hand, and an associated diabetes; complete loss of the intellectual faculties, uncontrollable neuralgia, sleeplessness and nervous prostration; uncontrollable attacks of vomiting, with loss of power and sensation in both arms and a suspected tuberculosis. Ranney urges that it is essential to success that the refractive errors of all patients be positively determined and, when found, that they should be intelligently corrected by glasses. These should be worn constantly for a length of time sufficient to determine if they modify any apparent muscular anomalies in the organ. It often takes considerable time to determine if the full correction of refractive errors by proper glasses is not all that may be required to effect a cure. A tenotomy on an eye muscle should never be suggested nor performed too hastily. It is important not to be misled into accepting the records of the first tests made on any patient's eye muscles as a basis for final conclusions or for positive advice.

17. **Anesthesia.**—Pedersen discusses general anesthesia with regard to the qualities of the substances used to produce the anesthesia and the best method of anesthetizing various types of cases.

18. **Cryoscopy of Cerebrospinal Fluid in Epidemic Meningitis.**—Bailey made a cryoscopic examination of 69 specimens of cerebrospinal fluid obtained from a lesser number of cases of epidemic cerebrospinal meningitis, some of the cases being examined several times at varying intervals. For the sake of convenience, Bailey made use of the following symbols: T, the total freezing point of the cerebrospinal fluid; S, that part of the total freezing point due to the contained sodium chlorid; R, that part of T due to the remaining solid components of the fluid. His findings are as follows: Upper limit of T, —.815; lower limit, —.50; a variation of —.315. The vast majority of cases, 79 per cent., ranged from —.52 to —.64, a variation of only —.12. Average T was —.575, very close to the normal freezing point of blood. T is not of any prognostic significance; some of the patients who recovered showed a high T, others a low T, while the same is true of several cases that terminated fatally. The limits of S were —.352 and —.486, a variation of —.134. Most of the cases, 74 per cent., ranged from —.40 to —.45, a difference of only —.05. Average S was —.422. The limits of R were —.062 and —.338, a variation of —.276. Most of the cases, 72 per cent., ranged from —.090 to —.180, a difference of —.09. Average R is —.152. The limits of the sodium chlorid content were .55 per cent. and —76 per cent. Most of the cases, 71 per cent., ranged from .60 to .68 per cent., a difference of .08 per cent., or, reduced to terms of the freezing point, a difference corresponding to —.05. The average sodium chlorid content was .66 per cent.

19. **Foreign Body in Bronchus.**—Under primary chloroform anesthesia, Yankauer removed an orange pit from the right bronchus of a 10-months-old child. He made an inferior tracheotomy incision and used a bronchoscope having an external diameter of 7 mm. The patient made an uneventful recovery.

20. **Sarcoma of the Bowel.**—Boucher's patient, a woman, aged 38, complained of considerable pain in the abdomen, particularly in the right inguinal region. Examination revealed a mass four or five inches long in the right inguinal region, about one inch to the outer side of the appendix line and attached to the crest of the ileum. The diagnosis of a probable malignant growth was made and operation was resorted to. The tumor involved the cecum and several inches of the ascending colon. The glands in the neighborhood were enarged, some being as large as an ordinary marble. Six inches of the small intestine, all of the ascending and about one-half of the transverse colon were clamped off and removed, including every gland that could be found. The end of the transverse colon was turned in, by a double Lembert suture of silk, and an anastomosis was made between the cut end of the small intestine and the side of the middle portion of the transverse colon, for which silk sutures were used. The abdomen was closed without drainage. Microscopic examination of the specimen showed it to be a spindle-cell sarcoma. Recovery was uninterrupted, and there is no recurrence one year after the operation.

New York Medical Journal.

February 11.

21 Diagnosis of Tumors of the Cerebellum and the Cerebello-pontile Angle; Especially with Reference to Their Surgical Removal. Charles K. Mills, Philadelphia.
22 The Cerebellar Seizure (Cerebellar Fits) a Syndrome Characteristic of Cerebellar Tumors. Charles L. Dana, New York City.
23 Surgical Aspects of Tumors of the Cerebellum. Charles H. Frazier, Philadelphia.
24 Pathology of Cerebellar Tumors. (To be concluded.) T. H. Weisenburg, Philadelphia.
25 Diagnosis of Cerebellar Tumors. Joseph Fraenkel, New York City.
26 Ocular Symptoms of Cerebellar Tumor. G. E. de Schweinitz, Philadelphia.
27 Functions of the Cerebellum. Edward Lodholz, Philadelphia.
28 Case of Cyst of the Cerebellum. John M. Swan, Philadelphia.

St. Louis Medical Review.

February 4.

29 Diagnosis of Jaundice in Infancy and Childhood. W. L. Johnson, St. Louis.
30 Symptomatology of Acute Gastroduodenitis. Geo. M. Tuttle, St. Louis.
31 Recent Experiences with Catarrhal Jaundice. H. N. Chapman, St. Louis.
32 Etiology of Gastroduodenitis in Children with Special Reference to the Recent Epidemic. John Zahrosky, St. Louis.
33 Hydatid Cysts of the Liver. (Concluded.) Neill MacPhatter, New York City.

Lancet-Clinic, Cincinnati.

February.

34 How Sanitation May Be Made Effective. H. G. Graham, Chicago.
35 Diagnosis of Ectopic Gestation. M. A. Tate, Cincinnati.
36 Fracture of the Base of the Skull in a Pregnant Woman, with Recovery and Without the Occurrence of Abortion. M. Dreyfoos, Cincinnati.
37 Distoma Hematobium. A. Faller, Cincinnati.
38 Physiology. C. M. Wright, Cincinnati.

American Journal of Obstetrics, New York.

February.

39 Pathologie Anatomy and Pathogenesis of the Toxemia of Pregnancy. James Ewing, New York City.
40 *Eclampsia, with Report of Cases. L. M. Allen.
41 Treatment of Obstetric Hemorrhages. George L. Brodhead, New York.
42 Pyelitis Complicating Pregnancy. Alfred Baker Spalding, San Francisco.
43 Typical Case of Tubercular Peritonitis. W. P. Manton, Detroit.
44 Three Specimens of Exencephalia. Henry F. Lewis, Chicago.
45 *Some Conclusions After Operating for Two Years on the Pelvic Diseases of Insane Women. LeRoy Broun, New York.
46 Pelvic Inflammation. A Discussion on One of the Moot Questions Relating Thereto. L. H. Dunning, Indianapolis.
47 *Fibroid Tumors and Pregnancy. S. Marx.
48 *New Operation for Cystocele. James C. Wood, Cleveland.

40. **Eclampsia.**—Allen presents a statistical study of 33 cases of eclampsia (active) and 10 cases of severe toxemia of pregnancy, occurring in 3,400 confinements. He concludes that eclampsia is due to a toxin, which very probably has its origin in the liver, and comes from the mother rather than from the fetus. Premonitory symptoms are always present, the most constant and important of these being frontal headache. The diagnosis of toxemia of pregnancy should be made early, and if the patient is under observation this can generally be done. The premonitory symptoms should be treated until in spite of the treatment they get worse; then empty the uterus, as in some cases this is the only method of stopping the progress of the disease. Deliver as quickly as possible, consistent with cleanliness and preservation of soft parts, bleed, removing from 300 to 700 c.c., as

the case may indicate; infuse from 500 to 1,000 c.c. of salt solution, depending on the amount of blood withdrawn and the character of the pulse; this may be repeated later; morphia ¼ grain, hypodermically, to relax the muscular system; croton oil, 1 to 2 drops in 1 to 2 drams of olive oil, followed by magnesium sulphate, ½ ounce, in saturated solution, until effectual as a purgative. Other conditions are treated symptomatically. The diet should be liquid, largely milk.

45. **Gynecologic Operations on the Insane.**—Reviewing the histories of the insane patients operated on within the last two years, Brown finds that among those in whom pathologic pelvic conditions existed which were remedied within six months after the commencement of their mental disturbance, improvement in the mental condition was noted in 65 per cent. Under the same conditions, but when the operations were done after one year of mental disturbance, there was an improvement in only 27 per cent. of the patients.

47. **Fibroids and Pregnancy.**—Marx says that every fibroid recurring during the child-bearing period, with few exceptions, should be attacked by surgical means. If occurring during pregnancy, safe fibroids, that is, those beyond the dilating zone of the uterus, should be carefully watched. Every complication during pregnancy depending on the fibroid should warrant our attacking the condition surgically, or at least provoke the indication for emptying the uterus. During labor, safe tumors need watching. The resultant complications must be met energetically, but gently, as they arise. Tumors which can not be displaced blocking the bony passage, warrant vaginal enucleation or cesarean section followed by hysterectomy. Sloughing and necrosis of a puerperal fibroid must not be mistaken for retained secundines. This doubt must be eliminated by exploration with the clean, aseptic hand. Retained secundines are always to be removed manually, and under no condition must the curette be employed, because of the danger of laceration of the capsule and consequent sepsis. Sloughing and necrotic fibroids should always be removed either by enucleation or by hysterectomy.

48. **New Operation for Cystocele and Perineorrhaphy.**—Wood describes his operation as follows: The ordinary circular denudation is made, which should correspond in size to the size and degree of prolapse of the cystocele. While in conformation it should be oval, ordinarily it should be wider above than below, because in nearly all instances there is a greater degree of relaxation in the upper part of the vagina than in the lower. After the denudation is made, the mucous membrane is dissected from the bladder to the extent of three-eighths of an inch entirely around the denuded area. The dissection can be made either with a scalpel or with scissors. Mattress sutures are now passed in such a way that when tied they will make a bridge of tissue three-eighths of an inch in depth, and which is composed of the dissected mucous membrane lifted from the bladder. The edges of this column of tissue are brought together with a running catgut suture. If there is a urethrocele, or if there is incontinence of urine because of weakness at the internal meatus, the dissection is extended along the urethra for a sufficient distance to support the neck, as well as the base, of the bladder. When the uterus is entirely without the vagina, it is absolutely imperative to narrow the vaginal wall; this to be supplemented by the necessary cervical work and reparation of the pelvic floor. In order to overcome relaxation of the pelvic floor, Wood has modified the ordinary flap-slitting operation as follows: A semicircular incision is made with elbowed scissors, the incision extending through the several layers of fascia. The flaps are caught in forceps, one above and one below, and the dissection is completed with the finger well into the crest of the rectocele. If now a suture is passed, beginning at the crest of the rectocele, first through the vaginal flap and buried in the tissues from left to right, being brought out and reintroduced as often as may be necessary to complete the circumference of the wound, and finally brought out at the point of entrance, when tied it will necessarily bring the divided levator ani fibers together in the median line. From one to three vaginal sutures thus introduced will convert the vagina into a mere slit in the pelvic floor. The last suture is introduced within three-fourths of an inch from the vaginal orifice. The vaginal flap should be kept tense while these sutures are being passed, so that the posterior vaginal wall will be perfectly smooth when the operation is completed. The superfluous tissue is removed from the upper and lower angles of the wound. By doing this, all scar tissue is done away with, and the perineum is left smooth, with its surface slightly depressed. The wound may be closed from the perineal aspect as the operator elects. Wood uses interrupted catgut sutures, which, he believes, approximate the fascia and muscles better than does the buried suture. If care is taken not to tie the external sutures too tightly, there is but little pain and no sloughing.

Annals of Surgery, Philadelphia.

February.

49 *Acid Intoxication; Its Significance in Surgical Conditions. James A. Kelly, New York City.
50 *Gall-bladder and Biliary-duct Surgery. D. A. K. Steele, Chicago.
51 Volvulus of the Jejunum. Charles L. Scudder, Boston.
52 *Operations on the Lower Ends of the Ureters by the Inguinal Extraperitoneai Route Under Local Anesthesia (Cocain). John A. Sampson, Baltimore.
53 Primary Urethral Calculus. With Report of a Case. Herman E. Wolf, Chicago.
54 *Case of Bone Transference. Use of a Segment of Fibula to Supply a Defect in the Tibia. Thomas W. Huntington, San Francisco.
55 Contrecoup Fracture of the Sternum. George De Tarnowsky, Chicago.
56 Fracture of the Carpal Scaphoid, with Habitual Dislocation of the Central Fragment. Raymond Russ, San Francisco.
57 *Interscapulothoracic Amputation. Report of Operation for Sarcoma of the Humerus. Farrar Cobb, Boston.
58 Symmetrial Inflamamtion of the Epiphyseal Beak of the Tibia. Kenelm Winslow, Seattle.

49. **Acid Intoxication.**—Kelly's report is based on the observation of about 400 surgical cases. The urine of each of these cases was examined immediately on entrance to the hospital, again within from 12 to 48 hours after the administration of a general anesthetic, again if at any subsequent time clinical signs suggested this condition, or if the urine showed the presence of acetone or diacetic acid; and, finally, the urine was examined in most cases every other day until the clinical symptoms had ceased and until it no longer contained a pathologic amount of acetone or diacetic acid. Of the 400 cases observed symptoms of acid intoxication were present in 46. The test used for determining the presence of acetone is as follows: To 5 c.c. of urine add a crystal of sodium nitroprussiate and sufficient sodium hydrate to render the solution strongly alkaline. This is thoroughly shaken up in a test tube. On the addition of glacial acetic acid, the presence of acetone is shown by the occurrence of a purple color to the foam. The presence of diacetic acid is shown by a Burgundy red color appearing on the addition of a strongly aqueous solution of a ferric chlorid to the urine. Of the 46 cases, acetone and diacetic acid, separately or combined, were found in the following conditions: 11 cases of appendicitis, 14 of contusions and fractures, 2 of gastric disease, 2 of carcinoma, 3 of severe lacerated contused wounds, 2 of localized septic processes, 2 of cerebral concussion, leach of salpingitis, acute multiple suppurative osteomyelitis, floating kidney, fecal fistula and enterocolitis, epilepsy, tuberculous cervical noditis, burns and typhoid fever, diabetic gangrene, hemorrhoids, and alcoholism. In 17 cases symptoms were present on entrance; in 12 cases, within from 24 to 48 hours after the administration of a general anesthetic (ether being used in 10 cases and nitrous oxid in 2 cases); in 17 cases symptoms developed later without any anesthetic being administered and for which no cause could be assigned. Acetone and diacetic acid were present in the urine at the same time in 24 cases; acetone alone was present in 20 cases; diacetic acid alone in 2 cases; acetone, diacetic acid and sugar were present together in 3 cases; ecetone and sugar in one case. In these 46 cases

there were 6 deaths. In those cases where the onset could be carefully noted, the first symptom to attract attention was a peculiar apathy. This was accompanied by a peculiar, pungent, fleeting odor to the breath, a distaste for food, slight increase of body temperature, and, in most cases, vomiting, occurring without apparent cause, following immediately on taking anything into the stomach. In the mild cases the vomitus was colorless, copious and watery in character, having a foul acid odor and containing particles of semi-digested food. In the severe cases it was dark, bile-stained, of a coffee-ground appearance, and continued so until death. In the severe cases, bicarbonate of soda was given by mouth; if retained, by enemata, subcutaneously and intravenously, but usually without avail. The best results were obtained by the use of adrenalin chlorid, given subcutaneously (in children about 200 c.c. of a 1 to 50,000 solution; in adults, 500 c.c. of the same solution) every 8 to 12 hours. To relieve thirst, enemata of salt solution were given every six hours, alternating with nutrient enemata. Kelly says that it has been proved experimentally that this condition is not due to acetone circulating in the blood and that the amount of acetone found in the urine is no index of the severity of the affection. That there is some toxemia occurring is doubtless true, but whether it is due to the presence of volatile fatty acids, with a rapid destruction of proteid matter, or to the rapid elimination of the alkalies, is impossible to say at the present time.

50. **Gall-Bladder and Biliary-Duct Surgery.**—Steele cites 7 cases to illustrate the dangers of delay and the complications that arise from postponing a necessary surgical operation to a time when it is done as a last resort.

52. **Operations on Lower Ends of Ureters.**—Sampson advocates local anesthesia in operations on the ureters. In 4 operations on the lower ends of the ureters by the inguinal extraperitoneal route under local anesthesia (three ureterovesical implantations and one case of ureteral calculus), lasting from 4 hours and 30 minutes to 6 hours and 10 minutes, the only apparent effect of the operation, aside from postural discomfort, and, at times, some pain (endurable), was that of fatigue, as of a similar length of time spent in a dentist's chair. Sampson declares that the success of these operations is dependent on a knowledge of what does and what does not hurt, and on proceeding slowly and carefully, remembering that anything causing traction on the parietal peritoneum is painful. Pinching, cutting, and suturing the ureter apparently did not cause any pain, and similar treatment of the bladder in one case was painless, but painful in another, a case of chronic cystitis. Closing the abdominal incision was the most painful step in all the operations. The extraperitoneal route is less painful than the intraperitoneal and the danger from infection is less; by draining freely, the retroperitoneal tissue is well protected and the intestines are kept back by the peritoneum, thus giving a good exposure. There is less shock associated with the extraperitoneal than with the intraperitoneal operation. The intramuscular incision through the abdominal wall is recommended; it does less harm, renders the liability of postoperative hernia small, and affords a good exposure. Two incisions are very good; first, a "gridiron" incision, lateral to the rectus, similar to the well-known McBurney incision, only a little lower; and, second, a longitudinal incision through the rectus muscle. Through either incision the ureter can usually be exposed from the pelvic brim to the bladder, and if more room is desired the muscles may be cut at any time.

54. **Bone Transference.**—Huntington cites the case of an acute infectious osteomyelitis of the tibia in a boy, aged 7, which illustrates the possibility of supplying a tibial defect amounting to absence of nearly the entire diaphysis by the appropriation of a corresponding portion of the fibula.

57. **Interscapulothoracic Amputation.**—Cobb's case of sarcoma of the humerus is interesting because of the great rapidity of the growth, the associated pain, the complete absence of surgical shock, and the successful immediate result and the disappointing ultimate result. The arm, with the scapula and the outer two-thirds of the clavicle, was removed under ether anesthesia. Shock was prevented entirely by controlling the hemorrhage so that practically no blood was lost, and by adopting the method of Crile and Cushing of injecting a weak solution of cocain into the large nerve trunks of the brachial plexus before dividing it. The inner third of the clavicle was left because there was no apparent reason for disarticulation at the sternal joint. The subclavian artery was ligated and divided between the ligatures; the arm was then elevated to empty it of blood, and then the vein was tied and divided, thus avoiding any hemorrhage. All other blood vessels were clamped and ligated. The skin flaps were sewed with interrupted silkworm gut stitches, and a small rubber tissue drain was placed in the lowest angle of the incision. The duration of the operation was 1 hour and 15 minutes. The patient made a complete recovery, and on the fifth day was up, walking about the ward. The rubber tissue drain was removed in 48 hours. Eight months later the patient returned, suffering from pleurisy with bloody fluid, beyond a doubt of malignant origin. He died nine months after the operation from recurrence of the pleurisy and suspicious cerebral symptoms.

Illinois Medical Journal, Springfield.

January.

59 *Modification of the Porro Operation. Carl Wagner, Chicago.
60 *Duty of the Medical Profession in Relation to Criminal Abortion. C. S. Bacon, Chicago.
61 *The Moral and Religious Objections to Inducing Abortion. Peter J. O'Callaghan.
62 *Therapeutics and Criminal Abortion. Charles B. Reed.
63 Criminal Abortion; Brief Consideration of Its Relation to Newspaper Advertising. Report of a Medicolegal Case. Rudolph W. Holmes.
64 *Criminal Abortion as It Comes Before the Coroner's Office. John E. Traeger, Chicago.
65 *The Common and Statute Law of Illinois. J. M. Sheean, Chicago.
66 Surgical Treatment of Idiopathic Pruritus Vulvæ. M. R. Barker, Chicago.
67 The Present Status of the General Practitioner. T. N. Rafferty, Robinson, Ill.
68 Appendicitis from the Standpoint of the General Practitioner. H. N. Rafferty, Robinson, Ill.
69 The Present Epidemic of Smallpox in Terre Haute. M. R. Combs, Terre Haute, Ind.
Philadelphia.
70 Preventive Medicine. C. Barlow, Robinson.
71 Attention to Details. C. E. Price, Eaton.
72 Neurasthenia. H. I. McNiell, Newman, Ill.
73 Milk Sickness. J. W. Alexander.
74 Plea for More Careful Study of the Kidney. James Miles, Merom, Ind.
75 E Rebus et Rationae Medinae Usus. Joe. H. Weinstein, Terre Haute, Ind.

59. **Modification of Porro Operation.**—Wagner's modification means the reversal of the two steps of the original Porro operation, and consists in the reduction of the cesarean section and the supracervical amputation into one operation of amputation of the intact pregnant organ with everything left in situ as far as the mother is concerned. The amputation is the only operation done on the mother. The delivery of the uterus is an act of its own, done at another table by other hands, and thus not interfering with the operation done on the mother nor consuming extra time on the patient under anesthesia. Another feature of his modification relates to the technic. Instead of placing a rubber tube constrictor around the supracervical segment of the uterus, and tying the uterine arteries before the amputation takes place, the cervical segment is grasped from behind with the left hand and firmly compressed, the segment itself being elongated and made thinner through lifting up and traction of the uterus by an assistant. In this manner the cervical segment is constricted and hemorrhage is controlled absolutely. The slipping of the stump out of the grasp of the hand is guarded against by four forceps inserted into the wall of the uterus at four different diagonal and rectangular points above the constricting pad. The technic of the amputation is as follows: An opening is made in a transverse direction right above one of the forceps. Two fingers of the assistant are introduced into this opening from above downward and inward, the palmar aspect of the hand being

in contact with the uterus in such a way as to enable the assistant to hold backward and upward the contents of the uterus, in order to prevent them from prolapsing or from being injured during the following steps of the operation. The amputation is completed with quick, heavy strokes of the curved scissors held at such an angle as to form a conical shape of the stump. The absolutely dry stump, still in the firm grasp of the hand, is rapidly sewed up, the first running sutures comprising the uterine arteries, the lumen of which can be seen very readily. By not ligating these arteries any sooner, the circulation and nutrition of the child are maintained as long as possible. The uterus is then quickly removed and delivered. The time consumed from the moment the circulation is interrupted until the delivery amounts to something over two minutes.

60. See abstract in THE JOURNAL, vol. xlii, p. 1889.

61, 62 and 64. Ibid, p. 1890.

65. Ibid, p. 1891.

Journal of Cutaneous Diseases, New York.

February.

76 *Melanoma. (Concluded.) J. C. Johnson, New York City.

76. **Melanoma.**—Johnson finds that the commonest, and therefore most important, melanoma is that derived from soft nevi which are endotheliomata of lymph vessel origin, and that nevi melanoma whose histogenesis can not be determined must be referred to the same origin. A second variety exists with the same histologic pictures which does not spring from nevi and whose origin is directly traceable to endothelium, probably also lymphatic. This group includes melanotic whitlow and the malignant lentigo of the French. A third division is truly epithelial in origin, although its existence has been denied. These tumors are of various types and show only a very slight local tendency to malignancy, a fact sufficient in itself to determine a cardinal difference from the melano-entheliomata, whose capacity in this connection can hardly be exaggerated. A histologic diagnosis is the only proper method of differentiation between the two. So far as treatment is concerned, Johnson states that there is hope in surgical interference if it is early and radical, even when dissemination has already occurred locally. The wounds should not be allowed to granulate, not only because granulation tissue offers so slight a bar to tumor growth, but because there is no means of knowing that its endothelium may not join in the neoplasia. Cases of nonrecurrence after operation are reported, the oldest being a case of ligation of a mole on the neck with tumor infiltration of the intermuscular septa in every direction; the patient is entirely well, five years after operation.

American Journal of the Medical Sciences, Philadelphia.

February.

77 *Copious Water Drinking and Polyuria in Typhoid Fever. Edward F. Cushing and T. W. Clarke, Cleveland.
78 *Chlorid and Water Excretion in Typhoid Fever, with Copious Diuresis. Torald Sollmann and J. A. Hofmann, Cleveland.
79 Studies on the Basophilic Granulations of the Erythrocyte in Lead Poisoning and Other Conditions. W. B. Cadwalader, Philadelphia.
80 Toxemia of Pregnancy. Edward P. Davis, Philadelphia.
81 *Hemorrhages in Eclampsia. R. W. Lobenstine, New York City.
82 Myxedema Associated with Tuberculosis of the Adrenals. J. R. Hunt, New York City.
83 Case of Multiple Cerebrospinal Sclerosis. F. E. Dercum and Alfred Gordon, Philadelphia.
84 Case of Infective, Lateral, Sigmoid, Superior Petrossal Sinus and Jugular Thrombosis. J. D. Richards, New York City.
85 Posterior-Basic Meningitis. H. Koplik, New York City.
86 Use of the Roentgen Rays in the Studies of Normal and Pathologic Anatomy of the Internal Structures of the Face. M. H. Cryer. Philadelphia.
87 Development of the Accessory Sinuses of the Nose. L. A. Coffin, New York.
88 Case of Parinaud's Conjunctivitis. W. C. Posey, Philadelphia.
89 Study of Simultaneous Contrast Color Images. C. A. Oliver,
90 Case of Bitemporal Hemianopsia with Unusual Changes in the Visual Fields. C. A. Veasey, Philadelphia.
91 Typhoidal Insanity in Childhood. D. L. Edsall, Philadelphia.

77. **Water Drinking and Polyuria in Typhoid.**—Cushing and Clarke report on the results they obtained in prescribing large quantities of water to typhoid patients. It was soon found that without discomfort or special reluctance on the part of most patients, the unexpected and unusual amounts of from a gallon to a gallon and a half or even more could be taken in 24 hours, providing the water was administered in small quantities, four ounces, at definite and frequent intervals, every fifteen minutes during the waking hours. In addition to this, the ordinary patient received, every two hours during the day and once or twice at night, alternately, six ounces of milk and six ounces of albumin water. The resulting diuresis was marked, the degree of polyuric, day by day, closely corresponding to the quantity of fluid ingested. Furthermore, the total nursing care of these patients was less than of those not so treated, and their general comfort seemed apparent. Headaches were not so troublesome; tongues and mouths kept noticeably clean and moist; apathy, deafness, restlessness, nocturnal delirium and other nervous and toxemic symptoms seemed less in evidence; hypnotics were not so often needed; nausea was unusual, and remission from temperature appeared more frequent. Complications were few, and there were no deaths among 56 cases so treated, although the prevailing epidemic was of severe type and the general mortality, on the whole, was large.

78. **Chlorid and Water Excretion in Typhoid.**—Sollmann and Hofmann investigated the urine secretion in typhoid as influenced by unusually large diuresis, the consequence of a very free administration of water. They found that the free administration of water to typhoid patients causes a large polyuria. The percentage of chlorids and the total molecular concentration are much below normal, while the daily excretion of total dissolved molecules exceeds that of ordinary typhoid cases. Therefore, the eliminating capacity of the kidneys is not injured by typhoid fever nor by a prolonged diuresis. No accumulation of fluid appears to occur in the body, the excretion being very nearly parallel to the income. The quantity of urine is influenced by the perspiration and to a lesser extent by catharsis. It appears probable that the perspiration is freer under the influence of the large administration of fluid. Diuretics do not increase the polyuria nor does the administration of calcium chlorid appear to diminish diuresis. The effect of the polyuria on the chlorid excretion, as compared with ordinary typhoid cases, consists in a diminution of the percentage and an increase of the amount excreted daily. Minor variations in diuresis affect the percentage, but not the daily output. The chlorid excretion varies strictly with the chlorid income. The excretion of water and chlorids appears to obey the same laws as in health. There is, however, a greater tendency to chlorid retention in the fever. The difference appears to be only quantitative and not qualitative. It is greatly diminished by polyuria. The prolonged restriction of the chlorid income appears to produce no deleterious effects, and the patients do not develop any "salt hunger."

81. **Hemorrhages in Eclampsia.**—Lobenstine analyzed the reports of 6 cases of eclampsia with hemorrhagic manifestations and found that the following group of symptoms was quite characteristic of that type of eclampsia: 1. Profound toxicity. 2. Constant and marked jaundice. 3. Prominent, early and distressing abdominal distention—a bad sign in all these cases. 4. Vomiting of clear fluid or curdled milk; then of bile, and finally of coffee-ground material or of clear blood. 5. Pain and tenderness over the liver. 6. Hemorrhagic manifestations other than the vomiting of blood. The prognosis of this affection is bad; mortality, 70 per cent.

Maryland Medical Journal, Baltimore.

February.

92 Dysentery, with Special Reference to Its Bacillary Form. Joseph J. Kinyoun, Glendolen, Pa.
93 Pathology of Epilepsy. Wm. Rush Dunton, Jr., Townson, Md.

Canada Lancet, Toronto.

January.

94 Intra-abdominal Anastomosis. A. Groves, Fergus, Ont.
95 Operative Treatment of Spina Bifida. E. R. Secord. Brantford, Ont.
96 The Decline of Atropin. G. Sterling Ryerson.
97 Patent Medicines. C. J. Fagan, Victoria.
98 Supposed Case of Glanders in the Human Subject. James H. Richardson.

Woman's Medical Journal, Toledo.

January.

99 Preventive Gynecology. Jeannette C. Wallace, Peoria, Ill.
100 Endometritis. Ella G. Lupton, Gallipolis, Ohio.
101 Insanity of Pregnancy and the Puerperium, with Reports of Two Cases. Mary E. Cadwalader, Dayton.
102 Phimosis with Leucorrhea "of Four Years' Standing," in a Child of Six Years. Mary E. Bates, Denver.
103 The Law of Rape in Colorado. Mary E. Bates.

Buffalo Medical Journal.

February.

104 Paranoia as It Relates to Homicide. James W. Putnam.
105 Essential Medication in Cardiac Diseases. Eli H. Long, Buffalo.
106 Consideration of the Advisability of Athletics in Professional Colleges, with Special Reference to the University of Buffalo. Burton T. Simpson, Buffalo.
107 Empyemas of the Accessory Cavities of the Nose in Children. B. Panzer.

St. Louis Courier of Medicine.

January.

108 Baby Incubators on the "Pike," Louisiana Purchase Exposition. (Continued.) John Zahorsky, St. Louis.
109 Electricity as a Curative Agency in Gynecology and Oncology. G. Betton Massey, Philadelphia.
110 Chronic Skin Diseases. Robert M. Sterrett, New York City.
111 Chewing Gum in Typhoid. Geo. Richter, St. Louis.

Pennsylvania Medical Journal, Athens.

January.

112 Address in Obstetrics, Medical Society of the State of Pennsylvania. X. O. Werder, Pittsburg.
113 *Address in Hygiene and State Medicine, Medical Society of the State of Pennsylvania. A. C. Abbott, Philadelphia.
114 Glimpes of Autointoxication. Edwin W. Moore, Franklin.
115 *Modern Methods for Combating Deformity in Spinal Caries. David Silver, Pittsburg.
116 Anal Fissure. William M. Beach, Pittsburg.
117 Treatment of Internal Hemorrhoids by the Injection Method. Lewis H. Adler, Jr., Philadelphia.
118 *Tympanites. J. C. O'Day, Oil City.
119 *Blood Analysis. J. M. McNall, Wilkinsburg.
120 *Knee Ankyloses. De Forest Willard. Philadelphia.
121 *Some of the Unsettled Questions of Extraunterine Pregnancy. Mordecai Price, Philadelphia.
122 *Retrodisplacement of the Uterus; an Experience of 11 Years in Its Treatment, with the Report of a Statistical Study of 465 Cases Operated on by a Method of Ventrosuspension. Henry D. Beyea, Philadelphia.
123 *Symptomatology and Treatment of Influenza. Samuel Wolfe, Philadelphia.
124 *Pneumonia. John R. McCartey, Fredonia.
125 Rheumatism. John C. Kelso, Canonsburg.
126 Puerperal Infections. Clifford Marshall, Sharon.

113. See abstract in THE JOURNAL, vol. xliii, p. 1162.

115. Ibid., p. 1330; 118 and 119. Ibid., p. 1249.

120, 121 and 122. Ibid., p 1330; 123 and 124. Ibid., p. 1249.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

January 28.

1 Suppurative Frontal Sinusitis; Its Surgical Treatment, Based on an Analysis of 40 Cases. W. Milligan.
2 Causes, Symptoms and Complications of the Diseases of the Nasal Accessory Sinuses in Their Relation to General Diseases, Ophthalmology and Neurology. Siegmund Moritz.
3 Diseases of the Nose in Their Relationship to Pathologic Conditions of Other Organs. Adolph Bronner.
4 *Nasal Disease as a Cause of Headache. A. L. Whitehead, Leeds.
5 A Note on Rhinitis Caseosa. Arthur Edmunds.
6 Chronic Suppurative Otitis Media; the Necessity of Early, Systematic and Energetic Treatment. Henry Smurthwaite, Newcastle-on-Tyne.
7 *Treatment of Post-nasal Adenoids. John Ward Cousins.

4. **Nasal Disease and Headache.**—Whitehead concurs in the belief that nasal disease is undoubtedly the cause of headaches in a certain percentage of cases, but thinks that it is doubtful whether it is possible for headaches to be produced by any nasal condition which does not give rise to discharge or to obstruction to normal nasal respiration. In all cases of persistent headache, a careful examination of the nose should be as much a routine practice as the examination of the urine, the teeth, and the eyes, since, in some instances, the nasal symptoms may be ignored by the patient, and a careful examination of the nose will be necessary to establish the diagnosis. Suppuration in the accessory sinuses and marked nasal obstruction, constant or intermittent, should be thoroughly treated. Small spurs, deviations and hypertrophies not causing obstruction should be left alone, as no relief will be given from the headaches by treatment of these. If the middle turbinate bones are enlarged and pressing on the septum, especially on the tubercle, and if all other possible causes of headache have been eliminated, partial removal of the hypertrophied bone should be advised, since in many such cases, complete relief is given.

7. **Treatment of Postnasal Adenoids.**—Cousins says that for children the best instrument for removing adenoids is the sterilized finger nail, as it can be safely employed both to define and to remove the growths in the obscure recesses of the nasopharynx, guided by the sense of touch. He makes use of a mouth gag consisting of a short rod of hard wood carrying a wooden ring to regulate its insertion between the teeth, and with one end larger than the other to suit the capacity of the different mouths. The operator's forefingers are protected by metal rings. Nasal probes, made of flexible metal, are used to clear the posterior nasal apertures. After preparing the patient by the frequent application of some deodorizing mouth wash, Cousins carefully examines the teeth and removes any loose tooth before the introduction of the gag. Whatever anesthetic is employed (he prefers the A. C. E. mixture or chloroform) only enough should be given to arrest corneal sensibility, and it always should be stopped short of suspending the reflex actions of coughing and swallowing. As soon as the patient is ready, the head is brought well over the edge of the table and is supported by the hands of a nurse or by the arm of a surgeon; at the same time, the shoulders are raised on a pillow. The nasal probes are passed through the inferior meatuses into the pharynx; the gag is fixed in the right angle of the mouth and the left forefinger is introduced into the pharyngeal fossa, and with it the sides and roof of the eustachian orifice and the posterior nasal apertures are rapidly cleared. The gag is then shifted to the left angle of the mouth and the operation is repeated on the right side with the right forefinger. After clearing away the adenoids, he excises the tonsils, if they are unhealthy and enlarged. As a general rule, rest and light and soft food are ordered for a few days.

The Lancet, London.

January 28.

8 Myelopathic Albumosuria. C. W. Paget Moffatt.
9 Case of Encysted Cerebral Abscess. Peter Paterson.
10 *Reseaches Into the Etiology of Carcinoma; the Presence of Plasmodiophoræ in Carcinomatous Tumors and the Successful Culture of the Parasites. W. Ford Robertson and Henry Wade.
11 Results of Two Cases of Injection of Paraffin. F. C. Wallis.
12 *Relation Between Various Atmospheric Conditions and the Occurrence of Cerebral Hemorrhage. James W. Russell.
13 Ovarian Ligament and Its Relation to Pregnancy Occurring After Ablation of the Ovaries. John H. Dauber.
14 Case of Septate Uterus and Vagina; Pregnancy in the Right Half; Delivery. Clayton A. Lane.
15 Army Medical Organization in Bavaria. F. Howard.

10. **Etiology of Carcinoma.**—Robertson and Wade record the result of researches undertaken with a view to testing the validity of the hypotheses that carcinoma is dependent on the growth of a parasite of the same class as the *plasmodiophora brassicæ*, which is known to cause tumor growths in various members of the cruciferæ, as well as in other plants. They succeeded in demonstrating the presence in carcinomatous tumors of bodies corresponding in form and in reaction to a special method to fourteen phases in the developmental cycle of the plasmodiophora and in growing from such tumors an organism which accurately represents several successive phases of a parasite of this class. They used for their investigation chiefly carcinomatous tumors of the breast and malignant adenomata of the intestine removed at operation. The bodies in carcinomata, which they believe to be plasmodiophoræ, are considerably smaller than the *plasmodiophora brassicæ*. Both show a considerable range of size in all their stages and it is therefore somewhat difficult to estimate their average relative dimensions. Bodies accurately corresponding in reaction and forms to the resting spore of

the *plasmodiophora brassicæ* may be observed lying between the epithelial cells, among the connective tissues in the glandular spaces of adenomata, and occasionally within the nucleus or protoplasm of the epithelial cells. All the various phases in the developmental cycle of a plasmodiophora were observed by the authors and they succeeded in growing the organism from carcinomatous tumors. The technic of obtaining these cultures, as well as the morphology of the organism, are described in detail and, therefore, can be obtained from the original article. The authors have traced what they consider to be three parallel lines—namely, those of (1) the life-cycle of the *plasmodiophora brassicæ*, (2) a series of bodies found especially within the cells of carcinomatous tumors, and (3) the stages of an organism which can be grown from such tumors.

12. **Atmospheric Conditions and Cerebral Hemorrhage.**—A careful study of 66 fatal cases and 62 non-fatal cases of cerebral hemorrhage appears to have convinced Russell that there is a slight tendency toward the occurrence of cerebral hemorrhage on days of high atmospheric pressure and also on days of rising pressure, the former being probably the important factor. There is a very marked tendency on days of low-wind pressure, and the combination of a low-wind pressure with a high barometric pressure is the condition under which the largest number of hemorrhages took place. Apart from season, temperature in itself did not appear to exert any influence, though a small excess in the number of cases was noted on days with a rising thermometer and also with a combined rise of atmospheric pressure and temperature.

Practitioner, London.

January.

16 Treatment of Movable Kidney. Frederick Treves.
17 *Zomotherapy in Pulmonary Tuberculosis. R. W. Philip.
18 *Diet in Pulmonary Tuberculosis. F. W. Burton-Fanning.
19 Principles of the Dietetic Treatment of Tuberculosis. Arthur Latham.
20 *Parasites of Smallpox, Vaccinia and Varicella. W. E. de Korté.
21 Gastroenterostomy. Donald Armour.
22 Anesthesia in Operations on the Upper Air Passages. From the Operator's Point of View. St. Clair Thomson. From the Anesthetists Point of View. D. W. Buxton.
23 Some Points in the Surgical Treatment of Intestinal Obstruction. T. Carwardine.
24 Famous Hospitals and Medical Schools—St. Bartholomew's Hospital.

17. **Zomotherapy in Pulmonary Tuberculosis.**—For fifteen years Philip has been an ardent advocate of the systematic, continued administration of raw meat in the treatment of pulmonary tuberculosis. The form and dosage must be regulated in the way in which we regulate the administration of any drug. The method is applicable not only to tuberculosis but to a variety of wasting conditions, in gastrointestinal disturbances and generally in cases where for some reason the nitrogen output is, or has been, unduly increased, or where the nitrogen intake on ordinary diet is insufficient for the needs of the patient. The raw meat is administered as follows: 1. Finely minced or bruised beef slightly seasoned with salt, etc., according to taste, served cold or gently warmed throughout, one-half pound two or three times daily. The meat must be perfectly fresh. 2. Beef-juice prepared as follows: Extract one-half pound of meat in one-half pint of cold water plus one-half teaspoonful of salt, slowly heat to 100 F. Express the liquid through a cloth and serve. Or the juice may be expressed from the meat directly without the addition of water. In either case the meat-juice must be freshly prepared for use. 3. Raw meat soup, prepared as follows: Mix one-half pound of finely minced fresh meat with sufficient milk to produce a thick, uniform paste. Immediately before serving add one-half pint of milk at 150 F. In place of milk, the soup may be made in similar fashion with stock of beef or chicken or veal. Though not in the same dietary category, Philip also includes quite fresh raw eggs, one, two or three before meals, to be swallowed like oysters. He has not found it difficult to accustom the patient to the use and even to the enjoyment of these raw products. The method is most serviceable, he says, in the early stages of the disease, although equally good results have been obtained in very advanced cases. The patient's general condition, appearance, weight and muscularity improves rapidly. The effect on the circulation is striking, the pulse rate becomes less and the blood pressure improves. In some instances a highly irregular temperature gives place within a week or two to an almost uniform range about the normal level. The functions of stomach and bowel are rendered easier and more effective. The blood presents a rapid increase in hemoglobin, 10 or 20 per cent. in a few days, falling comparatively quickly if return be made to cooked meat. Within the chest, physical signs indicating present activity and disintegrative changes are gradually replaced by signs of quiescence and cicatrization. Tubercle bacilli gradually lessen in the expectoration and other discharges and assume a degenerate aspect. The only disadvantages urged against this form of treatment are (1) the natural distaste which many persons have to such raw products, and (2) the possibility of the introduction of intestinal parasites. The latter danger is not a likely one if reasonable care be taken in the selection of meat. Even if a parasite be so introduced, the harm to the patient is infinitesimal compared with the risk involved by the presence of the disease. The repugnance of the patient to this food speedily yields as soon as he is made to appreciate the fact that zomotherapy constitutes a definite and special treatment of his disease. Philip describes the results obtained to the fact that muscular tissue is that on which the tubercle bacillus seems to find greatest difficulty of implantation and development.

18. **Diet in Pulmonary Tuberculosis.**—Burton-Fanning says that the best results in the treatment of pulmonary tuberculosis are obtained by the administration of moderate amounts of food. Our object should be to secure over-assimilation rather than over-ingestion. The dietary recommended is characterized chiefly by the large amount of fat it contains. Experiments have shown that fats are peculiarly well absorbed by consumptives. The most suitable diet consists of about 120 grams of proteids, 140 grams of fats and 300 grams of carbohydrates. In the dietary for one day, meat is given in very small amounts (4 to 5 ounces) and only in the cooked form. Milk forms the principal part of the dietary. So obvious are the advantages which attend its use in consumption that we can hardly afford to omit it from the dietary.

20. **Parasites of Smallpox, Vaccinia and Varicella.**—By submitting the vesicular contents from the pox of smallpox, vaccinia and varicella to a microscopic examination as hanging-drop preparations, without any other manipulation whatsoever, de Korté found large numbers of unicellular elements, which on a warm stage showed ameboid movements. The organism is a spherical body measuring about five microns and containing a largely centrally situated nucleus, which is usually hidden by small, very refractive granules. The cytoplasm of the cell is firmly granular and often presents a reticulated appearance. In order to see these parasites, the lymph must be examined on the fifth day of the eruption or earlier. The parasite of varicella is found on the first, second and third days of the eruption. Human vaccine lymph must be gathered on the eighth or ninth day, for the parasites disappear spontaneously on the tenth day. In favor of these elements being protozoan is the fact that they could be grown in pure culture on a suitable medium. De Korté promises to add to this preliminary note later.

Semaine Médicale, Paris.

25 (XXV, No. 3, January 18.) *L'intervention chirurgicale dans le rhumatisme déformant. F. Lejars (Paris).
26 (No. 4.) *La maladie de Mikulicz. L. Cheinisse (Paris).
27 L'uréthrite staphylococcique par coit "ab ore."
28 (No. 5.) *Des amusies (amusia). G. Marinesco.
29 Le Phlegmon ligneux (woody). F. Lejars.

25. **Surgical Treatment of Arthritis Deformans.**—Operative treatment is not the routine technic for these cases, of course, but Lejars relates a number of cases from his own experience and that of others which demonstrate the incalculable benefit

sometimes obtained by operating. In a case reported surgical treatment of a flexed knee restored the ability to walk which had long been lost, the other joints being stiff and deformed, and the flexed knee rendering it impossible for the patient to balance herself at all. In the monoarticular cases, surprisingly favorable results have sometimes been attained. In one of König's cases there has been no exacerbation of the affection during the ten years since the operation; nor in nearly three years in Niehans' case; nor in Zesas' patient five years after resection of the elbow. Riedel reports the same in regard to a patient seen four years after resection of the temporo-maxillary articulation. The extensive resection evidently contributed to the extinguishment of the local process. In 24 cases of operations on various joints there was a mortality of 8.3 per cent. In 25 per cent. the functional results were poor; in 25 per cent. they were fairly good, and in 33.3 per cent. very good, with results unknown in 8.3 per cent. A recent Heidelberg thesis (Muszkat, 1904) mentions 50 per cent. permanently cured and 31.35 per cent. improved in 16 cases. In the polyarticular cases excellent results are sometimes obtained by mere section of the tendons or aponeuroses. When the bones are not too much deformed or when they are not the only obstacle to the correction of the deformity—as is easily determined by radioscopy—correction may be obtained by cutting the popliteal or other tendons. Done gently, such an operation, followed by modeling and extension, does not arouse a latent process, while the correction of the deformity works wonders for the patient, and renders conditions more favorable for ultimate repair.

26. **Mikulicz' Disease.**—Mikulicz published in 1888 an account of a case of a peculiar symmetrical tumefaction of the lachrymal and salivary glands. It did not fit into any previously known clinical picture and further experience has confirmed the assumption that it is a distinct morbid entity. Cheinisse reviews all the cases he was able to find in the literature, the list including Cutler's case recently published in this country. A number of surgeons have not hesitated to excise the tumefied glands, but Fuchs, Cutler and others have found that the affection can be controlled by prolonged use of arsenic or of iodid of iron or potassium. Hirschberg calls the affection "mumps of the lachrymal glands." Mikulicz thinks that the lachrymal infection is primary, and that the salivary glands become involved later owing to the anatomic communication between the lachrymal passages and the mucosa of the nasopharynx.

28. **Amusia.**—Marinesco's article is a complete study of what is known in regard to amusia; that is, the loss of the musical sense. The article is based on the case of a professor of instrumental music—especially of the bassoon—40 years old, with syphilitic antecedents. There are evidences of slight hemiparesis, musical agraphia, and partial motor amusia, both for vocal and instrumental music. The ability to play the bassoon is entirely lost.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 584.

30 (XLIV, No. 1.) *Beiträge zur Nierenchirurgie (surgery of kidneys). G. Delkeskamp.
31 *Ueber Lungen-Rupturen. G. Richter (Königsberg).
32 *Ueber postoperative Psychosen. F. Selberg (Berlin).
33 *Ueber primären Krebs der Leber, Gallengänge und Gallenblase (cancer in bile apparatus). E. Friedheim (Hamburg).
34 Ueber die Aetiologie der Noma. A. Hofmann (Freiburg).

30. **Surgery of the Kidneys.**—Delkeskamp analyzes the records of 105 different operations on the kidneys performed by Garré at Königsberg. Primary nephrectomy gave better results than secondary, in cases of tuberculosis of the kidneys, of which 20 are reported. There were 22 cases of malignant tumors in the kidneys, and 13 were operated on. Such tumors were found generally in adults between the ages of 40 and 50 and in children. Metastases were particularly frequent in the younger subjects. In 17 cases of pyonephrosis the mortality was 20 per cent. after nephrotomy and 33 per cent. after secondary nephrectomy, while it was zero after primary nephrectomy. The particulars of 92 operations on the kidneys are given in detail, and compared with the experiences at other clinics. The article fills nearly the entire number.

31. **Rupture of the Lung.**—A lad was run over by a wagon, causing a tear 7 cm. long in the upper lobe of one lung. Garré sutured the tear, but the lad succumbed next day with symptoms of pulmonary edema. Richter reviews the literature on the subject of rupture of the lungs, and advocates surgical intervention as the most promising treatment. Thoracotomy and suture have proved life-saving measures in cases of severe traumatic emphysema, even when there were indications of serious intrathoracic hemorrhage. He has compiled 37 cases of rupture of the lung, 23 of which terminated fatally. This is the first case in which the lung was sutured on account of rupture. The conditions are better for successful operating in case of a rupture than for a fistula, but Garré has been successful in suturing the lung in 2 cases of the latter. Suture of stab wounds of the lung has given almost invariably good results. The suture of the ruptured lung in the case reported was not undertaken until the fourth day, when the symptoms became alarming.

32. **Postoperative Mental Disturbances.**—Selberg has observed 7 cases of psychosis developing after an aseptic operation and one after evacuation of an appendiceal abscess. All but one of the patients had a history which indicated a nervous predisposition. The tendency to suicide in these postoperative psychoses renders close surveillance indispensable. In one instance the patient's physical condition apparently rendered suicide an impossibility, and yet he accomplished it. Selberg warns against operating on persons predisposed to a psychosis, and advises deferring intervention until conditions are more promising. Such patients sometimes attribute their ills to the operation, and consequently the surgeon should bear this possibility in mind. Abundant nourishment may aid in warding off impending trouble. The characteristics of a postoperative psychosis are acute hallucinatory confusion and motor restlessness, with ideas of persecution. Fear is the prevailing emotion. Only 4 patients recovered completely, 1 requiring treatment. Another died in a sanitarium for mental affections. Two recovered from the acute stage but were left with considerable mental impairment. The prognosis of the physical affection for which the operation was undertaken is always rendered more grave by the intercurrent psychosis. The prognosis of the latter depends on whether or not it is due to physical causes or is merely an aggravation of pre-existing mental disturbance.

33. **Primary Cancer of Biliary Passages.**—Friedheim records 3 cured patients out of 25 cases of primary cancer of the biliary apparatus, in which the gall bladder was removed with the cancerous growth. The malignant disease was primary in 25 out of the 190 cases of cancer of the liver, gall bladder or biliary passages observed at the Hamburg General Hospital from 1895 to 1904. The gall bladder and biliary passages are affected with primary cancer much more frequently than the liver. In case of chronic trouble from gallstones, the possibility of cancer should always be borne in mind, and the gall bladder should be removed if the patient is at the "cancer age." It should always be removed if it shows signs of severe inflammation or of retrogressive changes.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 428.

35 (XXXII, No. 1.) Zur Sauerstoff-Chloroform-Narkose (oxygen-chloroform narcosis). Roth (Lubeck).
36 Zur Frage der "Holzphlegmone" (woody phlegmon of neck). A. Schmincke.
37 (No. 2.) *Amaurose nach Paraffino-Plastik einer Sattelnase (of saddle nose). W. Mintz (Moscow).
38 (No. 3.) *Zur Technik der Gastrostomie und Jejunostomie. Ein neues und leichtes Verfahren. J. Arce (Buenos Ayres).
39 Ueber Hedonal-Chloroform-Narkose. W. Mintz (Moscow).

37. **Blindness After Paraffin Prothesis of a Saddle Nose.**—Mintz cites Holden and Leiser's 2 cases of amaurosis after subcutaneous injection of paraffin. He then reports a case in which he had corrected a syphilitic saddle nose by injection of 1 g. paraffin at 43 degrees. The patient was a woman of

25. She returned a year later for an additional injection, as the paraffin had sunk in at one place. He injected at two points, on each side, about 1.5 cm. from the tip of the nose, about .33 gm. paraffin at 43 degrees. Three minutes later she complained of pain in the left eye, and in twenty minutes there was complete amaurosis in this eye. The course of the case suggests that thrombosis had occurred in an external nasal vein and had spread to the inferior ophthalmic. As the thrombosis extended toward the optic foramen, the blood in the central retinal vein clotted, with blindness as the result. In two months atrophy of the optic nerve was apparent. Mintz states that since then he always warns his patients of the possibility of this complication, but some insist on the injections notwithstanding his warnings.

38. **Simplified Technic of Gastrostomy.**—Arce has applied in 5 cases a mode of gastrostomy or jejunostomy which has given such satisfactory results that he thinks it deserves a place beside the more complicated procedures of the kind. The essential feature is the suturing of the seromuscular coat of the intestine or stomach to the peritoneum by button or U sutures over an area not larger than a square centimeter. The rest of the peritoneum and mesocolon is then sutured, leaving the stomach or intestine exposed only enough to insert a No. 18 Nélaton catheter. The skin is then sutured. The opening can then be made into the stomach or intestine or it can be delayed for twelve hours to permit adhesions to form. The feeding sound is inserted slanting, and is withdrawn slowly. It is better to give nourishment in small amounts and frequently, not more than from 200 to 300 cm. at a time. The autopsy of one of his cases showed that the fistula 2 cm. long, through the abdominal wall, terminated in the stomach in a minute side opening. The fluids in the stomach flow downward and do not make their way through this small opening.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 428.

40 (XXIX, No. 1.) Ist die Symphysiotomie eine chirurgisch inkorrekte Operation? P. Zweifel.
41 Zur Frage der Eiimplantation auf dem inneren Muttermunde (implantation of ovum on internal os). E. Bumm.
42 *Kongenitale Lage- und Bildungs-Anomalie der linken Niere (of left kidney). O. Orth.
43 *Zur Berechnung des "absoluten Heilungs Prozentes" in der Statistik des Uterus Karzinoms. J. Werner.
44 (No. 2.) Fall von primärem Sarkom des Beckenbindegewebes (pelvic connective tissue). D. Pulvermacher.
45 Der suboccipito-frontale Kopfumfang (circumference). J. Kocks.
46 Stypticin bei Gebärmutterblutungen. M. Freund.
47 Ueber Anämisierung und Lokal-Anästhesie. B. Müller.
48 (No. 3.) Paralyse des nicht schwangeren Uterus (non-pregnant uterus). P. Strassman.
49 Ueber Embryotomie. L. Seeligmann.
50 Prolapse and Gangrene of Enlarged End of Ureter.—Vorfall und Gangrän des erweiterten Ureter-Endes. M. Simon.

42. **Congenital Deformity of Left Kidney.**—Orth thinks that the case he describes is of interest, as it shows that congenital malposition of the left kidney can be the cause of retroflexion of the uterus and may cause abortion. He states also that displaced kidney may simulate a pelvic tumor. In this case the patient had suffered almost constantly from sacral pains of varying intensity and a feeling of pressure in the region where the kidney was found. All symptoms vanished after removal of the kidney, which was much deformed and degenerated.

43. **Cancer Statistics.**—Werner urges that cancer statistics should list the number of patients, the proportion that were operated on, the number that died primarily, and the number permanently cured (after 5 years). He mentions other points which will aid in making statistics more easily compared.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

51 (XXX, No. 53, December 29.) Zur Pathologie und Anatomie der suprapapillären Duodenal-Stenose geschwüriger Grundlage (stenosis consecutive to ulceration). Wieting and Reschad Effendi (Constantinople).
52 *Prospects of Oxygen in Therapeusis.—Die Aussichten der Sauerstoff-Inhalationen nach den neuesten physiologischen Untersuchungen. E. Aron.
53 Ueber den Fussohlenschmerz und seine Behandlung. (Podalgie, Plantar-Neuralgie, Tarsalgie, Metatarsalgie, Talalgie, Hackenschmerz.) F. Franke (Braunschweig). (Commenced in No. 52.)
54 *Zur Technik der Radikal-Operation von Bauch-Narben und Nabel-Hernien (postoperative and umbilical hernias). Karewski.
55 Beitrag zu den lateralen Kiemenganggeschwülsten (tumors in branchial cleft). E. Pfister (Cairo).
56 Zur hysterischen Myopie der Schulkinder (of school children). Axmann (Erfurt).
57 (XXXI, No. 1.) Wearing Out of Nerves Without Due Repair.—Die Aufbrauchkrankheiten des Nervensystems. L. Edinger (Frankfort a. M.).
58 Ueber antibakteriolytische (antagonistische) Substanzen normaler Sera. R. Pfeiffer and E. Friedberger.
59 *Behandlung des Panaritium. Riedel (Jena).
60 Bakteriologische Bemerkungen zur Heisswasser-Alkoholdesinfektion. O. Sarwey (Tübingen).
61 *Vom Radium-Gehalt der Heilquellen und Moorerden (radium in mineral waters and muds). E. H. Riesenfeld (Freiburg i. Br.).
62 Ueber Mastitis chronica scrofulosa bei Kindern. B. Müller.
63 Professional Matters.—Umschau. L. Henius (Berlin).
64 Die Gonorrhoe sonst und jetzt (then and now). E. Finger.
65 (No. 2.) *Indikationen und Methodik der Digitalistherapie. H. Eichhorst (Zurich).
66 Ueber die im Exodin (Schering) enthaltenen wirksamen ekkroprotischen Substanzen. W. Ebstein.
67 Behandlung der Netzhautablösung (detachment of retina). H. Sattler. (Commenced in No. 1.)
68 *Zur Kenntnis und Verwertung der Rolle des Lecithins bei der biologischen Wirkung der Radium- und Röntgen-Strahlen. R. Werner (Heidelberg).
69 *Ueber die Arten der nach Kopfverletzungen auftretenden Neurosen. Die traumatische Labyrinth-Neurose. Stenger.
70 Ueber Gonococcensepsis der Neonatorum. C. Brehmer.
71 Ueber die Beziehung der Rhinitis fibrinosa zur Diphtherie. L. Wolff.
72 *Fall von chronischer Phenacetin-Vergiftung (poisoning). M. Hirschfeld.
73 *Public Health Matters.—Gewerbehygienische Rundschau. E. Roth.

52. **Limits of Oxygen in Therapeutics.**—Aron doubts whether inhalation of oxygen does what we attribute to it. He thinks that in intoxication with carbonic acid gas the benefits supposed to be derived from inhalation of oxygen are illusory. He recently had occasion to observe a child with extreme cyanosis from a congenital pulmonary valve defect. Respiration was rapid and superficial. The child was given oxygen to inhale through a spirometer and the cyanosis vanished to a remarkable extent after a few deep inspirations. On suspension of the inhalation the cyanosis recurred as intensely as before. These facts would suggest that oxygen had a marked action in the case, but further tests, with ordinary air in place of the oxygen, produced exactly the same effect. The cyanosis vanished just as when the oxygen had been inhaled. The opinion is gaining ground that the blood can never be completely saturated with oxygen—the normal saturation in the arterial blood being 82 per cent. The only way to decide the question as to the efficiency of oxygen is to eliminate the changes in the mechanics of breathing. If a cyanotic or other suitable subject could be kept for a day or so in a pneumatic cabinet, supplied only with pure oxygen, then the question would be finally decided.

54. **Treatment of Postoperative and Umbilical Hernias.**—Karewski has operated on a number of patients with very extensive hernias, and the results by the technic he describes have been extremely satisfactory. He has had four years' experience with it. An incision is made entirely around the hernia, all in sound skin, and the cicatricial tissue is extirpated, sparing the peritoneum. He then incises the muscle and aponeurosis on the longitudinal axis of the hernia; this allows the hernia to be readily reduced and its opening sutured. The muscles are then utilized to make a strong cover over the site of the original incision, supplemented possibly by wire netting. In 2 of his 13 patients the hernia extended across the entire abdomen.

59. **Treatment of Panaritium.**—Riedel remarks in the course of this clinical lecture that nothing detracts more from the patient's respect for his physician than an unsuccessful operation for a felon. If the physician is not sure of his diagnosis and does not cut deeply enough, the patient is not relieved, and is liable to become embittered against the physician. The diagnosis should be made early, and the patient should be directed to the nearest surgical operating room. Riedel says that he dreads minor surgery more than major operations, as it is on an infected soil. The proper treatment

is rapid extermination of the focus of infection and free exposure of the entire infected areas. Apparently slight, circumscribed ulcerative processes in the fingers may have serious consequences. Early extirpation of even the smallest focus of infection on the fingers will prevent innumerable joint and tendon sheath suppurations later.

61. **Radioactivity of Mineral Waters and Muds.**—Riesenfeld states that the radioactivity of certain mineral waters seems to be established. Tests of six kinds of mineral muds, including fango, have failed to reveal any radioactivity in them to date.

65. **Digitalis Therapy.**—Eichhorst has perfect confidence in digitalis in only one direction—this is when the heart musculature has become enfeebled from any cause. Affections of the valves and of the myocardium entail this weakness in time, and these are the cases that respond to digitalis almost infallibly. Other causes for weakness of the heart musculature are chronic affections of the respiratory organs, the weakness of the heart in infectious diseases, general debility and intoxications, including the excessive use of tea, coffee, alcohol or tobacco, and also emotional depression. He has witnessed a number of cases in physicians, in which overwork and sorrow or worry had induced a condition suggesting serious heart disease. Two weeks of bed rest, milk diet and digitalis banished all these symptoms. Digitalis, therefore, may be regarded as the most certain means to abolish permanent weakness of the heart muscle. He doubts the efficacy of digitalis in fibrinous pneumonia, uremia, etc., except when the heart muscle is unduly weak. Another point to which he calls attention is that patients sometimes do not respond to the digitalis while, later, the desired effect is apparent. He explains this by assuming that the heart muscle has become unduly stretched, and digitalis can exert no action on it. When the muscle has subsided to its normal condition under rest, then the digitalis displays its therapeutic action. In case of threatening cyanosis and in infectious diseases he supplements the digitalis with stimulants. He does not give the digitalis to patients with weak heart until from one to three days of rest in bed and a milk diet have failed to relieve the symptoms. A patient taking digitalis should be carefully watched, especially the pulse. If the pulse drops below 60 the drug should be suspended. The digitalis, also, should be discontinued when bigeminal heart action is present; this is most frequently observed with mitral lesions. The favorable action of the digitalis generally becomes apparent first in the increased excretion of urine, better pulse, and absorption of edema. If the amount of urine increases very rapidly, delirium may be observed, even although no digitalis is being taken at the time. He ascribes this delirium to an autointoxication from absorption, as it coincides with the subsidence of the edema.

68. **Role of Lecithin in Action of Radium and X-Rays.**—Werner's extensive experiments in regard to the biologic action of radioactive lecithin have already been mentioned in these columns, page 1908 of the last volume. Lecithin exposed to the action of radium or *x*-rays changes in some way so that it is more readily decomposed, more easily attacked by autolytic ferments. The lecithin in the cells is thus destroyed, and this in turn entails the destruction of the cells. The radiochemical processes seem to be analogous to the photochemical in certain respects. Like the sensitized salts, the lecithins by the action of the rays, are made more easily destructible. Without undergoing any apparent chemical modifications, they become decomposed more rapidly when exposed to certain conditions (contact with the developer in the first case, contact with the autolytic ferments in the second). This analogy is the more striking as it has been lately proclaimed that the biologic action of light is due to the chemically active rays. Experiments with the different components of lecithin showed that none of them was the specific agent; the total lecithin was required for the process. It was further established that a radioactive lecithin lost its activity after decomposition. His experiments on animals have established the possibility of using local injection of radioactive lecithin as a substitute for exposure to radium and Röntgen rays. Large doses by intravenous or subcutaneous injection killed rabbits, but multiple small doses in loose connective tissue were not followed by any appreciable local reaction. He is convinced that this suggests the possibility that in radioactivated lecithin we may find a therapeutic factor of incalculable scope as an accumulator of the biologic action of the radium and Röntgen rays.

69. **Neuroses Consecutive to Injuries of the Head.**—Stenger emphasizes the necessity for examining the ear in every case of injury to the head in which there are any symptoms suggesting involvement of the labyrinth. An organic affection may be present, and the designation of "traumatic neurosis" is too vague.

72. **Chronic Petechiae from Phenacetin.**—Hirschfeld's patient was a young woman, inclined to be anemic and nervous, who suffered for a year or more from numerous petechiæ on the legs. The patches were painful, and ulceration developed in some of them. The pains were somewhat relieved by local applications but the trouble could not be cured. Hirschfeld noticed in a text-book a reference to the possibility of petechiæ as a symptom of drug poisoning. The patient had been in the habit of taking headache powders for her frequent migraine. As soon as the phenacetin powders were discontinued, the lesions healed and all trouble subsided. The patient, to convince herself that her affection had been due to phenacetin poisoning, surreptitiously took some more, with the result that new petechiæ and a fresh ulcer promptly developed.

73. **Literature on Public Health Matters.**—Roth reviews the various medical works that have been published in late years on industrial poisoning and matters affecting the public health in general. He mentions as an injurious trade the making of buttons from vegetable ivory, unless great care is used to have the sawdust carried away from the workmen.

Münchener medicinische Wochenschrift.

74 (LII, No. 2, January 10.) *Tuberculosis in Cold-blooded Animals.—Ueber Kaltblütertuberkulose. E. Küster.
75 *Sunlight Treatment of Laryngeal Tuberculosis.—Behandlung der Kehlkopftuberkulose mit Sonnenlicht. L. Kunwald.
76 *Ueber Anwendung von Tuberkulin-Preparaten per os. Freymuth.
77 Dependence of Food on the Heat Economy of the Body.—Ueber die Abhängigkeit der Ernährung vom Warmehaushalt, nach Versuchen in den Tropen, im gemässigten Klima und im Hochgebirge. K. E. Ranke.
78 Die prophylaktische Anwendung der Sekalepraparate während der Geburt (ergot during delivery). F. Prusmann.
79 Adrenalin bei Gebärmutterblutungen (uterine hemorrhage). Steinschneider.
80 Röntgen-Röhre mit Vorrichtung zur therapeutischen Dosierung der Röntgen-Strahlen (technic and tube). A. Köhler.
81 Eine retro-aurikulare Verbandklappe (cap dressing). Hecht.
82 Turbanverband (turban dressing). C. Philip.
83 (No. 3.) Beitrag zur Frage der agglutinierenden Eigenschaften des Serums Typhuskranker auf Paratyphus und verwandte Bakterien. Rolly.
84 Zur Typhusdiagnose mittelst des Typhusdiagnostikums von Ficker. H. Selter. Ibid. G. Flatau. Ibid. in Tropics. F. Eichler.
85 Ueber das angebliche "innere Disinfektionsmittel" Griserin. Th. Deneke.
86 Ein schwerer Fall von Tetanus (recovery). S. Rottenstein.
87 *Zur Pathologie und Therapie der Salpingitis chronica. A. Theilhaber. (Concluded.)

74. **Tuberculosis in Cold-Blooded Animals.**—Küster comments on the rarity of spontaneous tuberculosis in cold-blooded animals, Dubard's carp and Friedmann's turtle being the only instances known to date. He examined 200 frogs from various parts of Germany and upper Italy, and 50 other cold-blooded animals, and found evidences of spontaneous tuberculosis in 3 frogs. Cultures from the bacillus isolated from these animals were injected into other animals and the results observed confirm those obtained by Moeller and Friedmann, namely, that in the use of tubercle bacilli from cold-blooded animals we have made decided progress toward the realization of active immunization against tuberculosis.

75. **Treatment of Laryngeal Tuberculosis with Sunlight.**—Sorgo's preliminary communication on this subject has been mentioned in these columns. An ordinary hand glass is

mounted on a wooden standard in such a way that, as the patient sits with his back to the sun, the light is reflected from the mirror into his throat. He holds a laryngeal mirror in his hand and controls his position by the view he obtains of his throat in the hand glass. Sorgo is the physician in chief at the Alland sanatorium, and has applied this sun treatment of laryngeal tuberculosis in 14 cases. The results have surpassed all expectations. Essential improvement was obtained in every case. The best results were apparent in tumor-like infiltration of the laryngeal mucosa, while diffuse red infiltration of the vocal cords yielded more slowly. The difference between the response of these two forms was most marked when both coexisted in the throat. The specific action of the sunlight was particularly apparent in 2 cases in which the patients, from lack of skill, failed to expose more than a certain part of the vocal cords. The exposed area showed marked improvement, while a sharp line divided the improved, exposed area from the unexposed and unimproved part. When the subjects learned to reflect the sunlight properly, the entire lesion retrogressed. In one of these cases a course of tuberculin injections was commenced at the same time as the sunlight treatment. The infiltration and hyperemia of the vocal cords entirely retrogressed, and the pulmonary affection of the third degree showed progressive improvement under this combined treatment. The moral effect of this sunlight treatment on the patients is good. They see the infiltration subsiding, and, although the voice may still be hoarse, yet they know they are improving. The exposures were from a few minutes to an hour long, according to the strength of the patients. They soon acquired the knack of this autolaryngoscopy. The number of exposures ranged from 6 to 44, during from two to nearly six months.

76. **Tuberculin by the Mouth.**—Freymuth relates personal experiences with tuberculin administered by the mouth in the clinic. They demonstrate that tuberculin administered in this way is effectual, but only on condition that the action of the gastric juice be excluded. The effect is more uncertain and weaker than when it is injected subcutaneously. Even with these restrictions, it allows the disagreeable subcutaneous injection to be dispensed with in many cases, and in others reduces the number of diagnostic injections. Seventy-nine patients were tested by the mouth and 35 were controlled with an injection afterward. It was found that 75 per cent. of 15 who responded negatively to tuberculin per os, also gave a negative response to subcutaneous injection; the other 5 gave merely a slight reaction.

87. **Treatment of Chronic Salpingitis.**—Theilhaber has recently examined all but 1 of 23 women operated on for this trouble. When the inflamed tube was small and had thick walls, he generally removed it through the vagina as the technic is simple and the ovaries usually heal after removal of the focus. He draws the end of the tube down into the vagina after detaching the bladder. The end of the tube is held with forceps and a small lengthwise incision made. Any pus escaping flows into the vagina, and is rinsed out and wiped away. The tube is then drawn down a little farther, evacuated and the pus rinsed away. This is all done a half an inch at a time, after a large compress has been worked in above the tube to prevent any escape of pus in that direction. In 20 cases there was no reaction on the part of the peritoneum. In 7 cases both tubes, but not the ovaries, were removed, and in 2, the ovaries had been removed with the tubes. The uterus was left intact in all but one instance. The changes in the ovaries seem to be generally secondary, as likewise the peritonitis which had been of frequent recurrence in his cases previous to operation. None of the patients has had any symptoms of peritonitis since.

Grèce Médicale, Syra, Greece.

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88 (V, Nos. 13-14.) *Naked Sponge-fishers' Disease.—La maladie des plongeurs nus d'éponges. S. G. Zervos.
89 (Nos. 15-16.) Study of 75 Cases of Malta Fever.—De la fièvre de Malte. S. Zographides.
90 *Buttermilk in Infant Feeding.—Nutrition de l'enfant par le lait acidulé dégraissé. J. Kardamatis.
91 (No. 27.) Alcoholism in Greece.—Des affections alcooliques en Grèce. Katsaras.
92 (Nos. 18-20.) Relations Between Malaria and Malignant Tumors.—Paludisme et les tumeurs malignes. Zaimis and Boreal.
93 Des abcès sous-diaphragmatiques. M. Geroulanos and G. S. Papadakis.
94 (Nos. 19-20.) Relations Between Malaria and Pregnancy, the Puerperium, etc.—Rapports du paludisme avec la grossesse, l'accouchement et ses suites et vice versa. J. P. Cardamatis (Athens).
95 (Nos. 21-22.) Sur 25 cas d'intervention chirurgicale à la paralysie des nerfs périphériques. G. Geroulanos.
96 Inflammation of Omentum Consecutive to Herniotomy.—Epiploite par suite de traitement radical de la hernie inguinale. A. Psaltof (Smyrna).

88. **Sponge-Fishers' Disease.**—Zervos remarks that the sponge fishers who ply their trade naked dread this disease, which he describes, as worse than the plague. It is frequent among them, but he knows of no description of it that has been published in the literature. It is caused by the poisonous secretion of a parasite of the sponge, the *Sagarsia rosea*. He gives an illustration of this variety of sea anemone, and describes the serious gangrenous lesion which it induces. He was able to reproduce the affection on dogs by rubbing one of the parasites against a shaved part of their abdomen. The skin became very red at once, and in a few minutes blisters developed all over the surface. Multiple abscesses followed in a few days; they discharged the sixth day, and by the eighth day a round patch of gangrene developed. The affection in one of his patients caused the sloughing off of the entire skin of the penis, leaving the corpora cavernosa and the urethra intact. The prognosis is not grave unless some vital organ should be affected by the gangrene. The fishers treat it with hot irrigations, but he believes that immediate wet cupping would be more effectual in removing the virus.

90. **Buttermilk in Infant Feeding.**—Kardamatis relates that buttermilk was used by the ancient Greeks for infant feeding. With the addition of rice-flour and a little sugar he has found it extremely useful in acute and chronic dyspeptic conditions in infants. His experience includes 23 cases and Malandrinos' 40. They found it of no benefit in acute gastrointestinal infections, but under other conditions they rank it high for artificial feeding of infants.

Riforma Medica, Palermo and Naples.

Last indexed page 334.

97 (XX, No. 46, November 16.) *Contributo allo studio delle cirrosi tubercolari. G. Vincenzo.
98 *Sulla valutazione quantitativa degli essudati pleurici mediante il metodo cromometrico Niclot-Achard. O. Schifone.
99 (No. 47.) Del metodo di Partisch nelle cisti dei mascellari (cysts on jaw). S. Ottaviano.
100 Tabe sensitiva e trofica. D. Pirrone. (Commenced in No. 46.)
101 (No. 48.) *I nostri risultati nella sieroterapia della sifilide. A. Risso and A. Cipollina.
102 *Sul valore e sulla tecnica dei metodi Ficker e Asakawa col typhus diagnosticum. L. Borelli.
103 Operative Cure of Hernia in Diaphragm.—Sopra un caso raro di ernia diaframmatica congenita. A. Albanese.
104 (No. 49.) *Test for Hyperchlorhydria.—Sopra una reazione atta a dimostrare un eccesso di HCl nel succo gastrico. A. Cipollina.
105 Influenza dei fermenti solubili sulla digeribilita del latte di vacca (on digestibility of cow's milk). V. Trischitta.
106 *New Elective Stain for Spores.—Su un nuovo metodo di colorazione elettiva delle spore. G. Scagliosi.
107 Vascular Tumors.—Peritelioma della coscia. Contributo istogenetico e clinico. F. Bindi.
108 *Artropatie e cardiopatie. F. Sarcinelli.

97. **Tuberculous Cirrhosis of Liver.**—Vincenzo draws the clinical picture of this affection from study of the literature and a personal case observed. The tuberculous infection acts on the liver as on the lung, sometimes inducing ulcerative lesions and sometimes merely sclerosis. In his patient there had evidently been a slow circumscribed chronic process; the liver was enlarged, hard and sclerotic. As this circumscribed process began to spread, an acute process developed, a parenchymatous reaction with fatty degeneration and atrophy. This assumption corresponds in every particular to the symptoms exhibited by the patient and the anatomic findings. The latter indicated a chronic tuberculous affection of the pleura, with recent invasion of the peritoneum, as the liver diminished in size. The liver lesions may be due to the bacilli or to their toxins in such cases, and hence the finding of the bacillus is not necessary to prove their tuberculous origin.

98. **Quantitative Determination of Amount of Pleural Effusions.**—Achard has simplified Niclot's original quantitative test for pleural effusions, and Schifone has been trying it in the clinic. His conclusions are extremely favorable, and he recommends this test as eminently simple, rapid and easy while it is accurate and reliable enough for all practical purposes. The principle of the test is the injection of a stain into the pleura after withdrawal of a small amount of the fluid. The patient then bends over and backward, etc., to ensure that the stain spreads evenly through the effusion in the pleura. A small amount is then withdrawn and the tint compared with the mother stain. The particulars of 7 cases are given in detail in which the test was applied and the findings compared with the further history of the case. Achard's technic includes the aspiration of about 30 c.c. of the pleural effusion and, without removing the needle, injecting 1 c.c. of a 2.5 per cent. solution of methylene blue. The same amount of the same solution of the blue is then added to a liter of water, which thus contains the same amount of the stain as is now in the pleural cavity. About 30 c.c. of the effusion is then withdrawn and the tint is compared. Four tablespoonfuls of water are then put in two glasses. A teaspoonful of the mother solution is then added to one glass, and a teaspoonful of the fluid obtained by the first aspiration. In the other glass, a teaspoonful of the fluid obtained by the second aspiration is added to the water and also a teaspoonful of clear water. The two glasses then contain equal amounts of water and of pleural effusion—the amount of the stain is the only variable quantity. If the tints in each are alike, then the pleural effusion amounts exactly to one liter. If the tint is lighter in the second glass, then the effusion amounts to more than one liter; if darker, then it is less than a liter. By adding more teaspoonfuls of the stain it is possible to measure the exact amount. A good control test is to compare two test tubes containing each equal amounts of the pleural fluid before and after staining. A 1 per 10,000 solution of methylene blue is then dropped, a drop at a time, into the first test tube, comparing the tint with that of the stained pleural effusion, until the tints are alike in each. The exact amount of the effusion can thus be calculated by a simple formula.

101. **Serum Treatment of Syphilides.**—Risso and Cipollina review the history of serum treatment of syphilis, from Feulard, Tommasoli and Kollmann to Mazza's attempts to render guinea-pigs immune by inoculating them with serum from syphilitic blood, and the later work in this line. They then describe their own experiences which have given much more favorable results than any others previously published. They administered their specific immune serum, obtained by inoculating dogs with blood from syphilitics, not merely the serum. Sixteen patients have been treated with this curative serum. Fourteen were in the secondary stage and specific treatment had not been commenced. Two were in the tertiary stage. Nine of the 14 in the secondary stage were promptly cured, 2 left before the course was completed, and 3 are still under treatment. One of the 2 patients in the tertiary stage was completely cured, and the other is still under treatment. All the patients displayed marked improvement. The papular and the macular manifestations vanished more rapidly than under ordinary mercurial treatment. Even the lesions on the mucous membrane healed without the necessity for local treatment. A tendency to recurrence was noted in 2 cases, but it was soon dispelled by return to the serum. Specially interesting was the subsidence of a gummy tumor in the nose under the influence of a dozen injections of the serum. The 4 patients still under treatment already display great improvement. The writers are convinced that the serum has an unmmistakable active action on the manifestations of syphilis. It is probably specific, but may act merely by stimulating the natural defenses of the organism. Their results testify that it is not impossible to obtain an effectual serum from animals refractory to syphilis. It is possible that animals can be syphilized after all, although the manifestations may not be like those of human syphilis. The first injections were made in June, 1904, the inoculation of the dogs was commenced in May. Blood from syphilitics in the secondary stage, who had not yet been submitted to specific treatment, was injected under the skin and into the peritoneum of the animals. The injections were repeated three or four times with an interval of five or six days. A week after the last injection their blood was drawn for the therapeutic injections. The contagiousness of the blood of syphilitics in the secondary stage is evidence that it must contain more or less of the specific virus. The animals were inoculated with some of the formed elements of the blood in a hemolytic solution along with the serum, hoping that they would enhance the action of the serum. This hope was sustained by the fact that when too large a proportion of the dissolved corpuscles was added to the fluid injected, symptoms of irritation were noted. The particulars of the various cases are given in detail; from 2 to 5 c.c. of the animal serum was injected into a muscle every day, or at longer intervals. A glycerin-aqueous extract of the spleen and liver from animals that had been repeatedly inoculated with the blood from syphilitics was also tested. The experiments in this line are not yet sufficiently advanced for any report.

102. **Serum Diagnosis of Typhoid by Latest Technics.**—Borelli has been testing, among other things, Asakawa's method of freezing the serum for the agglutination test. He finds that it is extremely simple and easy, and materially shortens the time required for the test. The serum or blood dried on blotting paper is mixed with the emulsion of typhoid bacilli, and the test tube is placed in a freezing mixture. As soon as it is frozen it is taken out and allowed to thaw. As it thaws, the agglutinated clumps can be seen in the fluid. The entire procedure is complete in a very few minutes. The agglutination by this freezing method is specific, but it is not quite so sensitive as the original Widal. It will be found very useful when rapid work is desired. The reaction is equally marked under the microscope whether fresh or dried blood or serum is used, but for macroscopic examination, only the serum and blood dried on blotting paper respond effectually.

104. **Test for Hyperchlorhydria.**—Cippolina has found that the tint of a fluid containing "anilin water" and sodium hypochlorite varies remarkably under the influence of different amounts of hydrochloric acid added to it. The proportions should be .5 c.c. of the anilin water; 2 c.c. of the aqueous solution of hydrochloric acid or gastric juice, and four or five drops of a titrated solution of sodium hypochlorite. The color turns to amethyst and the fluid remains clear if the proportion of hydrochloric acid is 2 per 1,000; if less than 2 per 1,000, the color is purple and the fluid become turbid, while the tint is a very dark violet if there is less than .25 per 1,000. Certain other acids affect the color in the same way, but as these acids are in much smaller proportions in the gastric juice than the hydrochloric acid, they do not disturb the diagnosis of hyperchlorhydria or of hypochlorhydria.

106. **Elective Stain for Spores.**—Scagliosi's method consists in fixation of the material in van Gehuchten's or Hermann's fluid; drying in the air; staining with Ziehl's fuchsin; rinsing and counterstaining with an aqueous solution of methylene blue. The contrast staining is particularly fine by this simple method. The material at first is left in contact with the fixation fluid for thirty minutes (van Gehuchten's) or fifteen minutes (Hermann's). It is then allowed to evaporate.

108. **Heart Complications of Articular Rheumatism.**—Sarcinelli denies that heart complications are so common as generally accepted, and asserts that in many cases the heart lesions are probable primary. When the heart complications do occur it is generally in connection with the subacute or chronic forms of articular rheumatism. The heart lesion may be acute, subacute or chronic; the subjective symptoms frequently do not harmonize with the objective findings. This is due to the varying manner in which the heart in different subjects responds to functional stimuli. On this account treatment should be individualized.

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THE IMPORTANCE OF GENERAL THERAPEUTICS IN THE TREATMENT OF OCULAR DISEASES.*

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In offering a few thoughts on "The Importance of General Therapeutics in the Practice of Ophthalmic Medicine and Surgery," I wish to sketch in broad outline what is in my mind, and to leave each of you to fill in the details of the picture from your own experience. It is to the principles which guide, more than to the means to be employed, that I desire to direct attention; for although the treatment of disease is to a very large extent empirical, the discoveries made in physical, as well as in physiologic and chemical, laboratories are slowly but surely placing the subject on a more scientific basis, and showing in many instances that so far from empiricism being opposed to rational therapeutics, the two have many points of contact and are indeed interdependent.

For most men it is easier to put trust in authority than to exercise independent judgment; and so, instead of thinking for themselves, they accept a clearly expressed opinion as a scientific fact, or even mistake a mere impression for a real opinion. Many of the therapeutic measures so much in vogue at present, radium, *x*-rays, currents of high potential, etc., etc., are purely empirical, and the routine employment of these forces, of whose real properties we at present know so little, seems rather to be a reversion to the old idea of the supernatural origin of disease than to be founded on a due recognition of its natural causes. Doubtless these means are full of promise, and the investigation of the ray world that extends on either side of the narrow limits of the visible spectrum may reveal mysteries of which, at the present moment, we can form merely a very faint idea; but at this stage of the study it can only bring discredit on ourselves and on our methods to make such an assertion as that, under the influence of ultra-violet or any other rays, "cancers are cured."

While it must never be forgotten that treatment is an art, and is none the less valuable because it is empirical, yet the whole trend of modern progress is to appeal less and less to authority. We endeavor in all things to go to Nature direct and by patient research to find out her secrets. Investigation of this kind demands much time and labor, and the life of man is short and his mental and physical capacity for work limited. If any real advance is to be made, the extent of the subject and the briefness of existence make subdivision of labor necessary, and specialism is thus the natural outcome of increase of knowledge. It is an inevitable result of evolution, and as an ideal ought to be symbolic of the highest form of efficiency.

This tendency to specialize is observable in every branch of inquiry, in philosophy, in politics, in engineering, in music and in literature, as well as in medicine, and the organs of special sense have always been looked on as furnishing legitimate subjects for special study. Among these, ocular investigation has ever held a foremost place. The tissues of the eye are so delicate, its structure so complicated, and its diseases so numerous and so frequently followed by disastrous results that there is little wonder that oculists have existed from time immemorial. In the early days, however, these men had no claim whatever to be called specialists. They possessed, doubtless, a certain amount of special manual dexterity, but the majority of them were charlatans of the very worst description, practicing on the eye exclusively because they were wholly ignorant of the general principles of medicine and of surgery. A specialist in the true sense of the word is one who has conscientiously studied the body as a whole, and the highest and best type is he whose anatomic and physiologic knowledge is most perfect, and whose early training has fitted him to take broad and comprehensive views of pathology. For all efficient higher training there must be a proper foundation, and consequently the specialist in medicine must combine in himself the diagnostic skill of the physician with the dexterity of the surgeon, and must add to these the special knowledge that gives him power and action reaching still farther along his own particular line.

Few, very few, can reach such an ideal, but all can honestly and strenuously strive to attain it.

As a result of the subdivision of labor, our knowledge in every department of medicine has increased so enormously that the study and practice of any one branch is more than sufficient to occupy the time and tax to the utmost the energies of the ordinary man. We can not, like the great masters in the past, cultivate a specialty and at the same time engage in general practice. The field is too wide. Nevertheless, if specialism is to render the highest service to the world, it must of necessity be based on an efficient system of general instruction; and consequently it is incumbent on every specialist to strive, by reading, by frequent visits to the wards of a general hospital, and by conversation with colleagues, to keep in touch with the progress of pathology, along at least its most important lines of advance. One of the besetting sins of the present age, however, is hurry, and if a man specializes too early he is apt to specialize more

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than he ought, and to cultivate his own department to the neglect of all others.

An exclusive interest of this kind leads to narrow and distorted views whereby the part is magnified out of all true proportion to the whole, and, the sense of proper perspective being lost, judgment is biased and opinion becomes untrustworthy. Doubtless concentration of thought along a single line will tend to improve the power of special diagnosis, but it interferes in many cases with the ability to take a comprehensive view of the whole morbid process.

It follows, therefore, that, although the specialist may devise new means of local treatment, or improve methods of operative technic, there is a risk of his doing so without regard to the broad principles which underlie all rational therapeutics. It must not, however, be supposed for a moment that I would underestimate the value of local treatment; to do so would be to run counter to all the knowledge of the process of inflammation which we have gained through the study of bacteriology. What I desire to emphasize is the need for assigning to local treatment no more than its proper value. It is just possible that the great amount of consideration given in recent years to the study of micro-organisms has tended to divert attention unduly from the soil on which the bacteria grow.

For example, if an ulcer form on the cornea of a healthy man the probabilities are that it can easily be cured by local treatment; whereas, if the ulcer occur in an unhealthy person micro-organisms are not confined to the seat of injury, but are found, along with their toxins, both in the tissues and in the blood; consequently, if a speedy recovery is to be brought about, there must be general as well as local treatment. In the one case it might be said that the cornea was injured, but in the other that the patient was diseased, and that the ulcer of the cornea is only a symptom of his unhealthy state. Success or failure will depend on a proper distinction between these two conditions.

The researches of Pasteur and their practical application by Lister and his followers, by making successful operative interference possible in so many cases from which the surgeon had hitherto been debarred, gave a great stimulus to surgery as a whole, and with it to the surgery of the eye. In spite, however, of all our precautions and of our most careful attention to antiseptic methods, eyes are still occasionally lost by suppuration after operative interference.

As in the days prior to the introduction of antiseptic treatment, the failures are in cases where there has been previous inflammation of the conjunctiva or tear passages, or in which the patient's vitality is low. General malnutrition is as great an obstacle to success as it ever was, and the necessity for action along this line suggested by clinical observation is borne out by the results of theoretical and experimental research so ably dealt with in Professor Welch's Huxley Lecture of 1903.

"The struggle," says Dr. Welch, "between the bacteria and the body cells in infection may be conceived as an immunizing contest, in which each participant is stimulated by its opponent to the production of cytotoxins hostile to the other, and thereby endeavors to make itself immune against its antagonist."

When the body is healthy it possesses the power of producing substances specifically antagonistic to all sorts of micro-organisms, but with this power any morbid state at once interferes; and as in all infections, whether local or general, "abnormal metabolism is an essential condition," patients of low vitality will be in such a state that the substances produced, so far from being antagonistic to parasitic organisms, may actually stimulate their growth.

This being so, one must not only endeavor to render the field of operation sterile, but must also devote the utmost care and attention to what is of equal importance—the giving the patient himself increased power of resistance. Good food, fresh air, rest, every means of strengthening digestion, are all essential. Should the sufferer be a poor man, who has been unfit for work for several months, and through poverty unable to procure a sufficient amount of food, he will require special care, since his tissues will be in the condition most favorable for the action of even the slightest infective taint, and also for the rapid spread of suppuration. While, therefore, every attention must be paid to strict antiseptic precautions at the time of the operation, equal care should be bestowed on the state of the patient himself, especially if he be poor and habitually ill-nourished. Were the health of these broken-down subjects better looked after prior to cataract and other operations there would be fewer failures from suppuration.

The comparative safety of modern surgical procedure has brought with it certain disadvantages. The immediate and often brilliant results following operations offer a strong temptation to run a certain amount of risk in cases where the slower but perhaps surer methods of general therapeutics are to be preferred. For example, in dealing with patients showing symptoms resulting from heterophoria, very frequently tenotomy is performed, or a rectus muscle is advanced, whereas no such procedure should be undertaken until every opportunity has been given for the recovery of the balance of muscular power by promoting an improved condition of general health. The ease and safety with which an operation can be performed tempt one to employ it as a first remedy when it should rightly be used only as a last resort.

From what has been said, it will be seen that the great advances in ophthalmic surgery have gone on *pari passu* with those of general surgery, and that both are the direct result of the labors of those who have worked out the practical applications of the science of bacteriology. So also is it true that similar advances in the treatment of diseases of the eye can be attained only by a careful study of the principles of general pathology. There can be no special study of morbid conditions in the eye apart from special postmortem appearances incident to peculiarities of anatomic structure. Nor could we expect it to be otherwise, when we remember how quickly sight is affected in all disordered states of the body, and how frequently actual pathologic changes occur in the ocular tissues as consequences of general ailments. As Paget said long ago, "No disease can be properly understood unless it be considered in its whole pathology."

Happily, modern pathology is much more than a record of postmortem appearances. It deals not only with structure, but also with function, and thereby takes cognizance of the origin and course, as well as of the results, of a morbid process. Its whole trend is to demonstrate, what has all along been known to the clinical observer, that a disease can cure itself. This all-sufficient power of Nature to bring a patient back from sickness to health is the very first lesson in rational therapeutics. It is recorded of Sydenham that when he was in doubt he consulted his own reputation and the patient's safety by doing nothing at all. Doubtless this expectant treatment can be carried too far; but probably most of you will agree that many eyes are lost from injudicious med-

dling which might have been saved had they been left to Nature. The wonderful powers possessed by the natural restorative agencies of the living body were, and are still, spoken of as the "constitution," or the "*vis medicatrix naturæ*"; but these words, although they encouraged a physician to hold his hand, and in consequence oftentimes saved a patient from the discomforts, and even the dangers, of what has been called active treatment, are nevertheless simply cloaks for ignorance.

The new nomenclature which is arising in connection with the study of infection and immunity is, however, promising to provide us with a means of expressing ourselves intelligibly regarding the manner in which Nature works. The chain theory of Ehrlich has provided a working hypothesis for the investigation of the phenomena associated with the great problem of life and death. Just as the strength of a chain is measured by its weakest link, so must the resisting power of the body be estimated by the vitality of its constituent cells.

An organ may, to every form of physical examination, appear quite sound, and yet may break down quickly and completely under the strain of any infectious disease. There is inherent corpuscular weakness, and consequently the ultimate appeal must always be to the individual corpuscle. If this be granted, there is no difficulty in explaining the shortsightedness that sometimes occurs as a sequela of measles or scarlet fever, or the destructive choroiditis associated with the progressive myopia that is occasionally met with in the children of agricultural laborers, whose open air life ought, in the absence of inherent weakness of the tissues, to have effectually prevented the onset of such a condition.

On this theory, then, the organic life of the individual is simply the aggregate of the corpuscular life, and the more intimate our knowledge of the changes taking place in the cells of the body, the more surely shall we, in the cure of diseases, be able to bring the resources of art to the assistance of Nature. The hypothesis leads us further, for it raises the all-important question: Could the vital resistance not be so much strengthened that disease would be prevented?

Undoubtedly prophylaxis is the highest form of therapeutics, and of late, both by the cultivation of sanitary science and by the practical demonstration of the use of antitoxins in the treatment of diseases, great advances have been made in this direction. The study of the former, by bringing prominently forward the laws governing health, teaches not only individuals, but also whole communities, the value of an abundant supply of fresh air and of pure water, combined with a perfect system of drainage; while the latter has shown that the blood, when it is supplied with a quantity of a specially prepared serum is reinforced by those very constituents of which it was most in need, and without which the recovery of the patient was impossible.

The study of antitoxins is as yet in its infancy, and so far we possess specifics of this kind antagonistic to only a few diseases; but there is no reason to doubt that with the advance of science and the increase of knowledge serum treatment will come to bulk more and more largely in medical practice; until, perchance, we may at length be provided with a serum whose use at the right time will prevent that greatest of all ocular dangers, sympathetic ophthalmia.

Dealing still with the inner corpuscular life of the body, we are reminded that the full activity of the muscle corpuscle is essential to health, and this affords a ready explanation of the great importance of both active and passive exercises in so many different morbid conditions. In my own experience there is nothing of more value in checking the progress of myopia in the young than a well-regulated course of Swedish gymnastics, and what is true of myopia is equally true of every form of ametropia.

It is not enough, more especially when one is dealing with children, simply to adjust glasses suitable for the correction of the error of refraction. A quick estimate must at the same time be made of the patient's general strength, for it is most important to remember that, though the demand for work made on the ciliary muscle may not be unreasonably great in itself, yet it may be altogether excessive in relation to the individual in whom it is made. While, therefore, the error of refraction must always be carefully corrected, so that the ciliary muscle may do its duty under the best possible conditions, every effort should also be made to develop and strengthen the whole muscular system by sufficiency of proper food, by drill, by exercise on the bicycle, or, preferably, on horseback, and by an active outdoor life.

In the eye, just as in any other part of the body, the limits of muscular capacity must be respected, and the amount of work to be done must be adjusted accordingly. How often do patients suffering from lack of nerve energy try to rest and read at the same time; for example, when invalids read in bed! They are attempting the impossible. The aching eyes and headache of which they usually complain are evidently due to nervous and muscular fatigue, and when there is any error of refraction, the ciliary muscle, already weary, becomes quite incapable of meeting the call on it.

Day after day at the Glasgow Ophthalmic Institution I see children sent from the poorest schools of the city by their teachers "to get spectacles." In nearly every case an error of refraction exists, but in many it is so slight that in all probability it would cause no trouble were the general health satisfactory. Most of these children are underfed, live in unsanitary houses, are the victims of unwholesome habits, and are in consequence physically unfit to bear the strain of continuous school work. Obviously, under these circumstances, it is wiser to prescribe rest for the eyes than to supply glasses, which by the relief they afford encourage the child to struggle, only to have afterward, under the stress and strain of preparation for the government inspection, a more serious breakdown.

It follows, then, that I have no sympathy whatever with those who desire to separate optical from medico-surgical ophthalmology. Such a divorce is most irrational, for under no circumstances can the living eye be treated simply as an optical instrument. The fitting of spectacles is neither a mathematically exact process nor in itself a complete remedy. As the late Dr. John Brown, the gifted author of "Horæ Subsecivæ," said, "the watch must be mended while it is going." The eye is not only in the body, but it is also of the body, and the proper treatment of its optical defects requires the physician's skill just as much as does the treatment of its diseases.

On the other hand, it can not be insisted on too often, or too strongly, that all these optical defects should be corrected early and thoroughly, for eye strain is accompanied by symptoms as numerous as they are varied, and its persistence is in consequence attended by grave dangers to the general health. The highest ideal of one profession is to discover and deal with all the causes of a disease, and these can only be found through a thorough knowledge of pathology. The more limited, therefore, the pathologic outlook the more deficient will be

the general treatment, and so it follows that therapeutics to be rational must be founded on an accurate knowledge of the natural history of the ailment.

According to this view, disease can not be regarded as a morbid entity which for the time being has taken possession of the body, and of necessity must be removed by means of powerful remedies. On the contrary, it must be looked on as a natural process gone wrong, and the physician is the guide who, confident in himself and full of the discretion and self-reliance begotten, and only begotten, of a power of accurate observation, pilots the sick man through the malady and brings him back to health. Whenever it is recognized that disease is due to the perversion of natural processes the path to its prevention or relief is at once made easier, for it is obvious that the very first indication for treatment is to maintain, or to improve, the nutrition of the body. The patient must be supplied with food of proper quality and in sufficient quantity to satisfy his needs.

As, however, the food, after passing through various preparatory changes, must be assimilated before it can be utilized for the nourishment and the repair of the various tissues and organs, there must, for satisfactory nutrition, be a healthy state of the tissues themselves; the blood supply must be of good quality and in sufficient quantity, the nervous system must exercise a proper controlling influence, and heat and light must be present in abundance. No doubt some corpuscles, more especially leucocytes, inherit from the parent cell and possess, uncontrolled by any nervous influence, the power of absorbing nourishment from the blood; but it is certain, so far as the fixed corpuscles are concerned, that disturbance of innervation lowers nutrition and lessens the power of resistance to the attacks of micro-organisms. In support of the statement that in many instances the nerves exercise a trophic influence over the tissues, it is only necessary to mention blepharitis, associated with errors of refraction; keratitis, the accompaniment of zona ophthalmica, or ulcer of the cornea following the extirpation of the gasserian ganglion.

Existing contemporaneously with the process of assimilation, there is also always a process of excretion. The corpuscles take up their food supply from the blood or from the lymph, absorb what they require and reject the surplus, and throw off the effete materials.

If the health of the cell is to be maintained at a proper standard provision must be made for the complete elimination of these waste products, for if they be retained in the blood a state of general toxemia will soon supervene, and this, if it persist for a considerable time, even to a slight extent, will, by lowering the state of the corpuscular health, seriously interfere with the resisting powers of the body as a whole. If, therefore, the nutritive value of the blood is to be maintained at the normal, it is imperative that all toxins be removed at the earliest possible moment, and to this end Nature has made provision in the bowels, the liver, the kidneys, the skin and the lungs. The constant and free activity of these channels of excretion is essential to health, and if, by reason of illness, the function of one be temporarily interrupted, the others are always ready to undertake vicarious duty.

A very short clinical experience will, however, prove that the full functional activity of any one, e. g., the skin, is under certain circumstances of more value than the combined activity of all the others. For example, in the early stages of diseases of the uveal tract a mercurial purge and alkaline saline draughts stimulate the liver, bowels and kidneys, and their administration is often attended by the most satisfactory results; whereas, in inflammation of the optic nerve, of retrobulbar origin, relief is more quickly obtained by free diaphoresis; and in toxic amblyopia, due to the abuse of alcohol and tobacco (the causes of the trouble having been removed and digestive disturbances corrected by appropriate means), vision returns most speedily under the strengthening influence of a sea voyage or of a sojourn in the dry, bracing air of the mountains, conditions in which the blood receives a plentiful supply of oxygen. One of the most familiar examples of the evil result of improper feeding accompanied by defective elimination is found in *phlyctenular conjunctivitis,* and I therefore select the treatment of this disease as a practical illustration of what I have been saying.

The sufferers from strumous ophthalmia are very numerous, and are for the most part children under 10 years of age. Although some of them may present the outward appearance of good health, most of them are, owing to defective assimilation and excretion, either abnormally pale, or unnaturally livid. They have but too obviously inherited the miserable legacy of constitutional weakness; and the inherent vulnerability of their tissues has been intensified by improper dieting and by overcrowding in unsanitary houses. They are called scrofulous, but as yet there are no symptoms to show that the tubercle bacillus has effected a lodgment; and careful examination fails, as a rule, to discover it lurking in the conjunctival sac, although it is in children such as these that one would expect to find this micro-organism developing and increasing most rapidly. The Germans speak of them as "candidates for tuberculosis," and the increase of lymphocytes, together with the deficient supply of multinuclear leucocytes, in the blood, mark them out as badly protected against any form of infection.

The eye trouble very often follows an attack of measles or other of the exanthemata, and although under favorable circumstances it may speedily subside, it has a most characteristic tendency to recur, unless every cause be taken in hand from the very outset. If left alone, or simply treated by local remedies, the ophthalmia often proves to be the very first warning of the imminent danger of tubercular infection. This is especially likely to happen in those patients in whom photophobia is most distressingly persistent, although lesions of the conjunctiva or of the cornea are at first absent, or are of a very trivial character.

It is by no means unusual for the conjunctivitis to alternate with suppuration of the middle ear, or with eczematous eruptions on the head or other parts of the body. Nutrition is seriously interfered with, and the coated tongue studded with large red papillæ shows the irritable condition of the mucous membrane of the whole intestinal tract. There is sometimes a constant craving for food, and almost invariably more is eaten than can be digested; fermentation results, the belly is distended, and the alvine evacuations have an offensive smell and an unnatural appearance. The urine is high colored, deposits urates, and often contains traces of sugar. The skin is pale and rough, the flesh hangs loosely on the bones, the hands and feet are often persistently cold, and the head perspires freely.

After a time the system becomes infected by tubercle bacilli, and then the joints, both large and small, are very frequently destroyed by tubercular inflammation of their synovial membrane and caries and necrosis of the bones. Severe ectropion, causing hideous disfigurement, will arise if the bone necrosis occur in the neigh-

borhood of the orbit, and indelible scars invariably result if there be suppuration of the lymphatic glands in the neck and elsewhere.

Unless the cornea has, through neglect, become ulcerated, local treatment consists simply in keeping the child's face and hands clean, and in applying sedatives to the eyes. The real treatment of the disease is constitutional. It is necessary always to bear in mind that the very essence of the ailment lies in the malassimilation of food, and that most, if not all, cases arise as a result of improper dieting. You may be told that the child pecks and trifles with its food, and eats very sparingly, and that may be quite true so far as the regular meals are concerned; but by careful inquiry you will usually discover that the small appetite at the proper times for eating arises from the patient having been, in response to cries for "a piece," supplied liberally between meals with bread and butter, sweets, fruit or any other eatables that may have chanced to be at hand. Many think that a good appetite is a sign of good digestion, though all the time the latter is so poor that in the overladen bowels toxic substances are constantly being manufactured, and these, after they are absorbed, excite abnormal effects both in the eyes and in all the other tissues of the body.

Instead, therefore, of eating too little, these children eat too much; and, although they may appear ill-nourished, the malnutrition is due to malassimilation rather than to insufficiency of food. The first thing to be done, therefore, in treating a case of phlyctenular conjunctivitis is to give particular directions regarding the diet. The child must not be allowed to eat whenever it cries for food, but ought to be fed at regular intervals. Nor must it get what is among the poor popularly called "the run of the house"; it should have meals specially prepared, and in quantity and quality of such a kind as not to overtax the powers of digestion.

Sugar in every shape and form, fruits, pastries, potatoes, etc., must be rigidly excluded from the dietary, and it is usually advisable to confine the patient wholly to milk and water for the first forty-eight hours of the treatment, and then to add gradually meat soups, eggs, fish, fowl, rice, etc., as the tongue becomes clean.

In addition to the careful supervision of diet, the free elimination of the toxins, which, as a result of malassimilation, have accumulated in the blood, must in every way be promoted. This is to be accomplished by stimulating the action of the kidneys, the bowels and the skin, more especially the last. Hence the importance of the hot bath, which the child should have every night at bedtime, diaphoresis being further encouraged by the wearing of a warm flannel nightgown. It is usually advisable first of all to administer a dose of castor oil; but it should be borne in mind that many of these children do not bear purgatives well, as the intestinal mucous membrane is so irritable that troublesome diarrhea is easily induced.

Of drugs, none is so useful as tartar emetic, which should be given as Mackenzie advised, in slightly nauseating doses. Its chief virtue depends on its diaphoretic action, and its efficacy is greatly increased when it is administered with a laxative, e. g., powdered rhubarb. If the tongue be brown, a few grains of gray powder may with advantage be added to the rhubarb and antimony combination. Under this treatment it is wonderful how soon the whole appearance of the patient changes.

As the power of digestion becomes greater the skin improves in color, the hair loses its dry and brittle character, the hands and feet keep warmer, and the child, instead of lying with its face buried in a pillow, and fretting and crying when spoken to, is now quite good tempered and runs about and amuses itself with its playthings. Any indiscretion in diet will, however, promptly bring on a relapse, for in these cases the conjunctiva reflects the conditions of the gastrointestinal mucous membrane even more quickly than the tongue. After some forbidden food has been eaten, intolerance of light, blepharospasm and increased lachrymation speedily show themselves, while the tongue may not become furred till some days after. The fear of relapse makes it imperative, therefore, that treatment be continued for at least a fortnight after the recovery seems complete.

As soon as possible the child ought to be sent to the country, preferably to a high, dry, bracing locality, and it should live out of doors as much as the weather will permit. The seacoast should be avoided, as the glare from the water is apt to prove irritating to the eyes and to cause a relapse. In an ordinary case of strumous ophthalmia, no further treatment than that just indicated is required. If a case is not making satisfactory progress, careful inquiry should at once be made as to whether the prescribed diet and the nightly warm bath are being strictly attended to.

Whenever the child's powers of digestion, respiration and excretion become healthy, fewer restrictions as to diet are necessary, and a plan of treatment may then be entered on to improve the general nutrition still further, and to promote the repair of any local lesions in the eyes themselves. Such restorative methods aim at supplying the blood with something specially needed at the moment, but if they were to be commenced prematurely they would do much harm by adding to the child's difficulty in assimilating food. In every attempt to assist recuperation the all-important indication is to stimulate appetite and to strengthen digestion by means of simple tonics, and on no account to prescribe iron, phosphates, cod-liver oil or the hypophosphites if the tongue be either coated with fur, or red and irritable.

It is not necessary to discuss this subject further, for the guiding principles applicable in the treatment of phlyctenular conjunctivitis apply with equal force to the general treatment of all eye diseases of constitutional origin.

The first condition of success is to find out what is at the root of the trouble, be it syphilis, gout, rheumatism or anything else, to prescribe appropriate remedies in such dose and state of combination as will suit the individual patient, and then to persevere steadily until the disease be overcome. The all-important point is to make a searching diagnosis early, so that from the first the treatment may be both local and constitutional.

Neglect may bring about complications, and, of course, if the tissues be destroyed, no amount of antisyphilitic, antirheumatic or any other kind of medicine can replace them. In many instances, on the other hand, when, to begin with, the prospects of success are not hopeful, earnest perseverance will accomplish much, while intermittent and unsettled efforts will altogether fail.

What I have just said must be taken as applying to the line of treatment rather than to any particular drug, for it can not be too strongly urged that, no matter how high the reputation a remedy may have, it at once does harm to the individual for whom it has been prescribed if it interfere with his powers of digestion and assimilation of food. It is a matter of common observation that

the sight of those suffering from atrophy of the optic nerve, or from disease of the choroid or retina, deteriorates much and quickly whenever there is gastrointestinal disturbance. He is, as a rule, the most successful practitioner who can at once vary the preparation and the combination of the drugs to suit the peculiarities of the patient, and at the same time never depart from the line of treatment he has laid down for himself.

Such resourcefulness on the part of the doctor is of the greatest value to the patient, and I would add that in medicine, probably more than in any other profession, the personality of the practitioner counts for much. That is where the man himself and his natural endowment tell, but, though this personal power has the obvious advantage of inspiring the patient with hope at a time when the disease may seem to be pressing on with such resistless force that he is beginning to despair, it has the disadvantage that the influence of the doctor dies with him. His successors may model themselves on his manner and methods, but there must always be a difference.

That leads me to say that one of the greatest hindrances to a proper study of therapeutics is the ease with which remedies are supplied to the doctor by the manufacturing chemist. These drugs, the products of the chemical laboratory, are advertised largely, and are said to effect so much good that there is a great temptation to try them, and if, perchance, urgent symptoms disappear after their use they are only too apt to be employed indiscriminately. The mixtures so supplied are elegant and palatable, and the pills, tabloids, etc., are very convenient and easily swallowed; but it is only when he writes his own prescriptions that the practitioner can make himself so thoroughly familiar with the properties of drugs, that he is at once able to vary his formula to suit the needs and idiosyncrasies of an individual patient. There is much to be said in favor of the apprenticeship system in medical training, for with drugs, as with all other things, you can never know them properly until you have handled them and dispensed them.

Assimilation, elimination and recuperation embody the great principle underlying all rational therapeutics, but before concluding I must refer briefly to rest, in so far at least as it is an aid to nutrition. During tranquil sleep the restorative powers of Nature work undisturbed, and in calculating the risks of an operation Paget very wisely emphasized the fact that a patient's capacity for sleep was of the utmost importance.

I do not recollect ever having had serious trouble with an operation case when the patient slept soundly for several hours immediately after being taken back to bed, and in order to induce postoperative slumber it is my usual practice half an hour before the time fixed for the operation to administer a draught containing the triple bromids. On the other hand, when a patient is wakeful and talkative, and keeps constantly tossing about in bed, it is almost impossible for the wound to heal by first intention. Unless means be quickly discovered to keep him quiet, it is usually wiser to remove the bandage and allow him to leave the recumbent position and to sit on a chair, when he may obtain the needful rest. One of the reasons why pain does so much harm after an operation is owing to the restlessness it induces; consequently, if I think there is much chance of a patient suffering, my practice is to give a small dose of morphia hypodermically. This, by ensuring several hours of continuous repose, gives Nature a healing chance of which she is never slow to avail herself to the utmost.

It is not good practice, however, always to subdue pain, for it is, if rightly interpreted, oftener kindly than hurtful. As a rule, it is a danger signal, warning both surgeon and patient of something wrong. For example, if pain recurs some days after a serpiginous ulcer has been carefully cauterized, it is almost certain that reinfection has taken place, and the prompt application of local antiseptics may save much future trouble. The eyelids form natural splints for the eyeball, and close instinctively whenever the globe is injured. This movement not only protects the eye from further harm, but also relieves the patient by keeping him in the dark, the physiologic rest for the eye. As a sequel to diseases of the choroid or of the retina, a cataract frequently forms, and by shutting out light secures rest and gives Nature the opportunity she has been seeking for the repair of the deep-seated mischief; and so successful is she that if, after a time, the cataract be extracted, the visual result obtained is often far beyond our expectations. In the same way atropin, by paralyzing the ciliary muscle, keeps the eye at rest, and few things are more wonderful than the rapidity with which, after the efficient application of the mydriatic, pain is relieved and a turning point is reached beyond which the patient is on the road to perfect restoration to health.

In one of the charming papers of Dr. John Brown, to whom I have already referred, he tells that, when a student asked a celebrated artist how he mixed his colors, he received the unexpected reply, "With brains, sir"; and such an answer is as true in regard to therapeutics as it was under the circumstances which called forth those striking and memorable words. What is wanted in this very advanced age of medicine is not more learning, but the more exact application of what we have. We require to be made more conscious of the power of knowledge properly employed. Our experience teaches us facts, but it is only when, through a study of pathology, we get an explanation of the laws and principles underlying the facts that we can act with a well-defined purpose and can utilize our knowledge in the highest interest of humanity.

Retrospect is always instructive, for it is from the experience and lessons of the past that the requirements of the future may be deduced. And what a past has ophthalmology! When we recall the name of Mackenzie, of von Graefe, of Donders, of Helmholtz, of Bowman, of Critchett, and of your own countrymen, Williams, Agnew, Loring and Norris, what visions of intellectual power, of manful and patient purpose, of earnest effort in the pursuit of truth, of the bright flash of illuminating genius, rise before us!

These founders of modern ophthalmology, these masters of our science, had not our opportunities, but they possessed a thorough grasp of the clinical history of disease, and their strong common sense, begotten of observation and experience, enabled them to see what could be done by art and what was best left alone to Nature. They may have known less than we do, but if antiseptic surgery and the refinements of refraction be excluded, their practice in the treatment of disease was not a whit inferior to that of the present day.

Time would fail, and words are inadequate, to describe what manner of men these were who have adorned our profession and have left us the legacy of their skill and of their characters. Let us remember that we in our turn have a legacy to bequeath, and if we are to hand on to our successors a splendid heritage, still greater and grander than that which we ourselves have received, we must try more and more to be animated by the spirit that inspired the masters of the past, and to seek to work

as did they with singleness of purpose, untiring industry and steadfast faith. "With firmness in the right as God gives us to see right, let us strive on to finish the work we are in," and, while we prove all things, let us see to it that we hold fast only to that which is good.

Original Articles.

THE SANITARY AND MORAL PROPHYLAXIS OF VENEREAL DISEASES.

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It is generally recognized by those who have studied this subject that the prophylaxis of the class of diseases comprehended under the general term "venereal" is the most complex, difficult and baffling of all the problems of social hygiene which confront us at the present day. My object in this paper is simply to indicate the lines along which this prophylactic work should be undertaken and to recommend certain measures which are immediately available and which promise to be effective in limiting, at least, the evil we wish to prevent.

In the first place, it is necessary to clear away certain misconceptions which evidently exist in the minds of many of the medical profession as to the purely sanitary character of this problem. Venereal diseases possess certain peculiarities in their origin and mode of propagation which distinguish them from all other infectious diseases, and our methods of dealing with them must be differentiated from ordinary sanitary methods, and must be adapted with special reference to their mode of communication. Especially would I emphasize the view that these diseases are not merely diseases of the human body; in their essential causes they are diseases of the social organism; their prophylaxis is preëminently a socio-sanitary problem, the only correct solution of which must be sought for in the co-operative effort of all the social forces, educational, moral and legislative, as well as sanitary.

It is hardly necessary to pass in review the extent to which these diseases prevail, their pathologic importance and their dangers to the public health. I may, however, refer briefly to one phase of venereal morbidity of the utmost importance from a biologic standpoint, and which gives to these diseases their superior significance as a social danger.

The distinctive feature of venereal diseases is that they specifically affect the reproductive organs; they damage or destroy the functions through which life is perpetuated, and thus defeat the social aim of marriage—gonorrhea, by its inhibitory influence on the reproductive capacity, and syphilis by its blighting and destructive effect on the product of conception. The important relations of these diseases with marriage have never been sufficiently appreciated, even by the medical profession. Marriage constitutes a favorable culture bed for the germs of syphilis, and is the most prolific source of accidental innocent inoculations. The vast complexus of morbid states, dystrophies and degenerations which make up the pathology of hereditary syphilis, have their almost exclusive origin in marriage. The murderous influence of syphilis on the offspring, often extinguishing in germ the posterity of many families, is well known. Modern science has taught us that gonorrhea is an even more potent factor of depopulation than syphilis. A large proportion of the involuntary or enforced childlessness of many couples is due to gonorrhea. Through the process of parturition, gonorrheal inflammation becomes transformed into a dangerous and even deadly infection. A large percentage of blindness and vulvo-vaginitis of young girls results from the introduction of gonorrhea into marriage.

The extent to which these diseases prevail in married life is much greater than is commonly supposed. Every motive leads to their concealment. I have elsewhere stated my conviction that there is more venereal infection among virtuous wives than among professional prostitutes in this country. I repeat, then, that the chief social danger of venereal diseases comes from their destructive effects on the health and the productive energy of the family. The office of social hygiene is not simply to protect the existing population from disease; it embraces in its objects the welfare of the descendants, those who are destined to continue the race. This protective duty extends to the unborn children, who should not be deprived of their birthright of vitality and physical vigor.

The term "prophylaxis" naturally suggests the intervention of the sanitary officials, who are the accredited representatives of the state in all matters relating to the care of the health of the people, and yet we have in this country the singular spectacle of a large and important class of diseases, dangerous to the public health, a serious menace to the welfare of the family and of the race—diseases which are confessedly contagious, essentially evitable, and yet absolutely ignored by our sanitary officials. What is the explanation of this policy of inaction?

Undoubtedly, one cause is the comparative failure of all methods hitherto employed to materially diminish the spread of these diseases, and the hostility of public sentiment toward the legal recognition of prostitution, which is the chief source of these diseases.

Without entering fully into the consideration of the system of reglementation employed in continental countries, it may be said that it has proved defective as a sanitary scheme and is condemned by its practical results. Beside, it is found that the large proportion of public prostitutes can not be subjected to sanitary surveillance, while the clandestine prostitutes, who are the most active spreaders of contagion, escape its operation altogether. The fatal defect of the system is that it ignores the masculine spreader of contagion.

The sanitary authorities, in dealing with a typhoid epidemic, might as well attempt to sterilize the chief infected water supply while allowing a stream of contamination to be continually pouring in and, at the same time, ignoring thousands of infected private sources of supply constantly poisoning the consumers. As well might the health officer of a port attempt to prevent the importation of plague from an infected vessel by quarantining the infected women and allowing the infected men to go free. It is the unilaterality, or "one-sidedness" of this surveillance, as if the women were the exclusive sources of contagion, which constitutes its essential weakness as a sanitary scheme.

It may be positively affirmed that venereal diseases are not susceptible to the application of the sanitary methods ordinarily employed for the control of contagious diseases. The first essential to the success of any scheme of sanitary control is the co-operation of

the medical profession in reporting all cases of contagious disease coming under their professional care. Now the law requires that every infectious disease, dangerous to the public health, shall be reported to the health officials. Venereal diseases fulfill both these conditions, yet are exempted from obligatory notification. These diseases are protected by their privacy, their secrecy, their shameful character, from notification.

Another method of prophylaxis employed by sanitarians is education. In the presence of an epidemic disease the people are enlightened as to the modes of its communication, the conditions which favor infection, the means of avoiding exposure, etc. In case of a chronic disease, like tuberculosis, the public is informed of its dangers, of the agents by which it is propagated in family and social life, of the risks these agencies carry, and of the best means of avoiding these risks. During the past year over 100,000 circulars conveying such educational information, printed in different languages, were distributed by the health board of New York City. I have approached two successive administrations of the health department of that city and urged the adoption of a somewhat similar method for the diffusion of knowledge respecting the dangers and communicative modes of venereal diseases; but was informed that such information would offend the moral susceptibilities of the community.

It is to be remembered that sanitary methods are based on, or rather determined by, the contagious mode of diseases. The sanitarian does not attempt the impossible task of exterminating the germs of disease; his efforts are directed to preventing the contact of these germs with the healthy. With this view, isolation or separation of the sick from the well is the method ordinarily employed. Isolation of the great army of venereals is not practicable, nor indeed is it necessary, as the bearer of venereal disease is, with ordinary care, innocuous to those with whom he comes in contact in the ordinary relations of life. He becomes dangerous to others only by his voluntary act. Now, the common, habitual mode by which venereal diseases are propagated is through prostitution. Prostitution can not be suppressed by any legal or police force. No sanitary authority can prevent or even touch this contagious mode. Much of it is too private, secret and withdrawn from observation. Another common contagious mode is in the married relation. It is evident that the sanitarian is powerless to interfere with a relation which is essentially private and intrenched in the stronghold of what is regarded as marital rights.

There is, however, one peculiarity in the communicative mode of venereal diseases which distinguishes them from other infectious diseases and which may furnish a clue to lead us out of this labyrinth of difficulties, viz., the fact that they are communicated voluntarily. This specialty of contagious mode takes these diseases out of the category of ordinary infectious diseases which are communicated involuntarily and unconsciously. The man who contracts venereal disease from a prostitute voluntarily exposes himself to contagion. The man who infects his wife and children voluntarily exposes them to contagion. In both cases contagion is effected through the free will and action of the individual. Now, since this voluntary act can not be repressed nor controlled by force, the indications are to bring to bear restraining influences which act on the volition, the will, the morale of the individual.

Unquestionably, the most valuable measure is education. Exposure to these diseases occurs most commonly in the young, the immature, the irresponsible through ignorance. While venereal disease may occur at any period of life, it is essentially a malady of the young. Seventy-five per cent. of all infections in public women occur before the twentieth year; 25 per cent. of all infections in men occur before the twenty-first year. This is the age when "the centers of arrest," as they are termed—judgment, reflection and will—are not developed, an age when the individual is influenced by impulse, imagination and curiosity, before those maturer faculties, which exert an inhibitory influence on the actions, are sufficiently developed.

I doubt whether the impelling influence to initial debauch in young men is the result of animal passion. It is more often curiosity or a desire to prove his virile endowment, often the erroneous idea that sexual indulgence is essential to health.

It is the experience of all medical men that ignorance is responsible for a large proportion of infections in the young, and that enlightenment which would engender a wholesome fear of these diseases would preserve thousands of them from exposure.

This education would not only serve as a preservative against exposure to infection, but it would constitute the most valuable prophylactic measure against its introduction into marriage. The vast majority of men who carry disease and death into their families from uncured venereal diseases do so ignorantly. A general diffusion of knowledge regarding the nature and danger of these diseases, the duration of their contagious activity, and the terrible consequences to their wives and children would be largely instrumental in preventing these social crimes.

There is another aspect of this voluntary exposure which may be properly utilized as a safeguard of marriage. Morally, no human being has the right to communicate his disease to another. When a man, knowing himself to be the bearer of a contagious sexual disease, communicates it to his wife, in the relation established by marriage, this action comes within the operation of that principle of the law which attaches a civil or penal responsibility for injury to another individual through an act "knowingly and wilfully" committed. The man can not plead in extenuation that he had no intent to injure. The law holds that "whoever does an act likely to produce injury and injury follows, can never excuse himself by saying that he hoped a probable consequence might, by some good fortune, not follow." Certainly a man can inflict no graver injury on the pure young woman who receives him as her husband than to poison her with syphilis, which ruins her health and kills her children; or with gonorrhea, which may extinguish her hopes of maternity and render her a lifelong invalid or a subject for the operating table.

It is doubtful whether this principle of jurisprudence could be applied to the communication of disease in illicit relations, in which both parties voluntarily expose themselves to contagion, but in marriage, where the wife is an innocent and unsuspecting victim, and powerless to protect herself against injury, such a law would be equitable and just. It would not only act as a deterrent force, but it would educate the public to an appreciation of the fact that the transmsision of venereal disease is not a venial offense, especially in a relation which it is to the interest of the state to protect and to surround with every possible safeguard.

Assuming, then, that the diffusion of knowledge, especially among the rising generation, respecting sexual hygiene and the dangers and modes of communication of diseases peculiar to sexual life, is the first and most essential condition of any intelligent scheme of prophylaxis, what should be the scope of this instruction, how or through what agencies should it be conveyed, and at what age should it be given? These are questions which require thoughtful consideration.

The medical profession is the repository of the knowledge we wish to convey and the physician is the most competent instructor. Through his personal, as well as his professional, relations with the young men of his clientéle, the physician can render valuable aid in disseminating this prophylactic enlightenment, but his opportunities are comparatively restricted. In private practice he is brought into relations with young men only in his capacity as healer, after the disease has already been contracted. With the great body of the working classes, with the poor who are treated in public institutions, he is rarely brought into professional contact except in the crowded classes of the dispensaries.

It is evident that this education, to be of prophylactic avail, must be timely; it must be given before the age at which contamination commonly takes place. The agencies which serve for popular education, the public school system and our high schools and colleges, should be utilized for the purpose of disseminating this hygiene knowledge. I believe, then, that a knowledge of the physiologic laws of generation, the hygiene of the reproductive organs, and the dangers which attend their irregular exercise should form an integral, essential part of the system of hygienic instruction given in our high schools and colleges.

Instruction in a knowledge of the "effects of alcohol and other narcotics on the human body" is made mandatory by the law in the public school system of every state and territory in the United States. Certainly a knowledge of sexual physiology is quite as important as that of alcoholic physiology. A judicious qualification might be that such instruction should be given only to male students in the higher grades of our public schools.

It may be contended that such teaching would be met with protest or resistance on the part of the public, but to say that this knowledge is not proper or fitting and would soil the pure minds of innocence is absurd. Physicians can not too strongly combat the insensate idea that a knowledge of the organs which transmit life, which, in the language of an eminent clerical educator, "are given to co-operate in the mission of divine creation," is shameful and demoralizing. On the contrary, such knowledge is sound, sanative and wholesome. Its high purpose is to instruct young men how to live in accordance with the physiologic laws of a healthy nature. The teachings of science can always be translated into terms which do not offend the susceptibilities of the most modest.

If this sanative knowledge is denied young men they will imbibe from their older companions or dissolute associates erroneous and dangerous ideas, such, for example, as that gonorrhea is of no more significance than a common cold; that syphilis is a disease which is readily cured and there an end of it. They should be taught that these diseases are dangerous infections—often attended with the most serious consequences; that they may compromise the health for years or during an entire lifetime, and disqualify them for marriage. They should also know that venereal infection is the almost invariable concomitant of illicit intercourse. It is necessary that there should be preached to young men the gospel of the fear of microbes. St. Paul says, "we persuade men by the terrors of the law." Let us persuade them by the terrors of infection. Fear is by no means the most ignoble sentiment to which we can appeal. On the contrary, it is most wholesome and salutary in its effects. All hygienic precepts are inculcated on the basis of fear. We are taught to avoid all harmful or noxious external agents from fear of their consequences. Fear is the guardian, the protective genius of the human body, and we should appeal to this sentiment in endeavoring to shield young men from exposure to infection.

I shall make but brief reference to the moral teaching, which comes more properly within the province of religious teachers, as a preservative against exposure. Such training we all recognize to be the best and of the highest order. It has come to be recognized by the more progressive and broad minded of university teachers that the "training of the morals" of young men is quite as important as the training of the intellect, and that hygienic education forms a most essential part of this training. It is a question whether appeals addressed to the ethical or spiritual side of a young man's nature and which inculcate the ideals of self-reverence and personal purity are apt to be so effective as appeals based on the care and upbuilding of the physical health. In all matters relating to the functions of the body the physical consequences resulting from a violation of the laws of nature constitute the most effective deterrent.

How shall we reach the large body of the young working classes who are denied the benefits of this hygienic education in high schools and colleges? Hygiene knows no class distinctions; it is essentially democratic, and the poorer class should not be deprived of its protective benefit. To reach this class it is evident that this instruction must be collective and disseminated by means of "talks to young men" in conferences and lectures, and through the medium of printed slips or circulars.

It is no less important that the young women of this social class, from which the ranks of prostitution are largely recruited, should be enlightened as to the dangers and modes of communication of these diseases, of which they are, for the most part, in infantile ignorance. Thousands of young women suffer moral and physical shipwreck from ignorance of the fact that the loss of virtue often carries with it the loss of health. Many young women of lax moral principles are deterred from a step which would mean their moral ruin by the fear of maternity and the disgrace it proclaims. To this fear of maternity let there be superadded the fear of infection; let them know that even the kiss of a dissipated man may carry with it a dangerous and disfiguring disease. Scores of cases where syphilis has been communicated by a kiss, have come under my personal observation.

There can be no comprehensive system of prophylaxis which does not take into consideration the social conditions which favor the fall of women and their entrance into a life of shame. It is obvious that certain socio-economic conditions, promiscuity of employment, the economic dependence of women, pauperism, and the force of physical want, which impel many women along the road to ruin, lie entirely without the sphere of sanitary control; but the hygienic and moral training

which, by the promotion of masculine chastity, decreases the demand, and, by safeguarding women from the wiles of the seducer, diminishes the supply of prostitutes, would constitute a prophylactic measure of great value and one which is immediately available.

I am not so optimistic as to believe that we shall ever exterminate the plague of venereal diseases; certainly I do not indulge in the utopian idea that enlightenment will prove an absolute preservative against exposure to infection, or that the inculcation of caution is an infallible cure of incontinence. I do believe, however, that when young men are fully forewarned of the dangers of irregular sexual intercourse; when they appreciate the terrible consequences these diseases may entail, they will expose themselves less often, less recklessly, less foolishly. I also believe that when men are fully instructed as to the dangers, the social catastrophes which often follow the introduction of these diseases into married life; when an enlightened public sentiment will no longer complacently consider it a husband's privilege to poison his wife and children, but will demand the enactment of a law declaring such action a legal crime, incurring penal responsibility, that this crowning infamy of our social life will be lifted from the marriage relation.

Another most valuable prophylactic measure in diminishing the spread of venereal diseases is the prompt sterilization of sources of contagion by efficient treatment. Want of time prevents a proper presentation of the superior importance of this preventive measure. Every source of infection suppressed by treatment represents a distinct gain in the reduction of venereal morbidity. The facilities for the treatment of venereal patients are inadequate, restrictive and not adapted to the peculiarly private nature of the diseases. There is not a single special hospital in this country for this class of cases, while in many cities they are debarred entrance to general hospitals. New York City provides only 96 beds for its venereal patients; while Paris, with only two-thirds of our population, has 960 beds. The facilities for treatment should be enlarged, and free, gratuitous treatment should be furnished to all who apply, not so much perhaps in the interest of the individual as in the interest of those to whom his uncured disease might prove a source of danger.

It is evident that no effective prophylaxis of this class of diseases can be brought about without the consent and co-operation of the public. The public must first be enlightened as to its need of this prophylaxis. In studying the evolution of public hygiene, we shall find that the impelling motive in the institution of most sanitary measures has been economic or commercial interests. When an invasion of the plague, the cholera or yellow fever is threatened, the public is quite willing to sanction any measures instituted by the sanitary authorities, no matter how onerous or oppressive they may be, because trade and commercial interests are menaced. The vast machinery of the Public Health and Marine-Hospital Service, our quarantine systems, etc., are maintained to protect the trade and commercial interests of the country. In the present stage of our social progress, moral and humanitarian considerations should be invoked as impelling motives to sanitary protection.

Now, what is the attitude of the public in regard to this question of the prophylaxis of venereal diseases? It is one of indifference, one might almost say, of pronounced hostility to sanitary interference. The explanation of this indifference is ignorance, ignorance of the enormous morbidity from this cause, of its danger to the public health, to the family and to the race, and especially ignorance of the number of its innocent victims. This ignorance is due largely to the traditional shameful character of the disease, which renders it an unsavory subject, and is fostered by popular prejudice which closes all avenues of communication which serve for the dissemination of enlightenment.

Another cause of this indifference is the popular conception of venereal diseases as the exclusive appanage of vice, confined to an obnoxious class or their consorts, and always the result of illicit relations voluntarily entered into. How can we awaken the perceptions of the public to the magnitude of this social peril, and arouse the conscience and moral sense of the public to its manifest duty to sanction and sustain all sanitary and moral measures which are essential in this prophylactic work? Certainly not by exposing the almost universal prevalence of these diseases among prostitutes, and the necessity of "hygienizing" them and thus diminishing the risks of contagion to those who voluntarily expose themselves. We must impress on them the humanitarian aspects of the situation. The conscience of the public can only be touched by an appeal based on the infection of the innocent—those who do not voluntarily expose themselves and who are powerless to protect themselves.

In carrying out this campaign of education we must have the co-operation and support of members of the laity and of men who can mold public opinion and who are an influential force in the community. Co-operation is considered the key to success in most modern undertakings, and in a sanitary movement which is complicated by so many varied social interests, the union and associated effort of all the social forces which work for good are essential. We should enlist the co-operation of the heads of schools and colleges, who are charged with the education of the young and who can introduce needed reforms in their system of instruction; of the clergy, who can render invaluable aid through the moral training of young men; of jurists, who can intelligently frame legal measures of protection; of sociologists, who can render material service in remedying social conditions which favor the spread of these diseases; of philanthropists and of public-spirited men generally.

In my opinion, this socio-sanitary work of prophylaxis should be undertaken by a special society, composed of these influential elements and known as the "Society of Sanitary and Moral Prophylaxis." It should be a permanent organization, which should exert a continuous active force in dealing with an evil which has so many elements of vitality and permanence. This society should be a center for the diffusion of enlightenment—a medium of communication between the profession and the public. Individual members and committees of the medical profession may make elaborate reports showing the extensive prevalence of venereal diseases, their menace to the public health and their danger as a social peril, but they never reach the public, which needs this enlightenment, and therefore they do little good. The chief obstacle to this enlightenment comes from the atavistic impregnation of the public mind with the idea that a knowledge of the reproductive system and of its diseases is shameful, and the first effort of this society should be to break down this solid wall of opposition to the diffusion of such knowledge. Experience shows that in dealing with sanitary, as well

as with social problems, difficulties which were apparently insurmountable disappear when causes and conditions are carefully studied and when earnest and intelligent efforts are made to combat them.

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WHAT IS THE RIGHT ATTITUDE OF THE MEDICAL PROFESSION TOWARD THE SOCIAL EVIL?*

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The "social evil" is a euphemism for what F. H. Gerrish better characterizes as "mercenary sexual debauchery." The marriage of one man to one wife,[1] by which the man and the woman are henceforth no longer twain, but one flesh, constitutes the very foundation of all true social progress; this is the unit which in the aggregate forms a social fabric in which right rules, virtue is honored and God is revered, and against which no corruptive force can ever prevail.

Prostitution is unlawful sexual commerce, in which the prostitutes, male and female, while united in the sight of God, yet seek to avoid those responsibilities of perpetual mutual care and service, the necessary concomitants of the first commandment ever given to man and associated with blessing: "Be fruitful and multiply and replenish the earth." There can result from this unnatural bond no increment by which the state is built up, its traditions fostered, and its perpetuity guaranteed; this is the great moral disease ever at work on all sides seeking to undermine all those humane institutions which the experience of the ages has coupled with the good of our race.

As Prince A. Morrow testifies, there would be no question as to a social evil and venereal diseases were it not for prostitution; it is, therefore, with this root evil that we, as medical men, desire to deal to-day. I need not dwell on the facts of the disease; we all know them, for wherever we may live the foul river has its tributaries running by our door, and year by year we see thousands of young men and women (Morrow estimates 450,000 boys in our country alone) who began life with the expectation of pure living and high ideals, take the fatal plunge into the moral sewer, losing what they can never regain, even by the most careful living or conduct consistent with the standards of the world. The woman, once stigmatized in this way, hides in shame, a voluntary exile in certain haunts of seclusion; she struggles on leading a life of shame for a few short years (the average length of life of a prostitute is about six years), and then sinks, often a hopeless syphilitic and perhaps a drunkard, ending her days by suicide or with tuberculosis or in general decrepitude in an almshouse. The man, on the contrary, by reason of the double standard of morals adopted by a cowardly society, conceals his pollution, puts on a brazen face, goes freely into society, and often ends by marrying some pure girl, only to deposit in her lap—as a wedding gift from the first wife, the prostitute (*"le cadeau de noces que les courtisanes déposaient dans le corbeilles des jeunes épousées"*)— the seeds of the foul disease which makes her innocent wifehood a source of pain and misery, and often renders motherhood impossible or makes the child, if, indeed, one ever sees the light, a wizened monster, more fit for the grave than for sweet, happy, human relationships. The prostitute takes a poetic revenge, and by the disease she gives her paramour forever seals the fountain of nature and restrains her supplanter from acting beyond her own (the prostitute's) sphere, even though she be a thousand times legalized as wife by church and court.

I need not remind those who know so well the problems of public hygiene, of the trite fact that this has been the burning question of the ages, and that it was sexual immorality which ate the heart out of the decadent nations which have preceded us. Egypt, Assyria, Greece, Rome and the modern Latin nations are all by-words for profligacy, and before their collapse lust ran riot, until they fell a mass of corruption, destined to rise no more. Germany of to-day is saturated with this vice, and in spite of her present fair showing before the nations, owing to the splendid mentality and the law-abiding character of her citizens, she must, unless she reforms in this matter within a few generations, inevitably follow those who have walked the downward path into the pit before her. England and America are to-day honeycombed with this vice, which flaunts itself at every turn in every town, at all our frequented resorts, and nowhere more noticeably than in the very city where we now sojourn.

I need not dwell on this aspect of the case, for it is everywhere acknowledged, and nowhere more forcibly presented than in Morrow's recent plea.[2]

Responsibility? Who can escape it. Every intelligent adult man and woman has a real, an unavoidable responsibility touching this question, but most heavily does it rest on the shoulders of the three liberal professions—on the minister, the lawyer and the physician. On this tripod, whose members are in constant living contact with all ranks of society, rests the welfare of our body politic, and should we prove recreant to our trust where is the hope for the body at large? The minister and the priest deal with man as a responsible agent in his relationship to God, preaching first the law which says "Thou shalt not," and then the loving message of grace ever crying, "Turn ye, turn ye, why will ye die?" The lawyer who sees man differentiated into his complex relationships, deals with the great fundamental principle of the Justinian code, *"alterum non lædere"* (Thou shalt do thy neighbor no harm), in all its ramifications; and it is his province by legislative and civil process to promote virtue in the state, as the tried foundation-stone which is the essence of a good government and the sole basis of its perpetuity. It is the manifest province of the physician to prevent and to hinder the spread of the protean diseases which harrass or shorten life.

These three professions, to a superficial view entirely distinct, are yet closely united by a common bond in one aim, namely, the upholding of public morals; and not one individual member of them can escape the moral obligation which rests on him in virtue of his choice of this as a means of livelihood. The very term "liberal" advertises the fact that he who claims it stands in relations of tender sympathy and helpful interest to his fellow-men, to whom his services belong for the establishment of good and for the relief of the oppressed.

Some have ventured to question this affiliation of morals with medicine, forgetful of the fact that the very diploma which the licentiate holds proclaims him to be

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Gen., 2:24.

2. Medical News, June 4, 1904.

of good moral character. Eliminate the moral side of our calling and it is no longer a calling, but a trade.

But why should we be at further trouble than to treat our patients as they come to us to be healed? Why take any active steps in these matters? I once thought long ago, when I was a medical student, that a physician's chief business was to cure diseases, but a quarter of a century of experience has shown me that the highest and noblest practice of our art is to prevent them. What a pitiable showing does the history of all the recoveries by treatment from tuberculosis, malaria, typhoid fever, yellow fever, etc., make when we think of what might be done by prevention through the enforcement of personal, domestic, municipal, state and national hygienic laws, enforcing the knowledge we already possess. It is not too much to say that these affections could be almost wiped out in a generation, did not ignorance and politics—to which some even think of appealing for the relief of venereal disease—hinder.

There are three possible attitudes in relation to the "Social Evil":

1. Indifference.
2. Government control.
3. An active personal crusade, inspired by a profound sense of personal responsibility.

Indifference has been the attitude of the past; I trust that this day sounds its death knell. I would simply impress on you the fact that we have been living in this particular period for many years, and if you observe in your midst any appalling increase in loss of honor and decadence of morality among our young people, it is due to this régime of indifference, and not to a system of any kind which has been on trial. Please note emphatically that indifference, and indifference alone, has been tried and found wanting.

The outcome of indifference has been sin and disease running riot; a system of blackmail debauching our police service; and the corruption of the whole body politic.

Governmental control, the second of these attitudes, is a question before us for consideration. It involves the acceptance by the body politic of a situation by means of which prostitution receives legal status as a recognized (honorable, shall I say?) and duly protected calling, coupled with certain restrictions. What does such an attitude as this involve on the part of our government?

1. Licensing prostitution.
2. Taxation of prostitutes, bawdy houses, or both.
3. Segregation of prostitutes in certain known quarters.
4. A new department in our municipal government, with a system of police and medical inspection and espionage.
5. The right of enforced examination and commitment to lock hospitals when disease is found.

Note that all these impositions, strange to say, refer to women alone as the sole offenders and sources of disease.

Let us consider the great and fundamental question of this inquiry, namely, Has the law a right to sanction vice for any reason whatever? We are, unfortunately, so little trained in ethics, or perhaps better, morals, that many of us may be at first puzzled to answer this question. I believe that if I were to ask a hundred people consecutively, What is the law? the reply of the great majority would be that the law is simply a statutory declaration of the will of the majority. "May the law," then, I ask, "sanction evil, if the majority so rules?" This is the real crux of the situation, and it is no trifling matter that we should hold correct views on this head, for accordingly as the millions of American citizens answer this question, must our country stand or fall. Who are better fitted to answer this question than some of the greatest minds of which the Anglo-Saxon race has ever boasted?

I gather my extracts from Ritter's book on "Moral Law and Civil Law Parts of the Same Thing." Sheldon Amos, in his "Systematic View of the Science of Jurisprudence," says "the purpose of the law is to fortify and to maintain the public morality." Bishop, for thirty years recognized in the United States as a standard authority on criminal law, says: "Morality, religion and education are the three great pillars of the state and the substance of all private good. A community from which they are banished represents more than the gloom of the original chaos. Therefore, they should be objects of primary regard by the law." "Further, the common law practically and fully cherishes the public morals, and it punishes as a crime every act which it deems sufficiently evil and directly tending to impair the public morals." What, then, is morality? "Morality requires a man to treat his neighbor honestly and fairly; it can compel him to do so and punish him if he does not. Religion is a matter of belief; morality is a matter of conduct." "At common law," says Lieber on Penal Law, "indictability and immorality are convertable terms." In Well's "Pollock on Torts" he says: "All positive law presupposes a moral principle." Amos, quoted above, says that "the law as a mode of benevolent guidance and aid, characteristically stands forth as the ever-present and incarnate witness of that ultimate morality of which it is at best no more than the symbol and the counterpart." Furthermore, "morality and moral character are exactly the same in legal contemplation as are they when viewed from any other standpoint."

To go back to another very old authority: "By the law is the knowledge of sin." The law itself must be a righteous standard, and if it deflects at all, the reign of evil has begun, for there is no longer any standard by which sin can be proved. If that which should be the instrument to convict of sin becomes sin itself, to what, then, are we to appeal? Such are the opinions of eminent authorities whom none can gainsay.

As for myself, and I trust I speak for all in this professedly Christian land, I would declare: "We can not consent to sanction of evil that good may come from it." If appealed to to be practical, we answer that we can not afford to be "practical" at the sacrifice of principle; we will fight evil wherever we see it, and under all circumstances we will oppose the debasement of the public standards of right and morality. This we will do in entire confidence that in spite of all appearance the right so upheld will in the end prove victorious. Pure laws are the heritage we would leave to our generations yet unborn, and let not those who are caught in a final cataclysm of evil, point back to this day of boasted civilization as the memorable era when the public standards of right were first debased.

Does the legalization of vice bringing even the majority of the prostitutes under control and by lessening disease in the community afford the protection which it promises? Any statistical inquiry, drawn from foreign sources, for purposes of comparison, is valueless, since it serves only to contrast an era of indifference

with an era of regulation. For the present status of the question in Paris, I would refer to a brief but admirably clear presentation of the subject by Frederic Griffith of New York.[3]

The result of legalizing prostitution, in America, for I trust I speak for Canada as well as for the United States, would be to place the whole burden of proof that unrestrained sexual commerce is wrong in the sight of God and man, on the chaste men and women, who teach their boys and girls that purity is of heaven, and is their best heritage in life, and that uncleanness, born of hell, is their worst foe. Of what avail is all my teaching when prostitution is legalized and the leading minds of our country declare that the gratification of lust is venial; for the sanction of the law makes that which it ordains presumptively right. Moral purity is practically unknown and held in contempt in Germany as well as in France, where the term *pucelle* expresses the contempt felt for chastity. Shall we come to this!

If we legalize this infamous business, where shall we look to recruit the ever-fading ranks of these poor creatures as they die yearly by the tens of thousands? Which of the little girls of our land shall we designate for this traffic? Mark their sweet innocence to-day as they run about in our streets and parks, prattling and playing, ever busy about nothing, and earth's only memento of the angels in their guilelessness. Which of them shall we snatch as they approach maturity to supply the foul mart of the insatiable cravings of lust? Perish the thought. Again, we surely would not allow the daughters of our rich men to enter our legalized brothels. The poor man must suffer and be robbed of the flower of his family—the poor man who, Jacob Riis tells us, has no appeal beyond the policeman on the beat and practically no rights in our courts. What can he do against the lavish use of money by the rich man's son and the brothel keeper's oath and the policeman? Sherman said "War is hell," but war is a sweet, a noble and a choice calling compared with a life in this pit of iniquity which some have proposed to open in our land. The only way out of the difficulty is to assert that the young girls naturally love this debauched life, but before I believe that you will have to rob me of my years of experience with women who, for the most part, began by being seduced.

The most specious claim yet made has been that the legalization of vice is but a step toward its abolition. What does experience in regard to this teach? Where has this ever been done? Tell me, too, why, after more than a century of boasted national progress we should now take a step backward in order that we may go forward?

Consider for a moment, gentlemen, what effect the legalization of vice will have on the medical profession. The necessity for examining women licensed to carry on their business will create in our midst a vile and an odious specialty, akin and closely allied to the professional abortionist, degrading to our profession and justly bringing it into contempt by making it thus pander to vice. I surely need only to suggest and not to dwell on this insufferable degradation. Read Griffith's article, and see how some of the Paris medical men are employed with two tables examining prostitutes at the rate of about 450 an hour! What a lowering of our standards when we come to that! What an occupation for the man who starts out full of the hope of accomplishing great things for humanity armed with a diploma certifying to his "good moral character."

Finally, I come to the third attitude toward prostitution, namely, a moral crusade sustained by an intense sense of personal responsibility. What does this mean? It means that we shall recognize our individual responsibility toward all whom we can in any way hope to influence, toward our own children first, and then toward our patients, laboring in season and out of season to inculcate good morals, not omitting to warn them that the penalty of sin is death, the worst of all kinds of death—a living death to all moral sense.

This is the difficult path, for, instead of shifting the responsibility on to others by voting to pass a law, it places the burden where it belongs—right on the shoulders of every man and woman in this country. This and this alone is the course of that "eternal vigilance which is the price of liberty."

If as sincere Christian men you will take this course, then I have great hopes for the future; if you adopt any other course as more "practical," my hope is gone.

3. New York Med. Record, April 23, 1904.

SYPHILIS AS A DISEASE INNOCENTLY ACQUIRED.*

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Syphilis is not necessarily a venereal disease. Syphilis is one of the great diseases affecting the human race, and if its entire clinical history could be perfectly known, for ages past, it would be recognized that this one poison had caused greater damage and misery and more decided race degeneration than any other one malady, except tuberculosis. And yet, thus far, except in a few isolated localities, there has been no general and intelligent attempt to restrict its ravages.

The common occurrence of syphilis as a result of unlawful sexual intercourse, and its inclusion among venereal diseases in so many text-books of late years, are undoubtedly the cause of much of the feeling existing in regard to it as a disease not to be mentioned in good society, and one whose recognition should be tabooed. It has been ignored through ignorance and neglected through negligence.

In studying the older literature of syphilis, it is seen that often quite another view was taken. It is often described as an epidemic disease, which spread through families and communities, in the ordinary run of domestic, industrial and professional life; as, for instance, by kissing, nursing, hand feeding, eating utensils, etc.; likewise in factories, by gas-blowing, weaving, etc.; also by cupping and leeching; while it was also recognized that the disease might be communicated in sexual intercourse, in families.

But with the spread of civilization and the luxury and license attending it, and especially with the growth of cities and the increased use of intoxicants, syphilis has come to be more and more diffused by illicit intercourse, and to be regarded wholly as a venereal disease; and by some it is considered as a just penalty for sexual transgressions, much to the detriment of its proper recognition as a contagious malady which should be guarded against by proper legal restrictions.

Syphilis is undoubtedly a disease of cities, where

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

prostitution abounds, and it has been estimated that there are no less than 50,000 new cases of syphilitic infection in New York each year. But there is abundant evidence of its occurrence everywhere throughout this country, it is carried from the cities to the rural districts, and there often transmitted in a wholly innocent manner. These cases sometimes go unrecognized for long periods, because no venereal element is found, or exists, and the diagnosis is not made until serious lesions lead the patient to come or to be sent to the city for medical aid; of this innumerable instances could be cited.

Owing to the increase of syphilis acquired by illicit venereal contact, the proportion of cases of innocent syphilis is undoubtedly less than it was a hundred or more years ago, and the relative number is also probably decreased by the better knowledge of the contagious nature of the disease and by the better and more thorough treatment of later years. But everyone occupied at all seriously with syphilis will testify that there yet occur in the cities and in the country numberless cases where it is acquired in as perfectly innocent a manner as are smallpox, measles and other contagious diseases, which are now under the control of health boards.

Time would fail to enter at all fully either on the clinical and historical proof of the ravages of syphilis as an innocent disease, or on the efforts which have been spasmodically put forth here and there to control the spread of the disease by legal measures. Nor is the latter necessary, for legal action will certainly follow when once the public is thoroughly convinced that there is danger which may be thus avoided. A brief presentation of some of the established facts regarding its innocent acquirement may help make the matter plain to those who have not hitherto given it particular attention. In doing so, I must in a measure repeat what I have previously written on the subject,[1] and even some things which I said in a paper on "Syphilis as a Non-Venereal Disease," before the Section on Cutaneous Medicine and Surgery of the Association, four years ago, in this very city.

PREVALENCE OF SYPHILIS.

It is pretty well established that syphilis has existed on the earth from time immemorial, and many find in the Bible abundant allusions to the disease, while bones of ancient times, which have been exhumed, give evidence of its long existence. Records in Chinese literature also point back to its presence at least 2000 years B. C.

All of our real knowledge of syphilis, however, dates back about 400 years, when the followers of Columbus were supposed to have brought the disease to Europe from the western lands, although it has been contended that there is abundant evidence, from exhumed bones, of its having been present there long before that time.

However, soon after 1494, the disease spread with great rapidity and virulence, after the invasion of Italy by Charles VIII of France, until a large portion of Europe showed signs of the disease, and within 100 years there were published very many accounts where syphilis affected large communities, in an epidemic manner, through innocent channels, relating to domestic or industrial life. The real character of the disease was unknown, and the occurrences were reported under various names, but they have been identified as unmistakably syphilis.

With greater enlightenment these extensive infections by the disease have gradually diminished, and now rarely, if ever, occur; although there have been many groups of cases of infection by vaccination, circumcision, eustachian catheterization, etc., even up to the present time.

In Russia the disease is stated to have become so prevalent that in some villages at least one-quarter of the inhabitants are affected, and all writers agree that this has happened largely through family life, as prostitution is almost unknown in the villages.

In all countries of Europe writers testify to the very widespread existence of syphilis, both in the cities and in the country districts. In Portugal, Ferguson stated in 1812 that a large share of the population had become infected through long neglect.

In Asia and some parts of Africa the disease is very prevalent, but now apparently of a rather mild form, owing to the protection afforded by previous race infection; but syphilis affects very severely outsiders who become there affected. In Shanghai, syphilis formed 19 per cent. of all cases in the general hospital, 16 per cent. in Hongkong, and almost 30 per cent. in Tientsin.

It is difficult to secure any reliable data in regard to the prevalence of this malady in the United States, but in the statistics of general skin diseases, gathered by the American Dermatological Association, syphilis gave a percentage of 11.5, in 300,000 cases. As has been stated,, it was estimated by Dr. Sturgis, some years ago, that there were 50,000 cases of new infection in New York City each year.

Syphilis, an intensely contagious disease in certain stages, being so widely and freely distributed everywhere, let us briefly consider the three lines along which innocent syphilitic infection may take place: 1, Marital syphilis; 2, hereditary syphilis; and 3, innocent extragenital syphilis.

MARITAL SYPHILIS.

This mode of infection stands prominent in connection with the innocent acquiring of syphilis, and all observers testify that wives suffer very frequently from the sins their husbands committed before or after marriage.

Fournier of Paris found that fully 25 per cent. of all syphilitic women, seen by him in private practice, had contracted the disease innocently and undeservedly, while of the married women the disease was unmistakably traced to the husband in 75 per cent. of the cases.

In my own private practice, I found that in fully 50 per cent. of the women with syphilis the disease was acquired in a perfectly innocent manner, while among married women, the percentage of innocent infection was quite 85 per cent. Is it not time that the law, which has done so much to stamp out smallpox, yellow fever and many infectious and contagious diseases, should attempt something for these innocent sufferers? But the subject of hereditary syphilis presents, if possible, a yet darker picture.

HEREDITARY SYPHILIS.

The limits of this paper will permit of only the briefest mention of a few of the facts pertaining to hereditary syphilis, about which so much has been written. It is well known that syphilis is the constant cause of abortions, and that it also produces sterility, both in the male and in the female. It is also well known that the mortality of children born of syphilitic parents is very great. At the hospital in Moscow, Russia, from 1860

1. Bulkley: Syphilis in the Innocent (*Syphilis insontium*) Clinically and Historically Considered, with a Plan for the Legal Control of the Disease, New York, Bailey and Fairchild, 1894; also THE JOURNAL A. M. A., April 6, 1901.

to 1870, there were 2,002 such births and 1,425 deaths; that is, 71 per cent. of children born there of syphilitic parents died.

If, therefore, the effects of syphilis be considered simply in regard to the loss of life to the state, there are ample reasons for the introduction of legal measures to check the spread of the malady. But the harm from the disease goes still farther in inherited syphilis.

Tarnowsky tells of three families of syphilitic parents in which there were 22 births. Of these came only one healthy adult person. Of 13 who survived some years, 8 were incapable of self-support, from mental and physical defects, and the other 5 were weak, nervous, and totally unfit for procreation; this occurred in intelligent families, with no other cause than syphilis for these disastrous results. He also quotes from Tchistiakow the case of a man, who had severe syphilis in early life, which destroyed the palate, of whose nine children two were idiots, one was deaf and dumb and one died in infancy. Many similar illustrations of the direful effects of hereditary syphilis could be given from literature and personal experience. What syphilis has accomplished toward race degeneration will never be known, but we do know that it has at times decimated our American Indian tribes, and has wrought unspeakable havoc in Russia, in the Hawaiian Islands and elsewhere.

EXTRAGENITAL SYPHILIS.

The accidental infection by syphilis in extragenital regions is a most interesting field of study, and many hundred observers have reported thousands of cases relating to accidental chancres in every part of the body; more than 200 cases of this kind have fallen under my personal observation and care. This subject also can be but briefly touched on here, but an outline of the circumstances under which it has repeatedly happened may help to appreciate the gravity of the danger and its bearings on the health of the community.

Among 9,058 recorded cases of extragenital chancre, collected from literature, there were 1,863 resulting from vaccination, 745 from cupping and phlebotomy, 179 from circumcision, and 82 from tattooing. Excluding these, the largest number of extragenital chancres, 1,810, were located on the lips, 1,148 on the breast, 734 in the buccal cavity, 432 on the fingers and hands, 372 about the eye, 307 on the tonsils, and many others on different parts of the body.

There are three general lines in which syphilis may be thus innocently acquired: 1, In domestic and industrial life; 2, in the nourishment and care of children; and 3, in professional pursuits in the care of the sick.

Under the first of these we find instances of the innocent transmission of syphilis finally classified under almost fifty groups, relating to almost every possible phase and aspect of domestic and industrial life. Not only has syphilis actually been given repeatedly by kissing, biting, scratching and personal contact, but it has in numberless instances been transferred by spoons, knives, forks, cups and glasses, as also by means of tobacco pipes, cigars, cigarettes, and even by troches and candy, passed from mouth to mouth; also by underclothing, masks, plasters, bandages, lint, towels, sponges, combs, toothbrushes, syringes, sick chairs, etc.

Among those who have acquired it innocently in industrial life may be mentioned glass-blowers, assayers, weavers, musicians, conductors (by whistles), cooks, furriers, upholsterers, shoemakers and servants.

The second class, relating to syphilis acquired through the nutrition or care of children, includes literally thousands of instances, often extending in long series of cases, where syphilitic infants have infected nurses, and they in turn have infected other children; or where syphilitic nurses have given the disease to infants under their charge. The very day of writing this a child 2 years old was brought to my office with an unmistakable eruption of macular syphilis. On the prepuce was a large, hard chancre, and the infection was traced probably to a nurse girl who had been discharged about a month previously, as she had proved to be a loose character and was pregnant; the father and mother were seen and were absolutely free from syphilis. Many instances are on record of infection by means of nursing-bottles, artificial teats, etc.

In the third class, relating to professional body service in the case of the sick, we find vast numbers of instances where: 1, The operator is the victim; 2, the operator, having syphilis gives it to another; and 3, where the operator is the means of conveying syphilis from one patient to another.

Under the first class we find hundreds of instances where physicians, surgeons, accoucheurs, midwives, nurses, breast-drawers and wound suckers have acquired the disease thus innocently. I have had over two dozen physicians under my care who were innocently infected.

In the second class there are many records of those who, having syphilis, have communicated it to others by operations and otherwise, as in circumcision, tattooing, breast-drawing, vaccination, etc.

In the third class we find a sad array of cases where syphilis has been conveyed from one patient to others, by vaccination, skin-grafting, wet cupping, tattooing, by the use of the eustachian catheter, through dental instruments, etc.

DANGERS OF SYPHILIS.

From what has been presented it is readily seen that the opening sentence is fully justified, namely, that syphilis is not necessarily a venereal disease. Indeed, it is only accidentally such, owing to the delicate character of the tissues about the genital organs, and the readiness with which abrasions occur in that region, and also the ease with which the virus is retained there. Syphilis is simply a contagious disease, and wherever its poison can reach an absorbent vessel, infection is sure to take place, whether the person is innocent or guilty. Indeed, the only wonder is that more persons do not contract the disease, in view of the intense contagiousness of the early mucous lesions and the recklessness with which certain patients with masses of mucous patches in the mouth will often mix freely in society, unrestrained, as every one having much to do with syphilis will testify. The only explanation is that the poison does not chance to find an abraided surface to enter.

This is not the place to enter into a discussion of the nature of the syphilitic virus or its mode of action on the system; suffice to recognize that it is communicated to healthy individuals constantly, both by immediate contact and by mediate objects, in hundreds of unexpected manners. Not only does the trustful wife and the innocent maiden acquire the loathsome disease from a faithless husband or lover, but the honored physician or nurse, while ministering to the sick may acquire a disease which often incapacitates them from duty, for a season. Nor is any one certain of not being infected innocently, because, as already mentioned, instances are constantly met with where contagion oc-

curs in most unexpected manners; for it is to be remembered that the virus deposited on various objects may retain its inoculability for an indefinite period.

LEGAL CONTROL OF SYPHILIS.

In view of what has been said, even so briefly, which could be magnified many fold by hundreds of observers, is it not strange that no systematic attempt has been made by health authorities to obtain the proper control of this disease which is inflicting so great a damage on the community?

As already intimated, the reason is found in the fact that syphilis is so thoroughly associated in the minds of the profession and of the laity with venereal transgressions, that there is a moral repulsion against any measures looking toward its repression. So long as syphilis is regarded solely as a venereal disease, it will be extremely difficult to obtain adequate legislation for its control. But, when the medical profession and the laity are thoroughly awake to realize the relative frequency and danger of its innocent transmission, there will be little difficulty in solving the problem.

The matter of legal protection against syphilis has nothing to do with the subject of prostitution. The fact that the syphilis is frequently acquired through prostitutes should be no bar to the community protecting itself against the disease. The question is not in regard to "legalizing prostitution," nor of inspecting, licensing or legalizing the "social evil," nor of protecting those engaged in it. It is to be approached from a higher ground, and the effort should be made to have some restriction placed on a disease which is dangerous and communicable, and which continually attacks many in a wholly innocent and unexpected manner.

That the spread of syphilis can be checked, to a greater or lesser degree, by proper measures, is evident, both from experience and science. In the many epidemics of syphilis which have occurred in innocent manners, in time past, the disease has been checked when its real nature was recognized and proper precautions instituted. Scientifically, we know that the poison can not develop *de novo,* but that it is always communicated from one person to another. We also know that after a certain period it ceases to be virulently contagious. If now, no new syphilis is introduced into a community, and if means can be devised whereby those already diseased do not expose others, until that safe period is passed, the malady will cease to exist. To endeavor to accomplish this would be the duty of the health boards, when once the disease was placed under their control.

All are fully acquainted with the incalculable benefits which have accrued to the public by the powers vested in boards of health, not only in a general way, but also in controlling other contagious diseases, such as smallpox, scarlatina, diphtheria, yellow fever; why should not syphilis be placed among them and protection be afforded to the innocent? Syphilis counts its victims, innocent and guilty by thousands, where other diseases count by hundreds.

There should be no difference of opinion about the desirability of placing syphilis under some restraint. I can not refrain from repeating the suggestion which I have made elsewhere and on another occasion. The first step, I believe, is to recognize and place syphilis among other contagious diseases, under the control of health boards, and as public sentiment is aroused to the advantage of this proceeding, it will be easier to advance step by step in the restraint of the disease. If it were placed on the same footing as smallpox, scarlatina and diphtheria, and if it were made a misdemeanor to communicate syphilis wittingly, a great step would have been taken toward diminishing the frequency of the disease and consequently its innocent infection.

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SYPHILIS AFFECTING INFANT MORTALITY.*

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To Fournier, Morrow, Carpenter, and Abt, and many others, we are indebted for many important facts bearing on fetal and infantile syphilis, and to these authorities I wish to give credit for much valuable information.

Approaching the subject from the standpoint of either the obstetrician or the pediatrist, we are appalled at the great influence of syphilis on infant mortality.

Taking into consideration all cases of premature delivery, prior to or after the third month, next to criminality, syphilis heads the list as a cause of abortion and miscarriage. From the standpoint of the pediatrist, the number of cases of syphilis in infancy and childhood will form but a small percentage of the total number of cases seen. The mortality in syphilitic children, however, is as great, if not greater, than in any other disease.

The method of conveyance of syphilis to offspring has been much discussed, especially as to the relative responsibility of each parent and as to how the prognosis is influenced by paternal, maternal or mixed source of infection. Infection may be transmitted by the father alone, through the medium of the spermatozoa; from the mother, the father remaining healthy, or it may be a mixed infection from both parents.

With Carpenter, we believe that Colles' law can be explained by the existence of a syphilitic toxin, transmitted from the syphilitic fetus, through the placental circulation. The mother is thus rendered immune against infection by the mucous patches in the child's mouth while they are capable of infecting a healthy wet nurse. Against this theory of acquired immunity without active syphilis is the statement by Morrow that well-authenticated cases are on record where women who have given birth to syphilitic children have afterward acquired the disease.

On the virulence of the disease in either or both parents at the time of conception will depend the severity of infection of the child. It is a fact, noted by different observers, that in the course of a case of syphilis, for instance during a short intermission in treatment, an infected parent may beget a syphilitic child and during treatment a healthy one. Fournier has reported a case in which a syphilitic child was born twenty years after the primary lesion in the parent, healthy children having been born in the interim.

Syphilis, unfortunately, does not affect a man's procreative powers or his sexual desire, nor does syphilis in the mother interfere with her abilities to conceive. History shows that syphilitic women conceive and abort in rapid succession.

In all walks of life syphilis, when one parent alone is affected, is much more common in the father, and it is

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

possible for him to beget a healthy child, also for him to beget a syphilitic child without primarily infecting the mother. The chances, however, of a child's escaping infection when the mother is syphilitic and the father healthy are very small, indeed.

Fournier, quoted by Morrow, observed 200 cases in private practice, many of whom had been subjected to prolonged treatment before marriage. In these cases there were 403 pregnancies, of which 288 infants survived, while 115 either died *in utero* or a short time after birth. This gives a mortality in these cases of paternal infection of 28 per cent., which is a startling percentage when it is considered that they might all be considered favorable cases, having been subjected to treatment for varying lengths of time before marriage.

As to the statistics of maternal heredity, the same observer found that in 85 pregnancies, where the mother alone was syphilitic, 58 terminated by abortion, stillbirth or moribund children, while 27 terminated in children who survived—a mortality of 67 per cent. Morrow gives also the Lourcine Hospital statistics, which show that in 167 pregnancies coincident with maternal syphilis 145 terminated fatally, while in 22 only did the child survive—a mortality of nearly 88 per cent. The statistics of La Pileur give 414 births, with 295 deaths —a mortality of 71 per cent.

A mother contracting syphilis after conception, when both parents were healthy, may give birth to a healthy child. If the infection is prior to the third month, when there is no placental attachment, and the specific treatment is begun at once, a healthy child may be born. If an infection occurs after the seventh month the child may escape, as the incubation period for the initial lesion and the secondary manifestations may not have elapsed before the birth of the child.

In mixed heredity Fournier gives a mortality of 68 per cent. in 1,500 cases, which he believes would be increased to at least 86 per cent. had all hospital cases been considered.

Fournier states: "It is by thousands we can produce cases where syphilis has killed one, two, three, four, five or more infants in the same family. Numbers of cases can be cited in which the quotient of mortality rises higher and higher in certain families."

Summarizing the influence of syphilis on pregnancy, statistics show a fetal mortality in paternal heredity, under most favorable circumstances, of 28 per cent; in maternal heredity, according to different observers, of 67 per cent., 86 per cent. and 71 per cent. In mixed heredity the mortality may range from 68 per cent. to 86 per cent.

From the standpoint of the pediatrist, what is left for the syphilitic child? What organ is exempt from its ravages? When can it be said that the child is beyond the possibilities of danger?

When we consider the statistics of Morrow, that one-third of all children born syphilitic die before they reach the age of 6 months, those responsible for this symposium need no defense.

To describe the manifold lesions which may develop in a child born syphilitic is not within the scope of this paper. Suffice it to say that not a tissue nor organ in the body of the little one is exempt. It may be born apparently healthy to develop symptoms later, or it may have every evidence of heredity at the time of birth.

An interesting phase of this subject of infantile syphilis has recently been brought to our attention in this country by Abt, who called into prominence the writings of Fournier describing syphilis *hereditaria tarda*. This is the late manifestation of syphilis in a child from 3 years to puberty who has previously shown no symptoms. Abt speaks of two factions, one claiming that these cases are authentic, the other that they are really cases of hereditary syphilis in which the early symptoms were so slight as to escape notice. I would rather tend to the latter view.

Hutchinson's triad of symptoms characteristic of congenital syphilis are interstitial keratitis, labyrinthine deafness and deformity of the upper incisor teeth.

Appreciating, then, the insidiousness of the disease, the impossibility of giving a clean bill of health to any child born of syphilitic parents, we believe there is no disease, not excepting tuberculosis, which slays so many children.

With Morrow we can say: "We may look on syphilis not only as a factor in depopulation, but a cause of degeneration of the race. It is the quality of expansiveness, this capacity of morbid irradiation through family and social life, that gives to syphilis its superior significance as a social danger."

[EDITOR'S NOTE: The Symposium on Venereal Diseases and Prophylaxis will be continued next week and will be followed by the discussion.]

ACUTE YELLOW ATROPHY OF THE LIVER.

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AND

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CHICAGO.

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During the past few years, there have been studied either tissues or organs from four cases of acute yellow atrophy of the liver, in the pathological laboratories of the University of Chicago and Rush Medical College, and on account of the relative infrequence of this disease it has seemed advisable to place the records of these cases in the literature where they may be available for investigators of this condition, even though not all of our reports can be as complete as we could desire. Osler's estimate that there are 250 cases on record up to 1894 inclusive, 50 of these being added by Hunter from 1880 to 1894, is possibly based on the estimate of Thierfelder in 1878 that there were 200 cases in the literature at that time. If we accept this latter as true there are at least 450 on record at the present time, as shown by the Index Medicus.[1] Undoubtedly the disease is somewhat more frequent than might be inferred from these figures, for the three cases that have occurred in our own autopsies have been found in a series of something less than 1,500 autopsies recorded in our laboratories. Nearly all recent writers refer to Osler's statement that he has not met with a single case of acute yellow atrophy, usually with some astonishment. Our cases are as follows:

CASE 1.—This body was examined in the Cook County Hospital, July 26, 1898, by Dr. Hektoen. Unfortunately, at this time the following brief history is all that can be obtained, the hospital records having disappeared:

History.—The patient was a young woman, about 20 years of age, unmarried, who was in the hospital helping about the wards during the latter months of her pregnancy, being admitted as she had no place of refuge. In the sixth month of her pregnancy, which up to that time had been normal, the woman being of exceptionally good physical development,

1. Best.

she became sick with a slight jaundice, headache, and other symptoms resembling those of a catarrhal jaundice. Three days later she miscarried, no record of the conditions at this time being available. A few days later she developed some temperature and became comatose. A physical examination at that time showed a distinct diminution in the area of liver dullness, and the jaundice was extreme. The urine showed both leucin and tyrosin crystals, in addition to bile, albumin and casts. The coma continued for eighteen hours, without convulsions or delirium, terminating after that time in death.

AUTOPSY.

The autopsy report is as follows:

External Appearance.—The body is well nourished and developed, showing the usual amount of posterior lividity, also some small subcutaneous hemorrhages over the left leg. The entire subcutaneous surface is saffron yellow.

Body Cavities.—Abdominal, pleural and pericardial cavities show no changes.

Mouth and Respiratory Tract.—The tongue is covered with a brownish crust, and the pharynx, larynx and trachea show no changes. Thyroid weighs 50 grams, being uniformly enlarged and soft. The thymus is absent. The lungs crepitate everywhere, and appear somewhat distended. There are small hemorrhages beneath the pleura and some of them have extended a centimeter or so into the lung substance. The lower lobes, especially, are bloody. The peribronchial lymph glands show no changes.

Heart.—The heart weighed 240 grams. The pericardium shows numerous small extravasations of blood, especially over the posterior surface of the upper part of the left ventricle. In the right heart are yellow goose-fat clots. The endocardium is normal, but there are small extravasations beneath it in the left ventricle. The myocardium is rather flabby, opaque, and loose in texture. In the beginning of the aorta and in the coronaries are a few small yellowish streaks. There is an extravasation of blood in the periaortic connective tissue of the posterior mediastinum.

Kidneys.—The kidneys together weigh 320 grams. The capsule is free, surface smooth, and stellate veins injected. On the cut surface the parenchyma is yellow and the cortical markings indistinct. In the mucous membrane of the pelvis are small hemorrhages. The right pelvis and ureter are somewhat dilated, the ureter to the size of a finger. There is no obstruction to the outflow from the bladder or anywhere in the course of the ureter.

Pelvic Organs.—The uterus fills the true pelvis. Externally there are no changes. There is no exudate on any part of the pelvic peritoneum. The muscular wall of the uterus is soft, the mucosa rough and reddish, and covered with shreds. In the posterior part of the fundus are layers of coagulated blood. The mucosa of the vagina is normal.

Gastrointestinal Tract.—Esophagus is normal. Stomach contains a blackish, semi-solid substance; the mucosa is yellowish and covered with a viscid mucus in places, otherwise there are no changes. The small intestine shows a slight swelling of Peyer's patches. The large intestine is normal, but contains great quantities of clay-colored fecal matter.

Liver.—This appeared much smaller than normal when *in situ*, and had fallen away from the diaphragm, lying in a flabby mass in the posterior part of the cavity. There are no adhesions about it. Total weight, 1,020 grams. The surface is smooth, presenting red and yellow areas, the red, or brownish red being more pronounced. The size is diminished in all diameters, especially antero-posteriorly. Consistence is extremely flabby, and the capsule is loose and wrinkled. The structures at the hilum show no changes except that the lymphatic glands are enlarged, reddish, and in places hemorrhagic. The liver cuts with difficulty, and its cut surface is mottled, brownish red and yellow, and the lobular markings are absent except in the upper right corner of the right lobe, where there is a grayish network that corresponds to Glisson's capsule, enclosing reddish liver substance in the form of ordinary lobules. Otherwise it is chiefly red or brownish-red with small areas of yellow, while the left lobe is principally a pure yellow. The cut surface is moist, but very little blood exudes from the vessels, which appear closer together than normally. The gall bladder is empty except for a thin layer of grayish mucoid substance.

Spleen.—This is large, soft and red.

Pancreas.—This organ shows no changes.

Head.—The scalp, skull, membranes of the brain and brain substance are normal. The hypophysis is uniformly enlarged.

Anatomic Diagnosis.—Puerperal state. General jaundice. Acute yellow atrophy of the liver. Multiple hemorrhagic extravasations (subpleural, subepicardial, periaortic, subcutaneous and pulmonary). Enlarged thyroid and hypophysis. Acute degeneration of the kidneys. Moderate right hydronephrosis.

MICROSCOPIC EXAMINATION.

Liver.—In a section through an area more nearly normal than most of the organ, the liver cells show little change except that there is some blood pigment. There are some areas of necrosis, both central and peripheral, which show the remains of destroyed liver cell nuclei, lying in the original stroma, which is unaffected. At the periphery, there is an extensive formation of new bile ducts and round cell infiltration. No blood is present in the section.

In a section through a yellow area the lobules are indistinct and swollen, the individual cells appearing as swollen, yellow granular, necrotic plaques, with indistinct outlines and showing no nuclei, the arrangement into columns being lost. The corners of the lobules are indicated by a few faintly staining nuclei about the bile ducts, which, as we approach the borders of the yellow areas, where they fade into red, become more extensive, take the stain more deeply, and show proliferation of the bile duct epithelium, the formation of new bile ducts, and many isolated epithelial cells and numerous round and epithelioid cells. The central vein is somewhat thickened.

A section through a red area shows a reticular mass showing a few scattered nuclei, interspersed with areas of densely packed nuclei, enclosing the old proliferating bile ducts and new-formed ones. These areas are much closer together than normally, showing contraction of the lobule. The new bile ducts are atypical in shape, sometimes with and sometimes without a lumen, taking a tortuous course, and showing dendritic processes; the epithelium is often three or four layers of cells deep in the lining of the lumen. The remainder of these areas consists of round and epithelioid cells. The reddish reticular mass shows a few vacuoles, the site of destroyed liver cells, sometimes containing the remains of disintegrated nuclei, and numerous red corpuscles lying in the original interstitial tissue of the lobule, which is brought into prominence through the contraction of the lobule.

Kidney.—This shows much congestion of the cortex. The space surrounding a glomerulus is filled with débris from the disintegrated and desquamated epithelium of Bowman's capsule. The glomerulus itself is normal. The cells of the convoluted tubules show the changes of cloudy swelling, and the lumen is filled with granular débris.

Other Organs.—In the uterus masses of syncytial cells and thrombi containing many necrotic leucocytes are found in the sinuses. The hypophysis showed a cyst with colloid contents near the anterior margin, as large as a grain of wheat and without cellular lining. The thyroid is distended with colloid. The gall bladder shows desquamation of its epithelium.

BACTERIOLOGIC REPORT.

Cultures on glycerin agar plates were made from heart's blood, kidney, liver, spleen and lung, and two organisms were isolated. Cocci in pairs, staining by Gram's method, the colonies being round and grayish, with sharp margins. Bacilli not staining by Gram's method, the colonies large, round and grayish white, and showing on the surface a brownish boat-shaped area. Anaërobic cultures from the liver showed no growth. Serum tubes showed the same growths as the plate cultures. Serum tubes from the gall bladder remained sterile.

Cover slips from the heart's blood show numerous diplococci (1-1.5 microns), mostly in twos, or chains of from three to five, the opposing ends being nearly square; also long bacilli lying often end to end. Cover slips from the gall bladder show occasional cocci, and a few yellowish tyrosin crystals. Slips from the spleen, lung, liver and kidney show the same diplococci and bacilli.

Tubes inoculated with the cocci show:

Bouillon: Slight gray cloud.

Agar: Numerous pin-point white colonies along the needle track. No pigmentation.

Potato: A few glistening colonies along the streak; no growth in potato tubes from kidney or lung.

Gelatin: Not liquefied.

Tubes inoculated with the bacillus show:

Bouillon: Slight cloudiness toward the bottom.

Agar: Grayish yellow colonies along the streak, and gas in glucose agar.

Potato: Grayish yellow, glistening, slimy growth along the streak.

Litmus Milk: Reddened and coagulated. Hanging drop shows slight motility.

A small quantity of liver substance was inserted in the abdominal cavity of a rabbit. It remained perfectly well, except for slight emaciation. It was killed at the end of one month, and the only change found was that the liver was brown in color.

CASE 2.—Mrs. H., housewife, aged 35, had been married twelve years and was the mother of five children. The last child was born three and a half years before the mother's death.

History.—The patient's health is said to have been failing to some extent during the last year of her life. In August, 1902, jaundice appeared. She complained of feeling tired, and of headache, constipation and pain in the right shoulder. The stools were light in color. The appetite and sleep were good. She had been semicomatose for three days when admitted to the Norwegian Tabitha Hospital, Nov. 2, 1902, at noon. The coma was then complete, and the jaundice very deep. The temperature was 98.6°, pulse 110, respiration 18. The urine was free from albumin and sugar, but contained bile and blood casts; no record of an examination for leucin and tyrosin. At 5 p. m. the temperature was 101.2°, pulse 134, respirations 22. At 11 p. m., temperature 104.2°, pulse 170, respirations 40. At midnight, temperature 105.4°, pulse 184, respirations 44. November 3, 1 a. m., temperature 106.3°. Death occurred at 2:30 a. m.

AUTOPSY.

An incomplete postmortem examination was made by the hospital internes seven hours after death. The organs removed were sent to the Pathologic Laboratory of Rush Medical College and examined by one of us. The record made is as follows:

External Appearances—The body is well nourished. The skin is of a deep greenish color and the face dark bluish, with ecchymoses.

Abdominal Cavity.—The peritoneal cavity contains several liters of clear yellow serum.

The organs of the neck were not examined.

Lungs.—The right lung weighs 570 grams. The pleura is smooth. The lung crepitates everywhere. The upper lobe is reddish on section, rather bloody, and a considerable amount of frothy fluid exudes. The middle lobe is spongy and light grayish-red in color. The cut surface of the lower lobe is dark red. This lobe contains considerable blood and frothy fluid. The left lung was not removed.

Heart.—The heart weighs 240 grams. The pericardium is smooth. The tricuspid opening admits six finger tips, the mitral four. There is some fibrous thickening at the free margin of the anterior mitral cusp. The other valves are normal. The myocardium is light grayish-red, and rather soft. The beginning of the coronary vessels is smooth. In the aorta there are a few small sclerotic areas in the ascending arch.

Spleen.—The spleen weighs 200 grams, and is rather soft. The cut surface is dark red and very bloody. The malpighian bodies and trabeculæ are plainly visible.

Gastrointestinal Tract.—The lining of the stomach is coated with black mucus and is rather pale, with hyperemic and ecchymotic points.

Liver.—The liver weighs 830 grams, and measures 21x22 x11x5x2 cm. (placed on a flat surface). The anterior portion of the right lobe is flattened and elongated. There is a transverse rib indentation running across the upper surface of the right lobe 8 cm. back of the anterior edge. The organ is very soft. Its external surface is mottled dark red and light grayish-yellow. The cut surface is also mottled, showing two sharply differentiated appearances of the tissue. About one-half of the cut surface is red, with fairly distinct markings; the lobules are here very small, with gray centers. The rest of the cut surface is made up of islands of light grayish tissue, which is firmer and has much larger lobules, the centers of which are reddish and sunken, the outer portions grayish red. In the substance of the liver are two cholesterin concretions, 1 and 3 mm., respectively, in diameter.

Gall Bladder.—The gall bladder contains thick, dark green bile.

Kidneys.—The right kidney is soft, its capsule smooth, and its external surface pale. On section, the cortex is pale and the cortical markings rather indistinct. The medulla is dark red. The cortex is about 5 mm. thick, and the relation of cortex to medulla varies from 1-3 to 1-4. The pelvis is smooth. Both kidneys are alike.

No other organs were removed.

Anatomic Diagnosis.—Acute yellow atrophy of the liver. General icterus. Ecchymoses of stomach and skin of face. Ascites. Pulmonary edema and congestion. Cloudy swelling of kidneys. Acute splenitis. Sclerosis of aorta (slight). Rib furrows in liver. Calculi in liver.

MICROSCOPIC EXAMINATION.

Liver.—Sections from the yellowish areas where the lobules are large show the arrangement of the liver cells in columns to be preserved. Many cells appear normal. Others present a more or less granular, partly unstained cytoplasm. Some cells contain yellowish pigment. Many polymorphonuclear cells have found their way between the columns and also in gaps between individual cells. There are also large areas made up of portions of adjoining lobules in which the liver cells are necrotic. Their nuclei fail to stain and the outline of the shrunken cell-remains are hard to distinguish. In such areas, the polymorphonuclear and other round cells are very numerous. The periportal tisue is highly cellular, mononuclear round cells predominating. There seems to be a slight degree of new formation of small bile ducts, rows of small, deeply staining cells being seen, with imperfect lumina.

In the red areas the changes just mentioned, viz., necrosis of liver cells, leucocytic invasion, interstitial proliferation, and regenerative efforts on the part of the bile ducts, are much more advanced. All liver cells are more or less necrotic, and in large areas almost none are present, blood capillaries and the various invading cells being left. The capillary walls are altered, generally appearing thickened and homogeneous, taking a faint bluish-gray stain with hematoxylin. Many new and imperfectly formed bile ducts are seen. Mitotic figures in the lining of the new ducts were searched for in vain. Most of the inflammatory round cells are of the appearance of small lymphocytes; some cells have the characteristics of plasma cells.

Sections stained by osmic acid (Marchi procedure) show but little fat to be present in the degenerated cells.

CASE 3.—The case under consideration concerns a young man of American parentage, 20 years of age, who died at the Englewood Union Hospital, Chicago, March 28, 1904, in the service of Dr. J. S. Hunt, to whom we are indebted for the following history:

History.—G. M., a bookkeeeper, was a rather delicately built young man, with a family history of tuberculosis in

several of his immediate family; personal habits, good; venereal infection denied. He was apparently in normal health until one morning in the middle of February, after attending a dance, when he noticed that he was jaundiced. During the next week he was able to attend to his work, but felt a good deal of lassitude, with loss of appetite, and constipation. There was slight pain in the epigastrium, but no vomiting. The jaundice continued, his symptoms increased, and, about March 17, he became unconscious. On March 19, still unconscious, he was admitted to the hospital. At the time of entrance he was slightly delirious, with involuntary bowel movements, retention of urine, and vomiting of bloody fluid. This condition continued until his death, about six weeks after the onset of the illness. Most of the time the temperature was normal or subnormal until a few hours before death, when it rose to 103°. The jaundice was very deep. The urine was bile stained; leucin and tyrosin were not found, but no attempt was made to determine their presence except by microscopic examination of the sediment. The liver dullness was found to be somewhat less than normal, and there was extreme tenderness beneath the right costal arch. Dr. Bacon and Dr. E. Kuh also saw the case, and a diagnosis was made of acute yellow atrophy of the liver.

AUTOPSY.

Autopsy was performed at the hospital 3½ hours after death, and the report of the findings is as follows:

External Appearance.—The body is that of a slenderly built, poorly nourished young man, 169 cm. long. The skin throughout is of a bright yellow color, deeper than lemon-yellow. Rigor mortis absent; body still warm. There are no external markings of importance with the exception that a number of evidences of hypodermic injections may be seen. The superficial glands are not palpable.

Abdominal Cavity.—The right inguinal ring is open but empty, admitting one finger tip; the other rings are closed. There is very little fat in the omentum, which is free from adhesions. The abdominal cavity contains, approximately, 200 cc. of clear yellow fluid. The vermiform appendix lies coiled on itself, imbedded in a fold of meso-appendix, behind the ileum. It contains two hard fecal concretions. There are no adhesions. The pouch of the cecum at the base of the appendix appears reddened, but smooth and shining externally. There is some edema in the wall of the cecum with ecchymosis beneath the peritoneum. The mesentery has many areas of extravasations of blood between its layers and is generally congested. The mesenteric lymph glands are slightly enlarged but pale, while the retroperitoneal glands are not enlarged. There are no adhesions present. The margin of the liver lies two finger breadths above the costal arch. The gall bladder is adherent to the mesocolon by firm fibrous adhesions. The lesser peritoneal cavity is open. Beneath the peritoneum covering the bowel, occasional congested areas are seen; no such areas are found in the parietal peritoneum. The diaphragm on the right side is at the level of the fifth rib, the same being true on the left side. The sternum is extremely short. There are no visible remnants of the thymus.

Pleural Cavities.—The left pleural cavity is free from fluid. Dense adhesions are found about the apex of the left lung. There are no adhesions in the right pleural cavity.

Pericardial Cavity.—This contains, approximately, 50 cc. of clear fluid.

Heart.—The heart weighs about 250 grams. It is of normal size. The aortic valves appear normal. At the beginning of the aorta some slight sclerosis may be seen; the beginning of the coronary artery is free from sclerosis. There is a slight hypertrophy of the left ventricle. The endocardium is stained yellow. The papillary muscles appear much thickened, while there is no visible increase of fibrous tissue. The tricuspid and mitral valves are normal. The wall of the left ventricle is from 10 to 12 mm. in thickness.

Lungs.—The left lung is of normal appearance and crepitates everywhere except in the apex, where there is nodular consolidation. This area is full of hard lumps, less than 1 cm. in diameter, being found nowhere else except in this area, which is the size of a goose egg. On section, these nodules appear as yellow areas surrounded by hard, dark tissue. There are likewise a number of small cavities present, the largest of which is 1 cm. in diameter, and opens on the bronchi. The right lung crepitates everywhere except for three pea-sized nodules in the upper lobe posteriorly, similar to those in the left apex.

Liver.—This is very small, weighing 970 grams. Its dimensions are as follows: 23x16x9x2 cm. There are no adhesions about the liver. The changes are particularly marked in the left lobe and in the margin of the right lobe. The surface of the left lobe and the margin of the right lobe are decidedly wrinkled, while the upper part of the right lobe is not shrunken and appears much firmer. The left lobe and the margin of the right may be doubled on themselves. On section, the lobules of the shrunken portion are seen to be much smaller, while the lobules of the remainder of the liver tissue are enlarged. The left lobe is of uniform consistence, and is more pliable but not softer than normal liver. The margin of the right lobe is the same except that scattered through it can be felt pea-sized nodules, some of which can be seen protruding on the surface. These nodules are most abundant at the junction of the atrophied and large portions of the liver; in the upper part of the liver these nodules can not be felt. The cut surface of the atrophic portion is of a brownish-red color, becoming lighter yellow in the enlarged portions. The lobules of the large part are enlarged, yellow in color, the centers being darker than the periphery and the cut surface is irregular. The bile ducts are not distended. In the atrophied portion the lobules are very small and of normal color. The small nodules described above on section correspond to islands of yellow tissue lying in the red. The lymph glands at the hilum are enlarged, brownish at the center and pale at the periphery. The gall bladder is not enlarged and is of normal size. It contains a very thick green-black bile. No concretions are demonstrable. The mucous membrane appears normal. Bile ducts are all patent.

Spleen.—This is about normal size, weighing 160 grams. An accessory spleen is present at the hilum, of 15 mm. in diameter. The cut surface appears normal except that the malpighian bodies are not readily seen. Its dimensions are 13x7 cm.

Pancreas.—This shows no changes from normal. The glands about the pancreas are enlarged, brownish in the center and pale at the periphery.

Gastrointestinal Tract.—The esophagus and stomach are full of a thin, bloody fluid. The mucous membrane of the stomach shows no gross changes. A great portion of the fat of the mesentery is partly replaced by a serous fluid. The wall of the bowel appears slightly thickened as if edematous, while the entire length of the bowel contains a dark red material (altered blood). The wall of the cecum is very edematous, but otherwise unchanged. The mucous membrane of the cecum is darkened, corresponding to the reddened area described above, while the mucosa remains intact. The duodenum contains a blood-red fluid similar to that found in the esophagus and stomach. Bile can be expressed from the ampulla; it is very black-green, thick and tarry and does not flow easily. There are no changes in the duodenum. The cystic and hepatic ducts, just above their junction, are not dilated.

Adrenals.—These are both normal.

Kidneys.—The kidneys are slightly larger than normal, weighing together 330 grams. The color of the right kidney is very yellow. The cortex is thickened, averaging 7 or 8 mm. across; the cortical markings are indistinct. The cortex contains many greenish streaks. The left kidney corresponds to the right; the cortex containing a few more green areas.

Urinary Tract.—The bladder contains bile-stained urine. The testicles appear normal.

Anatomic Diagnosis.—Acute yellow atrophy of the liver; general icterus; ulcerative and nodular pulmonary tuberculosis of left apex and of right upper lobe; left apical fibrous pleuritis; parenchymal degeneration of myocardium and kidneys; fibrous pericholecystitis; fatty degeneration and biliary pigmentation of kidney with acute parenchymal changes; hemorrhages beneath the peritoneum; blood in the gastro-intestinal tract; hyperplasia of peripancreatic lymph glands; edema and serous atrophy of fat in intestines and mesentery.

MICROSCOPIC EXAMINATION.

Liver.—Three distinct areas, corresponding to the red, red-yellow and yellow areas of the gross tissue, may be picked out in the miscroscopic sections.

Yellow Areas: Outline of liver lobule fairly well preserved. Liver cords atrophied in center of lobule, but wider than normal in the periphery. Protoplasm is finely granular, vacuolized, and the cells are greatly swollen; nuclei show faintly stained border and a few blue points within, otherwise practically unstained. Many cells contain orange-yellow granules, particularly near the center of the lobule. The staining of liver cells generally is strikingly poor. Many of the small bile capillaries are completely plugged with a brownish mass. Only occasionally can cells be found that appear necrosed; these are generally located in the center of the lobule, and often contain golden-brown pigment in coarse granules. The amount of blood in the capillaries is small. A few leucocytes are present throughout the lobules, particularly in the peripheries. Between the lobules the connective tissue is infiltrated with small, round cells in great numbers, and a few leucocytes. The bile vessels seem to be much increased in number, and often to be filled with a homogeneous yellow-brown material. To sum up: In the yellow areas the parenchyma cells are swollen, stain poorly, and have disappeared to a considerable extent in the center of the lobule; the bile vessels and interstitial connective tissue have begun to proliferate; there is much bile pigment, and the vessels seem to be plugged with secretion.

Red Area: A section taken from this part of the liver does not show a trace of any of the original liver cords. The central vein of each lobule has a thickened wall, which is hyalin. The central part of each lobule is composed of a groundwork staining with eosin, in which are numerous elongated, pale nuclei, together with a few small, round, dark nuclei, and occasional polymorphonuclear leucocytes. Occasional capillaries containing corpuscles are seen, but they are few and small. There is a small amount of brown pigment in the bodies of the cells. The peripheries of the lobules are marked by the presence of large numbers of columns of cells, resembling small bile ducts, the nuclei of which stain deeply, as also does the cytoplasm. They differ from bile ducts in that they contain no lumen, as a rule, and have a distinct tendency to grow into the lobule. When a lumen is present it contains no bile. Mitoses are rare. There are numerous polymorphonuclear leucocytes among and in these tubules, and frequently an eosinophile or plasma cell. There are no changes in the portal vein or hepatic artery. The capsule of the liver is thickened and wrinkled, and the size of each lobule is reduced very greatly. Van Gieson's stain shows that the material filling the center of the lobule is composed of fine fibrils of connective tissue running from the center towards the periphery of the lobule; it appears that the amount of connective tissue in the lobule is not really increased, but rather made more prominent by the disappearance of the liver cells. Sections taken from the point of junction of the yellow and the red portions show merely various degrees of absence or presence of liver cells in the center of the lobules. No matter how few the cells that are left, they preserve the same characters as those seen in the yellow areas; the marked necrosis of liver cells so prominent in some instances of acute atrophy is wanting in this specimen.

Sections stained by sudan III show surprisingly little fat. In the yellow area there is practically no fat to be found in the swollen cells, but those in the center of the lobule that are greatly atrophied often are full of fine droplets. The proliferating duct cells are free from fat. It is evident from the section that fatty degeneration is not a prominent part of the process.

Gall Bladder.—All that is left of the epithelium is a granular eosin-staining material, occasionally showing outlines of the cells. This loss of stain extends into the tissues of the wall of the gall bladder as far as the deeper muscular layers. There is no sharp line of demarcation between the necrotic and the living tissues, and no evidence of inflammatory reaction. In the areolar tissue, outside the muscularis, are many cells with small, dark nuclei, and considerable cytoplasm; occasionally they are collected in groups with a small amount of a stringy hematoxylin-staining material between them. There are very few leucocytes.

Bile Ducts.—Section through the hepatic and cystic ducts near their junction shows an absence of the changes seen in the gall gladder. The epithelial cells are partly desquamated, but, where present, stain well.

Lung.—The tissue is the seat of an active tuberculosis, as shown by the small and large foci of round cell infiltration; miliary, caseous and fibrocaseous tubercles; and coalesced necrotic areas. The section borders on a large abscess wall containing cytoplasmic and nuclear detritus. The alveoli are wanting, being replaced for the most part by fibrous tissue. In some areas, the alveolar wall epithelium is changed to a distinct columnar type. A few giant cells and fibrin are present; fat globules are present in alveolar epithelial cells. The tissue throughout shows marked congestion and hemorrhage.

Spleen.—The malpighian bodies are small and far apart, their germinal centers occasionally indicated; otherwise no changes. The pulp is much increased in amount by "endothelial hyperplasia," and there are also many eosinophiles, with only a moderate amount of other leucocytes. No pigmentation or other changes are present. The accessory spleen is no different. Phagocytes and plasma cells are practically absent.

Pancreas.—This shows no changes.

Stomach.—The mucosa is covered with masses of coalesced red corpuscles; otherwise there are no changes.

Adrenals.—No changes.

Kidney.—The malpighian bodies show no changes. The epithelium of the convoluted tubules is swollen, granular, faintly stained, and often the nuclei are invisible. In many tubules bile-stained casts are found, and greenish pigment is present occasionally in the epithelium of the convoluted tubules. By sudan III many fat granules are found at the base of the cells of the convoluted tubules.

Lymph Glands.—Section from the gland at the hilum of the liver shows that the germinal center of the lymph nodes are masses of nuclei, staining intensely blue. Sinuses show much "endothelial hyperplasia." Eosinophiles are abundant, particularly in the nodes and leucocytes are also numerous.

Myocardium and Testicles.—Show no changes.

BACTERIOLOGIC REPORT.

The following organisms were isolated from cultures made at the autopsy:

From the Kidney: 1. A micrococcus, arranged in chains, was found in bouillon after 24 hours. It did not develop on plating. Staining with methylene blue and Gram's showed a streptococcus. 2. A short bacillus, diplococcus forms, appearing very frequently. Capsulated in hanging drop. Stained with methylene blue—destains by Gram's. This organism gave the cultural characteristics of *B. mucosus capsulatus.* It was also found in the heart's blood and liver.

From the Heart's Blood and Liver.—A micrococcus, arranged in bunches. Staphylococcus forms. Staining by methylene blue and Gram's method shows characteristics of *staphylococcus pyogenes aureus. B. mucosus capsulatus* was also obtained accompanying the staphylococcus.

CASE 4.—We have also had the opportunity of examining

microscopic specimens from a case observed by Dr. George H. Kennett at Missoula, Mont., in October, 1902, the details of which he has kindly permitted us to publish.

History.—F. M., a mail clerk, age about 35 years, had been feeling poorly for five or six weeks, and was thought to have catarrhal jaundice. He kept on working and at first was not confined to bed, but at last entered the Northern Pacific Hospital in Missoula. After he had been in the hospital a week he was found one morning in deep coma and with profound icterus. The preceding evening he had been as well as usual. He lived for three or four days in a comatose condition. The lower border of the liver dullness was noticed to recede two or three fingers' breadth. The urine contained bile, but although leucin and tyrosin were looked for with the microscope they could not be found; the urine was not concentrated, however, nor was any chemical examination made. The symptom that attracted most attention was an unbearable stench from the body, so bad that no one was able to be near the patient for any length of time. The odor was said to bear a slight resemblance to that of bromidrosis.

AUTOPSY.

The autopsy was limited to an examination of the abdominal cavity. It contained no free fluid. The liver measured 23 cm. from side to side, 14.5 cm. antero-posteriorly, and 5.5 cm. from above downward, and weighed 880 grams. The capsule was smooth, but wrinkled over the left lobe, which was thin and very flabby, while the right lobe was fairly firm. Under the capsule many dark red spots were seen, the largest 1 cm. in diameter. The cut surface was of a pale yellow color. In the right lobe the lobular markings were fairly distinct. Dark red spots were scattered over the cut surface, in places coalescing to form larger areas. In the left lobe the lobular markings could not be made out, and a few small hemorrhagic spots were also seen here. The gall bladder measured 5.5x1.5 cm., and contained dark bile of syrupy consistence. The bile ducts were patent, as bile would flow from the ampulla into the duodenum when the gall bladder was squeezed.

The spleen measured 14x7.5x3 cm., and weighed 240 grams. It was of a dark red color.

Each kidney weighed about 175 grams. The capsules were not adherent, the cortical markings were not distinct, and the pyramids were deep red in color.

No further notes were made of the gross examination.

MICROSCOPIC EXAMINATION.

Sections made from pieces of the liver, spleen and kidney, fixed in Zenker's fluid, were given us by Dr. Kennett.

Liver.—Left lobe: The greater part of the section is made up of necrotic parenchyma, in which all trace of the arrangement of the cells into columns is lost. A moderate number of fat holes is seen in this tissue, and small hemorrhages are present. Only shadows of liver cells can be made out, while there are a great many mononuclear round cells. Polymorphonuclear cells are infrequent. Small clumps of greenish pigment are seen here and there. A relatively small part of the section is made up of islands of preserved liver tissue columns of variable size; nowhere is a whole lobule found preserved. The cells are swollen, their cytoplasm very granular, frequently containing small vacuoles which occasionally are very numerous in a single cell. In most of these cells the nuclei are preserved. The larger the cluster of liver columns the less advanced the changes are found to be. The interlobular connective tissue is normal in quantity, and not very rich in cells. There is only a slight proliferation of bile ducts in this case.

Right lobe: Here the sectional area occupied by preserved columns is considerably greater and the degenerative changes in their cells less advanced, but of the same kind as in the left lobe. Between the columns necrotic tissue, like that described in the left lobe, is seen. It is of similar appearance with the exception that the number of fat holes and the proportion of polymorphonuclear cells is greater. Otherwise the section answers to the description given of the left lobe.

Spleen.—Shows extreme hpyeremia, the vessels and pulp sinuses being dilated and engorged with blood. In the pulp, many polymorphonuclear cells are seen, and phagocytes containing greenish-yellow pigment. The pulp is increased in amount, the malpighian bodies and trabeculæ are normal.

Kidney.—Here the principal change is in the convoluted tubules, the epithelium of which shows extensive necrosis. Most of the cells are disintegrating and the lumina are filled with cell débris. Only a few epithelial cells retain their nuclei. Here and there small deposits of greenish pigment may be seen in the degenerating cells. The straight tubules and glomeruli are practically normal. There are no interstitial changes.

It can not be said that our cases add anything to the obscure subject of the etiology of acute yellow atrophy. The bacteriology in the cases in which it was followed out was as uncertain as is generally the case, for the results reported in the literature are most discordant, no one organism being found with sufficient frequency to entitle it to special consideration. The diversity of the predisposing and exciting causes that have been suggested to explain the etiology of this disease is so great as to lead many to the conclusion that very possibly the cause is complex, and that many conditions can, under certain circumstances, lead to the anatomic picture that is considered typical. This seems especially probable if we consider the number of more or less closely associated conditions found in the liver from quite different causes. As generally known, phosphorus poisoning most closely resembles acute yellow atrophy. It is perhaps not so generally appreciated that other forms of intoxication may lead to changes resembling those of acute atrophy, either grossly or miscroscopically. For example, after chloroform anesthesia a symptom complex may arise similar to or indistinguishable from, that of yellow atrophy. Ballin reports nine postoperative cases of acute yellow atrophy, but it is by no means certain that the changes of the liver produced by the anesthetic are identical with those of this disease. One of the earliest changes of yellow atrophy seems to be a degeneration beginning in the center of the lobules, developing into a necrosis, which in time involves nearly all the lobule, but which at first is more or less a central necrosis. With these changes may be compared the central zonal necrosis of the liver lobule so frequent in various intoxications, such as diphtheria, streptococcus septicemia, acute endocarditis, pneumonia, and also in more obscure intoxications such as puerperal eclampsia. Yet there must be some quite sensational difference between the necrosis from these common intoxications and that which initiates acute yellow atrophy, for it would seem that otherwise the latter would be much more common than it is.

It is quite possible that we may gain a better insight into this perplexing disease through the newer investigations concerning the processes of self digestion of cells, or autolysis. Salkowski has shown that any aseptically preserved organ is capable of digesting itself at a fair rate, when kept at body temperature, with products quite similar to those of ordinary tryptic digestion, including among them the leucin and tyrosin so characteristic of intestinal digestion. Autolysis has been considerably investigated in both physiologic and pathologic bearings, and found to be a process of importance in many pathologic conditions, such as the absorption of pneumonic exudates, the liquefaction of necrosed but asceptic tissues, and in suppuration. In acute yellow atrophy we are forcibly reminded of the processes of autolysis, for

in it we find an absorption of as much as a kilogram or more of liver tissue within a few days or weeks, and at the same time the appearance of products of proteolysis in the urine. It has long been taught that the reason for the appearance of leucin and tyrosin in the urine in this disease is the throwing out of function of a large part of the liver tissue, so that these nitrogenous bodies being brought to it by the portal blood from the intestines are not converted into urea as they normally are, and so passed to the kidney to be eliminated. Indeed, this has been much used as an illustration of the function of the liver in the formation of urea from amido-bodies. But with an understanding of the possibilities of self-digestion in the liver it becomes a question if part of the leucin and tyrosin may not be derived from the autolysis of the liver cells, if not all of it.

Taylor[2] analyzed a liver showing the changes of acute yellow atrophy and weighing 900 grams, and found that it contained probably as much as 2 grams of leucin and asparaginic acid, and the watery extract contained deutero-albumose but no true peptone. From one liver in a condition of "chloroform necrosis" resembling clinically acute yellow atrophy he obtained 4 grams of leucin, 2.2 grams of tyrosin, and 2.3 grams of arginin nitrate. These results show conclusively that in both acute yellow atrophy and other forms of hepatic degeneration the products of digestion can be found in the liver itself in no inconsiderable quantities, despite the fact that by far the largest part of that which is formed must be rapidly carried away in the circulation. Whether this autolysis of the liver is to be considered the chief source of leucin and tyrosin found in the urine during the course of the disease must remain an unsettled question until we have more complete data concerning the total elimination of nitrogen in its different compounds during the entire disease, a difficult matter because of the infrequence of the cases.

Neuberg and Richter[3] have made an analysis of 345 c.c. of blood from a case of acute yellow atrophy, and found 0.787 gram of tyrosin, 1.102 grams leucin, and 0.240 gram of lysin, making a total of 2.13 grams of amido-acids. On this basis the entire circulating blood should have contained about 30 grams. They believe that these amido-bodies can not be derived solely from hepatic autolysis, since if the entire liver were digested, it would only yield about the same amount of tyrosin as they showed to be present in the circulating blood. As the elimination of urea was not altered, they do not accept the old idea of a diversion of the nitrogen from its normal metabolism and elimination as amido-acids. Nor did it seem possible that these bodies came from autolysis of the blood. It is possible that they came in part from the intestine, passing in abnormally large amounts through the diseased intestinal wall, and perhaps accumulating in the blood because of the diseased condition of the kidneys. This assumption, however, is based on a greater degree of intestinal involvement than is generally found, and fails to explain the failure of leucin and tyrosin to appear in the urine in still greater quantities in conditions associated with greater lesions of the intestines; unless we admit that the liver plays an important part in converting such substances normally and is hampered by the pathologic changes present in acute atrophy. In other words, it is difficult to tell just what relation intestinal and hepatic disturbances bear to each other and to the disease itself, in acute yellow atrophy of the liver.

In attempting to correlate the processes of autolysis with the changes usual in acute yellow atrophy we need to take into account certain facts that can be applied. First of all we have a marked necrosis involving all the cells of lobules in large areas of the liver, and sparing other areas, and also sparing the connective tissues of the lobules that are involved, the blood vessels and the interlobular bile ducts. In many cases greater or less degrees of regeneration have been observed, and it is found to consist of a general proliferation of the surviving cells, both of connective tissue and of bile duct epithelium. The former multiplies and leads to a large excess of connective tissue, which would undoubtedly prevent the liver from ever again becoming normal if recovery occurred. The bile ducts of the epithelium reassume their embryologic function, and from them are developed many new cords of liver cells, growing between the original strands of intralobular connective tissue which have survived the necrosis within the lobule. It would seem, therefore, that we are dealing with an intoxication by a substance with a considerable degree of specificity for certain cells, those of the hepatic cords, which spares even so closely related cells as those of the bile ducts. The fact that different parts of the liver are affected to such different degrees, and that the process is found in different stages of advancement in different areas at the same time, rather speaks against the idea that the changes are brought about by some substances absorbed from the intestines, for it would be expected that in this case the process would be more diffuse; conversely, this irregularity of distribution would speak more for a local origin of the necrogenic substances.

The relatively slight involvement of the bile ducts speaks against the conception of an ascending biliary infection or intoxication which has often been suggested. One of the most interesting hypotheses advanced to explain the etiology of acute yellow atrophy is that of Quincke, proposed by him several years ago, but so far as we know not studied further either by him or by any one else. His idea was that through an occlusion of the ampulla of Vater the pancreatic juice might be forced back along the bile tracts, and lead to necrosis and rapid digestion of the liver cells, thus producing the features of acute yellow atrophy. This is an attractive hypothesis, especially as in a considerable number of cases gallstones have been found; in our second case two small stones were found within the liver substance. There are many objections, however. The first is that in but one case so far reported has an obstruction been found in the ampulla. More important is the fact that the bile pressure is greater than the pressure of the pancreatic juice, and as has been well proven by Opie the result of occlusion in the ampulla is not an escape of pancreatic juice into the biliary system, but rather an escape of bile into the pancreas, resulting in pancreatitis, fat necrosis, etc. Still it might be imagined that under unusual conditions a reverse peristalsis might force the pancreatic juice into the liver. Mr. Charles L. Best[4] has performed a number of experiments, to test Quincke's theory, in our laboratory. Commercial pancreatins were injected into the common bile ducts of cats, dogs and rabbits, above a ligature, and in some animals the pancreatin was in-

2. Taylor: Zeit. f. Physiol. Chem., 1902, xxxiv, 580, and also Jour. Med. Research, 1902, viii, 424.
3. Deut. med. Woch., 1904, xxx, 499.
4. Best: Thesis, the University of Chicago, 1903, "Acute Yellow Atrophy of the Liver."

jected directly into the liver. In a few animals some degree of central necrosis of the liver lobules was produced, but in none were changes observed that approached at all closely those of acute atrophy. Of course, such experiments do not exactly reproduce the conditions as they would exist in a human being, and are only suggestive in a negative direction.

The necrosis in acute yellow atrophy seems to differ from ordinary necrosis in the rapidity and completeness with which the necrosed cells are digested and absorbed. It resembles the resolution of lobar pneumonia more closely than anything else, but differs in the absence of any considerable number of leucocytes. This fact may be taken to indicate: First, that the poisons are so specific for liver cells that they are injured to a greater degree than other cells, so that it is possible for the patients to survive the necrosis for a considerable time during which autolysis is going on; second, that as in pneumonia the circulation through the diseased tissues is not seriously impaired, so that absorption is possible; third, that the absence of leucocytes makes it probable that the autolysis is brought about by the diseased liver cells themselves.

This last idea requires the assumption that a cell may be killed and still retain autolytic powers, which has been abundantly demonstrated to be the case; it is seen particularly well when necrosis results from the shutting off of the blood supply, as in infarcts, when the conditions are somewhat similar to what they are in an organ removed from the body, and kept in the incubator in an aseptic condition. On the strength of these facts one might conceive as an explanation of acute yellow atrophy the poisoning of the liver by some substance which has a specific affinity for some vital ingredient of the liver cells, but which does not affect the autolytic ferments of these cells. Such changes as are typical for this disease might readily follow, for example, the destruction of the oxidizing ferments of the liver. The cells would then of necessity die, yet the autolysis would go on as in an infarcted area, only much more rapidly, because circulation is still present to remove the products as fast as formed, thus greatly hastening the reactions. In connection with this it may be brought forward that in phosphorous poisoning of dogs, which of all conditions most closely resembles acute yellow atrophy, Jacoby found the products of digestion in the livers, just as Taylor found them in the liver of a person dying from acute yellow atrophy, and also that Jacoby has showed that autolysis is very active in livers of phosphorous poisoning. Indeed, he found autolysis to be more rapid in livers from cases of phosphorous poisoning than in normal livers; the effects of the degenerative changes in favoring digestion might account for this.

One other point concerning the chemical changes of acute yellow atrophy may be mentioned. The statement is often made that the chief change is fatty degeneration, probably because the yellow color is thought to be due to fat, although as a matter of fact it is chiefly, if not entirely, due to bilirubin; this can be shown by putting a section of the fresh liver into dichromate solution, when the yellow turns to green because of the oxidation of the bilirubin into biliverdin. Taylor found in the liver which he studied that there was no increase in the fats over the normal amount, which is from 20 to 60 grams, whereas a liver the seat of fatty degeneration may contain from 400 to 500 grams of fat. In the two cases of this series in which the frozen sections were stained for fat there was found to be surprisingly little fat in the degenerating liver cells in any stage.

DELIRIUM AS A SYMPTOM OF HYSTERIA.

REPORT OF FOUR ILLUSTRATIVE CASES.*

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As it is well known, delirium constitutes the final phase of classic attacks of major hysteria as depicted by Richer and copied in many text-books. But the whole subject of insanity, in relation to hysteria, is apparently in more or less confusion and doubt in the minds of many who have written on the subject. Doubtless, as pointed out by Raymond and Janet,[1] this is in a large measure due to the fact that such cases, as a rule, are not in their continuity studied by the same medical men; since they usually fall under the observation of physicians outside the asylum at first and later come under the observation of the asylum physicians. Thus, it happens that the first-named physicians are able to study only the earlier manifestations and the last-named the later manifestations, with the result that both sets of observations are incomplete and deficient. While the removal of the patient to the asylum is purely for the purpose of securing control of him, the idea is only too prevalent that this move somehow changes the diagnosis from that of "nervous disease" to that of "insanity." The asylum physician, accustomed to dealing only with "insanity," is too prone to accept this dictum, to put one of his approved labels of insanity on the patient, frequently with little or no knowledge of the pre-asylum history. It may be remarked in passing that we have here a strong argument in favor of opening asylums to physicians outside them, and for asylum physicians to study patients outside the asylum as much as possible.

Since we recognize hysteria as an essentially mental disease, or, in the language of M. Sollier, "A mode of brain function," we ought to be prepared to recognize manifold mental symptoms as hysterical in character when certain criteria are present. Oddly enough, certain authors seem willing to call certain mental symptoms hysterical when they are not prolonged or profound, but fly to the designation "insanity" when the symptoms become more striking in type or pass a certain limit.

Among the mental symptoms recognized by various authors may be mentioned mutism, lethargy, somnolence, sleep-walking, catalepsy fasting, mania, depression, hypochondriasis and delirium.

The question of delirium as a symptom of hysteria has been so well considered by Janet[2] that I quote him somewhat at length:

> We often meet hysterical deliriums quite permanent among children. M. Jolly has recently dwelt on these little patients who commit all manner of foolish things and seem to play a farce before their frightened parents. A number of authors—Briquet, Marcé, Morel, J. Falret, Grasset, Krafft-Ebing, Schule—have established that hystericals, even adults, can

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Neuroses et Idees Fixes.
2. The Mental State of Hystericals.

have deliriums of a maniacal form, deliriums quite prolonged and without any precise relations to the attack.

A disease is not an immutable entity, easily recognizable. It is a classification of symptoms grouped for the convenience of our mind. Hysteria is but a syndrome, an ensemble of facts grouped in a general idea, which facts are nearly all moral facts; they are forgetfulness, insensibilities, which are psychologic phenomena. There is no valid *a priori* reason to refuse to bring within this framework deliriums that are simply other mental phenomena. Besides these authors themselves scarcely apply their doctrines in their extreme sense, for they accept the delirium of the attack, and even anorexia, which is, to a supreme degree, a delirium of long duration. We may, then, consider certain deliriums as hysterical.

But should we for this reason fly to the opposite extreme and affirm that all the deliriums that present themselves in patients having or having had a few stigmata should be included within the range of hysteria? This inclusion would find great inconveniences. Some of these deliriums do not differ from others which befall equally non-hysterical people. Must all these innumerable phenomena be connected with hysteria? That would altogether confuse the analysis of the symptoms of hysteria. We would select among all these accidents those that come within our conception of hysteria.

This selection is extremely difficult, but it is an ideal which nowadays is far from being always possible. In order to be able to do it we ought to recognize two characteristics in a delirium: 1. Is this delirium the consequence of a clearly hysterical phenomena? This first characteristic is important; it allows us to eliminate febrile deliriums, toxic or otherwise, which hysericals may have in common with other patients. We have repeatedly shown that the delirium was, in the case of certain patients, but the aggravation of an anterior symptom. But this characteristic is far from being sufficient; for, to our mind, a hysterical symptom may by aggravation be completely transformed. 2. It would be necessary, even in delirium, to establish the fundamental character of the mental state of hysteria: The undoubling (*dedoublement*) of the mind, the alternation of the states of consciousness, the formation of phenomena really subconscious.

I now desire to present for your consideration the histories of four cases, which I have diagnosed as hysteria in a more or less tentative way, in which marked and more or less prolonged delirium was a symptom, together with the points which, to my mind, indicated the diagnosis in each case.

CASE 1.—An unmarried girl, aged 21 years, was admitted to St. Francis Hospital July 9, 1902.

History.—Her family history was negative. The only significant fact elicited in her personal history was a "jilting" on the part of her lover, which had occurred a few days before her admission. Five weeks before admission, for the first time in her life, she was seized with a violent general convulsion, during which she was unconscious and which was preceded by a severe headache. Six or seven hours later two more convulsions occurred. Each of these three seizures began in the feet and lasted about fifteen minutes. Twenty hours later two more convulsions occurred, each of about five minutes' duration. About July 1, nine days before admission, the patient was seized with a "loud talking spell," during which she called for almost everybody she knew, especially her fiancé. A period of mutism, during which she seemed to understand all that was going on about her, now followed and continued up until admission.

Condition in Hospital.—The patient was at once put to bed. She was mute, but not stuporous nor comatose. She was oblivious as to her surroundings, refused to eat, and was nourished for weeks with the stomach tube. Her temperature was 102 F. During the next week it was very irregular, ranging from 101 to 105.4. During the next week it was lower and the variation was much less, being from 100 to 101. During the subsequent two weeks the temperature gradually declined to the normal mark.

August 11: The nurse reported two "epileptic fits."

August 15: Another "fit." Unconscious for five minutes; bit tongue (?). Slept after the "fit."

The condition of the mutism continued until August 21, when the patient screamed and cried a good deal. Asked why, she said she had her brother's legs. Presently she relapsed again into mutism.

August 23: Quite noisy from 11 to 1 o'clock last night. To-day asked to go home. Mental confusion is shown in her conversation.

August 26: The patient took dinner at the table. She has been eating voluntarily during the past few days. For the first time she talked to me freely. She cried a good deal and asked to go home, stating where she lived. She is emaciated and bears the appearance of one who has gone through a serious illness. Examination revealed the presence of universal analgesia.

After this date the patient's mental and physical improvement were steady until October 14, when she was discharged, apparently well, no "fits" having occurred in the interval. A letter from the patient, dated April 1, 1903, nearly six months after her discharge, states that she has suffered from no "fits," has gained twenty pounds in weight and feels quite "as good as ever." A second letter, dated Jan. 3, 1904, states: "I am enjoying the best of health and have been since I left the hospital. As for the spells, or 'fits,' I have not had any of them." She also states that she did not remember going to the hospital, and only began to remember things after she got up and was going around.

The history of the outset of this case led to the suspicion that a brain tumor or abscess was producing the symptoms. This diagnosis was soon excluded. The diagnosis was then in doubt for many days. Typhoid fever, autointoxication, deep-seated abscess and general miliary tuberculosis were among the conditions whose possibilities were considered. The spleen was not enlarged, and the Widal blood test was reported negative. Tympanitis was not a symptom. During the first week of severe fever the patient was repeatedly examined by various members of the staff at St. Francis' Hospital. Dr. McKennan was, I believe, the first to suggest the diagnosis of hysteria, which I myself came to accept finally as the most probable one.

The points supporting this diagnosis are briefly these, considered separately and as a whole: The convulsive seizures at the outset, after the unhappy "love affair"; the screaming spell followed by weeks of mutism, without stupor; the passage of mutism into a delirious condition, during which several "fits" occurred; the presence of universal analgesia; the rapid convalescence, with freedom from "fits" of any sort; the permanence of the recovery.

How is the fever to be accounted for? It is supposable, I think, that a hysterical operation of the sympathetic system may have so changed the relationship between anabolism and katabolism of the body that a species of autointoxication was set up; or that it might have resulted from defective operation of the heat centers, whose operation was irregular—ataxic—and whose resultant activity was hysterical.

While it seems to me that this case is one of pure hysteria, and certainly one with hysterical manifestations, yet the course and the curve of the fever were much like those seen in typhoid fever; and I am even now not absolutely certain that this diagnosis should be excluded.

The later emaciation, too, argued for the antecedent ravage of an acute febrile disease of toxic character. But even if typhoid fever were allowed, it could not fully explain the symptoms which, in part at least,

were almost certainly hysterical in character. Moreover, it is to be noted that symptoms of hysteria were present both before the outset of the febrile symptoms and also after their close; and this fact, in connection with the negative evidence of the absence of several of the important diagnostic signs and symptoms of typhoid fever, positive Widal reaction, enlarged spleen, tympanites, diarrhea, offers the strongest argument in favor of the theory that all the symptoms were expressions of hysteria. There can be no doubt that marked changes in body temperature may occur as an expression of hysteria. I have just reported a striking example[3]; and Regal and Hanat[4] report a case of hysterical pseudotyphoid fever in a young woman who had nursed three cases of typhoid fever. On the whole, I much incline to the view that all the phenomena seen in this remarkable case were due to hysteria. The view that we have here a case of major hysteria during the course of which typhoid fever developed and subsided, has much less to commend it to my mind.

Not long after my experience with this case I saw a young Russian girl, who had come to Pittsburg to marry a young countryman. After seeing him she decided that she could not marry him, and the engagement was broken off. She was much dejected, was seized at short intervals with a series of severe and prolonged general convulsions, during which she was quite conscious. The patient was isolated at the South Side Hospital. The case so developed in the course of a few days (tympanites, diarrhea, enlarged spleen) that Dr. J. P. Kerr and I regarded it as one of typhoid fever; and subsequent developments bore out this diagnosis.

The most probable explanation of this case, to my mind, is as follows: The severe moral shock produced great depression of vital tone, which not only brought out the hysterical convulsions (temperament being favorable), but also rendered the patient peculiarly liable to the operation of the typhoid bacillus which is ever present in our Pittsburg drinking water, and to the operations of which newcomers in our midst are especially liable.

So it will be seen that for this case I accept a theory very like that which I have rejected for the preceding case.

CASE 2.—A woman, aged 29.

History.—The patient was unhappily married; her husband had treated her coldly for several years and had finally deserted her. For several years past she had been subject to severe left-sided headaches, which had grown worse since her separation from her husband, and in general she was neurasthenic. She went to a sanatorium on April 12, taking while there a semi-rest cure. She did well, apparently having gained in every respect. Two days before the time set for her departure for home she was playing croquet, and, after a spirited contest, she won her third game. Immediately afterward, for the first time in her life, she was seized with a severe general convulsion. This was shortly followed by two similar seizures of less severity. Consciousness was probably preserved during these attacks. A few days later she was brought home. Her mental condition was one of delirium, with shifting hallucinations and disorder of orientation and unsystematized delusions. She said the doctor was a baboon; that snakes were in her head, and that her body contained much glass. She spoke of seeing Adam and Eve in the Garden of Eden. On several occasions her body became stiff for a time; again, she assumed fixed attitudes with her hands above her head or crossed in front of her, and she would so remain for many minutes. She would not stay in bed, but got up often and walked about the room in a slow, aimless fashion. She made a number of attempts to get out of the windows, without any apparent definite idea of suicide.

Examination.—I saw the patient, with her physician, Dr. Pershing, on July 24, 1902, for the first time. The day before she executed a series of apparently voluntarily slow but strong rotary movements with her left hand. It was difficult to get her to talk much, and then only in answer to questions. Her replies were simple and direct, but a considerable period of time elapsed between the question and the answer. Her face presented a vacant expression, with a curious smile playing about the mouth. She made no resistance to passive movements. "Negativism" was not a symptom. Universal analgesia was present, partial in the face, complete elsewhere. The general muscular strength was greatly diminished, the hand grasp being especially weak. This lack of muscular force may have been (probably was) more apparent than real and due to her mental condition. The examination in other respects was negative. The tongue was heavily coated; the breath foul. There was no elevation of temperature.

Subsequent History.—After two or three weeks the patient began to improve and continued to do so more or less steadily for three or four months, when she again seemed to be as well as usual, and she has so continued. Two months after the outset of convulsions the patient went to Denver, where her convalescence was much hastened. Only a month ago she nursed her mother through a fatal illness and showed no signs of breakdown as a result thereof.

Here was evidently a species of insanity, a delirium characterized by shifting and disconnected hallucinations and delusions ushered in very suddenly by several convulsive seizures; and the disorder was doubtless attributable to the moral shock mentioned, with its ensuing vital and psychic depression. The case bore a certain resemblance to dementia præcox, the delirious mental state and the stereotypy suggesting at first sight this diagnosis to my mind. But, on the other hand, the sudden outset with convulsive seizures argued strongly for hysteria. Subsequent visits led me to believe that the delirium and stereotypy were in themselves, with their vagaries and disjointedness, strongly suggestive of major hysteria. The negativism and obsessions of dementia præcox were absent.

The consideration of the foregoing points, together with that of the favorable outcome, seem to me to indicate, then, that this case was one of major hysteria.

CASE 3.—A single woman, aged 50. She was a small woman, of delicate frame, naturally sensitive and retiring in her nature and accustomed to refined surroundings. She had no serious illness, except an attack of typhoid fever in 1870, from which she fully recovered. She passed the climateric a few years ago.

History.—Early in 1899 she complained of painful defecation and stated that for some months past she had suffered from constipation. She also suffered from frequent derangements of the stomach, headaches, pains in the lumbar and sacral regions, loss of strength and general fatigue, particularly noticeable in the legs. Her temperature was normal; pulse accelerated and weak.

Examination.—Examination by her family physician discovered four fissures of the anus extending through the mucous membrane. The anus was forcibly dilated and the fissures treated by application of nitrate of silver. This operation produced extreme prostration. The pulse became thready and weak, frequent attacks of nausea recurred and the patient was often delirious when asleep. After several weeks she began to improve, and on Sept. 12, 1899, she went away on a two weeks' visit, from which she returned somewhat improved in her general condition.

3. Medical News.
4. Quoted by Dejerine, Semiologie du Systeme Nerveux, p. 1087.

Subsequent History.—During December, 1899, all her old symptoms returned. On Jan. 16, 1900, another examination revealed a slight fissure "hardly more than a red streak in the mucous membrane." The same treatment was applied, but with little effect. Prostration ensued as after the first operation, and on March 21 the patient left the hospital but little improved. An examination in May by a consultant discovered nothing abnormal in the bowel, and an examination by a second consultant, a gynecologist, a few days later, revealed a normal condition of the pelvic organs. The symptoms were now believed to be neurotic in character, and in July, 1900, the patient was sent to a sanitarium, where she remained until Dec. 19, 1903. Here she improved a great deal, although still subject to acute attacks of "dyspepsia." During the summer of 1903 she was acting as an employe in the sanitarium. A change in the management of the sanitarium, attended with very trying circumstances, occurred at this time, which caused the patient much worry and apprehension, since she feared she would lose her position. During the fall of 1903 many of her old symptoms returned, and now to these were added mental symptoms, delirium with confusion and screaming attacks. She was removed to St. Francis Hospital on Dec. 19, 1903. Here the delirium and confusion were for several weeks very marked and the screaming attacks were of frequent occurrence. For a time the patient seemed to fail entirely to orientiate herself to time and place or to recognize her friends and relatives. The screaming spells were markedly influenced by suggestion, a firm command usually succeeded in quieting her for a time. During February improvement began and continued until the early part of March, when the patient was discharged, apparently restored to mental health and complaining of no physical symptoms.[5]

The patient presented an appearance of one prematurely aged, and it was at first thought that the symptoms were the outcome of vascular degeneration, although the palpable arteries were not manifestly sclerotic. But the peculiar character of the delirium and the screaming fits, which were markedly influenced by suggestion, the comparative suddenness of the onset of the mental symptoms, a consideration of the previous history of the patient (mental symptoms following a mental shock, neuropathic constitution, etc.) led to the diagnosis of hysterical delirium; and the favorable prognosis given was justified by the subsequent events, which also lent support to the diagnosis itself.

CASE 4.—A married woman, aged 50, mother of two children.

History.—There is a neuropathic strain in her family. The patient has always been stubborn and self-willed and accustomed to having her own way. Early last fall she contracted a case of severe articular rheumatism. On November 8 (influenced by reading a medical treatise in which fasting is recommended for various ailments) she began a fast which, despite frequent earnest and urgent appeals to eat, she strictly maintained for 56 days, taking during this period nothing but water. Soon after she began to fast she took to her bed, where she has since remained for the most part. During the latter part of the fast period vomiting and diarrhea were frequent and persistent symptoms. The fast was terminated of her own volition. Afterward she developed a mental condition of delirium.

Examination.—I saw her for the first time on February 16. She was then pale and emaciated. Her speech was peculiar, being slow and interrupted by short periods of silence. The voice, too, was peculiar, somewhat nasal in character. She replied slowly and after a distinct interval of silence to questions asked her. Some of her answers were clear and relevant, while others were irrelevant, being often foolish and absurd. Movements of the head from before backward and from side to side and again in a rotary fashion were noted. She had been affected with these movements for two weeks past. This symptom was made much worse by emotion. Pain sense was apparently normal. I suggested that the patient be removed to a hospital, and she, by immediate protest, showed that she quickly comprehended this remark.

Condition in Hospital.—When she was removed to the hospital a few days later, she begged to be taken home and cried a good deal during the first two days of her stay. Her voice was stronger and louder and the delirious condition was less marked. She now developed two new features, viz.: loud screaming spells and a delirium characterized by obscenity and lewdness. These two features were so demoralizing to patients and to nurses that the hospital management requird her removal; and thus the patient accomplished her own end—to be sent home.

Subsequent History.—At home the screaming attacks continued for two or three days, as well as the obscene character of the delirium, at the end of which time they somewhat abruptly ceased after her husband told her that she did not act like a lady.

At my visit on March 3 the patient held up her hand to show me her middle finger, in which there was a rapid vibratory movement, and asked me if it did not dance like a "red devil." In the midst of much apparent delirium she stated her street number and several other points of accurate detail correctly and she made several very pointed and sarcastic criticisms of myself and my personal appearance.

March 9: Patient complains of much pain in the body generally, and especially in the left knee, which is somewhat swollen. She continues to eat well. Her husband thinks that she has greatly improved as to her mind. She complains much of pains in various parts of her body when these parts are pressed on.

April 2: The pain in the joint and pains on pressure have largely disappeared. The oscillatory movements are not present. She cries on the smallest provocation. The voice has changed in character, being now a semi-whisper. Her husband reports that she gets "stubborn spells" lasting one or two hours each, during which she refuses food, medicine, etc. She takes a "notion" to sit up and will do so; but if requested to do so she will invariably refuse. She cries very easily. There is no return of the "screaming spells" or of the lewd delirium. She sleeps a great deal in the daytime and very little at night.

The diagnosis of hysterical delirium here is made on consideration of the peculiar character of the delirium itself, which could scarcely be described accurately, the head and finger movements, the screaming and "stubborn" spells and by a consideration of her illness in its entirety, method of onset, etc. The sensory stigmata of hysteria could not be elicited.

The onset of the illness with acute articular rheumatism, the fast period of 56 days and then the hysterical delirium, leads one to inquire as to whether the fasting period in itself was a hysterical manifestation. I can not answer this question with confidence, although I am inclined to believe the answer should be in the affirmative. At least I feel confident that the fasting period was a manifestation of a neuropathic temperament, probably rendered more than ordinarily susceptible by the lowered vitality and toxemia, which the rheumatic attack doubtless produced. Finally, it is significant that the fasting period was set in operation through a suggestion, the reading of a medical treatise intended to exploit a fad—fasting.

Later History of Case 4.—Since the above was written the patient has improved somewhat. She had a noisy spell lasting several hours, during which she was extremely abusive and profane. On one occasion she defecated in the bed and explained afterwards that this was intended as a punishment for her nurses, who, she considered, had not treated her prop-

5. I learned that she continued to do well at last report, early in June, 1904.

erly. She is still much emaciated, although eating well, and complains of much pain in her hands and numbness in her legs. I incline to believe that she suffers from a certain degree of neuritis in these members.

Feb. 13, 1904.—Patient has slowly, but steadily improved, mentally and physically. She walks with assistance. Legs are very incoördinate in their movement. Lying on the bed she moves them readily. She thus presents the symptom-complex of astasia abasia. When things go wrong she occasionally has a convulsive attack.

Further observation only strengthens my view that this is a severe case of major hysteria.

Westinghouse Building.

DISCUSSION.

DR. HOWELL T. PERSHING, Denver, Colo., mentioned the case of a young girl in the high school who had a number of attacks of illness which were regarded by the attending physician as purely hysterical. During the early spring, while at her school work, she was noticed to be unduly anxious about it. She then became delirious and would talk nonsense, especially about animals. She was kept at home under the care of a very sensible mother. A neurologist, Dr. Hopkins of Denver, who saw her early, regarded it as clearly a case of hysteria. After going on for some weeks the case came under Dr. Pershing's care, at which time it was very difficult to engage her attention or to get a rational answer to any question. She would keep muttering to herself, looking about, and perhaps starting up out of bed. She complained that she was not treated right and that someone was trying to poison her. She would talk disconnectedly about animals, bears, raccoons, panthers, snakes and so on, which her mother attributed to her having read Seton Thompson's animal stories. Dr. Pershing could not trace it directly to these stories, but he regarded it as purely hysterical, and thought it would be a good plan to employ the urinary test of Gilles and Cathelineau, so he had a chemist make a quantitative analysis. There was a decrease in the urea and in the total solids, but a decided increase in the proportion of the earthy to the alkaline phosphates. In other words, the urine was precisely in the condition which Gilles claims to be characteristic of hysteria. He gave a very confident prognosis regarding the final outcome of the case. She did not eat or sleep well and her condition, while not alarming at all, continued for ten or twelve weeks. One morning she got up much better, and from then on she made a very rapid and uninterrupted convalescence; in the course of a few days she ate heartily and gained very rapidly in weight. In the course of a month and a half she gained 20 pounds. She then looked very well and said that she remembered very little after she left school until she found herself getting well.

DR. THEODORE DILLER, Pittsburg, Pa., declared that one of the points mentioned by Dr. Dercum is a very good one: viz., that there is a difference between a general insensitiveness or stupidity, and that due to true anesthesia. One of the main points on which he made the diagnosis in the first case was the convulsive seizures and the delirium and mutism between the convulsive seizures and the cessation of the convulsions. In this case, the patient had never had any such thing as a convulsive attack of any sort before the initial convulsions which ushered in her mutism and the convulsions were of a certain type which in themselves were strongly suggestive of hysteria. In another of the cases reported, a highly typical convulsive seizure (the first in the patient's life), ushered in the delirium. If one is going to stick to text-books, and to classify as cases of hysteria only those which are so usually described these cases could not be admitted; for the delirium is different in duration certainly from that described as part of an attack, although not much in character. Such a position would not allow any addition nor modification of any existing descriptions or classifications of disease.

Life alone begets life, and materialism has no foundation in nature or in reason.—Lord Kelvin.

THE RELATION OF STATES OF APPREHENSION TO CARDIAC DISEASE.*

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Some time ago an author was quoted in my hearing to the effect that in all cases of alienation which showed apprehension there could be found some cardiac lesion. Unfortunately, I have been unable to trace this statement to the original, but it suggested an inquiry into the milder states of apprehension as distinguished from the anxiety neuroses. This inquiry I am at present following out and the few conclusions which are justifiable at the present time will be given here, while any results which may be derived from further research will be published later.

Twenty-five of the most recent admissions to the women's side of the Sheppard and Enoch Pratt Hospital, who are at present under care, have been taken as a series for this inquiry. Five of these twenty-five cases have shown apprehension in a sufficiently marked degree to leave no doubt as to its being present, and no other cases have exhibited it, even though persecutory ideas were found. Three of these five cases showed some abnormality in the heart's action, viz., mitral insufficiency, a reduplicated second sound with murmurish quality of the first and an indistinct first sound. All the cases were depressed, but one patient since recovering from her depression has shown fixed ideas. Of the remaining twenty cases five showed heart lesions but showed no apprehension whatever. The mental condition of these patients was, melancholia, three cases; dementia præcox and acute mania, each one. The remaining fifteen cases showed varying mental conditions, but principally depression. In none of the heart cases was there any failure of compensation.

I have also made a further inquiry on twenty cases at the Johns Hopkins Hospital. The cardiac lesions were varied, the majority being valvular disease, usually with some complication, such as failing compensation, nephritis or arteriosclerosis, but there was one case of angina, one case of acute endocarditis following rheumatism, which showed a soft, systolic murmur, a case of arteriosclerosis with hypertrophy, and a case of aneurism of the aorta. Eleven of these cases admitted that they had fears in either a definite or an indefinite form, the former usually being a fear of death or fear of falling. In three cases the fear was associated with attacks of dyspnea and in one of these the frequent recurrence of these attacks has been succeeded by a loss of the associated feeling of apprehension. Six of the cases occurred in colored men, and all admitted fear except one, a boy with acute endocarditis. In all of these the fear was more apt to be present at night. Both Dr. McCrae and Dr. Emerson told me that they had noticed that colored patients with heart disease were more apt to become apprehensive at dusk, sometimes becoming quite excited. It has been frequently observed by others, I believe, that the apprehension associated with cardiac lesions is more apt to become exaggerated at night, and especially in the colored race.

Head, in his article on "The Mental Changes that Accompany Visceral Disease,"[1] dwells at some length

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Brain, Part xcv, 1901.

on the difficulty of getting patients in general hospitals to admit that they have mental symptoms, and I am of the opinion that had I been better known to the patients in the Johns Hopkins Hospital whom I questioned as to having fear that I might have found a few more who would admit its presence. At the same time I believe that the majority of those who denied having apprehension were truthful, I was very careful about my questioning, leading up to the subject gradually and putting the question as to having fear in a number of forms so that there could be no doubt of the patient understanding what was meant.

In his text-book, Dr. Osler does not mention apprehension as associated with cardiac lesions, but in a personal letter states that it is "a pretty common symptom in heart disease, being especially common in the neurasthenic forms." It seems to me that this shows the general feeling of the clinician toward these associated conditions, that although it is often present it is a nervous phenomenon which can probably be explained by the personal individuality or peculiarity of the patient. This seems to be the opinion of others, as Gibson[2] narrates the case of a man who for years had suffered from tachycardia and had associated with this agoraphobia. Gibson considers the persistent tachycardia due to personal peculiarity, and states that in such cases there is usually some associated mental symptoms. In the same lecture he speaks of the mental distress associated with tremor cordis, caused by the sensation "as if the heart stopped and might not recommence its action again." There is a great deal of anxiety attendant on this condition and the patient shows apprehension in his facial expression. A feeble, fluttering action of the heart may be demonstrated both by palpation and by auscultation. It must be remembered that this condition is quite different from palpitation, both in its physical manifestation and its cause, for tremor cordis is probably produced by nervous disturbance but never by psychical excitement, while palpitation is frequently brought on by some emotional disturbance. In palpitation there seems to be no doubt that there is a loss of vagus control. We all know that with palpitation there is often present a feeling of anxiety and associated there may be ringing in the ears, flashes of light, deep, sighing respirations, and sometimes giddiness. The force, as well as the rate, is increased.

Stransky,[3] after a study of the anxiety neuroses and their pathogenesis, is of the opinion that there must be a predisposed brain and a pathologic sensation acting in the region of the vagus in order to have apprehension associated with cardiac disease. This seems to me to sum up our present knowledge of these associated conditions, but I feel that it is not exact enough to be satisfying. The symptoms as observed in the colored race would seem to me to point to personal peculiarity, while the almost constant presence of apprehension in the neurasthenic heart cases seems to me to indicate a pathologic condition of the vagus control.

I hope to follow up this investigation more carefully. Many points have suggested themselves about which I am not able to speak at present. There seems to be little doubt that the physical symptoms present in our cases during the attacks of apprehension are similar to those which have been carefully studied in the anxiety neuroses, but more investigation is needed in these mild cases of apprehension.

The conclusions which I wish to make are:

1. The cardiac lesion is not the primary factor in causation of the associated state of apprehension.

2. For want of a better term, what we call the idiosyncrasy of the patient is largely responsible for apprehension associated with cardiac lesions.

3. In neurasthenic types a want of vagus control is an important etiologic factor.

4. Our knowledge of this subject is not yet exact enough. On this last point let me urge you to urge on your friends who are engaged more actively in clinical medicine investigation of this condition of apprehension in their heart cases.

2. The Nervous Affections of the Heart, second series, Edin. Med. Jour., vol. xiii, p. 334.

3. Monatsschrift fur Psychiatrie und Neurologie, vol. xiv, No. 2, August, 1903.

SPASTIC DIPLEGIA FOLLOWING PERTUSSIS.*

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History.—The patient, a girl of 30 months, was brought to the clinic for nervous diseases at the St. Agnes Hospital in February, 1903. The mother stated that 8 months previously (May, 1902) the child had contracted pertussis, which lasted for 3 months. At the end of the first month of the disease the patient began gradually to lose the power of walking. Her mother first noticed that she became awkward, stumbled easily, and was very uncertain on her feet. By degrees the inability to walk increased until at the end of 4 months she could not walk unassisted. About this time the mother noticed that the child had nystagmus, but she had noted no other symptom until she brought her to the clinic 4 months later.

Family History.—The family history of the child was excellent. The parents were healthy young people, and there was no history of nervous disease in their families. This was the only child and the mother had never had any miscarriages. The child was delivered normally, the head presenting, after a pregnancy of nine months and one week. No instruments were employed, and there was no injury to the head. The child was reared on the breast and passed through her early infancy up to the age of 21 months without any of the usual digestive disturbances and without contracting any other disease than the one mentioned above. She developed in all ways normally, except that she did not walk until the nineteenth month.

Examination and Course of the Disease.—I saw the patient first in February, 1903, which was 8 months after the onset of her nervous disease. At this time she was fairly well preserved, intelligent, understood everything that was said to her, and could talk plainly. Her head was well formed; her palatal arch not unduly high, and there was an absence of the other physical defects which characterize the mentally deficient. In fact, there seemed to be every indication that the child was normal at birth, and had developed properly until the appearance of the weakness in her legs. The fontanelles had been closed since the end of the first year; the heads of the long bones were slightly enlarged, and some, though not marked, beading of the ribs was observed. When placed on the feet she sought at once for support, and would have fallen without it. Any attempt to walk unassisted was futile and developed a transient rigidity of both legs. When supported on each side by a person, her efforts to walk showed a tendency to cross-leg progression. The legs were slightly spastic at this time, though not always so. Often the test failed to show any stiffness whatever. Again, at the same examination, spasticity was present during a crying spell or on making voluntary effort. There was a tendency to hyperflexion of the feet, and both big toes were hyperextended. At this time the arms were

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very little involved. When the patient picked up small objects there was some slight awkwardness of movement only. A constant small, irregular tremor was observed in the hand, and this was not increased by voluntary effort. The mother stated that the child twitched the shoulders and hands a good deal during sleep. There was a constant marked lateral nystagmus, and the pupils were equal and quite widely dilated. The knee jerks were increased and equal. The arm jerks were only slightly increased. Babinski's sign could not be developed, nor was there any clonus, and no sensory disturbance could be elicited. While the child was fretful and cried a good deal, there was no disturbance of any of the functions that could be noted. The appetite was good; the bowels regular; the heart was rapid and the first sound rough, but there was no murmur. The lungs were normal. No spinal deformity or tenderness could be observed. An examination of the eyegrounds by Dr. Shute gave negative findings.

From this time on the child was frequently observed and studied. The power to walk gradually failed, the spasticity increased, and in the arms there slowly developed a spastic condition, while at the same time there was a distinct and progressive loss of power. On March 25, 1903, the patient had, for the first time, a convulsive attack, which was general, preceded by a scream, and lasted only a few seconds. She was unconscious during the attack, though she did not bite her tongue nor lose control over the sphincters. Her condition was not materially changed immediately after the convulsion, but the spasticity and motor weakness increased more rapidly, the mind began to fail, her attention could not be fixed, any effort to grasp objects developed athetosis, and convulsive attacks became frequent. Some difficulty in swallowing was experienced shortly after the onset of the convulsions, and from this time until her death only liquids could be swallowed.

On September 27 an examination gave the following results: The child was greatly emaciated; the expression was anxious and vacant, and the attention could not be directed to the fingers moving before the eyes. The head was retracted and moved constantly from side to side; the eyeball rolled; the face was contorted as if in pain, and the pupils were contracted. The arms were held in a half-flexed position, the hands flexed at the wrist, the fingers hyperextended at the proximal joint and flexed at the other two joints, the thumb being held in the palm of the hand. The arms were twitching constantly, and at the same time moved slowly to and fro. The legs were spastic and crossed at the knees, while the big toe was hyperextended and the other toes flexed. The knee jerks were increased, but no clonus could be elicited.

The patient died on September 29, having had for a few days previous many convulsive attacks, general in character, but worse on the right side.

Autopsy.—At the autopsy only the brain and spinal cord were examined, and no gross lesions were discovered. The specimens were placed in formalin, and sections from various parts of the nervous system were stained by the Marchi and Weigert methods, and by hemalum and theonin.

Brain.—Throughout the cortex from the right and left frontal regions there were seen numerous small hemorrhages. These were especially clearly seen by the Weigert hematoxylin method. The pia was not abnormal.

In the right and left occipital regions the pia was thickened; there was an intense red-blood cell infiltration, and a moderate degree of round-cell infiltration. Numerous small hemorrhages were also observed throughout the cortex in these regions. The perivascular spaces were distended, and around the vessels there was an accumulation of mononuclear round cells. In one field a large vessel was seen, the walls of which were thickened and the lumen filled with blood.

In the paracentral regions the change was especially interesting and unique. The pia was slightly thickened; there was a moderate degree of round-cell infiltration; and the vessels were filled with blood cells.

In the cortex there were a few small hemorrhages, and there were also numerous areas where the perivascular spaces were distended. Around the blood vessels within these spaces was a large number of round mononuclear cells, partly filling the spaces, in some instances quite filling them (Fig. 1). In some fields the accumulation of cells amounted to three times the diameter of the vessel. One perivascular space seen was filled with fibrous tissue containing numerous nuclei. Surrounding these spaces the neuroglia was deeply stained and seemed to be amorphous. Two obliterated vessels were seen in another field.

Everywhere in the cortex, but especially around these distended perivascular spaces, were found large numbers of large round mononuclear cells, the protoplasm of which was granular. These cells were probably granular cells. The distinction between the nerve cells and these was closely brought out by the theonin stain. In sections stained by the Marchi method the cells in the perivascular spaces took the stain intensely; those in the tissue around the vessels were distinctly, though less intensely, stained. In one field a vessel was seen containing what appeared to be separated epithelial lining [illegible]. Cells of Betz were present, but they were not numer[illegible]d stained diffusely. By the Marchi method marked de[illegible]on was observed in one of the peduncles, and this was mo[illegible]ense in the center of the foot. The anterior pyramids stained but faintly by the Weigert method. The fibers of the internal capsule were very poorly medullated, and did not take the stain at all.

In the optic thalamus there were seen two small vessels in a space surrounded by cells which contained spindle and round-celled nuclei. In the brain tissue, directly posterior to the chiasm, numerous small hemorrhages were observed. The right optic nerve did not take the Weigert stain very deeply; in fact, there appeared a partial degeneration. It, however, was difficult to decide whether it was degeneration or the result of the formalin in which it was hardened.

Spinal Cord.—In the spinal cord from the upper thoracic region, which was the highest level studied, to the lower lumbar levels, the crossed pyramidal tracts stained but faintly. In the upper thoracic region the pyramidal tracts also took the stain poorly. The Marchi method gave negative results in the medulla and lumbar region. The anterior cells did not appear to be abnormal, and the spinal roots were intact. The neuroglia was increased in the affected areas, and the axis cylinder had disappeared.

RESUME.

A child of 21 months developed, during an attack of pertussis, a spastic diplegia, with, finally, imbecility and general convulsions, and died at the end of 17 months. A study of the brain and spinal cord revealed the presence of numerous small microscopic hemorrhages, distension of the perivascular spaces with cellular accumulation around the vessels and the presence of large mononuclear cells surrounding these spaces and elsewhere in the cortex of the paracentral region. The pia was in places thickened and the seat of a cellular infiltration. The motor tracts were diseased from the internal capsule to the lumbar cord, staining either poorly or not at all by the Weigert stain. Acute degeneration was observed in the cortex and one of the peduncles, as shown by the Marchi method. The lesions were those of hemorrhagic encephalo-meningitis.

The change in the nervous system which I have just described is indicative of some inflammatory process. This change is not peculiar to whooping cough, however, and would indicate that some toxic process had been at work on the blood vessels and their surroundings. I have not been able to trace any degeneration of the fibers in the cortex, nor to discover any foci of sclerosis. The blood vessels in places showed distinct thickening, some were obliterated, and many others were surrounded by large mononuclear round cells. The perivascular spaces were very much disten[illegible] these round cells, while the neuro[illegible] around these distended perivascular spaces was crowded with the same sort of cells as were seen in the perivascular spaces themselves. These spaces were in some places so very large that they were visible to the naked

eye. The degeneration in the anterior pyramids was probably due to the destruction of the motor fibers here and there in the cortex. In Jarke's[1] case there was, microscopically, evidence of inflammatory change. The tissues were crowded with leucocytes; there was perivascular cellular infiltration; and the vessel walls were thickened and infiltrated. In this case, however, there is no mention of any degeneration of the motor tracts. His case was one of hemiplegia, moreover, and, while the microscopic changes in some respects were similar to those which I have just described as occurring in my own case, clinically the cases differ very much.

Neurath,[2] in a recent communication in which he makes a preliminary report of the study of the post-mortem records in a number of cases of pertussis, mentions the fact that he has found the pia distended by numerous foci of cells in the cortex, distension of the pericellular and perivascular lymph spaces, hemorrhages, severe hyperemia, and round-cell accumulation. These were the only references to pathologic findings which resembled those found in my case.

Many different nervous manifestations are described in the literature as occurring during the course of pertussis, and if we classify these for the purpose of study we find that there are cases: 1, exhibiting psychoses; 2, showing disorders of the cranial nerves; 3, with convulsive disturbances; 4, with cerebral hemorrhages; 5, with other lesions of the brain and spinal cord, under which heading my case properly comes; 6, with involvement of the peripheral nerves; and, finally, 7, cases which suffer from neuroses.

PSYCHOSES.

Meschede[3] reported a case occurring in a child of 5¾ who, during an attack of whooping cough, developed hallucinations of sight, hearing and touch. Moebius[4] described a case of melancholia occurring during an attack of pertussis and quotes Emminghaus, who recognized the occurrence of psychoses during the course of this disease. Ferber,[5] Neurath,[2] Möller[6] and others have described similar cases. In my own case imbecility was a late symptom.

DISORDERS OF THE CRANIAL NERVES.

The special senses have been affected in a few cases reported. Meissner,[7] as early as 1844, recognized that blindness was a complication of pertussis. In Knapp's[8] case there was total blindness, due, he believed, to ischemia of the retina. Alexander[9] reported two cases, one in a child of 3 whose pupils were dilated and did not respond to light or in accommodation, and in whom there were bilateral neuritis and vomiting; the other, a child of 12, in whom, after headache, there was sudden loss of vision. The pupils were moderately large and reacted to light and in accommodation, but there was no abnormality of the media or eyegrounds. The former patient died without recovery of vision, and the second patient had improved at the time of reporting. Alexander believed that there was some intracranial process in these cases. There was no uremic condition in either.

In Duga's[10] case of sudden complete blindness the cause was a hemorrhage into the chambers of the eye. While there was no involvement of the nerves in this case it is deemed worthy of mention as a possible source of confusion in diagnosis.

Transient blindness may occur after scarlatina and typhoid fever, as well as pertussis. Jacoby[11] called attention to this fact, and claims that it is a uremic symptom. He states that it was first described by Ebert in 1868. In two cases cited by Sachs[12] there was transient blindness, but no uremic or nephritic symptoms. Steffen[13] reported the case of a girl of 8 who, during an attack of pertussis, saw indistinctly, and refers to a case of blindness reported by Sebregondi.[14]

In Silex's[15] case, a girl of 1¾, after convalescence from accidental poisoning by morphin, was found paralyzed on the left side, and to have divergent strabismus of the left eye. On the fourteenth day hemiopia was discovered, but the patient made a complete recovery 12 days later. Silex believed that the symptoms were due to hemorrhage into the posterior part of the internal capsule, while the hemiopia was probably the result of pressure on the optic tracts. Troitzky[16] described a case of psychic blindness (*seelenblindheit*).

Hockenjos[17] cites other cases of blindness occurring during pertussis, reported by Chotowitzky, Rau and Steffen. (I was unable to obtain the original references to these cases.)

In a few cases deafness has complicated pertussis. Falls[18] reported 4 cases of deafness occurring during the course of whooping cough, only 3 of which were of nervous origin. Similar cases have been reported by Wilde and Friquet (quoted by Hockenjos[17]). Gibb[19] reported the case of a boy of 4½ who bled from the ears during whooping cough, resulting finally in deafmutism. In 2,000 cases Gibb saw 4 in which bleeding from the ears took place, due to injury to the tympanic membrane. He quotes also the case of Clark.[20]

A case of paralysis of the posterior crico-arytenoid muscles was reported by Jurasz,[21] and in Craig's[22] case there was paralysis of the sixth and seventh pairs of nerves, due, he believed, to hemorrhage into the pons.

CONVULSIVE DISTURBANCES.

The most frequent complication of pertussis is convulsions, according to Hochenbach[23] and May.[24] These may take the form of mere twitchings in the region of the facial nerve, spasm of the glottis, or general convulsive seizures. In a small percentage of cases the convulsions are due to eclampsia. Lenhartz[25] found in 75 cases of pertussis 4 cases of eclampsia, of which 3 were fatal. Spasm of the glottis was present in 2 cases. In 29 cases collected by Rilliet and Barthez[26] convulsions occurred 5 times, and during the second stage.

CEREBRAL HEMORRHAGE.

The literature of the nervous complications of per-

1. Jarke: Archiv f. Kinderheilk., 1890, No. 20.
2. Neurath: Wiener klin. Woch., 1904, No. 46, p. 1267; ibid., 1896, No. 23, p. 488.
3. Meschede: Allg. Zeitschr. f. Psychiatrie, 30.
4. Moeblus: Centralbl. f. Nervenheilk., 1887, pp. 641 and 129.
5. Ferber: Jahrbuch f. Kinderheilk., 1870, p. 229.
6. Möller: Archiv f. Psychiatrie u. Nervenkrank., 13.
7. Meissner: Gerhard's Handbuch, vol. ii, p. 568.
8. Knapp: Quoted by Alexander.
9. Alexander: Deut. med. Woch., 1888, No. 11.
10. Duga: Quoted by Hockenjos.
11. Jacoby: New York Med. Monatsschrift, February, 1891, p. 45.
12. Sachs: Sammlung's klin. Vortrag. v. innere Med., 1-29, 1890-1894, p. 445.
13. Steffen: Ziemssen's Handbuch, 1896, vol. iv, No. 1, p. 285.
14. Sebregondi: Quoted by Schreiber.
15. Silex: Berliner klin. Woch., 1888, p. 841.
16. Troitzky: Jahrbuch f. Kinderheilk., 1890, No. 31, p. 291.
17. Hockenjos: Jahrbuch f. Kinderheilk., 1900, No. 51, p. 4.
18. Falls: Zeit. f. Ohrenheilkunde, 1886, p. 303.
19. Gibb: Brit. Med. Jour., 1861, p. 434.
20. Clark: Quoted by Gibb.
21. Jurasz: Jahrbuch f. Kinderheilk., No. 14.
22. Craig: Brit. Med. Jour., 1896, p. 1440.
23. Hochenbach: Gerhard's Handbuch, vol. ii, p. 568.
24. May: Arch. f. Kinderheilk., 1900, p. 127.
25. Lenhartz: Ebstein's Handbuch, vol. i, p. 223.
26. Rilliet et Barthez: Traite des Malad. des Enfants, 1891, vol. v, No. 3, p. 712.

tussis is largely taken up with reports of this condition. There have not been, however, a great many cases reported with autopsy. This is partly due to the fact that the prognosis in these cases is good. In 38 cases collected by Schreiber[27] up to 1899 only 10 were verified by autopsy. His deductions, I believe, will not hold good at the present time. From a study of these 38 cases he concluded that in most instances the hemorrhage is into the meninges, but may occur in the substance of the brain, either as capillary hemorrhages or in the form of hemorrhagic encephalitis. Cerebral hemorrhage occurred most frequently in children from 2 to 4 years of age; the youngest being 10 months and the oldest 10 years. The hemorrhage occurred usually during a severe paroxysm. He attributes the occurrence of cerebral hemorrhage in pertussis to increase in the blood pressure and to venous engorgement. Many cases of a similar character have been described by Bernhart,[28] Sachs,[12] MacKerron,[29] Neurath[2] and Jarke.[1] Hochenbach[23] collected 23 cases in which a diagnosis of brain hemorrhage was made with 9 autopsies. In 5 cases the hemorrhage was into the white matter, in 2 into the cortex, and in 2 other cases between the dura and the pons.

Hockenjos[17] collected 41 cases of cerebral hemorrhage, and reported one case of his own. In only 11 of these was there an autopsy. Hemorrhage into the meninges was observed in 4 cases; into the cortex in one case; into the white substance in 5 cases; and undetermined in 1 case. He concludes that hemorrhage is most frequent under 6 years of age, and that the meninges is the site of preference for the hemorrhage.

Paul Valentine[30] collected from the literature 83 cases of nervous disturbances occurring during pertussis. Of these 16 were examples of monoplegia, 40 were hemiplegia, while only 5 or 6 cases were instances of paraplegia. He believes that the prognosis of paralysis in pertussis is very grave. Of 64 cases there were 14 who died, 22 who remained paralyzed, while the rest recovered almost completely.

Cases have been reported which came to autopsy without any—or only insignificant—pathologic change. For instance, Blache's[31] case only showed slight engorgement of the brain and spinal meninges. He refers specially to the case of West[32] and Wiesinger, in which the autopsy showed no pathologic change of the brain. Henoch[33] found some hyperemia of the brain in a child who had suffered from symptoms of meningitis. This was also true of a case of Jacobson's,[34] in which the child exhibited a left hemiplegia.

I have been able to collect in all only 20 cases in which an autopsy has been made. In Marshall's[35] case there was hemorrhage into the substance of the brain. The hemorrhage in Reimer's case was between the dura and the skull, as was also that of Cazin.[36] In the case of Barnier[37] (quoted by Barthez and Rilliet[26]) the hemorrhage was into the meninges. In Hauner's[37] case a large vessel in the brain was ruptured, and there was also hemorrhage into the arachnoid. Dauchez[38] reported a case of cerebral hemorrhage in a tubercular child. At the autopsy there was found a hemorrhagic area over the cortical surface of the left hemisphere, occupying the fissure of Rolando and the two frontal and parietal convolutions. In Stiebel's[39] case there was a large exudate in the arachnoid of the anterior lobes, and the gyri were filled with a grayish yellow substance. On section of the hemispheres hemorrhagic points were visible, and the ventricles were enlarged. External to the right ventricle there was extravasation of blood and some red softening around it.

Furbinger[40] describes a case in which there was capillary hemorrhage of the brain and cord, and also of the white substance. Strümpell[41] (quoted by Hockenjos[17]) reported a case in which there was capillary hemorrhage into the brain.

In Vidal's[42] case there were small hemorrhages of the white substance of the brain which were confluent in the occipital lobe.

Hockenjos[17] reported a case in which hemorrhage of the floor of the left ventricle and punctiform hemorrhage of the pons were observed.

Jarke[1] described a case of hemiplegia in which the autopsy revealed the presence of inflammatory foci thickening and infiltration of the vessel walls, the presence of two small foci of softening in the frontal and parietal convolutions, symmetrical in character, a perivascular infiltration, and a diapedesis of white blood corpuscles.

In Thomas's[43] case there was hemorrhage into the anterior portion of the medulla and overfilling of the vessels of the meninges.

In Blache's[31] case there was only slight engorgement of the meninges, brain and spinal cord.

West[32] reported a case of convulsions in which there was no change visible postmortem.

In Henoch's[33] case, which was clinically one of meningitis, there was found postmortem only hyperemia of the brain.

In Guibert's[44] case (cited by Schreiber[27]) there was no pathologic change observed. In a case reported by Cornelius May,[24] in which there were clonic convulsions, only edema and hyperemia of the brain were observed postmortem.

In Jacobson's[34] case of hemiplegia no pathologic change was found in the nervous system.

Simoninis[45] reported the case of a girl of 6 who exhibited bulbar symptoms, and the section showed hemorrhage into the brain.

Luce[46] cited a case in a boy of 5 who developed left hemiplegia. The autopsy showed the presence of hyperemia, and in the medulla some recent degeneration, as shown by the Marchi method. There was no perivascular hemorrhage, and no change in the blood vessel walls could be demonstrated.

Of these 21 cases—	Cases.
Hemorrhage occurred into the brain in	7
Hemorrhage occurred between dura and skull in	2
Hemorrhage occurred into the meninges in	1
Hemorrhage occurred into the substance of the brain and in meninges in	2
Capillary hemorrhage occurred in	2
Hyperemia occurred in	4
No pathologic change was found in	3

27. Schreiber: Archiv f. Kinderheilk., 1899, p. 1.
28. Bernhart: Deut. med. Woch., 1896, No. 20.
29. MacKerron: British Med. Jour., 1897, No. 21.
30. Valentine: Abstr. of Thesis in Lancet, 1902.
31. Blache: Schmidt's Jahrbuch, vol. i, p. 307.
32. West: British Med. Jour., 1889, No. 1, p. 157.
33. Henoch: Vorlesung. Kinderkrank., 1903.
34. Jacobson: Deut. Zeitschr. f. Nervenheilk., 1893, No. 4, p. 256.
35. Marshall: Virchow-Hirsch, vol. ii.
36. Biedert: Lehrbuch f. Kinderheilk.
37. Barnier: Quoted by Barthez and Rilliet.
38. Danchez: Prog. Méd., 1884, No. 12, p. 548.
39. Stiebel: Journal f. Kinderheilk., 1856, No. 26.
40. Furbinger: Quoted by Schreiber.
41. Strümpell: Quoted by Hockenjos.
42. Vidal: Prog. Méd., 1885, No. 2, p. 270.
43. Thomas: Schmidt's Jahrbuch, 1835, p. 139.
44. Guibert: Quoted by Schreiber.
45. Simoninis: Schmidt's Jahrbuch, v. 273, 1902, p. 51.
46. Luce: Deut. Zeitschr. f. Nervenheilk., 1898, p. 272.

These statistics do not agree with the statements made by Schreiber, who, in 10 autopsies, found that the hemorrhage occurred in most cases into the meninges. In Hagenbach's[23] statistics, based on 23 cases collected from the literature with 9 autopsies, he found in 5 of these 9 cases which came to autopsy that the hemorrhage was into the white substance, thus agreeing with the conclusions to which I have come in my statistics.

OTHER LESIONS OF THE BRAIN AND SPINAL CORD.

Pertussis is a known cause of encephalitis, though probably not a frequent one. Nothnagel[47] states briefly that encephalitis may occur after whooping cough, as well as after the infectious diseases, and believes that



Fig. 1.—Cortex, showing distended perivascular spaces, round cell accumulations and obliterated vessels.

cases like those of Henoch,[33] Fritzsche and Troitzky[16] belong to this class. Richardiere[48] (quoted by Marie) reported one case of "sclerosis encephalique."

Cases of spastic diplegia like that reported in this paper are rare in the literature; in fact, we can find but one—that reported by Sachs, which occurred in a child of 13 months who developed a gradual paralysis of both sides of the body, athetosis, increased reflexes, a high grade of imbecility, and defective speech. Unfortunately in this case there was no autopsy. Sachs,[12] who has studied the question of cerebral hemorrhage in children very carefully, states that whooping cough and pneumonia may frequently be causal factors. Out of 105 autopsies he found that in 23 cases of diplegia the lesions in 19 cases were atrophy, sclerosis and cysts, and in 4 cases there was present a porencephalon. In most cases of lobar sclerosis he states that the primary lesion completely disappears, and it is impossible to discover where the sclerosis took its origin.

Bernhardt[28] reported an interesting case in a child of 5 who, after a severe paroxysm of coughing, suddenly became stiff in the lower extremities, so that standing and walking were quite impossible. There was no loss of consciousness, no convulsions, and no involvement of the arms. The plantar reflexes were increased, and the feet were held in a position of plantar flexion. There was no foot clonus nor muscular atrophy. Some slight disturbance of sensation was observed, and at the onset there was some involvement of the bladder functions. All the symptoms finally disappeared and the patient recovered. The author expresses the opinion that the condition was due to hemorrhage into the spinal cord.

A case of Michell's[49] deserves a passing mention here. In his case there was a transient monoplegia of the left arm. The patient recovered entirely in 8 days.



Fig. 2.—1. Lumen of a vessel. 2. Perivascular space, greatly distended. 3. Round cells. Around the spaces are seen numerous granular cells. (Marchi method.)

Luisade[50] described a case of paraplegia in a girl of 5 who finally recovered. In Hagedorn's[51] case there was first paraplegia, ptosis and spasm of the facial muscles, finally all the limbs were paralyzed and the patient died. There was no autopsy. Mackey[52] cites a case of Landry's paralysis with recovery. Hydrocephalus has followed pertussis in one case reported by Lombard[53] (Hochenbach).

PERIPHERAL NERVES.

We can find only one case that belongs under this heading, that reported by Moebius,[4] of a child of 3 who developed, first, paralysis of the legs, then of the arms

47. Nothnagel: Specielle Path. et Therap., vol. ix, 1901.
48. Richardiere: Quoted by Marie.
49. Michell: Thèse de Paris, 1891.
50. Luisade: Schmidt's Jahrbuch, 1899, No. 261, p. 232.
51. Hagedorn: Schmidt's Jahrbuch, 1903, No. 273, p. 51.
52. Mackey: Brit. Med. Jour., Aug. 26, 1884.
53. Lombard: Quoted by Hochenbach.

and neck muscles, and finally of the diaphragm. He believed that the case was a toxic action analogous to that which produces paralysis in diphtheria and scarlet fever. The child recovered completely. This is the only case reported that pointed to involvement of the peripheral nerves.

NEUROSES.

Epilepsy has followed pertussis, and Theodor[54] and Steffen[13] state that chorea may also be a complication. Steffen believes that in the latter case it is probably the result of some focal brain lesion.

Several theories have been advanced to explain the occurrence of paralysis. Kassirer,[55] Marie[56] and Moebius[4] have claimed that the paralysis is due to infection. Moebius believed that it is the result of a toxin analogous to that of diphtheria. Neurath,[2] and particularly the French authors also, defend the toxic theory. Furbinger[40] believes that the blood vessel walls become altered by the toxin and are thus more susceptible to the increase in blood pressure.

Biedert[36] and Hagenbach look on whooping cough not as a general infection like scarlet fever and measles, but believe that it is a local infection of the bronchi in which the cramp-like attacks of coughing may be attributed to the irritation of the superior laryngeal nerve.

In a case reported by Henoch,[33] in which there were convulsions and strabismus, but in which the autopsy revealed only hyperemia of the brain and meninges as well as hemorrhages, he believed the hemorrhages were due to carbon dioxide intoxication.

Luce[57] believed that in acute attacks of hemiplegia occurring during the course of pertussis, either a meningeal hemorrhage is found or there is no anatomic basis for it. He claimed that it was not proven that an isolated hemorrhage into the internal capsule or elsewhere in the pyramidal tracts could occur as the result of increased blood pressure. He looks on the occurrence of hemiplegia in these cases as due to CO_2 intoxication.

I believe that in my case the wide-spread lesion in the cortex was the result of a toxin acting on the vessels and setting up an inflammatory process. This process resulted in the destruction of fibers here and there in the cortex, especially in the paracentral region, in consequence of which there followed a degeneration of the pyramidal tracts. The small hemorrhages in the cortex were probably due to the convulsive attacks which preceded death.

To Dr. W. G. Spiller is due my sincere appreciation for his assistance in the study of the sections.

DISCUSSION.

DR. T. H. WEISENBURG, Philadelphia, reported the case of a canary bird which was the inmate of a house where three children were sick with whooping cough. The bird had been sick for about five weeks; previously he had been perfectly well. He had spells of coughing and these were more frequent at night and would keep him from sleeping. He had attacks of panting, associated with coughing and choking. He died of diarrhea after glycerin had been placed in his drinking water. The brain was removed and sections stained by the hemalum-eosin stain showed the blood vessels to be very much congested; these stood out prominently and diapedesis of the red blood cells could be easily seen. This is an interesting finding in conjunction with Dr. Rhein's case where hemorrhages were marked.

DR. R. C. MOORE, Omaha, Neb., stated that in severe nervous troubles, following an acute disease, the question arises whether the nervous disorder is due to anything mechanically connected with the disease or whether it is due to the toxins. Of course, the sequelæ of scarlet fever are of toxemic origin, but in this case the cerebral hemorrhage may possibly have been caused by the mechanical action due to the severity of the cough. In Dr. Moore's practice several years ago a little child about a year and a half old, during a severe attack of whooping cough, became totally blind. An ophthalmoscopic examination showed no disease of the eyeball, retina or anything connected with them. Therefore, the lesion must have been central. There was no spasm and the child developed no other severe symptoms. The lungs were normal and the child finally recovered. The probability is that in this child's brain there was a condition of those minute hemorrhages as described by Dr. Rhein, but the condition was not sufficiently severe to cause a fatal termination; the natural recuperative powers removed the results of the disease. Dr. Moore considered at that time that the child's condition was probably due to the severity of the cough, and that the products of the microorganism of the disease had nothing whatever to do with it. Very likely in Dr. Rhein's case the slight hemorrhages were due to the same cause.

DR. JOHN H. W. RHEIN said that it would be interesting, if possible, to study the effect of whooping cough on the nervous system of the lower animals. After a brief review of the literature he has been unable to discover any data on this subject.

54. Theodore: Arch. f. Kinderheilk., 1890, p. 219.
55. Kassirer: Centralbl. f. Kinderheilk., 1896, p. 37.
56. Marie: Progrès Méd., 1885, p. 167.
57. Luce: Deutsch. Zeitschr. f. Nervenheilk., 1898, p. 272.

ACUTE INTESTINAL SURGERY, WITH REMARKS ON TECHNIC.*

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ST. LOUIS.

There is a class of abdominal cases which may justly be considered acute. Acute for the reason that the indications for immediate surgery are mandatory and in which the mortality largely depends on the time of operation and the technic of the work. Under this heading I wish to discuss:

1. Penetrating gunshot and stab wounds of the abdomen.
2. Severe abdominal contusions associated with rupture of the intestines or with other visceral injuries.
3. Strangulated hernia.

I shall confine myself as closely as possible to a consideration of the operative technic.

PENETRATING GUNSHOT AND STAB WOUNDS OF THE ABDOMEN.

At the last meeting of this Association I presented in detail a series of cases of gunshot and stab wounds of the abdomen on which I had operated at the St. Louis City Hospital. In that paper I endeavored to show the impossibility of determining the damage done to abdominal viscera by a bullet or knife wound penetrating in character by any known method save exploratory section. As my experience grows I am convinced that the conclusions arrived at in that paper were correct. Assuming that we accept the statement that all penetrating wounds should be explored, as is agreed by the majority of surgeons who have had any actual operative experience in this work, the technic of the work is well worthy of consideration and should be fully discussed.

The operation itself may be divided into: (a) Examination of wounds; (b) incision; (c) control of hemorrhage; (d) search for visceral injuries; (e)

* Read before the Mississippi Valley Medical Association, 1904, at Cincinnati, Ohio.

method of repairing injuries to viscera; (f) irrigation and drainage; (g) closure of wound.

It goes without saying that the patient should be carefully prepared before any attempt is made to investigate the extent of his injuries.

(a) The wound of entrance, and that of exit (if one exists), should be noted. The skin at wound of entrance is incised sufficiently to admit the finger; the wound is then traced and if it is found to penetrate the abdominal wall perforation should always be assumed and exploratory section proceeded with.

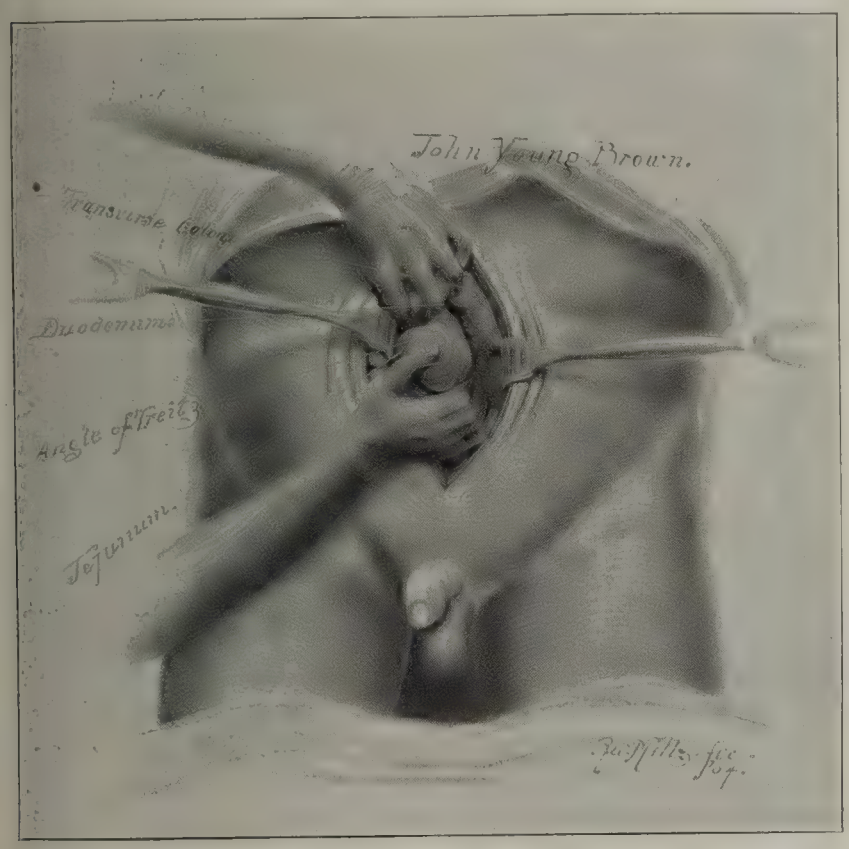


Fig. 1.—Transverse colon thrown back and hand picking up jejunum.

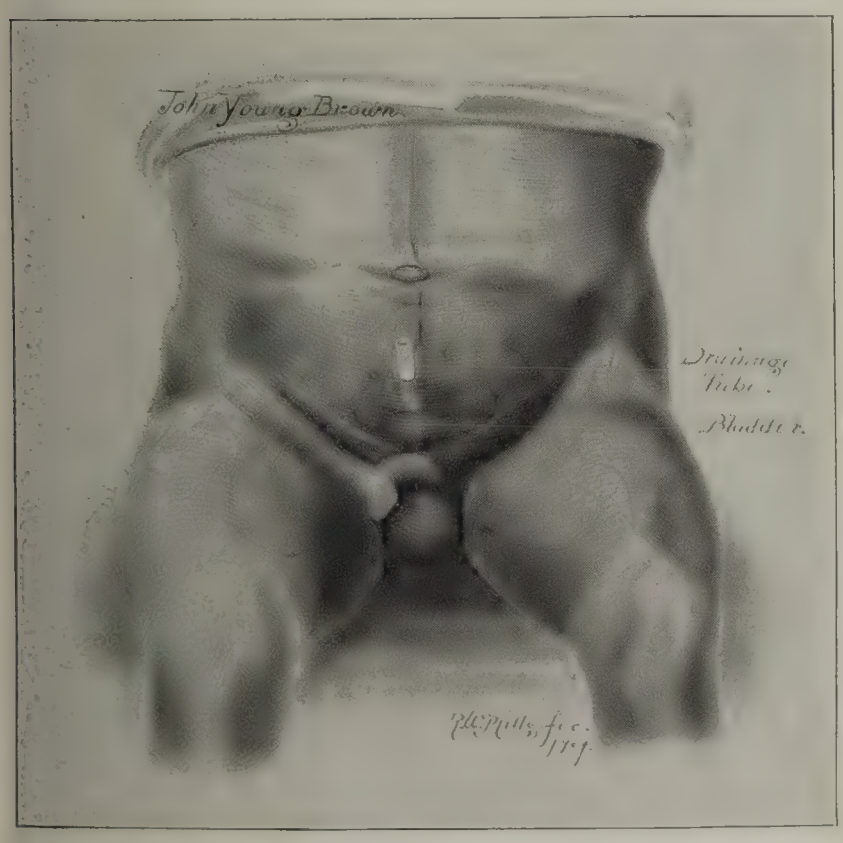


Fig. 2.—Glass drain in cul-de-sac of Douglas. Patient in exaggerated Fowler position.

(b) As it is necessary in all penetrating gunshot wounds to examine systematically the peritoneal viscera, a median incision is best. This should begin an inch and a half below the ensiform cartilage and extend to two inches below the umbilicus. An incision of this kind gives complete command of the field.

(c) As soon as the peritoneal cavity is opened all sources of hemorrhage should be sought and controlled by ligature. In wounds of the liver and spleen careful gauze tamponade is the best method of controlling hemorrhage, the gauze being brought out through a stab wound made in the region of injury, or through the wound of entrance if possible.

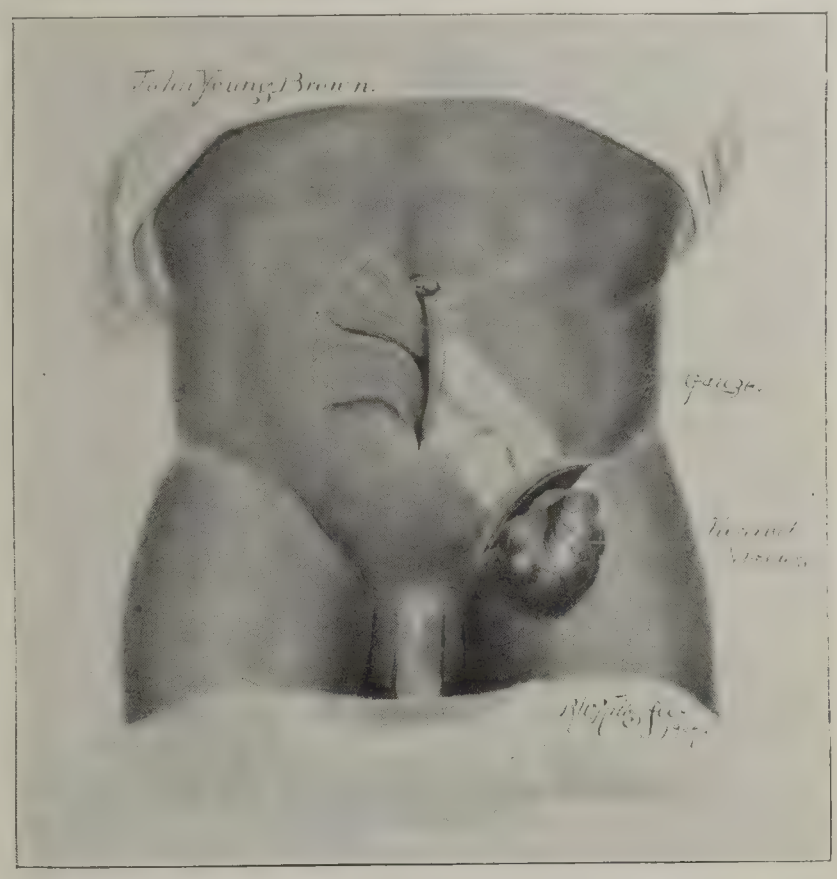


Fig. 3.—Gauze in place and gut ready to be delivered through the abdominal incision.

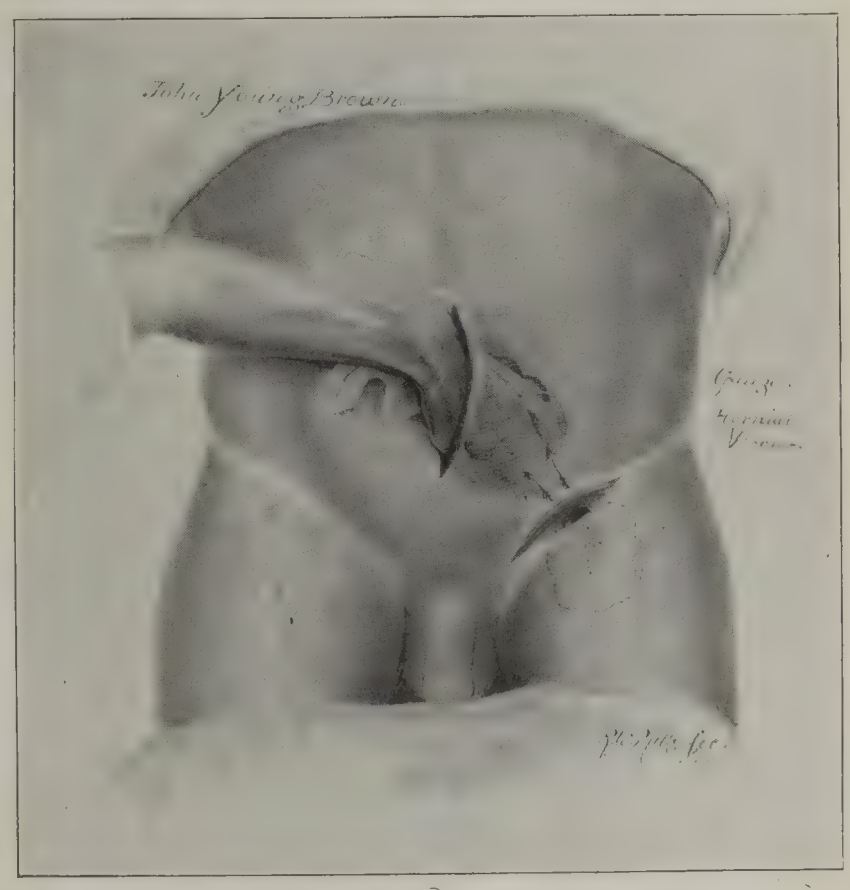


Fig. 4.—Method of delivery of bowel.

(d) In searching for bowel injuries there are two important anatomic landmarks to be observed: first, the angle of Tritz, and second, the ileocecal junction. In order not to eviscerate a patient it is necessary for

the surgeon to find at once the jejunum as it comes from under the colon. By throwing the transverse colon back, the jejunum can be picked up, just as is done in gastroenterostomy, and from this point it is followed to its juncture with the cecum, or the search can be reversed by beginning at the ileocecal valve and following the small bowel up (Fig. 1). As the operator goes over the small bowel, the assistant returns the gut, thus exposing only a small section at a time. The large bowel is next examined from the ileocecal juncture to the rectum. In wounds of the stomach, the posterior wall is readily reached by tearing through the omentum and pulling the stomach through the rent. The rent in the omentum is then closed with continuous suture of fine silk. Injuries to the bladder are easily recognized by the use of the catheter and the Trendelenburg posture. A search of this kind precludes the possibility of overlooking bowel injuries.

(e) Wounds of bowel not in too close proximity are repaired either by means of a silk purse-string suture or by a through-and-through silk stitch, and then completed with the Lembert stitch. The location of bowel wounds should be carefully noted. Wounds close to the mesenteric border are of extreme importance, and the same may be said of wounds of the mesentery. We must be assured that the blood supply of the bowel is not interfered with. Where there are multiple perforations in close proximity, or where the blood supply is cut off, resection is imperative. While I am not averse to the suture, I am convinced, from a large experience, that the Murphy button is the ideal method of making an anastomosis in repairing gunshot wounds. It is simple, quick and reliable. My assistant, Dr. Wm. J. Doyle, recently resected six feet of small bowel in a patient, with sixteen perforations of the bowel and six of the mesentery. This anastomosis was made with the button and was quickly accomplished. The patient passed the button on the nineteenth day and has been discharged from the hospital.

(f) Gunshot wounds are about the only class of cases in which I use irrigation. In such cases blood and extravasated bowel contents are invariably found in the peritoneal cavity, and their removal is greatly facilitated by copious irrigation. The apparatus used is the funnel, rubber hose and the irrigating tube of Joseph Price. In addition to the mechanical cleansing effects of the irrigation, the salt solution is rapidly absorbed by the peritoneum and the stimulation thus obtained is well marked in badly shocked patients.

Except in wounds of the liver, pancreas and spleen, gauze is never used, and in these cases it is used to control hemorrhage, and not as a drain. The drainage I have found most effective in these cases is the glass drain placed through a stab wound above the pubes, the tube being placed in the cul-de-sac of Douglas; the patient is then placed in the exaggerated Fowler position and the tube drained by suction (Fig. 2).

(g) The long incision, so necessary for thorough work in these cases, should be carefully closed. As many of these patients are badly shocked, the through-and-through method of closure is the best, because it can be done quickly. I believe, however, that when the condition of the patient will permit the wound should be closed in layers, after the method suggested by Ochsner, namely, catgut for peritoneum and fascia; tension sutures of silkworm gut through skin, muscle and fascia; with horse-hair sutures for the skin. The importance of care in closure has been impressed on me very forcibly in two cases operated on in the last year. One case was that of a policeman on whom I operated, resecting eighteen inches of ileum, in which there were seven perforations. Six days after operation I found his intestines out on the abdomen. I returned them, closing the wound in layers. The second case was that of a man on whom I operated for a gunshot wound of the liver. The hemorrhage, which was severe, was controlled by gauze tampon. Four days after operation his wound gave way, requiring a second closure. Both of these cases we closed through-and-through at primary operation, owing to the bad condition of the patient, and, while the recovery in each case was satisfactory, such accidents can be avoided by careful closure.

ABDOMINAL CONTUSIONS ASSOCIATED WITH RUPTURE OF BOWEL OR INJURY TO OTHER ABDOMINAL VISCERA.

Abdominal contusions associated with rupture of the intestine and with injury to other abdominal viscera are by no means of uncommon occurrence. Such injuries are among the most fatal the surgeon is called on to treat, for the reason that they are seldom recognized until widespread peritonitis is present. The frightful mortality in such cases was ably discussed in a paper by Curtis.[1] He reported 116 cases occurring prior to 1887. These cases were all treated without operation, and all terminated fatally. Homer Gage[2] collected 85 cases occurring since 1887. Forty-five were not submitted to operation and all died; 40 were operated on, with 17 recoveries. Bottomley[3] discusses abdominal contusion, accompanied and unaccompanied by intestinal injury. His views are based on a careful analysis of 20 cases of undoubted severe intestinal injuries, and he concludes as follows:

"To sum up in a few words, it may be said that at present we have no certain means of distinguishing between a simple abdominal contusion, and one complicated by severe intestinal injury, except through exploratory incision. This, to be of most avail, must be done within a very short time (from three to five hours) after the injury. Having no certain method of diagnosis, and the promptness of the operation being the feature necessary for its success, exploratory laparotomy, combining, as it does, opportunity for a certain diagnosis and the best possible treatment, if injury be present, should be a very early routine measure in all but the most trivial cases of contusion of the abdomen."

Two cases have come under my observation during the last year, from which I have learned a severe lesson.

CASE 1.—T. M., aged 23, German, was admitted to hospital at 9:30 a. m. Nov. 1, 1903.

History.—Four days prior to admission he was struck in the abdomen with a piece of timber. The blow was a severe one and he suffered, at the time of injury, greatly from shock, which in a measure subsided. Purgatives were freely given, but his bowels failed to move. The usual hot applications were made to the abdomen. When he arrived at the hospital his abdomen was tense, pulse very rapid, features pinched, vomiting continuous. A diagnosis of acute septic peritonitis, the result of probable intestinal rupture, was made.

Operation.—He was immediately prepared for operation, and the abdomen was opened through a median incision four inches long below umbilicus.

1. American Year-Book of Medicine and Surgery, 1903, p. 113.
2. Homer Gage: Ann. Surgery, March, 1902.
3. Bottomley: Boston Medical and Surgical Journal, Dec. 5, 1901.

On opening the peritoneum fecal matter gushed freely from the incision. The intestines and omentum were highly congested and covered with lymph. Owing to the patient's bad condition, irrigation with hot normal salt solution was begun at once to combat shock. Eighteen inches from the ileocecal valve two perforations of the small intestine were found. These were closed with through-and-through sutures of silk and buried with interrupted Lembert stitches. The peritoneal cavity was thoroughly flushed, a glass drain was placed in pelvis, and a rubber tube drain was placed through stab wounds made in either flank. A rubber drain was also placed in the upper angle of the wound, and the wound left open. One through-and-through silkworm-gut suture only was used to close the abdomen. The operation lasted fifteen minutes, patient taking only 28 c.c. of chloroform. The patient died four hours after operation.

CASE 2.—A Greek laborer, age 49, was admitted to hospital Sept. 15, 1904.

History.—An hour before admission he was run over by a wagon, the wheels passing over his abdomen.

Examination.—On admission he was suffering severely from shock; pulse bad, well-marked evidence of internal hemorrhage; no ribs fractured and no injury to pelvic bones. Catheterization showed no blood in urine. There was great tenderness and muscular rigidity over the entire abdomen; pronounced dullness in region of spleen. He was given hypodermoclysis, surrounded by hot bottles and carefully watched. He reacted nicely. Examination later revealed tumor in region of spleen. Five days after the receipt of injury, when all his symptoms pointed to recovery, he suddenly developed symptoms of alarming internal hemorrhage.

Operation.—He was immediately prepared for operation and the abdomen was opened. The peritoneal cavity was found to be filled with blood, the source of hemorrhage being a lacerated spleen. The wound in the spleen was tamponed with gauze and the abdomen flushed with hot saline. The patient died two hours after operation.

Thus is added two more cases to the long list, making up the 100 per cent. mortality the expectant treatment of these conditions has given to us. The first case died of peritoneal sepsis, and the second of hemorrhage. Early surgery would have saved both cases. If we wait for rapid pulse, vomiting and high temperature to develop before operating on such cases, surgery will prove of little avail. In all cases where there is pain, tenderness and muscular rigidity following abdominal contusion, the abdomen should be immediately opened and the proper surgery applied.

STRANGULATED HERNIA.

During the last year I have done primary resection for gangrenous bowel on five cases of strangulated hernia; three of these were inguinal and two were femoral hernia. Of these five, four recovered and one died. The method employed was as follows:

The sac was opened in the usual manner. Before attempting to relieve the constriction, the contents of the sac were carefully cleansed with saline solution and hydrogen peroxid. This was done to prevent leakage of septic material in the peritoneal cavity, after devulsion or division of constriction. A supplementary abdominal incision was made, the gut was then protected with gauze, pulled through the abdominal incision and resected well back into healthy tissue, the anastomosis being made in each case with the Murphy button.

The importance of draining the distended loop above the constriction of its highly septic contents can not be too strongly emphasized. This is best accomplished in the following manner:

As soon as the gut has been delivered through the supplementary incision, the bowel is clamped off and a glass tube, to which is attached a long rubber hose, is tied in the proximal bowel. The bowel is then allowed to drain through the tube into a receptacle under the table, while the resection is proceeded with. By this method no time is lost and the drainage is accomplished without soiling the field (Figs. 3 and 4).

I believe in all cases where there is any question about the integrity of bowel found in the sac of a strangulated hernia that the gut should be immediately resected. I also believe that the resection can be accomplished best by means of the above described method. Through a supplementary incision wide resection can be quickly made. The anastomosed gut can be returned without danger of damage to stitch or button union at the site of the anastomosis. If necessary, the pelvis can be drained through a stab wound above the pubes. A radical operation can then be done at the hernial site, as was done in all the cases above mentioned. I am well aware that strong theoretical objections can be offered to this procedure. I wish to report it, however, as a method which has proved satisfactory in my hands, claiming no priority for it, but hoping that the cases mentioned will bring out an expression of opinion as to the best method of dealing with a gangrenous gut found in the sac of a strangulated hernia.

VALEDICTORY ADDRESS AT JOHNS HOPKINS UNIVERSITY.*

WILLIAM OSLER, M.D.
BALTIMORE.

As this is the last public function at which I shall appear as a member of the university, I very gladly embrace the opportunity which it offers to express the mingled feelings of gratitude and sorrow which are naturally in my mind—gratitude to you all for 16 years of exceptionally happy life; sorrow that I am to belong to you no more. Neither stricken deeply in years nor damaged seriously by illness, you may well wonder at the motives that have induced me to give up a position of such influence and importance; to part from colleagues so congenial, from associates and students so devoted, and to leave a country in which I have so many warm friends and in which I have been appreciated at so much more than my real worth.

It is best that you should stay in the wonder-stage. Who can understand another man's motives? Does he always understand his own? This much I may say in explanation—not in palliation. After years of hard work, at the very time when a man's energies begin to flag, and when he feels the need of more leisure, the conditions and surroundings that have made him what he is and that have molded his character and abilities into something useful in the community; these very circumstances insure an ever-increasing demand upon them, and when the call of the East comes, which in one form or another is heard by all of us, and which grows louder as we grow older, the call may come like the summons to Elijah, and not alone the plowing of the day, but the work of a life, friends, relatives, even father and mother, are left to take up new work in a new field. Or, happier far yet, if the call comes, as it did to Puran Das in Kipling's story, not to new labors, but to a life "private, unactive, calm, contemplative."

THE LOSS OF INDIVIDUALS.

There are several problems of university life sug-

*Delivered at the annual commencement exercises, Feb. 22, 1905.

gested by my departure. It may be asked in the first place whether metabolism is sufficiently active in the professoriate body; is there change enough? May not the loss of a professor bring stimulating benefits to a university? We have not here lost very many—this is not a university, Mr. President, that men care to leave—but in looking over its history I do not see that the departure of anyone has proved a serious blow.

It is strange of how slight value is the unit in a great system. A man may have built up a department and have gained a certain following, local or general, nay, more, he may have had a special value for his mental and moral qualities, and his fission may leave a scar, even an aching scar, but it is not to be for long. Those of us accustomed to the process know that the organism as a whole feels it about as much as a big polyzoon when a colony breaks off, or a hive of bees after a swarm—'tis not indeed always a calamity; oftentimes it is a relief.

Of course, on a few the sense of personal loss falls heavily; the faculty of getting attached to those with whom we work is strongly developed in most of us, and some will realize the bitterness of the lines:

> Alas! that all we loved of him should be
> But for our grief as if it had not been.

HIS HEART ALL CICATRICES.

But to the professor himself these partings belong to the life he has chosen. Like the hero in one of Matthew Arnold's poems, he knows that his heart was not framed to be "long loved." Change is the very marrow of his existence—a new set of students every year, a new set of assistants, a new set of associates every few years to replace those called off to other fields! in any active department there is no constancy, no stability in the human surroundings. And in this there is an element of sadness. A man comes into one's life for a few years, and you become attached to him, interested in his work and in his welfare, and perhaps you grow to love him as a son, and then off he goes!—it must be as bad as having a daughter married, leaving you with a bruised heart. After teaching for 30 years and coming into very intimate contact with my assistants, my heart is all cicatrices, covered with one big "milky patch." (The medical students will appreciate the allusion.)

TOO LONG IN ONE PLACE.

The question may be asked whether as professors we do not stay too long in one place. It passes my persimmon to tell how some good men—even lovable and righteous men in other respects—have the hardihood to stay in the same position for 25 years. To a man of active mind too long attachment to one college is apt to breed self-satisfaction, to narrow his outlook, to foster a local spirit and to promote senility. Much of the phenomenal success of this institution has been due to the concentration of a group of light-horse intellectuals, without local ties, whose operations were not restricted and whose allegiance indeed was not always national, yet who were willing to serve faithfully in whatever field of action they were placed.

And this should be the attitude of a vigilant professoriate. As St. Paul preferred an evangelist without attachments, as more free for the work, so in the general interests of higher education a university president should cherish a proper nomadic spirit in the members of his faculties, even though it be on occasions a seeming detriment. A well-organized college trust could arrange a rotation of teachers which would be most stimulating all along the line. We are apt to grow stale and thin mentally if kept too long in the same pasture. Transferred to fresh fields, amid new surroundings and other colleagues, a man gets a fillip which may last for several years.

WOULD SWAP COLLEGE HEADS.

Interchange of teachers, national and international, will prove most helpful. How bracing the Turnbull lecturers have been, for example! It would be an excellent work for the University Association, which met here recently, to arrange this interchange of instructors. Even to swap college presidents now and then might be good for the exchequer. We have an excellent illustration of the value of the plan in the transfer this year of Professor Keutgen from Jena to give the lectures here on history. An international university clearing house might be organized to facilitate the work. How delightful it would be to have a return of the mediæval practice, when the professor roamed Europe at his sweet will, or to the halcyon era of the old Greek teachers, of which Empedocles sings:

> What days were those, Parmenides!
> When we were young, when we could number friends
> In all the Italian cities like ourselves,
> When with elated hearts we joined our train,
> Ye sun-born virgins on the road to truth.

YOUNG MEN, MOVE ABOUT.

It is more particularly on the younger men that I would urge the advantages of an early devotion to a peripatetic philosophy of life. Just so soon as you have your second teeth think of a change; get away from the nurse, cut the apron strings of your old teachers, seek new ties in a fresh environment, if possible, where you can have a certain measure of freedom and independence. Only do not wait for a fully equipped billet almost as good as that of your master. A small one, poorly appointed, with many students and few opportunities for research, may be just what is needed to bring out the genius—latent and perhaps unrecognized—that will enable you to do well in an unfavorable position what another could not do at all, not even in the most hopeful surroundings.

INFANTILISM AND PROGERIA.

There are two appalling diseases which only a feline restlessness of mind and body may head off in young men in the academic career. There is a remarkable bodily condition, known as infantilism, in which adolescence does not come at the appointed time, or is deferred until the twentieth year or later, and is then incomplete, so that the childish mind and the childish form and features remain. The mental counterpart is even more common among us. Intellectual infantilism is a well-recognized disease, and just as imperfect nutrition may cause failure of the marvelous changes which accompany puberty in the body, so the mind too long fed on the same diet in one place may be rendered rickety, or even infantile. Worse than this may happen.

A rare, but still more extraordinary bodily state is that of progeria, in which, as though touched with the wand of some malign fairy, the child does not remain infantile, but skips adolescence, maturity and manhood, and passes at once to senility, looking at 11 or 12 years like a miniature Tithonus, "marred and wasted," wrinkled and stunted, a little old man among his toys. It takes great care on the part of any one to live a mental life corresponding to the ages or phases

through which his body passes. How few minds reach puberty, how few come to adolescence, how fewer attain maturity! It is really tragic—this widespread prevalence of mental infantilism, due to careless habits of intellectual feeding.

Progeria is an awful malady in a college. Few faculties escape without an instance or two, and there are certain diets which cause it just as surely as there are waters in some of the Swiss valleys that will produce cretinism. I have known an entire faculty attacked. The progeric himself is a nice enough fellow to look at or to play with, but he is sterile, with the mental horizon narrowed, and quite incapable of assimilating the new thoughts of his day and generation.

As in the case of many other diseases, it is more readily prevented than cured, and, taken early, change of air and diet may do much to antagonize a tendency, inherited or acquired. Early stages may be relieved by a prolonged stay at the university baths of Berlin or Leipzic, or if at the proper time a young man is transferred from an American or Anglican to a Gallic or Teutonic diet. Through no fault of the man, but of the system, due to the unfortunate idea on the part of the denominations that in each one of the states they should have their own educational institutions, collegiate infantilism is far too prevalent, against which the freer air and better diet of the fully equipped universities is proving a rapid, as it is the rational antidote.

MENTAL ASTIGMATISM.

Nor would I limit this desire for change to the teachers. The student of the technical school should begin his *wanderjahre* early, not postponing them until he has taken his M.D. or Ph.D. A residence of four years in the one school is apt to breed prejudice and to promote mental astigmatism which the after years may never be able to correct. One great difficulty is the lack of harmony in the curricula of the schools, but this time will correct, and, once initiated and encouraged, the better students will take a year or even two years in schools other than those at which they intend to graduate.

FIXED TERM FOR TEACHERS.

I am going to be very bold and touch on another question of some delicacy, but of infinite importance in university life, one that has not been settled in this country. I refer to a fixed period for the teacher, either of time of service or of age. Except in some proprietary schools, I do not know of any institutions in which there is a time limit of, say 20 years' service, as in some of the London hospitals, or in which a man is engaged for a term of years. Usually the appointment is *aut vitam aut culpam,* as the old phrase reads. It is a very serious matter in our young universities to have all of the professors growing old at the same time. In some places only an epidemic, a time limit, or an age limit, can save the situation.

MEN UNDER FORTY GREAT WORKERS.

I have two fixed ideas well known to my friends, harmless obsessions with which I sometimes bore them, but which have a direct bearing on this important problem. The first is the comparative uselessness of men above 40 years of age. This may seem shocking, and yet read aright the world's history bears out the statement. Take the sum of human achievement in action, in science, in art, in literature—subtract the work of the men above 40, and, while we should miss great treasures, even priceless treasures, we would practically be where we are to-day. It is difficult to name a great and far-reaching conquest of the mind which has not been given to the world by a man on whose back the sun was still shining. The effective, moving, vitalizing work of the world is done between the ages of 25 and 40 years—these 15 golden years of plenty, the anabolic or constructive period, in which there is always a balance in the mental bank and the credit is still good.

In the science and art of medicine there has not been an advance of the first rank which has not been initiated by young or comparatively young men. Vesalius, Harvey, Hunter, Bichat, Laennec, Virchow, Lister, Koch—the green years were yet on their heads when their epoch-making studies were made. To modify an old saying, a man is sane morally at 30, rich mentally at 40, wise spiritually at 50—or never. The young men should be encouraged and afforded every possible chance to show what is in them. If there is one thing more than another upon which the professors of the university are to be congratulated, it is this very sympathy and fellowship with their junior associates, upon whom really in many departments, in mine certainly, has fallen the brunt of the work. And herein lies the chief value of the teacher who has passed his climacteric and is no longer a productive factor; he can play the man midwife, as Socrates did to Thesetetus, and determine whether the thoughts which the young men are bringing to the light are false idols or true and noble births.

CHLOROFORMING SEXAGENARII.

My second fixed idea is the uselessness of men above 60 years of age, and the incalculable benefit it would be in commercial, political and in professional life if, as a matter of course, men stopped work at this age. Donne tells us in his "Biathanatos" that by the laws of certain wise states sexagenarii were precipitated from a bridge, and in Rome men of that age were not admitted to the suffrage, and were called *depontani* because the way to the senate was *per pontem* and they from age were not permitted to come hither. In that charming novel, the "Fixed Period," Anthony Trollope discusses the practical advantages in modern life of a return to this ancient usage, and the plot hinges on the admirable scheme of a college into which at 60 men retired for a year of contemplation before a peaceful departure by chloroform. That incalculable benefits might follow such a scheme is apparent to any one who, like myself, is nearing the limit, and who has made a careful study of the calamities which may befall men during the seventh and eighth decades!

Still more when he contemplates the many evils which they perpetuate unconsciously and with impunity! As it can be maintained that all the great advances have come from men under 40, so the history of the world shows that a very large proportion of the evils may be traced to the sexagenarians—nearly all the great mistakes politically and socially, all of the worst poems, most of the bad pictures, a majority of the bad novels, and not a few of the bad sermons and speeches. It is not to be denied that occasionally there is a sexagenarian whose mind, as Cicero remarks, stands out of reach of the body's decay. Such a one has learned the secret of Hermippus, that ancient Roman, who, feeling that the silver cord was loosening, cut himself clear from all companions of his own age, and betook himself to the company of young men, mingling with their games and studies, and so lived to the age of 153, *puer-*

orum halitu refocillatus et educatus. And there is truth in the story, since it is only those who live with the young who maintain a fresh outlook on the new problems of the world.

THREE PERIODS IN THE TEACHER'S LIFE.

The teacher's life should have three periods—study until 25, investigation until 40, profession until 60, at which age I would have him retired on a double allowance. Whether Anthony Trollope's suggestion of a college and chloroform should be carried out or not, I have become a little dubious, as my own time is getting so short.

SOME HOPKINS HISTORY.

Such an occasion as the present affords an opportunity to say a few words on the work which Johns Hopkins has done and may do for medicine. The hospital was organized at a most favorable period, when the profession had at last awakened to its responsibilities, the leading universities had begun to take medical education seriously, and to the public at large had come a glimmering sense of the importance of the scientific investigation of disease and the advantages of well-trained doctors in a community. It would have been a very easy matter to have made colossal mistakes with these great foundations. There are instances in which larger bequests have been sterile from the start; but in the history of educational institutions it would be hard to name one more prolific than the Johns Hopkins University, and it has not been simply a seed farm, but a veritable nursery from which the whole country has been furnished with cuttings, grafts, slips, seedlings, etc.

It would be superfluous in this audience to refer to the great work which the trustees and Mr. Gilman did in 25 years—their praise is in all the colleges. But I must pay tribute to the wise men who planned the hospital, who refused to establish an institution on the old lines—a great city charity for the sick poor—but gave it vital organic connection with a university. I do not know who was directly responsible for the provision in Mr. Hopkins' will that the hospital should form part of the medical school, and that it should be an institution for the study as well as for the cure of disease.

Perhaps the founder himself may be credited with the idea, but I have always felt that Francis T. King was largely responsible, as he had strong and sensible convictions on the subject, and devoted the last years of his useful life in putting them into execution. As first president of the hospital board he naturally did much to shape the policy of the institution, and it is a pleasure to recall the zeal and sympathy with which he always was ready to co-operate.

It is said that in so few years all of the members of the original board have passed away, the last, Mr. Corner—faithful and interested to the end—only a few weeks ago. They did a great work for this city, and their names should be held in everlasting remembrance. Judge Dobbin and James Carey Thomas in particular, the members of the staff in the early days, remembered with gratitude for their untiring devotion to the medical-school side of the problems which confronted us. To John S. Billings, so long the skilled advisor of the board, we all turned for advice and counsel, and his influence was deeper and stronger than was always apparent. For the admirable plan of preliminary medical study, and for the shaping of the scientific work before the hospital was opened for patients, we are indebted to Newell Martin, Dr. Remsen and Dr. Welch. The present excellent plan of study leading up to medicine, in which the classics, science and literature are fully represented, is the outcome of their labors.

About this time sixteen years ago Mr. King, Dr. Billings, Dr. Welch and myself had many conferences with reference to the opening of the hospital. I had been appointed on January 1, but had not yet left Philadelphia. As so often happens, the last steps in a great organization are the most troublesome, and after some delay the whole matter was intrusted to Mr. Gilman, who became acting director; in a few months everything was ready, and in May the hospital was opened.

I look back with peculiar pleasure to my association with Mr. Gilman. It was both an education and a revelation. I had never before been brought into close contact with a man who loved difficulties just for the pleasure of making them disappear. But I am not going to speak of those happy days, lest it should forestall the story I have written of the inner history of the first period of the hospital. I promise you it is most interesting, full of nice details of which the newspapers know nothing. For example, the loves of the surgeons, the trials of the director, Dr. Hurd, the troubles of the nurses are there set down. I have arranged for its publication in time for the centennial of the hospital, in May, 1989, and from those of you who may then read it I bespeak a kindly consideration and criticism.

At the date of the organization of the hospital the two great problems before the profession of this country were, how to give to medical students a proper education; in other words, how to give them the culture, the science and the art commensurate with the dignity of a learned profession; and, secondly, how to make this great and rich country become a contributor to the science of medicine.

STRICT ENTRANCE REQUIREMENTS.

The conditions under which the medical school opened in 1893 were unique in the history of American medicine. It would have been an easy matter, following the lead of the better schools, to have an entrance examination which guaranteed that a man had an ordinary education, but Miss Garrett's splendid gift enabled us to say, "No; we do not want a large number of half-educated students; we prefer a select group, trained in the sciences preliminary to medicine, and in the languages which will be most useful for a modern physician." It was an experiment, and we did not expect more than 25 or 30 students each year for eight or ten years at least. As is so often the case, the country was better prepared to meet our conditions than we thought, and the number of admissions to the school has risen until we have about reached our capacity. Our example in demanding the preliminary arts and science course for admission to the school has been followed by Harvard, and is to be adopted at Columbia. It is not a necessary measure in all the schools, but there has been everywhere a very salutary increase in the stringency of the entrance examinations.

Before we took up the work, great reforms in the scientific teaching in medicine had already begun in this country. Everywhere laboratory work had replaced to some extent the lecture, and practical courses in physiology, pathology and pharmacology had been organized. We must not forget, however, that to Newell Martin, the

first professor of physiology in this university, is due the introduction in this country of practical classes in biology and in physiology. The rapid growth of the school necessitated the erection of a separate building for physiology, pharmacology and physiologic chemistry, and in these departments and in anatomy the equipment is as complete as is required. Of the needs in pathology, hygiene and experimental pathology this is not the occasion to speak. It is sufficient to say that in instruction in the sciences, on which the practice of the art is based, the school is in first-class condition.

The rapidity with which the scientific instruction in our medical schools has been brought to a high level is one of the most remarkable educational features of the past 20 years. Even in small, unendowed colleges admirable courses are given in bacteriology and pathology, and sometimes in the more difficult subject of practical physiology. But the demand and the necessity for these special courses has taxed to the utmost the resources of the private schools. The expense of the new method of teaching is so great that the entire class fees are absorbed by the laboratories. The consequence is that the old proprietary colleges are no longer a profitable venture, certainly not in the North, and fortunately the schools are being forced into closer affiliation with the universities, as it is not an easy matter to get proper endowments for private corporations.

HOW PHYSICIANS ARE MADE.

The great difficulty is in the third part of the education of the student, viz., his art. In the old days, when a lad was apprenticed to a general practitioner he had good opportunities to pick up the essentials of a rough and ready art, and the system produced many self-reliant, resourceful men. Then with the multiplication of the medical schools and increasing rivalry between them came the two-year course, which for half a century lay like a blight on the medical profession, retarding its progress, filling its ranks with half-educated men, and pandering directly to all sorts of quackery, humbuggery and fraud among the public. The awakening came about 30 years ago, and now there is scarcely a school in the country which has not a four-year course, and all are trying to get clear of the old shackles and to teach rational medicine in a rational way.

But there are extraordinary difficulties in teaching the medical student his art. It is not hard, for example, to teach him all about the disease pneumonia, how it prevails in the winter and spring, how fatal it always has been, how frightened of it New York and Chicago have become, all about the germ, all about the change which the disease causes in the lungs and in the heart—he may become learned, deeply learned, on the subject of pneumonia, but put him beside a case and he may not know which lung is involved, as he does not know how to find out, and, if he did find out, he might be in doubt whether to put an icebag or a poultice on the affected side, whether to bleed or to give opium, whether to give a dose of medicine every hour or none at all, and he may not have the faintest notion whether the signs look serious or favorable.

So also with other aspects of the art of the general practitioner. A student may know all about the bones of the wrist—in fact, he may carry a set in his pocket—and know every facet and knob and nodule on them, he may have dissected a score of arms, and yet when he is called to see Mrs. Jones, who has fallen on the ice and broken her wrist, he may not know a Colles' from a Pott's fracture, and as for setting it *secundum arten*, he may not have the faintest notion, never having seen a case.

Or he may be called to preside at one of those awful domestic tragedies—the sudden emergency, some terrible accident of birth or of childhood—that require skill, technical skill, courage, the courage of full knowledge, and if he has not been in the obstetrical wards, if he has not been trained practically, if he has not had the opportunities that are the rights of every medical student, he may fail at the critical moment, a life, two lives, may be lost, sacrificed to ignorance, often to helpless, involuntary ignorance.

HOPKINS' CHIEF HONOR.

By far the greatest work of the Johns Hopkins Hospital has been the demonstration to the profession of the United States and to the public of this country of how medical students should be instructed in their art. I place it first because it was the most-needed lesson; I place it first because it has done the most good as a stimulating example, and I place it first because never before in the history of this country have medical students lived and worked in a hospital as part of its machinery, as an essential part of the work of the wards.

In saying this, heaven forbid that I should obliquely disparage the good and faithful work of my colleagues elsewhere. But the amphitheater clinic, the ward and dispensary classes, are but bastard substitutes for a system which makes the medical student himself help in the work of the hospital as part of its human machinery. He does not see the pneumonia case in the amphitheater from the benches, but he follows it day by day, hour by hour, and he has his time so arranged that he can follow it; he sees and studies similar cases, and the disease itself becomes his chief teacher, and he learns its phases and variations as depicted in the living, and he knows under skilled direction when to act and when to refrain from action, he learns insensibly principles of practice, and he possibly escapes a nickel-in-the-slot attitude of mind, which has been the curse of the profession in the treatment of disease.

And the same with the other branches of the art; he gets a first-hand knowledge which, if he has any sense, may make him wise unto the salvation of his fellows. And all this has come about through the wise provision that the hospital was to be part of the medical school. and it has become for the senior students, as it should be, their college. Moreover, they are not in it on sufferance and admitted through side doors, but they are welcomed as important aids without which the work could not be done efficiently.

The whole question of the practical education of the medical student is one in which the public is vitally interested. Sane, intelligent physicians and surgeons with culture, science and art are worth much in a community, and they are worth paying for in rich endowments of our medical schools and hospitals. Personally, there is nothing in my life in which I take greater pride than in my connection with the organization of the medical clinic of the Johns Hopkins Hospital and with the introduction of the old-fashioned methods of practical instruction. I desire no other epitaph—no hurry about it. I may say—than the statement that I taught medical students in the wards, as I regard this as by far the most useful and important work I have been called on to do.

AMERICAN INVESTIGATORS.

The second great problem is a much more difficult one, surrounded as it is with obstacles inextricably connected with the growth and expansion of a compara-

tively new country. For years the United States had been the largest borrower in the scientific market of the world, and more particularly in the science relating to medicine. To get the best that the world offered, our young men had to go abroad; only here and there was a laboratory of physiology or pathology, and then equipped, as a rule, for teaching. The change in 20 years has been remarkable. There is scarcely to-day a department of scientific medicine which is not represented in our larger cities by men who are working as investigators, and American scientific medicine is taking its rightful place in the world's work.

Nothing shows this more plainly than the establishment within a few years of journals devoted to scientific subjects; and the active participation of this school as a leader is well illustrated by the important publications which have been started by its members. The hospital trustees early appreciated the value of these scientific publications, and the bulletin and the reports have done much to spread the reputation of the hospital as a medical center throughout the world.

But let us understand clearly that only a beginning has been made. For one worker in pathology—a man, I mean, who is devoting his life to the study of the causes of disease—there are 25 at least in Germany, and for one in this country there are a dozen laboratories of the first class in any one of the more important sciences cognate to medicine. It is not alone that the money is lacking; the men are not always at hand. When the right man is available he quickly puts American science into the forefront.

ANATOMIC WORK.

Let me give you an illustration: Anatomy is a fundamental branch in medicine. There is no school, even amid sylvan glades, without its dissecting-room, but it has been a great difficulty to get the highest anatomy represented in American universities. Plenty of men have always been available to teach the subject to medical students, but when it came to questions of morphology and embryology and the really scientific study of the innumerable problems connected with them, it was only here and there, and not in a thorough manner, that the subjects were approached. And the young men had to go abroad to see a completely equipped, modern-working anatomic institute.

There is to-day connected with this university a school of anatomy, of which any land might be proud, and the work of Dr. Mall demonstrates what can be done when the man fits his environment.

It is a hopeful sign to see special schools established for the study of disease, such as the Rockefeller Institute in New York, and the McCormick Institute in Chicago, and the Phipps Institute in Philadelphia. They will give a great impetus in the higher lines of work in which the country has heretofore been so weak. But it makes one green with envy to see how much our German brethren are able to do.

GERMANY'S GREAT WORK IN INSANITY.

Take, for example, the saddest chapter in the history of disease—insanity, probably the greatest curse of civilized life. Much has been done in the United States for the care of the insane, much in places for the study of the disease, and I may say that the good work which has been inaugurated in this line at the Sheppard Hospital is attracting attention everywhere. But what a bagatelle it seems in comparison with the modern development of the subject in Germany, with its great psychopathic clinics connected with each university, where early and doubtful cases are skillfully studied and skillfully treated. The new department for insanity connected with the University of Munich has cost nearly half a million dollars. One of the four new departments for which one side of the hospital grounds lies vacant, and which I trust will be built within the next 25 years, will be a model psychopathic clinic to which the acute and curable cases may be sent.

For how much to be thankful have those of us who have to share in the work initiated by these two great foundations! We have been blessed with two remarkable presidents, whose active sympathies have been a stimulus in every department, and whose good sense has minimized the loss of energy through friction between the various parts of the machine—a loss from which colleagues are very prone to suffer. A noteworthy feature is that in so motley a collection from all parts of the country the men should have fitted into each other's lives so smoothly and peacefully, so that the good-fellowship and harmony in the faculties has been delightful. We have been singularly blessed in our relationship with the citizens, who have not only learned to appreciate the enormous benefits which these great trusts confer on the city and the state, but they have come forward in a noble way to make possible a new era in the life of the university.

We of the medical faculty have to feel very grateful to the profession, through whose influence and support much of the success of the hospital and the medical school is due; not only the physicians of the city and of the state, who have dealt so truly with us, but the profession of the entire country, and more particularly to that of the southern states, whose confidence we have enjoyed in such a practical way. On a maintenance of this confidence the future rests. The character of the work of the past 16 years is the best guarantee of its permanence.

What has been accomplished is only an earnest of what shall be done in the future. On our heels a fresh perfection must tread, born of us, fated to excel us. We have but served and have but seen a beginning. Personally, I feel deeply grateful to have been permitted to join in this noble work and to have been united in it with men of high yet human ideals.

Special Article.

IMMUNITY.

CHAPTER VI.

THE ANTIBACTERIAL AND THE ANTITOXIC NATURE OF NATURAL IMMUNITY.

In a previous page it has been stated that natural immunity may be either antibacterial or antitoxic. We have seen that the protection afforded by the body surfaces may be effective against both microbes and their toxins, and that local inflammatory processes, although most certainly antagonizing the bacteria, may at the same time have some antitoxic value.

The term natural immunity, however, as indicated in the first section, has a peculiar application to the natural resistance of some species or races of animals to infections to which other species or races are susceptible; and to an unusual individual resistance often seen in members of a given race or species. This condition depends on properties residing in the tissues or fluids of the body, and consequently is independent of any protection which the body surfaces afford. Its presence is demonstrated in the most striking

manner by the experimental method, when microbes or toxins are injected directly into the tissues or circulation. At the same time every-day observation provides many examples.

Natural Antibacterial Immunity.

In determining the antibacterial nature of immunity in a given case there are two conditions which must be proved: 1, that the body cells or fluids are able to destroy the microbe, and that this power is sufficiently strong to make it reasonable that the immunity depends on it; 2, that the immunity does not depend on non-susceptibility to a possible toxin of the microbe, nor on a naturally existing antitoxin.

To prove the first condition, two procedures may be resorted to: First, the microbes are injected into the subcutaneous tissue, the peritoneal cavity or the blood vessels. If the animal does not become ill after a dose which, in proportion to weight, is pathogenic for some other test animal, an immunity is indicated. At a proper interval all the tissues and fluids are examined to determine the fate of the microbes. This may be done by staining the fluids and cells for bacteria and examining with the microscope, or by inoculating culture tubes with the fluids, the growth or non-growth of colonies determining whether or not the microbes have disappeared. Examinations of this nature often disclose the fact that many of the bacteria have been phagocytized by the leucocytes while others have apparently succumbed to the germicidal action of serum or plasma. In the event of their disappearance it should also be shown that the disappearance does not depend entirely on excretion through the urine or feces; this is best done by the culture method, but is a difficult technical problem.

Second, the animal's serum or plasma may be mixed with a suspension of the microbes in a number of test tubes, using varying amounts of serum with constant amounts of the bacteria in the different tubes, and at a subsequent period, from three to twenty-four hours later, cultures are made from these mixtures to determine the bactericidal power of the serum. The numbers of colonies which appear in these cultures, minus the number which appear when serum is not added, is an index of the bactericidal power of the serum. If this power is found to be high, it is, in the present state of our knowledge, considered as presumptive evidence that the natural immunity of the animal depends on it. It is, nevertheless, a fact that the antibacterial immunity of an animal does not always go hand in hand with the bactericidal power of its serum. A well-known illustration of this is the following: Both the dog and the rat have a rather high degree of immunity against infections with the anthrax bacillus; yet it has been found that the serum of the dog has almost no bactericidal effect on this microbe, while that of the rat has a very strong effect. At the same time we should remember that the bactericidal power of the serum does not necessarily represent the entire antibacterial function of the body. In the serum we have none of the body cells, and especially none of the phagocytes, the destructive action of which on some bacteria is well known.

Alexins.

At a time when antitoxic action was not appreciated, Buchner gave the name of alexins (from the Greek, ἀλέξειν, to ward off) to the protective substances of the serum, i. e., to the bactericidal substances, making the observation that they were very labile substances, losing their power spontaneously in a few days when exposed to the air and light, or when they were heated to 55 C. for thirty minutes.

Natural Antitoxic Immunity.

In determining the presence or absence of antitoxic immunity, the toxin of the microbe, of course, must first be in hand. The methods of obtaining toxins will be referred to later. If the animal resists a dose of toxin which, in proportion to weight, produces disease in some other susceptible animal, the tissues or fluids of the first animal may contain antitoxin. It will be indicated later how this result may be obtained even without the presence of antitoxin, the immunity being due to some other obscure cause. If the resistance is referable to the presence of antitoxin, the latter may be detected in the following manner: The animal is bled, its serum collected from the clot, then mixtures of the serum and of the toxin are injected into animals of known susceptibility for the toxin. If the test animal is in this way protected from an otherwise fatal dose of the toxin, it is evidence that the serum contains an antitoxic substance.

Following this method of experimentation, if antibacterial properties are found to the exclusion of antitoxic, the immunity is considered to be antibacterial; and with the converse result it is antitoxic. It is, of course, conceivable that in a given case it might be both antitoxic and antibacterial. In dealing with diseases of which the specific microbe is known and cultivated, the existence of antibacterial or of antitoxic substances can usually be found by the methods described. If the etiology is unknown, as in scarlet fever, measles, syphilis, etc., that is, if the virus and its toxin can not be obtained in quantities, the nature of the resistance is not at present open to determination.

Examples are known in which, in spite of rather high resistance on the part of the animal, its serum contains neither strong antitoxic nor antibacterial properties. This relationship exists between a number of animals and such bacteria as the pneumococcus, staphylococcus and streptococcus. Consequently much is yet to be learned concerning natural immunity.

It is seldom that natural resistance is absolute. Pasteur found that the great immunity of the chicken for anthrax could be overcome by immersing the animal in cold water, the reduction in body temperature supposedly decreasing the resistance. It was stated in a previous section that physical exhaustion, hunger and exposure to cold may also reduce natural resistance. Pestilence and famine often go hand in hand.

Relative Immunity.

Similarly antitoxic immunity usually is relative. The chicken, which withstands a large quantity of tetanus toxin injected into the skin, muscles or circulation, succumbs when the toxin is injected directly into the nervous tissue. As an illustration of natural immunity to toxins, the following table serves a good purpose. The horse is the most susceptible animal for tetanus toxin. If the minimum fatal amount for one gram of horse weight is taken as a unit this scale of resistance for some other animals is obtained (Knorr):

For 1 gram of guinea-pig weight.....	2 units are fatal
For 1 gram of goat weight.....	4 units are fatal
For 1 gram of mouse weight.....	13 units are fatal
For 1 gram of rabbit weight.....	2,000 units are fatal
For 1 gram of chicken weight.....	200,000 units are fatal

In view of the high immunity of the chicken against tetanus one may be led to suppose that its serum would contain a large amount of antitoxin, yet experiments show that it possesses practically no tetanus antitoxin. This fact suggests that there is a distinct type of natural immunity which, it is thought, may be independent of both the antibacterial and the antitoxic properties of the animal. It is now thought that the toxic elements of bacteria are chemical substances (very complex, surely) which are able to injure the tissues, i. e., to cause disease only by entering into chemical union with substances which the cells contain.

Cell Receptors.

Such chemical substances or groups pertaining to the cells will be referred to later under the name of cell receptors. Accordingly, if an animal's cells do not possess groups or receptors which are capable of forming a chemical union with the toxin, the latter would be unable to produce injury, i. e., the animal would be immune regardless of all bacterial or antitoxic properties. This condition, however, is not one which is capable of experimental demonstration, at least at present, but the conditions point irresistibly to its existence in some cases.

We are accordingly led to the conclusion that immunity to toxins is not in all cases antitoxic, in the sense that the

serum contains demonstrable antitoxin; and likewise that immunity to bacteria is not in all cases antibacterial, in the sense that the serum contains substances which are able to kill the bacteria in test-tube experiments.

There is another factor, however, which may throw light on the type of natural immunity just considered. We know that tetanus toxin causes tetanus through its power of uniting with the nerve cells, and we may consider that tetanus is a very fatal disease primarily because of the vital nature of the tissue which it attacks. Now, if the toxin, instead of uniting with the cells of a vital organ, were to combine with cells of less importance to the economy, as, for example, the cells of the subcutaneous tissue, it is probable that we should have no tetanus. In some of the lower animals there is reason to believe that the toxin of tetanus does unite with such tissue (Metchnikoff). Roux and Borrel believe that the greater degree of immunity which the rabbit has over the guinea-pig is due largely to the fact that the rabbit's liver is able to fix a great deal of the toxin. And Metchnikoff has found that the liver of the scorpion, which has an absolute immunity to tetanus, absorbs the toxin and retains it for months.

Summary. By way of summary, then, we may say that the natural blood immunity and tissue (histogenic, Behring) immunity depend on the following factors: Bactericidal and antitoxic powers of the serum and plasma, the destructive effect of the cells, especially the phagocytes, on both bacteria and toxins; a possible absolute non-susceptibility in some cases (the absolute non-existence of suitable cell receptors); the overwhelming distribution of the suitable receptors for the toxin in organs of less vital necessity for the individual, thus diverting it from more important organs.

In order that a pathogenic organism produce a progressively fatal disease in a susceptible animal the following obstacles must be surmounted: The strong defenses of the body surfaces must first be overcome; a local inflammatory reaction which may have been excited must first prove itself to be inadequate for the limitation of the infection; there must be an insufficient supply or activity of antimicrobic and antitoxic processes in the body fluids and cells.

In view of the wide variations in the nature of different pathogenic agents it is evident that the defensive means which would counteract one might be inadequate for another; and inasmuch as animals appear to differ as much in the character of their defensive as microbes do in their offensive powers, there is abundant room for the display of the various phenomena of natural immunity and of natural susceptibility with which we have become familiar.

Hemolysins. In addition to the bactericidal and antitoxic action of many normal serums, they often possess other characteristics which are of the highest interest in the study of immunity. In earlier days it had been noted that the transfusion of blood from one species to another was often fatal to the injected animal. Later investigations showed that this was due to toxic substances in the transfused blood; substances which, above all, destroyed the red blood cells of the injected animal. This action, in which the hemoglobin is dissolved out of the red blood cells, may be reproduced in test-tube experiments by mixing the blood cells of one animal with the serum of another which is toxic (e. g., rabbit blood + goat serum). This is the phenomenon of hemolysis, and the appearance of such a tube is exactly like that seen when blood is mixed with distilled water or even with tap water; i. e., it is a laking of the blood, it loses its opacity and assumes a beautiful cherry-red color. The serum of practically every species contains a hemolytic substance (a serum hemolysin) for some kind of erythrocyte.

Cytotoxins. Some serums also contain toxic agents for other cells; they are generally called serum cytotoxins. The serum of the eel not only contains a strong hemolysin, or hemotoxin, but also a powerful poison for nervous tissue, neurotoxin. Similarly we have normal leucotoxins for leucocytes, nephrotoxin for kidney tissue, etc.

Agglutinins. Another property of many normal serums is that which causes the agglutination or clumping of bacteria, as one sees it in the Gruber-Widal test for typhoid. Even normal human serum may agglutinate the typhoid bacillus, but to a less degree than that of a typhoid patient.

Precipitins. One serum often causes a precipitate in the serum of another animal, or in a bacterial culture filtrate. In considering these facts one becomes conscious of the great complexity of that substance which plays so important a part in immunity and its study—i. e., the blood serum.

(To be continued.)

New Instruments.

COMBINATION QUADVALVE WIRE SPECULUM AND BIVALVE SPECULUM RETRACTOR.*

CHARLES F. SPANGLER, M.D.
KANE, PA.

This instrument is designed to facilitate the inspection of the vulva, vagina and cervix. It is especially serviceable in stout patients, or in patients with relaxed vaginal walls, which close in between the expanded blades of a speculum and obstruct the field of vision. It should be constructed of the most durable quality of steel wire. It is easily rendered aseptic, is self-retaining, and is readily introduced and withdrawn without pinching the tissues. The adjustment is such that the distension of the vaginal vault by the expanded blades draws the cervix well forward within the speculum and toward the vulvar outlet.

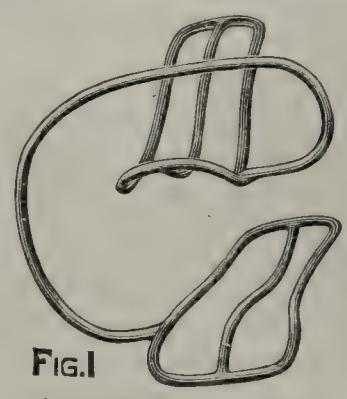


FIG. 1

Anteroposterior blades.

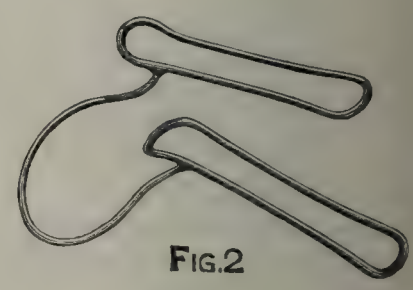


FIG. 2

Lateral blades.



FIG. 3

Blades in position.

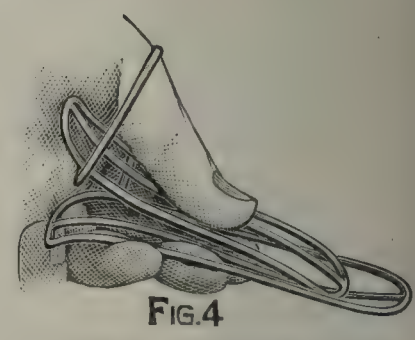


FIG. 4

Method of introducing blades.

The spring lop or vulvar extremities of both sections are intended to be permanently expanded and not compressed for introduction. The location of the cervix is ascertained with the index finger, the anteroposterior blades (Fig. 1) are introduced by placing the thumb through the loop on the anterior blade and the fingers of the same hand under the posterior blade, pressing together the distal extremity only as in Figure 4. This movement carries the blades through the vulva, then the pressure on the blades by the fingers is released and

* Exhibited before the McKean County Medical Society, at Bradford, Pa., Nov. 1, 1904.

the speculum gently pushed into position. The lateral blades (Fig. 2) are next introduced in like manner (Fig. 3).

In removing the instrument, the lateral blades are removed first by withdrawing them one-half or two-thirds and then compressing the distal ends as when introducing. The antero-posterior blades are sufficiently withdrawn, but the distal ends can be compressed in like manner.

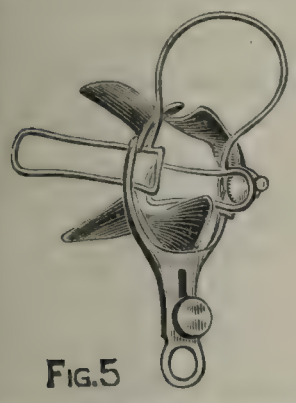


FIG. 5

Lateral blades used with ordinary bivalve speculum.

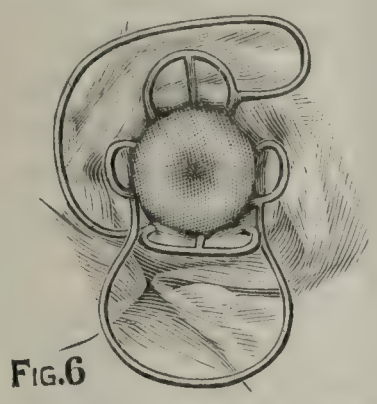


FIG. 6

Speculum in position showing cervix.

In office examinations, in many instances, there is difficulty in securing satisfactory exposure of the cervix without the aid of an assistant. The lateral blades or retractors used in conjunction with any suitable bivalve speculum, as in Figure 5, constitutes a thoroughly efficient quadvalve speculum insuring complete exposure of the cervix, particularly in cases of laceration or of enlargement of the cervix or of undue relaxation of the vaginal walls (Fig. 6).

A NEW SAW ESPECIALLY ADAPTED TO CRANIAL SURGERY.*

H. C. MASLAND, A.M., M.D.
PHILADELPHIA.

It is a matter of common knowledge that the present instruments for opening the skull in cranial surgery are crude and unsatisfactory from many points of view, and some months ago, in making certain bone sections, the idea of utilizing the circular saw occurred to me. This new saw which I have devised (Fig. 1) has a handle heavy enough to prevent vibration, and of such shape as to permit a firm grasp with the hand. On the upper part of the handle there is a shoulder to accommodate the thumb. On the lower aspect of the handle are grooves for the fingers, with a ring for the index finger. This ring protects the finger absolutely from the rapidly revolving saw, and also gives a rigid base to brace, when desired, the handle against the head. I originally provided a sharp pin on the lower edge of this ring to press into the bone to anchor the instrument, thereby preventing slipping of the saw in starting the incision. This was found in practice, however, to be unnecessary, the saw proving to be under perfect control. The gauge to regulate the depth of cut of the saw slides at the side of the saw, and is accommodated in a dovetailed groove at the side of the handle. The end of the gauge shaft is threaded and accommodates a nut set in a recess in the handle. By turning this nut, the gauge slides in or out and permits the saw to cut to any depth, to the finest fraction of an inch.[1] The saw is set in a recess in the handle, and this, with the gauge just described, protects the operator's fingers perfectly from any injury. The saw is attached to a short shaft held in place by a set-screw through the top of the nose-piece of the handle. A thread on the other end of the shaft, with a surrounding threaded collar permits of connection with the flexible shaft and its sheath respectively of an electric motor or dental engine.

This instrument will cut as rapidly as desired through bone of any density. I have had the saw revolving 3,400 revolutions a minute with all vibration a negligible quantity. With a circular saw, of course, one must make incisions in a straight line, but a moment's reflection will show that the curved incision has no real advantage, and is but an inheritance of the compulsory cut of the obsolete trephine. With this new saw, a bone flap of any size may be made, with the least possible amount of bone destruction, and without interference with the vitality of the flap. By making a triangular flap, and then instead of cutting through the last angle breaking it off with a chisel, the periosteal connection is preserved. By tilting the saw a beveled cut can be made, thereby securing a shelf and preventing undue sinking of the bone flap after replacement.

This instrument makes an incision of but one millimeter in width, and it can readily be seen that this promises the very greatest likelihood of union occurring in the healing process.

Inasmuch as the saw can be regulated to cut the finest shades of difference in depth we have ample protection against injuring the brain substance. Even when there are internal ridges of bone if the operator does not choose to spring these loose with his chisel, he can pass a delicate curved probe around the ridge between the dura and the skull and then by pressing the dura away cut the obstructing ridge with impunity (Fig. 2).

I have thus far refrained from referring to the inside guard because many surgeons feel confident enough to control their cuts without its use. However, I have devised it in order to answer every requirement that might arise. This guard is composed of the protecting arm with a T-shaped end, a pivot joint and a handle arm. The joint is of the French lock pattern,

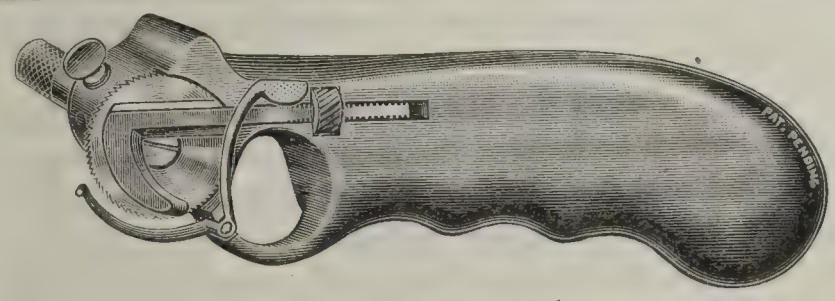


Fig. 1.—Cranial saw.[1]

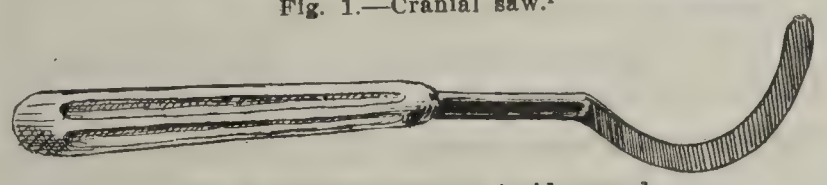


Fig. 2.—Curved probe or inside guard.

with a sufficiently wide bearing surface to prevent lateral motion. The French lock permits the ready removal or placing of the guard in position. The handle arm turns up over the instrument to the shoulder where it is operated by the thumb.

To operate this guard an opening is first made to admit the T-shaped tip, the tip is then adjusted in position between the skull and the dura. Constant pressure of the thumb is necessary to keep the tip in proper apposition to the inner wall of the skull. Suitable stops placed at the joint prevent the arm from contact with the teeth, and also from unnecessary motion in the opposite direction. A spring[1] attached to the arm assists the thumb in constantly drawing up the tip toward the saw. It is necessary to withdraw the tip and to readjust it when starting on a new line of incision, as the narrow cut made prevents the guard from turning corners. A contrivance has been devised for transmitting the power through the handle to the short saw shaft. As, however, the mechanism for this is more complicated and less durable, and as by experience the lateral transmission has not proved objectionable, it has appeared wiser to use the simpler construction.

To sterilize the instrument here shown, it is only necessary to unthread and withdraw the guard, loosen the set-screw holding the shaft, and then to draw out the saw and shaft; all the parts are then exposed and can be thoroughly cleansed.

In closing I might say that though this saw was primarily devised for cranial surgery it will no doubt prove useful in operations on various bones. Its usefulness in removing the calvarium at autopsy is apparent.

An instrument dealer thought that this instrument would prove an admirable saw to cut plaster-of-paris casts.

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* Shown before the Philadelphia County Medical Society, Jan. 25, 1905. The discussion by members of the society was printed in THE JOURNAL, February 18, p. 569.

1. Not desiring to obscure the view the inner guard spring is not shown in Figure 1.

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COCCIDIOIDAL GRANULOMA.

It has been known for some time that the lesions which we speak of as tubercles, which are essentially granulation tissue tumors, are not necessarily the result of the action of the tubercle bacillus. In leprosy, syphilis, glanders, actinomycosis, experimental infection with acid-fast bacilli, and, in fact, in the whole series of diseases known as infectious granulomata, lesions are found more or less closely resembling those of tuberculosis. The recent work of Ophüls[1] shows that similar lesions may also be produced by organisms which closely resemble oidia.

Ophüls reviews the history of the class of cases from one of which he isolated the organism which he studied. The first case described originated in the Argentine Republic, but the cases reported since then have nearly all originated either in California or in the neighborhood of Chicago. Nearly all of the Chicago cases have had local skin lesions, while many of those originating in California have been cases of general infection. The organisms in both classes of cases are evidently closely allied, but it seems doubtful whether or not they are absolutely identical. In the cases of general infection there are two forms of onset, one the cutaneous, the other the pulmonary. The clinical picture varies according to the organs attacked and the degree of general involvement. In some cases a skin involvement may exist for years before generalization takes place. The pulmonary cases may run a course suggesting a rather chronic pyemia, or there may be pleurisy with subsequent lung involvement and later sinus formation. In some cases large abscesses form subcutaneously or in the internal organs. The acute cases with multiple skin lesions may strongly suggest glanders. Cases in which the skin lesions predominate may resemble cases of mycosis fungoides, the verrucose form of skin tuberculosis, or there may be rapid infiltration with extensive ulceration.

The pathologic lesions in the generalized cases take the form of miliary nodules like tubercles, and multiple abscesses, usually miliary, but at times large; these lesions are usually scattered throughout the organs. The disease in animals presents the same characteristics. In both man and animals glanders may be very closely imitated; in guinea-pigs even the purulent periorchitis may be present. Histologically the miliary nodules exactly resemble tubercles, and but for the presence of the causal agent could not be distinguished therefrom. Various transition stages between these tubercles and abscesses may be made out, and sometimes areas containing giant cells and more or less resembling fibromyxosarcoma are present. The different lesions seem to be associated with the different stages of the parasite, the tubercles with the old parasites, and the abscesses with the sporulating forms. This latter fact is probably due to the setting free during sporulation of chemical substances chemotactic to the leucocytes.

The parasite was originally described as a protozoön on account of the fact that mycelia are not formed except in culture media, and the earlier observers did not cultivate the organism. Since the first successful cultivation by Moffitt and Ash, the organism has been grown a number of times, and its cultural peculiarities are now fully described. It is not a protozoön, but a parasitic fungus belonging to the ascomycetes group. The spore-like bodies are not oidia, but a modification of them, the so-called chlamydospores. The chief characteristic of the organism is that in the hyphæ the protoplasm is concentrated at certain points in the form of spores, leaving between the spores segments of the original hyphæ which are empty. The chlamydospores can develop on media into new vegetative forms (hyphæ), or in the body into *fruchtkörper* with endogenous sporulation. The adult form of the parasite is seen in the lesions in the form of spherical bodies as much as 30 microns in diameter with a granular protoplasm and a double contoured membrane. The membrane is thick, being from one-fifth to one-tenth of the diameter of the parasite in thickness. Under favorable circumstances sporulation takes place, as many as a hundred spores being formed in one parasite. The life history of the parasite outside of the body is still unknown, as is its intermediate host, if any such is necessary. Cultures are only to be obtained from abscesses, as the organism fails to grow on media if tissue surrounds it.

1. Jour. of Exper. Med., vol. vi, Nos. 4-6.

MICROBIC LATENCY AFTER INFECTIONS.

Not infrequently it happens that some time after an attack of some acute infectious disease, such as typhoid fever or pneumonia, localized inflammatory processes develop in which are found the bacteria that caused the original infection. A variable period of latency, sometimes, in the case of typhoidal infection, extending over years, may intervene between the general disease and the localized process. This curious survival of bacteria—for we must regard most typhoidal abscesses and many post-pneumonic pneumococcal processes as caused by surviving bacteria rather than by new infections—is very difficult to explain, especially when we consider that the patients concerned must be regarded, in a measure at least, as immunized, having passed through a general and often severe infection with the same bacteria that later have set up these local lesions. A somewhat anal-

ogous observation is frequently made in connection with diphtheria, in that more or less virulent bacilli may persist, sometimes for months, in an inactive condition in the throats and noses of persons who have recovered from acute attacks of this disease, whereas generally the bacilli disappear in a much shorter time. Perhaps recurrent attacks of erysipelas, of acute articular rheumatism, and of other diseases are caused by the survival in the tissues, in an active or latent form, of the causative agents of the diseases, awaiting some specially favorable moment, or the entrance of some entirely new factor, in order to manifest again their original activity. Malaria also furnishes striking examples of microbic latency in the infected host. Mention may be made, too, of the interesting theories of Baumgarten and Behring in regard to the rôle of latent tubercle bacilli which, entering the body early in life, are assumed to remain inactive for years before the suitable occasion arises for pathogenic action. According to Baumgarten the original infection may be intrauterine, according to Behring it is alimentary, from cow's milk, the bacilli entering by way of the digestive tract. Neither theory seems to have a very broad basis of either observation or experiment, but the clinical history of the various localizations of tuberculosis in man furnishes many examples of the latency and of the persistence of the bacillus, and the recent studies of old, apparently healed tuberculous foci have brought to light many instances of encapsulated bacilli still capable of causing active tuberculosis, at least in animals.

Recently this microbic latency has received special consideration from the experimental side. Tizzoni and Panichi[1] have found that virulent pneumococci injected in otherwise fatal doses into animals either immunized or protected by antipneumonic serum may remain alive but inactive in the circulation for weeks and months. The cultures of such latent pneumococci from protected animals show deviations from the usual type and are without pathogenic effect unless specially treated. The Italian investigators assume that in immunized animals, as well as in those injected with antipneumonic serum, two sets of actions result in this case, namely: On the one hand a neutralization of the toxic products set free by virulent pneumococci in the infected organism, to which the usual physiologic disturbances must be ascribed, and, on the other hand, a radical change in the biologic characters of the cocci so that they merely persist without much, if any, pathogenic power. Heretofore, no very pertinent explanation has been given of the survival in latent form of microbes in infected persons. From the observations here referred to, we have reason to believe that, in some cases at least, microbic latency may be due to changes in the nature of the microbe, by virtue of which it sometimes can survive in otherwise highly unfavorable conditions, without manifesting its usual powers unless some special condition arises.

1. Centralbl. f. Bakt., 1905, Referate, xxxvi, 25.

THE POSSIBILITIES FROM FELLOWSHIP IN THE COUNTY SOCIETY.

There comes to notice the story of recent proceedings in a county medical society coupled with the statement that the society refused to pass resolutions against secret commissions and contract practice. One who feels defeated and discouraged complains that the new form of organization compels him to retain his membership "in a county society whose morals he may despise." Further, he is quoted as saying: "The present plan is to encourage quackery and a disregard for ethics within the profession, and to chase from the organization those who can not let themselves down to the lower level." Is there reason in this sharp denunciation? Is there any substratum of fact on which to base such dreary pessimisms? Is organization a failure? Is there logic in the conclusions? These are sober questions and they need to be met squarely.[1]

As all reputable physicians in any county are eligible to membership in the county society, it would seem that a county had been found in which a majority favor contract practice and secret commissions. If this is so, the present form of organization provides ample means for the relief of the minority. The county society is an autonomous unit, it is true, but its actions affecting membership are subject to review by the state association through designated officers. Finally, an appeal may be taken to the American Medical Association. A county society that encourages quackery can not exist, except by unanimous concealment of action. That the story is out in this instance shows lack of such meretricious unanimity, and the freedom for appeal first to the councilor, then to the entire council, and finally to the house of delegates of the state association, with last resort to the American Medical Association, is still open.

The facts of the case, and we obtain them from the complaining member, are sufficiently discouraging, but not nearly so hopeless as to warrant "quitting." At a meeting of 21 of 42 members there was discussion of amendments directed against contract practice and secret commissions. Seven are said to have spoken against adoption of the amendment to prevent members engaging in contract practice, though each one admitted such practice to be wrong, while, in their opinion, locally necessary at present. Four spoke in favor of adoption, one of whom moved, in view of the opposition, to table the amendments for five years, and the motion carried. No discussion of the secret commission is reported. There was no vote on either amendment. A resolution was adopted condemning contract practice unless the remuneration approaches the minimum for similar work in private practice.

1. It should be emphasized once more that the county society plan was not a new one when it was adopted four years ago as the basic principle in the general reorganization scheme. Such organizations as those in Alabama, Connecticut, Indiana, New York (both the society and the association) and Pennsylvania, which have been on the county society basis, some of them for nearly a century, did not find that it "encouraged quackery."

What is needed by this society is help from the state association. Of course, conditions in a large city differ from those in a smaller town, but, in either case, those who wish to see contract practice abolished must get to work, with the help of the councilor and others, and create a sentiment against the evil. Legislation is no remedy, and its failure of enactment no due cause for discouragement. With the sentiment said to exist in the county, if the by-law had been adopted it could not be enforced. Once having created a healthy sentiment among the majority, a simple agreement, reached gradually and accompanied by suasion applied to those of the laity demanding contract practice, will abolish the evil, at least in great part. A better opportunity for experimental trial of remedies to meet the demand for such practice can hardly be imagined. Those now disheartened have an enviable chance to lead us to practical methods of reform. It is the time for hope and action. What better feature of our plan of organization could there be than that which compels the upright physician to associate with and to uplift his less fortunate brothers whom necessity has led into error? No need for those of principle to "let themselves down to the lower level," but great need to keep on holding out the hand of fellowship to the poor fellows who are down.

TRUTH AND POETRY CONCERNING URIC ACID.

VIII.

Coincidently with the study of the methods by which uric acid is formed and destroyed in the body, efforts were made to determine the exact localization of these processes. The site of formation of uric acid was one of the earliest points to be studied, and the problem was approached in various ways. At first, certain organs supposedly related to uric-acid formation were removed and the metabolic changes following the operation studied. Thus an idea had early gained ground that uric acid is formed in the kidneys. Zalesky,[1] who was unable to demonstrate the presence of uric acid in the normal blood of birds and snakes, declared that on tying the ureters deposits of uric acid appear first in the kidneys, then in the adjacent lymphatic system and, later, in the blood and in the other tissues. In other words, the deposits gradually spread from the kidneys as a center, and this mode of distribution led him to the firm belief that the kidneys form the uric acid. It was shown later by Meissner,[2] however, that uric acid is present in the normal blood of birds, and other investigators (Chrzonszczewsky, 1866; Colosanti, 1881; Pawlinoff, 1875) proved that the deposition of uric acid and urates does not proceed so regularly from the kidneys as a center as Zalesky had thought; indeed, the findings of these observers rather pointed toward an extrarenal origin for uric acid. In birds it was shown that local injury to the tissues anywhere often causes a deposition of uric acid, and it seemed likely that the predominance of deposits in and about the kidneys in Zalesky's experiments might fairly be attributed to the trauma.

A second mode of ascertaining the site of uric-acid formation consisted in the determination of the quantities of uric acid present in various organs. This was the method followed by Meissner, who, on account of the large amount of uric acid present in the liver of birds, advanced the theory that the liver is the organ in which the substance is built. Others confirmed Meissner's view in that they found much uric acid in the livers of the ox, pig, horse and man. Against this view it was urged first, that only a small amount of uric acid is present in the liver of the dog; second, that uric acid is present in considerable quantities in other organs, like the spleen (Scherer, Ranke); and third, that the presence of uric acid in an organ may mean only its accumulation, not its formation, there.

A third mode of searching for the building place of uric acid was resorted to; certain organs of the body were isolated and the substances from which uric acid can be formed were passed through them. The amount of uric acid formed could then be measured directly, control experiments showing that the uric acid output was not due simply to the washing of preformed uric acid out of the organ. This, or a modification of it, is the method which has been used by Spitzer,[3] Wiener,[4] and especially by Kowalewski and Salaskin.[5]

Without entering into the details of the various experiments or the discussions to which they have given rise, it may be said that the formation of uric acid by oxidation of nuclein or xanthin bases has been shown to take place in a great many different organs of the body, while the formation of uric acid by the synthetic method occurs chiefly, if not solely, in the liver.

Of equal interest are the studies made to determine the site of uric-acid destruction in the body. The researches of Stokvis (1861), Ascoli (1898), M. Jakoby (1899), Wiener (1899), and Croftan (1903) indicate that various organs destroy uric acid and, indeed, that some of the organs that build it also decompose it. There is marked variability in different animals in this regard; in carnivorous and omnivorous animals it would appear as though the liver, for instance, is actively destructive of uric acid while in herbivorous animals the synthetic production of uric acid would seem to predominate over the destroying power of the organ. Croftan's studies of human tissues indicate that, bulk for bulk, the human kidney destroys more uric acid than

1. Zalesky: Untersuchungen über den uraemischen Process und die Funktion der Nieren, Tübingen, 1866.
2. Meissner, G.: Beiträge zur Kenntnis des Stoffwechsels im tierischen Organismus, Zeitsch. f. rat. Med., vol. xxxi, 1868, p. 144.
3. Spitzer, W.: Die Ueberführung von Nukleinbasen in Harnsäure durch die Sauerstoffuebertragende Wirkung von Gewebsauszügen, Pflüger's Arch., vol. lxxvi, 1899, p. 192.
4. Wiener, H.: Ueber Zersetzung und Bildung der Harnsäure im Tierkörper, Arch. f. exper. Path. u. Pharmak., vol. xlii, 1899, p. 375.
5. Kowalewski, K., und Salaskin, S.: Ueber die Bildung der Harnsäure in der Leber der Vögel, Ztschr. f. physiol. Chem., vol. xxxiii, 1901, p. 210.

the liver, the liver more than the muscles, the muscles more than the spleen and the blood. If one includes the relative bulk of these organs, as compared with the bulk of the whole body, in the calculation, he finds that the muscles destroy most uric acid, next the kidneys, and then the liver, the spleen and the blood.

There is room for much valuable work on the ferments or catalyzers which are responsible for uric-acid formation and for uric-acid destruction. Only a beginning has been made in this direction, but the field is so promising a one that it will be strange if a number of investigators are not soon attracted to it.

THE TOXIC EFFECTS OF FORMALDEHYD.

In another editorial we call attention to the increasing use of formaldehyd, and to the effects which it produces locally on the skin of the hands. Inasmuch as its use has been suggested as an inhalant in respiratory diseases, the recent work of Fischer[1] on the toxic effects of the various formaldehyd preparations is of interest. In this work, which was experimental, the drug was introduced by various routes into the bodies of animals. In some instances animals were subjected to the fumes in rooms which had been fumigated in the ordinary way, in other instances the drug was introduced into the stomach, peritoneal cavity or subcutaneous tissues. The general effect was the same whatever route was used. Not only were local lesions of an inflammatory character produced in all instances, but there was evidence that the drug was absorbed and produced important lesions of the parenchymatous organs, especially of the liver and kidneys. Of especial importance is the fact that the inhalation of the drug caused bronchitis and pneumonia. These findings show that the use of the drug by inhalation is not without danger, and it is, indeed, doubtful if it should be used in this way. The irritating characteristics of the drug are such that it should be used with great caution whatever method is employed.

SHIP MEDICINE CHESTS.

A recent investigation conducted by the *Pharmaceutical Era* showed that American tramp steamers, freighters and coasting schooners are not sufficiently provided with necessary drugs and medical supplies. A Federal law requires all American passenger-carrying vessels to provide medical attention and drugs, even for short voyages, but no such provision is made for purely freight-carrying vessels. British vessels, on the other hand, must carry medical stores suitable to the particular class of vessel, and a book of instructions for dispensing such supplies. It is stated that no British ship is permitted to leave even a foreign port unless its locker contains the prescribed number of remedies, but that many American ships, unless engaged in the passenger service, carry only such remedies as the agent's fancy may dictate. One ship carried only a few pounds of Epsom salts and a half gallon of castor oil. In Great Britain medical inspectors from the board of trade are expected to examine the medical stores of outgoing vessels, and are held responsible for the quality as well as for the quantity of the drugs. They can prevent a vessel leaving port until properly stocked with drugs. It should be the same with us.

1. Jour. Exper. Med., vol. vi, Nos. 4-6.

THE NEWSPAPERS' VERSION OF OSLER'S FAREWELL.

If Dr. Osler had had the foresight to engage the clipping bureaus of the country, what a unique portfolio of newspaper clippings he could have taken to staid old Oxford, and how the dons would shudder if they could read all the things that the American newspapers have said about their new associate. They would certainly be shocked, to say the least. The newspapers have given him some pretty severe "jolts," just because a reporter said he said what he did not say. The whole affair has been a reflection on the intelligence of the managing editors of our newspapers; Osler's own life is a refutation of the principle he was reported to have enunciated. Since he was 40 years of age his life has been full of activity; he has been accomplishing things. What one says must be weighed by the motives of the speaker, as well as by the effect the talk is desired to have on the listeners. Osler was talking to and for the young man, to encourage him to work during his youthful, manly vigor. No man knows better than Osler that old age is a term that is applied arbitrarily to any specified age; that some men are old at 30, while others are young at 80. We are all of us as old as our arteries, and as young as we feel. A reading of what Osler did say, a full abstract of which we are printing this week, will show that he said some very sensible things in that address, and that he did not advocate chloroforming at 60.

THE EFFECTS OF FORMALDEHYD ON THE SKIN AND NAILS.

It is difficult to realize that the use of formaldehyd has become so widespread, not only in medicine, but in the trades, that the annual production has reached 400,000 kilograms. This means that a large number of individuals daily must be more or less exposed to its action. The changes in the nails and skin which may result from such exposure have recently been described by Galewsky.[1] His cases were all in laboratory habitués who used the substance in pathologic or histologic work. The changes occurred in most instances long after the exposure to the formalin, in some cases from six to nine months having elapsed between the handling of the formaldehyd and the appearance of the lesions. The first symptom was a brownish discoloration of the nails, and this was followed by softening, a painful splintering and thickening in the neighborhood of the matrix. In some cases the lesion was confined to the nails, but in others the skin of the hands also suffered. The skin lesions took the form of an eczematous eruption, which at times extended as far as the wrist joint; this was accompanied by inflammatory edema and by vesicle formation. The nail condition differed from that which often accompanies ordinary eczema, in which the nails are generally hard and brittle. Nearly all the patients complained of the

1. Münchener med. Woch., vol. lii, No. 4, January 24.

burning and boring sensation in the ends of the fingers and the nails. The affection is an unusually stubborn one, and may last as long as a year and a half. It seems probable that it is not confined to laboratory workers, and those whose work is in skin diseases should be on the look out for the conditions in those who use formaldehyd in their work. Dermatologists also should be cautious in the use of the drug in hyperidrosis and similar conditions in which it is sometimes used.

THE SECRET NOSTRUM VS. THE ETHICAL PROPRIETARY PREPARATION.

For years the proprietary medicine question has been a perplexing problem for physicians, and as the articles of this class increase in number, the question becomes more vexed and more serious, and its solution more urgent. In taking up the subject, it may be stated at the outset that there is no more serious objection to a proprietary medicine *per se* (i. e., one protected by a copyright or by a trade-mark) than to one that is protected by a patent; for example, one of the synthetic chemicals.[1]

Technically, there is no difference between the proprietary medicines manufactured for physicians' use and the "patent medicines" exploited to the public, both being protected simply through copyright or trade-mark names. Yet the relation of the physician to these preparations is very different; about the latter he has little direct concern, save that he regrets that our laws permit the foisting on a suffering and unsuspecting public of preparations that are usually dangerous and always irrational. In the former he is directly and intensely interested, for they compose a part of the armamentarium which he is expected to use. On them he often has to depend, or at least does depend, consequently on them rest his success and the health, sometimes the lives, of those who place themselves in his care. In theory, they reflect the advance made in pharmaceutical science; in fact, if we take the greater number of them as our criterion, they discredit pharmaceutical science, for the character of this greater number is such that they are creditable neither to those who make them nor to those who use them.

At first, these preparations were introduced under pharmaceutical or descriptive names; they were of well-known composition, represented elegant preparations of standard formulæ, and were manufactured by pharmaceutical houses which took pride in their products. These preparations the physician welcomed as an advance in pharmacy, and he gladly specified in his prescriptions the name of the manufacturer whose product he desired.

Such were the original prescriptions for elixirs, syrups, pills, etc., of the manufacturing pharmacists. Some thirty years ago, however, there appeared, one by one, preparations bearing coined names, protected from imitation by copyright or trade-mark, with formulæ more or less mysterious and fictitious—in other words, secret. By making extravagant claims and by persistent exploitation in various ways, the manufacturers induced physicians to use them, and as they were usually the simplest kind of mixtures, requiring little, if any, machinery or skill in their compounding, and being composed of inexpensive drugs, the profits were large. Thus the field for commercial enterprise became an enticing one. The manufacturer might be an individual with no pharmaceutical knowledge and with his identity hidden under the anonymous name of some chemical company; thus, the better to impose on the credulous doctor, he combined the secrecy of his preparation with the mystery surrounding its manufacturer. With their fancy therapeutic or disease-suggesting names and with extravagant claims regarding their therapeutic value, these medicines appealed to a certain class of doctors; they were convenient, palatable, and, at least, satisfactory placebos. Further, they saved the doctor the trouble of writing a full prescription. It was not long, however, after these preparations became popular with the physician before they became popular in the true sense. The fancy, catchy names which caught the physician caught the layman as well, and the latter, finding not only full directions for use, but the names of the diseases in which the remedies were indicated, naturally bought them in preference to the so-called "patent medicines," for were these remedies not endorsed by the "faculty," and had they not testimonials from "the most prominent physicians"! Thus the physician became the unpaid pedler of secret nostrums; thus he encouraged his patient to prescribe for himself, and thus, as the secret nostrum manufacturer became richer, the physician became poorer.

All proprietary medicines, however, must not be classed as secret nostrums. While a few reputable manufacturing pharmacists have not been able to resist the temptation to sacrifice their good names by manufacturing and by exploiting preparations that are nothing more nor less than secret nostrums, and while so many physicians seem to be content to use such preparations, there are plenty of honestly made and ethically exploited proprietary preparations that are therapeutically valuable, and that are worthy of the patronage of the best physicians. In spite of all with which it has had to contend, the science of pharmacy in America is progressing, and is still leading the world. But how is the physician to separate these preparations which are ethical from those which are not? He is not supposed to be a chemist or a pharmacist, and if he were, he has neither time nor inclination to examine all the products he is asked to prescribe, or to inquire into the standing of those who exploit them. The number has become so great that to attempt to separate the good from the bad is bewildering, and no one individual is courageous enough even to try. The result of it all is that the educated, thinking physician—he who is honest with himself and with his patient—refuses to prescribe any proprietary mixture; he classes all as secret nostrums, and lets it go at that. What else can he do?

For many years the separation of the legitimate chemical and pharmaceutical preparations from those which we choose to call secret nostrums has been a dif-

1. It is acknowledged that the manufacturer should be protected when he has originated something of value to the public or to the profession. It is not acknowledged, however, that this protection should be unlimited, as is the case with the trade-marked or copyright-named articles; a protection for a limited period, such as a patent gives, is just and fair, but an unlimited protection is not.

ficult task for those conducting medical journals, whose advertising pages it was desired to keep free from unethical advertisements. The Board of Trustees of the American Medical Association has found the question most difficult of solution, and it has been before the board at nearly every meeting for many years. Ten years ago the board formulated certain rules, the basis of which was that the formula should be published; this, however, has proved very unsatisfactory. No manufacturer would furnish a working formula, and yet, without this, it is impracticable, except in very few instances, to verify the statements made regarding the composition of an article. Consequently, the claims made by the manufacturers had to be accepted, which means that the personal equation had to be considered in giving a decision, and this is not always a safe basis for sound judgment. It has long been recognized by those who have given thought to the question that a secret nostrum can not be changed into an ethical preparation by attaching to it an incomplete formula; further, the problem is too complex to be solved so easily.

Five years ago we published a series of articles on "The Relation of Pharmacy to the Medical Profession." In these articles we discussed the problem in all its phases, the difficulties connected with the question were explained, and the fact was recognized that physicians can not distinguish between the preparations that are worthy and those that are unworthy. The remedy suggested was a board of control, to be composed of pharmacists and chemists, which should pass on all medicines offered for insertion in the advertising pages of The Journal. Although its execution was deferred, the idea has never been abandoned, but has been kept in view ever since.

One objection to the original idea was that the results would be negative, except in so far as they applied to the advertising question. The suggestion finally was made to broaden the scope of the proposed board by making its functions similar to those of the Committee on Revision of the United States Pharmacopeia; in other words, to have it take up the work where that committee leaves off, and to publish in book form a list descriptive of the preparations which conform to the required standard, but which are not official. For more than a year this idea has been under consideration and development. Opinions regarding its practicability were obtained from many of the leading pharmacists and chemists of the country. In a quiet way tests were made regarding the practical working of the proposed plan, as it affected certain phases of the question and certain articles, and full consideration was given to the results to be expected, as well as to the possibilities and to the limitations, before the Board of Trustees finally authorized the creation of the Council on Pharmacy and Chemistry, the name adopted rather than "board of control," as originally suggested.

It is expected that in the immediate future a corps of medical consultants will be formed, to be composed of physicians connected with the large hospitals in various parts of the country, who will make physiologic and therapeutic tests of such preparations as it may be necessary to submit to such investigation. It is also in contemplation to establish a chemical and drug laboratory in the American Medical Association building, to be placed in charge of a competent chemist, who will examine such preparations as may be found necessary.

As some of our readers may not know all the members of the Council on Pharmacy and Chemistry, it will not be out of place to give the positions they occupy: Arthur R. Cushny is professor of pharmacology in the Department of Medicine and Surgery of the University of Michigan. He has recently been called to the professorship of pharmacology in the Medical Department of University College, London, as was announced in The Journal some weeks ago. Dr. Cushny will continue with the council until he removes to England, when he will assume the position of corresponding member. C. Lewis Diehl is professor of pharmacy at Louisville (Ky.) College of Pharmacy, vice-chairman of the Committee on Revision of the U. S. Pharmacopeia, chairman of the Committee on Revision of the National Formulary, and has been for twenty-eight years reporter of the progress of pharmacy for the American Pharmaceutical Association. C. S. N. Hallberg is professor of pharmacy in the University of Illinois School of Pharmacy, a member of the Committee on Revision of the U. S. Pharmacopeia, a member of the Committee on Revision of the National Formulary, and has been for five years secretary of the Section on Pharmacology of the American Medical Association. Robert A. Hatcher is professor of pharmacology in Cornell University Medical School, and joint author of "A Text-Book of Materia Medica," by Hatcher and Sollmann. Lyman F. Kebler is chief of the drug laboratory of the Department of Agriculture at Washington, D. C., and has done much of the chemical work in the exposition of certain fraudulent patent medicines. J. H. Long is professor of chemistry in Northwestern University Medical School. Frederick G. Novy is professor of hygiene and physiologic chemistry in the Department of Medicine and Surgery of the University of Michigan. William A. Puckner is professor of chemistry in the University of Illinois School of Pharmacy. Samuel P. Sadtler is professor of chemistry in the Philadelphia College of Pharmacy, the author of "A Text-Book on Chemistry," associate editor of the U. S. Dispensatory, and a member of the committee on Revision of the U. S. Pharmacopeia. Julius O. Schlotterbeck is professor of pharmacognosy in the University of Michigan School of Pharmacy. Torald Sollmann is professor of pharmacology in Western Reserve University. Julius Stieglitz is associate professor of chemistry in the University of Chicago and the author of several works on chemistry. Martin I. Wilbert is apothecary to the German Hospital of Philadelphia. H. W. Wiley is chief of the Bureau of Chemistry of the Department of Agriculture, Washington, D. C.

We quote below the preliminary announcement of the council in the form of a circular letter to the manufacturing pharmacists of the country. We hope that every reader of The Journal is sufficiently interested in the movement to read it.

COUNCIL ON PHARMACY AND CHEMISTRY.

Chicago, Feb. 28, 1905.

To the Manufacturing Pharmacists and Chemists of the United States and to Others Concerned:

As the culmination of plans which have been under con-

sideration for the past two years, the Board of Trustees at a meeting held Feb. 3, 1905, created by resolution an advisory board to be known as the Council on Pharmacy and Chemistry of the American Medical Association. The organization of the council was perfected at Pittsburg, Pa., Feb. 11, 1905, and it herewith presents the following statement:

PRELIMINARY ANNOUNCEMENT.

It is the immediate purpose of the council to examine into the composition and the status of the various medicinal preparations which are offered to physicians, and which are not included in the United States Pharmacopeia, or in other standard text-books or formularies. These preparations will include the synthetic chemical compounds, as well as the so-called proprietaries and pharmaceutical specialties put out under trademarked names. Preparations which conform to the standard established by the ten rules governing the matter, will be incorporated in "New and Non-Official Remedies," a book to be published by THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

The general need of an accessible, authoritative work of reference of this character is obvious, for at present there is no such book to which the physician can refer. Its value will be proportional to its completeness. It is, therefore, proposed to be as liberal in approving articles for the book as is consistent with justice and equity to the public, to the manufacturing pharmacist and chemist and to the physician. The acceptance of articles will be determined by the appended rules, an examination of which will show that they are sufficiently liberal to permit the admission of all articles offered to the medical profession that are honestly made, ethically exploited, and worthy of patronage by intelligent physicians.

The acceptance of an article will be based on a careful and unprejudiced examination of the accessible information from all sources, and in compliance with the adopted rules. An acceptance, however, is not to be interpreted as an endorsement, neither is omission from the list to be construed, in every case, as condemning an article; it may mean that the necessary information has not been obtained. The council does not pass judgment on the therapeutic value, but on the ethical status only. The council does not presume to dictate what preparations should be prescribed; nor is it the present intention to conduct an active campaign against fraudulent products; but merely *to supply necessary and desirable information concerning those which it considers unobjectionable.*

The plan for the work is briefly as follows: All available information regarding a product will be secured from the manufacturer and from other sources. This information, together with specimens of the article, will be submitted to a committee of experts, who will examine critically into the product, consider the claims made for it, and make a report. On the basis of this report, the council will accept, reject or hold for further consideration. If accepted, the information will be condensed and arranged somewhat on the plan of the United States Pharmacopeia, but with the addition of brief pharmacologic and therapeutic data. The council believes that there are many articles, at present not recognized by the Pharmacopeia, which comply with the required standard and do not need any further investigation. In this class come many of the synthetics as well as many well-known pharmaceutical specialties. These are now being written up and it is proposed to issue the first edition of the book as soon as possible. No charge will be made for representation in the book.

As fast as new articles are accepted, all information regarding them will be published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and will be incorporated in the next edition of the book.

The council appreciates the importance and difficulties of the work to be undertaken and does not expect to take a step forward without being sure that it is right and just to all concerned. It does not dare to hope for perfect results and can only promise to strive earnestly, honestly and impartially to avoid serious errors of commission and omission. It asks for the hearty co-operation and assistance of those it believes to be interested in the work—the entire medical profession and all honorable manufacturing pharmacists and chemists. Criticisms and suggestions will be welcome.

RULES GOVERNING THE ADMISSION OF ARTICLES.

The following rules are adopted to guide the Council on Pharmacy and Chemistry of the American Medical Association:

(The term "article" shall mean any drug, chemical or preparation used in the treatment of disease.)

RULE 1.—No article will be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article, be furnished for publication. (Sufficient information should be supplied to permit the council to verify the statements made regarding the article, and to determine its status from time to time.)

RULE 2.—No chemical compound will be admitted unless information be furnished regarding tests for identity, purity and strength, and, if a synthetic compound, the rational formula.

RULE 3.—No article that is advertised to the public will be admitted; but this rule will not apply to disinfectants, cosmetics, foods and mineral waters, except when advertised in an objectionable manner.

RULE 4.—No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties and doses may be stated. (This rule does not apply to vaccines and antitoxins nor to advertising in medical journals, nor to literature distributed solely to physicians.)

RULE 5.—No article will be admitted or retained about which the manufacturer, or his agents, make false or misleading statements regarding the country of origin, raw material from which made, method of collection or preparation.

RULE 6.—No article will be admitted or retained about whose therapeutic value the manufacturer, or his agents, make unwarranted, exaggerated or misleading statements.

RULE 7.—Labels on articles containing "heroic" or "poisonous" substances should show the amounts of each of such ingredients in a given quantity of the product.

RULE 8.—Every article should have a name or title indicative of its chemical composition or pharmaceutic character, in addition to its trade name, when such trade name is not sufficiently descriptive.

RULE 9.—If the name of an article is registered, or the label copyrighted, the date of registration should be furnished the council.

RULE 10.—If the article is patented—either process or product—the number and date of such patent or patents should be furnished. If patented in other countries, the name of each country in which patent is held should be supplied, together with the name under which the article is there registered.

EXPLANATORY COMMENTS ON THE RULES.

Rule 1.—Certainly no one can object to this rule. The physician not only has the right to know, but it is his duty to know, the composition of medicines he prescribes for his patients. He may not be interested in the details of the method or of the process of manufacture of an article, but he should know what medicinal agents it contains, and the amounts represented in a given quantity of the article.

Only in exceptional instances is it necessary for the physician to know the solvent, vehicle or other diluent, or the particular flavoring agent which may have been employed. For this reason, while the council desires the formula and the details as to the method of preparation to be sufficiently complete to enable it to verify the correctness of the assertions made regarding an article, the description to be published will usually consist only of a statement of the amount of each medicinal agent or ingredient in a certain quantity—generally

the ordinary dose—of the article, and in some instances the general character of the solvent or vehicle and flavors.

In preparations for external use, the therapeutic efficiency is greatly influenced by the nature of the vehicle. Therefore, in such preparations, the character of the vehicle or base should be stated, so that it may be known whether the article is penetrative or simply protective.

Rule 2.—In order to avoid errors in the case of chemical compounds and to guard against adulterations, lack of potency or strength and mistaking one chemical for another, it is necessary to have at hand suitable identity tests. Where these facts have appeared in the literature, or in standard textbooks, reference to them will be sufficient, but with new chemicals, especially synthetics, the manufacturer or his representatives will be required to supply such tests to the council, together with the rational or structural formula, in order that an intelligent opinion of these products may be obtained.

Rule 3.—While the correctness of the principle that physicians can not be expected to favor any medicine which is exploited to the lay public will be readily conceded, this rule is to be modified in its application to articles not strictly medicinal.

Rule 4.—This rule may appear to some as radical, and yet on consideration it will be found just to the public, to the physician, to the manufacturing pharmacist and chemist, and also to the retail druggist. It must be remembered that it applies only to the package, and to the labels, circulars, etc., accompanying it. It does not in any way interfere with advertising, circulars, literature, etc., furnished to physicians. Experience has clearly shown, however, that it is not safe to enumerate on the package the diseases in which an article may be indicated, since this is also the means by which the laity, who are not competent to determine whether or not its employment is safe and proper, may be induced to continue its use or to recommend it to others quite regardless of the evident dangers of forming drug habits or of doing serious injury by employing a remedy that in reality may be contraindicated. It is the physician's prerogative to determine in what disease the article may be indicated, and he is not supposed to go to the drug store for his knowledge regarding this. It is not the function of the pharmacist to recommend or to prescribe medicines, but only to be familiar with their pharmaceutical and chemical characters, strength and dosage and with the best forms of administration.

It is asserted that the naming of diseases on the label of the package is necessary, because many physicians will be unable to tell from the therapeutic properties alone in what diseases a medicinal article may be indicated. This may be true with a certain class of doctors, but it is certainly not true with the vast majority of the educated, progressive physicians of America, and this is the class whose interests are concerned in this movement. There may be some exceptional articles, such as foods, digestants and mineral waters, in which the therapeutic properties alone may not sufficiently indicate the use, and in these cases, perhaps, reference may be made to certain symptoms; if such references appear they will be carefuly considered. Antitoxins and vaccines come under this exemption. The council, however, is unanimously of the opinion that this method of exploiting the medical profession is one of the principal causes which have made the best physicians hesitate to prescribe any proprietary medicines, have led others into irrational therapeutics, have made pharmaceutical tyros believe that they could prescribe just as well as the physicians, and have been the means of causing scores of these medicines to be used for self-medication by the laity, to the detriment and sometimes to the serious and permanent injury of the person taking them. The physician would prefer that the manufacturer confine himself to furnishing the articles and reasonable information regarding their identity, quality, strength and pharmaceutical and chemical character, leaving the physician to indicate in what diseases they should be used.

It is believed that the application of this rule will most quickly determine what manufacturers would rather have the preference and favor of the vast majority of the medical profession and of the members of the American Medical Association than the doubtful support of a rapidly disappearing minority of practitioners.

Ample time will be given manufacturers to conform to this rule, and also to Rule 8, entailing changes in labels or in other printed matter.

Rule 5.—While this is a rare contingency, yet in the past many rank frauds of this nature have been perpetrated on the profession, and this rule will have a tendency to prevent such attempts in the future.

Rule 6.—As in the preceding instance, this rule will have the tendency to restrict manufacturers or agents in their claims as to the therapeutic superiority of their products, without interfering with any reasonable assertions, especially when such are confined to clinical data from responsible medical men.

Rule 7.—For the information of the pharmacist or dispenser, and to enable him to act as a safeguard to the patient and to the physician, all medicinal articles containing such potent agents as the poisonous alkaloids and other organic substances and the salts of some of the metals, should have the exact amount of these ingredients contained in the average adult dose stated on the label. A list of these potent substances will be prepared for more specific information.

Rule 8.—In order to prevent the confusion now existing with reference to many articles known only by more or less arbitrarily selected or coined, usually protected, names, it is necessary that every article which is intended solely for physicians' use or prescription be designated by a scientific title or by a name descriptive of its pharmaceutical character, and, as far as practicable, of its principal medicinal constituents. Synthetic chemical products should give the true chemical constitutional or structural name, in addition to the trade name. The application of this rule will enable physicians to use many of these articles which at present they are afraid to use because of uncertainty as to the identity—owing to the similarity in the names of many of these entirely different products—or prefer not to prescribe in order to avoid criticism and the danger of self-prescription by their patients. This provision will thus be of great benefit to manufacturers of meritorious products, will relieve pharmacists of many trying situations in interpreting correctly the names of articles desired by physicians, and will protect both physicians and laity from the evils named.

The council will use reasonable discretion in enforcing this rule with reference to trade names of long-established articles.

Rules 9 and 10.—This information is desired to enable the council, and others interested, to determine the legal status of these articles and for ready reference through publication.

Respectfully submitted,

ARTHUR R. CUSHNY, Ann Arbor.
C. LEWIS DIEHL, Louisville.
C. S. N. HALLBERG, Chicago.
ROBERT A. HATCHER, New York.
L. F. KEBLER, Washington.
J. H. LONG, Chicago.
F. G. NOVY, Ann Arbor.
W. A. PUCKNER, Chicago.
SAMUEL P. SADTLER, Philadelphia.
J. O. SCHLOTTERBECK, Ann Arbor.
GEO. H. SIMMONS, Chicago.
TORALD SOLLMANN, Cleveland.
JULIUS STIEGLITZ, Chicago.
M. I. WILBERT, Philadelphia.
H. W. WILEY, Washington.

Members of the Council on Pharmacy and Chemistry, American Medical Association.

Medical News.

ILLINOIS.

Fire Loss.—The office of Dr. Charles W. Lillie, East St. Louis, editor of the St. Louis *Clinique*, was burned February 3. The loss was $2,000; insurance, $800.

Dr. Norbury Ill.—Dr. Frank P. Norbury, Jacksonville, editor *Medical Fortnightly*, was operated on February 23 for appendicitis, and is progressing satisfactorily toward convalescence.

Itinerant Vendor Fined.—"Dr." J. H. Bixler, an itinerant vendor, was fined $300 and costs in Kankakee last week, for practicing without a license. The suit was brought by the State Board of Health.

Dunning Consultants.—The following appointments to the consulting staff of the Cook County Institutions, Dunning, have been made by President Brundage: Drs. Frank Billings, William A. Evans, John B. Murphy, Hugh T. Patrick, Arnold C. Klebs, B. McPherson, Linnell, J. Rawson Pennington, Charles S. Williamson, Alice Hamilton and Edward J. Farnum.

Hearing on Tuberculosis Sanatorium Bill.—The appropriation committee of the house of representatives will give a hearing, March 7, on the substitute bill 330, creating a state sanatorium for consumptives. The bill has the approval of the State Board of Health and of the State Association for the Prevention of Tuberculosis.

Chicago.

Bequest.—By the will of Mrs. Harriet A. Jones, Presbyterian Hospital obtains a $15,000 bequest.

Eye, Ear, Nose and Throat College Election.—At the annual meeting of the stockholders of the college, Drs. William A. Fisher, Adolphus G. Wippern, Thomas Faith, H. W. Woodruff, and John R. Hoffman were re-elected directors. The directors then re-elected Dr. William A. Fisher, president and treasurer; Dr. Adolphus G. Wippern, vice-president, and Dr. John R. Hoffman, secretary.

Columbus Hospital Opened.—This institution, which is under the direction of the Missionary Sisters of the Sacred Heart, was dedicated with appropriate ceremony, February 26, by Archbishop Quigley. The staff of the hospital includes Drs. John B. Murphy, Frank Byrnes, Gustav Fütterer, Julius H. Hoelscher, Heman H. Brown, Thomas S. Crowe, Willis D. Storer, Antoine Biankini, William P. Verity, Randolph Brunson, A. Cosmas Garvy, Harold N. Moyer and David Lieberthal.

Deaths of the Week.—Although 7 more deaths were reported during the week than during the week of the 18th, the Department of Health considers that indications of the state of Chicago's health are more reassuring than at any time since last November. During the last four weeks there have been 2,351 deaths from all causes reported, an annual mortality of 15.40 per 1,000. During the corresponding four weeks last year there were 2,522 deaths—or 171 more—reported and the annual mortality rate was 17.46, or 11.7 per cent. higher. One of the principal causes of this reduction is the lesser prevalence and fatality of pneumonia this winter than last. In the first 56 days of last year there were 1,151 deaths from pneumonia; during the corresponding period this year there have been 1,019, or 132 fewer. On the other hand, there have been 39 more deaths from consumption, and the ratio of consumption deaths (551) to deaths from all causes (4,838) has increased since the first of the year to 11.3 per cent. as compared with 10.4 per cent. last year.

KANSAS.

Contagious Diseases.—During January there were reported 55 cases of diphtheria, with 10 deaths; 149 cases of scarlet fever, with 9 deaths; 713 cases of smallpox, with 2 deaths, and 13 cases of typhoid fever, with 3 deaths.

Kesner Sentenced.—Dr. Christopher C. Kesner, Le Roy, who has been making a strong fight for reversal of the decision against him, has been found guilty of murder in the second degree for the death of a woman after an alleged criminal operation, and has been sentenced to hard labor in the penitentiary for a term not less than three years, nor more than five years.

Legislature Accepts Land for Clinical School.—Both houses of the legislature have recommended the bill accepting the gift of land from Dr. Simeon B. Bell, Rosedale, valued at $50,000, on which is to be erected a hospital to be used as the clinical department of the medical school of the state university. Dr. Bell's offer also includes $25,000 for the erection and equipment of the hospital, and, in addition, he will endow 20 beds in the institution.

MARYLAND.

Baltimore.

Influenza Prevalent.—La grippe is prevailing here and a number of deaths were reported as due to it last week.

Bust of Remsen Presented.—Mr. J. Maxwell Miller, Rhinehart scholar of the Peabody Institute, has modeled a bust in plaster of President Ira Remsen and presented it to the Hopkins University.

The Faculty Meeting.—The one hundred and seventh annual meeting of the Medical and Chirurgical Faculty of Maryland will be held at Baltimore, April 25, 26 and 27. Dr. William Osler will deliver the annual oration and the meeting will be a farewell of the Maryland profession to him.

Anti-Spitting Crusade.—The crusade against spitters has begun. The law prohibits spitting on sidewalks, in public squares, public buildings, railway cars, depots, lodging houses, theaters, stores, factories, hotels, etc. A copy of the ordinance is given to each policeman and notices are displayed all over the city.

Osler Soon to Go.—Dr. William Osler will sail for Europe about May 17. The name of his successor has not yet been announced. The trustees and the faculty of the Johns Hopkins University have engaged Hans Schuler to make a marble bust of Dr. Osler for the university. The plaster cast has been finished and the marble is now on its way from Italy. The bust is a present from a number of Dr. Osler's friends.

Tuberculosis Dispensary Opened.—At the opening of the Phipps Tuberculosis Dispensary, February 21, Mrs. Henry Phipps of Pittsburg was present and took great interest in the proceedings. Mr. Phipps has given an additional $5,000 to the work. Mr. Victor G. Bloede has donated a sufficient sum to pay the expenses of a trained nurse. The building is two stories high, of brick, and is located on the Johns Hopkins Hospital grounds.

The Crisis of Two-Score.—Dr. William Osler was the speaker at the commemoration day exercises of John Hopkins University, February 22. He also received the degree of LL.D. from the university. In conferring the degree, President Ira Remsen said: "You confer an honor on the university in accepting it." It was truly Osler day, this being his farewell public address at the university before leaving for Oxford University. The address was very notable in many respects. A full abstract is printed in this issue of THE JOURNAL.

Personal.—At the annual meeting of the Alumni Association of the Johns Hopkins University, Dr. Henry Herbert Donaldson, Chicago, was elected president.——Dr. James D. Iglehart was elected president of the St. Johns College (Annapolis) Alumni Association February 22.——Dr. George C. Wegefarth is at Hot Springs, Ark.——Dr. Samuel Taylor Darling, pathologist at the City Hospital and connected with its Pasteur Institute, who was married, February 18, in New York, has received a government position at Panama, and left here, February 21, for his new post of duty.

MASSACHUSETTS.

Anti-Tuberculosis Meeting.—The Anti-Tuberculosis Association of Cambridge held a meeting, February 22, at which Dr. Eugene A. Darling described the work of the association, and Dr. Charles S. Millet of the Millet Sanitarium, East Bridgewater, spoke on "The Home Treatment of Tuberculosis."

Tuberculosis Exposition.—As a result of the activity of the Boston Association for the Relief and Control of Tuberculosis a resolution is being urged on the legislature calling for an appropriation of $2,000 to be expended by the State Board of Health "for an exhibition of means and methods of treating and preventing tuberculosis." The purpose is to have this exhibit sent to various cities and towns of the state for the instruction of the people, in the same way that the less complete outfit of the association has already been used.

Why Osteopaths Urge Bill.—Urgent efforts are being made this year by the osteopaths of Massachusetts to secure the passage of a bill which shall require all practitioners of medicine to pass an examination before the State Board of Registration in Medicine. Their approval of such a bill is explained by the condition that the 60 osteopaths now practicing in Massachusetts shall, on recommendation of the Massachusetts Osteopathic Society, be admitted to practice without examination, having all the privileges of registered physicians, except

the practice of major surgery and the right to administer medicines internally.

Convalescent Home Needs Support.—The annual meeting of the managers of the Convalescent Home of the Children's Hospital, Boston, urged the need of greater support. Only about $3,000 was contributed for this work during 1904, and with this 245 children were cared for, averaging 29 daily, while in 1903, 277 were treated, averaging 13 per day. The difference is due to the development of the "shack" treatment for tuberculous joints, many of which patients stayed several months. Here, in cool, fresh air, warmed only slightly by two stoves, children have steadily gained, and have not complained at all of a temperature only 18 above zero.

NEW YORK.

Scarlet Fever Not Epidemic at New Rochelle.—It is denied that scarlet fever has been epidemic in New Rochelle. There are only six cases in a city with a population of more than 20,000.

The Health of the State.—State Health Commissioner Lewis, in his annual report shows an increase in deaths from pneumonia in 1904, and that typhoid fever was prevalent in many small towns. He repeats the request that money be used in investigating the water supply of country districts. It is desired especially to purify Lake George and Lake Champlain from the discharge of pulp mills. Beneficial results have been obtained from the use of toxin from the state laboratory, but a new laboratory building is needed. There were 141,564 deaths from all causes in the state. In the last twenty years the average of deaths has grown from 100,000 to 130,000, the number in 1904 being above the average. The percentage in deaths from zymotic diseases, as compared with other causes of death, shows an improvement. From 1885 to 1889 it increased from 20.6 to 22.7 per cent., while in 1904 the percentage was 12.3. Epidemic cerebrospinal meningitis and measles alone have shown an increase in mortality. For several years Watertown and Niagara Falls have shown a needlessly high death-rate from typhoid fever. Purification of the water supply in those places is a necessity. The many summer resorts ought to be subjected to a careful inquiry as to their sources of water supply. Pneumonia caused 13,500 deaths in 1904, as compared to 10,250 the year preceding. There were more than 14,000 deaths from consumption. Smallpox caused only 13 deaths, which can be accounted for by general vaccination. Many persons, by means of the state laboratory, were protected from tetanus.

Buffalo.

Alumni Dine.—The fifth annual dinner of the Western New York Alumni of the University of Pennsylvania was held recently. Dr. W. W. Zimmer of Rochester, presided. Among the speakers were Dr. George A. Piersol, professor of anatomy of the University of Pennsylvania. It was said that the increase of attendance in the medical department over 1903 was 50 per cent., and 80 to 90 per cent. over the attendance of two years ago.

New York City.

Made Honorary Member.—Prof. Dr. Wilhelm Waldeyer of Berlin was made an honorary member of the Society of Medical Jurisprudence at its meeting, February 20.

Census Favored.—The alderman's finance committee has reported favorably on the health commissioner's request for an appropriation to meet the expenses of taking a census of the congested districts of the city. One of the objects of this census is to obtain data as to the contributory effects of crowded conditions of living on the prevalence of pneumonia, consumption and cerebrospinal meningitis.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending February 18, 339 cases of tuberculosis, with 171 deaths; 272 cases of diphtheria, with 47 deaths; 225 cases of scarlet fever, with 20 deaths; 209 cases of measles, with 8 deaths; 23 cases of typhoid fever, with 4 deaths; 1 fatal case of smallpox; 132 cases of chicken-pox and 40 deaths from cerebrospinal meningitis.

New Cancer Hospital.—Prominent medical men are endeavoring to establish a hospital where cancer may be scientifically treated and inoperable cases cared for. At a hearing before three of the commissioners of the State Board of Charities no objections were offered to incorporating such an institution, provided there was money enough secured for its support for one year. The hospital will be incorporated as the Fairhaven Sanitarium.

Hospitals Overcrowded.—Bellevue Hospital is so overcrowded that appeals for the reception of convalescent patients have been made to other hospitals. Both the Metropolitan and City hospitals on Blackwell's Island are so crowded that authorities at Bellevue were informed no more patients could be transferred to those hospitals. From all hospitals the same report is made. There have never been so many persons suffering from lung diseases. The death rate at Bellevue now averages from 15 to 20 daily. Normally, Bellevue has accommodations for 800 patients, but at present there are over 1,000 in the institution.

Work of the Health Department.—At a special meeting of the advisory board of this department the use of cuspidors in the subway and on the elevated roads as a sanitary precaution was discussed. A form of cuspidor suitable for this purpose was presented and approved. It is probable that the subway and elevated roads will be requested to provide a sufficient number of these so that the public will have no excuse for spitting on the floors.——A committee was appointed to devise a plan for thoroughly cleaning the cars and platforms of the elevated and subway.——Reports in regard to the amount of oxygen in the air of the subway were received, and the condition of the air was said to be satisfactory.——Approval was expressed of the bill now before congress relating to soiled paper money, as it affected public health. Dr. Darlington had appeared before a committee in Washington, to whom he submitted a report of experiments made by Dr. William H. Park to determine the influence of coin and paper money on the life of bacteria. The results of these experiments indicate that metallic substances in coins when brought in contact with bacteria, through the solvent action of moisture, are deleterious, while in paper there are no such substances, the gradual death of bacteria being due to the effect of drying. Dirty pennies averaged 26 living bacteria apiece; dimes, 40; moderately clean bills, 1,250, and soiled bills, 73,000.——The Board of Health, in its endeavor to provide a pure milk supply has had the support of the *American Dairyman*. The last issue of this publication announces that a public lecture will be delivered on "Our Foster Mother on the Farm, or Milk from the Farm to the Table."

OHIO.

District Physicians to Inspect Schools.—For the remainder of the year medical inspection of schools will be performed by the district physicians. They will be subject to call from the principals of the schools in the districts in which they reside to investigate all cases of illness which are thought "suspicious," and will immediately advise principals and parents as to what is necessary. Their inspection will include not only such diseases as diphtheria, scarlet fever, and allied affections, but communicable skin and scalp diseases as well. This step is but preliminary, it is hoped, to a system of thorough medical inspection to be put in force after the present year.

Canton Society Officers.—At the annual meeting of the Canton Medical Society the following officers were elected: President, Dr. Edgar J. March; vice-president, Dr. George A. Kelley; treasurer, Dr. F. D. Hinden; recording secretary, Dr. Clarence F. Schiltz, and corresponding secretary, Dr. Leander D. Stoner. The annual banquet of the society was held January 27. The annual address was delivered by Dr. Brooks F. Beebe of Cincinnati, on "Rationale of Suggestion," and toasts were responded to by Dr. Edwin Ricketts, Cincinnati, "The Doctor's Wife"; Dr. Brooks F. Beebe, Cincinnati, "The Doctor's Fireside"; Dr. Robert A. Biechele, "The Canton Doctor," and Dr. C. J. Aldrich, Cincinnati, "Medicine of the Future."

Personal.—Dr. Joseph A. Hall, Cincinnati, captain and assistant surgeon, O. N. G., has been appointed to the personal military staff of the governor.——Dr. W. H. Pritchard has been elected superintendent of the Ohio Hospital for Epileptics, Gallipolis, to fill unexpired term of Dr. A. P. Ohlmacher, resigned.——Dr. Samuel S. Thorn, Toledo, chief surgeon of the Clover Leaf system, has resigned, but will remain with the road as local surgeon at Toledo.——Dr. Minor M. Jacobs has been appointed a member of the Hamilton Board of Health, vice Dr. Henry Mallory, deceased.——Dr. Henry D. Hinckley has been elected dean of the Cincinnati Polyclinic and Postgraduate Medical School.——Dr. Irving C. Rankin, Akron, is seriously ill with septicemia.——Dr. Herbert M. Platter, Columbus, has been appointed medical inspector.

PENNSYLVANIA.

Physicians Injured.—Dr. Harvard H. Drake, Norristown, narrowly escaped severe injury by the collision of his carriage

with a trolley car. He was thrown from the carriage, but fortunately escaped with slight injury.——Dr. William McKenzie, Conshohocken, fell on the ice and sustained a fracture of the femur.

Philadelphia.

Bequest.—By the will of Ellen K. Mitchell, Pennsylvania Hospital receives $5,000 for the establishment of a free bed.

Personal.—Dr. John H. Musser addressed the Rochester Academy of Medicine, Rochester, N. Y., February 15, and on the same day held a clinic in the City Hospital.

Medical Society Reception.—The J. C. Wilson Medical Society was addressed, February 24, by Prof. Albert H. Smyth, on "Benjamin Franklin and His Medical Friends." After the lecture Professor Smyth was entertained at an informal reception by the society.

Dr. McClellan Lectures.—Dr. George McClellan delivered a lecture, February 21, before the students of Jefferson Medical College in the college building, under the auspices of the E. P. Davis Obstetrical Society. His lecture was illustrated and entitled "The Anatomy of the Pelvis with Relation to the Mechanism of Labor." Dr. McClellan was tendered a reception and banquet by the society immediately after the lecture.

Health Report.—The deaths reported for the week ended February 25 aggregated 579, as compared with 599 last week and 643 for the corresponding week of last year. The mortality from pneumonia continues high, 113 deaths being attributed to that disease. This is a decrease, however, of 21 from those of last week. The principal causes of death were as follows: Typhoid fever, 10; diphtheria, 15; influenza, 13; consumption, 51; cancer, 23; paralysis, 38; heart disease, 67; pneumonia, 113; enteritis, 20, and Bright's disease, 49. There were 198 cases of contagious disease with 25 deaths, as compared with 224 cases and 30 deaths for the preceding week.

TEXAS.

Declared Insane.—Dr. R. H. Watkins, Floresville, was adjudged insane, February 10, and ordered to be placed in restraint.

Hospital Annex Dedicated.—The new annex to St. Joseph's Infirmary, Houston, erected at a cost of $45,000, and intended to be used as a sanatorium, was formally dedicated, February 14.

Physicians Injured.—Dr. Henry S. Van Cleave, Nash, was thrown from his horse and seriously injured February 8. He is now improving rapidly.——Dr. Curvier Lipscomb, Denton, slipped and fell, February 8, breaking his right hip.

UTAH.

Germ Day in Utah.—A West Virginia journal characterizes as "a holiday in honor of germs" the General Health Day, the first Monday in October, which is set apart in Utah as a holiday for house cleaning.

Society Election.—At the annual meeting of the Weber County Medical Society the following officers were elected: President, Dr. Harry B. Forbes; vice-president, Dr. Chester E. Coulter; secretary, Dr. Amasa S. Condon; treasurer, Dr. Haymond J. Powers, and delegates to the Utah State Medical Association, Drs. Amasa S. Condon and Edward M. Conroy, all of Ogden.

Personal.—Dr. Eugene W. Whitney has succeeded Dr. Harry N. Mayo as physician of Salt Lake County.——Dr. Gilbert B. Pfoutz, Salt Lake City, has been appointed oculist to the Salt Lake Route.——Dr. William B. Parkinson, Logan, has been appointed physician of Cache County.——Dr. Frost C. Buchtel, Vernal, starts for Europe early this month.——Royal H. Milleron, Salt Lake City, a student at Rush Medical College, Chicago, shot and killed himself at Provo, while despondent.

Hospital Opened.—The Groves Latter-Day Saints' Hospital, Salt Lake City, was opened to receive patients January 9. The staff is as follows: Drs. Joseph S. Richards, Samuel C. Baldwin, Charles F. Wilcox, Charles G. Plummer, Stephen L. Richards, Samuel H. Allen, William F. Beer, Edwin E. Wilcox, Walter S. Ellerbeck, Fred Stauffer, Leslie W. Snow, Chauncey M. Benedict, Mark C. Myers, Franklin H. Raley, Herbert C. Deane, W. Tenny Cannon, William M. Brown, Salathiel Ewing, Thomas G. Odell, R. T. Richards, C. F. Wilcox and E. Gowans.

VIRGINIA.

Physician's Slayer Sentenced.—Charles R. Fishburn, Roanoke, who shot and killed Dr. Charles E. Lefew, Oct. 30, 1904, was found guilty of manslaughter, February 4, and sentenced to five years' imprisonment in the penitentiary.

Personal.—Dr. H. Stuart MacLean, Richmond, has been appointed chief surgeon of the Virginia Passenger and Power Company.——Dr. Francis M. Morgan, Berkley, while making a professional call, February 5, slipped and fell, breaking his clavicle.

Verdict for Physician.—In the case of James Scott against Dr. B. Robert White, Strasburg, in which $1,000 damages was claimed for malpractice in that the defendant was alleged to have neglected to treat the plaintiff for a diseased eye while he was quarantined on account of smallpox, the jury brought in a verdict for the defendant, who contended that he had not been retained by the plaintiff, but had acted only as a health officer.

Home for Medical Library.—The Norfolk Medical Society has entered into an arrangement with the Norfolk Public Library, by which it is enabled to use this building for its books and periodicals. These will, however, only be given out to members of the society and their friends through special cards, as it is not deemed advisable to allow the public free access to medical books. Beside its old books the Norfolk Medical Society has been able to obtain the nucleus of a good reference library, which it expects gradually to increase.

Lectures on Hygiene for School Children.—The Norfolk School Board has obtained the services of eleven physicians of the town to give a series of lectures on hygiene in the public schools. These are to supplement the school course, and are arranged to draw the attention of the pupils more especially to the civic side of the subject. The first of these lectures was given the white schools on Friday, January 6, but they will be repeated later in the colored schools. This plan originated with a member of the board, Dr. Lawrence T. Royster, who, with the cordial support of his brother physicians, hopes by this education eventually to improve the health of the community. Drs. Herbert Old, Charles R. Grandy, Edward T. Hargrave, R. Paul Jones, Rufus S. Kight, B. L. Taliaferro, Stanley H. Graves, J. Judd Miller, Frank H. Hancock, Philip St. L. Moncure, and Lawrence T. Royster have been selected to deliver the lectures.

WISCONSIN.

Medical Library Loaned.—Dr. Lyman J. Rhoades, Fond du Lac, has loaned to the Stevens Point Public Library the medical library of his father-in-law, the late Dr. John Phillips of that city, to be used as a reference library only.

Fire Losses.—The fire at the Milwaukee County Hospital, January 29, caused a loss of $10,000, but no casualties occurred.——Fire in the house of Dr. Philip R. Fox, Madison, February 13, did damage amounting to about $1,500.

Personal.—Dr. William G. Nicholson, Green Bay, sailed for Europe, February 18.——Dr. Richard C. Buchanan, Green Bay, has been re-elected city physician.——Dr. Charles D. Kelley, Milton Junction, has been adjudged insane and committed to the state hospital at Mendota.——Dr. Byron N. Caples, Waukesha, has been elected president of the board of directors of the Waukesha Springs Sanitarium.——Dr. William F. Whyte, Watertown, has been re-elected president of the State Board of Health.

Waukesha County Society Election.—At the annual meeting of the Waukesha County Medical Society the following officers were elected: Dr. Henry G. B. Nixon, Hartland, president; Dr. Benjamin U. Jacob, Waukesha; vice-president; Dr. Maybelle M. Park, Waukesha, secretary; Dr. William B. Campbell, Menomonee Falls, treasurer; Dr. Thomas Tomelty, Big Bend, censor, and Drs. Albert J. Hodgson, Waukesha, Michael R. Wilkinson, Oconomowoc, and Laurel E. Youmans, Mukwonago, committee on health and legislation.

GENERAL.

To Aid Amalgamation in New York.—At a meeting of the council of the New York State Medical Association, February 25, the following resolution was passed unanimously: "WHEREAS, The council of the New York State Medical Association favors union with the Medical Society of the State of New York, on a plan proposed by the Joint Committee of Conference, which was prevented by legal complications, be it *Resolved*, That the president of the New York State Medical Association is hereby empowered to employ associate counsel who, with the counsel of the association, shall investigate and report on all legal questions relating to the vested rights of the members, the by-laws, and the calling and the holding of meetings."

CANADA.

Winnipeg News.—The epidemic of typhoid fever is practically over in Winnipeg. The city council will appoint a bacteriologist as assistant to the health officer. The health department has sent circulars to the physicians of Winnipeg calling attention to the report of Prof. E. O. Jordan of Chicago, who has been investigating the causes of the epidemic of typhoid through which Winnipeg has been passing for many months. The report appeared in The Journal, February 18, page 563.

Montreal General Hospital Report.—At the eighty-second annual meeting of the governors of the Montreal General Hospital, a considerable decrease in the annual income was reported. The 1904 income was $83,589, $7,605 less than in 1903. The total number of patients in the wards during 1904 was 3,144, as against 3,066 during 1903. In the out-door departments the total number treated amounted to 38,922, as against 35,984 for the previous year. Of the total number of patients admitted during the year—3,156—2,893 were discharged, 251 died, and there remained in the institution at the end of the year 201 patients. The percentage mortality was 7.98, or 4.9 exclusive of those dying within three days of admission. The average cost per patient per day was $1.38, as against $1.56 in 1903. Dr. F. G. Finley was re-elected secretary.

Canadian Government Asked to Combat Tuberculosis.—A resolution submitted to the federal parliament last week declares that the government should take steps to combat the spread of tuberculosis. Mr. Perley, who introduced the resolution, stated that out of the 60,540 people who died in 1903 in the provinces of Ontario and Quebec, 2,943 deaths were from tuberculosis in Quebec, and 2,723 in Ontario, as compared with 2,017 and 1,938 respectively of all other contagious diseases. In the entire Dominion of Canada, the number of deaths last year amounted to about 8,000. Mr. Perley considered that if the government would co-operate with the Canadian Association for the Prevention of Tuberculosis much could be done in staying the ravages of the disease. All of the medical men of the house of commons strongly endorsed the resolution, and the minister of agriculture, under whose charge are all matters of public health, also supported it. The debate on the resolution will have the effect of a larger governmental grant to the Association for the Prevention of Tuberculosis.

FOREIGN.

From the Seat of War.—Our Russian exchanges for February give the names of several physicians who were among the 15,000 wounded in Port Arthur at the time of the surrender.

Behring's Method of Immunizing Cattle Against Tuberculosis.—Professor Mazzini is in charge of experiments on a large scale undertaken in Italy to test the value of Behring's method of immunization.

Subsidence of Plague in Russia.—The prophylactic measures instituted in the Ural district to prevent the spread of the plague have been successful. They have now been suspended, as there is no further need for them.

Antimalaria Education.—The Italian government has issued a pamphlet entitled "Popular Instruction in Protection Against Malaria." It has been sent to all the public school teachers to aid them in instructing the young in prophylactic measures.

Lowered Death Rate in City of Mexico.—Owing to the improved sanitation, better drainage and inspection of foodstuffs, the death rate in the City of Mexico, during 1904, was 41 per 1,000, an improvement over former years, when it frequently rose to 49 per 1,000.

Epidemic of Cerebrospinal Meningitis in Germany.—Our German exchanges state that this disease is extremely prevalent in upper Silesia. In the Königshütte district alone there have been 18 cases among adults and 74 in children, with a mortality of 4 adults and 32 children.

Personal.—The University of Halle, Germany, has conferred on Willy Merck, Ph.D., member of the old house of E. Merck, Darmstadt, the honorary degree of doctor of medicine "in recognition of numerous meritorious contributions looking to the advancement of the therapeutic side of medicine."

Study of Anemia in Porto Rico.—A bill has been introduced in the Porto Rico legislature to appropriate $20,000 to continue the study of anemia. In accord with its provisions, tents would be erected all over the island, and physicians conversant with the disease would commence work at once. It is estimated that 50 per cent. of the inhabitants of the rural regions of the island suffer from this parasitic disease.

Plague in Aden.—Many new cases of plague have been reported in Aden and, according to the *Public Health Reports*, the disease is becoming epidemic. Owing to the apathy of the populace, the sanitary authorities are meeting with difficulties in their efforts to combat the disease. For the guidance of the plague committees, directions are being published for the care of the sick and for cleansing and disinfection of infected premises.

Massage by the Blind.—Massage is cheap and within the means of all classes in Japan. The blind, protected by the government, are self-supporting and contented with their lot and have a practical monopoly over massage, says the *Medical News*. This condition has existed for centuries. In four countries—Russia, Belgium, England and Germany—there have been well organized and successful attempts to teach selected blind people massage.

Centennials of Russian Universities.—There was no official celebration, but compendious reports were issued in January to signalize the fact that 150 years had elapsed since the founding of the University of Moscow and 100 years since the founding of the Kharkov University. The faculty at Moscow includes 72 regular professors, of whom 25 belong to the medical department, the total force of instructors numbering 224, and at Kharkov 144.

Visiting Nurses for Rural Districts.—Baden and Bavaria have an association which supplies trained nurses for country districts. The Bavarian association is a branch of the Red Cross. It has 16 of these nurses, and during 1904 they took care of 210 patients, including 33 parturients. Nowhere are the services of a trained nurse so appreciated by the physician as in the rural environment, and the nurses are required to insist on medical attendance in every case they undertake.

Endemic Affections in Submarine Boats.—The widow of a French naval officer appealed to the government for a pension, asserting that her husband's two years of duty on submarine boats had been the cause of his death. Her petition stated that the conditions of life on a submarine boat entail endemic affections, and her husband succumbed to rheumatic endocarditis which she attributed to this cause. The courts decided in favor of the assumption of endemic affections on submarine boats, and awarded her the desired pension.

Association of Physician with Layman Illegal in France.—Dr. Klein, a French physician, entered into a contract with a "so-called chemist," named Crotte, to establish an institution for the treatment of tuberculosis. Klein paid $10,000, but soon wished to withdraw from the contract, claiming that he had been deceived, and demanded his money back. The decision of the court was to the effect that as a contract between a physician and a layman for the exercise of medicine in common is unlawful, there had been no valid contract, and consequently the physician was entitled to his money.

The Heidelberg Cancer Institute.—The organization of the official cancer research committee at Heidelberg was mentioned recently in these columns. About $125,000 has been subscribed for a cancer institute, and Czerny, the chairman of the committee, has increased this amount by $25,000 from his private purse. The institute is to be lavishly equipped; it is arranged for 47 beds, with a laboratory, etc., for all kinds of research work. All scientists who wish to study the subject of cancer with the most approved means of investigation will be welcome. For the present the institute is to form part of the surgical clinic, but the faculty is to decide, at five-year intervals, whether this connection with the clinic corresponds to the best thought of the day. In the collective research throughout the state (Baden), special attention is to be paid to the study of cases of cancer occurring in groups at certain points.

A Dettweiler Institution.—To honor the memory and the works of the late Geheimrath Dr. Peter Dettweiler, the founder of the Falkenstein Sanatorium and of the first people's sanatorium at Ruppertshain, it has been decided, by his friends, admirers, patients and pupils to establish an institution bearing his name, which shall be a home for physicians who have served in sanatoria for consumptives, and who have become invalidated by disease, accident or old age. For the collection of funds and the final arrangements a committee has been formed under the patronage of the Princess Friedrich Carl of Hesse. This committee is composed of many of the foremost men and women of the German empire. Of the medical men

who have signed the appeal for funds, we read such names as Besold, the successor to Dettweiler, Professors Curschmann of Leipsic, Flügge of Breslau, B. Fränkel, von Leyden and Pannwitz of Berlin, General Dr. von Leuthold, physician to the Emperor, Schmidt of Frankfort, etc. Contributions are to be addressed to Grunelius & Co., bankers, 16 Gr. Gallus-Strasse, Frankfort on the Main.

Settlement of Sick Benefit Society Troubles.—The Medical Court of Honor for the city and district of Leipsic, Germany, has recently imposed a comparatively heavy pecuniary penalty on 45 local physicians who were accused of conduct conflicting with medical ethics. In the long contest between the organized profession and the sickness insurance societies (*Krankenkassen*), to obtain more equitable remuneration, these physicians sided against the medical officers of the societies. They entered the service of the *Sanitätsdienst*, a new society, which was organized to outwit the former medical officers by some legal quibble. An appeal to the higher court of honor resulted in a confirmation of the verdict, except that the fines were reduced to $75 and $150, with costs. The details of the long struggle between the *Krankenkassen* and their medical officers at various points in Germany are given in detail, week by week, in the *Münchener med. Wochft.* It states that Lübeck has been added to the constantly growing list of cities where the societies and their medical officers have come to a satisfactory agreement without any dispute.

Antimalarial Campaign in India.—The *British Medical Journal* states that a vigorous campaign has been instituted against malaria in the Madras presidency. A few localities were selected where certain experimental operations having for their object the suppression of malaria, could be carried out, and local bodies concerned were invited to allot funds for the purpose. The scheme of the operations comprised: (1) The filling up, or draining, of pools, or the killing of mosquito-larvæ by kerosene oil; (2) the treatment of the inhabitants with quinin, and microscopic observations of the result of the treatment, and (3) the undertaking of drainage works which would permanently relieve subsoil and surface water obstacles. For the carrying out of the experiments in the places selected, the sanitary commissioner, Lieutenant-Colonel King, requested that the services of a commissioned medical officer, as well as of an engineer subordinate, might be placed at his disposal for a period of six months. It is pointed out that the scheme can be applied only gradually, as funds permit, but some operations should be prosecuted every year, and suitable provision made in the budget for that purpose.

The Reversed Tuberculin Test.—Mérieux of Lyons has devised a new tuberculin test by reversing the usual technic. Tuberculin injected into a tuberculous person causes a specific thermic reaction. A similar specific thermic reaction is observed in tuberculous guinea-pigs after injection of organic fluid from a tuberculous human being. In his communication on the subject, in the *Lyon Médical*, CII, No. 13, 1904, he relates his experiences with 18 tuberculous guinea-pigs inoculated with blood serum, urine, serous fluid from a blister or expectorated blood all taken from patients with clinical tuberculosis. The classic thermic reaction was always positive in the cases of known clinical tuberculosis. On the other hand, there was no reaction in the absence of clinical tuberculosis. In case of dubious results, the test was repeated with larger amounts of the human fluid; from .2 to 2 c.c. were used for the tests. He is now studying this "indirect tuberculin reaction" in cases of surgical tuberculosis, meningitis, etc. He is inclined to believe that this specific reaction of the toxin secreted in the diseased organism might be utilized in the majority of microbian diseases accompanied by sufficient production of toxins. He suggests that the method might prove useful for the study of the toxicity of a certain microbe for a given organism.

LONDON LETTER.

Blood-Sucking Insects and Tropical Diseases.

The director of the natural history department of the British Museum has issued a pamphlet on "Bloodsucking Flies," a copy of which has been sent to every army surgeon with the object of assisting those willing to help the museum to obtain specimens. It is thought that physicians and others engaged in improving the sanitation of tropical countries should have the means of determining correctly the names of blood-sucking species with which they may come in contact, and that a well-preserved collection of modern specimens should be available in London for comparison. The British Museum has already dealt with mosquitoes and tsetse flies, on which it has published splendidly illustrated monographs, and it is now proposed to publish on similar lines, a further series of monographs on other blood-sucking insects. The material at present at its disposal is insufficient, and it is, therefore, hoped that all physicians and naturalists residing in British colonies or in any part of the tropics will make special endeavors to obtain specimens and to send them to the director, British Museum (Natural History), London, with notes on the names, habits and distribution of the insects. When a collection is dispatched a separate letter of advice stating the fact should always be sent. The expense of sending collections to the museum will be refunded. As soon as efficient material has been obtained the preparation of the first monograph will be commenced.

The Advisory Board of the Army Medical Service.

A subcommittee, appointed to advise on the preparation and application of antityphoid and other sera, has presented an important report. The subcommittee expresses the opinion that as a general principle it is desirable that therapeutic agents of any kind which may be obtained from ordinary commercial sources should not be manufactured by the Army Medical School or by its professors. At the present time, the sera of admitted therapeutic value, e. g., diphtheria antitoxin, can be procured from several reputable firms, and there is no reason to suppose that their direct preparation by the Army Medical School would result in economy to the state or in the production of a better article, while much valuable time, which would be better devoted to teaching or to research, would be lost to the professors. On the question of the preparation and application of antityphoid fluid the subcommittee finds itself in some difficulty, as the efficacy of this remedy is still in dispute. For the purpose of dealing with the statistics at present available the subcommittee asked Lieutenant-Colonel Bruce to prepare a paper which forms an appendix to the report. His conclusion is that the general statistics available up to the present are not sufficiently extensive nor exact to permit of any conclusions being drawn as to Wright's antityphoid inoculation.

Fatal Case of Plague in the Mersey.

A case of plague is reported in the Mersey on the steamship *Crewe Hall*, which arrived from Rangoon, January 30. The captain reported "all well," but on February 1 a customs officer noticed a lascar sick in his bunk and apparently dying. On inquiry he was informed that the man had had a severe cold for the previous week. The port health officer was sent for, but when he arrived the man was dead. He found that the chief steward had treated the lascar for high fever, which he thought was due to malaria, but he mentioned that there was a painful swelling in the groin. The lascar was laid out in the native sailor's forecastle. On examination, all that could be discovered was a large bubo in the left femoral region. As there was a suspicion of plague it was decided to act as if that was the cause of death. The body was removed, and all the effects of the native crew were disinfected. The "contacts," who numbered 15, were bathed and dressed in disinfected clothing and removed to the port sanitary hospital for isolation. The port rat-catchers were sent for, but could find no dead or sick rats. They set traps and caught 11 rats, which were forwarded to Professor Boyce for bacteriologic examination. February 2, further disinfection of all suspected quarters of the ship was carried out. The cargo was discharged under strict supervision, and a careful watch for dead rats was kept. The holds were fumigated in order to destroy all rats. On February 2, a necropsy was performed on the body of the man. The skin over the bubo was markedly discolored. The bubo was very large and hemorrhagic on section, with much periglandular inflammation. There was also evidence of a septicemic condition, with a considerable amount of pneumonia. Microscopic examination of the gland juice showed numerous plague bacilli. The source of infection could not be ascertained, but the medical authorities think there is little danger of further infection.

Sterilizing Water in the Field.

A number of devices for the sterilization of drinking water for troops in the field were exhibited at Millbank Barracks. Three main methods were represented depending respectively on chemical means, on filtration, and on heat. Of chemical processes there were 6. The first, that of Schumburg, consisted of a bromin solution (bromin, potassium bromid, and water) in glass capsules containing 2 c.c. each. A capsule is broken into a liter of water, which, after a period varying from ten to thirty minutes, is treated with a mixture of sodium sulphite and carbonate which neutralizes the bromin and removes its

odor in about two minutes. Experiments show, however, that the water is liable to have a stale taste, and the necessity of carrying about in the field a number of fragile capsules containing liquid is an obvious objection to this method. The second process, that of Vallard and Georges, depends on the action of iodin. Three tablets are used containing respectively iodate of soda, iodid of potassium, and a blue coloring matter; tartaric acid with a red coloring matter, and hyposulphite of soda. Sterilization requires ten minutes, and when complete the water has no smell. In the third process (Nessfield's) the water is first treated with bleaching power and bicarbonate of soda, and after sterilization is complete, in about ten minutes, sodium sulphite is added to render it free of chlorin and tasteless; but it seems to be difficult to do this perfectly. The fourth process consists in the addition of about 15 gr. of bisulphate of soda to each pint of water. It was tried in South Africa, but the men objected to the taste imparted to the water; this, however, can be removed by the addition of sodium bicarbonate. A further objection is that the treated water takes up iron from the water bottles. The fifth process is the old one of adding potassium permanganate. The color imparted is not liked by the men. The sixth process consists in the use of copper sulphate or chlorid. The experiments of Dr. George Moore, of the scientific staff of the United States Government, seem to show that a sulphate of copper solution of the strength of 1 in 100,000 kills both typhoid and cholera bacilli in four or five hours. However, experiments made in Great Britain by Rideel and Barnes show that this strength is ineffective, though a 1 in 10,000 kills typhoid bacilli, but not cholera bacilli, and 1 in 1,000 kills both. In the second class of apparatus depending on filtration various forms of the Slack & Brownlow field service filter were on view; also a service water cart fitted with this filter. The other water carts were the Bailey-Denton, with a clarifying filter of charcoal and a Berkefeld filter for sterilizing; and the Lefebvre with a filter of asbestos and charcoal. All the filters had the disadvantage that the rate of flow soon falls off, and if not cleaned and boiled frequently they become worse than useless. Five kinds of appliances in which heat is used for sterilizing were shown. Of these the Lehigh-Canney is merely a device for boiling water rapidly, unprovided with any cooling arrangement. Another shown was the Griffiths machine, in which the water is not boiled, but raised to 175 F., which the inventor claims is more than sufficient to destroy all water-borne pathogenic organisms. It weighs 120 pounds. In the tests it was found to deliver 60 gallons of sterilized water per hour, with a consumption of one and a half pints of oil. The other machines delivered water at a temperature of 20 or 25 lower, but their yield was much smaller.

Cancer Research in the Colonies.

The correspondence relating to cancer research in the colonies has just been published as a parliamentary paper. The dispatches cover the period from May 27, 1903, to Nov. 30, 1904, and there is an appendix containing letters to the Imperial Cancer Research Fund, from the principal medical officers of Lagos and Fiji, respectively. Mr. Chamberlain, when colonial secretary, issued a circular to the governors and high commissioners of all the colonies and protectorates announcing the starting of a fund in Great Britain to promote investigations into the causes, prevention and treatment of cancer, and requesting the officials to whom it was addressed to promote this object by all possible means. In a supplementary circular sent by Mr. Chamberlain's successor, it is pointed out that the facts accumulated up to that time appear to show that cancer is less frequent among aborigines than in civilized races, and that the committee of the Cancer Research Fund desire that the cause of this rarity should be more fully investigated. The greater number of the returns merely state that steps are being taken to carry out the wishes of the committee, but the governor of the Gambia says that so far as the senior medical officer is aware, cancer is unknown among West African natives. According to the acting governor of British Honduras, cancer occurs in that colony, and investigation is promised. Reports from the Leeward Islands, and from Mauritius state that cancer is not so frequent there as in England. It is apparently rare in British Central Africa. A return from Barbadoes gives the total number of deaths from cancer in the five years 1899-1903, as 120 out of 4,196 total deaths. From the Transvaal has been received a return of 9,578 cases of cancer in Europeans and natives in the year 1903. In Ceylon, during 1903, there were 237 cases of malignant disease, of which 222 were carcinoma and 15 sarcoma.

The Chemistry of Yellow Fogs.

Professor Knecht of the Manchester School of Technology has made an interesting investigation on the composition of fogs. In the school huge fans drive the air from the inlets. Before reaching the fans it passes through a filter consisting of 100 galvanized corrugated iron sheets fixed on edge three-fourths of an inch apart. The air meets a fine spray of water, and passing through screens and fans is heated by exhaust steam. The bulk of the impurities are thus removed and fall with the water into two chambers. After the November fog, the matter taken from these chambers was black, as if it consisted of soot, but on drying it became gray, and left on ignition a large amount of ash. It contained only small quantities of hydrocarbons and phenolic constituents. The percentage of ordinary soot was small. During the fog of December 22, more exact analyses were made from the matter filtered out from air passing through the screens at the rate of 300,000 cubic feet per hour, with a flow of water of 240 gallons. The water became black and greasy-looking. It contained a small quantity of black solids in suspension. The filtrate had an acid reaction due chiefly to sulphuric acid, the acidity being equal to 6.2 gr. per gallon. The total solids of the wash water were in the proportion of 91.7 gr. per gallon. They consisted of a considerable quantity of iron in the ferrous and ferric states, ammonia, lime, magnesia, a trace of arsenic, and sulphuric and hydrochloric acids. The iron probably came from the screens, but the other parts of the matter probably from the high chimney near the school, in which the combustion of the coal was far more perfect than in house fires.

The Hospitals of London.

The maintenance of hospitals furnishes a perennial topic to the press. On the one hand, there are the unceasing appeals to the benevolent to come to the rescue of deserving institutions which are heavily in debt, and which, in the absence of further support, must have their activities curtailed. On the other hand, there are constant complaints from physicians that the hospitals are abused by persons who can well afford to pay for medical treatment. Sir Henry Burdett, the well-known authority on hospital management, has contributed to the *Times* an important statistical article on the resources and requirements of the London hospitals. He admits that evidence accumulates every year to prove that the present system of free medical relief is wrong in principle and harmful in practice to the self-respect and thrift instincts of the population. Taking the population of London as 4,600,000 in 1903, he finds by excluding the persons engaged in the various middle class callings who are ineligible for free hospital treatment, that about 50 per cent., or 2,300,000, represent possible hospital patients. Now in 1903 216,000 persons were treated as in-patients and 2,086,000 as out-patients, making a total of 2,300,000, and therefore representing the total of possible patients. By comparing the figures of 1903 with those of ten years previously, it is found that while the population in 1903 was 6 per cent. greater than in 1894, the applicants to hospital was 23 per cent. greater. No wonder that physicians everywhere complain of the competition of the free medical relief given by hospitals. The conclusion follows that the hospital needs of London are more than provided for. Out of the vast army of applicants a vast proportion must be able to pay for treatment. In 1903 the expenditure on the 94 voluntary hospitals (that is excluding dispensaries, poor-law infirmaries and municipal hospitals for the treatment of infectious diseases) amounted to $6,700,000, for which 9,771 beds were maintained for the treatment of 112,000 in-patients; 1,646,000 out-patients were treated. The expenditure on the voluntary hospitals has considerably increased in the last ten years; in 1894 it was only $4,100,000, so that an increase of over 60 per cent. took place in the decade. This increase of expenditure appears to be partly the result of the great efforts put forward to finance the hospitals, of which the most important was the fund established by the king in 1897.

The Sanatorium Treatment of Consumption.

The results of the sanatorium treatment of consumption appear to fall short of the high hopes that were entertained by many when the treatment was first brought prominently before the profession, and of the claims which have been put forward by many of its advocates. The report for 1904, of the Heswall Poor-law Sanatorium, which receives patients from Liverpool and from some adjacent towns, has been presented. Of 38 patients from Liverpool who have left the sanatorium during the two years of its existence 8 have been

lost sight of. The histories of the remaining 30 are as follows: One died of Bright's disease, one is a chronic invalid from a non-tuberculous illness, and two are well enough to work and are believed to be in good health and free from tuberculosis. Of the remaining 26, 8 have died of tuberculosis and the rest are either inmates of the parish hospital, suffering from tuberculosis, or are in failing health from this cause. Thus, out of the 30 only 2 are in good health at the present time. These disappointing results are attributed chiefly to the fact that very few of the patients applied for treatment in the early stage. Of those who did few were able or willing to submit to the restrictions of sanatorium life. On discharge they were obliged to return to their conditions of poverty, bad sanitation, and unsuitable occupation. These conditions may explain the unsatisfactory results, but even in patients in a better position in life, to whom none of these statements apply, similarly unsatisfactory results are often obtained.

Correspondence.

Treatment of Hemoptysis.

LONDON, Jan. 21, 1905.

To the Editor:—In an article entitled "The Control of Internal Hemorrhage by Drugs," Dr. Thomas Luther Coley says: "This group (nitroglycerin and the nitrites) has been recommended for pulmonary hemorrhage. It would seem, however, that the general widening of the blood paths, together with the fact that the heart beats more rapidly under the lowered pressure, would contraindicate its employment. The general widening of the blood paths will frequently increase the caliber of the vessels of the bleeding area."

It is a question whether an increase in the caliber of the vessels of a bleeding area is of any importance in circumstances which provide for a fall of blood-pressure in that area. This, however, applies to hemorrhage from the systemic, not from the pulmonary, circulation. In the latter, it is highly improbable that an increase of caliber ever occurs through the action of the nitrites; for the experiments of Drs. T. C. Brodie and W. E. Dixon seem to show that the pulmonary arterioles are destitute of vasomotor nerves and that, consequently, agents which promote constriction of the systemic arterioles tend to cause pulmonary engorgement. Hence it is to be anticipated that agents which promote dilation of the systemic arterioles will tend to cause pulmonary ischemia.

That the heart beats more rapidly under the action of the nitrites, must, of, course, be admitted. The increased rapidity of the heart in these circumstances may be regarded as a conservative device adapted to maintain the blood-pressure. Yet it is certain that such conservative action is never fully adequate, since, as Lauder Brunton and others have shown, the nitrites always produce a fall of blood-pressure. The use of the nitrites in hemoptysis does not now depend on *à priori* considerations, however well founded. In the *Lancet*, Aug. 20, 1904, p. 522, and Oct. 1, 1904, p. 942, under the head of "The Medical Treatment of Deep-Seated Hemorrhage," and in the same journal, Jan. 21, 1905, under the head of "The Treatment of Hemoptysis," I contributed a series of 9 cases in which 18 attacks of hemoptysis (17 phthisical, 1 mitral), with one exception, had been stopped within three minutes by inhalation of amyl nitrite. In the one exception, the bleeding continued in reduced amount for ten minutes. The dilative action of the drug on the systemic arterioles is evanescent, probably enduring but a few minutes; yet in only one case of the 18 did bleeding recommence within two hours (half an hour) and in nearly half the cases recurrence was absent (leaving out of account the usual continuance of slightly-tinged sputa). Such results I think are better than were to have been anticipated. Two considerations render amyl nitrite peculiarly suited for the treatment of hemoptysis: 1. The drug may be kept ready to hand and may be used immediately by the patient himself in the absence of the medical attendant and nurse, and it can be used as often as may be necessary. Its practically instantaneous effect restores the patient's confidence, since he feels that he has it in his own power to stop the bleeding. This is of importance because there can be no doubt that fright or anxiety tends to cause a rise of blood-pressure (probably through increasing peripheral vasoconstriction), and so to reinduce hemoptysis. 2. The drug has no influence in suppressing cough. It is the influx of blood to the ulcerated and septic lung tissue, not the efflux of blood from the air-passages, which is checked. Hence the intrapulmonary effusion is rapidly got rid of. In none of the nine cases was there the least subsequent additional rise in the daily temperature range, or other sign of pneumonia. This is in distinct contrast with my experience of cases of hemoptysis treated by morphia hypodermically.

FRANCIS HARE, M.D.

Marriages.

CLARA A. BRUCE, M.D., to John F. Rusz, both of Norwood, Cincinnati, February 14.

CHARLES W. BRASFIELD, M.D., to Miss Maggie Braswell, both of Sweetwater, Ala., January 25.

FRANK ELIOT STETSON, M.D., New Bedford, Mass., to Miss Sigrid Moller of New York City.

ISAAC E. GREEN, M.D., to Miss Margaret Williamson Brickell, both of Weldon, N. C., February 16.

PATRICK K. WORTHAM, M.D., Waco, Texas, to Mrs. E. A. Howard of Eddy, Texas, February 12.

H. R. KAUFFMAN, M.D., Monroe, Wis., to Miss Emma G. Beach of Columbus, Ohio, February 12.

T. M. WALSH, M.D., Sutton, W. Va., to Miss Gertrude Haymond of South Sutton, W. Va., February 10.

WILLIAM B. CAMPBELL, M.D., Menomonee Falls, Wis., to Miss Belle Bannon of Waukesha, Wis., February 13.

J. H. EUGENE ROSAMOND, M.D., Grand Lake, Ark., to Miss Anna Jane Trotter of Winona, Miss., March 1.

BENJAMIN WILLIAM DUDLEY, M.D., Lexington, Ky., to Miss Ethel Croxall Slingluff, Baltimore, February 21.

Deaths.

Albert B. Prescott, M.D., Ph.D., LL.D., for 40 years a member of the faculty of the Department of Medicine and Surgery of the University of Michigan, died from organic heart disease, February 25, aged 72. He was graduated in medicine from the University of Michigan in 1864, and served for one year as assistant surgeon in the Army. In 1865 he was appointed assistant professor of chemistry, and five years later his title was changed to professor of organic and applied chemistry. Since 1876 he has been dean of the pharmacy department, and since 1884 director of the chemical laboratory. He was president of the American Association for the Advancement of Science in 1891, and has been honored by election to numerous foreign chemical societies. As an author he has produced the following books: "Outlines of Proximate Organic Analysis"; "Chemistry of Alcoholic Liquors"; "Qualitative Chemical Analysis"; "First Book of Qualitative Chemistry," and "Manual of Organic Analysis." His original contributions to current chemical literature were numerous and of high grade, and as a teacher he has inspired many students who, following his example, have enriched science by their researches.

John H. Claiborne, M.D. University of Virginia, Charlottesville, 1849, Jefferson Medical College, Philadelphia, 1850; surgeon of the Twelfth Virginia Infantry, C. S. A., during the Civil War; who organized and equipped many hospitals, served in both houses of the legislature, and was ex-president of the Medical Society of Virginia, and member of the Southern Surgical and Gynecological Association and of the American Public Health Association, died at his home in Petersburg, Va., February 24.

Edward C. W. O'Brien, M.D. University of Buffalo Medical Department, 1867, a curator of the University of Buffalo; five times health officer of Buffalo; consulting physician to Providence Retreat for the Insane; surgeon to the Buffalo Fire Department; formerly surgeon of the Seventy-fourth Infantry, N. G., New York; ex-president of Erie County Medical Society and the University of Buffalo Alumni Association, died at his home in Buffalo, from influenza, February 25, after a short illness.

John H. Granniss, M.D. Medical Institution of Yale College, New Haven, Conn., 1868, a member of the American Medical Association; some-time president and vice-president of the Connecticut Medical Society, a veteran of the Civil War, and in the hospital corps of the Army and Navy, for several years health officer and medical examiner of Saybrook, Conn., died at his home in that place, February 17, from influenza, after an illness of one month, aged 60.

Charles E. Clark, M.D. Rush Medical College, Chicago, 1886, of Kansas City, Mo., a member of the American Medical Association and the Missouri State Medical Association; ex-president of the Jackson County Medical Society; professor of laryngology, Kansas City Medical College, a specialist on diseases of the nose and throat, died from tuberculosis in Colorado Springs, where he had gone for his health, February 17, after an illness of six months, aged 47.

Alfred Hadley Lindley, M.D. Jefferson Medical College, Philadelphia, 1850, a pioneer practitioner of Minneapolis, and one of the founders of the Hennepin County Medical Society, died at his home in Minneapolis, February 16, from pneumonia, aged 83. The Hennepin County Medical Society, at a special meeting, February 17, passed resolutions of regard and regret and appointed a committee to represent the society at the funeral.

Alonzo I. Hunt, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1895, president of Hamilton Township Board of Health, died at his home in Hamilton Square, N. J., February 13, from pneumonia, after an illness of six days, aged 34. The Mercer County Medical Society, at a special meeting, February 14, appointed a committee to draft a memorial on Dr. Hunt, and a committee to attend his funeral.

Joseph B. Whiting, Jr., M.D. College of Physicians and Surgeons of Chicago, 1887, a member of the Association of Military Surgeons of the United States; major and surgeon of the First Infantry, N. G. Wis.; surgeon of the First Wisconsin Infantry, U. S. V., during the Spanish-American War, died suddenly at his home in Janesville, Wis., February 19, aged 39.

Alfred L. Buchan, M.D. Rush Medical College, Chicago, 1871, of Racine, Wis., a member of the Wisconsin State Medical Society, and for several years a member of the State Board of Health, died at the home of his brother in Dover, Wis., February 17, from cancer of the liver, after an illness of more than a year, aged 57.

Otto Kohlhase, M.D. Marion Sims-Beaumont College of Medicine, St. Louis, 1903, assistant surgeon, U. S. Navy, died from yellow fever on board the U. S. S. *Boston,* at Panama, January 28, after an illness of eight days, aged 27. He was buried in the Arlington National Cemetery, February 20, with military honors.

Flavius J. Downer, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1871, assistant physician at the Upper Peninsula Hospital for the Insane, Newberry, Mich.; formerly chief surgeon for the Quincy Mine, Hancock, died suddenly at Newberry, February 18, from heart disease, aged 67.

Obadiah V. Garnett, M.D. Jefferson Medical College, Philadelphia, 1855, of Paterson, N. J., surgeon in the Confederate service during the Civil War; for many years local surgeon of the Erie Railway, died in the Paterson General Hospital, February 17, from chronic nephritis, after a long illness, aged 70.

Henry E. Woodbury, M.D. University of Georgetown Medical Department, Washington, D. C., 1863, acting assistant surgeon in the Army during the Civil War; for more than fifty years a resident of Washington, D. C., died at his home in that city, January 15, from chronic bronchitis, after a long illness.

Abner Render Wellborn, M.D. New York University, New York City, 1845, surgeon in the Confederate service during the Civil War; some-time clerk of the Superior Court of Coweta; for many years a practitioner of Atlanta, died at the home of his daughter in Columbus, Ga., February 4, aged 83.

Richard W. Sanders, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1851, a member of the Virginia House of Delegates, 1893 and 1894; president of the Southwest Virginia Medical Association, died at his home in Max Meadows, Va., February 3, aged 68.

James T. Berry, M.D. University of Louisville Medical Department, 1875, some-time superintendent of the Kentucky Institute for the Education and Training of Feeble-Minded Children, Frankfort, died suddenly at his home near Lagrange, Ky., February 20, aged 64.

John A. Westerfield, M.D. University of Louisville Medical Department, 1880, but a practitioner for 58 years; a surgeon in the Mexican and Civil wars; for many years in Atkins, Ark., died at his home in McGregor, Texas, February 3, from senile debility, aged 84.

William W. Whitney, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1862; acting assistant surgeon during the Civil War; formerly of Union, N. Y., died at his home in St. Augustine, Fla., January 22, from pneumonia, aged 76.

James Taylor Pirtle, M.D. St. Louis Medical College, 1864, one of the oldest members of the St. Louis Medical Society, surgeon in a Missouri regiment during the Civil War, died at his home in St. Louis, February 19, after an illness of several years, aged 69.

J. Theron Renouff, M.D. Southern Medical College, Atlanta, 1887, late professor of materia medica and therapeutics in the Woman's Medical College of Georgia, Atlanta, died suddenly from angina pectoris at his home in Atlanta, February 13, aged 55.

Henry R. Brown, M.D. New York, 1867, a member of the American Medical Association; for several years chairman of the Board of Health of Leominster, Mass., died at his home in that city, February 16, from erysipelas, after a short illness, aged 63.

Reuben L. Shimer, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, of Washington, D. C., died at the home of his nephew in Redington, Pa., February 14, from cerebral hemorrhage, after a short illness, aged 71.

Abel N. Witherspoon, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1854, surgeon in the Confederate service during the Civil War, died at his home in Corsicana, Texas, February 10, from influenza, aged 76.

William C. Blackman, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, one of the oldest physicians of Davidson County, Tenn., died at his home near Overton Station, February 14, after a long illness.

George O. Cummins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1868, a member of the county and state societies, died at his home in Dover, N. J., February 14, after an illness of eight days, aged 62.

Samuel L. Green, M.D., twice a member of the Nebraska legislature, and at the time of his death county judge of Red Willow County, died at his home in McCook, Neb., January 29, twelve days after a fracture of the femur, aged 82.

Spencer Van Dalsen, M.D. College of Physicians and Surgeons in the City of New York, 1876, died at his home in Paterson, N. J., February 16, from bronchopneumonia, following influenza, after an illness of several weeks, aged 52.

Thomas B. Bloomfield, M.D. College of Physicians and Surgeons in the City of New York, 1876, for many years district medical examiner, died at his home in Westbrook, Conn., February 17, from heart disease, aged 60.

John Jackson Dearing, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, died at his home in Covington, Ga., January 30, from senile debility, after an illness of twelve days, aged 82.

Israel T. Hunt, M.D. Harvard University Medical School, Boston, 1870, while delirious, jumped or fell from the second story of his house in Charlestown, Boston, February 16, and was instantly killed, aged 65.

Henry B. Fay, M.D. Howard University Medical Department, Washington, D. C., 1881, of Minneapolis, died at the Swedish Hospital in that city from nephritis, February 11, after a brief illness, aged 46.

William F. Robertson, Jr., M.D. Tulane University of Louisiana Medical Department, New Orleans, 1860, died suddenly from cerebral hemorrhage at his home in Iamonia, Fla., February 8, aged 64.

Richard E. Parker, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1857, died at his home in Suffolk, Va., February 20, from pneumonia, after a short illness, aged 74.

William B. Watford, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1861, died at his home in Colerain, N. C., Dec. 11, 1904, after an illness of three weeks, aged 80.

James B. Houston, M.D. Medical College of Ohio, Cincinnati,

1882, of Charleston, W. Va., died at the Virginia Hospital, Richmond, Va., February 20. He was on his way to Florida for his health.

Lanford Prater, M.D. Medical College of Indiana, Indianapolis, 1872,, died at his home in Lakeview, Ohio, after an illness of six weeks, from the effects of a carbuncle, February 9, aged 64.

James M. Culbertson, M.D. Miami Medical College, Cincinnati, 1855, died at his home in Alliance, Ohio, from cystitis and vesical catarrh, January 30, after an illness of three years, aged 75.

Elisha Roach, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1860, died at his home in Tatamagouche, Nova Scotia, February 13, after a lingering illness, aged 68.

D. Newell Waterbury, M.D. Cincinnati, 1874, formerly of Liverpool, N. Y., died at the State Odd Fellows' Home, Syracuse, from pneumonia, January 24, after a short illness, aged 68.

James G. Wingo, M.D. Missouri Medical College, St. Louis, 1881, formerly of Lock Spring, Mo., died at his home near Wright, Texas, February 15, after an illness of three or four years.

Edwin A. Oppelt, M.D. Cleveland Medical College, Medical Department of Western Reserve College, 1858, died at his home in Loogootee, Ind., February 18, after an invalidism of six years.

Alfred C. Post, M.D. Harvard University Medical School, Boston, 1891, of Salt Lake City, Utah, died in Denver, Nov. 26, 1904, from heart disease, after an illness of two years, aged 37.

Thomas B. Jefferson, M.D. Medical Department of the University of Tennessee, Nashville, 1889, died at his home in Golden Pond, Ky., February 9, from hemorrhage of the lungs.

Elihu Russell Houghton, M.D. Bellevue Hospital Medical College, 1888, formerly of the U. S. Navy, died at his home in New York City from appendicitis, February 19, aged 40.

James Paxton Barclay, M.D. New York University, New York City, 1871, died at his home in Eutaw, Ala., February 13, from heart disease, after an illness of two days, aged 57.

George Osborn, M.D. Cincinnati College of Medicine and Surgery, 1874, died at his home in Sebree, Ky., February 12, from pneumonia, after an illness of five days, aged 57.

John Stafford, M.D., a graduate of Hobart College, the oldest physician in the vicinity, died at Rochester, N. Y. He would have been 100 years old had he lived until March 15.

Luther C. Bean, M.D. Vermont Medical College, Woodstock, 1849, the oldest practitioner of Waukegan, Ill., died at his home in that city from pneumonia, February 22, aged 84.

Mortimer Wright Shaw, M.D. Long Island College Hospital, Brooklyn, N. Y., 1892, of New York City, died at Middletown, N. Y., from typhoid fever, February 22, aged 37.

J. Gustave Schild, M.D. Ohio, 1898, of Toledo, died at Lexington Heights Hospital, Buffalo, N. Y., February 17, from typhoid fever, after an illness of three weeks, aged 32.

Nathaniel P. Duncan, M.D. Bellevue Hospital Medical College, New York City, 1871, died suddenly at his home in Hanford, Cal., from heart disease, February 15, aged 55.

Milton H. Thomas, M.D. Hygeio-Therapeutic College of New York City, 1856, formerly of Barnett, Ga., died at the home of his daughter in Lake City, Fla., February 2.

Charles L. Sutton, M.D. Cincinnati, 1895, of Findlay, Ohio, died, January 30, in Christ's Hospital, Cincinnati, from tuberculosis, after an illness of two years, aged 35.

Matthew A. Quirk, M.D. Medico-Chirurgical College of Philadelphia, 1898, died recently at his home in Sayre, Pa., and was buried at Auburn, N. Y., February 13.

Adolphus E. Fant, M.D. Medical College of the State of South Carolina, Charleston, 1836, died at his home in Santuck, S. C., February 11, after a long illness.

Newton F. Sweatman, M.D. Albany (N. Y.) Medical College, 1872, died at his home in Amsterdam, N. Y., February 18, from influenza, after a brief illness, aged 52.

Charles Shackleford, M.D. who had been out of practice for twenty-five years, died at the Western Kentucky Hospital for the Insane, Nov. 27, 1904, aged 84.

Jeremiah N. Sharp, M.D. Medical Department of the University of Iowa at Keokuk, 1863, died at his home in Stockton, Ill., February 22, from pneumonia.

Darius W. Dundor, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879, died at his home in Womelsdorf, Pa., aged 48.

Henry Baxter Wilson, M.D. Tennessee Medical College, Knoxville, 1892, died suddenly at Colfax, Cal., from an overdose of morphin, Dec. 30, 1904, aged 65.

Henry J. Snow, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1857, died at his home in Kaufman, Texas, January 6, aged 78.

William Edward Griffiths, M.D. College of Physicians and Surgeons in the City of New York, 1868, died at his home in Brooklyn, February 21, aged 63.

R. J. Scott, M.D. Years of Practice, Missouri, died at his home in Brookfield Township, Linn County, Mo., Dec. 11, 1904, from angina pectoris, aged 67.

Thomas Cushing Wallace, M.D. Ohio, 1868, died at his home in Allegheny, Pa., February 16, from pneumonia, after an illness of one week, aged 65.

Alvin E. Garrett, M.D. University of Louisville Medical Department, 1892, died at his home in Sulphur Springs, Texas, February 8, aged about 50.

Richard Owen, M.D. University of Glasgow, Scotland, 1866, died at his home in Pomeroy, Ohio, February 8, after an illness of two years, aged 60.

Louis Rick, M.D. University of Bonn, Germany, 1865, died at his home in Gridley, Kan., January 27, after an illness of four months, aged 62.

Amos C. Williamson, M.D. Beaumont Medical College, St. Louis, 1889, died suddenly at his home in Kerens, Texas, February 6, aged 35.

William R. King, M.D. Harvard University Medical School, Boston, 1890, died at his home in Boston, February 17, from nephritis, aged 37.

John J. Wilson, M.D. College of Physicians and Surgeons, Baltimore, 1886, died at his home in Bristol, Conn., from pneumonia, aged 51.

Arthur H. St. John, M.D. New York, 1892, of Walton, N. Y., died at a hospital in New York City, February 3, after a long illness, aged 48.

Milton Elmer Hammer, M.D. University of Maryland School of Medicine, Baltimore, 1890, died at his home in Baltimore, February 24.

Edwin C. Austin, M.D. Illinois, 1885, died at his home in Elkhorn, Wis., February 11, after an illness of two weeks, aged 44.

Dwight W. Rector, M.D. Albany (N. Y.) Medical College, 1853, died at his home in East Troy, N. Y., February 20, aged 80.

W. L. Huggins, M.D. Albany (N. Y.) Medical College, 1899, died at his home in Alicia, Ark., February 13, from smallpox.

B. B. Drane, M.D., died at his home near Torrance, Miss., January 23, after an illness of several years, aged 74.

Lorenzo Driggs West, M.D. New York, 1849, died at his home in Painesville, Ohio, Dec. 29, 1904, aged 80.

Henry R. Worthington, M.D. Pennsylvania, 1886, died at Trenton, N. J., February 23, aged 41.

J. W. Wade, M.D., died from exposure at his home in Eldon, Mo., aged about 65.

Miscellany.

Why Patent Medicines Are Dangerous.

In the March issue of the *Ladies' Home Journal*, the editor, Mr. Edward Bok, calls the attention of his readers, and of women in particular, to a few facts which he says are not theories nor guesses at the truth, but facts—as they exist. First, no physician of standing in his profession, who discovers any formula or any new method of alleviating the illnesses or sufferings of humanity, ever keeps such a formula to himself or for his self-gain. No sooner does an honorable physician bring such a discovery to a point of proved efficiency than he freely and unreservedly announces it, in order that other physicians may use it for the benefit of humanity. As instances of this, Mr. Bok cites the discovery of the use of ether, antisepsis, the rest cure, and the *x*-rays.

The "patent-medicine doctor," on the other hand, does not ive his valuable formula to the profession for its members o give to the world of suffering. He applies for a patent or or a trade-mark, and makes use of his discovery only for self-ain. As Mr. Bok puts it, "he is a doctor for the money here is in it; not for the good he can do." Furthermore, no ne but the discoverer knows the ingredients of his product, or a trade-mark is granted on the name and not on the for-nula. There exists no control, government, state or medical, ver the formula. The purchaser has no assurance that the ngredients of one bottle are identical with the next one. If he market price of one of the ingredients becomes higher, here is nothing to hinder the compounder from substituting ither a cheaper quality of the same ingredient or an en-irely different substance, as, for instance, wood alcohol used n place of pure alcohol, and prussic acid used in place of wild herry bark.

Mr. Bok also points out the fallacy of anyone prescribing or thousands whom he can not see and from whose symptoms ne can not possibly know whether his medicine is best for hem or not. Repeated attempts to enact laws compelling atent-medicine manufacturers to print on the label of each ottle or package the exact drugs used in the medicine therein have been frustrated; these manufacturers would not dare to print the ingredients of their products, because "in revelation lies disaster"; and yet women will unhesitatingly take into their systems concoctions, the ingredients of which these men dare not reveal. If the public were once to know exactly what is in the average secret nostrum, the greater part of the patent-medicine industry of this country would see its finish so quickly that the public itself would be amazed. An analysis of patent medicines often reveals most astounding facts. Many contain enormous quantities of alcohol, one preparation as high as 65 per cent.; a soothing syrup may contain morphin; other preparations contain dangerously large doses of chloroform and ether, and so on.

The patent-medicine manufacturer must look chiefly to women for the maintenance of his business. If the American woman would withhold her patronage from these secret nostrums, the greater part of the industry would go to pieces. Mr. Bok's article touches on many phases of this question, chief of which, however, is the one dealing with the fact that these men are attempting to treat conditions of which they know nothing, existing in persons whom they can not see, with so-called medicines that often are not only ill-advised, but at times positively dangerous.

Medical Science Is Advancing.—Text-books quickly become obsolete and succeed one another so rapidly that it is almost impossible for the busy practitioner to keep up with them. Medical journals keep physicians posted in the latest developments in medical work. They are a constantly renewed text-book on all branches of medicine. Commenting on this view, the *Semaine Médicale* very pertinently exclaims: "This is what we medical journals are here for!"

Cod-Liver Oil Must Be Pure in Ohio.—The Dairy and Food Commission of Ohio has decided that cod-liver oil is a food. This ruling accords with the ideas of physicians, who usually give it more as a food than as a medicine. The commission has ruled that all the wines, essences, cordials, or so-called active principle preparations of cod-liver oil, can not in the future use the name cod-liver oil, for the plain and simple reason that they do not contain the oil.

Legible Prescription Writing.—*Meyer Brothers' Druggist* urges that physicians in writing prescriptions ought not to lose sight of the fact that signs of quantities indistinctly written lead to mistakes in compounding. The scruple sign and dram sign and the dram and ounce signs are frequently so badly made that it is impossible to discriminate between them, unless, of course, one can judge by the doses. This, however, is not always possible, especially in prescriptions bearing "Use as directed" label, or no directions at all.

Simplified Intratracheal Injections.—Mendel of Paris (*Bull. de la Soc. Méd. des Hôpitaux*, Paris, xxi, No. 35, 1904) draws the tongue of the subject forward and holds it firmly. The pharynx serves as a funnel opening into the trachea, the entrance into the esophagus being completely closed by the traction on the tongue. A fluid injected against the wall of the pharynx flows down spontaneously into the air passages, as was conclusively established by tests on a tracheotomized subject with colored oil. If the fluid used is not irritating, there are no reflex phenomena as it runs down.

Indirect Organ Therapy of Exophthalmic Goiter.—The leading article in the first number of the new German medical periodical, *Medicinische Klinik*, is by von Leyden. It reports very satisfactory results obtained in a number of cases of exophthalmic goiter by administration of the active substance isolated from the milk or blood of goats deprived of the thyroid gland. Burghart, Blumenthal, Madsen of Copenhagen and Möbius of Halle have each experimented in this line, the latter using the blood of thyroidectomized wethers for subcutaneous injection or ingestion per os. Madsen gives the dried blood of thyroidectomized goats, Burghart, the active substance isolated from the milk. (See The Journal, xl, page 680, and xli, page 995.)

The Amenities of the Medical Profession.—The editor of the *Gaz. Méd. Belge* vouches for the truth of the following story told by a French physician: He was summoned in haste to a consultation in a case of placenta previa. The husband asked whether they would guarantee to save his wife, and was told that the physicians would guarantee nothing, but would do their utmost to save her. He walked nervously to and fro in the next room during the two hours before the physicians could announce that all danger was past. He remarked then that they were lucky, as he had fully intended to shoot them—producing a revolver from his pocket—if his wife had died. When the physician's bill for $200 was presented the husband protested most vigorously against the charge, but the physician merely remarked: "My skin is worth more than $200," and the amount was paid without further ado.

Straw Charcoal Dressings of the Japanese.—Correspondents in the Far East have had considerable to say in regard to the fine, inexpensive absorbent dressings used by the Japanese. The Journal has previously described the way of making the straw charcoal used for these dressings. Any straw will answer, either fresh or old, soiled or clean, but rice straw is generally used there, as it is so common. It is placed in an iron vessel or on the stone or dirt floor of a room, and set on fire, the vessel being covered or the doors and windows of the room being closed to diminish the supply of oxygen. The straw charcoal thus made is aseptic and very absorbent, and can be obtained without expense anywhere. It is applied to wounds in a linen bag of the proper size, and these bags are all that have to be kept on hand, as the straw is obtainable anywhere. This dressing is the invention of Surgeon-General Kikuzi, it is said, and has been extensively used for several years, with constantly increasing satisfaction.

Bulbar Symptoms of Toxic Origin Secondary to Carcinoma.—Some support appears to be given to the view that carcinoma is a parasitic disease by the cachexia and the blood depravity that so commonly develop and by symptoms of derangement of the nervous system, phenomena that can be most readily explained on the basis of an intoxication secondary to a hypothetical infective process. Manifestations of the second category have been observed independently of direct involvement of the nervous system, to any part of which they may be referable. Thus coma, mental apathy, psychic disturbances, hemiplegia with or without aphasia, or the latter alone, monoplegia, convulsions, bulbar, pontine and spinal symptoms have been noted. Especial reference to bulbar symptoms complicating carcinoma of other parts than the nervous system has been made by Dr. T. H. Weisenburg (The Journal, Feb. 11, 1905, page 502). The alterations mentioned are comparable to those that have been described as occurring in conjunction with uremia.

"Chronic Mumps of the Lachrymal Glands."—At a recent meeting of the Berlin Medical Society, Marcuse presented a case of what has been called—in the absence as yet of any name—Mikulicz' disease. The upper eyelids protruded; circumscribed tumors of the size of a hen's egg appeared in the parotid and submaxillary glands; the sublingual, the accessory parotids and Nuni's glands were enlarged. The lachrymal and salivary secretions had ceased entirely, but under long-continued massage a little saliva could be made to flow. The subjective symptoms were not conspicuous. Metabolism appeared to be normal; there was neither spontaneous nor alimentary glycosuria. The blood is also normal, a matter of interest as well as importance, inasmuch as several of these cases terminated in leukemia. Medicinal treatment, consisting of the internal administration of potassium iodid and arsenic, proved futile. Massage is being carried out assiduously. A summary of a review of the literature on this subject was given in THE JOURNAL recently, on page 664.

Puerperal Involution of Newborn.—J. Halban of Vienna read a communication on this subject at the last German Naturforscher Congress. His researches have demonstrated that the fetal organism shares in the genital phenomena of the mother, and that puerperal involution occurs in the same organs as in the mother. The mammæ show about the eighth month the same changes as the mammæ of the mother, and the fetal uterus shows hypertrophy and hyperemia, with puerperal involution after birth. The changes in the genital organs are not pathologic. In the mother they result in the formation of the decidua, but in the fetal uterus the reaction is more in the nature of menstrual changes. The mammary glands of male children and the prostate show these same changes and involution after birth. He ascribes the processes to intoxication from the placenta, regarding eclampsia as the extreme type. The organs of the fetus in eclampsia show entirely analogous changes to those characteristic of maternal eclampsia.

Melanoderma in Tuberculous Subjects.—Eliminating all other causes for the condition, out of 60 tuberculous subjects taken at random, Laignel-Lavastine found twelve cases of marked pigmentation of the skin credited to the general tuberculous condition. He reports also in detail in his article in *Archives Gén. de Méd.*, lxxxi, No. 40, 1904, a list of thirty-one cases, in 5 of which autopsies were made, and in which lesions of the solar plexus, of the suprarenals and of the splanchnics were found. These lesions are rare in non-pigmented patients, while in those presenting melanoderma, whatever may be the cellular changes of the suprarenals, these glands are hypopigmented. The pigmentation seems to be connected with the disturbance of function rather than with a uniform lesion of the organs, some of which may be unaffected in certain cases. The mechanism of the peculiar coloration in Addison's disease is the same; the suprarenals may be affected either directly or through their nervous mechanism. In Addison's disease, however, the essential cellular elements are affected, while in other forms of tuberculous pigmentation this is not necessarily the case.

Salivary Calculus.—According to Perrone, in the *Arch. Gén. de Méd.*, calculus of the submaxillary and sublingual glands, while rather rare, is more frequent than is generally suspected. Infection is its sole cause. The other theories lack scientific support. Foreign bodies may act as carriers of parasites, and the diathesis affords favorable conditions for the infection. The anatomic pathologic lesions are three: dilatation of the excretory ducts, sclerosis of the intralobular connective tissue, and atrophy of the glandular parenchyma. The sclerosis is due to infection, not, as Charcot and Gombault would have it, to simple obstruction of the ducts. Errors of diagnosis should be avoided by considering the possibility of this sclerosis. The treatment of the condition is simple, usually limited to the removal of the calculus through the duct by means of a canulated sound or by simple incision of the mucous membrane, but in some cases this may fail, and extirpation of the diseased gland may be required. The operation is not dangerous or disfiguring if a correct aseptic surgical technic is employed.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Have March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State Hous Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Bosto

Maine Board of Medical Registration, City Building, Portlan March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secr tary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April Secretary, R. W. Fisher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, April 3- Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical Colleg Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Ka sas City.

Board of Medical Examiners of Montana, Helena, April 4. Se retary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Fra cisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisc

Regular Board of Medical Examiners of Georgia, Atlanta, Apr 4. Secretary, F. D. Patterson, M.D., Cuthbert.

Minnesota State Board of Medical Examiners, the Old Stat Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D Minneapolis.

Rhode Island State Board of Health, State House, Providenc April 6-7. Secretary, Gardner T. Swarts, M.D., State Hous Providence.

State Medical Board of the Arkansas Medical Society, Little Roc April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, Apr 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-1 Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicag April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Was ington, April 13. Secretary, Wm. C. Woodward, M.D., Washingto

South Carolina State Board of Medical Examiners, Columbi April 24. Secretary, W. M. Lester, M.D., Columbia.

State Board of Medical Examiners of Tennessee, Nashville, Mem phis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Virginia December Report.—Dr. R. S. Martin, secretary o the Medical Examining Board of Virginia, reports the writte examination held at Richmond, Dec. 13-16, 1905. The numbe of subjects examined in was 9; percentage required to pass 75. The total number of applicants examined was 108, o whom 35 passed and 28 failed. The following colleges wer represented:

College.	Year Grad.	Per Cent
PASSED.		
University of Maryland	(1902) 80, (1904)	77
Kentucky School of Medicine	(1904)	75, 75
University of Virginia	(1903) 89, (1904)	76, 91
University of New York	(1891)	75
Baltimore Medical College	(1903) 75, (1904)	75, 85
University of the South	(1903)	75, 75
Maryland Medical College	(1903) 79, (1904)	80, 81
College of P. and S., Boston	(1903)	75
Leonard Med. College,	(1901) 75, (1903) 75, 78; (1904)	75
Medical College of Virginia	(1903) 79, (1904)	75, 81
College of P. and S., Baltimore	(1903)	77
Baltimore University	(1904)	76
Medical College of Virginia	(1904)	77
Columbian University	(1904)	81, 81
Youngstown University	(1904)	80
Louisville Medical College	(1890) 75, (1892)	75
Hospital College of Medicine, Louisville	(1900)	75
University of Tennessee	(1886)	75
Medical Department, Vanderbilt University	(1887)	75
FAILED.		
Royal University of P. and S., Rome	(1901)	52
Kentucky School of Medicine	(1904)	66
University of the South	(1903) 71, (1904) 57, 66, 70, 71	
Boston University	(1904)	69
Leonard Medical College,	(1902) 63, 73; (1904) 64, 66, 68, 69, 69 72, 73, 70.	
Howard University	(1904)	70, 70
University College of Medicine	(1902) 73, (1903)	73
Jefferson Medical College	(1888)	60
Tennessee Medical College	(1900)	65
Maryland Medical College,	(1902) 72, (1903) 50, (1904)	64,73

Wisconsin January Report.—Dr. F. A. Forsbeck, secretary of the Wisconsin Board of Medical Examiners, reports the written examination held at Milwaukee, Jan. 10-12, 1905. The number of subjects examined in was 16; total number of questions asked, 120; percentage required to pass, 75. The total number of persons examined was 19, all of whom passed. The following colleges were represented:

College.	Year Grad.	Per Cent.
rinity University, Canada	(1904)	80.6
niversity of Michigan	(1904)	87.9
oronto University	(1894)	89.3
ollege of P. and S., Chicago	(1902) 81.2, (1904) 82.6,	85.1
orthwestern University	(1903) 85.2, (1904)	83.7
ahnemann Med. Coll., Chicago	(1888)	84.2
niversity of Palermo, Italy	(1896)	76.6
ush Medical College,	(1904) 82.3, 82.5, 87.6, 84.1, 87.5; (1903) 85.5.	
niversity of Christiania, Norway	(1892)	75.3
amline University	(1902)	79.4

Wyoming's New Medical Law.—The Wyoming legislature has assed the medical bill which was introduced by Dr. S. W. ohnson, a member of the house of representatives. In the pper house the interests of the bill were looked after by Drs. evers and Price, members of the senate. Much credit is due ese gentlemen for their earnest efforts in procuring the assage of the bill. It provides for the creation of a board of edical examiners, to be appointed by the governor, and to onsist of three regularly licensed physicians, who shall hold ffice for a term of four years. Applicants for licensure must e graduates from a regularly chartered college, one which is ecognized by the licensing board of the state in which it is cated. In addition to presenting his diploma the applicant ust pass an examination, which may be in whole or in part writing, of an elementary and practical character, on anatmy, physiology, chemistry and toxicology, pathology, physical iagnosis, gynecology, principles of surgery, obstetrics, hygiene nd bacteriology, and such other branches as are necessary to omplete the system of which he is a practitioner. Authority delegated to the board to call in regularly licensed practiioners of special systems of practice to assist in the examinaion. An average grade of 75 per cent. in all the branches, nd not less than 60 per cent. in any one branch, is required. ot more than four examinations will be held in any one year. ertificates will be issued to all those who pass the examinaion, and these certificates must be recorded at the office of the ounty clerk of the county in which the licentiate resides. The ee for the examination is $25. The matter of reciprocity is eft entirely to the discretion of the board. The bill does not rohibit gratuitous service, nor does it apply to commisioned surgeons of the United States Army and Navy, to edical examiners of relief departments of railroad companies, o consultants who are regularly licensed in their own state, r to any physician or surgeon residing on the border of a eighboring state who is duly authorized under the laws of hat state to practice medicine and surgery therein, and whose ractice extends into the limits of Wyoming. The bill applies o apothecaries and pharmacists who prescribe for the sick. ny person is regarded as practicing medicine who in any anner holds himself out to the public as being engaged in he diagnosis and treatment of diseases or injuries or deormities of human beings; or who suggests, recommends, or prescribes any form of treatment for the intended palliation, elief or cure of any physical or mental ailment of any person vith the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation; or who maintains an ffice for the reception, examination and treatment of any person suffering from disease or injury of body or mind; or who ttaches the title of M.D., surgeon, doctor, or any other abbreiation or words to his name indicating that he is engaged in he practice of medicine.

Association News.

THE PORTLAND SESSION.

Excursions To Be Arranged from Portland to the Orient and to Alaska.

The Chairman of the Committee of Arrangements for the Portland Session, July 11 to 14, desires us to announce that arrangements are under consideration with the Pacific Mail Steamship Company for special rates to Yokohama and return, leaving immediately after the adjournment of the session. The regular round-trip rate from San Francisco is $337.50, but this rate will undoubtedly be cut considerably, if a sufficient number desire to go. Arrangements are also being perfected for a special trip to Alaskan points, and those who desire to take either of these trips should write to Dr. Kenneth A. J. Mackenzie, Portland, Ore.

Hotel Accommodations Should Be Reserved.

The hotel committee is very anxious that as many as possible write and engage rooms as soon as they have decided to go to Portland. There will be ample accommodations for everyone, but the earlier the rooms are engaged the more satisfactory will it be to all concerned. For all information address Dr. K. A. J. Mackenzie, Chairman of the Committee of Arrangements, Portland, Ore.

The Yellowstone Park-Portland Special.

The schedule of the trains for Portland by way of Yellowstone Park is as follows, slightly corrected from the description in The Journal last week: The train leaving Chicago on the morning of June 30 will reach Portland at 6 a. m., Monday, July 10. The train leaving Chicago on the morning of July 1 will reach Portland at 11:30 a. m., Monday, July 10. This will give a full day (Monday) to those leaving here June 30, and will give those leaving here on the morning of July 1, ample time for lunch and preliminary arrangements and for any Monday afternoon meeting on hand.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 25, 1905:

Stone, John H., asst.-surgeon, granted four months' leave of absence about April 1, with permission to go beyond the sea.

Shepard, John L., asst.-surgeon, left from detached duty at Washington, D. C., on fifteen days' leave of absence.

By Paragraph 20, S. O. 41, War Department, the following named asst.-surgeons are relieved from duty in the Philippine Division, to take effect on the dates set opposite their respective names, or as soon thereafter as practicable, and will then proceed by the first available transport to San Francisco, and on arrival report by telegraph to the military secretary of the Army for further orders: Capt. Wm. H. Wilson, May 12, 1905; Capt. Wm. W. Quinton, May 26, 1905; First Lieutenants E. R. Whitmore, R. U. Patterson, R. P. O'Connor, C. E. Koerper, P. S. Halloran, P. L. Boyer, Roger Brooke, Jr., May 12, 1905; Geo. P. Heard, Jas. F. Hall, Kent Nelson, Jas. M. Phalen, Chas. A. Ragan, Wm. P. Woodall, E. L. Ruffner, May 26, 1905.

Girard, A. C., asst.-surgeon general, leave of absence extended thirty days.

Morse, A. W., asst.-surgeon, relieved from duty at Vancouver Barracks, Wash., and to accompany Nineteenth Infantry to Manila, P. I., where on arrival he will report for duty in Philippine Division.

Birmingham, H. P., surgeon, left C. S. O., Department of Texas, on tour of inspection to Jackson Barracks and Fort St. Philip, La.

De Kraft, S. Chase, contract surgeon, left World's Fair Grounds, St. Louis, February 15, and arrived at Fort Thomas, Ky., with battalion of Philippine Scouts, February 16.

Wing, Franklin F., dental surgeon, granted leave of absence for fourteen days.

Lauderdale, Clarence E., dental surgeon, ordered from Fort Ringgold, Texas, to Fort Bliss, Texas.

Rietz, Hugo C., dental surgeon, left Fort Sheridan, Ill., February 17 for duty at Fort Thomas, Ky.

Kellogg, Preston S., contract surgeon, relieved from duty in the Department of the Missouri, and ordered to accompany the Third Squadron, Eighth Cavalry, from Fort Riley, Kan., to the Philippine Islands.

Marvin, Marion F., contract surgeon, relieved from further duty in the Philippine Division and ordered at the expiration of present leave of absence to Fort Robinson, Neb., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 25, 1905:

Schwerin, L. H., A. A. surgeon, detached from the *Abarenda* and ordered home to wait orders.

Payne, J. H., P. A. surgeon, ordered to the *Pennsylvania*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine Hospital Service for the seven days ended Feb. 22, 1905:

Williams, L. L., asst.-surgeon general, granted leave of absence for eight days from February 14.

Stimpson, W. G., P. A. surgeon, detailed as member of Revenue-cutter Service retiring board at San Francisco.

Blue, R., P. A. surgeon, detailed as member of Revenue-cutter Service retiring board at San Francisco.

Oakley, J. H., P. A. surgeon, to proceed to Northport, Wash., for special temporary duty.

Foster, S. B., A. A. surgeon, Department letter of Jan. 23, 1905, granting leave of absence for twelve days, amended to read ten days from January 24.

BOARD CONVENED.

Board convened to meet at San Francisco Feb. 25, 1905, for the physical examination of officers of the Revenue-cutter Service. Detail for the board: P. A. Surgeon W. G. Stimpson, chairman; P. A. Surgeon J. M. Holt, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 18 to Feb. 25, 1905:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Feb. 11-18, 4 cases.
Illinois: Chicago, Feb. 11-18, 15 cases, 4 deaths; Galesburg, Feb. 13-20, 1 case.
Louisiana: New Orleans, Feb. 11-18, 6 cases, 2 imported.
Massachusetts: Boston, Feb. 11-18, 1 case; Lawrence, Feb. 5-18, 6 cases.
Michigan: Detroit, Feb. 11-18, 5 cases; at 66 localities, Jan. 28-Feb. 4, present.
Missouri: St. Louis, Feb. 11-18, 28 cases, 6 deaths.
Nebraska: Omaha, Feb. 11-18, 13 cases.
New York: New York City, Feb. 11-18, 1 case, 1 death.
Ohio: Toledo, Feb. 4-18, 12 cases.
Pennsylvania: Steelton, Feb. 11-18, 1 case.
South Carolina: Feb. 11-18, Camden, 1 case; Charleston, 2 cases; Greenville, Feb. 4-11, 5 cases, 2 deaths.
Tennessee: Nashville, Feb. 11-18, 7 cases.
Wisconsin: Milwaukee, Jan. 21-Feb. 11, 24 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Dec. 31-Jan. 21, 2 deaths; Para, Jan. 1-31, 66 deaths; Pernambuco, Jan. 1-15, 131 deaths; Rio de Janeiro, Jan. 8-29, 123 cases, 54 deaths.
France: Paris, Jan. 28-Feb. 4, 12 cases.
Great Britain: Bradford, Dec. 26-Jan. 9, 12 cases; Leeds, Jan. 21-28, 7 cases; Jan. 28-Feb. 4, London, 1 case; Manchester, 2 cases; Newcastle-on-Tyne, 5 cases, 1 death; South Shields, 2 cases, 1 death.
India: Bombay, Jan. 17-24, 94 deaths; Calcutta, Jan. 14-21, 2 deaths; Karachi, Jan. 15-22, 1 case; Madras, Jan. 14-20, 2 cases.
Italy: Lecce Province, Jan. 26-Feb. 2, 24 cases.
Mexico: City of Mexico, Jan. 14-28, 3 cases, 3 deaths.
Norway: Christiania, Jan. 14-21, 1 case, 1 death.
Russia: Moscow, Dec. 31-Jan. 28, 26 cases, 8 deaths; Odessa, Jan. 14-Feb. 4, 4 cases, 2 deaths; St. Petersburg, Jan. 14-28, 4 cases, 2 deaths; Warsaw, Dec. 10-17, 2 deaths.
Spain: Barcelona, Jan. 1-28, 18 cases.
Turkey: Constantinople, Jan. 22-29, 9 deaths.
West Indies: Grenada, Jan. 11-28, 7 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 8-29, 16 cases, 3 deaths.
Mexico: Merida, Feb. 5-11, 1 case.
Panama: Panama, Jan. 1-Feb. 11, 19 cases, 6 deaths, 6 cases, 2 deaths from U. S. S. *Boston*.

CHOLERA.

India: Calcutta, Jan. 14-21, 169 deaths.
Russia: Astrachan, Dec. 27-Jan. 8, 1 case; Dec. 21-Jan. 1, Government of Baku, 77 deaths; Government of Erivan, 38 cases, 33 deaths; Government of Saratow, Dec. 27-Jan. 3, 15 cases, 10 deaths; Trans-Caspian Province, Dec. 27-31, 7 cases, 3 deaths.
Turkey in Asia: Van, Jan. 1-7, 77 cases, 46 deaths.

PLAGUE.

Africa: Dec. 24-Jan. 7, East London, 8 cases, 5 deaths; Port Elizabeth, 1 case, 1 death.
Arabia: Aden, Jan. 14-21, 110 cases, 83 deaths.
Australia: Brisbane, Jan. 2, 1 death; Ulmarra, Jan. 10, 1 case.
Brazil: Bahia, Dec. 31-Jan. 7, 2 deaths; Para, Feb. 1, present; Rio de Janeiro, Jan. 8-29, 41 cases, 15 deaths.
Egypt: Jan. 14-21, Suez, 4 cases, 3 deaths; Tukh, 1 case, 1 death.
India: General, Dec. 31-Jan. 14, 58,376 cases, 50,604 deaths; Bombay, Jan. 19-24, 301 deaths; Calcutta, Jan. 14-21, 64 deaths; Karachi, Jan. 15-22, 46 cases, 46 deaths; Madras, vicinity of, Jan. 6, outbreak reported.
Japan: Hiogo, Dec. 14, 1 death.
Russia: Ural Territory, Jan. 3-9, 8 cases, 15 deaths.
Siam: Bangkok, Dec. 15-22, 9 deaths.
Straits Settlements: Singapore, Dec. 30, 3 cases.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.
CHICAGO.

(*Continued from page 653.*)

It is a little strange, in view of the activity in America of research dealing with the application of the methods of physical chemistry to biology, that Europeans are so little informed about what is going on here. Since the first experiments by Kahlenberg and True there has been a steady stream of physical-chemical research in biology in this country. Let anyone unfamiliar with what has been done read the address of A. P. Mathews, one of the best workers in this field, on "The Relation of Inorganic Salts to Protoplasmic Activities," in the *Yale Medical Journal*, 1903; he will speedily be convinced of the fascination of the subject, of the great progress that has been made, and of the important participation of American intellect in this domain. A high tribute to American chemico-biologic research is to be recognized in the visit of Ostwald to the University of California, on the occasion of the opening of the new physiologic laboratory there. His address, "Biology and Chemistry," delivered on that occasion, is full of stimulus for further work.

KK. WILHELMINER SPITAL.

The new Kk. Wilhelminer Spital for sick children in Vienna is situated far from the center of the city, out in the *xv Bezirk*. It is especially interesting to visit, as it exemplifies the isolated pavilion system carried to an extreme degree. The part of the hospital devoted to infectious diseases accommodates about 300 patients and for these alone there are no less than 23 separate buildings! In the first place, there is a special house for the reception of patients; it has its own physician and several different examining rooms corresponding to the various provisional diagnoses made outside. If a patient is supposed to have scarlet fever he is sent to the scarlet fever room for examination; if measles be suspected, to the measles room, and so on. Each room is thoroughly disinfected after use with lysol. The reception house has an operating room for tracheotomies. intubations, etc., when they must be done *instanter*. If a positive diagnosis can be made at once the patient is transferred to the particular pavilion set aside for the cases of that particular disease. If the diagnosis is doubtful the patient is placed in an isolated expectant ward until the nature of the case is cleared up.

The infectious pavilions are divided into three principal groups: 1, diphtheria group; 2, scarlet fever group, and 3, measles and whooping cough group. In each group there is a separate building for the pure disease and accessory separate buildings for the disease as variously complicated. Thus in the diphtheria group there is one pavilion for pure uncomplicated diphtheria, a second for mixed infection of diphtheria and measles, a third for another kind of mixed infection, and so on. Each pavilion has its main ward, its *Ordinationszimmer* in which operations are done, dressings are made, injections are given, etc., its laboratory, its day room for convalescents, its isolation room, its nurses' room, its closets, its bathroom, its kitchen, etc. Outside balconies are common. The children are excellently cared for, not only medically but from the standpoint of general hygiene. The situation of the hospital in the country on the side of a hill is most salubrious; the pavilions are widely separated from one another. The physician-in-chief to the infectious wards, a very earnest man, takes the deepest interest in the welfare of the patients; the immense organization necessary seems to run smoothly. The serum treatment of diphtheria is instituted at the earliest possible moment after a probable diagnosis has been made, of course without waiting for bacteriologic control. In some cases as much as 15,000 units of antitoxin are given.

One naturally asks the question, Is such an elaborate isolation system, such a maximal development of the pavilion system necessary or desirable? and I asked it of the medical chief of the infectious wards as we wandered through the labyrinth of separate pavilions. He frankly stated it as his opinion and as the result of experience there gained that so extreme a development of the pavilion system as the Wilhelminer Spital presents is not necessary. There are many objections to it; the amount of land required is very great, the initial expense for buildings and manifolding of equipment is enormous, the professional *personnel*, including doctors and nurses, must be very large if the work is to be efficiently conducted, the *Dienerschaft* is unnecessarily increased, in bad weather the hardship on physicians and nurses may be considerable, and where the difficulties are made great for physician and nurse the patients are only

too likely to suffer from neglect. If unlimited amounts of money are available and it is lavishly enough spent to adequately supply the needs of the organization, then the luxury of the small pavilion system may be indulged; but buildings of two or more stories, with separate entrances to different parts, answer the purpose just as well, and the initial and current expenses can be thereby greatly curtailed. In the new Pasteur Hospital for Infectious Diseases, which I visited later in Paris, the problem has been more satisfactorily solved; how that hospital is arranged will be described further on in these notes.

STUDY OF ANATOMY OF THE NERVOUS SYSTEM.

Nervous anatomy, under Professor Obersteiner's leadership, is still making rapid progress in Vienna. Obersteiner's many American friends and former students will be interested to learn that the old laboratory in which, in spite of its narrow bounds and dilapidated character, a vast amount of original work has been done, is finally to be deserted; the work is being transferred to very good quarters in the old physiologic building, made vacant by Exner's occupation of the new physiologic laboratory just completed. Dr. Schacherl, the first assistant in the neurologic laboratory, showed me the vast collections of serial sections which have gradually accumulated. The material already gotten together there will form an excellent beginning for one of the central institutes for the investigation of the brain which scientists are now projecting. Among its other treasures, the institute possesses rare and valuable sets of brain sections from a series of Australian animals. Zuckerkandl's studies in the comparative anatomy of the brain were made largely in Obersteiner's laboratory. Obersteiner has proved himself to be a most stimulating, practical teacher and the Americans who have gone to him have profited much. He teaches his men how to observe, how to describe and how to use literature, and whenever possible leads his pupils into original work. One of his school, Dr. Marburg, has recently prepared an excellent atlas of the brain; its illustrations have been carefully made and the book may be warmly recommended.

PHYSIOLOGIC CHEMISTRY AND PHARMACOLOGY.

Physiologic chemistry and pharmacology, at any rate as officially represented in Vienna, appear to be far behind the times. Americans desiring to work in Europe in these important branches should at present look elsewhere than to the Austrian capital for facilities and leadership.[1]

Buda-Pesth.

"Extra Hungariam non est vita, si est vita, non estita!" So runs the Hungarian motto. Buda-Pesth is a joyous city, modern and progressive. The shops look bright and prosperous; were it not for the unintelligible words on the signboards, the names hind-end foremost, and the symbolical paintings on the portals advertising the wares on sale within, a business street in Buda-Pesth might be mistaken for one in a city in the New World.

The Royal Hungarian University (*Budapesti kiralyi magyar Tudonany-Egyetem*) has all four faculties and over 6,000 students. Its income for 1902 was $551,410

HOSPITALS AND MEDICAL COLLEGES.

The hospitals and medical schools are situated in or near the *Ullöi-ut.*. The professor of practical medicine and director of the medical clinic is F. Korányi, now an elderly man of 75 years, a member of the government and a distinguished speaker in the house of parliament. His work is cared for in his absence by Dr. H. Benedict, one of the best young medical men in Buda-Pesth. The clinic is rich in material and I saw there a number of cases of unusual interest, including osteomalacia, aneurism of the hypogastric artery with lesion of the cauda equina, pulsating pleurisy with exudate rich in cholesterin and a series of interesting neurologic cases. The younger Korányi, son of the director of the clinic well known in connection with his studies in cryoscopy, did his work in the small clinical laboratory here. He now has his own wards at the St. Stefani Hospital in the suburbs of the city.

The neurologic clinic of the university, situated in the *Baross utcza* is in charge of one of the most interesting and original men in Buda-Pesth, Prof. Ernö Jendrassik. The building is inadequate and unworthy of the good work done in the clinic. At the time of my visit some experiments were being made with the "bromid diet," in which all the ordinary salt of the food is replaced by sodium bromid. In combating the lightning pains of tabes emphasis is laid in Buda-Pesth on the value of combining half a milligram of scopolamin with each dose of morphin.

Anatomy is well taught under Professor Thanhoffer and von Lenhossék. The latter has organized the teaching in his department in an admirable manner. The laboratory work is thorough, but von Lenhossék also lays great stress on the lectures, even in gross anatomy, holding that only through the lecture can the connection of the facts learned in the laboratory and their explanation be satisfactorily grasped by the student; a text-book can not entirely take the place of the *Macht des gesprochenen Wortes*. Von Lenhossék has worked out an ingenious method for helping an instructor who can not draw well to place accurate illustrations on the board; the method is published in the *Anatomischer Anzeiger*. He lays stress on the advantages of a white board (ground glass with white drawing paper behind it) over a blackboard for class work. In his chart making he uses the convenient and inexpensive stencil apparatus made by Pospisil of Stefanau.

Von Lenhossék is an ardent supporter of the neuron doctrine. He is now hard at work at the neurofibrils and rejoices at the simplicity of the new method of Ramón y Cajal over the methods of Apathy and Bethe. He finds Bielschowsky's method also good, though more complicated than Ramón's. Von Lenhossék asserts that the neurofibrils never pass from one neuron into another and that they are never found free outside the neurons. He contends that he has absolutely disproved Apathy's theory that the neurofibrils grow from without into the nerve cells. Nissl's "gray substance" is, in his opinion, a pure myth.

Bókay is the pharmacologist at Buda-Pesth; H. Pertik, the professor of histology, is an authority on tuberculosis; his collective review on the recent literature of the subject in Lubarsch-Ostertag's yearbook makes very interesting reading.

Prague.

The quarreling between the students in the two Karl-Ferdinand universities—German and Bohemian—in Prague still pursues its intermittent course. The feeling between German and Czech runs very high in the city; even the stranger who speaks German but not Bohemian may find himself in embarrassing circumstances there. Prof. Karl Rabl, head of the department of anatomy and rector of the university at the time of our visit, showed us in his institute a great heap of stones which Czechisch students had thrown through the windows of his laboratory. German life and property are continually threatened. One German professor said to me: "We live as in a prison; life is made a veritable hell for us here." One was reminded of the isolation of the ghetto. Rabl has just been called to Leipzig to succeed the late Professor His; I have no doubt that other professors in the German University of Prague would welcome warmly a suitable call elsewhere.

Prague, aside from its general charm, is, medically, a city of unusual interest. Despite the hardships of the life, many distinguished German-speaking men are active there. Pribram has the first medical clinic and v. Jaksch the second; Chiari is the pathologic anatomist and Pick is the psychiatrist; Hueppe has hygiene, Pohl pharmacology, Hering, Jr., general and experimental pathology, and v. Zeynek medical chemistry. In the Bohemian university there are also excellent men at work: Spina has general and experimental pathology, Horbaczewski

1. Since the above was written Professor Hans Meyer, the distinguished pharmacologist of Marburg, has been called to a chair in Vienna. Under his leadership pharmacology is sure to flourish in the Austrian capital.

medical chemistry, Pawlík obstetrics and gynecology, and Hlava pathologic anatomy.

GENERAL AND EXPERIMENTAL PATHOLOGY.

As I had only a short time in Prague, I devoted most of it to an inquiry as to the nature and status of a chair which exists in Austrian universities, but which has as yet not received separate recognition in the universities of Germany, namely, that of general and experimental pathology. The functions of this chair approach, to a certain degree, the ideal that I have had in mind for some time for a certain number of chairs in internal medicine, the main features of which are outlined in an article entitled "Medicine and the Universities." The chair as it is instituted in Austria might be better called "Pathological Physiology" or "Observational and Experimental Medicine," perhaps. The most important feature is the combination of a laboratory for experimental pathology with a medical clinic, under the leadership of one man.

The movement began with the appointment of Knoll in Vienna. The general character and aim of the movement appealed strongly to the late Professor v. Ziemssen of Munich, and he tried to have Knoll called to Munich. Earlier in these notes I have pointed out how admirably the Medical-Clinical Institute in Munich which was designed by v. Ziemssen is adapted for a combination of laboratory and clinical work. But Knoll died; v. Ziemssen lost interest and died. Austria established three such chairs, one in Vienna, occupied by Paltauf, whose assistant, Biedl, is interested especially in the continuation of the line of work begun by Knoll; one in Innsbrück, occupied by Löwit, and one in Prague, occupied by Ewald Hering, Jr. The training prerequisite to an adequate filling of the chair is in experimental physiology and pathology and clinical work. One of the principal ideas underlying the foundation is the desirability of the influence of clinical work on human beings on experiments in the laboratory; a second is the desirability of bringing to the bedside minds constantly in touch with the experimental side of scientific medicine. As everyone knows, there is all too wide a gulf fixed between the work of the first two years of the medical school and that of the last two years. Many of our great medical educators have lifted up their voices to urge the bridging from either side of the chasm; the Austrians are making a brave attempt to effect a crossing from the side of pathologic physiology.

Hering has a ward of 15 beds, with a capable clinical assistant constantly in attendance. His laboratory is fairly well outfitted with physiologic and chemical apparatus, library and research rooms. He has several laboratory assistants, and, very important for the experimental work, a well-trained mechanic. His teaching is divided between the laboratory and the ward. In the laboratory practical course he produces experimentally in animals a series of general and special pathologic conditions and these are studied from the physiologic rather than from the anatomic side. In cases selected from the clinics of Pribram and v. Jaksch and transferred to his wards, he demonstrates the symptoms and discusses the pathologic physiology underlying them.

It will be seen that this chair of general and experimental pathology is a sort of middle thing between pathology and physiology as usually thought of, on the one hand, and internal medicine and perhaps surgery, on the other. This arrangement has advantages and disadvantages. Among the advantages under present conditions may be mentioned (1) the possibility of a scientific study of certain clinical cases without antagonizing or coming into competition with the purely clinical men, (2) the opportunity to select suitable cases from the great aggregation of clinical material, (3) the relief from the overburden and responsibility which the entire management of the great clinics themselves would entail, (4) the opportunity for a minute and exact study of individual cases, and (5) the possibility of returning cases to the major clinics as soon as they have been studied thoroughly, thus always keeping the beds filled with "active" cases. Among the disadvantages are (1) the necessity of limiting one's problems to certain clinical features for fear of coming into conflicts with the leaders of the major clinics, (2) the absence from such a ward, unless it has also single rooms for private patients, of the class of cases that never enter the public wards of a hospital.

The teaching as at present carried on in connection with the chair is given in the third year; this has the advantage of being near the student's physiologic knowledge, but the disadvantage that he has yet none, or but few, clinical ideas. Much might be said in favor of continuing this kind of work after the student has had considerable observational clinical experience. A drawback in Austria is the limited budget available for these new chairs. For their proper development large funds are necessary—larger than are likely to be forthcoming in that country in the near future, I fear. Some of the men holding chairs there fortunately have private means which make them independent of their honorarium. But it is greatly to the credit of Austria that she has recognized a crying medical need and at least made an effort to meet it.

Hering's studies thus far have dealt largely with the pathologic physiology of the nervous and circulatory systems. His investigations into the various forms of ataxia, his studies of antagonistic and synergistic muscular contractions, his inquiries into the nature of intracentral inhibition and his observations with the finer physiologic recording instruments on the irregularities of the pulse have all enriched clinical as well as purely physiologic knowledge.

NEED FOR SCIENTIFIC CLINICAL WORK.

The example set by Austria, it seems likely, will soon be followed by Germany. The Berlin pathologist, Professor Orth, in his address before the German Pathological Society, recently made a strong plea in favor of pathologic physiology; it is rumored that Bickel, who was trained clinically under Ebstein in Göttingen is to have charge of a sub-department of combined clinical, physiologic and pathologic work in connection with the Berlin laboratory of pathology.

(To be continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Eczema in Children.

In the treatment of infantile eczema F. J. Poynton, in the London *Clin. Jour.*, states that the treatment must be both local and general. The diet may require revision, such as limiting the amount of sugar or starch in infants and the withholding of cakes, jams, and sweets from older children. The author mentions the compressed and manufactured foods, only to condemn them. If the eczema is acute, and the child highly fed, meat is best withdrawn from the diet. On the other hand, if the child is anemic, weak, and poorly fed, a diet of plain meat, eggs, milk, milk puddings and fish is advisable. Careful management of the bowels is of prime importance, and small doses of sulphate of magnesia may be of great service.

LOCAL REMEDIES.

Before the application of any preparation locally, the skin must first be prepared. This is of especial importance in dealing with dispensary cases on account of the scabs and crusts

which have been allowed to form. To do this, light poultices applied for three hours may be used when the incrustations are extensive, and olive oil or boric acid fomentations may be applied locally when they are limited. In acute cases it is best to avoid water and to rely on oatmeal water and olive oil and to avoid the use of soap for a time.

It is important to control the irritation and to prevent the child from scratching, and one of the best preparations for this purpose is chloral internally, giving a child one year old one or two grains (.06-.12) at night and repeat it the following morning. Putting the child's hands into fingerless gloves is very efficacious, and the gloves can be worn day and night if necessary. Poynton prefers this to putting the child in a straight-jacket. Cardboard splints applied to the arms are sometimes of service. The head and face must be protected, and the author recommends a butter-linen mask accurately applied to the face, and a linen cap which comes down well on the shoulders, to the head.

EXTERNAL REMEDIES.

The external remedies should consist of soothing, astringent or stimulating remedies, and as a general rule he uses lotions for wet eczema and ointments for the dry form of the disease.

The best ointments are those of the lead compounds. Bismuth and zinc are good astringent preparations of the milder type, and when it is desired to penetrate the surface, mercury is of value, but care must be observed in its application to large surfaces in order not to produce poisoning. When the disease becomes chronic, stimulating applications are indicated. The following is recommended in such cases:

℞. Ung. diachylon.
Ung. picis liq., āā.....ʒss 15
M. Ft. unguentum. Sig.: Apply locally; or:
℞. Ung. glycerini plumbi subacetat. (B. P.).ʒi 30
Sig.: Apply locally.

The latter is often healing when the ordinary tar and mercury fail. [It is of 16 per cent. strength.]

The following lotions are recommended:

℞. Zinci oxidi
Calaminæ prep., āā .....gr. xxx 2
Glycerini
Liq. calcis, āā.....m. xxiv 1 65
Aquæ rosæ .....ʒi 30
M. Ft. lotio. Sig.: Apply locally.

For chronic irritable eczema, when the skin is not very sensitive, the following is serviceable:

℞. Creolini .....ʒss 2
Aquæ .....ʒi 30
M. Sig.: Apply locally.

If the skin is very dry glycerin, from ʒii to ʒi (8.-30.), should be added to the foregoing.

In cases of eczema capitis the lead lotion (one-half strength) should be applied on linen which is kept moist.

INTERNAL REMEDIES.

Correct alimentary disturbances with rhubarb and magnesia or rhubarb and soda, or a small dose of the gray powder followed by a few drops of castor oil in a mixture. If the urine is highly acid, from three to five grains (.20 to .30) of potassium citrate are of service.

Small doses of the wine of antimony is sometimes recommended. In the illy nourished and anemic and underfed children, quinin, cod-liver oil, or cream and raw meat juice should be given.

Pneumonia.

M. Manges, in *Med. News*, recommends the following general treatment of pneumonia:

1. Maintain life by means of careful management of the stomach by a suitable diet; prevent distention of the stomach and avoid any embarrassment to the circulation and heart. It is better to give too little food than too much, and carbonated beverages should be avoided.

2. Support the heart by means of strychnia, caffein, alcohol, camphor and ergot; these drugs are better given hypodermically. The precordial ice bag, cupping and venesection are also of value.

3. Control the hyperpyrexia. Large flat ice bags on the chest are recommended, placed on the chest, observing care not to produce an intercostal neuritis. Cold baths are contraindicated and cold sponges and packs must be used with caution. The author permits the use of antipyretics in small doses to comfort the patient.

4. Relieve suffering by small doses of morphin or heroin hydrochlorate. He considers oxygen of but little value.

5. Procure sleep and control complications, such as pleurisy with effusion, empyema, pericarditis, and endocarditis.

Dysmenorrhea.

In considering the treatment of dysmenorrhea of young girls Dalche, in an abstract in *N. Y. Med. Jour.*, advises a search into the possible causes, such as tight lacing, overstudy, physical fatigue and long sessions at the piano.

For the pain, rest, warm napkins applied locally, suppositories of belladonna are recommended. Locally for the pain in the back the following ointment is of value:

℞. Ext. hyoscyami
Ext. belladonnæ, āā.....gr. xxx 2
Adipis .....ʒi 30
M. Ft. unguentum. Sig.: A small amount to be applied locally night and morning.

Ice should be avoided, as it checks the menstrual flow, although it relieves the pain.

The method of anesthetizing the turbinates with a solution of cocain is recommended as successful treatment in a fair number of cases.

Where the quantity of blood is almost normal, the internal treatment consists in the administration of bromids and chloral; morphin preparations should be the last resource. For the neuralgia in the lumbar region the following combination is also recommended as of value in these cases:

℞. Ichthyolei 3iiss 10
Spts. chloroformi .....ʒss 15
Spts. camphoræ 3iv 15
Alcoholis .....ʒi 30
M. Sig.: To be painted locally over the lumbar region. Warm baths with massage to the loins, buttocks and thighs are recommended.

When the flow is excessive, hydrastis canadensis is considered the best remedy by the author. Between the menstrual periods, cold bathing of the arms and legs is recommended, and where the flow is delayed and scanty, gymnastic exercises in moderation are valuable.

The Use of Atropin in Ophthalmic Practice.

Aaron Brav, in *Medico-Chir. Jour.*, states that the sulphate is the best atropin preparation to use in ophthalmic practice. It is alkaline in reaction, and is readily soluble. It is used as a mydriatic, antiphlogistic, analgesic, iridoplegic and cycloplegic. Its action is local, as proved by the fact that it will dilate one pupil and not the other when instilled in only one eye. The quantity and strength of the solution must depend on the condition met with ordinarily, one drop of a half per cent. solution is used, and when it is desired to keep the eye in a state of mydriasis for many days, two or three instillations are necessary. As a mydriatic, atropin is indicated in all conditions where the iris is congested and when the iris is adherent to the anterior part of the capsule of the lens. It is also of value for diagnostic purposes in differentiating synechia from iritis and the latter from cyclitis.

As an antiphlogistic, atropin is very valuable, and, with few exceptions, it is indicated in all inflammatory conditions of the eye. Atropin relieves the congestion of the iris by forcing the blood out of its vessels into the ciliary vessels. At the same time, it contracts the iris and paralyzes its motor function, thus placing it at absolute rest by preventing its reaction to light. As an analgesic, atropin diminishes pain, and in some cases completely relieves the symptoms. This is accomplished, according to the author, not by its action on the sensory nerves, but indirectly by reducing the hyperemia and by paralyzing the motor filaments. It is, therefore, of value

only in those cases where the pain is due to congestion of the iris.

In cases where it is desired to paralyze the accommodation the action of the drug is noticed to be slower than on the iris, requiring two hours to produce complete paralysis of the ciliary muscle. This effect lasts from 10 to 12 days. In this connection atropin is of value in the estimation of errors of refraction, in determining hypermetropia and astigmatism, and in observing diseases of the choroid and of the retina. Atropin is of value in correcting errors of refraction in patients under 40 years of age, unless pregnancy, lactation or glaucoma are present, and in spasms of accommodation with resulting apparent myopia. Atropin is indicated in the treatment of convergent strabismus, due to an excessive hypermetropia in its early stages, and by paralyzing the accommodation prevents undue convergence.

In the diagnosis of posterior synechiæ atropin is of great value.

In keratitis, when complicated by iritis or by hyperemia of the iris atropin is indicated, as it exerts an antiphlogistic effect by contracting the blood vessels and by relieving congestion. This overbalances its increased tendency to photophobia, which can be diminished by wearing smoked glasses. In diseases of the cornea the author emphasizes the value of atropin in almost every type of inflammation, whether slight or severe, whether parenchymatous or interstitial.

In ulcers of the cornea, its value depends on its ability to keep the iris away from the cornea.

In the different forms of iritis, whether syphilitic, rheumatic or traumatic, its value has been demonstrated. In diseases of the sclera, including wounds and recent injuries, the conditions are always improved by the use of atropin.

CONTRAINDICATIONS FOR THE USE OF ATROPIN.

Atropin is contraindicated in glaucoma, and in people over forty. In cyclitis it increases the pain. In ulcers of the cornea, with impending perforation, it must be used with care, and in radial iridodialysis it is contraindicated. In the treatment of children, it must be employed with care, as it may cause toxic symptoms, and, as with many other preparations, idiosyncrasies must be looked for. In its local use toxic symptoms arise through its excretion through the lachrymal duct into the nose. The preparation must be pure; it should be neutral in reaction, and when used locally the lachrymal duct should be compressed or the lid everted.

Night Sweats in Phthisis.

The experience of J. Sorgo, chief of the Alland tuberculosis sanatorium in Germany, has convinced him that night sweats are due only partially to the tubercle toxins. The principal factor is the unhygienic conditions which the subject imposes on himself from the fear of "catching cold." Almost invariably the night sweats are banished in the sanatorium by the institution of proper hygienic measures. His article on the etiology and prophylaxis of night sweats in phthisis appears in the *Wiener med. Woch.*, Nos. 50-52, 1904.

Salicylates in Gallstone Affections.

B. Stiller of Ofen-Pest confirms the recent assertions of various authors in regard to the efficiency of sodium salicylate in the treatment of biliary lithiasis. (THE JOURNAL, Feb. 11, 1904, p. 510, No. 77.) He prescribes .5 gm. about four times a day for several weeks, after subsidence of the acute phase. He also uses warm linseed poultices and rest in bed. This treatment is an effective substitute for a course at Carlsbad, or may supplement such a course, and it will be found useful in cases with violent onset in which a Carlsbad course is not indicated until later. The best results seem to be obtained in the so-called "ineffective colics" in which the stones do not seem to get beyond the cystic duct, and in which icterus is transient or is absent altogether. Perihepatitis and cholecystitis without colics are also favorably affected by this treatment. His communication is cited in the *Münch. med. Woch.*, lii, No. 5.

Influenza.

The treatment of influenza, according to *Med. Council*, consists at first of rest in bed and a saline cathartic (sodium sulphate). After the cathartic has taken effect, hot drinks are given to the patient and heat is applied to the feet in order to produce free diaphoresis. This will rid the system of the accumulated poisons and will dissipate the acute symptoms. Depressants must be avoided. Sulphate of sodium has proved to be a very valuable drug in the treatment of this disease. A laxative dose is given every morning on awakening, and small doses —5 grains—are given every hour throughout the day. Camphor—in large doses of the tincture repeated hourly—will quickly control the disease in some persons. Ammonium salts—a combination of the chlorid and bromid—are frequently very effective. Quinin in the beginning is the best tonic drug. If there is fever and rapid pulse, acetanilid can be given, with camphor monobromate. Strychnin is the best tonic after the acute symptoms have subsided. For the cough codein may be given if necessary. Dover's powder is excellent as a cough sedative and as a diaphoretic. During convalescence strychnin and some form of wine will prove useful unless there is a poor appetite, in which case tincture of nux vomica with the compound tinctures of gentian and cinchona will give excellent results. Digestives may be necessary. Complications must be watched for, and when they occur special treatment is indicated.

Medicolegal.

Pay of Health Officer—Duties of Board.—The Court of Appeals of Kentucky says, in the case of Taylor vs. Adair County, brought to recover for services rendered as health officer, that the answer denied, on knowledge or information, that the plaintiff had been appointed health officer, or had been appointed a member of the board of health. This was a sufficient denial, because these boards are not required by statute to keep records of their proceedings. Therefore, these acts, though official, are not presumed to be known to every one. Another defense was that prior to the time when the plaintiff claimed to have been appointed health officer, and to have rendered the services sued for, the fiscal court of Adair County had, by an order of court, fixed the salary of the health officer at $40 per annum, and that the plaintiff accepted the appointment and rendered the services with the knowledge of that fact, and had for a time acquiesced in it by accepting payments based on that allowance. The county's position was that, as the salary or compensation of the plaintiff was fixed before his term of office began, it could not be either increased nor diminished during his term, under the state constitution. The statute reads: "Physicians appointed as health officers for cities, towns and counties shall receive reasonable compensation for their services, to be allowed by the councils, trustees, or county (fiscal) courts of the cities, towns or counties, and to be paid as other city, town or county officers are paid, and such officers may be removed at any time by the local boards appointing them. . . ." County judges and treasurers are to be paid annual salaries, to be fixed at reasonable amounts by the fiscal courts. The fees allowed to certain officers as compensation in lieu of salaries are subject to the same constitutional limitation. But here, the court says, it is not known what services may be rendered. They are of a nature that may vary considerably in value and extent in different years. Some years no services may be rendered. Again, an epidemic of smallpox or yellow fever might take all the health officer's time for a great part of a year. For that reason it seems that the legislature has not seen proper to require a salary to be fixed and paid to such officer, but that for such services as he may render he shall be paid reasonable compensation. That can not be determined in advance, if for no other reason, because their nature and extent are impossible to be known before the emergency happens calling for them. If it is intended to fix in advance the pay for such

services, a reasonable schedule of rates might be adopted. A salary of $40, which should cover all possible services that may be required of the health officer in a year, while in some instances it might be enough, or even too much, yet in others it would be manifestly and grossly inadequate. The result must be, if it be allowed, to deter qualified physicians from accepting such appointments. In this way fiscal courts might overthrow the legislative provision in its practical application, by which it was intended that the treatment of these deadly contagions might be controlled or stamped out by the employment of skilled and competent physicians. The action of the fiscal court in attempting to so fix a salary in advance was not binding, under the circumstances shown, on the health officer. For it was his duty to do what the law required of him, under direction of the board of health, in stamping out and preventing the spread of contagious diseases; and he has the right to claim adequate pay for his services, which the fiscal court must allow, if the services were in fact rendered as required by law. However, the plaintiff's petition alleged that the county board of health, when appointing him health officer, gave him general authority and direction to look after epidemics of contagious and infectious diseases appearing in the county, and to make all necessary inspections and visitations called for by the situations that might arise. But the court is of the opinion that the county board of health had not the power to delegate its duties in such matters, and that it could not, by an attempt to do so, create any right in the health officer that did not already exist. It says that the powers given to these boards are extraordinary, seemingly justified by the most serious exigency affecting the public health. More than one person is required by statute to be appointed on the board. The legislature was evidently unwilling to leave to one person the determination of such important and drastic measures as are given to the county boards. In the judgment and fidelity of a greater number acting together is the greatest security against abuse of extraordinary power. It is to the county board of health, not to the health officer, their creature and executive, that is committed the duty of examining into those nuisances and conditions of filth and infection that tend to spread the contagious diseases, to establish quarantines, and to bring the population of an infected or suspected community into prescribed treatment and disinfection. This power is given by the statute to the board, and it must act as a board on each case or epidemic as it arises, determining the necessities of each situation from the facts then existing.

Privileged Questions as to Length of Pregnancy.—The Third Appellate Division of the Supreme Court of New York says that the case of Van Bergen vs. Catholic Relief and Beneficiary Association was brought by the plaintiff on a beneficiary certificate issued by the defendant to his wife, dated August 6. She died October 26, following. The defense was that in answer to the question put to her by the defendan'ts medical examiner, "Are you pregnant?" she falsely answered "No," by reason whereof the certificate, under the terms of her application therefor, was void. It was shown that on the 13th of October she gave birth to a stillborn child. The physician who attended her at that time was sworn for the defendant. He was asked: "How many days or months of gestation had elapsed between the conception of that child and the time of its birth?" This question was objected to as incompetent, under section 834 of the Code of Civil Procedure, and the objection was sustained. The court says that the purpose of the question clearly was not to ascertain the age of the child in utero, but was to show the length of time the mother had been pregnant, and to show that she was in that condition, and knew it, when she made her application. The burden was on the plaintiff to show, if it did not otherwise appear, that the information sought by the question was within the statutory exclusion. This burden was satisfied when the plaintiff procured from the witness the statement that whatever he learned he learned in his professional capacity as a physician, and that such information was necessary to enable him to treat the case. It was not to be expected that the trial court, who is not to be presumed to be an expert on matters of this kind, should hold, in the face of this evidence from a physician, that the information was not necessary to enable him to prescribe for his patient. The only attempt by the defendant to rebut this testimony was in a single question, as follows: "The mere fact of the birth of the child didn't enable you to diagnose the previous condition of the woman to enable you to treat her. You diagnosed that without seeing the child, didn't you?" The witness answered "Yes." Whether he meant by the affirmative answer to this compound question to testify that the fact of the birth of the child enabled him to diagnose the previous condition of the mother, to enable him to treat her, or that he could make that diagnosis without seeing the child, the court says, was not clear. It may be presumed, however, that his answer was intended to be the last and not the first portion of the question, and yet the position of the defendant was not helped. The age of the child, except as that revealed the condition of the mother, was wholly immaterial; and the physician's testimony being privileged, under the Code, with respect to a direct question asking for information concerning the condition of his patient which he acquired while treating her, and which was necessary to enable him to do so, the privilege must also be held to extend to all such information sought for by indirect questions or methods, else the purpose of law might be entirely circumvented. More than this, the question objected to was broad enough to permit the witness to give in answer thereto any information which the mother had given to him, as well as any which he might have obtained solely from an inspection of the child. Wherefore the court thinks the ruling excepted to was correct.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 18.

1 *History and Development of Surgery During the Past Century. F. S. Dennis, New York City.
2 *Kidney Diseases Requiring Surgical Interference. J. M. Baldy, Philadelphia.
3 Extraction of Cataract: Choice of Operation Based on Intraocular Conditions. S. D. Risley, Philadelphia.
4 *Efficiency of Copper Foil in Destroying Typhoid and Colon Bacilli in Water. H. Kraemer, Philadelphia.
5 *Classification of Gastric Ulcers. A. L. Benedict, Buffalo.
6 Treatment of Strangulated Hernia in the Very Old. D. Peyton, Jeffersonville, Ind.
7 Some Medical and Sanitary Experience in a Portion of the Philippines. B. G. Edger, Jr., Fort Brown, Texas.

1. Progress of Surgery.—Dennis enumerates the following achievements of surgery during the past century:

The annihilation of pain during surgical operation.
The elimination of sepsis after operations and injuries.
The eradication of physical suffering.
The restoration of sight to the blind.
The recovery of hearing to the deaf.
The return of lost functions to organs and glands.
The aseptic repair of injured parts.
The relief of the crippled and lame.
The restitution of speech and consciousness.
The return of activity to paralyzed members.
The removal of malignant disease.
The restoration of reason to the insane.
The correction of bodily deformities.
The alleviation of pain in disease.
The reaction from shock and collapse.
The cure of lockjaw and other infective processes.
The intervention of relief in intestinal perforation.
The extirpation of tumors, from glands and cavities.
The cure of diseases and injuries of internal organs.
The resection of diseased viscera.
The excision of joints and necrosed bone.
The amputation of diseased members.
The cure of aneurism.
The removal of cerebral and spinal neoplasms.
The reduction of mortality in all surgical diseases.
The entire removal of mortality in some surgical diseases.
The restoration of health and reason.
The salvation of human life.

2. Kidney Diseases Requiring Surgical Interference.—Baldy says that in many of the kidney affections for which we operate, the most prominent symptoms in the case often are not

directly referable to that organ. Two of five recent cases on which he operated were floating kidneys with all the classic symptoms, gastrointestinal and nervous disturbance, but with local symptoms in abeyance and only elicited on palpation of the organ. In one case the kidney was so movable that the patient herself could at times grasp it in her hand through the abdominal walls. One case of cystic kidney with a well-defined adenoma on its surface was taken for ovarian disease; one case of calculus of the kidney and ureter was mistaken for and operated on for an ovarian and uterine growth and a tuberculous kidney and ureter were mistaken for a pyosalpinx.

4. **Copper Foil as a Germicide.**—Kraemer, as the result of experiments, finds that copper treated water is more natural and more healthful, inasmuch as the various inorganic constituents, particularly the salts of calcium and magnesium, are in a more soluble and assimilable condition, and are less concentrated than water not so treated, and at the same time the natural gases of the water are retained. The intestinal bacteria, like colon and typhoid, are completely destroyed by placing clean copper foil in the water containing them. The effects of colloidal copper and copper sulphate in the purification of drinking water are in a quantitative sense much like those of filtration, only the organisms are completely destroyed. Pending the introduction of the copper treatment of water on a large scale, Kraemer suggests that the householder may avail himself of a method for the purification of drinking water by the use of strips of copper foil about three and a half inches square to each quart of water, this being allowed to stand over night or from six to eight hours, at the ordinary temperature, and then the water drawn off or the copper foil removed. The detail of the experiments conducted is given in full.

5. **Classification of Gastric Ulcers.**—Benedict offers the following classification of gastric ulcers, using the term in its broadest sense, and including certain causes of hemorrhage by diapedesis and punctate or linear traumatisms, which should theoretically be excluded but which are often unavoidably confused in the diagnosis and which tend to become true ulcers on account of secondary destruction of tissue by peptic digestion or bacterial lysis: 1. Peptic ulcer, including the majority of cases of gastric ulcer with copious hemorrhage. This occurs mainly in young persons and by preference in women, in the third and early in the fourth decennium, who are anemic, neurotic and overworked. 2. Erosions by chemic and thermic caustics, as in corrosive poisoning and the ingestion of liquids, at or above 60 C. 3. Ulcers due to organic vascular lesions, such as embolism, thrombosis or obliterative inflammation of a vessel. 4. Catarrhal ulcers which are, with doubtful propriety, separated from the last category, as they occur in chronically inflamed and degenerated stomachs which present minor degrees of vascular disease. The ulcers usually occur in persons rather advanced in years, and are quite analogous to so-called eczematous ulcers of the skin. They are due to all sorts of chemic and thermic irritants. 5. Varicose ulceration, analogous to the external condition of the same name, is usually due to portal obstruction, and, especially, to that dependent on hepatic sclerosis. 6. Toxemic diapedesis, with a tendency to actual rhexis, occurring in scurvy, purpuras, jaundice, typhoid and various infections. 7. Vicarious menstruation. 8. Gangrenous ulceration. 9. Phlegmonous ulceration of the stomach. 10. Specific ulcers—neoplastic, granulomatous and non-granulomatous infections, syphilis, tuberculosis, actinomycosis, dysentery, etc. 11. Traumatic ulcerations due to external crushing injuries, internal lesions and animal parasites.

Medical Record, New York.

February 18.

8 *Report of 84 Operations on the Kidney and Ureter. G. E. Brewer, New York City.
9 Standardized Gruels; Percentage Principle to Gruel Feeding. H. D. Chapin, New York City.
10 Traumatic Rupture of the Intestine Without Injury to the Abdominal Wall. C. P. Flint, New York City.
11 *Cold Fresh-air Treatment of Pneumonia in Infants and Children. W. P. Northrup, New York City.
12 Preventive Medicine; a Study in Education. L. T. Royster, Norfolk, Va.

8. **Operations on the Kidney and Ureter.**—Brewer presents a report on the results, pathologic conditions and features of unusual interest in 84 cases operated on in the past ten years for disease of the kidney and ureter. There were 27 nephrotomies, with 8 deaths; 27 nephrectomies, with 1 death; 9 nephrorrhaphies, with no mortality; 10 decapsulations on 5 patients, with 2 deaths; 5 operations on the pelvic portion of the ureter, with no death, and 6 emergency operations on traumatic cases, with 1 death. Of the 27 nephrotomies the following pathologic conditions were found at operation: Pyonephrosis in 3 cases; pyelonephritis in 1 case; tuberculosis in 2 cases; intermittent hydronephrosis in 1 case; multiple septic infarcts in 4 cases; calculus in 11 cases, while in 5 cases of exploratory nephrotomy no lesion was found. Of the 27 nephrectomies there were 2 cases of primary carcinoma, 2 cases of hydronephrosis, 2 cases of early tuberculosis, 7 cases of pyonephrosis, 6 cases of stone, 2 cases of ureterovaginal fistula following hysterectomy, 1 case of septic pyelonephritis, 1 case of general infection following traumatic rupture, 1 case of early rupture, 1 case of severe hemorrhage following exploratory nephrotomy, and 2 cases of multiple septic infarcts from blood infection. In nearly every case subjected to nephrotomy or nephrectomy the possibility of calculus as a causative factor was considered. In 36 cases the history pointed strongly to the presence of calculus either in the kidney or in the ureter. In 21 of them only did subsequent operation reveal a stone; in the remaining 15, 9 showed other lesions which clearly were the causative factors in the production of the symptoms, while in 6 no lesions could be found. During the first six or seven years covered by Brewer's report the number of errors in the diagnosis of this class of cases was relatively greater than during the last two years, in which the modern methods of examination, urinary analysis, cystoscopy, urethral catheterization and the *x*-ray were employed with increasing frequency. Of the 21 cases in which stone was found 13 had severe paroxysmal pains or typical renal colic, 4 had mild paroxysmal pain, 1 had severe constant pain, and 2 had only mild constant pain. Of the 15 cases in which no stone was found, 5 had severe paroxysmal pain, 1 mild paroxysmal pain, 5 severe constant pains, 1 mild constant pain, while in 3 the history was defective. Of the 5 cases in which there was typical renal colic, in 1 there was an intermittent hydronephrosis from movable kidney, in 1 a chronic interstitial nephritis, in 1 an acute blood infection with multiple abscesses, while 2 presented no discoverable lesions of the kidney or ureter. Of the 21 cases in which stone was found there was vomiting in 11, in 9 there was no vomiting and in 1 the history was defective. Of the 15 cases in which no stone was found vomiting occurred in 7, was absent in 4, and was unrecorded in 4 cases. Frequent or painful micturition, occasionally associated with severe tenesmus, was present in 12 of the 21 cases of stone, absent in 7 and unrecorded in 2. In the cases without stone it was present in 4, absent in 7 and unrecorded in 4 cases. In the 5 cases of stone in the ureter this symptom was constantly present. Fever was present in 8 of the 21 stone cases, absent in 12 and unrecorded in 1.. Of the 15 cases in which stone was absent fever was present in 4, absent in 7 and unrecorded in 4. In all these cases fever was present only when infection was known to exist. Tenderness was present in 20 of the 21 cases of stone. In 16 cases it was present in the region of the kidney; in 1 the tenderness existed over the ureter, the stone being subsequently found in the kidney; in another case the tenderness was chiefly over the kidney, the stone being found in the lower end of the ureter. In 3 other cases of stone in the lower ureter tenderness was most marked from one to two inches above the external abdominal ring. Of the 15 cases without stone there was renal tenderness in 11, while in the remaining 4 the records do not mention it. Renal tumor was rarely encountered in uncomplicated cases of renal calculus. Of the 21 stone cases hematuria was present in 10, in 9 it was absent, and in 2 the history was defective. Blood was found in 10 cases, in 7 it was macroscopic and in 3 microscopic. In the 15 cases in which no stone was found, in 5 there was hematuria, in 6 there was none, and in

4 it was not recorded. In 16 of the 21 stone cases pyuria was noted, in 4 it was absent, and in 1 it was unrecorded. It was also present in 4 of 9 cases in which stone was not found. Thirteen cystoscopies and ureteral catheterizations were done in the calculus cases. Five cases showed typical appearances and the stone was found on operation. In 2 cases the meatal appearances suggested calculus, but no stone was found. In 4 cases the catheter findings indicated renal lesion, but not necessarily stone. In 1 case there were no cystoscopic or catheter evidences of stone and none was found. In the 21 stone cases *x*-ray examinations were made in 12; 10 were positive and 2 negative—the latter being in an exceedingly corpulent individual with stones in both kidneys, which did not show in the plates. Of the cases which did not have stone, *x*-ray examinations were made in 6 instances; 3 were negative and 3 gave shadows and led to erroneous diagnosis. In one of the latter cases a calcareous mass was found adherent to, but outside the ureter. This proved to be the calcified tip of an appendix epiploica which had become adherent by inflammatory exudate to the parietal peritoneum overlying the ureter. Brewer says that there is no single symptom or sign, nor any group of symptoms or signs, that is absolutely pathognomonic of renal or ureteral calculus, unless the calculus lies in the lower ureter and can be touched by a metal bougie or catheter. The *x*-ray in competent hands is the most valuable method of examination for the diagnosis of calculous disease of the kidney or ureter. In Brewer's cases it gave positive evidence of the presence or absence of stone in 72 per cent. of all cases. Excluding the imperfect plates, it gave accurate indications in 95 per cent. of cases.

11. **Treatment of Pneumonia in Infants.**—Northrup summarizes his views on this question as follows: How to cure a baby with pneumonia. 1. Castor oil to clear the field of operation. It is the first aid to the injured. 2. Fresh air, cool and flowing. It reddens the blood, stimulates the heart, improves digestion, quiets restlessness and aids against toxemia: regulate the temperature of the air in the room inversely to that of the child. The patient's feet must always be warm and the head cool. 3. Plenty of water, inside and outside. Temperature as indicated by child's temperature. 4. Quiet and rest. 5. Correct the feedings to prevent fermentation and the formation of gas in the abdomen. If necessary, give high, hot salines. 6. Antipyretics: Water; no coal-tar products. 7. Heart stimulants: Fresh air, hot foot baths, relieving tympanitis and crowding. Hot foot baths and hot salines can be given in a cold room; both can be given under bed clothes. 8. Drugs: Whisky and strychnin. How to kill a baby with pneumonia.—Crib in far corner of room with canopy over it. Steam kettle, gas stove (leaky tubing), room at 80 F. Many gas jets burning. Friends in the room; also the pug dog. Chest tightly enveloped in waistcoat poultice. If child's temperature is 105 F., make a poultice thick, hot and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics and wait.

Medical News, New York.

February 18.

13 Intrapleural Complications in Pulmonary Tuberculosis. S. G. Bonney, Denver.
14 Observations on 28 Cases of Prostatectomy. J. Bentley, Squier, N. Y.
15 The Opium Question in the Philippines. James A. LeRoy, Durango, Mex.
16 *Some So-called Rheumatisms. James J. Walsh, New York City.
17 Case of Primary Malignant Tumor of the Lung. Maurice Packard, New York City.
18 Calculi in Blandin's and Submaxillary Glands. Reports of Cases. Herman Jarecky, New York City.
19 Prognosis and Treatment of Chronic Nephritis. A. C. Morgan, Philadelphia.

16. **So-Called Rheumatisms.**—Walsh discusses the diagnosis of the painful affections of muscles and joints which usually are diagnosed as being rheumatism. Mention is made of a rheumatic condition in the upper arm and shoulder in a motorman and in a baseball pitcher, and Walsh suggests that in these two instances the pains were probably occupation pains. Another patient was a finisher in a molding works, and the third, a stone cutter, complained of pains in the hands and forearm. These three patients did not drink alcohol to excess, but they did take some whisky every day, and Walsh is of the opinion that a neuritis was set up in the nerves which the occupations of these patients caused them to use so much, and that as a consequence the low-grade neuritis finally developed to such a degree as to make further use of the muscle supplied by the affected nerves practically impossible. Any nerve that is overused will apparently be affected in the same way, and as many outdoor workers take some whisky straight pretty regularly, it is not surprising to find that some of them have an idiosyncrasy and develop a low-grade alcoholic neuritis. Alcohol, however, is not the only substance that acts thus insidiously. Lead often produces the same symptoms without causing any wrist drop. There is scarcely any occupation, says Walsh, in which movements are frequently repeated, or in which a particular position is maintained for a long time, in which neuritis may not be seen. Lumbago is undoubtedly more frequent among tailors than among any other class of men; sciatica is very common in those who actively bend the body at the hip, as for instance, shovelers. Those who have to stand on their feet much usually suffer in the lowest joint of the leg, at the ankle. There are few waiters who do not suffer to some degree, at least, from flat-foot. A certain number of cases of sciatica will be found in those who sit in awkward positions or in unsuitable chairs while doing much writing or clerical work. Just why sensitive nerves slightly irritated or in a sub-inflammatory condition, should produce more discomfort on rainy days, is not easily explained. The fact of the matter seems to be that any drop in the barometer by making the pressure on the surface of the body less than it was before, permits a dilatation of the capillaries at the periphery with a constant tendency to congestion that makes nerves more sensitive than they were before, especially if they have been affected by some low-grade pathologic condition. Walsh thinks that much of the so-called uric acid diathesis with the consequent rheumatic pains is nothing more than neuritis of various kinds due to overexertion, pressure on nerve trunks, preventing proper nutrition, presence of irritant substances in the blood, such as alcohol, lead, and the blood disturbances of diabetes, and to some inherited weakness of special sets of nerves.

New York Medical Journal.

February 18.

20 *Locomotor Ataxia Successfully Treated with Ultraviolet Rays. J. Monroe Liebermann, New York City.
21 Pathology of Cerebellar Tumors. (Concluded.) T. H. Weisenburg, Philadelphia.
22 Diagnosis of Tumors of the Cerebellum and the Cerebellopontile Angle, Especially with Reference to Their Surgical Removal. (Concluded.) Charles K. Mills, Philadelphia.
23 Remarks on the Surgical Aspects of Tumors of the Cerebellum. (Concluded.) Charles H. Frazier, Philadelphia.
24 Report of Three Cases of Ruptured Tubal Pregnancy. F. Alan G. Murray, Mount Savage, Md.
25 Report of a Case of Fibromata of the Vulva. Thomas S. Burr, South Bend, Ind.
26 Case of Mania á Potu and Epilepsy. Henry F. Collins, Franklin, Maine.
27 Report of a Case in Which a Bullet Caused Nine Perforations of Bowels; Operation and Recovery. J. B. Boucher, Hartford, Conn.

20. **Ultra-Violet Rays in Locomotor Ataxia.**—Liebermann reports the results he has obtained in 36 cases of locomotor ataxia treated with the ultra-violet ray. The ages of the patients ranged from 24 to 63 years. Four have been restored to good health and are now able to resume their usual vocations. Twelve have been greatly benefited, the power of coordination has been restored, pain abolished and the ability to use the upper and lower limbs without any assistance has been established. All are able to rise, to dress and to undress themselves without any help, and are sometimes able to perform such delicate operations as fixing the necktie or tying their shoes in a stooping position. In 18 cases the disease is apparently arrested with hope of further improvement and final restoration of different functions. Two patients died during treatment, one from lobar pneumonia, the other of erysipelas of the head. These cases had for years received differ-

ent forms of treatment, and while some improvement had followed from these methods, none of them had made such gratifying progress as since submitting to the ultra-violet ray treatment. For the purpose of dehematization Liebermann uses the cataphoric electrode (with a round piece of lint) saturated with adrenalin chlorid (1 to 1,000). A pad with zinc plate is applied to the abdomen, leaving it on for from three to five or ten minutes. He uses the static machine for exciting the ultra-violet lamp with the large Leyden jars as condensers. The lamp is connected by its conducting cords to the outer surface of the jars. Speaking of the mode of action of the ultra-violet ray, Liebermann suggests that it is possible that its powerful stimulating effect induces more activity in the natural healthy cell and diminishes the nutrition of connective tissue setting up a more active local metabolism; or, that it induces a local accumulation of heat energy and a congestive process through which neutrophile leucocytes are caused to immigrate in the vicinity of the degenerated cellular elements. The application of the ultra-violet ray to dehematized tissue must be made with great care and judgment. It should never be applied to more than two localities at each seance, and the area treated should be varied so that every day a different region of the cord is exposed. Liebermann treats alternately the cervical, lumbar and sacral regions. His routine treatment is as follows: 1. A warm half-bath at night before going to bed with light massage. 2. Ultra-violet rays in sittings of from ten to thirty minutes, three times a week. 3. Static electricity by means of the Morton wave current or wooden brush daily, from fifteen to twenty minutes.

Boston Medical and Surgical Journal.

February 16.

28 *Prognosis of Epilepsy. W. A. Turner, London.
29 Study of Birth Rates, General Death Rates and Death Rates from Cancer for the New England States for the Year 1900. W. F. Whitney, Boston.
30 Effect of Tubal Abscess on the Position of the Ureter. E. B. Young, Boston.
31 Surgery of Meckel's Diverticulum. J. W. Keefe, Providence, R. I.
32 *Perilous Calms of Appendicitis. R. W. Hardon, Chicago.

28. Prognosis of Epilepsy.—Turner reports his observations made on 516 cases of epilepsy. The following eliminations were made: All cases which showed any co-existent complication, such as organic cerebral disease, and all cases of idiocy and pronounced imbecility. Any transitory amelioration resulting from medicinal or other treatment was checked by fixing the minimum period of observation at two years. Sex, says Turney, plays little part in the general prognosis of epilepsy. Rather more males than females show arrest of the seizures, but at the same time the former sex gives a greater percentage of confirmed cases. As to the influence of an hereditary disposition, it would appear that there is as great a chance of arrest of epileptic fits in those who have, as in those who have not, a known family history of epilepsy. In those who have an hereditary history the chances as to whether the fits become arrested, improved or confirmed, are in any given case about equal. That as regards general improvement, more is to be expected in those who have no hereditary disposition, while a considerably smaller percentage of confirmed epileptics is to be found amongst those who have no family predisposition to the disease. Epilepsy commencing under 10 years of age is least favorable for arrest or improvement, and most favorable for the production of confirmed cases. In those in whom the disease commences during the period of puberty is to be found the greatest percentage of confirmed cases. Between the twenty-first and twenty-fifth year of age there is a steady diminution in the percentage of arrests and a progressive increase in the percentage of confirmed cases. After the latter age there is again a diminution in the number of confirmed cases, while senile epilepsy is essentially a tractable disorder. The earlier a case is brought under systematic treatment, the more hopeful the prognosis and the greater the probability of improvement. The longer the interval between the attacks, the greater the prospect of arrest or improvement. The greatest percentage of arrest occurred in cases of grand mal. Then followed the cases of the combined grand and petit mal, while the least favorably were the cases of petit mal occurring alone. Long periods of arrest, though as a rule indicating a favorable prognosis, are not synonymous with the cure of the disease. Long remissions may occur under bromid administration, to be followed by a relapse when the administration of the drug is discontinued. On the other hand, a remission of long duration may be broken by an accidental circumstance, such as a blow on the head, a fall, childbirth, or an acute inflammatory disorder. In order to obtain the percentage of cures Turner took only those cases which were under observation for a period of at least nine years. They form a total of 147, of which 15 were arrested for nine or more years, giving a percentage of 10.2 cures. Of the series of cases in which the disease was arrested, somewhat over 50 per cent. showed arrest within one year of treatment.

32.—See abstract in THE JOURNAL, xliii, p. 1409.

St. Louis Medical Review.

February 11.

33 Peculiar Malformation of the Bladder. Herman Tuholske, St. Louis.
34 Expectant Treatment of Appendicitis. An Excursion Into the Field Between Surgery and Medicine. A. C. Bernays, St. Louis.
35 Rupture of the Gall Bladder. (Spontaneous and Traumatic; With and Without Operation.) Historical Review of 203 Cases. Benjamin M. Ricketts, Cincinnati.

Lancet-Clinic, Cincinnati.

February 18.

36 Is Man an Omniverous Animal? Frank L. Rattermann, Cincinnati.
37 Duehrssen's Vaginal Cesarean Section and Deep Cervical Incisions. E. Gustav Zinke, Cincinnati.
38 Value of the X-ray to the General Practitioner. James E. Coleman, Canton, Ill.
39 Need of a Physician in Charge of the Hygiene of Our Schools. Hugh M. Moorf, Oxford, Ohio.

University of Pennsylvania Medical Bulletin, Philadelphia.

February.

40 Volume of Nitrogen Evolved from One Gram of Urea by the Action of Alkaline Sodium Hypobromite Solution. Leon A. Ryan and John Marshall.
41 *Incontinence of Feces in Children. Maurice Ostheimer.
42 Primary Degeneration of the Pyramidal Tracts; Study of Eight Cases, with Necropsy. (Concluded.) William G. Spiller.

41. Incontinence of Feces.—The presentment of three cases of incontinence both of feces and of urine, led Ostheimer to search the literature for similar cases. In all, only a dozen cases were discovered. The cause of incontinence of feces in children is either general, following wasting diseases, epilepsy, general paralysis and infectious fevers, or local, such as stretching of the anal sphincter by large prolapse of the rectum, by impaction of feces with chronic constipation or as the result of operation near the anus. In one of his cases, the condition followed an attack of scarlet fever. It persisted for two years, with gradually increasing general debility. In six months, on nutritious food, fresh air and tonics, the child completely recovered. The second case, a child aged 6½ years, suddenly lost control of both anal and vesical sphincters. He had had enuresis, both nocturnal and diurnal until almost four years old. With fresh air, exercise, atropin and strychnin, he improved at once. He had three relapses, but speedily recovered under the same treatment. The third case, a child aged 4½ years had had incontinence of feces and enuresis for an entire year. He was very nervous and had paroxysmal attacks of pain, with micturition, often passing urine colored with blood. With good food, fresh air and strychnin, the incontinence of feces disappeared in ten days, but the enuresis persisted. This was found to be due to a vesical calculus, after the removal of which the patient recovered completely.

Archives of Ophthalmology, New York.

February.

43 The Ophthalmo-Kinetograph, an Apparatus to Record Ocular Movements. E. B. Coburn, New York.
44 Ophthalmic Subjects Treated of in the Code of Hammurabi. C. A. Oliver, Philadelphia.
45 *Optic Neuritis During Lactation. G. S. Derby, Boston.
46 Presbyopia at an Early Age. W. Koster-Gzn, Leyden, Germany.
47 *Healing of Perforating Incised Wounds of the Cornea. A. Weinstein, St. Petersburg, Russia.

48 Flat Sarcoma (Endothelioma) of the Choroid. A. Knapp, New York.
49 Medullated Nerve Fibers in the Retina. K. Mayerweg, Vienna.

45. **Optic Neuritis During Lactation.**—Derby reports one case and reviews 24 others of optic neuritis occurring during lactation. The average age appears to be about 29 years, the youngest patient being 21, and the oldest 42. Primiparæ and multiparæ seem to be affected with equal frequency. Usually, there is but a single attack, although several cases give a history of diminished vision after each pregnancy. The disease affects strong, healthy women as frequently as it does those who are less robust. In practically all cases the eyes were said to be healthy previously. The seventh week was the time of election for the process to begin but it varied in wide limits from shortly before birth to over a year after. Establishment of the milk secretion, not actual nursing, is regarded as the important factor in the production of the disease, for in one case the child was premature and died, while in another it was only nursed once, dying a short time after birth. Suppression of the milk secretion coincident with the onset of the disease has been reported twice. Occasionally the patient gave a history of protracted nursing, but in a large majority of cases lactation has been entirely within normal limits. Both eyes are more commonly affected than one alone, and it is interesting to note that the monocular cases seem more prone to develop a retrobulbar neuritis than a papillitis. Ophthalmoscopic examination shows the loss of vision to be due to an inflammation of the optic nerve, the signs of which are more or less apparent at the disc. Generally, there is a well-marked papillitis, occasionally one of extreme severity, with extension of the process into the surrounding retina, while in the retrobulbar type, there may be no visible sign of inflammation, although double blindness exists. Atrophy of a varying degree usually results, but may be absent. The amount of visual diminution varies greatly, but commonly reaches a considerable degree, even to absolute blindness. The vision bears no relationship to the severity of the process, since almost normal sight may be noted, in spite of a well-marked papillitis, while total blindness has been observed without changes visible to the eye. In a corresponding manner, the vision tends to regain its normal acuteness, notwithstanding the development of atrophic change. Certain cases have shown a tendency to recurrence during each succeeding pregnancy, and in these, at the end of several attacks, there is likely to be a permanent diminution of sight. Frontal headache is a constant precursor of the disease. The pain is often localized in the orbit, and deep tenderness may be elicited by pressure on the eyeball, while movement of the eye may cause considerable discomfort. Although, as a rule, general disease does not accompany this affection, yet certain cases have shown an acute onset with headache, chills, fever, vomiting, and general malaise. In such cases suppression of the milk secretion is apt to occur. Derby is of the opinion that there is little evidence to connect this affection with lactation, and that the term lactation indicates simply, in the absence of a better term, the characteristic by which these cases may be most easily recognized. Being still in the dark as to the cause of this obscure affection, treatment must be on general lines. Elimination should be stimulated. The power of resistance must be increased in every way. Weaning should be advised. Recurrent attacks should be watched carefully.

47. **Healing of Incised Corneal Wounds.**—Weinstein has made an experimental study of the healing of incised wounds of the cornea. He found that regeneration does not take place simultaneously in all parts, but that the epithelium is first restored, then the true corneal tissue, and finally, Descemet's membrane. The proliferation of the epithelium begins immediately after the receipt of the injury, reaching its maximum in three or four hours, then gradually decreases and disappears about the end of the first day. In most cases the epithelium in the region of the scar remains considerably thicker than normal, and this thickening is doubtless useful in compensating partially, if not entirely, for the disturbance of the corneal curvature which results from the cicatricial contraction. The cornea propria is regenerated wholly through active multiplication of its own elements. In all probability, leucocytes take no part therein. The anterior portion of the wound becomes completely filled with granulation tissue at a time when the posterior portion is still occupied by fibrin. The fibrin which fills the wound participates only passively in the process of healing. Granulation elements appear in the wound after the lapse of three days, and multiply rapidly by mitotic segmentation. Descemet's membrane is completely restored after a perforating wound of the cornea.

International Clinics, Philadelphia.

Vol. IV, 14th Series, 1905.

50 The Excessive Use of Drugs in the Treatment of Chronic Diseases, with Reference to Medicinal Intoxications. George Hayem.
51 Indication for the Dechloridation Treatment. Adolphe Javal, Paris.
52 Radium; Its Value in the Treatment of Lupus, Rodent Ulcer and Epithelioma, with Reports of Cases. Myron Metzenbaum, Cleveland.
53 Treatment of Patients Who Seem Desperately Ill in Consequence of Accident, Hemorrhage or Infection. F. Lejars, Paris.
54 Chronic Polycythemia with Enlarged Spleen (Vaquez's Disease), Probably a Disease of the Bone Marrow. F. Parkes Weber and J. H. Watson, London.
55 Importance of Pathologic Diagnosis and of Etiologic Diagnosis, as Illustrated by Several Cases of Joint Disease—Arthritis Deformans, Pneumococcic Arthritis, Gonococcic Arthritis and Sciatic Neuritis, Miscalled Rheumatism. Solomon Solis-Cohen, Philadelphia.
56 Remarks on the Incidence of Gout in the United States of America and in New Communities. Dyce Duckworth, London.
57 Clinical Significance of Albumosuria. H. Senator, Berlin.
58 Differential Diagnosis of the General Enlargements of the Liver. Alexander Crombie, Calcutta, India.
59 Functional Heart Murmurs; Their Causation and Diagnosis. Robert D. Rudolf, Toronto.
60 Lateral Curvature of the Spine. E. H. Bradford, Boston.
61 Chronic Arthritis; Linear Osteotomy for Ankylosis After Tuberculous Arthritis. Wisner R. Townsend, New York City.
62 Tuberculous Spondylitis; Tuberculous Coxitis. John L. Porter, Chicago.
63 *Nerve Anastomosis for the Cure of Infantile Palsy. James K. Young, Philadelphia.
64 *Operative Treatment of Constipation. W. Arbuthnot Lane, London.
65 Some Cases of Gastric Surgery. Anthony A. Bowlby, London.
66 *Symptomatology and Diagnosis of Glenard's Disease. A. Ernest Gallant, New York City.
67 Post-climacteric Hemorrhages; Their Cause and Treatment. F. A. L. Lockhart, Montreal.
68 Traumatic Injury of the Spinal Cord; Syringomyelia; Puerperal Insanity; Alcoholic Neuritis; Paretic Dementia Due to Alcoholism; Defective Mental Development; Hysteria. Daniel R. Brower, Chicago.
69 Recent Investigations Concerning the Pathology of the Infectious Diseases. Aldred Scott Warthin, Ann Arbor, Mich.
70 Etiology and Pathology of Amebic Infection of the Intestine and Liver. Charles F. Craig, San Francisco, Cal.

63. **Nerve Anastomosis in Infantile Palsy.**—Young reports the case of a child, 5 years old, on whom this operation was done for the relief of a paralysis of the right leg. The peroneal nerve was exposed and the proximal extremity supplying the anterior tibial muscle was divided. A slit having been made in the musculo-cutaneous nerve, the cut extremities of the peroneal nerve were inserted into this and secured with fine catgut. The entire leg, from the toes to the hip, was then secured in a plaster cast. Thirteen days later the cast was finally removed and there was found to be a slight return of power in the anterior tibial muscle. Six months later, all the muscles of the anterior tibial region gave a good response to a slowly interrupted faradic current. The most important factors of the operation, says Young, are anatomic exactness and precision in the identification of the nerves. Rapidity of execution is important in order that the nerves may not be exposed to accidental injury during the course of the operation. In the selection of suitable cases for this operation two factors must be considered: The time which has elapsed since the occurrence of the palsy, and the reactions of the muscles to the electrical currents. A suitable time for operation would appear to be between six months and three years after the occurrence of the palsy, although experience may extend the time of operation to a later period. If reactions of degeneration are present the operation is useless.

64. **Operative Treatment of Constipation.**—The method

adopted by Lane for eliminating the large intestine as a portion of the gastrointestinal tract is to put the ileum into the big bowel. This is done by taking a loop of ileum about ten inches from the cecum and emptying it of its contents and preventing any entry into it by means of clamps. Such a portion of the sigmoid loop or upper part of the rectum as may be most convenient is then prepared, and adhesions, if existing, are divided as freely as possible. Care should be taken to avoid infection of the peritoneum or of the edges of the wound. The empty portions of the ileum and large bowel are then stretched alongside, and incisions, about two inches long, are made in each. The corresponding edges are sewn firmly together by continuous silk suture, supplemented by another continuous suture external to it, which passes through the peritoneal and muscular coats of the bowel. This having been done, the ileum is divided transversely, and each end closed by a double row of sutures.

66. **Glenard's Disease.**—Gallant makes the following clinical classification: 1. Developmental, which can be most frequently accounted for on the following grounds: At puberty, when the girl is rapidly increasing in stature, and her menses begin to drain the system, all healthful exercise is interdicted and her clothing is hung from the waist by tightly drawn bands, she is compressed within a corset, and light short skirts are exchanged for long, heavy trailing dresses. As the spinal column lengthens, it should carry upward all the viscera attached thereto, but owing to compression at the waist line and the weight of clothing this can not take place; stretching of the ligaments occurs and the viscera are distorted, and hang at a much lower level than normal. 2. Postpartum type, due to overdistension of the abdominal cavity by the pregnant uterus. 3. Postoperative type, occurring after operation for the removal of a tumor encroaching on the abdominal cavity. 4. Traumatic type, following a blow on the kidney region, sitting down suddenly or some unusual effort. 5. Nutritional type, as a sequelæ of confinement to bed for a long time by an injury or a lingering disease, involving a great loss of weight and muscular tone.

California State Journal of Medicine, San Francisco.

February.

71 Surgical Interference in Tuberculosis of the Bladder. G. MacGowan, Los Angeles.
72 Varieties and Etiology of Glaucoma. B. F. Church, Los Angeles.
73 Pathology of Glaucoma. W. H. Roberts, Pasadena.
74 Treatment of Glaucoma. W. S. Fowler, Bakersfield.
75 Tonsils as Portals of Infection. M. W. Frederick, San Francisco.
76 Cases Simulating Grave Mastoiditis. F. Baker, San Diego.
77 Congenital Dislocation of Hip. P. C. H. Pahl, Los Angeles.
78 Etiology of Infantile Eclampsia. J. M. French, San Diego.
79 Posture in Treatment of Disease. C. M. Cooper.
80 Dangers of Proprietary Remedy Prescribing. W. E. Bates, Davisville.
81 Report of a Case of Pernicious Anemia. B. F. Stevens, El Paso, Texas.

The Medical Standard, Chicago.

February.

82 New Theory of Fever. T. G. Atkinson, Chicago.
83 Paraffin Distended Ureters. Demonstrating the Ureteral Isthmuses and Constrictions—21 from Human, 1 from Beaver. B. Robinson, Chicago.
84 Ear Diseases Following the Acute Infections of Early Childhood. G. E. Shambaugh, Chicago.
85 Importance of Cholecystitis and Its Relation to Diseases of the Upper or Cephalic Peritoneal Cavity. B. Holmes, Chicago.
86 Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
87 Cycloplegics in Refraction. C. G. Darling, Chicago.
88 Treatment of Congenital Club-foot and the Modeling Redressment. F. Mueller, Chicago.
89 New and Efficient Treatment for Specific Urethritis. C. E. Sisson, Elgin, Ill.
90 *Therapeutic and Criminal Abortion. C. B. Reed, Chicago.

90.—See abstract in THE JOURNAL, Dec. 17, 1904, p. 1890.

The Journal of the Michigan State Medical Society, Detroit.

February.

91 When Shall the Lacerated Cervix Uteri Be Repaired? H. W. Yates, Detroit.
92 Catheterization of the Ureters. W. T. Dodge, Big Rapids.
93 Recent Work in Ophthalmology. R. Conner, Detroit.
94 Chronic Bright's Disease and Pregnancy. W. H. Sawyer, Hillsdale.
95 Hysteria in Its Relation to Gynecology and Obstetrics. G. F. Butler, Chicago.

Journal Missouri State Medical Association, St. Louis.

February.

96 Psychological Therapeutics. E. H. Spooner, St. Louis.
97 Report of the State Bacteriologist to Missouri State Board of Health on an Epidemic at Wien, Chariton County, Missouri. A. J. Detweiler, Columbia, Mo.
98 Leukemia. M. P. Overholser, Harrisonville, Mo.
99 Consumption and Its Correct Treatment. C. W. Watts, Fayette, Mo.

The Journal of the Kansas Medical Society, Lawrence.

February.

100 Etiology and Prevention of Typhoid. S. J. Crumbine, Topeka.
101 Water Supplies of Southern Kansas. E. Bartow, Lawrence.
102 Some Faults in the Laws Regulating the Practice of Medicine in the Various States. J. E. Jewett, Moran, Kan.
103 Some Unusual Syphilitic Eruptions. W. Frick, Kansas City, Mo.
104 The Nutrition of the Skin. R. E. McVey, Topeka.
105 Case of Tetanus with Complications. C. B. Buck, Abilene, Kan.
106 Immunity. G. H. Hoxie, Lawrence.
107 Can Men and Women Doctors Be a Help to Each Other? M. Lobdell, Beloit, Kan.

Oklahoma Medical News Journal, Oklahoma City.

January.

108 The District Medical Society as a Factor in Medicinal Education. J. T. Moore, Galveston.
109 Pelvic Cellulitis. F. H. Clark, El Reno, Okla.

Journal of Medicine and Science, Portland.

January.

110 Prevention of Venereal Diseases. G. A. Pudor, Portland.

The Louisville Monthly Journal, Louisville.

February.

111 Has Louisville a Competent Medical Profession? J. M. Mathews, Louisville.
112 *Cysts of the Mesentery; a Clinical Note. L. S. McMurtry, Louisville.
113 Nephritis. D. O. Hancock, Henderson, Ky.
114 Congenital Syphilis. Report of Cases. H. A. Cottell, Louisville.
115 Sarcoma of the Eye, Eyelid and Orbit. S. G. Dabney, Louisville.
116 Excision of the Elbow Joint for Traumatic and Arthritic Ankylosis. B. M. Ricketts, Cincinnati.
117 Treatment of Angioma by Wyeth's Method. A. H. Barkley, Lexington.

112.—This article has appeared elsewhere. See THE JOURNAL, Jan. 14, 1905, p. 160.

Journal of the Mississippi State Medical Association, Vicksburg.

February.

118 Report of a Case of Malarial Hemoglobinuria with Comments on Treatment. J. W. Gray, Clarksdale.
119 An Address on the Business Affairs of the Profession. J. Waldauer, Vicksburg.
120 Notes on Malaria; Its Etiology and Prophylaxis. D. S. Humphreys.
121 Pregnancy Complicating Typhoid—Report of a Case. H. H. Ramsay, Perkinston.
122 Pelvic Abscess. A. G. Payne, Greenville.

The Vermont Medical Monthly, Burlington.

December.

123 Inflammation and Ulceration of the Sigmoid Flexure. D. C. Hawley, Burlington.
124 Intracranial Psammosarcoma Without Paralysis. W. D. Berry, Burlington.

The Alabama Medical Journal, Birmingham.

January.

125 Dr. Chas. M. Rosser's Presentation Speech of the Dr. W. E. B. Davis Statue, Dec. 14, 1904.
126 Tracheotomy for Gunshot Wounds of the Trachea. J. M. Gaston, Atlanta.
127 Ethical Relations of the Medical Profession to Sociology. L. Whaley, Birmingham.

Southern California Practitioner, Los Angeles.

January.

128 Prognosis and Treatment of Laryngeal Tuberculosis. E. A. Macdonald, Redlands, Cal.
129 Convulsions. S. A. Ellis, Azusa, Cal.
130 Mucosa of Upper Respiratory Tract. A Plea for More Rational Treatment. F. W. Miller, Los Angeles.
131 Tuberculosis. A Layman's Idea. R. W. Poindexter, Los Angeles.
132 Initial Lesion of Syphilis. D. B. Thornton, Los Angeles.
133 Pneumonia in High Altitudes. W. S. Smith, Prescott, Ariz.

Texas Medical News, Austin.

January.

134 Treatment of Rheumatoid Arthritis. J. L. Short, Houston.
135 Substitution. W. F. Waugh, Chicago.
136 Typhoid Fever. Alward H. White, El Paso.

Medical Review of Reviews, New York City.

January 25.

137 Three Cases of Melanosarcoma. David Webster, New York.
138 How Can Clinical Pathology Be Made of More Practical Importance to the Average Practitioner? Louis F. Bishop, New York.

Mobile Medical and Surgical Journal.

January.

139 Pelvic Abscess. Wm. T. Henderson, Mobile.
140 Round Ligament Ventrosuspension of the Uterus with Report of a Case. J. B. Killebrew, Mobile.
141 Infection and Immunity. Neal E. Skellers.
142 Some Observations on Estivoautumnal Malarial Fever. Charles A. Mohr.

Wisconsin Medical Journal, Milwaukee.

January.

143 The Establishment of an Epileptic Colony in Wisconsin. W. A. Gordon, Oshkosh, Wis.
144 Review of Laryngeal Diphtheria with Report of Cases. P. H. McGovern, Milwaukee, Wis.
145 Affections of the Facial Nerve in Diseases of the Ear. C. Zimmermann, Milwaukee, Wis.
146 Internal Medication in Infection of the Biliary Passages. F. D. Brooks, Milwaukee.
147 Some Methods of Home Modification of Milk in Infant Feeding. A. W. Myers, Milwaukee.

Memphis Medical Monthly.

February.

148 Local Influence of the Toxins of the Acute Infections of the Lungs on the Lung Structure. Eugene Wasdin, Memphis, Tenn.
149 Radical Operation for Internal Hemorrhoids Without General Anesthesia. A. B. Cooke, Nashville, Tenn.
150 Heterophoria. G. H. Savage, Memphis, Tenn.
151 Treatment of Hypertrophied Faucial Tonsils. J. F. Hill, Memphis.
152 Why Diseased Tonsils Should Be Removed. Richmond McKinney, Memphis.
153 Edebohls' Operation, Report of a Successful Case. W. B. Sanford, Memphis.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 4.

1 Some Points in the Differential Diagnosis of Scarlet Fever, German Measles and Measles. F. J. Poynton.
2 *The Prodromal Rashes of Measles. J. D. Rolleston.
3 *Case of Fibroid Pneumonia. A. G. Auld.
4 Lobar Pneumonia Following Measles. F. C. Bottomley.
5 Various Phases of a Hospital's Work. C. Nixon.
6 Relations of Medical Men to Each Other. R. MacLaren.
7 Calculation of the Date of Delivery in Pregnancy. W. J. Cale.
8 *Scrofulous Ulcers of the Legs (Bazin's Malady) Treated by High-frequency Currents. W. F. Somerville.
9 Corneal Reflex the Most Reliable Guide in Anesthesia. H. B. Gardner.
10 Some Points in the Treatment of Brachialgia and Sciatica. J. E. Harburn.
11 Case of Precocious Puberty in a Female Cretin. F. W. Kendle.

2. Prodromal Rashes of Measles.—Rolleston met with prodromal rashes in 30 cases of measles, 42.8 per cent. of the total number of cases (70) observed. The youngest patient in whom a rash was seen was one year old, and the oldest nearly 9 years old. This is sufficient to prove that the eruption was not a mere roseola infantilis, such as is usually attributed to dentition or to the presence of worms. In 22 out of the 30 cases the prodromal rash appeared on the first day of the disease. In 3 of these the specific eruption followed on the second day; in 4 on the third day; in 9 on the fourth; in 3 on the fifth; in 2 on the sixth, and in 1 it was delayed until the eighth day. In 7 cases the prodromal rash appeared on the second day; in 3 of these cases it was followed by the specific eruption on the fourth day; in 3 on the third, fifth and sixth days respectively, and in 1, a case of *morbilli sine morbillis*, no specific eruption appeared. In the remaining cases prodromal rash was first seen on admission to the hospital on the fifth day and was followed by the specific eruption on the sixth day. In 10 cases the prodromal eruption preceded catarrhal symptoms by intervals ranging from one to six days. In 18 cases the two phenomena appeared on the same day, but in 11 cases the catarrhal symptoms, although present, were ill developed for a period of from one to three days after the first appearance of the prodromal rash. In only 2 cases did the prodromal rash appear subsequently to the catarrhal symptoms, in each case the interval being only one day. In 12 out of 24 cases in which Koplik's spots were noted, the prodromal rashes preceded the buccal exanthem by periods varying from half a day to five days. In the remaining 12 cases the two phenomena appeared on the same day. The isolated macules, 14 cases; blotchy erythema 10 cases; isolated papules, 9 cases; urticaria, 9 cases; scarlatiniform rash, 9 cases; circinate, erythema, 1 case. In point of time the macules and papules were the first to appear. Urticaria was the latest thing sometimes co-existent with the specific eruption. The isolated papules were frequently of the size and shape, and sometimes of the same distribution as the rose spots of enteric fever. Sometimes they would suggest the eruption of rötheln. The frequent appearance of scarlatiniform rashes on the second day of the disease, before the development of catarrhal symptoms, the accompanying injection of the soft palate and fauces and occasional deposit on the tonsils, with submaxillary adenopathy, add to the difficulties of the diagnosis. The transient nature of the eruption and the association of Koplik's spots, stomatitis and catarrhal symptoms are important factors in making a diagnosis of measles. The distribution of the eruption was as follows: On the trunk, 28 cases; behind the ears, 15 cases; limbs, 14 cases; face, 4 cases; neck, 2 cases. The short-lived existence of most of these rashes serves in a degree to account for the scanty attention they have received. Closely associated with their transient existence is the tendency to be localized, and not to affect any special situation. Highly characteristic is the simultaneous association of several varieties of eruption, and the fact that these prodromal eruptions are not accompanied by any cutaneus irritation. There is no pain or pruritis, nor is there any subsequent desquamation. These initial rashes are not of any prognostic value.

3. Fibroid Pneumonia.—Auld reports a case of this kind occurring in a little girl aged 8 years. The onset of the disease was sudden; there was headache, vomiting and fever, followed by delirium. The right lung became solid and a diagnosis of pneumonia was made. On the seventh day the temperature fell to 99.6 as though a pseudo-crisis had been attempted. Instead of resolving, however, the fever continued, presenting for weeks the character, more or less, of the continuous fever. A rather abrupt rise of temperature occurred in the third week. At this time the breathing was frequent and shallow and the skin was hot and dry. The right side was motionless. The heart's apex was in the normal position. Vocal fremitus was increased all over the right lung and the percussion note was so dull from apex to base as almost to warrant the designation of "flat." There was high-pitched tubular breathing with whispering pectoriloquy; no râles developed in the apex and the dullness and tubular breathing became less marked there; there was no fluid on aspiration. The temperature gradually fell until it reached normal in the tenth week. The pulse rate continued about 140, and the respirations about 40. There was no cough or expectoration. The *x*-ray showed the right lung in uniform deep shadow with the exception of the extreme apex, which showed a mottling of light and shade. The shadow was due to a consolidated lung. The patient then developed considerable cough with expectoration, the latter containing numerous tubercle bacilli. It was evident that the right apex had become extensively invaded by tubercle bacilli. The child improved later, however, and the apex showed signs of healing. At present the patient is entirely well. Auld concludes that the personal history, symptoms and physical signs leave little room for doubt that the initial lesion was an acute pneumonia, and that it invaded the lung which contained no gross lesion of appreciable character. The disease beginning acutely, may in reality be chronic in nature from the very first day. The inflammation extended to the fixed corpuscles of the alveolar walls, causing them to divide and migrate into the fibrinous exudation. In this way the alveolar cavities become filled with organized deposit. This must occur early, as only

the red or fibrinous exudation is capable of organization. The disease is febrile, it is pneumonic and it is fibroid, hence it is a fibroid pneumonia.

8. **Bazin's Malady.**—Somerville reports the case of a young woman aged 16 who presented on the anterior aspect of the left leg seven punched-out ulcers ranging in size from a little smaller than a dime to the size of a half-dollar. The ulcers had undermined irregular edges resembling markedly the ulcers produced by specific disease. The skin in the immediate neighborhood of each ulcer had the dark red "violaceous" character described by Bazin, and was free from irritability and tenderness. Forty-one applications of the high-frequency currents were made. The patient sat for about eight minutes on the auto-condensation couch; thereafter the leg was treated by the spray and also with a flat glass electrode of high vacuum connected with the top of the resonator. Very shortly after treatment was commenced the ulcers began to take on a more healthy appearance; they gradually filled up until finally they were covered entirely with healthy skin. A year later the skin was quite smooth and free from induration and although the patient had done considerable walking there was no tendency to recurrence.

The Lancet, London.

February 4.

12 The Infectivity and Management of Scarlet Fever. W. T. Gordon Pugh, London.
13 *Primary Heart Failure as the Immediate Cause of Death in Acute Diphtheritic Toxemia. Charles Bolton, London.
14 *The Cancer Problem. J. Beard, Edinburgh.
15 Characters of the Bacillus Coli as an Indicator of Excretal Contamination. Wm. G. Savage.
16 *Case of Typhoid Fever Presenting Some Unusual Features. Kenneth Anderson.
17 Hydatid Cyst Simulating Subphrenic Abscess. J. Porter Parkinson. London.
18 *Prognostic Value of the Diazo Reaction in Enteric Fever. J. D. Rolleston, Tooting.
19 The Army Medical Service of the Argentine Republic. F. Howard.

13. **Heart Failure Cause of Death in Diphtheritic Toxemia.**—Bolton says that death in acute diphtheritic toxemia is due to primary heart failure caused by extensive fatty degeneration in the heart and acute degeneration in the motor nucleus of the vagus. It can not be definitely stated whether the acute changes in the vagus nucleus would produce irritation or paralysis of the vagus. As all stages of degeneration are found at the same time it is quite likely that both irritative and paralytic effects may be felt simultaneously by different portions of the heart, and that in some cases an irritative effect may be chiefly evident. The probability is that irregularity of action would be the prominent feature, that this irregularity would be subject to great variations in degree and that in some cases a slowing of the pulse might be expected and in others an increased frequency. Such a lesion would also be quite likely to lead to vomiting. The cardiac dilatation is the result of weakness of the heart wall. The irregular pulse and fatal syncope of acute diphtheritic toxemia are, therefore, due to the disturbed innervation of an acutely degenerated heart. The heart failure exhibited in the acute stage by patients who recover is probably the result of similar though less extensive changes. At a later stage of the disease the results of these changes, together with interstitial cellular infiltration, are sufficient to produce a latent weakness of the heart which can be brought into evidence by some strain, and in this stage also degeneration of the vagus nerve plays a not unimportant part.

14. **The Cancer Problem.**—Beard says that cancer is an irresponsible trophoblast. As he conceives it in normal development and in a malignant tumor, the matter is simply a question of the victory of a stronger enzyme over a weaker one. Embryologically, the problem of cancer has been to discover the antithesis of two enzymes, and in particular to find out the enzyme capable of destroying a weaker one, and thus of leading to the degeneration of the tumor by simple atrophy. The whole story, says Beard, is but another example of that antithetic alternation which underlies all the phenomena of living things. The solution of the problem of the functional relation of embryo and trophoblast, how the latter nourishes itself by an (intracellular) acid peptic digestion and degenerates slowly by a pancreatic digestion, becomes at the same time the embryologic, if not the medical, resolution of the problems of malignant neoplasms, as well as of chorioepithelioma.

16. **Unusual Case of Typhoid.**—In Anderson's case, the onset with a rigor and with acute localized abdominal pain seemed to point to some nephritic or perinephritic suppuration and the presence of pus in the urine was at first regarded as confirmatory of this until a history of cystitis was obtained. The rapid amelioration of the pain and tenderness at the end of a week however, was a contraindication, while the irregular temperature, the pyuria and the pulmonary signs suggested the possibility of tuberculosis somewhere. Sibilant râles persisted over the right upper lobe throughout the whole illness. The absence of any cardiac murmurs, of sweats and of hematuria was against infective endocarditis with embolism in the kidney. Widal's reaction was positive and was confirmed later by the appearance of spots, the enlarged spleen and the character of the stools. The absence throughout of cerebral symptoms, even such as headache, of dicrotism in the pulse, of any marked tympanitis and, for a time, of spots which were constantly watched for but which only appeared late in the disease and were limited to about half a dozen on the back, are worthy of note.

18. **Prognostic Value of Diazo-Reaction.**—Rolleston's observations are based on 6 cases of enteric fever. In all but severe attacks the diazo-reaction tended to disappear in the course of the second or third week, this disappearance shortly preceding or coinciding with the commencement of lysis. Its reappearance during or after the completion of lysis is a warning of recrudescence, of relapse, or of complications directly due to the specific bacillus. A sudden disappearance of the reaction associated with a deterioration of the general condition is a bad sign. The character of the reaction was found to be a useful check to the history.

Bulletin de l'Académie de Medécine, Paris.

20 (Year LXIX, No. 1, January 3.) Formation of an Autoplastic Artificial Ocular Stump by Means of a Pedunculated Skin Flap.—Moignon oculaire artificiel. E. Bruch (Alger).
21 (No. 2.) *Examen du pharynx supérieur par le toucher médiat à l'aide d'explorateurs. A. Courtade.
22 (No. 3.) *Une nouvelle opération sur les muscles oculaires. E. Landolt.
23 Supériorité des sels organiques d'argent sur le nitrate d'argent (silver salts). Darier and Chauvel.
24 (No. 4.) *Appareil que décèle les plus faibles traces d'oxyde de carbone. Albert-Levy and Pecoul.
25 *Des mélanges titrés pour l'anesthésie chloroformique. P. Reynier.

21. **Exploratory Sounds for Examination of Pharynx.**—Josias in presenting Courtade's communication, remarked that the latter's "exploratory sounds" for examination of the pharynx are in daily use in his clinic and are proving a great improvement over digital examination. The least irregularity in the surface is readily perceived, and children especially submit much more quietly to this mode of investigation.

22. **Lengthening the Ocular Muscles.**—Landolt proposes for appropriate cases of strabismus the lengthening of the muscle instead of its advancement. He cuts it in the outline of a Z with the middle line perpendicular to the horizontal bars, and slides the two ends along to lengthen a contracted and sclerosed muscle.

24. **Apparatus for Testing Purity of Air in Rooms.**—The small, portable apparatus described is based on the fact that a fluid containing iodic acid changes color when in contact with 1/200,000 CO_2. The jar containing the iodic acid is heated by a spirit lamp, liberating the iodin, which passes into a glass tube containing chloroform.

25. **Automatic Apparatus for Titrated Chloroform Anesthesia.**—Reynier criticises unfavorably the various apparatus that have been presented for administering chloroform. The ideal apparatus should be small, solid, easily managed, it should automatically titrate the anesthetic while allowing the dose to be modified at will, and should absolutely prevent the

administration of an overdose. He thinks that the apparatus which he has been using recently combines all these desiderata. It is the invention of Dupont, Chabaud and Thurneyssen, and in an experience with 125 subjects it has more than realized all expectations. A thermometer on top records the temperature of the chloroform, and the range of dosage is from 0 to 12 per cent. A minor advantage is that there is no waste of chloroform. The apparatus seems to do away with surgical shock; the patients seem to be less depressed or prostrated and the operation proceeds more smoothly, while the by-effects of the chloroform were found to be less than by other methods.

Berliner klinische Wochenschrift.

26 (XLII, No. 2, January 9.) *Beobachtungen während der diesjährigen Cholera-Epidemie in Sudrussland und russisch Mittel-Asien. M. Hahn.
27 *Ueber Untersuchungen an Kindern in Rücksicht auf die v. Behring'sche Tuberkulose-Infektions-Theorie (examinations of children). H. Beitzke.
28 Ueber aplastische lymphatische Leukämie und über Stillstand (remission) bei Leukämie. A. Wolff.
29 Beitrag zur Lehre von den Funktionen des Ohr-Labyrinths. Passow. (Concluded.)
30 *Internal Treatment of Catarrh of the Bladder.—Zur innern Behandlung des Blasenkatarrhs; Urotropin und dessen Ersatzmittel. C. Posner.

26. **Recent Cholera Epidemic in Southern Russia and in Persia.**—Hahn spent his last vacation in these regions, and made a special study of the conditions in regard to the prevailing cholera epidemic. On account of the superstitions of the lower classes, religious prejudices, the tendency to shift the blame on other shoulders and the lack of any positively established successful results elsewhere, except possibly Murata's experiences in 1903, Hahn felt constrained to advise against prophylactic inoculation with anticholera serum on a large scale. In army circles, among physicians and attendants on the sick, he regards it as indispensable, and as liable to aid in promoting the knowledge of the serumtherapy of cholera. In 3 extremely severe cases the patients recovered after subcutaneous infusion of alcohol in salt solution, 200 c.c. alcohol to 800 c.c. of the physiologic salt solution. He injected from 5-2,000 c.c. in 500 c.c. doses, a total of 1-400 c.c. alcohol. The importance of prophylactic washing of the hands after defecation should be impressed on all, and children should be trained to do this. Privies and closets should be built to allow immediate washing of the hands, preferably with a towel dampened with a bichlorid solution in times of epidemics. He urges others to try the alcohol infusions according to his technic—he has never witnessed such rapid recovery in such severe cases under any other method of treatment.

27. **Tubercle Bacilli in Children's Cadavers.**—Beitzke found evidences of tuberculosis in 40 among 138 cadavers of children examined at the Berlin Pathologic Institute during the last eight months. Only 48 of the other cadavers were in a condition to be used for these researches. With a single exception not the slightest evidence of the presence of tubercle bacilli in the blood could be detected in any of this last group.

30. **Internal Treatment of Catarrh of the Bladder.**—Posner attributes to the varying nature of the infectious agent the varying efficiency of hexamethylentetramin in internal treatment of vesical catarrh. It is generally effective, but occasionally fails completely. When the infection is of a tuberculous or gonorrheal nature, this drug is almost certain to fail, and this is an aid in differentiating such processes. Success can almost be counted on when the infection is due to the staphylococcus, streptococcus or colon bacillus.

Centralblatt für Chirurgie, Leipsic.

31 (XXXII, No. 4, January 28.) *Anastomosis Between Stomach and Esophagus.—Die Anastomose zwischen Magen und Speiseröhre und die Resektion des Brustabschnittes der Speiseröhre. Sauerbruch.

31. **Resection of Cervical Portion of Esophagus.**—Sauerbruch relates that at first no better results were attained in operations on the esophagus in the pneumatic operating chamber than outside. (See The Journal, pages 1181 and 1424 of the last volume.) The last three months have witnessed a decided change for the better, and none of the 11 dogs thus operated on has died. All are lively, although as much as 7 cm. of the esophagus was resected in some instances. The factors for successful anastomosis between the stomach and esophagus are the use of the Murphy button, instead of a suture, and the adoption of some method of causing rapid formation of adhesions. An incision is made in the fifth interspace, the ribs are spread apart and the lung is pushed back with sponges until the aorta, esophagus and both vagi become visible. The esophagus is freed from its attachments and the stomach drawn up through the diaphragm. An assistant outside the pneumatic chamber introduces one-half of the Murphy button into the esophagus, and pushes it along until the operator inside the cabinet can feel and grasp it with his fingers through the stomach wall. He then pushes it up into the protruding part of the stomach, where it is reached by a small incision and its upper part allowed to protrude. The other half of the button is then introduced in the same way from without the cabinet, and part allowed to protrude through a small incision in the wall of the esophagus. It is not necessary to tie the buttons in place, as the wall clings around their neck and no suture is required. It is a very simple matter then to lock the two halves of the button together and the anastomosis is complete, without the slightest traction on the esophagus or adjacent organs. The diaphragm is then sutured, after making sure that its movements do not pull on the anastomosis. This suture, the anastomosis and finally the pleura are dabbed with compound solution of iodin to promote the formation of adhesions; the pleural cavity is rinsed and the skin sutured. This operation has been done on 13 dogs. All are lively to date except 3, who died suddenly, after jumping. It was found that death was due to defective suture of the diaphragm around the anastomosed part of the stomach. The sutures had given away as the animals jumped, and the stomach had crowded through the opening, compressing the heart. It is possible in dogs to draw up the stomach so far as to make an anastomosis between the stomach and the upper third of the esophagus. Resection of the esophagus after the anastomosis is complete is done by cutting it and ligating both stumps. The lower stump is treated like the stump of the appendix, and the upper stump is drawn down and sutured to the peak of the stomach, near the anastomosis, so that the union is doubly secured. One dog has been killed out of the 11 thus operated on, and it was found that the peak of the stomach had changed into a kind of long-drawn-out tube, which can be regarded as a kind of esophagus. A still simpler method of anastomosis is to push the lower part of the esophagus into the stomach wall, like the finger of a glove. The stomach wall rides up around it and is sutured in this position. The diaphragm is then sutured to the protruding peak of stomach. Two weeks later the stomach is opened by a laparotomy and the tip of the invaginated portion of the esophagus is cut off. This is the ideal method of excluding small circumscribed tumors of the cardia or of the lower portion of the esophagus. Experiments on the cadaver have established the fact that conditions for these operations are fully as favorable in man as in animals, and clinical experiences with 3 cases have shown that the vagi can readily be isolated, and that the fourth or fifth interspace allows ample access.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 665.

32 (XXIX, No. 4, January 28.) Fall von Tetania gravidarum. K. Schmidlechner.
32½ Ein neues Spekulum zur Scheiden-Dammnaht (suture of vagina and perineum). R. B. Keyserlingk.

Centralblatt f. d. Grenzgebiete der Med. u. Chir., Jena.

Last indexed XLII, page 1093.

33 (VII, No. 16.) *Operations on Tendons.—Ueber Verwendung von Sehnenoperationen. G. Muskat. Critical review of the literature.
34 (No. 17.) *Ueber tabische Osteo-Arthropathien der Wirbelsäule (of spine). K. Frank. (Commenced in No. 15.)
35 *Die chirurgische Behandlung der Magen-Dilatation (of stomach). D. G. Zesas. Critical review of the literature.
36 (No. 19.) *Indikationen zur chirurgischen Behandlung der Cholelithiasis. O. Heusler. Critical review of the literature. (Commenced in No. 18.)
37 (No. 20.) Die Aetiologie der Cystitis. K. Ritter von Hofmann. Critical review of the literature. 121 articles.

38 *Die Chirurgie in der Schwangerschaft, insbesondere bei internen Erkrankungen (surgery during pregnancy, especially in internal affections). O. O. Fellner. Critical review of the literature. (Commenced in No. 18.)
39 (No. 21.) *Versuche chirurgischer Behandlung von chronischen Entzündungs-Processen des Dickdarms (inflammatory processes in large intestine). M. W. Herman. Critical review of the literature.
40 (No. 22.) *Results and Dangers of Gelatin.—Erfolge und Gefahren der Gelatine-Applikation. A. Bass. (Commenced in No. 21.)
41 (No. 23.) *Die Therapie der Cystitis. K. R. von Hofmann. Critical review of the literature.
42 (No. 24.) Die Coxa vara und ihre Beziehung zu inneren Krankheiten (its relation to internal diseases). D. G. Zesas. Critical review of the literature. (Commenced in No. 21.)
42½ *Die epiduralen Injektionen. Pelz. Critical review of the literature.

33. **Tendon Plastic Operations.**—The literature on this subject is small, although Nicoladoni proposed as early as 1881 the possibility of correcting paralyses by operating on the tendons. The different technic required for lengthening, shortening, transplanting or substituting the tendons is here described. The joint must be well balanced before the operation on the tendons is commenced. The results will be better the more circumscribed and partial the paralysis, and the greater the amount of functionally capable muscular tissue at disposal. The earlier the operation is undertaken the sooner the brain centers will adapt themselves to the new function, but the age of 4 is early enough, as paralytic phenomena occurring before this age frequently subside spontaneously. The improvement from the tendon operations in appropriate cases is so remarkable that even the most conservative practitioner must advocate them. Wittek has reported a case of spastic paraplegia with choreic athetosis in a child of 9. There was almost complete loss of voluntary movements, and the involuntary suggested chorea at times and athetosis at others. Some of the muscles showed vermicular contractions while others were in a condition of perpetual unrest. After failure of other measures he transplanted the musculature of the knee and performed tenotomy on the muscles of the hip joint. In three weeks the condition was much improved, the hips and thighs being freed from the involuntary movements while they persisted unmodified in the legs below the knee. The right leg had been immobilized for five weeks, the left for only nineteen days. The benefit gained by the tendon operations was probably due to the interposition of new centripetal stimuli which arrested the involuntary movements. The results observed in this and in other cases indicate that groups and parts of muscles, which we are accustomed to see working only together, under certain conditions can functionate separately. When a tendon is severed, each half can carry on the functions previously performed by the whole tendon. A large muscle is probably innervated from a number of cortical cells, and to educate them in the new function each half of the muscle should be stimulated separately with electricity, thus training these cortical cells to new ideas of movement in the region involved.

34. **Tabetic Arthropathy of the Spine.**—Frank summarizes 26 cases of tabetic arthropathy of the spine which he has found in the literature. Differentiation is difficult in the early stages, as the spinal affection may be the first symptom of the tabes. There is usually loss of the patellar and pupillary reflexes, and generally the lightning pains and sensory disturbances confirm the diagnosis. The coexistence of other arthropathies or of spontaneous fractures is an aid in diagnosis; this symptom is mentioned in all but 3 of the cases cited. In 2 patients all the joints were affected; in 3 the hip joint alone; in 4 the knee; in 2 the shoulder. In 2 there was crepitation in all the joints, and in 3 the teeth spontaneously dropped out. In one there was mal perforans and in another spontaneous fractures of the bones of both legs. Another typical feature of the affection under discussion is the sudden development of dorsolumbar kyphoscoliosis with or without slight trauma. The localization in the lumbar vertebræ aids the diagnosis essentially. Another important diagnostic point is that the deformity is generally long unnoticed by the patient and causes him no inconvenience or trouble of any kind. Another important sign of the affection is the new formation of bone on and around the affected vertebræ. Radioscopy of these growths is decisive, as it shows an unmistakable rarefaction of the spongiosa, loosening of the cortex and a partial formation of bony framework, evidences of fracture, etc., but especially the perivertebral ossification which occurs in proportions surpassing those of any other known affection. Differentiation from other neurogenous spinal affections is based on the other symptoms, and on the fact that the lumbar vertebræ are the usual seat of the affection. Arthritis deformans seldom attacks the spine; its course is extremely painful, and it is never so rapid or accompanied by so much ossification as the tabetic arthropathy. The latter causes no disturbances *per se*. Antisyphilitic treatment should always be instituted and orthopedic apparatus will render most valuable aid. Krönig has reported a case completely cured by it. He ascribes this success to the long immobilization in an orthopedic apparatus which allowed production of bridges of bone and ligament tissue, preventing the further subsidence of the vertebræ. The patient measured nearly an inch taller than before treatment. In a second similar case only slight improvement was obtained under the same treatment, and it proved a complete failure in a third. An orthopedic corset not only prevents further inroads of the deformity, but it may obviate it and may ward off mechanical injury of the spine, especially fracture. The apparatus may aid in counteracting the effects of the abnormal softness of the vertebræ.

35. **Surgical Treatment of Dilatation of the Stomach.**—Zesas summarizes the conclusions deduced from a review of 91 communications from various authors on this subject. He regards Bircher's operation as indicated in cases of idiopathic gastrectasia, while Heineck's pyloroplastics or gastroenterostomy —preferably by Roux' technic—should be the rule for surgical procedure in case of dilatation due to non-malignant stenosis. When the dilatation is due to malignant stenosis, gastroenterostomy is generally preferred, but the results will be better when physician and patient learn that far more favorable results are possible with resection of the cancerous pylorus. Resection of the pylorus is indicated only in case of cancer of the stomach, but here it deserves every consideration, and the physician should strive to make an early diagnosis and to persuade the patient to submit without delay to an operation which will spare him the torments of cancer. Zesas quotes in conclusion Penzoldt's appeal for the union of surgical "Können" with internal "Erkennen" as promising more for patients with a stomach trouble than for any other morbid condition.

36. **Operative Treatment of Cholelithiasis.**—Heusler summarizes and sifts 305 articles on this subject, his review including some from THE JOURNAL and several from Slavonian literature. Among the contraindications to surgical intervention Mikulicz accepts diabetes and carcinoma; Kehr regards diabetes, arteriosclerosis, chronic nephritis and lung and heart affections as turning the scale in favor of non-intervention. It has been pretty well established that the formation of gallstones occurs under the influence of bacteria in the gall bladder, but the virulence of the bacteria must have been attenuated and the gall bladder must have lost its contractility. The stagnation of the bile entails the chronic catarrh of the biliary passages, which is the chief factor in the production of the concrements, which form principally in the gall bladder. Primary stone formation in the biliary passages is very exceptional. After the operation, draining the gall bladder or hepatic duct renders the bile rapidly sterile, although the stones may still contain numerous germs. Ideal cholecystotomy is indicated only when asepsis and the permeability of the ducts are certain. It is rejected entirely by Kehr, Riedel and Robson and a few others, but Kocher, Kümmel, Tuffier and others champion it under the above conditions. The views of a number of prominent surgeons on the question of cystostomy or cystectomy are given in detail for comparison. Kehr's drainage of the hepatic duct is considered one of the main advances in the surgical treatment of cholelithiasis in late years. It is contraindicated in case of acute occlusion of the common

bile duct—in which no operation should be attempted—and also in acute suppurative cholecystitis on account of the danger of spreading the infection. It is also contraindicated when the narcosis is defective and when the patient becomes cyanotic, etc. Cosh, Ewald, Ferguson and Quénu have unconditionally adopted Kehr's technic for drainage of the bile duct. Garré and Robson apply it only in exceptional cases, principally in cases of contracted gall bladder or of chronic induration of the head of the pancreas. The latter is liable to retrogress afterward. Enteroanastomosis has given good permanent results. Radsiewsky's conclusions from study of 56 cases of artificial gall bladder-intestine fistulæ and experimental research show that such a fistula entails dilatation of the biliary passages, hypertrophy of the walls of the gall bladder, new formation of lymph follicles in the hypertrophied mucosa, penetration of microbes far into the liver, and evidences of desquamating catarrh of the bile apparatus. Other factors are necessary for the development of infection from this source in the bile apparatus, predominant among these factors being stagnation of the contents of the biliary passages.

38. Surgery in Pregnancy, Especially on Account of Internal Affections.—Fellner epitomizes 519 articles on this subject, grouping the cases on record according to the internal affection. Appendicitis is liable to be particularly serious in a pregnant woman. The results were better when the appendicitis was operated on during the puerperium. The prognosis is better the earlier the operation is undertaken; it is bad when the operation is followed at once by delivery, and absolutely bad when delivery follows a mere incision. Intervention should be postponed, therefore, when there are signs that childbirth is at hand. A radical operation is indicated even more strictly than outside of pregnancy. General experience seems to show that pregnancy affords a predisposition to the severer forms of appendicitis. Every mild catarrhal appendicitis should be regarded with suspicion and be operated on early in the pregnancy. Bilateral ovariotomy did not affect the pregnancy in four-fifths of the cases. The proportion in which unilateral operations on the ovaries were followed by interruption of the pregnancy amounted to 21.6 per cent. On the whole, the literature shows that as a rule surgical intervention does not interrupt the pregnancy unless the nerve centers that preside over the contractions of the uterus are abnormally excitable or are already excited.

39. Surgical Treatment of Chronic Inflammatory Processes in the Large Intestine.—Herman ascribes to Folet, 1885, the first intervention of this kind. He was followed in 1887 by Durante, whose patient was completely cured by the formation of an artificial anus above the left inguinal region and irrigation of the intestine through the fistula with a 1 per 1,000 zinc chlorid or 1 per cent. zinc sulphate solution. The trouble had been a diffuse ulcerative process in the colon and rectum, the first symptoms having been noted seven years previously. Then followed the work of the Americans and Germans in this line, the communications of Sullivan, Summers and Smythe being published in THE JOURNAL, 1900 and 1903. Herman has found 50 cases on record, and in an extensive table gives the various particulars regarding technic, age, results, etc. One patient was less than 10; 2 were between 11 and 20; but the majority were between 20 and 40; only 2 over this age, and two-thirds of the patients were men. The intestinal affection had lasted for less than a year in 12 patients; from one to two years in 7; from seven to eight years in 1, and from thirteen to fourteen years in another. The duration was not mentioned in 18 of the published cases. All the patients had been under internal treatment for a long time without results. In 17 cases the diagnosis was chronic dysentery, and in 11 of these there was a history of residence in a tropical climate. In 23 cases the diagnosis was ulcerative colitis; no tubercle bacilli were discoverable. None of the reports mentions whether search was made for syphilis or gonorrhea in these cases, and yet colitis of this origin occurs frequently with an ulcerative course. In the majority of the cases, however, there was no mention of the secondary constriction of the rectum which is such a frequent sequel to syphilitic or gonorrheal colitis or proctitis. He thinks that we may regard the venereal affections as excluded in these cases. In 2 patients the diagnosis had been membranous colitis, and in 1 each, polypous, tuberculous and acute colitis. In 24 cases complete recovery followed the intervention, and was probable in 6 more, bringing the total of recoveries to 60 per cent. In 12 cases improvement was marked, but some minor symptoms still persisted; these patients survived for years, Ewald's for six. Three patients did not appear to derive any benefit from the operative treatment, and 6 succumbed soon after the operation: 2 from progressive cachexia, 1 from hemorrhage from an intestinal ulcer, 1 from incarceration of a diverticulum made by the operation, and 1 from peritonitis by perforation of the intestine at the point of union with a Murphy button. The after-treatment almost always included medicinal rinsing of the peripheral section of the intestine from the anus to the fistula or the reverse. Various drugs were used for this purpose. In some of the cases followed by recovery boric acid or bismuth, silver nitrate or tannic acid were used: in others, quinin, methylene blue, formaldehyd, silver nitrate. From his study of the subject Herman concludes that surgical intervention is justified in obstinate threatening forms of chronic intestinal catarrh (colitis), and in tuberculous colitis. As it is impossible to tell beforehand how high the pathologic condition extends, the opening into the intestine should be made in the cecum. As the main point in treatment is the resting of the diseased organ, the opening into the cecum should be an actual artificial anus. The technic should be the simplest possible for two important reasons: 1, Because such patients are always debilitated and their resisting powers at a low ebb, the operation should be done without general narcosis and as rapidly as possible; 2, because the intention is to close the artificial anus after a few months, as soon as the inflammatory process has completely healed. Herman cites various authorities to prove that the large intestine can be excluded without the slightest harm to the organism, its functional importance being trifling in man, so that it can easily be dispensed with.

40. Results and Dangers of Gelatin in Therapeutics.—Bass marshals an array of new facts learned from recent experimental research on the action of gelatin injected subcutaneously or into a vein. Among them we note Gebele's conclusion that the amount of the previous loss of blood is the key to the varying action of the gelatin. The greater the loss of blood the greater its coagulability, and the more rapidly the gelatin is taken up. Strusberg has been studying on animals whether nephritis is a contraindication to the use of gelatin, as many writers maintain. His results show that the diseased kidney in animals is permeable for gelatin injected subcutaneously (biuret reaction), if the gelatin is pure. Impure gelatin seriously injures the convoluted tubules. Steensma's experimental researches have confirmed the assumption that the effective factor in the action of gelatin is its lime content. Moll is convinced that the gelatin increases the amount of fibrinogen and also induces agglutination of the red corpuscles. He suggests prophylactic injections of gelatin a few days before operations in which much hemorrhage is to be feared. He also advises performing the operation at the height of the digestive leucocytosis, on account of the parallelism which he has observed between the proportion of fibrinogen and the number of the leucocytes. Kaposi's experiments are also instructive. Extract of leeches has the property of rendering the blood incoagulable, but if gelatin be injected subcutaneously it fails to display this property. About 147 cases of the clinical application of gelatin in the treatment of aneurism have been reported. Dropping 21 as not sufficiently authentic, out of the remaining 126 cases favorable results were obtained in 61 cases while the treatment failed in 65. The autopsy findings confirm the actual benefit derived from the gelatin in many cases of aneurism. Gelatin has also established its usefulness in hemoptysis, in hemorrhage from the stomach or intestines, in melena neonatorum, in the hemorrhages of hemophiliacs, in rheumatic purpura, in a few

cases of hemorrhage in the kidneys or bladder, and in one case of cerebral hemorrhage. Kidney affections are not an absolute contraindication if an absolutely pure preparation can be obtained. The occasional disagreeable by-effects—fever, pains and infiltration—are transient. Painfulness is avoided to a great extent by the use of a neutralized solution. Danger of tetanus infection can be averted by sterilizing the gelatin by any reliable method. When a reliable, sterile solution is not at hand, rectal injection of a concentrated solution can be substituted for subcutaneous administration. There has been little change in the technic since the first publications on the subject. Gelatin therapy can be regarded now as having been firmly established on a scientific basis by a series of experimental researches above criticism. One hundred articles that have appeared on the subject since 1900 are reviewed.

41. **Treatment of Cystitis.**—The experiences with prophylactic measures and various drugs in the treatment of cystitis, as published in 147 communications in the literature, are summarily reviewed and classified in this article. The results of the permanent catheter have been so excellent in many instances that its value should be more generally appreciated as Feleki has recently affirmed anew. In tuberculous cystitis Rörig obtained a cure in the case of a woman of 38 who had complained for ten months of pollakiuria, abnormal desire to urinate, and pains. An ulceration was found in the bladder, but the area around the openings of the ureters was apparently healthy. Instillation of corrosive sublimate induced merely slight improvement. He gave Klebs' tuberculocidin by the mouth, commencing with 5 drops and increasing to 40, and improvement was soon manifest. The corrosive sublimate instillations were continued and, finally, 5 gm. of tuberculocidin were injected twice into the empty bladder. The capacity of the organ increased from 60 to 350 c.c. during the course of three months, the general health improved and the urine became normal. Krüger has also reported good results from the use of tuberculocidin and selenin in 3 tuberculous cases. Duhot has also published cases favorably influenced by daily instillation of some of the newer drugs. Casper advocates local treatment with corrosive sublimate, but prefers rinsing the bladder to mere instillation. He commences with instilling a 1-10,000 corrosive sublimate solution and then gradually changes to rinsing with a solution of 1-10,000 and 1-5,000. The fluid is retained in the bladder as long as can be done without pain, and the amount never surpasses 50 c.c. Other authors advocate more radical procedures. Desnos thinks that the bladder should be opened in case of retention of urine or of intense pains induced by contraction of the bladder musculature. He does not think that much is gained by removal of the tuberculous foci. The favorable results that may follow cystostomy are corroborated by Bandler's case, published in 1903. His patient was a young man with tuberculosis of the bladder, accompanied by intense pains and tenesmus. No improvement was obtained by instillations, the patient becoming more and more debilitated and seeking relief in morphin. Suprapubic cystotomy was then done, and the patient unexpectedly recovered. The fistula had to be left open, as pains recurred at every attempt to close it. The urine is clear and contains no traces of pus or bacilli. Preindlsberger, in 1903, also reported a case of tuberculous cystitis cured by suprapubic incision. Saxtorph advocates combination of suprapubic incision with extirpation of the tuberculous foci.

42½. **Epidural Injections.**—Forty-three articles have been published on this subject, which Pelz reviews. Cathelin has made these epidural injections in more than 1,000 cases and Kapsammer in more than 300, and no by-effects have been reported by any one except rapidly transient subjective disturbances and slight vomiting in exceptional instances. The absolute harmlessness of the method of "epiduralization"—to use the term Pelz has coined—seems to be fully established. The most important indications for its use are painful affections of the lower half of the trunk, especially neuralgia and incontinence of urine. The results in incontinence have been 49 per cent. cured, 35 materially improved, and 4 per cent. failures. The number of cases of affections in the sexual sphere treated by epidural injections is too small for definite conclusions as yet. For the technic see abstracts in THE JOURNAL of Kapsammer's, Cathelin's and other communications on the subject since 1901.

Wiener klinische Rundschau, Vienna.

Last indexed page 254.

43 (XVIII, No. 48, November 20.) *Zur Exstirpation von Neoplasmen der Tonsille. J. Preindlsberger.
44 *Die Gravidität vom biologischen und pathologischen Standpunkte. J. Neumann. (Concluded.)
45 *Zur Kenntnis der akute-infektiösen primären Prozesse im Pharynx und Larynx. F. Hutter. (Concluded.)
46 (No. 49.) Zur Histogenese der Ureteritis und Cystitis cystica. A. Hofmann.
47 *Imitatorische Krankheiten (affections). A. Kühner.
48 (No. 50.) Karl Stellwag von Carion. Obituary. Schnabel.
49 (No. 52.) *Influence of Emboli on Temperature.—Ueber den Einfluss der Embolien auf die Körpertemperatur. J. Hnatek. (Commenced in No. 50.)
50 *Die dorsale Auskultation des Herzens und ihre diagnostische Bedeutung. W. Libensky.
51 (XIX, No. 1, January 8.) 3 Fälle von leichten Verletzungen im Halse (slight injuries in throat). J. Fein.
52 First Changes in Albumin Undergoing Absorption in Alimentary Canal.—Ersten Veränderungen des in Resorption befindlichen Nahrungseiweisses. E. Freund.
53 Heredity of Sclerosis of Middle Ear.—Vererbbarkeit der Otosklerose. V. Hammerschlag (Vienna).
54 (No. 3.) *Das Moskito-Fieber (fever). K. Steiner.
55 *Ueber Tuberculoma coli und Kolon-Operationen. Winselmann. (Commenced in No. 2.)
56 *Morbid Symptoms from Sympathetic Apparatus.—Krankheitserscheinungen von seiten des Sympathicus. E. Hönck (Hamburg). (Commenced in No. 2.)

43. **Extirpation of Neoplasms in the Tonsils.**—A cancer was removed in the case described by obtaining access to the pharynx from without, about half the width of the lower jaw being resected at the point of the angle. The flap of jaw thus resected formed a triangular piece. The angle of the jaw formed the broad tip, while the base of the triangle extended high on the ascending ramus and almost to the teeth on the horizontal part. This did not interfere with the use of the jaw later, while it much facilitated pharyngotomy from the side.

44. **Pregnancy from Biologic and Pathologic Standpoints.**—Neumann's article is especially instructive from the personal experiences related. In a few instances histologic examination revealed a reason for the fatal postpartum hemorrhage. In some cases the placenta was so closely attached to the wall of the uterus that it was impossible to detach it, and in places there was no trace of a decidua serotina. The villi had grown directly into the sinuses in the uterine wall whence it was impossible to loosen them, while their presence in the vessels prevented the latter from closing. He has observed a similar partial absence of the decidua in cases of malignant chorioepithelioma. The fetus in the uterus is like a parasite, and especially so in these rare cases in which the nutrient organs of the ovum penetrate directly into the maternal tissue. The ovum in these latter cases is abnormal, and signs of malignant degeneration can invariably be found in it. The ovum or certain of its cellular elements may lead to malignant new growth, and this must not be forgotten in the consideration of pregnancy.

45. **Fulminating Gangrenous Processes in Throat.**—Hutter describes a few cases of acute primary infectious processes in the pharynx and larynx, fatal in two, three or seven days. Death seemed to be due to toxic paralysis of the heart. The patients were betwen 30 and 50 years old. Only one case of recovery is known, but it probably occurs oftener, as the favorable outcome causes physicians to doubt the accuracy of their diagnosis. The inflammation shows a fibrinous and necrotic tendency. The propagation of the septic process along the large blood vessels is a dreaded feature of these phlegmonous throat affections.

47. **Imitation in Nervous Affections.**—Kühner mentions among his other examples of the spread of nervous affections by imitation the "plague of hiccoughing" in the Moravian towns of Nikolsburg and Lunenburg. Women and children were affected, not the men, and the epidemic lasted for months and even required the closing of the schools. He has recently observed another epidemic of imitation in a village where the

girls cut off their braids, claiming that they had been robbed of their tresses by some assailant.

49. **Influence of Emboli on Temperature.**—Hnatek injected starch or introduced various foreign bodies, beads, a rough wire or other irritating article, into the jugular or some other vein in dogs, thus artificially inducing embolism. Among the points learned from these experiments is the fact that irritation of the endocardium lowers the temperature. Irritation of the endocardium reduces the blood pressure and this in turn lowers the temperature. This explains why an embolus in the pulmonary artery is sometimes accompanied by fever and sometimes not. The apyretic cases are those accompanied by irritation of the endocardium. Ten or more small beads were introduced into the jugular vein in one dog and the temperature rose at once several degrees (from 37.7 to 39.2 C.). The beads were found in the lung, but no evidences of an inflammatory process could be discovered when the animal was killed. The introduction of a rough wire into the femoral vein raised the temperature in the same way and even higher. Scraps of sponge introduced into the jugular vein had a similar effect. The temperature invariably rose when embolism was induced, but it invariably fell when a glass rod was introduced into the heart or the endocardium was irritated by other means. This invariable result of irritation of the endocardium explains the discrepancies in the results obtained by other investigators who overlooked this factor.

50. **Auscultation of the Heart from the Rear.**—Libensky discovered that in certain patients with valvular affections the auscultation findings were most distinct at a certain point in the back. As the right ventricle hypertrophies the apex and the left ventricle are pushed backward and away from the front wall of the chest. This brings them closer to the rear wall, and the auscultation findings are louder the greater the enlargement of the right ventricle. The apex is twisted around in these conditions, nearer the back than the front wall, as might possibly be determined by radioscopy from the left axilla. Dorsal auscultation is best controlled and aided by laying the hand over the region of the apex beat in front. He analyzes his material, which includes 22 cases of insufficiency of the semilunar aortic valves and a large number of mitral defects. The results show that differential diagnosis between defects of the mitral and semilunar valves is possible by the findings of dorsal auscultation. In case of a defect in the mitral valve the finding is always loudest at the lower angle of the left scapula. The cases with remarkably loud findings at this point were always accompanied by extensive transverse increase in the dullness, reaching in some to the left axillary line. In these extreme cases the heart beat was diffuse, and the percussion findings and the accentuation of the pulmonic sound were always more or less vague. These facts, with others which he cites, suggest that the trouble is due to extreme dilatation of the right ventricle, which twists the apex around and pushes the left ventricle back from the front wall of the chest. The autopsy findings confirmed this assumption. The auscultation findings at the left angle of the scapula are louder the greater the enlargement of the right side of the heart. The prognosis is, therefore, more serious the louder the findings at this point. They indicate some defect in the left auriculo-ventricular opening. The maximum of intensity of the sounds is at a different point when the semilunar aortic valves are involved. The dorsal findings are loudest in this case at the left supraspinous fossa, and toward the right and downward to the third dorsal spinous process. The findings are not very distinct in incipient cases, but, even then, as completely negative findings at the angle of the left scapula exclude a mitral defect, the trouble can be referred only to the aortic valves. Dorsal auscultation enables the organic to be differentiated from the accidental murmurs. He is now making a study of dorsal auscultation in cases of endocarditis and aneurisms.

54. **"Mosquito Fever."**—Steiner describes an acute febrile disease which attacks unacclimated subjects in Herzegovina with the onset of the mosquito season. The patient feels very sick for from six to eight hours, with intense frontal headache, depression, vertigo, thirst and possibly nausea. The temperature gradually rises to about 104 F. and remains high for from one to three days, after which it subsides with a crisis or more gradually to normal. The disease is called "dog sickness" (Hundskrankheit) by the natives. It leaves the subjects permanently immune. It can be avoided by protection against mosquito bites, but otherwise it is a much dreaded accompaniment of a stay in this region.

55. **Operations on the Colon.**—Winselmann operated on a woman with cancer of the ascending colon by exclusion of the entire colon. The results were highly satisfactory. The rectum soon adapted itself to the new conditions and the stools were apparently normal after a few days. The patient lived for six months in comparatively good condition. He has been encouraged by this result to propose resection of different parts of the colon at need, and describes the various indications and the technic by which the eventualities to be feared are averted. The disadvantages of an artificial anus or other fistula are avoided by simply making a total exclusion of the colon on one side with consecutive ileosigmoid anastomosis. The rectum soon adapts itself to the contents arriving from the small intestine, while the intestinal secretions and the discharge from the cancer in the colon empty downward according to their natural course. The growth of the cancer is liable to be checked for a time when thus put at rest; the patient feels comparatively well, and there is no artificial anus to annoy him. The fear that exclusion of the colon would prove too radical a procedure has deterred many from this simple and effectual operation, but this fear can now be abandoned. It might be possible to apply this technic of unilateral exclusion of the colon and ileosigmoid enteroanastomosis to extensive affections involving the mucosa, such as tuberculosis, dysentery, syphilis or actinomycosis. By diverting the course of the feces and by resting the entire colon in this way, a cure might be possible. He proposes to try this technic in the next case of Hirschsprung's disease that he encounters. After exclusion of the colon and after ileosigmoid enteroanastomosis in the rectal part of the flexure, he would leave the chronic volvulus of the iliac flexure, causing the trouble, to take care of itself. It would probably shrivel. In an invagination tumor he would proceed in the same way, severing the ileum and making an anastomosis between its central part and the sigmoid flexure. The peripheral end would be merely sutured, pushed down into the invaginating funnel and this sutured in turn. The secretions and any cast-off part would be eliminated by the natural route.

56. **Morbid Symptoms from Sympathetic Apparatus.**—Hönck has long noted that he was able to elicit pain on pressure of the plexuses of the abdominal sympathetic system in many cases in which there was no history of a preceding inflammation. He is convinced that the sympathetic can be the source of pains occurring suddenly after emotions and excitements of all kinds, or developing more slowly after any exhausting exertion or disease. The pains may occur following inflammation in any of the organs innervated by the sympathetic. Not only pains, but secretory, vasomotor and motor phenomena may be observed in the most diverse parts of the body, all due to the influence of the sympathetic, as, for instance, the increased sugar and uric acid, oxaluria and phosphaturia sometimes observed in neurasthenics. These phenomena are undoubtedly due to the intermediation of the sympathetic. The painfulness of the sympathetic during tonsillitis is a phenomenon which has frequently attracted his attention. In 2 cases recently he was summoned to see 2 boys on account of severe pains in the region of the left lower ribs. The entire abdominal sympathetic was sensitive to pressure. There were no other symptoms except a mild, febrile tonsillitis which rapidly subsided. There were no pains in the throat but the number of sympathetic fibers in that region justifies the assumption that the pains in these cases were radiations from the diseased tonsils into the sympathetic. A similar assumption might explain the "genital points" in the nose.

Gazzetta degli Ospedali, Milan.

Last indexed XLIII, page 2006.

57 (XXV, No. 131, November 1.) Physico-Chemistry in Its Relation to Clinical Medicine. Ceconi (Turin).
58-60 (No. 134.) *Report of Italian Congress of Internal Medicine, Rome, Oct. 24 27, 1904. (Continued.)
61 (No. 133.) Sul decorso della pseudo-tubercolosi per ingestione del bacillo opale agliaceo nelle cavie di pochi giorni (experimental research on young guinea-pigs). L. Vincenzi.
62 Sull' ematemesi nei morbi splenici. G. Cabibbe.
63 Sull' importanza dell' esame oftalmoscopico nei traumi della scatola cranica (ophthalmoscopy in injuries of skull). A. Carbone.
64 Enlarged Spleen in Typhoid, Etc.—Il tumore di milza nell'ileotifo e nella subcontinua malarica. T. Rodini.
65 Del parto forzato nell' eclampsia. E. Curti.
66 Le iniezioni dei sali mercuriali nelle tubercolosi chirurgische (negative action of salts of mercury). E. Curti.
67 Di alcuni casi di dissenteria e della loro cura col creosoto. G. Zanardini.
68 (No. 136.) Sopra le alterazioni cardio-polmonari che si riscontrani nella cifoscoliosi (kyphoscoliosis). A. Pisani.
69 Cheratoma plantare e bilaterale ereditario. M. Costanzo.
70 *Action of Muscle Plasm of Immunized Animals, Etc.—Azione del plasma muscolare di animali sani ed immunizzati sul bacillo di Koch. R. B. Pallieri.
71 Adrenalina. E. Bosurgi.
72 (No. 139.) *Fenomeni cardiaci nella malaria. P. Gallenga (Baccelli's clinic, Rome).
73 *Carattere e significato clinico della bozza pilorica (bulging of pyloric region). S. Mircoli.
74 (No. 139.) Anestesia locale adrenalin-cocainica. G. Gualdrini.
75 (No. 142.) Ricerche sul potere agglutinante, emolitico e tossico del siero di sangue nell' anchilostomanemia. D. Romani.
76 *Opoterapia gastrica. U. Baccarani (Galvagni's clinic, Modena).
77 Defensive Action of Antiserum in Acute Experimental Tuberculosis.—Infezione tubercolare acutissima ed azione difensiva del siero. E. Marzagalli.
78 Two way Tip Attachment for Bladder Irrigation with Permanent Syringe.—Di uno strumento da applicarsi alla siringa a permanenza per fare le lavande vescicali a doppia corrente. G. Baroni (Arezzo).

59. Studies of Infants Fed with Milk from Immunized Cows.—Jemma reports that the serum of healthy infants of sound parents does not agglutinate the tubercle bacillus even at a dilution of 1 to 1. If the parents are tuberculous a very weak agglutination is exceptionally observed. Healthy infants fed for several months with milk from immunized cows, acquire the agglutinating property, usually for dilutions of 1 to 5, but occasionally of 1 to 10. Infants of tuberculous parents, under the same conditions, acquire an agglutinating property of 1 to 10 or 1 to 20. This property is gradually lost after suspension of the milk, persisting highest and longest in the children of tuberculous parents.

60. New Research on the Protecting Functions of the Omentum.—Cioffi's experiments have established the remarkable protecting action of the omentum. It rapidly encloses an organ or part of an organ tied off, and displays both antitoxic and other functions. The circulation is soon re-established through the parts and no damage results from the intervention. He here reports that a silk ligature thrown around the large intestine of rabbits so as to arrest the circulation was found inside the intestine in five or six days in 10 out of his 15 experiments. The peritoneum clings to the injured loop, adhesions form, and by the time the silk has made its way through the walls of the intestine, the adhesions have closed its path behind it so that no fecal matter escapes from the intestine. The sheet of the peritoneum is the first to become organized, with intense local hyperleucocytosis, while the crowds of leucocytes attracted to the submucous connective tissue combine with those of the peritoneum to form a tissue that repairs the breach.

70. Bactericidal Action of Muscle Plasm from Immunized Animals.—Pallieri describes a number of experiments which demonstrated that the muscle plasm of animals artificially immunized against tuberculosis possessed bactericidal and antitoxic properties in respect to the tubercle bacillus. The research was conducted at Maragliano's Institute for Infectious Diseases at Genoa.

72. Heart Symptoms in Malaria.—Gallenga emphasizes the necessity for suitable treatment of the heart symptoms accompanying some cases of malaria. A malarial patient who presents heart symptoms such as he describes should be regarded and treated as if he were just recovering from endocarditis. The quinin should be given cautiously in such cases, avoiding large doses and too short intervals. He advises giving not more than from 2 to 3 gm. in twenty-four hours, and this amount may be given hypodermically in doses of .5 gm. every three hours. The effect is as good as with larger doses, while it is less dangerous. Digitalis and other heart tonics are given as indicated. The 3 typical cases suggested the onset of an acute infectious endocarditis or myocarditis. None of the classic symptoms were wanting; the malarial infection must have had an elective and intense action on the heart, especially on the contractile function of the myocardium, as evidenced by the dilatation of the ventricles, functional mitral incompetency and threatened heart failure. The malarial infection was mild and soon yielded to quinin, but the heart symptoms persisted for some time longer, but finally subsided. In other cases the heart symptoms were less serious, but the malarial infection proved less tractable.

73. Bulging of Pyloric Region.—Mircoli applies the term of pyloric bulging to the condition in which the fasting stomach bulges out in the epigastrium, or its margin is lower than normal, below the level of any other part of the greater curvature. It may occur with or without pain or lesions in the stomach, and may be transient or permanent. This bulging of the pyloric region may be the initial sign of incipient gastrectasia. In 10 cases this bulging of the pyloric region was the only appreciable sign of any stomach trouble, and the patients complained merely of neurasthenic symptoms. They were all persons obliged to bend over at work or exposed to great heat, cooks, bookkeepers, or else were in the habit of always sleeping on the right side. In 2 cases of biliary or lead colic the bulging was marked during the paroxysms, but subsided later. In another group of patients with heart disease the bulging was accompanied by subjective disturbances. In the cases of liver affections the bulging was particularly prominent, as also in some cases of malaria.

76. Natural Gastric Juice in Dyspepsia.—Baccarani has been using in the clinic the gastric juice obtained by a Pawlow fistula from pigs. He found that in the majority of cases the gastric juice effected a prompt and complete cure and that notable improvement occurred in cases in which the gastric disturbances were due to hysteria or neurasthenia, or to nervous anomalies of any kind. The benefits obtained persisted long after suspension of the treatment, the intestinal functions also returning to normal. Great benefit was also derived in cases of gastrointestinal atony, accompanied by hypoacidity or catarrh. The patients with more serious gastric disturbances were not benefited to the same extent as those of the above two categories.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A HANDBOOK ON THE PREVENTION OF TUBERCULOSIS. Being the First Annual Report of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York. Paper. Pp. 388. Published by the Charity Organization Society, New York City. 1903.

STUDIES IN GENERAL PHYSIOLOGY. By Jacques Loeb, Professor of Physiology in the University of California. The Decennial Publications. Second Series. Vol. XV. Parts 1 and 2. Cloth. Pp. 782. Price, $7.50 net. Chicago: The University of Chicago Press. 1905.

FIRST ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE for the Study, Treatment and Prevention of Tuberculosis. Feb. 1, 1903, to Feb. 1, 1904. Paper. Pp. 265. Published by the Henry Phipps Institute, 238 Pine St., Philadelphia. 1905.

THE CAUSE AND PREVENTION OF CONSUMPTION. A Preventable and Curable Disease. Circular Issued by the Illinois State Board of Health, 1904-5. Fourth Revised Edition. Pp. 26.

NOTES FOR THE GUIDANCE OF AUTHORS in the Submission of Manuscripts to Publishers. Paper. Pp. 66. Price, 25 cents. New York: The Macmillan Co. 1905.

TWENTY-FIRST ANNUAL REPORT OF THE KENSINGTON HOSPITAL FOR WOMEN. From Oct. 12, 1903, to Oct. 3, 1904. Paper. Pp. 31.

POLITICS IN NEW ZEALAND. Paper. Price, 25 cents. Published by C. F. Taylor, M.D., 1520 Chestnut St., Philadelphia.

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Original Articles.

THE USE OF FOOD PRESERVATIVES.*

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Inasmuch as the succession of seasons, the intervals between harvests and great distances from sources of supply compel man to store and transport many food products, and since these are more or less perishable, the desirability and the necessity of artificially preserving these foods from decay and from putrefaction are apparent; and certain agents have been used for this purpose from prehistoric times. Common salt, or sodium chlorid, has priority in point of time, and potassium nitrate, or saltpeter, has the sanction of long-continued use, although I am not sure that the unrestricted use of the latter is altogether free from harm. Primitive man, in all probability, learned from observation that meat exposed to the smoke of his campfire did not become putrid so quickly as meat not so treated. Sterilization and canning are of comparatively recent introduction, but now of wide application. Refrigeration finds frequent new adaptations and the machinery employed in securing it has been developed and improved from year to year.

The relatively new science of bacteriology has demonstrated that the processes of decay and of putrefaction are due to the growth and multiplication of low forms of life and that the preservation of foods depends on the exclusion or retardation of the growth of bacteria. The rapid development of chemistry has led to the discovery and inexpensive preparation of a long list of chemical bodies possessed of more or less powerful germicidal properties, and the purveyors of food products have not been slow to utilize these scientific discoveries. Some of these chemicals used in the preservation of foods are, to say the least, questionable in their effects on the life and health of the food consumer. This fact has induced sanitarians to invoke the passage of legal enactments to control and to regulate their employment, and many of the states of the Union now have what are known as pure food laws and have provided officials whose function it is to enforce them. Courts of justice, in the execution of these laws, frequently call in medical men who have given especial attention to these matters and ask from them information concerning the harmfulness or harmlessness of the chemical compounds employed by dealers in foods. In this way it has happened that medical men are frequently asked to serve as experts in deciding questions involved in the administration of the pure food laws. From his knowledge of the human body in health and disease, and of the effects of various chemical compounds on physiologic processes, the medical man is supposed to be qualified above others in giving testimony along these lines.

The questions that may arise legitimately in trials for the violation of the pure food laws are many and varied. In part they are chemical, inasmuch as the nature of the compound employed and the various reactions into which it may enter, when brought into contact with the fluids and tissues of the body, must be comprehended and explained to a jury made up of men who, as a rule, have had no training in chemical science. In part the questions are bacteriologic, for it must be known whether or not the substance has any germicidal properties and, if it has, if it acts on all bacteria alike. Is it effective to the same extent on aërobic and anaërobic germs, and on the relatively harmless and the toxicogenic? Much hinges on this question, as I will attempt to show later. The questions likely to come up also involve physiologic and pathologic knowledge. Food preservatives, if largely used, will be consumed not only by the healthy and robust, but by those with every form of disease, both acute and chronic. The dyspeptic, the neurotic, the diabetic, the nephritic, as well as the healthy man, must be considered in deciding whether or not a given chemical compound should be permitted as a food preservative. The infant and the aged, as well as those in the prime of life, are involved. If formaldehyd is to be permitted as a milk preservative it must be remembered that it will be largely consumed by infants, and not only by healthy infants, but by those suffering from gastrointestinal disturbances; by the dyspeptic and rachitic as well as the vigorous. If salicylic acid is to be used as a beer preservative, it must be borne in mind that it will be consumed not only by the man who takes an occasional glass, but also by the one who is given to frequent and deep potations. The food preservative that receives legal sanction must be harmful to none of these, for it is the duty of the state to protect all alike, and because a man is killing himself by excessive beer drinking is no reason why his death should be hastened by the addition of salicylic acid to his favorite drink.

One question which the expert should always ask himself, even if it be overlooked by both prosecution and defense, may be stated as follows: Is the substance in question a real preservative or only apparently such? If this question could be scientifically answered it would at once settle the claims of a considerable number of the preparations now in use. A true food preservative is a substance which when added to food in the fresh state keeps it in a wholesome condition for a considerable period of time. This is true of common salt, salt-

* Read before the Pathological Society of Philadelphia, 1904.

peter, and of certain constituents of wood smoke. It is too much to expect that preserved food shall be as toothsome, as easily digested and as easily assimilated as the same food in the fresh state, and although this is accomplished with certain foods and with certain preservatives it can hardly be expected in all cases. Bacon is believed to be fully as pleasing to the taste, more easily digested and quite as readily assimilated as fresh pork, but this is not true of corned beef, nor of preserved fruits and vegetables.

A true food preservative must keep the substance to which it is added in a wholesome condition, so that it can be consumed by persons in every physical condition of life without impairment of health or danger to life. It is not the function of a food preservative to impart to the food a deceptive appearance and to make it look better than it actually is. The law takes special cognizance of this point, and plainly forbids all articles of this class, and I am sure that this law is wise. This excludes all meat preservatives that restore the color and fresh appearance to partially decomposed meats. Moreover, it is not the function of a true food preservative to simply preserve the fresh appearance while putrefactive changes go on, at least without marked and sufficient hindrance. To prevent the development of those bacteria that produce odoriferous substances while the more toxic bacteria that develop no telltale odor continue to grow and multiply does not comply with the requirements demanded by a food preservative that asks for legal sanction. It follows from this that we should be informed not only in a general way concerning the antiseptic properties of the substances in question, but we must know something of its specific action on toxicogenic as well as non-toxicogenic bacteria. To retard the multiplication of the lactic acid bacillus and thus to prevent the souring of milk, while colon bacilli continue to multiply uninterruptedly, is not the function of a true food preservative. Such food preservatives are wisely condemned by legal enactment. They take down the danger signal but do not remove the obstruction in the road.

Some esthetic individual might contend that the red lights along the street do not look well on a dark night, so he removes the lanterns, but leaves the stone piles and open ditches to wreck vehicles and endanger lives. Should such a man be considered a benefactor to his race, or a dangerous lunatic?

From experiments made in my laboratory, I can state that the addition of formaldehyd to milk in quantities varying from 1:25,000 to 1:50,000 retards the growth of the lactic acid bacillus and thus delays the souring of milk, while it has but little effect on the multiplication of colon and typhoid bacilli. The most ignorant mother knows enough not to give her babe sour milk, but even the most intelligent mother might give the formaldehyd milk, laden with its poison-producing bacteria, because, so far as she can judge by appearance and taste, it is all right. The man who adds formaldehyd to his milk takes down the danger signal but does not remove the danger. Is he a philanthropist or is he guilty of manslaughter when the child fed on this milk dies? In cases of this kind, it matters not whether the preservative is directly, and in and of itself, harmful to the human body or not, its use should be prohibited. I am by no means sure that formaldehyd in the quantities in which it is used in milk is, in and of itself, of great harm to the body of man, but I am convinced that its use in milk, especially in that fed to infants, is very properly condemned by the laws of many states. Bacteriologists have found that sodium sulphite is possessed of but feeble germicidal properties, and yet we know that practically it does preserve the color and delay the development of putrefactive odors in meat for a relatively long time. It is more than probable that a careful investigation of this apparent contradiction will show that this substance, like formaldehyd, retards the growth of the non-toxicogenic rather than of the toxicogenic bacteria. However, this point deserves patient and prolonged investigation, and the laboratories of our agricultural colleges might carry out many series of experiments along this line, varying the conditions from time to time, taking into consideration the character of the food employed, the species of bacteria present, the temperature, time, etc. There is opportunity here for research that may prove not only instructive but of practical value.

So-called preservatives that remove the danger signal and leave the danger untouched should be condemned whether it can be shown that the substance employed is a poison or not. Even the most inert body belonging to this class should not be used, and certainly not in food fed to children, so large a proportion of whom die from milk poisoning.

Inquiry into the effect of the substance in question on the digestive fluids and processes is legitimate in considering the claims of any food preservative, and in making this inquiry it must not be forgotten that the preservative, if permitted, will be taken by those with every degree of digestive impairment as well as by the most vigorous. Neutralization of the free hydrochloric acid of the gastric juice is a matter of no little importance, as every physician who has made many analyses of gastric contents can appreciate, and the action of the substance on the digestive enzymes is probably of still greater importance. The digestive organs are the laboratories in which the nutritive parts of the food are fitted for absorption and assimilation; and interference with the normal processes of the alimentary canal mean, sooner or later, disaster to every organ of the body. The most general and superficial knowledge of chemistry suffices to indicate that sodium sulphite will neutralize the free hydrochloric acid of the stomach, and a simple calculation, based on the amount of this substance which may be found in the food, will show the volume of acid that may be neutralized. It matters not whether the acid radicle of the sodium sulphite is split off in the stomach as the anhydrid or immediately combines with water to form sulphurous acid, the effect is practically the same. I was somewhat startled recently, however, to learn from the testimony of an expert that the stomach is a tank always filled with free oxygen, and that this immediately converts the sodium sulphite into sodium sulphate, which, as all must admit, in the quantity employed can be of little effect even on the dyspeptic. The investigation of the effects of preservatives on the digestive processes should be made outside the body, where they can be exactly determined. They should be made with each ferment and then with combinations. Numerous studies of this kind have been made with some food preservatives, for instance with formaldehyd, and it seems to be well established that this substance markedly interferes with the action of some of the digestive enzymes. The defense frequently attempts to belittle testimony showing the retardation of the digestive processes by the substance in question, and the expert is asked what harm

it will do to have some of the acid of the gastric juice neutralized by the little sodium sulphite in a Hamburg steak eaten once a week? This question is an attempt to mislead and to convey to the jury the impression that the matter is of but trifling import and that the expert is trying to build a fortress of straws. However, if a man has sodium sulphite in his meat, alum in his bread, and formaldehyd in his milk, it may seriously be questioned if his gastric juice, or what little he has left of it, will suffice to convert the proteids of his food into peptones.

The question of the possible poisonous action of the preservative must always be considered and is frequently of primary importance. There seems to be great diversity of opinion among medical men concerning what constitutes a poison. Some appear to think that before a chemical compound can be classified as a poison it must be capable of causing death in the quantities used in food, or that at least it must visibly and grossly disturb the health of man in a few hours. If it fails to do this it is not a poison, or at least in the quantity employed it should not be so designated. I have regarded this question quite differently and I will attempt to give, in a few words, my ideas on this point. The bodies of animals, including man, are made up of cells, that are alive and perform duties, the proper performance of which is necessary to the well-being of the whole of the individual. These cells are essentially chemical compounds and those substances which combine with these cells chemically in such a way as to cause their destruction or to render the performance of their normal functions impossible are poisons. Therefore, a poison may be defined as a substance that destroys or impairs cell function by virtue of its chemical constitution. The cells of the different organs vary more or less in chemical composition and consequently a compound may react with a liver cell more readily than it does with a muscle, bone, or nerve cell. In this way poisons are, to a certain extent, selective in their effects, their selective action being dependent on the readiness with which they react with the chemical constituents of different cells. A substance that combines with and consequently interrupts the function of the cells of the respiratory center in the brain causes the speedy death of the individual, while those substances that destroy blood, liver or kidney cells are slow poisons inasmuch as the life of the individual may survive the destruction of a large number of these cells, but those of one class are just as truly poisons as those of the other. Potassium chlorate reacts with the hemoglobin of the blood, converting it into methemoglobin, and if the number of red blood cells destroyed is sufficiently great to impair the action of the other cells, especially those in the vital centers of the brain, death of the individual occurs. On the other hand, if the number of injured blood cells be not so great, life is not destroyed but health is impaired.

Chloroform, ether and other anesthetics combine with and temporarily paralyze the nerves of sensation. Ethyl alcohol, besides its effects on the nervous system, leads to alterations in hepatic cells, and cirrhotic changes are induced; while methyl alcohol finds its special affinities in the ganglion centers of the retina and in the optic nerve. Many of the metals have their most marked effect on the renal cells and some have a special action, apparently, on connective tissue cells. In the pathologic laboratory, potassium bichromate is employed on animals for the specific purpose of developing nephritis. There are other illustrations, but these, I hope, will suffice to make clear my position. All poisons are such because they destroy or impair the action of certain cells of the body and the immediate effect on the life of the individual depends on the kind and number of cells put out of commission.

The question of dose can not be left out of consideration in the study of poisons, because a certain relatively small number of cells, in most organs of the body at least, can be destroyed without any appreciable result. Moreover, the quantity or dose given determines, to some extent, the cells affected; thus the introduction of from 5 to 10 grams of sodium sulphite into the stomach of a rabbit at one dose causes death in a few minutes, while the administration of the same substance in much smaller quantities just as certainly kills but a longer time is required. When a large single dose is given, some of the unchanged sulphite reaches the brain, and the cells of the respiratory center are so injured that respiration stops and death occurs almost instantaneously.

When smaller doses are given all the sulphite is used up before it reaches the brain, especially in the walls of the stomach and in the blood. Digestion and assimilation are impaired, emaciation follows and in time death ends the process. Is not sodium sulphite just as truly a poison in one case as in the other? But it is asked, is not nearly everything a poison if given in sufficient quantity? and the expert is frequently asked if common salt is not a poison in large doses; it may kill, but it is not a poison. The injection of concentrated solutions of salt or of sugar, or even of distilled water directly into the blood may kill by altering the specific gravity of the plasma, but these are not poisons. If the stomach of a rabbit is filled with a saturated solution of common salt speedy death results, but this is due to physical causes and to the absorption of water, and is not due to the chemical combination of salt with the cells of the body. Broken glass or splinters of steel taken into the stomach may kill the individual, and molten metal poured into the throat would have a like effect, but these are not poisons, because their injurious effects are due to physical and not to chemical causes.

Should the fact that a substance is a poison prohibit its use as a food preservative? Admit that a substance is a poison and it must also be admitted that its use as a food, or in a food, must be sanctioned by long-continued custom or must be regulated by law. I think that this is the holding of eminent jurists in all parts of the civilized world. I believe that the higher courts of Pennsylvania have held that it is sufficient to show that the substance is a poison and that it is not necessary to show that the quantities employed are dangerous, and this decision is certainly a wise one. In cases of trial for murder by the administration of poison, it has been generally held that it is not necessary for the chemist to recover from the body a poisonous dose, but simply to show the presence of poison. People in general are not legally qualified to administer poison to others. Members of the medical profession only are legally qualified for this purpose, and it is for this reason, in part at least, that the state assumes the right to specify within certain limits the qualifications of the physician.

If sodium sulphite is a poison, and if the only safeguard in its use as a food preservative is in the amount added to the food, shall this be left to the vendor, who is ignorant of the chemistry and toxicology of the compound and whose sole object is to make his goods look

more attractive to the buyer? If this compound is to be legally sanctioned as a food preservative, the law must determine in what quantities it may be employed and it must select qualified men to mix the preservative with the food. The statutes specify the qualifications of the physician who prescribes and of the pharmacist who prepares this and other poisons when given as medicines, and is it not of more importance that the addition of poisons to our daily foods should be conducted under similar safeguards? Medical experts may differ in opinion concerning the classification of a given compound as a poison, but if the court be convinced that it is a poison, and that the possibility of doing harm with it depends on dosage, it is not probable that its usage will receive legal sanction. Poisons should be sold only under strict legal restrictions; the experience of all ages has demonstrated the wisdom of this. The cases of poisoning with chromate of lead, so admirably worked up some years ago by Stewart of Philadelphia, will illustrate what harm the cupidity of the vendor and the ignorance of the user may accomplish. The fact that the substance in question has been largely employed in medicine, and sometimes with beneficial results, is often brought out in court. In my opinion, testimony of this kind is of but little value and is capable of being misinterpreted. The physician, in order to cure a syphilitic lesion, very properly takes the risk of doing harm to the kidneys by the administration of mercury, but this does not indicate that mercurial compounds are harmless or that they may properly be used as food preservatives. This point leads to such absurdities that I am ashamed to pursue it further, and yet in two cases tried in Pennsylvania recently medical men have used it in defense of food preservatives. Along the same line is the question of poisonous dose, and the expert finds in some medical book that the medicinal dose is much greater than the amount one would take at a meal, or in one day, or possibly in one week. In regard to this point, it is only necessary to state that there is probably no poisonous drug that has been in use for 10 years or longer for which you can not find in some book the medicinal dose given at a figure considerably beyond the limit of safety.

There is another line of testimony sometimes given that seems to me to be of questionable value; an expert testifies that foods containing a certain preservative have been eaten by men in Alaska or in some other place remote from sources of food supply without recognizable harm. Men so situated must eat what they can get; but here at home we are not driven to such a choice. Men in remote places have eaten dogs and have pronounced the repast enjoyable, palatable and nutritious, but this would hardly justify a butcher in sending a canine tenderloin when a beefsteak had been ordered.

The source of one's knowledge concerning the action of poisons is a matter deserving consideration. Lately there has been a tendency on the part of some to question toxicologic knowledge gained by animal experimentation and to offer instead observations of the effects on man. One expert has tested the action of a substance on the lower animals, which he has fed for a certain time and which he has then killed, either by the continued administration of the drug or otherwise, and after death he has made careful macroscopic and microscopic studies of the different organs. From these studies, he has arrived at certain conclusions. The opposing expert states that he has prescribed the substance in question for malaria or for some other disease to a large number of people and without injury, possibly with benefit. Which kind of testimony is the more scientific and valuable? We will suppose that the action of potassium bichromate is in question. I take this substance because it has not, so far as I know, been used as a food preservative, although a more poisonous chromate, that of lead, has been employed in Philadelphia as a food adulterant. One man testifies that, following the method of Gunzberg, he has prescribed the bichromate to his syphilitic patients and that it has done them no harm. Another says that he has tested the action of this substance on dogs and that he finds it induces certain distinct lesions, especially in the kidneys. Which line of evidence is the more satisfactory, and, after hearing both, to which shall we give the greater weight in coming to a conclusion concerning the action of the bichromate? For one, I should not long hesitate in coming to a decision, and I leave others to decide for themselves, but while they are doing so I beg leave to ask a few questions. Which, the syphilitic or the dog, was in health to start with? To which has the substance been administered most certainly in the quantities claimed? Which has been more completely under the control and observation of the administrator? and, when both die, in which is the cause of death most unquestionable? Moreover, suppose that the kidney lesions are found in both, is it not true that there might be grave and honest doubt as to what caused them in the man? The conditions under which most patients live are too complex for them to serve in our observations concerning the actions of poisons. Dr. Wiley, at Washington, is now testing the action of certain food preservatives and adulterants on men, and, inasmuch as these men are under his control and have their lives regulated by his rules, we may be sure that valuable information will be secured, but toxicologic experiments on men under the most favorable conditions will need to be supplemented by animal experiments. The microscopic lesions induced in the organs can be ascertained in no other way. We must be able to kill the animals after they have received definite quantities of the substance and to study their tissues, both macroscopically and microscopically.

In conclusion, I will state what I believe should be the essentials of a substance before its employment as a food preservative should receive legal sanction.

1. It must be a real preservative, keeping the food in a wholesome condition and not merely retaining the appearance of freshness while bacterial changes continue.

2. In the largest quantities used, it must not materially impair any of the digestive processes.

3. It must not be a cell poison, or if a cell poison in any amount, it must be added to foods only by persons qualified by special training and officially authorized. and foods containing these substances must be plainly labeled and the kind and amount of the preservative used must be made known not only to the buyer but to each consumer.

To Prevent the Tramp Evil.—A striking illustration of the success of the work test on ridding country towns of tramps is furnished by the town of Sherborn, Mass., says the *Medical Times*. Sherborn had 1,446 inhabitants, and during one year it lodged and fed at the town almshouse 1,844 tramps. The overseers of the poor decided to employ tramps in labor for the almshouse and in chopping wood, with the result that in four years there was a reduction from 1,844 to 31.

THE EFFECTS OF GONORRHEA ON THE FEMALE GENERATIVE ORGANS.*

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The effect of gonorrhea on the female generative organs has been so destructive that no successful contradiction is feared when the belief is expressed that no disease in modern times has caused so much indirect mortality, mutilation and suffering, both mental and physical, as gonorrhea; and this association can hardly spend its time and influence in any more valuable and humanitarian direction, than in establishing the facts in regard to its ravages, and in suggesting methods of limiting or preventing them in future.

Acute gonococcic infection of the vulva and vagina may be compared with acute gonorrhea of the anterior portion of the urethra in the male; both are frequently cured before any ascending infection occurs, both are frequently incurable in their chronic or latent stages, when the gonococcus has found lodgment in the deeper structures.

The chief danger of gonorrhea in women is stated by all the text books on gynecology to be the infection of the uterus and of the uterine appendages. Gonorrhea is the chief source of salpingitis and pelvic peritonitis, though we occasionally meet with these conditions as a direct result of endometritis caused by puerperal sepsis, but these latter cases are now admitted by gynecologists to be the exception, while as a rule these cases are caused by the disease under consideration.

Morrow, to whom we are indebted for many statistics, states in the preface of his valuable book, on "Social Diseases and Marriage," that "within the past two decades no coccus has so grown in significance and pathogenic importance as the coccus of Neisser. Of especial interest, in connection with the objects of this study, is the important rôle of the gonococcus in determining serious pelvic disease in women. Modern science has taught us that, in view of its extensive prevalence, its conservation of virulence, after apparent cure, and its tendency to invade the uterus and adnexa, with results often dangerous to life, and with destruction of the reproductive capacity of the woman, gonorrhea overshadows syphilis in importance as a social peril."

While Morrow admits that "no disease has such a murderous influence on the offspring as syphilis," he also states that "no disease has such a destructive influence on the health and procreative function of woman, as gonorrhea."

While syphilis is a most potent factor in the destruction of the unborn child, gonorrhea by its much greater frequency is a vastly more potent factor in the production of involuntary race suicide, by the sterility induced in both sexes; but much more frequently in women, on account of the ascending destructive and incurable infection of the tubes and ovaries.

Bland-Sutton of London is correct when he states that gonorrhea is the chief cause of the sterility of the prostitute class. A gonorrheal salpingitis, whether it goes on to suppuration, and the formation of pus tubes and ovarian abscesses or not, usually destroys the epithelial lining of the tubes, and so cripples the ovary as to render conception almost impossible. Sterility is then a very common legacy bequeathed to the female victim of this disease.

The most pathetic part of the history of this subject relates to the frequent introduction of this disease into married life.

"The Report of the Committee of Seven on the Prophylaxis of Venereal Diseases in New York City would indicate," says Morrow, "that nearly 30 per cent. of all venereal infections occurring in women, in private practice in that city, are communicated by their husbands."

While venereal diseases cause more deaths and deplete the population by causing abortion and preventing conception more than any other known disease or condition, this subject is largely ignored by sanitary bureaus in their registration of contagious diseases.

And yet it is generally admitted by recent writers that gonorrhea is the most widespread and universal of all diseases. Some writers claim that 90 per cent. (the lowest estimate I have seen is 75 per cent.) of the male population of our cities have had gonorrhea some time during their lives, while only from 5 to 18 per cent. have contracted syphilis.

Noeggerath has stated that of every thousand men married in New York, eight hundred have had gonorrhea, from which the great majority of their wives have been infected. And it was largely on this evidence that he based his statements in his most remarkable and startling paper read before the American Gynecological Society in 1876 in regard to the effects of latent gonorrhea in the causation of abortion and sterility. Morrow states that his own observation at the New York Hospital, extending over a period of several years, would indicate that fully 70 per cent. of all women who come there for treatment were respectable married women who had been infected by their husbands.

This subject has been studied by so few investigators of recognized authority, in comparison with other great evils which threaten the social, moral and physical life of the nation, that I feel that the presentation of the latest crystallized views and conclusions of well-known workers and authors on genito-urinary subjects ought to arouse us and awaken our interest in this great question. The work of any real value in this department has all been done in the last twenty-five years, since the discovery of Neisser, in 1879, which made it possible for us to say that no gonorrhea existed without the presence of the gonococcus, and that gonorrhea continued to exist so long as that germ could be found in any of the deep recesses of the body.

Thus Morrow, in his great book before referred to, in comparing the significance of gonorrhea and syphilis as social dangers, says, "In the light of our present knowledge respecting the pathologic significance of gonorrhea, it is a matter of surprise that its important relations with marriage, until recent times, have been practically ignored."

He declares that gonorrhea "must be considered quite as formidable a social plague as syphilis," and again, in speaking of the murderous influence of syphilis on the offspring, says "the no less potent agency of gonorrhea as a factor of depopulation through its inhibitory influence on the conceptional capacity is by no means adequately appreciated." The introduction of gonorrhea into married life entails consequences infinitely more disastrous to the health and the life of the mother than syphilis. She may be rendered a life-long victim and her hope of children absolutely extinguished. And again he says, "woman becomes irrevocably sterile, not to speak

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of the danger which in many instances can only be averted by the sacrifice of her reproductive organs." We have authority for the statement that, while we are accustomed to look on syphilis as the most active cause of depopulation, gonorrhea is in reality a much more powerful factor.

Janet, in discussing "Social defense Against the Venereal Peril," only two years ago says, "gonorrhea with tuberculosis, perhaps more than tuberculosis, is the great pest of our age. If we compare, from a social point of view, the importance of gonorrhea with that of syphilis, gonorrhea is to syphilis as 100 to 1, not only from the standpoint of the number of persons attacked but also from the standpoint of the gravity of the lesions and their perpetuity. Gonorrhea modifies, in a manner often permanent, the genital organs of patients, renders them infinitely dangerous for the women they approach, causes all the metrites and annexial inflammation which today give to the surgeons three-quarters of their work, and conducts finally both men and women to sterility."

"The predominance of gonorrhea as a cause of depopulation is not surprising in view of the fact that it primarily and specifically affects the organs of generation"; though some writers declare that "gonorrhea is a general toxemic infection."

After giving due weight to all the generally admitted causes which prevent conception, we are forced to the conclusion of some modern writers, "that there must remain a vast contingent of sterile marriages which are caused directly and solely by gonorrheal infection."

Noeggerath, as far back as 1876, declared his belief that 50 per cent. of female sterility was caused by gonorrhea. In his paper above referred to, he reports, after very careful study of 81 women affected by gonorrhea, that 49 were absolutely sterile, and that the remaining 32 women bore only 39 children.

Neisser attributes more than 45 per cent. of sterility in women to the effects of gonorrhea. Lier-Ascher found that out of 227 women 121 were sterile because of gonorrhea. Kehren found that in 96 sterile marriages 30 per cent. were due to the absence of spermatozoa in the husband, while in 45 per cent. there were complications causd by gonorrhea.

Gruenwald, Kammera and Crolax report 53 per cent., 83 per cent. and 40 per cent. of endometritis, mesometritis and perimetritis, all of gonorrheal origin, as causes of sterility in the female, while Williams insists that 73 per cent. of all abortions are due to endometritis, presumably of gonorrheal origin. While conception is known to be quite possible during the existence of a vaginal or cervical gonorrhea, and gestation and parturition may proceed and terminate normally, as far as the mother is concerned, but causing 30 per cent. of the blindness in the world, because of gonorrheal ophthalmia. The way seems to be open after parturition, through slight traumatism in the endometrium, for ascent of the infection to the tubes and ovaries.

One author states it very clearly in the following words: "After accouchement the tissues of the genital organs are in a peculiar state of inhibition and of infiltration. The uterine orifices are enlarged, the mucous membrane desquamated in part, but the glandular cul-de-sacs perish and offer to the gonococcus a favorable soil for its proliferation."

We have abundant testimony that specific infection frequently ascends to the pelvic organs after parturition, when this infection only existed below the internal os uteri previous to labor. This infection may, and nearly always does, result in future sterility, so that this germ has more to its account than would be implied by the mere term sterility. Many of its social victims have proven their conceptional capacity by giving birth to one child, but remain semi-invalids ever after as a result of the ascended infection. "It thus happens," says Morrow, "that the aptitude of a gonorrheic woman for conception is often extinguished by the first pregnancy, the one child representing the sum total of her reproductive energy." The sterility of the gonorrheic woman is thus relative rather than absolute; it is, in the expressive German phrase, *"ein kind sterilität,* a one-child sterility.

The race suicide effect of gonorrhea does not end in the prevention of conception or in a one-child sterility, but has a much more powerful influence in the production of abortions than has heretofore been attributed to it.

Savage asserts that as many abortions are caused by gonorrhea as by syphilis. Noeggerath states that of 53 women known by him to be suffering from the effects of latent gonorrhea 19 aborted. Fruhinsholz found that in 101 pregnancies occurring in gonorrheic women 71 went to full time, 23 aborted and 7 were delivered prematurely. Another report of 201 pregnancies, complicated by gonorrhea, states that 161 went to full term, 36 were prematurely delivered and 4 aborted.

The causes of ectopic gestation have never been clearly set forth in our text-books, but it is claimed by recent writers on social diseases that gonorrheal salpingitis plays an important rôle in the etiology of this condition; modifications in the epithelial lining of tubes occur in mildly latent cases, which may arrest the descent of the ovum to its natural bed in the uterus, thus becoming directly responsible for the tubal pregnancy. The "mutilation" of women who suffer from gonorrheal infection of the uterine appendages is simply appalling when we consider the great and increasing number of surgical operations made necessary by their otherwise incurable infections. In 1901 this association appointed a special committee "for the collective investigation of statistics on the prominence and dangers of gonorrhea."

In answer to its question, "What is the proportion of cases of pelvic inflammation coming under your care which are attributable to gonorrheal infection?" sent to many leading gynecologists in this country and in Europe, Humiston replied that 90 per cent. of his cases were attributable to this cause, some of them, however, being of mixed infection. Price answered that in over 1,000 abdominal sections for pelvic inflammation 95 per cent. were attributable to gonorrhea, and that in 95 per cent. of these cases the history was reliable and clear. Pozzi and Frederick stated their experience as 75 per cent. The general average of all statistics collected was 40 per cent.

It is quite possible that the difference noted in some, by the report, may be on account of a reliance on macroscopic instead of microscopic evidence of this specific infection. The statements of patients are as unreliable as their clinical history. While the presence of the gonococcus would be affirmative, its absence or a failure to find it in the deeper located infections would not always be negative proof.

Peterson says "the more the disease is studied in women and the greater the improvement in bacteriology the higher is to be found the percentage."

We often meet the statement that more than half the

abdominal operations performed in the world to-day are required on account of the infections and adhesions and pus collections due to gonorrhea, but I think we will all be surprised when the statement is forced on us that a great majority of them are from this cause; according to Humiston and Price, from 90 to 95 per cent.

Mann of Buffalo says that in his experience just about all of his "pus tube operations" are required on account of gonorrheal infections, and, as tubal infections arise from specific endometritis, he thinks it necessary for the complete cure of the patient to remove the uterus also. Many others hold this opinion. They see many dangers ahead for all women who possess a gonorrheal uterus, after infected appendages have been removed. Curettings and antiseptic irrigations, while they occasionally eradicate all the gonococci, generally do not, and relapses and contagions recur, greatly to the surprise and sometimes to the mortification of the patients, who believed themselves cured.

The great number of women operated on for the removal of gonorrheal appendages, pus collections, inflammatory adhesions, enlargement and displacement does not by any means represent the amount of invalidism and suffering caused by this infection.

In the above quoted statistics only the number actually "mutilated" by the surgeons are mentioned, and no account is taken of the large number of infected women who for various reasons are not subjected to operations and continue under the care of the family physician, dragging out a miserable existence of semi-invalidism, subject to painful or difficult menstruation, no longer able to walk freely, condemned to pass their days of suffering in a reclining position, and after years, it may be, of this suffering, worn out and desperate, apply to the surgeon, who, by the sacrifice of the uterus, tubes and ovaries, renders their existence possible by making them castrated women.

What disease have we to treat against which can be brought such an array of charges and about which so little is being done to prevent or eradicate it?

I know of no statistics of the mortality arising from gonorrheal infection of the female organs of generation, but we can obtain an approximate idea when we consider the great number of major surgical operations performed on its account, the number of abortions caused by it, and the untold number of conceptions prevented by the disastrous results of such infections.

There is little doubt in my mind that, at a most conservative estimate, half a million prostitutes are living in houses of ill-fame in our large cities and I am not sure a million would not be nearer correct; writers on this subject generally estimate as many women living lives of easy virtue outside as inside of the disreputable houses. In our country alone we have, then, a million and a half, if not twice that number, who have or are liable to have gonorrhea any day, with all the possible consequences above referred to.

The effects of the introduction of gonorrhea into married life have already been spoken of.

It is estimated that from 40,000 to 50,000 prostitutes die annually, and that their places are immediately filled by new recruits. While much of this mortality may be due to the results of dissipation and natural causes, at least 30 per cent of this mortality is due to the direct effects of gonorrhea.

It is estimated that 110,000 deaths occur annually from tuberculosis in our country, 107,000 from pneumonia and 43,000 from typhoid fever. While there are no statistical reports of investigations of the mortality due to the infections and ravages of gonorrhea on the female generative organs. I have little doubt, if it can be ascertained, that the race suicide arising, directly and indirectly, from this disease would equal the mortality of any of the three diseases mentioned, and I am not sure that it would not exceed them all combined; if we take into consideration the depopulation caused by the one-child sterility, and also the absolute sterility produced by gonorrheal inflammation of the uterus and its appendages.

It is customary to include the death of the child when comparing the maternal mortality of craniotomy with that of cesarean section. Thus, if 75 or 25 per cent. of maternal deaths occurred after craniotomy, the mortality of the operation would be stated as 175 or 125 per cent., as the case might be. So, in speaking of the mortality of the effects of gonorrhea on the female generative organs, one might on the same principle include that indefinite multitude of children which would have been born but for the inhibitory effects of the gonococcus on the female conceptional capacity.

As the subdivision of this subject assigned to me only includes the effects of gonorrhea on the female organs of generation, I am admonished that I can not include in my paper a discussion of the indefinite persistency of this infection in its latent or chronic stages, of its power of recurrence after apparent cure, of our responsibility in authorizing matrimony, and the possible remedy for all the troubles following on the trail of this, the greatest plague of our century.

PURULENT CONJUNCTIVITIS AND BLINDNESS.*

EDWARD JACKSON, M.D.

DENVER.

No greater subject could be found for the pencil of the artist than the tragedy of the young mother who, just out of child-bed, brings into one of our city clinics her first-born infant, already blind for life through ophthalmia neonatorum, to find out what can be done for the eyes that "were so bright when it was born." The mere surface facts are dark enough without the black background which the physician also sees, the hideous cause of the affliction and the physical suffering and wreck that are impending in her own life. Because I have looked on this picture and have been compelled to crush the young mother with but a fraction of the terrible truth, I am glad to join in any effort to render less frequent the repetitions of this tragedy.

Not all purulent conjunctivitis of the newborn is caused by the gonococcus. Guerola[1] reported a series of 25 cases, in all of which he found the gonococcus, although sometimes associated with other bacteria. But most students of the subject have had quite a different experience. Alt[2] found the gonococcus in but 9 out of 14 cases. Groenouw,[3] in 100 cases of ophthalmia of the newborn, found the gonococcus in 41. He also found the pneumococcus, the white and the yellow staphylococcus, the colon bacillus, and occasionally other

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Annales d'Ophth., November, 1900.
2. Amer. Jour. of Ophth., April, 1901.
3. Graefe's Archiv f. Ophth., vol. lii, No. 1.

bacteria. Standish, in a series of 92 cases reported to the Section on Ophthalmology, found the gonococcus present in but 64. It is certain that many cases of ophthalmia neonatorum are not caused by the gonococcus. One is not justified in assuming from the presence of purulent ophthalmia in the infant a gonococcus infection.

But, on the other hand, nearly all the cases of such ophthalmia which cause blindness are due to this organism. Groenouw thinks that failure to discover the gonococcus by one careful examination justifies a positive favorable prognosis. Standish mentions only one case of corneal ulceration in purulent conjunctivitis not due to the gonococcus. Many bacteria can cause conjunctival inflammation in the newborn, but the danger of blindness is chiefly or wholly from this one.

The frequency with which it causes blindness can not be very closely estimated; but it is the most common cause of life-long blindness, even in this country. Various statistics seem to indicate that in continental Europe fully 30 per cent. of all cases found in schools and asylums for the blind have been brought there from the effects of this disease. No adequate statistics are available for this country, but it is here very much less frequent. Such statistics as I was able to gather a few years ago[4] seem to indicate that the proportion blind from this cause in America is probably half as great as in Europe—from 15 to 18 per cent.

But the true significance of these figures only appears when we bear in mind that blindness from this cause is almost entirely preventable. In the first place, ophthalmia neonatorum may be prevented. In the report above referred to I obtained from the records of the largest lying-in hospitals in Philadelphia statistics regarding 4,956 deliveries. Among these children there occurred 10 cases of ophthalmia neonatorum, and but one eye was permanently damaged. Of the above cases, only 802 were subjected to prophylactic treatment directed to the eye, other than careful cleansing. The technic employed in the cleansing of the birth canal by the different obstetricians, under whose care the deliveries took place, was not identical throughout the series. But it was good in all cases.

Clean midwifery will greatly diminish the number of cases of blindness from ophthalmia neonatorum; still, this alone will not entirely prevent it. Special prophylactic local measures are required to disinfect the eyes in which infective material may have found lodgment. These measures should be resorted to whenever it has been found by microscopic investigation, or whenever there is much reason to suspect that the vagina harbors the gonococcus. The oldest, best-established procedure is the so-called Credé method. This is to let a single drop, or two, of a 2 per cent. solution of silver nitrate fall from a glass rod on the cornea, while the lids are held well apart, and to let this solution run thence into all parts of the conjunctival sac without any additional manipulation of the lids. Rubbing of the lids at the time probably increases the resulting irritation without adding to the efficiency of the method. Great care should be exercised not to injure the cornea.

The efficiency of the Credé method is indicated by the statistics of Leopold,[5] who reports 2,146 deliveries, with but 3 cases of purulent conjunctivitis, although by microscopic evidence 98 and by clinical evidence 200 of the women had gonorrhea. The disadvantages of the Credé method are that it causes irritation and even a sharp attack of inflammation in some eyes that would otherwise escape any inflammatory symptoms; in very rare cases it is followed by conjunctival hemorrhages which have even been fatal. It is probable that such hemorrhage only occurs in peculiarly predisposed individuals, but there seems to be nothing by which such a predisposition can be previously recognized.

On account of these disadvantages it would be an important gain if one of the less irritant silver salts could be substituted for the nitrate. The prospect of being able to do this is very promising. Numerous observers have experimented with these organic silver salts, and their reported experience seems almost uniformly favorable. Such trials should be continued, and the results observed and carefully reported; but until we have had more experience with these salts they can not be regarded with the same confidence as the 2 per cent. solution of silver nitrate.

Even when, because of the neglect or inefficiency of prophylactic measures, purulent conjunctivitis occurs, careful treatment commenced before the cornea has become visibly involved will almost invariably prevent blindness. Not invariably, for a few cases have been reported, as those by Randall,[6] Würdemann[7] and Hubbell,[8] which went on to blindness in spite of the most careful and efficient treatment. In these cases, however, some constitutional factor entered and made the corneal disease progressive in spite of the cure of the conjunctivitis. In nearly all cases early, efficient treatment will save good vision. On this account the laity and the medical profession should be thoroughly educated on the subject; and the laws adopted in some states providing for compulsory notification in all cases of inflammation about the eyes in infants are to be commended.

The treatment required to prevent blindness is the frequent cleansing of the eye without injury to the cornea. The washing away of the discharge may be required every hour, or even more frequently; any sterile, non-irritant solution, such as boric acid, physiologic salt solution, weak potassium permanganate or organic silver salt solutions, may be employed.

Especial care may be required to keep clean the corneal margin where the fold of swollen conjunctiva overhangs it. This is the point at which corneal infection is most likely to occur. Cleansing must be accomplished wholly by currents of fluid, not by coarser mechanical means, and it may be supplemented by applications to the everted lids of stronger solutions of silver salts, such as silver nitrate, 4 or 5 per cent., applied not more frequently than once a day, and often at longer intervals. Protargol or argyrol, from 20 to 30 per cent., may be applied from two to six times a day; but faith must not be placed in these applications to the neglect of the frequent thorough cleansing.

For purulent conjunctivitis in the adult the most important prophylactic measure is education. More careful treatment of the disease when it has arisen may somewhat diminish the cases of blindness caused by it, but only a more general appreciation of the real dangers of gonorrhea can greatly influence the number of eyes lost by this disease. It should not be forgotten that besides wives and children, others may suffer from the disease innocently acquired. I have seen two nurses entirely blind in both eyes from this cause.

4. Trans. Amer. Ophth. Soc., 1898.
5. Berliner klin. Woch., Aug. 18, 1902.
6. Trans. Section on Ophth., A. M. A., 1903, p. 303.
7. Annals of Ophth., January, 1896.
8. Trans. Amer. Ophth. Soc., 1903.

As to legislation to prevent blindness from purulent conjunctivitis, two points seem worthy of attention:

First. Social conditions that favor or oppose the spread of gonorrhea are more important than any measures aimed directly at purulent conjunctivitis.

Second. Gonorrhea is a malignant contagious disease, and should be publicly recognized and dealt with as such in all its clinical manifestations.

BIRTHRATE AND DECREASE IN POPULATION AS AFFECTED BY SYPHILIS AND GONORRHEA.*

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In discussing the relation of venereal diseases to the state, there is but little to be said regarding the menace these diseases constitute to the social and financial stability of the state, or regarding their effect on the future of the race, that has not already been said. The medical profession, the most familiar with this scourge which threatens all our avenues of prosperity, has yet to be aroused to the importance which the subject demands.

We are accustomed, and rightly, to point to the great progress which with giant strides has been carrying us forward in seeking out and in preventing many of the pestilential diseases that annually decimated our population; with a justifiable pride we have asked the world to see the suffering assuaged and the lives preserved by modern methods of surgery. The laity has joined us in smiting the great white plague until we have reduced the mortality nearly one-half in the last two decades. Yet this pestilence—a greater menace to the human family, treading with stealthy step at midnight, and with prurient mean seeking to cover with the habiliment of modesty its hideous crimes of destruction of social order, and of the life of all classes of citizens, born and unborn—cries out with holy horror that the mysteries which have for ages stood in the shadow of this chaste and virtuous goddess of modesty, shall never be exposed to the light of scientific truth.

Because of the indifferent attitude of a profession, whose attention is absorbed by so many avenues of investigation, by which it is pressing forward its philanthropic missions, we are without any statistics of the actual number of cases existing at any one time, of the mortality resulting therefrom, or of the crippling of industries by the loss of time incurred by reason of the disabilities caused by these diseases, to say nothing of the social disorganization it produces.

To arouse the profession to the importance attached to this subject, and to the responsibility resting on it, as well as to devise the wisest methods of treating the subject in all its relations to the individual, the profession, the public and the state, it was recommended last year that a national meeting (call it a congress or what you please) be held, in which an effort should be made to solve the whole matter. It must be plain that a section meeting of this Association, even if the section had no other subject before it, has not the time to do this work; some of the section members have other interests in the Association to serve, subjects to discuss in other sections; hence it is impossible that they should give the time to the consideration of a subject involving such various propositions, ethical, social, professional, financial, philanthropic and legal.

To fix the attention on this subject and to secure the consideration of the individual members of the profession, we believe that a personal appeal should be made. It is probable that this could best be done through the various state boards of health. A circular letter with a leaflet for the physician to hand to his patient, with brief instructions and precautions to be observed to avoid communicating disease to others, might prove an educational force sufficient to set in motion a revolution in the profession regarding this question that would do much good. Accompanying this letter might be a few questions, the answers to be sent to their respective boards, by means of which the number of cases and other facts could be secured, which would be of great value in further attempts to stay the ravages of this plague. These questions should avoid anything that would possibly lead to the identification of the patient or which would in any way compromise the physician's relation to his patient.

The menace of these diseases to the public health and to the welfare of the nation has received the attention of the State and Provincial Boards of North America. At their annual meeting in 1903 the subject was presented setting forth the extent of the prevalence of these diseases and of the resulting destruction to health, life, social order and ultimately the stability of their respective governments. After an appreciative discussion, the following resolution presented by Dr. C. O. Probst was adopted:

Be It Resolved, That a committee of three be appointed by the president to prepare a leaflet that would be acceptable to physicians to give to their patients, setting forth the precautions to be taken by one suffering from a venereal disease to prevent its communication to others, and to make such other suggestions as it may deem proper, such instructions when adopted by this conference to be recommended to state and provincial boards of health for dissemination among the medical profession, and said committee shall report at the next meeting.

The president appointed as such committee Drs. Henry D. Holton, E. W. Cooper and Charles O. Probst. This committee reported at the meeting held in Washington, D. C. They recommended that the following letter be sent to every physician in the respective states, territories and provinces represented in the conference:

Dear Doctor:—The enclosed leaflet is issued in the interest of the prevention of venereal diseases. It is for you to give to each patient who consults you suffering from either gonorrhea or syphilis. It has been prepared so as to be concise and is in language to be understood by every one. This, we hope, will cause it to be read by those to whom it is handed. It will introduce the subject of prevention, thus enabling you to give your patient further information of the extent of this scourge.

It is estimated that 80 per cent. of all deaths from pelvic diseases in women are due to gonorrhea. Twenty per cent. of all blindness is due to gonorrheal infection of the newborn. Fifty per cent. of all involuntarily childless marriages are caused by gonorrhea of the female organs of generation. of which 45 per cent. are due to marital infection by men. In this country it is impossible to quote statistics, as they never have been gathered. The committee of fifteen estimated that there were annually 200,000 cases in New York city alone. In Prussia, where they have more reliable data, it has been stated that typhoid fever represents a yearly loss of 8,000,000 marks ($1,920,000), while the increased expenses and decreased income caused by venereal diseases amounts to 90,000,000 marks ($21,600,000) annually—an amount which ex-

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

ceeds that caused by tuberculosis. But the financial loss is of minor importance compared with the enormous social changes and consequent social misery.

In view of these startling facts, which indicate the increasing danger to our people, will you not, my dear doctor, aid your state board of health in gaining reliable statistics relative to these diseases by returning to the secretary each year the enclosed blank with every question answered?

Cases of gonorrhea observed during the year 190..: Male ..... Female ..... Married ..... Single..... Number having children ..... Number without children .....

Cases of syphilis ..... Male ..... Female ..... Married ..... Single ..... Number having children..... Number without children..... Duration of disease.....

CIRCULAR OF INFORMATION ADOPTED BY THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA.

(Issued by the State Board of Health of.....)

This is handed you by reason of the exceedingly disastrous results that follow these diseases, so destructive to the health of our population that sanitarians in all countries have become seriously alarmed. A large percentage of the cases of blindness, as well as of inability to perform any of the duties of life, and death at an early date are results of these diseases.

Syphilis (or pox) is especially a disease from which innocent persons may suffer, as it usually produces sores in the mouth or on the lips, hence may be conveyed by kissing, by drinking from the same cup, or by using anything which has been put to the lips or into the mouth of one affected by the disease.

These diseases are often communicated when the patient thinks he has recovered. Hence marriages contracted at this time of the disease result in much unhappiness, and often in the death of the wife. To protect yourself and others, we earnestly advise the following:

IN THE INTEREST OF PREVENTION OF YOUR DISEASE.

What to do and what not to do, to get well and to prevent giving your disease to any other person.

Follow strictly the advice of your physician; use no other treatment.

Remember that it takes a long time to entirely recover.

Wash your hands with soap and hot water whenever you have had occasion to in any way handle the private parts.

Do not have intercourse and avoid all sexual excitement until your physician says you are completely cured.

Do not allow any person to use any cup, glass, spoon, fork or anything that you have put in your mouth.

Do not kiss any one and do not wipe the face of a child with the handkerchief you have used. Always use a separate towel.

This report was adopted and the committee directed to send to each board of health of the respective governments represented a copy of the same for the use of physicians in their jurisdictions. This committee will be pleased to receive helpful suggestions from the members of these joint sections. If after your consideration of this action you should wish to give this movement your endorsement, it would not only be appreciated by the conference, but would be a very substantial aid in prosecuting these efforts to gather information as the basis for further efforts to ameliorate and suppress these pestilential destroyers of our people.

Arrests and Excesses in Development.—Dr. Eugene S. Talbot, in the *Dental Digest*, says that through phases of the evolution of man affected by an unstable nervous system, either in parent or child or both, arrests and excesses in development (degeneracies) may occur in the face, eyes, nose, jaws, alveolar processes and teeth, and form the foundation of all pathology of these structures.

SUGGESTIONS CONCERNING THE ADMINISTRATIVE CONTROL OF VENEREAL DISEASES.*

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The absence of reliable statistics in venereal diseases is very much to be deplored, for, if we wish to approach the subject intelligently, we should know something more definite as to their prevalence. Venereal diseases should, therefore, be made reportable, without, however, giving names and addresses, and solely for statistical purposes, which will serve a useful purpose for the education of the general public.

An approximate idea of the prevalence of these diseases may be obtained by a study of army statistics. Dr. Munson[1] gives the latest admission rate per 1,000 strength as follows:

Germany	27.9	Austria-Hungary	61.0
Russia	36.0	United States	73.7
Japan	36.0	Great Britain (home statistics)	173.8
France	40.9	Great Britain (Indian statistics)	522.3
Holland	48.1		

MEAN ANNUAL ADMISSION RATE PER 1,000 STRENGTH FOR THE THREE YEARS 1890-1892 (MUNSON).

	Germany.	France.	Russia.	Italy.	United States.	Dutch Troops.		British Troops.	
						Home Station.	East Indies.	Home Station.	In India.
Primary and secondary syphilis.	5.5	9.	13.1	13.9	16.83	14.8	47.0	101.7	175.4
All other venereal diseases.	21.8	34.9	29.9	57.4	57.96	55.	408.6	101.9	262.6

It is a lamentable fact that the very countries in which the sentiment both in and out of the profession is strongly against recognizing the evil furnish the highest army rates, while in armies where some special regulations are in force preventing the spread of venereal diseases, such as weekly inspections of the men and periodical examination of the women engaged in prostitution, with compulsory isolation if such are found diseased, the rates are lowest.

The comparative amount of army and civil venereal diseases is not known, because we have no accurate statistics of the civil amount. According to Fournier, one-seventh of the population of Paris is syphilitic, and the mortality among infants born of syphilitic parents in many hospitals of that city reaches from 84 to 86 per cent. According to Dr. Weiss, there are 150,000 syphilitics in Berlin, or 12 per cent. of the inhabitants. In the city of New York the number is estimated to reach over 225,000, or 15 per cent. In Copenhagen one of every 55 young men of the age between 20 and 30 has syphilis and one in 8 has gonorrhea. Parkes of England says: "It is a question whether a large number of the young men of the upper and middle classes do not suffer in youth from some form of venereal disease. In the lower classes it is perhaps equally common."

Neisser holds that gonorrhea, with the exception of perhaps measles, is the most widespread of all diseases.

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Military Hygiene, p. 823.

Other German authorities have computed that fully three-quarters of the adult male population and one-sixth or more of the adult females have contracted gonorrhea; that 80 per cent. of all deaths from diseases of the uterus and its appendages are of gonorrheal origin, while ophthalmia neonatorum contributes a contingent to our asylums for the blind estimated at from 10 to 20 per cent.—from 40 to 60 per cent. before the Credé method was instituted.

Dr. S. M. Burnett of Georgetown University believes that 15,000 of the 50,000 blind persons in the United States lost their sight from this cause, involving a financial loss to the commonwealth of seven and one-half millions annually.

The destructive effects of gonorrhea on the procreative functions have been very properly emphasized in connection with the "race suicide problem" and are certainly startling when we are told that 50 per cent. of all involuntary childless marriages are due to this cause.

The measures which have been proposed for the prevention of these diseases which affect not only the offender, but innocent wives, the offsprings and not infrequently even the medical attendant, are numerous enough, but not so easy of practical application. On the whole I believe that the remedy lies in public education, and the task, as usual, falls on the medical profession, especially the trusted family physician. The great majority of people have no knowledge of the subject simply because it is not one which lends itself to general discussion, but there is no reason why the question should not be approached from the standpoint of sexual hygiene, pure and simple. Public lecturers on the purity of man commit a serious mistake, however, when they picture the consequences of the social evil, without offering a suitable remedy.

We should make a strong plea in favor of continence and tell our young men that, while the sexual passion is very strong, it can be accelerated or delayed, excited or lowered by the influence of the will. We should assure them that sexual indulgence is not a physiologic necessity, and that nature will relieve herself by an occasional nocturnal emission; that by the cultivation of pure thought, removal of temptation, normal and mental, and especially by vigorous physical exercise, continence may not only become possible, but easy. We can hardly go astray if we follow Dr. Parkes in advising a pure young man to make his home after the age of 22 or 23 and thus secure himself both from the temptation and expenses of bachelorhood. Dr. Howard A. Kelly believes that the Christian standard is the solution of the whole problem of chastity. I quite agree with him, provided the church makes an endeavor to combine religious and social work; such an effort has recently been made in the establishment of the Everett Clark Club House, the gift of Mrs. Potter, wife of the Bishop of New York, and of her son, Lieut. Clark, U. S. A., to the members of Grace Episcopal Church, Elizabeth, N. J. The special interest of this gift lies in the fact "that it is a signal example of intelligent contribution to the needs" of the whole man, religious, physical, social and esthetic. Under one roof there are a chapel, kitchen, restaurant, dining, reading, card, committee, smoking, shuffleboard and billiard rooms, swimming tank and other baths, gymnasium, running track and bowling alleys.

With such opportunities we can, indeed, hope for a higher cultivation and moral training of the male youth in all its grades, but until these measures are attained we should not hide the evil, because "it is not a pleasant subject to talk about."

The question naturally arises, "What can and should the state do to prevent the moral, social and physical ravages of these diseases?" The sanitarian suggests that a person afflicted with a venereal disease is quite as much a menace to the public health as would be a case of smallpox or any other communicable disease, and points with emphasis to what has been accomplished in Europe in the way of official control of prostitution, as a lesser evil, by registration of brothels and their inmates, periodical inspections and the detection and cure of diseased men and women.

He will tell us, and statistics will support him, that the prevalence of venereal diseases is least where sanitary measures are most rigorously enforced.

The medical profession is by no means agreed as to the propriety of this method, mainly because such a system seems too much like a recognition of the inevitableness of the social evil and is practically an official sanction of it; others, moreover, with good reason, assert that licensing and sanitary inspection tend to produce clandestine prostitution, which has heretofore furnished the largest number of syphilitic cases. On the whole, we may conclude that health officers in this country are not prepared to advocate the Paris plan of inspection and license.

There are, however, a few things which the state should insist on:

1. The enforcement of laws or police regulations relating to houses of ill fame, soliciting in streets and enticing females under a fixed age. There is certainly no good reason why the terrible temptations which greet our young men and women on every street and in many public places should not be removed. There are times when the strictest virtue may well dread such an appeal to their passions, and, as Parke expresses it, "human nature is but too weak and needs every safeguard it can get." A well-trained police force will have no difficulty in recognizing and banishing the solicitors, both males and females, from the streets.

2. Health boards can also recommend the enactment of laws for the prevention of syphilis, acquired in an extragenital way, by regulating the profession of barbers, chiropodists and manicurists, and requiring a special examination of wet nurses, cigarmakers and glass-blowers. Apart from the real dangers from these sources the educational effect of such ordinances will be beneficial.

3. Health boards should also exert their influence toward securing adequate facilities for the treatment of indigent patients.

In northern Europe, where venereal diseases are reportable and treatment is within the reach of all classes. these diseases, according to Weiss, have greatly diminished, but here, as Bulkley puts it, "ignored through ignorance, neglected through negligence of our duty, so ostracized and outclassed, venereal diseases, through false shame, concealment, prejudice, carry on their slaughter, unhampered, unchecked and undisturbed. devastating coming generations and ruining the present one."

4. Health boards may co-operate with the profession and with the dispensaries by printing for distribution leaflets, stating the nature of the diseases, the manner in which they are contracted and the ways in which they can be transmitted to other persons, and by the encouragement of a general educational campaign in which

sexual purity, respect for women and the possibility of physiologic continence should be inculcated. The evil and far-reaching consequences of impure and unlawful gratification should be clearly pointed out; but the profession should abstain from a discussion of the individual means sometimes employed in the prevention of these diseases, as none is reliable and all are immoral.

DISCUSSION

ON THE SYMPOSIUM ON VENEREAL DISEASES.*

DR. SENECA EGBERT, Philadelphia, said that he thinks that the state and provincial boards of health and the American Medical Association ought to fight this great evil by beginning and carrying on a work of education; and he believes that one way in which this can be accomplished is by the preparation of some literature for the use of the physician, who is the man who comes most closely in contact both with the individual who sins and with the innocent one who suffers—as a measure of informing and educating his patients. It will be necessary for physicians to use discretion in giving out this literature, and Dr. Egbert believes that before this literature is put in the hands of the laity it ought to bear the stamp of approval and authorization of the entire American Medical Association. While there are admirable works on this subject, there has always been in the past a certain amount of hesitancy about endorsing for the laity the book of a man who writes on sexual matters. If some literature could be prepared by the committee which Dr. Holton represents, it could be presented to the people, not as coming from any particular author, but as coming from, and endorsed by, the American Medical Association. The influence of such a work would be very great, and the Association would accomplish a great work. Dr. Egbert believes that the people of this country must be made to realize the need of teaching modern hygiene in the schools. This should include hygiene in relation to personal, household and municipal matters, such as the purification of water supplies, the means of disseminating infectious diseases, the necessity for and principles of ventilation, the disposal of waste matters, influence of occupation, and habits, etc. Until the public realizes that this is the kind of teaching needed, physicians are not apt to do much in the direction of public instruction on the subjects that are now under discussion.

DR. D. C. BROCKMAN, Ottumwa, Iowa, said that instead of putting literature in the hands of young people, facts should be put into the heads of the children. We must not wait till the young man goes to college for this information. High school boys often acquire syphilis and gonorrhea before they start to college. A beginning must be made in the home and in the grammar school. The girls and boys must be taught the elements of sanitary science, the cause of contagious diseases, how typhoid fever, diphtheria, scarlet fever and consumption are propagated and how prevented. The way to prevent disease is to teach the people the primary cause of it, and how to avoid contact with the causative agents. In the public schools the children should be taught more of the practical things that will be of use later in life and less of the useless things which they forget as soon as they get out of school. The older children should have instruction in sexual sanitation. The boys should be taught that gonorrhea is one of the most prevalent and dangerous diseases extant, that syphilis is everywhere and that its baneful influence extends to the next generation. The girls must be taught self-preservation from diseased husbands. They must be made to understand that a man of loose morals in all probability has diseases that will curse his wife and be entailed on his children, and that such a man is not safe for any woman to marry. Parents must be taught to look after and to protect their daughters from men of easy virtue, men who may not be intentional criminals but who have contracted venereal diseases before they knew the danger of them, and who are ignorant of the fact that they will communicate them to their wives and children. Parents should know that the majority of the young men in our cities are already contaminated by these diseases, and that more disease, suffering and death result to innocent wives and children therefrom than from all other contagious diseases combined except consumption. These facts must be imparted to both young and old until the entire people have a wholesome fear of venereal diseases. Lectures should be delivered to working girls and boys that will warn them of these dangers, and physicians must be the missionaries to spread this gospel of virtue, purity and health.

DR. PETERKIN, Seattle, Wash., declared that as man must make his own morality, prophylaxis must be along educational lines, and men must be taught that immorality is an endeavor on their part to obtain all the pleasure from a law of nature without paying the cost, and that it can only result in disaster to themselves. A man must be taught that if he does not contract venereal disease, he contracts habits that diminish the pleasure of sexual intercourse under normal conditions, and that cause him, if he marries, to make his wife disgusted or indifferent to an act that by mutual endearment rivets the ties of marriage. Young men should be told that continency is not detrimental to health. Physicians should be supplied with literature dealing with prophylaxis, mental and physical, to be distributed at their discretion to patients. The committee of the Washington State Medical Society is doing this, and expects good to follow.

DR. R. W. CORWIN, Pueblo, Colo., declared that the people should be educated regarding the effects of venereal diseases on the race; but the question is, how are they to be enlightened? When asked to speak on this subject to students of one of the eastern universities, his first embarrassment was the language to be used to students outside of medical schools that they might understand, yet not consider him common or vulgar; next, to interest and not to amuse them. Physicians are agreed that the facts presented in this Section should be known to the young; but who shall teach them? If the physician attempts it he will be accused by the profession of advertising, and by the parents of interfering with that which many claim more properly belongs within the province of the duties of the father and mother. If parents only understood the importance of the subject the way would be clear, but as a rule they are indifferent through ignorance and false modesty. Occasionally a parent is found like Mrs. George Gould, who teaches her boys to take an interest in athletics, and that one can not excel in them and dissipate. The boy often can be reached in this way; the girl may be reached through fear; but all boys will not try to be athletes, and most women contract these diseases innocently. The effects of venereal diseases should be taught in the public schools. These diseases do more injury to the human race than alcohol or tobacco, hence the greater need of their being understood.

DR. A. E. CARRIER, Detroit, Mich., stated that while talking about issuing pamphlets nothing has been said about the home. It is the parent's duty to instruct their children. Dr. Carrier asked how many physicians instruct their sons and daughters regarding the dangers of venereal diseases. We must take into consideration the masses who are not educated. The inhabitants of the slums are the ones who spread these diseases. When a pamphlet is handed to a merchant, well and good, he may read it, but it is the people in the slums who must be educated regarding the danger of contracting and spreading venereal diseases. In some states the question of a physical examination before marriage is being agitated, and this Dr. Carrier thinks is a good thing. He thinks that every man and every woman before contracting that obligation should present a clean certificate of health.

DR. A. ROBIN, Wilmington, Del., said that he does not think that in this very grave and difficult problem any one method, such as education, will bring about the desired results; for instance, medical students are educated on the subject of venereal diseases, and yet venereal diseases among them are by no means infrequent; this is equally true of unmarried

* This symposium is continued from THE JOURNAL, March 4. A further part of this symposium is the report of the Committee on Prophylaxis of Venereal Diseases, published in THE JOURNAL, June 18, 1904, page 1641.

physicians. Education alone will not bring about the contemplated result, for the simple reason that a man about to visit a place where gonorrhea is liable to be contracted is not bothering his mind about logic or pamphlets, but in most cases is under the influence of liquor, and does not remember any injunction he has read. For two years Dr. Robin has lectured to students of the state college on hygienic subjects, and also on venereal diseases. He found that the best results could be achieved through the personal relationship between the students and himself. He put himself in a position that caused him to be looked on by the students as their friend and adviser. One boy came to him and told him that he had contracted gonorrhea. Dr. Robin offered to examine the secretions for him, as often as necessary, explaining the seriousness of the disease, and volunteered such information as would be of benefit to him. He also pointed out the necessity of abstaining from intercourse or excitement. The result was very much better so far as that boy was concerned than if he had given him a single lecture and allowed him to go. Eight months after the attack he asked Dr. Robin if he would allow him to drink gin, he not having tasted liquor for the entire period, although greatly tempted. He was under treatment by another physician, and Dr. Robin referred him to his family physician. What is needed in the colleges is some physician to come in contact with the boys in the capacity of teacher or adviser, but not for the purpose of treatment. There should be someone to whom the boys can go and ask advice about themselves. Dr. Robin considers that education should be personal rather than through literature. Physicians know just about what effect literature has, at least those who have published bulletins for distribution among other physicians. Many people are in the habit of reading nothing unless it is spicy or sporty. In this connection there ought to be also some form of legislative enactment. While reglementation is decried by a great many people, yet it appears that when properly carried out it may be valuable. The control, however, should be placed in the hands of sanitary and not police officers. There should be plenty of dispensaries which would enable the poor young man to get away from the quack and the dispensing druggist, and these dispensaries should be under the control or supervision of the boards of health. An effort should be made to work on all sides rather than to confine the work to circulars alone.

DR. HENRY B. BAKER, Lansing, Mich., stated that in Michigan a law has been in force about nine years, which requires that there shall be taught every year, in every public school of the state, the means by which dangerous communicable diseases are spread, and the best measures for their restriction. There is no text-book on that subject, and if there were, it would probably be out of date in a year; therefore, the law of Michigan requires that the State Board of Health every year shall supply the data and statements which will enable the teachers to comply with the law. There are about twenty thousand teachers in the state, and this has been done for nine years. The diseases which have been dealt with in that manner are consumption, diphtheria, scarlet fever, typhoid fever, and so on, and the relative importance of these diseases has been set forth in leaflets supplied to the teachers. Syphilis and gonorrhea are not included in the instructions, notwithstanding the law as it stands would necessarily include them. A year or two ago the State Board of Health appointed Dr. Baker a committee to work out some plan whereby these diseases could be successfully dealt with. In each state the state board of health should be an educational force along this line. In Michigan, this law, for nine years, has worked wonderfully well in regard to the other diseases. Under that law there is supplementary action by the State Board of Health, which would be especially valuable for education along these lines.

DR. FRANK W. GOODELL, Effingham, Ill., said that education may be good or bad. A man may receive a moral education, and if he wants to become a first-class safe blower he receives an education in that line also. It is a question which has two sides of nearly equal strength and weight, as to whether or not men and women should be taught how to prevent the injurious effects of what would otherwise be injurious copulation. If women are taught how to prevent venereal disease, and then taught how to prevent conception, prostitution will increase to an alarming extent. About the only way to prevent the contraction of these diseases is by impressing on the people the fact that a dangerous disease is apt to follow the committing of the indiscretion. Fear seems to be stronger than anything else to prevent crime. There is no one means which will alone prevent the contracting of these diseases, but the enemy should be attacked from every point. Another thing which has not been referred to is that of honor among men as well as honor among women. Nothing has been said about the seduction of men. Men are not prostitutes. So long as women continue to be more than ordinarily attractive to men just so long men will keep up the pursuit. Morality ought to be talked equally to both. In talking with a man who had been much among Indian women Dr. Goodell asked him in regard to the virtue of Indian women as compared with the virtue of our women, and he said it was astonishing, but true, that virtue among Indian women at the time he knew them was equal to virtue among American women. Dr. Goodell said that he knows of no particular means which he could recommend, but thinks that all means should be employed to eradicate the social evil.

DR. THOMAS GRANT YOUMANS, Columbus, Ohio, stated that one of the most important present-day problems is the protection of the innocent from the latent gonococcus. Most men who have been once infected, and who contemplate matrimony, seek medical advice to determine whether or not they are free from infection. Many times this advice is worthless. Therefore, one of the most important things is to show the people, and especially the men who have charge of the medical laws, that the druggist is not a competent man to treat gonorrhea; for many of these cases are treated originally by the druggist. In the second place, the general practitioner should be impressed with the seriousness of the disease. He should be shown that it requires men of special training and equipment properly to treat gonorrhea.

DR. J. A. WORK, Elkhart, Ind., declared that early training in the schools is a grand work. Solomon, although unwise in some things, yet gave the best advice in regard to the training of children. His advice was to "train up a child in the way he should go, and when he is old he will not depart from it." John G. Holland teaches that a young man should keep himself pure, and Dr. Work believes that personal purity should be taught to the infant. He has seen children that were scarcely out of their short dresses who had impure thoughts.

DR. L. DUNCAN BULKLEY, New York City, said that education is well enough, but until these venereal diseases are put on the list of diseases to be cared for by the boards of health, physicians will never accomplish their purpose.

A STUDY OF METABOLISM IN A CASE CONJOINING MYXEDEMA AND DIABETES MELLITUS.*

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The metabolic changes in the adult have at sundry times and by many careful investigators received due attention, but it is very infrequent to see them investigated in childhood, whether in health or disease; and meeting a case where this research could be carried out and where the bodily health was away from the normal, I have herein set myself the task of studying the metabolism in a child suffering not only with an aggravated form of diabetes mellitus, but where such metabolism was further modified by the fact that he was a congenital cretin.

In the light of recent assertions as to the genesis

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of diabetes mellitus and the interrelation of it and other dyscrasiæ of similarly hitherto unknown etiology, the case assumes still further interest if we debate the question of the interrelation of the two dyscrasiæ found here. How far was the improvement in the child's mental status due to the small quantity of thyroid extract exhibited and the short time it was employed? How far was it influenced by the secondary disease, the diabetes mellitus? Was the chronic character of the disease at all influenced by the thyroid condition?

Of course these are purely speculative fields, but viewed from the standpoint of our present lack of positive knowledge, this contribution may give an impetus to further study along these lines to pediatrists, though I am well aware that two such formidable nutritive dyscrasiæ are very rarely found in conjunction in the one subject, and I consider my opportunity to study the case one of good fortune.

It may be best at this point to enter into the history of the case, to serve as a basis for the future deductions my experiments along the lines of metabolism have allowed me.

CASE 1.—On July 7, 1902, A. R. was brought to my office for diagnosis and treatment, if possible. From his mother I elicited the following history:

Family History.—In paternal line, father is of nervous temperament, but not pathologically. Grandparents normal. One aunt was very nervous and procreated an imbecile. In maternal line, no abnormality of any sort and grandmother still living. On both sides no history of venereal or neurotic affections with the single exception above.

Personal History.—The patient is the last of four healthy and normally procreated children. The mother lays stress on the fact of having suffered great anxiety because of financial reverses at the time of his gestation, but beyond that is at a loss to account for the child's condition. Symptoms of cretinism were visible since birth, but the diagnosis was not made, although the attending physicians seemed to feel that something was not in order. The child was breastfed and the characteristics of his disease, as is usual, did not develop until after he was weaned. He did not attempt to walk until after he was three years old. He suffered with frequent gastric and cardiac crises. After weaning, he became abnormally fat, developed a blank, mask-like face, with stubby nose and thick lips, and old photographs show the typical features of an early case of infantile myxedema. A year ago he was taken to the Postgraduate Hospital, sent there by his physician, where at last the diagnosis was made and suitable treatment by means of thyroid extract instituted.

Present Status.—Child is at present eight years old. He is heavy for his age, has a dull, uninterested face, mask-like, with depressed nose, open mouth, fat, everted lips, prognathic, thick, protruding tongue, lolling speech if a rare word escapes him, slow but not entirely absent mentality. Absolutely no thyroid gland tissue is palpable. Lumps of tissue over the clavicular spaces were present. The abdomen was large and the umbilicus protruded. The epiphyses were enlarged at the knees, ankles, elbows, and wrists. The muscular system was flabby and without tonicity. The skin was dry, scaly and boggy; no perspiration had ever been noticed. The hair was sparse, wiry and lusterless.

Treatment.—As the child at this visit had had no thyroid extract for over four weeks and had previously improved under its use, to judge from the mother's statement, its administration was resumed and in addition to aid his digestion and prevent the ever recurring gastric crises, a pepsin mixture was prescribed.

Keeping him under observation there was a distinct improvement, not only in the loss of the redundant tissue, but in increased intelligence. Although very weak at times, he was much brighter and slightly more active. He had begun to combine a few words into phrases.

Occurrence of Diabetes.—With occasional short intermissions, the thyroid feeding was maintained until in September, 1902, his mother brought him to the office with the history of a new condition which had supervened in the last two weeks. After or perhaps because of over eating of grapes and ripe fruits of other sorts, the child had developed a glycosuria, which the attendant train of symptoms stamped as a diabetes. He had a constant violent thirst, was ravenously hungry and almost constantly micturating.

Urine.—Analysis of the urine showed 10 per cent. of sugar, and some days later even 12 to 15 per cent., passing four liters in twenty-four hours.

Treatment.—He was immediately placed on strict diabetic diet; Vichy given to allay the thirst and alkalinize the urine, codein sulphate 0.006 gm. was given four times a day. For the obstinate constipation the fluid extract of cascara was used.

Knowing that occasionally thyroid feeding produced a temporary glycosuria, the tablets were stopped entirely to eliminate them as factors.

Two weeks of this treatment availed little, except that it caused less frequent micturition and less craving for food. The drowsy condition superinduced by the codein was objectionable, however, and the fact that the child was rapidly failing from the withdrawal of the carbohydrates and fats, caused the resumption of a less restricted diet. For a month I did not see the child again, and when he was brought it was found that although analysis showed only 8 per cent. of sugar by trituration and by Robert's fermentation tests, still the myxedematous condition was coming back. The child's intelligence was even less acute than before, mentality was painfully slow, his tongue was protruding worse than ever and the abdomen at umbilicus was larger than at any time I had ever seen him.

As evidently the exhibition or withholding of thyroid extract had made so very little difference on the course of the diabetes, I determined to resume the use of the tablets to at least keep up the good they had before accomplished. The parents stopped them, however, of their own accord, as the child was failing rapidly; and he never received any further thyroid extract in any form since that time. However, later developments showed that this was not essential in his case, as evidently the diabetes itself to a certain extent influenced the cretin condition, as witness the facts that at the time of making these experiments, although the child was very ill with the diabetes, his mental condition, though of course far in arrear of a nine year old boy's, was steadily improving; he was interested in his surroundings, combined words and phrases into sentences logically constructed, had the reasoning powers of a child of about five years of age, was crafty in attaining his objects, quicker in his movements, and, all in all, was making progress.

At the same time, however, the diabetes was far from showing a similar improvement; it was rather at a standstill; and although the child had grown taller, he was thinner also. That the condition was constant, frequent urine examinations have proven, for the percentage of sugar at no time fell below five. His diet was only nominally restricted. At rare intervals a very minute quantity of sugar would slip into the diet; but it was found that otherwise the craving for sweets was not very marked, provided some starches and fats were allowed, as in bread or potatoes. As giving them did not seem to aggravate the trouble and certainly did benefit the patient, they were carefully given, most of the food of course being still proteid in character. This is the reason for the apparent paradox in the diet lists in the body of the paper as viewed from the standpoint of severe diabetes mellitus. To investigate this seeming incongruity, the following experiments in metabolism, imperfect as they are, were undertaken.

They were imperfect because it was impossible without a specially constructed laboratory to determine the respiratory

TABLE 1.

Date	Food	Total Quantity	Water	Protein	Fat	Total Carbohydrate	Ash	Calories per lb.	Calories in Food
Nov. 4	Bread (gm. or cc.)	326.0	126.06	30.42	3.91	169.75	3.91		865.19
	Bread (per cent.)		35.6	9.3	1.2	52.7	1.2	1,205	
	Milk (gm. or cc.)	236.0	205.35	7.79	9.44	11.08	1.65		162.5
	Milk (per cent.)		87.	3.3	4.	5.	0.7	325	
	Egg (gm. or cc.)	56.07	36.45	6.21	8.24	.....	0.56		95.63
	Egg (per cent.)		65.	11.7	14.7		1.	765	
	Butter (gm. or cc.)	42.53	4.68	0.43	36.15	.....	1.28		337.96
	Butter (per cent.)		11.	1.	85.		3.	3,605	
	Oatmeal (gm. or cc.)	141.75	119.78	3.97	0.71	15.66	0.99		89.06
	Oatmeal (per cent.)		84.5	2.8	0.5	11.05	0.7	285	
	Banana (gm. or cc.)	85.05	64.03	1.10	0.51	18.71	0.68		86.25
	Banana (per cent.)		75.3	1.3	0.6	22.	0.8	460	
	Beef, chopped, (gm. or cc.)	226.08	153.77	47.4	24.04	.....	2.49		417.5
	Beef, chopped (per cent.)		67.8	20.9	10.6		1.1	835	
	Potatoes, boiled, (gm. or cc.)	226.8	161.23	5.67	0.23	47.4	2.27		220.0
	Potatoes, boiled, (per cent.)		75.5	2.5	0.1	20.9	1.	440	
	Corn, canned, (gm. or cc.)	3.54	2.69	0.10	0.05	0.67	0.03		14.21
	Corn, canned, (per cent.)		76.1	2.8	1.2	19.	0.9	455	
	Soda Crackers (gm. or cc.)	113.4	6.69	11.11	10.32	82.90	2.38		481.25
	Soda Crackers (per cent.)		5.9	9.8	9.1	73.1	2.1	1,925	
	Coffee (gm. or cc)	66.70	66.05	0.027					0.68
	Coffee (per cent.)			0.04					
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	1065.0							
Nov. 5	Bread (gm. or cc.)	198.45	70.45	17.45	2.38	102.62	2.38		527.19
	Chopped Beef (gm. or cc.)	113.4	76.88	23.7	12.02		1.24		208.75
	Milk (gm. or cc.)	295.7	257.25	8.76	11.83	14.79	2.07		231.25
	Butter (gm. or cc.)	56.7	6.27	0.57	47.20		1.70		450.63
	Oatmeal (gm. or cc.)	113.4	95.82	3.18	0.06	12.53	0.79		71.25
	Oatmeal Gruel (per cent.)	59.2	54.23	0.71	0.24	3.75	0.30		19.37
	OatmealGruel (per cent.)		91.6	1.2	0.4	6.3	0.5	155	
	Soda Crackers (gm. or cc.)	28.35	1.67	2.78	2.58	20.72	0.6		120.31
	Potatoes, cr'm'd, (gm. or cc.	56.7	42.58	1.17	2.70	10.09	0.85		63.13
	Potatoes, cr'm'd, (per cent)		75.1	2.06	3.	17.8	1.5	505	
	Potatoes, b'l'd, (gm. or cc.)	28.35	21.40	0.71	0.03	5.93	0.28		27.5
	Coffee (gm. or cc.)	59.20	59.15	0.023					0.68
	Tea (gm. or cc.)	59.20							
	Water (gm. or cc.)	1095.0							
Nov. 6	Bread (gm. or cc.)	170.10	59.64	15.82	2.04	88.57	2.04		451.86
	Milk (gm. or cc.)	335.27	291.68	11.06	13.41	16.26	2.35		223.41
	Egg (gm. or cc.)	85.05	55.28	9.42	12.5		8.5		145.29
	Lamb (broiled) (gm. or c.c.)	170.10	80.97	36.91	50.86		2.21		624.36
	Lamb (per cent.)		47.6	21.7	29.9		1.3	1,665	
	Potatoes (c.) (gm. or cc.)	42.53	24.04	1.10	1.28	6.87	0.64		47.34
	Oatmeal (gm. or cc.)	170.10	143.73	4.76	0.85	18.80	1.19		106.86
	Apple (stewed) (gm. or c.c.)	42.53	25.98	0.085	0.34	15.12	0.23		22.81
	Apple (stewed) (per cent.)		61.1	0.2	0.8	37.2	0.7	285	
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	89.0							
	Water (gm. or cc.)	473.0							
Nov. 7	Bread (gm. or c.c.)	198.45	70.65	17.47	2.38	103.58	2.38		517.17
	Milk (gm. or cc.)	414.0	360.18	13.66	16.56	20.70	2.90		81.24
	Beef stew (gm. or c.c.)	226.8	191.65	10.43	9.75	12.47	2.90		185.0
	Beef stew (per cent.)		84.5	4.6	4.3	5.5	1.1	370	
	Lambchop (gm. or cc.)	141.75	67.47	30.66	42.38		1.84		520.3
	Oatmeal (gm. or cc.)	170.10	143.73	4.76	0.85	18.80	1.19		106.86
	Butter (gm. or cc.)	56.70	6.24	0.57	48.2		1.70		450.62
	Coffee-cake (gm. or c.c.)	56.70	12.08	4.03	4.25	35.83	0.51		203.13
	Coffee-cake (per cent.)		21.3	7.1	7.5	63.2	0.9	1,625	
	Molasses (gm. or c.c.)	28.35	1.76	1.94	2.47	21.46	0.62		119.38
	Molasses cake (per cent.)		6.2	7.2	8.7	75.7	2.2	1,910	
	Apple (raw) (gm. or c.c.)	14.18	12.07	0.064	0.07	2.09	0.04		9.06
	Apple (raw) (per cent.)		84.6	0.4	0.5	14.2	0.3	290	
	Coffee (gm. or cc.)	118.40	118.35	0.05					1.16
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	1063.0							
Nov. 8	Bread (gm. or cc.)	141.75	50.46	13.18	1.70	74.70	1.70		376.55
	Milk (gm. or cc.)	414.0	360.18	13.66	16.56	20.70	2.90		284.35
	Roast Beef (gm. or c.c.)	170.10	81.99	37.93	48.65		2.21		607.50
	Roast Beef (per cent.)		48.2	22.3	28.6		1.3	1,620	
	Oatmeal (gm. or cc.)	170.10	143.70	4.76	0.85	18.80	1.19		106.86
	Butter (gm. or cc.)	56.70	6.24	0.57	48.20		1.70		450.62
	Potatoes (gm. or cc.)	56.70	42.81	1.42	0.06	11.85	0.57		55.0
	Cauliflower (gm. or c.c.)	113.40	104.67	2.04	0.57	5.33	0.79		35.0
	Cauliflower (per cent.)		92.3	1.8	0.5	4.7	0.7	140	
	C.-starch pud'g (gm. or c.c.)	56.70	7.94		0.06	48.71			200.0
	Corn-starch (per cent.)		14.		0.1	85.9		1,600	
	Stewed apple (gm. or cc.)	28.35	17.32	0.06	0.23	10.55	0.20		45.62
	C.-cake (gm. or cc.)	141.18	3.02	1.01	1.06	8.96	1.28		50.78
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	917.0							
Nov. 9	Bread (gm. or cc.)	113.40	40.37	10.55	1.36	59.76	1.36		301.24
	Milk (gm. or cc.)	443.55	358.89	14.64	17.74	22.18	3.10		101.55
	Egg (gm. or cc.)	42.53	27.64	4.98	6.25		0.43		72.65
	R. Beef (gm. or cc.)	86.05	41.48	19.19	24.61		1.12		303.75
	Potatoes (gm. or cc.)	86.05	64.62	2.24	2.58	15.32	1.29		94.68
	Oatmeal (gm. or cc.)	226.80	191.64	6.35	0.112	25.06	1.60		142.50
	Ch. Beef (gm. or cc.)	56.70	38.45	11.80	6.01		0.62		105.00
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	798.0							
Nov. 10	Bread (gm. or c.c.)	212.63	75.71	19.77	2.55	112.06	2.55		564.83
	Milk (gm. or c.c.)	414.0	360.18	13.66	16.56	20.70	2.90		81.24
	Egg (gm. or c.c.)	42.53	27.64	4.98	6.25		0.43		72.65
	Beef (boiled) (gm. or c.c.)	198.45	75.61	51.99	69.36		1.79		1228.19
	Beef (boiled) (per cent.)		38.1	26.2	34.9		0.9	2,805	
	Oatmeal (gm. or cc.)	113.40	95.81	3.18	0.06	12.53	0.80		71.25
	Coffee-cake (gm. or cc.)	14.18	3.02	1.01	1.06	8.96	1.28		50.78
	Stewed apple (gm. or cc.)	56.70	34.64	0.11	0.45	21.10	0.40		91.24
	Potatoes (gm. or cc.)	56.70	42.81	1.42	0.06	11.85	0.57		55.0
	Coffee (gm. or cc.)	89.0	88.95	0.04					0.97
	Water (gm. or cc.)	1123.5							

output of the subject. With this exception, however, the results are all vouched for. The mother of the patient, an unusually intelligent woman, was easily instructed and faithfully carried out the weighing and measuring of the food and drink and keeping an accurate record of the items of the diet; she collected and measured and sent for analysis the urine passed, keeping a record of the time and quantity of the micturition. A two-ounce specimen of every urination was saved in a clean bottle, labeled with time and quantity. The rest was poured into a separate vessel and a liter of this twenty-four hour mixture sent at the same time each morning for the determination of general constituents.

Examination of Excreta.—The stools were collected and weighed and then sent to the office, the particular feces being marked off by the ingestion of lamp black. It was necessary to give patient an aloin pill every night, as otherwise I would have gotten no stool for a week or more. As it was, stools were only passed four times during the week of experimentation. As said above, for the figures of the tests of urine and feces, I can vouch, many of them being repetitions.

Another possible source of error, which, however, is minimal, is the fact that because of lack of laboratory facilities I was unable at first hand to make the chemical analyses of the foodstuff ingested. As representative, however, of the food value and percentage of chemical ingredients of American foodstuffs I could not go very far wrong in making use of Professor Atwater's[1] figures, and these were used to serve as a basis for my work. The averages he gives were used as being most nearly correct for the food given the patient.

In the analysis of urine, the quantitative Fehling test was used for sugar; urea was determined by the hypobromid method; the total nitrogen by the Kjeldahl method as given by Neubauer and Vogel;[2] acetone was tested for only qualitatively by Lieben's and Legal's

1. Methods and Results of Investigations on the Chemistry and Economy of Food, Bull. 21, U. S. Dept. Agriculture.

2. Neubauer and Vogel: Analyse d. Harns.

methods; diacetic acid by Gerhardt's method; albumin, indoxyl and chlorids by the usual methods.

The tests with the feces were as follows: After weighing, they were dried with a small quantity of phosphoric acid to prevent loss of nitrogen by evaporation; of the dried feces part was used to determine the total nitrogen in a given quantity by the Kjeldahl method; fats were determined by ether extraction and carbohydrates by difference.

As is usual, the factors of Rübner[3] for caloric value (4.1 for protein (6.25xN) and carbohydrates, and 9.3 for fats) were used both in the determination of income and outgo of foodstuffs and metabolic products.

In Table 1 is recorded the daily food income of the patient, the chemical ingredients of which were based, as was stated above, on the figures taken from Professor Atwater's "Bulletin on the Chemical Composition of American Food Materials." It will be noticed that the diet is now anything but strictly antidiabetic; but I insisted on the same regimen being maintained as that on which he seemed to be doing fairly thus far.

In Table 2 I have gathered the totals of Table 1 to serve as a basis for comparison with the outgo in urine and feces in Table 4.

In Table 3 are combined the results of the urinalyses. I thought it would be of interest to see if there was any cycle in the excretion of sugar and how much such depended on the ingesta. In this, however, it failed, as although the record revealed that the bladder acted at almost regular intervals and excreted in narrow limits almost the same quantity at each micturition, yet the percentage of sugar remained fairly constant.

The twenty-four hour period went from 7 a. m. to 7 a. m. and in that period there were on an average five acts of urination. The average daily amount of sugar passed was about 150 gms. and the amount of urea varied between 4.5 to 10.0 gms. daily, which falls slightly below the normal for a child of his age and weight (14.5 kgm., 32 lbs.).

The presence of acetone varied, but was fairly constant so far as symptoms went, for on the days when it was present the child acted less well than when it was absent. Diacetic acid was never present in quantity large enough to be detected; albumin was not found at any time. In other respects the urine did not deviate from the normal.

The examination of the feces gave these results. One stool was examined and the results obtained used to compute the figures for the total excreta of the week.

311.84 gm. (11 oz.) feces yielded 91.93 gm. of water-free substance. From this water-free substance, divided into weighed parts of 6.25 gm. each, there were obtained.

Total N.	Fat (ether extract)	Carbohydrates.
1.065 gm.	23.50 gm.	61.77 gm.

Based on this, the following figures were obtained as results for the week:

Protein (Nx6.25)	Fat.	Carbohydrates.
19.96 gm.	70.50 gm.	185.31 gm.
Calories—81.87	655.56	759.77

3. Rübner: Calorimetrische Methodik, 1891.

In Table 4 we find the metabolic balance sheet. From it will be seen the income and outgo of the protein and carbohydrate constituents of food and excreta, and also their gain and loss to the body in terms of energy—calories. It will be readily seen that the child was more than holding his own, and as Klemperer[4] says is the case in the convalescence from acute diseases, in simple inanition, and in some forms of obesity and in myxedema, he presented a diminished outgo of protein.

Termination of Case.—On Feb. 7, 1904, I was summoned to his bedside, because of what his mother called a spasm. This yielded, however, without any treatment; but there was weakness and trembling of the lower extremities at any and all times thereafter. Twenty days later, although rational and apparently as well as ever in the morning, he went into coma at 5 p. m. with almost constant alternating tonic and clonic convulsions; death occurred sixteen hours later. Necropsy was refused by his relatives.

The urine passed thirty hours before death contained 4.8 per cent. of sugar, specific gravity, 1032, slight traces of albumin, a few granular casts, some acetone and gave a very faint reaction to v. Jacksch's[5] test for diacetic acid. Before death, in fact during coma, there were many involuntary dejections and micturitions.

In the literature of pediatrics I have been unable to find such a combination as detailed above in the case under discussion, and I look on it as unique.* For this

TABLE 2.

Food	Quantity Gm. or Cc.	Water	Protein	Fat	Carbohydrate	Ash	Calories
Bread (per cent.)		35.6	9.3	1.2	52.7	1.2	
	1361.0	484.52	126.87	16.33	717.25	16.33	3,605
Butter (per cent.)		11.	1.	85.		3.	
	213.0	23.43	2.13	180.85		6.39	1,690
Egg (per cent.)		65.	11.7	14.7		1.	
	227.0	147.55	26.56	33.37		2.27	383
Oatmeal (per cent.)		84.5	2.8	0.5	11.05	0.7	
	1106.0	934.57	30.97	5.53	122.21	7.74	695
Banana (per cent.)		75.3	1.3	0.6	22.	0.8	
	85.0	64.03	1.10	0.51	18.71	0.68	86
Chopped beef (per cent.)		67.8	20.9	10.6		1.1	
	397.0	269.16	82.67	42.08		4.37	750
Milk (per cent.)		87.	3.3	4.	5.	0.7	
	2543.0	2212.41	83.92	101.72	127.15	17.80	1,500
Potatoes (b.) (per cent.)		75.5	2.5	0.1	20.9	1.	
	397.0	299.74	9.93	0.40	82.67	3.97	358
Corn (canned) (per cent.)		76.1	2.8	1.2	19.	0.9	
	3.54	2.69	0.10	0.05	0.67	0.03	14
Soda crackers (per cent.)		5.9	9.8	9.1	73.1	2.1	
	142.0	8.38	13.92	12.92	103.80	2.98	600
Oatmeal gruel (per cent.)		91.6	1.2	0.4	6.3	0.5	
	59.2	54.23	0.71	0.24	3.75	0.30	20
Potatoes (c.) (per cent.)		75.1	2.6	3.	17.8	1.5	
	184.0	138.18	3.68	5.52	32.75	2.75	205
Lamb chops (per cent.)		47.6	21.7	29.9		1.3	
	312.0	148.51	67.70	93.29		3.06	1,150
Stewed apple (per cent.)		61.1	0.2	0.8	37.2	0.7	
	99.0	60.49	0.20	0.8	36.83	0.7	145
Beef stew (per cent.)		85.4	4.6	4.3	5.5	1.1	
	227.0	191.65	10.43	9.75	12.47	2.99	185
Coffee cake (per cent.)		21.3	7.1	7.5	63.2	0.9	
	85.0	18.10	6.04	6.38	53.72	0.77	306
Molasses cake (per cent.)		6.2	7.2	8.7	75.7	2.2	
	28.35	1.76	1.94	2.47	21.46	0.62	120
Raw apple (per cent.)		84.6	0.4	0.5	14.2	0.3	
	14.18	12.07	0.06	0.07	2.09	0.04	9
Roast beef (per cent.)		48.2	22.3	28.6		1.3	
	256.0	123.39	57.09	73.22		3.33	702
Cauliflower (per cent.)		92.3	1.8	0.5	4.7	0.7	
	113.0	104.67	2.04	0.57	5.33	0.79	35
Corn-starch pudding (per cent.)		14.		0.1	85.9		
	56.7	7.94		0.06	48.71		200[26]
Boiled beef (per cent.)		38.1	26.2	34.9		0.9	
	198.0	75.61	51.99	69.36		1.79	1,228
		5383.08	581.93	654.77	1389.50		13,986[27]

26. Figures from Jordan's Dietary Studies in Maine State College in 1895, Bull, 37, U. S. Dept. of Agriculture.
27. When computed according to Rübner's factors, total equals 14,163 calories.

4. Klemperer: Klinische Diagnostik.
5. v. Jaksch: Klinische Diagnostik.

* Since writing the above, I find that Dr. Alfred Gordon, in *American Medicine*, Feb. 6, 1904, presents in a paper two cases of myxedema with genuine diabetes mellitus in brothers aged 3 and 4½ years respectively, who are the offspring of neuropathic parents with degenerative tendencies. He reaches conclusions concerning

reason it becomes more than difficult to adequately determine any answer to the questions propounded in the beginning of the paper. There is on record, however, one case, reported by C. A. Ewald,[6] in which a woman fifty-two years old, who had developed a typical myxedema, was cured by the exhibition of thyroid gland extract, and where diabetes of a much milder form than the one I detailed above, developed afterwards. This also became a permanent affection. There was in this case also no doubt as to the affection, the patient having been presented to the Berlin Medical Society, and others, as Ewald remarks, had independently arrived at the same diagnosis.

authenticated case of Ewald which furnished an exception to his theory. Of course that it is not an every day occurrence is freely admitted; yet the possibility of its occurrence must be likewise asseverated, for what has happened once or twice may happen again.

In this case it is only logical to look at both diseases as factors in the condition, but which was the more potent is purely speculative. So far as our knowledge, much enriched in the last few years, of cretinism and analogous conditions goes, the nutritive dyscrasia caused by the lack of thyroid substance in the blood is a profound one. This, in this patient, was ameliorated and decidedly improved by the oral ad-

TABLE 3.

Date	Time	Quantity Cm.³	Sugar %	Sugar Gm.	Quantity in 24 Hrs. Cm.³	Sugar %	Sugar Gm.	Urea Gm.	Total N. Gm.	Acetone	Diacetic Acid	Albumin	Indoxyl	Chlorids	Specific Gravity	Calories Wasted as Nitrogen (a) and Carbohydrate (b)	
Nov. 4	10.30 a.m.	355.0	7.8	27.69	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1033	a) 251.74	
	1.30 p.m.	414.0	7.0	28.98	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1031	b) 650.91	
	4 00	295.7	7.81	23.09	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
	6 35	236.0	8.5	20.06	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035		
	8.30	236.0	9.25	21.83	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1040		
	4.10 a.m.	679.5	7.24	49.20	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
					2128.18	7.46	158.76	6.39	9.83	Trace....	Negative	Negative	Normal..	Normal..	1035		902.65
Nov. 5	8.10	236.0	6.85	20.06	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1036	a) 211	
	11.00	532.0	6.66	35.43	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1031	b) 706	
	1.30 p.m.	295.7	7.46	22.05	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
	4.20	473.1	8.19	38.75	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
	8.30	295.7	7.25	21.44	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
	11.05	295.7	7.35	21.73	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
					2513.0	6.85	172.14	5.026	8.25	Strong...	Negative	Negative	Normal..	Normal..	1031		917.
Nov. 6	9.50 a.m.	503.0	6.94	34.91	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032	a) 363	
	12.05	207.0	7.67	15.88	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035	b) 539	
	3.25 p.m.	266.0	7.67	20.34	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1038		
	8.05	295.7	7.93	23.44	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1042		
	4.35 a.m.	414.0	8.25	34.16	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1038		
					1684.57	7 81	131.56	10.12	14.15	Strong...	Negative	Negative	Normal..	Normal..	1038		902.
Nov. 7	8.15	207.0	6.94	14.37	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035	a) 190	
	2.00 p.m.	591.5	6.75	39.92	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035	b) 680	
	3.55	325.3	6.56	21.14	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
	11.55	503.0	8.06	40.54	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1039		
	6.30 a.m.	561.6	8.82	49.53	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1040		
					2187.20	7.57	165.50	4.38	7.42	Negative	Negative	Negative	Normal..	Normal..	1036		870.
Nov. 8	10.00	74.2	7.35	5.45	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1037	a) 209	
	2.45 p.m.	473.1	6.49	30.60	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030	b) 502	
	5.30	325.3	6.57	21.36	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
	9.15	591.5	7.04	41.64	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1035		
	3.20 a.m.	295.7	6.66	19.69	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
					1789.50	6.85	122.58	5.37	8.14	Negative	Negative	Negative	Normal..	Normal..	1032		711.
Nov 9	10.15	295.7	X	X	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	X	a) 273	
	12. 0 m.	325.3	6.09	19.81	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032	b) 651	
	2.30 p.m.	440 0	7.14	31.42	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1031		
	4.45	414.0	6.57	27.20	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
	8.45	473.1	6.00	28.39	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
	3.45 a.m.	591.5	7.04	41.64	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1034		
					2539.58	6.25	158.72	7.78	10.67	Strong...	Negative	Negative	Normal..	Normal..	1032		924.
Nov. 10	11.45	591.5	6.41	37.90	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1029	a) 230	
	3.00 p.m.	493.11	7.35	34.77	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032	b) 726	
	5.30	385.0	7.57	29.14	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1033		
	8 30	236.0	X	X	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	X		
	11.05	591.5	6.66	39.39	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1032		
Nov. 11	10.30	503.0	5.88	29.58	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	1030		
					2780.11	6.37	177.09	5.56	8.96	Strong...	Negative	Negative	Normal..	Normal..	1031		956.
	Totals...	.....	....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....6182.

Under these circumstances it seems strange that Lorand, who in bibliography quotes Ewald, and Bettman,[7] who cites Ewald's case, should make the statement that in true myxedema, diabetes was a rare if ever-noticed occurrence; in other words, casting a doubt on the well

ministration of thyroid extract tablets. As pointed out before when the additional abnormal state of diabetes mellitus supervened, the child, who had because of progressive weakness not received any further thyroid treatment, nevertheless immediately not only regained all the territory lost, but even gained new so far as disappearance of symptoms and increase of intellect were concerned.

How far, then, does the occurrence of diabetes mellitus and its train of causes and effects in this cretin condition explain the working of thyroid extract in the uncomplicated myxedematous state? Is it not a fact that to a certain extent the improvement in that interesting condition following therapeusis is due to the absorption and excretion of the mucin deposited in the

the etiology of both diseases very similar to mine, but I can not share his optimistic prognosis even for the complication of both diseases. Thyroid extract in both of his patients showed a very favorable influence on the conjoined morbid conditions, and even earlier on the diabetes than on the myxedema, thus explaining with a great degree of certainty the rôle of the thyroid gland in the as yet unknown pathologic metabolism, which is manifested in a group of symptoms called diabetes mellitus. He thinks it highly probable that independently of the digestive functions there is a special internal secretion of the pancreas which is at fault.

6. Ewald: Nothnagel's Handbuch, vol. xxii, 1896; Berl. klin. Woch., 1895, No. 2.

7. Bettman: Berliner klin. Woch., June, 1897.

skin and the various connective tissue recesses by the use of the thyroid gland's secretion? Is that therefore its real function when we administer it therapeutically? Was not nature in this case perhaps performing the same duty that we with thyroid juice strive to do, namely, removing the superfluous mucin material that the body usually uses up in other ways, by superinducing a diabetes mellitus, one of whose main effects on the system is the increased loss of all sorts of tissue and tissue food by excretion?

In his recent monograph Lorand[8] of Karlsbad seeks to expound this interrelation of diabetes and lesions and diseases of the ductless glands (Blutgefässdrüsen) and quite ably shows that so far as symptoms, findings at necropsy, etc., go, that diabetes mellitus, exophthalmic goiter and acromegaly are dyscrasiæ based on the same causation, one often running into the other or exhibiting similar clinical features in the abstract. His argument is powerful and well backed up by many able authorities, but although no doubt true in the main has this case as its exception.

TABLE 4.

	Income	Outgo		Gain
		In Urine	In Feces	
Carbohydrates	1389.50 gm. 5697 Cal.	1066.35 gm. 4372 Cal.	185.31 gm. 760 Cal.	137.84 gm. 565 Cal.
Protein	581.93 gm. 2385 Cal.	421.37 gm. 1728 Cal.	124.75 gm. 512 Cal.	35.81 gm. 145 Cal.

He says: "It is a fact that sometimes in the course of diabetes mellitus, Basedow's disease has been observed as a hyperthyroiditis (Hartman, Grube, etc.). Now the question arises, are the lesions in the thyroids or adrenals degenerative, i. e., a decreased or rather an increased activity? We would not hesitate to decide for the latter, since in atrophic conditions of these glands (as in myxedema and Addison's disease) a glycosuria is extraordinarily rare, if it has ever been observed. On the contrary glycosuria has been frequently observed in diametrically the opposite condition to myxedema, Basedow's disease, and besides very frequently subsequent to thyroid feeding."

Now there never was the least shadow of a doubt as to the diagnosis of the condition preceding the diabetes mellitus in this case. If ever cretinism was typical, in symptoms and response to treatment, this was and that the diabetes was not due to an induced hyperthyroiditis is to my mind equally established. First because the child had preliminary to the supervention of the diabetes mellitus received no thyroid extract for the period of four weeks and secondly, the fact that the ingestion of thyroid was at all times very small in quantity, and thirdly, resumption of the thyroid feeding did not increase excretion of sugar, but served only to run the child further down in weight. That there was complete athyria of course only necropsy, which was refused, would have proven; but palpation of the throat was, because he was so thin, feasible to such an extent that the cartilages of the larynx and each individual tracheal ring, the separate muscles, felt as cords, could be mapped out down to the suprasternal notch and at no place was there any thyroid or any gland tissue palpable. Under these circumstances Lorand's theory as to the genesis of diabetes needs modification. So that although the facts he adduces to support his theory are all true and powerful arguments, yet we must suggest that the last word as to the exact interrelation of the various dyscrasiæ is even now unspoken, and we still stand rather on the knowledge adduced by Pineles[9] "that acromegaly, myxedema, cretinism, Basedow's disease and in some cases diabetes mellitus represent diseases of glands (Blutgefässdrüsen) in the course of which anatomic or functional disturbances in other glands supervene. There appears accordingly to be some sort of anatomic and physiologic interrelation between these glands, so that clinically when one gland is diseased, certain vital symptoms referable to disturbances of function in another gland are observable." In other words, the exact conditions are still unknown.

As a condition without such a complication, diabetes mellitus in a child is not frequent. In the literature, so far as I could find, the number of cases does not exceed six hundred; Külz reporting the collection of 111 cases; Redon,[10] 32; Stern,[11] 117, including 21 already discussed by Külz;[12] Wegeli,[13] 108 cases; and Saundby, 159 cases.

Various other writers, Senator,[14] Baginsky,[15] Niedergesäss[16] and Günther[17] deal with various phases of diabetes mellitus in children, but as was pointed out, nowhere are the two conditions detailed above conjoined in one patient. In fact, Scholz[18] in experiments was unable by the administration of thyroid preparations to produce a single case of even alimentary glycosuria in 100 cases of cretinism. That the use of thyroid preparations in other conditions have caused both alimentary and even permanent glycosuria, many careful investigators have affirmed and reported. Bettman[7] reported the results of experimental administration of it to 20 people who were under observation for various ailments, and in 11 (or 55 per cent.) he was enabled to produce a temporary glycosuria, which, however, totally disappeared on ceasing the exhibition of the remedy. So that he too points out its rarity in myxedema following thyroid feeding, while it is comparatively frequent as a follower of exophthalmic goiter, in both temporary and permanent form.

So, if we study the literature for this case from the viewpoint of diabetes alone, it is simply for the reason that I have been unable to find that anything else bearing on the coincidence has thus far been written. But even so, the results of the study of such literature is very interesting and instructive.

Although diabetes mellitus in a child is infrequent, it is by no means so rare as was formerly thought and taught. Sex makes but slight difference in the occurrence of the disease and although Günther[17] points out the greater frequency of diabetes in female children, Saundby in his collection found the sexes about equal in numbers.

PATHOLOGIC ANATOMY.

This field also offers nothing conclusive. Great as are the strides that have been made in unearthing the truths about such nutritive disturbances as myxedema,

8. Die Entstehung d. Zuckerkrankheit u. ihre Beziehungen z. d. Veränderungen d. Blutgefässdrüsen.

9. Pineles: Volkmann's klin. Vorträge, 1899, p. 242.
10. Redon: Comptes rendus Soc. de Biologie, 1877, Paris, 1879, 6me, vol. iv, p. 175; Du Diabéte mell. chez. l'enfant, Thèse de Paris, 1878.
11. Stern: Arch. f. Kinderheilk., vol. ii, 1890, p. 81.
12. Külz: Gerhardt's Handbuch d. Kinderkrankheiten, vol. iii, Tübingen, 1878.
13. Wegeli: Arch. f. Kinderheilk., vol. xix, 1896, pp. 1-65.
14. Senator: Ziemssen's Cyclopedia, vol. xvi, p. 898.
15. Baginsky: Arch. f. Kinderheilk., vol. xxii, pp. 257-265.
16. Niedergesäss: Diabetes Mellitus Infantum, Diss., Berlin, 1873.
17. Günther: Inaugural Dissertation, Marburg, 1874.
18. Scholz: Verhandl. d. inn. Med., 1902, p. 20.

athyria, infantilism, acromegaly, still the last words are far from spoken. And this is most true with the condition known as diabetes mellitus. Apart from the fact of sugar being found in the urine, together with the increase of other excretory products, no one symptom or group of symptoms points out to us where to hunt exclusively for the causative lesion. Theorizing does not help us to any extent, and postmortems themselves are unsatisfactory, for many times we can find no assignable cause whatever. That head injuries, operative procedures and traumata to other parts of the body may cause glycosuria is a well-known fact.[19] So, too, it can be of very small value to know that there were found at various necropsies of children dead with diabetes mellitus—free fat globules in the blood, fatty degeneration of the kidney epithelium, parenchymatous nephritis, all, it seems to me, effects rather than causes of diabetes; there were also diminution in size of the pancreas, an atrophy, or again no changes at all in the pancreas.

Such being the state of our knowledge, it makes but slight difference what theory we assume for explaining the condition we know as diabetes mellitus. Even its physiology is not settled as yet, but its pathology is only empiric. Its etiology under these circumstances is not by any means proven. Stern[11] in his article lays it to heredity of a diabetic or a neuropathic condition, trauma, and too free ingestion of saccharin foodstuffs; while Bergesio[20] ascribes it to hydrocephalus, head traumata, heredity and dysentery. In my case the too free ingestion of grapes certainly seemed the immediate cause of the condition. Of course, to a certain extent, the neuropathic tendency is also assignable from the tendency on the paternal side.

PROGNOSIS.

The prognosis in any event is very grave always, and as Senator[14] puts it, "the younger the patients are the more malignant and the more rapid in general is the course;" and as Stern[11] has pointed out even if for many years sugar has disappeared from the urine, most of the patients die from recurrence of the malady. So far as the duration of the disease is concerned, the prognosis is far from favorable. In 32 diabetic children Redon[10] found two and one-half years the longest duration of the disease; and Külz[12] found that of 46 diabetic children, 16 died in less than one-quarter year; 8 in one-quarter year; 6 in one-half year; 5 in one year; 6 in two years; 4 in three years; and one in four years. So that more than half ran their course in three months or less. "It is probable," Senator says, "that in acute cases, where from the apparent beginning of the disease until death, but a few weeks or even days elapse, which for that matter occurs almost without exception in children or young persons, the excretion of sugar and perhaps the other derangements also have existed for a long time unobserved, until a sudden change in the patient's health arrested the attention, so that in these cases, as in most others, an accurate specification of the time can not be made. In a case of Becquerel, the disease in a boy nine years old, would seem to have lasted but six days."

SYMPTOMATOLOGY.

It is not especially necessary to enter into the symptomatology of the disease in childhood, as it does not differ materially from those symptoms seen in adult life. There are a number of phases that merit consideration, however.

Sugar in the Urine.—This most important symptom of the disease may vary from a minute but constantly increasing amount to an almost incredible quantity. Even a small percentage, one or two, when measured by the energy wasted and figured in calories, is an enormous drain, so that when such loss as Senator speaks of in a child of twelve years, and weighing 17 kgm., who passed between 358 to 570 gm. of sugar daily, is taken into consideration we can see the disadvantage nature labors under in trying to restore to normal, functions so perverted. So, too, the amounts passed by my case, ranging from 120 to 180 gm. per day, and which in the beginning of the disease far exceeded this quantity, (at one time passing 4 liters of urine containing 12 per cent. of sugar, equal to 480 gm. in twenty-four hours) show an enormous loss of fuel value to the system.

Coincident with this, Senator points out the increased output of nitrogen, as urea. "The quantity voided in twenty-four hours may amount to twice or thrice the normal, so that in adults a discharge of 100 gm. or more (142.0 gm. in a case of Dickenson's) has been repeatedly ascertained." This I was unable to verify in my patient, for if anything, with a weight of 14 kgm., he was passing less urea than was normal for such weight and age.

So far as the bases in the urine are concerned, their increase or decrease are as yet not assignable any clinical value. It is only of interest that Neubauer[21] "saw in the urine of a diabetic child six years old, as the mean of nine days, a daily excretion of 0.71 gm. of calcium phosphate (about double the normal quantity for an adult) and 0.388 gm. phosphate of magnesia, (the normal amount in the adult being about 0.6 gm.)"

The presence of acetone and diacetic acid are of more and graver prognostic importance. The former, acetone, is of less moment than the latter, for many if not most saccharin urines contain it. Its presence causes the peculiar aroma of diabetic urine, and in larger quantities the causation of the acetonemia, found at the time of diabetic coma, is sought. Petters[22] first demonstrated its presence in diabetic urine. Rupstein and later Külz[12] likewise found alcohol in the urine of a diabetic, and that too in a specimen fresh from the bladder."

I can not accept that the presence of acetone in the urine is prognostically a rapidly fatal sign, for at all times it was possible to demonstrate acetone in my patient's urine, and instead of losing he really gained ground. As for diacetic acid, even very careful testing failed to give me the typical reaction at any time, except faintly just before death.

As for albumin of any sort, at no time from the beginning of the disease until death have I been able to demonstrate its presence to my satisfaction, and microscopic examination has thus far failed to show in standing or centrifuged urine any of the typical tubular casts described by Külz[12] and by Sandmeyer[23] and on

19. Reimer (Jahrb. f. Kinderheilk., X-1-4, p. 1 and p. 219, 1876) reports a case of diabetes mellitus in a 7-year-old boy, caused by a giant-celled glioma on the floor of the fourth ventricle. The symptoms were localized cephalalgia, violent vertigo, apathy, anorexia, but great increase in thirst, with the consequent excretion of strongly saccharin urine (6-8 pounds of specific gravity 1036). Only once before this had a swelling been found at this site (by Rilliet and Barthez, Maladies des Enfants, vol. iii, p. 555), but there was no mention of any glycosuria.

20. Bergesio: Jahrbuch f. Kinderheilk., N. F., vol. xxiii, 1886, p. 217.

21. Jour. f. prakt. Chemie, vol. lxvii, p. 65.

22. Prag. Vjhrsschr., 1885, vol. lxii, p. 2, and 1857, vol. lv, p. 81.

23. Sandmeyer: Verhandl. d. Xten. Congress f. inn. Med., Wiesbaden, 1891, p. 345.

whose occurrence during the prodromal phenomena of coma and during it, so much stress is laid. They are described as short, mainly hyaline or even granular casts, which appeared suddenly in up to that time cast-free urine in very great numbers. They were not missed in any single case of coma examined. No casts of any sort were demonstrable in my case, except a few granular ones just before death.

So much for the urine. Other symptoms are identical with those seen in the adult. The child was at all times so ravenously hungry that he would steal any and everything in the line of food, even a cake of compressed yeast.

As will be seen by Table 2 he consumed large quantities of fluids per day, but had learned to curb his thirst enough, so that when taken out he could go for many hours (six to ten) without a drop, but making up for it on his return. So, too, the bladder was under control. Where formerly he was almost constantly going to empty it, he latterly controlled it quite well for half a day at a time if away from home.

As in the adult diabetic the metabolic processes following a full meal, caused a cerebral ischemia and a great drowsiness supervened. Even at the end of a full meal his head would go down on his arms and he would fall into a sound sleep. Contrary to the findings of Blau,[24] who says that in the progress of the disease diabetics become more and more indolent and averse to mental employment, this case was if anything much brighter than ever before. Now when we consider the fact that cretinoid conditions are not conducive to mental activity and this same effect follows diabetes mellitus, again the question, how far the coincidence of the two in the same personage, the one tended to modify the other, assumes further interest and force.

Of interest in this same field is the condition of the mouth and teeth. The poor, uneven and delayed eruption of the teeth in cretins is a matter of common knowledge; this was well portrayed in the case discussed. When finally, however, thyroid extract was administered the teeth erupted very fast. However, the diabetes supervened, and immediately the acid condition of the mouth, and the occurrence of thrush tended to destroy the good done. Alkaline washes, however, removed this tendency and dental attention served to put the mouth in fair condition and remove the caries which caused frequent suffering to the uncomplaining little patient.

At no time had he been a sufferer from the pyodermatosis or of any trouble of an embolic nature which so frequently accompany diabetes of an aggravated form in the adult. So also no pruritus occurred; to be explained I suppose by the need of cleanliness inculcated on the child's attendants.

So far as treatment is concerned, he received scarcely any medicine. It was found that the action of codein was objectionable; bichlorid of mercury gave no results at all, even when exhibited for a month; cod-liver oil became distasteful, and gave no return commensurate with the difficulty of administration; so that the patient, besides an occasional cathartic, took nothing but one of the newer hemoglobin preparations, which, however, seemed to serve a very good purpose. Omitting it for only a few days, the loss was immediately discernible, and a few days elapsed after its resumption before the lost ground was regained. As he held his own with it and the fairly modified diet, no change was instituted, except that as a result of the experiments the mother was advised to give him more freely of meats, as his protein income did not seem quite adequate to his needs.

In this connection it is interesting to note that, although the dietaries of Voit, Moleshott, Wolff and Playfair call for from 3,032 to 3,160 calories daily for a man at moderate work, and which Atwater[25] places at 125 gm. of protein and 3,500 calories of energy for the American dietary, that this patient, even under the stress of these dyscrasiæ, consumed only the amount of food usually figured for a child of his age (83 gm. of protein and 2,000 calories of energy per day), although, of course, as seen by Table 4, he lost the greater part of it again.

SUMMARY.

Before closing this paper and formulating the conclusions warranted from the observation of this single case, it will be profitable to revert once more to the speculative question of the interrelation of these diseases.

After Ord, Gull, Murray[26] and Horsley had perfected their theories and technic in the production of athyria in animals, the knowledge of the physiologic functions of not only the thyroid but of the other glandular structures, the hypophysis cerebri, thymus, adrenals, and last, but not least, the pancreas, was quickly and thoroughly deepened. The French physicians have continued their studies on the lesions of the pituitary gland and the consequent acromegaly; English physicians have presented numberless cases of Basedow's or Grave's disease and myxedema, and justly insisted on the etiologic factors being sought respectively in hyperthyroidism and hypothyroidism, although their surgical aspects assumed greatest proportions in German hands; and it was left for American investigators to probe the pancreas and its lesions as causative of diabetes mellitus.

Recent work on the interrelation of these various functions and their disorders offers nothing conclusive as yet, so that one theory has at present as much or as little *raison d'être* as another, and we must only guard against drawing the outlines too sharply, for an exception here and a criticism there may change the face of the matter very shortly. Under these conditions it may, perhaps, be well to see just what the question covers in this case.

We have seen a case which, in its sixth year, presents the unmistakable symptoms of an infantile myxedema. There is no doubt as to the condition, for besides the typical general habits, the *sine qua non*, the absence of the thyroid gland was as plainly demonstrable as it could be *in vivo*. Of course, whether this was preceded by a fetal thyroiditis, as some writers have affirmed such cases are, must be purely problematical; all we know is that great nervousness and mental strain accompanied the gestation, and it is feasible to suppose that the maternal thyroid and its use, influenced somehow the thyroid growth and function in the fetus. This point is purely theoretical and not strongly defensible. In any event, when the child was born, it was puny, with ill-developed facial expression, and was pronounced by the attendant physician, idiotic.

25. Atwater and Bryant: The Chemical Composition of American Food Materials, Bull. 28, U. S. Dept. Agriculture.
26. Murray: Diseases of the Thyroid Gland, Twentieth Century Practice of Medicine, vol. iv.

Frequent gastric disturbances supervened, although as was said, the child was breastfed. After weaning, however, when the supply of thyroid extract he got from his mother's milk was cut off, the child immediately, without any intercurrent illness, infectious or referable to the thyroid, developed a typical sporadic cretin state.

After a number of years the appropriate treatment was instituted. Small, very gradually increased dosage was employed; the mother carefully instructed to watch the least symptom of overdosage. Frequent intermissions were ordered to prevent such occurrence. The child was several times presented to the classes at the Postgraduate, and the good effect of the thyroid gland extract emphasized. At this point the child was put into my care, inasmuch as the mother felt the trip to the city too irksome and embarrassing for herself and child, and she desired treatment at her own home. She had begun to let up on the administration of thyroid, alarmed by the child's progressive emaciation, although she had been informed that this tendency prevailed when thyroid was given. At that time, as I had charge of two other cases of a similar nature, one a typical cretin, in whose urine I had found an almost pure deposit of uric-acid crystals, in such numbers and such beautiful formation, as I had ever seen before, I obtained a specimen from this patient also to determine if the same condition prevailed here. The urine at that time was normal in every respect and contained no sugar. To continue the good accomplished, small doses of thyroid tablets (0.2 gm. pro die) were administered, with frequent but unnecessary intermissions, as at no time did any tachycardia, vomiting or other hyperthyroid symptom develop.

Now, because the supply had run out, the child received no thyroid for a period of four weeks, and at the end of that time is presented with a violent glycosuria. However, the interesting discovery is made that in contrast to the accepted pictures of both athyria and diabetes mellitus, the patient presented less hebetude, is brighter, more active, his growth was noticeable, and, in fact, the supervention of the one condition served to relieve the other. Whether or not we had a vicarious action of some other gland must, of course, be purely speculative; as *a priori* must also be the condition of the other glands. We might infer an increased adrenal activity from the fact of a very small loss of blood during extraction of carious teeth; certainly we know that both his testicles were atrophied a few months before death.

But it is not warranted to go so far as Lorand[8] does and the broader statement of Pineles[9] must still hold good, and besides, as Ewald[6] and, I hope, I have shown, diabetes mellitus may follow myxedema, whether you ascribe it to thyroid feeding or not. Of course, the contention that without such feeding diabetes has not been seen after myxedema, must also be admitted, as I can find no such case in an exhaustive search of literature; while it is equally true that in the administration of thyroid extract in dermatologic and general practice in cases where no lesion of the gland was demonstrable, temporary glycosuria supervened.

115 Beech Street.

Administration of Digitalis.—There is no drug which requires a more intimate knowledge and appreciation of existing pathologic conditions for its successful administration than digitalis, writes William F. Clemsha. The more carefully and thoughtfully we give it, the more uniform and satisfactory will be our results.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.*

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The contents of this paper may be divided as follows:

1. A consideration of the various operative methods of approaching and of dealing with the ganglion.
2. Further points referable to an operative procedure heretofore described.
3. Histories of twenty personal cases thus operated on.
4. A discussion of the surgical complications and sequelæ of these cases.
5. Notes on the distribution and function of the fifth nerve deducted from postoperative observations.
6. Afterword: pathology.

Neuralgia Quinti Major. (Tic douloureux. Epileptiform neuralgia.) This form of neuralgia has been placed in a group apart owing to the marked similarity that one case bears to another both in course and symptoms. In the earliest stages, each case appears to be one of simple neuralgia, and under this impression relief has been sought in removal of teeth or in other operative procedures. At last the full picture of this hideous disease unrolls, varying in unessential details from the classical type.

In a recent medical treatise[1] thus is introduced the section on that form of trigeminal neuralgia which, unlike the other varieties, the minor neuralgias of the fifth nerve, is an affliction demanding surgical intervention, and for the relief of which the removal of the semilunar ganglion (Gasser) must ultimately be contemplated. It is, perhaps, deserving of emphasis, therefore, at the start, that from this group of cases are excluded the comparatively simple neuralgias arising in the trigeminal territory; those which are incidental to some general state of bodily ill health; those reflexly occasioned by some local disease; those ordinarily confined to one or another of the peripheral branches of the trigeminal nerve, all of which are usually amenable to therapeutic measures[2] other than surgical or, at the outside, to minor operative procedures.

Barely thirteen years have elapsed since Horsley and Macewen,[3] quite independently, and, so far as I am aware, for the first time, attempted through a high temporal opening to divide the trigeminal nerve in two cases of tic douloureux. Both resulted fatally, an

* Presented by invitation at a meeting of the Montreal Medical Society, 1904.

1. Head: Trigeminal Neuralgia. Allbutt's System of Medicine, 1899, vol. vi, p. 728.

2. At times very simple measures indeed, of which there is an interesting historical illustration. In one of the old numbers of the European Magazine are reprinted a series of urgent letters which John Locke, the philosopher-physician, wrote from Paris to Mapletoft and Sydenham asking for advice in the treatment of the distinguished patient, the Countess of Northumberland, whom he was attending at the French Court. Owing to "the inclemency of the weather," Locke had refrained from following his first inclination of opening her ladyship's bowels. With a moderation in the temperature and before Sydenham's reply could have been received a purge was administered and the patient's neuralgia disappeared. There is an amusing reference by Lord King in an early number of The Lancet to this correspondence, which comments not only on what must have been the inconveniences of Parisian life in the latter part of the seventeenth century, but also on Locke's clear statement of the case and his skillful treatment.

3. Victor Horsley: An address on the Surgical Treatment of Trigeminal Neuralgia, The Practitioner, 1900, vol. lxv, p. 251.

event commonly ascribed to the undue severity of the intradural method followed in each instance. A few years later, Professor Rose of Kings College boldly essayed to attack the ganglion in a major case of the same malady by primarily excising the superior maxilla, by trephining the base of the skull beneath the ganglion, and by destroying the structure, thus blindly exposed, with the curette. From its successful outcome this pioneer effort not only is of historical import, but will stand a lasting commentary on the fearful nature of the affliction which would justify such an extreme procedure undertaken for its relief. From that time to the present many modifications of the operation have been proposed and carried out, all of them having their advocates, all of them having for their objective point the trigeminal neurectomy or removal of the ganglion, so that, so far as the operation itself is concerned, they may all be considered as variations of Horsley's or of Rose's appalling procedure.

In all of these modifications there are two essential factors to be considered: First, the method of approaching the ganglion; second, the manner of performing the neurectomy or of dealing with the structure when it has been brought into view.

METHOD OF APPROACHING THE GANGLION.

The methods of approach may be conveniently classified into three groups: the low or pterygomaxillary route, of which Rose's original operation may be considered the extreme type; the high or temporal route, which is represented by the Horsley and Hartley-Krause operation; and lastly, the direct transzygomatic or sphenoidal route—below, above or through the region bridged by the zygomatic arch.

The first of these methods, through the pterygoid fossa, although considerably altered and improved in details,[4] has never received wide acceptation. The high temporal operation, on the other hand, has almost completely and very properly superseded it, and the larger number of successful cases, both in this country and abroad, have heretofore been carried out on the lines which Hartley and Krause almost simultaneously laid down twelve years ago. Experience with the operative difficulties of the approach, over which hemorrhage, in either of these methods, holds chief sway, the consideration also of the postoperative deformities consequent on either method has led to modifications, the general tendency of which has been to make the low operation higher and the high lower; a tendency in other words toward a more direct or transzygomatic route. Coehlo,[5] in the report of his first operative case, called attention to a modification of the high operation which involved division of the zygoma. Lexer[6] has so circumscribed and lowered the Hartley-Krause opening, with which in its typical form he began his successful series of 15 cases in von Bergmann's clinic, that the details of his method have come to differ but slightly, and chiefly in the management of the meningeal artery, from those which I outlined in 1900.[7] The anatomic studies by Dollinger and Bartlett have shown that the meningeal artery, when this method is employed, in the great majority of cases need interfere in no way with the exposure of the ganglion. Frazier[8] has followed this direct infra-arterial approach in his successful cases of division of the sensory root and many others have been led to adopt procedures which correspondingly are on a more horizontal plane than the older method.

In like fashion, the low or pterygoid operation, has undergone modifications tending to make it more direct. Thus Jacob, Sapejko, Juvara, Quénu and Sébileau, with others, chiefly of the French school, with considerable variation in the incision and in other details, have used a method of approach via the zygomatic region, which, though much more direct than the Rose-Andrews method, nevertheless retains many of the undesirable features of the low pterygoid route, in which the nerves are sought at their exit from the base of the skull, and thus serve as guides to the situation of the ganglion.[9]

MANNER OF PERFORMING THE NEURECTOMY.

There will be found almost as many variations in the manner of dealing with the ganglion when it has been brought into view as there are in the ways of approach. By the pterygoid route it is difficult to conceive of a clean, dry exposure, and the fact that its advocates describe ways of tearing out the ganglion with small hooks and that blind curettage of the supposed seat of the *Cavum Meckelii* has often been resorted to, shows how uncertain must be the actual completeness of the neurectomy. Even when the low approach has been modified to the extent which Juvara's procedure typifies, it is evident from the description, which implies that the ganglion is uprooted by dragging on the second and third branches, that the structure can not be entirely removed. We owe much to Dr. Tiffany for the emphasis which he has laid on "known" versus "attempted" extirpation, and to Dr. Keen for his frankness in acknowledging the failure to find any ganglionic elements in the tissue removed from his first two cases of supposed enucleation. Lexer, in his careful tabulation of the 200 cases which he has gathered from the literature has placed them in two groups—those in which extirpation was accomplished or attempted, and those in which the method rendered this impossible. The majority of the latter cases were operations performed through the pterygoid route.

4. Rose: "The Lettsonian Lectures," the Lancet, 1892, vol. 1, p. 295. Instead of the superior maxilla, in the modified operation a portion of the ramus of the inferior maxilla is removed; thus allowing of a low lateral instead of a low anterior approach. The latter procedure was first carried out by Prof. Novaro of Genoa.

5. Coehlo: Revue de Chirurgie, 1899.

6. E. Lexer: Archiv für klin. Chirurgie, 1902, vol. lxv, p. 843.

7. THE JOURNAL, April 28, 1900, p. 1035.

8. Frazier: University of Pennsylvania Med. Bull., December, 1901.

9. Of all these methods that described by Juvara has, I think, most to commend it, and though evolved from the low method, does not differ greatly from that of Lexer or myself similarly evolved as improvements on the high method. His procedure, however, remains somewhat too low; the facial supply to the orbicularis would be sacrificed by his incision and lagophthalmos would almost necessarily result; a sequel which possibly had been overlooked or not taken into account, since at the time of his description Juvara had practiced the operation on the cadaver alone. The extracranial dissection also is carried unnecessarily far, as are those above mentioned, namely, to the second and third divisions at their emergence from the skull, the floor of the temporal fossa alone having been removed. Jacob's operation also was advanced after anatomic studies alone, and when reported had not been put to practical test. He goes so far as to remove the outer wall of the orbit in order to expose the superior maxillary nerve, which then serves as a guide to the ganglion. There are other approaches more difficult to classify, thus, Doyen using a sickle-shaped incision, turns back a large bone flap from the high temporal region, resects the zygoma and coronary process of the inferior maxilla, ligates the internal maxillary artery and rongeurs away the base of the temporal fossa as far as the ganglion. Although the operation is begun as a high temporal one, the ganglion is finally approached via the low pterygoid route, and so ends with all the difficulties and disadvantages of the latter procedure. He designates it, nevertheless, a *"procédé temporo-sphénoidal."* I know of no followers of this method. Two out of his first three cases succumbed to the operation, and it is generally condemned. Poirier uses a similarly complicated approach.

In the earlier years the originators and all others who used the high temporal, or typical, Hartley-Krause method, as the communications state, or as the post-operative study of the resulting anesthesia has made clear, satisfied themselves with the partial removal of the lower portion of the ganglion or even with the intracranial division of the *N. maxillaris* and *N. mandibularia,* oftentimes operating at two sittings with a few days interval. Some especially experienced and expert operators, led by the example of Krause, Keen, and Horsley, have subsequently been successful in removing the ganglion *in toto* by this exposure. It can rarely be a simple matter, however. The partial removal of the lower portion of the ganglion, furthermore, although it doubtless may cure a certain number of cases, must be criticized for several reasons. Although in many instances, even of severe neuralgia, symptoms referable to the ophthalmic region may be comparatively slight, it nevertheless sooner or later becomes involved in the disease, and to leave it courts a certainty of discomfort and a probability of pain in the supraorbital region. In two of my cases I was unable to extirpate more than the lower two-thirds of the ganglion. Both of these cases, after some months, have had a partial return of sensation in the cutaneous distribution of the ophthalmic nerve, with more or less attendant discomfort which the total extirpation cases have never shown. Again, some cases are primarily supraorbital in origin, with secondary involvement of the second and third divisions (six of my cases were such), and in these the fractional extirpation would necessarily be insufficient so far as permanent and complete relief is concerned. A partial extirpation, indeed, has been known to aggravate, in the region of the remaining and more or less traumatized first division, symptoms which before were relatively insignificant, although there may have been evidence that the disease had extended to this portion of the ganglion.

Recently Dr. Abbe has advocated a procedure which has for its object the simple intracranial section of the maxillary and mandibular divisions, with the interposition of a piece of rubber protective between the ends of the rami thus severed. Leaving aside the probability that in all severe cases of tic douloureux the ganglion cells giving origin to the *N. ophthalmicus* are likewise involved, it is difficult to understand how this procedure is in any way superior, or promises any greater permanence of relief, than a simple extracranial section; and it is hardly to be considered a Gasserian ganglion operation. Indeed, it probably would make a subsequent operation on the ganglion or on the *N. trigeminus,* should one be demanded, more difficult, and would seem to have less in its favor except ease of performance, than other and extracranial sections of the peripheral trunks. It must be acknowledged, however, that many of the partial operations have an extraordinary effect in inhibiting the transmission of painful impulses, and it is perhaps unjust to criticize Dr. Abbe's proposal without knowledge of his late results. One is inclined, however, to agree fully with Lexer when he says: *"In anbetracht der Gefahren der Operation halte ich es für einen grossen Fehler, das Ganglion wegen Neuralgia in einem oder in zwei Aesten aufzusuchen, auch wenn es mit der Absicht geschiet, es nur unvollkommen herauszunehmen. Krause hat deutlich die richtige Forderung gestellt, dass das ganze Ganglion entfernt werden müsse, sobald überhaupt das intracranielle Vorgehen angezeigt sei."*

The same criticism and the same acknowledgment must be made in regard to a further manner of treating the ganglion after its exposure. Ferrier, in 1890, during a discussion of Rose's operative procedure, suggested on physiologic grounds the possibility that a simple section of the sensory root might answer the same purpose as the destruction or removal of the ganglion itself. Sir Victor Horsley, in his first operation by an intradural method through the temporal route, essayed to carry out this proposal, unfortunately, with a lethal result. Dr. Spiller,[10] in 1898, and two years later Dr. Barker,[11] in a report on the histology of some Gasserian ganglia, again proposed this as possibly the most rational operation. Since then Dr. Frazier, at Spiller's suggestion, has successfully carried out the procedure.[12]

It is possible, should there prove to be a permanent abolition of afferent impulses from the trigeminal area of their patients, that the clinical evidence thereby gained may, as is not infrequently the case, decide a question which experimental physiology has left unsolved, and it is a great satisfaction to know that by the combination of experimental and clinical evidence they have set themselves to determine this point. Conclusive proof as yet is lacking, however, as to whether there is any regeneration centralward after the division of the sensory fibers proximal to a dorsal-root ganglion. Experimental evidence is conflicting, the observations of some[13] favoring such a central regeneration, and unless this view becomes completely overthrown extirpation of the ganglion with all of its cells, can be the only certain method of permanently interrupting the transmission of all sensory impulses.

It is to be borne in mind also that, in all complete extirpations, the trigeminal root is removed together with the ganglion, and that not infrequently, when it has been impossible, for me at least, to expose the root, as would be necessary for its division, it will be extracted *in toto* when the freed ganglion is rotated out. Cases of easy access to the root are usually those of comparatively easy ganglion extirpation.

There is one reason, however, which, so far as I am aware, has not been sufficiently emphasized, and which, rather than ease of performance, would serve to make division of the *N. trigeminus* central to the ganglion preferable to extirpation of the structure itself. This concerns the restoration of motor function. In the extirpation procedure it is an anatomic impossibility to separate from the lower surface of the ganglion the underlying, obliquely placed and closely adherent motor branch of the nerve. Hence, if the extirpation is total, this means the removal of from 2 to 3 cm. of the latter, rendering reunion most improbable. In two of my long-standing cases of extirpation I have found evidence of a return of voluntary motion in the masseter and pterygoids, not, however, in the temporal. This, however, must be very exceptional, as it does not seem to have been observed by others. In the operation for division of the trigeminal root, should this prove, as it is to be hoped, sufficient to permanently shut off afferent impulses by way of the sensory division (*portio major*),

10. Spiller: The Amer. Jour. of the Med. Sciences, 1898, p. 532.
11. Barker: Protocols of Microscopic Examination of Several Gasserian Ganglia, THE JOURNAL A. M. A., May 5, 1900, p. 1093.
12. Spiller and Frazier: The Division of the Sensory Root of the Trigeminus for the Relief of Tic Douloureux, etc., Univ. of Penn. Med. Bulletin, 1901, vol. xiv, p. 34.
13. Baer, Dawson and Marshall: Regeneration of the Dorsal Root Fibers of the Second Cervical Nerve Within the Spinal Cord, Jour. of Exper. Med., 1899, vol. iii, No. 1.

the same will not be true for efferent impulses by way of the motor root (*portio minor*), since regeneration here with reunion of the nerve in case of simple section will almost certainly take place. Spiller and Frazier have suggested the possibility and have emphasized the importance of avoiding the motor root in the operation, doubtless a very difficult procedure, and one which so far as ultimate results are concerned, should be unessential. Preservation of the motor supply to the muscles of mastication would be well worthy of consideration for two reasons: one a cosmetic reason,[14] since the chief postoperative deformity is due to a somewhat obtrusive flattening of the face from the atrophy of the temporal and masseter muscles; the other, a remotely practical reason, since, if by any procedure whatever, power of movement may be retained in the masticatory muscles of the side operated on, it would be possible in those unfortunates in whom tic subsequently appears on the opposite side, to carry out, what is now impossible, a bilateral operation. Involvement of the opposite side, however, is a very rare sequence, and has occurred in only one or two instances; almost as rare, indeed, as the subsequent involvement of another posterior-root ganglion in a malady of a different sort—herpes zoster.

All this discussion, it must be remembered, hinges on the still unproved dictum that no central regeneration allowing of the transmission of sensory impulses will occur after the section of a sensory nerve root proximal to its dorsal root ganglion.[15]

Thus efforts to destroy the ganglion or to remove it piecemeal; simple section intracranially of the second and third divisions with or without removal of the adjoining portion of the ganglion; and section of the trigeminus proximal to the structure, are all either undesirable procedures, or ones which, for the present, at least, stand on debatable ground. Total extirpation alone remains free from criticism, or would, did the anatomic site of the ganglion enable one by any method of approach to remove it with ease. It may be said that, so far as we know to-day, the certainty of total and of permanent relief from pain stands in direct relation to the totality of the extirpation.

Whatever procedure be that of choice, there are two elements which must influence all; one is so far as possible to avoid hemorrhage, both in the method of approach and in that of dealing with the ganglion; the other is so far as possible to evade any postoperative evidences of one's work, either subjective or objective.

In the spring of 1900 the College of Physicians of Philadelphia held a so-called symposium, at which the treatment of trifacial neuralgia was the subject of discussion. At that time was presented a method of approaching the ganglion by a direct, trans-zygomatic, and as it has been called, an infra-arterial method. Influenced by the experience chiefly of Krause and Keen, the endeavor was made from the beginning to remove in each case the entire ganglion. The procedure involved an incision much lower than the Hartley-Krause operation; excision or temporary resection of the zygoma (I was at that time not sure which was preferable); a small cranial opening through the lower part of the temporal fossa without the detail of an osteoplastic flap; and an exposure and extirpation of the ganglion *in toto*, without occasioning injury or necessitating ligation of the meningeal artery. My experience at the time of this report was limited to four clinical cases, although the operation had been practiced and studied out on numerous bodies at autopsy. Previous acquaintance with the ganglion operation, as an assistant or onlooker, always by the high temporal osteoplastic method, with the ligation of the meningeal, etc., had been rather a disheartening one. I had seen in various hospitals several very skillful operators conduct the operation on these lines, and on one occasion had seen a death, as was supposed from hemorrhage, on the table. Difficulties from bleeding even during the approach had characterized all these performances. The Johns Hopkins Hospital experience also had been far from encouraging, as the records showed that two out of four cases had not long survived the operation. Subsequent to the introduction here of the direct operation, a colleague, one of the most careful and expert operators I know, again performed a Hartley-Krause operation, choosing it in preference to the other through past experience with the method. The patient also died within a few hours, presumably from operative hemorrhage and incidental shock. On the other hand, only 1 out of 23 cases in our local experience has succumbed to the operation, which will again be briefly reviewed. I mention these facts merely as evidence that the high osteoplastic operation is in the long run more critical, and even in the hands of those who have had the widest experience with the method, is attended with a higher mortality.[16] It must be remembered also that the majority of these cases only represent an attempted extirpation, and often an operation intentionally confined to the lower two-thirds of the structure. In our series

14. This would, of course, remove the force of my argument in favor of permanent resection of the zygoma in order to lessen these deformities.

15. Since writing the above paragraphs I have learned that Dr. Sherman of San Francisco has observed a return of sensation and pain in the trigeminal field after the performance of simple root division, an extirpation of the ganglion having subsequently been necessary. Some features of the case, however, such as the extraordinarily early return of sensation, make the observation somewhat inconclusive, and on physiologic grounds leave the completeness of the primary neurectomy open to doubt, although the operator felt reasonably certain of its successful accomplishment. I have learned also that a similar experience has occurred to Sir Victor Horsley. Neither of these cases, however, have been sufficient, in my mind, to overthrow the principles of "no central regeneration" on which Drs. Spiller and Frazier have been working. On no more conclusive grounds has ganglion extirpation itself been claimed to be inadequate, two cases having been recorded of post-operative continuance of pain. Of these cases, Garré's (Archiv f. klin. Chirurgie, vol. lix, p. 379) was confessedly an incomplete extirpation, and in Friedrich's case (Deutsche Zeitschrift für Chirurgie, 1899, vol. lii) pain is said to have returned in four months. Regeneration of the peripheral branches in each of these patients, a condition that could not have taken place without the preservation of some ganglion cells, was evidenced by the relief from pain which was given through subsequent peripheral operations.

16. The mortality figures may be roughly given as follows: In the first series of one hundred cases, as collected by Tiffany (Annals of Surgery, 1896, vol. xxiv, p. 575), many of which represented cases of the low pterygoid operation, the mortality rate was 22 per cent. In the second series of one hundred cases, collected by Carson (Medical Review, St. Louis, 1899, vol. xxxix, p. 199), the majority of them being high temporal operations by the Hartley-Krause method, the mortality had been 11 per cent. Murphy and Neff, in 1892, collected 42 additional cases with six deaths, 12.5 per cent. Of those having a sufficiently long personal series to deserve mention, Horsley has had two deaths in 21 cases (Practitioner, September, 1900); Krause, in his series of 27 (Münchener med. Wochenschrift, 1901) has lost 7. Two or three of them, to be sure, were cases of late complication, which hardly should be included in the mortality percentages. Dr. Keen's cases, reported in 1898 in the twenty-fifth anniversary volume for Prof. Durante of Rome, were 11 in number, with 3 deaths, 2 of them from operative shock. Dr. J. B. Murphy (THE JOURNAL A. M. A., 1902) likewise records 11 cases with 3 deaths. By the more direct method which Lexer's and my operations typify, the mortality figures, comprising more than twenty unpublished cases, of which I have cognizance, making fifty in all, are below 5 per cent. Lexer and I have each lost one case in our series of 15 and 20 respectively.

in which invariably the effort has been made to totally extirpate the ganglion, an effort successful in sixteen instances, the mortality has been under 5 per cent. Out of my personal series of 20 cases one was lost on the operating table, as will be described.

It was stated in my earlier communication that the operation differed only in detail from others previously described, but that in observance of detail hung the success of delicate surgical procedures of this sort. Every surgeon has, of course, his more or less personal ways of attacking operative problems, and the familiarity with any given method, that comes from practice, may make easy in one man's hands a procedure which may be unsuited to the needs of another. This is especially true of performances such as that under discussion, for at the best, removal of the ganglion is troublesome, and that so many ways of overcoming its difficulties have been advocated need occasion no remark. Since presenting the method, which at that time and subsequently has proved serviceable for my personal requirements, I have seen at home and abroad several other surgeons operate in other ways, and though indebted to these opportunities for many useful suggestions, the impression has always been conveyed that especially in the method of approach these gentlemen have encountered more difficulties and have run more risks than are usual in the variation I have described.

POINTS REFERABLE TO THE INFRA-ARTERIAL PROCEDURE.

There are certain details of the operative steps as they were first given, which for a moment may be dwelt on; there is no necessity of reiterating their main features, as the salient points remain the same.

Formation of Muscle Flap and Exposure of Temporal Fossa.—The arch of the skin incision has been made considerably lower than indicated in my original drawings.[17] The vertical legs of the inverted U are, however, carried down no farther. This is important in the case of the anterior leg, which should not extend below the external angular process of the frontal bone, else twigs of the *N. facialis* to the orbicularis may be injured. Such a result is almost certain to follow in the procedure, which Juvara has described. The posterior leg, however, may be conveniently carried down as far as the temporal end of the zygomatic arch. It is to be regretted that in this, as well as in any of the temporal operations, be they high or low, the facial supply to the occipito-frontalis (*pars frontalis*) is necessarily sacrificed. This, by planing out all the wrinkles from the forehead on the side of operation, leaves a visible asymmetry of the brow, especially in old people who may possess deep furrows, as these patients usually do. The attempt has been made on the cadaver to work out an approach entirely posterior to the hair margin in order to avoid this sequel, but it apparently only adds difficulties to the already difficult procedure. I have been unable to examine all of my patients a year or more after the operation, but in some of those whom I have seen the occipito-frontalis has, in large measure, regained its function.

The necessity or advisability of resecting the zygoma has been much debated. Whether demanded or not by the particular approach employed, its complete removal, flush with the anterior edge of the temporal fossa as well as with the temporal bone at its point of origin, is, for reasons other than operative ones, distinctly advisable. One of the consequences of removal of the ganglion by any method whatever is a permanent (unless exception will have to be made to this statement in case of motor regeneration after division of the sensory root) unilateral paralysis and consequent atrophy of the muscles of mastication. The late (months) deformity resultant to the atrophy of the exposed temporal and masseter muscles, whose outlines normally round out the face, is greatly accentuated if the arch of the zygoma is left intact or has been replaced after a temporary resection. Its removal has been invariably practiced in all but my earliest cases, and in consequence of this step the deformity in most instances is relatively inconspicuous and only shows as a slight flattening of the face, which a casual observer would pass unnoticed. The zygoma should be shelled out of its periosteal covering and cleanly divided at each end by a heavy pair of bone forceps, exactly as a portion of rib is excised in a thoracotomy. A new and less prominent bony arch is formed, and instead of curving outward, as in its previous condition, lies flush with the somewhat flattened tempero-masseteric surfaces. The pad of fat underlying the temporal fascia, together with the incised fascia itself, should be carefully preserved. The lessening in obtrusiveness of this unavoidable postoperative atrophy has been especially well brought out in one of my cases (Case 7), in whom the temporal muscle had been paralyzed and become atrophied in consequence of a preceding operation on Meckel's ganglion. In this case the zygoma was removed at the time of the Gasserian operation, as a result of which the sunken temporal fossa was so much less apparent as to be commented on by both the patient and his friends. The cosmetic result, with and without removal of the zygoma, may be seen on comparing some of the photographs showing the late postoperative results.

Exposure and Elevation of Dura as Far as the Ganglionic Sheath.—Unless the high temporal route is chosen there is no reason for making an osteoplastic flap in the operation, although many adhere to this time-consuming detail.[18] Only a comparatively small opening in the skull is needed; indeed, there are many advantages attached to the small opening, as will be described, and it subsequently is covered in by the temporal muscle and, more important still, by its firm fascia. If a high-bone flap is made, the line of the craniotomy almost always runs across the deep meningeal groove of the lower angle of the parietal bone and often causes annoying hemorrhage, and if the flap with its temporal muscle attached is turned down over the zygoma the bone is apt to be more or less stripped away from its vascularizing soft parts. Several cases of necrosis consequent to this accident have been reported by Krause and others. If the approach is low and made on a level with the zygomatic arch, the thick covering of muscle and retreating angle of the skull make the formation of the bone flap as difficult as it is needless. In any case, should drainage be advisable, an osteoplastic craniotomy complicates the placing of drains. In the last of his series of cases, although developed from the Hartley-Krause procedure, Lexer has come to regard as unnecessary the preservation of the bone. A mallet and gouge or a burr is for me a much quicker, easier and safer way to make the primary opening in the skull in this situation than by the trephine. The small opening is primarily enlarged by prying up the edges of the thin bone plate with an elevator, and the opening is then

17. This operative method was illustrated and described in detail in THE JOURNAL A. M. A., April 28, 1900.

18. Sir Victor Horsley has from the first, although adopting the Hartley-Krause method in other details, regarded it as unnecessary to preserve the bone. (Practitioner, September, 1900.)

rongeured away well down toward the base, somewhat lower than in my original drawings, and, I wish to emphasize again, need never be made high enough to encounter the meningeal artery where it channels the parietal bone. A slight elevation of the dura brings into view the thin, transparent expansion of this membrane, which makes a sheath about the *N. maxillaris* and here, I think, the serious task of exposing the ganglion by splitting its envelope and bringing into view its upper surface should always begin.

Elevation of the Dura with Meningeal Artery and Exposure of the Upper Surface of the Ganglion.—This step illustrates the infra-arterial feature of the operation. Injuries to the meningeal artery heretofore have been among the complicating features of the approach to the ganglion. The vessel in its intracranial course has two fixed points, one at the Foramen spinosum, where it enters the skull, and a second at the Sulcus arteriosus, where it tunnels or deeply grooves the anterior angle of the parietal bone. Between these two points the vessel lies in the dura, with a curve presenting a considerable downward and forward convexity, corresponding to the concave surface of the middle cranial fossa. The distance on the curve of the skull between these two points measures on an average nearly 5 cm. In order to expose the ganglion, the dura underlying the temporal lobe must be gradually elevated during the process of separating from the ganglion the upper sheath of its inclosing dural envelope. The artery in its new position then runs across the dura from behind upward and forward, and as the temporal lobe is elevated and compressed the vessel assumes a concave downward in place of its normal convex position, and instead of hanging like a swing it now arches between its two fixed points, and under this arch all manipulations may be carried out. In 19 of my 20 cases it was thus possible to avoid all complications from meningeal bleeding. Only once did I tear the vessel at the Foramen spinosum owing to an awkward approach and resultant poor orientation which led me to mistake the third for the second division.

Most operators, I believe, prefer to ligate the artery at its point of entrance into the cranial cavity, and criticism has been passed on the infra-arterial method in that it does not allow of sufficient room between the artery and the third division of the ganglion (*N. mandibularis*) to safely attack the latter. This has not been found to be the case. It is very easy to insert the blunt dissector between these two structures, though they be only a few millimeters apart, and to pry the ganglion forward, using the edge of the trephine opening as a fulcrum; in this way no strain need be put on the vessel. For the carrying out of these manipulations a small opening in the skull possesses distinct advantages. I think it has been Krause's universal practice to ligate, and German operators, including Lexer and others, have followed his lead. Dollinger[19] soon after my report, as the result of anatomic investigations, arrived quite independently at the conclusion that it was possible to free and to extract the third division without injuring the artery at the Foramen spinosum and consequently that ligation is unnecessary. His operation, however, does not avoid injury to the meningeal at its higher fixed point, so that only one-half of the possible advantages of the infra-arterial method is gained in his procedure. More recently Bartlett[20] has considerably extended Dollinger's observations on the relative positions of the meningeal artery and the ganglion. He has shown that only in anomalous cases would it be impossible to carry out the infra-arterial procedure and has himself in two instances successfully followed it.[21] The method which Lexer has described and carried out in the last of his fifteen personal cases differs from my own chiefly in this detail of meningeal ligation. He uses the same low incision, makes his opening with mallet, chisel and rongeur, so large (*dreimarkstückgrosse*), however, that he does not avoid injury to the artery as it channels the anterior inferior angle of the parietal bone, resects the zygoma (temporarily), and has come to regard the preservation of the small area of bone as unnecessary. He has not, however, appreciated the detail emphasized in my earlier paper, namely that the skull is entered between the two fixed points of the meningeal artery.[22]

In the pterygoid operation its followers advocate, almost without exception, ligation of the internal maxil-

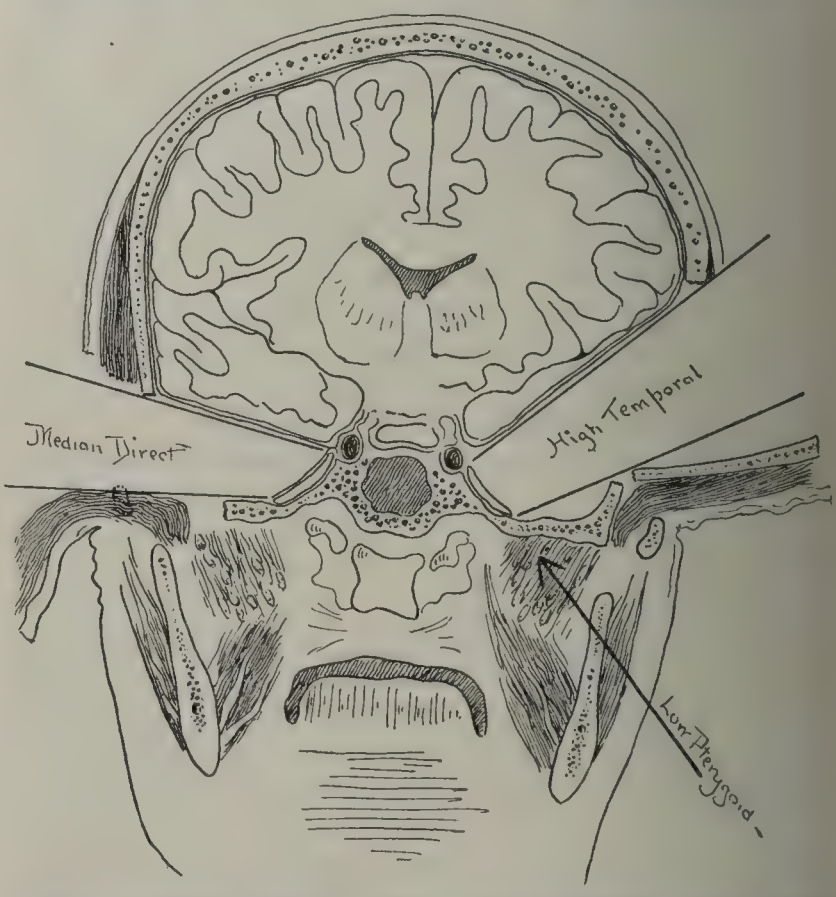


Fig. 1.—Sketch from a frozen coronal section of the head, schematizing the three chief methods of approach. *Oblique methods.* (1.) The high or temporal route. (Horsley and Hartley Krause.) (2) The low or pterygo-maxillary (Rose, Andrews, etc.). *Horizontal or direct method.* Transzygomatic (Lexer, Cushing, etc.). The Doyen method demands the space included by all three.

lary artery, which is necessarily encountered in the low approach. Several American surgeons have, indeed, gone so far as to advise a preliminary ligation of the

19. Centralblatt für Chirurgie, 1900, No. 44, p. 1089.

20. Bartlett: A Contribution to the Surgical Anatomy of the Middle Cranial Fossa, Annals of Surgery, 1902.

21. Bartlett: Excision of the Intact Gasserian Ganglion, Annals of Surgery, 1901.

22. He says (Archiv für klin. Chirurgie, 1902, vol. lxv, p. 14): *"Das bestreben von Dollinger und Cushing diese Unterbindung* (that is of the meingeal artery at the foramen spinosum) *zu umgehen und die Arterie zu erhalten, ist, wie auch Krause herworhebt, zu verwerfen. Denn, wenn es auch den gennenten Autoren gelungen ist, unter Erhaltung der Arterie das Ganglion zu entfornen, so kommt doch häufig eine Verletzung der Arterie schon beim Oeffnen der Schädelhöhle war, wenn das Gefäss in einem von Knochenspangen überückten Sulcus verläuft; ausserdenn kann die Arterie zu leicht bei den Manipulationen in der Tiefe zur Freilegung des Ganglion zerrissen werden, besonders bei dem stets nothwendigen mehrmaligen Tamponiren zur Stillung der venösen Blutung."* The first of these criticisms may be answered by the statement in the context that the cranial opening need never, unless in anomalous cases, be made high enough to reach the *"uberbrucktem sulcus"* (Sulcus arteriosus parietalis, Anat. Nomen.) and the last by giving John Hunter's blunt advice to Jenner: "Injury to the meningeal has occurred only once in my twenty cases, and then by inexcusable awkwardness."

external carotid, which seems quite an unnecessary step if the meningeal can be avoided, and such a step can affect the operation in no other way than to shut off the meningeal artery, without, so far as my experience goes, influencing the venous bleeding in the slightest degree.

The upper surface of the ganglion should, if possible, be entirely exposed during this step of the operation, and the degree of compression of the temporal lobe necessary to bring the structure into view, as can be judged by the accompanying sketch (Fig. 1), is much less in the transzygomatic than in the suprazygomatic or high approach. The extreme degree of compression, unless one satisfies himself with an incomplete extirpation or with an operation limited to the second and third divisions, must always remain a serious drawback to the Hartley-Krause procedure. It is during this and the following stage that complications from pressure by the spatula may ensue. In five of Krause's fatal cases, autopsies showed a superficial brown softening of the cortex; once a hemiplegia occurred; three times, in left-sided cases, a transient aphasia resulted. Lexer emphasizes the importance of care in retracting the temporal lobe and the special danger of placing the elevator in the unaccustomed hands of an assistant. The retractor in my cases has always been held by the operator himself in the left hand, all the necessary manipulations of elevating dura, of freeing the ganglion and of packing being carried out with the blunt dissector held in the right. I have employed a retractor of much the same form as that of Lexer, although instead of having a square end the end has been rounded, and it is possible that this may, in a measure, account for the unusual number of pressure palsies of the ocular nerves which I have occasioned. It is in this and in the following stage also that the blood-pressure reaction of acute cerebral compression usually occurs, depending in its degree on the extent of elevation of the temporal lobe. The entire upper surface of the ganglion and in many cases the sensory root may be brought into view at this stage of the operation.

(To be continued.)

POINTS IN THE TECHNIC OF ASEPTIC OPERATING.*

HENRY T. BYFORD, M.D.

CHICAGO.

The principles of antisepsis are well understood by the profession, and the methods employed to avoid septic infection are fairly uniform, but, since infection not infrequently occurs as the result of an imperfection in our antiseptic detail, it is well for us occasionally to discuss the subject and to criticise our methods, that we may reject the bad and adopt the good.

The most important point in the prevention of operative infection, of course, is to keep our hands out of septic matter for a considerable period of time before operating, because it is a physical impossibility to remove all infective material from the deeper layers of the cuticle.

If by looking through a strong lens we magnify the skin of the hand to the extent that the epithelial scales assume the size of the ordinary fish scales, and magnify also the bristles of the nail brush in proportion, it will not seem unreasonable to compare the scrubbing of our hands and fingers to the scrubbing of ten fishes with a brush whose bristles are much larger in diameter than the fish scales.

On the human skin, however, the scales grow in more layers than on the fish, and are situated on rugæ and papillæ and in folds and sulci. The human skin also has many hairs with their own scaly surfaces and individual follicles, and has also many sweat glands. When we reflect that these hair follicles and epithelial tissues are the natural habitat of the staphylococcus albus, we realize that the cleansing and sterilization of many fish skins is child's play compared with the sterilization of our hands. In fact, our hands can not be made clean and sterile except by removing the cuticle, a procedure which I am not yet prepared to advocate.

The only practical and safe procedure is to clean and to disinfect the surface as well as possible, and then to cover it with a coating that will prevent the deeper unremoved septic matter or germs from reaching the field of operation. This is why so many operators use rubber gloves. Gloves, however, do not constitute an ideal coating; they interfere with delicacy of manipulation, and they are dangerous because they excite perspiration, and thus bring germs from the deeper layers of the cuticle to the surface ready to infect the patient through possible tears and punctures of the gloves. It is quite common during an operation for a puncture to be made in the finger of a glove and to be overlooked; and even with the greatest care we can not be certain that some puncture or tear will not be overlooked. It is exceedingly annoying, as well as dangerous to the patient, to be obliged to change a glove two or three times during a difficult and prolonged operation.

Coating the hands with gutta-percha or with some other material of similar nature, is open to the objection that a scratch would liberate an accumulation of germ-laden sweat, which the impervious coating had caused to accumulate in the glands.

The old way of thoroughly preparing the skin and then applying a germicide that will harden the surface and check perspiration, and that can be renewed from time to time during a long operation, still seems to be very nearly the ideal method of treating a surface that can not be sterilized except in a most superficial manner.

In cleansing the hands, I always keep in mind the fish skin and the comparatively coarse brush that can not penetrate between the scales nor to the bottom of the folds and sulci; hence I believe that in addition to scrubbing the hands with soapy water, a certain amount of soaking is necessary to soften and to loosen up the dirt between the epithelial scales and at the bottom of the depressions. Twenty minutes, therefore, should be given to scrubbing and to soaking the hands in soapy water. I prefer water drawn into a basin, and frequently changed, to running water because a better and soapier soaking is possible.

Even after the most thorough cleansing with green soap some stain or hardened inorganic matter that may be insoluble in the alkali is apt to remain on the skin, and hence a short scrubbing in diluted acetic, citric or oxalic acid is desirable. This dissolves the remaining inorganic matter and more thoroughly exposes the underlying cuticle. Two or three minutes of such scrubbing will usually suffice.

In order to penetrate still deeper, and to harden the cuticle which has been swelled and loosened by the alkaline scrubbing and soaking, a scrubbing and soaking in 90 per cent. or 95 per cent. alcohol is desirable

* Read at the Seventeenth Annual Meeting of the Southern Surgical and Gynecological Association, 1904.

if not essential. The harder the cuticle becomes under this process the more completely are the underlying and unreachable staphylococci covered up and imprisoned in the depths of the cuticle.

The hands would now be sufficiently prepared for a short operation, but they may be more efficiently and more durably rendered safe for a long operation by an additional scrubbing and soaking for five minutes in a 1-2000 aqueous solution of mercuric chlorid. This not only quickly destroys germs if it finds any, but it still farther hardens the cuticle and forms a sort of film of albumin or albuminate of mercury which imprisons the germs beneath the surface. The film would be softened and perhaps be worked off during a protracted operation were it not that by dipping the hands and arms in the mercuric chlorid solution we can fortify or renew it every ten or fifteen minutes, and practically insure aseptic handling of the tissues during the entire operation.

I do not approve of mixing up the steps in the preparation of the hands and arms by using a combination of green soap and alcohol, or by dissolving the mercuric chlorid in the alcohol. One substance interferes with the best action of the other, and alcoholic solutions of mercuric chlorid have been found to be less efficiently antiseptic than an aqueous solution of the same strength.

I consider that the practice of covering up the arms with sterile sleeves is a bad one, because the sleeves are more or less loose and folded, and are apt to touch the assistants, instrument dishes and parts of the patient beyond the immediate field of operation, and may then carry dirt or germs into the field of operation, particularly if the whole hand be introduced into the abdominal cavity. The bare arms of the operator can feel the slightest touch, and he can dip them or wash them in the bichlorid solution at any time. This can not be done to the sleeves, which may touch surrounding objects many times without the knowledge of the operator.

Many surgeons teach that in performing peritoneal section no antiseptic solution should be touched after the peritoneal cavity has been opened for fear of bringing the irritating fluid in contact with the peritoneum. This is true with the ordinary preparations for operation as I have seen them. In order to do this efficiently and safely as a routine practice, the operator should have three basins within easy reach, two filled with warm sterile water and one with a warm 1-2000 mercuric chlorid solution. In order that the mercuric chlorid shall not harden the blood on the cuticle and interfere with subsequent disinfection, the hands are first dipped in a basin of sterile water to remove the blood, then into the mercuric solution and then, before the field of operation is touched, into the other basin of sterile water to remove the excess of mercuric chlorid. In this way a frequent renewal of asepsis is safe and practical; but as I seldom see more than two basins at the disposal of the operator, and seldom see an operator redisinfect his hands during the performance of a laparotomy, I infer that this practice is not usually followed.

I wish to bring up one other point that is of the greatest importance, if one would have perfect results in asepsis, viz., the preparation of the field of operation. The soap and water scrubbing just before the operation is often quite thorough, but the scrubbing with alcohol or ether and with the antiseptics is ordinarily quickly and insufficiently done. Now, it is comparatively easy to clean the abdomen, but it is quite difficult to clean the pubes and groins. In the practice of many surgeons who have otherwise good results suppuration of the stitches after the Alexander operation is almost the rule. The reason for this is that the skin about the proposed incision is not properly prepared. The shaving should be carefully done, in order not to produce scratches and abrasions, and the scrubbing not only with soap, but with alcohol or ether, and the mercuric solution should be thorough and prolonged. In plastic operations on the genitalia, the perineum and vagina require the same prolonged, careful scrubbing and the cervix a thorough wiping out and disinfecting. Vaginal douches, although they be prolonged and strongly antiseptic, are not sufficient.

The smallest operation should have the same thoroughness of preparation as the major ones. Pain or a rise of temperature should never follow a curettage. That pain, temperature and sometimes serious infection sometimes do follow a curettage is a fact that I have observed in the practice of celebrated surgeons; and I have been particularly impressed by the fact because my assistant caused a great surprise on two or three occasions by telling operators of her acquaintance, who had had trouble after curettage, that we never had either pain or temperature at the Woman's Hospital after this operation. Now, this fact reflected no particular credit on the hospital, for it was only what should follow a proper technic, but it proved to me that by haste, thoughtlessness or, perhaps, by a want of study and of intelligent attention to detail, operators occasionally still are having bad and unjustifiable results. Experience and skill are good, but cleanliness is better, and more careful study should be given to it.

While talking about septic skin, I would like to apply the same reasoning to the dressing of the wounds after operations. Since germs exist in the depths of the cuticle and are prone to come to the surface, they must be rendered harmless after they arrive there. This is best done by the use of dressings that absorb perfectly the discharges as well as the perspiration. Germs require moisture for their development, and perfect dryness is the ideal to be striven after. Occlusive dressings made with collodion favor the development of the native staphylococci in the perspiration, and in the serum and blood exuded about the sutures and retained there. Powders do not absorb well, and they form hard masses or cakes over the wound which allow moisture to accumulate under them. The best dressing is sterilized gauze placed in shreds over the sutures, so that the shreds will be forced down into the depressions about them, and a thick layer of sterile gauze placed over the shreds. After abdominal incisions, such dressings will keep the wound fresh for about a week. Over an inguinal incision the effect does not always last so long; after five or six days an inguinal wound should be washed off with an antiseptic solution, then thoroughly dried, and again covered with sterile gauze which may be changed every day, or may be left on longer according to the amount of irritation apparent. Dry dressings over peritoneal sutures should be changed every four hours, and oftener if they become saturated.

Secretaries Should Exchange Programs and Reports.—We believe the pharmaceutical bodies have profited by such a practice during several years past. The secretary of a state association who fails to send programs and reports to the secretaries of other state associations and to the pharmaceutical press neglects an important duty.—*Meyer Bros.' Druggist.*

BSTRUCTIONS IN THE RETINAL ARTERIES.*

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In bringing forward this subject for your considera-on, I intend to speak only of the three most frequent uses, which are, in the order of their importance, ar-rial diseases, embolism and spasm. I have not in-uded thrombosis, except as it results from the above-entioned cause, it being my belief that primary throm-sis in healthy unobstructed retinal arteries is rarely ound, while as a complication of the above pathologic nditions it is rarely absent.

For many years following Graefe's publication in 359, of the first carefully observed and recorded case obstruction of the central artery by an embolus, ost cases presenting a similar clinical history and icture were ascribed to this cause.

During later years, however, the increase in our owledge of the histologic pathology of the retinal ar-ries has pointed to obliterating endarteritis and spasm s more common causes of the condition, and has thrown oubt on many cases previously diagnosed as due to mbolus, as shown by Reimar. Of the obstructive con-itions mentioned, by far the most common and im-ortant is arterial disease in its various forms, the ost interesting of which for the present study is ar-eriosclerosis occurring as part of a general arterial de-eneration, especially when it takes the form of an en-arteritis proliferans. In the light of our present nowledge, it is evident that the majority of obstructive onditions of the retinal arteries may be put under the eading of retinal arteriosclerosis. With the ophthal-oscope it is usually impossible to tell which of the terial coats is most seriously diseased, so that the diag-osis of arteriosclerosis would seem the most applicable xcept in those cases of distinct periarteritis, and even ere the inner coats are probably more or less dis-ased. I think that the importance of retinal arterio-clerosis is not ordinarily recognized, and I am sure at it is often overlooked, or, if observed, only given passing thought, unless of a degree sufficient to cause gross lesion of the retina, and even then looked on as progressive disease that treatment will not stay nor lter. There is an old saying that "a man's age is the ge of his arteries," and it is a well-recognized fact hat the greater the degree and extent of a general ar-eriosclerosis the more apparent the general evidences f senility. There is no place in the body where ar-erial changes can be better observed and studied than n the eye, for here, by the aid of the ophthalmoscope, he vessel changes can be directly inspected by the phthalmic surgeon, who is thus often the first to dis-e beginning of general arteriosclerosis, and he hould be alive, therefore, to the necessity of advising ppropriate treatment.

In the earliest stages, the ophthalmoscopic picture onsists of a slight increase in the reflex from the ar-eries, which makes the contrast between them and the eins more pronounced, and this reflex is often slightly rregular in outline. Slight irregularities in size of he arteries are noticed, and they are more tortuous, specially the macula branches, and a slight congestion f the discs and a feathery outline are often observed. Where the artery crosses above a vein the latter is often compressed, leading to its dilatation and tortuosity distally, and the vein is hidden to a greater extent than the apparent width of the artery, showing that the latter has thicker walls than usual. A little feathery exudate is often seen in places beside the arteries. This should not be mistaken for the opaque nerve fibers often seen running beside the vessels close to the disc. Where the central artery in the nerve is thickened and enlarged, it often imparts a pulsation to the veins which can be seen ophthalmoscopically. All these conditions may be present or only one or two.

When the fundus shows the picture described above, it should be looked on as a danger signal of an advancing arterial disease. In more advanced stages the arteries show still greater increase of light reflex, the silver wire arteries of West, and become much more tortuous, while the unevenness often exists to the extent of a decided beading, the beading showing in the artery and also in the light reflex. Simple tortuosity, however, should never be construed to indicate vessel disease, especially when found in marked hypermetropia with amblyopia. It is in this stage that lesions in the retina appear. A small arteriole becomes so sclerosed as to be impermeable, or its lumen so constricted that the portion of retina supplied by it is not properly nourished and a local edema occurs with subsequent degeneration, and the larger the obstructed vessel the more extensive the retinal change. Hemorrhages often occur from the necrotic vessel beyond a partial obstruction, or following the partial late restoration of a complete obstruction. In other words, the appearances of the early stages of degenerative albuminuric retinitis are produced. There are, indeed, many cases of retinal disease which should properly be called arteriosclerotic retinitis, where the distinctively degenerative condition of the retina results from the retinal arteriosclerosis, itself a manifestation of a general arterial disease, with so slight an involvement of the kidney vessels that no albumin is found on repeated examination and the amount of urea is normal, and it is clearly evident that the arterial disease is primary and not due to uremic poisoning. This was pointed out by Samuel West[1] in his treatise on granular kidney, and more recently by Dr. de Schweinitz,[2] myself[3] and others.

I can not do better at this point than to quote the following conclusions with which Dr. West[4] closes a paper on albuminuric retinitis:

"I may bring this communication to a conclusion by summing up the facts which I think justify the drawing of a sharp distinction between the two forms of albuminuric retinitis, the degenerative and the exudative. They stand in strong contrast with each other in the following respects:

"1. Of the form of disease with which they are usually associated—the degenerative with granular kidney, the exudative especially with the parenchymatous nephritis.

"2. Of their nature and cause—the exudative being inflammatory and probably toxic in origin, the degenerative consequent on vascular changes and more or less mechanical in origin.

"3. Of sight—for the exudative—even in the extreme forms, may recover, with little or no defect of sight,

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Samuel West: Treatise on Granular Kidney.
2. Transactions A. M. A., Ophthalmic Section.
3. Boston Med. and Surg. Journal, Dec. 10, 1903, vol. cxlix.
4. Lancet, Aug. 19, 1899.

but with degenerative, if there is any impairment of sight, it is usually progressive.

"4. Of diagnostic value—the exudative being an interesting by-phenomenon of chronic parenchymatous nephritis, an affection the existence of which is obvious enough, while in granular kidney the degenerative often makes the diagnosis certain in cases which have been hitherto obscure.

"5. Of risk to life—for while in both cases it indicates a grave form of renal disease which may of itself prove fatal, in granular kidney it indicates in addition all those dangers to which arterial disease exposes the patient.

"I think, therefore, that the distinction is not only justified by the facts, but that it explains many of the apparent contradictions which are made by different authors."

Small branches often become closed by the obstructive endarteritis, and are at first covered by edematous retina into which they seem to disappear, to show later, after the subsidence of the edema, as white lines. A main branch and its terminals may be reduced to white bands by complete obstruction throughout. A large vessel often has a broken appearance at a point of partial obstruction, and new-formed vessels are seen coming from the proximal portion, giving the vessel a feathery appearance, or more commonly the main branch on the disc gives off a network of new vessels. In fact, the ophthalmoscopic pictures are very varied, and a number of different retinal diseases may have arterial degeneration for their cause, as pointed out by Ole Bull.[5]

The early stages of arterial degeneration require a careful inspection of the upright image for their detection, and as Alleman[6] has so well pointed out in his recent paper, it is this early detection of beginning premature senility that puts us in a position to stay the downward progress. I find that the vascular condition of the fundus can best be studied by using a very bright light of small size and close up to the plane of the patient's ear. The light I obtain by using a Welsbach and an iris diaphragm chimney, with a 1.5 cm. opening.

A branch of the central artery may be suddenly obstructed from a combination of endarteritis and spasm, giving the picture produced by an embolus of a branch. This may happen to the central artery itself, where a partial obstruction by an area of endarteritis proliferans nodosa becomes complete through a lowering of the blood pressure with collapse of the vessel wall and thrombus formation or spasm of the vessel. Immediate blindness results which may be only temporary, if the obstruction becomes again incomplete, or if not the fundus soon shows the classical changes described by Graefe.

Gonin[7] of Lusanne reports an interesting case of sudden loss of sight, where a clinical diagnosis was made of thrombosis of the central vein, but postmortem examination of the eye revealed a very extensive sclerosis of all the vessels. In the arteries the cells of the intima were in a general state of proliferation to the extent that at their origin on the disc the lumen of each of the three main arteries was nearly obliterated. Sections through the optic nerve showed the central artery blocked by a button of dense tissue. This button was found to consist of endothelial tissue and elastic fibers growing by a pedicle from one place in the internal wall and occupying the entire lumen, with the exception of a mere slit.

Hoppe[8] of Cologne, in accounting for a case of sudden obstruction of a branch of the central artery, advances the theory that from a lowering of the blood pressure healthy arterial walls may collapse or be sucked in to the extent of causing a sort of valvular closure, with destruction of the function of that portion of retina supplied. Such a theory seems hardly necessary to explain such cases, particularly in view of the pathologic conditions found in Gonin's case.

E. Hertel[9] examined postmortem the eyes of a number of cases of general arteriosclerosis where sight was not impaired, but where in some cases slight arterial changes showed ophthalmoscopically. The microscope showed two kinds of changes. The first was found in all eyes and all along the vessels, and ascribed to senile changes by Hertel. It consisted in a widening of the lumen of the vessels, with an increase of thickness of the walls. The second kind of change was not general and consisted of an inflammatory lesion with round cell infiltration and formation of cellular connective tissue leading to thickening of the vascular walls. Increase of elastic fibers in all parts of the wall occurred, with elastic fibers sometimes projecting into the lumen of the vessels. He thus proves that serious obstructive changes in the retinal arteries, often observable by the ophthalmoscope, may be present in cases of general arteriosclerosis long before the occurrence of defects of sight.

Nettleship[10] thinks that an early stage of granular kidney reasonably may be suspected when decided hyaline thickening of the retinal arteries is seen, and that the suspicion will be much strengthened if the patient be comparatively young.

Dr. John T. Carpenter[11] reports that 6 cases with advanced arteriosclerotic changes died from apoplexy, and that cases showing hemorrhages only were less early fatal than the others.

In connection with this question of arteriosclerosis, the following cases of my own are interesting:

CASE 1.—Woman, aged 61, came to my office March 10, 1899, complaining that she could not see as well as formerly.

Examination.—Examination of the fundus revealed the following: O. D. retinal arteries showed well-marked sclerosis with areas of perivasculitis. Many spots of exudate with beginning degeneration and pigment depositing. O. S. showed similar conditions of the arteries and numerous small flame-like hemorrhages were scattered throughout the retina; in other words, a hemorrhagic retinitis existed resulting from the arteriosclerosis. Her family physician was notified of the findings and advised that the kidneys were probably involved but during the next three years the urine was repeatedly examined and no evidences of kidney trouble found. The patient has followed directions and taken good care of herself, but lately has begun to fail and in January, 1904, her physician reported that the urine showed well-advanced chronic nephritis.

CASE 2.—C. W. H., aged 47, machinist, entered Lincoln City Hospital May 9, 1903, service of Dr. George Sears.

Family History.—Negative.

Previous History.—Negative. Denies venereal diseases; uses no liquor nor tobacco.

Present Illness.—Six or seven weeks ago patient "broke down" and since that time he has been unable to work. Some vomiting at times, but none for past two weeks. Dyspepsia.

5. Ole Bull: Diseases of the Retinal Vessels.
6. American Medicine, Feb. 20, 1904.
7. Archives d. Ophthalmologie, April, 1903, vol. xxiii, p. 219.
8. Graefe's Archives, 1903, vol. lvi, No. 1, p. 32.
9. Trans. Heidelberg Oph. Soc.
10. British Med. Jour., Dec. 26, 1903.
11. Oph. Sec. College Phys. and Surgs. of Philadelphia, January, 1904.

For four or five weeks burning pain in rectum. Bowels moved every two or three days. Dejecta containing lumps of feces. Hemorrhoids for years with streaks of blood in stools. Appetite poor.

Present Condition.—Well developed and fairly well nourished. Pale, pupils equal and react. Tongue dry and coated. Pulse equal, regular, good, with tension increased and showing arteriosclerosis. Heart sound and action normal. Lungs, slight dullness of left side of chest, with profuse medium and fine moist râles throughout posterior and lower half of back. Breathing in left side somewhat bronchial. Right lung tympanitic, otherwise normal. Spleen not felt. Abdomen, slight general tenderness; numerous hard, irregular masses, size of walnuts, can be felt scattered throughout. Extremities and reflexes normal.

May 10, 1903. Urine shows pale color; specific gravity 1011, acid, large trace of albumin, no sugar. Numerous hyaline and fine granular casts, renal cells, leucocytes and squamous cells.

May 13. Patient steadily improved in general condition, appears somewhat stupid at times. Practically no cough or expectoration. Hemorrhoids have gradually and entirely disappeared. Considerable difficulty in controlling the urine and feces. Knee jerks lively.

May 17. Mental condition does not improve. Frequently repeats answers to questions over and over again. Has a peculiar laugh.

May 27. Steadily failed since last note. Passed dark clotted blood by rectum, vomited several times, small ulcer appeared on right shoulder. Swelling, redness and tenderness of glands of right side of neck. Patient sank into a stupor and became comatose and died at 1:30 a. m. May 27.

Blood Examination.—May 9, 125,600; hemoglobin, 75 per cent. May 11, 118,600; hemoglobin, 75 per cent.

Dr. E. Stanley Abbott, alienist, examined the patient and made a probable diagnosis of incipient general paralysis. I examined the patient's eyes a few days before death and found a marked neuroretinitis amounting to choked disc with exudates about the discs and maculæ, and arteries sclerotic.

This case illustrates the exudative type of retinitis, where retinal lesions due to the arteriosclerosis are largely masked by the exudates resulting from the uremic condition. The choked discs evidently resulted from the extreme distension of the nerve sheaths, which was found to exist on removing the eyes. Whether this patient had arteriosclerosis prior to the kidney disease can not be told by postmortem evidences. The autopsy showed very marked arteriosclerosis, and particularly of the small brain arteries.

AUTOPSY.

May 27, 1903. Body, Dr. Roberts; head, Dr. Southard. Nine hours postmortem. Age, 47 years. Body of a well-developed, poorly-nourished man. Rigor mortis present. Slight lividity of dependent parts. Pupils equal, 5 mm. in diameter. No edema.

Peritoneal Cavity.—Surfaces smooth and shining. Appendix 5 cm. in length, free, provided with mesentery throughout and points upwards and inwards. Mesenteric lymph nodes not enlarged. Diaphragm reaches to the fifth space on the right; same on left.

Pleural Cavity.—Strong fibrous adhesions bind down lower lobe of left lung laterally and posteriorly.

Pericardial Cavity.—Surfaces smooth and shining. A few milk patches beneath visceral pericardium. Normal amount of fluid.

Heart.—Weight, 490 gms. Valves: Cusps of both aortic and mitral valves show some thickening. Pulmonary and tricuspid valves normal.

Measurements—

Tricuspid valve	13 cm.
Pulmonary valve	8 cm.
Mitral valve	10 cm.
Aortic valve	9 cm.
Left ventricle	2.5 cm.
Right ventricle	.75 cm.

Fresh section shows no fat.

Coronaries.—Both coronaries show marked degree of sclerotic change.

Lungs.—The apex of each lung exhibits areas of puckering, which on section are found to be composed of dense fibrous tissue. Besides these are a number of hard nodules. Lower lobes of each lung dark red on section, and slight pressure brings forth considerable frothy fluid.

Spleen.—Weight, 130 gms. Capsule wrinkled, dark purple in color. Section dark purple, and trabeculæ are increased.

Gastrointestinal Tract.—Colon shows numerous ulcers, some of which are very large, extending for several centimeters; others smaller. Bases of these are grayish in color, covered with a dark chocolate colored material. Besides these ulcers are a number of small, slightly raised areas, averaging 2-3 mm. in diameter.

Pancreas.—Normal in appearance.

Liver.—Weight, 1,700 gms. Capsule smooth. On section surface normal in appearance. Lobules not easily made out.

Kidneys.—Weight, 240 gms. Capsule strips with difficulty, leaving behind a roughened surface. Section pale; not made out. Fresh section shows considerable fat.

Adrenals, Bladder and Genital Organs.—Normal in appearance.

Aorta.—Shows marked arteriosclerotic changes.

Head.—Scalp normal. Cranium thin without diploë. Dura normal, without adhesions. Sinuses filled with chicken fat and cruor clot.

Brain.—Weight, 1,500 gms. Pia over a few sulci, especially at junctions of sulci, shows thin white streaks of old fibrous thickening. Pia in the main normal. Vessels slightly injected. Subpial space contains a slight increase of fluid. Brain substance firm and of normal appearance. The walls of the ventricles stand rather firmly open as if from a moderate permanent dilatation. There is from 15 to 20 c.c. clear fluid in each ventricle. There is no sign of chronic change except in the accessory sinuses of the fourth ventricle, which show a coarse, sanded appearance. Two small pea-sized cysts of softening with pale, irregular walls and semigelatinous contents, occur, one in the outer posterior portion of the left lenticular nucleus in the plane passing through the anterior poles of the optic thalami; the other in the central portion of the pons, apparently cutting off a few pyramidal fibers, but chiefly pontine commissural fibers. The vessels at the base show well-marked and very evenly distributed yellowish thickenings, but are apparently everywhere pervious. The sclerosis extends into the smaller branches and may be followed as far as the annectent gyri. The eye grounds show chronic changes, equal on both sides. Hypophysis normal.

Middle Ears.—Normal.

ANATOMIC DIAGNOSES.

Chronic diffuse nephritis.
General arteriosclerosis.
Hypertrophy of heart.
Sclerosis of coronary arteries.
Healed tuberculosis of lung.
Chronic hemorrhagic enteritis.
Follicular enteritis.
Chronic fibrous pleuritis.
Subpial edema: chronic internal hydrocephalus, slight subpial edema.
Chronic fibrous leptomeningitis (moderate).
Chronic ependymitis of accessory sinuses of fourth ventricle.
Small old cysts of softening.

MICROSCOPIC DESCRIPTION.

Heart.—The coronary branches show marked intimal changes, both proliferative and degenerative. The intima with the fatty central zone may be from 1 to 2 mm. thick. No branch seems completely occluded.

Lung.—The smaller vessels show intimal thickening. There are in a section several dense fibrous areas with old pigment collections and foci of lymphoid cells. The fibrous areas are sometimes continuous with the peribronchial tissues. Many of the alveoli are collapsed and many contain pigmented phagocytes.

Spleen.—Hyaline changes in media of arterioles of malpighian nodules. Reticulum of pulp prominent. Pulp injected. There are very numerous pigmented cells. Scattered through the pulp are numerous polynuclear leucocytes.

Liver.—Not remarkable. Slight collections of lymphocytes in periportal connective tissue.

Kidney.—Capsule thickened. Vessels show thick intimal proliferation. About the vessels is much dense fibrous tissue, fairly rich in nuclei. There is much diffuse overgrowth of fibrous tissue in the cortex, associated with tubule atrophy and destruction and various grades of glomerular change advancing to complete fibrosis. There are a few casts in the collecting tubules. It would be difficult to deny that the whole cluster of changes in the kidney is a product of the arteriosclerosis.

Dr. E. E. Southard, who has been of great assistance to me in this case, writes to me regarding such cases as follows:

"It seems to be impossible to prove in many cases, in respect to kidney lesions themselves, whether conditions to which the name of interstitial nephritis can be given are produced by sclerosis or by primary (unknown) proliferative changes of the interstitial tissue; but it is probably accurate to say that in the kidney, either change may initiate the other: thus that vascular changes may follow the interstitial and vice versa. I don't know that this throws any light on your problem of the eye changes and their significance; but it would seem, could we look into the kidney as into the eye, that there would still be some doubt as to the significance of vascular changes which might be visible."

CASE 3.—Seen Feb. 13, 1904, in consultation with Dr. C. F. Moulton. Male, aged 50, school teacher, has been in poor health for several years.

History.—His physicians have several times examined his urine without finding albumin. For about a year the sight of the right eye has been failing, and he has had frequent attacks of sudden blurred vision of that eye lasting from a few minutes to an hour. During the past few weeks the sight has been poorer in that eye, and he has noticed a partial loss of field of vision, which defect is well shown by the field chart taken by Dr. Moulton (Fig. 3). The patient looks and acts like a man enfeebled by age. He is apathetic and his memory is very poor.

Examination.—The right eye shows the following interesting picture at the fundus: There is a sclerosis of all the retinal arteries, with the inferior temporal branch reduced to a white band, the obliteration of its lumen commencing at the edge of the disc. Just beyond this the vessel has a rounded appearance, but it soon changes to the flat band-like appearance seen more distally. The patient is of dark complexion with abundant retinal pigment, so that the obliterated artery stands out white and glistening against the dark background, and even the small branches can be seen as little white threads. The portion of the vessel on the disc shows thickened walls and a tiny stream of blood in the lumen, coming to a sharp point at the edge of the disc. Coming from this portion of the vessel are several new formed arterioles and the central two-thirds of the disc, especially the lower part, is partly hidden by an anastomosing network of new formed vessels, from which new vessels can be seen running on to the retina, a distance of a disc diameter or a little more. I have never before seen so marked a network of new formed vessels.[12]

The upper temporal artery also shows obliteration from just beyond its second branch out, giving it the same white band-like appearance. The second branch of this vessel, which runs down and to the temporal side of the macula, becomes partly obliterated soon after leaving the parent vessel, and its distal portion is surrounded by a wide area of white edematous retina which buries the vessel except in spots. Just below the macula there is another white area of edematous retina at the tip of one of the branches of the vessel first described. Between the disc and the macula, but nearer the latter, are two small spots of degenerated retina. The following sketch shows the conditions described (Fig. 4).

The left eye shows only a very slight arteriosclerosis and this, to my mind, is another evidence of the assertion that such cases are to be studied from the standpoint of primary arterial degeneration, which, as is well known, may vary greatly in different locations, while it has been my experience that the extensive inflammatory degenerations of the retinal and choroidal vessels resulting from the uremic poisoning of advanced chronic nephritis affects both eyes in nearly equal degree. Dr. Moulton has recently informed me that after two months' treatment with potassium iodid the patient's physical and mental condition has improved greatly and the visual field has changed slightly as shown in Fig. 5. Eye massage was also used.

CASE 4.—E. G. W., aged 53, seen Jan. 23, 1902; has never had any trouble with his eyes until day before, when at 9:30 a. m. he suddenly became aware that he could not see the left half of any object he looked at.

Examination.—Examination revealed a complete loss of the left fields, even to light perception. The onset of this hemianopsia was not accompanied by any other sign of cerebral disturbance than a dull feeling head and the patient was able to finish his day's work, though much inconvenienced by his half vision. The ophthalmoscope reveals a moderate degree of sclerosis of the retinal arteries, with a few spots of degeneration in the macular regions. His urine showed a very slight trace of albumin. In two weeks the blind fields had recovered a hazy vision and in three weeks more the fields were perfect except for colors.

I saw this patient again April 16, 1904, and found no field defects whatever. The fundi showed slight increase of the arteriosclerosis, with a fresh hemorrhage in the right eye near the disc. His mental and physical condition, however, was much reduced, and he styled himself "a walking sick man."

In view of the fact that the retinal endarteritis probably indicates the same condition existent in the cerebral arteries, is it not possible that the cerebral disturbance which caused the hemianopsia may have been precipitated by a spasm of the cerebral artery supplying the portion of brain involved? The fact that no other symptoms of cerebral apoplexy appeared, and that the hemianopsia disappeared so quickly, would tend to support such a hypothesis.

CASE 5.—Mrs. G. A. M., aged 67, was seen May 1, 1904, and the following history obtained:

History.—Eighteen months ago a blur came before the right eye, and the optician consulted made a diagnosis of albuminuric retinitis. The urine was examined by an expert chemist and pronounced normal. She then consulted an oculist, who told her that there was a hemorrhage in the retina of the right eye. Since then the sight in that eye has failed, and during the past six months the sight of the left eye has also been greatly reduced.

Examination.—V. O. D. = p. l., v. o. s. = [illegible] fingers at 6 inches. The ophthalmoscope shows a most [illegible]nsive arterial and venous degeneration. Many of the arteries in each eye are reduced to white bands running across areas of exudate and degenerated retina. The nerve head is hidden by swelling and exudate and there are hemorrhages scattered all over the fundus. Most of the hemorrhages seem to be from the veins. It is apparently a case of very extensive vessel sclerosis without very serious involvement of the kidneys. The urine on examination still shows free from albumin or sugar.

I have at present several patients under my care who have well-marked retinal arteriosclerosis, with degenerative retinitis, with little or no albumin in the urine, who have already lived beyond the allotted two or three years.

12. Particular attention was drawn to this condition of new vessel formation by Hugh Thompson in his recent articles on obstructions of the central artery. Ophthalmic Review, 1902, March and April.

It is well known that the changes in the retinal arteries described above are evidence of general changes which eventually result in death, yet very little is commonly done in the way of treatment.

I would urge ophthalmic surgeons and general practitioners to be alive to the necessity of advising appropriate treatment in the early stages of this disease, when I am sure so much more can be done than is generally supposed. We can all remember when patients

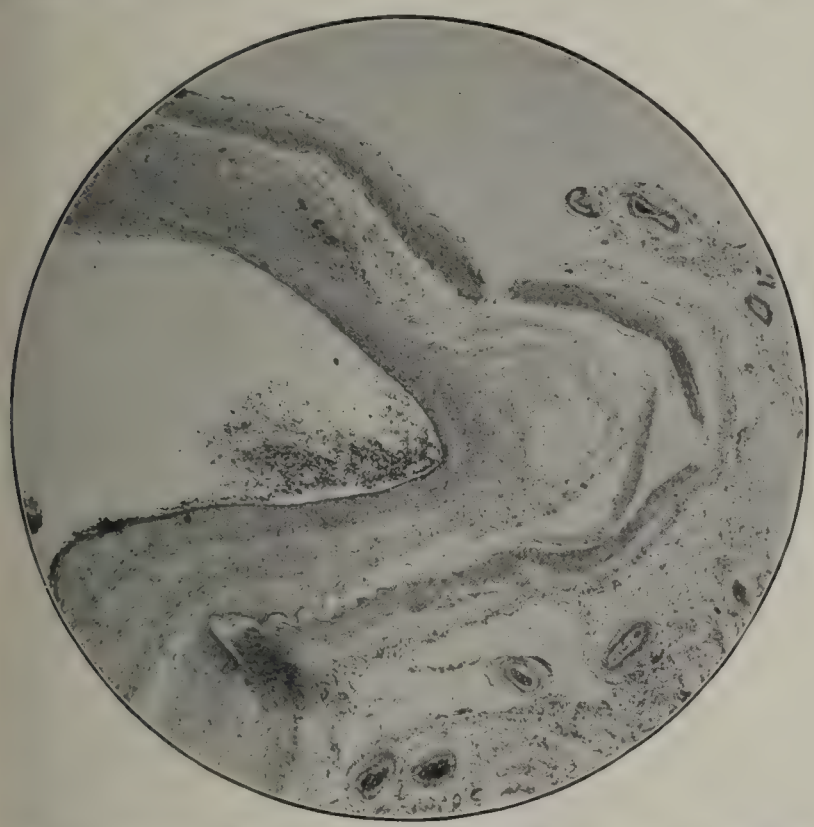


Fig. 1.—Sylvian artery from Case 2, showing marked thickening of the intima with a break in the elastica.



Fig. 2.—Section from a case of Dr. Verhoeff's, showing marked thickening of the intima of a main branch near the disc.

with phthisis pulmonalis were looked on as not requiring other treatment than that necessary to make their few remaining months comfortable, and physicians spent very little time in studying each case with hope to cure or greatly lengthen life. It is not to be expected, however, that so much will be accomplished in staying the progress of arterial degenerations as has been done with phthisis, the differences in average of age preventing, but the obligations to do all we can for these cases is just as imperative.

That the rush and hustle of our modern American business and social life is conducive to early arterial degeneration, is a well-established fact, and this, with the predisposing influences of heredity, rheumatism and the infective diseases, especially syphilis, constitutes the principal causes of obstructive arterial disease other than the cases distinctly resulting from the uremic poisoning of a kidney lesion, which is usually of a parenchymatous type.

From the brief suggestions here offered as to the causes of retinal arteriosclerosis, it is evident that the treatment consists largely in regulating the patient's mode of living, especially as regards the avoidance of over nerve strain and all excesses. The very best advice to such patients is to live moderately in every way, and to keep the processes of digestion and elimination as normal as possible. The details of the regulating treatment, of course, must be such as each individual case calls for. In addition, it has been my custom to advise the long-continued use of iodid of potash in small doses.

EMBOLISM.

The plugging of a retinal artery by a floating particle which usually comes from diseased heart valves or

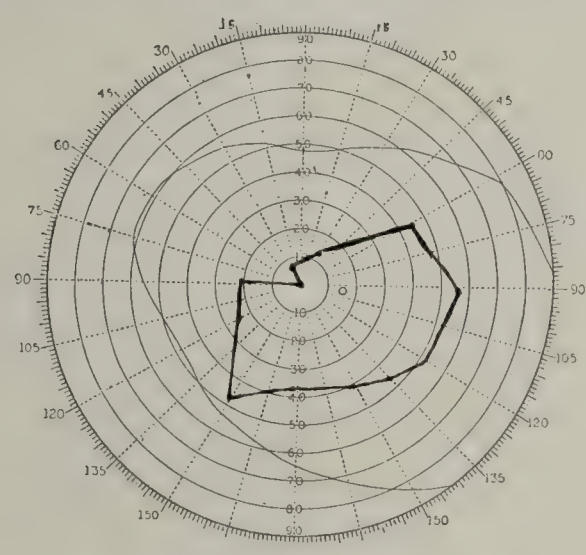


Fig. 3.—Right eye. Feb. 13, 1904.

a heart thrombus, is occasionally seen, and if the plug is stationary in a central artery, we have the sudden loss of sight with the fundus changes so ably described by Graefe, which do not need reiteration at this time.

I am inclined to the theory that ascribes the cherry-red macula to the contrast offered between the very thin and non-edematous retina of this region with the color of the choroid showing through, and the white edematous surrounding retina. I have several times seen a central retinal separation which shows the bright red macula contrasted with the gray surrounding portions, simulating the picture produced by embolism.

Dr. Verhoeff[13] has published a case which gave the fundus appearances of embolus following optico-ciliary-neurotomy, where the cherry-red macula was due to a hemorrhage, and he suggests this as the cause in some cases. The embolus may be a foreign substance introduced into the circulation, such as paraffin injections used in reducing nasal deformities, as shown by the case of Hurd and Holden.[14] In this case, the question has arisen how an embolus large enough to obstruct the central artery could pass through the lungs. That

13. Reference Handbook of Medical Sciences.
14. New York Medical Record, July 11, 1903.

the capillaries of the lungs would allow quite large particles to pass through is shown by the cases of fat emboli of the vessels of the brain, following fractures of the tibia or femur, and it might be possible that fat emboli could occur large enough to stop in the central artery of the retina, and Virchow showed by experiments that a foreign body will cause contraction of the arterial walls at the point of lodgment and thus complete the obstruction.



Figure 4.

The following case of embolus, in the superior nasal branch, is interesting in this connection:

CASE 6.—Mrs. R. L., aged 29, has had no previous trouble with eyes and no premonitory symptoms. While walking on the street she suddenly noticed a blur come before the left eye, which rapidly increased, and on covering the right eye, she could see but little with the left, and not at all in a direction downward and to the right. I saw her seven hours later and found the following: O. S. V. = 20/200, the fundus shows a whitish, clouding of the retina, limited sharply to the upper temporal quadrant and starting at the disc. The upper temporal artery reduced to a mere thread and partially buried in the white edematous retina, the visual field shows the defect corresponding to such a loss of retinal function and is shown in the chart below.

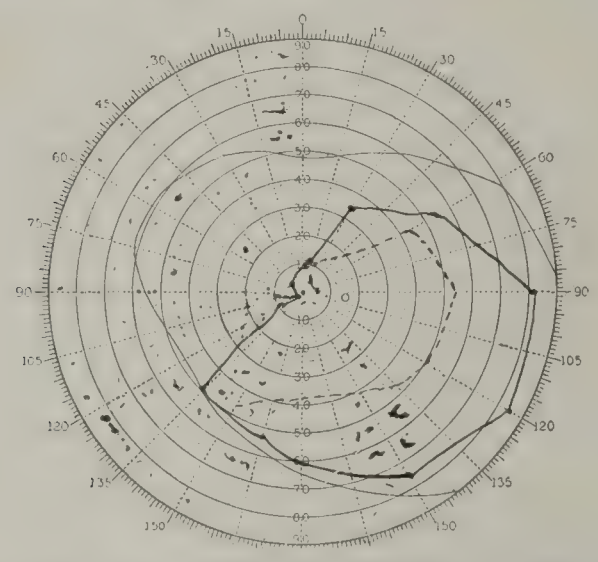


Fig. 5.—Right eye. Dotted line February 13, continuous line May 7.

Examination.—On examination of the patient, I found that she had well-marked mitral and aortic endocarditis. She was put to bed and given nitroglycerin and the eye massaged during inhalation of nitrite of amyl. During the next two or three weeks the retina gradually recovered its normal color, but the defect in the field remained. Examination three weeks after first visit showed a plug in the upper temporal branch extending from the point of bifurcation of this branch and the nasal branch at the center of the disc, to nearly the edge of the disc. From this point on the artery contained a small amount of blood, but was only about one-third the size of the other main branches. There were no signs of arterial disease and the clinical history and fundus picture would point quite conclusively to embolus as the cause of the arterial obstruction.

June 1, 1904. The upper temporal artery was a mere thread and the optic disc was atrophic. F. V. as before.

Treatment of embolism is probably rarely instituted in time to save the functions of the retina. The use of nitroglycerin, nitrite of amyl and deep massage should be tried as soon as possible after discovering the condition, with the hope that the plug, if situated in the central artery, may be carried as far into one of the branches as possible, and thus reduce the field defect to a small area. If, in a suspected case of central embolism, there should be a complete restoration of the retinal function, it would point to a diagnosis of spasm rather than embolus, it being inconceivable that an embolus large enough to stop temporarily in the central artery could pass to so small an arteriole that no retinal defect would be produced.

E. Stoke,[15] in December, 1903, published a case of simultaneous bilateral embolism of the central arteries with complete recovery in a few days, occurring in a man of 80 who had marked atheroma. One, I think, is justified in hesitating to accept such a diagnosis at the present time, and feeling that some disturbance in the blood or circulation may have precipitated a temporary spasm, causing the sudden loss of vision.

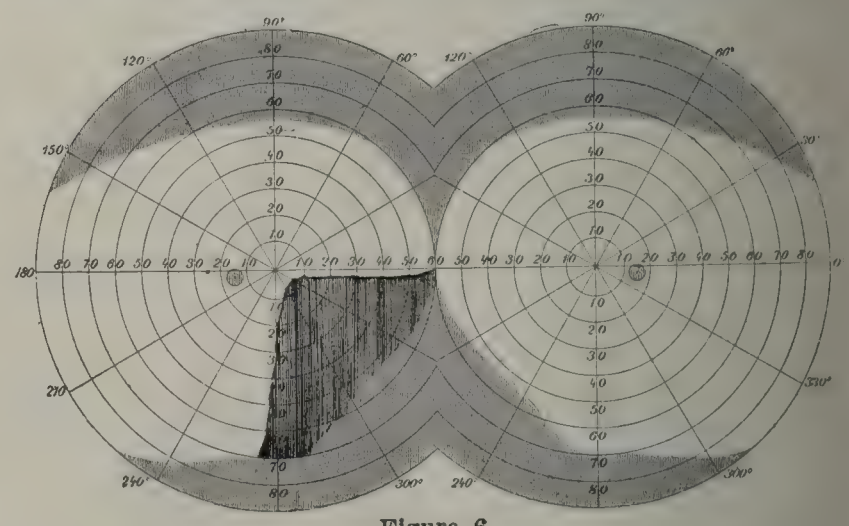


Figure 6.

I doubt if paracentesis and evacuation of the anterior chamber will do more than nitrite of amyl and deep massage.

SPASM.

That spasm of the retinal arteries may occur of sufficient degree to cause a temporary partial or complete obstruction to the flow of blood seems proven beyond a doubt. It has been the good fortune of several observers to see patients during an attack of spasm of the retinal vessels, where, for a few minutes, the arteries were reduced to yellow streaks, with subsequent restoration of the circulation. Such patients give a history of more or less frequent attacks of complete or partial blindness of one eye, lasting from several minutes to an hour or two.

Case 3, described above, gives such a history, and there were evidently attacks of spasm preceding the final complete obliteration of the inferior temporal artery. It is my belief that spasm occurs most fre-

15. Med. Wochenbl., Dec. 26, 1903.

quently in the early stages of arteriosclerosis, and should be looked on as a warning of future obliterating endarteritis.

Wagenman's[16] classical and frequently observed case of repeated spasm finally had a spasm that was not relieved, and the arteries remaining closed, the picture of embolus was produced. I doubt if a more than very temporary spasm occurs in healthy vessels with normal blood, but that patients with retinal arteriosclerosis complicated by recurrent attacks of spasm are in special danger of blindness is evident.

Virchow many years ago pointed out the fact that the arterial walls would contract around an embolus, thus making an obstruction more complete. This contraction or spasm was only temporary, and it is only rational to expect that it would be a frequent and recurrent accompaniment of endarteritis.

Zehender was the first, according to Ole Bull, to call attention to arterial spasm, and in 1866 he published a case of repeated spasm of the retinal arteries following the repeated use of an ice-bag.

The treatment outlined for retinal arteriosclerosis should be followed even more carefully where occasional spasm occurs, and when the patient is suffering from an attack, nitrite of amyl may be used to abort it.

DISCUSSION.

Dr. John E. Weeks, New York City, stated that the retinal arteries sometimes show conditions somewhat analogous to arteriosclerosis when sclerosis is not present; one of these conditions is perivasculitis, the white line along the artery is pronounced, but uniform, and there is no lessening in the caliber of the vessel; another is atrophy of the vessels, which only occurs, of course, where we have atrophy of the retina, the white line is appreciable, the caliber is reduced, but the reduction is uniform; another is anemia of the arteries, where the caliber is also reduced. In cases of arteriosclerosis the small vessels and the capillaries of the retina are most profoundly affected. In the larger vessels affected the muscular coat as well as the intima is involved. The caliber of the vessel is reduced, the reduction being irregular. It is possible that spasm might occur where the elasticity of the vessel-wall is still retained, but not otherwise. Dr. Weeks believes that the exudation at the macula resembling albuminuric retinitis may be due to the fact that the general arterial change is more marked in some parts of the body than in others and that the retinal vessels in these cases suffer before the vessels of the kidneys are affected. Finally the vessels of the kidneys will become involved also. In a non-edematous, thin portion of the retina, namely, at the fovea centralis, the vessels of the choroid shine through, but, where there is destruction of the ciliary arteries, we have the edematous appearance at the posterior pole of the eye, as in embolism, but no red spot, because there is no blood in the capillaries of the choroid. Ordinarily, however, a pigmented spot is seen, the pigment of the choroid.

Dr. Allen Greenwood said that among the cases he reported he put a number where the sclerosis of the retinal arteries was present several years before the condition existed in the kidneys in sufficient degree to cause albuminuria, but in all such cases he has seen the kidney lesion appear sooner or later. The appearance of sclerosis in the retinal arteries occurs so frequently in the early stages that such cases must be separated from those in which the retinal changes are due to uremic poisoning. The great danger is subsequent involvement of the kidneys. There is no question but that such patients will probably die of uremic poisoning unless carried off by some intercurrent disease or cerebral hemorrhage. In one of his cases the process has gone on until there is only light perception and as yet no disturbance of the kidney function whatever.

16. Trans. Heidelberg Oph. Soc., 1897.



THE DAVIS MONUMENT.

This statue of Dr. W. E. B. Davis was unveiled Dec. 14, 1904, in Capitol Park, Birmingham, Ala., with fitting ceremonies, by the members of the Southern Surgical and Gynecological Association and by the public. The exercises were public, and thousands of people to whom the lamented surgeon was a familiar figure in Birmingham were present on this memorable occasion. For report of exercises, see The Journal, January 7, page 58. For an obituary of Dr. Davis, see The Journal, Feb. 28, 1903, page 595, and March 7, 1903, page 660. The monument is executed in bronze, and is of heroic size, standing nearly nine feet high. The inscription on it is as follows: "Memory of William Elias B. Davis, surgeon. Erected by the Southern Surgical and Gynecological Association, which he founded in 1887. Secretary, 1887-1901; President, 1902. 'He would have been known to the world as a patriot had he not been known as something greater—a physician.'"

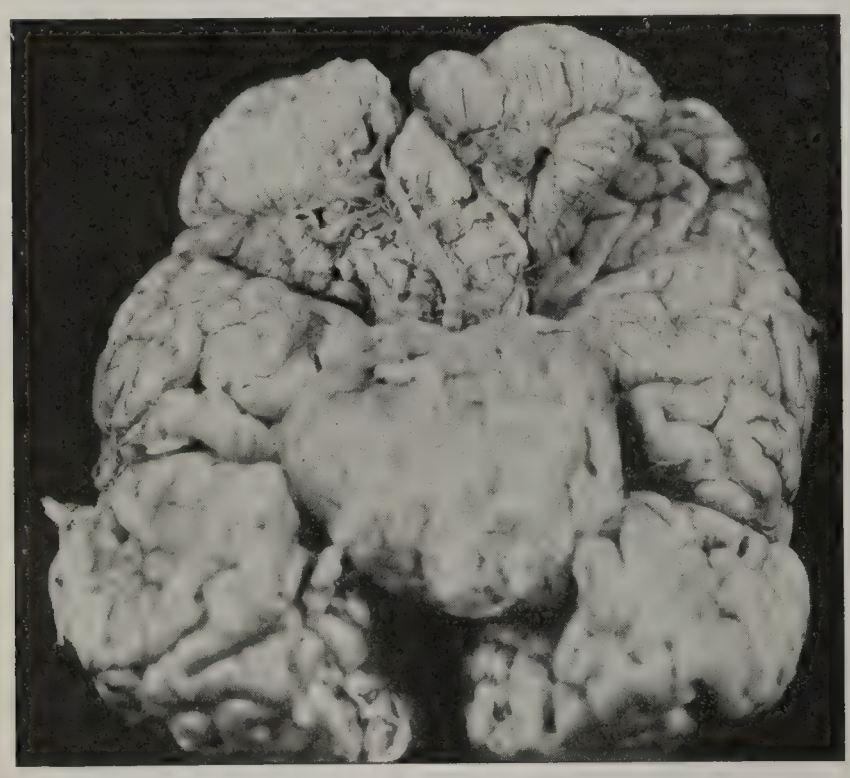
Shall I Operate?—Billroth, in a letter to a Russian surgeon, said: "Before deciding on the necessity for an operation I always propose to myself this question: 'Would you permit such an operation as you intend performing on your patient to be done on yourself?' Years and experience bring in their train a certain degree of hesitancy."

A CASE OF BRAIN TUMOR WITH PROGRESSIVE BLINDNESS.*

W. C. KENDIG, M.D., AND D. I. WOLFSTEIN, M.D.
CINCINNATI.

The following case is deemed of sufficient interest to report on account of its very protracted course and the occurrence of the condition resembling dementia, which rendered the diagnosis of brain tumor very difficult. Dr. Kendig, who had the case under observation in its last stages, reports the following clinical history:

Patient.—J. A. was admitted to Longview Hospital Dec. 12, 1903, with practically no history except that he had been insane for eight months previous to the time of admission, this being his first attack of insanity. The patient died under our care and the case was reported at the meeting of the Cincinnati Neurological Society, when Dr. F. W. Langdon remembered having seen the patient in 1897, and I am indebted to him for the notes of his examination made at that time—July 17, 1897: Age 52, single, occupation, traveling salesman. There are notes about his personal appearance and family history which are not reported, as they present no bearing on the subsequent history of the case.



Personal History.—The patient had the diseases of childhood and contracted at the age of 22, 30 years ago, a luetic infection for which he was given thorough treatment at that time. There is a history of liberal use of tobacco since his eighteenth year, and up to his twenty-second year alcohol was used. The patient is emotional, quite voluble in speech; the speech is in no way impaired. His vision has been failing for the past two years. There is a double optic neuritis.

Motor System: Shows no impairment. There is neither palsy, rigidity nor ataxia. There is a slowness of speech, slight facial tremor, but no rigidity, ataxia nor loss of power; the ocular muscles are intact.

Sensory System: There is no anesthesia, reflexes are active, no disturbance of sensation. The sphincteric function is healthy. The diagnosis at this time was possible paresis, together with progressive optic atrophy. From this time on until he came under my care at Longview he gradually grew worse, physically as well as mentally. There had been progressive loss of vision until only daylight could be distinguished from darkness. On admittance, Dec. 12, 1903, he weighed 180 pounds, but showed the effects of a long confinement. He eats and sleeps well, pulse 68, but the arteries are hard and tortuous with some cardiac enlargement; there is incontinence of urine and feces. There had been no vomiting, headaches, vertigo, and no convulsions. Mentally there is a general feeling of well-being, with a tendency to grandiose ideas; he takes no interest in past affairs and is always happy and contented. There is marked dementia. The knee jerks are slightly exaggerated on both sides, but there is neither ankle clonus nor toe extension. The sense of smell seems to have been intact a short time before death, for he appreciated the aroma of a good cigar. However, on account of his demented condition, it was never possible to obtain satisfactory data with regard to this function. He was subject to periodical attacks of diarrhea, and during one of these attacks he became unconscious and died 48 hours later.

The autopsy was made at the institution by Dr. Mann and Dr. Kendig, and the brain, including the tumor, was given to Dr. Wolfstein for further examination. The accompanying photograph shows the site of the tumor. The autopsy was reported by Dr. Wolfstein.

Autopsy.—At the base of the brain there is a very marked arteriosclerosis of the vessels of the circle and of their smaller ramifications. A very large globular and nodular tumor occupies a position so that a depression has been hollowed out in the region of the infundibulum and the optic chiasm. The optic nerves have been so pressed on as to cause their practical disappearance, but the cranial nerves are intact. The olfactory tracts are present, but show distortion and are small. The site of the tumor is such as would cause complete blindness by destruction of the optic nerves themselves, although the tracts behind the chiasm are intact. The arteriosclerosis was quite extreme and there was evident interference with the healthy function of the cerebral tissue. The tumor was not adherent and could be shelled out from its depression without difficulty, and presented the type of vascular small-celled sarcoma. The tumor was of interest as showing a progressive development over a term of years without the occurrence of any of the general symptoms of brain tumor except blindness and optic neuritis.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

A CASE OF VERY LARGE TUMOR OF THE FRONTAL LOBE. OPERATION; DEATH.*

PHILIP KING BROWN, M.D.
SAN FRANCISCO,
AND
W. W. KEEN, M.D.
PHILADELPHIA.

MEDICAL HISTORY BY DR. BROWN.

Patient.—Miss R. M., aged 19 years and 3 months, was first seen by me June 10, 1903, in consultation with Dr. Smiley, her family physician.

History.—In March, 1903, she had a bilious attack with vomiting similar to attacks that she frequently had had either from overeating or from overfatigue. She was somewhat run down at the time of this attack, which was followed by a period of indigestion. She vomited some bile, the vomiting bearing very vague relation to eating. Two weeks later a paralysis of the left external rectus was noticed and there developed slowly an apparent paralysis of the right external rectus. During the early part of the month of March she did considerable fine hemstitching out of doors while driving. This time for doing it was chosen in order to avoid its being known. During April and May she was under the care of Dr. Smiley, who considered her circulation out of order on account of a rapid pulse and cold extremities, for which he used massage and electricity. Her father states that she had always had a rapid pulse. After April 1 there were several recurrences of

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

the so-called bilious attacks, but the patient was not nauseated excepting during these attacks. There was no constant headache, though she complained of some neuralgic pain and stiffness in the left occipital region and left side of the neck posteriorly. Occasionally she had some left supraorbital neuralgia, which was attributed to eyestrain. Her temperature was often subnormal.

Examination.—June 10. Pulse was 90, volume and tension low; rate and force irregular. Her heart and lungs seemed to be normal. There was no history of cough. Sensation was normal all over the body. The face was examined with particular care. She appreciated heat and cold equally well. Hearing was acute on both sides. The sense of smell was absent in both nostrils and she said that it had been absent from the very beginning of her attack. The field of vision roughly estimated was certainly contracted, slightly more, perhaps, in the left eye than in the right eye. She generally kept her left eye closed on account of the diplopia, but the vision was equally good in both. Examination of the eyes on May 18 by Dr. J. H. Philip had shown vision 20/15 with the eyes used separately. There was a distinct failure to appreciate colors. She did not recognize blue and the Tallquist hemoglobin card seemed to her to be equally dark throughout and she could not tell its color. The right eye was used most of the time, her hand being kept over the left eye when talking to anybody or when looking about. She preferred to lie down most of the time, though she could be persuaded to walk some distance, but muscular exertion was not undertaken voluntarily. Her gait was absolutely normal. There was no Romberg symptom; there was no loss of stereognostic sense and no failure to appreciate the position of her extremities during passive movements. There was no inco-ordination in the upper or lower extremities. The knee jerks were equal and lively. The pupils reacted to light and to accommodation. No muscle of the left eye seemed to be involved except the external rectus. On closing the left eye it was impossible for her to use the external rectus of the right eye normally, but she *appeared to use the other muscles perfectly.*

July 14: During the previous week there had been apparently a progressive loss of vision which seemed to have been going on for a week or two before I saw her without much notice of it being taken. After a dose of calomel on July 12 she had several involuntary movements during sleep. Of late she had been growing more drowsy and desired to sleep most of the time. She was inclined to be a little silly, a condition which her father noticed some weeks before; she talked baby talk. She seemed to be indifferent to her condition, certainly not at all, apparently, concerned about it. There was paralysis of all the muscles of the left eye, particularly of the external rectus and some involvement of the muscles of the right eye. The reflexes were certainly within the normal and were equal everywhere, but were not lively. No changes in the special senses are to be noted except in the olfactory. None of the other cranial nerves are involved.

An attempt was made to examine the eyeground, but without success, both on account of the difficulty of keeping the eye quiet and of a poor lens. The pupils reacted slowly to accommodation and very slightly to light. The left eyeball seemed more prominent than the right. Her headache was not of any moment, differing in no way from those she had usually had. An attack of nausea and vomiting occurred several days previously which may have borne some relation to the excitement from coming home from Santa Barbara.

July 15: A consultation with Drs. Newmark and Moffitt developed nothing new except the existence of a slight left hemianopsia. The patient was so blind in both eyes that she recognized only vaguely objects held in front of her, but certainly these were seen more clearly when held on the right side. There was also a left optic neuritis. The treatment given her at this time was 10 gr. potassium iodid t. i. d. and a half dram of mercurial ointment by inunction daily.

July 22: She had continued the mercury and the iodid and was now taking 15 gr. of the latter t. i. d. She was almost completely blind, apparently so in both eyes. She seemed to see a candle better when held in front of the eyes and the light and outline grew dimmer as it was moved toward the right or left from the center of the face. This condition was the same when the eyes were examined separately.

For a few minutes on July 20 she could see the outline of a figure in the right field when she could not see it at all in the left field. This temporary improvement in vision was observed by the nurse, who stated that the patient was looking at her with both eyes and was able to describe the dress she had on at a distance of four feet when she stood on the patient's right side, but that she could not see her when she stood on the left side.

The examination July 22 did not appear to bear out the possibility of this having been an evidence of a left homonymous hemianopsia. She certainly saw better for a short period, but nothing more definite could be obtained. On directing her to move the eyes to test the muscles, the right internal rectus seemed quite normal; the left internal rectus was impaired, although the left eye followed a finger moved to the right better than the right eye. The left internal rectus was the only muscle of the left eye which responded at all.

Above the left eye, beginning about 1 cm. from the median line and two-thirds of the way up from the eyebrow to the hair line, extending over to the left side for 2 or 3 cm. was an area which was very painful. This was the only painful spot in the entire front of the head.

The urine on July 15 was found to contain a number of casts, hyaline, fine granular and epithelial.

July 30: The patient menstruated as usual and normally during the preceding week. The right disc was becoming paler, and there was progressive neuritis of the left. The area of tenderness over the left eyebrow, noted about a week previously, was becoming progressively worse, and she had a little more headache than usual.

In view of the diagnosis of cerebral tumor it was decided to take the patient to Philadelphia and to place her under the care of Dr. Keen.

Nasal Examination.—As soon as she arrived Dr. George B. Wood made the following report on August 4 of the condition of her nose:

"The left nasal fossa is markedly obstructed by swelling and congestion of the middle turbinal, which presses firmly against the septum. There is a thin line of muco-pus coming from between the septum and turbinal. This is the position in which pus is found when there is suppuration in the posterior ethmoidal cells or sphenoidal sinus. The nasal fossa below this middle turbinal is fairly free. On the right a very similar condition is present, but is not so well marked and is considerably obstructed by deviation of the septum. A posterior rhinoscopic view was impossible because of irritability of the throat. From her history of nasal trouble prior to any possible cerebral symptoms, and from a careful consideration of the above facts I do not feel warranted in saying that there is no indication of sphenoidal disease. On the other hand, I could not prove that there was any pus in the accessory sinuses of the nose. Tests of hearing showed a slight loss in the right ear, most probably due to some disturbance in the sound-perceiving apparatus. The anosmia, which is complete, may be due to the internasal hypertrophy, but looks as though it were central."

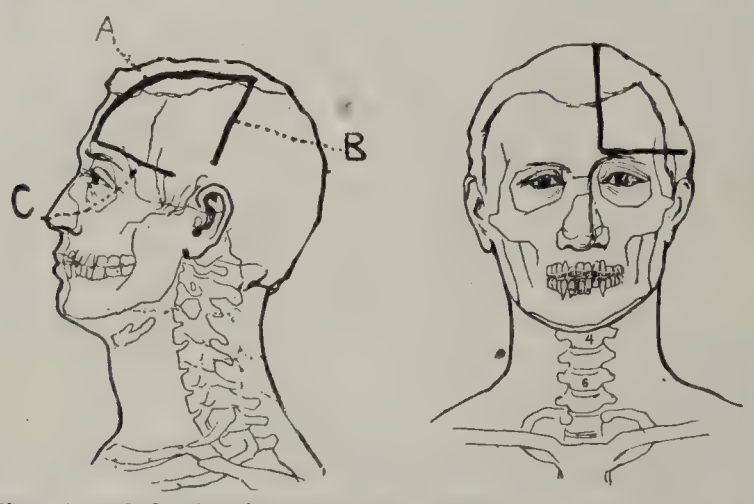
Examination of Eyes.—Dr. William M. Sweet examined the eyes also on August 4 with the following report: "Right Eye.—No light perception to strong electric illumination; pupil 5 mm., reacts sluggishly to direct stimulation, imperceptible to indirect test; no rotation of the ball outward beyond the median line, other movements apparently unimpaired, although on forcible rotation inward the eye turns downward; media clear, margin of optic disc slightly blurred, and retinal veins full but not tortuous; evidence of a beginning low grade papillitis. Left Eye.—No light perception; decided exophthalmos; pupil 6 mm., slight reaction to direct light, but almost imperceptible; indirect reaction lost; rotation of globe nearly abolished in all directions; media clear, marked swelling of the

optic nerve, amounting to 5 D., the swelling and infiltration extending for some distance into the retina; the retinal arteries are small, the veins distended and tortuous, and covered in part by the intense infiltration; on the swollen nerve head and its immediate neighborhood are numerous flamelike hemorrhages. The sensibility of the cornea and conjunctiva of the right side is normal, but is apparently increased on the left side."

SURGICAL REPORT BY DR. W. W. KEEN.

I first saw Miss M. with Dr. Brown on Aug. 1, 1903. Later we had a consultation at the Orthopedic Hospital with Drs. Sinkler, John K. Mitchell, F. X. Dercum and William J. Taylor. Our unanimous opinion was that there was a tumor in the anterior part of the left frontal lobe and that operation, though it held out but little hope, afforded the only possible means of escape. When I first saw her, the left eyeball was markedly protuberant, so that the lids could just be closed over the cornea. Pressure over a considerable area in the left temporal region was painful. Tapping over the head was painful all the way back from the eyebrow to the biauricular line.

Operation.—August 5. I commenced my incision in the left temporal region, a little above the outer end of the eyebrow, continued it internally parallel with the eyebrow and about 1 cm. above it in the hope of avoiding the frontal sinus, and yet getting as near as possible to the orbital plate. This line was 9 cm. long. Then, at a distance of 1 cm. to the left of the middle line, I made my incision posteriorly for 14 cm., then obliquely downward and forward to the temporal region, a distance of 14 cm., making 37 cm. in all. As soon as I made



Figs. 1 and 2, showing lines of incision. A and B were 14 cm. long; C, 9 cm.

the posterior incision, in separating it sufficiently for chiseling, I found that at three points there were small holes in the skull caused by the tumor underneath, which was just visible through the openings. In chiseling through the bone from the line to the temple across the forehead, I found a peculiar discharge, which looked almost like pus, and yet was quite gelatinous, which I found later to come from the frontal sinus. The tumor by pressure had broken through the posterior wall of the frontal sinus throughout its entire length and had also broken through on the inner side into the ethmoidal cells, so that it communicated in both of these ways with the nasal cavity. This led me at once to suspect an infection. I disinfected the parts as soon as the flap was turned down as thoroughly as possible with hot saline solution, scraping away a considerable amount of gelatinous and apparently purulent discharge. I opened the dura and found it very adherent to an enormous underlying tumor which passed backward as far as my opening in the bone. A large part of it was almost diffluent. A large portion of the exposed brain surface consisted of the surface of the tumor, the convolutions having been entirely destroyed. With the finger I scooped out a large portion of the tumor. It was evident that it was such an infiltrating mass that it would be impossible to remove all of it successfully. Accordingly, when I had removed a sufficient amount to relieve the pressure and also to allow closure of the dura, I desisted.

In scooping out the mass posteriorly I evidently broke into the lateral ventricle, for a considerable amount of cerebrospinal fluid escaped, and also I recognized by the finger what I suppose was the arched upper surface of the corpus striatum. During the manipulations to remove the tumor I found that it had destroyed a large portion of the roof of the orbit, and had invaded the orbital cavity, thus producing the exophthalmos. With the rongeur forceps I made a drainage opening at the edge of the bone flap and then packed the large cavity left by the removal of the tumor and a great deal of débris with iodoform gauze. The hemorrhage was free, but not alarming, and was easily checked by the gauze packing. The end of the gauze packing was brought outside for drainage.

Postoperative Notes.—During the next ten days the pulse ranged from 100 to 120 and the temperature from 100 to 101.5 F. Part of the time the urine was voided involuntarily. There was great edema of the entire face for four or five days. She regained her intelligence to a considerable extent on the third day, but her disposition seemed to have changed and she was quite irritable. She would stroke some one of her family or her nurses gently once or twice, but gradually the stroking would become violent and she would suddenly grow very irritable, yet on being spoken to would instantly become pleasant and friendly. She suffered no pain except during the dressings. She did not seem to realize her condition, nor did she ask about it. There was occasionally slight twitching in the fingers of the right hand, and the nurse reported on several occasions twitchings of the entire body.

Her menstruation, which had ceased July 28, recurred on August 7, two days after the operation, and ceased after four days. The packing was removed on August 9, the fourth day. A very large amount of necrotic tissue from the tumor and the brain, together with considerable fluid discharged through the drainage wound. As it was evident that she could not recover, her father decided to take her home on August 15, when her condition was such as seemingly would allow of it very readily. Suddenly at noon on that day her temperature rose to 104 and her pulse to 150 or 160, evidently the result of infection of the wound. This was, of course, to be expected, since the wound cavity communicated with the frontal sinus and the nasal cavity, and, in fact, was already infected at the time of the operation. The discharge was examined bacteriologically and found to consist of pus with a few intercellular cocci. The Gram stain was not tried.

LATER HISTORY BY DR. BROWN.

In spite of her condition, as all the complicated arrangements had been made for her to be taken to her home in San Francisco, her father and I started with her on the evening of August 15. She stood the trip home very comfortably. The infection spread, and in consequence of this I removed several of the stitches in order to secure freer drainage. With this the temperature fell to 100 or below, and the pulse from 130 to 110. She reached home on August 19. For several days after her return she passed all her urine and feces involuntarily. She never suffered any pain. The exophthalmos returned to a greater degree than ever and the tumor protruded through the drainage opening. The infection never spread beyond the area of the operation.

She gradually failed and after being unconscious for several days, died on September 23, a little over a month after her return home and six weeks after operation.

Dr. Charles W. Burr, the pathologist of the Orthopedic Hospital, examined the tumor and pronounced it a sarcoma.

AUTOPSY REPORT BY. DR. BROWN.

Sept. 24, 1903. Coverslips and cultures were made from the wound, from the base of the brain anteriorly, from the hypophysis and from the nasal cavity exposed in lifting up the tumor. Immediately following the death of the patient the granulated flap receded until it remained only slightly above the height of the corresponding part of the other side; the enlargement of the left side being reduced fully three-fourths. The flap was not adherent by any but fibrous adhesions anywhere along its course, except where it had been fractured. There was no erosion of the bone flap. On exposing the brain,

the convolutions all over the anterior part, and less markedly over the posterior part, were obliterated. The superficial vessels were deeply engorged. The part involved by the tumor was pale, white and semigelatinous. The tumor had involved also the right frontal lobe to a considerable extent, particularly on its median aspect. The posterior wall of the frontal sinus was entirely gone, as was the whole of the cribriform plate and the median half of the roof of the orbit. When the brain was lifted up a cavity was exposed as large as a good sized walnut, connecting directly with the posterior nasal region. It is possible that the dura may have been torn away in lifting up the brain in an attempt to hold the rapidly disintegrating part together by loosening up the whole of the dura, but, in any event, there must have been some communication between the tumor mass and the nose, although during life there had been no discharge whatever through the nose. The infected area was confined to the anterior and upper part of the surface of the brain, and there was a possible basilar meningitis extending back as far as the hypophysis, but there was no pus accumulation save superficially, at the point of the enclosed parts of the surgical wound. . .

Microscopic diagnosis: Angiosarcoma.

Cultures showed only staphylococci, although diplococci also were found in the smears.

The special features of the case medically were the insidious onset of the symptoms and the comparatively painless development of the tumor to its great size, particularly as it involved the bone so extensively. At the time of the operation the roof of the orbit was eroded so that an opening in it the size of a dime had resulted, and the tumor had also perforated the two plates of the skull as far back as the limits of the frontal bone. The pressure symptoms on the nerves of the eye and its muscles and on the eye itself were conspicuous, but a single dose of 5 grains of phenacetin controlled the only pain of any note from first to last. The vomiting, although characteristic on rare occasions under excitement or in change of position, was a very late symptom and quite insignificant.

The menstrual function was not interfered with, as is occasionally the case with tumors near or at the hypophysis.

EDITOR'S NOTE:—The discussion on the papers of Drs. Kendig and Wolfstein and Brown and Keen will appear next week.

Special Article.

IMMUNITY.

CHAPTER VII.

ACQUIRED IMMUNITY.

When immunity is acquired as the result of an infection it is said to have been acquired naturally (a very different thing from natural immunity). Immunity which is acquired artificially may be active, as in vaccination; or passive, as when diphtheria antitoxin is injected prophylactically.

As an illustration of naturally acquired active immunity, a person who has recovered from scarlet fever, smallpox, plague or typhoid fever, becomes possessed of prolonged protection against subsequent attacks. This is also true of many animal diseases. On the other hand, the protection afforded by an attack of certain other diseases is of shorter duration: cholera, diphtheria, pneumonia, etc., at least in many instances. So far as is known, the protection which is acquired is very specific in character, i. e., a person who has had measles may still have scarlet fever, or an attack of cholera does not protect against a later attack of typhoid fever.

Acquired Active Immunity.

In contrast to the diseases mentioned, there appears to be a number in which an attack confers no evident protection, as gonorrhea, influenza, recurrent fever and malaria. It is also possible that some diseases create a predisposition for a recurrence (erysipelas).

A very important factor in the progress of artificial immunity was the knowledge that a light attack of an infection (scarlet fever, cholera, typhoid, smallpox) was efficient in conferring immunity. Such light attacks are frequently noted sporadically and in epidemics, while occasionally an epidemic is mild in character throughout. As examples may be mentioned the benign smallpox which recently prevailed in the middle Western states and the mild character of the plague encountered in some cities.

In view of this fact it would be desirable if one could produce at will infections which would certainly run a benign course, for the purpose of establishing immunity to possible severe infections of the disease. And it might be possible to so modify the virus injected that protection could be established without setting in motion the actual disease even in a mild form.

Vaccination.

In order to accomplish this, some method must be found which will weaken or attenuate the virus or microbe to the proper degree. An attenuation of this nature had long been practiced with smallpox virus. Before cowpox was resorted to as a source of vaccine, it had been the custom to inoculate the genuine smallpox virus from a patient into the skin of a healthy person. Contrary to the natural expectation, this method did not in very many cases reproduce the disease in all its severity, but, rather, the modified diseases which we call varioloid. This phenomenon may depend on the fact the smallpox virus finds the skin and subcutaneous tissue an unfavorable medium for the development of virulence; a condition which would be equivalent to an attenuation of the microbe. The pathogenicity of the cholera vibrio in animal experiments is affected similarly in subcutaneous injections. It is now generally considered that cowpox is smallpox which has suffered a decrease in virulence because of its passage through the cow. Consequently, when this weakened virus is planted in the skin of man, where it may undergo further attenuation and produce the mildest possible form of modified smallpox, we have an ideal vaccine. Similarly, the anthrax bacillus may be attenuated in its virulence for the sheep by passing it through the dove. This method of decreasing, or in some cases of increasing, the virulence of a micro-organism is known as passage.

Attenuation.

No single method of attenuation is suitable for all micro-organisms. Pasteur found that the bacillus of chicken-cholera became weakened gradually in old cultures exposed to the light and air, so that it could then be used safely as a vaccine; also that the anthrax bacillus when grown at 42 C. was attenuated and did not form spores, and thus became a suitable vaccine for sheep and cattle. Of no less interest to us was Pasteur's method of attenuating the virus of hydrophobia by desiccating the spinal cords of infected animals (rabbits); the altered cords are then available for the immunization of individuals who have been bitten by a rabid animal.

Work of the past decade has shown that successful vaccinations may be made against cholera, typhoid and plague by using for the inoculations cultures which have been made avirulent through artificial cultivation, or those which have been killed outright by heat.

Acquired immunity to toxins has already been mentioned briefly (Chapter IV).

In regard to the nature of acquired immunity to bacteria and to toxins, one may inquire if it is due to the presence of the antibacterial and antitoxic substances which were mentioned in connection with natural immunity. Although normal serum is strongly bactericidal for the typhoid bacillus, the serum of one who has recovered from typhoid fever possesses this power to a much greater degree. As this is true in many other bacterial infections, the new resistance is held to depend on the increase of bactericidal substances in the serum. Similarly in the immunity

Nature of Acquired Immunity.

acquired to diphtheria and to tetanus, the most conspicuous change is a great increase in the corresponding antitoxins. The result is the same, regardless of whether the immunity be produced by a natural attack of the disease, or by artificial immunization with the specific microbe or toxin. Accordingly it seems probable that acquired immunity depends on the presence in the serum of an increased amount of properties which, to a certain degree, may be present normally.

Acquired Passive Immunity.

Inasmuch as it has proved possible by the prolonged immunization of animals with bacteria or toxins to induce a high concentration of antibacterial or antitoxic substances in their serum, it was the natural expectation that if such serums were injected into other animals the latter would thereby be endowed with an increased resistance to the infectious agent against which the serum had special activities (passive immunization). This has been found to be the case with many antibacterial (typhoid, cholera, plague, dysentery, etc.) and some antitoxic serums (diphtheria, tetanus). Unfortunately the protection afforded by the injection of an immune serum is of short duration (from two to several weeks); it is as if a foreign substance had been injected, the fate of which is to be eliminated rapidly. On the other hand, in active immunity the protective substances are formed continuously by the body cells, and for this reason they often exist in some concentration over a long period.

It was, of course, to be hoped that such serums would have a curative value equal to that of their prophylactic power. However, when we consider the individual diseases, it will be seen that the curative power of most immune serums is very low, and that to be successful in any case they must be used at a very early period in the disease, usually at a time preceding the patient's first call to the physician. Happily diphtheria antitoxin is a luminous exception to the rule.

Mention may be made here of the well-known but curious phenomenon that the resistance of individuals is subject to modifications as regards different periods of life. Typhoid fever attacks the adolescent or middle-aged rather than the very young or very old. Active tuberculosis grows less common in the later decades of life. Then we have what are distinctively the diseases of childhood. Some of these instances may be referable to differences in the character of the cell receptors at different ages, while perhaps others are due to a slow immunizing process occasioned by the prolonged presence of non-pathogenic amounts of the proper micro-organisms.

As previously stated, one finds bactericidal and antitoxic substances and various cytotoxins in normal serums. Also we have seen above that immunization with bacteria and toxins gives rise to the new formation of corresponding antibodies.[1]

Immune Cytotoxins.

Investigations have also shown that immunization with other kinds of cells, as erythrocytes, leucocytes, kidney and other tissue cells, cause the formation of immune cytotoxins, which cause recognizable changes in the cells used for the immunization.

Agglutinins.

By systematically injecting an animal with a bacterium or with any tissue cell, agglutinating substances (the agglutinins) are formed and may be demonstrated in the serum. Like other antibodies, they are highly specific for the cell used in the immunization. It is by no means certain that the ability of an individual's serum to agglutinate a microbe bears necessary relationship to his immunity to the microbe, although this relationship certainly exists in some cases.

1. In serum nomenclature, an antibody is some substance in the serum which antagonizes, neutralizes, precipitates or dissolves some other substance with which it comes in contact. Thus diphtheria antitoxin is the antibody for diphtheria toxin; the bactericidal substance contains an antibody for the bacterium which is destroyed; and a hemolysis, an antibody for the red corpuscle which is dissolved. Similarly in immunizing with a bacterium or with a toxin, tissue cell or an albumin, the corresponding antibodies are new formed. Hence we have natural and immune antibodies.

It has been found that some other toxins, aside from those of bacterial origin, will yield by injections specific antitoxins. Such toxins are snake venom, yielding antivenin; ricin, a hemagglutinating toxin from the castor oil bean, yielding antiricin, etc.

The Biologic Test for Species.

Recently what is termed the biologic test for species has assumed prominence. This test may be illustrated: A goat is injected repeatedly with the serum of man. After a number of injections a very minute amount of this goat's serum will cause a precipitate when mixed with human serum, but not when mixed with the serum of any other animal (except, perhaps, that of anthropoid apes). It is so delicate a test that when a small amount of old dried human blood is dissolved in salt solution and treated with the goat serum the precipitate will still occur, and, in view of this fact, the test has become important from the medicolegal standpoint. The wide distribution of this phenomenon among all kinds of animals gives it great biologic significance.

Precipitates.

Kraus found that by immunization with certain bacterial filtrates substances are formed in the serum which cause precipitates in the filtrate. It is further interesting that other albumin-containing substances, as egg albumin or milk, will yield on immunization specific antibodies. An antibody for goat's milk (obtained, for example, by injecting the horse) will cause a precipitate in goat's milk, but not in cow's milk nor in human milk.

Antiferments.

It has also been possible to obtain specific antibodies for ferments: for the peptonizing ferments of bacteria, for emulsin, lab, fibrin ferments, etc. There are, however, very many substances for which serum antibodies can not be obtained; this is true for all substances of known chemical composition, as acids, bases, salts, and for some others the chemistry of which is unknown, as the alkaloids (strychnin, morphin, aconite, etc.)

The Leucocytes in Acquired Immunity.

It was stated in the section on natural immunity that the leucocytes, acting as phagocytes and as resorptive cells, seem to be responsible, at least in part, for natural resistance to an infection. Metchnikoff and his followers have provided us with many observations which are interpreted as showing that the importance of these cells is continued into acquired immunity. These investigators state that in acquired immunity the phagocytes have a much greater capacity for ingesting and killing bacteria and for absorbing and destroying toxins than when the animal is in a state of greater susceptibility. It is also concluded that the serum in acquired active immunity owes its new or more powerful antibacterial, antitoxic and other properties to the leucocytes, which under the influence of the infection have overproduced and excreted these substances into the plasma.

But it is also held that, in passive antibacterial immunity, the immune serum which is injected is potent, because it either stimulates the phagocytes to a greater activity or increases positive chemiotaxis or changes a negative into a positive chemiotaxis. These changes may be due to alterations which the immune serum causes in the bacterial cells.

It is well known that in recovery from many infections (pneumococcus, streptococcus, staphylococcus, etc.) a great hyperleucocytosis appears, and it has been noted in fatal examples of these infections that this marked hyperleucocytosis either fails to develop or, having developed temporarily, eventually recedes. Hence, we have some presumptive clinical evidence in favor of the importance of leucocytes in recovery from certain infections, recovery implying the acquiring of increased resistance.

Emmerich and Loew found that many bacteria produce in culture media, as well as in the animal body, substances which apparently act as ferments and which are able to kill not only the bacterium which secretes the ferment but many others. For example, pyocyanase, the bacteriolytic enzyme

of the *Bacillus pyocyaneus*, dissolves pyocyaneus, anthrax, diphtheria, typhoid, cholera, streptococcus and staphylococcus. These enzymes usually are not toxic for the animals and it is supposed that during the course of an infection, when they reach sufficient concentration, they destroy the bacteria which produced them, thus bringing about recovery. It is claimed also that they, either during infection or as a result of repeated injection of the ferment, enter into a somewhat permanent combination with the albumin of the body, forming the so-called "immune-proteidin," on which acquired immunity depends.

Bacteriolytic Enzymes.

Furthermore, with "pyocyanase-immuneproteidin" it is possible to so immunize a rabbit that a subsequent (12 days) otherwise fatal dose of the anthrax bacillus is harmless.

Although the effects of these "enzymes" on anthrax and on some other organisms have been confirmed by a number of investigators, it is not generally thought that they exercise an important function in acquired immunity or in the recovery from infections. There is the special objection to this theory that it puts immunity on a non-specific basis; i. e., pyocyanase will protect against anthrax, diphtheria, etc., while, in reality, all our clinical and experimental data point to the high specificity of an acquired immunity. It seems more reasonable to assume that these "enzymes" are able, in some accidental manner, as bouillon and many other substances are, to temporarily increase natural resistance.

CHAPTER VIII.

TOXINS AND ANTITOXINS.

The word toxin has acquired a special significance in pathology. According to Ehrlich toxins are distinguished by the following properties:

Ehrlich's Conception of Toxins.

1. They are extremely labile substances which occur as secretion products of vegetable or of animal organisms.

2. The impossibility of obtaining toxins in a perfectly pure form and their great lability have made impossible a knowledge of their exact chemical nature.

3. An analysis of a toxin may be reached at present only through the medium of animal experiments.

4. Immunization with toxins yields antitoxins. It has not been possible to obtain antitoxins for inorganic poisons, glucosids and alkaloids (morphin, strychnin, etc.).

5. In contrast to well-defined chemical poisons, the action of toxins is characterized by a latent or incubation period. That is, following the injection of a toxin, a certain period of time elapses before toxic symptoms appear, and this period is greater than the time logically required for the absorption of the toxin through the circulation.[1] This period can not be eliminated by injecting larger amounts of the toxin, although it can be greatly shortened in this manner. As exceptions, there are a few toxins which apparently act without incubation period (snake venom); these are still to be classed with the toxins, however, because of their power to yield antitoxins by immunization.

6. "The facts make it necessary to assume, as a condition for the poisonous action of toxins, a specific chemical union of the toxin with the protoplasm of the cells in certain organs." . . . "The affinity of other poisons, as the alkaloids, for tissues, depends not on chemical union, but on some such process as solid solution or loose salt formation."

The preparation of soluble toxins is relatively simple. It is necessary only to inoculate a suitable fluid culture medium with a culture of the micro-organism, to allow growth to take place for some days at body temperature, then to pass the fluid through a porcelain or some equivalent filter, The soluble toxins usually may be precipitated from the filtrate by some precipitant, as ammonium sulphate, and preserved in a dried state for a long period. Such a precipitate does not represent the toxin in a pure form, but various proteid substances of the culture medium as well.

Preparation of Soluble Toxins.

The diphtheria and tetanus bacilli, *Bacillus pyocyaneus*, and *Bacillus botulismus*, are the principal micro-organisms which produce soluble toxins.

When the toxins of these organisms are injected into a suitable animal, phenomena similar to those produced by an infection with the organisms themselves are produced. They are in a particular sense specific toxins. Some micro-organisms, however, produce more than one toxin. The tetanus bacillus, for example, secretes, in addition to the toxin causing the nervous symptoms of tetanus, another (tetanolysin, or tetanus hemolysin) which has the power to destroy red blood cells. Ehrlich holds that the diphtheria bacillus produces not only the toxin which causes the acute intoxication of diphtheria, but another of long incubation period which may cause paralysis. Cobra poison has at least two toxins, one which attacks the nervous tissues—a neurotoxin—and another which attacks the erythrocytes; the two may be separated by appropriate measures. As previously stated, the serum of the eel also has a strong neurotoxin and a hemotoxin.

Specificity and Multiplicity of Toxins.

Some micro-organisms produce one or more soluble toxic substances, which it is often difficult or impossible to consider as the actual disease-producing elements of these organisms. Concerning a disease which is so well characterized clinically as tetanus, it is not difficult to determine by inoculation experiment whether one has in hand the specific toxin. The proof is naturally much more difficult in relation to streptococci and staphylococci, for example, where the group of symptoms and the pathologic conditions are not entirely unique for the infection. We consequently lack grounds for considering the hemolysin or the leucocidin (toxin for leucocytes) of the staphylococcus, or the hemolysin of the streptococcus, as the paramount disease-producing toxins of these organisms.

Non-specific Toxic Substances.

Under such conditions, the essential test as to the importance of the toxin must be the immunization experiment; i. e., does immunization with the toxin give rise to the formation of an antitoxin which is efficient in treating an infection with the micro-organism itself? If, for example, a culture of the typhoid bacillus is properly manipulated, a toxic substance free from the bacillus may be obtained in solution. Immunization with this "toxin" yields a serum which is strongly bactericidal for the typhoid organism, but it has no power of reducing the phenomena of typhoid intoxication; hence it is not an antitoxic serum. The dilemma is the following: If the toxin is the true typhoid toxin, it is of such a nature that it does not permit of antitoxin formation; or, on the other hand, it is not a true toxin. A decision between these two points is not possible in the present state of our knowledge.

The Test of Immunization.

(To be continued.)

1. Recent work indicates that the long incubation period of tetanus may depend, at least in part, upon the length of time required for the toxin to reach the ganglion cells through the axis cylinders of the motor nerves.

Desquamation in Typhoid.—J. Vergely reports in the *Archives Gén. de Méd.*, cxciv, No. 34, 1904, a case of typhoid observed at Bordeaux, followed by general desquamation of the skin without any previous inflammation or other symptom suggesting its occurrence. He recognizes the occurrence in typhoid of local desquamations following the rose spots or sudamina, and in some rare instances, like the one reported, of especially severe type of the disease. This lamellar or squamose type of desquamation may occur in any part of the body without previous erythema. He credits this to either a special virulence of the toxin of the disease or to some peculiar functioning of the skin in its elimination. He finds only 6 similar cases on record: 4 reported by Osler, in one of which there was previous erythema, and 2 by Riesman.

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THE PARASITE OF CARCINOMA.

The discovery of the parasite of carcinoma, like the appearance of the sea serpent, has become an almost perennial occurrence during the past few years. The peculiar cell inclusions, which are not infrequently found in malignant neoplasms of epithelial origin, have passed through almost as many aliases as an habitual criminal. They have been classed as protozoa, as blastomycetes, and as rhizopods, and now we are asked to believe that they are plasmodiophoræ. There can be little question, judging from the photographs and plates which illustrate the various articles which describe them, that the same bodies have been described by different observers under the various names mentioned above. The latest contribution to the literature of cancer parasites comes from Robertson and Wade,[1] who, following in the footsteps of Behla and Gaylord, compare carcinoma with the peculiar disease of plant roots called clumps, and claim to have isolated from carcinomata an organism of the plasmodiophora group similar to that which produces this plant disease. The descriptions of Robertson and Wade can not be said to be convincing. They give one the impression that the observers are straining, doubtless unconsciously, to make the description of the so-called parasite tally with that of the known organism which it is supposed to resemble. Then there is the same necessity for special methods of staining, the variation in the size of the cancer bodies, and the general vagueness of description. The description of the culture experiments shows certain noteworthy peculiarities. Their absolute failure to grow in the presence of the small amount of condensation water usually present in agar tubes, their absence from smear preparations, and their presence only in hardened sections of the agar all suggest the possibility that they are merely artefacts, a possibility which the authors do not sufficiently exclude by controls. The reading of such a paper suggests that we are on the wrong track in continuing to search for cancer parasites, especially when we consider the mass of negative observations which have been accumulated, notably by the Boston observers. Certainly there is little analogy between the lesions produced by known microorganisms in chronic disease and those which characterize malignant growths. Gaylord's inoculation experiments with the organism which produces root nodules, plasmodiophora brassicæ, resulted in the production of nodules which were obviously granulomata. Similar results have followed from the inoculation of other organisms which, from time to time, have been described as cancer parasites. When secondary foci have been produced they also have been granulomatous. Such being the case, a comparison with secondary neoplasms seems irrational in the extreme. One can hardly compare a secondary nodule composed of leucocytes and of proliferated tissue cells with a metastasis which imitates the structure of the organ from which a new growth originated.

Attempts to prove new growths infectious by studying their distribution in given districts have also been lacking in conviction, though it can not be denied that in a few instances the distribution of cancer cases has suggested an infectious origin. The fallacy of the cancer house theory, however, has been proved by the careful work of Lyon, who has shown that house collections of cases are far better explained by the influence of heredity and in-and-in breeding than by infection. A study of the last census also showed a distinct relationship between the average age of the inhabitants of a district and the prevalence of cancer; those districts which contained the greatest number of old people having the greatest cancer mortality.

These facts, and others could be adduced, speak strongly against a parasitic origin of new growths. For the present it would seem that they must remain as mysterious as ever, and yet the solution of their origin is probably not beyond the reach of human effort; nor does our lack of knowledge as to their cause preclude the possibility of finding a cure. The great increase in our knowledge of the biochemistry of cells suggests that we may find the antidote, but the present indications are that we must change our line of research.

1. Lancet, Jan. 28, 1905; abstracted in THE JOURNAL, Feb. 25, 1905, p. 662.

THE SURGICAL TREATMENT OF ERB'S PALSY.

Whether one is a "peripheralist" with Bethe, Apathy, Kennedy, Ballance and Stewart, or a "centralist" with Kölliker, Howell and Huber as regards the manner of peripheral nerve repair after suture, is of little practical moment to the clinical worker. The process of regeneration in the peripheral portion of a divided nerve at first may be autogenous, but permanent repair is possible only by union with the proximal segment, whose benign influence in restoring function is by no means small. Secondary suture and anastomosis of divided peripheral nerves are not only invaluable procedures in the treatment of isolated lesions of peripheral nerves of the extremities, is current medical literature attests, but the work, happily, has been extended to the treatment of many different types of peripheral and spinal palsies. This is notably true in operative repair of chronic facial palsy after mastoid disease, and in old cases of Bell's palsy; in poliomyelitis, and in the obstetrical birth palsy of Erb's type. There

have been but few operations on the two latter types of palsies. The brilliant but rather uncertain results in cases of nerve grafting in poliomyelitis deserve the earnest attention of neurologists, pediatrists and orthopedists alike.

Secondary operation on the brachial plexus, although cases in which it has been performed are relatively few in number, has decidedly passed beyond the experimental stage. The cases of Erb's palsy operated on show that excision of the damaged nerves, and final suture of the ends, is followed, after several months, by more or less complete recovery. As a result of a recent collaborative study[1] embracing clinical, surgical and pathologic research in seven cases, some interesting facts have been established. It has been proved conclusively that the main factor in the production of obstetrical palsy is one of undue tension on the nerve trunks. Overstretching ruptures the perineurial sheath and the nerve fibers of the fifth and sixth cervical nerve roots at or near their union in the brachial plexus. The nature of the injury, which has been determined by microscopic analysis of the damaged nerve fragments, proves that nerve regeneration by natural means is impossible, because the ruptured perineurial sheath kinks down on and between the torn nerve strands. Furthermore, the barrier to regeneration is augmented by the organization of the blood clot from the torn blood vessels lining the perineurial sheath and subsequent secondary connective tissue overgrowth. These barriers prevent recovery in all severe cases. The obstetrical lesson taught here is not to overstretch the child's neck in the process of delivery, and its general recognition would be a marked step forward in preventive medicine.

The avoidance of the accident rests largely in dividing the points of application of the pulling force where the latter procedure is absolutely necessary. The fact that Erb's palsy occurs very frequently in vertex as well as in breech cases, shows how unwise obstetrical practice has often been. From the nature of the lesion, the persistence of the partial palsy in these cases is easy to understand. Only the slightest grades of brachial birth palsy could be expected to recover spontaneously; in the others, after a variable period of from three to nine months of medical treatment by carefully graduated massage, electricity and active movements, operation should be considered. As there are no immediate diagnostic tests by which it may be absolutely decided whether a certain nerve has been lacerated or merely contused, the determination of the extent of the lesion is often difficult. Dependence must be placed largely, therefore, on electrical and functional tests, as in nerve injuries elsewhere in the body.

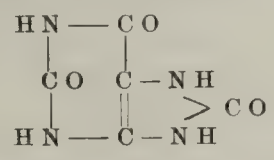
The results of secondary operation on the brachial plexus have been variable; thus Kennedy reports more or less satisfactory results in four of his six cases, while the American authors had a mortality in their first two cases from intercurrent causes. In the latter five, three were very greatly improved and two only to a slight extent. Too short a time has elapsed as yet for a final report. Under improved technic, which is possible only after a larger series of such operations in fairly selected cases, it may be expected that secondary operation on the brachial plexus will take equal rank with other well-established methods in neurologic surgery.

1. Proc. N. Y. Neurol. Soc., April and November, 1904.

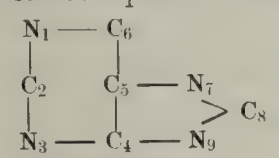
TRUTH AND POETRY CONCERNING URIC ACID.

IX.

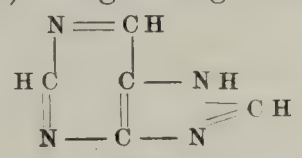
Before going on to a discussion of the conditions of uric-acid formation, uric-acid decomposition and uric-acid elimination in pathologic states it is necessary, in order that the discussion may be intelligible, to review briefly the facts which have been established regarding the chemical nature and physical properties of uric acid and the urates. The empirical formula for uric acid has long been known as $C_5H_4N_4O_3$. As a rational formula, Medicus suggested the structure



and this has been proved by Emil Fischer[1] to be correct. The latter investigator was the one to show that uric acid is only one of a large series of allied substances known as the purin bodies, since they are all derivatives of a substance, which Fischer discovered and made synthetically, known as purin $C_5H_4N_4$. All these purin bodies contain the group C_5N_4, the atoms in this group (the so-called "purin nucleus") being arranged thus:

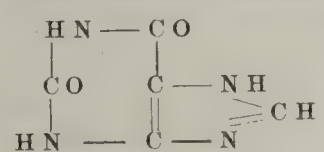


"Purin-nucleus."

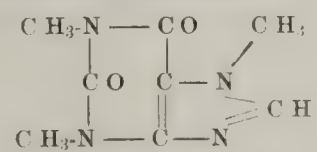


Purin.

Each atom of the purin nucleus is given a number as just indicated, and the various substances containing it are best designated according to this scheme. Thus, if the structural formula for uric acid given above be examined, it will be seen that it consists of the purin nucleus with three oxygen atoms attached to it, one to the second atom, one to the sixth atom and one to the eighth atom of the nucleus; the chemical name for uric acid is, therefore, 2.6.8-trioxypurin. Similarly, xanthin, which has the structural formula shown



Xanthin



Caffein

is chemically called 2.6-dioxypurin. Caffein contained in coffee has the same formula as xanthin except that the hydrogen atoms attached to the first, third and seventh atoms of the purin nucleus in purin are replaced by methyl groups; caffein is accordingly designated as 1.3.7-trimethylxanthin. If one hydrogen atom of

1. Fischer, E.: Synthesen in der Puringruppe, Ber. d. deutsch. Chem., Gesellsch., xxxii, 1899, 435.

purin be replaced by the amido group, NH_2, we get adenin (6-aminopurin); or replace one H atom by NH_2 and add an oxygen atom and guanin (2-amino-6-oxypurin) results. Xanthin, hypoxanthin, adenin and guanin are all constituents of the cell nucleus and forerunners of uric acid. Caffein of tea and coffee, theobromin of cocoa and theophyllin are all purin bodies, capable of transformation into uric acid.

Pure uric acid is a light white powder, seen microscopically to consist of rhombic tablets. It dissolves in water with extreme difficulty. At 18° C. the solubility in pure water is 1 to 39,480, that is to say, a liter of a saturated solution contains only 0.0253 gram of uric acid.

The physical chemistry of uric-acid solutions has been carefully studied by His and Paul.[2] The subject is complex and can not be gone into fully here; these recent studies, however, have thrown great light on the conditions of solubility of uric acid and the causes of its precipitation, and have knocked the bottom out of a whole series of ill-founded theories of gout and the so-called uric-acid diathesis. It will be sufficient for the purposes of this review to epitomize the chief facts which have been established.

On dissolving in water, a part of the uric acid undergoes ionic dissociation into positive hydrogen ions and negative ions, just as HCl dissociates in aqueous solution into hydrogen ions (hydrion) and chlorin ions (chloridion). But, since uric acid has two hydrogen atoms that can be replaced by metals, that is to say, since it acts as a dibasic acid, it undergoes dissociation in two stages. The primary dissociation is into the hydrogen ions or hydrion (H') and the univalent anion ($C_5H_3N_4O_3'$); in the secondary dissociation, a part of the univalent anion divides into a second hydrion (H') and the bivalent anion ($C_5H_2N_4O_3''$). The primary dissociation is the greater one; the secondary is so slight as to be almost negligible. The more dilute the solution the greater the degree of dissociation; the more concentrated the solution the greater the number of undissociated molecules, so that in a saturated solution only about 10 per cent. of the molecules are dissociated. The number of undissociated molecules is proportional to the number of hydrogen ions in the solution, and if the latter be increased, for instance by the addition of a dilute mineral acid, the number of undissociated molecules of uric acid becomes immediately augmented, and, since it is the undissociated acid which is extremely insoluble, a part of it will fall out of solution as a precipitate. This explains why the presence of other acids in solutions of uric acid decreases the solubility of the latter.

Corresponding to the two anions above mentioned, the univalent and the bivalent, uric acid yields with bases two series of salts, the so-called urates. Thus, if to a suspension of uric acid there be added a solution of sodium hydrate (NaOH), the uric acid will disappear and, instead, the primary urate of soda (acid urate, biurate, or, better named, mononatrium urate) will fall down as a precipitate; after the uric acid has all been changed in this way the primary urate in turn will be transformed by the further action of NaOH into the secondary urate (neutral urate, or, better, dinatrium urate), and this, being easily soluble, quickly dissolves. Now add any acid to this solution of dinatrium urate and uric acid will at once fall out of solution.

A study of mononatrium urate has shown that it has the tendency to be precipitated in the form of transparent amorphous spheres and that, on standing, these spheres become gradually transformed into needle-shaped crystals; there is no change in chemical composition, simply an alteration of the physical form. The amorphous spheres yield with water certain opalescent (or even clear) false solutions—the so-called colloidal solutions; such colloidal solutions may contain an enormous quantity of urates, far more than can be dissolved in the same amount of water to make a genuine solution. On standing the colloidal solutions gradually give rise to saturated genuine solutions and the excess of urates present then falls out in the form of the crystalline salt.

The English investigator, Roberts,[3] has postulated the existence of a so-called quadriurate of soda, each molecule having the composition ($C_5H_3N_4O_3Na + C_5H_4N_4O_3$); if the substance really exists, it would be better called heminatrium urate, but there is no valid evidence that it does exist. As Tunicliffe and Rosenheim[4] have suggested, Roberts probably had to deal with variable mixtures of uric acid and mononatrium urate. As far as can be seen at present, we have to consider only two sodium salts of uric acid, mononatrium urate ($C_5H_3N_4O_3Na$) and dinatrium urate ($C_5H_2N_4O_3Na_2$).

The bearing of these chemical and physical studies of uric acid and the urates on the problems of the urinary excretion in health and in disease will be obvious as we proceed with this review.

THE NECESSITY OF SPECIAL TRAINING FOR ADMINISTRATIVE MEDICAL WORK.

Every state has hospitals for insane, prisons, asylums, the best management of which requires special training and expert knowledge. Our state boards of health should be composed of experts in matters relating to public health. On the state boards of medical examiners one naturally would expect to find expert students of educational questions, able and ready to devise methods of examination in harmony with modern principles of pedagogy. In every city there is a health department of the municipal administration, which is charged with al

2. His, W., Jr.: Physikalisch-chemische Untersuchungen über das Verhalten der Harnsäure und ihrer Salze in Lösungen, Verhandl. des xviii Kongr. f. inn. Med., 1900, 425; also His, W., Jr., u. Paul, Ztschr. f. physiol. Chem., xxxi, 1900, p. 1.

3. Roberts, W.: On the Chemistry and Therapeutics of Uric Acid, Gravel and Gout (Croonian Lectures), London, 1892.

4. Tunicliffe, F. W., and Rosenheim, O.: Contribution to Our Knowledge of Uric Acid Salts, Lancet, lxxviii, 1900, p. 1708.

questions relating to municipal health matters and which, in the larger cities, has developed into a complex organization requiring the highest degree of expert knowledge and training in public health science.

Every large city has one or more hospitals for its sick poor, for contagious diseases and the like, and here again the best results are obtained from special training and knowledge.

In all these undertakings expert knowledge and special training are desirable, both from the point of view of immediate usefulness as well as from that of organization for future development in the right direction. Probably no physician will question the correctness of the principle involved, which is followed in all our great universities, in educational institutions generally, in commercial and industrial affairs, in short in all undertakings in which men hope to accomplish something worth while and to make progress. In the practical application of this principle to the administration of public institutions and public work of a medical character, however, the medical man in this country seems to have but a lukewarm interest, and hence it is not so remarkable that, in some of our largest cities, public hospitals with hundreds of beds are directed by non-medical men whose first acquaintance with hospital matters dates from the day of their appointment as superintendents. All the evils that may result from entrusting public institutions to the care of men without expert knowledge or training are illustrated in the history of many of our municipal hospitals, and other equally curious administrative anomalies of a similar character are readily cited.

This condition of affairs naturally delays progress, maintains a low degree of efficiency (or a high degree of inefficiency), and lessens the respect of people in general for the medical and allied professions, so far as their public activities are concerned. Because it is right, because it is in the interest of medical and scientific progress, the members of our profession should everywhere place themselves on the side of fitness as against "pull," of knowledge against ignorance, of progress against stagnation, when positions requiring expert knowledge in matters medical and scientific are to be filled.

A COUNTY SOCIETY'S WORK IN PUBLIC DEFENSE.

The work of the Omaha (Douglas County) Medical Society deserves commendation. The society proposes to defend, before the Supreme Court, the decisions repeatedly made in the lower courts denying the right of a corporation to practice medicine. The details are given in our news columns this week. We hope that the Omaha profession may be successful in this endeavor. An "institute" which is apparently able to evade the law, as this one did, is a public menace, and the sooner its status is made clear the better. This is another evidence of what a wide-awake county society can do.

THE CANAL COMMISSION AND SANITATION ON THE ISTHMUS.

The report of Dr. Charles A. L. Reed on the remarkable state of affairs revealed during his recent visit to the Isthmus of Panama, and presented by him in person to the Secretary of War March 2, is published in full in this issue. The revelations will be of deepest interest to the entire medical profession, by whom they will be accepted as a complete justification of the attitude of the President and of Secretary Taft toward the Isthmian Canal Commission.

THE PURE-FOOD BILL AGAIN FAILS.

Congress has adjourned without passing the pure-food bill. Those who deliberately adulterate the food of the people with poisonous substances have won again —with the assistance of certain senators who ought instead to be engaged in the protection of the people. The chief obstructionists have been Senators Platt of Connecticut and Spooner of Wisconsin. Something appropriate should be done to them by their respective constituencies. Senator Heyburn of Idaho and his supporters, Senator McCumber of North Dakota and others, deserve great praise for their manly fight against the specious objections made to the bill. It should bring a blush of shame to the cheek of every citizen of this country to know that dishonest manufacturers have so powerful an influence in the United States Senate that a pure-food law can not be passed. We trust that a wave of popular indignation will force this bill through the next congress. The poor senate has so many moneyed interests to look after that it can not devote its time and attention to the daily food of the common people. But the fight is still on. Let no one be discouraged. Pure-food legislation shall be passed.

ONE RESULT OF BETTER ORGANIZATION.

Since the reorganization of the Michigan State Medical Society a radical change has taken place. It has now become one of the most active organizations in the country, and there has been evidence of this in various ways during the last year or two. One of the recent evidences of what organization can do is illustrated in the nomination of Dr. Sawyer, one of the well-known physicians of the state, as a member of the board of regents of the State University. There has been some friction between the board of regents and the medical profession on account of the admission of those able to pay to free treatment in the University Hospital. At the meeting of the council of the state society some weeks ago a suggestion was made to get a physician on the board of regents, and Dr. Sawyer's name was endorsed. The different councilors went back to their respective districts and succeeded in arousing each of the county societies quietly to take action, and they succeeded in influencing a sufficient number of delegates to get their man nominated. For this office nomination is usually equivalent to election. This is another fact to add to those already on record that the organized profession is a power in politics, as well as in other matters, when it undertakes to do something that is for the interest of the profession as well as for the interest of the people.

REGULATION OF OSTEOPATHY IN NEW YORK.

It is by no means certain that the bill to regulate the practice of osteopathy in New York will meet the defeat which it deserves. At a hearing on the bill in Albany the senate chambers were packed with the advocates for this bill, while the great body of physicians of the Empire State were represented by not over a dozen men to oppose it. This fact shows the indifference of physicians in the Empire State to matters of such vast importance, not only to the profession but to the people. Would that the profession were united and not divided as it is, so that when necessary it could meet such questions with a solid front and be backed by the machinery of a strong organization. We hope the time is not far distant when such a happy state of affairs will prevail. A committee such as that which met the legislators can do little of itself without a strong backing. This it evidently did not have. The bill, as we understand it, would give the osteopaths the same rights that physicians have, except those of giving drugs and of performing major surgical operations. But it is well to remind those interested that the osteopaths are not limiting themselves to their massage methods in those states in which they have the right to practice and in which they have become established. They no sooner get the inch than they take the ell. They limit themselves to their peculiar methods only so long as it is absolutely necessary, and no longer.

A DOCTOR IN POLITICS.

Philadelphia seems to have a very bad name on account of its municipal politics. It has been called "corrupt and contented." Perhaps this description applies to the people generally. There is one man, a physician, who evidently is not one of the "contented" ones. We received a pamphlet entitled "An Experience of a Republican Citizen of Corrupt and Contented Philadelphia," by Dr. John B. Roberts, who, with the aid of documents, shows the sorry conditions existing in the "City of Brotherly Love." Above all, however—and this is the point to which we wish to call attention—it is to be noticed that a physician has been doing an excellent work quietly and persistently. Dr. Roberts has been in politics, not for what there was in it, evidently, but to help purge his city of some of the corruption that seems to infest it. His work has extended from 1902, when he was appointed overseer of the election, until his final letter to the judge of the court of common pleas, which is dated Nov. 19, 1904. We doubt not the doctor is still at it. We know that Dr. Roberts is not the only member of our profession in Philadelphia who is earnestly striving to bring about a better condition of things. We mention him because he has evidently been one of the leaders. Neither is it only in Philadelphia that there is corruption, or that the physicians are among those who are trying to overcome the corruption. In fact, this is one of the noticeable facts—wherever there is a work of reform, physicians will be found among the leaders. Nine times out of ten their influence is on the better side. Once in a while we find some (here the one-tenth part comes in) who are politicians in the bad sense of the word—in politics for all there is in it. Such need no praise; they get what they are after—sometimes—and need no commendation.

THE ENFORCEMENT OF ANTI-SPITTING LAWS.

In several parts of the country within the last two or three weeks there has been a salutary revival of the crusade against the spitting nuisance. That there has been need of such a move needs no argument, but its occurrence is good evidence of the educational work that has been done within the last two or three years. Before that time prosecutions for this offense were often thrown out of court and it was practically recognized as one of the rights of the citizen that he might spit when and where he pleased. Now, while the victims of arrest express some indignation, they are nevertheless promptly fined, and the public generally is in accord with the authorities on this subject. Necessarily, the enforcement of the law is likely to be more or less spasmodic, but its necessity will diminish with each raid on the spitters in public places. Many of them are merely thoughtless, and an occasional reminder that it may be unsafe is sufficient to break the habit, even if it is only from reading the police court records in the daily press. Others may be more obstinate, but an occasional arrest or fine will go a long way toward inducing reform in manners and morals. As long as only spitting on the sidewalks and in public conveyances, etc., is attacked, there is no great hardship. If a person needs to spit he can go to the curb and spit in the roadway. Of course, this is not the sanitary ideal, but it is at least a long step in advance toward better things. Let the good work go on.

Medical News.

CALIFORNIA.

Dispensary Open.—The College of Physicians and Surgeons, Los Angeles, opened its free dispensary department, February 22. The department is under the control of the trustees of the college.

Bequests.—By the will of Mrs. Leland Stanford $10,000 is devised to the California Woman's Hospital, San Francisco; $10,000 to the Children's Hospital, San Francisco, and $5,000 to the San Jose Sanitarium.

January Deaths.—During January 1,153 deaths were reported, equivalent to an annual mortality of 16.08 per 1,000. Tuberculosis caused 166 deaths; pneumonia, 157; heart disease, 139; cancer, 52; diarrhea, 32; bronchitis, 17, and diphtheria, 16.

Unlicensed Practitioner Fined.—"Dr." G. S. Hollister, Half-moon Bay, was convicted of practicing medicine without a license, and was fined $250. He claimed to be a graduate of the University of Michigan, but had neglected to obtain a certificate from the State Board of Medical Examiners.

Cancer Specialist Acquitted.—F. M. Hogue, San Jose, a so-called cancer specialist, who was prosecuted at the instance of the Santa Clara County Medical Society for practicing medicine without a license, and testified that he removed a cancer from the complainant, was nevertheless acquitted by the jury.

COLORADO.

Convicted of Assault.—Dr. Emmett E. Sonnanstine, Colorado Springs, charged with repeated criminal assaults, was found guilty, February 3, and sentenced to imprisonment for not less than five nor more than six years in the state penitentiary, at hard labor.

Personal.—Dr. Edward B. Trovillion, Gold Hill, has been appointed physician of Boulder County.——Dr. Charles Dyde,

Greeley, has been appointed a district physician of Weld County.——Dr. Sherman T. Brown has succeeded Dr. Thomas H. Hawkins as president of the medical staff of St. Anthony's Hospital, Denver.——Dr. James B. Devlin, Denver, has been seriously ill with pneumonia.

January Health and Deaths.—During January 87 cases of diphtheria, 77 of scarlet fever, 76 of typhoid fever, and 61 of smallpox were reported in the state. This is a decrease of 47 cases of typhoid fever, 21 cases of diphtheria, and 6 cases of scarlet fever, and an increase of 25 cases of smallpox, as compared with the previous month. As compared with January, 1904, the decrease is general—449 cases of typhoid fever, 131 of scarlet fever, 81 of diphtheria and 26 of smallpox. The deaths for the month amounted to 917, equivalent to an annual death rate of 16.63 per 1,000. Diphtheria and typhoid fever each caused 15 deaths, scarlet fever 6, and smallpox 1.

GEORGIA.

Smallpox has invaded Babcock's convict camp in Miller County. Three cases have developed, and all of the convicts in the camp have been vaccinated.

Presbyterians Will Build.—The Presbyterians of Atlanta have decided to erect a new building for the Presbyterian Hospital, at a cost of $50,000, within 5 years.

Personal.—Dr. Walter E. Edwards, Cordele, has been appointed assistant surgeon of the Fourth Infantry G. S. T., with rank of first lieutenant.——Dr. Robert B. Barron, Macon, chairman of the city board of health, was operated on for appendicitis, February 20, and is making satisfactory progress.

IDAHO.

Board Sustained.—In the case of Dr. J. J. Raaf, who appealed from the action of the State Board of Medical Examiners, in denying him a license to practice, District Judge Lyttleton Price decided that the appellant was not entitled to his license, and rendered judgment in favor of the defendant.

District Society Meeting.—The South Idaho District Medical Society will meet in Boise, April 6, following the meeting of the State Board of Medical Examiners.

ILLINOIS.

Smallpox.—During the past week the State Board of Health has inspected smallpox cases in Fulton, Hancock, Sangamon and Vermilion counties.

Conditional Gift to Hospital.—W. H. Parlin, Canton, has agreed to give $2,000 to the building fund of the Canton Hospital, provided that $18,000 additional is raised.

Polyglot Consumption Circular.—The State Board of Health, in compliance with requests, is having printed for general distribution an edition of its circular on the causes and prevention of consumption, in Bohemian. Jews, Poles and Italians have asked to have the circular printed in their respective languages.

Personal.—Captain Amos F. Moore, Dixon, assistant surgeon Ill. N. G., assigned to Sixth Infantry, has been directed to reorganize the hospital corps of that regiment.——Dr. James H. Parcell, an aged physician of Westfield, has been adjudged insane and has been committed to the Illinois Southern Hospital for the Insane, Anna.

Medical Bills.—Senate bill 171, providing for the appointment on the State Board of Health of two regular, one homeopathic, one eclectic, one physio-medical and one osteopathic member, has been favorably reported on by the committee on judiciary department and practice.——Senate bill 171, revising the present Medical Practice Act, providing for the regulation of regular, homeopathic, eclectic, physio-medical and osteopathic practice, is being considered by the committee on license and miscellany.——Senate bill 225, for an act to establish a state board of examiners of registered nurses, and Senate 226, for an act to regulate the practice of dental surgery, have been approved by the committees to which they were referred.——Representative (Dr.) Monroe G. Reynolds, Aledo, has introduced a bill (House 414) making it the duty of the State Board of Health to see that diphtheria antitoxin be kept in each county seat in the state for sale to physicians, and that supplies be furnished to the poor free of charge on the order of the overseer of the poor. This bill has the endorsement of the State Board of Health.

Chicago.

Personal.—Dr. G. Frank Lydston has been made a fellow of the London Society of Authors.——Dr. O. E. Wald has been made surgeon-in-chief to the La Salle Hospital.

Held Blameless.—In the suit brought by H. O. Pearson against Dr. Harry H. Rittenhouse, in which $15,000 damages was claimed because of the alleged neglect of the physician, the jury found for the defendant.

Peril in Hospital Fire.—At a fire which broke out in the Chicago Union Hospital, March 2, the nurses and attendants carried the 14 patients safely from the burning building and then aided in preventing the spread of the flames until the fire companies arrived. The building was damaged to the extent of about $2,500.

Mortality of the Week.—During the week ended March 4, 627 deaths occurred, equivalent to an annual mortality of 15.94 per 1,000. Pneumonia still leads, with 117 deaths; consumption caused 73; heart diseases, 43; violence, 36; bronchitis, 35, and Bright's disease, 33. Smallpox caused 3 deaths; diphtheria, 9; scarlet fever, 3; typhoid fever, 3; measles, 1, and whooping cough, 7.

Grace Hospital Opened.—This new hospital in the manufacturing district of the west side was opened February 18. Dr. Alexander M. Harvey is president of the institution, and the staff is as follows: Drs. C. C. Byrne, John S. Nagel, Frank A. Phillips, Morley D. Bates, J. J. Anderson, Adolph E. Bertling, Alexander A. Whamond, W. Franklin Duckett, Calvin W. Harrison and Howard Crutcher.

Lower Mortality in February.—There were 284 fewer deaths reported during February than during the corresponding month of 1904, and the death rate is a little more than 10 per cent. less. There is still, however, a serious excess over the usual proportion of deaths among infants and young children. Of the total 2,421 deaths at all ages 854 were of children under 5 years of age. This is an excess of nearly 40 per cent. over the average proportion, which is about 25 per cent. of the total.

Pneumonia and Consumption.—There were 162 fewer deaths from pneumonia—nearly 24 per cent. less—than during February, 1904; but the consumption mortality remains substantially unchanged—285 and 278 respectively. Since the beginning of the current pneumonia season, Oct. 1, 1904, up to date, March 4, 1905, there have been 1,299 deaths from consumption and 1,936 from pneumonia, out of a total of 11,350 from all causes. These figures give proportions of 11.4 per cent. of the total mortality for consumption, 18 per cent. for pneumonia, and an excess of 49 per cent. of pneumonia over consumption.

INDIANA.

Osteopath Fined.—"Dr." W. A. Bush, an osteopath of La Grange, was fined $25 for practicing medicine without a license.

State Laboratory of Hygiene.—The bill providing an appropriation of $15,000 for the establishment and maintenance of a state laboratory of hygiene under the direction of the State Board of Health, has passed both houses of the legislature, and has been signed by the governor and made a law.

New Southern Hospital for the Insane.—The governor has signed Senator Newhouse's bill, which appropriates $560,000 for the establishment and maintenance of an additional hospital for the insane in a district comprising 16 of the southeastern counties of the state. A commission of three members will decide the location of the hospital.

Personal.—Dr. Edwin Walker, Evansville, has returned from Europe.——Dr. Robert F. Palmer, Frankfort, has been appointed chief surgeon of the Clover Leaf System, vice Dr. Samuel S. Thorn, Toledo, Ohio, resigned.——Dr. Robert W. Harris has been elected president, and Dr. Charles W. McIntyre secretary of the New Albany Board of Health.——Dr. Charles H. Eckert has been appointed local surgeon at Marion for the Clover Leaf System, vice Dr. Thomas C. Kimball.

Afflicted.—Dr. Walter R. Francis was taken seriously ill while making calls in Marion, February 10, but is convalescent. ——Dr. Granville O. Newton, Dana, was thrown from his buggy near Hillsdale, February 19, and sustained a comminuted fracture of the forearm.——Dr. Henry F. Barnes, Indianapolis, fell while attempting to board a street car, February 24, and sustained serious injuries about the head and body.——Dr. Cassius E. Van Matre, New Castle, has been seriously ill with septicemia from an infected wound of the left hand, but is now improving.——Dr. William H. Mills, Boonville, was seriously bruised about the head in a runaway accident, March 1.——Dr. George Knapp, Vincennes, was "held up" and robbed of about $8, near Lyles Station, February 26.

KANSAS.

Personal.—Dr. Harvey A. Warner, Topeka, has been made second vice-president of the National Fraternal Sanatorium for Consumptives.

No Sanitarium for Western Kansas.—The senate, on February 22, refused to pass a resolution providing for a commission to consider the advisability of establishing a sanitarium for consumptives in western Kansas.

Smallpox.—Horton is reported to have 108 cases.——Two students of the University of Kansas, Lawrence, have smallpox and have been removed to the isolation hospital on Addis Island.——Neosho Rapids primary schools have been closed because the teachers are quarantined in Emporia on account of smallpox.

MARYLAND.

Women to Build Hospital.—The Woman's Christian Temperance Union of Crisfield has taken up the work of establishing a public general and marine hospital at that place. It is working steadily to raise funds and is meeting with encouraging success. Crisfield is on Chesapeake Bay and is a great center for oystermen and boatmen.

Emergency Hospital Report.—The third annual report of the Emergency Hospital, Annapolis, shows receipts for the year of $4,220, viz., state $2,500, city $500, county $200, pay patients $620, other sources $400; balance in bank, $700; $1,358 was paid out in salaries and wages. During the year 50 patients were treated. Dr. George Wells is chief of the medical staff.

Baltimore.

Deaths and Births.—During February there were 883 deaths, 26.16 per cent. being under 5. The deaths from consumption and pneumonia showed a gratifying decrease. Only 667 births were reported.

Tuberculosis Lectures.—A series of lectures is being delivered at the various churches under the auspices of the Baltimore Tuberculosis Association, in the education of the public regarding that disease. Dr. Harry Lee Smith delivered the first of the series, March 2, and a senior student demonstrated the tubercle bacilli to the audience.

The Struggle Against Phthisis.—A public meeting of the Maryland Association for the Prevention and Relief of Tuberculosis was held March 7. Dr. Lawrence F. Flick, director of the Henry Phipps Institute of Philadelphia, spoke on "The Hospital and the Dispensary in the Warfare Against Tuberculosis," and Dr. Henry M. Hurd spoke on "Tuberculosis in Its Social Bearings."

MASSACHUSETTS.

Faulkner Hospital.—The first annual report of the Faulkner Hospital, Jamaica Plain, shows that during the year ended Nov. 1, 1904, 324 patients were cared for, for 5,973 days. The total expenses were $22,394, of which $7,712 was derived from payments by patients. The average number of patients daily was 16, in charge of 16 nurses.

Poor Overseers' Report.—During 1904 the agents of the Overseers of the Poor of Boston made 23,000 visits on 2,300 families, distributing $20,000 in cash and $60,000 worth of groceries. Owing to the activity of various charitable organizations this is less than was dispensed 25 years ago, although the population has greatly increased. About one-fifth of this sum was given to families deserted by the husbands, and one-fourth was given to families the heads of which were drunkards.

Personal.—Major Charles M. Green, for many years surgeon of the First Corps of Cadets, Boston, has retired. He was made assistant surgeon in 1881, and retires as a lieutenant colonel. ——Dr. J. H. Wright, director of the Pathological Laboratory of the Massachusetts General Hospital and Instructor in Pathology at the Harvard Medical School, has been awarded the Gross prize of $1,200, given by the trustees of the Philadelphia Academy of Medicine, for his study into the "Biology of the Micro-organism of Actinomycosis."—The Board of Health of Cambridge has chosen Dr. Allen M. Barnes as bacteriologist and has requested the resignations of John J. Scott and Dr. Charles T. Weeks as members of the board.

MICHIGAN.

Blaze at Hospital.—Flint Hospital had a second fire alarm, February 28. The roof took fire, but the fire companies extinguished the fire with a loss of about $150.

Founder's Day.—At the exercises of Founder's day, February 22, the Ann Arbor Medical Society was given a portrait of the late Dr. Palmer, and a reception was tendered Dr. and Mrs. Arthur R. Cushny, who will leave soon to reside in London, England.

National Guard Changes.—Major Julius F. Henkel has been made lieutenant colonel and assistant surgeon general; Captain Vernon J. Hooper has been made major and surgeon; Lieutenant James E. Mead, captain and assistant surgeon, and Dr. Samuel C. Gurney, first lieutenant and assistant surgeon, all of Detroit.

Comparative Disease Prevalence.—For February, 1905, compared with the average for February in the ten preceding years, smallpox and cholera morbus were more than usually prevalent; and pneumonia, inflammation of kidney, erysipelas, scarlet fever, inflammation of bowels, intermittent fever, measles, diphtheria, remittent fever, whooping cough and dysentery were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Meningitis was reported present during February at 7 places; whooping cough at 16 places, diphtheria at 64 places, measles at 68 places, typhoid fever at 93 places, scarlet fever at 105 places, smallpox at 106 places, pneumonia at 142 places, and consumption at 251 places. Meningitis was reported present at 8 places less, whooping cough at 6 places more, diphtheria at 19 places less, measles at 5 places more, typhoid fever at 15 places less, scarlet fever at 4 places less, smallpox at 2 places more, pneumonia at 41 places more, and consumption at 16 places less, in the month of February, 1905, than in the preceding month.

NEBRASKA.

Approve License of Outsiders.—The Lancaster County Medical Society, at a meeting held in Lincoln, February 8, adopted the following resolution:

Resolved, By the physicians of Lancaster County, that, whereas some misapprehension exists among people outside of the medical profession, the physicians hereby declare that the present bill (H. R. 165) acted on favorably to-day by the lower branch of the Nebraska Legislature, is not an effort to limit or to destroy the method of practice of any individual or any sect engaged in the care of the sick. The bill is simply an effort to remedy a condition which exists, at present, whereby men and women unable to recognize the character or seriousness of disease are permitted to attend all classes of sick persons. Under the new law, Christian science, osteopathy, magnetic healing, or any other system which possesses virtue in the care of the sick, may be practiced the same as heretofore, but it will be required of such practitioners that they shall first pass an examination before a state board of health, showing ability to recognize and place under quarantine, if necessary, cases of acute or chronic contagious diseases. Physicians are ever at the front in matters pertaining to the health and welfare of the community and state, and wish to commend those members of the legislature who lent their influence and votes to recommending the passage of the present bill.

Can a Corporation Practice Medicine?—The Omaha-Douglas County Medical Society, February 28, took up the question of assuming the responsibility of carrying to the Supreme Court the case of the State Board of Health vs. the State Electro-Medical Institute. The importance of the matter is indicated by the fact that the case carries with it the question as to whether a corporation can be licensed to practice medicine. There is great difficulty in reaching corporations through a suit for revocation of license to practice. The work of these institutes has been carried on impersonally, no name being mentioned in advertisements or contracts. If the State Board of Health brings suit to revoke the certificate of any physician connected with the corporation, the defense is that he has nothing to do with the advertising. The effect of a favorable decision in the case named would be to make these men come out in the open and practice under their own name and responsibility. Dr. A. B. Somers, a member of the state board, thus stated the case: The institute sued a farmer for its fee. His attorneys took the position that a corporation had no right to practice medicine, and hence could not sue for such a fee. The judge of the District Court decided that this position was well taken. A new trial was secured, and the same decision was made by another judge of the same court. At this stage, two members of the society, Drs. Somers and Crummer, took up the case and instituted a prosecution against the institute for practicing medicine illegally. They employed the same attorneys who had defended the farmer and agreed to give them $100. The society then took up the question and paid the fee of $100. Again the case was won, and the judge of the District Court decided that the institute could not legally practice medicine. From this decision the institute appealed to the Supreme Court. The question before the society was as to whether the society should abandon the case at this stage or should guaran-

tee another fee of $100 and about $30 expense to carry the case up and secure a final decision. A favorable decision would forever bar all corporations of this character from practicing, and it was regarded as of vital importance that the matter be pressed. After full discussion, pro and con, it was unanimously decided that the society should guarantee the sum of $130, and should carry the case to the Supreme Court.

NEVADA.

Personal.—Dr. William F. Burnett, Eureka, has been reappointed physician of Eureka County.

Irregular Convicted.—"Dr." F. H. Welchman, Lovelock, accused by the State Board of Medical Examiners of practicing medicine without a license, was convicted, February 3, on a third trial. At the first two trials the juries disagreed.

Warning.—An individual calling himself "Dr. D. W. Smith" and claiming to come from Florence, Colo., has recently visited Eureka, began practice, established a "People's Drug Store," and levanted on February 25 with many articles not belonging to him. He was pursued to Palisade, Nev., and the goods found in his baggage. He was released on payment of $75 and return of the goods taken. He stated that his destination was Vleits, Kan.

NEW JERSEY.

Bequest to Hospital.—The late Mrs. Mary E. Ryle, Paterson, bequeathed $20,000 to the Paterson General Hospital.

To Prevent Sample Medicine Abuses.—There has been passed in Atlantic City an ordinance prohibiting the distribution of medicines, except by giving such samples to persons over twelve years of age who are willing to receive them. A fine of fifty dollars is provided.

Free Antitoxin.—On March 1 the house of assemblymen passed the bill providing for a state laboratory to manufacture antitoxin for free distribution to physicians in the treatment of diphtheria. The bill also appropriates $7,000 for the erection of the establishment and $6,000 is given for annual maintenance.

Personal.—Drs. Nelson B. Oliphant, William A. Clark and Charles F. Adams, Trenton, will go to Vienna this spring.——Dr. Lewis R. Souder, Atlantic City, has been reappointed physician of Atlantic County.——Dr. Benjamin W. McGalliard, Trenton, was committed to the State Hospital for the Insane, February 23.

Anthrax in Swedesboro.—Anthrax has been discovered in a herd of cattle in Swedesboro, and the disease is asserted to be spreading among the cattle of the neighborhood. A man who skinned one of the cows which had died of the malady contracted the disease and is in a serious condition in the Municipal Hospital of Philadelphia. The State Board of Health is making every endeavor to prevent the spread of the malady and has detailed the state veterinarian on this work.

Medical Library at Atlantic City.—A medical library has been established by the Atlantic City Academy of Medicine, and a room has been set apart in the Atlantic City Free Public Library for its books and periodicals. These will, however, be given out only to members of the academy and to their friends. Physicians visiting Atlantic City will be extended every courtesy the library can offer. Contributions on medical subjects will be gladly received and may be directed to Dr. Wm. Edgar Darnall, president of the academy, or Dr. Philip Marvel, chairman of the committee.

NEW YORK.

Bequest.—Under the will of Norton P. Otis $5,000 has been bequeathed to St. John's Riverside Hospital, Yonkers.

Bills Signed by the Governor.—A measure authorizing the Amsterdam water commission to establish ordinances for the protection of the city water supply has been signed by the governor, and also a bill authorizing the medical college laboratory of the City of New York to transfer its property to a university, college or other institution of learning.

The Coroner's Bill.—James Taylor Lewis, counsel for the New York State Medical Association, is encouraged over the outlook for the success of the Elsberg bill. Mr. Lewis says the bill will be brought up for final passage in the senate early in March, and will be speedily pushed through both houses. If Mayor McClellan vetoes it as he did last year it will probably be passed over his veto.

Outsiders Have a Hearing.—Osteopaths, Eddyites, divine healers, faith curists, mental science exponents, etc., assembled at the hearing given the bill regulating the practice of osteopathy and placing it under the jurisdiction of the state regents. John T. McDonough, former secretary of state and member of the Supreme Court of the Philippine Islands, pleaded their cause. Dr. Robert T. Morris of New York City made the principal argument in opposition to the bill. He said that one of the claims of this school was that they were able to move bones by rubbing, and to cure dislocations without the use of the knife. He produced a section of lamb showing the ribs, and called on any one of them to move one of the bones one-fiftieth of an inch.

New York City.

Appeal for Babies' Hospital.—This hospital opened in 1902, and was crowded to its fullest capacity within six months. Last summer one-third of its applicants had to be rejected. The directors now ask for $25,000 to increase the work.

Fatality from Wood Alcohol.—One man is dead, another totally blind, and several have been made ill as the result of drinking what is believed to be "moonshine" wood alcohol whisky, which was furnished to the victims who were acting as professional mourners in a Jewish synagogue on the lower east side.

Clinic on Cancer.—At the close of the course of special lectures by Dr. L. Duncan Bulkley at the New York Skin and Cancer Hospital, Nineteenth Street and Second Avenue, March 29, at 4:15 p. m., there will be a clinic on cancer by Dr. William Seaman Bainbridge of the hospital staff. A number of interesting cases will be on exhibition.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending February 25, 318 cases of tuberculosis, with 164 deaths; 292 cases of measles, with 5 deaths; 261 cases of scarlet fever, with 14 deaths; 258 cases of diphtheria, with 45 deaths; 121 cases of varicella; 5 cases of smallpox, with 1 death; and 49 deaths from cerebrospinal meningitis.

Progress of the Eye and Ear Hospital.—At a meeting of the directors of the Manhattan Eye, Ear and Throat Hospital for the consideration of the plans submitted for the new hospital, it was reported that the hospital contemplated would cost $200,000 more than had been appropriated for this purpose. It was decided to incur the indebtedness. One of the directors then contributed $25,000 to the cause.

For Charity.—Mr. and Mrs. Richard Croker have divided $5,000 among various charities as a memorial to their son. Among the beneficiaries were St. Joseph's Hospital for Consumptives, $500; St. Vincent's Hospital, $500; United Hebrew Charities, $500; Mount Sinai Hospital, $500.——The net proceeds of the German Charity Ball were more than $12,000 in excess of those of any previous ball. Of this sum the German Hospital receives $2,200; St. Mark's Hospital, $1,400; St. Francis' Hospital, $1,400; German Polyclinic, $1,400, and the West Side Dispensary, $1,000.——Two patients have given $10,000 to Roosevelt Hospital for the purpose of re-opening one of the public wards, which has been closed for some time because of lack of funds.

Gonorrheal Infections at the Babies' Hospital.—Dr. L. Emmett Holt reports the following statistics of admitted and acquired gonorrheal infection at this hospital: During the eleven years from 1894 to 1904, inclusive, there were treated 345 cases of gonorrheal infection. Of these 101 were of admitted and 172 of acquired vaginitis; 42 of admitted and 4 of acquired ophthalmia and 3 of admitted, and 23 of acquired arthritis. Of 26 cases of acute gonococcus arthritis it was interesting to note that the finger or metacarpal joints were involved 20 times; the ankle, 18; the knee, 17; the wrist, 12; the toe or metatarsal joints, 10; the shoulders, 9; the elbow, 5; the hip, 1; the temporo-maxillary joint, 1. Those aged three months or under numbered 16; during the second year 3; four to six months, 5; during the third year, 2. Vaginitis complicated 4 of these cases and ophthalmia one case.

News from the Health Department.—The advisory board of the Health Department has asked for funds for a commission to investigate cerebrospinal meningitis. The increase in this disease has been enormous. Five years ago it was hardly to be found in the city. In 1903 there were 271 fatal cases, while in 1904 there were 1,211. In January, 1904, there were 25 deaths from this cause, while in January, 1905, there were 107. In February, 1904, there were 26 deaths, and in February, 1905, there were 149.——The Health Department has contracted for a new steamer, to replace the one damaged at the time of the *Slocum* disaster.——The department has had several

million very scientific anti-spitting slips printed which are to be pasted in the covers of all the books given out to children attending the public schools.——The new building for the department to be erected in Brooklyn will cost about $200,000. It will have a tuberculosis sanitarium, which will be attached to the main building. It will be tiled throughout, no material being used that will harbor germs, and it will be fitted up for scientific experiments.——Dr. Park, the bacteriologist of the health department, has submitted his affidavit as to the effect of subway signs on bacteria. He concluded from his experiments, and from his knowledge of conditions in the subway, that as a practical matter the presence of signs attached to the walls in the subway as a menace to public health is so infinitesimal that they may be disregarded for all practical purposes.

PENNSYLVANIA.

Dangerous Occupations.—Despite the precautions taken to minimize the accidents in the anthracite mines of Lackawanna County, the accidents and death roll increase. In 1902 for each life lost in Lackawanna County, when there were but two mining inspectors, there were 243,693 tons mined. In 1903 the inspectors were doubled and there were 161,898 tons mined. The report for 1904 showed the conditions are infinitely worse. There is a decrease in output and the number of lives lost is greater. The report shows that the amount of coal mined was less and the list of victims increased. The amount of coal mined in 1904 fell to 147,934 tons. This shows that the anthracite industry is fast becoming more dangerous. The reports for the year show that there were 84 fatalities from fall of roof and rock alone, while in the preceding year, with a greater output of coal, the fatalities from these causes were 64. During the preceding year there were 131, and yet for the past year, with its decreased output and correspondingly diminished risk, the total fatalities are increased by 6. In 1903 there were 67 wives made widows. In 1904, when the amount of coal mined was less, and the number of days' work less, the ranks of miners' widows were augmented by 74. In 1903 there were 141 children made orphans, while in 1904 there were 172. Demands are being made that the laws governing mines are inadequate, and that those passed about twenty years ago are practically obsolete.

Philadelphia.

Health Report.—The total number of deaths reported for the week aggregated 559, as compared with 579 for last week, and 628 for the corresponding period of last year. A decrease is noted in the number of deaths from pneumonia. Last week 90 victims were reported, or 13 less than the preceding week. Seventy-two deaths have resulted from the disease during the present week. There have been no cases of smallpox reported in the city since the middle of December last. Typhoid fever is slightly on the increase, 92 new cases being reported during the week. The principal causes of deaths were: Typhoid fever, 11; influenza, 10; tuberculosis of lungs, 72; cancer, 19; apoplexy, 34; heart disease, 51; acute bronchitis, 17; enteritis, 21; Bright's disease, 43, and pneumonia, 72.

Medical Society Receptions.—Dr. E. E. Montgomery was tendered an informal reception by the society named in his honor, of Jefferson Medical College, at the University Club, March 14. ——Dr. H. A. Hare was also tendered an informal reception by the society named in his honor, of the Jefferson Medical College, at the University Club, March 7.——Dr. W. M. L. Coplin was tendered an informal reception by the society named in his honor, of the Jefferson Medical College, at the Southern Club, March 3.——Dr. Philip Coombs Knapp of the Harvard Medical School, Boston, addressed the students of Jefferson Medical College, under the auspices of the F. X. Dercum Neurological Society, on "Brain Tumors and Their Treatment," March 9, in the college building. A reception was given in honor of Dr. Knapp at the Art Club immediately after his lecture.

Hospital Reports.—The Presbyterian Hospital admitted 185 patients during February and discharged 173; the number remaining March 1 was 215; 1,709 cases were treated in the dispensary.——One hundred and nine patients were admitted to the Germantown Hospital, and 114 were discharged; 85 remained; 1,132 were treated in the dispensary.——The Women's Homeopathic Hospital admitted 91 patients to the wards, and treated 971 in the different dispensaries.——The Howard Hospital admitted 39 patients to the wards, treated 570 new patients in the dispensaries, compounded 3,021 prescriptions and treated 92 accident cases.——The Charity Hospital treated 833 patients and compounded 609 prescriptions.——One hundred and two patients were admitted to the Polyclinic Hospital, and 7,642 visits were made to the different dispensaries. The Pennsylvania Hospital admitted 359 patients, treated 3,203 new patients in the dispensaries, and had 4,078 visits made to the various dispensaries; 1,465 cases were cared for in the receiving ward.

GENERAL.

U. S. Consul at Cananea.—Dr. W. J. Galbraith, chief surgeon for the Cananea Consolidated Copper Company, has been appointed United States Consul at Cananea, Sonora, Mexico.

International Agreement for Safeguards Against Plague and Cholera.—March 2 the Senate ratified an international treaty, adopted by a convention of representatives of practically all nations, to agree on uniform safeguards against the invasion and propagation of plague and cholera.

No Malaria in Hawaii.—At a recent meeting of the Hawaiian Medical Association, Dr. Sinclair read a paper on malaria, in which he said: "In spite of repeated efforts, I have never found an anopheles mosquito in Honolulu, and never saw anyone able to produce one. Until I see the anopheles mosquito I will be skeptical of cases of malaria found in Hawaii, and until I see a case in which the plasmodium is demonstrable I will be unconvinced."

The Outdoor Life.—This journal, published at the Saranac Sanatorium, deals with the outdoor life of the consumptive, and the editors publish nothing which does not bear, either directly or indirectly, on this subject. Under the caption, "News of the War on Tuberculosis," a résumé is given of what is being done in this country and in Germany to stamp out tuberculosis. An article in the February issue gives a list of the sanatoriums, hospitals, etc., for the treatment of this disease. The March number has an article on "Nature Study," which should be of special interest to all "outdoor" patients.

To Study Leprosy in Hawaii.—March 4, President Roosevelt signed the bill, H. R. 17984, entitled "An act to provide for the investigation of leprosy with special reference to the care and treatment of lepers in Hawaii." The bill provides that when the territorial government shall cede to the United States, in perpetuity, a suitable tract of land, one mile square, more or less, on the leper reservation, there shall be established thereon a hospital station and laboratory of the Public Health and Marine-Hospital Service for the study of the methods of transmission, cause and treatment of leprosy. The bill also authorizes the Secretary of the Treasury to cause the erection of the necessary buildings and also authorizes the Surgeon General of the Public Health and Marine-Hospital Service to appoint medical officers and pharmacists, and to adopt regulations for the administration of the hospital station.

FOREIGN.

Prize for Work on Professional Diseases of Brewers.—The German Master Brewers' Association has announced three prizes of $100, $50 and $40 for the best work on the recognition of the professional affections of brewers and maltsters, their treatment and prevention, and on hygiene for workers in breweries in general.

London Hospital Endowment.—Mr. Edward Heron-Allen has presented $5,000 to the Westminster Hospital, London, to endow a bed in one of Dr. Murrell's wards, "in recognition of his valuable contributions to pharmacology and of his researches on the action of remedial agents in the treatment of disease."

Society for Social Medicine, Hygiene and Medical Statistics.—A new society with the above name was recently organized at Berlin. It already has 89 members, including many prominent physicians, statisticians, official hygienists, sociologists and others interested in political economy. Dr. Dietrich of the Prussian cabinet and Lassar were elected presidents.

Sanitary Measures in Madrid Churches.—We learn that the municipal authorities of Madrid have ordered that the stone floors of the various churches must be swept out each day with sawdust moistened with a solution of copper sulphate, and that the seats, benches, etc., are also to be wiped with some disinfectant. These regulations have been issued at the advice of the director of the city laboratory.

Amusing Instance of Advertising Irregular Methods.—The public has been officially warned against a certain pseudo-medical institute at Dresden. The latest issue of the official governmental bulletin for the state (Saxony-Meiningen) was accompanied by an illustrated prospectus of this same institute. The affair shows how easy it is for irregulars to find ways of

advertising, notwithstanding the efforts of the authorities to suppress them.

Infringement of Professional Secrecy.—A Berlin physician warned one of his patients, the mother of several children, that her sister-in-law had a "horrid contagious affection." They all lived together, and the children frequently slept with their aunt. The sister-in-law sued the physician for damages. The experts consulted found no trace of any disease, but the physician remarked that a cure in the interim was a matter of course. The physician was fined $5.

Antiquity of the Mosquito Theory.—According to our exchanges, the governor of the Island of Ceylon has found in native works, dating from the sixth century, descriptions of various kinds of mosquitoes which are accused of being the cause of malarial fevers. The ruins and historical records of Ceylon indicate a high degree of civilization in remote antiquity. If this report proves to be true, the new mosquito theory is at least fourteen centuries old.

Fine for Reproduction of Scientific Moving Pictures.—Doyen of Paris brought suit last year against the firm of photographers who had made his series of moving pictures of some of his operations. They had reproduced the pictures as a sideshow at fairs and elsewhere throughout Europe, and Doyen demanded $40,000 damages and publication of the details of the fine throughout the country. He had the cinematographs made to serve solely for instruction in surgery. The courts decided that the photographs were the property of Doyen alone, and condemned the photographers to a fine of $1,600 and publication of the verdict in fifteen journals.

Medical Aspect of the Cervantes Tercentennial.—The physicians of Madrid have arranged a medical festival in May to aid in celebrating the three hundredth anniversary of the publication of Don Quixote. Ramon y Cajal will deliver an address on the "Psychology of Don Quixote and Quixotism"; Oloriz on the "Physical Anthropology of Don Quixote"; Ocaña on "Hygiene in Spain in the Seventeenth Century"; Lazaro on "Botany" at that epoch; Pulido on the "Expulsion of the Moors," and the prime minister of the realm on "Sancho Panza's Governorship of Barataria Island." The festival meeting will be held in the opera house, and will be presided over by a cabinet minister.

LONDON LETTER.

The Financial Relations Between the London Hospitals and the Medical Schools.

At the instigation of the anti-vivisectionists, who alleged that money given to the London hospitals for the benefit of the patients is devoted to the maintenance of the attached medical schools, a committee was appointed by the Prince of Wales, the president of the King's Hospital Fund, which raises a large sum annually for the support of the hospitals—in 1903, $400,000—to inquire into the following questions: 1. Whether any, and if any, how much money given for the relief of the sick poor to the twelve London hospitals having medical schools is contributed by those hospitals directly or indirectly for the maintenance of medical education. 2. Whether any direct or indirect return for such contributions is received by the hospitals from the medical schools, and if so, whether such return is equivalent to the amount of the contributions. The committee has now presented its report—a lengthy document containing many statistics. Between the schools and the hospitals very intimate and complicated arrangements have grown up, and the committee were confronted with almost insuperable difficulties in the preparation of a statement showing the cash value of the balance between contributions in money or kind made by the hospitals to the schools, and by the schools to the hospitals; and this altogether apart from the value of the work done by the schools for the hospitals. In the cases of several of the hospitals (St. Mary's) the hospital and school were founded together, and the school as well as the hospital appears to have been an object of bounty in the mind of the founders; in some cases (University College Hospital) the hospital was founded as an aid to the school; in some cases (Charing Cross and Westminster hospitals) the school buildings were provided, or partly provided, by money subscribed for the specific purpose or for a joint purpose of which the provision of school buildings formed a part; in other cases sums have been contributed to hospitals subsequent to the foundation, of which, to the knowledge of the donors, a portion was applied to the school (e. g., the London Hospital) where a contribution to the school has been made yearly under resolutions passed at meetings of the subscribers entitled to vote under the rules; where the hospital and school (e. g., the Middlesex Hospital) form a single conjoint institution, and contributions have been made to that institution it is obviously impossible to say how much was given for the relief of the sick poor and how much for the promotion of medical education. Frequently the ground on which the school buildings stand is the property of the hospital, but the buildings have been erected by the school. In some cases, parts of the hospital buildings are used conjointly for the purposes of hospital and school, especially in the case of pathologic and bacteriologic laboratories. In the case of King's College Hospital and University College Hospital, the committee report that no money subscribed to them in the year 1903 (the last year of which the accounts are complete) was used directly or indirectly for the maintenance of medical education. In the cases of Guy's and the Royal Free hospitals the committee doubt whether the schools derive any pecuniary benefit from the hospitals. In the case of all the other hospitals—Charing Cross, the London, the Middlesex, St. Bartholomew's, St. George's, St. Mary's, St. Thomas's, the Westminster—contributions, direct or indirect, were made in 1903 to the schools out of the funds of the hospitals. On the question whether any return is made from the schools to the hospitals the committee finds that in some cases the fact that a large body of students is being educated in a hospital diffuses a wide interest in that institution, and thus tends to aid its finances. The presence of students also has a tendency to keep the medical staff on the alert and to counteract the daily routine of duties, and that the opportunity for teaching attracts to hospitals the gratuitous services of the most eminent men in the profession. It was urged before the committee that the great amount of work done without payment by students as medical clerks and dressers constitutes a pecuniary advantage to the hospital; but the evidence satisfied the committee that the expense incurred in hospitals with schools is generally in excess of those in hospitals without schools. The committee, therefore, reports that no saving of expense results. On the question whether the return received by the hospital from its school is equivalent to the contribution to the school the committee say that as the returns are of a general kind and can not be reduced to figures they can not reply categorically, but they conclude that the schools confer considerable benefits on the hospital and the hospitals provide a clinical school for the students so that the one may be set off against the other. The committee recommends that in future the distinction between the hospital and the school should in every case be drawn with such clearness that it may be understood by the public, so that no questions may arise as to the destination of moneys contributed, whether from the king's fund or any other source.

Dirt and Infant Mortality.

Dr. J. Robertson, health officer for Birmingham, has issued an important report, in which he traces a special connection between high infant mortality and dirty houses. In Birmingham, which may be taken as representative of large towns generally, over 3,000 deaths occur annually in infants under the age of one year, as compared with 35 deaths at each yearly period between the ages of 5 and 25. While the general sanitary improvement has resulted in an almost continuous decline of the death rate, practically no improvement has taken place in the infant mortality. In the third quarter of the year, there is a remarkable rise in the infant mortality: in infants under the age of one year there were 1,682 more deaths than in the first quarter. The principal causes of death during the last five years are in order of importance: (1) diarrhea and enteritis, (2) debility and marasmus, (3) bronchitis, pneumonia and pleurisy, (4) premature birth, (5) convulsions. From year to year the death rate varies considerably, and very much in proportion to the duration and amount of warmth in summer. The conditions existing in a large town like Birmingham produce a mortality double that of small towns. Dr. Robertson thinks that a good deal of the difference is due to local customs, certain methods of feeding and rearing infants being handed down from mothers to daughters in particular areas which probably exert a powerful influence for good or evil. In different parts of Birmingham there are striking differences in the infant death rate, the highest rate showing an excess of more than 300 per cent. over the lowest. There is a close connection between the infant mortality and domestic conditions. Many of the small houses are damp and badly constructed, and in unhealthy surroundings. The inhabitants are of dirty habits, which make their domestic conditions still worse. Dr. Robertson thinks that the infants brought up in these dirty places are injured as much by sucking house dirt from their

fingers, toys and clothing as from the dirty milk supplied. Some instructive figures are given as regards suckling. In the artisan class, healthy babies under the age of 6 months are fed as follows: Breast, 56.5 per cent.; breast and bottle, 28.7; bottle only, 14.4. The deaths of 236 children under the age of 6 months from epidemic diarrhea gave the following figures: Breast fed, 10 per cent.; breast and bottle, 10 per cent.; bottle only, 80 per cent.

Enormous Increase of Cancer in the County of Somerset.

From time to time attention has been called in THE JOURNAL to the increase of cancer in England, in recent years. Statistics which have just been published show an increase in the mortality from this disease in the county of Somerset. Among the half million inhabitants, 458 deaths from cancer have occurred in one year, making about 7 per cent. of the total mortality from all causes. No special cause can be assigned for the remarkable increase.

Correspondence.

Quinin in Pneumonia.

PHILADELPHIA, Feb. 25, 1905.

To the Editor:—In reply to your correspondent's inquiry which you have referred to me concerning the use of enormous doses of quinin in pneumonia, as reported by Dr. Galbraith in THE JOURNAL, Jan. 28, 1905, p. 291, I would say that as a matter of theory I should have expected to kill, or certainly to injure, patients if I had given doses of 75 and 100 grains inside of two hours; but when a reputable physician reports the use of the drug in this heroic way in 50 cases without a death either from the disease or from the remedy, I am compelled to revise my theory. My only experience at all comparable is this: Some ten years ago, in the winter, I forget at the moment the exact date, I saw at about 12:30 a. m. a man 35 years of age who had had a chill at 11 p. m., and who, when seen one and one-half hours later, was feverish (temperature about 105 F., pulse about 120), with slight cough, with pain in the right side, and with very slight impairment of resonance and many unquestionable crepitant râles over a considerable area at the right base posteriorly. I ordered 10 grains of quinin to be given at once and 10 grains six hours later. Through some mistake, the patient was given 10 grains every hour for six, or possibly for eight hours, the result being that the probable attack of pneumonia was apparently cut short. At all events, and much to my surprise, the patient showed no ill result—not even tinnitus—from the quinin, and the fever, cough and physical signs disappeared—in an order, and at a speed, that I can not state definitely in the absence of my notes. Yet I have been afraid to repeat deliberately the accidental dosage and I have not placed the case formally on record. The theory that quinin will cut short pneumonia is old, and has been advocated by many eminent men, but the fact that the practice has not become general shows that either the fact is otherwise, or that we have all been too timid in the use of the drug. I am always willing to learn, and if other observers should report similar survivals after equally heroic dosage of quinin, the reports would awaken my keenest interest. Whether or not Dr. Galbraith's cases were correctly diagnosticated, the fact that the patients could take so much quinin and recover is of high importance. If quinin aids chemically to neutralize the pneumo-toxin, either by direct or by indirect (so to speak, complemental or amboceptal, or similar) action, or if it has an agglutinating or bacteriolytic action directly or indirectly, we could understand both the effect of, and the necessity for, large doses. I should like to see experimental work done in the pathologic laboratory, both as to antitoxic and antimicrobic effects, not only with quinin, but with veratrum viride and with digitalis. I am convinced that the proved value of veratrum in pneumonia is not in its action on the heart and the vessels, but that it is in some way connected with the establishment of active or passive immunity: and digitalis, said to be useful in very large doses, may have some similar effect. It may be indirect, as in the stimulation of chemico-physiologic reactions, above and beyond its usual functional manifestations; or it may be a direct chemical action on toxin or cocci. Only experiment can determine this, and I hope that well-planned experiments will be made (1) on the neutralization of pneumo-toxin *in vitro* and in animals by the drugs named and by others; (2) on the antipneumococcic effect of the drugs; (3) on the possibility of complement or amboceptor being substituted by the drug in part or in whole; (4) on the stimulation of, or interference with, immunity-chemistry by the drugs, through their action on blood cells, tissue cells, blood-plasma or bacteria. Meanwhile, Dr. Galbraith's report is worthy of serious thought.

SOLOMON SOLIS-COHEN.

Why Patent Medicines Are Dangerous.

STANBERRY, Mo., Feb. 24, 1905.

To the Editor:—I have just read the page in the *Ladies' Home Journal* on "Why Patent Medicines are Dangerous,"[1] and I believe the author has struck the key-note to the remedy, which is publicity.

It is not possible for all physicians properly to analyze the contents of these nostrums, but every medical college of standing in the country is equipped for analytical work and could well afford to analyze samples without charge. If this was done the physicians of the country could be depended on to publish the known formulæ, and I verily believe it would not be long before the patent-medicine curse would be a thing of the past.

I trust this question may be agitated, and I believe the remedy is now within our reach. E. T. CAMPBELL.

[COMMENT.—As our correspondent says, Edward Bok asserts in the *Ladies' Home Journal* that the demand for patent medicines would cease if the mystery surrounding them could be ended by the exposure of their secret composition and by showing that there is nothing new or wonderful about them; on the contrary, that they are either inert and valueless, or that they contain patent or poisonous drugs which are dangerous. In this the distinguished editor of the *Ladies' Home Journal* is unquestionably correct; but when he proposes to do this by having these medicines analyzed he discloses his unfamiliarity with this part of the "patent" and proprietary medicine problem. The greater portions of these medicines are extracts of drugs, whose constituents usually are not well-defined chemical substances, but which belong to different classes of proximate principles, i. e., resins, glucosids, organic acids, neutral or bitter principles and, rarely, alkaloids. These principles are for the most part not well-defined, they do not give sharp chemical reactions, and are, therefore, exceedingly difficult to identify even by the most expert chemists. A few of the most important alkaloids, i. e., quinin, morphin and strychnin, are comparatively easily detected, but in the case of other alkaloids, such as those of the mydriatic group, detection, not to mention quantitative determination, is impracticable, except in the most skillful hands. Inorganic salts are, of course, easily determined, but these seldom occur in "patent" or proprietary medicines, or, if they do, they are associated with organic substances on which the complex character of the medicine depends.—THE EDITOR.]

There Was No "Operation on the Wrong Patient."

NEW YORK CITY, March 3, 1905.

To the Editor:—The account you sent me and, indeed, all the various reports that have come to me in the form of clippings, from various parts of the country, are of the most sensational character and have no rational basis whatever. The incident on which they are apparently based is as follows: A day or two previous to my regular clinic day, after careful examination I designated two women for my operative clinic.

1. See abstract on p. 730, March 4, 1905.

They were both cases of retrodisplacement of the uterus, one a simple uncomplicated case, and the other complicated by a tumor of the right uterine appendages. About the character of this tumor there was some difference of opinion between my assistants and myself, they being very positive that it was a case of ectopic pregnancy while I had pronounced it hydrosalpinx. There was some eagerness in the discussion, and each side was anxious to demonstrate the accuracy of his diagnosis. The differential points had been pointed out to the class and diagnostic acumen was more or less publicly at stake. Accordingly I selected the tumor case as the first to be operated on, the other to come as second. It so happened, without my knowledge, that the second case came first before the class. After explaining that this was the case about which there had been a diversity of opinion regarding the character of the tumor, I made the incision through the abdominal wall. The patient was thrown up into the Trendelenburg posture and the retractors inserted with the expectation of displaying to the class the controversial tumor. I was so confident of revealing a tumor that its absence created no little sudden surprise and a bit of amusement at my expense. The explanation of the house surgeon, however, promptly set matters straight, and I proceeded to shorten the utero-sacral and round ligaments to relieve the simple displacement which was present. The same operation was to be done in both cases. This happened February 18. The patient made a most satisfactory convalescence, was discharged from the hospital March 1 and returned to her home.

J. RIDDLE GOFFE.

Council on Pharmacy and Chemistry.

DETROIT, MICH., March 4, 1905.

To the Editor:—I have just read the matter regarding the Council on Pharmacy and Chemistry. This meets the request of the Michigan State Medical Society presented at the last session of the House of Delegates of the American Medical Association. The Board of Trustees has appointed a "clearing house for unknown medicinal products." The difference in name does not matter, the idea is identical.

I am sure that you have thus done much to promote organization of the profession. You have started an active effort to help it in some of its perplexities—a help which it will appreciate. Then you have made it possible to place the advertising pages of THE JOURNAL of the Association on a scientific basis—thus furnishing a standard for the new medical journals—and for all medical journals that are willing to be guided by intelligence. It is most gratifying to note that it has been possible to secure the best men in the United States to go on the council, men whose signatures will have the weight of honest experts, men who can be trusted both for their knowledge and for fair treatment. Further, I approve of having a laboratory in connection with THE JOURNAL with competent men working therein—to help separate the true from the false, the helpful from trash.

Medicine has fallen much in esteem because physicians have been so ignorant of what they prescribed. Now the national organization has decided to make it easy to escape the thralldom of such ignorance—hence medicine must rise again to its normal power. I congratulate you on the movement.

LEARTUS CONNOR.

Failure to Secure Incorporation of the Association.

NEW YORK CITY, March 6, 1905.

To the Editor:—It will be of interest to the members of the American Medical Association to know that the efforts to secure satisfactory national incorporation of the American Medical Association by special act of Congress at the recent session were not successful. In the judiciary committee of the House the bill was amended so as to limit its effectiveness to the District of Columbia, thus withholding the permission, so much desired in this connection, of transacting business anywhere in the United States. In the judiciary committee of the Senate the phraseology of the bill was amended so as to permit the transaction of business anywhere in the United States. Owing to the shortness of the session, however, and to the demands of the important national matters that especially characterized the occasion, together with other conflicting vicissitudes, the bill as thus amended was not reported for final action.

A detailed report of the efforts of the committee and of the supporters of the measure will be submitted for the information of the Association at a later period.

JOSEPH D. BRYANT,
Chairman of the Committee on National Incorporation.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PROGRESS IN THE CHEMISTRY OF ALBUMINS—A PROTEST AND A DEFENSE.

CHARLESTON, MO., Feb. 9, 1905.

To the Editor:—I have just now read your editorial in THE JOURNAL, Dec. 17, 1904. I have often said that "THE JOURNAL," "OUR JOURNAL," THE JOURNAL of the "A. M. A.," was the journal and that none other could compare with it. Now, just why you should write an editorial like the one entitled "Progress in the Chemistry of Albumins," is difficult to understand. What benefit could such an editorial confer? True, it shows research by you and by others, but where does the benefit come in? It reminds me of something like the following: A man reaches the Atlantic shore and picks up a pebble or grain of sand, and through this pebble or grain of sand he undertakes to analyze the continent. How long do you suppose it would take him to do it? The dabbler in albumin is quite as likely to analyze man as the pebble man is to finish his task. Could you not do greater justice to your readers by telling them what you know of man as a whole? Why dabble with the dirt under a man's toe-nails and forget that he needs food and raiment? You surely can do better than waste your time and that of your readers in such "fol-de-rol" as is contained in that editorial. Of course, such an editorial makes you appear wise and learned, etc., but does such knowledge do any one any good? Suppose a molecule does contain as many "outlandish"-named things as you say it does, does that make its function any more easily learned? Won't you please come down off of your high horse and write something that will aid in curing la grippe, pneumonia and other prevalent maladies? I would rather save the life of one good man or woman than to know all that has ever been written about molecules. Men, women and children are what we have to deal with. Tell us what to do for them when they are sick. If we can cure the man, his molecules will take care of themselves. Now, I trust you will take this "squib" kindly and not "roast" me, but tell just what impression it makes on you.

W. P. HOWLE, M.D.

ANSWER.—We print our correspondent's letter in full, for we have no doubt that others of our readers may have had a similar feeling on first reading the article mentioned. We think, however, that our correspondent, and those who have felt similarly, when they consider the various functions and responsibilities of THE JOURNAL, will agree that such articles have their place. While it is true that the majority of the readers of THE JOURNAL are men engaged in the active practice of medicine, eager for medical information that can be applied directly to the treatment of sick men and women, it will be generally recognized by them, we think, that progress in practical therapeutics, in most instances, has to be preceded by an extension of scientific knowledge in the subjects fundamental to medicine. Indeed, the practitioner who does not keep in touch with the progress that is being made nowadays in chemistry, physics and biology, anatomy, physiology and pathology, will often have difficulty in utilizing the immediately practical benefits, through the application to practical work of the new facts of these sciences. THE JOURNAL, therefore, makes the effort to review from week to week the important additions which are being made, not only to practical medicine and surgery, but also to the sciences auxiliary thereto. Our correspondent will also feel more charitable toward articles, such as the one to which he refers, when he recalls that THE JOURNAL numbers among its readers a great variety of medical practitioners, among them many recent graduates with a modern training in physics and in chemistry, as well as practitioners who graduated many years ago before it was possible to acquire that knowledge of the fundamental sciences which is now regarded as desirable. THE JOURNAL, therefore, regards it as its duty to attempt to supply the mental needs of all classes of its readers. It can scarcely be expected that every article in its editorial columns will appeal to all its subscribers, but an effort is made

to supply new information in so many lines that each reader can appropriate what is best suited to himself. We sympathize keenly with our correspondent's impatience at the slowness with which progress is made in medicine. Every medical man is anxious to get forward faster than we do. We should like to tell our readers how to cure every case of "la grippe, pneumonia and other prevalent maladies," and would certainly do so if we knew how; but medical investigators at present seem to be of the opinion that we shall get forward faster in the long run if we make careful, minute analyses of the processes that go on in the human body than if we give up such minute studies and attempt, from the outside, to study "man as a whole." It was through studies of a most abstruse character—researches which for a long time seemed incapable of yielding any practical beneficial results—that the cure for diphtheria by an antitoxin was gradually evolved. Who knows but that out of the complexity of albumin chemistry, with all the difficulties that it presents at present, there may be deduced before very long some practical application which will make us grateful that such studies have been pursued? Should this be the case, will not those of us who have followed, step by step, the advances in this field, be the better able intelligibly to profit by the practical good which such inquiries may yield?

LOCAL ANESTHESIA IN PERINEORRHAPHY.

WAVERLY, Mo., Feb. 27, 1905.

To the Editor:—Can you inform me of the technic, the solutions and the worth of the operation of primary perineorrhaphy under local anesthesia? I do not find it mentioned in the textbooks, but I have noticed references in various articles on the use of B. eucain, cocain, etc., for this purpose. If the operation is worth serious consideration and is practical, it will prove quite a boon to country practicians who find help difficult to secure, and it will meet the natural objection of the patients to an anesthetic.

W. C. O.

ANSWER.—Barker of London has used B. eucain solutions for various major and minor operations. He uses the following solution:

Distilled water	℥iiiss	100
B. eucain	grs. iii	2
Salt	grs. viii	8
Sol. adrenalin chlor. 1-1,000 m. x		65

He states, in an article in the *British Medical Journal,* abstracted in THE JOURNAL, January 21, page 251, that this amount of fluid, and even more if necessary, may be used in an ordinary case without bad results. In a perineorrhaphy immediately after labor, when the tissues are bruised, very little of the anesthetic should be necessary. He states that by the addition of adrenalin to the solution, anesthesia is produced more slowly, but is of longer duration, and that the adrenalin also produces an anemia of the part to be operated on. To render the skin and areolar tissue insensitive, a larger area must be infiltrated than is to be cut. The solution should be injected in the submucous and subcutaneous tissues. Unless the laceration is of the first degree, primary repair is apt to prove unsatisfactory to both patient and physician. Abstracts of articles on this subject have appeared in THE JOURNAL from time to time—Aug. 27, 1904, page 641, Jan. 7, 1905, page 78, Feb. 4, 1905, page 428—while they do not mention perineorrhaphy in particular, the technic and general principles will apply to that operation.

A LIVER INDICTMENT.

A correspondent sends us a card, on one side of which is the following:

DR. —. —. ————————,
DIPLOMATE OF
Biochemistry, Osteopathy, Psychology, Veterinary Medicine, Surgery and Dentistry.
At — — ——— Farm, Near ——— ———
I Restore Health to Man and Beast.

On the reverse side:

I can restore you to health from all your ailments of any nature, chronic or acute, without the use of poisonous medicines—but use only the substance from which the body is constructed. The germs, microbes, and so on, are neither the cause nor the result of the ailments, yet they are eternal life—God's own way of perpetuating health—and all the so-called diseases are but a breaking down of the cell-tissues of the body, due to a defective liver, causing indigestion, which I can restore to perfect health with the tissue cell-salt.

CONSULTATION FREE.
Write or call on me at — — ——Farm,
Near ———— ————

LIFE CYCLE OF MOSQUITOES.

MEMPHIS, TENN., Feb. 20, 1905.

To the Editor:—How long do mosquitoes usually live, and how far have they been known to travel from their breeding place? I have noticed that mosquitoes were alive in this building all winter, and last week killed one in the act of "biting." I have also noticed, in the summer, that mosquitoes were conveyed by the cars from the suburbs to the business portion of this city.

ALFRED MOORE.

ANSWER.—The average life cycle of a mosquito is probably a short one. It has been estimated at about two weeks for the common species of culex; others may be longer lived, and the stegomyia has been kept in captivity over seventy days. A few probably hibernate through the winter in houses, etc. They do not fly far, but may be carried great distances by the wind, and are good travelers by public conveyance, railroad cars, etc. The larvæ are still more easily carried in bilge water, water-casks, etc., on vessels, and probably in this way some species have greatly enlarged their habitat.

Marriages.

H. JOHN STEWART, M.D., to Miss Ethel Weaver, both of Chicago, March 2.

JOSEPHINE M. WETMORE, M.D., and Raymond R. Rust, both of Grinnell, Iowa, March 1.

HOMER H. HEATH, M.D., Toledo, Ohio, to Miss Pamelia Pray of Waterville, Ohio, March 1.

ROBERT L. COX, M.D., to Mrs. Margaret Carter, both of Houston, Texas, February 22.

RUFUS J. TEAGUE, M.D., to Miss Margaret Long, both of Roxboro, N. C., February 23.

AUSTIN F. QUIRE, M.D., Lynnville, Iowa, to Miss Carrie Smith of Taintor, Iowa, February 19.

GEORGE F. COCKER, M.D., to Miss Florence Schulze, both of New Orleans, La., February 28.

JOSEPH WILLIAM SMADEL, M.D., to Miss Clara B. Green, both of Vincennes, Ind., February 27.

ABRAM HUGH MOSS, M.D., Lake Charles, La., to Miss Mabel Adelaide Trueblood of Whittier, Cal., March 1.

GUSTAV ADOLF KRAUSS, M.D., to Miss Louisa Edge, both of Jersey City, N. J., in New York City, February 12.

SAMUEL TAYLOR DARLING, M.D., to Miss Nanneril Quincy Adams Llewellyn, at New York City, February 18.

JOHN PATRICK MCGOWAN, M.D., New York City, to Miss Francis Matilda Condict of Jersey City, N. J., March 1.

ARTHUR BARTON CRANE, M.D., Washington, D. C., to Miss Mary Wallace Pollard, at Alexandria, Va., February 28.

OSCAR C. WEBB, M.D., Simmonsville, S. C., to Miss Annie Louise Huff of Cataula, Ga., at Augusta, Ga., February 27.

TRAVALO CHESTER COGGESHALL, M.D., Henry, Ill., to Miss Jessie McCann of Champaign, Ill., at Peoria, Ill., February 11.

Deaths.

WALTER S. CHRISTOPHER, M.D.

Dr. Walter S. Christopher, one of the best-known specialists on diseases of children in the middle West, died March 2 at his home in Chicago, after a lingering illness, from chronic myocarditis and chronic parenchymatous nephritis, aged 45.

He was born in Newport, Kentucky, in 1859, received his early education in the schools of Newport and of Cincinnati, and was graduated from the Medical College of Ohio, Cincinnati, in 1883. During the last year of his college life he was an interne in the Cincinnati Hospital. Even as a student he took great interest in diseases of children, and after his graduation served seven years as assistant in the children's clinic of his alma mater. In 1884 he also assumed the duties of demonstrator of chemistry, and continued in this relation for six years. In 1890 he was called to the chair of theory and practice of medicine in the University of Michigan, Ann Arbor, and a year later came to Chicago, where he became professor of diseases of children at the Chicago Policlinic. A year later he was made professor of diseases of children in the College of Physicians and Surgeons. He was appointed a member of the Chicago Board of Education in 1898, and his term of service was marked by great activity, especially in the direction of child study and the medical inspection of schools. Although his aggressiveness in this direction was criticized, he persevered in the advocacy of his idea, believing that the education of the people to the intelligent understanding of sanitation was one of the chief duties of the medical profession.

He was a persistent and excessive worker, and to his overwork and underrest is due in great measure the breakdown in health from which he was unable to recover. In June of last year he was taken ill with nephritis. Heart complications soon arose, and on March 2 he died suddenly at his home in Chicago.

He was a member of the American Medical Association, the Illinois State Medical Society, Chicago Medical Society, Chicago Academy of Medicine, Chicago Pediatric Society, Chicago Pathological Society, and Chicago Gynecological Society; sometime president of the American Pediatric Society, and an honorary member of the Cincinnati Academy of Medicine.

"The most striking trait of Dr. Christopher, according to those who knew him well," says the Chicago *Record-Herald*, "was his constant seeking for new methods. He had the spirit of an explorer, and where other men were content to follow beaten tracks, he struck out for himself by the shortest route to the desired object. His investigations were minute and exhaustive, and an 'infinite capacity for taking pains' would probably have been accepted by him as a correct definition of genius. Had he studied himself as carefully, as intensely, and as accurately as he studied his patients, he would have been spared many years of usefulness, it is said."

Thomas Terrill, M.D. College of Physicians and Surgeons in the City of New York, 1867, formerly surgeon of the Third Regiment, N. G. N. J., city physician of Elizabeth, N. J., coroner and physician of Union County; a member of the Union County Medical Society, died at Alexian Brothers' Hospital, Elizabeth, from cerebral hemorrhage, February 22, after an illness of several weeks, aged 59.

Napoleon B. Woolsey, M.D. Ensworth Medical College, St. Joseph, Mo., 1893, of Braymer, Mo., a member of the American Medical Association, Medical Association of Missouri, North Missouri Medical Association, and Caldwell County Medical Society, died recently, and was buried, February 26, from his home at Braymer.

Lot Green, M.D. Medical College of Indiana, Indianapolis, 1881, a member of the Rush County (Ind.) Medical Society, and Indiana State Medical Society, and secretary of the Rush County Board of Health, died at his home in Rushville, Ind., February 21, from cerebral hemorrhage, after an illness of five days, aged 57.

William Hendry, M.D. Medical Department of Western Reserve University, Cleveland, 1896, of Cleveland, captain and assistant surgeon, N. G. Ohio, was killed in a train wreck near Emsworth, Pa., March 3, while on his way, with his command, to attend the inauguration ceremonies at Washington.

Alvah R. Cummings, M.D. Dartmouth Medical School, Hanover, N. H., 1853, the oldest practitioner of New Hampshire, and the oldest member of the New Hampshire Medical Society, died at his home in Claremont, February 26, from cerebral hemorrhage, after an illness of four weeks, aged 78.

James E. Crisfield, M.D. College of Physicians and Surgeons in the City of New York, 1873, of Dansville, N. Y., some-time president of the Livingston County Medical Society, a trustee and president of the village board and postmaster of Dansville, died in Jacksonville, Fla., February 21, aged 53.

David Thompson, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1888, formerly reeve of Cayuga, Ont., and later a member of the city council of Hamilton, Ont., died at his home in the latter city, February 19, after a long illness, aged 41.

Glen O. Hardamann, M.D. Medical Department of the University of Missouri, St. Louis, 1848, surgeon during the Civil War, died at his home in Gray Summit, Mo., January 14, from cerebral hemorrhage, after an illness of six weeks, aged 80.

Adolph Zipperlen, M.D. University of Tübingen, Germany, 1840, a surgeon of the One Hundred and Eighth Ohio Volunteer Infantry during the Civil War, died at his home in Cincinnati, February 28, after an illness of several weeks, aged 87.

Silas Burbank, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1864, president of the Kennebec County Medical Association in 1875, died suddenly in Mount Vernon, Maine, from heart disease, February 26, aged 65.

Henry M. Lanier, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, for many years city marshal of Columbus, Miss., died at his home in that city, February 19, from heart disease, after a short illness.

David Le Roy, M.D. Medical College of Ohio, Cincinnati, 1848, major and surgeon of the Ninety-first Illinois Volunteer Infantry during the Civil War, died at his home in Streator, Ill., February 27, from senile debility, aged 83.

George Lederman Hyslop, M.D. New York University, New York City, 1850, one of the founders of the Demilt Dispensary, died at his home in New York City, March 2, from heart disease, after an illness of four days, aged 79.

Hiram Wiggins, M.D. College of Physicians and Surgeons of the Western District of New York, Fairfield, 1838, one of the oldest physicians of Onondaga County, N. Y., died at his home in Elbridge, N. Y., February 20, aged 90.

John Porter Wetherell, M.D. Western Pennsylvania Medical College, Pittsburg, 1887, city physician of the eastern district of Allegheny, Pa., died at the home of his sister in Coytesville, N. J., February 19, after a long illness.

Rufus S. Morgan, M.D. Memphis Hospital Medical College, 1894, a member of the American Medical Association and one of the best-known physicians of Southwest Arkansas, died at his home in De Queen, February 22.

Walter T. McCoy, M.D. College of Physicians and Surgeons, Baltimore, 1885, of Partridge, Kan., was struck and instantly killed by a Rock Island train at a crossing three miles east of Partridge, February 28, aged 47.

Delaney P. Hicks, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1878, physician of Kaufman County, Texas, died at his home in Kaufman, February 26, from pneumonia, aged 53.

Addison M. Ferry, M.D. Marion-Sims College of Medicine, St. Louis, 1898, died at his home in Parkersburg, Iowa, February 26, from the effects of an overdose of medicine, after an illness of two days, aged 30.

Peregrine C. Jones, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1888, died at his home in Kansas City, Mo., February 28, from cerebral hemorrhage, after an illness of two days, aged 71.

J. R. Wooten, M.D. a member of the Barren County Medical Society, died at his home in Finney, Ky., January 10, from cancer of the stomach, after an illness of three months, aged about 60.

Edward P. Seeley, M.D. University of Nashville (Tenn.) Medical Department, 1869, died at his home near Bowling Green, Ky., February 6, from pneumonia, after a short illness, aged 56.

Thomas W. Barrett, M.D. College of Physicians and Surgeons in the City of New York, 1897, died at his home in Portland, Ore., February 19, from typhoid fever complicated with pneumonia, aged 32.

James Harmon Gentry, M.D. Missouri Medical College, St. Louis, 1884, died at Mesa, Ariz., January 20, from progressive pernicious anemia, after an illness of about two years, aged 50.

David H. Scott, M.D. Cleveland Medical College, 1855, for many years professor of surgery in that institution, died at his home, Fruit Hill, Chillicothe, Ohio, February 25, aged 76.

Edith Barker, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1897, for five years pathologist to the State Hospital for the Insane, Norristown, Pa., died recently.

Isaac C. Edson, M.D. Albany (N. Y.) Medical College, 1867, a former member of the legislature from Broome County, N. Y., died at his home in Windsor, N. Y., February 22, aged 81.

Thomas J. Marlin, M.D. Jefferson Medical College, Philadelphia, 1873, died at his home in Tarkio, Mo., February 18, from pneumonia, after an illness of three days, aged 61.

Elijah Luther Van Cleave, M.D. Rush Medical College, Chicago, 1895, died at his home in Rockville, Ind., February 18, from pneumonia, after an illness of nine days, aged 49.

Edward A. Hering, M.D. University of Maryland School of Medicine, Baltimore, 1855, died at his home in Harrisonburg, Va., February 25, from cerebral hemorrhage, aged 78.

Edward F. Brodie, M.D. University of Nashville Medical Department, 1872, died at his home, Dripping Springs, in the Olmstead District, Logan County, Ky., February 21.

P. Thomas Markey, M.D. Albany (N. Y.) Medical College, 1893, died at his home in Schenectady, N. Y., February 22, from gastritis, after an illness of one week, aged 33.

Samuel Watson Truitt, M.D. University of the State of Missouri Medical School, Columbia, 1895, died at his home in San Francisco, February 16, from influenza, aged 35.

Jonathan R. Johnson, M.D. McGill University Medical Department, Montreal, 1880, died at his home in Spring Valley, Minn., from erysipelas, February 27, aged 49.

John F. Lesh, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1876, died at his home in Seneca, Kan., February 23, from heart disease.

Cordelia O. Hickox, M.D. Ohio, 1873, pioneer woman physician of Iowa, died at her home in Cedar Rapids, February 25, after an illness of one week, aged 77.

Robert L. Price, M.D. University College of Medicine, Richmond, Va., 1900, died at his home in Boone's Mill, Va., February 22, from typhoid fever, aged 25.

John P. Richardson, M.D. Medical College of Ohio, Cincinnati, 1866, of Sabetha, Kans., committed suicide by hanging himself in his barn, February 26.

William Moore, M.D. Gross Medical College, Denver, Colo., 1892, died in Cripple Creek, Colo., from pneumonia, February 23, after a short illness, aged 50.

George R. Metcalf, M.D. College of Physicians and Surgeons in the City of New York, 1874, of St. Paul, Minn., died in Orvieto, Italy, March 1, aged 57.

J. Thomas Sim, M.D. Jefferson Medical College, Philadelphia, 1860, died at his home in Libertytown, Md., February 28, from disease of the liver, aged 66.

Johann Jacob Eisenhut, M.D., for many years a practitioner of Central City, Colo., died in St. Anthony's Hospital, Denver, Dec. 28, 1904, aged 104.

Joseph T. Prewitt, M.D. 1855, died at his home in Elgin, Texas, February 8, from cerebral hemorrhage, after an illness of one month, aged 83.

Chalmers A. Parker, M.D. Kentucky School of Medicine, Louisville, 1883, died at his home in Fort Worth, Texas, February 23, aged 47.

Jacob Simmons, M.D. Cincinnati, died at his home in O'Neill, Neb., January 27, from tabes dorsalis, after an illness of four years, aged 66.

George D. Boon, M.D. University of Michigan Department of Medicine and Surgery, 1870, died at his home in Chetopa, Kan., February 20.

Frank M. Pitts, M.D. Jefferson Medical College, Philadelphia, 1881, formerly of Hubbard City, Texas, died at Highland, Cal., Oct. 2, 1904.

Rufus K. Langson, M.D. Illinois, 1883, died in his office at Chadron, Neb., February 26, from a self-inflicted gunshot wound of the head.

J. Austin Miller, M.D. Kentucky School of Medicine, Louisville, 1885, of Oakland, Cal., died at Houston, Texas, February 24, aged 47.

Conrad Bardill, M.D. Humboldt Medical College, St. Louis, died recently at Monrovia, Cal., after an illness of six months, aged 68.

Bernard Eugene Bigler, M.D. Pennsylvania, 1899, of Philadelphia, died in Colorado, from tuberculosis, February 20, aged 26.

Michael W. Peters, M.D. Detroit College of Medicine, 1893, died in Owosso, Mich., February 25, from an overdose of cocain, aged 35.

Samuel Morrill, M.D. Harvard University Medical School, Boston, 1852, died at his home near Farmville, N. C., February 25.

James Alva Dingman, M.D. Cincinnati, 1871, died recently at his home in Spring Valley, N. Y., and was buried, February 27.

Charles W. Crowell, M.D. Chattanooga (Tenn.) Medical College, 1892, died recently at his home in Marshall, Texas.

Daniel Caulkins, M.D. Cleveland Medical College, 1863, died at his home in Toledo, Ohio, February 20, aged 79.

Frederick Tischer, M.D. University of Leipzig, Germany, 1882, of San Francisco, died recently at Santa Cruz, Cal.

Charles C. Taylor, M.D. Ohio, 1890, died at his home in Leetonia, Ohio, February 27, from tuberculosis.

Frederick A. Schell, M.D. Cincinnati, 1856, died at his home in Spencer, Ind., February 17, aged 79.

Joseph H. Snyder, M.D. Syracuse (N. Y.) 1854, died at his home in Cameron, Mo., February 23.

Deaths Abroad.

A. A. G. Guye, M. D., professor of otology at Amsterdam, died there January 15, aged 65. It was by his efforts and advice that the government of Holland introduced the examination of school children for the purpose of detecting the presence of adenoid vegetations. Among his numerous publications were some on the functional brain troubles due to mouth breathing, for which he coined the term "aprosexia." During the last year or so he was president of the society which publishes *Janus*, the international archives for the history of medicine and medical geography.

J. Scriba, M.D., professor of surgery at Tokio from 1879 to 1902, and chief of one of the hospitals until his death, died January 3, aged 56. He was born in Germany and was trained under Czerny; his wife was a Japanese. He published a number of works on surgery, anthropology and botany.

G. Ludwig, M.D., at the head of the German Hospital in London for many years, died at Venice in January. He retired from practice about ten years ago, and has won a name as a connoisseur and collector in art and antiquities.

A. Bobrow, M.D., professor of surgery at Moscow, and author of several popular text-books.

J. A. Serrano, M.D., professor of anatomy at Madrid.

Book Notices.

A TREATISE ON DISEASES OF THE NERVOUS SYSTEM. By L. Harrison Mettler, A.M., M.D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Complete in One Volume; Profusely Illustrated; Two Color Plates; Full Indexes. Cloth. Pp. 1000. Price, $5.00. Chicago: Cleveland Press. 1905.

The author has attempted to classify diseases of the nervous system in accordance with the neuron doctrine. He states that in his opinion the unity of the nervous apparatus and its functions is not taught as thoroughly as it should be. Among other things he has endeavored to make plain from the standpoint of modern psychology, many of the psycho-physical manifestations of the nervous system. The following is his classification: 1. Neuronic diseases. The functional neuronic diseases (neuroses and psycho-neuroses): *a*. Those of the cerebrospinal system. *b*. Those of the sympathetic system. The organic neuronic diseases are subdivided into those of the afferent system, those of the efferent system, those of the afferent and efferent systems. 2. Non-neuronic diseases (interstitial and vascular troubles affecting the neurons secondarily): *a*. Of the spinal cord and its membranes. *b*. Of the peripheral nerves. *c*. Of the brain and its membranes. 3. General intoxications with special nervous symptoms. Although this classification is altogether in harmony with the author's plan and is a fairly good one for working purposes, its superiority to the old arrangement of diseases of the brain, cord and peripheral nerves is questionable. For the last word has not yet been spoken on the neuron doctrine. Just at this moment the very foundation of the neuron theory is being so thoroughly shaken that even its closest adherents are compelled to make repairs here and there. The volume is rather bulky for frequent use, but this would be no fault were it unavoidable; but in this case considerable condensation would be of value. There are several much smaller hand-books on nervous diseases in the English language that contain quite as much information as this one. It is certainly much easier to be verbose than to be concise, especially when an author writes so eloquently. Still, a treatise on nervous diseases should not be a rhetorical effort anent the neuron theory, however readable such a style may make the work. On opening the book at random we are inclined to question for whom it was written; the author tells us that it is intended for the practitioner and for the student, but it reads rather like a popular novel and seems to be addressed to the general reader. Sometimes even there is a sacrifice of accuracy for a mere figure of speech. With some unimportant exceptions the pathology is correct and safe and the pathologic anatomy is well illustrated by plates selected from the best works. The descriptions of symptoms and of the general features of the various diseases are sufficiently full and generally clear. Diagnosis, especially differential diagnosis, receives attention suf-

ficiently adequate for guidance in practice. The chapter on therapeutics is quite complete.

GUIDE TO THE EXAMINATION OF THE THROAT, NOSE AND EAR, for Senior Students and Junior Practitioners. By William Lamb, M.D., C.M. Edin., M.R.C.P. Lond., Honorary Surgeon, Birmingham Ear and Throat Hospital. Cloth. Pp. 152. Price, $1.75. New York: Wm. Wood & Co. 1905.

This is a small compact volume of about 150 pages. It contains a number of illustrations, several of which are drawn from original dissections by the author. It is well written, states facts only, and it may be truly said that it is what it purports to be—A Guide to the Examination of the Throat, Nose and Ear. It is designed primarily for the student and for the general practitioner, but the specialist also undoubtedly will find much of value in it.

Miscellany.

Infants in Sweat Shops.—About the limit in the atrocities of sweat shop labor is the case of a female infant, eighteen months of age, who, according to the newspapers, was discovered at sweat shop work in a tenement house. The baby rolled balls in paste for the mother to work with.

Influence of Pregnancy on the Heart.—According to Pouliot the normal heart is not affected during pregnancy; it does not become hypertrophied, its dilatation is rare and arterial hypertension does not appear until labor. With the augmentation of blood in the system there is an increase of circulatory capacity. He says in the *Arch. gén. de Méd.* that the healthy heart is perfectly capable of meeting normal conditions during pregnancy and even the excessive strain of normal labor. When, however, organic lesions exist the condition is otherwise.

One Value of Organization.—Nine months ago the physicians of our county organized a society, writes E. L. to the *Alkaloidal Clinic*, January. It has made us better physicians and it has shown us how to unite on matters of finance. Not that we are charging too high, but that we have stopped cutting prices. In settlement with a patron yesterday this understanding saved me almost $40, and the patron was perfectly satisfied. All he wanted to know was that I was not charging more than the other physicians, and when he learned that we all charged the same he was satisfied.

Contests of Endurance Prohibited.—Recently an ordinance was passed by the New York City Board of Aldermen prohibiting contests of endurance in the future. This action is taken to put a stop to six-day contests in bicycle and walking races, which of late years have been so frequent. The new law limits such contests to a period not exceeding three hours. This is one of the most sensible ordinances we ever heard of being passed by a board of aldermen, says the editor of the *Medical Age*, February 10. Other cities would do well to pass similar ordinances.

Italian Production of Olive Oil.—Italy produced 86,119,700 gallons of olive oil during the year 1903-4, or 37,248,000 gallons more than in 1902-3, 1,585,200 gallons more than in 1901-2, according to *Moniteur Official du Commerce*. Much of this year's olive crop was being abandoned because of its abundance. It hardly paid to pick the fruit in some parts; beside, the drought from July to October had ravaged Italy and seriously affected the quality. The fruit, though abundant, is small and poor, hence of little value for making oil. The cultivation of the olive is increasing constantly though slowly. The area devoted to olives was 2,690,963 acres in 1903.

A Nitrogen Gas Well.—Haworth and McFarland, at a meeting of the Geological Society of America, Philadelphia, Dec. 30, 1904, gave an account of a well in Kansas which yielded gas which refused to burn. On examination this gas proved to be over 71 per cent. nitrogen. They stated that they were unable to advance any theories as to how so large a volume of nitrogen became entombed in the ground. *Science*, commenting on this, remarks that under the view that the earth's atmosphere and hydrosphere represent volatile matter forced out from the interior of the shrinking globe, this phenomenon is simple and natural. It is one of many indications that the interior supply of gases is not exhausted and that the atmosphere is still growing.

Dr. Osler as a Joker.—When Dr. Osler issued his dictum on the uselessness of the average man who has passed his fortieth and sixtieth birthday, says the *Nebraska State Journal*, it must have warmed his soul to see how vigorously the solemn editors took the bait and made off with it. Dr. Osler, let it be known, is an incorrigible wag. One of his previous exploits was the publication that 33 1/3 per cent. of the women students in medicine in Johns Hopkins University had married into the faculty. After the sage editors had swallowed the hook, bob and sinker, he unsmilingly came forward with the further information that there were three of these students in the university, and one of them had married a professor!

Treatment of Pseudarthrosis by Subcutaneous Injections of Blood.—Bier of Bonn, in *Medicinische Klinik*, I, No. 1, reports that subcutaneous injection of blood had a marked action in promoting bony union in three cases of pseudarthrosis consecutive to fracture. He is convinced that the presence of blood between the ends of a fractured bone aids in promoting bony union by favoring the production of callus. Union is much slower and less complete when there is no hemorrhage after a fracture. He injected from 15 to 25 c.c. of defibrinated blood in the cases reported. They came under observation about fourteen months after the fracture. A callus formed in less than a month and consolidation was soon complete.

A Biologic Station in Greenland.—A Danish botanist has proposed to his government the appropriation of funds to establish a biologic station on the southern coast of Disko Island, North Greenland. The estimated cost of the undertaking, according to *Science*, will probably be about $9,400, which will include the erection of buildings, purchase of motor boats, sledges, tents and other material for short expeditions, instruments, books, etc. The running expenses, including salaries, are estimated at $2,960. The geographical position of Greenland, and the similarity of conditions with those of the northernmost part of this continent must necessarily appeal to Americans and, until a permanent biologic station can be established in a similar locality in Alaska, those interested in Arctic research will find the proposed Danish institution a place of interest.

New Medical Journals.—Three new medical publications on our desk have not yet been mentioned. *Medical Notes and Queries*, published in Lancaster, Pa., and edited by Dr. Henry W. Cattell of Philadelphia, is devoted to small items chiefly of interest to laboratory workers and to practitioners who use the modern methods of precision in diagnosis, etc. The intention of the editor is to make a specialty of correspondence and of queries on various subjects which are not fully covered by the writer's text-books. The *California Medical and Surgical Reporter*, edited by Dr. Charles P. Wagar of Los Angeles, once of Toledo, Ohio, is a promising monthly medical journal with general contents, including articles, society reports, editorials and news. From Savannah Ga., comes another new paper, the *Georgia Practician*. Martin Cooley is the editor, and his selection of matter for the first issue and his manly introduction give promise that the paper will be valuable to the Georgia practician.

Needless Remedies.—It is time the physicians of this country called a halt. Month after month we are literally deluged with a multitudious number of new and needless remedies—remedies that only find their need in the financial profit of the manufacturer. Were it not for the help of thoughtless physicians this would have long ago been brought to a stop. Not that we decry the work of the scientific chemist in his search for new methods and new drugs, for we all feel his need and acknowledge our depth of gratitude for his labors

in the past, but this exploitation of various combinations of well-known drugs, and of those which have not received the seal of scientific approval ought to stop. It is only the ready sale procured that encourages this industry. If physicians would study carefully the National Formulary there would be less need of combinations of medicines put up by "manufacturing" chemists. Any good druggist can put up a National Formulary prescription as well as any one else. Show us any preparation that has a large sale on account of its supposed good properties and we will show you its analogue in the National Formulary, which will have the identical effect.—*Medical Recorder.*

Useless Knowledge.—The president of a British engineering society recently made the following statement: "No knowledge is worth obtaining for its own or any other sake, unless it is or will be useful to men." The assertion is very attractive in appearance, and it has been hailed with much enthusiasm by a number of journals devoted to applied science. Apparently it is supposed to crush for all time the lovers of pure science as distinguished from the "bread-and-butter" variety. But we have been unable to discover anything either new or remarkable in the statement. But who is to decide whether a particular bit of information is likely to be useful or not? Speaking for mankind in general, there is no assertion which can be made with greater safety than that there is no such thing as useless knowledge. Nearly all great discoveries have been ridiculed as useless at some time during the world's history, and he must be a bold man who dares assert that even the refinements of mathematics and the humblest of the innumerable synthetic organic compounds will never be of use to humanity. For all we know, the German professor who proposed to devote a lifetime to a study of the muscles in a beetle's leg may yet turn out to be a benefactor of humanity. The individual should, however, examine the statement from another angle. Humanity can afford to wait for history to prove the value of a discovery; not so the indivisible fraction of mankind who has not time enough for that. Unless he is willing to labor unselfishly for the good of future generations he must select such knowledge as will prove useful to him. There are those who claim that no information can be useless even to the individual, but that assertion we may venture to question. For instance, of what use is a knowledge of esoteric philosophy to the business man who can not find time to keep up a passing acquaintance with himself?—*Pharmaceutical Era*, February 2.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

South Carolina State Board of Medical Examiners, Columbia, April 24. Secretary, W. M. Lester, M.D., Columbia.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Vermont January Report.—Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, Feb. 7-9, 1905. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of applicants examined was 2, both passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Lavall University	(1904)	63.6
University of Vermont	(1904)	74

Association News.

NEW MEMBERS.

New members for the month of February:

ALABAMA.

Gavin, G. E., Mobile.
Jordan, Wm. M., Birmingham.
Owen, C. N., Mobile.
Scales, W. W., Mobile.
Stevenson, F. C., Montgomery.

ARIZONA.

Kaull, L. P., Jerome.

ARKANSAS.

Bradley, Wm. Thos., Monroe.
Lewis, John W., Keo.
Robertson, J. A., Hot Springs.

CALIFORNIA.

Aiken, Geo. H., Fresno.
Bock, Charles, Los Angeles.
Cotter, P. Gregory, Los Angeles.
Carson, J. K., Los Angeles.
Conrad, D. A., Santa Barbara.
Clark, Wm. S., San Francisco.
Dillon, E. T., Los Angeles.
Dowdall, R. J., Crescent City.
Grissim, J. D., San Jose.
Hagadorn, Mary E., Pasadena.
Kelsey, J. Edson, Berkeley.
Kirkpatrick, J. L., Los Angeles.
Lehmann, G. W., San Francisco.
Lamkin, Burt B., Fresno.
Lendrum, B. A., Fort Bragg.
Mallery, J. H., Eureka.
McNaughton, Jas. A., Blue Lake.
Murphy, C. W., Los Angeles.
McArthur, R., Los Angeles.
McNeil, H. C., Los Angeles.
Mills, H. W., San Bernardino.
Quint, S. J., Los Angeles.
Schmitz, John, Los Angeles.
Seymour, J. H., San Francisco.
Tate, C. Francis, Los Angeles.

COLORADO.

Davis, A. L., Durango.
Neubert, Christian L., Denver.
Reckly, Mary D., Fort Collins.

CONNECTICUT.

Adams, H. E., Hartford.
Chatfield, R. B., Granby.

DISTRICT OF COLUMBIA.

Clifford, Addison B., Washington.

FLORIDA.

Dewberry, W. C., Pensacola.
DuBois, H. K., Port Orange.
Esch, J. P., Goodall.
Gwynn, G. H., Tallahassee.
Mantey, Karl, Eustis.
Morris, S. A., Jacksonville.
Simpson, H. L., Pensacola.
Thomason, F. E., Live Oak.

GEORGIA.

Boland, F. K., Atlanta.
Roberts, J. B., Atlanta.

ILLINOIS.

Brooks, T. C., Chicago.
Cohn, Eugene, St. Jacob.
Friduss, Samuel L., Chicago.
Hillebrand, C., Freeport.
Hellebrandt, Frank J., Chicago.
Keogh, Chester H., Chicago.
Poland, B. I., Danville.
Peterson, Wm. A., Chicago.
Roach, D. C., Burlington.
Scheel, A. M., Belleville.
Shumway, E. B., Chicago.
Ward, Todd P., Mt. Vernon.

INDIANA.

Cunningham, S. R., Indianapolis.
Coleman, J. W., Petersburg.
Kamman, Herman H., Columbus.
Markley, Stephen C., Richmond.
Weis, Wm. D., Hammond.
Yoder, Albert C., Goshen.

INDIAN TERRITORY.

James, Ed. D., Haileyville.
Shelton, J. W., Wynnewood.

IOWA.

Barkalow, D. G., Ellsworth.
Harkness, Gordon F., Davenport.

KANSAS.

Anderson, Andrew G., Salina.
Bartlett, W. E., Belle Plaine.
Brooks, Stanley H., Mound City.
Klepinger, Jno. C., Herington.
Nordstrom, Louis O., Assaria.
Peak, Frank, Pratt.

KENTUCKY.

Crenshaw, J. W., Cadiz.
Howell, J. D., Vine Grove.
Parker, Walter C., Versailles.
Quinn, William A., Henderson.
Stuart, Joseph M., Owensboro.
Ward, R. W., Chilton.

MAINE.

Conneen, Thos. F., Portland.
Emery, Harry S., Portland.
Hebb, Angus G., Bridgton.

MARYLAND.

Fisher, Chas. T., Princess Anne.
Robinson, I. P., Baltimore.
Ulman, S. Jay, Baltimore.
Wainwright, Chas. W., Princess Anne.

MASSACHUSETTS.

Cowles, Wm. N., Ayer.
Feeley, Chas. P., Cambridge.
Grover, Arthur L., Hyde Park.
Hutchinson, C. M., Waltham.
Ilsley, Fred R., Medford.
Jackson, James M., Boston.
Mayhew, O. S., Vineyard Haven.
Pillsbury, Boyden H., Lowell.

MICHIGAN.

Annis, L. C., Cedar Springs.
Cavanagh, D. G., Muskegon.
Foster, Horatio L., Reed City.
Fleischhaur, D. S., Reed City.
Meade, C. H., Olivet.

Potter, Thos. H., Detroit.
Rockwell, A. H., Kalamazoo.
Rowland, Russell S., Detroit.
Sanford, T. M., DeWitt.
Simpson, C. E., Pontiac.
Wood, Richard H., Montrose.
Yerkes, Louis N., Garden.

MINNESOTA.

Beck, Walter M., Hanley Falls.
Hixson, R. B., Cambridge.
Olson, Alof A., Minneapolis.

MISSISSIPPI.

McInnis, Jno. M., Brooklyn.
Rehfeldt, F. E., Vaiden.
Thompson, Chas. C., Columbia.

MISSOURI.

Chesmore, Harry P., Princeton.
Cobb, Chas. D., St. Louis.
Evans, Samuel M., Bloomfield.
Mills, H. P., Sheridan.
Prinz, Hermann, St. Louis.
Ross, Lonidas C., Winona.
Rininger, W., St. Louis.

MONTANA.

Owings, J. Hood, Deer Lodge.
Sutherland, E. L., Sheridan.
Tucker, W. Q., Crow Agency.

NEBRASKA.

Fox, Chas. H., Clarks.
Pennington, Jas. L., Republican City.
Park, B. F., Omaha.
Truelsen, Thomas, Omaha.

NEW HAMPSHIRE.

Bates, Jno. Harold, E. Rochester.
Cutler, Chas. H., Peterboro.
Horne, B. Frank, Conway.
Miller, Elmer M., Woodeville.
Pender, Geo. Edw., Portsmouth.
Provost, A. M. J., Berlin.
Tolles, C. W., Claremont.
Woodman, Milton S., West Lebanon.

NEW JERSEY.

Piskorski, Abdon, V., Jersey City.

NEW MEXICO.

Shuman, J. R., Aztec.

NEW YORK.

Bischof, L. F., New York City.
Nathan, P. W., New York City.
O'Neil, D. E., New York City.
Stubbs, Roland H., Waterford.

NORTH DAKOTA.

Glaspel, G. W., Grafton.
Williamson, Geo. M., Ardoch.

OHIO.

Barricelli, G., Cleveland.
Bown, S. J., Claiborne.
Ford, Clyde E., Cleveland.
Forsythe, A. M., Maynard.
Heck, Stanton, Salem.
McDonald, D. M., Akron.
McGonigle, M. B., Ashley.
Oxley, Frances Marion, Cincinnati.
Ravl, Katherine J., Gallion.
Talmage, J. B., Columbia.
Williams, Martha R., Cincinnati.

OKLAHOMA TER.

Farber, Julius E., Cordell.

OREGON.

Campbell, Wm. M., Portland.
Coffman, Walter R., Portland.
Day, Floyd M., Eugene.
House, William, Mt. Tabor.
Robnett, J. H., Salem.

PENNSYLVANIA.

Bryner, J. H., Ickesburg.
Boon, Wm. T., Philadelphia.
Best, Margaret B., Meadville.
Binkley, G. K., Orwigsburg.
Evans, T. H., Philadelphia.
Fretz, John E., Easton.
Good, Albert Park, Philadelphia.
Hollister, F. P., Scranton.
Irwin, William, Philadelphia.
Jeffers, Benj. B., Steelton.
Jackson, J. D., Connellsville.
Kutz, W. L., Weissport.
Keene, Chas. E. L., Harrisburg.
Kind, Geo. P., Lancaster.
Knight, T. Howard, Philadelphia.
Lammer, F. J., Philadelphia.
Lee, W. Estell, Philadelphia.
Lowenburg, Harry, Philadelphia.
Longcope, W. T., Philadelphia.
Lilley, W. M., Brownsville.
Marcellus, M. B., Philadelphia.
Macfarland, F. H., Philadelphia.
McClary, Sam'l, Philadelphia.
Nickel, J. Edw., Glen Moore.
Peters, J. M., Steelton.
Rupp, Frederick A., Lewistown.
Rovno, Philip, Philadelphia.
Richards, F. H., Philadelphia.
Riechard, L. N., Brownsville.
Stover, Isaac F., Philadelphia.
Shearer, Alfred Luther, Duncannon.
Smith, W. Clive, Wilkesbarre.
Ulman, Jos. F., Philadelphia.
Weirich, Collin R., Washington.
Yeager, F. N., Philadelphia.

RHODE ISLAND.

Darrah, R. F., Newport.
Ham, Albert E., Providence.
McKenna, John B., East Providence.

SOUTH DAKOTA.

Countryman, Geo. E., Aberdeen.
Duguill, J. O., Springfield.
Haustein, H. H., Lead.

TENNESSEE.

Happer, J. D., Jackson, Tenn.

TEXAS.

Alexander, J. M., Abilene.
Crosthwait, W. L., Holland.
Evans, A. H., Eagle Pass.
Elliott, B. S., Augusta.
Glass, John Wiley, Cass.
Gallagher, F. W., El Paso.
Poindexter, John G., Bridgeport.
Smith, W. J. S., Cash.
Wright, Edward F., Royse City.
West, Warren F., Waxahachie.

VERMONT.

Aldrich, W. J., St. Johnsbury.
Platt, Mary Mixer, Shoreham.

VIRGINIA.

Michaux, S. N., Richmond.
Purdy, James J., Sulphur Mines.

WASHINGTON.

Purman, Rose Mildred, Seattle.
Wiltsie, S. F., Seattle.

WEST VIRGINIA.

Sampson, W. H., Mount Hope.

WISCONSIN.

Clementson, J. A., Lancaster.
Ellsworth, H. E., Appleton.
Hutchins, Sylvester E., Whitehall.
Hinckley, H. G., Merrill.
Kersten, A. M., DePere.
Moulding, F. C., Watertown.
O'Brien, J. M., Oregon.
Smith, E. J., Neenah.
Schultz, F. W., Merrill.
Taugher, J. P., Milwaukee.
Taugher, A. J., Milwaukee.

WYOMING.

Finney, H. S., Rawlins.
Strader, G. L., Cheyenne.
Wayson, James T., Honolulu.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 4, 1905:

Howell, Park, asst.-surgeon, relieved from duty at Fort McPherson, Ga., and ordered to Manila, P. I., with Sixteenth Infantry, for duty in Philippine Division.

Barney, Charles N., and Gosman, Geo. H. R., asst.-surgeons, the former relieved from duty at Fort Schuyler, N. Y., and the latter at Fort Caswell, N. C., February 23, and ordered to Manila, P. I., for duty in Philippine Division, on transport to sail from San Francisco about March 31.

Field, Peter C., asst.-surgeon, relieved from duty at Fort Robinson, Neb., and ordered to Manila, P. I., for duty in Philippine Division.

Farr, Charles W., asst.-surgeon, relieved from duty at Fort Mason, Cal., and as attending surgeon and examiner of recruits, San Francisco, and assigned to duty as transport surgeon on the *Thomas*, and on arrival at Manila, to report for duty in Philippine Division.

Murtagh, John A., asst.-surgeon, relieved from duty on transport *Thomas* and ordered to Fort Mason, Cal., for duty and as attending surgeon and examiner of recruits, San Francisco.

Craig, Charles F., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and ordered to Manila, P. I., for duty in Philippine Division.

Smith, Herbert M., asst.-surgeon, relieved from duty as transport surgeon on the *Sherman* and ordered to the U. S. Army General Hospital, Presidio of San Francisco, for duty.

DeLoffre, Saml. M., asst.-surgeon, ordered to accompany Second Lieutenant Lesher, Second Cavalry, from Fort Assinniboine, Mont., to Government Hospital for Insane, Washington, D. C.

Gray, Wm. W., surgeon, relieved from duty at Fort McPherson, Ga., and assignment to duty in Philippine Division, revoked.

Straub, Paul F., asst.-surgeon, reports arrival at Fort Myer, Va., with squadron Ninth Cavalry. Left Fort Leavenworth, Kan. February 25.

Ekwurzel, Geo. M., asst.-surgeon, reports departure from West Point, N. Y., with detachment of cavalry to Washington, D. C.

Long, Charles J., dental surgeon, arrived February 17 at Fort Assinniboine, Mont., for temporary duty.

Wing, Franklin F., dental surgeon, granted leave of absence for fourteen days.

Lauderdale, Clarence E., dental surgeon, ordered from Fort Ringgold, Texas, to Fort Bliss, Texas, for temporary duty.

Coffey, Albion McD., contract surgeon, ordered from Fort Worden, Wash., to Fort Lawton, Wash., for temporary duty.

Kellogg, Preston S., contract surgeon, returned February 26 to his proper station, Fort Robinson, Neb., from temporary duty at Fort Crook, Neb.

Thorp, Charles W., contract surgeon, ordered from Fort Ethan Allen, Vt., to Fort Adams, R. I., for temporary duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 3, 1905:

Taylor, E. C., asst.-surgeon, detached from the *Bancroft* and ordered to the *Colorado*.

Huntington, W. H., pharmacist, retired, ordered to the Naval Training Station, Newport, R. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 1, 1905:

Glennan, A. H., asst.-surgeon general, granted leave of absence for fifteen days from March 6.

Stoner, G. W., surgeon, to proceed to Boston, Mass., for special temporary duty.

Banks, C. E., surgeon, relieved from duty at Chicago and directed to proceed to Key West, Fla., and assume command of the service, relieving P. A. Surgeon C. H. Gardner.

Gardner, C. H., P. A. surgeon, on being relieved from duty at Key West, Fla., by Surgeon C. E. Banks, to proceed to Galveston, Texas, and assume command of the service.

Heiser, V. G., P. A. surgeon, to report to the Governor General of the Philippine Islands as Health Commissioner in addition to duties as chief quarantine officer of the Islands.

Ramus, Carl, P. A. surgeon, detailed as inspector of unserviceable property at Honolulu, T. H.

Ebersole, R. E., asst.-surgeon, granted leave of absence for three days on account of sickness.

Stevenson, J. W., A. A. surgeon, granted leave of absence for seven days from Feb. 27, 1905, under provisions of Paragraph 210 of the Regulations.

Ashenbach, John, pharmacist, granted leave of absence for four days from Feb. 17, 1905, under provisions of Paragraph 210 of the Regulations.

Thurston, E. J., pharmacist, granted leave of absence for ten days from March 10.

CASUALTY.

A. A. Surgeon Esteban Lopez died at Fajardo, P. R., Feb. 4, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the period from Feb. 26 to March 3, 1905:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Feb. 18 25, 2 cases.
Illinois: Feb. 18-25, Chicago, 18 cases, 2 deaths; Danville, 4 cases; Galesburg, 1 case.
Kentucky: Louisville, Feb. 16-23, 3 cases.
Louisiana: New Orleans, Feb. 18-25, 14 cases, 1 death, 5 cases imported.
Massachusetts: Boston, Feb. 18-25, 1 case.
Michigan: At 62 places, Feb. 4-11, present.
Missouri: St. Louis, Feb. 18-25, 38 cases, 5 deaths.
Nebraska: Omaha, Feb. 18-25, 1 case.
New York: New York City, Feb. 18-25, 5 cases, 1 death.
Pennsylvania: Johnstown, Feb. 18-25, 1 case.
South Carolina: Greenville, Feb. 11-25, 5 cases, 2 deaths.
Tennessee: Feb. 18-25, Memphis, 20 cases, 2 deaths; Nashville, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Jan. 1-29, 102 cases, 25 deaths.

Brazil: Nictheroy, Dec. 1-31, 44 deaths; Para, Jan. 28-Feb. 11, 4 deaths; Pernambuco, Jan. 1-15, 131 deaths.
China: Shanghai, Jan. 7-21, 21 cases, foreigners, 98 deaths, natives.
Ecuador: Feb. 9, Colta, present; Columbo, present; Guamote, present; Guayaquil, Jan. 31-Feb. 7, 1 death.
France, Paris, Feb. 4-11, 23 cases, 1 death.
Great Britain: Hull, Jan. 28-Feb. 4, 7 cases, 1 death; Feb. 4-11, Leeds, 12 cases; London, 1 case; Newcastle-on-Tyne, 6 cases; South Shields, 2 cases; West Hartlepool, 3 cases.
India: Bombay, Jan. 24-31, 109 deaths; Calcutta, Jan. 21-28, 2 deaths; Karachi, Jan. 22-29, 1 case, 1 death; Madras, Jan. 21-27, 1 death.
Italy: Catania, Jan. 26-Feb. 9, 5 deaths; Palermo, Jan. 28-Feb. 11, 43 cases, 4 deaths.
Norway: Christiania, Jan. 28-Feb. 11, 6 cases, 1 death.
Russia: Moscow, Jan. 28-Feb. 4, 5 cases, 1 death; Odessa, Feb. 4-11, 2 cases, 1 death.
Straits Settlements: Singapore, Jan. 7-14, 1 death.
Switzerland: Geneva, Jan. 21-Feb. 4, 2 cases.
Turkey: Constantinople, Jan. 30-Feb. 6, 6 deaths.
West Indies: Grenada, Jan. 26-Feb. 9, 8 cases.

YELLOW FEVER.

Brazil: Manaos, Jan. 25-Feb. 8, 3 cases, 2 deaths; Para, Jan. 27-Feb. 11, 2 deaths.
Ecuador: Guayaquil, Jan. 31-Feb. 7, 2 deaths.
Mexico: Coatzacoalcos, Feb. 12-18, 1 case, 1 death.
Panama: Panama, Jan. 1-Feb. 14, 27 cases, 7 deaths.

CHOLERA.

India: Calcutta, Jan. 21-28, 103 deaths.
Russia: Jan. 16-23, 6 cases, 4 deaths.
Turkey in Asia: Van, Jan. 9-24, 59 cases, 20 deaths; to Jan. 24, 1,200 cases, 500 deaths estimated.

PLAGUE.

Africa (Portugese): Lorenco Marquez, Jan. 17, 5 cases (suspect); Port Florence (British), Jan. 5-12, 9 cases, 8 deaths.
Arabia: Aden, Jan. 21-28, 154 cases, 128 deaths; week ended Jan. 21, 113 cases corrected by Aden plague authority.
Argentina: Buenos Ayres, Jan. 28, 9 cases (suspect).
Brazil: Nictheroy, Dec. 1-31, 1 death; Para, Jan. 28-Feb. 11, 2 deaths.
Egypt: Suez, Jan. 21-28, 3 cases, 1 death.
India: General, Jan. 14-21, 33,083 cases, 28,104 deaths; Bombay, Jan. 24-31, 408 deaths; Calcutta, Jan. 21-28, 58 deaths; Karachi, Jan. 22-29, 60 cases, 53 deaths.
Siam: Bangkok, Dec. 22-Jan. 3, 2 cases, 2 deaths.
Straits Settlements: Singapore, Dec. 31-Jan. 14, 3 deaths.

Isthmian Sanitation.

THE PANAMA CANAL MISMANAGEMENT.

Report to the Government by Dr. Charles A. L. Reed, Showing How the Commission Makes Efficient Sanitation Impossible.

Dr. Charles A. L. Reed, immediately on his return from Panama, March 1, filed the following report with the Secretary of War:

WASHINGTON, D. C., March 2, 1905.

Honorable William H. Taft, Secretary of War.

DEAR SIR:—Pursuant to your request I have the honor herewith to submit the report of my observations relative to the status of sanitation and of the sanitary department in the canal zone and in the cities of Colon and Panama.

I arrived at Colon on the 7th of February and sailed from that city on the 22d of the same month, thus affording me fifteen days in which to study, with more or less care, the conditions of organization and the details of administration as they relate to the public health interest.

Sanitary Staff Efficient.

I was given every facility in this regard by General Davis, the Governor of the Zone; by Mr. Wallace, the Chief Engineer; by Colonel Gorgas, the Chief Sanitary Officer; as well as by his associates, Major La Garde, Lieutenant Lyster, and Dr. Carter. As a result of this investigation I became impressed with the efficiency and the zeal of the sanitary staff; with the fact that very much has been accomplished in the way of sanitation under exceedingly adverse circumstances; that much remains to be done which can not be done unless better facilities are afforded; and that very much more ought to be done and would have been done if the facilities had been properly furnished.

I was forced to this conclusion, not only by what I saw and heard while on the Isthmus, but by a careful study of the published proceedings of the Isthmian Canal Commission, by a study of the laws of the canal zone formulated by that commission, and by a careful consideration of their first annual report, submitted under date of Dec. 1, 1904.

Importance of Sanitation Recognized by Both Governments.

The situation became all the more impressive from the fact that the question of sanitation on the Isthmus was considered of so much importance that it was made a subject of special provision in the canal convention entered into between the Republic of Panama and the United States. There is in fact no stipulated cession from Panama to the United States that does not carry with it the expressed right of sanitation. This is true not only of the zone proper, but it is likewise agreed that:

> The cities of Panama and Colon, which lie outside of the canal zone, shall comply in perpetuity with the sanitary ordinances, whether of a preventive or curative character prescribed by the United States, and in case the government of Panama is unable or fails in its duty to enforce this compliance by the cities of Panama and Colon with the sanitary ordinances of the United States the Republic of Panama grants to the United States the right and authority to enforce the same.

The above provision of treaty entered into by the two countries was the logical result of the disastrous experiences: first, of the Panama Railroad under the three companies that were successively identified with its construction, and, later, by the two French companies that had attempted to dig the canal. That sanitation was indeed the fundamental problem to be solved before even the engineering question could be subjected to successful solution had been reduced to a demonstration.

This view of the case was manifestly accepted by the President, who, on the formal installation of the Isthmian Canal Commission, addressed that body in part as follows:

> There is one matter to which I wish to ask your special attention—the question of sanitation and hygiene. You will take measures to secure the best medical experts for this purpose whom you can obtain, and you will, of course, make the contractors submit as implicitly as your own employes to all the rules and regulations of the medical department under you. *I presume you will find it best to have one head for this medical department,* but that I shall leave to your own judgment.

The italics by the writer indicate the views of the President, subsequently expressed to the writer, that by having Colonel Gorgas placed in full charge of the sanitary work instead of on the commission itself, as had been urged by the medical profession of the United States, he would be untrammeled with extraneous duties and would consequently have better opportunity to make his work effective than if he were actually a member of the executive board.

The Organization of the Health Department.

At the meeting of the commission, held at Ancon, August 28, 1904, Mr. Grunsky, as the committee on a proposed health department, presented a report which began by stating that "after repeated conferences with" Colonel Gorgas and with practically the entire sanitary staff, "it has been agreed," but which should have stated that "in certain important particulars Mr. Grunsky has agreed with himself"; for, as a matter of fact, much of the report was formulated over the respectful protest of the medical men who were invited to the conference. By this report the commission, more especially Mr. Grunsky, provided for the creation of a board of health with power to formulate regulations which would become effective only after approval by the commission, or, in cases of emergency, only on the approval of the governor of the canal zone. Thus the chief sanitary officer who had been sent to the zone to clear it up and to make it ready for the actual work of the engineers had his discretion limited to the enforcement of regulations that had first been adopted by the commission or by a board of health; in which latter event it had to be sent generally to Washington to be endorsed by the commission, or, in cases of emergency, it could be approved or rejected by the governor of the zone.

The Extraordinary Subordination of the Sanitation Staff.

It thus came about that the chief sanitary officer, whom and whose department the medical profession had asked to be made largely autonomous; whom and which the President himself had obviously intended should be largely autonomous, was, by the action of the commission, more especially Mr. Grunsky, subordinated to the governor of the zone; to the chief disbursing officer; to the chief of the bureau of material and supplies; to Mr. Grunsky; to the commission; to the Secretary of War; to the President; subordinated in fact in the seventh

degree from the original source of authority. And this is the state of affairs on the Isthmus to-day. One can not but be impressed with the anomalous condition by which a man of Colonel Gorgas' distinction, the foremost authority in the world in solving the peculiar problems that are connected with sanitation on the Isthmus, being made subordinate of a whole series of other subordinates who are confessedly ignorant of the very questions with which he is most familiar.

How the Machine Does Not Work.

It is interesting to inquire into the working of this wonderful mechanism. Thus, if Major La Garde, superintendent of Ancon Hospital, makes a requisition for supplies, he must make it in due form, take it for approval to the chief sanitary officer, then to the governor of the zone, then to the chief disbursing officer; whence it goes to the commission at Washington; then to Mr. Grunsky as committeeman; then back to the commission; then, if allowed, bids are advertised for; awards are made; the requisition is filled under the supervision of a purchasing agent notoriously ignorant of the character and quality of medical and surgical supplies; the material is shipped to the Isthmus, consigned to the chief of the bureau of materials and supplies, who notifies the disbursing officer, who notifies Colonel Gorgas, who in turn notifies Major La Garde, who applies to the quartermaster—the boss of a corral—for transportation, and so much of the stuff as in the judgment of, first, the governor, next the chief disbursing officer, next the commission, next, and more particularly, Mr. Grunsky, ought to be allowed to the superintendent of Ancon Hospital finally arrives or does not arrive at its destination. This is no fanciful picture; it is exemplified in practically every ordinary requisition that goes forward. And what is true of Ancon Hospital is true at Colon, at Culebra, at Miraflores and at all points along the line that require supplies of this description. It is true that in the presence of emergency it is not necessary to send clear to Washington, and certain purchases are permitted and authorized in the open market at Panama, but always, of course, at greatly increased prices.

An instance in point occurred a few days before my departure from Ancon: A woman in the insane department was delivered of a child; her condition was such that she could not nurse her offspring; the nurse applied to Major La Garde for a rubber nipple and a nursing bottle; he had none—the requisition of last September had not yet been filled; he made out a requisition, took it to Colonel Gorgas for indorsement, then to Mr. Tobey, chief of the bureau of materials and supplies for another indorsement, then to a clerk to have it copied and engrossed; then a messenger was permitted to go to a drug store and buy a nursing bottle and a nipple, which finally reached the infant two days after the necessity for their use had arisen. The articles ought to have cost not more than 30 cents, but counting the money value of the time of the nurse, of Major La Garde, of his clerical help, of Colonel Gorgas, of Mr. Tobey, of Mr. Tobey's clerks, of the messenger, the cost to the government of the United States was in the neighborhood of $6.75—all due to the penny-wise-and-pound-foolish policy of the commission, more especially of Mr. Grunsky.

Other Examples of the Littleness of the Commission.

This commission, one would naturally suppose, was appointed to solve great general problems and to lay down broad general principles relating to the gigantic work to be done, leaving the execution of details to better qualified persons employed for the purpose. Yet we find in the published minutes of that body that after traveling 2,000 miles it sat in solemn session at Ancon, at an expense for salaries and incidentals of $500 a day to the people of the United States, consuming much of its time with trivialities which it has placed on record, some of which are as follows:

"The request of Dr. La Garde, dated August 8, for a waiter for the Nurses' Home was" not granted, but was "laid over for inquiry."

"The recommendation of Dr. La Garde, dated August 9, that pay of the assistant baker at Ancon Hospital be increased from $35 silver to $45 silver was" not granted, but likewise "taken under advisement."

"The request of Dr. J. W. Ross, director of hospitals, dated Aug. 10, 1904, for authority to keep a pony in the stable of the commission at Ancon was" neither granted nor refused, but "taken under advisement."

"Under date of Aug. 1, 1904, the chief sanitary inspector requested authority to employ sixteen carpenters. The employment of eight, with authority to increase the number as required to twelve was authorized."

"The superintendent of Ancon Hospital, under application dated Aug. 1, 1904, and a supplemental letter from the director of hospitals dated Aug. 15, 1904, was authorized to employ twelve additional nurses as required."

"The superintendent of Ancon Hospital, under his applications dated July 20, 1904, and Aug. 8, 1904, was authorized to hire an additional waiter and a waitress to be assigned to duty as necessary."

"The request of Dr. William Fawcett Smith, stationed at Gorgona, for a personal servant, was disallowed."

Numerous other instances could be cited from the published proceedings of the commission to show that it consumed its time in carefully scrutinizing minutiæ of administration that ought to have been entrusted successfully to the men employed for the purpose. Colonel Gorgas and Major La Garde are both officers of high grade and extensive experience and are gentlemen of recognized integrity and ought certainly to have been accorded the generous confidence by which they could dispose of such questions of detail at their own discretion. They ought, furthermore, to be entrusted with a contingency fund or emergency fund by which to make small purchases, but this was specifically disallowed to Major Gorgas, the intimation being conveyed to him by the commission, more especially by Mr. Grunsky, that the request was in the nature of an impertinence.

The Sanitary Department Denied the Right to Decide on the Suitability of Its Own Supplies.

The commission at Ancon last August adopted a resolution creating a department of the zone government to be known as the "material and supplies department," the chief of which is "charged with the receipt, inspection on the Isthmus, custody, care, shipment, transfer, issue and disposition of all supplies, material, equipage and floating equipment unissued and not in actual use." It is, however, specifically provided that:

> The governor of the Canal Zone, acting for the executive branch of the government of the zone, and the chief engineer, acting for the Department of Engineering and Construction, shall have authority to decide on the suitability of any and all supplies furnished, and their requisitions for such materials as are on the Isthmus shall be promptly filled without reference to a higher authority.

There is nothing said about the Sanitary Department, and as that which is not included is excluded, it follows that the right very justly accorded to the Engineering Department is denied to the Sanitary Department as such. It is obvious, of course, that the Sanitary Department, being made subordinate to "the executive branch of the government of the zone," can get supplies, but subject only to the judgment of the governor, who, by this resolution, is empowered to pass on the suitability of any or all supplies for the Medical Department or the Department of Public Health."

An example of the working of this rule was shown in the recent purchase of an *x*-ray outfit for the Ancon Hospital. The requisition went in several months ago and was pending before the commission, more especially Mr. Grunsky, when the expert who had been specially employed to do *x*-ray work in Ancon, happened in Washington and requested the privilege of selecting the Crookes tubes; the request was peremptorily refused; the expert urged that his knowledge would enable him to make better selections than would be probable by an unskilled purchasing agent, and went so far as to urge as an additional reason the distance to the Isthmus, the time involved in transportation, to say nothing of the expense involved, only, however, to be informed that if the tubes did not suit they could be returned. They came after a long delay, were found worthless and were returned; other ones have not yet been sent to replace them and, as a consequence, Ancon Hospital is to-day without *x*-ray service, while the salary of the expert goes on. In another instance objectives for a number of microscopes were carefully specified by the chief of the laboratory, who would naturally be presumed to know most about them, but the commission, more especially Mr. Grunsky,

assumed to possess superior knowledge of the subject and substituted others, with the result that when they arrived on the Isthmus they, too, were found to be worthless.

The foregoing are but two examples of what is constantly occurring. The matter becomes really very serious when it involves questions of medicines, and in this particular furnishes a strange inconsistency with the laws laid down by the commission for the government of everybody else but themselves. Thus, by the laws of the canal zone, a severe penalty is imposed on druggists and purveyors in general for substituting one medicine for another that may have been ordered, yet instance after instance is coming to the front in which the commission, either through Mr. Grunsky or through an unqualified purchasing agent, is foisting on the medical service remedies other than those specified in the requisitions. This, I believe, holds true in practically every requisition for medicine that has reached Ancon Hospital, and the same principle may probably account for the fact that the majority of all of the requisitions for medical supplies have been either ignored or suppressed by the commission at Washington.

The Commission's Petty Antagonisms to the Sanitary Department.

That the opinion just expressed, viz., that the commission, more especially Mr. Grunsky, visits on Colonel Gorgas and on the Sanitary Department not only unnecessary and unreasonable restraints and confronts it with petty, almost despicable, antagonisms, is shown by reference to a series of hitherto unrelated facts.

Thus, Colonel Gorgas asked the commission to invest him with individual authority in carrying out views which had matured not only from his long professional study, but as a result of his highly successful experience in Cuba; the reply was the establishment of a board of health, followed by his subordination successively under the immediate control of practically every feature of government in the zone. He asked for a department of hospitals with an officer at its head; this was temporarily granted, but the office was soon abolished and was forced into Colonel Gorgas' own office without any compensatory addition to his executive force. Colonel Gorgas sent in numerous requisitions, many of which, as I shall have occasion to allude more in detail, were disregarded. He followed them with letters of respectful protest about the slowness of receiving supplies; the reply was the statement made to him verbally and under humiliating surroundings that he was disrespectful to his superior officers.

Colonel Gorgas submitted an estimate for the establishment of emergency hospitals along the line; this estimate was reduced by the commission. Colonel Gorgas wanted to begin drainage and other important mosquito work simultaneously at other points along the line, and for this purpose asked for twenty inspectors; the commission, more especially Mr. Grunsky, took the matter under serious advisement and reduced the estimate to eight inspectors. Colonel Gorgas asked for screens for all the buildings in the zone; the commission, more especially Mr. Grunsky, concluded that this was a totally unwarranted expense and eliminated the proposition. Colonel Gorgas then urged that mosquito screening be furnished for all of the buildings at the Ancon Hospital, the screens to be placed around the galleries; the commission, more especially Mr. Grunsky, concluded, however, that only one-half the gallery space ought to be enclosed, that the windows might possibly be screened with advantage, and that even in that part of the galleries where screening was applicable it might be well to board up the part of them below the railing, utterly unmindful that such a proposition would carry about ten times the expense of screening.

Colonel Gorgas asked for a chief clerk at $1,800, with the object of getting a man who had had experience with him in Cuba; he was allowed only $1,500, for which he could get only an inexperienced man. He asked for $5,000 for a health officer for Panama, a most important office, with the hope that he might fill it with a man of Cuban experience; the commission, more especially Mr. Grunsky, allowed 3,000, with which it was possible to secure only the services of a previously inexperienced man. Colonel Gorgas asked for 100 female nurses, duly qualified for service at the Ancon and Colon hospitals, on a basis of a normal bed capacity of those two institutions; the commission, more especially Mr. Grunsky, replied by furnishing him forty female nurses, but by authorizing the establishment of a training school by which, as in the instance of the interneships, it was hoped to get the services of inexperienced nurses for comparatively little money. Colonel Gorgas asked for $50 per month for trained men and orderlies in the hospitals; it would be impossible to get them for less money. The commission, more especially Mr. Grunsky, replied by cutting the allowance down to $25 per month for the trained ward men and $15 per month for orderlies, with the result that the medical staff is being subjected to serious confusion by the inefficiency of the inexperienced natives, who alone will accept these small wages. Colonel Gorgas recommended to the commission the prompt sanitary control of both Colon and Panama, to which I shall have subsequent occasion to allude: the commission, more especially Mr. Grunsky, found a convenient pretext in totally imaginary diplomatic complications to defer this step until forced to do it by the present development of yellow fever. Colonel Gorgas recommended a system of movable latrines to be used in the larger labor camps as a preventive of ankylostomiasis or hook-worm, with which the natives are already infected and which is one of the most pestilential diseases of the tropics; the commission did not consider this, only one member of which taking any notice of the suggestion and that to the extent of expressing his disapproval, coupling with his disapproval the suggestion that in certain tropical countries with which he is familiar hogs and buzzards have been successfully relied on to dispose of night soil.

Colonel Gorgas asked in his original scheme that the institution at Taboga be set aside for the accommodation of convalescents from the hospitals at Ancon and at other points in the zone, and asked for the privilege to nominate a doctor and head nurse for the place and to equip the institution; the commission, more especially Mr. Grunsky, replied that while they would repair the institution they would not put it in commission. (As a matter of fact some repairs have been made, the institution is now in the charge of a care-taker, while the hospital at Ancon is overcrowded with convalescents and with the personnel of the institution, thus materially reducing the real hospital capacity of the institution.) Colonel Gorgas asked in November for a personnel for the hospital at Meriflores, which, in accordance with the understanding had with Secretary Taft during his stay on the Isthmus, was set aside for the accommodation of the insane and the lepers of the republic; the commission, more especially Mr. Grunsky, authorized that a physician and an assistant, with a nurse, be transferred to the institution, but furnished no person to take the places from which they had been detached. Colonel Gorgas asked that he be given some opportunity to exercise his judgment as to the qualifications of the personnel, and as to the quality of supplies to be furnished his department; the commission, more especially Mr. Grunsky, declined to give him this important supervision over the selection of his personnel while the disbursing officer declined to give him the opportunity to inspect supplies before they were actually issued to the Sanitary Department. Colonel Gorgas, at the first outbreak of yellow fever in July of last year, asked for a general appropriation to be disbursed at his discretion with which to meet the emergency; the commission, more especially Mr. Grunsky, peremptorily declined to place any sum of money at his disposal and forced him to rely exclusively on the established machinery for securing necessary supplies. Colonel Gorgas then asked the privilege of ordering directly from the medical purveyor in New York to the amount specifically of $30,000 silver, for the first month of the yellow fever epidemic, and $15,000 for each following month, so long as it might be necessary; the commission, more especially Mr. Grunsky, again refused, but directed that the Bureau of Material and Supplies be ordered to purchase the necessary arti-

cles, which it assumed to do, but, notwithstanding the lapse of eight months, these supplies are not yet on the Isthmus.

Doors and windows for the hospital at Culebra were asked for in January, but are not yet in place. Flooring for the porch of the hospital at Gorgona, likewise asked for in January, has not yet been furnished, and patients have to be carried up and down stairs and through the open to get them from one ward to another. Colonel Gorgas asked for screens for the hospitals along the line and sent in requisitions for the same in July; the commission, more especially Mr. Grunsky, concluded that they were not necessary. Colonel Gorgas asked that a gang of men for the purpose of making repairs be placed at his disposal, and Chief Engineer Wallace set aside a number of men for this purpose; the commission, more especially Mr. Grunsky, however, stopped this convenient arrangement and directed that hereafter all such things must be done only after arrangements had been previously submitted. Colonel Gorgas asked for pyrethrum, sulphur and other materials for disinfection work, the request having been sent in last September; the commission, more especially Mr. Grunsky, concluded the estimate was large, cut it down to one-fourth, and then sent the material only in small lots from time to time. Colonel Gorgas requested that a certain house be constructed at the quarantine station, seriously needed for the benefit of the service; the commission, more especially Mr. Grunsky, ignored the request, and the service is yet embarrassed for the want of necessary facilities. Colonel Gorgas asked for the equipment for the research laboratory, and for a small personnel at an aggregate expense of $15,000, but an annual operating expense of about $140, the small operating expense for salaries being attributable to the fact that men already connected with Ancon could be detailed for the service; the commission, more especially Mr. Grunsky, supported in this instance by Governor Davis, rendered an adverse decision on this application. Colonel Gorgas asked that an ambulance be kept on the ground at Ancon for prompt service; the commission, more especially Mr. Grunsky, replied that the ambulance must be kept in the corral outside of the hospital grounds, as a result of which unnecessary time of the commission was consumed in alleged deliberation over this question, and as a further result it is impossible to get the ambulance on ready call at times of emergency.

These are but a few of the many examples that could be cited by which the commission, more especially Mr. Grunsky, thwarts the honest endeavor of Colonel Gorgas to put the canal zone in proper sanitary condition. There are, however, a number of other questions to which I must hasten to invite attention.

Cheap Physicians for the Isthmus.

The commission in every effort that it has made to secure service of any character on the Isthmus has tacitly acknowledged the unhealthfulness of the region by holding out as an inducement the fact that employes will be furnished free medical treatment, including the service of the hospitals. The fact that medical men in the zone would have much executive work to do, that they would have to deal with large bodies of workmen, and that their duties would require the exercise of trained judgment in a very broad sense, prompted Colonel Gorgas to advise that only relatively mature men be brought to the Isthmus in the capacity of physicians. He advised, furthermore, that the minimum salary to be paid to medical men in the zone be the same as the minimum salary paid in the Army for contract surgeons, namely, $1,800. This plan did not, however, commend itself to the commission, more especially to Mr. Grunsky, who, in the interest of alleged economy, conceived the brilliant scheme of establishing interneships in the hospital of the zone, the incumbents to receive $50 per month, the same salary that is paid to nurses. The verbal justification of the plan offered by Mr. Grunsky, and subsequently adopted by the commission, is that young men will thereby receive a preliminary training in tropical diseases, which is to be accepted by them as part pay for their services, after which, that is, after a year, if they so desire, they will be at liberty to return to the states. But Mr. Grunsky takes pains not to say that the incidental service to be rendered by these internes is to represent the bone and sinew of the medical service on the Isthmus, and likwise fails to make clear how he expects to establish a stable medical service if, after the expiration of a year, his internes are at liberty to return to the North, which they would doubtless do in the absence of inducements to remain on the Isthmus. And what if they should desire to return before the end of a year?

This question brings us face to face with Mr. Grunsky's trap to get cheap medical service for the zone. Once on the Isthmus, these young men, finding themselves on the salaried basis of nurses with incidental expenses that can not be evaded and that will eat up the last penny of their beggarly stipend, desiring to leave their humiliating positions, will find the door closed against egress. It is even to-day easy for an employe to get to the Isthmus, but it is already exceedingly difficult for him to get away from it. And what is true to-day will be more emphatically true in the future, a fact that the commission, more especially Mr. Grunsky, takes great care to leave in the background.

But the commission, more especially Mr. Grunsky, holds up the prospect of promotion. This in any event, under Mr. Grunsky's rules, can not be granted under one year, and then, if granted, which it may not be, the salary is placed at $125 per month, or $300 per year less than the minimum salary paid to contract surgeons in the Army. What is there about the medical service in the canal zone that should render it less entitled to compensation than the same medical service when rendered in the Army? What is there about the personnel of the zone government, about the employes, about the laborers, that they should be furnished with a cheaper grade of medical service than the officers, soldiers and enlisted men of the Army? Why should not the commission, more especially Mr. Grunsky, follow the example of both the Army and the Navy and accept men who have already served interneships in the hospitals of the states, give them decent salaries, and then, after sending them to the Isthmus, give them additional opportunities for the preliminary study of tropical diseases at the hospitals at Ancon and Colon? And why should this not be done at once, that a competent medical staff may be at the Isthmus when the large bodies of workmen shall have arrived? This could not but be gratifying to the chief sanitary officer, whose wishes, however, it would seem need only to be expressed to have them vetoed by the commission, more especially by Mr. Grunsky, in what seems to be a fatuous desire, regardless of consequences, to give every detail the impress of his overpowering personality.

The United States in Cheap Competition with the Medical Profession of Panama.

The course of the commission in its endeavor to establish a cheap medical service, naturally enough made up of cheap doctors, which they hope in the future to send to the zone, is not limited in its influence and in its pernicious results to the zone itself. To make this clear, however, it is important to remember that under the truly remarkable plan of organization of the sanitary department devised by Mr. Grunsky, adopted by the commission and duly engrossed in the laws of the canal zone, it is provided that all persons not employes of the commission, but who may be "sick in the canal zone and in Colon and Panama, should be admitted to the hospitals, but such persons shall pay according to their means." This practically opens the hospitals of the zone as private pay hospitals to all the world, for it would be difficult for any sick persons to come from anywhere and to enter the zone at either end without being sick in Colon and Panama. As a matter of fact, it happens with increased frequency that patients, not only from Panama, but from various points along the coast and in the interior, are received and treated in the hospitals at Ancon. I have no knowledge touching this point at Colon, but can see no reason why it should not be equally true.

The thing, however, would not seem so bad if the provision

that these patients should pay according to their means had been permitted to stand without qualification. Unfortunately, however, the commission, more especially Mr. Grunsky, with his fondness for prescribing details, proceeded to lay down a per diem charge for room and for nursing at Ancon, the rates being about the same as those charged for similar service in the better hospitals of the United States. He, however, did not stop at this point, but made it a part of the laws of the canal zone that "surgical operations shall be charged for according to their importance and the financial ability of the patient to pay, but no charge in excess of $50 shall be made without the approval of the director of hospitals." As the office of director of hospitals has been abolished, the maximum rate to be charged for surgical operations, without reference to their gravity, stands at $50. It is furthermore provided by Mr. Grunsky and made part of the laws of the canal zone, that physicians connected with the hospitals must visit the residences of persons "entitled to treatment at the hospital, at a fixed daily rate of pay," which visits "shall be charged for at the rate of one-half dollar ($0.50) for each visit, but no such charge is to be made for emergency calls nor in the cases of persons entitled to free hospital treatment until after the person has been ordered into the hospital." These rates which, in the instance of surgical operations, vary from one-fourth to one-tenth of the average charge in the United States and in the Republic of Panama, and in the instance of visits, less than one-fourth of the ordinary rates charged in either of the two countries, can not but be disgusting to the medical profession in the states who are not in the least influenced by the belittling competition.

It is important, however, to bear in mind that the physicians at Ancon are in no sense the beneficiaries of the extra revenue that is thus derived by extra service that is thus imposed on them. On the contrary, it is provided by the commission, more especially by Mr. Grunsky, and duly engrossed in the laws of the canal zone that:

> The money realized in the hospitals from charges for board, medical attendance, surgical operations and the like, and from visits at residences as set forth, shall be considered public funds and turned over to the government of the canal zone.

It follows, therefore, that it is not the medical men sent to the canal zone, but the United States, our own great nation itself, that is engaged in this belittling business, which must be recognized as a personal insult to any decent practitioner of medicine in any country of the world.

In the Republic of Panama it amounts to more than an insult; it is an actual damage. This was brought to my attention by one of the most distinguished members of the medical profession of that country, who first made me aware of the situation, and who did so in terms of bitter complaint. He explained that under the operation of this order of things, and in spite of the existence of other hospitals in Panama, private patients, attracted by the cheap rates and the prestige of the medical staff at Ancon, are flocking to that institution to the present serious embarrassment and prospective ruin of medical practitioners.

I took the liberty to mention this matter in the course of a personal interview with President Amador, himself the most distinguished medical practitioner of the republic. As he is a friend of long standing, I had no hesitancy in broaching the subject and no difficulty in securing from him a very frank expression of fact that the situation had become so serious that he had been waited on by his colleagues of the medical profession, his constituents and fellow-citizens, by whom he had been requested to make formal representations on the subject to the American minister, but that he had desisted out of his great desire to avoid even the semblance of friction with the United States, and in the belief that a knowledge of so flagrant an injustice would sooner or later reach executive circles in Washington and would be corrected.

But a commission that is capable of thus busying itself with petty but, in their hands, annoying and obstructive details, would naturally enough be expected to forget matters of real importance. One can not, however, even at the hazard of seeming impertinent, enquire: "Why is there yellow fever in Panama?"

Why is there Yellow Fever in Panama?

Yellow fever is demonstrably a preventable disease, and as a consequence all deaths resulting from that disease must at once raise the question of responsibility. Panama has long and justly been recognized as a seat of yellow-fever infection, just as was Havana before the brilliant sanitary achievements of Colonel Gorgas in that city—achievements which resulted in his call to the Isthmus. The real campaign against the disease in Havana, more particularly against the disease-bearing mosquitoes, lasted from January to September, 1901. As Panama is but a village in comparison with the Cuban metropolis, it was naturally expected that similarly satisfactory results would be realized there in the same if not less time. But yellow fever is still endemic in Panama. Why is this true?

The dangers of the situation were thoroughly appreciated by Colonel Gorgas, even before he went to the Isthmus, and he laid before the commission a plan of campaign which embraced several distinct features, namely:

1. The installation of a sewer system in the cities of Colon and Panama.
2. The installation of water supply in those cities.
3. The cleaning of the streets including the disposal of garbage and night soil.
4. General sanitation of houses including their fumigation and the drainage of neighboring pools, the abolition of water barrels and cisterns and other places for the propagation of the yellow fever mosquito..
5. The prompt isolation of all cases of yellow fever.

These various steps bore such a logical relation to each other that one would become practically inoperative without the other. Thus, without drainage, a water supply would only augment the evil; without both it would be impossible to abolish the cisterns and water barrels that are breeding places of the yellow-fever mosquitoes; without abolishing the breeding places of these mosquitoes, it would be useless to attempt the formation of more than demonstrably infected houses.

This view was apparently accepted by the commission, even including Mr. Grunsky, before the first visit of that body to the Isthmus, and it was likewise the view still held by Colonel Gorgas and by the entire personnel of the sanitary department, as well as by Mr. Wallace, the head of the engineering department, when, on June 28, the sanitary government was established in the canal zone. Panama was then apparently free from yellow fever, but Colonel Gorgas, with his Cuban experience, and knowing the danger that was lurking in the immediate future, set about promoting these complete measures of prevention, while Mr. Wallace addressed himself to plans and specifications for water-works and sewer system for Panama. The plans of both of these men went promptly before the commission, but it was not until that body had returned to the Isthmus, in August following, that they were given serious consideration; meanwhile, the danger of which Colonel Gorgas had forewarned them had developed; for, on July 12, Charles Cunningham was stricken with yellow fever, from which he died two days later. Fourteen days after this death another case developed, which, however, went on to recovery. When the commission arrived at Ancon on the occasion of its second visit, that is, on August 3, Colonel Gorgas again urged the prompt assumption of sanitary control over Colon and Panama, and cited the case still in the hospital, and the fatal one that had preceded it, as danger signals of sufficient gravity to justify action. But the commission, more especially Mr. Grunsky, had not yet determined the degree of humiliating subordination to which the sanitary department was to be subjected, and, under pretext of perfecting a plan of organization, deferred action for another three and one-half weeks—valuable weeks—that is, until August 28. On this date the commission, on the report of Mr. Grunsky, adopted Mr. Grunsky's plan of organization, by which, as I have already shown, Colonel Gorgas was subordinated to the seventh degree below the original source of authority. Even then, with the cases of yellow fever staring them in the face, the commission, at the instance of Mr. Grunsky, directed Colonel

Gorgas, acting through Governor Davis, to refrain from any attempt to secure sanitary control over the cities of Colon and Panama, citing certain more or less diplomatic frivolities as a pretext for deferred action. It was only after four or five months had elapsed, only after the progressive development of yellow fever had reached the sensational point, and only after the personnel in the canal zone had become thoroughly alarmed over the situation, that Colonel Gorgas was permitted by those in authority over him to assume the sanitary control of the two cities, one of which, Panama, having by this time become very generally infected.

But even then his hands were tied, sometimes, and in important particulars, by the arbitrary exercise of superimposed authority, but all the time, and in still more important particulars, by the fact that the water supply and the sewage system were not installed. Mr. Wallace had drawn the plans and specifications in July previous, and had taken care to specify only such pipe as manufacturers keep in stock, and that could therefore be procured without a moment's delay. But the commission, more especially Mr. Grunsky, in total disregard of the emergency that was present, saw fit to indulge in some views about pipe, and as Mr. Grunsky is a civil engineer and needed to impress the fact on somebody, he summoned Mr. Wallace, confessedly one of the ablest of engineers but now his subordinate, before the commission to explain why he had specified both eastern and western standards of pipes. The explanation given by Mr. Wallace that either one or both of these standards would answer the purpose, and that it had been simply his desire to purchase the pipe promptly, if necessary in small lots, and to get the pipe promptly on the Isthmus, seemed to make no appeal to either the commission or Mr. Grunsky; and pipe of the western pattern alone was ordered. The delay in the consideration of this particular point consumed another precious two weeks, after which Mr. Wallace was authorized to proceed with the work. This he undertook with his characteristic energy, and allowing for all reasonable delay in procuring the pipe and in sending it to the Isthmus, promised the people of Panama that they should have water by December. He finished the work at the Rio Grande reservoir in a short time; the trenches for the pipe were dug, washed full of dirt and redug, but still there was no pipe. Mr. Wallace then cabled to Washington, urging that the pipe be sent, only, however, to receive a reprimand from Admiral Walker, chairman of the commission, admonishing him that cablegrams from the Isthmus were expensive. It is now nearly the first of March, and the schooner which brought the first consignment of pipe, not enough to complete the work at Panama, was discharging the cargo at Colon as I left. It is further understood that before the work can go on this same schooner must sail back to Mobile, await the arrival there of enough pipe to make a full cargo, then sail back to Colon and again unload—a proceeding that, at a conservative estimate, will consume at least from two to three months. And all this by a commission that controls a line of steamers plying weekly between New York and the Isthmus!

In the light of all these facts, in contrast with the brilliant results achieved by Colonel Gorgas in Havana, where he was given not only a free hand, but his own purchasing and distributing agents, the responsibility for the present existence of yellow fever on the Isthmus can be placed nowhere else than on the Isthmian Canal Commission, more especially on Mr. Grunsky.

The Campaign Against Malaria Thwarted by the Commission.

But sensational as is yellow fever, now apparently on the increase at the Isthmus, the fact remains that malaria is the more serious pest. The discovery that malaria is disseminated by the anopheles has, however, made it possible to minimize the disease by proper preventive methods. These embrace (*a*) drainage, (*b*) the isolation of malarial patients, (*c*) the prophylactic synchronism. That these three things might be done, and done before the onset of the dry season, Colonel Gorgas asked the commission last August to furnish men to dig ditches and drain pools about the houses of natives; he asked also for wire screening with which to isolate all patients afflicted with malaria, and quinin with which mildly to cinchonize laborers and others exposed to the malaria bearing mosquitoes. The commission, more especially Mr. Grunsky, however, thought that the number of ditchers asked for, something like twenty, was too many, and allowed only half those estimated, but as the dry season has arrived and is almost past, and as the small squad of ditchers is still digging, it would seem that the original estimate was justified by the necessities of the situation. The wire screening was likewise cut down from 2,500 yards to 500 yards, and even that has not yet arrived on the Isthmus. The use of quinin as a preventive of infection did not commend itself either to the great therapeutic skill or to the economic judgment of the commission, more especially of Mr. Grunsky, so the observation of medical men with previous experience on the Isthmus, the conclusions of authorities in tropical medicine, such as Munson and Giles, the investigations of the Italian authorities, and the unequivocal verdict of Koch, were pushed aside and quinin for this purpose was stricken from the list.

The result is that while much has been accomplished by drainage, and by the admission of small fish into the runnels made by the small force of workmen, and while much has been accomplished by the prophylactic use of quinin by the personnel and employes of the higher grades, and taken by them in spite of the action of the commission, the fact remains that in the absence of the wire screening ordered last August, each case of malaria becomes a focus for the further dissemination of the disease. This is shown even at the Ancon Hospital, where in the complete absence of wire screening for the malarial wards and the consequent impossibility of excluding the malarial-bearing mosquitoes, non-malarious patients are becoming malarious, while both nurses and attendants are being made frequent victims of the disease. Two members of the medical staff likewise were suffering from malarial infection during the time of my stay at Ancon. Yet in spite of these facts the Isthmian Canal Commission, in its report under date of Dec. 1, 1904, page 88, states that "all cases of employes sick with malaria are taken into the Colon and Ancon hospitals and so screened that mosquitoes can not reach them"—a statement that is an absolute and an unqualified falsehood.

Cheap Nursing Service.

This report might be indefinitely amplified, but time will not permit. I feel it important, however, to allude to the fact that the policy that the commission, more especially Mr. Grunsky, has adopted with reference to furnishing cheap medical service to those who risk their lives in the zone has been adopted for the purpose of furnishing nurses for service in the Sanitary Department. The effort has been made under the subterfuge of establishing a training school to be conducted at Ancon, to get nurses to go to the zone at about the same rate that is paid for pupil nurses in the training schools of the United States. The same conditions, practically, are imposed on the nurses with reference to time service that is imposed on the internes, with the difference, however, that the period of enforced detention on the Isthmus under contract is placed at three years instead of one. This is not a place to take untrained nurses under any pretext, for nothing but fully developed talent in the various departments of activity should be sent to the Isthmus.

Conclusion.

In view of the foregoing facts and disregarding equally serious facts relating to the Department of Engineering and Construction, facts which the really valuable services of such individual commissioners as Messrs. Parsons and Burr could not entirely neutralize, but on which I do not feel qualified or authorized to report, I beg leave to call attention to the further observations of the President when he inducted the commission into office, as follows:

> I believe that each one of you will serve not merely with entire fidelity, but with the utmost efficiency. If at any time I feel that any one of you is not rendering the best service which it is possible to procure, I shall feel called on to disregard alike my feelings, and forthwith to substitute for him on the commission some other man whom I deem capable of rendering better service.

In view of the facts which I have presented, in view of many more facts of similar purport which might be presented, in view of the President's manifest and expressed wishes and their complete disregard by the commission, but more particularly in view of the vital interests at stake, I have the honor not only to submit the suggestion, but really to urge that the time has arrived when the President ought to redeem his word and ask for the resignation of the commission.

I have the honor to be, very respectfully,

CHARLES A. L. REED,

Chairman of the Legislative Committee of the American Medical Association.

Medical Organization.

ORGANIZATION NOTES.

James Hall Bell, M.D.

SAN ANTONIO, TEXAS.

When the great organization plan of the American Medical Association is carried out, the profession will have the power as it already has the disposition and intelligence, ultimately to compel legislation in the right direction. Should this power be wisely exercised, as doubtless it will be, we shall have in operation a plan of general government exactly and impartially suited to the necessities of medical men in the various important external relations they virtually sustain to each other and to society. This means the eventual obliteration of interruptive state lines, and that every phase of medicine properly under statutory control will be made uniform in all the states and territories. This epitomization of our future model organization, so universally helpful in its provisions and utilitarian in its purposes, is not the idle creation of a dreamer; its realization is clearly within the bounds of reasonable hope and expectation, and within the reach and power of intelligent and organized effort.

In the furtherance of its plans for a more suitable dwelling place, so to speak, the profession has an imperative duty to perform. With unanimity of purpose, it must build on the solid foundation already laid, a superstructure which shall vindicate the wisdom, necessity and impersonal authority of a perfected organization. From the performance of this duty no one should shrink.

A perfected organization, however, is not the only means of grace; it does not carry with it the assurances of professional salvation. The increased facilities afforded men to do better work under the wiser provisions and uniformity of law, do not insure progress. When every right avenue is legally opened, and every wrong one legally closed, to the advancement of science, it will not of necessity utilize its powers for good in the world, and humanity may be no better off, when the old institutional stumbling blocks to medical progress are finally removed.

The development of a profession, like the development of a nation, depends on the character of its individual members, and not on the character of external relations or conditions. Climate does not make the state; the house does not make the home. Individual principles determine the established course of things in both instances. The long use and abuse of power will eventually overthrow disciplined authority, and create general confusion and anarchy in the greatest kingdom of the earth, and a man may gratify swinish appetites in the splendors of a palace, perfect in all its appointments. On the other hand, the austere assumption and rigid exercise of right principles will prevail over a frowning climate and august despotism, just as a soul of lofty genius, scorning trifles and the adventitious circumstance, will work out the great problems of human life and destiny in the squalor of a hovel.

These general observations apply with peculiar force and impressiveness to the science of medicine, which thrives or languishes, advances or retrogrades, under the dominion of individual faculties, sentiments and ideas. This fact comprehensively grasped makes it plainly evident that the splendor of scientific achievement is not chiefly a question of organization, however admirable that may be, but of personal loyalty to the intellectual and moral obligations imposed on the individual.

While, therefore, the structural changes in our new plan of government are being arranged with so few apparent hindrances, and our standards of intellectual culture are constantly raised and enforced to suit the increasing demands of scientific progress, would it not be wise and practicable to regard with deeper concern the moral aspects of professional life? Certainly no plan of government, or intellectual provision, which dismisses with negative suggestions the great moral issues involved, will ever directly eliminate quackery, prevent the questionable practices of the medical politician, or practically discourage the disgrace and bitterness of petty and compromising personalities. These are moral questions and must be dealt with on moral grounds. Our moral standards, like our educational standards, should be compulsory. The one is just as important as the other and as easily enforced. Our present attitude on this question may be expedient for the time, but it should not be accepted as the fixed policy of the American Medical Association.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(*Concluded from page 736.*)

I have the hope that in America certain primarily clinical chairs, controlling, say, 25 or 50 selected patients each, combined with experimental laboratories, may soon be established. There is room for a medical chair, a surgical chair and perhaps for an obstetrical chair of this type. Young men thoroughly trained in physics, chemistry, physiology and pathology, as well as in the clinical work proper, devoting all their time and energy to the work of the wards and the laboratories, supported by special assistants, ought to do much toward making applicable in clinical work many of the facts of the basal sciences which are at present sterile so far as practice is concerned. Such scientific clinical positions would, I believe, have a greater influence for good than similar chairs designated by a pathologic or physiologic name. For it is in clinical work—medical and surgical—that we now need most the fructifying impulse of the scientific spirit, the productive results of wisely-chosen, well-directed scientific investigation.

During the past four or five years I have given considerable thought as to the best mode of organization of such a scientific clinical institute should the funds therefor ever be made available. And it seems to me that in such an institute, though the director should be a clinical man with unusual special knowledge and skill in the fundamental medical sciences there would have to be the co-operating activity of a number of special scientists. I do not believe that any clinical man, no matter how well trained he is, can at the same time be physicist enough, chemist enough, physiologist and biologist enough, pathologist and bacteriologist enough, to oversee and direct the work which should be done on all sides of a given problem, with equal certainty; still less do I believe that a chemist or a pathologist can, in his spare hours, acquire that immense amount of clinical experience which the leader of such an institute should possess. A group of special workers in the same institute is necessary. But the clinician should know enough chemistry and pathology and the chemist and pathologist enough clinical medicine so that the representatives of these different departments of the institute could talk intelligently on and work together toward the solution of the problem in hand.

But it will be asked, "Is not the medical faculty of a modern university, taken as a whole, just such an institute as you have in mind?" A moment's thought will show that it is not. The departments of a university and their associated laboratories have their own work, first of instruction and second of original research dealing with the general scientific problems of the special sciences themselves. These

separate departments can not and dare not neglect these functions in order to work out the details of the practical applications of the facts of their sciences to clinical work. They have not appropriations large enough nor apparatus extensive enough to carry on experiments on the large scale necessary; but, far more important, the members of the staff would, by turning their attention toward the application of their sciences to practical medicine, have their time and energy diverted from their teaching and from their original work in the sciences which they represent. This would be a grave injustice to staff and students; the progress of medical science, as a whole, would be seriously endangered if the institute for a fundamental medical science were to emphasize to any considerable degree the direct practical applicability of its work rather than the methods and facts of the science itself. No; the future will see, I feel convinced, the erection and endowment of special scientific-clinical institutes, aided perhaps by the state, but supported mainly by private beneficence. Practical medicine is, in a way, a branch of technic and it will do well, in some ways at least, to follow the paths already shown to lead most quickly and purposefully to advance by certain branches of industrial technic. The great iron and steel industries, the sugar manufactories, etc., have their scientific laboratories manned by skilled physicists and chemists, directly connected with their practical works. It pays them financially to expend large sums of money in this way. In one notable instance in Germany a group of allied companies which manufacture arms, ammunition and explosives, have combined to build and maintain a scientific institute to apply the facts of physical and chemical science directly to their practical problems. The central institute for scientific-technical investigations founded by them at Neubabelsberg, near Berlin, is, according to a great chemical authority, a large, magnificently equipped and conducted laboratory, which consists of two departments, a physical-chemical and a mechanical; in this institute the latest results of science are utilized to solve technical questions as they arise.

It is some such similar organization that we need for the clinical branches of medicine. Men suited to lead such institutes, possessing the scientific clinical insight required, exist and could easily be named; it is the opportunity that is lacking. But this opportunity will not be lacking long in America; the medical profession sees the need and is urgently calling the attention of universities and philanthropists to it. Such scientific clinical institutes are sure to come. It will be interesting to see what wealthy man and what university has the honor to act first.

Leipzig.

Medical congresses are much the same in general external character the world over and the *Kongress für innere Medizin* held in Leipzig showed no marked deviation from the type. The meetings held in the *Aula* of the university were well attended. There were the usual addresses of welcome, the general and special sessions, the banquet and a concert in the *Gewandthaus*. In the Hotel Hauffe, the Hentschel and in neighboring *Gasthöfe* one saw everywhere the genial faces of physicians, glad to be freed temporarily from the grind of practice. Old friends met and chaffed one another, jolly little groups formed in the corridors and smoking rooms to discuss everything except medicine. The huge, rotund, red-faced *Alcoholiker* railed at his thin, pale and wrinkled friend, the abstainer. Three or four older men, silent, serious and important, transacted together the affairs of the managing committee. *Geheimraths* received gracefully the homage of the *Werdenden*. Ambitious, eager medical youth, as yet more or less virgin in medical-congress sense, viewed with awe and reverence the bearers of honored names; they, most of all visitors at the congress, came with serious intent; they, most of all, led there a life of conflicting emotions; it was their enthusiasm that was easiest to arouse, their criticism that was most violent, their disillusionizings that were most painful. Quite as at a Washington meeting in May!

From a business viewpoint the Germans have worked out a satisfactory method of collecting entrance fees. The most important general address to be followed by the liveliest discussion is placed on the program for the first forenoon. This is widely announced; the session is one that every member and visitor of the congress desires to attend. Everyone goes, but finds the doors jealously guarded by attendants who refuse entrance to all who do not carry tickets of admission. There is nothing for anyone to do but to descend the stairs to the bureau and pay his fifteen marks. This hint may be useful to the financial managers of American associations.

PAPERS READ AT THE CONGRESS OF INTERNAL MEDICINE.

The papers read at the congress in Leipzig include a number of unusual interest. The general subject selected for discussion this year was arteriosclerosis; it was introduced by two principal collective papers, one pathologic, by Marchand of Leipzig; the other clinical, by Romberg of Marburg. They were both good collective articles, bringing the facts of the subject together to date. Of the subsequent special articles read on arteriosclerosis perhaps that of the younger Erb of Heidelberg, "The Artificial Production of Arteriosclerosis," was of most interest. As this has doubtless been reviewed in the American journals, I need not go into its details. Now that the French and he have shown that the disease can be produced experimentally in animals, we have a better chance than ever before of gaining an understanding of it.

De la Camp of Kraus' clinic in Berlin read a paper on the determination of the size of the heart, which was of practical interest and value. A question which has agitated the minds of German clinicians greatly since the extravagant claims of a certain Dr. Smith of somewhat unsavory reputation have been made, is that which concerns the relative accuracy of the various methods of examining the size of the heart. It turns out that simple percussion, if properly carried out, gives as accurate results as any other method. The determination of the absolute heart dullness, the exactness of which may reach to within a few millimeters of the actual, permits, as a rule, the drawing of important conclusions regarding the real size of the heart. Usually, too, the part of the heart lying behind the sternum uncovered by lung substance can be measured by percussion. When the right heart is enlarged the step-like increase in the area of absolute heart dullness on the right can generally be demonstrated. For determining the true size of the heart de la Camp thinks that the method of orthodiagraphy is the best, although it is defective when the heart is markedly enlarged to the left, beyond the left mammillary line.

By combining deep percussion with palpation, the limits of relative heart dullness in more than three-fourths of the cases can be made out to within three-fourths of a centimeter. A combination of percussion with auscultation yields no more exact results.

A sharp criticism is made by de la Camp of the results of methods which use the auscultation of any kind of sound waves produced on the surface of the body for determining the size of the heart. One has to deal in such a method with the propagation of the sound waves through the thorax, and this propagation is modified by skin, muscles and bones. Smith's so-called "heart projections," he asserts, can be produced in the cadaver independently of the position of the heart. The conclusion is drawn that the high degree of variability in the size of the heart, which has been asserted to occur on the ground of the friction method, does not exist and that therefore the foundation of therapeutic measures based on it is not justifiable.

UNIVERSITY OF LEIPZIG.

Heinrich Curschmann is at the head of the department of medicine in the University of Leipzig, and the *Deutsche medizinische Wochenschrift* celebrated the occasion of the Leipzig meeting by publishing a special number, in which all the papers were drawn from Curschmann's clinic. Among

the younger men in internal medicine there may be mentioned Max Friedlaender, Hans Paessler, Max Seiffert and Karl Hirsch.

Surgery is the master clinical subject in Leipzig, represented as it is by Trendelenburg, Tillmanns, Th. Kölliker and G. Perthes. Among the men in junior positions in surgery there, v. Lesser, P. Wagner, H. Braun and Max Wilms may be included.

The scientific laboratories of the medical faculty in Leipzig are among the strongest in Europe. Anatomy, under Professor His, with his staff including Spalteholz, Fick, Held and Kaestner, has had a great development. It was in this laboratory that many of our best American anatomists got at least a part of their training. During the past year, under Professor Spalteholz's direction, Prof. C. B. Jackson of the anatomic department of the University of Missouri carried on an excellent research on the nature and origin of the bone marrow, and Dr. Retzger of the same state demonstrated the anatomic continuity of the muscle of the atrium of the heart and the ventricle, a connection which the physiologists had long ago postulated.

Spalteholz, now that his atlas is off his hands, is concentrating his energies on research work. It is interesting to note in passing that he, too, is profoundly impressed with the importance of the application of chemical methods for progress in the morphologic sciences. In a recent address entitled "*Mikroskopie und Mikrochemie*" he has pointed out the needs in this direction.

The death of Professor His has been felt as a heavy blow by the Leipzig faculty. Although he was nearly 73 years old he had worked daily in the laboratory up to within a few weeks of his death. In a monograph on "The Development of the Human Brain During the First Month," he continued his famous studies on the embryology of the nervous system. In spite of the opposition of Bethe and Nissl, he retained his view regarding the appearance and development of the neuroblasts unaltered, and stated that he held it as established that every nerve fiber arises as a process from a single cell.

Shortly before his death His returned to the study of formalinized cadavers—a field in which he had earlier made most important contributions to science and to teaching. One of his last articles deals with the form and position of the human stomach, the paper being based on eighteen original casts of the organ hardened *in situ*. Prof. His' researches in this direction have shown conclusively that the schemata hitherto adopted are not in accordance with the facts; aside from individual variations, a series of types due to physiologic conditions must be differentiated, such as the empty stomach, the full stomach, the overdistended stomach, the male stomach and the female stomach.

His struggled always for clarity of anatomic ideas. He was the enemy of chaos and vagueness in anatomic conceptions; he was original in his methods and in his mode of approach to anatomic problems. His artistic sense was markedly developed and his work was characterized by an accuracy and a diligence which was remarkable. One has only to repeat the observations of His in order to be astonished at his exactness.

Anatomic Congress at Jena.

The anatomic congress in Jena was an example of what a periodical science meeting in Germany may be. Held in a delightful old university town, with an attendance limited to actual workers in anatomy, the congress had a peculiar charm and pleasure which is lacking where an anatomic meeting is held merely as one section of a large congress of scientists. It may well be questioned if the advantages gained from combined meetings of scientific societies compensate for the losses sustained.

The most interesting discussion at the congress bore on the much vexed question of the origin and nature of the peripheral nerves. Schultze and others supported the old doctrine of Beard and Dohrn as revivified by Bethe, that the peripheral nerves do not arise as outgrowths from single nerve cells but are formed by end-to-end fusion of elongated cells seen in the course of the nerve in the developmental period—cells corresponding to what are usually designated the forerunners of the neurilemma-cells. Von Kölliker and others strongly opposed Schultze's idea and supported the generally accepted doctrine. It is a pity that the beautiful experiments of Harrison, reported later in the summer, were not available in time for the meeting. Harrison, by a most ingenious experiment, seems to have definitely settled the question. Asking himself, "What is the origin of the elongated cells which appear in the course of a developing nerve?" it occurred to him that they might come from the neural crest along with those cells which give rise to the spinal ganglia. In young frog embryos he cut out the neural crest and allowed the mutilated embryos to develop. On killing them later, he found that not only had no spinal ganglia developed but that the elongated cells in the course of the peripheral nerve had also failed to appear. In spite of their absence, however, naked axis-cylinder processes had grown out from the ventral horn cells of the spinal cord to the muscles.

THE CARL ZEISS WORKS.

An interesting feature of the congress was the arrangement made for visits to the Carl Zeiss works and to the Schott glass manufactory. These two industries have transformed Jena. Starting on a very small scale many years ago, they have gradually expanded into the immense enterprises of to-day. Through the courtesy of the Zeiss people, visitors to the congress were conducted through the works and permitted to examine every stage of the manufacture of the wonderful optical instruments there produced. The enterprise is an admirable example of what a manufactory may accomplish when its ideals are not confined to the plane of money-getting. Abbé has been the genius of the institution, but, aside from his marvelous practical power and scientific insight, he has made himself famous by establishing a unique co-operative society known as the Carl-Zeiss Stiftung. Zeiss and Abbé had been partners and when the former died he was succeeded by a son whose talent lay in a different direction, so that his share was bought by Abbé. Desiring in the first place to arrange that the factory would continue its work and its ideals after his death, and in the second place to try an experiment in social and commercial betterment, Abbé decided to give his whole property to a corporation, which should be permanent. It is in the organization of this corporation that Abbé has completed a piece of work which many regard as more significant than any of his optical findings, and for which he has been given the honorary title of *Doctor juris* by a German university. An account of this work as given by Auerbach[7] makes very interesting reading. A perusal of it may be recommended highly to all who interest themselves in the great questions of the relations of capital and labor. Not only do the scientists of the institution have a part in the ownership, but all officers, clerks and workmen, as well as the city itself and the university; all are concerned in creating the values, hence all are to have a share in the profits. In this way it has been possible to establish close relations between means and ends.

In the rules controlling the corporation Abbé has shown his great wisdom. It would take too long to go into the details of the organization; they require careful study in order that they may be fully understood. Suffice it to say that the corporation permits of a management by scientific and business men without exciting antagonism; on the contrary, commanding the interest, loyalty, effort and enthusiasm of the workmen. The profit-sharing scheme has been most ingeniously worked out, apparently to the satisfaction of all. Pension in old age and injury-money for six months in case of discharge are features of the plan.

7. Auerbach, F.: Das Zeisswerk und die Carl-Zeiss-Stiftung in Jena, Ihre wissenschaftliche, technische und soziale Entwickelung und Bedeutung fur weitere Kreise dargestellt. Zweite, vermehrte Auflage, Jena, 1904.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Hamamelis Virginiana.

Hamamelis, according to H. R. Coston in *Ther. Gazette*, is a tonic, astringent, hemostatic, antiseptic and vascular sedative, having a special action on the muscular coat of the vessels. Applied locally, it is a valuable remedy for sprains, bruises, fissure in ano, ulcers, varicose veins and the accompanying intractable ulcers. It is of service also, according to the author, in the treatment of phlegmasia alba dolens, eczema, and the poison from rhus toxicodendron. It is also used in the treatment of urticaria from whatever cause.

In cases of capillary hemorrhage and of intermenstrual oozing where the endometrium is lax and congested, this preparation should be applied locally and repeated every few days. By this treatment, he is of the opinion that many curettements may be avoided. In cases of sore and bleeding gums, relaxed uvula and oral ulcers the following is recommended:

℞. Ext. hamamelidis
Aquæ rosæ, āā ..... ʒiv 120

M. Sig.: To be used as a mouth wash.

It also is said to possess marked sedative properties, and the distilled extract is valuable as a dressing for burns and herpetic eruptions. Hyperidrosis is relieved by sponging with hamamelis and this drug is also recommended as a local application in the treatment of articular rheumatism; it is applied with thorough friction. In hypertrophic nasal catarrh, good results are said to follow the use of weak solutions of hamamelis in the form of a spray, or applied locally by means of a swab. In ulcers and varicose veins the fluid extract is preferred in full strength or combined with one-fourth the amount of glycerin or olive oil. For congested conditions of the hemorrhoidal vessels, it is recommended in the form of a suppository. For this purpose it may be combined as follows:

℞. Ung. hamamelidis
Ung. stramonii, āā ..... gr. x 65
Ol. theobromæ q. s.

M. Ft. suppos. No. i. Sig.: One such suppository night and morning after cleansing the bowels.

He recommends it internally as a tonic to all the mucous surfaces, and states that it is valuable in hemoptysis, hematemesis, menorrhagia, metrorrhagia, and especially valuable in hematuria in half dram (2.) doses. In hematemesis it should be given combined with a solution of adrenalin. In hemoptysis it may be combined with ergot and digitalis. In those forms of vascular diseases, accompanied by distention of the caliber, as in varicocele, varicose veins and varicose ulcers, it serves a good purpose, and is an excellent application when one is in need of a sedative, astringent and antiseptic dressing.

In cases of acute dysentery Shoemaker recommends the following preparation containing hamamelis:

℞. Ext. ergotæ fld.
Ext. hamamelidis fld., āā ..... ʒiss 45
Elix. guaranæ ..... ʒii 60

M. Sig.: Two teaspoonfuls in water every two or three hours.

He also recommends hamamelis ointments in the treatment of burns, erysipelas, eczema and herpes. In seborrhea, acne and rosacea he advises the following combination:

℞. Ext. hamamelidis fld. ..... ʒi-ʒiss 4.-6
Zinci oxidi ..... ʒi 4
Pulv. amyli
Glycerini, āā ..... ʒss 2
Ung. aq. rosæ ..... ʒi 30

M. Sig.: As an ointment for burns, sunburn, eczema, seborrhea and acne.

In cases of frostbites the following is recommended by the same author:

℞. Liq. plumbi subacetatis.
Tinct. opii, āā ..... ʒi 30
Aquæ hamamel. destil. ..... ʒii 60
Aquæ ..... Oi 500

M. Sig.: To be applied locally to relieve the burning and itching. In cases of pemphigus he advises the following:

℞. Creosoti
Liq. calcis
Aq. hamamel. destil., āā ..... ʒiii 90

M. Sig.: To be applied locally.

Pertussis.

The following combination is recommended by the *Med. News* in the treatment of whooping cough:

℞. Sodii bromidi ..... gr. xlv 3
Antipyrini ..... gr. xv 1
Glycerini ..... ʒii 8
Aq. cinnamonii q. s. ad ..... ʒiii 90

M. Sig.: One teaspoonful every two hours for a child of one year.

Hygiene Thérapeutique recommends that the patient suffering from pertussis should occupy a large, sunny, airy room. The diet should be substantial, but not bulky. During the acute attack, the patient should have his head supported and the mouth cleansed of mucus. The eyes and ears should be washed frequently with boiled water and the following antiseptic used:

℞. Menthol ..... gr. iii 20
Acidi borici
Resorcini, āā ..... gr. xxx 2
Petrolati mollis ..... ʒi 30

M. Sig.: Place a small piece the size of a pea in each nostril three times a day.

Maier recommends nasal irrigation with a very weak salt water solution. Isolate the patient and watch for complications, such as bronchopneumonia. In such cases he recommends the following:

℞. Potass. iodidi ..... ʒii 8
Tinct. belladonnæ ..... m. xx 1 30
Liq. ammon. anis ..... ʒi 4
Syr. tolutani ..... ʒi 30
Aquæ q. s. ad ..... ʒiii 90

M. Sig.: One teaspoonful every three hours.

Other preparations, such as bromids, stimulants, camphor and benzoic acid are also recommended by the author.

Acne in Children.

The treatment of acne in children, according to *Jour. des Pract.*, consists in the restriction of the diet. Coffee, pork, fish, pastry, cheese and spices should be restricted.

The following combination is recommended before meals:

℞. Sodii bicarb. ..... gr. iii 20
Magnesiæ calcinata
Pulv. cascaræ sagradæ, āā ..... gr. iss 09

M. Ft. capsula No. i. Sig.: One capsule to be taken before each meal.

The face should be washed in very hot water in which have been boiled bran and sodium borate. In the evening, after washing the parts with naphtha soap, the following ointment should be applied:

℞. Beta-naphthol.
Tinct. saponis viridis, āā ..... gr. ivss 27
Cretæ prep.
Sulphuris lati, āā ..... gr. viiss 50
Petrolati ..... ʒvi 24

M. Ft. unguentum. Sig.: Apply locally.

The following morning, after bathing the face, the following lotion is recommended:

℞. Sodii boratis ..... ʒi 4
Spts. etheris sulph. ..... ʒv 20
Aq. rosæ ..... ʒiss 45
Aq. destil. ..... ʒiiss 75

M. Ft. lotio. Sig.: Apply locally to the affected parts.

Paralysis Agitans.

Dana, in *Cornell Univ. Med. Coll. Reports*, recommends exercise in the treatment of paralysis agitans, with the object in view of overcoming the weakness and stiffness in the muscles and to overcome the tendency to tip forward while walking.

EXERCISES FOR WALKING.

1. The patient should be instructed to walk up and down the room, taking long steps, at least 28 inches to a stride, and to take 40 steps, then rest.

2. After practicing this for a time, he should walk with the eyes fixed on a point on the ceiling directly over the top of his head as he walks. This compels him to throw the head and shoulders back. He should take long steps, walking in this manner forty times, then rest.

3. He should then learn to turn around rapidly. He should walk according to the foregoing instructions for ten steps, promptly turn around and walk back, and repeat this three or four times, then rest.

EXERCISES FOR THE ARMS.

1. The patient should take a pair of wooden dumbbells, stand erect, and raise them from his side above and back of his head, touching them together. This is to be repeated four times. Holding the dumbbells out straight in front of him, he should carry them back as far as possible in a horizontal line and repeat four times.

2. The patient, standing erect, opens the hands, extending them as far back as possible, stretches out the arms and carries them high above his head and back as far as possible after the fashion of flying. This should be repeated twenty times, the patient holding the head back and looking at the ceiling.

3. The patient should swing a light pair of Indian clubs around full length, each one about twenty times.

4. The patient puts the hands flat on the table, places a weight of about half a pound on the fingers and raises it up ten times with each hand.

5. To stop the tremor, the patient should carry a rubber ball in the hand. By gradually working his hand on the ball he can stop the tremor for considerable periods.

6. Writing and drawing lines and figures should be introduced into his exercise.

7. Fatigue in his exercise must under all circumstances be avoided.

8. After exercise a short but very hot bath, followed by rubbing, is very beneficial.

Anal Fissure.

For anal fissure the following is recommended by *Med. News:*

℞. Sulphuris loti ..... ℥vi 24
Potass. bitartratis ..... ℥ii 8
Pulv. sennæ ..... ℥i 4
M. Ft. cachetæ No. xii. Sig.: One at night as a laxative.

To relieve the pain and to promote healing the following may be used:

℞. Iodoformi ..... ℥i 4
Acidi carbolici. ..... gr. xx 1|30
Petrolati ..... ℥i 30
M. Sig.: Apply once daily.

Chronic Eczema.

The following combinations are recommended by *Med. Record* in the treatment of chronic eczema:

℞. Sulphuris ..... ℥iiss 10
Spts. vini rect. ..... ℥i 30
Glycerini ..... ℥i 4
M. Sig.: Shake well and paint on the affected areas; or:

℞. Sulphuris precip. ..... ℥iiss 10
Saponis viridis ..... ℥ss 2
Olei cadini ..... ℥i 4
Ung. zinci oxidi ..... ℥i 30
M. Ft. unguentum. Sig.: Apply locally.

℞. Chrysarobini
Acidi salicylici, āā ..... ℥iv 15
Sulph. precip.
Saponis viridis
Olei cadini, āā ..... ℥v 20
Lanolini ..... ℥iiss 10
M. Ft. unguentum. Sig.: Apply locally.

Seborrheic Eczema.

Otto Maier, in *Postgraduate*, recommends in the seborrheic form of eczema that an ointment of boric acid, 2 per cent. strength, be applied for one day to soften the crusts. This is to be followed by an ointment of:

℞. Acidi salicylici ..... gr. xv 1
Zinci oxidi
Pulv. amyli, āā ..... ℥i 4
Lanolini q. s. ad ..... ℥i 30
M. Ft. unguentum. Sig.: Apply locally with a mask.

This dressing must be changed every third day. The diet must be regulated and calomel given twice a week in two-grain doses (.12). The bowels must be irrigated with sterile water once a day.

Medicolegal.

Liability for Operating Without Previous Consent.—The Appellate Court of Illinois, First District, says, in Pratt vs. Davis, an action brought by the latter party, that it thinks that both courts, the lower one and it, recognize adequately the great obligations to medicine and to surgical skill under which all civilized communities lie, and would be far from upholding any ungrateful attempt to make liable "for a failure to cure" one who "free from any imputation of malice, wantonness, recklessness, lack of skill, or negligence," had used "whatever of skill or learning and of material equipment were at his disposal," for the relief of the complaining party. Had this case, in the opinion of the court below, been such an attempt, there would have been no judgment for the plaintiff; if it were so in the opinion of this court, the judgment would be annulled. But great as are the obligations to which this court has alluded, they do not confer on the physician or surgeon unlimited power to use his own discretion in the surgical or medical treatment of patients who, suffering from some bodily ailment, come to him for advice and assistance. Undoubtedly an implied license "to have," as the defendant's argument phrased it, "the proper remedial means brought to bear" often exists. The patient may, by his whole course of conduct, without the use of any express language giving consent, evidently place his body at the entire disposal of the surgeon or physician whom he consults. And for a soldier to go into battle with a knowledge beforehand that surgeons attached to the army are to have charge of the wounded, might perhaps be considered an implied license for such operations as the surgeon afterwards, in good faith, performed. Perhaps, too, the various cases which might be supposed of sudden and critical emergency, in which the surgeon would be held justified in a major or capital operation without express consent of the patient, might be referred to the same principle of an implied license. But the broad statement put forth by the defendant as a correct proposition of law, that "when a patient places herself in the care of a surgeon for treatment without instructions or limitations" (it is to be presumed that this means express limitations) "on his authority, she thereby in law consents that he may perform such operation as, in his best judgment, is proper and essential to her welfare," is not one to which this court can give assent. It does not hold, again to quote defendant's counsel, that there is "a universal acquiescence of lay and professional minds in the principle that the employment of a physician or surgeon gives him implied license to do whatever, in the exercise of his judgment, may be necessary." On the contrary, under a free government at least, the free citizen's first and greatest right, which underlies all others—the right to the inviolability of his person, in other words, the right to himself—is the subject of universal acquiescence, and this right necessarily forbids a surgeon or physician, however skillful or eminent, who has been asked to examine, diagnose, advise and prescribe (which were at least necessary first steps in treatment and care), to violate, without permission, the bodily integrity of his patient by a major or capital operation, placing him under an anesthetic for that purpose, and operating on him without his consent or knowledge. Counsel asserted that not a case can be found in the English or American reports where a surgeon has been held liable for performing an operation without the consent of the

patient. This is, perhaps, true. This court has not been able, in its examination, to find such a one, but it by no means follows that the liability does not exist. It would rather indicate that, obedient to the law and the code of professional ethics as well, surgeons have abstained from actions from which the liability would accrue, or at least had not carried the contention that it does not exist in the courts of last resort, It is this court's opinion, except in cases where the consent of the patient is expressed or is implied by circumstances and occasions other than a mere general retainer for medical examination and treatment, and except also where there is a superior authority which can legally and rightfully dispose of the person of the patient, and which gives consent, a surgeon has no right to violate the person of the patient by a serious major operation, or one removing an important part of the body. Illustrations of such superior authority as the court alludes to can be found in the control which the court takes of persons under sentence for crime, the power which is vested in parents over minor children of tender age, and the authority given to legally constituted guardians of the person of those who are insane or imbecile. In a more restricted form, it may be said to exist in the marriage relation, which makes the husband the head of the family. This last authority is not, however, supreme in the matter of surgical operations on the person, and this is really the gist of the decisions in McClallan vs. Adams, 19 Pickering, 333, and State vs. Housekeeper, 70 Maryland, 162, which were urged in argument as showing that the consent of the husband of the plaintiff was not necessary in the case at bar. These decisions are not authority for the proposition that when a wife is herself incompetent from mental condition intelligently to give or to withhold her consent, that the husband's consent is unnecessary, but for the very different proposition that where the wife, competent mentally to decide, assents and desires a dangerous operation, the surgeon is justified in performing it (if it be in his judgment a proper one) without the further consent of the husband. In this case, the plaintiff, who was about forty years old, had been afflicted with epilepsy for many years, ever since she was a young woman. The defendant seemingly considered the fact that she had epilepsy and wanted to recover from it as proving an implied acquiescence in anything he might choose to execute in the way of surgery, and as a sufficient justification for assuming her consent to a major operation, of the necessity or likelihood of which he did not inform her. She went to a hospital under his management, and the next day he performed the operation on her which he spoke of "as appearing on the surface" as necessary—the principal object apparently being to treat a laceration of the womb. She returned to the hospital again, when a hysterectomy was performed, consisting in the removal of the ovaries and uterus from her body. That the consent of the patient herself to such an operation as was performed in this case was necessary if she be in a free condition and in such mental health as implied capacity to decide, the court says that it does not believe has been denied by any court. And, in view of the testimony, both of the plaintiff and the defendant, the court says that the existence of any consent, express or implied, on the part of the plaintiff personally must be eliminated from consideration. Furthermore, the court is of the opinion that the preponderance of the evidence with regard to the husband's consent, was that it was not given for the performance of this major operation. Its conclusion is, therefore, that whether the evidence were to be considered as showing the plaintiff sane or insane at the time of the operation, she would in each case be entitled to recover damages. Without intending to lay down herein a rule to be quoted in subsequent cases, where, perhaps, it might seem as dangerous to recognize in a husband an unlimited right to expose, without her consent, the body of an insane wife to the surgeon's knife, as it evidently is in the eyes of the legislature of Illinois to allow a husband the right to restrain such a wife of her liberty without a judicial inquiry into her insanity, the court says that it might assume, for the purposes of the present case, that as the husband is the head of the family and naturally the protector and guardian of an insane wife's interests, consent by him, implied or expressed, would justify the defendant and avoid the liability charged against him in this action. But it was obvious that to make good this defense, after it had been admitted or had otherwise appeared that no consent of the patient herself could be shown, the defendant must show two things affirmatively: first, that the patient was not mentally in a condition to be in control of her own body; and, secondly, that her husband consented to the operation. On the defendant, as to these matters, lay the burden of proof. The question as to damages resolved itself into this: What damage should be assessed against the defendant for the unauthorized act in removing the uterus of the plaintiff? The law infers damages when any trespass on the person of another is committed. It infers bodily pain and suffering from such an act, and allows damages for them, however difficult they may be of ascertainment or apportionment. Moreover, the court thinks that this was a proper case for the assessment of exemplary damages, and that the amount given, $3,000, was a moderate and judicious one under all the circumstances shown. It would not do to say that neither malice, violence nor recklessness was shown on the part of the defendant, because there was no claim that he was actuated by dislike, hatred or desire to ultimately injure the patient in what he did. He probably thought that the operation would do no ultimate harm and might do good. If the act was an unauthorized trespass on the body of the plaintiff—if it was an act, in other words, in the mutilation of her body, which he knew, or was bound in the eye of the law to know, he had no legal right to do—the absence of such a morally evil intention as before indicated did not relieve it from the imputation of malice in its legal sense. It was willful, and the deliberate intention to commit an act which the defendant was bound in the eye of the law to know was illegal, was there. That made malice in a legal sense. It was violent, oppressive, wanton and reckless in the same sense.

Insanity and Testamentary Capacity.—The Supreme Court of the United States holds, in the will case of Keely vs. Moore, that an application of another party for the admission of the maker of a will to an insane asylum, and the certificate of two physicians as to his insanity, were properly excluded, not only because they were unsworn testimony, but because they were given in a different proceeding and on a different issue. It says that the testator may have been insane to the extent of being dangerous if set at liberty, and yet may have had sufficient mental capacity to make a will, to enter into contracts, transact business, and to be a witness. Besides this, it says, these certificates were both dated December 14, more than two months before the will was made, and were by no means inconsistent with other testimony that the party was released from the asylum as cured February 1, following, and that three weeks after that, when he executed the will, he appeared to be of sound and disposing mind and memory. In addition to the proof of his commitment to the asylum, and of his undoubted insanity prior and for some time subsequent thereto, there was slight evidence of insane acts during the month of February, though there was no opinion expressed by any one that he was incapable of making a valid deed or contract. The whole testimony regarding his insanity was duly submitted to the jury, who were instructed that if they found his insanity to be permanent in its nature and character, the presumptions were that it would continue, and the burden was on the defendant to satisfy the jury by a preponderance of testimony that the testator was, at the time of executing the will, of sound mind. The Supreme Court says that there was no error in this instruction, and it affirms a judgment sustaining the validity of the will.

Diseased Condition of Arteries and Accident.—The Supreme Court of Iowa says that in the case of Binder vs. National Masonic Accident Association there was a contract of insurance which contained the stipulation that there should be no liability for a disability happening directly or indirectly, wholly or in part, because of or resulting in or from any disease or bodily infirmity. The jury were instructed that if the insured

sustained a fall, and if the bursting of an artery was caused thereby, a recovery of benefits might be had, even though it was found that the artery was in a weakened condition by reason of disease. But the Supreme Court thinks this instruction could not be sustained because it entirely ignored the stipulation stated. It says that if it was true, as the jury might have found under the evidence, that the diseased conditions of the arteries aggravated the effect of the accident, if there was one, and contributed to the disability occasioned thereby, then, under the express terms of the contract, there was no liability on the part of the association. The testimony clearly showed a diseased condition of the arteries at the time of the insured's death, and physicians of skill and reputation testified that the condition probably existed at and prior to the time of the alleged accident; that this condition greatly weakened the arteries; and that because thereof a blow "or some other exciting cause might produce apoplexy or paralysis, when in a healthy condition these results would not follow." This court knows of no better evidence of the probable effect of disease than the testimony of skilled medical men, and thinks the testimony in this case competent, and its weight for the jury alone.

Construction of Health Insurance Policy.—The Supreme Judicial Court of Maine says, in the case of Dunning vs. Massachusetts Mutual Accident Association, that in a policy of insurance against accident and disease the conditions of the policy respecting "indemnity for sickness" were as follows: "A disability resulting from sickness or disease in order to constitute a claim, must be continuous, complete and total, requiring absolute and necessary confinement to the house (except as provided under benefit No. 15), and unless the period of total disability under the health provisions shall continue for four or more weeks, no claim shall be allowed for the first seven days' disability, and the sickness or disease shall be such as shall, independently of all other causes, continuously and wholly disable and prevent the insured from attending to any business or duties pertaining to his occupation, profession or other remunerative employment." "Absolute and necessary confinement to the house," the court holds, is made by such a contract an indispensable criterion of the disability which will entitle the insured to the indemnity, and hence a condition precedent to the right to recover. So, in regard to "convalescent indemnity," "if the insured has been confined to the house for seven consecutive days and is thereafter permitted to leave the house by the physician in charge," one-half of the indemnity is recoverable. The company had a right to frame its health policy on the assumption that confinement to the house would be found so tedious and irksome that few would submit to it except under compulsion of a severe illness. The company had a right to make "absolute and necessary confinement to the house" a conclusive test of the disability, and a condition precedent to the right of recovery. It had inserted this condition in the contract in plain and unambiguous language, and no principle of public policy was thereby contravened. To hold that this requirement was not a condition precedent would be to defeat the obvious intention disclosed by the terms employed, and to substitute for the plaintiff's policy a contract not made by the parties.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 25.

1 *Relation of Pathology to Other Sciences. J. Orth, Berlin.
2 *Nephroureterectomy for Tuberculous Disease with a Description of a New Technic. Edward Reynolds, Boston.
3 Society of Sanitary and Moral Prophylaxis; Its Object and Aims. Prince A. Morrow, New York City.
4 *Abuse of Purgation Before and After Operation. I. S. Stone, Washington, D. C.
5 *Cystoscopy. Henry D. Furniss, New York City.
6 Suspected Embolism of the Superior Mesenteric Artery. James A. Nydegger, Stapleton, N. Y.

1. **Pathology and Other Sciences.**—Orth directs attention to the close relationship existing between pathology and the natural sciences. Although pathology necessarily must be in uninterrupted relation to medical art, still it remains first of all an independent physical science which stands on an equal plane with normal anatomy, physiology and physiologic chemistry, and, together with etiology, these form the scientific basis for practical medicine. Orth is of the opinion that the greatest progress of pathology in the immediate future will be along the lines of chemistry.

2. **Nephroureterectomy; A New Technic.**—The indiscriminate application of nephrectomy to all cases of renal tuberculosis is deprecated by Reyonlds as likely in the long run to do more harm than good. He separates his cases broadly into two classes: First, the patients in which the course of the disease is rapid and the constitutional failure marked, i. e., the profoundly tuberculous. These patients should take such chance as they may have under open-air hygiene, because in them operation is but rarely indicated, and then not with the idea of radical cure, but only for the relief of otherwise irremediable suffering of extreme degree. Second, the patients in whom the progress of the disease has been slow, whose constitutional condition is fairly good, and in whom the tuberculosis is not only limited to the urinary tract, but can be conclusively demonstrated to be limited to one kidney, its ureter and perhaps the bladder. In this class of cases Reynolds believes that by a combination of nephrectomy and constitutional care, a radical cure may usually be expected. An operation should not be performed unless an exhaustive physical examination limits the tuberculosis to the urinary tract, nor until a ureteral catheterization has demonstrated the secretion of tuberculous pus from the kidney, and the excretion of a normal urine, free from pus and containing a normal amount of the urinary solids, from the other kidney. Of 8 cases selected as suitable for operation, 2 were exceptional cases of generalized tuberculosis which demanded operation; 2 were subjected to nephrectomy, 1 to nephrectomy with a subsequent ureterectomy, and 3 to nephroureterectomy. The first two patients were distinctly benefited by the operation. Of the remaining 6, 1 patient suffered from a prolongation of symptoms, probably of vesical cause, but was reported in improved health at the end of four years. Four patients are in perfect health after intervals varying from eighteen months to seven years, although 1 has had a subsequent tuberculous abscess, but is again convalescent. After an experience of 9 nephrectomies done for tuberculous and other suppurative disease, without extirpation of the ureter, or with extirpation of only its upper portions, and of 7 complete nephroureterectomies, Reynolds is convinced that the incomplete operations show a longer period of persistence of symptoms, as compared with the complete cases, while in 2 of the 9 incomplete operations he has been obliged to perform a subsequent ureterectomy. He gives a detailed description of a method he employs in this operation and reports 7 cases, without a mortality.

4.—See abstract in THE JOURNAL of January 7, page 59.

5. **Cystoscopy.**—Furniss discusses the value of cystoscopy in the diagnosis of diseases of the bladder, ureters, the kidneys and their pelves.

Medical Record, New York.

February 25.

7 *Loss of Sight from Diseases of the Eye (Amblyopia ex Anopsia). D. B. St. John Roosa, New York.
8 Review of the Recent Literature on the Relation of Human and Bovine Tuberculosis. David Bovaird, Jr., New York.
9 *Advantages of Performing Capital Operations in Selected Cases Without Anesthesia. J. J. Buchanan, Pittsburg.
10 *Four Cases of Chancre of the Lip. Charles M. Williams, New York.
11 *Unusual Case of Pelvic Abscess. W. H. Coe, Auburn, N. Y.
12 *Ear Complications of Scarlet Fever, and Their Treatment. Herman Jarecky, New York.
13 *Epileptic Criminal; with Report of Two Cases. T. H. Evans, Philadelphia.
14 *Higher Education a Cause of Physical Decay in Women. F. W. Van Dyke, Grant's Pass, Ore.

7. **Amblyopia Ex Anopsia.**—Roosa expresses himself as favoring the limitation of this term to those cases where use of the eye has been given up because it involves double vision, the maculæ lutæ being no longer in exactly corresponding positions, as is the case in any form of strabismus. He describes a case illustrating the recovery of sight by a man more than 40 years old after having had an amblyopic eye since his early youth. The case also shows the practicability and importance of the treatment advocated by Javal.

9.—See abstract in THE JOURNAL, Oct. 29, 1904, page 1332.

10. **Chancre of the Lip.**—Williams reports four cases of this kind. In the first case it was absolutely impossible to discover the source of contagion. In the remaining cases the mode of infection was probably by kissing, though in the third and fourth a pipe may have been the carrier of the contagion. The location of the initial lesion in the first case was somewhat unusual, being on the upper lip.

11. **Pelvic Abscess.**—The symptoms in the fatal case of septicemia described by Coe began ten days before a miscarriage. At the autopsy the right broad ligament was found to be somewhat thickened and when its folds were severed a little pus oozed out. Inserting the finger in the opening, the whole was followed outward and backward to the wall of the pelvis where, extraperitoneally, was found a considerable cavity lying against the bare muscles and tendons. This contained a greenish, slimy pus, and extended backward as far as the sacrum. Examination of the interior of the uterus showed nothing except a few drops of yellow pus in the cervix. Coe believes that the original source of the infection was from the uterus.

12. **Ear Complications of Scarlet Fever.**—In considering the etiology of these complications Jarecky concludes that they are due to one of the following causes: 1, Toxins of the disease; 2, extension from the throat, and 3, general weakness. He directs attention to the necessity of removing hypertrophied tonsils, adenoid vegetations and nasal obstructions in children so that when subjected to the strain of scarlet fever they may avoid the principal method of ear infection. Repeated examinations of the ear should be made on account of the uncertainty of the symptoms. For the swelling, itching, etc., of the external ear, a mild dusting powder should be used. In middle ear disease the pain is best treated with hot water irrigations of the canal and a hot-water bag applied to the ear. The local abstraction of blood may control the trouble, and watery solutions of cocain, atropin or tincture of opium dropped into the canal occasionally give relief. The nose and throat, and especially the eustachian tube, should be kept bare of mucus to allow drainage. A 10 to 12 per cent. solution of carbolic acid in glycerin applied directly to the drum membrane frequently gives satisfactory results. Owing to the rapidity with which destruction of aural tissue and extension of infection take place, a paracentesis should be performed as soon as the tympanum shows signs of exudation and the membrane of bulging. There must be sufficient drainage, and frequent irrigation with 1 to 5,000 bichlorid solution must be carried out. Toward the end of the acute stage inflation with the Politzer bag or eustachian catheter helps to get rid of pus and prevents adhesions. Other complications should receive appropriate treatment. If the mastoid is involved Jarecky applies an icebag or the Leiter coil for twenty-four hours, with rest in bed, light diet, cathartics, and frequent irrigation of the canal. There must be a free opening in the tympanum. If the symptoms continue, he urges operation. Opiates, leeching or iodin applications over the mastoid are contraindicated, as they prevent proper examination for tenderness.

13. **Epileptic Criminals.**—Evans cites two cases; one that of an epileptic who committed a murder, and the other that of a woman belonging to the borderland epileptic type who, in a fit of jealousy, attempted to kill her lover. Having these and other cases in mind, Evans formulates the following conclusions: 1. The essence of crime is in the intention, and the ability not so to intend. 2. No punishment is adequate to any crime; restraint not only after the crime has been committed, but effort to hinder any such deed is always preferable. 3. The victims of epileptics ought to have legal ground for suit against the community as well as against those in charge of the epileptic. 4. Reservations ought to be established in which degenerates and the morally irresponsible could be colonized and treated, allowing all possible freedom of initiative for useful and safe pursuits therein. 5. Marriage of neurotics should be regulated. 6. All epileptics are to be viewed with suspicion. Many cases of psychic erraticism, cranks and mistaken reformers are to be taken as examples of epileptic psychic equivalents. The major forms of epilepsy may not prove so dangerous to the community as these veiled manifestations.

14. **Higher Education in Women.**—That higher education is not without its value, and that a woman with talent or genius should have it developed to the fullest extent, meets with Van Dyke's approbation, but he severely criticises the effort constantly being made to force a woman with average ability to keep pace with one possessing well-defined talent. Such efforts are predestined to failure and invariably are productive of deplorable and disastrous results. He advises that the studies of schools and colleges be revised to suit the majority, and that no girl should be urged to go beyond her capacity to learn with a moderate amount of application.

New York Medical Journal.

February 25.

15 Resection of Twenty-three Inches of Grangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis. Report of 33 Cases of Intestinal Obstruction Caused by Unoperated On Appendicitis. (To be concluded.) Clarence A. McWilliams, New York.
16 Myocardial Degeneration. Albert E. Roussel, Philadelphia.
17 Cotarnine Hydrochlorid in Uterine Bleeding. H. J. Boldt, New York.
18 *Brief Review of the Treatment of Prepuerperal and Puerperal Hemorrhages. Charles J. C. O. Hastings, Toronto.
19 Intestinal Perforation in Typhoid Fever. Hugh M. Taylor, Richmond, Va.
20 Lumbar Puncture; Its Value on Diagnosis and Treatment. Edgar P. Cook, Mendota, Ill.
21 Electricity in Otology. J. J. Richardson, Washington, D. C.
22 Retrodisplacement of the Uterus. Helen Hughes, Mankato, Minn.

18. **Prepuerperal and Puerperal Hemorrhages.**—In order to cope satisfactorily with these hemorrhages every practitioner says Hastings, must have decided positively beforehand on his line of action in such cases, and then make the best use of every minute. The successful handling of these cases depends largely on the ability of the physician to classify them properly, as no one method of treatment can be suggested that would be suitable for all cases. If the child is viable, or if a severe hemorrhage has occurred, labor should be induced at once. If the child is not viable and the hemorrhage has been slight, the physician is justified in temporizing, providing the patient can be watched carefully. Hastings expresses the opinion that no condition of the patient in placenta previa ever justifies rapid dilatation or rapid emptying of the uterus. If the child is viable, or if a severe hemorrhage has occurred, the patient a primipara and the os rigid, draw down the cervix and pack the cervix and vagina with iodoform gauze. If properly done this will usually stimulate uterine contraction and satisfactorily control the hemorrhage. In a few hours, in the vast majority of cases, the os will be sufficiently dilated to admit of digital dilatation. If the hemorrhages are not severe, pains strong and regular, the head or buttocks engaged, watch and wait. If the hemorrhage increases, rupture the membranes. If this is not effectual bring down a foot, but do it gently, so as to disturb the placenta as little as possible, and to produce the least possible shock to the mother. If the hemorrhage is extensive or severe, with the cervix fairly well dilated, version should be performed, the membranes ruptured and a foot brought down. If the patient is not exsanguinated or suffering from shock, use gentle, intermittent traction not exceeding two pounds. Should, however, either of the conditions mentioned exist, restoratives should be used at once, such as normal saline solution, morphin, strychnin, digitalin, or an

ether or a whisky hypodermic. After delivery the placenta and membranes should be removed at once, and if hemorrhage continues, draw down the uterus, pack the entire uterine cavity, cervix and vagina with sterilized gauze. Hastings says the hydrostatic and pneumatic methods of dilatation are practically limited to hospital practice. The same can be said of cesarean section. Bossi's dilator and every other metal dilator he condemns as being most dangerous. No method of treatment should be adopted that will diminish the mother's chances in the slightest degree. Hastings also condemns the practice of relinquishing old and tried methods for the sake of experimenting with something new. The treatment of postpartum hemorrhage he considers largely preventive. If, however, it does occur, and the placenta is still in the uterine cavity, with extensive hemorrhage and with a poorly contracting uterus, remove the placenta with the gloved hand, allowing the hand to remain in the uterine cavity until expelled by the contractions of the uterus. If the uterus is empty when the hemorrhage occurs, give a hot douche at 120 F., or the same with a 3 per cent. acetic acid, and then pack with sterile gauze, drawing down the uterus, as for vaginal hysterectomy, to do so.

Boston Medical and Surgical Journal.

February 23.

23 Eyestrain as a Factor in Functional Nervous Disabilities. Myles Standish, Boston.
24 Eyestrain as a Factor to Be Considered in Children Backward in Their Studies. Allen Greenwood, Boston.
25 Eyestrain Considered as a Factor in the Production of Lateral Curvature of the Spine. Henry W. Kilburn, Boston.
26 Eyestrain and Reflex Phenomena of Nasal Origin. Henry H. Haskell, Boston.
27 In What Cases Should Eyestrain Be Suspected? Edwin E. Jack, Boston.
28 Difficulties Encountered in the Prescription of Glasses. Fred M. Spalding, Boston.

Medical News, New York.

February 25.

29 *Expectant Treatment of Appendicitis. An Excursion Into the Field Between Surgery and Medicine. A. C. Bernays, St. Louis.
30 Observations on the Morphology and Classification of the Mycobacterium (Bacillus) Tuberculosis. Charles F. Craig, San Francisco.
31 *Clinical Studies in Ureteric Meatoscopy. Walter C. Klotz, New York.
32 Sprains of the Knee and Ankle Joints. J. T. Wilson, Sherman, Texas.
33 *Syphilis of the Lung Simulating Phthisis. William E. Hughes and Robert N. Willson, Philadelphia.

29. **Expectant Treatment of Appendicitis.**—Bernays' views on this subject are exactly contrary to some that have recently been very extensively circulated, and which, he says, are intended to influence the general practitioner in his method of treatment of appendicitis cases which are not deemed suitable for operation. Bernays advises that in all cases of acute appendicitis the administration of food should be very scant, but that cathartics and large enemata of warm water should be given regularly without regard to the treatment contemplated. Of course, he continues, the ideal method of treatment is the operative method carried out in the beginning of the attack, but, if for some cause, this time has been allowed to pass, the expectant treatment will often give better results than the operative. He has never seen escape of intestinal contents caused by the cathartic, either into the abscess cavity or the peritoneal cavity. Rest in bed, with large, moist, warm antiseptic poultices over the abdomen is also recommended. He believes that the regular use of cathartics will materially decrease the mortality of acute appendicitis, no matter by what other methods they are treated afterward.

31. **Ureteric Meatoscopy.**—Valuable information can often be obtained, says Klotz, by cystoscopic inspection of the ureteric orifices. With a view to determining how far these changes could be relied on as a means of diagnosis in diseases of the kidney, Klotz has carefully noted the cystoscopic findings in cases of suspected renal disease. The first group comprises 12 cases of nephrolithiasis. In 4 out of 5 cases of nephrolithiasis it was noted that the ureteric orifice on the diseased side was surrounded by a reddened and edematous mucous membrane, almost obliterating the ureteral opening, which was situated at the summit of the tumor. In 1 case no such change was noted and the calculus was found outside the wall of the ureter. In 2 cases in which changes were noted in the ureteric orifice and in which no stone was found at operation, Klotz suggests that it is possible that the stone was passed either just before cystoscopy or between the time of cystoscopy and operation. In the remaining 6 confirmed cases of renal disease changes were found in the ureteric orifice in 5. In the case in which ureteric meatoscopy was negative, ureteral catheterization was of distinct service. He is of the opinion that although ureteric meatoscopy can not replace ureteral catheterization in all cases, it may frequently furnish additional information and be of great service in those cases where ureteral catheterization can not be carried out. Before ureteric meatoscopy can be placed on an absolutely safe clinical basis it is necessary to decide what constitutes a normal and what an abnormal ureteric orifice, the causes of any pathologic changes and whether the absence of change in the ureteric orifice is of any value in making a negative diagnosis.

33. **Pulmonary Syphilis Simulating Phthisis.**—Hughes and Willson report the case of a man, aged 32, family and personal history negative, who complained of cough and profuse expectoration which persisted after a severe cold. Within four weeks of the onset of his trouble he began to expectorate blood, at first occasional small streaks in the sputum, but gradually increasing in quantity. The patient appeared well nourished and felt well in every way except for his cough. Physical examination was negative except so far as it concerned the chest. The right chest seemed more prominent than normal, especially over the lower portion. The expansion was relatively impaired over this area; percussion resonance was also impaired over the entire right lower lobe, especially posteriorly. Tactile fremitus was slightly increased. Fine crackling râles and a scraping friction sound were heard on deep inspiration just below the upper border of the right lower lobe. Above and to the outside of this area skodiac tympany was easily obtained. The apex was negative and the left lung was normal except for poor expansion. No evidences of a syphilitic infection could be found. The temperature varied between 97 and 100. The pulse averaged 90; the respirations gradually fell from 30 to normal. The urine was normal. There were no night sweats, little loss of weight; the appetite was good. No tubercle bacilli could be detected at any time in the sputum. Aspiration of the affected lung gave a syringeful of dark red blood, floating in which were large flakes of lymph, evidently from the surface of the pleura. Microscopic examination of the fluid was negative. The diagnosis hovered between incipient pulmonary disease, tubercular phthisis and syphilis. Finally the patient was placed on potassium iodid, 1 dram three times a day, and within twenty-four hours the expectoration diminished and there was less blood. After three days the sputum contained no blood and the cough had largely disappeared. Within four days more there was no cough, the sputum was mucopurulent, but in slight quantity, and the patient felt perfectly well. On therapeutic grounds, therefore, a diagnosis of pulmonary syphilis was made.

Lancet-Clinic, Cincinnati.

February 25.

34 Consumption and Its Borderland—Public and Professional Concern. Paul Paquin, Asheville, N. C.
35 *Pathologic Changes Resulting from Prostatic Enlargement. Charles E. Barnett, Fort Wayne, Ind.
36 Case of Bilateral Tic Douloureux Treated by Removal of the Right Gasserian Ganglion and Excision of the Left Inferior Dental Nerve. W. O. Bullock, Lexington, Ky.
37 Climatic Advantages. Charles F. Beeson, Roswell, N. M.

35.—See abstract in THE JOURNAL, Oct. 29, 1904, page 1326.

St. Louis Medical Review.

February 18.

37½ Examinations for Bacillus Tuberculosis. I. S. Wile, New York.
38 Nihilistic Surgeon and the Therapeutic Optimist. W. C. Abbott, Chicago.
38½ The Mutation Theory, Heterogenesis, Spontaneous Generation and the Evolution of Morbid Germs. Jonathan Wright, New York.

Illinois Medical Journal, Springfield.

February.

40 Cardiac and Renal Aspects of Pneumonia. A. R. Elliott, Chicago.
41 *J. B. Murphy's Technic for Abdominal Hysterectomy. J. N. Neff, Chicago.
42 *Simple Method for Gastroenterostomy, Ureteral and Intestinal Anastomosis. H. M. Hepperlin, Beatrice, Neb.

41. **Abdominal Hysterectomy.**—The technic for abdominal hysterectomy used by J. B. Murphy for the past two and a half years is described by Neff. The advantages of the method may be summed up as follows: 1. The tumor and uterus can be removed almost as readily and as rapidly as an ordinary ovarian cyst, the average time required for the entire operation being from fifteen to thirty minutes. Most of the time is consumed in covering the abraded surfaces with peritoneum. 2. The danger of injury to the ureters is reduced to the minimum by rolling, instead of cutting, the uterus out of the surrounding connective tissue, thus following the natural lines of separation. 3. There is practically no danger of secondary hemorrhage as each vessel is ligated separately. The various steps of the operation are described in detail *ad seriatum*.

42. **Gastroenterostomy, Ureteral and Intestinal Anastomosis.**—Hepperlen's method of intestinal anastomosis by means of a gelatin bobbin is given in THE JOURNAL, March 26, 1904, page 854. Since then he has also made use of this device in gastroenterostomies and in ureteral anastomoses. For the former he uses a bobbin that has a small flange molded on one end of it to hold it securely in the bowel. After taking an interrupted suture on either side of the openings in the bowel and stomach, he introduces the gelatin cylinder, ties the parts together with the sutures thus introduced, thereby attaching the bowel to the stomach, and then finishes the anastomosis just as in the case of an enterostomy. For ureteral work he uses a small cylinder of gelatin with an opening through the center, oval at each end. The cut ureter is caught with two stitches, passed through each end on opposite sides. These are used to assist in drawing the ureter over the gelatin cylinder, and then they are tied to hold them in place. The object in having the small opening through the cylinder is to allow the urine to pass through, so that there will be no stoppage in the canal before the gelatin absorbs. The operation is completed in the usual manner used for intestinal and stomach work. Hepperlen claims that by using this method the work can be accomplished in a shorter time, more securely, and with less shock and a lower mortality than by any other method.

Canada Lancet, Toronto.

February.

43 Myocardial Arterial and Valvular Disease. H. A. Hare, Philadelphia.
44 *Sarcomas Successfully Treated with X-rays. J. McMaster, Toronto.
45 Some Points in the Administration of Anesthetics. G. H. Carveth, Toronto.
46 Erysipelas Complicating Labor Successfully Treated by Antistreptococcic Serum. A. R. Hanks, Toronto.

44. **X-Rays in Sarcoma.**—McMaster reports five cases of sarcoma in which treatment with the *x*-ray proved entirely successful. The first patient, a boy of 14 years, had a large sarcoma of the right superior axilla. Fifteen vigorous applications, made in forty-two days, given both on the outside and through the mouth, caused a diminution in the size of the growth with a decided relief from pain. After the surgical removal of the entire bone and tumor half a dozen more treatments were given, and there is no sign of recurrence after three years. From the second patient, a round-celled sarcoma was removed from the region of the parotid gland. *X*-ray treatments were begun soon after the operation and fifty treatments were given. At first they were given three times a week, and after six weeks, twice a week. Over two years have elapsed since the operation was done and there is no sign of metastasis nor of recurrence. The third case was similar to the second. A tumor was removed from in front of the ear and on microscopic examination it was found to be a small-celled sarcoma. A new development resulted at the site of operation within a few months. After a dozen energetic treatments with the *x*-ray there was marked evidence of softening in the growth. Coley's toxins were used in conjunction with the *x*-rays and were pushed to the limit of tolerance. Except for a transient erythema, and the formation of an abscess, the case progressed favorably. McMasters says that the result was all that could be desired, and a cure is being hoped for with increasing confidence. The fourth patient had a large, hard swelling at the angle of the jaw, which extended down the neck to the clavicle and up behind the ear for about two inches. The case was considered inoperable. It was rayed for four months. In its upper part softening and suppuration took place and the growth melted away rapidly. About the third month of treatment the use of Coley's fluid was begun and continued for five weeks without result. The patient continued to improve and there is now, after about ten months, not the slightest evidence of anything ever having been wrong. The fifth patient, a young woman aged 21, had a small sarcoma removed from in front of the ear. It recurred and was again removed, only to return once more, growing more rapidly than before. The case is improving under *x*-ray treatment and McMasters promises a full report later. In none of these cases did autointoxication present any difficulty. In all of them *x*-ray irritation was difficult to produce, and, being produced, the patients reacted promptly. The patients tolerated large doses of radiation for a protracted period of time. McMasters considers the *x*-ray a valuable curative measure in the treatment of sarcoma.

Denver Medical Times.

February.

47 *Tubercular Peritonitis. C. H. Mayo, Rochester, Minn.
48 Hyperchlorhydria—Diet and Gastric Analysis. J. R. Arneill, Denver.
49 Normal Obstetrics. T. M. Burns, Denver.

47. **Tubercular Peritonitis.**—The incidents and pathology of this condition are discussed by Mayo. He has seen 4 cases of tubercular peritonitis in the upper abdomen which recovered after laparotomy with removal of the fluid, and in which the source of infection could not be located in the limited examination then made, although many adhesions were found about the region of the gall bladder, pylorus and duodenum. One was in a man, the other three were in women. The patients were all between 40 and 50 years of age. The failure of all methods in vogue for the treatment of this condition has led him always to search for the original lesion and to remove it, leaving the peritoneal condition to cure itself, and closing the abdomen without drainage. The abdominal conditions always point to the source of the disease by the congestion, increased matting of the miliary deposit or increase of general adhesions. Tuberculosis of the vulva, vagina and cervix is not a common disease, and tuberculosis of the uterus is uncommon during menstrual life, but is found before puberty and after the menopause. Tuberculosis of the tube is common and acts on the mucous membrane as a local lupus. He has found that the increased percentage of cases of tubercular peritonitis occurring in women is from tubal involvement, and even when the tube appears in fair condition; drying the peritoneum and closing the abdomen resulted in a primary cure, yet some patients later appeared with pelvic masses and a second laparotomy with the removal of caseating tuberculous tubes resulted in permanent recovery. If the general condition is such as to render operation extremely hazardous as well as futile, operation must be refused. In males Mayo makes the incision over the appendiceal region, while in women it is so arranged as to explore the pelvis. A tubercular appendix in an early stage, before miliary deposits appear, may at times be diagnosticated at operation by the large size of the glands of the mesenteriolum. Care must be employed not to open the bowel in separating plastic adhesions of the intestine. As a rule, it is best to keep close to the parietal or pelvic peritoneum, separating as few adhesions as possible in exposing the region affected. In some cases the tubal enlargement can be pierced and its entire contents of caseating débris and lupoid material removed, leaving the outer fibrous and peritoneal layers *in*

situ, then applying iodin or iodoform emulsion in glycerin to the diseased area, and closing the abdomen without drainage. The Mayos have made this complete operation on 26 cases of tubal origin with only 1 death. They have performed 59 operations for tubercular peritonitis by the older methods; 42 were cured, 15 improved, and 2 died. There were 58 operations for the removal of tubercular tubes, with 56 recoveries and 2 deaths; and 27 cases of tubercular appendicitis without a death.

American Practitioner and News, Louisville, Ky.

February.

50 Thrombosis Following Laparotomy. J. B. Richardson, Louisville.
51 *Care of the Throat in Pulmonary Tuberculosis. G. A. Robertson, Louisville.
52 Follicular Tonsillitis. S. P. Myer.

51. The Nose and Throat in Phthisis.—Robertson advises the removal of nasal spurs, septal ridges and hypertrophied turbinates; opening up the nostrils to make as much space in the nasal chambers as possible; the removal of adenoids, hypertrophied and diseased tonsils, and every other nasal or pharyngeal condition which may produce a lowered vitality and thus favor the development of tuberculosis. Those who have this disease should have their nasal and aural cavities thoroughly overhauled and cleared up. All atmospheric conditions that are deleterious to respiratory surfaces must be avoided. A constant inhalation of irritating particles is hard on the throat, making the lining membranes lax, congested, and susceptible to infections of all kinds. The larynx should be inspected carefully because in many cases tuberculous involvement can be avoided. Robertson does not advise local applications to the larynx, even in evident ulceration. He depends on cleansing sprays and simple alkaline washes; care of the voice; control of cough and a constant attitude of watchfulness to prevent involvement of these mucous membranes.

Northwestern Lancet, Minneapolis.

February 15.

53 *Indications for the Goiter Operation and Its Technic. G. Schwyzer, Minneapolis.
54 How May the Usefulness of the County Medical Society Be Extended? T. R. Watson, Zumbrota, Minn.

53. Indications for Goiter Operations.—Should we operate for an enlarged thyroid for cosmetic purposes, is the question which Schwyzer attempts to answer. While an operation will generally be conceded as proper in very unsightly, though otherwise harmless goiters, it remains entirely with the individual ability and cleanliness of the operator how far he will feel justified through his results to advise operation for lighter forms. The diffuse, soft hypertrophy of the thyroid met with in adolescent people, is a condition which is usually best not operated on, as treatment with iodin or thyroid extract gives good results. Schwyzer favors local anesthesia because there is less danger from asphyxiation. The patient must so lie on the operating table that the neck is easily accessible. A horizontal incision gives perfect cosmetic results. After the goiter is well laid bare, and one or both inner borders of the sternocleidomastoid muscles are freed from their fascia, it ought to be the operator's aim to dislocate the goiter on the surface of the neck as early as possible. The next step is the ligation of the inferior thyroid, which is best done at some distance from the trachea in order to avoid interference with the recurrent laryngeal nerve; the communicating arteries about the isthmus can be clamped and tied, together with the isthmus. Schwyzer says that it is wise to leave a portion of the posterior goiter capsule over the lateral portion of the trachea in order to keep the recurrent laryngeal nerve sheltered. In 23 cases, anesthesia was obtained with a 0.5 per cent. cocain solution; and in 14 cases, the operation was done under general anesthesia, ether being the anesthetic used. One death occurred in an exophthalmic goiter of extreme degree six hours after the operation under rapid increase of the symptoms of thyroid intoxication. The remaining 36 cases healed promptly without any wound infection. One case, operated on under general anesthesia, for reappearing goiter, left the hospital with a partial paralysis of the corresponding vocal cords. Another patient, operated on under cocain anesthesia, remained somewhat hoarse for a few weeks following the operation.

Archives of Pediatrics, New York.

February.

55 Clinical Features of Cerebrospinal Meningitis. F. Huber, New York.
56 *Epidemic of Vulvovaginitis Among Children. A. C. Cotton, Chicago.
57 *Diphtheria in Early Life. A. Seibert, New York.
58 *Heat Values and Food Values. H. P. Armsby, Philadelphia.
59 *Alkalies in Infant Feeding. T. S. Southworth, New York.

56. Vulvovaginitis Among Children.—The epidemic discussed by Cotton extended from August, 1902, to September, 1903. During this period 319 children were admitted to the hospital, exclusive of the maternity and scarlet fever annexes, the average age being 7 years and 2 months. There were 151 girls and 168 boys. The cases known to be infected numbered 19, only 1 of these being a male. The extremes of ages were six months and 16 years; between these there were 1 of eight months, 2 of 2 years, 7 of 3 years, 2 of 4 years, 3 of 6 years, 1 of 9½ years, and 1 of 10 years. The first discharge was from the urethra of a 2-year-old boy, under treatment for rectal fistula, 17 days after his first operation, during which interim he had been taken daily to the dressing room or clinic. Gonococci were next found in the vulvovaginal discharge of a typhoid patient, 2 days after admission and five days after the reported cure of the first case. These 2 patients appear to have furnished the infection for the entire epidemic. Six girls developed vulvovaginitis inside of 21 days; 3 were typhoids, and 3 were surgical cases; all were diapered and all had temperatures taken daily per rectum, with the ward thermometers. No new cases appeared for 54 days when a vaginal discharge was observed in an eight-months-old surgical case. Most of the patients were infected from the first two cases that occurred. The discharge yielded only to the more heroic forms of treatment, such as douching with strong antiseptic solutions, 10 per cent. protargol, every four to six hours, preceded by 1 to 2,000 permanganate of potassium solution, and some obstinate cases required additional packing of the vagina with gauze saturated with 2 per cent. solution of protargol. Of the 18 patients who showed the infection in the hospital, 10 were discharged cured, 2 died of intercurrent disorders and 6 were removed while still under treatment. Cotton urges that every hospital for children must be protected against infection from without by well-arranged detention wards, in which the newly-admitted patient may be subjected to the closest scrutiny for a period of at least fourteen days to determine his freedom from an acute infection. A complete hospital should also have properly located isolation wards to which patients may be removed on the first appearance of suspicious symptoms of an acute infection. A patient in the children's hospital showing gonorrhea should be promptly isolated and placed in charge of a special nurse. The interne or nurse, while treating a gonorrheal patient should be relieved from other duties in the children's wards. The same care by nurse and physician in sterilization is as necessary as would be observed in going from a child with any acute infection to a non-infected child. The efficiency of any isolation may be questioned which does not individualize strictly, not only in regard to the treatment, care and manipulation of the patient, but in the use of clothing, bed linen, feeding utensils, thermometers, douche pans, etc.

57. **Diphtheria in Early Life.**—Seibert reports cases of diphtheria occurring in very young children, the youngest being seven weeks old, and the oldest twenty-three months. He cautions against errors of diagnosis based on the negative report as to the presence of the Klebs-Loeffler bacillus in doubtful cases and urges the early administration of the serum whenever diphtheria is suspected.

58. **Heat Values and Food Values.**—According to Armsby the food value of a nutrient as a source of energy to the organism is not measured by the total energy which it can liberate as heat in the body, but by the part of this energy which is available to the organism for physiologic uses. The remainder of the

fuel value simply serves to increase the generation of heat in the body, a result which may be advantageous or the reverse, according to the surrounding conditions.

59. **Alkalies in Infant Feeding.**—The actions of alkalies and their indications in infant feeding are discussed by Southworth. A considerable amount of the alkali may prevent all stomach digestion, forcing the task of digestion on the intestine, which, while often useful for limited periods, must necessarily interfere with the development of the gastric functions so necessary for the normal stomach if it is to become fitted to digest the solid diet of the adult. By adding a moderate amount of alkali, the task laid on the stomach may be limited to one it is able to perform. The choice between these two measures, or the possible rejection of both, depends entirely on the type of case in hand. Milk diluted with plain water containing no alkali is promptly clotted in the stomach by the rennet ferment, and the clot is transformed into tougher masses when acid is secreted. Lime water added to milk checks the immediate action of rennet on the whole mass and makes the clotting more gradual, altering the form of the curd and allowing, possibly, of the passage of some unaltered milk into the intestine, but leaves no large amount of alkali behind to inhibit the stomach digestion. With bicarbonate of soda added to milk, the action of rennet, hydrochloric acid, and pepsin are all prevented by the greater amount of antacid present until this is finally neutralized. In the meantime, portions of the milk are not liable to get beyond the fluid state and continue to escape into the intestine. This reduces materially the burden of digestion laid on the stomach or, if the alkalinity persists a sufficient time, relieves it entirely, the labor falling on the intestine. In the young infant the stomach is just beginning its functions, and the earliest secretion which acts on the milk is rennet. Hence, it is not difficult to understand the clinical effects of adding 10 per cent. lime water or 2 grains of bicarbonate of soda to the ounce, to the food of very young infants. The food is weak in that the proportion of milk is small. The milk is decidedly alkaline so that the rennet ferment will not act and the effect is to promote rapid emptying of the stomach, for whereas curded milk tends to be retained by the stomach, fluid milk tends to pass into the intestine. This assists in tiding the infant over a period of undeveloped and difficult gastric digestion, and as later the alkali is reduced, directly from 10 per cent. to 5 per cent. or from 2 grains to 1 grain to the ounce, and also as the amount of alkali relative to the milk is indirectly increased by augmenting the amount of milk in the mixture, the effect of the alkali is gradually lessened. The effect of adding alkalies to the food seems, then, to be that of influencing the place and type of the digestion of the food, and the problems which must be worked out in the near future will be to determine the proper kinds of alkali and the quantity of such alkali to be added if we desire to produce certain specific results; and also to determine more accurately the indications for their use or non-use in different types of cases.

American Journal of Orthopedic Surgery, Philadelphia.

January.

60 Some Remarks on the Treatment and After-treatment of Congenital Dislocations of the Hip. Adolf Lorenz, Vienna.
61 Ultimate Results of My Bloodless Reposition of Congenital Dislocation of the Hip. A. Hoffa, Berlin.
62 *Argument Concerning the Method of Treatment of Congenital Dislocation of the Hip. H. M. Sherman, San Francisco.
63 A Case of Double Congenital Supracotyloid Dislocation of the Hips with Cross-legged Progression. H. L. Taylor, New York City.
64 Disadvantages of the Frog Position in Reduced Congenitally Dislocated Femur. E. H. Bradford, Boston.
65 Prof. Lorenz's Operation for the Reduction of Congenital Displacement of the Hips. E. N. Smith, London.
66 A New Method of Recording Rotation in Scoliosis. R. T. Taylor, Baltimore.
67 A Simple and Rapid Method of Recording the Lateral Deviation of the Spinous Processes in Scoliosis. A. H. Freiberg, Cincinnati.
68 Study of the Treatment of Scoliosis Based on Anatomic, Pathologic and Mechanical Findings. R. T. Taylor, Baltimore.
69 Treatment of Club-foot. Are the More Extensive Cutting Operations Necessary? B. E. McKenzie, Toronto.

62.—This article appeared in THE JOURNAL, Jan. 7, 1905, p. 31.

Quarterly Journal of Inebriety, Hartford, Conn.

January.

70 Scientific Aspects of Moderate Drinking. Francis G. Benedict.
71 Alcohol as a Factor in Rendering Mothers Incapable of Nursing Their Children. C. W. Stewart, Battle Creek, Mich.
72 The Medical Profession and the Use and Abuse of Alcohol. T. N. Kelynack.
73 Dipsomania and Inebriety. William Lee Howard, Baltimore.

Interstate Medical Journal, St. Louis.

February.

74 Introduction to the Semeiology of Diseases of the Nervous System—Symptoms Which Cannot Be Induced by the Will and Their Medicolegal Importance—a Lecture Delivered at l'Hôpital de La Pitie. J. Babinski, Paris.
75 Case of Sepsis Post-Abortum. Ernest Jonas, St. Louis.
76 Esophageal Stricture. John C. Morfit, St. Louis.
77 The Silver Fork Deformity. Nathaniel Allison, St. Louis.

Pacific Medical Journal, San Francisco.

February.

78 Notes on Typhoid Fever. R. J. Smith, Smithfield, Utah.
79 The Egg. Winslow Anderson, San Francisco.

Virginia Medical Semi-Monthly, Richmond.

January 27.

80 *Effect of Suspensio-uteri on Pregnancy and Labor. Jos. Taber Johnson, Washington, D. C.
81 Adenoids: The Harm They Do and What to Do with Them. F. M. Hanger, Staunton, Va.

February 10.

82 Diseases of the Eye, Ear, Throat and Nose. John Dunn, Richmond.
83 Plea for the Clinical Study of Psychiatry. Edward N. Brush, Towson, Md.
84 Medical Supervision of Matrimony. A. B. Greiner, Rural Retreat, Va.
85 Some Advances in Modern Medicine and the Benefits of Organized Effort. J. S. DeJarnette, Staunton, Va.

80.—See abstract in THE JOURNAL of January 7, p. 60 (Johnson).

Ophthalmic Record, Chicago.

February.

86 Case of Bilateral Hysterical Amaurosis. Adolph O. Pfingst, Louisville.
87 Papilloma of the Lachrymal Caruncle. C. A. Veasey, Philadelphia.
88 Penetrating Shot Injuries of the Eyeball. L. D. Brose.
89 Leucosarcoma of the Choroid with Secondary Involvement of the Ciliary Body. C. A. Veasey, Philadelphia.
90 Ophthalmia Nodosa. H. V. Würdemann, Milwaukee.

Bulletin of the American Academy of Medicine, Easton, Pa.

February.

91 Is the Present Method of Educating Girls Consistent with Their Physiologic Development, and Is It for the Welfare of the Race? A. L. Smith.
92 "Is Equal Treatment of the Sexes Best, or Do Girls Require the Same Treatment as Boys?" S. H. Weeks, Portland, Me.
93 The Gynecologic Aspect of Mental Overstrain at Puberty, and Its Influence on Development. Wm. E. Darnall, Atlantic City, N. J.
94 Effect of Modern School Methods on the Health of the Teacher. J. L. Greeley, Jamestown, N. Y.

Iowa Medical Journal, Des Moines.

February 15.

95 Surgical Treatment of Stomach Trouble and Biliousness. J. E. Summers, Jr., Omaha.
96 Acute Suppurative Osteomyelitis. C. B. Powell, Albia.
97 Concussion of the Brain. E. O. Plumbe, Rock Valley.
98 Minor Surgery. T. A. Hobson, Parkersburg.
99 Home Treatment of the Injured. J. V. Brann, Knoxville.

Fort Wayne Medical Journal-Magazine.

February.

100 Treatment of Foreign Bodies in the Eye. W. H. Snyder, Toledo.
101 Heredity. A. P. Buchman, Fort Wayne.
102 Cholelithiasis. E. J. McOscar, Fort Wayne.
103 Accidental Surgical Cases. A. W. Chase, Adrian, Mich.

Colorado Medicine, Denver.

February.

104 Intra-pleural Complications in Pulmonary Tuberculosis. S. G. Bonney, Denver.
105 Pleurisy with Effusion and Empyema. Importance of Early Diagnosis and Treatment, from Standpoint of Internist. James Rae Arneill, Denver.
106 Case of Pernicious Anemia. O. M. Gilbert, Boulder.
107 Clinical Experience with Dunbar's Pollantin in Hay Fever. W. W. Bulette, Pueblo.

Medical Sentinel, Portland, Ore.

February.

108 Abortions. C. S. White, Gervais, Ore.
109 Methods Observed in the Chicago and New York Hospitals. C. W. Shaff, Lewiston, Idaho.
110 Experiences with the X-ray. D. Campbell, Butte, Mont.
111 Milk as a Diet for Children. Grant S. Hicks, Tacoma.

Bulletin of the Johns Hopkins Hospital, Baltimore, Md.,

February.

112 Teaching of Anatomy Illustrated by Professor Barker's Manual. F. P. Mall.
113 Anatomical Laboratory of the University of California. J. M. Flint.
114 Anatomical Material—Its Collection and Its Preservation at the Johns Hopkins Anatomical Laboratory. F. P. Mall.
115 Development of Grave Robbing in England. G. C. Robinson.
116 Flechsig's Investigation on the Brain. F. R. Sabin.
117 Developmental Relations of the Kidneys and Ureter in Human Embryos. A. G. Pohlman.
118 Abnormalities in the Form of the Kidney and Ureter Dependent on the Development of the Renal Bud. A. G. Pohlman.
119 First Appearance of the Renal Artery and the Relative Development of the Kidneys and Wolffian Bodies in Pig Embryos. E. C. Hill.
120 High Bifurcation of the Brachial Artery with Reunion at the Elbow. M. Herrinton.
121 Fixation of Tissues by Injection Into the Arteries. B. D. Myers.
122 Convenient Still to Make Absolute Alcohol. W. J. Calvert.

Journal of the Medical Society of New Jersey, Newark.

January.

124 Review of Recent Progress in Surgery. F. D. Gray, Jersey City, N. J.
125 Vibratory Massage in General Practice. Wm. G. Schauffler, Lakewood, N. J.
126 Gastric Ulcer. A. Marcy, Jr.
127 Management of Hospitals. W. J. Chandler, S. Orange, N. J.
128 Lithotomy. J. W. S. Gouley, New York City.
129 Physiologic Therapeutics in the Treatment of Locomotor Ataxia. W. H. Walling, Atlantic City, N. J.

Kentucky Medical Journal, Louisville.

January.

130 Enzymes of the Blood. D. J. Healy, Lexington, Ky.
131 Some Small Things in Surgery. Infections of Hand, Machine Injuries, Sutures, Granulating Wounds, Leg Ulcers, Circumcision. H. J. Whitacre, Cincinnati.
133 Pott's Fracture. A. P. Dowden, Eminence, Ky.
134 Ectopic Gestation—Diagnosis and Cases. M. A. Tate, Cincinnati.
135 Radical Cure of Inguinal Hernia. A. Schachner, Louisville.
136 Diagnosis of a Few Orthopedic Conditions Where an Early Diagnosis Is Necessary for Successful Treatment. B. F. Van Meter, Lexington, Ky.
137 Ulcerative Endocarditis. J. G. Cecil, Louisville, Ky.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 11.

1 *Removal of the Contents of the Anterior Triangle of the Neck in Cases of Malignant Disease of the Tongue. Henry T. Butlin.
2 The Thalamus. Gustav Mann, Oxford.
3 *Pathology and Treatment of Leprosy. E. R. Rost, Rangoon.
4 Second Case of Cutaneous Anthrax Successfully Treated by Sclavo's Serum Without Excision. Anthony Bowlby and F. W. Andrewes.
5 Medical Worthies of Cumberland. Henry Barnes.
6 Ergophobia. W. D. Spanton.

1. **Removal of Contents of Anterior Triangle.**—In cases of cancer of the tongue, Butlin advises the removal of the entire contents of the anterior triangle of the neck, for the same reason that the contents of the axilla are removed in a case of cancer of the breast. For several years he has performed an operation, the technic of which is as follows: A long incision is made from the mastoid process, or just below it, to the sternoclavicular joint, along the anterior border of the sternomastoid muscle. Another incision is carried from the symphysis menti across the neck to meet the first incision at about the upper border of the thyroid cartilage. These incisions divide the skin into two large triangular flaps, which should be of skin alone or of very little more than skin. The sternocleidomastoid muscle is retracted and its anterior border is cleaned so that the muscle is bare. The dissection is carried down in front of this muscle until the great vessels are exposed. The tissues between the sternomastoid and the muscles attached to the larynx are raised from below upward off the great vessels, which are left quite bare at the bottom of the wound. The muscles are cleaned of fascia and fat. The dissection is carried up along the line of the vessels, and deep down around them, in front and behind, particularly between the parotid gland and the vessels. The digastric triangle and the submental region are cleaned out thoroughly. A very clean dissection can be made in about one hour and twenty minutes. The operation is not a difficult one. Butlin advises taking up, clamping, and tying every vessel before it is divided, so as to avoid hemorrhage. After the dissection is over, the remaining vessels are tied, the wound is cleansed of blood, a long strip of gauze is thrust up beneath the jaw in the submaxillary triangle, and another is placed between the parotid gland and the vessels, and the ends of both these pieces are carried out at the lowest part of the wound. In addition, a drainage tube is inserted by the side of the gauze. On the following day, the gauze is removed, the tube being left in place. The wound is almost always healed within three weeks, and often it is well in nine or ten days. In this operation, the removal of the contents of the anterior triangle means the lymphatic glands, the submaxillary salivary glands, fat, connective tissue, a portion of the omohyoid muscle, the platysma, quantities of veins, sometimes a great piece of the internal jugular vein, if the glands are adherent to it, and sometimes a portion of the external carotid artery. Butlin states emphatically that this operation ought to be done in every case of cancer of the tongue where the disease is limited to one side of the tongue, unless there is some strong contraindication. The operation on the tongue should be performed first, and that on the neck at a subsequent time, usually at the end of a month. His results have been very satisfactory, much more so than in cases not so operated on.

3.—See THE JOURNAL, July 23, 1904, p. 286, and January 28, 1905, p. 330.

The Lancet, London.

February 11.

7 Case of Gangrenous Appendicitis, with Subphrenic Abscess. Charters J. Symonds, London.
8 *Duodenal Ulcer; with Notes of 52 Operations (51 cases). B. G. A. Moynihan.
9 *Septic Origin of Gastric and Duodenal Ulcers. W. Bruce Clarke.
10 *Rôle of an Excessive Meat Diet in the Induction of Gout. D. Chalmers Watson, Edinburgh.
11 *Carbonic Acid as a Factor in the Genesis of the Gouty State. Donald F. Shearer.
12 Rational Treatment of Fractures. J. Stafford Mellish.
13 *Pyloroplasty. Remarks on 17 Cases, with After-history for Periods Varying from Ten Years to Five Years and Three Months After Treatment. Rutherford Morison, Newcastle-on-Tyne.
14 General Gonococcal Infection. W. H. Wynn, Birmingham.
15 Hat Pin 4¾ Inches Long in Esophagus Producing a False Aneurism of the Superior Mesenteric Artery. H. D. Rolleston and T. R. C. Whipham.
16 Mandibular Processes Associated with Double Hare-lip and Cleft Palate. Walter L. Woollcombe.

8. **Duodenal Ulcer.**—From January, 1900, to September, 1904, Moynihan operated on 51 patients. There were 7 cases of perforating duodenal ulcer, with 5 recoveries; 22 operations for duodenal ulcer associated with gastric ulcer, with 1 death, and 23 operations for duodenal ulcer alone, with 1 death. All the ulcers which perforated were in the first portion of the duodenum; of the chronic ulcers, 43 were in the first portion, and 1 was in the second portion. The ulcers may be multiple, though they are usually solitary. The association of gastric and duodenal ulcers is met with more frequently than is commonly supposed. In Moynihan's series of 44 cases, there were 22 in which a gastric ulcer or ulcers were also present. Duodenal ulcer may occur at any age. The ages of Moynihan's patients in whom perforation occurred were 44, 25, 17, 17, 25, 22 and 40 years. In the remaining cases, the ages ranged from 19 to 61. Of the 51 cases, 32 were males and 19 females. The symptoms of duodenal ulcer are pain, hematemesis and melena, although some ulcers remain latent for long periods and their presence is only revealed by perforation or the occurrence of hemorrhage. The complications are: Hemorrhage; perforation, acute, subacute, and chronic; cicatricial contraction and induration, causing stenosis of the duodenum; cicatricial contraction, causing narrowing at the ampulla of Vater and obstruction to the outflow of bile and of the pancreatic juice; periduodenitis; cancer, compression of the portal vein from cicatrization of a deep ulcer; diseases of the gall bladder or bile ducts and diseases of the pancreas. Moynihan had 7 cases of perforation, 4 males and 3 females, with 2 deaths and 5 recoveries. There were 22 cases of duodenal ulcer, 14 in males and 8 in females, with 1

death. Gastric and duodenal ulcers were associated in 22 patients, 8 of whom were females and 13 males, with 1 death. The histories of all these cases are given in detail.

9. **Septic Origin of Gastric and Duodenal Ulcer.**—An instance supporting the view that oral sepsis is responsible for many gastric ulcers, is cited by Clarke. Six years after partaking freely, and for some time, of mouldy, maggoty bread and putrid water during a shipwreck, the patient had a retrocolic gastro-jejunostomy performed on himself for the relief of a gastric ulcer, for which he had been treated at intervals since the time of the shipwreck.

10. **Excessive Meat Diet and Gout.**—Experiments have been carried out by Watson to determine the influence of an excessive meat diet in the induction of gout. An exclusive raw meat and water diet was fed to poultry and rats, and the results obtained showed that such a diet profoundly influences the thyroid gland. In the poultry, the diet induced a striking hypertrophy of the gland, with great increase of colloid material. In the case of the rats, a striking change was the alteration in the character of the secretion, with catarrh of the epithelial lining of the vesicles, the general appearance of the gland indicating exhaustion of its functions. Watson believes it possible that as a result of the excessive use of meat there is established in many subjects an alteration in the character of the thyroid secretion, which defect is remedied in the cases in question by the administration of thyroid gland. He has studied the effect of the administration of small doses of thyroid extract, aided by skilled balneologic methods. in two inveterate cases of chronic gout which had not been amenable to dietetic measures. In both cases, the symptoms were relieved to a striking degree, the relief, so far, having been of a fairly permanent nature.

11. **Carbonic Acid and Gout.**—Shearer is of the opinion that the unnatural excess of carbonic acid in arterial blood is the most potent factor in bringing about those changes which go to make up the gouty state.

13. **Pyloroplasty.**—A word is said in favor of pyloroplasty for stricture of the pylorus by Morison. He says the cases suitable for this operation are those with a history of long-standing stomach trouble, foul, abundant vomiting toward night, thin patients with dilated stomachs and with a palpable, movable nodule in the pylorus. The subsequent histories of the first 20 consecutive cases on which Morison performed a pyloroplasty are as follows: One patient died eighteen months after the operation from cancer of the pylorus (a malignant stricture having been mistaken for a simple one); another patient died from phthisis pulmonalis two years and four months after operation. In this case there was no recurrence of stomach symptoms. In 3 cases, the symptoms recurred, necessitating a further operation. In 2 of these, recurrence was due to stricture, and in the third it is presumed that a neurosis was at the bottom of the trouble. In 8 cases the result was perfect. In 6, symptoms, more or less troublesome, were complained of. On critical examination of these 6 cases, in one no definite organic obstruction was found at the pylorus; another patient vomits occasionally; a third has slight symptoms; the fourth complains of slight bilious attacks; the miserable condition of the fifth patient has been converted into one of comparative comfort, and the sixth patient complains of slight symptoms, but, unlike the other five cases, has not gained in weight.

Annales des Mal. Génito-urinaires, Paris.

Last indexed page 506.

17 (XXII, Nos. 14-16.) *Recherches sur les muscles du perinée et du diaphragme pelvien, sur les glandes dites de Cowper et sur le developpement de ces organes. A. Hogge (Liege).
18 Quelques cas de kystes spermatiques de l'epididyme (intravaginaux). L. Pinatelle and E. Duroux (Lyons).
19 *Bistournage (torsion) spontané, tuberculose interstitielle de l'epididyme, tuberculose du prépuce. Etude histologique. E. Dalous and E. Constantin (Toulouse).
20 (No. 17.) *Traitement des calculs de la vessie chez l'homme (stones in male bladder). J. Petit.
21 Adénomes kystiques de l'appareil urinaire. B. Motz and A. Cariani.
22 *Hematuries consécutives au cathétérisme brusque dans la rétention complète aigue. A. Grelinski.
23 Traitement des prostatiques en rétention d' urine incomplete avec distension. Nicolich. See abstract 102, page 588.
24 (No. 18.) *Rôle des vaisseaux anormaux dans la pathogénie de l'hydronéphrose (rôle of abnormal vessels). F. Legueu.
25 Description d' un cystotomo-écarteur (cystotome and retractor combined). B. Guizy (Athens).
26 (No. 19.) *De la pyélonéphrite dans ses rapports avec la puerpéralité. F. Legueu.
27 *La fécondité de la femme dans 63 pays (birth rate in 63 countries). S. Gache (Buenos Ayres).
28 (No. 20.) Rupture de varicocèle. Hydro-hématocèle concomitante. M. Patel (Lyons).
29 Cas de rein en fer de cheval (horse-shoe kidney). Bruncher.
30 La perversion sexuelle et le livre de Tarnowsky. E. Boix.
31 (No. 21.) Streptothricose des voies urinaires. Recherches expérimentales. C. Bruni (Naples).
32 Cas de prostatisme sans prostate (without enlarged prostate). Moran (Brest).
33 Table pour examens médico-chirurgicaux, voies urinaires et gynécologie. Estrabaut.

17. **Muscles of the Perineum, Etc.**—Hogge's comprehensive monograph on the anatomy, physiology and development of the muscles of the perineum, the pelvic diaphragm and Cowper's glands is profusely illustrated. His studies of sections of these parts in the fetus throw light on some of the anatomic findings.

19. **Torsion of the Spermatic Cord.**—This article states that the condition was diagnosed correctly in only 3 of the 57 cases of spontaneous torsion of the spermatic cord on record. In one case reported, the existence of chronic urethritis and of a tuberculous nodule on the prepuce masked the symptoms of the torsion. It should have been suggested, however, by the sudden onset of pain and swelling of the testicle and epididymis after violent physical effort, with vomiting, and by the subsidence and reappearance of these symptoms on several occasions. The patient was a man of 31, syphilitic, with a history of acute articular rheumatism. A complete histologic study of the excised parts concludes the article. The local tuberculous process probably had favored the torsion.

20. **Treatment of Stones in Male Bladder.**—Petit gives the details of 10 cases in which he has operated for stone in the bladder during the last 2 years. He emphasizes the importance of properly preparing the bladder for lithotrity, and of proper care afterward. He also proclaims anew the superior advantages of lithotrity. When there was merely slight irritation from the presence of stones alone, a permanent catheter was introduced the day before the operation, and the small stones were crushed and removed after lavage with a solution of antipyrin. Petit refuses now to operate in any case unless the patient can be under his direct supervision afterward. When there is considerable cystitis he reduces the inflammation with instillations of a 1-2 per cent. solution of silver nitrate, suspending it for two or three days before operating. The permanent catheter is introduced the eve of the operation, and the bladder is rinsed with antipyrin with or without laudanum. One of his patients had incontinence of urine for two days afterward. The patients in the severer cases were debilitated, elderly men, one of them a diabetic. All were permanently cured after lithotrity preceded by two weeks of treatment of the cystitis. There was suspicion of enlargement of the prostate in one instance, but all symptoms vanished after lithotrity.

22. **Hematuria Following Catheterization.**—Three cases were observed at the Necker Hospital at Paris, each of which was followed by an autopsy. The findings showed that the hematuria was due in every instance to some old, chronic lesion. No evidence could be found to sustain the assumption of hematuria from merely simple congestion of the bladder walls.

24. **Abnormal Vessels as Causal Factor in Hydronephrosis.**—Among the facts cited by Legueu is the convincing one that hydronephrosis is frequently cured by removal of some abnormal vessel. Two cases are reported illustrating the influence on the ureter of malformation of the vessels of the kidney. In one an abnormal artery passed from the aorta to the lower pole of the kidney and compressed the ureter. In the other case a supernumerary arteriole and vein passed to the lower pole of the kidney from the aorta and vena cava. In Picqué's

case an abnormal artery passed from the renal artery to the lower pole of the kidney. The supernumerary artery was resected and the kidney fastened in place. Hartmann has reported a similar case. In one of Legueu's cases the ureter had been so dented by the supernumerary artery that he did not dare to trust to its recuperative powers and he removed the kidney.

26. **Pyelonephritis in Relation to Childbirth.**—Legueu advocates mere medical treatment for the mild cases. Dilatation of the bladder will sometimes have a remarkably beneficial action even when there is infection with retention and alarming exacerbations of fever. In severe, bilateral cases interruption of the pregnancy averts complications, such as albuminuria and congestion of the lungs, and, by removing the compression on the ureters, puts an end to the infectious accidents. The pregnancy is already compromised by the persisting infection. In the unilateral cases nephrostomy is the proper treatment, not interfering with the pregnancy, unless close to term, when premature delivery is preferable.

27. **Birth Rate in 63 Countries.**—Gache tabulates various statistics in regard to the stature of men and women, age of women at puberty and at the menopause, number of children and of twins. The figures show that the birth rate in the South American countries is remarkably high. In Argentina it is 40 per 1,000 inhabitants; in Uruguay, 35; in Costa Rica, 39. Fully 86 per cent. of the married women in Argentina have children by the second year after marriage, and the families average 4.15 children.

Revue de Chirurgie, Paris.

Last indexed page 330.

34 (XXV, No. 1.) *Rhumatisme tuberculeux ankylosant, arthrites plastiques, ankylosis osseuses d'origine tuberculeuse. A. Poncet and R. Leriche.
35 Note sur les anomalies des doigts et en particulier du petit doigt valgus (little finger). C. Féré and J. Perrin.
36 *Traitement du cancer par les rayons Roentgen. Djemil Pasha (Constantinople).
37 Physiologie pathologique de l'hématome pleural. C. de Gery and G. Froin.
38 *Etude critique sur l'opération de Trendelenburg. C. Viannay.

34. **Ankylosis and Plastic Arthritis of Tubercular Origin.**—Authors do not admit ankylosis as a consequence of true acute rheumatism, and yet ankylosing arthritis—for which rheumatism is supposed to be responsible—is currently encountered by surgeons. Nothing suggests tuberculosis, but study of antecedents, the course of the affection and the later history of the case, and especially sero-diagnostic and tuberculin tests will frequently prove the process to have been of a tuberculous nature. Bérard in 1900 reported a case of complete ankylosis of the elbow which was evidently a tuberculous process, and in 1903 Poncet had occasion to observe a case of rhizomelic spondylitis which proved to be a variety of "ankylosing tuberculous rheumatism," as he called it. Froelich at Berlin and Barbier and Français at Paris have since reported cases of tuberculous rheumatism, and Poncet in this article is able to present several personally observed or unpublished cases which bring the list up to 14. The affection is an arthritis, apparently of rheumatic origin, with a tendency to plastic development and ankylosis, and tuberculous in character. It is impossible to confound the affection with an ordinary bacillary arthritis nor with ordinary chronic rheumatism. The subjects are all tuberculous, although the affection may be the first and the sole manifestation of the disease for a long time. The age is an important factor, the subjects generally being under 16, the majority between 7 and 12. The variety affecting the spine occurs principally in elderly subjects. The extremes of life are thus most subject to this tuberculous rheumatism. It is distinguished from true acute articular rheumatism by its mode of onset, by the predominance of the local over the general symptoms, by the lesser frequency, to say the least, of complications on the part of the heart, by the inefficacy of salicylic medication, and by its clinging to the joint affected. It can be differentiated from infectious pseudo-rheumatism by excluding gonorrhea, diphtheria and syphilis, and by a history of tuberculosis in the environment. The lungs should be examined and every sign of latent tuberculosis should be sought for, including Mérieux' "indirect tuberculin test." (For description of this interesting test see foreign news columns, THE JOURNAL, March 4, page 726.) The general treatment for tuberculosis should be instituted early, with passive movements to prevent ankylosis, and revulsion, blisters, etc., to reduce the local congestion. Radioscopy will decide whether the ankylosis once established is bony or fibrous, and the possibility of recurrence should not be forgotten in operating. Mobilization under anesthesia and resection to a greater or less extent are indicated. During the acute stage the salicylates and antipyrin will have no effect except possibly to enfeeble the patient.

36. **Radiotherapy of Cancer.**—Djemil Pasha writes from Constantinople to report 7 cases of cancer treated with the *x*-rays, with eminently favorable results; 3 patients were cured, 3 improved, and 1 was not benefited. The latter was a case of sarcoma of the breast and it seemed to be aggravated by the treatment. Eleven other patients were treated, but failed to complete the course and are not included in the report. He urges radiotherapy as a valuable palliative in cases of advanced, deep-seated cancers, its influence on the cachexia being apparently very favorable.

38. **Attempts to Obliterate the Internal Saphena.**—Viannay traces the history of surgical intervention on the trunk of the internal saphena for the purpose of establishing a definite barrier to the superficial venous circulation. This method of treatment dates from the eighteenth century, but Trendelenburg was the first to determine the pathologic physiology of the circulation in the varicose saphena and to apply ligation systematically in treatment. He showed that the valves in the dilated vein are necessarily incompetent, as they are unable to close the lumen of the distended vessel. Every one accepts his facts, but each operator has a special technic for treating the trouble. Experiments on the cadaver, and extensive clinical experience have convinced Viannay that excision of a portion of the saphena near its entrance into the femoral vein offers a better guarantee against re-establishment of the superficial circulation than operations lower down. Excision in the region of the condyle is inevitably ineffectual. Multiple resections and total extirpation of the vein are scarcely more effectual than high resection alone. When the vein is isolated and ligated the surrounding cellular tissue should be minutely examined with the grooved sound to discover every affluent and collateral or double vein. In case of a double saphena, the two trunks approach each other as they near the femoral vein, and the second one is more readily detected at this point.

Revue de Médecine, Paris.

Last indexed XLII, page 563.

39 (XXIV, No. 1.) Sur l'absence d' hyperglycémie dans la glycosurie uranique. R. Lépine.
40 The Fear of "Catching Cold" Prepares the Soil for Tuberculosis.—De ce qu 'ou appelle "refroidissement" en rapport à la tuberculose. A. Chelmonski (Warsaw).
41 Association de fièvre scarlatine et de fièvre typhoïde. V. Le Goic. Two cases.
42 *Les accidents syphilitiques pendant le tabes. Dalous.
43 (No. 2.) *La contagiosité de l'ictère. S. Costa.
44 *Des troubles médullaires de l'artério-sclérose. La parésie spasmodique des athéromateux. A. Pic and S. Bonnamour. (Commenced in No. 1.)
45 *Classification of Facial Neuralgias by Response to Cocain.—Essai de classification de quelques névralgies faciales par les injections de cocaine loco dolenti. H. Verger (Bordeaux). (Commenced in No. 1.)
46 (No. 3.) Cas de diabète levulosurique. R. Lépine and Boulud.
47 Rôle pathogénique de la simulation. C. Féré.
48 *Infectious Angina Pectoris.—Angine de poitrine infectieuse (septique). J. Pawinski (Warsaw).
49 *De la rétention des chlorures dans l'ascite d'origine hépatique (chlorids in ascites). D. Olmer and V. Audibert.
50 Le bacille de la dysenterie. L. E. Bertrand.
51 (No. 4.) *Tuberculose pulmonaire. Pathogénie, evolution, Acidose sanguine. C. Canter (Liège).
52 Epidémie de diphthérie dans un service de typhoïdiques. Niclot.
53 (No. 5.) Liver in the Tuberculous.—Du foie des tuberculeux. F. Mouisset and S. Bonnamour.
54 Traitement de la tuberculose pulmonaire par le sérum Marmorek. Jaquerod (Leysin). Favorable report.
55 *Etude de la maladie de Bence Jones. H. Bertoye (Lyons). (Commenced in No. 4.)

56 (No. 6.) Interet clinique de quelques equivalents des épileptiques. C. Féré.
57 Le mal perforant dans la paralysie générale. E. Marandon de Montyel.
58 Affection subaigue ayant presenté le syndrome "leucémie." (Recovery.) Conor.

42. **Syphilitic Manifestations in Tabes.**—Dalous has collected 21 cases of syphilid occurring in the course of tabes. The list includes 6 unpublished cases, some personally observed. Half of the entire number did not know that they had ever been infected. He thinks that this coexistence of syphilids with tabes would be found to be much more frequent if all tabetics were examined for syphilids, and if all subjects presenting syphilid were examined for incipient tabes.

43. **Contagiousness of Icterus.**—Seventy-seven soldiers were affected with epidemic icterus in some shifting battalions. The connection between the various groups of sick men was readily established, as also the spread of the disease by direct contact in the pre-icteric phase.

44. **Spasmodic Paresis with Atheroma.**—Pic and Bonnamour describe the autopsy findings in 7 out of 38 cases which had presented a syndrome characterized by spasmodic paresis of the lower limbs with exaggeration of the reflexes and with frequent coexistence of psychic derangement. The legs were weak and the subjects could walk only with short steps. This spasmodic paresis has a progressive course. The anatomic basis seems to be a diffuse or localized sclerosis of the spinal cord or interstitial myelitis, of vascular origin.

45. **Classification of Facial Neuralgias by Cocain Test.**—When the pain of neuralgia is arrested by an injection of cocain at the most painful point, the trouble is evidently in the terminals of the nerve. When the pain persists notwithstanding the injection of cocain, the trouble is of central origin, or, at least, it is not peripheral. The cocain should be injected before the paroxysm to prevent its appearance. Such an injection is liable to banish the pain permanently. Verger's clinical experiences with this cocain test in 23 patients are reviewed and the neuralgia classified according to the response to the cocain test. In facial neuralgia of peripheral origin, the pains were usually in the jaws and cheek over them. They were frequently traceable to acts like chewing, sneezing, yawning or speaking. Other differentiating points are the possibility of bringing back the pain by similar acts, also the persistence of a dull ache in a zone smaller than the area innervated by the nerve, and of tenderness on deep pressure, frequent pain on pressure of the emerging point of the nerve, frequent disturbances in the sensibility to pricks, frequent absence of spasmodic secretory symptoms, and the normal behavior of the pupil reflexes. In one of his cases the pain was arrested by cocain injected into the hypertrophied inferior turbinate. When the neuralgia is of central origin, the intervals are free from any pain or local tenderness. The pain usually radiates over a more extensive area than in peripheral neuralgia, and the attack is liable to be brought on by hot or cold drinks or by long rides in the cold. Treatment of peripheral neuralgia should be local, by modifying injections or resection, but in central neuralgia the treatment should be medical, progressively pushing the opiates and electrotherapy. Surgical intervention is the last resource, and it should attack the nerve high up instead of wasting time on peripheral, necessarily futile, operations. The record of resection of the gasserian ganglion is bad, however, 1 death to every 3 cases, and only one absolute cure to every 5 treated.

48. **Infectious Angina Pectoris.**—Pawinski refers to treatment in concluding this study of the clinical picture and pathogenesis of septicemic angina pectoris. The emunctories should be aided and the local process in the tonsils be combated. The nitrites, he thinks, are of no use in infectious angina pectoris.

49. **Retention of Chlorids in Case of Cirrhosis of Liver.**—Seven clinical cases are reported in detail to show the constant retention of chlorids in patients with ascites of hepatic origin. There was no impermeability on the part of the kidneys in these cases, but the chlorids seemed to gravitate chiefly into the peritoneal cavity. This attracted fluid to the spot. The essential factor in the liver ascites is not the retention of the chlorids or of any other substance. Remove the obstacle to the portal circulation and the ascites will vanish. Reducing the intake of salt has only a palliative influence, and merely retards the production of the effusion, but even this is a gain. Large intake of salt would hasten its production.

51. **Acid Salts in Blood in Tuberculosis.**—Canter is convinced that greater attention should be paid to the acid salts in the organic fluids in studying tuberculosis. Four years of careful research have conclusively demonstrated, in his opinion, that the normal organism with its standard phosphatic acidity is refractory to tuberculosis. Hypoacidity and deficiency in the phosphates are the predisposing causes in the pretuberculous stage. It is possible to remove this cause and to protect the subject against tuberculosis by raising the acidity and the proportion of phosphates above normal. If the patient is already infected, increasing the proportion of phosphates and raising the acidity will enable him to get rid of the tubercle bacilli and to repair the lesions if not too far advanced. The bacilli destroyed in their haunts are liable to cause more or less intoxication of the system, and this intoxication limits the curative powers and is the test of the gravity of the morbid process. When there is only a slight or moderate febrile reaction, with a normal or hypernormal acidosis, a subject with pulmonary tuberculosis can be cured easily, no matter how apparently extensive the lesions may be. Treatment to increase the acidity and phosphates should be gradual and slow, with very small doses of the phosphates or phosphoric acid, etc., gradually accustoming the organism to the struggle before it. Forced feeding is important, but it should be borne in mind that fats, starch, sugar, alcohol and organic acids produce very little if any acid and no phosphate ash. Canter gives his technic for testing the acidity, preferring a modified phenolphthalein test of the twenty-four hour urine. He states that the blood pressure, and also the secretion of hydrochloric acid, rise and fall with the acidosis. Tuberculous subjects are invariably hypoacid and hypophosphatic. By increasing the proportions above normal in this respect the organism becomes an unfavorable medium for the bacilli and they cease to proliferate. This allows the organism time to get the upper hand.

55. **Albumosuria.**—Bertoye's article is a comprehensive monograph and review of the literature on Bence Jones' albumosuria. It also gives a description of a case studied from the chemical as well as from other standpoints. He thinks that it should be regarded as a toxic-infectious disease.

Berliner klinische Wochenschrift.

59 (XLII, No. 3, January 16.) Influence of Alcohol on Susceptibility of Rabbits to Infection.—Ueber den Einfluss des Alkohols auf die Empfindlichkeit der Kaninchen für die Erzeugnisse von Bakterien. C. Fraenkel.
60 *Ueber Immunisierung gegen Tuberkulose. P. Baumgarten.
61 *Secretion of Gastric Juice in Sham and Rectal Feeding.—Die Magensaftsekretion des (gastrostomierten) Menschen bei "Scheinfütterung" und Rectalernährung. Umber.
62 *Experimentelle Untersuchungen über den Magensaft (gastric juice). A. Bickel.
63 *Action of Röntgen Rays on Ovaries.—Die Einwirkung der Röntgenstrahlen auf Ovarien. L. Halberstaedter.
64 Kasuistischer Beitrag zur therapeutischen Anwendung des Dr. Aronson-schen Antistreptokokkenserums (success in two cases). R. Klein.
65 *Nervous and Mental Affections After Electric Accidents.—Ueber Nerven- und Geisteskrankheiten nach elektrischen Unfällen. A. Eulenburg (Berlin). (Commenced in No. 2.)
66 Infektionswege bei der Lungentuberkulose. H. Beitzke.

60. **Immunization Against Tuberculosis.**—Baumgarten reports successful results of attempts to render a calf immune to virulent bovine tuberculosis to which the controls rapidly succumbed. Its serum likewise protected another calf against virulent infection.

61. **Secretion of Gastric Juice in Sham and Rectal Feeding.**—Umber devotes eight pages to a minute description of the conditions observed in the case of a man of 59 whose esophagus had gradually become impermeable from stenosis, probably malignant. A Kader fistula into the stomach was made and the patient rapidly recuperated and regained the aspect of

health with gradually increasing weight. The stomach functions were apparently normal. The esophagus became more permeable later, and the conditions of the gastric juice could be studied as food was taken by the mouth or rectum. For the fictitious feeding mouthfuls of food were very carefully chewed, but not swallowed, not even the saliva. In three minutes a continuous stream of limpid juice flowed out through the fistula. When meat alone was chewed a very concentrated gastric juice was secreted. When the patient merely rinsed his mouth several times with a mouthful of brandy, a limpid, faintly acid gastric juice commenced to flow, although in the half-hour preceding only a single drop of a slightly alkaline juice had emerged. When the subject chewed rubber or tobacco vigorously there was a copious flow of saliva, but not a drop of gastric juice appeared. The effect of fatigue was apparent in the tests, the commencement of the flow of gastric juice being retarded. The acidity of the gastric juice was found higher—up to .35 per cent.—than that cited in the text-books. The freezing-point ranged from minus .81 to minus .15 C., testifying that there is no attempt on the part of the secretory glands to establish isotonic relations with the blood. Tests of nutrient enemas showed that after rectal injection of a mixture of 200 c.c. milk, 40 gm. grape sugar, 1 yolk of egg and 2 gm. salt, secretion of a powerful gastric juice commenced in four minutes and persisted for half an hour. The total amount was 5.5 c.c.; the freezing-point minus .29 C., with a total acidity of from 30 to 35, and of free HCl, 20 to 30. This rectal gastric juice can be due only to reflex action, establishing communication between the rectal mucosa and the stomach glands. The influence of suggestion was eliminated in these tests. The fact that the secretion of acid gastric juice is the most important secretory stimulus for the pancreatic secretion—which is the one that takes exclusive charge of a rectal nutrient enema—shows the admirable purpose of this reflex phenomenon.

62. **Experimental Research on Gastric Juice.**—Bickel has been studying the same phenomena on a child with an artificial gastric fistula, and also on dogs. His conclusions are to the effect that the gastric juice does not differ materially in respect to concentration whether the diet is predominantly meat or milk. The meat gastric juice is generally richer in electrolytes, and is slightly more concentrated. Under pilocarpin dogs exhibited enhanced secretory activity in the stomach. Tests of mineral waters likewise demonstrated that certain waters are able to stimulate the specific secretion of the gastric mucosa without the co-operation of other factors. All this research tends to show that purely physical phenomena are inadequate to explain the forces at work. The human gastric mucosa can not be compared to a dead animal membrane. The gland cells reply to proper stimuli with a powerful, active response. Regardless of the concentration of the blood around or of the contents in the stomach, they pour out their concentrated or diluted secretion into the stomach cavity. The ultramicroscopic picture of human gastric juice is the same as that of dog's gastric juice. (The discussion on this article by several noted internists is given also.)

63. **Influence of Radium Rays on Rabbits' Ovaries.**—Halberstaedter exposed the ovary on one side to the Roentgen rays, and this ovary was checked in its growth in every instance. When the rabbits were killed later it was found that the exposed ovary was always less than one-half or one-third of the size of the unexposed one. The ovaries are incomparably more sensitive to the rays than the skin, and this fact must not be forgotten in *x*-ray exposures of the abdomen. Female workers in laboratories should be protected against injury from this source. The testicles are also sensitive, but much less so than the ovaries.

65. **Nervous and Mental Affections After Electric Accidents.**—Eulenburg refers to several cases of such affections, taboparalysis, progressive paralysis or multiple sclerosis, after electric accidents. In one instance a laborer was constantly exposed to occasional mild electric shocks in the course of his work. On two occasions the shocks were violent, and may be qualified as accidents. Since the last one he has presented the typical picture of multiple sclerosis, and the courts have granted him full industrial indemnity. The circumscribed injuries of the nerve, which are liable to result from the direct action of the electric current, would afford a local predisposition for the development of sclerotic foci. He describes a typical case of a severe mental affection following an electric accident which has many points in common with both multiple sclerosis and paralysis, and yet differs from both. The end of a wire carrying a current of 500 volts fell on the man's head. The day was warm and his scalp may have been perspiring. A chronic, degenerative, progressive, cortical encephalopathy developed. Similar accidents, with stronger currents, have been borne by others without injury. The conditions of conductibility and resistance vary in each case. A laborer in a potash works was killed by a current of only 95 volts. The ground and his clothing and hands were wet with the solution. The article is a careful study to aid in the guidance of the medical expert in suits arising from such accidents.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed XLIII, page 1826.

67 (LXXXI, Nos. 5-6.) *Purin Bodies of Feces. Study of Purin Bases of Intestinal Wall, Bile and Pancreatic Juice.—Die Purinkörper der Fäzes nebst Untersuchungen über die Purinbasen der Darmwand, der Galle und des Pankreassaftes. A. Schittenhelm (Göttingen).

68 Non-Absorption of Potassium Iodid in Stomach, and Inhibiting Influence of Morphin on Emptying of Stomach.—Resorption von Iodkalium im menschlichen und tierischen Magen und über den hemmenden Einfluss des Morphins auf die Magenentleerung. K. H. Baas (Breslau).

69 *Study of Metabolism in Case of Diabetes with Special Reference to Prognosis.—Stoffwechselbeobachtungen an einem Falle von Diabetes mellitus, mit bes. Berücksichtigung der Prognose. A. R. Mandel and G. Lusk (New York).

70 Ueber das absolute Sphygmogram und seine klinische Bedeutung, nebst kritischen Bemerkungen über einige neuere sphygmomanometrische Arbeiten. Sahli (Berne).

71 *Diagnostic Significance of Mark of Strangulation on Ascaris.—Die Strangulationsmarke beim Spulwurm in ihrer diagnostischen Bedeutung. W. Ebstein.

72 *Reply to Criticisms of Sahli Test of Stomach Functions.—Ueber die Sahlische Methode der Magenuntersuchungen. F. Seiler and H. Ziegler (Berne).

73 *Action on Blood of Lessened Atmospheric Pressure.—Wirkung des verminderten Luftdrucks auf das Blut. A. Fiessler.

74 Die rheumatische Facialis-Paralyse und ihre etiologischen Beziehungen zum Ohr (relations to ear). Stenger.

75 *Ueber congenitalen Icterus mit chronischem Milztumor (enlarged spleen). H. v. Krannhals (Riga).

67. **Purin Bodies in Feces and in the Intestinal Walls.**—One of the most interesting facts learned in Schittenhelm's researches is the large proportion of purin bases, especially adenin and guanin, but also xanthin and hypoxanthin, which he discovered in the walls of the intestines. The purin bases he also found to be a regular constituent of the pancreatic secretion. The quantity is very small, however.

69. **"Fatal Ratio" in Prognosis of Diabetes.**—This article appeared originally in THE JOURNAL, page 241 of the last volume. The ratio between dextrose and nitrogen on a meat-fat diet is the new method of prognosis proposed.

71. **Diagnostic Significance of Mark of Strangulation on Ascaris.**—The diagnosis in the case described had been icterus from occlusion of the common bile duct. An ascaris was passed in the stool, and at once the symptoms subsided. The ascaris presented a deep circular indentation at one point and traces of indentation at two other points. Ebstein regards these evidences of constriction as a sign that the worm must have been caught in some narrow passage. From the history of the case and the recovery of the patient after expulsion of the worm, he is convinced that it must have wandered into the biliary passages and obstructed the lumen of the bile duct.

72. **Sahli's Flour-Soup Test of Stomach Functions.**—The criticisms of this method of testing the stomach functions are here answered, and the invariably fine results attained with it in Sahli's clinic are emphasized. Certain points must be borne in mind, however, such as that the soup or gruel must be made appetizing; the subject must change his position regularly every five minutes, lying on back, then on left side and then sitting up, refraining from lying on the right side. An interesting feature of the monograph is the after super-

vision of persons once tested, to follow the course of their gastric affection. The findings always corroborated those of the test. Butyrometric determination of the fat is also necessary. Full details of the technic of this test soup were given in THE JOURNAL, xxxviii, page 1477, 1902.

73. **Influence on Blood of Diminished Atmospheric Pressure.**—Fiessler attributes to mechanical factors alone the apparent variations in the composition of the blood noted in the pneumatic cabinet and at high altitudes.

75. **Familial Congenital Icterus with Enlarged Spleen.**—In one family 3 brothers presented this picture, as also the mother, her sister and her mother. The father was normal. The icterus was evidently not due to obstruction to the flow of bile, but rather to overproduction. The particulars of 26 cases of congenital icterus with enlarged spleen are given in tabulated form. Those of syphilitic origin are not included in this review of the subject.

Münchener medicinische Wochenschrift.

76 (LII, No. 4, January 24.) *Behandlung der Leukämie mit Röntgen-Strahlen. O. Eisenreich (Munich).
77 *Zur Technik der Behandlung der Leukämie mit Röntgen-Strahlen. Winkler (Ibid.).
78 *Zur Röntgen-Behandlung der Leukämie. W. Wendel.
79 *Weitere Beiträge zur Behandlung der Leukämie mit Röntgenstrahlen. Schieffer.
80 Blue Glasses for Examination by Artificial Light and Description of Simple, Inexpensive Apparatus for Color Tests. —Die Verwendung blauer Gläser der Untersuchung mit künstlichen Licht nebst Beschreibung eines einfachen Apparates zur praktischen Prüfung des Farbensinns. P. Erdmann (Rostock).
81 Zincum sulfuricum oder Silber-Salze bei der Gonorrhoe-Behandlung. M. Juliusberg (Neisser's clinic, Breslau).
82 Ueber berufliche Formalin-Onychien- und-Dermatitiden (professional formalin lesions). Galewsky. See editorials, page 717.
83 *Die intravenöse Salizyl-Behandlung und ihre diagnostische Bedeutung. F. Mendel.
84 144 Zangenentbindungen (forceps deliveries). K. Heil (Darmstadt). (Concluded.)
85 Versuche zur Frage der Desinfektion bei Ankylostomiasis. H. Bruns. (Commenced in No. 3.)

76-79. **Experiences with X-Rays in Leukemia.**—Meyer and Eisenreich report 2 cases of myeloid leukemia treated with the Roentgen rays. They differ in several points from others that have been published. In the first case—the patient, a machinist of 31—the blood findings altered completely under the influence of the rays, and notable leucocytosis followed, with mast cells predominating. By the end of four months the leucocytes had fallen from 165,000 to 6,100, but then rose again to about 22,000, and later to 35,000. The general health was very much improved in both patients, the working capacity being restored, the patients gaining in weight and the proportion of red corpuscles and of hemoglobin approximating normal. The blood findings altered so materially under the influence of the rays that no one would have suspected leukemia from the blood picture. The spleen returned to normal size in the first case, but remained enlarged in the second case in which the leukemia was of longer standing and the symptoms more serious. Since suspension of the treatment the blood findings have displayed a tendency to return to the leukemic picture, so that the hope of actually curing leukemia by this means is not very promising. Exposure of the liver and spleen in healthy subjects failed to show any action of the rays on the autolytic processes of the ferments. Heineke's recently published experiments indicate that the action of the rays is more in the line of the vital processes, phagocytosis, etc.

Wendel of Marburg has collected from the literature 38 cases of leukemia treated with the *x*-rays and adds another to the list. He tabulates the details of the various cases and states that more than 90 per cent. were favorably influenced. In 2 instances no appreciable benefit was observed, and in 2 the disease rapidly progressed notwithstanding the treatment. In one instance the patient succumbed to an intercurrent disease, and in another to a rapid recurrence. In 2 others death ensued although the patients seemed to be improved at first. He remarks that no case of acute leukemia has been thus treated to date. The myeloid variety seems to afford a better prognosis than the lymphoid, although cases of the latter have been benefited. The various kinds of leucocytes appear to behave differently in response to the *x*-rays. [He includes in his tables the cases published in THE JOURNAL, with the exception of Pusey's, in THE JOURNAL of January 18 and April 12, 1902, fully a year before Senn's first publication. The early history of *x*-ray treatment of leukemia—before Senn—was given in THE JOURNAL of July 23, 1904, page 273.—ED.]

Schieffer has treated 5 cases of leukemia with the *x*-rays. The results were so fine in 3 cases that he does not hesitate to pronounce them cured, for the time being at least. One patient abandoned treatment after being materially improved by a few exposures. The fifth patient—a man of 46, almost moribund—showed great benefit at first, but the symptoms recurred after a few weeks and the patient soon died in collapse, like Stone's patient. The earlier in the disease the treatment is instituted the better the results attained. Contrary to the technic in other clinics, the spleen alone was exposed in these cases, and when treatment had to be discontinued on account of dermatitis the improvement continued to progress during these pauses. In summarizing his impressions of this method of treating leukemia, Schieffer ranks Roentgen treatment of leukemia with digitalis treatment of heart affections. There are few measures at our disposal, he says, which produce such unmistakably favorable effects, and even if only symptomatic, yet we can not afford to dispense with them.

83. **Intravenous Salicylic Medication.**—Mendel states that he has had no mishaps in 2,000 injections of a fresh mixture of 8 parts sodium salicylate to 2 parts caffein and distilled water to 50 parts. He injects 2 c.c. at intervals of from twelve hours to three days. He now has the mixture put up in fused, brown vials holding 2 c.c. each. In his last series of 500 injections some of the patients were senile, some arteriosclerotic or diabetic, their vascular systems evidently very vulnerable, yet not a single mishap occurred although some patients required as many as ten injections. He reiterates that this method banishes most rapidly and certainly all rheumatic pains and fluid exudations in diseased joints—especially in the non-febrile cases. It proved effectual after failure of all other internal and external measures, and it is free from all the disagreeable by-effects inherent in internal salicylic medication. It is particularly valuable for differentiation of rheumatic from other painful affections, although the physician must beware of suggestion in making an exploratory injection for this purpose. Several cases are related in which a puzzling rheumatic affection was disclosed by the subsidence of the symptoms under the injections, or it was excluded by their unmodified persistence. His experience with 2,000 salicylic injections and 6,000 other intravenous injections has confirmed the absolute harmlessness of the intravenous route. The injections should always be made in a vein in the arm, never in the leg.

Riforma Medica, Palermo and Naples.

Last indexed page 667.

86 (XX, No. 50.) *L'acido urico nei liquidi da versamenti (in effusions). F. Galdi and G. Appiani (Padua).
87 *Behavior of Pancreatic and Liver Secretions in Splenectomized Animals.—Sul modo di comportarsi della secrezione pancreatica ed epatica negli animali smilzati. L. Girolama.
88 La sindrome spasmodica nelle infezioni e nelle intossicazioni. R. Massalongo.
89 (No. 51.) *Intorno alla sindrome "poliglobulia con tumore di milza" (with enlarged spleen). M. Ascoli.
90 *Sugar in Treatment of Pulmonary Phthisis.—Lo zucchero nella cura della tisichezza polmonale. R. Massalongo and G. Danio.
91 Contributo alla conoscenza della fisiopatologia della cellula pancreatica. E. Savagnone. (Commenced in No. 50.)
92 *Free Bodies in Cavities of Large Serous Membranes.—Contributo anatomico e sperimentale alla conoscenza dei corpi liberi nelle cavita delle grandi sierose. L. Tomellini. (Commenced in No. 50.)

86. **Uric Acid in Effusions.**—The authors found uric acid a common constituent of effusions. The proportion is larger in exudates than in transudates. It is generally directly proportional to the specific gravity, the total nitrogen, and the albumin content of the fluid. The proportion of uric acid was unusually high in the cerebrospinal fluid in 2 cases of tuber-

culous meningitis. The proportion is probably above the average in all exudates of tuberculous origin.

87. **Behavior of Pancreatic and Liver Secretions in Splenectomized Animals.**—Girolamo's experiments on rabbits and dogs failed to show that extirpation of the spleen altered in any way the secretory functions of the pancreas and liver.

89. **Chronic Cyanotic Polycythemia with Enlarged Spleen.**—Ascoli's case resembles the one reported by Osler (see THE JOURNAL, xli, No. 44, page 634). The patient was a young man, with mild malarial antecedents and erysipelas. He presented the typical blood findings, enlarged spleen, cyanosis, dread, and digestive disturbances, with pigmentation of the face, and absence of dyspnea; the tuberculin test was negative. The red corpuscles numbered 7,200,000, the whites 15,000. The average proportion of leucocytes was: Polynuclear neutrophiles, 51; eosinophiles, 20; mast cells, 2; large mononuclear and transitional forms, 11, and lymphocytes, 16. The hemoglobin was 95 and iron, 110, equivalent to .69 gm. of iron to the liter of blood. He states that none of the cases on record showed such a large proportion of eosinophiles. The dilatation of the stomach and lack of hydrochloric acid may have been secondary to the modifications in the circulation of the stomach mucosa. In treatment arsenic, deprivation of iron, radiotherapy and venesection have all been tried with mediocre or negative results. Cominotti removed the spleen in his case, but the premature death of the patient deprived his experience of much value. Splenectomy should be borne in mind, especially if a tuberculous origin can not be positively excluded. No specific anatomic alterations have been found to date. In the case described the patient left the hospital after slight subjective improvement under arsenic.

90. **Sugar in Treatment of Pulmonary Phthisis.**—This communication from the hospital at Verona extols the benefit to be derived from sugar as a means of superfeeding tuberculous subjects. From 100 to 500 gm. of sugar were added to the daily diet, averaging from 5 to 12 gm. per kilogram. Even on as little as from 100 to 200 gm. a day the patients frequently gained from 16 to 30 pounds or more in two or three months. In many instances the gain was greater than the amount of sugar ingested. It was especially effectual in the febrile form or those with slight evening temperature. It was generally relished and well tolerated by the patients, and no dyspeptic disturbances or intestinal fermentations were ever noticed that could be attributed to the sugar. The taste was disguised in coffee, milk or with some bitter tincture, as preferred or not. It is indicated for all patients who are unable to take cod-liver oil, and it will be found a desirable food and remedy in many cases of tuberculosis.

92. **Free Bodies in Cavities of Large Serous Membranes.**—A free body can develop in the pericardium from detachment of some fatty lobule. Similar free bodies may be formed in the peritoneum from torsion of some tuft or appendix in the omentum, the intestinal peristalsis twisting it on its axis. Such free bodies can be induced experimentally by ligating a similar tuft of omental tissue. Tomellini observed 2 cases of such free bodies in the serous cavities, one complete and the other in process of formation.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE MEDICAL EXAMINATION FOR LIFE INSURANCE and Its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D., St. Paul, Professor of the Theory and Practice of Medicine in the University of Minnesota. Second Edition, Revised and Enlarged, with 99 Illustrations. Cloth. Pp. 466. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

THE OPHTHALMIC YEAR-BOOK. A Digest of the Literature of Ophthalmology with Index of Publications for the Year 1903. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic. With 45 Illustrations. Cloth. Pp. 260. Denver: The Herrick Book and Stationery Co. 1904.

THE MODERN MASTOID OPERATION. By Frederick Whiting, A.M., M.D., Professor of Otology, Cornell University Medical College. Illustrated by 25 Halftone and 23 Key Plates Made from Original Drawings. Half Leather. Pp. 353. Price, $6.00. Philadelphia: P. Blakiston's Son & Co. 1905.

TWENTY-EIGHTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN, Situated at the Northwest Corner of Lawrence and Huntingdon Sts., Philadelphia. For the Year Ended Sept. 30, 1904. Paper. Pp. 39. Philadelphia: Allen, Lane & Scott. 1904.

TRANSACTIONS OF THE NATIONAL ASSOCIATION OF UNITED STATES PENSION EXAMINING SURGEONS. Third Annual Meeting, Atlantic City, N. J., June 6 and 7, 1904. Vol. II. Cloth. Pp. 187. Published by the Association, Rochester, N. Y. 1904.

THE MEDICAL MISSIONARY SOCIETY IN CHINA. Annual Report for the Year 1904, with Illustrations. Paper. Pp. 37. Printed by the China Baptist Publication Society, Canton, China.

TRANSACTIONS OF THE LUZERNE COUNTY MEDICAL SOCIETY FOR THE YEAR ENDING DECEMBER 31, 1904. Vol. XII. Paper. Pp. 205. Wilkesbarre: The E. B. Yordy Co. 1904.

NEW PATENTS.

Recent patents of interest to physicians, etc.:

779833. Medicated sweetmeat. Maylean Bjornstad and J. Stacy, Auckland, New Zealand.
779637. Sterilizing organic substances. Carl C. L. G. Budde, Copenhagen, Denmark.
779527. Wax emulsion and producing same. Herbert H. Church, Bellows Falls, Vt.
779591. Eye shield. Albert A. Fairbanks, Atlanta, Ga.
779777. Producing silver emulsions. Johannes Gaedicke, Berlin, Germany.
779705. Treating alkaline solutions of chromate of soda. Wm. T. Gibbs, Buckingham, Canada.
779998. Making hydrochloric acid. Wm. T. Gibbs, Buckingham, Canada.
779498. Sterilizing apparatus. Alexander T. Pfeiff, Stockholm, Sweden.
779885. Speculum. Charles F. Spangler, Kane, Pa.
779749. Antiseptic feeding bottle. Charles W. Tinling, Hamilton, Canada.
780025. Supporting frame for use with slipper bedpans. Evelyn A. Conyers, Melbourne, Victoria, Australia.
780415. Apparatus for expressing juice from meat. Ida C. Eavenson, Philadelphia, Pa.
780278. Collapsible stretcher. Kaspar Freuler, Zurich, Switzerland.
780424. Inhaler. Theodor Heryng, Warsaw, Russia.
780226. Castor oil praline. Leonard Pink, Berlin, Germany.
780077. Medical vaporizer. James E. Van Ness, Chicago.
780699. Ear trumpet. Alvin W. Aylsworth, Fostoria, Ohio.
780598. Catamenial sack. Mary E. Coleman and M. Jarmulowsky, New York.
780551. Hot-water bottle. Benjamin J. Craggy, Manchester, N. H.
780710. Nozzle for syringes. Henry Dickinson, Flushing, N. Y.
780645. Artificial leg. Gustaf A. Erickson, Minneapolis, Minn.
780563. Eye irrigator. Frank E. Girard, Toledo, Ohio.
780948. Opticians' frame gage. John H. Hales, Newport News, Va.
780619. Morphin compound and making same. Robert Pschorr, Berlin, Germany.
780831. Shoulder brace and support. Annie Stinton, North Williamstown, Victoria, Australia.
781328. Invalid and operating table. Egbert B. Brown, Maywood, Ill.
780987. Bedpan. George E. Gorham, Albany, N. Y.
780988. Fracture apparatus. George E. Gorham, Albany, N. Y.
781516. Respirator and inhaler. George N. Guthrie, Jr., Cookville, Tenn.
781142. Woven surgical bandage. Theodore W. Hanrath, Chicago.
781283. Hypodermic power syringe. Frank A. Higgins, Bellevue, Ohio.
781428. Inhaler, injector and medicator. Sheridan J. and L. A. Hutchins, St. Paul, Minn.
781544. Combination shoulder and body brace with attachments. Tillman E. McMurtry, Chicago.
781363. Making medicaments containing plant juice. Marie Ritter, Breslau, Germany.
781555. Movement cure device. Alfred B. Schanz, Attica, Ind.
781627. Lung-testing machine. Joseph D. Wolf, Beaver, Pa.
782108. Apparatus for administering anesthetics. Raymond C. Coburn, Upper Sandusky, Ohio.
781818. Disinfecting apparatus. Eugene Fournier, Paris, France.
782021. Sterilizing water by means of ozonized air. Hjalmar Friberg, Charlottenberg, Germany.
781683. Combined apparatus for exercising and massaging by friction. George H. Shepherd, Paris, France.
781860. Pasteurizing apparatus. Walter B. Wright, Chicago.
782433. Temperature indicating spoon. Harrison E. Ashley, New Bedford, Mass.
782723. Hypodermic syringe. Milton Campbell, Philadelphia.
782747. Inhaling device. Arthur Goldstaub, Hamburg, Germany.
782663. Massage apparatus. Johannes C. Johansen, Copenhagen, Denmark.
782400. Apparatus for hygienic and therapeutical purposes. Jean M. A. Lacome, New York.
782800. Hypodermic syringe. Frederik W. Steuer, Plainfield, N. J.
782303. Sterilizing apparatus. Wm. J. Winchel and J. H. Whaley, Rome, N. Y.

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Original Articles.

CLINICAL EXAMINATION OF THE URINE.

A CRITICAL STUDY OF THE COMMONER METHODS.

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In 1897 Councilman[1] wrote, in a paper on "Acute and Subacute Nephritis": "The chemical and microscopic examination of the urine, important as it is, does not give any sure information as to the character of the (renal) lesions."

Reflecting on this remark and recalling various discrepancies between antemortem and postmortem diagnosis in renal cases that have come under my observation, it seemed to me worth while to compare systematically the urinary records and postmortem findings in all the cases of acute and chronic nephritis that have come to autopsy at the Massachusetts General Hospital since 1893. The results of this work form the bulk of the present paper.

The group of cases examined excludes all suppurative diseases in or near the kidney, and includes, for the sake of comparison, some conditions in which the urine is more or less like that of nephritis.

Since the histologic lesions found postmortem have been the basis of the nomenclature used throughout, I append a brief statement of the appearances to which each name refers:

Following in a general way the views of Councilman, cases were classified as:

1. *Acute degeneration* of the kidney when the lesions are confined to the epithelium (albuminous, hyaline and fatty degeneration, or complete necrosis), without other lesions of the glomeruli, vessels or connective tissue.

2. *Acute glomerular nephritis*[2] applies to cases in which, besides a varying amount of degenerative lesions, well-marked exudative or proliferative changes are found in the glomeruli. When exudative lesions predominate the capsule spaces contain serum, fibrin or blood, while the capillaries are filled with thrombi or polynuclear leucocytes.

When proliferative lesions predominate, the cells lining Bowman's capsule or those lining the glomerular capillaries are greatly increased in number and collect in the capsular space or in the lumina of the capillaries.

In cases in transition to subacute or chronic forms, some of the glomerular vessels are obliterated by hyaline degeneration of the cells occluding them.

3. *Subacute glomerular nephritis* refers to proliferative glomerular lesions of somewhat greater duration. The glomerulus is usually lobulated and its capsular epithelium proliferated. The capillaries are partially obliterated by hyaline thickening of the basement membrane surrounding them.

4. *Chronic glomerular nephritis* is conceived as the end-stage of the acute or subacute cases. The glomeruli show extensive sclerosis with obliteration of the capillaries in some portion of the organ, while less advanced (acute or subacute) lesions are seen in other portions. As in all forms of glomerular nephritis, degenerative tubular lesions are usually present.

5. Under the name of *chronic interstitial nephritis* are grouped those cases in which the lesions appear to originate not in the glomeruli but in the connective tissue and blood vessels. Irregular bands of hypertrophied connective tissue produce secondary atrophy of the glomeruli and degeneration of the tubular epithelium. The arteriosclerotic changes usually found in the vessels are not the predominating lesion.

6. By *amyloid nephritis* is meant a form of chronic glomerular nephritis in which the capillaries are infiltrated with amyloid.

7. By *senile atrophy* is meant a process identical in histologic structure with that defined as "chronic interstitial nephritis," but involving a relatively small portion of the kidney substance with relatively large areas of normal tissue intervening.

8. *Arteriosclerotic atrophy* refers to a condition similar to that just described but with the chief lesion in the blood vessels.

9. *Fatty degeneration* refers in this paper only to the comparatively rare cases in which the lesion is very marked. The slight degrees of fatty metamorphosis often seen in this series in association with acute (albuminous) degeneration are not here separately considered.

In studying this group of lesions, I began by picking out from the record of autopsies made by Dr. James Homer Wright since 1893, all cases in which any one of the above conditions was found at autopsy.* I then looked up the clinical records with special reference to the urinary analysis and compared them with the anatomic lesions.

Next, I selected from the autopsy records all cases in which macroscopic and microscopic examination revealed nothing abnormal about the kidneys, and sought to find out from the clinical record whether the kidneys had seemed so blameless before death as they appeared to be at the autopsy. Briefly stated, the two questions investigated were:

1. When an anatomic lesion is found postmortem, how often is that lesion evident from the urine in life?

2. When no anatomic lesion is found postmortem, how often is the urine normal?

1. Councilman: Medical and Surgical Reports of the Boston City Hospital, 1897.

2. No cases of acute interstitial (non-suppurative) nephritis are included in the series on which this paper is based.

* Dr. Wright has recently looked over the sections from most of these cases and verified the diagnoses.

ACUTE GLOMERULAR NEPHRITIS.

Of the 21 cases recorded in Table 1, only five were diagnosed as nephritis during life, and not one was recognized as acute nephritis. Of the 5 diagnosed as nephritis, 3 were called chronic diffuse nephritis and 1 chronic interstitial nephritis. In other words, there was some discrepancy between the antemortem and postmortem findings in 93 per cent. of the cases, while in 75 per cent. the diagnosis of nephritis was not made at all during life.

Who is to blame for this?

The urinary analyses were made with care by men well trained in the art, for it has long been true that graduates of the Harvard Medical School trained under Prof. E. S. Wood always know how to examine urine, even when they know little else. In many cases the analyses were made by Professor Wood himself. There is no reason to attribute the 75 per cent. of diagnostic failures to incompetence on the part of the internes.

Could the diagnoses have been correctly made if these analyses had been properly interpreted? I think not.

TABLE I.—ACUTE GLOMERULAR NEPHRITIS.

Case No.	Autopsy No.	Anatomic Diagnosis.	Clinical Diagnosis.	Urine.					Other clinical signs of nephritis.
				24-hour amt.	Specific gravity.	Albumin, per cent.	Urea, per cent.	Sediment.	
1	919	Acute glomerular nephritis. Cardiac hypertrophy and dilatation.	Subacute glomerular nephritis.	1000 c.cm.	1014	0.2	1.5	Rare hyaline casts. Numerous normal and few abnormal red cells.	Uremic convulsion.
2	915	Acute glomerular nephritis. Ulcerative endocarditis. Cardiac hypertrophy and dilatation.	.....	(?)	101	⅔	1.1	Rare hyaline casts with cells adherent. Rare red corpuscle, much pus.	None.
3	868	Acute glomerular nephritis. Streptococcus septicemia.	Vesical calculus.....	850 c.cm. average	1025	¼	.....	Pus, blood and triple phosphate. No casts.	None.
4	810	Acute glomerular nephritis. Mitral stenosis. Cardiac hypertrophy and dilatation. Chronic passive congestion.	Mitral stenosis.....	850 c.cm. average	1017 Average	Slight trace.	.....	Few hyaline and granular casts with occasional cell adherent.	None.
5	631	Acute glomerular nephritis. Arteriosclerosis. Chronic endocarditis. Aneurism of iliac artery.	Aneurism of iliac artery.	.....	1023	Slighest possible trace.	.....	Few hyaline and granular casts with an occasional cell adherent.	None.
6	626	Acute glomerular nephritis. Pulmonary abscess. Fatty liver.	Cirrhosis of liver.....	.....	1015	¼-½	.....	Few hyaline and coarse granular casts. Bile-stained cells.	Convulsions, delirium.
7	621	Acute glomerular nephritis. Acute cystitis. Fatty iver.	Alcoholism.....	.....	1013	Very slight trace.	.....	Very rare hyaline casts.....	None.
8	608	Acute glomerular nephritis. General purulent peritonitis.	General peritonitis from pus tube. Pyemia. Dry pleurisy.	(?)	1011	Slightest possible trace.	.....	Occasional hyaline and granular casts, considerable pus.	None.
9	597	Acute glomerular nephritis. Syphilitic hepatitis. Portal vein thrombosed.	Cirrhosis of liver, hematemesis.	(?)	1014	Slightest possible trace.	.....	No casts. Rarely an abnormal red blood cell.	None
10	543	Acute glomerular nephritis. Bronchopneumonia. Streptococcus septicemia.	Chronic diffuse nephritis.	600 c.cm.	1008 to 1031 Average 1019	0.3 to 1.5	1 Average.	Hyaline and fatty casts numerous, few brown granular and epithelial casts.	Anasarca.
11	530	Acute glomerular nephritis. (Not typical.) Thyroid adenoma. Bronchitis.	Exophthalmic goiter terminal infection.	1000 c.cm.	1012	Slighest possible trace.	.....	No casts. Much pus, Rare red cell.	None
12	529	Acute glomerular nephritis. Streptococcus septicemia. Arteriosclerosis.	Chronic interstitial nephritis. Acute pericarditis. Arteriosclerosis.	85 c.cm.	1020	Very slight trace.	2.5	Many hyaline and granular casts. Few brown granular and blood casts. Many cells and red corpuscles on casts.	General anasarca.
13	511	Acute glomerular nephritis. Cardiac hypertrophy and dilatation. General chronic passive congestion.	Aortic and mitral disease.	400 to 1600 c.cm. average 760 c.cm.	1013 to 1026 Average 1019	Trace increasing to ½	16 grams average.	Many hyaline casts with cells and fat adherent.	None.
14	369	Acute glomerular nephritis. Aortic regurgitation. General passive congestion.	Malignant endocarditis.	1150 c.cm. average	1017	Trace.	.....	Hyaline and granular casts with considerable fat and a few cells and blood globules adherent.	None.
15	353	Acute glomerular nephritis. Typhoid fever.	Typhoid fever.....	.....	1024	0.1	10 grams.	Many brown granular casts, some with cells adherent.	None.
16	335	Acute glomerular nephritis. Acute and chronic endocarditis.	Malignant endocarditis.	.....	1017	¼	.....	Few hyaline and granular casts, some with renal cells adherent. Few abnormal red corpuscles.	None.
17	258	Acute glomerular nephritis. Acute chronic endocarditis. Hypertrophy and dilatation.	Chronic endocarditis. Broken compensation.	.....	1031	½	1.25	Much pus. Many hyaline and fine granular casts of all sizes, some with epithelium adherent.	None.
18	255	Acute glomerular nephritis. Septic endocarditis and meningitis.	Pneumonia. Septic endocarditis. Pneumococcemia.	900 c.cm. average	1015 and 1020	0-1 and ⅛	2.45	Many hyaline, fine and coarse granular casts of all diameters with blood cells and a little fat adherent.	None.
19	192	Acute glomerular nephritis. Acute endocarditis. Cardiac hypertrophy, dilatation.	Chronic diffuse nephritis. Chronic endocarditis.	900 c.cm.	1016	¼	1.5	Many epithelial and brown granular casts. Few hyaline and blood casts, and fatty casts.	One convulsion, edema of face.
20	65	Acute glomerular nephritis. Sarcoma of chest. Pleurisy.	Sarcoma of neck and chest.	.....	1021	0.1	.....	Few hyaline granular casts with occasional cell adherent, normal blood.	None.
21	60	Acute glomerular nephritis. Universal eczema. Tuberculous enteritis.	Uremia.....	Much diminished.	1027	1	0.5	Many casts of all kinds. Much blood.	Anasarca, vomiting.

A study of the data recorded in Table 1 and a comparison of these data with cases showing postmortem the lesions of passive congestion or of arteriosclerotic atrophy will reveal that there are no essential nor characteristic features about the urine in some of the cases of acute glomerular nephritis. Indeed, some kidneys that showed no lesions at all postmortem were asso-

ciated with urinary abnormalities as great as any in Table 1. (See Table 8.)

The amount of albumin was .5 per cent. or more (Esbach) in 6 cases (or 28 per cent.), .1 per cent to .25 per cent. in 7 cases and only a trace in 8; in other words, it varied between wide limits and no rule is apparent.

The specific gravity is below 1,020 in 13 cases and above it in 8. The 24-hour amount was always reduced, but not more so than in many other diseases.

Casts were absent in 3 cases, scanty in 9, and abundant in 8. No single type predominated except the hyaline variety, which is the least distinctive or significant of all. Blood in considerable quantity (i.e., more than a single corpuscle here and there,) was present in but 2 cases.

Dropsy was present only in the 5 cases rightly diagnosed and in 2 others in which uncompensated mitral disease was found. Uremic symptoms were present in none of the unrecognized cases.

I am convinced, therefore, that the failure to anticipate during life that an acute glomerular nephritis would be found postmortem was due, not to any avoidable error or omission on the part of those in charge of the cases, but to a lack in our diagnostic resources. The chemical and microscopic examination of the urine is often insufficient, even when taken in connection with all the available clinical data, to tell us whether acute glomerular nephritis is present or not.

Acute glomerular nephritis, as defined above, not infrequently exists without any distinctive clinical manifestations, either in the urine or elsewhere.

That there are many cases of acute glomerular nephritis which can be recognized during life I do not for a moment intend to deny, but it appears to be the fact that some are unrecognizable. Further, since so many cases get well and so many of the fatal ones do not come to autopsy, we have no way of estimating whether the recognizable cases make up a large or a small percentage of the total number that exist. Were the scanty, bloody urine of the text-books a constant feature in acute glomerular nephritis, our task would be a simple one, but the text-book picture was not present in any one of this small series of cases. I have often seen scanty bloody urine in postscarlatinal nephritis and in the acute exacerbations of chronic cases, but though its presence is very helpful in diagnosis, its absence does not mean the absence of acute glomerular nephritis, as this series shows.

A point of interest in this series of cases is the presence of generalized streptococcus or pneumococcus infection, recognized postmortem in 4 of them, and the association of 2 others with an acute endocarditis which may very possibly have been due to the pneumococcus.

SUBACUTE GLOMERULAR NEPHRITIS.

In the cases classified postmortem as "subacute glomerular nephritis," the disagreements with the clinical findings have been fewer. Five out of 10 cases were recognized antemortem as belonging to the general class—"nephritis." One was called acute nephritis, 1 chronic glomerular nephritis, 1 interstitial nephritis, and in the 2 remaining (one an eclamptic case) the type is not specified. The 5 unrecognized cases are indexed in hospital records as follows: Gallstones, actinomycoses (ribs), sloughing uterine fibroid, acute endocarditis, and pneumonia with alcoholism.

If we turn from the question, What diagnosis was actually made? and ask, What diagnosis ought to have been made? in these unrecognized cases, we find no sufficient reason to blame the clinicians except in one case (No. 10), in which nephritis might certainly have been suspected. In the others the urines, to be sure, are not normal, but neither do they present any abnormality greater in degree or different in kind from that often found in fever urines; i. e., in febrile diseases such as were present in these cases, pneumonia, gallstones, etc. If we compare these urines with some of those recorded in Table 8, which represents cases in which no appreciable lesions could be found after death, we must acknowledge that there is no considerable difference except in the single case above referred to. In this case, the urinary anomalies are, indeed, quite marked, but here, as if by the irony of fate, we note that the postmortem record reads: "*Slight* capsular glomerular nephritis," while in case 6 of this series the lesions postmortem were

TABLE II.—SUBACUTE GLOMERULAR NEPHRITIS.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.				
				24-hour amount.	Specific gravity.	Albumin, per cent.	Urea. per cent.	Sediment.
1	44	Subacute glomerular nephritis with chronic interstitial nephritis.	Chronic glomerular nephritis.	Anuria practically	1036	½	.....	Very numerous casts of all varieties.
2	62	Subacute glomerular nephritis.	Acute nephritis.....	1850 c.cm. average.	1012	¼	31 grams.	Many hyaline and granular casts with few fat drops, blood corpuscles, or cells adherent. Few epithelial and waxy casts. Much normal and abnormal blood.
3	281	Subacute glomerular nephritis with passive congestion.	Mitral regurgitation nephritis.	400 to 600 c.cm.	1011 to 1028.	¼ to 1	20 grams average.	Many hyaline, granular and blood casts with cells and fat adherent. Few waxy casts.
4	330	Subacute glomerular nephritis with suppurative nephritis.	Gallstones.	950 c.cm. average.	1011	Trace to 0.1	1.5	Many epithelial and fatty casts; some with blood adherent.
5	378	Subacute glomerular nephritis.	Nephritis; eclampsia	1000 c.cm.	1022	¼ to ½	.....	Many hyaline, granular and brown granular casts with occasional cell adherent.
6	470	Subacute glomerular nephritis. Actinomycosis.	Actinomycosis.....	.....	1027	Slightest possible trace.	.....	Few hyaline and granular casts.
7	472	Subacute glomerular nephritis with arteriosclerosis.	Sloughing uterine fibroid.	.....	1012	⅛	.....	Few hyaline granular casts.
8	511	Subacute glomerular nephritis. Pneumonia.	Pneumonia. Alcoholism.	.....	1016	0.1	.....	Fine granular and brown granular casts with an occasional cell adherent.
9	538	Subacute glomerular nephritis.	Chronic interstitial nephritis with acute exacerbation.	600 to 1400	1015 average.	0.2 average.	14 grams average.	Hyaline, granular, brown granular, epithelial and blood casts; rarely a fat drop adherent.
10	773	Subacute glomerular nephritis. Slight.	Endocarditis.	1500 average.	1023 average.	(?)	20 grams average.	Many hyaline, granular, epithelial fatty and waxy casts.

much more marked, although the urine indicated a milder process.

On the whole, although in these cases of subacute glomerular nephritis the discrepancies between antemortem and postmortem findings are not so glaring nor so numerous as in the acute cases, yet, since half the cases were not diagnosed during life, we can not feel very proud of our ability to recognize this type of nephritis.

CHRONIC GLOMERULAR NEPHRITIS.

The picture is much brighter when we turn to the group of 17 cases in which chronic glomerular nephritis was found postmortem; here we find almost no mistakes in diagnosis. Only in 2 cases was the nephritis unsuspected, and in the 13 of the remaining 15 cases the type of disease was correctly stated as well. One may doubt, however, whether the urinary examination alone would have been sufficient to steer us aright. The correct diagnosis, as it stands in the records, may well have depended as much on the other clinical features—the pale, pasty face, the long-standing general edema and the uremic manifestations.

Urines as highly albuminous, as lacking in urea, as thickly sown with fatty elements (free and on casts) have occurred in various other conditions mentioned in other parts of this paper. (See Tables 7 and 8.)

Yet, on the whole, the success in the diagnosis of this type of case is in striking contrast with the large percentage of failures in other forms.

CHRONIC INTERSTITIAL NEPHRITIS.

Out of the 35 cases classified under this heading at autopsy, 19, or about one-half, were recognized as nephritis of some type, and of these there were 5 in which the full title, chronic interstitial nephritis, appears on the antemortem record. In the remaining 14 cases recognized as nephritis of some type, the diagnosis was chronic glomerular nephritis in 8, while 3 others are recorded simply as arteriosclerosis, 1 as cardiorenal, and 2 as uremia.

In the 16 unrecognized cases the diagnoses were very varied; pernicious anemia, phthisis, epidemic cerebrospinal meningitis, sarcoma of lung, typhoid, cerebral hemorrhage (2 cases), valvular heart disease, cirrhosis of the liver, and cancer of the bladder are some of them.

I have included among the 19 successfully diagnosed cases 3 in which the diagnosis stands arteriosclerosis, because, in the terminology of some, this term is used in a wide sense so as to include renal anomalies which others would call chronic interstitial nephritis.

It should further be noted that in the postmortem record of 4 of the 16 cases not recognized during life, the lesion is expressly stated to be slight, and that in 3 more it was unilateral with a hypertrophied kidney on the other side. If we leave out these 7 cases, as I think we should, the failures are reduced to 9, or 32 per cent., as against 19, or 68 per cent., of successes.

It appears, then, that we were right about two-thirds of the time in this (brief) series, and in the remaining one-third the patients were under observation for so short a time that the failure of diagnosis is relatively venial.

On the whole, the urine of the cases proved at autopsy to be of the chronic interstitial type is fairly like the text-book accounts. Albumin was absent in 3 cases and very scanty in 13 cases. In the remaining 22 cases, about two-thirds of the whole series, it ranged from a large trace to .7 per cent.; in 5 cases out of the 35 it reached .25 per cent. or more.

TABLE III.—CHRONIC GLOMERULAR NEPHRITIS.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.				
				Average 24-hr. amt. of urine.	Specific gravity.	Albumin. per cent.	Urea.	Sediment.
1	31	Chronic glomerular nephritis.	Chronic glomerular nephritis.	1400 c.cm.	1020	⅛–½	1.01%	Many hyaline, fatty and blood casts.
2	220	Chronic glomerular nephritis.	Chronic glomerular nephritis.	400 c.cm.	1017	½–1	13.5 grams.	Many hyaline, fatty and blood casts, some with cells adherent.
3	290	Chronic glomerular nephritis.	Chronic glomerular nephritis. Chronic diphtheritic colitis.	.....	1011	¼+	.....	Many hyaline, fatty and blood casts, and waxy casts.
4	492	Chronic glomerular nephritis.	.....	.....	1008	⅛	.....	Occasional granular casts with cells adherent.
5	534	Chronic glomerular nephritis.	Chronic glomerular nephritis.	480 c.cm.	1013	¼	1%	Brown granular, epithelial, fatty, hyaline and waxy casts.
6	663	Chronic glomerular nephritis, with hepatitis, etc.	Chronic hepatitis.....	690 c.cm.	1012 1016	Trace to 0.1	1.39%	Occasional hyaline and granular casts with blood, fat cells adherent. Few fibrinous casts.
7	676	Chronic glomerular nephritis.	Chronic glomerular nephritis. (Sec. atrophy).	330 c.cm.	1013	⅛	3.6 grams.	Rare hyaline and granular casts with fat or cells adherent.
8	699	Chronic glomerular nephritis.	Chronic glomerular nephritis. (Sec. atrophy).	678 c.cm.	1010	Slight trace.	3 to 6 grams.	Rare hyaline and granular casts with fat adherent. Few waxy casts.
9	704	Chronic glomerular nephritis.	Chronic interstitial nephritis.	900 c.cm.	1008	0.2	14 grams.	Same as last case.
10	711	Chronic glomerular nephritis.	Chronic glomerular nephritis.	1200 c.cm.	1012	0.1	8.7 grams.	1st examination, rare granular casts. 2nd examination, no casts.
11	775	Chronic glomerular nephritis.	Aortic regurgitation, anemia.	840 c.cm.	1012	⅛	10.6 grams.	Few hyaline and granular casts.
12	779	Chronic glomerular nephritis.	Chronic glomerular nephritis.	900 to 2000	1011	⅛	13 grams.	Hyaline, granular, fatty, cellular, blood, and waxy casts.
13	168	Chronic glomerular nephritis.	Chronic glomerular nephritis.	Not estimated (coma).	1010	¼	.....	Occasional hyaline and granular. Some cells, occasional fat, occasional blood casts. Occasional hyaline, granular, fatty and blood casts; a few with cells adherent.
14	139	Chronic glomerular nephritis. (Slight). Secondarily contracted kidney.	Chronic nephritis.....	2700 c.cm.	1008	0.16⅔	0.63%	Granular epithelial and fatty casts.
15	811	Chronic glomerular nephritis.	Chronic glomerular nephritis.	350 c.cm.	1010	0.2	3.6 grams.	At times none. At other times fairly numerous hyaline, granular and waxy casts. No fat in six weekly examinations. Dropsical and uremic manifestations marked.
16	883	Chronic glomerular nephritis.	Chronic glomerular nephritis.	1200 c.cm.	1013	⅛	1.9%	Few hyaline, fine and coarse granular casts. Signs as above.
17	915	Chronic glomerular nephritis.	Chronic glomerular nephritis.	650 c.cm.	1022	1.5	10 grams.	Many hyaline, granular, fatty and waxy casts.

TABLE IV.—CHRONIC INTERSTITIAL NEPHRITIS.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Average Urine.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	1136	Chronic interstitial nephritis. Hypertrophied prostate and double hydronephrosis.	Arteriosclerosis. Angina pectoris.	650 c.cm.	1011	Trace.	1%	Few hyaline and granular casts. Occasional red corpuscles.	
2	1104	Chronic interstitial nephritis. Pernicious anemia.	Pernicious Anemia.	1100 c.cm.	1007 1009 1009	0 0 0	1.1%	No casts.	
3	1069	Chronic interstitial nephritis. Nephrolithiasis.	Ulcer of foot. Myocarditis.	850 c.cm.	1013	Trace.	.....	No casts.	
4	1022	Chronic interstitial nephritis. Bronchopneumonia.	Chronic glomerular nephritis. Arteriosclerosis.	1500 c.cm.	1008	0.1	.....	Few hyaline and granular casts, some with renal cells adherent.	
5	1005	Chronic interstitial nephritis. (Slight). Cerebral hemorrhage.	Cerebral hemorrhage.	.....	1011	1/6	0.6%	Rare hyaline and granular casts.	
6	998	Chronic interstitial nephritis. Pneumonia.	Chronic interstitial nephritis. Pneumonia.	1000 c.cm.	1013	Slight trace.	2%	No casts.	
7	974	Chronic interstitial nephritis. (Slight)-Sarcoma of shoulder and lung.	Sarcoma of shoulder.	.....	1015	0	0	None.	
8	934	Chronic interstitial nephritis. General tuberculosis.	Cirrhosis of the liver. Myocarditis.	750 c.cm.	1015	Trace.	5 grams.	Few hyaline and fine granular casts.	
9	866	Slight chronic interstitial nephritis. Pneumonia.	.....	1500 c.cm.	1015	Slight trace.	.....	Occasional hyaline and granular casts, with cells or blood adherent.	
10	862	Chronic interstitial nephritis. Cerebral hemorrhage.	Cerebral hemorrhage.	.....	.....	¼	.....	Many hyaline and granular casts with fat and blood adherent.	
11	840	Chronic interstitial nephritis. Unilateral (stone). Duodenal ulcer.	Crushed shoulder.	.....	1007	Slight trace.	.....	Rare hyaline and granular casts.	
12	834	Chronic interstitial nephritis.	Chronic glomerular nephritis.	450 c.cm.	1014	0.1	5 grams.	Rare hyaline and granular casts, one or two with fat adherent.	Marked nocturnal polyuria 3 to 4 quarts before entering hospital.
13	827	Chronic interstitial nephritis; pyelonephritis. Cystitis.	Cerebral embolism.	1650 c.cm.	1016	Slightest possible trace.	.....	No casts. Much pus.	
14	825	Chronic interstitial nephritis. Cerebral hemorrhage.	Chronic interstitial nephritis.	850 c.cm.	1012	Slight trace.	17 grams.	Few hyaline and granular casts, with occasionally a cell adherent.	Nocturnal polyuria; retinal hemorrhages.
15	821	Chronic interstitial nephritis. Syphilitic hepatitis.	Chronic interstitial nephritis.	1800 c.cm.	1012	Slightest possible trace.	27 grams.	Rare casts, at times (hyaline and granular). At other times none.	
16	818	Slight chronic interstitial nephritis. Cerebral hemorrhage.	Cerebral hemorrhage.	.....	1020	⅛	.....	Many hyaline and finely granular casts.	
17	787	Unilateral chronic interstitial nephritis. Cystitis, pyelonephritis.	Arteriosclerosis. Pyelonephritis, cystitis.	670 c.cm.	1028	Trace.	.....	Few hyaline, granular, blood and epithelial casts.	
18	777	Slight chronic interstitial nephritis. Phthisis.	Phthisis.	.....	1021	0	.....	Negative.	
19	770	Unilateral chronic interstitial nephritis.	Ulcerative colitis.	1	1020	Slightest possible trace.	8 grams.	No casts.	
20	764	Chronic interstitial nephritis. Aortic stenosis.	Uremia.	.....	1009	Large trace.	.....	No casts.....	Coma; no paralysis.
21	643	Unilateral chronic interstitial nephritis. Typhoid pneumonia.	Typhoid.	1300 c.cm.	1020	Slightest possible trace.	.....	Numerous hyaline, fine, coarse granular casts, some with cells adherent.	
22	636	Chronic interstitial nephritis.	Chronic glomerular nephritis.	1000 c.cm.	1020	⅛	2.9%	Many hyaline and fine granular casts, with occasional cell adherent.	Delirium.
23	522	Chronic interstitial nephritis.	Cancer of bladder. Pyelitis.	.....	1012	¼	0.8%	No casts.	
24	496	Chronic interstitial nephritis.	Mitral regurgitation.	2000 c.cm.	1010	⅛	1.4%	Few hyaline and granular casts.	
25	453	Chronic interstitial nephritis.	Chronic glomerular nephritis.	1600 c.cm.	1012	¼	0.8%	Rare hyaline or granular casts, with blood, fat or cells adherent.	
26	394	Chronic interstitial nephritis.	Delirium tremens. Uremia.	600 c.cm.	1010	½	1%	Very few granular casts with fat and fatty cells adherent.	
27	298	Chronic interstitial nephritis.	Chronic interstitial nephritis.	1000 c.cm.	1009	0.1	12 grams.	Rare hyaline and granular casts.	
28	289	Chronic interstitial nephritis.	Cardiorenal.	1400 c.cm.	1021	¼	15 grams.	Many hyaline casts with blood, fat and cells adherent.	
29	280	Chronic interstitial nephritis.	Chronic glomerular nephritis.	1200 c.cm.	1013	⅛	1.3%	Rare hyaline and granular cast with occasional cells or fat drops adherent.	
30	265	Chronic interstitial nephritis.	Chronic glomerular nephritis.	1000 c.cm.	1015	0.2	14 grams.	Much fat adherent to hyaline, granular and waxy casts; also some blood, cells and brown granular dèbris on casts.	
31	245	Chronic interstitial nephritis.	Arteriosclerosis.	2000 c.cm.	1020	0.16⅔	.....	Few pure hyaline casts.	
32	233	Chronic interstitial nephritis.	Chronic interstitial nephritis.	850 c.cm.	1012	0.1	12 grams.	No casts in three examinations. Rare cast with fat adherent at one examination.	
33	231	Chronic interstitial nephritis.	Cerebrospinal meningitis.	.....	1026	⅛	2.2%	Few granular casts with cells adherent.	
34	174	Chronic interstitial nephritis.	Chronic glomerular nephritis.	1000 c.cm.	1030	Slight trace.	.....	Numerous hyaline, granular, blood, fatty and epithelial casts.	
35	161	Chronic interstitial nephritis, with endocarditis.	Chronic glomerular nephritis with endocarditis.	1100 c.cm.	1112	0.1	1.2%	Many granular, brown granular, epithelial, blood, fatty and waxy casts.	

Casts were absent in 9 cases, and very scanty in 18 more, but in the remaining 8 cases, about one-fourth of the total, they were abundant. Hyaline or granular casts alone were found in 10 cases. In the remaining 25 cases, fat drops, red blood corpuscles or other cells were adherent to the casts. Fat drops and fatty casts were very abundant in 5, one-fourth of the cases. Waxy casts were mentioned in 2.

The specific gravity was persistently low in 24, or a little over two-thirds of the cases; in most of the others the presence of normal or high gravity could be accounted for by the coincident fever or other temporary disturbances.

Urea was low in some, but not lower than is frequently the case in many other diseases, not involving the kidney. We shall return to the discussion of the value of urea estimation in nephritic cases later in the course of this paper.

In connection with this series I wish to record a case of chronic polycythemia with splenic tumor, in which I watched the urine for over two years and found always the picture supposed to be characteristic of chronic interstitial nephritis, namely, increased 24-hour quantity, persistently pale color, low gravity, a slight trace of albumin and a few hyaline and granular casts. Yet, at the autopsy only chronic passive congestion was found.

AMYLOID DISEASE.

Owing to the nature of the cases admitted to the Massachusetts General Hospital, where this work has been done, amyloid is a rare condition with us, only 6 cases occurring in 1,200 autopsies. In none of these cases was the diagnosis of amyloid kidney definitely made during life. Four of them were called chronic diffuse nephritis, and in these cases we think the diagnosis of amyloid ought to have been made evident antemortem, since there was a clear history of syphilis in 3 of them, and a long-standing spinal abscess in the fourth, while in none of the 4 was the heart enlarged. These facts, taken in connection with the presence of a long-standing, generalized edema and a urine showing evidence of some type of nephritis, ought, I think, to be sufficient to suggest, at least, the strong probability of amyloid kidney.

The urine itself was not in any way characteristic and varied a great deal in the different cases. One case showed but a small amount of albumin and no casts. In all the others the amount of albumin and the number of casts was large, no special varieties of casts predominating. The specific gravity was high in 2 cases, low in 2 and moderate in 2, while the total amount of urine and the percentage of urea showed no constant law.

CHRONIC PASSIVE CONGESTION.

Thirty-five cases were studied. The specific gravity was high in 18 (½) cases, low in 9 (¼), and within normal limits in 8 (¼). This is not in accordance with most text-book statements in which high gravity is laid down as a constant or nearly constant feature.

The total amount of urine in 24 hours was reduced in every case, except one, the case of chronic polycythemia referred to above.

Albumin was absent in 2 cases. Slightest possible trace in 5. Trace or slight trace in 14, large trace in 1. From .1 to .25 per cent. in 6; .25 to .5 per cent. in 4. Only in one-half of the cases, then, did the amount of albumin give any help in the differential diagnosis from nephritis.

Casts were abundant in 12, scanty in 11, and absent in 12. Hyaline, granular and epithelial casts make up the bulk of those found, but blood and fat on casts are also mentioned in 7.

Urinalysis may indicate the presence of nephritis when nothing but passive congestion is to be found at autopsy to account for it.

In most of these cases, the diagnosis is not difficult because there is so much evidence besides the urinary analysis to set us right. But were we dependent on the urine alone we could not possibly distinguish many of these cases from some type of nephritis, and, in fact, in two cases the diagnosis of nephritis was made. One of these, diagnosed antemortem as amyloid, might well have deceived the very elect, for there was a chronic phthisis to suggest amyloid and urinary anomalies fully as marked as in the cases of actual amyloid recorded.

(To be continued.)

TABLE V.—AMYLOID DISEASE.

Case No.	Autopsy No.	Age.	Cause.	Anatomic diagnosis.		Clinical diagnosis.	Date.	Urine.			
				Heart.	Kidney.			Spec. grav.	Albumin, per cent.	Urea, per cent.	Sediment.
1	74	27	Pott's disease.	Small.	Amyloid.	Pott's disease with chronic diffuse nephritis.	.....	1006 1017	½	0.94	Hyaline, granular, fatty and waxy, coarse and brown granular casts.
2	78	42	Syphilis.	Small. 6th entry for this disease.	Amyloid.	Chronic parenchymatous nephritis.	.....	1034 1025	⅛	2.6	Hyaline and granular casts, some with fat and cells adherent.
3	317	38	Syphilis.	325 grams.	Amyloid.	Laparotomy for fibroid.	Aug. 22. Aug. 29. Sept. 6. Sept. 7.	1015 1022 1013 1017	No albumin. Trace. 0.2 1/6 ½ ¾	1	None. (Died on 11th).
4	417	58	Syphilis.	Small, 215.	Amyloid.	Cancer of neck.	.....				Rare hyaline casts.
5	456	46	Syphilis.	288 grams.	Amyloid with terminal pneumonia.	Chronic diffuse nephritis.	.....	1011	⅛ ½	6.5 grams. 17 grams.	One hyaline cast. Many granular casts with blood, cells and fat adherent.
6	691	45	Syphilis.	235 grams.	Amyloid. Streptococcus sepsis.	Chronic diffuse nephritis. (Opium).	.....	1025 1026 1024	1.2 0.7	1.89	Many hyaline and granular casts, with fatty cells and blood adherent. Many epithelial and blood casts.

Wild Licorice.—The bulk of the importations of licorice root are absorbed by tobacco manufacturers, who use it to flavor tobacco and snuff. According to the *Pharmaceutical Era*, sometimes large enough quantities of this flavoring are used to warrant the term adulteration. Most of the licorice grows wild in the Tigris and Euphrates valleys. The plants are regularly cut; in fact, the harvesting of licorice is almost an industry. The imperfect or crooked sticks are used for fuel, but the good ones are exported in large quantities, usually to England or America.

MODELS FOR TEACHING THE ANATOMY AND OPERATIVE TREATMENT OF INGUINAL HERNIA.

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CHICAGO.

Every teacher of surgical anatomy and operative surgery will no doubt agree with me when I say that it is exceedingly difficult for students and even for practitioners to comprehend the subject of inguinal hernia.

With a view of simplifying this subject, I have devised a model which is so constructed that it may be readily taken apart and transported.

For some years, Dr. E. Wyllys Andrews has employed a pillow covered with several layers of cloth of different colors to demonstrate his modification of the Bassini operation. The desirability of presenting the subject of hernia in a plain and easily comprehensible manner caused me to devise a frame on which the various layers of the abdominal wall would be represented by different colors of sweater cloth and muslin.

The advantages of my model are that it can be utilized to show all the constituents of the abdominal wall, both from the anterior and posterior aspects. It permits the teacher to give the student a conception of the anatomy of the inguinal region far more easily than any demonstration on the cadaver. I use both of these models, not only in the classroom, but to preface operations for inguinal hernia by showing the technic on one or both of the models. These demonstrations can be supplemented by the usual work on the cadaver and by demonstration on the living subject during the course of an operation for the radical cure of an inguinal hernia. During the last session of the American Medical Association at Atlantic City, I utilized these models to demonstrate my paper on the anatomy and radical cure of inguinal hernia before an audience of over four hundred persons, and I was assured by those sitting at some distance that every detail could be distinctly seen. At the request of many teachers of surgery who were present, I have decided to present this model to the profession, and can warmly recommend the adoption of these or of similar models in the teaching of the more difficult subjects of modern surgery.

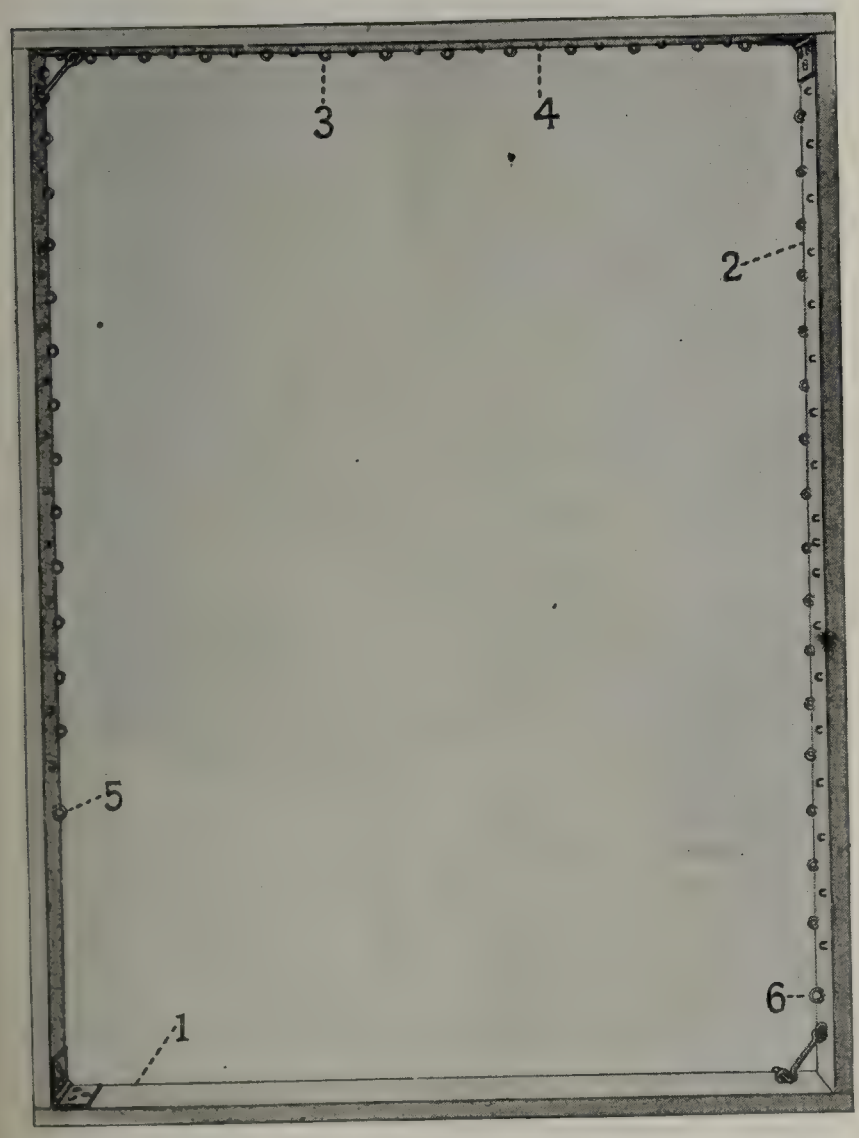


Fig. 1. Frame of the model. (1) Left or lower half of the frame. (2) Right or upper half of the frame. (3) Set of screw eyes placed well forward, but inside of frame, to which the external oblique is attached by means of hooks. (4) Set of eyes inserted into back portion of inner aspect of frame, to which the internal oblique and transversalis are attached together. (5) Screw eye, to which outer end of tape representing Poupart's ligament is attached. (6) Screw eye, to which outer end of tape representing Poupart's ligament is attached.

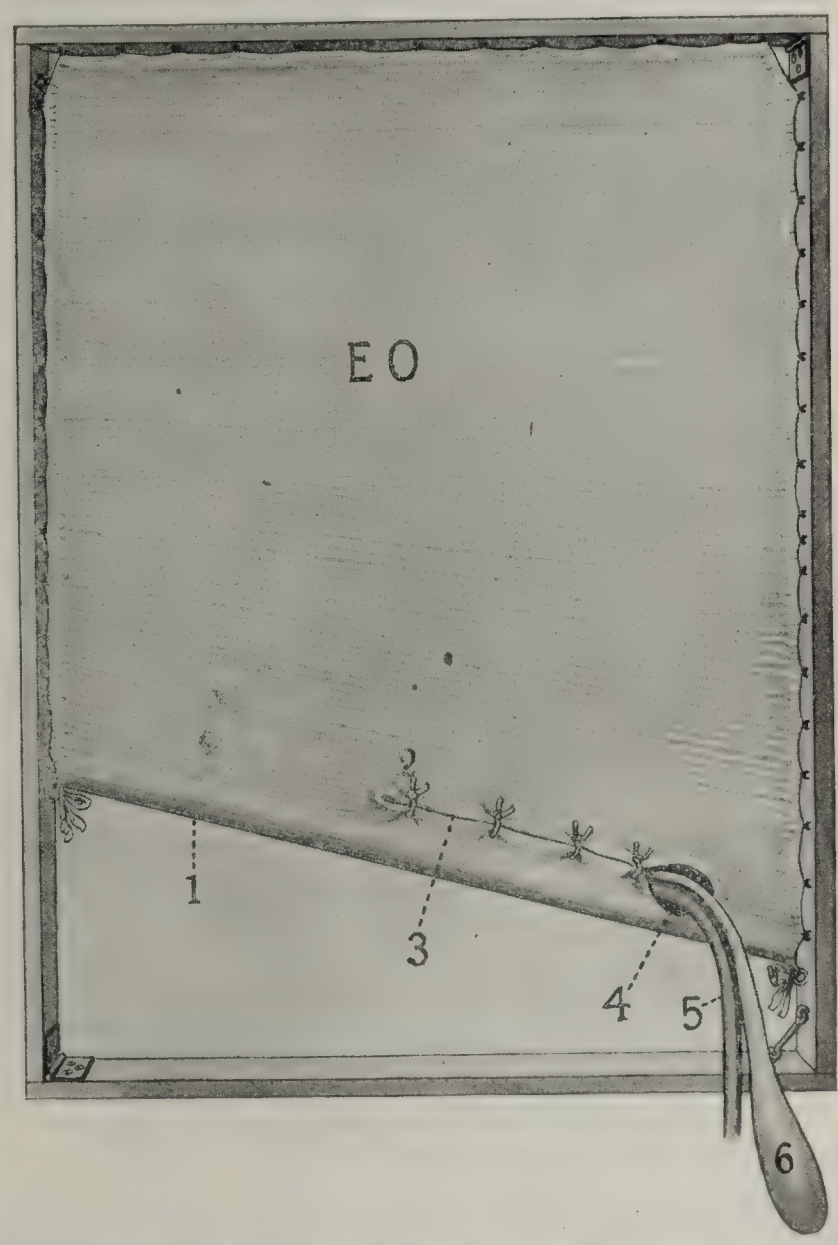


Fig. 2. EO, white sweater cloth, with fibers running down and inward to represent the external oblique muscle. (1) Tape representing Poupart's ligament, to which the external oblique is sewn along its entire sheath, and the internal oblique and transversalis to its outer half (Compare with Fig. 3). (2) Silk sutures temporarily closing slit in the sweater cloth, representing external oblique; the edges have been hemmed so as to prevent fraying. (3) Slit artificially made in the external oblique; edges hemmed to prevent fraying. The establishment of this slit saves cutting the external oblique aponeurosis every time the model is used, and, at the same time, the sutures (2), placed as they are in this figure, show the final step in the Bassini operation. (4) Opening in external oblique: edges hemmed to prevent fraying. This opening represents the external abdominal ring, through which may be seen emerging the spermatic cord (5), represented by heavy rubber tubing; and (6) the linen bag which increases in size towards its lower end, representing the sac of an inguinal hernia.

A reference to the description given with each illustration will perhaps explain more clearly than any

amount of text the construction and practical workings of the two models.

The first model is shown in Figs. 1 to 10, inclusive, and is designed to give an anteroposterior view of the inguinal region. The frame consists of four strips of wood, 1 inch in thickness and 2 inches in width. The horizontal pieces are 36 inches long; vertical pieces 46 inches. One horizontal and one vertical piece are connected by means of a hinge, and all four are held together by means of hooks and eyes, seen at the lower right hand and upper left hand corners of the frame. Two sets of screw eyes are used, one placed close to the anterior portion of the frame (3 in Fig. 1), and the other inserted into the back portion of the inside of the frame. The abdominal muscles are made of sweater cloth, which can be obtained in any manufactory of sweaters and knit goods. This material can be obtained in any length, but the widest piece is only eighteen inches. In my own model the external oblique muscle was made of white sweater cloth, the internal oblique of red, and the transversalis of green.

Great care was taken to imitate, in sewing the pieces together, the natural course of the fibers of these muscles, as will be seen by a reference to Figs. 2, 3 and 4.

A strong piece of tape is used to represent Poupart's ligament, the upper end being attached to the screw eye 5 in Fig. 1; the lower to 6, to represent the normal obliquity. To this strong tape all of the three layers of sweater cloth representing the abdominal muscles are sewn. In addition, a piece of tape is used to sew to the edge of each of the layers of sweater cloth representing the abdominal muscles, in order to prevent fraying.

The external oblique (E. O. in Fig. 2) has a separate set of hooks attached to the tape along its edge, so that it can be unhooked from the anterior set of screw eyes (3 in Fig. 1) and turned back, in order to demonstrate the deeper layers (Fig. 3).

A slit is cut in this external oblique (3 in Fig. 2), which represents the incision ordinarily made in this muscle to expose the canal prior to any of the modern operations except that of Kocher. The slit can be temporarily closed before using the model by means of four

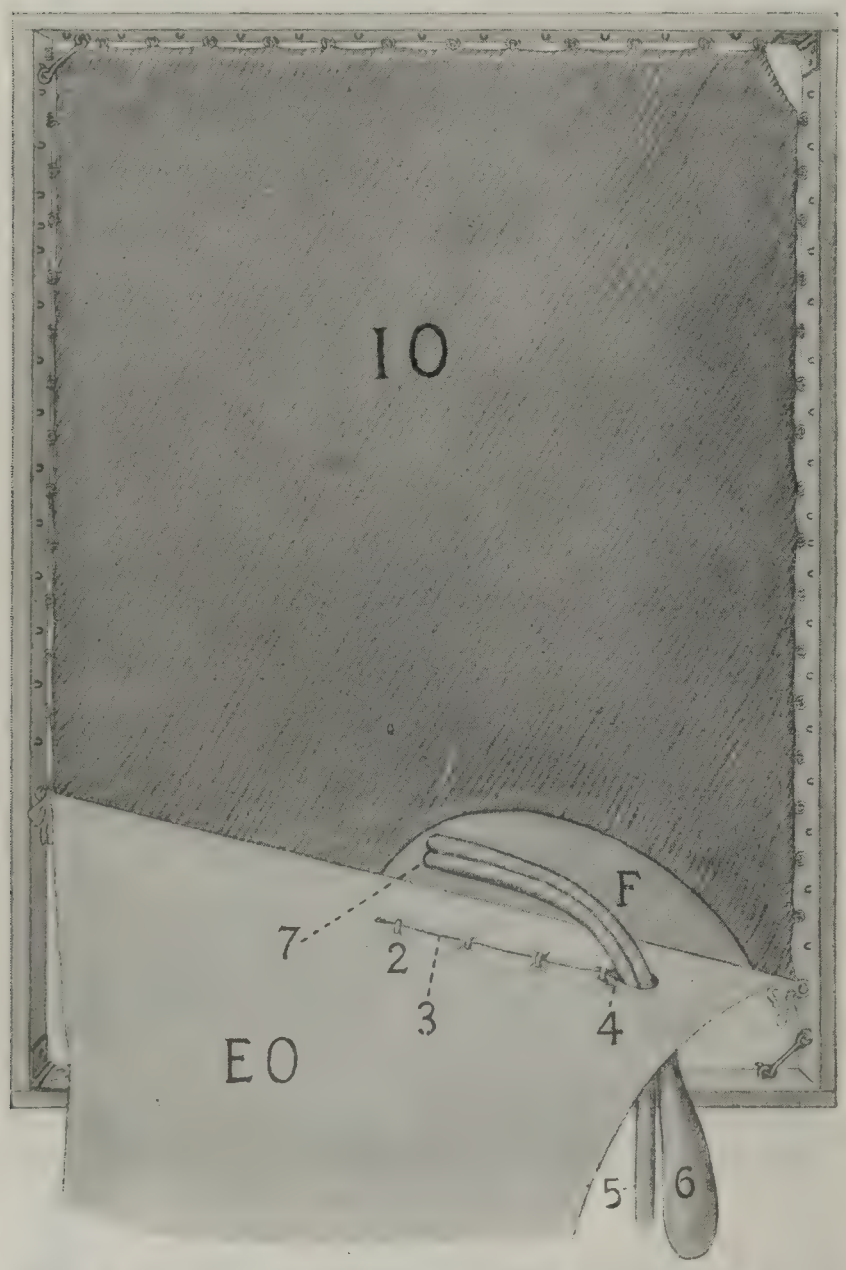


Fig. 3. IO, red sweater cloth, in which the fibers run up and inward to represent the internal oblique. EO, the external oblique, has been unhooked and allowed to fall so as to demonstrate the deeper muscles. (2) Four sutures closing the artificially made slit in the external oblique muscle, described in Fig. 2. (3) Slit referred to in Fig. 2. (4) External abdominal ring. (5) Spermatic cord. (6) Hernial sac made of linen bag, which increases in length from the external abdominal ring to its lower end. (7) Internal abdominal ring, represented by an opening made in F, the transversalis fascia.

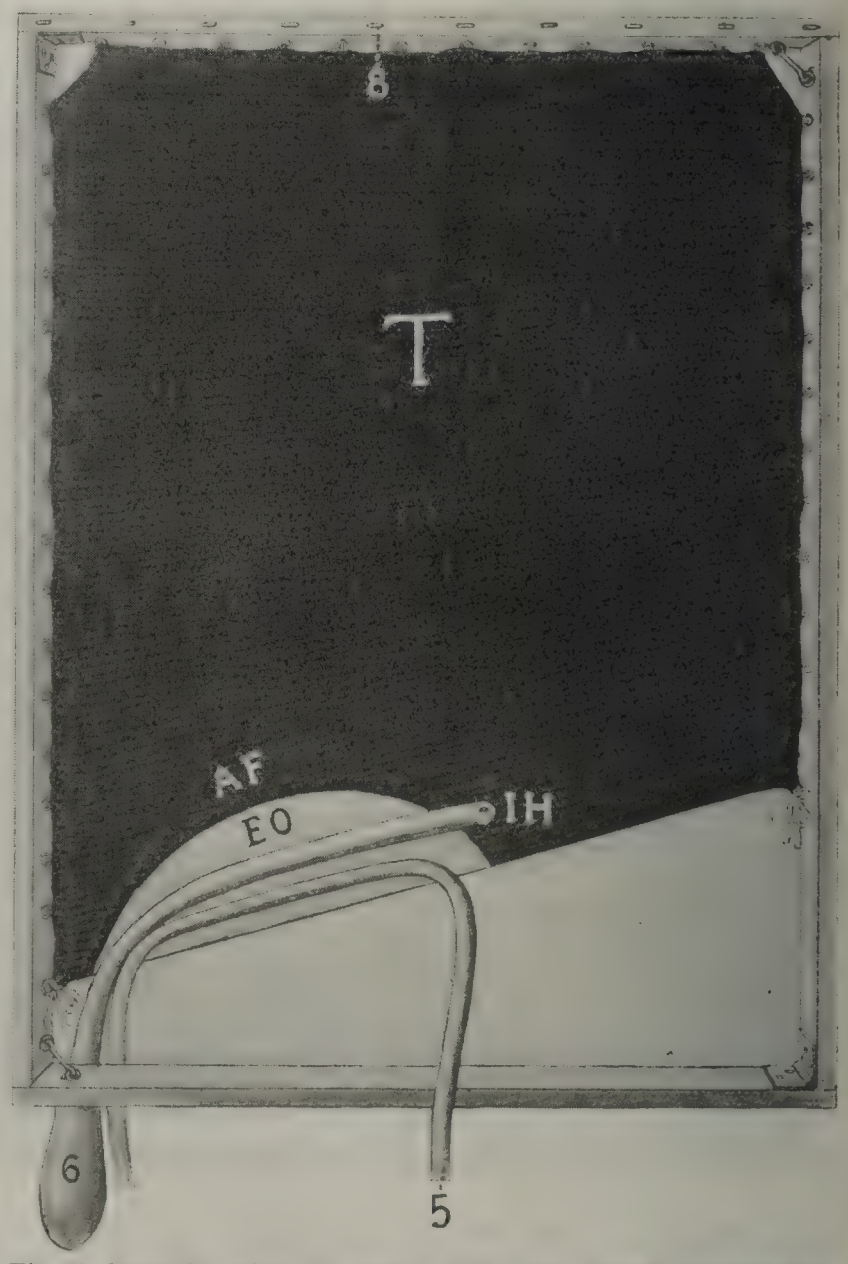


Fig. 4. Posterior view of model, with linen sheets representing peritoneum and transversalis fascia removed. T, green sweater cloth, with fibers running almost transversely, representing the transversalis muscle. IO, the internal oblique, and T, transversalis muscles, are sutured together along their edges and also to the outer half of the tape representing Poupart's ligament (Fig. 3). At the inner end of Poupart's ligament the student can get the idea of how these two muscles unite to form the conjoined tendon seen in this picture. AF represents the arching fibers of the transversalis. Those of the internal oblique are seen in Fig. 3. EO, external oblique aponeurosis, seen from its posterior aspect. IH, upper end of linen bag, representing hernial sac, the lower end of which is seen as 6. (5) Posterior end of rubber tube which represents spermatic cord as it descends toward the base of the bladder. If desirable, a number of pieces of colored ribbons can be made to accompany the hernial sac and rubber tube, representing the cord, in order to show the spermatic artery and veins. (8) Set of screw eyes inserted on posterior aspect of frame, to which the muslin sheets, representing the peritoneum and transversalis fascia (see Fig. 5), are attached.

sutures of ordinary twine or silk, which can be cut during demonstrations so that the edges of the external oblique from the external to the internal abdominal rings can be held apart (Fig. 7) by retractors or artery forceps.

The red sweater cloth is turned in at its lower edge from a point corresponding to the outer half of Poupart's ligament to a point close to its inner half, in order to represent the arching fibers of the internal oblique, beneath which the spermatic cord and hernial sac pass. The same treatment is given the inner half of the lower edge of the green sweater cloth, representing the transversalis muscle.

Into the posterior aspect of the upper horizontal piece of the frame a third set of screw eyes is inserted (8 in Fig. 4). To this set, two layers of heavy muslin, which can be sewn together at their upper end, are attached, in the hernial sac, in order to represent either an enterocele or an epiplocele, or both.

The hernial sac is hooked into little loops of thread at the edges of the opening in the peritoneum, so that it can be pulled away when the radical cure is demonstrated.

The spermatic cord is represented by a piece of the webbed rubber tubing which is sold with gas stoves, and the hernial sac by a long piece of muslin, which can be sewn in the form of a sac, increasing in size towards its lower end (6 in Fig. 7). The spermatic cord, or, rather, the tube representing it, can be allowed to drop between the transversalis fascia and the peritoneum, to show how it passes towards the bladder during life.

Fig. 8 shows how the model can be used for teaching the various inguinal hernia operations. The sac can be transfixed and ligated, and allowed to drop back (S in

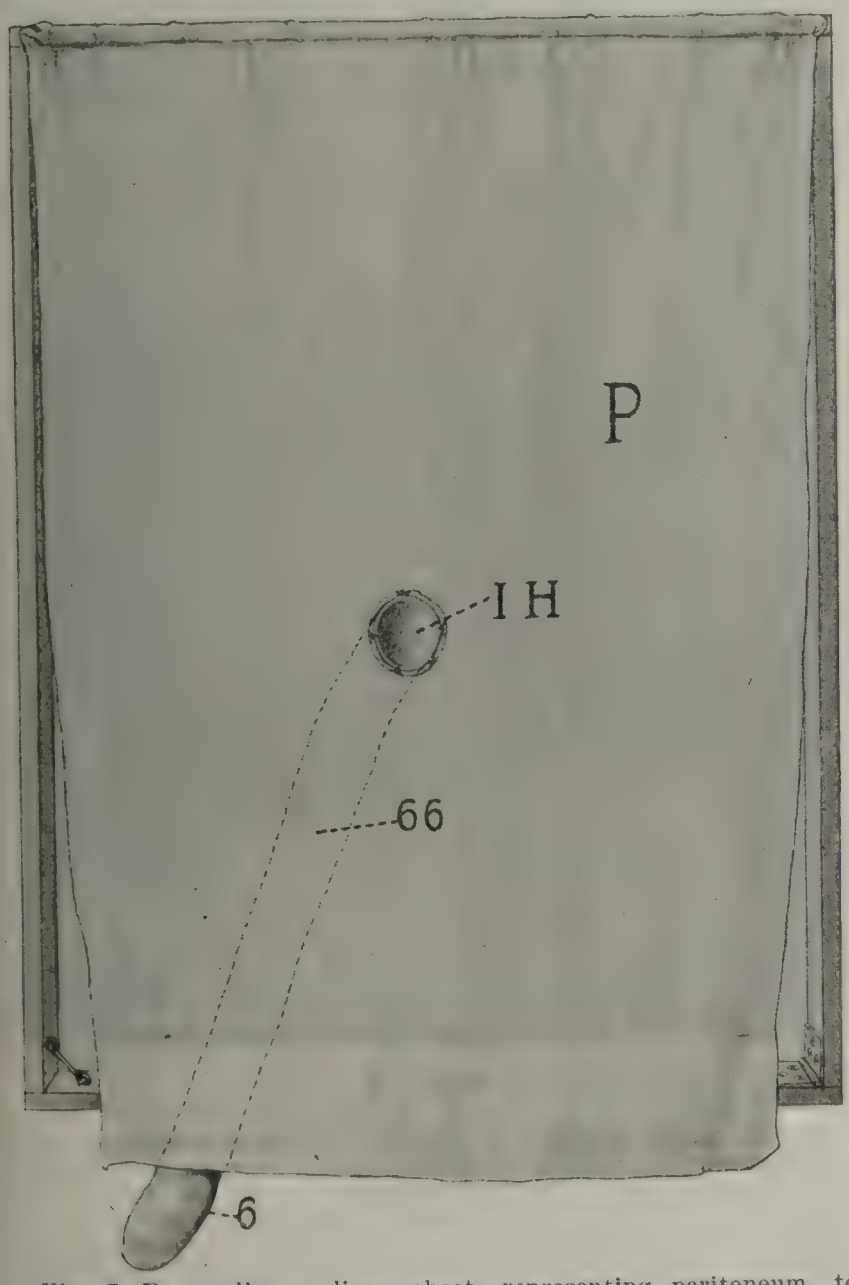


Fig. 5. P, muslin or linen sheet, representing peritoneum, to which the transversalis is sutured at its upper border, and both sheets hung from a set of screw eyes (8), seen in Figs. 4 and 6, and marked 8. IH, the opening artificially made opposite a point a little above the middle of Poupart's ligament, represents the inner opening of the hernial sac and marked IH. 66, hernial sac seen in outline. Its lower end seen below the frame as 6.

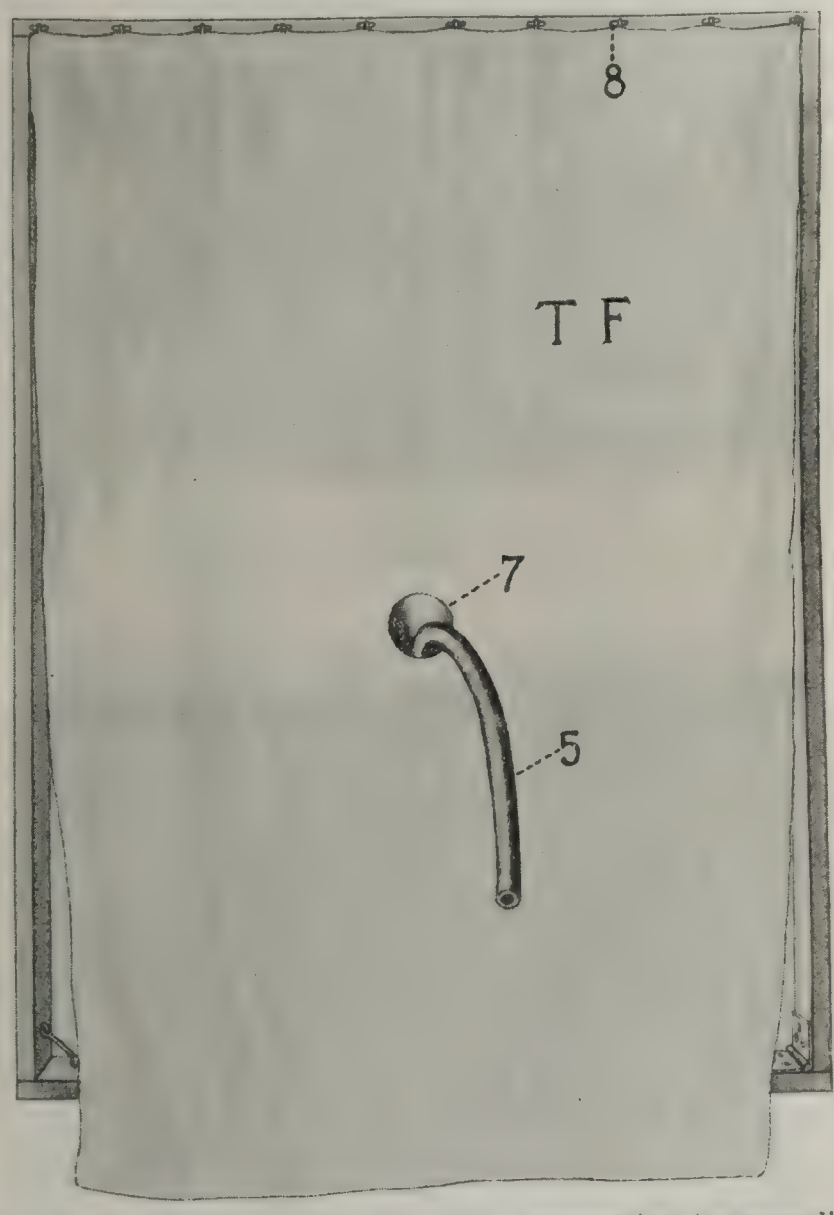


Fig. 6. TF, linen or muslin sheet, representing transversalis fascia, sewn with the linen sheet, seen in Fig. 5, and representing the peritoneum, to a piece of tape into which hooks are inserted, and these suspended from a set of screw eyes marked 8 on posterior aspect of upper border of frame of model. (5) Posterior end of rubber tubing, representing spermatic cord as it passes towards the base of the bladder. (7) Opening made in muslin sheet, representing the transversalis fascia, which corresponds to the internal abdominal ring, situated a little above the middle of Poupart's ligament.

order to utilize the same set of hooks. The more anterior of these two represents the transversalis fascia (Fig. 6), and at a point corresponding to about the middle of Poupart's ligament an opening is made, which represents the internal abdominal ring. The most posterior of all the layers is the second muslin sheet, representing the peritoneum (Fig. 5). At a point opposite the internal abdominal ring the internal opening of the hernial sac can be made, and, if desirable, any substance which represents the intestines and omentum may be utilized to fill

Fig. 8), or it can be detached from its loops, to preserve it. Then, in order to complete a demonstration of the Coley modification of the Bassini operation, a twine or silk suture passes through the internal oblique and transversalis above the cord, and is inserted into the tape representing Poupart's ligament. Three sutures are placed below the cord, in order to bring the internal oblique and transversalis down to the shelving edge of Poupart's ligament. The cord is held aside by a piece of

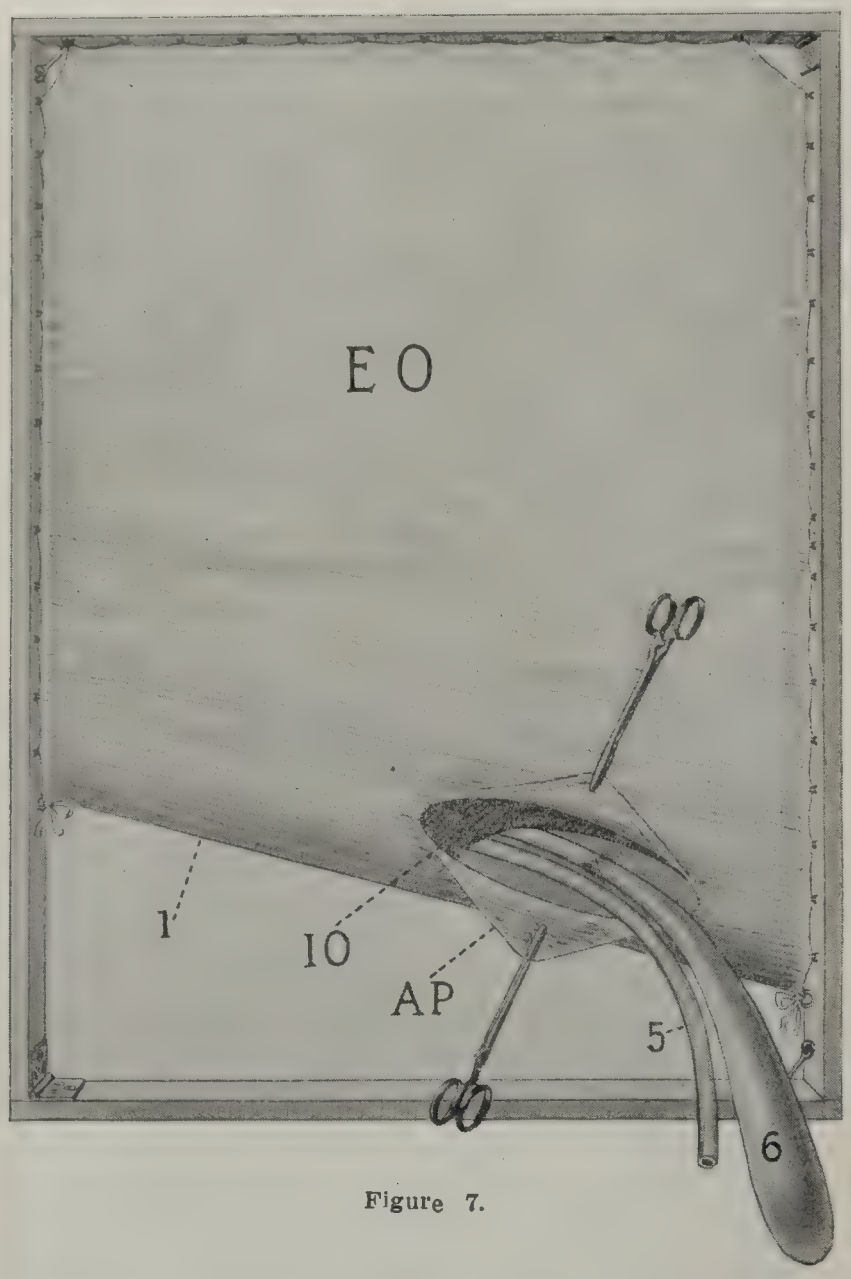


Figure 7.

Fig. 7. Anterior view of model, with edges of slit (AP) in external oblique aponeurosis, seen in Fig. 2, held back by two artery forceps. This shows the arching fibers of the internal oblique (IO), beneath which appear the spermatic cord (5) and the hernial sac (6). (1) Tape, representing Poupart's ligament, to which EO, the external oblique, is shown. This demonstration may be used to show either the anatomy of an inguinal hernia, or the first step of all of the modern radical cure of inguinal hernia operations except that of Kocher.

Fig. 8. Use of model in demonstrating the further steps of the Bassini operation. EO, external oblique aponeurosis, whose edges are held back, as in Fig. 7, by means of two artery forceps. TE, tape holding the rubber tube, representing spermatic cord (5), aside, in order to permit suturing of the deeper muscles. S, neck of hernial sac transfixed and tied off by means of a piece of silk. BC, suture inserted according to the Coley modification of the Bassini operation above the cord, bringing the internal oblique and transversalis to the inner aspect of Poupart's ligament. B, three sutures which are inserted below the cord in order to bring the internal oblique and transversalis, as well as their conjoined tendon, to the inner aspect of Poupart's ligament.

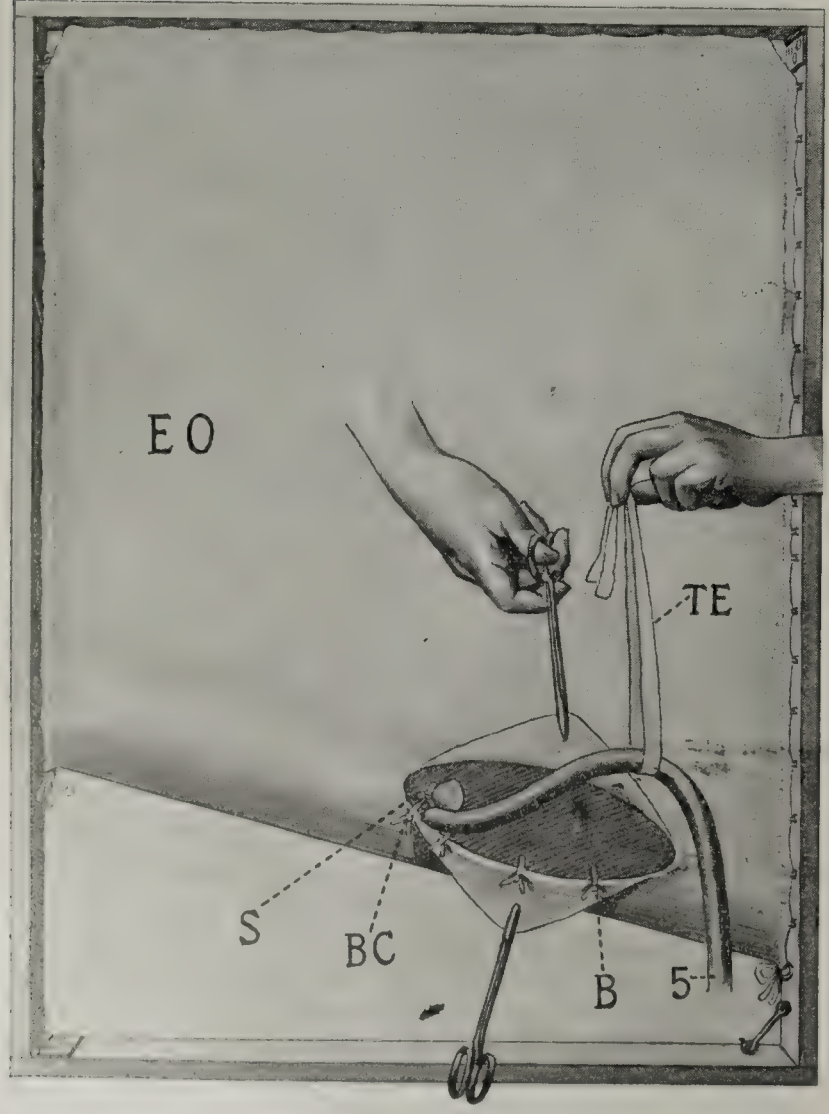


Figure 8.

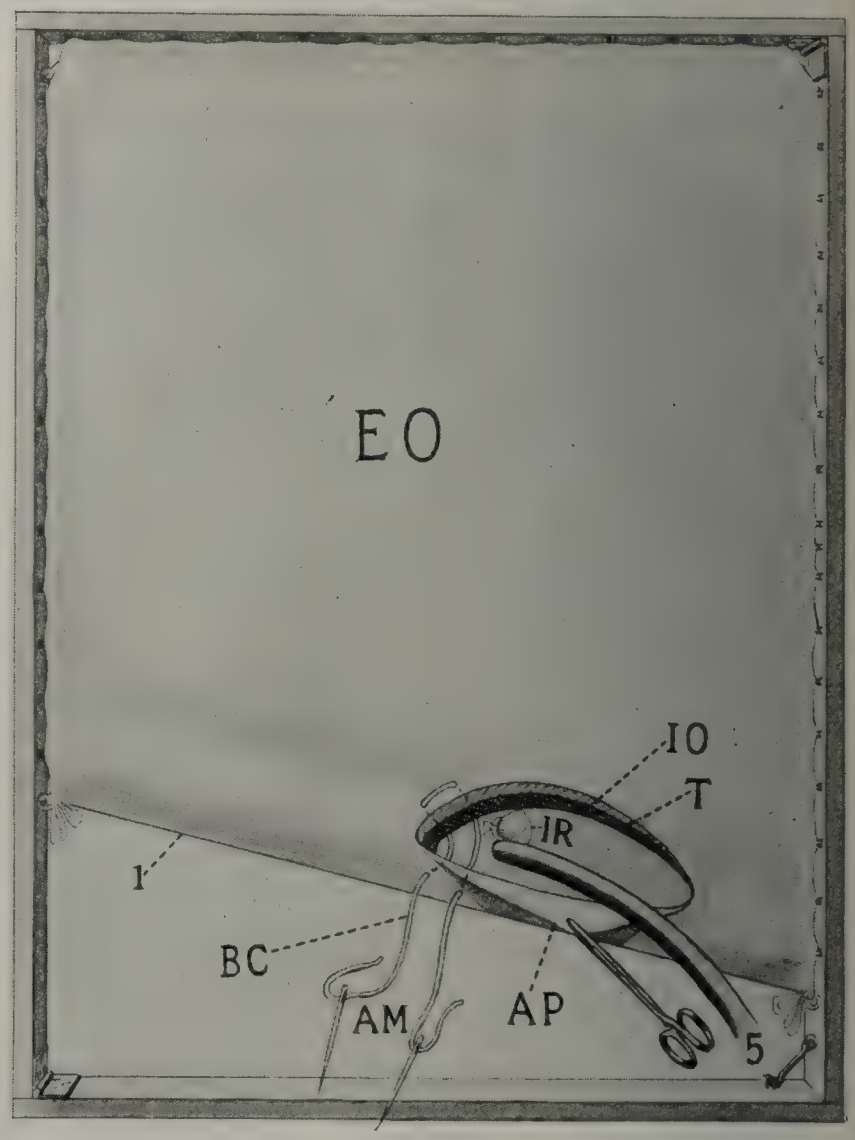


Figure 9.

Fig. 9. Model employed in teaching the Andrews modification of the Bassini operation, as performed by the writer. EO, external oblique aponeurosis; the lower edge of the slit in the external oblique aponeurosis, which extends from the external to the internal oblique rings, is shown as being retracted downward and outward as AP. (1) Poupart's ligament; IO, arching fibers of internal oblique; T, arching fibers of transversalis. (5) Spermatic cord; its upper end is seen to disappear at the internal abdominal ring IR. BC and AM, two threaded ends of suture which passes through edges of the external oblique, internal oblique and transversalis, in order to bring them over to the inner aspect of the external oblique aponeurosis close to Poupart's ligament (see text). The threads are shown as passing through the external oblique aponeurosis and emerging on its outer aspect to Poupart's ligament (1).

tape (Fig. 8). The effect of this strengthening of the posterior wall of the inguinal canal, which is the object of the Bassini operation, with the transplantation of the cord in front of the internal oblique and transversalis, can be seen in Fig. 10, which gives a view of the posterior aspect of the inguinal canal after the sutures of the Bassini operation have been inserted.

Fig. 9 shows how the model can be employed in teach-

Fig. 10. Posterior view of model, with peritoneum and transversalis fascia removed, the eyes to which they have been attached being shown as (8). T, transversalis muscle; (5) tube representing spermatic cord; to its right is seen one suture, and to its left four sutures, in order to demonstrate to the student how the posterior wall of the inguinal canal is strengthened in the Bassini operation and its Andrews modification by suturing the various muscles to Poupart's ligament.

Fig. 11. Box-shaped model described in text, which can be used for lateral view of layers of hernial region and operations. EO, external oblique muscle and aponeurosis. A slit has been cut in the sweater cloth and sewed up again (as in Fig. 2), leaving an opening (external abdominal ring), through which the hernial sac (6) and the spermatic cord (5) pass. IO, internal oblique muscle. T, transversalis muscle (observe arching fibers of IO and T). PL, Poupart's ligament (represented by a flat band of muslin). TF, transversalis fascia. At IAR the internal abdominal ring can be seen. P, peritoneum. At IHR the internal opening of the hernial sac can be seen. The spermatic cord (5) and hernial sac (6) separate at IAR, the former passing toward the bladder.

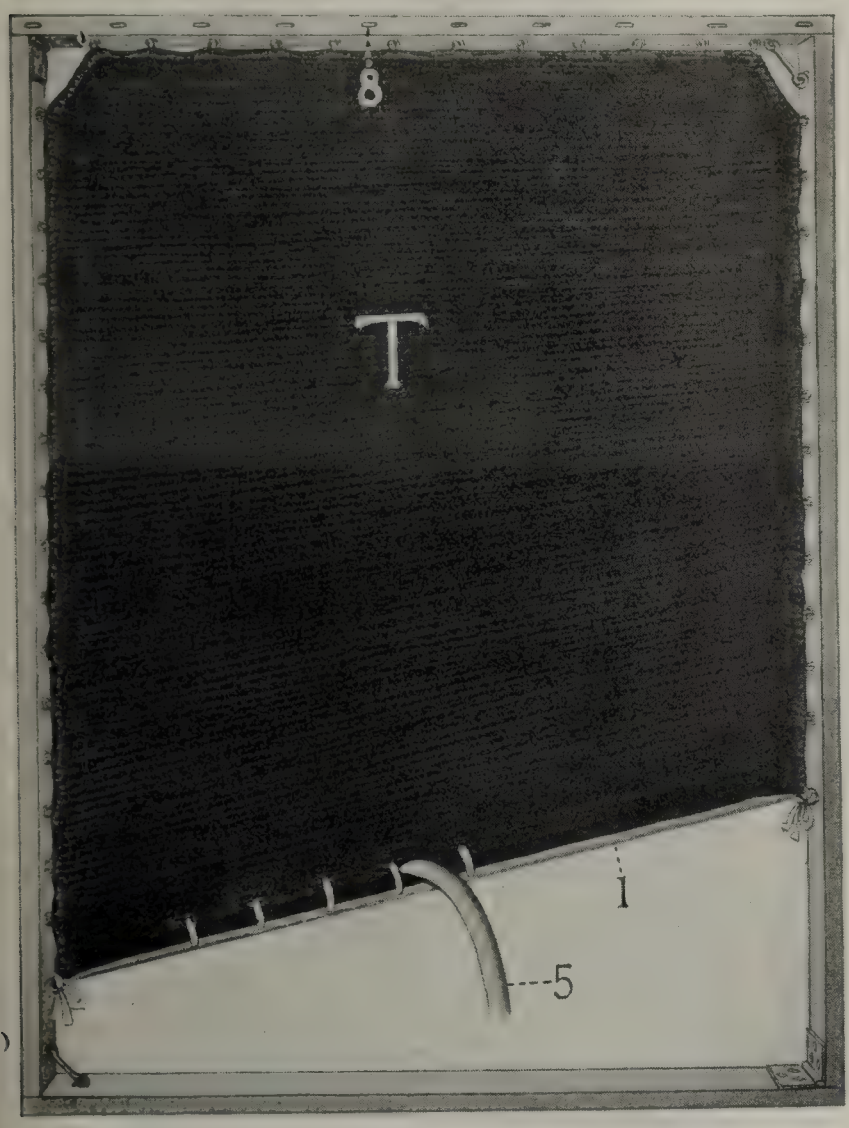


Figure 10.

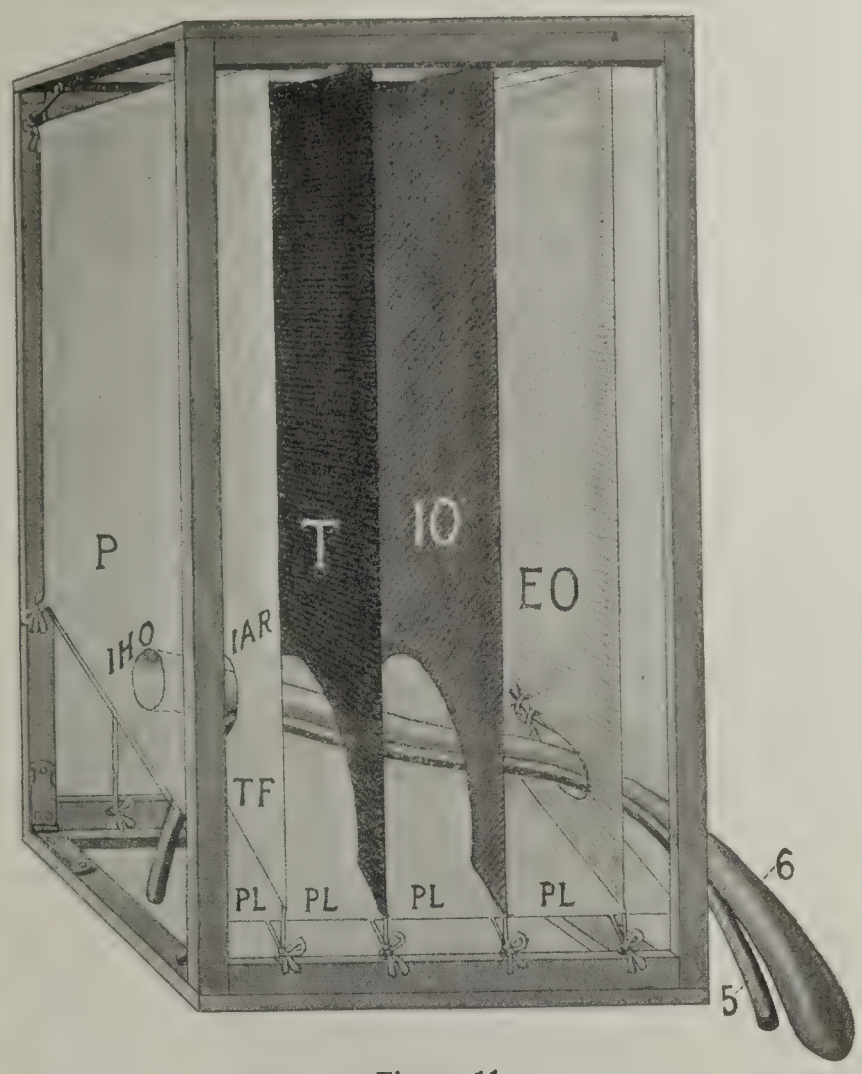


Figure 11.

Fig. 12. Front view of box-shaped model. EO, external oblique muscle and aponeurosis. IO, arching fibers of internal oblique. Muscle seen when slit made in external oblique has been opened and edges (AP) retracted by artery forceps. T, arching fibers of transversalis muscle. PL, Poupart's ligament. TF, transversalis fascia. (5) Spermatic cord, represented by rubber tube. (6) Hernial sac, represented by muslin bag, which tapers toward internal abdominal ring.

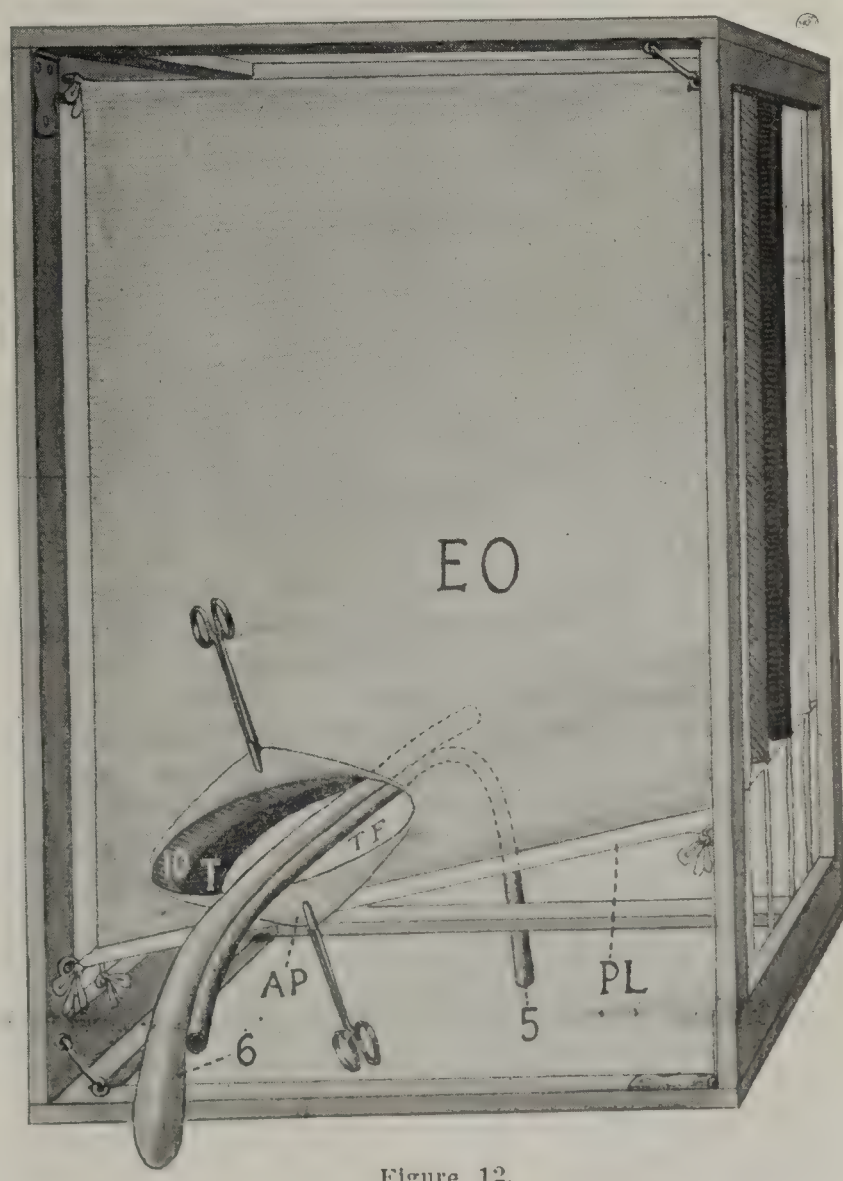


Figure 12.

ing the Andrews modification of the Bassini operation, which aims to bring the internal portion of the external oblique aponeurosis behind the cord to further strengthen the posterior wall. I fully described this in a paper read at the last session of the American Medical Association.[1]

It has been impossible in such a model as this to imitate in an absolutely accurate manner the normal anatomic conditions, but for all practical purposes both of the models will suffice to illustrate the anatomy of inguinal hernia of the ordinary indirect and direct types, and at the same time they can be used for teaching the operations for the radical cure of such a hernia, with or

1. THE JOURNAL, Sept. 10, 1904.

without descent of testis. The anatomic points which could not be shown without making the model a less useful one are that it was impossible to imitate the relations of the aponeuroses of the three abdominal muscles, external oblique, internal oblique, and transversalis, to the rectus, whose anterior sheath they form by the union of their aponeuroses. Possibly at some future time I may devise some plan by which this can also be shown. For the same reason, neither of the models show the formation of the conjoined tendon, and the rôle which it plays in strengthening the posterior wall of the inguinal canal, a fact to which I called attention in a recent paper.[1]

The second model is simply constructed on the plan of a box, whose sides have been removed, in order to show the interior from all aspects. As will be seen by a reference to Figs. 11 and 12, the former shows a lateral and the latter a front view of the model. Such a plan enables us to show to the student, in a somewhat diagrammatic manner, the relations of the abdominal muscles, transversalis fascia and peritoneum, to each other, and at the same time it can be used to demonstrate the conditions existing in the abdominal wall, as best seen in such a lateral view after the various modern operations for inguinal hernia. The box-shaped model is constructed of four frames, two of which are hinged to each other, as shown in the figures. The dimensions of the vertical and horizontal pieces of the front and back of the frame are the same as in the antero-posterior model described above. The depth of the box-shaped model is 22 inches. The same colors are used for the different abdominal muscles as in the other model, the only differences being that each one is attached by a separate set of tapes to screw eyes inserted on the outside of the frame, and that they are sewed along their lower border to a wide piece of linen or muslin representing Poupart's ligament (P. L. in Fig. 11).

In the same manner as in the other model, the lower edges of the sweater cloths representing the internal oblique and transversalis are folded in to represent the arching fibers of these muscles, and similarly a slit is made in the external oblique which is closed again with sutures. The spermatic cord is made of silk-covered rubber tubing, and the hernial sac of a long muslin strip, whose edges are sewn together, and which is narrower at its upper end, where it passes under the arched fibers, and through the opening in the transversalis fascia (I. A. R. in Fig. 11), and terminates at (I. H. O.) the internal opening of the hernial sac (P in Fig. 11) in the peritoneum.

Figure 11 shows how the spermatic cord passes downward toward the bladder between the transversalis fascia (T. F.) and the peritoneum (P.).

The box-shaped model is much more difficult to construct, but the same may be said of it as of other models, that it will well repay the time and the slight expense involved in the construction for teachers to demonstrate the anatomy and radical cure operations on such models.

Portland, while not a large city, is peculiarly well fitted during the coming summer to provide for a large number of visitors. The Lewis and Clark Exposition will be in full swing at the time the American Medical Association meets, but, like all expositions, the attendance will not reach large numbers before the end of July or early in August, hence it may be confidently predicted that during the time of the meeting of the Association the town will not be uncomfortably crowded.—*Medicine.*

A SYSTEM FOR THE SURGICAL CORRECTION OF HARELIP AND CLEFT PALATE.*

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The reasons for the existence of any system of surgical treatment, and particularly, one applied to the correction of a special class of affections, must be: First, a demand for such service. Second, its necessity by reason of the large number of failures and extreme difficulty of accomplishing good results by other methods. Third, that it makes possible an enlargement of the field of surgical accomplishment in at least one direction.

The blind, the deaf and dumb, the tuberculous and the crippled almost everywhere have institutions established for their care. States and communities have recognized the duty of ministering to the comforts and necessities of the afflicted in these directions. Large sums are annually contributed for the maintenance of such work, and the encouragement of scientific investigation to increase the efficiency of its usefulness, but no such responsibility has been assumed by municipalities, nor has any notable portion of endowments of charitably inclined wealthy citizens been devoted to the relief of these unfortunate individuals, half dumb through malformation of their mouths and palates and doubly cursed by having the deformity and the even greater affliction of mental comprehension of difference from their fellows. Their harelips, scarred and ill-shapen faces mark them, through no fault of their own, as were branded the felons in barbaric times; speech communion with their fellows is almost wholly forbidden and they live ever in the dark shadow of misfortune.

NECESSITY FOR NEW AND SYSTEMATIC METHODS.

To those familiar with the literature and practical features of this subject, it is patent that all methods of treatment, whether prosthetic or surgical, have hitherto failed to be successful in a large number of cases and have not been able to meet the demands of many cases at all.

Numerous methods of operation and most ingenious forms of obturators have been from time to time suggested by authors, and adopted by practitioners, with more or less benefit in individual or special kinds of cases, and yet, a systematic classification of the forms, with particular methods to be employed in the correction of each variety, showing comprehensive consideration of the distinct requirements that are found to be imperative, seems not to have received the attention that is due. This, the system that I now present to you in my own name, after years of practical study in the care of a large number of patients, seeks to accomplish in a considerable measure.

Its methods are necessarily founded on the ground work constructed by eminent surgeons, who have contributed to literature the results of their efforts in this direction, beginning probably with Lemonier, in 1776, as the first to attempt to close palate fissures by surgical means, followed by Eustache in 1799, von Graefe in 1876, Roux in 1879, Warren of Boston, 1820. Diffenbach, Liston, Sir William Fergusson,[1] the real author

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* Read in the Section on Stomatology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904. The article has been abbreviated by the omission of part of the illustrations. The entire article appears in the reprints.

1. Sir William Fergusson, International Clinics, 1877.

of successful staphylorrhaphy; Sedilot, Pancoast, William Garretson, Wolf,[2] Erdman, Billroth,[3] von Langenbeck, Trilet,[4] and a host of great surgeons, past and present, who, despite great discouragement—for this work is ever discouraging to surgical procedures when compared with other fields of operation—have each lent some share of personal skill and ingenuity to aid the perfection of the operative technic necessary to ensure the ultimate success of the work.

ORIGINALITY.

The operation for reduction of the width of the fissure, in combination with the use of the appliance as



Fig. 1.—Cast of the mouth of a baby with single harelip, as in Figure 2, with the characteristic enlarged turbinate.

described, is original with me, and I first performed it in 1897.

The methods of preparatory treatment of infants for the correction of facial deformity in lip cases are, so far as may be judged from careful study of the literature, also original with me.



Fig. 2.—Baby with single harelip. Nose flattened and drawn to one side.

Various minor steps in the operative technic have been developed from time to time, without previous knowledge of others having introduced them, and are believed to be original.

CLASSIFICATION.

The following is a classification that I have previously reported in other papers, and is designed to cover the important considerations from a surgical point of view:[5]

1. Character: Congenital Acquired.
2. Form:
   Fissure in velum palati only (Figs. 32 and 34).
   Fissure of the velum, including part of the hard palate also (Fig. 36).
   Cleft entirely through both hard and soft palates (Fig. 39).
   Median fissure through both hard and soft palates, with bifurcation at the maxillary bone (Figs. 41 and 43).
   Double separation divided by the vomer, including the hard palate, with wide fissure almost completely obliterating the velum (Fig. 14).
3. Age:
   At birth or during early infancy (Fig. 1).
   Six months to one year old (Fig. 4).
   Two years old and during the period after deciduous teeth have been erupted, but before their permanent successors have caused them to loosen (Figs. 36 and 39).
   Twelve to 18 years of age, or later years. After permanent teeth have been erupted, but before developmental processes have been completed.
   Adults with teeth in upper jaws (Figs. 41 and 43).
   Adults with edentulous upper jaws (Fig. 18).



Fig. 3.—Photograph of same baby shown in Figure 2 after operation and intended to call attention to the straightness of the nose, equality of shape of alæ and the fact that the mouth is closed, which indicates that he breathes naturally through the nose.

Either lip or palate may be imperfect without the other being affected, although, as will be noted by study of the illustration, it is common for certain forms of lip and palate deformities to be associated.

Congenital lip deformities are either unilateral (Figs. 2 and 5) or bilateral (Figs. 7, 11 and 15). The former may be of first degree, or little more than a notch; of second degree, with a fissure extending completely through both lip and maxillary bones; or of third degree, a wider separation with unilateral protrusion of the intermaxillary bone.

Bilateral or double harelip has usually marked deformity of the vomer with protrusion. To these, unfortunately, must be added the cases that have been imperfectly operated on in early life, which so often call for correction and which, although presenting an infinite variety of imperfections, have nevertheless certain characteristic defects that admit of distinct recog-

2. Wolf: Archives of Klinical.
3. Billroth: Vienna Medical Presse, 1889.
4. Trilet, 1889.

5. Brown, George V. I. Surgical Correction of Malformations and Speech Defects Due to or Associated with Harelip and Cleft Palate, THE JOURNAL A. M. A., 1902. A System for the Treatment of Harelip and Cleft Palate, Chicago Med. Record, 1903. Relation and Comparative Merits of Surgery and Prosthesis in the Correction of Harelip and Cleft Palate, The Dental Summary, 1903.

nition and may be enumerated as follows: 1. Notch at the labial border. 2. Deflection of the tip of the nose, with deviation of the cartilaginous septum and flatness of the ala on the affected side. 3. Unsightly scars. 4. Stenosis of one or both nares. 5. Marked arrest of development due to removal of the intermaxillary portion of jaw.

EARLY OPERATION.

Radical operation for closure of cleft palate in the infant is to be condemned, because the death rate is unquestionably high. This is true of every serious operation at a period of life when the vital forces are busy adjusting themselves to a new, though natural, environment. The marked change from the direct protection and blood supply of the uterus to the uncertainties of nourishment and temperature after birth involves a problem fraught with many difficulties of solution, even in the care of normal children. How much greater then, when the vital forces are sapped by hemorrhage, and the digestive function disturbed by bacterial influences incident to operative procedures in the oral cavity, or wires left in the tissues of the mouth and jaws to gather bacteria in spite of antiseptic precautions, as they must and always do under these conditions.



Fig. 7.—Baby with double harelip and the usual oral, facial and nasal distortions.



Fig. 8.—Same baby as in Figure 7, with parts bound in position after preparatory operation on the vomer and manipulation to replace parts and to bring them into normal position before final operation.

The question of meningitis also becomes a serious consideration when one contemplates the result of crushing the maxillary bones together to approximate the sides of such wide fissures as are found to exist in many cases, because of the co-relation of the still unformed semicartilaginous bones of the face and head, which share in the effect of compression, and added to this is the danger of infection being carried to the brain through the direct channels of communication.



Fig. 9.—Same baby as in Figures 7 and 8 and after preparatory operation and treatment, with parts ready for closure by final operation.

Finally, it may be said that the results of such operations from a cosmetic point of view are certainly not so perfect or pleasing as may be accomplished by other means, and it is moreover reasonably certain that the functional possibilities of the palates and mouths thus treated with regard to speech are often not of the best.



Fig. 10.—Another view of same baby pictured in Figures 7 to 9, after treatment, showing that the sides of the fissures remain in contact without sutures and calling attention to the improvement of the nose. Child is now ready for final operation on lip.

Foregoing statements may be better understood and their importance appreciated more fully, also the reasons for methods of treatment described later by a study of the defective operative results illustrated in Figures 20, 24, 25, 26, 29 and 30, which have been taken from cases in practice and which may, therefore, be said to be essentially practical.

The excessive unilateral development is a marked and almost invariable condition in these cases, the more so because arrested development of the opposite side serves to increase this deformity.

The enlarged turbinated, or the appearance of enlargement, which may be noted in each of the pictures and casts, is a very common concomitant and doubtless is due to a partial unfolding of its curvature, in an at-



Fig. 11.—Baby five weeks old, with characteristic deformity of double harelip.

tempted adjustment to the unusual nasal space occasioned by the fissures.

If, therefore, the sides of the jaws of any such cases are crushed together by immediate closure, as is recommended by some authors, one side of the face will project beyond the other, giving a peaked, extremely unpleasant appearance, that later developments can never hope wholly to overcome.

It must be apparent also that in many instances it is



Fig. 13.—Front view, after operation, of baby shown in Figures 11 and 12.

the inferior turbinated bone that must meet in direct line the border of the maxillary portion of the palate on the opposite side, or if not this, then there will be a complete and irreparable permanent stenosis of the naris, on the affected side, at least.

Fig. 26 shows a little boy whose palate was closed in early infancy, and, as may be seen, the breathing is entirely by mouth. There is complete obliteration of one nasal passage, and almost the same condition of the other. The appearance of the face also confirms my statements.

In these cases, the intermaxillary bone is either attached to one side or separated by fissures on both sides. In the former case it projects, as shown in Figs. 2 and 5; in the latter, as illustrated by Figs. 7, 11 and 15. Thus an immediate, direct and forcible closing of the fissures would, under both conditions, leave an unsightly protrusion of one side, or the anterior aspect of the mouth and nose, which would be all the more noticeable because of the enforced narrowness.



Fig. 18.—Cast of mouth of young lady shown in Figures 20, 21, 22 and 23, with cleft extending through both hard and soft palates, the fatal error of extracting all teeth having been made some years before coming to me. Line is drawn where maxillary bone was sawed and fractured to correct unequal maxillary development, with result as shown in Figures 19 to 23.



Fig. 20.—Patient 22 years old, the casts of whose mouth are shown in Figures 18 and 19. Although the lip was closed in infancy by a famous surgeon whose skill is beyond criticism, the failure to adjust the maxillary bones resulted, as may be noted, in great nasal and facial deformity. Ala flat and nose almost entirely on one side of face.

One would expect speech to be facilitated by the fact that when early operation has been performed no opportunity is given to acquire the characteristic defects common to individuals afflicted with imperfect palates, and yet we usually find that this is not the case, owing

to insufficient room for the tongue and conditions due to hasty closure of the soft palate, which must of necessity be less perfect than at a later age when more time can safely be given to accurate adjustment of the parts.

The impossibility of preventing infants from crying and straining the muscles of the soft palate, thus endangering the pulling out of stitches, together with the danger to the life of the child, both tend to show that there is real need for other methods.

TREATMENT OF INFANTS.

Provision has been made for all, or at least, most of



Fig. 21.—Same view of patient shown in Figure 20 after lip had been reoperated on, scar tissue removed and both jaw and nose straightened.

the contingencies that arise in the care of these infants. If a child can be placed under treatment immediately or shortly after birth, when both lip and palate are affected, the method of procedure is as follows:

A day or two is given to allow the infant to become accustomed to its surroundings, if in a hospital, as is



Fig. 22.—Side view of Figure 20, to be compared with Figure 23.

best, although not absolutely necessary. The child is weighed and its general condition of health observed, character of fecal passages, etc. If conditions are favorable, strips are then adjusted to prevent the action of the lower jaw from forcing the maxillary bones apart and widening both the palatal fissures and the lip separation. This also brings into play the muscles in such manner as to produce a narrowing effect whenever the little patient laughs or cries; in other words, the forces that ordinarily increase the deformity are now engaged in its reduction, and in addition thereto, are stretching the lip muscles and skin surfaces on each side, so that in a very short time there will be an abundance of material to bridge across and make a sightly operation, where formerly the supply was perhaps so scant as to make an operation extremely hazardous.

It is necessary that it be trained to eat from a spoon, or dropper, and all habit of sucking should be overcome, if possible, before operation.

Figures 2 to 16 inclusive call attention to the practical results of such treatment, and I think all will agree that a few weeks' preparatory care may sometimes be beneficially employed.



Fig. 23.—Side view of Figure 20, showing ala of nose on right side to be the same shape as on the left, as shown in Figure 22.

AGE FOR PALATE CLOSURE.

The proper time for palate operation depends largely on the physical development and condition of health of the individual, also on training, and subjection to proper control, because the best of health is not only desirable, but imperative, and unless the assistance of the patient can be secured in the way of intelligent cooperation in the post operative care and treatment, it is most unlikely that good results will be accomplished. Therefore we find that some children can be operated on safely and satisfactorily at a much earlier age than others. Yet it is by all means desirable that no bad speech habits be given time to establish themselves.

Our choice must then come between the years when the deciduous teeth have been fully erupted and before they have become loosened for their permanent success-

ors, and yet, before speech habit has been fully formed. Fortunately the period during which most children talk "baby talk," as it is called, gives us more or less opportunity to make a satisfactory decision, since during this time the manner and form of speech are not what they will be later, and one change or another is much the same, because correct speech is yet to be acquired in any event.

REDUCTION OF WIDTH OF FISSURE BY THE USE OF AN APPLIANCE.

Having thus determined on the question of time, we next attach an appliance, such as is shown in Fig. 44. No other agent is necessary at this age, as the bones are soft and yielding, so that a slight turn of the little screw two or three times daily is sufficient to materially reduce the width of the fissure and to give the increased angles of the palate surface, which are necessary to make operation simple.

PREPARATORY TREATMENT OF ORAL, NASAL AND FAUCIAL TISSUES.

During the time of wearing the appliance, daily irrigation with nasal douches of salt water, boric acid, or



Fig. 25.—Shows deformed facial appearance, under conditions represented in Figure 24, after intermaxillary bone has been removed to close double harelip.

other mild solutions of like character, should be given to correct the diseased condition of the nasal mucous membrane.

This treatment is important in all cases, for whether the patient be young or adult, hypertrophic rhinitis is a natural result of unusual exposure of the nasal and pharyngeal mucous membrane to thermal changes, irritation from mouth bacteria and other irritants.

Manipulation also should be given when tendency to gag on irritation of the faucial surfaces exists; otherwise, retching or vomiting at the slightest touch will make it almost impracticable to thoroughly cleanse the wound surface of the palate down to the tip of the uvula, as should be done, without exciting such disturbances, which might cause destruction of the integrity of the stitches. Proper treatment is of inestimable benefit in these two directions.

TREATMENT AT SIX MONTHS OR OLDER.

Infants who have reached the age of six months or more sometimes require the assistance of wire passed through the lateral sections of the divided jaw and secured by lead or silver plates, in order that by a slight bending of these wires from day to day a sufficient tension may be produced to bring about a readjustment of the deformed structures.

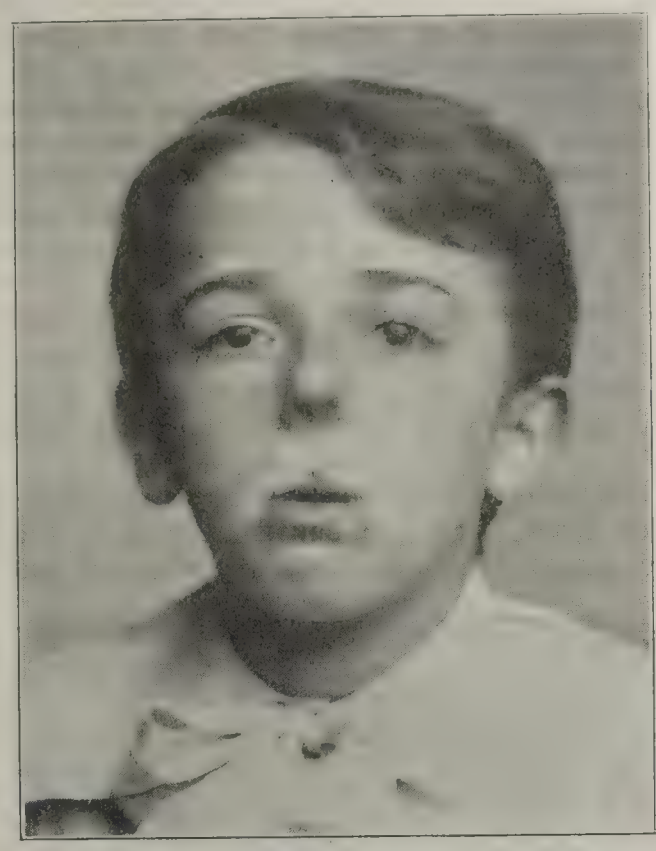


Fig. 26.—Front view of same boy shown in Figure 25. His palate was closed in early infancy with what appeared to be a successful operation. The result at 7 years old may be seen. Complete stenosis of left naris, right side of nose also absolutely useless for breathing purposes, although probe can be passed through. Disproportionate appearance of upper part of face and head to lower quite apparent, due to arrest of development. Voice shrill, high and by no means perfect in pronunciation.



Fig. 27.—Front view of same boy shown in Figures 25 and 26 after operation.

YOUNG AND ADULT CASES.

The appliance used for attachment to the teeth, and the nut, with threaded metal bar, do not differ materially in young or adult cases, except that a trifle more strength may often be required for the latter. There is, however, a difference in the manner of application.

The yielding quality of the young bones makes it possible, by steadily exerted pressure of the appliance alone, to bring the sides nearer, and thus to reduce the width of the fissure; at the same time the palatal arch is increased in height and the sides so shaped as to make the angle of their slant more acute; for older patients this is best accomplished by cutting along the external walls of the superior maxillary bones, through the outer plates, particularly at the malar process, and behind the tuberosities. With strong forceps then crush together until a partial fracture makes exact adjustment to proper form an immediate possibility. The appliance, as in Fig. 45, then acts as a splint capable of exerting pressure if needed.

It is most desirable that the anterior or narrower portions of the fissure should be brought into direct contact, sufficiently so, if possible, to allow of freshening, not only the soft tissue, but the bony borders as well.

The complete circulation thus secured, after union has taken place, serves to nourish the flaps when the muco-periosteal final operation is performed, and does



Fig. 28.—Side view of boy in Figures 25, 26 and 27 after operation, and restoration to more natural lines in profile.

much to prevent sloughing, which is so much to be dreaded.

IMPROVED FORMS OF NEEDLES.

The curve of each needle should be as exactly fitted to the part of the operation for which it is to be used as possible, because, in describing the segment of a circle necessary to insert a suture in the anterior portion of the hard palate, where it is high and narrow, and in the posterior portion of the soft palate, where the space is broad and shallow, the requirements are entirely different. This is true also of the intermediate portions of the palate surface. The mucous secretion and hemorrhage make it difficult to see perfectly at all times in the act of catching the point of the needle and to easily secure the suture. Therefore great assistance is rendered if the exact curve of the needle can be so calculated as to enable the operator to know, with some degree of accuracy, just where the point will reappear on the side opposite the point of insertion.

Three sizes of needles, after the form of perineum needles, curved to allow of convenient use at the different angles required for operations in the mouth, meet the necessities of the situation very well, but for my own use it is a great advantage, and since I use both right and left hands in operating, much benefit is derived and the time of operation materially shortened by the use of a set of five pairs of needles (my own design), with opposite curves (right and left), each pair graded in size from the large ones used in the posterior portion of the soft palate to the smallest, which are suitable for the extreme anterior portion of the hard palate. These are threaded with the suture materials before operation in order to save time and confusion, and to leave the assistant quite free to handle sponges and thus reduce to a minimum the troublesome hemorrhage that usually attends operations in this region.

SPEECH RESULTS AND TRAINING.

A system would be but half complete that offered no assistance beyond repair of the imperfect oral instrument and did nothing afterward to teach the use of it.

Postoperative training must be our final consideration. It is a noticeable fact that individuals who are



Fig. 29.—Young man of 22, showing result of early imperfect operation for double harelip.

quite unable to recognize imperfections in the sounds of words, as they pronounce them, detect the difference at once when their own speech records are sounded from a graphophone, the effect being the same as though another person were speaking. To take advantage of this it is advisable to have a record taken before and another immediately after operation, while from time to time, as the training progresses, much encouragement is given by having others taken for comparison. Preferably, the same words should be repeated in order that the test may be exact.

Walter Edward Scripture, in his most valuable work, "The Elements of Experimental Phonetics," makes the following reference to phonographic speech records, which is completely in accord with my practical experience in training these cases:

> When a record is found that speaks clearly, in a natural voice, it can be trusted for what it says, since it can not say anything more than is on it, and can not improve its own tracing. The speech represented by a tracing from a record is the speech of the record itself. How nearly this reproduces the original

speech can only be determined by comparing it by the ear with the words of the original speaker. By skillful manipulation records can be made whose speech can not be distinguished from that of a living person, except by their weakness and by the scratching noise due to the friction of the tracing point in the groove.

A study of phonographic records, taken from patients of different ages, temperament, degrees of intelligence, and extent of palate deformity, showed some interesting differences in speech defect.

The facility with which some patients improve in speech after restoration of the palate by operation, and the difficulties that others of the same age and equal mental capacity seem to encounter, as noted by comparison of the phonographic records and casts, indicates very clearly that the extent of the fissure is by no means an exact index to the character of speech defect, there being a somewhat surprising dissimilarity of speech sounds among these patients. Undoubtedly, there are certain easily recognizable wrong sounds common to them all, but the inability to speak correctly



Fig. 30.—Front view of same case as in Figure 29.

individual letters, words and sentences is by no means the same in all cases, even where the palate fissures are quite similar; all of which serves to emphasize the necessity for careful consideration of speech mechanism as absolutely a first essential in the construction of a plan for speech and voice training calculated to give the best results.

This, on previous occasions, I have summed up in the following manner:

The first cry of the child is merely a sound caused by reflex action of the muscles, without any guiding influence exerted by the faculty of reason. This is followed by the first efforts of sound to represent intelligent words as objects begin to be recognized, and gradually this is continued and extended until expression of ideas in speech becomes possible. It will be readily understood that if these efforts have been on normal or correct lines, the muscular activity necessary to sound-producing must have been guided by the proper nerve centers, which will have caused an increase in the brain development of those centers, and the messages sent from the motor tract to the muscles which are concerned in the utterance of words will be in all respects correct and the habit of proper speech will have become an established fact. On the other hand, however, if a deformity has existed from birth, by reason of which the normal use of certain muscles has been greatly restricted, and the use of certain other muscles, not commonly used in the process of word enunciation, have received more stimulation than would have been the case had there been a perfectly formed mouth and throat, the results must invariably be an increased development of the nerve centers which are injurious to speech, with a faulty development of those that are necessary to perfect speech. This might be termed a habit, but the word habit conveys too restricted an idea of the condition. For example, when the eye, through its retinal image, registers on the brain structures the particular nerve stimulations, which in time will become associated with the name of an object, its form record is established by what may be known as the visual memory centers. Precisely also are the somesthetic areas affected by the tactile sense, and memory of the sense of touch, as well as taste, smell and other stimuli that may have been excited by or associated with any particular object, and, when the sensorium takes consciousness of this object, the name of which has become known to it, there is required the co-ordination between these different memory centers in order that the proper message may be sent



Fig. 31.—Result in case shown in Figures 29 and 30 after operation, by which lip, nose and jaw were readjusted and scar tissue removed.

to the motor centers, through which certain muscles may be set in motion in the proper manner to produce the sound which may be clearly recognized as the spoken name of the object.

It is known that in speech the muscles of the chest, which are responsible for expiration, the muscles that raise and lower the larnyx, those that tighten the vocal cords and tip the hyoid bone, as well as resounding properties due to the nearness of the spinal column, and the co-operation of the forces that are applied in raising and lowering the soft palate, the adjustment of the tongue and proper action of the muscles of the cheeks and lips, are all necessary for the utterance of even a single word. If, therefore, during the life of the individual, through faulty operation or adverse action of these agencies, wrong messages have been constantly sent to portions of the brain concerned in making a certain sound, and if the auditory memory centers have registered, by the constant hearing, imperfect sounds for specific words, which accordingly have caused the development of brain structure which is all active against correct speech, and if there be an

insufficient development of those centers which are needed for perfect speech, how great becomes the difficulty of giving a speech power to individuals in the face of all these acquired disadvantages.

Kingsley's palatograms (Fig. 47), obtained by coating the surfaces of thin plates covering the palate surfaces with chalk, in such manner that whenever the tongue touched, in sounding a word or letter, the black surface showed through, are of interest as indicating why certain letters are so troublesome in these cases. It will be noticed by the illustration that points of contact of K and G are post velar, and therefore not only practically impossible without a velum, but almost equally so, unless after operation the soft palate se-

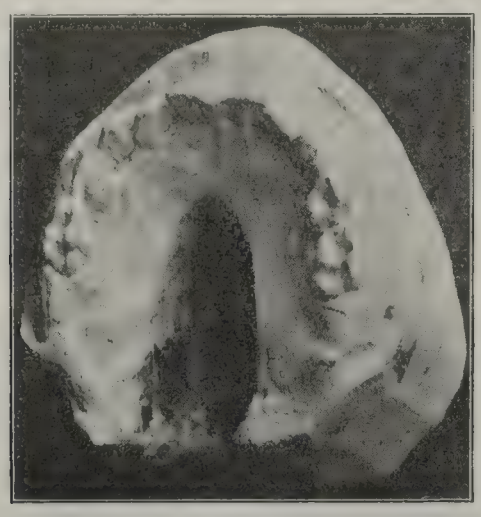


Fig. 36.—Cast of mouth of child, 2½ years old, with cleft including the velum and parts of the hard palate.

cured be of perfect form and sufficiently flexible, under muscular control, to allow this contact to take place. These, it will be remembered, in support of the accuracy of Kingsley's work, are invariably troublesome sounds. Foster and Reichert, in describing speech under the heads of vowels and consonants, divided into explosives and aspirants, vibratory and resonants giving in detail the mechanism of alphabetical sounds, con-

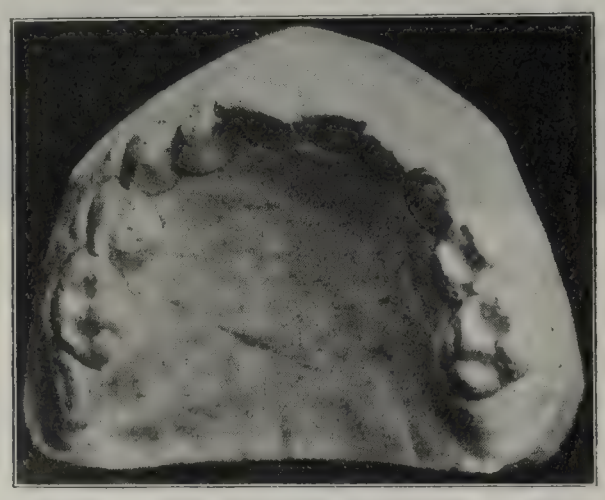


Fig. 37.—Cast of same patient's mouth as in Figure 36 after closure by operation.

clude with the following statement, that, from our point of view, is all important::

On many of the above points, however, there are great differences of opinion, the discussion of which, as well as of other more rare consonantal sounds, would lead us too far away from the purpose of this book. The following tabular statement must therefore be regarded as introduced for convenience only.

Scripture calls attention to the following factors of voice control:

1. Reflex Tonus: Tonus is a faint muscular contraction due to continuous weak nerve stimulations, easily subject to fatigue, ill health and other demoralizing conditions, lack of or disarrangement of which causes marked change of voice in both speaking and singing.

2. Force of Movement: This depends on the amount of stimulus sent to muscles, movements of which includes not only those directly involved, but also their antagonists. This requires an excess of effort over what might be expected, but when the innervations are properly co-ordinated this excess is not necessarily large and fatiguing.

3. Accuracy of Movement: Inaccuracy of movement is a fundamental source of inaccurate and wrong sounds.

4. Precision of Movement: This refers to regularity and evenness of execution and depends on nervous control.

5. Accuracy and Precision of Co-ordination: This represents the nervous control over simultaneous muscular movements. Some forms of thick speech of alcoholic intoxication and incorrect adjustments during excitement are caused by defective co-ordination in speech effort.

6. Quickness of Response: This is action of the nervous centers that tends to become automatic. One object in vocal training should be to render speech and song automatic.

7. Quickness of Muscular Movement: This depends on both muscular and nervous quickness and must be properly balanced; otherwise, speech appears labored or slurred.



Fig. 39.—Cast of mouth of boy 2½ years old. Cleft through hard and soft palates.

8. Auditory Motor Control: The learning of speech sounds consists largely in forming connections between motor and auditory sensations.

9. Ideomotor Control: Sounds occurring simultaneously with sights, touches, tastes, smells, emotion, act of will, etc., tend to be connected with them, so that when any one of a complex group occurs again, the others are revived more or less clearly in consciousness. It is in this way that speech movements become associated with printed letters.

10. General Voluntary Control: This is subject to changes of nutrition, fatigue, emotion and general habits. on all of which vocal control must place its dependence.

In my practical training of these cases, I have found that one of the best aids to speech improvement is singing. Even though the sounds be less musical than might be wished, and they often are, vocal lessons, or, in the absence of this, constant use of the voice in chanting sentences, after the manner of intoning church services, will enable the individual to speak reasonably well the particular sentences practiced in this manner

in a very short time. Combining, as these exercises do, most of the essential points brought out in the foregoing description of speech requirements, it follows that there can be no more beneficial procedure.

Nervousness and over anxiety about rapid improvement in many cases retard progress quite seriously and must be overcome in so far as possible at the very outset. Such patients are best counseled that improvement must necessarily be slow, and cautioned against making too great effort.

A large majority of these patients are, as might be expected, individuals of extremely unstable nervous organization, and it is of quite frequent occurrence that some of the neuroses common to neurotics occur in the way of speech impediment. Aphasia with regard to certain letters and words, stammering, nervous hurrying, together with letters and sounds, are very often complications that retard progress. Doubtless much confusion in reporting results has occurred through failure to distinguish these affections.

Exactly why interference on the part of any nervous agent that might tend to disturb the rhythm of muscu-



Fig. 40.—Cast of same mouth as Figure 39, shows result after operation. Fissure reduced by the use of an appliance and closed by final operation.

lar movement must necessarily disarrange the speech harmony is most beautifully shown by a copy of one of Scripture's plates which is a reproduction of a photograph of actual sound waves taken during the recital of "Who Killed Cock Robin?" (Fig. 48).

PHONOGRAPHIC RECORDS.

The phonographic records show the degree of improvement in speech.

Case 1.—In the case of a girl of 14, who had only a fissure in the soft palate, before operation, it was impossible to distinguish speech sounds sufficiently for unaccustomed persons to understand what she said. Therefore, a phonographic record would have been a mere jargon of unintelligible sounds. The fourth grade was as high as she had been able to get in the public schools because teachers could not understand her. Immediately after operation marked improvement was noted by record. Later records showed remarkable change for the better, and on one or two occasions after training, she has recited before large audiences with much clearness and a very good approximation of perfection of sound, verses on which she had been drilled, but in general conversation her progress was not in proportion to that of better educated patients, as was noted in records of other cases. Eagerness in conversation always tended to cause lapses into old speech habits, and in this case, such difficulty was hard to overcome; a difference being apparent if she were allowed to associate for a time with people who themselves spoke incorrectly or carelessly or the reverse.

Case 2. Another young girl, 22 years old, with the same character of fissure, but who had a high school education, could speak much better than the preceding one before operation, the range of her intelligible, even though somewhat nasal sounds, being much less limited. After closure of the cleft, though operative results were quite perfect in both cases, her progress in the line of improvement in conversational sounds was shown by the record to be much more marked.

Case 3. Patient, mother of a grown up family, aged 38. Cleft in soft palate the same as Cases 1 and 2. She was not well educated, but not ignorant and of less nervous temperament than the other two. Speech, as might be expected, was better than Case 1 and not so good as Case 2. Soon after operation, therefore, without training, her record was found to be surprisingly good, due in a considerable measure, no doubt,

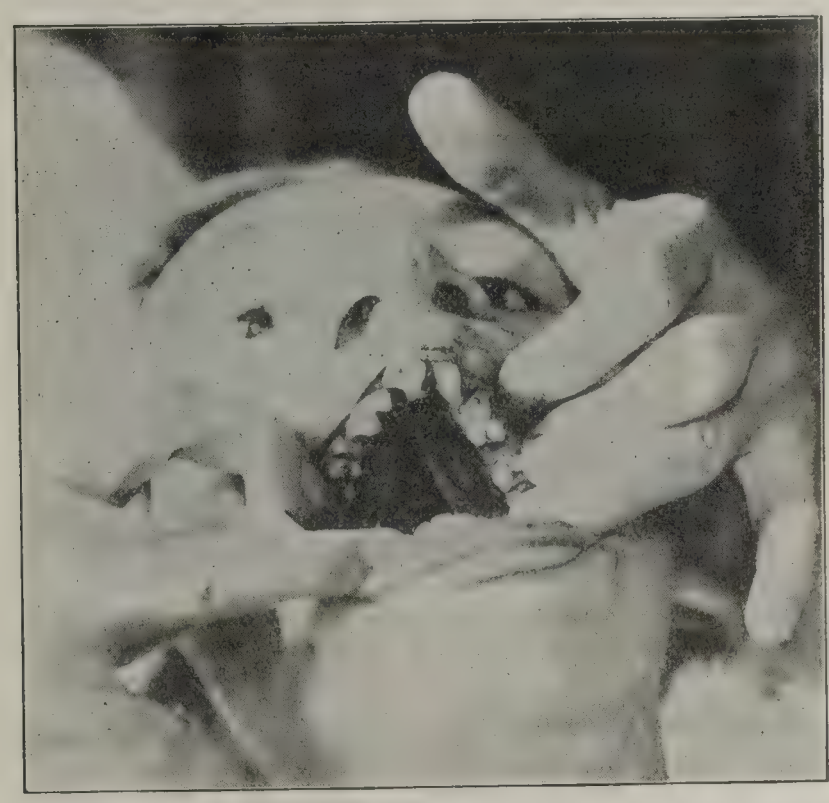


Fig. 43.—Photograph of mouth of patient with cleft through both hard and soft palates. Casts shown in Figures 41 and 42 were taken from this patient's mouth.

to freedom from nervousness. Later reports of improvement were much more favorable than was expected, but have not yet been confirmed by record.

Case 4. This patient, a girl of 16, in whom the fissure was confined to the velum, as in all the preceding cases, was as uneducated as the first patient, but with less natural intelligence. Scarcely a single word in her first record could be understood. Later and after much training, she was able to recite simple rhymes before large audiences quite well, but she has never acquired good speech. When corrected, she can repeat after another, sentence by sentence, even most difficult words with little noticeable speech defect.

Case 5.—A girl of 22, who had an acquired fissure of the velum, due to hereditary syphilis, was operated on after preparatory administration of potassium iodid, with successful results so far as closing the opening was concerned. It was not perfect in the sense that the preceding cases were, because cicatricial contractions, due to previous ulcerative processes, had stiffened the tissue. Notwithstanding the fact

that this deformity was acquired at about the age of 14, and the patient's education was above the average, there was less improvement after operation than in any of the other cases.

CASE 6.—In contradistinction to these other cases, a little boy of 9 years of age, whose congenital cleft in the velum was like that in Case 5, with very imperfect speech, was able to improve so rapidly that between the months of May and November, defects were so overcome that his school teacher did not notice unusual difference from other children of the same age.

CASE 7.—A young girl of 22, fairly well educated, with opening in velum palati alone, in whom speech sounds were very bad before operation, was able, by reason of good ear and singing practice, to improve sufficiently to be able to pray and sing alone at Salvation Army meetings within a few months from time of closure. In this case, undoubtedly, religious zeal helped to overcome self-consciousness, together with other mental and nervous hindrances, while constant attendance on the meetings of the army gave the best possible training to the vocal apparatus.

CASE 8.—A young man of 18, had a complete cleft of both hard and soft palates. He is a graduate of a high school. Before operation it was almost impossible to understand, yet, in repeating the alphabet, unusual ability to pronounce each letter was noted; even the G. K and C being more than ordinarily good. Stammering was the prime cause of his speech difficulty. The record, taken two days after the last stitches were removed, complete union by first intention having taken place throughout, even to the tip of the uvula, showed an almost astonishing result, since his voice from the grapho-

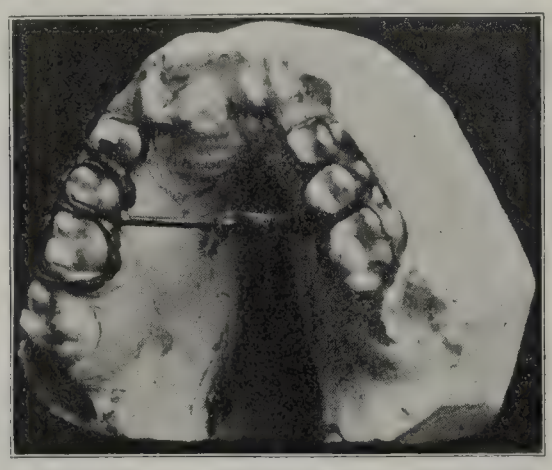


Fig. 44.—Cast with appliance adjusted as used in the reduction of the width of palate fissure, in cases illustrated in Figures 39 to 43, and all similar others of the same classes.

phone, singing the "Holy City" sounded better, perhaps, than many of our own would if a similar record had been taken.

CASE 9.—A young man, 19 years old, with a fair education, had fissure through both hard and soft palates. The first speech record was better than Case 8, on account of freedom from nervous habit, but ability to make separate sounds was less perfect. He could sing "Rock of Ages' quite well, and showed great speech improvement in later records as a result of two weeks' singing and drill exercise.

CASE 10.—A boy of 9, for whom only the preparatory operation has yet been performed, has given us two interesting records. In one he recites the Lord's prayer with an obturater in his mouth, and in the next equally well without it, yet, with cleft through both hard and soft palates, it must be understood he could not have learned to speak so well had he not had the mechanical assistance in the beginning.

CASE 11.—A young lady of 22, highly educated, but with wide cleft through both hard and soft palates, made worse by having had several previous unsuccessful operations; improved so rapildy after the normal form of the palate had been restored by operation that she successfully passed an examination to teach in an eastern law school. Although records in this case are not complete, the fact that she now holds an important position and daily transacts the telephone business of a large establishment is sufficient proof of her improvement. Undoubtedly, her rare intelligence and persistence have been assisting factors.

CONCLUSIONS.

I have thus presented a number of cases, covering not only different forms of cleft palate deformity, but varying characteristics with the same classes of deformity, due to the several conditions that govern speech habit in these individuals. A large number of other cases of which I have from time to time taken record, under all the various forms and conditions of these patients, confirm the results given in those here cited. All the selections given in these illustrations have been made on the basis of demonstrating distinctive, important differences bearing on operative procedures, and speech results, rather than a multiplication of similar cases, that would involve endless repetition and confuse rather than make the subject clear.

It has been demonstrated that some of these patients, with openings so wide that there appeared to be almost



Fig. 46.—Photograph of patient with palate fissure as in Figures 41, 42, 43 and 45, after reduction by the use of appliance and final operation, with perfect result throughout the entire extent of both hard and soft palates down to the tip of the uvula.

no palate at all, spoke as well or better than others with only a slight velar defect, and individual distinctions have thus been made apparent, from all of which the following conclusions are obvious:

To get the best results from operations, the palate must be restored in as nearly perfect form as possible. Freedom from scar tissue and from muscular tension sufficient to allow necessary speech movement are essential.

Proper muscular alignment at the point of union greatly facilitates the early usefulness of antagonizing muscles; therefore natural physiologic action is more promptly in evidence.

All these operative conditions are favored by the methods of the system herein described. Individual benefits assuming that operative results have been per-

fect or as nearly so as possible will be governed by patience, earnestness and application of the patient. Natural intelligence, aided by education, will be manifest in assisting progress. A musical ear (so-called), and ability to note rhythm and time in music are of very great assistance.

No cleft palate deformity can be so bad that it can not be corrected by surgical operation, nor need age prevent unless through lack of health on the part of the patient.

It has been my purpose throughout to treat this subject from the broad standpoint of a system to emphasize by precept and illustration the crying need for better treatment of a class of individuals whose misfortunes can not fail to appeal to everyone; to establish an understanding of the necessity for differentiation in the choice of operation and methods of treatment, and, above all, to prove the value of a practical system. Thus, matters belonging strictly to surgical technic have been, so far as possible, avoided and left for a future paper, but the postoperative treatment of these patients is so vital to the success of every operation that more than passing notice seems to be imperative.

It is too often taken for granted that more or less

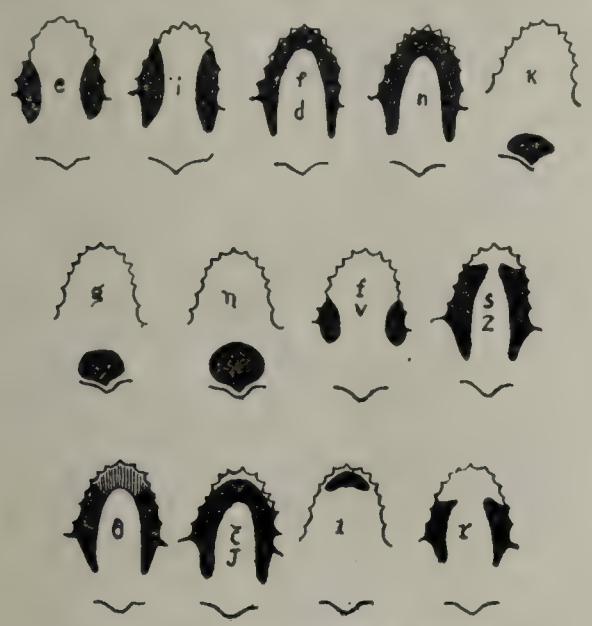


Fig. 47.—Kingsley's palatograms.

sloughing and pus formation must follow extensive mouth operations, and that surgical asepsis is impossible. In a sense, this must be admitted to be true, owing to natural anatomic obstacles to complete sterilization and the constant exposure to infection from so many sources, but notwithstanding all this, most gratifying results can be secured, and so nearly a true primary union obtained as to make its essential benefit the same even with extensive wound surfaces. With the periosteum stripped from the palate surfaces; incisions reducing circulation to the farthest safe limit; nasal secretions above in contact with raw surface; mouth secretions below, mixed, as often occurs, with gastric regurgitations, and vomited matter; only a comparatively thin veil of tissue bridging the space of the palatal separation of the bones, and at the velum, exposed to destructive influences at every movement of the tongue, or act of swallowing, it goes without saying that only the most rigid adherence to antiseptic surgical care could be effective.

Strong solutions of poisonous, or tissue destructive, germicidal agents are necessarily precluded in the mouth. Dilution in the oral fluids renders otherwise effective solutions of practically no benefit. The histologic character of the nasal, oral and pharyngeal mucous membrane surfaces render sterilization extremely difficult, and it has been conclusively proven, that animal fats, dead mucous cells and other surface coatings resist even powerful drugs to such an extent as to protect underlying bacteria, while germs on the immediate surface are destroyed. Mechanical cleansing, therefore, is a first necessity, and next to this, frequent use of non-toxic, or mild solutions of otherwise injurious germicidal agents. Preparatory preparation of the field of operation consists in scrubbing membranous, dental and other surfaces, removal or antiseptic care of teeth or roots, and at least temporary stopping of carious tooth cavities. My postoperative sheet anchor is dioxogen,[6] which gives mechanical cleansing, in setting free the dead mucous cells and destroying the resistant nature of the intervening secretions, while at the same time it gives an immediate and powerful effect on bacteria in destroying their vital properties. Dioxogen[6] and 2.5 per cent. carbolic acid should be used alternately once each hour during the day, and at least four times at night. These washes are applied with a glass hospital syringe, with force enough to assist in the dislodgment of little particles of débris, but not force enough to be injurious.

In addition to hourly washing, the use of applicators, made in the usual way, of absorbent cotton wrapped on

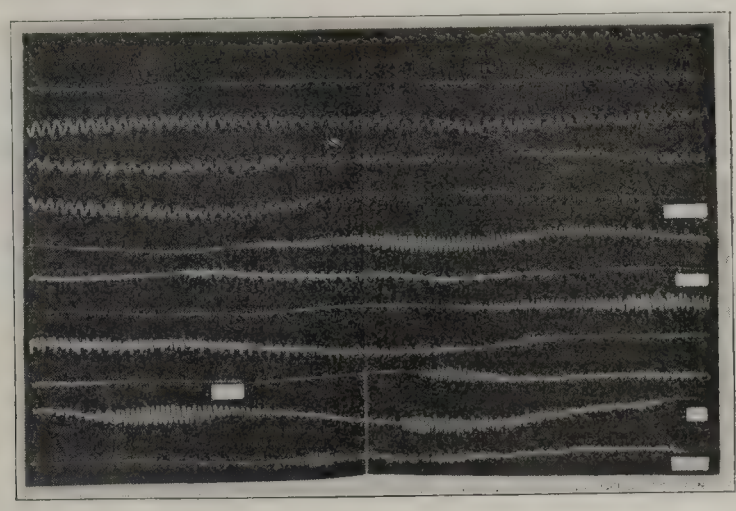


Fig. 48.—Copy of Scripture's photographs of sound waves in "Who Killed Cock Robin."

tooth picks, is required from three to four times daily to wipe surfaces that washing alone will not cleanse sufficiently. Almost from the moment of recovery from the anesthetic, some one of the many oil preparations should be sprayed with a suitable nebulizer through the nasal passages, as well as the mouth, and continued throughout the treatment after each washing.

In dealing with children and infants, it is not always possible to follow all these directions, as they sometimes do not submit willingly, and naturally we must therefore do only so much as we safely can, but patience, judgment and skill on the part of the nurse can do much to overcome such difficulties.[7]

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6. I use dioxogen because in my experience it has proved the most unfformly free from acid of any of the preparations of H_2O_2, commonly sold as such, and because an impure or a strongly acid solution must necessarily be absolutely prohibited when hourly treatments of the mouths of patients, many of whom are infants, is prescribed.

7. Other references which may be consulted are as follows: Le Dentia: La Medicine, June 5, 1890. Ehrmann: Les operations plastiques sur le palais chez l'enfant, etc., Paris. Taylor: Dublin Journal of Medical Sciences, 1900. Edwin Owen: London Lancet, 1896. Telezit: Tribune Medicale, Paris, 1894. Talbot, Eugene S.: Stigmata of Degeneracy. Talbot, Eugene S.: The Etiology of Osseous Deformities. Cryer, M. H.: Internal Anatomy of the Face. Fillibrown: Boston Journal of Medicine and Surgery.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL

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(*Continued from page 779.*)

Liberation and Extraction of the Ganglion and Its Branches.—We now come to the method of dealing with the ganglion, and here, no matter what the approach has been, difficulties in a certain percentage of cases are invariably encountered. Hemorrhage is the chief bugbear, and I confess to have dwelt too lightly on it in my earlier paper. My first two cases were fortunately, or unfortunately, unusually bloodless ones. Not uncommonly, I think in more than one-half of my cases, has it been possible, with almost no loss of blood, to arrive at this stage of the operation. Sometimes it may be completed and the ganglion removed without any difficulties whatever arising from bleeding, and this has been my good fortune on six occasions, but at other times the structure is "below water" much of the time.[23]

There are certain advantages, I think, which come from working in a small hole and under the artery, provided that there is a good overhead light, for with the manipulations necessary to loosen up the ganglion, the small vessels, most of which enter it from below, are torn and the ganglion is immediately submerged. The assistant should always be ready for this emergency, holding the pointed tip of a piece of gauze at the margin of the wound, and this is quickly packed down into the small conical-shaped cavity by the same instrument with which the operator is carrying on the dissection. After a few moments of pressure the bleeding usually will have stopped and further progress may be made. Thus, by packing and working alternately, the entire ganglion may be freed from its bed, though still attached by the rami and root at four points. It is most important not to divide nor tear any of the rami until the structure is completely freed from its underlying sheath. The larger operative well, which the higher operation with ligation of the meningeal produces, means, I think, that more blood will be lost each time that bleeding occurs, and that a greater amount of packing will be necessary to control it. I have referred above to the convenience of a small opening in the skull, since its edges may be used as solid points of leverage against which the shank of the dissector may be steadied while the ganglion is pried away from its firm fibrous attachments.

There are many other tricks in the control of hemorrhage which one learns from experience. Bits of cotton or small pledgets of gauze may be packed and held against one division, the veins near which may happen to be oozing, while another is being liberated. It is, I think, a convenience (essential, indeed, for me) for the operator to stand at the end of the table instead of at the side and to work over the patient's head, holding meanwhile the retractor, which elevates the brain, in the left hand. It is hardly possible for an assistant to do this satisfactorily, and the risk of compression injuries should be assumed by the operator himself. One hand is all that can be used with any advantage in the dissection, provided the assistants are ready with the gauze points as described above. Slight changes also in the position or in the degree of compression exerted by the retractor are useful in controlling venous hemorrhage. The patient's head should be somewhat elevated and care exercised that no pressure, be it ever so slight, is exerted against the neck lest some stasis in the jugulars augment the venous bleeding, which, even under the conditions of normal low venous pressure, is the chief source of the operative difficulties.

With other ways of combating the bleeding from the ganglion I have had little success. The local application of adrenalin has, in my hands, availed nothing. Ligation of the external carotid, as I have said, affects only the arterial supply, and this does not concern the procedure under discussion. I have twice, as a preliminary measure, temporarily clamped the common carotid, according to Dr. Crile's suggestions. One of the cases proved an exceptionally dry one and the other equally bloody, indeed so much so that during the course of the enucleation I unclamped the artery, thinking that possibly the clamp might have been compressing the jugular vein, but could see no difference in the amount of bleeding either before or after liberating the vessel. Arterial (carotid) interruption, of course, does not affect the amount of intracranial venous bleeding, and of itself is attended with certain risks. I have almost invariably, while freeing the ophthalmic portion of the ganglion, either from pressure of the spatula used to elevate the brain or from the packing used to control hemorrhage, caused a pressure palsy of the oculomotor or abducens, as will be described later. Once, also, I had the lamentable ill fortune to tear into the cavernous sinus, as the history of Case 14 will relate. The style of instrument which has proved most useful for the liberation of the ganglion is a blunt dissector, the so-called "Joker," on the pattern which, I believe, we owe to Dr. Maurice Richardson of Boston. There are great differences in these individual instruments. The edge should be moderately sharp, the blade broad and the shank somewhat longer than in the usual form. A still longer handled dissector, which Dr. Halsted has had made on much the same pattern, has also proved useful, but no particular armamentarium is required for this operation, as Lexer has remarked. Emphasis has heretofore been laid on the necessity of practice gained by operating on fresh autopsy material. The sensations conveyed through the instrument to the hand while breaking up the fibrous expansions, binding the ganglion to its upper and lower dural layers, can not become familiarized by operations on dry cadavers in the anatomic department and should not be learned on the living subject. Once only (Case 15) have I had to abandon the attempt to remove the ganglion at the first sitting or even to completely expose its upper surface. A poor light, a difficult left-sided case and awkward reflexes led me to postpone the extirpation in this case. Forty-eight hours later a second attempt was made under better auspices,

23. It may be repeated here that in those cases in which elevation of the upper layer of the ganglionic sheath and exposure of the structure itself have been easily accomplished, and in which the exposure may be carried far enough back to bring into view the trigeminal root, are those in which trigeminal neurectomy as Frazier and Spiller have advocated, is possible, and also those in which extraction of the ganglion itself may be carried out with comparative ease. In the difficult and bloody cases the trigeminal root can rarely be brought into view, and it sometimes occurs in these cases that the ganglion may be sufficiently liberated to enable extraction of the root when its simple division would have been impossible.

and, though the bleeding was as free as on the first occasion, the ganglion was removed successfully and without great difficulty. This was the only case in my series (7 of them left-sided) in which aphasia was occasioned; it was presumably due to the local compression—anemia brought about by the gauze pack—since it disappeared completely after the removal of the foreign body at the second operation. Krause,[24] likewise, has only once found it necessary to operate in two stages and regards a prolonged and bloody operation at the first sitting as preferable to the risks of postponement.

Closure and Dressing.—The statement made in my first paper that drainage is rarely, if ever, necessary, I must retract. The cases on which the opinion had been based had been unusually dry ones. I have since then drained for from 24 to 48 hours several of the remaining 16 cases. One had to be packed for many days owing to injury to the sinus, but in others a thin wick of iodoform gauze rolled in protective or a strip of protective alone has been left in the lower posterior corner of the wound. The closure is far from an unimportant detail. The temporal muscle should be resutured in place; more important still, the temporal fascia should be accurately reunited, including not only the portion concentric to the skin incision, but also the edges at the base of the flap, where, together with the zygomatic periosteum, they have been horizontally divided. The temporal pad of fat is always carefully protected and left in place underneath the fascia. Only by these details can the deep sinking of the temporal fossa be, in a measure, evaded and can there be a possible subsequent reunion of divided nerve fibers of the occipito-frontalis. The skin is closed with most accurate approximation by the finest black silk sutures passed on round intestinal needles. These sutures are removed in forty-eight hours at the first dressing—never later than the third day—and no trace of the stitch puncture can be seen, and the linear scar is even from the onset almost invisible. There is no stretching of the scar in this situation, possibly due in part to the paralysis of the muscles, and the obtrusive cicatrices which are seen and even photographed after ganglion operations, indicate a very careless closure with coarse materials. The adhesive qualities of the silver foil applied to the wound by moistening with alcohol, as it is customarily used in Professor Halsted's clinic, gives a sufficient support to the wound after the sutures are removed. Others might prefer to give this support by a collodion dressing.

Blood Pressure Observations.—There is another detail of the operative period which deserves mention. In this, as in all other surgical procedures attended by any special risk, blood-pressure observations may advantageously be taken beforehand to obtain the patient's normal, and be plotted serially during the entire continuance of the anesthetic. Aside from the physiologic interest attached to such records, they serve to give the operator, who may interpret their import at a glance, the best measure of the patient's condition. This is emphatically true for cases in which there is likely to be considerable loss of blood; equally so for those in which an operation conducted on the central nervous system may directly or reflexly upset the vasomotor mechanism—characteristics of all intracranial or spinal operations. Comment was made in my earlier paper on the wisdom of keeping careful records of pulse rate, but at that time no sufficiently simple form of apparatus for estimating blood pressure, a much more important factor, was available for clinical purposes. An experimental investigation of the blood-pressure reaction in acute cerebral compression had shown that a rise in blood pressure took place, which was, in a measure, indicative of the extent to which the pressure effects of any local increase in tension were transmitted to the medulla, where seemingly the vasomotor center assumed the regulatory function of holding the blood pressure at a level in excess of the degree of the medullary compression; in other words, at a level sufficient to insure a continuance of circulation at the bulb. It was with the hope of corroborating these observations on cases of compression in man that led, as stated elsewhere, to the introduction of the Riva-Rocci blood-pressure apparatus, an instrument which, in spite of its many deficiencies, has served a very useful purpose. Cases of ganglion extirpation by any method in which a greater or less elevation of the temperosphenoidal lobe is occasioned are the counter-

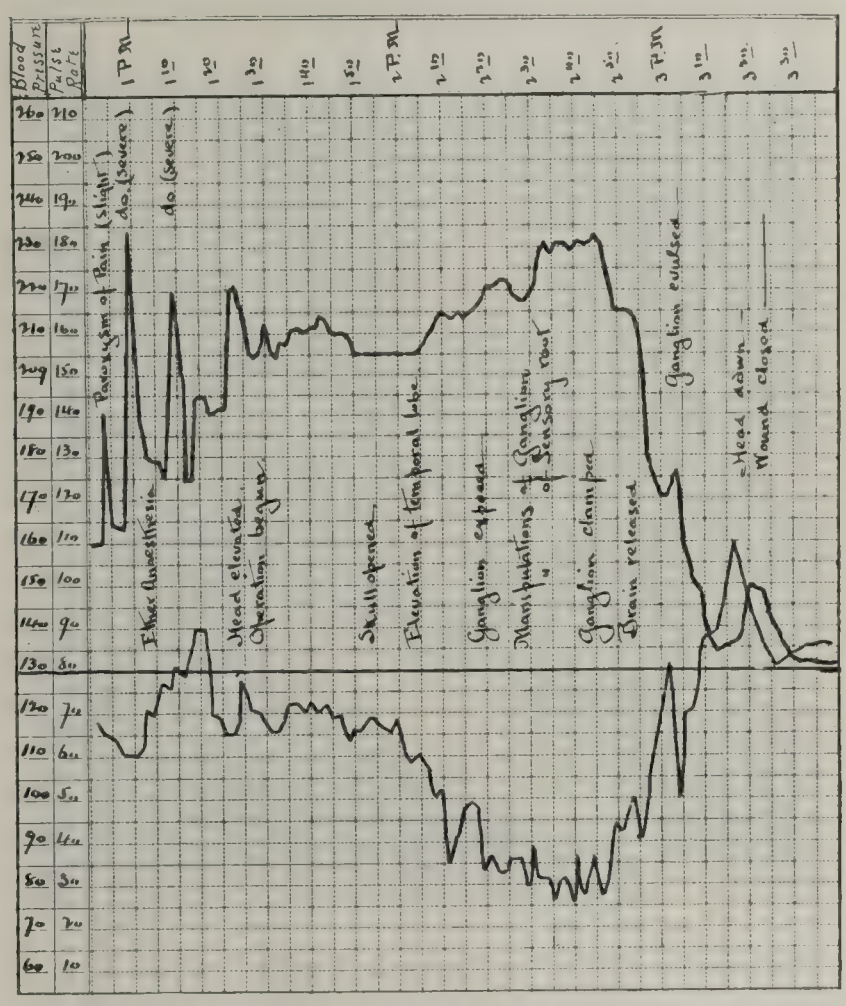


Fig. 2.—Chart of pulse rate and blood pressure during operation. (Case 7.) Note: 1. The pressor responses during the paroxysms, before the administration of ether, unassociated with change in pulse rate. 2. The vasomotor response to 233 mm. of Hg during elevation and compression of the temporal lobe and the corresponding retardation of pulse to 30 beats a minute from vague stimulation. 3. The return of blood pressure and pulse rate to their normal level, after releasing the compression. The upper line represents the blood pressure in mm. of Hg, and the lower line the pulse rate.

parts, so far as their cardiovascular reactions are concerned, of experimental conditions in which local compression is exerted or of certain clinical cases as, for example, traumatic extradural meningeal hemorrhage. They are associated with a slowing of the pulse, and, if the compression is of sufficient extent or so exerted as to transmit its effects to the vasomotor as well as to the vagus center in the medulla, the former is likewise stimulated by stasis anemia and there is a resultant rise in blood pressure. The vagus response, the slowing of pulse, is familiar to all who have carried out this operation, and an illustrative chart of pulse rate alone was

24. Verhandlungen d. Deutschen Gesellschaft für Chir. 30th Congress, 1901, p. 33.

given in my earlier paper. A combined chart showing alterations both in blood pressure and in pulse rate was first taken in Case 7 of the series and is here reproduced (Fig. 2). The reaction shown in this figure is very pronounced, more typical, in fact, of the experimental reaction than is usual, since, in the majority of cases operated on by the low method, the degree of compression, though enough to evoke a vague response, does not always suffice to stimulate the vasomotor center and produce such an enduring rise in blood pressure as is plotted in this figure. Not uncommonly one sees a very irregular systolic curve, accounted for, I presume, by the pressor responses brought about by manipulations of the sensitive dura and of the trigeminus itself. An indication of the great pressor excursions which, without alteration in pulse rate, accompany the neuralgic paroxysms is also present on this chart, and I can not but believe that the arteriosclerosis, which is so common an accompaniment of long-standing cases of tic douloureux, is with greater probability consequent on the high-pressure pulse than that the vascular changes, as is so commonly thought, are in themselves a causal factor in the neuralgia.[25] On the next occasion of removal of the ganglion (Case 8), the fatal one of my series, a warning depressor response occurred which was unheeded. It proved to be a comparatively simple, dry operation, and yet it was characterized by a constant fall in blood pressure which showed itself before any change in pulse or respiration was apparent to the anesthetist or to the operator. Had this warning of the failure of the normal compression reaction been accepted, the painful necessity of recording a death in this series of cases might have been avoided. It will be seen, on consulting the chart (Fig. 3), that the usual reactions on elevation of the temporal lobe did not occur. Since this sorry lesson was learned, implicit reliance has been placed on these readings, and I doubt not that accidents have been averted thereby. No definite reaction has been seen to result from the evulsion of the sensory root. A fall in blood pressure at this time may appear on the charts, but this fall is probably due to the immediate release of the temporal lobe from the compression which follows the extraction of the ganglion. Once or twice, however, I have thought that a depressor response was occasioned by the extraction. It would seem also that the severe sensory impulses induced by the surgical traumatism of the ganglion would always be productive of postoperative shock, and with this thought in mind I have occasionally endeavored thoroughly to cocainize the ganglion after its exposure and then to carry out the manipulations necessary to free it. I have not been at all convinced that anything had been gained thereby, and, indeed, the fatal case of the series had been so treated.

CLINICAL HISTORIES OF TWENTY CASES WITH COMMENT.

The quotation which was borrowed as an introductory paragraph for this paper makes reference "to the marked similarity that one case bears to another both in course and symptoms," and for this reason the first case alone in the following series will be recorded in some detail in order that an idea may be conveyed of the type which is considered "major neuralgia." A recital of the other cases would be unnecessary were it not for dates and ages and data pertaining to the varying instances and complications of the operative and postoperative periods, for the similarity which in each case characterizes the ante-operative chapters does not always apply to the subsequent story.

It is almost superfluous, indeed, to give any illustrations of a malady the clinical aspects of which are so sharply cut. In its major form, however, the disease is not a common one, though when present it claims its victim to the end. A retired physician who has had a long and active practice in private and in hospitals of almost fifty years tells me that only two instances of the malady in its extreme form have ever come under his observation. Both of them ultimately were suicides.

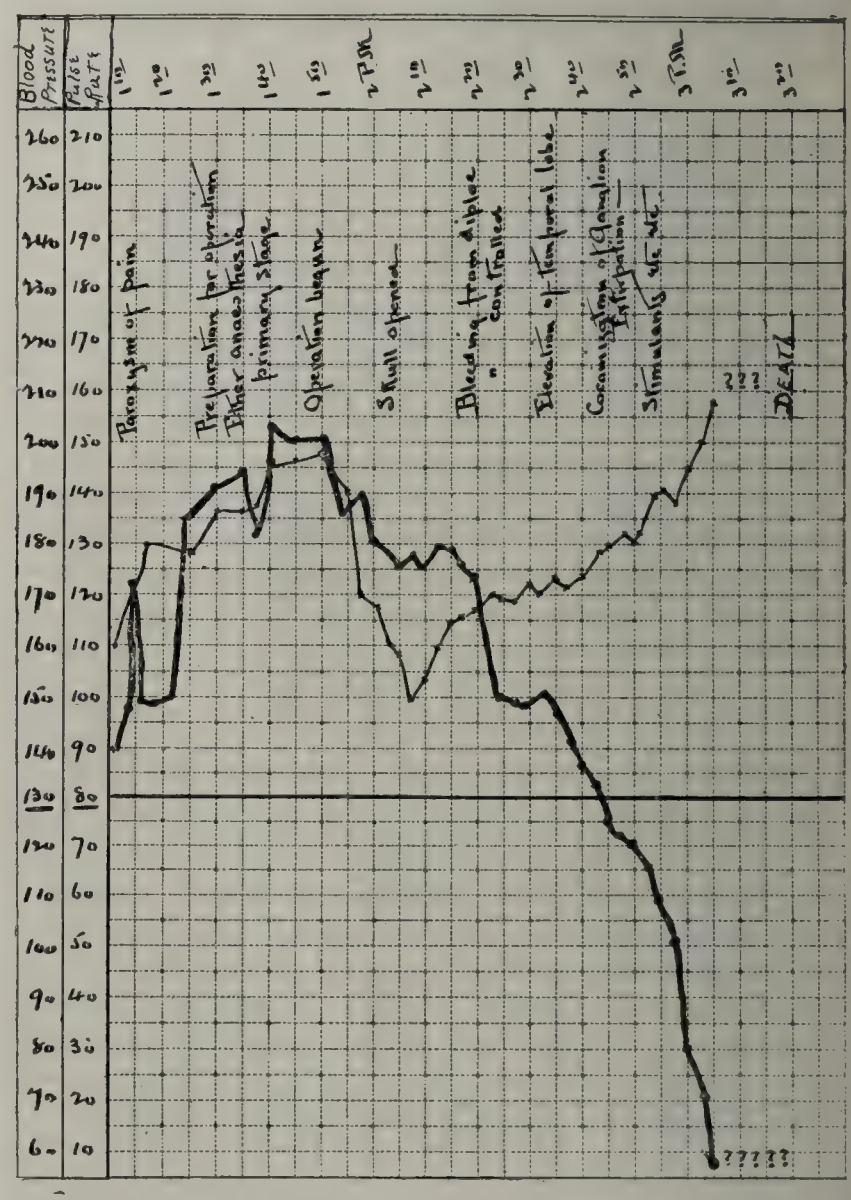


Fig. 3.—Chart of pulse rate and blood pressure in the fatal case. (Case 8.) Note: 1. The rapid pulse (145) and comparatively high blood pressure (200) during the preparation of the patient and early stages of anesthesia (ether). 2. The drop in blood pressure and rise in pulse rate due to a very slight loss of blood from the diploe. 3. The immediate and persistent fall in pressure and increase of pulse rate contrary to the normal reaction during elevation of temporal lobe and removal of the ganglion, this procedure requiring only twenty minutes. Cessation of cardiac action. The heavy line represents the blood pressure and the light line the pulse rate.

I doubt not that it has been the experience of other surgeons, to whom have finally drifted a considerable number of these unfortunates, to find that they have determined to submit themselves to the "deep operation," so called, contrary to the advice of their medical attendants, and have been told that deformity, blindness, insanity and worse is almost an inevitable sequence. Patients (two of them) have later acknowledged to me that they had come to the hospital courting death on

25. An interesting sequel of the hypertension during the paroxysms has recently come under my observation. A woman, aged 64, a sufferer for years with major neuralgia, had a slight stroke of apoplexy after an unusually severe paroxysm of pain. Her radial artery was distinctly palpable, and before the operation (a peripheral one) her systolic pressure in a period of comparative freedom from pain registered over 200 mm. of Hg. It was much higher during a paroxysm. A week after the operation it was about 70 mm. lower.

the operating table. It is from patient to patient, rarely from doctor to patient, that the knowledge of possible surgical relief is passed along, and it is lamentable that this final procedure should be so generally regarded as one "hazardous in its performance and uncertain in its permanent effects."

CASE 1.—Surgical No. 9257. Right-sided major neuralgia originating in the third division. Duration ten years. Two earlier peripheral operations. Total extirpation. Well after four years.

Patient.—James W., aged 63, entered the Johns Hopkins Hospital August 2, 1899.

History.—He gave the usual pitiful story of a sufferer from tic douloureux. He had been a prosperous sea captain until the onset of his neuralgia, which had forced him to abandon his profession, and he had spent the last decade of his life and all his savings in the fruitless endeavor to obtain permanent relief from pain. All forms of treatment, orthodox and otherwise, had been given a trial. He had once been seriously poisoned by strychnia, the dosage having been gradually carried up to 1/7 grain every three hours. He had run the usual gamut of other drugs. Morphia in large doses crazed him, but had little effect on the pain. All his teeth had been extracted. In July, 1896, a peripheral operation was performed with but a few months' respite. In June, 1897, a double operation was undertaken, when both the *N. maxillaris* and *N. mandibularis* were evulsed. The pain returned with renewed energy shortly after. For the past two years he has been practically bed-ridden; has "lived without sleep"; has been for weeks at a time maniacal from pain and from drugs given him for its relief. He returned to the hospital desperate, threatening suicide unless something be done to effectually relieve him.

Character of the Neuralgia.—There is apparently no etiologic factor to which it can be definitely attributed. He has led an exemplary life; had typhoid fever when a young man and the "chills and fever" usual to his district, but remembers no other maladies. Frequent exposure to severe weather has been a requisite of his vocation, but he does not associate the onset of his pain with any such causal factor. The pain originated in the apparently sound teeth of the lower jaw; has spread progressively into the other sensory areas of the fifth nerve and has steadily increased in severity. All three trigeminal divisions are now affected. There is also a cervical and suboccipital extension. There is constant pain in the face, with exacerbations which occur, regardless of apparent cause, with an average interval of ninety seconds. The paroxysms usually originate in the lower lip just below the corner of the mouth, with an abrupt onset, after which the pain quickly spreads across the face, through the eye, into the forehead to the vertex and thence to a spot on the temple where "a final vicious twist" is given to abruptly end the acute stage.[26] The entire paroxysm lasts about 40 seconds. Its onset is described as "a devil twisting a red-hot corkscrew into the corner of the mouth." A diagram was made on which the patient roughly traced the course of the pain. It travels slowly between the points of onset and departure. It does not (as is often the case) dart between the chief pain points. There is also intraoral pain and he often begs to have it taken out of his mouth. A mental and an infra-orbital area of hypesthesia remain in consequence of the peripheral operations. These territories, however, though "numb," are exquisitely sensitive to many forms of stimulation. An accidental touch of the moustache or beard, any movement of the lips, palate or tongue, inaugurate a paroxysm so that talking is almost precluded and deglutition regarded with fearful apprehension. During a paroxysm the trigeminal field flushes greatly, the eye becoming injected, the temporal artery more prominent, and there is an excess of tears and saliva. Immediately after a paroxysm he would stealthily introduce a spoonful of warm liquid nourishment into the sound corner of his mouth and swallow it reluctantly.

Physical Examination.—An emaciated old man, looking fifteen years more than his age. His weight is only ninety pounds. He is unkempt to a degree, with white tangled beard and moustache. The right side of his face is greasy and dirty, having been unwashed for many weeks; the beard is matted with epithelial scales and sebaceous accumulation. He is red-eyed from loss of sleep; saliva drools constantly from his toothless mouth. He writhes frequently with pain, which distorts the right side of his face and occasionally makes him cry out. Unless endeavoring to take nourishment, he lies during his period of comparative freedom absolutely motionless, "always on a strain," apprehensive of the certain return of pain; altogether a most pitiable object.

There were no evidences of renal, pulmonary or cardio-vascular changes to correspond with his apparent age and physical condition August 4, 1899.

Operation.—Chloroform anesthesia. The operation was carried out on the principles laid down in my first paper. The

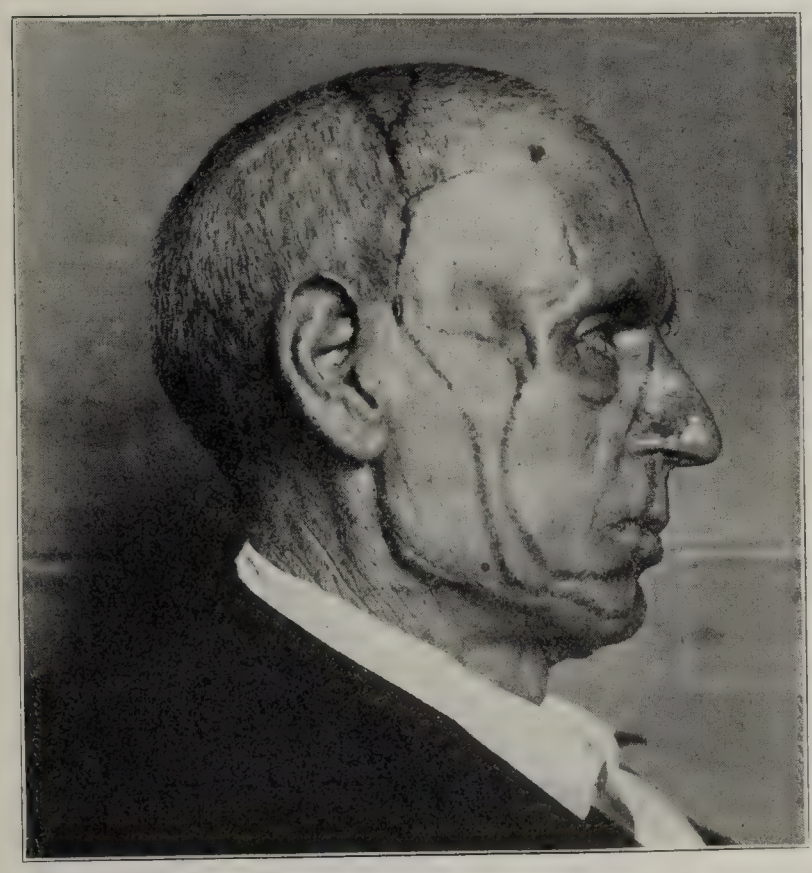


Fig. 4.—Case 1. Ten days after operation. Areas of anesthesia are inaccurate and plotted for pain only. Incision unnecessarily high. Scars of earlier operations.

case proved to be (as later experience has shown) an exceptionally dry one. A much larger skin incision was made than necessary (Fig. 4), and the anterior leg of the incision was carried down to the zygoma. This occasioned a postoperative palsy of the orbicularis, which fortunately was only temporary, and the error was corrected in the later cases. The zygomatic arch was excised. Avoidance of the meningeal artery was easy and no hemorrhage was encountered by the method of approach. The only bleeding which sufficed to cause any delay followed the separation of the inner edge of the ganglion from the side of the cavernous sinus. It was presumed that the sinus was injured. A few moments' pressure of gauze, aided by an inward depression of the spatula used to elevate the temporal lobe, sufficed to check the bleeding completely. Subsequent conditions showed that it had also sufficed to injure the *N. abducens.* The ganglion with the sensory root was extracted practically intact. A portion of the ophthalmic division was later removed from the sinus (cf. Fig. 5 and Dr. Spiller's report[27]). Some cerebrospinal fluid

26. Just as in Jacksonian motor epilepsy, there is evidence often of a definte march of symptoms durng the paroxysm from division to division in sequence. The experiments which I undertook with Dr. Barker sufficed to show that the grouping of cells for each division of the nerve is quite distinct. They become involved in the disease process, whatever it may be, in sequence, they "discharge" during a paroxysm in sequence. Sensory epilepsy so-called.

27. Spiller: THE JOURNAL A. M. A., May 5, 1900, p. 1094, Case 1.

followed the extraction. The wound was sufficiently dry to justify closure without drainage. During the late stage of brain elevation the pulse was slowed from its normal level, under the narcotic, at 90, to 50 beats per minute. Duration of operation, one hour and twenty minutes.

Postoperative Notes.—Convalescence was uneventful. He slept uninterruptedly eight hours the night of the operation. "My first long sleep in nine years," he said the next day. There was no postoperative nausea and he began to take nourishment ravenously.

The sutures were removed from the wound on the third day. The healing was without visible reaction. There was slight lagophthalmos of the right eye owing to palsy of the orbicularis from proximity of old infraorbital and recent ganglion incisions. There was internal strabismus. Paralysis also of the sympathetic, causing a greatly contracted pupil. These palsies disappeared in a few weeks and fortunately, considering the slight ectropion from the old infraorbital scar, there has never been any subsequent inflammatory disturbance with the eye. No taste impulses from the right side of the tongue (apparently the left side was not tested, for an examination in May, 1900, showed complete absence of taste perception anteriorly on both sides). A photograph (Fig. 4) was taken on the tenth day, showing the areas of anesthesia as they were then roughly mapped out.

The patient began rapidly to gain in weight and when examined again (May, 1900), after nine months, weighed 130, a

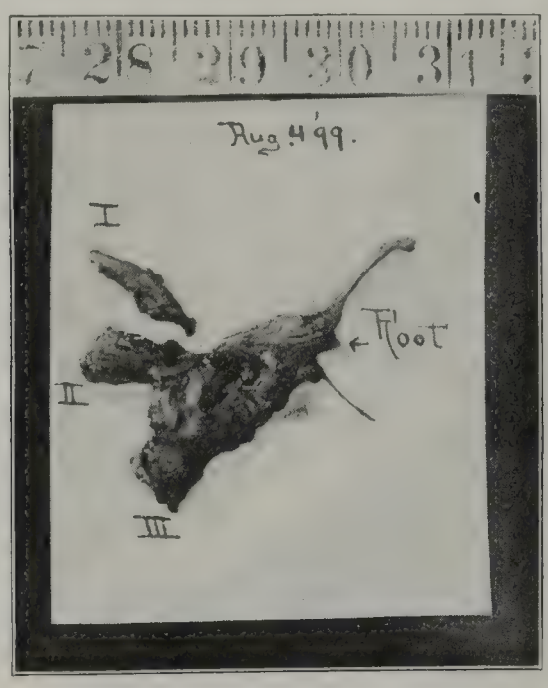


Fig. 5.—Ganglion from Case 1.

gain of 40 pounds. A photograph taken at this time (Fig. 6) shows the area of persisting anesthesia.

It should be noted that in the examination of the ganglion removed in this case, Dr. Spiller found evidence of pathologic alterations in the sensory root. Such a condition had before been observed only in one case, by Krause, though to be sure, comparatively few opportunities had been offered for the study of this structure. In Krause's case, pain returned on the other side of the face, and it naturally led to the suspicion that in these instances in which evident morbid changes had passed beyond the ganglion cells themselves and the sensory root become involved that there might be a recurrence of pain, even after removal of the ganglion. Fortunately, our fears that this might take place in this patient seem to have been ungrounded.

Late Result.—At present, four years after the operation, he writes: "My face has not given me any trouble whatever since the operation was performed, neither have I been troubled with my eye. I weigh 126 pounds, which is my usual weight. My general health is good and I have a splendid appetite."

CASE 2.—Referred to me by Dr. Clopton of St. Louis.

History.—Mr. W. E., aged 55. He had been a prosperous business man, of good habits and sound health, until incapacitated from work eleven years ago by his neuralgia. He had long before been subject to severe hemicranial headaches. The pain originated (1887) in the infraorbital region of the face; it was sudden in onset, and remitted and recurred with ever-

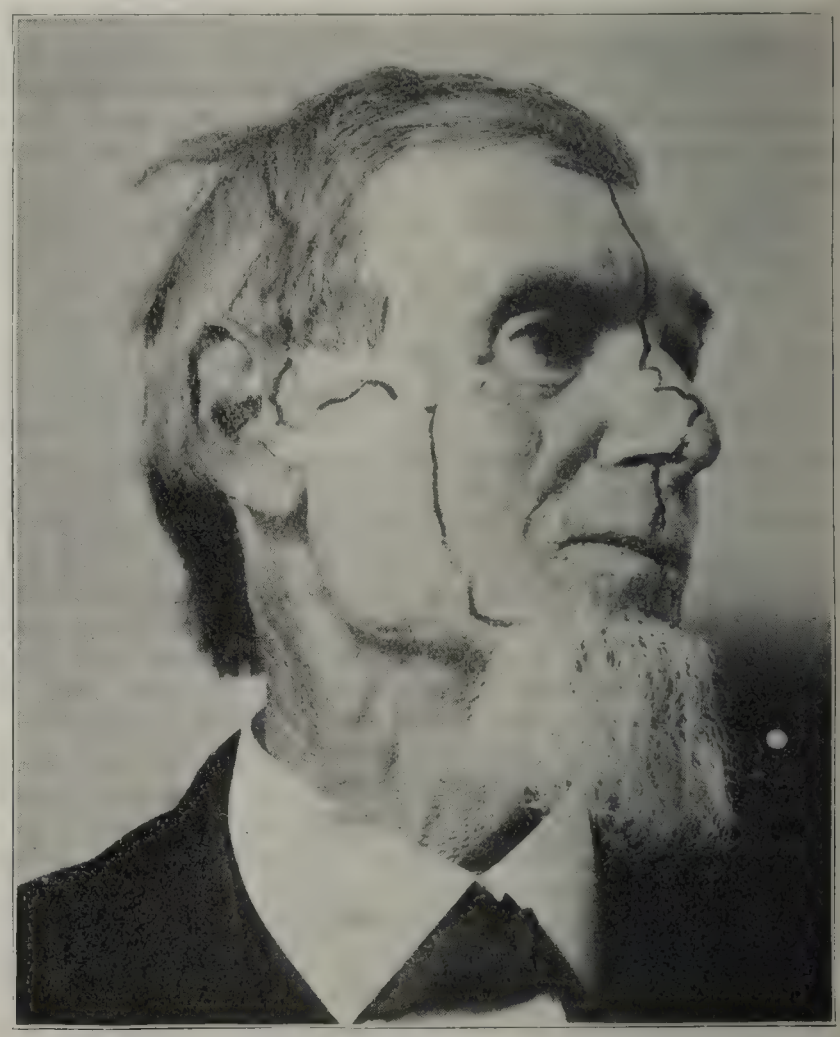


Fig. 6.—Case 1. Nine months after operation, showing area of remaining tactual anesthesia. Zygoma excised, leaving very slight deformity.

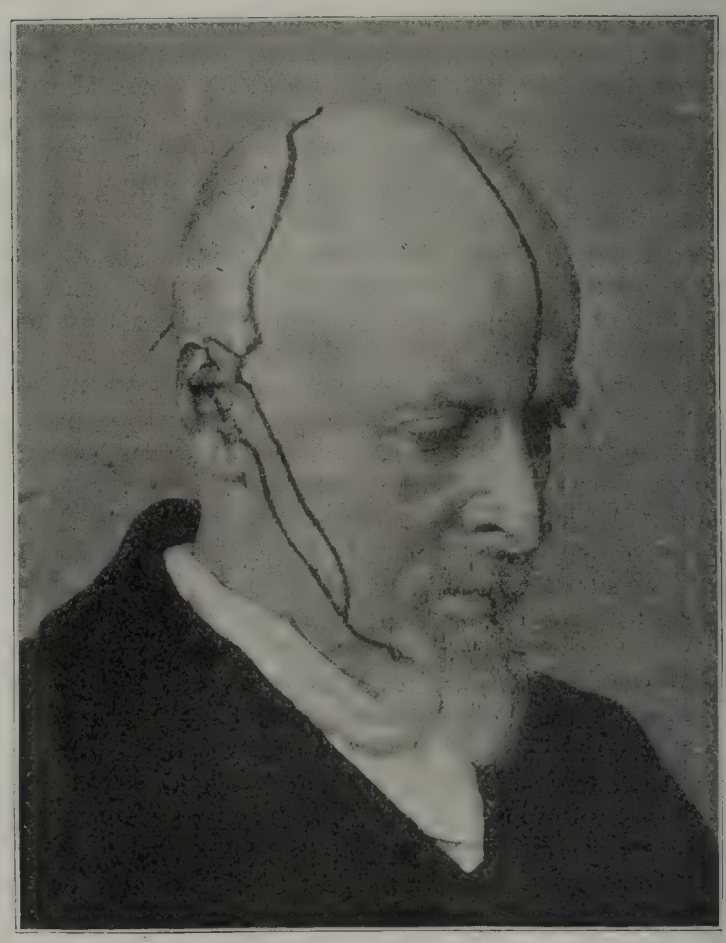


Fig. 7.—Case 2. Eight days after operation. Areas of anesthesia to pain alone. Scar practically invisible.

shortening intervals and increasing severity. All forms of treatment were tried; everything was sacrificed, home, business and savings, in the effort to find relief. The teeth were

extracted. A neurectomy of the *N. infraorbitalis* was performed in 1892, with eighteen months' respite. Pain returned and soon the first division became involved, and not long after the paroxysms radiated through the entire trigeminal area. He had been drugged to the top notch. For several months he had lost all inhibition and had appeared maniacal at times and had been in confinement. There was loss of sphincteric control. Weight, 120 pounds; 40 under normal. He had had for several months rapidly recurring paroxysms, often with only a few seconds interval. Pain had made "a frightful hell of his existence." He represented the most severe possible

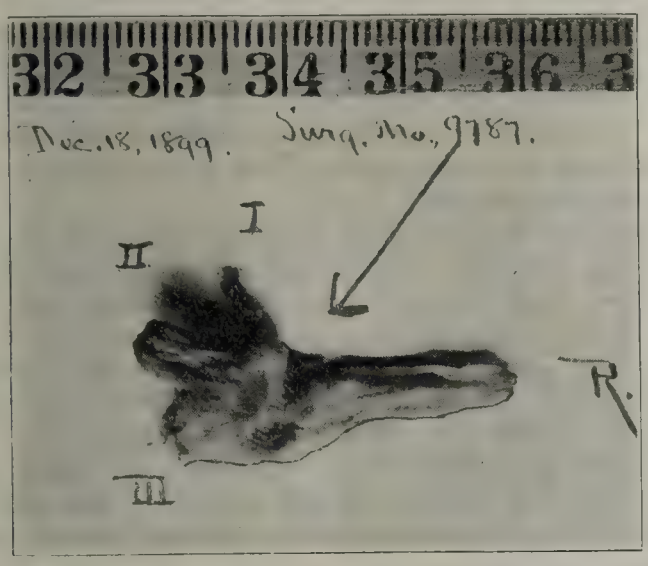


Fig. 8.—Ganglion from Case 2; intact; under surface. Showing motor root lying above sensory root. Arrow points toward imprint of forceps used for evulsion.

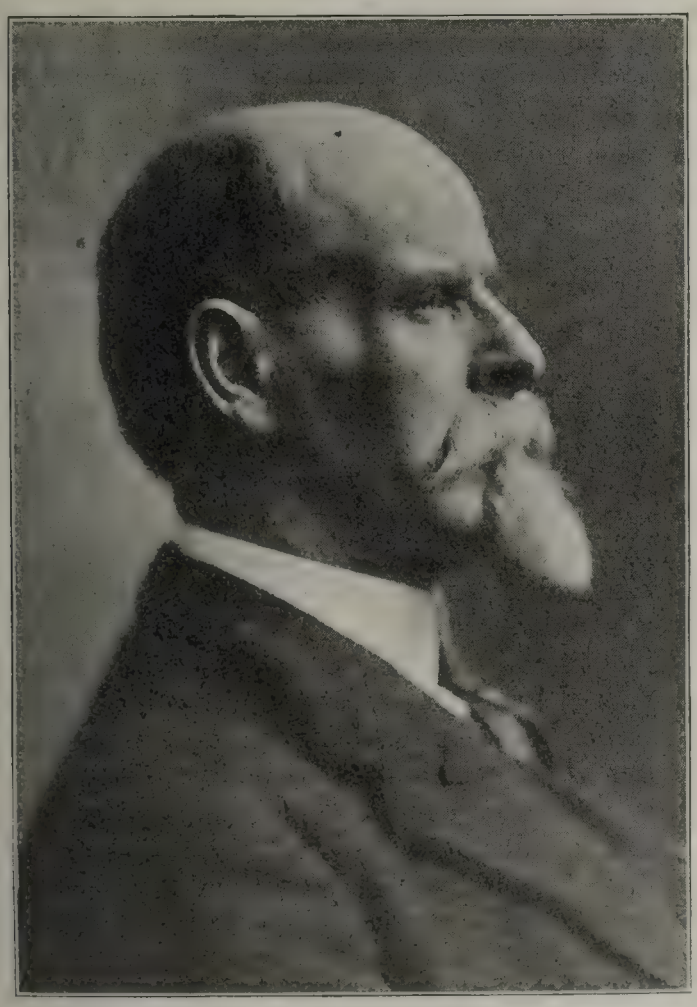


Fig. 9.—Case 2. Photograph taken (three years after operation) with light directly overhead so as to accentuate, by shadows, the deformity from the atrophied temporal and masseter muscles; zygoma replaced in this instance.

type of major neuralgia. I have only seen two other instances which approached it in severity (Cases 7 and 16), and in which from drugs and suffering the patients had become equally irresponsible.

Operation.—December 18, 1899. Chloroform. Duration, 1 hour, 20 minutes. The zygoma was only temporarily resected. This was an exceedingly dry case, without incident worthy of mention. There was usual slowing of pulse to 50 during elevation of brain. The wound was closed without drainage, and the sutures were removed on the second day. Healing was perfect and the scar almost invisible. (Fig. 7). Anesthesia was complete to all forms of sensation in the trigeminal territory and remains so to the present day. Temporary internal strabismus occurred from pressure palsy of the abducens. Tissues (Fig. 8) reported on by Dr. Spiller.[27]

Postoperative Notes.—Nausea was present for two or three days and an abundance of tenaceous saliva for several days. Soon an inordinate appetite appeared. He gained seven pounds in the ten days after operation, and ultimately gained 41 pounds.

He returned to the business he had abandoned years before and has remained (3½ years) perfectly well. There is some deformity from temporal atrophy. (Fig. 9.)

(To be continued.)

SOME MINOR OR BORDERLINE PSYCHOSES OF ALCOHOLISM.*

FRANK PARSONS NORBURY, A.M., M.D.
JACKSONVILLE, ILL.

The following case is representative of a class of minor psychoses, psychoses peculiarly a feature of alcoholism.

CASE 1.—Man, aged 42; married; farmer, with no family history of mental or nervous disease; with no history of previous serious illness; syphilis denied.

History.—For a number of years, at least twenty, has been given to drinking "bouts," not marked with periodicity and largely a self-willed desire to drink more for social reasons and to sustain a reputation which he had earned of being able to drink any man in the county under the table. In addition he was regarded as "the strong man" in the community. He was of athletic build, 6 feet 3 inches tall, weight 370 pounds, proportionately distributed. As a young man he was the champion wing shot, trap shooter and rifle marksman of the county. His desire to excel extended to his ability to drink whisky, and it was his boast that he could drink a quart of whisky a day and not be drunk nor manifest any of the ordinary symptoms of acute alcoholism. Nor did the continuance of drinking over a protracted period of time greatly disturb him. About eighteen months ago, largely on account of his wife and children, of whom he was very fond, and because he found that to keep up the pace he was going was very expensive, he decided to quit drinking, and in his usual manner of doing things he "stopped short," and following this abrupt cessation there was some physical collapse. Soon after he began to complain of indigestion and constipation, and progressive loss of weight. He consulted his physician in a neighboring town, who said there was evidence of disease of the liver and prescribed accordingly. His further history along this line I will mention later.

Present Illness.—The history of the mental aspect of the case was contributed largely by his wife, who was an intelligent, self-possessed and devoted woman. She said that soon after his physical health became impaired he began to show mental peculiarities; he became morose, showed evidences of suspicion regarding her; he would watch her every movement about the house and, finally, one day while they were alone, he accused her of infidelity and named the farm hand employed on the farm as "the second party to the scandal," as he called it. She naturally was very much shocked, hurt and overcome by his accusations, resented them and regarded him as insulting her. She, however, was a sensible woman, and being a woman of high character, secure in her virtue, began to think what all this meant, and her conclusion was that her husband was not himself. She kept this thought to herself for a time, believing

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

that his condition would change, but instead of improvement she noticed its continuance, but with this striking feature—a marked periodicity of the mental symptoms.

On the day he accused her of infidelity he discharged the farm hand and peremptorily ordered him to leave the country, which he did, but all of the time unaware of the accusation made against him. The young man bore an excellent reputation. He did leave the country, went to Kansas, and has never returned.

However, the patient thought the young man was loitering in the neighborhood and again accused his wife of being untrue to him, saying that she was holding clandestine meetings with him. This opinion continued to grow, but was only a feature every third day. The history says that about every third morning he would awaken with this suspicion fixed in his mind; he would accuse his wife of the clandestine meetings; he was melancholy and would remain in bed, darkening his room, and would not permit his wife or children to enter his room. He woud not eat, nor even take water until toward evening, when this cloud of depression would slowly begin to vanish. Then, perhaps, or if not then, at least the next morning, he would call his wife to him, ask her pardon for his conduct, and would say: "Now, dear wife, those awful thoughts are gone."

For the next two or three days he would, as his wife expressed it, shower his affections on her. He would be up and about the house and attend to his farm duties so far as his strength would permit. This went on for two or three months before the wife felt she could tell her family physician. Up to this time no one except husband and wife knew of these trials and tribulations. The wife noticed that while the periodicity of these manifestations was the same, his conduct toward her was becoming more alarming. He armed himself with a revolver, which he kept under his pillow, and under no consideration would he allow her to handle it or to put it out of his sight. She finally decided that something must be done, especially after one night's experience when he threatened her life. As soon as the period of depression and delusion was over and after he had again asked her pardon, she wisely said to him: "Now, let us call in our family physician and see if he can not agree on some plan to help you." He acquiesced in her suggestion and accordingly the family physician, in the presence of both husband and wife, heard their sad experience. He suggested consultation and it was at this juncture that I came into the case.

Examination.—The patient, at the physician's suggestion, was brought by him to see me. The following briefly is the account of my examination:

For four months or more he has complained of anorexia, fullness and distress after eating, eructations of gas, sometimes fetid, constant expectoration of frothy mucus, some nausea and occasional vomiting. The patient showed evidences of wasting; he evidently had lost nearly a hundred pounds in weight; his muscles were soft and flabby and the skin was not clear. Examination confirmed this catarrhal disturbance of the stomach; there were prominent superficial abdominal veins, a retracted abdomen, liver not palpable, lessened area of liver dullness, a feeling of pressure and dull pain on palpation over right epigastrium.

His heart showed a slightly accentuated second sound at the aorta; no murmurs; pulse was increased, about 90; had slightly increased tension; good rhythm.

The urine was darker than normal; high specific gravity, 1028; urea diminished; urates in excess; oxalates in excess; no sugar; no albumin; indican reaction present; no casts.

The special neurologic examination was negative, except that there was marked history of sleep disorder. His sleep was disturbed and presented the interesting disorder of dreams occurring on the night preceding the day of his depression. In fact, he would awaken from his sleep with a start after a dream, which seemingly was firmly fixed and was to him a reality. This dream, always the same, pertained to the infidelity of his wife. This dream was the basis of what he seemed to regard as facts of this unfortunate affair regarding his wife. I should say occasionally other sexual dreams were present, but never on the night previous to his day delusion.

He presented a picture of remorse as he recited his own version of the story and said in vindication: "Doctor, those thoughts appear to be based on facts as real to me as my presence here." "They come and go and I can not control them." "They are with me when I awaken." "They leave me usually by night."

It seems the delusions were more intense in the morning soon after awakening, and as the day went by they slowly faded. Following this day of delusions he was usually depressed, but he was clear and save for the remorse over his dreadful thoughts, because of the sorrow to his wife, he was in fair spirts, rather optimistic, in fact in everything else, except that he occasionally worried over business affairs and later over some loss of sexual power. This is the history up to his entering on hospital care.

Treatment.—I have had him under my care now about eight months, the first six weeks in bed and away from home. I would have liked to have him remain longer away from home, but this circumstances would not permit. I saw him at least every other day and observed him carefully and noted this periodicity. He would not talk freely about his condition to others. After his physical health began to improve, the mental symptoms were modified in severity, but were not removed. He was in bed under rest and appropriate feeding, and internal medication was directed toward thorough elimination, to correct so far as possible the errors of metabolism indicated in the urine.

Result.—He gained twelve pounds in weight in three weeks and sixty pounds in four months, but in spite of his improved physical condition the delusions have continued with the same periodicity, but greatly lessened in intensity He says now that the condition "is only a reminder of former beliefs."

When we proceed to analyze the morbid psychology of this case, considering the physical facts, we find a complex condition. First, it is possible we have to deal with a case of cirrhosis of the liver, as the physical history is not unlike that met with in atrophic cirrhosis of the liver. This impression is even intensified by the fact that digestive derangement continues in a mild way. This shows the importance of a broad knowledge of internal medicine as a necessary feature of diagnosis in cases presenting a history of alcoholism.

Second, the differential diagnosis is to be made by considering that this is a toxic case, undoubtedly, and of alcoholic nature. We can eliminate heredity, that remorseless factor which is so prominent in the minor psychoses of alcoholism.

We have to consider the direct effects of alcohol on the nutrition and the factor of personal resistance which should be recognized as of great importance in considering the psychoses of alcoholism.

In this case we have to deal with a man who for years had used alcoholic liquors without apparent bad results until he suddenly ceases; then it is shown that his physical health has certainly suffered and his nervous system has not been made immune to the toxic effects of the alcohol and the cumulative results are shown in this rather unusual intermittent type of mental disorder. I have tried to account for the *modus operandi* of the alcoholic effects in the periodic phenomena and especially of paramnesia, which seems prominent in this case.

It is a fact, as demonstrated by Kraepelin and Smith by their psychophysical experiments that the effect of alcohol is not apparent (in average dose) until late after it has been ingested; then the increase of automatic over voluntary cerebral action is noted. The

taking of alcohol in excess disturbs the functioning of the higher nerve centers and when continued, or by prolonged use of a moderate quantity, or the excessive use of a large quantity, the effects are marked by the increase of the automatic movements. It is a fact that almost every individual under the effects of alcohol is in one "spree" very similar to what he was in former "sprees," or will be in future "sprees," except the gradual tendency to automatic acts ending in dementia.

Again, if the liquors are abruptly shut off for a period of several days in a moderate drinker or for several weeks in an excessive drinker and resumed again, there will be noticed the disturbance of functioning of the higher nerve centers in exaggerated form.

It is not necessary that the alcohol be present in the blood to account for the continuance of marked physical phenomena. For this reason the nutritive changes of certain cortical cells, engendered by the alcohol, has disturbed and made unstable their function, and this instability, according to Bevan Lewis, becomes more or less permanent and the mental anomalies are stereotyped because of this change. Whatever centers of the brain are more prone to disturbance through the agency of alcohol, once their nutritive equilibrium is upset, there seems a tendency to recurrence of the mental phenomena attending this nutritive disturbance.

This is typically represented in the defined cases of alcoholic insanity who are admitted, get well and are readmitted time and time again in state hospitals, and with almost identical attacks. This mental phenomena is represented in minor form whenever the functioning of certain centers is only mildly distributed.

The element of the periodicity in this case is dependent on the essentially alcoholic nature of the original disturbance of local nutritional changes somewhere among the nerve cells. In fact, this very periodicity, together with the character of the delusions and paramnesia, greatly suggest alcohol as the cause of the phenomena.

Paramnesia is one of the interesting phases of mental perversion of alcoholics. It is characterized by the interpretation of illusions of memory as realities in experience. In these conditions the patient believes that his present circumstances, which are in reality new to him, have previously formed a part of his experience. The illusions and dreams, in fact also hallucinations, being the initial experience, it is difficult for the patient to distinguish between this false perception and a true perception in formulating an objective reality. The primary impression, which is imaginary, becomes a reality and is interpreted when revived as being based on fact. Hyslop says of alcoholic cases: "The false memory usually refers to a visual image of persons or places seen, or to motor or kinesthetic images of actions performed." It would appear reasonable to assume that the starting point of the initial illusions of hallucinations were in the cells most immediately concerned with vision and kinesthetic impressions, respectively; but this would give no solution of the delusion as to the actual reality of the object seen or of the action performed.

I have observed a number of such patients who, in the recital of their history, have dwelt on experiences said to have actually occurred, when in reality the patients were in bed under hospital care, or at home under the surveillance of a nurse. One patient, a man, aged about 45, came into my office recently and recited a story, plausibly presented, of an experience he had recently undergone wherein considerable money was involved in the settlement of an estate, and which he strenuously insisted was being put in such shape that he was to be defrauded, also his children. He called to enlist my support of his claim that he was not mentally deranged and that to secure control of this money he must be able to present a clear case before the court. He went into details in regard to the case, and, to one not familiar with mental cases, the story would have appeared as one of unjust discrimination and real appropriation of funds by scheming individuals. The true story, however, showed that the man had no money, that there was no estate and that fifty dollars was the limit of the amount of money which he could command. The story was based on imaginings and yet in his description the details were carefully given and seemed to be an actual experience based on facts.

The character of such delusions is peculiar to alcoholic mental disorders as studied by Morel, Magnan, Lewis and others. I believe my own experience justifies me in saying that sexual delusions, especially of infidelity, are almost pathognomonic of alcoholic mental perversion. In summing up the case, then, I believe the condition essentially borderline or minor psychosis.

1. History.
2. Observation of the physical factors of the case.
3. Character of the delusions—paramnesia, etc.
4. Periodicity of delusions.

The following case is representative of a class of psychoses of adolescent type:

CASE 2.—A young man, aged 24, single, student.

Family History.—Neuropathic; mother died insane at 43; father neurasthenic and occasional drinker. Several brothers and sisters died in infancy or early childhood of cerebral disease; one brother is living and is apparently well and sound.

History.—The patient has been regarded as a peculiar boy, but is bright, intellectual and capable in his studies. When he was 16 years old he entered an academy for boys, preparatory to college; here he acquitted himself with credit, excepting that he was regarded as unsocial and given to being alone. Later, he attended college, where he was regarded as a good student and up to his sophomore year attracted no special attention, except for a violent love affair which, while it lasted, was fierce and furious and attracted the attention of his fellows, who said that it was characteristic of him, and that "he was a shark in anything he undertook." He finished his college career with honors, and during his senior year the boys said "he began to loosen up a little"; he would be convivial and, in a way of his own, always impulsively energetic. He seldom drank anything but beer.

Present Illness.—Later, he entered a professional school in a large city—away from the atmosphere of the small college and where the opportunities for being alone were greater. Here he remained four months, because he suddenly became mentally disturbed and one day, excited and delirious, boarded a train for home, leaped from it before it left the city limits and disappeared for a time. He was found wandering about the city in a state of abstraction—amnesia was a marked feature, and for two or three weeks he was not able to correlate events, etc., nor to recollect his experience. He was taken home; he gave up his college work, engaged in farming and was successful. He continued to use liquor, only occasionally at first, but with disastrous effects. If he uses whisky or brandy to excess there is sure to be a mental explosion, marked by delirium, maniacal excitement, hallucinations, impulses and obsessions to do bodily harm to others. The attacks are usually rapid in onset, for the reason that he can not drink very much, his system rebels and he is soon lost to himself.

These attacks are not those of delirium tremens, but rather a marked mania, brief, but severe while they last. Following this outburst there is a period of melancholy, depression, amnesia and a general collapsed state, which lasts from five to seven weeks.

This case represents a type not infrequently seen and is directly the result of toxic effects of alcohol on the nerve centers. This patient is the victim of a minor psychosis, engendered by the effect of alcohol on a very impressionable and unstable nervous tissue, made so by hereditary influences. He is an adolescent of neurotic type and a fit subject to become a well-defined case of alcoholic insanity, should be continue to drink. My experience in state hospital work is that chronic alcoholism is very productive of insanity and early terminal dementia in such subjects.

This case is one of great importance, as we have a young man with a promising professional career before him cut short by his unfortunate addiction to drink; the essential factor of degeneracy in his makeup intensified by drink cuts him out early in life. Perhaps under suitable regulations, under the careful régime of a physician interested in his career, he could be made to stem these storms, to get away from drink and to become a useful citizen. I am sure that it is a problem, involving more than mere medical care in order to meet it. The treatment of immediate effects of alcohol are problems familiar to us all and are readily managed by rest and symptomatic treatment. It is the question of handling the hereditary delinquent which taxes our ingenuity and resources; in fact, we can only meet this side of the problem by carefully considering all the features and circumstances and then mapping out a plan for procedure. These minor psychoses, under careful regulation of the life of the individual, may be stemmed between the scylla of heredity and the charybdis of alcoholism, if we but make it a problem for a lifetime, rather than a few weeks or months that the patient is under our immediate care.

CONCLUSIONS.

Treatment is successful in the majority of cases where the individual co-operates and learns his limitations. From a study of several hundred cases of minor psychoses of alcoholism, including the "polyneuritic psychoses," marked by amnesia, paramnesia and confusion with marked hallucinations, I am led to the following conclusions regarding these mental disorders:

1. They are rare in acute alcoholism but may appear in adolescents of neurotic type.
2. They are more frequent after adolescence and up to 40 or 45 years of age.
3. They occur both in continuous drinkers and in periodic delinquents.
4. The prognosis is variable, depending on inherited frailties and moral development.
5. Early treatment is advisable as a prevention of major psychoses.
6. Treatment is successful in the majority of cases, providing we have the earnest co-operation of the patients and can have them under our immediate care for a protracted period.
7. Such cases should be distinguished from ordinary chronic alcoholics and should be treated from the standpoint of mental disease.

Better Medical Schools.—An interesting fact is the falling-off in the number of students at medical schools. We are making a great advance in the quality of medical training. The best schools are raising their requirements for admission and their standard of study, and the "one-horse" schools of medicine are fast disappearing. Nothing could be more wholesome than this tendency.—*World's Work.*

TUMORS OF THE BRAIN.

DISCUSSION ON PAPERS OF DRS. KENDIG AND WOLFSTEIN, AND BROWN AND KEEN.*

DR. THEODORE DILLER, Pittsburg, Pa., said that he recently recorded a case in which the bone was eroded over the seat of the tumor. At the time of the operation the bone was found to be very thin, and there was evidence of protrusion over the site of the tumor as in Dr. Keen's case. The bone was eroded, quite thin, necrotic and easily cut away. Dr. Diller's colleague, Dr. McKennan, had a case last winter in which there was also a protrusion over the site of the tumor. But in his case the bone, instead of being thin and eroded, was greatly thickened. Dr. Diller stated that Sir Victor Horsley does not suture the dura mater, as he considers it time consuming and unnecessary, and asked what is Dr. Keen's practice in this particular. He also referred to a case of brain tumor operated on by Dr. R. W. Stewart recently. The patient exhibited the general symptoms of brain tumor, severe headache and a high degree of optic neuritis with several generalized convulsions besides three symptoms which, taken together, seemed to point to the frontal lobe: (1) great lethargy, (2) failure of sense of smell on the right side, (3) history of a coughing spell several weeks before in which a considerable amount of pus was expectorated with immediate relief of the headache. This led to a diagnosis of tumor or abscess in the right frontal region; but at the operation no tumor or abscess was found, although the patient's condition was very much bettered by the operation. The laryngologist, Dr. Day, who was called into counsel, thought that the pus might have been due to an entirely independent and intercurrent affection, inflammation of the frontal sinuses with relief of symptoms after the pus had found its way into the nasal cavity and had been coughed up.

DR. CHARLES K. MILLS, Philadelphia, declared that both these cases have points of great interest. In the first place they are interesting as showing what has been learned, from other cases recently, that brain tumors, and even tumors of considerable size and of varying density, may occur without headache, or without headache as a marked symptom. He has noticed that soft infiltrating tumors will not always produce headache, even if the tumors are of large size. Even comparatively hard tumors, however, do not always cause headache. Recently Drs. Spiller, McConnell and Frazier had a case which Dr. Mills saw in consultation, in which, although the tumor was of considerable size and comparatively hard, pain was absent. Another point brought out by one of these cases is the fact that a tumor extending over a very large area of the brain does not always produce symptoms that can be correlated to the functional areas or parts involved in the tumor. In other words, there may be a tumor involving nearly every one of the sets of cranial nerves, and the cranial nerve symptoms will only be referred to one, or probably to two, of these nerves. These cases serve to illustrate that in tumors of the prefrontal region, and especially of the left prefrontal region, there may be psychic symptoms of a special character. Dr. Mills has come to the conclusion that in every case where the diagnosis can be fairly made operation should be performed early.

DR. ALBERT E. STERNE, Indianapolis, emphasized the remarks made by Dr. Mills and reported an illustrative case. A station master in a town about 60 miles from Indianapolis had been in seemingly very good health, when he began to complain somewhat of pain in the left frontal region, and began to harbor delusive ideas that he had made some mistakes in his work and that the auditor of the railway company was about to come down and examine his accounts. The auditor stated that his accounts were absolutely correct, but he still persisted in the statement that he had made mistakes and that he was liable to arrest. The authorities of the railway company ordered that he go south for a vacation, which he did. He grew worse while away and was taken to Dr. Sterne's sanitarium in the following condition: The only symptoms pres-

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* These papers appeared in THE JOURNAL March 11, page 788.

ent were the fixed delusion that he was to be arrested and pain in the left frontal region, with a very slight difficulty in the movements of the left eye. The pain was extremely intense at times, but as in the cases reported by Dr. Keen, it was easily relieved by the administration of a few grains of phenacetin. Ophthalmoscopic examination revealed a very slight beginning stasis in the fundus of the left eye. The diagnosis of tumor of the left frontal lobe was made. Some months previous to all this he had had one convulsive seizure and a vomiting spell, which was attributed at that time to the fact that he had some gastric trouble. Immediate operation was advised and arranged for the following day. Before the time set for the operation the man had a second convulsion and died therein. The next day, instead of an operation a post-mortem was performed and the following conditions found: In the left frontal lobe there was an infiltrating tumor which had not reached the cortex at any place nor to within from one-fourth to one-half inch thereof in any particular part; nor was there any evidence microscopically of infiltration of the cortex proper. The tumor was of the glio-sarcomatous variety. The dura was not involved, nor was the pia, and although operation had been advised for this patient, the chief symptom was pain in the left frontal region; that, together with the mental symptoms and very slight stasis, were the only symptoms indicating a gross lesion of the brain. The tumor was about the size and shape of a small egg with ramifications running out from the periphery; it was of an infiltrating character and the ventricle on the left side was almost obliterated, whereas the ventricle on the right side, which was not involved by the tumor, was dilated to an intense degree. The aqueduct of Sylvius was widened, and Dr. Sterne attributed the sudden death to the forcing of the fluid from the right ventricle to the fourth ventricle through the aqueduct of Sylvius. He believes that the man suddenly died from pressure in the fourth ventricle. He could find no other condition which would lead him to think that the man's death was due to any other cause. This illustrates the possibility of death from pressure in the fourth ventricle due to a lesion in the frontal lobe, and is an instance of early diagnosis of cerebral tumor where the objective symptoms were meager.

DR. W. W. KEEN, Philadelphia, stated that he always sutures the dura whenever possible. In many cases one can not suture the dura accurately, but the margins can be approximated within 5 or 6 mm. and very commonly within 1 or 2. The only objection that he can see to it is that it takes a little more time, probably two or three minutes, and he does not consider that a valid objection. Dr. Keen agreed with Dr. Mills that in all cases the operation should be done early, especially after the use of the iodids in suitable cases for a period of about six weeks. He thinks the great difficulty in many cases of tumor is that they have been allowed to go too long, and have become so extensive that the damage to the brain is very great and the dangers and difficulties of operation are enormously increased. He called attention to the very rapid growth of the tumor in the case reported by Dr. Brown and himself. The first symptoms appeared in March and the case was operated on in August, so that in less than six months there was a tumor involving the entire frontal lobe of the brain, in front of the biauricular line, and the right hemisphere as well. It grew rapidly and even gnawed through the bone, so that there were soon holes through which the tumor protruded. In cases of optic neuritis Dr. Keen agreed with Dr. Mills, and in all cases would like to operate as early as possible, after waiting a reasonable length of time for possible localization and for possible effect of remedies. He has found in many cases the optic neuritis to be arrested by operation and in cases of severe headache the relief is almost magical. He recently operated on a case in which not only was the tumor not found, but he had no expectation when he did the operation of finding it, but in any event he desired to relieve the headache. In that case he made a large opening, removed the bone entirely, and allowed the scalp to come directly on the dura. The man's headache was entirely relieved, and the eye symptoms at least have grown no worse; whether or not they will be improved one can not yet tell.

DR. F. W. LANGDON, Cincinnati, said that it was a fortunate occasion which led to the connection of the case reported by Drs. Kendig and Wolfstein with his notes. He was invited by Dr. Kendig to look at a very interesting brain, of which he had no history and no account of the patient. In looking at the tumor, which was a large mass nearly as large as a hen's egg, and which involved the optic chiasm, Dr. Langdon noticed the initials of the patient and asked the man's name. He then referred to his notes and found that the patient was first sent to him seven years before his death by an oculist who had made a diagnosis of locomotor ataxia causing optic atrophy. Dr. Langdon negatived the idea of any ataxia; there was no Argyll-Robertson pupil, though there was a sluggish pupil due to atrophy in the optic nerve; there were no crises nor any sensory disturbance; in fact, nothing on which to base the diagnosis of locomotor ataxia. At that time there was no vomiting, no cardiac symptoms and nothing to indicate brain tumor, notwithstanding that the tumor must then have been in progress. Probably a year and a half afterward the patient came back from another oculist with a diagnosis of paresis, which Dr. Langdon also was compelled to negative. The patient presented no symptoms of paresis with the exception of a mild emotional state and a tendency to weep without cause, but which he attributed to the death of his mother. There were no other symptoms of paresis, and while at times, perhaps, the man felt cheerful, there were undoubtedly times at which he felt unduly melancholy; it was a changeable emotional state with no other signs of paresis. He asked Dr. Langdon's advice about going on the road, as he still had a position, and he was told to go. He came back in rather better condition and asked Dr. Langdon's advice about getting into a home, and some of his relatives put him in a charitable institution. Afterward he was taken to the Cincinnati sanitarium of which Dr. Langdon was the medical director, and admission asked for him in order that he might be under observation to see if anything could be done for his insanity, which had become a state of mild dementia. He still presented no evidence of paresis and no ataxia. There were slightly increased knee jerks, but there were no symptoms indicating either brain tumor or locomotor ataxia; at times there were symptoms of mild dementia. He recognized Dr. Langdon, though it was practically five years since he had seen him. He was always pleasant and always got up off the lounge, where he spent most of his time, when Dr. Langdon entered the ward. After remaining a few months he was pronounced incurable, so far as his dementia was concerned, and he was, for financial considerations, removed to the state hospital. It was within a few days after his removal there that he died. There was neither paresis nor locomotor ataxia, nor any symptoms of brain tumor; and if there had been it is evident that an operation would not have been attended with brilliant results. Dr. Langdon considers the case extremely interesting from the standpoint of its negativeness, and agreed with Dr. Mills that there ought to have been some more grave symptoms. This was a hard, encapsulated tumor which exerted a great deal of pressure on the membranes at the base of the brain and ought to have caused a great deal of pain, which it did not. The case is one of a great deal of interest from this point of view.

DR. F. X. DERCUM, Philadelphia, stated that he had had an opportunity to examine the case reported by Dr. Keen, and could confirm Dr. Keen's statements as to the inconsequential character of the headache. Dr. Dercum mentioned a similar case, on which Dr. Keen had operated, and in which there was most extensive angiosarcoma of the frontal bone with absolutely no headache. The bone was very thin, almost like a piece of writing paper. In another case on which Dr. Keen operated, and which was reported by Drs. Dercum and Keen jointly, Dr. Keen removed an enormous tumor, and, while there was tremendous thickening of the bone, there was, for some unknown reason, no pain.

DR. WILLIAM G. SPILLER, Philadelphia, stated that paralysis

of the external rectus is not always of value as a localizing sign in tumor of the brain, as this nerve, on account of its long intracranial course, may be injured by pressure exerted at a distance. The tendency to silliness on the part of the patient in speaking, and to the attempt to speak like a child, is a little in accordance with the tendency to make jokes observed in case of tumor of the frontal lobe. Dr. Spiller said that Dr. Langdon's report does not state whether there was, in the case to which he referred, bilateral temporal hemianopsia. This condition may be looked for when the tumor is at the chiasm. Tumors at the base of the brain often are exceedingly difficult to diagnose, because of the general symptoms of pressure. Disturbance of smell is in some cases not important as a localizing symptom. Six or seven years ago Dr. Spiller had a case in which there was a tumor over the pons extending downward on the spinal cord, and causing very early loss of smell. Some years ago he had a case in which much thickening of the skull occurred over the tumor, and was caused by infiltration of the bone of the tumor.

DR. B. ONUF, Sonyea, N. Y., asked what should be done in cases of incipient tumors with marked optic neuritis, in which an accurate local diagnosis can not be made. He thinks it has been reported that a relief of pressure is sufficient to bring about a restitution of vision, and he would like to know whether that experience has been repeated. It is of very practical value to know whether an operation should be advised or whether the patient should be advised to wait until an accurate diagnosis can be made. If restitution should take place the patient with optic neuritis would again be restored to vision, and the question arises, how long is it safe to wait; how long can the optic neuritis last and yet recovery take place?

DR. CHARLES K. MILLS, Philadelphia, in replying to a statement, said that he would advise operation at once in a case of the kind mentioned, with this qualification, that sometimes it is advisable to wait for a short time for the development of focal symptoms which are suggestive; even in the absence of such symptoms, however, he believes that operation should be done to relieve optic neuritis or headache, or both. In a number of cases he has seen optic neuritis relieved by operation. He believes that in some syphilitic cases the operation should be done where the diagnosis of syphilitic affection has been made. It is a curious fact that in some cases the anti-syphilitic remedies relieve the symptoms more thoroughly after the opening of the skull, and they should, of course, be continued. He believes that the mistakes which have been made with regard to opening the head have been in the direction of ultra-conservatism.

DR. DAVID I. WOLFSTEIN, Cincinnati, said that it does not seem from the description Dr. Keen gave of his case that it could be confounded with a tendency to joke. A question of interest in connection with the case, inasmuch as the tumor involved the right side, is whether there was anything there present which could be construed as intracerebral ataxia. In the case which Dr. Wolfstein reported, inasmuch as the asylum physician reported the presence of progressive dementia, he thought that he could explain the absence of all general symptoms by the presence of this dementia, but inasmuch as Dr. Langdon does not think dementia was present, it can not be explained on that ground. The tumors at the base of the brain are not necessarily accompanied by intense headache, and the optic neuritis was probably due to pressure on the optic nerve.

Capillary Nevi in the Aged.—A. Bauer, of Paris, holds that the relations between capillary nevi in the aged and lesions or functional disorders of the liver can be absolutely affirmed. The liability to disturbances of the liver during a long life, the frequency of its lesions in elderly people, and the constancy of the occurrence of cholemia, as tested by blood examinations in the cases he examined, lead him to this conclusion, as he announces in a communication to the *Archives Gén. de Méd.*, cxciv, No. 34, 1904.

TWIST OF THE PEDICLE OF OVARIAN CYST COMPLICATING PREGNANCY.

A CLINICAL LECTURE.*

MILES F. PORTER, M.D.

Professor of Surgery and Clinical Surgery in the Fort Wayne College of Medicine.

FORT WAYNE, IND.

Gentlemen:—As our patient is anesthetized, we will proceed at once with the operation for the removal of the abdominal tumor, which you see we have here, and will read the history of the case later. Note that the peritoneum is slate-colored, as it always is with blood under it, and that on opening it a quantity of bloody serum runs out. Now that I retract the edges of the incision, note the color of the tumor, which presents slate in some places and deep cherry in others. I have now tapped the cyst and, as you see, the contents are bloody. I gradually deliver the cyst as it is emptied, and you note the numerous but easily separated adhesions. Through these adhesions these cysts are sometimes nourished after the pedicle has been completely divided by twisting. Now I deliver the tumor and show you here the twist in the pedicle which accounts for the blood in the tumor, as well as for that in the peritoneal cavity. The tumor springs from the right side and the pedicle presents, as you see, two complete sinistrospiral twists in accordance with Freund's law, which is based on the theory of Goodsir and Fisher, that all organisms grow in a spiral direction, left-sided ones twisting to the right and vice versa. The ligature is placed on the constricted portion of the pedicle and the sac removed. Now that it is out of the way, I show you, in the left of the pelvis, a good-sized, semi-fluctuating, flesh-colored tumor, which is the uterus pregnant about three months. We will now close the incision in the usual way with layer catgut sutures for the deeper structures and adhesive plaster for the skin. We will direct that this woman be given a hypodermic of morphia should there be any symptoms indicating miscarriage. However, I do not expect her to miscarry, as it is not the rule for these patients to do so. This is the fourth case of the kind in my practice and not one of them has aborted.

HISTORY OF CASE.

Let me now read you the history of this case as it was transcribed by me on her arrival at the hospital, about two hours ago.

Patient.—Mrs. M., aged 24, married four years, mother of two children, the youngest 18 months old.

History.—She made good recoveries from all her labors but thinks her abdomen has been large since her last confinement. When her last baby was three months old she commenced menstruating and did so regularly until July last, since which time, three months, she has not menstruated. She has always enjoyed good health. Several cousins and one aunt died from tuberculosis. Six days ago she was taken with pain in the right side of the abdomen, low down. The pain at first was not very severe, but became so in an hour, and a physician was sent for, who prescribed an opiate. Vomiting occurred soon after the onset of the pain and, like the latter, has continued, but has been controlled in a measure by the opiates. The pain seemed to spread and the whole abdomen soon became tender to the touch. Her bowels had been regular up to the onset of the trouble, since which time they did not move, notwithstanding rather vigorous efforts to make them do so, until yesterday.

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*Delivered at Hope Hospital.

Her physician, Dr. Thomas of Decatur, suspected either appendicitis or an ovarian tumor with torsion of the pedicle.

Present Condition.—Well nourished, good color, pulse 120 a minute and of fair volume. Temperature, 100.2 F. Abdomen as large as that of a woman at or near term, and regular in contour.

Physical Examination.—This was quite unsatisfactory on account of extreme abdominal tenderness, which is general. However, a fluctuating tumor can be made out and the uterus seems large and has a soft cervix. There is no localized abdominal rigidity.

Diagnosis.—Pregnancy, complicated with ovarian cyst with torsion of the pedicle and consequent peritonitis. Immediate operation advised and accepted.

You are fortunate, gentlemen, in having the opportunity to see this case, because of the fact that they are not of very frequent occurrence and for the additional reason that they are, in a measure, emergency cases and therefore not often presented for clinical demonstration. The case, too, is quite typical of its kind and this adds to its practical value. This patient thought that she was unusually large but was not aware that she was the possessor of a tumor until she was told by the physician. Quite commonly these patients regard themselves as entirely normal until the torsion of the pedicle occurs, when an examination leads to the discovery of the tumor. As a result of the torsion, these tumors often enlarge rapidly. This is due to the hemorrhage into them and is explained by the fact that the twist relatively completely stops the return of the blood through the outer side of the pedicle, which, as you see, is quite thin, while the inner side, carrying the principal arterial supply, is quite thick and less easily strangulated. The amount of the hemorrhage, both within the tumor and into the peritoneal cavity, varies and may be so great as to prove alarming or even fatal, though this is rare.

I wish to call your attention particularly to the symptoms of bowel obstruction which were present in this case. This is a quite common cause of complaint in these cases. I can now recall two or three cases of torsion of the pedicle of ovarian cysts which were referred to me with the diagnosis of bowel obstruction and in which no mechanical obstruction was found. The bowel may, of course, be involved in the twist or it may be obstructed as a result of adhesions which form as a result of it, but my experience has been, as in this case, that the obstruction is adynamic in character and is a result of the peritonitis or of inhibition of the peristaltic movement consequent on the accident. Both of these factors were probably active in this case.

The treatment of this accident is, of course, operative, and, in my judgment, the sooner the operation is done the better. There are those who advise awaiting reaction when shock is marked, but I do not agree with them, for if the shock is due to hemorrhage it is likely to recur with the establishment of reaction. On the other hand, if the shock is the result of pain and nervous perturbation the anesthetic relieves both of these conditions and the removal of the tumor takes away the cause of them; hence, in my opinion, the best plan is immediate operation.[1]

1. At present writing, three weeks after the operation, the patient is up and ready to leave the hospital for her home. Her recovery was uninterrupted by a single untoward symptom.

The shortest and surest way to prove a work possible is strenuously to set about it; and no wonder if that proves it possible that for the most part makes it so.—South.

THE BLOOD IN LOBAR PNEUMONIA,

WITH REMARKS CONCERNING TREATMENT.*

EDWARD C. ROSENOW, M.D.
CHICAGO.

BACTERIOLOGY OF THE BLOOD.

Of the total number of 175 cases of lobar pneumonia in which I have made blood cultures, 145 cases were reported in another article,[1] and 30 have been made since. In this series of 175 cases the pneumococcus was isolated in all but 15—that is, in over 91 per cent. Usually, only one culture (3 to 4 flasks) was required to demonstrate the presence of pneumococci in the blood, though occasionally a second culture was necessary to obtain the organism. In 11 of the 15 negative cases, only one culture was made, there being no opportunity for a subsequent examination. In the remaining 4 cases it was impossible, by repeated cultures, to demonstrate the pneumococcus in the blood. In one of these 4 a careful search in smears prepared directly from the blood showed undoubted pneumococci.

The leucocytosis in these 4 cases was high, and I was inclined to believe that the negative findings were the result, possibly, of an active phagocytosis; but the fact that in other cases with equally high leucocyte counts there were positive results, made this explanation seem improbable. A closer study showed that the cultures with negative results were made within twenty-four hours of crisis, while the cultures which resulted positively were made two or more days before crisis. Hence there seems to be a diminution in the number or viability or both of the pneumococci in the blood at the time of crisis. To this we will return later. Positive results were obtained as early as twelve hours after the initial chill, and as long as forty-eight hours after crisis. Cultures after crisis, however, usually proved sterile.

The mortality in the series studied was almost 40 per cent. The percentage of positive results, excepting the last twenty-four hours of life in the fatal cases, is equally high in the fatal and in the non-fatal cases. This seems to justify the conclusion held by Fränkel, Prochaska, Kinsey and others, that with proper technic blood cultures are of little or no prognostic value, because positive in both the fatal and non-fatal cases. A negative result indicates nothing, except probably that something is wrong in the technic. This is very well illustrated by the investigation of F. C. Kinsey,[2] who studied the blood in 50 cases of pneumonia in the same epidemic. In his first 25 cases positive results were obtained in only 3. After modifying his technic, however, the results in his next 25 cases are practically the same as in this series. Fränkel has had a similar experience.

That the pneumococcus is not only present, but present in large numbers in the blood, as Preble recently showed in a number of cases, is indicated by the fact that by direct examination of smears in this series the pneumococcus was found in 47 out of some 80 cases examined. In no instance could I demonstrate pneumococci in leucocytes.

In the light of these findings we would certainly be

* Summary of an investigation carried out in the Pathological Laboratory and in the Presbyterian Hospital, under the Alumni Fellowship Fund of Rush Medical College. This paper was read before the Chicago Medical Society, 1904.

1. Journal of Infectious Diseases, March, 1904. Here also is given a review of the literature.

2. THE JOURNAL A. M. A., March 19, 1904.

more justified in asking why we do not have complications in every case, than by asking how this microorganism gains entrance to the remote parts of the body.

In the atypical pneumonias and in vague infections where the diagnosis is otherwise difficult or impossible, blood cultures are of great value. Thus in a case which Dr. J. L. Miller kindly allows me to report, the blood culture was the means of deciding in twelve hours whether an atypical pneumonia following pregnancy was due to a streptococcus infection secondary to a probable uterine infection, or to a pneumococcus infection independent of the pelvic condition. The patient recovered after developing an empyema in which the pneumococcus was demonstrated in pure culture. In 5 other cases in this series the blood examination was the means of making the diagnosis.

By the aid of blood culture the number of cases of pneumonia in which the pneumococcus is found in the blood before any physical findings are present is constantly growing; indeed, cases of pneumococcus infection of the blood have been observed by Preble and others in which no physical signs of consolidation of the lungs were demonstrable, and yet the course was typical of pneumonia. Invasion of the blood in this present series seems to have been primary in point of time in at least some cases, and the view that pneumonia may be the secondary localization of a primary blood invasion and not a local disease seems to be gaining ground.

CELLULAR CHANGES IN THE BLOOD.

Böckmann has demonstrated that in pneumonia, as in other acute infections, the number of erythrocytes are inversely proportionate to the degree of temperature. There is scarcely any infection in which the production of anemia is so rapid as in pneumonia.

It is not necessary to speak here of the diagnostic value of leucocyte counts, but I wish to emphasize the impossibility of making a reliable prognosis in pneumonia from the leucocyte count alone, except where there is a marked leucopenia; when studied in relation to the clinical picture, which is of the utmost importance, however, the leucocyte count becomes at once of great prognostic significance. Other things being equal, a high leucocytosis is a favorable sign. Thus in 16 fatal infections out of 40 cases studied, the average leucocytosis is 12,000, while in the remaining cases with recovery the average is 20,000.

Patients with excessively high leucocyte counts are apparently more prone to the development of empyema and other complications, although it is very difficult to say whether or not the hyperleucocytosis is not the result of an already infected pleura, etc., not demonstrable clinically.

In my previous paper, it is shown that there exists a very close relationship between leucocytosis and blood invasion of pneumococci in the rabbit. Believing that a knowledge of the exact number of pneumococci per c.c. of blood in pneumonia with a simultaneous leucocyte count would throw important light on the exact rôle the white corpuscle plays in this infection, I applied the plate method to the study of the blood in pneumonia, as I had done in the rabbit experiments. In this way I was able to show that the higher the leucocytosis the fewer the number of viable pneumococci in the circulating blood, and vice versa. Thus in seven patients with leucocytosis ranging from 35,000 to 43,000, the number of pneumococci which developed was very small indeed, varying from 0 to 25 per c.c. of blood. On the other hand, in cases of graver infection where there was a leucopenia, or only a moderate leucocytosis, the number ranged from 100 to 1,350 per c.c.

THE AGGLUTINATING AND ACID-PRODUCING PHENOMENA ASSOCIATED WITH THE GROWTH OF PNEUMOCOCCI IN PNEUMONIC SERUM.

In the agglutination tests the serum from 96 patients and 55 strains of pneumococci were used. Feeble agglutinating reactions were obtained as early as the second day of the disease, gradually growing more marked as crisis was reached and diminishing gradually thereafter. The highest dilution at which agglutination could be obtained was 1 in 50. Owing to the difficulty involved, the agglutination of the pneumococcus is of little practical value, being principally of scientific interest.

Normal and pneumonic serum in the test-tube have no bactericidal property toward the pneumococcus. It grows equally well in both, with this important difference, however: in normal serum the growth produces scarcely any appreciable precipitation, while in pneumonic serum a voluminous sediment appears, associated with the production of a well-marked acid reaction. By a series of experiments too long to detail here I have been able to prove that this sediment is a direct result of acids present.

This observation led at once to the following question: Does the pneumococcus, by its growth in the consolidated lung and in the blood of the patient during life, produce acids as it does in the test-tube, and if so, may not some of the symptoms of pneumonia be due to an acid intoxication?

In support of this view we now have the following evidence:

1. It has been shown in this investigation for the first time that the pneumococcus, when grown in pneumonic serum, produces a marked acid reaction.

2. A careful study of the literature seems to justify the statement that late in pneumonia after the powers of resistance fail, and after death, investigators have uniformly found a diminished alkalinity of the blood.

3. Smith and others "find a uniformly acid reaction of the lung tissue in patients dying from pneumonia."

4. Through the kindness of Dr. Frank Billings, I am able to report the following observation: In the treatment of 7 cases of pneumonia by the administration of large doses of alkalies, it was noted that the urine became strongly alkaline in reaction, and remained so until the time of crisis. At this time, however, when the products of resolution were being rapidly absorbed, the urine became acid in reaction for a period of time varying from twenty-four to forty-eight hours in 4 cases. In 3 cases the urine instead of becoming acid was neutral in reaction during the same period, but with an increased dosage of alkali, in all cases the urine subsequently became alkaline.

These findings point in the direction that pneumonia is an acid intoxication. Granting this, would not the administration of alkalies in large doses be indicated in the treatment of this disease? In fact, we may here have a rational explanation of the good results claimed by some investigators from the continuous administration of alkaline waters, etc., in the treatment of pneumonia. In the service of Dr. Billings at the Presbyterian Hospital, the alkaline treatment of pneumonia has been used clinically for nearly a year. From 1 to 3 drams of sodium bicarbonate, dissolved or suspended in at least 4 ounces of water, is given every two hours by mouth.

When patients are unable to swallow, larger doses are given by the rectum. No other treatment has been used except that, when necessary, free catharsis has been instituted and an attempt made to retain the heart's strength by venesection, and by the use of heart tonics when indicated; this, however, is usually unnecessary.

Special Article.

IMMUNITY.

CHAPTER VIII—CONTINUED.

TOXINS AND ANTITOXINS.

There is a large class of organisms which apparently produces no soluble toxin; such organisms, however, cause highly toxic diseases (e. g., typhoid, cholera, plague). The dead or ground-up bodies of such bacteria are very toxic; also when the germs disintegrate by a process of autolysis or self-digestion the culture medium becomes toxic because of the cell contents which are set free. Such organisms are said to contain intracellular toxins or endotoxins. In infections by them it has been supposed that toxic symptoms are produced when a sufficient number of the bacteria become dissolved through the action of the body fluids or some of the cells (phagocytes), the intracellular toxins being thus liberated. Nothing is known of the nature of such toxins. They certainly are very different from the soluble toxins of diphtheria and tetanus, since immunization with them has not as yet resulted in the production of efficient antitoxins. Buchner gave the name of "plasmin" to the cell juice which he was able to express from some micro-organisms.

Intracellular Toxins, or Endotoxins.

McFadyen, by grinding large masses of typhoid bacilli which had been rendered brittle by the temperature of liquid air, obtains from this organism a toxic cell juice. The efficiency of the antitoxin which he is said to obtain by immunization with this material has not been demonstrated practically. It seems improbable that immunization with this "toxin" will yield a serum differing in properties from that obtained by immunization with the living organisms.

The McFadyen Method.

Toxic substances obtained from bacteria by the action of strong chemicals and extracting fluids, of course, may not represent the primary and essential toxin of the organism, but perhaps some disintegration product which happens to be toxic. Here also the immunization experiment must be resorted to in order to determine the toxic or non-toxic nature of the substance.

Accidental Toxic Substances.

It is, of course, common knowledge that an antitoxin is the blood serum of an animal, after the latter has been rendered highly immune by repeated injections of the appropriate toxin. The horse is chosen for immunization because of its marked ability to yield antitoxins (diphtheria, tetanus), because of its size, withstanding much loss of blood, and because of the readiness with which it submits to manipulation.

Commercial Preparation of Antitoxins.

Manufacturing plants which produce antitoxins and other antiserums on a large scale, have splendidly equipped stables, which are kept in the maximum hygienic condition, and from which rats in particular are rigorously excluded.[2] The horses are carefully groomed and fed and given such exercise as will keep them in a healthy condition.

The toxins, in solution, are injected subcutaneously.[3] Grave and even fatal reactions may follow the first injections, if the toxin has been given in too large doses or in too concentrated solutions. This is especially true when injecting tetanus toxin. It is of great importance first to establish what the Germans call a *"Grund-immunität,"* which means a primary immunity in the animal itself so that the immunization may then be pushed vigorously until the blood contains antitoxin in high concentration. For this purpose it has been found necessary to weaken the first toxins injected. This may be done by heating the toxin solution to 65 to 70 C. for an hour; by adding to it from 0.05 to 0.4 per cent. of the trichlorid of iodin; or by adding a solution of potassium iodid in which iodin has been dissolved (Lugol's solution). High dilutions of the unaltered toxin may also be used. Gradually the virulence and amount of the toxin injected may be increased until finally the full virulent toxin is given in large doses. The increase in dosage must be very gradual. Eventually as much as a liter or more of diphtheria toxin is tolerated.

The "Primary Immunity."

Attenuation of Toxins.

Following each injection, a reaction occurs. With diphtheria the local swelling may be great, and sloughing may occur. Following an injection of tetanus toxin, tetanic symptoms may appear. In either case, there is some loss of weight and often fever, and another injection must not be given until the original weight is regained and the general behavior of the animal indicates that its former healthy condition is reestablished. This interval is usually from eight to fourteen days.

From two to three (sometimes more) months of such treatment are usually sufficient for the production of diphtheria antitoxin in high concentration. At the end of this time blood is drawn from the jugular vein by means of a large trochar to which a rubber tube is attached. The tube leads to a tall glass cylinder holding from one to two liters, and into this the blood is allowed to flow. Six liters may be drawn safely from a horse of average size.[4] The most rigid asepsis is, of course, observed in taking the blood. The glass cylinders, appropriately covered to prevent contamination, are then set in a cool, dark place, and after the serum has separated from the clot samples are taken to be tested for their antitoxin value.

The serum, in bulk or after being bottled for the trade, is preserved at a low temperature and in the dark, 0.5 per cent. of carbolic acid having been added to insure sterility. The addition of the acid may cause harmless cloudiness in the serum, but does not destroy the antitoxin.[5] Serums may be preserved perfectly in a dried or frozen state.

Preservatives of Serums.

Many facts of scientific and practical importance have been brought to light through the immunization of animals on a large scale. It has been found, for example, that following each injection of toxin the amount of antitoxin in the blood suffers a reduction, and only equals or rises above the previous amount eight or ten days later. This decrease is explained by assuming that the toxin has to a certain extent united chemically with the circulating antitoxin. It indicates also the period at which the horse should be bled in order that the greatest amount of antitoxin may be obtained. It might even be dangerous to draw the blood before this time had elapsed since possibly some free toxin might still remain.

It is noteworthy that all horses are not equally good producers of antitoxin. One may yield a serum of three times the

2. The importance of this is very great, if, for example, horses are receiving injections of some virulent living micro organism (as the plague bacillus). In this case living micro-organisms reach the general circulation, and a rat having bitten the animal could well contract the plague and be an evident source of danger, not only to other animals, but to the community at large. Even fly-proof stalls are properly instituted in such cases.

3. For the production of antivenin the snake venom is best injected intravenously.

4. Some horses may be bled as many as forty times without suffering a conspicuous deterioration in health. In time, however, an animal becomes less valuable as an antitoxin producer.

5. The Pasteur Institute, which prepares the serums used throughout France in addition to placing them on the general market, adds no preservatives to its serums, but sterilizes them after they are bottled by heating them for three successive days to a temperature of 40 C. for thirty minutes.

value of another, although the two have been treated identically and seem to be equally immune to the toxin.

Another most interesting fact is that although the blood of an animal may be very rich in antitoxin, he still may have a disproportionate susceptibility to fresh injections of the toxin.

Many of these phenomena have not been explained satisfactorily.

Standardization of Toxins and Antitoxins.

The necessity of standardizing antitoxins so that dosage may be controlled accurately is self-evident. To meet this need the antitoxin unit familiar in practice was devised.

It was necessary to decide on some arbitrary unit of measure. The only means we have of estimating the value of an antitoxin is its ability to neutralize its corresponding toxin. Consequently, in order to standardize antitoxin it was first necessary to devise some unit of measure for the toxin itself. For this purpose Behring's

Normal Toxin.

toxin unit is generally used. A diphtheria toxin was designated normal when it was of such strength that 0.01 c.c. would kill a guinea-pig weighing 250 grams in four days. The value of any diphtheria toxin may be computed on this basis; it may, for example, be of two or of ten-fold strength, or, on the other hand, of one-half or one-fourth the normal strength.

Normal Antitoxin and the Antitoxin Unit.

Measuring the antitoxin on the basis of the toxin unit it has been determined to consider an antitoxin of normal strength when 0.1 c.c. will protect a guinea-pig of 250 grams against 100 fatal doses of diphtheria toxin. This value is called the antitoxin unit. If the serum is only one-tenth normal then the antitoxin unit is contained in 1 c.c. of the serum instead of in 0.1 c.c. If it is of one hundred-fold value, the unit is represented in 0.001 c.c. of the serum.

Degeneration of Toxins.

In order to test various antitoxins uniformly it would be desirable to have a toxin which could be preserved a long time without losing any of its toxicity. The toxins, however, degenerate in time so that they are unreliable as standards. As will be shown, they lose their toxicity, but at the same time retain their binding power for antitoxin, so that tests made with such a degenerated toxin would not indicate the true neutralizing value of an antitoxin, and the results obtained with various antitoxins would have no comparative value.

Permanence of Antitoxins.

Antitoxin, on the other hand, does not degenerate so readily, and when a serum is dried and kept in a bottle free from oxygen and from moisture it remains unaltered for an indefinite period. Consequently, it has been found that the most accurate and uniform results are obtainable when a dried antitoxin, of known strength, is used as the starting point for valuation tests. The actual strength of such a test serum

Dried Antitoxin.

is not of prime importance, but for certain practical reasons it is desirable to possess as a standard an antitoxic serum of high value. In any case, its value in terms of the conventional antitoxin unit must be known.[6]

The methods of testing diphtheria antitoxin which are employed in the Royal Prussian Institute for Experimental Therapy at Frankfurt, of which Ehrlich is the chief, may be taken as a model. The standard test serum employed by Ehrlich is a dried and powdered serum of such strength that 1 gram contains 1,700 immunity units; i. e., 1/1,700 of a c.c. will protect a guinea-pig of 250 grams weight against 100 fatal doses of a diphtheria toxin. The institute keeps in stock a large number of vials, each containing two grams of this dried serum. The air and moisture are exhausted from each vial and the latter is then sealed in the flame. Once in three months one of these vials is broken open carefully and the serum dissolved in 200 c.c. of a solution made up of equal parts of glycerin and 10 per cent. salt solution. This is a dilution of 100 times, hence the serum now has a 17-fold antitoxic value; i. e., 17 times stronger than the so-called normal antitoxin. For the succeeding three months this antitoxin solution is used in the comparative valuation of new antitoxins; the solution retains its strength unaltered for this period. 1 c.c. of the 17-fold antitoxin is, for the purpose of the test, considered as the unit.

Determination of the Value of Diphtheria Antitoxin.

The first step in the process is to standardize some diphtheria toxin which may be selected for the test. This is done by adding so much of the toxin to 1 c.c. of the test serum that an excess of one fatal dose of the toxin remains unbound by the antitoxin. The guinea-pig which receives this mixture dies in 4 days. The amount of toxin thus determined is used as the test dose of toxin in determining the value of the new antitoxin. If 1 c.c. of the new serum also neutralizes all but one fatal dose of toxin (the guinea-pig dying in four days) it also is of 17-fold strength. If it requires 4.25 c.c. it is then a serum of "normal" strength.

For therapeutic purposes, it is desirable to have a serum of high value in order to avoid giving too large quantities. Several diphtheria serums are on the market which have a value of 500 units to the cubic centimeter. It is difficult to immunize above this point.

Tetanus Antitoxin in the United States.

Similar principles prevail in the standardization of tetanus antitoxin. Unfortunately in this country tetanus antitoxins are standardized with no degree of accuracy. With the exceptions of the commonwealths of New York and Massachusetts the manufacture and standardization of serums in the United States are in the hands of the manufacturers, who, of course, are private individuals or corporations. Although their work is usually well done, the advisability of some uniform oversight is very great.

Possibility of Dangerous Toxins in Serums.

In addition to the need of knowing the exact antitoxic value of a serum, it should be determined positively that there is no contamination of the serum, and especially that no adventitious toxin is present. We can not readily forget the few instances in which fatal tetanus has resulted following the injection of diphtheria antitoxin.

(To be continued.)

6. In Germany the various serums are prepared by private individuals or corporations and manufacturers are required to send a sample of every lot of serum intended for the trade to the Frankfurt Institute that its exact value may be determined. Each bottle eventually receives a stamp signifying the value in antitoxin units of the contained serum. Moreover, samples of every lot of serum are retained in the institute, and from time to time these are tested; and when it is found that the samples have degenerated beyond a certain value the order is sent out to call in all serum belonging to the degenerated lot. As a further illustration, when a manufacturer thinks the serum of one of his horses has a high value he may draw a small amount of blood from the animal and send the serum to Frankfurt for a preliminary test. If the serum is sufficiently strong he may then bleed the horse freely; if it is weak he will be advised to continue the immuunization for a time.

Clinical Report.

PAPILLOMATOUS GROWTHS OCCURRING IN THE LARYNX OF THE CHILD.

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Because of the greater danger to life through suffocation and the greater difficulty encountered in the removal of these growths in the child than in the adult, this subject is especially deserving of consideration alike by the general practitioner and by the specialist.

CASE 1.—T. E., aged 11, was sent to me Nov. 6, 1902, by Dr. W. F. Hall of McLeansboro.

History.—The patient had been singularly free from the diseases of childhood and has always had good health. For the past eighteen months he has been hoarse, and for twelve months his voice has been reduced to a whisper. For six months he frequently has been aroused from sleep by attacks of choking and inability "to get his breath," and now, even in his waking hours, his breathing is labored.

Examination.—The surface of the body was free from warts or new formations of any kind. The nasal passages and fauces were not diseased. Laryngoscopic examination disclosed a whitish cauliflower-like growth springing from the front of the larynx, obstructing the anterior half of the glottis and covering the right vocal cord.

Operation and Result.—November 7. After penciling the larynx three times with a 6 per cent. solution of cocain at intervals of three minutes, an intralaryngeal snare was passed, under the guidance of a laryngoscopic mirror, and a piece of the growth weighing 24 cg. was removed. November 8 and 9 additional portions of the growth, weighing 18 and 12 cg. respectively, were snared off. In all, some ten sittings were required for the entire removal of the tumor. At the time of his last visit to my office, December 27, the voice had been regained. Two years later his father wrote me that some hoarseness had developed, but not enough to bring the boy back for treatment.

CASE 2.—B. T., aged 19 months, was brought to my office June 19, 1903, because she breathed with an effort and was voiceless.

Examination.—The nose and throat were free from obstruction. I was wholly unable to see the interior of the larynx with a laryngoscope because the child would not remain quiet. A diagnosis was made, however, of an intralaryngeal growth.

Subsequent History.—I did not see the child again till Dec. 6, 1904. The symptoms were very much worse and the child was unable to sleep for want of air, while at all times the breathing was so labored that at each inspiration the neck muscles stood out cord-like with retraction of the upper thorax and supraclavicular region. It was apparent that she might die from suffocation at any time.

Operations and Result.—The child was sent to St. Mary's Hospital. The resident physician, Dr. Stauffer, administered the anesthetic, and with the assistance of Dr. J. N. Jerome I performed an inferior tracheotomy and inserted a small tube into the trachea. The child slept well that night, and two days later chloroform was again administered, this time through the tracheal tube, and an effort made to see into the larynx from above. I obtained a very hasty glance and thought I could make out a laryngeal growth. Thyrotomy was performed, leaving, however, the upper part of the thyroid cartilage undivided. With retractors the halved cartilage was widely separated and after spraying the larynx with a 5 per cent. cocain solution and a 1-5,000 adrenalin solution, masses of a soft, mulberry-like growth of a pinkish white color were removed from the right cord by means of a Weber ear snare and a large-sized intratympanic ring knife. The thyroid cartilage was sutured with catgut and the skin wound closed with an interrupted black silk suture. The operation required one hour and a half and was attended with only very slight loss of blood. The tube was left in the trachea. No elevation of temperature followed this or the preceding tracheotomy, and the child continued to take nourishment and to gain in color and strength. During the next six days the tracheal tube was regularly removed for cleansing, and a number of attempts were made to dispense with the tube, but each time labored breathing followed and necessitated its reintroduction. Under chloroform anesthesia, additional attempts were made at laryngoscopic examination for the purpose of locating and removing the obstruction, but, because of an overhanging epiglottis and the rapid filling of the pharynx with mucus, we did not succeed. December 16, Dr. Jerome again assisting, chloroform was administered, the thyroid cartilage reopened, and after local cocain anesthesia, another mass of the growth was removed from the left vocal cord and the subglottic space immediately beneath it. The thyroid cartilage was again stitched with catgut and the skin was united with five interrupted silk sutures reinforced by strips of zinc adhesive plaster. The patient was permitted to come well from under the chloroform anesthesia, after which the tracheal tube was removed; easy breathing followed through the natural passages. By daily reapplication of strips of the adhesive plaster the inferior tracheotomy opening was held in coaptation and the child made an uninterrupted recovery.

December 27, the voice had returned so that she could be heard and understood all over the room. She was discharged from the hospital. A letter from her father, Feb. 7, 1905, stated that the skin opening had closed, that the child ate and slept well, talks all the time, and that they felt grateful for what we had done.

Remarks.—Almost nothing is known of the etiology of these growths. They occupy usually the anterior third of the true cords, or the mucous membrane between or near the insertion of the cords into the thyroid cartilage. This would seem to indicate that the development of these growths is connected in some unexplained way with the function of this region. Laryngeal catarrh, excessive use and straining of the voice, syphilis and tuberculosis have been assigned as causative factors in this disease, but proof of this is lacking and we must rest content with the theory that wart-like growths are the local manifestation of a constitutional diathesis. I believe that the growth in Case 2 was congenital. The diagnosis of laryngeal growth is simple enough when a thorough laryngoscopic examination is possible; otherwise we must rely on absent or altered voice, difficulty in breathing, especially coming on during sleep when the patient assumes a position favorable for the growth to obstruct or to cover up the glottis. A small tumor, springing from the free edge of a vocal cord, produces aphonia earlier than a much larger growth in another portion of the larynx. The experienced ear will be materially assisted in making a diagnosis by the peculiar character of the voice and by the respiratory stenosis. Prognosis regarding life and recovery of the voice is largely influenced by the line of treatment adopted. When the patient is old enough to co-operate with the physician, so that endolaryngeal procedures for the removal of the growth are possible, life nearly always can be preserved, and the voice restored. Recurrence is to be anticipated whatever the operative measure in from 25 to 50 per cent. of the cases. When the age of the patient is such that an endolaryngeal operation can not be successfully performed there remains nothing but external laryngotomy, and this preferably after a preliminary tracheotomy. If the symptoms do not indicate danger to life, external operative measures are to be deferred, with the hope that in time endolaryngeal interference will be possible.

My experience with thyrotomy is entirely in accord with Gottstein, who says that this operation in the young child is very tedious and difficult of performance. The small size of the larynx precludes a good view of its interior and most of the instrumental manipulation in removing the growth is done in the dark, with much reliance on touch. The mortality among children, after laryngotomy, even in the hands of McKenzie and of other experienced laryngologists, is a high one when done for papilloma.

To Regulate Expert Testimony.—A bill has been introduced into the Massachusetts legislature for the regulation of expert testimony on the ground of expense to the state, of biased testimony, and of the unnecessary number of experts employed. The bill provides that expert witnesses shall not be paid amounts in excess of the ordinary witness fee unless the court awards a larger sum. The number of expert witnesses is also limited, except in special cases. Sporadic attempts have been made from time to time to improve the character of expert testimony, but hitherto without success. We are inclined, in general, to think that justice would be better subserved if the court had more choice in the selection of experts.—*Boston Medical and Surgical Journal.*

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THE INTERNAL SECRETION OF THE TESTICLE.

Although the kidney and liver unquestionably secrete important products into the blood, we have no definite anatomic provision for separate internal and external secretion, as is the case with the pancreas. Here we find that the cells which produce the chief internal secretion of the organ are anatomically distinct from those secreting the digestive juice, being collected in groups between the tubules to form the islands of Langerhans. It is not so generally understood that the testicle is in this respect quite similar to the pancreas. The tubular structures of the testicle are obviously concerned in the manufacture of the spermatozoa, the external secretion. Between the tubules, in addition to the connective tissue framework and vessels, are small collections of cells whose comparatively abundant, finely granular cytoplasm distinguishes them from the stroma cells, and at the same time suggests the possibility of secretory function. These cells are not as definitely grouped as are the cells of the islands of Langerhans, and in the human testicle do not form so conspicuous a feature of the histologic picture, hence relatively little attention is generally given them. That they are extremely important structures is, however, very probable.

There are three evident functions of the testicle: First, the production of a substance or stimulus that influences certain phases of development, particularly those related to sexual characteristics; that the testicles alone produce this stimulant, if we may call it such provisionally, is amply proved by the results of castration in youth. Second, the manufacture of spermatozoa. Third, the production of some substance or stimulus essential to the production of the psychical manifestations of sexual activity. The first and third, although perhaps closely related, must be separated, as one is essentially developmental, whereas after development is complete anatomically, the other may be lost. By analogy with the pancreas, the possibility that it may be these "interstitial cells," or "interstitial glands," as they are variously called, is quite apparent, and Bouin and Ancel[1] have recently published a number of articles bearing on this problem. Their conclusion is that to the interstitial cells of the testicle are to be attributed all the effects on the body as a whole, that we ordinarily attribute to the testicle. The function of the cells of the seminiferous tubules seems to be limited to the production of the spermatozoa and the fluid in which they lie.

An important source of evidence was found in the testicles of cryptorchids, both of man and the lower animals, particularly swine. In such undescended testicles the usual finding is that the seminal cells are absent, whereas the interstitial gland cells remain, together with certain syncytial cells that lie at the base of the seminal cells. Such individuals develop normally, and are possessed of all the attributes of virility, except the possibility of procreation; indeed, it is stated by veterinarians that cryptorchid stallions seem to possess exceptionally violent sexual inclinations in some instances. On the other hand, if these undescended testicles are removed, sexual capacity and inclination disappear exactly as when normal testicles are removed. Evidently the functions of spermatogenesis and internal secretion are quite independent, as clinical evidence demonstrates frequently enough. In the case of pathologic occlusion of the vas in man, or of experimental occlusion in animals, we find conditions quite comparable to those of cryptorchidism, namely, disappearance of the seminal cells with retention of the interstitial glands. This last is similar to the usual result of occlusion of the pancreatic duct—atrophy of the tubular structures and preservation of the islands of Langerhans, the latter preventing the occurrence of diabetes. Occasionally, however, after occlusion of the pancreatic duct, the islands of Langerhans are involved in the resulting connective tissue overgrowth, diabetes resulting. So, too, with the testicle, the interstitial cells may be destroyed by inflammatory processes, or after experimental vasectomy if the nerves are injured these cells atrophy; in either case the sexual capacity is lost.

If in an animal with one undescended testicle the descended one is removed, as frequently happens in castrating swine, the development of the sexual characteristics, both anatomic and psychical, goes on as though no castration had been attempted. In such animals the undescended testicle was found to have undergone a compensatory hypertrophy of the cells of the interstitial glands, strongly supporting the idea that these cells also are essential for the development of the sexual characteristics, as well as for their maintenance after puberty. Some cryptorchids, however, do not develop, and in this class it was always found that the interstitial gland cells were scanty and of an atrophic type. In old age these cells were found to be much atrophied and pigmented. Embryologically, the interstitial glands appear very early, before the seminal cells, and are the first characteristic evidence of sex to be developed. The authors quoted are inclined to the belief that at this early stage these glands may determine by their secretion the development of sex, but the evidence in support of this theory is by no means convincing.

1. Jour. de Physiol. et. Path. gén., 1904, p. 1012.

REPORT OF TYPHOID FEVER BOARD—WAR WITH SPAIN.

A valuable addition to epidemiologic literature has just been made in the publication by the Surgeon General of the Army, under a special appropriation by Congress, of the full text of a report on the Origin and Spread of Typhoid Fever in U. S. Military Camps During the Spanish War of 1898. This report was the work of a board of three men whose attainments were commensurate with the magnitude of the task undertaken by them. Of these, by a singular fatality, two have since died. Walter Reed, major and surgeon, U. S. Army, has won the fame and the gratitude of humanity by his work on yellow fever. He died Nov. 23, 1902. Dr. Edward O. Shakespeare of Philadelphia, major and brigade surgeon, U. S. Vols., is well known to the scientific world by his contributions to medical science and especially by his report to the U. S. Government on epidemic cholera and his remarkable study of the typhoid epidemic at Plymouth, Pa. He died June 1, 1900, before the completion of the abstract of this report, which was published in that year. The surviving member of the board, Victor C. Vaughan, major and brigade surgeon, U. S. Vols., the distinguished teacher of hygiene and physiologic chemistry at the University of Michigan, has been charged with the publication of this report, a work which he has performed with characteristic zeal, thoroughness and discrimination. The first volume, of 712 folio pages, contains in minute detail the sanitary histories of the individual companies of 106 volunteer regiments, besides data relating to the occurrence of typhoid and malarial fevers in a number of regular regiments and detached organizations. Numerous diagrams showing the occurrence of typhoid fever by companies and tents are also included. Dr. Vaughan has added to this volume three valuable appendices showing the results of 700 analyses of drinking water, a report on the chemical disinfection of drinking water and a paper on typhoid bacilluria, these studies having been made at the hygienic laboratory of Michigan University. The second volume contains maps of the camps at Chicamauga Park, Ga., Camp Alger, Va., Camp Meade, Pa., and Camp Cuba Libre, Fla., together with 9 meteorologic charts and 84 morbidity charts of regiments. None but epidemiologists will have time to read the vast mass of observed facts and of medical testimony collected with infinite patience and industry by the board, but to these it will constitute an inexhaustible storehouse of information.

To the general practitioner and to military surgeons the general statements and conclusions of the board published in Chapter XIV will be most interesting and valuable. Space permits of the quotation of only a few of the most striking of these, as follows:

"More than 90 per cent. of the volunteer regiments developed typhoid fever within eight weeks after going into camp." "It became epidemic both in the small camps of not more than one regiment and in the larger ones, consisting of one or more corps, and in camps located in the northern as well as in the southern states."

"Typhoid fever is more likely to become epidemic in camps than in civil life because of the greater difficulty of disposing of the excretions from the human body."

"Infected water was not an important factor in the spread of typhoid fever in the national encampments in 1898." "Flies undoubtedly served as carriers of infection." "It is more than likely that men transported infected material on their persons or in their clothing and thus disseminated the disease."

"Typhoid fever in regiments was characterized by a series of company epidemics." "In addition to the recognized cases of typhoid fever there were many short or abortive attacks of this disease which were generally diagnosed as some form of malarial fever."

"The belief that errors in diet with consequent gastric and intestinal catarrh induce typhoid fever, or that simple gastrointestinal disturbances predispose to it is not supported by these investigations."

"The percentage of deaths among 20,738 cases in 92 regiments was 7.61."

Most suggestive to military sanitarians is the statement in Appendix III that typhoid organisms are found in the urine of about one-fourth of all cases, and that, because of the frequency with which it is voided, its comparative inoffensiveness, its easy dissemination and the relatively great number of organisms present, infected urine is the most dangerous excretion of the typhoid patient. This work makes it evident that in camp life typhoid fever must be regarded and treated as a contagious as well as an infectious disease. One rises from an examination of this work with a sense of amazement at the industry, patience and skill with which so vast an aggregation of facts was amassed, collated and digested. It is to be regretted that the work of completing this report for publication was interrupted and that it was not given to the medical profession five years ago.

One practical result of the observations of this board was the devising by them of a system for the disposal of excreta in fixed camps by means of a trough filled with milk of lime and emptied by an odorless excavator. This has been officially adopted for army use by the War Department and is, as was recently stated by a prominent English military surgeon, the best system yet devised for camps.

TRUTH AND POETRY CONCERNING URIC ACID.

X.

Having considered the general physical and chemical properties of uric acid, we are now prepared to review the opinions bearing on the form in which uric acid and the urates exist in the urine on the one hand, and in the tissue juices and the blood on the other. More

than ordinary interest attaches to the conditions through which it is held in solution in the body, and a great deal of work has been done to determine the form in which it is precipitated in gouty deposits and in urinary sediments and concrements. Much study has been devoted to the factors which determine such precipitation and sedimentation.

In fresh, normal urine, the uric acid and urates are always in solution, but on standing a sediment tends to form. This may be either a red, sand-like crystalline powder, which collects on the bottom or on the sides of the container, or it may take the form of the well-known reddish-gray brick-dust deposit, the so-called *sedimentum latericium,* which makes the urine uniformly turbid but easily clears up on heating. If the brick-dust deposit be permitted to stand for some time, red crystals gradually separate out. the latter do not redissolve on warming, and, microscopically, they are seen to be crystals of free uric acid. The brick-dust deposit itself is now known to consist of amorphous mononatrium urate, whereas the crystalline deposit on the bottom and sides of the container may consist of crystallized mononatrium urate alone or of the same substance mixed with crystals of uric acid.

It has been shown that the formation of the sediment, though partly due to cooling, is generally caused by a chemical transformation in the urine; as the precipitate falls out the acidity of the urine is diminished.[1] This chemical change consists in a reaction between the mononatrium urate and the mononatrium phosphate present in the urine; as a result, neutral phosphate of soda and free uric acid are formed. The whole process can be imitated artificially, as Camerer has shown. This investigator mixed a saturated solution of mononatrium urate, which is alkaline to litmus, with a solution of mononatrium phosphate, which is acid to litmus; both fluids were kept at a temperature of 37° C. The reaction of the mixture was acid while it remained warm, but on cooling it turned alkaline and crystals of uric acid fell out of the solution. On warming the whole mass again, the uric acid redissolved and the alkalinity yielded to acidity.

The literature contains a vast number of researches dealing with the conditions of solubility of uric acid in the urine. Since uric acid is more soluble in an aqueous solution of urea than it is in water, Rüdel[2] maintained that in all probability a urate of urea is present in the urine. Roberts[3] believed that the uric acid excreted in the urine comes out of the kidneys as heminatrium urate (his quadriurate) and that this decomposes on standing into mononatrium urate and free uric acid. Pfeiffer[4] advanced the hypothesis that a double salt is formed between sodium urate and sodium phosphate and that the solubility in the urine is thus accounted for. These views of Rüdel, Roberts and Pfeiffer have not, however, stood the test of control experiments.

By far the best researches that deal with this phase of the subject are those of Zerner[5] and Ritter.[6] Zerner showed conclusively the dependence of the solubility of the uric acid and urates in the urine on their relations to the neutral phosphates present. It was he who first took up the systematic study of the influence of the phosphates on the solution of uric acid. All who have worked at the subject since have confirmed his main point, namely, that dinatrium phosphate is the most important solvent of the uric acid in the urine and possesses the power of hindering the decomposition of urates into free uric acid. While the natural tendency of mononatrium phosphate in the urine is to act by decomposing urates into uric acid, this salt is ineffective as long as a sufficient amount of dinatrium phosphate is present along with it. Ritter's work has confirmed that of Zerner and has done much to clear away all the other vague or conflicting theories. Our knowledge of the conditions of solubility of uric acid and urates in the urine may be considered as tolerably satisfactory.

The matter of our knowledge regarding the conditions of solubility in the blood and the tissue juices is quite different. The old idea of v. Wittich[7] that uric acid exists in the blood as dinatrium urate and that it is deposited in the tissues in gout on account of a decomposition in the latter due to their high holding in carbonic acid, the dinatrium urate being transformed into the much less soluble mononatrium urate, was accepted by Pawlinoff[8] (1875) and by other investigators for a long time after, but is now regarded as highly improbable. Nor have the views of Roberts, that the uric acid in the blood is present as heminatrium urate, or of Pfeiffer, that it exists as a double salt formed by the union of mononatrium urate with dinatrium phosphate, any more in their favor than have the similar views regarding the conditions of solubility of the uric acid in the urine.

A gleam of new light came with the suggestion of Minkowski[9] that possibly uric acid circulates in the blood, not in the form of a salt, but in loose union with some organic atom complex. He has shown ex-

1. Voit, C., u. Hofmann: Ueber das Zustandekommen der Harnsäuresedimente, Sitzber. d. k. bayer. Akad. d. Wissensch., I, 1867, p. 279.
2. Rüdel, G.: Zur Kenntniss der Lösungsbedingungen der Harnsäure im Harne, Arch. f. exper. Pathol. u. Pharmakol., xxx, 1892, p. 469.
3. Roberts, W.: On the Chemistry and Therapeutics of Uric Acid, Gravel and Gout. Croonian Lectures, London, 1892.
4. Pfeiffer, E.: Ueber Harnsäureverbindungen beim Menschen, Berl. klin. Wochft., xxxi, 1894, p. 913.
5. Zerner, T. J.: Ueber die chemischen Bedingungen für die Bildung von Harnsäuresedimenten, Wiener klin. Wochft., vi, 1893, p. 272.
6. Ritter, A.: Ueber die Bedingungen für die Entstehung der Harnsäuresedimente; ein Beitrag zur Theorie der Gicht., Ztschr. f. Biol., xxxv. 1897, p. 155.
7. v. Wittich: Ueber Harnsekretion und Albuminurie, Virch. Arch., x, 1856, p. 325.
8. Pawlinoff: Die Bildungsstätte der Harnsäure im Organismus, Virch. Arch., lxii, 1875, p. 57.
9. Minkowski, O.: Ernährungstherapie bei harnsäurer Diathese, Gicht, Arthritis deformans, Oxalurie, und Phosphaturie, Leyden's Handbuch der Ernährungstherapie, ii, p. 499.

perimentally that if an alkaline solution of chemically pure nucleinic acid be mixed with a solution of urate of soda, the addition of acetic acid no longer causes a precipitate of uric acid, nor can the uric acid be precipitated with the ordinary silver-magnesia mixture. Goto[10] in 1900 came to similar conclusions independently, and showed that thymin acid forms compounds with uric acid which behave entirely differently from ordinary uric acid or urates and which escape detection by our ordinary methods of qualitative or quantitative estimation. It is not impossible, therefore, that the uric acid in the blood may be combined in some such way. If so, far greater amounts of it may be present in the blood and body juices than we have hitherto thought probable, for if it exists under some such conditions as those mentioned, it must have escaped detection.

THE ABUSE OF PROPRIETARY MEDICINES.

Two weeks ago we pointed out that the principal functions of the Council on Pharmacy and Chemistry will consist in passing on the ethical merits of proprietary remedies from the pharmaceutical and chemical point of view. The next step lies with the medical profession. It is the duty of every physician to realize this and to assist in reducing the indiscriminate employment of products that are at all secret in their composition; for their present enormous use is a reflection on the acumen and the common sense of the profession as a whole. The reason there is so much of this prescribing of proprietary remedies, the vast majority of which are secret, is not hard to discover.

First, there is an ever-increasing tendency to abandon the old and tried preparations. There seems to be an inherent tendency in all things to assume that the new is necessarily superior to the old. This assumption is not logical, especially when it is remembered that we are now considering proprietary preparations. There can be no question that the new, if promising, deserves an honest investigation, but what proportion of proprietary remedies have undergone such an investigation? The difficulty is that therapeutic tests are difficult and indecisive. We are rarely certain of what the outcome would have been had the drug been omitted; and it is rare that the drug to be investigated is the only item in treatment. To some extent, errors may be counterbalanced in a large number of observations, especially when made by careful, unprejudiced and independent observers, and an acute and practical observer may be justified in drawing conclusions from a limited number of observations, with a fair degree of probability. But we should be suspicious of the "tests" made by, and the endorsements of, those who have never been heard of in any other connection.

Again, no one advertises drugs that are recognized as official and in which no individual or firm has any direct financial interest. On the other hand, the manufacturers of proprietary preparations employ the best advertising talent that can be obtained. The burden of the blame is not on the advertisers, however, or on the publications which accept their advertisements, but on the physicians, who place absolute dependence on the say-so of some one who has something to sell. The manufacturer does his best to convince the physician that it is to his (the physician's) interest to use his products, and so long as he does this within the bounds of honesty and truthfulness he can not be criticised.

Many, however, prescribe these convenient mixtures because they lack confidence in their therapeutic knowledge, or in their ability to build the desired ingredients into a prescription *secundum artem*. It seems to us that this increasing ignorance of therapeutics and of prescription writing should bear a large part of the blame for the abuses of which we complain. It is pretty near the root of the whole matter; and in its eradication lies a cure. One of the causes of this ignorance is the fact that therapeutics and prescription writing are neglected in our medical colleges, and some of the highest grade colleges are the most to blame in this particular. In fact, we do not hesitate to say that if the medical colleges would do their duty in this regard, and would teach their students not only what to do but what not to do, there would soon be an end to secret nostrum prescribing.

The remedy for the evil which we are considering, as for all other evils from which we as a profession are suffering, lies with us. If we want the evil continued, it certainly will continue, and if we stand ready to prescribe indiscriminately all preparations offered, we can not blame those who so willingly supply us with them.

HAWAIIAN FEVER.

Some years ago, it is said, a Japanese physician practicing in Honolulu issued a death certificate giving "Hawaiian fever" as the cause of death, and insisted that, while the disease had been confounded with malaria, it was something new to him, and not, so far as he knew, differentiated in the literature of medicine. The certificate was accepted, and since then the term Hawaiian fever has been more or less employed. At a recent meeting of the Hawaiian Medical Association, Dr. A. N. Sinclair read a paper on the subject, claiming that the symptoms and the course of the disease were different from those of malaria. He said that he had been unable to find the plasmodium of malaria in any case excepting one imported case of malaria, and, furthermore, the essential condition of the disease, the anopheles, did not exist in the islands. If we have a new species of disease peculiar to the Hawaiian Islands, and which is sometimes fatal, it is a matter worthy of investigation. Any new addition to the list of tropical diseases in our new possessions is an interesting if not altogether a welcome fact.

10. Goto, M.: Ueber die Lösung der Harnsäure durch Nukleinsäure und Thyminsäure, Ztschr. f. physiol. Chem., xxx, 1900, p. 473.

THE GRIP OF QUACKERY ON THE NEWSPAPERS.

When financial reasons are the basis of action in spite of the right or the wrong of the matter, it is customary for those involved to make some excuse to veil the motives, and not to speak so plainly as to reveal the real animus. The following quotation from a telegram to the Chicago *Tribune* is certainly frank: "The press association resolved to take action to kill bills in the legislature [Wis.] that aim to give medical examiners the power to revoke the licenses of physicians who advertise and to require patent medicine companies to publish their formulæ on the bottles. The latter bill, it is asserted, will deprive publishers of the state of $500,000. Other bills, limiting county printing, cost, etc., will be fought." We are glad that the *Tribune* is not so controlled by commercial interests as to prevent its stating news in plain terms.

THE MISSOURI DECISION AGAINST THE OSTEOPATHS.

We publish this week the Missouri decision against osteopathy. As the decision covers many points of direct interest to physicians, we believe it is unnecessary to apologize for publishing the entire text. It is full of information, not only as it relates to the osteopaths, but as it affects physicians in other ways. Especially is the subject of the right of a witness of one school of medicine to give evidence in a case against another school covered as it has never been covered before, so far as we know. The anomalous position that osteopathy occupies is well shown up in the decision. The osteopaths are practitioners of medicine, and they are not; it all depends on their point of view. The decision, further, is of value because it contains references to decisions that affect not only the various points brought up in this particular case, but those that bear on evidence in malpractice suits, etc.

CLASS PUBLICATIONS.

The newspaper and periodical directories contain a list of what are called class publications; that is, periodicals that are published in the interest of a certain class. These journals are supposed to stand for, to represent, a particular trade, calling or profession. The functions of such journals are to represent and to uphold the interests of the classes for which they stand and to publish such matter as is of direct interest to their readers. Medical journals are class publications and as such are supposed to represent the interests of medical men. It is presumed that their reading pages will contain articles that will be helpful to physicians; that will enlighten them on subjects in which they are interested, and that will keep them informed on all matters that they should know. Their reading pages are not supposed to be bartered to those belonging to another class or to represent the interests of another class as against those they are supposed to represent. Evidently, some journals that are listed under "medical" are in the wrong list; probably the names of such journals misled those who compiled the list, and so they were wrongly classified.

A NEW WESTERN PERIL.

Some years ago we called attention to the fact that, according to certain statistics, Colorado was losing its male faster than its female population, and bid fair, if the conditions continued, to become in time an Adamless Eden. We have not heard from the subject further, and presume that the threatened outcome is still a long way off. Now, however, comes another report, this time from Carson City, Nevada, which points the same way, only that it indicates not an increased mortality, but a striking deficiency in the birth rate of males. It is said that in that community in the year 1904, out of the total of fifty-seven births, only one was a boy, and that that baby arrived just in time to prevent the record from being totally a female one. There is something wrong in the mountain regions apparently, if we are to accept such data as these. We know that statistics are sometimes included as an aggravated type in the classification of lies, but this Carson City record is alleged as merely an unmanipulated fact. What it is in that region that should produce such a result it is hard to say, unless it is some relic of the influence of the teachings of Brigham Young. If that sort of thing is to be continued, polygamy or emigration will be almost the only resources of the Nevada spinsters. Perhaps we shall hear from Utah next.

THE REAL PRESCRIBER.

The present status of proprietary medicines, their widespread use and their liberal endorsement by so many medical practitioners is a matter that is so evidently inconsistent with all rational ideas of science and progress that, were it not for the ultimate object, the preservation of human life, the whole subject would, as it surely will in the future, appear most ludicrous and absurd. Few of us, probably, have considered how unreasonable and irrational it would be for a surgeon to follow the advice and direction of an instrument maker, as to when and how one should operate on a given patient, or how preposterous it would be for a lens grinder, or even the glass manufacturer, to dictate to an efficient oculist how to modify his prescriptions for lenses so that a single prescription would fit all eyes. Nevertheless, many physicians will listen willingly to the exaggerated and unwarranted claims regarding a secret nostrum, despite the fact that the people who are making and exploiting the preparations may be ignorant of even the fundamental principles on which the practice of medicine is based. Is it, for instance, not unreasonable to suppose that individuals who are totally devoid of a practical knowledge of pathology, physiology or even anatomy should, by some fortuitous and unknown chain of circumstances, be placed in a position to dictate to medical men how they should treat their patients, regardless of individual idiosyncrasies or possible complications?

IGNORANCE ON YELLOW FEVER.

The irresponsible writing that is being done by certain wiseacres of the lay press who fancy that they know all about not only politics but history and histology, art and astronomy, money and metaphysics, to

say nothing of philosophy and physic, is exemplified by a recent article by Richard Weightman for a syndicate of papers with which he is identified. In the course of one rather remarkable ebullition, in which Mr. Weightman assumes to set at rest once and for all every heretofore moot question connected with the pathology, symptoms and treatment of yellow fever, he says: "You will observe, however, that every recent report from Panama makes haste to explain how, as soon as yellow fever broke out there, the doctors at once got busy with the old expedients of sanitation—the dustpan, the shovel, the garbage cart, the carbolic-acid sprinkler and all the rest of it. You don't hear a word about mosquito nets, etc., after yellow jack bulges in on the stage. Science immediately reverts to the ancient remedies, specifics, antidotes, and so on." Of course, all this is arrant nonsense and ought to be known as such by every man who assumes to write for public enlightenment. In the light of such reports as that of Dr. Reed, in our last week's issue—not the garbled version of it that appeared in the daily press—and in the light of every other authentic report that comes from Panama, the declaration of Mr. Weightman, just quoted, can be set down as nothing but a deliberate misrepresentation perpetrated for the purpose of misrepresentation. He ought to know that the successful sanitation of Havana was accomplished and is maintained by the practical application of the mosquito theory, just as he should know that every bit of effective sanitation that was adopted before the advent of the mosquito theory was effective because of its empirical application of the facts which have since found their place in that theory. Mr. Weightman in another of his letters sneered at the work that is being done by the Carnegie Institute, and referred sarcastically to practically everything connected with it; it was full of misrepresentations and insinuations. Evidently he has little respect for science, sensation being more to his liking. It might be well for his employers to insist that he tell the truth in his correspondence. In this case the newspapers for which he writes would be more respected.

CONGRESS AND THE ARMY MEDICAL BILL.

The bill to increase the efficiency of the Medical Department of the Army is another that failed to become a law at the session of Congress just closed. The bill, the passage of which the American Medical Association, through its committee on National Legislation, earnestly urged, passed the Senate and was favorably reported (in a somewhat mutilated condition) by the Military Committee of the House. In view of the President's message urging its passage and its strong endorsement by the War Department, it would undoubtedly have become a law if it had been permitted to come to a vote in the House. At the final stage, however, a fatal obstacle was encountered in the refusal of the speaker, Mr. Cannon, to permit the measure to come to a vote. In this refusal he persisted in spite of the personal solicitation of the Secretary of War and the formal declaration of the President that "if the Medical Department is left as it is, no amount of wisdom or efficiency in its administration will prevent a complete breakdown in the event of a serious war." The speaker's obstructive position is understood to be due not to any disapproval of the provisions of the bill, but to be simply due to his determination to head off new legislation during this session. Thus the responsibility rests with Mr. Cannon alone of continuing for another year a condition which is full of possibilities of useless waste of life and loss of military efficiency, which is discreditable to the nation. It is the more serious because Congress can not by the passage of any law at once remedy past neglects. Efficiency in the Medical Department, as in other parts of the Army, is a matter of training and military experience, and requires both time and hard work. It can not be improvised. The lesson which we can learn from brave little Japan is no secret of rice diets or of new sanitary devices, but of careful, patient preparation for war, both as regards personnel and material, of working out every detail, of leaving nothing to chance. It is the lesson inculcated by George Washington—the lesson which we have never learned—"In time of peace prepare for war." As a nation we prefer, certainly in medico-military matters, improvisation to preparation, chance to prevision, and in the ever-increasingly complex and technical art of war, the tyro to the expert. And so Mr. Cannon is only exemplifying a national characteristic when he turns a deaf ear to the President, to the War Department and to the medical profession, and lightly puts aside for another year this important contribution to the efficiency of our Army.

THE VARIED FUNCTIONS POSSIBLE IN THE COUNTY MEDICAL SOCIETY.

The tendency of the age seems well-nigh worldwide for isolated groups of the community—trades, professions, etc.—to adopt for the common good of their membership certain methods of communal activity. The unanimity with which the medical profession seized the opportunity to reorganize on a basis effective for the general good of physicians and the commonwealth is an illustration in point. It is fortunate that the adopted mode of organization affords through the autonomy of the county society so full opportunity for varied experiments in medical socialism. Some societies are doing little or nothing in this direction; others are taking very advanced ground and are working out some theoretical and practical problems of exceedingly great interest. Recently in these columns we drew attention to the Cleveland Academy of Medicine and its very effective work along certain lines. We have since received the announcement of the Defense League of the Wayne County Medical Society, created as a branch to supply needed defense for the Detroit profession against unjust suits for damages and blackmail. The plan seems an excellent one and ought to work well save for one thing. An annual fee is required, separate from the society dues, and members of the society who do not wish to join the league need not do so. This plan, in some places, might prevent a membership large enough to secure ample funds for convenient operation. Aside from this reason, however, the plan is

a departure from the organization system and the cooperation feature is lacking. What is for the good of one is for the good of all and all should contribute alike, for the reputation of the work of the league will itself ward off suits. The Chicago Medical Society has for some time conducted a medicolegal department, which is found of great value in defending members in such suits. And, by the way, no organization has been more enterprising in the various activities possible to the county medical society than has the Chicago Medical Society. Its latest proposal—a "business bureau"—is particularly noteworthy, though not yet adopted. The objects of such a bureau would be the collection of accounts for members, the assumption of complete care of the books of a disabled, absent, or deceased member, and in general the execution of various matters of business for the members and for the society as a whole. So far as known, such an experiment has not been put to the test, and all workers in organization will be interested in the outcome if the plan is adopted.

Medical News.

CALIFORNIA.

State Sanatorium.—A bill has passed the legislature, carrying an appropriation of $150,000, for the erection of a state sanatorium for the treatment of poor patients suffering from tuberculosis.

Governor Favors Vaccination.—Governor Pardee, on March 8, sent a message to the senate vetoing the bill to prevent vaccination being made a compulsory condition for admission to the public schools. The senate refused to pass the bill over the veto by a vote of 23 to 3.

ILLINOIS.

Bequest.—By the will of the late Daniel Kerns, Quincy, St. Mary's Hospital in that city receives a bequest of $1,000.

Diphtheria Prevails.—Libertyville schools have been closed because of the prevalence of diphtheria. At least 10 cases have been reported and two deaths have occurred.

Eye and Ear Society.—At a meeting held in Danville, March 7, the Eastern Illinois Ophthalmological and Otological Society was organized with the following officers: President, Dr. Cassius M. Craig, Champaign; secretary, Dr. Charles P. Hoffman, Danville, and committee on fee-bill, Drs. Irvin E. Huston and Elbert E. Clark, Danville.

Personal.—Dr. James A. Egan, secretary of the State Board of Health, has been awarded a gold medal for his work in connection with the exhibit of the board at the Louisiana Purchase Exposition.——Dr. William R. Patton, local surgeon of the Clover Leaf System at Charleston, has resigned.——Dr. William C. Dixon, Canton, has been reappointed physician of Fulton County.——Dr. George G. Craig, Rock Island, has announced his candidacy for mayor of the city.

Legislative Progress.—Senate Bill No. 169, which provides for the appointment of an osteopath on the State Board of Health, and decreases the membership of the regular school, and Senate Bill No. 292 (committee substitute for Senate Bill No. 171), which attempts to regulate medical and osteopathic practice and stipulates that physician's certificates shall be issued to certain osteopaths without examination, are ordered for second reading. Both bills are being opposed by the State Board of Health.——The Epileptic Colony bills (House bills Nos. 211 and 353 and Senate Bill No. 268) were considered by the appropriate committees last week. The result is conjectural. The bill to regulate the practice of "Optometry," facetiously referred to by the legislators as the "window-glass bill," seems to be defunct.

Chicago.

Smallpox Rampant.—During the week ended March 11, 31 cases of smallpox were reported to the Department of Health, and 9 patients died at the Isolation Hospital.

The Week's Deaths.—Of the 627 deaths reported during the week ended March 11, 138 were due to pneumonia; 82 to tuberculosis; 45 to heart diseases; 38 to nephritis; 33 to violence, and 30 to bronchitis. The mortality rate was 16.41 per 1,000 per annum, the same as for the previous week.

February Mortality.—The deaths from all causes in February were 2,421, 66 less than in January, and 284 less than in February of 1904. This is equivalent to an annual death rate of 15.86 per 1,000. The death causes are headed by pneumonia, with 522 deaths; consumption caused 285 deaths, heart diseases 158, bronchitis 154, nephritis 133, violence 114, nervous diseases 106, and influenza 41. Diphtheria caused 32 deaths, whooping cough 30, smallpox 11, measles 15, and scarlet fever 7.

Measles Not Mild.—In the first 70 days of the year 43 deaths from measles were reported. During the whole of 1904 only 47 such deaths were reported. These figures, says the Department of Health, acquire a very serious importance when it is considered that only a relatively small proportion of the deaths from measles are reported as such—the immediate cause of death, such as bronchopneumonia, capillary bronchitis, lobar pneumonia or similar grave affections developed during an attack of measles, being given as the actual cause.

INDIAN TERRITORY.

Personal.—Dr. T. C. Brannum, Pauls Valley, has been appointed secretary of medical examiners for the southern district, vice Dr. E. E. Chivvers, Mannsville, resigned.

"Quaker Doctor" Fined.—On Dec. 21, 1904, E. F. Baldwin, a self-styled "Quaker Doctor," was tried at Ryan on the charge of practicing medicine without a license, was convicted and sentenced to pay a fine of $150 and costs. He also lanquished in jail five days. The medical men who appeared against the man, traveled 60 miles or more to get to the trial.

IOWA.

Burglarized.—The offices of Drs. John B. Findlay and Chas. D. Rawson were recently entered by burglars, who escaped with surgical instruments and appliances valued at $600.

Mercy Hospital Dedicated.—St. Joseph's Mercy Hospital, Dubuque, erected at a cost of more than a quarter of a million of dollars, was dedicated with imposing ceremonies, February 5, by Archbishop Keane.

Middleton Bust Dedicated.—A bust of the late Dr. William D. Middleton, Davenport, professor of surgery and dean of the medical department of the State University, Iowa City, was formally dedicated in the new medical building of the university, February 28.

KENTUCKY.

Fined.—Four physicians of Lexington were fined $10 and costs each for failure to pay the municipal license fee of $10 required by the city ordinance.

Personal.—Dr. William Keeney, Jr., Paris, coroner of Bourbon County, slipped on an icy pavement and fell, breaking two ribs.——Dr. W. Johnston Bars has been appointed city physician of Paducah, vice Dr. Robert Rivers, resigned.

The Fight Against Smallpox.—The State Board of Health, which suspended the quarantine against Trigg County until March 4, has extended the period during which the people of the county may be revaccinated or vaccinated, for ten days. Vaccinations are being made, and the smallpox situation is rapidly improving.——Warren County put in effect a strict quarantine against Simpson County, where smallpox is prevalent, but the quarantine was raised March 2, as the people of the county had complied with the general vaccination order.

MARYLAND.

Personal.—Dr. Timothy Conroy, Mount Savage, was severely injured and may lose his sight from an explosion of a vial containing nitroglycerin, which came in contact with some nitric acid, and which he was employing in an operation.——Dr. William H. Noble, late of Philadelphia, was elected on March 9 physician-in-charge of the Western Maryland Hospital, Cumberland.

Frederick Hospitals.—On March 7 the Hood wing of the Frederick City Hospital was opened with exercises and a public reception. The wing is a gift from Mrs. Margaret S. Hood, and was constructed at a cost of about $10,000. It doubles the capacity of the institution (with its 49 patients), and includes a sun parlor and elevator. The new rooms have been furnished

by patrons and friends of the institution. About $25,000 has been raised through the efforts of about 30 women, and there are 5 absolutely free beds. An ambulance was recently presented to the hospital by a New York physician. The hospital is supported and patronized by 27 local physicians.——The annual report of the Emergency Hospital of Frederick County shows that 232 cases were treated during 1904. Of these, 126 involved operation, with one death. The total receipts (including $1,200 received from the state), were $16,475. This institution was organized by and is under the management of the County Medical Society, and consists of a large three-story building and lot. It has two public wards, two private wards, seven private rooms, and an operating room. The medical staff consists of Drs. Henry P. Fahrney, Samuel T. Haffner, William C. Johnson, Wilson A. Long, Ira J. McCurdy and Franklin B. Smith. The wards of this hospital are open to the poor free.

Baltimore.

Personal.—Dr. Wirt A. Duvall has been appointed assistant surgeon of the Fourth Maryland Infantry.——Dr. William A. Moale is at Palm Beach, Fla.

Medical Officer for Students.—There are 291 medical students in Johns Hopkins Medical School, 56 of whom are from Maryland. The trustees of the University have authorized the appointment of an official medical adviser to the students of the medical department. For the present academic year Dr. Rufus I. Cole, resident physician to the hospital and associate in medicine in the university, holds this position. The University Circular says of this office: "This officer is to have a definite hour for consultation with medical students, is to be prepared to visit in their own homes, when called on, such students as are unable to meet him at his consultation hours, and to obtain, when necessary, the services of specialists for special examination and treatment. This medical service is to be without cost to the students, the salary of the adviser being paid by the medical department of the university."

MASSACHUSETTS.

Bequests.—William H. Williams of Boston left $5,000 to the Hyde Park Hospital for Crippled Children, and the same amount to the Boston Home for Incurables.——Mrs. Andrew G. Weeks has given $5,000 to the Nursery for Blind Babies.

Special Legislation for Osteopaths.—The Massachusetts Committee on Public Health has given the osteopaths "leave to withdraw" on the petition recently presented by them for special legislation, noted in a recent issue of THE JOURNAL.

Militia Changes.—Dr. David Cheever, Boston, has been appointed major and surgeon to the First Cadets, vice Dr. Charles Green, resigned, and retired as lieutenant colonel.——Dr. Horace Binney has been commissioned first lieutenant and assistant surgeon, vice Cheever, promoted.

Infants' Hospital Report.—The Thomas Morgan Rotch, Jr., Hospital for Infants cared for 11,637 infants as out-patients last year, 2,540 being new cases, and 297 infants in the wards. The expenses are largely met by a fair, which is held this year at the Hotel Vendome, March 24 and 25.

Harvard's New Buildings Well Under Way.—The external walls of the laboratories of the New Harvard Medical School are practically completed, and with the return of warmer weather work has been resumed on the administration building. The group of white marble buildings is most impressive. It will require at least another year, however, to complete the interior furnishings.

Would Abolish Drink Hospital.—There is a strong movement to abolish the Massachusetts Hospital for Dipsomaniacs at Foxboro. There are two propositions for the use of the buildings. One would give them to the Massachusetts Board of Charity to be used as a Home for Crippled and Deformed Children. The other would give them to the State Board of Insanity, together with $100,000 for constructing and furnishing new buildings, in order to meet the demand for 300 to 500 new beds made each year on this board.

Opposition to Pesthouse Location Bill.—Pressure on the Committee of Public Health of the Massachusetts Legislature to secure the passage of a bill forbidding the location of a smallpox hospital, pesthouse, or contagious hospital within 100 rods of any boulevard or parkway, has met so much opposition on the part of Boston and various other cities and towns which would be obliged to give up their present quarters and secure new ones at a large expense, that the committee is at a loss to decide and has asked the advice of the State Board of Health on the matter.

Elimination of Tuberculosis.—Statistics recently published by the Boston Board of Health shows that tuberculosis is being rapidly eliminated. Fifty years ago the annual death-rate per 10,000 population was 49. Last year it was less than 21. Ten years ago the disease was more fatal in Boston than it was in Philadelphia, New York, Chicago, Brooklyn, St. Louis, London, Berlin, Glasgow and Liverpool. Already the condition is better than in Philadelphia and New York. Great improvements have been made in many of the wards of the city, and a net average decrease as indicated, the shifting of population being partly responsible. This is specially true where the negroes and Irish have been replaced by Jews and Italians. With an average yearly mortality of 11.33 per cent. of the total mortality Boston furnishes only 40 free beds.

Oppose Antivivisection Bill.—Petitions for an antivivisection bill before the Massachusetts Committee on Probate and Chancery this year made the unique plea that such a bill was favored by ex-Governors Claflin and Boutwell, who have recently died, and would be a graceful compliment to their memories. The bill was opposed by Drs. Harold Ernst and Edward H. Nichols of Harvard Medical School; Dr. Horace Packard of Boston University Medical School; Dr. Henry P. Walcott, chairman of the State Board of Health, for Harvard College and the Massachusetts General Hospital; Dr. Arthur T. Cabot, for the Massachusetts Medical Society; Drs. Samuel H. Durgin and Hibbert W. Hill, for Boston Board of Health; Dr. A. E. Austin for Tufts Medical School; Dr. Langdon Frothingham, for veterinaries; Dr. David W. Cheever, for the medical profession; Prof. A. W. Wise, for Boston University; Prof. Mary Wilcox for Wellesley College, and Dr. Theobald Smith.

MINNESOTA.

Internes and Alumni Organize.—The Internes and Alumni Association of the Minneapolis City Hospital was organized recently. Dr. Hugh S. Wilson was elected president and Dr. James Ballard secretary and treasurer.

Mothers and Babes Endangered.—A fire in the Maternity Hospital, Minneapolis, early in the morning of February 26, endangered the lives of 14 mothers, their infants and the nurses. By quick work all were removed without casualty. The damage to the building will be about $1,500.

Membranous Croup, Not Diphtheria.—On the ground that membranous croup and not diphtheria was the cause of death of a child, Dr. Marius J. Jenson, Minneapolis, was declared not guilty of the charge of criminal negligence in failing to report a case of diphtheria to the Health Department.

Personal.—Dr. Ole E. Linjer, assistant city physician of Minneapolis, has resigned. Dr. Hugh Wilson succeeds him. Dr. Linjer was immediately appointed a member of the State Board of Medical Examiners, vice Dr. Charles M. Cannon, St. Paul.——Dr. Phillip Mueller, Minneapolis, was held up and robbed of $50 recently.——Dr. William H. Rumpf, Faribault, has gone to the Bahamas for the remainder of the winter.——Dr. Samuel Musgrave, Jr., has resigned as assistant city physician of Minneapolis.——Dr. Arthur B. Ancker, St. Paul, has been unanimously re-elected city physician and physician of Ramsey County for four years.

MISSOURI.

Exonerated.—Dr. Walter C. G. Kirchner, superintendent of the Emergency Hospital, St. Louis, who was held responsible for the death of an insane patient, was exonerated at a special meeting of the Board of Health called February 28.

Verdict for Defendants.—In the case of William Ritenger, Greenwood, against Drs. Leander W. Cape, Maplewood, and R. Brent Murphy, Ellendale, in which he claimed $10,000 damages for the loss of an arm, the jury returned a verdict for the defendants.

Personal.—Dr. James C. Nunn, Bowling Green, has been appointed a member of the Asylum Board for the Hospital for the Insane, No. 1, Fulton.——Dr. Gustav C. Eggers, Clayton, has been reappointed physician of St. Louis County.——Dr. Larkin H. Calloway, Nevada, has been appointed superintendent of Hospital for the Insane, No. 3, Nevada, vice Dr. Joseph F. Robinson, removed.

NEW YORK.

Syracuse Has Scarlet Fever.—There are now nearly two hundred cases of scarlet fever in Syracuse, and 145 houses are under quarantine.

Bequest.—By the will of Father Thomas Plunkett, Ogdensburg City Hospital receives $1,000, and one-half of the residue of his estate after certain legacies have been paid.

Fire in Hospital.—A fire occurred in St. Joachim's Hospital at Watertown, March 6. A dozen patients were rescued from the burning building with difficulty. The damage was about $5,000.

Illegal Practitioner Imprisoned.—"Dr." Isaac A. Finch, Buffalo, who was recently found guilty of practicing without a license, was sentenced on March 1 to imprisonment for three months in the Erie County Penitentiary.

Members of State and American Medical Association.—There are at present 1,683 members of the New York State Medical Association, of this number 1,121, or more than 66 per cent., are members of the American Medical Association.

State Will Pay for Cattle Killed.—A bill has been passed by the assembly providing for payment for cattle killed to prevent the spread of tuberculosis. In case of localized tuberculosis the state will pay 60 per cent. of the appraised value of the cattle, and in general contagion 40 per cent.

Fire at State Hospital.—A fire occurred at the Buffalo State Hospital for the Insane. By virtue of the training obtained by a fire drill every day all the patients in the wing in which the fire was discovered, numbering 170, were aroused from their sleep and marshalled into another building in a few minutes.

Personal.—Drs. Edward J. Meyer and Henry C. Buswell, Buffalo, have returned from Europe.——Dr. J. Henry Dowd, Buffalo, has been elected secretary of the medical staff of Mercy Hospital.——Dr. Martin Bessemer, Ithaca, has been appointed a member of the State Board of Medical Examiners, vice Dr. William M. L. Fiske, Brooklyn, deceased.——Dr. Parson G. Udell, Spencerport, was thrown from his sleigh, March 4, and sprained his ankle.

For Purer Milk.—The Five States Milk Producers' Association, whose members furnish most of the milk for the markets of New York, met in Binghamton, March 7, to consider ways and means for getting a purer milk supply for New York City. They claim that the middlemen remove from 3 to 5 per cent. of the butter fat and then adulterate the milk and sell it at a higher price than is warranted by that paid to the farmers. They have sent a committee to the assembly to work in favor of the Fish bill, which aims to prevent adulteration of milk.

Finance Committee Visitation.—The finance committee of the state legislature visited Buffalo for the purpose of making a personal inquiry into the needs of appropriations which have been asked for by several of the state institutions in that city. The State Cancer Laboratory has again asked the state for an appropriation of $15,000 to carry on the research work on cancer. Thus far the state has spent $100,000 on this institution. The committee also visited the four new buildings of the Buffalo State Hospital which are under process of erection; a new home for the superintendent, a new home for the medical staff, a nurses' home, and an amusement hall. The total cost of these buildings is about $100,000.

Vital Statistics for January.—The total number of deaths in this state for January was 11,875, or an annual rate of 18.5 per 1,000, according to the bulletin of the State Department of Health. There were about 400 more deaths than in December, and there was the same increase over the average mortality of the month. Pneumonia caused 1,800 deaths, consumption, 1,166, and Bright's disease, 780. Cerebrospinal meningitis caused 150 deaths, which is a larger mortality than any since last June. Diphtheria caused 250 deaths, which was less than the average. There seemed to be more influenza in the rural than in urban municipalities. There has been no death from smallpox in the state since last October.

New York City.

Will Equip Wards.—Dr. William F. Campbell has volunteered to provide complete furnishing for the operating and sterilizing wards of the Swedish Hospital, Brooklyn, in memory of his mother.

The Donor Known.—The director of the Manhattan Eye, Ear and Throat Hospital, who it was announced last week had given $25,000 toward the building fund, was Mr. Frank Tilford. His donation was for the construction of a building for an otologic clinic.

Infectious Disease Inquiry.—The board of aldermen has appropriated the $35,000 asked for by the commissioner of the health department in order to make a census and inspection of the congested districts so as to aid in decreasing infectious diseases in the tenements.

Condensed Milk Adulteration.—Evidence has beeen collected and sent to the state health department that large quantities of condensed milk, impure and below the standard, are being sold in New York City. It is said that the attorney general will immediately prosecute a number of big jobbers and dealers.

Smallpox Among Strike-Breakers.—Three cases of smallpox were discovered among the strike-breakers herded on the *Northam* in the East River. Some of the men from the infected vessel have been quartered in barns in 129th Street and Second Avenue. A case of scarlet fever was also reported among strike-breakers in Marion Hall, where 70 men were quartered.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended March 4, 390 cases of tuberculosis, with 188 deaths; 276 cases of diphtheria, with 30 deaths; 248 cases of scarlet fever, with 22 deaths; 252 cases of measles, with 6 deaths; 42 cases of typhoid, with 10 deaths; 98 cases of chicken-pox, 3 cases of smallpox, and 60 deaths from cerebrospinal meningitis.

Ground Broken for New Hospital.—Ground has been broken for the new Manhattan Eye, Ear and Throat Hospital in 64th Street. According to the amended plans the hospital will cost between $450,000 and $500,000, including the equipment. An unusual feature will be the sun galleries. This is believed to be a great step in advance in hospital construction. The building itself will be six stories high, and in order to obtain space for the hospital equipment the architects have planned a basement of five different levels below the first floor.

Water Supply Assured.—An agreement regarding water supply has been entered into between representatives of the city and representatives of the objecting Hudson River counties. Westchester County is to be permitted to tap the Croton aqueduct to get a supply for villages and cities along its route. An arrangement has been made with Putman County and with Dutchess County by which creeks will be let alone in these counties so far as manufacturing interests are concerned. New York may go into Ulster County, provided property owners get compensatory damages.

Conrad's Conviction Affirmed.—The Appellate Division of the Supreme Court has affirmed the conviction of Edward E. Conrad on the charge of attempting to commit abortion. The county medical society was instrumental in securing his arrest and trial. He was sentenced to serve not less than one or more than two years in state prison. The appeal was made on the ground that he was lured into the trap that resulted in his arrest, but according to the appellate division these contentions are demolished, and it is held that he was properly convicted.

Death Rate Lower.—The health commissioner reports that last week's death rate was equivalent to an annual rate of 20.47 per 1,000, while the rate for the corresponding week last year was 24.35. In 1903 the figures for the corresponding week were 20.67. There have been fewer deaths from all causes over the same week last year, excepting cerebrospinal meningitis. Deaths from this cause became sufficiently numerous in March of 1904 to attract attention, while in April and May a remarkable increase was observed. The record for the past year from cerebrospinal meningitis was 1,211, or more than two-thirds of the total for the entire state. Dr. Darlington has been empowered to ask that a small sum be appropriated for the investigation of cerebrospinal meningitis. It is thought that the detailing of a government physician to help in the work will be a good thing. Personally Dr. Darlington favors fumigation after cases of this disease, but he wishes the opinion of a commission of leading physicians.

NORTH DAKOTA.

Anatomy Act.—A third bill passed by the State Legislature is an act to promote anatomic knowledge and to provide for anatomic material for such purposes, similar to those which obtain in other states.

State Hospital Overcrowded.—The accommodations at the State Hospital for the Insane, Jamestown, are so inadequate that wards intended to accommodate 15 or 20 patients now are made to hold 50; that sitting rooms are turned into dormitories, and that bathroom and water-closet accommodations are absolutely insufficient and insanitary. For this reason the trustees have asked for new buildings and repairs, $100,000; for main-

tenance, $65,000; for fuel, $26,000; for wages and salaries, $57,800, sundries bringing the amount needed to $284,290.

State Bacteriologic and Pathologic Laboratory.—A bill has passed the legislature, and is now awaiting the signature of the governor, creating a state bacteriologic and pathologic laboratory, to be located at the State University and School of Mines, and to be under the control of the university trustees and the professor of bacteriology and pathology at the university, who is to be the director. The purpose of the laboratory is to make bacteriologic examinations of all kinds, and examinations of pathologic tissues submitted by the State Superintendent or county superintendent of public health or any licensed physician of the state. The specimens so obtained are to be placed in the museum of the university, and bulletins and reports are to be issued from time to time detailing the results of the work done in the laboratory. The director is also made state bacteriologist ex-officio.

Medical Practice Act Amended.—Hereafter license to practice medicine will be awarded on presentation of a diploma granted by a college giving four courses of lectures of at least eight months each and an examination in prescribed subjects. The board is given power to revoke or refuse a license for dishonorable or immoral conduct, chronic or persistent inebriety or mental aberration, excessive use of narcotics or for the practice of criminal abortion. In complaints for violating the provisions of this section of the law, the accused must be furnished with a copy of the complaint and be given a hearing before the board in person or by an attorney. The law provides for reciprocity as follows: The board, in its discretion, may grant license for the same fee ($20) without examination to applicants examined and licensed by other state examining boards maintaining standards not lower than those provided for by the law of North Dakota.

PENNSYLVANIA.

Philadelphia.

Bequests.—By the will of Kate L. Carrick $1,000 is devised to the Home for Aged Couples.——The will of Margaret Frank bequeaths $200 to the Maternity Hospital.——By the will of Mary Sharkey, St. Agnes' Hospital received $8,500.

Resident Physicians Appointed.—The following men have been appointed resident physicians in the University Hospital for a term of two years: Eldridge L. Eliason, Stirling Walker Moorhead, George Morris Piersol, Frederick Prime, Jr., Howard G. Schleiter.

Medical Inspection in February.—The medical inspectors during February made 2,215 inspections, excluding schools. The number of fumigations ordered were 690. The number of cases for special diagnosis 25. The total number of visits to schools aggregated 4,950; 823 children were excluded from schools; 255 cultures were taken; 91 injections of antitoxin were made, and 557 vaccinations were performed.

The Typhoid Fever Situation.—Between January 1 and February 17, there were reported 612 cases of typhoid fever. Of this number 8 occurred in that part of the city getting filtered water from the Roxborough filters, and only one case occurred in that part of West Philadelphia getting exclusively filtered water from the Belmont filters. From that part of West Philadelphia not supplied with filtered water 72 cases were reported. Based on cases per 1,000 in population, the above figures give averages of the seven weekly rates—for the entire city, 5.87 per 100,000 population; for Roxborough 1.3 per 100,000 population; for the filtered water district of West Philadelphia, 0.29 per 100,000 population.

Parochial Schools and Bureau of Health.—As a result of a conference between the bureau of health and the authorities of the Catholic Church, an agreement has been reached whereby the parochial schools of the city would be placed under the jurisdiction of the bureau of health, so far as relates to vaccination. In the future no unvaccinated child will be admitted to the parochial schools and all unprotected children found by the medical inspectors in these schools will be excluded until the operation has been performed. Since the beginning of the inspection of these schools 1,775 children have been discovered who either never have been vaccinated or whose vaccination scars were of doubtful protective value. These children have all been vaccinated and permitted to return to school.

Health Report.—The total number of deaths reported for the week was 599, as compared with 551 for last week, and 709 for the corresponding period of last year. Pneumonia is still prevalent, the deaths therefrom being 78, or 4 more than last week. For the first time this winter the deaths from tuberculosis—80—exceeded those from pneumonia. Typhoid fever is on the increase, and this is attributed by the authorities to the spring thaw, which has polluted the water supply. One hundred and seventy-eight cases of the disease were reported, with 12 deaths. Last week only 92 cases were reported. The principal causes of death for the week were as follows: Diphtheria, 10; cancer, 24; paralysis, 35; heart disease, 57; enteritis, 14; and Bright's disease, 50. The cases of contagious disease reported during the week numbered 272, with 24 deaths, as compared with 186 and 19 deaths for the preceding week.

Disappearance of Smallpox.—The last case of smallpox recorded in this city was Dec. 17, 1904. Since then the city has been entirely free from the disease. During the past four years about 1,000 medical students, 60 physicians, 100 nurses, and over 100 servants have been freely exposed to smallpox in the wards of the Municipal Hospital, the medical students being admitted to study the cases. Of this group, approximately 1,250 individuals, only 1 contracted smallpox. This individual, a medical student, descendant from an anti-vaccination family, through purposeful deception, gained access to the smallpox wards, contracted the disease, and was so seriously ill that for a time his life was in extreme jeopardy. During the year the percentages of deaths in smallpox patients in the Municipal Hospital may be classified as follows: Of unvaccinated cases, 32.73 per cent. died; of those vaccinated in infancy with one good mark, 3.81 per cent. died; of those vaccinated in infancy, with one fair mark, 8.13 per cent. died; and of those vaccinated in infancy, with one poor mark, 11.25 per cent. died. In general the death-rate among all cases that had ever been vaccinated was 6.72 per cent., while that for unvaccinated cases was 32.73.

TENNESSEE.

Meharry Commencement.—The commencement exercises of Meharry Medical College, Nashville, were held February 28. A class of 61 received diplomas.

Medical Examinations.—A bill has been introduced providing that, if an applicant has taken a four-year course at an approved medical institution, and in addition a post-graduate course at an approved institution, the Board of Medical Examiners shall not be required to examine him, to ascertain his ability to practice medicine, taking his diploma as evidence.

Convicted.—"Dr." David Garfinkle, Nashville, has been found guilty of practicing medicine without first having obtained a license from the State Board of Medical Examiners, and has had motion entered for a new trial.——"Dr." J. L. Lehr has been convicted, at Memphis, of sending questionable letters through the mails, and has been sentenced to be imprisoned one year in the penitentiary and to pay a fine of $250.

CANADA.

Personal.—Dr. J. George Adami, professor of pathology in the Medical Faculty of McGill University, has been made a fellow of the Royal Society of England.

Amalgamation of McGill and Bishops.—Meetings are being held between the medical faculties of McGill University and the Bishop's College University, Montreal, looking toward the amalgamation of Bishop's Medical Faculty with that of the University of McGill. No doubt the union would be favored by the medical profession of Montreal, especially as McGill is anxious to strengthen herself to contend with her powerful rival, Toronto.

Elections to the Medical Council of British Columbia.—The British Columbia Medical Council elections, February 15, resulted as follows: Victoria, Dr. J. C. Davie, Dr. O. M. Jones and Dr. C. J. Fagan; Vancouver, Dr. R. E. McKechnie and Dr. W. J. McGuigan; New Westminister, Dr. R. Eden Walker; Kamloops, Dr. Arthur P. Proctor. This is the old council re-elected with one exception, Dr. McKechnie taking the place of Dr. LeFevre, who did not offer himself as a candidate. It is taken as an endorsement of the action of the council which caused the names of two practitioners to be erased from the register for unprofessional conduct, the names, however, having since been ordered re-enrolled by order of the court.

FOREIGN.

Portrait Memorial to Karl Gegenbaur.—A life-size, marble bust of Karl Gegenbaur, the great student of comparative anatomy, is to be placed at the entrance of the Institute of Anatomy at Heidelberg, of which he was director for thirty years. All who wish to share in this memorial are asked to send their contributions to Prof. M. Fürbringer of Heidelberg.

Honors for a Russian Physician.—The municipal authorities of Moscow have decided to erect a memorial to the "never-to-be-forgotten fellow citizen, physician and philanthropist," Dr. Haas, and also to found and maintain a home for incurables to be called by his name.

Medical Certificate Before Marriage.—A Russian exchange states that the Armenian church in the Caucasus has taken the decided step that none of the clergy is allowed to perform the marriage ceremony unless the contracting parties can produce a medical certificate in regard to health.

Plague in India.—There were 34,000 deaths from plague in India during the first week in March. The Indian government is making heroic efforts to eradicate the disease by burning down whole sections of towns and segregating the inhabitants. Owing to the climate and to the conditions in the outlying districts and native sections of towns, it is difficult to cope with the epidemic, which is continually breaking out at fresh points. It is reported that 90 per cent. of those infected die.

The Porto Rico Medical Association.—The monthly bulletin of the Asociacion Medica de Puerto-Rico entered on its third year of publication in January. It announces in a recent number that its exchanges are at the disposal of the members of the association, and will be loaned, on request, to be returned by mail in a week. The annual meeting of the association was held in December, when committees were appointed to study means to prevent the spread of tuberculosis and venereal diseases in the island. Dr. Seaman, returning from Manchuria to America, described the sanitary measures in the Japanese army.

First National Medical Congress in Cuba.—More than 400 physicians have already announced their intention of attending this congress, the first national one to be held on Cuban soil. The subject of the prophylaxis of malaria and yellow fever is to be presented by J. Guiteras, A. D. Albertini and E. Martinez for the latter and I. Agostini, A. Agramonte and T. Coronado for the former. Parasitology in Cuba will be discussed by a number and the campaign against tuberculosis in the island, the sanitary statistics and the medical hydrology of Cuba will also be the subject of several addresses. E. Lopez, Juan Santos Fernandez and representatives from each province have been appointed honorary presidents. The congress is to be held at Havana in May, and the subscription is $3. The executive committee have commenced the publication of a bulletin which will contain abstracts of the principal addresses, to stimulate discussion.

Precautions Against Smallpox in Saxony.—The *Public Health Reports* state that in order to prevent the importation of smallpox into the kingdom of Saxony, the minister of the interior has decreed that all foreign workmen must be vaccinated within seven days after their arrival in Saxony, unless they can show a certificate stating either that they have been successfully vaccinated within the last ten years or have been twice unsuccessfully vaccinated, exception being made of persons who have already had smallpox. Persons who have performed military service in countries like Austria-Hungary and Italy, where recruits are vaccinated on entering the army, are also exempted. A certificate is given by the vaccinating physician showing the result of the vaccination. If the operation proves unsuccessful, it is to be repeated after one year, in case that on the expiration of such period the workman is still an inhabitant of Saxony.

Official List of Russian Wounded.—The *St. Petersburg. med. Wochft.* of February 18, states that from the beginning of the war to January 13, 1905, the number of sick and wounded was as follows: 1,710 wounded and 2,308 sick officers and 53,890 wounded and 72,531 sick privates, a total of 130,439 sick and wounded. The number of deaths during the same period among the sick and wounded was 45 wounded and 62 sick officers, and 1,242 wounded and 2,668 sick privates, a total of 4,007. The number sent to Russia was 559 wounded and 670 sick officers, and 4,121 wounded and 4,079 sick privates, a total of 9,429. On January 13 the number of sick and wounded still in the hospitals at the front was 21,554. The number of sick and wounded who recovered and resumed active service was 954 wounded officers, 37,110 wounded privates and 38,721 sick privates, a total of 77,727 who returned to their posts at the front. These figures do not include the Port Arthur district.

The Approaching International Medical Congress.—The fifth official bulletin issued by the executive committee of the Fifteenth International Medical Congress, to be held at Lisbon in April, 1906, has just been received. It brings the list of official addresses and of the speakers, and also the names of the committee of propaganda in each country, with the addresses of their secretaries. Dr. Ramon Guiteras, 75 West Fifty-fifth Street, New York, is the secretary for the national committee in the United States, as previously announced in these columns. Among the addresses we note one by Brouardel of Paris on "Death from Inhibition"; one by P. Aaser of Christiania on "Relations of Acute Infectious Diseases with Tuberculosis," and one by the editor of the *Brazil Medico*, A. de Azevedo Sodré, on "Pathology in Tropical Regions." The list is also given in the *Bulletin* of the various governments and scientific societies which have already appointed delegates to the congress, with the names of the delegates so far as ascertained.

Correspondence.

Isthmian Sanitation.

CINCINNATI, March 14, 1905.

To the Editor:—In my report on "Isthmian Sanitation" in THE JOURNAL, March 11, page 817, following a statement that the wards for malarious patients at Ancon were unscreened as late as February 21, I say:

"Yet in spite of these facts the Isthmian Canal Commission, in its report under date of Dec. 1, 1904, page 88, states that 'all cases of employes sick with malaria are taken into the Colon and Ancon hospitals and so screened that mosquitoes can not reach them'—a statement that is an absolute and unqualified falsehood."

On re-examining the publication in question, "Letter of the Secretary of War transmitting the First Annual Report of the Isthmian Canal Commission, 58th Congress, Third Session, House of Representatives, Document No. 226," I discover, much to my surprise and regret, that the report proper of the Isthmian Canal Commission ends at page 76 and that page 88, although headed "Report of the Isthmian Canal Commission," really falls within the report of Major-General Geo. W. Davis, as governor of the canal zone, rendered to the commission under date of Nov. 1, 1904. I beg to say frankly that if I had been aware of this fact at the time I framed my report I would have refrained from the harsh characterization that I unhesitatingly employed when I believed that the misleading statement had emanated from the office of the commission at Washington. For if it had emanated from the commission at Washington, which had made it physically impossible for the statement to be true, the characterization would have been thoroughly justified. Nobody, however, who has ever come in contact with General Davis, or who is familiar with his long and honorable career, and, particularly, nobody who has had occasion to observe his zealous and efficient devotion to duty in the canal zone would for a single minute believe him capable of even the slightest degree of deliberate misrepresentation. My explanation of the discrepancy between General Davis' statement and the fact—for discrepancy there exists—is that in framing his report he, not unnaturally, assumed that the plan that had been agreed on by the commission in the preceding August had been carried out in the ample time that had elapsed, little dreaming that the failure of the commission to furnish the necessary supplies had made it impossible to do so.

In this same connection and *apropos* not only of the status of the Sanitary Department, but of the efficient administration of affairs in general on the Isthmus, it should be stated that General Davis submitted a plan of organization which contemplated the creation of an executive committee, consisting of three members of the commission, including the governor of the zone, all three of whom should be constantly on the Isthmus and who should be invested with specifically defined authority to transact the necessary business of the commission *ad interim*. In submitting this very wise and obviously practicable plan, General Davis, among other things, said that "there is, perhaps, no controlling necessity why the head of the Sanitary Department should report to the governor of the zone," and proposed that such reports should go to the suggested executive committee. But the commission, by a vote of

4 to 2—Mr. Parsons was not present—rejected General Davis' plan and instead adopted Mr. Grunsky's very remarkable scheme of organization—after which they sailed away to build the canal from comfortable chairs in the Star building at Washington.

I ask for the publication of this, not only as a matter of justice to General Davis and to myself, but by way of apology to the Isthmian Canal Commission. CHARLES A. L. REED.

The Abuse of Proprietary Remedies.

PARIS, ILL., March 10, 1905.

To the Editor:—A few days ago I received a pamphlet gotten out by a proprietary medicine firm, containing an editorial from the *Vermont Medical Monthly*, attempting to justify the use of secret remedies. We are not surprised to find such articles in some so-called medical journals, but expect better things from the official organ of a state medical society. Some physicians throw secret remedy circulars into the waste paper basket at once, but I examine them, because some are well written, and because I enjoy separating the true from the false statements which they contain. After giving the subject a good deal of thought I have come to the conclusion that any physician who prescribes a secret remedy is not only very foolish, but does great harm to the community in which he pretends to practice medicine. He is like the physician who, when he found any drug that was not labeled, put it into a jar, and when he had a patient whose case he could not diagnose, stirred up the contents of the jar and gave him a few doses. As the practice of medicine consists in doing the right thing at the right time, it is absolutely necessary that the physician should know the exact quantity of each ingredient in his prescription. It is amusing to find a physician who—so far behind the times that one feels like complimenting him—claims that he is up to date simply because he is using the latest secret remedy advertised in his medical journal. He reminds me of the footrace at a circus, in which the clown, when he finds that he is being distanced, cuts across the ring and claims to have won the race. W. H. TEN BROECK.

Prophylaxis of Venereal Diseases.

DETROIT, MICH., March 9, 1905.

To the Editor:—It was with the greatest interest that I read the articles in THE JOURNAL, March 4, on the relation of venereal diseases to society, and I am heartily in sympathy with any movement which will assist in diminishing their prevalence.

In my opinion much could be accomplished toward the desired end by publishing such articles as those by Drs. Morrow, Kelly and Bulkley, in the newspapers. There is no reason why the tender sensibilities of certain over-modest individuals should be any more shocked by these articles than by the advertisements of various "quacks," which appear each day. The publishers might decline to print them, unless paid to do so, but the cost of even a paid publication would be small, compared to the educational benefit derived from it. It is all right to print these articles in medical journals, but these publications reach very few people outside the profession, and it is the laity that must be reached, if any good is to be effected.

FRANK L. TRUITT.

Booklet on Fractures Disclaimed.

WASHINGTON, March 7, 1905.

To the Editor:—I have been receiving an increasing number of letters asking for copies of a booklet on "New Method of Reduction of Fractures and Dislocations," said to have been printed by the government and to be sent to applicants in any number desired. I know nothing and am unable to learn anything about this booklet. To the first letters I replied, but I can not undertake to continue to do so, and I have notified the postmaster here not to send me any more letters addressed to "Prof. D. K. or G. K. Lamb." D. S. LAMB.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

HEADACHE POWDERS.

CHICAGO, Feb. 28, 1905.

To the Editor:—I enclose sample of "headache powders" which a patient of mine has been purchasing and taking *ad libitum*, and which seriously interfered with her recovery from an attack of mucopurulent otorrhea. I should like to learn the ingredients of the preparation. J. T. OSBALDESTON.

ANSWER.—Most of the "headache powders" on the market contain acetanilid as their essential constituent. Usually small percentages of caffein are also found, this being added to overcome the depressant effect of the acetanilid. The powder forwarded by Dr. Osbaldeston has been analyzed by our chemist, who reports it to contain 21.9 per cent. caffein and 76.5 per cent. acetanilid.

DESTRUCTION OF TOOTH PULP.

EAGLEVILLE, TENN., March 9, 1905.

To the Editor:—Please name a medicine that will kill the nerve of a tooth and state how to use it without injury to the patient. E. L. WILLIAMS.

ANSWER.—Pulps of the teeth are destroyed by the application of arsenic direct to the exposed surface. Arsenous acid equal in quantity to about one-quarter and not exceeding one-half the size of a pinhead, is made into a paste by the application of carbolic acid, creosote or one of the essential oils. The cavity of the tooth is thoroughly dried and the preparation is applied on the point of a small instrument direct to the exposed pulp. If the cavity is a difficult one for operation, a pellet of cotton the size of a pinhead may be saturated with this small quantity of the paste which may be applied direct to the exposed pulp. The tooth cavity is now sealed with wax or some substance that will seal the cavity moisture tight. This is necessary to prevent the arsenic from coming in contact with the gum and alveolar process. When the arsenic comes in contact with the pulp a severe pain is experienced and will continue until death of the pulp has taken place.

Marriages.

WILLIAM T. DALY, M.D., to Miss Kate Reed, both of Cresco, Iowa, March 2.

MEVERELL K. ALLEN, M.D., to Miss Jessie M. Rubel, both of Louisville, March 1.

HOWARD R. SWAYNE, M.D., to Miss Annie Vodges, both of Philadelphia, March 1.

T. WESTON CHESTER, M.D., to Miss Sara Hopkins King, both of Hartford, Conn., February 28.

FRANK JAMES GIBSON, M.D., to Miss Berenice Julia Denio, both of Jackson, Mich., March 3.

FRANK ARTHUR ZELLER, M.D., to Miss Mabelle Rosenbush, both of Union City, Ind., March 1.

ROBERT SCOTT HENSEL, M.D., Homestead, Pa., to Mrs. Flora L. Lupher of Pittsburg, Pa., March 1.

LUCIAN S. LAMBERT, M.D., to Mrs. A. B. Collins, both of Galesburg, Ill., at Chicago, March 4.

ALBERT EUGENE STERNE, M.D., Indianapolis, to Miss Laura Mercy Laughlin of Cincinnati, March 4.

WILLIAM STEWART REOCH, M.D., Phenix, R. I., to Miss Jeanette Macready of Providence, R. I., February 28.

Deaths.

Thomas Clement Kimball, M.D. Rush Medical College, Chicago, 1868, a member of the American Medical Association; founder of the Marion (Ind.) Hospital; a veteran of the Civil War; surgeon of the Fourth Indiana Infantry, U. S. V., during the Spanish-American War, and later division surgeon; died at Jacksonville, Fla., while on his way to his home in Marion, Ind., March 6, after a long illness, aged 62.

Henry F. Barnes, M.D. Jefferson Medical College, Philadelphia, 1854, of Indianapolis, some-time assistant superintendent of the Central Hospital for the Insane, Indianapolis; surgeon of the Eleventh Indiana Volunteer Infantry in the Civil War,

died at St. Vincent's Hospital, Indianapolis, March 2, from injuries received in a street car accident six days before, aged 76.

Edward L. Mayo, M.D. Rush Medical College, Chicago, 1868, a member of the American Medical Association; for 25 years an active practitioner of Dekalb, Ill., prominent alike as a physician and a citizen, died at his home, March 2, after many months of illness from nephritis, aged 61. At his funeral the pallbearers were all medical men of Dekalb and vicinity.

James L. Goree, M.D. Louisville (Ky.) Medical College, 1876, a member of the American Medical Association; for sixteen years an esteemed practitioner of Pine Bluff, Ark., died at his home in that city from pneumonia, March 6, after an illness of several weeks, aged 52. Members of the local profession acted as honorary pallbearers.

Garrett Murphy, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1879, of Garden City, Minn., committed suicide on his homestead near Pine River, Minn., by shooting himself through the head, January 4, aged 54. He was a member of the Blue Earth County Medical Society, and of the Southern Minnesota Medical Society.

John J. Prendergast, M.D. College of Physicians and Surgeons in the City of New York, 1868, one of the founders of the Manhattan Eye and Ear Hospital, some-time president of the Hudson County (N. J.) Medical Society, and county physician, died at his home in Brooklyn, March 1, after a short illness, following a fall, aged 57.

John W. Franklin, M.D. Transylvania University Medical Department, Lexington, Ky., 1841, surgeon of the Seventh Tennessee Infantry, C. S. A., in the Civil War, formerly a member of the Tennessee State Medical Association, died at his home near Gallatin, Tenn., February 28, aged 85.

John H. McClatchey, M.D. University of Louisville Medical Department, 1881, died at his home in Holly Springs, Miss., Dec. 18, 1904, from malarial hematuria, after an illness of nine days. He was a member of the Marshall County Medical Society.

David J. Swarts, M.D. Medical College of Ohio, Cincinnati, 1860, formerly of Auburn, Ind., assistant surgeon of the One Hundredth Indiana Volunteer Infantry in the Civil War, died on his homestead claim, near Liberal, Kan., March 3, aged 72.

John P. Ralls, M.D. Medical College of Georgia, Augusta, 1845, a member of the Alabama State Constitutional Convention, and later a member of the confederate congress, died at his home in Gadsden, Ala., November 23, aged 85.

Henry C. Van Gieson, M.D. University of Georgetown Medical Department, Washington, D. C., 1864, of Omaha, Neb., died at the family home in Dundee, Neb., March 7, from chronic nephritis, after an illness of two years, aged 65.

John Wiley Young, M.D. University College of Medicine, Richmond, Va., 1901, of Kinsale, Va., died in Bellevue Hospital, New York City, January 19, from injuries received from a fall on the ice several weeks before, aged 25.

Truman A. Pease, M.D. University of Vermont, Medical Department, Burlington, 1867, died at his home in Norwood, N. Y., February 22, aged 62. The physicians of the village and Dr. Frank J. Fuller, Potsdam, acted as pallbearers.

William G. Robinson, M.D. Bellevue Hospital Medical College, 1879, of New York City, committed suicide while suffering from melancholia, March 1, by shooting himself through the head, at East Freetown, Mass., aged 54.

John W. Lawson, M.D. New York University, New York City, 1861, surgeon in the Confederate service during the Civil War; formerly a member of congress, died at his home in Smithfield, Va., February 22, aged 86.

Thomas P. Mathews, M.D. Jefferson Medical College, Philadelphia, 1856, for twenty years a member of the Board of Visitors of the Medical College of Virginia, died at his home in Manchester, Va., January 13, aged 70.

Nicholas Nash, M.D. Kentucky School of Medicine, Louisville, 1893, of Garner, I. T., was shot and killed by a U. S. deputy marshal at Hanna, I. T., March 3, while resisting arrest on the charge of disturbing the peace.

John M. Stanley, M.D. Central College of Physicians and Surgeons, Indianapolis, 1894, of Marion, Ind., died at the home of his parents in Indianapolis, March 5, from tuberculosis, after an illness of two years, aged 30.

Paul Halderman Stehley, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1898, died at his home in Keyser, W. Va., from pneumonia, February 28, after a brief illness, aged 35.

Nathan G. Macomber, M.D. Department of Medicine, University of Pennsylvania, Philadelphia, 1871, died at his home in Central Village, Mass., March 6, from acute interstitial nephritis, aged 64.

Mortimer C. Coon, M.D. University of Buffalo (N. Y.) Medical Department, 1891, died at his home in Shelby Basin, Medina, N. Y., March 5, following an operation for appendicitis, aged 38.

William T. Edwards, M.D. Medical Department of the University of Tennessee, Nashville, 1889, died at his home in West Plains, Mo., March 2, from pneumonia, after an illness of one day.

Josiah Larendon, M.D. Medical College of the State of South Carolina, Charleston, 1861, for more than 40 years a [illegible] practitioner of Houston, Texas, died at [illegible] in that [illegible] March 6.

Andrew J. Weldon, M.D. Jefferson Medical College, Philadelphia, 1860, of Paris Landing, Tenn., who practiced in Henry County for more than 40 years, died in Paducah, Ky., March 7, aged 74.

John L. Irion, M.D. University of Louisville Medical Department, 1851, surgeon in the Confederate service during the Civil War, died at his home in Montgomery, Texas, Dec. 31, 1904, aged 79.

Charles N. Brush, Jr., M.D. Medical College of Ohio, Cincinnati, 1891, of Anderson, Ohio, died at Wickensburg, Ariz., Oct. 29, 1904, from tuberculosis, after an illness of two years, aged 32.

Daniel P. Fahrney, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, died from cerebral hemorrhage at his home in Hagerstown, Md., March 5, aged 65.

H. H. Young, M.D. Medical College of Ohio, Cincinnati, 1849, died at his home in New Carlisle, Ohio, February 28, from cerebral hemorrhage, after an invalidism of 15 years, aged 83.

John Willis Smith, M.D. Kentucky School of Medicine, Louisville, 1870, of Ardmore, I. T., while on his way to Chicago, died suddenly at St. Louis, from pneumonia, February 28.

George W. Rush, M.D. College of Physicians and Surgeons, Baltimore, 1894, died from pneumonia, at his home in Savannah, Ga., March 4, after an illness of three days, aged 42.

Martin H. Tierney, M.D. New York University, New York City, 1886, died at his home in Leominster, Mass., March 7, from septicemia due to a carbuncle on the neck, aged 45.

Evens B. Freed, M.D. Baltimore Medical College, 1887, committed suicide by shooting himself through the head at his office in Shippensburg, Pa., February 26, aged about 42.

Silas B. Giddings, M.D. Medical Department of the University of Missouri, St. Louis, 1849, died at his home in Gainesville, Fla., and was buried in Atlanta, Ga., March 6.

Ellis G. Whitehead, M.D. Medical Department of the University of Tennessee, Nashville, 1877, died at his home in Brushy Creek, Texas, February 27, after a long illness.

John M. Webb, M.D. Medical Department of the University of Tennessee, Nashville, 1878, of Cato, Ark., died recently at the home of his son in Olmstead, Ark., aged 69.

Liston V. Brown, M.D University of Nashville Medical Department, 1890, died at his home in Cleveland, Tenn., February 18, from influenza, after an illness of ten days.

James T. Henderson, M.D. Medical College of Indiana, Indianapolis, 1878, died at his home in Covington, Ind., March 2, from nephritis, after an illness of one week.

Reuben B. Detrick, M.D. University of Georgetown Medical Department, Washington, D. C., 1858, died at his home in Washington, D. C., Nov. 7, 1904, aged 77.

Jackson L. Moore, M.D. Medical College of [illegible], 1875, died at his home in Washington, [illegible] from heart disease, after an illness of nineteen weeks, aged 71.

Andrew F. Means, M.D. College of Physicians and Surgeons, Boston, 1882, died suddenly from heart disease at his home in South Boston, Mass., March 3, aged 66.

J. H. Philpott, M.D. Cincinnati, 1854, the pioneer physician of New London, Iowa, died recently at his home in New London, aged 76, and was buried, March 7.

Samuel Belt Fisher, M.D., licensed 1897, who had practiced in Rossville, Ind., since 1857, died at his home in that place, March 5, from senile debility, aged 79.

Charles H. Brockhausen, M.D. St. Louis Medical College, 1871, died at his home in Herman, Mo., Dec. 19, 1904, from skull fracture, the result of a fall, aged 61.

James Thomas Dowle, M.D. Cooper Medical College, San Francisco, 1890, died at his home in Newman, Cal., from pneumonia, March 3, after a short illness.

Edgar W. Remington, M.D. Bellevue Hospital Medical College, New York City, 1888, of Providence, a fellow of the Rhode Island Medical Society, died recently.

Norborne C. Lewis, M.D., New York University, New York City, 1869, died at his home in Lawrenceville, Va., March 3, after a protracted illness, aged 56.

Samuel McGill, M.D. University of Virginia Medical Department, Charlottesville, 1864, died at his home in Schuyler, Va., March 2, from nephritis, aged 63.

Thomas H. Goodman, M.D. Cincinnati, 1866, died at his apartment in Saginaw, Mich., February 26, from disease of the liver of long standing, aged 64.

Seth Gordon Green, M.D. College of Physicians and Surgeons in the City of New York, died in El Paso, Texas, Oct. 25, 1904, from typhoid fever, aged 29.

James H. Cassidy, M.D. Charity Hospital Medical College, Cleveland, 1869, died at his home in Sharon Center, Ohio, March 3, aged 60.

John B. Bray, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1875, died at his home in Bridgton, Maine, March 1, aged 72.

William F. Eaman, M.D. Bellevue Hospital Medical College, New York City, 1877, died at his home in Gaines, N. Y., March 7, aged 52.

James Taylor Miller, M.D. Vanderbilt University Medical Department, 1878, died at his home in Collinsville, Ala., Dec. 10, 1904, aged 57.

William Ellershaw, M.D. Department of Medicine of the University of Pennsylvania, 1866, died at his home in Philadelphia, Dec. 9, 1904.

A. Granger Leland, M.D. University of Buffalo, (N. Y.) Medical Department, 1875, died at his home in Whitewater, Wis., Dec. 25, 1904.

Jeremiah B. Stair, M.D. Northwestern University Medical School, Chicago, 1876, died at his home in Lake Mills, Wis., Dec. 20, 1904.

D. M. Vosburg, M.D. Years of Practice, Ill., 1877, died at his home in Earlville, Ill., March 5, after a long illness, aged more than 80.

Charles W. Keifer, M.D. College of Physicians and Surgeons, Baltimore, 1877, died at his home in Mechanicsville, N. Y., Dec. 8, 1904.

Ellis A. Robert, M.D. Tulane University of Louisiana, New Orleans, 1871, died February 11, at his home in Hot Springs, Ark.

Frank Barbour King, M.D. Medical College of Ohio, Cincinnati, 1885, died at his home in Windfall, Ind., March 2, aged 49.

Cornelius J. Dumond, M.D. Albany (N. Y.) Medical College, 1865, died at his home in New York City, January 21, aged 68.

Claude Still, M.D. Memphis (Tenn.) Hospital Medical College, 1898, died at his home in Senatobia, Miss., Oct. 24, 1904.

John F. Minot, M.D. Long Island College Hospital, Brooklyn, 1882, died at his home in Boston, Nov. 16, 1904, aged 71.

G. W. Shepherd, M.D. Atlanta (Ga.) Medical College, 1897, died at his home in Apalachicola, Fla., Dec. 1, 1904.

Warren Uri Reynolds, M.D. New York, 1886, of Harlem, New York City, died in a sanitarium, March 4, aged 56.

Robert B. Noe, M.D. Missouri, 1890, died at his home in Thornton, Ind., February 1, from nephritis.

Jay A. Lovett, M.D. Chicago, 1890, died at his home in Carson City, Mich., Dec. 16, 1904, aged 50.

Richard T. Marks, M.D. Ohio, 1880, died recently at his home in Erie, Pa.

Book Notices.

THE SUPPRESSION OF TUBERCULOSIS, Together with Observations Concerning Phthisiogenesis in Man and Animals and Suggestions Concerning the Hygiene of Cow Stables and the Production of Milk for Infant Feeding, with Special Reference to Tuberculosis. By Prof. E. von Behring, University of Marburg. Authorized Translation by Charles Bolduan, M. D. First Edition. First Thousand. Cloth. Pp. 85. Price, $1.00. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1904.

This work is of practical value to dairymen, cattlemen and officers of health boards, and contains much that is interesting and suggestive to physicians and others, who are studying the problems of tuberculosis. It consists of articles previously published in the German medical press, brought together and translated by Charles Bolduan. The author believes that a primary intestinal infection is necessary for the development of consumption in both man and animals, and that this infection occurs in very early infancy, and states that "the milk fed to infants is the chief cause of consumption." He intimates that infection of the very young readily occurs, because the intestinal mucous membrane of the new-born possesses no continuous epithelial covering and is lacking in development of the tubes of the ferment-producing glands. The second article consists of observations concerning the study of phthisiogenesis in man and animals.

AN INTRODUCTION TO PHARMACOGNOSY. By Smith Ely Jelliffe, Ph.D., M.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in the Columbia University (College of Physicians and Surgeons), New York. Fully Illustrated. Cloth. Pp. 265. Price, $2.50 net. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

This book, written to meet the need of students of pharmacognosy, departs, in many particulars, from the works heretofore published in this country. Special emphasis is laid on the microscopic characteristics of blood, though their macroscopic appearance is by no means neglected. Considerable attention is given to drug powders and the chemistry of the various drugs mentioned is touched on. As an introduction to pharmacognosy the book is of practical value, and while written for the student it will be found helpful to the physician who desires to have a good understanding of his materia medica.

MALIGNANT DISEASE OF THE LARYNX (Carcinoma and Sarcoma). By Philip R. W. De Santi, F.R.C.S., Surgeon to the Throat, Nose and Ear Departments, Westminster Hospital. Cloth. Pp. 104. Price, $1.50. New York: Wm. Wood & Co. 1905.

This is a small book devoted to a consideration of carcinoma and sarcoma as found in the larynx. It contains very much that is of statistical value. The various methods of operative treatment are described and discussed. The advantages of thyrotomy as practiced in England are fully shown. The book is simple and well written and contains a large fund of valuable information, but does not contain much that is original.

Miscellany.

MISSOURI DECISION AGAINST OSTEOPATHS.

Full Text of the Supreme Court Ruling in Suit for Damages for Treating Hip Disease as Partial Dislocation.

In the Supreme Court of Missouri.
Division No. 1, October Term, 1904.
No. 11651.

Goldie O. Grainger, by her guardian, *Appellant,* vs. Charles E. Still, *Respondent.*

This is an action to recover $10,000 damages for malpractice.

At the close of the plaintiff's case the court sustained a demurrer to the evidence, the plaintiff stood on the ruling, the jury returned a verdict for the defendant, and, after proper steps, the plaintiff appealed.

The petition alleges that the plaintiff is a minor, of the age of 7 years; that her father is dead, and that she prosecutes this case by her duly appointed guardian; that prior to September, 1895, she was afflicted with a slight stiffness in her right hip, but it was not sufficient to make her lame or to cause her pain or to materially interfere with her locomotion; that at said date the defendant held himself out as the president of the A. T. Still Infirmary, at Kirksville, in Adair County, and as a practicing osteopathic physician and surgeon, and as competent, qualified and able to treat and reduce fractured, dislocated bones, nerves, muscles and blood vessels, and to treat all such dislocations successfully and to reduce them osteopathically; that on said date the defendant "made an examination of plaintiff's hip and diagnosed her disease and pronounced it a partial dislocation of her right hip joint; that defendant assured plaintiff and her parents at that time that the reduction of said partial dislocation was a matter attended with no danger and readily and easily performed, and that he could reduce said partial dislocation without injury to plaintiff"; that in consideration of the sum of $25 paid to the said infirmary, the defendant "undertook to treat plaintiff for said so-called partial dislocation of her hip; that the defendant represented and stated to plaintiff and her parents that he would treat the muscles and tendons about plaintiff's right hip osteopathically until they were sufficiently relaxed before he could reduce said so-called partial dislocation of plaintiff's said

right hip joint; that defendant from the date aforesaid did manipulate the muscles, tendons and blood vessels about plaintiff's right hip joint until about Nov. 10, 1895, when he determined that the muscles and tendons about plaintiff's right hip were sufficiently relaxed, and he then and there undertook to reduce the so-called partial dislocation of plaintiff's right hip.

"That in attempting to reduce said partial dislocation, so-called, of plaintiff's hip joint, the defendant negligently, carelessly and unskillfully took plaintiff by her right ankle, and with one of his hands and about the knee with the other hand and with force and violence, negligently, unskillfully and carelessly forced plaintiff's right leg upward, toward and against her body with such force and violence, and so negligently, carelessly and unskillfully, that he gave to plaintiff's said right hip joint a complete upward and backward dislocation. Plaintiff states that defendant did not reduce the said so-called partial dislocation of her right hip, but, on the contrary, the defendant so carelessly, negligently and unskillfully treated and managed plaintiff's disease and injury to her right hip that he permanently dislocated the same, and by defendant's careless, negligent and unskillful conduct in treating plaintiff's right hip, not only permanently dislocated the same, but injured, stretched and tore the muscles, nerves, tendons and blood vessels connecting with plaintiff's right hip joint, and as a result of defendant's said negligent, careless and unskillful treatment the plaintiff was thrown into a violent fever, which continued for a long space of time, and she was made sore, sick and to suffer great anguish and pain.

"That as a result of the careless, negligent and unskillful conduct and treatment of plaintiff's disease by defendant, her spine has become curved and her right leg rendered entirely useless and shorter than the other, and is gradually perishing, thereby rendering her maimed and deformed for life, and permanently injured, and her general health greatly impaired. Plaintiff further states that from November, 1895, until April, 1899, at the special instance and request of the defendant, she remained at the city of Kirksville aforesaid, taking osteopathic treatment under the direction of the defendant for her said hip, and until defendant refused longer to treat her and discharged the plaintiff."

The answer denies generally all the allegations of the petition, not expressly admitted, and then admits that the defendant is an osteopath, and that he treated the plaintiff osteopathically, and then alleges that at the time she was so treated she "was afflicted with hip-joint disease and a partial dislocation of the hip joint, all of her right hip as defendant then and now verily believes."

The case made by the plaintiff was this: In September, 1895, the plaintiff was a minor, aged about 3 years and 8 months, and lived with her parents in Plymouth, Ill. She was a strong, fat and healthy child, and had never required the services of a physician, except when teething. Her mother discovered a slight stiffness in her right hip when she stooped to pick up anything from the floor. She examined her hip, but could discover nothing the matter with it, and no soreness or tenderness. She had her examined by the family physician, Dr. McDaniel, and by Dr. Aiken, and they found no soreness or tenderness about the hip, but only a little stiffness when she stooped, and said that there was no dislocation, but were of opinion that she might develop hip disease. Her parents took her to Kirksville, to the defendant's infirmary, for examination. The defendant examined her, and told her mother that she had a partial dislocation of the hip, and that they handled cases of that kind successfully in two weeks, but she had better take a month's treatment. He further told her parents that she did not have hip disease. Her mother told him that her family physician said it might develop into hip disease; that her husband's people were consumptive, and she thought her father's condition might cause hip disease to develop in the child. The defendant examined her husband, but did not make a thorough examination, and said the child seemed hearty and well, and assured her mother that the child did not have hip disease, but that it was simply a dislocation. Thereupon plaintiff's parents took out a treatment card for a month, paying $25 therefor. On the following Monday the plaintiff's treatment by defendant began. It consisted of kneading the hip with the ends of his fingers and "rotating" the limb in the hip joint. The treatment lasted only three or four minutes. The plaintiff manifested no pain from the treatment. She boarded ten or twelve blocks from the infirmary, and walked back and forth every time she went for treatment, and exhibited no trouble or pain in so doing. The treatment was kept up three times a week for a little over a month, and then the defendant told her mother the hip was ready to be put back into place. On the day appointed the plaintiff walked from her boarding house to the infirmary as usual, and was in good condition. The defendant performed the operation, which is described by the mother, as follows: "He took hold of her hip, the end of her hip, with one hand a little above the knee and the other hand about her ankle, kind of brought the limb around and pushed it right up to the body, and that was all there was to it." When taken off of the operating table, she seemed hurt, cried, acted as if she could hardly catch her breath, could not stand up and sank down on the floor. She was taken back to the boarding house in a cab, crying and moaning all the time. She was put to bed, suffered great pain and acted as if she was going into convulsions. The plaintiff's mother sent for the defendant the next day, and he came and said he had put the hip into position, and "that he had given the ligaments an awful stretch"; that she would not be able to walk for several days, and that she was then too sore to be treated further at the time. but that the mother need not worry about her. She had high fever, and would scream with pain if she was touched, but the defendant did nothing then for her. the fever continued, the skin dried up and flaked off like it had been burned, and she had to be carried on a pillow for six weeks. The defendant came to see her four or five times within the next six months thereafter, but gave her no treatment. This was in November, 1895. By direction of "old Dr. Still," the mother then took plaintiff home for two months. Then she returned, and the defendant treated her for about a month, and then turned her over to other operators at the infirmary, who treated her for about four months, when they sent her home for a rest. She returned again in February, 1897, and was treated for seven months by said other operators, and was again sent home for a rest. She remained there, on their advice, for about a year, when, at their direction, she returned to Kirksville. The mother told defendant she did not see any use of their treating her daughter any longer, but he said if she would let him treat her for four months longer he thought he could "restore her limb." He treated her for that time, but she got no better. The mother then asked him how he got her in that shape, and said her father had died, and asked him if he would not help her to take care of the child and educate her, and he said he would not treat her another time unless she paid him for it, which she refused to do.

The child has never been able to walk since; her leg is shrunken, and is about four inches shorter than the other, and she has to use crutches, and she stammers when she tries to talk. She was under the treatment of the defendant or said other operators from September, 1895, to April, 1899.

Other witnesses for the plaintiff also testified to the child's condition before the defendant began to treat her and [illegible], and as defendant's statements to her parents that she did [illegible] hip disease, but was suffering from a partial dislocat[illegible] hip. Ollie Merrill, a witness for the plaintiff, and at whose house she boarded, said that the day after the operation the defendant told her that "he had pushed the limb up into the body and made it go whether it wanted to or not."

Dr. McDaniel testified that he was the family physician at Plymouth, Ill., and had known the plaintiff all her life; that he examined her before the defendant treated her in September, 1895, and found her a healthy, well-grown child; that there was a slight stiffness in her right hip, not sufficient, however, to be discovered in her walk, but when she would stoop over one could discover by her motion there was a slight stiffness in her hip; there was no soreness about her hip; she did not shrink from pressure; that he knew her father was afflicted with tuberculosis and scrofula, and concluded the child might develop hip disease; that he saw her again in April or May, 1896, after the operation, and that "she could not walk a step and could not bear the least pressure on or about her right hip unless she manifested great pain"; that her condition was brought about by some other cause than hip disease.

Dr. Aiken testified to the same effect, except he said that when he examined her before the operation "her right leg was the thickness of her shoe longer than the left."

The plaintiff also called as witnesses Dr. C. B. Clapp of Moberly, Mo.; Dr. G. A. Goben of Kirksville, Mo.; Dr. E. S. Quinn of Kirksville, Mo.; and Dr. E. A. Grimm of Kirksville, Mo. They were all regular physicians and surgeons, and graduates of the allopathic school of medicine, and all practice that system, except Dr. Goben, who is a regular graduate of said school, but who said he belonged to no "pathy," but practiced whatever he found to be most beneficial to the patient without regard to what school or system taught it. They are all physicians of good standing and of long existence, and had treated hip diseases and dislocations of the various bones of the human body.

The defendant objected to the testimony of these witnesses on the ground that they were not competent, because they belong to a different school or system from that to which he belongs, and that his treatment can only be judged by members of his special school or system. The court overruled the objections and permitted the witnesses to testify.

The sum of their testimony is that there is a great difference between hip disease and a dislocation of the hip joint; that any competent physician can easily and correctly diagnose a case of hip disease; that there are three stages of the disease; that hip disease is caused by tuberculosis, and may ensue in the child from consumption or scrofula of the parent; that inflammation or pus forms in the hip joint, which manifests itself by soreness and pain when pressure is applied; that "in the early stages there is a slight stiffness, usually some pain, generally crying out at night in the sleep, contraction of the muscles and pain from inflammation, child or person will start from sleep, and some disturbance in the locomotion"; that it usually reveals itself between the ages of 6 and 12; that there is no such thing as partial dislocation of the hip in the early stages of the disease; that after the bony tissue of the head of the femur or the rim of the acetabulum has become destroyed by inflammation, the head of the femur may slip out, or partially out of the cup-shaped acetabulum, but not before; that from the condition of the plaintiff prior to the operation, they are of the opinion that she was in the first stages of hip disease, but that there was no partial dislocation of the hip; that when a patient is treated while in the first stages, the disease may be arrested; that deaths from hip disease range from 7 to 37 per cent. of the cases; that the proper medical treatment is "as complete immobilization of the parts as possible, with extension or contraction of the limb," so as to prevent friction between the head of the femur and the socket in which it rests; that the purpose of the treatment is to permit the bones to ankylose; that is, the head of the femur and the acetabulum to grow together, and to cause them to grow together straight so that the person may be able to use the leg, notwithstanding it may be stiff at the hip; that the disease usually results in a shortening of the leg, of an average of three or four inches, and that in consequence there is a "compensatory curvature of the spine"; that when a patient has hip disease, it is improper treatment to "rotate" or to move the leg or hip joint; that from their examination of the plaintiff and from the history of the case given in evidence, they were of opinion that she was in the first stages of hip disease and did not have partial dislocation of the hip; that her present condition is not the result of hip disease, but of traumatism; that is, an injury resulting from accident or violence to the hip; that she is unable to walk, and that while the hip disease seems to be arrested, or cured, as it is generally called, her leg is turned out at an angle of 45 degrees, instead of being straight, as it should be.

For the purposes of this case this is a sufficient statement of the facts and of the medical expert testimony.

At the close of the plaintiff's case, the defendant demurred to the evidence. Before the court passed on the demurrer, the plaintiff asked leave to introduce evidence to show that the textbooks used in the American School of Osteopathy are the same as used in the other medical schools in Missouri and other medical institutions, and that the osteopaths have no fixed rule of practice for the treatment of hip disease. The court treated

the offer as proved, and sustained the demurrer to the evidence, the plaintiff saved an exception and appealed.

The case stated in the petition is a diagnosis by the defendant that the plaintiff had partial dislocation of the hip, and not hip disease, treatment by the defendant for partial dislocation, and negligence and unskillfulness in both respects; and the defense is a general denial; an admission that he treated the plaintiff, and an affirmative plea that the plaintiff was afflicted with hip disease and a partial dislocation of the hip.

The plaintiff tried the case on the theory that the defendant's diagnosis was incorrect, and that she had hip disease in its primary stage, and did not have partial dislocation of the hip, and that the defendant treated her for partial dislocation; and that such treatment was improper in view of her having hip disease, and that the defendant's treatment was further negligent because it left the leg turned out at an angle of 45 degrees, instead of straight, as it should have been whether treated for dislocation or hip disease.

The defendant tried the case on the theory, first, that the plaintiff had hip disease and partial dislocation; and second, that she showed no damage because the same results would have ensued from hip disease, and that the treatment for partial dislocation did no injury.

The defendant's chief contention, however, is that he is an osteopath, and that the expert witnesses introduced by the plaintiff belong to different and hostile schools or systems from his, and, therefore, are not competent to give an opinion in the case, but that he must be judged only by the persons of his own school or system, and while the record does not show that the court acted on this theory in sustaining the demurrer to the evidence, counsel seem to agree that this was the chief reason for the ruling.

I.

The contention of the defendant that the plaintiff showed no damage because she had hip disease and the same results would have ensued therefrom, and that the treatment for partial dislocation did no injury, is untenable.

If plaintiff had hip disease, it was in the primary stage. There was no inflammation or pus or sensitiveness to pressure, and hence no dislocation attributable to that disease, for dislocation resulting from hip disease could not occur until the ravages of the disease had destroyed the head of the femur or the rim of the acetabulum to such an extent that the femur would slip out of its socket, and there is nothing in this case which affords any countenance to any such theory of the case.

But whether this was so or not, it needs no expert opinion to show to the common sense of mankind that it could not do hip disease any good to be treated, as the testimony of the lay witnesses shows that the defendant subjected the plaintiff to. A diseased hip could not possibly be benefited by giving the ligaments of the hip "an awful stretch," and forcing the femur into the socket, whether it wanted to go or not, as the lay witnesses say the defendant said he did to the plaintiff's leg. It stands to reason that inflammation is not cured or bettered by irritation or by rotating the parts so suddenly and violently as to result in fever and great soreness. If the plaintiff had hip disease, it was in the first stages, and therefore she stood a better chance of having the disease arrested or cured, by proper treatment, than she would stand after her hip had been subjected to the violent treatment that the defendant subjected it to. It is too plain to admit of argument or serious question, that it does not lie in the defendant's mouth to say that the same results would have ensued from hip disease even if he had not treated her as he did. It could as well be argued that where a patient is improperly treated for a fracture of a limb and gangrene sets in and the patient dies, that the physician is not liable, because the patient had consumption and would have died any way. A patient, however afflicted, is entitled to let nature take its course, and not have even natural consequences precipitated by the improper treatment of the physician, or by an improper diagnosis, and hence the improper treatment applied.

II.

The defendant also pleaded that the plaintiff had both hip disease and partial dislocation of the hip joint.

Of course, it is possible that one may have both hip disease and partial dislocation of the hip joint at the same time, and it is also possible that the dislocation may be the result of the advanced stage of the hip disease or from an accidental cause. But it is perfectly manifest to common sense that if the dislocation was the result of the ravages of the hip disease, which had so destroyed the head of the femur or the rim of the acetabulum so that the femur would slip out of its socket, it could as easily be slipped back again into place without any violence, and that it would be necessary to use some kind of an appliance to keep it in place until the bones ankylosed; and as the defendant did nothing of this kind it must be assumed that he did not intend by his pleading to say that the partial dislocation was the result of the hip disease, but that it was traumatic.

If it was traumatic, it was necessary and proper to reduce the dislocation, whether the patient had hip disease or not, for if it was not done the bones would not grow together straight, and hence the usefulness of the limb would be greatly impaired after the hip disease was arrested or cured. On this assumption, the defendant would not have been guilty of any negligence, for the manner of doing it is not an unusual way of reducing such a dislocation, and, in fact, is in effect the only way of doing so; the only practical difference between the way in which the defendant did so, and the use of the pulleys and of the Jarvis adjuster spoken of in Vanhouser vs. Borghoff, 90 Mo. l. c. 492, is that the defendant used his hands, while the pulleys and the Jarvis adjuster are mechanical appliances. The purpose of both is the same, to-wit, to draw the head of the femur away from the hip socket, so that it will "slip" or "snap" back into place.

But the gravamen of the plaintiff's case is that the defendant was guilty of malpractice, in that he diagnosed her case as a partial dislocation and said she did not have hip disease; and that he treated her for a dislocation when there was no dislocation, and hence no necessity or excuse for such treatment.

In support of her case, the plaintiff introduced lay witnesses who testified to the child's condition before the operation, which condition was such as would appear not to be even a partial dislocation, and to the diagnosis made by the defendant, and his statements and assurances to her parents that she had a partial dislocation and did not have hip disease, and also the testimony of Drs. McDaniel and Aiken, who examined her before the operation, as well as afterward, which testimony was admitted without objection, so far as the record shows, and who said she did not have any dislocation of the hip whatever.

This testimony made out a *prima facie* case, which entitled the plaintiff to go to the jury, and cast on the defendant the necessity of overcoming it, and making out his defense. This results without taking into consideration at all the testimony of the plaintiff's expert medical witnesses, whose testimony the defendant objected to.

III.

The defendant objected to the testimony of Drs. Clapp, Goben, Quinn, and Grim, the medical experts called by the plaintiff, "because it was not shown that they had any knowledge or information as to the method prescribed, taught or practiced by osteopaths for the treatment of hip-joint disease, and because the question as to whether the treatment administered by the defendant was correct or incorrect, must be determined by the rules and methods of osteopaths, and not by the methods or mode of treatment taught and practiced by allopathic physicians." The court overruled the defendant's objection and admitted the testimony, but the court afterward sustained the demurrer to the evidence, and counsel concede that it was for the reason expressed in this objection that the court so ruled, and it must have been for this reason, as there is none other perceivable in the record.

The duty and liability of a physician or surgeon to a patient, and what constitutes malpractice, is thus stated in 22 Am. & Eng. Enc. Law (2d Ed.) p. 789, et seq: "Malpractice is the bad professional treatment of disease, pregnancy or bodily injury, from reprehensible ignorance or carelessness, or with criminal intent.

"A physician, surgeon, dentist or other medical practitioner offering his services to the public as such, impliedly contracts that he posseses and will use in the treatment of his patients a reasonable degree of skill and learning, and that he will exercise reasonable care and exert his best judgment to bring about a good result. A failure to perform this contract renders him liable for injuries caused to the patient thereby.

"The standard by which the degree of care, skill and diligence required of physicians and surgeons is to be determined is not the highest order of qualification obtainable, but is the care, skill and diligence which are ordinarily possessed by the average of the members of the profession in good standing in similar localities, regard being also had to the state of medical science at the time.

"Unless it is so provided by an express contract, the physician or surgeon does not warrant that he will effect a cure or that he will restore the patient to the same condition in which he was before the necessity for the treatment arose, or that the result of the treatment will be successful."

The same work, at page 801, then says: "The law, in the absence of a special statute, does not give exclusive recognition to any particular school or system of medicine, and the question whether or not a practitioner in his treatment of the case exercised the requisite degree of care, skill and diligence is to be tested by the general rules and principles of the particular school of medicine which he follows, not by other schools.

"A school of medicine, to be entitled to recognition under this rule, must have rules and principles of practice for the guidance of all its members, as respects principles, diagnosis and remedies, which each member is supposed to observe in any given case. A class of practitioners who have no fixed principles or formulated rules for the treatment of diseases must be held to the duty of treating patients with the ordinary skill and knowledge of physicians in good standing."

In support of the doctrine of the text the following cases are cited Force vs. Gregory, 63 Conn., 167; Ib. 36 Am. St. Rep. 371; Ib. 22 L. R. A. 343; Bowman vs. Woods, 1 Greene (Iowa), 441; Patten vs. Wiggin, 51 Me., 594; Ib. 81 Am. Dec. 593; Hesse vs. Knipple. 1 Mich. N. P. 109; Martin vs. Courtney, 75 Minn. 255; Ib. 77 N. W. Rep. 813; Corsi vs. Maretzek, 4 E. D. Smith (N. Y.), 1; Williams vs. Poppleton, 3 Oregon 139, and Nelson vs. Harrington 72 Wis. 791; Ib. 7 Am. St. Rep. 900.

A short review of those cases is both pertinent and interesting. Force vs. Gregory, 63 Conn., 167, was a suit for damages for malpractice in treating plaintiff for ophthalmia. The defendant was a homeopathic physician and treated the plaintiff according to the system of that school. There was no question as to the diagnosis of the case. It was simply as to the treatment. The defendant asked the court to instruct the jury, "that treatment by a physician of one particular school is to be tested by the general doctrines of his school, and not by those of other schools." The trial court refused to so instruct, but instead instructed the jury as follows: "In regard to that matter, I will say that the defendant's negligence or want of skill in the treatment of the plaintiff's eye must be determined by all of the evidence in the case, and if the defendant adopted the treatment laid down by one particular school of medicine and the medical testimony offered by plaintiff related to treatment prescribed by a different school, you will weigh the testimony, having regard to any bias or prejudice that might influence the testimony of those who belonged to a different school from that of the defendant. You should also take into consideration the training and education of the defendant for his profession, the experience which he has had, the degree of skill with which he handled the case, all bearing on the question whether the defendant used ordinary care and skill in the treatment of the plaintiff."

The Supreme Court of Connecticut, quoted with approval, the cases of Patten vs. Wiggin, 51 Me., 594, and Bowman vs. Woods, 1 Greene (Iowa), 441, and held that the trial court erred in not instructing as the defendant asked, and instructing as it did, and said that "the jury are not to judge by determining which school, in their own view, is the best," and that the bias and prejudice of one school against the other is the very thing that defendant stood in danger of, and that as it appeared that the homeopathic school prescribed certain rules and principles of practice for the guidance of its members in such cases, and as the defendant belonged to that school, he could only be judged

by the doctrines of his school and not by those of other schools, and accordingly reversed the judgment of the lower court, which was in plaintiff's favor.

Patten vs. Wiggin, 51 Me., 594, was a suit for professional services. The defense was malpractice. The report of the case does not show to what school of medicine the plaintiff belonged, or whether physicians of any other school testified, nor what the disease of the defendant was, nor whether the malpractice consisted of an improper diagnosis or an improper treatment. It simply shows that the defendant claimed that the plaintiff was guilty of malpractice "in the treatment, and such ignorance, and want of skill and judgment on the part of the plaintiff in managing the case, that the patient was more injured than benefited by his treatment."

The trial court instructed the jury in regard to the general duty and liability of a physician, substantially as hereinbefore quoted from the American and English Encyclopedia of Law, and then added: "If the case is such that no physician of ordinary knowledge or skill would doubt or hesitate, and but one course of treatment would, by such professional men, be suggested, then any other course of treatment might be evidence of a want of ordinary knowledge or skill or care and attention, or exercise of his best judgment, and a physician might be held liable, however high his former reputation. If there are distinct and different schools of practice, as allopathic, or old school, homeopathic, Thompsonian, hydropathic or water cure, and a physician of one of these schools is called in, his treatment is to be tested by the general doctrines of his school, and not by those of other schools. It is to be presumed that both parties so understood it. The jury are not to judge by determining which school, in their own mind, is best." The court also instructed the jury "that in cases where authorities differ, or 'doctors disagree,' the competent physician is only bound to exercise his best judgment in determining which course is, on the whole, best."

The Supreme Court said: "The instructions given were in accordance with well-settled principles of law," and affirmed the judgment in favor of the plaintiff.

Bowman vs. Woods, 1 Greene (Iowa), 441, was a suit for damages for malpractice in a case of accouchement, in that the defendant failed to remove the placenta or to relieve the bladder for thirty-six hours after parturition. The plaintiff showed by the testimony of allopathic physicians that such treatment was improper and liable to result in puerperal fever. The defendant then offered to prove that he was a botanical physician, and that according to the botanical system of practice and medicine, it is considered improper to remove the placenta, and that it should be permitted to remain until expelled by the efforts of nature. The trial court excluded the testimony so offered. The Supreme Court held that no particular system of medicine is established or favored by the laws of Iowa, "and as no system is upheld, none is prohibited; that the regular, the botanic, the homeopathic, the hydropathic and other modes of treating diseases are alike unprohibited," and that "a person professing to follow one system or medical treatment can not be expected by his employer to practice another. . . . Therefore, if in this case the defendant below could show that he was employed as a botanic physician, and that he performed the accouchement with ordinary skill and care, in accordance with the system he professed to follow, we should regard it as a legal defense." Accordingly, a judgment in favor of the plaintiff was reversed.

Martin vs. Courtney, 75 Minn. 255, was a suit for malpractice against an allopathic physician and surgeon, in the amputation and subsequent treatment of the plaintiff's husband's toes, which had been crushed by accident. A second amputation was found necessary, and the sole point was whether it should have been of an additional quarter of an inch of the foot or of the whole foot at the ankle. Another allopathic physician testified that the defendant had acted properly. But the plaintiff called a homeopathic physician and asked his opinion as to whether the treatment was proper. On objection being made to this the witness testified that there is a decided difference between the rules and principles of the two schools as respects "the practice of medicine," but not as respects surgery: that there was no difference between the two schools as to the treatment of sepsis connected with surgery, but there was a difference where the sepsis has produced a diseased condition, for then it became a question of disease and not of surgery, and the treatment of the two schools would be entirely different. The defendant offered to prove that the two schools are hostile to each other in their rules of treatment of seps's, even in cases connected with surgery. The trial court excluded the evidence offered by the defendant, and permitted the homeopathic physician to testify. The Supreme Court held this to be error, and that a physician must be judged by the rules and principles of medicine of the school to which he belongs and not by those of any other school, and accordingly reversed a judgment in favor of the plaintiff.

Corsi vs. Maretzek, 4 E. D. Smith (N. Y.), 1, was a suit by an opera singer against the director of the opera for two weeks' salary. The defense was that the plaintiff failed to appear at an entertainment, and that his contract provided that in such event he should forfeit a month's salary unless he was prevented by sickness, which had to be proved by a doctor appointed by the director, and that the director had appointed such doctor, but that the plaintiff did not prove his sickness by him. The defendant proved by an allopathic doctor that he was sick, and claimed that the doctor appointed by the director was a homeopath, and contended that a homeopath was no doctor at all. The plaintiff recovered in the lower court, and the defendant appealed to the Court of Common Pleas of the city and county of New York. The decision of the latter court is quite interesting as a review of the origin and development of the science of medicine, and holds that a homeopath is a doctor, but decision does not throw any light on the case at bar.

Wiliams vs. Poppleton, 3 Oregon 139, was a suit for damages for malpractice in the treatment of plaintiff's fractured ankle. The only point in the case which at all bears on this case is that the court held that, "if the treatment is according to a recognized system of surgery, it is not for the court or jury to undertake to determine whether that system is the best among the many that may be adopted by different branches of the medical profession. It is sufficient if the practitioner follow any of the known and recognized systems."

Hesse vs. Knipple, 1 Mich., N. P. 109, was an action for damages for malpractice. It is a charge to the jury by a *nisi prius* judge, and contains nothing that is pertinent to the question here under discussion.

Nelson vs. Harrington, 72 Wis., 591, was a suit for malpractice. The defendant was a clairvoyant, and claimed to diagnose and treat diseases, by going into a trance, and while in that state to receive information as to the character and proper mode of treating the disease. The court held that allopathic physicians were competent, in such case, to give an opinion as to the correctness of the diagnosis and treatment. The decision also holds, as the rule is hereinbefore stated, that to constitute a school of medicine it must have rules and principles of practice for the guidance of all its members as respects principles, diagnosis and remedies, which each member is supposed to observe. That case is cited and quoted from approvingly by Burgess, J., in Longan vs. Weltmar, 79 S. W. Rep., I. C. 658, to which reference will hereafter be made.

This is the state of adjudication in other jurisdictions. It is to the credit of the gentlemen of the medical profession in this state that very few cases of this character have heretofore reached this court. The first case reported is West vs. Martin, 31 Mo., 375. It was a suit for damages for malpractice. This court, per Ewing, J., said: "Whether errors of judgment will or will not make a surgeon liable in a given case depends not merely on the fact that he may be ordinarily skillful as such, but whether he has treated the case skillfully or has exercised in its ordinary treatment such reasonable skill and diligence as is ordinarily exercised in his profession. For there may be responsibility where there is no neglect, if the error of judgment be so gross as to be inconsistent with the use of that degree of skill that it is the duty of every surgeon to bring to the treatment of a case according to the standard indicated." That case did not involve the question now under consideration.

Vanhouser vs. Berghoff, 90 Mo., 487, was a suit for damages for malpractice in not using proper appliances to hold the limb in place after a dislocation of the hip had been reduced. Prior to the treatment by the defendant the plaintiff had been treated by other doctors, of the same school of medicine with the defendant, who had tried to reduce the dislocation by "manipulation," and had failed. The defendant also tried to reduce it by "manipulation" and failed, and then he used pulleys and the Jarvis adjuster to extend the limb so as to permit the head of the femur to "snap" into the socket. There was no question about the diagnosis being correct, nor as to the use of the pulley and Jarvis adjuster, but the whole question was as to whether the defendant used proper appliances to keep it in place. It slipped out of place after the first operation, and a second operation was necessary. There was no question as to the different schools of medicine, as all the experts belonged to the same school of medicine with the defendant.

Wheeler vs. Bowles, 163 Mo., 398, was an action for malpractice in reducing a dislocation of the shoulder. The instructions given stated the general rule as to the duty and liability of physicians and surgeons, which this court quoted and approved. The case did not involve any difference of schools of medicine, as the experts all belonged to the same school with defendant.

Longan vs. Weltmar, 79 S. W. Rep., 655, was a suit for damages for malpractice. The defendant claimed to be a "magnetic healer," who healed by a power which he alone possessed. He did not belong to any school of medicine. He objected to the competency of physicians of the allopathic school. He treated the plaintiff for some derangement of the stomach, by placing the plaintiff on her back on a padded table, and then put one hand on her stomach and the other hand under her knees, and bent her so that her knees touched her breast. He then placed her on her stomach on the padded table and put his left hand on the small of her back over her spine, and his right under her knees and bent her legs up until she screamed with pain. This treatment resulted in the ligaments connecting the backbone and hipbone being ruptured and torn and the back and spine and pelvic organs being permanently injured.

This court quoted approvingly the decision of the Supreme Court of Wisconsin, in Nelson vs. Harrington, 75 Wis., 591, and in speaking of the medical expert testimony said: "While it is true that the physicians who testified on the part of the plaintiff did not claim or pretend to know anything about the practice of magnetic healing, they were nevertheless competent, from education and experience, to testify whether the treatment which plaintiff underwent was proper in any case, and especially in her condition. Simply because a person claims or pretends to possess certain powers of healing peculiar to himself is no reason why other persons, who do not claim such powers, but who have knowledge acquired from education and practice, are not competent to judge whether the treatment administered was negligently or carelessly done. Otherwise, any non-professional person might undertake to treat a certain disorder, and (if defendant's position be correct in law) it mattering not how carelessly or negligently his acts were performed, because, forsooth, no one could be found of the same pretensions to testify with respect to such treatment, the injured person would be without remedy. The contention, we think, is untenable."

From the foregoing it will be seen that while the prior decisions of this court state the general rules as to the liability and duties of physicians and surgeons, substantially as they obtain in other jurisdictions, the precise question here involved has not undergone adjudications by this court. The case is, therefore, one of the first impression in this state, and its importance is a sufficient excuse for the length of this opinion.

At the outset of the discussion it is important and essential to note the provisions of the statutes of this state which bear on the question.

Chapter 128, R. S., 1899, relates to medicine, surgery and dentistry. Article 1 of that chapter (Sec. 8507) provides: "Every person practicing medicine and surgery, in any of their departments, shall possess the qualifications required by this article." In brief, the qualifications are that the person shall be a graduate of some legally chartered medical institution in good standing, of whatever school of medicine, and the person exhibiting the same shall be licensed to practice by the State Board of Health, which board is prohibited from discriminating against the holders of any diploma or license under any system or school of medicine.

If not such a graduate, the person must stand an examination before the said board.

Article LV of said chapter relates to osteopathy. Section 8537 prescribes that "the system, method or science of treating diseases of the human body, commonly known as osteopathy, and as taught and practiced by the American School of Osteopathy of Kirksville, Mo., is hereby declared not to be the practice of medicine and surgery within the meaning of Article I of this chapter, and not subject to the provisions of said article."

Section 8538 of said Article IV is as follows: "Any person having a diploma regularly issued by the American School of Osteopathy of Kirksville, Mo., or any other legally chartered and regularly conducted school of osteopathy, who shall have been in personal attendance as a student in such school for at least four terms of not less than five months each before graduation, shall be authorized to treat diseases of the human body according to such system, after having filed such diploma with the clerk of the county court of the county in which such person proposes to practice; and having filed with such clerk an affidavit that the diploma is genuine, and that he or she is the person to whom the diploma was issued and that all the provisions of the article were fully complied with before the issuing of such diploma; whereon the clerk shall record such diploma in a book to be provided by him for that purpose, and shall endorse on such diploma the date of filing and recording the same, for which he shall receive from such person a fee of one dollar."

Section 8539 of said article makes it a misdemeanor for any person to practice or use the system, method or science or osteopathy in treating diseases of the human body without having complied with said article. But said section concludes as follows: "*Provided*, That nothing of this article shall be construed as prohibiting any legally authorized practitioner of medicine or surgery in this state from curing or relieving disease, with or without drugs, or by any manipulation by which any disease may be cured or alleviated."

It will thus be observed that the position of osteopaths in this state is not only anomalous, but that it is *sui generis*. Anomalous because while it is spoken of as a system, method or science, it is yet declared not to be the practice of medicine and surgery in any of its departments. And *sui generis*, because osteopaths are not subjected to the jurisdiction of the State Board of Health, as all other practitioners of medicine and surgery in any of its departments are. Yet any legally authorized practitioner of medicine and surgery is expressly permitted to cure or to relieve diseases, with or without drugs or by any manipulation by which any disease may be cured or alleviated.

In other words, osteopaths are not physicians or surgeons in any of the departments of medicine or surgery, but may cure or relieve any disease of the human body according to the system, method or science as taught by the American School of Osteopathy of Kirksville, Mo., or any other legally chartered and regularly conducted school of osteopathy.

Neither the statute nor the record in this case shows what such system, method or science is. The plaintiff offered to prove that they use the same text-books as other schools of medicine, and also that they have no fixed rule of practice for the treatment of hip-joint disease, and for the purpose of the case the trial court ruled that such facts might be considered as proved.

On their face these two things seem to be inconsistent, for if osteopaths teach the same text-books as other schools of medicine and surgery, it can not be true that they have no fixed rule of practice for the treatment of hip disease, because such text-books of other schools of medicine and surgery prescribe rules for the treatment of hip-joint disease, as the testimony in this case clearly shows.

If it be true that osteopaths teach the same text-books as other schools of medicine, then there can be no reason why a physician of any other school is not a competent witness to express an opinion as to the correctness of the diagnosis and treatment of hip disease by an osteopath, because *pro hac vice* the rules and practices of both are the same.

On the other hand, if osteopaths have no fixed rule of practice for the treatment of hip disease, which all must adhere to, then they do not constitute a school of medicine and fall in the category spoken of in Nelson vs. Harrington, 75 Wis., 591, and Longan vs. Weltmar, 79 S. W. Rep., 655, and regular practitioners of medicine and surgery are competent witnesses, and it may be safely assumed that osteopaths would not willingly be so classed, nor is it fair to so class them without more satisfactory evidence than is disclosed by this record.

It is said that allopaths are "antis" and homeopaths are "similias," but that osteopaths are neither. This may be true, but the terms relate rather to the treatment or remedies employed to cure disease than to the diagnosis of the disease. The disease is the same no matter which school of medicine the attending physician belongs to. And, judging by the examination of the witnesses in this case and by the theories on which both parties tried this case, hip disease is ascribed to the same causes, and the diagnosis of the case is the same, by both osteopaths and physicians and surgeons of every other school of medicine. They may differ as to the proper treatment of the disease after its presence is ascertained, but there is no difference as to diagnosis. And the same is true as to dislocations.

This being so, there is no sound reason why a physician of any school should not be a competent witness to testify whether a patient has hip disease, dislocation or as to any diagnosis of any disease. The bias or prejudice of one school of medicine against another can not affect the question of the diagnosis, however much it might affect the treatment employed by the other school.

At least this is the common sense of the matter, and is the only conclusion that is fairly deducible from the testimony in this case and from the theories on which both parties tried this case, and from the offer of proof made and treated as proved at the close of the plaintiff's case.

It therefore follows that the expert medical witnesses offered by the plaintiff were competent to express an opinion as to the diagnosis that was made by the defendant of the plaintiff's trouble, as related by the law witnesses, to-wit, that she had partial dislocation of the hip joint and did not have hip disease, and also competent to testify as to any scientific fact that is or ought to be known to every physician and surgeon of every school or system, but they were not competent to express an opinion as to the treatment of the plaintiff by the defendant unless it should appear that both the schools to which the witnesses and the defendant belonged employed the same treatment.

This seems the safest rule to adopt in such cases and the one least liable to cause injury or injustice to either party. It must be borne in mind, however, that only the plaintiff's side of this case is before the court, and that the defendant has not shown his side of it, except as his cross-examination of the plaintiff's witnesses indicates it.

For these reasons the judgment of the Circuit Court is reversed and the cause remanded to be tried in accordance herewith. All concur.

W. C. Marshall, Judge.

PROPRIETARY REMEDIES.

Some Comments on the Creation of the Council on Pharmacy and Chemistry.

We quote the following from some of our exchanges:

The *Boston Medical and Surgical Journal* says: "A movement which should be most valuable in its results has been started by the American Medical Association. . . . The plan outlined must meet with the general approval not only of the medical profession, but also of manufacturing pharmacists and chemists who are striving to live up to their professions in serving the public. It has long been evident that many preparations of distinct value in medical practice are now on the market and are being extensively used by reputable physicians, which, for obvious reasons, have found no place in the Pharmacopeia. It is also true that many preparations are before the public which, for one or another reason, do not deserve confidence. There should certainly be some authoritative board which will decide, so far as possible, the question of the legitimacy of preparations, a matter which is clearly quite beyond the power of the individual physician to determine. That the work before the council will demand much tact and judgment is evident. For this very reason it is the more needed. . . . The names of . . . many . . . members of the council insure a conscientious and scientific investigation of the claims of the various medicinal productions. Beyond the inherent difficulties of the task which this council has undertaken we can conceive of no possible objection to the plan, and on the other hand can see in it a very distinct advantage to the profession at large."

American Medicine says: "It . . . must interest every medical journal and, indeed, every physician in the United States. The Journal of the Association, with its immense resources, as well as by its function as the official organ of the largest medical organization, is fitted for and is capable of undertaking the task which, by reason of those same qualifications, becomes in a way its duty. . . . The need of a book of this character can not be questioned. It is demanded in the interest of honest pharmacy and chemistry, but, above all, by physicians who need a work to which to refer for information regarding the character, reliability, etc., of the various preparations mentioned in medical literature, and brought to their attention in various ways, as well as to assist them in separating the secret nostrums from preparations which are honestly made and ethically exploited, and which are worthy of their recognition. One of the points chiefly to be commended as to the plan is that it encourages the ethical preparations in an indirect but still positive manner, while its disapproval of the unethical is purely negative. It simply does not accept. With the decisions of the council motived on strictly professional considerations, the way is at least prepared for a final solution of the old and tormenting problem of the stand as to nostrums and proprietaries. Therapeutics does not enter into the concern of the council, so that there will still remain a part, though we believe a small part, of the ancient difficulty—that with the secret remedy which may have some special therapeutic value. The limitation of the time in which a copyrighted name and secret formula may be legally allowed will lessen this somewhat remote scandal."

The *New York Medical Journal* remarks: "The ten rules which have been formulated for the guidance of the council, . . . in so far as any rule can be formulated for the distinction of objectionable from non-objectionable preparations, seem to us to be quite satisfactory. The composition of the council is one which gives assurance of really expert and sane

advice; but even with the best intention and with the most expert administration, the establishment of such a censorship is likely to prove a source of serious contention, and will undoubtedly involve the association in trouble of a kind that it has been heretofore free from."

Protracted Menstruation.—Gelli of Florence, Italy, reports in the *Bolletino di Ost. e Gin.*, a case of apparently normal menstruation continued to the age of 76. The subject was a robust working woman, and the physician, summoned for an acute liver colic, found that the uterus contained a fibroma the size of a fist.

Ovarian Tumors During Pregnancy.—G. Guicciardi, of Florence, reports in *Ginecologia*, I, No. 9, 1904, eight cases of ovarian tumors removed during pregnancy or labor. The results confirm the great advantages of prompt operation in such cases, preferably during the second to the fourth month, avoiding merely the dates of the suppressed menses.

Rupia.—Syphiloderma bullosa is characterized by circinate coalescent groups of blebs, breaking in a day or so; coppery discoloration and thick, brown-green, adherent, imbricated "oystershell" crusts over irregular ulcers, occurring in the late stage of acquired syphilis in broken-down subjects or in early hereditary syphilis. The main point in treatment is to push the iodids—large doses in plenty of water after meals.—*Denver Medical Times.*

Cancerous Degeneration of Stump After Amputation of Cervix.—E. Pestalozza of Florence, adds 5 to the 14 cases collected by Richelot in which an epithelioma had developed on the stump of the cervix after partial hysterectomy. The list includes 3 personally observed. He states editorially in *Ginecologia*, I, No. 21, 1904, that the Italians now make a practice of the total operation—other things being equal—when there is any family history indicating a tendency to malignant neoplasms. Otherwise the incomplete operation is preferred.

The responsibility for the quack medicine abuse lies very largely with the druggist. Until physicians recognize the absurdity of sending prescriptions to druggists who are systematically engaged in cutting the doctors' throats through the sale of quack medicines, and take some concerted action to end that abuse, people of even average ordinary abilities will continue to go to drug stores and buy fake cures for self-administration. There may be an excuse for the country grocery store offering for sale the cough cures which are advertised along the highways, but the pharmacist who compounds the doctor's prescription should see the propriety of not working against the doctor's interest.—*Monthly Cyclopedia of Pract. Med.*

Passive Palpation of the Stomach.—Giuffré of Naples has recenty called attention in the *Morgagni*, July, 1904, to a means of outlining the stomach which may be of service when other means of diagnosis are not available or need confirmation. The subject reclines or, better still, lies with the head a little lower than the rest of the body, after drinking a little water, not more than 100 gm. The physician places his hand on the stomach region and asks the subject to stop breathing, during a deep inspiration, and to contract his diaphragm or the abdominal muscles alternately. This forces the water in the stomach forward or backward, and the passively palpating hand can readily perceive the impact of the water and can note the point where it stops, which is the outline of the stomach.

The Value of Medical Training.—Sir Conan Doyle, who studied and practiced medicine before he made literary work his vocation, states there was a time when a course in law was a part of the routine education of many young men who were planning to enter special fields of work. He says: "I believe the time will come when the similar young man will be passed through medicine, because I know no other means by which he could get to the fundamental and absolute facts of life. The mere fact that in his training a man has to undergo so searching an ordeal in the most critical years of his life, and to pay such enormous attention to detail, is in itself evidence that he receives a splendid training. I have always said that for a man who has mastered 'Gray's Anatomy' life has no future terrors."

The Probability of Error.—An interesting computation of the possibility of error was brought out by Branwell in the *Medical Chronicle.* He calculated that the numerical odds against the probability of a certain will being made without proper understanding on the part of the patient were 1,072,000,000 to 1. A woman aged 75, suffering from aphasia and right side hemiplegia, made a will by nodding her head and squeezing the hand of the lawyer in reply to questions. Five names of persons were mentioned three different times, the order of the names being reversed and altered. The woman specified the same beneficiaries in each test, and by taking into consideration the possibility of computing the chance of her giving no answer or the wrong answer, etc., Branwell concluded that the odds against her having given the same answers in the three tests by pure chance were 1,072,000,000 to 1.

Newspaper Comment as a Professional Stimulus.—We read that in a certain town in Illinois a discussion has arisen regarding the mention in newspaper reports of the name of the attending physician of an accident case. One physician is quoted as saying that the statement in a newspaper of the name of the surgeon involved "would spur him on to greater efforts to secure the complete recovery of his patient." We always hesitate to comment on newspaper quotations of the alleged statements of physicians; but if any member of our profession made the foregoing remark he should instantly matriculate into some profession or business where the lack of journalistic comment, which is so stimulating to him, would not necessarily imperil the lives of others. The remarks exhibit a mental attitude that we can not harmonize with our concept of any physician, however unfit.—*N. Y. Med. Jour.*

An Increase of Medical Students.—The question may be pertinently asked if organized medicine under the leadership of the American Medical Association should not discourage prospective students from entering the medical field. Even if no recommendation is made, would it not be well for the authoritative medical body to tell prospective medical students that there is practically no demand for their services, that the field is already overcrowded, and that the prospect of obtaining a livelihood by the legitimate practice of medicine is becoming poorer every year and in a short time will reach the vanishing point? This step has been taken in Germany, a pamphlet having been issued for the purpose of persuading those who are about to come up for their final examination in the high school to avoid a medical career. Since 1876 the number of physicians in Germany has more than doubled, and it has become almost impossible for many of them to make even a simple living from the practice of their profession.—*Medicine.*

Lucid Brevity.—In his inaugural address the new president of the Academy of Medicine used the words "lucid brevity" as describing the characteristics he particularly wished to see in the communications laid before that body. "Never," writes an ex-president of the academy "were two words more aptly put together. Would that they might be woven into the web of all medical discourse, and water-marked on every page of medical writing! Verbosity is the plague of scientific discussion. It may arise from inability to think clearly, but quite as often it results from inability of the speaker or writer to lose himself in his subject. Certain tricks of verbiage find their usefulness in making and keeping the author's personality as vivid to the listener or to the reader as it is to himself. Let us hope that Dr. Dana, as presiding officer, will have the hardihood to make such use of the gavel, in extreme cases, as will secure a measure of brevity whether 'lucid' or not. If he does this, he will add greatly to the interest of the proceedings."—*Medical Record.*

Eat to Live, or Live to Eat?—Man should live one hundred years, barring hereditary frailties, said Dr. J. J. Mulheron,

Detroit, before a lay audience. The life of a lower animal is five times as long as its period of growth. For instance, the horse attains his full growth in four years and lives twenty years; the elephant in twenty years and lives one hundred years. Overeating is one of the chief causes of early death. A person who has attained the age of twenty five years should not indulge in three full meals a day. "The human body normally starts out freighted for one hundred years, and it is man's own violation of the laws of nature that causes premature death. I do not believe that disease is ordained of God. When man learns to obey nature, then he will pass away at the end of his century like the famous one-horse shay. The Roman Catholic Church prescribes rules of fasting during lent. It allows one full meal and two light repasts each day. That the hygiene is excellent is beyond dispute, and the only quarrel we physicians have about the matter is, that the rule affects but one church, and that for only six weeks in the year.

Reflex Paresis Originating in Ear.—A. Pugnat of Geneva describes, in the *Revue Hebd. de Laryngologie*, xxv, No. 49, 1904, a case of otitis distinguished by disturbances in speech and writing. Reflex paralysis and paresis of the limbs in cases of ear affections have been reported by Urbantschitsch this year and last. These disturbances are liable to accompany any ear affection, but especially otitis media, and generally on the side affected. They may subside early or may persist indefinitely, and the intensity of the paralysis and paresis is by no means always commensurate with the severity of the ear trouble, some instances of severe paralysis having been observed with a slight catarrhal affection of the middle ear. Tamponing of the middle ear has been known to affect the writing, some subjects not being able to write at all immediately afterward. The reflex paresis in the laryngeal muscles causes phonetic disturbances. In the case described all these troubles were associated, accompanying an acute catarrhal otitis. The subject was a young woman, the otitis following the grip. The auricular origin was manifest and confirmed by the subsidence under treatment of the ear affection, of the paretic symptoms and of the modifications in voice, handwriting and other uses of the hand.

Feeding at the Public Crib.—"The annual raid on the public treasury by the private charitable institutions of Pennsylvania is now in progress," says the editor of *American Medicine*. "Would the 'visitor from Mars' believe when told that nearly 200 of these institutions have applied for their share of the $15,000,000 of the taxpayers' money, and that 175 of them have had their prayer granted by the State Board of Charities, which recommends that nearly $10,000,000 be parceled out among them? As regards those few institutions owned and controlled by the state, there is of course no question, but as to the others there is little or no genuine government control and no just or judicial discrimination as to service rendered or real desert. What part private and personal interest indirectly plays in all this, and what portion is motived by corrupt greed and 'division of the spoils' by a boss-governed and ring-ruled travesty of 'statesmanship,' none may hazard an exact estimate. Many of the most deserving charities, and those performing the highest and best service to the community, can not bring themselves to apply, and would probably be refused if they should do so. Many others are ruled by the consideration that if they do not put in their applications the money will go to far less worthy institutions, and so each year the mad race goes on from bad to worse. And the mouths of thousands of institutional trustees and administrators are padlocked as regards the political rottenness of city and state legislation and government. The appropriation to their institutions would at once be stopped by the 'machine' should a hint of criticism or reform be ventured."

The Bitter Tonics and Strychnin.—It has been found that the older theory as to the action of bitter tonics is not reliable. In cases of hyperchlorhydria, it is true, they are likely to do harm by stimulating the secretion of still more acid, in accordance with theory. But, in cases of subacidity, in which their hypothetic stimulating action is just what is desired, it has been learned that they can not be depended on. When we consider, in addition, that the decision as to excess or deficiency of hydrochloric acid according to the symptoms presented and without scientific examination, is likely to be in error, it will be seen that the therapeutic effect of the simple bitters, as ordinarily prescribed, is a very uncertain one. For some years we have relied almost exclusively on strychnin to stimulate the secretory and motor power of the stomach, although it must not be supposed that this drug is entirely satisfactory or capable of replacing other more local measures. A very puzzling group of cases is that in which, with relaxation of the cardia and without the presence of a sacculated or prolapsed stomach, the food does not pass out of the stomach at the proper time. Here we must ask—and often without being able to answer our question—is the delay due to spasm of the pylorus or asthenia of the gastric muscle generally? In another group of cases, with weak circulation and general depression of strength, there is spasm of the pylorus or cardia, or of the whole gastric musculature. In these cases it is difficult to balance the apparent indication for and contraindication toward strychnin, and we must have recourse to empiricism.—*Medical Herald.*

The Real Problem of Science.—*Public Opinion* remarks, "The grouping of facts is one thing, but generalization from the facts splendidly complements the work of observation. But the work of observation and the work of generalization are disparate. The perplexing situation is directly brought out in the year-book of the Carnegie Institution, which contains, among other recommendations, one by Dr. Simon Newcomb that an institute be established for the promotion of 'research in the exact sciences' by more exact and economical methods than are at present possible. It is something of a shock to the layman to find in the letters that certain eminent scientists have written in regard to Dr. Newcomb's plan, frank admissions of the inaccuracy and irrelevancy of much scientific investigation. The weeding out of the irrelevant and the correction of the inaccurate is a work concerning the satisfactory accomplishment of which some of the eminent critics are very dubious. Prof. Karl Pearson especially points out the difficulties of generalizing from the facts gathered by routine investigators. At the same time the wide-viewed generalizer can too seldom be depended on as a safe assembler of facts. This condition creates the real problem of science—which is not merely how to gather facts, but how to make them useful."

Medical Corruption.—We have to deal with graft in the medical profession and let us see to it that it is even more energetically dealt with than is being done with graft in public life. The surgeons and specialists in high places who indulge in graft by offering other physicians bribes in the form of commissions for patients sent to them, as well as physicians who accept these bribes, should be exposed and denounced by the honest men of the profession. The grafters who write high sounding but meaningless praises of secret nostrums, the manufacturers of which promise returns, are also deserving of our serious attention. The man who advertises his operations and practice by newspaper interviews on the faintest pretext or on no pretext at all, is guilty of graft, and no effort should be spared to show him the evil of his ways, or to expose him. The medical hypocrite whose religion may be covered by a postage stamp but whose character is still smaller than his religion, exercises graft when he works the church for practice to the disadvantage of his more scrupulous and less grafty brother. The cheap medical college whose only excuse for existence is the advertisement of its faculty, and which has nothing of value to offer to the student but the promise of an easy and shortened course, and farcical examinations, is one of the most pernicious forms of medical graft and one which the profession should discourage at every opportunity. The red-light-machine-made specialist who surrounds himself with senseless but gaudy and impressive machinery for the purpose of catching the support of the unwary general practitioner

and impressing the public, is indulging in a species of graft which has made many of this class successful business men but poor physicians. Most of us recognize graft when we see it, particularly medical graft. Let us carefully label it as opportunity arises and assign it to its proper place, i. e., beyond the pale of professional countenance—in the realm of quackery and charlatanism.—*Wisconsin Medical Recorder.*

State Boards of Registration.

COMING EXAMINATIONS.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Central District Board of Medical Examiners for the Indian Territory, South McAlester, April 3, 1905. Secretary, B. W. Caldwell, M.D., Hugo.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Illinois January Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, Jan. 19-21, 1905. The number of subjects examined in was 19; total number of questions asked was 100; percentage required to pass, 75. The total number of persons examined was 45, of whom 34 passed, 5 failed, and certificates of 6 were held pending presentation of diploma. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
American College of Medicine and Surgery, Chicago	(1904)	90
American Med. Miss. Coll., Chicago	(1901) 82, (1904)	84
Barnes Med. Coll., St. Louis	(1904)	79
College of P. and S., Boston	(1901)	77
College of P. and S., Chicago	(1903) 78, 83; (1904)	87, 94
College of P. and S., Minneapolis	(1902)	79
Detroit Coll. of Med	(1897)	80
Harvard University	(1901) 84, (1903)	84
Hering Med. Coll., Chicago	(1904)	79
Illinois Med. Coll	(1904) 86, (1905)	81
Marion Sims-Beaumont	(1904)	75
McGill University, Montreal	(1903)	88, 95
Medical College of Indiana	(1904)	82
Northwestern University	(1904)	87, 90
National Med. Univ., Chicago	(1903) 77, (1904)	76
Rush Med. Coll.,	(1901) 83, (1904) 90, 87, 87, 82, 86, 92,	87, 89
University of Toronto	(1904)	83
FAILED.		
Coll. of Med. and Surg., Chicago	(1905)	75
College of P. and S., St. Louis	(1904)	52
Jenner Med. Coll., Chicago	(1904)	56
College of P. and S., Keokuk	(1900)	63
University of Wooster, Cleveland	(1882)	72

Washington January Report.—Dr. C. W. Sharples, secretary of the Washington State Medical Examining Board, reports the written examination held at Spokane, January 3-5, 1905. The number of subjects examined in was 16; number of questions asked, 130; percentage required to pass, 75; for graduates of ten years' standing, 70. The total number of persons examined was 81, 64 of whom passed and 17 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
College of P. & S., Baltimore	(1896)	88.9
University of Tennessee	(1889)	70
Jefferson Med. Coll	(1902) 80.5, (1904)	79.8
University of Virginia	(1903)	85.6
Sioux City Med. Coll	(1903)	82.4
Eclectic Med. Institute (Kentucky)	(1900)	77.3
Edinburgh University	(1876) 73.2 (1903)	83.6
University of Pennsylvania	(1903) 90.35, 85.3,	82.2
University Med. Coll., Kansas City	(1903)	77.4
Harvard University	(1893) 79, (1902)	89.5
Buffalo University	(1900)	80.4
Ohio Medical University	(1903)	87.2
University of Iowa	(1903)	78.0
Baltimore Med. Coll	(1903)	75
Coll. of P. and S., Keokuk	(1899)	81.9
University of Michigan	(1891) 87.2, (1895) 86.7, 75.3, (1896) (1898) 90.5, (1899) 82.7, 90.3, (1902) 84.5, (1903) 87.2, (1904) 87.2.	87.5, 82.6,
Rush Medical College	(1890)	76
Paris	(1877) 75, (1900)	76.4
College of P. & S., Cleveland	(1902)	83
Tufts College Med. School	(1902)	79
Cooper Med. Coll	(1904) 77,81,	90.2
University of Leipzig	(1887)	78
Univ. and Bellevue Hosp. Med. Coll	(1904)	87
Washington University, St. Louis	(1902)	80.9
College of P. & S., San Francisco	(1901) 71, (1902) 84.7, (1904) 84.5	
University of Minnesota	(1897) 80.3, (1900) 76.4, (1902) (1903) 85	83.4,
College of P. & S., Chicago	(1893) 81, (1902) 76.5, (1903) (1904) 75.3, 77.6, 77.7.	84,
Northwestern University	(1901) 90.5, (1903)	78.4
Northwestern Univ. Woman's Med. Coll.	(1895) 71.2, (1897)	76.4
National University	(1903) 77,	86.9
University of Vermont	(1904)	87.5
Columbia University	(1902)	86
University of Toronto	(1904)	82.3
FAILED.		
College of P. & S., St. Louis	(1892)	57.1
Ensworth Medical College	(1904)	70.7
Louisville Medical College	(1904)	58
Kansas City Medical College	(1898)	65.5
California Medical College	(1902)	71
Detroit College of Medicine	(1898)	60.7
Rush Medical College	(1890)	68
University of Michigan	(1879) 62, (1883)	66.4
Chattanooga Medical College	(1904)	71.6
Physio-Medical Coll. of Indiana	(1893)	64.4
Kentucky School of Medicine	(1882) 39, (1903)	73.5
Maryland Medical College	(1904)	64
Bennett Medical College	(1893)	68
Northwestern University	(1899)	74
University of Iowa	(1880)	59.1

The following questions were asked:

MEDICAL JURISPRUDENCE.

1. In the absence of a magistrate, how would you obtain a dying declaration that would be admissible in court? 2. How would you differentiate between a homicidal and a suicidal death? 3. How would you determine whether or not death was due to the inhalation of illuminating gas? 4. In a robust subject when death is due to violence, how long after death does rigor mortis appear? Give its duration. Give the regular order of its onset and disappearance. 5. How would you determine the identity of a body?

DISEASES OF CHILDREN.

1. Give etiology, symptoms, prognosis and treatment of infantile scorbutus. 2. Diagnose a case of simple acute adenitis and give treatment. 3. Give general directions for the care and treatment of cholera infantum. 4. Give symptoms, prognosis and treatment of thrush. 5. Give general directions for a nurse to follow in a case of scarlet fever. 6. Describe chorea and give treatment for same. 7. Give sequelæ of scarlet fever, measles and diphtheria. 8. Give symptoms, course and duration of capillary bronchitis and give the appropriate treatment for same. 9. Give symptoms, diagnosis and prognosis of cerebrospinal meningitis. 10. Differentiate the eruption of scarlet fever and measles.

OBSTETRICS.

1. Give general hygiene and management of pregnancy. 2. Give the management of normal labor. 3. Discuss nephritis as a complication of pregnancy. 4. Give the management of a breech presentation. What are the dangers to the mother and child? 5. In a face presentation, mento-posterior position, give the mechanism of delivery. 6. Give the management of placenta previa. 7. Give the dangers and treatment of a prolapsus of the cord. 8. Give the causes and treatment of postpartum hemorrhage. 9. Give the causes and treatment of puerperal infection. 10. Give the causes and treatment of mastitis.

PREVENTIVE MEDICINES.

1. During an epidemic of enteric fever, what prophylactic rules would you give your patients? 2. Describe in detail your prophylactic treatment and management of diphtheria occurring in a family where there are several children. How long should such measures be continued? 3. Describe municipal quarantine of a seaport city. 4. What gas is most used in disinfecting a room? Give one method in detail. 5. To what extent should quarantine and other prophylactic measures be carried in tuberculosis?

DISEASES OF WOMEN.

1. Enumerate the various disorders of menstruation. 2. Give the various malpositions of the uterus and your treatment of a retroflexion. 3. Name the more common diseases of the body of the uterus and give your method of treatment for subinvolution. 4. Give the signs, symptoms and diagnosis of ectopic gestation. When would you operate? Why? 5. Name the more common diseases of the ovaries. 6. Give the differential diagnosis between chronic oöphoritis and appendicitis. 7. Give the technic of abdominal hysterectomy. 8. What are the advantages of the vaginal route for entering the abdomen? What are its dangers? 9. Name the diseases of the fallopian tubes. Give the treatment of salpingitis. Give the technic for an operation for pyosalpinx. 10. Briefly describe an operation for complete laceration of the perineum.

HISTOLOGY.

1. Give the histologic difference between voluntary and involuntary muscular fibers. 2. Name the structures, in their order, seen in a cross-section of the septum of the air vesicles. 3. What is the general shape of the cells in the gray matter of the cerebrum? 4. Describe the heart muscle. 5. Describe a uriniferous tubule. 6. Describe a cross-section of a lymph gland. 7. Name the different kinds of epithelial cells found in the stomach. 8. Describe a solitary gland. 9. With what kind of epithelium are the serous membranes lined? 10. How does the wall of the capillary vessel differ from that of the artery?

PHYSIOLOGY.

1. Describe the phenomena of blood clot. 2. What is a protoplasm? 3. Describe vasomotor nerve action on capillaries. 4. What is the function of the bile? 5. What is the function of pancreatic juice? 6. Describe the origin and function of chyle. 7. What are the chief waste products of the body? What are their channels of exit? 8. What is the chief source of body heat? 9. Describe the method of nutrition of the embryo. 10. Describe the features of cutaneous sensation.

MATERIA MEDICA.

1. Name four drugs that raise blood pressure and explain their action. 2. Name four drugs that lower blood pressure and explain their action. 3. Explain the action of digitalis and the nitrites in chronic nephritis. 4. Give dirivation, preparations and the respective dosage of veratrum viride. Explain its action in puerperal convulsions. 5. Name the classifications of cathartics and explain the peculiar action of each class. 6. Define diuretics; diaphoretics. Give an example of each and explain their physiologic action. 7. Give the derivation, uses and the physiologic action of salicylates. 8. Give the physiologic action of arsenic, including its ultimate effect on the tissues. 9. Give the therapeutic effect of quinin, in various doses. 10. Define a tincture, a solid extract, a fluid extract and give their general relative strength.

ECLECTIC MATERIA MEDICA.

1. What is a narcotic? Name six. 2. Define corrosives. Name five. 3. Define a sanative medicine. Wherein does it differ from a poison? 4. What three influences are made in living tissues with sanative vegetable medicines? 5. When would you use aguinonia eufatoria? What are its medical properties? What tissues are influenced by it? 6. What are the indications for: (*a*) anemone pulsatilla, (*b*) anthemis nobilis, (*c*) apocynum, androsemifolium? 7. Give the remedies used in a case of (*a*) lobar pneumonia, (*b*) acute nephritis. 8. (*a*) What agents would you use in tinea circinatus? (*b*) impetigo contagiosa? 9. What are the properties of the following agents: (*a*) aristolochia serpentaria, (*b*) asarum canadense, (*c*) asclepias tuberosa, (*d*) baptisia tinctoria? 10. Name (*a*) five hepatics, (*b*) six cholagogues, (*c*) five aperients, (*d*) five hydragogue cathartics.

HOMEOPATHIC MATERIA MEDICA.

1. Differentiate the headache of aconite, ignatia, bryonia, china. 2. Describe a natrum mur. patient. 3. What are your typhoid-fever remedies and give indications. 4. Give keynote symptoms calling for bell., cham., rhus., puls., ferr., phos. 5. What remedies do you consider indicated in pneumonia? Give indications for remedies named. 6. Give description of typical sulphur patient. 7. Differentiate heart symptoms of digitalis, cactus grand., kalmia. 8. Describe a calc. phos. patient and give keynote symptoms. 9. What are the tissue remedies? 10. Give mental symptoms of ignatia, puls. and stramonium.

DISEASES OF THE EYE AND EAR.

1. What are the symptoms of perforation of the membrana tympani? 2. Give the etiology and treatment of otitis externa diffusa acuta. 3. How is a diagnosis made between deafness due to disease of the middle ear and that resulting from disease of the labyrinth. 4. Give diagnosis and treatment of suppurative keratitis. 5. Give diagnosis and treatment of muco-purulent conjunctivitis. 6. Define amblyopia and mention four varieties. 7. What is the etiology and treatment of mastoiditis? 8. Give causes of atrophy of the optic nerve. 9. Give causes, prognosis and treatment of retinal hemorrhage. 10. How is the internal ear affected by syphilis?

SURGERY.

1. Give the treatment of a fracture of the femur three inches above the condyles. 2. Give the symptoms of stone in the bladder. 3. What inherent conditions would contraindicate an operation for carcinoma of the breast? 4. Describe in detail the preparation of a surgeon's person in order to secure the best asepsis. 5. Make a diagnosis of popliteal aneurism, and give the treatment of the same. 6. Make a differential diagnosis between appendicitis and empyema of the gall bladder. 7. Give in detail the proper treatment of a shock after a severe surgical operation. 8. Give the symptoms, diagnosis and treatment of tuberculosis of the kidney. 9. Give the symptoms and treatment of obstruction of the bowels. 10. Give the etiology, symptomatology, diagnosis, prognosis and treatment of coxalgia.

NERVOUS DISEASES.

1. Give symptoms of acute ascending paralysis. 2. What is Bell's palsy? 3. Give symptoms of compression of the spinal cord at the fourth dorsal vertebra. 4. Give symptoms of general paresis. 5. Give an outline of treatment of epilepsy. 6. Describe writers' cramp. 7. What is acromegaly? 8. What is beriberi? 9. What is caisson disease? Give its symptoms, course and prognosis. 10. Give two trophic changes of locomotor ataxia.

CHEMISTRY.

1. Name and give a formula for five acids used in medicine. 2. A specimen of urine shows specific gravity of 1022 and is neutral in reaction. On boiling, a white precipitate forms. To what substances may this be due? Give method of differentiating. 3. Name two chlorids of mercury. Give chemical formulæ and properties of each. 4. What is the chemical antidote for arsenical poisoning and its mode of quick preparation? 5. What elements compose the halogen group? Give symbol and valence of each. 6. Define (*a*) atom, (*b*) atomic weight, (*c*) molecule, (*d*) monad, (*e*) tetrad. 7. What salt of silver is most commonly used in medicine? Give formula. 8. Describe Trommer's sugar test. What chemical change takes place? 9. Could you use nitrate of silver in a normal saline solution? If not, why? 10. Give a practical test for (*a*) iodin, (*b*) copper, (*c*) arsenic.

ANATOMY.

1. How many bones compose the human skeleton? Into what groups are they divided? 2. Describe the sternum and the femur. 3. Name the bones of the wrist and their articulations. 4. Describe the ligaments of the shoulder joint. 5. Name the muscles of the forearm. Into what groups are they divided according to function? Name the muscles in each group. 6. Describe and give the relations of the external carotid artery and name its branches. 7. Name the arteries that form the circle of Willis. 8. Describe the origin, course, ganglionic connections, exit and distribution of the fifth cranial nerve, and give its common name. 9. In an amputation of the thigh at the middle third, give the structures you would divide anterio-posteriorly, and the same of the forearm. 10. Name and locate the abdominal viscera.

PRACTICE OF MEDICINE.

1. What means would you employ in the diagnosis of disease of the lungs, stomach and kidney? 2. Outline the normal liver. 3. Define a macule, papule, vesicle and bleb. Name two diseases in which each one is of diagnostic importance. 4. Give the topography of the thorax. Outline the lungs and their lobes. 5. Give the etiology, symptoms, physical signs, course and duration and prognosis of pulmonary emphysema. 6. Give etiology, differential diagnosis and dietetic treatment of gastric ulcer. 7. Give the diagnosis, course, duration and prognosis of chronic interstitial nephritis. In what class of individuals is it most frequently met? 8. Give the etiology, pathology, complications and prognosis of true dysentery. 9. Give etiology, course, symptoms and geographical distribution of yellow fever. 10. Locate the mitral and aortic valves. Give the differential diagnosis between a regurgitant murmur in each.

Association News.

THE PORTLAND SESSION.

Trip to Alaska.

The chairman of the local Committee of Arrangements, Dr. Kenneth A. J. Mackenzie, Portland, Ore., desires to hear from those who propose taking the trip to Alaska after the Portland session of the American Medical Association. It must be understood that a boat can not be chartered nor arrangements made for such a trip as this on short notice. It is, therefore, absolutely necessary that if a special boat is to be secured, it must be arranged for some time in advance, hence it is necessary to know how many desire to go. The round-trip fare from Tacoma or Seattle on the regular express steamers, calling at Southeastern Alaska ports, which include Ketchikan, Wrangel, Douglas Island, Treadwell, Juneau, Skagway and Sitka, is $70. This includes berth and meals on first-class steamers. The fare from Portland to Tacoma is $4.35, and from Portland to Seattle is $5.60, one way. The best starting point is Tacoma, because the trip between Tacoma and Seattle is the grandest part of Puget Sound waters. A trip such as the one contemplated will be a most interesting one. The company will be select and the time of year most propitious. If any of our readers are thinking of taking this trip they should write at once to Dr. Mackenzie.

Trips to the Hawaiian Islands and to the Orient.

As before announced, arrangements are in contemplation for a trip to Honolulu. It is not probable that a sufficient number can be secured to warrant engaging a special steamer, but a party of fifty can secure reduced rates. As we go to press, we are in receipt of a letter from Dr. Mackenzie announcing that the Pacific Mail Steamship Company will carry fifty excursionists to Honolulu at a round-trip rate of $110 each. The fine steamer *Korea*, said to be equal in all respects to the finest transatlantic steamers, will leave San Francisco July 22, a convenient day for sailing. In view of transpacific travel which must be accommodated, the company limits the number in this party to fifty. On this same steamer the round-

trip rate to Yokohama will be $240; Hong Kong, $270, provided a party of not less than twenty make that trip. Reservations should be made early and we urge those who are contemplating these trips to write at once to Dr. Mackenzie.

Yellowstone Park Special.

The special train to Portland, which leaves Chicago in two sections, one June 30 and the other July 1, is filling up rapidly. The number is limited absolutely to 250, and we again urge those who are contemplating joining either of these parties to write at once and to make their reservations. For information regarding this trip see former issues of THE JOURNAL.

Hotel Arrangements.

We are asked to announce that the Committee of Arrangements is prepared to provide good accommodations for all who attend the Portland session, if applications are made in time. Those who are sure of going to Portland should reserve rooms at once. The chairman of the Committee on Hotels is Mr. H. C. Bowers, Portland, Ore.

To Portland from Nashville.

Dr. G. C. Savage, Nashville, Tenn., desires us to announce that he is arranging for a special car from Nashville to Portland, via St. Louis, Denver and Salt Lake City, to leave July 4, arriving at Portland on the morning of July 10. There will be stopovers in Colorado and at Salt Lake City. The return trip will be made via the Yellowstone Park and St. Paul.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 11, 1905:

Hoff, John Van R., asst.-surgeon general, granted thirty days' leave of absence.

Jones, Percy L., asst.-surgeon, reports for temporary duty at Washington Barracks, D. C.

Shillock, Paul, surgeon, granted one month and fifteen days' leave of absence about March 10, 1905.

Dean, Elmer A., asst.-surgeon, left Fort Riley, Kan., on ten days' leave of absence.

Porter, R. S., asst.-surgeon, left Fort Niobrara, Neb., on ten days' leave of absence.

Reno, William W., asst.-surgeon, left Fort Myer, Va., for temporary duty as surgeon on the transport *Sumner*.

DeLoffre, Sam'l M., asst.-surgeon, granted thirty days' leave of absence from date.

Morse, A. W., asst.-surgeon, granted thirty days' leave of absence about February 27.

Thorp, Charles W., contract surgeon, ordered from Fort Ethan Allen, Vt., to Fort Adams, R. I., for temporary duty.

Kierulff, H. Newton, contract surgeon, relieved from duty at the Presidio of San Francisco and ordered to duty as surgeon of the transport *Buford*.

Wythe, Stephen, contract surgeon, relieved from duty at Fort Baker, Cal., and ordered to temporary duty at the Depot of Recruits and Casuals, Angel Island, Cal.

Clayton, George R., contract surgeon, ordered to accompany troops from Columbus Barracks, Ohio, to Fort Sheridan, Ill.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 11, 1905:

Benton, F. L., P. A. surgeon, ordered to the Naval Recruiting Station, Philadelphia.

DeLaney, C. H., P. A. surgeon, detached from the *Petrel* and ordered to the *Marblehead*.

Kerr, D. B., P. A. surgeon, detached from the *Buffalo* and ordered to the *Boston*.

Manchester, J. D., asst.-surgeon, detached from the *Marblehead* and ordered to the *Petrel*.

Miller, J., Jr., asst.-surgeon, detached from the *Boston* and ordered to the *Buffalo*.

Cooke, G. H., medical director, retired, detached from the Naval Recruiting Station, Philadelphia, etc., and ordered home.

Rodman, S. S., P. A. surgeon, detached from the *Pensacola* and ordered to the *Ranger*.

Bachmann, R. A., asst.-surgeon, detached from the *Wilmington* and ordered to the *Villalobus*.

Michels, R. H., asst.-surgeon, detached from the *Villalobus* and ordered to the *Wilmington*.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 8, 1905:

Grubbs, S. B., P. A. surgeon, granted leave of absence for two days from March 7

Billings, W. C., P. A. surgeon, granted leave of absence for fourteen days from March 3.

McLaughlin, A. J., asst.-surgeon, granted leave of absence for six days from March 6.

Francis, Edward, asst.-surgeon, granted leave of absence for seven days from March 6, under Paragraph 191 of the Regulations.

Keatley, H. W., A. A. surgeon, granted leave of absence for four days from March 1, under Paragraph 210 of the Regulations.

Lopez, Esteban, A. A. surgeon, granted leave of absence for thirty days from January 1 and five days from January 31 on account of sickness.

Rossello, M. M., A. A. surgeon, granted leave of absence for seven days from February 18, under Paragraph 210 of the Regulations.

Stevenson, J. W., A. A. surgeon, leave of absence for seven days from February 27 revoked.

Achenbach, John, pharmacist, granted leave of absence for three days from February 26, under Paragraph 210 of the Regulations.

BOARDS CONVENED.

Board convened at Washington, D. C., March 10, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Asst.-surgeon General G. T. Vaughan, chairman; Asst.-surgeon H. McG. Robertson, recorder.

Board to meet at San Francisco, April 3, for the examination of asst.-surgeons to determine their fitness for promotion to the grade of P. A. surgeon. Detail for the board: P. A. Surgeon Rupert Blue, chairman; P. A. Surgeon H. S. Cumming; P. A. Surgeon D. H. Currie, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended March 10, 1905:

SMALLPOX—UNITED STATES.

California: Feb. 18-25, Los Angeles, 2 cases; San Francisco, 2 cases.
Florida: Jacksonville, Feb. 25-March 4, 1 case.
Illinois: Chicago, Feb. 25-March 4, 16 cases, 3 deaths.
Indiana. Hammond, Feb. 21-28, 1 case.
Kentucky: Louisville, Feb. 23-March 2, 2 cases.
Louisiana: New Orleans, Feb. 25-March 4, 6 cases, 4 imported.
Michigan: Detroit, Feb. 25-March 4, 2 cases; at 74 localities, Feb. 11-18, present.
Missouri: St. Louis, Feb. 25-March 4, 47 cases, 2 deaths.
Nebraska: Omaha, Feb. 25-March 4, 2 cases.
New York: Mount Vernon, Feb. 25-March 4, 1 case.
Ohio: Toledo, Feb. 25-March 4, 3 cases.
Tennessee: Feb. 25-March 4, Memphis, 23 cases; Nashville, 6 cases.
West Virginia: Wheeling, Feb. 25-March 4, 1 case.
Wisconsin: Milwaukee, Feb. 11-25, 21 cases.

SMALLPOX—FOREIGN.

Bosnia and Herzegovina, Dec. 1-31, 17 cases, 2 deaths.
France: Paris, Feb. 11-18, 8 cases, 2 deaths; Nantes, Feb. 8-22, 19 cases, 7 deaths.
Great Britain: Feb. 11-18, Leeds, 9 cases; Leith, 3 cases; London, 3 cases; Newcastle-on-Tyne, 5 cases; Nottingham, 1 case; South Shields, 2 cases.
India: Bombay, Jan. 31-Feb. 7, 122 deaths; Karachi, Jan. 29-Feb. 5, 7 cases, 2 deaths; Madras, Jan. 28-Feb. 3, 1 death.
Italy: Feb. 9-16, Lecce, 34 cases; Treviso Province, 4 cases.
Japan: Feb. 22, Ehime, 26 cases; Fukuoka, 2 cases; Hiroshima, 2 cases; Kumamoto, 1 case; Nagasaki, 2 cases; Osaka, 8 cases; Yamaguchi, 1 case.
Mexico: City of Mexico, Jan. 27-Feb. 11, 4 cases, 6 deaths.
Straits Settlements: Singapore, Jan. 14-21, 1 death.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Jan. 7-28, 5 cases, 1 death.

YELLOW FEVER.

Mexico: Coatzacoalcos, Feb. 11-18, 1 case, 1 death.
Panama: Panama, Jan. 1-Feb. 14, 27 cases, 8 deaths.

CHOLERA.

India: Bombay, Jan. 31-Feb. 7, 1 death.
Russia: Jan. 16-23, Erivan, 1 death; Saratow, 5 cases, 3 deaths.

PLAGUE—INSULAR.

Hawaii: Aiea, March 2, 1 death.

PLAGUE—FOREIGN.

Arabia: Aden, Feb. 4-11, 280 cases, 257 deaths.
India: General, Jan. 21-28, 38,204 cases, 33,087 deaths; Bombay, Jan. 31-Feb. 7, 450 deaths; Calcutta, Jan. 28-Feb. 4, 84 deaths; Karachi, Jan. 29-Feb. 5, 44 cases, 41 deaths.
Russia: Ural Territory, Jan. 3-9, 8 cases, 15 deaths.

Society Proceedings.

COMING MEETINGS.

Missouri Valley Medical Association, Kansas City, March 23-24.
Medical Association of the District of Columbia, Washington, April 4.
Association of American Medical Colleges, Chicago, April 10.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Association of the State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.
American Medico-Psychological Association, San Antonio, Texas, April 18-21.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Regular Meeting, held Feb. 1, 1905.

The President, Dr. Arthur V. Meigs, in the Chair.

Recent Advances in the Technic of Roentgen Therapy.

DR. CHARLES LESTER LEONARD said that the apparent variation in results is due to variations in technic and the experience of the operator. In addition, varying qualities of Roentgey ray produce different effects and the quality must be adapted to the individual lesion. The physiologic lesion is stimulant and alterative. In large doses it stimulates the autolytic ferments within pathologic cells which results in their dissolution and absorption. The difficulty in administration lies not only in adapting the proper quality of ray and dose to the individual lesion to be treated, but also in the fact that the clinician must know how to produce the dose with a complicated mechanism, and must be able to recognize when the right quality and quantity are being employed by their clinical effects. While any dose and any technic will produce some effects, exact dosage is essential to the efficient employment in difficult cases, and as with all other powerful remedies, clinical experience in adapting the dose to the individual patient counts in the final result.

Treatment of Non-Malignant Diseases by Roentgen Ray.

DR. RUSSELL H. BOGGS of Pittsburg called attention to the necessity of distinguishing between the non-malignant diseases which should and those which should not be treated by the *x*-ray. The method of application of the rays and the judgment of the operator account largely for successful or unsuccessful work. It is just as essential to administer a therapeutic dose when applying the Roentgen rays as it is when prescribing powerful drugs. He considers the *x*-ray one of the best therapeutic agents known for the treatment of acne and many other skin diseases, but it is not necessary, in many instances, to treat the trivial and less obstinate cases by this method, since cures may be effected with other treatment causing less inconvenience to the patient. For the treatment of lupus he regards the *x*-ray, supplemented by the Finsen light, the most efficient therapeutic agent. He also considers the *x*-ray the most efficient treatment for tubercular glands, Hodgkin's disease and selected cases of goiter.

X-Ray Treatment of Malignant Growths.

DR. ENION G. WILLIAMS of Richmond, Va., said that the results of the practical use of the ray as reported by the different operators have differed greatly; that the general profession had been misled by the over-enthusiastic as well as by the pessimistic operators, so that the true value of the ray has yet to be found out. To determine the therapeutic value of the ray Dr. Williams said it was necessary to consider, first, the factors concerned in the production and variation of the *x*-ray and the methods of its application in treatment; second, the histologic changes due to the *x*-ray, and third, the nature and location of the growth to be treated. The tissues most influenced by the ray are those having a large proportion of cells whose vital processes are very active, such tissues as are found in malignant tumors, carcinomas and sarcomas. Benign tumors, composed largely of intercellular substance with a small proportion of cells not actively proliferating, are, therefore, only slightly or not at all influenced by the ray. He concludes that the prognosis depends on the character of the growths and on their accessibility to the proper quantity of radiant energy. He believes that the ray is indicated in superficial growths. For deep growths, until there can be shown more uniformly good results, radical surgical procedures should be recommended, to be followed by sufficient *x*-ray exposure to destroy malignant cells several inches from the surface. Inoperable cases should be rayed, because of relief of pain and other results which have been noted.

DISCUSSION.

DR. GEORGE C. JOHNSTON attributed many of the claims put forth to over-enthusiasm and inexperience. On the other hand, there is a mass of evidence put forth by some of the best men of the profession which is worthy of acceptance. Success or failure in the application of the agent depends on the dose, and the dose of the *x*-ray is composed of several factors: 1. The length of time the agent is allowed to act. 2. The distance from the source of the ray to the patient. 3. The degree of vacuum of the tube emitting the ray. The third factor is incapable of any accurate measurement short of actual observation of the radiation itself. Another factor in dosage is penetration, and this must be adapted to the depth it is desired to reach. Since some tubes produce a burn easily, Dr. Johnston advises beginners to test every tube in radiographic work before using it on a patient. In radiographic work the *x*-ray man must have a certain technic, with every detail of which he must be familiar. In radiotherapeutic work he must have a technic more exact and capable of immediate variation to suit individual cases.

Dr. Johnston's position is that the legitimate *x*-ray man does not consider himself the successor of the surgeon, but is proud to be accorded the position of assistant, believing that he has at his command an agent which will afford the surgeon better results in his malignant cases. Thorough postoperative radiation by a qualified *x*-ray operator is frequently effective in removing possible foci of disease.

The future of malignancy, Dr. Johnston believes, depends on the general practitioner, because he sees the cases first. Each month he has more of the early cases of cancer, as cancer of the breast, sent to him for treatment. His recommendation in such cases is a Halsted operation and radiotherapy to prevent recurrence. Cases apparently cured by this method have remained so, but he prefers to call them cases of inhibition, more or less permanent, with the hope that they will remain permanent.

The need of *x*-ray workers is the co-operation of the surgeons and pathologists. As soon as all work together in harmony malignancy and other diseases will present a brighter future.

DR. JOHN B. SHOBER has seen mostly the cases of malignant disease in women, and in six or seven cases of inoperable carcinoma of the cervix he has noted the inhibitory action of the agent. In one case, following hysterectomy for carcinoma of the uterus, treated by the *x*-ray and radium, the growth, which was the size of an English walnut, disappeared in the course of ten weeks, and there was no sign of recurrence. In a case of carcinoma of the breast, the growth increased in size, but softened, then diminished in size, and there ultimately remained no sign of the tumor except a small induration, possibly the result of an accumulation of fibrous tissue.

DR. GEORGE ERETY SHOEMAKER believes that after the surgeon's work is finished he owes the duty to his patient of having the *x*-ray applied for a definite time. From his own experience with cancer of the uterus he would advise, first the cautery, after that surgical excision of the part, including the cautery scar, and finally the *x*-ray.

DR. W. S. NEWCOMET referred to the value of the *x*-ray as evidenced in desperate cases which react and get well. He cited a case of trachoma in a girl of 16 which had existed since the age of three months. She had been able to count fingers only in the light. As the result of the *x*-ray treatment she can now see a distance of two or three squares.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held Jan. 24, 1905.

The President, Dr. Dudley Tait, in the Chair.

Acute Hodgkin's Disease.

DR. GEORGE BLUMER reported a case presenting the clinical picture of acute Hodgkin's disease. The patient, a young man, 19 years old, with negative history, had had an accident three months before. The disease began with progressive weakness, nausea, vomiting and dyspnea; some fever in the evening, with night sweats. In three months the patient lost thirty pounds

in weight. A few days before death he suffered from some pain in the liver. On examination he showed general enlargement of the lymph glands, especially those of the neck, and enlargement of the spleen and liver. The heart and urine appeared to be normal. The blood showed 3,656,000 red corpuscles, 8,000 leucocytes and 54 per cent. of hemoglobin. A differential count showed 8 per cent. of polymorphonuclear leucocytes and 92 per cent. of mononuclear forms, which were divided into 45 per cent. of large cells and 47 per cent. of small cells.

At autopsy the lymph glands, tonsils, spleen and liver were found to be enlarged. The lymph glands contained none of the large cells described by Reed as characteristic of Hodgkin's disease and no eosinophilic cells. The lymph follicles of the spleen were especially enlarged. The kidneys were densely infiltrated with round cells. The bone marrow, though presenting no macroscopic changes, showed on microscopic examination a lymphoid hyperplasia.

Clinically the patient presented the picture of an acute Hodgkin's disease, with the exception that the mononuclear cells in the blood were relatively very much in excess, whereas in true Hodgkin's disease no such increase should occur. Pathologically, however, the case is one of lymphatic leukemia, as shown by the changes in the bone marrow and other organs, a so-called "aleukemic leukemia."

DISCUSSION.

DR. WILLIAM OPHÜLS doubted if it is possible to separate Hodgkin's disease as sharply as Reed and others have tried to do. In a recent case he saw the typical changes described by Reed in the lymph glands, and yet there was a round-cell sarcoma of the thymus gland, which was invading neighboring structures.

DR. P. K. BROWN referred to a dog whose lymphatic glands gradually increased in size. At first the number of leucocytes was not increased, but just before death a considerable increase took place.

DR. WILLIAM OPHÜLS examined specimens from this dog and found that they presented the changes of leukemia rather than those of Hodgkin's disease.

DR. BLUMER stated that the dog apparently showed a similar condition to that of his patient, only that the former's leucocytes had increased before death, whereas the patient's had not. Possibly a differential count made in the early stages would have shown that the dog had had a leukemia.

DR. DUDLEY TAIT showed a patient on whom he had operated about seven years before for adenocarcinoma of the breast by the Willy Meyer operation.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, held Thursday, Jan. 5, 1905.

The President, Dr. Richard C. Norris, in the Chair.

A Consideration of Fibroid Tumors of the Uterus Based on a Series of Cases Treated Surgically.

DR. J. CLARENCE WEBSTER, Chicago, found the following degeneration in 52 of 210 cases of fibromyoma of the uterus: Calcareous, 2 cases; cystic, 13 cases; edematous, 6 cases; myomatous, 4 cases; suppurating, 10 cases; adenocarcinoma of cervix, 1 case; sarcoma, 2 cases; hemorrhagic, 3 cases; necrosis, 11 cases. Pelvic complications were noted in 164 cases, as follows: Broad ligament development, 11 cases; prolapsus uteri, 7 cases; retroversion of the uterus, 11 cases; hematosalpinx, 6 cases; ovarian cystomata, 12 cases; unilateral salpingo-ovaritis, 7 cases; bilateral salpingo-ovaritis, 42 cases; unilateral ovaritis, 3 cases; bilateral ovaritis, 29 cases; hernia, 4 cases; appendicitis, 26 cases; pregnancy, 6 cases. In 99 instances there were pathologic changes in the tubes and ovaries. The association of malignancy was noted only in two cases. In 2 there was sarcoma of the corpus uteri, involving the fibroid growth; in a third, early adenocarcinoma of the cervix was present. Cardiovascular symptoms were present in about 25 per cent. of the cases.

A question of considerable interest is that relating to the influence which may be exerted by products of the uterine growth on the heart, kidneys, and other organs through the medium of the circulation. Cardiac hypertrophy may sometimes result when the tumor is only of moderate size. Renal disturbances are more common in association with fibroids than is generally believed. In about 30 per cent. of the cases there was noted one or more of the following conditions: Deficient amount of urine or urea; albumin; casts; edema of the feet. In no instance was there evidence of previous organic renal disease, nor did treatment fail to bring about marked improvement prior to operation.

Taking into consideration the pressure effects, the tumor degenerations, the pelvic and abdominal complications, the changes in the heart, large vessels, kidneys and liver, the chronic anemia of hemorrhagic cases, and other occasional associations, e. g., suppuration, gangrene, peritonitis, phlebitis, embolism, the influence of pregnancy and labor, the new growth must be considered as seriously increasing morbidity and mortality in women in whom they occur.

The view held by some that all fibroids of the uterus should be removed surgically unless there is some marked contraindication to operation is not upheld. All large or growing tumors or small ones which cause troublesome or serious symptoms should be treated surgically. In attempting to establish indications for surgical treatment various factors must be considered. Thus the site of the growth may indicate early removal of a tumor, e. g., a submucous polypoidal fibroid, a cervical growth, one developing extraperitoneally, a subperitoneal tumor tending to fall within the pelvic cavity, etc. The nature of the tumor may afford an indication, e. g., rapid growth, cystic change, necrobiosis or infection, malignancy, association with pregnancy. One pedunculated subserous tumor, by falling below the pelvic brim, may cause serious pressure symptoms which might never be found with multiple sessile growths. Fibroids should never be allowed to reach a large size, that is, to become palpable abdominal swellings. The nature of the associated complications may often afford the indication for surgical measures.

In regard to the choice of surgical procedure, ligation of the uterine arteries has scarcely any place in treatment. Removal of the uterine appendages should only be carried out in the rare cases in which other procedures are inadvisable, on account of the patient's general condition, or when the relationships of the tumor make removal impossible. Myomectomy has been less practiced than it should have been in recent years, owing to the brilliant results obtained in the reduction of the death rate following total extirpation and supravaginal amputation of the uterus. The conservative procedure was carried out by the author 48 times in the 210 cases. Supravaginal amputation has been practiced in preference to total extirpation as a routine operation, because it may usually be performed in a somewhat shorter time. There is less hemorrhage, the anatomic relationships of the pelvic floor are better preserved, and there is less risk of wounding the ureters. In the occasional association of fibromyoma and malignant disease, total extirpation of the whole uterus is the most scientific procedure.

DISCUSSION.

DR. ELLICE MCDONALD of Albany considers the subject of fibroids to be still a very open question. A certain percentage of fibroids are prone to degenerate into sarcoma. He does not believe the question entirely settled, whether a fibroid may degenerate directly into a sarcoma, or whether the sarcoma is grafted on to the fibroid. The greater number of gynecologists and pathologists are turning to the idea of a fibroid being degenerated directly into a sarcoma. This is of great importance, not only to the gynecologist and pathologist, but to the embryologist. The embryologist will finally accept the idea though it is contrary to all his theories. While carcinoma of the cervix is not more common in fibroid than in the ordinary run of cases, it seems that adenocarcinoma of the fundus is a little more common in diseased conditions of the fundus or with multiple fibroids than in the ordinary run of cases. Tubal complications are one of the most important in regard to fibroids,

because on the presence or absence of these complications must depend choice of operation. If it is true the ovaries are diseased in a great number of these cases, if cystic degeneration of the ovary is more common in fibroid disease of the uterus than in other tumors, it is a question whether the ovaries should be left with the presence of cystic disease eradicated. One of the most important studies is for someone to give some true idea of the conditions of the surgical menopause.

In regard to the question of cardiovascular disease, his findings in 14 postmortems corresponded with Dr. Webster's, but in three cases there was cardiovascular disease associated with a fibroid disease of the uterus; in one case aortic valvular disease; in one case brown atrophy of the heart, and in the third there was mitral disease.

The question of the predisposition of the various races should form the basis of all studies of fibroids, because before the study of the mortality and morbidity is undertaken there should be some knowledge of the percentage of occurrence. He has found from postmortem records, mainly in women of Dutch extraction, that one woman in every seven in the upper part of the state of New York had a fibroid. The well-known predisposition of the negro race to fibroids is borne out by experience. At the Lying-in Hospital in the City of New York, in 2,570 cases, fibroids were found thirteen times, less than one-half of one per cent. In 3 of these 13 cases there was postmortem hemorrhage. The fibroids were all of the interstitial variety; in two cases the uterus contracted well, but in one case there was alarming hemorrhage. In three cases radical extraction of the membrane was necessary, and immediate packing. In three cases there was malposition of the uterus, two of which were curetted. In five cases there were some pathologic lesions of the placenta. In all cases in which there was some alteration in the placenta it was adherent to the fibroid. There was a large area of necrosis, which seemed in one case to be a calcareous degeneration of the placenta, but in consideration of the frequency with which this occurs, he thinks the fibroid had nothing to do with it. Of the thirteen cases of fibroids, only one came to cesarean section. He notes that in obstetrical cases there is this tendency to postpartum hemorrhage in all fibroids situated in the uterine wall. He cited one case of pedunculated fibroid which aborted at three months. In regard to the danger of doing myomectomy in the presence of disease of the tubes or kidneys, he thinks one must look not only on direct disease of the tubes when pus is present, but on disease of the tubes of any sort as being potential sites of infection.

DR. REUBEN PETERSON of Ann Arbor said that in approximately 80 recent cases his proportion of malignancy was greater than that of Dr. Webster. There were two cases of sarcoma and one of adenocarcinoma. He advised the microscopic examination of every bit of tissue. He cited a case in which malignancy was overlooked from lack of such examination.

Dr. Peterson's proportion of cases of degeneration of fibroids is not as great as that shown by Dr. Webster and Dr. Noble. From the fact that degenerations do occur, that there is malignancy and cardiac change, he is more inclined than formerly to advise operation.

DR. E. E. MONTGOMERY thought it obvious that the mere presence of a fibroid growth would of itself tend toward the development of malignant disease. In view of the frequency with which fibroid growths occur, it does not seem to him that the proportion of malignant infection is sufficiently great to assume that the growth is an essential feature in its development. The contraction which takes place in fibroid tissue leads to atrophy and arrest of its circulation, tending to the development of edema. This edema occurs, not only in cases in which strangulation has taken place as the result of the twisting of the pedicle of a subserous fibroid, but also in growths in which there is a tendency to degeneration of the arteries, shown in associated ovarian hematoma. He is inclined to think that the disease of the heart and other organs is more frequently found in cases in which the fibroid is of the submucous or interstitial form, where the tendency to hemorrhage is marked. A fibroid occupying its position in the pelvis and attaining to any size must affect the kidneys by pressure on the ureters.

Dr. Montgomery agreed with the author that it is difficult to fix a rule for the time of operation. The mere presence of a fibroid growth of the subperitoneal variety is not an indication for operation, but increase of the size of the growth, disturbance of circulation and degenerative changes warrant operation.

While he has performed the operation of ligation of the arteries for the control of the growth of the tumor, he has never regarded it favorably from a theoretical standpoint. With the cutting off of the blood supply sufficient to limit the growth there is danger of arrest of circulation with resultant necrotic change in the tumor. The operation of myomectomy appeals to him in women under thirty in whom it seems undesirable to bring about the cessation of the sexual function. It is readily understood that a more stormy convalescence from this operation is expected from the fact that in the enucleation of a number of single fibroid growths from the uterine wall there is a large amount of tissue of low vitality which is readily infected, and an accumulation of blood in dead spaces from which the patient runs an increased danger.

In performing hysterectomy Dr. Montgomery has for the last four years preferred panhysterectomy to the supravaginal operation, because in an occasional case cancer involves the cervix, and in some cases there has been injury to the cervix. There is a better drainage and less likelihood of elevation of temperature, and the convalescence of the patient is more satisfactory in the presence of the complete operation.

DR. BARTON COOKE HIRST referred to his record of 189 fibroid tumors treated by some form of surgical procedure. Twenty-seven per cent. were treated by myomectomy; 60 per cent. by hysterectomy. Vaginal enucleation, oöphorectomy and ligation of the uterine arteries made up the remaining 13 per cent. He has seen the following degenerations: 3 sarcomatous, 5 cystic, 4 necrotic, 2 myomatous and 1 calcareous. In about 50 per cent. there was some pathologic condition of the tubes and ovaries, usually in the shape of old adhesions; occasionally a hydrosalpinx, and very rarely a pyosalpinx, not in 2 per cent. of the cases. There was an associated adenocarcinoma of the corpus in one case. He has found electricity the most useful palliative treatment of hemorrhage for the time being in fibroid tumors, but never has seen a tumor reduced in size or the condition benefited in any other way by this agent. With the positive pole of a galvanic current in the uterine cavity, 40-60 milliamperes checks hemorrhage in suitable cases more surely than any other means he has tried. Some cases may require nothing else, if the tumor is small in size, is not growing, shows no signs of degeneration or inflammatory complications, is not causing pressure symptoms and exerts no deleterious influence on the general health.

DR. CHARLES P. NOBLE thought the chief point for discussion was whether fibroids should be treated from the standpoint of symptoms or from that of life-history of these growths. He believes that in the future they will be treated from the latter, just as ovarian growths are studied, rather than from the standpoint of symptomatology. He thought it a remarkable fact that in 210 cases there was not a single case of adenocarcinoma of the corpus uteri. He regards fibroid tumor of the uterus a predisposing cause of adenocarcinoma of the corpus uteri. The complications in the appendages were much greater in number in Dr. Webster's cases than his own.

In reference to the total extirpation of the uterus versus supravaginal extirpation, out of approximated 700 hysterectomies, so far as he knows, there have been two cases of carcinoma of the cervix following supravaginal amputation of the uterus. In one case the condition was doubtless overlooked at the time of operation, as carcinoma of the pelvis developed promptly. In the other case, a supravaginal amputation for inflammatory disease, epithelioma of the cervix developed four or five years later. He has had but one death following myomectomy, and that in a case of sloughing fibroid removed per vaginam, but he attributes his good results to care in the selection of patients. He has had a number of patients bear children after myomectomy. His hysterectomy patients have not

been especially troubled with the menopause symptoms; nor has he seen any difference in sequel, whether the ovaries have been removed or left behind. In a large percentage of the cases the troublesome symptoms are greatly exaggerated.

DR. JOHN G. CLARK spoke on the three following points: (1) the possibility, after a supravaginal hysterectomy, of a malignant involvement of the remaining stump; 2, the benefits of leaving the ovaries behind in cases of fibroid tumors; (3) the effect of fibroid tumors in the production of cardiac disease. Relative to the first point, he said that a supravaginal amputation of the uterus is much easier, and in the end gives more satisfactory results than panhysterectomy. On the other hand, the objection to the partial operation because of the dangers of a malignant degeneration in the cervical stump or the recurrence of carcinoma is a strong one, but will be obviated by a thorough cauterization of the cervical canal either with the Paquelin or electric cautery. This leaves only the rim of the cervix behind, but does not break the attachment of the broad ligament on either side. Concerning the second point, for ten years he has followed the fixed policy of leaving behind the ovaries in every case of a fibroid tumor where it was possible, and he has been astonished to find that this can be done in a large proportion of cases. One is justified, even when there are adhesions, in leaving behind all or a portion of one or both ovaries; for in a considerable proportion of those inflammatory cases adhesions are not due to infection, but to traumatism produced by rubbing of the tumor against the ovary or crowding the ovary in against the pelvic wall, or downwards into Douglas' cul-de-sac. If this is relieved by the removal of the tumor the ovary will not subsequently give rise to any serious trouble. So many patients have told him that they were almost free of the distressing sequelæ of which others frequently complain, that he is persuaded that this is the better policy to pursue. Relative to the third point, he is of the opinion that this complication is less frequent in this country than in Germany. The German gynecologists seem to be greatly impressed with the frequency of the so-called "myoma heart," and warn against the dangers of sudden death incident to heart disease following hysterectomy for fibroid tumors. Whether there is a distinct influence exercised by a fibroid tumor in producing heart trouble, he is unable to say, but he can not conceive of any more radical disturbance being caused than that of a heart overworked in pumping blood through the resistant tumor mass. A pulmonary embolus is much more likely to be a sequel of a hysterectomy for fibroid tumor than any other pelvic operation, because the impaction of the tumor in the pelvis or its pressure on the large vessels at the brim of the pelvis is very likely to weaken their walls and cause more or less dilatation. Not only may these vessels be the seat of a thrombus, but the greatly enlarged ovarian and uterine veins may also be the seat of large thrombi, from which emboli may be dislodged and carried to the lungs. Therefore, sudden death following hysterectomy is more frequently due to a pulmonary embolus than to cardiac disease *per se*.

DR. W. EASTERLY ASHTON thinks that every case of fibroid must rest on its own merit, and that in determining the line of treatment each case must be specially studied. There should be taken into consideration: (1) the mortality of major operations on uterine fibroid; (2) the danger of degenerations occurring, and (3) the social condition of the patient.

Considering that the true mortality of hysterectomy is probably from 5 to 8 per cent., it is a serious matter whether or not to advise operation. On the other hand, the social condition of the patient is also to be considered. If a tumor is causing but little trouble, with no pressure symptoms and the patient is in fairly good condition, he does not advise operation, but the patient should be seen frequently, and if the tumor begins to grow, operation should be advised without saying that it is taking on this or that degeneration.

The operation of myomectomy, he believes, has a very limited field, and it is dangerous. He believes if he were to adopt the operation he would have a large mortality, as the spaces are not well filled up and the tissues so bruised that a bad focus for infection is left. Comparing panhysterectomy with supravaginal operation, Dr. Ashton believes that in all cases, except where infection or malignancy exists, the supravaginal operation is the one of selection. Panhysterectomy shortens the vagina, the marital relations are interfered with, and the operation has a higher mortality.

DR. WEBSTER said that he has had occasion to study German statistics of hysterectomy both for fibroids and carcinoma, and he is confident that the mortality reported is very considerably higher than it is in the hands of operators in this country; and the same is true of the mortality of myomectomy in Germany. Myomectomy should not be performed where very large incisions or where much mutilation of the uterus are necessary or where there were many tumors. Taking everything into consideration, he believes that the logical procedure is to do the complete operation in every case and to put out of consideration supravaginal amputation. He is very certain, however, that this procedure will not commend itself to the majority of operators, who will continue to take chances as regards the sequelæ.

The mortality of the major operations in non-infective cases should not be as large as eight or nine per cent. in the hands of expert operators. The percentage has fallen below this figure in this country in the last three or four years, and if Dr. Noble's statistics are correct, the lives of women will be saved by carrying out these operations rather than by leaving the tumors untouched.

Regarding the surgical menopause, the menopause symptoms are no worse after operation than in normal conditions. The phenomena were less marked and the health certainly better in those cases in which abnormal losses of blood were prevented.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Rheumatism.

Molsbury, in an abstract in the *Jour. Mich. State Med. Soc.*, recommends in the treatment of acute articular rheumatism that the patients wear flannel and sleep between blankets. The best single article of diet, he says, is milk, which should be diluted with an alkaline mineral water. The pain may be relieved by fixing the joint by wrapping it in cotton or in hot cloths. As a local application to the joint the following is recommended:

℞. Sodii salicylatis
Adipis
Lanolini, āā .....ʒi 30

M. Sig.: Apply hot twice daily.

Pain may also be relieved by the use of the blister or by a light application of the Pacquelin cautery. The oil of wintergreen is recommended as follows:

℞. Ol. gaultheriæ .....ʒss 15

Sig.: Twenty drops in milk every two hours.

Excessive fever should be reduced by baths and the tumultuous action of the heart may be controlled by the application of the icebag, keeping constant attention on the heart. The throat should be carefully inspected and any angina or tonsillitis should receive careful attention. In the chronic form of articular rheumatism iodin in the form of potassium iodid or Lugol's solution is the best remedy and ranking second in order of efficiency the author recommends colchicum, in doses of ten drops of the tincture (.65). He also recommends passive movements of the affected joints with local application of heat and friction. In some cases he advises the intramuscular injection of iodin in sesame oil, using from 15 to 60 minims (1.-4.) of a 25 per cent. solution, injecting it deep into the gluteal region, and repeating it every second day. As a topical application, the following may be employed:

℞. Ol. gaultheriæ .....ʒi 30
Alcoholis .....ʒiii 90

M. Sig.: To be used locally.

Change of climate, to a warm equable locality, is of great benefit in these chronic forms.

In the gonorrheal form of rheumatism heat, electricity, friction and massage are recommended. In muscular rheumatism the muscle should be put at rest by strapping the chest with adhesive plaster in cases of pleurodynia, and by the application of heat and friction. In the nodular form of rheumatism, arthritis deformans, the pain may be relieved by hydrotherapy and massage. Arsenic is valuable as a tonic. Iron is indicated when anemia is present. Iodin in 10 minim (.65) doses, and potassium iodid or the sodium salt, are entitled to consideration as therapeutic agents, given in milk. Blisters in some cases are of value, and in most cases a change of climate is of great importance.

Measles.

In the treatment of measles according to Bjorkman in *Merck's Archives*, it must be remembered that serious complications may follow the mildest attack of measles. Consequently the patient should always be put to bed and unnecessary exposure should be avoided. The room should be kept at a temperature of 70 F., proper ventilation established, and the brighter rays of light excluded in cases of photophobia. The eyes should be cleansed with proper washes, the nasal and buccal cavities properly irrigated with a 2 per cent. boric acid solution, and gargles should be employed to prevent extension of infection to the ears.

In cases of high temperature accompanied by nervous excitement a cold, wet pack is of value, and for insomnia and for general restlessness and threatening convulsions, a generous dose of the bromids is indicated. In the treatment of the catarrhal condition of the air passage the ammonium salts are used. Other expectorants such as ipecac, scilla or senega may be combined with the ammonium salts. No strong purgative or cathartics should be used in measles, as this disease is sometimes complicated by a stubborn diarrhea. If diarrhea exists, the strictest diet should be observed and measures taken to correct the diarrhea, and, if necessary, a few drops of the tincture of opium may be administered or Dover's powder or bismuth subgallate, which is the least harmful preparation, may be used. The author recommends the following combinations in the treatment of this disease:

℞. Acidi boracici 3i 4
Aquæ rosæ .....ʒiv 120

M. Sig.: Use freely as an eye lotion several times a day.

This should be slightly warmed before application.

For the bronchitis the following is recommended:

℞. Infusi ipecac (gr. iv to ʒiii) .....ʒiii 90
Ammon. carb. .....gr. xxiv 1.65
Ammon. chloridi .....gr. xv 1
Syr. senegæ q. s. ad.....ʒiv 120

M. Sig.: One teaspoonful every two or three hours; for a child of four or five years.

For older children the following may be used:

℞. Infusi ipecac (gr. v to ʒiiiss) .....ʒiiiss 105
Ext. opii .....gr. ss .03
Liq. ammon. acetatis .....gtt. xxv 1.65
Syr. senegæ q. s. ad.....ʒiv 120

M. Sig.: One dessertspoonful every two hours.

For the earache the following combination is of service:

℞. Acidi carbol. .....m. xx .65
Alcoholis .....m. xlv 3
Glycerini q. s. ad.....ʒi 30

M. Sig.: A few drops warmed and instilled into the ear.

As an antiseptic to the buccal cavity the following is of service:

℞. Acidi salicylici .....gr. xv 1
Acidi borici .....gr. lxxv 5
Thymol. .....gr. viii .50
Glycerini .....ʒv 20
Spts. menth. pip. q. s. ad.....ʒiiiss 105

M. Sig.: One teaspoonful in a glass of water as a mouth wash.

Erysipelas.

Mortimer, in *Med. Summary*, recommends as prophylactic measures in the treatment, that the patient be isolated and that all dressings should be burned when removed. He says that proper ventilation should be established and that thorough cleanliness should be observed. In the general management of the patient he recommends small doses of calomel, gr. ⅛ (.008), every two hours for eight doses, followed by a saline. For the first twenty-four hours minim one-fourth (.015) of the tincture of aconite should be given every two hours.

When stimulation is required, alcohol should be administered freely, and, if necessary, strychnia and nitroglycerin. An icebag or cold compresses applied to the head to relieve the pain are of service; in addition the following may be given:

℞. Caffeinæ .....gr. ss .03
Camphor monobrom. .....gr. ss .03
Acetanilidi .....gr. ii .12

M. Ft. cap. No. i. Sig.: One such capsule every two hours.

Applied locally to the affected areas the author recommends compresses saturated with the following:

℞. Tinct. opii .....ʒi 30
Liq. plumbi subacet. .....ʒii 60
Aq. destil. .....Oi 500

M. Sig.: To be applied locally on compresses.

Liquid nourishment should be given liberally and systematically about every three hours. It should consist chiefly of milk, broths and beef juice. Ice-cream may be given, and cold water may be given freely and may be acidulated; lemonade may be substituted for the water. During convalescence a general tonic treatment is indicated with some form of iron.

℞. Strych. sulph.
Acidi arsenosi, āā.....gr. 1/50 .0012
Ext. gentianæ .....gr. ss .03
Quin. sulph. .....gr. ii .12

M. Ft. cap. No. i. Sig.: One such capsule after meals; or:

℞. Strych. sulph. .....gr. ¼ .015
Liq. ferri et ammon. acetat. .....ʒvi 180

M. Sig.: One tablespoonful in water after meals.

Pruritus.

The following outline of treatment is recommended by *Med. News*, in pruritis: Internally carbolic acid is recommended in one-grain (.06) doses, or the following:

℞. Ammon. valerianatis .....gr. viiss .50

M. Ft. pil. No. i. Sig.: From two to three such pills daily.

Locally the following may be used:

℞. Acidi hydrocyanici .....gr. viiss .50
Hydrarg. bichloridi .....gr. viiss .50
Acidi carbol. 3ii 8
Resorcini 3ii 8
Chloralis hydratis 3iii 12
Pot. bromidi 3iv 15
Aquæ .....Oii 1000

M. Sig.: To be applied locally.

Alcoholic solutions of menthol, resorcin or corrosive sublimate are equally as efficacious. After bathing the parts the following powder should be applied:

℞. Pulv. amyli .....ʒiii 90
Bismuthi subnit 3i-vi 4.-24
Acidi salicylici .....gr. xv 1

M. Sig.: To be applied locally; or:

℞. Cocainæ hydrochlor. .....gr. v .30
Menthol. .....gr. xlv 3
Liq. petrolati .....ʒi 30

M. Ft. unguentum. Sig.: Apply locally.

In cases of genito-perineal pruritus, fissures and excoriations, parasites, discharges, diabetes and albuminuria should be searched for. In vaginal itching the following is recommended:

℞. Cocainæ hydrochlor.
Morph. hydrochlor., āā.....gr. 1/3-1/2 .02-.03
Ol. theobromæ .....gr. xlv 3

M. Ft suppos. No. i. Sig.: One introduced into the vagina night and morning.

Medicolegal.

Insanity of Relatives of Maker of Will.—The First Appellate Division of the Supreme Court of New York says, in the will contest case of Pringle vs. Burroughs, that it is of opinion that, before insanity can be shown to have existed in the membership of a testator's family it must have appeared that to some extent, at least, the testator had suffered from a like affliction. Then, undoubtedly, evidence of the existence of insanity, especially if of a hereditary character, in the ancestors or other relatives of the testator, would be pertinent and competent. Mere feebleness of health produced by disease, however, is not a sufficient basis on which to found the right of inquiry into the mental condition of other relatives.

Entitled to Show Rebreaking of Leg—Value of Services.—The Supreme Court of Kansas holds, in Cudahy Packing Co. vs. Broadbent, a personal injury case brought by the latter party, that, under an allegation in the plaintiff's petition that an injury of which he complained had resulted in bruising, maiming and injuring him, and causing him to become sick and sore, and fracturing his left leg, thereby causing him great bodily pain and mental anguish, proof might be received that eight days after the happening of the accident, and after the leg was first set, it became necessary to rebreak the uniting bones and reset the same, thereby causing the plaintiff pain. The court says that in pleading the character of an injury it is not necessary to give a specific catalogue of every incident or subordinate result flowing therefrom in order to introduce proof of such results, but the pleading of such injury will permit proof of all results which naturally and proximately ensue therefrom. The general rule is that the pleading of an injury inflicted will admit proof of all results which naturally and approximately ensue or may reasonably be expected to result therefrom. The employment of a surgeon to set the broken leg was certainly such a result. That the surgeon might make a mistake in so doing might reasonably be anticipated, as mistakes occur under the manipulation of the most skillful. Even had an unskillful surgeon been employed, without fault on the part of the plaintiff, and a misalignment made by such unskillful surgeon, still the court is of the opinion that the general allegations of the petition would have been sufficient to admit the criticised proof, especially in the absence of any counter allegations in the answer. Furthermore, the court holds that evidence showing in a general way that surgeons and nurses had bestowed considerable time and attention on the plaintiff, without in any manner showing the value of such services, did not alone afford sufficient basis for a verdict for such services. A verdict rendered on such evidence ought to be set aside. It would be the veriest speculation, and entirely unwarranted, to permit a jury to find the value of those services from the statement that such services were rendered, accompanied by something of a detailed statement of their nature and extent. How could the jury, unskilled in such matters, be thereby sufficiently informed as to value to warrant the rendition of a verdict?

What Constitutes "Last Sickness."—The statute of Kansas provides that a verbal will may be made "in the last sickness" of the testator. How should the phrase, "in the last sickness" be construed? The Supreme Court of Kansas says, in the case of Baird vs. Baird, that it must mean that the making of a will must be at some time during the progress of the sickness from which the testator finally dies. If he should recover from the sickness which he had when he spoke the words, the will would be void. The court thinks it equally clear that the term should not be construed to cover a period of long duration, or make valid a will pronounced at a time when the testator was neither in danger of approaching death nor expecting death within a short time. In one view, "in the last sickness" might be construed to mean all of that period during which the deceased was in any way afflicted with the disease which finally terminated fatally, but this construction does not recommend itself, for perhaps, actually considered, the seeds of the fatal disease were carried even from the cradle. In another view, "in the last sickness" may be interpreted as the last end of the fatal sickness, because it is of the augmented force of accumulating disease that finally and lastly the diseased one is removed. The court thinks this latter interpretation equally unreasonable and untenable. For, if this should be adopted, we would be left without any guide whatever. "Last sickness" in this view must mean the last expiring breath, the condition that immediately antedates dissolution—that condition indicated by the term *in extremis* or *in articulo mortis*, or being surprised by sudden death. If this construction be adopted, then the right to make a verbal will is practically denied, for if a testator must wait until he is *in articulo mortis*, then he may have lost testamentary capacity, and when he has lost testamentary capacity he can not make a will. At best, the question of the validity of the will because made too soon, or of testamentary capacity because made too late, would be the occasion of serious conflict in every case. The court can not believe that either of these extreme claims are founded in reason, but rather prefers to hold that the proper interpretation of the statute is that, where the "last sickness" of one has progressed to such a point that the deceased expects death at any time and is liable to die at any time, and in view of its occurrence, and as preparatory thereto, a verbal will is made, and he does thereafter die of such disease, such will is "made in the last sickness."

Liability of Dentist Advising Against Seeing Physician.—The Supreme Court of California says, in Mernin vs. Cory, an action for malpractice against a dentist, that the jury were instructed as follows: "If you find from the evidence that defendant advised plaintiff not to consult a surgeon or secure medical treatment after her jaw was injured by defendant, if you find the same was carelessly and negligently injured by defendant, and that plaintiff relied thereon, and did not consult a physician or surgeon for a number of weeks after such injury, and that by reason of such delay plaintiff's injuries were aggravated and made worse, and that it was more difficult or impossible to treat or cure such injuries of plaintiff, and that thereby such injuries became and are permanent and can not be cured, and the same has affected the general health of plaintiff, and she has become and is sick and disordered and unable to work or perform labor, or support herself by her own labor and work as she did prior to such injuries, if you find that she did so work and support herself before she was injured by defendant—then I instruct you that you may take all such matters into consideration in fixing the damage incurred by plaintiff by such acts." It was contended that this instruction was erroneous, because it was not the duty of the defendant, being merely a dentist and not a general physician or surgeon, to give the kind of advice asked by the plaintiff. But the Supreme Court does not think that this contention was maintainable. It says that while a dentist may be qualified for his profession without being learned in the general science of therapeutics he certainly should have such knowledge of the very bone out of which he extracts a tooth as to enable him to understand whether it had been so injured as to require treatment beyond his skill. As to the contention that the instruction was erroneous because it did not expressly state that the advice was carelessly or unskillfully given the court says that other instructions that were given clearly informed the jury that carelessness or unskillfullness must have attended all the alleged acts of the defendant in order to make him liable, and there was no necessity of repeating them at every part of the instructions. Moreover, if the facts stated showed malpractice, the use of adjectives or adverbs to expressly characterize such malpractice as careless or unskillful would add nothing to the statement. After the alleged acts of malpractice the plaintiff had a "popping" or "clicking" of the jaw—a disagreeable sound made by a movement of the jaw. The defendant offered to call several witnesses to testify that each of them had a clicking jaw. The court does not think that it was error to sustain an objection to the proposed testimony.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 4.

1 *Mucous Colic. Robert Coleman Kemp, New York City.
2 New Views of Infant Feeding and Their Practical Application. H. D. Chapin, New York.
3 *Mortality of Pneumonia in High Altitudes. C. F. Kieffer, Fort D. A. Russell, Wyo.
4 Landry's Paralysis, with Report of Case. C. F. Wiley, Syracuse, N. Y.
5 *Case of Puerperal Tetanus with Recovery. J. F. Roderer, Philadelphia.
6 Poisoning by Potassium Bichromate. F. E. Fronczak, Buffalo.
7 City Dust and Patent Medicine Advertisements. R. Hessler, Logansport, Ind.

1. **Mucous Colic.**—Under this title, Kemp discusses the condition commonly referred to as mucous or membranous colitis. He does not believe that neurasthenia *per se* will cause mucous colic any more than it will cause gonorrhea. There must be other factors. Mucous colic probably has as its chief etiologic factor ptosis of the colon with associated gastroptosis. The misplacement of the colon undoubtedly favors circulatory, and hence secretory, changes in the sacculated portion of the colon. Fecal accumulation is also favored—a further cause of irritation. Absorption, with resulting autoinfection and nervous disturbances following the same, can thus readily result. Naturally a patient of nervous temperament may be more markedly affected than others. The treatment may be summarized as follows: During the attack, rest in bed; application of heat to the abdomen by means of flaxseed poultices, turpentine stupes or hot pepper poultices, 4 grams of red pepper to one pint of boiling water—a flannel being wrung out therein, applied to the abdomen and covered with oiled silk. Dry heat, applied by means of a hot-water bag, salt bag, or light tin plate, heated in the oven and covered with flannel, may be employed. Spice poultices are of service. Moist heat, however, seems to afford the most relief. The greatest relief to cramps and bearing down pains is afforded by enteroclysis with normal saline solution at 110 to 120 F., oil of peppermint, .3 c.c. to 1 c.c. to the quart, may be added. Several gallons should be employed once or twice in twenty-four hours, and no fluid should be left in the bowel after irrigation. High enemas of warm olive oil, a pint to a quart, are also of service. Hot saline injections containing from 2 to 4 ounces of milk of asafetida may also be employed. A fluid diet should be enjoined. Tincture of belladonna in doses of 10 drops, every three or four hours, gives the best results in the treatment of the spasm. If the pain is very severe, codein or morphin may be given. If the acute attack is prolonged, the internal administration of the valerianates or of asafetida may prove to be of value. Between attacks apply proper abdominal support, exerting an upward and backward pressure from the symphysis to the umbilicus by mechanical means. For this purpose may be applied a silk elastic abdominal supporter or Rose's adhesive plaster belt. The surface should be shaved or cleaned with alcohol or ether before applying the belt. Every four to six weeks the plaster is removed, the surface cleaned and a fresh plaster applied. Exercise and outdoor life, to strengthen the abdominal muscles, are important. The general nervous system must be toned up and anemia should be corrected. Resort to surgery is rarely required except in the most obstinate cases.

3. **Mortality of Pneumonia.**—Pneumonia, occurring at an elevation of 6,195 feet above the sea level, was studied by Kieffer with a view to ascertaining the effect of altitude on the mortality in this disease. So far as his observations go they seem to show that altitude has very little influence, if any, on the mortality of pneumonia, either to diminish or increase it. During thirty-six years the mortality at Fort Russell has been about 1 per cent. lower than the mortality of the entire army during the same period, the mortality percentages being 14.63 per cent. and 15.61 per cent. respectively.

5. **Puerperal Tetanus.**—In the case reported by Roderer, the first symptoms of tetanus appeared ten days after confinement. During the first four or five days of the disease all the spasms were severe and were accompanied by intense pain. Tetanus antitoxin was administered on 32 different occasions. In all 660 c.c. (132,000,000 immunizing units) were given. The injections were given under the skin of the abdomen and the sides of the thorax. After each injection a change in the character and number of the convulsions could be noticed. The duration of the disease was eighteen days, the patient making a good recovery.

Medical News, New York.

March 4.

8 Equilibrium Between Infection and Immunity as Illustrated in the Tonsillar Crypt. J. Wright, New York.
9 *Multiple Neuritis in Wood Alcohol Poisoning. S. E. Jelliffe, New York.
10 *Appendicitis as a Visceral Manifestation of Erythema Exudativum Multiforme. J. S. Chenoweth, Louisville, Ky.
11 Short and Easy Methods of Arriving at Good Results in Diseases of the Ear and Upper Air Tract, Illustrated by Recent Cases. W. S. Bryant, New York.
12 *Diagnosis of Malaria by the Finding of Pigmented White Corpuscles in Unstained Blood Films. J. R. Clemens, St. Louis.
13 *Psammoma of the Maxillary Sinus. J. C. Munro, Boston.

9. **Multiple Neuritis in Wood Alcohol Poisoning.**—Jelliffe cites two cases of peripheral neuritis resulting from the use of wood alcohol. The first patient began to suffer from severe gastric irritability and marked hyperesthesia in the upper extremities, particularly in both arms and hands. This was followed by incomplete paralysis of the extensors and typical drop-wrist. He also had a mild grade of ptosis and a partial, restricted amblyopia. He recovered after four months' treatment. All other causes of neuritis were eliminated. The man was addicted to the use of what he supposed was tax-free whisky, but on investigation it was found to be a 35 per cent. Columbian spirits whisky, with suitable flavor added. The two other patients were painters, particularly varnishers. They did nothing but shellac work on desks, furniture, etc., and they worked long hours and in comparatively small rooms. The shellacs they used were for the most part dissolved in wood alcohol, and the men were exposed to the evaporating fumes. Both these patients suffered from a hyperesthetic form of the disease. Involvement was also of the upper extremities alone. There were the familiar paresthesiæ in the backs of the hands and in the forearms. The pains were at times severe, and there was intense pain on pressure over the nerve trunks. The joints were involved to a slight extent only. There was distinct motor weakness in both instances.

10. **Appendicitis as a Visceral Manifestation of Erythema Exudativum Multiforme.**—Attention is directed by Chenoweth to the occurrence of appendicitis as a visceral lesion in this form of erythema, and he refers to two cases reported by him eight years ago in which the appendicitis occurred in connection with this disease. The matter of diagnosis is one of grave importance. The attacks of colic, the so-called abdominal crisis of exudative erythema, may easily lead the inexperienced to make a diagnosis of appendicitis when no lesion of that organism exists; on the other hand, a more serious mistake may be made of overlooking the coexisting appendix trouble, unless it is recognized that these vasomotor circulatory disturbances do at times result in congestion of, and even hemorrhage into, the appendix, with the result that there may be bacterial infection and inflammation or actual gangrene of this organ. The diagnosis of appendicitis in these cases must rest on the classical signs, pain, tenderness over the appendix, and localized muscular rigidity. In Chenoweth's experience the abdominal crises of exudative erythema have not been attended by muscular rigidity and localized tenderness, except in those cases in which the appendix was involved. The pathologic condition in the appendix in 4 patients operated on by him was primarily and essentially the same as that taking place in the skin. That the erythema was not secondary to the appendicitis was clear from the faqt that previous attacks of erythema had occurred and have occurred at intervals since the removal of the appendix.

12. **Diagnosis of Malaria.**—That the finding of pigmented white corpuscles is absolutely pathognomonic of malaria is attested to by Clemens. He has examined over 500 unstained blood films in which pigmented white cells were found, and says he has never had occasion to regret the diagnosis made in each case—malaria. The finding of these pigmented cells is a far more constant index of malaria than the presence of the plasmodium, because the pigmented cells are found always, irrespective of the time of sporulation or of the action of quinin, whereas the plasmodium is often absent, influenced by quinin and the time at which the blood is taken. The examination of unstained specimens possesses the further advantages of celerity and simplicity of technic and the recognition of unstained pigmented cells is infinitely more easy than that of the plasmodium in stained specimens. He has also found that the pigmented whites are trusty guides in all manner of irregular malarial attacks masquerading under the guise of typhoid, rheumatism, appendicitis, acute diarrheas, gastric crisis, vomiting, etc.

13. **Psammoma of Maxillary Sinus.**—A case of probable psammo-sarcoma of the orbit and antrum of Highmore is cited by Munro. According to the statements of the patient, a female, about 20 years old, the first symptom, prominence of the eye, was noted about seven years ago. This gradually became more marked, but there was no pain and vision was not interfered with. A modified Kroenlein's operation for exposing the orbit was carried out and the tumor removed, in large part by curettage. A second operation was found necessary about two months afterward when the anterior wall of the upper jaw was removed up to the infraorbital foramen. Microscopic examination of some of the tumor tissue which had been decalcified showed calcareous bodies separated by tissue consisting of very closely packed, long spindle-cells, with little or no intracellular fibrillar substance. A diagnosis was made of psammoma of peculiar type, which possibly should be classed as sarcoma. The result of the operative treatment was eminently satisfactory. There was no evidence of return of the growth sixteen months after the first operation, but the result in restoration of the globe to its normal position was a disappointment.

New York Medical Journal.

March 4.

14 *Surgical Treatment of Hemorrhoids. Charles McBurney, New York.
15 *High-Frequency, High-Potential Currents, and *X*-Radiations in the Treatment of Epilepsy. Samuel G. Tracy, New York.
16 Open-Air Treatment at Home for Tuberculous Patients, with a Description of a Window Tent and a Half Tent. S. A. Knopf and W. B. McLaughlin, New York.
17 Resection of Gangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis. Intestinal Obstruction Caused by Unoperated on Appendicitis. (Concluded.) Clarence A. McWilliams, New York.
18 *Retarded Development of Speech in Young Children. G. Hudson-Makuen, Philadelphia.
19 Active and Passive Exercise in the Treatment of Syphilis. Nathan T. Beers, Brooklyn.
20 *Two Cases of Cured Graves' Disease. Gerald B. Webb, Colorado Springs.
21 Uremia with Pericarditis; Clinical and Pathologic Reports. Henry S. Wieder, Philadelphia, and Harold L. Springer, Wilmington, Del.

14. **Treatment of Hemorrhoids.**—A study of the literature and clinical results obtained from various operations has convinced McBurney that operations on hemorrhoids, as frequently practiced, are open to improvement. Very painful external hemorrhoids are frequently produced or suddenly aggravated by an irritable contracted sphincter and in these cases dilatation of the sphincter under general anesthesia will often effect a satisfactory cure. If palliative measures are not sufficient to produce a cure in a case of internal hemorrhoids, operation is clearly indicated. The injection method is undesirable because it not infrequently results in suppuration or sloughing. The clamp and cautery method has no distinct advantages which outweigh its disadvantages. Occasionally, for the treatment of one or two single dilated hemorrhoidal veins, or very small vascular nodules, or in cases where hemorrhoids are already in a sloughing condition, the cautery is convenient. Whitehead's operation has far too frequently resulted in prolonged ulceration, and in most intractable stricture, to be recommended under any circumstances. The operation preferred by McBurney originated in Allingham's operation. With the patient in the lithotomy position the sphincter is gently but thoroughly stretched and the rectum irrigated with some warm salt solution. The hemorrhoid is grasped with a tight clamp from side to side, lifted from its attached aspect and with a knife an incision is made on either side of the tumor, parallel with its long axis, through the mucous membrane above and the skin below. The two incisions should meet at a very acute angle below and should invade the skin only enough to make this angle and to avoid producing an awkward fold. The tumor is then dissected up with the knife or with straight, sharp scissors, the dissection including the vessels of the hemorrhoid, but no more surrounding tissue than is necessary. The incisions and plane of dissection should converge toward the same point above, until the remaining attachment of the tumor is reduced to a small pedicle which contains the principal artery of supply and emergent veins. At the highest part of this pedicle a catgut ligature is tightly tied about it. All bleeding points must be tied or twisted. The wound is then sutured with a continuous suture of No. 1 catgut, beginning at the lower end, until the base of the pedicle is reached, when the suture is tied. The hemorrhoid may now be cut away just below, but not too near the ligature on the pedicle. As a rule, not more than two good sized hemorrhoids can be removed at one sitting without taking away an undue amount of mucous membrane. Cleanse the field of operation and introduce a suppository containing 1 grain of opium or 1/6 grain of morphin. The dressing is important if edema of the lower angle of the wounds, pain, and delay in healing are to be avoided. No food is given until the following day. Defecation should be deferred until the sixth or seventh day. Tubing introduced as part of the dressing is entirely unnecessary. McBurney claims for this operation that it is absolutely safe; that it is radical; that neither ulceration nor stenosis ever result from it; that convalescence is painless, and that cure is obtained with a minimum loss of time.

15. **Treatment of Epilepsy.**—Decidedly beneficial and curative effects have been obtained by Tracy from the treatment of epilepsy with high-frequency currents combined with *x*-radiations. In some cases he combined with this the administration of from 15 to 60 grains of sodium bromid a day. All cases were treated in much the same manner. Those of more than three years' standing gave the best results when the high-frequency current and the *x*-radiations were combined with small doses of sodium bromid, in females, doubling or trebling the amount of bromid just before and during the menstrual period. All reflex irritative disturbances should first be eliminated, and in using high frequency, high-potential currents, it is not necessary to refrain from employing any or all old-time remedies which have been found to afford even temporary relief. As a rule, each patient is treated every other day, first receiving *x*-radiations from five to ten minutes from a high tube placed from six to ten inches above the head so that the rays strike directly on the anterior and occipital part of the brain. After the *x*-radiation the patient is subjected to the influence of a high-frequency current, applied over the brain for ten minutes and for five minutes over the spine. As a result of the use of the combined method Tracy says that at least 25 per cent. of the petit mal patients may be considered tentatively cured, and the same may be said of 20 per cent. of the patients suffering from Jacksonian epilepsy, and 12 per cent. of the grand mal patients. All cases will improve more or less, not only in regard to the frequency of the epileptic seizure, but also in regard to severity. In addition to this the mental and physical condition was very much improved. Tracy suggests that it is possible that the high-frequency currents have some chemical effect on the bromid, possibly liberating a larger quantity of the bromin as the solution of the salt circulates in the brain and

thus the drug in smaller quantities has a more pronounced therapeutic effect in controlling the epileptic seizures.

18. **Retarded Development of Speech.**—Makuen says that retarded development of speech in young children may be the result of structural irregularities in the peripheral organs, impaired respiration, due to nasal, post-nasal and pharyngeal obstructions, paresis of the nerves supplying the organs of speech, and not infrequently to some disturbance of hearing not necessarily amounting to absolute deafness. Retarded development of speech always results in defective mentality. The treatment consists in the removal of obstructions in the peripheral organs and in the systematic training of the auditory and speech centers by the use of specially prepared vocal exercises.

20. **Cure of Graves' Disease.**—Webb reports two cases which were cured by what he terms the "recreation nerve cure." It consists in re-establishing the mental equilibrium of the patient, and Webb achieves this by instructing the patient to recite every day, at certain hours, some simple poem, which is to be memorized. This treatment is based on the theory that Graves' disease is the result of nervous exhaustion and escape of nervous energy.

Medical Record, New York.

March 4.

22 Digestion of Caseins, and Its Relation to Certain Problems in Infant Feeding. Thomas S. Southworth, New York.
23 *Fifteen Cases of Erysipelas Treated by Injections of Antistreptococcus Serum. J. C. Ayer, New York.
24 *Chronic Rheumatism, Gout and Other Uric-Acid Diatheses Treated by the *X*-ray, High-Frequency Currents and Vibratory Massage. Sinclair Tousey, New York.
25 *Prosthetic Treatment of Fracture of the Mandible. Francis A. Faught, Philadelphia.
26 Acute Intussusception in an Infant; Resection of Gangrenous Intussusceptum; Murphy Button Anastomosis; Recovery. Edward W. Peterson, New York.

23. **Erysipelas Treated with Antistreptococcus Serum.**—Ayer cites 15 cases of erysipelas treated by injections of antistreptococcus serum, with no mortality. He found that the serum shortens the course of an uncomplicated attack of erysipelas considerably, and also tends to inhibit the extension of the disease. It has a strikingly beneficial effect on the general condition of the patient, reducing the temperature, pain and discomfort. The febrile albuminuria is prevented or suppressed, and leucocytosis is reduced rapidly. The administration of large doses is not attended by any bad effects. The only disagreeable symptom observed by him was a transient eruption which occasionally occurs at the site of the injection. The initial dose in 6 reported cases was 20 c.c., followed by doses of 10 c.c., as often as necessary. The efficacy of the serum is in direct ratio to the length of time which has elapsed between the onset of the disease and the first injection of serum. Frequently within a few hours after the first injection the swelling becomes less marked and desquamation begins to be apparent. The decrease in the violence of the local conditions goes hand in hand with the constitutional improvement.

24. **Electrotherapy and Vibratory Massage in Uric Acid Diatheses.**—The so-called uric acid technic of Tousey consists in the application of vibratory massage over the abdomen and up and down the spine for about ten minutes twice a week, and the application of high-frequency currents on the same days, for about fifteen minutes, over the abdomen, up and down the spine, and over the affected joints and nerves. The *x*-ray has been applied only locally in cases of palpable deposit about a joint or nerve of a nature which has been found resistant to the other applications. The use of the *x*-ray does not form a part of Tousey's technic, but he has found it a most valuable adjunct in occasional cases. The apparatus employed is an eight or twelve-inch coil run by the direct 110-volt electric-lighting current, either with an electrolytic interrupter or a Wehnelt interrupter in which there is a large jar containing dilute sulphuric acid in which one lead electrode rests, the other electrode terminating in a platinum point surrounded by a porcelain tube beyond which a greater or less length of the platinum point may be protruded. For these rheumatic or gouty deposits the vacuum in the *x*-ray tube is regulated so that the resistance in the tube will back up a spark of three inches. The tube distance is nine inches; the time of exposure from three to five minutes twice a week. The effect is anodyne and resolvent.

25. **Treatment of Fracture of the Mandible.**—Faught condemns the use of the upper teeth as a splint and guide for maintaining the fragments in place with the aid of a bandage except in special cases, on the ground that it greatly limits the motion of the jaws and dooms the patient to a soft diet and to speechlessness for a period of five or six weeks. The commonly used metal or vulcanite interdental splint is open to the same objection. The continued use for any length of time of a fixation bandage passing around the front of the chin may result in positive and permanent harm. The metallic cap splint, on the other hand, affords a certain and effective means of securing fixation, while possessing none of the objectionable features of other fixtures. The splint can be constructed and cemented into place in a few hours. The splint is swaged between die and couter-die, made from carefully prepared impressions, and may be made of gold, platinum, silver or German silver. Such a splint, if carefully constructed and inserted, will remain firmly in place until it ceases to be of service and is removed from the mouth prior to the dismissal of the patient. The splint introduces the least amount of foreign substances into the mouth and is contained entirely within the mouth, thus reducing the patient's discomfort to a minimum, at the same time affording a rigid support for the fractured bone, while permitting of free movement of the mandible with easy access to the oral cavity.

Boston Medical and Surgical Journal.

March 2.

28 *Certain Aspects of Bile Duct Disease. James G. Mumford, Boston.
29 *Importance of Considering Ptosis of Other Organs in the Treatment of the Kidney. M. T. Smithwick, Boston.
30 *Treatment of Ptosis of Abdominal Organs by Abdominal Supporters. William H. Smith, Boston.
31 *Actual Results at the Massachusetts General Hospital Following Operative Treatment of Ptosis of the Abdominal Organs, with Special Reference to the Kidney. F. G. Balch and J. R. Torbert, Boston.
32 Results of Surgical Treatment of Movable Kidney at the Boston City Hospital. Paul Thorndike and L R. G. Crandon, Boston.

28. **Aspects of Bile Duct Disease.**—The removal of all stones is advised by Mumford. If left behind they are very sure to cause subsequent disturbance, whereas, after the thorough removal of stones their recurrence is almost unknown. It is also essential to remove, as far as possible, all disorganized, degenerated and permanently crippled tissue, for such tissue, when left behind, may become the nidus for subsequent inflammation, stone formation and a return of the original trouble. Drainage must be provided for, because drainage of the ducts serves to carry off infectious material. Drainage in such cases is as essential as is drainage for pleural empyema.

29. **Splanchnoptosis and Nephroptosis.**—That these two conditions are frequently associated is shown by Smithwick. In 68 patients the right kidney was down in all, the left kidney in 20 per cent., the stomach in 62 per cent., the colon in 62 per cent., and the liver in 7 per cent. In 34 of the 57 females a pelvic examination was made and it was found that there was a marked ptosis of the uterus in some direction in 80 per cent. In no case did a kidney seem to interfere with other organs by pressure. The urine showed no serious disturbance of the renal functions in any case. Smithwick points out the association of ptoses and that several cases with marked ptosis of both kidneys showed no symptoms referable to this condition. Furthermore, he points out that it is impossible to distinguish the neurasthenic symptoms said to be typical of nephroptosis from those met with in other conditions.

30. **Abdominal Supporters in Splanchnoptosis.**—This phase of the subject has been gone into to some extent by Smith. He says that without the intelligent co-operation of both patient

and physician little benefit will follow the use of abdominal supporters. Where this co-operation can be secured and a properly fitted belt is made and properly worn, relief is to be obtained in certain cases, especially of nephroptosis with Dietl's crises. He believes that in some cases this relief will be permanent. His experience is limited to two kinds of abdominal supporters in two classes of cases, the first the ordinary unpadded abdominal band, the second the accurately fitted, padded, corset-like belt. The two classes of cases treated have been simple nephroptosis with or without Dietl's crises, and nephroptosis with gastroptosis. The ordinary unpadded abdominal supporter has proven of little value except in cases of marked diastasis of the recti muscles; with the corset-like padded belt better results have been obtained.

31. **Results Following Operative Treatment of Nephroptosis.**—Balch and Torbert report on the results obtained at the Massachusetts General Hospital from operation on movable kidney between 1890 and 1904. Of the total 92 cases 86 were females and 6 males. Of the females 61 were married and 25 were single. Pregnancy was given as a starting point in 33 cases, trauma in 10, and in 49 cases the cause was not known. Of these 49, 25 were married and 24 were single. Seventeen patients had other operations beside the nephropexy done at the same time. There was sepsis in 8 cases, and urinary symptoms in 22. Of the total number of patients 28 were relieved, 13 were not benefited by the operation and 51 had not been heard from. Balch has had 7 cases in his own practice, and his results lead him to believe that in outside practice, where one can choose the cases for operation and for supporters, and where one can be sure of a sufficiently long period of rest afterward, the results are much better than in hospital work.

Lancet-Clinic, Cincinnati.

March 4.

33 Report on Operative Work in the Ureter Through the Author's Catheterizing and Operative Cystoscopes. Bransford Lewis, St. Louis.
34 Medical Aspects of Gastroduodenal Ulcers. Louis A. Levison, Toledo, Ohio.

Annals of Otology, Rhinology and Laryngology, St. Louis.

December.

35 Necessity for the Obligatory Teaching of Otology in Medical Schools. A. Politzer, Vienna.
36 *Mucin in Atrophic Conditions of the Nose and Throat. J. E. Newcombe, New York.
37 *Electrolysis of the Eustachian Tube. T. J. Harris, New York.
38 Psychic Element in Deafness. Boulay and Hadour.
39 Acute Otitis Media Due to Influenza Bacillus. G. M. Didsbury, Paris.
40 Examination of Ears of Railway Engineers and Firemen in Relation to the Length of Service and the Fuel Employed in Roumania. M. Costiniu.
41 Necessity for Obligatory Instruction in Otology in the University. G. Gradenigo.
42 *Osteoplastic Operations on Frontal Sinuses for Chronic Suppuration. R. Hoffman.
43 Obliteration of the Pharyngeal Orifice of the Eustachian Tube, Coexistent with Annular Stenosis of the Epipharyngeal Isthmus. J. Molinie, Marseilles.
44 Bougiage of the Eustachian Tube. C. J. Koenig, Paris.
45 Lucae's Spring-sound, Paraffin. C. J. Koenig.
46 Modification of Eustachian Catheter so as to Facilitate the Return of Effusions in the Middle Ear. C. J. Koenig.
47 Purulent Pial Meningitis Following Acute Middle Ear Disease. J. H. Claiborne, New York.
48 Removal of the Middle Turbinal. B. R. Kennon, Norfolk, Va.
49 Special Syndrome of Endocranial Otitic Complications. G. Gradinego.
50 Associated Otomycoses. L. Bar, Nice.

36. **Mucin in Atrophic Conditions of Nose and Throat.**—Attention is called by Newcombe to some of the properties and uses of mucin as a therapeutic agent. He states that mucin artificially applied to the nose and pharynx has a soothing and emolient action, moistens the surface and softens incrustations, readily facilitating their removal and preventing their reformation. Mucin solutions obviate fetor, and by their hygroscopic action, which is about one-fourth as great as that of glycerin, they tend to restore the function of smell, and favor the filtering and warming functions. Combined with an alkali the solutions neutralize the acid often found in atrophic rhinitis.

37. **Electrolysis of Eustachian Tube.**—Harris details his further experiences with the electrobougie. He says that there is a certain degree of value in the method as described by Duel in a relatively small number of cases, notwithstanding that in the hands of many operators it has proved disappointing. The method has shown itself to be attended with no small degree of danger, and accordingly should be employed only after every other means of establishing the patency of the eustachian tube has been tried. The most scrupulous attention to antisepsis is essential and the greatest gentleness as regards current and touch. Not every one who provides himself with the apparatus is competent to carry out this procedure. It requires the manipulation and skill of an expert. Many of the temporary beneficial results that have been attained are due to galvanism and not to electrolysis.

42. **Osteoplastic Operations on Frontal Sinuses.**—Wherever there is no disease of the bony walls of the frontal sinus, says Hoffman, the osteoplastic method of treating chronic frontal sinusitis is to be preferred, since it satisfies all the indications; that is, a survey of the sinus is thereby obtained, and the treatment of the ethmoid can also be carried out, and, therefore, all diseased tissue can be thoroughly removed, while, at the same time, the cosmetic result is good. In using it, care must be taken that the replaced bony flap everywhere rests on the surrounding bone, in order to get good cosmetic results and to prevent the formation of recesses that delay healing. The connection of the unobliterated cavity with the nose must remain a wide one, as this is the surest guarantee against retention of secretions during healing and against reinfection.

Therapeutic Gazette, Detroit.

February 15.

51 *Bisulphate of Soda in Typhoid. J. E. Cannaday, Paint Creek, W. Va.
52 Pernicious Vomiting of Seven Years' Duration Cured by Suspension of the Kidney. G. E. Shoemaker, Philadelphia.
53 Rest as a Curative Agent. G. Wehrle, El Paso, Texas.
54 Antitoxin Rashes. F. A. Sutcliff, Philadelphia.
55 Differentiation and Treatment of Eye Diseases Most Commonly Seen by the General Practitioner. L. F. Love, Philadelphia.

51. **Bisulphate of Soda in Typhoid.**—The bisulphate of soda is used by Cannaday in the treatment of typhoid in the strength of 7½ gr. to the ounce of water, 2 ounces of this solution being given every three hours. It corresponds in acidity to the hydrochloric acid of the stomach, and hence, promotes digestion. The solution is not at all nauseous and patients, as a rule, do not object to the taste. In a series of 85 cases, the percentage of deaths was 8.02. Two of the deaths were directly due to peritonitis from perforation, one from erysipelas as a complication, while the other fatal cases were evidently due to the exhaustion and depression incident to the disease. In one of the fatal cases, delirium was present when treatment was begun and 2 others were not seen until the end of the second week. The average stay in the hospital was 27.08 days; average duration of fever, 14.06 days; average period of convalescence, 13.02 days. Complications were infrequent. Diarrhea and tympanites were uncommon.

Chicago Medical Recorder.

February 15.

56 Treatment of Pneumonia. F. S. Johnson, Chicago.
57 Physical Basis for Diagnosis in Pneumonia. R. H. Babcock, Chicago.
58 Observations on Influenza Pneumonia. C. L. Hobbs, Chicago.
59 *Regarding Vaccination. H. Spalding, Chicago.
60 Neglected Concomitants of Urethral Stricture. G. F. Lydston, Chicago.
61 Hypertrophy of the Faucial and Pharyngeal Tonsils in Children. Importance of and Necessity for Early Diagnosis and Treatment. T. M. Hardie, Chicago.
62 Ear Diseases Following the Acute Infections of Early Childhood. G. E. Shambaugh, Chicago.
63 Modified Alquie-Alexander-Adams Operation for the Cure of Retroversio-Flexion. H. E. Sauer, Chicago.

59. **Vaccination.**—Spalding, who has had quite an extensive experience with smallpox, makes some very interesting as well as important statements regarding vaccination. Attention is directed to two points in particular: First, the absolute certainty of protection from smallpox afforded by vaccination; second, the universal susceptibility of persons to vaccinia. He has never seen a case of smallpox in a person who had been vaccinated within nine years. During the last six years,

Chicago has had 1,441 cases of smallpox. Of this number 1,270 never had been vaccinated; 162 had some sort of a scar, said to be from a vaccination made in early life, and, with a single exception, not one of them had ever been re-vaccinated. During that time no vaccinated school child has been known to contract smallpox, and yet about one-fourth of the cases of smallpox were children, mostly unvaccinated, under the school age of six years. From 10 to 30 medical students from the various medical college have been visiting the Chicago Isolation Hospital weekly for the last four years. These students are taken into the wards, where they see smallpox in all stages of the disease, and are subjected to a prolonged exposure; not one of these students has contracted the disease. Speaking of the susceptibility of all persons to vaccinia, Spalding emphasizes the fact that in some cases it requires five, six, or ten attempts and states that in one instance, thirteen trials were made, before a typical vaccination was secured. Often the failure is due to inert lymph, and again, there is faulty technic in the operation. The procedure he advises is as follows: Sterilize the arm, throw the vaccine on the arm, and then, with a dull needle, go right through the drop of vaccine, and with slight pressure irritate and abrade the skin until it is red. Do not bring blood and do not remove the epithelium from a spot more than one-eighth of an inch in diameter. Make but one mark.

Journal of Infectious Diseases, Chicago.

March 1.

64 *Studies in the Frequency, Localization and Modes of Dissemination of Tuberculosis, with Special Reference to Its Occurrence in the Lymph Nodes and During Childhood. Francis Harbitz.
65 *Experimental Measles. Ludvig Hektoen, Chicago.
66 Trypanosomes of Birds. Frederick G. Novy and Ward J. MacNeal, Ann Arbor, Mich.
66½ Some Observations on the Biology of the Cholera Spirillum. William B. Wherry, Manila, P. I.
67 Amebas: Their Cultivation and Etiologic Significance. W. E. Musgrave and Moses T. Clegg, Manila.
67½ Studies on Hog Cholera. Charles T. McClintock, Charles H. Bozmeyer and J. J. Siffer.

64. **Lymph Node Tuberculosis.**—In a very exhaustive article on this subject, Harbitz attempts to show that pulmonary tuberculosis may be and often is secondary, and that the cause is then to be sought in tuberculous foci in other organs, but mainly in the lymph nodes, the infection of the lungs occurring most likely by way of the blood. He maintains, furthermore, that much more stress must be laid on primary infection through the digestive tract and on infection through the throat than has been done formerly. A number of very interesting and pointed clinical histories and autopsy reports are given in detail to prove the author's points.

65. **Experimental Measles.**—Hektoen reviews the results of the inoculation of measles as they appear in the literature and then records two experiments of his own from which he believes certain conclusions may be drawn. In these experiments special care was taken to exclude natural infection. The blood injected was taken from a boy of 9, who, in the later stages of desquamation after an uncomplicated attack of scarlet fever, developed a rather mild, but typical attack of measles. On the fourth day, 4 c.c. of blood were withdrawn from the vein of the right elbow, and two flasks containing 50 c.c. of ascites-broth (pepton broth, 2 parts; ascitic fluid heated to 55 C., for fifty-four minutes, 1 part) were inoculated at once with 1 and 3 c.c. of blood respectively, and placed in the incubator at 37 C. for twenty-four hours. Subcultures made at this time on ascites agar, glycerin agar, and Loeffler's serum, kept under aërobic and anaërobic conditions, remained sterile; and the contents of the flask of ascites-broth containing 1 c.c. of blood remained permanently sterile. Four c.c. of the flask of 50 c.c. of ascites-broth mixed with 3 c.c. of blood and kept in the incubator at 37 C. for twenty-four hours, were injected under the skin of the chest of a healthy man, 24 years old, just finishing desquamation after an uncomplicated attack of scarlet fever. So far as could be learned, this man had not had any disease at all resembling measles. At no time did any local symptoms appear at the sight of injections. On the thirteenth day, the temperature rose to 101, and on the fourteenth, immediately after taking a warm bath, a red, papular, blotchy eruption broke out on the forehead and spread quite rapidly to the face, neck and chest. The temperature remained above normal for two days, when it fell to normal about the same time that the unmistakably typical full-grown, rubeolous rash began to fade. An uneventful recovery promptly followed without any complications, the desquamation being branny. During the entire illness there was freedom from respiratory symptoms, and during the pre-eruptive period there were no special local symptoms (*Morbilli sine catarrho*). In the second experiment the blood was furnished by a girl, 21 years old, who passed through an uncomplicated attack of typical measles. About thirty hours after the earliest appearance of the rash which still was coming out on the extremities, 10 c.c. of blood were withdrawn and distributed equally among four flasks, each containing 50 c.c. of broth and 25 c.c. of ascites fluid. These flasks all remained perfectly sterile. After twenty-four hours, 5 c.c. of the mixture of blood and ascites-broth were injected subcutaneously in the back of a man who had not had measles. He, too, was recovering from a mild attack of scarlet fever. There were no local changes at the site of injection. On the eleventh day the temperature rose to 99.8 F., and the next day a mild conjunctivitis became definitely apparent. On the thirteenth day there was some cough, the tonsils were bright and red, and there was an increased amount of mucus in the throat. The temperature gradually rose to 103. During the next night a typical rubeolous eruption came out, the first spots being noticed on the nose and then on the forehead, face, scalp, chest, back and abdomen. The forehead was quite uniformly red. Recovery was prompt. Hektoen concludes that the virus of measles is present in the blood of patients with typical measles, sometime at least during the first thirty hours of the eruption. Furthermore, that the virus retains its virulence for at least twenty-four hours, when such blood is inoculated into ascites-broth and kept at 37 C.

Wisconsin Medical Journal, Milwaukee.

February.

68 Address of President of Medical Society of Milwaukee County. G. E. Seaman, Milwaukee.
69 Surgical Treatment of Ascites Due to Cirrhosis of the Liver. W. Mackie, Milwaukee.
70 Medical Ethics. J. L. Cleary, Kenosha.
71 Glimpse into the Past, Present and Future of Therapeutics. S. R. Moyer, Monroe, Wis.

Old Dominion Journal, Richmond.

February.

72 Treatment of the Alimentary Canal Before and After Abdominal Section. I. S. Stone. Washington.
73 Metastasis from Cancers of the Breast. G. Baughman, Richmond.
74 Headaches from Eyestrain. C. M. Miller, Richmond.
75 Small Point in Therapeutics. C. W. Astrop, Surry, Va.
76 Is Gynecology a Specialty? C. R. Robbins, Richmond.

St. Paul Medical Journal, St. Paul.

February.

77 Diagnosis of Gallstone Disease. Based Upon the Clinical Histories of 1,000 Operated Cases. W. J. and C. H. Mayo, Rochester, Minn.
78 Nasal Deformities and Paraffin Prothesis. A. C. Heath, St. Paul.
79 Epilepsy a Public Menace. C. E. Riggs, St. Paul.
80 Symptoms Incident to Dentition. W. R. Ramsey, St. Paul.

Northwestern Lancet, Minneapolis.

February.

81 President's Annual Address to the Hennepin County Society. C. H. Hunter, Minneapolis.

Cleveland Medical Journal.

February.

82 Medical Inspection of Public Schools. Wm. S. Chase, Akron, Ohio.
83 Care of the Sick Poor by the Hospital and Dispensary. F. E. Bunts, Cleveland.
84 Care of the Sick Poor by the District Physician. L. W. Childs, Cleveland.
85 Care of the Sick Poor in Their Homes. M. Johnson, Cleveland.

New York State Journal of Medicine, New York City.

February.

86 Municipal Sewage. D. C. Moriarta, Saratoga Springs, N. Y.
87 Early Diagnosis and Treatment of Pulmonary Tuberculosis. J. J. Walsh.
88 Value of Transillumination of the Stomach as an Aid to Diagnosis. R. C. Kemp, New York.
89 Calculi in Blandin's and Submaxillary Glands—Report of Cases. H. Jarecky, New York.

Journal of Nervous and Mental Disease, New York.

February.

90 The Course of the Sensory Fibers in the Spinal Cord and Some Points in Spinal Localization Based on a Case of Section of the Cord. M. Prince, Boston.
91 Two Cases of Syphilitic Disease of the Cervical Spine. F. R. Fry, St. Louis.
92 Case of Trauma of the Foot of the Second Frontal Convolution, followed by Ataxia, Nystagmus and Epilepsy. F. X. Dercum, Philadelphia.

Indiana Medical Journal, Indianapolis.

February.

93 Medical Men and Medical Progress, Past, Present and Future. Wm. H. Wishard, Indianapolis.
94 Treatment of Intestinal Obstruction. J. C. Sexton, Rushville.
95 Educational Function of the Physician. F. S. Roby, Indianapolis.
96 The Obstetric Forceps. Garrett Pigman. Liberty.
97 Gastric Ulcer. George H. Grant, Richmond.
98 "Western Medicine." L. H. Dunning, Indianapolis.
99 Compound Tincture of Benzoin. E. J. Kempf, Jasper.

Journal of the Association of Military Surgeons, Carlisle, Pa.

February.

100 Medical Reserve Corps for the United States Army. Azel Ames.
101 Altitude and Expansion. P. M. Carrington, Fort Stanton, N. Mex.

Alienist and Neurologist, St. Louis.

February.

102 Erotomania. Case of Exhibitionism—A Medicolegal Study. D. S. Booth, St. Louis.
103 Outlines of Psychiatry in Clinical Lectures. C. Wernicke, Breslau.
104 Is Delusional Insanity Due to Disease of the Brain? J. W. Wherry, Clarinda, Iowa.
105 Does the Policy on the Victim of an Insane Homicide Beneficiary Become Void by the Homicide? An Analysis of the Paul Hoitz Case. J. G. Kiernan, Chicago.
106 Chorea Insaniens. D. R. Brower, Chicago.
107 Mixoscopic Adolescent Survivals in Art, Literature and Pseudo-ethics. J. G. Kiernan, Chicago.

New Orleans Medical and Surgical Journal.

February.

108 Frequency of Multiple Sclerosis in Louisiana. Roy M. Van Wart, New Orleans.
109 Vaginal Cesarean Section; Report of a Case. C. Jeff Miller, New Orleans.

Brooklyn Medical Journal, Brooklyn, N. Y.

February.

110 Acute Tuberculous Pneumonia. W. Osler, Baltimore.
111 Case of Acute Septic Inflammation of the Throat and Neck, in which Edematous Swellings Were Dispersed by the Use of Adrenalin Chlorid. T. R. French.
112 Clinical Significance of the Tube Casts in the Urine. T. C. Craig.
113 Sterile Water Anesthesia in the Treatment of Hemorrhoids. M. L. Bodkin, Brooklyn.
114 The Diagnosis of Empyema in Children. J. W. Parrish.
115 Adenoids as a Cause of Deformities of Dental Arch. H. H. Young, Riverhead, L. I., N. Y.
116 Appendicitis with Diffuse Peritonitis. J. E. Jennings.
117 Case of Goiter. E. A. Parker.

Kentucky Medical Journal, Louisville.

February.

118 Normal Labor. J. M. Jennings, Tyrone, Ky.
119 Proximity and Position of Weapon in Gunshot Wounds as Estimated by External Appearances of Wound at Point of Entrance. J. K. W. Piper, Russellville, Ky.
120 Case of Typhoid with Sequelæ. J. H. Blackburn, Bowling Green, Ky.
121 Second Letter from Notes Taken on a Trip to the Pan-American Medical Association in the City of Mexico. D. G. Simmons, Adairville, Ky.
122 Postpartum Hemorrhage. W. M. Miller, Millersburg, Ky.
123 Simplicity in Surgical Methods. L. Frank, Louisville, Ky.

Atlanta Journal-Record of Medicine.

February.

124 Facts and Fallacies in Gastrointestianl Work. L. Amster, Atlanta, Ga.
125 Prostatic Massage. W. L. Champion, Atlanta, Ga.

Medical Herald, St. Joseph, Mo.

February.

126 Mental Inhibition, or the Relation of the Neuroses and Pre-Melancholias to the Divorce Court. S. G. Burnett, Kansas City, Mo.
127 Apoplexy. F. E. Coulter, Omaha, Neb.
128 Something About Cerebrospinal Meningitis. C. B. Hardin, Kansas City, Mo.

Albany Medical Annals.

February.

129 Symptomatology and Localization of Tumors of the Cerebellum. H. C. Gordinier, Albany.
130 Pathology of Brain Tumors. H. W. Carey.
131 Surgical Treatment of Brain Tumors. Arthur W. Elting.

Northwest Medicine, Seattle, Wash.

February.

132 American Contributions to Tropical Medicine. J. W. Amesse, Seattle.
133 Atypical and Modified Forms of Typhoid. C, J. Lynch, North Yakima, Wash.
134 Chronic Splenic Anemia with Report of a Case. E. F. Connyngham, Philipsburg, Mont.
135 Defects of Eyes, Ears, Noses and Throats in School Children. A. W. Hawley, Seattle.

Kansas City Medical Index-Lancet.

February.

136 Address, Kansas City Academy of Medicine. C. A. Ritter, Kansas City.
137 Importance of Rest in the Treatment of Acute Tuberculosis. B. F. Stevens, El Paso, Texas.
138 Remarks on Refraction. J. W. Kimberlin, Kansas City.
139 Pneumonia; Its Diagnosis and Treatment. R. W. Paris, Morrisville, Mo.
140 Influenza. R. P. Walker, Bolton, Mo.

Medicine, Detroit.

February.

141 Diagnosis of Perforation and Localization of Appendicular Abscess. C. G. Cumston, Boston.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The British Medical Journal, London.

February 18.

1 Hunterian Oration. John Tweedy.
2 *Visceroptosis; Symptoms and Treatment. H. A. MacCallum.
3 *Recurrent Vomiting in Children. H. B. Shaw and R. H. Trive.
4 *Id. F. Langmead.
5 Hematemesis and Melena in an Infant Two Days Old; Recovery. E. Morris and F. Feldman.
6 *Case of Long-standing Constipation. H. Grey.
7 *Ergot and Arsenic in Chorea. C. Riviere.

2. **Visceroptosis.**—McCallum lays great stress on feeding and massage in the treatment of this condition, on the basis that it is due to a weakened action of the abdominal walls. The superabundance of alimentation means the superabundance of materials that build up the nervous system. Massage promotes the stripping of the connective tissues of their lymph and the renewing of it, and thus makes the lymph pure and nutritious. By this interchange and removal of waste products from muscles, connective tissue and skin, and their daily discharge into the blood circulation, the external organs of excretion are enabled to keep the flow of lymph in a higher state of purity. Massage will build muscles, and in this disease the abdominal wall must be built up. If this is done, the levator ani and the diaphragm will bring themselves up to a state of tone to oppose the lower and upper zone of these muscles respectively. Massage helps the patients not only to get control of the lower neurons of the body, but likewise of the upper neurons. When the stomach is prolapsed, the muscular contractions of the abdominal wall are factors of the highest importance in emptying the stomach contents into the duodenum. No age with visceroptosis is barred from the benefits of this treatment.

3 and 4. **Recurrent Vomiting in Children.**—These two articles are discussions of the clinical history of this condition as presented by various authorities, with reports of illustrative cases.

6. **Long-Standing Constipation.**—For a period of eleven years, Grey's patient, a boy, aged 13½ years, had been accustomed to have an evacuation at intervals of from three to six weeks. On examination, the sphincter was found firmly contracted and the rectum was distended with a huge fecal mass, very hard and firm. The feces were removed by enemata of hot olive oil, thirty ounces twice a day, for nine days. Thereafter a suitable dietary, a pill of aloes and iron, four times a day, massage of the whole body, and especially of the abdominal muscles, and gymnastic exercises were ordered. The aloes and iron pills were gradually reduced in number until after three months only one a day was taken. In three weeks, again, this also was dropped, and the boy has been relieved of his trouble. The case is of interest because of the duration of the condition, the enormous amount of the retained material—29¾ pounds—practically a third of the body weight, and the satisfactory results of treatment.

7. **Ergot and Arsenic in Chorea.**—Riviere reports on the results obtained from the administration of ergot and arsenic in 35 cases of chorea. The ergot was given in doses of 1 to 1½ drams of the liquid extract, three times a day, with 2 minims of liquor strychniæ. These doses did not give rise to symptoms of poisoning, nor to any appreciable physiologic effects. About half of the patients were rapidly improved or cured by this means and most of the remainder improved when arsenic was substituted. That it is the drug treatment which was effectual in these cases is beyond question, because often when it was stopped a relapse occurred and the patient was again cured or improved by its re-administration. In 2 cases, the ergot treatment was ineffectual; arsenic made the patients worse, but on returning to ergot, they were immediately improved. This experience suggested to Riviere the advisability of trying ergot and arsenic in combination. The mixture used contained 1 dram of extract of ergot and 3 minims of liquor arsenicalis, these doses being increased as seemed desirable. There are few patients who remained unbenefited by this treatment; in the majority the improvement began at once. The unbenefited cases consist mainly of those violent choreas for which so little beyond isolation can be done. [Liquor strychninæ of the British pharmacopeia consists of 1 grain of strychnin sulphate to 110 minims of distilled water. Liquor arsenicalis is Fowler's solution.—ED.]

The Lancet, London.

February 18.

8 Functional Mental Disorders. George H. Savage.
9 Early Symptoms of Insular Sclerosis. E. Hobhouse.
10 *Sabouraud's Method of Ringworm Treatment. J. L. Bunch.
11 Some Cases of Urethral Stricture Complicated with a Prostatic False Route or Passage; with Remarks. Reginald Harrison.
12 Colles' Fracture and Other Fractures and Disjunctions at the Lower End of the Radius and Ulna. Andrew Fullerton.
13 Case of Acute Hemorrhagic Pancreatitis; Operation; Recovery. T. C. Litler Jones.
14 Histo-pathology of Seborrhea, Seborrheic Dermatitis and Psoriasis. R. W. Brimacombe.
15 *Case of Endocarditis with Pericarditis Following Scarlet Fever; Treatment by Antistreptococcic Serum; Recovery. Alfred R. Spencer.
16 *Traumatic Lumbago. Frank Romer.

10. **Sabouraud's Treatment of Ringworm.**—The simplicity and effectiveness of this treatment is attested by Bunch. The method is painless, the actual time necessary for the treatment is short, and the diseased hairs fall out at a definite interval after application of the *x*-rays, and are replaced, after a certain time, by a growth of healthy hair. The essential apparatus necessary is an electric current, constant or alternating, and the Crookes tube. The electric energy for the production of the *x*-rays can be derived from a static machine, a Ruhmkorff coil or a transformer, and the Crookes tube can be of almost any pattern or any age. Sabouraud uses a static machine of ten plates driven by a three-quarter horse-power dynamo with a Béclère "spinter-meter" interposed between it and the tube. This latter modification warns the operator at any moment of an increase in the resistance of the tube and enables him to make any necessary alteration. The tube has an ingenious modification of Villar's which enables it to be made "soft" at will. The relative hardness or softness of the tube is recorded by the radiochronometer of Benoist; the resistance of the tube should correspond to the fourth division of the scale. To measure the quantities of *x*-rays generated in a given time, Holzknecht's pastilles are employed. These are composed of a mixture of alkaline salts and resin, which slowly change in color under the influence of the *x*-rays. From time to time the change in color is compared to the standard scale, each of the 12 degrees of which is termed by Holzknecht's one unity, H. The tint corresponding to 5 unities H of Holzknecht's scale, must not be passed, at least at one sitting. Sabouraud has recently adopted the use of paper covered with an emulsion of platinocyanid of barium, and the tint which corresponds to 5 unities H is copied in water color and kept at hand for reference. The paper has the advantage over the pastilles in that it is cheaper, does not become darker when withdrawn from the rays, and regains its original color when removed from the rays and exposed to light. It is less sensitive, however, than the pastille, and must be placed at about half the distance of the pastilles from the anticathode. To cure a patch of ringworm they must be exposed at a distance of 15 cm. from the Crookes-Villar's tube, the tube having a resistance corresponding to the fourth division of the radiochromometer of Benoist, until the quantity of the *x*-rays generated amounts to from four and a half to five unities H of Holzknecht's scale. The operator and the healthy portions of the patient's scalp must be protected from the rays by enclosing the tube in an impermeable sheath perforated by apertures, one of which admits a metal tube corresponding to the size of the ringworm patch. From the fifteenth day onward, the hairs fall out all over the area treated without any effort or traction. The old hair has been extruded by the time the new hair begins to grow. The growth of the new hairs is slow; in the normal cases it is almost complete two months after its commencement. A single sitting is sufficient, and the danger of reinfection or of recurrence is minimal. Where a large area of scalp has to be treated this is best done by dividing it up into smaller square areas and treating each of them separately. Square areas are much more practicable than round, avoiding overlapping or the omission of small triangular patches where two or three circular areas join. The dosage of the *x*-ray must be accurate and sufficient. The first séance, if insufficient, will cause an imperfect fall of hair, and if a second séance be given, those hairs which survived the first time will fall out, but those which fell out as the result of the first treatment will not grow again. The treatment has proved markedly successful. (See THE JOURNAL, page 1265 of the last volume.)

15. **Antistreptococcic Serum in Scarlet Fever.**—Spencer's patient, a boy, aged 5 years, developed an infective endocarditis with pericarditis, during his convalescence from scarlet fever, in the seventh week. Antistreptococcic serum, in doses of 10 c. c., was injected twice on the ninth and once on the tenth and eleventh days of the illness, and again on the seventeenth, eighteenth (twice) and nineteenth days of illness. Both times the result was marked, the temperature falling rapidly to 98. Spencer advises that the serum treatment be begun early and that the size of the dose should be regulated not by the age of the patient but by the gravity of his condition. It is also undesirable to wait for a positive confirmation of the diagnosis, such as embolism or infarct before beginning treatment.

16. **Traumatic Lumbago.**—Romer describes this condition as one in which pain and stiffness in the lumbar region, caused by injury, persist long after the immediate and acute effect has passed away. The treatment aims at stretching the contracted muscles and rupturing the adhesions which are supposed to be present. An anesthetic is given to ensure complete muscular relaxation and absolute freedom in manipulation. The patient is placed on his back, the leg on the sound side is flexed at the knee, and the thigh is flexed on the body till the knee touches the chest wall. It is then brought back to the extended position. The leg on the affected side is put through the same movements. Both legs are then brought up in the same manner and down again flat on the bed, the patient being raised to a sitting posture. One hand is placed firmly over the affected lumbar region, while, with the other, the patient is thrust back toward the bed. By this procedure the lumbar portion of the spinal column is put through flexion and extension as the patient is pressed forward and backward. The after-treatment is directed toward the maintenance of movement, for which purpose it is advisable to have the lumbar and gluteal muscles "'shampooed" within six hours of the operation. In the course of a few days graduated exercises should be added to the rubbing. Later, swimming is to be advised. The histories of six cases are appended to the paper.

Bulletin de l'Académie de Medécine, Paris.

17 (Year LXIX, No. 5.) *Radioscopie. Loison (Val-de-Grace).
18 *Recherches sur la surdi-mutité (deaf mutism). Castex.
19 Discussion in Regard to Apparatus for Administration of Chloroform. Lucas-Championnière and Reynier.

17. **Radioscopy of the Heart.**—Loison concludes from radioscopic researches on 400 young men that the size of the heart is comparatively large in persons who have had rheumatism

or other affections involving the heart, and also in workmen compelled to violent efforts. On the other hand, the shadow cast by the heart is abnormally small in persons affected with pulmonary tuberculosis or predisposed to contract it. The only exception is in case of tuberculous pleurisy.

18. **Causes of Deaf-Mutism.**—Castex has examined 800 deaf mutes with an autopsy in 154 cases. In about 68 per cent. of the entire number the condition was congenital; in the remaining 32 per cent. the deaf-mutism had been acquired in consequence of lesions in the auditory apparatus, including affections of the auditory centers in the cortex. The autopsy findings emphasize the importance in the etiology of the causal lesions in the labyrinth, cortex or medulla, of meningitis, of infectious diseases and of accidents involving the skull. Suppuration of the middle ear or of the eustachian tubes has much less etiologic importance. In one case the condition followed an acute osteomyelitis. The lack of vertigo in deaf mutes implies the abolition of the functions of the labyrinth and semicircular canals. This frees the victims from seasickness. Direct inheritance of the deaf-mutism he found to be exceptional, but syphilis or alcoholism in the parents, or consanguineous marriages, were frequent in the history of the cases.

Berliner klinische Wochenschrift.

20 (XLII, No. 5, January 30.) Ueber Darmfäulnis bei Icterus catarrhalis (intestinal putrefaction). F. Blumenthal.
21 Cesarean Section in Dwarfs. Two Cases.—Zwei rachitische Zwerginnen, durch Kaiserschnitt entbunden. Zwergwuchs. Helmbold.
22 *Chemisches zur Carcinom-Frage. Ueber anormale fermentative Vorgänge beim Krebs. C. Neuberg.
23 *Frequency of Primary Intestinal Tuberculosis at Berlin.—Ueber die Häufigkeit der primären Darmtuberkulose in Berlin. O. Wagener.
24 Intestinal Affections in Infants.—Klinik der Säuglingsdarmkrankheiten. Salge.

22. **Chemical Study of Carcinoma.**—Neuberg has been examining the chemistry of metastases of carcinoma in the liver, and comparing the findings with those of the primary tumor. He also investigated the influence of carcinoma juice on lung tissue, etc. He found that the tissue of the metastases contained more pentose than the primary focus, showing that important cell functions are transformed and modified, either acquiring new power as a ferment or losing some specific ferment action. These findings throw new light on the cachexia accompanying cancer.

23. **Frequency of Primary Intestinal Tuberculosis at Berlin.**—Among 410 cadavers Wagener found 20 in which primary tuberculosis of the intestines was apparent. In 67 cadavers of children under 15 it appeared in 11, that is, in 16.4 per cent. In Orth's experience with 203 cadavers of children under 15, in only 2 were there traces of primary tuberculosis of the intestines. Wagener further found at Kiel 4.7 per cent. in 600 autopsies, and this list included 76 cadavers of children under 15, with 21.1 per cent. exhibiting the primary intestinal lesions.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

25 (XXXI, No. 3, January 19.) *Zur Frage der physiologischen Albuminurie. W. v. Leube (Würzburg).
26 *Functional Examination of the Heart.—Einiges über funktionelle Herzdiagnostik. Fr. Kraus. (Commenced in No. 2.)
27 *Die Behandlung der habituellen Obstipation. A. Schmidt.
28 *Trichocephaliasis mit tödlichem Ausgang (fatal). A. Sandler (Breslau).
29 *Ueber die Behandlung der nervosen Ohrerkrankungen (nervous ear affections). K. Burkner (Göttingen).
30 *Remarkable Case of Vicarious Activity.—Ein Fall wunderbaren Vikariierens. S. Rubinstein.
31 *Absorbable Ligation Clamp.—Resorbierbare Ligaturklemme. M. Imchanitzky and J. Ries.
32 Ueber die Filatow-Dukesche Krankheit. J. Ruhemann.
33 *Die intravenöse Salicyl-Behandlung. Rubens.
34 New Artificial Carbonated Baths.—Ueber neue künstliche Kohlensäurebäder. A. Zucker.
35 *The St. Louis Exposition.—Erinnerungen an die Weltausstellung in St. Louis, Mo., 1904. W. Waldeyer. (Concluded.)

25. **Physiologic Albuminuria.**—According to von Leube, the albuminuria of puberty is due either to defective or to excessive development which regulates itself later. Other varieties of the so-called physiologic albuminuria are due, he thinks, to a congenital relative porosity of the filtering membrane of the glomeruli; it is sometimes noted in several members of a family. Under the influence of fatigue, nervous excitement or the like, albuminuria may be discovered at times. The reverse condition may be noted in certain other persons, that is, a relative impermeability of the filtering membrane of the glomeruli. This explains why albuminuria does not occur in these subjects even when conditions favoring it exist. In 109 cases of heart disease at his clinic, which came to autopsy, there had been no albuminuria during life in 4 of the patients. To his surprise he found marked evidences of congested kidney in all of this group. The absence of albuminuria indicated that the renal filter must have been extremely nonporous. This varying porosity of the kidney filter must be taken into account in examining cases of cardiac insufficiency without albuminuria.

26. **Examination of the Heart.**—In this communication from the second medical clinic at Berlin, Kraus analyzes the findings of radioscopy of the heart in health and disease. He asserts that the shades of difference between the heart shadows cast in cases of various valvular affections are of greater diagnostic importance than the dilatation of the heart alone. These differences in shadows are due to changes in the shape of the various sections of the heart, the immediate consequence of the valvular defect. The consecutive hypertrophy of the musculature and passive dilatation naturally reinforce and nail, as it were, the differences in the outline. This is especially marked in the left convex protrusion of the so-called left middle arc in case of mitral defect, also in the varying behavior of the left lower arc with mitral insufficiency and pure mitral stenosis, and, finally, in the varying outline of the shadow as it spreads to the right in case of aortic and mitral defects. Radioscopy of the heart after artificial distension of the stomach is very instructive. The presystolic pulsation of the right auricle can be distinctly distinguished from the contraction of the ventricle. Two and sometimes three contractions of the auricle to one of the ventricle are sometimes noted. Intermittence of the heart is seen to be by no means always identical with intermittence of the pulse. In cases of tachycardia and bradycardia radioscopy throws light on many hitherto vague processes, especially those of nervous origin, as he describes in detail.

27. **Treatment of Habitual Constipation.**—Schmidt explains the chief benefit of injections of oil as due to their counteracting the mild irritation induced by the fatty acids generated in bacterial putrefaction. The oil reduces friction and soothes the irritated mucosa. Oil injections are frequently extremely beneficial in spastic obstipation. He has derived great benefit in certain cases from injection of seltzer water. In certain cases the freshening action of the carbonated water on the torpid mucosa is very useful. If the intestines are sensitive, some of the new effervescing oils may be used. In regard to drugs, he remarks that there is no purgative which does not irritate the intestines more or less and frequently aggravate the condition, although some persons can take their rhubarb tablets or cascara drops for years without harm, changing occasionally to prevent habituation. Among the regularly used laxatives he mentions Carlsbad salts, tamarinds, fig syrup or prunes cooked with senna leaves. Penzoldt advocates minute doses of castor oil, and Nothnagel, aloes. In spastic obstipation the mildest means are alone permissible. Severe cases require a rest cure in some clinic or hospital, with, possibly, a systematic course of oil injections. A course at a watering place is advisable for young people, but atonic obstipation in older subjects is best treated by a combination of dietetics, electricity and massage, with small, decreasing doses of some laxative.

28. **Fatal Trichocephaliasis.**—Sandler reports a case from Breslau in which anemia, purpura, bloody diarrhea, vertigo and emaciation developed in consequence of the presence of the tricocephalus dispar. The patient was a lad of 11. He states that it is the third case of fatal trichocephaliasis on record.

29. **Nervous Ear Affections.**—Bürkner emphasizes the neces-

sity for general examination and, possibly, general treatment, before proceeding to local measures. Vomiting and vertigo should always suggest the possibility of some affection of the labyrinth, but this is too often forgotten by the general practitioner. Examination of the ear is of paramount importance in many internal diseases, as many of the phenomena observed may be due to the ear. Certain cases of Ménière's disease are traceable to general vasomotor disturbances with neurasthenia as a predisposing cause. It is best treated by complete rest in bed until cessation of the vertigo and nausea. Ice to the head and repeated vigorous purges, blisters on the back of the neck, iodin to the mastoid process, and venesection should not be neglected in the severer cases. He regards potassium iodid and bromid as preferable to quinin. He orders them in the old formula of 7.5 gm. each in 250 gm. distilled water, of which from 15 to 20 gm. are taken three times a day in half a cup of warm milk. Some physicians prefer nux vomica, salol or pilocarpin. Cold hydrotherapy and vapor baths should be strictly avoided afterward. Subjective phenomena are frequently brought on by overstudy or worry. The auditory nerve is irritated and treatment should spare the nerve further irritation. He has found 1-1,000 atropin sulphate useful for instillation in local treatment of neuralgia of the tympanic plexus.

30. **Remarkable Case of Vicarious Activity.**—Rubinstein classes the patient he describes with Laura Bridgman and Helen Keller on account of the remarkable way in which she conquered her natural infirmities. Selma Kunz was born in 1880 at Wertheim and on account of her unusual intelligence was received into the schools at an exceptionally early age. At the age of 6 an attack of meningitis was followed by complete paralysis, the lips and tongue being the only movable organs left over which she had control. She learned to feed herself by taking up the spoon or fork with her lips and tongue, also to sew with lips and tongue, turn the leaves of books, write, knit and embroider, and even to cut out doll garments with the scissors held in her lips and tongue. She died at the age of 23. Her head corresponded to her years, but the trunk and limbs were those of an emaciated child of 10.

31. **Absorbable Ligation Clamp.**—In various experiments on the heart of animals at the Berne Institute of Physiology, Imchanitzky and Ries found it inconvenient to throw a ligature around all the vessels they wished to tie off. They, therefore, used a long, narrow strip of lead, shaped like the letter U, which they merely squeezed together over the vessel with clamp forceps. It was readily removed at will by cutting through the curved end of the strip. The results were so invariably good that they propose to apply this mode of ligation on man, perfecting the technic by using an absorbable material instead of lead. Magnesium seems most promising for the purpose. Experiences at Kocher's clinic have shown that a strip of magnesium is readily and completely absorbed in a short time.

33. **Intravenous Salicylic Medication.**—Rubens' experience with 60 cases of various affections treated by intravenous injection of small amounts of salicylic acid has been very favorable. In articular rheumatism the effect is remarkable in its promptness, but, in the small doses he uses, the duration of the disease did not seem to be materially shortened. In neuralgia, however, the effect was so prompt and decided that he regards intravenous salicylic medication as the absolute specific for this affection, and also for muscular rheumatism. A single injection usually resulted in a complete cure. The benefit derived differentiates rheumatism from other painful affections. No effect was discernible in influenza, but 2 out-patients with pleuritis were cured with four injections and others with less. Several cases of acute laryngitis were more promptly and favorably influenced by this than by any other treatment. He injects the fluid into a vein in the arm. His formula is .35 gm. sodium salicylate and .05 caffein with distilled water to 2 c.c. This is the same as Mendel's formula, which was decided on after long experience and testing.

35. **Notes from the St. Louis Exposition.**—Waldeyer's appreciative words in regard to the St. Louis Exposition close with an eloquent tribute to the Congress of Arts and Science. Here, for the first time, the work of the thinkers of the world was presented along with that of the workers. He adds that the official report of the exposition, when published, will thus present an unparalleled review of the civilization of the world at the commencement of the twentieth century.

Monatsschrift f. Geb. u. Gynäkologie.

Last indexed page 510.

37 (XX, No. 5.) Uterus duplex separatus cum Vagina duplex separata (Uterus didelphys) mit Carcinom der linken Portio, K. Czerwenka.
38 *Klinische Erfahrungen bei Placenta previa mit bes. Berücksichtigung des späteren Befindens der Patientinnen (later health). J. Sonnenfeld.
39 Prolapse of Vagina and Uterus During Delivery.—Vorfall der Scheide und der Gebärmutter während der Geburt. J. v. Kadyi (Jaslo).
40 *Ueber abdominelle Blasenverlagerung bei Cystocele (operative displacement of bladder). H. Cramer.
41 Zu den Myom-Fragen. Martin.
42 (No. 6.) Zur Anatomie und Entwicklungsgeschichte des Uterus unicornis. K. Natanson.
43 3 interessante Beobachtungen analoger Missbildung (Hernia funiculi umbilicalis). F. Neugebauer.
44 *Die subkutane Paraffin-Injektion Gersunys und ihre Verwertung in der Gynäkologie. M. Stolz.
45 *Restoration of Female Urethra with Closure of Vesicovaginal Fistula.—Eine Methode der Wiederherstellung der weiblichen Harnröhre mit gleichzeitiger Beseitigung einer Blasenscheidenfistel. N. Wolkowitsch (Kiev).
46 *Ein Fall von primärer Bauchhöhlenschwangerschaft (abdominal pregnancy). A. Linck.

38. **Health After Placenta Previa.**—Forty-three out of 50 women who had had placenta previa were examined later by Sonnenfeld. Thirty-eight were found free from disturbances. There was slight anemia in 1, and in 3 a tuberculous lung affection. It had developed consecutively to the placenta previa in 2 instances. There was some gynecologic affection as a consequence of the placental anomaly in 31.4 per cent. Abortion had occurred later in 8.5 per cent. The prognosis, according to these experiences at Orthmann's maternity, is not so serious as some writers have maintained. Pregnancy later pursued a normal course in all but 1 of the 18 cases in which it occurred.

40. **Operative Displacement of Bladder in Treatment of Cystocele.**—Cramer has operated in cases of prolapse and cystocele by fastening the mobilized bladder on the rear wall of the uterus and broad ligament. In 3 cases the posterior wall of the cervix was fastened to the anterior abdominal wall. The result was good. The procedure is indicated only in cases requiring laparotomy for other reasons, and is only exceptionally required.

44. **Paraffin Prothesis in Gynecology.**—Stolz has been experimenting with subcutaneous injection of paraffin in treatment of incontinence of urine and prolapse of uterus or vagina. He is convinced that plastic operations are far preferable when possible, owing to the danger of embolism from the paraffin. The latter is indicated only in cases in which other operations are not practicable. He prefers the comparatively soft to the hard paraffin, and relates his experience with 2 clinical cases.

45. **Restoration of Female Urethra.**—Wolkowitsch has previously reported from Kiev 8 cases of extensive vesicovaginal fistulas cured by a plastic operation for which he utilized the uterus. He now reports 5 additional cases thus treated through the vagina with perfect success. In another case in which the urethra had become obliterated by cicatricial growth he bored another, artificial, passage. To line this new passage he loosened the fistula and also loosened the bladder through a suprapubic incision and drew the fistula through the new passage, fastening the fistula lining to the outer opening of the new, artificial, passage. The results were excellent. This technic puts an end to the fistula and restores the urethra at one stroke.

46. **Abdominal Pregnancy.**—In the case described, the findings at the operation demonstrated that the ovum must have become imbedded primarily in the posterior fold of the peritoneum in the cul-de-sac of Douglas.

Münchener medicinische Wochenschrift.

47 (LII, No. 5, January 31.) *Treatment of Acute Suppuration with Congestive Hyperemia.—Behandlung akuter Eiterungen mit Stauungshyperämie. A. Bier (Bonn).
48 Vergiftung mit Isosafrol (intoxication). Waldvogel.
49 Defects of "Ear Trumpets," Two Important Neglected Aids to Hearing.—Ueber Mängel der Hörröhre und über zwei wichtige von Normal- und Schwerhörigen bisher wenig beachtete Hilfsmittel. A. Lucae.
50 Ein Fall von Nephritis syphilitica acuta. H. Thiemann.
51 Nachprüfung der therapeutischen Wirkungen des Gonosan. E. Runge. Same. G. Merzbach.
52 Nephrektomie eines Falles von vereiterter multilokularer Cystenniere (suppurative cystic kidney). A. Stauder.
53 *Test for Bile Pigments.—Eine einfache Probe auf Gallenfarbstoffe. W. Presslich.
54 Zur Diagnose der Embolie der Arteria mesenterica superior. K. Reitter.
55 Neue Instrumente für chirurgische, gynäkologische und geburtshilfliche Operationen. E. Preiss.
56 Ice Bag for Neck.—Ein neuer Halseisbeutel. Löwenstein.
57 Psychotherapie. E. Bleuler.
58 Wine as a Table Beverage.—Der Wein als Genussmittel vom hygienischen und volkswirtschaftlichen Standpunk. O. Schwartz.

47. **Treatment of Acute Suppuration with Bier's "Congestive Hyperemia."**—Bier has become convinced that the profession has been on the wrong track in combating inflammation. He thinks that by the end of another decade physicians will believe, as a matter of course, that antiphlogosis, in its strict application, was one of the most serious mistakes in the history of medical science. He has long regarded inflammation as something useful, and promotes instead of fighting it. He has applied "congestive hyperemia"—which he regards as the best of all means known to date for increasing existing inflammation—in treatment of 110 cases of acute or subacute suppurative inflammations, after his experience with the chronic had proved so favorable. Each year has extended the sphere of this method of treatment until now he applies it in all cases of accessible suppuration and his results have been eminently favorable. In the present article he describes his technic for acute inflammations and suppurations. The constricting rubber bandage is wound several times around the limb as far as possible above the focus of inflammation, and is tightened until there is great "congestion hyperemia." Comparatively loose constriction will accomplish this in case of acute inflammation. The congestion should induce a fiery red edema. The redness and edema which before had been restricted to the neighborhood of the focus soon spread all over the arm below the bandage. The most remarkable feature of the treatment is the almost immediate arrest or alleviation of the pain. The constriction should never be applied in such a way as to cause pain or to make the limb turn really blue. The nutrition of the parts is not disturbed. The limb swells, becomes edematous and fiery red and feels warm. If these phenomena are not observed after the constriction then the affection has passed its acme and is already on the road to recovery. The constricting bandage is worn for ten hours a day, and severe cases require twenty to twenty-two hours' application. For sensitive patients he uses Henle's apparatus, especially for the legs. The fate of the affection seems to be decided by the proper application of the constriction during the very first few days. In case of annoyance from the bandage it can be taken off at intervals during the day. He does not hesitate to apply it over inflamed lymphatics. They improve as the focus below is influenced for the better. Those who pin their faith to antiphlogistic measures will be amazed at the swollen, fiery red aspect of the limb, but the patient is satisfied as he has been relieved of all pain by the congestive hyperemia induced. The pain is liable to return to some extent during the pauses. This "hyperemia by damming" hastens the course of the suppuration. Necrotic tissue is rapidly cast off, and, what is more important, parts are kept alive which we are accustomed to see doomed to necrosis under ordinary methods of treatment. We have always supposed that this was inevitable. The congestive method further localizes the affection and thus spares the patient the necessity for large, mutilating incisions, while ideal function is restored. Another remarkable feature of the treatment is the way in which the edema and redness gradually subside under the congestive hyperemia, even before the constriction is removed. This is always a sign that the infection has been dominated by the blood and that the unknown inflammation "stimulus" has been abolished. Bier reviews his experiences in detail: 5 cases of fresh pyemic metastases aborted by "congestive hyperemia," 2 cases of the transformation of hot abscesses into a torpid phase, 5 of severe suppurations of large joints which healed under congestive hyperemia without any other measures, not even an incision, and left the joint with absolutely normal function. He thinks that this group alone amply establishes the superiority of his method. He punctures or incises in all cases to allow the escape of the pus unless the benefits from the "congestion hyperemia" become promptly manifest. He rejects draining and tamponing as the mechanism of a joint is too delicate to stand such rough measures.

53. **Sensitive and Simple Test for Bile Pigments.**—Presslich states that 200 to 300 c.c. of urine turn green on addition of from 15 to 20 drops of fuming nitric acid in case of the presence of bilirubin. The reaction is due to oxidation of the bilirubin into biliverdin, the same chemical process as in Gmelin's reaction.

Riforma Medica, Palermo and Naples.

Last indexed page 835.

59 (XXI, No. 1.) *Effects of Resection of Nerves of Pancreas.—Sugli effetti della resezione dei nervi del pancreas. G. Zamboni.
60 Elastic Tissue in Cirrhosis of Liver.—Sulla origine e distribuzione del tessuto elastico nel fegato cirrotico. L. Girolamo.
61 *Sulla fisiopatologia del grande epiploon (of great omentum). R. Pirone.

59. **Effects of Resection of Pancreatic Nerves.**—This operation was well tolerated by dogs and they showed no serious disturbance from it during the six months before they were killed. Retrogressive changes in the islands of Langerhans were marked, but there was no glycosuria, which throws doubt on the assumption that these islands are concerned in the production of glycosuria. Lombroso has also recently reported research on pigeons and dogs, in which he ligated and resected Wirsung's duct. His findings still further disprove this theory. It is much more probable that the functional activity of the pancreas is morphologically single. Zamboni is inclined to accept the idea that the islands of Langerhans are embryonal relics, rudiments of organs which, in the lower vertebrates, still perform a more important function.

61. **Physio-Pathology of the Great Omentum.**—Pirone's researches on the protecting part played by the omentum have been mentioned in these columns. His results should compel us to modify our ideas in regard to the omentum and of serous membranes in general. We have too long regarded them as merely protecting envelopes for the organs below. He has established that they have actual phagocytic action, taking up the elements of a necrotic spleen, for instance, after ligation of its pedicle. In these later experiments he used sodium taurocholate, which has been shown to have an elective action on the spleen when the animals have been immunized against it. An intravenous dose of 20 cg. kills a large rabbit in ten minutes, but when immunized against it the spleen shows specific changes. It becomes enlarged by proliferation of the malpighian corpuscles while macrophages appear in the pulp. He experimented with splenectomized animals, or those in which the spleen had been tied off, inducing immunization against this drug and comparing the findings with those of non-splenectomized animals. The results show that the omentum evidently tried to compensate the absent spleen. Compensatory hyperplastic processes in the lymphatic follicles of the omentum were unmistakably apparent. The findings suggest functional relations between the spleen and omentum beyond what physiologists have hitherto imagined. Cells which possess decided phagocytic action are liberated by the omentum in these conditions. The great omentum evidently participates in those general processes of defense which result in the production of immunity.

Correspondenz-Blatt f. Schweizer Aerzte, Basle.

Last indexed page 589.

62 (XXXIV, No. 21.) *Signs of Pregnancy in First Months.—Gibt es sichere Zeichen der Schwangerschaft in den ersten Monaten? O. v. Herff.
63 Zur Behandlung des Schluckwehs (pain in swallowing). A. Jaquet.
64 (No. 22.) Das freiwillige Hilfswesen in der Schweiz (voluntary first aid in Switzerland). W. Sahli.
65 Die Freyer'sche Operation. P. Campiche.
66 Unfall- und Krankenfürsorge, sowie Wohlfahrtseinrichtungen beim Bau des Simplon Tunnels (care of sick and injured in construction of tunnel). E. Haffter. (Commenced in No. 21.)
67 (No. 23.) Ueber Trockenmilch und ihre Verwendung als Nahrungsmittel (milk powder). A. Jaquet.
68 Ueber die Verwendung von Adrenalin-Kokain in der Geburtshilfe und Gynäkologie. E. Wormser.
69 Nebenbewegungen im Kniegelenk und Ruptur der Menisci articulares. T. Christen.
70 Ueber die Aetiologie der Tuberkulose auf der Gold-Kuste (Gold Coast). R. Fisch.

62. **Early Signs of Pregnancy.**—Sarwey's communication on the possibility of diagnosing a pregnancy as early as before the eighteenth week was reviewed in these columns on page 428. In 14 instances he was able to detect the fetal heart sounds at this early date. O. von Herff has paid special attention to this subject, but has never been able to detect the heart sounds so early, and believes it possible only in exceptional cases. He intends to try a curved stethoscope introduced into the vagina, as was proposed some years ago. He was unable to detect the fetal heart sounds even in four fetuses from the twelfth to the sixteenth week of pregnancy which were kept alive in warm physiologic salt solution. No heart sounds could be detected, with or without the stethoscope. He believes, however, that there are other indications which, even at an early stage, allow a presumptive diagnosis of pregnancy with greater confidence than is generally accepted. Ballottement is decisive if it can be determined that it occurs inside the uterus, and if a tumor with ascites can be excluded. Another almost positive sign of pregnancy is the regular increase in the size of the uterus and the pronounced contractions of the fundus. No uterine tumor, no pyometra or hematometra grows so rapidly and regularly in size as the pregnant uterus. Examination at two or three-week intervals will positively decide the question of pregnancy, by this regular growth of the uterus. The contractions also are significant. If a dubious tumor feels very hard at one time and then remarkably soft—doughy—at another, it can be nothing but the gravid uterus. If the fetus dies, the uterus diminishes in size as the amniotic fluid is absorbed. More rapid increase of size than that of a normal pregnancy indicates an acute hydramnion or vesicular mole. In examination of 30,000 women during the last fourteen years, he has encountered only a single instance in which the characteristic patches of discoloration in the vagina occurred outside of a pregnancy. This single exception was in an elderly woman. The patches are deep bluish red or reddish purple, and lie in stripes in the depths of the crevices, especially in the vicinity of the urethra. Mere livid, bluish-green discoloration is frequently encountered outside of pregnancy, in case of disturbances in the circulation from any cause. The true discoloration of pregnancy, as he describes it, he regards as a sign of probability bordering on certainty that a pregnancy exists. [Sarwey replies to von Herff that auscultation must be kept up for twenty to thirty minutes or longer, usually, before the fetal heart sounds become audible at such an early stage as before the eighteenth week. He adds that the birth act is liable to alter the fetal heart action to such an extent that the heart sounds, audible before it, can not be detected afterward, even by direct auscultation of the beating heart of the living fetus. He had occasion to establish this recently in the case of twin fetuses at the fourth and fifth month.—ED.]

Hospitalstidende, Copenhagen.

Last indexed page 431.

71 (XLVII, Nos. 27-28.) Om Appendicitens Etiologii, Patogenese og Diagnose. C. Wessel.
72 *Death from Bee Stings.—Dod ved Bistik. H. Kaarsberg.
73 (No. 29.) *Studier over den kroniske Gastritis. K. Faber.
74 (No. 30.) De otogene Hjerneabscessers Operations-Teknik og deres Efter-Behandlung (brain abscesses). E. Schmiegelow.
75 Structure of Papilloma in Bladder.—Om Blaerepapillomernes Bygning. A. Lendorf.
76 (Nos. 31 32.) *Functional Tests of Kidneys.—Metoderne til at bestemme Nyrernes fysiologiske Funktionsevne forud for Nyreoperationer. T. Rovsing.
77 *Om den Madelung'ske Deformitet af Haanden. K. Poulsen.
78 (No. 34.) Death from Ether.—Et Narkosedodsfald. H. Seidelin.
79 Human Tuberculosis Under Aspect of Perlsucht.—Menneske-tuberkulose af Udseende som Kvaegets Perlesyge. J. Ipsen.

72. **Death from Bee Stings.**—A robust, well to do man of 60, twice had been stung by bees. On one occasion he lay unconscious for two hours afterward. He was very much afraid of being stung, and when the bees attacked him again he died in five minutes. About 50 bees had settled on him, some of them on his lips.

73. **Chronic Gastritis.**—Faber discusses Einhorn's assumed entity of gastritis with "erosions of the stomach." He noticed in 16 cases of chronic gastritis that the gastric mucosa was very easily injured, the mere introduction of the sound or lavage was liable to bring away scraps. This friability of the lining of the stomach occurs very rarely in the absence of gastritis. Ulceration is not an accompaniment of all cases of gastritis, and it may occur with varying degrees. The intensity of the gastritis can not be estimated from the degree of acidity. There is no typical train of symptoms or uniform etiology for ulcerative gastritis. We have no grounds for assuming a spontaneous casting off of scraps of the mucosa, and the gastritis accompanied by ulcerations has scarcely anything to do with the erosions noted at the autopsy. Einhorn's assumed symptom-complex is not sustained by clinical experience. The scraps found in certain cases of chronic gastritis do not reveal a special morbid process, but merely indicate a special friability on the part of the mucosa, due to some pathologic but not uniform condition. So far as the patient is concerned, it is a subordinate phenomenon in certain cases of gastritis, but it may have some diagnostic value in case of acid gastritis.

76. **Tests of Kidney Functioning.**—Rovsing's remarks are based on considerable clinical and experimental research, and were read to open the discussion at the last Northern Surgical Congress. He qualifies cryoscopy of the blood as the most unreliable of the various tests reviewed. Its findings are inconstant and misleading. In the overwhelming majority of cases catheterization of the ureters, showing that the urine from the other kidney is free from albumin, blood, pus or microbes is sufficient basis for confidently carrying out a projected nephrectomy. One of the most important indications which it furnishes is that of the actual presence of the other kidney. Determination of the proportion of urea is the simplest and most reliable of other functional tests, and should be preferred to cryoscopy of the urine and phloridzin glycosuria, as the latter have not displayed any superior advantages over it. In certain rare cases of contracted kidney or of multilocular cystic kidney it may be necessary to expose the other kidney by a lumbar incision to determine by visual inspection and palpation the probabilities as to its assuming the entire urinary function. He emphasizes the fact that because the "other" kidney is not doing its proper amount of work, is no reason for assuming that it can not do it when the inhibiting influence of the diseased kidney is removed.

77. **Madelung's Deformity of the Hand.**—Poulsen gives an illustrated description of 2 cases and reviews 38 in the literature. All but 8 of the patients were women. Linear, oblique osteotomy of the radius restores conditions approximately to normal. His technic is described in detail, with radiograms.

Hygiea, Stockholm.

Last indexed page 511.

80 (LXVII, Nos. 9-10.) *Studier öfver Paranoia querulans. A. Petren.
81 2 fall af myxedem, Ben-sarkom med metastaser. A. Josefson.
82 Nagra ord om eter-narkos efter dropp-metoden med vanlig öppen (kloroform) mask (drop method with open mask). A. Euren.
83 *Prophylaxis of Mercurial Stomatitis.—Om sättet att förekomma kvicksilverstomatiter samt en därtill lämplig tandpasta. J. Almkvist.

84 *Behandlung af tetanus med stora doser kloral (with large doses of chloral). T. Fischer.
85 Anti-Tuberculosis Discussions.
86 Om Röntgen-Behandlung af sarkom. T. Sjogren.
87 *Om äktenskapets ingaende fran hygienens och läkarens synpunkt. S. E. Henschen.
88 (No. 11.) *Sodium Salicylate Treatment of Sympathetic Ophthalmia.—Om den sympatiska oftalmiens behandlung med salicylsyradt natron. C. Lindahl.
89 *Om "preserv-sjukdomar" (illness due to smoked, salted or frozen foodstuffs). E. Ekelöf (physician with Antarctic expedition).
90 Report of V Northern Congress of Internal Medicine, Stockholm, Aug. 29-31, 1904. (Commenced in No. 9.)
91 (No. 12.) *Serum-terapien, sedd fran fysikalisk-kemisk standpunkt. Svante Arrhenius.
92 Nagra iakttagelser fran difterlepidemien i Stockholm, 1903-1904. I. Andersson.
93 *Collective Inquiry in Regard to Venereal Disease in Sweden, Jan. 31, 1905. M. Möller.
94 Relations Between Otitis and Scarlet Fever, Etc.—Forebyggandet af otiter med Skalakansfeber och andra akuta infektionssjukdomar. J. Rodling.
95 2 fall af lupus follicularis disseminatus. H. I. Schlasberg.

80. **Paranoia Querulans.**—Petren relates in minute detail the history of a striking case of contentious, litigious paranoia, reviewing the literature on the subject.

83. **Mercurial Stomatitis.**—Almkvist gives the particulars of 6 cases of syphilis in which stomatitis followed very small doses of mercury, and then of a few more cases in which nothing of the kind was observed, although the mercury had been given in unusually large amounts. The cases cited seem to indicate that the reason why stomatitis develops in some and not in others is on account of the presence or absence of decaying matters and of tartar on the teeth. For this and for other reasons which he enumerates he orders a tooth paste made according to the formula: potassium chlorate, 36; sodium benzoate, 3; sapo albus, 4; sodium biborate and glycerin, each 8, and etherol, 1—the latter being used solely to flavor the paste. The ingredients are all soluble and three years of experience have confirmed the prophylactic efficacy of this tooth paste. It may be preceded by rinsing with a little alcohol. The tartar should be removed beforehand by a dentist.

84. **Large Doses of Chloral in Tetanus.**—No effect was apparent in the severe case of traumatic tetanus described until as much as 2 gm. of chloral had been given seven times a day. The patient was a man of 24. At every attempt to reduce the dose the symptoms recurred with their previous intensity, so these large amounts were continued for thirteen days. Tizzoni's serum and 2 gm. of chloral four times a day had been given during the first six days without appreciable benefit. These large doses relieve the pain and may be given without apprehension as long as the attacks persist. No symptoms of intoxication are observed.

87. **Marriage from the Hygienic and Medical Standpoint.**—Henschen discusses marriage as affecting the prognosis of lung and heart disease, kidney and blood affections, etc. Also the prognosis of the offspring. In respect to venereal diseases, Henschen advocates compulsory instruction of youth in regard to the dangers of venereal diseases. He also advocates a medical certificate as to health as a requisite for the marriage license, and penalties for all those who knowingly transmit venereal disease.

88. **Sodium Salicylate in Sympathetic Ophthalmia.**—Lindahl's experience includes 13 cases of sympathetic ophthalmia. Some of the patients were treated by the administration of 4 to 6 gm. of sodium salicylate daily. The results have confirmed him in the belief that this is a powerful means of combating this affection. It also is a very effectual remedy to use in case of traumatic iridocyclitis, preventing the outbreak of sympathetic ophthalmia or rendering it benign if it does occur. The action of the salicylate is much more certain and prompter than that of mercurial inunctions.

89. **Scurvy.**—Ekelof calls this disease "preserve sickness" as he ascribes it to some intoxication due to the eating of salted, smoked or dried animal foods. This kind of preservation may generate a toxin which is liable to induce scorbutus, epidemic hemeralopia or beriberi. His statements are based on observations made during a three-year trip to the Antarctic regions.

91. **Arrhenius on Serum Therapy.**—This communication on serum therapy from the standpoint of physico-chemistry is merely a recapitulation of data and views with which the readers of THE JOURNAL are already familiar.

93. **Collective Inquiry in Regard to Venereal Disease in Sweden.**—A circular was sent to every physician in Sweden asking him to report on Jan. 31, 1905, the number of cases of syphilis in his charge (males, females), recent, secondary and tertiary; of ulcus molle; of gonorrhea and its consequences (adults and children under 15). Also details in regard to the syphilis, whether it was acquired (genital, extragenital), inherited, or of unknown origin. The male and female cases are listed separately.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

REPORT ON THE ORIGIN AND SPREAD OF TYPHOID FEVER IN U. S. MILITARY CAMPS DURING THE SPANISH WAR OF 1898. By Walter Reed, Major and Surgeon, U. S. A., Victor C. Vaughan, Major and Division Surgeon, U. S. V., and Edward O. Shakespeare, Major and Brigade Surgeon, U. S. V. Vols. I and II. With Maps and Charts. Prepared in Accordance with Act of Congress Under the Direction of Surgeon-General Robert M. O'Reilly, U. S. A. Cloth. Pp. 721. Washington: The Government Printing Office. 1904.

CHANNELS OF INFECTION IN TUBERCULOSIS. Together with the Conditions, Original or Acquired, which Render the Different Tissues Vulnerable. Being the Weber-Parkes' Prize Essay, 1903. By Hugh Walsham, M.A., M.D. (Cantab.), F.R.C.P., Physician to Out-Patients, formerly Pathologist to the City of London Hospital for Diseases of the Chest. Cloth. Pp. 150. Price, $3.00 net. New York: Wm. Wood & Co. 1905.

CLIMATE AND HEALTH IN HOT COUNTRIES and the Outlines of Tropical Climatology. A Popular Treatise on Personal Hygiene in the Hotter Parts of the World, and on the Climates That Will Be Met with Within Them. By Lieut.-Col. G. M. Giles, M.B., F.R.C.S., Indian Medical Service (Retd.). Cloth. Pp. 109. Price, $3.00 net. New York: William Wood & Co. 1905.

GYNECOLOGY. Medical and Surgical. Outlines for Students and Practitioners. By Henry J. Garrigues, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City. With 343 Illustrations. Cloth. Pp. 461. Price, $3.00 net. Philadelphia and London: J. B. Lippincott Co. 1905.

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Original Articles.

SOME COMMON ERRORS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.*

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LOS ANGELES, CAL.

Few subjects in all medicine have received such thorough study in our time as tuberculosis. Current methods in the treatment of its pulmonary form average better than those of old. Results show this fact. The tuberculosis mortality has been reduced in less than three decades by probably 29 per cent. of the former figure, or from 14.25 to 10 per cent. of all deaths. These results are not accidental, but are clearly due more to the better management of the pulmonary form than to any other influence.

The disease is still one of the most appalling of the list. It attacks probably half of all the people at some time in their lives, and it destroys a tenth of them finally, and it deserves the best thought of all physicians.

If the best methods of treatment now are better than those of the last century, we should logically all adopt them. But it is difficult for us all to move with the advance of the general consensus, and we shall probably never wholly agree as to what is, in all particulars, the best treatment. Notwithstanding these drawbacks, we ought to be more united than we are, and I am sure no word can be unwelcome that can help, even a little, to bring us together, and to the best basis.

This paper offers no fresh discoveries, but is rather an attempt, mainly through an invitation to a mutual confession of our common errors, to indicate the best course for to-day.

Men grow fixed in their ideas; they come to regard their notions as among the immutable axioms, and so are slow to discover and to change. The change is more difficult when it involves an actual reversal of views, as many of us have had to experience on the subject of tuberculosis. Not only have we trouble with the developing truths of this science, but our tendency is here, as in our dealings with most diseases, to ask what is good for tuberculosis; that is, what drug or measure, rather than what therapeutic or physiologic end we ought to try to accomplish. It is somehow easier for us to think that quinin or cod liver oil; creosote or a change of climate; some inhalation of drugs or a so-called antitoxin, is good for tuberculosis, than it is to understand that the great first purpose of all treatment is to increase the physiologic power of the patient to resist the disease and to destroy or circumscribe its cause within his own body.

With all our study and experimentation, and in spite of all our theories and hopes, this truth stands as the one cardinal postulate of the subject up to the present moment. We may well search and pray for some shorter cut, for some drug or other thing that shall be as destructive of tuberculosis as quinin is of malarial plasmodia, or iodid of potassium is of actinomyces, or the antitoxin of diphtheria is of the infection of that disease. But we have not found it yet, and the sober fact confronts us that the one supreme need is for more power in the afflicted body to restrict or to destroy the tuberculous process. For our present guidance this truth is so vital that it takes rank with a confession of faith in religion.

Our greatest and most common error has been against this truth, and the results have been correspondingly sad. We have given our patients creosote or guaiacol or some other drug thought to be inimical to the tubercle bacilli, and have neglected the half dozen measures whose tendency is to increase the power of the patient. Thus we have often thrown away the great resources of rest, fresh air, outdoor life, changes in surroundings, and a systematic effort to increase the nutritive forces of the body—and all because we had prescribed some one remedy, or alleged cure, which, through fashion or bias, had filled us with a fatuous faith.

There is no objection to the tonic medicines, from cod liver oil to strychnin; nor to creosote and its modifications, if they do not disagree with the particular patient; nor to soothing inhalants that are harmless; nor to Koch's lymph in minute doses in the incipient cases; nor even to the very cautious use of the so-called tubercle antitoxins—always provided they are understood to be minor and subsidiary things, never of great value, and to be used only as aids to the general hygienic measures referred to—never to their hindrance.

To give creosote to the extent of lowering the digestive power, or to give serum injections that cause phlegmons and higher temperature, or to give coal-tar drugs for fever, while the patient is allowed to go in an unhygienic course of life without advice or correction, is an error so awful in its results that not even confession and penance are a sufficient atonement. And we have all of us sinned in some of these directions, and some of us grievously.

Every one of these patients should be constantly supplied with outdoor atmosphere in such abundance that every successive inspiration brings a fresh dose of air to the lungs, and none from previous expiration. Every one should have long hours of rest—if feverish, the rest recumbent should be almost or quite constant, for exercise increases the fever. The digestive powers should be made to do their best, under the most careful supervision, toward improving the nutrition and possibly also the resisting power of the patient.

But we have allowed our patients to stay indoors.

* Read before the Chicago Medical Society, 1904.

without proper ventilation, and breathe a poisoned house air three-quarters of the time. We have subscribed to the popular untruth—as pitiful as it is groundless—that patients in a gentle current of air called a *draught* are in danger of colds and other harm, and so we have kept them breathing over and over their contaminated air. The truth is that one never takes cold in any draught, even a wind, if his body and head are kept warm by clothing. The advice of the profession ought to be to keep in a draught, never out of it; only it would lessen the business of the physicians while it would be of incalculable benefit to the people.

We have given to some of the patients the terse advice to "eat all you can, and drink whisky," with the result that not a few of them have lessened their nutrition by eating a large meal once in a day or two and taking only trifles (often harmful) between times; and have distinctly lessened their powers by too much whisky, taken as the whim moved them.

We have believed the patients who say that they can not eat because they have no appetite, forgetting that a patient can usually be led to take the right food as well as to take medicine. We have agreed with the patient's theory that an appetite is necessary, and that food must be adjusted to the appetite; whereas the truth is that in tuberculosis the food ought to be adjusted to the patient, and the appetite to be ignored almost completely. Appetite is an emotional impulse fitted to the well. Sickness makes it morbid and a poor guide. Many a cadaveric, unhungry patient can be taught to eat six small doses of food daily and get fat—and even then to acquire an appetite.

We have acquiesced in the notions of patients that the more muscular development they can induce the better; so some of them have become athletes with less gain in the limiting fibrosis in their lungs than if they had kept their exercise below rather than above normal. For it is a rule, which probably has no exception, that a tuberculous patient is never helped to resist the disease by muscular development above his normal standard.

Then, we have fallen into the error of supposing that by deep breathing and stretching the sick lung the tuberculosis might be circumscribed; and this in the face of many proofs that all tuberculous tissues should be kept still. There is no good reason to say that lung tissue is an exception to the rule. What we need is a simple, safe and efficient means of putting the sick lung to complete rest in all unilateral cases. All the deep breathing devices are mischievous, and the breathing tubes that stretch the lung tissue are especially so.

In pulmonary hemorrhages we have given large doses of ergot, which has, if it has done anything, increased the blood pressure and so made a fragile vessel more likely to break and bleed. This is the only result that, from its physiologic effects, we had any right to expect from this drug. Such treatment not only makes the bleeding worse, but is like to the tragedy of being slaughtered in the house of one's friends.

And when a patient has bled nearly or quite to syncope, and his pulse has become so fine and weak as to be barely perceptible, we have, fearing he would die otherwise, filled him with normal salt solution that has again distended his vessels and pushed out the clots that had begun to form at the bleeding points, and so helped to destroy the little life that was left. It would profit us to reflect that the condition most conducive to a firm clot in a large vessel-opening is such a degree of exsanguination as to reduce almost to zero the blood pressure at the seat of disease. That patient is most likely to survive a large lung hemorrhage whose blood pressure is for some hours thereafter reduced to the lowest point consistent with life. And transfusions, infusions, and injections of normal salt solution are only in order when we know the bleeding vessels are firmly closed by clots, and when we have reason to think there are no other brittle vessels ready to break. What is more often needed is means to dilate the blood vessels of the periphery and so lessen the pressure in the deeper parts; such measures as fasting, free catharsis, opiates, and compression bands about the limbs at their junction with the body.

We have been guilty of great carelessness with many of our patients and have tolerated their doing a lot of foolish things that have much retarded their recovery. And these are mostly preventable things. One error is to eat what they happen to like and as and when they like it, regardless of consequences. These patients are prone to whims of eating, and occasionally get a fit of indigestion that sets them back for weeks. They are even more erratic in their exercise. Many a one has lost all he had gained in months by a single day of overdoing. The patient is governed by his momentary sensations, and rarely can be trusted to live continuously in that strict moderation which is necessary to keep up a sustained increase in resisting power. A consumptive can not afford to dissipate in anything for a single day, for when his vitality drops even a little his disease promptly becomes worse.

A consumptive's body should always be well and equably clothed, and should never be hampered or restricted by garments. Snug corsets and conventional gowns are an absurdity for the tuberculous woman; worn as they are by most such women, they frequently tip the scales in favor of death rather than recovery. No physician can fairly say to such a patient that the best is being done for her as long as she persists in thus clothing her body. She and her friends should be made to understand that they, not the physician, must take the risk of such foolishness.

Pulmonary tuberculosis is a long disease, and requires a long and uniform course of the best hygiene and management to ensure final and lasting recovery. It is not an enlistment for ninety days, but for a campaign of years. The people do not appreciate this, and the patients are usually disappointed when they discover it; and they rebel, and blame their doctors for not having told them more plainly. They should be told this truth at the beginning, and told so positively that it will stand out in their mental horizon like a mountain.

Climatic treatment of tuberculosis has rightly become popular the world over. Now, one of the first thoughts in behalf of a consumptive is to send him away for this benefit; and certain climates have become, in the minds of many people, a sure cure for the disease—to these minds nothing else is needed. And numerous benefits may come of a change to another and perhaps a better climate. It may mean not merely a new climate, but rest from labor, change of scene, amusement, relief from the tension of previous occupations, and from the annoyances of a previous environment; a cheerful and optimistic frame of mind may come also. The climatic remedy ought to mean all of these good influences, but usually it does not. And I am compelled to the belief, from abundant observation, that of all the remedies prescribed for the tuberculous, one of the

most unsatisfactory is climate, as it is usually employed. Going away for climate is one of the most misused of all the great measures for the sick; and so what ought to be a surpassing benefit often becomes a deception and a vision of death. This misfortune is largely an error of the people, but the profession is at fault about it also. In more than half the instances where it is advised it is for the wrong kind of cases, or at the wrong time, or for the wrong people; that is, it is ordered with poor regard for all the facts in the situation.

No other treatment for tuberculosis is so liable to be made nugatory by circumstances that are usually not thought of. Here is a small list of the faults: Proper climate treatment is always expensive. In more than half the cases it is spoiled by lack of money. Patients should not be sent away without from fifteen to twenty dollars a week for board and expenses. A consumptive, away from home, and especially if he must be alone, ought never to be compelled to count his pennies; it is generally ruinous to his chances of recovery. One of the most pathetic sights is that of a poor consumptive living in a cold, dreary room, going alone to some restaurant for his meals, and then having to study the bill of fare to see how much food he can get for the least money—usually getting the coarsest and least digestible articles, while his digestion is made as bad as it can be by his desolation. His appetite is poor and he eats as seldom as possible for this reason, and to save expense. He ought to eat twice as often as usual, instead of half as often, and of the most expensive foods, such as eggs, milk, tender meat, and the best stale bread and the best butter. These he rarely gets in this manner. Think of a man having to drag himself about and try to live in this way with his temperature frequently two or more degrees above normal. Such a picture is not at all uncommon in any land where consumptives gather.

Hopelessly sick patients, with lung and throat lesions dooming them to death speedily, are every day in the year posted off after climate a thousand miles away, often with little money and usually away from all the home treasures, and on a pilgrimage of death. Such patients should never be allowed to leave home, unless they are rich and insist on going. I know that they mostly start on such journeys on their own or their friends' initiative, and often against the advice of their physicians, but I am afraid that the physician sometimes consents or connives at their going—for some reason that he may think sufficient. The responsibility in such cases is awful, and the reason is frequently not sufficient. Is it possible that sometimes the reason is the lack of courage on the part of the physician to say an unpleasant truth?

These poor people away for climate are often homesick, for they rarely have a friend with them, unless it is some member of their family who must be at work, and so is of little use for comfort or nursing. Homesickness is fatal to any great gain by the patient, and usually prevents any gain while it lasts. Fever, indigestion, cough, and pain aggravate the nostalgia, and check the process of recuperation. A patient ought not to be sent away for climate unless some strong, resolute and cheerful nurse or friend can go with him, or be found at his destination. Even the wealthy are not an exception to this rule, and they can usually follow the rule, as the poor can not.

These patients in a strange land need supervision as well as friendship and comfort, and they usually fail to get it. They need the supervision of both physician and friend, and they often get neither. They do not need to see the physician often, but they do require to have their course of life outlined by him in rather minute detail, and then to be helped by some strong, sane friend or nurse to carry it out without a break. And my word "sane" means cheerful as well as sensible.

Most climate seekers tend to make their change a sight-seeing journey. They try to behave like the well people; they shun the sick and struggle to conform to all the habits of the well. They try to keep up with the well in side excursions; they are morally too weak to refuse invitations that mean exhaustion; they are unwilling to settle down, regard themselves as invalids, and keep still. Thereby they tax their powers unduly and fail to make the best of their opportunities. Their pretenses are like whistling to keep up their courage, but the tubercle bacilli are no respecters of such devices.

Physicians ought to warn all climate-seeking patients against these demoralizing tendencies. Those patients do best who do not pretend to be well, but try patiently to become so. The mental tendency of most of them is to pretend not to be sick. They need help to resist all such cowardly impulses.

The modern, well managed sanatorium offers all these and many more benefits.

I am aware that if all the cautions here expressed were to be strictly observed, many fewer tuberculous persons would be sent away to climates for their health.

What would I do with those forbidden to go? I would keep them at home, or near home and friends, and give them the benefits of the best of their own climates. That is, outdoor life so far as possible, fresh, clean air every minute of their lives, as much rest as need be, a rigid regulation of their exercise, and a thorough study of their nutritive powers, with means to make the very most of them. They should dress and behave like the cheerful sick seeking health; and most of them would recover. Thus regulated, their lives would be as changed and novel as though they had gone to the mountains, and they would have all the benefits of the novelty without its drawbacks.

If you say that these doctrines defy all our previous notions of the value of special climates, the reply is that there is no known medicinal virtue for tuberculosis that inheres in any climate. Climates are chiefly valuable for the consumptive as they make it easy for him to be out of doors, or to have free ventilation indoors. It is the clean atmosphere that circulates freely around the earth that is needed, and needed all the time. It is true that some climates are more comfortable than others, and more enticing; and for those who cough and expectorate much a dry air is best, while high altitude helps to start a fresh constructive force in some cases. Sunshine is both comforting and healthful to the sick, but perhaps of less value than is usually thought; it certainly seems a very vital thing when it is longed for and can not be had; and it is beyond our reach more than half the hours of our lives the world round.

It is the management of the sick, vastly more than climate that tells for recovery of the tuberculous everywhere. A contrary opinion has led us for years to neglect one of the most valuable means for the good of these patients. At great cost of money and trouble we have traveled thousands of miles in search of something valuable, and neglected the precious thing that is always within our reach—and at the end of the journey we have met with only disappointment and despair.

We have beatified the climates of the mountains,

the deserts and the balmy fields of the West, and forgotten that in Illinois we have most of the valuable features of the best climates. With the same hygienic management at home, we can give patients 85 per cent. of the benefit they could have in the best climates, while they who go away average to lose quite 15 per cent. of the possible benefits by the drawbacks that beset so many of them in their new domiciles.

It has been the fate of all mankind, who seek for a great good, to look for it in some far country. The Holy Grail seems always to be found on the other side of the hills, never on the hither side or here. But it is here, and whoever truly seeks it usually finds it within his reach. And the home land teems with benefits untouched and that mutely tempt us to use them.

The surest proof of the skill and usefulness of a physician is his capacity to turn to the benefit of the sick the simple and homely facilities that are all about them. The best results with the fewest tools is the test, and no more promising task was ever offered to us than to bring to the thousands of tuberculous victims (who are unable to go properly to the better climates), and at or near their homes, the benefits of the modern treatment of this disease. And it can be done, either in their own houses or in home sanatoria, and done superbly, in a large proportion of cases. If it were done it would reduce the mortality another 10 per cent.— and it will be done, for the twentieth century internist is capable of it, and he will not fail.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

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BALTIMORE.

(*Continued from page 865.*)

CASE 3.—Alex. D., a Polish shoemaker, 38 years of age, entered the Johns Hopkins Hospital for the second time in January, 1900.

History.—His neuralgia was of comparatively short duration, having been present for only two years. It had originated in the supraorbital territory, had invaded the second division the following year, and in March, 1899, a peripheral neurectomy of the supraorbital and infraorbital nerves was performed. This had given him only temporary relief and after a few months the pain returned and the lower, third division, had begun to transmit impulses of pain. There was also a suboccipital extension. The case was a typical one of tic douloureux with an involvement of all three divisions of the right side, but was not an instance of the extreme type of the disease.

Operation.—January 15, 1900. Chloroform. The zygoma was not excised in this case. Enucleation of the ganglion (Fig. 10) presented no great difficulties, although it was my first experience with a bloody case. The wound was sufficiently dry after the extirpation to justify closure without drainage. The pulse during the operation was slowed to 50 beats a minute. Tissues examined by Dr. Barker.[11]

Postoperative Notes.—Convalescence promised to be uninterrupted. The highest recorded temperature was 100 degrees the day after the operation. Healing occurred by primary union. There were no ocular palsies in this case; the pupils remained equal and reacted to light. (Fig. 11.)

The patient was up and dressed the fourth day after the operation. Eleven days later, just as arrangements had been made for his discharge from the hospital, after an exposure, he had a severe chill and there followed an outcrop of facial and sacral herpes, complications from which kept him back for some weeks. This has been made the subject of another communication.[28]

Late Result.—January, 1903. Three years after operation. The patient remains well, but the cosmetic result is not particularly good. There is considerable facial deformity, due to the muscular atrophy and replacement of the zygoma—possibly the more evident since the patient has a very broad cephalic index and unusually well-marked zygomatic arches. A slight elevation of the eyebrow is possible on the side of the operation, evidencing a reunion of the facial twig to the occipitofrontalis (pars frontalis). The area of anesthesia remains practically unaltered; it includes the tragus and anterior wall of the auditory canal.

CASE 4.—Mrs. Elizabeth R., aged 60.

History.—She had been a great sufferer from toothache during her earlier years. All the teeth had been extracted some years before the onset of her neuralgia. The latter was of eight years' duration and originated in the left nasolabial region. It had been associated with great difficulty in eating or swallowing; from the very beginning movements of the lips or even opening of the mouth would inaugurate a paroxysm. Early in the disease the pain extended into the eyeball; the conjunctivæ became inflamed and a chronic granular in-

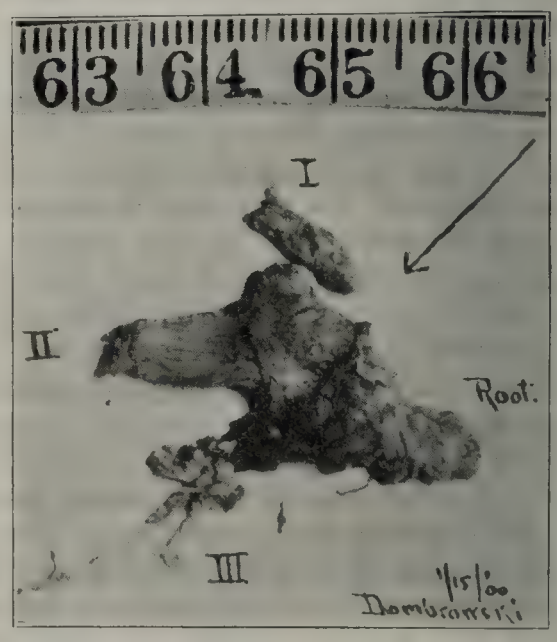


Fig. 10.—Ganglion (slightly magnified) from Case 3, showing upper surface. Ophthalmic division removed as a separate piece. Ramus mandibularis shredded, from effort to evulse instead of dividing it. Arrow points to imprint of evulsing clamp.

flammation of the lids resulted. The more or less constant purulent discharge due to this condition, owing to pain which its removal occasioned, had been left untreated. She has suffered always from chronic constipation.

In August, 1897, an operation was performed at the Johns Hopkins Hospital on the infraorbital nerve, followed by eighteen months of respite. In June, 1899, a second operation of the same nature was performed. Relief, more or less complete, followed for only four months. With the return of pain the first and third divisions began to show signs of involvement. In June, 1900, the regenerated infraorbital nerve was for the third time evulsed, with a partial relief lasting only four months. The scar which had been produced by the three infraorbital operations had led to an ectropion, which, with the chronic inflammation of the conjunctiva, left the eye in a bad condition.

Ganglion Operation.—January 17, 1900. Ether. From the onset this proved to be a difficult and bloody case. The operation lasted two hours, most of the time having been expended in packing to control the venus hemorrhage. The pulse was slowed, during the entire period of temporal lobe elevation, to an average of 50 beats a minute. The zygoma was temporarily

28. Perineal Zoster, Am. Jour. Med. Sciences, March, 1904.

resected, and at the close of the operation wired in position. The ganglion, although somewhat damaged from the effects of the compression, was finally removed in toto, together with the sensory root as a separate piece (Fig. 12). Pathologic report by Dr. Barker.[11]

Postoperative Notes.—As had been feared, the previous condition of the eye rendered a subsequent keratitis almost certain. A severe conjunctivitis with ulcer formation and corneal opacity, iritis, and posterior synechiæ soon developed. I believe now that it would have been possible to have avoided this extreme process had we at that time been sufficiently versed in the therapeutic requirements of the eye in these cases. The eye, in spite of the advanced process, with vigorous treatment became almost entirely healed. The corneal opacity, however, was of such extent that evidently vision would be much impaired and the patient's inability to move the lower lid and to completely close the eye rendered a subsequent inflammation and break down probable. In view of this fact, and fearful lest, happening after her return home, the other eye might become involved, it was considered best and was

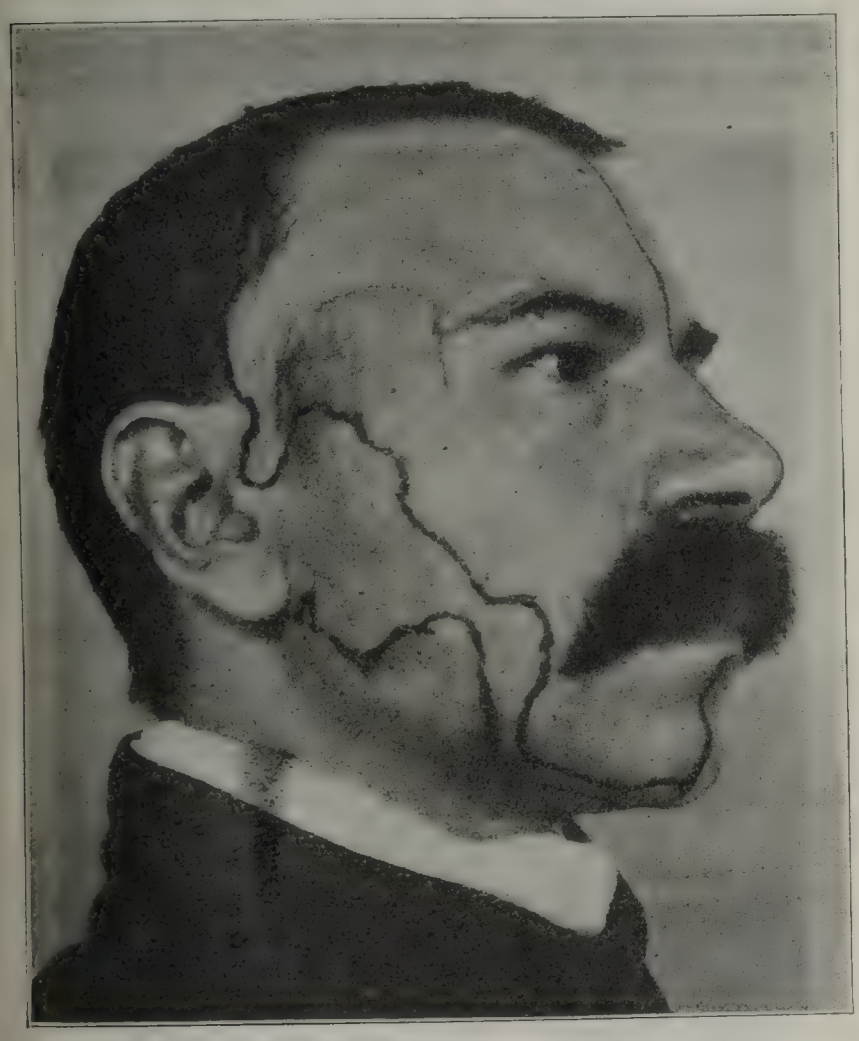


Fig. 11.—Case 3. Areas of analgesia and hypalgesia.

desired by the patient that an enucleation be performed. This was done eight weeks after the operation.

The convalescence otherwise was quite uneventful. The highest temperature was 101 degrees the night of the operation. She was free from pain, bright, hungry and sitting up in bed on the following day. The wound healed *per primam.* A partial palsy of the sixth nerve, due to the excessive packing in the neighborhood of the cavernous sinus at the time of the operation, had cleared up before the eye was enucleated. Fig. 13 shows the area of anesthesia as it was marked out on the tenth day.

Late Result.—December, 1903. This is not especially brilliant. There is some stiffness of the jaw and some complaint of a dragging sensation and occasional tingling in the enucleated eyeball. The deformity from atrophy is not great, though accentuated by the fact that the zygomatic arch was preserved. The patient wears an artificial eye, which is less unsightly than the injected one was before the ganglion operation. She has had no neuralgia.

CASE 5.—David H., aged 46, a farmer.

History.—He had suffered from a right-sided neuralgia of a severe type for nineteen years. The pain was said to have originated in a tooth in the lower jaw. There was early recourse to morphia. On three previous occasions, April, 1898; August, 1900, and February, 1901, various operations had been done on the inferior maxillary nerve. The dates suffice to show that relief from pain was but transient. He had lost 20 pounds in weight, was incapacitated from work, and at his last admission there were evidences that the second division had become involved. In the spring of 1901, he entered the hospital for the purpose of having the ganglion removed, but a temporary moderation in the severity of his paroxysms had caused the operation to be deferred. Not a case of major severity.

Operation.—October 19, 1901. Chloroform. In this case, and in all the following ones, the zygomatic arch was not only resected for operative reasons, but excised for cosmetic ones. The case proved to be very bloody and the operator feared several times that it would have to be abandoned or an attempt made to enucleate the ganglion at a second sitting. As often happens in these especially wet cases, if patience is exercised, some, often unaccountable, alterations in conditions, whether by a change in position of the head by elevation or rotation of the same or from a sudden thrombosis of the torn venules, the bleeding ceases, and what had previously been an exceedingly wet wound becomes unexpectedly a dry one. This,

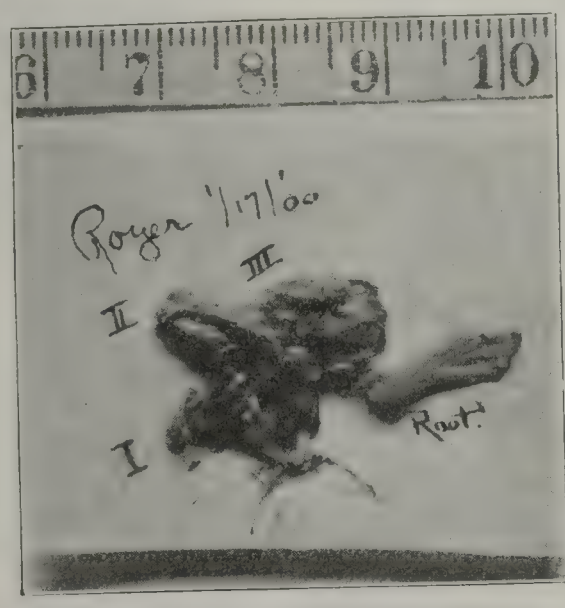


Fig. 12.—Tissues from Case 4. Sensory root as a separate piece. Ganglion somewhat fragmented by the traumatism of packing.

fortunately, happened here and a complete enucleation was possible one moment when the moment before the idea of abandoning the operation had been in mind. In this case for the first time a small drain was left in the posterior inferior angle of the wound.

Postoperative Notes.—Convalescence was uninterrupted. The sutures were removed on the second day; healing was *per primam*, except for a small granulating spot where the drain had been removed at the time of the first dressing. A slight temporary weakness of the external rectus was present. There were no postoperative complications whatever. The operative result and areas of anesthesia are shown in Fig. 14.

Late Result.—The case has been far from a satisfactory one. The patient has returned to his opium eating and has endeavored to extort money from the hospital on the grounds of having experimented with him, an opinion for which the routine daily observations on sensation, taste, position of palate, etc., are probably responsible. The patient has been seen and examined only once, a year after the operation, when anesthesia to touch and pain remained present over the entire trigeminal area, including the tragus. He complains greatly of stiffness in the jaw and numbness of the face and regards the ganglion operation as quite an unjustifiable one So far as I am aware, he has remained free from neuralgia.

CASE 6.—Augustus W., a farmer, aged 64.

History.—He had suffered from sick headaches all his life. His neuralgia was of fourteen years' duration and had originated in the first division; it was left-sided. After four years, the pain had extended into the infraorbital area; from this time dates his difficulty in deglutition. All the teeth were extracted. More recently, the third division has become involved. In October, 1899, a peripheral operation with evulsion of the infraorbital nerve was performed, with subsequent relief for thirteen months.

Examination.—At the time of his admission, the case had advanced to one of the most extreme degrees of major tic douloureux. There is more or less constant pain with frequent exacerbations, during which he often writhes on the floor. The pain originates chiefly in the region of the nasolabial fold, whence it spreads into the entire trigeminal territory. The individual paroxysms last about 60 seconds. He is weak, emaciated, with a white tangled beard, which, as well as the hair on the left side, is matted with the secretory ac-



Fig. 13.—Case 4. Photograph on the tenth day, showing areas of analgesia as then inaccurately delineated.

cumulation of months; he does not remember when he last touched water to his face. He is markedly arteriosclerotic.

Operation.—November 13, 1901. This proved to be a very satisfactory, dry and uncomplicated case. The ganglion was extracted *in toto* in about 60 minutes. Before the operation, the eyelids had been sutured as advocated by Horsley and others. It is the only time which I have practiced this detail. A small drain was left in the posterior inferior angle of the wound, and removed forty-eight hours later.

Postoperative Notes.—Convalescence was without incident. (Fig. 15). There was a complete paralysis of the abducens and a partial palsy of the motor oculi. The former regained its function only after a few weeks, the latter in a few days. The patient had gained fifteen pounds in weight within a month after the operation.

Late Result.—December 17, 1903 (by letter). Two years after operation he remains perfectly well.

CASE 7.—Rev. W. S., aged 43. Referred to me by Dr. Osler. This case possibly represents the most advanced type of the disease in this series.

History.—The pain originated in 1882 in the teeth of the right upper jaw. Extraction of the teeth from this quadrant served only to aggravate it. Twelve years ago an infraorbital operation was performed by Paul Bruns, in Tübingen, followed by relief for six months. The pain returned with increased intensity. In 1894 Meckel's ganglion was removed, in Boston, with complete relief for two years. During the succeeding six years he has run through the usual series of drugs, at the hands of many physicians, and has been repeatedly advised never to undergo any further surgical measures. Strychnia was given a prolonged trial for a period of six months and only given up after the production of serious toxic symptoms. He has been confined to a dark room at his home for months and has only been deterred from self-destruction by his Christian beliefs.

Examination.—He looks a man of sixty. The paroxysms even without apparent cause recur with but brief periods of intermission and there is more or less constant pain between them. All three divisions of the trigeminus are involved. He is unable to protrude the tongue, to speak, to open the mouth, to swallow or to let his facial muscles relax from their constant tense expression. The slightest touch of the moustache or beard or even the movement of the hair by the breath from

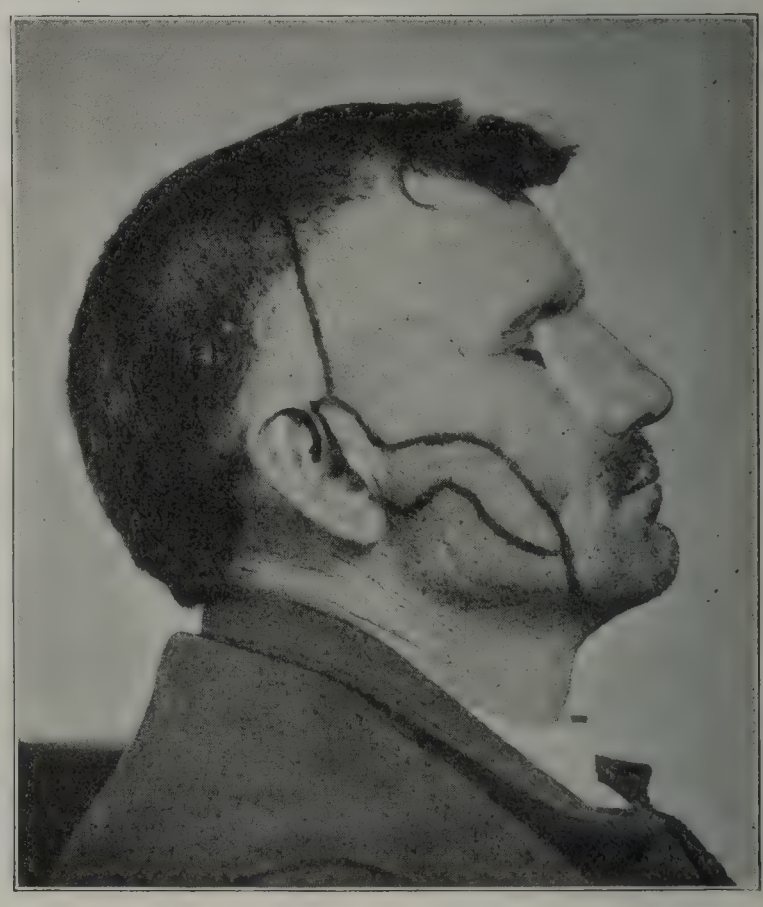


Fig. 14.—Case 5. Photograph on the tenth day, showing areas of analgesia and hypalgesia inaccurately delineated.

the nostrils may start a paroxysm. An unusual light or unexpected sound may do the same. A suboccipital extension is present. Weight, 125 pounds.

Operation.—February 15, 1902. Ether. The patient, as is frequently the case, had to be anesthetized before it was possible even to clip the hair from the operative field, much less to otherwise prepare it. Blood pressure observations were taken in this case, as in all succeeding ones. The great pressor response associated with the paroxysms during the period of anesthetization are represented in the chart. (Fig. 2.) The skin incision was made in the line of the old scar left by the operation on Meckel's ganglion (Fig. 16), which had already paralyzed the occipito-frontalis, and which, from atrophy of the temporal, together with preservation of the zygoma, left quite an obtrusive depression in the temporal region. The zygoma was excised. The case was a very clean-cut and comparatively dry one. The ganglion was removed in its entirety. No particular difficulties from bleeding were encountered either in the approach or in the enucleation. The floor of the temporal fossa was rongeured away somewhat more deeply than

customary, owing to an unusually high bony projection from the floor of the temporal fossa. The temporo-maxillary joint was opened in this step. This accident, contrary to what was feared, had no subsequent effect on stiffness of the jaw; indeed, there was less complaint of this sequel than usual, probably owing to the division of the temporal muscle which had already been paralyzed and become fibrous, as a result of the earlier operation. The wound was closed without drainage.

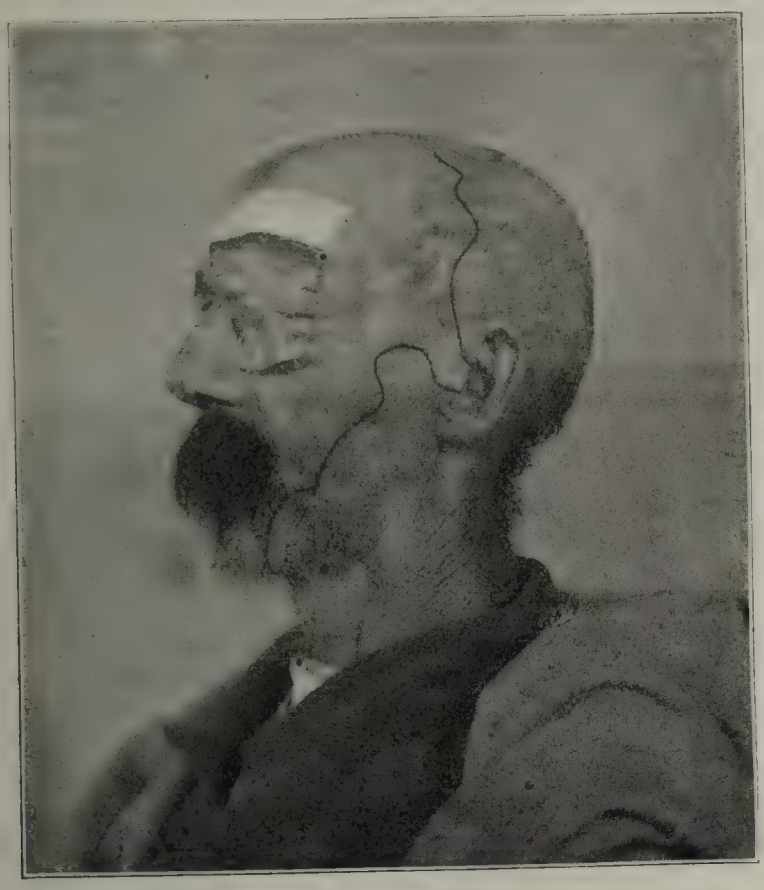


Fig. 15.—Case 6. Photographed on the eighth day, showing area of tactual anesthesia.

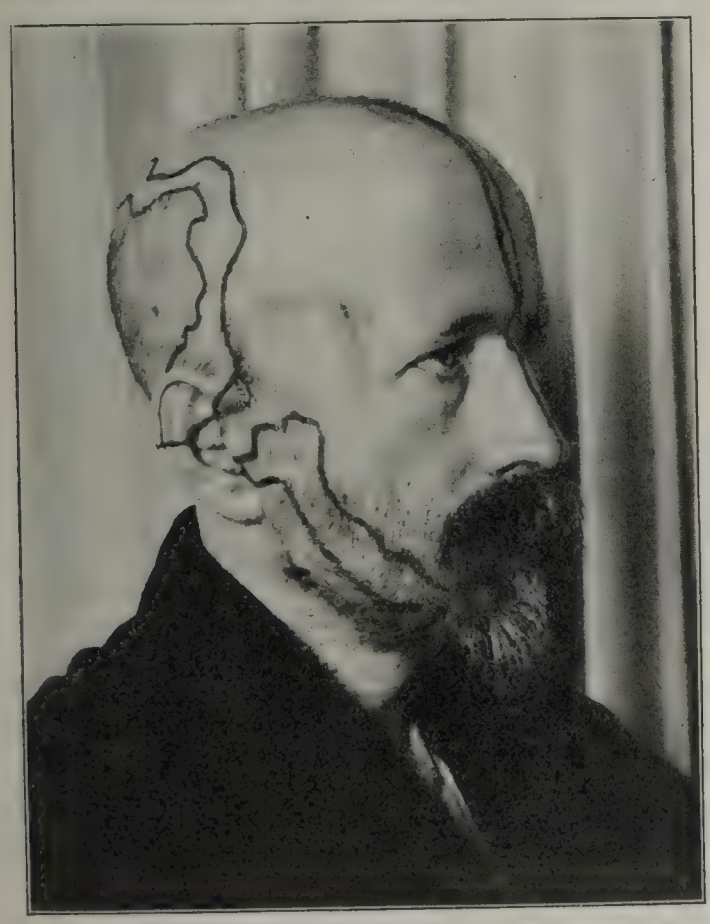


Fig. 16.—Case 7. Photographed on the tenth day, showing areas of anesthesia to touch and pain. Variations from average type. Incision unnecessarily high, having been made in the scar of an earlier neurectomy.

Postoperative Notes.—Convalescence was absolutely uninterrupted. The patient gained 11½ pounds in the two weeks after the operation; 35 pounds in the following four months. He preached twice in his church on the third Sunday, the first time in two years. Many of the most important data which I have been able to gain by postoperative examinations have been secured through the intelligent co-operation of this gentleman.

Late Result.—January 1, 1904, two years after operation. (Figs. 17, 18.) He remains perfectly well and "has not lost half an hour's work from illness since his operation." Has been troubled in very cold weather by an occasional "fogging"

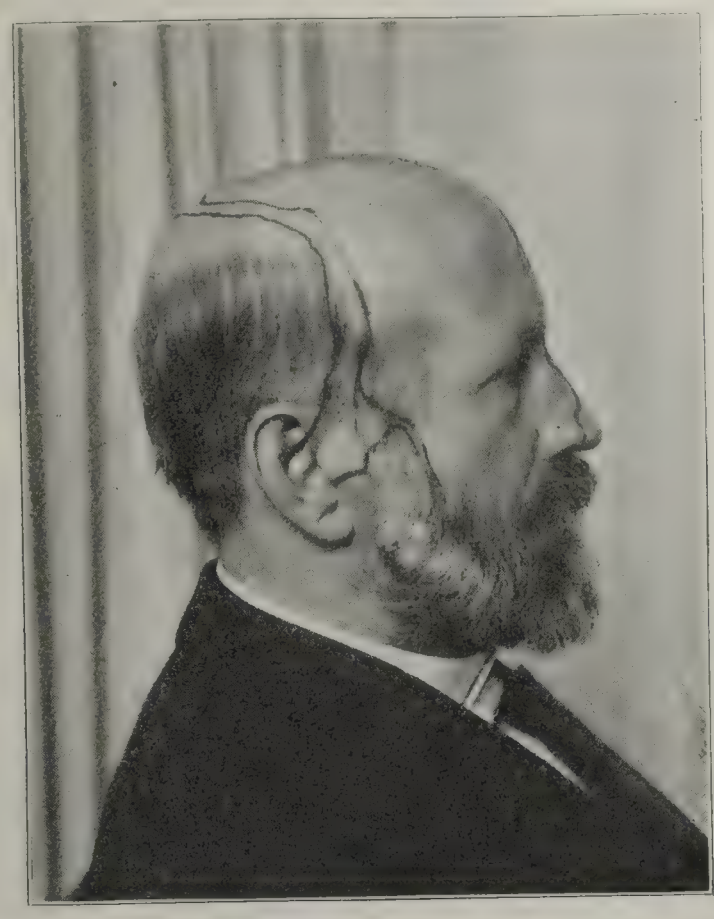


Fig. 17.—Case 8. Outlines of analgetic and anesthetic fields after two years.

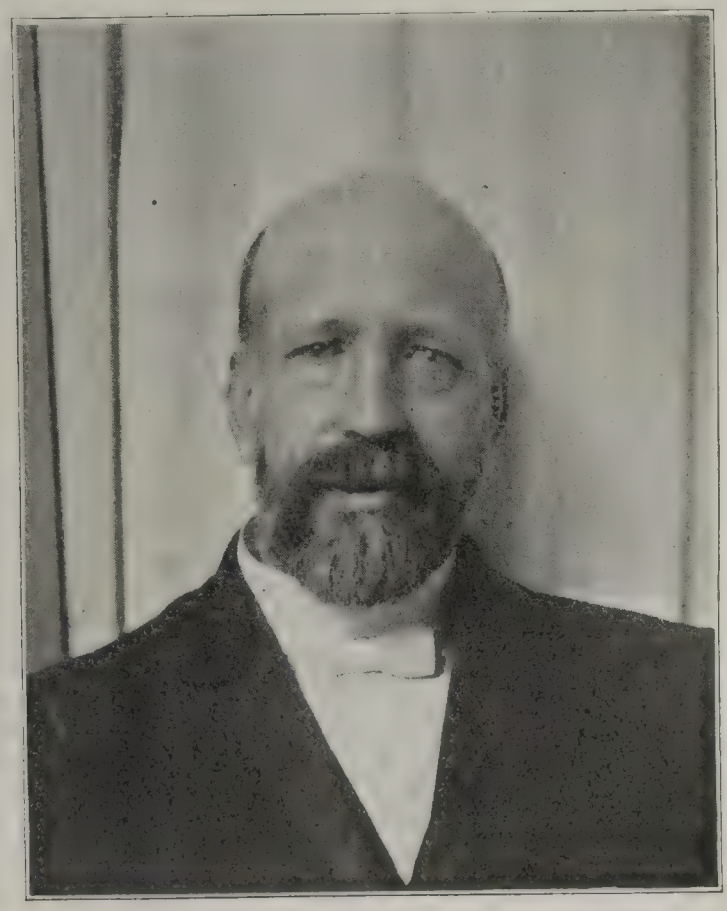


Fig. 18.—Case 7. Late result showing slight though unobtrusive flattening of the face. Zygoma removed.

of sight in the right eye, a condition which passes off after a short rest. He weighs 165 pounds, a gain of 40 pounds.

CASE 8.—George E. P., aged 47, a photographer, had suffered for seven years from a right-sided neuralgia.

History.—This had originated in the region of the temporo-maxillary articulation and involved chiefly the area of the third

division. Soon after, several teeth were extracted with a resultant augmentation of symptoms. The pain persisted and in spite of all treatment steadily increased in severity. In June, 1897, the inferior maxillary nerve was evulsed. At this



Fig. 19.—Case 9. Eighth day. Areas of total anesthesia. Palsy of right abducens with slight injection of conjunctiva. Patient endeavoring to look toward his right side.

operation an unerupted molar tooth was found, apparently pressing on the nerve, and was thought doubtless to have been the occasion of the neuralgia. The old history states that the anesthetic was very poorly taken at this time. Very slight if any relief was afforded by the operation. Although possibly less severe for a few months, he was never quite free from pain. He returned to the hospital five years later suffering from paroxysms of the most major sort and with all three divisions involved. The pain had progressively extended from the third into the areas of the second and first divisions. For three years he had been almost completely incapacitated, had given up his business and for almost a year had been confined to his room.

Condition on Admission.—His pain is constant, with extreme exacerbations; he is much emaciated and does not weigh a hundred pounds. Talking, swallowing, or any movement of the tongue or face, is almost impossible. He is incessantly hungry, but every effort to take food produces a paroxysm. His digestion is completely upset from constant drug taking. He cannot protrude his tongue, but on slight opening of the mouth it is seen to be dry and heavily coated. He is a small, sallow, dried-up, little old man, looking 75, though his recorded age is 47. He is "stone deaf" and it is only possible to communicate with him in writing. He has been blind in one eye, on the sound side, from an injury received in childhood, and vision has rapidly been failing in the other. The right side of the head is raw and sore from local applications and incrusted with dried cutaneous secretions; his hair and beard are matted together. His wife says that his face has not been touched for eighteen months. The patient is so ill that only a cursory physical examination was given him. It is impossible for him to keep quiet; he constantly moans and often cries with pain. The operation was performed the day after his admission.

Operation.—March 24, 1902. The patient's head was markedly brachycephalic and the ganglion proved to have a very deep situation. There was comparatively little loss of blood, and the case, from an operative standpoint, proved so comparatively simple that little heed was given to the warnings of his blood pressure chart (Fig. 3), sufficient dependence on which at the time of this operation we had not learned to give. It was thought that sensory impulses from manipulation of the ganglion were the occasion of the depressor response and the ganglion was cocainized in the hope of "blocking" the nerve. Despite the falling blood pressure, the patient's condition seemed to be sufficiently good to justify continuance of the operation. The anesthetic was well taken; his pulse and respiration continued regular; the blood pressure, alone, giving for some time indications of trouble, which were disregarded. The ganglion was removed *in toto*, but the pressure continued to fall, even after the release of the temporal lobe, in spite of every effort to check it; the respiratory center soon showed evidences of anemia, the pulse became irregular, respiration ceased, and despite its artificial continuance the heart ceased beating after about ten minutes.

It is difficult to record fatalities due to operations, which ordinarily have a successful termination, without attempting on some grounds or another to excuse the unhappy outcome. There is none to offer in this case. Unfortunately, although permission was given to remove the ganglion on the opposite side for purposes of examination, a full necropsy was not allowed. The partial exposure of the brain which was rendered possible showed no macroscopic evidence of cerebral lesion. There are several features of the history which make it seem quite possible that an intracranial growth was the underlying cause of his malady. In some of the fatal cases heretofore recorded an autopsy has brought to light an unsuspected neoplasm, a psammoma in Lexer's and a cholesteatoma in Krause's case.[29] Whatever may have been the underlying condition, the operation was the immediate cause of death and should have



Fig. 20.—Case 10. Seventh day. Areas of analgesia and tactual anesthesia. Variation from average type.

been abandoned at the time of the patient's beginning failure and reundertaken subsequently if deemed justifiable.

29. Lexer (Archiv f. klin. Chir., 1902, vol. lxv) has considered at some length the relation of intracranial tumors to trigeminal pain and has collected several cases. I have myself seen three such cases, in all of which, however, there was present a certain amount of facial anesthesia, and in one of them an associated involvement of neighboring nerves which rendered the diagnosis easy; there is but slight, if any, diminution in the acuity of sensation even in very long-standing cases of true neuralgia, leaving out of account, of course, the results of previous outside neurectomies. No preliminary sensory tests unfortunately were carried out in the case above recorded owing to his condition and the impossibility of easy communication. The eyegrounds should have been examined as well.

Case 9.—W. H., aged 48, railroad employe.

History.—He has been subject to headaches all his life. Twelve years before his ganglion operation, his neuralgia began with pain in the third division. In 1890 some of his teeth were extracted. The pain soon after spread into the second division, and all his remaining teeth were removed. In 1894, the inferior dental nerve was evulsed, with subsequent relief for a few months. With its return the pain finally extended into all divisions of the fifth nerve; each paroxysm would originate in the lower jaw, spread into the infraorbital region, around and through the eye, across the face as far as the tragus and over the forehead to the crown.

Examination.—The right side of his face perspires much more than the left. He has more or less pain all the time, and, although he courageously keeps at work in order to retain his position, he has to "lay off" many days in each month. He has lost fifteen pounds in weight. This is a moderately severe, although not a totally incapacitating case of tic.

Operation.—July 8, 1902. Ether. Preliminary clamping of the common carotid artery was done (Crile). The operation proved to be a very easy one, and though some oozing continued after the enucleation, which rendered the placing of the small drain advisable, it was a relatively dry procedure. Subsequent to the operation, there was some frontal headache on the opposite side. A total paralysis of the sixth nerve, with a slight palsy of the third, was occasioned by pressure (Fig. 19). These oculomotor disturbances cleared up in the course

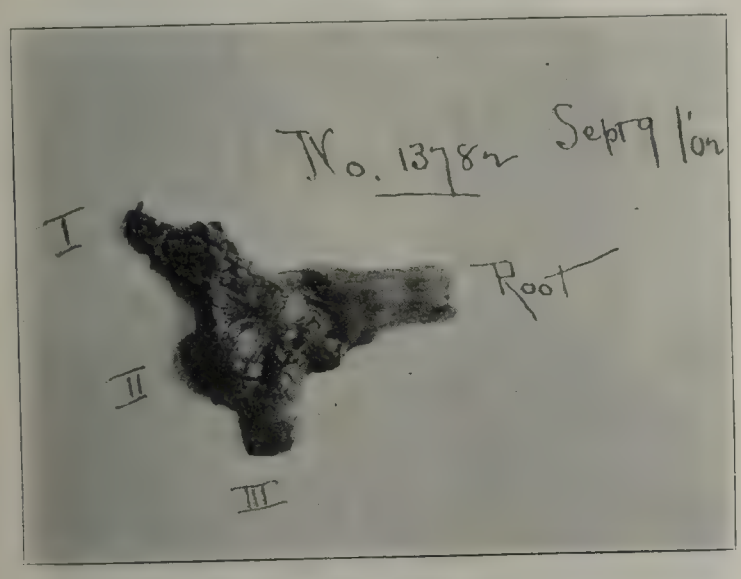


Fig. 21.—Ganglion from Case 11.

of a few weeks. He gained nine pounds in weight in the ten days after operation. He has gained in all twenty pounds and has kept this weight.

Final Result.—Letter. July 1904, two years after operation. He has no neuralgia, remains well and has been on duty every day since returning home. He says that his right pupil remains smaller than the other. He has had some discomfort from "numbness" and from an occasional fogging of the eye, which lasts for a few hours, as in Case 7.

Case 10.—J. J., aged 30, a laborer.

History.—He has suffered from a left-sided neuralgia for the past four years, and attributes it to the exposure attendant on his occupation, that of an oysterman. The pain originated in the second division, the face, gums and palate being involved. Several of his teeth were extracted. A constant increase in severity, so that eating, drinking, talking, etc., became almost impossible, was associated finally with an involvement of the first and third divisions.

Examination.—The pain is more or less continuous with paroxysms every two or three minutes, lasting from thirty to forty-five seconds. Definite "pain-points" are present at the angle of the mouth, on the malar eminence and on the supraorbital ridge. During a paroxysm, his face is greatly drawn and the eye closed, and he exhibits the peculiar chewing movements characteristic of some of these cases. A severe but not an extreme case. All things considered, it seemed advisable to remove the ganglion instead of temporizing with peripheral operations.

Operation.—July 12, 1902. Preliminary clamping of common carotid artery was performed (Crile). The case proved to be a very bloody one from the start and the approach, as well as the extraction, of the ganglion was most tedious. During the operation the clamp was removed from the carotid without affecting the bleeding one way or the other. A complete extirpation was finally accomplished. A drain was left in the posterior angle of the wound.

Postoperative Notes.—Convalescence was absolutely uneventful. Some unilateral headache existed for two or three days. He was up on the third day and was allowed to return home at the end of the second week. (Fig 20.)

He has remained perfectly well and free from pain; has been constantly at work; has kept a gain of twenty pounds in weight; and, aside from the misfortune of having had a temporary inflammation of the cornea from undue exposure and traumatism, he has had no postoperative disturbances. The slight keratitis which occurred will be discussed in a subsequent section.

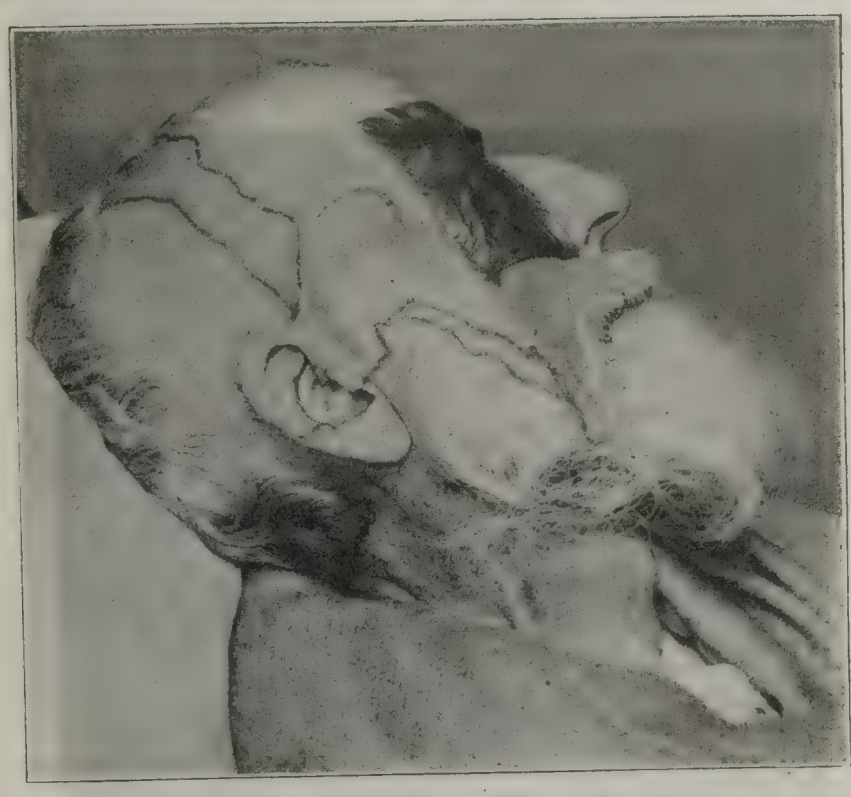


Fig. 22.—Case 11. Areas of anesthesia photographed on the fifth day. Variations from average type.

Case 11.—Mr. A. G., aged 69, a salesman, was referred to me by Dr. W. S. Munro of Providence.

History.—Since youth, the patient has suffered from ill health. He has been a delicate and nervous man. His neuralgia has been of nine years' duration, originating with supraorbital pain which soon extended into the area of the second division. In 1899, an operation was performed on the supraorbital and infraorbital nerves. Relief for nine months followed. A supposed injury to the seventh nerve occurred at the time of this operation, resulting in a slight palsy, which has never quite cleared up, and in an asymmetrical position of the soft palate; also in slight disturbance of taste. In August, 1902, a second operation was necessitated by a return of pain. Relief was only transient. There has been recently an extension to the third division, with "drawing pains" in the lower lip. He has taken a large amount of drugs and had recourse early to morphia.

Examination.—Examination shows an old man, much older than his years, with marked evidences of arteriosclerosis and a weak heart. He is unable to swallow, to chew, to clear the throat, to speak, or to touch his face without inciting a paroxysm. The pain has been "intense enough to craze him;" he has had suicidal thoughts.

Operation.—September 9, 1902. Ether. Duration of operation, forty-five minutes. Characteristic blood pressure reaction.

After a series of four very bloody ones, this proved to be a simple, easy, dry case. The ganglion (Fig. 21) was kept in sight all the time and, except from the vein which accompanies the *Ramus mandibularis*, no bleeding of any consequence occurred. No drainage was necessary.

From its ease of performance this should have been the best of all my cases, but unfortunately, it was attended with unusually serious postoperative ocular sequelæ. The combination of the old infraorbital and supraorbital incisions, together with that necessary for the ganglion extirpation, had served to paralyze the orbicularis, and, by shutting off the veins, led also to a considerable edema of the lids. There was at the same time a complete pressure palsy of the third cranial nerve with ptosis and dilatation of the pupil. The fourth and sixth nerves escaped injury.

Postoperative Notes.—Convalescence, aside from the ocular complications and a unilateral headache, lasting a few days, was without incident (Fig. 22). A ravenous appetite soon brought the patient's weight from 103½ pounds, the day before the operation, to 122 pounds four months later. I was unable, unfortunately, to keep him under observation until the ocular palsies had cleared up. An ulcerative keratitis set in after his return home, and, although the best of treatment was given him and the process checked, it led to an opacity of the cornea. Movements of the eyeball ultimately returned, as well as motion in the orbicularis and levator palpebræ.

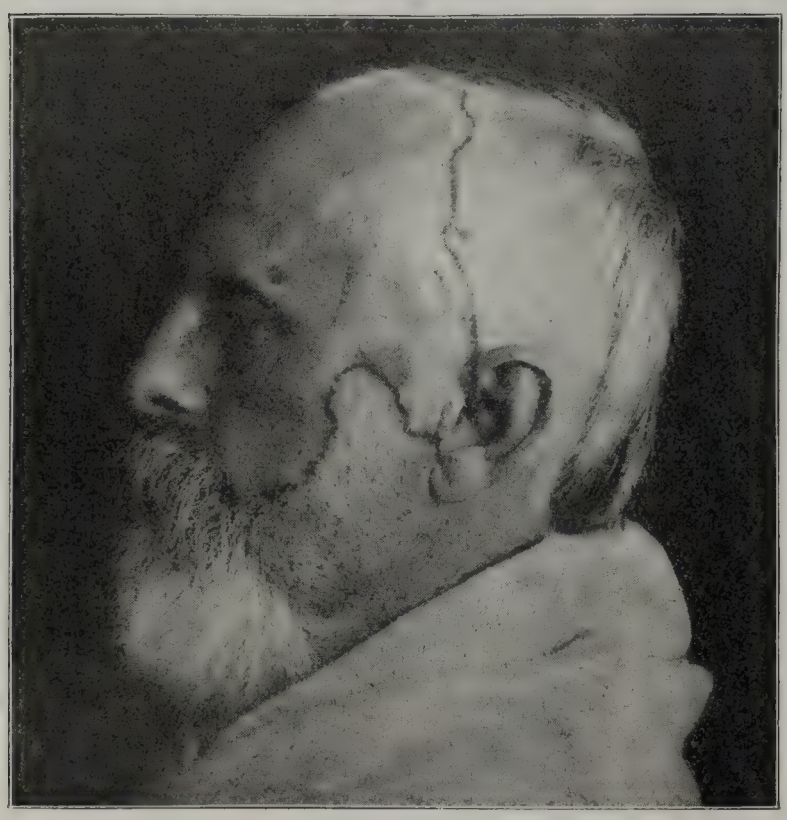


Fig. 23.—Case 12. On eighth day. Showing outline of field of absolute tactual anesthesia as present at that time.

Late Results.—One and one-half years after operation. So far as the neuralgia is concerned, the patient says that he is quite well, but is annoyed occasionally by a "sensation of soreness and tingling about his eye." He unfortunately suffers from other complaints associated with advancing years and his arteriovascular lesions. Though from an operative standpoint this promised to be a brilliant case, from its late results it cannot be so considered.

CASE 12.—G. D. B., aged 51; a farmer.

History.—He had suffered for 19 years with neuralgia, whose onset in the supraorbital region on the left side was attributed to exposure and fatigue on one occasion when he had to assist in the effort to put out an extensive fire. At first with intermissions of a few months and then weeks and then days, pain has finally become almost continuous. For the past two years he has never been entirely free from pain. Severe suboccipital extension is present and the pain even shoots down to the shoulder, and, he says, sometimes through the body to his feet. The paroxysms are flash-like and always accompanied, he says, by ocular impressions of light. Paroxysms recur rapidly and, as the patient says, "they have no schedule." They are sometimes very protracted and have been so severe as to cause vomiting. He has gone often for almost a week without having food pass his lips, and he has contemplated suicide. The teeth have been extracted, but he has had no peripheral operations. His hair turned white on the side of the neuralgia long before it changed on the other. The severe character of the pain in this case and the fact of its involving all three divisions seemed to render temporizing with peripheral operations inadvisable.

Operation.—October 18, 1902. Ether. Duration, one hour and thirty minutes. A comparatively easy case, with what at the time was supposed to be a complete extirpation, though the ganglion was torn in its removal. No drainage was necessary.

Postoperative Notes.—Convalescence was uneventful (Fig. 23). No change whatever was present in the pupil nor in the movements of the eye. It was evident, however, before the patient's departure from the hospital that the operation had been incomplete, and a portion of the ophthalmic division with its ganglionic connections to the trigeminal nerve had been left. There was an early partial return of sensation over the forehead, on the upper lid and the side of the nose, and although the operation has proved sufficient up to the present time to stop the paroxysms of neuralgia, some sensory discomforts remain in the supraorbital territory. The case shows the impossibility of relieving a patient, with neuralgia which has originated in the first division, by a simple extirpation of the lower two-thirds of the ganglion. In its result it falls in line with the majority of the earlier cases, such as were reported by Krause in his first communications, by Dr. Tiffany and by others, and there can be no certainty of a total and permanent abolition of neuralgic pain in the ophthalmic area.

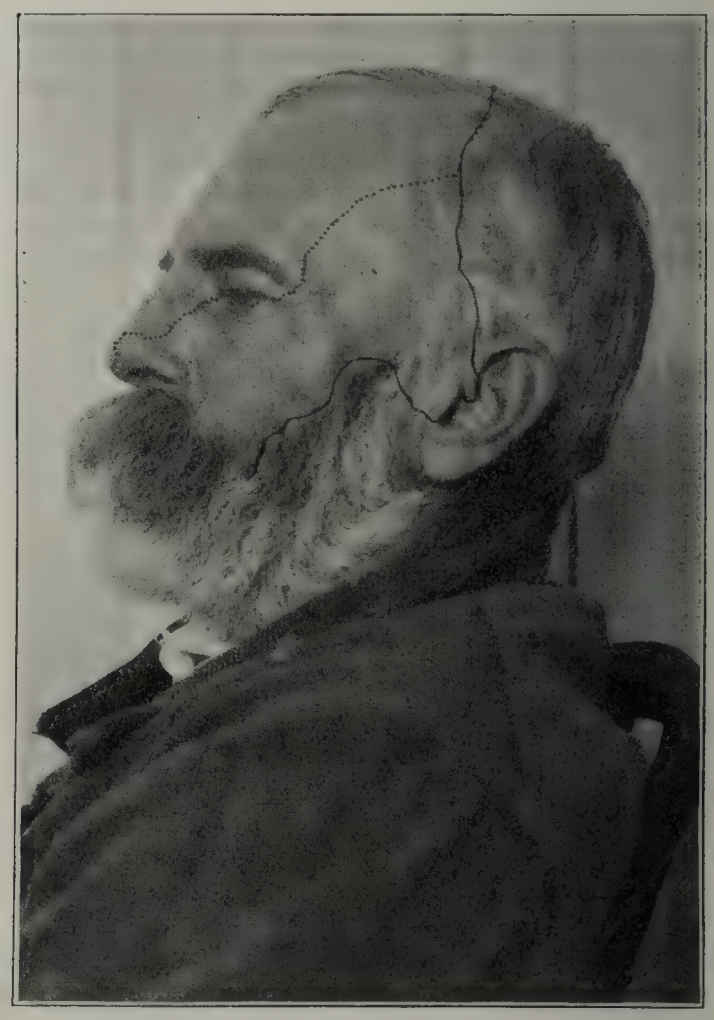


Fig. 24.—Case 12. After eighteen months. Partial return of sensation in field of ophthalmic division. Within dotted line is found hypalgesia, hypesthesia, thermoanesthesia.

Late Results.—One and a half years. Patient readmitted to hospital for hemorrhoid operation. Examination shows a partial return of sentiency to pain and touch in ophthalmic division (Fig 24). Total thermo-anesthesia persists. Pig-

ment has largely returned to hair and beard. Says he "looks and feels a new man."

Case 13.—W. V., aged 49, a laborer, was referred to the hospital by Dr. H. M. Thomas.

History.—He had suffered from a right-sided neuralgia which began in the lower jaw twelve years before his admission. There had been a comparatively rapid extension in this case to the areas of second and first divisions. Although not completely incapacitated, the frequent interruptions in his work, with the loss of time and of money for medical attention which he could ill afford, had been a great burden to him. No preliminary operations were done in this case, as he wished to undergo a permanent cure, even though there were attendant risks.

Operation.—December 20, 1902. Ether. The case proved to be a difficult one. An unusually high systolic pressure under the anesthetic may have accounted for this. Bleeding was the occasion of frequent delay during the approach to the ganglion and more especially during its enucleation. Almost two

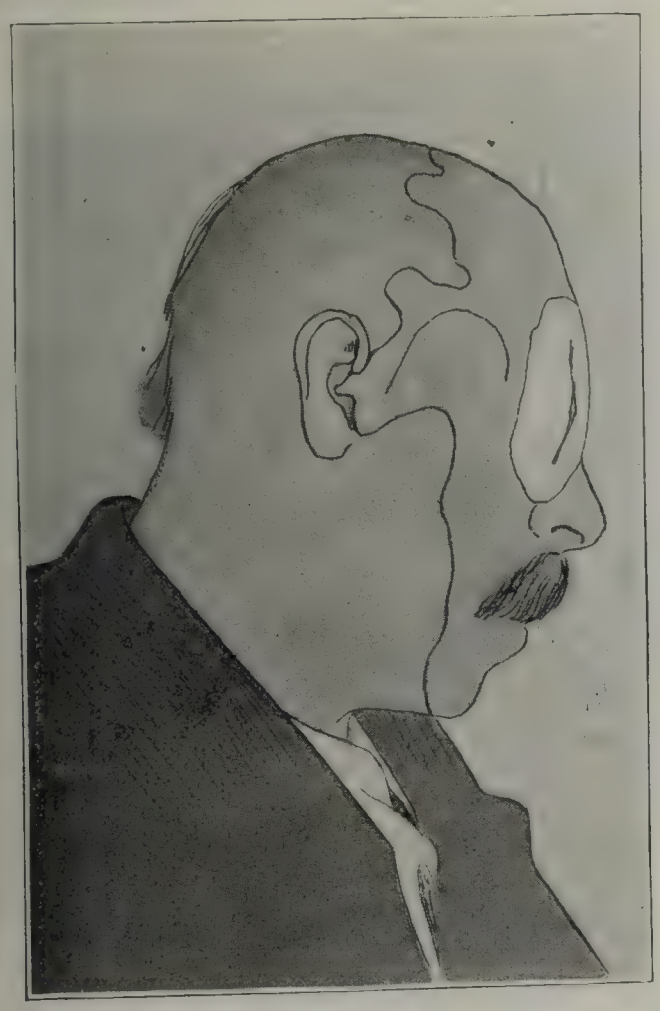


Fig. 25.—Case 13. Print from a poor negative, taken on the tenth day, showing delineation of tactual anesthesia, line of incision and Buller shield.

hours were necessary for the completion of the operation. It was considered advisable to leave a drain.

Postoperative Notes.—Convalescence was uneventful (Fig. 25). There was slight postoperative palsy of the sixth nerve, which disappeared within a few weeks. Contraction of the pupil, which was noted immediately after the operation, did not last more than a short time, and the pupils are now equal. He has had some stiffness of the jaw. His result is in an inverse ratio to the satisfactoriness of the operative procedure. The postoperative deformity is slight (Fig. 26). He has had no return of pain whatever. The anesthesia (Fig. 27) and other functional postoperative sequelæ of removing the fifth nerve have remained unchanged up to the present time (one year). Frequent examinations have been possible, as the patient is a Baltimorean.

Case 14.—Mrs. W. H., aged 47.

History.—She had suffered for many years with left-sided neuralgia. She was an old friend of the hospital, having already undergone there several peripheral operations. Her neuralgia finally involved the entire trigeminal territory and with an intensity which left her never quite free from pain.

Examination.—She presents the usual picture of severe tic; any sort of stimulation suffices to inaugurate a paroxysm, during which she violently rubs her cheek and forehead, so that all the hair from the eyebrow and temporal region on that side and much of the skin has been worn off by friction. Her chief pain originates from the areas (second and third divisions) which were rendered anesthetic by her previous peripheral operations and which now are "painfully numb" (*hypæsthesia dolorosa*).

Operation.—Jan. 22, 1903. Up to the point of extracting the ganglion the case proved to be a very simple one. When the structure was clamped, however, after its liberation, a shred of dura, leading from the ganglion to the side of the lateral sinus, must have been caught in the forceps, for when the ganglion was slowly rotated out a well of venous blood spurted up in the wound in a way in which I have never before seen bleeding in a ganglion case. There was almost immediately a great fall in blood pressure and the wound was quickly packed with gauze. After waiting some time and preparing the incision for its final closure, an effort was made to slowly remove this packing, but as soon as the deepest piece of gauze was again liberated the same

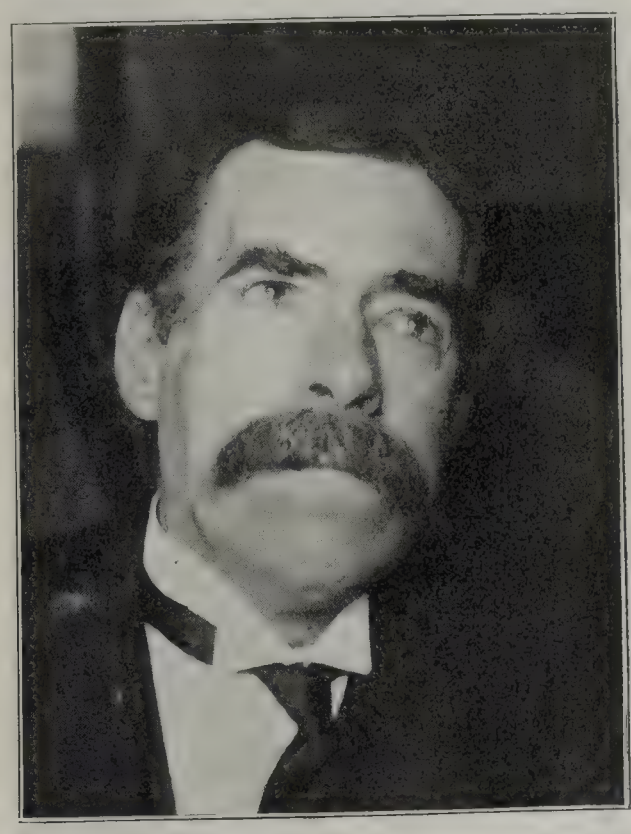


Fig. 26.—Case 13. After one year. To show slight but unobtrusive flattening of face. Zygoma removed.

gush of venous blood recurred. Consequently, only a partial closure was possible and the patient was returned to bed with the wound packed.

Postoperative Notes.—Nausea and headache ensued for two or three days, the latter being confined to the right side and was only completely relieved when it was possible to permanently remove the drain, as will be described. Attempts were made on the second day and again on the seventh day after the operation to remove the gauze; each time a gush of blood necessitated prompt repacking. February 3, twelve days after the operation, an hour was spent in the painstaking effort to carefully displace the pack. When the last piece of gauze was slowly lifted from its bed a gush of blood followed sufficient to produce syncope and to occasion anxiety for the patient's life. A week after, while the patient was straining at stool, a spontaneous bleeding occurred. The hemoglobin at this time was reduced to 30 per cent. and her condition seemed very critical. On February 23 there occurred suddenly, without the patient's being aware of it herself, a great protrusion of the left eye with a rapidly forming edema of the lids (Fig. 28). Ophthalmo-

scopic examination within a few hours showed a multitude of retinal hemorrhages, and in a few days the entire eyeball became so opaque that examination of the fundus was no longer possible. Evidently the long-awaited thrombosis of the cavernous sinus had taken place and the pack could be removed with safety. This was done on the following day, with no resultant bleeding whatever. It seemed useless to attempt to save the eye. There was total and probably permanent loss of vision; long compression had paralyzed the oculomotor muscles; all the transparent structures of the globe were clouded, and there was a most unsightly exophthalmus. From this time on improvement was rapid, and the patient's hemoglobin in 14 days increased from 30 to 73 per cent. On March 6 the eyeball was enucleated.

Late Result.—Letter; one year. "The patient is at home, well, at work, has had no neuralgia and has gained 20 pounds in weight, and regards the loss of the eye as a small price to pay for the freedom from pain."

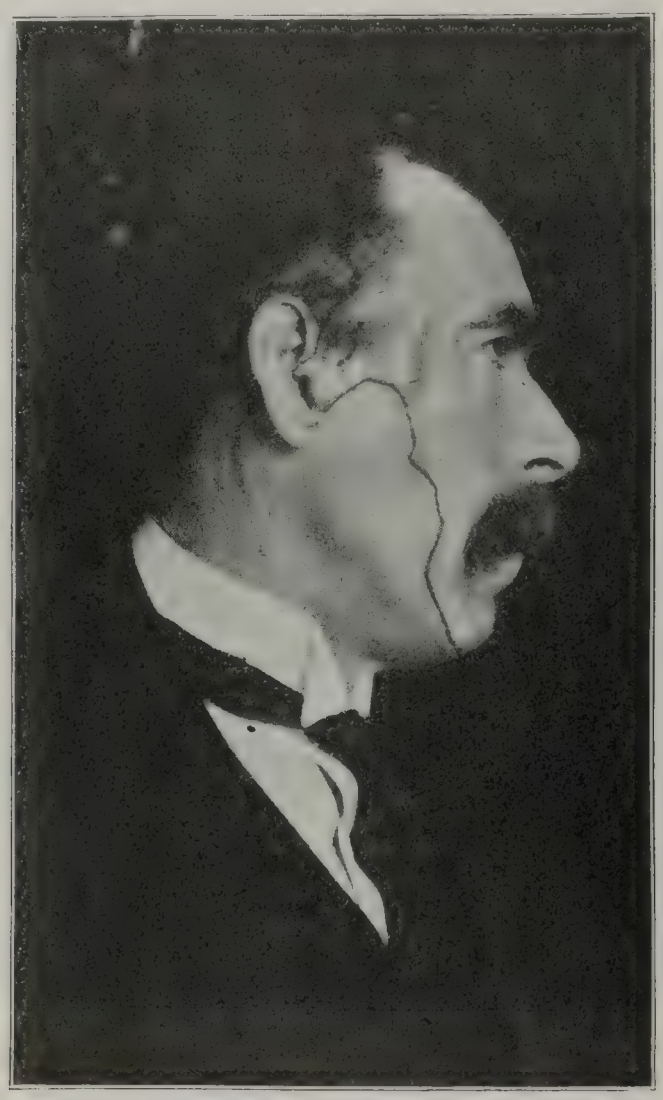


Fig. 27.—Case 13. After one year. Area of tactual anesthesia (for comparison with Figure 25).

It is lamentable that among the women, in this series of cases, the most vexatious complications have arisen. I have attributed this to the fact that they have been, with one exception, left-sided cases, and not only is there greater risk of cerebral complication from compression on this side, but also, for me at least, the operation on the left has been less easily conducted. So far as I am aware, the sequel of a cavernous sinus thrombosis has heretofore never been recorded, although many have believed that they have injured the vessel during the operation. Cases of non-septic thrombosis also, from whatever cause, must be exceedingly rare. The mechanical result of the stasis was the counterpart of that seen in the less uncommon infective cavernous sinus thromboses but without the serious clinical manifestations accompanying the latter condition.

CASE 15.—Mrs. R. T., aged 52.

History.—This was a left-sided case and proved to be a complicated one. She had had a severe neuralgia for several years, which had originated almost simultaneously in the second and third divisions. She spoke of her paroxysms as a "red-hot sawmill" operating on her face. She was a frail and nervous woman, a very unfavorable subject, in whom it may have been a mistake to have attempted a ganglion extirpation, but it had been seriously urged by her physician and friends. Aside from the extraction of her teeth and the usual run of therapeutic measures commonly advocated, she had undergone no previous operations. Her mental condition was unbalanced; she suffered from delusions of persecution, and had very little sense of orientation. Only within a few months had the paroxysms spread into the supraorbital region. There was a considerable degree of arteriosclerosis.

Operation.—April 27, 1903; ether. The case was a very difficult one from the start, the patient's blood pressure registering, as it did, in the neighborhood of 300 mm. of mercury even under normal conditions, was probably responsible for this. Every step, from the first skin incision, was associated with bleeding, which was controlled with difficulty. The diploe bled freely, necessitating the use of wax after almost every bite with the rongeur forceps. After partially exposing the ganglion, it was determined to pack and to postpone the operation for 48 hours. This was the first and only case in this series in which it has been necessary to do this. Adrenalin was used locally with absolutely no appreciable effect in checking the bleeding. The wound was packed; a stuporous condition from compression, with a "jargon aphasia," was present for two days, while awaiting the second operation.



Fig. 28.—Case 14. Photograph March 1, after thrombosis of the cavernous sinus.

Second Operation.—April 29, 1903. Under better auspices and with a better light, the operation was carried through to a successful termination. Some bleeding was occasioned, chiefly in the neighborhood of the second division, where a vein passing through the foramen ovale was torn. This, however, was easily controlled. Adrenalin again was employed, with no apparent benefit. The wound was drained.

Postoperative Notes.—Her aphasia completely disappeared a few days after her second operation. There was a slight

temporary palsy of the oculomotor nerves. Otherwise her convalescence was uninterrupted and she returned to her home in the South apparently very much improved in her mental condition and free from pain. She died seven months later, as I have learned from her sister, of some intercurrent affection.

(To be continued.)

AN IMPROVED X-RAY FOR THE STUDY OF BONE INJURIES AND FOREIGN BODIES.

G. H. STOVER, M.D.

DENVER.

A brief consideration of some of the fundamental principles underlying the use of the *x*-ray in diagnosis is somewhat necessary for a full understanding of the reasons for the superiority of this method over the one commonly in use.

The *x*-ray or Roentgen ray is a form of energy originating at the target of a Crookes vacuum tube, generated by the impact of energy from the negative terminal or the cathode. This energy proceeds divergently from its point of origin; it becomes feebler with increasing distance of travel, and it can not be refracted nor reflected from its course. It is said by some that a "diffusion" of rays takes place when passing through bodies of certain density or thickness, but I do not fully subscribe to this; the diffusion of the rays is said to be the cause of lack of clearness in skiagrams of thick parts. My own belief is that this lack of clearness is due to rays formed on the walls and metal parts of the tube other than the target, and that these rays, proceeding in different lines from those originating on the target, during the longer exposure demanded by thick parts, also affect the sensitive plate and thus blur the image.

For the diagnostic use of the *x*-ray there are two principal methods—fluoroscopy and skiagraphy. Fluoroscopy is a rather rough and inexact method as compared with skiagraphy. Both are made necessary by the fact that the *x*-ray does not cause a visual sensation in the retina; therefore, we must use accessories to render the effect of the *x*-ray visible to us.

In fluoroscopy a chemical screen is used; this is a surface coated with a chemical which will fluoresce or glow with light when acted on by the *x*-ray. There are many of these substances, most prominent being the tungstate of calcium and platinum barium cyanid. Tungstate of calcium reacts with a beautiful white light, but has the disadvantage of being somewhat phosphorescent; that is to say, it continues to react for a little time after the *x*-ray has been cut off, so that it is less useful in fluoroscopy than as an intensifying screen. When used in the latter manner it is inclosed in the holder or envelope with the sensitive plate, the chemical side next to the plate; it greatly shortens the time of exposure, but it causes a granular appearance in the developed plate, and in these days of extremely powerful machines, exposures are normally so short that a screen is not needed.

The platinum barium cyanid screen is almost exclusively used in fluoroscopy, as it is not so good an intensifying screen as the other.

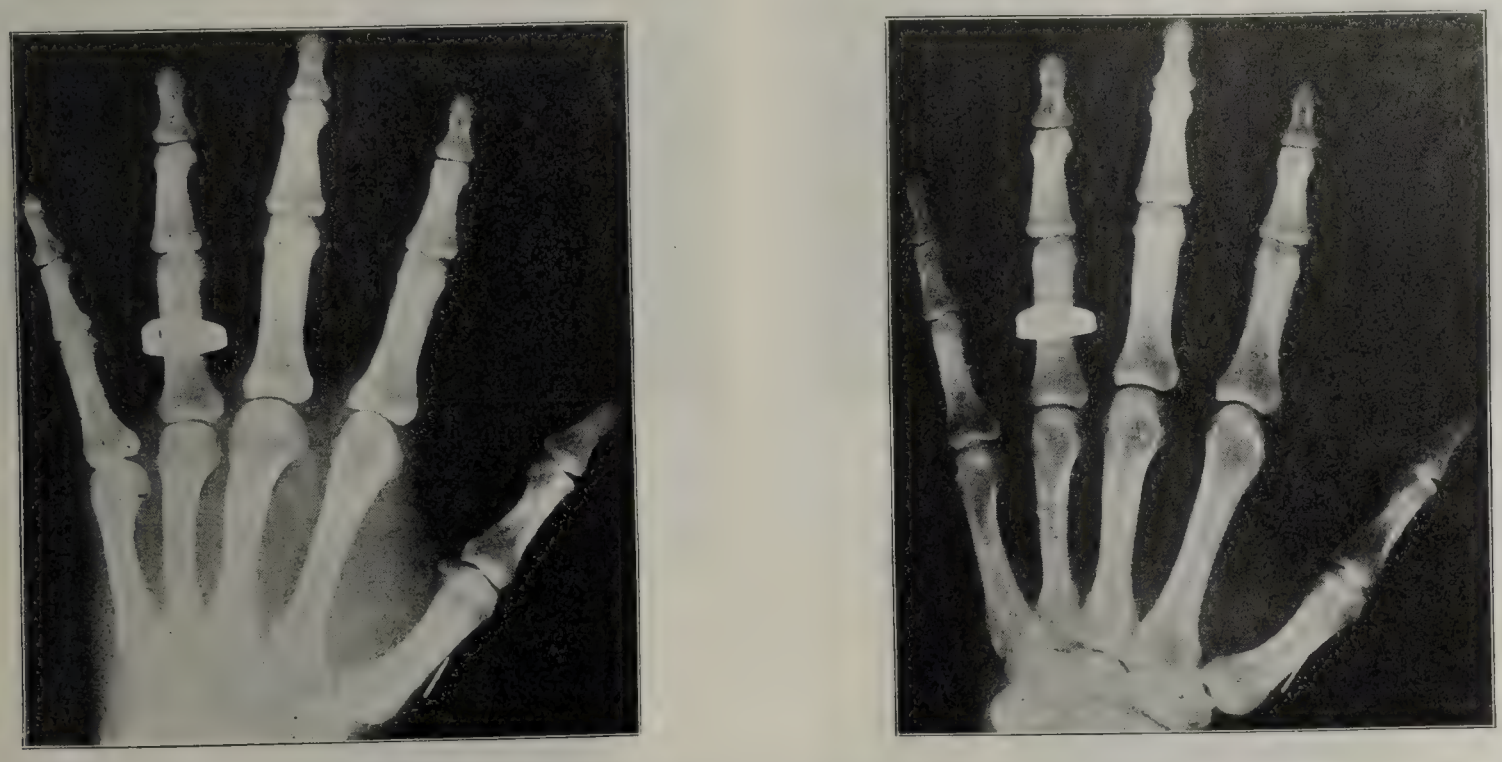


Fig. 1.—Stereograph of a piece of a needle in the hand. These may be viewed through a stereoscope or by the method described at the conclusion of the article.

The results of fluoroscopy are very much less accurate than those of skiagraphy; many details are lost on account of the uneven surface of the screen. Its less delicate sensitiveness, as compared to that of the photographic plate, and its own imperfections are accentuated by the limitations of the human retina, which at its best is well known to be unable to record light effects as well as the sensitive plate, and still less so when working under the trying light of the fluorescent screen. The skiagraph gives us more than a shadow; it shows structural detail that the screen fails to record, and, most important of all, it is a permanent record that can be studied at leisure, and which can be preserved indefinitely. This latter feature will be found of great value in watching the progress of bone repair after injuries and during treatment, in proving the existence of lesions and their correction.

When it is possible to obtain the services of a competent skiagrapher, no physician can afford to neglect the

information given by the *x*-ray. By this means he sees the nature and extent of the injury, and if replacement is correct and dressings sufficiently retentive.

The time is close at hand when failure to use this means in the treatment of fractures and dislocations will be evidence of neglect and incompetent treatment.

In medicolegal complications, a technically correct and legally complete skiagram will often prevent expense and other injury to both parties of possible suits; the mere fact that the physician had insisted on an examination by the *x*-ray would show that he had exercised due diligence in his handling of the case.

In the skiagram as usually made, we get information, mainly, of but two dimensions of the object, these dimensions being of planes more or less approaching a parallel with the surface of the plate; but of the third dimension, or of the dimension in planes vertical to the surface of the plate, we get practically nothing. It is true that one who is thoroughly familiar with the interpretation of negatives does get some knowledge from them of these other planes, but it is not sufficiently exact to be greatly relied on. For instance, in the case of an oblique fracture of a long bone, with the plane of cleavage lying more or less parallel to the surface of the plate, the expert can often tell by certain features of the image which fragment has its fractured end nearest the plate.

Examine a skiagram showing a needle in the hand; the needle is plainly to be seen, but the skiagram does not tell if it is nearer the palmar or the dorsal surface, nor where it lies in the intervening space.

In an anteroposterior skiagram of a fracture of a long bone, the lateral relationship of the fragments is shown but not the anteroposterior.

In locating foreign bodies, it has been necessary to place several metallic markers on the skin, to take two skiagrams, and then to go through an elaborate mathematical and geometrical computation in order to get exact data, and in many fracture cases it has been necessary to take two skiagrams at right angles to each other,

For the process here described two skiagrams are needed, but the remainder of the examination is much simplified. Only exceptionally are markers needed,



Fig. 2.—Fracture of humerus in a child.





Fig. 3.—Fracture of tibia and fibula.





Fig. 4.—Injected kidney of sheep.

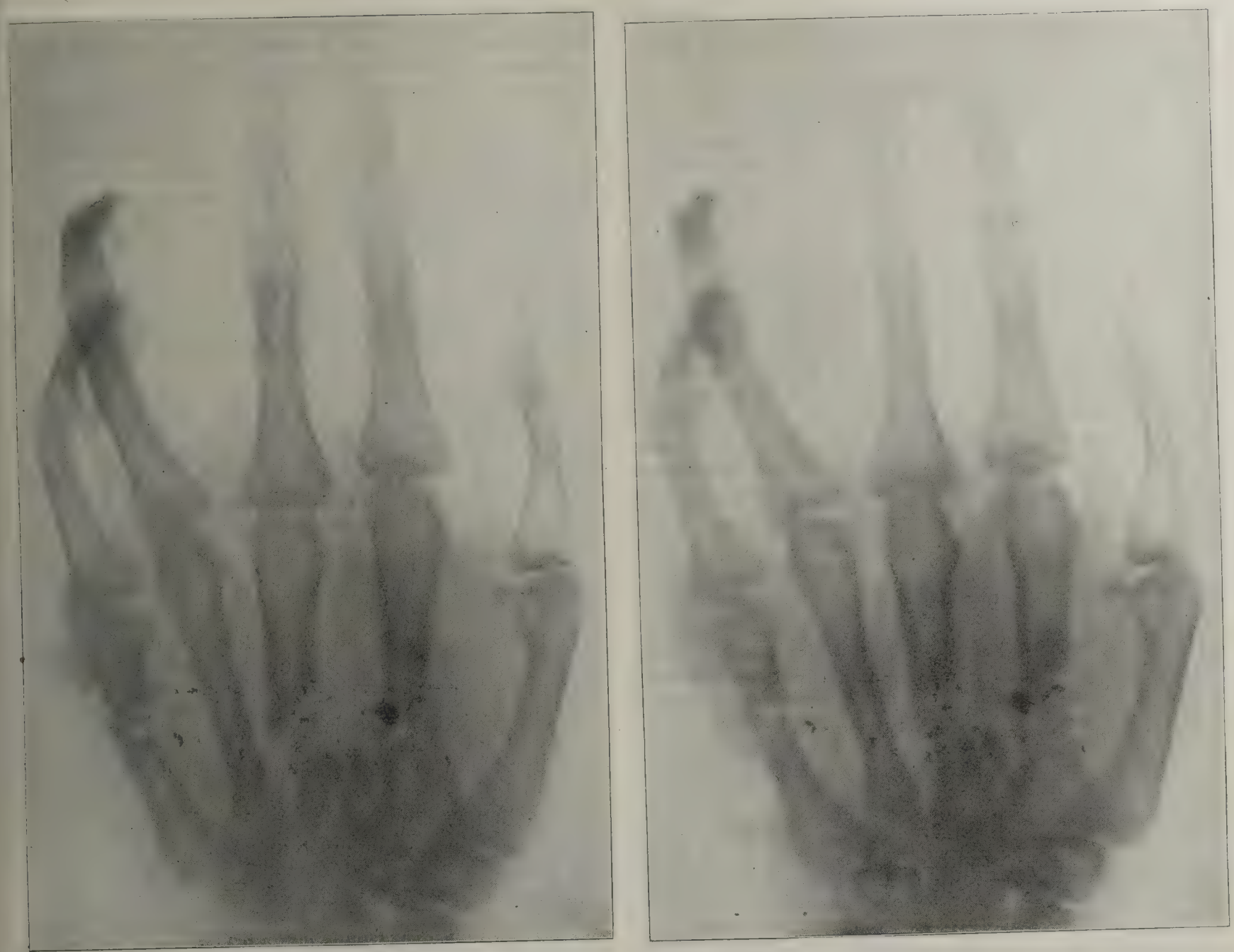


Fig. 5.—Gunshot wound of hand. View of palmar side.



Fig. 6.—Cavity in os calcis. Pieces of lead in the skin.

and then but one. It is not necessary to study separately two skiagrams taken from widely different points of view, and then to coax them to give a mental picture of the real condition.

In this improved methed, both pictures are combined into one, giving a view of the parts almost as definite as if they had been stripped of all impeding tissues; or better, that the flesh and other tissues which defy unaided eyes are made to serve as landmarks in the steroscopic skiagram—or as I prefer to call it, the radio-stereogram.

I do not claim any priority in this matter at all, though I do believe myself to have been one of the very early workers in this line. Some of the Denver men will remember a radio-stereogram which I showed a few years ago; it was the skiagram of a ball of wrapping twine into which I stuck a number of pins in different directions. That was my first; my second was a sheep's kidney, whose vessels I injected with plaster of paris. The picture shows the branching of these vessels very well, and I think that it gives us a hint of a fine method for the study of the circulation of various internal organs.

It is not necessary for me to dilate on the advantages of this method, as I think it will be at once apparent to all what an advance we have here. All physicians are familiar with the stereoscopic views which used to be so popular, and how much better an idea they gave of the relations of different objects in the picture to each other than did a flat picture of the same scene; and it is the same with the radio-stereogram; instead of a flat view they gave a relief effect with full perspective.

As to the technic, a plate-holder so arranged that a plate in its light-proof envelope can be inserted, withdrawn and another inserted without disturbing the patient, who is placed on it, is quite necessary.

If there are no good natural landmarks near the part to be examined, a metallic marker may be placed on the skin, its location being indicated by indelible ink or nitrate of silver; in looking for a needle do not use a piece of straight wire as a marker, and if a bullet is sought, do not use a metallic disc, for very obvious reasons.

The tube is hung from a graduated support; a point on this support is found, that is in a line perpendicular to the plate and passing through the center of the object to be examined. The tube is now placed so that the anode is a certain distance, varying according to the thickness of the part, to one side of the base point already selected on the tube support; an exposure is made, the plate withdrawn from the plate-holder, and another plate inserted. The tube is then moved so that the anode is on the other side of the base point of the support a distance equal to its former distance form it on the opposite side and another exposure is then made.

For examination, the finished plates are placed in a suitable light, side by side—there is a right and left in this arrangement—and they are then examined by means of a special stereoscope. I use plane prisms of twelve degrees, with bases out; an ordinary parlor stereoscope will not do at all.

In looking at the skiagrams, the attention is concentrated on the center of the picture, and the observer is rewarded by a view of the parts that gives their true perspective. There are other means of examining these negatives, but I think this is the simplest.

I have reduced some of my radio-stereograms to such a size that they may be viewed through the ordinary parlor stereoscope, and I present them herewith for inspection. Naturally, they have suffered some loss of detail in the process of reduction, but I think they will convey my idea.

By diverging the eyeballs these radio-stereograms may be examined without a stereoscope. This feat is performed by attempting to look through a point midway between the negatives or prints, and focusing the eyes for a distance far away. The pictures will gradually merge into the stereoscopic view when the proper degree of divergence is attained, and the trick will be found a very useful one in this work. Details will appear after a few seconds which are not noticed at the first glance.

SHOULD INEBRIATES BE PUNISHED FOR CRIME BY DEATH?*

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The severe criticism by lawyers and judges of medical expert testimony is often based on facts and is not altogether unjust. Physicians in the witness stand are often very stupid, and give strained interpretations of scientific facts, mixed up with opinions and theories, which give rise to a suspicion of hazy, inexact ideas, or of some personal motives. Such testimony concerning the mental condition of inebriates who have committed crime is still more confusing and doubtful. Physicians who are generally clear on other matters in their everyday life, particularly relating to questions of cause and effect, hesitate and are confused when called to describe the mental condition of persons continuously poisoned by alcohol. The toxic effects of alcohol on the organism seems to be a matter of uncertainty, but when in place of the word alcohol, arsenic or mercury is used there is great emphasis and clearness of statement. The injurious effects of alcohol are very common, while that of mercury and arsenic more or less is rare. The one is invested with delusions and stupid theories, the other is not. If with the history of inebriety is associated a neurotic ancestry, bad surroundings. irregular habits of living and occupation, why should the expert physician be in doubt as to the degree of injury and damage which the brain has sustained from the use of alcohol combined with these agents? Why should the possibility of mental soundness and capacity of control be considered in persons with this history, and how utterly farcical is the attempt to draw dividing lines where health and disease join, or where mental strength and degeneration separate? During the past year over one hundred inebriates have been tried and punished by death for capital crime. and the question of responsibility and the degree of sanity present was the subject of controversal testimony among a large number of medical experts. The results of these trials indicated the profound failure of both courts and medical witnesses to understand the pathology or psychology of these poor victims. Literally, the questions of sanity and responsibility turned on the credulous acceptance of erroneous theories of the effects of alcohol on the brain. The dogmatic assertions that inebriety could not excuse nor lessen the responsibility of

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

crime, and that any toxic states before and during the commission of the act increased the culpability, were accepted by medical witnesses as if they were exact facts. Also the still more incomprehensible classification of intoxications into voluntary and involuntary forms in which free will and judgment to discriminate were present, was repeated as scientifically true beyond question. Another assumption prevailed and was unquestioned by the medical witnesses, viz., that the question of motives and the consciousness of conduct in one poisoned by alcohol could be traced with as much exactness as a stream of water is followed back to its source. The absurdity of calling states of mania or melancholia voluntary or involuntary acts and the efforts to show their boundaries and limits appeared in the testimony of several experts.

Going further, they declared that the use of alcohol was a mere habit to be put on and off at will and that at no time was the consciousness or power to discriminate concerning the nature and consequence of acts lost entirely. In one instance an expert swore that the prisoner was sane and responsible at the time the act was committed, although he had drank to great excess for years and had had many attacks of delirium, one within two weeks of the time of the commission of the crime. He also had delusions that he was to be killed by persons who wished to drive him out of the community. In another case an expert gave similar testimony where the prisoner had drink paroxysms for ten years, dating from a sunstroke, and during these paroxysms he was maniacal and destructive. In other instances similar histories of long-continued use of spirits and of pronounced toxic states were given, and the possibility of such persons being sane and responsible was so remote that it is difficult to understand why it even should be considered. The efforts of courts and attorneys to judge of crime and criminals where the toxic causes are alcohol, based on medieval theories of the operations of the brain, are common, but why physicians should accept such theories and conclusions that are literally opposed by all scientific studies is, to say the least, very startling. Nothing seems more clear than that crime, criminals, insanity, inebriety, idiocy and many other forms of degeneration are all results of distinct causes, the origin and growth of which is becoming more and more apparent with every advance of exact knowledge. Theories of moral causes in inebriety, such as that tendencies and impulses are under the control of the will at all times, are unknown and are opposed by scientific studies. The inebriate whose use of alcohol may be a symptom as well as an active cause, is diseased and has a defective brain, with a defective power of control, no matter what the appearance may be. The reality of the disease is apparent in the failure of the use of moral means and remedies, such as punishment, ridicule, persecution, suffering and loss, which make no impression and which in no way check its progressive march. If there was sanity, normal control and consciousness in the inebriate's state, those means would prevent inebriety, but the fact that they increase and actually develop the favoring causes and conditions is an indication that the degeneration is physical and not moral. The inebriate is practically less able to control or to judge the nature and character of his acts because of his defective senses and general poisoned condition. Alcohol has paralyzed both the organic and functional activities of the body, and impaired his ability to adjust himself and to understand the constantly changing conditions. The irresponsibility of the inebriate from the defective organism is confirmed by the modern studies of the physiologic action of alcohol on the brain and nervous system. No matter how it may be used, its effects are practically the same, only varying in degree. First, the action of alcohol is on the vasomotor nerve, disturbing the vascular circulation, both increasing and diminishing the flow of blood to the brain and to the surface of the body; second, the nutrition is disturbed, the oxygen-carrying properties are diminished and the toxins are increased and the vitality is lowered. The blood vessels are incapable of uniformly furnishing the proper nutrient supplies, and the supply itself is diminished in both quality and quantity. Every dose of alcohol disturbs and lowers the elasticity of the arteries, particularly in their terminals, and the normal rhythmic flow of blood essential to health is broken up. These changes are registered in the increased heart's action, vasomotor palsies, and surface congestions. This impairment of the arterial circulation is registered in the derangement of the senses, which can now be measured with great exactness. Alcohol impairs the sight, diminishes its color sense and power of discrimination; the hearing is lessened, and the co-ordination of sounds is disturbed. Both taste and touch are defective and the consciousness of the external world coming through these sources is perverted. This particular derangement of the impressions from the outside world through the avenues of the senses most seriously affects the power of reason, because such impressions are faulty and the data which they furnish misrepresents the real conditions. The brain is incapable of correctly judging of the surroundings, of the consequence, and of the nature of acts. This faulty condition of the senses extends to organic impressions within the body. The anesthetic effects from spirits promote delusions of strength and vigor, hence the inebriate never realizes the actual conditions and constantly misinterprets the impressions within the body. The co-ordinating centers and so-called consciousness of the higher relation of events are palsied, hence delusions, illusions, deliriums with stages of mania and imbecility appear from the use of spirits. These are noted in the later stages of mental disturbances which begin with the first use of spirits. The changed conduct, faulty reasoning, and emotional instability seen in inebriates is frequently an evidence of the advent of paralysis. Often these palsied effects concentrate either on the motor, the mental or the sensory centers until finally judgment, experience, duty, obligation and power of discrimination are confused or lost. The supposed clearness and activity of the mind does not represent the real condition, and is often the struggle of the co-ordinating centers to adjust themselves to the new conditions and surroundings. The appearance of health is a mask, and the organic activities of both brain and body become more and more automatic. The mind is cut out from the main circuit and does not act from the data of the present. General loss of memory, coming on suddenly and extending over a period of time, during which crime may be committed, is treated with contempt by the courts and regarded as a subterfuge and excuse for the acts committed. Many inebriates executed for crime claim that it was committed without the slightest recollection or consciousness of what they were doing. Testimony to determine the reality of this condition is seldom offered. In a study which I made some years ago of these amnesic trance states it was found to occur very frequently, and its reality did not depend on

the statement of the prisoner. The general conduct and automatic character of the act committed, together with a general history of continuous toxic states, made it clear that many crimes were committed in this condition, where the degree of responsibility was entirely absent. Many of these persons had a history of epileptoid impulses and explosions with concealed or open delusions, which were overlooked as of minor importance. These are some of the pathologic states common to inebriates, particularly those who have committed crime, and who have reached chronic stages of degeneration. The conclusion can not be doubted that irresponsibility and mental failure not only to control but to judge of the relation of acts and of the surroundings is present in all chronic inebriates. Looking at this subject from another point of view, it is evident that the legal theory that inebriety is no excuse for crime and the punishment based on this theory as a deterrent and remedy for its cure and prevention is a stupid blunder, and contradicted by all experience and statistics. In the lower courts, where toxic states from alcohol and mild assaults come into recognition, the efforts to cure by fine and imprisonment not only increase the disease but make the victim more incurable. Different studies of victims punished in the lower courts show that less than 1 per cent. received any benefit. Each effort to check these toxic states is literally a form of education increasing the debility, lessening the control and precipitating the victim lower and lower; thus the inebriate and pauper criminals are cultivated by the blundering efforts to prevent and to cure this condition. Of the hundred inebriates executed last year over 70 per cent, had been punished in the lower courts for minor acts, and the final culmination in capital crime was the natural consequence of a series of events which could have been predicted and which was almost certain to follow as the natural result from distinct causes. In one case, from the beginning there was continuous anesthesia and palsy of the higher brain centers and of the sensory activities, which went from bad to worse, making the victim more and more unable to understand the nature and consequence of acts. Notwithstanding this experience, the same methods are pursued and the same reasoning followed, that intimidation, fear and suffering will give some new power of control not exercised before. The same theories prevail in the higher courts, where the death penalty is supposed to check the use of alcohol and to prevent persons from committing crime while under its influence. These legal fictions are stated so emphatically that the thoughtless experts credulously accept them as true, actually believing that crimes committed while suffering from the toxic effects of alcohol may be, and are, the voluntary acts of sane minds. When the absurdity of this premise is pressed, the answer is that the mind was sane at the beginning and knew the consequences following the use of spirits. Another legal fiction has been accepted as an exact fact, that evidence of premeditation in the act is an indication of normal reasoning in the inebriate. Still another legal fiction is prominent in the supposition that a purpose or motive previously formed could be conceived and materialized in a brain continuously clouded by alcohol. And, lastly, the most astonishing blunder is that of attempting to point out fixed periods in the operations of the inebriate's mind where sanity and responsibility joined insanity and irresponsibility. In one instance a prisoner had been arrested many times for sudden, unprovoked assaults, evidently the result of concealed delusions, yet the medical experts could not find evidences of an unsound brain. His volubility and the clearness of his statements seemed stronger proof of his sanity than years of insane conduct. Another patient, after ten years of the most irresponsible thought and acts, committed an atrocious crime, and in jail explained his conduct and gave reasons and talked so clearly and well, that he was convicted at once as sane and responsible. He was apparently converted and spent the last days of his life in warning others to avoid the use of spirits. This was literally concealed paresis. Another man, whose crime was sensational and whose previous life had been one of continuous alcoholic paralysis, was indignant that a defense should be made of insanity, and denied that he was irresponsible. The court accepted his statements and treated with contempt the efforts of medical experts to show the insanity of the man. These examples are common and indicate the dangerous and thoroughly futile efforts to discriminate and to point out degrees of sanity and rational appreciations of the surroundings and the consequence of acts by inebriates. Society, as well as human justice, suffers by these unreasonable efforts to punish and to destroy chronic inebriates for wrong doing. Society has no right to permit defectives to grow up unnoticed, and to be educated to acts of violence and destruction, and then to hold them responsible and to punish them as sane. The inebriate murderer should never be put on trial in public, and the farcical question of his sanity and responsibility made the subject of public discussion. One great fault at present is the failure and hesitation of the medical profession to defend the teachings of science, particularly when these are opposed to the theories of courts and to the delusions of the present.

Some of the conclusions which the scientific studies of the present make prominent may be stated as follows: First, the present legal treatment of inebriety and the efforts to apply preventive and deterrent remedies is a failure.

Second, science has proved beyond question that the action of alcohol is an anesthetic and depressant, and that its continuous use is followed by sensory and motor impairments, and also by poisoning and starvation of the brain and nervous system, hence sanity and responsibility is not possible.

Third, the object of the state, through the law, to prevent crime and to protect society from criminal inebriates by dealing with them as sound and responsible, fails in every particular.

Fourth, the fear that the plea of insanity in crime and the failure to inflict punishment is an excuse and encouragement for crime, is opposed by all statistics and experience.

Fifth, the inebriate should never be punished by death, for crime committed under the influence of alcohol, because he is not mentally sound. Such punishment surrounds the criminal with a contagion which leads other defectives to repeat these very acts.

Sixth, the question of responsibility in inebriety should never be made the subject of medical controversy.

The fact of excessive use of alcohol should be accepted as evidence of mental impairment and of inability to control acts and conduct. The medical examination will show this impairment, and the patient should be committed to institutional care and treatment. Physicians called to give evidence of the sanity and responsibility of inebriates should give their views entirely from the facts

of the neurotic heredity with the spirit and drug history. The more thoroughly these are known the more accurately conditions of the brain can be determined. The question is one of cause and effect; not of theory nor of legal dictum, but of actual fact, with the legal application of which the expert has no concern.

DISCUSSION.

Dr. Brooks F. Beebe, Cincinnati, stated that many medical witnesses are not medical experts. They do not know the subject, and yet their testimony will go for as much on the witness-stand, often, as that of Dr. Crothers himself, simply because the laws have been made through ignorance and not on a scientific basis and, therefore, are altogether wrong. There is no question in the medical man's mind as to when an individual is responsible and when he is not. The line is clearly drawn, the difference being one of habit or disease. One individual goes out and takes one glass of whisky or two glasses of whisky and stops as he chooses; in the other case a man takes one glass of whisky and he can not be prevented from going on a spree. They may have an equal amount of knowledge, but not of will power. If it is simply a bad habit, the man is responsible for taking the alcohol and for all its consequences. On the other hand, if there is lessened will power, disease exists to that extent and irresponsibility follows. The method of punishment of these alcoholic criminals is all wrong. In Cincinnati the cases are tried in a police court. A man goes on a little drunk and is sent up to the workhouse for 30, 60 or 100 days. He comes out and in a very short time goes on another spree. When a police officer was asked what proportion of them returned, he said that more than two-thirds of them were sent to the workhouse more than once, many flitting from one to the other for years and years. If responsible, as some of them probably are, they should be sent to the workhouse, but doubling up the time with each new arrest, giving them 60 instead of 30 days, 120 instead of 60 days, and so on. Old offenders should spend part of their time in the workhouse being treated for their diseases—medicinally and otherwise—part of the time being spent in working for themselves and for their families, and in this way they may get back into a healthy condition. It is not a question of punishment altogether. It is a question mostly of curing the disease. Certainly an individual has no right to walk the streets and do harm; certainly the public has a right to be protected, but the state is in duty bound to take care of an individual in the proper manner. The state owes a duty to the criminal in more ways than one; to take care of him and of his children. Such people have no more right to marry and to propagate offspring than have the tuberculous or people with any other diseases, and the state should look after those cases also. Let physicians help to make laws permitting no one to marry unless he has a certificate of health and good character. The prevention of crime will be accomplished more readily by preventing propagation of the species than by punishing irresponsible diseases.

Dr. S. M. Crowell, Charlotte, N. C., said that physicians as well as the laity are too prone to look on these diseases as loathsome habits which do not need scientific consideration. The city recorder of Charlotte said that he was thinking seriously of forming a bill to be introduced in the next legislature to provide a treatment for these cases. Under its provisions, instead of sending a chronic case to work on the county roads, he would sentence him to a county sanatorium provided by the state legislature. Then, after a proper course of treatment, if the case should again appear before him for a similar offense, he would consider punishing him in some way.

Dr. Albert E. Sterne, Indianapolis, declared that if the first law of nature is the preservation of liberty, then the punishment of the chronic alcoholic for crime is against natural law. Is not the mere fact that the person is satisfied and is willing to spend three-fourths of his life in prison *prima facie* evidence that the reason and judgment of the man is at fault? The mere fact that he goes to prison time and again and is released only to be sent back again within twenty-four hours shows that it is not a habit and that the man is mentally unsound, that he possesses no judgment and exercises no judgment. That man is sick; he needs treatment; he needs to be incarcerated in a place where he will be treated, not where he will be surrounded by influences more deteriorating than those from which he was removed. A bill was introduced into the Indiana legislature two years ago, which was lost because the man who introduced it proposed to levy a tax on druggists selling liquor, morphin and opium without the prescription of a regular and practicing physician. Of course, the druggists got together and immediately put down that bill. Now there is another one which will come up at the next session to establish a hospital for inebriates. The city hospital is the place for the acute cases, just the same as for any other acute disease.

THE MUSEUM IN MEDICAL TEACHING.

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MONTREAL.

The stress and the high pressure of modern life is felt nowhere more keenly than in the field of higher professional education. On all sides the demand is heard for a wisely simplified curriculum, for a longer term of study, for methods that will bring the ever-widening field of knowledge to be covered within the range of the personal observation and induction of an ever-multiplying number of students. To meet the difficulties of the case, educational reforms have taken place all along the line. Teaching is becoming always more objective, illustrative, the didactic method more colloquial—socratic. The student is called on to produce, even more than to acquire, to enquire, to debate, and to himself form judgments on the facts of his own observation. The laboratory system, in short, with the symposium, is replacing the lecture room and the thesis.

Nowhere are these new methods of teaching carried further than in America, and yet it appears to me that it is on this continent that the remarkable adaptation of the medical museum to this colloquial form of objective teaching is, perhaps, least understood.

In this paper I will first present the important place which the museum should and can fill in medical teaching; and secondly, I will try to show how a well-organized, well-classified museum evolves itself as a teaching mechanism of great value; presenting also the methods in use in the pathological museum of McGill University which, although still almost in their beginnings, have proved successful in developing it along these lines.

THE MUSEUM IN MEDICAL TEACHING.

In this connection Professor Huxley has said: "Without doubt there are no helps to the study of biology, or rather to some branches of it, greater than our natural history museums; but, in order to take this place in biology they must be the museums of the future. The museums of the present do not by any means do as much for us as they ought." And again: "To all those who intend to pursue physiology, and especially to those who intend to employ the working years of their life in the practice of medicine, I say there is no training so fitted, or which may be of such important service to them, as the thorough discipline in practical biologic work which I have sketched, as being pursued in the laboratory hard by."

I have come on a most interesting article, "Museums as Educational Adjuncts to Medical Colleges," a graduating thesis by M. Josiah Roberts, which obtained hon-

orable mention in the medical department of the University of New York in 1882. This paper deals with the whole subject of the formation and functions of natural history museums, and in one section says so succinctly and so exactly what we have found true in the work in our own medical museum at McGill that I quote from it fully. Mr. Roberts says:

"How can the museum thus collected be made most useful? I would answer: Use the material thus collected as the basis for a course of museum laboratory instruction which will train young minds to do accurate observational work, thus developing the three great functions of the intellect, discrimination, agreement and retentiveness, while at the same time increasing the extent and diffusion of biologic knowledge. The true functions of our medical museums, in addition to providing for public instruction, should be to afford facilities for a course of instruction which will give medical students the opportunity to personally observe facts, and the impressions which will follow will be clear, definite, permanent, and hence far more valuable than any plagiarized information taken from books. If this kind of training, which it is so desirable that every medical student should have, can be obtained by a graded and systematic course of observational study on these forms, a knowledge of which has a direct practical bearing on the professional duties for which he is trying to fit himself, I think the evidence is *prima facie,* that the time is now ripe when at least the first tentative step should be taken toward its realization."

Mr. Jonathan Hutchinson,[1] in a descriptive sketch of his "Clinical Museum," says: "I venture to assert that I can give to anyone who will go round these rooms with me and inspect the associated series which are devoted, for example, to injuries of the head, rhinoscleroma, etc., far clearer and more definite views in the course of ten minutes than could be gained by a week's reading."

To the above quotations may be added the fruit of our own experience during the past few years in the pathological museum of McGill University. Of this I would say, and I can not speak too strongly, that, given a medical museum with a good material on its shelves and in storage, a good system of classification, and an active medical officer in charge, and the conditions are presented for a laboratory system of great scope and of remarkable efficiency. Here facts, showing the thousand gradations and variations of disease, are presented in their correlated order, or in sharper contrast, at first hand to the observation of the student. His native powers of observation, judgment and induction are at once elicited; he obtains a new understanding of what he has read of and seen elsewhere, and a keener enthusiasm for his work at the bedside. And this gain of knowledge, or insight into disease, is acquired without a strain on his memory, but rather with the mental relief which comes from seeing in their simplicity conditions the abstract ideas of which it has required often a powerful effort to carry in his mind. The organized museum is to general pathology what the autopsy room is to medicine, what dissection is to anatomy, what—to go further afield—traveling to see new countries is to the study of geography.

It is in the presentation of series of specimens in an ordered sequence that the strength of the museum system lies. Professor Virchow, writing at the opening of his own great museum in Berlin in 1901 of this teaching by means of large numbers of museum specimens illustrating allied and differing pathologic conditions, expressed the object attained in these words: "Thus will the student prepare himself for the difficult art of forming for himself out of the confusing many-sidedness of pathologic appearances, a general idea of a diseased process, even in those cases in which direct observation is impossible."[2]

1. British Med. Jour., Dec. 9, 1893.

THE SYSTEM IN THE PATHOLOGICAL MUSEUM OF M'GILL UNIVERSITY.

The collection of this museum was begun in 1824 when the medical faculty itself was organized. Ever since that time it has been a cherished object of the teaching staff, who have always used it largely in illustrating their didactic lectures. It thus contains a rich material, which has of late years been increased quite one-third, by the efforts made to fill in the gaps in the teaching series.

During the past few years much active work has been done in this museum. It has been carefully reclassified and recatalogued on a set of descriptive catalogue numbers, after a plan similar to that of the Dewey decimal system of classification in use in libraries. Especial care has been taken to preserve the natural colors of organs by the methods of Kaiserling and Jores, and specimens are carefully mounted on glass frames so as to preserve their anatomic relations, and to show the pathologic lesion to the greatest advantage to the student. And a curator is on duty whose especial function it is to develop the museum as a teaching organ and to fill in gaps in its teaching series by representing the specimens needed to the pathologists of the two great city hospitals, a curator who also has ample time to place at the disposal of the students.

Under these conditions the usefulness of the museum to the students has developed beyond the expectations of those engaged in the work. It has already become a self-teaching mechanism, the possibilities of which as a supplement to both clinical and postmortem work are almost unlimited.

THE GENERAL ARRANGEMENT OF THE MUSEUM.

The museum proper now consists of a suite of four rooms communicating with the curator's office and a large lecture room used by the professor of pathology for his lectures on that subject. Of these rooms, the largest and best lighted is the one in which the majority of the moist specimens are kept. It is supplied with a number of large tables fitted with movable shelving, which are used for demonstration and exhibition purposes, or, with the shelving removed, for the writing of descriptive exercises. Of these tables, the largest runs down the center of the room, and is fitted with a double tier of two steps so that a set of three shelves is presented on either side. This table is the one used for the routine demonstration. The others have a single tier of two steps each.

Of the other museum rooms, one is devoted to the osseous system, one to the female generative system (the obstetrical and gynecological museum), and one to the medicolegal collection.

The curator's room is fitted with abundant shelving. Here all new specimens are received, are given a consecutive entry number in the museum entry book, and are filed on the shelves, classified under organs. These curator's specimens are added from time to time to the

2. Virchow: Das Neue Path. Museum zu Berlin, 1901.

museum as the occasion arises or the opportunity for mounting occurs.

An end of the obstetrical museum is railed off for "hand-specimens" of the different organs. These are duplicates of specimens already in the museum, which may be removed from the jars at will by lecturer or student. The remaining museum apartments in the other parts of the building are the maceration room, the preparation room and an extra storage room in the basement.

THE CLASSIFICATION.

The museum is arranged on an anatomic classification with a pathologic subclassification. It is necessary to emphasize this particular, because, although the exact form of classification in use is not essential, it appears to me that a detailed method of some kind is absolutely necessary to the development of a true teaching museum. And the decimal system of descriptive catalogue numbers recently applied here after a plan suggested by the late Prof. Wyatt Johnston, has been so practical in its results and working that it can not be passed by, although a full account of it has already been published elsewhere.[3]

The museum is divided into ten sections corresponding to the ten systems of the body. Each system is subdivided into its different organs, which are placed in order under its section, the specimens arranged under each organ according to the pathologic classification, of which there are likewise ten main divisions, with subdivisions of these as in the anatomic classification. In the descriptive catalogue number the anatomic condition precedes, and the pathologic follows the decimal point, while the particular specimen is indicated by a small index figure to the right of the catalogue number. Thus if 11. represent the pericardium, and .34 fibrinous inflammation. 11.34[1] means the first specimen on the shelf of fibrinous inflammation of the pericardium.

The museum is thus divided into the following sections, each of which is labeled and numbered:

Systems.—1, the circulatory; 2, respiratory; 3, digestive; 4, glandular; 5, urogenital; 6, female generative; 7, nervous; 8, muscular and tegumentary; 9, osseous; 10, regional.

These are again subdivided as follows (each subdivision in the museum bearing the name and number of the organ belonging there):

Organs.—11, pericardium; 12, heart and myocardium; 13, endocardium; 14, arteries; 15, veins.

Twenty-one, nose; 22, larynx; 23, trachea and bronchi; 24, lung; 25, pleura.

The main divisions of the pathologic classification are: .1, anomalies; .2, circulatory disturbances; .3, inflammatory; .4, infections and parasites; .5, granulomata and general diseases; .6, progressive changes; .7, degenerations; .8, wounds and injuries; .9, specific artefacts; .0, general and supplementary.

Into the subdivisions of the pathologic classification it is unnecessary to enter here, as it is the subordinate classification in the museum and, moreover, is only detailed in those departments in which there are many varieties of a given condition, as in the inflammations of the pericardium, anomalies of the heart, etc. Nor is it adhered to strictly in order of teaching wherever convenience or clearness suggests it should be set aside; only the specimens bear their descriptive numbers and so always stand in the same order on the shelves; while, if no circumstance give another direction to one's thought, one's mind has always a definite order to follow in the presentation of ideas.

The order of the anatomic classification, on the other hand, is strictly adhered to. It is followed exactly in the systematic demonstrations one department after another being gone over in rotation, in the order of all specimens wherever filed away, and in all notices sent out. And this is found conducive to celerity and thoroughness.

So much for the general arrangement and classification of the museum. The work done there for and among the students may be summarized under the following heads:

1. The development of teaching series.
2. The supplying of lecture rooms and clinics with illustrative material.
3. The systematic demonstrations to students.
4. The exhibitions to students and to the teaching staff.
5. Written descriptive exercises on museum specimens.

THE DEVELOPMENT OF TEACHING SERIES.

In the application of the descriptive catalogue numbers, in responding to the demands of the lecturers or clinicians for material to illustrate their didactic work, in elaborating the descriptive catalogue, and most of all in the systematic instruction of students within the museum, the curator becomes aware of the lack of specimens illustrating given pathologic conditions. From time to time a circular of information is issued to the pathologists of the city hospitals informing them of the *lacunæ* in the collection.

ILLUSTRATION OF LECTURES AND CLINICS.

The lecture rooms are, of course, supplied at request, and also the clinics at the hospitals, when desired. Strong baskets are kept for this latter purpose, and borrowers' forms, "returnable in 48 hours," are signed. The very valuable specimens are, of course, not sent out in this way, but the demand can generally be met usefully, the need only being to supplement the teaching collections which are kept at the hospitals themselves.

THE TEACHING OF STUDENTS WITHIN THE MUSEUM.

All the work done in the museum, both descriptive exercises and the regular demonstrations, is entirely voluntary, a matter arranged between the curator, with the sanction and encouragement of the director of the museum, and the students, through their class president. The work has no place on the curriculum, and the only hour left free for it has been 8 a. m. The attendance and the descriptive exercises done do not raise the students' standing in any way.

These circumstances have rather helped than retarded the development of the classes. A high average attendance of the best men in the year is always to be had; the morning hour finds everyone fresh and untired.

THE MUSEUM DEMONSTRATIONS.

So far, these have been given to the fourth year only, which is divided into five groups of some twenty men each, each group coming in one morning in the week. It has been found expedient to make the groups rotate during successive weeks, as in the course of the repeated demonstrations of the same material interesting points are brought out, so that classes held at the end of the week have the advantage. Saturday morning is kept free and is used to respond to the special requests of some

3. American Medicine, April 3, 1903.

few of the students who may wish some point in the week's work reviewed.

In the demonstrations, the order of the anatomic classification is followed around the whole museum, every organ being examined in rotation until all the museum material of real interest has been shown.

The method used in showing the material is entirely descriptive, and "quizzing." The specimens are arranged in order on one side of the shelving of the long center table, and in a short introductory talk of some five minutes (during which also as much as possible is done by questions), an attempt is made to bring forward the salient points in the series to be studied. Sufficient jars are then given out to a few of the class to keep the whole group busy, and a couple of minutes is allowed for preliminary examination of the individual specimens before quizzing on one of them is begun. The group is small enough to allow all present to see the specimen under consideration, and there is room for difference of opinion and for the introduction of many other specimens for purposes of illustration and explanation of disputed points. Discussion is encouraged and a set of standard text-books is at hand for reference, and the clinical notes of the cases where these are available.

In these demonstrations, covering as they do so wide a field, the special pathology of the internal organs, the surgical pathology of bone, the diseases of the special senses, the pathology of obstetrics and gynecology, the curator does not attempt to teach the student as one especially informed along any line, but only to lead him in the study of the specimen for himself, while bringing to his notice, in the quickest possible way, all the illustrations of a given fact that the museum affords.

THE EXHIBITIONS.

At the close of the week's demonstration, the organ which has been studied by the different groups in rotation is transferred to the shelving on the other side of the table to make room for the series of the week following. There it is kept on "exhibition," with the descriptive card catalogue at hand for purposes of review by the student. As the other organs of this system are studied, they also are placed "on exhibition," the other tables with shelving being called into use when necessary. When the demonstrations on this system are completed, or at a certain point in it if the material is very extensive, a pause is made in the morning grinds. The system, or a part of it, having been meantime arranged in first-rate order by mounting the specimens used from storage to fill in gaps in the teaching series, by re-labeling, etc., is declared "on exhibition" by a notice posted to the students and by circulars issued to the members of the teaching staff.

These circulars are sent to the teaching staff to stimulate their interest and also to give them an opportunity of informing themselves of what the museum contains.

For a week or more, reviews are held on parts of the system on exhibition at the request of the students. The systematic "grinds" are then resumed.

In March, when the sessional work becomes very heavy, the regular demonstrations stop, and the opportunity is now taken for the "Annual Exhibition," when all specimens that have been mounted during the current year, having been catalogued and carded, are placed "on exhibition," for the benefit of faculty and students alike, before being placed on the shelves. Much informal demonstrating is done while this exhibition continues.

It is common also for some of the lecturers in the different departments and for some of the clinicians to request the collaboration of the curator in the illustration of their subject within the museum. The series requested is placed "on exhibition" within the museum and is either demonstrated by the lecturer himself or informally by the curator to successive groups.

STUDENTS' DESCRIPTIVE EXERCISES.

Specimens of a given condition, with three or four others, showing allied or differing conditions, are allotted to the student, to be worked out at hours of his own choosing. Museum forms are supplied having the following directions stamped in the upper left-hand corner (for which purpose a rubber stamp is kept):

Subject, ...; Date, ...; Spec. No., ...; Name, ...; No., ... Describe briefly the conditions shown in the specimen, commencing by an epitomized anatomic diagnosis and then describing fully first the anatomic and then the pathologic appearances. Indicate doubtful appearances by the sign (?). On the reverse side of the sheet mention the most important allied or associated conditions not shown in the specimen. Point out the points of similarity and difference in the specimens of allied conditions allotted for comparison.

This rubber stamp was presented by the late Professor Wyatt Johnston, whose suggestion these descriptive exercises were. Although the time of the student is too limited for extensive work of this kind, each one can manage three or four of these sheets, and as an introduction to the work in the museum, familiarizing the student with the descriptive method that is attempted in all the oral work, and in making him realize the immense value that the careful study of a single diseased organ is to him, these exercises are simply invaluable. I ascribe the success of the museum demonstrations later in the season largely to the effort made in the beginning by the student himself on these descriptive exercises, which are issued in the first six weeks of the term.

DEMONSTRATIONS TO STUDENTS.

I would like to close this outline of the system in use here with some further details on the museum demonstrations to students. As has been said, it is in the presentation of a series of specimens in an ordered sequence that the strength of the museum system lies. In every such series, salient points will be elicited and made clear which will often have been obscure or difficult. Atelectasis, bronchiectasis, and infarction, the processes of inflammation, and of sequestrum formation in bone; the alterations in the chambers of the heart resulting from changes in the cardio-vascular system; the differing lesions of the intestine in typhoid, tuberculosis, lymphosarcoma and leukemia; fetal anomalies; these are but a few examples of the miscellaneous difficulties which a simple classification makes plain to the student, so that he who runs may read.

The following synopsis of some of the demonstrations on the circulatory system may serve as an illustration of the series shown, and of some of the points elicited.

INFLAMMATIONS AND DEGENERATIONS OF THE PERICARDIUM.

Specimens are shown of fibrinous, sero-fibrinous and plastic inflammations; of the hemorrhagic and purulent forms. Of chronic conditions are shown simple thickening and opacity of the pericardium, complete and partial synechia of its layers, milk spots, localized tags of adhesions, mediastino-pericarditis and calcification of the organized products of a past inflammation.

The difference in the gross appearances of fibrin, an inflammatory exudate covering the acutely inflamed serous membrane, and the fibrous tissue of an old inflammation that has undergone organization, is emphasized.

In severe grades of pericarditis, a myocarditis by contiguity is seen, and frequently a pancarditis, the whole heart becoming inflamed. Also it is noted that in a mediastino-pericarditis the conditions are presented for the development of physical signs during life, while in a simple adhesion of the layers to each other, no such signs need occur.

CHRONIC ENDOCARDITIS.

Under this we understand several different processes: First—A slow sclerosing process, chronic from the onset. Second—A fibroid change, beginning in absorption of the products of inflammation, often continuing on far beyond the seat and the time limit of the initial lesion, and resulting in atheromatous and calcareous change. Third—The term chronic inflammation is often used as a misnomer for heart lesions which are the result of a past inflammation, although no true inflammatory process nor anything but the direct results of the mechanical changes in the heart is now at work.

In considering the subject of chronic endocarditis, the important point is the lesions that are left behind. We will look at fusion of the segments of the semilunar and auriculo-ventricular valves, shortening of the chordæ tendinæ, crumpling, binding down, fore-shortening of the semilunar cusps—all the conditions, in short, that go to produce a valvular stenosis or insufficiency.

HYPERTROPHIES AND DILATIONS OF THE HEART AND SIMPLE ATROPHY.

In examining this series of alterations in the capacity and volume of the different chambers of the heart, or of the heart as a whole in their different degrees and combinations, together with the causes in operation that have produced these alterations, the mechanics of the condition are made much plainer than they can be at the bedside or in the postmortem room in the examination of an isolated case. In every case of extra strain on the heart, whether from extracardiac rise of pressure or from intracardiac leakages, there is a physiologic dilatation first, due to the increased size of the cavity resulting from the physiologically hypertrophied and therefore extended wall. Later on, when the hypertrophy can not meet the strain any longer, a pathologic dilatation results, and the patient dies. These points are illustrated in the specimens, as also another, that it is the chamber or chambers behind an obstruction that dilates and hypertrophies.

The following specimens are shown: Normal heart, simple atrophy of the heart in asthenic state; simple acute dilatation of the heart (parchment heart); so-called concentric hypertrophy (hypertrophy with relatively little dilatation) of the left ventricle in aortic stenosis (two cases); idiopathic hypertrophy and dilatation of the heart in overwork; hypertrophy and dilatation of the heart in arteriosclerosis, with arteriosclerotic kidneys; cor bovinum of aortic insufficiency—an enormous left ventricle with a wide cavity; cor bovinum in aortic insufficiency, with atheroma of the aorta and arteriosclerosis—an enormous heart; hypertrophy and dilatation of the heart in aortic insufficiency, with atheroma of the aorta and marked atheroma of the coronaries—a moderately enlarged heart with a greatly dilated left ventricle, pathologic dilatation having set in comparatively early before hypertrophy had gone very far; heart in mitral stenosis, showing dilatation and hypertrophy of left auricle and enlarged right heart; heart in mitral insufficiency; cor bovinum in complete *concretio pericardii cum corde* with mediastino-pericarditis; hearts showing combined valvular lesions.

In conclusion, I would express my obligation in this work to Professor Adami, director of the museum, and to the late Professor Wyatt Johnston. The museum teaching has been developed with Dr. Adami's support and kind encouragement, while many of the ideas on which the museum system is based have been elaborated at Dr. Johnston's direct initiation and suggestion.

To the artistic mounting of the specimens by the preparator, Mr. Judah, much of their usefulness to the students is also due.

DIPHTHERIA INFECTION IN MINNESOTA.

RECENT EXPERIENCES WITH THE DISEASE IN SCHOOL CHILDREN AND IN INSTITUTIONAL EPIDEMICS.*

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MINNEAPOLIS.

It is not the purpose of this communication to enter into the minute consideration of all phases of the prevention and eradication of diphtheria, but to present briefly the general features of some of the methods which have been found practicable in Minnesota and in which the laboratory has been used as the guide to executive action and restrictive measures.

In the work of the Minnesota State Board of Health, the problems have naturally arranged themselves into three main groups.

I. The routine work of dealing with diphtheria as it occurs in family life.

II. Widespread epidemics in which the day schools have to be closed.

III. Infection which gains entrance into institutions in which children or other inmates are housed, employed, taught or confined, and where great opportunity for the spread of infection is present.

I. DIPHTHERIA IN FAMILY LIFE.

The routine work of the State Board of Health is probably but little different in Minnesota from that in other parts of America except that it is confined largely to country towns, villages, small cities and rural communities. In general, isolation of suspicious cases is followed by the imposition of official quarantine, based on a positive report mailed or telegraphed from the laboratory of the board to the attending physician and the local health officer. Quarantine is maintained until a negative report or, when practicable, two successive negatives are made on throat cultures.

Modified Löffler's serum made by a rapid process is employed for the culture medium. This contains 1.25 per cent. of glycerin, the tubes are covered with rubber caps and the medium remains fit for use for twelve to eighteen months. Löffler's methylene blue is used for staining. Unless positive, no report is given on fresh preparations or, in fact, on anything other than a satisfactory culture made at the bedside, forwarded by the local physician and incubated in the laboratory for eighteen hours. In villages and towns, as also in smaller cities, no difficulties are presented, and the use of the laboratory is becoming more widespread. In country districts where it is necessary for physicians to make long journeys in order to see their patients, or where there are not physicians available, it is sometimes impractical to insist on a rigid adherence to the methods outlined for general use. Physicians are urged, and the public is educated, to take advantage of the laboratory diagnosis as a means of shortening the quarantine period and minimizing the dangers of infection.

Observations covering the years 1901 and 1902 have shown that in clinical cases of this disease diphtheria bacilli have disappeared in 3 per cent. by the 7th day,

* Presented before the American Public Health Association, Havana, Cuba.

27 per cent. by the 14th day, 51 per cent. by the 21st day, 83 per cent. by the 28th day, 93 per cent. by the 35th day and 100 per cent by the 70th day.

There is an occasional long persistence of the virulent types of *B. diphtheriæ*. One has been under observation within the last few weeks. A schoolgirl, aged 10 years, under the care of her father, one of Minnesota's best physicians and health officers, was found to harbor diphtheria bacilli for 109 days. On the 72d day the bacilli were isolated in purity, tested and found fully virulent. A school teacher, a young woman, aged 20, who had clinical diphtheria, still shows that typical diphtheria bacilli, which have been demonstrated by 13 successive positive examinations, have persisted for 71 days.[1] A boy, aged 5, still had diphtheria bacilli present (Jan. 2, 1905), i. e., 79 days since the disease began. On the 46th day the bacilli isolated in purity were virulent for guinea-pigs. Notwithstanding these occasional instances of long persistence, it is plain to all who have studied the question that the laboratory report on the presence or absence of the diphtheria bacillus affords the only satisfactory basis of quarantine.

In Minnesota, when laboratory examination is impracticable, an optional time limit of four weeks from the date of the disappearance of last symptoms is permitted, but not encouraged. The laboratory examination will, in most cases, very greatly shorten this time and, since it is the presence or absence of the diphtheria bacillus which constitutes the danger or freedom from danger, the laboratory examination is the only basis of quarantine which should be permitted. All members of a household in which diphtheria is present should be examined, and quarantine should be maintained on those who show the presence of typical diphtheria bacilli. The fact that similar bacilli have shown themselves to be virulent for human beings by the production of symptoms in a member of the family may be taken as initial presumptive evidence that any of the bacilli which are present in that particular household may be virulent.

II. INFECTION DEMANDING ACTION ON THE PART OF THE SCHOOL AUTHORITIES.

When diphtheria becomes widely distributed in a community necessitating the closing of the day schools or when the disease has persisted throughout the summer months, appeal is often made to the Minnesota State Board of Health for aid in determining a safe course which will enable the authorities to keep the schools open without endangering the health of the public.

Within the last five years this problem has frequently presented itself and by degrees a simple system has been evolved which has been found to yield most satisfactory results. It requires harmony between the local board of health and the school authorities if, without the constant supervision of some member of the executive or laboratory staff of the State Board of Health, the local authorities are to be depended on to carry out the necessary details.

In one very recent investigation, a most efficient medical health officer happened also to be chairman of the local school board, and except for ten days' time given to the inauguration of the work and the illustration of methods of tracing infection and some slight technical instruction, the work has been carried out entirely by the local authorities. The actual bacteriologic examination and report are made, of course, by the laboratory staff of the State Board of Health.

The only remaining factors necessary to successful work are the requisite executive authority, the confidence of the public and a fully equipped laboratory with a staff capable of meeting satisfactorily such emergencies. In this school and institutional work the demand on the laboratory is at times rather heavy. As an illustration, in 1897 and 1898, one member of the staff of the Minnesota State Board of Health made and examined in three months over 5,000 cultures in the branch laboratory established for the purpose, and supervised the necessary work of isolation, disinfection and recording.

In the last month (December, 1904), in addition to other heavy routine work and considerable traveling, it has been necessary for the laboratory staff to examine, record and report on over 3,500 diphtheria specimens, or nearly 9,300 for the four months ending Jan. 1, 1905. The necessity for a smoothly working system is thus made apparent, since the school openings all occur at the same time, and several investigations may be in progress at one time, each one involving the examination and supervision of from 100 to 450 children. The work may, perhaps, best be illustrated by quoting directly from one or two of a large number of such investigations.

During the year 1900 Park Rapids, a town of about 1,000 inhabitants situated in a lumbering community 350 miles from the laboratory, became badly infected with diphtheria. Not only school children, but adults also were attacked. The neighboring lumber camps and tributary territory became involved, and the disease persisted throughout the winter and did not disappear even in the late summer months, owing to repeated reinfection from outside sources. In August, 1901, on the appeal of the locality, the executive officer of the State Board of Health and the director of its laboratory visited the town to investigate conditions and outline methods for the control of the disease which would interfere as little as possible with the routine of affairs and which might still permit the opening of the schools, to which the citizens had looked forward with dread.

A careful study was made, and all cases of diphtheria then in existence were investigated and all rumors and suspicions of possible cases were followed up. At a joint meeting of the town council and school board, matters were thoroughly discussed, and it was recommended:

1. That the opening of school be deferred.
2. That the teacher and children of each room in the school be called together at the school at a specified time on a particular day to be set for each room and publicly announced.
3. That a representative of the State Board of Health be present who would take nose and throat cultures of each one of the children. The cultures were to be forwarded to the laboratory for examination and report.
4. That each child and each teacher who showed diphtheria bacilli be excluded from school until he and all of his family were found free of infection.

Dr. E. H. Beckman of the laboratory went to the town and spent nearly two weeks in this work of taking cultures and investigating the environments and history of all families in which positive laboratory findings were reported, and in securing and recording data, including maps, showing location, distribution and dates

1. Since the paper was presented, a pure culture of diphtheria bacilli has been isolated from this patient on the 80th day and has proved fully virulent for guinea-pigs.

of infection. As a result, over 350 school children were examined, more than 1,200 examinations made, school opened one week late, and diphtheria disappeared under the conditions and at the time of year when there was every reason to expect its increase. The willing cooperation of the town council, school board and general public was easily secured and retained. The educational value of the work has been as apparent during the subsequent years as was the resulting practical utility at that time.

Since then this work has grown steadily in amount and practicability. Dr. L. B. Wilson undertook and carried forward a similar investigation on approximately the same scale at Grand Rapids, a lumbering center, in September, 1903. Owing to the occurrence of the disease in adults, such as prostitutes and employes in saloons, there were certain other practical difficulties to be met and overcome, but strict quarantine and restrictive measures were easily formulated and enforced, and the results attained were as successful as those in Park Rapids.

Work of a similar character, but on a much larger scale, has just been brought to a conclusion in Benson, a town of about 1,600 inhabitants, in a farming community, where diphtheria had persisted throughout the summer of 1904. The health officer, Dr. Scofield, is also chairman of the school board. The town council and school board stood ready to second his efforts in every direction. Dr. L. B. Wilson of the laboratory went to Benson, Sept. 6, 1904, in order to make a thorough investigation and to examine all of the school children and teachers before the opening of school. A different plan was followed here, namely, to go from house to house making careful inquiries and taking specimens of all the inmates. What was really a practical quarantine was instituted wherever individuals were found infected with diphtheria bacilli, independent of clinical manifestations, and school was not opened until all the school children and their families had been examined. On the opening of school only children who were themselves free from diphtheria bacilli and whose families were also free were permitted to attend, and as a result the disease has disappeared. During Dr. Wilson's visit, and after his return to the laboratory at the end of ten days, provision was made by the locality for the careful following up of all individuals who had come recently into contact with clinical cases, and in this way much interesting and valuable information relative to the spread of diphtheria was secured. In some instances, diphtheria bacilli were found present in exposed individuals several hours or days before the symptoms of the disease appeared.

Similar methods have been employed and comparable results obtained in a number of other places, notably Browerville, Duluth, Robbinsdale, Heron Lake, etc.

In dealing with day-school infection it therefore seems to be entirely practical to exclude infected individuals or children of infected households independent of clinical manifestations of the disease, since the school authorities are at liberty to exclude pupils perhaps more readily than it is possible to enforce strict household quarantine. In Minnesota public sentiment supports such methods and at times demands them.

By the substitution of the comparative segregation of home life for the crowding together of school life the danger of distributing or receiving infection is minimized, as the possibility of the control of diphtheria increases with approximation to individual isolation.

III. DIPHTHERIA INFECTION IN INSTITUTIONAL LIFE.

This affords a problem in which the difficulties are in direct relation to facilities afforded for the exchange of nose and throat contents between the inmates.

Among adult prisoners, especially where isolation is almost complete, there is little danger of the spread of infection. On the other hand, in charitable institutions where children are constantly associated in large groups, at play, at school, at work and in dormitory life, the chances for the spread of infection are not only greatly increased, but additional opportunities for its introduction from outside by new-comers have also to be recognized.

During the past nine years the Minnesota State Board of Health has been called on to take charge of epidemics of diphtheria in a number of state and private institutions in which the variation in conditions of life and environment was very great. These have included the State School for Dependent and Neglected Children (practically a state orphans' home of 250 or more children), State Training School (a correctional home for nearly 500 children), state hospitals for the insane (with 1,000 to 2,000 inmates), state schools for deaf, dumb, blind and feeble-minded, seminaries and schools where the students are housed, charity orphan asylums and a charity lying-in home where women are admitted and employed in some capacity for a year after their confinement. While each institution presents peculiar features and has individual difficulties which can be properly understood only by the consideration of a detailed report illustrated with maps, photographs, clinical notes and accurate data,[2] certain general features common to all may be mentioned here in relation to the measures for control.

In all, there is the massing together of individuals either in dormitory life, at meals, for instruction or religious exercises, and during employment in the fields or in work shops. This increased opportunity for exchange of the bacterial flora of nose and throat is in direct relationship to the age, intelligence and habits of the individual, as also to character of the institution and structural and other environmental conditions.

A recent investigation not yet complete may serve as an illustration of methods and results. The State School for the Deaf at Faribault provides for the housing and instruction of over 280 pupils, mostly children, but above the age of 8. Certain of the pupils are state or county charges, but all of them are returned during the summer vacation, either to their own homes or to a home provided for them. Most of the employes and teaching staff (about 50) reside not in the institution, but in the town. Diphtheria appeared Sept. 25, 1904, having been prevalent in Faribault for a number of months both in the residents and in the employes of a boarding school for girls. Owing to the increase of infection, Dr. Bracken, the executive officer of the State Board of Health, was called to give advice and aid. On his recommendation a member of the laboratory staff, Dr. McDaniel, went to the school Dec. 2, 1904, and found 17 clinical cases, 3 more appearing on the following day. The general arrangements provide dormitories for the girls, in which from six to twelve are accommodated in single beds. In a separate building similar accommodations are available for the boys, the building being divided by a wall in the center so as to separate them into two groups according to age. Meals

2. These will appear in the biennal reports of the Minnesota State Board of Health.

are provided for all pupils in one dining room. A separate new school building is available for their instruction, although some pupils are still taught in the main building. The clinical cases had all been removed to the school hospital, a separate frame building.

Immediately all the employes and teachers were examined by nose and throat cultures for the presence of diphtheria bacilli. All infected individuals were quarantined in their homes or isolated in the institution. All who showed suspicious bacilli (other types[3] than D, C, or A) were re-examined, and if they failed to show D, C, or A on the second examination were released.

As it was impracticable to examine nose and throat cultures from all pupils in one day they were grouped according to the possibility of providing isolation in sleeping quarters. These were practically according to age and sex, the smaller children being examined first because they showed greater infection. As examination proceeded, the girls shown to be uninfected by double negative cultures of both nose and throat were housed and fed in the detached and freshly sterilized school building under the supervision of uninfected teachers. Similar arrangements were made for the boys in the manual training building. The children showing suspicious bacilli were kept in their quarters until two reexaminations had been made. The infected well children (about 28 per cent.) were isolated under the care of a nurse in the various school rooms in the north wing of the main building. Especial attention was given to the cleansing of their noses and throats by alkaline washes followed by formalin. Antitoxin in 2,000 unit doses was also administered later.

As soon as the inmates were shown to be uninfected by three successive negative nose and throat cultures they were placed with the uninfected groups which gradually increased in number, and were returned mostly to their homes, but partly to the old dormitories which had been thoroughly disinfected. Only two new clinical cases have developed since the completion of the segregation, and the disease seems to be pretty well eliminated, although there were many difficulties incident to overcrowding, some difficulties in instructing the pupils, and some due to the facts that the pathologic conditions of the nose and throat which originally gave rise to the deafness were favorable to diphtheria infection, and that the use of the sign language employed increased opportunities for infection from the hands.

A similar problem was presented at the State Hospital for the Insane, with over 1,000 inmates and employes, at St. Peter, Minn. The executive officer of the State Board of Health and the director of its laboratory had visited the institution on Oct. 15, 1904, to investigate both typhoid fever and diphtheria. The former was easily suppressed, but the latter, which had been introduced by a male nurse and later had been given by him to his fiancée, a nurse in the female wards, was not so easily managed. Dr. Bracken again visited the hospital Nov. 19, 1904, and Dr. Wilson of the laboratory staff accompanied him, and remained to inaugurate and supervise practical methods. Here, owing to overcrowding dependent on rebuilding and to the difficulties attendant on the mental condition and filthy habits of the patients, the problem was even harder. Without a detailed description a full understanding is impossible, but success has thus far been obtained.

In summarizing this work the following points are apparent:

1. An adequate laboratory staff and equipment is essential, since only by thorough laboratory examination can the presence of possible danger be determined.

2. It has been found convenient to utilize institutional laboratories when available where the members of the laboratory staff of the State Board of Health can examine cultures on the spot when there is urgent need of haste.

3. Repetition of examination of both nose and throat specimens is advisable in all cases and especially when suspicious bacilli are found.

4. The types[3] D, C and A are the virulent and important types of bacilli.

5. The individuals must be grouped into:
   - (*a*) Those showing clinical diphtheria.
   - (*b*) Those infected with types D, C or A, but who show no clinical symptoms.
   - (*c*) Those showing other types until by later examination they are definitely shown to be free of types D, C or A.
   - (*d*) Individuals who have been shown to be free of all diphtheria bacilli in both nose and throat. This group gradually increases in numbers.
   - (*e*) The uninvestigated groups in which the individuals should be kept from coming in contact with each other so far as possible, between the time of the taking of the specimens and the receipt of the report thereon. Every effort should be made to prevent exchange of nose and throat bacteria between individuals until it is definitely known whether they are infected or not. In infected individuals the bacilli will be eliminated more quickly the greater the approximation to individual isolation.

6. It is unsafe to place hitherto uninfected individuals who develop sore throat with clinical cases of diphtheria. They should be isolated until examined bacteriologically, since they may be infected not with diphtheria bacillus, but with streptococcus, the spirillum of Vincent, blastomyces or some other micro-organism, and, therefore, may be exposed unnecessarily to diphtheria infection. This has happened repeatedly in the Minnesota investigations.

7. Executive action must be taken on the basis afforded by the laboratory; therefore it is essential either that these two branches be kept in the closest touch or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge. After the system is well started, competent local medical authorities may be depended on for its continuance if they have been sufficiently impressed with the necessity of care in details.

8. That such methods will give satisfactory results, and are entirely practicable, has been shown in the experience of the Minnesota State Board of Health under conditions which present the greatest possible variation. Three epidemics have been thus suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement are employed in the housework of the institution, where the babies are left in charge of different mothers at different times, and where also the

3. Wesbrook, Wilson and McDaniel: "Varieties of *B. diphtheriæ*" Biennial Report Minnesota State Board of Health, 1899-1900, p. 613; also Transactions of Association of American Physicians, 1900, p. 198.

almost daily admission of fresh inmates adds to the opportunities for introduction of infection. A method which had proven satisfactory in lying-in hospitals, boarding schools, schools for the deaf, homes for children, insane hospitals and other such miscellaneous institutions in a climate such as that of Minnesota, would certainly seem to be capable of utilization under nearly any condition which might arise.

9. The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of the flora of the nose and throat.

10. In institutional and school life the more independent the individual and the greater the facilities for individual isolation the greater the freedom from diphtheria infection and the easier is it to eradicate the disease.

CLINICAL EXAMINATION OF THE URINE.

A CRITICAL STUDY OF THE COMMONER METHODS.

RICHARD C. CABOT, M.D.

BOSTON.

(*Concluded from page 842.*)

ACUTE DEGENERATION.

In the 93 cases of this condition which I have studied, the diagnosis was correctly made in all but three. What I desire to point out here is:

1. That the urine may vary very greatly in composition in different cases, despite identical postmortem findings.

2. That in a few cases the diagnosis of something more serious than fever urine might have been made by any one accustomed to take his urinary analysis very seriously.

I will take up this latter point first. Among the cases in which only acute degeneration was discovered postmortem, there were two called acute nephritis before death, and one called chronic nephritis. Besides these there was a case of puerperal eclampsia in which a nephritis of some type was assumed to be present, and in a case in which the patient died in convulsions suspected to be of uremic origin. It is a significant fact that the urine did not enable us to come to any definite decision here, for the current teaching and text-book writing on this point would lead us to believe that if a kidney trouble had progressed far enough to cause uremia the urine would be distinctive.

But experience shows that this is not always the case. A patient comatose and hemiplegic lies before you. The urine drawn by catheter is normal in color, low in weight, contains, say, 1/8 per cent. of albumin and a good many hyaline and granular casts with cells and fat adherent. Such a urine is consistent, as my tables show, with nephritis, with passive congestion, with a simple acute degeneration or even with a kidney normal macroscopically and histologically. In the diagnosis of such a case the urine has, therefore, next to no value.

I recently saw a case of acute aphasia in an elderly woman. The diagnosis seemed to rest between a uremic aphasia and one due to a slight cerebral hemorrhage. The urine had practically the character of that just mentioned, and as there was no motor paralysis, no coma but considerable nausea and headache, there was a good deal to support the diagnosis of uremia. Yet the patient made a prompt and complete recovery, and the urine was normal within a week. What the case shows is that a urine must be very bad, the amount of albumin and the number of casts very large before we can safely say "That urine could only have come from a kidney of nephritis," and even then, unless dropsy is present, we shall now and then be proved wrong, as will be shown below.

Before beginning the discussion of a group of cases in which nephritis was diagnosed during life, but only acute degeneration found after death, I want to anticipate the objection that the postmortem lesions which I have called acute degeneration may have been just what others would have termed acute nephritis of a degenerative or desquamative type. If this were true, the discrepancies between antemortem and postmortem records on which I am about to dilate would cease to have a meaning.

Let me, therefore, explain why I call these cases acute degeneration and refuse them the name of nephritis. By acute degeneration I mean only such a degree of granular or fatty change in the epithelium of the tubules as is to be found postmortem in almost every fatal case of typhoid, pneumonia or other infectious disease. Hardly any kidney is totally without a certain degree of these degenerative changes postmortem, and in infectious diseases they become more marked. But we do not think it advisable to say that all these cases have nephritis. If we did we should be forced to the paradox that almost everybody has a certain amount of nephritis when he dies.

Granular or slight fatty changes in the tubules alone —the glomeruli, interstitial tissues and vessels remaining otherwise normal—do not, in my opinion, deserve to be associated with the term nephritis, because this term naturally and properly calls up in our minds a clinical symptom-complex which is totally absent in these cases, and because the term is not one which we are prepared to associate with every fatal case of an infectious disease.

With so much of preface and preliminary defense, I pass on to mention a group of cases in which nephritis, Bright's disease in its ordinary sense, was diagnosed during life and only degenerative lesion of greater or less extent found postmortem. (See also Table 7, Cases 4, 5, 9 and 11.)

Case 1.—Bronchopneumonia found postmortem to be tuberculous in origin, but supposed during life to be associated with an acute nephritis.

Urine.—The 24-hour amount was reduced to 300 c.c., with 1.7 per cent. of urea, and albumin amounting to .5 per cent. as measured by Esbach's apparatus was present, while the sediment contained scanty hyaline and granular casts.

Is not this enough for a diagnosis of nephritis? We can not say "yes" in view of the fact that none was found postmortem. But if we say "no, that urine is not bad enough to call nephritis, for, though the amount is but 300 c.c., and the albumin .5 per cent., the casts were scanty and only of the hyaline and granular varieties"—if we say this, what are we to make of that series of 19 cases of acute glomerular nephritis, in many of which the casts were no more numerous than in this case, and the other features of the urine less alarming?

Case 2.—An Italian, 27 years old, was brought to the Massachusetts General Hospital entirely unconscious, having been taken from a vessel which had stopped at several South American ports. No history was obtainable.

Examination.—His temperature was 102.8, with moderate leucocytosis, and evidence of slight solidification of the apex of the left lung. The abdominal viscera showed nothing abnormal so far as we could demonstrate. The neck was moderately retracted and stiff.

Urine.—Fourteen ounces of urine were drawn by catheter and found to contain over .5 per cent. of albumin. The urine was high colored but not distinctly bloody, and the specific gravity, 1,017. The sediment showed from 10 to 20 casts in every field of a No. 5 Leitz objective. The casts were mainly granular—a few epithelial.

Blood.—Prolonged examination of the blood excluded malaria. Yellow fever, cerebrospinal meningitis and uremia were considered, but as there was no definite evidence for the former of these and as the fluid obtained by lumbar puncture showed no growth, the diagnosis of uremia seemed most reasonable.

Autopsy.—At the autopsy, Dr. Wright found cerebrospinal meningitis, due to the *diplococcus intracellularis.* The kidneys showed absolutely nothing abnormal so far as Dr. Wright could determine, either macroscopically or microscopically.

CASE 3.—More recently a case was admitted to the surgical months. There was rusty sputum loaded with pneumococci. General edema gradually developed and as death approached fluid accumulated in each pleural cavity.

Urine.—During the first two weeks of her stay in the hospital the patient's urine averaged about 1,000 c.c. in 24 hours, with a specific gravity of 1,016, .25 per cent albumin and 1 per cent urea. The sediment showed very many hyaline and granular casts of all sizes, a few epithelial blood and fibrinous casts. Considerable fat and fatty renal cells adherent to casts. Considerable free blood, normal and abnormal. Later the amount of albumin increased to .7 per cent (Esbach) and the urea fell to 9.8 gms. In the sediment there appeared an abundance of highly refractile casts, most of them plastered with renal cells and many with fat drops. A few days before death the casts became more scanty as the edema increased.

At autopsy only "acute degeneration" was found.

TABLE VI.—MARKED URINARY ANOMALIES. ACUTE DEGENERATION (POST MORTEM.)

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	562	Abscess and gangrene of lungs. Fractured skull. Sero-fibrinous pleurisy. Kidney opaque but histologically normal.	None made.	.....	.....	1/8	.....	Few hyaline and granular casts with blood, fat, cells adherent.	Convulsions. Coma.
2	541	Typhoid fever. Kidneys pale grey but histologically normal.	Typhoid.	.....	1021	1/4 +	.....	Fairly numerous hyaline and granular casts with moderate amount of fat and fatty cells adherent. Free blood.	
3	203	Typhoid fever. Kidneys pale and opaque. Tubules contain much granular material and delicate ring-like bodies.	Typhoid with hemorrhage.	700 c.cm.	1013	0.8⅔	.....	Large number of coarse and fine granular casts; few hyaline epithelial casts. Few blood cells.	
4	134	Acute cystitis. Pyelitis. Cortical epithelium granular and encroaching on lumen of tubule.	Cancer of prostate. Acute nephritis.	650 c.cm.	1024 to 1015	Slight trace to 1/8.	.....	Many hyaline and brown granular casts; few blood and fatty casts.	
5	102	Subacute pleurisy and pericarditis. Renal epithelium swollen, broken and granular. Nuclei poorly stained.	Chronic nephritis.	1000 c.cm.	1021	Large trace.	.....	Many hyaline and granular casts; fat cells and blood adherent. Few epithelial, blood and brown granular casts.	
6	51	Otitis media. Bronchopneumonia. Swelling of the renal epithelium without any other changes.	Otorrhea. Subglossitis. Fracture of the base.	.....	1027	1/4	.....	Numerous hyaline casts with much fat adherent. Few fatty casts.	
7	46	Gangrenous proctitis. Chronic cystitis. Bronchopneumonia. Marked cloudy swelling of cortical epithelium; that of pyramids much broken up and degenerated.	Enlarged prostate.	1680 c.cm.	1014	1/3	0.95%	Numerous hyaline and granular casts; many with oil globules and fatty cells adherent. Much blood and pus.	Examination by Dr. Wood who comments: "Some of the cells suggest morbid growth."
8	37	Phthisis, miliary tuberculosis. Cloudy swelling of epithelium of cortical tubules.	Tuberculous meningitis.	.....	1028	1/4	.....	Many hyaline, fine and coarse granular casts, with blood, fat and cells adherent. Free blood.	
9	178	Typhoid fever. Bronchopneumonia. Kidneys show some cloudy swelling of the epithelium and congestion of the vessels.	Typhoid fever. Hypostatic pneumonia.	.....	1023	0.16⅔	.....	Many coarse granular casts of small and medium diameter. Some epithelial casts.	
10	735	Chronic tuberculosis. Acute miliary tuberculosis. Acute degeneration of the kidneys.	Pneumococcus bronchitis. Acute nephritis.	Average 1000 c.cm.	1016	1/4 to 0.8.	17 grams average.	Very many hyaline and granular casts. Few epithelial, fibrinous, blood and waxy casts. Much fat and fatty cells on casts.	

wards of the Massachusetts General Hospital, for relief of an abdominal tumor, which turned out on exploratory laparotomy to be an aneurism. Prior to the operation the urine was normal, but immediately afterwards its quantity fell to 500 c.c. in twenty-four hours, and never arose above that amount during the week, at the end of which he died.

Urine.—During this period the urine was pale, turbid, with a specific gravity ranging near 1,014 and about .7 per cent. of albumin (Esbach). Among the casts, which were very numerous, were many highly refractile, dense ones.

Autopsy.—The diagnosis at the time of death was uremia, but at autopsy absolutely nothing abnormal was found in the kidneys, macroscopically or microscopically.

CASE 4.—The clinical diagnosis stands on the record book: "Pneumococcus bronchitis with acute nephritis." The patient ran a fever varying between 101 and 103 for two

MARKED URINARY ANOMALIES, WITHOUT DISCOVERABLE LESIONS POSTMORTEM.

Twice in the last ten years we have made the diagnosis of acute nephritis and been confronted at autopsy with normal kidneys. In one of these cases, No. 10, Table 7, the patient was thought to be uremic, and not unnaturally, for the patient entered the hospital for edema and vomiting, and was found to have well-marked hypertrophy of the left ventricle, with frequent twitchings of various muscles, in addition to a urinary condition identical with that found in some of the cases of chronic glomerular nephritis (autopsy diagnosis) tabulated in Table 3.

In the eight other cases shown in Table 8, the urinary

anomalies are hardly less marked, and the diagnosis of nephritis might have been made had not the clinicians grown cautious as a result of previous disappointments at autopsy, and practically disregarded the microscopic and chemical findings in the urine so long as its physical characteristics were not remarkable and the patient showed no signs of uremia or dropsy.

The table proves that we may have .25 per cent. or more of albumin with great numbers of all varieties of casts without any discoverable lesions postmortem. It makes us doubt how far the same microscopic and chemical changes, when nephritis is found postmortem, are due to the nephritis. They may be due to accompanying functional disturbances whose anatomic basis is still unknown and not to the known anatomic lesions which they happen to accompany.

SENILE DEGENERATION AND ARTERIOSCLEROTIC ATROPHY.

It will be remembered that I have grouped under this heading only cases in which the atrophic lesions were focal, and involved but a very small part of the organ, so that its function should not be markedly impaired.

I shall pass rapidly over the 20 cases of this group. In only three of them was there any mistake of importance in diagnosis. These three were diagnosed as uremia, nephritis and chronic diffuse nephritis, respectively. They mar the otherwise encouraging record of success in the diagnosis of this affection. It will be remembered that it was in the group of cases in which chronic glomerular nephritis was found postmortem that our chief diagnostic successes were made, and it still remains true that we generally recognize this disease when it is present, but we must confess that we occasionally diagnose it when it is not present, as in the three cases of this series. How the mistake could have been avoided in these three cases I do not see. The urine of each of them was scanty, pale, lacking in urea, highly albuminous and full of fatty casts (Nos. 148, 251, 686); the patients were dropsical and suffered from coma and convulsions, apparently of uremic origin.

But although these 20 cases include but three in which there is a discrepancy between clinical and anatomic diagnosis, they illustrate very strikingly the fact that identical anatomic lesions in a series of kidneys postmortem do not mean identical urinary findings during life. With kidneys containing nothing worse than a few small areas of fibroid atrophy we find associated sometimes only the slightest possible trace of albumin, sometimes .1 per cent, sometimes .25 per cent, sometimes no casts on repeated examinations, sometimes a few of the hyaline and granular type, sometimes a large number of almost every known variety. The specific gravity may be high, low or medium. The 24-hour amount was almost always below normal.

FATTY DEGENERATION

Only cases in which the fatty change was extensive have been included in this series. The mild cases have been classed along with the acute degenerations. (See Table 6.)

The data available in these seven cases are only sufficient to demonstrate that there is no single set of urinary findings which correspond with the anatomic conditions of extensive fatty degeneration. In one case there was no albumin; in two the albumin was scanty, and in two there was .25 per cent. Casts were absent in two, scanty in two and abundant in two. Fat on casts was present in but two.

The urine was altogether suppressed in one case and in two others it was reduced to about one-half its normal amount, while in the remaining cases the 24-hour quantity was not measured.

ALBUMINURIA AND CYLINDRURIA.

Although we are ignorant just what conditions make the kidney let albumin pass through into the urine, it is perfectly safe to say that the conditions are other and less stable than those which we describe from the postmortem lesions as one or another variety of nephritis. Some of the cases here mentioned in detail prove that albumin in large amount may be present in the urine

TABLE VII.—MARKED URINARY ABNORMALITIES WITHOUT RENAL LESIONS (POSTMORTEM).

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis,	Urine.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	724	Diphtheritic endometritis. Kidneys show no lesion worthy of mention.	Acute nephritis. Uremia. Endometritis.	....	1012	¼	.....	Few epithelial and brown granular casts.	Delirium, vomiting, diarrhrea; coma.
2	798	Pneumococcus meningitis. Kidneys, no lesion worthy of mention.	Meningitis.	.....	1042	Large trace.	.....	Many hyaline and granular casts with cells adherent. Few epithelial and fatty casts.	Sugar—2%.
3	784	Typhoid fever.	Typhoid.	.....	1023	0.1	.....	Many hyaline, fine and coarse granular casts. Few brown granular and epithelial casts.	
4	783	Gastric ulcers. Peritonitis. Bronchopneumonia.	Gastric ulcer.	.....	1011	Trace.	.....	Many hyaline, fine, coarse and brown granular casts. Many highly refractile casts. Few epithelial and pus casts.	
5	776	Pneumococcus pneumonia. Pneumococcus septicemia.	Pneumonia.	.....	1027	0.1	2.8%	Many hyaline, fine and coarse granular casts. Few brown granular and epithelial casts.	
6	612	Cirrhotic liver. Portal stasis.	Cirrhotic liver.	.....	1020	Very slight trace.	1.7%	Many hyaline and granular casts, often with blood or cells adherent. Few brown granular casts.	
7	575	Atrophic cirrhosis. Jaundice.	Cirrhotic liver.	.....	1020	Large trace.	2.7%	Numerous hyaline and fine granular casts, with many cells and fat drops adherent.	
8	520	Mitral stenosis. General passive congestion.	Uncompensated heart disease.	.....	1027	¼ to ½	1.9%	Few hyaline and granular casts, with cells adherent.	
9	424	Tuberculous pleurisy. Pneumococcus septicemia.	None made.	.....	1023	¼	2%	Many hyaline, granular and epithelial casts. Few fatty and waxy casts.	General edema, especially of left side. Ascites.
10	410	Hydronephrosis. Pneumonia.	Acute nephritis.	1000 to 1400 c.cm.	1013 average.	⅓	12.9 grams.	Many hyaline casts, most of them with blood, fat and fatty cells adherent. Few coarse granular and fatty casts.	Twitchings of various muscles. Hypertrophied left ventricle.

without there being any anatomic lesions demonstrable postmortem by our present methods. Just what the relation between albuminuria and nephritis is, I feel quite unable to say. Either can appear without the other, and in a chronic disease like contracted kidney we often see the albumin appear and disappear when we know that the anatomic lesions are fixed beyond the possibility of parallel changes. Our clinical inferences from the amount or percentage of albumin to the anatomic lesions in the kidney are often far too direct. Doubtless structure and function will prove, when fully known, to be only different aspects of the same fact, but at present our knowledge of structural anomalies is not fundamental enough to run parallel to the variations in functional capacity that manifest themselves in facts like albuminuria and casts.

TABLE VIII.—SENILE ATROPHY.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	1162	Cancer of prostate with diphtheritic cystitis. Kidneys weight—177. Some foci of fibroid atrophy.	Retention of urine. Septic testis.	1000 c.cm. (average).	1015	Large trace.	30 grams (average).	No casts.	Age 86.
2	1089	General arteriosclerosis. Kidneys weight—195. Areas of fibroid atrophy; not extensive enough to call chronic interstitial nephritis.	Arteriosclerosis. Acute gastroenteritis.	500 c.cm.	1014	Slightest possible trace.	.....	Numerous hyaline and granular casts, with few oil drops and round cells adherent.	Age 90.
3	1002	Obliteration of inferior vena cava. Cysts of left kidney. Senile atrophy of right (focal).	Obliteration of inferior vena cava. Mitral regurgitation.	1000 c.cm. (average).	1016	Slightest possible trace.	2%	No casts, blood or fat in two examinations.	Age 82.
4	766	Cerebral hemorrhage. Senile atrophy of kidneys. Combined weight—269. Foci of fibroid atrophy microscopic.	Cerebral hemorrhage.	980 c.cm. (average).	1009	¼	¼ %. 6.6 grams.	Many hyaline and fine granular casts.	Age 65.
5	686	Gliomata of temporal and frontal lobes. Senile atrophy of kidneys. Combined weight—201. A few small areas of fibroid atrophy in the cortices.	Uremia.	.....	1022 (Average).	Slight trace to 0.1	1.15% (average).	Many hyaline and granular casts, with fat and fatty cells adherent. Few blood, epithelial and waxy casts. Many compound granule cells.	Age 69. Coma. Convulsions. No paralysis.
6	637	Atrophic cirrhosis. Gastric ulcer. Senile atrophy of kidneys. Combined weight—465 grams. Numerous stellate depressions. Increased consistency. "Histologically not remarkable."	Cirrhosis of liver.	750 c.cm. (average).	1021	Slightest possible trace.	17 grams.	Rare hyaline and granular casts, with round cells on it.	Age 65.
7	627	Pneumonia. Senile degeneration of kidneys. Combined weight—294 grams. Small areas of fibroid atrophy in cortex.	Pneumonia.	.....	1022	Very slight trace.	.....	Hyaline, fine, coarse granular casts, some with round cells adherent.	Age 49.
8	555	Gangrenous infarct of lung. Cardiac thrombus. Senile degeneration of kidneys. 255 grams combined. No miscroscopic examination.	Herpes zoster. Asthenia.	.....	1020	Trace.	.....	Few hyaline and granular casts.	Age 74.
9	557	Pneumonia. Mitral endocarditis. Senile atrophy of kidneys. Combined weight—245 grams. Microscopically; a few areas of fibroid atrophy.	Pneumonia.	.....	1015	Very slight trace.	.....	Fairly numerous hyaline and granular casts, often with small round cells and a small amount of fat adherent.	Age 56.
10	385	Acute cystitis. Fatty degeneration of liver. Senile atrophy of kidneys. Combined weight—184 grams. Microscopically; no general increase of connective tissue.	Alcoholism.	.....	1021	Trace.	.....	Many hyaline and fine granular casts, with cells and fat adherent.	Age 50. Coma. No fever. Leucocytes 30,000.

Fatigue states not usually classified as disease are capable of bringing into the urine a quantity of albumin and casts equaling that found in the majority of cases of anatomical nephritis such as I have tabulated above. Thus, Darling[3] reports .9 per cent of albumin in the urine of a member of a Harvard four-oared crew after a two-mile race, and five other men had from .25 to .5 per cent. under similar conditions, yet the albumin disappeared within a short time, and there is no evidence that any permanent damage was done to the kidneys. The sediment "contained correspondingly large numbers of hyaline and finely granular casts, many having renal cells and red blood corpuscles adherent. In many of the sediments there was also a considerable number of red blood corpuscles and an excess of leucocytes. The sediment in many cases was exactly that of the first stage of acute nephritis, and if examined without a knowledge of the conditions might easily have caused anxiety."

In view of the facts just mentioned and of those earlier tabulated, it seems probable that the albuminuria and cylindruria associated with many cases of nephritis may not depend directly on the anatomic changes which we describe under the name of nephritis, but on functional derangements of which we know little or nothing, and which may or may not accompany nephritis.

In cancer of the stomach the vomiting so often present may not depend directly on the cancer, but rather on the stasis and fermentation which are present in some, but not in all cases of cancer, and are also found in many non-cancerous diseases. Is it not as rash to predict anatomic nephritis because we find albumin and casts, even in large quantities, as it would be to predict gastric cancer from the presence of emaciation and vomiting? I think it may well be that the inference is no more justifiable in the one case than in the other.

What we directly observe and record in our diagnosis

3. Darling: Boston Medical and Surgical Journal, Sept. 7, 1899, p. 231.

of diseased conditions of the heart, kidney, stomach and brain is disturbed function, but from this to known anatomic alteration—temporary or permanent—the inference is indirect and often very uncertain.

THE ESTIMATION OF UREA.

In this part of the country a great number of useless urea estimations are made. I suppose the test still preserves some of the dignity and impressiveness which it possessed when it was thought that retained urea was the cause of uremia. On no other hypothesis can I account for the reverential care with which we still perform the urea test in cases and under conditions where it can not possibly yield us information of value.

What we measure in measuring urea is not the functional power of the kidneys, but merely their power to take out of the blood a certain portion of the urea there present. It has been abundantly proved by the researches of von Noorden and others that, in chronic nephritis of any type, the kidney may excrete some substances perfectly well, others less well and still others very poorly. The excretory power is distinct and specific for each substance, and when we know, for example, that urea or methylene blue is poorly excreted, we can not immediately infer that the kidney is likewise deficient in the power *to excrete* other substances.

Yet, since urea is certainly a very important urinary constituent we might still set store by the knowledge of the amount excreted in the urine, if thereby we could measure directly the power of the kidney to excrete this one specific substance. But we are apt to forget that the amount of urea excreted in the urine depends not merely or even primarily on the functional power of the kidney, but also on the amount of nitrogenous food absorbed by the individual, and on the catabolism of the whole body. Absolute mathematical regulation of the diet extending over a period of several days preceding the urea estimation is essential if we are to make any valid inferences from this procedure. If this has been done we have taken one step in the direction of making a urea estimation of value; but it is not merely the amount ingested but the amount absorbed that we need to know, and this depends on so many factors—digestion, exercise, sleep, the amount of water ingested, the presence or absence of fever, vomiting or diarrhea, the presence or absence of cachexia, wasting disease or heart troubles, that without an elaborate study of these factors we can not estimate with any accuracy how much urea we ought to expect this individual, in this 24 hours, to eliminate by the urine, provided his kidneys were sound. Yet unless we know all this we can not tell whether an absolutely low urea excretion really is low for this individual under these conditions.

TABLE IX.—ARTERIOSCLEROTIC RENAL ATROPHY.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	1192	Prostatic hypertrophy. Chronic cystitis. Mitral and aortic sclerosis. Arteriosclerosis. Arteriosclerotic atrophy of kidneys. Focal atrophy with marked arteriosclerosis microscopically.	Stone in bladder. Nephritis.	1100 c.cm. average.	1016 average.	Large trace.	18 grams average.	Rare hyaline cast.	Age 79 years. Combined weight of kidneys, 200 grams.
2	348	Arteriosclerosis. Chronic passive congestion. Microscopic changes as above.	Pulmonary infarct. Arteriosclerosis.	950 c.cm. average.	1016	0.1	.....	Numerous hyaline, fine granular, coarse and brown granular; with cells and fat adherent.	Age 60 years. Combined weight of kidneys, 276 grams.
3	311	Arteriosclerosis (general). Foci of fibroid atrophy with thickened intima in the arteries. Microscopic changes as above.	Mitral regurgitation.	1500 c.cm. average.	1015 average.	Trace.	25 grams average.	Few hyaline and granular casts. At times no casts.	Age 62 years. Kidneys' weight, 330 grams.
4	307	Same as in No. 3.	Cerebral embolism.	1000 c.cm.	1018	½	2.27%	Many hyaline, fine and coarse granular casts. Some very large and fatty. Some with blood and cells adherent.	Age 60 years. Kidneys' weight, 225 grams.
5	297	Multiple myeloma. Arteriosclerosis. Microscopic changes as above.	Multiple myeloma. Albumin and albumose present.	1030 c.cm. average.	1012 average.	Slight trace.	.....	Hyaline, granular and waxy casts. Some with many oil drops adherent.	Age 54 years. Kidneys' weight, 249 grams. Albumose ¼%
6	277	General arteriosclerosis. Thrombus in lateral sinus. Microscopic changes as above.	Cerebral hemorrhage.	.....	1011	Large trace.	.....	No casts found.	Age 72 years.
7	273	Cancer of pancreas. Syphilis. Arteriosclerosis. Microscopic changes as above.	Cancer of biliary passages.	.....	1015	Large trace.	1.5%	Many hyaline, fine and coarse granular casts of small and large diameter, with blood, fat and cells adherent. Few fatty casts.	Age 67 years. Kidneys' weight, 270 grams.
8	257	General arteriosclerosis. Microscopic changes as above.	Postoperative dementia.		1018	⅛	.....	Few hyaline and coarse granular casts with fat and cells adherent.	Age 43 years. Kidneys' weight, 240 grams.
9	251	Arteriosclerosis with mitral disease. One coronary thrombosed. Microscopic changes as above.	Chronic diffuse nephritis. Enlarged heart.	390 c.cm.	1018	⅛	2%	Many hyaline casts with fat; fatty cells and compound granule cells adherent. Blood and cells free and on casts. Some casts very dense. Casts within casts.	Age 49 years. Kidneys' weight, 360 gram.
10	194	Arteriosclerosis with aortic and mitral disease. Microscopic changes as above.	Myocarditis. Hydrothorax.	1000 c.cm. average.	1020 average.	Slight trace.	.....	Many hyaline and granular casts with cells adherent.	Kidneys' weight, 375 grams.

I desire next to enumerate and explain more in detail the conditions which affect the output of urea and prevent our being able to determine thereby the functional power of the kidney.

(a) *Exercise* breaks up the albumins of the tissue and increases the output of urea. When a patient is put to bed and deprived of all exercise his urea excretion is more or less diminished—the diminution varying a good deal in individual cases according to conditions which we do not understand.

(b) The free *ingestion of water,* or diuresis otherwise produced, increases the amount of urea excreted, and anything that tends to send water out of the body

through other channels (vomiting, diarrhea, sweat baths, purgation) diminishes the excretion of urea.

(c) If there is disturbance of *digestion or assimilation,* part of the nitrogen taken in with the food reappears in the feces and is subtracted from the urinary output of urea. Obviously this is a factor, the degree of whose disturbing operation is very difficult to measure.

(d) *The circulation* through the kidney also influences to a considerable extent the output of urea, and if the heart is not doing its work well (as so often happens in nephritis) the urea excretion will thereby be affected more or less—how much we can not estimate.

(e) *Spontaneous nitrogen retention* leading to decreased urea-output is not very rare either in health or in disease, quite independent of any renal disease or of any other measurable influence.

(f) *In nephritis,* as v. Noorden and others have shown, there are periods of good urea excretion alternating at varying intervals with periods when urea is deficient in the urine, so that a great deal depends on the certain 24 hours and then calculate whether the urinary nitrogen is sufficient.

The necessity for estimating the fecal nitrogen is due to the fact that, roughly speaking: Food nitrogen minus fecal nitrogen equals urinary nitrogen.

But it may be said that although urea estimations, as ordinarily performed, can give us no very accurate idea of the renal function, they may still be valuable, because we can obtain from them a rough, general estimate of the kidneys' power. This is true, but the same estimate can be made as accurately and far more quickly by noting the specific gravity and the 24-hour quantity of urine. These simple physical measurements are, in my opinion, the best and most accurate as well as the simplest and quickest methods of testing the renal functions that are at the disposal of the clinician to-day.

The quantitative estimation of the other urinary solids—uric acid, phosphates, chlorids and sulphates—are, in my opinion, equally useless to the clinician. We may get some information from such estimations, but none that is worth the time they consume.

TABLE X.—FATTY DEGENERATION OF KIDNEYS (EXTENSIVE).

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine. 24-hour amount.	Specific gravity.	Albumin, per cent.	Urea, per cent.	Sediment.	Remarks.
1	1145	Thymic asthma. Thymic hyperplasia. Fatty degeneration of liver and kidneys (marked). Otherwise normal.	Intestinal toxemia, morphin poisoning.	.....	.....	Slight trace.	.75	Few hyaline casts. Many fine granular casts; many with round cells adherent.	Age 18 months. Kidneys' weight, 76 grams.
2	828	Parturition, Anemia. Fatty degeneration of kidneys. No other lesion.	Chronic nephritis. Anemia.	600 c.cm. average.	1013 average.	¼	1.4	Occasional hyaline and fine granular casts, with fat and renal cells adherent.	Age 34 years. Kidneys' weight, 294 grams. Headache. Nose bleeds. Vomiting. Hands and face swollen. Normal labor. Red cells, 800,000.
3	606	Pneumonia. Fatty kidneys and liver. No other lesion.	Pneumonia. Alcoholism.	.....	1012	0.16⅔	.....	Many hyaline and granular casts, often with blood, round cells or fat adherent. Few blood casts.	Age 37 years. Kidneys' weight, 395 grams.
4	269	Arsenical poisoning. Fatty liver and kidneys.	Arsenical poisoning. Anuria-nephritis.	No urine passed.	.....	.....	.....	.....	Age 27 years. Kidneys' weight, 246 grams.
5	235	Fibrino-purulent pleurisy; pericarditis and peritonitis. Fatty liver and kidneys.	Pneumonia.	.....	.....	0	.....	No casts or fat.	Age 4 years. Kidneys' weight, 145 grams.
6	206	Extensive fatty metamorphosis of liver and kidneys. Acute endocarditis.	None made.	.....	1015	Large trace.	.....	No casts.	Adult. Kidneys' weight, 320 grams.
7	177	Cerebral hemorrhage. Cirrhotic liver. Fatty kidneys (moderate).	Cerebral hemorrhage.	730 c.cm.	1020	¼+	.....	Hyaline and fine granular casts, some with round cells adherent.	Adult. Kidneys' weight, 419 grams.

chance coincidence of the time of our examination with one or another of these periods.

In the majority of nephritic cases which I have studied the amount of urea was noticeably low only when the amount of food ingested was small and the amount absorbed still further diminished by the lack of proper exercise or sleep, and the presence of vomiting, sweating and diarrhea, natural or artificial.

In the vast majority of cases we can not spend the time necessary to make a study of the patient's metabolism and of the other factors above mentioned, yet without all this our urea estimations are not worth even the small amount of time which they consume. Supposing that no disturbing factors such as vomiting, sweating or purging are present, suppose that digestion, assimilation, sleep and exercise are normal, and the amount of water ingested is known and allowed for, the least we can do after getting the patient into a condition of nitrogenous equilibrium is to measure the food nitrogen, the fecal nitrogen and the urea[4] of a

4. Assuming the urea to represent from 83 to 93 per cent. of the total urinary nitrogen.

CASTS.

With regard to the examination of urine for casts the following points seem to me of importance:

1. Hyaline and granular casts in small numbers may be demonstrated in the urine of healthy adults, provided the centrifugal machine is used and a considerable amount of urine employed. The use of the centrifugal machine has not only brought out the fact that casts are not infrequently present in normal urine, but [illegible] greatly increased the number to be demonstrated in pathologic urine, so that it is difficult to make [illegible] comparisons between the modern urina[illegible] many of which are made with [illegible] and older examinations in which the sediment was simply allowed to settle.

2. Sufficient attention, I think, has never been paid to the studies of F. C. Shattuck on the urine of healthy persons over 50 years of age, in which he showed that more than two-thirds of all such persons pass urine containing a slight trace of albumin with hyaline and granular casts.

3. In the great majority of all written reports of

urinary examinations mention is made of renal cells, either free or on casts. This phrase seems to me unjustifiable. One sees in the urine small round or oval cells, some mononuclear, some polynuclear, free or attached to casts. The mononuclear cells we are apt to call renal cells, but we have no reason to do so. They may very well be lymphocytes or cells of some other variety. The use of the words renal cell gives an appearance of precision to our urinary diagnosis which is far in excess of the truth. We should report small, round cells, mononuclear, or polynuclear; this is all that we know.

WHAT METHODS OF EXAMINING THE URINE ARE MOST VALUABLE IN THE DIAGNOSIS OF NEPHRITIS?

In my opinion the microscopic and chemical examinations of the urine are of much less significance than the physical. Microscopic and chemical changes are relevant rather to temporary alterations of function than to alteration in anatomic structure. When we are concerned chiefly with the question: Has this patient a nephritis or not? what we need most to know is simply how much urine does he pass, by day and by night, and what is the weight of that urine? These facts, together with the presence or absence of dropsy, retinitis, cardiac hypertrophy and uremic manifestations, constitute nearly all the evidence at our disposal. The presence or absence of albumin and casts, and the deficient excretion of some or all of the urinary solids are data of relatively slight and vague significance in the diagnosis of nephritis at the present time.

The increase in the relative amount of night urine—nocturnal polyuria—is, in my experience, one of the most reliable manifestations of a chronic nephritis, especially in its earlier and middle stages.

SUPPLEMENTARY METHODS FOR THE EXAMINATION OF THE RENAL FUNCTION.

1. The use of methylene blue. 2. The use of phloridzin. 3. Cryoscopy.

The Methylene Blue Test.—In some diseases of the kidney methylene blue (injected subcutaneously or introduced by mouth) is eliminated more slowly and irregularly than in health, while in other forms of nephritis we have increased renal permeability, and the blue is excreted more rapidly than normal. In view of these facts, various French observers have tried to use the rate of elimination of the pigment as a test of renal function. The test is not of clinical value, however, because we can not judge of the permeability of the kidney for other solids from its permeability for a single substance like methylene blue. The rate of absorption from the subcutaneous tissues or from the gastrointestinal tract is another factor whose variations we can not measure, particularly in cases associated with edema. The pain produced by the subcutaneous injection of the drug is not to be disregarded, as I have found to my cost in experimenting on myself.

On the whole this method has little if any place in clinical diagnosis.

The Phloridzin Test.—The glucocide phloridzin, when injected subcutaneously (5 milligrams in watery solution), produces glycosuria by direct action on the renal epithelium. Assuming that the amount of sugar drawn from the blood under these conditions by the kidney is in proportion to the number of functionally active cells, we may attempt to estimate the functional power of the kidney by testing the amount of sugar excreted in the urine after a standard dose of phloridzin and the rate of its excretion.

This test seems to be of some value in the diagnosis of the functional power of one kidney (stone, tuberculosis, etc.) when we collect the urine from each kidney separately and have the sound kidney as a control, but in nephritis affecting both kidneys, as is almost always the case, the test is of little value, because the normal quantity of sugar and the rate of excretion following the injection of a standard dose of phloridzin vary within wide limits. Only if the sugar fails to appear or appears only in traces can we be sure that serious renal disease is present. In such cases the diagnosis can usually be made by the ordinary methods.

Cryoscopy.—Cryoscopy, or the determination of the freezing point of blood and urine, was introduced into medicine by Koranyi in 1898, and has been extensively taken up by the French, who have made it the basis of much speculation. The method depends on physicochemical generalization usually associated with the name of Raoult. According to this rule, the freezing point of any liquid is lowered below that of water in proportion to the number of molecules dissolved in it, no matter what the weight or constitution of these molecules may be. From the freezing point of a given urine we are thus supposedly enabled to judge of the number of molecules excreted, and so of the functional activity of the kidney. The freezing test itself is not a lengthy or difficult process, but it is made considerably more tedious by the necessity of a quantitative estimation of the amount of chlorin in the urine examined. For we are concerned to know not the total number of molecules excreted, but only those that represent metabolism. Now, sodium chlorid passes unchanged into the urine, and as the amount of it affects the freezing point notably we need to estimate this amount and to make allowance for its effect on the freezing point of the urine. By subtracting the estimated lowering of the freezing point, due to the chlorin molecules, we get a figure representing the amount of lowering due to those substances in which we are primarily interested, namely, those concerned with metabolism. Of course, the weight of the individual and the 24-hour quantity of the urine must be also considered.

But before we can make any clinical deduction from variations in the freezing point thus estimated, we must take account, just as in urea estimations, of the amount and kind of nourishment which the body absorbs, and since metabolism depends not simply on what is eaten, but on what is absorbed, and so on the condition modifying absorption, we can not draw any deductions of clinical importance without knowledge of the metabolism in the individual case.

Further than this, there are many circumstances which may interfere with the accuracy of the test. Allowance has to be made for the influence of exercise and sleep, of vomiting, sweating or diarrhea, and of pregnancy, while the effects of a milk diet or of the changes taking place at the end of an acute infective disease may lower the freezing point in a way closely simulating the results of nephritis.

According to Koranyi, the chief advocate of cryoscopy, the test is unreliable when there is a retention of water (dropsy or latent dropsy), and when there is marked anemia or cachexia.

H. Strauss, in a lucid monograph,[6] has well brought out the multiplicity of conditions that have to be taken account of before we can draw any diagnostic deductions from the results of the test—even when the freezing

6. Bedeutung der Kryoscopie, Berlin, 1904.

point of the blood (for which we need from 15 to 20 c.cm. of blood) is simultaneously determined. Without the latter it is still more difficult to draw true conclusions from the results of the test. Even uremic cases may show no considerable modification of the freezing point of the blood or of the urine, and very marked changes may occur without the presence of any kidney disease at all.

Including the estimation of chlorin, the process is itself not a quick one. And, if we bear in mind, as we ought to do, the influence of diet, exercise, sleep, and of such accidents as vomiting and diarrhea, we shall have to confess the method is not at present clinically available in many cases.

Many of the above difficulties do not apply to the use of cryoscopy to determine, in surgical affections of one kidney, the functional power of the other before deciding about operation. It is in this field that cryoscopy has found most enthusiastic support and received its widest application. If we catheterize the ureters and determine the freezing point and chlorin in each of the specimens so obtained we are testing urines secreted under conditions which are precisely the same up to the point at which the kidney itself begins to functionate. In such cases, whatever the metabolism of the individual, however his blood may be influenced by sweating or vomiting, all influences will be brought to bear equally on both kidneys, and any differences found to exist between two specimens of urine flowing from the ureteral catheters must depend on differences in the kidneys themselves and not on any other condition.

SUMMARY AND CONCLUSIONS.

Although the number of cases which I have studied is not large, it is, I think, sufficient to warrant the following conclusions:

1. There are many cases of acute glomerular nephritis which can not be recognized by any of the methods of examination known to us.

2. In some cases of subacute and chronic glomerular nephritis, our diagnostic resources are likewise at fault, but in the great majority of cases here studied, the condition of the urine taken in connection with other features of the clinical picture, enabled us to anticipate the autopsy findings. Our success in the diagnosis of chronic glomerular nephritis as almost as constant as our failure in the acute cases.

3. When we face the group of chronic interstitial cases, our diagnostic resources appear to be neither as sufficient as in chronic glomerular nephritis, nor as inadequate as they were shown to be in the acute cases.

In about one-third of the cases the diagnosis was correctly made before death.

4. Among other conditions mistaken for nephritis, owing to the implicit reliance in the urinary findings, we find that the senile and arteriosclerotic degenerations are not infrequently the cause of mistaken diagnoses of chronic nephritis, while in conditions involving passive congestion or acute degeneration of the kidney, the urine occasionally simulates that of acute nephritis. Even in cases where no lesions are to be found at autopsy, the urine is occasionally highly albuminous and full of casts.

5. In our ordinary urinary examinations, common errors are: (*a*) The attempt to estimate urea without any accurate knowledge of the patient's metabolism. (*b*) The statement that renal cells are present when all that we know is that we have seen small mononuclear cells, perhaps belonging to the renal tubules, perhaps not.

6. Cryoscopy and other attempts to test more directly the renal permeability are not as yet capable of supplementing in clinical work the older methods of examination in the diagnosis of nephritis.

The vast majority of estimations of urinary solids, including urea, are in my opinion a waste of time, since they are not, and in most cases can not be made, part of a general metabolism experiment.

The attempt to estimate the anatomic condition of the kidney by the measurement of albumin and the search for casts is fallacious in the extreme.

The most reliable data about the urine are those most simply and quickly obtained, the twenty-four hour quantity, the specific gravity and the color.

IDIOPATHIC EPILEPSY.

OBSERVATIONS ON ITS TREATMENT.*

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This paper is not intended to be an exhaustive treatise on the therapeutics of this disease. The ideal treatment for epilepsy is that of the Craig colony at Sonyea, and our best efforts should be given to establishing such colonies at the earliest possible moment in every state in which they do not already exist. After we thus make provision for many of these unfortunate people, however, there will still remain a large number who will require treatment at their own homes or in our offices.

In considering the therapeutics of epilepsy in general, it is well to bear in mind the fact that there are spontaneous cures, and one of these cases was brought to my attention for the first time about twenty years ago. I was called to see a man of 60 in convulsions. He had had an attack of grip, with high temperature and suppression of urine; the convulsions were soon found to be uremic. On inquiring into his history, I ascertained that he had been an epileptic from early youth until the age of about 20, when he left his home in London for America, having been assured by his physician that an ocean voyage would cure him. He landed in New York, and a short time afterward came to Chicago, where he was successful in business, and from the date of his leaving the port in England until the time of his attack of grip, that is, during a period of about forty years, he had had no manifestations whatever of the disease. In this case the ocean voyage is credited with having effected a cure. The impress of his neurosis was manifest in two of his children, of whom one died insane and another of delirium tremens after years of inebriety.

I have seen other cases in which there was the same spontaneous arrest of the disease. Such cases give reputation to many means of cure, and many things that can not possibly have had anything to do with the results are credited with being cures for epilepsy. There is no more difficult problem in medicine than to separate the *post hoc* from the *propter hoc*. Another difficulty that surrounds the therapeutics of the case is the fact that epilepsy is a symptom, not a disease. It may be the only symptom manifest, as in idiopathic or essential epilepsy, or it may be one of many symptoms, as in an organic brain disease. Another difficulty in the way of

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* Read before the American Association for the Care and Treatment of Epilepsy, Boston, 1904.

a scientific therapy is the want of a positive pathology, but in this matter we are making headway. The theory of that gifted student of epilepsy—Echeverria—that the medulla oblongata is the only seat of epilepsy, I think we all have abandoned, as we have many other theories, and that we are now of one mind that the cerebral cortex is the seat of the disease, and that hyperplasia of the neuroglia, with the destruction of neurons, especially of those that originate in the second cortical layer, sooner or later is present, and that the whole is due to some toxic element not yet discovered. When this has been discovered, then and only then can we discard empiricism in the treatment of this disease.

PREVENTION.

I do not think sufficient attention is given to prevention in those patients who have an hereditary predisposition. These neurotic children have convulsions in infancy, and but little attention is paid to them. A physician may be called at the time, but the convulsion is over, and the case is dismissed from further attention. Such cases demand his most earnest efforts to discover the cause and to remove it, and then to see that the child receives the kind of education and medication that will insure a vigorous physical development and a well-regulated mentality. Home training is not always the best for such a child, for the neurotic condition is an inheritance from mother or father, and this fact may create an environment by no means conducive to the end desired.

Some cases of epilepsy are traumatic and in some the result follows because surgeons do not resort to exploratory operations early, with a view of preventing serious consequences, but delay operation until after convulsions have occurred. It is impossible to estimate the damage done to the brain by trauma. It frequently happens that there is no due proportion between the injury and the magnitude of the mischief the cranium has sustained; with the present modern surgical methods there is no possible danger that can result from an exploration, and it is often demanded, I am sure, in these neurotic subjects.

Before laying the foundations for therapy, every case demands a most thorough investigation. No part of the body should be overlooked in the examination. The blood, the urine, the feces, every possible source of reflex irritation in eyes, nose, mouth, vagina, uterus, penis, rectum, should be ascertained, and often surprisingly valuable information is thus obtained.

The prevention of individual convulsions is a matter of great importance, and the epileptic who has an aura is fortunate, for then there is often the opportunity of arresting impending attacks. The seizures after a time become a habit of the body. The cause may be removed, and the habit may continue, or a minimum of toxicity may become sufficient to discharge the cortical cells, and therefore every attack prevented is a step toward cure by breaking up a bad habit. The pearls of nitrite of amyl of proper size should be carried by every epileptic who has an aura, and at the proper moment they should be used.

These attacks can sometimes be averted by other means. A patient under my care had an aura that began in his right hand. He carried around his wrist a slip noose of silk thread, and when he felt the oncoming of the aura, he quickly tightened it, and if he did so promptly he could stop the progress of the attacks. He eventually obtained relief, and I am of the opinion that his perseverance in the breaking up of the sequence had as much to do with it as did the internal medication he received.

In marking out a line of treatment, it must be borne in mind that in the pathogenesis of epilepsy there is an autointoxication, an increased irritability of the nervous system, a deficiency of vasomotor tonus, and of circulatory capacity, and, lastly, a cerebral sclerosis, and in the plan of treatment each must be considered in due proportion, even though it is possible that the first factor is the foundation of the other three. The autointoxication, in the majority of cases, has its origin in the gastrointestinal tract, and to minimize this there must first be a careful regulation of diet. For this purpose no special and universally applicable diet table is either necessary or desirable, as the digestive capacity and necessities of each patient must be determined. The exclusion of meat, which is advocated by some, is a serious error. The majority of these patients are gormandizers; they eat voraciously, and masticate imperfectly; these conditions must be corrected, they must be taught abstemiousness, and slow and thorough mastication.

I was consulted some years ago by a physician engaged in a large country practice who developed epilepsy, and whose treatment on ordinary lines had been a failure. On investigating his case, I found that after his long rides at night it was his custom to eat a very hearty luncheon, often of very indigestible food, and the convulsions invariably occurred at night. Supposing this had much to do with their manifestation, I put him on a diet of milk and crackers exclusively, continued the bromid treatment he was then taking, and the convulsions, from having been two or three a week, rapidly ceased, and in six months he thought himself cured; he again began his habit of midnight luncheons, and the convulsive seizures recurred. On returning to his abstemious diet they again ceased, and for many years, under a properly regulated diet, he has been free from these attacks.

The condition of the stomach, especially the want of muscular tone, with more or less dilatation, is sometimes at the foundation of this toxicity; and then gastric lavage is indispensable. Insufficient intestinal elimination is a very common condition; so much so do I regard it that even when patients come to me, telling me that they have a daily habit of evacuation which they regard as ample, unless there is some contraindication, I order them a compound cathartic pill (U. S. P.), at least once a week, and frequently direct colonic flushing with normal saline solution. These measures of themselves are often inadequate, and intestinal antiseptics must be added to the treatment. Salol has given me the best results, and I usually combine it with the extract of phytolacca. The two drugs are placed in capsules and given before meals. Phytolacca decandra is a drug not sufficiently appreciated by the profession at large. In that complex error in metabolism that we recognize as rheumatism, it is of undoubted value, and in the errors of metabolism with which we are now contending I know it is sometimes useful.

The increased irritability of the nervous system is best combated by the bromids, the sodium bromid being less depressing to the circulation and less disturbing to the digestion, is probably the best. I have rarely seen any advantage from the mixture of several bromids, although Brown-Séquard's formula is sometimes very useful; it contains the potassium and ammonium bromids. While

the bromids are the most useful of all remedies in combating the irritability of the nervous system, yet we all know that great damage has been done by their excessive use. Epileptic insanity is vastly more frequent to-day than it was before the introduction of the bromids in the treatment of this disease, but it is their excessive use that produces this result. Sixty grains a day is a quantity that should seldom be exceeded except for a special reason, and for a short time only. In nocturnal epilepsy a full dose may be given at bedtime, but in the great majority of cases the proper dose should be given three times a day, after eating.

The disagreeable bromid eructation is much diminished by the addition to the mixture of an alkali. In the Brown-Séquard formula, previously mentioned, the alkali is the carbonate of potassium. When patients can afford it, the drug can be taken in an alkaline water, such as Vichy, which is the ideal water for this purpose; the drug should be given in a large quantity of water, and always after meals. The constitutional effect of the bromids is increased by eliminating the chlorid of sodium as much as possible from the dietary. If the 60 grains of bromid a day do not arrest the paroxysms, then I add to the treatment the fluid extract of solanum carolinense, in one-half to two dram doses, in the bromid mixture. In some cases in which the bromids disagree, this drug alone will control the seizures. Cases that resist this combination will sometimes yield if acetanilid is added to the treatment; this may be placed in the capsule with the salol and phytolacca before meals. Some cases of nocturnal epilepsy that will not yield to this method of treatment are benefited by moderate doses of chloral or chloralamid at bedtime.

The circulatory and vasomotor defect, so manifest in many cases, often can be improved by the use of the fluid extract of adonis vernalis, and this can be added to the mixture already mentioned of bromids and solanum. This drug—adonis vernalis—has all the properties of digitalis without its untoward effects; it does not disturb the stomach, it has no cumulative effect, and it has some sedative influence on the nervous system. It also has marked diuretic properties, and thereby relieves the system of some of its accumulated toxins.

Strychnia is also a valuable remedy in meeting this indication, but it requires to be given in larger doses than are usual to secure the best results. In a case in which the bromids had been given in very large doses, so that the patient—a young, pale, anemic subject—showed positive evidences of bromism, face and back being covered with acne, and mental stupor very manifest, the attacks continued unabated. On the withdrawal of the bromids and the administration of the sulphate of strychnia in gradually increasing doses, until the one-twelfth of a grain was taken once in eight hours, the attacks, which had been daily, gradually ceased; then the dose was gradually diminished. Some strychnia, however, was continued for five years, and now, after a period of eighteen years, there has been no recurrence of the disease.

Cerebral sclerosis is an indication for the use of alteratives. The iodids diminish the rapidity of its development and increase the activity of the bromids, and the iodids, as Brown-Séquard has taught us, can well be added in small doses to the bromid formula already mentioned. Another valuable drug in the sclerotic process in brain, liver and kidneys, is the chlorids of gold and sodium rubbed up dry in a capsule with pulverized resin guaiac; this can be given with advantage, alternating with the capsule of salol and phytolacca already mentioned. This gold salt is not only antagonistic to the sclerotic process, but it is a mild cerebral stimulant; and the guaiac, like phytolacca, in some way corrects errors of metabolism. The great importance of a suitable occupation, of a reasonable amount of rest and of exercise, and a careful attention to hygiene must not be overlooked in the therapy of these cases.

Whatever plan of treatment may be determined on, and the four indications that I have specified may be met in different ways by each of us, the treatment, to be effective, must be continued for a space of at least five years. Much of the therapeutic confusion that prevails in this disease results from too early reporting of cases as cures; a surgeon operates to-day, the patient having frequent convulsions; no convulsions occur for a month or two; the case is reported as a cure from some surgical operation, and the same is true of the various lines of drug treatment. No epileptic can be regarded as cured until there has been at least five years' intermission in the epileptic manifestations.

Special Article.

IMMUNITY.

CHAPTER IX.

THE "STRUCTURE" OF TOXINS AND ANTITOXINS AND THE NATURE OF THE TOXIN-ANTITOXIN REACTION.

Biologic Analysis.

Since it has not been possible to obtain the microbic poisons in a pure form, ordinary chemical analysis can give no indication of the composition of the toxin molecule. We have practically no means of studying the nature of toxin except through the biologic experiment, i. e., its effect on animals and on animal cells.

Neutralization of Toxin by Antitoxin.

Investigations have shown that when toxin and antitoxin are mixed in suitable proportions in a reagent glass, a union occurs between the two; a new, non-toxic substance is formed. The mixture contains neither demonstrable toxin nor antitoxin; that is to say, when the mixture is injected into susceptible animals they suffer no intoxication (disappearance of toxin), or if some fresh toxin is added to the neutral mixture none of the fresh toxin is neutralized (disappearance of antitoxin). That a loose chemical union may occur between toxin and antitoxin has been demonstrated in another way, in relation to pyocyaneus toxin and snake venom. Toxins are usually destroyed at lower temperatures than their antitoxins, but in the two instances cited the antitoxins are destroyed at the lower temperature. It was found that when neutral mixtures of pyocyaneus toxin (Wassermann) or of venom (Calmette) with their antitoxins were heated to the proper temperature the solutions again became toxic. This indicates that in the toxin-antitoxin reaction neither is destroyed, but that union or binding occurs; a union which, at least in these instances, may be dissociated by simple means.

Chemical Nature of the Reaction.

In further support of the view that the union is chemical in nature are the facts that: 1, neutralization takes place according to the law of multiple proportions, i. e., ten times a given amount of antitoxin will neutralize exactly a proportionate amount of toxin; 2, neutralization is more rapid at warm than at cold temperatures; and 3, more rapid in concentrated than in dilute solutions. These are some well-known laws of chemical reactions.

"Emil Fischer has shown that in the ferments, definite

atom-groups of special configuration are present which above all else are requisite for the whole phenomenon (of fermentation). Only such substances as possess a group to which the ferment group corresponds, as lock to key, are subject to the action of a particular ferment." This applies to the action of a particular ferment on only one kind of substance.

Ferments.

Having this conception in mind, Ehrlich assumes that union occurs between toxin and antitoxin through a special atom group which the toxin molecule possesses, and which fits into, or corresponds specifically to, another atom group in the antitoxin molecule. These are spoken of as the binding or haptophorous groups (haptophores) of the molecules. The haptophorous group of the toxin is highly specific since a toxin can be neutralized only by its own antitoxin, and naturally the haptophorous group must be equally specific.

Haptophores.

The toxic function is supposed to reside in a particular chemical group of the toxin molecule, and this group has been called by Ehrlich the toxophore, or zymotoxic, or zymorphous group, the last two terms having reference to a supposed ferment-like action of the toxin. There is considerable experimental evidence to prove that the toxin molecule does contain such a toxophore atom complex, the following being the essential observation: When a toxin, as that of diphtheria, is first prepared, its lethal dose for guinea-pigs is determined, and also the amount of antitoxin which is required to exactly neutralize this dose. In the course of subsequent months, experiments show that the virulence of the toxin has decreased. One might suppose in view of this fact that the amount of antitoxin required for neutralization of the toxin contained in the original fatal dose would be correspondingly less; but, on the contrary, exactly the same amount is required for complete neutralization as when the toxin has its original strength. The toxin, therefore, has retained its original binding power for antitoxin, although it has lost a large share of its toxicity; that is to say, the haptophore group of each toxin molecule remains intact, while the loss of toxicity may be referred to the alteration or disappearance of a portion of the toxophore groups. Toxins which have undergone this change are called toxoids.

Toxophore.

Toxoids.

That the non-toxic toxin, or toxoid, still possesses the haptophore group is also shown by the fact that it may be used for the production of antitoxin. Since antitoxin can be produced only through the toxoid uniting with the cell it follows that the toxoid retains its haptophore.

Immunization with Toxoids.

A toxin entirely free from toxoids has never been observed, since even during the few days required for its preparation a certain amount of toxoid is formed.

Much additional information concerning the nature of toxin has been gained by experimenting with mixtures of toxin and antitoxin, in which the two are present in varying proportions. This is the "partial saturation" method of Ehrlich. Through a vast number of experiments Ehrlich obtained information which permitted him to estimate that 200 "binding units" are represented in the amount of diphtheria toxin (hypothetically pure) which is exactly neutralized by one antitoxin unit. If the entire amount of antitoxin, i. e., 200/200, is added to the amount of toxin in question, complete neutralization of the latter, of course, occurs. In case the toxin is entirely pure, 199/200 of the antitoxin unit would destroy all but 1/200 of the initial toxicity; and 150/200, or 100/200, or 75/200, etc., of the antitoxin when added would permit corresponding degrees of toxicity to be demonstrated through animal inoculations. It was found, however, that neutralization according to this simple scale did not take place. The results were complicated, and Ehrlich has found it convenient to express them graphically in the form of the "toxin spectrum" (Figs. 1, 2, 3 and 4). For example, let 199/200 of the antitoxin unit be added to the proper amount of the toxin, 198/200 to another similar amount, 197/200 to another, etc., down to 150/200. In the last mixture, 50 out of the 200 binding units which the toxin possesses are free, and these 50, rather than some other 50, are free because they have less affinity for the antitoxin than the 150 units which were bound. It has been found that those units which first become free are much less toxic than a corresponding amount of the original toxin. It was thought that they might have lost their toxophore groups, i. e., that they were toxoids; and because of their weak affinity for antitoxin they were called epitoxoids. It was found, however, that they possessed a rather constant though low degree of toxicity and that the toxic action was characteristic. Injection was followed by some local edema,[1] then by a long incubation period, and finally by cachexia and paralysis. On account of this characteristic toxic action and the long incubation period, Ehrlich has concluded that the so-called epitoxoid is in reality a separate toxin secreted by the diphtheria bacillus. This he now designates as toxon[1] in order to distinguish it from that other constituent of diphtheria bouillon, the toxin, which causes the acute phenomena of diphtheria.

Partial Saturation Method of Study.

The Toxin Spectrum.

Epitoxoids.

Toxon.

Let one now add still smaller amounts of the antitoxin unit to the 200 binding units of the toxin. When 149/200 are added it is found that a certain amount of true toxin remains free, and moreover is free in direct proportion to the amount of antitoxin withheld. Consequently when but 50/200 antitoxin unit is added the amount of free toxin corresponds to 100 binding units. If true toxin only remained a continuation of the experiment would show toxin equals 150. It could then be said that the constitution of this toxin is: toxin 150 and toxon 50. However, it may be found that as 49/200, 48/200, etc., to 0/200 antitoxin unit are added, no increase of free toxin is found, although the antitoxin added has been bound. Therefore, the 50 toxin binding units which have the greatest affinity for antitoxin are non-toxic; i. e., they are toxoids, and since they have the maximum affinity for antitoxin they are called protoxoids.

Protoxoids.

It has been assumed also that a toxoid may exist which has an affinity for antitoxin exactly equaling that which toxin possesses; this, as yet purely hypothetical constituent, bears the name of syntoxoid.

Syntoxoids.

The above appears in literature as an example of the constitution of a toxin (diphtheria). Figure 1 is a graphic representation of the toxin just described. Probably no two toxins have the same constitution. The toxon zone, for example, could well be much larger in the bouillon of one diphtheria culture than in another.

Refinements in experimentation show that even the true toxin is not uniform in its virulence and its affinity for antitoxin. Accordingly a prototoxin, a deuterotoxin and a tritotoxin may be recognized by this same partial saturation method. (See Fig. 2). For example, it may be found that when a portion of the antitoxin unit, between the limits of 149/200 and 125/200, is withheld, a toxin is left

Proto-, Deutero- and Tritotoxins.

1. The existence or non-existence of toxons has excited a great deal of discussion among investigators. The great Swedish chemist, Arrhenius, has recently given much attention to toxins and is applying the principles of physical chemistry to the study of toxins and antitoxins. It is a well-known fact that some chemical substances, when in solution, have the power of breaking up into their constituent parts; thus sodium chlorid breaks up in part into sodium and chlorin, as sodium or chlorin ions or electrolytes. The dissociated sodium and chlorin may then enter into combination with any other suitable substance which may be present. Arrhenius holds that this is the case with the toxin-antitoxin molecule, that it may to a certain extent again break up into separate toxin and antitoxin. He believes that this dissociated toxin is the substance which Ehrlich has been calling toxon. Madsen, who formerly had done much work with toxons, has now joined with Arrhenius in support of the dissociation theory. In spite of the reasonableness of this theory Ehrlich and his followers continue to uphold the toxon as an independent toxic substance, and have published additional experiments to support their position.

free which is less virulent than that remaining free between the limits of 124/200 and 100/200; and from this point on the new unbound toxin may be still more virulent. The first would be tritotoxin, the second deuterotoxin and the third prototoxin.

A "spectrum" having been worked out for a toxin when fresh, an examination made some time later, a year for example, may show many changes. The prototoxin zone and portions of the deutero- or tritotoxin may also have disappeared because of toxoid formation. These changes have led to the recognition of an alpha and a beta modification of the toxin portions. The alpha modifications of all three toxins readily become toxoids. Only the beta modification of the deuterotoxin remains constant. The toxon portion also remains relatively intact (Figs. 2, 3 and 4).

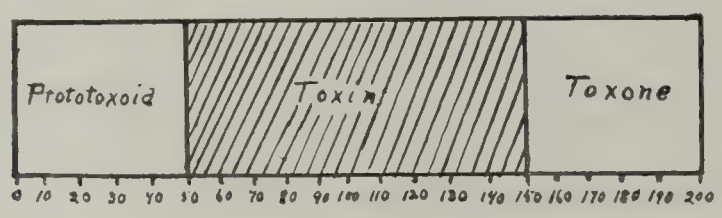


Figure 1.

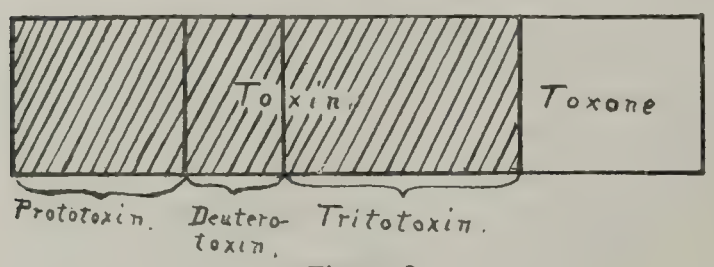


Figure 2.

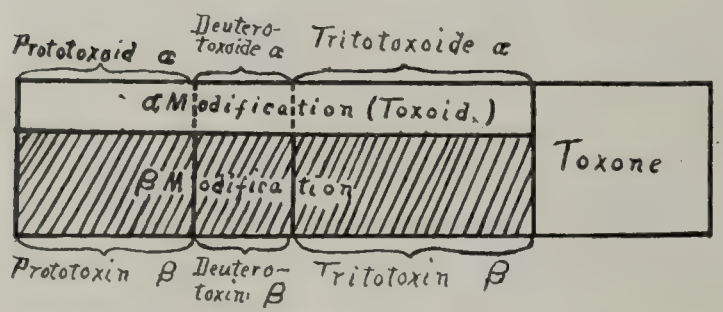


Figure 3.

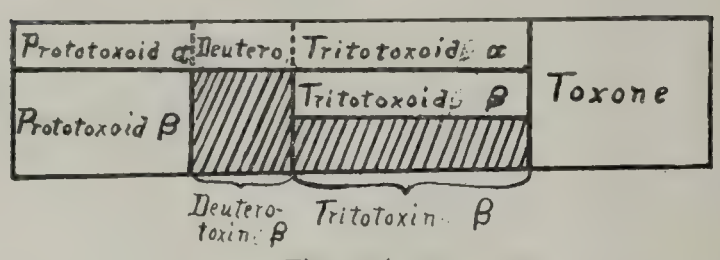


Figure 4.

Figures 1, 2, 3 and 4 are taken from Aschoff's "Ehrlich's Seitenkettentheorie, etc.," Ztschr. f. Allgem. Physiol., vol. i, 1902. Figure 1 is a toxin spectrum worked out by Madsen. Figures 2, 3 and 4 are spectra representing the changes in qualitative and quantitative structure which a toxin may undergo with age, as described in preceding paragraphs.

Summary.

To summarize Ehrlich's views as to the nature of diphtheria toxin: The diphtheria bacillus secretes two toxins, one of which, the toxin, causes the acute phenomena of diphtheria intoxication, while the other, the toxon, causes cachexia and paralysis after a rather long period of incubation. The non-toxic toxin, or toxoid, appears as the result of the degeneration of the toxophore group of the toxin, the haptophore group remaining intact. The toxin may be separated into three divisions, which vary in their affinity for antitoxin—prototoxin, deuterotoxin and tritotoxin. On the same basis there are three toxoids—protoxoid, syntoxoid and epitoxoid (the toxon)—the first having the greatest affinity for antitoxin, while the epitoxoid has the least. The toxins are divided into an alpha and a beta portion, depending on the ease with which they are changed into toxoids. All of these substances unite with tissue cells and with antitoxin through the agency of a haptophore group, while the toxicity depends on the presence of a toxophore group in the toxin or toxon molecule.

This very complicated method of investigation was also undertaken by Madsen in the study of tetanus toxin, for which a somewhat similar toxin "spectrum" was constructed.

Such spectra have not been worked out in detail for some of the vegetable toxins, as ricin and abrin, but it is known that they form toxoids.

Snake venom apparently differs from the bacterial toxins in structure; this will be a subject for later consideration.

The Formation of Antitoxin.

The idea was originaly advanced that antitoxin was transformed toxin, a change in the latter having been effected through some action of the tissues. In that case, the amount of antitoxin produced should be exactly equivalent to the amount of toxin injected. This, however, was found not to be the case. It has been stated that a single injection of tetanus toxin in selected cases may yield 100,000 times more antitoxin than is necessary to neutralize the toxin injected. Another interesting experiment is on record which also shows the fallacy of the view just mentioned. An animal whose serum contained a high value of antitoxin was bled repeatedly until an amount of blood was drawn which equaled the total quantity normally present in the animal's body. Yet the amount of antitoxin in the new formed blood was practically equal to that which was present before the experiment.

Metchnikoff, to explain this "overproduction" of antitoxin, has suggested that the toxin molecules may be taken up by phagocytic cells and broken up into an indefinite number of smaller molecules, each of which then is altered in some obscure manner so as to constitute an antitoxin molecule.

Ehrlich "Side-Chain" Theory.

The views of Ehrlich have found wide acceptance, and have provided a valuable working hypothesis for many investigations. A consideration of this subject introduces one at once to the now famous side-chain theory of immunity of Ehrlich. It may be considered briefly at this point, insofar as it involves the origin and nature of antitoxin. Ehrlich considers it fundamental, in regard to the metabolic activity of cells, to assume that the cell constituents must enter into chemical combination with food substances in order that the latter may be made available for the use of the cell. Substances which thus unite with a cell are affected variously by the activities of the cell; some are split up into simpler substances perhaps by a ferment-like activity, the products being used for the upbuilding of the cell, or in some instances excreted for the use of other cells. Accordingly, it seemed convenient to assume that cells contain certain atom groups of unknown chemical nature which make possible the binding of food substances. The name of receptor was given to such groups, since substances are received into the cell through them. Inasmuch as the foods, and some other substances, which penetrate the cells differ in their chemical nature, it is probable that there are various receptors for the various types of substances. The binding, however, is but a preliminary step to profound changes which the substance may next undergo, through the action of other, more vital, cell constituents. That is to say, the receptor is but a link to bring the substance into relationship with the vital activities of the cell, which Ehrlich supposes may reside in a hypothetical "*Leistungskern*" (action center or nucleus). In view of this conception one readily sees the consistency of considering the receptor as a side-chain of the "*Leistungskern*," just as the chemist speaks of the various groups which may be attached to the benzol ring, or benzol nucleus, as side-chains.

Receptors.

Multiplicity of Receptors.

Side-chains.

In preceding pages it has been emphasized that a toxin, in

order that it may injure a cell, must enter into chemical combination with its constituents, and it is a fundamental tenet of the Ehrlich theory that this union is one which takes place between the toxin and the cell receptor (side-chain). So far as known, a toxin can unite with some other substance only through the medium of its haptophorous group (as in the toxin-antitoxin reaction). This presupposes the presence of a corresponding haptophorous group on the part of the cell receptor with which the toxin unites.

Action of Toxins.

Haptophore.

As the physiologic demands are probably responsible for the character of the various receptors, it is not likely that special receptors are created when some unusual substance, as a bacterial toxin, is introduced into the body. Consequently, when a toxin unites with a cell, it probably occupies receptors which, under normal circumstances, are employed in some physiologic process.

If some inert, non-toxic substance should combine extensively with cells, a corresponding number of receptors, which ordinarily are used for normal metabolism, would be thrown out of function. This would constitute an injury, not only to the cells primarily involved, but perhaps to other cells which

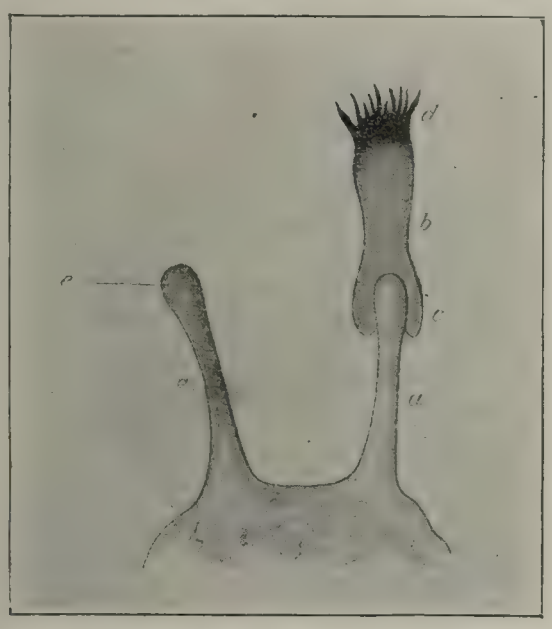


Fig. 5.—Graphic representation of receptors of the first order and of toxin uniting with the cell receptor. *a*, Cell receptor; *b*, toxin molecule; *c*, haptophore of toxin molecule; *d*, toxophore of toxin molecule; *e*, haptophore of the cell receptor. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii. This cut is not to be taken as representing the actual morphology of toxins or cell receptors. Nothing is known of their morphology, if, indeed, they have any. The cut is intended merely to represent, in a graphic manner, the supposed chemical structure and mode of action of these substances. This statement applies also to Figures 6 and 7.

depend on some metabolic products of the injured cells. It is possible that the action of toxoids is of this mild nature.

When toxin unites with cells there is involved not only the diversion of cell receptors from their customary functions, but in addition the destructive action of the toxin on the vital parts of the cell (perhaps on the "*Leistungskern*"). The more toxin introduced, the greater the number of cell receptors bound, and the greater the injury to the cell.

In case a non-fatal amount of toxin has been bound, but sufficient to cause some injury, how does the cell respond to the injury? Weigert, a few years ago, gave expression to a hypothesis which is held to have some bearing on the subject under consideration. In studying regeneration following injury he concluded that tissues have the tendency to reproduce not only to the extent of making good the injury, but that an excess of new tissue resulted. The clearest example of this occurrence is that of scar formation, in which a seeming excess of new connective tissue cells appears, many of which disappear later. Similarly, when a non-fatal amount of toxin unites with the receptors, a cell defect or injury is created. The cell has for practical purposes lost so many receptors. This loss affects the vital activities of the cell, the "*Leistungskern*," and new receptors, identical with those occupied, are reproduced. Following the law stated they are reproduced in excess of the number injured, and the excess may be so great that the cell may be overfilled with them—so overfilled that many are cast off and reach the general circulation. These cast-off receptors, or side-chains, still retaining their power of uniting with toxin, constitute our antitoxin. As Behring has stated it, the receptor, when attached to the cell, is the agent through which the latter is attacked, but when cast off from the cell becomes its protector (Fig. 5).

Hypothesis of Weigert.

Overproduction of Side-chains.

As regards the structure of the antitoxin (cast off receptor), it is necessary to assume only the presence of the proper haptophorous group. Ehrlich designates all receptors of this simple type as "receptors of the first order." In following sections we shall have to do with receptors of the second and third order.

The following is a list of the most important antitoxins which have been prepared (Wassermann):

ANTITOXINS FOR BACTERIAL TOXINS.

Diphtheria antitoxin.
Tetanus antitoxin.
Botulism antitoxin.
Pyocyaneus antitoxin.
Symptomatic anthrax antitoxin.
Antileucocidin, an antitoxin for the leucocytic poison of the staphylococcus.
Antitoxins for the blood dissolving toxins of a number of bacteria.

ANTITOXINS FOR ANIMAL TOXINS.

Antivenin, for snake poison.
Antitoxin for scorpion poison.
Antitoxin for spider poison.
Antitoxins for certain poisons of fish, eel serum, salamander, turtle, and for wasp poison.

ANTITOXINS FOR PLANT TOXINS.

Antiricin, for a red blood corpuscle poison of the castor oil bean.
Antiabrin, for a similar poison of the jequirity bean.
Antirobin, for robin, a locust tree poison.
Anticrotin, for crotin, a toxin from the bean of *Croton tiglium*, the croton oil bean.
Hay fever antitoxin, for the toxin of pollens which cause hay fever.

ANTIFERMENTS.

Antirennet.
Antipepsin.
Antitrypsin.
Antifibrinferment.
Antiurease, for urease, a urea splitting ferment.
Antilaccase.
Antityrosinase.
Antisteapsin.
Antiferments against the ferments of bacterial cultures.

The above are true antitoxins. There are other substances, however, which occasionally exert an antagonistic action on toxins, although they probably are not true antitoxins. For example, it has been found that cholesterin neutralizes the action of tetanolysin, the hemolytic toxin of the tetanus bacillus.

The discovery of Hektoen that certain salts are able to neutralize the toxic action of some serums, by combining with the so-called complement, may also be mentioned in this connection.

(*To be continued.*)

Cinnamon.—Cinnamon is considered by the *Critic and Guide* a much neglected remedy. The oils of cinnamon, of cloves and of peppermint are efficient though mild antiseptics.

Clinical Reports

LEUKEMIA.

THE ULTIMATE FAILURE OF THE ROENTGEN RAYS AS A THERAPEUTIC AGENT.

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AND
CECIL M. JACK, PH.B., M.D.
DECATUR, ILL.

In THE JOURNAL, March 26, 1904, we gave a preliminary report of a case of splenomedullary leukemia symptomatically cured by the Roentgen rays. Since then we have given a more detailed account of the same case,[1] and now as it has come to autopsy we make a final report. Especial attention will be given to the postmortem findings, in the hope that some light may be thrown on the *modus operandi* and the value of the *x*-rays in this class of cases. No attempt will be made to review the literature, as this has been done so completely by Dr. George Dock[2] quite recently.

We repeat the history of the case, as given in the other reports, together with the later developments:

Patient.—W. E., male, American, aged 30, a cigar maker, unmarried, was first examined July 1, 1903. His family history is negative, except that one sister has had tuberculosis.

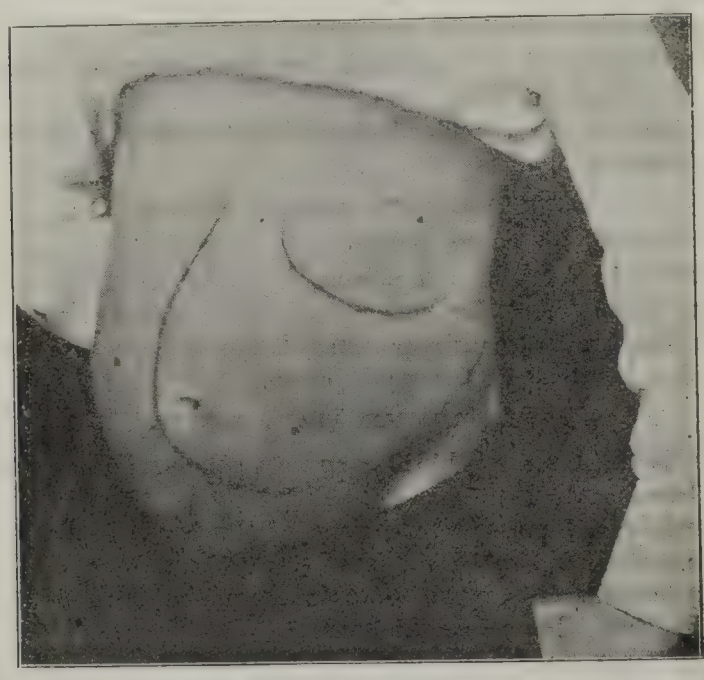


Fig. 1.—Splenomyelogenous leukemia. Photograph showing size of spleen before treatment and after four months' treatment.

History.—The patient has lived in Decatur all his life; his habits have been good; he does not use alcohol, but he is a moderate smoker. He has had the usual diseases of childhood, with good recovery in all. No history of malaria or syphilis.

Present Trouble.—The patient came to the office complaining of weakness, pain in the back and a feeling of weight and distress in the left side. Two years ago he had a fall, alighting on the lower ribs of the left side, which compelled him to stop work for two days. He has had a slight cough for some time. For six months he has been troubled with palpitation, dyspnea and slight headaches. Lately he has noticed that his shoes fit tighter at night. He becomes very weak on exertion.

Examination.—The patient is moderately well nourished, but has a somewhat cachectic appearance. His present weight is 169 pounds, which is his average summer weight; his expression is depressed; mind clear; frame medium sized; musculature soft; panniculus thin. He is slightly anemic. The visible mucous membranes are of fair color; tongue is moist. There is slight edema of ankles and legs. The lymphatic glands are not enlarged, but the inguinal glands are easily palpated. The thorax is of good size and symmetrical; expansion fair. On percussion one finds good resonance; the lower lung boundaries are normal and descend well; heart sounds are normal; the liver dullness extends to the edge of the ribs, and its thin edge is easily felt. Splenic dullness begins on the seventh rib in the midaxillary line and extends two fingers' breadth below the umbilicus in the left mammary line. To the right it extends one finger's breadth beyond the median line. On palpation the spleen is a hard, smooth, thick mass. No notch can be felt. The radial pulse is easily compressed and is moderately full and regular, with a rate of about 90. Temperature is 99.

Examination of Fluids.—The urine gives a slight precipitate with heat and acid, and a few hyaline casts are found in the sediment. The blood examination is as follows: Red blood corpuscles, 2,600,000; leucocytes, 800,000; hemoglobin, 65 per cent.; specific gravity, 1,050. On staining with Ehrlich's triple and Jenner's stains the reds show a slight paleness, slight poikilocytosis and many nucleated forms. The differential count of the leucocytes gives: Polymorphonuclear, 40 per cent.; myelocytes, 40 per cent.; eosinophiles, 8 per cent.; large mononuclear with basophilic granules, 8 per cent.; degenerates, 4 per cent.

TABLE I.

DATE.	Red Cells.	White Cells.	Hemoglobin, per cent.	Nucleated Red per 100 Whites.	Small Lymphocytes.	Large Lymphocytes.	Polynuclear Neutrophiles.	Polynuclear Eosinophiles.	Myelocytes.	Myelocytes, Eosinophile.	Large Mononuclear and Transitional.	Basophiles.	Degenerates.
July 1, 1903	2,600,000	800,000	60	2	0	0	40	4	40	2	0	8	6
August 9, 1903	2,790,000	160,000	65	10	5	0	44	5	21	25	14	6	4
September 6, 1903	3,170,000	58,000	70	9	4	0	59	3	22	2	8	..	2
October 4, 1903	3,940,000	160,000	80	2	2	0	54	2	24	1	4	..	3
November 9, 1903	4,124,000	129,000	85	0	1	0	60	2	25	3	1	5	3
December 6, 1903	4,360,000	44,360	85	0	2	0	74	0	20	1	..	..	3
January 3, 1904	4,563,000	23,000	90	0	4	0	83	0.5	8	0	2	2	0.5
February 7, 1904	4,700,000	11,500	90	0	10	0	75	3	3	0	3	1	5
March 6, 1904	4,840,000	8,146	95	0	11	1	85	0.5	0	0	1	0	2
April 2, 1904	5,100,000	7,130	100	0	12	2.5	81	1.5	0	0	2	0	1
May 1, 1904	5,700,000	8 921	100	0	10	2	82	1	0	0	2	2	1
July 1, 1904	5,250,000	11.204	....	..	4	4	80	....	7	0	5	..	0
September 4, 1904	5,120,000	53,480	100	2	4	5	64	2	19	0	4	..	2
October 2, 1904	2,580,000	78.940	60	7	2	1	65	....	23	1	3	..	6
November 14, 1904	3,510,000	5,601	70	7	5	4	76	....	2	0	7	..	6

Clinical Diagnosis.—Splenomyelogenous leukemia.

Treatment.—The patient was informed of his condition and advised to stop work. We gave arsenic and iron internally and *x*-ray treatments to the splenic region twice a week.

Course of the Disease.—After one month the patient seems improved; he feels stronger, and his appetite is better. On examination the spleen is apparently smaller, the right edge extending only to the sternum and the lower edge on a line with the navel. The ankles are still swollen, but the blood shows a marked decrease in the number of leucocytes, with a slight increase in the red blood corpuscles and in the amount of hemoglobin. Blood smears show an apparent increase in the transitional forms with decrease of myelocytes. The normoblasts are markedly increased. The urine still contains a trace of albumin.

September 1: The patient has returned to work. His general condition is improved; appetite good, with a gain in weight. The spleen has decreased in size and a notch is felt for the first time. Edema of ankles is less. Blood: Leucocytes decreased to 58,000, with an increase in the red blood corpuscles to over 3,000,000.

1. Medicine, July, 1904; also Ill. Med. Jour., September, 1904.
2. Amer. Med., Dec. 24, 1904.

Encouraged by the results of treatment, which had varied very little in the last two months, and by Senn's article which appeared at this time, it was decided to discontinue the iron and arsenic and to increase the frequency and distribution of the *x*-ray exposures. These treatments were now given daily to the splenic region, the ends of the long bones and to the sternum. In place of the iron and arsenic, one-grain capsules of quinin, three times a day, were given as a placebo.

October 1: The patient has not missed a day's work in the last month. The blood shows an increase in the number of leucocytes; the number of red blood corpuscles and the amount of hemoglobin, however, still show an increase. The spleen can be pushed to the edge of the ribs. An *x*-ray dermatitis of the splenic region has appeared once or twice, the outer layers of the skin desquamating, but by discontinuing treatment for a few days and using a dusting powder, no bad results have followed. The skin over the exposed surfaces was rough at first, but after exfoliation has become smooth again. The hair and pigment have disappeared from the parts exposed.

November 9: Blood: Leucocytes, 129,000; red blood corpuscles, 4,124,000; hemoglobin, 85 per cent. Very little variation in size and shape of the red blood corpuscles and no nucleated forms were found. Myelocytes, 25 per cent.; polymorphonuclear, 60 per cent.; eosinophiles, 5 per cent.; small lymphocytes, 1 per cent.; degenerates, 3 per cent.

Blood examinations were now being made weekly, and charts were made showing the results of these examinations, with dates when made (Chart 1).

In February, after seven months' treatment, the albumin had all disappeared from the urine and the patient weighed 182 pounds, which is more than he had ever weighed before. The spleen could only be felt on deep palpation. Treatments were reduced to every other day, and the patient was advised to take long walks on the intervening days.

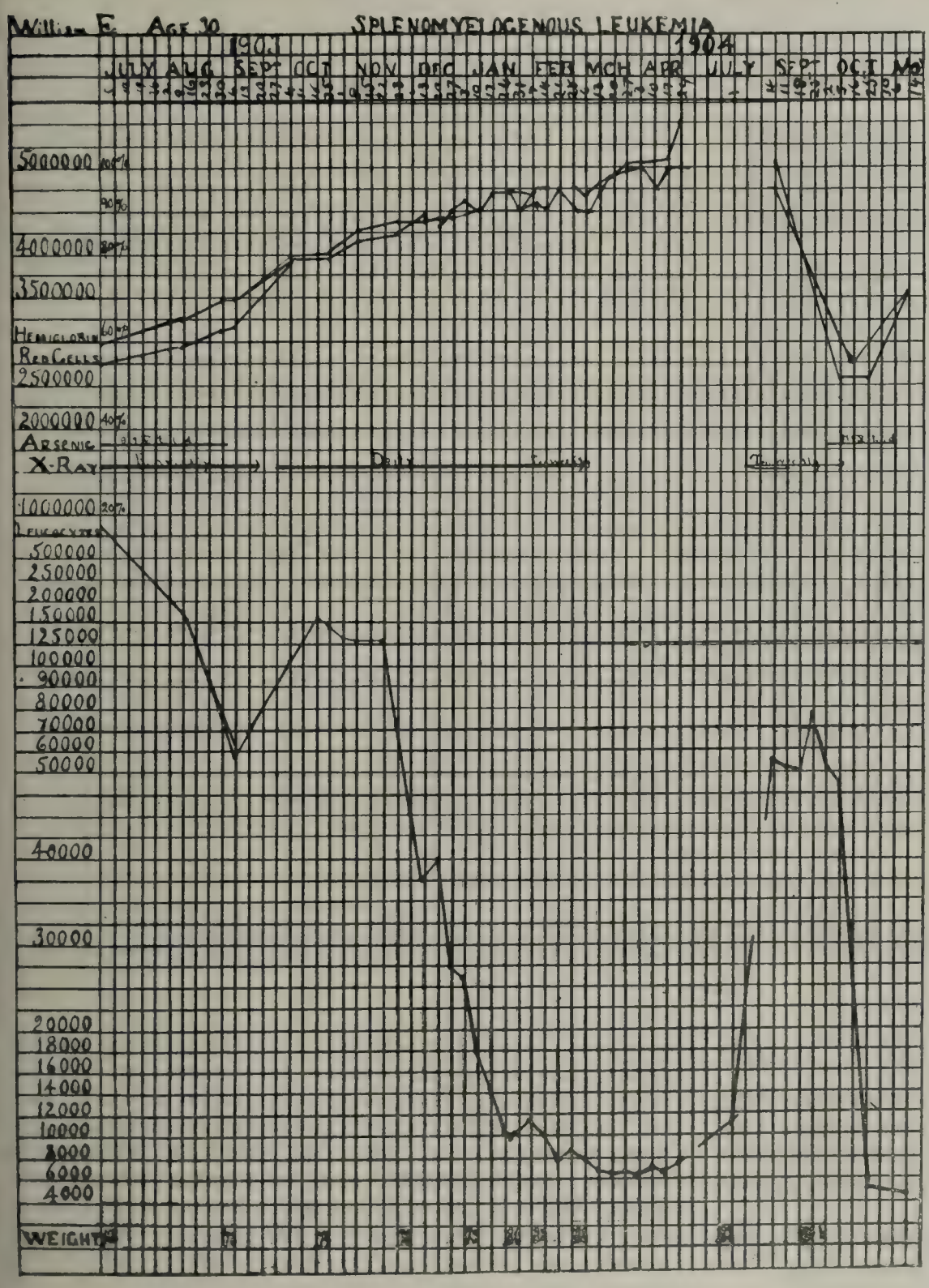


Chart 1.

April 16: There is very slight edema of the legs. General appearance is excellent; color good; pulse full and compressible, with rate of 70.

May 1: The appearance of the patient at present is that of robust health. His complexion is florid, quite a contrast to the cachectic appearance of ten months ago. He is working daily and rides his bicycle back and forth from work. The liver is of normal size, and the spleen is not palpable even on deepest inspiration. The ankles show no edema. His weight is 184 pounds. The abdominal parietes are relaxed, but there is no ascites. The previous inguinal adenitis has entirely disappeared.

July 1: Patient returns for blood examination. Is working every day and feels fairly well. A leucocytosis of over 11,000 is found, 7 per cent. of which are myelocytes.

September 4: Patient did not return in August, but returns to-day complaining of weakness and pains in the back. He weighs 182 pounds, which is a loss of two pounds. The spleen is apparently somewhat larger, but firm. The blood shows a leucocytosis of over 50,000. Urine clear; specific gravity, 1,022; no albumin, but a few hyaline casts. *X*-ray treatment given.

X-ray treatments were continued for seven weeks, but the patient gradually became weaker, and on October 7 he was found to have a temperature of 102, so he was sent home to bed. His symptoms were those of a severe intoxication not unlike typhoid. The spleen had become much larger. On October 10 a marked diazo-reaction was present in his urine. Widal test was negative. He had now become delirious. On October 16 his fever began to decline. The blood showed a marked decrease in both hemoglobin and the number of red cells, and still a high leucocyte count. Within one week the leucocytes dropped to normal and the spleen became much smaller. A severe diarrhea developed; some blood and much mucus was passed in the stools. On October 28 urinalysis showed a clear urine; specific gravity, 1,018; acid; diazo-reaction present; albumin, 2.5 per cent.; hyaline and granular casts numerous and a moderate amount of calcium oxalate crystals. The low typhoid state continued for two weeks longer, the condition being a semi-delirium, with great emaciation, no apparent suffering, no edema; death occurred on November 15, just sixteen months after first coming under our observation.

AUTOPSY.

Seventeen hours postmortem.

The subject is a man of average size. Skin pale and sallow; muscles small and emaciated; panniculus almost absent. Both pleura free and no fluid in pleural cavities. The heart is of normal weight, its endocardium slightly thickened; muscle is firm and of a brownish-red color. The auricles contain antemortem clots and the ventricles fluid blood. The valves are normal. The lungs show marked anthracosis and yield slight exudate on pressure. There are no airless areas, but a slight hypostasis over lower lobes. The bronchi are empty and the mucosa pale. The spleen weighs 1,133 gms. and measures 15x9x6 cm. There is one notch. The capsule is greatly thickened and cuts with resistance. The cut surface is firm and dark bluish-red in color. The stroma is greatly increased, but the malpighian corpuscles are not visible.

The liver is enlarged but firm. The left lobe is atrophic. The veins of the capsule are congested, the capsule being thickened. On section the organ is fairly rich in blood. The cut surface is granular, brownish-red in color, and the outline of the lobules is distinct.

The fibrous capsule of the kidneys strips off easily. The surface is slightly pale. On section the labyrinth and the medullary rays are distinctly outlined. Connective tissue is increased.

The stomach is in normal position. Walls are pale. The small intestine shows no ulcers. The mucosa is pale. No enlarged glands in the mesentery. The rectal walls are much thickened and the mucosa is pale. The retroperitoneal glands are not enlarged.

Pathologic Report.—The following pathologic report was kindly made for us by Dr. A. S. Warthin of Ann Arbor, who is now doing much experimental work in this line:

Lung: There is moderate chronic passive congestion; there is some atrophy, and the smaller bronchi are somewhat dilated. The number of leucocytes in the blood vessels is not perceptibly increased. Lung does not show the characteristics of lung from case of leukemia.

Spleen: Marked fibrosis. There is a fibroid hyperplasia of the reticulum of the pulp closely resembling that of splenic anemia. There is marked chronic passive congestion, the venous side being greatly dilated and filled with blood. Follicles are not preserved. The cells of the pulp are chiefly of a fibrous-connective-tissue type or endothelial. Lymphocytes are relatively very few. Cells of the type of large lymphocytes are more numerous. There are numerous large atypical cells of the endothelial type. There are few eosinophiles, and no myeloid changes. Leucocytes are relatively few in the blood vessels. The general picture resembles that of a spleen of splenic anemia and not that of a leukemic case.

Liver: There is atrophy, chronic passive congestion, and some parenchymatous degeneration. Connective tissue is relatively and in some areas absolutely increased. There is no leukemic infiltration. Glisson's capsule is somewhat more cellular than normal, but the cells are chiefly of a connective-tissue type. Leucocytes are not increased in vessels.

Pancreas: Postmortem change. There is some atrophy with slight fatty infiltration. There is no leucocyte infiltration. Leucocytes are not increased in vessels.

Small Intestine: There is slight atrophy and there are a few lymphoid elements. There is no evidence of leukemia.

Large Intestine: Small chronic ulcers are present. There is no evidence of leukemia.

Kidney: Sections of the kidney show remarkable lesions in the form of extensive deposits of lime salts, involving chiefly the convoluted tubules. For the greater part these tubules are replaced by masses of lime salts, either completely filling up the tubule and replacing the epithelium or confined to the epithelium alone, either partly or wholly surrounding the lumen of the tubule. Some glomeruli show small deposits, and casts of lime salts are found also in the straight tubules. The deposit is, however, for the chief part, in the convoluted tubules. Such convoluted tubules as are in part free from lime salts show more or less parenchymatous degeneration. Localized areas of acute interstitial inflammation are also present and hyaline casts are found in some straight tubules. There is no leukemic infiltration and no increase of leucocytes in the blood vessels. The general picture closely resembles the parenchymatous changes with deposit of lime salts seen after poisoning with mercuric chlorid.

Lymph Glands: The small lymph glands show a lymphoid hyperplasia resembling that of lymphatic leukemia or of some of the cases reported as lymphosarcoma (aleukemic leucoblastoma?). The distinction between cortical and medullary portions is lost, the sinuses are filled with or obliterated by lymphoid cells, and the gland presents an almost uniform lymphoid structure. No germinal centers are found. The capsule in many places is infiltrated, and such infiltration extends also beyond the capsule into the surrounding fat tissue. There are no myeloid changes. Numerous large lymphocytes are present throughout the gland. There are a few eosinophiles. Leucocytes in surrounding vessels are not increased.

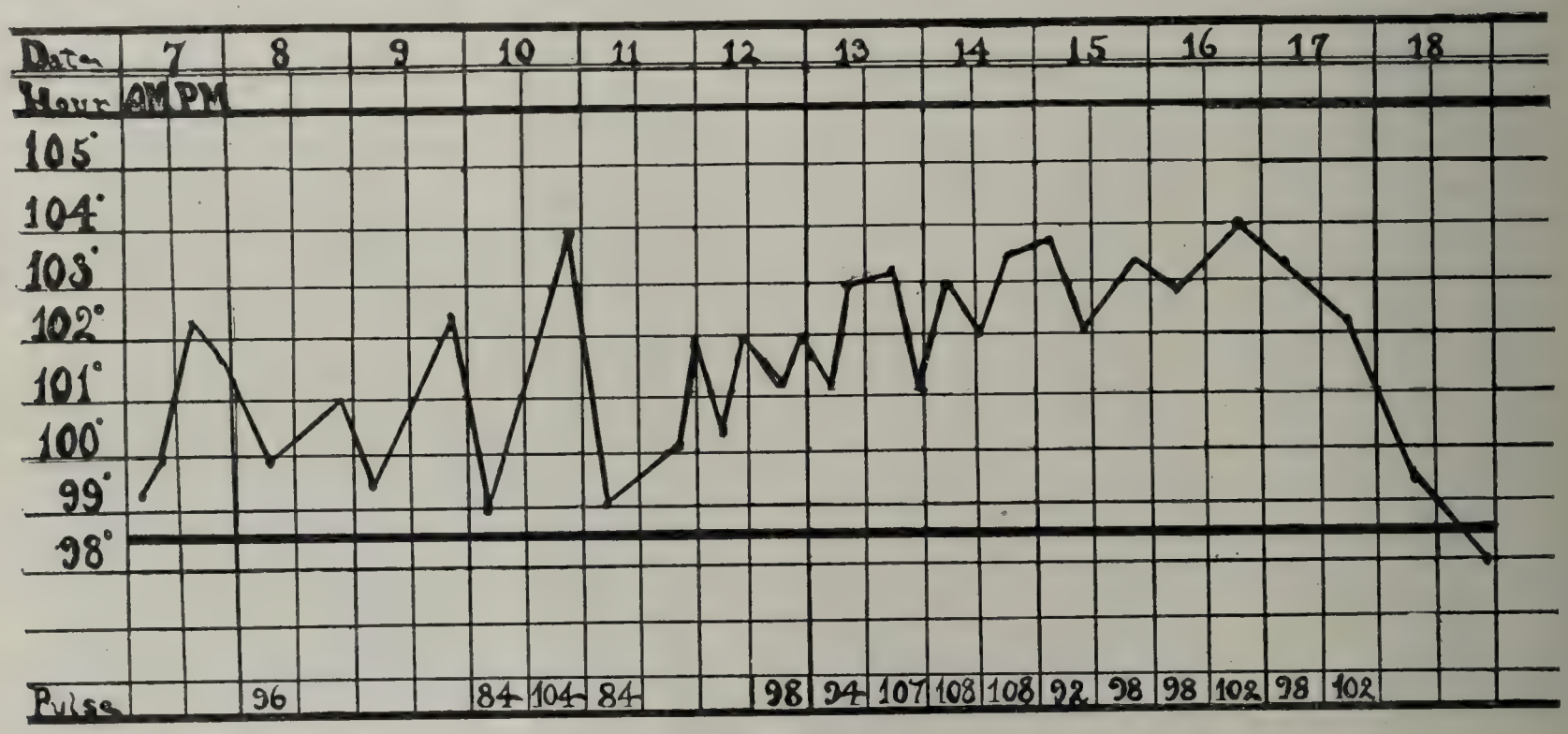


Chart 2.

Summary.—The only pathologic finding suggestive of leukemic disease is the condition of the lymph glands. This resembles the gland picture seen in some cases of lymphosarcoma (aleukemic leucoblastoma?) or that of a lymphatic leukemia minus the increase of mononuclear elements in the blood. The spleen picture is of the same type as that of the splenic fibrosis of splenic anemia. Counts made of the leucocytes in the vessels of all the sections show an unusually high percentage of mononuclears. Because of the fixation, these cells could not be satisfactorily studied. There is, however, nowhere any increase of leucocytes in the vessels suggesting the existence of a leukemia.

The calcification existing in the kidney is remarkable for its extent. It would suggest the occurrence of an intoxication causing degeneration or necrosis of the epithelium of the convoluted tubules followed by deposit of lime salts, such as occurs in poisoning with mercuric chlorid, chromates, etc.

Remarks.—The postmortem findings in this case are very interesting in connection with the experimental work that has been done by H. Heinecke,[3] and also the work now being done by Warthin which he will soon publish. Heinecke found that a brief exposure of mice, rabbits and dogs to the rays induces a distinct destructive process in the lymph follicles. With an exposure too brief to induce changes in the skin, he could cause a distinct destruction of the nuclei of the leucocytes in the follicles of the spleen, leading to their almost complete disappearance. Analogous processes took place in other lymphoid elements. His remarks on the changes in the bone marrow are not clear except that some destruction of lymphoid elements took place. These experiments might suggest a physiologic basis for the use of the *x*-ray in leukemia, so far as the excess of white cells in the circulating blood and the presence of abnormal cell elements are concerned, and they compare most favorably with the results in our case. Undoubtedly the *x*-ray has a selective action, apparently affecting tissue undergoing pathologic hyperactivity and causing degeneration and necrosis of such tissue; however, the damage done is apparently greater than the good.

Dr. Warthin, in summing up the pathologic findings, says: "If any conclusion is warranted from the study of the specimens, it would seem to be that the *x*-ray treatment has resolved the leukemic condition into an aleukemic state, but that the essential disease process, as evidenced by the condition of the lymph glands, is still active. The leucocytes have been removed from the general circulation and from the areas of infiltration, the spleen presenting the characteristics of a chronic fibrosis. The part played by the latter would appear to be secondary. The remarkable condition of the kidneys offers room for some speculation as to the source of a toxin. Such might result from the destruction of enormous numbers of leucocytes."

It is much to be regretted that no specimen of bone marrow was obtained, for, as we believe this disease to be primarily in the bone marrow, we can come to no real conclusion until this part of the subject has been thoroughly studied.

It is to be hoped that the stimulation this form of treatment has given workers may at least lead to some conclusion as to the cause of this most interesting disease.

3. Münchener med. Wochenft., May 3, 1904.

A CASE OF MACROCHEILIA

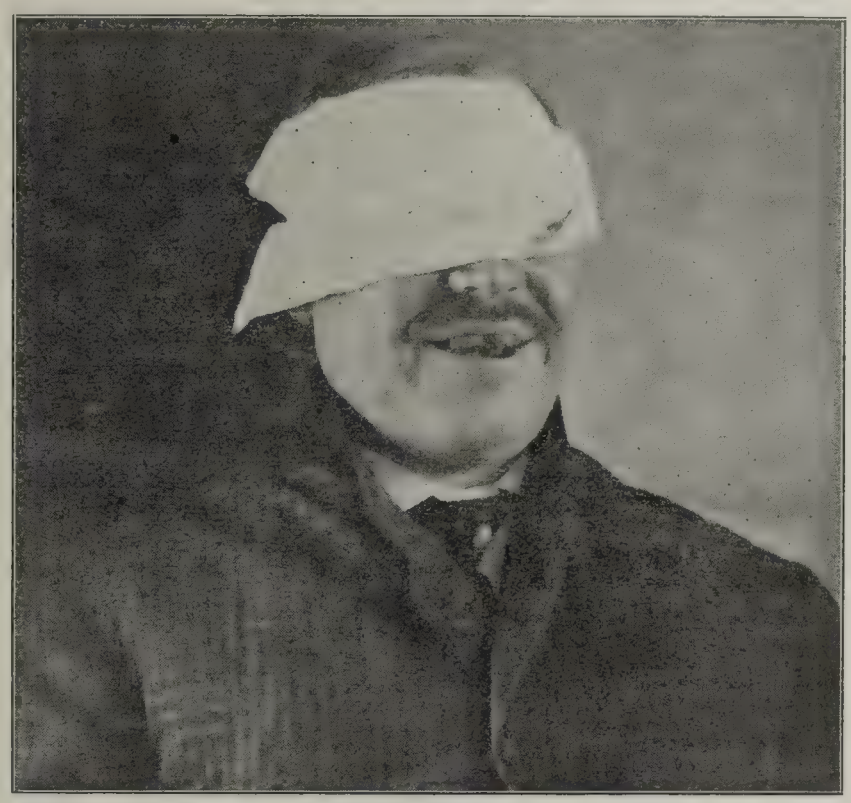
DUE TO ENLARGEMENT OF THE MUCOUS GLANDS OF THE LIP.

IRVIN LINDENBERGER, M.D.

FRENCH LICK, IND.

This condition may be due to one or several causes. With the exception of inflammatory affections, neoplastic growths occupy a prominent position. With inflammatory thickening there exists an enlargement not only of the glands but of the tissues of the whole lip, and affecting one or both lips; there is no increase in the number of glands affected. Congenital dilatation of the lymphatic vessels, which is, more strictly speaking, an overgrowth when occurring in the tongue, produces macroglossia; when occurring in the lip, labium and other subcutaneous parts it is known as macrocheilia. Acquired lymphangiectasis is most commonly observed in the lower extremities and in the external genitals, being due to an obstruction of some nature and characterized by hyperplasia of the skin and subcutaneous tissues, producing the condition known as elephantiasis. Fraenkel[1] states that prior to a case reported by him, macrocheilia due to a neoplasm of the mucous glands of the lips was unknown. This case was more fully reported by Dr. Daniel N. Eisendrath of Chicago,[2] with a case of his own.

From the photograph of the present case, it will be noticed that the enlargement is only of the upper lip. This enlarge



ment was especially noticeable in talking and laughing. On palpation, the lip was found to be soft and smooth, but on pressure there was a slight "shotty" feel in one or two glands on each side of the median furrow. The condition dated from a blow in the mouth, received about fifteen years previously. There has been no appreciable enlargement in the past ten years. His general health has always been good; there is no history of any specific trouble. A wedge-shaped incision disclosed a number of small glands, slightly smaller than buckshot, on each side. They were removed and the mucous membrane was sutured. Healing was prompt and the cosmetic effect was good.

1. Arch. für klinische Chirurgie, vol. xliv, 1892.
2. Annals of Surgery, September, 1904.

Lowering of the Arterial Pressure Reliable Danger Sign in Chloroform Anesthesia.—J. Tissot of Paris has been studying on dogs the relations between the modifications in the arterial pressure and the toxic action of chloroform on the heart. The arterial pressure is a reliable index of the contracting power of the heart. We know that fatal accidents from chloroform are due to the toxic action of the drug on the heart or on the nerve centers controlling its action. He found that the dogs never displayed any threatening symptoms as long as the arterial pressure was above 100 mm. Hg, but respiratory arrest occurred whenever the pressure dropped to 60 mm. Cardiac syncope occurred if it fell near or below 50 mm. Hg. The chloroformization in his experiments was always slow and gradual. Tissot believes that these data will be found to apply also to man, and that by watching the arterial pressure we will be able to detect impending danger long before it is revealed by any other sign. Tissot's communication was presented at the meeting of the Paris Académie des Sciences, February 20, 1905.

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EPIDEMIC CEREBROSPINAL MENINGITIS.

Just as there are numerous forms of arthritis due to different etiologic factors, but one in particular due to a specific micro-organism and characterized by a definite symptomatology, namely, acute rheumatic polyarthritis, so also among the several varieties of meningitis of diverse origin there stands out one different from all the rest and dependent on its own specific bacterial cause, namely, epidemic cerebrospinal meningitis. While no doubt cases of the latter disease had been recognized previously, its epidemic occurrence was first noted at Geneva in 1805. A year later the occurrence of an epidemic at Medfield, Mass., was described independently, and a most complete report on the subject was made to the Massachusetts Medical Society in 1809 by a committee appointed for the purpose. In 1811 a classical study of the disease was published by Elisha North of Goshen, Conn., and an admirable account of its history and its relation to other epidemics was given by Dr. S. G. Weber in the Boylston Prize Essay for 1866. A thoroughly modern and scientific report on the subject was made to the Massachusetts State Board of Health in 1898 by Councilman, Mallory, and Wright, bearing on the epidemic in that state during the winter and spring of 1896-1897.

The following anatomic peculiarities were early noted in cases of epidemic cerebrospinal meningitis as compared with other varieties of meningitis, namely, the character of the exudate, the greater degree of involvement of the spinal membranes, extension of the inflammatory process to the brain and spinal cord and along the nerves, together with a general absence of inflammatory lesions in the intima of the blood vessels. It was not, however, until the dawn of the bacteriologic era that it became possible to establish the absolute identity and distinctiveness of epidemic cerebrospinal meningitis. Leichtenstern, in 1885, found cocci, singly and in groups, arranged like gonococci in leucocytes in the meningeal exudate. Weichselbaum, in 1886, observed a diplococcus resembling the gonococcus, in small numbers, in cases of acute cerebrospinal meningitis, and occurring almost solely within the cells. The organism grew best on agar-agar, but it did not thrive at room temperature. It was not, however, readily demonstrable in sections of the meninges, in which and in cultures it was decolored by Gram's method. It proved pathogenic for lower animals, and was given the name of *Diplococcus intracellularis meningitidis*. These observations were subsequently confirmed by numerous other investigators, while in 1896 Heubner discovered the organism in fluid obtained by lumbar puncture from cases of epidemic cerebrospinal meningitis. Schwabach, in 1891, described diplococci in pus cells from a case of otitis media secondary to meningitis. Kischensky, in 1895, found the same micro-organisms in hemorrhagic foci in the lungs, and Scherer, in the same year, found them in the nasal secretion. The specificity of the disease has thus been established.

Epidemic cerebrospinal meningitis occurs most commonly in late winter and spring, and especially in young adults and children. It has often been observed earliest among troops in a community. The disease does not always occur in epidemic form and the extension is not continuous. Isolated epidemics are the rule and sporadic cases are not uncommon. Like other infectious diseases, epidemic cerebrospinal meningitis is essentially transmissible. The channel of communication has not been demonstrated, but the atmosphere is most probably the medium of conveyance. On account of the concealed and inaccessible localization of the morbid process the danger from this source is probably comparatively slight. Nevertheless, a limited number of cases have been placed on record in which more than one member of a family or household has been attacked by the disease. Osler, in the Cavendish Lecture for 1899, stated that he knew of no case in recent American experience in which a physician or nurse had been attacked or in which cases had developed among other patients in a hospital, but an unfortunate exception to this is afforded in the death at Philadelphia recently of Dr. A. B. Craig, who acquired the disease from attendance on a patient suffering from cerebrospinal meningitis. It has been suggested that an insect may play the part of intermediate host, but evidence in support of such an hypothesis is as yet wanting.

The disease usually sets in suddenly, with severe headache and pains in the neck and the back, to which muscular rigidity is soon added. In children there may be convulsions. At times there is a brief prodromal period attended with general malaise and terminated by a chill. The temperature rises, although the pulse does not increase proportionately in frequency; both are characterized by irregularity. Other symptoms are vomiting, delirium, derangement of consciousness, varying from drowsiness and stupor to coma, paralysis of varying degree and distribution, and various cutaneous eruptions—erythematous, miliary, herpetic, morbilloid, petechial. The course of the disease is rapid in fatal cases, the duration varying from a few hours to several days. In less acute cases recovery may be retarded for a prolonged period. After death the pia-arachnoid of both brain and spinal cord is found early in acute cases to be the seat of hyperemia and purulent infiltration, and later it is found to be covered with a fibrinopurulent exudation, while in chronic cases there is fibrous

thickening, with or without exudation. The tissues of the brain and cord themselves are also involved, and frequently, likewise, the cranial nerves, especially the second, fifth, seventh and eighth, and the roots of the spinal nerves. Pneumonia is a frequent complication. The nose and throat may be the seat of inflammation, and the sense of smell and taste may be lost. Deafness may result from purulent inflammation of the labyrinth of the ear or from involvement of the auditory nerve. The eyes often are suffused and ophthalmia has been observed. The ocular muscles, internal as well as external, may be irritated or paralyzed, so that the pupils may be contracted or dilated, and strabismus and nystagmus be present. The optic papilla may be congested or inflamed, and atrophy and blindness may result. The joints are frequently the seat of inflammation. Leucocytosis is invariably present, the polymorphonuclear leucocytes especially being increased. The number of red blood corpuscles undergoes little change. Mental impairment of varying degree is not a rare sequel.

The diagnosis of epidemic cerebrospinal meningitis is ordinarily easy, but it should always be confirmed by the demonstration of the *Diplococcus intracellularis meningitidis* in the fluid removed by lumbar puncture.

The prognosis is unfavorable, death occurring in from 20 to 70 per cent. of the cases. Even when recovery takes place serious sequels may persist.

Little is to be hoped directly from treatment. There is no specific. The future may develop an antitoxin, but even under the most favorable circumstances this is more likely to have a prophylactic than a curative value. The antitoxin of diphtheria has been employed as a remedial measure, but its use has been unattended with success. Inasmuch as the disease is transmissible, danger from this source should be minimized by isolating the patient and by disinfecting the discharges, especially from the nose, the ear and the lungs. He should be placed under the most favorable hygienic surroundings, in a large, well-ventilated quiet apartment. The intestinal tract should be cleansed by a purgative dose of calomel, followed by a saline, and the functions of the emunctories generally should be sustained. The diet should be simple, digestible and nutritious. A robust patient should be bled from a vein. Leeches applied behind the ear may relieve the headache and may exert a beneficial influence on the inflammatory process in the skull. A similarly good effect may be brought about by the application to the head and spine of cold in the form of ice in bags, or of water passed in a continuous stream through tubes. Restlessness should be allayed by narcotics, of which the best is morphin, preferably administered hypodermically. If there be a tendency to stupor, stimulants, such as camphor, musk, valerian, ether, wine, champagne or coffee, will be indicated. Lumbar puncture has been proposed and has been employed as a therapeutic procedure. While it has afforded a certain measure of symptomatic relief in some cases, permanently effective results have not yet been obtained from this measure. The same statement is applicable to trephining the skull and the spinal column, with irrigation and drainage.

From the foregoing considerations it will accordingly be seen that here, as elsewhere, the most effective as well as the most feasible treatment consists in a rational application of the essential principles of modern prophylaxis, namely, separation of the sick from the well, and disinfection of all infected matters.

THE NATIONAL INVESTIGATION OF LEPROSY.

A bill recently passed by Congress provides that when the Territory of Hawaii shall have ceded to the United States in perpetuity a tract of land one mile square within the leper settlement on the Island of Molokai, a hospital station and laboratory of the U. S. Public Health and Marine-Hospital Service shall be established thereon for the study of the methods of transmission, cause and treatment of leprosy. It further authorizes the Secretary of the Treasury to cause the erection on the site selected of suitable and necessary buildings, and that the surgeon general of the Public Health and Marine-Hospital Service, through his accredited agent, may receive patients afflicted with leprosy and committed to his care under the legal authorization of the Territory of Hawaii. These patients are not to exceed forty in number to be under treatment at any one time, and they shall remain under the jurisdiction of the surgeon general until returned to the proper health authorities of Hawaii.

The surgeon general, with the approval of the Secretary of the Treasury, is authorized also to detail, or to appoint, for the purposes of these investigations, any medical officers, acting assistant surgeons and others who may be necessary for the purpose. The sum of $100,000 is appropriated for the erection of the buildings, and $50,000 for the maintenance and pay of officers and employes for the fiscal year ending June 30, 1906.

The treatment of the disease in the past, with few exceptions, has been rudimentary, empirical and lacking in concerted effort to establish a cure. There can be no doubt that leprosy is spreading, and that more systematic work should be done to prevent the further increase of the disease as well as to care for the sufferers.

In spite of the discovery of the cause of leprosy, the *Bacillus lepræ* by Hansen and its investigation by others, there is but little more known of the methods of transmission and rational treatment of the disease than was known in Mosaic times. The act above referred to is in no sense an act to relieve the health authorities of the Territory of Hawaii of the care of the lepers of that country. It simply contemplates that the rich store of material offered by the thousand or

more lepers confined within the limits of the leper colony on the Island of Molokai should be made use of with a view to determine the methods of transmission, the cause of the spread and the treatment of leprosy. There can be little doubt that the treatment of leprosy affords a field of work full at once of promise and of arduous effort. Lepers are cured from time to time; indeed, the reports of United States consular officers in China would seem to indicate that a line of treatment instituted in that country by Raszlag promises to be of great value.

It has been reported that a line of treatment, which is successful in its results, has recently been put in operation by Dr. Isadore Dyer, and it has been announced that Dr. Rost[1] of the Indian Medical Service has succeeded by special technic in cultivating the *Bacillus lepræ*, and in preparing from his cultures a material which he designates "leprolin," and which he claims is applicable to the treatment of the disease. Treatment, however, is of comparatively little avail unless at the same time we can arrive at definite and scientific information as to the methods of the transmission of the disease, looking to its prophylaxis as well as to its cure. How the causative organism gains entrance to the economy we do not know. Why it is that the infection of the disease is not much more widely spread among the Caucasian races than it is, we can not decide. What line affords the greatest promise of success, we can not tell. All of these questions, it is hoped, will be solved by the investigations about to be made in Hawaii.

The condition of the leper of Hawaii, even under the enlightened management of the leper station at Molokai, is deplorable in the extreme. The search for lepers in the islands is active and unceasing. When a case of leprosy is discovered the person is brought before a board of leprosy experts, and it being decided that the disease is leprosy, the unfortunate is sent to the Island of Molokai, there to remain for the remainder of his natural life, virtually a prisoner, and not because a crime against society has been committed, but because he has been stricken with a disease recognized as communicable and apparently incurable.

It is sincerely to be hoped that succeeding congresses will make the necessary small appropriations for the maintenance of the experimental station, and that the far-reaching results will inspire those having the matter in charge with a degree of enthusiasm which will be the best guarantee of success. Though there are not wanting instances of the establishment of settlements and leprosaria for the segregation and care of lepers, it seems to be left for the Government of the United States to have instituted systematic, well-directed efforts looking to the cure of the disease. The undertaking is worthy of every success, and it would seem that for the first time in the history of the world there is hope for the leper.

1. Indian Med. Gaz., June, 1904, abstracted in THE JOURNAL, July 23, 1904, p. 286.

EXPERIMENTAL MEASLES.

As early as 1758, Francis Home of Edinburgh attempted the inoculation of measles. His method consisted in saturating cotton with the blood taken from the skin of a patient suffering from the disease and applying it to an abrasion in the individual to be inoculated. He reported 15 cases of inoculation, but an analysis of these cases in the light of our present knowledge makes it seem certain that he was not successful in reproducing the disease in any instance.

Since Home's work, many physicians have tried to produce measles experimentally, and among them Wachsel, Speranza, Katona, McGirr and Bufalini asserted that they were successful. Some used blood, others tears, and others nasal mucus as a source of the virus. A critical study of their methods and results show them to be of but little value, for, in the first place, the possibility of natural infection was scarcely ever excluded, and, in the second place, the evidence that the eruptive diseases which followed the inoculation were in reality measles is not at all convincing. The only experiments in the literature reported as successful which can lay any claim to credence are those of Mayer of Vienna, made during the epidemics of measles in 1845-51. His results have not been reported in great detail, but they impress us as being reliable. He states that he "vaccinated" successfully six times by using as his inoculation material scrapings from the center of a rubeolous spot. These scrapings must have included blood, epithelial débris and tissue juices, and the experiments, though undoubtedly successful as far as the production of the disease in at least two cases is concerned, do not permit any decision as to the exact localization of the virus in the infected individual, i. e., to say whether it exists in the blood alone, the skin alone, or in the tissue-juices.

The conditions of successful experimentation with measles are difficult to realize. The possibility of natural infection must be excluded. Candidates susceptible to the disease must be found and their consent to inoculation must be obtained. They must be kept isolated. The virus must be derived from a reliable source. There must be nothing equivocal about the experimenter, or in any way connected with the conditions of the experiment. The proper investigation and ideal conditions appear to have been met recently. Hektoen,[1] at the Memorial Institute for Infectious Diseases in Chicago, has brought the indisputable proof not only first of the inoculability of measles by subcutaneous injection, but, second, of the existence of the virus in the blood of patients during the early eruption; and, third, of the retention of virulence by blood introduced into ascites-broth and kept at a temperature of 37° C. for twenty-four hours. He has demonstrated that, though the exact nature of the infective agent is as yet un-

1. Hektoen, L.: Experimental Measles, *Jour. Infectious Dis.*, Chicago, 1905, vol. II, pp. 238-255. Abstracted in THE JOURNAL, March 18, p. 909.

known, it is possible to obtain the virus of measles in a relatively pure state, at least unmixed with other microbes; this gives opportunity for the fruitful application to the infective agent of a whole series of methods of investigation hitherto not feasible.

For the details of Hektoen's experiments and an account of the careful controls made, the original article should be consulted.

TRUTH AND POETRY CONCERNING URIC ACID.

XI.

Up to the present our review has dealt chiefly with the researches bearing on the normal physiologic relations of uric acid, and we have, we believe, presented to our readers, though in very brief form, all of the important facts which may be considered as established in connection therewith. We desire now to turn to a consideration of the studies made on uric acid in disease, in other words, to the pathologic physiology of the substance. Though the discussion of this side of our topic will doubtless be even more interesting to our readers than that of the normal physiology, it is necessary to confess in the beginning that only a small number of definite facts on the pathologic side have thus far been accumulated, and that our knowledge of the significance of uric acid in pathologic processes is extremely fragmentary. In the researches on the pathology of uric acid we find investigators indulging in assumptions and theories, as a rule, rather than reporting facts—the articles on the topic teem with "poetry," and are singularly deficient in content of recognizable "truth."

Of the various conditions in which deviations from the normal uric-acid relations have been observed, two stand out prominently from the rest, inasmuch as in them it has become matter of common belief that the clinical manifestations are directly due to these deviations; we refer to gout and to the so-called uric-acid diathesis. In diseases like pneumonia and leukemia, in which, as we have seen, uric-acid formation and excretion may be increased, no one attributes the cause of the diseases or the symptoms of the patients to the altered uric-acid metabolism; it is assumed that the change in the uric-acid relations is, in them, a secondary phenomenon, a modification resulting from the primary pathologic process. Even in the uric-acid diathesis there is a good deal of evidence to indicate that we are concerned merely with altered conditions of solubility of uric acid and urates rather than with real disturbances in uric-acid formation and destruction; so that it is practically in gout alone that disturbances of actual uric-acid metabolism are held primarily responsible for abnormal clinical manifestations.

In gout, as everybody knows, two characteristic clinical phenomena are met with—the so-called gouty attacks of inflammation and the gouty deposits or tophi. The attacks of gouty inflammation are especially prone to affect the small, distal joints of the extremities, the metacarpophalangeal joint of the great toe being most frequently involved. The arthritis of gout is distinguished further from the other arthritides (1) by its frequent relation to excessive eating or drinking, (2) by its tendency to come on suddenly in the night, and (3) by the marked participation in the inflammatory process of the soft parts surrounding the joint. The gouty deposits or tophi, on the other hand, occur usually without any accompanying acute inflammatory reaction in their neighborhood. No matter, then, to what theory of gout we incline, we must see to it that our theory accounts for the origin of the acute gouty attacks of inflammation, that it explains how the tophi arise, and that it gives us some clue to the sites of predilection, both of the inflammations and of the gouty deposits.

Even before the end of the eighteenth century, shortly after the discovery of uric acid itself, Wollaston demonstrated the uratic nature of gouty deposits, and gave expression to the view that uric acid, in some way or another, stands in definite relation to the pathologic physiology of gout. Though Wollaston's idea received support from Forbes and later from Cruveilhier, it was strongly opposed by Scudamore, an authority whose opinion had great weight with his contemporaries. Accordingly, we find in the early part of the nineteenth century a whole series of hypotheses developed to explain the essential nature of gout, independently of the relation of uric acid to it. Some attributed the disease to alterations in the vascular system, others to intestinal disturbances, still others regarded it as of neural origin, and finally, there were those who believed it to be due to a toxemia, to the existence of some *materia morbi* circulating in the blood.

Scudamore himself asserted that gout is due to weakness of the blood vessels in the portal system, and that as a result there is abnormal secretion of the bile, and, indeed, a general disturbance of secretion throughout the intestinal canal. Gairdner held that the gouty pains are due to the rupture or extreme dilatation of capillaries around the fine nerve fibers as a result of venous congestion. Parry maintained that the essential pathology of gout consists in an uneven distribution of the blood, and that the gouty paroxysm is to be viewed simply as an effort to restore the normal equilibrium. Of those who favored an intestinal origin, Sutton and Todd, both English physicians, may be mentioned. Todd's idea was that in gout, through some pathologic activity of the duodenum, there is increased formation of lactic acid, and further, that, owing to hepatic disturbances, biliary constituents are retained in the blood. Cullen was the especial champion of the theory of a nervous origin of gout; the affection of the nervous system leads, he thought, to a depression of tonus. That gout is due to some sort of toxemia was the view advanced by Henry Holland, though he did not speculate as to the exact nature of the noxa concerned.

Note how gratuitous were most of the assumptions

in these older theories of gout! For the most part, they were mere creations of the imagination, unsubstantial fumes of fancy, effects of the indulgence of revery. Such stretches of the imagination, uncontrolled by actual observation and scientific experiment, have never brought us far in medicine, and never can bring us far. Instead, nature must be interrogated and she must be compelled to answer the questions herself. If we are to get accurate ideas regarding what goes on inside a gouty patient, we must draw the information in some way out of the patient himself, and take it into our minds through the medium of our organs of sense; we may not hope to attain to any significant truth in the matter simply by the use of our so-called "mind's eye." To some of the objective studies of gout in contrast with these subjective inventions it is our intention to advert in the next installment of this review.

MORBID ALTERATIONS IN BONE MARROW.

A satisfactory explanation is yet wanting for the difference in the changes that take place in the number of leucocytes in cases of typhoid fever on the one hand and of other infectious diseases, notably pneumonia, on the other hand. In the former, when uncomplicated, the number, as is well known, is invariably diminished, while in the latter it is generally increased. It has been demonstrated that a close relationship exists between certain cells of the hemopoietic organs and the cells of the circulating blood. Various alterations in the bone marrow that appear to be absent in cases of other infectious diseases have been observed in cases of typhoid fever, and in this fact may reside, in part at least, the explanation for the phenomena under consideration.

These interesting observations have been confirmed by the results of a comparative study recently made by Dr. Warfield T. Longcope.[1] Examination of the material from 26 cases of typhoid fever disclosed the existence of certain definite and histologic lesions closely resembling the changes in the mesenteric lymph nodes, in the lymphatic follicles of the intestine and in the spleen. These alterations consisted in the presence of many lymphoid cells, large phagocytes and foci of necrosis, with more or less hyperplasia of the blood-forming cells. In the marrow from many cases in which death was due to perforation and general peritonitis there were in addition diffuse degenerative changes in the blood-forming cells, together with marked edema and congestion of the tissues. Differential counts of the bone-marrow cells from 10 cases disclosed a marked relative increase in the lymphoid cells over the granular myelocytes. The bone marrow from 15 cases of acute lobar pneumonia, 4 cases of peritonitis, 1 of acute cerebrospinal meningitis, 1 of retroperitoneal abscess and 1 of puerperal septicemia exhibited similar alterations, though differing in many important particulars from those observed in the cases of typhoid fever. There was more or less extensive hyperplasia of the blood-forming cells, with a marked relative increase in the granular myelocytes over the lymphoid cells. In the cases of peritonitis due to other causes than typhoid perforation, diffuse degenerative changes were absent. In none of the cases of this group were foci of necrosis found. Large phagocytic cells were exceedingly rare or entirely absent. The bone marrow from 4 cases of nephritis and from 1 of carcinoma of the gall bladder exhibited no distinctive pathologic alterations, and seemed to resemble closely the marrow from two normal individuals.

From the evidence which is thus afforded it seems not impossible that the lesions in the bone marrow in cases of typhoid fever are in some way related to, and perhaps responsible for, the hypoleucocytosis characteristic of the disease. It also seems probable that the lesions in the bone marrow in cases of acute lobar pneumonia, peritonitis and other infectious diseases bear a close relation to the hyperleucocytosis so commonly observed in these conditions. May it not be that the character of the cells which are proliferated plays a more important part than has generally been assigned to it? It seems reasonable to suppose that if the proliferated type of cell is one which normally emigrates into the circulation, leucocytosis should occur, while if the proliferated cell is an undifferentiated one, such as would normally remain in the bone marrow, leucocytosis should not occur. The question is one which is difficult of solution, inasmuch as we can not hope by histologic means alone to separate the rôle played by chemotaxis from that played by cell differentiation. This can only be done by experimental means, and as yet it is difficult to see how the problem can be attacked experimentally. Whatever the ultimate explanation of the phenomena may be, they themselves are apparent, and serve to explain certain clinico-pathologic facts in these two classes of infection.

1. Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, No. 2, January, 1905.

IN LINE OF DUTY.

Among the deaths reported in this issue of THE JOURNAL are those of Dr. Albert B. Craig of Philadelphia and Dr. James A. Moore of New Haven, both of whom died from cerebrospinal meningitis, the disease in each case having been contracted from patients. These men died in line of duty, as do soldiers who fall in battle or who die from disease contracted in service. The soldier does not consider it heroic to do his duty, nor does the physician who succumbs while fighting disease as a part of his professional duty. The physician who shows himself a coward in the presence of the danger of infection or contagion is deserving of nothing but contempt and obloquy. The deaths of men like these bid us pause and reflect on the heritage of honor and of sacred trust that is ours as physicians.

A HINT TO THE DOUBTERS.

If we are not mistaken, the majority of medical journals, the majority of physicians, the majority of pharmacists, the majority of pharmaceutic journals, in fact the majority of all who have thought about the subject, have said that the enormous use of secret nostrums by the medical profession of our country is a most serious evil. Destructive criticisms have been made, and there has been any amount of fault-finding in regard to conditions; in fact, many excellent men have said that things could not be worse than they are at present. The movement now started to try to get rid of part of the evil and, if possible, to solve some of the problems connected with it, may be a failure, as some of our contemporaries have kindly intimated—and it may be a success. If the latter, of course everyone will appreciate that good has resulted, i. e., everyone but the nostrum manufacturer. On the other hand, if it all ends in a failure, we will be no worse off than we were before, and we will be richer by experience. Consequently, we do hope that those who are fearing this failure will not lie awake at nights worrying about it.

MEDICAL MUSEUMS IN MEDICAL TEACHING.

In the article by Dr. Abbott in this issue of THE JOURNAL,[1] it is stated that, while the laboratory methods of medical teaching are utilized in this country as much as, or more than, in any other, it is here that the remarkable fitness of the medical museum for teaching purposes is perhaps least understood. We are not affirming nor disputing this statement, the conditional "perhaps" is an essential saving clause to any such utterance in regard to the United States. We may have institutions in which the admirable system of McGill is equaled if not excelled. This, however, does not in any way lessen the advisability of calling more general attention to this method of imparting instruction. Object-teaching, in all recent times, has been recognized as one of the most important branches of any complete system of education, and, in certain ways, it is as valuable in advanced professional studies as it is in the more elementary subjects. The case method in law studies, and the hospital year which should properly finish off every medical student's education, are the fullest adaptations of this method in modern professional instruction. It is not every medical student, however, who can avail himself of the advantages of hospital practice, and, even could he do so, the plan of utilizing the medical museum, as described by Dr. Abbott, could do him nothing but good. Properly carried out, this method of instruction can not fail to strengthen the student's powers of observation and to render easier of solution many of the problems likely to be met in his future practical work. A well-arranged and complete medical museum should be an adjunct to the training given in every medical school, and its systematic utilization according to a well-devised plan should be made an essential part of the instruction of the more advanced classes. This method of teaching holds great possibilities for the betterment of the instruction in medical colleges.

1. See page 935.

THE VALUE AND LIMITATIONS OF THE X-RAY TREATMENT OF MALIGNANT GROWTHS OF EPITHELIAL ORIGIN.

The correct estimation of the value of a given therapeutic agent in a given disease is often a difficult matter, on account of the many factors which must be taken into consideration in forming a judgment. In the treatment of new growths of a malignant character, the primary question to be considered is whether the suggested agent will completely destroy the focus of disease; then, if this question be answered in the affirmative, whether or not the destruction is as rapid and as free from risk as agencies already existing. In certain types of malignant neoplasm, early removal and freedom from risk may be accepted almost as synonymous terms, for the only risk of vital importance is the occurrence of metastases, and the danger of these secondary growths is often in direct ratio to the time which elapses between the discovery of the growth and its removal. In other forms of malignant growth, and particularly in certain superficial slow-growing epitheliomata, risk of metastasis is almost nil, and the question of risk hardly enters into consideration. At times the whole question is complicated by the ineradicable antipathy to cold steel which some patients possess. The treatment of malignant epithelial neoplasms by the *x*-rays, which at present enjoys considerable favor in certain quarters, must be submitted to criticism along the lines above mentioned if its true value is to be determined. Numerous papers bearing on this subject have been published in the past few years, and the recent reports of Williams[1] and of Vose and Howe[2] give a good idea of what is to be expected from a clinical standpoint, and also of the changes which occur in new growths as a result of *x*-ray treatment. From the clinical experience it seems quite certain that the treatment is not to be relied on in all cases. The cases in which it is to be used must be selected with care, and, as a rule, only long-standing cases which have shown no tendency to metastases, or more acute cases in which the lesion is palpably superficial, should be subjected to the treatment. In other words, the type of growth which is especially suited to this form of treatment is the slow-growing superficial form of epithelioma commonly described as rodent ulcer. Further than this, the fact must be emphasized that the *x*-ray treatment of deeply-extending epitheliomata or carcinomata is not merely valueless but actually dangerous. It has been shown conclusively that in many such cases, even though the superficial parts of the growth may be destroyed, the more distant portions are often actually stimulated to increased proliferation. It can not, of course, be denied that there are cases recorded in medical literature in which relatively deep-seated growths have been favorably influenced by *x*-ray treatment, but these cases form a very small minority and are merely the exception which proves the rule. The statement of some writers that the surrounding healthy tissue is spared is not confirmed by the observations of Vose and Howe, which show that if the rays be used

1. American Journal of the Medical Sciences, vol. cxxix, No. 3.
2. Journal of Medical Research, vol. xiii, No. 2. Abstracted in THE JOURNAL, p. 981.

strongly enough to cause more than superficial destruction of a growth they will also produce burns of the surrounding tissue. The deductions to be drawn from these facts are not very encouraging.

Medical News.

ILLINOIS.

City Gives to Hospitals.—The city council of Joliet has appropriated $1,000 each to St. Joseph's and Silver Cross hospitals.

Novel Way to Help Hospital.—J. W. Boice advertises that half of the proceeds of the auction sale of his farm implements and effects will be donated to the Rockford City Hospital. The sale was announced for March 21.

In Favor of Defendant.—In the case of George Barnes who claimed that he had been permanently injured by treatment at the hands of Dr. William M. Roberts, Norris, and wanted damages, the jury found for the defendant.

Silver Jubilee of Hospital.—On March 22, St. Joseph's Hospital, Bloomington, celebrated the completion of its first quarter century of work. Since its foundation the hospital has cared for 5,017 patients, 1,672 of which were charity cases.

Personal.—Dr. Henry Hatch, Quincy, has been forced by ill health to give up his practice for a time, and has gone away for rest and change.——Dr. John N. Shaff, Alton, physician of Madison County, is seriously ill from septicemia due to an operation wound.——Dr. Bird M. Lurnell sails for Europe Monday.

Chicago.

Cocain Conviction.—Dr. Adolph C. Brendecke was again fined $100 and costs for selling cocain without a prescription.

Bequests to Hospitals.—By the will of the late John Murphy, $2,000 each was bequeathed to St. Luke's, Mercy, Alexian Brothers and Presbyterian Hospitals.

Davis Memorial Tablet.—The senior class of the Northwestern University Medical School has erected a marble memorial tablet for the late Dr. N. S. Davis, in Davis Hall. It bears the inscription: "Good and Great, He Maketh the Earth Wholesome."

Deaths of the Week.—During the week ended March 18, 557 deaths were reported—equivalent to an annual mortality of 14.57 per 1,000. Pneumonia still led, with 103 deaths. Other principal death causes were: Consumption, 63; heart disease, 42; violence, 40; nephritis, 34; bronchitis, 31, and cancer, 22. Measles caused 8 deaths; scarlet fever, 2; smallpox, 3; diphtheria and whooping cough each, 11, and typhoid fever, 4.

In Spite of Repeated Warning.—Eighteen cases of smallpox were removed to the Isolation Hospital during the week. Of this number 11 never had been vaccinated; 7 had old scars, said to be from vaccinations made in childhood; not one had ever been revaccinated. The ages of those with old scars were 32, 33, 34, 42, 43, 46 and 47 years, respectively. Among the victims were 4 unvaccinated children under the school age and 1 child in school with a false certificate of vaccination, signed by a doctor.

MARYLAND.

Personal.—Dr. Joshua W. Hering, Westminster, has been appointed a member of the board of visitors of the Maryland Home for Feeble Minded.

New Hospital at Cumberland.—A private hospital has been incorporated at Cumberland, with a capital stock of $25,000, known as the Allegany Hospital, and has purchased an old mansion, which will be remodeled. Among the incorporators are Drs. Robert Y. Fechtig, Edward F. White, W. M. Hodges, Charles Brace, William B. Foard, Edwin B. Claybrook, Henry S. Wailes, George L. Broadrup, and Arthur H. Hawkins.

Baltimore.

Phthisis and Pneumonia.—The health report last week showed 38 deaths from pneumonia and only 16 from consumption.

Abortionist Sentenced.—Dr. Robert X. Giering, who was arrested about two weeks ago on the charge of performing a criminal operation, pleaded guilty when arraigned in the Criminal Court, March 18. On the request of the state's attorney, who said that there were extenuating circumstances, he was released on payment of a fine of $1,000.

Quarter Club Revived.—The Quarter Club, incorporated in 1902, for the purpose of collecting a fund for a state sanitarium for consumptives, and which was suspended by the great fire, has been revived. A series of lectures will be delivered and a book sale held next fall to raise funds. About 500 books containing authors' names will be sold by auction.

Ancient History of Typhoid.—At the last meeting of the Johns Hopkins Historical Club Dr. William H. Welch pointed out a passage in the writings of Thomas Willis, giving a very good résumé of the symptoms of typhoid fever and showing that he must have recognized that disease as a distinct entity. He described the intestinal ulcers as resembling smallpox pustular ulcerations.

To Help Visitors.—A bureau of information in charge of a committee of the medical staff has been opened at Johns Hopkins University Hospital to look after physicians visiting Baltimore and to extend to them invitations to the daily operative and clinical work of the various departments. A cordial welcome is extended to all such persons, and everything will be done to make their stay in the city agreeable and profitable.

"Christ's Institution" Again.—A graduate from the "Medico-Chirurgical and Theological College of Christ's Institution," a nondescript but chartered corporation of this city, run by negroes, has applied for a mandamus to compel the board of examiners of the Medical and Chirurgical Faculty of Maryland to issue him a license to practice in this state. The case is set for hearing April 1. This is the institution in whose application for a charter the name of one of the faculty appeared by a crossmark. Shortly after it started each member of the faculty had attached to his name in the catalogue from three to five degrees, A.B., A.M., B.D., D.D., M.D., etc., including the individual who had had to make his mark.

MASSACHUSETTS.

Milk Dealers Fined.—Ten milk dealers have been fined in the Municipal Court on complaint of the Boston Board of Health.

Want Place for Lepers.—The State Board of Charities is endeavoring to find a place for its leper colony and is now considering the islands of Boston Harbor. Hangman's Island, near Quincy, was proposed, but that city urgently objected. Now Apple Island and Governor's Island or a part of Gallops Island are proposed. On the latter are located the quarantine station's hospitals.

Personal.—After a service of twenty-eight years Dr. Frank W. Draper has resigned as medical examiner of Suffolk County, to take effect June 30.——Dr. George L. West, Newton Center, has been appointed medical examiner of the Seventh Middlesex District in place of Dr. Julian A. Mead of Watertown.——Dr. George H. Francis has been elected a member of the water board of Brookline.

Grenfell's Mission to Labrador Fishermen.—Dr. W. T. Grenfell of the Labrador Deep Sea Mission has been speaking for two or three weeks in or near Boston, endeavoring to secure funds for his hospitals and medical work among the fishermen of the Labrador coast. One outcome of the interest he has aroused will be the company of an expert aurist on his next trip north, all of whose expenses will be met by a leading specialist.

Tuberculosis Hospital Agitation.—A strong effort is being made to induce the legislature to permit the city of Boston to borrow outside of the debt limit, $150,000, to be expended for the purpose of establishing a municipal hospital for tuberculosis. The strongest opposition to this plan seems to center about the hope that the Brigham Hospital, with its $5,000,000 or $6,000,000 endowment may be devoted, largely at least, to this purpose.

Sewerage Expenditures.—The Metropolitan Water and Sewerage Board expended last year on account of waterworks $2,174,498, and for the sewerage department $829,941. Of this last about $250,000 was for maintenance and the rest forms a part of the grand total of $13,666,832, the cost of the sewerage systems. The Charles River will, they think, soon reach its limit of capacity, that is, for 183,000 population. Wachusett reservoir will be ready for use within a year.

Osteopathy Bill Defeated.—The bill to regulate osteopathy, which would have allowed 90 osteopaths now practicing in the state to be registered without examination was defeated in the house. Dr. Frank G. Wheatley, North Abington, who is this year for the second time in the legislature, and who is

professor of materia medica and therapeutics at Tufts Medical School, argued most forcibly against the proposed bill.

Alleged Unauthorized Autopsy.—Judgment of $1,000 damages against Dr. Herbert B. Howard, superintendent of the Massachusetts General Hospital, and Dr. Elisha Flagg, formerly connected with that hospital, has been granted in a suit brought on a claim of an autopsy on a boy six years old without the permission of the parents. It is the second suit, the first ending in an award of $50 damages and consequent appeal. The physicians claimed that the undertaker gave permission.

NEW HAMPSHIRE.

New Hospital for Berlin.—The Sisters' Hospital at Berlin is now almost ready to receive patients. It will be dedicated about Easter.

Bequest.—By the will of John J. Pickering, Portsmouth, $45,000 is bequeathed for the erection of a new building for the Cottage Hospital of that city, to be called the Pickering Annex. An additional $5,000 is devised to the hospital.

Kerosene Dangerous Fire Lighter.—Dr. Henry Dodge, Webster, was severely burned while endeavoring to start a fire with kerosene. An explosion followed and the blazing oil set fire to his clothing, but his wife, by intelligent presence of mind, extinguished the blaze.

Legislative Enactments.—The state legislature just adjourned appropriated $50,000 for the purchase of a site for a state sanitarium for consumptives, and for the erection of the building.——A bill regulating the sale of patent and proprietary medicines which contain alcohol or certain specified dangerous drugs was defeated.

NEW JERSEY.

Petty Thieving at Camden.—Camden physicians have recently been victims of a petty thief. Dr. Frederick W. Marcy has lost a carriage clock, and Dr. Ernest S. Ramsdell an overcoat.

Protests Filed.—Strong protests have been filed with the legislature against the enactment of a law establishing a state board of examiners for osteopaths, by the physicians throughout the state.

Personal.—Dr. Edwin Tomlinson is seriously ill at his home in Gloucester City, N. J.——Dr. Frank W. Lockwood, East Orange, has been elected secretary of the local board of health.——Drs. Willis C. Noble, William H. Areson, James T. Hanan and Stella S. Bradford have been appointed medical inspectors for the Montclair schools.——Dr. Charles A. Limeburner, visiting physician at the City Hospital, Jersey City, has resigned.

NEW YORK.

Site for New State Hospital.—The assembly practically endorsed the selection of the Baker farm in Washington County as the site for the proposed new hospital.

Personal.—Dr. Julius Ullman has been appointed special examiner for patients suffering from tuberculosis who desire admission to the State Hospital for Incipient Tuberculosis at Ray Brook.

Officers Elected.—Erie County Medical Association has elected officers as follows: President, Dr. Arthur Bennett; vice-president, Dr. Grover Wendt; secretary, Dr. David E. Wheeler, and treasurer, Dr. Adolph H. Urban.

Elsberg Bill Advanced.—This bill, abolishing the office of coroner in New York City, was advanced to a third reading in the senate, but was recommitted for a hearing before the state cities committee. It is understood that an endeavor will be made to effect a compromise by which Brooklyn will be enabled to keep her coroners.

Oppose Osteopathy Bill.—Dr. E. Eliot Harris, chairman of the committee on legislation of the New York State Medical Association, had sent a personal letter to the members of the profession enclosing a circular giving the reasons why the bill entitled "An Act Regulating the Practice of Osteopathy in the State of New York," should be defeated. He requested to this end that each physician should write a personal letter in opposition to the bill to the senator and to the assemblyman representing his district in the legislature.

New Water Supply Bill.—A new Apgar bill is now before the legislature which seeks to send New York City to Lake Erie or to Lake Ontario for its water, and incidentally, through the state commission created by the bill, to supply the various communities lying along the line of the proposed metropolitan aqueduct. The advocates of this bill hold that if the cities and villages of this state were supplied from the Great Lakes it would result in a tremendous decrease in the death rate, as even the best local supplies are liable to become contaminated.

Against Pure Drug Bill.—The pharmacists who appeared before the senate committee of public health opposed the Grady pure drug bill on the ground that the effect of the whole measure was to protect foreign patented articles, which sold here at prices several hundred per cent. higher than they brought at home. This bill is modeled almost word for word after the Heyburn bill recently before congress. It is urged that, as it provides that no article shall be labeled with the name of a foreign product when not of foreign origin, it would prevent our druggists from selling many well-known medical drugs under the names by which the public know them.

January Disease and Death.—The monthly bulletin of the State Department of Health for January shows 11,875 deaths, corresponding to an annual death rate of 18.5 per 1,000. Of these 2,200 were reported for the rural towns not separately specified in the bulletin, which is a decrease of 200 from that of last January, but is the same as that for December last. There is a decrease in diphtheria, an increase in pertussis and a material increase in consumption and pneumonia. The five large cities show an increase over the December mortality, about the same relatively as the rural towns. For the state there are 400 more deaths than in December, and there is the same increase above the average mortality of the month. Pneumonia leads the important causes of death, with 1,800 deaths, which is more than occurred in January last; consumption caused 1,166, or about the same as in two months under comparison, and nephritis 780. Cerebrospinal meningitis caused 150 deaths, most cases occurring in New York City, where it is epidemic. Typhoid fever caused 100 deaths, which is 50 less than the average for several years in January. Measles and scarlet fever have a moderate mortality, and are not prevalent to any material extent in the state, with exception of Buffalo, where measles has been epidemic. Pertussis caused 45 deaths; diphtheria 260, which is a decrease from the average, and there were 175 deaths from influenza reported from outside New York City and Buffalo. There has been no mortality from smallpox.

New York City.

Skim Milk Tabooed.—No skim milk can be sold in this city by permission of the Health Department, and the greatest caution will be exercised to see that none is used for purposes of adulteration.

Aid for Bellevue.—The board of estimate has granted $850,000 for the extension of the hospital building and for its equipment. Special attention will be given to consumptive patients in the new building, where there is but slight accommodation. It will take about ten years to complete the extensions planned, which will provide for 2,800 patients.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending March 11, 480 cases of tuberculosis, with 183 deaths; 296 cases of diphtheria, with 26 deaths; 349 cases of measles, with 10 deaths; 270 cases of scarlet fever, with 19 deaths; 30 cases of typhoid fever, with 9 deaths; 159 cases of chickenpox, 1 case of smallpox and 76 deaths from cerebrospinal meningitis.

Cerebrospinal Meningitis.—The epidemic of this disease continues to excite alarm. A number of cases have broken out in West Twelfth Street, where four cases have been reported from one family. The number of cases in this vicinity is attributed to the bad condition of the streets. The Health Department has received $5,000 from the board of estimate and apportionment with which to investigate this disease. The members of the commission to be appointed for this work are: William M. Polk, Walter B. James, William P. Northrup, Simon Flexner, Joshua M. Van Cott, E. K. Dunham, and William K. Draper.

Work of County Medical Society.—Camille Francois was arrested on the charge of violating the medical laws in a hairdressing establishment.——Dr. John W. Pirillo is held on the charge of having signed a death certificate for an unlicensed practitioner of medicine.——Reuben N. Mayfield has been arraigned and held for trial on $2,500 bail charged with practicing medicine unlawfully. He stated that he was associated with Dr. Samuel D. Koch and was entitled to the letter heads "Dr. Koch's Sanitarium." Another letter said to have been used as an advertisement purported to have come from Dr. Robert Koch.

Society of Medical Inspectors of the Health Department.—This society was organized at a meeting of the medical inspectors of the Health Department, held March 3. The object of the society is the study and discussion of problems in hygiene and public health, and the promotion of good-fellowship among the members. Monthly meetings will he held, at which scientific papers will be read and discussed, and addresses delivered by invited superior officers of the department and other sanitarians and public officials. Dr. Edward M. Thompson, chairman of the committee on organization, presided at the meeting; a constitution was adopted and the following officers were elected: President, Dr. Augustine C. McGuire; vice-president, Dr. Otto Jahn; secretary, Dr. Edward M. Thompson; treasurer, Dr. Leopold Marcus; executive committee, Drs. Joseph Baum, Helen Knight, Samuel A. Buchenholtz, Thomas A. Neafsey and George DeSantos Saxe.

OHIO.

Conditional Gift.—It is announced that John D. Rockefeller has given $25,000 to the Women's and Children's Free Hospital, Cleveland, conditional on the raising of a like amount by the institution.

Must Conform to Medical Law.—The Supreme Court of the state has decided that so-called "Christian Science" treatment comes within the scope of the medical laws of the state and that the eddyist who attends the sick must conform to the laws governing the practice of medicine.

Personal.—Dr. Perry R. Brubaker, Bucyrus, will locate for practice in the Philippine Islands.——Dr. Sigmar Stark, Cincinnati, was in a serious runaway accident, March 8, but escaped with only a few scratches and bruises.——Dr. Gustavus A. Doren, Columbus, is seriously ill with heart disease.

In Trouble.—Dr. John Hutchfield, Columbus, was found guilty of attempting to suborn a witness, and was sentenced to thirty days' imprisonment in the county jail, and fined $100 and costs.——"Dr." J. A. Taff, who has been practicing medicine in Ohio without a license, plead guilty to the charge, at Uhrichsville, March 1, and was fined $40 and costs.

Left to Wrong Hospital.—It is claimed that the bequest of $9,000 to St. Elizabeth's Hospital, Dayton, from the estate of the late Philip Ecki, was intended for the Miami Valley Hospital. As the deceased was a devout Lutheran, it would seem unlikely that he should bequeath money to a Roman Catholic institution. The matter will be setled in the courts.

OREGON.

Useless Health Offices Abolished.—The legislature has passed a bill abolishing state health offices for Oregon ports at Astoria, Umpqua, Yequina and Coos Bay.

Sanatorium Open.—It is announced that the Heppner Sanatorium is now ready to receive patients. The staff is composed of Drs. Archie K. Higgs, Frank B. Kistner and Winnard of Heppner, and Drs. Alexander Reid and Bruce of Ione.

Low Death Rate.—During 1904, Portland had 1,351 deaths, equivalent to an annual death rate of 9.01 per 1,000. Of the decedents 801 were male and 550 female; 1,284 white, and 67 colored. Tuberculosis caused directly 149 deaths, and indirectly, more than 200.

Cancer Specialist Ousted.—The State Board of Medical Examiners has scored a victory in their fight against J. L. Bohannon, a cancer specialist of Portland, who has been practicing without a license. Rather than stand trial, the irregular compromised the case, repaying the patient $50 collected; paying a fine of $50, and agreeing to leave the state.

PENNSYLVANIA.

Sanatorium Burns.—Highland Inn, a sanatorium at Dallas, was burned to the ground, March 13, at a loss of $35,000, but without loss of life or injury to the inmates.

Ill and Injured.—Dr. August J. Kohrnak, Braddock, who has been in grave danger for several weeks because of septicemia from an operation wound, was discharged from Mercy Hospital, Pittsburg, March 1.——Dr. Charles B. Noecker, Scranton, was operated on for appendicitis, March 12, and is making good progress toward recovery.

Hospitals Benefit.—By the will of the late Charles Lockhart, Pittsburg, $40,000 is bequeathed to the Western Pennsylvania Hospital; $20,000 to Passavant Hospital; $20,000 to Allegheny General Hospital, and $15,000 to the United Presbyterian Memorial Hospital for Women and Children.——By the will of the late Benjamin F. Dilley, Wilkesbarre, $5,000 is devised to Mercy Hospital in that city.

Money to Fight Tuberculosis.—Two bills to establish state hospitals for the treatment of incipient tuberculosis were passed by the house of representatives, March 14. They appropriate $200,000 for each institution, one of which is to be located in the state forestry reservation at Mont Alto, Franklin County, and the other in Western Pennsylvania. They are to be strictly state institutions and under absolute control of the state forestry commissioner.

Personal.—Dr. Walter S. Stewart, Wilkesbarre, has been commissioned surgeon, with rank of major, and assigned to the Ninth Infantry; Dr. George L. Hays, Pittsburg, major and surgeon, and assigned to the Fourteenth Infantry, and Dr. William G. Weaver, Wilkesbarre, captain and assistant surgeon, and assigned to the Ninth Infantry.——Dr. Henry J. Sommer, Jr., Norristown, has been elected pathologist to the State Hospital for the Insane.——Dr. John Fay, Altoona, on the occasion of his semi-centennial of practice, was given an informal reception at the Altoona Hospital, March 10.——Dr. William Herbst of Trexlertown celebrated his fiftieth anniversary in the practice of medicine March 12.

Cattle Vaccinated Against Tuberculosis.—At the recent meeting of the Pennsylvania State Veterinary Association, held in Philadelphia, Dr. Leonard Pearson of the University of Pennsylvania reported on some work he has done in conjunction with Dr. S. H. Gilliland on the vaccination of cattle against tuberculosis. Experiments on this subject have been carried on for nearly two years under the auspices of the State Live Stock Sanitary Board. The cattle under experimentation are on a farm in Delaware County. Dr. Pearson showed that animals may be vaccinated in such a way as to protect them against this disease. He is directing his efforts now toward simplifying the method of vaccination, so that it may be applied on a large scale to cattle on farms, with as little cost as possible.

Philadelphia.

Personal.—Dr. Henry C. Chapman, professor of physiology and medical jurisprudence in Jefferson Medical College, has left for Europe.

New Nurses' Home.—The new nurses' home of the Women's Hospital of Philadelphia was dedicated with appropriate ceremonies on Wednesday, March 15. The building has just been completed at a cost of $20,000.

An Ophthalmologic Week.—A special week in diseases of the eye will be held at the Philadelphia Polyclinic from April 3 to 8, during which special efforts will be made to present an interesting series of lectures, demonstrations, operative cases, etc.

Sanitary Trolley Cars.—For the betterment of the sanitary conditions of the trolley cars, all cars of the Philadelphia Rapid Transit Company in the future will be equipped with cane-covered seats, instead of carpet and plush-covered seats as at present. This change is being made at the request of the officials of the local board of health.

Hospital Dedicated.—The Mount Sinai Hospital, located in the Hebrew section of the city, was dedicated with appropriate exercises, March 12. The building is a four-story brick structure and thoroughly equipped. The first floor contains the offices, prescription department and dispensaries. The second floor contains two large and three small wards. The operating and physicians' rooms are located on the third floor, and the fourth floor contains the children's wards, nurses' rooms and kitchen.

Health Report.—The deaths from all cases recorded during the week aggregated 599. Among the principal causes of death were typhoid fever, 19; scarlet fever, 2; diphtheria, 10; influenza, 5; cerebrospinal meningitis, 2; tuberculosis of lungs, 68; cancer, 18; heart disease, 61; acute bronchitis, 12; pneumonia, 75; Bright's disease, 37, and suicide, 3. The number of cases of contagious disease reported was 356, with 32 deaths, as compared with 272 cases and 24 deaths from last week, showing an increase of 84 cases and an increase of 8 deaths for the week. There were 274 new cases of typhoid fever reported, with 19 deaths, as compared with 178 cases and 12 deaths for the preceding week.

Changes in Staff.—The following appointments have been made at the Philadelphia General Hospital: Dr. Joseph Sailer, visiting physician; Drs. William Pickett and Daniel J. McCarthy, visiting neurologists; Dr. J. H. McKee, visiting pediatrist; Drs. Hilary M. Christian, E. Hollingsworth Siter, and Henry Tucker, visiting genitourinary surgeons; Dr. G. Paul

La Roque, assistant surgeon; Drs. Courtlandt Y. White, John W. Hunter, and George Norris, assistant physicians; Dr. Charles C. Norris, assistant obstetrician; Dr. Samuel McClarg, assistant neurologist; Dr. Howard Childs Carpenter, assistant pediatrist; Drs. Charles A. Hatfield, T. Y. Ullom, J. W. Irwine, and J. Hamilton Small, assistant physicians, department for tuberculosis; Drs. Macy Brooks, Alexander Uhle, and Howard Dahoney, assistant genitourinary surgeons; Dr. H. R. Alburger, assistant anesthetist, and Drs. Thomas B. Holloway and Ward Brinton, registrars.

Meningitis Here.—Two deaths from a fulminant type of cerebrospinal meningitis have occurred in the city during the past week, and another hopeless case was also reported March 17. Every effort is being made by the health authorities to prevent the spread of this highly malignant disease, and it is stated that the health department will ask for an appropriation of $5,000 to $10,000 to make special investigations regarding the malady. The last victim attacked by the disease was a small child in the southern part of the city, and the school which he attended has been closed and subjected to fumigation. The home of the child has been placed under rigid quarantine. The health authorities say that in the future all houses where this disease exists will be placarded with yellow contagious signs. It will be fought along the same lines as smallpox, and, if anything, with even more vigor. Cerebrospinal meningitis has been prevalent in this city on several occasions; in 1899 there were 146 cases recorded; 20 of these were treated in the Municipal Hospital. In 1863, and again in 1865 the city was also visited by a slight epidemic of the disease. According to Pepper 2,575 cases of cerebrospinal meningitis were reported in this city between 1863 and 1891.

UTAH.

Correction.—The name of Dr. C. C. Snyder was omitted from the list of the staff of the Dr. W. H. Groves Latter-day Saints Hospital, Salt Lake City, which appeared in THE JOURNAL of March 4.

University to Have Pre-Medical Department.—It is announced that a pre-medical department is to be added to the University of Utah. It will be under the direction of Dr. Ralph V. Chamberlain, and will fit its students for the junior year in medical college.

Physician Wins Suit.—Dr. Joseph A. Richards, Salt Lake City, was granted a non-suit in the damage case brought against him by Mary Morris, who claimed malpractice in the improper setting of a broken ankle, and desired to recover $5,000 damages therefor.

WASHINGTON.

New Hospital Open.—The new Providence Hospital, Everett, was opened for the reception of patients, March 1.

County Medical Society Election.—At the annual meeting of the Pierce County Medical Society, held recently in Tacoma, the following officers were elected: President, Dr. Grant S. Hicks; vice-president, Dr. Leon L. Love; secretary and treasurer, Dr. A. DeY. Green, and censors, Drs. Thomas B. Curran, George H. McGeer and George D. Shaver, all of Tacoma.

Personal.—Dr. William C. Gibson, Seattle, sailed for Europe, March 21.——Drs. Charles P. Thomas, William H. Olds, Arthur R. Cunningham, A. A. Matthews, Charles E. Grove and S. B. Hopkins were elected to the staff of St. Luke's Hospital, Spokane.——Dr. Euclid Van Zandt, Bellingham, has been made acting superintendent of the Western Washington Hospital for the Insane, Fort Stellacoons, vice Dr. Alexander H. McLeish, resigned.

WEST VIRGINIA.

Seven Physicians in Legislature.—There are at present seven practicing physicians who are members of the state legislature.

Personal.—Dr. Cassius H. Ice, Mannington, has resigned as a member of the Marion County Board of Health, and has been succeeded by Dr. I. W. Beaty.——Dr. Addison K. Ross, Parkersburg, has been appointed physician of Wood County.

Annual Election.—At the annual meeting of the Cabell County Medical Society at Huntington, the following officers were elected: Dr. Corydon R. Enslow, president; Dr. J. E. Rader, vice-president; Dr. Thomas W. Moore, secretary; Dr. Isaac R. Le Sage, treasurer, and Drs. Charles T. Taylor, Edward S. Buffington and Harry C. Solter, censors, all of Huntington.

GENERAL.

Dinner to Dr. Osler.—Previous to his departure for England, to assume the chair of medicine in the University of Oxford, a dinner will be given to Dr. William Osler at the Waldorf-Astoria, in New York City, at 7:30 p. m., May 2. Dr. J. P. Crozer Griffith, 1810 Spruce street, Philadelphia, is in charge of subscriptions.

Yellow Fever in Panama.—In the *Public Health Reports* is printed the following official summary of yellow fever cases on the Isthmus: Total number of cases on the Isthmus of Panama from July 1, 1904, to Feb. 1, 1905, 31; deaths, 10. Total number of cases from Feb. 1, 1905, to Feb. 25, 1905, 10; deaths, 4. Total, 41 cases; 14 deaths.

CANADA.

Alexandra Hospital Being Built.—The new English hospital for contagious diseases in Montreal is to be called the Alexandra Hospital. It will occupy a block of land whose frontage and two sides will be 500, 300 and 450 feet, respectively. In the group of buildings there are to be nine separate ones, and there will be seven buildings constituting the hospital proper. Each pavilion is to have its own nursing staff and each will be entirely isolated.

Bishop's to Amalgamate with McGill.—At a recent meeting of the medical faculty of Bishop's College University, Montreal, it was unanimously decided to amalgamate with the medical faculty of McGill University. The present term will be completed at Bishop's, and the most generous terms will be granted the faculty of Bishop's, as well as her students. All of the staff at Bishop's will be granted associate positions on the teaching staff of McGill.

Canadian Association for the Prevention of Tuberculosis.—The fifth annual meeting of this society was held in Ottawa on March 15. A large number of medical men were present from all over the Dominion. The association decided to ask the federal government to appoint a royal commission to deal with the entire question of tuberculosis as it affects the Dominion of Canada. At the evening meeting, at which the governor-general presided, Professor J. George Adami delivered an address on "Adaptation and Consumption." Senator Edwards was re-elected president, and the Rev. Dr. Moore, Ottawa, was re-elected secretary.

New Brunswick Insane Hospital Report.—To the New Brunswick Hospital for the Insane, during the past year, 141 new patients were admitted, 80 of whom were men and 61 women. During the year 41 men and 39 women were discharged, while 42 men and 32 women died in the institution, leaving 290 men and 264 women in the institution at the end of the regular hospital year, Oct. 31, 1904. Of those discharged 34 men and 30 women were considered cured; 3 were improved and 3 were unimproved. Of the 141 admitted to the hospital, 117 were admitted for the first time, and the majority of those admitted had passed middle life. The report also states that of the 716 cared for during the year, all but 100 were cared for by the province.

Winnipeg Hospital Report.—During the year 1904 the Winnipeg General Hospital cared for 3,868 patients in its wards, as compared with 2,928 in 1902 and 3,354 in 1903. The total receipts amounted to $168,629.06 and the expenditure was $175,636.63. Of the total number treated during the year, 271 died, a mortality of 7.06 per cent. The total number of typhoid fever patients treated was 728. Of these 180 were admitted in October and 166 in September. Between October 1 and December 15 there were never less than 148 cases in the wards. The number of patients in the wards on Jan. 1, 1904, was 151; the number of births was 141; the greatest number of patients on any one day was 287. In the outdoor departments there were 4,772 consultations.

FOREIGN.

International Association of the Medical Press.—The conference of the delegates of the International Association of the Medical Press will be held this year at Berne, April 27. The president of the association is Cortezo of Madrid, editor of the *Siglo Medico.*

French Congress of Alienists and Neurologists.—The fifteenth congress will be held at Rennes, August 1 to 7, 1905. The questions appointed for discussion are "Hypochondria," "Ascending Neuritis" and "Balneotherapy and Hydrotherapy in the Treatment of Mental Affections."

Medical Study Trip to German Spas.—The annual study trip for physicians and their families is announced to start from Munich September 13. After a trip through a number of watering places, the party arrives at Meran and disbands the same day that the Naturforscher Congress assembles there. Among the spas to be visited are Ischl, Gastein, Levico, Roncegno and Arco.

Contract Practice in France.—The medical officers of a sick benefit society at Granville, France, insist on being paid 30 cents a visit instead of the previous rates of 20 cents. The physicians have published a statement, explaining that the sick benefit society is largely made up of members who are abundantly able to pay for individual private attendance, and that the society is a comparatively wealthy one, well able to afford the increased rate.

Right to Oppose Disinfection of House.—A resident of Rio de Janeiro refused to allow the disinfection of his house after a case of yellow fever therein. He appealed to the courts to protect him against the officers of the public health service who insisted on the legal compulsory disinfection. The *Semaine Médicale* states that the courts sustained him in his contention, and decided that a house can not be disinfected without the consent of the resident.

Celebration of the Semicentennial of the Laryngoscope.—Scientific societies—medical and musical—and royalty vied with one another in presenting homage to the centenarian, Manuel Garcia, March 17, at London, the remarkable occasion being his hundredth birthday and at the same time the semicentennial of his invention of the laryngoscope. He is a native Spaniard, long resident in London, and as a professor of vocal music he was the first to demonstrate the larynx in the living subject. His communication on the subject was presented to the Royal Society of London in 1855. A committee was formed a year or so ago to arrange for the suitable celebration of the anniversary, as was mentioned in THE JOURNAL. A portrait was presented to him, painted by Sargent, and the day closed with a banquet at the Hotel Cecil. Numerous delegations from scientific, medical and musical societies of Europe and America were present, with representatives of the kings of England and Spain and the emperor of Germany, and a large gathering of notables. Sir Felix Semon proposed Signor Garcia's health, whom he addressed as "my great and revered master." He commented on the remarkable fact that two professions which had so few points in contact—medicine and music—should meet to do homage to this great centenarian. It is also remarkable that Garcia still retains his physical and mental faculties when we know that he retired from the operatic stage in 1829 because his physique was not equal to the strain. During his brief career as an opera tenor he came to this country as a member of the first Italian opera company that ever visited our shores. He invented the laryngoscope to aid him in his teaching of vocal music, to study the behavior of the vocal cords during the act of singing. Its importance for the diagnosis of disease was not recognized at first, as it was supposed that only trained muscles were able to allow the view of the throat, but Garcia's writings inspired the physicians Türck of Vienna and Czermak of Pesth to experiment further and perfect the technic of laryngoscopy. Their strife for priority, two or three years after Garcia's discovery, spread the knowledge of the new art through the medical world.

LONDON LETTER.

The Vitality of the Typhoid Bacillus in Shellfish.

The numerous outbreaks of typhoid fever in England due to sewage-contaminated oysters have been reported in THE JOURNAL, and the fact pointed out that the whole estuary of the Thames was so polluted by sewage that shellfish taken from it were not safe to use as food. This gave rise to the "oyster scare" in London, which, for a time, crippled the trade in that shellfish. Actuated, no doubt, by a motive which is easily comprehensible, though in no way discreditable, the Fishmongers' Company of London requested Professor Klein to conduct experiments in order to ascertain the vitality of the typhoid bacillus in oysters and other shellfish. The results so far obtained have just been published as a preliminary report. About 160,000,000 typhoid bacilli were introduced into the interior of the shells of oysters. Half of the number were placed in clean seawater, which was changed ever twenty-four hours; the others were kept dry in a cool chamber. The number of bacilli present was then estimated from day to day. Other experiments were performed, such as placing oysters in sea water containing a culture of the typhoid bacillus. Similar experiments were performed with cockles and mussels. Professor Klein drew the following conclusions: 1. Oysters readily take up into their interior the typhoid bacillus introduced into their shell or into the surrounding sea water. 2. Oysters clean at starting rapidly clear themselves of the ingested bacilli if kept in clean sea water which is frequently changed. 3. They clear themselves to a less extent and more slowly if kept out of the sea water. 4. Oysters from a polluted locality clear themselves of the ingested typhoid bacillus to a less extent and at a slower rate, even if kept in clean sea water, than oysters clean at starting. 5. Oysters from a polluted locality retain the bacillus to a larger extent if kept out of water. 6. The process of clearing themselves of the bacillus can not be owing to the oyster merely passing out the bacillus, but must be largely due to devitalizing the microbe. 7. Oysters from a polluted locality containing a large number of the colon bacilli rapidly clear themselves, whether kept in or out of water. This shows that the bacillus coli is foreign to the oyster, and is rapidly destroyed by it. 8. However largely infected with the typhoid bacillus, the oysters present no sign to the eye of such infection. 9. Cockles readily embody the typhoid bacillus present in sea water. The number in the body of the cockle increased for five days after the cockles had been removed from the infected water and kept in clean sand. They subsequently slowly diminished. 10. Mussels embody the typhoid bacillus to a greater extent than oysters or cockles. The number diminishes gradually—more slowly than in oysters but more quickly than in cockles.

Correspondence.

Medical Missionary Association of China.

ST. JOHN'S COLLEGE, SHANGHAI, CHINA, Feb. 14, 1905.

To the Editor:—The Medical Missionary Association of China held its annual meeting in Shanghai. Forty-two physicians were present, representing eight of the eighteen provinces, Manchuria and Formosa. The most important subject discussed was the instruction of the Chinese in scientific medicine and the means by which this is to be accomplished. The association put itself on record as favoring the establishment of medical schools in the important centers throughout the empire. Steps have also been taken to provide up-to-date textbooks in the Chinese language. For some years the association has had a committee on medical nomenclature. In 1902 this committee published a vocabulary of terms used in anatomy, histology, physiology, pharmacology and pharmacy; and in 1904 an additional list of terms in pathology, medicine, surgery, obstetrics and gynecology was published. There is also being prepared a list of terms in materia medica and bacteriology. The association is unanimously in favor of appointing a translating and publishing committee to see what new books are needed and what old books require revising, to find translators or editors, and to consider proposals by members of the association to undertake the translation of particular works.

The association is to own and control these books so that they shall form a consistent series. The expense of the cuts used and the printing will make the initial cost considerable, but it is estimated that after the first editions are exhausted they will yield a profit. The profit will be used to issue new books.

When practicable, it is proposed to issue a medical journal in Chinese in order to enable students to keep in touch with the advances in medical science in foreign lands. The benefit of this work in the thorough training of students and in the alleviation of the suffering of countless Chinese will be widespread. A balance of $400 (Mexican) is in hand for this work and over $400 more was subscribed by the physicians present.

It is to be hoped that many who are interested in the higher education of the Chinese and the relief of suffering humanity will aid financially in the establishment of this work.

Yours sincerely,

C. S. F. LINCOLN, A.B., M.D.,
Secretary and Treasurer Medical Missionary Association of China.

Pharmacology.

[The above title has been selected for this new department because it appears the best one to define its purpose and scope. While the use of the term pharmacology has been confined by some authors to the action of drugs, academically called pharmacodynamics, considered etymologically it is the broadest and most comprehensive term that can be applied to the science of drugs. This is also the original application of the term by German and French authorities, such as Husemann and Littrè respectively, who define pharmacology as comprising practically all the sciences of material medicinal agents, viz., materia medica, pharmacodynamics, pharmacy, pharmaceutic chemistry and pharmaco-therapeutics, or of drug-therapy as distinguished from other agents used in the treatment of disease. The title also has been adopted for that section of the American Medical Association formerly called the Section on Materia Medica, Pharmacy and Therapeutics. It seems to represent all the different phases of the question to be considered better than any other title suggesting itself. Under this heading we propose to publish matter of interest on the broad subject of pharmacology as included in this definition.]

EXPRESSIONS ON THE ANNOUNCEMENT.

Comments on the Plan of Work as Temporarily Outlined by the Council on Pharmacy and Chemistry.

A large number of replies to the preliminary announcement have been received by the Council on Pharmacy and Chemistry. We make quotations from a few:

E. R. Squibb & Sons: Although we fully appreciate the great difficulties that the council will experience in the carrying out of its appointed task, we unhesitatingly place ourselves on record as most heartily in accord with the program of work announced. The men composing the council are sufficient guarantee to us that their struggle with the problems before them will be carried on with intelligent regard for the various legitimate interests involved, and with a grim determination to reach practical results. Their labors surely will be an effort in the right direction, for safe and honest service against unsafe or dishonest practices. We shall at all times be happy to co-operate with the council to the fullest extent of our power.

Merck & Co.: You may be assured that we shall be very happy to co-operate with the council in its labors and to supply a list of our articles, and all the information regarding them that you may desire. It has always been our endeavor to work in harmony with the medical profession of the country, as represented by your esteemed Association, and, therefore, in following the rules adopted by your council governing the admission of articles to the book, "New and Non-Official Remedies," we shall only be following our established practice.

Farbenfabriken of Elberfeld Co.: We send to-day a package by express containing samples of all our products. The labels on the various packages contain all the information regarding patents and trademarks required by your council. We have already begun to comply with the resolutions adopted by the Section on Pharmacology, which requests manufacturers to put on the packages not only the trademark name, but also the chemical designations of the preparations. . . . . We congratulate your council on the initiation of this important work, and hope that it will promote the interests of ethical medicine and pharmacy.

Searle & Hereth Co.: We do not hesitate to state that we approve very heartily of the movement. The ends you are striving for are very desirable, indeed, and it is our desire to co-operate with you as far as we can consistently.

Rufus Crowell & Co., Somerville, Mass.: I feel that it is the most important step taken in recent years in this country, as it holds out at least a ray of hope to the manufacturers who are trying to conduct an honest and ethical business. If there is anything that we can do to help further the idea, I shall only be too glad to help, and I hope that the outcome of it will be a national bureau or one under the Council on Pharmacy and Chemistry, by which a new drug can be examined, where nothing but an ethical article will be recognized, and where a medicine that is really an advance in therapeutics may receive a cachet entitling it to recognition from the profession. Do not hesitate to ask for any assistance that I can give you.

Fritzsche Brothers:. We are heartily in accord with any and every movement which aims at the separation of the wheat from the chaff, and, indeed, believe that with the issue of the book as proposed a pioneer and systematic step has been taken in the right direction. Desultory writings tending toward reformatory movements serve well as an initiatory purpose, but fall short of ultimately obtaining its object. To accomplish this a systematic hammering is required and, fathered and fostered as this movement is by the A. M. A., it will make success a surety, and in the end rid the medical profession as well as that of pharmacy and in turn therapy of the nondescripts.

Victor Koechl & Co.: We will be glad to co-operate with you in so far as the products that we control are concerned, and will give you all the information necessary to carry out your plan. . . . You have undertaken quite a contract, but, if it is carried out on the lines suggested, your work will be of invaluable service to the physician.

Gardner-Barada Chemical Co.: Everything contained in the announcement and circular is unqualifiedly and absolutely indorsed. Every rule is conducive to good, and not one of these rules, even in its strictest interpretation, will harm any honest manufacturer. Our labels, etc., will be ordered to be changed as fast as the presses can print them.

The White Co.: We will do anything you may wish in connection with this movement. The members of this concern are entirely in sympathy with you, and will give you any information we have at hand. We are very glad to notice Rule No. 1, and think it is very much to the benefit of the profession that this rule is carried out to the fullest extent.

The Organic Chemical Mfg. Co.: The establishment of this Council on Pharmacy and Chemistry of the American Medical Association will be a bulwark for the protection of the good name of the American manufacturer, be he ever so poor. It will establish confidence in American-made remedies that have been "honestly made, ethically exploited and worthy of patronage by intelligent physicians."

The American Ferment Co.: The work undertaken by the Council of Pharmacy and Chemistry of the American Medical Association must meet with the hearty approval of all worthy manufacturers, as it recognizes merit and the right of the manufacturer of really valuable products to protect himself, and to secure at least a part of the benefits derived from such work; while at the same time recognizing the right of the medical profession to be protected against many worthless and absurd products.

Frederick Stearns & Co.: We desire to express our hearty sympathy with the purposes of the Council on Pharmacy and Chemistry of the American Medical Association as outlined in the circular accompanying your letter, for we believe that much good will result from the action thus taken if manufacturers comply promptly and cheerfully with these requests for information about their products. The history of our house since it was established fifty years ago shows that we have always contended against secrecy in medicine and we should certainly have to regard ourselves as recreant to our principles if we did not give our support to this movement. Accordingly, therefore, we have prepared and submit herewith statements regarding those of our products that are more or less proprietary and that are prescribed by physicians, giving the information asked for by the council as we understand it. If, however, this information is insufficient in any respect, we are ready to supplement it as may be necessary.

A DEFENDER OF SECRET NOSTRUMS.

Last week we were favored by several manufacturing pharmacists with a copy of a letter they had received from the owners of the *New York Medical Journal*. The letter was practically the same in each instance, and evidently was sent to a large number of advertisers (but not to physicians, however, so far as we know). The letter is so unique that we

New York Medical Journal
and Philadelphia Medical Journal
CONSOLIDATED.
A Weekly Review of Medicine. Established 1865.

A. R. ELLIOTT PUBLISHING COMPANY.
66 West Broadway, NEW YORK.
NEW YORK, PHILADELPHIA, CHICAGO.

TELEPHONE CONNECTION.

New York, March 14, 1905.

Chicago, Ill.

Gentlemen:

Regarding the recent action of the American Medical Association we beg to say:-

Most sane persons are disposed to regard the personal property which their exertions have created as peculiarly their own; and any suggestion that they part with it would probably be treated with derision.

This seems, in essence, to be what the American Medical Association demands in its new rules about proprietary preparations. To comply with the new requirements would be to make your products common property. By furnishing the information demanded you would enable pirates to affirm that their spurious imitations were made in accordance with the published formulas of the association.

Refusal to be mandamused out of your property will result in the exclusion of your advertisement from the association's journal. Also it will exclude you from the proposed book of non-official remedies. Very many others will be excluded for the same reason, and the book consequently will be incomplete.

We therefore offer you space in the New York Medical Journal for a brief expression of your views on this important matter, and shall be very glad to hear from you at your earliest convenience.

Very respectfully yours,

President.

(EXHIBIT A.)

reproduce it (Exhibit A)—not because there is any criticism on a journal asking for opinions of manufacturing pharmacists (for we publish above some opinions which the council itself solicited) but because the owners and not the editor ask for the opinions and because of the suggestions made as to the kind of opinions wanted. It is very much to the point that this letter was sent by the owners and not by the editor of a journal that is presumed to be published in the interest of physicians. Just why the editor's function was usurped by the owners of the journal we can not understand, but we can readily appreciate why the advertiser's side of the question was recognized as the more important, when we realize that the owners are primarily advertising agents and publish a medical journal as a side line. As evidence of their status we reproduce the letterhead of the firm (Exhibit B). As a further reason for the *pro tempore* editors siding with the advertisers, it should be known that they also own a drug journal, which at one time was recognized as a high-class pharmaceutical publication. Under the present management, however, it has developed a decided leaning toward patent medicine and the Proprietors' Association, and is not pointed out as an exponent of the highest ideals in pharmacy. Furthermore, the owners, as far as we know, do not claim to be pharmacists, and we never heard that they posed as physicians; consequently when they assume to edit a medical journal they are not to blame if they do not see either the scientific pharmacist's side of the question, or the physician's. Then, again, there is more money in a journal with a small circulation and with a large advertising patronage than the reverse, and in such cases it may pay from a financial standpoint to cater to the advertisers. Therefore, taking it all in all, it can be readily understood why the temporary editors

Advertising is to Business what Steam is to Machinery—The Great Propelling Power.—*Lord Macaulay.*

A. R. Elliott—Advertising

Leading Dailies a Specialty,

RELIGIOUS WEEKLIES, TRADE JOUPNALS, COUNTRY WEEKLIES,
MEDICAL JOURNALS, ILLUSTRATED PAPERS, JUVENILE PUBLICATIONS,
FASHION PUBLICATIONS, AGRICULTURAL JOURNALS, FOREIGN PUBLICATIONS,

Monthly Magazines.

I point YOU out, to the PUBLIC.

62 to 68 West Broadway,

TELEPHONES {7770 / 7771} CORTLANDT.

New York.

(EXHIBIT B.)

temporarily forgot that they were temporarily acting as editors of a journal that, nominally at least, represents physicians and not secret nostrum manufacturers.

There was a time when the *New York Medical Journal* held a high position among medical journals of this country. It stood for the ideal in medicine and for the profession it represented. But that was when it was owned by the Appletons when Dr. Frank P. Foster was editor in fact, and who, as such, would not have advocated in its editorial pages secrecy in medicine.

Suggestive Names for Proprietary Remedies.

It is to be deplored that the manufacturers of legitimate proprietary remedies have so strong a penchant for giving fanciful names to their products. The tendency of many of these is decidedly vicious, in that they smack remarkably of thinly-veiled lay advertising. Others are objectionable only because they are in bad taste. It is certainly an imposition on the medical profession to ask it to prescribe these mixtures under names which would be more suitable for apartment houses. It would be foolish to condemn a product merely for its name, but surely a meritorious product deserves a dignified designation.

Secret Remedies in France.

The law in France with regard to medicinal agents may be summed up as follows: The sale of medicinal compounds or remedies, the ingredients of which are known only to the proprietors, is absolutely prohibited in France. The law requires the inventors or owners of such remedies to communicate the recipe of their preparations to the minister of commerce, with a list of diseases to which they are applicable, and a statement of the actual trials to which the medicines have been submitted. The National Academy of Medicine then examines the composition of the remedies to ascertain if their administration might be dangerous in certain cases; if the remedies are good in themselves; if they have produced and will still produce beneficial effects on humanity. This is to a great extent the same throughout all parts of Europe, except in England, where the laws are in a somewhat degenerate condition; the educational standpoint for pharmacists being much below that of the continent.—*International Therapeutics.*

Association News.

Portland Hotel Reservations.

We again urge the members of the American Medical Association who are thinking of going to Portland to make arrangements for their hotel accommodations as early as possible. The chairman of the Committee of Arrangements announces that the committee will have accommodations for all who attend the session, but that it should know, approximately, the number for which it is to provide. Address the chairman of the Committeee of Arrangements, Dr. Kenneth A. J. Mackenzie, Portland, Ore., or Mr. H. C. Bowers, chairman of the Hotel Committee, Portland, Ore.

A Special Car from Kansas City.

Dr. Charles Wood Fassett desires us to announce that he is arranging for a special car from Kansas City, etc., to Portland for the members of the Missouri Valley Medical Society. Full information can be obtained by writing to Dr. Fassett at St. Joseph, Mo.

Marriages.

WALTER R. COOK, M.D., to Mrs. Minnie Cobb, both of Mount Pisgah, Iowa.

ROBERT W. OAKLEY, M.D., to Miss Grace C. Crawley, both of Moline, Ill., March 6.

JAMES C. HIGGINS, M.D., to Miss Stella M. Hinch, both of Philadelphia, March 7.

JOSEPH J. KANE, M.D., to Miss Anna A. Morris, both of Philadelphia, March 6.

ARTHUR C. YENGLING, M.D., Salem, Ohio, to Mrs. Ina Rank Carey, at McDonald, Pa.

JEFFERSON D. NIFONG, M.D., to Mrs. Susan Belden of Vermont, at San Francisco.

OSCAR R. HEAVRIN, M.D., to Miss Clotylle Bamberger, both of Owensboro, Ky., March 9.

H. D. KNEEDLER, M.D., to Miss Ethel Mason of Missouri, at Manila, P. I., January 11.

FRANK J. GILSON, M.D., to Miss Laura Ballantyne, both of Brackett, Texas, March 7.

JOHN BARTOW CORYELL, M.D., to Miss Nellie Cantwell Fraser, both of St. Louis, March 6.

THOMAS B. MCDONALD, M.D., to Miss Nina Milholland, both of Cumberland, Md., March 4.

JAMES WALKER SMITH, M.D., St. Louis, to Miss Eugenia James of Pine Bluff, Ark., March 11.

CHARLES A. ROOD, M.D., Madison, Wis., to Mrs. Hannah Genevieve Clark of Chicago, March 9.

HENRY ROBERT GLEDHILL, M.D., to Miss Cornelia Wyckoff Newton, both of Jerseyville, Ill., March 3.

A. D. BERRYHILL, M.D., McKenzie, Tenn., to Miss Clara McClure of Weakley County, Tenn., March 5.

HARRY SHRYOCK, M.D., Seattle, to Miss Edna McBride of Espanola, N. M., at Seattle, Wash., February 28.

JOHN M. GULICK, M.D., Manteno, Ill., to Miss Zella M. Irwin of Peterborough, Ont., at Manteno, March 9.

HENRY Z. EWING, M.D., Barnes, Kan., to Miss Margaret Burgess of Westmoreland, Kan., at Marysville, Kan., January 4.

Deaths.

Albert B. Craig, M.D. Jefferson Medical College, Philadelphia, 1901; honorman of his class; resident physician for a year in Jefferson Medical College Hospital, and later assistant to Dr. William W. Keen, assistant demonstrator of anatomy in Jefferson Medical College and assistant visiting surgeon to Jefferson Medical College Hospital, a collaborator and sub-editor of *American Medicine* since its inception, died at his home in Philadelphia, March 14, aged 38, after an illness of only ten hours, from cerebrospinal meningitis contracted from a patient.

George Frederick Keene, M.D. Harvard University Medical School, Boston, 1879, a member of the American Medical Association; superintendent of the State Hospital for the Insane, Cranston, R. I.; a member, and once president of the Rhode Island Medical Society; member of the American Academy of Medicine, American Medico-Psychological Society, New York Medicolegal Society, Rhode Island Clinical Society, Providence Medical Association, Rhode Island Medicolegal Society, etc., one of the leading alienists of the east, died at his home in Howard, R. I., March 13, from pneumonia complicated with nephritis, after an illness of only five days, aged 51.

William M. McPheeters, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1840, the oldest alumnus of that institution; the oldest practitioner of St. Louis; at times a member of the faculty of the Missouri and St. Louis Medical College in 1845; editor of the *St. Louis Medical and Surgical Journal*; the oldest member of the St. Louis Medical Society; division surgeon in the Confederate service during the Civil War, died from pneumonia at his home in St. Louis, March 15, after an illness of one week, aged 89.

Horace Wardner, M.D. Rush Medical College, Chicago, 1856, formerly superintendent of the Illinois Southern Hospital for the Insane, Anna, member of the American Medical Association, president of the Southern Illinois Medical Society, and president of the Illinois State Board of Health; a surgeon in the Army throughout the Civil War; member of the Indiana State Medical Society, died at his home in Laporte, Ind., from septicemia, March 17, after a long illness, aged 75.

Charles Hamilton Losey, M.D. New York University, New York City, 1889, a member of the Monroe County Medical Society and Central New York Medical Society, and a member of the board of managers of the State Industrial School, died at his home in Rochester, N. Y., March 13, after a prolonged illness, aged 41.

Milton Marion Fenner, M.D. Cincinnati, 1860, assistant surgeon in the Navy during the Civil War, representative in the State Assembly in 1879-1880, and deputy collector of the port of New York during the Harrison administration, died at his home in Fredonia, N. Y., March 14, after a long illness, aged 67.

John M. Clark, M.D. University of Louisville (Ky.) Medical Department, 1850, twice a member of the state legislature; some-time president of the Medical Association of the State of Louisiana, died suddenly, Dec. 23, 1904, at his home in Russellville, Ala., from heart disease, aged 77.

William S. Hall, M.D. New York University, New York City, 1885, of Rochester, N. Y., a member of the Monroe County Medical Society and the Rochester Pathological Society, died at the Rochester City Hospital, March 8, a few hours after an operation for septic peritonitis, aged 44.

James Alexander Ferguson, M.D. Bellevue Hospital Medical College, New York City, 1881, a member of the American Medical Association, surgeon to Fordham Hospital, died at his home in Highbridge, New York City, March 7, from kidney disease of long standing, aged 45.

Lemuel Foley, M.D. Willamette University Medical Department, Salem, Ore., 1870, twice mayor of Lebanon, Ore., and for many years a member of the city council, died at his home in that city from an attack of influenza, March 7, after a brief illness, aged 63.

James A. Moore, M.D. Yale University Medical Department, New Haven, Conn., 1894, police surgeon of New Haven, died at his home in that city, March 9, from cerebrospinal meningitis contracted from a patient, after an illness of three days, aged 38.

George W. Edison, M.D. London University, 1842, during the Civil War city physician of Quincy, Ill., and surgeon on hospital boats on the Mississippi, died from cerebral hemorrhage in the hospital of the Soldiers' Home, Quincy, March 10, aged 78.

Felix C. W. Printz, M.D. Medical Department of Washington University, St. Louis, 1898, chief of the laryngologic and rhinologic clinic at the O'Fallon Dispensary, St. Louis, died at his home in St. Louis, March 9, after a short illness, aged 28.

Edward William Burk, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1890, of Moberly, Mo., a member of the common council, died suddenly from heart disease of long standing at his old home in Keokuk, March 14, aged 39.

Lewis Henry Viallon, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1890, coroner of Iberville Parish, La., of Bayou Goula, died at the home of his brother in Whitecastel, March 14, from consumption.

James Clinton Comstock, M.D. College of Physicians and Surgeons in the City of New York, 1884, died at his home in Binghamton, N. Y., from cerebral hemorrhage, after an invalidism of six years, March 8, aged 46.

Louis August Hering, M.D. College of Physicians and Surgeons, Baltimore, 1897, of Cheyenne, Wyo., died at the home of his father in Vailsburg, N. J., February 24, from tuberculosis, after a long illness, aged 34.

E. Julius Boeber, M.D. Kansas City (Mo.) Medical College, 1898, formerly assistant city physician of Kansas City, died at Guadalajara, Mexico, March 12, from tuberculosis, after an illness of six years, aged 34.

Hubbard Ellis, M.D. Medical College of Ohio, 1904, senior interne at the Good Samaritan Hospital, Cincinnati, died in that institution, March 11, three days after an operation for appendicitis, aged 27.

John H. Fleetwood, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1872, died at his home in Thibodaux, La., March 7, from pneumonia, after an illness of a week, aged 75.

A. Blair Frazee, M.D. College of Medicine, Syracuse (N. Y.) University, 1882, of Rochester, N. Y., died at a hospital in that city, March 11, from pneumonia, after an illness of ten days, aged 45.

Albert W. Scofield, M.D. University of Buffalo (N. Y.) Medical Department, 1883, died suddenly at his home in Cincinnati from cerebral hemorrhage, after an illness of two days, March 14, aged 42.

Warren Hippee, M.D. Medical Department of the University of Iowa at Keokuk, 1867, of Des Moines, Iowa, died at Salt Lake City, Utah, March 9, while on his way to California, aged 69.

Carlos Van Julius Doolittle, M.D. College of Medicine, Syracuse (N. Y.) University, 1891, of Utica, N. Y., died at his former home in Paris Hill, N. Y., March 9, after a long illness, aged 38.

James A. Kelly, M.D. McGill University Medical Department, Montreal, 1887, died at his boarding house in South Omaha, Neb., March 12, from hemorrhage, after a short illness, aged 37.

Edwin Jenkins Howe, M.D. College of Physicians and Surgeons in the City of New York, 1873, died suddenly at his home in Newark, N. J., March 14, from cerebral hemorrhage, aged 55.

John Andrew Brosnahan, M.D. New York University, New York City, 1851, died at his home in Pensacola, Fla., January 10, from nephritis, after an illness of 11 months, aged 74.

William C. Weymouth, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1880, of Renovo, Pa., died in Lock Haven (Pa.) Hospital, March 14, aged 51.

Hugh Russell, M.D. Rush Medical College, Chicago, 1855, a pioneer physician of Superior, Wis., died suddenly at his home in that city from heart disease, March 8, aged 78.

Robert J. McAdams, M.D. Louisville, (Ky.) Medical College, 1894, of San Diego, Cal., died at Pasadena, Cal., March 12, from rheumatism, after a prolonged illness, aged 34.

Edward P. Gilpin, M.D. Medical College of Indiana, Indianapolis, 1876, was found dead in bed in his apartment in Oberlin, Kan., March 6, from cerebral hemorrhage, aged 56.

William T. Dunlap, M.D. Cincinnati College of Medicine and Surgery, 1868, died at his home in Cincinnati, March 9, from nephritis, after an illness of two months, aged 60.

Allen Fowler, M.D. Medical Department of the University of Tennessee, Nashville, 1891, died at his home in Union City, Tenn., March 11, after an illness of a few days.

Julian Ridgly Simms, M.D. Missouri Medical College, St. Louis, 1875, of Racine, Wis., died suddenly from heart disease at Magnolia Springs, Ala., March 13, aged 56.

William J. DeVoe, M.D. College of Physicians and Surgeons, Baltimore, Md., 1887, died at his home in Camptown, Pa., March 7, from heart disease, aged about 50.

Leonard Case, M.D. Medical Department University of Tennessee, Nashville, 1893, died at his home in Chattanooga, Tenn., March 12, after a long illness, aged 47.

Charles E. Ellis, M.D. Medical College of Ohio, Cincinnati, 1889, died at the home of his aunt in Covington, Ky., March 2, after an illness of one week, aged 39.

Adam M. Mohney, M.D. College of Physicians and Surgeons, Baltimore, 1890, died at his home in Rimersburg, Pa., March 11, after a prolonged illness, aged 54.

Perrin H. Aldrich, M.D. Cleveland Medical College, 1871, died at his home in Defiance, Ohio, March 7, from nephritis, after a long illness, aged 67.

George W. Connell, M.D. Medical Department of the University of Missouri, St. Louis, 1851, died at his home in Centralia, Mo., March 11, aged 79.

Joseph Schmitz, M.D. University of Würzburg, Germany, 1878, of New York City, died in St. Joseph's Hospital in that city, March 8, aged 53.

Caspar L. Nauman, M.D. Medical College of Ohio, Cincinnati, 1876, died at his home in West Branch, Mich., March 3, from sclerosis of the liver.

William F. Bland, M.D. Jefferson Medical College, Philadelphia, 1849, died suddenly at his home near Verona, Md., Dec. 25, 1904, aged 77.

Willis G. Pope, M.D. New York, 1870, of Keeseville, N. Y., died in the Albany Hospital, February 27, after an illness of several months.

David L. Ross, M.D. Rush Medical College, Chicago, 1872, died suddenly at his home in Pittston, Pa., March 8, from heart disease, aged 59.

Stanton E. Miller, M.D. Northwestern University Medical School, Chicago, 1887, died at his home in Florida, Ohio, March 5, aged 43.

Egbert J. Vail, M.D. New York City, 1854, died at his home in South Manchester, Conn., March 13, from heart disease, aged 83.

Niven Agnew, M.D. Medical Department of Victoria College, Toronto, 1858, died at Brandon, Manitoba, March 1, from pneumonia.

Robert O. Calvin, M.D. Cleveland Medical College, 1879, died, March 7, from paralysis, at his home in Meadville, Pa., aged 54.

William Meyer, M.D. Rush Medical College, Chicago, 1879, died at his home in Milwaukee, March 15, aged 49.

John W. Kirtland, M.D. Illinois, 1886, died at his home in Lakeview, Mich., March 13, aged about 66.

Book Notices.

A LABORATORY MANUAL OF HUMAN ANATOMY. By Lewellys F. Barker, M.B. Tor., Professor and Head of the Department of Anatomy in the University of Chicago and Rush Medical College. Assisted by Dean De Witt Lewis, A.B., M.D., and Daniel Graisberry Revell, A.B., M.B., Instructor in Anatomy in the University of Chicago. Illustrated. Pp. 583. Price, $5.00. Philadelphia and London: J. B. Lippincott Co. 1904.

This is distinctly a laboratory or dissecting-room manual and not a descriptive anatomy. It teaches how to dissect the human body in order successively and properly to expose the different parts to the best advantage. The various regions of the body are taken up in order, and the points of each are cleary indicated. This is not always done by describing the particular points or features of the part, but cleverly arranged interrogations which direct the student's attention to the part and compels him to exercise his own powers of observation with the result of fixing the facts more firmly in his mind. It is a most excellent method of teaching anatomy in the dissecting room. The illustrations have been selected with care and good judgment from standard atlases and anatomies. Many of them are in colors more clearly to differentiate the tissues.

The adoption of the modern nomenclature as formulated by the German Society of Anatomists is a distinct improvement on the older works. The volume is neatly gotten up, not too large for convenient handling, and, on the whole, it is the best and most modern dissecting-room manual with which we are acquainted.

THE OTHER SIDE OF THE LANTERN. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., Sergeant-Surgeon in Ordinary to H. M. the King. With 40 Illustrations from Photographs, by the Author. Cloth. Price, $5.00 net. Chicago: W. T. Keener & Co. 1905.

Sir Frederick Treves went around the world with his eyes open. He saw more than most men, and has written about what he saw in such a way that the reader sees it, almost. India, Burmah and Ceylon, China and Japan are the countries visited—at least, practically the whole of the book is taken up with these countries. The author came back through the United States, but all he has to say about this country is contained in a half dozen pages. There is a short description of the Yosemite Valley and of the Grand Canon of Arizona, and then there is a jump to Yarmouth, England. The book is written in a strictly popular style; there is scarcely a word to indicate that the writer is a surgeon, although he comments on the Japanese surgeon and on the Japanese Red Cross Society. Of the former he says: "The Japanese surgeon is no longer a servile imitator. He is introducing into his methods the results of his own ingenuity. Many features which in Europe are of the latest suggestion have already been anticipated in Japan. There is every probability that the Japanese school of surgery will become a great school, for the native of Japan has qualities which are excellent in the making of a surgeon; he is not troubled by 'nerves,' he is infinitely patient, fastidiously clean, as well as most neat and dexterous with his hands." The author's style is crisp, occasionally poetical and always interesting.

Miscellany

ISTHMIAN SANITATION.

Newspaper Comment on the Isthmian Canal Commission and Its Methods of Sanitation.

We quote the following from the Boston *Advertiser*, March 15, 1905:

"President Roosevelt is hearing pretty sharply from a good many old and influential friends of his, here in Boston and elsewhere, we find, about the Panama commission. The President has been told that for crass stupidity some of his appointees can not be beaten. The engineers have had some pretty sharp things to say. But the physicians all over the country are the most angry. They have heard from some of the peculiar decisions of the Panama commission; and they agree pretty unanimously that for stupidity on health matters the commission can not be beaten. If the President does not interfere, they agree, the Panama canal will be a disgrace to the United States. And they have plenty of reason for saying so, as they have the proofs in black and white. The records of the canal commission prove everything that needs to be proved, in these charges.

"We do not agree with the physicians when they charge President Roosevelt with bad faith. Theodore Roosevelt is not that kind of a man. Either he misunderstood them or they misunderstood him. They say that when they went to him with practically every possible indorsement of Colonel Gorgas for a place on the commission, he explained that for political reason Gorgas could not have the place, as he was only an army officer and had no political backing. But, they insist, President Roosevelt assured them that Gorgas should have absolute power on the isthmus, on all matters pertaining to the health of the canal workers or the inhabitants of the canal strip. That satisfied them. They did not profess to know much about politics. It might be impossible, as the President said, to put a physician on the Panama commission; and so long as Gorgas could have the power to see that the canal strip was kept free from yellow fever and other pestilences, they felt agreeable to letting Gorgas do his work, in any way that suited the present.

"But the trouble is now that the agreement, if there was any such, has never been kept. Gorgas has had his orders countermanded by the ridiculous commissioners. Even his orders for comparatively inexpensive things, necessary to his work, have been cut down by Grunsky and the others. Of course the most necessary thing on a place like the isthmus, to stop the spread of enteric fevers, is to keep the workmen from the mosquitoes, which spread the diseases. Yet Gorgas' order for mosquito netting, not a very costly article, was cut down by Grunsky to about 20 per cent., according to one statement. And the same story is told as to the other orders given by

Gorgas. The engineers, who feel that a bill for $1,000,000 is little enough for a single plant of excavating machinery, have been horrified at a total of something like $25,000 for protecting a large area from an epidemic that might easily carry off 100 or 200, or even 500 laborers from a camp. The medical critics of the President say that such an idiotic policy will delay the canal work, make it cost more, and give the work such a bad name that it may be almost impossible (as in the case of the French Panama canal) to get workmen except at almost prohibitive wages.

"The matter strikes the American medical men all the more harshly, because they have just seen, in Asia, Oyama's great army massed together weeks and months, without any such epidemics as have been feared on the Isthmus of Panama. The Japanese give the medical director of the army absolute power over the health conditions. The field marshal says what position the troops must hold, but the medical director says from what source the water supply must be had, when and where the men may bathe, how their food shall be cooked, how they shall sleep at night and live by day. Never before in any army has an expert had such powers, as contrasted with those of the commander-in-chief. The result speaks for itself. The whole civilized world has been astounded by the success of the Japanese in saving their men. That is one of the reasons why Oyama is beating Kuropatkin. Healthy men can do better work than sick men. The Panama canal commissioners do not realize the importance of that fact. It is to be hoped that the President will."

Anesthesia in Examination of Severe Injuries.—Whenever possible, resort to anesthesia for the inspection and dressing of severe injuries. It allows the surgeon to take more time, as he is not afraid of hurting the patient, hence he can make a more thorough examination and apply a more efficient dressing. The elimination of pain will also do much toward preventing shock.—*International Journal of Surgery.*

A Happy Compromise.—J. T. Trowbridge, in the *Atlantic Monthly*, tells an anecdote of Oliver Wendell Holmes, typical of his keen wit. When the friends of the rival claimants of the discovery of anesthesia were proposing monuments for each, Holmes suggested the erection of a single memorial, with a central group symbolizing painless surgery, a statue of Jackson on one side, a statue of Morton on the other, and the inscription underneath: "To E(i)ther."

Protector Against Electric Accidents.—A foreign exchange mentions that Professor Artenieff of Kiev, Russia, has invented a protector against industrial electric accidents which is said to answer its purpose well. It consists in a fine wire netting case to cover the entire body, including the head. It does not interfere with the movements of the person wearing it, but conducts away all the electric discharges. With this suit on, he is said to have endured a current of 150,000 volts without experiencing the slightest shock or injury.

Books and Physicians.—The largest part of a physician's equipment is his books. Physicians usually keep more closely up with the procession, from the viewpoint of books, than lawyers. The physicians have to do it, because much of their reputation among their associates depends on the accuracy and the modern finish of their knowledge. A lawyer can more easily dispense with new law books than can a physician with the late medical books. An up-to-date physician has a much more expensive library, as a rule, than a minister, and it is almost as expensive as a lawyer's, the difference being that a lawyer's whole equipment is books, while a physician must have a laboratory and a full complement of instruments.—*Louisville Courier-Journal.*

One Way to Give Oils.—We have more than once, we believe, given the following prescription. The extent to which it is being quoted indicates its popularity and we repeat it. We desire to hear from those who have tried it as to its success: Castor-oil can be given in frothing beer with great facility. It is, however, not always easy nor advisable to give beer, therefore a frothing mixture which serves the same purpose may be used instead. It is in the form of a powder, composed of gum arabic, licorice, and lactose flavored with vanilla. A pinch of this powder, shaken with a little water, produces a very persistent froth, in which any oily substance, as cod-liver oil, castor-oil, iodized or phosphorated oil, and medicines lighter than the mixture, such as the silicate of methyl, essence of santal, etc., can be given without the slightest unpleasant taste.

Height and Weight.—The statistics as to the height and weight of school children, which have now been kept for twenty years in some of the most progressive schools, are of considerable value, especially as affording a basis for comparison and for establishing an average standard of healthy increase in height and weight. In Marlborough such statistics have been kept since 1874, and the statistics show that a boy of 13 weighs on an average 5½ pounds more and is 2 inches taller now than the average boy of 13 in 1874. Not so much difference is shown between the average at the age of 18 then and now. To-day an 18-year-old boy is 4½ pounds heavier and 9/10 of an inch taller. The Rugby statistics, which have been kept since 1879, show that the 13-year-old boy is now 6 pounds heavier and 2½ inches taller than in 1879. But the 17-year-old boy shows in the same period an increase of 9/10 of an inch in height, and a diminution of 1 pound in weight.—*Canadian Journal of Medicine and Surgery.*

Early American Medical Journals.—The first medical journal published in the United States, states the *Medical Book News*, was the *New York Repository*, which was continued from 1796 to 1822. The first medical journal begun in Philadelphia, which city may be called the birthplace of medicine of the early republic, was the *Medical and Physical Journal*, edited by Dr. B. S. Barton, in 1804. It was continued for five years, and made three volumes. Dr. John Redman Coxe originated and edited the *Medical Museum*, in 1805. The next journal was the *Eclectic Repertory and Analytical Review*, published by a medical society. Dr. Chapman of Philadelphia originated the *Medical and Physical Journal, the Second*, in 1820. It was continued under this title until 1827, in which year the title of the periodical was changed to that of the *American Journal of the Medical Sciences*.. This journal was placed under the charge of Dr. Isaac Hays, who guided it constantly and judiciously until he placed the journal in the front rank of American medical literature.

"The Damaged."—The French term "avarié," used to refer to goods damaged in transit, was appropriated by a French playwright, Brieux, to denote persons with a taint of syphilis. He wrote a play with the title of "Les Avariés," which portrayed the dangers of syphilis and its social consequences. The play was widely heralded, but the censor prohibited its publication. This advertised it still further, until the term "avarié" is now firmly settled in the French language. The censor has recently removed his ban, and the play is being given in Paris. The Paris medical journals regard it as something of an event, as the play is conceived in a strictly scientific spirit without exaggeration. It reaches a wider public than the lectures of the syphilidologists, and is liable to make the heedless pause and reflect. The word syphilis is not mentioned in the play, but the announcement is made from the stage beforehand that "les avariés" refers to syphilis. The physician in the play is the principal character. The plot hinges on his professional knowledge of the syphilitic taint in certain of the other characters.

Influence of the Physician on the Nation.—The physician can in no possible way serve the nation better than by teaching the mothers of the nation how to rear the children of the nation. It is the physician who comes in deliberate contact with the daily family life and who speaks and they believe. The physician is the physical guardian of the rising generation, and determines in a great measure the character of the spiritual, commercial and political life of the nation; in fact, he aids the people of the nation to receive what they have a right to demand. As a result of his having lived and lived nobly,

there will be happier homes, fewer disappointed lives and less crime; in such a capacity, and from a standpoint of national work, the physician is the most important member of the community in which he resides. A more valuable man to the state or nation than a man in any other calling, who prepares the soil, and without sound bodies and normal minds, sacred and religious teachings are of little avail. Where the nation shall stand twenty-five or fifty years hence, and what position it shall occupy among the nations of the earth, depend more on the physicians of to-day than on any other calling whatever.—*Charles Gilmore Kerley.*

The Use of Proprietaries.—In the *Medico-Chirurgical Journal* for February Dr. O. Luther Latchford advises physicians to confine themselves to official drugs and to study the U. S. Pharmacopeia and the National Formulary rather than the literature sent out by proprietary medicine firms. He points out that the successful men in the profession adhere strictly to the drugs and preparations in the pharmacopeia and in the National Formulary. He states that chemical analysis of many preparations with euphonious names shows that they often consist of the most common and inert drugs and chemicals. Dr. Latchford considers that the prescribing of proprietaries leads to counter prescribing by the druggist and to self-medication by the patient. He emphasizes the well-known fact that the patient quickly learns to read prescriptions and then applies his knowledge by buying the preparations himself without consulting the physician. Dr. Latchford points out that a patient will not only prescribe for himself in this way, but for all his friends, and thus the physician suffers. The author states that in using proprietary medicines there is danger of neglecting conditions which are not apparent from a superficial examination and calls attention to the impossibility of applying a ready-made formula to every case. He states that while acute poisoning is guarded against, in most proprietary preparations, a cumulative action often results in chronic poisoning. He advises physicians to "hold fast to that which is good," viz., the U. S. Pharmacopeia, and states that no physician can go astray if he adopts it as a guide to all that is old or new in medicine.

Changes in Medical Journals.—Dr. J. MacDonald, New York City, late managing editor of the *International Journal of Surgery*, has resigned his position with that publication after being connected with it for fourteen years, and will establish an independent journal "under absolute professional control" to be called the *American Journal of Surgery*. He has purchased *American Surgery and Gynecology*, formerly issued in St. Louis by Dr. Emory Lanphear, and will merge it into the new publication. Dr. Lanphear is retiring from journalism after nearly twenty-five years' work in that field.—— The *Canadian Medical Record*, for many years conducted by Dr. F. W. Campbell, dean of the medical faculty of Bishop's College University, has ceased publication and has become incorporated with the *Montreal Medical Journal*.—— A new publication which has come to our desk is the *Hospital Bulletin* of the University of Maryland, edited by a committee of the hospital staff. The first number contains several original articles with illustrations; there are also some editorials and a number of abstracts and news items. It is announced that the bulletin will be devoted to the publication of hospital material and to advancing the interests of the university and its alumni in all possible ways.

The Study of the History of Medicine.—In a presidential address delivered before the Medical and Chirurgical Faculty of the State of Maryland on its 105th anniversary, Dr. Eugene F. Cordell lamented the meagerness of the teaching of this subject in the medical departments of American universities, says the *Medical Book News*. He had written for information to 14 of these and had learned that in only 3—namely, the Universities of Pennsylvania, Maryland, and Minnesota—was there a full course of lectures on the history of medicine. Johns Hopkins Hospital, however, has a historical club which does excellent work in furthering the study of medical history by assembling for the reading of papers. Harvard University attempted a course of lectures but "no interest was shown" and the course was abandoned. The only course of lectures in Great Britain is that recently founded by the widow of the late Dr. FitzPatrick at the Royal College of Physicians of London, two courses of which have been already delivered by Dr. J. F. Payne. Dr. Cordell proceeded in his address to show that a study of medical history teaches us what and how to investigate; that it is an antidote for error, egotism, and despondency; that it increases knowledge, broadens the view and strengthens the judgment; that it is a mine from which many neglected or overlooked discoveries may be brought to light, and that it teaches us to cherish our best traditions.

The Way to Sponge a Fever Patient.—We quote a prize-winning description of how to administer a sponge bath which appeared in the *Hospital*: When about to commence to sponge a fever patient the exact temperature of the body must first be noted. For tepid sponging the water prepared should be from 80 to 90 degrees F. Remove all personal clothing from patient and place blankets both under and over him. Place beside the bed all basins, sponges and towels, or anything that may be required, as under no circumstances should a patient be left during the operation. Commence at the head and sponge downward, exposing only one limb at a time. When the whole body has been sponged the patient should be wrapped in a warm blanket and left undisturbed for an hour or even longer. The temperature may then be taken again to ascertain how much it has been reduced. The same precautions should be used in cold sponging as in tepid. It will, however, be found advisable to sponge each limb over with tepid water before applying the cold, as it will then cause less shock to the patient. It is wise to keep a hot bottle at the patient's feet during sponging, as with the feet warm there is less fear of chill, and in the case of a fever patient there is always more or less danger of collapse. When the temperature has been reduced the body must be gently dried and a flannel night-gown put on. After a cold sponge the temperature may fall from 1 to 6 degrees, the colder the water the sooner the reaction takes place. Ammonia, cologne water or vinegar added to the water makes it more cooling by its rapid evaporation. Sponging can also be done by wringing towels out of cold water, dry enough not to drip, and placing them one after another from the neck downward. When the feet are reached, begin again at the head and renew each in succession, continuing as long as necessary.

Fango Treatment.—The application of hot volcanic mud, or fango as the Italians call it, for the relief of gout, rheumatism, sciatica and similar painful ailments, is discussed by Sharpe in the *Journal of Balneology and Climatology* for January, 1905. In appearance fango is a soft, grayish brown, plastic substance of about the consistency of butter, and equally soft to the touch. It is without odor, and after application is quickly and completely removed from the skin by means of a douche of warm water, leaving the surface absolutely clean. In order to bring the fango to a proper temperature for application to the body, it is heated in a large water or steam-jacketed pan. The heating takes place slowly, but the cooling is equally slow, and once a large mass of fango is raised to the right temperature, it takes hours to cool. The application is practically a huge sterilized mineral poultice enveloping the part affected. In numerous instances it has produced such rapid and marked effects when all other heat applications have been tried and found wanting, that Sharpe is using a large amount of this stuff in the treatment of stiff and painful joints, from whatever cause. Of 70 cases treated only 4 failed to get some measure of relief. In 30 chronic cases of from some months to many years' standing, the relief was substantial, and in 36 recent rheumatic, gouty and traumatic cases the trouble was entirely removed. The physiologic effects of fango are: 1. Stimulation of cutaneous reflexes with dilatation of superficial capillaries. 2. Increased activity in the normal process of absorption of morbid deposits and repair of damaged tissues. 3. Marked systemic effect, the entire skin

surface perspiring freely, thus insuring increased excretion and elimination. 4. Slight increase of the body temperature rarely exceeding two degrees, subsiding rapidly after removal of the pack, and probably due to direct heating of the blood.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

REMOVAL OF TATTOO MARKS.

GLOSTER, MISS., March 15, 1905.

To the Editor:—I have a patient who has been "tattooed" with India ink or some other stain and now wishes to have it removed; will you kindly suggest some harmless method whereby I can remove the objectionable stain? H. U. STREET, M.D.

ANSWER.—There is no entirely satisfactory method of removing tattoo marks and other marks due to the deposit of insoluble color substances in the skin. The principle of almost all of the methods for removing these marks is to cause their destruction either by mechanical means or by the production of an inflammatory process which causes a superficial eschar. Small marks can be removed by excision or by electrolysis. In removing them by electrolysis, the needle attached to the negative pole is inserted parallel to the surface of the skin into the mark and a current of from 5 to 8 milliamperes (5 to 10 small bichromate cells) is passed through the needle. Several such punctures are made parallel to each other until the surface is blanched. Usually it is not necessary to allow the current to pass for more than 20 to 30 seconds for each puncture. In this way, a superficial eschar is formed which will drop off in the course of a week and will leave a white superficial scar. Of course, neither this method nor excision is satisfactory for large marks. For all but the smallest marks the method of treatment is to produce a violent inflammatory reaction and a superficial eschar by the use of a chemical. Various methods of doing this have been suggested. Perhaps the best of these is Variot's, which is as follows: First place on the tattoo mark a strong solution of tannin and tattoo this into the surface. Then the surface is rubbed vigorously with a nitrate of silver stick until the area becomes black from the formation of a silver tannate in and on the skin. In the course of the next two or three days there is a moderate inflammatory process and a close adherent crust forms. Ordinarily there is not much pain and after the third or fourth day this almost disappears, except on motion of the parts, unless secondary infection should occur. After about two weeks the crust comes away, leaving a superficial, pink cicatrix, which gradually becomes of normal color. After about two months the scar is hardly noticeable. It may be necessary to repeat the treatment when it has not been vigorous enough.

OWNERSHIP OF NURSE'S RECORD.

WHITE EARTH, N. D., March 15, 1905.

To the Editor:—In a case of typhoid fever in my private practice where a trained nurse was employed, a record of the case was kept by the nurse at my orders. To whom does this record belong, according to law or usage, or both? Patient's mother refuses to remit fee until record is given to him, she claiming it on the ground that the nurse was in his employ and that the product of her labor belongs to him. Record is either lost or destroyed.

A. A. W.

ANSWER.—A nurse is presumed to perform her duties under the direction of the physician. A record is made for the physician, on blanks often furnished by him, and naturally belongs to him. It must be remembered, however, that sometimes the nurse is employed directly by the patient, and as such an employe the nurse might be instructed to make a record, and in that case such record would belong to the patient.

BOOK ON HYGIENE FOR THE LAITY.

ELLOREE, S. C., March 6, 1905.

To the Editor:—Please advise me as to a book on hygiene that would be suited for a private family; one as free as possible from technicalities would be best. SOPHIA BRUNSON, M.D.

ANSWER.—An excellent book for your need is "A Manual of Personal Hygiene," by Walter Pyle of Philadelphia, published by W. B. Saunders & Co., Philadelphia. This is simple, yet complete; it has recently been thoroughly revised and includes home treatment by the use of water, massage, exercise, etc. Its advice is safe and the physician will find it in the hands of patients to be a help toward intelligent co-operation.

RELATIONS OF GRADUATES OF AMALGAMATED SCHOOLS.

CAMBRIDGE, MASS., March 18, 1905.

To the Editor:—When one medical school is amalgamated with another, what is the status of a graduate of the school that is absorbed? J.

ANSWER.—The change will not alter his status in the profession. He is still an alumnus of the old institution and is also an adopted son of the new school.

State Boards of Registration.

COMING EXAMINATIONS.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Central District Board of Medical Examiners for the Indian Territory, South McAlester, April 3, 1905. Secretary, B. W. Caldwell, M.D., Hugo.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Vermont February Report.—The report of the Vermont State Board of Medical Registration, held February 7-9, published in THE JOURNAL, March 11, should read:

College.	Year Grad.	Per Cent.
PASSED.		
University of Vermont	(1904)	75
FAILED.		
Laval University	(1904)	63

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 18, 1905:

Wilson, William H., asst.-surgeon, granted four months' leave of absence, with permission to go beyond the sea.

DeLoffre, Samuel M., asst.-surgeon, reports change of status from duty, to go on leave of absence for thirty days.

Snyder, Henry D., surgeon, ordered to proceed from Fort Sam Houston, Texas, to Governor's Island, N. Y., as witness before retiring board.

Reilly, John J., asst.-surgeon, granted six months' sick leave of absence.

Pierson, R. H., asst.-surgeon, left General Hospital, Fort Bayard, N. M., on forty days' leave of absence.

Bourke, James, asst.-surgeon, reported for temporary duty at Medical Supply Depot, New York City.

Porter, R. S., asst.-surgeon, leave of absence extended ten days.

Bartlett, C. J., asst.-surgeon, left Army and Navy General Hospital, Hot Springs, Ark., on ten days' leave of absence.

Shellenberger, James E., contract surgeon, ordered from temporary duty at Jackson Barracks, La., to his proper station, Fort Sam Houston, Texas.

Halliday, Francis A., contract surgeon, ordered from Fort McPherson, Ga., to Fort Caswell, N. C., for duty.

Lemmon, Robert, contract surgeon, ordered from Fort Wadsworth, N. Y., to temporary duty at Fort Schuyler, N. Y., and on its completion, to return to his proper station, Fort McKinley, Me.

Tenney, Elmer S., contract surgeon, ordered from Allston, Mass., to duty at Fort Strong, Mass.

Marvin, Marion F., contract surgeon, arrived at Fort Robinson, Neb., for duty.

Rebert, Michael A., contract surgeon, left Fort Totten, N. Y., on leave of absence for ten days.

Dougherty, James C., contract surgeon, left Fort Slocum, N. Y., with recruits for Columbus Barracks, Ohio.

Dickenson, Clarence F., contract surgeon, relieved from further duty in the Philippine Division, and ordered to Fort Logan, Colo., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 18, 1905:

Anderson, F., medical inspector, detached from the *Brooklyn* and ordered home to wait orders.

Norton, O. D., surgeon, ordered to the *Olympia*.

Steele, J. M., surgeon, detached from the *Olympia* and ordered to the *Brooklyn*.

Backus, J. W., asst.-surgeon, detached from the Naval Hospital, Portsmouth, N. H., and ordered to continue duties on the *Southery*.

Foster, T. G., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va.

Bishop, L. W., asst.-surgeon, detached from the Navy Yard, New York, N. Y., and ordered to the Naval Hospital, Portsmouth, N. H., with additional duties on the *Southery*.

Schwerin, L. H., asst.-surgeon, ordered to the *Hancock*.

Furlong, F. M., P. A. surgeon, detached from the *New York*, when placed out of commission, and ordered home to wait orders.

Smith, G. T., surgeon, detached from the Naval Hospital, Norfolk, Va., and directed to wait orders.

Rothganger, G., surgeon, ordered to the Naval Hospital, Norfolk, Va.

Nash, F. S., surgeon, appointed surgeon from Feb. 23, 1905.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 15, 1905:

Stoner, G. W., surgeon, three days' leave of absence under Paragraph 191 of the Regulations.

Wickes, H. W., P. A. surgeon, to rejoin station at Reedy Island Quarantine.

Mathewson, H. S., P. A. surgeon, granted leave of absence for five days from March 13.

Billings, W. C., P. A. surgeon, granted extension of leave of absence for five days from March 17.

Wilson, R. L., P. A. surgeon, relieved from duty at the Hygienic Laboratory. Bureau letter of February 8, granting leave of absence for one month from March 1, 1905, amended so that said leave shall be for twenty-three days.

Berry, T. D., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

McLaughlin, A. J., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Long, J. D., asst.-surgeon, to report to chairman of board of examiners at Manila, P. I., May 15, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Francis, Edw., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Boggess, J. S., asst.-surgeon, granted leave of absence for four days from March 21.

McCoy, G. W., asst.-surgeon, to report to chairman of board of examiners at Manila, P. I., May 15, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Warren, B. S., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Ebersole, R. E., asst.-surgeon, granted leave of absence for ten days from March 15.

Barnes, W., A. A. surgeon, granted leave of absence for two days from March 15.

Hammond, A. P., A. A. surgeon, granted leave of absence for five days from March 7, 1905, under Paragraph 210 of the Regulations.

Walkley, W. S., A. A. surgeon, granted leave of absence for two days from March 16.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., March 27, 1905, for the examination of assistant surgeons. Detail for the board: Asst.-Surgeon-General G. T. Vaughan, chairman; Surgeon D. A. Carmichael; P. A. Surgeon Jos. Goldberger, recorder.

Board convened to meet at Manila, P. I., for the examination of assistant surgeons. Detail for the board: P. A. Surgeon V. G. Heiser, chairman; P. A. Surgeon Carroll Fox; P. A. Surgeon C. W. Vogel, recorder.

Bureau letter of March 8, 1905, convening a board to meet at San Francisco, April 3, 1905, for the examination of assistant surgeons, revoked.

Health Reports.

The following cases of smallpox, yellow fever and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended March 17, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 4-11, 3 cases.
Florida: Jacksonville, March 4-11, 1 case.
Georgia: Macon, March 4-11, 1 death.
Illinois: March 4-11, Chicago, 6 deaths; Danville, 16 cases.
Kentucky: Louisville, March 2-9, 4 cases.
Louisiana: New Orleans, March 4-11, 17 cases, 5 imported.
Michigan: Detroit, March 4-11, 1 case; at 187 places, Feb. 18-25, present.
Missouri: St. Louis, March 4-11, 38 cases, 2 deaths.
New York: March 4-11, Mount Vernon, 1 case; New York City, 1 case.
Ohio: Zanesville, Jan. 28-Feb. 4, 1 case.
South Carolina: Charleston, March 4-11, 2 cases; Greenville, Feb. 25-March 11, 7 cases, 8 deaths.
Tennessee: Memphis, March 4-11, 20 cases; Nashville, March 4-11, 1 case.
West Virginia: Wheeling, Feb. 25-March 4, 1 case.
Wisconsin: Milwaukee, Feb. 25-March 11, 28 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Jan. 21-Feb. 16, 27 cases, 2 deaths; Para, Feb. 7, present; Rio de Janeiro, Jan. 29-Feb. 12, 47 cases, 22 deaths.
China: Shanghai, Jan. 22-Feb. 4, 15 cases foreigners, 35 deaths natives.
Ecuador: Guayaquil, Feb. 14-21, 2 deaths; Porto Viejo, Feb. 23, present.
France: Paris: Feb. 18-25, 23 cases.
Great Britain: Feb. 18-25, Birmingham, 3 cases; Leeds, 4 cases; Leith, 1 case; Newcastle-on-Tyne, 11 cases; Nottingham, 1 case; South Shields, 5 cases; Glasgow, Feb. 27-March 3, 2 cases.
India: Bombay, Feb. 7-14, 124 deaths; Calcutta, Feb. 4-11, 4 deaths; Karachi, Feb. 5-12, 3 cases, 2 deaths; Madras, Feb. 4-10, 2 deaths.
Italy: Catania, Feb. 18-25, 1 death.
Norway: Christiania, Feb. 11-25, 3 cases.
Russia: Moscow, Feb. 4-18, 13 cases, 4 deaths; Odessa, Feb. 11-18, 2 cases, 1 death; St. Petersburg, Feb. 4-11, 5 cases.
Spain: Barcelona, Feb. 10-20, 20 deaths.
Turkey: Constantinople, Feb. 12-19, 4 deaths.
Uruguay: Montevideo, Feb. 7, epidemic.
West Indies: Grenada, Feb. 9-23, 10 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 29-Feb. 12, 16 cases, 7 deaths.
Ecuador: Guayaquil, Feb. 14-21, 4 deaths.
Panama, Panama, Jan. 1-March 4, 33 cases, 14 deaths.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, Jan. 27-Feb. 12, 20 cases, 6 deaths.
India: Bombay, Feb. 7-14, 537 deaths; Calcutta, Feb. 4-11, 106 deaths; Karachi, Feb. 5-12, 54 cases, 52 deaths.

Medical Organization.

THE COMING STATE MEETINGS.

J. N. McCormack, M.D.

NATIONAL ORGANIZER OF THE AMERICAN MEDICAL ASSOCIATION.

BOWLING GREEN, KY.

It has been my privilege within the last four years—and I esteem it to have been a great one—to attend the meetings and to make a careful study of the proceedings and the methods of nearly all of the state societies in the United States. The meetings in some states were so interesting and profitable and in others so barren of practical results as to make the causes for this disparity an interesting subject for investigation, especially as the available material and personnel for the programe usually seemed to be about equally abundant.

The success of these meetings is so important at the present stage of the organization work, and is so dependent on the forethought and the efficiency of president, secretary, committee on scientific work, committee of arrangements, councilors and other officers, that it seems proper for me, in the light of an experience which has not before been possible to any other person, to offer some suggestions for the consideration of those charged with such important duties during the transition from the old to the new plan of organization. As practically all but three of these societies are now operating under the uniform plan, my suggestions will be directed more especially to methods adapted to work under it.

The secretary, councilors and committee on scientific work should have begun the preparation for the next annual program from the adjournment of the last meeting. If they have kept in close touch with their county societies, through the abundant agencies provided in the by-laws, and have made these the active bodies and feeders they were intended to be, and have stimulated members to present their best work there, in the way of postgraduate and original investigations, as well as set papers and discussions, and have followed these up during the year, it will be largely a question of selection to get the best of these for their programs, revised and revamped as a result of the criticism to which they were subjected in the home society. These should be grouped into symposia, as far as practicable, and those who are to take part in the discussions should be prepared for crisp, brief and well-digested talks, to be followed by free general discussion, strictly limited as to time and kept well in hand by the pre-

siding officer and the "master of debate," selected from the committee on scientific work. This assistant to the secretary should be on the alert, constantly but unobtrusively, to see that those who are to take part in the discussions are in place and ready for the duties assigned them. Promising younger members who have been especially active in their county societies should be encouraged by being given places on the program for both papers and set discussions, the older members being relied on more for the general discussions. A sharp lookout should be kept for such young men at all times in the proceedings of both the county and state meetings. No one should ever be put on the program who failed from any cause except illness to fill any part assigned to him at the last meeting, and this rule should be given prominence on the printed program. Two ushers should be on hand constantly to see that members and visitors are seated, and especial attention should be given to such older members as are in the habit of grouping themselves together in the rear of the hall and disturbing the proceedings by loud conversation and other unseemly practices.

With such a program and arrangements, and freed from the time-consuming parliamentary and business discussions, and the duty of electing the officers, the general meeting can in future devote its entire time to scientific work. Under a model program, of which I have seen several in operation, the invocation, address of welcome and response should be followed by the first symposium within twenty minutes after the meeting has been called to order, and papers and discussions should follow from hour to hour and from day to day until the program has been completed without an intervening motion, unless it be some motion directly connected with the scientific work. A motion on any other subject should, of course, go to the house of delegates at once and without debate.

No exhibit should ever be permitted about the hall or its approaches, and the contracts should always require that they be closed during the hours of meeting. Nothing unethical should even be considered for the exhibit rooms, and probably nothing should be admitted which is not advertised in the state journal, where one is maintained.

The duties of the house of delegates are so well defined in the constitution and by-laws as to require little elaboration. Its program should be entirely distinct from that of the General Meeting, following it in the same leaflet, for the information and guidance of all members. Its first meeting should be held in the afternoon of the day preceding that fixed for the General Meeting. By holding an afternoon and evening session thus in advance its business may usually be so shaped as to enable delegates to attend nearly all of the scientific meetings. Its hall may be much smaller, but should have convenient rooms for committees and should be sufficiently remote from the hall assigned to the General Meeting to prevent interruption, should it be necessary, for any reason, for both bodies to be in session at the same time. The importance of these details should be impressed on the committee of arrangements long in advance, as much of the comfort and success of the session will depend on the attention given to them.

At least one session should be devoted to the discussion of the status and enforcement of the medical and health laws of the state. The state board of health and the state board of medical examiners, or delegates from these bodies, should be invited to be present and take part in these discussions, with the view of securing the harmony and concert of action so essential in procuring and enforcing proper legislation. Through the delegates, detailed reports should be heard as to the condition and needs of the profession in each county, supplemented by suggestions and recommendations from the councilor of the district. To do all these things, in addition to the manifold other duties imposed by the by-laws, it may sometimes be necessary for the house to sit on the second or third day while the General Meeting is in session, but this should be avoided if possible, even if it is necessary to remain in session for a day after the larger meeting has adjourned. As this body will grow in importance and occupy more and more time as the methods for the enforcement of medical and health laws are perfected, no one should accept the office of delegate who will not devote himself to the work set for him and remain each year until it is completed.

Meetings conducted on the plans here outlined are pleasant and successful almost beyond the conception of those who are only familiar with the methods of the old societies. As soon as the possibilities within reach under them are fully realized they will attract the attention and command the respect of all those interested in scientific medicine in every state, and give satisfaction to all except the few politicians and senior wranglers who could talk endlessly on parliamentary or business questions under the old régime, without effort or preparation.

Ramsey County Medical Society.

The annual meeting of the Ramsey County Medical Society, says the editor of the *St. Paul Medical Journal*, showed the most satisfactory and prosperous condition of its affairs that has existed in its entire history. The library has grown in size and usefulness, and now has upward of 4,500 volumes on its shelves, and receives regularly and keeps on file 150 periodicals. During 1904, 1,500 readers used the library. The catgut industry is growing rapidly, and its profits and those of the *Journal* were larger than in any previous year, and from these two sources there was added a very substantial sum of money to the building fund of the society, which is assuming very respectable proportions. The members of the Ramsey County Medical Society may well be proud of the work they are doing, and each member of the society should make an effort to do something to help our money-makers during the year. Keep an eye open for new subscribers to the journal; when the agents of the pharmaceutical and instrument houses come around ask them if their firms advertise with us, and when you can consistently do so favor those who do advertise with us. Talk catgut to your friends from out of town, and if they have not used our catgut see that they do so; the laboratory will gladly send sample envelopes whenever asked to do so. Remember that every member of the society is a part owner in our property, and that the more money we make the sooner we will be able to accomplish what we are all working for, the acquisition of a building and a home of our own.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
Medical Association of the District of Columbia, Washington, April 4.
Association of American Medical Colleges, Chicago, April 10.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Association of the State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
American Medico-Psychological Association, San Antonio, Texas, April 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Feb. 8, 1905.

The President, Dr. James M. Anders, in the Chair.

Symposium on Gastric Ulcer.

ETIOLOGY AND PATHOLOGY.

DR. JOSEPH MCFARLAND concludes that two factors, one incidental and one essential, are engaged in the etiology of gastric ulcer. The incidental factor is the gastric juice, containing the proteolytic serum without which the formation of gastric ulcer is impossible. The essential factor is a loss in the natural immunity of a circumscribed portion of the gastric mucous membrane, in consequence of malnutrition, resulting from thrombosis, embolism, traumatic injury and the other obstructions of the minute nutrient vessels in the gastric wall, or their infections or toxic agents circulating in these vessels. The relation of anemia to gastric ulcer he thinks quite as probably secondary as primary.

INCIDENCE IN PHILADELPHIA.

DR. ALBERT P. FRANCINE analyzed the postmortem records of the Philadelphia Hospital for the years Jan. 1, 1893, to Dec. 31, 1903, inclusive, and based the following conclusions on the result of his studies: Total number of autopsies in these years, 2,830. Ulcers in association with chronic neph-

ritis, 16 gastric and 1 duodenal; with tuberculosis, 11 gastric and 1 duodenal; with both tuberculosis and nephritis, 3 gastric: with chronic bronchitis, 1 gastric; with pneumonia, 1 gastric; with atelectasis of lung, 1 both gastric and duodenal; with carcinoma of stomach or elsewhere, 4 gastric; with fatty heart, 1 both gastric and duodenal; with enterocolitis in infants, 2 gastric. In 20 out of 42 cases, 47 per cent., the ulcers were multiple. The sexes were equally divided. The average age for males and females was 43 years. The greatest number of cases in males (5) occurred between 50 and 60 years, and in females (5) between 40 and 50 years. Three of the cases were in infants, 10, 20 and 36 months old. The largest ulcer measured 9 cm. to 10 cm. by 8 cm. to 10 cm.

SYMPTOMATOLOGY AND DIAGNOSIS.

Dr. Campbell P. Howard of Baltimore said the mode of onset in the majority of cases is gradual and insidious. In the smaller group hematemesis and perforation are sudden. In acute gastric ulcer blood is, as a rule, vomited. In the chronic form pain, vomiting and hematemesis are cardinal symptoms. In every case of gastric ulcer there is some hemorrhage, though it may not appear for months or years after the onset. The physical examination is negative in many complicated cases, except that tenderness is present. The most frequent secondary complications are hypertrophy of the pylorus, adhesions and inverted viscera. Dilatation of the stomach signifies pyloric obstruction.

MEDICAL TREATMENT.

Dr. F. P. Henry said that the tendency of gastric ulcer is toward recovery; therefore, the object of treatment should be to assist nature, and the most important indication is rest, both general and local. The latter is best secured by rectal feeding. Opium and its preparations per os are conducive to rest by allaying pain and peristalsis and blunting appetite. Hyperacidity should be counteracted by lime water and bismuth rather than by sodium bicarbonate, which, on account of the evolution of gas attendant on its administration, might distend the stomach to a dangerous extent. Milk, raw, boiled or peptonized, is the best article of diet in the early stages. Buttermilk is sometimes an excellent succedaneum. The formation of tough coagula may be prevented by mixing the milk with a little well-boiled flour or arrowroot. Of medicines he recommends bismuth subnitrate in large doses, suspended in barley water or mucilage. Nitrate of silver is useless and calomel injurious, interfering with healing processes. Carlsbad water and Carlsbad salts are useful as antacids and laxatives. When chlorosis is present, iron albumin prepared extemporaneously by mingling a solution of sesquichlorid of iron with "egg water," is recommended.

SURGICAL TREATMENT.

Dr. William L. Rodman stated that this resolves itself into treatment of the ulcer itself and of the several complications. He believes that perforation is far more common than is thought. The treatment of hemorrhage is generally medical, but if there is shown a recurring feature the treatment should be surgical. The treatment of stricture or hour-glass stomach is a question of physics and not of chemics, and generally should be by operation. Uncomplicated gastric ulcer, in the vast majority of instances, can be treated by medical means. One should operate only after medical means have been fairly tried for at least four weeks without results. Then the abdomen should be opened, but without any positive convictions of what should be done until the stomach is examined from the pylorus to the cardia, after which the procedure best adapted to the conditions present should be carried out.

DISCUSSION.

Dr. Alfred Stengel agreed with Dr. Howard that it is possible to distinguish between the acute and chronic form of ulcer, but that this is a clinical rather than a pathologic differentiation. Chronic forms of ulcer impress him as being simply of the indolent type with the same general pathologic basis and nature as the acute, but with different local conditions which cause their different course. Statistics would be much clearer if all cases were based on a pathologic study after careful discrimination between the different types of ulcers and erosions, which ought not to be called ulcers. He agreed that gastric ulcer is a medical disease, unless resistance shows that medical treatment will not avail. He thought the frequent association of gastric ulcer with nephritis and tuberculosis shown by Dr. Francine in the statistics of Blockley might be accounted for by the character of the patients in that hospital.

Dr. John H. Gibbon believes that many cases of gastric ulcer that recover after operation do so because of the after-treatment. The patient should be fed by the bowel for three weeks. He referred to the fact that often in the presence of gastric symptoms and a palpable tumor in the abdomen there is the belief that malignancy is present and a wrong prognosis is therefore given. In all such cases where there is the slightest doubt he advises exploratory operation.

Dr. Lambert Ott found that the administration of 5 grains of nitrate of silver in 6 ounces of water, a tablespoonful in a wineglass of water half an hour before meals, gives good results. He does not approve of boiled milk as a dietary, but has accomplished the best results in using milk as a basis with broth.

Dr. Joseph Sailer said that the rather small percentage of gastric ulcer in this country suggested the possibility of the condition being overlooked by pathologists. He thinks the most important element in treatment is absolute rest. Reports of different men show practically the same results whether feeding is by the mouth or rectum. He prefers the latter method. After commencing alimentation by the mouth, olive oil and some of the bland nutriments may be given without harm to the mucous membrane of the stomach. The entire disappearance of symptoms for two or three weeks, with no blood in the stools, and the patient on a liberal diet, may be accepted as evidence of recovery.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Cystitis.

H. K. Stockwell, Yarmouth, Me., recommends the following combination, which, in his experience, has proved very satisfactory in the treatment of cystitis associated with alkalinity of the urine.

℞.	Salol.	
	Acidi boracici, āā.....gr. v	3
	Codeinæ sulph. .....gr. ¼	01

M. Ft. chartula No. i. Sig. One powder after meals and at bedtime.

Measles.

Stevens, in *Med News*, outlines the following treatment in measles: Administer small initial doses of calomel, preceded by a glycerin suppository. The severe vomiting is usually best controlled by cracked ice, lime water or bismuth. The following is recommended to increase the elimination by the skin and kidneys:

℞.	Potass. citratis 3ii	8
	Vini ipecacuanhæ 3ii	8
	Tinct. opii camph.....3iii	12
	Syr. tolutani .....℥i	30
	Aquæ cinnamoni q. s. ad.....℥iii	90

M. Sig.: One teaspoonful every three hours.

Pulmonary Hemorrhage.

Hemoptysis occurs in the first stage of tuberculosis occasionally, in the second stage rarely, in the third stage frequently, according to Seymour Taylor of London. If it occurs in the first stage it does good, as a rule, and not harm.

The treatment of hemoptysis in the third stage, according to this author, is most important. In carrying out this treatment attention must be given to the house, to the room and to the patient. As to the house, the physician in attendance must get rid of friends, allay all noise, institute proper ventilation, and give assurances of recovery to the patient. No examination of the patient should be made except to locate the seat of hemorrhage. Do not raise the patient to an upright position nor turn him in bed. There is no harm in the patient fainting. The patient should not be left until the hemorrhage stops. The treatment consists in: 1, Local applications of ice, which do no good except in old superficial cavities, unless confidence is given the patient; 2, wet cupping, by the withdrawal of from one to two ounces of blood, is of service.

The cough may be relieved by means of hypodermic injections of opium or morphin. Or the following may be given:

℞. Liq. ext. opii (B. P.) ..... m. x | 65
Ext. ergotæ fld ..... m. xv | 1
Tinct. digitalis ..... m. x | 65
Aquæ camphoræ ..... ℥i | 30
M. Sig.: One teaspoonful every two hours.

Calcium chlorid is also recommended, given internally, in the treatment of the hemorrhage. The following day, after the hemorrhage has been checked and reaction has taken place, as shown by the elevation of the temperature and pulse, bleeding will do good after from 24 to 36 hours have passed.

The mineral acids are not of much importance in the treatment of hemoptysis, according to this author. However, the following combination is worthy of trial:

℞. Acidi sulphurici dil. ..... gtt. x | 65
Liq. morphinæ hydrochlor. ..... gtt. v | 30
M. Sig.: To be taken at one dose and repeated in three hours.

The vegetable acids (gallic and tannic) are of no value. By producing astringent effect in the bowels the pulse goes up and hemorrhage recurs.

Calomel is recommended given in three-grain doses (.20).

Potassium iodid may also prove valuable if given in small doses at first, so as better to saturate the system.

Ingals recommends as the most efficient remedies in checking the hemorrhage, full doses of ergot, gallic acid, or lead acetate and opium. Hemorrhage may sometimes be checked by the inhalation of a spray from a weak solution of the following:

℞. Liq. ferri subsulphatis ..... m. x | 65
Aquæ q. s. ad ..... ℥i | 30
M. Sig.: To be used as a spray.

It must not be forgotten that, as a rule, the hemorrhage usually ceases in a short time by simply keeping the patient at rest, whether remedies are used or not.

The following combinations are sometimes recommended in the treatment of pulmonary hemorrhage:

℞. Pulv. opii ..... gr. vi | 40
Acidi gallici ..... gr. xxx | 2
M. Ft. cap. No. xii. Sig.: One capsule every three hours. Or:

℞. Pulv. opii ..... gr. v | 30
Plumbi acetatis ..... gr. xx | 1 | 30
M. Ft. cap. No. x. Sig.: One capsule every three hours.

In any case, there is often greater danger of doing too much than too little.

Ergotin is also of value, according to some authorities, combined as follows:

℞. Ergotini ..... 3ss | 2
Morph. hydrochlor. ..... gr. iss | 09
M. Ft. pil. No. x. Sig.: One pill three times a day. Or:

℞. Spts. terebinthinæ ..... 3iss | 6
Olei amygdalæ ..... 3iss | 6
Mucil. acaciæ ..... 3v | 20
Syr. simplicis ..... 3v | 20
Aquæ q. s. ad ..... ℥viii | 240
M. Ft. emulsio. Sig.: One tablespoonful every hour.

The following treatment of hemoptysis is suggested by the *Med. Press:* Injections of forty drops (2.65) of a 1-1000 adrenalin solution, or injections of gelatin one and a half drams (6.00) to ten ounces (300). Or:

℞. Hydrastinin hydrochlor. ..... gr. ii | 12
Aquæ ..... ℥v | 150
M. Sig.: One tablespoonful every hour. Or:

℞. Hydrastinin hydrochlor. ..... gr. ss | 03
Quin. hydrobrom. ..... gr. i | 06
Ext. belladonnæ ..... gr. 1/5 | 012
M. Ft. pilula No. i. Sig.: One such pill night and morning. Or:

℞. Calcii chloridi ..... ℥i | 4
Tinct. opii ..... ℥ss | 2
Syr. aurantii ..... ℥i | 30
Aquæ menth. pip. ..... ℥iv | 120
M. Sig.: One tablespoonful every two hours.

Fitzgerald, in *Cleveland Medical Jour.*, states that the best treatment of hemoptysis requires: 1, Absolute physical rest; 2, mental quiet and relief from fear and anxiety; 3, morphin and atropin in sufficient doses to insure both the preceding; 4, control of cough, fever and pleuritic pain, and careful attention to diet; 5, suggestive measures as icecaps over the heart, salt and cracked ice by the mouth; 6, free use of bromids and nerve sedatives in the nervous patient; 7, nitrates or veratrum when high blood pressure persists; 8, care in not placing too much reliance on so-called specifics such as ergot and adrenalin; 9, hypodermoclysis with normal saline solution when indicated.

Dietetics in Constipation.

In the treatment of constipation, according to S. Cohn in *Jour. of Advanced Ther.*, one must be sure that he is dealing with a true case of habitual constipation, which is not always an easy matter. Hemorrhoids, fissures of the anus, hypertrophy of the prostate, tumors of the uterus or ovaries, retroflexion or anteflexion of the uterus may all give rise to constipation. Diseases of the intestines themselves, such as stenosis, and diseases of the stomach, such as hyperacidity and anacidity, may produce similar conditions.

When the constipation is due to a faulty condition of the bowels, either hygienic or dietetic errors are generally the cause. One of the greatest abuses in correcting the constipation is the use of drugs which will destroy, after a while, the function of the bowel. Another frequent cause is the neglect of the patient in attending the calls of nature. Patients suffering from constipation generally drink an insufficient amount of water. Cold water will stimulate and cause a more rapid and copious secretion of the digestive juices, therefore it is preferable to warm water. Patients should make it a rule to drink between six and eight glasses of water a day. Very little residue is left from the proteids consumed, consequently the bulk necessary for stimulation is made up from the vegetables. The residue from the proteids is 4.9 to 5.2, while that made up from vegetables, such as rye bread, beets, cabbage, turnips, beans, is about 20.

In summing up the treatment of constipation he states that one must begin with: 1. Correction of bad habits. 2. Regulation of the diet. This may be done by avoiding concentrated foods and by partaking of vegetables rich enough in coarse fibers to make sufficient bulk to furnish mechanical stimulation to the bowel. Food should be selected which is rich in elements for the formation of organic acids, and for the liberation of gas, thus producing chemical stimulation of the intestines. 3. The liberal use of water, at least six to eight glasses in the twenty-four hours.

As an example, he recommends for breakfast: Fruit, cereal with cream and sugar, but no predigested foods; rye bread with much butter, with a moderate amount of meat and eggs. For dinner: Soup, meat or fish, an abundance of green vegetables such as spinach or cabbage, beets, turnips, potatoes, beans, peas and rye bread and butter, and as dessert a saucer of prunes or pudding. For supper: Cold meat, rye bread and butter, stewed fruit and plums or prunes.

Cancer.

In the *Semana Médica* of Buenos Ayres, R. Berdier and V. de Falabert report the use of subcutaneous or local injections

of adrenalin in the treatment of cancer. In the 9 cases reported, the cancer and adjacent swollen glands diminished in size under the influence of injections of .5 mg. of 1 per 1,000 adrenalin, the pains were abolished and the patients gained for a time in weight and strength, although all were advanced cases. The injections were made into the tumor, or, when this was inaccessible, into the arm or over the organ involved. The cancers were in the throat, tongue, esophagus, stomach or cervix. The cessation of pain rendered the previously indispensable morphin unnecessary. In one case conditions were so much improved after 25 local injections of .5 mg. adrenalin in thirty days that the removal of the previously inoperable growth in the cervix was advised. An apparent cure was realized in a case of supposed epithelioma of the nasopharynx. The parts had nearly regained their normal aspect after fifteen injections of the adrenalin into the tumor in less than a month. After this the fluid was injected subcutaneously for a few days, and the patient has been in good health since, having gained more than 2 pounds in two months. In another case a large chancroid on the neck became reduced to a circumference of 2 cm. under the influence of 30 daily injections of .5 mg. each. The other patients all died after an unexpectedly long survival. The authors are convinced that there is some connection between cancer and the sufficiency or insufficiency of the suprarenals.

Medicolegal.

Admissible Declarations of Sick or Injured Person.—The Supreme Court of North Dakota holds, in the case of Puls vs. Grand Lodge of the Ancient Order of United Workmen of North Dakota, that the declarations of a sick or injured person as to the nature, symptoms and effects of the disease or injury under which he is suffering at the time are competent evidence in an action wherein the nature and cause of the malady are in question.

Damages Allowed for Wrongful Taking of Stomach from Dead Body.—The Supreme Court of Wisconsin says that the case of Koerber vs. Patek presented a field for consideration unchartered by any direct decisions in that court. It was alleged in the complaint that the plaintiff was the son and heir of his mother, who died in a hospital, and was by her, before her death, instructed and requested to take charge of her body for purposes of burial, and was the only person interested; that he did so, removing the body to his residence, and proceeding to have the same prepared for burial; that the defendant requested permission to merely examine the stomach of said body, which request being granted, he wilfully, etc., without authority, etc., cut out and carried away the stomach, and refused to return the same on request, whereby burial became necessary without it; that thereby the rights of the plaintiff had been recklessly and wilfully trespassed on, and his feelings greatly injured, so that he had suffered both in mind and in body, to his damage $5,000. The conclusion of the Supreme Court, reached after discussion, protracted, it says, perhaps unduly in deference to the novelty of the question in Wisconsin, and to the earnestness of counsels' argument, is that the complaint stated a good cause of action in favor of the plaintiff, and that the trial court erred in sustaining a demurrer to it.

Visible Marks of Injury—Choosing Treatment.—The Court of Appeals of Colorado says, in United States Casualty Company vs. Hanson, an action on a policy of accident insurance brought by the latter party, that the policy contained numerous conditions, which, not satisfied, would defeat a recovery—among them, a requirement of a visible mark of injury on the body of the insured. But, as to this condition, the court says there was evidence bringing the case within it. A shrinkage of the muscles of the hip and leg and a lameness of the leg were visible marks of the injury, within the authorities. So was the breaking down of the bones at the joint, which was perceptible to digital examination. Another provision of the policy was that the injury received must be the sole cause of the disabled condition of the insured. He was examined by one physician, and by him advised as to the course of treatment, but failed to follow it. It was said that in this he was guilty of negligence, which negligence materially contributed to his subsequent disabled condition, and that, therefore, the injury originally received was not the sole cause of his condition. But the court says that while the insured did not follow the advice of the physician referred to, he did follow the treatment of other physicians, presumably of standing; and the court can not say that the verdict of the jury, in acquitting him of negligence in so doing, should be disturbed.

Liability for Death of Follower Denied Medical Care—Use of Prayer.—The Supreme Judicial Court of Maine says that in the case of State vs. Sandford the latter was tried and convicted on an indictment charging him with manslaughter in causing the death of a youth of 15, named Bartlett, a member of a community or religious sect, who died of diphtheria. It was not claimed by the state that the defendant had the immediate care of Bartlett during his last sickness, nor that it was the defendant's personal duty to attend to his wants, either as to medical remedies or to the supply of necessary and proper food. But the contention of the state was that the defendant exercised such control over those who were in attendance on and caring for Bartlett, that he dominated their wills to such an extent, that his orders were carried out in the treatment of Bartlett by those who were subservient to his will, and whose conduct in this respect, as well as in all others, was subject to his control and authority, and that the neglect complained of in these respects by those who were in attendance on and who did have the care of Bartlett, was the result of the defendant's general or specific directions. The court says that it was necessary for the state to prove its contention in this respect, and for this purpose it thinks that it was entirely competent to introduce evidence of specific instances showing the manner and extent that authority was exercised by the defendant in these instances. As to the contention of the state that the defendant failed to perform a known duty owed by him to Bartlett by not providing medical attendance and medical remedies for the latter in the serious condition in which he then was, the court says that there was no dispute whatever as to the facts, the defendant relying, as an answer to this contention, on an alleged conscientious disbelief in the efficacy of medical remedies, and on a belief that the proper treatment of the sick was by prayer. In relation to this position of the defense the following instruction was requested by the defendant: "Failure to provide medical aid or the attendance of a physician, with resulting death, in the absence of a statute requiring medical aid or the attendance of a physician, if the action is under the bona fide belief that medical aid is not required, and that the proper method of healing is by prayer, is not manslaughter." The trial court had already given this instruction in substance, but had added the following qualifications: "That is, it must be a conscientious disbelief in medicine, a bona fide disbelief, a real disbelief. And if a person having that disbelief in medicine had some other belief, or some other practice, or some other way to help cure the sick, which he honestly believed, it would then be his duty to apply that other method; and so, if he believed in the prayer of faith, he ought to apply that. But if he failed to use the prayer of faith, unless you believe that the lack of it hastened the death, or caused the death of the patient, the omission to use the prayer of faith would not be criminal negligence, because it did not produce any results. On the other hand, if you believe that the omission to use the prayer of faith did hasten the death of Leander Bartlett, and if that was the honest belief of the defendant, and he failed, knowing the circumstances, knowing his duty, why it would constitute a basis for manslaughter, would be evidence of negligence." The Supreme Judicial Court holds that the instruction given as qualifications to the instructions requested by the defendant were erroneous; that under these instructions the conviction or acquittal of the defendant would depend, not

on the jury's finding as to the truth of some controverted fact about which there was no evidence for and against, not as to the truth of some scientific theory, as to which those specially qualified by study and experience had testified, questions which, of course, must be submitted to the determination of the jury, but on the belief of the individual members of the jury on the question of the efficacy of prayer as a means of cure for the sick. The guilt or innocence of any person accused of crime, whatever his belief may be in this respect, and the result of a criminal trial, should not depend on the beliefs of the members of a jury on the question of the efficacy of prayer as a means of cure for the sick, or on their religious belief in any other respect. Questions of fact, and even questions as to the truth of scientific theories, must be submitted to the determination of juries; but the questions as to the nature of one's legal duties and the extent of his legal responsibilities, both civil and criminal, must be governed by general rules of law, which will apply to all alike, and which will control the action of juries, so that one result only can follow from their findings of fact on the issues of fact involved. It may be true that where a person is charged with responsibility of the death of another because of his failure and neglect to procure medical attendance or to allow the use of medical remedies, and such person has a conscientious disbelief in the efficacy of such treatment and the use of such remedies, but does believe in the value of some other form of treatment, if any there be, which is recognized by some school of science as proper under the circumstances of the case, that it would be his duty to resort to this recognized form of treatment believed in by him, and that a failure to do so might be evidence of neglect on his part sufficient to hold him criminally liable for the death of a person which resulted from such failure. A suggestion made in Reg. vs. Wagstaffe, 10 Cox, C. C. 530, aptly illustrates this court's views in regard to the responsibility of a person who entertained a particular belief as to the proper method for the treatment of the sick. Suppose a person charged with a neglect of duty in the respect which we have been considering believed conscientiously that the only efficient remedy for a person afflicted with disease was to take the person to a particular shrine, could it be that a failure to do this would sustain a charge of manslaughter, even if the jury believed that this failure either caused or accelerated the death of the one diseased? But a person may as conscientiously believe in this remedy as in the efficacy of prayer for the sick, and, while both beliefs may be equally entitled to respect, the conviction of a person in any case should not depend on whether the jury before which he is tried entertains the one belief or the other, or neither.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 11.

1 *Medical Treatment of Gastric Ulcer. F. P. Henry, Philadelphia.
2 Advances in the Physiology and Pathology of the Pancreas, and Their Application to the Diagnosis of Pancreatic Diseases. J. C. Hemmeter, Baltimore.
3 *Consideration of Fibroid Tumors of the Uterus, based on a Study of a Series of 210 Cases Treated Surgically. J. C. Webster, Chicago.
4 *Tuberculosis of the Gastrointestinal Tract: Report of a Case of Perforation and Partial Stenosis of the Bowels. J. A. Lichty, Pittsburg.
5 *Iodin in the Treatment of Postoperative Sepsis. J. H. Burtenshaw, New York.
6 *Etiology and Treatment of Acute and Chronic Rheumatism. G. M. Illman, Philadelphia.

1. **Medical Treatment of Gastric Ulcer.**—Henry has employed Leube's method in modified form in a sufficient number of cases to convince him of its efficacy. His modification consists in nourishing the patient during the first week of treatment, either entirely or partially, by rectal enemata, and in the *pro re nata* employment of opium and its derivatives. He also emphasizes the importance of system in the treatment of this and of any other affection; a system which is sufficiently elastic to adapt itself to the individual case.

3.—See THE JOURNAL, March 18, p. 900.

4. **Tuberculosis of the Gastrointestinal Tract.**—The points of interest in the case reported by Lichty are: The mode of infection, which was rather doubtful, being either primary in the alimentary canal or secondary to a pulmonary lesion; and the fact that the disease was contracted from living with a tuberculous patient.

5. **Iodin and Postoperative Sepsis.**—Although his own experience with iodin in these cases has been disappointing, yet Burtenshaw is convinced that further development of this treatment as outlined by Alloway and Pryor, in the near future will yield brilliant results. Of 3 cases of postoperative sepsis in his practice 2 resulted fatally. The first case was probably due to the use of defective ligatures, but the patient recovered, a result which he attributes more to the degree of infection and to her robust constitution than to the curative measures employed. The infection in one of the fatal cases was traceable to the unavoidable soiling of the peritoneum from the rupture, during operation, of an enormous pelvic abscess; in the other case the source of infection was undiscoverable. It was in this case that the iodin treatment was given its most extended trial, and with absolutely negative result.

6. **Rheumatism.**—In this paper Illman points out the great necessity for prompt treatment of even slight rheumatic manifestations, based on the assumption that the gastrointestinal tract is closely associated with the causation of rheumatism.

Medical Record, New York.

March 11.

7 *Treatment of Epidemic Cerebrospinal Meningitis by Diphtheria Antitoxin. E. Waitzfelder, New York.
8 Chronic Myositis Rheumatica and its Treatment by Massage. G. Norstrom, New York.
9 *Radical Operation for the Removal of a Bullet Weighing 70 Grains, Embedded in the Internal Wall of the Middle Ear, with Decided Improvement in the Subjective Symptoms. M. D. Lederman, New York.
10 *Aortic Regurgitation with Chronic Miliary Tuberculosis in a Man 22 Years Old. M. Leale, New York.
11 *Case of Cicatricial Stricture of the Esophagus. A. B. Atherton, Fredericton, N. B., Can.

7. **Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis.**—Based on the antagonism existing between the Klebs-Loeffler bacillus and the *Diplococcus meningitidis*, Waitzfelder treated 17 cases of epidemic cerebrospinal meningitis by injecting diphtheria antitoxin, from 6,000 to 10,000 units at one dose, this being repeated as often as was found necessary. Five patients recovered completely, 3 died and 9 are still under observation. Of the latter 5 give every promise of a speedy recovery; the other 4 are still in a serious condition. The greater number of cases were severe in their onset, and the evidence of profound constitutional infection was well marked. It was in this kind of cases that he observed the best results; within two days delirium or coma abated or disappeared; the pulse and temperature became more nearly normal; the tongue more moist, and a general improvement in all the symptoms was manifested. In no case was consciousness absent after three days. The dose given was 6,000 units to children less than 5 years of age, 8,000 to those between 5 and 12, and 10,000 to adults. This amount is injected under the scapula on alternate days. In a few cases an antitoxin rash developed, but never was of much moment. In fact, not a single bad symptom developed as the result of the administration of the antitoxin. From a study of these cases Waitzfelder is led to believe that a larger dose of antitoxin is necessary than is usually given in diphtheria, and that it should be repeated daily until urgent symptoms abate (not to the exclusion of lumbar puncture, which should be made for symptoms indicating cerebrospinal pressure). With the subsidence of delirium or coma, a lessening of the rigidity of the neck, of headache and photophobia, he advises that the amount of antitoxin be diminished, but its use should be continued at longer intervals, until all central nervous symptoms have subsided. He is

fully convinced that this treatment has brought about a diminution of mortality and an absence of sequelæ.

9. **Operation on Ear for Removal of Bullet.**—The interesting feature in Lederman's case is the presence of a foreign body (32-caliber bullet) lodged in the internal wall of the middle ear for a period of over three years, causing chronic suppuration, tissue proliferation, facial paralysis and marked disturbance in equilibrium without more serious complications. The treatment was satisfactory in every way, the facial paralysis slowly improving, and the patient being able to walk quite well without support. Two weeks after operation the ordinary speaking voice was plainly heard in the ear with the good ear closed.

10. **Aortic Regurgitation and Chronic Miliary Tuberculosis.**—The interest in this case centers itself about the combination of aortic regurgitation and chronic miliary tuberculosis, and the occurrence of the former in so young a subject. Leale found it impossible to say whether the valvular lesion was secondary to the miliary tuberculosis, being part of the tubercular process, forming tubercles on or near the segments of the valve, or whether it was an entirely distinct pathologic process.

11. **Cicatricial Stricture of Esophagus.**—Atherton describes a case of cicatricial stricture of the lower end of the esophagus, the result of swallowing some lye by mistake. When first seen, the stricture admitted only an olivary French bougie 2 millimeters in diameter. It became possible, by gradual dilatation, to introduce an instrument of twice this size, but after this no further stretching could be effected. The stomach was opened and the stricture softened by the use of the string and bougie procedure of Abbe, after which gradual dilatation became possible, so that a short red-rubber bougie, 1 cm. in diameter, could be permanently worn. The upper end of this bougie lay at the junction of the pharynx and esophagus, and was secured by a silk thread fastened to a tooth or to one ear. One year has elapsed since the operation, and the patient is obliged to continue the daily use of the bougie, as otherwise the stricture soon contracts.

Boston Medical and Surgical Journal.

March 9.

12 *Clinical Report of 75 Cases of Arthritis Deformans (Chronic Non-tubercular Arthritis). F. L. Richardson, Boston.
13 *Complemental Relations of Glycuronic and Ethereal Sulphuric Acids and Their Pairlings in Auto-intoxication, Typhoid Fever and Cancer. A. E. Austin and E. W. Barron, Boston.
14 Dangers from the "X-ray Atmosphere" to the Operator. Their Prevention. H. W. Van Allen, Springfield, Mass.

12. **Arthritis Deformans.**—The clinical study of 75 cases of arthritis deformans made by Richardson represents one of the preliminary steps in the study of that disease undertaken in the surgical laboratory of the Harvard Medical School. Of these cases, 74 were plainly one of the various types of arthritis deformans, including one case of ankylosing arthritis in an adult woman. There was one case of chronic arthritis due to gout, which, because of its clinical course, was considered during life as a deforming arthritis. Of the 74 patients with arthritis deformans, 26 were men and 48 women. Seventeen patients were single and the remaining 58 were or had been married. The greatest number engaged in one occupation was 31, doing housework; next, 11 laborers, 6 cooks, and 5 laundry workers. In only 7 cases did the patient know of any "rheumatism" in the family. Five patients gave a history of acute rheumatism. In 9 cases, the arthritis was supposed to be of gonorrheal origin. A history of syphilis was found in two men and in two women. The onset of the trouble was acute in 16; subacute in 8; insidious in 35, and unknown in 16. The joints first involved were the wrist and hand in 15; elbow in 1; shoulder in 10; spine in 2; hips in 1; knees in 25; ankles and feet in 6; more than one set of joints in 4; unknown in 10. In 60 per cent. of the cases the percentage of hemoglobin was between 70 and 80, without any marked diminution in the number of erythrocytes. In 1 case the disease was associated with diabetes of a severe type. In several cases there was chronic nephritis. In no case was uric acid found markedly in excess, and in many cases it was found relatively diminished. Richardson agrees with Bradford that the analogy between arthritis deformans and arteriosclerosis appears to be a very close one. In arteriosclerosis the causes to which the disease has been ascribed are innumerable and the manifestations may be widely varied; but because of these numerous manifestations it can not be said that we are dealing with many diseases. That the disease often is the result of some general alteration in the body metabolism seems possible.

13. **Complemental Relations of Glycuronic and Ethereal Sulphuric Acids.**—Austin and Barron summarize the results of a series of experiments carried on by them as follows: Aromatic bodies unite both with ethereal sulphuric acid and glycuronic acid, which apparently have a complemental relation to each other, but the former is always first saturated before union commences with the second. The glycuronic acid apparently varies very decidedly in amount, but it is not necessarily associated with the increase of the pairing body, nor with the diminution of oxidation. Furthermore, there is always present an excess of sulphuric acid beyond the demands of the pairing body.

New York Medical Journal.

March 11.

15 Subcutaneous Injuries of the Abdominal Walls and Viscera. (To be concluded.) Daniel N. Eisendrath, Chicago.
16 *Unusually Severe Case of Acute Chorea Successfully Treated with Apomorphin. M. G. Tull, Philadelphia.
17 Examination of the Feces. I. S. Wile, New York.
18 The So-called Atypical Forms of Gastric Ulcer. J. Kaufmann, New York.
19 *Remarks on the Results of X-ray Treatment in Several Cases of Carcinoma of the Uterus. S. Tousey, New York.
20 *Unique Case of Appendicitis in a Child Aged Fourteen Months. L. W. Glazebrook, Washington, D. C.
21 *Classification for Cases of Pulmonary Tuberculosis and Phthisis. K. Von Ruck, Asheville, N. C.

16. **Apomorphin in Chorea.**—All other methods of treatment proving futile, Tull began the use of apomorphin in an unusually severe case of chorea occurring in a young girl, aged 15 years. One-fortieth of a grain of apomorphin was administered hypodermically. Within three minutes the incessant motion had ceased, the muscles were relaxed, and the patient slept peacefully and quietly. This was followed up with 1/20 of a grain by mouth, every three hours, combined with arsenic. At no time was there any sign of nausea or vomiting. The patient made a steady improvement, with no return of the severer symptoms.

19. **X-Ray in Carcinoma of Uterus.**—Tousey cites a case of carcinoma of the uterus which was remarkably benefited by *x*-ray treatment. The treatment consisted in allowing the *x*-ray to shine through the uncovered abdominal wall, and also through Nott's speculum, and in the application of high-frequency currents. The current used was the 110 volt direct current, with a liquid interrupter of the Simon's type. An 8-inch coil, a 40 cm. tube and a rheostat which cuts the currents down to about 4½ amperes were also employed. The vacuum in the tube was adjusted for each treatment to correspond with an internal resistance of about two and a half inches, and a penetration of two or three layers in the author's radiometer. The distance was 9 inches from the anode of the tube to the nearest surface of the patient; time of exposure, about five minutes over the abdomen and five minutes in the vagina. The high-frequency currents were taken directly from one pole of the *x*-ray coil, by means of an insulated cord passing from the coil to an insulated handle by which the operator held a glass vacuum electrode, which was placed in contact with the skin. The patient's life was prolonged for a year, and death resulted from a serious gastric disturbance which did not seem to be of a cancerous nature. In a second case cited the results were very similar to those obtained in the first case.

20. **Appendicitis in Child Aged Fourteen Months.**—Glazebrook's patient died after an illness lasting about three and one-half hours. The symptoms were those usually met with in surgical shock. At the autopsy the large omentum was found adherent to the vermiform appendix midway between

the cecum and its tip. To the left and posterior to this point about one dram of green pus was found which was escaping from a small perforation of the appendix. On opening the appendix an ordinary black mourning pin was found, the head of the pin occupying the center of the perforation in the appendix. Immediately around the seat of rupture the parts were gangrenous.

21. **Classification of Pulmonary Tuberculosis.**—A classification of pulmonary tuberculosis and phthisis on a clinical basis is offered by von Ruck. It reflects the gravity of the cases grouped together, and has the great additional advantage that it requires no extraordinary skill and experience in placing a given case in its proper group. The second classification given by him explains itself.

CLASSIFICATION OF STAGES FOR CASES OF PULMONARY TUBERCULOSIS AND PHTHISIS.

CHRONIC PULMONARY TUBERCULOSIS.

a. Inactive, closed tuberculosis, latent form, free from fever, reacting to tuberculin, with varied extent of physical signs.

b. Active, closed tuberculosis, with mild tuberculous fever (100.5 F. maximum); otherwise same as *a.*

PULMONARY PHTHISIS.

Class I. Non-febrile Cases.

First Stage.—a. Inactive, initial phthisis, without demonstrable cavity formation, with bacillary sputum; total quantity not exceeding ½ ounce in 24 hours; passive secondary infection; with or without mild complications on the part of pleura. Temperature normal to 99 F.

Second Stage.—a. Inactive phthisis, with single, small, demonstrable cavity formation. Expectoration not exceeding 1 ounce in 24 hours. Passive secondary infection; with or without mild complications on part of larynx, pleura or both. Temperature normal to 99.2 F.

Third Stage.—a. Inactive, advanced, cavernous phthisis, with large or multiple cavity formation. Expectoration exceeding 1 ounce in 24 hours. Passive secondary infection; serious complications, tuberculous or otherwise, on the part of larynx, pleura, intestine, or other organs. Temperature subnormal to 99.5 F.

Class II. Febrile Cases.

First Stage.—b. Active, initial phthisis, with moderate tuberculous fever, or a combination of the tuberculous with that of subacute secondary infection. Expectoration not exceeding ½ ounce in 24 hours, with or without mild complications on part of pleura. Temperature not exceeding 101.5 F.

Second Stage.—b. Active phthisis, with tuberculous fever, or combined secondary fever; demonstrable cavity formation. Expectoration not exceeding 1 ounce in 24 hours. Mild complications on part of pleura or larynx or both. Temperature not exceeding 102.5 F.

Third Stage.—b. Active, advanced, cavernous phthisis, with tuberculous or secondary fever of any degree. Large single or multiple cavity formation. Expectoration exceeding 1 ounce in 24 hours. Complications same as under *a,* or caseous pneumonia, diffused mixed infection, acute miliary dissemination.

CLASSIFICATION OF RESULTS OF TREATMENT OF PULMONARY TUBERCULOSIS AND PHTHISIS.

Cured.—Patients free from all subjective symptoms, without elevation of temperature, without cough or expectoration. Physical signs absent, or indicative of connective tissue changes or cicatrization. General health restored. Tuberculin test applied three months or later after discontinuance of treatment must have proved negative, or above conditions must have been maintained at least for two years after discharge.

Apparently Cured.—Same condition as above, maintained at least for three months after discontinuance of treatment.

Disease Arrested.—Decided retrogressive changes in the physical signs, coexisting with corresponding amelioration of symptoms, only slight cough remaining, expectoration not exceeding 2 drams in twenty-four hours, still containing tubercle bacilli. General health to be approaching normal state. Temperature must be practically normal, not exceeding 99 F. Such condition must have been maintained for three months or longer.

Greatly Improved.—Symptoms and physical signs present on admission must show material reduction, especially cough, expectoration and fever. Weight and strength, if previously deficient, must show decided increase.

Improved.—Symptoms, such as cough, expectoration and fever, have grown less. No loss in weight or gaining on discharge.

Stationary.—No material change in patient's condition. No loss in weight.

Progressive.—Symptoms and physical signs are increased.

Medical News, New York.

March 11.

22 Uric Acid—Its Influence in Gout. C. C. Ransom, New York.
23 Objective and Subjective Symptoms of Surgical Diseases of the Kidney. C. L. Gibson, New York.
24 Laboratory Findings in Surgical Diseases of the Kidney. F. E. Sondern, New York.
25 The X-ray in Kidney Disease. L. G. Cole, New York.
26 Cystoscope and Ureter Catheter in the Diagnosis of Surgical Diseases of the Kidney and Ureter. F. T. Brown, New York.
27 Exploratory Operations Relating to the Kidney. H. Lilienthal, New York.

Lancet-Clinic, Cincinnati.

March 11.

28 Public Care and Treatment of Inebriety. T. D. Crothers, Hartford, Conn.
29 Two Etiologic Factors in Pelvic Diseases in Women. Their Prevalence and Prevention. J. H. Firestone, Freeport, Ill.
30 Gastroenterostomy. W. H. Wathen, Louisville, Ky.

St. Louis Medical Review.

March 4.

31 Diagnosis and Treatment of Gallstones. A. Dixon, Henderson, Ky.
32 Constipation. I. J. Moyer, Pittsburg.
33 Control of Municipal Medical Institutions. What Experience Has Shown. G. Homan, St. Louis.

Journal of the Association of Military Surgeons, Carlisle, Pa.

March.

34 First Aid in Naval Warfare. J. C. Wise.
35 Principles of the New Austro-Hungarian Sanitary Regulations for War. J. Steiner.
36 *Gymnastics and Athletics. V. Havard.
37 Malingering; Report of Cases. S. M. De Loffre.

36. **Gymnastics and Athletics.**—A very careful study of the effect of gymnastics and athletics, especially football, on the human economy, is made by Havard, who says that unless the football methods now prevailing are substantially modified, it would be greatly to the benefit of college students were the game eradicated. He found that football is detrimental to studies. As regards mere physical development, better results can be attained by graded gymnastics and less strenuous games. It is more or less dangerous to the body, and in order to reduce liability to injuries and the possibility of disability in after-life, certain important conditions must be observed. Careful training is absolutely necessary in order to develop the highest degree of efficiency and endurance without harm to any of the organs. Of the total number of football players (159) graduated at West Point since 1892, 5 died of disease, representing a mortality of 3.14 per thousand. During the same period of years the mortality from disease for all graduates, 769 in number, was 19, representing a ratio of 2.47 per thousand. Hence the effect of athletic exercises, if any at all, is rather to increase than to diminish mortality in after life. To the 149 living members, a circular letter was sent inquiring as to their condition. To this letter 96 answers were received, all reporting their present health as good, very good or excellent, with 4 exceptions; of these, 3 report their health as bad, attributing it to long tropical service, the fourth reports his health as only fair, because of cardiac enlargement. Fifty-one out of the 96 received an injury of sufficient gravity to disable them more than a day or two. Six are still reminded of injuries received while playing football. The effect on the heart is mentioned in only 2 letters; one reports "slight enlargement" and health only fair; the other, that "a former murmur which might have been due to athletics has disappeared." Havard found that the football player stands almost exactly in the center of his class as far as scholarship is concerned. For the entire number of graduates, 769, the percentage of honor graduates is 15.40, while for football players it is 14.46. Havard is decidedly not of the opinion that football is beneficial to scholarship.

Journal of Experimental Medicine.

Vol. vi, Nos. 4-5-6.

38 *Studies in Hemolysis with Special Reference to the Properties of the Blood on Body Fluids of Human Beings. H. T. Marshall.
39 Epithelioma Adamantinum. H. S. Steensland, Syracuse.
40 *Bacteriology of Bronchopneumonia and Globular Pneumonia in Infancy. M. Wollstein, New York.
41 Malignant Teratoma of the Perineum. R. H. Whitehead, Chapelhill, N. C.
42 Dermatomyositis, with Report of Case Presenting a Rare Muscle Anomaly. W. R. Steiner, Hartford, Conn.
43 Further Observations on a Pathogenic Mould, Formerly Described as a Protozoan (Coccioides Pyogenes). W. Ophüls, San Francisco.
44 *Toxic Effect of Formaldehyd and Formalin. M. H. Fischer, San Francisco.
45 Bacillus Mortiferus. N. M. Harris, Baltimore.

Vol. vii, No. 1.

46 *Changes in the Heart Rates and Blood Pressures Resulting from Severe Hemorrhage and Subsequent Infusion of Sodium Bicarbonate. E. M. Dawson, Baltimore.
47 "Red-Leg"—An Infectious Disease of Frogs. H. Emerson and C. Norris, New York.
48 The Rate of Absorption from Intramuscular Tissue. S. J. Meltzer and J. Auer, New York.
49 Color Reactions of Naphthaquinone Sodium-Monosuiphinate and Some of Their Biologic Applications. C. A. Herter. New York.

50 The Preparation of Salt-free Culture Media and the Growth of Bacteria on Them. A. E. Taylor, San Francisco.

38. **Studies in Hemolysis.**—Studying the comparison of the receptors of the red blood corpuscles of man and of the monkey, Marshall found that goat, sheep, ox, goose and rabbit serum affect monkey blood to almost the same extent that they do human blood, and that human, rabbit and guinea-pig serum fail to produce hemolysis of monkey blood or of human blood; the two last mentioned, however, behaving very similarly in the presence of normal, active hemolysis. With reference to the behavior of human blood corpuscles in the presence of serum from various animals, and the hemolytic properties of normal human serum, he found that human serum has complement available for a variety of normal and specific amboceptors, but that the complement differs in amount in various specimens of human serum. The complement strength of different specimens of human serum for different amboceptors has no definite ratio, and the complements for different amboceptors may vary independently. Concerning the hemolytic properties of human transudates and exudates, he ascertained that the body fluids examined contained complements capable of re-activating various amboceptors; but the re-activating power is not equal in different fluids. The complement strength for a given lysin may vary in several fluids independently of the complement strength for other lysins. The complement action of the body fluids seems to be more pronounced than that of the human serum examined. No amboceptor was found by Marshall which was available for human blood.

40. **Bacteriology of Pneumonia in Infancy.**—Wollstein describes the results obtained from observations made with the view of determining the relationship between the extent of the pneumonic areas and the variety of bacteria present and the difference, if any, between the bacteriology of the primary and of the secondary infections. In 100 cases examined, the pneumococcus was present in 67; of these, 25 were primary and 42 secondary pneumonias. While the pneumococcus appeared in 76 per cent. of the primary cases, it occurred in only 63 per cent. of the secondary cases; and while it was present in pure culture in 42 per cent. of the primary cases, it was found alone in only 15 per cent. of the secondary cases. In the 67 cases showing the pneumococcus, there was inflammation of the pleura in 51 per cent. (34 cases), the lesion being an acute fibrinous exudate in 22 instances (13 secondary, 9 primary), acute purulent exudate (empyema) in 4 instances (2 primary and 2 secondary), and a fibrinopurulent one in 8 instances (2 primary, 6 secondary). The cases from which the pneumococcus was absent (33) showed pleurisy in one-third of the number, the inflammation being of the acute fibrinous variety in 9 instances (3 primary and 6 secondary). The percentage of empyema cases was exactly the same (6 per cent.) in both varieties. Purulent infiltrations of the lungs occurred in 7 cases, and all these contained the pneumococcus either alone or combined with the streptococcus (3 instances) and the *Staphylococcus pyogenes aureus* (1 instance), Small pulmonary abscesses existed in 7 cases. In 5 of these the pneumococcus occurred twice combined with the tubercle bacillus, once with *B. pyocyaneus* and once with the streptococcus. In 2 instances the streptococcus was present alone. Of the 100 cases, 45 were coalescent with the pneumococcus present in 33 instances, or 73 per cent. In 31 of 55 focalized cases, or 56 per cent., the pneumococcus was also found. The cases of primary bronchopneumonia showed a larger percentage of pneumococcus infections than the secondary cases; and the pneumococcus cases showed a larger percentage of inflammation of the pleura, and a greater tendency to purulent infiltration and abscess formation.

44. **Toxic Effects of Formaldehyd and Formalin.**—A very careful study was made by Fischer to determine the toxic effects of formic aldehyd, known as formaldehyd, and formalin, a 40 per cent. solution of formaldehyd in water. He found that the inhalation of formaldehyd gas, even in small quantities, is followed by bronchitis and pneumonia, the latter being due to the inhalation of the gas and not to secondary infection. The introduction of formalin into the stomach was followed by the production of a gastritis which varied greatly in character. In some instances the duodenum and upper jejunum were also involved in the inflammatory process. Intraperitoneal injections of formalin as dilute as 1 to 1,000, caused peritonitis of a fibrino-hemorrhagic character. Formalin exercises a destructive action on all organs with which it comes in contact and causes inflammation in these organs. The lethal dose of formalin when injected intraperitoneally, into guinea-pigs, is approximately 2 c.c. of a 1 to 1,000 formalin for each 100 grams of body weight. The injection of formalin into the lungs was followed by pneumonia and bronchitis. The inflammation which follows subcutaneous injections of formalin is characterized by intense exudation. Injected into the muscles it produces myositis; injected into the anterior chamber of the eye, it causes accumulation of an exudate containing leucocytes and fibrin; and when dropped into the conjunctival sac, iritis follows and may be severe enough to destroy the eye. Formalin in whatever way introduced into the body is absorbed, and is then capable of producing lesions in the parenchymatous organs, such as cloudy swelling and focal necroses. The leucocytic infiltration which follows the introduction of formalin is characteristic. The eosinophiles are the first leucocytes to appear; these are followed by the other polynuclear leucocytes, the large and small mononuclear leucocytes being the last to appear. Animals subjected to chronic poisoning with formalin administered by intraperitoneal injection developed fibrinous peritonitis, associated with marked eosinophilia, cloudy swelling, fatty degeneration, focal necrosis and leucocytic infiltration in the kidneys and liver.

46. **Sodium Bicarbonate Infusions in Severe Hemorrhages.**—The results of experiments described by Dawson indicate that under certain conditions the addition of sodium bicarbonate to the infused fluid may be expected to have a beneficial action. In extreme cases of shock due to loss of blood, the addition of from 0.5 to 1 per cent. of the bicarbonate to the solution of 0.8 per cent. sodium chlorid may be of advantage in two respects. In the first place, the rise in all the pressures, especially in the diastolic pressure, is more pronounced than when the pure chlorid is used, and consequently, the circulation (as far as the pressures are concerned) can be restored more nearly to the normal condition; secondly, the quantity of fluid required is smaller than is the case with the pure chlorid, and hence the greater is the rapidity with which the solution can be hurried into the circulation, a matter of some importance in desperate cases. Dawson mentions one possibility which ought not to be overlooked in the employment of bicarbonate of soda—that of overworking the heart. Some experiments of a series not yet completed show that very strong solution of sodium carbonate and bicarbonate act as cardiac stimulants to an astounding degree. Therefore, it is the duty of the physician to decide in each case whether a cardiac stimulant is or is not contraindicated. Dawson considers it a rational procedure to begin an intravenous infusion with a solution containing bicarbonate, and in this way to hurry the pressures upward, so to speak, and then, when the pressures reach a considerable height, the bicarbonate might, if thought advisable, readily be omitted from subsequent infusions which might be required to maintain the pressure at the desired level.

Journal of the Michigan State Medical Society, Detroit.

March.

51 Physiologic Therapeutics in Gynecology. J. H. Kellogg, Battle Creek.
52 *Removal of Vermiform Appendix and Treatment of Stump. A. McLean, Detroit.
53 Tracheotomy. J. A. Heasley, Grand Rapids.
54 Cancer of the Rectum. J. A. McMillan, Detroit.
55 Case of Colitis with Treatment. F. H. Brown, Newaygo, Mich.

52. **Appendicectomy.**—McLean describes a method which he has used with very satisfactory results in over 75 cases. The appendix is freed from its mesentery back to near the base. A strong silk ligature is placed around the appendix at the

desired point, including all the coats, and tied very tightly. This constricts the appendix so as to form a prominent shoulder near the ligature. A purse-string catgut suture is inserted through the serosa well up on the shoulder and drawn taut; the appendix is then removed with scissors just below the silk ligature, while the purse-string suture is tightened. This brings the serous coat over the stump completely as the muscular and mucous coats roll in. The silk ligature compresses the lumen so as to force all secretions from this point, frequently obliterating the mucosa so that there is no danger of escape of secretion. He does not use acid or caustic of any kind on the stump, simply bringing up the meso-appendix and covering it over. There are no stitches through, or ligature around, the muscular coat.

Journal of Medical Research, Boston.

January.

56 *Contribution to the Classification of Tumors. F. B. Mallory, Boston.
57 *Nature of the Cell Inclusions of Cancer. R. B. Greenough, Boston.
58 *Effects of the Roentgen Ray on Cancer. R. H. Vose and W. C. Howe, Boston.
59 *Implantation of Tissue and Its Relation to Cancer. E. H. Nichols, Boston.

February.

60 Structure of Vaccine Bodies in Isolated Cells. J. Ewing, Ithaca, N. Y.
61 *Studies in Mammalian Tubercle. III. T. Smith, Boston.
62 *Typhoid Filtrates in the Treatment of Typhoid. N. W. Richardson, Boston.
63 Bacteriolytic Power of Normal Rabbit Serum. B. H. Buxton, New York City.
64 Mixed Tumors of the Lachrymal and Salivary Glands. F. H. Verhoeff, Boston.
65 Degrees of Susceptibility to Diphtheria Toxin Among Guinea-pigs. Transmission from Parents to Offspring. T. Smith, Boston.

56. **Classification of Tumors.**—This paper represents the beginning of an attempt at a classification of tumors based on a careful study of the histologic differentiation of their cells and intercellular substance. Mallory's report is the result of a study of three kinds of fibrils produced by normal and tumor cells, and of the bearing of these fibrils on the classification of the tumors contained in them. The three kinds of fibrils studied are the neuroglia fibrils of neuroglia cells, the myo-glia fibrils of smooth muscle cells, and the fibro-glia fibrils of connective tissue cells. Mallory found that these fibrils more or less closely resemble one another morphologically and in certain staining reactions. In general, it may be said that the fibro-glia fibrils are the finest and the myo-glia fibrils the most sensitive to postmortem changes. In tumors which arise from neuroglia smooth muscle or connective tissue cells, the cells tend to differentiate in nucleus, cytoplasm and intercelluiar substances in the same way as do the corresponding normal cells, but the differentiation is most complete in those tumors which are growing most slowly. All tumors, no matter how slowly or how rapidly they are growing, in which the cells tend to differentiate alike in cell and in intracellular substance, should be included under one heading and treated as a definite entity in order that the common characteristics may be rendered prominent.

57. **Cell Inclusions of Cancer.**—The material forming the basis of Greenough's report comprises 63 specimens of tissue and a general review of the literature of the subject. The report may be summarized as follows: The typical cell inclusions of cancer are practically constant in cancer of glandular origin. They are not found in epithelioma, and are almost invariably absent in sarcoma. Their size, structure and staining reactions are such as to justify the assumption that they are vacuoles in the cell protoplasm containing a material which is coagulated and shrunken by the use of tissue fixatives. The occurrence of vacuoles of this nature is chiefly a phenomenon of cell secretion. Similar vacuoles may be produced, however, in certain cases by phagocytosis and by degeneration of the nucleus. Secretion vacuoles of the form of typical cancer cell inclusions are found in certain non-cancerous diseases of the mammary gland. In such cases, the secretion vacuole occupies a position between the nucleus and the lumen of the gland. In more advanced carcinoma, the gland lumen is lost. The secretion vacuole can not escape, and remains within the cancer cell to undergo further increase and ultimate degeneration. Cell secretion is a function which is lost in the progressive anaplasia of cancer cells, and cell inclusions are more frequent in slow-going cancer, and are less numerous in advanced cancer with rapid cell division. Greenough says that no reason exists for the interpretation of these appearances as of parasitic origin.

58. **Effects of Roentgen Ray on Cancer.**—Vose and Howe studied 120 cases with reference to the effect produced by the *x*-ray on cancer. A uniform technic was adopted so as to be reasonably certain of the uniformity of the results obtained. The effect on ulcerated surfaces at first was that of stimulation, as evidenced by the formation of granulations, but under continued exposure the epithelial edge is destroyed and healing is retarded. It is extremely difficult to decide at what point the beneficial influence ends. The effect on scar tissue is peculiar. Certain contracted and painful scars have softened and have become much more pliable with diminution of pain, although this is not an invariable effect nor can any histologic change be shown to explain it. Eighteen cases in which pain was marked were treated; of these, 9 patients were temporarily or permanently benefited, in some the benefit amounting to almost total relief; 5 others received a similar benefit when the brush discharge from a high-frequency machine was added, but the remaining 4 showed a distinct increase of pain, and at least 2 patients who had no pain at the start had pain later, and 2 patients complained bitterly of pain coming on after exposure and lasting from 24 to 48 hours. The observations made in cases of cancer showed that cutaneous cancer treated by the *x*-ray undergoes degeneration not peculiar to this form of treatment or distinguishable histologically from degeneration from other causes. The vascular changes are limited to an end-arteritis; new formation of blood vessels occurs if healing takes place, as in the process of repair elsewhere; there is an increase of elastic tissue. Taken as a whole, the clinical cases show that the only cure of cancer by the *x*-ray is by destruction and exfoliation. This at once limits its value to superficial cases. This destructive process is a slow one, and acts very superficially. Since it is well known that many essentially chronic superficial epidermoid cancers may be removed permanently by the slightest surgical procedure, that course seems preferable to the somewhat tedious treatment by the *x*-ray, and as they both may fail, an extensive surgical operation, if necessary, may be undertaken more promptly in the former case. Being non-selective in its action, the *x*-ray can not be used strongly enough to affect destruction of anything but the shallowest tumors without serious injury to the overlying and surrounding tissue, or, in other words, without producing such a burn as experience shows in all probability never would heal.

59. **Implanted Tissue and Its Relation to Cancer.**—The results of a series of implantations of tissue in 62 animals are presented by Nichols. For implantation both adult and fetal tissues were used. The implanted tissues were chiefly epithelial, although some mesenchymal tissues were used. The experiments were undertaken to see if epithelial or mesenchymal tissues, set free from their normal environment, could acquire a power of unlimited growth and give rise to the formation of metastases. Nichols' paper may be summarized as follows: Certain types of epithelium (epidermis), both adult and fetal, can be experimentally removed from their normal position and implanted into another part of the same animal, and under those circumstances can maintain their "potentiality of growth," retain their own peculiar character and produce nodules analogous to dermoid cysts or to more complicated teratoma. In no case has any epithelium of a highly differentiated function been seen to maintain its power of growth or to proliferate. The "potentiality of growth" is greater in the case of fetal than it is in that of adult tissues. In no case has any infiltration of surrounding tissue by the transplanted epithelium been seen, nor any tendency to epithelial metastases. Certain fetal connective tissues (cartilage)

can be transplanted in the same way as epithelial tissues, and retain their "potentiality of growth." Transplanted fetal tissues do not reproduce the stage of development at which they are transplanted, but tend to reproduce the ultimate stage of their normal development.

61. **Mammalian Tubercle Bacilli.**—In this paper, which is a second contribution on this subject, Smith describes a bovine bacillus obtained from a case of primary tuberculosis of the mesenteric glands of a child, and a culture test is given for distinguishing the human from the bovine type of bacillus. A thorough study of this case convinces Smith that his conception of a bovine and a human type of tubercle bacilli, introduced by him in 1898, is confirmed and still further defined, although this conception does not exclude that of intermediate types likely to be found in other species. He says that tubercle bacilli not distinguishable from the bovine type are occasionally encountered in the human subject. From their action on glycerin bouillon, mammalian tubercle bacilli may be divided into two groups—one corresponding to the human, the other to the bovine type. Mammals other than cattle are probably infected either from cattle or man, or from both sources.

62. **Typhoid Filtrates in Treatment of Typhoid.**—An experience with 22 cases of typhoid treated with the filtrate of a bouillon culture of the typhoid bacillus leads Richardson to express the hope that in this fluid we have an agent of therapeutic value. The filtrate of a typhoid bouillon culture grown for six weeks at the body temperature has little, if any, toxic power. Two c.c. injected intraperitoneally into guinea-pigs produce a certain amount of immunity, not only in the guinea-pig, but also (subcutaneously) in the human subject. Typhoid patients, on the contrary, may react quite sharply to such injections, the reactions being characterized by a chill, rise in temperature and increased frequency of pulse and respiration. This reaction has occurred at least once in one-half the cases thus treated. Experience thus far seems to show that the best results are to be obtained in cases not yet too severely damaged by the typhoid poison. The best conditions for the use of this treatment should be seen in cases of threatened relapse, and, perhaps, in the beginnings of the original disease when the natural immunity still unexhausted could be called on for extra exertions in crushing a nascent infection. Comparatively little good should be expected—indeed, harm might be done—if an individual already hyperintoxicated were subjected to the effects of an exaggerated destruction of bacilli. In Richardson's series of 22 cases there occurred 2 deaths, one from pulmonary embolism and one from hemorrhage, for which he does not hold the treatment in any way responsible. Most of the cases did not come under observation until the disease was well advanced. Five early cases were especially interesting as showing what seems to have been a shortening of the disease, the injections being begun on the seventh to the twelfth day, the temperature falling to normal on the twelfth to the twentieth day, that is, within from five to twelve days afterward.

Old Dominion Journal, Richmond.

February.

66 *Treatment of the Alimentary Canal Before and After Abdominal Section. I. S. Stone, Washington.
67 Metastasis from Cancers of the Breast. G. Baughman, Richmond.
68 Headaches and Eyestrain. C. M. Miller, Richmond.
69 *Small Point in Therapeutics. C. W. Astrop, Surry, Va.
70 Is Gynecology a Specialty? C. R. Robbins, Richmond.

66. **Preliminary and Postoperative Treatment of Abdominal Section.**—The evacuation of infectious fluids from the peritoneal cavity by purgation is condemned by Stone, and the suggestion is made that evacuants should be used instead of irritating chemical cathartics. The loss of serum caused by the latter is ill-borne at best, but is especially ennervating to very ill or feeble patients. Stone advises the omission of calomel and salts in the preliminary treatment, and advises relying on some bland laxative, such as castor oil, in the preparation of patients coming for abdominal section. When patients will not, or can not, take the oil, some one of the evacuants, such as senna, cascara, etc., may be used. An average of four bowel movements is usually all that is needed, and this result should be accomplished before 9 o'clock in the evening of the day previous to that of operation. The necessary enema should be given and repeated until the large bowel is practically empty. Patients so treated are more comfortable, they have less nausea and vomiting after operation, and less bowel distension, and normal peristalsis appears to return within a shorter period. Speaking of the postoperative treatment, Stone says the regulation of the diet and fluids given the patient is all important. Many patients receive liquid food until just before they take the anesthetic, because the bowels act with greater ease and peristalsis is readily restored when there is a small quantity of solid matter present. It is perfectly safe, and good practice to rely entirely on the use of enemas until the bowels act freely before any laxative is given. The rule not to give purgatives by mouth until after normal peristalsis has returned, seems to fill every indication in all classes of abdominal surgery.

69. **Small Point in Therapeutics.**—Astrop has found that the unpleasant cutaneous manifestations which in some persons follow the administration of quinin may be prevented by giving 15 drops of the tincture of belladonna or 1/60 of a grain of atropia with each dose of the quinin.

California State Journal of Medicine, San Francisco.

March.

71 Surgical Interference in Tuberculosis of the Bladder. (Continued.) G. MacGowan, Los Angeles.
72 Neurasthenia in Childhood. H. N. Rowell, Berkley.
73 Tumors of the Kidney—with Reported Cases. H. B. Reynolds, San Francisco.
74 Surgical Treatment of Chronic Tonsillitis. J. A. Black, San Francisco.
75 Effects of Tonsillotomy. W. B. Stephens, San Francisco.
76 Gonorrhea in Women. B. MacMonagle, San Francisco.
77 Manufacturing Pharmacists of the So-called Proprietary Remedies and the Medical Profession. W. H. Dukeman, Los Angeles.
78 Flies as Carriers of Contagion. G. H. Aiken, Fresno.
79 Sanitary Needs of the State. N. K. Foster, Sacramento.
80 Pertusis or Whooping Cough and Its Treatment. H. J. Ring, Ferndale.
81 Adenoids. E. A. Dial, Santa Barbara.

Journal of the Missouri State Medical Association, St. Louis.

January.

82 Treatment of Epilepsy. G. Campbell, St. Louis.
83 Scarlet Fever. R. D. Haire, Clinton, Mo.
84 Early Diagnosis of Pulmonary Tuberculosis. H. C. Shuttee, West Plains, Mo.

Louisville Monthly Journal of Medicine and Surgery.

March.

85 Round Ulcer of the Stomach. J. G. Cecil, Louisville.
86 Appendicitis. C. R. Garr, Flemingsburg, Ky.
87 Fate of the Glands of Bartholin in Perineorrhaphy. J. B. Bullitt, Louisville.
88 Some Observations on the Diagnosis and Treatment of Gallstones. A. Dixon, Henderson, Ky.
89 Report of a Case of Penetrating Gunshot Wound of the Abdomen. J. Y. Brown, St. Louis.

Medicine, Detroit.

March.

90 Notes on a Visit to the Laboratory and Hospital of Capt. E. R. Rost, I. M. S., the Discoverer of Leprolin. N. S. Rudolf, Simla, India.
91 Epilepsy. A. A. Eshner, Philadelphia.

Annals of Gynecology and Pediatry, Boston.

February.

92 Monism in Medicine. A. Jacobi, New York.
93 Sterilization of Cutting Instruments. H. A. Royster, Raleigh, N. C.

Northwestern Lancet, Minneapolis.

March 1.

94 Water Investigations in Minnesota. Collaboration of U. S. Geological Survey with Minnesota State Board of Health. F. F. Wesbrook and R. B. Dole, Minneapolis.
95 How to Secure Bony Union in Fractures of the Neck of the Femur. J. E. Moore, Minneapolis.

St. Paul Medical Journal.

March.

96 Dupuytren's Contraction of the Palmar Fascia. J. Knott, Dublin.
97 Commercial Value of Good Health, and the Indirect Cost of Unhygienic and Unsanitary Surroundings. H. A. Tomlinson, St. Peter, Minn.
98 Non-tuberculous Diseases of the Vertebræ. A. J. Gillette, St. Paul.
99 Procidentia and Its Relationship to Pelvic Surgery. A. MacLaren, St. Paul.
100 Pupil as an Aid in Diagnosis. J. H. James, Mankato, Minn.

Archives of Otology, New Rochelle, N. Y.

February.

101 Case of Temporo-sphenoidal Abscess, with Streptococcus Infection; Operation and Recovery. F. M. Stephens, New York.
102 Two Cases of Temporo-sphenoidal Abscess. Operation, Recovery. R. Lewis, Jr.
103 Three Cases of Laternal Sinus Thrombosis. R. Lewis; Jr.
104 Radical Operation in Chronic Middle-ear Suppuration. E. B. Dench, New York.
105 Double Mastoiditis, Followed by Diphtheritic Exudation with Fatal Result. H. Horlbeck, Columbia, S. C.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 25.

1 Multiple Disease of Joints in a Young Child. W. H. White.
2 *Acute Lymphemia in a Child. E. J. McWeeney and D. J. Farnan, Dublin.
3 *Id. E. J. McWeeney, Dublin.
4 Acute Lymphatic Leukemia. McCrae, Baltimore.
5 *Id. W. D. Donnan.
6 Microscopic Examination of Bone Marrow. C. P. Jones.
7 Clinical Methods of Enumerating Leucocytes. E. Turton.

2. **Acute Lymphemia.**—McWeeney and Farnan report a case of acute lymphemia occurring in a female child, 3 years of age, some time after an attack of whooping cough, the only illness, other than the lymphemia, the child had had. The blood count showed 1,540,000 red corpuscles and 136,400 white corpuscles. The percentages of white cells in the differential count were as follows: Large hyaline mononuclears, 65 per cent.; smaller hyaline mononuclears, 32 per cent.; polynuclear neutrophiles, 1.3 per cent.; polynuclear eosinophiles, 0.5 per cent.; neutrophile myelocytes, 0.6 per cent., and eosinophile myelocytes, 0.6 per cent. The hemoglobin was not estimated. The child died two days later. An autopsy was not permitted. Clinically the case resembled one of Hodgkin's disease, but an examination of a fresh blood preparation settled the diagnosis. The findings agreed with the hemocytic picture of acute leukemia in the following points: 1, Enormous preponderance of hyaline mononuclear cells; 2, rarity of polynuclear neutrophiles; 3, presence of myelocytes in very small numbers; 4, rarity of both varieties of nucleated red corpuscles.

3. **Id.**—A second case of acute lymphemia is reported by McWeeney. This case was typical in the youth of the patient (9 years), the duration of the disease (9 weeks), the moderate enlargement of the spleen and lymph glands; the clinical course, characterized by fever, hemorrhages and increased uric acid excretion; the predominance in the blood of large mononuclear cells with hyaline basophile protoplasm; the complete destruction or suppression of the myeloid element in the bone marrow, and the consequent total absence of granule cells from the blood. Exceptional features in the case were the severe and rapidly progressive anemia, the reds falling from 2,000,000 to 820,000 within three weeks; the large proportion of leucocytes to erythrocytes (5.3:1); the large number of lymphocytes (700,000), and the great enlargement of the spleen. In view of the abnormal activity of the lymphoid tissues throughout the body, and the flooding of the blood and tissues, with their products, the lymphocytes, McWeeney is inclined to regard acute leukemia as a primary disease of lymphoid tissue—a disease with distinct affinities to the malignant tumors.

5. **Id.**—The points of interest in the case reported by Donnan were: 1, The complete absence of any palpable lymphatic enlargement, coupled with a moderate amount of splenic hyperplasia; 2, the exceedingly rapid course, six weeks, with acute symptoms coming on only six days before death; 3, profound anemia; 4, the presence of a purpuric eruption on the body as virtually the only sign for several weeks. The acute symptoms were initiated by a severe attack of epistaxis.

The Lancet, London.

February 25.

8 Peritonitis. A Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
9 Shifting Dullness and Its Importance in Connection with Surgical Diseases. R. J. Godlee, London.
10 *Peculiar Form of Chronic Hyperplasia of the Mucous Membranes of the Upper Respiratory Tract. F. Semon.
11 Pneumonia with Infective Endocarditis and Meningitis. D. M. Livingstone and A. Jubb, Glasgow.
12 *Acute Septicemia Treated with Antistreptococcic Serum; Recovery. G. H. Cressey.
13 Mental Symptoms Associated with Heart Disease. H. Kerr.
14 *Properitoneal or Abdominal Hydrocele. J. Lewtas.
15 *Total Enucleation of the Prostate in Advanced Old Age. P. J. Freyer, London.
16 *Enelectrolysis; an Improved Method of Operating on Superfluous Hairs. B. Squire.
17 Laceration of the Abdominal Wall the Result of Bear-bite Simulating an Abdominal Tumor. V. S. Umachigi.

10. **Chronic Hyperplasia of Respiratory Mucous Membranes.**—Semon reports 7 cases of a hitherto apparently undescribed form of chronic hyperplasia of the mucous membranes of the nasopharynx, pharynx and larynx. Although there was some similarity in the clinical appearances of all these cases, the cause of the peculiar swelling was in 3 cases determined to be tuberculosis, syphilis or acute septic infection. The remaining 4 cases were not associated, so far as could be judged, with the presence of any specific micro-organism. The mucous membrane involved is uniformly thickened and presents a peculiar yellowish, shiny, somewhat gelatinous looking appearance, resembling that of a lardaceous kidney. The condition shows no tendency toward a destructive metamorphosis. Treatment is of no avail. Microscopically the condition presents itself as a chronic hyperplasia of the interstitial tissue of the parts involved, of apparently progressive character, with no tendency toward degeneration, and unassociated with the presence of any specific micro-organism. The investing epithelium is everywhere intact and normal. The lesion presents none of the structural features of tuberculosis, syphilis or rhinoscleroma. The overgrowth of connective tissue has no relationship with a neurofibromatous pachydermia since the nerves are not involved in the general fibromatosis. The enlargement is not due to a dilatation of lymph spaces, nor does it bear relegating to the group of angioneurotic edemas. The complete absence of chronic arterial change removes any relationship between the disease and erythromelalgia. The histologic changes approach most nearly to those met with in hyperplastic rhinitis in what has been called its secondary stage.

12. **Antistreptococcic Serum in Acute Septicemia.**—The infection in this case followed an injury of the great toe. The symptoms of acute sepsis developed rapidly, the temperature running as high as 105 and the pulse 106. On the eighth day 20 cm. of antistreptococcic serum were given hypodermically and within one hour the temperature had fallen 3½ degrees. On the following day 10 c.c. of serum were injected, this dose being repeated on the next day. In fact, during this period of acute sepsis the antistreptococcic serum was used pretty regularly until the skin became exquisitely tender. The case was complicated by the formation of superficial abscesses, a pleural pneumonia and an empyema. Convalescence was rapid and uneventful.

14. **Abdominal Hydrocele.**—Lewtas reports the case of a man, aged 38, who was suffering from what appeared to be a reducible inguinal hernia on the right side. The usual incision was made and on reaching the sac it seemed darker than usual and was obviously distended with fluid. A pale, clear, straw-colored fluid was evacuated, but continued to flow until the amount far exceeded the capacity of the sac. The flow ceased when two and a half pints had escaped. Neither intestine nor omentum were found in the canal, and on passing the finger through the ring nothing could be felt except the sides of a smooth-walled cavity, the limits of which could not be reached. The handle of a retractor entered for a distance of about 10 inches in directions radiating outward and inward from the internal ring. The left index finger pushed into the sac, while pressure was made on the abdomen with the other hand, could feel the under surface of the liver and of the umbilicus. This large cavity communicated at the internal ring with the sac outside, which extended to about an inch beyond the external ring, where it ended in a blind pouch. This extra-abdominal sac was separated from its connections and cut off close to the internal ring. A gauze drain was passed

through the internal ring into the sac within the abdomen, and the skin incision was then closed. The sac did not fill again, and at the end of a month it was obliterated.

15. **Enucleation of Prostate in Advanced Age.**—Freyer has performed his operation of total enucleation of the prostate on 188 patients, 9 of whom were octogenarians and one bordering on this period of life, aged 79 years. Nine of them are alive at the present time, most of them in excellent health, and all able to retain and to pass urine normally. The remaining patient, in whom the prostate was carcinomatous, after complete recovery from the operation, died suddenly from heart disease. From these facts Freyer concludes that age has little influence on the results of the operation, provided that the vital organs (particularly the kidneys) are unaffected or fairly sound. Nevertheless the operation should not be undertaken in such cases unless the most careful and tender nursing is available as well as the constant supervision of the surgeon.

16. **Enelectrolysis.**—The usual method of removing hair by electrolysis has been improved on by Squire. He pulls out the hair first and then passes the needle into the hole left by the extraction of the hair. This renders the destruction of the skin, that necessarily accompanies the destruction of the papilla, very much less, and in consequence the scarring left after the operation is not very noticeable. One very important advantage of the method is that it makes the procedure much more expeditious, and another is that the pain caused by the introduction of the needle is notably less. The needle enters the skin with the greatest ease. It does not in the least push the skin before it, and it does not displace the skin laterally. The introduction of the needle is more expeditious and it passes directly through the papilla and not to one side of it. A much greater number of hairs can be operated on in a given time. Squire advises using the butt end of the needle because it is less apt to stick and to get caught in the walls of the follicles.

Bulletin de l'Académie de Médecine, Paris.

18 (Year LXIX, No. 6, February.) *Pylorospasme avec hypersécretion et tétanie; étude clinique et expérimentale. T. Jonnesco and J. Grossman (Bucharest).
19 Sur la fréquence de la distomatose hépatique au Tonkin. Kermorgant.

18. **Spasm of the Pylorus with Hypersecretion and Tetany.**—Lancereaux, in presenting this communication from Jonnesco, stated that about 40 cases of gastric tetany are known, including one personally observed and one reported by Jonnesco. In the 11 cases in which operative treatment was undertaken, 8 patients were permanently cured, and 3 succumbed to postoperative peritoneal complications. In every known instance of gastric tetany, there was always some mechanical obstacle to the evacuation of the stomach. The stenosis is evidently primary, and it entails dilatation of the stomach and hypertrophy of its membranes. The vomiting and peristalsis indicate stenosis of the pylorus, and all doubt is removed when tetany is superadded. The tetany generally develops at an advanced stage of the affection. It is localized in the muscles of the feet and hands, but sometimes extends to the limbs and jaws; in exceptional cases it may extend to the trunk. Neuropathic atony of the stomach is sometimes the cause of abundant vomiting, but there is no peristalsis nor tetany, and restriction to a milk diet will generally put an end to the disturbances for the time being. The patient succumbed to progressive tetany in Lancereaux's case, unoperated on, but the one reported in detail by Jonnesco was entirely cured by posterior transmesocolic gastroenterostomy. Two phases were marked in this case: in the first there was permanent hyperchlorhydria with stasis of the food and consequent fermentation. The hyperacidity became so intense at times that the irritation of the duodenum induced a reflex spasm which prevented the invasion of the intestines by the irritating chyle. Lavage of the stomach restored conditions apparently to normal for a time. In the second phase, hypersecretion became superposed on the hyperchlorhydria, and tetany developed, probably from dehydration. The tetany did not appear except after great losses of fluid either in vomiting or in diarrhea, and it invariably subsided when fluid was introduced into the organism, by injection or otherwise.

Semaine Médicale, Paris.

20 (XXV, No. 6, February 8.) *Les interventions chirurgicales en face des nouvelles données de la physiologie et de la pathologie générale. A. Charrin.
21 *La néphrite hypogénétique. V. Babes (Bucharest).
22 (No. 7.) *Foreign Bodies in Esophagus of Children.—De la conduite à tenir dans les cas de corps étranger de l'esophage chez l'enfant. L. Bérard and R. Leriche.

20. **Surgery in Light of Latest Physiologic Data.**—Charrin reviews the information learned of late in regard to the functions of the omentum, spleen, ovaries and other organs, suggesting that their removal is not such a simple, harmless matter as has hitherto been supposed. Physicians should examine, weigh, ponder and watch the results for years instead of merely for a few months, to learn whether, in the mania for operating, everything really is for the best. Results are liable to develop tardily, showing that the apparent gain from the operation at first is outweighed by the ultimate harm. Surgery, he thinks, should yield more deference to general pathology and physiology. He cites a case in which the total ablation of a large mass of bleeding hemorrhoids in an otherwise healthy patient was followed by fatal arteriosclerosis with death in eighteen months. His own research has shown that the intestine should be regarded as a chain of juxtaposed organs with varying functions. He has also noted that if the spleen is removed from an animal with a biliary fistula, the bile at once loses its bright color and the dry residue decreases in amount, both in mineral and organic elements. He is also convinced that when a walled-off lesion, such as a tuberculous gland, is removed, its toxins and germs are liable to be launched into the general circulation and serious mischief follows. If the lesion had been left alone it might have persisted indefinitely in its harmless latent state.

21. **"Hypogenetic Nephritis."**—Babes has coined this term as descriptive of what he believes to be a hitherto undescribed form of nephritis. He has encountered 6 cases of it during the last three years. The subjects were all young, under 30, debilitated and anemic; they were free from kidney disturbances or were suffering merely from occasional slight disturbances of renal origin. During the course of some insignificant sickness, bronchitis, grippe or limited pneumonia, symptoms of subacute uremia suddenly developed and the patients sank into coma, which proved fatal the same day, or within two or three days. The autopsy findings indicated that the kidneys were congenitally undeveloped, unusually small, and the ureters and arteries were extra narrow. The heart was generally enlarged. The kidneys had evidently been taxed to the utmost by the demands of ordinary life, and the extra demands of even a comparatively trifling sickness had proved too much for them.

22. **Extraction of Foreign Bodies from the Esophagus.**—This article by Bérard and Leriche discusses what is best to be done when a foreign body has been swallowed by a child and has lodged in the esophagus. Extraction with forceps by the natural route is permissible only if the finger can reach the foreign body and if the process of extraction can be under the supervision of the laryngeal mirror. Attempts to push the foreign body down into the stomach are permissible only when it is soft and small, and is of a nature to be acted on by the digestive juices without causing poisoning. Attempts to remove the foreign body with the Graefe extractor should be absolutely rejected, as fatal accidents may occur. Extraction through the esophagoscope is the procedure of the future, but it is not within the reach of every practitioner. Consequently, the most certain and the least dangerous method for ordinary cases is external esophagotomy with suture of the muscularis and temporary drainage at the lowest point of the wound, bearing in mind that the foreign body in a child usually lodges just behind and a little above the notch in the sternum. Esophagotomy has frequently been followed by bronchopneumonia in the cases on record, but this was due to the preexisting inflammation set up by the foreign body, and can be avoided by early intervention.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed page 166.

23 (LXXV, No. 1.) Total Exstirpation der Scapula, Knochen-Regeneration und spätere Function (unter bes. Berücksichtigung der Osteomyelitis scapulæ). P. Bockenheimer.
24 Zur Operation eitriger Adnexerkrankungen durch ventrale Laparotomie (suppurative annexitis). Amberger.
25 Apparatus for Exact Dosage of Mixed Anesthetics.—Misch-Narkosen mit genauer Dosirung der Dampf-Concentration. Kionka and Kroenig (Jena). Illustrated.
26 *Zur Serum-Behandlung des Starrkrampfes insb. über Tetanus-Erkrankungen trotz prophylaktischer Serumtherapie. F. A. Suter.
27 *Experimentelle Studien über Lumbal-Anesthesie. R. Klapp.
28 Ueber Saugpumpen-Drainage bei Pankreas-Cyste (siphon drainage). R. Burmeister.
29 (No. 2.) *Zur Resection des carcinomatösen Magens (stomach). G. Kelling.
30 Simultaneous Stenosis of Pylorus and Intestine.—Ueber gleichzeitige Stenosierung von Pylorus und Darm. E. Payr. (Concluded.)
31 *Beitrag zum Studium der Harn- und Gallensteine (urinary and gallstones). G. Fantino. (Concluded.)
32 *Klinische und anatomische, sowie experimentelle Beiträge zur Kenntniss der inguinalen und cruralen Blasenhernien (hernia of bladder). F. Karewski.
33 Ueber Ovarial-Hernien. H. Heegaard.
34 Ueber die Madelungsche Deformität der Hand. K. Poulsen. See abstract on page 915.
35 Congenitale halbseitige Gesichtshypertrophie (unilateral hypertrophy of face). R. Werner.
36 Tumors in the Palate.—Ueber Gaumengeschwülste. H. H. Coenen.

26. **Serum Treatment of Tetanus.**—Fourteen cases of tetanus have been treated at Geneva. Only 2 were saved. The few cases treated with prophylactic injection of serum ran a milder course, and 83.3 per cent. of this group were saved. Suter urges the use of the serum as a prophylactic in circumstances suggesting possible danger, that is, before operation or childbirth. The physician who first sees a wound that threatens tetanus should inject the serum without delay. If given in time, the serum seems to be able to prevent the development of the infection.

27. **Lumbar Anesthesia.**—Klapp's experiments on dogs showed that the addition of oil to the solution of cocain entirely abolished all symptoms of intoxication. When the cocain was in an oily vehicle, total anesthesia could be induced in the dog without the slightest symptoms of intoxication. The capillaries and lymphatics are probably unable to take up the emulsion as rapidly as in an aqueous solution, and hence the cocain remains longer at the point of injection and is very slowly absorbed. Glycerin also retards absorption.

29. **Resection of Cancerous Stomach.**—Kelling says only 1 patient survived out of 6 cases of cancer of the stomach in which no hydrochloric or lactic acid could be detected in the stomach content. Five patients survived in 6 cases in which lactic acid was present, and 17 survived out of 20 presenting free hydrochloric acid. The prognosis is, therefore, better in the latter class, probably for the reason that hydrochloric and lactic acid have a certain disinfecting power. In his total experience with 54 cases treated by resection of the stomach he became impressed with the great frequency of postoperative pneumonia as compared with other laparotomies. This is easily explained by the passage of bacteria through the readily permeable central tendon of the diaphragm, when the space below the diaphragm becomes infected, during the course of the operation or afterward. Embolic pneumonia follows. Infection may be due to bacteria in the air, entering during the operation, and the nervous influences disturbed by operations in the region of the epigastrium may co-operate in the morbid process by interfering with the circulation. Kelling varied the technic of resection and total removal of the stomach, hoping to devise some means to avoid these complications, and the results seemed better with an operation in two sittings. He thinks that many of the supposed recurrences are in reality new infections. The main point for the surgeon is to have the condition diagnosed early.

31. **Urinary Calculi and Gallstones.**—Fantino reports 4 deaths in 110 cases of urinary calculi in which an operation was undertaken. His total experience includes 160 cases of calculi. He sutures the bladder after suprapubic incision in case of aseptic urine or slight cystitis, draining the prevesical space and leaving a catheter permanently in place. In severe cystitis he drains the bladder. The oxalate stones always cast sharp shadows in radioscopy, the urates variably sharp or faint shadows. Calcium phosphates give better shadows than ammonium and magnesium phosphate stones. Radioscopy of urinary calculi can be depended on; it failed in only 2 out of 120 cases. Negative findings in case of kidney stones do not absolutely exclude their presence. Gallstones generally cast fainter shadows than liver and muscle, but when they contain considerable lime salts they are liable to cast sharp shadows. These assertions are based on the findings in 80 radiographs of stones during life; 72 in the bladder, 4 in the kidneys and 4 in the urethra. The details of his extensive experience are related in full.

32. **Hernia of the Bladder.**—Karewski was able to diagnose with the cystoscope the existence of hernia of the bladder in 2 out of the 5 cases which he reports. In another case the condition was diagnosed, but in the others it was first discovered at the operation or afterward. He describes the mechanism of hernia of the bladder as he studied it further on cadavers.

Berliner klinische Wochenschrift.

37 (XLII, No. 4, January 23.) Zur Finsen-Behandlung des Lupus. E. Lesser.
38 Die Echinococcus-Krankheit des Auges (of eye). R. Greeff.
39 *Local Action of Suprarenal Substance, etc., on Circulation.—Die örtliche Einwirkung von Nebennierensubstanz, Brenzkatechin und Spermin auf die Zirkulation. J. Baum.
40 Encephalomyelitis hämorrhagica disseminata acuta unter dem Bilde der aufsteigenden Spinalparalyse (simulating ascending spinal paralysis). L. Huismans.
41 Cure of Two Cases of Exophthalmus and One of Chorea by Removal of Adenoid Vegetations.—Heilung zweier Fälle von Exophthalmus bilateralis und eines Falles von Chorea durch Entfernung der adenoiden Vegetationen. B. Holz (Berlin).
42 *Campher und Digitalis. Th. A. Maass.

39. **New Research on Suprarenal and Allied Substances.**—Baum writes from Neisser's clinic at Breslau to report the results of comparative tests of the active principles of the suprarenals and testicles. He found that the latter has exactly the contrary effect to the former. It induces a rapid and intense hyperemia instead of the anemia observed with adrenalin. Its effect is very transient, not lasting more than a minute in his tests on frogs. His researches further emphasize the value of adrenalin as a means to detect imperceptible fissures in the skin. It remains inert, without displaying any action, when the skin is absolutely intact, but if there is any defect its characteristic action is at once exerted. The action of suprarenal substance on the blood vessels is more pronounced, the nearer they are to normal. It is incomplete in proportion to the extent of the destructive process in the vessels and its long standing. Consequently, suprarenal substance displays its greatest activity in acute inflammations while lupous tissues or chronically dilated vessels are not much affected. The difference is still more marked in the after-effect. The nearer to normal the tissues, the more promptly the action of the suprarenal substance subsides afterward, while in chronic vascular lesions intense venous hyperemia follows and persists for some time. This is also observed when the suprarenal substance is applied repeatedly to the same spot. The primary anemia is followed by constantly increasing, transient venous hyperemia. The vessels evidently become fatigued by its application. Baum thinks that these findings indicate that the use of the suprarenal substance should be restricted to tissues that are approximately normal, and that it should never be long continued. His tests were made on the web foot or tongue of curarized frogs. The surface was first rubbed lightly with emery paper and then brushed with a 1 to 10 per cent. solution of the substance to be tested.

42. **Camphor and Digitalis.**—Maass epitomizes the results of recent researches which have provided a scientific basis for empiric observation on the action of these drugs. Camphor, he states, was known and used by physicians as early as 1070, the Arabian physician, Simon Seth, and the abbess Hildegard, writing of its remarkable properties in 1070 and 1150, respectively. Recent experiments with the isolated hearts of warm-blooded animals have thrown new light on its

mode of action, especially those of Gottlieb in 1901, Winterberg since then, and E. Seligmann still more recently. When the isolated beating heart commences to beat irregularly and wildly, the regular rhythm can be restored by adding a little camphor to the fluid being passed through it. The principal action of the drug, however, is in dilating the blood vessels. When injected into the circulation it exerts a slight, transient irritation on the vasomotor center. Similar researches with digitalis have shown that it acts directly on the heart with a further reflex action of constriction of the vessels in the splanchnic area. Digitalis also regulates the pulse. It shares this latter property with camphor.

Centralblatt f. Chirurgie, Leipsic.

Last indexed pages 664 and 747.

43 (XXXII, No. 5, February 4.) *Rectus Muscle and Direct Inguinal Hernia.—Die mediale Leistenbruchpforte und der gerade Bauchmuskel. H. Landau.
44 (No. 6.) Grittti'sche Amputation. W. Harms.
45 Simple Contrivance for Active Movements.—Einfache Stellvorrichtung für aktive Bewegungsapparate. A. Wodarz.
46 (No. 7.) Zur Technik des Gipsbettes (plaster bed). M. Haudek.
47 Ileus as Tardy Consequence of Appendicitis.—Ileus als Spätfolge von Appendicitis. V. Subbotitch.

43. Automatic Correction of Inguinal Hernia.—Landau comments on the looseness of the parts around a direct inguinal hernia. The tissues seem to be merely connective tissue, with the exception of the rectus. When at rest, the lateral margin of the rectus coincides with the aponeurosis, but when it contracts it spreads and becomes a centimeter wider, thus covering the entire mouth of the hernial sac. One would suppose that the contracting rectus would interpose a barrier to the protrusion of the hernia, as it is forced out by the pressure of the diaphragm and abdominal muscles. This is not the case, however, for the reason that the rectus behaves passively during the inspiration which is involuntarily made as a preliminary to exerting pressure. The rectus does not contract; it is merely drawn up passively, leaving the opening unprotected. On the other hand, if pressure is exerted during expiration, the rectus contracts and its lower portion spreads wide like a protecting wall over the ring during the entire period of the contraction. The disposition to hernia is further combated by the shape assumed by the abdomen during inspiration and expiration. Hernia is much more liable to occur during inspiration. Pressure, especially for violent exertion, is more commonly exerted during inspiration. The deep inspiration provides oxygen for the moment when the body makes its muscles work without a fresh supply of oxygen. The arms can do better work, as the muscles then have a firmer hold on the inflated thorax than when it subsides during expiration. Every one who has an unusually wide inguinal ring, or an incipient hernia, should seek to reverse this custom, and learn to use his muscles during expiration. The impulse to contract the muscles as much as possible at every exertion, when straining, coughing or sneezing, will soon become second nature if diligently practiced, and thus the region will be automatically protected against hernia. Landau is convinced that if a person with a tendency to hernia will practice and will accustom himself to this reversal of the usual conditions, he can keep his hernia permanently under control, without necessity for operation or truss.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 747.

48 (XXIX, No. 5, February 4.) Fate of Deported Placenta Cells.—Ueber das Schicksal embolisch verschleppter Placentarzellen. G. Schmorl.
49 Hearing of Fetal Heart Sounds Before Middle of Pregnancy —Zur Frage der Wahrnehmung von Herztönen vor der Mitte der Schwangerschaft. O. v. Herff. See abstract page 915.
50 Konvulsionen nephrektomierter Kaninchen (rabbits). B. Wolff.
51 (No. 6.) Zur Technik der Alexander-Adams'schen Operation. H. Fehling.
52 *Zur Prophylaxe des Puerperal-Fiebers. B. Credé (Dresden).
53 Sectio caesarea wegen retrocervicalen Myomes mit Total-Exstirpation des Uterus. F. Michel.
54 Researches on Isolated Uterus or Vagina.—Bemerkung zu den Arbeiten von Dr. E. M. Kurdinowski über physiologische und pharmakologische Versuche an der isolierten Gebärmutter. A. Labhardt (Basle). See abstract in THE JOURNAL, xliii, p. 1586.
55 Zur Anatomie der Atmokausis. G. Fleischmann.
56 (No. 7.) Shape of Infants' Skulls Modified by Hard or Soft Pillows.—Ueber die Entstehung von Brachy- und Dolichocephalie durch willkürliche Beeinflussung des kindlichen Schädels. G. Walcher.
57 Der Bacillus aerogenes capsulatus im Puerperalfieber (in 10 cases of puerperal infection). H. M. Little (Baltimore).

52. Prevention of Puerperal Fever.—Credé thinks that it is just as important to sterilize the internal genitals after childbirth as it is to instill the prophylactic silver solution in the eyes of the newly born child. Conditions, of course, are much simpler in the case of the child's eyes, but the principle of prevention of development of lurking germs is the same. He regards Zweifel's idea as to the evacuation of all blood clots as a very fortunate one (see THE JOURNAL, page 763, of last volume). Extensive experience has convinced him that collargol is perfectly harmless for the purpose, and is a powerful antiseptic and catalytic remedy which kills or attenuates the germs in the uterus or vagina. If systematically used, it would greatly reduce the number of deaths from puerperal fever, which still average 6,000 to 7,000 every year throughout the German Empire. He introduces the collargol in the form of a suppository pushed high into the vagina or cervix or into the uterine cavity after delivery, the opening into the vagina then being loosely tamponed with gauze. The formula for this "collargol-vaginal ball," as he calls it, is:

℞. Collargol
Talc. pulv., āā.....grs. xv 1
Olei cacao 3ivss 18
M. Ft. globuli No. x.

The suppository and gauze can be renewed at need. The collargol penetrates into every crevice, sterilizes the secretions without injuring the living cells, and, to some extent, is absorbed. Even if infection be already present, it is attenuated, but, in this case, more energetic measures are necessary. He irrigates with a 1 to 2,000 or 5,000 solution of collargol, introducing a suppository to act during the intervals, with other measures as indicated, using as the last resource intravenous injections of 8 to 10 c.c. of a 2 per cent. solution of collargol.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed page 834.

58 (LXXXII, Nos. 1-2.) Modifications in Shape, Size and Position of Heart in Changing from Horizontal to Upright Position.—Ueber Veränderungen in der Form, Grösse und Lage des Herzens beim Uebergang aus horizontaler in vertikale Korperstellung. Methodik der Orthodiagraphie. F. Moritz (Greifswald).
59 Origin of Blood Plates and Their Relations to Spindle Cells. —Entstehung der Blutplättchen und ihre Beziehungen zu den Spindelcellen. E. Helber (Tübingen).
60 *Ueber das Verhalten der Langerhansschen Inseln des Pankreas bei Diabetes mellitus. K. L. Karakascheff.
61 *Meningismus typhosus und Meningotyphus. C. Stäubli.
62 Ein Fall von akuter, einfacher Meningoencephalitis. C. Hegler and E. Helber.
63 Conduction of Heart and Vessel Murmurs in Thorax.—Ueber die Fortleitung von Herz- und Gefässgeräuschen im Thorax. C. Klieneberger.
64 Zur Kenntnis der multiplen Sklerose. P. Morawitz.
65 *Tuberkulöse Prozesse und Lymphocyten. C. J. Fauconett.
66 Fall von primärem Lebersarkom mit Cirrhose der Leber (of liver). J. Rubinato.
67 Intermittierende Polyurie usw. bei Addisonscher Krankheit. E. Bendix.
68 Topography of Warmth Production.—Wärmetopographie des Warmblüters. E. Aronsohn. Reply to article in vol. lxxv.

60. Islands of Langerhans in Eleven Cases of Diabetes.—The entire parenchyma of the pancreas was more or less degenerated in all the cases reported, but the islands of Langerhans, for the most part, were normal. In some instances they had evidently proliferated. This proliferation and the general aspect of the islands suggested vicarious action on their part and regeneration of the acini from these islands. The patient may escape diabetes when the acini are alone involved and the islands are spared by the morbid process. Normal parenchyma may regenerate from the islands; they can be regarded as reservoirs which, under certain conditions, may compensate for the destroyed parenchyma.

61. Typhoid Meningismus and Meningo-Typhoid.—Stäubli has observed 2 cases at Munich in which the symptoms suggested typhoid complicated by meningitis, but lumbar puncture was negative. The patients recovered and the course

of the disease, in both cases, indicated that the disturbance was functional and due to intoxication from the products of the bacteria. In a third case the typhoid bacilli had evidently located in the meninges and induced a suppurative cerebrospinal meningitis. The case had been one of "walking typhoid"; the cerebrospinal symptoms were first noted after a month of slight headache and general exhaustion in a previously healthy young man.

65. **Tuberculous Processes and Lymphocytes.**—Fauconnet's researches demonstrate that the tuberculosis toxin attracts only the polynuclear neutrophile cells, not the lymphocytes. The latter are attracted only locally by tuberculous processes.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

69 (XXXI, No. 4, January 26.) *Venous Congestion in Treatment.—Ueber Behandlung durch venöse Stauung. H. Tillmanns.
70 *Zur Diagnostik und Therapie der Nierentuberculose (of kidney). L. Casper. (Commenced in No. 3.)
71 *Wearing Out of Nerves.—Die Aufbrauchkrankheiten des Nervensystems. L. Edinger. (Concluded.)
72 Facial Paralys's.—Zur Symptomatologie der doppelseitigen Facialislähmung. E. Barth.
73 Chorion-Epitheliom und Lutein-Cysten. G. Fischer.
74 Action of Albuminoids, etc., on Coagulation of Blood.—Ueber die Einwirkung von Eiweisskörpern, Peptonen und Peptiden auf die Blutgerinnung. H. Brat.
75 *Possibility of Transmission of Disease Germs by Common Communion Cup.—Untersuchungen über die Möglichkeit der Uebertragung von Krankheitserregern durch den gemeinsamen Abendmahlskelch nebst Bemerkungen über die Wahrscheinlichkeit solcher Uebertragung und Vorschlagen zu ihrer Vermeidung. O. Roepke.

69. **Venous Congestion as a Therapeutic Measure.**—Tillmanns urges more general adoption of the method of local venous congestion as a powerful means of influencing mild cases of tuberculosis of the joints, acute or subacute gonorrheal joint affections and chronic stiff joints. When resorption is to be promoted, active hyperemia is preferable. He adds that in all acute inflammations of the soft parts venous congestion is contraindicated.

70. **Diagnosis and Treatment of Tuberculosis of the Kidney.**—Casper has noticed that patients with operable tuberculosis of the kidney, who refuse an operation, generally succumb sooner or later to the progressive course of the affection. Infection of other organs from the kidney is by no means rare, especially of the other kidney. The patients may remain in comparative health for a year or ten years, and in 3 out of his 60 cases of tuberculosis of the kidney the process actually seems to have healed, as there are no further symptoms. If insignificant hematuria is the only symptom and no pus cells are found in the urine, the operation can be deferred, if the patient realizes the exceptional character of a favorable outcome. Only 3 cases of even comparative recovery are on record to 15 in which the tuberculous process continued to spread. The presence of pus cells urgently indicates an operation. Great debility and general ill health are no contraindications to operative interference, if they are referable to the local kidney process alone. Diabetes renders the prognosis graver. One of the 2 deaths in Casper's experience after removal of a tuberculous kidney was in a very mild case of diabetes. The sugar was reduced to normal on a diabetic diet and the patient was well nourished, but he succumbed to increasing weakness in less than two months. The proportion of sugar rose alarmingly after the operation and acetic acid also appeared in the urine. Review of the literature shows that the fatalities after nephrectomy were almost always due to heart weakness which emphasizes the value of a strong heart for the success of a contemplated nephrectomy. A high degree of arteriosclerosis, especially of the coronaries, would, of course, forbid operation, but Casper has never accepted mere functional heart weakness as a contraindication. Tuberculosis of the bladder always improves after nephrectomy, and may be permanently arrested. Bladder tuberculosis is generally a strictly localized affection, with little tendency to spread or to become generalized. He has 2 patients who have had such a process for ten years. It occasionally has an exacerbation, but then subsides into latency for years at a time. An early diagnosis and determination of the soundness of the other kidney are the bases for successful treatment of tuberculosis of the kidney. Since the functional kidney tests have been introduced, the statistics of five different surgeons show 130 nephrectomies with a mortality of 10 per cent. in the first six months. The record before catheterization of the ureters was 139 nephrectomies, with 21.7 per cent. mortality in the first six months. Albarran's experience has been 3.7 mortality in 53 nephrectomies; Rotter's, 25 per cent. in 8; Casper's, 10 per cent. in 20; Kümmell's, 14.3 per cent. in 42 nephrectomies, and Barth's 14.3 per cent. in 7. Comparison of the statistics further shows that in the days before the functional tests, 22.7 per cent. of the 28 deaths after nephrectomy were due to insufficiency of the remaining kidney. This only occurred in a single one of the 13 deaths in the statistics of the last few years, that is, in 7.7 per cent.

71. **Wearing Out of Nerves Without Normal Repair.**—The conclusions of Edinger's series of articles on this subject contain some practical hints. (See previous abstracts, pages 1588 and 1909 of last volume.) He accepts three types of these affections—those that are due to excessive functional demands on normal nerve tracts, those due to lack of normal repair in certain tracts, from the influence of some intoxication, and those due to inherited weakness or predisposition. The practical conclusion is that nerve tracts predisposed by intoxications, by excessive functioning or by inherited weakness should be protected from undue strain. He has found that tabetics can be guarded against many manifestations of the disease by refraining from fatiguing exercise, by urinating every hour, by wearing colored glasses in bright sunlight, and by remaining in bed for a few days whenever the symptoms show signs of aggravation. Paralysis of the bladder has not developed in any of his patients who obeyed these rules, but overexertion is liable at times to induce some symptoms. In polyneuritis, strict rest in bed, and in mononeuritis, a removable immobilizing bandage have given most gratifying results. Paralysis after long illness can be averted by avoidance of overvigorous or of long-continued movements.

75. **The Individual Communion Cup.**—This article is an appeal for individual communion cups as a special necessity in watering places, sanatoria and similar places. The solution of the question seems to be that each communicant should have his own private communion cup which he keeps in his own possession and takes to church with his prayer book. The results of the writer's experimental tests showed that turning the cup and wiping the rim with a napkin are not sufficient to protect against infection. They refer to 2 authentic unpublished cases in which syphilis was unmistakably transmitted from one person to another by the use of a common drinking glass in a saloon.

Münchener medicinische Wochenschrift.

76 (LII, No. 6, February 7.) *Action of Mountain Climate on the Blood.—Die Wirkungen des Höhenklimas auf das Blut. K. Bürker.
77 *Eosinophilia in Ankylostomiasis.—Die Vermehrung der eosinophilen Leukozyten bei Ankylostomiasis in diagnostisch-prophylaktischer Bedeutung. H. Bruns, Liefmann and Mäckel.
78 *The Presumptive Dangers and the Positive Advantages of Artificial Respiration by Swinging the Asphyxiated Newly Born.——Die angeblichen Gefahren und die sicheren Vorteile der künstlichen Atmung durch Schwingen des tief scheintoten Kindes. B. S. Schultze (Jena).
79 Dangers of Schultze's Swinging.—Beobachtungen über die Gefahren Schultzescher Schwingungen. G. Burckhard (Würzburg).
80 Ueber Chorea chronica progressiva. (Huntingtonsche Chorea). W. Weyrauch.
81 Fall von Hypertrichosis sacralis. M. Marcuse.
82 Stopper for Ether Flask. (Aetherflaschenverschluss.) H. V. Baeyer.

76. **Action of Mountain Climate on the Blood.**—Bürker's extensive experimental research is described in detail, and the general conclusion deduced that the climate of the mountains certainly has an unmistakable, specific action on the composition of the blood. The reaction to the mountain climate on the part of the blood is not a relative but an absolute modification of it. The experiments were made on rabbits, some from the same litter being kept at Tübingen and others being carried to Schatzalp, at an altitude of 1,864 meters, or nearly 6,000 feet

above the sea. The specific reaction on the part of the blood is evidently at first an accumulation of iron and hemoglobin in the liver and in the blood. This accumulation may be due to the opening up of reserve stores of hemoglobin. By the second or third week the blood-forming organs produce a new supply; the liver gives up its iron and the blood takes the hemoglobin. The liver probably yields about half the iron needed, and the rest comes from the bone marrow. The facts observed suggest that this new formation of hemoglobin which occurs in the rarefied air might be materially promoted by supplying iron to the liver when its stock of iron becomes depleted. Bürker thinks that possibly radioactivity may be one of the factors in this specific reaction of the blood.

77. **Eosinophilia in Ankylostomiasis.**—The blood findings did not always parallel the findings in the feces in the large numbers of miners examined, although occasionally a certain concordance was apparent.

78. **Schultze's Swinging to Resuscitate the Asphyxiated Newborn.**—Schultze here replies to the various criticisms that have been made in regard to his method of resuscitating infants that have been asphyxiated in the uterus and are born before asphyxiation is quite complete. The hemorrhages and lesions induced by this asphyxiation in the uterus have been erroneously attributed by some to the swinging, when in reality they had occurred previous to birth. Comparison with the natural death of an infant during delivery will show that many of the objections to Schultze's method on this ground are baseless. The exact mechanism of the process by which the infants are revived by swinging is set forth in detail, and its superior advantages are reaffirmed by the author of the method after long years of experience.

Wiener klinische Wochenschrift, Vienna.

Last indexed page 587.

83 (Vol. xviii, No. 3, January 19.) *Zur chirurg'schen Behandlung des kallösen, penetrierenden Magengeschwürs (gastric ulcer). H. Hinterstoisser.
84 *Die kombinierte Chinin-Iod Behandlung des Lupus erythematosus nach Holländer und eine Erklärung für diese Therapie. M. Oppenheim.
85 *Zur allgemeinen Technik der Nerven-Plastik. H. Spitzy.
86 *Zur Frage der Konst'tution der Krebskranken (cancer subjects). A. Fraenkel.
87 (No. 4.) *Vergleichende Betrachtungen über die Hyperemesis und Eklampsie (comparative study). E. Dirmoser.
88 Beitrag zur Pneumokokken-Epityphlitis (Two cases). E. Haim.
89 *Reflected Sunlight in Treatment of Laryngeal Tuberculosis.—Ueber die Behandlung der Kehlkopftuberkulose mit Sonneulicht nebst einem Vorschlag zur Behandlung derselben mit künstlichem Lichte. J. Sorgo.
90 *Zur intravenösen Sauerstoff-Infusion (of oxygen). A. Neudörfer.
91 Biologic Action of Cholin.—Zur Kenntnis der biologischen Wirksamkeit des Cholins. A. Exner and E. Zdarek.
92 (No. 5.) Ueber den Wert des Pyramidons für die Behandlung des Abdominal-Typhus. C. Hodlmoser.
93 Foreign Bodies in Eye and their Expulsion.—Ueber Wanderung von Fremdkörpern im Auge und Spontanausstossung derselben. B. Gesang.
94 Action of Lecithin after Exposure to Röntgen Rays.—Zur Wirkungsweise des röntgenbestrahlten Lecithins auf den tierischen Organismus. O. E. Schulz.
95 *Die Behandlung des Condyloma acuminatum mittels Erfrierung (refrigeration). M. Schein.

83. **Surgical Treatment of Deep Indurated Ulcer of the Stomach.**—Hinterstoisser considers that gastroenterostomy is entirely inadequate for these cases in which the ulcer has bored deep into the stomach wall and has thrown up a thick wall of cicatricial tissue. They should be treated on the same principles as a malignant growth, by resecting into sound tissue. The Murphy button was used for circular antecolic gastroenterostomy in one of his 3 cases, but it did not answer the purpose. The thickening and hypertrophy of the stomach wall prevented the halves of the button from locking correctly. All the patients were completely cured and have no further stomach disturbances.

84. **Quinin-Iodin Treatment of Erythematous Lupus.**—Oppenheim proclaims that Holländer's method of treating erythematous lupus by quinin internally and iodin externally afforded remarkably fine results in 6 cases in Finger's clinic. Two patients were cured, and the others were very much benefited. He experimented with animals to study the reason for this striking benefit, and came to the conclusion that it is due to impregnation of the organism with the quinin which enhances the action of the local applications of iodin. The iodin attracts the quinin to the point of the lesion, where it exerts its almost specific action. The patients took quinin bisulphate in increasing doses to a maximum of 4 gm. a day, and the patch was brushed with tincture of iodin twice a day, after the scabs had been removed with alcohol and ether. Treatment was kept up for a month or two with occasional pauses. The chemotactic action of the iodin suggests the query whether internal administration of quinin would increase the local absorption of iodin preparations, and whether other cutaneous affections might not be favorably influenced by a similar combined treatment, and, finally, whether a similar behavior might not be anticipated from other drugs that display an affinity for each other like that between quinin and iodin.

85. **Plastic Operations on the Nerves.**—Spitzy experimented on dogs to learn whether it might not be possible to transplant the nerves in a paralyzed region so as to innervate the muscles effectually. His successful results were summarized in The Journal, Sept. 24, 1904, page 915. The various instruments he has devised to overcome obstacles are here illustrated, and he also describes the technic for the different regions. He is convinced that in many cases this neuroplasty might advantageously supplement other measures.

86. **Constitution of Cancer Subjects.**—Fraenkel expresses surprise that so few cases of cancer are noted in subjects with progressive paralysis. In 1,744 cadavers of subjects with progressive paralysis he found cancer very much less frequent than in a corresponding material of any other nature. Advanced arteriosclerosis, with consecutive changes in the heart, is a constant finding in progressive paralysis and tabes, and arteriosclerosis may even be regarded as an early symptom of these affections. The rarity of cancer in these cases of poor circulation and its frequency in particularly well-nourished persons seem to suggest that cancer thrives on this latter soil. The cachexia is altogether secondary. The superabundant health which seems to be the characteristic of those doomed to cancer is, possibly, one reason why the diagnosis of cancer is not made earlier. The aspect of good health prevents the suspicion of any serious affection during the incipient phases of malignant disease. The fact that mechanical and chemical irritation affords a predisposition to cancer may be due to the excessive segmentation of cells which such irritation induces. Cells thus stimulated acquire in time a senile character and progress to atypical development. This is the result not so much of an excess of vital energy as of the lack of the normal regulating processes. In his autopsies in cases of progressive paralysis he found innumerable factors which might have predisposed to cancer: syphilis, trauma, inflammations, round ulcer, etc. The absence of cancer throughout the series can be explained only by assuming that the early deterioration of the circulatory apparatus entailed changes in the tissues more in the nature of atrophy, with little reacting power. Another reason, he remarks, why cancer affects persons with a circulatory apparatus in good condition is that others do not survive to the cancer age. Cancer occurs most frequently at the points peculiarly exposed to mechanical irritation and to irregular embryonal development, and these are places where the blood vessels are especially numerous and the nutritional processes unusually active. Repair of mechanical injury at these points has a tendency to be excessive. For the same reasons *x*-ray burns are liable to afford a predisposition to local cancer.

87. **Analogies Between Hyperemesis and Eclampsia.**—Dirmoser ascribes both these affections to autointoxication and treats them on this assumption. Remedies to quiet the nervous system are indicated at first, followed by measures to eliminate the toxins causing the trouble—hydrotherapy, saline infusion, venesection and laxatives. Withdrawal of blood has a beneficial action not only on account of the elimination of toxins, but, mechanically, by reducing the blood pressure. The patients should be isolated both in case of hyperemesis and of eclampsia. His clinical experience has confirmed the value of

treatment along these lines, with interruption of the pregnancy as the last resort.

89. **Treatment of Laryngeal Tuberculosis with Sunlight or Artificial Light.**—Sorgo's favorable experiences with sunlight reflected into the throat as a means of curing laryngeal tuberculosis were reported in these columns on page 666. The unreliability of sunlight for systematic treatment has compelled him to seek for a substitute, and he has become convinced that the application of artificial light is feasible. As the tissues in the larynx are so loose and succulent, and as they have never been accustomed to the action of light, they are affected by even the parallel rays, and he believes that it will not be necessary to focus the rays. This simplifies the technic, as the patient can apply this light treatment himself, without the necessity for complicated apparatus. A current of 60 milliamperes would be ample, he thinks. As yet he has had no opportunities for practical experience with artificial light. He was deterred from the preliminary use of adrenalin by the fear that the mechanical application might detract from the efficacy of the rays. Recent experiences have shown that this fear is unfounded and that adrenalin is a valuable aid in the treatment. Edematous conditions seem to be a contraindication to this light treatment, as the 2 cases of this class in which it was applied were apparently aggravated by it.

90. **Intravenous Administration of Oxygen.**—Neudörfer reports from Gersuny's clinic the revival of an apparently moribund patient by intravenous administration of oxygen. Compression of the air passages by a cystic goiter complicated with bronchitis and lobular pneumonia, caused suffocation, even after tracheotomy. As the attacks of cyanosis and dyspnea recurred oxygen was injected into a vein, according to Gaertner's technic. Each time the patient rallied, recovered consciousness and felt much relieved. There were no further indications of suffocation after the second infusion, but the patient succumbed in a few days to increasing heart weakness and pulmonary edema. The complete change in the aspect of the apparently moribund subject in a few minutes after the intravenous infusion was most striking. Neudörfer remarks in conclusion that the absolute harmlessness of the method was again demonstrated by this experience.

95. **Refrigeration of Condyloma Acuminatum.**—Schein reports excellent results from the application of ethyl chlorid spray in this condition. He has thus treated about 30 patients, and the results were much better than those obtained by any other method in his experience. The surface and base of the condyloma must be well sprayed; no adjuvant is needed. The circulation in the growth is arrested; it becomes cyanotic and later dark red. Its nourishment is disturbed by the resulting thrombus, and it ceases to proliferate and, in time, becomes absorbed. The same treatment might prove beneficial, he suggests, for non-malignant pedunculated tumors.

Janus, Utrecht.

Last indexed XLIII, page 1910.

96 (IX, No. 11.) Willibald Pirckheimer's Gicht (gout). A. D. 1470-1530. W. Ebstein (Göttingen).
97 C. H. Pfaff's Reminiscences.——C. H. Pfaff in Göttingen (1793-94). E. Ebstein.
98 The Spread of Sleeping Sickness. W. J. van Gorkom (The Hague).
99 (No. 12.) Portrait with Spectacles, Painted by Thomas of Modena in 1352.—Zincotypie d'un portrait avec lunettes. J. Albertotti.
99½ Historical Features of the International Congress of Ophthalmology, held at Lucerne September 13-17, 1904.—Partie historique. E. Pergens.
101 (X, No. 1.) *The Worship of Esculapius and Practice of Medicine among the Ancient Greeks.—Der Cult des Asklepios und die damit bedingte Ausübung der ärztlichen Kunst bei dem alten Griechen. V. V. Zaremba. (Commenced in preceding No.)
102 Medical Officials in Norway before 1800.—Physicat de la Ville de Christiania. J. Scharffenberg.
103 History of Vaccination in Dutch East Indies.—Contributions à l'histoire de la vaccination aux Indes orientales néerlandaises. C. L. van der Burg (Utrecht).
104 (No. 2.) *Alimentation des Européens et des travailleurs indigènes aux pays chauds (diet in tropics). C. L. van der Burg.
105 The Medical Faculty at Montpellier in the Middle Ages.—Les maitres de la faculté de médecine de M. au Moyen-age. P. Pansier (Avignon). Commenced in preceding volume and continued.)
106 Les trypanosomes aux Indes néerlandaises (in Dutch East Indies). C. A. Penning. (Commenced in preceding volume and continued. Illustrated.)
107 La lèpre. R. Römer (Sumatra). (Commenced in preceding volume and continued.)

101. **Worship of Esculapius in Ancient Greece.**—The temples erected in honor of Asklepios, the Greek god of the healing art, were always located in airy, sheltered, healthy places and were the prototypes of the modern sanatorium. They were distinguished from other temples by their simplicity and spaciousness. The temple proper was usually very small, containing merely the statue of Asklepios, sometimes accompanied by his daughter Hygiea. This was surrounded by open colonnades where the suppliants gathered. There was always a sacred spring at the entrance to the temple. As the god was said to have been born in Epidaurus, the temple there was the most extensive of all. The walls are lined with bas reliefs, some still well preserved, portraying the return to health or gratitude for recovery of the flocking pilgrims or of entire cities. The temple contained also statues of the healed persons or of the healed part of the body, statues of the head, hand, foot, breasts, shoulder, hip, etc., classified in groups, which must have given the temple the appearance of a pathologic museum. Other votive offerings, urns, vases, seats, filled some of the rooms and hung from the ceilings, some of them costly gold and silver articles set with jewels. These riches were despoiled by the Roman conquerors and the temple is now an empty ruin. The priests who had charge of these temples acquired a certain insight into the medical sciences in time, and were able to cure many of the applicants. They refused to admit persons with contagious diseases or in an advanced stage of any disease, and it was forbidden to deliver a woman even in the environment of the temple. Aristophanes gives a graphic description of the application of a sick person for relief. He first had to bathe in the sacred spring and then make an offering to the god. Each party had to supply his own wants, as the temple offered nothing but a bed of dried leaves under the colonnade. The priests, as darkness approached, went through a certain ritual to impress the patients with a sense of mystery and of the nearness of the god. The god appeared to them in their dreams, and the priests in the morning displayed great ingenuity in harmonizing the god's supposed directions in the dream with some practical measure. When a patient was cured by autosuggestion on a religious basis this was called "incubation," and great was the rejoicing. To some of the applicants the god never revealed himself, the priests assuring them that they were unworthy of his ministrations. One young Assyrian was turned away on account of gluttony. The priests advised in certain cases gymnastics, riding, hunting and similar sports, in others cheering music, singing, etc., hydrotherapy, including running barefoot in the grass, and numerous hygienic and therapeutic measures. Sheep and dogs were trained to lick the patient's lesions. The veneration and substantial rewards accorded to the priests of Asklepios led other priests to practice medicine also, and these temples gradually fell into disrepute. Hippocrates belonged to the tribe of priests of Asklepios, but emancipated himself and laid the foundations for scientific medicine about 460 B. C.

104. **Diet in the Tropics.**—Twenty-five years' experience in the tropics has convinced van der Burg that continued subjective observation, made by an intelligent person even without scientific training, is worth more than scientific research when it comes to the question of deciding the most suitable diet for a given place. As a rule, however, Europeans in the tropics had better restrict their diet to easily digested vegetables, with fish, poultry, soups, a few relishes, fruits, refreshing beverages, and light wines. Great attention should be paid to the seasoning of the dishes in order to make them appetizing both to taste and to smell, as the appetite is generally languid. After years of experience a man is usually the best judge of what is best for him to eat. As fats do not keep well in the tropics this may be one reason why they are not relished there.

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Original Articles

ACUTE MENINGITIS.

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BOSTON.

By the term meningitis is understood inflammation of the pia arachnoid, the investing membrane of the brain and spinal cord. Considered as a single membrane, it consists of a serous surface (arachnoid) forming one side of the subdural space and beneath this a loose connective tissue, the pia mater, which carries the blood vessels for the brain and cord. The brain, covered by this membrane, projects into the subdural space as the heart projects into the pericardial cavity. In addition to the vessels, there are numerous lymphatics, which are situated in the adventitial sheaths of the veins and arteries and which are continued with these vessels into the brain. They are true lymphatic vessels with an endothelial lining; they are thin-walled, and, when distended, communicate freely with the tissue spaces. There are no lymphatics in the tissue of the brain itself, nor have lymph spaces, similar to the spaces in other tissues, been demonstrated. The adventitial lymphatics are not continued into the capillary walls. Between the capillaries and the walls of the channels in which they run there are spaces, easily distended, which are in relation with the closely-woven web of the nervous tissue, allowing a free interchange of fluid. Such fluid easily finds its way into the adventitial lymphatics. The relation, by means of blood vessels and lymphatics, between the nervous tissue and the investing membrane is so close that infectious processes in one extend into the other. Strictly speaking, all cases of meningitis deserve the term meningo-encephalitis. The lymphatics of the membrane communicate with the general lymphatic system of the body by means of the lymphatics along the nerves and great vessels.

The pia arachnoid, in the form of the choroid plexus, passes into the ventricles of the brain, and the intraventricular fluid finds its way into the interspaces of the membrane through the foramen of Magendie. The deep cervical lymph nodes belong to the membrane. The pia arachnoid contains the few connective tissue cells of the fibrous tissue, the cells of the blood and lymphatic vessels, and a variable number of lymphoid cells.

There are various means by which infectious agents can gain access to this tissue. They may enter it by means of the blood or by the extension of infectious processes from adjacent regions. The extension may be direct or by means of lymphatics which communicate with those of the membrane.

All inflammatory processes in the pia arachnoid, however produced, agree more or less in their anatomic features. There are, however, certain minor differences in the anatomic lesions which are sufficient to differentiate certain forms of meningitis from others. In certain cases these differences are more accentuated than they are in others. The same character of exudation may be produced by the *Diplococcus intracellularis meningitidis*, by the pneumococcus, and by the streptococcus. Even cases of tuberculous meningitis may be found in which there may be a fibrino-purulent exudation without the presence of tubercles. The differences lie mainly in the extent and character of the involvement of the brain, and in the degree to which the intima of the veins and arteries is affected. It would be possible anatomically to distinguish cases of acute epidemic cerebrospinal meningitis from other forms, but the differentiation could not be carried further. All cases of meningitis are cerebrospinal, the meninges of the cord being affected as well as those of the brain. In certain forms, the cord lesions are more marked.

Acute meningitis may be produced by a number of bacteria, but chiefly by those belonging to the pyogenic organisms. The three organisms most generally concerned are the *Diplococcus intracellularis meningitidis*, the pneumococcus, and the streptococcus. Of these, the first named deserves the most attention in that it is the cause of the epidemic form of the disease. This organism was first described by Weichselbaum, in 1887, as a specific micrococcus resembling the gonococcus. He found it in six cases of acute cerebrospinal meningitis. The work was confirmed by several investigators, and, in 1895, Jäger found it in a small epidemic which prevailed in the garrison at Stuttgart. To Jäger belongs the credit of first recognizing this organism as the cause of epidemic cerebrospinal meningitis. The description which Jäger gave of the organism differs in minor details from that given by Weichselbaum. Weichselbaum has never regarded it as the sole cause of epidemic meningitis but considers that epidemics also may be caused by the pneumococcus. In the very considerable epidemic which prevailed in Massachusetts in 1897, and which was reported by Councilman, Mallory and Wright, this diplococcus was established as the only cause. It was found in 31 of the 35 cases which came to autopsy. Lumbar puncture was performed in 55 cases, and in 38 of these the same organism was found. It was present in all of the acute cases, but rarely in those which ran a more chronic course. Thus, in lumbar puncture, the average duration from the onset of disease until the puncture was made was seven days in the cases in which the organism was found, and seventeen days in the negative cases.

The organism is one which is cultivated with difficulty. Morphologically, the organisms appear as diplococci occurring as paired hemispheres, separated by

well-marked, unstained intervals, and showing in cultures considerable variation in size. There is a tendency to grouping in fours, or tetrads. In cover-glass preparations from the meningeal exudate, the diplococcus is frequently situated inside leucocytes and sometimes within the nucleus. The appearance is very much like that of gonorrheal pus. The organism is decolorized by the Gram method of staining; in cultures it grows best on blood serum. The colonies are round, colorless, slightly convex or flat, moist and viscid-looking; they may become confluent. The organism has feeble vitality and dies out quickly under cultivation. It has a weak pathogenesis for laboratory animals. The cultures vary in virulence in certain cases, 1 c.c. of a bouillon suspension of a 24-hour blood serum collected and injected intraperitoneally in a guinea-pig will kill the animal in 48 hours.[1]

This type of meningitis is constantly present; it exists in the form of epidemics, which are repeated with some regularity. The disease has peculiar interest in Massachusetts from the fact that it was first described here by Danielsen and Mann, in 1806. There have been four epidemics in the state, each of which has been made the subject of a special report. These epidemics occurred in 1809, 1864, 1874 and 1897. There is great difference in the morbidity and mortality of the disease in the different epidemics; Hirsch places the mortality at from 20 to 75 per cent. In the last epidemic, in Boston, the mortality was 65 per cent.; the epidemics are usually of short duration. Between the epidemics, sporadic cases appear, which may be more numerous in some years than in others. Before careful bacteriologic examinations rendered the recognition of the disease certain, the character of the infection in sporadic cases was determined by the clinical history, with or without the reports of autopsies. The disease is sufficiently characteristic to make this method approximately correct. In 1897, from the clinical reports, in some cases with autopsies, it seemed probable that here and in Europe sporadic cases were common. The main clinical features distinguishing sporadic cases of epidemic cerebrospinal meningitis from other forms of meningitis were the low mortality (in 24 cases from the clinic of Prof. Bauer, reported in 1890, there were 8 deaths, and in 17 cases reported from Ziemssen's clinic at the same time there were 3 deaths), its appearance as a primary affection, and the frequency with which it is followed by secondary affections of the eye and ear.

Since our study of the disease in 1897 there have been numerous reports of sporadic cases, in which careful bacteriologic study of the exudation have determined the presence of the *Diplococcus intracellularis meningitidis,* and have confirmed the conclusions which we reached in 1897 of the frequency of sporadic cases. Since 1898 there have been 61 autopsies on meningitis at the Boston City and Massachusetts General Hospitals, with bacteriologic study of the exudation. In 13 of these the *Diplococcus intracellularis meningitidis* was found in culture. In addition to these there were 8 cases which were considered due to the same cause but in which the organism was not obtained in cultures. Of these 5 were chronic, with organization of exudation, the organism having evidently died out, and in 3 the cultures were negative from unknown causes. All of these cases were primary and did not differ from the type of disease which we had studied in the epidemic in 1897. The absence of bacteria in carefully made cultures of the exudation in acute primary meningitis speaks in favor of this type, for the diplococcus is rather difficult to cultivate, of feeble vitality and can easily die out.

These statistics give no idea of the frequency of the disease. We know that cases do recover, for there are numerous reports of recovery of cases in which the diplococcus has been found in the fluid from spinal puncture. There is great need of more accurate statistics on this subject, and these are to be obtained by careful bacteriologic examination of fluid derived from spinal puncture, in large numbers of cases, including those in which the disease may only be suspected.

Examination of the health statistics in Massachusetts shows a gradual decline in the number of deaths from epidemic cerebrospinal meningitis from 1897 to 1902. In 1897, which was the chief year of the epidemic, there were 355 cases. The deaths were most numerous in April, May and June, which are the months in which the epidemics are most fatal. In 1898 there were 259 cases, the epidemic influence being slightly shown by 91 cases in the same months. In 1899 there were 240 cases, in 1900, 165; in 1901, 176, and in 1902, 165 cases. These cases were scattered over the state without occurring in sufficient numbers in any one place to constitute an epidemic. There is no way of positively determining whether or not they were due to the *Diplococcus intracellularis.* In the Massachusetts reports, other forms of meningitis were placed under the head of cephalitis until 1901, when the term "other forms of meningitis" was used. In 1900 there were 1,205 cases of cerebritis, in 1901, 1,168 cases of other forms of meningitis, and in 1902, 1,200 cases. The cases described as cerebrospinal meningitis are the primary cases, the secondary cases coming under other forms. It is, of course, difficult to determine, without an autopsy account, whether meningitis is or is not primary. All my experience leads me to the belief that, with rare exceptions, cases of primary meningitis are due to the *Diplococcus intracellularis.* In the 35 autopsies made in 1897, all the cases were primary, and the 21 found since were also primary. In the remaining 40 of the 58 cases only 2, in 1 of which the pneumococcus was found and in 1 the streptococcus, were regarded as primary. It can be concluded, both from autopsy evidence and from statistics, that sporadic cases of meningitis due to *Diplococcus intracellularis* are of frequent occurrence, but we have no way of determining how frequent the disease is. Autopsy experience shows that the disease is more frequently not diagnosed when present than the reverse. We have no means of estimating the mortality of meningitis due to the pneumococcus or streptococcus; these cases are usually secondary, and the mortality in secondary meningitis is much higher than in the primary form. Up to 1898 we could not find a case in which the culture of fluid from spinal puncture showed pneumococci or streptococci in which recovery took place. Since 1898 there have been, at the Boston City Hospital, 4 lumbar punctures in which the pneumococcus was found and three in which the streptococcus was found, all of which cases resulted fatally. To a certain extent, we can judge of the frequency of the disease by evidences at autopsies of preceding inflammation of the pia arachnoid, shown by thickening due to connective tissue increase and by lymphocyte infiltration with a corresponding increase in the glia of the cortex, and glia thickening and granulations

1. Mallory and Wright: Pathological Technic, 1904.

on the surface of the ventricles. This condition, which is not uncommon, can be the result of a preceding acute infection, but certainly not all cases are the result of this.

The presence of these sporadic cases is of importance in the occurrence of epidemics. The *Diplococcus intracellularis* is an organism of feeble vitality; it dies out easily on exposure to drying and light and is incapable of a saprophytic existence. In the absence of intervening infections, it would be impossible for the period of epidemics to be bridged over. Not only this, but there is evidence that this organism can produce other infections and may even live as an inhabitant on the normal mucous membrane. There have been a great many cases reported of the presence of the *Diplococcus intracellularis meningitidis* in the nose. In most of these the diagnosis was made on morphologic grounds, and such cases should be thrown out, owing to the probability that the organism was confounded with the micrococcus catarrhalis, which it resembles in morphology and in staining reaction. The differential diagnosis can only be made in cultures. In fifteen cases of meningitis examined in the Boston epidemic, diplococci decolorized by Gram were found in 10. In 12 cases, chosen at random, similar diplococci were found in 2. Attempts were made to cultivate the organisms, but not successfully.

Lord has examined the bacteria of the nose in 21 cases. In the nose of a physician who had been in daily attendance in the throat room and who had a severe rhinitis with congestion of the mucous membrane and profuse muco-purulent discharge, he found diplococci which all tests showed to be the meningitidis. In reviewing the literature, Lord accepts but 3 cases, making, with his own, four, in which the *Diplococcus intracellularis* has certainly been found in the nose. Some of these cases are of considerable interest. Kiefer, after experimenting for some days with the cultivation of the organism with the view of comparing it with the gonococcus, suddenly acquired a severe purulent rhinitis, with headache, nervousness and an uncomfortable sense of contraction of the neck. The temperature remained normal. Examination of the nasal pus by cultures demonstrated the presence of the *Diplococcus intracellularis,* along with other bacteria; the rhinitis lasted 14 days. In this case it seemed probable that there was a primary infection of the nose, with a slight meningitis, resulting from extension of the infection through the lymphatics into the meninges. The case lacks the proof which spinal puncture should have given, both of the meningitis and of the character of the meningeal infection, if present. There can be no doubt that extension may take place from the meninges into the nose, just as it certainly does into the ears and eyes. Rhinitis is not an uncommon condition in acute meningitis, and Albrecht and Ghon found the *Diplococcus intracellularis* by culture from the nose in one of their cases of acute meningitis. The evidence which we have justifies us in the conclusion that there is a form of meningitis produced by the *Diplococcus intracellularis meningitidis,* that the epidemics of acute meningitis are due to this organism, that sporadic cases are not infrequent, that, with rare exceptions, primary cases of meningitis are due to this organism; that recovery takes place much more frequently in this type of disease than when infection is due either to the pneumococcus or the streptococcus, that the disease is more common than is generally supposed, that the organism does not live as a saprophyte outside the body, that the organism may be found on the mucous membrane of the nose, where it may produce a rhinitis, and that it is probable that infection of the meninges takes place by extension from some of the adjacent mucous membranes by means of the lymphatics. We can only explain the epidemics of the disease by the assumption that at certain times the power of infection is increased either by an increase in the virulence of the diplococcus or by a decrease in the resistance of the tissues. The study of the influenza bacillus in the past years has shown much the same condition. The organism is constantly present, and not only are sporadic infections produced by it frequent, but the bacillus may live as a harmless inhabitant of a mucous surface. The causes underlying the occurrence of epidemics are unknown, and even atmospheric conditions can not be excluded. With regard to the pneumococcus, we know that the organism is associated with acute croupous pneumonia, but we do not know the underlying conditions which enable the pneumococcus to produce this disease.

Of the 61 cases of sporadic meningitis seen since 1897, 18 were found to be due to the pneumococcus. Weichselbaum regards this organism as one of the most frequent excitors of both primary and secondary meningitis, and both he and Netter believe that meningitis due to the pneumococcus may appear in epidemic form. In the report on meningitis in 1898, 10 cases were found to be due to the pneumococcus, and in 2 of these the infection was primary, no other lesions due to the organism having been found. In but one of the recent cases was the infection primary in the meninges, and even here the accompaniment of an acute nephritis suggests a preceding acute infection. In 6 cases the infection was secondary to otitis media and mastoiditis; in 1 case it was secondary to an infection of a tumor of the sphenoid; in 1 case it was associated with the streptococcus, secondary to fracture of skull and operation; in 1 case it was secondary to abscess of the prostate; in 1 case it was secondary to acute infection of ethmoid, "the pores of right cribiform plate contain fibrinous pus in continuity with exudation about right olfactory lobe," in 2 cases it was secondary to acute croupous pneumonia, in 4 cases it was secondary to acute bronchopneumonia and pleurisy, and in 2 cases it was secondary to acute pneumococcus endocarditis.

In but few of these cases did the infection appear to be embolic; in most cases the extension to the meninges was by continuity or by the lymphatics. In its general pathogenic properties, the pneumococcus attacks tissues from mucous surfaces and extends in the body by surfaces. I believe that the frequency of pneumococcus meningitis is greatly overestimated, and especially its frequency secondary to pneumonia.

While vital statistics with regard to the occurrence of disease are not worth much, owing to errors in diagnosis, Chart 1, showing the relative frequency of pneumonia and meningitis in different months, gives some light on the relation between meningitis and pneumonia. The deaths from these diseases in Massachusetts have been taken during a period of five years in order to cover slight inequalities in different years, commencing in 1898, the year following the epidemic of cerebrospinal meningitis. If there is any marked relation between meningitis and pneumonia it should be shown in the inter-occurrence of the diseases. We see from the chart that the greatest number of deaths from what are described as other forms of meningitis occur in

August, when the mortality from pneumonia is lowest. It is very possible that the high number of cases in March, April and May is due to confusion of these cases with primary meningitis due to the *Diplococcus intracellularis*, for these months show the highest mortality in epidemics and in sporadic cases due to this organism. The curve made from the statistics made in New York City, showing the relation between deaths from acute respiratory diseases and cerebrospinal meningitis in five years, shows much the same. It is interesting to see that the apex of the acute respiratory diseases curve in New York is reached in April, while the apex of the pneumonia curve in Massachusetts is reached in March (Chart 2).

There were 18 cases of streptococcus infection, and in 1 the infection was primary. In seven cases it was secondary to fracture or operation wound of the skull; in 8 cases it was secondary to otitis media and mastoiditis, in 1 case it was secondary to acute streptococcus endocarditis, and in 1 it was secondary to acute bronchopneumonia and acute cystitis. We see from this analysis that, in the two hospitals mentioned, fatal sporadic cases of meningitis are equally divided between the three organisms which are to be regarded as the main etiologic factors. Of the remaining 4 cases, 2 were produced by the *Staphylococcus pyogenes aureus*, 1 was secondary to trauma with following operation, and 1 was secondary to empyema. In two cases the nature of the infection was not determined. In one of the cases reported in 1898 the meningitis was produced by the anthrax bacillus and was secondary to a primary lesion on the face. We have never had any cases due to the typhoid bacilli.

The pathologic process in meningitis due to the *Diplococcus intracellularis* consists in inflammation, with purulent, sero-purulent and fibrino-purulent exudation. The most marked lesions are found at the base of the brain, extending from the optic commissure backward over the crura, the pons and medulla. On the convexity of the brain the exudation is usually most intense on the lateral surface, little or none being found in the meninges of the longitudinal fissure. The meninges of the cerebellum are always involved and often the greatest mass of the exudation is found on the upper surface of this structure. In the most acute cases, those dying a few days after the onset, there may be a little more than intense hyperemia of the vessels of the meninges and cortex. In the more advanced cases, dying from 5 to 12 days after the onset, the amount of exudation is much greater and has a tough, rather gelatinous character. In the chronic cases, in which death has occurred in from 15 to 30 days from the onset, there is edema and general thickening of the meninges, which is most marked at those localities where the acute process is most evident. In one case, the duration of which was apparently over 30 days, the entire medulla was embedded in a dense mass of connective tissue. In the cord the exudation is most marked along the posterior surface and may be found here in large amount, while the anterior surface may show only cloudiness and injection. There is usually more exudation along the dorsal and lumbar cord than along the cervical.

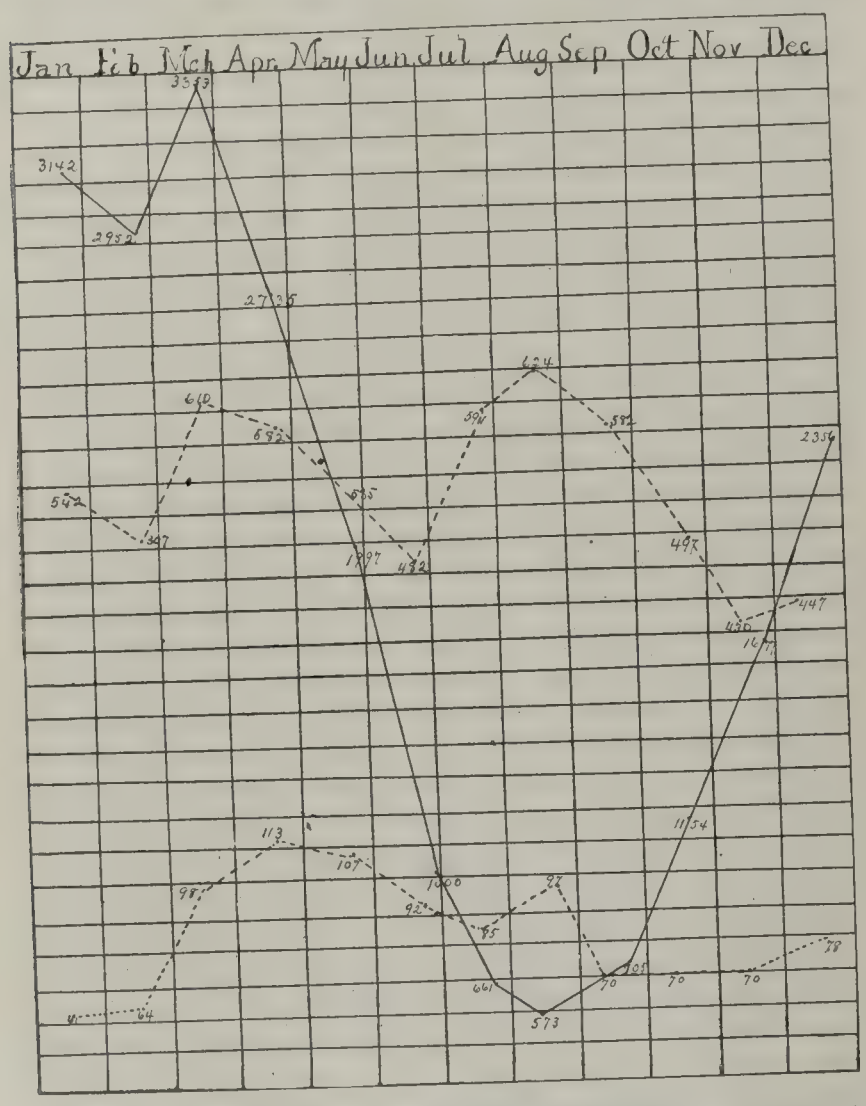


Chart 1.—Deaths from pneumonia, meningitis and epidemic cerebrospinal meningitis in Massachusetts from 1898 to 1902 inclusive. The unbroken line represents pneumonia, the middle line meningitis and the lower line epidemic cerebrospinal meningitis; it is probable that these two forms of meningitis are to some extent intermingled.

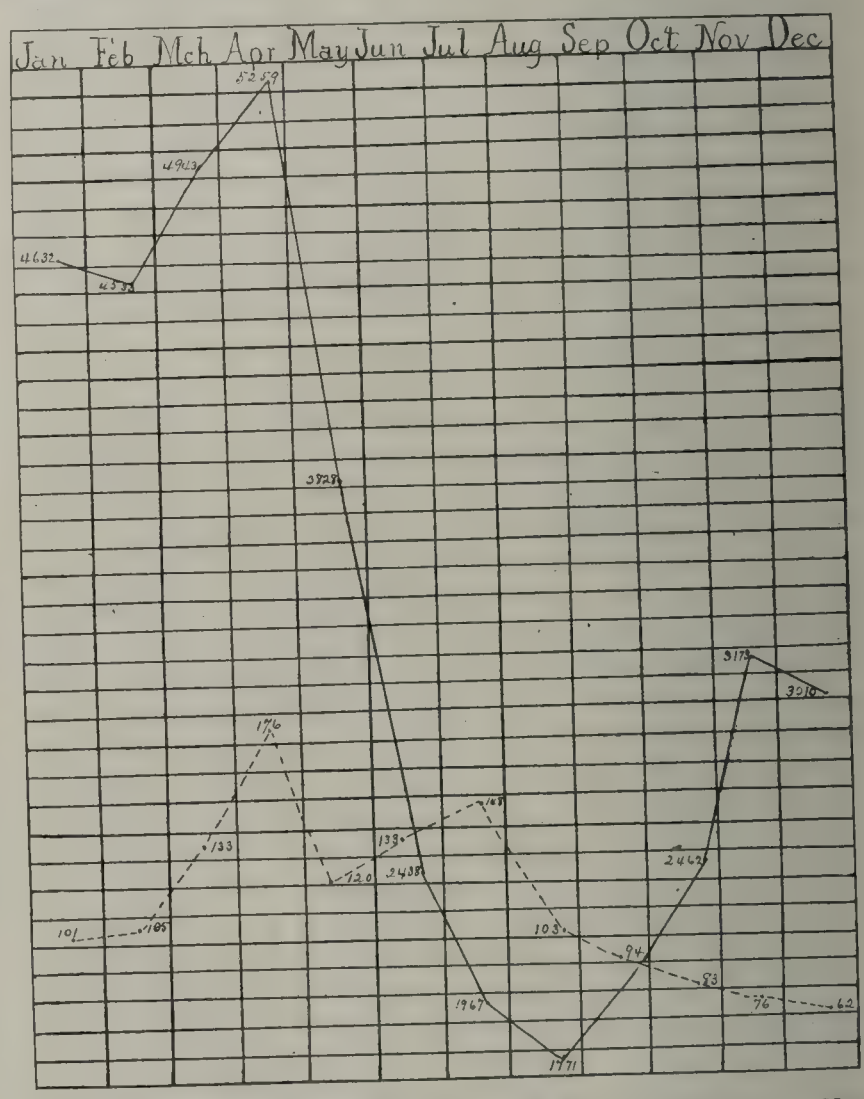


Chart 2.—Acute respiratory diseases and meningitis in New York City from 1898 to 1902 inclusive. The unbroken line represents deaths from acute respiratory diseases. The broken line represents deaths from meningitis. No attempt is made to distinguish between the various forms of meningitis.

In 8 of 35 cases on which autopsies were made in the epidemic studies, there were definite macroscopic lesions in the brain, consisting in hemorrhages in the white matter. No abscesses were found. The cranial nerves were affected to a greater or less degree in all cases. Those most affected were the second, fifth, seventh and eighth. They were embedded in the exudation which extended along them, and on section they were found to be swollen and reddened. The gasserian ganglia were examined in a number of cases, and in all they were found swollen and softened. The spinal nerves were also affected; the nerve roots were embedded in the exudation and the spinal ganglia were red and swollen. The exudation was also found around the nerves of the cauda equina.

Microscopically, the exudation in the most acute cases was purulent and the leucocytes were exclusively polynuclear. The absence of eosinophile cells was remarkable. In more advanced cases the number of cells in the exudation was greater and the fibrin was abundant. As the process advanced, large endothelial phagocytic cells became increasingly numerous, and in some cases made up a large part of the exudation. They often contained from one to several polynuclear leucocytes enclosed in vacuoles and showing varying degrees of disintegration.

In the chronic cases the exudation was mainly represented by degenerated pus cells. In these chronic cases there were also numbers of plasma and lymphoid cells.

Microscopically, lesions of the tissue of the brain and cord were absent in but few cases. They were most evident in those cases in which from 5 to 10 days elapsed from the onset of the disease until death. The blood vessels of the convexity were injected. The cortex appeared redder and the tissue edematous. In places there was circumscribed infiltration of the tissue with pus cells, which extended downward from the infiltration in the meninges. This infiltration was usually most marked in the outermost layer of the cortex above the ganglion cells, but in some places it extended among the ganglion cells and even into the white matter. Single pus cells were often found in the brain tissue, apparently remote from the areas of infiltration. In 2 cases extensive softening, with purulent infiltration and hemorrhage, was found in the cortex of the cerebellum. These pus cells in the brain were irregularly distributed in the tissue, and were found both in places which appeared to be altered by infiltration of edematous fluid and in those in which the intracellular material seemed to be normal. The pus cells in the tissue were often distorted in shape, sometimes extending in long lines, the shapes resembling those seen in pus cells wandering in the tissue of the cornea. Their situation and shape did not seem to indicate the existence of preformed spaces. They were but rarely found around the ganglion cells.

In certain areas in the cortex, particularly about the vessels, large numbers of large endothelial cells resembling those in the meninges were often found. They were apparently formed by proliferation of the cells in the adventitial tissue. They extended often for some distance in the tissue around the vessels where this showed evidence of disintegration, but they seemed to have little or no power of wandering into tissue which was comparatively normal. The presence of these cells is important in relation to the neuroglia cells. Proliferative changes in the neuroglia were constantly present. In the chronic cases there was a distinct increase in neuroglia fibrils, together with increase of cells, which was chiefly marked in the tissue of the ventricles and in the outermost layer of the cortex. In several of the more acute cases numerous nuclear figures were found in the cells of the neuroglia. These were particularly marked in one case. The proliferating neuroglia cells somewhat resemble the large endothelial cells. There is an increase of nucleus with the formation of evident protoplasm about it. The nuclear figures are well marked, showing spindles and centrosomes. Often large cells with several nuclei result from such proliferation. In one specimen in which this was most marked, nuclear figures were also found in the so-called Trabant cells adjoining the ganglion cells.

Analogy with other tissues would indicate that such changes in the intercellular tissue consisting of proliferation of fixed tissue elements and exudation of leucocytes would be accompanied by degeneration of the specific cells of the tissue, namely, the ganglion cells. The most evident changes in the ganglion cells were found in those places where disintegration of the tissue was best marked, and consisted in disintegration of the cell protoplasm. It is difficult to distinguish such conditions from artefacts. Degeneration of nerve cells is not of the same character as degeneration of parenchymatous cells in other organs. The state of our knowledge with regard to structure of ganglion cells and arrangement of granules is not sufficiently definite to enable us to determine with certainty their degenerations.

The most marked changes in the nerves were found in the second, fifth and eighth; the lesions of the nerves represent an extension of the inflammatory process from the meninges.

The dural covering of the optic nerve in the orbit showed little change save dilatation of vessels. The subdural space was dilated and the exudation was found in the pia arachnoid of the nerve. From the meninges the infiltration extended more or less into the nerve itself. In both the optic and olfactory nerves, proliferation of the neuroglia cells was shown similar to that in the brain. The exudation may extend along the optic nerve into the eye.

In acute cases, section of the eighth nerve showed it embedded in a mass of pus, its sheaths softened, broken up and in places entirely gone. The nerve was infiltrated with numbers of pus cells, partly in the form of lines running through it, partly in a more diffuse infiltration. The seventh nerve often showed as great a degree of infiltration as the eighth. Longitudinal section of the fifth nerve extending into the gasserian ganglion showed intense neuritis in the nerve on the cerebral side of the ganglion. Similar changes of the nerve roots and ganglion of the spinal cord were found in all cases which were examined. In some of the more chronic cases, lesions of the nerve roots of the spinal cord were more marked than in the acute cases.

In the chronic cases there was marked thickening of the meninges due to connective tissue formation and a marked increase of the neuroglia of the cortex. There was little evident exudation, circumscribed yellowish foci marking the remains of it. The meninges at the base were opaque, and were enormously thickened, and there were bands of organized tissue extending from point to point. In one of the most chronic cases, in which the duration of the disease could not be ascertained with any accuracy, owing to the mental condition of the patient when brought into the hospital, the meningeal changes simulated general paralysis. The only

evidence of exudation was in the ventricles, in which masses of partly organized fibrin were found adherent to the lining. In another case the entire medulla was so embedded in a dense mass of connective tissue that it was difficult to remove it. Chronic hydrocephalus is not uncommon in such cases. It is due to closure of the foramen of Magendie by organization of the exudation about the cerebellum.

There is some difference in the character of the lesions due to pneumococcus and streptococcus, as compared with those due to the *Diplococcus intracellularis,* but no differences between lesions due to the pneumococcus and streptococcus. Endovascular lesions, consisting in cellular infiltration behind the endothelium, were found in both arteries and veins in meningitis due to the pneumococcus and streptococcus. The endothelium was preserved and often formed festoons projecting into the lumen of the vessel, with the cell accumulations behind it. The endothelial cells were swollen, but otherwise unaltered. I do not believe that the large cells arise from proliferation of the endothelium, but they seem to reach their position by emigration from the interior of the vessel. In meningitis due to these organisms there is also less tendency to involvement of the tissue of the brain and cord, nor is the extension along the nerves so marked. The cases of these forms of meningitis have not been so numerous nor has their anatomic study been so thorough as in the cases due to the intracellularis.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

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BALTIMORE.

(*Continued from page 929.*)

CASE 16.—Mrs. R., aged 55, was referred to me by Dr. Baker of Elmira, N. Y., through Dr. Osler.

History.—She had suffered for fifteen years with a neuralgia which originated in the supraorbital territory. It had become acutely aggravated a few years before her ganglion operation after an exposure to a cold wind. She had taken opiates in large doses during this entire period and, indeed, had been addicted to the habit before the onset of her neuralgia. For the last year the pain had been extreme and almost continuous. A constant attendant was necessary, day and night. All inhibition was lost and she invariably screamed aloud during her paroxysms. She was more or less narcotized most of the time and seemingly was maniacal. The teeth had all been extracted at one sitting two years before. No peripheral neurectomies had been undertaken. The entire territory of the fifth nerve was involved. Pain was in the tongue, in the inside of the ear and nose, as well as in the more commonly described areas. She presented the awful appearance of an extreme case of tic, screaming and clutching at everything during her frequently recurring exacerbations of pain; dirty, with matted white hair, full of sebaceous discharge, her head and face having been unwashed for many months. She looked twenty years more than her actual age.

Examination.—Physical examination discloses a very unpromising condition. An advanced degree of arteriosclerosis was present. The urine had a specific gravity of 1030 and contained a large amount of sugar. She was unable to speak or to protrude her tongue, and her condition was so serious that most of the usual preliminary examinations were omitted. Owing to the disturbance caused by her frequent cries, she was operated on almost as an emergency a few hours after admission, as it would have been imposible to have kept her over night in the hospital

Operation.—May 15, 1903; Union Protestant Infirmary; ether. Anesthesia of necessity was administered before any operative preparations could be undertaken. When the side of the head was scrubbed and cleaned, almost the entire epithelium came away, leaving practically a raw surface. Owing to her serious condition, the operative approach was conducted somewhat more hurriedly than should have been done, and by the carelessness of mistaking the ramus of the third for that of the second division, the meningeal artery was torn off at its point of emergence into the cranial cavity at an early stage of the operation. This is the first time that this accident has occurred and it sufficed to show the operator how serious a complication it may be, in delaying and in preventing a subsequent clean neurectomy. The vessel was finally controlled, but the difficulties of the enucleation were such as to preclude the removal of more than the lower two-thirds of the ganglion. It would have been impossible in a case of this kind to have exposed the trigeminal root in order to divide that and thus save the time necessary for the extraction of the ganglion. The wound was sufficiently dry to allow closure without drainage.

Postoperative Notes.—A critical condition, with anuria. Cheynes-Stokes respiration, and a pulse varying between 130 and 160, ensued for twenty-four hours after the operation. It was feared that a condition of diabetic coma was imminent and would lead to her death. Happily, she awakened from her comatose condition, as it were, well on the morning of the third day. The wound healed *per primam.* Her drugs were gradually withdrawn and a fight ensued to keep her from them. The sugar disappeared completely from the urine. An enormous appetite resulted in a very rapid gain of weight. There were no ocular complications. She returned home on the tenth day and reports that she has since remained free from pain. She has, unfortunately, resumed or continued her morphia habit.

This and the case of sinus injury are the only ones in the series which developed any critical postoperative complications.

CASE 17.—Mr. F. T. M., aged 58; a bookkeeper.

History.—He had suffered with a right-sided neuralgia for nine years. The pain originated in the supraorbital region and soon spread to the other divisions. All his teeth had been extracted. In 1898, an infraorbital neurectomy had been done, in Charleston, with a respite of four months. In 1899, other peripheral operations were performed, with little if any relief, and since then the pain has steadily increased despite all forms of treatment. Eating, drinking, almost any movement, in fact, of the palate or tongue, would inaugurate a paroxysm. His weight in consequence had dropped to 102½ pounds. He takes a large amount of morphia daily.

Examination.—Examination showed a greatly emaciated, gray, senile appearing man, with tortuous radials, so ill and suffering so greatly that preliminary observations had to be omitted.

Operation and Result.—July 11, 1903; The Church Home; ether. This proved to be a very easy case without complications, with a total extirpation and closure without drainage. The patient's convalescence and recovery were without incident worthy of mention (Fig. 29). He gained 14½ pounds during the three weeks subsequent to the operation, and his intelligent co-operation enabled me to make many of the observations on the physiology of the fifth nerve which will be subsequently recorded. He has remained well.

CASE 18.—Mr. J. P. B., aged 53; a farmer.

History.—His neuralgia has been of ten years' standing, having originated in the nasolabial region of the right cheek. Even from the onset it has been severe, with flash-like paroxysms, which extended early into the territory of the first di-

vision. All the teeth in the right upper quadrant were extracted. For the past year the pain has been especially severe; he has had little food or sleep, and has been unable for many months to comb his hair or to touch his beard, both of which are long and unkempt. A suboccipital extension has been present for several weeks and there are indications also that the third division has become involved. He has been confined to bed most of the time for many months. He cries out with pain during the paroxysms. Physical examination is practically negative.

Operation.—July 27, 1903; Church Home; chloroform. The exposure in this case was dry and the extirpation easy (Fig. 30). Slight bleeding occurred during the liberation of the second and third divisions. It would have been a simple matter in this case to have divided the sensory root. A drain was left in the posterior angle of the incision for twenty-four hours. The highest temperature registered after the operation was 99.6. Areas of anesthesia are shown in Fig. 31.

Postoperative Notes.—His convalescence, otherwise uneventful, was unfortunately complicated by an attack of perineal herpes on the tenth day, which, with its attendant discomforts, incapacitated him for some time. A note on the relationship of herpes to the ganglion extirpation has been made elsewhere.[30] On recovering from the discomforts of his herpes, he made rapid strides in gaining strength. His weight increased in the following two weeks from 107½ to 125 pounds, and since his return home he has exceeded his normal weight, namely, of 140 pounds. No ocular disturbances. He remains well.

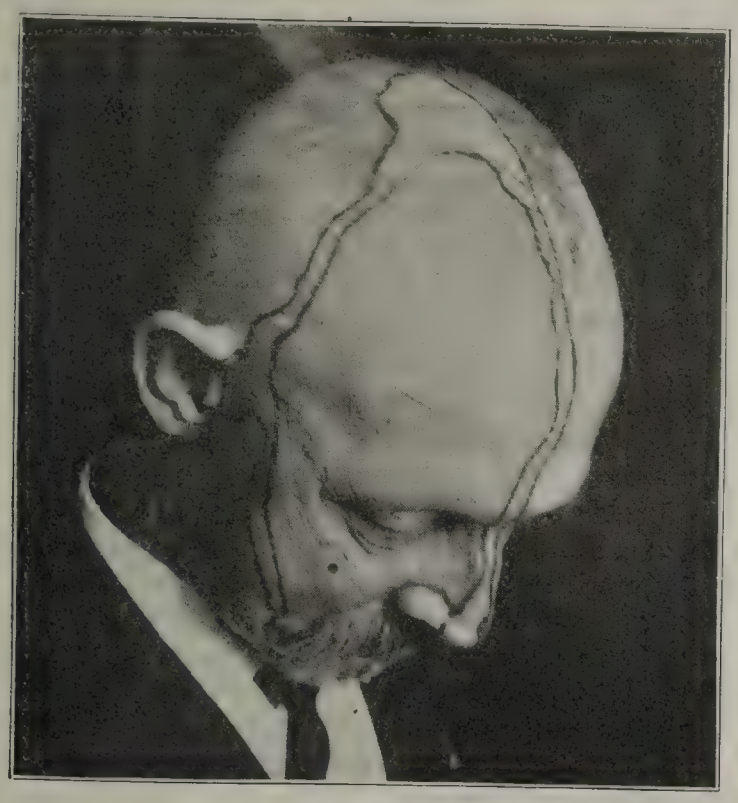


Fig. 29.—Case 15. Tenth day; incision barely perceptible. Areas of anesthesia and tactual anesthesia.

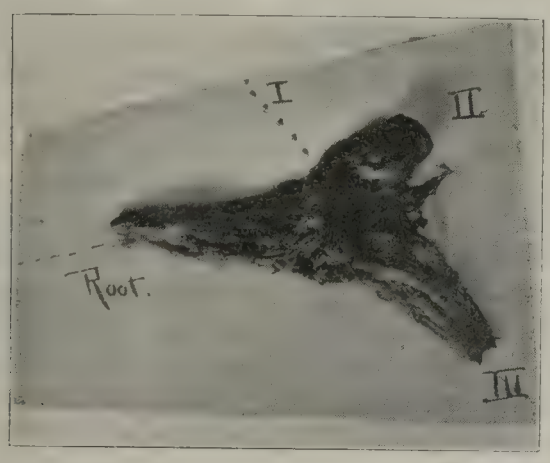


Fig. 30.—Ganglion from Case 18. Under surface showing motor root beneath the ramus mandibularis.

30. Johns Hopkins Hosp. Bulletin, July, 1904, vol. xxv, p. 233.

Case 19.—Mrs. A. R., aged 73, was referred to me by Dr. J. M. T. Finney.

History.—This patient suffered from a left-sided neuralgia, which had begun in the third division. It was of eight years' duration and was from the onset associated with intra-buccal pain, especially in the tongue. Her teeth had been extracted four years previously. In 1900, a peripheral operation, on the third division, had been done, with relief for only a few months. A second neurectomy was performed in 1902, with intraoral evulsion both of the inferior dental and lingual. Pain soon returned in the old areas.

Examination.—Examination shows a delicate, little, old woman, with a dilated heart, with albumin in the urine, with râles at the bases of both lungs, and with a very sclerotic radial artery. She is barely able to talk, owing to her pain.

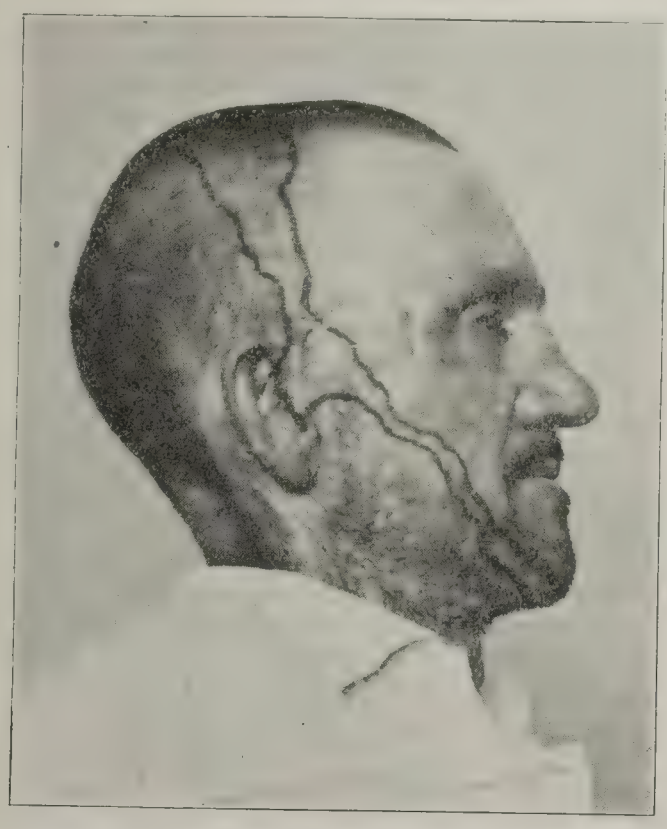


Fig. 31.—Case 18. Twelfth day. Typical lines of anesthesia for pain and touch.

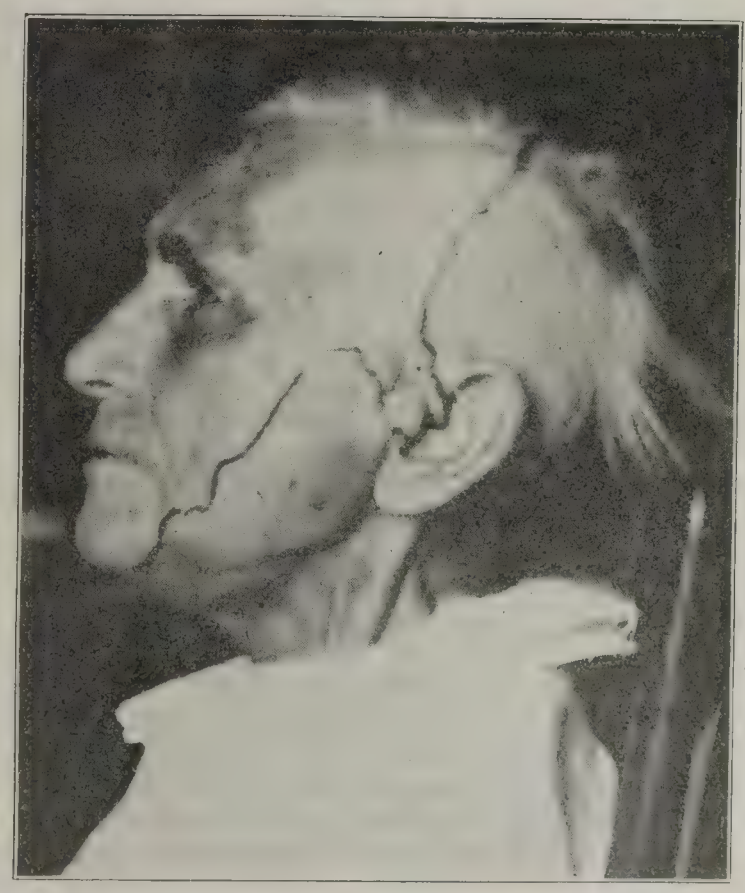


Fig. 32.—Case 19. Tenth day. Outline of tactual anesthesia alone.

Eating and swallowing are most difficult, and opening of the mouth and protrusion of the tongue are almost impossible. The paroxysms from the beginning have been limited almost entirely to the distribution of the *N. mandibularis*, although there has been some evidence of involvement of the second division.

Operation.—July 28, 1903; Church Home; chloroform. The extirpation proved to be a difficult one, as has been my unfortunate experience in all cases in women. Considerable bleeding was encountered almost from the onset, from skin incision, diploe, dura and neighborhood of the ganglion. Extraction of the latter was attempted, although its upper border had not been completely freed from the cavernous sinus, and it was found impossible to expose the root. The sensory root, unluckily, did not come away entire when the ganglion was evulsed, and together with the first division was left behind. As would be expected, there has been a subsequent slight return of sensation, with accompanying discomforts, in the territory of the first division, such as occurred in Case 12. The wound was drained.

Postoperative Notes.—For several days after the operation, accompanying the loss of cerebrospinal fluid, the usual postoperative headache was complained of. This, however, contrary to the usual rule, was bilateral and presaged the return of sensation in the forehead. No ocular palsies were present, but what was even more troublesome, an acute conjunctivitis followed the operation, with abundant discharge from the eye, so that for several weeks painstaking care was necessary to obviate the risk of any possible ulceration. There was a rapid postoperative gain in weight, from 100½ pounds to 120 (Fig. 32).

The wisdom of attacking the ganglion in this case might be questioned, and its performance was contrary to the usual operative requirements, namely, involvement of all three divisions. The patient's condition, however, was more serious than the history would indicate, for the intrabuccal nature of the pain rendered her incapable of taking nourishment, and the operation was urged by the patient, her friends and her physician. There is some disappointment in the result, for, though her neuralgia is relieved, there are some discomforts in the field of the traumatized first division, which was previously exempt.

CASE 20.—A man, aged 32, a merchant, was referred to me by Dr. Martin of Montreal.

History.—Even before the onset of his neuralgia, he never enjoyed very robust health. The history mentions a severe typhoid infection with rib necrosis, double "hip disease," and on one occasion a pleurisy which led to a year's residence in Colorado. The neuralgia has been of four and a half years' duration, having originated without assignable cause in the maxillary division, great difficulty in talking, eating, etc., having been present from the first. The pain soon extended into the orbit and areas of the ophthalmic division; later into the mandibular areas. There have been weeks at a time when he has suffered from paroxysms of the most extreme type. All forms of treatment have been practically unavailing, though there have been occasional periods of remission in the intensity of the pain, one of these occurring while under the care of Dr. Ferrier after a prolonged treatment of electricity and hypnotism, so that for a time some doubt was thrown on the genuineness of the neuralgia. The pain returned with such intensity that in 1892 a peripheral operation was performed with evulsion of the inferior dental and infraorbital. Complete relief ensued for only six months with return of pain, which after a year has gradually approached its original degree of severity, with frequently recurring paroxysms of short duration but great intensity. He has courageously kept away from opiates.

Operation and Results.—June 21, 1904; ether. The operation presented no great difficulties. The extirpation was complete, including the trigeminal root and ophthalmic division. Convalescence was uninterrupted; the patient sat up on the second day and was out in one week. There was pressure palsy of the third nerve which began to clear up on the fifth day. The loss of senso-mobility in the face was so marked as to closely simulate for a time a true motor (facial) palsy; the muscles, however, reacted to faradism at all times.

ADDITIONAL CASES.

In addition to these 20 cases, given above, of actual or attempted extirpation for true neuralgia the ganglion has been removed for pain on two occasions when a basal neoplasm has compressed and more or less involved the structure. In one of these cases, admitted to the hospital by Dr. H. M. Thomas, a chondro-fibroma had grown through the floor of the middle fossa; in the other, a patient from Dr. Schmidt of Montreal, an endothelioma had originated near the ganglion. In both instances two operations were necessary, and in each case the ganglion was successfully removed, together with all visible local disease at the second sitting. Although these cases do not properly belong to this series, they served to furnish additional data which has been incorporated in the anatomic section below.

SUMMARY OF CASES.

Some particulars of these cases may be best brought out by summarizing data gathered from the individual histories.

The average age of the patients at the time of operation has been about 51 years: seven of them were over 60 and the oldest 73. Not to speak of his arteries, man is as old as he looks and feels, and were appearances to be relied on certainly fifteen years would have been added to the average age of these unfortunates in their neuralgic era. The prematurely gray head and toothless gums of most cases may, in a measure, account for this. Actual age, however, as Horsley has emphasized, is no bar to the operation; four of his cases were over 80. The average age at onset of the pain has been 41 years, the neuralgia having started in four cases during the second decade and in one case at 23 years. The youngest case operated on was 32.

Fifteen out of twenty have been men, possibly as the weaker sex has less often been allowed by friends or physicians to take the surgical bull by the horns; for the malady is supposed to be more common in women, though Bernhardt's opinion is contrary. In Krause's series there were 18 women and 7 men.

In twelve out of the fifteen cases in men, the right trigeminus has been involved; four of the five in women have been left-sided cases. It is possible that for this reason more complications have arisen in the latter group than in the former, for I have found a left-sided operation invariably more difficult and bloody than the right and, for me, the procedure on this side is somewhat more awkward.

Ten out of the series had had all of their teeth extracted; in others either the upper or the lower quadrant on the side involved (depending on the original distribution of pain) or both were found bare of teeth. Those in which the ophthalmic division was primarily attacked were more likely to have escaped this unfortunate measure. Of unilateral grayness I have seen only one case, though another (Case 12) gave a history of having become quite white on the neuralgic side (left) long before the hair on the opposite side began to change. This was primarily a supraorbital case and it is very remarkable that natural pigment has now, fifteen months later, returned, in large measure, in the hair of the beard and scalp, so that he looks like a much younger man.

It will be seen that I have not in all instances adhered to Krause's original dictum, that only those patients should be subjected to the ganglion operation in whom peripheral neurectomies had previously been

given a trial. This, in general, is a safe rule, since it is impossible to foretell whether a simple neuralgia, involving only one or possibly two divisions, will eventually resolve itself into a true "neuralgia quinti major." Many of these moderately severe cases, even should they prove resistant to other and less radical forms of therapy, may be given sufficient relief by peripheral operations, which are absolutely free from all risk. If the condition, however, has advanced to its maximal stage, with involvement of all three divisions, it is only putting off an evil hour for the surgeon to temporize on the outskirts; the seat of war must ultimately be invaded. Krause has himself made exceptions to this rule, and in the above series, Cases 10, 12, 13, 15, 16 and 18 were operated on with no preliminary delay. Others, as Cases 1 and 2 for example, would have been much better off had the ganglion been removed early in the course of the malady, but this naturally could not have been foretold. And no surgeon would be willing to subject a young individual to the hazard of the operation merely on the probabilities of a life of pain. In three instances the ganglion was removed in cases which seemed to be rapidly approaching the major stage, but in which symptoms had as yet indicated participation in the disease of only two divisions. One of these had had no peripheral operations (Case 13) and has proven a most satisfactory case. The other two (Cases 5 and 19) each had symptoms in the second and third divisions alone; each had had two earlier neurectomies, and circumstances led me to remove the ganglion. The remaining cases all had had peripheral operations from two to eight in number, and at the final admission the territory of all three divisions of the nerve had become almost equally involved in pain during the paroxysms.

The neuralgia originated in eight instances in the periphery of the third division (*N. mandibularis*), usually in the teeth; in five instances in the second (*N. maxillaris*); and in six, in the supraorbital territory (*N. ophthalmicus*). In one instance, the second and third divisions were almost simultaneously involved at the onset. It is important to note that the divisions of the ganglion as the disease progresses are involved in sequence; that is, from the third, to the second, to the first, or in reverse order, or when the onset is in the median group of cells, then the first or the third become secondarily invaded. The disease never jumps, for example, from the third to the first, or vice versa; it is an extension disease, and the anatomic location of the separate groups of cells in the tripartite ganglion explain this manner of involvement.

Peripheral operations should certainly be limited to non-mutilating procedures. It is better to attack the ganglion early than to subject patients to extensive extracranial procedures directed toward severence of the main trunks at their foramina of exit like Carnochan's operation on Meckel's ganglion. There may be exceptions to this rule, and personally I regret not having made a provisional Kocher operation on the mandibular branch in Case 5. By proper manipulation, through simple peripheral incisions, the supraorbital and infraorbital nerves may be removed occasionally in their entirety, and through a trephine opening on the ramus of the inferior maxilla, or by an intrabuccal operation a considerable portion of the inferior maxillary or lingual nerve may be evulsed. On comparatively few occasions have I performed extracranial neurectomies, and then only through a straight incision within the hair margin. There is great variation from case to case in the length of subsequent relief. After the first peripheral operation, two years or more of respite may be expected, a period which unfortunately shortens after each operation, as is commonly known. Care must be taken that the incisions, especially about the eye, be not so placed as to cause any degree of ectropion or weakness of the orbicularis, since such a sequence may jeopordize the safety of the eye in case the ganglion be subsequently removed. When sensation begins to return in the anesthetic areas after these outside procedures, indicating the almost inevitable regeneration of the nerves, there are often attendant discomforts. A condition of *"hyperæsthesia dolorosa"* supervenes, which may make the patient miserable from apprehension even before the true neuralgic pains return.

The most pitiable cases are those in which the tongue and palate are acutely involved for in some, even severe cases, the pain may be largely "outside," and the intrabuccal discomforts relatively mild. In the latter and more fortunate subjects, food, when it has once passed the lips, may be swallowed with little hesitation and talking, except for the labials, is not always difficult. The palatal cases, on the contrary, are usually the emaciated, the drooling patients, since every act of deglutition serves to inaugurate a paroxysm, and swallowing is postponed as long as possible. I have seen two individuals who preferred to take their nourishment while writhing in an exacerbation of pain which the act of swallowing could not intensify. It is more common, of course, to see them slip a spoonful of liquid nourishment into the sound corner of the mouth immediately on the cessation of a paroxysm and stealthily swallow it. These are the ravenous convalescents; those that rapidly put on flesh.

A perusal of the histories will show that eight of these patients (Cases 1, 2, 3, 6, 7, 8, 12, 16) presented in varying degree the most extreme type of the malady. In some of them, immeasureable suffering, of which we may form no opinion, had entirely broken down their self-control, so that from drugs and pain and exhaustion they were more like maniacs than persons properly at large. One of them (Case 16) was operated on as an emergency a few hours after her admission, as her screams disturbed the entire hospital; another like a crazed man in a cell had to be guarded the night of his arrival, as he had reached the end of his rope and threatened suicide if we would not operate immediately and kill him ourselves. Fortunately, such harrowing cases are rare. Other individuals with exceptional fortitude keep themselves more under control, perhaps even at work, though having, as John Donne has said, "such a pain as a constant man is afraid of and yet ashamed of that fear of that sense of pain."

One thing which particularizes the agony of these neuralgic paroxysms and which distinguishes it from other kinds of suffering is the vivid memory of its exact character which long remains. Suffering of other and milder kinds makes no such permanent and indelible impression. Acute though the memory of it remains even for years, happily, the subjective apprehension of its return soon goes; usually it is gone on recovery from the anesthetic, though this is not an invariable rule. One touching scene comes to my mind when, on the day following the operation, the patient's wife came into the ward and to the bed, took his hand and leaned over to kiss him. He involuntarily shrunk away before accepting the greeting, and apologizing, said, "she has not touched my lips for over two years." Though appre-

hension may thus linger, pain itself after ganglion extirpations immediately ceases, differing greatly in this characteristic from the effects of peripheral operations, after which the paroxysms, though in ever-diminishing severity, may persist for a few days.

POSTOPERATIVE COMPLICATIONS AND SEQUELÆ.

In consideration of their previous state of illbeing, their condition of malnutrition, their more or less protracted dependence on narcotics, together with the strain of a serious and more or less bloody operation, the majority of these cases have a remarkably uneventful convalescence. The demand for opiates, as a rule, ceases immediately when the need for them is withdrawn. This, however, is not always the case. Two of these patients—one with the most severe (Case 16), the other with a relatively mild type of the disease (Case 5)—have persisted in the use of the drug since the operation. The former patient, a "morphinist" for several years before the onset of the neuralgia, exhibited all the waywardness and capriciousness so vividly described by Clifford Allbutt[31] as features of the "moral anesthesia" produced by a long continuance of the habit.

The incision in 8 cases has been closed without the insertion of a drain. No wounds heal more kindly and with less visible scar than these temporal ones if care has been taken to carefully approximate the edges. In the remaining cases a small drain, usually of protective, has been placed in the auricular angle of the incision. A drain is undesirable if it can be avoided, since there are apt to be attendant discomforts, headache, backache and other ails during the days immediately following the operation, particularly if there is a considerable escape of cerebrospinal fluid.

I have been especially interested in the location of the intracranial discomfort in these cases, and have commented on it elsewhere.[30] The majority of the drained cases, one or two of the others, have complained for a few days of headache, which, with one exception, has been hemicranial and confined to the sound side. The exception (Case 19), a very bloody and difficult case, in a woman, proved to be an incomplete extirpation, and subsequent examination established a partial sensory return in the region of the ophthalmic division soon after the operation. In this patient the headache was bilateral. The observation would seem to speak in favor of a dural origin for intracranial pain, for the trigeminal neurectomy serves to render anesthetic the meningeal, as well as the mucous and cutaneous areas of trigeminal distribution on the side of the operation. With the exception of the area about the foramen magnum (pneumogastric supply), the entire dural membrane, the tentorium included, is innervated by the trigeminus, and it is tempting to speculate on these lines as to the relationship between pre-existing migraine or hemicrania and the subsequent neuralgia into which the former not infrequently develops. It is quite possible that this form of hemicrania may indicate a morbid process of the dural nerves, precisely akin to that which we more commonly associate with the cutaneous periphery, a process which finally extends to the ganglion, and in the course of time may involve its facial branches.

In two patients the convalescence, otherwise uncomplicated, has been interrupted by an outcrop of herpes, the unusual features of which have been the occasion of another paper.[28] In one case (Case 3), on the tenth day, and in another (Case 17), on the seventh day, an eruption of what ordinarily would have been considered a well-developed herpes facialis developed about the nose, lips and cheek. The area of anesthesia resultant to the ganglion extraction, however, remained absolutely free from vesiculation, although in one case it was quite surrounded by the herpetic outcrop. The observation, together with Howard's[32] finding that ganglion lesions accompany the labial herpes of pneumonia, points strongly toward a ganglionic origin for herpes of this type, as well as for the true zoster. Curiously enough, both cases gave evidence of a concomitant lesion in the lower sacral posterior-root ganglia shown by a symmetrical area of tenderness and hyperesthesia, which in one case went on to a unilateral vesiculation of the perineum; the other, having stopped short of the cutaneous lesion, was looked on as a zoster without eruption, which, as Mackenzie has pointed out, may be a not uncommon malady. Herpetism as a disease is well worthy of further study. Happily, neither of these cases has suffered from a subsequent post-zoster neuralgia; this would have been a sad tax to have levied on one who had already paid high with pain.

Stiffness of the jaw, of greater or less degree, usually appearing a few weeks after the operation, is a common sequel of the operation. Though ascribed by some to the proximity of the operation to the inferior maxillary joint, a much more probable cause is the shortening of the atrophied temporal and masseter muscles due to the fibrous change which they undergo. In one patient (Case 7) as a result of an operation on Meckel's ganglion, the temporal muscle had been paralyzed with a resultant stiffness of the jaw which prevented the separation of the teeth for more than 2.5 cm. In this case during the ganglion operation the maxillary joint was inadvertently opened and it was feared that even a greater disability would result than before. Quite the contrary took place, and despite the injured joint, the division of the fibrous temporal muscle sufficed to free the jaw so that a much wider opening has been possible since than before. Though only occasionally a troublesome feature of the early postoperative period, the contracture may at times be so great that patients must be encouraged to frequently wedge the jaws open in order to stretch the shortening muscles. Were it a serious or a more frequent complication, it might be advisable during the operation to sever the temporal muscle at its attachment to the coronoid process. Excision of the zygoma serves the same purpose, so far as the masseter is concerned, and this custom may account in a measure for the rarity with which patients in this series have complained of lack of ability to widely open the mouth. Instances of temporo-maxillary anchylosis have been reported, a sequel presumably due to sepsis. Wound infection, fortunately enough, has not occurred in our series.

The Condition of the Eye.—Of importance above all others are the post-operative ocular complications, which, since the first attempts to remove the ganglion, have been a great cause of concern to the surgeon and an equal source of interest to physiologists. It has been shown, alas, too frequently, that from one cause or another an enucleation of the eye may eventually be necessary, and it consequently is wise to have

31. Allbutt: System of Medicine, vol. ii, 1897, "Morphinism."

32. Howard: Amer. Jour. of the Med. Sciences, 1903, vol. cxxv, p. 256.

an understanding with patients and friends that relief from pain may demand this sacrifice. The patient rarely hesitates, if his neuralgia be of the major kind. Twice in this series enucleation has seemed advisable owing to what promised to be loss of visual function, though the eyeball itself might have been saved in each instance. The whole question of trophic control over the globe, supposed, according to Gaule, to be exercised by the ophthalmic division of the trigeminus, remains a somewhat confused one. It is commonly advanced as an argument, in favor of fractional removal of the ganglion, that preservation of the first division alone assures with any certainty the safety of the eye. This statement needs reservations, and I think is true only in case the ophthalmic division with its group of ganglion cells is left absolutely intact; if traumatized or injured in any way during the operation—and this is often unavoidable—its extraction, when that is possible, is much less likely to lead to harm than its attempted preservation. One is constantly impressed with the force of Dr. Weir Mitchell's statement that so-called trophic disturbances, whatever they may be, are not due to complete withdrawal of trophic control, as, for instance, by the complete severance of a nerve, but rather to interference with its normal function due to a partial injury and resultant irritative conditions. One of the patients (Case 19), whose eye became seriously inflamed after the operation, was a case in which, as the return of sensation in the forehead and eye showed, I did not completely remove the first division. In the cases of total extirpation, as a rule, no such disturbance has occurred. Neuroparalytic keratitis, as the simple result of the ganglion extirpation, need never occasion anxiety if proper precautions are taken to guard the eye, particularly for the few weeks succeeding the operation. Without entering into the controversy of trophic vs. non-trophic nerves, it may be said that our clinical experiences are thoroughly in accord with the experimental work of Hanau,[33] whose conclusions are that all changes of the cornea after trigeminal paralysis are only consequences of external influences on the eye, unprotected through its loss of sensibility, and that this applies as much to the slight initial lesion, an especial consequence of dryness, as to the extreme degree of keratitis (*der groben Nekrose*). Similar conclusions resulted from Turner and Ferrier's investigations, which showed that when the eye was protected, intentional wounds of the cornea in rabbits would heal as readily after section of the trigeminus as under normal circumstances. Pain of itself is, of course, a conservative provision of nature. Analgesia removes this protective agency, and especially in such a delicate structure as the eye with its poor circulation, a slight injury due to the presence of a foreign body, an eyelash, for example,[34] or the slight pressure of a dressing, etc., may pass unnoticed, and an ulcer or an infection be the result. One patient (Case 10), an oysterman, a few weeks after his operation, was on the water for a whole day in the bright sun with his eye unprotected, and a slight conjunctivitis was started up. This was treated by an ophthalmologist who, not appreciating the significance of the anesthesia, applied a cotton dressing under the usual four-tailed eye bandage. The eye remained open under the dressing, which in twenty-four hours had rubbed off the epithelium and produced a loss of substance in the cornea. Fortunately, the case was seen on the following day, and under a watch glass, with irrigation, the ulcer rapidly healed, leaving a slight opacity which, luckily, remains at one side of the pupil. He has had no trouble since, but is careful to wear dark glasses when exposed for any length of time to bright sunlight.

All who have had considerable experience with the ganglion operation have emphasized the fact that inflammatory disturbances are most apt to ensue when peripheral operations, perhaps repeated many times, have been carried out in the neighborhood of the eye. The scars resultant to these operations may in two ways lead to difficulties after ganglion extirpation. One of these, as Case 11 illustrated, is a lagophthalmos brought about by the juxtaposition of the ganglion incision, to the scar of an old infraorbital one, a combination which may serve to divide all the fibers to the orbicularis. Reunion of the fibers luckily took place in this instance, and it is interesting to note that a pressure palsy of the third nerve in this same case with consequent ptosis served to keep the eyeball covered with an immovable lid in spite of the temporary paralysis of the orbicular muscle. As Kocher and Krause have emphasized, it is important in all infraorbital operations not to make the incision parallel to the lower margin of the orbit, but obliquely and parallel to the facial fibers; the more so, since in this way another serious deformity, namely, a cicatricial ectropion, is thus avoided. It was a condition of this sort, added to inexperience in the treatment of the eye (no Buller shield was used) which led to the loss of the globe in one of my earlier patients (Case 4). A chronic conjunctivitis (trachoma), in addition to the ectropion, had long existed in this patient, had been untreated for years, owing to the great sensitiveness of the eye, and after the ganglion operation ulcers would form, and heal and reform, until finally it was deemed best to enucleate the eye, as the patient lived in a remote corner of the state where she could not be under observation.

There are many ways of safe-guarding the eye during the operative and postoperative periods. Sir Victor Horsley, Keen and others commend sewing the lids together either during the operative period alone, or for a few days subsequent to it, a procedure which the laboratory experiences would favor. This advice I have followed in one case without the conviction that any advantage attaches thereto. During the operation the eyes are covered with a broad piece of thin rubber protective, in order to prevent any possible irritation by ether fumes, and also carefully covered during the skin preparation to prevent the chance entrance of soap or of antiseptics. After the operation I have come to depend entirely on a Buller shield which, though originally devised for a different purpose, nevertheless possesses advantages which Dr. Keen has already emphasized; a large watch glass being used whose edges are covered with a circular ring of adhesive plaster so as to completely shut out the air. This protection should be worn for ten days or longer after the operation, the length of time depending on whether the conjunctiva remains reasonably free from injection after trial exposures; then worn only during the day, and finally discarded entirely. I always insist, however, on its being reapplied at any time during the first month

33. Arthur Hanau: *Experimentalkritische Untersuchungen über die Ursache der nach Trigeminusdurchschneidung entstehenden Hornhautveränderungen*, Zeitschrift für Biologie, 1896, vol. xvi, p. 146.

34. Noteworthy in this connection is the fact that as an early consequence of the neurectomy the lashes become very much loosened and are shed in considerable number. I have not seen this commented on.

or six weeks, when there is a greater likelihood than usual of conjunctival irritation from exposures of one kind or another, for example, during the journey home on a dusty train. A daily irrigation or not, according to the presence or absence of secretion, is advisable; otherwise nothing is needed. The chief object of this glass protection is to "hot house," so to speak, the eye and to insure moisture for the conjunctiva. Whatever may be the physiologic interpretation of the nervous control of lachrymal activity, there is undoubtedly for several days after a total extirpation an insufficient secretion of tears, and if the eye is not kept moist, the movements of the lids in winking or of the eyeball under them must rub and inflame the unlubricated membrane. This results in loss of the surface epithelium, which may lead to infection and ulceration, even when there has been no traumatism by a foreign body. It is gratifying that in all but three of the cases in this series there has been no inflammatory reaction whatever, and the anxiety lest it occur ceases in large measure with the resumption of normal glandular activities after the first two or three weeks. Krause observed in his cases a lessening of lachrymal secretion which Köster, who believes that the gland is activated by fibers from the facial through the great superficial petrosal, attributed to a probable injury of the latter nerve during the operative procedure. Wilbrandt and Sänger,[35] however, concluded an extensive review of the subject, with an expressed belief in the possibility of a variable nerve supply, by the facial, the trigeminus or the sympathetic alone, or by a combined action of all three together. Inasmuch as the secretory activity returns in large part, if not entirely, to its normal condition, and since regeneration of the fifth is impossible and injury of the superficial petrosal quite improbable in the operation above described, I have been inclined to ascribe the lachrymal disturbance entirely to severance of the sympathetic fibers, which in the complete extirpation are almost necessarily divided. It may be noted, in connection with the sympathetic paralysis, that in eight of the cases in this series there existed for some weeks a post-operative pupillary contraction, often noted at the close of the operation, and in many of them a slight though evident enophthalmos with narrowing of the palpebral cleft. The contracted pupil after a few days does not dilate with cocain, evidencing, according to Schultz, that the degeneration of the postganglionic fibers has reached the dilator muscles. With regeneration, as I have supposed, of these traumatized or divided sympathetic fibers, lachrymal secretion returns, the pupil regains its normal size and the enophthalmos, if it has been observed, disappears.

Oculomotor palsies have occurred with great frequency when the effort to remove the ganglion *in toto* has been successful, as may be seen by consulting the case-reports of those who thus deal with the structure. Fortunately, these paralyses are from pressure injuries, and are only transitory affairs. My personal record is as bad as it can well be, for in only four of the patients were there no postoperative palsies of any sort (Cases 3, 18, 12, and 19), and of these it will be seen that the last two were cases in which I did not succeed in entirely removing the cells of the ophthalmic division, as the early return of sensation in its cutaneous area demonstrated.

The commonest sequel has been an injury of the abducens, which is naturally accounted for by the anatomic proximity of this nerve to the upper edge of the ganglion. In eight cases of total extirpation there has been a resultant palsy, varying in intensity from a weakness which clears up in a few days to a marked internal strabismus, recovery from which has taken twelve weeks. It has never been a permanent lesion. In all of these eight cases the pupil has been contracted immediately after the operation, and has remained so for an indefinite period (weeks, months, and in one case, I believe, it has continued contracted). It reacts to light and to accommodation, contracts when eserin is dropped in the eye, dilates under atropin, but does not dilate with cocain, at least for the first few weeks after the operation. Krause's (1896) report stated that there were no postoperative pupillary changes whatever in his cases. On four occasions (Cases 5, 6, 9 and 16) there has been, in addition to the paralysis of the abducens, a slight palsy of the third nerve which has lasted only a few days. The pupil in these cases has also been somewhat contracted. Three times has the third nerve been injured alone (Cases 11, 14 and 20), twice severely with a dilated and immobile pupil, and once slightly. It was interesting to note, in the latter cases, that during the period of two weeks, when only the external rectus and superior oblique muscles functionated, in other words, when the third paralysis was seemingly complete, the pupils were the same size, reacted equally well to light, directly and consensually, and to accommodation. This would lend clinical support to the view that the ciliary ganglion is the chief reflex center for the iris, and that the third nerve may, under certain circumstances, be severely injured without affecting its activity.

In concluding this section, it may be pointed out that in the above series of cases there have been instances of ganglion extirpation, both with and without accompanying sacrifice of sympathetic fibers; instances of third nerve lesion with ptosis, so that the upper lid served to cover and protect the eye during the critical few weeks after the operation; and two instances of lagophthalmos, one transitory, the other (one of the tumor cases in which there was also a paralysis of the facial nerve) permanent, so that the cornea remained continually uncovered; finally, instances, one of corneal hyperesthesia and one of hypesthesia, due to only partial removal of the ophthalmic division—lesions, in fact, representing almost every combination claimed by one or another investigator as responsible for the production of neurotrophic keratitis, and yet in only one case (Case 4) of pre-existing ectropion with inadequate lid closure, a case in which no glass shield was used to keep the eye protected and moist, did a serious keratitis supervene. From the clinical experience, therefore, one very naturally inclines to the view that purely traumatic influences (as instanced in Case 10) or the combination of corneal dryness with infrequent (xerotic theory), or incomplete closure of the lids, alone play a part in the causation of corneal inflammation, and that the pure trophic, the tropho-traumatic, and the vasomotor palsy theories are hardly tenable.

35. Die Neurologie des Auges, vol. ii, Wiesbaden, 1901.

Digitalis produces its good results by causing slower contractions of the muscular tissue of the heart, thus giving that organ more rest and nourishment. If you remember this, says Clemsha, in *Medical Council*, you will expect but very little from a worn-out heart, with marked degeneration of its muscular walls.

FLUORESCENCE ARTIFICIALLY PRODUCED IN THE HUMAN ORGANISM

BY THE X-RAY, BY RADIUM AND BY ELECTRIC DISCHARGES, AS A THERAPEUTIC METHOD.*

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The therapeutic method outlined in this paper and in previous publications consists in the saturation of the human organism in whole or in part with a medicine endowed with the property of fluorescence (or phosphorescence), and in then submitting this patient to the action of *x*-rays or of the radium radiation or of high-frequency currents. It is, therefore, a combined treatment. I have termed it artificial fluorescence.

The sum total of my object was to develop light within tissue in the confidence that the well-known external effects of this agency might now be duplicated internally and especially in the expectation that certain wave lengths of the visible spectrum, like the blue-violet and the yellow-green, might exert specialized effects. But it is also obvious that the wave lengths of the visible spectrum can not be reasonably supposed to be the sole output and resultant of the absorbed energy of the *x*-ray and of the radium radiations. Effects, therefore, may be attributed to transformations into other wave lengths, as, for instance, the ultra-violet or even into the well-known secondary radiations, lower in wave length than the *x*-radiations, but still akin to them in their property of not being refracted and dispersed as are the violet and ultra-violet. These secondary radiations in their turn set up fluorescence.

The main point is that by reason of the medicine administered to the patient a new set of radiations is set up within his tissues, and that the most obvious of these radiations is light itself or closely akin to it.

In science it seldom happens that ultimate truth is arrived at all at once. Usually prior observations have preceded, a great number of experiments have followed, a final deduction has been made, and this itself may after all turn out to be wrong.

So it is regarding the subject of my paper, but certain it is that artificial fluorescence by radium and the *x*-radiations is founded on a solid physical basis, applicable to living human beings, and that the clinical results obtained at least increase the percentage of cures in many diseases.

HISTORY OF RESEARCHES.

The steps leading up to the plan here presented of treating the entire blood system with a fluorescent substance and then submitting it to *x*-rays and to radium radiations are few but most interesting. They relate to a local use of the fluorescent substance by hypodermatic injections or by topical applications, and to the use of the Finsen light as an excitant. With these methods, I have had no experience, since my object has been not alone to affect superficial skin areas as in lupus, but rather to affect deeper areas like cancerous tumors, tuberculous glands and tuberculous lungs, carcinoma of the stomach, and chronic diseases like malaria or general conditions like pseudoleukemia. To accomplish this purpose, the medicine to be administered by the mouth must be harmless, but also fluorescent, and a radiation must be used which is able to excite fluorescence deep within the tissues. Obviously, the Finsen light radiation would not furnish the penetration required and topical administration would not reach the diseases desired. I therefore resorted to the Roentgen ray and to radium.

*Read at the International Electrical Congress of St. Louis in Section H, Electrotherapeutics, 1904.

NATURAL FLUORESCENCE OF TISSUES OF THE BODY.

In 1845 Professor Brucke stated that the crystalline lens of the eye was fluorescent and the aqueous humor less so. In 1855 M. Jules Regnauld, using sunlight, found that the cornea fluoresced slightly, the crystalline lens highly, and the vitreous humor less so. In 1895 Setschenow of Moscow, in a series of careful experiments, corroborated these results. He observed that when the eye is brought into the focus of the ultra-violet rays, immediately the cornea and the lens begin to glimmer with a white-blue light. Dr. Henry Bence Jones[1] not only repeated these experiments on the media of the eye, but also, as a result of careful researches, made the very remarkable discovery that man and all animals possess in every part of the body a fluorescent substance resembling quinin. This substance he found to be an alkaloid and to be closely related to quinin. He named it "animal quinoidin." He found that this animal quinoidin was present uniformly in extracts of the liver, heart, spleen, lungs, kidneys, brain, nerves, muscles, cartilages, blood, bile and humors of the eye. The fluorescent substance did not disappear from lenses that had been kept for months in glycerin.

Using a spark from a Ruhmkorff coil as a source of light, Jones determined distinct fluorescence in a solution of one grain of quinin to 1,000,000 parts of water.

Dr. Chalvet[2] found that Dr. Bence Jones' fluorescent substance exists in various foods and even in wine, and is, therefore, probably not of an animal but vegetable origin.

In 1858 Drs. Edward Rhoads and William Pepper published[3] a "Contribution Toward Our Knowledge of the Pathological Changes in the Fluorescence of the Tissues." They confirmed Bence Jones' results, and then advanced the original idea, based on an examination of the blood in a number of cases, that "a close connection exists between the diminution of animal quinoidin and malarial diseases." They therefore gave quinin to increase the fluorescence of the tissues to its normal point.

In 1900 Dr. A. F. A. King[4] of Washington, D. C., resurrected these publications of Bence Jones and of Rhoads and Pepper, in connection with his theory and suggestion of placing malarial patients in the dark or in rooms with violet or purple window hangings. Dr. King bases his suggestion on his belief that the sporulation of the plasmodium of malaria can not take place in the dark, but only in light and more especially in red light. This treatment corresponds, of course, to the red light or Finsen treatment of smallpox.

In 1900 Professor von Tappeiner[5] in conjunction with Dr. O. von Raab, tested the action of the fluorescent light of phenylacridin on infusoria. Paramecia in an acridin solution of 1 in 20,000 died in sunlight in six minutes, in diffused daylight in about sixty min-

1. Proceedings of Royal Society, April, 1866, and "Lectures on the Application of Chemistry and Mechanics to Pathology and Therapeutics," London, 1867.
2. Gazette Hebdomadaire, second series vol. v, 1868.
3. Pennsylvania Hospital Reports, 1868.
4. Vermont Med. Monthly, June, 1902.
5. Münchener med. Wochens., 1900, No. 1.

utes, but if kept in the dark they were alive after 6,000 minutes, viz., after 100 hours. Von Tappeiner summarizes the results of his and von Raab's experiments as follows:[6] "Light becomes highly injurious to paramecia in the presence of acridin, phenylacridin, eosin and quinin in solutions in which these substances in themselves (in the dark) are hardly, if at all, poisonous. This action of light is closely connected with the fluorescent quality of the substances named. The injurious power, however, lies not in the fluorescent light produced, but in the process of its production."

O. von Raab surmises that we have here a conversion of the energy of the light rays into chemical rays analogous to that of chlorophyl, which is also a fluorescent body, but with this difference, that this conversion is the cause of death to the paramecia, whereas to plants it is the condition of continued life.

Von Tappeiner holds that this kind of light action comes into play with those animal organs, skin, retina, blood and lymph serum, which have the capacity for fluorescence. He surmises, too, that the cause of the skin inflammation noticed by Wedding, in beasts fed on buckwheat, lies in the fact that substances get into the body which are capable of fluorescence.

Von Tappeiner concludes his article with the suggestion that fluorescing substances, by being applied to the part and subjected to light, may be employed in dermatology, just as eosin and other fluorescing substances have been empirically employed for the last ten years in photography as "sensitizers."

In 1901 H. Lieber of New York made experiments with agar agar solutions inoculated with common mold and further experiments with grape and other fruit juices, and found that fluorescent substances, like solutions of fluorescin, eosin or rhodamin, arrested fermentation in every case so long as the solutions were exposed to daylight, but that the fluorescent substances had no perceptible effect on the solutions when kept in the dark. These principles he applied to the preservation of foodstuffs.

In June and August, 1903,[7] and later on, I[8] published a plan of saturating the entire system by administration of fluorescent medicines and submitting parts or the whole of it to *x*-rays and radium radiations, after, however, recording a series of experiments on patients from January, 1900, onward. In November, 1903, was published[9] the experiments of Dreyer on "Light Treatment" by the method of "sensitizing" tissues, already suggested by von Tappeiner. This article, brief but most interesting and important, was a résumé of a report of investigations made to the Danish Academy of Sciences in April, 1903. Dreyer adopted the plan which has long been used in sensitizing photographic plates of adding to the bromid or chlorid of silver solution certain substances which are generally of a fluorescent nature. Infusoria, bacteria and animal tissues thus impregnated and submitted to the action of the Finsen light were affected by the green to orange rays exactly, as without the use of the sensitizing agency they would have been affected by the ultra-violet rays. The importance of this plan is evident, for it is the red to green rays of the arc lamp which easily penetrate tissue, while the ultra-violet penetrate but very slightly. By the Dreyer sensitizing method the scope of the Finsen treatment for lupus, etc., would be greatly extended and simplified, the effect would extend more deeply, the area be more extensive, and the pressure device be unnecessary. Dreyer used principally erythrosin in a solution of 1 to 4,000, a solution perfectly non-toxic, except under the influence of the arc-light radiation.

The following table is most instructive. Using a 30 ampere lamp, a quartz and water-cooled vessel, and erythrosin, different rays of the spectrum were tested. Micro-organisms were killed in the time and under the conditions given below:

Color filter used.	Acting rays.	Infusoria.		Bacteria.	
		Sensitized.	Normal.	Sensitized.	Normal.
Quartz.	Entire spectrum ultra-violet.	10 sec.	100 sec.	60 sec.	80 sec.
Glass.	Visible spectrum.	10 sec.	9 min.	10 min.	10 min.
Solution, nickel-sulphate.	Red-orange, yellow, green, blue.	10 sec.	13 min.	10 min.	10 min.
Blue glass, monochromic.	Red, orange, yellow, yellow-green.	10 sec.	70 min.	15 min.	Over 4 hours.
Acid potassium, double chromium.	Red, orange, yellow-orange.	10 sec.	110 min.	25 min.	Over 9 hours.

The above table shows that it is the yellow-green rays to which the micro-organisms are rendered sensitive.

Dreyer also sensitized animal tissues by hypodermatic injections of erythrosin, so that the yellow rays, otherwise without effect, would now cause an inflammatory reaction such as is caused by the violet and ultra-violet rays.

Professor Neisser and Dr. Halberstaedter[10] review and amplify the work of Dreyer. Neisser makes the following remarks as to the cause of the action:

1. The occurrence does not depend on fluorescence, because there are sensitizing materials which do not fluoresce, and fluorescent materials which do not sensitize.

2. The occurrence does not depend on the absorption of certain rays, because there exists a number of fluorescing and non-fluorescing materials which absorb the same rays as erythrosin, and yet do not sensitize.

3. The process can not be accounted for by the formation of toxic substances in the sensitizer during the illumination, because if one first subjects a sensitizing fluid to light, and afterward puts micro-organisms into the fluid, these germs are not killed.

Jesionek[11] discusses the therapeutic applications of fluorescent substances in various diseased conditions after the method of Tappeiner just referred to. The skin was painted with solutions of fluorescent substances and then submitted to sunlight, concentrated by lenses or not. A solution of eosin was most commonly employed. In cases of carcinomatous growths parenchymatous injections of 0.1 to 0.01 per cent. solutions were used.

In July, 1904, [11 1-2] Gunni Busck advocated exposing malarial patients to whom quinin had been first administered, to sunlight, on the ground that quinin causes micro-organisms to be sensitive to light. I had already considered the possibility of this plan in my first publications and wrote: "As to sunlight as an exciting cause of fluorescence, it is to be noted that light passing through a red screen, as, for instance, the blood, fails

6. Quoted from Freund, p. 519.
7. Electrical World and Engineer, June 20, 1903; Med. Record, Aug. 8, 1903.
8. New York Med. Journal, Feb. 13 and 20, 1904.
9. British Med. Jour., November, 1903.
10. Deutsche med. Wochens., Feb. 18, 1904.
11. Münchener med. Wochens., May 10, 1904.
11½. Amer. Jour. of the Med. Sciences.

to excite fluorescence, while the *x*-rays and radium radiations readily penetrate this screen."

On the whole, the fact is well established that quinin solutions when subjected to light exert a deadly influence on some micro-organisms. Ullman has found that paramecia placed in solutions of quinin of 1 to 20,000 die only after standing about five hours in the dark, while they are killed in the course of eight minutes, if placed in sunlight, and under conditions which usually have no deleterious influence on the paramecia.

WHAT IS FLUORESCENCE?

Fluorescence is the property which substances have of absorbing invisible or visible rays and giving out visible light. The fluorescent substance does not give out the same wave length as that which it receives. According to Stokes' law, it should give out a wave length of lower frequency, namely, the shortest wave length of the fluorescence spectrum is always of less refrangibility than the longest wave length capable of exciting fluorescence. Lommel[12] has shown, however, that solutions of fluorescin, eosin and naphthalin red do not conform to Stokes' law, and Nichols and Merritt,[13] in recent investigations, show that rhodamin, resorcin blue, quinin, chlorophyl and esculin also do not even approximately conform to this law. The fluorescence of quinin sulphate appears to be independent of the wave length of the exciting light.

Fluorescence and phosphorescence are much akin. The former lasts only so long as the exciting cause is maintained; the latter endures after the excitation has ceased. Substances like willemite exhibit both properties. According to Becquerel, fluorescence is only phosphorescence of short duration.

Sunlight, electric discharges, ultra-violet, the Roentgen and Becquerel rays, all excite fluorescence and phosphorescence. It is precisely these rays whose biologic effects are now under discussion therapeutically, and the very pertinent question arises, Is not the now familiar and ordinary curative effect of these various rays due to their common property of exciting fluorescence or even phosphorescence? Or, put in a broader sense, is this curative effect not due to secondary radiations, invisible, as well as visible?

That the effects of the *x*-ray may be due to the fluorescence of the tissue elements themselves is an opinion I have long held and expressed.[14] This opinion is also guardedly put forth by L. Freund in his incomparably excellent book on radiotherapy, page 336. He says: "It seems, moreover, not impossible that *x*-rays induce fluorescence in those tissue elements capable of this phenomenon, and that this process brings about chemical changes, especially in the cells. In this respect those tissues which contain earthy matter would appear to possess some affinity to the bromid of silver gelatin, while other tissues which have no fluorescence capacity remained unharmed by the rays."

Goldstein[15] argues that since Roentgen rays, when they impinge on bodies, produce ultra-violet rays, of very short wave length attributes to this ultra-violet light those biologic effects produced in the deeper layers of the skin by Roentgen radiation.

Freund combats this view on the ground that biologic effects are not produced in internal organs, heart, liver, etc., where the Roentgen rays equally penetrate.

Many experiments on the lower animals have demonstrated that profound lesions of internal organs are produced. In my own experience I can never forget the peculiar, crispy, cartilaginous feeling of the cutting knife in a deep dissection for the radical removal of a carcinomatous breast, removed after three months of Roentgen treatment. Both the pectoralis major and minor were cornified as verified by subsequent microscopic examination.

But whether or not simple *x*-ray treatments produce in normal tissues either ultra-violet or fluorescent rays, is not the question. The possibility of such being the case is merely mentioned as constituting collateral confirmatory evidence. My method, of course, is to permeate tissues and cells with a substance known by prior laboratory experiment to be actually fluorescent and known to retain this property when in the blood, and then to artificially excite this fluorescent quality in the combined fluids. The method is positive and demonstrable apart from theoretical considerations, and its curative results are matters of clinical observation.

Certain it is, as evident by foregoing statements, that fluorescence and phosphorescence are natural properties of living animal tissues.

These two phenomena of light exist naturally in some infusoria, bacteria, insects, deep sea fishes, and, as we have seen, in the tissue of human beings. In the human being, as in the other living organisms mentioned, this fact must have a meaning, since every function or ingredient of the organism means something. It is simply a question as to whether this intrinsic phenomenon can not be artificially utilized as a therapeutic measure.

Is the specific action of some well-known drugs due to their fluorescent properties?

As already mentioned, Rhoads and Pepper, in 1866, acting on the demonstration of the normal fluorescence of the blood by Dr. Bence Jones in 1866, presented the reports of 12 cases in which they claimed that quinin cured by increasing the fluorescence of the blood in cases of fever. In these cases they demonstrated a prior diminution of the natural fluorescence of the blood.

Dr. A. F. A. King[4] of Washington, in his interesting article referred to on "Sunlight and Malaria," argues that the malarial parasite is a naked ameba, that red light promotes the vital activity of amebæ, while violet or purple restricts it; for instance, *amæba proteus* streams in the presence of red light, and ceases to stream in light from the violet end of the spectrum. The color of the light diffused through the blood is red, as one may see by holding the hand in front of a candle. Therefore, the malarial ameba, while thriving in red light, would thrive poorly or perish in light from the violet end of the spectrum. In this manner he would explain cures of malarial fever by methylene blue, by Prussian blue, and by iodin, which last becomes in the stomach purple iodid of starch, and by quinin, esculin and fraxin, all of which are "antiperiodics" in ague and fluorescent.

I would suggest another reaction which may have a bearing on the curative and antiseptic action of the salicylates.

It is well known that the salicylates give a beautiful violet reaction with peroxid of iron. Supposing that salicylates are administered medicinally, where is the peroxid to be found? In many diseases, most amenable to the action of the salicylates, there is a great destruction of the blood corpuscles with the formation of pig-

12. Poggendorff's Annalen, vols. cxliii, clix, clx.
13. The Physical Review, July, 1904.
14. Med. Rec., Aug. 8, 1903.
15. Quoted from Freund.

ments in the organism. According to Hugouneng,[16] all of these pigments are rich in iron. Sometimes peroxid of iron occurs, probably from the destruction of hematin, which chemically contains iron. Here, therefore, we may have another "color" explanation of the effect of the medicine administered.

Quincke[17] showed that hemoglobin gives off its oxygen more quickly in the light than in the dark. For this reason, light increases the oxidizing power of the blood and correspondingly increases the processes of oxidation. The salicylates, therefore, may promote in this manner metabolic exchanges due to the violet light set up in the blood corpuscle by reason of a combination with the peroxid of iron set free in the decomposition of the corpuscle.

FLUORESCENCE OR SENSITIZATION?

The experiments quoted of Tappeiner and Raab and of Dreyer and Halgerstaedter prove beyond question that some non-toxic fluorescent and non-fluorescent substances, under the excitation of the arc-lamp radiation, kill infusoria and bacteria and cause inflammatory reaction of tissue. This action is ascribed by them to a certain "sensitizing" effect of the same nature as occurs by the use of the same substances in photography.

What, then, is sensitization, especially in photography? The effect of light on the sensitive material of photographic plates has long been familiar, but the nature of the reaction between the ether radiation and the sensitive material is not understood. It is not enough to claim that this reaction is simply a chemical one, and say that the chlorin or the bromin of the Ag Cl or Ag Br is in unstable equilibrium and is jostled off of its molecular combination by the impingement of the radiation. This simple statement of the case is negatived by numerous objections. For instance, many substances added to the silver emulsions greatly enhance the amount of silver salts set free. Such substances are termed in photography "sensitizers." Prominent among them are gelatin and eosin. It is, for example, a curious fact that the *x*-ray will not affect a collodion bromid of silver plate. We must conclude, therefore, that instability of the silver salt is promoted by the proximity and by some action of the gelatin. What the exact action of the sensitizer is, is not yet explained by chemistry.

The commonly received opinion is that by reason of the ether impulse a part of the bromin is separated from the silver and absorbed by the gelatin, and, as throwing further light on the process, it is believed that the action of the sensitizer is to increase the capacity of the decomposed salt to absorb oxygen. On the contrary, chlorid of silver in a sealed vacuum tube, and thus out of contact with oxygen, remains unaffected after months of exposure to light. But also, silver chlorid free in the air, but unexposed to light, retains its white color. It would thus appear that both light and oxygen must be mutually present, and further, that in some unexplained manner the "sensitizer" provides the oxygen.

From this point of view, it is pertinent to recall that Sir Oliver J. Lodge has suggested that the therapeutic value of *x*-radiation lies in production of ozone within the irradiated tissue. Granting this, a tissue impregnated with a sensitizer would be richer in oxygen and we should thus simply enhance the effect of ordinary *x*-radiation. Against such a conclusion is the received fact that the *x*-ray produces no such pronounced action in deep as in superficial tissues, although it penetrates to the deeper tissues. L. Freund, as quoted, suggests that in the case of tissues rich in mineral constituents the minerals act as sensitizers.

These facts are all interesting, but they are not final —they explain without explaining, and for the present I am content to believe that in fluorescence, namely, in light, or in the invisible radiations of the same nature of ether vibration, we have a causation which is as fully explanatory of the effects in question as our present knowledge will justify. For this reason I have preferred to term the method I have advocated "Artificial Fluorescence" of living tissue. Possibly, reasoning by analogy, we may draw the deduction that just as by the intervention of the fluorescent substance chlorophyl, the all-pervading agency of light, causes a supply of carbon to the plant kingdom, so, under the influence of the same light, intervening fluorescent substances cause a supply of oxygen to the animal kingdom.

EXPERIMENTS.

Among liquid fluorescent substances may be named quinin, esculin, fraxin, eosin, fluorescin or uranin, rhodamin, cochineal, copper potassium chromate, gentian, henbane, litmus, naphthalene red, paraffin, petroleum, vaselin, stramonium, tumeric indigo, safranin, pavlin, magdala red, thallin, resorcorufin and resorcin blue, and some salicylates.

It was quickly found that while the above substances were fluorescent to daylight, a great variation in their capacity for fluorescence existed when exposed to *x*-radiations and to radium radiations. Some substances non-fluorescent to sunlight are vividly fluorescent to the *x*-ray and to radium, and vice versa. Among those most fluorescent to radium are quinin, uranin, fraxin, esculin and members of the petroleum series, like vaselin.

Experiments made with liquids in glass receptacles were valueless because the glass itself is highly fluorescent to the *x*-ray and to radium. Radium radiations are, on the whole, superior to the *x*-ray in exciting fluorescence. Many fluorescent liquids absorb the *x*-rays or radium radiations and therefore cast a shadow corresponding to the ordinary density shadow in radiography. This would seem to constitute a new sort of skiagraphy.

Applying this principle, I caused a subject, Dr. W. E. Deeks, to take twenty drops of a 1 to 30 aqueous solution of uranin, and one hour later submitted the hand to an ordinary *x*-ray exposure. The negative and print obtained when compared to a control picture of the same hand under the same conditions, except as to the dosage of uranin, gave an *x*-ray picture immensely superior in detail and clearness. This was especially true of the osseous structure and would lead one to suppose that certain portions of the bony structure when saturated with uranin absorbed the *x*-ray to a greater extent than if the uranin had not been used. These pictures make an interesting addition to skiagraphy, and are here exhibited (Figs. 1 and 2).

A further interesting outcome of experimentation was the discovery of a new fluorescent liquid, fluorescing a very deep purplish blue so deep that when concentrated it appeared almost black, but a drop of it added to a test tube filled with water gave a fluorescence as blue as that of esculin. The observation arose in this man-

16. Gazette Hebdomadaire de Med., quoted from Med. Rec., July 5, 1902.
17. Quoted from L. Freund.

ner: Test tubes in which fluorescent solutions of esculin were allowed to stand during one or two weeks were found, themselves, to have become intensely fluorescent after being emptied and carefully washed out and dried. Such a test tube casts a shadow on a screen or gives a photographic print as dark as ordinarily would be caused by a piece of lead one-quarter of an inch in thickness. It would seem that an esculinate of silica or a silicate of esculin had been formed. I have submitted some of this fluid to Professor Bogert of Columbia University for analysis (Fig. 3).

An analogy between the dark bones of the hand and the dark test tubes can not fail to be noticed.

Granting the entire soundness of the physical facts of fluorescence as demonstrable by laboratory experiment, it is still important to know if the actual living tissue of a subject whose blood is impregnated with a fluorescent substance can exhibit fluorescence.

The following experiment demonstrates that such is the fact: Administering to the patient as above, twenty drops of a 1 to 30 aqueous solution of uranin, one hour later on, fold the lobe of the ear closely over an aluminum tube containing 20 milligrams of radium bromid of 1,000,000 radioactivity. If the experiment is done after remaining from fifteen to twenty minutes in the dark a faint glowing spot on the ear can be observed, not observable in a control experiment where uranin has not been employed. The same experiment may be made with the alæ nasi, and perhaps preferably on the thin fold of skin at the junction of the fingers with the palm.

RADIOACTIVE WATER AND FLUORESCENT LIQUIDS ADMINISTERED CONJOINTLY.

Doubt has been thrown on the possibility of radioactive fluids. There is no ground for this doubt. Such fluids promptly discharge an electroscope and retain this property for eight days if the fluid is kept in tightly corked receptacles. In a specimen furnished by me to Professor Pegram of the electrical department of Columbia University the radioactivity was at least one-half that of uranium oxid taken as a standard. If radioactive water is used to prepare fluorescent solutions, the fluorescence is highly augmented.

For this reason I administer to my patients under treatment by fluorescent fluids a tablespoonful of radioactive water morning and night.

It may be asked, but what effect has the radioactive water on the living being? Demonstrably, the water absorbs the emanations of radium and holds them for a considerable time, becoming now a secondary source of radiations similar to the original gamma rays. The charged water excites internal fluorescence.

CLINICAL EVIDENCE.

In a combined treatment, employing as I do the *x*-ray or radium, radioactive water and fluorescent fluids, which, where cure is affected, is the especial curative agency? I regard the fluorescent fluid as the basic agency and the radiations as excitants merely of the fluorescence. I regard it as essential, if one is to obtain the best results in the treatment of cancer, lupus, tuberculosis, Hodgkin's disease, eczema, psoriasis, etc., etc., to administer fluorescent remedies. Whether these fluids act as "sensitizers," whether they allow of the production of more oxygen by ionization as the *x*-ray and radium may act, thus augmenting the action of the latter at deeper situations, or whether the fluorescent light itself acts, as I believe, as does ordinary light and sunlight—these questions no one as yet can answer.

In support of the latter view, we may briefly summarize the action of light. Absorbed light in nature, while usually transformed into heat, may also, as has been said, be transformed into fluorescence and phosphorescence, may produce chemical effects as in photography, or in determining other chemical combinations, and may cause electric or mechanical phenomena.

Under the influence of light, plants absorb carbon and give out oxygen. They decompose the carbonic acid gas of the air by aid of chlorophyl.

Physiologically, light acts on the protoplasm and thus modifies vital processes. Its effect is both stimulating and irritating or destructive. According to Loeb,[18] "light is not only an irritant in a physiologic sense, but it actually infuses the organism with energy which is transmitted into other forms, for the most part of a chemical nature."

That light kills some bacteria is now established beyond dispute by the experiments of a host of observers.

The effect of light on animal organisms, including man, forms a most interesting chapter by itself. Light acts as a stimulus to the animal functions. Frog spawn in an opaque glass die, in transparent glass they develop normally. Darkness hinders and prevents the growth of many of the lower forms of animal life. Young mammalian animals, including children, develop more perfectly in light. Ciliary movements of epithelium in grown animals are modified by light. Light stimulates the action of unstriped muscular fiber and it stimulates pigment cells; it modifies the quality of the skin, reducing protoplasm to keratin; it produces intense inflammation of the skin. "The hemoglobin gives off its oxygen more quickly in the light than in the dark, hence light increases the oxidizing power of the blood, and correspondingly the process of oxidation in the human body." (Freund.) Some observers claim that light modifies the oxidation of the tissues. Many experiments tend to show that light also modifies metabolism by direct action on cells; others, however, deny this. Experiments also show that light modifies the temperature, respiration and the pulse.

APPLICATIONS IN DISEASE.

I employ quinin bisulphate in doses of from five to fifteen grains daily, according to the natural physiologic tolerance of the patient—fluorescin, a 1 to 30 aqueous solution, from six to twenty drops, three times daily, one hour after meals—esculin, from five to fifteen grains daily.

One patient has now taken, in treatment of an extremely obstinate case of lupus, ten drops of the fluorescin solution three times daily during the last three months and, employing the *x*-ray, not only has his lupus healed over large areas, but also he has gained thirty pounds in weight in the three months. Both in hospital and in private practice my cases of lupus heal more rapidly and get permanently cured by this method and in less time than by any other method I have used.

I have ready to report six patients with tuberculous glands of the neck, two already subjected unavailingly to numerous surgical operations for removal who are now perfectly well. One case of tuberculosis of the hip joint is making excellent improvement.

In tuberculosis of the lungs the method is giving good results, not yet ready to be reported on *in extenso*.

18. Quoted from Freund.

In from one to three days after beginning treatment a reaction occurs. The afternoon temperature in a recent case rose from normal to 103 F. The cough, night sweats and lassitude increased. Examination of the sputum at this time revealed an enormous increase of the number of tubercle bacilli. This reaction lasted about a week and then the temperature gradually fell to normal, with corresponding improvement in the other symptoms. The patient then entered on a stage of steady gain in weight and comfort and personal appearance. The case is under most rigid observation by skilled consultants and will be reported on later.

It is interesting to observe that the course of events in this and other cases follows accurately that described by Dr. Chisholm Williams[19] of London, England, in his

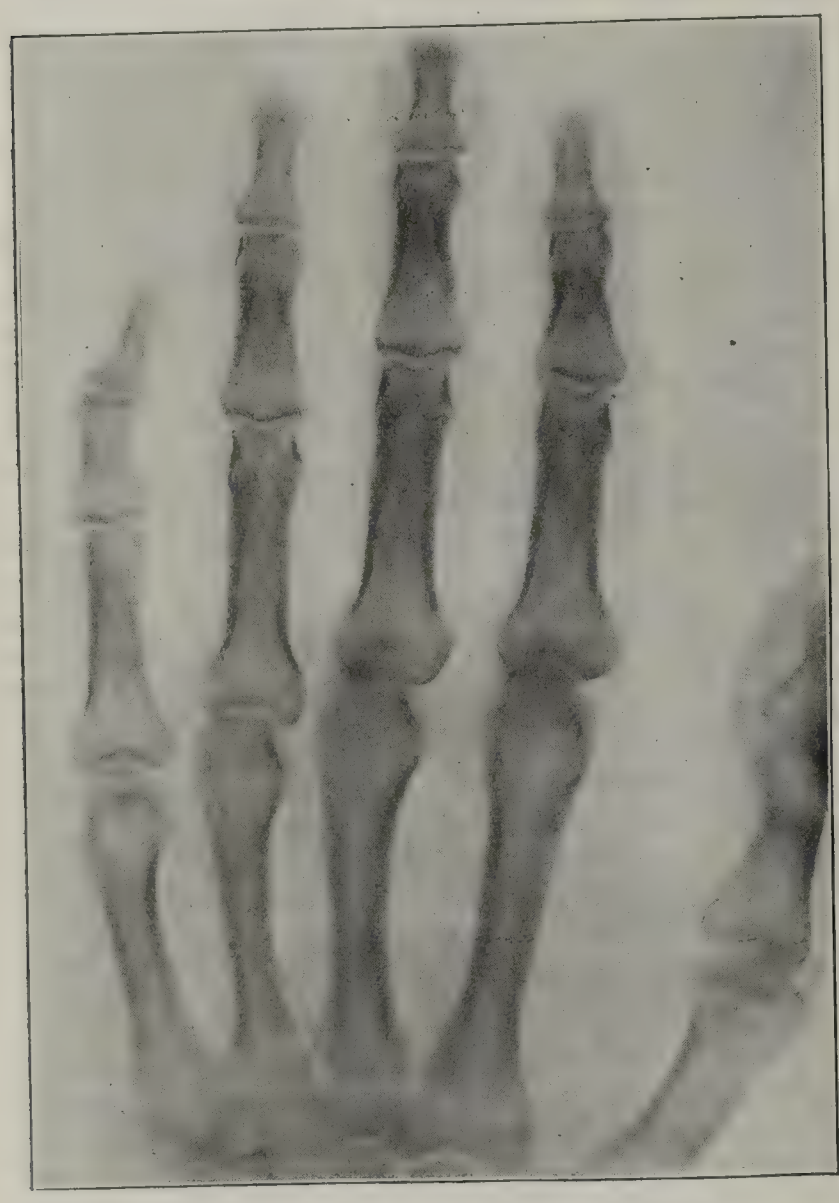


Fig. 1.—Normal skiagraph.



Fig. 2.—Skiagraph of same hand, under same conditions, after administration of fluorescin.

forty-three published cases, treated by him by high-frequency currents, and with such brilliant results. Of his original forty-three cases, he writes: "Three have died; the rest, thirty-two, have had no treatment of any kind whatever for over eighteen months. Eight cases had, on an average, two months' treatment each since that time. This year none of them has needed treatment. The majority, who are workers, are performing their usual duties. The three deaths were due to pneumonia, tuberculous kidney, and lardaceous disease."

Dr. Williams remarks further, "There is reason to believe that currents act in these cases in the following manner: First, on the tubercle bacilli themselves by making them pursue the same course as if they were under the *x*-rays." According to the experiments of Dr. Forbes Ross and Norris Wolfenden,[20] in their paper, "Effects Produced in Culture of Tubercle Bacilli by Exposure to the Influence of an X-ray Tube," they observe that the bacilli rapidly increase in numbers and have a tendency to form clumps, then get small in numbers and shape, and take the microscopic stains very readily, but are pale in color. They say, in conclusion: "There is not the smallest doubt that *x*-rays stimulate them to excessive overgrowth, and only affect them adversely by attenuation from overgrowth."

Dr. Williams continues: "In my experience, much the same process goes on under the high-frequency treatment. The tubercle bacilli, which are usually present in fair numbers, quickly begin to increase and, after a few applications, are greatly increased; they soon, however, form clumps and get misshapen, short and stumpy, and generally curved, and take the stain more readily than before. After a time they begin to decrease in numbers and later, when the patient is obviously getting better in every respect, they may cease entirely, and may appear in the sputum after weeks of absence."

It should also be mentioned here that not only does the fluorescent method exert a direct remedial and curative action in phthisis, but it also has afforded me, and others to whom I have demonstrated it, a more accurate means of physical diagnosis as to the location and size and extent of pulmonary lesions. When one examines the thorax by the *x*-ray and the fluoroscope,

19. High Frequency Currents in the Treatment of Some Diseases, London, Rebman, Ltd., 1903, pp. 166-173.

20. Archives of Roentgen Ray, August, 1900.

first without the administration of fluorescin (or other fluorescible solution), and second, after it has been administered, one is struck by the great difference. With fluorescin, the lesions are more easily distinguishable, they cast a darker and clearer shadow on the fluoroscope, which in its lighter portions is at the same time more brilliantly illuminated. In a word, contrasts are greater and definition clearer. A skiagraph shows the same relative improvement in definition, as already pointed out in the illustration of the hand (Figs. 1 and 2).

In cancer I summarize only two cases briefly from my notebook. They are typical of many others illustrating the superior efficacy of the fluorescent method over *x*-ray treatment alone.

Case 1.—Mrs. E. E. A., Jan. 28, 1904.

History.—Six years ago a tumor in the right breast and a gland in the axilla appeared. The entire breast was removed by Dr. W. E. Brown and pronounced carcinomatous. Cancer returned and extensive surgical removal was resorted to. Cancer again recurred and patient resorted to the use of the

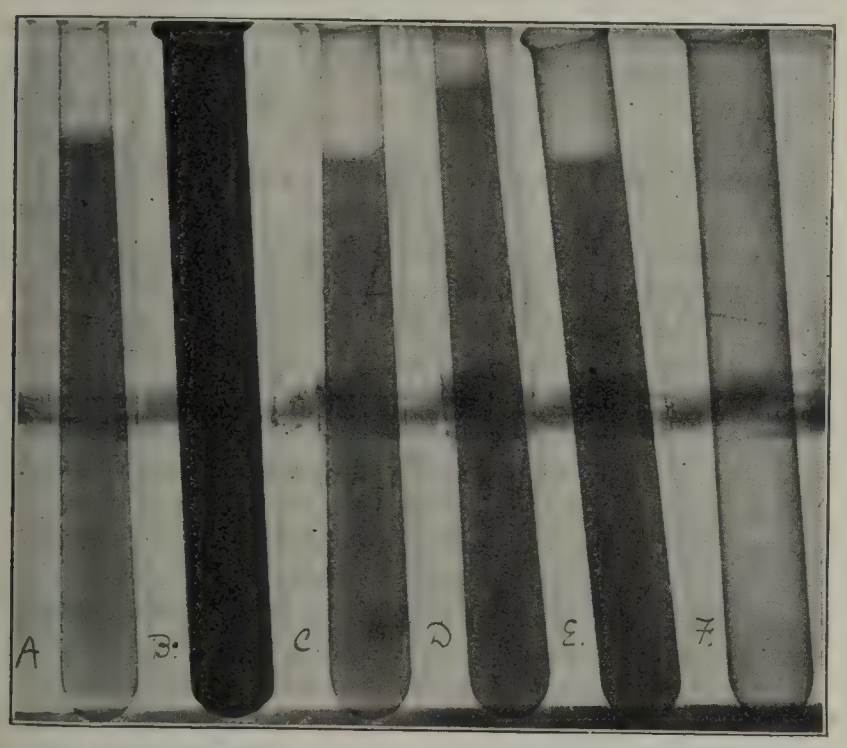


Fig. 3.—Absorption of Roentgen radiation by fluorescent fluids. Tube A. Sol. benzoate of sodium. Tube B. Empty test tube which had held a solution of esculin; it obstructs the *x*-ray as absolutely as would a thick sheet of lead. Tube C. Fluorescin in distilled water. Tube D. Distilled water. Tube E. Sol. esculin in distilled water. Tube F. Ordinary empty test tube.

x-ray, but to no avail. Four months ago the right arm began to increase in size and grew quite large. She then came to me.

Examination.—Brawny edema of right arm; a lump nearly an inch in diameter of stony hardness within the axilla; induration in the scar tissue; extensive induration at the pectoral fold; infection of the skin lymphatics and a few skin nodules; enlarged glands above the clavicle and the personal appearance of carcinosis. She had lost flesh and was sallow, pale and anemic.

Treatment.—The patient was put on quinin and *x*-ray combined. By March 1 the swelling of the arm subsided. Owing to the difficulty of getting the *x*-ray into the axilla, radium bromid, 20 milligrams of 1,000,000 radioactivity in two aluminum tubes, was employed, placed directly on the hard axillary tumor, one hour daily, for a month. A radium "tan" was established and the skin peeled off several times.

Result.—May 26: No sign of disease remains. The cachexia has disappeared. Patient has regained her normal weight and is discharged to await events.

This is the first case in which the cervical glands were involved in which I have seen recovery.

Case 2.—Mrs. L. E. W., July 12, 1904.

History.—About five years ago the right breast was removed by the "plaster" process, on account of a tumor about the size of an orange. Five recurrences have ensued, each one in turn treated by the same method.

Examination.—An open ulcer about three inches long and three-quarters of an inch wide is situated in the center of extensive and widely infiltrated edges of surrounding tissue. A small, hard tumor was found in the axilla; also enlarged glands.

Treatment.—Fluorescin and *x*-ray combined; usual technic and radium, high intensity as in Case 1.

July 27: Ulcer already almost healed.

September 8: The indurations surrounding the cicatricial tissue, the enlarged glands, and the small, hard tumor in the axilla are fast disappearing. The ulcer is long since completely healed.

Result.—October 15: Patient returns home to-day. Careful examination reveals no infiltration and absolutely no sign of her former disease can be found.

Dr. A. Beclere[21] of Paris reports a case of cure of osteosarcoma of the superior maxilla, recurrent after having been twice removed surgically during a period of three years. "Synchronously with the *x*-ray treatments, and half an hour before their application, were administered 50 cgm. of the bichlorhydrate of quinin, as recommended by Dr. Morton of New York." Beclere considers that the details of this case may fairly be considered as indicating that the quinin, through its property of fluorescing when subjected to the influence of the *x*-ray, may have been a factor in producing the cure, but is not ready to commit himself positively on this point without having observed more cases. The reviewer continues: "The case is certainly very important, as the cure of a malignant process involving bony tissue by radiotherapy alone is at present almost, if not quite, an unparalleled event."

I am glad also to note that Dr. R. C. Kemp of New York, following my suggestion of the use of fluorescent solutions in diagnosis and treatment, has demonstrated its value as a means of determining the position and size of the stomach.

Dr. Solomon Solis-Cohen of Philadelphia has brilliantly verified the value of the method, employing a special stomach lamp of his own construction. I have found that the illumination is increased by the use of radioactive water and also that no technic as to fluids and bicarbonate of soda is of special value. A simple solution of fluorescin in plain water (⅛ of a grain of fluorescin to a pint) is all-sufficient to produce a vivid illumination when the stomach lamp is introduced. Doubtless many other applications similar to transillumination of the stomach will follow the method of the internal use of fluorescing solutions I have outlined.

Among cases in which I have found the method useful are carcinoma and sarcoma, lupus, Hodgkin's disease, tuberculosis and phthisis, eczema, psoriasis, and also in many nervous affections and insanity.

SUMMARY AND CONCLUSION.

1. The excitation of fluorescence within tissue is a species of phototherapy and dependable on the same basis for curative effects. The term sensitization is not accurate, for it is not known what the term means. There is no proof that fluorescent substances make the cells or other micro-organisms vulnerable to the exciting radiation.

2. What the fluorescent light lacks in intensity is compensated for by propinquity to tissue.

21. La Radium, July, 1904, quoted from Arch. of Elect. and Rad., September, 1904, p. 355.

3. The methods of Tappeiner, 1900, followed by Dreyer, 1903, consists primarily of superficial applications, or of parenchymatous injections submitted to the action of sunlight or to the action of the electric arc light.

4. The method here outlined consists of a medicinal saturation of the entire blood system with a fluorescent solution and submission of parts or of the whole of the patient to the Roentgen and Becquerel radiations and to electric discharges.

5. The method naturally includes filling cavities with fluorescent solutions, as well as using these solutions medicinally.

6. This method is not of the same category as sensibilitization by Dreyer's method, for the process and the results are different.

7. The curative effects obtained by this method are probably due to the fluorescent light.

8. This method permits of an improvement in skiagraphic effects and of fluoroscopic examinations.

9. Following the suggestions of the use of fluorescent solutions in diagnosis and treatment, the method has proved of value in determining the position and size of the stomach and other cavities of the body.

10. The thoracic cavity presents on the fluoroscope a degree of illumination greater than that produced by the *x*-radiation alone.

11. The method is useful in tuberculosis of the lungs, and in other cases of tubercular deposit, as well as in cancer.

THE DIAGNOSIS AND TREATMENT OF PERFORATION IN TYPHOID FEVER.

WITH A REPORT OF 19 CASES, OF WHICH 16 WERE OPERATED ON, WITH FIVE RECOVERIES.*

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The diagnosis and treatment of acute appendicitis are now so clearly defined and so generally recognized that it hardly seems credible that about twenty-five years ago bitter controversies were being waged in New York City as to the propriety of the use of the aspirating needle in the diagnosis of this condition, and an occasional recovery after the opening of an appendicular abscess attracted great attention.

It was at about this time, in 1884, that Leyden first made the suggestion that perforation occurring during the course of typhoid fever should be treated surgically. Contrast the fact that thousands of cases of appendicitis are now successfully operated on annually and that a paltry 362 cases constitute the whole literature of surgically treated typhoid perforation! And this for a condition which, according to the well-known statistics of Taylor, costs from 20,000 to 25,000 lives yearly in the United States alone.

The surprise, which at first glance seems inevitable, yields on a more careful consideration of the situation. While there are many things in which the two conditions have a close resemblance, there are other important points of difference. The first is that the majority of practitioners see relatively few cases of typhoid fever, and the clinical picture is one which is, unfortunately, only well known in all its various forms to those who have had the opportunity of hospital practice. Appendicitis is a disease of every-day occurrence, and the practitioner whose field of work is even limited has a more or less extensive opportunity for knowing the disease. Then, too, appendicitis strikes in health or after a previous attack, and the differential diagnosis is between unassociated conditions. Perforation, on the other hand, occurs during the course of a disease, the progress of which presents an infinite number of variations, which irregularities may be due to a great variety of causes. The typhoid stupor is not conducive to affording much aid from the patient, and hence we must depend on the intelligent observation of nurses rather than on the subjective complaint of the patient; so that, while the diagnosis of perforation may in some cases be exceedingly easy, in other cases it may be very difficult, and in still others absolutely impossible.

Advances have been made, it is true; yet, when compared with what has been accomplished in appendicitis, much remains to be done to popularize the diagnostic features of perforation, in spite of the fact that not a few excellent papers have been published which present the clinical aspect of this condition in the clearest possible way and leave nothing to be desired. Yet, look at the majority of the text-books now in the hands of students and practitioners and judge whether anyone, from reading even the latest editions of some of them, could recognize the occurrence of perforation early enough to render surgical interference possible. This is all the more unpardonable, since this subject has been so actively and ably studied during the past few years. The lore which lies buried in society reports, hospital bulletins and medical journals is not the working stuff which reaches the general practitioner and guides him in the darkness and despair which envelope these gloomy hours.

This, then, is my excuse for presenting this topic at this meeting, and possibly a review of the recent experiences at Mt. Sinai Hospital may be of some value in showing some of the varied clinical aspects of perforation.

This series of 19 cases of perforation out of a total of 216 cases (8.8 per cent.) of typhoid fever occurring at one hospital may possibly now subserve a better purpose than a collection of cases in different parts of the country, observed by different men under different conditions. Indeed, there is no excuse for this since the statistical side has been so ably treated by Keen, the Johns Hopkins School, Hare, Hays, Elsberg, Harte and Ashhurst, and other writers.

I have restricted myself to the cases which have occurred during the past two years, since those before that time have not been reported in sufficient detail to make them of special value for this purpose.

I am indebted to my colleagues, Drs. Meyer, Rudisch, Berg, Davison and Koplik for their courtesy in allowing me to report the cases which occurred in their services.

It will at once strike you that this is a very large number of cases to report for so short a period. It must remain an open question whether there may not be some seasonable variations which are peculiar to typhoid fever—that is, whether the typhoid bacilli which are responsible for the present epidemic have more ulcerating qualities, if one may be allowed to use this expression; or whether the large number may not be due to peculiarities of treatment; or, again, whether the question may not be explained by the better training and constant watch for the possibility of the occurrence of perforation.

*Read in the Section on Practice of Medicine at the Fifty-fifth Annual Session of the American Medical Association, June, 1904.

As regards the first point, it has been frequently noted that there have been variations in the frequency of perforation. Curschman and Osler also refer to the great variations in the frequency of perforation in different epidemics, both from the clinical and from the autopsy records, the variations being from 4 per cent. to 33 per cent. There is also a difference in the statistics as to mortality from perforation, the German being much lower, Curschman giving 9 per cent. to 10 per cent. as the average mortality rate, while Osler's figures give 30 per cent. of all deaths as being due to perforation.

As regards the influence of treatment in this series, this can be dismissed in the present instance, since the cases occurred in various services and were not subject to any particular plan of treatment.

The third point probably affords the correct solution, namely, our better training and the ability to correctly interpret symptoms which formerly would have escaped notice. I have gone over many hospital reports and series of cases which have been published, and without exception I have noted that, whereas the first few cases occurred scattered at long intervals, the latter part of the series consisted of cases which occurred within a comparatively short time, thus showing that, as each observer's knowledge of the symptoms had improved, so had his diagnostic skill.

That a diagnosis is possible in the majority of cases is shown by the fact that of the 16 cases of this series which were operated on, the diagnosis was verified at the time of operation, and the 3 cases which were not operated on leave no room for doubt, either in the case which recovered or in the two which died.

To attempt any classification of these cases from a diagnostic standpoint is at present both impossible and futile. Thus, it is idle to divide them into the appendicular, the intestinal, and so forth, and it is useless to conjecture what pathologic changes might be present, since there is, unfortunately, no relation between the latter and the patient's symptoms. It is this lack of relation which often makes the diagnostic problem so difficult, and the confusion which has resulted from confounding perforation with a resulting peritonitis must be cleared up if early diagnoses are to be made. No more striking proof of the great extent to which this confusion still prevails can be offered than that which is afforded by the most recent and certainly the most elaborate and best work on typhoid fever in the German and English languages, i. e., Curschman's treatise and its American edition by Osler. In neither is there any index reference for perforation, and it is only referred to under perforative peritonitis.

A much more practical classification is that which is based on the mode of onset, whether abrupt or gradual. This is a useful grouping; it aids greatly in making a prognosis as well as a diagnosis, since a careful examination which I have made of a large number of published cases has demonstrated the fact that cases with an abrupt onset are much more favorable than the other group, because not only is early operative interference possible, but also, as a rule, the general course is more favorable.

In the present series the onset was gradual in 4, all of whom died, 2 having been operated on. In the other 15 cases the onset was abrupt, with 6 recoveries, 5 of which were operative cases. The mortality in the cases of gradual onset was 100 per cent., while in those of abrupt onset it was but 60 per cent.

It is not my purpose to bore you with a wearisome recital of the details of the 19 cases of perforation, since those who are interested will find these data appended in the chart and the report of the cases. Instead, I will try to give, as briefly as possible, the important features which may be serviceable from a diagnostic standpoint.

As usual, males predominated, there being 15 males to 4 females. The ages ranged between 6½ years and 42; 3 were under 10 years, 5 between 10 and 20, 6 between 20 and 30, 3 between 30 and 40, and 2 were 42 years old.

Plunges were used in 5 cases; not used in 14.

Bowels were constipated in 7; diarrhea in 4; variable in 8.

The day of perforation varied from the ninth to the fifty-eighth day of the disease.

	Cases.		Cases.
First week	0	Sixth week	1
Second week	5	Seventh week	1
Third week	5	Eighth week	0
Fourth week	3	Ninth week	1
Fifth week	3		

The onset was gradual in 4, and sudden in 15 cases.

First Symptom:

	Cases.
Abdominal pain	10
Pain and chill	2
Pain and vomiting	2
Vomiting	1
Chill	2
Changes in condition and rise in pulse and respiration	1
Changes in condition and abdominal tenderness	1

Of all the symptoms, pain will always remain the most important. It was present in 17 of the 19 cases of the series, being absent only in the 2 delirious and comatose cases, and in 14 it was the first symptom or onset. As this symptom deserves special attention it will be considered in detail later on.

Of the conditions of the abdomen, tenderness is a very varying symptom as regards extent, locality and severity. A far better guide is abdominal rigidity, which was present in 16 cases, was variable in 2 and absent in 1.

Distension is also an uncertain guide, as it was marked in only 6, was slight in 8 and absent in 3; in some of the latter the abdomen was even retracted.

Movable dullness in the flanks forms quite an important symptom, and was present in 8 cases, absent in 8, and not stated in 3.

As to the obliteration of liver dullness, much more would be gained from this symptom if physicians would make it a rule to note the variations in the size of the liver dullness throughout the disease. The time which is now wasted in examining the spleen during the course of the disease would be far better spent if devoted to the percussion of the liver and abdomen. The obliteration of the liver dullness is best noted in the axillary line, since this area is less subject to disturbing factors from undue distension of the colon and small intestine. The time of the occurrence of the obliteration of liver dullness is variable, and may even be absent in cases of perforation where free gas is localized in the peritoneal cavity by pre-formed adhesions. It was present in 11 cases, and was either absent or of doubtful value in 8 cases.

Posture: All children had flexed thighs.

Temperature: Fell, 3; rose, 9; unchanged, 4; could not be ascertained, 3.

Pulse: Fell, 0; rose, 12; unchanged, 4; could not be ascertained, 3.

Respirations: Fell, 0; rose, 10; unchanged, 6; could not be ascertained, 3.

Number of leucocytes: Rose, 7; fell, 3; no marked change, 6; could not be learned, 3.

Collapse was present only once; sweating, twice.

No observations on changes in blood pressure, to which some observers (Elsner and Crile[1]) have called attention, were made. For obvious reasons this will never be an important guiding symptom in this condition.

Results: Died, 13 (68.4 per cent.); recovered, 6 (31.6 per cent.).

Operated on, 16; died, 11 (68.75 per cent.); recovered, 5 (31.25 per cent.).

Not operated on, 3; died, 2 (66 per cent.); recovered, 1 (33+ per cent.).

In 1902, out of 107 cases of typhoid fever treated at the hospital, there were 9 cases of perforation, with 1 operative recovery and 1 non-operative recovery, giving an operative recovery of 11+ per cent. In 1903, out of 109 cases of typhoid fever, there were 10 cases of perforation, 8 of which were operated on and 2 were not operated on; both of the latter died. Of the 8 operated on, there were 4 recoveries (50 per cent.) If objection be made to including the 2 cases of recovery where fecal abscesses were opened, there would still remain 2 operative recoveries out of 6 cases of perforation operated on, namely, 33+ per cent. of recoveries.

Time of operation (reservation being always made as regards the exactness of such estimation):

	Cases.		Cases.
5 hours	1	21 hours	1
6 hours	3	43 hours	1
8 hours	1	48 hours	1
11 hours	2	72 hours	1
12 hours	2	Unknown	6[2]

I wish to draw especial attention to the diagnostic significance of pain. As already stated, it occurred in 17 of the cases of this series, and in 14 was the very first symptom of onset. It varies in degree and in location. It also varies in its character, but is usually more or less paroxysmal. Its severity may be so marked that the more or less comatose patient may cry out with pain; on the other hand, it may be very mild, indeed. It may remain more or less constant or it may gradually disappear; it may even be concealed, as occured in Case No. 6, to avoid operation. It may be referred to any part of the abdomen, and even to other parts, like the penis, the umbilicus, or to the left iliac fossa. In the latter, which occurred in Case No. 6, an omental abscess was found near the tender area.

It is the constancy of the early occurrence of pain in cases of perforation which renders the proper interpretation a matter of very great importance. The correct appreciation of the exact significance of attacks of

Case No.	Sex and Age.	Bowels.	Day.	Onset.	First Symptoms.	Abdominal Pain.	Chill.	Vomiting.	Collapse.	Sweating.
1	M. 18.	Constipation and diarrhea.	16	Sudden	Vomiting	Yes	No	Yes	No	No
2	F. 6½	Constipation	32	Sudden	Chill	Yes	Yes	Late	Gen. condition bad.	No
3	M. 23.	Constipation	13	Sudden	Chill	Yes	Yes	No	No	No
4	M. 35.	Diarrhea	9	Sudden	Severe pains in right iliac fossa and cramps.	Very severe; at first in right iliac fossa, then general and both steady and paroxysmal.	None	Late	No	Yes
5	F. 42.	Constipation	14	Sudden	Severe pain in abdomen and chilly; also tenderness in vagina.	Severe; at first severe pain in abdomen; later low down in right iliac fossa. Also considerable tenderness in right vaginal fornix.	Yes	Late	No	No
6	F. 42.	Constipation and diarrhea.	58	Gradual; concealed symptoms.	General abdominal pain.	Yes; tenderness in right iliac fossa; moderate abdominal pain.	No	No	No	No
7	M. 22.	Constipation and diarrhea.	18	Sudden	Abdominal pain	Tenderness in right iliac fossa; cramps.	Yes	Late	No	No
8	M. 12.	Constipation and diarrhea.	43	Sudden	Severe pain in umbilicus.	Severe; in umbilicus	No	Yes	No	No
9	M. 22.	Constipation	15	Sudden	Severe abdominal pain	Yes; cramplike	Yes	No	No	No
10	M. 38.	Constipation	18	Sudden	Severe pain in abdomen.	General	No	No	No	No
11	M. 13.	Constipation and diarrhea.	10	Gradual	Pulse and respiration rose	Yes; caused by flexion of thigh.	No	Only late.	No	No
12	M. 7.	Constipation and diarrhea.	14	Sudden	Sudden crampy pain in abdomen and chill.	Yes; cramps	1 at onset; 1 14 hrs. later.	No	Yes	No
13	F. 9.	Constipation	27	Sudden	Sudden pain and vomiting.	Yes; especially on change of posture, lies with thighs flexed.	No	Yes	Yes	No
14	M. 19.	Diarrhea	31	Sudden	Sudden sharp pain and chilly.	Sharp cramps; cries out with pain.	Slight	No	No	No
15	M. 30.	Diarrhea	25	Gradual; hemorrhage preceding day. Onset marked by abdomen becoming somewhat distended: lessening of liver dullness then loss of pint of blood.	Abdomen became distended. Hemorrhage.	No (comatose)	No	No	No	Late
16	M. 16.	Diarrhea	23	Gradual change in patient; slight abdominal distension. Tenderness in right iliac fossa. No pain.	Tenderness in right iliac fossa.	No (delirious)	No	No	No	No
17	M. 21.	Variable	36	Sudden	General abdominal pain and cramps.	Yes	No	No	No	No
18	M. 24.	Constipation	35	Sudden	Severe abdominal pain	Yes	No	No	No	No
19	M. 25.	Variable	15	Sudden	Stabbing abdominal pains both sides.	Yes	Yes	Yes	No	No

1. THE JOURNAL A. M. A., 1903, vol. xl, p. 1292.

2. Further details will be found in the chart of the symptoms of the cases.

pain during the course of typhoid fever is by no means an easy task, and we are greatly indebted to McCrae[3] for his instructive analysis of the relation of pain in 500 cases of typhoid fever. Of this series the most important were the 161 cases (32 per cent.) in which there was more or less marked pain during the course of the disease. In these 161 cases of pain the pain was referred to perforation in 13 cases, to hemorrhage in 13, to some known cause in 65, but in 70 cases no explanation could be found.

This subject is so important that I may be pardoned if I name the various conditions to which the pain was referred in the 65 cases where the cause was discoverable were included several cases in which the pain was very severe and accompanied by rigidity, tenderness, leucocytosis and diminished liver dullness. Two of these cases were operated on; in one only the angry bases of inflamed Peyer's patches could be found; in the other nothing was discoverable. In others of these cases it was surmised that enlarged mesenteric glands might have caused the pain.

McCrae states that of the various conditions in which pain occurred, the association of perforation and hemorrhage was most puzzling. The two cases in my series corroborates this statement. The possibility of the two conditions occurring together should always be borne in

Temperature.	Pulse.	Respiration.	Abdomen.	Flank Dullness.	Obliterated Liver Dullness.	Leucocytes.	Operation.	No. of Hours.	Result.
No marked change....	No marked change.	Rose.....	Rigid; slightly distended.	Yes.....	Yes.....	No great change; 3,500-5,000.	Yes	12	Death.
No marked change....	Rose.....	Rose.....	Rigid; slightly distended.	No.....	Yes.....	Rose 7,400-18,000...	Yes	8	Recovery.
Rose 101-103 and then fell.	Rose.....	No change first day; then rose.	Rigid; much distended.	No.....	Yes (movable)....	Rose 5,600-14,000...	Yes	43	Death.
No change	Rose.....	Rose.....	Rigid; much distended.	Yes.....	Yes.....	Rose 8,600-13,400...	Yes	11	Death.
Rose.....	Rose.....	Rose and fell.....	Lax but tender: not distended.	No.....	Not till late.....	No great change; 3,200-4,800.	Yes	21	Death.
99.8-102: rose.....	100-122; rose...	No change.....	Rigid, especially in left iliac fossa; not distended.	No.....	Not till late.....	Fell 12,000; 5,700-11,000.	Yes	12	Death.
103-106; rose.....	96-136; rose....	No change.....	Rigid; later relaxed; distended.	No.....	General tympany. Later changeable.	8,000-7,000; 7,500...	Yes	9	Death.
Rose 100.2 to 102.2; then fell to 98.6; rose to 104.	100-128; rose...	24-32; rose.....	Rigid; distended...	Slight.....	Yes.....	Rose 9.000 to 14,-000. Three days later fell to 5,000.	No	.....	Recovery.
Fell 102.8-101.8; then rose to 104.2.	96-138; rose....	24-28; rose.....	Rigid; distended...	No.....	Yes, and changeable.	Fell 8,500 to 4,500..	Yes	11	Death.
No change.....	No change....	Rose.....	Great rigidity; distended.	No.....	Yes, and changeable.	Fell 8,500 to 5,300..	Yes	.....	Death.
Fell 103-101.6 and oscillated.	116-140; rose...	30-52; rose.....	Rigid; slightly distended.	Left flank dull and tender.	Yes.....	Rose 5,200 to 11,200	No	.....	Death.
Admitted with perforation.	Admitted with perforation.	Admitted with perforation.	Rigid; distended...	Movable.....	Yes.....	10,400.....	Yes	30	Recovery.
102-105: rose.....	108-174; rose...	Stationary at 34...	Very rigid; slightly distended.	Yes; right iliac fossa not movable.	No.....	Rose 6,000 to 10,600.	Yes	5	Death.
102.4-105; rose.....	90-120; rose....	Abdominal; stationary at 32.	Rigid; slightly distended.	No.....	Yes (3 hours).....	Rose 8,200 to 10,800.	Yes	6	Recovery.
Severe septic type with upward tendency.	Severe septic type with upward tendency.	Upward tendency (thoracic).	Variable rigidity; slightly distended at first; later marked.	No.....	Yes.....	Stationary; 4,900 to 5,800.	No	.....	Death.
No change	100-170; rose...	Irregular; rises and falls 30-45.	Rigid; late distention.	Yes.....	No.....	Rises and falls 11,600-9,800; 11,700	Yes	.....	Death.
Admitted with perforation.	Admitted with perforation.	Admitted with perforation.	Moderate rigidity; no distention.	Yes.....	Yes.....	9,000.....	Yes	72	Recovery.
Fell 102.2-101.6.....	No change....	Thoracic.....	Slight rigidity, but soft; at first concave.	No.....	Slight.....	6,000-6,600.....	Yes	6	Death.
(In hospital). Fell from 105.2 to 101.8.	Admitted with perforation.	26.....	Rigid; retracted, but became more distended.	Yes, but not movable.	Yes, mammillary, not axillary.	14,200.....	Yes	48	Recovery.

ble. They were, first, hysteria, pleurisy, pneumonia, distended bladder, abortion, labor and menstruation; second, gastrointestinal conditions apart from complications, i. e., taking solid food, vomiting, constipation, fecal impaction and diarrhea; third, various abdominal conditions, i. e., appendicitis, peritonitis, cholecystitis, rupture of the gall bladder, liver abscess, painful spleen (rupture or infarction), phlebitis and thrombosis of iliac vessels.

Among the 70 cases in which no cause was discovera-

mind, and McCrae very properly warns against the danger of opium in such cases, since the symptoms may be masked by it. Every case of hemorrhage with marked symptoms should be regarded as being possibly associated with perforation.

It is unfortunate that the time at my disposal does not permit a more careful discussion of these two conditions, for the further consideration of which and the other associated conditions I would refer to the paper above cited and also to a most careful analysis by McCrae and Mitchell on the "Surgical Features of Typhoid Fever."[4]

3. New York Med. Jour., May 4, 1901; see also Martin, de la Douleur Abdominale dans la Fievre Typhoide, These de Paris, 1901, which corroborates McCrae's statements.

4. Johns Hopkins Hospital Reports, vol. x.

The solution of some of these problems of the real significance of pain will be found when we know more about the exact relation of non-perforative peritonitis in typhoid fever. A recent paper by Yates[5] contains a very full bibliography and presents a number of most instructive facts as to its varied relations. Non-perforative peritonitis is one-third as frequent as perforation, since it was found present in 73 out of 4,300 cases (1.7 per cent.) collected by Horton Smith and Hoelscher and Liebermeister.

The symptoms of peritonitis as given by Yates are exactly those of perforative peritonitis, and in the 20 cases which he has collected were so regarded, as will be detailed later on in the discussion of the treatment.

These cases of localized peritonitis without perforation, like the case of Murphy,[6] the 5 cases of Gairdner,[7] the 2 of Shattuck, Warren and Cobb,[8] and others, may be cited as showing how exceedingly important it is to always bear in mind the relation of non-perforative peritonitis in the differential diagnosis of pain.

In drawing practical conclusions from this analysis of the varied clinical features of perforation as it occurred in this series, it will at once be seen that there is no one symptom or group of symptoms which is pathognomonic. Its recognition demands intelligent watchfulness and judgment on the part of the physician, and especially the nurses.

Osler's[9] schema for the observation of symptoms in suspected perforation is a useful guide which should be both studied and used by the physician, and especially for the instruction of nurses.

To my mind the first important fact to note is that there is a more or less marked change in the condition of the patient; associated with this, there is usually some form of abdominal pain which is very variable. The condition of the abdomen as regards tenderness, rigidity, distension, respiratory excursions and the liver dullness which have been routinely observed, now afford valuable aid. Movable dullness in the flanks gives distinct evidence of peritoneal exudate. In the meantime the anxious facies and sweating are significant guides. Changes in the rate and character of the pulse mean much more than do changes in the temperature and respiration. The leucocyte count is of so little value that the general practitioner may very well disregard it in private work Probably more will be gained from a simple hemoglobin test to exclude a concealed or misleading hemorrhage.

Finally, it is the combination of the symptoms, their progressive character and development which must enable one to make a presumptive diagnosis.[10] It is far safer to assume that the symptoms point to the occurrence of perforation and to prepare for possibilities and rapid action than to take the opposite standpoint and wait for the fully developed symptoms of peritonitis.

If these facts be borne in mind it becomes much easier to understand the statements made by all writers that the marked symptoms are not those of perforation, but of the complicating peritonitis. It also becomes easy of comprehension that most physicians expect too many and too pronounced symptoms for an early diagnosis of perforation, for the appearance of which they often sacrifice the golden time for successful operative interference, since the fact is so often overlooked and so seldom understood that the perforation itself causes little shock and may even afford temporary relief.

It is absurd to state definitely in many cases that the perforation occurred at this or that time, and that the operation was performed a certain number of hours after perforation. Such estimates are only approximate and are liable to great errors. We are really only entitled to say that the operation was performed at such an interval after the occurrence of certain symptoms. However, as no other guides are given, this is often the best that can be done, and in what follows I would have such statements as to the time of operation so understood.

The reason for this statement is that the occurrence of acute symptoms does not necessarily mean that this coincides with the time of perforation. Anyone who has seen a number of cases of perforation must have been struck by the difficulty of estimating the exact time of the occurrence of the accident. Corroboration of this will be found in the statement made by Shattuck, Warren and Cobb, that early warning pains, earlier by a definite number of hours than the severe symptoms, occurred in 14 out of the 21 cases of perforation reported by them.

Before considering the question of treatment, a few words may be said as to the possibility of the spontaneous cure of perforation. Most authorities deny this positively. The views of Fitz[11] and Curschman and Osler[12] leave little room for doubt as to the certainty of their convictions. The cases in which spontaneous cures have occurred are supposed to have been either appendicular perforations in the course of typhoid, or cases of peritonitis which have simulated perforation. My own belief, from what I have seen, is that spontaneous cure is possible and probably occurs more often than we think, if the perforation is a small one and is immediately shut off by adhesions or omentum. I may refer to Case No. 8 as one of spontaneous cure, and to Case No. 18, in which a small perforation was found at the autopsy well sealed by adhesion of omentum.

Cases have been reported by Bucquoy, Trousseau, Cruveilhier, Reunert, Bühl, Widal, Dieulafoy, Chantemesse and Remlinger[13] in which recovery has been due to protective adhesions, fibrinous deposits and by the agglutination of intestines, omentum or mesentery. Furthermore, Haegle-Pasavant, Villemin and Walther have reported recoveries with intestinal fistulæ. The cases of Bucquoy and Widal are especially interesting, since the patients having died from other conditions, the evidences of the healed perforations and adhesions were found at autopsy.

Granting the possibility of spontaneous cure, the best results ever claimed for nature's method have been 5 per cent., and even the recoveries with fecal abscesses can hardly be called ideal recoveries. Contrast this with the latest statistics published by Hare and Ashhurst of 362 cases which they collected from the literature, with a recovery of 26 per cent. Granting that these statistics represent in the main successful cases and may not include many unreported unsuccessful cases, yet the contrast is sufficiently striking as to leave no doubt as to the best plan for treatment.

5. American Medicine, May 2, 1903.
6. Keen: Surgical Complications and Sequels of Typhoid Fever, Philadelphia, 1898, p. 238.
7. Glasgow Medical Journal, vol. xlvi, p. 114.
8. Boston Med. and Surg. Jour., June 28, 1900.
9. Philadelphia Medical Journal, Jan. 19, 1901.
10. See also McCrae and Mitchell's summing up of the various symptoms on pp. 410-411, Amer. Med., Sept. 13, 1902.
11. Trans. of the Assn. of Amer. Physicians, vol. vi, 1891, p. 207.
12. Typhoid and Typhus Fever, Nothnagel's Encyclopedia, American translation, p. 233.
13. Bull. de la Soc. Imp. de Constantinople, Seance du 15 Mars, 1901.

This consists in making as early a diagnosis as possible, and this, or a strongly probable diagnosis having been made, an immediate operation is indicated.

It is a matter of great regret that in private practice the patients are under a great disadvantage in regard to what constitutes an early operation, for reasons which are obvious, unless the possibility of surgical complications receive that prompt consideration and action which is afforded to patients in the hospital. No time should be lost by the attending physician in making suitable preparations for the surgeon while he is stimulating the patient and awaiting the final decision as to the course of action. No harm will be done by making needless preparations; much will be gained by making timely preparation for prompt action.

The only exception to the rule of early operation is that moribund patients should not be operated on.

In making the prognosis it must not be forgotten that the patient must still run the gauntlet of the balance of his attack of typhoid fever, in passing through which, however, he will have been made none the worse by the operation. This also holds for those cases in which no perforation has been found, unless, of course, the underlying condition which produced the misleading symptoms should cause a fatal issue. The wonderful endurance and resistance of typhoid patients enable us to hold out a much more hopeful prognosis than would be deemed advisable under other conditions. The operation in skillful hands, with local or general anesthesia, is infinitely less dangerous than the possibilities of the complications of the disease. Furthermore, I have observed that in some of the patients who have survived the operation for perforation, the balance of the disease seems to have been cut short by the operation. McCrae and Mitchell have also observed this. Lenander, quoted by Cushing,[14] discourages delay, and even goes so far as to regard the narcosis and operation as a means for combating the shock due to perforation.[15]

The cases in which a perforation has not been found are often by no means needless interferences, since an impending perforation may be prevented or undue distension may be relieved by low ileostomy, as done by Cushing and Esher. Furthermore, Yates' statistics show that of 20 cases of peritonitis in typhoid fever which he collected, 11 were operated on with 4 recoveries; 9 were not operated on, and all died. Of the 11 cases operated on, one was a case which was operated on for appendicitis, but proved to be a walking case of typhoid fever with peritonitis. All of the others were cases of typhoid fever which were operated on for supposed perforation, but in which only peritonitis was found. Finally, Cushing has reported a case which was under his care in 1889, and was operated on for symptoms of supposed perforation. No intestinal lesion was found except a chronic adherent appendicitis. The removal of the appendix under cocain anesthesia gave immediate relief from the abdominal symptoms, and the patient recovered from his typhoid fever.

If, however, an early diagnosis has not been made, the indications for immediate operation are not so clear and the cases must be individualized as to the advantage of waiting or of operating, since Nature does cure some of these cases. But who can surely pick them out and what means have we at our disposal to know whether the opening has been closed by the adhesion of omentum or by a thick layer of fibrin?

Cases 17 and 19, in which successful operations were performed many hours after perforation, enormous fecal abscesses being found notwithstanding the fact that the patient's general condition was good, show that even a late operation has its indications.

These 2 cases (17 and 19) deserve a few words. No one looking at Case 17 would have suspected that he had nearly two quarts of fecal fluid in his peritoneal cavity—nothing in his condition on his admission to the hospital, even after his transportation, would have warranted this assumption, except a careful consideration of the history and the proper interpretation of the physical signs. To have relied on the clinical text-book description would have been absolutely misleading.

Even more striking is the last case (No. 19). This was a walking case where perforation occurred on the fifteenth day. He was admitted to the hospital twenty-four hours later. A leucocytosis of 14,000 was found; the local rigidity and tenderness in the abdomen lessened; his temperature dropped from 105.2 F. to 101.8 F.; pulse and respiration improved decidedly, and his whole appearance was better. On the following day the only disturbing features were that there was a little more distension, the liver dullness had decreased, and he had vomited twice during the night. The operation was then performed, and an enormous fecal abscess was found. The patient has recovered in spite of a complicating pneumonia. An additional feature of interest is the fact that the Widal reaction was repeatedly negative till the forty-second day; the positive diagnosis of typhoid fever had, however, been made on the twenty-sixth day by the finding of typhoid bacilli in the blood culture.

Wilson of Philadelphia, the earliest advocate of operative interference in this country, wrote as follows in 1886:[16]

> Granted that the chance of a successful issue is heavily against you; that the patient is in the midst, or at the end, of a long sickness; that the tissues are in the worst state to stand the injuries of the surgeon's knife; that the lesions of the gut may be very extensive; that the vital forces are at the lowest ebb; no one has yet for these reasons refused to perform tracheotomy in the laryngeal complications of typhoid fever, which requires it to save life. The operative treatment of purulent peritonitis has been performed successfully many times by gynecologists in conditions scarcely less promising. In point of fact, the objections which may be urged against laparotomy in intestinal perforation in enteric fever are no more forcible than those which would have been made use of at first against the same operation in gunshot wounds of the abdomen. . . . The courage to perform it will come of the knowledge that the only alternative is the patient's death.

Mikulicz[17] stated in 1884:

> If suspicious of a perforation, one should not wait for an exact diagnosis and for peritonitis to reach a pronounced degree; but, on the contrary, one should immediately proceed to an exploratory operation which in many cases is free from danger.

It is hard to believe that these views were written in 1886 and 1884, respectively; it is still more difficult to modify or change in any respect these terse and telling sentences which so truthfully represent the experience and opinions of all physicians who have had practical experience with this most trying complication of typhoid fever.

14. Studies in Typhoid Fever, Johns Hopkins Hospital Reports, Series 3, pp. 229-230.

15. In the cases reported general anesthesia was always used in preference to local anesthesia, unless there was some special contraindication.

16. Quoted from Finney, Johns Hopkins Hospital Reports, vol. viii, p. 56.

17. Curschman and Osler, op. cit., p. 235.

Cases 1 to 7 and 9 have already been published in Mount Sinai Hospital Reports, 1903, vol. iii, pp. 104, 75, 383, 207, 208, 384, and hence the histories are omitted. The details will be found in the chart.

CASE 8.—*Typhoid fever; moderately severe course of long duration; symptoms of perforation on forty-third day; spontaneous recovery.*

Patient.—Hyman B., aged 12, was admitted Oct. 2, 1902, to the service of Dr. Koplik, with a history of typhoid of ten days' duration. Among the early symptoms was abdominal pain, which was present at the time of admission. He had also vomited at different times.

Examination.—White blood count on the day after admission, 10,200. Widal positive in 1 to 50. The liver enlarged three finger breadths below the costal border.

October 8. Temperature approaching normal. General abdominal tympany, but lax. Leucocytes, 5,000.

October 11. Slight abdominal pain on pressure in the right iliac fossa; soon passed off. Lower border of the liver at the free border of the ribs.

October 27 (thirty-fifth day). A sudden short rise of temperature to 104 F.; pulse, 110 to 120; leucocytes, 7,000.

The following week the temperature gradually fell, reaching 99 F. on November 2. General condition good. Pulse 90 to 104; respiration, 24.

November 4 (forty-third day). Morning temperature, 99.1 F. At 4 p. m. he complained of sudden severe abdominal pain at the umbilicus; abdomen rigid and general tenderness, especially in the right iliac fossa. Temperature, 100.2 F.; pulse, 104; respiration, 24; leucocytes, 14,000. At 4:30 p. m. vomited. At 6 p. m. temperature, 102; pulse, 116 to 128. Expression anxious; condition of the abdomen unchanged. Rectal examination showed tenderness in Douglas' pouch. At 8 p. m. the temperature had fallen to 99.8; pulse and respiration remain 104 and 24. At 9 p. m. temperature rose to 104; pulse, 124; respiration, 32. Condition of the abdomen the same. Liver dullness unchanged.

November 5. Midnight temperature, 103.8; respiration, 32; pulse, 128. Abdominal pain was the same; no vomiting. Liver dullness reached from the sixth rib to just above the free border. Abdomen was slightly distended, rigid and with a tender area in the right iliac fossa. Temperature during the day ranged between 103 and 104.4; pulse kept about 120; respiration varied from 26 to 38, superficial. Leucocyte count at 10 a. m. 12,200. At 3 p. m. he still had abdominal pain. Liver dullness was half gone in the middle line. Abdomen rigid; slight dullness in both flanks.

November 6.—Temperature, which had reached 104.4 at 6 a. m., gradually fell during the day, being 103 at 3 p. m., 101 at 9 p. m., and 99.8 at midnight. The pulse rose to 148 at 6 p. m. and then rapidly fell to 130 at midnight. Respiration, 26 at 6 a. m., 36 at noon, 38 at 6 p. m., and fell to 28 at midnight. The abdomen became more distended and was very tender. Liver dullness remained the same; no friction sounds could be heard. Throughout the day the patient's condition remained unchanged, the face being very anxious and the general impression being that of a child who was desperately ill.

November 7. Both pulse and respiration gradually fell during the course of the day, temperature dropping from 101 at 3 a. m. to 98.6 at 6 p. m. Pulse from 110 at 3 a. m. to 72 at 6 p. m. Respiration ranged from 26 to 24. Blood count at noon was 5,800. General condition better; quality of the pulse decidedly improved. Abdomen, especialy the right iliac fossa, being less tender. Dullness in both flanks still persisted; liver dullness remained unchanged. He passed a stool voluntarily.

November 8. Temperature normal. Abdomen less distended; very little tenderness of the right iliac fossa; liver percusses to the free border; leucocytes, 7,000.

Subsequent course of the disease was uneventful; discharged on December 10.

The case attracted a great deal of attention, owing to the fact that the parents refused to have an operation performed, and I am indebted to Dr. Koplik for the privilege of observing the course of this spontaneous cure of a perforation.

As to the occurrence of a perforation on the afternoon of the forty-third day there can be absolutely no doubt, since the presence of pain, rise in temperature, pulse and respiration range, the increase in the number of leucocytes, the occurrence of abdominal distension, the characteristic pain in the right iliac fossa, the tenderness and doughiness of the pouch in the rectum, the partial obliteration of the liver dullness, the dullness in both flanks and the change in the patient's condition, constitute a group of clinical phenomena for which no other explanation than that of perforation with peritoneal effusion can be found. This diagnosis is strengthened by the subsequent disappearance of all these signs.

CASE 10.—*Typhoid fever; severe course; perforation on eighteenth day; operation; death.*

Patient.—Samuel H., aged 38, Russian, was admitted on Jan. 28, 1903, on the fifteenth day of his disease. Markedly alcoholic history.

History.—He had been in bed a few days at a time until three days ago, when he remained in bed constantly. There was obstinate constipation.

Examination.—On admission his condition was apathetic. Abdomen tympanitic, somewhat distended, moderate rigidity, no tenderness, no roseola. The liver dullness extended to the free border. Bronchitis. General condition poor. Temperature, 104.4 F.; pulse, 118; respiration, 28. At 3 p. m. temperature rose to 106, but dropped to 104 F. at midnight. Leucocyte count, 8,400.

January 29. Temperature ranged from 104 to 105.4 F.; pulse between 90 and 104; respiration between 24 and 34.

January 30. Patient decidedly worse, temperature suddenly rising at noon to 107; pulse, 120; respiration, 38. Widal remained negative. At 6 p. m. temperature, 106; at midnight, 105.4; pulse, 120; respiration, 40.

January 31. At 4:30 a. m. he complained of severe generalized abdominal pain with marked rigidity and tenderness, both being more marked on the right side and especialy in the iliac fossa. Complete obliteration of liver dullness anteriorly; dullness of upper border of liver in axilla became tympanitic when the patient was turned on his left side. Respiration thoracic and had fallen to 34, but soon rose to 48. Temperature fell to 104, pulse to 112. At 9 a. m. temperature, 105; pulse, 148 and very weak; respiration, 48. Leucocyte count, 5,800. The abdominal signs unchanged.

Operation.—Consent for an operation having been obtained, patient was transferred to Dr. Liliendal's service for operation. Free fecal fluid in peritoneal cavity; perforation found in lower ileum and sutured.

Patient died eight hours after the operation. No autopsy.

CASE 11.—*Typhoid fever; moderate course; perforation on tenth day; no operation; death.*

Patient.—Joseph C., aged 13, American, was admitted to the children's service July 17, 1903, with a history of typhoid fever of one week's duration. Bowels normal; has had slight pain in the abdomen since onset.

Examination.—The attack was of moderate severity. Positive Widal, 1 to 50. White blood cells, 5,200; hemoglobin, 75 per cent. Abdomen retracted and tympanitic, except in the rigid area over the right upper rectus, where there was some dullness; rigidity of right upper rectus, tenderness in the right iliac fossa. The liver extended from the fifth space to the free border in the mammillary line, and in the anterior axillary line from the sixth space to one finger's breadth below the free border. Spleen palpable; a few roseola. Temperature, 103.8 F.; pulse, 120; respiration, 30.

Treatment.—Plunge on the first day was badly borne and only one given, sponges being used thereafter.

July 19. At 9 a. m. temperature dropped to 100.4, pulse remaining stationary at 110; respiration, 24. At noon, white

blood cells, 9,400. In the evening the temperature rose to 103.4, respiration to 52, pulse to 144, fair quality. No vomiting. Liver dullness not obliterated; abdomen tympanitic except dullness in the left iliac fossa. Flexion of the left thigh caused pain. The breathing is thoracic and superficial.

July 20. General condition unchanged and physical signs as last noted. The temperature at noon had dropped to 100.8, pulse to 128; respiration remained stationary at 48. White blood count, 10,600. At 9 p. m. the temperature rose to 102.4, pulse to 140, respiration to 56.

July 21. General condition the same; abdomen still tense, slightly distended and tender, especially in the left iliac fossa. General tympany, except dullness in the left iliac fossa. Liver dullness in the mammillary line obliterated up to two fingers' breadths above the free border of the liver. In the axillary line dullness from the eighth space to the free border. Lies with thighs flexed. Thoracic breathing; vomits occasionally; bowels respond slightly to enemata; rectal feeding begun. The temperature dropped to 100.6 at 9 a. m., but rose to 102.8 in the afternoon. Pulse kept between 130 and 140. Respiration, which had fallen to 36 in the morning, in the afternoon and evening kept at 52. White blood count at noon, 11,200.

July 22. General condition worse. Extreme thirst; tongue dry and coated; vomits everything. Lies with flexed thighs. Abdomen is tense, slightly distended, especially in the lower half; dullness in the left iliac fossa. Tympany over the liver is one finger's breadth higher than noted yesterday.

July 23. Grew progressively worse. The vomiting was incessant; the abdomen was less rigid but still tender. The liver dullness remained as last noted. The temperature, which had remained at about 100.5 on July 22, fell to 98 at 9 a. m. on July 23, and rapidly rose to 104.8 at midnight; pulse oscillated between 150 and 160; respiration between 36 and 48. Died July 24, 2 a. m. No autopsy.

Comments.—The clinical picture of this case was that of perforation, which probably occurred on July 19. Operation was proposed on that day, but consent could never be obtained.

Case 12.—*Typhoid fever; mild course; perforation on fifteenth day. Admitted with perforation; operation thirty hours (?) after perforation. Recovery.*

Patient.—Harry R., aged 7, American, admitted to the surgical service on Aug. 6, 1903, with a history of typhoid fever of two weeks' duration.

History.—He had really been very ill only for twenty-eight hours before admission, the history being that of an acute onset of severe burning pain in the abdomen, then general cramplike pains, which were most marked on the right side of the abdomen. Vomited once after eating; bowels moved slightly after an enema. Two chills, one at onset and one four hours after the enema. Eighteen hours before admission the child's temperature was 104. These were the only details that could be obtained from the physician who had attended the child before admission to the hospital.

Examination.—On admission the child's general condition was poor. He was somnolent, but when aroused the expression was anxious. Heart and lungs negative. Abdomen was generally distended, rigid, tense and tender, the tenderness being most marked in the right iliac fossa; movable dullness in the flanks; no mass palpable. The liver and splenic dullness was obscured by tympany and rigidity. Rectal examination negative. Temperature on admission was 100.4; pulse, 120; respiration, 22.

Operation.—Patient was admitted at noon and operated on at 2 p. m. by Dr. Elsberg; cloudy fluid was found in the peritoneal cavity. A perforation was found twelve inches from the cecum; the neighboring intestines were covered with fibrin for from three to four inches above the perforation. The perforation was sutured. The appendix was removed but found normal. The peritoneal cavity was irrigated with normal saline solution and the wound sutured.

Shortly after the operation temperature rose to 103.4, pulse to 146, respiration to 44. The subsequent history was that of a rapid convalescence, temperature reaching normal on August 8, the third day after the operation and the seventeenth day of the disease. A positive Widal was obtained on the day after admission, on which day the leucocytes were 10,900.

He was discharged cured Oct. 3, 1903.

Case 13.—*Typhoid fever; moderate course; perforation on twenty-seventh day; operation five hours later; death from perforation of another ulcer.*

Patient.—Becky B., aged 9 years, American, was admitted on Sept. 11, 1903, to the children's service with a history of typhoid fever of eight days' duration. Constipated. The disease ran a course of moderate severity. Leucocyte count between 6,000 and 7,000; hemoglobin between 75 per cent. and 65 per cent. Temperature began to fall on September 28, the twenty-fifth day of the disease.

September 30. Child takes nourishment poorly; slight distension; vomiting. Liver dullness extends from the fifth space to the free border. 6:20 p. m., complained of pain when position was changed; nauseated one hour ago; legs flexed on abdomen; abdomen more rigid and tender, especially on the right side, being most marked in the iliac fossa, where there is dullness, the rest of the abdomen being tympanitic. Dullness in the right flank which is not movable. Liver percusses to the costal border. The temperature, which had been 104 at 1 a. m., and had dropped to 100.8 at 11 a. m., was 102.2 at 3 p. m., 102.6 at 6 p. m., and 105 at midnight. Pulse at 1 a. m., 134; at 3 p. m. and 6 p. m., 108. Leucocytes, 10,600. At 7:30 p. m. the patient went into collapse.

Operation.—At 10:45 the patient, having responded to stimulation, was sent to the operating room, where laparotomy was performed by Dr. Elsberg and a large quantity of yellowish fluid found. Four inches above the ileocecal junction a perforation was found and sutured. There were three other suspicious ulcers within the foot of gut above the ileocecal valve. Irrigation with normal saline solution. Dr. Libman reported bacterium coli in the peritoneal fluid.

Result.—Death occurred twenty-four hours later with marked abdominal distension and rise of temperature, which had fallen after the operation. Twelve hours after the operation the patient seemed to have rallied, but this change was only temporary.

Autopsy.—An ulcer was found through which feces and gas escaped; general peritonitis; fibrinous exudate on coils of bowels; moderate amount of purulent peritoneal fluid; sutured perforation intact; other organs showed the usual lesions of typhoid fever.

Case 14.—*Typhoid fever; walking case; perforation on thirty-first day; operation six hours later; recovery; normal temperature in nine days; long and severe relapse with hemorrhages, severe myo-endocarditis; recovery.*

Patient.—Jacob F., aged 19, Austrian, admitted on Sept. 18, 1903, to male ward I, with a history of typhoid fever of four weeks' duration, but he had only gone to bed six days before. Diarrhea, four or five stools a day.

Examination.—On admission temperature, 104; pulse, 132; respiration, 26. Positive Widal; white blood count, 8,200. Abdomen lax, tympanitic; roseolæ on chest and back. Hemorrhagic eruption over the right tibia. Liver extends from the sixth rib to one finger's breadth below the free border. General condition good.

September 21, 4 a. m. Complains of sudden, sharp, sticking, cramplike pain in the lower abdomen, most marked in the right iliac fossa. Temperature rose from 102.2 to 105. Slight chill. Temperature 105 at 5 a. m. Pulse rose from 90 to 120. Looks somewhat worse, being distinctly sicker, crying out with pain, which is continuous with exacerbations. Rigidity and tenderness in the right iliac region; nothing palpable; no other rigidity. Some tenderness in the left iliac fossa. Whole abdomen tympanitic. Liver dullness extends from the fourth space to two finger's breadths above the free border, where there is tympany. No obliteration of liver dullness in axilla. Slight abdominal distension, most marked in epigastrium. Respiratory movements present in abdomen. Respiration causes pain. Resists flexion of legs. No sweat. 7 a. m., general condition the same. Tongue dry; no change in temperature or pulse rate. Quality of pulse very good. Rigidity very much increased in

right iliac fossa and extends upward to free border of ribs. Rigidity in left iliac fossa as high as umbilicus. Liver flatness obliterated anteriorly as high as tenth rib (tympany). Flat and dull area in axilla over liver became tympanitic with patient on left side. No signs of fluid. Pain somewhat diminished. 9:30 a. m., condition the same. Temperature, 105.6. Transferred to second surgical service and operated on by Dr. Elsberg.

Operation.—Laparotomy disclosed a moderate amount of cloudy serous fluid. About eight inches from the ileocecal valve a perforation was found and sutured. About a foot further on there was a suspicious ulcer which was also sutured. The abdominal cavity was flushed with normal saline solution and closed. The peritoneal fluid contained the bacterium coli.

The patient made an uninterrupted recovery from the operation except for some vomiting and distension, the typhoid fever running its course and the temperature coming down to normal on September 29. On September 30 began a severe relapse.

Relapse.—October 5, patient had a hemorrhage and was sent back to the medical service with a sinus due to infection of the abdominal wall. No further hemorrhages. Relapse exceedingly severe owing to the fact that he suffered from a severe myocarditis superadded to an old endocarditis. For eight days (up to October 13) patient was *in extremis*, the pulse being exceedingly poor in quality and very irregular, both in rate and force, at times being imperceptible for hours. After eight days the cardiac condition improved and the temperature fell to 98.8, immediately shooting up again to 103, where it remained until October 17, when it became normal. The patient was discharged cured Nov. 4, 1903.

CASE 15.—*Typhoid fever; very severe course; profuse hemorrhages; perforation on twenty-fifth day; no operation; death.*

Patient.—Abram L., aged 30, Austrian, admitted on Sept. 26, 1903, to male ward I, with a history of typhoid fever of two weeks' duration.

Examination.—His general condition on admission to the hospital was poor. Temperature, 105.6; pulse, 120; respiration, 30. Liver extends to the free border. Abdomen somewhat distended and tympanitic; no rigidity. Positive Widal, 1 to 50. White blood cells, 8,600. The case ran an extremely severe, septic course with marked delirium, subsultus, etc. Moderate diarrhea; fairly marked distension of abdomen but no tenderness.

This severe toxemia continued until October 5 (twenty-fourth day) when, at 9 a. m., he had an intestinal hemorrhage of about four ounces. Temperature dropped from 104.4 to 101. Pulse rose from 94 to 114. White cells, 4,900. Abdomen soft; no tenderness, no rigidity. Liver percusses to the free border. At 8 p. m., temperature, 103.4; pulse, 110; white cells, 4,500. In the afternoon a subcutaneous gelatin injection was given and a gelatin enema was also used.

October 6. During the night had two hemorrhages, about a pint altogether. Temperature fell from 104.4 at 3 a. m. to 99.2 at 3 p. m. The pulse dropped from 110 to 82; respiration the same as yesterday, 32. White cells, 5,800 at noon; 5,400 at 6 p. m. During the day the patient's condition became worse; abdomen somewhat distended but not tender; liver dullness obliterated for three finger's breadths above the free border; flatness beginning at the sixth rib; dullness not obscured in the axilla. At 6 p. m., abdomen not distended, but somewhat rigid, especially in the right iliac fossa. Respiratory movements absent in the upper part of the abdomen, with general tenderness, especially in the lower half. Liver dullness decreasing in the mammillary line, reaching to fifth rib, but not obscured in axilla. No nausea, vomiting, chill nor leucocytosis, the count at 6 p. m. being 5,400. Temperature between 99.2 and 102.2; respiration, 38; pulse between 90 and 100. The symptoms gradually increasing, a perforative peritonitis was diagnosed, but operation was not permitted.

October 7. Eight a. m., condition worse; hippocratic facies; marked subsultus; cold sweats; pulse, 120; respiration, 35; temperature, 100.6; white blood cells, 5,000. Vomited for the first time, the vomitus being brownish. Abdomen is more distended, with greater tenderness in the lower half; liver tympany reaches fifth space in the mammillary line, being two finger breadths higher than yesterday. Spleen entirely obscured. Respiration thoracic. Much flatus expelled through rectal tube. At 9 p. m. temperature fell to 98.6; respiration, 38. This improvement was of temporary duration only, for the pulse, respiration and temperature rapidly rose and the patient died at 1 a. m. on October 9. No autopsy.

CASE 16.—*Typhoid fever; severe course; perforation on twenty-third day; operation; death.*

Patient.—Jacob C., aged 16, Austrian, was admitted to the male ward I, Oct. 27, 1903, with a history of typhoid fever of insidious onset and of twenty days' duration. He took to bed twelve days previously on account of chill, severe headache, fever and abdominal pain; he also had profuse sweats and from five to six diarrheal movements daily.

Examination.—On admission general condition only fair; delirious; abdomen generally tympanitic; slight tenderness, but no rigidity. Liver flatness in the mammillary line extends from the seventh space to the free border edge, being just palpable. Spleen palpable. Temperature, 105; pulse, 100; respiration, 26; white blood count, 11,600. Widal positive, 1 to 50.

October 29. At 6 a. m., general condition not so good. Abdomen slightly distended and tender, especially in the right iliac fossa. General tympany; liver dullness obliterated in the axillary line, in the axilla flatness to the free border. The temperature, which had fallen from 104 at 3 a. m. to 101.8 at 6 a. m., rose to 104 at noon; pulse, which had remained at 88, rose to 100 at noon, and respiration rose from 23 at 6 a. m. to 37 at noon. 6 p. m., no special change in the patient's condition, but it is noted that there is increased abdominal rigidity; no distension; no pain, but slight general tenderness; no vomiting; no chill. Liver dullness at the fourth space in the mammillary line; in the axilla sixth space. Temperature remained steady at 104.5, but the pulse rose at 6 p. m. to 130, dropped to 102 at 9 p. m., and rose to 124 at midnight. Respiration, which had fallen to 28, rose to 37 at midnight. No special character about the breathnig. Leucocyte count at 9:30 p. m., 11,700.

October 30. Signs the same with the exception that there was a little more distension and there was dullness in the left flank. Diarrhea.

Operation.—Diagnosis of perforation having been made, he was transferred to the service of Dr. Lilienthal, who operated at noon and found a perforation low down in the ileum, covered with omentum; fibrinous adhesions; no free gas nor feces in the peritoneal cavity, only some cloudy serum. The perforation was sutured, but the patient never rallied after the operation. There was continuous vomiting and in spite of vigorous stimulation he died on November 3.

Note.—The exact time of perforation could not be determined in this case owing to the patient being delirious and to the vagueness of the onset of the symptoms.

CASE 17.—*Perforation at the end of the fifth week of typhoid fever; operation two days after perforation; evacuation of large fecal abscess; artificial anus; drainage; recovery.*

Patient.—X., aged 21, Russian, was admitted on Nov. 13, 1903. He had been ill with typhoid fever for five weeks, having been referred to the hospital by Dr. Alfred Meyer, who had seen him in consultation. The details of the history of his illness are very vague.

History.—Two days previously he had had an attack of severe general crampy abdominal pain; since then there had been severe general abdominal tenderness. No chill at onset; did not vomit and has not vomited since; has had no movement of the bowels even after an enema; no gas has passed.

Examination.—On admission his general condition was fair and he certainly did not give one the impression of a patient who had a large quantity of purulent fluid in his abdomen, as was afterward found at the operation. The abdomen was generally tympanitic, tender and distended; the lower border of the liver and spleen obscured by tympany; there was movable dullness in both flanks. Temperature on admission, 100.2; pulse, 120; respiration, 26; white blood count, 9,000.

Operation.—He was immediately operated on by Dr. Moschcowitz. There were adhesions of the coils of gut to the abdom-

inal wall, collections of foul, yellow pus being found between the coils; there was a large abscess in the pelvis and a perforation the size of a quarter of a dollar was found in the ileum and sutured. The edge of the perforation was sutured to the peritoneum, the abscess was drained with a tube, and the rest of the wound closed in layers.

Result.—November 14. The temperature, which had arisen to 104 nine hours after the operation, fell to 99 in twenty-six hours. His convalescence was uninterrupted. The artificial anus was subsequently closed and the patient left the hospital cured in the middle of December.

Case 18.—*Typhoid fever; walking case; perforation on thirty-fifth day while on bed-pan; operation six hours later; death.*

Patient.—Samuel L., aged 24, was admitted Dec. 14, 1903, to male ward I, with typhoid fever of three weeks' duration. For two weeks he had taken cathartics for the constipation a number of times, the last cathartic being taken two days before admission. Has been in bed for only two days. Fever has only been marked since the day before admission. Has complained of abdominal pain for two days.

Examination.—On admission temperature, 102; shortly after that he had a severe chill, after which the temperature rose to 105. Abdomen is lax, no distension, no tenderness. Liver dullness to the free border, not palpable. Widal positive, 1 to 50.

The course of the disease was severe. Various blood counts between 5,000 and 6,000. Abdomen was scaphoid; no tenderness.

December 26. Patient improving; temperature beginning to fall, ranging between 102 and 103; leucocyte count, 6,000; abdomen negative.

December 27. At 4:30 a. m., while the patient was on the bed-pan, he suddenly experienced a severe abdominal pain which caused him to cry out. This lasted only a short time and when seen fifteen minutes later he was quiet. Pulse, 100. Abdomen somewhat scaphoid and soft, but with slight rigidity over the lower part of the right rectus muscle. Patient lies with thighs flexed; tenderness in the lower half of the abdomen, especially on the right side. General tympany; tympany over the liver two fingers' breadth above the free border in the mammillary line; no axillary tympany. Breathing thoracic and upper abdominal. Temperature at this time, 102.8; pulse, 100; white blood count, 6,600. At 6:30 he had another attack of pain. Pulse rose to 116. At 9 a. m. patient's general condition was the same; had one stool which contained no blood. No nausea, vomiting, chill nor collapse. Pulse of fair quality; temperature has fallen to 101.6. Rectal examination negative.

Operation.—At 10:45 a. m. he was operated on by Dr. Gerster; duration of operation, 45 minutes. Free fluid was found in the peritoneal cavity, but no free gas or fecal material; no peritonitis; no injection of intestine. A small perforation was found in the lower ileum surrounded by a necrotic area and was closed by Lembert suture. No other perforation was looked for on account of the poor condition of the patient at this time, pulse being 160 and of poor quality.

Following the operation the temperature rose to 105.6, then fell rapidly. Pulse after the operation, 132, and respiration, 32.

December 28. Temperature has fallen to 96.2; pulse, 82; respiration, 22. No nausea nor vomiting, but complains of some abdominal pain, with slight distension and tenderness in the epigastrium. Liver flatness obliterated from the sixth space downward in the mammillary line. In the afternoon there was hiccough; vomited once in the evening; bowels moved during the day. In the evening pulse grew more rapid and feeble. Patient died at midnight.

Wound Examination.—A sutured perforation with sutures intact was found in the ileum ten inches above the cecum and a second perforation beyond this, this being protected by the adherence of the omentum. No peritonitis present.

Case 19.—*Typhoid fever; walking case; admitted with perforation, which had occurred on fifteenth day; operation forty-eight hours later; fecal abscess drained; recovery.*

Patient.—Jacob M., aged 25, Russian, admitted to male ward 2, Dec. 10, 1903, with a history of walking typhoid of two weeks' duration.

History.—Stopped work two days before admission because he felt "sleepy," but did not go to bed. Had one watery yellow stool each day. No abdominal pain until the day before admission, when he had severe, sudden sticking pain in the lower abdomen on both sides, which caused him to go to bed. Was chilly, vomited some watery fluid at the onset of the pain. The vomiting persisted every fifteen minutes. That night he was seen by a physician, who found a temperature of 106; pulse, 120. At 5 a. m. on the day of his admission the pain and vomiting had abated.

Examination.—On admission to the hospital at 9 a. m. his general condition was good. Temperature, 105.2; pulse, 110; respiration, 26; white blood count, 14,200; negative Widal. Abdomen retracted and tender, especially on the left side; walls rigid and tympanitic. Dullness in the left flank; dull tympany in the right flank, but no change with change of posture. Liver dullness begins at the fourth space; no flatness; tympany begins three fingers' breadth above the free costal border in the mammillary line, the same in the axillary line. Spleen, in axillary line, dullness at the sixth rib, becomes tympanitic four fingers' breadth above the free border. Rectal examination: On the left side, high up, a small, irregular mass which was not hard nor tender, could be felt.

Urine: Trace of albumin, hyaline casts, a few blood cells.

After admission he twice vomited bile-stained fluid and the abdomen became more distended. There was an elliptical area of tenderness the size of an orange in the left iliac fossa midway between the symphisis and the umbilicus. The tympany over the liver had risen two fingers' breadths above the line first noted.

Operation.—There was delay in obtaining consent for operation, which was not performed until 6 p. m. by Dr. Lilienthal. A median incision was made below the umbilicus, two and one-half inches long. To the left of the median line, corresponding to the area of tenderness above noted, a large fecal abscess was evacuated. No further exploration was made. Tube drainage.

The further course of his disease was that of a severe typhoid.

December 11. Condition of the patient worse; temperature ranged between 102 and 103. Frequent vomiting, but no abdominal tenderness except over the wound. Slight icterus. Leucocytes, 13,600; negative Widal. Hypostasis at both bases.

December 13. Leucocytes, 7,100.

December 14. Leucocytes, 7,400. Vomiting has ceased. He now takes nourishment by mouth. Temperature range, 102; general condition better.

December 15. Temperature still high. No rectal mass to be felt.

December 21. Still running continuous temperature between 102 and 103; general condition fair. Fecal fistula persists; granulations healthy. Repeated Widal tests having been negative, a blood culture was made by Dr. Libman, who reported the presence of typhoid bacilli in the blood. The first positive Widal, 1 to 50, was reported five days later, December 26, the thirty-first day of the disease. It remained positive thereafter.

The further course of his disease was complicated by a pneumonia and a right otitis which required perforation.

Temperature reached normal on January 12. The fecal sinus closed at the end of January, when he was discharged cured.

DISCUSSION.

Dr. William Osler, Baltimore, stated his opinion that one of the most important and essential things in these cases is intelligent watchfulness on the part of the physician looking for changes in the patient's condition in typhoid fever. In hospital practice this is easy; there the specific things the house physician should look for in typhoid fever can and should be explicitly stated in writing. The physician should be kept on the *qui vive* looking for these changes and should be ready to report them promptly to the attending physician within ten

minutes after they have been noted. Dr. Osler also emphasized the need for the prompt co-operation of the surgeon. In general hospital cases there is not time to call the attending surgeon and, therefore, when the case has been carefully studied and diagnosis of perforation made, the house surgeon should immediately operate. The last case at the Johns Hopkins Hospital, he said, illustrates the importance of this. A strong, robust German, in the tenth or eleventh day of the disease, at 12 o'clock was suddenly seized with pain in the abdomen. He was seen by Dr. McCrae and was also carefully watched by the resident surgeon. He was operated on at 3 o'clock. The interesting thing was that the operation seemed to make no difference in the progress of the case. The perforation was found, was fixed and the patient made an uneventful recovery from a very severe attack of typhoid fever. The records of 19 cases with perforation that were operated on show that 7 recovered, which is an average of 33 per cent. and is as good as can be expected in a general hospital where the very severe cases are received, sometimes even with perforative peritonitis.

DR. J. C. WILSON, Philadelphia, said that one of the rules that he gives the resident physicians, particularly in the German and Pennsylvania hospitals, is to ascertain the conditions as regards rigidity as a mater of routine at every visit. The mere suspicion of rigidity of the right side, at the right lower quadrant of the rectus muscle, requires a report at once to the general physician. Pain, particularly if with rigidity, should make the physician notify the surgeon to come prepared to operate, and the patient should be made ready to go to the operating room without waiting for the coming of the surgeon. That is one of the most important points regarding the routine management of enteric fever from the standpoint of early diagnosis of perforation. On the other hand, said Dr. Wilson, in several cases sudden intense pain occurred on the right side of the abdomen, in the iliac region, with rigidity of muscles, but with very little constitutional disturbance; in a few hours these symptoms passed away and the patient was left apparently as well as previously. There was no perforation and he was at a loss to account for it. Dr. Wilson is strongly of the opinion that hemorrhage and perforation very rarely occur at the same time, but he thinks that hemorrhage is not rarely a precursor of perforation and, therefore, that a vigilant watching is very necessary. The time has come for the profession seriously to consider opening the abdomen to stop the bleeding.

DR. MORRIS MANGES, New York, agreed with Dr. Osler's points and said that the whole trouble of diagnosis in typhoid perforation in the early stages is that the general practitioner wants too much for diagnosis.

EARLY DIAGNOSIS AND OPERATIVE TREATMENT OF GASTRIC CANCER.

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The hopelessness of pyloric cancer, or, indeed, of any form of gastric cancer when the diagnosis has become so plain that "he who runs may read," and the possibility of affording prolonged or even permanent relief if timely surgical interference could be advised, makes its early diagnosis of paramount importance. Unfortunately, it is one of the most difficult chapters in internal medicine, and it must be confessed that we are to-day without a single pathognomonic sign of early pyloric or other gastric cancer. The fact is that in most cases of gastric cancer, as in many other chronic diseases, the initial stages are practically symptomless. Symptoms, however, usually supervene at a comparatively early stage, and many of these cases would have a possible chance for more or less successful surgical treatment if these symptoms were given proper consideration and the patient placed under the care and treatment of a physician skilled in gastric disorders. In general, it may be said that any case of progressive and intractable stomach disease, especially if developing in an otherwise healthy patient, or even in a patient who has had a very prolonged but comparatively slight digestive disorder, should not be allowed to continue more than five or six weeks without an accurate diagnosis being made by a competent physician. It is possible that at such an early stage the only thing that can be determined is an existing gastritis; but the character of the secretion and the motility of the stomach muscle can be determined and noted as a starting point for further observation of the case. Later, if the patient does not improve with favorable environment and proper local and general treatment, but instead grows progressively worse, there comes a time when an exploratory laparotomy should be advised for the two-fold purpose of determining the presence or absence of a neoplasm and its removal if present. Just when this point arrives can not be decided by any fixed rule, but is a matter of clinical judgment in the individual case under consideration. It must be decided on the basis of all available facts concerning the chemistry of digestion, the débris of the fasting stomach, general nutrition, metabolism, etc., no one of which will be sufficient to make out a very strongly probable case, but which taken together may create a suspicion so strong as to warrant, or even to demand, that the patient be offered an exploratory procedure.

It may be said that the results of pylorectomy for cancer have not been sufficiently good to justify the procedure. If this is true, and it is easily debatable, it is because the diagnosis has not been made sufficiently early. Physicians have not been willing to take the responsibility of advising an exploratory laparotomy while the case remains in doubt, and this procedure is necessary if therapeutic results are to be obtained. There is no doubt whatever that cancer is primarily a local disease, and that if it can be sufficiently early recognized and eradicated by free incision, a permanent cure may reasonably be expected. It seems to me that it is our duty, therefore, to be on the alert and to advise operation at what seems to be the proper moment. It is simply a question of clinical judgment as to when such a procedure is justifiable, and if any serious attempt is made to meet these questions in the manner indicated, it must now and then happen that a mistaken exploration will be made. This, however, with the perfect technic of present abdominal surgery and the practically complete absence of mortality in simple exploratory procedures, is not a matter to be dreaded so much as the possibility of permitting a case of incipient cancer to pass the operative period.

The following case, as the history will show, was operated on too late, although the operation was advised immediately after my examination. It was postponed about two weeks by circumstances connected with the patient, but this, of course, did not substantially change the conditions, which were obviously far beyond radical operative relief.

Patient.—Mr. B., aged 40, laborer, was referred to me by Dr. R. E. Brokaw, Portland, Ind., Sept. 1, 1904.

History.—The patient complained of indigestion beginning seven months previously, although for several years there had been a slight disturbance of gastric digestion. The first symptom referable to his present condition was a pain occurring in the region of the stomach with occasional vomiting coming on without reference to meals. This had grown progressively

worse with, however, periods of exacerbation and of amelioration. The bowels were constipated and there was considerable flatulence, mostly referable to the region of the stomach, which was the cause of more or less pain. He said that at times there was a large transient swelling in the left epigastrium which was very painful, and on manipulation gave rise to gurgling sounds and finally would disappear with a sound of a splashing or gushing character.

Examination.—The general nutrition had been somewhat impaired. His weight in health was from 135 to 140 pounds, and at the time of my examination was 119 pounds. Physical examination was negative except that I thought I could distinguish, in the pyloric region, a small, hard nodule, tender on pressure, but quite movable, but this was not very distinct. Analysis of a test meal (Ewald test breakfast) showed 50 degrees of free HCl, total acidity of 150 degrees, strong biuret reaction, with very little unchanged starch. No lactic acid. The fasting stomach contained a dirty brownish fluid with large quantities of mucus, leucocytes and broken-down red blood corpuscles. There was a slight, even doubtful, trace of lactic acid and numerous Oppler-Boas bacilli. The blood examination showed 50 per cent. of hemoglobin, 3,000,000 red cells and 7,000 leucocytes. Analysis of the urine revealed nothing unusual except fibrinuria. Examination with the cardiometer showed the distance from incisors to stomach to be sixteen inches and revealed a moderate dilatation of the esophagus for from four to five inches above the cardiac. A subsequent test meal showed 30 degrees of free HCl.

Diagnosis.—On the basis of the clinical history, physical examination and stomach analysis, a probable diagnosis of pyloric cancer was made and operation advised. Pyloric stenosis was positively diagnosed, the only question being as to its malignant or non-malignant character.

Operation.—The operation was performed two weeks later by Dr. Miles F. Porter, and a pyloric cancer of considerable size was found. There were secondary deposits in the gastrohepatic omentum as high as examination could be made, and it was decided to be too late for resection and a gastroenterostomy was made.

Result.—The patient made a good recovery, but, of course, will succumb within a few months.

The probabilities are that in such a case as this the symptoms began sufficiently early to make a radical procedure possible if we are only willing to act on a strong suspicion corroborated by careful and somewhat prolonged study of the case.

In another case, seen only two weeks before death, too late for any operative procedure, the symptoms had been pronounced for months, and yet, so far as could be determined, the disease was limited absolutely to the pylorus without any secondary deposits whatever, and in this case also there would have been an excellent opportunity for a radical extirpation of the tumor with a fair chance of permanent cure if action had been taken early.

What now are the clinical manifestations which will justify or demand an exploratory procedure in the interest of these cases in the future? From what has already been said, it is plain that any categorical answer can not be given to this question. In some cases, the disease is latent to so late a period that it is manifestly impossible even to suspect the existence of the disease during its early stage. In one of my cases, for instance, an elderly man consulted me on account of a slight indigestion of a few weeks' duration. I urged him to permit me to make a physical examination which he declined to do on that occasion, but insisted on my prescribing something for temporary relief, saying that he would permit me to make the examination later. He really appeared in fairly good health, and from his appearance I had not the slightest suspicion of malignant disease. About two weeks later, I was asked to call at his residence, and found that he had been vomiting typical coffee-ground material, and on placing my hand over the stomach found a tumor half as large as an orange. He died two or three weeks later. This man apparently was in his usual health until within five or six weeks of the time of his death. He had retired from business and his habits were not active, and this, perhaps, masked the debility which must have been present to a greater degree than was suspected.

In cases of gastric cancer occurring in stomachs previously normal, and in which the symptoms manifest themselves with more or less suddeness, a strong suspicion of malignancy should be entertained at once, and only sufficient time taken in the study and observation of the case to establish its progressive character. It must be remembered that in such a case the onset of symptoms is not contemporaneous with the inception of the disease, but simply marks the point of development at which gastric function and perhaps general nutrition become impaired. The latent stage may be brief or long, according to the location, rapidity of development, and nervous organization of the individual case, and it is always possible that the first obtrusive symptom may not be very early. My own observation in regard to nutrition is certainly contrary to that of Krönlein, who mentions emaciation as the earliest symptom. Nutrition is likely to suffer slowly, soon after the development of positive symptoms, but in a large majority of my cases other symptoms, such as pain, vomiting, etc., have distinctly preceded emaciation. This, for instance, was true in the case reported in this paper. The patient was in his ordinary health seven months before, being referred to me without any perceptible diminution of weight or strength, and yet the symptoms arising at that time undoubtedly marked a more or less advanced stage of the pyloric cancer. This appears to me to be an important question, as too much stress is commonly laid on the state of general nutrition. There is no reason why a purely local disease involving the pyloric end of the stomach should impair nutrition and cause emaciation until it produces obstructive phenomena of some sort. There may even be improvement of nutrition after the development of symptoms referable to the local lesion, and more or less improvement of general health, but this, of course, will be transient in character. In the two weeks, for instance, which elapsed between my examination of the case recorded and his return for operation, he gained three pounds in weight, both weighings having been made either by myself or by my assistants in my own office, and careful reference being made to clothing, etc. It is undoubtedly true that in many cases emaciation is an early conspicuous symptom, but it should be fully recognized that there are many exceptions to this rule, if, indeed, it is the rule at all.

Stomach analysis, as a rule, will give only corroborative evidence. In fact, in the early stage which we are now considering, there are no exceptions to this rule, and the corroborative evidence itself may be slight or lacking. The absence of free HCl or the presence of lactic acid can not be assigned a high value in the diagnosis of gastric cancer, except as they corroborate other findings. Many cases are on record, like the one already reported, in which free HCl is present in normal quantities, and it is well known that it may disappear in simple gastric catarrh. The same remark applies to lactic acid which was really absent from the test meal

in this case, and is frequently present, as is well known, in certain forms of non-malignant disease. The Oppler-Boas bacillus is very frequently associated with gastric cancer, but it simply means a certain type of lactic-acid fermentation, and while I attach more importance to it than I do to the HCl and lactic-acid phenomena, it is only strongly corroborative, as I have found it in several cases which were undoubtedly benign in character, as proved by subsequent history, as have other observers also. Atypical mytosis, which was thought by Hemmeter and others to have considerable diagnostic value, is not distinctive. It is somewhat characteristic of rapid neoplastic formation, and if found with great frequency is entitled to some consideration in summing up the total findings.

The pain and vomiting of gastric cancer are in no sense distinctive, and may be duplicated in non-malignant disease. The anemia which is so marked in some cases is purely a secondary phenomenon, and the leucocyte count is not significant. Even absence of digestion leucocytosis only means that the products of digestion are entering the blood slowly, or that the reactionary power of the phagocytic mechanism is greatly impaired, and this could only be a late phenomenon and without value for our present purposes.

The prolonged retention of stomach contents, or as Einhorn calls it, ischochymia is a symptom of considerable value, and occurs rather early. It is simply an expression of gastric myasthenia, with possible pyloric obstruction, and may occur in other cases, and, moreover, it is not likely to be marked at a stage when diagnosis is most important and most desirable. Like the other symptoms, therefore, it is only corroborative, and it is undoubtedly true that many a stomach with fully developed cancer may have practically unimpaired motility and empty itself perfectly.

We can omit from our present consideration such phenomena as coffee-ground vomit and a well-defined tumor, cancerous fragments in washwater, etc., as they do not belong to the stage of the disease under discussion.

In summing up the diagnostic data, we are admittedly unable to place our fingers on a single symptom or analytical finding, the presence of which can be relied on to establish the diagnosis of early gastric cancer, and the absence of which can exclude it. This, perhaps, may be said to be true of any combination of several symptoms. This is unfortunate because of the impossibility of establishing a general diagnostic formula, but it does not justly express the possibility of the experienced and skilled diagnostician of establishing a probable diagnosis strong enough to justify surgical intervention. In fact, it is very largely a question of the individual case and the individual diagnostician. A few general propositions, however, may be set down even at the risk of repetition.

The earliest symptoms of gastric cancer are simply the manifestation of disturbed gastric function and may present almost any type of disturbance influenced, of course, by the location of the neoplasm, the rapidity of its growth, and the vulnerability of the muscular and secretory apparatus and the nerve centers, the original vigor of the digestive apparatus and the virility of the organism as a whole. As an initial symptom there may be pain in one case, vomiting in another, impaired secretion in another, and emaciation in still others. When a patient, therefore, presents himself with some form of gastric disturbance, the first information to obtain is an accurate history of its development, its duration, its progressive or unprogressive character, the state of the general nutrition, etc. The characteristic thing about the nutritional disturbance in gastric cancer is its slow development; it may, of course, be rapid, but this is probably exceptional. It is to be presumed that the external physical examination will be negative, although Mayo Robson says it is still not too late to attempt relief even if a palpable tumor is present. The next step is to secure the contents of the fasting stomach in the morning before breakfast; if there is no fluid, any detritus that is present should be secured by irrigation. A careful chemical and microscopic examination may throw some light on the diagnosis. The presence of lactic acid, of the Oppler-Boas bacillus, of the evidences of an associated gastric catarrh, and of broken-down blood cells are all more or less significant. An Ewald test breakfast should then be given, and the character of the digestive processes critically studied. The presence or absence of HCl, its amount if present, the intensity of the biuret reaction, or its absence, the presence or absence of the various enzymes are salient points here. The motor function, in some measure, will be determined at the same time, but should be studied further by an examination of the stomach contents at varying intervals after larger meals.

The summing up of all the data thus obtained will rarely, if ever, justify a prompt positive diagnosis of gastric cancer in the early stage. However, it usually will strengthen or dispel the suspicion, and will serve as a starting point for such further clinical study and observation of the case as the importance, obscurity and difficulty of the questions involved imperatively demand. This means that the patient should be continuously under critical study[1] and treatment, the therapeutic tests being of the utmost importance, although, as already indicated, they may prove temporarily misleading.

It is not my purpose to enter into an extended discussion of the operative treatment of gastric cancer, as this is entirely outside of my province, except as an observer of the work of others. One of the most discouraging points which makes the internist hesitate to advise radical procedures is the very large mortality attending gastrectomies. About one-third of all the patients die from the effects of the operation. This is a frightful mortality, and one which ought to be reduced if cases are taken to the surgeon earlier. Haberkant says that with extensive adhesions the mortality is 70 per cent., and without them, 27 per cent. We thus see that even without adhesions more than one-fourth of all the patients die from the effects of the operation. When we can be assured of a mortality of not over 10 or 12 per cent. in the absence of adhesions, and with a fairly good general condition, the operation can be urged on a patient with better grace.

It appears to me that gastrectomy should be the operation of choice, as gastroenterostomy is admittedly only palliative in character, and does not by any means offer the same degree of relief as a radical gastrectomy does. This is shown by the average duration of life after the two operations for gastric cancer. Patients live, on an average, after gastroenterostomy from three to four

1. The amount of time varies widely. In some cases three or four days is sufficient, in others three or four weeks or even longer. These latter cases are the ones in which suspicious tendencies occur and in which the influence of treatment on the stomach function is important. Ordinarily one or two weeks' time is ample.

months, after gastrectomy, more than a year. The reasons for this are sufficiently plain. When recurrence takes place after a gastrectomy, it is presumably from the secondary deposits which could not be removed, or because of an insufficiently wide excursion of the knife in removing the segment of the stomach. It is quite natural that these deposits should not develop so rapidly as the original active focus of the disease, probably in a state of disintegration on the mucous surfaces. Beside this, the hemorrhages and septic secretions from the ulcerating surfaces debilitate and poison the patient when a gastroenterostomy has been done. as no change whatever has been made in the local morbid process, and such benefit as does accrue is simply the result of better drainage of the contents of the stomach.

The question as to whether the presence of a palpable tumor makes it too late for surgical intervention is a most intensely interesting and practical one. It is probably true, in a vast majority of cases, that when the growth has reached a stage when it can be palpated through the abdominal wall sufficient metastases have occurred to make a complete removal impossible. In exceptional cases, however, this may not be true, and I have seen at least one case in which a somewhat doubtful palpable growth was apparently strictly limited to the pylorus without secondary deposits. Even if a radical cure can not be anticipated, the relief of from one to two years which should follow a gastrectomy would be worth while as a simple palliative procedure, could it be shorn of its terrible mortality. In conclusion, I wish to affirm with all the emphasis possible the fact which Riegel so forcibly points out, that if we are ever to get better results in dealing with gastric cancer, it will be when the internist acquires the diagnostic acumen necessary to enable him to strongly suspect malignancy, and possesses in addition the courage necessary to enable him to act on that suspicion before it becomes a certainty. In order that this may fairly be demanded of him, however, ample opportunity must be offered for study and observation of the case; and for this he is entirely dependent on the promptness with which the family physician recognizes the doubtful nature of the case and refers it for diagnosis. As a matter of fact, the primary responsibility really rests with the family physician who, in too many instances, treats obscure and intractable gastric disorders in a routine manner with only a faint suspicion of their real pathology, and who, in so doing, permits cases of malignant disease to drift supinely on until they enter that realm above whose portals may well be inscribed Dante's words:

"Abandon hope, all ye who enter here."

SOME COMPLETE URINE ANALYSES.

J. H. LONG.

CHICAGO.

A search through the chemical and physiologic literature will show that comparatively few complete analyses of urine, representing the full day's excretion, are on record. In the course of some other work, I found it necessary to make a number of lengthy determinations of this kind, and I present here the results obtained.

Beside the organic substances, urea, uric acid and creatinin, the urine contains essentially combinations of three inorganic acids and five inorganic bases. That is, there are combinations of sodium, potassium, ammonium, calcium and magnesium with hydrochloric, sulphuric, and phosphoric acids, the last two being largely products of oxidation metabolism. Some of the text-books of urine analysis and of physiology make rather misleading statements about the relations which exist between these substances and the limits within which they vary; and the old errors are still repeated in regard to the normal volume of urine excreted. It is the object of this paper to give some new and accurate data on these and on other points.

THE NORMAL VOLUME OF THE URINE.

Many of our standard data on physiologic chemical matters have been taken from German sources, and in so doing we sometimes make the error of accepting statements which can not be true under American conditions. The average daily liquid consumption here is much below that in Germany, while the consumption of solid foods is certainly higher. The average volume of from 1,500 to 2,000 c.c. of urine for the day is far too high for our conditions, while a specific gravity of from 1,015 to 1,020 is correspondingly low. Among our text-books, the recent work of Charles Simon, "Physiological Chemistry," is the only one I have examined carefully which makes a correct statement on these matters. I will add some figures of my own. In a series of 24 observations, in which the whole day's excretion of a number of men was saved, I found the average volume to be 1,167 c.c., with extremes of 765 c.c. and 1,950 c.c. The average specific gravity was 1,025 at 20 degrees, referred to water at 15 degrees as standard. In a second series of 24 examinations of the urine of vegetarians, a mean volume of 874 c.c. was found and a specific gravity of 1,030 under the same conditions. In a third series of examinations of male students, janitors and nurses, I found a mean volume of 1,221 c.c., and for the same number of urines from female nurses, I found a volume of 859 c.c. These results were secured in 1900 and in 1901. More recently still other collections from various sources have shown a volume of about 1,200 c.c. as an average, and this is certainly as high as should be taken for male urine.

In calculating the day's excretion for the specific gravity by the use of the Trapp or Haeser coefficient, these facts become of importance. In using these coefficients it must be remembered that they are based on a specific gravity at 15 degrees, generally, compared with water at the same temperature. At the present time, following a suggestion of Squibb, many urinometers are graduated for a temperature of 25 degrees, and usually without a statement as to the comparison water temperature.

CHEMICAL ANALYSES.

Six complete analyses have been made by methods which need but little explanation. The alkalies were separated from 100 c.c. of urine as pure chlorids, by the Bunge process,[1] and the presence of potassium was determined with platinum chlorid. Calcium and magnesium were found in 200 c.c., and ammonia in 50 c.c. by the Schloesing method, the result being corrected by a previously determined factor. Chlorin was found by the Volhard-Arnold process, the excess of silver used in titration being measured after filtration. Phosphoric acid was found by the uranium titration, with use of cochineal as an indicator. The total sul-

1. Neubauer und Vogel: **Analyse des Harns, 10th ed., p. 738.**

phates were found in 50 c.c. by precipitating with barium chlorid in the presence of excess of hydrochloric acid, the mixture being kept hot for eight hours on the water-bath. The precipitate is collected on a Gooch asbestos funnel, washed with water and then with alcohol. By using the right kind of dense asbestos it is not at all necessary to destroy organic matter in the urine by chlorate and hydrochloric acid before precipitating. The precipitate may be collected and washed without the slightest loss, and rapidly, too, if properly chosen asbestos is employed. This is preferable to any method by which a great deal of foreign matter must be introduced in the purification.

I found urea by the mercury method, correcting the results by the method I explained in a former article.[2] The amount of uric acid was determined by the Hopkins process, and the creatinin by the Neubauer-Salkowski process.

To secure amounts of urine large enough to work with, I took for each analysis the mixed urines of three individuals for the twenty-four hours, the excretion for the three averaging 3,600 c.c. in each case. Three analyses were made on urines of men in normal health who were consuming a mixed animal and vegetable diet. In another set of tests I used three mixed vegetarian urines, collected from several individuals in the same way. In these cases the amount of urine for each day was smaller, averaging about 1,000 c.c. for each person. The results are given below in grams per 100 c.c. Numbers 1, 2 and 3 are the ordinary urines, and Numbers 4, 5 and 6 the vegetarian.

I must add, in explanation of this, that the men furnishing these urines live exclusively on vegetable foods, and were students and teachers in the American Medical Missionary College, Chicago and Battle Creek. To show the effect of a vegetable diet, urine collected in this way is much more satisfactory than is urine from persons kept on such a diet for a few days for experimental purposes.

TABLE 1.

TABLE OF RESULTS. GRAMS PER 100 C.C.

	1	2		4	5	6
Specific gravity 20°/4°	1.024	1.020	1.026	1.017	1.028	1.021
Urea	2.85	2.60	2.97	2.11	2.95	2.80
Creatinin	0.175	0.179	0.1414	0.0252	0.0910	0.105
Uric acid ($C_5H_2N_4O_3$)	0.0641	0.0691	0.0876	0.0549	0.0769	0.0838
Ammonium, NH_4	0.0900	0.0840	0.1080	0.0800	0.0745	0.0576
Potassium, K	0.1980	0.2455	0.2604	0.1416	0.4872	0.3869
Sodium, Na	0.3820	0.3710	0.4647	0.3419	0.3578	0.2705
Calcium, Ca	0.0104	0.0086	0 0132	0.0031	0.0164	0.0130
Magnesium, Mg	0.0092	0.0121	0.0152	0 0144	0.0225	0.0341
Chlorin, Cl	0.7366	0.7160	0.7739	0.5274	0.8165	0.5893
Phosphoric acid, PO_4	0.1143	0.1742	0.3135	0.2062	0.3111	0.2230
Sulphuric acid, SO_4	0.1640	0.1964	0.3230	0.1965	0.2790	0.2039

It will be observed that there is great difference in the composition of these urines, and that there are wide limits in the relation of potassium to sodium. Table 2 shows the relation of the basic substances to the inorganic acids present, and for this purpose the combining power of the bases is expressed in terms of sodium and the acids in terms of chlorin.

In Table 2 the phosphates are assumed to be of the type M_3PO_4 and the urates of the type $M_2C_5H_2N_4O_3$. The acids found are accordingly much more than sufficient to combine with all the bases. In the mixed normal urine, however, the acid phosphates and probably the acid urates are always present so that the excess of free acid, when calculated in this way, would be much diminished. Table 3 gives the total bases and the acidity per 100 c.c. when the phosphoric acid is assumed to act in salts M_2HPO_4 and the uric acid as $MHC_5H_2N_4O_3$.

2. THE JOURNAL A. M. A., May 30, 1903, p. 1508; Jour. Am. Chem. Soc., vol. xxiii, 1901, pp. 632-638.

TABLE 2.—Na AND Cl EQUIVALENTS.

URINE 1.

.0900 NH_4	= .1150 Na	.7363 Cl	= .7366 Cl
.1980 K	= .1165 Na	.1640 SO_4	= .1213 Cl
.3820 Na	= .3820 Na	.1143 PO_4	= 1281 Cl
.0104 Ca	= .0119 Na	.0641($C_5H_2N_4O_3$)"	= .0274 Cl
.0092 Mg	= .0176 Na		1.0134
	.6430		

.6430 Na = .9924 Cl.

URINE 2.

.0840 NH_4	= .1073 Na	.7160 Cl	= .7160 Cl
.2455 K	= .1445 Na	.1964 SO_4	= .1452 Cl
.3710 Na	= .3710 Na	.1742 PO_4	= .1953 Cl
.0086 Ca	= .0099 Na	.0691($C_5H_2N_4O_3$)"	= .0295 Cl
.0121 Mg	= .0233 Na		1.0860
	.6560		

.6560 Na = 1.0126 Cl.

URINE 3.

.1080 NH_4	= .1380 Na	.7739 Cl	= .7759 Cl
.2604 K	= .1532 Na	.3230 SO_4	= .2389 Cl
.4647 Na	= .4647 Na	.3135 PO_4	= .3514 Cl
.0132 Ca	= .0152 Na	.0876($C_5H_2N_4O_3$)"	= .0375 Cl
.0152 Mg	= .0291 Na		1.4017
	.8002		

.8002 Na = 1.2350 Cl.

URINE 4.

.0800 NH_4	= .1022 Na	.5274 Cl	= .5274 Cl
.1416 K	= .0833 Na	.1965 SO_4	= .1453 Cl
.3419 Na	= .3419 Na	.2062 PO_4	= .2312 Cl
.0031 Ca	= .0036 Na	.0549 $C_5H_2N_4O_3$)"	= .0235 Cl
.0144 Mg	= .0276 Na		.9274
	.5586		

.5586 Na = .8622 Cl.

URINE 5.

.0745 NH_4	= .0952 Na	.8165 Cl	= .8165 Cl
.4872 K	= .2866 Na	.2790 SO_4	= .2063 Cl
.3578 Na	= .3578 Na	.3111 PO_4	= .3487 Cl
.0164 Ca	= .0188 Na	.0769($C_5H_2N_4O_3$)"	= .03.9 Cl
.0225 Mg	= .0431 Na		1.4044
	.8015		

.8015 Na = 1.2371 Cl.

URINE 6.

.0576 NH_4	= .0736 Na	.5893 Cl	= .5893 Cl
.3869 K	= .2275 Na	.2039 SO_4	= .1508 Cl
.2705 Na	= .2705 Na	.2230 PO_4	= .2500 Cl
.0130 Ca	= .0149 Na	.0838($C_5H_2N_4O_3$)"	= .0358 Cl
.0341 Mg	= .0654 Na		1.0259
	.6519		

.6519 Na = 1.0062 Cl.

TABLE 3.

No.	Bases as Na	Acids as Cl	Deficiency of Acid, as Cl
1	.6430	.9570	.0354
2	.6560	1.0062	.0064
3	.8002	1.2142	.0208
4	.5586	.8386	.0236
5	.8015	1.2714	(.0346)+
6	.6519	.9247	.0875

This method of calculation exhibits an excess of the basic elements in all but the fifth urine. This urine was characterized further by a very high electrical conductivity. In all cases, however, another acid is present, the importance of which is commonly overlooked. This is carbonic acid, which plays a part as essential as that of ammonium, which likewise is usually omitted from consideration. The amount of carbonic acid normally present is much more than sufficient to form bicarbonates with the excess of bases indicated above.

Table 4, calculated empirically, gives an idea of the more important combinations as formed from the elements of the above analyses. The numbers refer to grams per 100 c.c., and for convenience in comparison the phosphates are figured as neutral salts.

The figures show, fairly correctly, the relative importance of the sodium potassium and ammonium salts. In all cases the chlorin is sufficient to combine

with all the sodium, and, in the first, second, fifth and sixth urines, with a large part of the potassium also. In 2 cases, Nos. 5 and 6, the total weight of potassium salts is greater than the weight of sodium salts present. The ratio of the sodium to the potassium is shown by the following table:

TABLE 4.

	1	2	3	4	5	6
NaCl	.9716	.9436	1.1819	.8696	.9100	.6880
KCl	.3089	.3013	.1191	.....	.5554	.3610
K_2SO_4	.0804	.1951	.4411	.3154	.4363	.3704
$(NH_4)_2SO_4$	.1646	.1222	.1098	.0312	.0527	.....
K_3PO_4	.....	.....	.....	.....	.....	.0565
$(NH_4)_3PO_4$	.1244	.1399	.2155	.1973	.1653	.1591
$Ca_3(PO_4)_2$	.0269	.0222	.0341	.0080	.0423	.0336
$Mg_3(PO_4)_2$	.0255	.0440	.0553	.0524	.0818	.1062
Mg, excess	.0022	.....	.....	.....	.....	.0055
" excess	.....	.0395	.1152	.0375	.1204	.....

TABLE 5.

	1		3	4	5	6
$\frac{Na}{K}$	1.92 9	1.511	1.784	2.414	0.734	0.700

In the three ordinary urines, the ratio is nearly uniform, with the sodium in considerable excess. In the vegetarian urines, Nos. 5 and 6, the ratios are close, with the potassium in excess. In No. 4, however, which is also a vegetarian urine, the ratio is peculiarly abnormal, the sodium being in very great excess. In consulting the table from which these ratios are taken, it will be seen that this urine is low in basic bodies throughout; the sodium is not high here, but the potassium is unusually deficient. In this urine the sodium and the chlorin are present in practically exact equivalents.

It will be interesting also to compare the excretions of urea and uric acid in these six urines. The relation is shown in Table 6.

TABLE 6.

	1	2	3	4	5	6
$\frac{Urea}{Uric\ acid.}$	43.8	37.2	33.6	38.3	37.9	32.9

The average ratio for the ordinary urine is 38.3 to 1, and for the vegetarian urine 36.4 to 1. The difference is not great enough to be considered as in any sense characteristic. It has been claimed that in the urine of vegetarians a relatively greater portion of the nitrogen is excreted as urea and less as uric acid, but these figures do not bear out the assumption.

The vegetarian urines all contain creatinin, although somewhat less than the others. This result confirms some data which I have previously reported,[3] and is important in proving beyond question that creatinin is a product of metabolism and not, as stated by many physiologists, a produce derived from the creatin of muscular food. The diet in the cases considered contained no creatin.

Finally, attention must be directed to the relatively high combining value of the ammonium present. In one case, it is more than equivalent to the potassium, while in two other cases it is but little below. The amount for the vegetarian urines is slightly lower than for the others, but in previous investigations the reverse has been the case. In this respect, therefore, as in others, there seems to be no characteristic difference between the two kinds of urine.

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3. Jour. Am. Chem. Soc., xii, p. 592.

Special Article

IMMUNITY.

CHAPTER X.

THE PHENOMENON OF AGGLUTINATION.

Agglutination, in the bacteriologic sense, refers to the clumping and sedimentation of micro-organisms from a homogeneous suspension by the action of a serum. This is the so-called Gruber-Widal reaction.

A number of investigators had already seen that serums would often cause the clumping of bacteria, but Gruber and Durham first saw the significance of the phenomenon. They saw that only certain serums would agglutinate a particular bacterium, that the reaction was a specific one, and that the serum which would cause the strongest agglutination of a micro-organism was that of an animal which had been made immune to it by repeated injections.

Specificity.

Widal's service consisted in the utilization of the phenomenon as an aid in the diagnosis of typhoid fever. He is the originator of clinical serum diagnosis. It is perhaps largely a matter of accident that we speak of the Widal reaction rather than the Grünbaum reaction; Grünbaum was carrying on the same work at the same time, but Widal preceded him in the publication of his more extensive work.

Widal and Grunbaum.

In the chapter on natural immunity it was stated that normal serums sometimes were able to agglutinate bacteria. Normal human serum may agglutinate the typhoid, colon, pyocyaneus, and dysentery bacilli, and occasionally the staphylococcus and cholera vibrio; it does not agglutinate the streptococcus and some other organisms. In certain cases it may agglutinate the typhoid bacillus even when the serum is diluted to one in thirty, a point of practical importance in the clinical use of the test. When a normal serum is found to have a high agglutinating power, a previous infection by the micro-organism is to be thought of. This possibility receives emphasis from the fact that the serum of a new-born child is devoid of many of the agglutinins which are found in later life. Hence, of the so-called normal agglutinins, many, after all, may be acquired properties.

Normal Agglutinins.

The term immune agglutinin is applied to the agglutinating substance of a serum, when the property has developed as a result of infection, or of systematic immunization with the organism. They are formed during infections with the organisms of typhoid, cholera, dysentery, plague, etc.

Immune Agglutinins.

When produced artificially, the bacteria may be injected into the veins, subcutaneous tissue, and peritoneal cavity; in some cases they may be fed to animals, rubbed into the skin, or sprayed into the lungs. If certain micro-organisms are sealed up in a collodion sac and placed in the abdominal cavity of an animal, an agglutinating serum will be formed; the necessary substances diffuse through the sac and reach those body cells which produce the agglutinin. It is not necessary that living bacteria be injected; in fact, the strongest agglutinin is said to be formed by the injection of bacteria which have been killed by a temperature of 62 C. In certain instances, disintegration products and precipitates obtained from bacteria are efficient.

Nearly all bacteria, even when non-pathogenic, will give rise to an agglutinating serum when injected; but not all have the power equally. Nicolle and Trenell distinguish three groups of bacteria in regard to their agglutinability by their homologous serums.[1] The first group includes easily agglutinable organisms, for the most pathogenic: Typhoid, dysentery, cholera, plague, glanders, and the

Agglutinin Producing Organisms.

1. The homologous organism for a typhoid serum, for example, is the typhoid bacillus, and vice versa; other organisms, or other serums, are heterologous. These are commonly used terms.

colon, psittacosis, pyocyaneus bacilli, and the *B. enteritidis*. They yield agglutinating serums readily either as a result of infection or by immunization. The second group comprises organisms which, during infection or convalescence, do not produce agglutinins, but they may be forced to do so by the systematic immunization of animals. In the third group are included those which, even during prolonged immunization, rarely cause the formation of an agglutinating serum: the Friedlander bacillus. These facts may be taken as an index of the diseases in which we expect to obtain the agglutination of a bacterium by the serum of the patient.

Variations in Agglutinogenic Power of Organisms.

The degree of agglutinating power which may be obtained by immunization varies greatly. Van der Velde speaks of a typhoid serum which in a dilution of one in one million was agglutinating, and Durham had a cholera serum which was effective in a dilution of one in two million. Such powerful serums are rarely obtained.

Even two different strains of the same organism may be very unequal in their ability to cause the formation of agglutinins. It is generally said that the typhoid bacillus, which is itself agglutinated with difficulty, gives rise to a weak agglutinating serum, while an easily agglutinable strain gives a strong agglutinin. The logic of this will become apparent when we consider the nature of the bacterial substance which stimulates to the formation of agglutinin.

Variations in Agglutinin.

That the agglutinating power of the serum of a typhoid patient varies from day to day is a fact of practical importance. It may be thirty times as strong one day as the next, and may even disappear entirely for a day or two. Hence the importance of making more than one test in a suspicious case, when the first trial has been doubtful or negative. There is no adequate explanation for this great variation. It is said that mixed infections, intestinal hemorrhage, or a sudden pouring out of typhoid bacilli into the circulation may cause a sudden reduction in the agglutinating power. This occurrence has an important bearing on the possibility of using the agglutinating power of the serum as a prognostic sign; although it has often been noted that in fatal infections agglutinins may be absent from the serum, the variations just mentioned indicate that prognosis could not be based safely on the result of a single agglutination test.

Distribution of Agglutinins in Body.

The agglutinating substance is found in the highest concentration in the blood serum, but it may be demonstrated in the various body fluids and in the extracts of organs; it is said to be particularly rich in the milk. It is present in the serum of an artificially produced blister, and it has been recommended that blistering be resorted to in order to obtain the serum for the test. The bile often agglutinates the typhoid bacillus, but the power has no necessary relationship to a pre-existing infection: it is possible that the agglutination in this case is due to obscure chemical causes rather than to the usual serum agglutinin. The administration of pilocarpin causes a rise in the agglutinating power of the tears, sputum and some other body fluids; the drug increases cell secretions.

Inheritance.

When a pregnant woman has typhoid fever, agglutinins have been found in the serum of the fetus. In some cases, it has been held that agglutinin may pass from the mother to the fetus, in others, that the presence of agglutinins arose from infection of the fetus itself.

Although the milk may be very rich in agglutinin, it is doubtful if the serum of a breast-fed child undergoes much increase in its agglutinating power because of the ingestion of the milk. The gastric and intestinal juices digest the agglutinin.

The origin of agglutinin in the animal body is not known. Inasmuch as the blood serum has the power to the greatest degree, it may be formed and excreted by the leucocytes; but this is not satisfactorily established.

Agglutination and Immunity.

One of the most interesting and important phenomena in the study of immunity is the so-called Pfeiffer reaction. An animal which has been made immune to cholera by repeated injections of the cholera organism, has the power of digesting or dissolving the cholera vibrio when the latter are placed in the fresh serum or in the peritoneal cavity of the immunized animal. Gruber and Durham were studying this phenomenon in the test tube when they first observed the agglutination reaction. It was found that the agglutinating property, as well as the bactericidal power, was the result of immunization. Inasmuch as the bactericidal power was associated with the immunity of the animal, the question naturally arose: Does this associated property, the agglutinating power, go hand in hand with the bactericidal power as an evidence of immunity?

Many observations have been made which show that the two are entirely distinct, and that they depend on different substances in the serum. The following are the important points involved:

1. The bactericidal power is destroyed at 56 C., while the agglutinating power resists a temperature of 62 C.

2. In certain cases it has been possible to cause the bacteria to absorb the agglutinin from the serum, leaving the bactericidal substance intact.

3. A serum may be bactericidal but not agglutinating.

4. During the course of natural or experimental typhoid fever or cholera the development of the agglutinating and bactericidal powers may not be parallel. In cholera, the agglutinating power may disappear soon, but the bactericidal power remains for a long time.

5. Micro-organisms which have been killed by a bactericidal serum may lose their virulence, agglutinated bacteria do not.

6. There is as yet no convincing evidence that bacteria are agglutinated in the body of an immune animal, the fluids of which apparently are able to kill the organism.

Besredka found an apparent relationship between agglutination and immunity; if typhoid bacilli were agglutinated before they were injected into the abdomen of a guinea-pig the animal would recover, but if they were not agglutinated death resulted. The explanation which others have offered for this loss if virulence is that the bacilli being agglutinated and immobilized are more readily taken up by the phagocytes; if phagocytosis is inhibited by some means the agglutinated organisms are found to be still virulent.

Koch has attempted to use the agglutination test with the tubercle bacillus as an index of the immunity of the individual against tuberculosis. This is not accepted as a reliable test for the immunity, but is perhaps a general index of the ability of the individual to form antibodies for this organism. This method was devised inasmuch as the bactericidal test with the serum and bacillus gave no positive information; the serum does not kill the tubercle bacillus.

Technic of the Agglutination Test.

One may use two methods of determining the agglutination of bacteria: 1. The macroscopic or naked eye observation of the clumping and sedimentation of a homogeneous suspension of the bacteria in test-tubes; 2, the microscopic observation of the clumping of the organisms when the latter are mixed with serum and mounted as a "hanging-drop" preparation.[2]

The Bacterial Suspension.

When the organism to be tested grow[illegible] custom to use a young culture, one which has grown on an agar surface or in bouillon for from eighteen to twenty-four hours. Older cultures of the typhoid bacillus or of the cholera vibrio are agglutinated with more difficulty than a young culture. If the agar culture is used, the bacteria may

2. For a hanging-drop preparation it is necessary to have a slide with a saucer-shaped depression on one surface. A drop of the solution to be examined is mounted on a cover-glass, and the latter is then mounted, drop side down, over the depression and the edges of the cover-glass sealed with vaselin or paraffin. There is ample room for motile organisms to swim about in such a preparation, and the loss of motility incident to agglutination is readily observed.

be washed from the surface by pouring into the tube five or ten cubic centimeters of physiologic salt solution and shaking vigorously; the resulting suspension is then ready for use. For either the macroscopic or microscopic test it is absolutely essential to have a homogeneous suspension of the bacteria, in order to avoid misinterpretations which may be occasioned by the accidental or natural clumping of some of the organisms; the tubes should be shaken thoroughly before the emulsions are used. This uniformity of suspension is readily accomplished with such organisms as the typhoid bacillus and cholera vibrio, motile organisms; but when they grow in chains (streptococcus) or in coherent masses (diphtheria and tubercle bacilli) more violent measures must be resorted to. Daily shaking of a liquid culture of the diphtheria or tubercle bacillus is fairly effective, but the medium must be passed through a paper filter before it can be used safely; in this way the larger clumps are removed. Some investigators dry a large quantity of tubercle bacilli, grind them up thoroughly in an agate mortar and suspend the particles in salt solution; the fragmented condition of the organisms does not interfere with their participation in the agglutination reaction. One should have a uniform technic in preparing a bacterial emulsion in order to obtain as nearly as possible the same number of bacteria in a given volume of solution, on different occasions. For example, one may uniformly suspend a twenty-four-hour agar culture in ten cubic centimeters of salt solution. There is a certain quantitative relationship between the mass of bacteria to be agglutinated and the agglutinating power of the serum.

To Obtain Serum.

To obtain serum for the test one may resort to blistering; place a cantharides plaster from one-half to three-fourths of an inch square on the abdominal skin, protect it with a dressing, and in about twelve hours remove the serum with a sterilized hypodermic syringe. Or, one may collect in a small test tube .5 to 1 c.c. of blood from the lobe of the ear or finger-tip, and draw off the serum after it has separated by clotting. It is the custom in some well-equipped laboratories to fill several U-shaped capillary tubes with blood from the lobe of the ear and to separate the blood from the serum at once by centrifugation. The custom of drying a few drops of blood on a coverglass or on filter paper, and of sending this preparation to a laboratory for the agglutination reaction, has been practiced quite extensively, and is a justifiable procedure when it is not possible to collect the pure serum. It has the disadvantage that the experimenter never knows exactly how much blood has been collected, and consequently can not perform the test with exact dilutions of the serum, the importance of which will be pointed out below. The red corpuscles and débris in such a preparation also interfere with the clearness of the field in microscopic examination, a difficulty which may be partly overcome by filtering the dissolved serum.

Serum Dilutions.

When only a small amount of serum is available, it is necessary to use the microscopic method. Normal human serum, when concentrated, and even when diluted to one in ten or higher, sometimes agglutinates the typhoid bacillus and some other organisms; the same serum, when diluted to one in forty or one in sixty, may not agglutinate. The serum of a typhoid patient, however, or of a typhoid convalescent rarely fails to agglutinate in these higher dilutions. It is generally held that a dilution of one in forty or fifty is sufficiently high to eliminate the possibility of agglutination by a normal serum, and sufficiently low to render the serums of all, or nearly all, typhoid patients agglutinating. The necessity for dilution of the serum is emphasized by the additional fact that infections with related organisms, as the colon bacillus, cause a slight increase in the agglutinating power for the typhoid bacillus along with a relatively large increase of colon agglutinins. A test with a low dilution of this colon serum might give a positive reaction with the typhoid bacillus and might lead to an incorrect interpretation; but if a dilution of one in forty were used, the non-agglutination of the typhoid bacillus would speak against a typhoid infection. This will be considered later under "group agglutination."

The "Loop" Measurement.

A convenient method of measuring small amounts of culture and serum is by means of a fine platinum wire which is bent at its tip to form an eyelet or "loop."[3] If one places one loop of serum into a small watch glass or hollow-ground slide, and adds nine loops of bouillon or of salt solution, a dilution of one in ten is reached. Five loops of this mixture with five of the diluent gives a dilution of one in twenty. One loop of the second dilution, to which is added one of the culture suspension, gives the desired dilution of one in forty. The last may be mixed directly on the cover-glass, and then inverted on a hollow-ground slide. It is readily seen how with even a minute quantity of serum, and at the same time, one may make the test with dilutions of one in ten, one in twenty, one in thirty, one in forty, etc., details which are necessary for a correctly performed test. It is important that in the different dilutions the same amount of bacterial emulsion be used.

In the macroscopic test, more serum is necessary, though the quantity need not be large, and the dilutions are made in test tubes of suitable size. One should always deal with definite quantities of the serum dilutions, and should always add the same amount of bacterial emulsion in the various tubes involved in a given test.

The Microscopic Reaction.

If agglutination occurs in the microscopic preparation described above, one sees, with the high power, in the course of from fifteen minutes to a half-hour, that two or more micro-organisms which come in contact have a tendency to remain in this position. In the case of a motile organism (typhoid) the movements may be exaggerated for a time. In the course of the next few hours, other cells are added to incipient groups and new groups originate. Motility becomes less and less and eventually ceases, in a characteristic reaction. The maximum change has taken place in from six to eight hours. Not less than four or five cells which are permanently agglutinated are considered indicative of a positive reaction; the test is most decisive when large masses are formed, so large that they are seen readily with a low magnification. A similar preparation to which no serum has been added should always be made, in order to eliminate spontaneous or "auto-agglutination" as a possible source of error.

The Macroscopic Reaction.

In the macroscopic reaction, the homogeneous cloudiness of the mixture of serum and emulsion becomes changed by the formation of smaller and larger flakes or clumps of bacteria, which in the course of a few hours sink to the bottom as a white precipitate leaving a clear overlying fluid. Here also a control tube, to which no serum has been added, should be preserved for comparison.

The body temperature, which may be obtained in a thermostat, facilitates the reaction.

The Agglutinin Unit.

The value of an agglutinating serum can not be expressed in units with the same exactness that is attained with diphtheria antitoxin. The limits of the reaction are not sufficiently definite; a given mass of bacteria has the power of absorbing varying amounts of the agglutinating substance, and it is impossible to obtain standard bacterial emulsions.

One may arbitrarily decide on a unit similar to that of Züpnik, in which a given volume of a serum dilution of one in forty, which is able to agglutinate a given mass of bacteria, is taken as the standard. If a similar amount of the serum in a dilution of 1 in 120 caused the agglutination of the same amount of bacteria, the serum would be called one of three-fold strength, etc.

The value of the agglutination reaction as a clinical diagnostic aid will be considered later in connection with the individual diseases.

A consideration of agglutination would be incomplete if one

3. Pfeiffer introduced a conventional "loop" of such dimensions that it held 2 milligrams of bacterial cells as taken from a solid surface, like that of agar.

did not mention the phenomenon as it occurs with cells other than those of bacteria, in particular the red blood cells. The serums of many animals, as stated in a previous chapter, are toxic for the erythrocytes of some other species. In some instances, the corpuscles lose their hemoglobin under the influence of the serum; in other instances, or even with the same serums, the corpuscles are thrown into clumps and settle to the bottom of the test-tube, leaving a clear overlying fluid. The phenomenon, of course, may be followed under the microscope. The analogy with the bacterial agglutinins goes still further, in view of the fact that the formation of these "hemagglutinins" may be induced artificially in the body of an animal by the injection of erythrocytes from another species. An animal does not form agglutinins for its own cells (auto-agglutinins), and rarely, if ever, for the cells of another member of the same species (iso-agglutinins). What is said in the next chapter concerning the specificity of the bacterial agglutinins also holds for the hemagglutinins.

Agglutination of Red Blood Corpuscles.

There are some plant toxins, true toxins with a haptophorous and toxophorous structure, which agglutinate red blood cells: ricin, abrin, crotin, etc. Some of the earliest and most important work which Ehrlich has done in the field of immunity was accomplished with these plant toxins.

Plant Hemagglutinins.

(To be continued.)

New Instrument

INSTRUMENT FOR STRETCHING THE INTESTINE TO FACILITATE INTESTINAL ANASTOMOSIS.

FRANK S. HOUGH, M.D.

SIBLEY, IOWA.

These instruments were devised for the purpose of facilitating intestinal anastomosis (Fig. 1). I do not claim that they will fill every requirement or that they will be used to replace the elaborate methods now in use by our most skillful operators, but I have no doubt that they will be found useful by many a modest surgeon who is called on to do this kind of work, sometimes on short notice, and with the lack of skilled assistants.

The instrument (Fig. 1, No. 1) with serrated edges is for "end-to-end" work. The plates, when the instrument is closed, are directly opposite each other and the serrated edges do not become apparent until the instrument is opened by the sliding of one plate on the other (Fig. 2, No. 1). Each lateral half of the closed plates is introduced into the open end of the bowel to its fullest extent and then, the thumb being in the thumb ring and the index and middle fingers being in the finger rings, the instrument is opened to any desired extent by pulling the finger rings down toward the thumb ring and the bowel is put on the stretch. The thumbscrew then maintains this position. This stretching must not be beyond the physiologic limit, and when this has taken place the free edge of each portion of bowel is accurately adjusted and is brought in close apposition to the edge of its mate. Although the interrupted Lembert (deep), or the mattress suture seems most applicable, the continuous suture is just as easily applied. In either case three interrupted sutures can be applied very advantageously, one on the distal (from the handle) point, and one behind and one in front, each at about the middle point between the distal and proximal ends of the plates. These three sutures securely anchor the bowel in position and the contiguous margins can be sutured rapidly by one of several methods. The sutures can be tied or made taut in the continuous suture, to at least three-quarters of the entire circumference, and such is the stretching capacity of the bowel that this instrument, after being closed, can be taken out with but three or four sutures not tied. The grip of the thumbscrew is loosened by a turn to the left, the blades are closed, and the untied end of bowel nearest the handle is slid outward off the end of that margin of the closed plates, and finally the end of the plates is easily liberated. As soon as one corner is out the whole instrument comes away with perfect ease. The ease of delivery is augmented by the fact that the serrated edges are made to disappear by the closure of the instrument. The distance from the handle to the lateral margin is no greater than the width of the closed plates. It is an advantage to have these plates enter the bowel as far as possible, and, so long as the distance from handle to lateral edge does not exceed the width of the closed plates, no interference with delivery is found. After the delivery of the instrument, the few already inserted sutures, at former site of handle, are tightened and tied and the anastomosis is then completed.

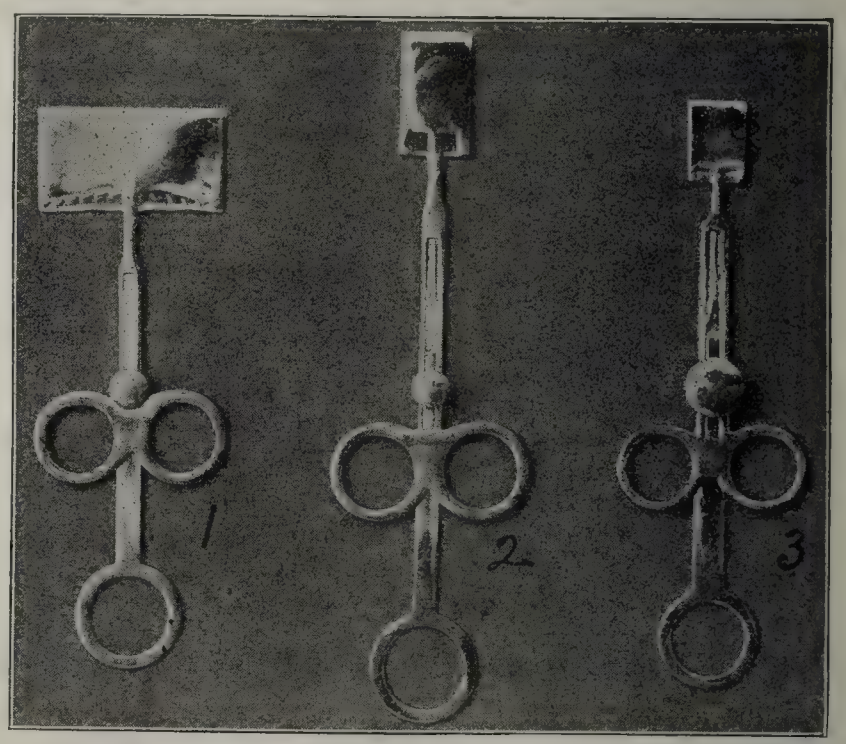


Figure 1.

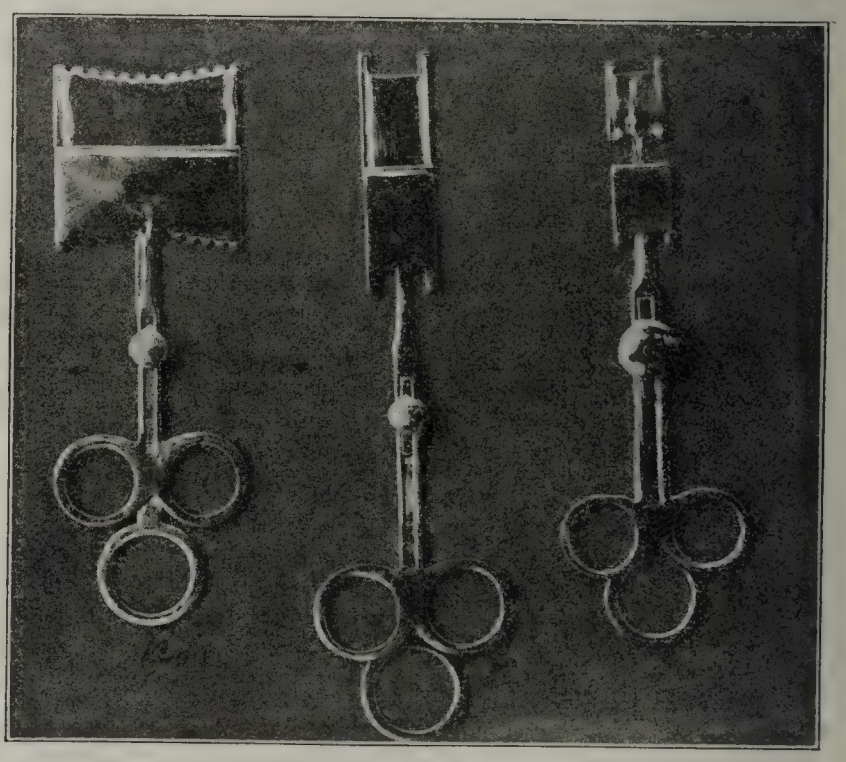


Figure 2.

After applying the three interrupted sutures to hold the contiguous edges of the bowel and to prevent them from slipping apart, the continuous suture can be started at no great distance from the handle, either in front or behind, and continued around to a point opposite, leaving room for the delivery, when a one-looped knot can be made to keep the suture taut to this point. Then the continuous suture can be continued around the handle to the point of starting, but so

loosely that the closed plates can be readily extracted, and then the continuous suture can be tightened and tied (Fig. 3).

Another way is to apply interrupted sutures at infrequent intervals, so that six or eight at equidistant points would extend around the entire circumference; all but two near the handle are tied. Then a continuous Lembert suture is inserted slightly over or beyond this line, and either knotted as before or made loose near the handle, so that the closed plates may be extracted and the two interrupted and the continuous sutures tied in succession. This instrument permits the sutures to be applied with great accuracy, and when the bowel afterward contracts the sutures are closer together than they appeared to be when they were applied. In the case of the continuous

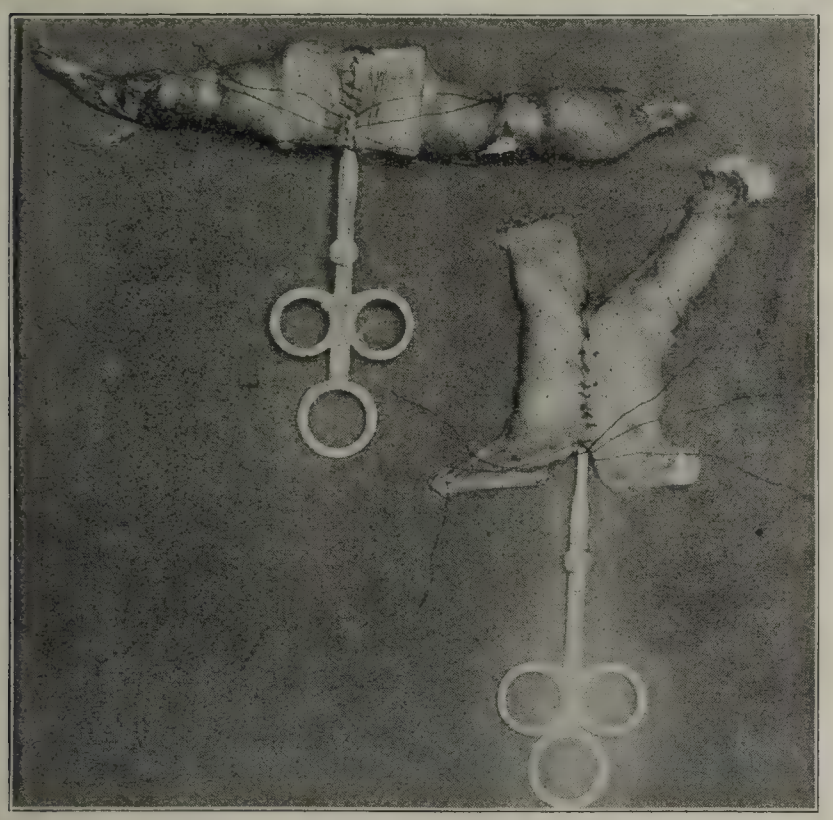


Figure 3.



Figure 4.

suture, while the tension is lessened, the physiologic contraction does not make interspaces for leakage, because tissues during this contraction are bulked up more than enough to make up for this, and the healing is enhanced by the absence of pressure necrosis caused by tight suturing. In using this instrument it is not necessary to overstretch the bowel and no possible harm will come from its judicious use. Its action as a splint is fully performed well within the physiologic limit of stretching.

Instrument No. 2 (Fig. 1, No. 2) is for lateral anastomosis and is on the same principle, except that the incised lines are put on the stretch instead of the lumen of the bowel, and very little stretching is here required, as the processes at the corners, when the instrument is open, are well within the bowel and the bowel can not slip off the plates unless the bowel should tear. When this instrument is closed the processes at the corners are covered and there are only straight edges. When the instrument is fully opened the plates still overlap a little, offering no chance for leakage and giving the bowel edge a firm support at every point (Fig. 2, No. 2).

Two incisions of equal length and longer than the length of the closed plates are made, and each lateral half of the closed plates is inserted into a corresponding opening in the bowel and the instrument is opened. The further working of the instrument, the method of application of the suture and delivery of the instrument has already been described.

Instrument No. 3 (Fig. 1, No. 3) is for gastroenterostomy. It is smaller and more easily delivered, and when it is fully opened (which may not be necessary) it allows of some separation of the adjacent margins of the blades. This gives a somewhat wider range of latitude in length of the incisions, without making the plates longer (Fig. 2, No. 3). There is the possibility of a little leakage at the place where the plates are apart, but this separation is only one-fourth of an inch (if the full extent of separation is used), and practically there will be no leakage. In this instrument very little room is required for delivery of the closed plates—not more than that taken up by two or three untied sutures (Fig. 4).

When these instruments are in operation there is complete hemostasis and the prevention of leakage. Their mechanism is extremely simple and the technic of their use is mastered without trouble.

New Appliance

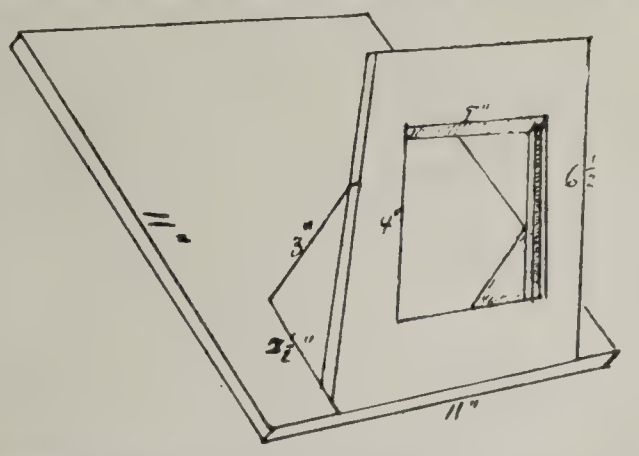
A FRAME FOR EXAMINING EYE SKIAGRAMS.

G. H. STOVER, M.D.

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DENVER.

As I am frequently called on to make eye examinations and to localize foreign bodies in the eyeball, I found it necessary to devise some convenient method of holding the negatives made after the Sweet method, which would leave both hands free for using the instruments, and for making measurements, and which at the same time would give a good illumination; so I made the frame which is here illustrated. It is made of three-eighth inch poplar and is varnished to prevent warping.



The plate holder is set at an angle of about 45 degrees with the base, and the opening in it, of just the size to take a 4x5 negative, is rabbeted at the sides to prevent the plate from falling through.

The base is 11 inches square, and the plate holder is 6½ by 7½ inches.

When in use, a sheet of white paper, smooth but not glossy, is laid on the base to reflect light up through the negative; either light from a window or from an artificial source may be used. It is better to use paper than to paint the base white, as a painted surface is too apt to give a glare.

In making measurements I use calipers or compasses and a right-angled triangle made of celluloid.

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SATURDAY, APRIL 1, 1905.

THE ELIMINATION OF INFECTIOUS MICROBES FROM THE DISEASED BODY.

Accurate knowledge of the ways in which the causative agents of infectious diseases are discharged from the infected body is of great practical value. The same means that carry pathogenic microbes into the outside world are also most important means of spreading infection. Hence the physician must know the modes of elimination in order to apply such measures as most quickly and certainly help to render patients with communicable diseases or their agents harmless to others. When we look at this elimination of pathogenic microbes a little more closely we find that there are at least two distinctly different forms of elimination: 1, Immediate elimination from the morbid focus by way of pathologic products; and 2, indirect elimination by means of the circulating blood through normal secretions and excretions.

In the case of immediate or direct elimination it is necessary that the seat of disease should communicate directly with the outside of the body. This is the case with all the diseases associated with surface inflammation or infection of mucous membranes as an essential manifestation. Here belong the infectious forms of conjunctivitis that cause many of our immigrants trouble; infections of the nasal mucous membranes, such as lepra, glanders, diphtheria; of the tonsils and pharynx, such as diphtheria, streptococcal and other forms of angina; of the laryngeal and bronchial (pulmonary) membranes, such as tuberculosis, pneumonia, influenza and whooping cough; of the intestinal tract, such as typhoid fever, dysentery and cholera; of the genitourinary passages, such as gonorrhea and tuberculosis. Here belong also local and general infections associated with lesions in the skin; of general diseases of this group we have smallpox, measles and scarlet fever. This enumeration by no means exhausts the list of diseases that are most favorably situated with respect to self-propagation; observe here the majority of the important infectious diseases.

Unquestionably, sterilization of the mucous membranes (especially of the respiratory and oropharyngeal), and of the materials which they convey, is one of the greatest problems in connection with the prevention of infectious diseases. Disinfection of the discharges from the urinary and intestinal tracts is a simple matter compared to the disinfection of the sputum, visible and invisible, by practical and generally applicable methods in all those conditions in which it may contain infectious agents.

A word should be said, too, of the danger of autoinfection, local as well as general, in the process of elimination of pathogenic bacteria, especially from remotely situated localities. This phase of the subject is illustrated especially well by tuberculosis.

In the second form of microbic elimination, two conditions have to be met: the microbes must reach the general circulation and they must pass the epithelial barriers presented by glandular organs and mucous membranes. Now, infectious bacteria frequently reach the circulating blood, often, no doubt, in an accidental and more or less passive manner, but also as the result of inherent, invasive powers, illustrated in the bacillemia of typhoid fever and pest, in the pneumococcemia of pneumonia, and in the active bacteriemia in virulent, so-called septic infections.

What fate is in store for bacteria that enter the blood? In the first place, they may be destroyed by the bacteriolytic and phagocytic power of the blood; if but few in number they may be deposited like inorganic particles in the pulp of the spleen or in the bone marrow and gradually destroyed; and they may be eliminated in the urine and otherwise. It appears to be generally accepted that some form of lesion is necessary in the kidney in order that bacteria may pass from the blood to the urine. These lesions may be caused by the bacteria subsequently discharged in the urine. Be that as it may, no one questions the occurrence of bacterial elimination by way of the kidneys, and, as frequently emphasized in recent years, typhoid bacilli are so eliminated in at least 25 per cent. of the cases of typhoid fever, judging from the typhoid bacteriuria which thus becomes established. The dangers of spreading infection by this form of bacillary elimination are self-evident, and must be prevented by measures that are familiar to all intelligent physicians.

Bacteria are also eliminated from the circulation by way of the bile, and typhoid and tubercle bacilli, as well as other germs, are said to be demonstrable in the bile in a considerable proportion of cases of typhoid fever, general tuberculosis, etc. Experimentally, at least, certain bacteria are eliminated by the intestinal mucous membrane. As regards the elimination of bacteria from the blood by the glands of the skin, the investigations have given contradictory results.[1] Tubercle bacilli frequently appear in the milk of cows with but limited tuberculous lesions not necessarily located in the udder. Tubercle bacilli have been demonstrated in the milk in a woman with advanced phthisis. Finally, mention may be made of the fact that the unknown causative agent of rabies is eliminated freely in the secretions of the salivary glands, a fact that well explains the infectiousness of the bites of rabid animals.

1. See Gotschlich, Handbuch der path. Mikroorganismen, i, p. 163.

On the basis of this survey, it is urged on physicians that in all acute infectious diseases thorough disinfection of the urine, the feces, the sputum and the nasal discharges is fully indicated because any or all of these may contain infectious germs capable of carrying infection to other persons. We believe that this rule should be carried out more generally and more consistently than has been done heretofore.

LECITHIN—ITS POSSIBLE ROLE IN RADIOTHERAPY.

Lecithin is a substance of importance not only to the physiologic chemist but also to the pathologist and to the biologist. The more it is studied the more remarkable are the properties it manifests; and this is of additional interest in view of the fact that, from a chemical point of view at least, it is a comparatively simple body, being a combination of four substances, phosphoric acid, glycerin, a fatty acid and a base, cholin. all simple compounds whose chemical formulæ are well known. It is found in probably every cell in the animal body and undoubtedly plays a most important rôle in the metabolism of the cell, forming with albumins a combination known as lecithoproteids, from which it may easily be split off. It also furnishes the phosphorus in the synthesis of the important class of proteids known as the nucleins.

As a remarkable property of lecithin may be mentioned the very important fact pointed out by Kyes that this substance may act as a complement in hemolysis produced by cobra venom, thus playing a rôle analogous to that of a ferment. Again, Detre and Sellei[1] have shown that the hemolytic effect of corrosive sublimate is very materially reduced in the presence of lecithin. This is due to the formation of a harmless compound by the union of the sublimate and the lecithin. The poisonous action of the sublimate on cells, partly at least, may be explained in this manner. The lecithin of the cells enters into combination with the poison, thus preventing the building up of the nucleins which obtain their phosphorus from the lecithin group.

Another important contribution to the study of lecithin made recently by Werner[2] seems to indicate that it is to play an important part in radio-chemistry as applied to medicine. In studying the effect of radium on tissues, Werner, obtaining the suggestion from the works of Schwartz[3] and also of Schaper, who, from their study of eggs, showed that radium acts chiefly on lecithin, injected into the skin of animals a suspension in water of lecithin which had been exposed to radium rays for two or three days. Such lecithin he calls activated and with this he was able to produce exactly the same changes in tissues as is produced by the radium rays alone. The inactivated lecithin was without effect. He finds also that lecithin may be activated in the same way by the *x*-rays, this result being confirmed later by Exner. Treatment of the lecithin by heat (60°-70° C.), sodium chlorid, potassium hydrate, mineral acids, pepsin hydrochlorid and diffuse light failed to activate it. Of what this so-called activation consists has not yet been determined. It does not appear to be due to the splitting products resulting from the decomposition of lecithin, for activation and decomposition do not run parallel, and again, injections of the well-known splitting products of lecithin do not have the specific effect. The possibility of the replacement of *x*-ray and radium exposures by the local injection of activated lecithin is considered by Werner in a favorable light, but as yet no practical application has been made.

The question here involved is of great importance from a therapeutic standpoint, as it concerns the treatment of deep-seated malignant growths, inaccessible at present to the application of curative rays. It is to be hoped that some means may be devised whereby a selective action may be obtained on such growths. We have, therefore, a line of work suggested here which appears to be as promising as another line of work which also seeks for a selective action on tumor tissue, but in a very different manner, namely, serum therapy.

1. Wiener klin. Wochft., 1904, No. 49.
2. Centlb. f. Chir., No. 43, 1904, also Deut. med. Wochft., No. 2, 1905, and THE JOURNAL, page 666.
3. Pflüger's Archiv, 1903.

PROVIDE ANOTHER OUTLET.

For some years the profession has felt strongly that there are too many medical schools and too many ill equipped physicians. We all know that many schools are very "lame." We speak of them freely among ourselves, but few of us mention them in print for fear of hurting the feelings of some of our friends. The task of dealing with the problem has been left to the Council on Medical Education of the American Medical Association.

In the meantime we are all seeking remedies for this ill condition that is so detrimental to the welfare of the profession. Ohio suggested a remedy when it took the great step forward of passing a state law providing a minimum educational requirement for entrance to medical schools and gave its enforcement into the hands of the impartial public school system. New York has long had a similar regulation controlling entrance to medical colleges. Kentucky, on July 1, 1905, enters the same company. This method is excellent, in that it excludes the unfit at the beginning. The work, then, is well begun, and other states must soon fall in line or suffer the uncomfortable consequences.

But why have we too many medical schools? Can we not also tackle the problem simultaneously from the top? And, lastly, can we not provide some recompense to those who must lose teaching positions as schools are closed? The first question is not difficult to answer. As we enter the profession all of us desire fame and reputation, as well as full pocket-books. Fame comes slowly to him who confines himself to private practice. A hospital appointment and a professorship constitute alluring and promising shortcuts. Secondly, can we

find a means to attain reputation that will attract us away from the professorships; and thirdly, that will furnish continued opportunity to those crowded out of places by the diminution in the number of schools? It is believed that these two questions can be answered in the affirmative.

In a large part of the United States the existing profession is sorely in need of postgraduate instruction to enable it to fulfill its whole duty to itself and to the community. One of the aims of our perfected organization was the facilitating of postgraduate study and instruction. Why not, then, arrange to combine these mutually satisfying needs? Let the schools and teachers soon to be without students set themselves to the splendid task of improving the attainments of the vast number of physicians who necessarily must live far from clinics and laboratories. Why not provide for systematic and semi-compulsory postgraduate training of the members of our organization? Having thus combined these two needs it will be found that fame is to be attained in teaching physicians just as formerly in instructing undergraduates. He who wants to teach will have just as good a chance as he ever had. The number of members in an overcrowded profession will be steadily reduced. The educational qualifications of the present generation of physicians will be materially improved. The only drawbacks lie in the friction incident to the initiation of the process. If the state medical associations take hold of the matter in proper spirit, the difficulties will soon fade. The proposal is far from being chimerical, and it is confidently believed that the next few years will somewhere witness a trial of this method of disposing of the most vexed problem that demands solution at the hands of the organized profession.

THE CEREBROSPINAL MENINGITIS EPIDEMIC.

Dr. Councilman's paper in this issue is a timely one on account of the present epidemic aggravation of cerebrospinal meningitis in portions of the Atlantic seaboard states. The principal features of the disease were editorially noticed in THE JOURNAL March 18, but Councilman's paper brings out more prominently certain specially significant points bearing on the present epidemic. It is evident that it is not exactly of recent origin; on the contrary, there has been a notable frequency of the disease and a heightened mortality from this cause in New York and southern New England for a year or more past. The present mortality, however, of 70 or 80 a week in New York City, as reported in the press dispatches, is a formidable one and indicates a very serious prevalence or virulence of the infection. The opportunity is specially favorable for investigating certain questions relating to the disorder and, considering the evident seriousness of the situation, such an investigation as has been begun is imperative.

Councilman shows that the meningococcus, like the pneumococcus, is always with us and that the reason for its apparently increased virulence at certain times is, as in the case of the other, still a problem for the pathologists. The mortality in different epidemics varies very greatly and therefore is not by any means a true index of the actual prevalence of the infection. It is even possible that there may be a certain degree of morbidity due to the meningococcus that is not recognized as such, and that, as in the case of scarlet fever, there may be cases in which the after consequences are the most noticeable symptoms. This may be the case during the prevalence of an epidemic and a retrospective diagnosis based on them and on the general prevalence of the disease be the only one possible. Almost universally, however, the cerebrospinal system is affected and the other possibility is offered simply as a suggestion. The facts that the great majority of the sporadic cases of primary meningitis are due to Weichselbaum's diplococcus and that it has been found in the nasal secretions of normal individuals indicate the necessity of more general bacteriologic diagnosis in all suspicious cases. Cerebrospinal meningitis is a very serious matter when it occurs as an epidemic and though the danger of direct infection has been considered slight, recent developments have somewhat altered this opinion.

We trust that the New York health authorities and the pathologic research institutions will leave no stone unturned to settle the questions of the cause of the apparently aggravated virulence of the germ at the present time and its relations to the general morbidity from the infection in whatever form it may be manifested. There should be also a careful study of sporadic cases in other parts of the country where the disorder does not exist in an epidemic form and, as Councilman suggests, even climatic conditions should not be neglected. How an organism of such low vitality as that producing cerebrospinal meningitis can exist between epidemics without giving more abundant pathologic evidence of its existence is a matter worthy of investigation.

ISTHMIAN SANITATION—THE COMMISSION'S REJOINDER.

Shortly after the publication of Dr. Reed's report on "Isthmian Sanitation," March 11, we wrote to the Isthmian Canal Commission, tendering the columns of THE JOURNAL for the publication of their reply, which, consequently, appears in this issue. A copy of the reply in proof was forwarded to Dr. Reed with a proffer of such space as he might desire for a rejoinder. To this tender we have received the following reply:

"CINCINNATI, March 28, 1905.

"Accept my thanks for your tender of THE JOURNAL for a rejoinder to the commission's reply to my report. It seems to me, however, that the commission has made so many specific admissions fatal to its own contention and confirmatory of my charges, and by labored explanation has so endeavored to obscure the real issue

in other particulars, that there is but little left to say. I shall, however, put that little into the form of a supplementary communication to the Secretary of War, to whom, of course, must be left the matter of its subsequent publication.

"In this same connection I wish to state that I have profound respect for the discipline and for the proprieties of the various departments of the government. I consequently recognize that, *from this viewpoint alone*, the publication of my report at my instance was a mistake. It was, however, a mistake based on a misunderstanding, for which I alone was responsible and for which I apologize to the Secretary of War and for which, furthermore, I herewith apologize to the medical profession.

"With cordial appreciation and approval of your policy, by which the commission is given as free and open a hearing as was accorded to me, and with the hope that the medical profession will accord a careful reading to the commission's reply, I am, very sincerely,

"Chas. A. L. Reed."

Whatever may be the character of Dr. Reed's rejoinder and whether it is ever submitted for publication or not, the medical profession has now been furnished with material on which to form a reasonable and accurate judgment of the situation at the isthmus, for which thanks are due to Dr. Reed. So far as his report, already published, is concerned, every one recognized that it embraced a series of facts and incidents that were recounted to support one important if not vital charge, namely, that the sanitary department at the isthmus is unduly subordinated to other departments of the isthmian government. Many of the incidents are intrinsically trivial and it is possible that Dr. Reed may have been misled in some minor matters—as any one, however careful, might easily have been misled—by the statements of others on whom, naturally, he had to rely for information. Whether or not Dr. Reed was thus misled will probably appear from his rejoinder, based, no doubt, on documentary evidence, some of which he sent with his report to this office, but which, for want of space, was not used at the time.

The one general charge, the important one of improper subordination of the sanitary department, remains, however, to be considered. This, too, is denied by the commission. But, unfortunately for the commission, it fails to disprove the existence of the law which it enacted by which this subordination is effected and, still more unfortunately for the commission, it gives, as will be seen from its report, a dozen or more instances in which it did overrule the recommendations of the sanitary department, thus demonstrating the truthfulness and justice of Reed's contention.

If the rest of the denials are no more conclusive than this one, Dr. Reed may rest for his vindication, if any were needed, on the document that we publish to-day. But, fortunately, Dr. Reed requires no vindication. He has worked too long, too zealously and too disinterestedly for medical science and for the medical profession, and his report now under criticism was too distinctly prompted by interest in the public welfare for him to be discredited by the unsupported denial of a commission that is struggling to avoid summary dismissal.

TRUTH AND POETRY CONCERNING URIC ACID.

XII.

The suggestion of Wollaston[1] that in some way or another uric acid is definitely related to the pathology of gout followed, as we have seen, his demonstration of the uratic nature of gouty deposits. It received unexpectedly great support about the middle of the last century through certain observations of Garrod,[2] which led that physician to conclude that the blood of gouty patients contains an abnormally large amount of uric acid.

Garrod introduced what is known as the "thread test" for uric acid in the blood. To a little blood collected in a watchglass is added some dilute acetic acid; a linen thread is immersed in the mixture and the whole allowed to stand for twenty-four hours, evaporation being prevented. If the uric acid in the blood is increased, crystals of uric acid separate out, according to Garrod, adhere to the thread and can be recognized under the microscope. The results of the application of this thread test led Garrod to the belief that the quantity of uric acid in the blood is always increased in gout, not only during the attacks, but before them and in the intervals between attacks. Indeed, his findings indicated that the increase is greatest shortly before an attack, and he ventured the opinion that this increase is directly responsible for the attack.

These remarkable observations of Garrod naturally excited great interest and a large number of control observations began to be made by various clinicians. Prominent among those who have confirmed Garrod's findings, almost in their entirety, may be mentioned Bence-Jones, Ranke, Charcot and more recently Sir Dyce Duckworth. The results of other investigators have been confirmatory of Garrod's work only in part; thus Salomon found an increase of uric acid in the blood in the acute attacks only, not before or after them, while Cantani supported Garrod as far as chronic gout is concerned, but agreed with Salomon as to the findings in acute gout.

A strong opponent of Garrod's view appeared in Emil Pfeiffer,[3] who urged that a positive finding with Garrod's test does not necessarily indicate an increase of uric acid in the blood, but rather that the blood at the time contains its uric acid in some form which dissolves with difficulty; in other words, that the substance exists in the blood as some "easily separable" modification. We know now from the chemical and physical studies

1. Wollaston: Gouty and Urinary Concretions. Phil. Tr., Lond., vol. ii, 1797, p. 386.
2. Garrod, A. F.: Researches on Gout. Medicochir. Tr., vol. xxv, 1848, p. 83; vol. xxxvii, 1854, p. 49.
3. Pfeiffer, E.: Natur und Behandlung der Gicht. Verhandl. des viii Kongr. f. inn. Med., 1889, 166.

of uric acid which have since been made that Pfeiffer's objection is not valid, for when uric acid separates out of solution this is almost always due not to alterations in the chemical nature of the uric acid but to alterations in the conditions of solubility of the substance.

Obviously, to make Garrod's findings more conclusive, it was desirable that they should be controlled by exact quantitative estimations of the uric acid in the blood. Garrod and Salomon both attempted this, but unfortunately made their determinations with the inaccurate method of Heintz. Studies with more exact methods were made by Klemperer and later by Strauss, but the best research of all in this particular field is that of Magnus-Levy,[4] published in 1899. The latter made accurate determinations of the uric acid in the blood in no less than 17 cases by gravimetric analysis, using the reliable Ludwig-Salkowski method. His research has taught us that the uric acid of the blood is always increased in gout; there is, however, no constant increase just before an attack in contrast with the amount present in the free intervals such as Garrod thought he could demonstrate.

The most superficial and unreliable work recorded on the amount of uric acid in the blood in gout is, perhaps, that of Haig. Using a method which rests on a pure assumption and which has no well-founded chemical basis, he has drawn, as Luff and others have shown, wholly unwarrantable conclusions. It is a pity that so faulty a worker should have presented his views in so convincing a manner as to make their acceptance, by those who are unable to refute his premises, a foregone conclusion.

If we have good ground, and we think we have, for believing that the uric acid of the blood is increased in amount in gout, the question naturally arises, is such an increase pathognomonic for gout or is it met with also in other conditions? The pathognomonicity of the symptom must be denied, for an increase of uric acid in the blood is found in nephritis (Garrod[5]), in diseases in which the red blood corpuscles are injured (v. Jaksch), and, temporarily, in health after nuclein-feeding (Weintraud). These facts have led many to think that perhaps after all the increase of the uric acid in the blood may not stand in any very definite relation to the main symptoms of gout. Some even go so far as to hold that the increase is to be regarded as merely accidental, a view recently supported with some vigor by Zagari.[6] Others, among them Cantani and von Noorden, suggest that the increase of uric acid in the blood is not the cause of gout, but is due rather to the partial solution and absorption into the blood of the gouty deposits. Still, right or wrong, the prevalent belief, we think, is that an increase of uric acid in the blood in gout is, in the main, responsible for the clinical symptoms. Those who hold to this view, however, admit that the increase alone does not suffice to explain gout, and they conceive of certain alterations in the blood or tissues, or of external injuries, as accessory etiologic factors.

In any case, we stand before the fact that the uric acid of the blood is increased in gout, and it must therefore be important to search for the cause of such increase. One might think *a priori* of an increased uric-acid formation, of diminished uric-acid excretion, of lessened destruction in the body of uric acid once formed, or, finally, of a combination of these different factors. An epitomizing of the actual work which has been done in this connection will be our next task.

4. Magnus-Levy, A.; Ueber Gicht; klinische Beobachtungen, chemische Blutuntersuchungen, und Stoffwechselversuche. Zeits. f. klin. Med., vol. xxxvi, 1899, p. 353.

5. Confirmed by Kam and v. Jaksch.

6. Zagari, G.: Il bilancio organico di un gottoso durante e fuori l'accesso. Napoli, 1898; also Zagari, G. e D. Pace, La genesi dell' acido urico e la gotta. Napoli, 1897.

AN APPEAL TO NEW YORK.

In our news columns is an item in regard to the osteopathic bill in the New York legislature. It is evident that unless the profession wakes up New York will be afflicted with this ridiculous measure. Without a shadow of doubt, the influence of the physicians of New York state is far greater than is that of the osteopaths, but the osteopaths are active and are working day and night and are bringing to bear all the influence they can control to carry their measure. The committees representing the New York State Medical Association and the Medical Society of the State of New York are doing what they can, but, as we intimated two weeks ago, they are not backed by a united profession. Now is the time for the individual physician to do his part by either writing or telegraphing his representative at Albany, protesting against the passage of the osteopathic bill. If one in ten of the physicians in New York State will do this, and will take the trouble to bring their influence to bear on their representatives in this matter, the bill will be defeated.

MALPRACTICE INSURANCE AND MEDICAL DEFENSE.

It appears, according to a recent opinion of the attorney general of Iowa, that physicians can not take out insurance in that state against malpractice suits. The Travelers' Insurance Company of Hartford is issuing such policies, assuming liability for fixed sums of money which may be included in the costs and damages in case of such litigation. It applied for admission in Iowa but was refused, as far as this form of policy is concerned. The theory on which the opinion is based seems to be that it is contrary to public policy to allow a physician to be relieved from any of the consequences of possible mistake in treatment of a patient. Considering the fact that probably nine-tenths of all malpractice suits are pure blackmail, instigated by quacks and foraging lawyers, the finding seems to be a peculiar one. If justice were done in all cases few of these suits would come to anything, but the fact is that juries are specially fallible in this particular regard and are apt to take altogether too little account of the many important factors that may mar the success of any kind of medical or surgical treatment. Hence some of the

cases of gross injustice which are familiar to all of us. The remedy for the state of affairs left as a result of this opinion given out in Iowa will be in the better organization and co-operation of the reputable members of the profession. The attorney general can hardly use the same arguments against medical defense provisions in the state and local medical societies.

THE DANGERS OF SELF-DRUGGING.

Mr. Edward Bok's latest installment of his campaign against the abuse of patent medicines is in the April *Ladies' Home Journal*. He brings out three chief points. The first is to emphasize that the manufacture of hypochondriacs is a regular business—an intentional process—carried on by the diabolical advertisements of the patent medicine man. The repeated and insistent suggestion that a certain slight ache or pain is the symptom of something serious makes the reader dwell on his imaginable ailment until he buys a bottle of the remedy. In the second place Mr. Bok explains how some testimonials are obtained for patent medicines. In the case cited the testimonials were wholly lies, the authors not having used the medicine. The third point which Mr. Bok makes is that even if the medicine possessed merit, and even if the testimonials were genuine, it would not justify the use of the medicine without the physician's advice, because the patient is not competent to make a diagnosis on the similarity of symptoms, which may be very deceptive. Mr. Bok is very clear and straightforward; at the same time he is on safe and conservative ground. His article for this month is remarkably free from doubtful or objectionable statements and is, altogether, a strong and convincing plea for the exercise of ordinary good judgment before succumbing to the almost universal passion for self-medication that is developed and fostered by the flaring and suggestive advertisements in the daily papers. Much of what Mr. Bok has to say will apply to the proprietary secret remedies; substitute these for his "patent medicines" and unthinking physicians for unthinking laity, and it will not be far wrong. Mr. Bok is to be congratulated on his courage in persisting in his fight in spite of the opposition of certain newspapers, whose editors evidently are fearful that in proportion as his propaganda is successful will one of their great sources of income be cut down.

MANUEL GARCIA AND THE LARYNGOSCOPE.

On March 17, the London Laryngological Society celebrated the one hundredth birthday of Manual Garcia, a well-known Spanish singing teacher in London, and also the fiftieth birthday of the laryngoscope. Garcia, though not a physician, became the founder of a new and important specialty in medicine by his discovery of the laryngoscope. In March, 1855, he published in the Proceedings of the Royal Society[1] his "Observations on the Human Voice," based, to a large extent, on the introduction into his own throat of a mirror, which he illuminated with direct sunlight at the same time as he observed the movements of his own vocal cords in a second mirror. This was the foundation of modern laryngology. Two years later the celebrated Tuerck of Vienna was studying diseases of the larynx by means of the laryngoscope, studies that culminated in his great work on laryngoscopic pathology and therapy. In the meantime the younger Czermak was doing pioneer work for laryngology in Leipzig, and in 1859 he announced the demonstration of posterior rhinoscopy. Thus were diseases of the nose and throat made accessible to direct inspection, diagnosis and treatment. The discovery of cocain, in 1884, greatly promoted the development of the new specialty which was founded as the result of a singing master's intelligent interest in voice production. No wonder that the rare anniversary on March 17 brought Garcia the congratulations and gratitude of physicians the world over.

1. Vol. vii. p. 399.

SOME RECENT LEGISLATION.

Some of the enactments of recent legislatures show evidence of good work on the part of the legislators. Oregon, in which state members of the association are particularly interested because of the approaching session to be held at Portland, seems to be progressive. It has passed an indeterminate sentence law, has authorized probation of persons not previously convicted of felony, and has authorized the establishment of a juvenile court in districts of 100,000 or more inhabitants. This law, further, forbids the commitment to jail of children under 12 years of age and provides for a board of visitors to visit institutions and associations which receive children under the provisions of this act. A woman's reformatory has been authorized by the New Jersey senate. The California legislature passed an act repealing the compulsory vaccination law, but the watchful governor vetoed it, and the legislature came to its senses and rejected the proposal to pass the bill over the veto, by a vote of 23 to 3. The message of the governor, who, by the way, is a physician, is a cogent, readable brief on the subject of vaccination. North Carolina, in its recent legislative session, took advanced ground on the questions of child labor, divorce and vagrancy. The *Outlook* states that "the most liberal provisions ever adopted were made by the North Carolina legislature for the care of the insane and other unfortunates . . . and for the public schools." While these matters are sociologic and only indirectly related to medicine, yet physicians, more than any other class, are interested in them and in the progress being made.

Medical News

ALABAMA.

Accident.—Dr. Jesse E. Robins, city physician of Ensley, was seriously injured in a runaway accident, March 4.

Fire Losses.—Dr. Lucian A. Spencer, Bessemer, suffered a loss of $10,000 in the destruction of his house by fire. He carried only $2,500 insurance.——The offices of Drs. Byron T. and Orion T. Dozier, Birmingham, were destroyed by fire. The loss was $7,500; the insurance, $1,000.

Personal.—Dr. William C. Wheeler, Huntsville, has been reelected physician of the city and of Madison County.——Dr. Robert B. Harkness, Birmingham, has been elected city physi-

cian and physician of Jefferson County.——Dr. E. P. Lacey, Bessemer, has been critically ill with pneumonia.

CALIFORNIA.

Hospital Opened.—The Sisters' Hospital, Chico, was opened to the public March 1.

Hospital Incorporated.—The St. Francis Hospital Association has been incorporated at San Francisco with a capital stock of $75,000.

February Deaths.—During February 1,178 deaths were reported, equivalent to an annual mortality of 15.68 per 1,000. Tuberculosis caused 210 deaths; heart diseases, 141; pneumonia, 119; cancer, 47, and cerebrospinal meningitis, 19.

Personal.—Dr. John Gallwey and wife, San Francisco, started for Europe, March 16.——Dr. Ferdinand Stabel, Redding, has been made physician and health officer of Shasta County.——Dr. Claeburne W. Evans, Modesto, has been re-elected physician of Stanislaus County.

Los Angeles Illegal Practitioners Sentenced.—Mrs. S. J. Bridge, "cancer specialist," pleaded guilty and was fined $100. ——"Dr." William S. Lair has been found guilty of fraud.—— Ira Guilford, "magnetic healer," was fined $100, March 10. ——Henry Nanzita, "Oriental doctor," was fined $350, March 11, and paid his fine.——"Dr." C. C. Hewitt pleaded guilty and was fined $100.

COLORADO.

Personal.—Dr. J. Ernest Meiere, Cripple Creek, who has been seriously ill with pneumonia and erysipelas at the Sisters' Hospital, is now convalescent.

February Mortality.—During February 881 deaths were reported in the state, equivalent to an annual mortality of 19.97 per 1,000. Fourteen deaths were reported from typhoid fever, 6 from diphtheria, 5 from scarlet fever, and smallpox caused one death.

Contagious Diseases.—During February there were reported to the State Board of Health 133 cases of scarlet fever, 73 cases of smallpox, 62 cases of diphtheria and 21 cases of typhoid fever. Compared with the previous month, February shows an increase of 56 cases of scarlet fever and 12 cases of smallpox, and a decrease of 55 cases of typhoid fever and 25 cases of diphtheria.

Defective Vision and Hearing of School Children.—Results of a recent investigation conducted under the direction of the State Board of Health show that 15.66 per cent. of the 14,403 school children examined have defective vision, and that 2.7 per cent. have defective hearing. Of the defective vision subjects, 6 per cent. wore glasses, 8 children were totally blind in one eye, and 1 was nearly blind in both eyes.

DISTRICT OF COLUMBIA.

Quarantine Station Accepted.—The district commissioners have accepted the new smallpox quarantine station near the jail. The building is a two-story frame structure and contains 40 rooms.

License Revoked.—Dr. Sigmund A. Czarra, charged by the board of medical supervisors with unprofessional conduct and with circulating improper literature, was found guilty and his license was revoked. This is the second time the board has had Dr. Czarra before it. Its findings in the first instance were reversed by the Court of Appeals.

Navy Medical School Commencement.—The annual graduation exercises of the Navy Medical School were held in the National Museum March 25. A class of 23 was graduated and President Roosevelt delivered the principal address and presented the diplomas. Addresses were also made by Dr. William H. Welch, Baltimore, and Medical Director R. A. Marmion, U. S. Navy, president of the faculty.

Would Drop Word "Insane."—In the annual report of the Government Hospital for the Insane the superintendent suggests that the name "Government Hospital for the Insane" have the objectionable word "Insane" left off, and that the institution be called merely the "Government Hospital." During the year 3,135 patients were under treatment; 643 were discharged and 243 died. Of the patients under treatment from the services 1,111, or about 82.53 per cent., were from the Army.

FLORIDA.

Insane Hospital Changes.—Dr. Robert L. Goodbred, Mayo, has been appointed managing physician of the Florida Hospital for the Insane, Chattahoochee, vice Dr. V. H. Gwinn, resigned.——Dr. James H. Randolph, Tallahassee, has been appointed assistant physician, vice Dr. Eldred C. Christian, resigned.

Personal.—Dr. James L. Niblack, Lake City, has been appointed a member of the board of medical examiners for the Third district, vice Dr. Joseph A. Townsend, Lake City, deceased.——Dr. Washington Kilmer, Orlando, has been appointed registrar for Orange County.——Dr. Joseph N. Fogarty, Key West, has been made a member of the board of medical examiners in and for the Third Judicial district.——Dr. Stephen M. Gonzalez, Pensacola, has been made special physician for Escambia County, and Dr. Daniel W. McMillan, Pensacola, has been re-elected physician of the same county.——Dr. James G. Baskin, Dunnellon, has been selected as state senator to succeed Hon. C. M. Brown.

GEORGIA.

Personal.—Dr. William Bradford, Cedartown, has been appointed private secretary to Congressman Gordon Lee.

Throat Cut in "Difficulty."—In a dispute over the ethics of keeping in the little girl of Dr. W. D. Williams, Cataula, after school hours, the husband of the teacher drew his knife and cut the physician's throat. The injury was serious, but Dr. Williams is expected to recover.

Malpractice Suit Fails.—In the suit of John M. Casey, Stillmore, against Drs. Leonidas P. Lane of that place, and G. L. Smith, Swainsboro, in which he claimed $20,000 damage for the alleged negligence, incompetence and lack of skill of these physicians in treating compound comminuted fracture of both legs, the jury found for the defendants.

ILLINOIS.

Personal.—Dr. William H. Fitch, Rockford, has been appointed surgeon of the new I., I. and M. Railway.

Watch Factory Hospital.—The Elgin watch factory has installed an emergency hospital with two wards and an operating room, on the second floor of its new main building.

Munificent Bequest to Hospital.—By the will of Abram Brokaw, who died a few days ago in Bloomington, $100,000 in cash, farms valued at $50,000, and released debts amounting to $15,000, are bequeathed to the Brokaw Hospital.

Progress of Senate Bills.—The optometry bill (Senate 237), reported defunct, seems to have taken a new lease of life, for it passed the senate March 16. The practice of optometry is defined to be the employment of any means other than the use of drugs for the measurement of the power of vision and the adaptation of lenses for the aid thereof. The provisions of the act shall not apply to physicians duly licensed to practice medicine under the laws of this state, nor to persons who sell spectacles or eyeglasses on prescription from any duly qualified optometrist or physician, nor to dealers in spectacles and eyeglasses, who neither practice nor profess to practice optometry. In accordance with the decision of the Supreme Court of Illinois in the case of People vs. Charles L. Smith (208 Ill. 31), opinion filed Feb. 17, 1904, a person who measures the powers of vision and adapts lenses is not practicing medicine as defined by the Illinois statutes. This bill is still in the judiciary committee of the house. There will be no hearing on this bill until the second week in April, if then. The bill is being opposed by a committee appointed by the Council of the Chicago Medical Society, acting in conjunction with the secretary of the State Board of Health.——The same forces are opposing the osteopathic bills (Senate 169 and 392. See THE JOURNAL, March 18). It is believed that these bills will not pass. A new bill (Senate 311) creating a state board of osteopathic examiners and providing for the issuance of osteopathic physicians' certificates which permit the practice of osteopathy, obstetrics and surgery, has been introduced in the senate and referred to the committee on judiciary.—— The consumptive sanitarium bill (House 330) is still in the hands of the appropriation committee. The prospects for its passage with a reduced appropriation are good.——Senate bill 158, placing physicians in Cook County service under civil service, has passed the senate, as has Senate 271 for the regulation of scientific experiments on human beings and animals.——House bill 182, providing for the treatment of persons afflicted with rabies, under the direction of the State Board of Health, has passed the house.——The epileptic colony bill is dead.——The registered nurses' bill (Senate 225) has passed the senate.—— House bill No. 577, which gives to the State Board of Health

sanitary supervision over lodging-houses in cities of 100,000 inhabitants or more, is in the judiciary committee of the house of representatives.

Chicago.

Fined for Illegal Practice.—"Dr." Frederick L. Orsinger on March 24 was fined $200 for practicing medicine without a license. The prosecution was undertaken by the State Board of Health.

Davis Tablet Unveiled.—The memorial tablet for the late Dr. N. S. Davis was unveiled in Davis Hall of the Northwestern University Medical School, March 24. Addresses were made by Drs. George W. Webster, E. Wyllys Andrews, Emilius C. Dudley, W. O. Krohn and Dean Holgate of the university.

Deaths of the Week.—During the week ended March 25, 581 deaths were reported, equivalent to an annual mortality of 15.21 per 1,000. Pneumonia still leads death causes with 106; other principal causes are, consumption, 81; heart disease and nephritis, each 37; violence, 32, and cancer and nervous diseases, each 27.

Personal.—Dr. Roswell Park, Buffalo, was the guest of honor at a dinner March 25, when he described the researches for the cure of cancer which are being carried on under his direction. ——Dr. Horace M. Starkey announces that owing to ill health he will retire from practice in Chicago June 1, and will resume at Rockford October 1.

Smallpox Rampant.—During the past week 22 patients were sent to the Isolation Hospital. Of these none had been revaccinated, and 17 had never been vaccinated. Since January 1 232 cases have been discovered, and 34 patients have died, a mortality of 14.6 per cent. Four cases were discovered March 26 at a "Holiness" home, and one infant in a gypsy camp died from the disease.

Antitoxin and Diphtheria Mortality.—Ten years ago the antitoxin treatment of diphtheria was begun by the department. During the previous ten years ended Dec. 31, 1894, there had been 13,566 deaths from diphtheria reported—a yearly average of 1,356 and a proportion of 13.53 deaths to 10,000. During the ten years ended Dec. 31, 1904, there were only 8,129 such deaths reported—a yearly average of 812 and a proportion of 4.88 to 10,000.

INDIANA.

Isolation Hospital Burns.—The Allen County Isolation Hospital, Fort Wayne, was burned March 8, entailing a loss of $1,500. The two patients were removed without casualty.

Sanatorium Reopened.—In honor of the reopening of the Mary Jane Gilbert Memorial Sanatorium, Evansville, after it had been closed several months to be remodeled, receptions to the profession and the people were held March 8 and 9 by Drs. Wiliam H. Gilbert and George F. Greenleaf.

Injured and Operated.—Dr. William H. Mills, Boonville, was seriously injured in a runaway accident.——Dr. William H. Myers, Fort Wayne, was operated on for strangulated hernia, March 11.——Dr. Thompson R. Brady, Wabash, was seriously injured when his horse became frightened and backed off a bridge into the bed of a creek, south of town.

Epileptic Village Act Signed.—The governor has signed the Purviance bill providing for an epileptic village in Indiana and, the measure having an emergency clause, is now a law. Within ninety days the governor will appoint a board of three commissioners to select a location for the village. The bill carries an apropriation of $150,000. Persons entitled to admission may be committed to the village by the circuit judges of the various counties after each applicant has been passed on and recommended by two medical examiners appointed by the judge. The expense of clothing the patient and the traveling and incidental expenses are to be paid by the county, if not by the relatives of the patient, in the same manner as is now provided for the commitment of insane persons.

February Morbidity and Mortality.—The most prevalent malady was influenza. The order of disease prevalence was as follows: Influenza, pneumonia, tonsillitis, bronchitis, rheumatism, scarlet fever, pleuritis, typhoid fever, erysipelas, diarrhea, intermittent fever, diphtheria, inflammation of the bowels, smallpox, whooping cough, measles, puerperal fever, typhomalarial fever, cholera morbus, dysentery, cerebrospinal meningitis, cholera infantum. There were 381 cases of smallpox reported from 35 counties, with 8 deaths. In the preceding month there were 238 cases from 27 counties, with 7 deaths, and in the corresponding month of last year 408 cases from 34 counties, with 5 deaths. This shows a decrease in cases with an increase in deaths. Deaths from tuberculosis numbered 410, 29 of them being other forms than pulmonary. All but four counties in the state report deaths from this cause. The rate for the pulmonary form was 187 per 100,000. In the same month last year there were 365 deaths, a rate of 182.7. Typhoid fever was reported from 42 counties; 202 cases were reported, with 32 deaths. In the preceding month 273 cases were reported, with 50 deaths, and in the corresponding month last year 268 cases and 60 deaths. The pneumonia deaths numbered 741; in the preceding month, 558, and in the corresponding month last year, 711 deaths. Deaths by violence numbered 127, 28 suicides and 99 accidental. Of the 28 suicides 11 were females and 17 males. The methods chosen were: Hanging, 5; drowning, 1; gunshots, 12; cutting throat, 1; chloroform, 1; opium, 3, and corrosive sublimate, 5. The total number of deaths reported was 3,723, equivalent to an annual rate of 18.2 per 1,000. In the preceding month the total was 3,309, or 14.7 per 1,000, and in the corresponding month of last year, 3,477, a rate of 16.8 per 1,000. Deaths from important causes were; Consumption, 381, of these 29 being other forms than pulmonary; typhoid, 32; diphtheria, 26; scarlet fever, 11; measles, 2; whooping cough, 11; pneumonia, 73; diarrheal diseases, 13; cerebrospinal meningitis, 40; influenza, 229; puerperal fever, 7; cancer, 101; violence, 122, and smallpox, 8.

LOUISIANA.

Staff Reappointed.—On the recommendation of Dr. William Kohlmann, the entire staff of Touro Infirmary, New Orleans, was reappointed.

Tuberculosis Ward Soon Ready.—The tuberculosis ward which is being erected at the Insane Asylum of the State of Louisiana, Jackson, will be ready to receive patients early this month.

Presentation to Matas.—A body of physicians, students and friends of Dr. Rudolph Matas, New Orleans, called at his home March 19 and presented him with a silver service of 125 pieces and a loving cup, in celebration of the twenty-fifth anniversary of his graduation from Tulane University Medical Department. Dr. Stanford E. Chaille, dean of the medical school, made the presentation speech.

MARYLAND.

Hospital Report.—At Cambridge Hospital during 1904, 682 patients were treated. There were 18 deaths, 11 being from incurable diseases, 2 from accident and 2 from typhoid fever.

Personal.—Dr. Richard H. Dixon, Dorchester County, sustained a severe sprain of the right ankle by a fall.——Dr. Martin W. Goldsborough has been made pathologist and *x*-ray operator at Cambridge Hospital.

Care of State Insane.—The report of the lunacy commission shows that up to Dec. 1, 1904, there were 2,938 insane persons in the state, of whom 401 were colored. There were 220 in county almshouses, 290 in county asylums or hospitals, 793 in private and corporate institutions, and 1,635 in state and city hospitals. The total for the previous year was 2,896. The secretary, Dr. Preston, states that the insane have in large part been removed from the county almshouses, either to one of the state institutions or county asylums, which constitutes a great improvement. Four counties provide separate accommodations for the insane, 2 make some attempt at separation of the insane from the paupers, 8 send all insane to the large institutions and 8 always have a few patients that would be better cared for in a state institution. In comparing state and county supervision the following contrasts are given: State supervision—Entertainment, occupation, kindly care, scientific treatment. County system—No occupation or entertainments, negligent care, the women not safe from outrage, no treatment. He urges that the state should assume the care of all its dependent insane. He proposes that this be done by enlarging the accommodations at the two state asylums, Spring Grove to 600 or 800, and Springfield to 1,200 or 1,500. The buildings could be completed by 1909. He proposes that the former assume the care of acute cases, being near the city, and that the latter with its 700 acres is admirably adapted to take charge of the chronic cases, the criminal and the negro insane. The last class are not provided for as they should be. They must be separated from the whites, and it might be better to build a third asylum especially for them. They are very poorly provided for under the present system, chiefly in the county institutions.

Baltimore.

May Treat Deformed Gratis.—Dr. R. Tunstall Taylor has been granted permission by the school board to treat deformed school children free of charge.

Correction.—The bureau of information for visiting physicians is at the Baltimore University Hospital and not at the Johns Hopkins Hospital, as was erroneously announced in our last issue.

Committed in Default of Bail.—Dr. Isaac H. Gardiner was committed to jail March 19 in default of $10,000 to answer the charge of performing a criminal operation. A writ of habeas corpus was served for the purpose of having the bail reduced and Judge Stockbridge ordered that he be released when he should furnish $4,000 bail.

Personal.—Dr. Edward H. Hume, a graduate of the Johns Hopkins Medical School, 1901, now assistant surgeon attached to the United States consulate at Bombay, India, and specialist in diseases of the tropics, has been appointed head of the medical department of the new Yale College in Chungsha, China.——Dr. Harry Friedenwald has been re-elected president of the Baltimore Branch of the Alliance Israelit Universelle. ——Dr. Solomon J. Ulman has left Baltimore for a year's tour of Europe and North Africa.

MISSOURI.

Reappointed to Staff.—Drs. William J. Doyle and Walter C. G. Kurschner have been reappointed to the staff of the City Hospital, St. Louis.

Smallpox.—Badger Township, Vernon County, has 25 or 30 cases.——Galena has 4 new cases.——Only 6 houses are now under quarantine in Joplin.

Shooter Acquitted.—Dr. William S. Carrion, charged with assaulting Dr. J. R. A. Crossland, with intent to kill, was found not guilty by a jury March 18. These two physicians of St. Joseph indulged in a pistol duel in a barber shop in September last and Dr. Crossland was twice wounded.

Want Emergency Chests on Trains.—A bill has been introduced providing that all railroads be required to have on each passenger train an emergency dressing and instrument chest, to contain the following articles: Five pounds absorbent cotton, five pounds assorted bandages, five pounds plaster-of-paris bandages, ten yards plain gauze, one-pound bottle of chloroform (to be replaced with new bottle every four months), one hypodermic syringe with tablets, one dressing case of instruments, one amputating case, one Esmarch tourniquet.

NEBRASKA.

Hospital Open.—Fremont Hospital was opened to receive patients last week.

Amendment Passes.—The amendment to the medical practice act which has been indorsed by the Nebraska State Medical Association was passed by the senate March 22, but has since been vetoed by the governor.

New Insane Hospital Buildings Ready.—The buildings of the Nebraska Insane Hospital, Norfolk, which were destroyed by fire several years ago, are now ready to receive patients. Dr. James M. Alden, Pierce, is the superintendent of the institution.

No Certificate; Fined.—"Dr." John M. Johnson, Avoca, claiming to be a graduate of Rush Medical College, but who had not obtained a certificate from the State Board of Health, was fined $50 and costs for practicing medicine without a license, March 20.

NEW JERSEY.

Provision for Conference of State and Local Health Officers.—The legislature has just passed a law providing for an annual conference of state and local health officers, sanitary inspectors and delegates from local boards of health "for the purpose of securing uniform and efficient methods of procedure throughout the state for the promotion of the public health and the restriction of the spread of preventable diseases." The conference is to be called at such time and place as the State Board of Health shall decide, and the expenses of the delegates to the conference are provided for.

NEW YORK.

Many Seek Position.—Twenty-five physicians have applied to the civil service commission for the position of fire surgeon formerly held by Dr. E. C. W. O'Brien, deceased.

Substitute for the Pure-Food Bill.—This bill has been introduced by Senator Tully, chairman of the senate public health committee. It defines the use of paraffin and shellac in the manufacture of candy as adulterants and defines adulterants and misbrandings.

Meningitis in Yonkers.—There have been 39 fatal cases of cerebrospinal meningitis in Yonkers since January 25. This is said to be a larger mortality than that of any other place in this part of the country. The patients are not isolated, but the houses in which the cases occur are quarantined.

Danger in Hospital Crowding.—The current issue of *Charities* calls attention to the lack of facilities for consumptive patients, largely due to the present overcrowding of hospitals. It is said that in the Kings County Hospital, in addition to the 70 consumptives in the separate building for the treatment of tuberculosis, 81 consumptives remain in the general wards, and 70 have died in these general wards during the winter months. In February there were 115 floor beds in use, of which 48 were in wards where there were 42 men with positive cases of tuberculosis and a number of suspects.

Progress of the Coroner's Bill.—The hearing on the Elsberg bill took place March 21, when Dr. E. Eliot Harris appeared for the legislative committee of the New York State Medical Association and gave reasons why this office should be abolished. He said that the reason the coroner was the butt of ridicule for the public and the press was because he was a veritable "Pooh-Bah," exercising extraordinary authority and filling many offices. There was no man to be found to-day with such power of mind and versatility of talent who as coroner can sit on the bench as judge and decide the kind of evidence that shall be submitted to the jury; who possesses judicial authority to issue warrants for the arrest of those who fail to obey his commands to appear before him; who leaves the bench to answer a summons to take an antemortem statement or to examine a body, and to decide the question of the cause of death, incorporating in his decision the latest researches in chemistry, bacteriology, toxicology and pathology. The office is an expensive relic of bygone ages and has no other reason for its existence except that it has existed over 700 years.

Osteopathy Bill Favorably Reported.—The osteopathy bill, as THE JOURNAL predicted, has been favorably reported by the committee on judiciary. Dr. E. Eliot Harris, chairman of the committee on legislation of the New York State Medical Association, asks that the members of the senate and the assembly be petitioned in the interest of individual and public health to defeat the osteopathic bill for the following reasons:

1. Osteopathy, so-called, is an agent or method used in the treatment of disease, and is included in the general practice of medicine.
2. Osteopathy should not be made a special branch of medicine, by an act of the legislature, but should come under the present state laws, which govern all the special branches as well as the general practice of medicine. Any licensed physician has now the right to practice osteopathy as a specialty.
3. The legislature should protect the public by denying the endorsement of the state to any person, as being capable of treating the diseases of the human body, unless such person can make a diagnosis of the condition of the human body, to do which requires a full knowledge of the science of medicine as taught in the medical colleges of this state, including the use of drugs and other valuable therapeutic agents.
4. If the so-called osteopathic bill becomes a law all candidates who fail to pass the regents' examinations to obtain a license to practice medicine in this state may in this state treat all diseases of the human body by holding a diploma from any regular osteopathic college in the United States, a privilege which would lower the standing of this state in the educational world.

And, finally, it would be more reasonable for the legislature to separate the special branches of criminal, corporation, and real estate law from the general practice of law and establish for each of them a special examining board, so as to make it easier for the candidates for admission to the bar who desired to practice as specialists, than it would be for the legislature to select one special therapeutic agent used in the treatment of disease and to separate it from the general practice of medicine as a panacea for all diseases at the request of those enthusiasts who now ask for a special osteopathic examining board.

New York City.

Much Meningitis.—Cerebrospinal meningitis has claimed 386 lives in Greater New York since January 1. Most of the victims were children.

New High Record.—Bellevue Hospital had the highest census in its history during the past week, when 1,075 patients were enrolled. The four new pavilions recently opened made the accommodation of this number possible.

Many Coroner's Cases.—According to statistics just compiled by Coroner's Physician Weston there were 11,660 coroner's cases in Greater New York during 1904. Of these 9,810 were received at the Bellevue morgue. There are 217 in the list of unknown dead.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended March 18, 505 cases of tuberculosis, with 198 deaths; 383 cases of measles, with 9 deaths; 321 cases of diphtheria, with 34 deaths; 249 cases of scarlet fever, with 25 deaths; 149 cases of varicella; 135 cases of cerebrospinal meningitis, with 72 deaths; 31 cases of typhoid fever, with 7 deaths, and 1 fatal case of smallpox.

Confessed to Radium Cure Swindle.—Henry H. Kane and William H. Hale, who were arrested on evidence acquired by the counsel of the county medical society for having swindled a Mount Vernon carpenter out of $10,000 by means of a radium cure swindle, have been sentenced to serve four and eight months respectively in the penitentiary. The money was returned to the victim, otherwise the sentence would have been more severe.

For Hospital Funds.—A mass-meeting of the heads of hospitals and philanthropic workers was held March 23 to discuss the subject "How to Increase the Income of the Hospitals and to Stop the Leaks." It was suggested that the city should pay for charity patients about what the patients cost per capita, that the public should be taught to give generously and continuously, and that a business mechanism should be established to keep the interest of the public continually alive. A committee was appointed to study the present hospital conditions and to formulate a practical scheme for improving them.

The Meningitis Commission.—The first meeting of this body was held March 21, when maps of the city were studied with regard to the prevalence of the disease in certain localities, and the conditions peculiar to those localities were considered. They also studied the tabulated statistics of the past few years. They decided to issue cards to physicians in hospitals with blanks to be filled in with desired data. While all the questions were not decided, the commission will want to know the evidences of communicability and what is known of the biology of the bacilli producing the disease, with reference to differentiation, agglutination and pathogenesis. Under the clinical head they will inquire about the effect of drying on the bacilli and viability in spray, as bearing on isolation and infection. It is probable that the scope of the investigation will be worldwide and that information will be sought from hospitals all over the globe. The commissioners will give their services free and the entire amount given by the Board of Estimate and Apportionment will be expended for expenses incurred in compiling data. The Health Department has given diphtheria serum free to a number of the hospitals and to every person asking for it, the one stipulation being that they should receive reports of the results of its use. Dr. Biggs feared from what he had seen of the results of this treatment that there was little to hope from it. Every hospital in the city has cases of this disease at present and the mortality thus far is believed to have reached 70 per cent. One coroner's physician says that nearly a dozen cases have come under his notice within the period of a few days. The death rate is somewhat lower than for the past few weeks, and it is believed that the epidemic is on the wane.

PENNSYLVANIA.

To Relieve Congested Hospitals.—The house appropriation committee on March 22 reported favorably on bills for the immediate relief of the crowded state hosspitals for the insane. One-story fireproof buildings are to be erected within thirty days. For the Norristown State Hospital for the Insane $70,000 has been appropriated for four buildings; for the Harrisburg State Hospital for the Insane, $35,000 for two buildings, and for the Danville Hospital for the Insane, $85,000 for five buildings.

The Usual Anti-Idiocy Bill.—The legislature on March 21 passed a measure to overcome idiocy with the surgeon's knife. This is a proposition which has been presented to many former legislatures. It has always met with defeat, either in the committee or on the floor of the house, because it was deemed too radical a method. It passed both houses without meeting any very determined opposition by a vote of 125 to 28. The following is the text of the bill: "That on the first day of July after the passage of this bill it shall be compulsory for each and every institution in the state entrusted exclusively or especially with the care of idiots and imbecile children to employ on its staff at least one skilled neurologist and one skilled surgeon, of recognized ability, whose duty it shall be in conjunction with the chief physician of the institution to examine the mental and physical condition of the inmates. If in the judgment of this committee of experts and board of trustees procreation is inadvisable and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeon to perform such operation for the prevention of procreation as shall be decided safest and most effective. The operation shall not be performed except in cases that have been pronounced non-improvable after one year's test treatment in the institution."

Philadelphia.

Personal.—Dr. and Mrs. Herbert Norris have sailed for Europe.——Dr. J. Leslie Davis left the city March 18 for a trip around the world.——Dr. Robert G. LeConte has been elected a representative of the board of trustees of the University of Pennsylvania.

Anthrax Patient Recovers.—The patient admitted to the Municipal Hospital some weeks ago from New Jersey, suffering from anthrax contracted while tending cattle which had died of the disease, is recovering and will be discharged from the hospital in a few days.

Medical Class Reunion.—The class which graduated in 1868 from the Medical Department of the University of Pennsylvania celebrated its thirty-seventh anniversary at Atlantic City, N. J., March 13. Dr. Wharton Sinkler presided and 17 members of the class were present.

Money to Charity.—The net proceeds of the American charity ball amounted to $8,800. This enables the managers to give $2,200 to each of the following charities: Hospital of the University of Pennsylvania (surgical wards), Jefferson Medical College Hospital, Pennsylvania Society to Protect Children from Cruelty and the Bedford Street Mission.

Health Report.—Typhoid fever is still rapidly on the increase, 306 new cases were reported during the week. This is the largest number in any one week this year. Last week there were 247 new cases reported, 178 for the previous week and 92 for the week before. The deaths from the disease also show a proportionate increase, being 19 for this week. Most of the new cases are from the northeastern section of the city, which is principally supplied with water from the Delaware River. Comparatively few cases have been reported from the district receiving filtered water, thus confirming the statement of the health authorities that impure and unboiled drinking water is responsible for the outbreak. Two more deaths from cerebrospinal meningitis were recorded for the week, and 8 new cases of the disease were also reported. The total number of deaths from all causes reached 531. This is a decrease of 58 as compared with last week, and a decrease of 58 over the corresponding period of last year. The principal causes of death were as follows: Typhoid fever, 19; diphtheria, 7; pulmonary tuberculosis, 51; cancer, 19; paralysis, 35; heart disease, 62; bronchitis, 17; pneumonia, 65; enteritis, 30; Bright's disease, 36. There were 409 cases of contagious disease reported, with 27 deaths, as compared with 356 cases and 32 deaths for the preceding week.

GENERAL.

Physician for Insane Hospital Wanted.—Examinations will be held in various cities by the United States Civil Service Commission on April 26 and 27 to secure eligibles from which to fill a vacancy in the position of physician in the Government Hospital for the Insane, Washington, D. C., and to fill similar vacancies later. Only unmarried women between the ages of 25 and 40 years, citizens of the United States, will be examined. Credit will be given for experience in insane hospitals, in general hospitals and in actual surgical practice. Other information may be had of the United States Civil Service Commission, Washington, or the secretary of the board of examiners at any of the cities where the civil service examinations are regularly held.

Reciprocity Convention.—The American Confederation of Reciprocating, Examining and Licensing Medical Boards will hold a meeting at the Hotel Claypoole, Indianapolis, April 27, at 10 a. m. Reports will be considered from the committees on advanced standing, uniformity of state board examinations, uniformity of entrance and graduation requirements, uniformity of forms and modifications necessary in reciprocal qualifications. Reports on these subjects were presented at the previous meeting, held in St. Louis, Oct. 25, 1904, reported in The Journal, November 5 and 19, pages 1407 and 1567. Members and ex-members of state medical boards, educators and others interested in interstate medical reciprocity are invited to be present and to take an informal and advisory part in the meeting.

District Medical Libraries in Canada.—The *Bulletin Médical de Québec* is urgently advocating the foundation of a small medical library in each district, where the physicians can see the current medical journals at least. The national medical bureau has been considering the matter and voted to apply its surplus to this purpose, but to date it has had no surplus at its disposal. A committee was appointed to study ways and means to encourage the medical societies in rural districts and to promote scientific work among them. The chairman of the committee in presenting his report said that a library of current periodical medical literature would do far more than anything else to promote the desired end. A carefully chosen collection of medical journals is the best possible means to enable the practitioner to follow the progress of science and apply the results of his clinical observation. The committee recommended that financial aid should be given only to district societies with a given minimum of regular meetings and regular attendance.

CANADA.

Manitoba Medical College to Build.—The present Manitoba Medical College building being no longer able to accommodate the classes, the authorities will build a new and larger college building close to the General Hospital. The building will cost about $50,000.

Hospital for Railway Men in Winnipeg.—A movement has been inaugurated in Winnipeg, Man., to establish a railroad employes' hospital for the benefit of the men engaged in railway work from Fort William to Calgary, N. W. T. The Order of Railway Conductors is the originator of the enterprise, and a convention of delegates from railway employes' associations will be held in the near future to draft a charter and to put the scheme on a workable basis.

FOREIGN.

Australia Medical Congress.—The next Australian Medical Congress is to be held in Adelaide, South Australia, in September, 1905.

Cothenius Medal Given to von Leyden.—The Halle scientific society known as the Leopoldo-Carolinische Akademie deutscher Naturforscher, has awarded the gold Cothenius medal to Prof. E. von Leyden of Berlin "for his services in the clinical-scientific domain."

Funds for Research on Experimental Syphilis.—The Vienna Academy of Sciences has given Professor Finger and Privatdocent R. Kraus about $400 each from the Treitl endowment, for their work on transmission of syphilis to monkeys and immunization against the disease.

A Medical College for Singapore.—An endeavor is being made to raise funds to establish a medical school in Singapore. If a sum of £7,000 ($35,000) is raised the government of the Straits Settlements is prepared to provide a building and to equip it for teaching purposes.

Charitable Bequests by Paris Surgeon.—The will of Professor Tillaux, who died last October in Paris, leaves $100,000 to a fund for providing old age pensions for working men. He also bequeathed about $2,000 to the medical association of the Seine district and $400 to the society of former internes of the Paris hospitals. Tillaux was a prominent surgeon, president of the Académie de Médecine at the time of his death, and author of several text-books.

Decrease in Numbers of Medical Students in Germany.—During the last ten years the number of medical students at the twenty German universities has dropped from 7,796 to 5,926, a decline of about 24 per cent. In 1830 there were 2,355 medical students at these universities, and this average was maintained until 1881, when the number rose to 4,779 and to 8,381 in 1890, the maximum ever attained. The number of medical students at Berlin in 1895 was 1,220; it is now 1,111.

Accommodations for the Lisbon Congress.—The Hamburg-American line has placed the *Hamburg* at the disposal of the German physicians and their families who wish to attend the International Medical Congress at Lisbon next year. The vessel will be moored at some convenient wharf and will serve as a hotel for the passengers during the congress. After a brief trip to Gibraltar and Madeira the vessel will return to Hamburg. The *Lancet* of February 11 states that Cook & Son have offered to charter a passenger ship for the English members of the congress, to serve as a floating hotel. The hygienic conditions of the anchorage are now being investigated before arrangements are finally concluded.

Annual Meeting of the Board of the Munich Medical Weekly.—Our esteemed contemporary, the *Münchener medicinische Wochenschrift*, is published by twelve physicians, only five of whom reside in Munich. The list includes Curschmann, Bäumler, von Leube and von Ranke. At the annual meeting in March about $3,100 were distributed among various societies for the relief of widows and orphans of physicians, and other organizations for the aid of members of the profession. About $500 were given to the "Leipziger Verband," $100 to the Pettenkofer House building fund, and $50 to the Riegel Memorial fund. The sum thus distributed annually out of the profits of the weekly has grown a little every year to the present total of 12,400 marks or about $3,100.

Measures Against Yellow Fever in Brazil.—A most energetic campaign against yellow fever has been carried on at Rio Janeiro by the authorities during the last few months. A large force of men has been employed to exterminate or to sterilize the breeding places of mosquitoes. The rain water drains are sterilized with the Clayton apparatus, which kills rats and all forms of life in the drains. The houses where cases of yellow fever occur are disinfected and the patients are protected with netting. The supreme court, however, has recently decided that this disinfection of a house can not be carried out against the express command of the householder, a trial case having been appealed, as mentioned in these columns March 25. The *Brazil Medico* and the chief of the public-health service express great consternation at this decision, which threatens to annul the prophylactic work of the authorities. They claim that the material is all ready for a conflagration, as there have been one or two deaths from imported yellow fever every fortnight during the last three months, the total mortality during the winter being about 13, but there has been no epidemic, as such strict precautions have been taken. Immigrants are arriving by thousands, trusting in the assertions by the government that yellow fever has been stamped out, and these assertions have been borne out by the facts; there is no yellow fever endemic in Rio Janeiro. They lament that it will regain its reputation of being a focus for yellow fever if this decision of the supreme court is allowed to stand.

Approaching International Congress of Surgery.—The preliminary announcement of this First International Congress of Surgery was mentioned in THE JOURNAL of Oct. 22, 1904, page 1242. The congress will convene at Brussels on Monday, September 18 and close on Saturday, September 23. Prof. T. Kocher of Berne will take the chair, and the following six questions have been appointed for discussion: "Value of the Blood Count for Surgery," with addresses by W. W. Keen, 1729 Chestnut Street, Philadelphia, ex-president of the American Medical Association; by Sonnenburg of Berlin, Depage of Brussels and de la Torre of Madrid. The second theme is "Treatment of Hypertrophied Prostate," with addresses by R. Harrison of London, T. Rovsing of Copenhagen and von Rydygier of Lemberg. The third question is "Surgical Intervention in Non-Malignant Affections of the Stomach," with addresses by Mayo Robson of London, von Eiselsberg of Vienna, Mattoli, Monprofit of Angers, Rotgans of Amsterdam and Jonnesco of Bucharest. The "Treatment of Tuberculosis of the Joints" is to be presented by Bier of Bonn, Broca of Paris, Bradford of Boston, Codivilla of Bologna and Willems of Ghent. The fifth theme is "Treatment of Peritonitis," with addresses by Lennander of Upsala, Friedrich of Leipsic, Lejars of Paris, McCosh of New York, Krogius of Helsingfors and de Isla of Madrid. The closing discussion will be on the "Diagnosis of Surgical Affections of the Kidney," to be presented by Albarran of Paris, Kümmel of Hamburg, Giordano of Venice and Lambotte of Brussels. It is announced that the discussions will be restricted to these six subjects. Dr. C. Willems, 6 Place St.-Michel, Ghent, Belgium, is the secretary general of the congress.

Antituberculosis Legislation in the Scandinavian Countries.—As long ago as 1901 Norway made compulsory the notification of cases of pulmonary and laryngeal consumption and of all deaths from tuberculosis. All tuberculous patients have to be instructed in regard to hygienic precautions by their attending physician or the public medical officer. The public authorities take charge of the disinfection of dwellings and private belongings. The authorities are also empowered to remove to a hospital any consumptive who is considered a menace to his surroundings. The laws further provide against employment of tuberculous nurses for children, and enjoin hygienic precautions in hotels, factories, workshops, cars, etc.

A somewhat similar law, but less stringent, went into effect in Sweden on Jan. 1, 1905. Denmark is on the point of adopting still more comprehensive regulations. The bills now under discussion have been favorably indorsed by the legislators of all parties and there is every prospect that they will be or have already been adopted. The bills were drawn up by a committee of three: Drs. K. Faber, C. Lorentzen and a government official. In addition to the provisions of the Norway law, schoolmasters are required to report any cases of tuberculosis that come to their knowledge among the children, and applicants for the post of school teacher must present a certificate to the effect that they are free from tuberculosis. A teacher suffering from tuberculosis in an infectious form is to be pensioned with two-thirds of the salary he has been receiving. All institutions where the tuberculous receive treatment are to be under government inspection, and the number of beds and rate of charges are under state control. Certain classes of patients are to receive assistance from the state and the government also undertakes to assist in building new sanatoria. These various measures undertaken by the government to prevent the spread of tuberculosis are set forth in a pamphlet recently published in French by H. Rordam at Copenhagen. The National Antituberculosis League was founded in 1901, and now has more than 29,000 members. It owes its inception to the author of the above pamphlet and to Dr. C. Lorentzen.

LONDON LETTER.

Proposed Union of the Medical Societies of London.

The want of centralization is a feature of the medical institutions of London—hospitals and societies. It is no doubt due to that spirit of individualism which has played such an important part in English life and which has led people to do things themselves instead of looking to the state to do them for them. But however admirable in some respects, and in spite of the great results which have been achieved by it, this individualism his certain drawbacks. The large number of independent medical societies in the metropolis is a case in point. This involves needless expense in the support of separate buildings and often of separate libraries, and also all the evils of want of co-ordination. Thus (putting aside merely local societies) there are four large societies which cover much the same ground and which deal with general medicine and surgery—the Royal Medical and Chirurgical, the Medical Society of London, the Clinical, and the Hunterian, and there are also the societies devoted to specialties. For many years the desirability of uniting all the societies into one body and bringing them under one roof has been mooted, but has never taken practical shape. At last, however, a step has been taken in this direction. At the annual general meeting of the most important of these societies, the Medical and Chirurgical, the president, Sir Douglas Powell, in his address spoke of the benefits to the profession from the union of the medical societies of London into one "Royal Society of Medicine." The proposal was supported by Sir Thomas Smith, Mr. D. H. Goodsall, Dr. Theodore Williams, Mr. Timothy Holes and Dr. W. H. Allchin. The following resolution was carried unanimously: "That the council of the society be requested with as little delay as possible to invite the leading medical societies of London to arrange for a joint meeting for the purpose of considering the advisability of amalgamating, and to take the necessary preliminary steps for that purpose." The project is certainly of great importance, for all these societies are not merely London societies, but representative of the men of eminence in the whole country.

Pharmacology

PHARMACY AND CHEMISTRY IN THEIR RELATIONS TO MEDICINE.

The business of manufacturing pharmaceutical preparations is essentially an American institution, and it is an interesting fact that the largest pharmaceutical manufacturing firms in the world are in the United States.

Prior to 1850 retail druggists usually obtained their supplies of galenical preparations from wholesale druggists or from manufacturing chemists, who had added galenicals to their limited line of chemicals. With the introduction of concentrated preparations, such as fluid extracts, and subsequently, the elixirs, syrups, and pills, pharmacists and wholesale druggists began to engage in the manufacture of these preparations, and gradually extended their business until to-day, some of these concerns are mammoth establishments, doing business on a gigantic scale, and providing for every conceivable medicinal want of the physician. Some of these establishments, in connection with their biologic departments, maintain thousands of live animals for experimental purposes. These establishments have grown up mostly since the Civil War, as at that time the government laboratories could not keep up with the demands of the U. S. Army Hospital Department, and, therefore, had to rely on outside manufacturers. The greater number of these firms had a small beginning, though a notable exception is the Tilden Co., at Mt. Lebanon, N. Y., which was founded by the brother of the unsuccessful candidate for the presidency in 1876, and in which he is said to have largely invested. The cultivation, collection and preservation of medicinal plants or drugs by the Shaker colony at Mt. Lebanon suggested the manufacture of the concentrated extracts, and it was there that fluid extracts were first produced on a large scale.

FLUID EXTRACTS.

The first fluid extract of the kind now familiar was made by William Procter, Jr., of Philadelphia, who published a process for making fluid extract of ergot in 1857. In the same year, Frederick Stearns of Detroit made an elaborate report on the elegant pharmaceuticals of French origin—the first of the present French specialties—in which fluid extracts of a half score drugs were also recommended. The fluid extracts were a distinct advance in pharmacy. They were sufficiently concentrated to permit the administration of the required amount of the drug without the employment of too much alcohol and they were of uniform drug strength, viz., 1 minim represented 1 grain of the drug. They had thus a distinct advantage over tinctures and other liquid preparations, whose variable strength, or rather lack of uniformity in drug strength, was often confusing. As fluid extracts could be made more cheaply on a large scale than in a small way, the large manufacturers were able to offer the ordinary fluid extracts at prices lower than they could be made by the average retail druggist, and having obtained a start in this way, the manufacturers soon extended their operations; first, by introducing new remedies in fluid extract form, and afterward by adding numerous lines of the so-called elegant preparations as these latter were devised by pharmaceutical art and science in response to progressive therapeutics, until the articles catalogued now number in the thousands.

THE ELIXIRS.

The term elixir had been used from the time of the alchemists to designate various preparations designed to prolong life, from elixir *ad longam vitam* and elixir paracelsi to elixir paregoric, but the adoption of this name for the preparations now so designated is of more recent origin. The first elixir of this class was the elixir cinchona made by A. B. Taylor of Philadelphia in 1859. This was followed by the elixir ammonium valerianate in which the disagreeable taste of the salt was nicely masked. The compound elixir of taraxacum was designed about this time by P. C. Candidus, a pharmacist yet practicing in Mobile, who accidentally discovered the value of the elixir in disguising the bitter taste of quinin sulphate. It was subsequently observed that the licorice contained in this elixir was the most effective agent in disguising the bitter taste of drugs, which led, therefore, to the use of the various elixirs of glycyrrhiza as adjuvants.

THE "PHARMACIE ELEGANS."

About this time, prominent pharmacists in Philadelphia and in New York began to put up the usual forms of prescription mixtures of quinin, iron and strychnin, the iodids, bromids, etc., in elegant appearing and palatable forms, and to sample physicians with them under the name of elixirs. The business grew until these retail pharmacies soon engaged in the manufacture of elixirs as a specialty and they became large establishments. John Wyeth & Brother, and Hubbell & Co., Philadelphia, Caswell & Hazard, and Reed & Carnrick of New York, were among the earliest of these firms to begin the manufac-

ture of these preparations. The elixirs were exceedingly palatable, they were agreeable in appearance and flavor, and when honestly and carefully prepared they were indeed a desideratum, enabling prescribers to escape the thralldom of only too often repulsive decoctions and infusions. As long as they were prepared true to formula they were a distinct advance in pharmacology and in therapeutics, but competition, and the preparation of elixirs by persons without special skill or experience caused physicians to become suspicious of this class of preparations. This suspicion was strengthened by the attempt to present every imaginable medicinal combination in the form of elixirs. The most incompatible substances were presented often in the most eligible appearing elixir, until it was said of them that they were the most striking illustration of that kind of pharmaceutical products in which "therapeutic efficiency had been sacrificed for pharmaceutical elegance." The elixir thus began to fall in disrepute, and while in many respects they respond most closely to the maxim of *curare cito, tuto et jucundo,* with a few important exceptions, they are now but little used.

Miscellany

THE AMERICAN PHYSICIAN.

Pointed Criticism of the American Medical Man by a Chinese Visitor.

To look at ourselves and our affairs through the eyes of others is often very enlightening; it is at least suggestive. The *Medical News*, Jan. 7, 1905, quoted a chapter from "As a Chinaman Saw Us," a book published by D. Appleton & Co., New York City, from which we quote certain portions as follows:

"The Americans have made rapid advances in medicine and surgery and they have some extraordinary physicians. From two to four years of study completes the education of some of the doctors, and hundreds are turned out every year. Some are of the old and regular school of medicine, but others are called homeopathic, which means that they give small doses of the more powerful medicines. Then there are those who practice in both schools. Indeed, in no other field does ignorance, superstition, credulity and lack of real education display itself as among the American doctors and healers. I believe I could fill a volume by a mere enumeration of the diabolical and absurd nostrums offered by knaves to heal men who profess to hold in ridicule the Chinese doctors."

After enumerating with astonishment the varieties of healers, as Eddyites, faith curists, spirit doctors, fake hypnotists, water curers, osteopaths, color doctors, electric healers, etc., he continues:

"But the most amazing class comprised the patent-medicine men, who are usually not doctors at all, but buy from someone a 'cure' and then advertise it, spending in one instance which I investigated $1,000,000 a year. Every advantageous wall, stone or cliff in America will be posted. You see the name at every turn, and the gullible Americans bite, chew and swallow.

"It is not overstating facts when I say that three-fifths of the people buy some of these patent nostrums, which the real, medical men denounce, showing that the masses of the people are densely ignorant, the victim of any faker who can shout his wares loud enough. In China such a thing would be impossible; the block would stop the practice; but the Americans assure me that China is a thousand years behind the times, for which let us be devoutly thankful.

"I have not enumerated a tenth of the kinds of doctors who prey on these unfortunate people. There are companies of them who guarantee to cure anything, and skillfully mulct the sick of their last penny. There are retreats for the unfortunate, farms for deserted infants, and homes for unfortunate women carried on by villains of both sexes. There are traveling doctors who go from town to town, who cure 'while you wait,' and give a circus while talking and selling their cures; and in nine cases out of ten the nostrum is an alcoholic drink disguised.

"In no land under the sun are there so many ignorant, blatant fakers preying on the people, and in no land do you find so credulous a throng as in America, yet claiming to represent the cream of the intelligence of the world; they are so easily led that the most impossible person, if he be a good talker, can go abroad and by the use of money and audacity secure a following to drink his salt water, paying a dollar a bottle for it and singing his praises. Such a doctor can secure the names and pictures of judges, governors, senators, congressmen, prominent men and women, officers of the volunteer army, artists, actors, singers—in fact, prominent people of all kinds will provide their pictures and give testimonials which are blazonly published. These same people go to a Chinese drug shop and laugh at the 'heathen' drugs, and wonder why the Chinaman is alive. America has a body of physicians and surgeons who are a credit to the world, modest, conscientious, and with a high sense of honor, but they are as a dragon's tooth in a multitude to the so-called 'quacks' who take the money of the masses and prey on them, protected in many cases by law. No one profession demonstrates the abject credulity of the great mass of Americans as that of medicine. . . .

"Of the best physicians in America one can not say enough in praise. I was most impressed with their high sense of honor. They have an agreement which they call their 'ethics' by which they will not advertise or call attention to their learning. Consequently the lower and ignorant classes are caught by the blatant chaff of the patent-medicine venders and the 'quack' doctors. What the word 'quack' means in this sense I do not quite know; literally it means the cry of a goose. The 'regular doctor' will not take advantage of any medicine he may discover or any instrument; all belongs to humanity, and one doctor becomes famous over another by his success in keeping people from dying. The grateful patient saved tells his friends, and so the doctor becomes known. In all America I never heard of a doctor that acted on the principle which holds among our doctors, that the best way to cure is to watch the patient and keep him well, or prevent him from being taken sick. The Americans in their conceit consider Chinese doctors ignorant fakers; yet, so far as I could learn, the death rate among the Chinese, city for city, country for country, is less than among Americans. The Chinese women are longer lived and less subject to disease. In what is known as New England, the oldest well-populated section of the country, people would die out were it not for the constant accession of immigrants. On the other hand, the Chinese constantly increase, despite a policy of non-intercourse with foreigners. The Americans have, in a civilization dating back to 1492, already begun to show signs of decadence, and are only saved by constant immigration. China has a civilization of thousands of years, and is increasing in population every day, yet her doctors and their methods are ridiculed by the Americans. The people have many sayings here, one of which is, 'The proof of the pudding lies in the eating.' It seems applicable to this case."

Correspondence

Osteopathy.

CLEVELAND, OHIO, March 22, 1905.

To the Editor:—I have noticed that in articles relative to osteopathy, the profession makes the claim that it is "massage" or "Swedish movements" or something akin to these, and that the osteopath as specifically denies this and says that, although there is a similarity in these various systems of mechanotherapy and osteopathy, yet "there is a difference essential in kind and fundamental in importance." His statement is probably not true, but the question as to what oste-

opathy is does not seem to be the essential point to determine, but rather what is the value of his method. If it is a worthy system of healing it should be recognized and used, while if its claims are false it is criminal to allow the practice.

The followers of this "school" affirm that "osteopathy is still in its infancy," and yet they claim that nearly or quite all diseases are amenable to its influence! Diagnoses are made and treatment given by operators who are nominally required to give but twenty (20) months to the study of the method. Those operators are sincere in their belief—the majority of them. Their school teaches them to be quite optimistic in osteopathy and always pessimistic in everything else. It is useless to appear before courts and to affirm that osteopathy is massage, etc., for this does not affect their claims that they effect cures. Likewise, nothing is gained by placing a dead lamb on the witness' table and challenging the operator to move bones. Such opposition only goes to support their statements that the theories and methods of their practice are not understood.

Usually when scientific claims are made it is customary to furnish the evidence for such, but in no osteopathic text-book am I able to find even one original experiment on which a claim is based, and their theory is one which demands physiologic proofs. So far as I know, no osteopathic school gives a course in experimental physiology—the Kirksville school perhaps schedules one, but does not give it. Their "science" is based on theory alone, and yet the operators have pushed forward their views with an enthusiasm which one would expect to be backed by far stronger arguments than the one usually given—"we get results." It would seem that the only reasonable method for determining the value of osteopathy lies in a thorough experimental research of its theories and the fact that this is not done by osteopaths themselves does not relieve the medical profession of this duty.

Osteopathic theories change, and the teachings of a few years ago are now obsolete—perhaps criticism has accomplished this—and may not the present claims of osteopaths be decidedly modified if some one who has the time and opportunity will make a complete study of their tenets. The results would be interesting—and valuable. E. F. Wakefield.

Straw Charcoal Dressings of the Japanese.

Brooklyn, N. Y., March 20, 1905.

To the Editor:—I am greatly interested in an item under the above title which appeared in The Journal, March 4, page 731. In this item credit is given to Surgeon-General Kikusi for having first suggested the use of charcoal for primary dressings in such cases. As you will see by enclosed extract from reprint of a paper read at the International Medical Congress in London, 1881, I must lay claim to originality as to suggestion and technic, viz.: "I believe a large amount of these septic complications is due to the direct infection"; and after some explanatory remarks, urged the following substitute for the ordinary bandaging: "Among almost all continental nations charcoal is largely used, and everywhere available, and easily obtained; I would suggest, then, after operation, the instant envelopment of the wounds, particularly those of the limbs, and especially, as I think, those of the lower limbs, in a sack or bag (a common, small pillow-slip would serve) of charcoal, finely pulverized; a fair excess of this to be used, so as to shield and envelop the tissues; the charcoal to be either directly laid on the wound or mediately, a fold of some dressing, gauze, book muslin, or the like, being applied next the surface; this not to be removed for days at a time, except under pressing necessity, and then preferably by a jet of water from some clean source; the same form of dressing to be reapplied thereafter when necessary." The paper mentioned was published in full in the *New York Medical Journal*, October, 1882, under heading, "A Ready and Convenient Antiseptic Dressing for Amputation and Other Open Wounds in Field Hospitals." A supplementary paper on the same subject was published by me in the *Medical Record*, Jan. 30, 1897. S. Sherwell, M.D.

The Oldest New Hampshire Practitioner.

Worcester, Mass., March 21, 1905.

To the Editor:—In The Journal, March 11, 1905, in the list of deaths it is stated that Alvah R. Cummings, M.D., aged 78, Dartmouth Medical College 1853, was the oldest practitioner of New Hampshire and the oldest member of the New Hampshire Medical Society. I wish to correct the last two statements, for, so far as my knowledge goes, that honor belongs to my friend and former colleague, William Waterhouse, M.D., of Barrington, N. H., now in his eighty-ninth year. He was born Aug. 28, 1816, graduated from the Medical Department of the University of New York in 1842, and joined the New Hampshire Medical Society in 1860, twenty-one years before Dr. Cummings joined the same society. Dr. Waterhouse has been in constant practice up to within a year and is now enjoying good health. He is ten years the senior of the late Dr. Cummings. R. J. Ward.

Memorial to Dr. N. S. Davis.

Hartford, Conn., March 20, 1905.

To the Editor:—The American Medical Society for the Study of Alcohol and Other Narcotics has arranged to hold a memorial meeting in memory of the late Dr. N. S. Davis of Chicago at Portland, Ore., July 11, 1905. An entire evening will be devoted to commemorative addresses and papers on the life and work of Dr. Davis. Dr. H. O. Marcy, Boston, will deliver a memorial oration, which will be followed by addresses by Drs. Webster, Hall, Crothers, Hollister, Didama and others. Arrangements are being made to establish a memorial lectureship to the work and memory of Dr. Davis to be delivered annually at the sessions of the Association.

T. D. Crothers.

An Explanation.

Louisville, Ky., March 28, 1905.

To the Editor:—In our efforts to place before the medical profession testimony of the highest character from physicians who have used our preparations (formula published), we issued postal cards bearing a testimonial given us several years ago by Dr. Lewis S. McMurtry, President-elect of the American Medical Association. Dr. McMurtry was not aware that these cards were issued, and, of course, had never given his consent or approval. On receiving a protest from him, we immediately ceased issuing the objectionable cards, and we desire to offer voluntarily this explanation.

George A. Newman Co.
By Addison Dimmitt, Sec'y.

Praises Improved Arrangement of Journal Digest.

Lawrence, Mass., March 21, 1905.

To the Editor:—I can not forbear expressing my satisfaction at the changed position of digest and contents in The Journal. The placing of the second page of contents directly after the first without intervention of advertisements is much more convenient and professional in appearance.

W. H. Merrill, M.D.

Association News

Portland Session Worth Attending at Great Trouble and Expense.

From both points of view—the opportunities of the session and the attractiveness of the trip—the Portland session should be one of the most largely attended in the history of the Association, predicts the *Medical Fortnightly*. No argument is needed to convince regular and occasional attendants that the scientific worth of the sessions wherever held, always abundantly repay for all expenses and inconveniences incurred; the Portland session will be no exception to this rule, the program promised will be interesting and instructive in a high degree to workers in all lines of medical science—a better has never been prepared; add to this

the opportunity of rubbing shoulders with the men who are doing things in medicine, and it needs no more to convince one that one's presence will have been abundantly worth while. But while the scientific is the foremost aim and object of the session of the Association, it is also a fact that a good majority of those who attend make the occasion a time for recreation and sight-seeing. Never have greater opportunities been offered for this than are at our command this year. The Portland Exposition will be in size and attractiveness in the class of that at Buffalo; the chief criticism of the St. Louis Exposition was that it was so large that it could not be seen in less than a month and that its very immensity was a disadvantage; Portland's will be free from this criticism, but will furnish an abundance of natural and artificial beauties and such a mass of scientific, art, industrial and natural exhibits as must prove interestingly entertaining and satisfying. Profiting from the experience of former exposition cities, Portland will be better able to care for her guests than ever before has been done; hotel and private accommodations will be abundant at very reasonable rates.

Marriages

JOHN D. MILLER, M.D., Dayton, Ohio, to Miss Julia Kelly of New York, January 20.

JAMES T. BLACK, M.D., to Miss Alda M. Anderson, both of Elroy, Texas, February 22.

HERBERT NORRIS, M.D., to Miss Harriet W. Frothingham, both of Philadelphia, March 15.

FOWLER BORDER, M.D., Mangum, Okla., to Miss Maude Holcomb of Hobart, Okla., February 22.

SAMUEL SCHULTZ, M.D., Coldwater, Mich., to Miss Annie Bacon, at Chelsea, Mich., March 18.

JAMES MCFADDEN, M.D., Appleton, N. Y., to Mrs. Arian T. Benton of Saratoga, N. Y., March 7.

HENRY KENNON DUNHAM, M.D., to Miss Amelia Smith Hickenlooper, both of Cincinnati, March 14.

JOHN RANKIN MCELROY, M.D., Jonesville, N. Y., to Miss Clair Ella Tanner of Cohoes, N. Y., March 8.

J. H. MORGAN, M.D., Dighton, Kan., to Miss Lettie Bargdall of Chillicothe, Mo., at Kansas City, March 18.

Deaths

Russell Murdoch, M.D. University of Virginia Medical Department, Charlottesville, 1861, of Baltimore, surgeon in the Confederate service during the Civil War, one of the founders of the Baltimore Eye, Ear and Throat Hospital; formerly lecturer on diseases of the eye and ear in the University of Maryland, and professor of diseases of the eye, ear and throat in the Woman's Medical College, Baltimore; a member of the Medical and Chirurgical Faculty of Maryland, American Ophthalmological Society and American Otological Society, died at Johns Hopkins Hospital, Baltimore, March 19, from cerebral hemorrhage which occurred just after he had completed an operation the previous afternoon, aged 66.

Michael H. Brophy, M.D. Laval University Medical Department, Quebec, 1885, dean of the College of Physicians and Surgeons of Quebec since 1898 and one of the founders of the *Bulletin Médical de Québec* and of the Association of French-Speaking Physicians of North America, died at his home at Ste. Foye, Quebec, February 24, from pneumonia, after a short illness, aged 45.

Amos Harrison Brundage, M.D. New York University, New York City, 1855, a member of the New York State Medical Association, surgeon of the One Hundred and Seventy-ninth New York Volunteer Infantry and Sixth New York Volunteer Cavalry in the Civil War, died March 22 at his home in Brooklyn, N. Y., from cerebral hemorrhage, aged 76.

Andrew W. Patterson, M.D. Pennsylvania Medical College, Philadelphia, 1841, founder of Eugene City, Ore., member of the territorial legislature, state senator in 1870, surgeon during the Rogue River Indian campaign of 1885-1886, for three terms superintendent of schools of Lane County, died at his home in Eugene City, Dec. 20, 1904, aged 90.

Willis P. Spring, M.D. Harvard University Medical School, Boston, 1879, a member of the American Medical Association, formerly coroner and county physician of Hennepin County, Minn., died at his office in Minneapolis from accidental asphyxiation by gas, March 22, after lying unconscious for sixty hours, aged 50.

Thaddeus W. Johnson, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1885, some-time state senator, alderman, president of the Board of Education, and twice mayor of South Pittsburg, Tenn., died March 16 at his home in that city from nephritis, after a protracted illness, aged 52.

Frank Dulin, M.D. St. Louis College of Physicians and Surgeons, 1882, a member of the American Medical Association, police surgeon of Denver, died at the Emergency Hospital, Denver, March 14, two days after he had been shot while in the execution of his duty by an insane criminal.

Benjamin B. Lenoir, M.D. Jefferson Medical College, Philadelphia, 1846, a member of the American Medical Association, and for nearly sixty years a practitioner of Loudon County, Tenn., died at his home in Lenoir City, March 13, from pneumonia, after an illness of one week, aged 84.

John S. Briggs, M.D. University of Nashville (Tenn.) Medical Department, 1889, died at his home in Bowling Green, Ky., March 17, from acute meningitis after an illness of two weeks, aged 38. He retired from practice several years ago on account of ill health.

Samuel B. Hoppin, M.D. Jefferson Medical College, Philadelphia, 1852, surgeon in the Navy during the Civil War, for thirty years registration physician in the prothonotary's office, Philadelphia, died at his home in that city, March 21, aged 86.

George W. Phillips, M.D. Indiana Medical College, Laporte, 1846, surgeon of the Seventy-fifth Illinois Volunteer Infantry in the Civil War, died at his home in La Junta, Colo., March 17, from the effects of a fracture of the femur fifteen months before, aged 83.

John A. Smith, M.D. Medical Department of Western Reserve University, Cleveland, 1881, some-time coroner and physician of Lawrence County, Pa., died at his home in New Castle, March 21, after an illness of several months, aged 49.

Alexander F. H. Gale, M.D. College of Physicians and Surgeons in the City of New York, 1887, of New York City, died at sea on the steamer *Trinidad*, on which he was taking a trip for his health, March 17, from influenza, aged 35.

George Adams Bright, M.D. Harvard University Medical School, Boston, 1860, rear admiral U. S. Navy, retired, formerly in charge of the Naval Hospital, Washington, died at his home in that city, March 12, aged 67.

Abraham S. Brubaker, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1877, died at his home in Indianapolis, March 16, from the effects of injuries received in a fall a year ago, aged 52.

John A. Gregg, M.D. Dartmouth Medical School, Hanover, N. H., 1883, of Somerville, Mass., died in the Massachusetts General Hospital, Boston, March 14, from heart disease, after an illness of two weeks, aged 56.

Samuel B. McCleery, M.D. Jefferson Medical College, Philadelphia, 1871, of Lancaster, Pa., died at the general hospital in that city, March 21, from cerebral hemorrhage, after an illness of two weeks, aged 56.

Robert Harris Awl, M.D. Pennsylvania Medical College, Philadelphia, 1842, treasurer of Northumberland County, Pa., in 1864 and 1865, died at his home in Sunbury, March 13, from influenza, aged 85.

John C. Scott, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1870, of St. Catharine, Mo., died at the State Hospital for the Insane No. 2, near St. Joseph, Mo., March 14, from paresis, aged 64.

Moses Richardson, M.D. Jefferson Medical College, Philadelphia, 1856, surgeon of the Forty-second Georgia Infantry, C. S. A., during the Civil War, died at his home in Norcross, Ga., March 15, aged 75.

Gustavus A. Doren, M.D. Berkshire Medical College, Pittsfield, Mass., 1859, superintendent of the Ohio Institution for the Feeble-Minded, Columbus, died at his home in that city, March 23, aged 67.

William Robert Reud, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1869, was found dead in the rooms of his nephew in Boston, February 1, from angina pectoris, aged 69.

Horace D. Allen, M.D. Castleton (Vt.) Medical College, who retired from practice in 1875, died at his home in Rutland, Ill., February 19, from cardiac asthma, after an illness of four weeks, aged 79.

Henry A. B. Klippel, M.D. Missouri Medical College, St. Louis, 1899, of St. Louis, died at quarantine, March 17, from smallpox contracted while attending a patient, after a short illness, aged 29.

William Harris, M.D. Jefferson Medical College, Philadelphia, 1891, once postmaster at Hamburg, Pa., died at his home in that city from pneumonia, March 19, after an illness of one week, aged 62.

George M. Armstrong, M.D. Jefferson Medical College, Philadelphia, 1871, died at his office in St. Louis, March 23, from an overdose of morphin, taken with suicidal intent, aged 58.

John J. Garland, M.D. The University and Bellevue Hospital Medical College, New York City, 1899, died at his home in Syracuse, N. Y., March 20, after a long illness, aged 31.

Eleanor McAllister, M.D. College of Medicine, Syracuse, (N. Y.) University, 1888, of Redding, Cal., died at a hospital in San Francisco, March 19, after an operation, aged 40.

Carter Berkeley, M.D. College of Physicians and Surgeons, Baltimore, of Staunton, Va., died suddenly in the Beverly Club in that city, March 7, from heart disease, aged 67.

Hugo Koethe, M.D. Erlanger University, Germany, 1874, died at his home in Williamsburg, Brooklyn, N. Y., March 16, from heart disease, after an illness of one month, aged 53.

Ivan E. Amilon, M.D. Jefferson Medical College, Philadelphia, 1896, formerly of Philadelphia, shot and killed himself, March 8, at his room in Chicago, while despondent.

Theodore C. Dolan, M.D. Detroit College of Medicine, 1904, of Lima, Ohio, died at St. Mary's Hospital, Detroit, from tuberculosis of the kidneys, March 21, aged 25.

John Brill, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1872, died at Silver Creek, Miss., March 7, from cerebral hemorrhage, aged 50.

William D. Taylor, M.D., who served in the Philippine Islands as surgeon of the California Heavy Artillery, died at his home at Alameda, Cal., Nov. 11, 1904.

George E. Elley, M.D. Bellevue Hospital Medical College, New York City, 1869, died suddenly at his home in West Line, Mo., from heart disease, March 14.

Frank Newell Armstrong, M.D. Rush Medical College, Chicago, 1890, of Richmond, Ill., died suddenly in Morris, Ill., from heart disease, March 13, aged 38.

William E. Treadwell, M.D. Chicago, 1884, of Maple Park, Ill., died in Elgin, Ill., March 17, from cerebral hemorrhage, after an illness of one week, aged 54.

Alexander L. Wilson, M.D. Missouri Medical College, St. Louis, 1884, died at his home in Tulare, Cal., March 17, after an illness of seven months, aged 45.

Richard Hamilton Thompson, M.D. University of Maryland School of Medicine, Baltimore, 1839, died at his home in Washington, D. C., March 21, aged 86.

John F. Hickey, M.D. Medical College of Indiana, Indianapolis, 1871, died at his home in Chanute, Kan., March 14, from cerebral hemorrhage, aged 62.

C. J. Armstrong, M.D. Cincinnati, 1854, died at his home in Bassett, Neb., from general paresis, February 19, after an illness of one year, aged 76.

Edward M. Beardsley, M.D. Medical Institution of Yale College, New Haven, Conn., 1845, died at his home in Monroe, Conn., March 12, aged 82.

James H. Stanton, M.D. St. Louis College of Physicians and Surgeons, 1898, died March 22 from typhoid fever at his home in Prairie du Chien, Wis.

George F. Corse, M.D. University of Maryland School of Medicine, Baltimore, 1864, died at his home in Gardenville, Md., March 23, aged 65.

Edwin Oliver, M.D. University of the Victoria College, Coburg, Ont., 1866, died recently at his home in Sarnia, Ont., and was buried March 14.

John P. Lombard, M.D. New York University, New York City, 1888, died at his home in Boston, March 21, from heart disease, aged 44.

C. Edwin Wright, M.D. Pennsylvania, 1883, of Philadelphia, died at Deland, Fla., March 16, from cerebral hemorrhage, aged 58.

Willis L. Bartholomew, M.D. New York, 1886, formerly of Canastota, N. Y., died at Middletown, N. Y., Nov. 25, 1904, aged 40.

William F. Bland, M.D. Jefferson Medical College, Philadelphia, 1849, died at his home in Baltimore, Dec. 25, 1904, aged 77.

William N. Bonesteel, M.D. Albany (N. Y.) Medical College, 1863, died at his home in Troy, N. Y., March 20, after a long illness.

Hudson B. Stevens, M.D. Starling Medical College, Columbus, 1854, died recently at his home in Columbus, Ohio.

John Dow Lance, M.D. Ohio, 1877, died at his home in Providence, R. I., March 17, aged 54.

J. C. Bates, M.D., died recently at his home in Silver City, Ark.

Book Notices

Studies in General Physiology. By Jacques Loeb, Professor of Physiology in the University of California. The Decennial Pubications. Second Series. Vol. XV. Parts 1 and 2. Cloth. Pp. 782. Price, $7.50 net. Chicago: The University of Chicago Press. 1905.

The decennial publications of the University of Chicago are issued in commemoration of the completion of the first ten years of the university's existence, and the two volumes before us contain Professor Loeb's articles on various topics in general physiology. Many of the papers here collected—indeed, the majority—originally appeared in German. These have been translated. Probably to the regret of many, joint papers by Professor Loeb and others have been omitted. As it is, we have here within easy reach and in convenient form the choice products of this original investigator, in a new field, up to the time that he left the University of Chicago (1903). All progressive medical men, especially teachers, who have not made themselves familiar with Loeb's investigations as the results have been published from time to time, will be gratified to learn that his scattered publications are now easily accessible. This is not the place to review critically a collection of papers the general nature of which may be assumed to be familiar to many of the readers of The Journal. The leading idea that permeates all the work is control of life phenomena. The agencies that determine the direction of motion in animals are considered in one series of papers. In order to find some means of control of the phenomena of regeneration efforts were made, and successfully, to cause one organ to grow at will in the place of another. Again, in the case of the problem of fertilization, the first step toward its solution has been taken by the production by various means of larvæ from the unfertilized eggs of various classes of animals. The fundamental character of the problems that Loeb has attacked with so great success by physico-chemical means gives to his work a significance for pathology and pharmacology that will be appreciated more and more as medical students and physicians become acquainted with the principles involved. Undoubtedly these volumes (which under the circumstances reflect great credit on the university under whose auspices they are issued) will serve to draw the interest of teachers in medical colleges and of educated physicians in general to this new field of physiologic investigation.

Universal Cyclopedia and Atlas. Charles Kendall Adams, LL.D., President of the University of Wisconsin, Editor-in-Chief, assisted by a corps of associate editors, composed largely of eminent specialists in Europe and America. A newly revised and enlarged edition. Rossiter Johnson, Ph.D., LL.D., Editor of Revision. Illustrated with color plans, plates and engravings. Complete in twelve royal octavo volumes. Half morocco. Price, $84.00. New York: D. Appleton & Co. 1904.

This is one of the best encyclopedias now obtainable. It has been thoroughly revised and seems, as far as we have examined it, to have been brought up to date. We find the *x*-ray, the Becquerel ray and other late matters thoroughly treated. Medical science is represented by special articles and by the supervision of eminent authorities; among the latter we notice Drs. H. C. Wood, H. A. Hare, Leonard Pearson, George A. Piersol, W. T. Councilman, G. E. de Schweinitz, Guy Hinsdale, St. John Roosa, Seneca Egbert, B. C. Hirst, Roswell Park,

Henry M. Hurd, etc. We note as one example that the article on "Comparative Anatomy" covers twenty-five pages; another example is the subject of "Bacteriology," which is described in five pages, including an excellent colored plate. This has been written by Drs. A. C. Abbott and J. S. Billings, and is an excellent presentation. The encyclopedia contains biographies of eminent men in medicine, as well as of those in other walks in life. Turning from the medical side—the encyclopedia deserves a place in the physician's library, because of its general information on all subjects that a book of this kind conveys. The physician will be able to consult this with satisfaction and convenience, in looking up the various questions that come to him either on the borderline of medicine or entirely apart from it. The paper is excellent; the print is clear; each heading is in black type which stands out clearly, and the illustrations, especially the colored plates, add greatly to the value of the work. We wish to call particular attention to the bibliographies, which are given in connection with all the important subjects, and which enable the reader to pursue the study of the subject elsewhere. We can thoroughly recommend this work.

MANUAL OF ROENTGENOLOGY. Röntgenologisches Hilfsbuch. Eine Sammlung von Aufsätzen über die Grundlagen und die wichtigsten Hilfsmethoden des Röntgenverfahrens. Mit einem Anhang über Radiokivitat. Mit 33 Abbildungen. Ingenieur Friedrich Dessauer. Paper. Pp. 136. Price, 3.50 marks. Würzburg, A. Stuber's Verlag. 1905.

Dessauer's name is frequently seen in medical journals signed to articles on the technic of Roentgen ray treatment. Some of the articles were written in collaboration with physicians. They are here collected, with others published elsewhere, all illustrated. Among them are the following: "The Diaphragm Process and Its Combination with Orthodiagraphy," "Sources of Electricity for Roentgen Work," "Interrupters," "Spark Length," etc., and a theoretical study of radioactivity. He regards the radioactive substances as bodies of extremely high atomic weight whose atoms have lost their stability in the existing phase of the development of the earth. The electrons of their atoms are at present in a transitional stage.

Isthmian Sanitation

THE PANAMA CANAL MISMANAGEMENT.

Reply of the Commission to the Charges Made in the Report to the Government by Dr. Charles A. L. Reed.

At the request of the Isthmian Canal Commission we print in full its reply to the report of Dr. C. A. L. Reed, chairman of the Committee on Medical Legislation of the American Medical Association, which was printed in THE JOURNAL, March 11, page 812.

WASHINGTON, D. C., March 16, 1905.

Hon. William H. Taft, Secretary of War.

SIR:—The commission has given such consideration to the letter addressed to you under date of March 2, 1905, by Dr. Charles A. L. Reed as time that could be spared from the urgent duties of the office since its receipt on March 7 has permitted.

The letter is so full of misstatements that it has been thought advisable to answer it at considerable length even though the tone thereof should be sufficient evidence that it is the product of a strangely biased mind.

The Health Department was preliminarily organized in May, 1904, a few days after the canal properties came into possession of the United States. The permanent organization of this department was under consideration during the stay of the commission on the Isthmus in the summer of 1904, during all of August, having been adopted on September 2. Commissioner Grunsky took a special interest in the affairs of the Health Department and in the sanitary work on the Isthmus and assisted the medical staff in planning the permanent organization, being in frequent conference with the physicians and submitting to the commission the result of the deliberations. It was at once apparent to the commission that it would not be possible to accept in their entirety the recommendations and suggestions made by the chief sanitary officer, which included such matters as the immediate taking over and management by the United States of the San Tomas Hospital, one of the public institutions of the Republic of Panama, located in Panama; the taking over and management of the poorhouse of Panama called Asilo de Bolivar; the taking over of the Lazarette or home of lepers.

Dr. Reed's assertion that "much of the report on a plan of organization was formulated over the respectful protest of the medical men" is without any foundation whatever. Modifications of the suggestions submitted by the medical staff were made from day to day until a plan acceptable to both the commission and to the medical staff was worked out which must stand on its merits. It may at once be stated that one of its chief merits lies in its elasticity. The facilities immediately provided and to be provided were those foreseen to be necessary within the time during which plans of the canal were to be under consideration, and during which there would be only a moderate force at work on actual canal construction.

In order that the character of modifications of the scheme as submitted by the chief sanitary officer may be understood, one illustration may suffice. He had suggested the establishment and equipment of twenty emergency hospitals (these being apart from the hospitals at Ancon and Colon) with twenty beds each, and the necessary staff of employes to be located along the line of the canal, that is, one every two miles between Panama and Colon. Without venturing to pass on the ultimate necessity for this number of emergency hospitals, it was decided that it would be better to establish only three at the outset, each with less than twenty beds. These were to be located at centers of population and to be enlarged and others were to be established and equipped as should later be found necessary.

The following from the report on the plan of organization refers to this matter:

> Emergency hospitals will be required along the line of the canal as soon as large numbers of laborers are concentrated at the points where the work is of the greatest magnitude. At each of these hospitals a physician should be stationed. Each emergency hospital should be suitably equipped for emergency service and should have combined with it a dispensary.
>
> It is assumed by the chief sanitary officer that there will be need ultimately for twenty of these hospitals, with twenty beds each, but after careful consideration of the matter it was decided that necessity does not exist for more than three at present, and that others can be added as required.

Other modifications of the submitted scheme of a like character were made in a like spirit, and in every case the matter involved was fully discussed with and concurred in by the medical staff.

The joint participation of all the commissioners in the formulation of the plan of organization is sufficiently evidenced by the adoption of the report on this matter without modification. The organization of the Department of Health, as perfected, except possibly the Board of Health feature, which originated with the commission's general counsel, seemed to be highly satisfactory to the chief sanitary officer and his associates and met with their entire and full concurrence.

The spirit which pervades the plan of organization is well illustrated in the first paragraph of the report thereon which was subsequently adopted:

> After repeated conferences with the Chief Sanitary Officer, Dr. Gorgas; Director of Hospitals Dr. Ross; the Superintendent of Ancon Hospital Dr. LaGarde; Chief Quarantine Officer Dr. Carter; Chief Sanitary Inspector of the Canal Zone Mr. LePrince; the Superintendent of Colon Hospital Dr. Spratling, and the Supervising Architect Mr. Johnson, it has been agreed to be desirable to perfect an organization of the Department of Health as herein set forth, which will be sufficiently elastic to permit of expansion or contraction as conditions on the Isthmus may, from time to time, require. The needs of the first year of service and the conditions prevailing during the time of preparation for canal work on a large scale were, therefore, used as a guide in determining the scope of the work to be done and the personnel which should be authorized.

As Dr. Reed comments unfavorably on the commission's department of material and supplies, it should be briefly stated that this department was created for the purpose of receiving, storing, caring for and issuing supplies and materials, includ-

ing those for the medical department and for the care of machinery not in use. It naturally works in conjunction with the commission's purchasing and shipping department. Dr. Reed says that in the resolution creating the material and supplies department nothing is said about the Sanitary Department, thereby giving the impression that by some oversight a right of inspection accorded other departments has been denied to the Sanitary Department as such, and that the Health Department will be hampered in securing suitable medicines and supplies. Dr. Reed should have continued his quotation by adding the following, which appears in the printed proceedings of the commission's meeting of Aug. 28, 1904:

> In the organization of a general purchasing department, provision could well be made for at least one competent clerk who is familiar with the requirements of sanitary and hospital service. Purchases of medical supplies and instruments could be just as carefully made as through an independent office. All supplies and medical stores should be consigned to the general storekeeper of the commission, and should by him be at once transferred to a subdepartment and possibly a separate storehouse, where they could be kept apart from other stores.

The commission, in the making of its first purchases for the Health Department, gave the medical staff authority to purchase in open market whatever was necessary. In the making of subsequent purchases it called on Col. Turrell, medical purveyor, U. S. A., at New York, for assistance, chiefly with a view to the issuance of clear specifications for supplies and medicines, and still later an arrangement was made with Surgeon-General Wyman, of the United States Public Health and Marine-Hospital Service, under which all requisitions for medicines, surgical instruments and supplies are referred to that department and are filled by it.

It was that department which made the purchase of the *x*-ray outfit, in reference to which Dr. Reed makes statements that are quite erroneous. He states that a request was made in Washington by the Health Department's expert to be allowed to select the Crookes tubes of an *x*-ray outfit, and that this request was peremptorily refused. This statement evidences either woeful ignorance or a willful misstatement of fact, and the Doctor tries to make matters appear still worse by stating that although no *x*-ray outfit had reached the Isthmus, the salary of the expert who had been specially employed to do *x*-ray work in Ancon goes on. This expert is Dr. Herrick, who is the pathologist at Ancon Hospital and who will have charge of such instruments and appliances as are required in the laboratory, including the *x*-ray outfit. Full service is being rendered by Dr. Herrick in his capacity as pathologist for the salary which still goes on.

No request to assist in the selection of the *x*-ray outfit or of the Crookes tubes was denied; on the contrary, Dr. Herrick was told that any service he desired to render in the selection of such apparatus or of microscopes would be welcomed by the commission. Dr. Herrick, in November, 1904, came to the Washington office with a letter from Dr. LaGarde, superintendent of Ancon Hospital, from which the following is an extract:

> Mr. Herrick leaves here to-morrow for a much-needed rest. He has aided me more than any one in the organizing of our important hospital. I desire very much that he should be consulted by the purchasing agent in New York in the purchase of microscope, *x*-ray and operating-room supplies that are costly and that must be of certain standards and quality to suit our needs. No one but an expert like Herrick can intelligently do such purchasing, and I write to ask if you will be kind enough to give him a letter to Mr. Anderson, explaining the necessity of such advice, or, in fact, let Herrick do the soliciting himself.

This letter, addressed to the chairman of the commission, was presented in person to the acting chairman, and Mr. Herrick was told that the commission would be glad to accede to the request of Dr. La Garde and requested his assistance in the matter. Dr. Herrick was informed that the matter of soliciting proposals was no longer in the hands of Mr. Anderson. He was referred to Mr. Redfern, the chief clerk of the commission, in direct charge at that time of the filling of requisitions. In this connection Mr. Redfern, on being requested to state what happened thereafter, says, in reference to the purchase of microscopes, apochromatic-objectives and an *x*-ray outfit, that these comprised one dissecting microscope, Leitz No. 44; three ordinary microscopes for hospital use and one Zeiss microscope complete beside the objectives, compensating eye-pieces and a Spencer Lens Company's new No. 4 stand. He states that the requisition for these instruments were being handled at the time of Dr. Herrick's visit to Washington, that Dr. Herrick was referred to him (Redfern) by the acting chairman, and that he (Redfern) was instructed to consult Dr. Herrick and obtain his views as to what he desired to do in the matter before making any purchases or definite arangements in regard to the Zeiss microscope and *x*-ray outfit. Mr. Redfern further says that he was present at a part of the interview between the acting chairman and Dr. Herrick, and that Dr. Herrick expressed a desire to superintend, to a more or less degree, the purchase of the instruments referred to; that Dr. Herrick called on him (Redfern) on the following day (as he remembers) and was requested to give the matter of the purchase of the microscope and the *x*-ray outfit his attention; that for personal reasons it was not convenient for Dr. Herrick to give these purchases the required attention; moreover, that even in the case of the *x*-ray outfit there were several makes equally as good as the one specified, any one of which would suit him. Mr. Redfern further states that the dissecting microscope, Leitz No. 44, was bought from Ernest Leitz of New York, after having referred the matter to the Public Health and Marine-Hospital Service for advice. The three ordinary microscopes were purchased for the commission by the Public Health and Marine-Hospital Service, the style purchased being the "Continental," and the firm from which they were purchased was Bausch & Lomb of New York. The apochromatic objectives, the Zeiss microscope and the *x*-ray outfit were bought by the Public Health and Marine-Hospital Service. It was understood that these instruments would be tested for the Public Health and Marine-Hospital Service by the director of the hygienic laboratory of that service at Washington.

It is stated by Dr. Reed that the commission substituted a number of worthless microscope objectives for others carefully specified. The purchase of these has above been explained. The commission has at no time authorized the substitution nor the acceptance of any "worthless" instruments.

Dr. Reed says that one medicine is substituted for another in practically every requisition for medicine that has reached the hospital. The commission knows of no such substitution. It has been aided, as explained, by Colonel Turrell, the medical purveyor for the U. S. A., and by the Public Health and U. S. Marine-Hospital Service, and it has no grounds for assuming that either of these departments should have sanctioned the purchase of medicines other than those asked for, nor have its medical officers ever reported such a substitution.

The statements of Dr. Reed that a request to have an expert select Crookes tubes was denied; that no *x*-ray outfit was purchased; that worthless apparatus was substituted by the commission for that specified; that the commission foisted remedies on the medical service other than those specified, are all absolutely false.

Relating to Dr. Reed's statement that the commission wants cheap physicians on the Isthmus, only $50 per month being allowed for the internes, the fact is that graduates from medical colleges without experience are useful as internes in the hospital organization on the Isthmus as they are in hospital organization in the United States. In the United States they serve a year without pay. It was thought proper to allow them transportation to the Isthmus from a United States port and to allow them $50 per month during their year of service, and to return them free of expense to the United States at the end of the year or in case of disability due to sickness. Should it be found that an interne desires to remain in the Isthmian service, the assignment to further duty carries with it pay of at least $125 per month. To the above compensation for internes there is added quarters, board and some laundry. Nor is there any reason why a physician promoted from an interneship should not, if he is deserving, be recommended at once for higher pay than $125 per month, which has been named as a minimum. It is true that internes are expected to remain a year to entitle them to free return transportation, but after six months of satisfactory service they

are entitled to any reduced rates of transportation available to the commission ($25 to New York or New Orleans). That the commission does not seek cheap medical service is further answered by quoting the salaries fixed six months ago for such service: Chief sanitary officer, $7,500 per year; executive officer in the office of the sanitary officer (a physician), $2,400; director of hospitals, $7,000; superintendent of Ancon Hospital, $6,000; pathologist and *x*-ray specialist at Ancon, $4,000; physiologic chemist at Ancon, $3,000; two other physicians at $2,400; and two at $1,500; and internes at $600; superintendent of Colon Hospital, $4,000; surgeon and pathologist at Colon, $3,000; three other physicians, $2,400; internes, $600; physicians at emergency hospitals along the line of the canal, $2,400; at dispensaries, $1,800; chief quarantine officer, $6,000; other quarantine officers, two at $3,500; two at $2,400; Panama health officer, $3,000; assistant health officer, $1,800; Colon health officer, $2,400. In addition to this all physicians are allowed quarters or in commutation of quarters 15 per cent. of their pay, and the commission's principal representatives on the Isthmus are allowed carriages.

In the matter of director of hospitals, which you are told was abolished, there has been no abolishment of the office, although the commission did request from its chief sanitary officer after the resignation of Dr. John Ross, because of ill health, a suggestion for the reorganization of his office, which reorganization should provide for an assistant chief sanitary officer in lieu of the director of hospitals. In view of the fact that the laws of the canal zone creating the office of director of hospitals can no longer be amended by the commission, it is not likely that further steps in this matter will be taken.

The non-allowance of twenty sanitary inspectors to serve in the canal zone under the chief inspectors was one of the modifications of the suggestions of the chief sanitary officer already alluded to. On this subject the report on the plan of organization may be quoted:

> No work to be done by the sanitary force on the isthmus is of greater importance than that which, by restricting the breeding of anopheles and stegomyia mosquitoes, will reduce the danger of malarial and yellow fever infection. This work is now in charge of the chief sanitary inspector, under whom there are four assistant inspectors, more being at once required. . . . An efficient beginning can be made with eight inspectors in the canal zone, and these should be provided.

These were provided, together with sixteen sanitary foremen, their number to be increased from time to time as shown to be necessary by experience. To this time no request for an increase has been made by the officers whose experience would guide the commission in such matters.

It is stated by Dr. Reed that screens were asked for for all the buildings in the canal zone; that the commission concluded this to be a totally unwarranted expense and eliminated the proposition. The commission has reached no such conclusion; moreover, it feels itself under obligation not only to provide screens for all buildings owned or controlled by it, but would like to see all buildings where screens would be of any service suitably screened.

The original proposition of the chief sanitary officer to construct screens entirely around the verandas or porches surrounding the Ancon Hospital buildings was modified, as stated by Dr. Reed, but with the consent and full approval of the medical staff, so far as screening only that part of the galleries which will be in use by the patients is concerned. The boarding below the railing or some other means of protecting the screening against accident, remains as a suggestion, and the commission has no information of its final acceptance or rejection by its representatives on the Isthmus.

The statement made by Dr. Reed that such a proposition would carry about ten times the expense of screening is in error. The reduction of aggregate cost resulting from the plan of screening as adopted would amount to many thousands of dollars and would place a large amount of screening under the protection of porches where increased length of serviceability is to be assumed. The cost of boards in the place of screens, instead of being ten times greater, should be compared on the basis of about six (6) cents per square foot for screens as against three (3) cents for boards, apart in each case from the cost of placing these materials.

In the matter of compensation allowed its clerks, which Dr. Reed criticises, the commission has endeavored to secure a fair and uniform classification in its several departments, and the salaries fixed were the outcome of long discussion and deliberation, the intention being to fix salaries for all such service at about 25 per cent. in excess of the amount which like service would command in the United States.

The Doctor states in this connection that "Colonel Gorgas asked for a chief clerk at $1,800, with the object of getting a man who had had experience with him in Cuba; he was allowed only $1,500, for which he could get only an inexperienced man." The salary fixed in the plan of organization for the chief clerk of the chief sanitary officer (see page 171 of the printed proceedings of the commission) is $1,800; the salary of the clerk in the office of director of hospitals called by courtesy chief clerk is $1,500; the salary of the chief clerk of Ancon Hospital is $1,800 per year.

It should be stated that the fixing of salaries of the officers of the Health Department has received careful consideration by the commission. Salaries, in connection with all other matters relating to the organization of the Health Department, were discussed and agreed on in conference with the medical staff and they remain subject to revision. There are, in fact, frequent changes, and it is needless to say that a change invariably means increase. Some of these salaries have hereinbefore been enumerated.

In the matter of the use of movable vessels for night soil, it may be stated that those called for have been purchased. On this subject, after discussing the advantages and disadvantages of disposal by water carriage in sewers as against the use of a bucket system, Dr. Gorgas, under date of January 7, concluded:

> I would therefore recommend that in general, for the strip, the bucket system be adopted, and that the Sanitary Department be authorized to install the same as necessity arises.

Hereon Governor Davis took up the question, writing under date of January 17 among other things:

> It seems to me that it should not be a very difficult matter to arrange that each house, or group of two or three houses, should be provided with a small privy, constructed of boards, over a pit dug in the earth, and provided with steps and seats, and that the sanitarians should inspect these privies occasionally and see that they are kept in proper condition and removed from time to time to other pits when it shall appear necessary.

The commission thereon, at its meeting Feb. 4, 1905, adopted a report of its committee on sanitation, which was sent to the Isthmus for further comment by the governor of the canal zone and the chief sanitary officer.

Referring to this resolution, Governor Davis, under date of February 25, writes:

> It will be observed that Colonel Gorgas sees no necessity for any action by the commission in this matter, and I have not, myself, been able to think of any phase of the case that requires such action.
>
> Since my letter of January 17 the subject of the use along the canal line of privies and privy vaults for night soil, and before the receipt of the secretary's communication now at hand, was taken up by me with Colonel Gorgas and Mr Le Prince, and I personally made a sketch of a privy vault or pit that I thought would meet the case, and the instructions I gave to prevent the vault or pit from being flooded were almost exactly the same as those suggested in the memorandum of the committee on sanitation. . . . The commission will be kept advised as to the experience in this matter, and if any necessity arises for action by resolution or in a legislative way, the fact will be made known.

On the same subject, under date of February 24, chief sanitary officer, Col. W. O. Gorgas, writes:

> . . . In my opinion no special regulation by the commission is necessary for carrying out the views expressed in this resolution. . . . The scheme seems to me good and to fulfill the requirements. If on trial it is not found satisfactory, I shall report the circumstances to the proper authorities.

Dr. Reed tells you that the establishment of a convalescent hospital on the Island of Taboga with a physician and a head nurse was refused. Taboga is located about twelve miles down the bay of Panama, and the use of the island as a hospital will involve the keeping of a suitable steamer in service. It should be stated that the commission resolved, in August, 1904, as follows:

> The large two-story structure on Taboga Island, usually referred to as the "Convalescent Hospital," is suitable for a convalescent station to be made use of whenever the hospital facilities at Ancon prove inadequate. There is no immediate need of providing a medical staff for this station. It is estimated that $8,500 will be required to put the building in a suitable condition of repair.

This expenditure was authorized by resolution of Sept. 2, 1904, and the commission has, since that time, on recommendation of the chief sanitary officer, authorized the furnishing and use of this station by canal employes who need a change of air and of surroundings to recuperate their energies.

Another of the Doctor's misstatements relates to Miraflores Hospital. The establishment of this hospital was authorized immediately it was asked for. The transfer of personnel was authorized and no obstruction has been interposed by the commission to the filling of any vacancies created by such transfer.

You are told by Dr. Reed that the commission declined to give the chief sanitary officer some opportunity to exercise his judgment as to qualification of personnel and quality of material furnished his department. The present medical staff is of his own selection. He has been restricted only by civil service regulations. The method followed in purchasing medicines and supplies has already been explained.

You are told that the Health Department is hampered in its efforts to suppress yellow fever. In this connection it is only necessary to call attention to the fact that materials for use in disinfecting have been purchased as required, the following aggregate amounts of materials principally used purchased and forwarded:

14 tons of insect powder in 16 shipments.
52 tons of sulphur in 17 shipments.
2 tons of sulphate of iron.
23 tons of chlorid of lime.
500 pounds of sulphate of copper.

Regular shipments of insect powder and of roll sulphur are being made and will be continued until notice is received from the Sanitary Department that they are no longer needed.

The commission has at all times met every request for such material promptly. If some allowance be now made for misunderstandings as to what was required, and, on the other hand, for some duplication of purchases resulting from the use of the cable, it must be apparent that any difference in the amount of a single shipment from the amount named in the requisition should not be used as a reflection on the earnest effort of the commission to do effective sanitary work.

The following two letters from the chairman of the commission, one under date of Jan. 5, 1905, to General Davis, the other under date of Feb. 14, 1905, to Mr. E. C. Tobey, chief of Material and Supplies Department, will sufficiently illustrate the attention given to such matters.. The addresses and signatures being omitted, these letters are as follows:

Sir:—I this morning received your cable of yesterday as follows: Health Department will systematically fumigate Panama; require 2,000 pounds insect powder weekly for six weeks; present supply exhausted January 15. Can I depend on required shipments?

To which I replied:

Will send 2,000 pounds insect powder weekly.

In this connection I have to inform you that the steamer sailing yesterday took two orders of disinfecting material—one for eight (8) tons of rolled sulphur and one (1) ton of insect powder, and the other for 5,000 pounds of rolled sulphur and 4,000 pounds of insect powder.

The 2,000 pounds of insect powder which you request weekly for six successive weeks will be forwarded you beginning Tuesday, the 10th instant.

And the letter to Mr. Tobey:

Dear Sir:—Referring to cable sent by General Davis, received at this office on the 5th day of January, 1905, requesting that six weekly shipments be made of insect powder in 2,000 pound lots:

I wish to bring to your attention that under this order the shipments would cease on the 14th day of February. To guard against possible chance that the supply should become exhausted, I have this day directed that two more consignments of 2,000 pounds each be made, bringing the total quantity up to 16,000 pounds, and to the 28th day of this month. On receipt of this letter, should the conditions warrant the continuing of these weekly shipments, you are directed to cable such request.

In further evidence of the earnest desire to facilitate the work of the Health Department in preventing and suppressing epidemics, the commission enacted the following in Act No. 8 of the Laws of the Canal Zone:

But in case of emergency created by threatened or imminent danger to the public health, extraordinary expenditures by the Board of Health may be authorized by the governor of the Canal Zone.

Under this authorization medical and sanitary supplies have been and can be purchased as required.

The commission, on Sept. 2, 1904, also passed the following resolution:

Resolved, That in case of any great public calamity, emergency or urgent necessity, the member or members of the commission on the Isthmus of Panama be, and they hereby are authorized to act for the commission, taking such measures as may be necessary to meet the conditions as they arise, and to purchase materials and to do any work or make any expenditures which they deem necessary to avert such calamity or to meet such emergency and urgent necessity.

You are told by Dr. Reed that the commission declared that screens for hospitals along the line of the canal were unnecessary. This is also a misstatement, the exact reverse being the case.

Building repairs are made under the direction and supervision of the chief engineer. The commission has not been advised that this arrangement is the cause of any embarrassment. The commission has not, as Dr. Reed desires that you should believe, required that estimates should first be submitted to the commission before repairs to buildings are made. The making of these repairs rests with the commission's representatives on the Isthmus.

The commission has not denied a request for a house at a quarantine station. Full authorization for all buildings asked for for the quarantine service has been given.

The commision maintains a laboratory at Ancon Hospital. Even if the commission were clear that the establishment of a laboratory for purely scientific research would be a proper feature of expenditure, it does not believe the time to have come for establishing one and denied a request for such laboratory. Dr. Herrick is the commission's pathologist at Ancon Hospital and he is the *x*-ray specialist and it is expected that at the Ancon Hospital laboratory for the present such scientific work as may be necessary will be done.

The keeping of the Ancon Hospital ambulance at the section stable instead of at a separate hospital stable is referred to by Dr. Reed as making it impossible to get the ambulance on ready call at times of an emergency. No arrangement for stabling the ambulance has been made which does not give the hospital officials complete control over its movements. It should be stated in this connection that the section stable is on a tract of land as fully under the control of the commission as the hospital site in contact therewith and less than 200 yards from the hospital buildings and connected by telephone. The combination of scattered stables into one establishment is a feature of efficient administration.

It is charged by Dr. Reed that the commission's hospitals are opened to all the world. No other answer seems necessary than a reference to the plan of organization and to the health regulations as set forth in the Laws of the Canal Zone (Acts Nos. 8 and 9). The medical staff should have power to order into hospitals all persons suspected of being ill with infectious or contagious diseases, and this has been given. The commission foresaw that restrictions would be necessary to prevent competition by the hospitals with physicians in private practice. The admission of patients as pay or charity patients is only permitted where the hospital authorities determine such admission to be desirable. It was not intended that any sick person not an employe of the commission should be admitted on mere application and, so far as the commission has been advised, no other construction has been placed on the paragraphs of the plan of organization relating to admission of patients.

To establish a proper relation between the commission's hospitals and their medical staffs on the one hand and the private physicians practicing on the Isthmus on the other, the commission will always be ready to take suitable action.

It has recently, on receipt of a suggestion relating to this matter, passed the following resolution, which was suggested by the chief sanitary officer:

Resolved, That any pay patient can employ any physician desired by such patient, and such physician can have access to such patient and use of all supplies and conveniences of the hospital, under regulations to be prescribed. A charge of not less than $5 and not more than $10 will be made for the use of operating room.

In case a pay patient in a hospital elects to have a physician employed by the commission to attend him or her, the superintendent shall charge for such attendance or surgical operation in accordance with the scale of fees, to be agreed on between the chief sanitary officer on the one hand, and the legally qualified medical men of Panama and Colon on the other.

This resolution was adopted at the request of Dr. Gorgas.

The commission is by no means certain that it will not soon require further modification, which will be made when asked for, but for the present accepts the view of Colonel Gorgas, who, under date of Dec. 6, 1904, referring thereto, says:

I have discussed this with a committee appointed to represent the physicians (referring to the medical profession of Panama), and they express themselves as being satisfied with the arrangements. This will give them access to the hospital and the advantages of the hospital, and they will make such arrangements as they please with their patients, just as if the patient were in a hotel.

In reference to the admission of all the world to the hospitals, it may be stated that the views of Colonel Gorgas were so extreme in August, 1904, that his original suggestion included the taking over and management, as already stated, of the hospitals and poorhouse of the Republic of Panama.

Dr. Reed is again in error when he says that it was "made a part of the Laws of the Canal Zone 'that surgical operations shall be charged for according to their importance and to the financial ability of the patient to pay, but no charges in excess of $50 shall be made without the approval of the director of hospitals.'" This is a quotation from page 166 of the minutes of the proceedings of the commission; it forms no part of the Laws of the Canal Zone. It has, as just stated, been already changed, based on the experience and recommendation of the medical staff.

The purpose of the requirement that a charge be made under certain circumstances for attendance on sick at their homes was to encourage the persons entitled to hospital treatment and to free medical treatment, to seek medical advice at the dispensaries and at the hospitals, thereby reducing the number of outside calls to be made by the commission's physicians. The charge for such attendance is in no sense, as Dr. Reed would have you believe, a charge in competition with private practitioners, or in compensation for the services rendered. He has quoted only enough to mislead, from the report on the plan of hospital organization. The full statement in that report relating to this matter as taken from the printed proceedings of the commission is as follows:

Visits made by physicians to the residence of any person entitled to free hospital treatment, or to the residence of a railroad employe, or to the residence of any other person entitled to treatment at the hospital at a fixed daily rate of pay, should be charged for at the rate of one-half dollar for each visit, but no such charge is to be made for emergency calls nor in the case of persons entitled to free hospital treatment until after the person has been ordered into a hospital.

It is true that the commission has declared that all money realized at hospitals from charges for board, medical attendance, surgical operations and the like, and from visits at residences, should be considered public funds. This is covered by the Laws of the Canal Zone in the following words:

All money collected for the United States by the Department of Health, or any of its several branches or services, or by any officer or employe thereof, shall be turned over to the government of the Canal Zone as soon as practicable after the date of its receipt.

Two of the members of the present commission have repeatedly visited the Isthmus in the last five years, and they know that the Isthmus during this entire time was never free from yellow fever. Why does Dr. Reed now venture such a statement referring to the last days of June, 1904, as the following: "Panama was then apparently free from yellow fever"?

Yellow fever being still epidemic in the city of Panama the commission has taken vigorous measures to stamp it out. It is considered of prime importance to exterminate the stegomyia mosquito in Panama. The commission at once recognized the importance of bringing into Panama a wholesome water supply and no time has been lost in selecting a source of supply and purchasing material. Only after water is thus made available can the use of water containers, the favorite breeding place of this particular mosquito, be prohibited.

In the meanwhile the commission appointed a health officer for the city of Panama, its Board of Health took charge of all suspected cases of yellow fever wherever found, and provision was made to have funds in any amount at its disposal in case of an emergency as already hereinbefore stated.

It is true that the treaty between the United States and Panama gives to the United States certain rights in the matter of prescribing and enforcing sanitary regulations in the cities of Panama and Colon. The following is from Article VI of the treaty:

The Republic of Panama agrees that the cities of Panama and Colon shall comply in perpetuity with sanitary ordinances, whether of a preventive or curative character prescribed by the United States, and in case the government of Panama is unable or fails in its duty to enforce this compliance by the cities of Panama and Colon, with the sanitary ordinances of the United States, the Republic of Panama grants to the United States the right and authority to enforce the same.

The commission gave its Health Department a temporary organization by formal action at its session of May 8, 1904. At this meeting "the chief sanitary officer and the director of hospitals, in addition to other duties, were designated as the Health Board for Colon and Panama," and the chief sanitary officer took such steps as he thought justified to improve the sanitary conditions in these cities. He asked for and was given certain powers in this matter by the government of the Republic of Panama and continued to exercise these until the scheme for a permanent organization of the Health Department took definite shape. About the same time the commission adopted sanitary rules and regulations for the cities of Panama and Colon and quarantine regulations for the ports and harbors of these cities.

At the commission's meeting of Sept. 2, 1904, the chairman was directed to transmit a copy of these rules and regulations to the proper authorities of the Republic of Panama with the request that such action be taken by competent authorities as might be necessary to give the rules and regulations the force of law. This was done and suitable action was subsequently taken by the government of Panama.

Not until January, 1905, was the commission advised by the authorities of Panama of its inability to properly enforce these regulations and the commission immediately took full charge of the work of cleaning and sanitation in Panama. In this matter the commission acted up to the entire limit of its authority as is shown by the following extract from a decision of the comptroller of the United States Treasury in which he says:

It requires no extended argument to demonstrate that until Panama confessed its inability or failed to execute these regulations the Government of the United States was not authorized so to do, and not being authorized to execute them could not legally, under such circumstances, pay for their execution.

It should be further stated in this connection that a health office for Panama, with a physician in charge, an assistant, two clerks and three inspectors are included in the Health Department organization, and were stationed there long before the United States took charge of the enforcement of health ordinances. A similar staff except the assistant health officer was provided in the plan of organization for Colon. Dr. Reed lays great stress on the subordination of the chief sanitary officer to the seventh degree, enumerating even the President and a single member of the commission to accomplish this subordination. In the discharge of his duties as a sanitary officer Dr. Gorgas has been absolutely free and has absolute freedom of action.

The providing of water for Panama received the attention of the commission in April, 1904, before the canal properties had passed into possession of the United States, it having been resolved on April 12 that parties be organized as soon as practicable for the doing of the following field work: " . . . Surveys for water supply and sewerage systems for Colon and Panama."

Under this resolution an engineer of experience was engaged and entered on his duties as soon as he could arrange his private affairs, on June 20, 1904. His duties included the design of water works for Panama, sewers for Panama, and water works and sewers for Colon.

The cleaning of the streets, including the disposal of night soil, was placed in the hands of Colonel Gorgas, with full powers, so far as the commission could confer them, on May 8, 1904.

Compare also this statement of Dr. Reed with the facts. He says, referring to the water works for Panama:

Mr. Wallace had drawn the plans and specifications in July previous and had taken care to specify only such pipe as manufacturers keep in stock, and that could, therefore, be procured without a moment's delay.

The facts are that the recommendation of the chief engineer that the selection of the Rio Grande as a source of water for Panama be approved, bears date August 6 (not July), and that the specifications for pipe submitted by him bear date of August 15, and were approved by the commission on August 19, as submitted.

The specifications as prepared had no reference to stock on hand by manufacturers. All delay in the delivery of this cast-iron pipe has been due to a default of the contractor in making shipment. The pipe was manufactured in time for shipment as required by contract, but the second (final) installment did not get off within the contract time.

The Doctor's ignorance as to the forms of water pipe and their method of manufacture has led him into a silly statement as to their details. The commission never asked the chief engineer for any explanation as to eastern or western patterns, as they exist only in the Doctor's imagination.

Every reasonable step is being and will be taken to reduce malaria. To this end an efficient sanitary corps for the canal zone has been organized and a vast amount of good work has been accomplished. Any one who knew the Isthmus before May 4, 1904, and who visits it now, can testify to the changed conditions. Ponds were drained and oiled, ditches constructed and cleaned out, and brush has been cut out, improving the surroundings of the several clusters of buildings in the canal zone.

The statement that the commission thought something like twenty laborers too many for the Health Department and allowed only one-half that number, is absolutely false. Laborers have been allowed as required and as necessary, and have been numbered by hundreds in the Health Department.

Dr. Reed says that a call for 2,500 yards of wire screening was cut by the commission to 500 yards. The commission has made four purchases of wire screen aggregating upwards of 17,000 square yards, besides entering into a $4,700 contract for screens suitably framed for door and window openings. None of the calls for screens was for the amount of 2,500 yards, as claimed by Dr. Reed.

No requisition for quinin was ever reduced or denied.

Dr. Reed is also in error when he states that the Isthmian Canal Commission, in its report of December, 1904, states:

> All cases of employes sick with malaria are taken to Colon and Ancon hospitals and so screened that mosquitoes can not reach them.

Dr. Reed calls this "an absolute and unqualified falsehood."

The words quoted by Dr. Reed are not those of the commission; they are not in the commission's report, but appear in a report of the governor of the canal zone, and probably have reference to the use of mosquito bars in the hospitals. Moreover, if mosquitoes are not kept from malarial patients at Colon and Ancon hospitals by the use of mosquito netting, the responsibility falls on the medical officers of these hospitals.

You are asked by Dr. Reed to consider the authorization by the commission, with the approval of its medical staff, to accept student nurses at Ancon Hospital as a mere subterfuge to secure cheap nursing.

The idea that a training school for nurses might prove a success was suggested by the application of a young woman of Panama, a member of one of the foremost families of that republic, who offered to render such service as she might, without pay, being desirous of having an opportunity to gain experience as a nurse, and by the statement made by herself and friends that other young women of Panama would probably avail themselves of any suitable opportunity to enter the hospital as student nurses. On this subject the report on a plan of organization says:

> Attention should also be called to the fact that young women, some from Panama, others from the United States, will be desirous of entering a hospital so well equipped as Ancon, as student nurses. This should be encouraged. Climate and environment are not unpleasant, and a good training school for nurses should prove attractive and would add materially to the hospital service.

The scheme as authorized would allow students compensation at the rate of $12 a month during the first year, $15 during the second and $18 during the third. The students would receive traveling expenses to the Isthmus from New York, New Orleans or San Francisco, and free return expenses to one of these cities in case of service for at least one year, or in case of disability by reason of illness.

The making of purchases of supplies and materials for use on the Isthmus has not been a simple problem. It has been and is the desire of the commission, so far as practicable, to make purchases on the basis of proposals submitted on advertisement. The following resolution relating to this matter was passed on Aug. 18, 1904:

> *Resolved*, That hereafter, so far as practicable, all purchases of machinery, material and supplies shall be made after due advertisement and competition.

On the other hand, it was necessary at the outset to send to the Isthmus such amounts of material and supplies as were required for the work of the commission, and to prevent loss of time and money to the government. Open market purchases were, therefore, necessary, but the making of open market purchases was stopped and restricted as soon as it seemed wise to do this.

In making purchases by advertising for proposals careful specifications had to take the place of the judgment of the purchasing agent and of experts, and the descriptions contained in requisitions had to be amplified before a call for proposals could be made. In other words, the requisitions were only a general evidence of their requirement; in many cases specifications had to be subsequently prepared. It has been the plan of the commission to have the needs of its several departments foreseen for half-year or full-year periods in order that purchases would be in sufficient quantities to avoid as far as possible emergency calls and to afford the purchasing officer ample time to prepare papers to call for proposals, with a reasonable time allowance to permit intending bidders in all parts of the country to prepare their proposals, and to permit of the delivery, or manufacture and delivery, as the case might be, of the articles required.

We quote in connection with the delivery of material to the Isthmus from the report of the subcommittee of the Committee on Interstate and Foreign Commerce of the House of Representatives:

> In fact, the supplies were received in such quantities and so much more rapidly than needed that the terminal facilities of the railroad were inadequate to care for them.

This, when read in connection with Dr. Reed's letter, may illustrate the difference which the standpoint makes from which the commission's affairs are discussed.

The commission, on its first visit to the Isthmus, in April, 1904, was accompanied by the three chief members of the sanitary corps of the canal. They returned together and were in conference in Washington concerning the preliminary organization of the Health Department for the zone. The views and propositions presented by the chief and associate sanitary officers were then discussed and, with slight modification, accepted by the commission. These officers returned to the Isthmus in June, with full authority to inaugurate their work by selecting their personnel and providing their supplies.

The commission returned to the canal zone early in August, when the necessity of immediate and permanent sanitary organization was at once apparent. A great part of the five weeks during which the commission remained there was spent in conference with the heads of the Health Department, after their experience of three months, concerning the scope and details of an organization which should give them all necessary authority and opportunity to perform their most important duty. The discussion was full and free and resulted in the adoption of the project, which forms part of the minutes of the commission for Aug. 28, 1904. It was the clear understanding at the time, and has been since, that this scheme of organization was satisfactory, not only to the commission, but to the officers on whom the responsibility for the sanitation of the Isthmus devolved. Since that time much correspondence on sanitary subjects has passed and many interviews with members of the sanitary staff have been held, but the commission has not learned from either source that the plan of organization has failed or has become unacceptable to those charged with its execution. Notably, a committee of the commission, recently returned from the Isthmus, unre-

servedly states the full satisfaction of the sanitary staff with the successful operation of the organization and the health conditions on the Isthmus.

Of course, during the inception of this great work, there have been occasions when the filling of requisitions has been delayed, or where other annoyances have temporarily existed, but the commission has no reason to believe that the scheme of sanitary administration has not been wisely devised, or that it has not been effective in operation.

The commission understands the immense importance of the sanitation of the Isthmus as a factor in the building of the canal. It is certain that the chiefs of the Sanitary Department be aware of the grave responsibility resting on them. If the statements of Dr. Reed were true, either in detail or in the general impression they are intended to convey of sanitary conditions on the Isthmus, they would convict the sanitary staff of a gross abandonment of duty in failure to inform the commission therof. Neither from official conferences nor from correspondence, nor from interviews with members of the staff, has it been learned that the plan is defective in scope or in elasticity, or that troubles have occurred except such as inevitably attend the organization of great enterprises.

It remains to be stated that the action of the commission as expressed in its reports and in the resolutions found in the record of its proceedings, is to be accepted as the action of the commission, and represents a consensus of opinion often arrived at before a report or a resolution was written. The fact that any commissioner may have been more frequently noted than others as presenting resolutions is no reason why greater responsibility for the commission's action should fall on him than on the other commissioners.

In conclusion the commission desires to express its appreciation of the courtesy of your act in giving it early opportunity to file a reply to the letter of Dr. Reed.

The report of Dr. Reed was transmitted to this commission by you as a confidential document. The commission has learned, however, that within the last few days it has appeared in full in THE JOURNAL A. M. A., published in Chicago, and that synopses thereof have been published in a number of newspapers. The commission would, therefore, most respectfully suggest that this reply be not treated as a confidential document, but that a copy thereof be transmitted with a request for publication in full to THE JOURNAL A. M. A., and that the public press be requested to give it extended notice.

Very respectfully,

J. E. WALKER.
W. H. BURR.
B. M. HARROD.
C. E. GRUNSKY.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NEWSPAPER ADVERTISEMENTS—ABORTION AND PREVENTION OF CONCEPTION.

ELMHURST, ILL., March 16, 1905.

To the Editor:—I wish to speak of a phase of our social system which has long stigmatized our honorable calling and has ruthlessly been reaping its harvest of innocents unmolested and unhampered by law or press. The owners of our daily and Sunday papers are being subsidized to pollute their pages with the most vicious and degrading advertisements. The editors will prate about virtue and write voluminously about corrupt civic and federal legislation, but their virtue is confined solely to the editorial page, and under the plea of not being argus-eyed they fail to see what vile stuff their advertising columns contain. In one Chicago paper these corrupting advertisements are not confined to the advertising pages, but are promiscuously scattered through the reading matter in bold type so as to be observed by the most casual reader. One would infer from the bold manner in which these medical lepers announce their murderous trade to the public, that trafficking in human life is a legitimate and lawful procedure. This scum of the medical profession, among whose wares honor and virtue are absent, for the paltry sum of two or three dollars, will commit the most heinous offense to which a physician can lower himself. Either the statutes are not sufficiently rigid and far-reaching, or public officials are derelict in their duty. We as physicians can not allow this nefarious practice to continue, and retain our self-respect at the same time. The correction of this murderous practice devolves on the medical profession for the following reasons: 1. Since some of its integers are *particeps criminis* in the social sin, and 2, as conservators of the public health. It does not require acute reasoning or a wide stretch of the imagination to discern that a high percentage birth rate and the continuance of this evil are incompatible. When, in plain language, appliances for the prevention of conception are heralded in one column of the press, and methods for the destruction of the ovum in an adjoining column, it is very evident that the prospect of a high birth rate is not very flattering. The medical profession should accept the responsibility and duty of acting as censor, so that our newspapers are so cleansed of these filthy and criminal advertisements that the pure and innocent may read every column without danger of defilement. If our efforts are directed against this evil we will not only relieve the medical profession of an incubus but will destroy the parasites that are attacking the roots of our nation's growth and prosperity.

HENRY F. LANGHORST.

EVANSTON, ILL., March 20, 1905.

To the Editor:—What is the law in Illinois regulating the use of pessaries? Is it legal to use the so-called pessary, etc., with the sole object of preventing conception? G. A. W.

ANSWER:—We are unable to find any law in existence in Illinois on the use of pessaries to prevent conception. The United States postal regulations debar from the mails any matter that conveys or advertises any means, device, etc., for the prevention of conception or for the procuring of abortion. There is a law in Illinois entitled:

"An Act to Prevent the Sale of Drugs or Medicines designed to Procure Criminal Abortion."

As there are doubtless many who are unfamiliar with it, we quote it below:

"Section 1. Be it enacted by the People of the State of Illinois, represented in the General Assembly, That no druggist, dealer in medicines, or any other person in this state, shall sell to any person or persons any drug or medicine known or presumed to be ecbolic or abortifacient, except on the written prescription of some well-known and respectable practicing physician. And any druggist or dealer in medicines filling such prescription shall, in a book especially provided for that purpose, correctly register the name of the physician prescribing, the person to whom sold, the name of the medicine or medicines, and the amount, together with the date of the sale.

"Section 2. No druggist, dealer in medicine, or any other person, shall keep on hand or in any manner advertise or expose for sale, or sell, any pills, powders, drugs or combination of drugs, designed expressly for the use of females, in any other manner or form than that hereinafter described, to-wit: The proprietor of any such pill, powder, drug or combination of drugs, shall submit, under oath, a true statement of the formula by which the same is compounded, to five well-known and respectable practicing physicians in the county where the same is proposed to be sold; if the said physicians unanimously agree that the proposed formula is not of an abortifacient character, they shall issue their certificate, under oath, to that effect, a copy of which shall be kept, with the formula attached, for the inspection of any person desiring to see the same, by the druggist or dealer in medicine proposing or desiring to keep for sale such medicine—and this shall be his full warrant for such sale: Provided, this section shall not be taken or construed to apply to such compounds as are known as 'officinal.'

"Section 3. Any person or persons violating any of the provisions of this act shall, on conviction thereof, be punished by a fine of not less than fifty nor more than five hundred dollars, or by imprisonment in the county jail not less than thirty days or more than six months, for each and every offense, or by both."

This law went into effect July 1, 1872, and is still on the statute book.

TEXT-BOOK ON NURSING.

LEWISTON, IDAHO, March 21, 1905.

To the Editor:—Please let me know what you consider the latest and best text-book on nursing; also where it can be had and price.

T. J. COSTELLO, M.D.

ANSWER:—For hospitals and training schools, the two books in general use are "A Text-Book of Nursing," by Clara Weeks-Shaw ($1.75), and "Nursing," by Isabel Hampton ($2). In a hospital other books on special branches are used, chief among these being "Obstetrics for Nurses," by De Lee; "Anatomy and Physiology for Nurses," by Diana Kimber, and "Materia Medica for Nurses," by Emily Stoney. A good book for nurses in private work is "Practical Points in Nursing," by Emily Stoney. Any or all of these books may be obtained from W. T. Keener & Co., Chicago, or from any firm dealing in medical books.

State Boards of Registration

COMING EXAMINATIONS.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Central District Board of Medical Examiners for the Indian Territory, South McAlester, April 3. Secretary, B. W. Caldwell, M. D., Hugo.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Kansas February Report.—Dr. C. F. Johnston, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 14-15, 1905. The number of subjects examined in was 12; total number of questions asked, 100; percentage required to pass, 75. The total number of persons examined was 24, of whom 21 passed and 3 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
University of Kentucky	(1904)	83
Ensworth Med. College	(1904)	79
Kentucky School of Medicine	(1898)	80
Eclectic Med. Inst., Cincinnati	(1900) 77; (1903)	86
University Med. Coll., Kansas City	(1893) 82; (1901) 87; (1903) 79; (1904) 80, 82.	
University of Pennsylvania	(1902)	86
Rush Med. College	(1893)	83
Chicago Homeo. Med. Coll	(1903) 75; (1904)	82
Hahnemann Med. College	(1901)	86
University of Colorado	(1895)	88
College of P. & S., Keokuk	(1895)	85
Louisville Medical College	(1904)	81
Northwestern University	(1900)	86
University of Virginia	(1894)	85
Barnes Med. College, St. Louis	(1892)	82
FAILED.		
University Med. College, Kansas City	(1904)	73
Ohio Med. College, Cincinnati	(1880)	72
Physio-Medical College, Indianapolis	(1890)	62

The Public Service

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 25, 1905:

Dickinson, D., medical director, detached from the Naval Hospital, Chelsea, Mass., and ordered to the Navy Yard, Portsmouth, N. H., and to additional duty in command of the Naval Hospital at that place, April 3.

Wells, H., medical director, detached from the Naval Hospital, Newport, R. I., and ordered to duty in command of the Naval Hospital, Chelsea, Mass.

Farwell, W. G., medical director, detached from the Naval Hospital, Portsmouth, N. H., April 5, and ordered home.

Dickson, S. H., medical inspector, detached from the *Kearsarge* and ordered to the *Maine*.

Heneberger, L. G., medical inspector, ordered to duty in command of the Naval Hospital, Newport, R. I., April 3.

Grow, E. J., Grunwell, A. G., Langhorne, C. D., surgeons, commissioned surgeons, with the rank of lieutenant commander, from March 3, 1903.

Johnson, M. K., surgeon, detached from the *Tacoma* and ordered to the *Maine*.

Kite, I. W., surgeon, detached from the *Maine* and ordered to the *Kearsarge*.

Snyder, J. J., P. A. surgeon, detached from the *Kearsarge* and ordered to the *Tacoma*.

Shiffert, H. O., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Dec. 26, 1903.

Stuart, Allan, P. A. surgeon commissioned P. A. surgeon, with rank of lieutenant, from June 7, 1904.

Bishop, L. W., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Sept. 28, 1904.

Tolfree, H. M., asst.-surgeon, detached from the *Hancock*, April 13, and ordered to Washington, D. C., for examination for promotion, and then to wait orders.

Bogert, E. S., detached from the Naval Academy, March 25, and ordered to the *West Virginia*.

Drake, N. H., medical director, detached from the *Hancock* and ordered to the Navy Yard, Norfolk, Va.

Lumsden, G. P., surgeon, detached from the Navy Yard, Norfolk, Va., and ordered to the *Minneapolis*.

Crandall, R. P., surgeon, ordered to the *Hancock*.

Winn, C. K., acting asst.-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the *Cæsar*.

Janney, W. H., acting asst.-surgeon, detached from the *Cæsar*, and resignation accepted, to take effect March 22.

Blackwell, E. M., P. A., surgeon, detached from the *Castine* and ordered to the Naval Station, San Juan, P. R.

Butler, C. S., P. A. surgeon, detached from the Naval Station, San Juan, P. R., and ordered to the *Castine*.

Shook, F. M., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant, J. G., from March 15, 1905.

The following asst.-surgeons were detached from duty at the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to duty as follows: R. B. Chapman, Naval Hospital, Mare Island, Cal.; H. F. Hull, U. S. R. S. *Franklin;* G. L. Wickes, U. S. R. S. *Lancaster;* W. J. Zalesky, Naval Academy; H. T. Nelson, Naval Hospital, Washington, D. C.; C. T. Grayson, Marine Barracks, Washington, D. C.; W. N. McDonell, Naval Station, P. R., and additional duty on the *Alliance*. E. A. Vickery, Navy Yard, Portsmouth, N. H., and additional duty on the *Southery*; R. E. Stoops, *Pensacola*, and additional duty at Naval Training Station, San Francisco, Cal.; R. G. Heiner, Navy Yard, Washington, D. C.; H. A. May, U. S. R. S. *Franklin;* J. L. Belknap, Naval Hospital, Narragansett Bay, R. I.; L. H. Wheeler, Naval Hospital, Narragansett Bay, R. I.; W. D. Owens, Naval Hospital, Mare Island, Cal.; W. A. Angwin, Naval Academy; O. J. Mink, Naval Hospital, New York, N. Y.; N. T. McLean, Naval Hospital, Chelsea, Mass.; W. G. Farwell, Naval Hospital, New York, N. Y.; H. W. Cole, Jr., and C. E. Strite, Naval Hospital, Norfolk, Va.

Acting Asst.-Surgeon F. E. Sellers, detached from the Naval Station, Culebra, and ordered home to wait orders. Acting Asst.-Surgeon V. Dabney, detached from Rec. Party No. 2, and ordered to the *Colgoa*; A. A. Surgeon T. C. Blackburn, detached from the *Colgoa* and ordered to Rec. Party No. 2, at Dallas, Texas.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 22, 1905.

Glennan, A. H., asst.-surgeon general, granted an extension of leave of absence for three days from March 21.

Sawtelle, H. W., surgeon, granted leave of absence for two days from March 17.

Mathewson, H. S., P. A. surgeon, bureau letter of March 11, granting leave of absence for five days from March 13, amended to read six days from March 13.

Fricks, L. D., P. A. surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Castries, St. Lucia, W. I., for duty in the office of the American consular agent.

Kerr, J. W., P. A. surgeon, granted leave of absence for five days from March 14, 1905, under Paragraph 191 of the Regulations.

Wilson, R. L., P. A. surgeon, to proceed to Vera Cruz, Mexico, for duty in the office of the American consul.

McLaughlin, A. J., asst.-surgeon, granted leave of absence for six days from March 20.

Frick, John, acting asst.-surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Tampico, Mexico, for duty in office of American consul.

Goldsborough, B. W., acting asst.-surgeon, granted leave of absence for three days from March 23.

Kurtz, W. M., acting asst.-surgeon, granted leave of absence for seven days from March 18, 1905, under Paragraph 210 of the Regulations.

McLarty, A. A., acting asst.-surgeon, granted leave of absence for 30 days from April 1.

BOARD CONVENED.

Board to meet at Washington, D. C., March 18, 1905, for the

physical examination of an officer of the Revenue-Cutter Service. Detail for the board; Asst.-Surgeon-General W. J. Pettus, chairman; Asst.-Surgeon-General H. D. Geddings; Asst.-Surgeon A. J. McLaughlin, recorded.

Health Reports.

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended March 24, 1905.

SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 11-18, 1 case, 1 death.
Florida: Jacksonville, March 11-18, 3 cases.
Illinois: Chicago, March 11-18, 20 cases, 3 deaths.
Kentucky: Lexington, March 11-18, 1 case; Louisville, March 8-16, 4 cases.
Louisiana: New Orleans, March 11-18, 11 cases.
Michigan: At 65 places, Feb. 25-March 4, present.
Missouri: St. Louis, March 11-18, 43 cases, 2 deaths.
Nebraska: Omaha, March 11-18, 2 cases.
New York: Mount Vernon, March 11-18, 1 case; New York City, 1 case.
Ohio: Toledo, March 4-18, 9 cases.
Tennessee: Memphis, March 11-18, 10 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Dec. 1-31, 17 deaths.
Brazil: Nictheroy, July 1-Jan. 1, 248 deaths; Santos, Jan. 15-22, 1 death.
Ecuador: Guayaquil, Feb. 1-28, 3 deaths.
France: Paris, Feb. 25-March 4, 22 cases, 1 death.
Germany: Bremen, Feb. 18-25, 2 cases.
Great Britain: Bradford, Feb. 18-25, 5 cases, 1 death; Leeds, Feb. 25-March 4, 1 case, 1 death; Leith, 2 cases; London, Feb. 18-March 4, 11 cases; New Castle-on-Tyne, Feb. 25-March 4, 3 cases.
India: Bombay, Feb. 14-21, 164 deaths; Calcutta, Feb. 11-18, 3 deaths; Karachi, Feb. 12-19, 3 deaths; Madras, Feb. 11-17, 1 death.
Italy: Lecce Province, Jan. 16-23, 6 cases.
Russia: Moscow, Feb. 18-25, 8 cases, 1 death.
Spain: Barcelona, Feb. 21-28, 5 deaths.
Uruguay: Montevideo, Feb. 16, 34 cases, 7 deaths.

YELLOW FEVER.

Panama: Panama, Jan. 1-March 7, 36 cases, 14 deaths.

CHOLERA.

India: Calcutta, Feb. 11-18, 24 deaths.
Turkey in Asia (general): Jan. 14-21, 40 cases, 12 deaths; Van, Jan. 14-21, 34 cases, 7 deaths.

PLAGUE.

Africa (British): Kismu, Jan. 5-12, present.
Arabia: Aden, Feb. 11-18, 374 cases, 342 deaths.
Chile: Chanaral, March 16, present; Iquique, present; Pisaqua, epidemic.
Egypt: Suez, Feb. 2-9, 4 cases, 1 death; Tukh, Feb. 4, 1 case.
India: Bombay, Feb. 14-21, 666 deaths; Calcutta, Feb. 11-18, 88 deaths; Karachi, Feb. 12-19, 59 cases, 58 deaths; Madras, Feb. 11-17, 1 death.
Russia: Urlask Territory, Nov. 1, 1904-Jan. 16, 313 deaths.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Medical Association of the District of Columbia, Washington, April 4.
Association of American Medical Colleges, Chicago, April 10.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Association of the State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
American Medico-Psychological Association, San Antonio, Texas, April 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.
American Association of Pathologists and Bacteriologists, Chicago, April 21-22.
American Gastro-Enterological Association, New York, April 24-25.
Medical and Chirurgical Faculty of Maryland, Baltimore, April 25-27.
Texas State Medical Association, Houston, April 25-28.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held March 8, 1905.

Dr. Howard M. Fussell in the Chair.

Fracture of Cervical Spine.

DR. CHARLES W. BURR exhibited a case of fracture of the cervical spine. The patient fell from a cart striking his neck and shoulders. After regaining consciousness he had severe pain in the neck, shoulders and both arms, and loss of power in the arms. About six months later he could walk fairly well, with short, stiff steps. He held his neck stiffly; movements in the arms were limited by rigidity and by weakness. The grip was very weak. The deep reflexes were increased. The skiagraph revealed a fracture of the body and lamina of the fifth cervical vertebra. At the present time he walks well. His head is held stiffly. He can move it a little, but with pain. There is considerable movement of the arms, with rigidity. The kneejerks are a little increased. The plantar jerks are normal. There is a little muscular wasting in the deltoids, but none elsewhere. There is some spasmodic retention of urine.

DISCUSSION.

DR. M. K. KASSABIAN showed that a very small per cent. of fractures are of the spine. In 1,500 cases of fracture only 4 per cent. were of the spine.

DR. MORRIS B. MILLER stated that operation should only be undertaken when there is pressure on the cord or from bone. Ankylosis gives a fair chance of slow absorption of hemorrhage and gradual restoration of function. To secure that no device is better than a modified jurymast.

How Can the Physician Profit by Preventive Medicine?

DR. J. MADISON TAYLOR presented evidence to show that it is necessary that preventive medicine shall be exhibited to the profession as a means of advantage to themselves as well as to the community. The relationship of the physician to the patient is on the wrong basis. The practitioner should be given free opportunty to inspect the members of a household at regular periods or at will, and not called only when there is illness. Disease is now being studied from the standpoint of economics, hence prevention is to be welcomed as a source of general wealth. Legislation can be made more effective if physicians will do their part toward the prevention or limitation of preventable disease. Physicians should more clearly point out the ways to reform and educate the public, and they should accept the authority of the health boards more cordially and work with them to accomplish results. He recommended the adoption of a different fee system, and said that it is a false position for the physician to earn no fee except by being invited to meet exigencies; better, he says, to adopt the plan long since found necessary by lawyers, of demanding a retaining fee or yearly stipend of the householder, thus giving them access to the house to rectify constitutional peculiarities and save from peril. He alluded to the neglected duty of the physician of discouraging the use of many medicines, bitters, tonics, cough medicines and the like, whose chief attractiveness is the contained alcohol or narcotics.

Osmic Acid Treatment of Tic Douloureux.

DR. W. WAYNE BABCOCK reported a severe case of trifacial neuralgia. The condition had persisted for thirty-five years, despite eight operations, including two attempts to remove the Gasserian ganglion, and the excessive use of drugs had at one time led to temporary insanity. About nine months ago a 2 per cent. solution of osmic acid had been injected under cocain anesthesia, into the inferior dental nerves. More recently the infraorbital, palatine and supraorbital nerves were injected. The patient has gained thirty-five pounds in weight and his physicial condition is improved. No major operation, he stated, is warranted in the treatment of trifacial neuralgia until the futility of osmic acid injections into the peripheral nerve trunks has been proved.

DR. L. J. HAMMOND called attention to the relations of the nerve fibers comprising the trifacial, and thought that absolute cure of these pains should not be expected until not only the trifacial, but the different branches of the fifth nerve were dealt with.

The Problem of the Treatment of Laryngeal Tuberculosis.

DR. W. G. B. HARLAND stated that the vocal cords, interarytenoid fold and arytenoids are the parts most often affected, involvement of epiglottis or epiglottic folds being more serious. Most forms of the disease pursue a harmless chronic course. Edema and deep ulceration, however, are dangerous. The laryngeal lesion does little harm, except when it causes

dyspnea, pain or difficulty in swallowing; it forms an index of general health and resisting power. Treatment is directed toward lessening irritation in the upper air tract, healing ulcerations and building up general health. The *x*-ray is of use in some cases. Serum therapy promises much.

DISCUSSION.

Dr. W. Wayne Babcock referred to a case of laryngeal tuberculosis, in which, following an intralarngeal application, the patient had dyspnea and became unconscious. A rapid tracheotomy was done, after which she improved and gained in weight. Further applications were not made by the laryngologist for fear of the edema, but after two or three months the edema again developed. A second tracheotomy was done, and since that time the patient has worn a tube continuously. Her voice is better and she has gained in weight.

Dr. L. J. Hammond has operated on eight cases of laryngeal phthisis with good results. The best treatment is to put the parts at rest.

Dr. George E. Pfahler mentioned a case in which he is making the *x*-ray applications externally, using a high vacuum tube at a distance of from 15 to 20 inches. Distinct improvement has been noted.

Dr. Harland said he had observed that the surgical treatment is rather unsatisfactory.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, held Jan. 24, 1905.

The President, Dr. Hugh Hanna, in the Chair.

Cancer of Corpus Uteri.

Dr. Frank C. Hammond reported three cases and reviewed the symptoms and diagnosis of this affection. He emphasized the fact that if success is to be obtained in the treatment the practitioner must recognize the importance of early diagnosis and early radical operative procedures. When the cervis uteri is normal and the patient presents symptoms suggestive of malignancy of the uterus, one must not lose sight of the fact that malignancy of the body of the uterus may be present. Emphasis was laid on the necessity of curetting all cases of suspicious bleeding and submitting the scrapings to a careful microscopic examination. This is supported by the fact that the prognosis in adenocarcinoma of the corpus uteri is generally favorable, provided that the process is detected in the early or comparatively early stages. Should no microscopic evidence of cancer be found, the curettage must be repeated whenever the bleeding reappears. The reappearance of hemorrhage, one, two, three or more years after the menopause, is strong presumptive evidence of cancer and always demands immediate examination. Too often the four cardinal symptoms, pain, hemorrhage, fetid discharge and cachexia are most depended on for diagnosis, and by the time these symptoms are present, too frequently the case is inoperable. For making an intrauterine digital examination the uterus is best dilated by means of the Schatz metreurynter; in multiparous women the dilation is painless, but in the nulliparous it is more or less painful. Early complete hysterectomy is the only means of treatment.

DISCUSSION.

Dr. J. Thompson Schell considered the diagnosis of these conditions very difficult and referred to the case of a woman 45 years of age, giving a history of having missed three periods and then going through with what seemed to be an incomplete abortion. A curettement was done, but the scrapings were not examined. The same history was repeated at the expiration of eight or nine months and seven months, respectively. The report on the scrapings showed them to be normal deciduous tissue, but it was finally decided to remove the uterus. Examination of the tumor showed it to be a very small adenocarcinoma. He expressed the belief that cases of this character may run a course of a number of years, apparently becoming normal after each curettement, and then giving a history of abortion, as in this case. The patient above referred to made a good recovery. Another case was that of a woman who gave a history of repeated hemorrhages, occasionally between the periods, the discharge being odorless. Curettement and examination of the scrapings showed it to be a beginning carcinoma, which was removed, and the woman made a good recovery. He urged the importance of early diagnosis and operation, and emphasized the value of the Schatz metreurynter.

Dr. Wilmer Krusen stated that only about 5 per cent. of all cases of cancer of the uterus are cancer of the body. There is very little clinically to aid in the diagnosis. He referred to the rarity of this condition in the colored race and nulliparous women, and stated that Emmett reported only one case. While text-books class this as a disease occurring between 40 and 50, probably in about four-fifths of the cases it occurs in women under 32. The only symptoms present in these cases early is a little bleeding, and the uterus little or not at all enlarged. He, too, emphasized the value of the Schatz metreurynter as a diagnostic aid, but believed the application thereof produced considerable pain. The prognosis is more favorable in cases of cancer of the body than in cervical cancer.

Dr. Frank C. Hammond, in closing, stated that the younger the woman the more rapid was the fatal termination of the disease when operation was refused, and referred to cases reported by Kelly in which malignant disease had been diagnosed as long as five years before death.

Extrauterine Pregnancy.

Dr. Wilmer Krusen referred to the fact that the condition was being more frequently recognized at present than in the past, and attributed this to advances in abdominal surgery. As causes of the condition he mentioned: (1) Mechanical causes which interfere with the downward passage of the ovum; (2) causes resulting from inflammatory conditions of the tubes, ovaries and pelvic peritoneum; (3) physical and developmental abnormalities which favor decidual formation in the tubes. He reported a case of the second type. The patient, 30 years of age, had a negative family history, except that her mother died of heart disease at 45. She had had measles, varioloid and appendicitis, said to have been complicated by peritonitis, five years ago. Three years after marriage her first child was born, a "blue baby." Two weeks after confinement, the patient complained of intense pain in the lower abdominal region extending to the inguinal region, before the appearance of which there was a movable mass noticeable in the hypogastric region, which disappeared on the appearance of the former. Following these symptoms there was a very marked odor to the vaginal discharge, which after about six weeks disappeared, and a few weeks later the patient felt perfectly well. In May, 1904, the patient complained of soreness when standing, which was diagnosed as a case of enlarged tubes, and treated with tampons, but with no avail. Menstruation continued almost normal up to November 6, when she menstruated but one day, and between that date and November 27, when brought into the hospital, the patient felt well and gained flesh. One evening, on retiring, she complained of pain in the lower abdomen, which increased and extended up to the diaphragm. Vomiting began shortly afterward. At noon there was dyspnea, interference with sight and hearing and weakness. Operation revealed the left tube as the site of the rupture; on the right side was a tubo-ovarian abscess. Both appendages were removed, the patient making an uninterrupted recovery.

DISCUSSION.

Dr. Frank C. Hammond stated that the opening in the tube was very very small, as though some person had taken a pencil point and pierced it.

Dr. J. Thompson Schell referred to a case in which he had done two curettements, the woman having a history of about fourteen self-produced abortions, usually at about the end of the third month of pregnancy. He was called in to see her when she had symptoms of beginning peritonitis and obstruction of the bowel, having had no movement for two days. On opening the abdomen a gangrenous right fallopian tube and a fetus were found, and on the other side an abscess cavity,

about as large as a canteloupe. Drainage was established through the vagina, but the patient died of pelvic peritonitis.

DR. CARLE LEE FELT referred to a case in which, after childbirth, the patient thought she had a tumor. At the operation ectopic gestation was found, which had been present during her pregnancy.

DR. M. J. KARPELES referred to three cases of ectopic gestation. The first case was diagnosed as typhoid fever. Examination revealed the presence of a mass behind the uterus. The second patient had a history of nocturnal paroxysmal abdominal pain, discharge of blood, and miscarriage six months before. Another miscarriage was suspected, a curettement done, and she apparently improved for a few days, when the fever increased. A mass was felt in the right side, operation was done and the patient made a good recovery. The third patient gave a history of slight bloody discharge. Miscarriage was suspected, but proved to be an ectopic gestation.

DR. KRUSEN stated that he usually gave 1/60 of a grain of salicylate of eserin, every three or four hours, until the bowels were moved.

CHICAGO UROLOGICAL AND CHICAGO MEDICAL SOCIETIES.

Joint Meeting, held March 1, 1905.

The President of the Chicago Urological Society, Dr. R. R. Campbell, in the Chair.

Pus Infections of the Genital Tract in the Male.

DR. WILLIAM T. BELFIELD read a paper on this subject which will appear in THE JOURNAL.

X-Rays as a Means of Diagnosis in Kidney Surgery.

DR. ARTHUR DEAN BEVAN called attention to the fact that the first work done in this country in this line was done in Chicago in 1897. Since that time very definite results have been obtained by the use of the *x*-ray. Leonard of Philadelphia showed that the evidence furnished by the *x*-ray was to be relied on, even the negative evidence where the differentiation was clear. Bevan published a paper in the *Annals of Surgery* reporting 13 or 14 cases, and claimed that the *x*-ray as a means of diagnosis was to be relied on to a greater extent than any other means at our disposal in cases of kidney stone. He thinks the best exposition of this entire work is to be found in the *Beiträge für Chirurgie*, from the pens of Kümmel and Rumpell. Kümmel takes the position of Leonard and Bevan, and presents practically these conclusions, that the *x*-ray, properly used, will detect a stone in any individual, no matter how thick, and a stone of any chemical composition; that the detection of the stone does not depend so much on its chemical composition or the thickness of the individual as it does on the proper use of the *x*-ray. The conclusions of Kümmel, Leonard and Bevan are not accepted to-day. Most of the work done with the *x*-ray in kidney stone has been poor work. A lot of work done at hospitals and in laboratories and submitted to medical men as finished, expert *x*-ray work, is not really worthy of attention. He had seen plates taken by men who were not competent to interpret the findings and determine whether or not stone was present; then operate on the case, find no stone at the time of operation, and damn the *x*-ray. The *x*-ray does not lie in these cases. The *x*-ray has absolutely no fallacies. To be sure, there will be cases where the evidence is uncertain; where the individual who is doing this work, who is competent to do it and to interpret it, will place them in an uncertain group. On the other hand, the great majority of cases are very clear and definite, and belong to a group where there is stone or where there is no stone present.

In 27 cases positive findings and stones were found at operation in 13; in about the same number of cases negative findings, and at the time of operation other pathologic conditions than stone were found. There was one doubtful case which was clearly stone clinically, and it was found at the time of the operation. After the operation one could clearly see in the plates a stone behind the twelfth rib, in a position where it is not often found. The ordinary position of stone in these cases is an inch and a half from the transverse process and a little below the twelfth rib.

With reference to the differential diagnosis between stone and other lesions in the kidney, and between stone and other conditions, such as appendicitis, gallstone and some other complicating conditions on the right side, in a series of several hundred cases collected since the introduction of the *x*-ray and the use of it in kidney stone work, he has had three cases in which a diagnosis of appendicitis was made, where the evidence seemed to be definite—the appendix was removed—and where later the *x*-ray disclosed a stone in the kidney. It is difficult to say definitely whether the symptoms which occurred in these cases were at all times due to the stone, and the appendix was not the organ at fault. In two of these cases he believes the appendix had not given rise to any symptom. The history in all three was quite similar: A series of attacks, the appendix removed, and later attacks after the operation. Then, another review of the situation, with the *x*-ray picture determining the presence of stone, the stone removed and the patient cured. One rather interesting feature in one of these cases was found: After the removal of the appendix first and the stone later, the patient was not cured, and a further review of the case showed tubercle bacilli in the urine. One kidney was found normal, and in the other nephrectomy resulted in a permanent cure. In the differential diagnosis we should always consider gallstones. These stones very seldom show in the *x*-ray.

Diagnosis of Ureteral Stones.

DR. M. L. HARRIS stated that with the possible rare exception of a stone forming about a foreign body or an obstruction in the ureter, all ureteral stones have their origin in the kidneys, whence they migrate to some point in the ureter where they become arrested. Previous to the migration of a stone the patient may or may not have presented symptoms pointing to kidney trouble, but the act of migrating is almost always accompanied by excruciating pain, known as renal or ureteral colic. The pain does not usually cease suddenly, but disappears more gradually. After the stone becomes lodged it may remain latent for an indefinite period, provided it does not completely occlude the lumen of the ureter so as to prevent the passage of the urine around it. More commonly the patient has recurring attacks of pain of varying intensity and at variable intervals, similar to the original ureteral colic, or a more or less fixed pain or soreness at some point in the lumbar region or along the course of the ureter may persist. The urinary findings and other symptoms are such as are common to kidney stones, or a pyelitis, or ureteritis from other causes, and, therefore, in no way characteristic. Localized tenderness along the ureter, or an enlarged ureter, if detached, on palpation may have some significance, but is not conclusive. Stones lodged at the lower end of the ureter may be palpated at times through the vagina or, more rarely, through the rectum. With the aid of the *x*-ray stones can be recognized in all portions of the ureter. It should be remembered, however, that a skiagram is but a visible expression of the relative facility with which the *x*-rays are transmitted through the various substances which have been interposed. A correct interpretation of the shadows is very important, yet this may be difficult or even impossible without a knowledge of all of the collateral facts pertaining to the particular case in hand. Harris directed attention to the possibility of error in interpreting shadows which apparently lie in the course of the ureter, and particularly that portion of the ureter which is contained within the pelvis. When such shadows are found in this portion of the pelvis, with symptoms pointing to ureteral stone, the ureters should be catheterized in order to determine whether the shadow actually lies in the course of the ureter. The tip of the bougie may be waxed, so that contact with a foreign body, such as a stone, may be recognized by the indentations made in the wax.

An Attempt to Use the Electric Conductivity of Urine for Clinical Purposes.

Drs. Gustav Kolischer and Louis E. Schmidt have tried to determine the functional capacity of the kidneys from a new point of view. They tried to make every kidney a standard unto itself. They investigated whether the secreting efficiency of normal and abnormal kidneys might be influenced in a peculiar and characteristic way, so the osmotic concentration of the urine voided before and after staining certainly ought to show marked differences. The results of their investigations so far seem to bear out these theoretical speculations. As the most sensitive test they resorted to the test of electric conductivity, and as a method of staining they selected hypodermic injections of indigo carmin. After the stain is brought into the circulation, and after the urine becomes colored, the urine of normal kidneys always shows a slight decrease of electric conductivity, which depression, however, will never exceed nine international ohms. In case urine simultaneously drawn from both normal kidneys shows different electric conductivity before staining, the decrease of conductivity appearing after staining is exactly the same in either specimen. Urine drawn from pathologic kidneys will always, after staining, show a decided increase of electric conductivity. The authors believe they are justified in saying that any increase after staining of electric conductivity beyond ten international ohms is characteristic of impaired health of the kidney. If this increase stays inside the limits of twenty ohms, this kidney may be considered as safe in a surgical sense; that is, it can reasonably be expected to be of sufficient functional capacity to attend to the eliminating process after its mate has been removed. Any kidney whose urine after staining shows an increase of electric conductivity beyond twenty ohms has to be considered as absolutely unsafe in a surgical sense. They expect to be able to determine by this method in advance whether a given individual will react, as to his kidneys, favorably or unfavorably to the administration of a general anesthetic.

Diagnosis of Syphiloma of Kidneys.

Dr. R. R. Campbell read a paper on this subject which will appear in The Journal.

BOSTON MEDICAL LIBRARY MEETING.

Meeting held March 1, 1905.

Dr. Francis B. Harrington in the Chair.

SYMPOSIUM ON SURGERY OF RENAL AND URETERAL CALCULI.

Results of Cases at the Massachusetts General Hospital.

Dr. Hugh Cabot found from 1897 to 1904, 26 cases, all of which were operated on. Age averaged 80 years; 8 females, 18 males; 15 in right kidney, 7 in left, 4 in both kidneys; 9 had marked hematuria, while all showed blood in the urine microscopically; all had pain; in 2 this was recent, though the calculi were large; 11 had renal colic; 10 had passed a small stone or gravel; 5 had a tumor, of which 3 were fatal; *x*-ray was used on 15 and was positive in 13; average duration of symptoms was six and a half years, showing how loath physicians are to refer such cases to the surgeon. Nephrectomy was the operation done in 3 cases, all of which recovered; nephrotomy was done 27 times on 21 patients, 4 of whom died; urethro-lithotomy was done on 2 patients. Two cases were operated on for appendicitis, one afterwards passing a stone and the other dying of uremia. There were 6 deaths, 2 from chronic sepsis, 1 from loss of substance, 2 from uremia and 1 from secondary hemorrhage eight days later. Thirteen were seen within the last month; 10 are well, 1 passes pus in urine, 1 has pain and 1 has pain and passes gravel as before the operation.

Actual Results of Cases at the Boston City Hospital.

Dr. J. H. Cunningham, Jr., reported 43 cases; average age 33 years; 33 males, 10 females; 30 in right kidney, 10 in left and 3 in both kidneys; *x*-ray was used on 7; positive in 6. Urine was acid in 40 cases, alkaline in 1, neutral in 1, and always contained blood. No case had any gouty symptoms. Pain in 36 cases; renal colic in 20; lumbar pain in 13. All were tender to pressure over the affected kidney. Five had tumor; 16 had hematuria; 33 pyuria; 10 had passed calculi before. Largest one removed weighed 5 ounces. Fifteen were operated on, with 2 deaths, one aged 53 from shock, one aged 34 from pyonephrosis. Lumber operation was employed in 13 cases. Seven cases are well after several months or years. In the series was included one patient operated on by the method of nephro-lithotomy by Dr. William Ingalls. The man recovered and lived for twenty years. This was probably the first time this operation was done, being ten years before the first case reported by Dr. Morris, though reported later than Dr. Morris' case.

Dr. Henry F. Hewes read a detailed description of the best methods to be employed in the diagnosis of renal calculi from the examination of the urine.

Other Means of Diagnosis of Calculi.

Dr. Benjamin Tenney compared statistics of Morris and others with his own report of 128 cases of ureteral calculi made last year. He had been over the autopsy reports of the Massachusetts General Hospital and the Boston City Hospital since 1896 and among 3,807 found 16 cases of calculi in kidney, 8 in ureter and 3 in both kidney and ureter. Gallstone was seven times more common. Aside from the examination of urine the *x*-ray is the most accurate single means of diagnosis. Other useful means are catheterization of ureters, cystoscopy, palpation and possibly the "stamping test."

Operations for Renal and Ureteral Stone.

Dr. Paul Thorndike said the operator should be ready for a complete operation, laying kidney out on loin and splitting it. Such split sides should be kept pressed together or hemorrhage will occur through the ureter into the bladder. The question of nephrectomy versus nephrotomy depends on amount of tissue remaining, and on the condition of the other kidney. Ureteral calculi are apt to be near the kidney, at the pelvic brim or near the bladder. At the lower end they may be reached through the bladder, vagina or urethra; at the pelvic brim through the rectum, by perineal section, through the sacrum, by abdominal section, through the vagina, or by the extraperitoneal operation in the iliac region near Poupart's ligament.

DISCUSSION.

Dr. E. W. Cushing said cases may have the symptoms and no stone. In deciding whether to do nephrectomy or nephrotomy many things must be considered, among others the renal fistula which is apt to follow the latter. In attempts to get at the ureter it is useful to remember that it keeps with the peritoneum, not with the blood vessels. Because of the difficulty of following it down into the pelvis it is often best to do an abdominal operation.

Dr. Edward Reynolds said it was important to decide early whether nephrectomy was to be done or nephrotomy, and that the information to be gained by catheterization of the ureters, so easy in women, was very useful. The surgeon then knows whether the other kidney is doing good work or whether it is necessary to preserve all possible kidney tissue. He protested earnestly against the use of the wax-tipped bougie, which he considers a very dangerous instrument.

Dr. Earnest A. Codman, with an experience of 25 cases of *x*-ray work, feels that it is of doubtful value. Unless a well-marked shadow of the last rib is visible in the radiograph, a calculus can not be expected to show though it may be present.

Dr. Paul Thorndike spoke of a uric-acid calculus which showed clearly in a radiograph and said that it might be explained by the associated urates.

Dr. F. B. Harrington spoke of the valuable aid to be gained from an elastic clamp applied after the kidney is delivered on the loin. An opening may sometimes be made into the pelvis of the kidney and considerable quantities of detritus removed by a curette without damaging the kidney substance at all.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pharyngitis.

In the treatment of the acute forms of pharyngitis, E. F. Ingals states that when the portal circulation is sluggish the occasional administration of salines and mercurials is indicated. Poor digestion must be corrected by bitter tonics. The following is recommended by some authorities applied locally:

℞. Argenti nitratis ..... gr. xxx 2
Aquæ destil. ..... ℥i 30

M. Sig.: To be applied locally on a swab.

In applying this solution the tongue should be depressed as far as possible and the application made quickly from the lower part of the pharynx upward, by which procedure the whole pharynx is treated at once. Care must be observed that the solution does not come in contact with the epiglottis, nor drop into the pharynx, otherwise acute edema may develop and produce great dyspnea. In the chronic form of pharyngitis, Ingals recommends eliminants and tonics. Arsenous acid internally is also advised, combined with nux vomica, as follows:

℞. Acidi arsenosi ..... gr. i .06
Ext. nucis vom. ..... gr. x .65
Ext. cascaræ sagradæ ..... gr. xii .75

M. Ft. capsulæ No. xxiv. Sig.: One capsule before each meal.

Locally he recommends the following as an insufflation into the nasopharynx in those cases presenting several enlarged follicles providing the surrounding mucous membrane is moist:

℞. Hydrastis muriatis ..... gr. xxv 1.65
Pulv. acaciæ q. s. ad. ..... gr. c 6.65

M. Sig.: To be used as an insufflation into the nasopharynx.

In the mild cases local astringents are desirable, and for this purpose he recommends the troches of krameriæ compound, and the following spray to the pharynx:

℞. Cupri sulphatis ..... gr. x-xx .65-1.30
Aquæ ..... ℥i 30

M. Sig.: To be used as a spray twice daily.

When the foregoing treatment is not sufficient to effect a cure, cauterization of the follicles is recommended, using either nitric acid, chromic acid, or better, the galvanocautery and cauterizing only two or three follicles at a time. The treatment is repeated every four or five days.

As a local antiseptic, some authorities recommend the following combination:

℞. Tinct. iodi ..... ℥i 4
Acidi carbol. ..... gr. vi .30
Acidi tannici ..... gr. xx 1.30
Glycerini q. s. ad ..... ℥ii 60

M. Sig.: Apply with a swab two or three times daily.

Yeo recommends the following combinations in the treatment of the different forms of pharyngitis:

℞. Acidi carbolici ..... ℥ss 2
Cocainæ hydrochlor. ..... gr. iv .25
Glycerini ..... ℥ii 8
Aquæ rosæ q. s. ad ..... ℥vi 180

M. Sig.: To be used as a gargle or a spray two or three times daily in the acute forms of pharyngitis; or:

℞. Acidi tannici ..... gr. xii .75
Tinct. iodi ..... m. v .30
Acidi carbol. ..... gr. xxx 2
Glycerini ..... ℥ss 15
Aquæ q. s. ad ..... ℥iii 90

M. Ft. lotio. Sig.: Paint the throat with this solution three times daily.

As a gargle in catarrhal angina the following is of value:

℞. Aluminis ..... ℥iss 6
Tinct. opii ..... ℥ss 2
Mellis ..... ℥ii 8
Syr. rosæ (B. P.) ..... ℥iii 12
Aquæ q. s. ad ..... ℥viii 240

M. Sig.: To be used as a gargle.

When the throat is relaxed and reddened the following may be used:

℞. Tinct. capsici
Acidi tannici, āā ..... ℥ss 2
Infus. rosæ acidi ..... ℥iii 90
Aquæ q. s. ad ..... ℥v 150

M. Sig.: To be used as a gargle.

The following astringent solution, in some cases, may serve the purpose better:

℞. Aluminis ..... ℥iv 15
Acidi tannici ..... ℥i 4
Mellis ..... ℥i 30
Aq. rosæ q. s. ad ..... ℥viii 240

M. Sig.: To be used as a gargle.

In cases of chronic pharyngitis the following combinations are recommended:

℞. Glycerini acidi carbol. (B. P.) ..... ℥iiss 10
Acidi tannici ..... ℥i 4
Tinct. capsici ..... ℥ss 2
Infusi rosæ acidi q. s. ad ..... ℥vi 180

M. Sig.: To be used frequently as a gargle; or:

℞. Ammon. chloridi ..... ℥ss 2
Mellis
Syr. rosæ, āā ..... ℥ss 15
Aquæ q. s. ad ..... ℥vi 180

M. Sig.: As a gargle several times during the day.

Sodium Hyposulphite.

This preparation is recommended by Shoemaker in the treatment of scabies, applied as follows:

℞. Sodii hyposulph.
Aquæ destil., āā ..... ℥iii 90

M. Sig.: Apply locally to the affected parts after a morning bath, and allow it to dry on the skin. Before going to bed the skin is bathed with the following lotion:

℞. Acidi hydrochlor. dil. ..... ℥iii 90
Aquæ destil. ..... ℥vi 180

M. Sig.: Apply locally at night.

In the treatment of thrush or sprue occurring in infants or adults the following combination is of value:

℞. Sodii hyposulph. ..... ℥iii 12
Glycerini ..... ℥iss 6
Aquæ q. s. ad ..... ℥ii 60

M. Sig.: Apply locally on a piece of absorbent cotton or antiseptic gauze. It will do no harm if the infant should swallow any of the solution. Sodium hyposulphite is also of service as an antiseptic when sarcinæ are present with vomiting.

℞. Tinct. gentianæ co ..... ℥ii 8
Tinct. capsici ..... ℥ss 2
Sodii hyposulph ..... gr. xl 2.65
Spts. chloroformi ..... gtt. vi .25
Aquæ q. s. ad ..... ℥viii 240

M. Sig.: Two tablespoonfuls three times a day.

Psoriasis.

The following combinations are recommended by *Med. Bulletin* in the treatment of psoriasis:

℞. Sulphuris precip. ..... gr. iii .20
Salol ..... gr. ii .12
Olei gaultheriæ ..... m. ss .03
Acidi arsenosi ..... gr. 1/30 .002

M. Ft. cap. No. i. Sig.: Two capsules three times a day for an adult.

Locally the following may be used:

℞. Acidi salicylici ..... ℥i 4
Ung. hydrarg. nitrat.
Ung. aquæ rosæ, āā ..... ℥ss 15
Olei eucalypti ..... ℥ss 2

M. Ft. unguentum. Sig.: To be applied locally.

Hyperidrosis.

Unna, in an abstract in *N. Y. Med. Jour.*, recommends in the treatment of hyperidrosis that the affected parts be washed

with spirits of camphor or with a weak solution of vinegar. As a local application the following is advised:

℞.	Ichthyol.	
	Spts. terebinthinæ, āā 3v	20
	Ung. zinci oxidi 3x	40

M. Ft. unguentum. Sig.: To be used locally on retiring.

In the shoes the following may be sprinkled:

℞.	Pulv. sinapis 3i	4
	Pulv. talci .....℥iv	120

M. Sig.: To be sprinkled in the shoes.

When the hands alone are affected a half teaspoonful of the following may be thoroughly rubbed into the hands after each washing:

℞.	Spiritus oderatus .....℥iii	90
	Tinct. belladonnæ .....℥ss	15

M. Sig.: To be applied locally to the hands.

Multiple Warts.

Mantelin, in *Merck's Report*, recommends the following in the treatment of multiple warts:

℞.	Chloralis hydratis	
	Acidi acetici, āā 3iss	6
	Acidi salicylici	
	Spts. etheris, āā.....3i	4
	Collodii 3iv	15

M. Sig.: Apply locally to the warts twice daily.

Removal of Nevi.

Neiswanger recommends in the removal of nevi that the child be put to sleep and the positive electrode of the galvanic battery, well moistened in a warm saline solution applied to the abdomen. To the cathode attach the needle holder in which is fastened a suitable needle, generally a long, slender one, from which the temper has been drawn. After the seat of operation has been cleansed and the needle has been drawn through an alcohol flame, it is passed almost through the mark, superficially and parallel with the epidermis. The strength of the current used should depend on the distance the needle has been inserted, but the strength usually varies from one-half to eight milliamperes, which should be maintained until the usual blanched appearance indicative of decomposition is obtained. In like manner, every portion that is red should be attached as many times as necessary.

The part should then be dusted with boric acid and in about one week a dark crust covers the whole area which should not be disturbed until about ready to drop off. If the mark has not been very large, the resulting scar will be almost entirely absorbed in a few months and even where the area involved has been rather large the scar will scarcely be noticeable after one year because the caustic action of the negative electrode, like that of any alkaline caustic, leaves a soft cicatrix that is rather easily absorbed.

Medicolegal

Ship Not Liable for Malpractice.—The United States District Court in New York holds (The Napolitan Prince 134 Federal Reporter, 159) that the errors, mistakes or negligence of its official physician in treating a passenger for an injury were not imputable to a ship, it not being shown that the ship was negligent in selecting them.

Physician, Consulted for Examination Only, as Witness.—The Supreme Court of Wisconsin says that, in James vs. state, a child who was alleged to have been raped was taken by her mother to a physician a few days after the alleged offense, to be examined for the purpose only of determining whether she then had a venereal disease, it appearing that the party accused of committing the rape was suffering from that disease at the time of the alleged offense. The physician was called on the stand and was allowed to testify, against objection, as to the results of his examination, and this ruling was assigned as error on the ground that the information obtained by him was privileged under section 4075 of the Revised Statutes of Wisconsin of 1898. But the Supreme Court holds that the ruling was correct, because such information is privileged only when required and obtained for the purpose of enabling the physician to prescribe for the patient as a physician or to act as a surgeon.

Liability for Care of Smallpox Patients.—The Supreme Court of Iowa says, in the case of Resner vs. Carroll County, an action brought by a physician to recover for services rendered in caring for a smallpox patient in 1902, that the statute in force at the time the services were rendered and the bill approved and presented to the county board provided that persons found to be afflicted with smallpox should be taken charge of and cared for by the local board of health, the expense thereof to be charged to such person, or those liable for his support, if able; otherwise such expense to be charged to the county. Code 1897, section 2570. And under the statute as it then stood the power to fix the fees or charges—those of the physician, for instance—was in the local board of health. The county board had no right to regulate such fees or charges. Its duty was to order the same paid as audited and approved by the local board. It followed that when the local board met and approved the bill of the plaintiff, and it being true that the patient and those liable for his support were unable to pay, the indebtedness against the county became absolute. And this was true without reference to certification, or the want thereof, to the county board. The board bound no one by its action in allowing a portion of the bill and rejecting the rest. As the demand of the plaintiff against the county was of a fixed and definite sum, he waived no right by taking the amount allowed. He had no conference with the board, which alone was authorized to act on the part of the county, and the acceptance of part of a fixed sum due did not operate to bar a claim for the balance unless mutually agreed, and on consideration. In the case of an unliquidated demand a different rule may obtain.

Consent to Postmortem Examination Construed.—The Supreme Court of Iowa says, in the case of Winkler vs. Hawkes and others, an action brought by a widow to recover for physical and mental anguish alleged to have been caused by the wrongful mutilation of the body of her husband and the removal of some of its parts, that it fully appeared that she understood the purpose of the examination was to ascertain the cause of her husband's death, and that she consented to it for that purpose. The consent being given, the Supreme Court thinks it must be held to imply a permission to the surgeons to conduct such examination in the approved and usual manner practiced by their profession; and, if the removal of some of the organs for microscopic examination was necessary or proper to effect the purpose of the postmortem, then the defendants would not be guilty of an actionable wrong in so doing, unless such permission was expressly withheld at the time the consent to open the body was given. It was true that the plaintiff claimed she made it a condition of her consent that none of the parts should be taken away, but that question was submitted to the jury, which evidently found against her contention in this respect. Moreover, the condition that none of the parts should be taken away did not necessarily prohibit the taking of such parts to the office of the surgeons for examination, if they were duly returned and replaced for burial, and this appeared to have been done. The fact seemed to be that the surgeons removed the heart and liver, in whole or in part, from the body, and took them from the undertaker's room for further examination; and, on hearing that the plaintiff objected thereto, the parts were at once returned and buried with the body. There was no indication that the surgeons acted otherwise than in entire good faith, and the court believes that their acts in the premises were fairly within the scope of the consent which the plaintiff conceded that she gave.

Statements of Injured Person to Physician.—The Court of Appeals of Kentucky says, in the case of Shade's Administrator vs. Railroad, Transfer and Bridge Co., that it was contended by the plaintiff that the declarations made to her physician in explanation of the cause of her injury by an injured party, and made to enable him to treat it, were of the essential cir-

cumstances of the case (*res gestae*), and receivable in evidence as such. Here the party whose statement was offered to be proved, the court says, was suffering from physical injury. What she said to her physician as to the pain it then caused her, and the effect it had on her senses, was necessary for him to know in order that he might intelligently treat the injury. Under such circumstances, it is presumed that the party suffering will state truly how she is affected, as otherwise the medical man might be at a loss as to the remedies needful to her condition. The incentive for a fair statement is so great that the presumption is she will not hazard an untruth to better her financial condition, as by fabricating a basis of claim against the person charged with her injury at the expense of her permanent health, or may be of her life. For that reason the law will allow the proof of what she said to her physician at the time of his examination as a part of the *res gestae*. What the injured party may have said to any one at the time of the injury, or so immediately after it as to be regarded part of it, as being the verbal part of a continuing occurrence, would also be admitted, on familiar grounds. What was said after the lapse of some minutes—a half-hour or so in this case—to the attending physician, to aid him in determining the nature of the injury and to prescribe a remedy or treatment, is allowed, as an extension of the same rule of evidence. It rests logically on the necessity of the case. It is matter proper to be shown, and not susceptible generally of being otherwise proved. But it must stop with the necessity for it. It was necessary for the physician to know whether the patient was suffering, and where the pain was, and as to its character. It was also proper that he should know how the injury was inflicted, as on that knowledge his treatment in part, might depend. So it was competent to show that the patient said she had received a blow on her head, if she did say it, and how she was otherwise hurt. But it was wholly immaterial to the physician's understanding what it was necessary for him to know in treating the injuries whether she fell on the defendant's bridge or elsewhere, or that she fell on ice.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 18.

1 *Cholecystitis as a Complication of Lobar Pneumonia: with a Report of Three Cases and Remarks on Icterus in Pneumonia. J. M. Anders, Philadelphia.
2 Primary Tuberculosis of the Female Breast, with a Report of a Recent Case. G. W. Spencer, Philadelphia.
3 Dissertation on Temperament, Diathesis, Dyscrasia, Predispositon, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (To be continued.) Homer Wakefield, N. Y.
4 *Surgical Treatment of Bright's Disease. W. H. Thomas, Philadelphia.
5 Etiology and Pathology of Bright's Disease. W. E. Robertson, Philadelphia.
6 *Postoperative Nasal Hemorrhage; Calcium Chlorid; Secondary Anemia; Rapid Recovery. R. W. Wilcox, N. Y.

1. **Cholecystitis Complicating Pneumonia.**—Three cases of lobar pneumonia complicated with cholecystitis are reported by Anders. The cases apparently were of the catarrhal type and of mild grade, since resolution promptly occurred in two. None of the cases was sufficiently well marked to constitute a grave complication. The local symptoms and physical signs are characteristic, but the type of condition is not severe, hence, to a great extent, it is overshadowed by the grave underlying or pneumonic condition. No general or constitutional symptoms distinctive of the lesion are recognizable. The clinical course of the pneumonia is not materially modified, as a rule, by the occurrence of catarrhal cholecystitis as a complication. The source of the infection is probably the gastrointestinal tract or less commonly, perhaps, the channel of transmission of infection is a blood vessel or a lymph vessel.

4. **Surgical Treatment of Bright's Disease.**—A review of the literature of decapsulation of the kidney made by Thomas shows that of 31 cases of chronic interstitial nephritis, 10 patients (33.24 per cent.) were cured, and 4 (12.7 per cent.) died within two weeks. Of 12 cases of chronic parenchymatous nephritis 3 patients (25 per cent.) were cured, and 1 (8.3 per cent.) died within two weeks. Of 25 cases of chronic diffuse nephritis 3 patients (12 per cent.) were cured, and 2 (8 per cent.) died within two weeks. The anesthetic was nitrous oxid and ether in 42 cases, ether alone in 17 cases, nitrous oxid and oxygen in 8 cases, chloroform alone in 2 cases, nitrous oxid and chloroform in 1 case, nitrous oxid, ether and chloroform in 1 case, and nitrous oxid, oxygen, ether and chloroform in 1 case.

6. **Postoperative Nasal Hemorrhage.**—Wilcox reports a case of nasal hemorrhage following the removal of the inferior half of the middle turbinal and a small spur under cocain and adrenalin chlorid by means of the snare and saw. On the fourth day following gymnastic exercise a profuse hemorrhage occurred, which resisted the ordinary treatment and continued for six days. In the meantime the patient was given large doses of calcium chlorid, 40 grains, per day. Wilcox emphasizes the importance of the administration of calcium chlorid, either by mouth or rectum, coincidently with the surgical methods of controlling hemorrhage, and ascribes the successful issue in the case reported to the calcium chlorid given. For adults, 40 grains in two ounces of water, once daily, will accomplish the desired result.

Medical Record, New York.

March 18.

7 *Results of 1,500 Operations for the Radical Cure of Hernia in Children, Performed at the Hospital for Ruptured and Crippled Between 1891 and 1904. W. T. Bull and W. B. Coley, N. Y.
8 *Acne and Its Treatment. G. T. Jackson, N. Y.
9 *Limitations of the Value of Nitroglycerin as a Therapeutic Agent. H. P. Loomis, N. Y.
10 Physiologic Aids; or the Practical Use of Well-known Laws of the Mind. E. C. Savidge, N. Y.
11 Report of a Case of Vaginal Cesarean Section with Recovery. Simon Strauss, N. Y.

7.—The principal points in this article were covered in Dr. Coley's article in THE JOURNAL, Jan. 14, 1905, page 112.

8. **Treatment of Acne.**—Jackson places the greatest reliance on sulphur used in the form of lotio alba, to which is added a dram or more of precipitate of sulphur to each four ounces of the mixture. He advises the restriction of the use of the Roentgen ray to intractable cases, and to the disease as it occurs on the trunk. When they are used it is advised that a moderately hard tube should be used, that the patient should be seated from 8 to 10 inches from the target, that the exposure should last from three to six minutes and that the sittings should be at intervals of three or four days for from ten days to two weeks.

9. **Value of Nitroglycerin.**—Experiments have been carried on by Loomis for the purpose of determining the therapeutic scope of nitroglycerin. He found that the usual dose of 1/100 of a grain is entirely too small to produce any effect in pathologic conditions; 1/50 of a grain is a minimum dose, although persons vary greatly in their susceptibility to its influences. A great many are not affected at all, even by large and repeated doses, especially persons of phlegmatic temperament. In some people a tablet of 1/100 grain by the stomach will produce no effect, but let that same individual dissolve a 1/100 grain tablet in the mouth and the physiologic effect of the drug will be notable. Loomis, however, considers nitroglycerin a perfectly safe drug to use. He has never seen any ill-effects following its use even in large and repeated doses. High arterial pressure in man is not perceptibly affected by it, nor is dilatation of the blood vessels apparent. The ordinary dose of 1/100 of a grain every four hours could not possibly have any effect on the arteries. Although nitroglycerin is said to increase the quantity of the urine in chronic Bright's disease Loomis was never able to satisfy himself that any increase seen was due to this drug. He believes that in conditions due to arterial spasm, so-called, such as angina pectoris, migraine and asthma, nitroglycerin may be of benefit, in full doses

often repeated, but not in arterial sclerosis where the arteries themselves are more or less changed.

Boston Medical and Surgical Journal.

March 16.

12 Abuse of Medical Charity. G. W. Gay, Boston.
13 Some Abuses of Medical Charity. H. Derby, Boston.
14 Abuse of Medical Charity in London. J. W. Elliot, Boston.
15 Private and Public Hospital. Alfred Worcester, Waltham.
16 Regulation of Medical Charity. F. Cobb, Boston.
17 Medical Charity; a Possible Remedy. John C. Munro, Boston.
18 Medical Charity at the Massachusetts General Hospital. F. A. Washburn, Jr., Boston.
19 Physician and the Hospital Private Patient. E. W. Cushing, Boston.
20 Certain Faults in Medical Charities. Samuel Crowell, Dorchester.
21 Abuse of Medical Charity in the Suburban Districts. Charles H. Cook, Natick, Mass.

New York Medical Journal.

March 18.

22 Gonococcus Infections in Children, with Especial Reference to Their Prevalence in Institutions and Means of Prevention. (To be concluded.) L. Emmett Holt, N. Y.
23 After-treatment of Abdominal Sections with Eserin Salicylate. Daniel H. Craig, Boston.
24 New York Board of Health and the Antispitting Crusade. W. Freudenthal, N. Y.
25 Opium Smoking Readily Cured. W. H. Jeffreys, Shanghai, China.
26 Subcutaneous Injuries of the Abdominal Walls and Viscera. (Concluded.) D. N. Eisendrath, Chicago.
27 *Tuberculous Meningitis with Congenital Stricture of the Rectum. Clinical and Pathologic Reports. H. S. Wieder, Philadelphia, and H. L. Springer, Wilmington, Del.
28 *Study of the Stomach Function in Pulmonary Tuberculosis J. E. Munson, Ann Arbor.
29 Case of Acute Turpentine Poisoning. G. Hausser, Cincinnati.

27. **Tuberculous Meningitis with Rectal Stricture.**—The tuberculous meningitis in the case reported by Wieder and Springer occurred in a child 4½ years of age with a family history of tuberculosis on the mother's side in three members of the family. Of bearing in the previous medical history was the fact that she was obstinately constipated during the first six months of her life, never obtaining a bowel movement except by artificial means. The absence of inflammation and the previous history are evidence that the stricture was probably congenital. The patient died as a result of the meningeal trouble.

28. **The Stomach Function in Tuberculosis.**—Munson has examined the stomach function in 26 cases of pulmonary tuberculosis and has found a marked tendency to hypoacidity, which is frequently transformed into anachlorhydria. The motor power is undisturbed. The first group examined included 10 cases early in the disease, the duration not exceeding nine months. In 8 cases there was a history of stomach symptoms, which in some cases antedated the lung condition and in others introduced or accompanied it. In 4 cases hydrochloric acid was always found, in 1 it was always absent, in 5 it was variable. Peptic digestion and the motor power seemed unchanged. In a second group of 11 cases of intermediate severity the duration of the disease was from five months to two years. Hydrochloric acid was present in 6 cases, absent in 3, variable in 1 and doubtful in 1. Peptic digestion was undiminished. In 5 cases of advanced tuberculosis the qualitative test for free hydrochloric acid was present once, absent twice, and at times was found in the remaining 2 cases. Peptic digestion was usually decreased. The acidity in the first group was about normal, but in the other two groups it was markedly diminished. Munson says that one may assume, in cases where previous dyspepsias can be eliminated, that the digestive disturbances which introduce or accompany the tuberculous process are manifestations of the reaction of the system to toxic products; a reaction analogous, perhaps, to the rise of temperature following the administration of tuberculin.

Medical News, New York.

March 18.

30 *Fresh-Air Treatment of Surgical Tuberculosis. L. R. Williams, New York.
31 *Aural Affections in Children; Necessity for Their Early Recognition by the Family Practitioner. H. Jarecky, New York.
32 *Widal Test for Practicing Physicians. J. H. Borden, New York.
33 Technic of Perineal Prostatectomy. G. R. Fowler, Brooklyn.
34 Superficial Inguinal Hernia, with Report of a Case. A. E. Sellenings, New York.
35 Importance of the Physical Examination of the Back in General Diagnosis. J. P. Arnold, Philadelphia.
36 Local Anesthesia by Cataphoresis and by Mechanical Pressure. W. J. Morton, New York.

30. **Fresh-Air Treatment of Surgical Tuberculosis.**—Williams speaks of the work that is being carried on by the New York Association for Improving the Condition of the Poor at its temporary hospital at Coney Island. The children suffering from surgical tuberculosis live in tents and are treated much like pulmonary cases as regards fresh air, good food and an abundance of it, and rest. The children are given daily sea baths until October. The windows in the wards are kept open except for a half-hour during the time the children dress and undress. Considerable stress is placed on the care of the mouth and teeth. The children brush their teeth twice daily and the services of a dentist are called when necessary. The patients, almost without exception, have improved, though the hospital has cared for every variety of the disease, the far advanced as well as the incipient.

31. **Aural Affections in Children.**—Attention is called by Jarecky to the necessity of the early recognition of ear complications in children by the family practitioner. Pus formation may often be prevented, or, if already formed, its absorption may be checked. Early paracentesis may prevent extension from the tympanum to the mastoid cells, brain, internal ear and sinuses, as well as the partial loss of hearing. He advises that all cases of earache and discharging ears should be properly attended to, and that in all inflammatory diseases the ears should be repeatedly examined during the course of the disease.

32. **Convenient Widal Test.**—The emulsion used by Borden was made from a well-tried strain of typhoid bacilli grown for twenty-four hours on slant agar in large tubes. The bacilli are washed from the medium with a mixture of sterile salt solution, 450 parts; glycerin, 50 parts; 95 per cent. carbolic acid, 2.50 parts; 50 c.c. of the solution are sufficient to wash one large agar tube. After one week the solution becomes translucent and the bacilli on being transplanted failed to grow. It is then ready for use, and is permanent, if kept in sterile bottles in a moderately cool and dark place. With such a suspension 30 cases of typhoid and 27 controls were tested. Of the 30 cases, 29 agglutinated in an accurate dilution of 1 to 100. None of the controls reacted with the serum diluted 1 to 40. The reaction, if positive, occurred within 20 hours. Six controls stood for eight days without apparent change of any sort, and many others from 48 to 72 hours. The average day when the reaction was obtained first was the patient's seventh day in bed. Twenty-five cases were positive on the first examination—the earliest possible on admission. The technic of the method is as follows: 1. The blood is collected in bulbs with a small vent-hole at one end and drawn to a capillary tube at the other. It is only necessary to prick the ear rather briskly with a Hagedorn needle and to keep the tip of the bulb to the exuding drop. When the bulb is two-thirds full it is held for one minute in a slanting manner and laid aside for from one to two hours, when about 0.2 c.c. of serum will have separated. 2. From a modified Schuster dropping bottle with a very small lumen in a spout, a small graduated test tube is filled to the 1 c.c. mark with sterile salt solution. The large end is broken from the bulb at the file mark, and with a capillary tube drawn to a long point and graduated in one-hundredths of a c.c., enough serum is drawn up to make, with the salt solution, the dilution required. The pipette with the contained serum is then inserted into the test tube and thoroughly washed out with the salt solution. 3. From another dropper enough of the typhoid suspension is added to bring the fluid in the test tube to the 2 c.c. mark. The mouth of the tube is then stopped with a plug of non-absorbent cotton, inverted once or twice and set aside in a dark place. If the reaction is positive a marked granularity of the fluid in the tube will be noted. Following this there will be seen distinct clumps beginning to sink toward the bottom, and at the conclusion of the reaction the fluid above will be linty and free from clumps and the point of the

tube will contain a small, white flocculent mass of agglutinated bacilli. The method is particularly adapted for use by the general practitioner because of its simplicity and freedom from danger.

Lancet-Clinic, Cincinnati.

March 18.

37 Nitrous Oxid-Ether Series by Means of a New Inhaler. S. Iglauer, Cincinnati.
38 Cesarean Section. J. U. Barnhill, Columbus.
39 Radical Cure of Inguinal Hernia. A. Schachner, Louisville.

St. Louis Medical Review.

March 11.

40 Burns and Their Treatment in General Practice. A. S. Daggette, Pittsburg.
42 Synopsis of the Nutrition of Man of Dr. Walther Nic Clemm, of Darmstadt, Germany. (Continued.) A. Rose, New York.

Laryngoscope, St. Louis.

February.

43 Results of Partial Inferior Turbinectomy. G. B. McAuliffe, New York.
44 *Therapeutic Value of Medicated Ointments in Certain Affections of the Nasal Chambers. A. W. MacCoy, Philadelphia.
45 Primary and Secondary Tonsillar Hemorrhage Following Tonsillectomy with Tonsillotome and Snare. E. J. Brown, Minneapolis.
46 A Century of Intubations. G. F. Cott, Buffalo.
47 Syphilitic Tracheostenosis Dilated During Active Ulceration by a Long Intubating Tube. L. M. Hurd, New York City.
48 New Tongue Depressor. A. G. Bryant, Boston.
49 Improved Nose, Throat and Ear Instruments. E. Pynchon, Chicago.

44. **Medicated Ointments in Nasal Disorders.**—A note of warning is sounded by MacCoy with regard to the increasing bent toward surgical procedures for the relief of diseases of the nasal chambers. In many cases medicinal treatment proves far more effective than surgical intervention. The constant and persistent use of nasal washes, especially during the winter season, tends to harmful results. By the employment of curative medicaments in the form of soft ointments in the nasal chambers certain risks following the use of washes can be avoided and a speedier cure is effected. MacCoy has largely substituted the use of nasal washes, sprays and powders for home treatment by the prescribing of ointments, based on the individual requirements and the local needs of each patient. These ointments should be dispensed in collapsible tin tubes as a protection from contamination.

Brooklyn Medical Journal.

March.

50 Some Forms of Dyspnea and Their Treatment. J. A. McCorkle.
51 Five Obstetrical Examinations. R. L. Dickinson.
52 *Semeiology of Vomiting in Children. E. H. Bartley.
53 *Intestinal Anastomosis with the Aid of Accessory Support to the Intestinal Wall; also a Description of An Operation for Suturing the Intestine Without Support. G. Wackerhagen.
54 Anterior Metatarsalgia; Report of Six Cases. C. D. Natier.
55 *Duke's Disease. B. Edson.
56 Mirror Writing in the Right Handed. R. Kingman.

52. **Vomiting in Children.**—Bartley directs attention to the distinction that must be made between habitual vomiting or eructation of food in infants and young children and true vomiting. The classification of vomiting adopted by him is the following: 1, Gastric vomiting occurring in cases of acute gastric indigestion; 2, reflex vomiting caused by irritation or inflammation in the intestine, peritoneum, appendix, lungs, pleura or brain; 3, cerebral vomiting, accompanying both acute and chronic irritation of the brain and its membranes; 4, bloody vomiting, which must be differentiated from false hematemesis; 5, febrile or toxic vomiting, occurring at the outset of a number of affections, specially scarlatina and smallpox; 6, cyclic or recurrent vomiting, occurring without apparent cause; 7, vomiting of exhaustion, seen during apparent convalescence from diphtheria, scarlatina, pneumonia, etc.

53. **Intestinal Anastomosis.**—The various mechanical aids to intestinal anastomosis which have been brought forward by Wackerhagen are reviewed in this article. He also describes an operation in which he uses rubber-covered clamps. Openings are made in the intestine, through which the rubber-covered blades are introduced and clamped and the intestines are closed by a simple, continuous Lembert suture. To those who prefer plain suturing in intestinal anastomosis he suggests the following: After excision and closure of the ends of the intestine the two segments are brought together side by side and guy loops are introduced at points opposite the mesentery representing the length of the anastomosis to be made. A colored silk suture about 24 inches long with a knot 10 inches from its end, is introduced one-half inch beyond loop B, and the Cushing suture is inserted between the two segments toward loop A, and to a point one-half inch beyond loop A, where a backward retention stitch is taken. Slit with scissors, one segment of intestine parallel to and one-quarter inch from the Cushing suture; the same is done with the other segment, and the three inner edges of the slits are brought together by a continuous overhand suture, including all the coats. The same is done with the outer edges. Beginning at loop B, the Cushing suture is threaded and applied as a second Cushing stitch toward loop A, where the end is tied to that of the original Cushing suture. This method is essentially the plan of Abbe and Halsted with simplified technic. Two sutures are used, the Cushing outside and the overhand inside, the work being done continuously back and forth from below upward.

55. **Duke's Disease.**—Edson describes 64 cases of a contagious eruptive disease of an unusual character which occurred among the inmates of a hospital for children. The period of incubation was about fourteen days. The eruption, which was distinctly papular, pale in color, with no tendency to bat's wing grouping, appeared first on the face, particularly around the mouth, and extending to the cheeks, forehead, neck, and downward over the body and limbs. The time to the full development was one day. It disappeared in the order of its onset inside of two or three days. The temperature did not go over 100; there was no increase in pulse or in respiration; no coryza or bronchitis; no loss of sleep or appetite; no pruritus; no enlargement of glands; no desquamation, except in one case; no complications and no sequelæ. In about a dozen cases Koplik's spots were present. The ages of the children were from 4 to 13 years; only one adult, a woman of 32, contracted the disease, although others were exposed to it. Edson is of the opinion that these were cases of the Fourth disease, or Duke's disease, which he believes is really a rubella morbilliforme.

American Journal of the Medical Sciences, Philadelphia.

March.

57 *Review of 1,000 Operations for Gallstone Disease, with Special Reference to Mortality. W. J. Mayo and C. H. Mayo, Rochester, Minn.
58 Pseudo-malarial Types of Infective Endocarditis. W. Coleman, New York City.
59 Disseminated Syphilitic Encephalitis. A. M. Barrett, Danvers, Mass.
60 Effect of Alternating Currents of Moderate Frequency on Dogs. G. W. Crile and J. J. R. MacLeod, Cleveland.
61 Physiologic Relationship of Blood Plasma Proteids. T. S. Githens, Philadelphia.
62 *Incidence of Gastric and Duodenal Ulcer in Philadelphia. A. P. Francine, Philadelphia.
63 *Albuminuria in Appendicitis and Hernia. F. E. Bunts, Cleveland.
64 *Is Transplantation of Cord Necessary in Radical Cure of Inguinal Hernia? F. G. Connell, Salida, Col.
65 Case of Chronic Pyelitis Due to Bacillus Coli Communis Simulating Renal Tuberculosis. L. W. Allen, San Francisco.
66 *Gunshot Wounds of Ureter; Uretero-vesical Anastomosis. G. T. Vaughan, Washington.
67 Scabies in the United States and Canada. J. N. Hyde, Chicago.
68 X-Ray Treatment of Cutaneous Epithelioma. C. M. Williams, New York City.
69 *Acute Hemorrhagic Encephalitis. E. E. Southard and C. W. Keene, Boston.
70 Primary Splenomegaly—Gaucher Type. N. E. Brill, F. S. Mandlebaum and E. Libman, Philadelphia.
71 Suctorial and Other Insects as Plague Carriers. M. Hertzog, Chicago.

57.—See abstract in THE JOURNAL of December 24, p. 1988.

62.—Ibid., of March 25, p. 980.

63. **Albuminuria in Appendicitis and Hernia.**—In order to determine the relationship between albuminuria and hernia and albuminuria and appendicitis Bunts studied 50 consecutive cases of each affection. His results were as follows: Appendicitis, 50 cases; of these 43 were operated on during the attack and 7 between attacks, with 2 deaths. Examination of

the urine showed albumin in 18 cases previous to operation, disappearing after operation in 5 cases. Twenty patients who had previously been free from albuminuria developed it after the operation, making a total of 33 in whom it was present subsequent to operation. Hernia (non-inflammatory), 50 cases; no deaths. Of these 11 showed albumin in the urine before operation, disappearing after operation in but 2 cases. In 11 new cases albuminuria developed after operation, making a total of 20 in whom it was then present. Thus, of the inflammatory cases, 18, or 36 per cent., had albumin before operation, while of the non-inflammatory cases only 22 per cent. had albumin; 13, or 26 per cent., of the former had it both before and after, and 18 of the latter were similarly affected. Of the former the albumin disappeared in 28 per cent. after operation, while in the latter it disappeared in 18 per cent. Although these statistics are very meager, Bunts believes that they emphasize the fact that albumin is found in a very large percentage of surgical cases; that it can not be considered on any ground yet established that it is of itself a contraindication to operation.

64. **Is Transplantation of Cord Necessary in Hernia?**—Connell recommends for the radical cure of inguinal hernia the operation in which the cord is left *in situ*. As objections to the transplantation of the cord he mentions: 1, Interference with the circulation and the function of the testes; 2, strengthening the posterior wall at the expense of the anterior; 3, the complexity of the operation and the greater possibility of infection and, 4, recurrence. He has operated on 32 cases in which the cord was not transplanted and the internal oblique was sutured to Poupart's ligament, according to the Ferguson technic. The external oblique was sutured in various ways. Fourteen patients have been traced and heard from recently; 2 have had a recurrence, but as 1 was complicated by an undescended testicle and the other was operated on for a recurrence, after a Bassini operation, Connell believes that they would not serve as arguments against the method.

66. **Gunshot Wounds of Ureter.**—In 2 cases cited, Vaughan performed ureterovesical anastomosis, an operation which is indicated whenever the lower part of the ureter has been divided or resected, and the proximal ends are long enough to reach the bladder. It is preferable to a uretero-ureteral union, because the operation is performed more easily; it is less likely to be followed by stricture, and in case a stricture does form, it is more accessible and easier to treat.

69. **Acute Hemorrhagic Encephalitis.**—A study of encephalitis due to the *Staphylococcus pyogenes aureus* was made by Southard and Keene. Three of the patients were males and 3 were females. Their ages varied from 5 to 55 years. In every case except one, in which the history was unknown, there was a history of antecedent disease. One patient was convalescing from scarlet fever; a second was five weeks recovered from diphtheria and had a chronic endocarditis of long standing; a third was under treatment for chronic urethritis; a fourth had pleurisy with effusion and was but three months beyond the menopause, and a fifth had a history of excessive use of alcohol for many years. The onset was sudden in 3 cases, with hemiparesis and unilateral convulsions in 1; chilly feelings and frontal headache followed by echimosis in a second, and malaise, manifold pains, echimoses and cerebral symptoms in the third. In another case the onset was of the fulminant type. In the remaining two cases the onset was gradual. The distribution of the brain lesions was as follows: Four cases showed areas of frank and somewhat voluminous hemorrhage, as a rule involving primarily the subcortical region. Three cases showed multiple echimoses and small abscesses of the cortex or subcortical region, with or without gross evidence of surrounding edema. In 3 cases edema of the piameter was remarked. In 2 cases there was noted a hemorrhagic effusion into the lateral ventricles, and in 2 cases in which the temporal lobe was involved the middle ears showed no lesion. The histologic picture varied from diapedesis and slight leucocyte emigration to abscess and acutely destructive hemorrhage with phagocytosis.

Colorado Medicine, Denver.

March.

72 Care of Stump in Appendicitis. R. W. Corwin, Pueblo, Colo.
73 When Not to Operate in Appendicitis. H. G. Wetherill, Denver.
74 *Complications and Sequels of Appendicitis. W. W. Grant, Denver.
75 Early Diagnosis and Treatment of Appendicitis with Personal Report from 100 Physicians Who Have Suffered from the Disease. I. B. Perkins, Denver.

74. **Complications and Sequels of Appendicitis.**—Appendicitis is classed as simple by Grant, when in the acute stage, perforation or gangrene has not occurred. Abscess, even though it is circumscribed, is a complication as well as a result. Gangrene is a common complication. He cites a case of left subdiaphragmatic abscess occurring as a sequel in a girl 7 years of age, operated on by him for a retrocolic abscess of the appendix by an incision over the most prominent part above the iliac crest and the ascending colon, with a second opening for drainage in the loin, no effort being made to find the appendix. Fourteen years later the patient fell and not long after a swelling appeared at the umbilicus and broke, discharging pus for several months. Grant believes this was an infected cholecystitis due to the former appendicitis. Just a year before the accident this patient had an abscess in the left hypogastrium, which was incised just within the anterior superior spinus process of the ileum. The opening had momentarily closed, the abscess refilled and extended from the iliac crest to the costal arch. It was opened, giving exit to a large quantity of very offensive pus. She was also expectorating freely, an offensive mucopurulent material. A diagnosis was made of abscess of the lower lobe of the left lung. This was opened and drained. Cough soon ceased and the patient made an uneventful recovery. Grant regards two phenomena as of some diagnostic significance, especially in gangrenous and suppurative cases, when the appendix is entirely in the retrocolic fossa. One, a tender point about three inches to the right of the umbilicus on a horizontal line from it, and more sensitive than the McBurney point, in these particular cases, and some two or three inches above it; the other, an infection of the glands of the neck, including the parotid. Grant also reports as complications a case of femoral thrombosis of the right leg in acute appendicitis on the second day, the man having had pulmonary tuberculosis for several years; and a case of phlebitis of a mild character, commencing in the groin, with moderate swelling in a case of acute gangrenous appendicitis. It delayed the convalescence, and for months the limbs were swollen and painful. He also cites a case of intestinal obstruction following appendicectomy due to omental strangulation of the intestine in the vicinity of an adhesion of the omentum to the middle of the appendix, which had been discovered at the time of operation. The postmortem revealed strangulation of a coil of ileum near the cecum and a kink on the transverse colon. General peritonitis, due to the colon bacillus or to the streptococcus, can be combated successfully, either at the time of operation or soon after, by free incision, breaking up adhesions, evacuating pockets of pus, cleaning the general cavity by mopping and irrigation, and then draining with gauze or tubes. In intestinal paralysis, cathartics and enemas are useless. Stomach lavage may do some good, and it should be used. The condition is best met by enterostomy and drainage, putting a tube in both ends of the intestine. If this is done before the patient is exhausted by sepsis, recovery may ensue. The so-called incarceration shock should be treated with salt infusion, adrenalin and strychnin, and abdominal section should be performed as quickly as possible. Phlebitis is treated by absolute rest and supporting measures. Pregnancy is not a contraindication to appendicectomy. For circumscribed abscess not involving the peritoneal cavity, which is protected by an adhesion wall, simple incision and drainage is the safest procedure. If the appendix is easily exposed or found it should be removed, but it is not the best surgical procedure to sever adhesions and to open the peritoneal cavity in this effort at this particular time. It is taking an unnecessary risk of infecting the peritoneal cavity. Hernia as a result of drainage can only be cured by

excision of scar tissue, by sewing the divided muscles, and by uniting the fascia well over all. On account of the danger of fat necrosis in persons who have thick abdominal walls Grant often drains the fat space. After uniting peritoneum, muscles and fascia in separate layers, the two latter with chromicized catgut, a rubber drainage tube is inserted between fascia and skin and fixed by a stitch in the lower angle of the wound. The tube is removed in three or four days and the fat continues to discharge for a few days or a week. Since resorting to this method he has never had a wound break down and there is greater security against hernia.

Wisconsin Medical Journal, Milwaukee.

February.

77 Address of President of Medical Society of Milwaukee County. G. E. Seaman, Milwaukee.
78 *Surgical Treatment of Ascites Due to Cirrhosis of the Liver. W. Mackie, Milwaukee.
79 Medical Ethics. J. L. Cleary, Kenosha.
80 Glimpse into the Past, Present and Future of Therapeutics. S. R. Moyer, Monroe, Wis.

78. **Surgical Treatment of Ascites.**—The results obtained in the cases of cirrhosis of the liver treated surgically are described by Mackie. The patient has suffered severely from ascites and swelling of the feet and the lower extremities. The left lobe of the liver was nodular, the right smooth and extending below the costal arch. There were no adhesions. A large flat piece of sterile gauze was spread over the surface of the liver as far to the right and left as possible, with the idea of producing a maximum amount of localized peritonitis and subsequent adhesions over a large area of hepatic surface to the abdominal parietes. The omentum was caught up by the sutures closing the abdominal incision, which was parallel to the outer border of the right rectus muscle. This gauze packing was removed after forty-eight hours. During the next six months the patient had to be tapped twice, after which no fluid could be detected in the abdominal cavity and the urine was free from albumin. A capit medusæ which had formed and caused her considerable trouble gradually diminished in size. During all this time iodid of potash had been given, with saline cathartics at intervals. Two years after the operation the patient was still well and had not been troubled with ascites.

Journal of Medicine and Science, Portland, Me.

February.

81 Proprietaries in Present Day Prescriptions. W. S. Jackman, Orono.
82 The Conditions of Pharmacy in the State of Maine. F. H. Wilson, Brunswick.
83 Some Advantages of the Metric System. W. H. Kimball, Portland.

Virginia Medical Semi-Monthly, Richmond.

February 24.

84 Mastoiditis. W. F. Mercer, Richmond.
85 Sarcoma of Cervix Uteri. J. E. Phillips, Suffolk, Va.
86 Some of My Mistakes in Obstetric Practice. J. T. Graham, Wytheville, Va.
87 Condum Used to Stop Bleeding Nose. W. W. Wilkinson, La Crosse, Va.
88 A Plea for the Early Treatment of Strabismus. O. Wilkinson, Washington, D. C.
89 Symptoms and Diagnosis of Cancer of the Stomach. H. S. MacLean, Richmond.
90 Water—Its Uses and Its Dangers in Medicine. W. H. Wallace, Disputanta, Va.

Dominion Medical Monthly, Toronto.

February.

91 A Case of General Infection by the Staphylococcus Pyogenes Aureus, Streptococcus Pyogenes and Pneumococcus, with a Remarkable Sequence of Clinical Manifestations. H. B. Anderson, Toronto.
92 The Vomiting of Pregnancy. S. J. Elkin, Winnipeg.

Kansas City Medical Record, Kansas City.

February.

93 The Surgical Treatment of Goiter. E. von Quast, Kansas City.
94 Lack of Development a Cause of Disease. M. G. Roberts, Lamar, Mo.

Southern Medicine and Surgery, Chattanooga.

February.

95 The Treatment of Lobar Pneumonia. G. R. Butler, Brooklyn, N. Y.
96 Facts and Fallacies in Gastrointestinal Work. L. Amster, Atlanta, Ga.
97 President's Address. Pure Food and Drug Legislation. F. B. Sloan, Cowan, Tenn.
98 Reinforcement of Weakened Immunity, in Lymphatic Tuberculosis, with the Toxins of Tubercle Bacilli. J. R. Briggs, Dallas, Tex.
99 Some Popular Medical Fallacies. J. M. Kennedy, Knoxville, Tenn.

Texas Medical Journal, Austin.

February.

100 Chronic Gastritis. J. R. Hunter, Hornsby, Texas.
101 Digitalis and Veratrum in the Treatment of Pneumonia. J. W. Carhart, Austin.

Columbus Medical Journal, Columbus, Ohio.

February.

101½ "Angina Pectoris." H. M. Hazleton, Lancaster, Ohio.
102 Special Topography of the Ureter and Tractus Nervosa. B. Robinson, Chicago.
103 Lungs in Health and Disease—More Particularly the Vesicular Murmur. W. N. Unkefer, Piqua, Ohio.
104 Antitubercular Dispensaries. L. G. De La Mache, Columbus, Ohio.

Southern California Practitioner, Los Angeles.

February.

105 Cholelithiasis. W. W. Beckett, Los Angeles.
106 Mediastinal Tumor. W. P. Millspaugh, Los Angeles.
107 Sarcoma of the Choroid. A. C. Rogers, Los Angeles.

Oklahoma Medical News-Journal, Oklahoma City.

February.

108 The Hodgen Splint. J. A. Matlock, Galesburg, Ill.
109 Stammering and Stuttering. J. M. Brown, Chicago.
110 The Surgeon's Assistant. F. H. Clark, El Reno, Okla.

Western Medical Review, Lincoln, Neb.

February.

111 Report of a Case of Purpura Hemorrhagica Subacute. E. Tanner, Battle Creek, Neb.
112 When to Operate on Fibroid Tumors of the Uterus. C. O. Rich, Omaha, Neb.
113 Neglected Cases. D. W. Beattie, Neligh, Neb.
114 Primary Carcinoma of the Nasal Septum. E. A. Beard, Stanton, Neb.
115 The Necessity of Combination for Mutual Benefit. J. H. Mackay, Norfolk, Neb.

Medical Fortnightly, St. Louis.

February 25.

116 Nature and Treatment of Diarrhea. R. B. Darnley, Philadelphia.
117 Case of Acute Miliary Tuberculosis with Postmortem Findings. H. A. Potts, Jacksonville, Ill.

Canadian Journal of Medicine and Surgery, Toronto.

March.

119 Case of Multiple Neuritis with Ataxia Simulating Tabes Dorsalis; Recovery. C. Meyers, London.
120 Medical Men and the New Provinces. J. Hunter.

Medical Examiner and Practitioner, New York.

January.

121 Some Urological Problems Encountered by the Medical Examiner. J. Allen Paton, Chicago.
122 The Indication of an Intermittent or an Irregular Pulse in Relation to Life Examinations. A. B. Hirsch, Philadelphia.
123 The Significance of the Cardio-Pulmonic Murmur. G. D. Morton, Philadelphia.
124 The Importance of Accentuation of the Second Pulmonic Sound. T. J. Mays, Philadelphia.
125 Gynecologic Diagnosis in Relation to Life Insurance. W. Krusen, Philadelphia.
126 Macroscopic Appearance of Urine in Relation to Life Insurance. H. M. Christian, Philadelphia.
127 Hypertrophied Prostate. R. L. Loux, Chillicothe, Ohio.
128 Diseases of the Rectum in Relation to Life Insurance. J. C. Brick, Philadelphia.
129 Insanity and Epilepsy in Relation to Life Assurance. W. R. Gowers, London.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

March 4.

1 *Prospects and Vicissitudes of Appendicitis After Operations. F. Treves, London.
2 Some Peculiarities of Appendicitis in the Female Sex, with Special Reference to Appendicitis Occurring During Pregnancy. G. Heaton, Birmingham.
3 Relationships Between Colitis and Appendicitis from a Surgical Point of View. C. B. Lockwood.
4 Operative Treatment of Certain Severe Cases of Indigestion. W. B. Clarke.

1. **Appendicitis After Operation.**—The degree of imperfect relief or of imperfect recovery after operation, and the complications which may attend operation and which may be re-

garded as accidental or independent of a direct surgical result of the case after appendicectomy are the subjects considered by Treves. In 45 patients examined by Treves, and who complained that they were no better for the operation which had been performed in the quiescent period, the findings were as follows: Appendix imperfectly removed, 2 cases; ovarian trouble coexisting, 9 cases; persisting or relapsing colitis, 8 cases; persisting local pain, 7 cases; neurasthenia or hypochondriasis, 5 cases; continued attacks due to gallstones, 3 cases; due to colic, 2 cases; due to movable kidney, 2 cases; due to renal calculus, 1 case; an unexplained cause, 1 case, and a tender mass in the right iliac fossa, 5 cases. The following imperfect results may follow the evacuation of a perityphlitic abscess: Persistent sinuses, 40 per cent.; recurring abscesses, 24 per cent.; recurring attacks of appendicitis, 16 per cent.; fecal fistulæ, 12 per cent.; inflammatory deposits in the iliac fossa, 8 per cent. Treves considers these figures of little value, as they do not represent the experience in practice of any one surgeon. Although Treves is of the opinion that the appendix should be removed in any case in which the least trouble is experienced, yet, he says, the following arguments may be urged against the establishment of the rule that in every case of abscess (in which the appendix has not been removed) it should be excised at the first convenient opportunity: 1. The most liberal estimate shows that 83 patients out of every 100 will never have another attack. 2. The risk of a second attack is comparatively small. 3. In those cases in which an abscess has formed, although the operation is often easy, it is frequently not only very difficult but distinctly dangerous. 4. The evidence that an abscess has burst into the bowel is not always conclusive. The discharge may be decomposed and long retained mucus. The following complications were met with in a series of 1,000 cases: Fecal fistula, 49 cases; thrombosis of the femoral vein, 12 cases; intestinal obstruction, 10 cases; bronchopneumonia, 17 cases; pleurisy with effusion, 14 cases; without effusion, 2 cases; empyema, 7 cases; acute bronchitis, 4 cases; pulmonary embolism, 1 case; non-suppurative parotitis, 4 cases; pylephlebitis, 4 cases; residual abscess, 11 cases; secondary abscess, 12 cases. In 6 of the 1,000 cases the appendicitis was associated with pregnancy. Of the total number of cases (1,000) 684 were males and 316 were females. Operation was performed during the quiescent period on 364, 4 resulting fatally. In cases with local peritonitis but no pus, 39 operations were performed, with 5 deaths; in cases with abscess, 431 operations, with 35 deaths; in cases of general peritonitis, with or without abscess, 166 operations, with 127 deaths. Of 264 cases of abscess or of general peritonitis further attacks were complained of in 27 cases, or 10.2 per cent. Of 242 cases of operation during the quiescent period, further attacks were complained of in 4.5 per cent. Of 107 cases of abscess or of general peritonitis, in which the appendix was said to have been removed, only 6 complained of further attacks. In 122 cases in which the appendix was not removed 21 patients complained of further attacks.

The Lancet, London.

March 4.

5 Changes Produced by Inflammation in the Conjunctiva. M. S. Mayou.
6 Peritonitis, a Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
7 Plastic Surgery. C. R. R. Keetley, London.
8 Treatment of Severe Curvatures in the Tibia by Means of Manual Osteoclasis. T. H. Openshaw, London.
9 Cause of Pain in Cases of Gastric Ulcer and Its Bearing on the Operation of Gastrojejunostomy. C. W. M. Moullin, London.
10 Case of Recurrent or Successive Ovarian Papilloma with Sequent Ventral Hernia, Followed by Cervical Epithelioma; Two Abdominal Celiotomies; Operation for Ventral Hernia; Vaginal Hysterectomy; Recovery. E. S. Bishop, Manchester.

The Dublin Journal of Medical Science.

March.

11 A Case of Chronic Lymphaemia. E. J. McWeeney.
12 The Principal Results of the Census of the United Kingdom in 1901. R. E. Matheson.
13 Notes on Chinese Medicine. Samuel Synge.
14 Course and Treatment of a Case of Chorea Insaniens Associated with Pregnancy. J. Francis Dixon.
15 Sicily as a Winter Health Resort. E. Parlato.

Practitioner, London.

February.

18 Interlobar Empyema. Wm. Broadbent.
19 A Slipping Cartilage in the Knee Joint. Edmund Owen.
20 *Effect of Raw Meat on the Nitrogen Metabolism in Pulmonary Tuberculosis. "Zomotherapy." J. J. Galbraith Edinburgh.
21 Some Points in the Surgical Treatment of Intestinal Obstruction. (Concluded.) T. Carwardine.
22 Some Affections of the Cervical Sympathetic. Purves Stewart.
23 Case of Localized Empyema Associated with the Presence of Leptothrix. Paul Mathews.
24 Ethyl Chlorid as an Anesthetic in General Practice. Harvey Hilliard.
25 *Rheumatoid Arthritis; Some Observations on Its Treatment. John Orr.
26 Some Recent Work in Diseases of Children. George F. Still.
27 Review of Recent Work on Dental Surgery. Oral Sepsis. J. G. Turner.

20. **Effect of Raw Meat on Nitrogen Metabolism in Tuberculosis.**—The experiments conducted by Galbraith tend to show that cooking materially affects both the absorption and retention of nitrogen, in the physiologic as well as in the tuberculous subject. While the total quantity of nitrogen present in the feces on a diet of raw meat is increased, that increase is due entirely to the presence of collagen; the soluble and digestible nitrogen is actually diminished. Gelatin has been shown to be by itself incapable of sustaining nitrogen equilibrium. The chief points of interest are that raw meat causes an increased retention of nitrogen, even with a diminished intake, and it also causes an improvement in intestinal metabolism, manifesting itself in the form of a diminution of the nitrogen in the feces. Digestive leucocytosis is invariably larger on a diet of raw meat than on a diet of cooked meat. This may be corelated with the increased nitrogen retention, on the supposition that the digestive leucocytosis is the evidence of a functional activity on the part of the leucocyte, the object of the activity being the secretion of a body to link the absorbed nitrogen onto the tissue cells.

25. **Rheumatoid Arthritis.**—Orr speaks in favor of the treatment instituted by Balfour in 1893. Since that time he has treated a considerable number of patients in various stages of the disease, and no treatment compares in successful results with Balfour's. In many cases a considerable amount of good can be done in the way of alleviating suffering, preventing deformity and restoring the use of the limbs, and in some cases a cure is effected. The treatment consists of dieting, internal medication (the administration of arsenic and iron in small doses for a period of three weeks out of every month) and counter-irritation carried out by the employment of blisters. He advises continuing the treatment for two, three or more years, according to the extent and severity of the disease.

Revue de Chirurgie, Paris.

Last indexed page 832.

28 *(XXV, No. 2.) Traitement opératoire des ruptures sus-rotuliennes du quadriceps. E. Quénu and P. Duval.
29 *Le traitement rationnel des luxations congénitales de la hanche (hip). Etude théorique. P. le Damany (Rennes). (Commenced in No. 1.)
30 *L'oesophagotomie externe cervicale comme traitement des corps etrangers de l'eosophage (for removal of foreign bodies). Balacesco and Cohn. (Commenced in XXX, Nos. 9-10.)

28. **Rupture of Quadriceps Above the Knee.**—In 22 cases of suprapatellar rupture of the quadriceps the muscle was sutured. The reports of the various operations are summarized by Quénu; the results were good in every instance. Comparison with the results in the non-sutured cases shows the great superiority of this method of treatment. The list of cases operated on includes 3 from Quénu's own experience. He does not operate at once, preferring to wait until the integument can be made aseptic. He applies moist compresses to soften the epidermis, and makes the toilet of the knee with great care every day, using a weak solution of soda, then ether and alcohol. He insists that aseptic precautions should be even more particular than for a laparotomy, as the synovial membrane is unable to protect itself like the peritoneum, and, besides, it is in an abnormal condition from the traumatism causing the rupture. Gloves are indispensable. Even when the surgeon is not summoned until late in the case the results are good. Silver wire is used for the suture. The vertical sutures should be reinforced by sutures passed across the stumps of the muscle from side to side, as is shown in the illustrations.

29. **Rational Treatment of Congenital Dislocation of the Hip.**—Le Damany's report of his extensive theoretical and clinical study of this subject is accompanied by 32 illustrations or diagrams. He shows the mechanism by which the orthopedist can imitate nature and restore conditions to normal. In the best shaped child, he remarks, the hollow of the acetabulum becomes partially filled up during the last months of intrauterine life, but becomes hollowed out again after birth by the pressure of the head of the femur. In treating dislocation if the femur can be held in the proper position, allowing the weight to be borne on it as in normal conditions, the same result will be attained in time in the atrophied acetabulum. The femur is twisted during intrauterine life, but becomes untwisted after birth by the mechanism which we readily understand. In congenital dislocation we apply the same forces or similar ones as in this mechanism, but in such conditions that the dislocation can not reproduce itself. We thus untwist the femur. In case of simple dislocation the excess of slant in front of the acetabulum will correct itself by the asymmetry of the weight of the body, but in the double form the entire correction has to be made by untwisting the femur. As soon as this correction becomes sufficient, the dislocation is cured once and for all.

30. **External Cervical Esophagotomy for Foreign Bodies.**—Balacesco and Cohn report from Jonnesco's clinic at Bucharest 6 new cases of this operation, and epitomize the literature on the subject. They find 320 cases of the kind on record since 1738. France leads with 63; England and Germany follow with 55; North America with 49; Russia with 43, and Austria with 23. None of the 11 other countries mentioned report over 9. The age ranged from 6 months to 100 years. False teeth, bones and coins were the most frequent objects that had been swallowed. The mortality during the last three years in 55 operations has been only 12.6 per cent. The mortality from bones and stones was respectively 27.8 and 33.3 per cent., while from coins it was only 11.1 per cent. The deaths were almost always due to injuries from the long sojourn of the foreign body in the esophagus. The importance of having artificial teeth made in such a way that they can not be readily swallowed should be impressed on dentists, as these objects are the most dangerous of all foreign bodies in the esophagus according to the statistics, forming a large percentage of the 10 cases of fatal hemorrhage.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 664.

31 (XLIV, No. 2.) Ueber subkutane Sehnenscheiden-Hämatome (of tendon sheaths). H. Kuttner.
32 Lupous Mutilation of Fingers and Toes.—Ueber die lupöse Verkrüppelung und Verstümmelung der Finger und Zehen. G. Mingramm.
33 Cysticercus cellulosæ im Muskel. W. Danielsen.
34 Beiträge zur Statistik der Hasenscharten (harelip). G. Haug.
35 *Remote Results of Ligation of Saphena in Treatment of Varices.—Ueber die Dauerresultate der Saphenaunterbindung bei der Behandlung der Varizen. M. Goerlich.
36 *Fibrous Tumors of Abdominal Wall.—Desmoide der Bauchdecken und ihre Prognose. C. Pfeiffer.
37 Zur operativen Behandlung der Prostata-Hypertrophie. G. E. Münnich.
38 Congenital High Shoulder.—Ueber angeborenen Schulterhochstand. O. Ehrhardt.
39 Ueber das Aneurysma der Art. axillaris infolge von Schulterverrenkung (consecutive to dislocation of shoulder). G. Schmidt.

35. **Remote Results of Ligation of Varicose Saphena.**—During the last twelve years 108 cases of varices have been treated at Tübingen by ligation of the saphena. In 23 the right leg was alone involved, in 29 the left, and in the others, both legs. Fifty-one of the patients were examined at a later period and reports were obtained from 29 others. The results have been satisfactory in 87 per cent. of the cases. The varices had recurred in a number, pronounced in 9, medium in 41, and slight in 19. The circulation through the resected saphena became restored after 42 of the operations. Ligation alone gave only 21 per cent. of successful results, while resection gave 78.9 per cent. The best results were attained when the vein was ligated just below its mouth, and a long stretch of the vein was resected.

36. **Fibroids of Abdominal Walls.**—Pfeiffer writes of the history and present status of our knowledge of the fibrous tumors that develop from the muscles and aponeuroses of the abdominal walls. About 40 have been observed at Tübingen and he has collected 360 from the literature. All but 12.9 per cent. were in women. Three-fourths were in the right side. More than 30 per cent. of the cases developed recurrence after operation, fatal in one-half the cases of recurrence. Spontaneous retrogression has never been observed. Dangerous complications are liable to develop, and internal and local treatment has never proved effectual. Consequently prompt removal is the only choice. As a pedicle may be found, the peritoneum may have to be opened. The primary mortality of these tumors has been 4.5 per cent. (3.05 per cent. when the abdominal cavity was entered and 1.05 per cent. without). The remote results have been permanent cures in 90 per cent. of the female cases and scarcely 50 per cent. in the males.

Berliner klinische Wochenschrift.

Last indexed pages 912 and 992.

40 (XLII, No. 6, February 6.) *Significance of Syphilis of Liver for Diagnosis of Abdominal Tumors.—Die Bedeutung der Lebersyphilis für die Diagnose der Bauchgeschwülste. König.
41 Origin of Immunity to Typhoid.—Entstehung der Typhus-Immunität. Jürgens.
42 Secretion of Gastric Juice in Herbivorous Animals.—Experimentelle Untersuchungen über die Magensaftsekretion bei den Herbivoren. A. Bickel.
43 Fall von Pyodermite végétante. R. Ledermann.
44 Adrenalin Gauze Made by Patented Process.—Ein neues Verfahren der Blutstillung. B. Müller (Hamburg).
45 Ueber Verrenkungen und Verrenkungsbrüche im Talocrural-Gelenk (sprains and fractures). Pels-Leusden.
46 Importance of Late Attempts to Transmit Syphilis to Animals.—Bedeutung der neueren Versuche, Syphilis auf Tiere zu übertragen. E. Hoffmann.
47 Prothesis for Speaking and Swallowing After Removal of Larynx and Esophagus.—Eine Sprech- und Schluckprothese für den Defekt des Kehlkopfs und der Speiseröhre.
48 (No. 7) *Misuse of Tendon Plastics.—Ueber Missbrauch der Sehnen-Transplantation. H. Oppenheim.
49 Zur Kasuistik der Keratomykosis aspergillina. Osterroht.
50 Palpation des Appendix und über die Appendicitis larvata. T. Hausmann.
51 Ueber Osteomyelitis im Säuglingsalter (in infancy). H. Mohr.
52 Etwas über physikalische Herz-Diagnostik (of heart). de la Camp.
53 *Tamponing Nose and Rhinopharynx.—Zur Tamponade der Nase und des Nasenrachenraumes. G. Lennhoff.

40. **Differentiation of Syphilitic from Other Tumors of the Liver.**—König remarks that physicians are gradually awakening to the knowledge that affections of internal organs—even when they appear in the guise of functional disturbances or of febrile inflammatory processes—may be traceable to syphilis. A syphilitic affection in some viscus may develop suddenly in the midst of apparent health, in persons free from the slightest apparent indication or history of syphilis. Three cases are described to illustrate the principal types which syphilis of the liver is liable to assume. The patients had suffered for a longer or shorter time—two years in one case—from attacks of pain in the liver region. There were no actual functional disturbances, but loss of appetite and weight. The localization of the pains led to detection of a tumor in the liver region. In one case—the patient, a woman of 28—the tumor was large and movable, under the right half of the liver with which it was apparently connected, extending backward toward the kidney region. The laparatomy disclosed that the tumor was formed of part of the liver, separated from the rest by a furrow, the surface studded with round grayish-white foci, which extended also over the rest of the liver. As the liver and stomach were firmly adherent, a carcinoma in the stomach was assumed to be the primary focus for the "multiple metastatic liver carcinosis." The abdomen was sutured and mercurial inunctions with potassium iodid were commenced. The patient rapidly recovered and has been healthy to date (since 1901.) No history of syphilis could be ascertained. In the case of a woman of 39 who had borne 4 normal children, a painful tumor developed in the right hypochondrium, without functional liver disturbances, but otherwise simulating cancer of the gall bladder. The laparotomy disclosed an unmistakable gummatous tumor in the lower edge of the partially cirrhotic

liver. The tumor was as large as an apple, and was excised into sound tissue. Nothing suggesting syphilis could be ascertained in this case either. The third patient was a young man of 22 who denied syphilitic history. The pains were severe and referred to the stomach, radiating thence to the right hypochondrium. Gastric disturbances had been complained of for some years. A flat, hard tumor gradually developed in the right hypochondrium, and the left lobe of the liver was found at the laparotomy studded throughout with numerous gummata. Examination of the eyes later confirmed the assumption of congenital syphilis. A syphilitic tumor of the liver does not seem to have any special characteristics. The pains may develop long before the discovery of a tumor. The attacks of pain are generally associated with stomach disturbances, loss of appetite or even vomiting. There was no effusion into the abdominal cavity, although this has been observed in some instances. The tumor may lie within the liver substance; it is generally hard and uneven and inside the liver percussion area, or it may be a very movable, kidney-shaped tumor, apparently separate from the liver but connected with it by a pedicle. This variety simulates a gall-bladder tumor, movable kidney or "corset" liver. A remarkable feature of one of the cases reported was that antisyphilitic treatment had proved ineffectual before the laparotomy, but afterward it displayed its usual efficiency. Even when the abdomen has been opened carcinosis or tuberculosis may be suggested by the aspect of the lesions. An exploratory excision is a great help in dubious cases. When syphilis has been established the question whether or not to excise the lesion must be decided by the individual circumstances.

48. Abuse of Plastic Operations on Tendons.—Oppenheim warns surgeons emphatically against attempting any tendon operation unless sure that the case is one in which the affection requiring treatment has run its course and is not a progressive one. He has witnessed three typical examples of the harm that can be done by such procedures in case of progressive muscular atrophy, chronic anterior poliomyelitis or a spinal tumor. The course of these progressive affections was hastened and much harm was done by tendon transplantation undertaken to relieve conditions at some stage of the affection. The operation itself, the consecutive immobilization and other measures are serious matters for a person with nerves or muscles or both in abnormal condition.

53. Tampon for Nose and Nasopharynx.—Lennhof uses a long narrow strip of gauze, folded back and forth on itself, with a stout silk thread passed through it and knotted at one end. This end of the strip, with the knot, is introduced through the nose into the nasopharynx. An assistant holds the other end of the string, and the strip of gauze, thus under control, is readily packed into the nose. Pulling on the string tightens the folds of the strip into a solid tampon. The advantages are obvious. Not the least is the fact that the tampon is removed gradually in the form of a strip.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 993.

54 (XXXII, No. 8, February 25.) Fenestrated Sound for Goiter Operations.—Die gefensterte Kropfsonde. F. Brunner.
55 (No. 9.) *Modifikation der Bassini'schen Radikal Operation der Leistenbruche (hernia). E. A. Polya (Budapest).

55. Modification of Bassini's Operation for Inguinal Hernia.—In von Herczel's surgical service at Budapest a modified Bassini operation is preferred to the original technic as affording better protection against recurrence and against nutritional disturbances in the testicle. Polya illustrates the essential features of the modified technic, showing how the spermatic cord is first drawn upward as it emerges from the muscles, traction being exerted by a spur from the aponeurosis of the oblique. The cord is thus drawn first inward, then up, and then around on the other side of the incision, where it passes along a new canal formed in the aponeurosis, which folds up close around the cord. The Bassini suture is reinforced by suturing the upper flap of the aponeurosis to Poupart's ligament.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 993.

56 (XXIX, No. 8, February 25.) Paralyse des nicht schwangeren Uterus (of non-gravid uterus). R. Kossmann.
57 *Patient's Consent to an Operation.—"Ueber die Einwilligung der Kranken zu Operationen." A. Dührssen.
58 "Der suboccipito-frontale Kopfumfang" (circumference of head). G. Burckhard.
59 Hebelhalter für Irrigatoren (adjustable lever holder). C. H. Stratz.
60 (No. 9.) Proliferation of Lutein Cells in Imperforate Follicles.—Die Luteinzellenwucherung in atretischen Follikeln eine physiologische Erscheinung wahrend der Gravidität. L. Seltz.
61 *Ueber Uterus-Ruptur. A. v. Valenta.

57. Patient's Consent to an Operation.—Dührssen comments on a damage suit brought against him in 1902 which is still hanging in the courts. He advocates the use of a printed form, dated and signed by the patient, expressing her agreement with the measures deemed appropriate for the cure of her affection in the clinic mentioned by name.

61. Rupture of the Uterus.—Valenta has had occasion to observe 14 cases of complete rupture of the uterus among 1,350 parturients. He gives the particulars of 2 cases in which the patients were saved by prompt operating. Eight of the women were operated on and 3 recovered, that is, 37.5 per cent., while all of the patients unoperated on died. The sooner after the rupture the operation is undertaken the better the outcome. The results would have been better in his cases if he could have gained the patients' consent to an operation earlier. Hours were wasted on this account in some instances, and 3 women succumbed without allowing any operation to be performed. He advocates supravaginal amputation and extraperitoneal care of the stump as the safest and surest method of treating complete rupture of the uterus. He tabulates the 14 cases with 2 additional, incomplete ruptures.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

62 (XXXI, No. 5, January 31.) *Treatment of Hemorrhage from the Lungs.—Die Behandlung der Lungenblutungen. H. Hochhaus.
63 *Zur Prognose des Diabetes. F. Hirschfeld.
64 Thiosinamin bei Narbenkontrakturen (in treatment of cicatrical contracture). Mellin.
65 Unterbindung der Arteria hypogastrica dextra wegen Aneurysma der Arteria glutea inferior (ligation, one case). C. Israel.
66 *Rotary Punch for Epilation.—Eine neue sichere Epilations Methode: das Stanzen. Kromayer.
67 Immunization of Cattle Against Tuberculosis and Trials of Turtle Serum.—Ueber Immunisierung von Rindern gegen Tuberculose (Perlsucht) und über Tuberculose Serumversuche. Libbertz and Ruppel. Reply. F. F. Friedmann.
68 Pleuritis with Muscular Rheumatism. — Brustfellentzundung und Muskelrheumatismus. A. Kirchner.
69 *New Year Address.—Eine Neujahrsbetrachtung. V. F. Kraus.
70 Educational Influence of Medical Inspection of Schools.—Schularztliche Padagogik. Axmann.
71 (No. 6.) Ueber Ileus (clinical lecture). V. Czerny.
72 *Biologic Differentiation of Blood of Allied Species.—Zur Differenzierung des Blutes (Eiweis) biologisch verwandter Tierspecies. H. J. Hamburger.
73 Biologic Tests of Material from Mummies.—Bestimmung der Herkunft von Mumienmaterial mit Hilfe spezifischer Sera. Uhlenhuth (Greifswald).
74 *Functional Test of Heart.—Eine Funktionsprufung des kranken Herzens. M. Herz.
75 *Metabolism in Cancer Subjects.—Stoffwechseluntersuchungen bei Carcinomatösen. C. Lewin.
76 *Behandlung des akuten Schnupfens (coryza). A. Henle.
77 Epithelial Changes in Infantile Gastrointestinal Affections.—Zur Frage der epithelialen Veränderungen bei den Magendarmkrankheiten des Säuglings. G. Tugendreich.
78 *Prognose des Trismus, Tetanus neonatorum und infantium, mit Berücksichtigung der Serotherapie. H. Flesch. (Commenced in No. 5.)

62. Treatment of Hemoptysis.—Besides the usual rest for both body and mind, no food except cool drinks or soups, and small scraps of ice during the first few hours, with an ice-bag to the lung or a compressing bandage, Hochhaus advocates subcutaneous injection of gelatin. His experience has shown it to be very valuable. He warns against morphin or anything of the kind, unless to relieve a distressing desire to cough. Another valuable adjuvant is constriction of the limbs. The constriction is applied loosely enough to permit the influx of arterial blood but not the efflux of the venous blood. This holds the blood in the limbs and thus reduces the blood pressure in the lungs. Operative treatment should be considered as a last resource when all other measures fail.

63. Prognosis of Diabetes.—Hirschfeld comments on the comparative rarity of tuberculosis in diabetics. He has encoun-

tered the combination only among the severer cases in unhygienic conditions. The life expectancy does not seem to be affected by mild diabetes, that is, the cases which eliminate no more than .5 to .6 per cent. sugar in 1.5 liters of urine after ingestion of 100 gm. carbohydrates. The prognosis in really mild cases of diabetes is just as good as in cases of alimentary glycosuria. He is convinced that when the diabetes is recognized early and appropriate measures are instituted and perseveringly kept up, it remains a mild affection without much influence on the life expectancy. The cases in which from 20 to 50 gm. of sugar are eliminated after ingestion of 100 gm. of carbohydrates can not be called mild cases. The injurious action of the sugar becomes manifest in the development of nephritis. These patients are generally between 50 and 55 years of age, and are inclined to polyuria, corpulence and abuse of alcohol. In these moderately severe cases the danger of arteriosclerosis and of heart weakness is greater than otherwise corresponds to the age. Further aggravation of the diabetic symptom complex and of transition to the severer form with diabetic coma are especially liable to occur in younger subjects on an abundant carbohydrate diet. The mortality in the mild cases of glycosuria is generally due to intercurrent affections which have nothing to do with the diabetes.

66. **Rotary Punch for Epilation, Etc.**—Kromayer has devised a knife in the shape of a small, long, rotating cylinder, driven by a pedal or motor. He has found it extremely useful for removal of superfluous hairs. It fits into the skin like a sharp punch, and cuts out a long, round plug. Each superfluous hair is punched out separately, leaving a minute, round, deep cavity. The hole is so small that it heals without leaving a perceptible trace. The region is first shaved, then the hairs are stained with henna which colors the hairs only. The cylindrical knife is inserted slanting, parallel to the course of the hair. The pain is very slight, scarcely more than that of the prick of a needle, but ethyl chlorid may be used when wished. Epilation by this means is a simple, rapid process; from 100 to 200 or even 300 hairs can be thus punched out at a single sitting. There is never any recurrence of the hairs if the punched-out plug includes the entire follicle. The cylindrical knives are from .7 to 1.2 mm. in diameter. They cut through the cutis into the loose, subcutaneous tissue, so that the plug comes out with the knife or is easily pulled out with pincers.

69. **Medical Progress in 1904.**—Kraus remarks that the essential progress in medicine during the last year was in the line of perfecting that dating from the years just preceding. Recent progress in physics, chemistry and microscopy has given the medical profession a wealth of knowledge which it does not yet know how to utilize. The internists are like parvenus who do not know what to do with their newly acquired riches. He added that it was Galvani's laboratory drudge who noticed the contractions of the muscles of the frog during Galvani's experiments. Galvani himself did not notice the contractions, but when the attendant called his notice to them he recognized their importance and was able to deduce scientific laws from them. The quacks, the irregulars of all kinds, even the faith curers, may make discoveries like that laboratory drudge. We must be the Galvanis to appreciate their significance. Many a fine laboratory of the present day is in the hands of "laboratory attendants." The Galvanis are few and far between.

72. **Biologic Test of Blood from Animals of Allied Species.**—Hamburger found that injection of rabbits with serum from closely allied animals gave a more pronounced reaction in the biologic test when blood from a corresponding animal was investigated. Inoculation with serum from the goat, sheep and ox enabled the samples of blood from these various animals to be differentiated.

74. **Functional Test of Heart.**—Herz orders the patient to bend his forearm and to straighten it again, concentrating his attention on the movement to do it as slowly as it can possibly be done. The pulse is counted before and afterward. There is no variation in the pulse when the heart is sound. The patient's elbow rests on the physician's left hand, and the latter holds the wrist lightly in his other hand, but not exerting any pressure to make the movement a passive one. The muscular exertion is minimal, and the effect is due to a kind of self-inhibition (*Selbsthemmungsbewegung*) which retards the pulse to a remarkable extent when the heart is abnormal in any way. This "S test" sometimes reveals a morbid condition of the heart before any other clinical symptom becomes apparent, especially in case of constitutional disease or of chronic intoxication. In a case of diabetes and in one of tobacco poisoning cardiac disturbance was disclosed by this test at a time when nothing else indicated it. The further course of the heart trouble confirmed this diagnosis. In extreme corpulence the test was positive when the heart was diseased, but not when the disturbance was merely mechanical. It also allows cardiac asthma to be differentiated from the bronchial. Affections of the aortic valves give an especially marked reaction to the test. The concentration of the attention on the test must act on the heart through the central nervous system. Like digitalis, it has no action on the sound heart.

75. **Metabolism in Cancer.**—Lewin tabulates the findings in 11 cases of cancer. They show that the elimination of the mineral salts is abnormally high in case of cancer, the same as in tuberculosis. He adopts Robin's term of "demineralization" to express this condition. It is not specific to any affection as it occurs in various morbid conditions, but it leads to cachexia. The aromatic substances in the urine are increased in cachexia, probably from decomposition of albumin under toxic influences.

76. **Treatment of Acute Coryza.**—Henle found great relief at the onset of a severe cold in the head from the application of Bier's constriction to the neck. The bandage around the neck does not have to be drawn very tight; 25 mm. Hg is ample pressure for the purpose. The hyperemia thus induced in the head speedily banished the tickling in the nose and the sense of oppression and lachrymation so that the "cold" was aborted in half a day. This experience was corroborated in 5 clinical cases. The procedure proved a failure in another, more chronic case. All the rest were completely cured in half a day of their acute coryza without sequelæ.

78. **Prognosis of Tetanus.**—Flesch describes the details of 7 instructive cases of tetanus. He insists that the prognosis for children is much better than for adults, and that tetanus of the newly born is not so fatal as is generally assumed. The mortality of tetanus treated with serum is 15 to 20 per cent. among children. In compiling statistics he urges that a discrimination should be made between tetanus of the newly born, tetanus in children and tetanus in adults. The results of serum treatment of these various groups should also be studied and published separately.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed page 509.

79 (LXXV, Nos. 2-4.) Ueber Epithel-Veränderungen in der senilen weiblichen Mamma. A. Tietze.

80 *Effect of Extensive Resections of Skull and Dura on Structure and Function of Cortex.—Ueber die Wirkungen grosser Resektionen des Schädels und der harten Hirnhaut auf die Struktur und Funktion der Hirnrinde. O. Schifone (Durante's clinic, Rome).

81 Ueber die Lipomatosis des Hypopharynx (Cavum pharyngolaryngeum), ihre Beziehung zu den sogen. Oesophagus-Polypen und den tiefgelegenen Halslipomen. C. Goebel.

82 Ueber subperiostale Fracturen, ihre klinische Diagnose und Erkennung im Röntgenbilde. Hennig (Kiel).

83 Totale Exstirpation des Omentum bei Achsendrehung desselben (axial torsion). N. Trinkler (Kharkov).

84 Ein Beitrag zur Entstehung der periherniösen Phlegmone A. Martina.

85 Changes in Tissues After Mosetig's Iodoform Filling of Bone Cavities.—Ueber die geweblichen Veränderungen nach Plombierung von Knochenhöhlen. M. Silbermark.

86 Ueber plastichen Knochenersatz bei der Heilung der Spina ventosa und über die Enderfolge (remote results of bone plastics for spina ventosa). V. Schmieden.

87 Weitere Untersuchungen über die Vereiterung tuberculöser Gewebe (suppuration of tuberculous tissue). W. v. Brun.

88 Experimentelle Beiträge zur Anatomie und Pathologie des Gelenkknorpels (articular cartilage). R. Seggel.

89 Die operative Behandlung des Stauungs-Ascites durch Herstellung eines Collateral-Kreislaufs (Talmasche Operation). H. Grisson (Hamburg). Autopsy two years after Talma operation.

80. **Action of Extensive Resection of Skull and Dura on Functions of Cortex.**—Schifone reports experimental research on 25 dogs. Parts of the skull and dura were resected, sometimes to an extent of two-thirds of the entire surface of the hemisphere. None of the animals seemed to be permanently injured by the operation. Solid cicatricial tissue formed over the gaps and became adherent to the cortex, without any manifestations of sensory or motor disturbance. Jacksonian epilepsy developed only in the animals predisposed by some organic or inherited lesion. There was no hernia of brain substance unless the intracranial pressure was abnormally high.

Münchener medicinische Wochenschrift.

90 (LII, No. 7, February 14.) Hemolytic Action of Photodynamic Substances.—Ueber die hemolytische Wirkung der photodynamischen Stoffe. G. Sacharoff and H. Sachs.
91 Automatischer Mischer zur Anstellung von Serumproben (automatic mixer for serum tests). M. Pfaundler (Graz).
92 *Zur Frage der akuten Herz-Dilatation (of heart). H. Starck.
93 Ueber Osteogenesis imperfecta. M. Hohlfeld.
94 2 Fälle von "Sporadischem Skorbut." H. Löhrisch.
95 *Die Pylorus-Stenose der Säuglinge (of infants). J. Schmidt.
96 *Laryngeal Tuberculosis in Pregnant Women.—Weiterer Beitrag zur Kehlkopfschwindsucht der Schwangeren und zur Frage des künstlichen Aborts. Löhnberg.
97 Ueber Star-Operationen und Star-Reifung (cataract ripening and operations). C. Bahr.
98 Obstetric Bag.—Vollständiges geburtshilfliches Besteck. G. Schmauch (Chicago).
99 Twofold Amyloid Reactions.—Zweierlei Amyloid-Reaktionen. E. Neumann and C. Davidsohn.
100 *Treatment of Acute Suppurations with Congestive Hyperemia.—Behandlung akuter Eiterungen mit Stauungshyperämie. A. Bier (Bonn). (Commenced in No. 6.)

92. **Acute Dilatation of Heart.**—Starck emphasizes the importance of the psychic factor in the acute dilatation of the heart in excessive athletic exercise. He describes a typical case in which the heart became extraordinarily dilated during the course of a fencing match, the pulse rising from 70 and 96 to 160, the heart extending from the middle of the sternum to the anterior axillary line on the left and from the second interspace to the sixth rib. Eight hours later the heart had returned nearly to normal size.

95. **Stenosis of the Pylorus in Infants.**—Schmidt has operated on 2 infants on account of congenital stenosis of the pylorus. Both of the little patients were in such advanced inanition that recuperation proved to be impossible, but the findings corroborate the necessity for and value of prompt operation in such cases. Analysis of the literature further shows that congenital stenosis of the pylorus is not so rare in infants as is generally assumed. The severest cases are the only ones recognized. The majority belong to the genuine hypertrophic variety, on an anatomic basis, curable only by surgical intervention. The rare cases of pure pyloric spasm are amenable to internal therapy, as also the relative organic stenosis with compensatory hypertrophy of the stomach. These two varieties may be associated or there may be transitional forms.

96. **Induced Abortion in Treatment of Laryngeal Tuberculosis.**—A ii-para in the third month of pregnancy presented signs of a tuberculous affection of one lung and of the larynx. Both lesions were in a comparatively stationary stage. There was no fever. Löhnberg was consulted in regard to interruption of the pregnancy and advised against it, but the patient, her husband and the attending physician insisted on it. Only transient improvement was noted after the abortion. Fever then developed and the case terminated fatally in three months.

100. **Treatment of Acute Suppurations with Congestion Hyperemia.**—The first part of this article was reviewed in these columns March 18, page 914. Bier here relates examples in detail to show the benefit that follows this method of treating acute suppurations. He says that the directors of hospitals and clinicians generally can apply it in all confidence. They can commence with the milder cases at first. In incipient acute suppurative inflammations of every kind he claims that the "hyperemia by damming" works actual wonders. The subacute inflammations subside regularly and rapidly. It is such a reliable method for suppressing acute infectious foci—incipient suppuration on the limbs or head—that it can be counted on to modify fresh, acute infections and to cure them without any or with very insignificant surgical intervention. Otherwise these processes lead to severe and tedious affections, frequently requiring extensive and mutilating operations. An early diagnosis and application of the congestion hyperemia will abort them in their incipiency. This method will be found particularly valuable for surgical wound infections and for postmortem infection, as the subjects are able to diagnose these lesions at once. Congestion hyperemia is also indicated for acute and subacute inflammation and suppuration in joints. Failures in its application are due to incorrect technic. The congestion must be considerable, but not intense enough to hurt the patient. The constriction should be tight enough to arrest the pain, never to increase it. Intelligent patients soon learn the proper degree of constriction. The pus must be allowed free outlet, but with the least possible mutilation. Congestion hyperemia does not disturb, but promotes the nutritional processes in the tissues. The retarding of the circulation renders harmless the bacteria and their toxins in the part and prevents necrosis by the superabundant nourishment it supplies to the tissues. Revulsion answers the same purpose—inducing hyperemia—but it does this at the expense of injury to the tissues. Congestion hyperemia does all that is necessary, and in the gentlest way. The application of superheated air is in the same therapeutic line, but it induces too intense active hyperemia. He was the first to apply and to advocate superheated air in therapeutics, but has now entirely abandoned it. Congestion hyperemia, on the other hand, resembles the natural defensive processes. The technic of applying a constricting bandage is so simple and easy that physicians have paid scant heed to his method since he first introduced it into therapeutics ten years ago. The technic for the head and limbs is all that is perfected to date. Various apparatus for the trunk have been tentatively applied. A large glass cupping apparatus is now doing good service in suppurative mastitis. It aspirates the pus through comparatively small openings while inducing congestion hyperemia. Similar cupping apparatus have been found useful for furuncles, the apparatus quite large and the suction not very strong.

Therapeutische Monatshefte, Berlin. Liebrich's, Berlin.

Last indexed page 510.

101 (XVIII. No. 6.) Experiments on Diuresis.—Versuch über Diurese, insbes. über die Wirkung des Theocin-natrium aceticum. J. Meinertz.
102 Zur Kenntnis der Strophanthus-Wirkung. G. Günther.
103 Cinnamic Acid Treatment of Pulmonary Phthisis in Country Office Practice.—Erfolge der Zimtsäurebehandlung der Lungenschwindsucht in der Sprechstunde des Landarztes. R. Blum (Haltingen).
104 Nasal Treatment of Heart Affections.—Nasale Therapie von Herzaffektionen. Cholewa (Nauheim).
106 Action of Driburg Mineral Waters on Urinary Affections.—Wirkungen der Caspar-Heinrich-Quelle zu Driburg bei Krankheiten der Harnorgane. L. Lünnemann.
107 (No. 7.) Zur Statistik der operativen Behandlung des Mamma-Karzinoms. A. Tietze (Breslau).
108 Zur Wirkungsweise des Cancroins. W. Perlmann.
109 *Prevention of Recurrences After Carcinoma Operations.—Verhütung von Rezidiven nach Karzinom-Operationen. H. Mohr.
110 Die Energeto-Pathologie O. Rosenbachs. F. C. R. Eschle.
111 Gangrän bei Scharlach (in scarlet fever). Netz.
112 Beitrag zur Eisentherapie (iron). Goliner.
113 Praktische Erfahrungen über die spezifische Wirkung des "Lactagol." J. A. Goldmann.
114 Statistics of Diphtheria in Prussia, 1904.—Diphtherie. Liebreich.
115 (No. 8.) Nephroptose und Enteroptose. Aufrecht.
116 Active Principle of Male Fern.—Die wirksamen Bestandteile des Extractum Filicis maris und ihre therapeutische Anwendung. A. Jaquet (Basle).
117 Ueber Diphtherie Statistik. H. J. Bing and V. Ellermann (Copenhagen).
118 Die Behandlung der trockenen und verstopften Nase (dry and stopped-up nose). Volland.
119 Elimination of Boric Acid in Sweat.—Ueber Ausscheidung der Borsäure beim Menschen durch den Schweiss. O. Liebreich.
120 Zur Behandlung Herz-Kranker (patients with heart affections). A. Hecht.
121 *Over-stimulation from Sea Air and Its Avoidance.—Die klimatische Ueberreizung an der See und ihre Vermeidung. Ide (Amrum).

109. **Prevention of Recurrence After Removal of Cancer.**—Mohr discusses the prognosis after operative treatment of malignant disease and expresses his belief that the results observed do not justify the pessimism that prevails in some

quarters. The after-treatment is a more promising field than any further perfecting of surgical technic. An effectual local or general measure to apply after removal of the neoplasm would aid materially in increasing the proportion of permanent recoveries. This is the most urgent problem in the cancer question at present.

121. **Overstimulation from Sea Climate.**—Ide has attempted the task of systematizing the indications that develop during a trip to the seashore. Invalids are overexhilarated by the climatic factors, and, to derive the greatest benefit, individual indications must be studied. There may be cyanosis, hemorrhoidal bleeding, excessive menstruation and a tendency to hemoptysis in the predisposed. The wind and the unusual exercise are the principal causes of this overstimulation. The wind acts like a cold douche. Rest and warmth in bed afterward are an important aid in the reaction. The bed can be by an open window, but rest in bed, even several times a day, will be found an invaluable adjuvant and modifier of the climatic influences.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed page 168.

122 (LIII, No. 2.) The Reactions of Pregnancy in the Fetal Organs and Their Puerperal Involution.—Schwangerschaftsreaktionen der fötalen Organe und ihre puerperale Involution. J. Halban.
123 Migration of Human Ovum.—Zur Frage der Ueberwanderung des menschlichen Eies. C. Hasse.
124 Statistics of Births at Berlin Gynecologic Clinic, 1888-1902. Geburten der k. Universitäts-Frauenklinik in Berlin Während 15 Jahren. R. Olshausen and Ploeger.
125 Vestiges of Wolffian-Gärtner's Duct in Paravaginal Connective Tissue.—Reste des W.-G. Ganges im paravag. Bindegewebe. T. Leisewitz.
126 Zur path. Anatomie der Puerperal-Eklampsie. H. Petersen.
127 Fibrinorrhea plastica bei Myoma cavernosum und Endometritis chronica cystica. J. Wallart.
128 Zur Frage der Placenta-Adherenz. A. Bauereisen (Erlangen).
129 Various Forms of Involution of Ovarian Follicles and Their Relation to Changes in the Ovarian Vessels.—Ueber die verschiedenen Formen der Rückbildungsprodukte der Eierstocksfollikel und ihre Beziehungen zu Gefässveränderungen des Ovariums, nebst Bemerkungen über Lutein-Cellen-Wucherungen in den Eierstöcken Schwangerer. A. Böshagen.
130 (No. 3.) *Studien zur Physiologie des Uterus. K. Franz.
131 *Zur Klinik und zur konservativen Behandlung der Myome des Uterus. M. Henkel.
132 Der Antitoxin-übergang von der Mutter auf das Kind (natural transmission). O. Polano.
133 Ueber Uterus-Rupturen in Narben von früheren Geburten (in scars from previous births). Three cases. A. Labhardt.
134 Zur Serumtherapie der Streptokokken-Infektionen, speziell des Puerperal-Fiebers. G. Burckhard.
135 Emphysema subcutaneum während des Gebäraktes entstanden (during birth act). H. T. Herman.
136 *Ueber die Blasenmole (vesicular mole). Gottschalk.
137 Pregnancy, Childhood and Puerperium According to the Bible and the Talmud.—Schwangerschaft, Geburt und Wochenbett nach Bibel und Talmud.—E. Preuss (Berlin).

130. **Physiology of Uterus.**—This extensive work is based on study of the isolated uteri of rabbits and of the extirpated uteri in 11 clinical cases. Both the human and the rabbit uteri responded to stimuli in essentially the same way. Heat stimulation elicited particularly marked response. When the uterus of the rabbit was drawn out but left still connected, subcutaneous injection of chloral arrested the "spontaneous" contractions; ergotin started them and increased the tendency to rhythmic reaction to stimuli, while atropin had little if any effect.

131. **Treatment of Myomata of Uterus.**—Henkel discusses the subject of conservative treatment of myomata. The question is how to relieve the patient of her disturbances without danger and without harm otherwise. In malignant disease the aim should be to remove every morbid particle, but in case of a benign growth all that is necessary is to remove the neoplasm itself, and to save everything else. He warns that any and every deviation from this principle is sure to avenge itself sooner or later.

136. Vesicular Mole.—Gottschalk gives illustrations of the pathologic anatomy of vesicular mole to sustain his view that the formation is the result of primary disturbances in the circulation through the fetal villi.

Riforma Medica, Palermo and Naples.

Last indexed page 914.

138 (XXI, No. 2, January 14.) *Endothelial Elements in Normal Blood.—Endoteli nel sangue normale: loro rapporti con i leucociti mononucleati, con le forme di passaggio, e con i cosidetti linfociti del sangue. V. Patella.
139 Behavior of Cartilage in Wounds.—Sul comportamento delle cartilagini nelle ferite. G. Fasoli.
140 Changes in Structure of Organs from Injection of Heterogeneous Serums.—Sulle fine alterazioni di struttura degli organi per iniezioni di siero di sangue eterogeneo. G. R. Saeli.
141 (No. 3.) The Saccharifying Diastase of Tubercle Bacillus as New Link to Connect It with the Streptothrix.—La diastasi saccarificante del bacillo della tuberculosi como nuovo carattere di parentela colla streptotrix. C. Fermi.
142 Primary Trephining in Complicated Fracture of Vertex.—La trapanazione primitiva nelle fratture complicate della volta cranica. A. Cernezzi.
143 Mode of Action and Tests of Strength of Serums.—Maniera di azione e controllo di attivita di alcuni sieri antimicrobici. A. Paladino-Blandini. (Commenced in No. 2.)
144 (No. 4.) Cancer-Cirrhosis of the Liver.—Sul cancro-cirrosi del fegato. E. Rollino.
145 Two Cases of Tardy Hereditary Tabes with Congenital Syphilis.—Tabe ereditaria tardiva per sifilide congenita. M. Bertolotti.
146 (No. 5.) L'Orchipina, preparato di testicolo fresco in veicolo oleoso (preparation of beef's testicles in oily vehicle). M. Sciallero.
147 Esame siero-diagnostico di 100 malati presentanti il quadro clinico della infezione tifoidea (study of serodiagnosis). D. Falcioni.
148 Nefrocapsulectomia alla Edebohls per nefrite cronica a forma prevalentemente interstiziale (one case, slight improvement). E. Arcoleo.
149 Sulla patogenesi della dissociazione della sensibilita di origine centrale. U. Benenati. (Concluded.)
150 Echinococco latente del fegato. Ascesso occulto da echinococco (latent liver abscess). C. Bernabei. (Concluded.)

138. **Endothelial Elements in Normal Blood.**—Patella presents numerous arguments to sustain his assumption that in normal blood, besides the red corpuscles, the polymorphous leucocytes and the true lymphocytes, there are no other leucocytes except such as are of endothelial origin, due to a process of desquamation. All the hyaline, non-granulated forms observed are of endothelial origin. In case of endarteritis or of endocarditis, acute or chronic, the hyaline elements in the blood have the value of a pathognomonic sign. The mononuclears observed are the exponent of the changes in the cardiovascular endothelium.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery, Drawn from Journals, Monographs and Text-books of the Leading American and Foreign Authors and Investigators. Arranged, with Critical Editorial Comments, by Eminent American Specialists Under the Editorial Charge of George M. Gould, A.M., M.D. In Two Volumes. Volume I, Including General Medicine; Volume II, General Surgery. Fully Illustrated. Cloth. Price $3.00 net per volume. Philadelphia and London: W. B. Saunders & Co. 1905.

THE URINE AND FECES IN DIAGNOSIS. By Otto Hensel, Ph.G., M.D., Bacteriologist, German Hospital, New York, and Richard Weil, A.M., M.D., Pathologist, German Hospital, New York. In Collaboration with Smith Ely Jelliffe, M.D., Ph.D., Instructor in Pharmacology and Therapeutics, Columbia University; Visiting Neurologist, City Hospital, New York. Illustrated with 116 Engravings and 10 Colored Plates. Cloth. Pp. 334. Price, $2.75 net. Philadelphia and New York: Lea Bros. & Co. 1905.

THE VERMIFORM APPENDIX AND ITS DISEASES. By Howard A. Kelly, A.B., M.D., Professor of Gynecology in the Johns Hopkins Hospital, Baltimore, and E. Hurdon, M.D., Assistant in Gynecology in the Johns Hopkins University, Baltimore. With 399 Original Illustrations, Some in Colors, and 3 Lithographic Plates. Cloth. Pp. 827. Price, $10.00 net. Philadelphia and London: W. B. Saunders & Co. 1905.

ESSENTIALS OF THE PRACTICE OF MEDICINE. Prepared Especially for Students of Medicine. By William R. Williams, M.D., formerly Instructor in Medicine and Lecturer in Hygiene, Cornell University. Double Number. Cloth. Pp. 461. Price, $1.75. Philadelphia and London: W. B. Saunders & Co. 1905.

THE INTESTINAL CATARRHS, Being a Clinical Study of Colitis, Appendicitis and Their Allies; with a Special New Section on Sprue. By Edward Blake, M.D., Member of the Royal College of Physicians. Second Edition. Cloth. Pp. 356. Price, $2.00 net. Chicago: W. T. Keener & Co.

THE OTHER SIDE OF THE LANTERN. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., Sergeant-Surgeon in Ordinary to H. M. the King. With 40 Illustrations from Photographs, by the Author. Cloth. Price, $5.00 net. Chicago: W. T. Keener & Co. 1905.

AMERICAN ALKALOMETRY. Vol. IV. A Digest of Clinic Teachings, 1902 and 1903. Cloth. Pp. 734. Price, $2.00, delivery prepaid. W. C. Abbott and W. F. Waugh, Editors, Chicago. Chicago: The Clinic Publishing Co. 1905.

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Original Articles

HEPATIC INSUFFICIENCY IN OBSTETRIC PRACTICE.*

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NEW YORK.

Notwithstanding the indifference of some and the antagonism of others, there is no doubt that a belief in the existence of a special autointoxication of pregnancy is rapidly gaining ground among obstetricians, pathologists and others whose attention is being especially directed to this subject. The more one studies this subject the more one is inclined to believe in the existence of such a condition, and already many obscure points in obstetrics are being made clear by this doctrine.

Although the literature is already very large—for it dates far back beyond the adoption of the term "toxemia of pregnancy"—the subject is still in its infancy, and many phases are as yet untouched.[1]

We all know that in prescientific days puerperal morbidity and mortality were fearfully common, and were largely ascribed to some specific cause, whether contagious or not. In other words, the various phases of puerperal morbidity, while differing much from one another, were thought to possess something in common. Then came the study of bacteriology, the introduction of asepsis, and the wiping out of the worst types of puerperal disease. It eventually became almost a reproach to have a patient or a hospital service in which sepsis was a factor; and, as a result, we find the accounts of puerperal morbidity in our text-books of the last decade extremely meager, and founded oftentimes rather on traditional accounts than on a study of many contemporaneous cases. Plenty of sepsis still occurs, but it is scattered. Much originates in the practice of midwives, criminal abortionists and irresponsible practitioners and among unattended women; a certain amount occurs in maternities, despite all precautions; finally—and this point is of the greatest importance—many women die of sepsis which complicates other and severe forms of disease; and the cause of death is attributed to eclampsia, placenta previa or what not, rather than to sepsis.

In spite of the great reduction in mortality, it is generally admitted that there is a great deal of puerperal morbidity. The rationale of many cases is often extremely obscure, and the etiology given for particular cases may be far fetched. So great has been the faith in the efficacy of asepsis when properly carried out to prevent morbidity, that the latter has been ascribed largely to faulty technic. The recent demonstrations that potentially virulent germs are to be found in a majority of puerperal uteri has once more thrown the burden of causation back on predisposition.

PATHOLOGY OF GESTATION.

Gestation has generally been regarded as a physiologic process under all ordinary circumstances. The special pathology of gestation in reference to the puerperium has always been made up of a few conditions only. Leaving out of consideration certain maladies of genital origin (placental anomalies, etc.), it is confined to a single affection, to-wit, eclampsia, or rather the pre-eclamptic state. The woman with gestatory eclampsia is known to be strongly predisposed to sepsis, while in a woman who goes to term in the pre-eclamptic state we have to fear both postpartum eclampsia and the possibility of sepsis.

The influence of the accidents of labor on puerperal morbidity is, of course, well understood. The general breakdown of health which many women experience in the postpuerperal period of lactation, and which often seems to pave the way for actual diseased states, has generally been referred to the shock of labor, to the drain of lactation, or to the rousing to action of inborn tendencies; and never *per se* to any specific influence of gestation.

That sepsis could be due in any way to a specific autotoxic state (save perhaps in the case of eclampsia) has never been suggested until recent years.

This autotoxic state of pregnancy corresponds to functional incapacity or insufficiency of the liver; a condition sufficiently well known to require no special description here. We have only to bear in mind that the healthy liver renders the products of digestion and absorption suitable for assimilation, while it also disintoxicates both the products of intestinal putrefaction and the waste substances which result from katabolic activity. The results of hepatic insufficiency are largely synonymous with the symptoms of the autotoxic state.

So strong is the tendency at the present time toward unicism in respect to gestatory morbidity, as based on the existence of a basic autotoxic state, that a few obstetricians—and I confess that I take my stand in this minority—are inclined to regard all the severe and quasi-specific affections of pregnancy, such as hyperemesis, acute atrophy of the liver, eclampsia, polyneuritis, impetigo herpetiformis, and perhaps gestatory psychoses, as of common origin and closely related. Moreover, it is the conviction of this minority that very much of the minor morbidity—the gastric disorders, headache, alterations of character, pruritus, chloasma, ptyalism, etc.—can be referred to the same source.

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* An address delivered before the Alumni Association of the Long Island College Hospital.

1. The entire study of the autotoxic state is much too extensive for review in the present paper. Those who care for a systematic and detailed account, I refer to the second edition of my "Practice of Obstetrics," in which the views of Prof. James Ewing are to be found, and also to Dr. W. S. Stone's paper in "American Gynecology."

I have had the opportunity in the last six months of examining the findings in as many autopsies on women who have died, during gestation, of the toxemia of pregnancy, as indicated by hepatic necrosis. Before death, the diagnosis in these cases was excessive vomiting of pregnancy, hysteria, etc. The teaching of the future will probably be that the autotoxic state of pregnancy exerts a notable influence on the genesis of sepsis. This is known to be true of the pre-eclamptic state, which is the nucleus of the modern doctrine of the special toxemia of gestation. It is also apparent that any toxic state *per se* furnishes a predisposition to sepsis. Thus, according to Vinay, when pregnant women are attacked by any of the acute infectious diseases which may terminate pregnancy, and the disease pursues its course during the puerperium, death often occurs from the complication of sepsis, even although the original malady was sufficient to produce death. Again, women often abort without any apparent reason, the abortion becoming septic.

It now appears very probable that puerperal polyneuritis, postpartum eclampsia, sudden death in the puerperium, puerperal psychoses, and, to a certain extent, much of puerperal sepsis are due to a common basic state, being all referable to gestatory toxemia which persists into the puerperium. In other words, all of the so-called puerperal morbidity, aside from hemorrhage and its effects, shock, birth traumatism and chance infection of any sort and from any source, stand in a close relation of kinship.

In like manner, those obscure conditions which arise in the postpuerperal period are set down by some authorities to injuries of the viscera received during gestation from the toxemia peculiar to that period. Thus, hepatic insufficiency may persist for months after delivery, the woman exhibiting the various stigmata of that condition. Permanent injury of the kidneys sometimes—although rarely—results from the kidney of pregnancy, the patient becoming a nephritic. Focal lesions of the spleen are believed to be responsible for part of the anemia and of the leukemia which follow maternity.

THE RESPONSIBILITY OF THE OBSTETRICIAN FROM THE STANDPOINT OF THIS NEW DOCTRINE.

In order to limit the length of a subject which may not carry with it the same intense interest to the general practitioner that it does to the obstetrician, I shall summarize what I believe to be the present status of the autotoxemia of pregnancy from the clinical standpoint.

If these statements can be proved, and they are sufficiently so to me, then the obstetrician of the future, yes, and of the present, has a new responsibility laid upon his already overburdened shoulders:

PREDISPOSITION.

First. Certain women show sufficient evidence of a predisposition to hepatic insufficiency as to render the occurrence of grave symptoms of toxemia, at the onset of pregnancy, a foregone conclusion.

Many of our patients evidently suffer from hepatic insufficiency. I see it almost daily in my practice. Possibly there is a family history of biliousness, and this will often show itself in the character of the pregnancies of the patient's immediate female relatives.

The teaching of Charcot was that hepatic insufficiency is pre-eminently an hereditary state.

A clear family history of this condition is often absent in a given patient, and yet her immediate family may suffer unduly during pregnancy or during the puerperium.

These patients have "bilious crises" in the non-pregnant state, and often suffer from temporary amenorrhea and at such times well-marked symptoms of mild autointoxication are present, as headaches, nausea, prostration, insomnia, pruritus, cutaneous eruptions, unexpected and sudden changes in tastes and disposition and slight jaundice.

If an examination of the intestinal functions shows any tendency to coprostasis, acholous feces, undigested fats, etc., it would naturally suggest hepatic insufficiency.

Urinary analysis furnishes perhaps our most valuable aid in determining the state of the functions of the liver, and shows the presence or absence of the so-called functional albuminuria, of glycosuria, of diminished amount of urea, of excess of purin bodies, of indican, etc. In this connection some of the hepatic functions may be tested dietetically.

The mental state, senses and reflexes should certainly be tested in suitable cases. It has often been claimed that the cerebral cortex, and, to a certain extent, the nervous centers in general, very readily participate in hepatic insufficiency. This is seen in a small way in the irritability and moodiness of the bilious individual, and exalted reflex excitability is doubtless of the same character. Of special importance is the relationship of the toxemia of pregnancy to hysteria, as seen in connection with hyperemesis. It is well, therefore, to examine the woman for the stigmata of this latter condition, which if present would certainly be aggravated by the toxemia of pregnancy.

If, after such an examination, we find marked evidences of hepatic insufficiency, which are believed to constitute a predisposition to the toxemia of pregnancy, are we justified in forbidding conception? This is largely a question for the future to decide. If all else is favorable, my present opinion is that it would be best to let conception occur, gestation being closely watched. We must remember that the mortality from the toxemia of pregnancy includes much—perhaps all—of that of pernicious vomiting, that of eclampsia, and perhaps a good deal of that of sepsis, together with the rarer conditions of death from fulminant toxemia, and some of the mysterious deaths which occur after the puerperium. To this array of fatalities must be added a very large immediate and remote morbidity. Hence, if the connection between insufficiency of the liver and the toxemia of pregnancy holds good in all countries and among all races, it is evident that the risk which such a woman runs by conception is very considerable, although the numerical chances are perhaps in her favor.

TREATMENT.

Second. If symptoms of toxemia show themselves in pregnancy, what shall be our attitude in the case?

It is well known that the mild evidences of toxemia as seen early in pregnancy generally subside before the fifth month, giving the impression that its condition is self-limited. During this period, however, the toxemia may result in acute hepatitis, in fatal pernicious vomiting, etc. An apparent subsidence of toxic symptoms should not throw us off our guard as to prognosis, because such a patient has been known to develop postpartum eclampsia. Under any and all circumstances during gestation it is well to submit the woman to certain tests.

Any one can readily understand that the toxemia of pregnancy undergoes distinct exacerbations at the date of the menses, and the suspected patient should be carefully watched at this period. The urine should be tested, not only for the milder evidences of hepatic insufficiency but for the presence of leucin and amino-acids in general. The liver should be carefully examined for enlargement and for tenderness. The mental and nervous states should be investigated; then, if we examine the woman later, we can form some idea of the advance or recession of the disease.

At these times one will often observe languor in the patient, sometimes approaching stupor, general malaise, headache, constipation, itching of the skin, slight jaundice, nausea and vomiting, insomnia or somnolence, and alterations in character and disposition, with slight lapses of memory.

For the diagnosis of the milder forms of this condition, the presence of leucin and tyrosin and amino-acids in the urine is not essential.

Bearing in mind the claim of Richard C. Norris of Philadelphia, that the toxemia of pregnancy may be latent as to general symptoms, but may cause degenerative changes in the heart which cause death during labor, it is certainly well to pay some attention to that organ.

If the toxemia should attack the heart we should expect to find some acute dilatation, which in turn would doubtless set up passive congestion of the liver. A vicious circle would then involve the two organs, the mischief going on in one would aggravate the state of the other. The origin of the varicose veins of pregnancy, when not due directly to pressure, has always been obscure; it has been set down to pregnancy itself, or, as we would now say, to the toxemia of pregnancy. The presence of varicose veins early in gestation, when mechanical causes can be excluded, may possibly be of some value as an index of a cardiovascular toxemia.

It is well to watch for the normal enlargement of the thyroid during pregnancy, for, according to recent writings, when this does not take place, toxemia is prone to develop.

Evidences of progressive toxemia doubtless justify the interruption of pregnancy. They can only mean that the liver is undergoing structural disease, and that the chances, on the whole, are against the patient. If palpation reveals the presence of an enlarged and tender liver, if leucin is present in the urine, if the stomach and nervous system show considerable participation in the general derangement, we should empty the uterus at once; otherwise the patient will doubtless develop, sooner or later, one or more of the severe or terminal manifestations of the autotoxic state. It is not alone in the emptying of the uterus, however, that the treatment rests. During the past year I have known of four cases in which death resulted in spite of this procedure.

In the past year I have seen surprisingly good results, in my own practice and in the practices of others, from the administration of calomel, repeated colonic irrigation, venous saline infusion, and the general stimulation of the emunctories, but without interrupting the pregnancy.

If the case passes into one of ordinary hyperemesis, eclampsia, etc., the indications, prognosis, etc., are sufficiently well known and need not be discussed here.

PROGNOSIS IN FULL TERM CASES.

Third. What is the prognosis of cases of persistent pregnancy toxemia that we allow to proceed to full term?

There are a number of conditions under which a toxemic pregnancy may go on in safety to the period of delivery. The symptoms may have subsided spontaneously, or may have yielded to treatment; threatened eclampsia may have been averted by diet. Evidences of toxemia may have been slight or may have exhibited a diminishing tendency. The patient may not have been seen or the condition may have been unsuspected until term, or at least until the fetus was perfectly viable. Under such circumstances the obstetrician must bear in mind, first, that there is a possibility of death during or directly after labor, as a direct result of cardiac paralysis due to the autotoxic state. If there is any evidence which points to such a state of the cardiac muscle, the indication would be to hasten delivery. Our knowledge of sudden death in the puerperium hitherto has been cognizant only of such accidents as pulmonary embolism, air embolism, cardiac thrombosis, cerebral apoplexy and cardiac failure from antecedent organic disease, but doubtless will be revised from the viewpoint of the cardio-toxemia of pregnancy. Next to sudden death, the possibility of postpartum eclampsia must be borne in mind. If the trace of albumin which is said to persist in the great majority of puerpera for the first week after delivery shows increase, i. e., if postpartum albuminuria is in evidence to an unusual degree, there is reason to fear this accident—particularly in those cases which have shown the pre-eclamptic state during gestation.

Of even more interest is the subject of puerperal sepsis when viewed as a possible sequel or continuation of the toxemia of pregnancy. The nucleus of this doctrine is the proneness of the eclamptic woman to develop sepsis after delivery—the ratio being greater than may be accounted for by the need of operative intervention, etc., in such cases. Over and beyond this, however, we may almost generalize to the effect that in any toxemic state whatever during pregnancy the chances for a septic puerperium are much increased. This may be seen in connection with associated infection before delivery with typhoid and similar acute diseases, syphilis, cancer, etc. Antepartum infection with the ordinary germs of puerperal fever pursues a notably serious course after delivery.

It seems reasonable, then, to conclude that a toxemia peculiar to pregnancy is bound to end after delivery in an abnormal puerperium.

PROPHYLAXIS.

Fourth. If a woman has once gone through a toxemic pregnancy, how shall she be advised?

If the toxemia was severe in character—hyperemesis, eclampsia, etc.—subsequent conception should be discouraged, or at least left to the decision of the patient. In mild toxemia, the conditions are different. Generally speaking, conception may be permitted or advised, the pregnancy being carefully supervised. However, even in the milder forms of toxemia, too rapid child-bearing should be discouraged; my belief is that the slight toxemia which attends most pregnancies becomes cumulative if the woman be not given time to recover completely from the effects of the preceding gestation.

From another point of view, if a woman shows marked evidence of autotoxemia after a given pregnancy—irrespective of the character of the gestation—she should not conceive so long as such symptoms persist. Such a woman probably has residual lesions of some of the important viscera, and a fresh conception might precipitate toxemia of the worst type.

CONCLUSIONS.

1. The preventive treatment of much of the morbidity and mortality of pregnancy and of the puerperium depends on the early recognition of the autotoxemia of pregnancy, as it shows itself in the clinical picture of hepatic insufficiency.

2. No one who has had an extensive obstetric experience can fail to observe that a large number of pregnancies are really pathologic in their nature.

That a specific toxemia of pregnancy exists will probably soon be admitted on all sides. It is, of course, very easy to attribute to the autotoxic state certain symptoms of the pregnant woman which proceed from other sources; and it is by no means impossible that pregnancy may predispose to more than one toxic condition. In any case, however, the presence of the hepatic toxemia must be borne in mind—whether it be the principal state or accessory to other facts.

3. Our present knowledge of the pregnant state demands that women at this time should be constantly under the observation of a competent physician. Pregnancy can not be treated through the mails or over the telephone.

It is not enough that a monthly or bi-monthly examination of the urine be made for symptoms of hepatic or of renal insufficiency, as such urinary analysis often fails completely to indicate the presence of toxemia.

A pregnant woman should be seen frequently by her physician and watched for general symptoms of the overcharging of the blood with toxic material, such as nausea and vomiting, headache, physical and mental lassitude, high arterial tension, alterations in character and disposition.

Thus, and thus only, shall the physician do his whole duty by his patient.

50 East Thirty-fourth Street.

OCEAN BATHING.

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In considering some of the advantages and disadvantages of sea bathing, one must not lose sight of the fact that it is impossible to separate them from the influences of other agencies, such as temperature and the physical conditions of the atmosphere. And, again, it is no less true that the physical and mental condition of the individual at the time of the bath may greatly modify or influence the effect. Sea water being composed of minerals such as chlorid of sodium, magnesium, bromin and iodin, is truly a mineral water, and an ocean bath, therefore, may be properly classified as a mineral bath. Since temperature is one of the agencies to be considered, we must not regard its presence or absence, beyond a relative degree, other than a definite quantity of either the water or the body. In nature's operations, heat and cold are as necessary as they are wonderful, whether contemplated from their effect on the human body, on animal life in general, or on inanimate matter. In the human body, heat and cold have only a relative action, and much depends on the particular state and condition of the body at the time, and the end to be subserved. They may be alike, first, salutary, and second, pernicious. I have observed those who for different reasons have been obliged to remain for hours submerged in the sea, and have noted both the slowing and the enfeeblement of the pulse, the lowering of the temperature, and the evidence of general debility as exhibited by the loss to the various forces. I have also observed with equal interest those immersed for a time in warm water at a temperature higher than that of the body. Here the first influence was that of the speeding of the blood current, the stimulation and invigoration of the motor centers, the increasing of the cellular and glandular activities, and, as the exposure was prolonged, secondarily, the depressing influences became so marked as to completely derange the equanimity between the capillary and larger circulations, limiting nerve force, and thereby lowering the systemic resistance to a greater or less degree. In the former, i. e., exposure to cold sea water, I have noticed the temperature lowered from 1 to 2 degrees, and at the same time the lessening of the pulse rate from 15 to 20 beats.

Dr. Gibbony, an English authority, states that in his observation "of flounder fishermen off the coast of Northern Ireland, and of the shrimp fishermen off the coast of Brighton, England, where their vocation compels them to be exposed in the water for many hours," the temperature of these waters being at least 10 degrees lower than that of the Atlantic ocean along our coast, he has noted the pulse as many as 30 beats less than normal, and the temperature reduced 2.5 degrees.

Hippocrates once advanced the theory "that subsequent heat, succeeding to the cold applied, was always proportionate to the intensity of the latter." While this may be to some extent concurred in, it is subject, both in health and in disease, to special modifications, which modifications arise more particularly from the length of time of the exposure and the conditions under which the exposure is made. Therefore, when considering the special benefits or the special diseases and conditions to be benefited, there are other agencies or influences which must be taken into account, such as, for instance, those relative to the sea, namely, the forcible activity or movement of the water, the physical conditions of the strand, the distance and convenience of the dressing rooms, etc., and those relating to the individual, namely, the resisting power of the body, the time of the bath, length of time of exposure, the temperament, the physical debility present—i. e., whether the body is relaxed, enervated, nervous, or highly tensioned; and also whether the result to be obtained should be bracing, tonic, stimulating and invigorating. In other words, the individual bather must be considered a complexity of forces or an aggregation of systems capable of independent as well as allied actions.

Beginning with a simple cell, with its inherent power, we can easily follow the force suggested until it expands into the various systems—the nervous, the vascular, the glandular and the muscular—each of which is easily influenced individually and collectively, incidentally and relatively, internally and externally.

But time does not permit of further elaboration or discussion of this phase of the subject, the important and principal phase being the behavior of these forces when met by the conditions, under varied circumstances, of the question as above stated.

It may not be out of place, for the sake of illustration, to consider the human body as a type of a perfect machine, constructed in a beautiful and wonderful manner, with its functions so intimately poised, so accurately organized, and so connected that none could be more perfect. Any deviation from this type is represented by disease, either functional or organic, and the severity of the derangement merely the degree.

Assuming this to be our perfect machine, our type necessarily will be a youth representing vigor and perfect development. In the immersion of such an individual in sea water at a temperature of from 65 to 70 degrees, we would naturally find a quick response to the sudden stimulation of cold, that is, of the water, which meets the surface of the body as the plunge is taken. The stimulus to the peripheral sensory nervous system is such that it quickly contracts the adjacent capillaries and sends the blood speeding to the larger vessels and internal organs. The systemic vigor and reserve forces return it again to the surface of the body, accompanied by the resiliency and invigoration which emphasize the pleasurable sensations so gratifying to the bather.

If, after dressing from such a bath, a genial glow suffuses itself over the sensitive surface of the body and is succeeded by a pleasing warmth internally, accompanied by a refreshed and invigorated feeling, it is evidence and proof of the salutary influences; but if instead there follow a chilliness, languor, headache, irresistible depression and disposition to drowsiness, or any of these, it should be reckoned as important evidence that the bath has not contributed in any material way to the advantage or improvement of the person's health, and that, if persisted in under similar or like conditions, the result will in time prove injurious. So much depends on the vital power or reactionary influences which we may call the *callidum innatum,* which is constantly renewed by a most admirable combination of chemical agencies and animal functions, that, after considering the preliminary conditions previously stated, it becomes equally important for us to observe our patients and to impress on them the necessity of looking for the special reaction above stated, and when it is absent to desist further indulgence in so questionable a pleasure.

With these generalities and references, I now come to speak more specifically of the use of the bath and the special conditions and diseases for which it may be used. In the first place, I venture to make the statement that the sea or ocean bathing as practiced at Atlantic seacoast resorts is responsible for greater harm than good. Few people seem to attach much importance to the danger of either the prolonged exposure in the water or to the prolonged exposure in their wet garments in the cool atmosphere on the sand. While this seems a matter of easy remedy, particularly if a little good judgment and common sense be exercised, nevertheless the surprise is that the practice increases rather than diminishes. It may be said in advocacy of such a practice that the majority of bathers bathe for pleasure, with a blind disregard for either its advantages or disadvantages, and indulge themselves for such periods of time as either their own or their friends' convenience permit.

Admitting the truth of this claim, there does not yet seem to be any good reason why the seeking of pleasure should be an apology for the violation of the laws of health; and too often the physical condition present, which may be giving them great concern, adds little alarm to the occasion.

Many of us have stood on the strand and observed not a few but many young, middle-aged and old alike returning from the surf, or from a prolonged exposure in their wet clothing on the sand, to their dressing rooms, slightly and even markedly cyanosed, with pale and shriveled cutaneous surfaces, capillaries contracted, cutaneous functions temporarily paralyzed, internal organs and deeper vascular system greatly engorged, and in some instances seriously disturbed, shivering and chattering as they pass, giving little thought to the threatening dangers incidental to the impaired forces and debility occasioned by the exposure.

In view of these observations it would seem that our voices have already been too long silent and our pens too inactive on the subject so universally abused. Each physician should counsel those over whom he has advisory charge, of the dangers incident to a prolonged exposure in the ocean or on the sand in wet clothing, and also to the too frequent daily indulgence of either. It is his duty to impress on them the advantages of a short exposure or immersion, say ten, fifteen or twenty minutes, and never exceeding thirty minutes; the necessity of prompt and positive reaction after the bath; the maintaining of a good physical condition, and giving to them, according to their particular need, such specific instruction as will best avert harmful or serious disturbances. When the normal body temperature is exposed to that of an active body of water, or currents of air 10, 20, 30 or 40 degrees lower than itself, the tendency is to the equalization of the temperature of the bodies in contact, and the greater the motion of these bodies the more rapid the transfer, and the more rapid the receipt and loss to the bodies involved; hence, prolonged contact largely reduces the former, while it adds but little to the latter. The body during this large dissipation of heat becomes so enfeebled that its economic forces are temporarily inhibited, and in some instances seriously deranged. While such general disturbances may be frequently observed in the healthy and normally robust, it much more frequently occurs in those of less resistance, therefore the necessity for greater precaution in giving advice, and making recommendations to those whose health has already suffered impairment.

The practice of promenading on the beach in the scant and poorly protecting garments so fashionable of recent years—I pause to emphasize the word "fashionable"—after an immersion from, say, three-quarters to an hour in the surf, is unmistakably harmful and equally inexcusable, and should have the denunciation of every physician as well as others engaged in the upbuilding and maintenance of good health; and there is little less to be said in favor of the practice of lying on the sand and frequently returning to the water, which practice so changes the temperature of the body as to invite lowering of resistance, and thus rapidly insures progressive debility.

An important feature in sea bathing which must not be lost sight of is the active motion of the water—i. e., the impact of the swells or waves; to this may be added the thermic stimulation of the cold, the chemical irritation of the salt, and the mechanical influence of the forced activity, thus giving a marked nerve stimulation and an energetic primary vascular contraction and subsequent reaction. Hence, when summarily considered, we must recognize that a tremendous impetus is given the fluids of the body, an incidental active alteration in the various forces, also a modification direct and indirect to the reflex activities. The cold sea bath combines the stimulating influences of the brine bath at a low temperature with the effect of a stimulating hydrotherapeutic procedure. They are admirable for rapid reaction and prompt functional stimulation, and are indicated in those weakened conditions where normal metabolism is inhibited, or where perverted nutrition exist. Such conditions are present usually in all functional disturbances of long standing, types of which

are neurotic dyspepsias, the functional anemias and neuralgias, neurasthenia, and some cutaneous diseases, as eczema in the subacute and chronic forms, pityriasis, urticaria, etc.

Sea bathing is contraindicated in those cases in which the arterial elasticity for any reason has been changed or lost, as in arteriosclerosis and capillary fibroses; also where the peripheral vessels have ceased to respond to reflex stimuli, or in any case or condition in which the stimulation of the bath would be likely to favor or to produce internal hemorrhage (particularly in the aged, in whom we have realized or suspected fragile arteries), and for those with organic heart disease, recent rheumatism, cholelithiasis, acute gastrointestinal or febrile diseases, or any disease whatsoever in which the normal resistance has been so reduced as to make it necessary to protect and guard the patient's forces.

Miscarriage may be caused by bathing when the sea is particularly rough. Sea bathing is also prejudicial to health during the menstrual period. It is worthy of note that otitis media frequently follows bathing in a rough sea, as well as frequent and prolonged exposure in the water.

HOW MAY TYPHOID FEVER BE ELIMINATED?*

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The eradication of a given infectious disease requires an intimate knowledge of first, the causation or underlying etiologic factors, and second, the best methods of preventing these factors from operating.

While very desirable, it is not absolutely necessary for purposes of prevention to know the specific cause of the infectious disease to be combated; it is sufficient to know the ways and means by which the specific cause, whatever it be, becomes operative. Thus smallpox may be prevented without the specific cause being known, and the prevention of yellow fever is an accomplished fact, although the specific cause still remains hidden from the searching eye of the bacteriologist. These general considerations prepare us for the statement that although the specific cause of typhoid fever—the bacillus of Eberth and Gaffky—has seldom, if ever, been found in polluted water; such water, nevertheless, has been the cause of typhoid epidemics, and the prevention of such epidemics can be accomplished by removing the source of infection. The failure to discover the typhoid bacillus in water which had given rise to typhoid infection is, from a strictly bacteriologic standpoint, tantamount to failure to establish the presence of such specific cause, and were we to rely on bacteriologic evidence alone, typhoid fever could not be considered a "water-borne" disease.

From a strictly scientific point of view, a mere inference should not be accorded the value of an established fact, and, therefore, a mere supposition that typhoid bacilli may be present in sewage-polluted water does not or should not mean that the presence of these bacteria has been actually demonstrated. However polluted a water supply may be, it may, nevertheless, be free from typhoid bacilli, and, on the other hand, typhoid bacilli may be present in water which, on examination, does not reveal the presence of sewage pollution.

Bacteriology with its modern technic traces the typhoid bacillus from the time it enters the human body until it leaves the latter with the feces or urine, but utterly fails to enlighten us on the life-history of this micro-organism outside the body. The behavior of this bacillus in large bodies of water under natural conditions is a blank to be filled in by further investigations, but a blank, nevertheless, which at present constitutes the missing link in the chain of evidence that polluted water causes typhoid fever.

Fortunately, however, the evidence furnished by epidemiology is all sufficient to satisfy the most skeptical. We know that polluted water gives rise to epidemics of typhoid fever because: 1, Epidemics have been traced to the contamination of the drinking water with the fecal discharges of a single typhoid patient, as in the classical outbreak at Plymouth, Pa., in 1885, following the pollution of the stream with typhoid feces; 2, typhoid morbidity bears a direct relation to the character of the water supply; and 3, high typhoid morbidity in communities supplied with sewage-laden water diminishes on the introduction of a pure water-supply or the effectual purification of the old. These facts have been verified by years of observations by competent sanitarians.

STATISTICS OF TYPHOID.

It is interesting to note that as early as 1843, when the etiology of typhoid fever was obscure, the late Austin Flint traced an outbreak of typhoid fever in North Boston to the contamination of a well. In this outbreak the infection was introduced into a small settlement by a traveling stranger who, while sick, stopped at a tavern where he died of the disease. The well at the inn became contaminated with the dejecta, and all of the nine families constituting the settlement, except three, developed typhoid fever. The families that escaped did not use the water from this well; two because of distance, and the third on account of a quarrel with the innkeeper. From a careful analysis of the circumstances in this outbreak, Dr. Flint drew the correct conclusion that the drinking water and that alone was accountable for the outbreak. Numerous observations of a similar character have been made since, and all without exception prove that contaminated drinking water is the most frequent causal factor in the production of typhoid fever.

That the mortality from typhoid fever bears a direct relation to the hygienic quality of the water-supply is shown by the typhoid death rate in American cities, which are usually supplied with polluted water. The following table shows graphically this relation.

This table shows that where a polluted stream is utilized as a water-supply the typhoid mortality is high and in proportion to the care exercised in guarding the stream against evident pollution. Thus in the states of Massachusetts and New York, where exceptionally good care is taken in this respect, the typhoid mortality is comparatively low, while in Pennsylvania, where streams used for drinking purposes are also used as sewers, the mortality is high. Another interesting and rather unexpected fact brought out is that in many cities supplied with artesian well water obtained at great depths, the death rate from typhoid fever is nevertheless high, as in Canton, Ohio, 40; Charleston, S. C., 122; Galveston, Texas, 67; Memphis, Tenn., 33; Montgomery, Ala., 54; San Antonio, Texas, 67; Sa-

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

vannah, Ga., 34; and South Bend, Ind., 35. It is difficult to find an explanation for this rather startling fact, considering the extreme depths at which the water is obtained. It is possible that owing to the limited supply in some places and the extreme hardness of the water in others, the people avail themselves of shallow wells on their own premises. However, whatever the explanation, the fact remains that artesian wells do not afford the immunity from typhoid fever one would *a priori* expect. This is equally true of springs and mountain streams, as shown by the typhoid mortality in Los Angeles, 43; Mobile, 62, and York, 83. This, however, should not occasion much surprise since springs and mountain streams, although by popular consent the very emblems of purity, may become the conveyors of disease when located in populous communities.

That this wanton destruction of human lives can be almost entirely eradicated is conclusively shown by the experience of European cities where the substitution of a pure water-supply for a polluted one or filtration of a polluted water has resulted in such a marked reduction in typhoid morbidity that, as is the case in Munich, the medical schools suffer for lack of morbid material to demonstrate the lesions of typhoid fever. Thus the typhoid mortality in Munich, from 1851 to 1874, was 170 per 100,000, reaching as high as 210 per 100,000 during 1851-59. The introduction of a pure water-supply reduced the mortality to 6 and as low as 3 (1892) per 100,000. An equally marked reduction was brought about by an improved supply in Dantzic, from 100 to 24 per 100,000; in Frankfort, from 60 to 15; in Vienna, from 120 to 6; in Brussels, from 100 to 37, and others. In this country a similar reduction in the typhoid mortality followed the introduction of a pure water-supply, as in Boston, where the death rate of 174 in 1846-49 was decreased to 30 per 100,000 for the period covered by the above table. In the case cited by John W. Hill, the cities of Jersey City and Newark, N. J., were for many years drawing their water from the badly polluted Passaic River with the resulting high typhoid mortality. In 1892, Newark abandoned the old supply in favor of Pequannock River, while Jersey City continued to draw from the Passaic. The effect of this change on the comparative typhoid mortality of both cities is shown in the following table:

Death Rate Per 100,000.

	1890	1891	1892	1893	1894	1895	1896
Newark, N. J.	60	81	45	28	15	17	21
Jersey City, N. J.	91	95	53	60	76	71	61

An equally marked reduction followed the introduction of slow sand filtration of polluted surface waters, as shown by the statistics of Hamburg, Berlin, Breslau, Bremen, London and some thirty or more European cities, and in this country, in Lawrence and Albany.

PROPHYLAXIS OF TYPHOID.

Having demonstrated the propositions set forth in the beginning of this paper, we are now ready for the inquiry into the best means of preventing this scourge. Prophylaxis in the case of typhoid infection may be individual or domestic and collective or municipal.

Domestic Prophylaxis.—Individual prophylaxis embraces avoidance of contact in any way with the feces and urine of typhoid patients and the avoidance of ingestion of food and drink which is liable to contain the typhoid bacillus. Practically, domestic prophylaxis is limited to the boiling or filtering of the drinking water. As a general rule, boiling of the water is carried on sporadically and only in times of a general scare, while domestic filtration is frequently the means of conveying infection rather than guarding against it.

The market is overcrowded with all sorts of filtering devices, for each of which it is claimed that it will purify water, but many of them are only capable of removing the turbidity. As a rule, the desire on the part of the manufacturers to make their filters attractive and unique (patentable) results in the production of complex devices which are difficult to clean and to keep clean. Even the best of them—the Pasteur and Chamberland filters—require frequent cleansing and sterilizing to make them at all efficient. As no nitrification takes place in the small filters, and they are merely strainers of various degrees of fineness, it is only a question of time, not more than four days, when the bacteria grow through the body of the filter. The care of domestic filters is usually entrusted to domestics, with the result that the filter undergoes an occasional ablution without any further treatment, if, indeed, it is not left to its own fate until no longer permeable to water.

The inefficiency of domestic filters has been clearly demonstrated by a number of competent bacteriologists. During a typhoid epidemic in Providence, R. I., in 1888, it was found that a large number of cases occurred in families using domestic filters. These filters were examined by Drs. Swarts, Pruden and Ernst, with the result that *B. coli communis* was found in the effluent from every one of them.

Even if proper precautions are taken with the drinking water, raw water is used in washing vegetables which are not subject to subsequent cooking, and milk is used without boiling, such milk being liable to contain the germs of typhoid fever. That milk which had come in contact with utensils washed with polluted water or which had been diluted with such water may and does give rise to typhoid epidemics, has been proved by a number of investigators, and was shown by the milk epidemic at Elkton some three years ago, which was so ably investigated by Dr. Fulton. Oysters obtained from a sewage-polluted bed are frequently the cause of typhoid infection, while flies which had been permitted to come in contact with dejecta from typhoid patients and then alight on food are no doubt responsible for a considerable number of sporadic cases of obscure origin. In short, individual prophylaxis to be effective should not fall short of boiling all articles of food and drink which are liable to be a source of infection.

Municipal Prophylaxis.—Experienced sanitarians are only too painfully aware of the fact that individual prophylaxis against infectious diseases is a profitable subject to write about and to discuss, but which can not be carried out in actual practice. All wise rules and regulations become ineffective when confronted by ignorance or stubborn indifference on the part of those for whom the rules are intended. There is a peculiar state of the human mind which renders caution unheeded. The average man does not expect to die nor to get sick nor to meet with an accident. He can reason, and the more intelligent man does reason out the possibility of such occurrences, but his being rebels against such a possibility, and the knowledge of such possibility does not become an integral part of conscious life. The average man, when in perfect health, does not think of disease nor of death, and always hopes to escape the misfortunes which he may happen to see oc-

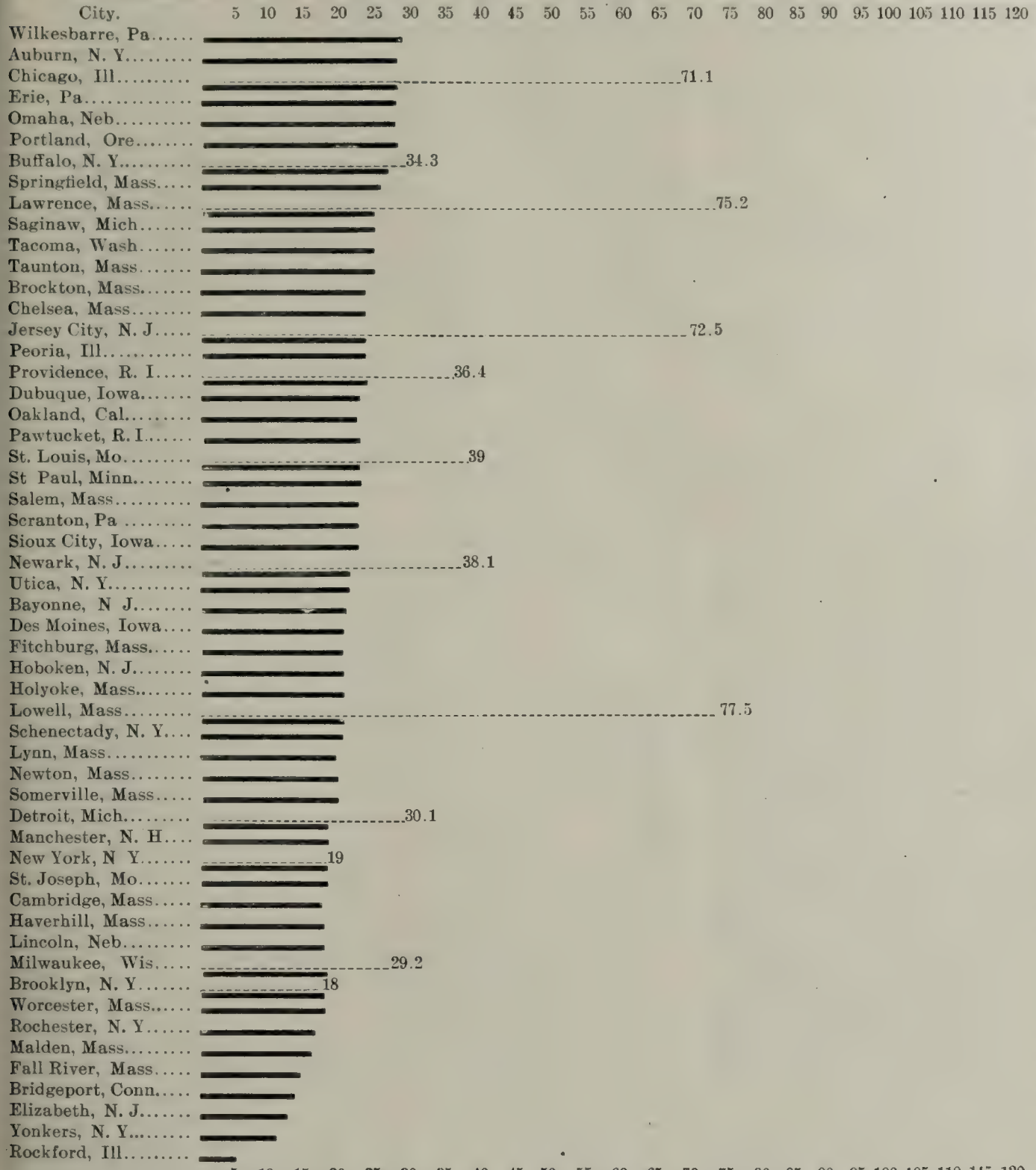
TABLE I.

Typhoid Mortality in American Cities of 30,000 and over for 1898, 1899 and 1900. Average per 100,000.
(Dotted lines show mortality for 1890-1896 in some of the larger cities.)

City.		Source of water supply.
Charleston, S. C.	122	Artesian wells.
Pittsburg, Pa. (84.1)	108	Allegheny River.
Youngstown, Ohio	105	Mahoning River.
Troy, N. Y.	101	Piscanenkill and Hudson rivers.
Knoxville, Tenn. (56.3)	88	Tennessee R.; mech. filter.
Allegheny, Pa.	86	Allegheny R.; filter crib.
Johnstown, Pa.	83	Mountain streams.
York, Pa.	83	Springs.
Wheeling, W. Va.	82	Ohio River.
Albany, N. Y.	79	Hudson River; unfiltered.
Washington, D. C. (71.1)	68	Potomac River.
Galveston, Texas	67	Artesian wells.
San Antonio, Texas	67	Artesian wells.
Chester, Pa.	64	Delaware R.; mech. filter.
Norfolk, Va.	64	Lakes; mech. filters.
Superior, Wis.	63	Lake Superior.
Mobile, Ala.	62	Springs.
Duluth, Minn.	62	Lake Superior.
Louisville, Ky. (74.1)	60	Ohio River.
Evansville, Ind.	60	Ohio River.
Lancaster, Pa.	59	Conestoga Creek.
Little Rock, Ark.	58	Arkansas River.
Spokane, Wash.	57	Spokane River.
Terre Haute, Ind.	57	Wabash R.: mech. filter.
Richmond, Va.	55	James River.
Montgomery, Ala.	54	Artesian wells.
New Orleans, La. (26.1)	54	Mississippi River.
Philadelphia, Pa. (35)	54	Schuylkill and Delaware rivers.
McKeesport, Pa.	53	Youghiogheny River.
Binghamton, N. Y.	51	Wells-Susq'hanna R.; mech.filter.
Reading, Pa.	50	Mountain streams and creek.
Allentown, Pa.	49	Springs.
Wilmington, Del.	48	Brandywine Creek.
Hartford, Conn.	47	Brooks.
Dallas, Texas	47	Trinity River.
Kansas City, Kan.	46	Missouri R.; mech. filter.
Nashville, Tenn. (44.7)	46	Cumberland R.; filter gal.
Portland, Ore.	46	Lake Sebago.
Birmingham, Ala.	45	Cahaba River and Creek.
Springfield, Ill.	44	Saugamon River; filter gal.
Springfield, Ohio	44	Subterranean filter gallery.
Los Angeles, Cal.	43	Springs.
Topeka, Kan.	43	Open and driven wells.
Elmira, N. Y.	43	Chemung R. & Creek; mech.filter.
Harrisburg, Pa.	41	Susquehanna River.
Waterbury, Conn.	40	Mountain brook; Naugatuck R.
Cleveland, Ohio (46.4)	40	Lake Erie.
Canton, Ohio	40	Artesian wells and springs.
Butte, Mont.	40	Mountain streams.
Covington, Ky. (36.4)	39	Ohio River.
Minneapolis, Minn.	39	Mississippi River.
Denver, Colo.	38	Platte R. and creek; mech. filter.
Indianapolis, Ind. (64.5)	38	Driven wells; filter gallery.
San Francisco, Cal. (38.4)	37	Mountain streams.
Grand Rapids, Mich.	36	Springs and Grand R; filter gal.
Trenton, N. J.	36	Delaware River.
Paterson, N. J.	35	Passaic River.
Quincy, Ill. (53.5)	35	Mississippi River; mech. filter.
Baltimore, Md. (43)	35	Impounding reservoirs.
South Bend, Ind.	35	Artesian wells.
Cincinnati, Ohio (49.4)	35	Ohio River.
Augusta, Ga.	34	Savannah R.; mech. filter.
Savannah, Ga.	34	Artesian wells.
Camden, N. J.	33	Delaware River.
Houston, Texas	33	Artesian wells.
Memphis, Tenn	33	Artesian wells.
Altoona, Pa.	33	Springs and small streams.
Davenport, Iowa (28.5)	32	Mississippi R.; mech. filter.
Seattle, Wash.	32	Lake Washington.
Toledo, Ohio.	32	Maumee River; filter basin.
Columbus, Ohio	31	Wells and Scioto R.; filter gal.
Fort Wayne, Ind.	31	Wells.
Kansas City, Mo.	31	Missouri River; sed. and coag.
Syracuse, N. Y.	31	Skaneteles Lake.
Boston, Mass. (32.5)	30	Lake Cochituate and Sudburg.
Dayton, Ohio (36)	30	Driven wells.
New Bedford, Mass.	30	Acashnut River and pond.
New Haven, Conn.	30	Several lakes.
Salt Lake City, Utah.	30	Mountain streams and creek.
Akron, Ohio	29	Wells and lake.

5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120

TABLE 1.—Continued.



City.		Source of water supply.
Wilkesbarre, Pa.	29	Laurel River; mech. filter.
Auburn, N. Y.	28	Owasco Lake.
Chicago, Ill.	28	Lake Michigan.
Erie, Pa.	28	Lake Erie; filter crib.
Omaha, Neb.	28	Missouri River.
Portland, Ore.	28	Canal and Calapooga River.
Buffalo, N. Y.	27	Niagara River.
Springfield, Mass.	26	Springs and brooks.
Lawrence, Mass.	25	Merrimac River; sand filter.
Saginaw, Mich.	25	Saginaw River.
Tacoma, Wash.	25	Creek and Sponaway Lake.
Taunton, Mass.	25	Ponds.
Brockton, Mass.	24	Salisbury Brook.
Chelsea, Mass.	24	Metropolitan water supply.
Jersey City, N. J.	24	Pequannock River.
Peoria, Ill.	24	Open wells.
Providence, R. I.	24	Pawtuxet River.
Dubuque, Iowa.	23	Underground water.
Oakland, Cal.	23	Impounding reser.; mech. filter.
Pawtucket, R. I.	23	Abbott's Run.
St. Louis, Mo.	23	Mississippi River.
St Paul, Minn.	23	Lakes and Artesian Wells.
Salem, Mass.	23	Wenham Lake and Brook.
Scranton, Pa	23	Impounding Reservoirs.
Sioux City, Iowa.	23	Driven wells.
Newark, N. J.	22	Pequannock River.
Utica, N. Y.	22	Surface water.
Bayonne, N J.	21	Artesian wells.
Des Moines, Iowa.	21	Raccoon River; filter gallery.
Fitchburg, Mass.	21	Reservoirs and ponds.
Hoboken, N. J.	21	Hackensack River.
Holyoke, Mass.	21	Ponds and brooks.
Lowell, Mass.	21	Driven wells.
Schenectady, N. Y.	21	Well and Mohawk River.
Lynn, Mass.	20	Brooks and Saugus River.
Newton, Mass.	20	Ground water, filter basin.
Somerville, Mass.	20	Metropolitan water supply.
Detroit, Mich.	19	Detroit River.
Manchester, N. H.	19	Protected lake.
New York, N Y.	19	Protected water shed.
St. Joseph, Mo.	19	Missouri River; mech. filter.
Cambridge, Mass.	18	Brook and pond.
Haverhill, Mass.	18	Ponds and lakes.
Lincoln, Neb.	18	Wells.
Milwaukee, Wis.	18	Lake Michigan.
Brooklyn, N. Y.	18	Open and driven wells.
Worcester, Mass.	18	Impounding reservoirs.
Rochester, N. Y.	17	Double supply, Hemlock Lake.
Malden, Mass.	16	Ponds and driven wells.
Fall River, Mass.	15	Watuppa Lake.
Bridgeport, Conn.	14	Small streams.
Elizabeth, N. J.	13	Artesian wells and Elizabeth R.
Yonkers, N. Y.	11	Brooks.
Rockford, Ill.	5	Artesian wells.

cur to others. It is well that it is so, for otherwise the first wreck of a train, or collision of a street railway would permanently stop travel; the burning of a building accompanied by destruction of life would lead to a desertion of all buildings similarly constructed, etc. In the case of infectious diseases, however, this psychic trait leads to a disregard of precautions defeating the efforts of sanitarians. This is why the precautionary measures intended to prevent typhoid infection remain, like some of the commandments in the Good Book, mere wise sayings without any practical application.

If individual prophylaxis is impractical, what can be done to prevent typhoid epidemics. If the individual can not or will not save himself from infection, the municipality should make an effort to prevent the infection from reaching the individual. In the case of typhoid fever, this can be accomplished with comparative ease, owing to the fact that the avenues of egress and ingress of the typhoid bacillus are limited and accessible. Every municipality should provide for its citizens a drinking water obtained from unimpeachable sources or else purified. In this country it is almost impossible to obtain an absolutely pure natural supply, owing to the high cost of land along water channels and the usually crowded habitation on water-sheds.

The table above cited shows conclusively that communities supplied from what is usually considered a pure source suffer from high typhoid mortalities. It is immaterial whether the water-supply is designated as "springs," "deep wells," "artesian wells," "mountain streams," or what not so long as communities using such waters suffer from a typhoid death rate much above 20 per 100,000, the source should be abandoned, or, what is more practical, the supply purified. Such a course would not be without a precedent, for in Europe, water-supplies which in this country would be considered ideal are purified by sand filtration. Thus the comparatively pure lake water-supplies of Zurich and Wandshek are filtered; Copenhagen filters its spring and well waters; Charlottenburg filters its well water; Stockholm filters the lake and well water, and the spring and lake waters supplying Stuttgart are filtered.

SLOW SAND FILTERS.

The question as to the best means of purifying a water-supply is debatable only in this country. In Europe it has long since been satisfactorily settled. European experience, covering a period of over fifty years and a territory inhabited by over 20,000,000 people, has conclusively demonstrated the efficacy of slow sand filtration, and as yet there appear no reasons for departure from European usages, except in those few, very few, instances where the turbidity of the water is such that slow sand filtration is inadmissible (and even in such events a slightly modified form of slow sand filtration can be applied with perfect success.) If slow sand filtration has proved so eminently efficacious in reducing the typhoid death rate to a minimum, why in the name of common sense look for something "just as good."

Whence that sudden desire of our politicians to be economical? Whence that unexpected concern about expense manifested by the political bosses of Pittsburg and other cities? Whence that peculiar fascination for the "mechanical" filters with their patents and royalties? Slow sand filters can be built just as cheaply as any community can afford. The Lawrence filter cost only $65,000 and answered the purpose well enough; and if additional expense is incurred it should only be to save in the cost of maintenance, as in the case of covered filters, which save the cost of removal of ice, etc. The first cost of a slow sand filter is fully covered by the saving in operating, the simplicity of the operation and the certainty of results. Mechanical filters, on the other hand, are costly to maintain, suffer much more from wear and tear, and are certain in their results only when operated by such experts as Fuller and Weston.

Neither the typhoid death rate of cities using mechanical filters nor actual investigation of their efficiency show them to be on a par with slow sand filters. Butler's terrible epidemic was due to a mechanical filter which "got out of order," as every mechanical device is liable to, and the city of Chester is having continuous trouble with its water-supply, although the water company uses a mechanical filter. Mechanical filters, however, are not the only things in the way of proper purification of a water-supply. Many of our cities waste thousands of dollars on artesian wells which run dry, as happened in Albany before the introduction of sand filtration, or on artesian wells which are so loaded with iron as to ruin the pipes, as in Gloucester, N. J., or so-called artesian wells which derive the water from a polluted river, as is the case in Camden, N.J.; on huge sedimentation basins which fail to bring about purification, as in Washington, D. C.; on impounding reservoirs which become polluted, as is the case in many of our cities. Public funds are wasted on infiltration galleries, cribs and other makeshifts, while the typhoid death rate goes on unabated. As an excellent object lesson I may cite the city of Wilmington, Del., not because this city is exceptional in this respect, but because I am more familiar with the facts.

In 1893 this city, through its representatives, plunged into a scheme of water purification which proved unique. Unique in conception, unique in construction and unique in the failure to bring about the expected results. It was an iron-clad system of upward sand filtration, representing a conglomeration of forced oxygenation and Anderson's iron process. In addition to the roar of the rushing water and the rattle of revolving iron rods, loud enough to scare the evil spirit, the plant presents a series of ducts and troughs through which the raw water was made to pass into a small compartment called a sedimentation basin, and thence upward through 3 feet of sand and gravel. The revolving rods refused to give up their iron, the air could not saturate a water already saturated with dissolved oxygen, the sand beds became clogged permitting the raw water to overflow from the side ducts into the "filtered" water, and the all-elaborate scheme proved a failure. After an experience of some ten years, during which time, by the way, the people were continuously being assured that the filter does excellent work, the plant was abandoned, and the new board of water commissioners is getting ready to build a slow sand filter.

During the same year this "filter" was built (1893), the city of Lawrence, Mass., built a slow sand filter under the direction and supervision of the Massachusetts State Board of Health. It cost the city of Lawrence about one-third what the Wilmington filter cost, and the Lawrence filter is still doing excellent work. The effect of each filter on the typhoid death rate is shown by the following table of the death rates from typhoid fever in Lawrence, Mass., and Wilmington, Del., before and after the introduction of filtration:

DEATH RATE PER 100,000.

	Lawrence. Slow Sand Filter.	Wilmington, Special Filter.
1885	42	47
1886	57.5	46
1887	117.5	65
1888	120	53
1889	137.5	50
1890	133.3	89
1891	122	53
1892	111.1	43
1893	86.6	64
1894	50	41
1895	18.6	20
1896	16.2	31
1897	13.9	40
1898	33	61
1899	18.1	48
1900	18	41

What better demonstration could one desire? Here are two cities with about an equal population, both supplied with polluted water, the pollution in the one (Lawrence) being greater than in the other and the typhoid mortality correspondingly greater. Both cities introduce systems of purification; one a slow sand filter, the other a conglomeration of mechanical devices. The death rate in the one with the sand filter rapidly subsides and keeps on diminishing, with the exception of the year 1898, when the filter had to be cleaned and replaced, the death rate in the other keeps on hovering at the same high point, with only such oscillations as may generally be expected from year to year.

The reason for the blunder in this and in similar instances lies in sheer ignorance. The water commissioners, who are laymen without the slightest conception of the problems involved, are approached by some scheming engineer, are shown a golden brick and made to believe that it is precious metal. Disinterested experts, as a rule, are not consulted, reliance being based entirely on their own imperfect judgment. In some cases, junket trips are made to no purpose save the pleasant recollection of a "good time"; and, again, in others "financial considerations" enter as an important and controlling factor. The result is invariably the same; the public is fleeced of its money, and the ravages of typhoid fever continue.

PURIFICATION OF WATER SUPPLY UNDER CONTROL OF SANITARIANS.

There is only one way to remedy this crying evil, and that is to place the entire responsibility of selecting a

water-supply or of adopting some method of purification in the hands of a competent body of sanitarians, like the state boards of health, or, in case the latter is incompetent to cope with the problem, in the hands of a special commission of recognized sanitarians. In Germany the duty of guarding the public water-supplies devolves on the imperial board of health. In this country, where each state enjoys its home rule, the power should be vested in the state board of health. This is practically being done in the progressive state of Massachusetts, with what results may be seen from their mortality statistics. Where the state board is weakened by ill-advised political appointments, or where the proper legislation covering this point can not be secured, the physicians, represented by their medical societies, should exercise a controlling influence.

When a problem of such magnitude as a water-supply is presented, where so much is at stake, the physicians should step forward and safeguard the community against the results of an ill-advised move. In their medical societies they should appoint competent committees to investigate the points at issue and to submit reports based on a thorough sifting of the evidence. With such reports, the society can easily mold public opinion and force the adoption of such measures that would best serve the interests of the community. This was done by the medical society of Washington, D. C., when the question of filtration was being discussed. What the medical society has accomplished is matter of congressional record, of which the society, especially its able committee, may well feel proud. It was due to their zealous efforts and able management that the official recommendations of Colonel Miller were set aside and a system of slow sand filtration adopted instead of mechanical filtration as originally recommended. It is a matter of extreme regret that the medical societies of Pittsburg and of other cities similarly situated do not take up the noble work of preventing typhoid epidemics.

The prevention of pollution of a water-supply with sewage should receive careful consideration. It is past human understanding that in a civilized country one community should be permitted to discharge its raw sewage into the drinking water of another because it happens to be separated by a state line. It is an offense for communities in Pennsylvania to pollute each other's drinking water, but it ceases to be an offense when the town of Coatsville, Pa., discharges its raw sewage into the Brandywine, a small stream supplying Wilmington with drinking water. There should certainly be a law requiring all towns and cities which find it necessary to discharge their sewage into a stream, to purify the sewage before it enters the stream. Such a law could be enacted by each state separately and the benefits would be reciprocal. That sewage can be successfully purified is shown by the investigations of the Massachusetts State Board of Health and by the experience of cities in this country and abroad. It appears that the septic tank method is the one promising the best results.

Wherever these general measures can not be introduced, or pending the introduction of such measures, efforts should be made to prevent the discharges from typhoid patients from reaching a water-supply, either general or local, municipal or individual. This can be accomplished in one way only, and that is by a thorough disinfection of the excreta of typhoid patients. To accomplish this the Wilmington Water Department made an appeal to the local physicians asking them to report the cases of typhoid fever and see to it that the attendants on the sick follow the directions given on a special card prepared by the department. The circular letters, together with the card of instructions, are here given. I have reason to believe that the scheme is working satisfactorily.

First Circular Sent Out to the Physicians.

Dear Doctor:—Pending the introduction of an efficient system of purification of our water supply, the Board of Water Commissioners is making an effort to protect the Brandywine Creek against pollution, and more especially pollution with discharges from persons suffering from typhoid fever. To accomplish this the board has asked the city and state boards of health, through their respective secretaries, to request the physicians practicing along the Brandywine watershed to notify the proper health officers of all cases of typhoid fever occuring in their practice along the Brandywine Creek or any of its tributaries; these reports to be forwarded by the health officers to the water department. As soon as a report is received a circular letter will be sent by the water department to the physician in charge of the case, giving full directions as to the proper method of disposing of the fecal discharges. The physician will be asked to place these directions in the hands of the attendants and see to it that they are carried out.

It is thus evident that the first and most important step in carrying out the plan as outlined above is the faithful and expedient notification of cases of typhoid fever, and we earnestly appeal to you individually to co-operate with us in this important undertaking.

The city of Wilmington, with a population of over 80,000 people, depends for its water supply on the Brandywine Creek, which, as you no doubt know, is exposed to contamination all along its watershed of over twenty miles. The recent sad experience of Butler, Pa., where, to quote an authoritative report, "impure water and lax sanitary administration," resulted in a typhoid epidemic of about 1,300 cases with 60 deaths, and a similar epidemic in Ithaca, N. Y., of 1,300 cases and 73 deaths, not to mention several other typhoid epidemics in this country, point to the danger to which Wilmington, similarly situated, is exposed. Moreover, the experience of Plymouth, Pa., in 1885, shows that the pollution of the drinking water with the fecal discharges from just one typhoid patient was sufficient to precipitate an epidemic of 1,104 cases and 114 deaths.

This danger, which is by no means exaggerated, can be largely removed by the active co-operation of the physicians with the health authorities in securing the strict observance of such sanitary precautions as will prevent the contamination of the drinking water with living typhoid germs. The measures now proposed by the water department for the protection of its own watershed will, we believe, secure the desired immunity, provided, however, the active co-operation of the physicians can be obtained.

You now realize the responsibility we place on you, and we feel confident that you, as a physician and fellow-citizen, will respond to our request and notify your health officer of every case of typhoid fever, however mild, occuring in your practice within the district bordering on the Brandywine or its tributaries.

Respectfully,

Circular Letter Accompanying Card of Instructions.

Dear Doctor:—We received from ———— the information that you have under your charge a case of typhoid fever in the home of ————.

In pursuance of our plan outlined in a previous communication, we ask you to place the inclosed circular into the hands of the nurse or attendants and use your influence in persuading them to carry out the instructions.

Should you experience any difficulty in the matter by reason of indifference on the part of the people, or should the family be too poor to purchase the necessary disinfectants, you will greatly oblige us by communicating the fact to the undersigned.

In endeavoring to prevent the pollution of our drinking water we fully realize the difficulties which we will encounter and which we will be unable to overcome unless we are favored by your hearty support and co-operation. May we suggest that you make the disinfection of the excreta a subject of inquiry at your regular visits so that the attendants may see that you are taking a personal interest in the matter and thus become more fully convinced of its importance?

Respectfully yours,

To the Attendants. Preserve for Reference.

HOW TO TAKE CARE OF THE DISCHARGE FROM TYPHOID PATIENTS.

A CIRCULAR OF INSTRUCTIONS ISSUED BY THE WILMINGTON WATER DEPARTMENT.

Typhoid fever is caused by a germ which finds its way into the food or, more frequently, the drinking water.

The germ causing typhoid fever is *invariably* derived from the stools and urine of persons suffering from the disease.

The disease may be also communicated through soiling one's hands with the discharges and then permitting the hands thus soiled to come in contact with the food.

Infection may be prevented by destroying the germs in the discharges by means of disinfectants.

Therefore, to save yourself as well as others from infection, observe the following precautions:

1. Keep on hand a five-gallon jug or other suitable vessel filled with any one of the following solutions:

Solution No. 1. Chlorid of lime of the best quality, guaranteed to contain at least 25 per cent. of available chlorin and free from a strong odor on opening the box, 6 ounces to each gallon of water.

Solution No. 2. Formalin (40 per cent.) 5 fluid ounces to each gallon or a little over a pint and a half to the 5 gallons of water.

Solution No. 3. Carbolic acid 4 ounces to the gallon or a pint and a quarter to the 5 gallons of water.

The choice of any of these solutions should be determined by the ability to obtain the pure article. Whatever solution is used the vessel should be kept tightly corked.

2. Have the receptacles for the stools (bed-pan, night-chamber, etc.) provided with a closely-fitting lid, or improvise a lid from several thicknesses of paper with some weight over it. It is better to have two receptacles of a kind so that a clean one may always be on hand for the patient's use.

3. When required for use, put 1 pint (2 glassfuls) of the disinfectant into the vessel (or if the urinal is used, one-quarter of a pint) that the discharges may come in contact with the disinfectant on their very issue from the body. No harm is done if some of the disinfectant should happen to spill on the bed clothes.

4. Remove the vessel containing the discharges to some secluded place in the house, add enough of the disinfectant to completely cover the discharges, stir up the contents with a small stick, replace the lid and allow it to stand for at least two hours. Remember that the longer you permit the discharges to come in contact with the disinfectant the more harmless do they become and the less obnoxious to handle.

5. If there is no water closet in the house, the discharges, after the disinfection, should be buried in the soil at least 100 feet from any well or stream.

6. When your hands become soiled with the discharges, they should be washed, first in the disinfectant (neither of the disinfectants will injure the skin) and then with soap and water.

7. All articles of the patient's clothing which have become soiled, and all the sheets, towels, napkins, etc., used by the patient should be kept in solution No. 2 or 3 (not in solution No. 1) until they are washed.

8. Use the disinfectant freely on all occasions requiring cleansing of soiled surfaces, and remember that "an ounce of prevention is worth a pound of cure."

Such precautions, if rigidly enforced, with the aid of proper ordinances or legislative enactments would practically eliminate pollution of sources of water-supply, especially in the country. I use the term "practically" advisedly, for pollution may still occur from "walking" typhoid patients, and from patients whose disease is either wrongly diagnosed or from the urine of convalescents. In addition, there will still be some physicians mean enough to disregard all rules and regulations, physicians, who, to save themselves a little trouble will jeopardize the lives of hundreds.

Generally speaking, the eradication of typhoid fever will depend on the closing of all avenues by which the formidable enemy may gain entrance, and the successful issue of the combat will depend on the strategy and erudition of our most important warriors—our sanitary officers and the medical profession.

DISCUSSION.

DR. G. T. SWARTS, Providence, R. I., said that in the state of Rhode Island for four or five years a small mechanical filtration plant has been in constant use. The amount of water used is a matter of only 250,000 gallons per diem, still, as the system which is used is but one initial of what might be 100 of the same form, there is no reason why the result should not be the same. Its efficiency is supervised by the State Board of Health. It seems to be necessary that some state or municipal authority shall have control of all filtration plants owned by individuals or by corporations, with the power to make changes in the administration of the works, otherwise failure is apt to result.

DR. A. ROBIN said that he is under the impression that when mechanical filters work satisfactorily they are under the control of experts, or are on a very small scale. In a large plant, when there is a desire to save time or money, and competent supervision is lacking, a filter will fail. On the other hand, the operation of a slow sand filter is much simpler and works with more certainty. Wherever careful supervision by trained men is possible the mechanical filters may prove equally efficient.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

HARVEY CUSHING, M.D.
Associate Professor of Surgery, the Johns Hopkins University.
BALTIMORE.

(*Concluded from page 1008.*)

FURTHER ANATOMIC AND PHYSIOLOGIC NOTES.

One of the most important chapters in Krause's valuable monograph deals with the *"Physiologic des Trigeminus,"* and the painstaking observations, drawn from the study of his first thirteen cases, are therein recorded. It is regrettable that in his more recent (1901) communication, containing fourteen additional cases, he has limited his communication, as have most other surgeons who have reported on cases of ganglion extirpation, purely to the operative respects of the procedure with little, if any, comment on the consequences of the neurectomy. There are many points referable to the distribution and function of the trigeminus which still need elucidation, and no opportunity comparable with this clinical one is offered to the anatomist or experimentalist for their determination.[36]

Sensory Anesthesia.[37]—A more or less accurate knowledge of the trigeminal fields has been gained through several methods of observation, attached to many of which there are distinct drawbacks. The anatomic dissections of Frohse and Zander fail to give the functional distribution; the experimental method, carried by Sherrington on the ape to its highest possible attainment, is seriously blocked by the impossibility of communication, so necessary for the interpretation of sensations; Henry Head's observations on the segmental fields determined by the distribution of zoster (objective) and of referred pain and tenderness (subjective) fail to give sharp outlines for the individual areas; and so on. A study of the fields of anesthesia, after a purposeful intracranial neurectomy in man, is comparatively free from these limitations, particularly when combined with the study of the areas resulting from lesions of the adjoining (postaxial) nerves. A series of such operations, all conducted on similar lines, gives an opportunity of establishing what may be considered the normal or average field and also of determining its variations; these data the study of isolated cases can not give. It is necessary, furthermore, that the completeness of the neurectomy be assured for observations made after partial extirpations or non-surgical lesions have heretofore been responsible for much uncertainty in regard to the physiology of the nerve. Accompanying most of the 20 histories recorded above are photographs of the patients, taken usually on or about the tenth day and portraying the areas of postoperative cutaneous anesthesia as they had been plotted on the face. Considerable variation is shown in the posterior confines of the field in the earlier cases, but when it became an invariable practice to follow a given

36. Tedious and time-consuming as are the necessary examinations, patients, who have been relieved of their pain, will, almost without exception, gladly co-operate in them, and to these twenty individuals I owe many thanks, not only for their help in this respect, but for the privilege of reporting on their case and of reproducing the foregoing photographs.

37. A study of the trigeminal fields in detail has been made the subject of another communication (The Johns Hopkins Hospital Bulletin, July, 1904) and the results only need be summarized here.

method of making the tests it soon became evident what slight differences there were from case to case in the configuration of the boundaries.

It may be said, in general, that two lines, seen in their typical and almost unvarying outline in the photographs of the more recent cases, can be easily mapped out. One of them, the more posterior, delineates the area of tactual anesthesia as tested with a hair esthesiometer. This boundary, starting from the midline of the vertex at a point somewhat posterior to the bregma, runs obliquely forward and then downward across the parietal region of the scalp until it approaches the attachment of the ear, when it curves backward, inclosing a portion of the ascending rim of the helix, together with the crus of the same; thence, at the upper edge of the tragus, it dips into the external auditory meatus, the anterior and upper wall of which as far as the drum is anesthetic; it reappears at the lower edge of the tragus, curves upward over the cheek at a somewhat varying angle, then turns downward and, keeping at a distance of about 5 cm. from the angle of the inferior maxilla, crosses its horizontal ramus and reaches the median line again, a few centimeters below the mental eminence. Ascending from this mesial point to the lower lip, into the mouth (Fig. 33), over the gum, along the lingual frenum and tongue as far back as the circumvallate papillæ; here the boundary again deflects from the median line, passing along this row of papillæ to the palatoglossal fold, thence to the anterior pillar of the fauces, the margin of the soft palate and uvula, at the tip of which the midline is again reached, and this it follows until it returns again to the starting point on the crown by way of the midline of the soft and hard palate, the alveolar process, the upper lip, nose and forehead. The entire Schneiderian membrane of the operative side is, of course, devoid of sensation other than that of olfaction, for the sense of smell is unaffected. There is one detour of this line, namely, where it crosses the pharynx, that has been omitted from the above, as I am not quite certain whether or not there is a strip of esthesia which separates the oral from the pharyngeal areas. It is, however, demonstrable that the Eustachian orifice is, at least, hypesthetic, and it is quite probable that the mucous membrane field bears the same relation to this opening that the skin field does to the external auditory meatus, as would be expected on morphologic grounds. The first visceral cleft, the anlage of the ear, headward to which the trigeminus is the only sensory nerve, presents, as it were, more or less of a natural barrier to overlapping, since the nerves reach the skin before the ventral closure of the cleft. The auditory canal is consequently a place of anchorage, so to speak, at which the trigeminal outlines remain fixed, no matter how they may be otherwise altered from the embryologic condition through the later development, particularly of the occiput and lower jaw, into their adult configuration. The tragus and a small portion of the helix, inclusive of its crus, develop from the mandibular bar on the trigeminal side of the cleft and naturally are sensatized by the fifth nerve. In the last five or six cases the external auditory canal has been carefully tested, showing, as a rule, that its upper and anterior wall are rendered anesthetic, together with a greater or less part of the tympanum, tapping on which with a horse hair, through a speculum, gives only the auditory sensation of loud rapping without the sensitiveness evinced on the opposite, the normal side. In one of the cases the drum was bisected by the handle of the malleus into an anterior anesthetic and a posterior normally esthetic field. A negative, so to speak, of the trigeminal skin fields may be determined by outlining the areas of anesthesia consequent on cervical nerve lesions (Fig. 34) and the combination of the two suffices to show the presence of a small intervening area within the concha presumably innervated by a cutaneous branch from the vagus.

An exception must be made to the statement of completeness of tactual anesthesia within the confines of the mucous membrane field outlined above. The anterior portion of the tongue is not totally deprived of its sensation by the neurectomy, certain forms of common sensation being preserved, and I am inclined to believe that the impulses travel, together with the taste fibers, by way of the chorda tympani and facial nerve (*pars intermedia*) to the brain.

The line which limits the field of analgesia is generally a few centimeters within the line of tactile anesthesia, does not, as a rule, extend to the tragus, and has other peculiarities which cannot be discussed here. It may be said, however, that in the intervening zone between the boundaries for pain and touch, shown in the later photographs, painful impulses give no dolorous sensation, but only the impression of contact or pressure.

Muscle Sense.—After a total neurectomy, this is completely abolished in the trigeminal field and may be of serious import from an operative and cosmetic standpoint. Careful observation will show in all cases a more or less marked asymmetry of the face, apparent not only at rest, but also during volitional or even emotional movements of the face. At rest, particularly during the early postoperative period, the face seems somewhat swollen, due in part to the vasomotor paralysis, but chiefly to the loss of postural sense; the lips droop slightly, the nasolabial fold is less deep than normal and there is a general loss of tonicity in the expressional musculature; the position of the tongue and palate are also affected. The condition may be accentuated by volitional movements; whistling or "trumpeting" out the cheeks is difficult or impossible; the mouth distorts in an effort to show the teeth by opening lips alone, etc. Expressional movements also may be affected, though usually in less marked degree and depending, I presume, on the character of the cortical control through the facial nerves over these normally symmetrical movements. On one occasion (Case 20) I was astounded on the fourth or fifth day to see develop what was supposed to be a total facial paralysis. No movements whatever were possible in the facial musculature on the operative side; lagophthalmus and all the other signs of a typical Bell's palsy were present. Persistence of normal electrical reactions, however, banished this opinion. Normal control was soon regained. I doubt not that some of the complicating cases of facial paralysis heretofore recorded have been of this nature.

In view of Sherrington's experiments on the production of monoplegia, by the severance merely of the sensory nerve-roots alone to a limb, it would not be surprising had immobility of half of the face proved to be an invariable consequence of ganglion extirpation. It is probably obviated through the bilateral character of facial movements. At a later period, months or years after the operation, so far as I have made out, there is apt to be an overaction of the muscles on the operative

side, with perhaps a slight deepening of the nasolabial fold and of the furrows radiating from the eye (crows-foot). There is a very simple way of demonstrating the absence of postural sense, for faradization of the muscles is accompanied by no appreciation of their changed position, provided the movements are not sufficient to be transmitted to the opposite side. The electrical "sting," of course, is unappreciated, other than by a "coppery" taste, in case the electrode lies within the anesthetic area, and, indeed, there is no better way to mark out areas of tactual anesthesia than by the sting of a fine unipolar platinum electrode.

Motor Paralyses.—The necessary sacrifice of the motor root of the trigeminus has already been discussed in connection with the operative procedure. That the chief muscles of mastication, the temporal, masseter and pterygoids, on the side operated on, are consequently paralyzed needs no comment. The atrophied muscles undergo a fibrous change, with subsequent contracture, as has been mentioned. Paralysis of the pterygoids affects, in a measure, lateral chewing movements, and on opening the mouth the deflection of the jaw toward the side operated on evidences the unilateral loss of function of these two muscles. The protruded tongue, also,

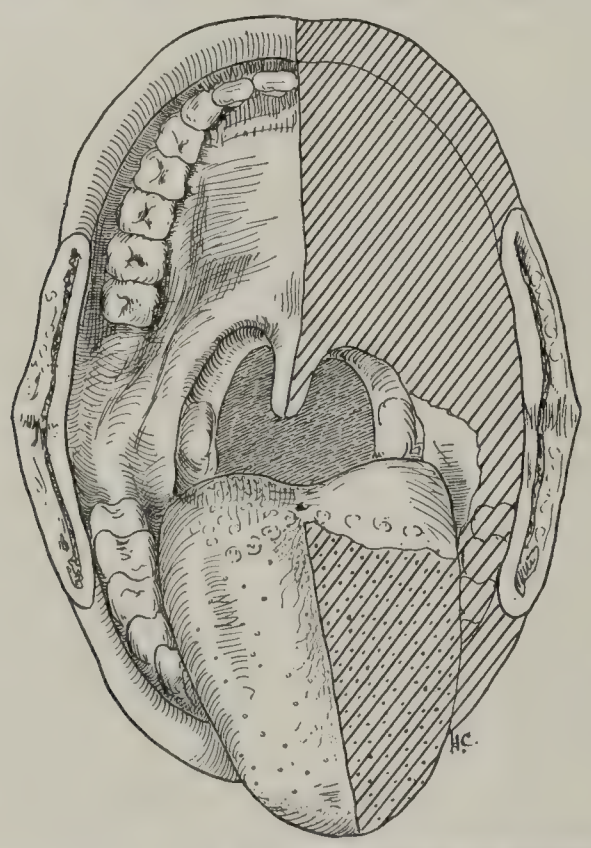


Fig. 33.—Schematic view of visible portion of mucous-membrane field of anesthesia. Lingual area retains its sensitivity to taste, as well as to certain forms of common sensation.

is usually deflected toward the operative side, not, however, from any palsy, but because it tends to keep in the median line of the deflected jaw from which it obtains its sense of orientation. Loss of muscle sense in the anterior portion of the tongue, as in the case of the facial muscles, may play some part in bringing about the postural attitude of the protruded tip, and with the organ at rest in the mouth it is often apparent that on the side operated on it lies lower than on the sound side. Of the buccinator muscle I have no data except that food is likely to collect in the cheek until training overcomes the difficulty, a condition probably due to the anesthesia of that side of the mouth and to interference with postural sense rather than to any palsy of the cheek. The muscle probably receives its entire motor supply from the facial nerve, its sensory fibers, according to Henle, being of trigeminal origin. A palsy of the mylohyoid and anterior belly of the digastric is evident on palpation in the majority of cases, but leads to no visible or functional disturbances.

Two other muscles, the tensor tympani and the tensor palati[38] are said to be innervated likewise by the trigeminus. The position of the drum, its degree of tension, the ability to recognize high-pitched sounds with a Dalton whistle, have been in most cases carefully looked into without evidencing any postoperative disturbance with sufficient regularity to accredit it to a paralysis of the tensor tympani. One of my cases, as did one of Krause's, complained for some time of a ticking sound on the side operated on, which could not be accounted for in any such simple way as by the presence of dried blood or of cerumen in the external ear. Other than this the patients seem to have been free from symptoms referable to the ear.[39]

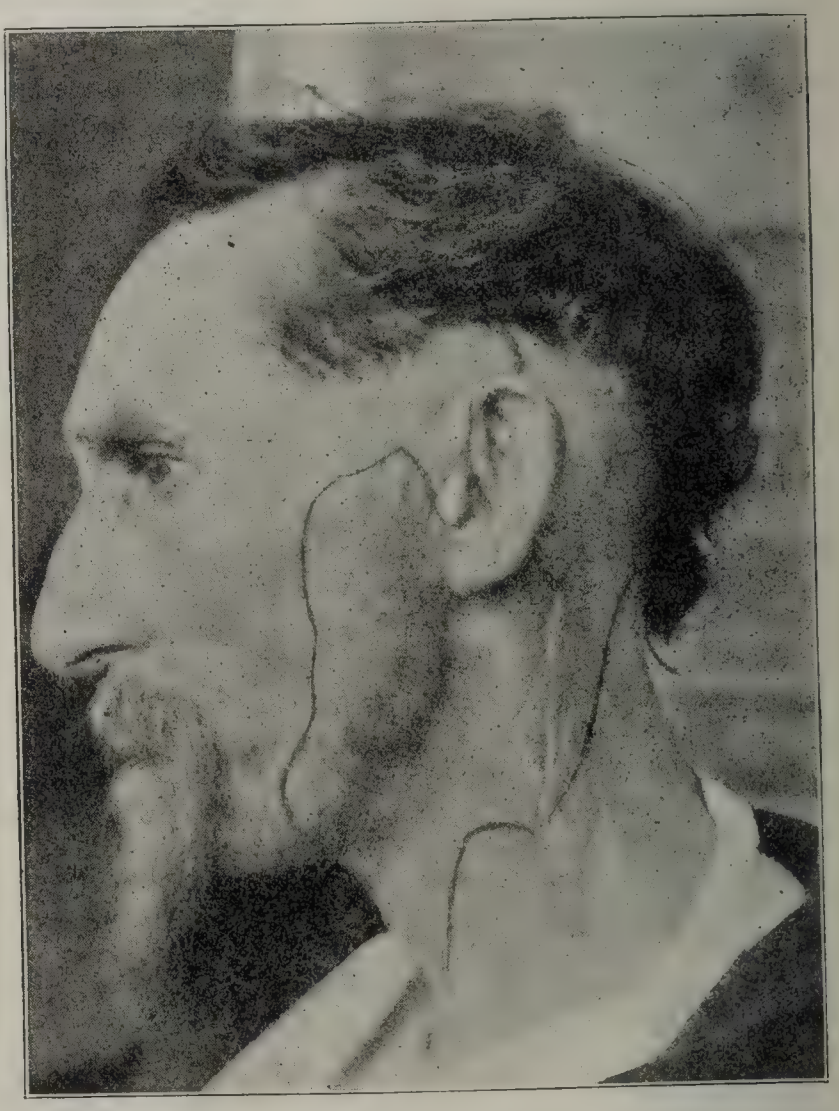


Fig. 34.—Area of tactual anesthesia, due to an intervertebral enucleation of the right dorsal root ganglia of the second and third cervical segments, in a case of neuralgia of this region.

It is otherwise with the tensor palati, if that is the palatal muscle affected by the neurectomy. The innervation of the muscles of the soft palate has long been a question of dispute. There are three possible sources of supply: according to Sir Charles Bell, through fibers from the portio dura (*N. facialis*) acting through Meckel's ganglion and its posterior palatine branches; Hughlings Jackson attributed them to the accessory nerve of the vagus; others believe that they are entirely or in part supplied by the trigeminus. The studies on which these claims are based and the arguments raised against them need not be entered into

38. *N. tensor veli palatini* (Anat-Nomen).

39. Lucae in 1874 in his essay on "Accommodation" showed the importance of the M. tensor tympani in perception of musical tones. Subjective humming or ringing in the ears has been reported (Schmidt, Müller) as a symptom accompanying the early stage of the involvement of the ganglion in a disease process.

here.[40] More than one source of supply, however, is probable, and there is quite conclusive evidence adduced by Turner, Hughlings Jackson, Beevor and Horsley, with others, that the accessory nerve of the vagus is a partial, if not the entire, source, as they claim. Turner says: "It would seem, therefore, that the muscles of the soft palate derive their motor supply from the pharyngeal plexus through the pharyngeal branch of the vagus and that this nerve obtains its sensory fibers from the accessory nerve to the vagus." He doubts the possibility of the tensor palati receiving any motor supply from the trigeminus, although Bell, Romberg, Gowers and others have held this opinion. Krause, alone of those who have reported on the postoperative physiologic sequelæ of ganglion extirpation, makes mention of palatal examinations and has seen no postural anomalies whatever.[41] I have always attempted before the operation, when the patient's condition allowed, to examine the position of the palate both at rest and during phonation, and, although unfortunately in several of the cases in which the most marked postoperative changes were observed a preliminary palatal examination had been precluded owing to the severity of pain, nevertheless the data, such as they are, seem suggestive, if not convincing. A characteristic postoperative asymmetry has been demonstrable in several cases; a condition which remains permanent. Four of these cases were found beforehand to have symmetrically placed palatal arches. The characteristic position may not always be apparent except on phonation of the sound "ah," or especially of a prolonged "eh," which accentuates the weakness of the arch on the side operated on. The abnormal position consists in a tilting of the uvula toward the side of the neurectomy, in a narrowing and heightening of the arch on the sound side, and with a broadening and lowering, apparently from relaxation, of the arch on the operative side. The deformity can not be accounted for, I think, by the deflection of the jaw during the palatal examinations or by any other possible connection with the paralyzed pterygoid muscles.

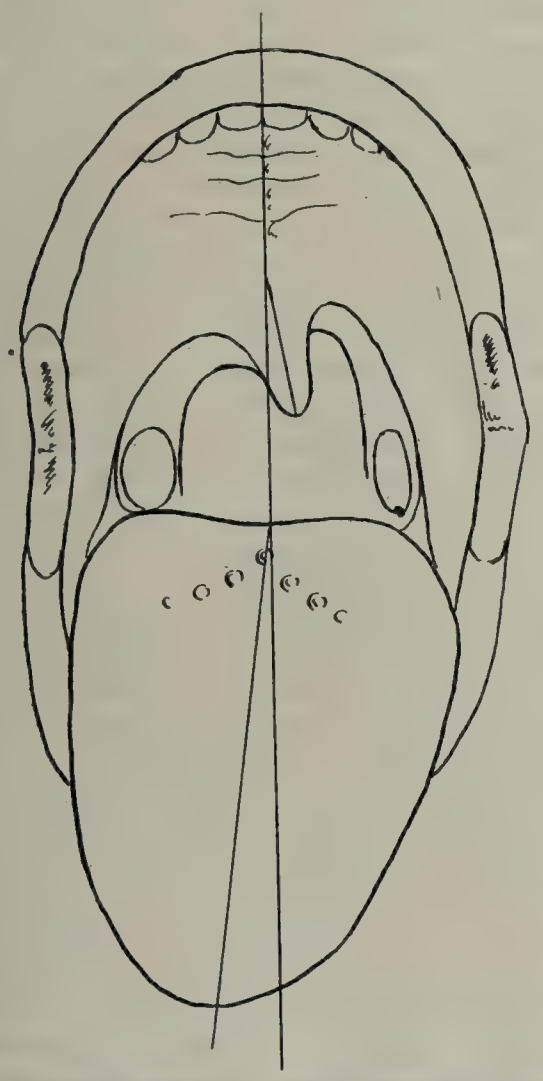


Fig. 35.—Postural deformity after extraction of right ganglion (Case 7). Deflection of jaw and tongue to right and of uvula to left; heightening and narrowing of fauces on left during phonation, not apparent on right.

The necessity of preliminary observations is very important, and not until they had been made in a series of cases not only in these, but in other and normal individuals, was the frequency of asymmetrical positions, especially in the uvula, fully appreciated. In some of the ganglion cases the uvula, even though the arch of the palate has shown the characteristic features described above, would be deflected toward, instead of away from, the paralyzed side, and I have not included these irregular cases in the group mentioned above. More conclusive still of a trigeminal supply to the palate is the fact that in one case after the extirpation (Case 12) the stump of the *N. mandibularis* was electrically stimulated, and with the mouth held open sharp contractions with deflection of the palate were produced, an observation which was several times repeated, though only on this single case. This result is not in accordance with the observations of Reid (quoted by Turner), as he failed to elicit any such movements on trigeminal stimulation in animals, and apparently only on excitation of the accessory nerve of the vagus have experimentalists been able to elicit movements of the palate, at least up to the time of Turner's report. There is one very important case in this connection in which, unfortunately, it was impossible before the operation, owing to the patient's condition, to make preliminary observations. In this patient Meckel's ganglion had been removed at a previous operation, the motor supply of the soft palate, as stated above, being supposed by some to come from the portio dura via this ganglion to the palatal muscles. In this patient, as the accompanying outline (Fig. 35) will show, the deformity has been more marked than in any other of my cases, and the patient, a public speaker, says that when fatigued or when talking rapidly he has some difficulty with pronunciation of the palatal sounds. The tensor palati plays the additional part of opening the Eustachian tube during deglutition, and its paralysis may very naturally lead to some of the subjective noises in the ear which have been described as resultant to ganglion extirpation. It is an interesting fact that not only the sensory supply of the trigeminus remains fixed in the adult at both the auricular and pharyngeal orifices of the passage which has developed from the first visceral cleft, but also that the two small muscles which, from the mandibular side, play a part in the physiologic actions of the canal are innervated, supposedly through the otic ganglion by the motor branch of the same nerve.

Taste.—A report has already been made summarizing the results of observations on the first thirteen of these cases in reference to the possibility of a path for the taste fibers by way of the fifth nerve.[42] It is needless here to do more than add some notes to this pre-

40. Aldren Turner: The Innervation of the Muscles of the Soft Palate. Journal of Anatomy and Physiology, vol. xxiii, 1889, p. 523.

41. Krause: *Die Neuralgie des Trigeminus.* 1896, p. 85. *"Ich habe in meinen Fällen keine Stellungsanomalie von irgend welchem Belang am weichen Gaumen bemerkt."*

42. The Taste Fibers and Their Independence of the N. Trigeminus. The Johns Hopkins Hospital Bulletin, vol. xiv, 1903, p. 71.

viously detailed account. Although there is no morphologic basis whatever in its support, a great number of clinical observers have found that lesions of the trigeminus are accompanied by a loss of taste on the anterior two-thirds of the tongue on the corresponding side. Thus has originated the belief in a devious path for the fibers conveying these sensations, the most generally accepted being the following: from the tongue via the lingual nerve to the chorda tympani and so to the geniculate ganglion; thence by way of the great superficial petrosal to Meckel's ganglion, to the maxillary ramus, and thus via the Gasserian ganglion to the trigeminal nerve and to the brain. It would seem that a study of cases of trigeminal neurectomy would have finally determined whether or not this is the actual course taken by these gustatory impulses. On the contrary, the results have been most conflicting. This possibly may have been due to several causes—to the neglect or impropriety of subjecting a suffering individual to preliminary tests for taste; the more or less uncertainty regarding the total extirpation; to improper methods of making the tests; or to a failure on the part of the patient or of the observer to take into consideration the almost complete loss of common sensation from the section of tongue under examination. In my previous report it was mentioned that in one only of the thirteen cases had there been a failure to establish a final return of taste perception. This was accounted for on the ground that there is occasionally demonstrable a temporary cessation in transmission of gustatory impulses for a few days after the operation, a fact which possibly may be due to the acute degenerative changes in the lingual nerve whose fibers intimately accompany the chorda fibers for a part of their course. A single examination limited to the anesthetic side in this case (Case 1) had been made on the sixth day; it was subsequently found that the anterior part of his tongue, on both sides, did not possess any sensitiveness to the four cardinal taste qualities. It must always be borne in mind that in some individuals, especially those advanced in years, taste perception on the anterior part of the tongue may be dulled or entirely absent. Hence, the need of preliminary observations for purposes of control. In my last seven cases particular stress has been placed on these examinations for taste. In one (Case 13) there was marked postoperative impairment, and, although there is a return of gustatory sensation, sweet and saline substances are not recognized with quite a normal acuity or promptness. The next five cases showed absolutely no impairment whatever. Two of them, indeed, have believed that the taste sensations were more acute than on the sound side, as there was no confusion from other sensations associated with the placing of the moist swab on the tongue. It seemed in Case 19 that an exception to the rule had been found. Owing to her great pain and inability therefrom to protrude the tongue no preliminary tests whatever were made. Taste perception after the operation proved to be completely and permanently absent on the side operated on. It was only learned subsequently from her previous attendant that he had some years before performed an intrabuccal operation with evulsion of the inferior dental nerve and, as is so often the case, the lingual nerve and chorda tympani had at this time been divided; there had been no reunion in the fibers of the latter nerve.

Unless I have made some gross error, the evidence seems conclusive that the gustatory impulses do not, unless in very exceptional cases, and then only partially, enter the cranium in company with the *N. trigeminus*. There must be some other path for them, and I am inclined to the view of the morphologists that the chorda tympani represents, in part at least, the sensory portion of the facial, whose central stem is the *N. intermedius* of Wrisberg. I believe, also, from the facts mentioned in another section in regard to the preservation of certain other sensory qualities in the tongue, that there may be some fibers sentient to tactual stimuli which follow this same path to the brain. Overlapping from across the median line or from the postaxial field of the glossopharyngeus can not possibly account for the findings. In attempting to explain those cases in which loss of taste has been found by reliable observers to be present months or years after the neurectomy, the suggestion was offered that late fibrous changes taking place in the regenerated lingual nerve might serve in some instances to block transmission along the intermingled special-sense fibers of the chorda tympani. It should be noted, furthermore, that it may be necessary to make several tests in these cases. It has occasionally been found that on the first trial the patient may not appreciate or may fail to recognize the quality of a gustatory impulse which on a second examination, later, may be immediately identified; also, that after responding quickly and promptly to taste impressions on the anesthetic half of the tongue the patient, possibly fatigued in the interim by a long examination for sense qualities in other areas, may show a very marked delay in the recognition of precisely the same strength of solution should the gustatory tests be repeated.

AFTERWORD.

This malady, whose clinical portrayal so long ago as by Avicenna was given with an accuracy sufficient to render subsequent descriptions almost superfluous, waited 800 years before even its simple anatomic location could be understood, waited, indeed, until Bell and Majendie accomplished for the peripheral nervous system what William Harvey the century before had done for the circulation, namely, to establish a sound physiologic basis of observation. Not until Sir Charles Bell's demonstration of separate paths for afferent and efferent impulses was it possible to institute any rational surgical measures toward the relief of a purely sensory affliction. Before this time division of the motor nerve had been recommended and actually practiced for neuralgia of the face,[43] under the delusion that wise nature had provided for this important region two nerves, the fifth and the seventh, both of which subserved equally the function of transmitting motion and sensation to the same areas. It is a presumption possibly to believe that it will not require another long era before the etiologic factors of the disease are unveiled and its pathology put on an equally sound basis. Its morbid nature as yet, and this in spite of the clinical definiteness of the malady, remains a mystery; and, as a matter of fact, other diseases of the posterior root ganglia, and it is not impossible that there are many, have hardly begun to be classified. We seem to have advanced some-

43. It is interesting to know that Dr. J. C. Warren of Boston, according to Dr. Holmes' essay on "Neuralgia," published in 1836, was the first to divide the facial nerve at its exit from the stylomastoid foramen for tic douloureux. It is interesting also that associated with the resultant paralysis there followed a "limited degree of relief," doubtless from the immobility of the face which made the inauguration of paroxysms from the lips and nose, etc., much less likely.

what beyond Dr. John Fothergill,[44] who considered that the neuralgia was due to a "sharp, corrosive, cancerous acrimony"; but how much beyond, possibly a later generation alone can tell. Oliver Wendell Holmes,[45] it will be remembered, advocated most emphatically the malarial origin of the disease.

The Gasserian ganglia, which have been removed in the cases above recorded, have nearly all been subjected to examination by expert neuropathologists. Dr. Spiller[28] and Dr. Barker[11] have already published careful reports on the histologic findings of the first four of them in which they were so kind as to take an interest. The tissues from the later cases have been studied by Dr. Rusk, who feels that no lesion sufficiently characteristic to consider it typical of a particular disease is present. Numerous other ganglia, removed postmortem, have been studied as controls and exceptional opportunities for carrying out the investigation were offered by the character of the surgical material itself; several of the ganglia were from patients on whom no previous neurectomies had been performed so that cellular changes consequent on degenerations following these earlier operations led to no confusion in the histologic picture, as they so often do; furthermore, the tissues from the fatal case made it possible to compare a ganglion from the neuralgic with that from the supposedly sound side of the same individual.

The Gasserian ganglion, whether or not primarily so, in the end seemingly becomes affected, and clinical evidence goes to show that the process, whatever it be, is migratory, involving, as pointed out above, one after the other of the three groups of cells which represent the fused tripartite ganglion. The experiments which Dr. Barker and I carried out, though few in number, sufficed to show by the study of Nissl changes that the groups of cells are quite distinct, and thus it is that one cluster alone may become involved in an acute lesion like that of herpes zoster, the pathology of which Head and Campbell have done so much to clarify. The ganglion lesions which produce this segmental outcrop of herpes, particularly when occurring in individuals who have passed middle life, not uncommonly result in a vexatious so-called "postzoster neuralgia." I have seen several individuals suffering from this residual of zoster, two of them after a herpetic involvement of the ophthalmic division of the trigeminus. Though an acutely troublesome and intractable malady, it remains clinically quite distinct from true neuralgia; the pain is not paroxysmal in the same degree, and remains limited to the original field of vesiculation, showing no tendency in the case of the semilunar ganglion to migrate to the other divisions of this structure. Its severity at times may be great enough to demand surgical intervention, and here again are shown characteristics distinguishing it from the more common type of neuralgia, since peripheral operations in the postzoster form do not suffice even to give temporary relief, as I have learned to my sorrow through several failures; the posterior root ganglia must be removed.

The morbid lesion underlying true trigeminal neuralgia, unlike that of zoster, has so far eluded search and the histologic changes in the cells, the swelling and vacuolization, the chromatolysis, alterations in the tigroid, nuclear fragmentation and other departures from the normal which have been so painstakingly described are, as Coenen[46] has emphasized, due in large part, if not entirely, to the effects of earlier peripheral neurectomies and correspond histologically to the lesions found, for example, in dorsal root ganglia months after the amputation of a limb. The tissues from two of the cases in Lexer's series examined by Coenen showed no histologic abnormalities whatever; no peripheral operations had preceded the ganglion extirpation in these two cases. And with these findings those of Monari, Schwab and ourselves have been in almost exact accord.

Let us hope that some one with new histologic methods and possibly more extensive material may solve this pathologic riddle, for not until the lesion is known may we expect to discover its causal agent, and not until then may we have hopes of supplanting for surgical measures others less difficult, though they could hardly be more certain of affording immediate and permanent relief.

44. Fothergill: A Painful Affection of the Face, Medical Observations and Inquiries, vol. v, p. 129, London, 1773, Lettsom's edition of Fothergill's works.

45. Holmes: "The Nature and Treatment of Neuralgia," Boylston Prize Dissertation, 1836.

NORMAL SALT SOLUTION AND OTHER LOCAL ANALGESICS

IN THE OFFICE TREATMENT OF ANO-RECTAL DISEASES.*

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Recent discoveries and improved technic in the use of local analgesics have enabled us to treat as ambulatory cases many patients suffering from various forms of minor ano-rectal diseases whom we formerly sent to the hospital for treatment. This ofttimes obviates the necessity of putting aside all business and social obligations and of making a two or more weeks' stay in a hospital, with all its attendant anxieties and embarrassments. Such patients, with few exceptions, are now operated on at the office or at the patient's home. Before operating, if there are no contraindications, about the only question asked the patient is: "Did your bowels move to-day?" If so, and if an operation is indicated or necessary, and the patient so desires, the field is prepared and the operation is performed, either a normal salt solution or a eucain-adrenalin solution being used as the local analgesic.

In my first experiments some years ago I used cocain as a local anesthetic. In many instances the toxic effects of this drug were so alarming that I discontinued its use. Recognizing, however, the great advantages and utility that a satisfactory local analgesic would afford in treating many of these cases, I continued my investigations and experiments along these lines.

Recently, in selected cases, and quite satisfactorily too, I have used sterile water for this purpose. The use of water as an analgesic was suggested to me by Dr. Gant of New York, who has reported over 300 cases of various kinds operated on under the influence of this agent. He states, however, that the injection in some instances may cause considerable discomfort or even pain. I found this to be true, especially in those cases of acutely inflamed thrombotic piles and abscesses, or in which it was necessary to make the injections into the deeper tissues, and in cases in which the operation necessarily was prolonged.

46. H. Coenen: Mikroskopische Befunde am Ganglion Gasseri in den 15 Fällen von Lexer, Archiv für klin. Chir., 1902, vol. lxvii, p. 333.

* Read before the Chicago Medical Society, 1904.

In a cursory review of the literature, however, I find that the use of water as a local analgesic is not new. According to Dawbarn of New York,[1] Halsted used water hypodermically as a local anesthetic for small operations as long ago as in 1885. He found that it succeeded best when the water was injected into the skin, not beneath it. Dawbarn also made experiments with this agent on himself, assisted by Dr. F. A. Manning of New York.

Oscar Liebreich[2] found that distilled water produces the caustic as well as the anesthetic effect, and that those substances producing painful anesthesia cause dilatation rather than contraction of the blood vessels.

Schleich[3] noted that sterilized water, when injected hypodermically, will produce anesthesia in the region of edema. He tried the experiment on himself and on his assistants, and used it in removing a large carbuncle.

Sollmann of Cleveland[4] refers to local anesthesia produced by distension of the tissues with pure water and says that the edema is very painful.

Dr. T. C. Witherspoon, St. Louis,[5] frequently has used boiled water or air infiltration in opening abscesses.

Gould, in his recent "Dictionary on New Medical Terms," 1904, refers to water anesthesia as "anesthesia dolorous of Liebreich."

Heinze[6] of Dresden in his experimental investigations found that pure water alone is an intense irritant to the sensory nerves, and that anesthetic solutions diluted with it beyond a certain extent have the same effect, and render the injections painful. He also demonstrated that the addition of salt entirely obviated this source of irritation.

Hence, it occurred to me that some isotonic solution would be a better agent than water with which to produce pressure or mechanical analgesia when injected hypodermically. The nearest approach to this is sterilized urine or normal salt solution. The latter agent I have used very satisfactorily. The addition of salt to the water is not for the purpose of affecting analgesia, but to prevent the irritative symptoms, as it is desirable that the solution injected should give as little pain as possible and also that it should not be harmful to the tissues.

Should it be desirable, as it is in some instances, especially where the injections must be made into the deeper tissues and the operation necessarily prolonged to secure the specific action of some drug, as eucain or cocain, alone or in combination with the distension of the tissues, I then add a small quantity of eucain lactate and adrenalin chlorid to the salt solution. Adrenalin intensifies and prolongs the analgesia, and when the analgesic agent is used in combination with it, less of the agent is required to produce the full effect.[7]

SOLUTIONS.

To determine the potential effect of various solutions on normal tissues I had Dr. W. A. Evans of the Columbus laboratories make certain tests for me and incorporate herewith his report, which is as follows:

I have made use of two procedures. I have mixed the solution and freshly drawn blood, using the hanging drop proceeding and protecting the drop from the evaporation by the use of grease along the edge of the cover glass. In this way, I have been able to watch the behavior of the red blood cells mixed with this solution. In addition to this I have determined the freezing point of different solutions. I am not certain that a determination of the electrical conductivity of the solution would give any more information than is to be obtained from the two procedures already noted. I made a solution of adrenalin and eucain in a normal urine with a gravity of 1,020. I found that this froze at about 1.5 degrees. When blood was added to this mixture the corpuscles were promptly crenated. A mixture of eucain and adrenalin in from .6 per cent. to .75 per cent. salt solution seemed to be isotonic to red blood cells; on the one hand these cells did not crenate, on the other they did not lose their hemoglobin. These mixtures froze at about .5 degrees C. and at 9 degrees C. respectively. The average freezing point of blood is .56 degrees C.

It will thus be seen that these solutions are practically isotonic with blood and we would expect them to give the minimum amount of pain and the minimum disturbance of the tissues.

The following is one of the solutions that was submitted to the above tests and clinical experience proves that it answers well:

Beta-eucain lactate	2
Sodium chlorid	75
Adrenalin chlorid solution	65
Distilled water	100

This entire quantity of fluid, according to Barker of London, who has made valuable contributions to the literature on the subject of local analgesia, can be used with comparative impunity. He has used as much as 6 grains of beta-eucain hydrochlorate and 20 minims of adrenalin chlorid solution without noting any ill effects. Matas of New Orleans and others have used larger amounts. They are careful, however, not to allow more than 5 grains of the drug to remain in the system. To make the normal salt solution, put into an Erlenmeyer or Jena glass flask 3½ oz. (100 c.c.) of distilled water and 11.5 grains (.75 gm.) of chemically pure sodium chlorid. Boil for two or three minutes; when cooled to blood heat it is ready to use. To make the eucain-adrenalin solution add 3 gr. (.2 gm.) of beta-eucain lactate to the water at the same time the salt is added, and after boiling and cooling to the body temperature add 10 drops of adrenalin chlorid solution, and it is ready to use.

The cases in which I have successfully employed one or the other of these solutions to produce local analgesia include radical operations for protruding and non-protruding internal hemorrhoids; interno-external, thrombotic and cutaneous hemorrhoids; polypi, anal prolapse, fistula, fissure, ulcerations, abscesses, sacral dermoids, lipomas, condylomatas and secondary operations for colostomy.

TECHNIC.

The technic depends more or less on the nature of the operation to be performed. In internal hemorrhoids, the salt solution is injected directly into the tumor until the latter becomes white, when it is grasped with a pair of forceps and the mucosa carefully divided down to the submucosa; this tunic, which contains the principal blood vessels, is then ligated with a very fine linen ligature and the major portion cut off. As the lymphatics and circulating blood rapidly remove isotonic solutions from living tissues, the anesthesia is of short duration and the operation must be performed very quickly. In polypi, the salt solution is injected into the base of the pedicle, a ligature thrown around it and the tumor cut off. Interno-external piles are treated in the same way

1. Med. Rec., Nov. 14, 1891, p. 613.
2. "Note sur l'anesthesie locale," Compt. rend. Soc. de Biol., Paris, 1888, 8th ser., vol. v, p. 340.
3. Deutsche med. Zeitung, 1891, No. 66.
4. Pharmacology, 1901, p. 234.
5. Interstate Med. Jour., July, 1903.
6. Arch. f. pathol. Anat. und Phys., und Ztft. f. klin. Med. vol. cliii. No. 3.
7. H. Braun of Leipsic.

as the internal variety. In prolapsus ani the injection is made into the mucosa and deeper structures; sections of these tunics are then ligated and cut off.

In cutaneous hemorrhoids the skin is first anesthetized, then the central portion of the hemorrhoid; the tumor is then removed with a sharp knife. I say knife, because I have observed that scissors are more apt to cause pain than the scalpel. In all cases requiring deep or extensive operations the skin should be carefully and thoroughly anesthetized first, and then the deeper structures. Very fine needles are used for the skin, coarser ones for the subcutaneous tissues, and for the deeper structures still larger ones, which are blunt and have holes in the side instead of in the end, to avoid injury to vessels. It is important that the solution be warmed to the body temperature. Rapid injections should be avoided, as sudden distension of the tissues may be painful. For the same reason neither solution should be used when cold or too hot. Strange as it may seem, most patients complain of but little pain on the days after the operation. In fact, they have much less pain than after taking chloroform or ether, to say nothing of the suffering experienced by some in coming out from under the influence of the anesthetic, and the healing process seems to be much more rapid and satisfactory. This is probably because the resisting power of the patient has not been lowered with a general anesthetic, as it has been shown by George Rubin of Chicago[8] that the administration of ether and chloroform has a decidedly detrimental influence on the natural defenses against infection.

After hemorrhoidectomy a cone-shaped dressing covered with a piece of the thinnest rubber dam is applied to the anus, and over this the ordinary dressings, all being held in position by a snugly fitting T bandage. Should the patient complain of much pain, hot compresses or a hot sitz bath may be used and will usually give relief.

I have operated on about 75 patients under local analgesia. The aggregate amount of pain has been much less than in a similar class of cases operated on under general anesthesia. In some instances the pain was quite sharp for a few moments, but nothing in comparison with the pangs, anguish and writhings occasionally seen in patients after the ligature operation for hemorrhoids under general anesthesia. In one patient I had to abandon the operation. This was purely a case of "psychic pain." I do not believe that any local analgesia can control this nervous dread and fear experienced by some patients. A hypodermic of morphin, administered 20 to 30 minutes before operating, seems partially to control the pain in some cases. Many of these patients did not have any pain worth mentioning.

CONCLUSION.

Since practice and experience have demonstrated that effective and radical treatment in this class of diseases can be accomplished in the office or in the patient's home, and without his foregoing all business and social obligations, going to the hospital, taking an anesthetic, which always occasions more or less anxiety on the part of both the surgeon and patient, and remaining there for two or three weeks, I believe that another step in advance has been made in the treatment of selected cases in the practice of proctology.

103 State Street.

8. Trans. Chicago Path. Soc., March 14, 1904, vol. vi, No. 4.

THE APPLICATION OF LABORATORY METHODS TO THE DIAGNOSIS OF VARIOLA.

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The rapid increase of our knowledge of infectious diseases since the middle of the last century, together with the recent advances in laboratory methods, particularly in bacteriologic and histologic technic, has had a profound influence on the accuracy of medical and surgical diagnosis.

Tuberculosis, cholera, typhoid fever, anthrax, actinomycosis, diphtheria, bubonic plague, pneumonia, bacillary dysentery, and various forms of primary and secondary wound and other infections, among the bacterial diseases; trichinosis, pébrine, malaria, amebic dysentery, filariasis, trypanosomiasis, and various forms of helminthiasis, among the diseases caused by animal parasites, may be enumerated as examples of infectious diseases for the diagnosis of which laboratory methods are in constant use. In short it may be said that, as soon as the parasitic origin of a disease is established, the demonstration of the presence of the causal agent is used as the basis of exact diagnosis. Laboratory methods are also availed of in the diagnosis of certain affections whose etiology is still undetermined, as rabies, tumors and certain diseases of the blood-forming organs for instance. The methods in use for these purposes are (1) microscopic examinations (*a*) of coverslip preparations, (*b*) of sections of tissue; (2) cultures; (3) serum reactions; and (4) animal inoculations.

Recent advances in our knowledge of variola make it possible, it seems to me, to utilize two of these methods for the diagnosis of this disease.

Councilman, Magrath, Brinckerhoff,[1] and Tyzzer,[2] in 1903 and 1904, published a series of articles concerning the etiology of vaccinia and variola, in the skin lesions, of which they found certain bodies situated in the cytoplasm and nuclei of the epithelial cells, and which they describe as stages in the life cycle of a protozoan parasite, *cytorrhyctes variolæ*. These bodies, of various sizes, shapes and staining reactions, occur only in the cytoplasm in vaccinia and in both the cytoplasm and nuclei in variola.

Calkins,[3] using their variola material, has made out a very complex life cycle for this parasite, consisting of one cytoplasmic and three internuclear stages. He classes the organism among the microsporidia, a form of protozoa. More recently Howard and Perkins,[4] working on material from seventeen cases from the recent Cleveland variola epidemic, found the bodies as described by Councilman and his co-workers, and confirmed their work, with the exception of one of the intranuclear stages of Calkins, which they could not find. Howard and Perkins[4] added a second cytoplasmic stage, and according to them the life cycle of the organ-

1. Councilman, Magrath and Brinckerhoff: A Preliminary Communication on the Etiology of Variola, Jour. of Med. Research, 1903, vol. ix, p. 372. The Pathologic Anatomy and Histology of Variola, Ibid., 1904, vol. xi, p. 12. The Occurrence of *Cytorrhyctes Variolæ* (Guarnieri) in the Skin of the Monkey Inoculated with Variola Virus, Ibid., 1904, vol. xi, p. 173.

2. E. E. Tyzzer: The Etiology and Pathology of Vaccinia, Jour. of Med. Research, 1904, vol. xi, p. 180.

3. Gary N. Calkins: The Life Cycle of *Cytorrhyctes Variolæ*, Guarnieri, Jour. of Med. Research, 1904, vol. xi, p. 136.

4. Howard and Perkins: A Study of the Etiology of Variola, Jour. of Med. Research, 1904, vol. xii, 359.

ism, as far as is known, consists of four stages, a primary and a secondary cytoplasmic and a primary and a secondary intranuclear. They also found the bodies in the skin lesions excised during life, as well as those obtained at autopsy. So far as is known, these bodies in the skin lesions of vaccinia and variola, are peculiar to, and characteristic of, those diseases. Councilman, Magrath, Brinckerhoff[1] and Tyzzer[2] have found only the primary cytoplasmic stage in vaccinia.

With the foregoing facts in our possession, it is a natural step to utilize this knowledge for the diagnosis of vaccinia and variola from each other and from other diseases.

DIFFICULTIES IN THE DIAGNOSIS OF VARIOLA.

While the clinical picture of variola in its usual type, especially in well established epidemics, is clear cut and easy of recognition, it is well known that isolated cases, particularly early in epidemics, often present clinical pictures of indefinite characters and are difficult of exact diagnosis. Among the affections most commonly confused with variola are varicella, syphilis, pemphigus, impetigo contagiosa, measles, lichen, the bites of certain vermin, and certain drug rashes. Hemorrhagic variola may be mistaken for various other forms of purpura. Bancroft suggests that certain cases of variola without characteristic eruption are thought to be influenza.

To properly diagnose and isolate primary cases is of the greatest importance in the control of variola. In many instances the failure to do this is due to the ignorance on the part of a large proportion of practitioners concerning the usual and unusual clinical pictures of this disease. Largely on this account, the first cases of variola in a community go unrecognized, until after the exposure of a number of susceptible persons, and the consequent outbreak of numerous secondary foci of the disease. These occurrences often lead to disputes between physicians and health authorities. This unfortunate condition of affairs can be avoided by a ready and sure method of laboratory diagnosis.

METHODS OF LABORATORY DIAGNOSIS OF VARIOLA.

Animal Inoculation.—This method has been used heretofore to some extent. The bovinæ and rabbits will develop vaccinia after inoculation with the contents of variola vesicles and pustules. Magrath and Brinckerhoff[5] have similarly produced variola inoculata in the monkey by inoculation with variola virus obtained from three epidemics. Park[6] has proposed this method for differentiating variola from varicella.

Animal inoculation then, by the development of vaccinia in the bovinæ or in rabbits, or of variola inoculata in monkeys, may enable one trained in the appearances of the vaccinia and variola eruptions to make a positive diagnosis within from five to eight days, or within from eight to eleven days if one has to resort to the histologic study of the experimental lesions.

While of distinct value in certain instances, this method is too slow to be of general use. This is no doubt the chief reason why it has not been more widely adopted.

Study of Sections of Excised Skin.—With the possible exception of varicella, it is definitely known that none of the skin lesions which may be mistaken for variola and vaccinia, show the peculiar bodies which have lately been described in these diseases and grouped into the life cycle of a protozoan parasite by Councilman[1] and his pupils,[2] by Calkins[3] and by Howard and Perkins.[4] In the one case of varicella from which I have had the opportunity of studying sections of the excised skin, no such bodies were found.

Whether one agrees or not that the bodies described in vaccinia and in variola by the above-mentioned observers are protozoan parasites, is not of importance for our present purpose. For this it is sufficient that these bodies, in the sequences given below, are constantly present in the skin lesions of vaccinia and variola, and are absent in other affections for which these diseases may be mistaken. As they are peculiar to and characteristic of vaccinia and variola, and as the sequence of these bodies are different in these two diseases, I, therefore, propose the microscopic examination of skin lesions excised from suspected cases of variola for the purpose of diagnosticating this disease in doubtful cases. I believe that in this way a positive diagnosis can be readily made in almost all, if not in all cases, provided the technic advised below is carried out with exactness.

I[4] have studied skin lesions excised during life from eight cases of variola in different stages of the disease, from the early papular to the pustular stage, and have found *Cytorrhyctes variolæ*, in some stage of its life cycle, present in all. The cytoplasmic and intranuclear bodies are the same in all respects, whether the skin be excised during life or obtained at autopsy.

TECHNIC.

Small pieces of characteristic areas of the skin with the suspicious eruption are excised, under local anesthesia by ethyl chlorid, with the aid of a sharp knife or curved scissors. Care must be taken to obtain specimens large enough to include the whole lesion and the underlying corium. The specimens should be fixed at once in Zenker's fluid, the outside of the bottles properly disinfected, and the bottle and contents transported to the laboratory as soon as possible. Zenker's fluid is the only fixative that gives satisfactory results. It has the following composition:

Bichromate of potassium	2.5 grams
Sulphate of sodium	1. gram
Corrosive sublimate	5. grams
Glacial acetic acid	5. c.c.
Water	ad, 100. c.c

Dissolve the corrosive sublimate and the bichromate of potassium in water, with the aid of heat; add the acetic acid just before using.

From now on the time element is of importance and the fixing, imbedding and preparation of sections must be carried out with the utmost celerity consistent with good results. If the material must be sent to a distant laboratory, the time consumed by the journey will suffice for proper fixation. For fixation in Zenker's fluid, the time for small pieces of tissue may be cut down to from eight to twelve hours. By allowing a similar time for washing, the tissue may be run through the various steps for paraffin imbedding and good sections obtained in from sixty to ninety hours from the time the skin is excised. Thin sections are necessary, and I prefer them from three to four microns thick; but good results may be had with sections of seven or eight microns in thickness. Paraffin imbedding is the only method to be relied on for this purpose.

There is little chance that frozen sections may be of

5. Magrath and Brinckerhoff: Experimental Variola in the Monkey, Jour. of Med. Research, 1904, vol. xi, p. 230.

6. Park, W. H.: A Practical Method of Differentiating Between Variola and Varicella by Means of the Inoculation of Monkeys, Trans. Assn. Am. Phys., 1902, vol. xvii, p. 208.

service, but this method might be tried. It is possible that in a certain percentage of cases currettings from the deepest part of the skin lesions spread on cover glasses or slides, fixed in Zenker's fluid and stained, may show the bodies to be described below. In the one case in which I tried it, the bodies were not found. Of course, the mercury in the sections must be removed before staining. Sections may be stained by any of the following methods: (1) Eosin and methylene blue; (2) Borrel's stain; (3) iron hematoxylin, followed by aurantia; (4) Weigert's fibrin stain, preceded by carmin. The best methylene blue and eosin method is that advised by Mallory.[7] He stains first in 5 per cent. aqueous solution of yellowish eosin for twenty minutes, followed by Unna's alkaline methylene blue for five minutes. Differentiate and dehydrate in 95 per cent. and in absolute alcohol and clear with xylol on the slide. The methylene blue method is useful, however, only for the primary cytoplasmic bodies (see infra). The Borrel stain should be used as advised by Calkins.[3] After hydrating the sections through progressively weaker alcohols, stain for twenty minutes in a saturated aqueous solution of magenta (Magentaroth, Grübler), wash in water and stain for five minutes in a picro-indigo-carmin solution, made by adding one part of a saturated aqueous solution of picric acid to two parts of a saturated aqueous solution of indigo-carmin. Differentiate in the alcohols, ending in absolute, and clear in xylol. In properly stained sections the red stain is completely extracted from the nuclei of the epithelial cells, the cytoplasm of which is stained a pale green.

The peculiar bodies to be described below stain brilliantly. The other staining methods mentioned may be found in any good work on laboratory technic. Councilman has obtained exquisite pictures of the different forms of variola bodies in sections stained by Weigert's method.

For a detailed description of the bodies described below the reader is referred to the articles of Councilman, Magrath, Brinckerhoff, of Tyzzer, of Calkins, and of Howard and Perkins above referred to, which are amply illustrated. I give here simply a short objective description of what I consider as necessary for the diagnosis of variola in any stage from the papule to the pustule. For this purpose I will give as nearly as is possible the relation of each sequence of bodies to the corresponding stage of the skin lesion. Any one with a fair training in pathologic or clinical microscopy, with a good light and an oil immersion lens should be able to recognize them without any difficulty, in properly fixed and stained preparations.

CORIUM. PAPULAR STAGE.

The blood vessels, especially the blood capillaries of the papillæ, are dilated, and may or may not contain an increased amount of blood, the leucocytes of which bear their normal proportion to the erythrocytes. In hemorrhagic cases, the hemorrhage from the distended capillaries is evident. In many papillary capillaries, the endothelial cells are swollen, desquamated, and increased in number. The perivascular lymphatics show similar changes and often contain large mononuclear leucocytes.

In a few cases I have found in the capillaries and between them and the membrana propria of the skin small round homogeneous deeply staining bodies identical with the early bodies to be described below in the epithelium. No other forms of the specific bodies are found in the corium, which for our present purpose is without further interest.

EPIDERMIS. PAPULAR STAGE.

In the early papules, occasionally between but commonly within the deeper layers of epithelial cells, there are a variable number of small, homogeneous, usually round, bodies which stain deeply with nuclear dyes. These bodies in the cytoplasm, called gemmules by the advocates of their parasitic origin, are usually surrounded by small vacuoles. They may be in any part of the cytoplasm, but usually are about the nucleus. In sections stained first in magenta and then in methylene blue they stain bright red, while the nuclear chromatin stains blue. In older papules, these bodies and their surrounding vacuoles are larger—the former measuring three or more microns in diameter. They are at this stage often oval, reniform or crescentic in shape, and show differentiation with various stains.

With methylene blue and eosin, the main mass is red, with here and there unstained areas. In still older lesions the bodies are larger and show a delicate reticulum which stains, with eosin, magenta and orange. Up to this time there is little change in the epithelial cells except that those containing the bodies are swollen.

In more advanced lesions the cytoplasmic bodies are larger—from 4 to 10 microns in diameter—and very irregular in shape. In Borrel preparations they are marked by larger and smaller red dots and bars and irregular areas on a green background. About this time, fluid accumulates in the lesion and the cells are much swollen. The next forms to be found vary from six to sixteen microns in diameter, and are round, oval or oblong, and have the appearance of amebæ. With Borrel's stain (the best stain from now on), the main mass of the bodies stains green and usually numerous small, round, equidistant, homogeneous bright red dots are present. Some of the bodies at this time show a delicate red-staining alveolar meshwork. Somewhat later there are found large amebæ-like forms, in the spaces of the reticulum of which one can see numerous small, round, homogeneous deeply staining dots of the size and appearance of the earliest bodies described in the epithelial cells. These dots (called gemmules) stain with methylene blue, iron hematoxylin, magenta or fuchsin.

Similar dots may also be seen in the intercellular spaces. This entire sequence of forms is common to both vaccinia and variola. In many cases they are also found at this time in the cytoplasm of cells at the margin of the original lesion. This is believed by the advocates of their protozoan nature to be local autoinfection.

The lesion at this time contains a variable amount of fluid, which varies with the severity of the case. Many epithelial cells are swollen and some are necrotic. The vesicular stage is now well established.

VESICULAR STAGE.

When this is fully established, in many lesions few cytoplasmic forms may be found. In some lesions, however, a second cytoplasmic sequence of bodies is discernible. Of these the earliest forms so far described are small round or oval bodies staining green with Borrel's stain and yellow with the iron hematoxylin and aurantia stain. They lie in the cytoplasm, from which they are separated by a distinct membrane. Later, similar forms containing from two to four dots stain-

7. F. B. Mallory: Jour. of Med. Research, 1903-4, vol. x, p. 487.

ing with nuclear dyes are seen. The next stage in this secondary cytoplasmic sequence is the appearance of larger bodies of the same type, surrounded by a membrane, but divided into four segments by faint lines of cleavage. Neighboring cells may contain from four to eight small oval somewhat granular bodies of about the size of an erythrocyte, each containing a central chromatin-like dot. Similar forms may be seen in the intercellular spaces and in the cytoplasm and nuclei of other cells.

This completes the secondary cytoplasmic sequence, which is believed by Howard and Perkins to be the second stage in the cycle of *Cytorrhyctes variolæ* So far as is known, it is only found in well-established vesicles in variola, but never in vaccinia. The lesion at this time does not usually contain enough leucocytes to warrant calling it pustular, but this varies with the severity of the case. I will, therefore, with this explanation, describe the next sequence, the primary intranuclear stage, under the vesicle.

PRIMARY INTRANUCLEAR STAGE.

This series of forms in the nucleus is readily recognizable, and begins with the appearance, in the nuclei of the epithelial cells of the deeper rows of the variola lesion, of small bodies from three to eight microns in diameter, with granular cytoplasm and a single central chromatin-like dot. This body is identical in appearance with the end body of the last-described sequence. The smaller forms do not fill the nucleus. With the progression of the series, the intranuclear bodies are increasingly larger and more complicated in structure. The first difference in the latter respect is shown by the presence of numerous small deeply staining chromatin-like dots throughout these bodies; the next difference is marked by the occurrence of a variable number of hollow rings in addition to the dots. Later, in some forms, small peripheral vesicles, each containing a central deeply staining dot, is found about these hollow rings. In other forms the whole solid body appears to be changed into a collection of minute rings with central dots; this body has a peculiar morula appearance.

The small dots within the vesicles, on close examination with high powers, are found to be hollow, circular structures or rings somewhat thickened at one side. This third sequence is interpreted as follows by the adherents of the protozoan interpretation of these structures:

The solid mass with the central dots, which somewhat later develop numerous scattered chromatin-like dots, is the pansporoblast; the rings developing within these are the young primary sporoblasts, and the dots formed within the vesicles about these rings are the spores.

At this stage the lesion almost always contains enough cell detritus and leucocytes to be styled pustular; therefore, the fourth sequence of bodies will be described under the pustular stage of the pock.

PUSTULAR STAGE.

At this period in the evolution of the skin lesion, the superficial layers of the epidermis are markedly projected outward, with a cavity between them and the lower epidermis. This space is filled with fluid, cell detritus, leucocytes and erythrocytes in variable numbers. The cells of the deepest layers, as before, contain the characteristic bodies. The earliest form of the secondary intranuclear sequence of bodies is marked by the presence in the nuclei of many of these cells of from one to six of the minute ring bodies met with at the end of the primary nuclear sequence. In many lesions these two sequences of forms overlap, some nuclei containing the end forms of the primary, and others the first forms of the secondary intranuclear sequence. The progress of the latter sequence is shown first by the presence of larger intranuclear ring bodies, with increased thickness of one side of the ring. After this, intranuclear rings are seen which have a single or multiple row of small peripheral vesicles. In larger forms which may nearly fill the nucleus, there is in each of these peripheral chambers a small deeply staining body identical with the "spores" of the primary intranuclear body. The bodies containing these dots are called the secondary sporoblasts, and the dots the secondary spores, which are believed to be the end forms of the life cycle of *Cytorrhyctes variolæ.*

The bodies of this secondary intranuclear sequence are readily found and stain red with Borrel's stain and with fuschin; black with iron hematoxylin, and blue with Weigert's stain. With the completion of this series of forms the pustular stage is complete, and the progress of the pock is at an end. In some lesions, however, at this stage, at the border of the pock, the cytoplasm of some epithelial cells may contain the bodies described in the papule as the primary cytoplasmic sequence; this is regarded as local autoinfection. None of the bodies are found in the healing pock.

In studying the variolous lesion with the purpose of finding the above-described bodies as a basis of diagnosis, it is, of course, necessary to remember that these structures occur in definite groups or sequences, and that it is useless to look for the cytoplasmic forms (with the exception of the "local autoinfections") in late lesions or for the intranuclear forms in early lesions.

As has been stated above, it is not my purpose to give in the present paper a full description and interpretation of these bodies, and the reasons for believing them to be protozoan parasites. This has been done in another article.[4] I wish at this time simply to call attention to them as definite structures peculiar to variola and vaccinia on which the diagnosis of these diseases can be based, believing, as I do, that an early diagnosis can thus be made in doubtful cases, with the result of cutting short variola epidemics.

TREATMENT OF INTESTINAL AMEBIASIS IN THE TROPICS.

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The happiest results which may follow any research are those which lend themselves to practical application in the prevention or cure of disease, and nearly all of the great advances made in therapeutics are of this class.

Because the progress made in the treatment of intestinal amebiasis since its identification as an independent disease by Osler, Councilman and Lafleur has been of an empirical nature, there has been a long delay in introducing the methods most generally employed at the present time, and these are still far from satisfactory. The differences which exist regarding the treatment of the disease in various places within

the geographic belt where it is endemic, have also to a certain extent been brought about by the question as to the rôle which the amebæ play in its causation. Heretofore it has not been possible to be certain in regard to this because of the failure to cultivate the parasite, but now that this is made a practicable procedure and the etiologic rôle of amebæ is established, the first essential to building up a rational therapeutics is fulfilled.

Formerly, owing to failure to cultivate amebas and, therefore, without definite knowledge of the distribution of pathogenic ones in Nature, rules for prevention have been formulated without specific data in regard to this particular disease, and the result has been a greater lack of uniformity and success in the use of prophylactic measures than in the treatment of the infection. Inefficacy on one hand, and unnecessary severity on the other, have most certainly been the result of this ignorance.

In Bulletin 18, Bureau Government Laboratories, some of the important questions relating to prevention and cure of amebiasis have been elucidated, and methods and lines of work opened which will undoubtedly furnish other important data. However, this work is not complete, and a full discussion of methods of prevention and treatment, according to our present knowledge, will probably necessitate changes in the near future regarding some questions which are as yet indefinite or unexplained. Therefore, this paper will deal with the more important and heretofore neglected points in prophylaxis and treatment, and an attempt will be made to utilize some of the experimental facts which have been demonstrated.

The complication amebic appendicitis is really a continuation of the disease from the cecum to the appendix, and for that reason, and because of its importance in considering therapeutic measures, it will also be briefly discussed.

Intestinal amebiasis (amebic dysentery) is the medical subject of the most universal interest in the Philippine Islands. It causes more than 50 per cent. of the invalidism of public servants; it must be reckoned with in the profit-and-loss accounts of business enterprise; and it enters into consideration in military movements. It numbers among its victims all ages, all classes and all races, being most prevalent in Manila among the unacclimated adult Americans.

Theoretically, at least, it is a preventable disease, but just how far the various theories are supposed to insure prevention are of practicable and necessary application while still allowing some of the comforts of life, is the problem to be solved for the successful prophylaxis against it. Heretofore the only recommendation, based on facts, which could be made, was that of the ideal prophylaxis, which, briefly expressed, is to take nothing into the gastrointestinal canal which has not been sterilized by heat.

Such a procedure, while efficient, is not always practicable, is always inconvenient, and as we learn more of the habitat and manner of life of the amebæ, we find that it is not necessary in every respect; however, it is so nearly so that all departures from it should be in the nature of specific exceptions. Previously, all such exceptions were due, in a sense, to speculation, and their variety is responsible for many cases of the disease. There are numerous Americans who have taken advantage of less stringent measures, and who have escaped the disease during four or five years' residence in Manila. Others, who have apparently followed similar recommendations, have fallen victims, and, finally, there are numbers of foreign residents in Manila to-day, who have been more than four years in the country, who have not contracted dysentery, and who have eaten and drunk without the slightest regard for the consequences.

This principle of natural immunity (used in its most inclusive sense) is very noticeable in this disease, but it depends on so many conditions, is often transient, and, finally, as it can not be determined by justifiable means, any conclusions based on observations such as are given above, must be unsatisfactory. However, with methods of cultivation of amebæ at our command, this problem of the simplest "technic of living" compatible with safety is a practicable one.

PROPHYLAXIS.

To fully grasp the importance of preventive measures it must be remembered that amebic dysentery is endemic in the Philippine Islands, and amebæ which can not be differentiated from the infecting agent are easily isolated from a surprisingly great variety of substances.

Water furnishes a prolific source of the organisms, and the majority of cases of the disease can be traced to it, either directly or indirectly. Practically all the surface waters of the Philippine Islands contain the parasites in large numbers, and all the cisterns and wells which we have examined are even more richly supplied with these and other parasites. Rain water stored in cisterns is perhaps the most dangerous.

Water.—The city water supply of Manila contains large numbers of protozoa, and amebæ, which are not distinguishable from those found in the intestinal ulcers in dysentery, may be drawn from the tap water almost at any time, and cultures of some of these amebæ when ingested by monkeys produce dysentery in these animals. The danger from water has become quite generally recognized by the public, and honest effort to overcome the difficulty is made, but the methods looking to this end are very often ill advised.

First to be considered is the use of distilled water. Much of the so-called distilled water in this city is either not distilled at all, or it is stored in reservoirs which are not properly cared for, and consequently, amebæ and other parasites may be frequently cultivated from it. On the other hand, it often happens that a safe water is contaminated by handling after its receipt from a reputable source. It is taken into a vessel which has been washed in tap water, or, if this is not the case, is placed on ice in bottles which have had a similar treatment. In the last few weeks Mr. Clegg and I have cultivated amebæ from the water kept in bottles for drinking purposes from five different residences, and similar results have been obtained in cultures from the water coolers in public offices. Where water is boiled for drinking purposes, similar contaminations may result from handling, and filtering should never be relied on for preparing drinking water unless the filter and method of its use and care are thoroughly understood. The rather extensive practice of filtering water after it has been boiled is particularly pernicious. If filtration is desirable it should always be done first and the water boiled afterward.

The use of carbonated and other bottled waters, both imported and of home manufacture, is coming more and more into general use, and but for their expense would soon solve the problem for the better class of

people. Here, though, as with the distilled waters, care in the source of the supply is necessary, for many of the local bottling works issue a product of doubtful purity, and in some instances have sold such an article under the label of a more reputable firm. Such observations must also be extended to imported waters, for some of those which are at times on the market here with labels of water known to be pure, are (in reality) bottled on some of our neighboring coasts, and are certainly, in certain instances, dangerous. However, perfectly safe and good bottled waters, both domestic and imported, are on the market.

The question of the judicious use of water in the kitchen and pantry is an important one, although satisfactory recommendations are difficult. In the tropics the housewife does not feel inclined to spend time in the kitchen, and servants are not trustworthy. The average kitchen in Manila is dirty, and is supplied with tap water which usually is used by the servants in preparing foods and cleaning all dishes and vessels. From what has already been said, the danger from such sources is obvious, and that correction is practicable and not very expensive. Every kitchen range could well be supplied with a large hot water-tank, such as is commonly used in America, and this tank should be the only source of water for both kitchen and pantry. An ordinance requiring the installation of such a boiler as a part of the plumbing system of a house of the better class would do something toward controlling a disease which causes more invalidism than some of the other more prominent infectious diseases, for the control of which large sums are annually spent by our government.

Water used for the mouth should, of course, receive the same care as that for drinking purposes. The city water is satisfactory for the bath, provided care is exercised to avoid its introduction into the mouth or rectum. Such water, of course, should never be used for the vaginal douche or as a simple enema. Both these practices are surprisingly common, and many cases of dysentery are undoubtedly brought about by the use of the latter.

In Bulletin 18, Government Laboratories, we have shown that amebæ are much more dangerous when in the encysted stage, and that among other causes, cold will always cause the parasites to assume this condition. From this it is obvious that water, as well as other articles of diet which contain amebæ, are more apt to cause infection when taken cold. Of the substances served in this way, the ices and ice cream deserve especial notice. It is perfectly certain that much of the "sorbete" sold on the streets contains encysted amebæ, and careful analysis would probably show the impurity of some ices from more reputable sources. These ices are standard preparations for social functions, at which they are served in large quantities under abnormal conditions, and hence increased elements of danger of infection are always perfectly apparent. After one of the large receptions given last autumn, we cultivated dysenteric amebæ from the washings from the ice-cream dishes and from the water in which they were washed, while samples of the ice cream taken from the original container was free from them.

Vegetables and Fruit.—The surface of uncooked green vegetables and fruits are another frequent habitat of amebas, and a common means of the transmission of the parasite to the human intestine. Since the foreign population has become educated to the point where they use drinking water of a quality which is, as a rule, safe, the use of green vegetables is probably one of the most fertile of the remaining sources of infection, and the number of people, otherwise reasonably careful, who will eat these things with impunity without any special preparation, or at most, after they have been rinsed in distilled water, is perfectly surprising. Others, who would not risk eating such things, will allow their use in garnishing foods or in flavoring soups, which is accompanied by almost as great a risk. Lettuce, one of the most frequently infected of vegetables, was formerly not used by the more intelligent class of people, but recently it has become possible to obtain a nice looking quality of this article at the Agricultural Experimental Farm, and it has become quite a popular article of diet.

On February 9 we obtained some lettuce from this farm with a view of determining the presence or absence of amebæ, both before and after washing the leaves. One head was placed in a large sterile flask, a quantity of distilled water added, and the whole thoroughly shaken for several minutes. The water was then carefully drained into another sterile flask, and without removing the lettuce from the original container, it was submitted to four additional washings, any one of which was more thorough than would be given by a careful housewife. Tubes of fluid from each of these washings were then centrifuged, and a microscopic examination showed amebæ in two of them. Cultures were made from all these flasks and amebæ, which were those of true amebic dysentery, grew in every tube, although they were most numerous in the first washing.

Nearly all other vegetables and some fruits yield results similar to that which we obtained with lettuce; the fruits with thick sound skins and those which are strongly acid are probably safe articles of diet, but it must not be forgotten that one of the first amebæ ever cultivated was from sour fermenting grapes. Boiling water kills the amebæ almost instantly, and there are but few fruits or vegetables which are damaged materially by scalding, provided they are first made very cold by placing them for a time on ice.

Soil.—Soil is a natural habitat of amebæ, and the organisms in such a location are particularly numerous in the Philippine Islands. From such a source water, which might otherwise contain but few amebas, is often richly supplied. This is particularly shown by the almost epidemic spread of the disease following the recent flooding of Manila and which brought with it the washing out of cesspools and other places where otherwise the parasites might have remained harmless. Methods of personal cleanliness and other necessary precautions to avoid the introduction of amebæ from such sources, into the alimentary canal, suggest themselves.

Alcohol.—Alcohol, as in many other diseases, has received a great deal of discussion as a preventive agent in dysentery. It undoubtedly exerts a destructive action, even in moderately dilute solution, but that its habitual use is of value in preventing infection is not proved. The acidity of the normal stomach probably plays an important preventive rôle, and while hyperacidity may follow the use of alcohol, that condition is not necessarily constant.

Personal Factors.—There are certain important personal factors which enter into a consideration of prophylaxis. Children are less susceptible to the disease, and in them it is more amenable to treatment.

This is particularly fortunate when their habits and the difficulty with which they are controlled are considered. The unacclimated Caucasian is the most liable to contract amebiasis, and the newcomer should always secure proper advice in order to escape preventable consequences.

One should strive by exercise and, in general, by living a well-regulated life, to keep in good physical condition; lowered vitality from any cause—diarrhea, indigestion, constipation and many other personal factors—certainly predispose to the infection.

Amebæ, not distinguishable from those in the intestinal contents in amebic dysentery, have been found present in the mouths of healthy people, and it behooves residents of the tropics to give scrupulous care to these exposed mucous membranes by frequent cleansing with distilled water or some mild antiseptic.

The normal acidity of the stomach is probably one of the preventives to the entrance of living amebæ into the alkaline intestine, and its derangement which is so frequent in warm countries, is increased materially by fermentation and other abnormal conditions in the mouth. The hands are so often in contact with materials containing amebæ, and in many instances are used in the preparation and serving of food, that their cleanliness always should be a consideration. Above all, methods of prevention must not be used spasmodically. Safety depends on constant and consistent adherence to a well-defined plan of living, and no departures from it, even in minute details, should be made without securing the approval of competent authority. Among the better classes, the theoretical outline of living is generally very good, but a violation in the details of its consistent execution is extremely common and flagrant. Examples of this might be cited almost indefinitely, and the manner of infection is more often traced to such lapses in daily practice rather than to a fault with the general plan of living.

Public Health.—The medical profession is partly to blame for all these things. Our first duty is to guard the public health, and in the Philippine Islands there is certainly no other one thing so important as to teach the public a proper technic of living.

Finally, I wish again to emphasize the fact that amebiasis is an infectious disease, and to point out the desirability of judicious municipal ordinances and regulations looking to its control. I hardly need call attention to the fact that its ravages do more to cripple government and private enterprise of all kinds, and conduce more to personal dissatisfaction with the country, than do those of all other infectious diseases combined.

The control of cases of amebic dysentery by public-health officers is neither necessary nor desirable, but regulations requiring the report of every case with certain data would accomplish good in several ways. Valuable facts for future work could be obtained, and what is more important, such a procedure would particularly call forth public attention and interest, and would prepare public opinion for co-operation and support in controlling the disease.

For several years the military have been improving regulations looking particularly to the prevention of this disease, and results of these precautions are shown in the following figures[1]: During the month of July, 439 patients, drawn from 2,742 troops, were treated at the first reserve hospital, and of this number 9 were suffering with amebiasis. During the same month 318 patients, from approximately 2,500 civil employes, were treated at the civil hospital by private physicians, and of this number, 90 were suffering from amebiasis. During the month of July, therefore, over 3 per cent. of 2,500 civil employes suffered from amebic dysentery, while but 3 per cent. of 2,742 soldiers were treated for the same trouble.

There are business houses here whose employes live according to sanitary rules laid down by a physician, and such a practice should extend to civil employes and be more general among the public.

A civil employe arriving here from the United States gains his ideas of how to live from lay sources, and in the military he receives his information from published regulations. Provision by which employes of the Civil Government could receive proper instruction in the elements of prevention, would repay such efforts by increased efficiency, just as it has proven to be the case in both the military and in private enterprise.

TREATMENT.

General.—Successful attempts in the classification of dysenteries from an etiologic standpoint are so recent that the great majority of the literature relating to the treatment is of but little value in its application to intestinal amebiasis (amebic dysentery), which is now a generally recognized etiologic clinical and pathologic entity—a disease different from other forms of intestinal flux in many essential particulars.

In general, it may be said that one form of treatment, in Manila at least, is now quite commonly in use, but the tendency is too much to routine. I wish to emphasize in the beginning that any routine treatment of this disease will prove unsatisfactory in an unnecessarily large number of cases. There is no disease with which we have to deal which requires more careful study of individual cases and greater variation—within limits—in the manner of applying remedial measures.

Before instituting treatment of any kind, the patient should have a careful physical examination, and the history should include, particularly, efforts to specifically locate the manner of infection. Palpation of the abdomen, in connection with the history, will usually furnish considerable evidence of the duration of the disease, and, what is more important, the location of the lesions in the bowel. A weekly record of the weight will always be of service, and is one of the best indications of progress.

The treatment of the patient should be governed somewhat by the findings made at the physical examination, by the clinical manifestations, which are so varied in this infection, and by the probable duration of the disease at the time the patient comes under observation.

Acute dysenteric manifestations, whether they come on early in the disease (which is rare), or as an exacerbation in cases of some standing (which is frequent), require the same general measures as those applicable to acute colitis from other causes. The patient should be confined to bed, and should be required to use the bed pan; the diet should be fluid, in the form of peptonized milk, pressed meat juice, whites of eggs beaten

1. The figures used here have been furnished by Maj. J. M. Bannister, surgeon, U. S. A., commanding officer First Reserve Hospital, Manila, by Dr. H. E. Stafford, attending physician and surgeon, civil officers and employes, and by a number of other physicians in Manila. My thanks are due these gentlemen for their courtesy.

up with soda water, lime juice and soda, etc. The pain may be controlled by local applications or by opium, which can be given internally in the form of Dover's powder or paregoric, or subcutaneously as morphin. Calomel and salines, and sedative or cold water enemas, are also useful.

After the subsidence of the acute symptoms and in all other cases, the general measures should be much less severe. It rarely is necessary or even desirable to confine patients to bed, and, in the great majority of cases, in the absence of decided dysenteric manifestations or symptoms of some complication, carefully directed exercise exerts a most beneficial influence.

It will be found a good rule to confine all patients to their rooms during the first few days of the treatment because of some of its disagreeable features, and exposure to the hot sun is, of course, to be avoided at all times. In the early evenings and early mornings, however, a drive will often accomplish more good than many doses of tonic medication, and where patients have comfortable home surroundings, it will rarely be necessary or advisable to send them to a hospital.

Where emaciation and anemia are advanced, particular attention must be paid to building up the general health, and with well-nourished patients treated early in the disease, care must be used to maintain this condition during the more or less lengthy and trying period of active local treatment.

Diet.—Notwithstanding the possible presence of extensive ulceration, the appetite and digestion often remain good, and when we consider the local nature of the disease and that, excepting complications, death frequently results from asthenia, it is readily seen how urgently necessary is a sufficient amount of nutrition.

The tendency, at least in Manila, has been to unnecessarily limit the diet in the ordinary type of cases; but the greatest reason for any such restriction is to limit the mass of fecal matter in the colon, where it may interfere somewhat with the efficacy of local treatment. When the stomach and small intestine are deranged, and sometimes when this is not the case but where clinical manifestations show involvement of the cecum or upper colon, a selected diet is indicated; and when the rectum is very irritable, such a restriction quite frequently appears to increase the tolerance for the enemas. But, in the more usual type of cases, there is little evidence that a liberal diet interferes in any way with the efficacy of the local treatment; in fact, quite the contrary often may be observed. In some of the more advanced infections in which emaciation and anemia are progressive, and where, as is often the case, the patient has no desire for the usual liquids, etc., a carefully prepared beefsteak will be relished and borne with comfort. The amount of residue in such instances does not need to be considered, for it may be disposed of by a simple enema given a half hour before the usual local medication, a procedure which, in any event, is often useful.

It has come to be my custom in cases of the ordinary type, and in all where severe clinical manifestations have subsided, to allow a very liberal diet; forbidding only irritating foods and foods such as are likely to ferment, and those leaving a large bowel residue. In the class of cases in which the cecum alone or the cecum and the ascending colon are involved, the clinical manifestations are often very slight, and extensive ulceration may be present before the nature of the disease is suspected. Treatment of these is difficult because of the care necessary to reach the lesions by enemas, and because of the soft fecal matter usually clinging to the mucus membrane in this part of the bowel. A fluid diet sometimes makes a material difference in the treatment, but even here an occasional saline cathartic or a large simple enema once or twice daily will usually accomplish more and at less expense to the patient's strength than a reduction in the amount of food.

Change of Climate.—This is an important factor in treatment. Alone it is not a specific therapeutic agent in any sense of the word, but it is an especially valuable aid, particularly in old, emaciated cases, and should be employed, where possible, with all patients who do not react to treatment in local environment. However, except under extreme necessity it should never be recommended nor patients allowed to pass from observation without first having a course of local treatment, and great caution should be exercised in advising a change to those who have symptoms of some of the more common complications. In nearly all cases the improvement is but temporary, unless treatment is continued, and for that reason patients should have specific directions to consult a physician on arrival at their destination, and, where practicable, letters should be given explaining the condition.

Drugs.—The list of drugs which have been used in dysentery and vaunted from time to time, many of them as specific, is too long even to mention, and, so far as they may have any specific curative properties in the type of the disease which is under discussion, they are all useless.

It requires no very extensive observation to show that this practice of drug giving is a much abused one, and the actual harm done by it is not inconsiderable. There was a time in this country when such things were excusable, but with the knowledge obtained by experience and research, their continuation as routine treatment deserves the severest condemnation.

There are a few drugs which, on account of their very extensive use, deserve special consideration. First, the various salts of bismuth, particularly the subnitrate and subgallate, are both useful therapeutic agents within limits, but their abuse in the treatment of amebiasis is very great. In the absence of the more rational local treatment, in combination with some of the other internal remedies, bismuth may be a very useful drug, and at other times is probably very nearly harmless, but, when given at the same time quinin enemas are being used, it undoubtedly does do harm.

Observations made at necropsies furnished abundance of evidence in support of this statement. As is well known, these salts are insoluble in the intestinal canal, and so their action is largely mechanical. In a bowel which has been ulcerated for some time, they impregnate the edges of the ulcers and all other more or less dead tissue to such an extent that at postmortem, even after the most thorough washing, enough is often left to make the surface almost black. The coating formed is so tenacious and fastens itself so firmly about the ulcers that quinin and other curative substances applied locally, have little opportunity to reach the most essential places. There is also ample clinical evidence corroborating these statements. I have seen patients who have taken bismuth internally together with quinin enemas for considerable periods of time, while amebæ were constantly present in the stools, but, on substituting small doses of a saline for the bismuth, a permanent

disappearance of amebæ occurred within a comparatively short time. The more usual and equally tenable arguments against the indiscriminate use of this drug need not be entered into. The important consideration which may be amply demonstrated is, that the drug is not harmless, as it is popularly believed to be, but, during the time of local treatment, it is capable of doing much damage in a negative way, if in no other.

Much of the abundant literature about the use of ipecac is valueless because of the lack of sufficient clearness as to the type of the disease referred to by the writers who advocate the drug. Whatever may be its value in certain other forms of dysentery, it is quite certain that when given in the doses and in the manner prescribed by its most ardent adherents, it is not only useless, but may be dangerous in amebic infections of long standing. In small doses it undoubtedly acts as a tonic to mucus surfaces, if nothing more, and as such often may be administered with advantage in intestinal flux. In emaciated patients who have had the disease for a long time, and when given in the large doses which are usually recommended, its results are sometimes disastrous. I have seen three cases (with post-mortem) in which, in my opinion, it was the immediate cause of death. These were patients who should have remained alive for weeks, unless complications had developed, and one of them might have recovered under more rational therapy.

Magnesium sulphate and other salines have been much used in the treatment of dysentery, and where a cathartic is indicated in well-nourished patients, they are very satisfactory; but their routine use for considerable periods of time, particularly in patients in the more advanced stages of the disease, is not to be recommended. They have at least two specific actions; one is to increase the alkalinity of the intestinal contents and thus favor the propagation of amebæ; the other is to cleanse the mucous membrane and thereby allow greater efficiency of the enema. Further than when indicated as an active cathartic for this latter action, they should be used in this disease with caution.

There is some reason for the use of the mineral acids, especially hydrochloric acid and nitro-muriatic acid, and the efficiency of hydrochloric acid is increased almost always by its combination with pepsin; sometimes other digestive ferments are useful. In the vast majority of the usual cases, the acid pepsin solution has at least two favorable actions; first, that due to its acidity alone, and second, its activity in reducing or in preventing the nausea which is often a troublesome sequence to enemas; this condition is principally due to reversed peristalsis. For this purpose, neither the pepsin nor the acid alone are as satisfactory as the combination.

The so-called intestinal antiseptics are often of service in delaying fermentation, and possibly may also somewhat limit the number of bacteria. Salol or guaiacol carbonate in combination with minute doses of ipecac often exert a good influence, and the more recent preparation, acetozone, gives good results as an adjuvant in many cases. To get the best results from acetozone, it should be drunk freely in 1-5000 to 1-2000 solution, as much as from one to three or more liters being consumed in 24 hours. It is much more palatable when the solution is made in carbonated water, and one of the most satisfactory methods of prescribing it is to have it carbonated in syphons or ordinary soda bottles with directions to use instead of water. Its action as an intestinal antiseptic is, like other preparations, somewhat limited, but in cases where there is active fermentation of the stomach and upper bowel, it often gives good results. I have seen some unfortunate results follow the administration of celloidin coated capsules of this drug, probably due to rupture, in the intestine, of imperfect capsules and the consequent liberation of the chemical in concentrated form. Its use in enemas will be considered under the local treatment.

Strychnin and other powerful stimulants should be used with care during the administration of enemas on account of their stimulating action in the bowel. Strychnin, particularly, is a valuable general tonic and stimulant, but during the employment of local treatment it is best replaced by some of the more diffusible drugs; alcohol in the form of champagne, dry sherry, or punches, is usually grateful to the patient and satisfactory in results.

Except in those cases complicated with malaria, the internal administration of quinin, so highly recommended by some, is useless, and even when malaria is present, the objects sought are much better obtained by the quinin enemas which, if properly administered, will result in cinchonization of the patient. Indeed, this is one of the disagreeable features of this treatment in a very large percentage of cases.

Calomel has had many advocates on account of its supposed antiseptic action in the intestine, and given in small frequent doses it may exert a beneficial influence.

I have never seen satisfactory results from the use of sulphur. In fact, as stated before, there is no internal medication which is in the least sense specific in intestinal amebiasis, and such treatment should be directed to the improvement of the general health of the patient and to the alleviation of some of the prominent symptoms as they arise. All insoluble substances which coat the bowel are contraindicated during the time that the patient is being treated by enemas.

Local Treatment.—If properly carried out, this gives satisfactory results in the largest number of cases, but to insure success, constant care, close study of individual cases, and the surmounting of many obstacles are necessary.

The manner of giving the enema determines, in no slight degree, its efficiency. Routine is particularly dangerous, each case requiring careful consideration and variations should be made according to the indications.

The apparatus in private practice should consist of a glass irrigator of at least two liters capacity, enclosed in a metal frame, and in hospitals the large adjustable glass irrigators meet the requirements particularly well. Rubber bags are never satisfactory, for reasons obvious to those of experience in giving these enemas. The tube should be of very soft rubber, five or six feet long, and connected by a valve stopcock with the rectal tube, which in turn should be at least 100 c.m. in length, from 10 to 15 mm. in diameter and made of the best red rubber. It should be of moderate firmness, not so stiff as to be dangerous to the ulcerated bowel nor so soft as to easily fold on itself during introduction.

Contrary to what is often recommended, the opening should be in the end of the tube, well rounded, and the immediate extremity slightly contracted and hardened. The disadvantage of having the opening in the end has been said to be that it is much more likely to become closed by fecal matter or pressure; but, in my experience, this has not been the case. Such a rectal tube

will occasionally become clogged, but very rarely so when judgment is used in its introduction. The weakest point of this tube is its extreme end, and if any obstruction occurs during its entrance with the current flowing (as it should be under low pressure), it is quickly observed by a lack of pulsation in the soft delivery tube (which should always be under control of the operator's fingers), or by watching the fall of fluid in the irrigating tank, and such trouble may be quickly corrected by withdrawing the tube very slightly and waiting a few seconds until the fluid, which should be allowed to escape in a pulsating manner from the delivery tube by alternating compression and relaxation, has removed the obstruction by dilatation of the bowel. If the tube opens both in the end and on the side, the means of detecting an occlusion are the same as with the other. However, on account of the two openings, when the fall of fluid indicates a stoppage, the tube already may have been folded. This trouble usually begins at the eye, and several feet of loop may have been introduced before both openings are closed and the flow is stopped. In this case a correction of the trouble necessitates a further withdrawal and the turning of a knuckle of an inch or more of tube in the ulcerated bowel. Finally, with the tube opening at the end, there is obviously much less danger of mechanical injury to any deep ulcers which may be present. The tube with an opening on the side alone is, of course, not to be considered.

A very good position for the patient during the administration of an enema, and one which is usually most convenient, is the Sims position, with the hips well elevated. When practicable, it is still better to have the foot of the bed raised from 12 to 18 inches. The knee-chest position on the same kind of a bed is sometimes particularly satisfactory, both because of the ease in passing the tube and the ability to retain the fluid. With the rectal tube and anus well lubricated with clean castile or other mild soap, or with soft white vaselin, the tube, freed from air, is introduced through the sphincter. After a slight rest for the spasm of the sphincter to subside, the flow may be turned on under low pressure (controlled by the fingers on the delivery tube), and the latter is then slowly introduced to a distance of from 40 cm. to 1 meter or more, depending on the character of the case, the location of the lesions, and the patient's tolerance for the fluid. After the tube has been introduced to the highest point which is necessary, the rate of flow may be increased, and the amount of fluid to be introduced is governed by the bowel capacity or the patient's ability to bear the pain—which in some cases is excruciating.

Patients will often be found who will take from 3 to 4 liters with no great discomfort, but in the majority about 2 liters will be all that can be borne, and in some, not over a liter is practicable. Naturally this variation in quantity depends on the difference in bowel capacity, on its irritability and on the patient's idiosyncrasy to pain. Women, as a rule, are more satisfactory patients in this respect than men.

Several other factors help in introducing a large quantity of fluid into the bowel, but they can not always be determined without experiment. Bowel spasm comes on in nearly all cases during the entrance of the fluid. In some instances increased pressure gives the best results, while in others a decrease in, or a temporary stopping of, the flow will be found most satisfactory. Often, allowing a patient to change position during the flow will give relief, and if this is done with caution there is no objection to it. Occasionally a bowel is so irritable as to preclude the giving of an enema of sufficient concentration and quantity. This difficulty may be greatly relieved by giving one of warm water or of salt solution containing ¼ or ½ gr. of morphin a half hour before the medicated enema is introduced.

The presence of gas in the bowel always increases the pain caused by the enema, and hence in those cases in which there is considerable fermentation or in which the bowel has a large accumulation of feces, it is often well to give a preliminary simple enema. This causes little or no pain, it cleanses the bowel, and in this way allows increased certainty of action of the medicine to follow. Their use gives such happy results in many cases, and their inconvenience is so small that I have employed them very frequently as a routine measure, even where there were no special considerations to be met.

After a full enema has been administered, a change of position usually enables the patient to retain it longer, and in addition may insure its reaching all parts of the colon. If the sloping bed has been used it will usually suffice for the patient to turn on the back with legs flexed, or on the right side, and if further elevation is desired it can best be accomplished by still further raising the foot of the couch. In every case, all practical methods should be applied to give the largest quantity of fluid which can be administered and retained, for, to secure satisfactory results, the diseased part of the bowel, which in the majority of cases is clinically the entire colon, must be distended and the fluid retained for from five to fifteen minutes.

Retention of the enema for less than five minutes hardly allows it to develop its full parasiticidal action, and when the fluid is held for more than fifteen minutes the result may be unnecessary inconveniences from the absorption of quinin. The latter is a very troublesome condition in many cases.

The temperature of the solution not infrequently makes a material difference in its tolerance. It has been shown that the amebæ, when they are in the moving stage, are most susceptible to the action of antiparasiticidal agents. This condition is interfered with by either cold or heat. For this reason cold solutions would appear at a glance, at least theoretically, contraindicated either as a vehicle for the curative medicine or as sedative applications immediately preceding the medicinal ones.

There is, however, another factor to be considered here, for while the cold increases the parasite's resistance to medicinal agents, it also, by causing it to encyst, removes its power of independent motion and its ability to cling to its surroundings, and therefore it may be much easier to flush from the bowel.[2]

Cold solutions, while quite disagreeable during their introduction, later often have a soothing influence on the mucous membrane, and, as a consequence, for some time, when other remedies fail to create tolerance in the bowel, I often use an ice water injection one-half hour before the quinin enema, and sometimes administer the quinin itself in cold solution.

After Tuttle's article more attention has been paid to this point. However, it must be remembered that the lowered temperature produced by cold injections in

2. Tuttle, in THE JOURNAL, Oct. 8, 1904, p. 1022, has recently reported good results in the treatment of amebic dysentery by the use of simple ice water enemas given frequently, and his success may be explained by mechanical removal of the parasite.

the bowel is only temporary, and that those amebæ which are not flushed out during this time are not destroyed, and their progress is but slightly delayed.

In order to secure whatever advantage might be attributed to the cold and at the same time to introduce the antiparasiticidal agent, a few old cases which were very resistant to treatment were placed on ice-cold solutions of quinin instead of the usual ones at the body temperature. This method has been used with about 20 persons in private practice, mostly among those who have not reacted well to the usual treatment. The results so far, while encouraging, have not been universally satisfactory.

Such ice-cold quinin enemas are often quite painful when they are first introduced, but this condition is only a transient one and is frequently followed by a sense of comfort rarely experienced when the solutions have a higher temperature. There is some local reaction, of course, but I have never seen any dangerous manifestations. It is much easier to reach the upper colon with such an enema, and this fact alone makes it useful in many cases.

A considerable variety of drugs have from time to time been recommended, but up to the present time the various salts of quinin have given the most satisfactory results and have been the most constantly and extensively used since their introduction by Lösch, in 1875.

If enemas of this drug are properly prepared and administered, the outcome in the majority of cases of moderate duration, is very satisfactory, and many of the disappointing results following its use are not the fault of the principle, but the result of routine and the failure to use it under the most favorable conditions.

There is apparently but little choice between the various salts of quinin, but, to be most serviceable, the solution should be an acid one. The strength used should vary from 1-1500 to 1-750, depending somewhat on the idiosyncrasies of the patient. A stronger solution than 1-750 is not required to destroy any amebæ which are subject to its action, and besides it is more irritating, and when retained produces unnecessary systemic effects from the absorption of the drug. A weaker one than 1-1500 does not assure parasiticidal action in a reasonable length of time, and is therefore not to be used.[3]

Accepting these statements as proved, their intelligent application may be of service in the local treatment of amebic dysentery, particularly in the selection of a solvent for use in the application of quinin or whatever other antiparasitic substances used in enemas.

Not infrequently one of the disagreeable features of the local treatment, whatever the medicine, is the nausea which follows and the consequent interference with digestion and nutrition. One would not think, therefore, of employing a sodium chlorid solution as a vehicle for quinin in such cases, but on the other hand, in certain well nourished patients with decided intolerance for enemas, this condition may be taken advantage of, and, if necessary, a sodium chlorid solution enema containing a quarter of a grain of morphin or one-tenth of a grain of cocain may be administered one or two hours before giving the quinin.

Recent researches have tended to show that the presence of living bacteria are necessary for the propagation of amebæ, and if this symbiosis is in reality a necessity to the life of the amebæ in the intestine, we have an increased incentive to use bactericidal local medication. Bacteria are quite generally considered as having pathologic significance in this disease, partly, no doubt, as a result of their own action, and in addition, the symbiosis referred to may result in metabolic changes which may vary with different bacteria and influence the pathologic action both of themselves and of the parasites. Whatever the manner of their action, the clinical importance of limiting the number of intestinal bacteria in this infection is fully recognized. Various kinds of antiseptic irrigations, looking to this end, have been used and recommended, but in satisfactory concentration they have usually proved either dangerous or impracticable.[4]

The bactericidal properties of acetozone are well known, and its action in acid solution on amebæ has been pointed out in Bulletin 18, Bureau of Government Laboratories. I have never used it alone in treatment, but in acid solution of 1-5000 to 1-2000 in combination with quinin 1-1500 to 1-750, or when used alternately with the quinin enemas, it often gives more satisfactory results than does quinin alone in cases in which it is tolerated.

The inconvenience in securing the solution for private practice, and its irritating effects in the colon, are the principal objections to it, and the latter is partially overcome when it is used in the cold enemas described above.

Alphozone used in the same manner as acetozone has recently given some encouraging results, and in some very chronic cases the happiest results sometimes follow the occasional substitution of an enema of 1-10 to 1-2 solution of hydrogen peroxid for the quinin one. In a like manner an occasional reaction brought about by an injection of a solution of silver nitrate does good, but the routine use of this drug is not usually satisfactory.

As to the number of enemas to be used, the tendency is to overdo. One enema properly administered is of more value than several given without consideration of the conditions. In the vast majority of cases, from one to three in the twenty-four hours will be found to be the most satisfactory, and, fortunately, this number fulfills the rational as well as the practical requirements.

Some of the most aggravated cases are those in which a catarrh of the lower bowel has been established by the previous use of enemas too frequently given, of too great a concentration, and which have been introduced into the lower colon in quantities of one liter or less. In not a few cases, owing to the physiologic action of absorbed quinin or from other causes, it will be found impracticable to give more than one enema daily.

3. The fluid used as a vehicle for the application of the quinin also deserves some thought. In 1884 Nothnagel showed that when sodium chlorid was placed on the peritoneal coat of the living intestine active antiperistalsis resulted. In 1894, Grutzner injected into the rectum physiologic salt solution in which was suspended finely divided hair, charcoal and starch. After six hours he demonstrated these substances in the small intestine and stomach. Hemmeter (1902) confirmed these observations, proving that active antiperistalsis followed the introduction of substances suspended in salt solution into the rectum of human subjects, a cat and a white rat. He further showed that these results were less certain or not to be obtained when solutions of potassium chlorid or hydrochloric acid were used. Fasting favored this antiperistaltic action and both diarrhea and constipation delayed it; the normal bowel gave the best results. Peristalsis was not arrested by this procedure, but continued to control substances well within the lumen of the bowel, while the antiperistaltic movements influenced only substances near the walls of the organ.

4. In 1902, Freer called attention to the results obtained by Strong in the experimental treatment of eleven cases of amebic dysentery with acetozone. The drug was given both internally and by enema. In these cases the results were encouraging. Of the eleven cases treated, two died, one from a complication of a liver abscess. The other nine at the time of the report were without any symptom of the disease.

Irritability of the anus and rectum may usually be avoided, but sometimes this condition occurs and it may prove very annoying. After each treatment the external parts should be washed with soap and water and bathed in some antiseptic solution, and when the irritation becomes excessive, a cocain suppository administered just previous to the enema will afford relief, but where possible this is to be avoided, for, in addition to reasons which are obvious, it may interfere with the action of the sphincter to such an extent as to allow the escape of fluid during the operation. Flushing the lower bowel with cold water or some mild soothing lotion after each treatment gives the most satisfactory results in these cases.

In many of the textbooks, caution regarding the maximum pressure to be used in the administration of enemas is enjoined in those cases showing advanced ulceration. Theoretically this is good advice, but in actual practice, in the first place, it is impossible to determine the extent of intestinal ulceration in amebic dysentery, and secondly, agreeing with Professor Osler, I must say that the danger from this source is small indeed—so much so that it is doubtful if it deserves consideration in the treatment of a disease where distension of the bowel is so necessary. In over five years observation in hospital wards, in private practice, and in the morgue, I have never seen evidence of such an accident.

Finally, I wish to emphasize that no recommended routine treatment will be found to be satisfactory in all cases of intestinal amebiasis. Each one requires careful study, and variations in the treatment should be made to suit special conditions, and to efficiently do this the physician should either himself administer or be present at the administration of at least the first few enemas given to every patient under his care.

APPENDICEAL AMEBIASIS.

Involvement of the appendix in amebic dysentery, as previously stated, is really a direct continuation of the diseased process from the intestines and may, therefore, be appropriately considered here.

Pathology.—In 100 necropsies on this disease the appendix contained lesions in fourteen. In six, the process was an active amebic infection, four times, in otherwise apparently healthy appendices, and in one the amebic process was secondary to chronic changes from other causes. One was an old chronic appendicitis (non-amebic) associated with a pericecal abscess (amebic), and seven others were those showing chronic lesions without amebic infection. Four of these seven, however, showed evidence of some acute inflammatory reaction, probably the result of close contact with the amebic process going on in the cecum.

In four of the six amebic cases death resulted from general peritonitis following perforation, three times in the cecum and once in the descending colon. This entire series was in American soldiers, and necropsies were performed by Dr. Strong and myself mostly during the year 1900. They were almost entirely chronic cases, which gave histories of months of diarrhea, and were in the last stages of the disease when received at the first reserve hospital.

In a more recent study of 50 fatal cases and in many clinical ones, particular attention has been directed to the involvement of the appendix as a complication. However, the statistical results in the fatal cases have in the main been confirmatory of those in the first series.

In every instance where the appendix showed amebic ulceration, this has been as a direct continuation of and secondary to a similar process in the cecum. Peritonitis following perforation of a gangrenous amebic ulcer in the appendix occurred in one case, but the cecum was also gangrenous. Without lesions, amebæ have never been found in the appendix.

Classification.—With these brief data we are better prepared to discuss the clinical side of the problem, which particularly concerns us in this paper. Where the records are complete, all cases which have shown lesions of the appendix postmortem have also given a history of clinical symptoms during life which indicated involvement of that organ. However, on the other hand, very few of the cases which have manifested clinical symptoms of appendicitis during life have shown lesions of this organ postmortem.

The highest mortality in intestinal amebiasis occurs where the cecum is involved, and as appendicitis is found but rarely, if ever, in any other class, it will be seen that postmortem examinations indicate a much higher percentage with appendicitis than actually exists when all classes of cases are considered. The very great majority of those suffering with amebiasis will not have symptoms of appendicitis during life, and this organ will be found healthy at necropsy.

From clinical and postmortem observations we learn that cases of amebic dysentery with symptoms of appendicitis during life may be divided into three general classes:

1. Those in which at operation or necropsy the appendix is not found to be diseased.
2. Those in which at operation or necropsy a chronic appendicitis, from other causes and without amebic infection, is found.
3. Those in which at operation or necropsy an amebic infection of the appendix is present.

Clinically, examples of the first class are very frequently met with, and sometimes at autopsy no lesions are found which would account for the symptoms during life. However, in one of my cases there was a pericecal abscess due to a perforation, and in others there was extensive ulceration of the cecum, both with and without adhesions to the omentum and, other structures, which accounted for the symptoms during life.

The second class is not infrequnetly encountered during life, and in the fatal cases there is often congestion, injection of the vessels and other inflammatory phenomena, due to close relation to the inflamed bowel, but without an amebic process or the presence of the parasites in the appendix.

The third class is the last in order of frequency to be observed in clinical practice, but is more frequent (seven times in the 150 necropsies) in the necropsy records, because, practically, all such cases are fatal.

As previously stated, these seven infections, with one exception, occurred in apparently otherwise healthy appendices, but it is important to remember here that in three of these the cecum was also gangrenous, and death resulted from peritonitis following perforation, twice in the cecum and once in the appendix. In the remaining case the amebic infection was secondary to an appendicitis from other causes.

These statistics show that the majority of appendiceal infections are associated with the very severest involvement of the cecum, where death usually results from a perforation in or near the deeply ulcerated and often gangrenous organ, the type of case corresponding so closely to similar ones without infection of the ap-

pendix that a differentiation during life is often impossible. Sometimes when the infection is less intense in the cecum, and the lesions in the appendix more important, the clinical picture of appendicitis is more definite and may with care be diagnosed during life.

The importance of being able to distinguish during life the three classes of cases discussed, from appendicitis due to other causes, as well as to differentiate them from each other is obvious.

As a rule, no great difficulty, at least in the tropics, will be encountered in differentiating the amebic processes located in or about the cecum from appendicitis due to other causes. In the former there is generally a history of dysentery or diarrhea, and a microscopic examination of the stools will usually show amebæ, while in the latter a history of previous attacks may often be secured. The general symptoms in the amebic infection are usually less severe, and differ to a certain extent from those of the latter. Fever is more commonly slight or even absent; nausea is less frequent (unless the patient is taking enemas), and vomiting is rare. Rigidity of the rectus muscle is nearly always less decided, or even absent, and while pain on deep pressure is quite constant, it is rarely of the very acute type so often seen in other forms of appendicitis. A tumor mass, as in other forms of appendicitis, is usually present, but it more often has a soft boggy character in the region of the cecum, and is rarely circumscribed, definite and low in the right iliac fossa, as in other types of appendicitis. Sometimes, however, where there is a definite appendicitis due to amebæ, it may be ushered in as a sharp attack of acute pain, with some muscular rigidity, perhaps a certain degree of fever, an increase in the number of bowel movements, and a leucocytosis of from 10,000 to 20,000.

A differentiation of the various types of amebic infections which give the general symptoms of appendicitis during life is a difficult task, and it is even impossible in many instances to say that the appendix is at all involved.

Symptomatology.—Where the cecum, whether alone or with the appendix, is the seat of dysenteric lesions, pain in the region occupied by these organs is quite a constant symptom, and it may vary from a dull aching one to that of the most acute radiating type. The acuteness of the pain depends, to some extent no doubt, on the character of the lesions, the stage of the disease, and the general condition of the patient. In well-nourished individuals moderate ulceration in or just below the cecum may cause considerably greater pain than similar lesions in chronic emaciated cases. Some of the most deceptive clinical pictures are encountered when the omentum becomes adherent around the cecum, ascending colon, abdominal wall and liver. When such adhesions form in the region of the appendix, considerable thickening occurs, and palpation, besides confirming deceptive conclusions, is to be performed with care on account of the danger of rupture.

In the second class of cases, when a chronic adhesive appendicitis has been aggravated by close relation to the diseased cecum, the patient's history will usually show similar attacks antedating the dysentery. The symptoms usually come on somewhat slowly, are rarely urgent, and are frequently relieved by a saline cathartic.

We have already seen that in the third class the lesions of the appendix are but a continuation of similar lesions in the cecum, and in the rare instances where they are not, the clinical picture is the same as that of an appendicitis from other causes.

Treatment.—The majority of cases of amebic dysentery give no symptoms indicating involvement of the appendix during life; no amebæ and no lesions are found in this organ postmortem, and, therefore, treatment directed especially to the appendix is worse than useless.

When symptoms suggesting appendicitis arise during the course of the disease, the medical treatment is that which is applicable to appendicitis from other causes, plus high large quinin enemas. Saline cathartics are particularly useful if the patient is in a condition to justify their administration. Thirty grains of Rochelle salt will often relieve, more or less permanently, the symptoms of appendicitis from this cause.

In the early stages of amebic dysentery in the majority of cases, the appendix could be removed without immediate bad results, but the probable future of the patient must be considered, and this is not best conserved by performing an operation which, for a greater or lesser time, necessitates a discontinuance of rational treatment of the disease, and which uses up more or less of the strength and energy so necessary for its successful therapeutics. Such precipitate surgery has, in the past, undoubtedly determined the fatal result in some instances.

CONCLUSIONS.

We have shown what a variety of pathologic conditions may produce symptoms of appendicitis in intestinal amebiasis, and how difficult and often impossible it is to differentiate these during life. They are produced most frequently by lesions in the cecum without involvement of the appendix where surgical intervention is contraindicated.

Somewhat less often such symptoms follow aggravation of an existing chronic appendicitis due to other causes, by the continuation of inflammation from the cecum, and nearly always without amebic involvement of the appendix. Operation is rarely found to be necessary, provided medical treatment of the disease is rationally administered.

Finally, in a small number of cases, such symptoms are due to amebic involvement of the appendix as a continuation of a similar process from the cecum and early operation is indicated.

In a minority of these appendectomy may be satisfactorily performed, but more often the operator will find a gangrenous cecum and increase his mortality rates.

In the 150 necropsies there were two cases where operation would probably have saved or prolonged life. One of these was amebic appendicitis without extensive ulceration in the cecum, and the other a pericecal amebic abscess.

A surgeon should be called in consultation in all cases of intestinal amebiasis with symptoms suggesting appendicitis, and questions of operation decided only after careful consideration.

In closing, I wish to thank Dr. P. C. Freer, superintendent of the Government Laboratories, for his assistance in editing the manuscript.

Electrotherapy for Affections of Optic Nerve.—Menn writes from Breslau to the *Ztft. f. diet. und physikalische Therapie*, viii, No. 8, that he has obtained fine functional results from application of electricity to affections of the optic nerve. He used stronger currents and made longer applications than those hitherto currently employed, and attributes his success to these more vigorous measures.

DISSEMINATION OF STREPTOCOCCI THROUGH INVISIBLE SPUTUM.

IN RELATION TO SCARLET FEVER AND SEPSIS.

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INTRODUCTION.

Since the completion of this investigation an article has appeared in the *Archiv für klinische Chirurgie,* by Mendes de Leon, describing experiments conducted along the same lines as my own, and having practically the same results. Dr. de Leon calls attention to the work done in Flügge's laboratory which proved the importance of droplets of sputum in the dissemination of tuberculous infection, and comments on the fact that the sputum as a source of infection has apparently been overlooked by surgeons. He instituted experiments similar to those of Flügge, but modified so as to reproduce the conditions of the operating room, and succeeded in proving that the mouth of the operating surgeon is a fruitful source of streptococcal infection. During an ordinary operation, not performed before a class, a surgeon speaks from 150 to 500 words. Plates laid on the table before a number of surgeons while they spoke the above number of words were found to contain about 75 colonies, the larger number of which were streptococci; the colonies of diplococci, staphylococci, sarcinæ following in this order of frequency. Tested on rabbits and on guinea-pigs, five out of ten of the strains of streptococci proved virulent, six out of ten of the diplococci and two out of three staphylococci. Antiseptic mouth washes were found to be of no value; the number of colonies on the plates was slightly diminished, but the proportion of streptococci increased, for the effect of the wash was to increase the amount of thin watery saliva, and it is this kind of saliva which seems to play the chief part in the spread of streptococci.

Dr. de Leon recommends a mouth guard of special construction, which, on test, was found to hold back almost completely the droplets of sputum.

It will be found that my experiments add little that is new to those of Dr. de Leon. They will serve, however, to confirm his statement as to the dissemination of streptococci by the sputum expelled in talking, and also to show that forcibly expelled breath, even in the absence of speech, is a source of infection.

SCARLET FEVER.

These experiments were undertaken primarily in connection with scarlet fever. In the Memorial Institute for Infectious Diseases one or two occurrences had suggested the possibility that the streptococcus might pass from one patient to another, and that a scarlet-fever patient with severe streptococcal complications might become a source of danger to the uncomplicated cases in the same ward.

The theory that the streptococcus is the causative agent in scarlet fever is finding daily fewer supporters and bids fair to be abandoned entirely, yet the importance of this organism as the cause of most of the complications of scarlet fever has suffered no diminution. Streptococcal infection is responsible for most of the cases of severe necrotic angina, for the otitis media and its consequent mastoiditis and meningitis, for the purulent rhinitis and conjunctivitis, for the suppurating glands, the purulent synovitis, many of the cases of bronchopneumonia, and probably for all cases of true nephritis, while many deaths in the course of this disease are deaths from sepsis and not from scarlet fever proper. Rumpl, indeed, believes that in the majority of cases this complication is more important than the disease, and that, from the fourth day on, the symptoms caused by the streptococcus usually predominate and may completely mask the scarlet fever proper.

Recent bacteriologic studies in scarlet fever show that the streptococcus is present in the large majority of cases. It was found in 40 out of 41 throats (Weaver), 4 being pure cultures. It was found in pure culture in 38.8 per cent. of cases of pseudomembranous pharyngitis (v. Ranke). Babes found it in the internal organs of 17 fatal cases, and Baginsky and Sommerfeld found it in the blood and internal organs of 82 fatal cases.[1] In many instances it is apparently of a low virulence, in others it seems to be non-virulent, for scarlet fever may run its course without any streptococcal complications, even when the streptococcus is present on the tonsils. The appearance of such complications, therefore, must mean invasion not only by the streptococcus, but by a virulent strain. It is a common laboratory procedure to change a non-virulent into a virulent strain or to heighten the virulence for the lower animals. Sometimes it can be effected simply by transplantation to a more favorable nutrient medium; e. g., blood serum or ascites fluid, or in other cases it is done by passing the germ successively through susceptible animals. In this way an enormous increase of virulence can be attained. Experiments in heightening virulence for human beings are, of course, out of the question, yet there seems no reason to doubt that the same thing may be true of them also, and that a given organism, only slightly virulent for man, may have its virulence raised by similar methods; e. g., by changing its habitat from a normal pharynx to one altered by catarrhal inflammation, or by passing successively from patient to patient. We may imagine a streptococcus of low virulence in the throat of a scarlet-fever patient being disseminated into the air of a hospital ward and, when inhaled by a second patient, increasing in virulence and setting up a necrotic pharyngitis in its second victim, a general sepsis in the third, and so on until it reaches the point when it is capable of causing the fulminating type of sepsis.

In an epidemic of scarlet fever it is sometimes noted that while many of the cases are mild, all the children in a certain family are taken with a malignant, fatal form of the disease. Usually we explain such occurrences as instances of a family predisposition to or unusually low resistance to the scarlatinal infection. Possibly, however, such cases may be due to successive infection with an increasingly virulent strain of streptococcus.

That cases of scarlet fever with septic complications may be a source of danger to others is no new idea. In the hospital of the Pasteur Institute in Paris all scarlet-fever patients are kept strictly isolated in separate rooms up to the period of convalescence. I was told when visiting this institution that the result had been a very low average of cases with complications and sequelæ. The same statement is made by R. E. Lauder, medical superintendent of the Borough and Port Fever Hospital, Southampton, England, who not only separates

1. A full review of the literature of this subject is given in an article by Ludvig Hektoen, "Streptococcemia," THE JOURNAL A. M. A., March 14, 1903.

the acute cases from the convalescents, but isolates all those with discharges from nose, ears or eyes, and all with swollen tonsils or lymphatic glands. As a result he claims a decided diminution in the number of patients with such complications.

At the Memorial Institute for Infectious Diseases, Chicago, several occurrences have pointed to the transmission of virulent streptococci from scarlet-fever patients to normal persons through the respiratory tract. One of the staff has twice contracted severe purulent rhinitis and pharyngitis when in attendance on cases of scarlet fever with unusually extensive streptococcal complications. Another developed a severe tonsillitis with chills and fever the first time he visited the scarlet-fever ward, and streptococci were found in his throat and blood. Still another developed a streptococcal tonsillitis after his first visit to the ward, and again after performing an autopsy on the body of a child dying of scarlatinal sepsis. In this hospital, as in others, it has been observed that the nurses are apt to have sore throat of varying severity during the first days of their service.

During April and May, 1904, an effort was made to prove whether or not scarlet-fever patients actually disseminate streptococci into the surrounding air. The method employed was the following: Sterile Petri dishes were filled with rabbit's blood agar (one part of defibrinated rabbit's blood to eight parts of glucose-peptone agar), and were used to catch the invisible droplets of sputum expelled from the mouths of scarlet-fever patients when coughing or crying, or when breathing heavily with the mouth open. Fifty cases were examined from the Memorial Institute, from the Cook County Hospital and from the Scarlet Fever Hospital of the New York Department of Health. At the same time that the plates were collected, cultures on glucose agar were made from the tonsils and examined for the presence of the streptococcus.

The method does not give very uniform results. It is impossible to regulate the amount of sputum which will reach the plate, for a vigorous cough may not produce as many colonies as a more feeble one, and crying may not produce as many as simple breathing, the variations depending on the dryness of the mouth and the thickness of the sputum. It was found impossible to make any absolute rule as to the time of exposure of the plates, or the distance at which they were held. For the majority of cases two plates were used; one held at from 12 to 15 centimeters from the mouth, the other at from 18 to 24. The patient was asked to cough twice while each plate was so held. If the cough was feeble the plate was held nearer, if very vigorous, farther away. In the case of crying babies the plates were held for one-half minute in front of the mouth. Some of the patients were too ill or too young to cough, and then the plate was simply held before the mouth for almost a minute, provided the patient was breathing rather forcibly and with the mouth open. In spite of every effort to attain uniform results the colonies on the plates varied in number from nothing to 175.

On blood agar the colonies of streptococcus are usually easily distinguishable, for the hemolytic action of this organism on rabbit's corpuscles results in the formation around the colony of a ring or halo which is either clear or greenish, according to the hemolytic power of the individual streptococcus. The halo around the pneumococcus colonies is more decidedly green than that around the streptococcus (Schottmüller), and the staphylococcus colonies, which also have a clear halo, can usually be distinguished easily by their greater size. In all cases of doubt the colonies were transferred to bouillon and examined the next day.

As a result of the study of these 50 cases, it was found that streptococci were present on the tonsils of 47, as shown by the cultures from swabs. It was expelled by coughing or crying in 20 out of the 34 patients who could either cough or cry, and by expiration in 13 out of the 16 patients who were too ill to be made to do so. A greater proportion of positive cases were obtained from the patients over 10 years of age than from those under; the feeble attempts at coughing made by the younger children and the feeble expiration often resulted in plates with very few colonies. Seventeen of the 23 cases over 10 years of age had streptococci on their plates, only 16 of the 27 under this age.

The proportion of streptococcus colonies to those of other organisms varied from five out of nine colonies to one out of ninety-eight. The proportion also varied in the two plates taken from the same individual. Thus in one case the first plate had 23 colonies, with no streptococci; the second—held farther away—had 43, of which 12 were streptococcus colonies. The plates collected from the 16 patients who were too ill or too young to cough contained colonies ranging from 3 up to 100. There were streptococcus colonies in 13 of those 16 cases; in 7 of the 13 this organism formed over 25 per cent. of all the colonies present.

These 50 cases represented almost all varieties of scarlet fever, and were taken during the first three weeks of the disease. Fifteen had severe pharyngitis, but the number of streptococci expelled by these cases did not average higher than the number expelled by the others.

These experiments prove that living streptococci are expelled into the air by scarlet-fever patients, and this not exceptionally, but in as much as 66 per cent. of all cases. In all probability some are non-virulent—those from the cases in which the angina is mild in character. In others there is reason to believe that they are moderately virulent, and in some the virulence may be of a very high grade. Animal experiments to determine the degree of virulence of a given streptococcus are notoriously unsatisfactory, as an organism which has been rendered highly virulent for one species of animal may be only slightly so for another, and an organism isolated from a case of scarlatinal septicemia may not prove at all virulent for the lower animals. We must, therefore, be satisfied with probabilities, but these are certainly strong enough for us to proceed on the assumption that a strain of streptococcus which is virulent for one human being is virulent for others also. Since, then, it has been shown that the streptococcus is expelled into the air surrounding the patient, we are justified in urging that those patients who are suffering from severe streptococcal complications should be isolated from uncomplicated patients, or that in hospitals where isolation is impossible a gauze mask should be used to cover the patient's mouth.

SURGICAL SEPSIS.

The theory of the "unity of the streptococcus" has gained ground of late years, although Schottmüller still distinguishes two species on the ground of cultural variations and different degrees of virulence. Schottmüller himself, however, states that the streptococci which cause erysipelas, phlegmon, septicemia, puerperal sepsis, the complications of scarlet fever, diphtheria, etc., are indistinguishable from each other. The same species

apparently may cause processes as different as a panaritium and a case of fulminating puerperal sepsis, according to the degree of the virulence of the strain, the character of the tissue invaded and the resistance of the individual. It is easy to show experimentally that the same organism can be used to produce different pathologic processes. The streptococcus isolated from a case of angina in man may set up either abscesses, erysipelas or general sepsis in a rabbit. The streptococcus from the body of a child dying of scarlatinal sepsis at the Memorial Institute for Infectious Diseases caused not only a local suppurative process in the finger of an interne who assisted at the autopsy, but also a severe tonsillitis with albuminuria, and it is certainly probable that the converse might also occur; that the organism which has caused a tonsillitis in one person might, if inoculated in a denuded surface of a second, set up suppuration in the latter. If streptococci are expelled from the throat of the nurse or of the surgeon at the time of an operation or of a surgical dressing, there seems to be no reason why they should not gain lodgment in the tissues of the patient and be responsible for a local suppuration or a general sepsis.

Every hospital with a surgical or maternity service has histories of mysterious epidemics of septic infection which could not be explained satisfactorily—which occurred apparently spontaneously and could not be traced to any neglect of ordinary precautions on the part of surgeons or nurses. I have tried to discover whether in any hospital such accidents were coincident with epidemics of sore throat among the nurses, internes or attending surgeons, but apparently the idea is a new one, and no definite information can be obtained as to such a coincidence. Slight sore throat is so common in our climate in winter that it occasions little remark, and even when it attacks a large number of nurses at once it may not actually incapacitate any of them and is quickly forgotten. In one hospital I find that this was suggested as a possible cause for a succession of cases of streptococcal infection in a surgical service. After all possible causes had been inquired into in vain, one of the house physicians called attention to the fact that several nurses on surgical duty at the time had been suffering from a form of tonsillitis caused, apparently, by the streptococcus.

In order to discover whether the air expelled by healthy adults may actually be a source of streptococcal infection, a bacteriologic examination was undertaken, during the months of April and May, of the invisible sputum of 50 persons, 40 of whom were hospital nurses, and 10, physicians connected with hospitals. We know that streptococci are present on the tonsils in normal throats in the great majority of cases, if not invariably. Hilbert and Ruth Tunnicliff each examined the tonsils of 100 normal throats and found it in all. The bacteriology of the saliva has been studied by Netter, Hübener, Barthel and v. Dungern, all of whom found streptococci, the last as a constant inhabitant of the saliva. The technic used in this study was the same as in the former, except that in addition to the invisible sputum expelled in coughing, that expelled in speaking also was examined.

A culture was made from the throat, and plates were held before the mouth at a distance of from 12 to 36 centimeters while the individual coughed twice, and at a distance of from 9 to 24 centimeters while he counted aloud up to 100. The 50 persons were all in good health, although a few, who will be referred to later on, had slight sore throat, but not enough to keep them from their usual work.

The following results were obtained: Streptococci were found in 46 of the 50 cultures taken from the tonsils. Colonies were found on 33 of the plates held before the mouth while coughing, and on 26 of those held while speaking. In several cases they were found on one set of plates, but not on the other, so that the number of those who expelled streptococci, either in coughing or in speaking, or in both ways, rose to 42, almost as many as those whose throat cultures contained streptococci. It was found that the streptococci were expelled to a distance of at least 24 centimeters from the mouth in speaking, to a distance of at least 36 centimeters in coughing, and that whispering, with its forced expiration, produced more sputum than speaking in an ordinary voice. The percentage of positive cases in this series of experiments is greater than in the first series, owing to the fact that the persons examined were adults, and the expulsion of sputum much more vigorous than in the case of the scarlet-fever children.

As in the plates from the scarlet-fever cases, the number of colonies varied greatly—from nothing to 225—and also the proportion of streptococcus colonies—from one in 30 to 30 out of 39. The plates held before the mouth while speaking had about the same number of colonies and the same proportion of streptococcus colonies as the plates held while coughing. The plate from one nurse contained 35 colonies, 28 of them streptococcus; that from another 58 colonies, 39 of them streptococcus; that from a physician had 74 colonies, 34 of them streptococcus.

Among the 50 patients described above were 9, of whom 5 had, at the time the examination was made, a mild angina, the other 4 had had tonsillitis of moderate severity within the preceding three weeks. All of these 9, with one exception, expelled streptococci in speaking or in coughing, the one negative case being a staphylococcus infection. In three of these cases the streptococcus formed 50 per cent. or more of all colonies on the plates.

It has already been stated that animal experiments are unsatisfactory, so far as the determination of the virulence of an organism is concerned; nevertheless, as a matter of curiosity, seven of the organisms isolated from these cases were injected into as many guinea-pigs in the dose of 1 per cent. of the body weight, for as the guinea-pig is not very susceptible to the streptococcus, a relatively large dose must be used. Four of the seven strains thus tested proved pathogenic, the animals dying after from one to three days and the streptococcus being recovered from the peritoneal cavity and organs. It is not probable that the streptococci from the throats of these people engaged in hospital work were more virulent than would be those from the throats of persons engaged in other work, for Hilbert tested ten organisms isolated from the throats of healthy school children, and found them all pathogenic to white mice.

The conclusions to be drawn from this second series of observations are obvious. Surgeons and nurses may themselves be the source of septic infection in their patients even after all the usual precautions as to disinfection have been observed. The surgical dressings are prepared beforehand and handled during the operation by nurses with unprotected mouths, who necessarily speak or whisper to each other while so engaged, and who can hardly guard against an unexpected cough.

The surgeon is, however, a far greater source of danger than the nurse. His head is close to the wound, sometimes within a few inches of it, he must give orders to his assistants, and even while he is silent, the strain incident on a difficult operation is liable to make him breathe harder with his lips apart; the short forcible expirations carrying—as shown above—numerous droplets of germ-laden sputum. Especially is the danger great when the operation is performed before a class, and the surgeon talks continuously, explaining his procedure as he works.

It is a matter of ordinary observation that there is a great difference in persons as regards the amount of saliva in the mouth. We have all talked to individuals who expel droplets of saliva into the air to a decided distance from their mouths. I was told by a student in a large medical college in Chicago that he had often noticed at the clinics of a certain surgeon that, when the light was from a certain direction, he could see, from his seat in the amphitheater, a continuous spray of saliva coming from the mouth of the surgeon while he discoursed to the class and conducted his operation. Obviously, protection to the mouth, of such sort as to catch and imprison the droplets of sputum, should be a routine precaution for surgeons and for surgical nurses during operations.

The danger of transmitting streptococcal infection seems to be increased during and for at least three weeks after an attack of sore throat, and it would seem advisable for surgeons to take special precautions during that time and for nurses to be assigned to duties other than surgical.

SUMMARY.

Streptococci are expelled from the mouth in the invisible droplets of sputum by coughing, speaking, whispering, crying or breathing forcibly through the mouth. They are expelled to a distance of at least 36 centimeters.

Thirty-three out of 50 scarlet-fever patients, most of them children, were found to expel streptococci in coughing, crying or breathing; 42 out of 50 normal adults were found to expel streptococci in coughing or in speaking.

The streptococci thus disseminated may be inhaled by others, and may set up streptococcal complications or may fall on the tissues exposed at an operation and cause suppuration.

Just as the virulence of an individual strain of streptococcus may be raised by planting on certain nutrient media or by passing through susceptible animals, so, in all probability, it may be raised by passage from one human being to another.

In this way may be explained the conversion of a case of simple scarlet fever into one of scarlatinal sepsis, and in the same way may be explained the cases of surgical sepsis which occur after all usual precautions have been taken.

Cases of scarlet fever with streptococcal complications should be isolated from cases without such complications.

Surgeons and nurses should have their mouths protected during the time of an operation.

My thanks are due to Dr. Hektoen, who suggested this investigation, and to Dr. W. M. Park of the New York Department of Health, and Dr. Baum of the Cook County Hospital, Chicago, for courtesies shown me in the collection of the material.

Special Article

IMMUNITY.

CHAPTER XI.

THE NATURE OF THE SUBSTANCES CONCERNED IN AGGLUTINATION.

Two substances are necessary for the phenomenon of agglutination; one, the active or agglutinating substance, exists in the serum, while the other, the substance acted on or the agglutinable substance, is presented in the bacteria. The agglutinable substance is generally supposed to be passive in the reaction, while the agglutinating property seems to possess a ferment-like element, which acts on the agglutinable substance. Agglutinin, the term used in the preceding chapter, is now generally applied to the substance in the serum. Recently the bacterial constituent has been called agglutinogen, because of the belief that the agglutinable substance, when introduced into the animal body, stimulates the latter to the formation of agglutinin; hence agglutinogen means, not agglutination producing, but agglutinin producing. These shorter terms will be used for the sake of brevity.

Terms.

The tendency to consider agglutination a vital phenomenon has been shown to be incorrect; for bacteria which have been killed may be agglutinated by serums and even by some purely chemical substances.

The presence of agglutinogen in an organism may be demonstrated in three ways: 1. The mere fact of its agglutinability by a serum is evidence of the presence of an agglutinable substance. 2. If during infection or immunization the serum acquires agglutinating properties, the organism possesses an agglutinogenic substance. 3. If an organism is mixed with a serum containing the specific agglutinin, and later is removed by centrifugation, the resultant disappearance of agglutinin from the serum, which may be demonstrated, shows that something in the bacteria (agglutinogen) has combined with the agglutinin.

Agglutinogen.

The location of agglutinogen in the bacterial cells has received some discussion. There is a tendency to believe that it exists in the cell envelope or perhaps on its surface. It appears to be formed in the cell, and, in some cases, it may be excreted into a surrounding medium; certainly when bacteria die and disintegrate agglutinogen is liberated. Filtrates of the cultures of certain organisms (entirely free from bacterial cells), when injected into animals, will cause the formation of agglutinins. Also, just as a micro-organism is able to absorb the agglutinin from its specific antiserum by a process of chemical union, so a filtrate of the type mentioned is able to neutralize the agglutinating power of the serum; here, too, a chemical union is assumed between the free agglutinogen and the agglutinin.

Distribution of Agglutinogen.

The filtrates of certain cultures exhibit another phenomenon when they are mixed with their specific antiserums; this has to do with the bacterial precipitins of Kraus. If, for example, the filtrate of an old typhoid bouillon culture is mixed with antityphoid serum, a distinct precipitate is formed which eventually settles to the bottom of the tube. This is a specific reaction, and does not occur if the filtrate is mixed with some other immune serum. It is thought by some that this so-called precipitable substance in the filtrate is identical with the agglutinable substance (agglutinogen), but this point is still the subject of investigation.

The Precipitation Reaction.

Agglutinogen may also be extracted from micro-organisms by chemical processes. The presence of the substance in the extracts becomes manifest when immunization with them causes the formation of an agglutinating serum. This, again, is the "test of immunization."

The agglutinogen of one bacterium is not identical with that of any other. If they were identical immunization with the

one would yield an agglutinating serum of equal power for both cells; this, however, is not the result obtained. On the other hand, the agglutinins of two different organisms may coincide to a certain degree, as will be shown under the subject of "group agglutination." Certain experiments go to show that the agglutinin of even a single micro-organism is not a uniform substance. One portion is heat susceptible, being destroyed at 62 C., while another portion is said to resist a temperature of 165 C. Such technical questions continue to be investigated.

Multiplicity of Agglutinogens.

Agglutinogens are said to pass through semipermeable membranes, while agglutinins do not. Smith and Reagh distinguish two kinds of agglutinogen in those bacteria which possess flagellæ, one peculiar to the cell body, and the other to the flagellæ. Agglutinin may be precipitated completely from a serum by the sulphates of magnesium or ammonium, when the salts are used in proper concentrations. Because of their reaction to such precipitating agents, agglutinins are thought to belong to the globulin fraction of serums; whether globulins or not, they are precipitated with them.

Flagellar and Somatic Agglutinogens.

Agglutinins resist digestion with pepsin and papayotin, but are destroyed after prolonged exposure to the action of trypsin. An agglutinating serum which is dried and kept free from moisture and the action of light, retains its power unaltered. Similar to agglutinogen, agglutinin is thought not to be a uniform substance, one portion being susceptible to heat, and another portion resistant; these have been called alpha and beta agglutinins.

Properties of Agglutinins.

It is convenient to speak of the reaction between agglutinin and agglutinogen, and of the process in the body through which agglutinins are formed, in terms of the side-chain theory. Accordingly, if that constituent of micro-organisms which we have termed agglutinogen is the substance which stimulates the tissues to form agglutinin, we must assign to it a haptophorous group through which it may unite with the receptors of the tissue cell. This haptophore comes into play again in the union between agglutinogen and agglutinin, which precedes agglutination. There is no reason for assigning to agglutinogen any other structure than this single haptophore; it is a passive body, similar to antitoxin, and has no other function than that of uniting either with cell or with agglutinin.

Structure of Agglutinogen.

Agglutinin also must have a haptophorous or binding group, inasmuch as it enters into combination with agglutinogen. In addition to this binding group, experiments have shown that agglutinin possesses a toxic constituent, which is analogous to the toxophorous group of the toxin molecule; in this case, however, it is called a zymotoxic or zymophorous group because of its supposed ferment-like activity (Fig. 6). The analogy with toxins goes further, in that the zymotoxic group of agglutinin may degenerate or may be destroyed, leaving the haptophorous group with its binding power for agglutinogen practically unaltered; these are agglutinoids, just as toxins when changed in a similar way are called toxoids.

Structure of Agglutinin.

Zymotoxic Group.

A serum which is rich in agglutinin may be changed into one rich in agglutinoid by exposure to a temperature of from 60 to 75 C., and by the action of acids or alkalies; the change also takes place spontaneously in the course of time, when the agglutinin is in solution.

Agglutinoids.

Agglutinoids are detected by methods analogous to those used in the recognition of toxoids. If toxoids unite with all the antitoxin in a solution, there naturally remains no antitoxin to unite with true toxin which may be added subsequently. Similarly, if all the agglutinogen in a mass of micro-organisms has united with inactive agglutinoid, agglutinin which is added subsequently would have no point of attack and the reaction of agglutination would not occur. So we may say that when bacteria are treated with a serum, which at one time was agglutinating, and the bacteria are thereby made insusceptible to the action of a fresh agglutinating serum, the former serum contained agglutinoids.

Sometimes it is found that even a fresh serum, when concentrated, will cause less agglutination than when diluted. This has been referred to the presence of agglutinoids which have a stronger affinity for agglutinogen than has the agglutinin; when of this character they are called proagglutinoids, and accordingly are analogous to the protoxoids mentioned earlier. As the serum is diluted the concentration of the proagglutinoids becomes less, and at a time when they are so dilute that they have no influence on the reaction, the agglutinins are still present in such strength that agglutination is brought about.

Proagglutinoids.

The presence of some salt is necessary for the occurrence of agglutination. Bordet found that if the salts were removed from the serum and from the suspension of bacteria by dialysis, and the two were then mixed, agglutination did not occur; if a small trace of sodium chlorid was added the reaction took place promptly. Furthermore, if the serum was completely removed from the bacteria by repeatedly washing them in distilled water, it was found that the microbes had absorbed the agglutinin, but the latter remained inactive until the salt was added.

Two Stages in Agglutination.

This experiment not only suggests a haptophorous as distinguished from a zymotoxic group, but also indicates that agglutination consists of two phases. The first phase represents the union of agglutinin with the bacteria, while in the second are included the other changes necessary for the clumping of the organisms; the second is supposed to represent the activity of the zymotoxic group. The action of the salt, just cited, is unknown. It has been suggested that it may favor osmosis between the bacteria and the surrounding fluid, or that it may in some way affect their adhesiveness and the attraction existing between individual cells.

The properties of serums which are of interest in immunity are now being studied by chemists, notably by Arrhenius, the celebrated Swedish chemist. The study of mass action, of chemical equilibrium between agglutinin and agglutinogen, for example, and of the dissociation of the compound after it has once formed, are subjects under investigation, but which are too technical to be entered on here.

"Group agglutination" has been referred to. By this is meant the ability of some antimicrobic serum to agglutinate certain other organisms which morphologically, biologically and often pathogenetically, are closely related to the homologous bacterium. In these instances, the agglutinating power is greatest for the homologous organism, and the degree to which the heterologous organisms are agglutinated is to some extent an index of the proximity of the relationship of the latter to the former. Antityphoid serum has been found to agglutinate the psittacosis, colon, paracolon, and paratyphoid bacilli and *Bacillus enteritidis*, but the action is never so strong as on the typhoid bacillus itself. We are to understand that this power to agglutinate related organisms represents something more than the normal property of the serum; there has been an actual increase in agglutinin for the heterologous bacteria as a result of infection or immunization by the specific organism.

Group Agglutination.

Having typhoid fever in mind, this is a rule which works both ways. Infections with the colon bacillus and related organisms, and sometimes with organisms not closely related, as the staphylococcus, may cause an increase in agglutinin for the typhoid bacillus. The importance of this fact is evident, and it may explain the positive Gruber-Widal reaction sometimes found in acute tuberculosis, epidemic cerebrospinal meningitis, etc.

Inasmuch as the highest agglutinating power is always manifest against the homologous organism, this is spoken of as the chief agglutinin (*Hauptagglutinin*) of the serum, while the weaker agglutinins for other organisms are called partial or adventitious agglutinins, or coagglutinins (*Mitagglutinin*).

Chief Agglutinin and Co-agglutinins.

The phenomenon of group agglutination would seem to violate the specificity which we are in the habit of attributing to the reactions of immunity; yet an adequate explanation has been offered for the occurrence. It is probable that the protoplasms of all cells have certain constituents in common, and that the closer the relationship between two different cells the greater is the similarity of their constituents. In view of this probability, Durham has used the following illustration in the explanation of group agglutination: The typhoid bacillus contains certain constituents, agglutinogenic molecules, which one may designate as a, b, c, d, and e; these differ among themselves in unknown respects, but each is able to stimulate to the formation of a corresponding agglutinin. The serum, then, would have the agglutinin molecules A, B, C, D and E, also differing among themselves, but having at least one property in common —that of causing agglutination of the typhoid bacillus by uniting with their corresponding agglutinogenic molecules. In this sense nothing could be more specific. The *Bacillus enteritidis*, closely related to the typhoid organism, may possess the agglutinogenic molecules c, d, e, f, g, and h, and following the principle expressed above would stimulate, in the body, to the formation of the agglutinin molecules C, D, E, F, G and H. Inasmuch as the agglutinogens c, d and e are common to the two bacilli, the agglutinins C, D and E would affect either of the two

Specificity.



Fig. 6.—Graphic representation of receptors of the second order and of some substance uniting with one of them. *c*, cell receptor of the second order; *d*, toxophore or zymophore group of the receptor; *e*, haptophore of the receptor; *f*, food substance or product of bacterial disintegration uniting with the haptophore of the cell receptor. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii.

organisms. The typhoid serum, however, would contain five agglutinins for the typhoid bacillus and only three for the *Bacillus enteritidis*, consequently the action would be stronger against the typhoid bacillus. The same line of reasoning would explain the increased agglutinating power of an anticolon serum for the typhoid bacillus.

A further elaboration of this principle may be made in a case in which two different strains of the same organism (typhoid bacillus) have somewhat different agglutinogenic molecules; consequently the homologous immune serums for these organisms might not coincide in their agglutinating powers for a third strain of the bacillus.

In view of the points mentioned, it is clear that specificity of a given serum may be determined only by diluting the serum to such an extent that the co-agglutinins practically are eliminated, the chief agglutinin being present in so much greater concentration that it is still able to agglutinate the homologous bacterium.

Importance of Serum Dilutions.

Theoretically, it is also important for the specificity of the reaction, that the particular strain of the organism to be used for the test correspond in its agglutinogenic molecules or receptors with those of the strain used for the immunization; the agglutinogenic receptors should be typical for the organism.

It is doubtful if group agglutination occurs among all closely related bacteria, inasmuch as Kolle found that it did not exist among the vibrios.

It is thought possible that the multiple agglutinating power of a serum may be caused by mixed infections in some instances; although this is to be kept in mind, one should not overestimate its diagnostic importance, because a similar multiplicity may result from infection by a single micro-organism.

Mixed Infections.

The explanation of the production of agglutinins by the body, according to the conception of Ehrlich, is similar to that already given for the production of antitoxins. That is to say, the agglutinin molecules are cast-off cell receptors, the overproduction of which has occurred as a result of their union with the agglutinogenic molecules of the bacteria. The antitoxin receptors were relatively simple, having no other demonstrable structure than that of the haptophorous groups through which they unite with the corresponding molecules of toxin. We have recognized in agglutinin receptor two groups, a haptophorous and a zymotoxic, consequently it must have this same structure when it is still a part of the cell. Ehrlich designates it as a receptor of the second order, which, being defined, is a receptor in which a haptophorous and a zymotoxic group exist as integral parts of the molecule (Fig. 6).

Production of Agglutinins. Ehrlich Theory.

Receptors of Second Order.

In accordance with the side-chain theory, the ability of an animal to form agglutinins for a certain organism would depend on its possession of receptors of the second order which are able to unite with the agglutinogenic receptors of the bacterium. It is well established that different animals may not form serums with equal agglutinating powers for an organism. The following is a concrete example: Wassermann immunized rabbits, guinea-pigs and pigeons with a strain of the colon bacillus, and tested the three serums with fifteen other strains of the same organism. The serum of the guinea-pigs readily agglutinated the strain which was used for immunization, but scarcely affected the others. The serums of the rabbits and pigeons also agglutinated the homologous culture, but the co-agglutinins which they possessed did not affect other strains equally. Consequently, it was supposed that the cells of the three animals contained a limited number of receptors in common, whereas other receptors which were present in one of the animals were largely wanting in the other two.

Inagglutinability was mentioned as a characteristic of certain bacteria, especially the bacillus of Friedlander. This condition is much more important when it involves an organism which usually is agglutinated with ease. In some instances, the typhoid bacillus when freshly cultivated from a patient, or, indeed, from contaminated water, has been found to resist agglutination by a strong serum; the same organism after a period of existence on artificial media becomes agglutinable. Widal and Sicard noted that often the serum of a typhoid patient would not agglutinate the bacillus which had been cultivated from the patient's own body, although the same serum would agglutinate laboratory cultures. Cultivation of the typhoid bacillus at 42 C. will cause it to lose its agglutinable property, but it may be re-established by subsequent cultivation at lower temperatures. It seems that this variation must be due to some change in the bacteria, i. e., in the agglutinable substance. It is possible that the organism, during its existence in the animal, becomes immunized against the action of the agglutinin just as the animal becomes immunized against the toxic action of bacteria. This condition in the micro-organisms would then be represented by a great excess of agglutinogenic receptors, so that a much greater amount of agglutinin would be required to cause clumping. It is readily seen how the use of an inag-

Inagglutinability of Some Organisms.

glutinable strain of the typhoid bacillus would affect serum diagnosis.

We are to consider that in the phenomenon of agglutination a reaction of a chemical or physico-chemical nature takes place between the agglutinin of the serum and the agglutinogen of the micro-organisms, the actual clumping following as a consequence of this reaction.

Theories of Agglutination.

Theories of agglutination have to do, not with the existence of agglutinin and agglutinogen, but rather with the nature of the reaction between the two, and the influences which bring about the clumping after the reaction has occurred. The original theory of Gruber supposed that the serum so affected the bacteria that they became sticky; consequently, as they came in contact they were, so to say, glued together. Dineur thought changes occurred in the flagellæ of the organisms, a theory which is untenable because some bacteria are agglutinable which do not possess flagellæ. Emmerich and Loew refer agglutination to the action of an enzyme which is produced by the bacterium itself, a theory which is not given general credence. Bordet excludes the vitality or motility of the organisms as factors, and believes that the process is purely a physical one, because of the fact that some known chemical substances may be made to precipitate or to agglutinate certain other chemicals; the theory presupposes some change in the molecular attraction between the microbes and the surrounding fluid.

Other theories have to do with the question of precipitation. As previously stated, when the filtrates of cultures of certain organisms are mixed with their corresponding immune serums, precipitates occur in the mixtures. It was mentioned that the substance in the filtrate which takes part in the precipitation may represent in part the agglutinable substance which has been excreted by the bacteria. Nicolle supposes that the agglutinable substance resides in the external layer of the bacteria and that when the serum is added a coagulation occurs in the envelope, rendering coalescence with the envelopes of other individuals possible. The theory of Paltauf is somewhat similar; the agglutinable substance finds its way to the surface of the bacterium and is precipitated by its union with agglutinin. This shell of coagulated substance accounts for the sticky character which the envelope acquires, according to the theory of Gruber. Paltauf cites observations which tend to show that some substance actually is extruded from the micro-organisms, and that in properly stained specimens it can be seen as a precipitate surrounding and between adjacent organisms.

The multiplicity of theories leads one to suspect that the true nature of the process remains obscure.

(To be continued.)

Clinical Reports

DECAPSULATION OF THE KIDNEYS FOR BRIGHT'S DISEASE.*

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CHICAGO.

Introduction.—The question of decapsulation of the kidneys as a remedy for nephritis is still an open one. Its originators and early advocates, Ferguson and Edebohls, are still practicing it and advocating it as enthusiastically as at first, but many surgeons either have refused to try it or have discarded it after trial. Many have studied the subject experimentally on dogs, but no additional information seems to have been derived from these experiments. Several oculists condemn the operation in cases where the vision already is affected. In many cases, however, decapsulation has been of immediate and striking benefit to the patient; and the medical profession must decide whether this benefit is permanent or only temporary, and, if temporary, whether or not it is of sufficient value to justify the operation. The remedies at our command in cases of nephritis are few in number and of more or less doubtful effect, and it would seem that any new plan of treatment holding out sufficient hope of benefit should be given a thorough trial. To reach definite conclusions the cases must be perfectly selected, closely observed, and, so far as possible, fully reported, with remote as well as with immediate results.

Patient.—Mr. L. P. R., Norwegian, aged 35, married.

History.—He came to the United States in the early part of 1903, and has been employed here as assistant to a surveyor. He has never been ill in bed except for a day or so at a time. He has four brothers and three sisters living and well. His mother died of old age, his father of some pulmonary disease of two weeks' duration. His occupation in Norway was that of a non-commissioned officer. His habits are good. He drinks a glass of beer occasionally and chews some tobacco. About Christmas, 1903, he contracted a very severe cold which confined him to bed for about a week. In February, 1904, he began to pass bloody urine about every hour during the day and several times during the night. Then he began to notice swelling all over his body and was taken to Cook County Hospital, where he remained for two weeks, during which time the general swelling disappeared, but his condition otherwise remained the same.

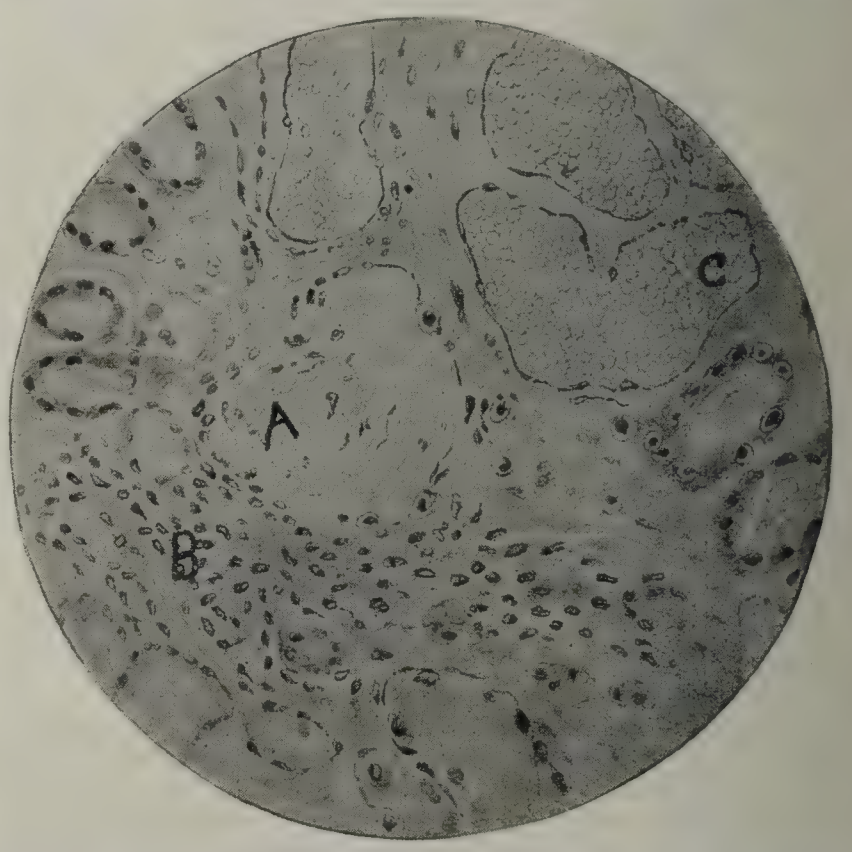


Fig. 1.—Microscopic section. A. Fibrous and hyaline glomerulus. B. Round cell infiltration. C. Distended blood vessel.

Examination.—On admission to the Tabitha Hospital, March 5, 1904, he looked anemic, but the physical examination of his body otherwise was negative. He had some cough and expectoration, and the sputum was examined for tubercle bacilli, but none was found.

Urine: The first twenty-four-hour specimen of urine measured 2,325 c.c., with a specific gravity of 1,008; of a light amber color, with considerable blood coloring matter; of acid reaction, and of a cloudy appearance. A large quantity of both nucleo-albumin and serum-albumin was found, the percentage being 7.5, with a percentage of urea of 1.5. Microscopically a great number of granular and some hyaline casts, quite a few erythrocytes and some leucocytes were found. On March 8 samples were taken from each kidney by means of the Harris segregator. The urine did not differ much from the two sides, the quantity of albumin being higher on the right, 11 per cent., than on the left, 8 per cent.

His pulse and respiration were normal, with an occasional slight rise of temperature.

* Read at the meeting of the Northwest Branch of the Chicago Medical Society.

Operation.—On March 11 decapsulation of both kidneys was performed under chloroform anesthesia, the operation being completed in one hour. The capsules were pushed backward over the kidney, but were not removed. Both kidneys were large and of a dark color. There was very free serous and bloody discharge through the large gauze drains for several days.

Postoperative History.—During the week following the operation the temperature ranged between 98 and 102.5 F.; the pulse and respiration, however, remaining almost normal. Examination of a twenty-four-hour specimen of urine on March 13, two days after the operation, showed a drop in the percentage of albumin to 3 per cent., the quantity being 2,050 c.c. and the specific gravity 1,010. A twenty-four-hour specimen taken two days later only contained 1,450c.c., the percentage of albumin being increased to 5 per cent. From then on the quantity of albumin gradually decreased, so that on March 21 and 22 it was only 1.5 per cent.; the quantity remaining about normal. After the first week the patient's temperature practically was normal. While the percentage of albumin continued to decrease down to 1 per cent. and less, the quantity now again began to increase. On April 14 the urine had become of a natural color, nearly clear, with only 0.5 per cent. of albumin, specific gravity, 1,007, amount in twenty-four hours 4,100 c.c., no erythrocytes, leucocytes or hyaline casts to be found, only a few granular casts being present.

On April 19 the patient complained of pain in the left ear. On inspection a large cast of wax was found and extracted without, however, giving any relief; his temperature that afternoon went up to 99.8 degrees and remained slightly elevated the following day, during which there was some serous discharge from the same ear. The next day there was still more discharge and the temperature suddenly went up to 105. On the following day, April 22, vomiting set in and during the dressing of the ear the membrane ruptured and pus flowed from the middle ear. This was followed by a slight decrease in the temperature, but on the following day he began to cough and to expectorate rusty-red mucus, and dullness was found over the lower lobe of the right lung; the patient also became jaundiced. For nine days he was in a very serious condition, and during this time the urine became reddish-black and contained blood cells and 8 per cent. of albumin. On the ninth day a crisis took place and from then on his temperature, pulse and respiration were almost normal. On May 4 the urine had again assumed a much better appearance, containing only 1 per cent. of albumin, which, however, on May 14, was increased to 3.5 per cent., the patient suffering from sore throat with a rise of temperature. The temperature remained elevated for about two weeks and he was left in a feeble condition and greatly reduced in weight. From now on his recovery progressed without any further interruption, the temperature became normal, the percentage of albumin gradually decreased and the urine otherwise became more and more normal cept in quantity, which increased. His weight increased about forty pounds and he was feeling well. Examination of the urine on August 2 showed a slight trace of albumin, too small to be measured, no casts or blood cells, acid reaction, light amber color, a slightly cloudy appearance, a specific gravity of 1,012 and a quantity of 3,750 c.c.

Pathologic Report.—Dr. Peter Bassoe reports as follows: The section received for examination is small, measuring 4 mm. in its greatest dimension. Of the glomeruli present several are converted into hyaline fibrous tissue and adhere to their capsules; others are swollen and engorged with blood. In places the epithelial cells of the convoluted tubules are swollen and disintegrating; many of them, however, are fairly well preserved. All vessels are dilated and filled with red cells. Many collecting tubules are dilated and filled with blood and interstitial hemorrhages are seen. There are small collections of mononuclear round cells in several places and also general increase in adult fibrous tissue. These findings indicate the presence both of chronic interstitial changes and of an acute exacerbation.

Result.—He left the hospital on August 13, has since moved to North Dakota, where he is working on a farm, looks well and feels good. On December 8 he forwarded me by express a twenty-four-hour specimen of his urine. The quantity was 2,200 c.c., specific gravity 1,017, appearance cloudy, percentage of urea 2, one granular and no hyaline casts were found, and some leucocytes. A trace of albumin was reported from the laboratory. This, however, was so small that I was unable to see it in two tests (cold and warm nitric acid) made at my office before sending the specimen to the laboratory. While the patient, on account of the serious complications that arose, was obliged to remain in the hospital for over five months, the progress in the beginning was so satisfactory that it would seem reasonable to assume that barring these complications his recovery would have been complete in about two months.

The result of the operation seems to have been all that could be asked for up to date and it only remains for the future to decide as to its permanency.

684 North California Avenue.

IMMEDIATE CLOSURE OF TRACHEOTOMY WOUNDS.

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Tracheotomy wounds are usually treated by the open method, whether the tracheotomy has been done for the removal of a neoplasm, or of a foreign body, or for dyspnea due to infection. In the presence of infection, it is unquestionably better to drain the wound, but in the absence of infection, it would be better to close the wound, provided, of course, that the cause of the dyspnea has been removed.

Immediate closure lessens the danger from pneumonia and from infection occurring in the wound itself, it shortens the convalescence and reduces to the minimum the deformity due to the scar; the latter being of particular consequence in females.

I firmly believe that the mortality in these cases may be lessened by immediate closure of the wound, and it seems to me that the morbidity may be decreased by adopting this method; the deformity certainly is lessened thereby.

In support of this opinion the following cases are reported:

Case 1.—Baby B., aged 2½ years, girl, was referred to me by Dr. W. D. Calvin, Sept. 29, 1904.

Operation.—Tracheotomy, below the isthmus, was done at Hope Hospital a few hours after the accident. A scarfpin, with the head lodged at the bifurcation of the trachea and with the point presenting at the lower part of the tracheal wound, was seized with forceps and removed. The wound in the trachea was not stitched, but the overlying tissues were coapted with subcutaneous stitches and adhesive plaster. A small drain cut from a No. 8 F. catheter was placed in the lower angle of the wound down to the trachea, and was removed on the third day. The wound healed by first intention and the child left the hospital on the third day.

Case 2.—Baby M., aged 3 years, girl, was referred to me by Drs. Veasy and Maloney of Avilla, on Dec. 25, 1904.

History.—Ten hours prior to admittance to Hope Hospital half of a peanut kernel had lodged in the larynx. The dyspnea had been continuous, and the child's condition when seen was very grave. The foreign body could not be felt with the finger in the mouth.

Operation.—Little anesthesia was required, the A. C. E. mixture and ether being used. A low tracheotomy was done, the isthmus of the thyroid was pulled upward, and the incision in the trachea extended in that direction until the foreign body, which was firmly wedged in the glottis, could be seen and removed. The trachea and overlying soft parts were coapted with fine catgut, and the skin with adhesive plaster. A tiny drain was left in the lower angle of the wound for twenty-four hours. The wound healed by first intention and the child was taken home on the eighth day.

The placing of drains was unnecessary, but was done because of the lack of confidence which one is likely to feel when trying a new method. In the first case, the tracheal wound was not stitched for the same reason. This, too, I think, was a mistake, as stitching the trachea prevents infection of the wound from that source. In the first case, considerable time was taken in endeavoring to locate the foreign body with the aid of the laryngoscope; in cases wherein the dyspnea is at all marked this is an error. If the foreign body can not be felt with the finger it is better to open the trachea at once. If the dyspnea is continuous and severe, one may confidently expect to find the body fixed somewhere between the bifurcation of the trachea and the glottis. If, on the other hand, the dyspnea is severe at times with intervals of free breathing it indicates that the foreign body is acting as a ball valve. My intention in writing this paper, however, is to call attention to the fact that it is better to treat tracheal wounds by immediate and complete closure, save in those cases where there is dyspnea or infection, than by the open method, which is the one in vogue.

New Instrument

A NEW CURRENT CONTROLLER.

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With the renewed interest in the constant current as a conveyer of ionized bodies for the destructive sterilization of cancerous growths now shown by many physicians who but recently employed the Roentgen rays alone in the treatment of malignant growths, the question of proper apparatus for electrochemical surgery is one of much importance. Unless provided with good instruments, it is evident that the first requisite for the development of special skill in this work is wanting, and that imperfect results are sure to follow any attempt to put these methods into practice.

Plain speaking on this point is most essential. In the city of New York, with its many manufacturers of electrotherapeutic apparatus, not a single controller worthy of use in the cataphoric applications of the constant current has ever been made. In Chicago, good controllers have been made for some time, but until a very recent date the meters furnished in that city were worse than toys, for they deluded the physician as to the strength he was actually passing through the patient, the needle remaining at zero at times, with as much as, say, 80 milliampères in circuit. Recently a good meter has been put on the market in Chicago, and of my own city I can state that a good controller has been procurable for some time, if the physician knows exactly what to order.

With Chicago offering apparatus that controls the current easily, but blindly, and New York apparatus that does not even control it properly, the urgent need of a "physical section" of the American Medical Association is evident. Water will not rise higher than its source, and until the medical profession is educated to the point of knowing the physical problems involved in the use of natural forces in medicine, the instrument makers can not be expected to supply the want, and what is virtually quack practice with quack apparatus will rule, even in the offices of our otherwise well-educated leaders in medicine.

It is indeed a singular fact that otherwise progressive physicians, who daily use the electric light, telephone, electric railway and other developments of electric science of equally fundamental character, all of which have appeared within the past twenty years, are yet content to limit their therapeutic use of the constant current to methods crystallized by Remak and Erb some forty or fifty years ago.

The two central points in a constant current apparatus, either for the ordinary applications or for electrochemical surgery, are a controller by which the current may be turned on absolutely without shock from zero to the strength desired, and a meter that shall be accurate and remain accurate, and at the same time be free from undue resistance and heating effects. All else is merely accessory, though a cabinet has much value by permitting a ready use of other currents from the same treatment poles.

The new controller here described (Fig. 1) is a further development of the graphite controller which I devised in 1887, and which was later improved by Jewell of Chicago. To adapt it to the large amperages required in the cataphoric treatment of cancer the controller has been greatly enlarged, the diameter of the graphite circle being increased to 12 inches. This permits of the most gradual attainment of currents of any strength, from a fraction of a milliampère to 1,500 milliampères, the source of the supply being either the 110-volt direct current mains, or a battery of dry cells. To further adapt this controller to permit the 110-volt mains to be used in the most delicate work in electrochemical surgery, such as the removal of hairs, destruction by electrolysis or cataphoresis of minute growths about the eyes or in other sensitive situations, where we wish to use one milliampère or less of current with only such voltage as required, a special arrangement has been added.

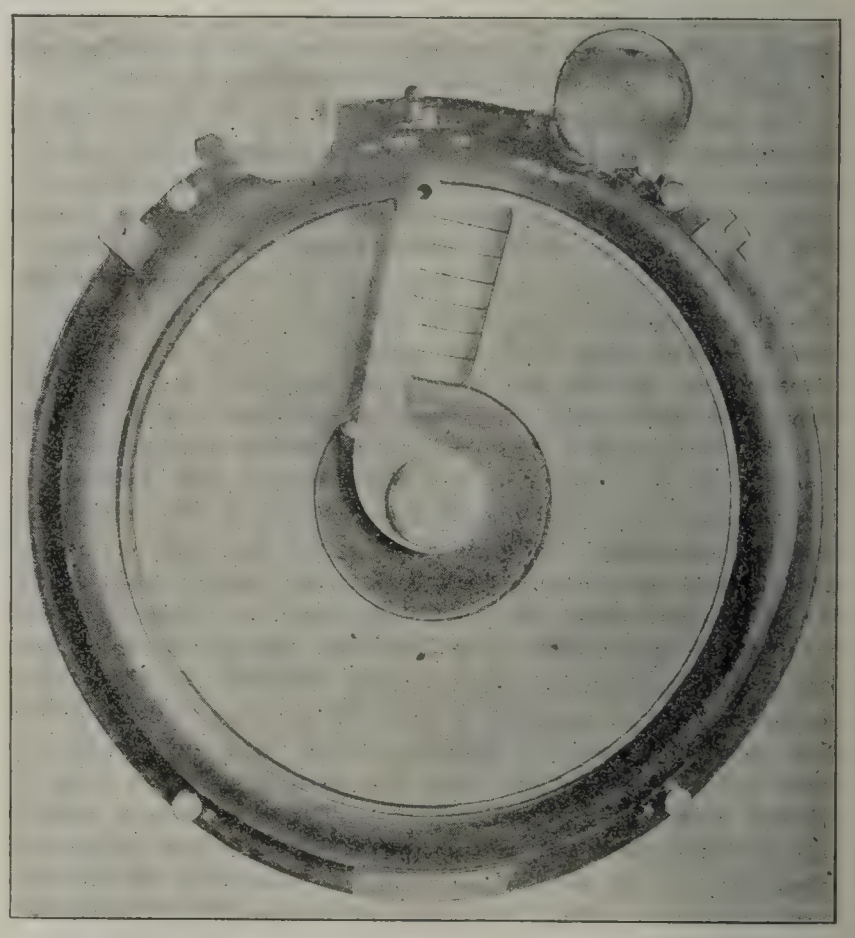


Fig. 1.—The universal controller. The positive and negative wires of the current mains are attached to the upper P. and N. binding posts. The lamp at the left is in series and may be cut out by the switch in the middle. The lamp to the right is in shunt with the patient.

This is simply the placing of a sixteen candle power lamp between the patient's poles, in parallel with the patient (Fig. 2). The result is that the great bulk of the voltage is expended on the lamp, which presents less resistance than the human body in these minute applications, while but a fraction will be expended on the body (Fig. 3). Care must be exercised by the manufacturer to place the meter in the patient's path only, and not in the path of this shunt lamp, otherwise the reading will show the amount of current flowing through the lamp as well as through the patient.

When this shunt lamp is turned on at its key and the current turned on at the crank arm the current will seek the three paths shown diagrammatically in Figure 3; so little of the voltage and milliampèrage traversing the meter and patient that the crank arm of the apparatus will need to be turned half over the area to obtain as much as one milliampère in this circuit, while the shunt lamp will show a dim glow. This slow

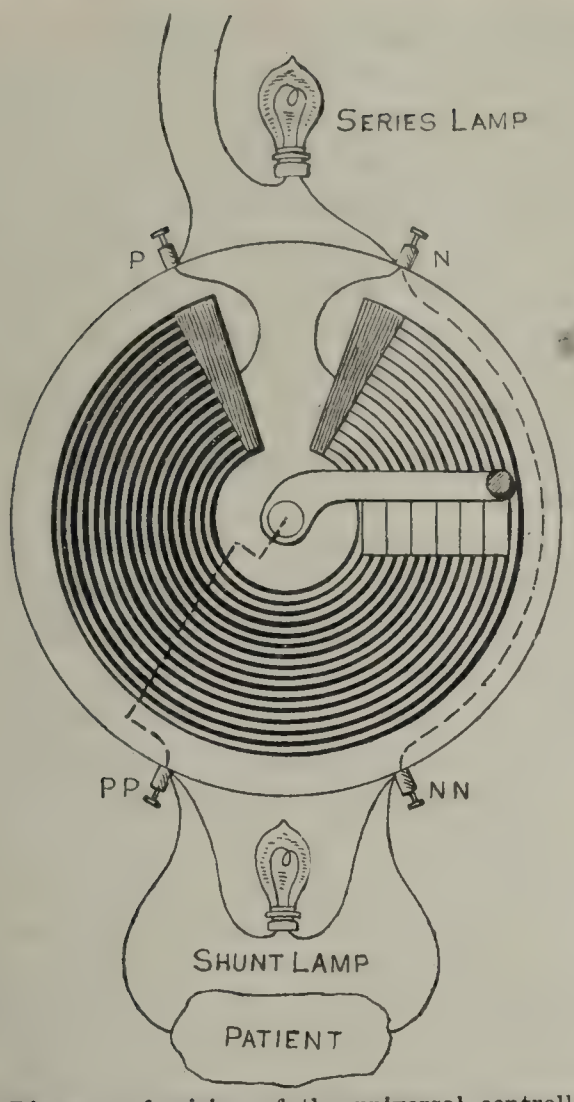


Fig. 2.—Diagram of wiring of the universal controller, showing series lamp above and shunt lamp below; the latter placed in the position to show its use most clearly. The meter must be intercalated between P. P. and patient, or else between N. N. and patient.

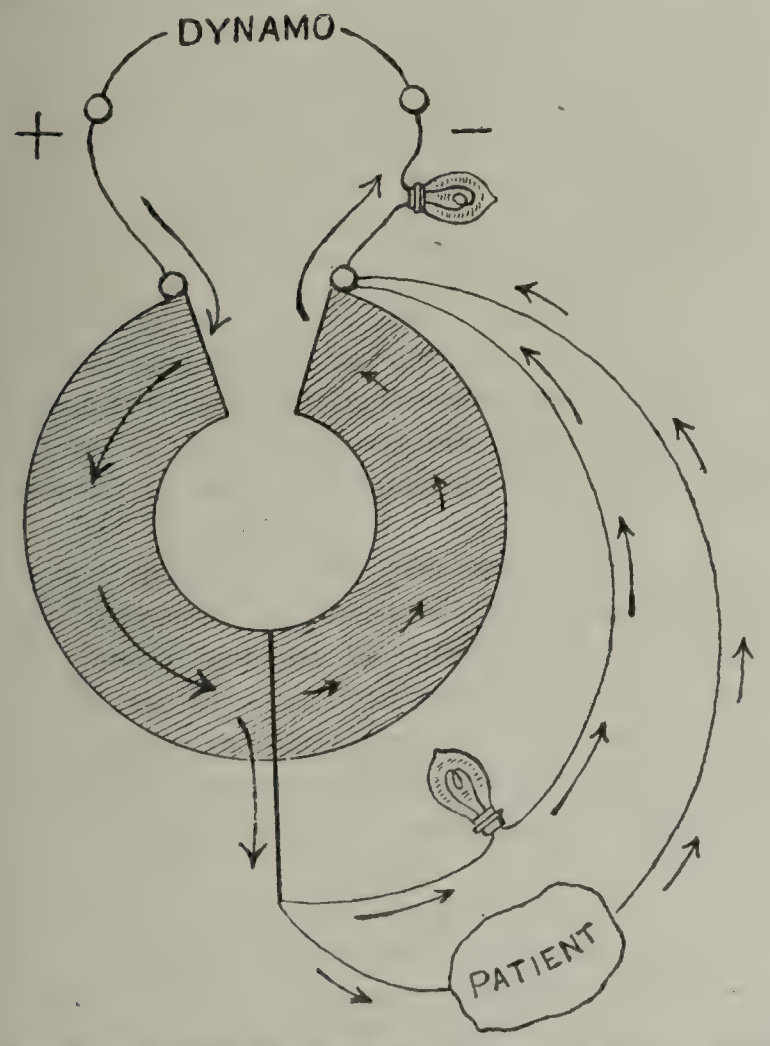


Fig. 3.—The universal controller. Diagram of the several paths of the current. To render the diagram clearer the crank arm of the controller, shown as a perpendicular line in lower portion of figure, is shown carrying the current beyond the graphite area directly instead of to a point within the circle. The current, coming from the dynamo or cells, is seen to divide into three paths, the greatest portion, shown by the size of arrows, passing directly through the shunt lamp, the next approximate amount passes through the patient, and the least through the graphite area alone.

turning on of the current lessens pain of itself, but the difference in pain excitation between, say, two milliampères from the full voltage of 110 volts and two milliampères turned on in this shunt circuit, is strikingly shown by making and breaking the circuit with the moist negative pole on one's hand between the thumb and forefinger.

In the controllers which I have had made this shunt lamp is fixed at the upper right corner of the instrument. To protect the graphite surface from carrying too much current in careless hands, and to cut down the current further for these finer applications, another lamp is placed in a permanent series with the whole apparatus, as shown in the upper portion of Figure 2. This lamp is shown in the upper left corner of Figure 1, and may have a cut-out switch when used by experts in major cataphoric applications.

With both of these lamps turned on, this controller is adapted to the most delicate applications of the constant current, cutting the 110-volt current down to a fraction of a milliampère and a slight voltage, and acting similarly to a current from a battery of cells. With both lamps turned off, it reverts to the original condition of a series controller for heavy constant currents, faradic currents and sinusoidal currents.

With both lamps turned on, the controller may also be used to light small incandescent diagnostic lamps from the street current, the small lamp being placed in the patient's circuit with the meter cut out.

At my request, the Frank S. Betz Co. has constructed a handsome cabinet in which this controller is the central feature, with switches that enable it to be used with either the 110-volt direct current or a battery of dry cells; the latter, when of good make, furnishing a most excellent and reliable current for the heaviest applications. A reliable meter of low resistance and an excellent faradic inductorium make the apparatus both complete and up to date.

The separate controller is furnished in a box, permitting it to be carried to operations wherever the direct current or a portable battery of dry cells is available.

The Neglect of Medical Jurisprudence.—There is no more important nor more neglected course in the medical college curriculum than that of medicolegal jurisprudence, says the editor of the *Medical Fortnightly*. This is apparent to one who scans the pages of the college catalogue, wherein are glowingly described the clinical advantages of this hospital with "400 beds" at the disposal of the college faculty, that hospital with "magnificent amphitheater" capable of seating so and so many students, etc. A bare line or two may refer to a course of lectures by some distinguished member of the legal profession on the legal features pertaining to the correct practice of medicine, the responsibility of the physician, etc. If we are struck with the absence of teaching on this subject in the college catalogue, how much more painfully are we impressed with this fact when we see medical men called on the witness stand as so-called "experts" in various lines of medicine. The spectacle, as we often see it, of the medical man posing as an expert witness in court cases is truly a sad one. In this country the qualifications for expert testimony are somewhat hazy. There is not much difficulty in convincing bar and bench in America of the expert qualifications of "any old doctor." . . . We have heard medical men giving testimony as experts in certain homicide cases in the criminal courts of this city. Most of them are by virtue of a confession of their medical training as little qualified to testify as experts as is a child to give a dissertation on the history of modern psychology. There is need for the teaching of the many scientific principles of forensic medicine in our medical schools. There is need for more men of proper training to devote themselves to this subject as a life-work. . . . Let some, at least, seek to uphold the standard of medicine before the bar of justice, where often human life and liberty is at stake, where often, we swear it, human lives have been sworn away on incompetent testimony, or knaves have escaped the hangman's noose because of poorly given or ignorant testimony.

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TRUTH AND POETRY CONCERNING URIC ACID.

XIII.

Let us turn to the work which has been done on uric-acid excretion in gout and see whether or not it permits us to draw any safe conclusions regarding the excess of uric acid now known to exist in the blood in this disease. In studying the physiologic side of uric acid, we made considerable use, it may be recalled, of investigations of uric-acid excretion in health in order to gain ideas concerning the formation of uric acid in the normal body. We made the probably legitimate assumption that the amount of uric acid destroyed in the healthy body is a tolerably constant quantity, and, since the amount of uric acid excreted in health is the algebraic sum of the uric acid formed and the uric acid destroyed, we thought it justifiable to make important deductions regarding uric-acid formation from a study of the uric-acid excretion. This simple method, however, is unreliable when we come to a study of uric acid in disease.

In gout, for instance, we know really almost nothing as yet regarding the function of uric-acid destruction; it may be undisturbed, but it is also possible that it is markedly altered; indeed, there are investigators who suggest that the main cause of uric-acid excess in the blood in gout may be an impairment of the normal process of destruction in the tissues. At the time when it was supposed that uric acid arises in the body as a result of the incomplete oxidation of albumin, it was common opinion that its increase was due to its imperfect destruction, that is, to a failure of the body to oxidize albumin completely to urea. Now that we know that the uric acid of the body arises chiefly from nucleins and not from albumin, there is danger of our losing sight of faulty destruction as a possible factor in causing an increase of uric acid in the blood; as Wiener points out, until it is disproved, this possibility should be borne in mind. An attempt was made by Klemperer[1] to subject the matter to direct experimental test. He instituted a comparison between the power of the blood in gout to destroy uric acid and that of the blood in health, but we need not refer to his conclusions, for we have already learned that the blood in health has scarcely any power of destroying uric acid, that function belonging to certain organs rather than to the blood. We believe that, thus far, no experiments with the organs from gouty cadavers to determine their power of destroying uric acid have been made; until these are forthcoming the question must be left open. Uric acid has been fed to gouty patients by Weintraud; he asserts that the uric-acid excretion is sometimes increased thereby more than it is in healthy individuals, but his findings were not constant. We must admit, therefore, for the present, that changes in uric-acid excretion in disease give us no clue as to whether it is the formation of the substance or its destruction which is disturbed.

Another factor which must influence uric-acid excretion in gout and further complicate its problems consists in the deposition at one time and the absorption at another of the masses of mononatrium urate of the gouty tophi. At times of deposition the excretion of uric acid would be diminished by the amount deposited; at times of resolution and absorption it would necessarily be increased.

On surveying the whole field, therefore, and taking into account various possibilities, it will be seen that in gout an increased excretion of uric acid might be due (1) to increased formation, (2) to decreased destruction, or (3) to the solution and washing out of gouty deposits; while a decreased excretion might be due either (1) to the deposition of mononatrium urate in the tissues, or (2) to a retention of uric acid in the blood or tissues owing to impairment of function of the excretory organs, the kidneys. When it is remembered that not one only of these factors but several of them together may be concerned in a given case, the complexity of the situation becomes obvious. No one ought to expect, in view of these considerations, that uric-acid excretion in gout will show any typical behavior, nor would any one, it would seem, be willing to draw any very far-reaching conclusions as to the pathogenesis of gout solely from a study of the amounts of uric acid excreted, and yet we find in the literature numerous instances of attempts at deduction from such values!

Thus forewarned, we may safely give ourselves over to an examination of the results of researches which have dealt with the excretion of uric acid in gout. Most of them deal with excretion in the urine alone, the feces being unheeded, and none but the most recent have made any pretense to that completeness and rigor which we are coming to demand shall characterize serious studies in metabolism.

Garrod made the first determinations; he declared that a smaller amount of uric acid than normal is contained in the urine of chronic gout and also in that of acute gout in the intervals between attacks. Others, working on the subject between 1850 and 1880, confirmed Garrod's findings for chronic gout, and assumed that the diminished excretion is due to retention; the control experimenters, however, could not support Garrod's ideas regarding acute gout for, though excretion

1. Klemperer, G.: Lösung und Zerstörung der Harnsäure im Blute Gesunder und Gichtkranker; ein Beitrag zur Bewertung der Gichtmittel. Therapie der Gegenwart, 1901, 344.

in the intervals between attacks appeared occasionally to be diminished, examinations extended over a long period, though they showed considerable variations, yielded, on the average, normal values.

In 1889, Pfeiffer urged the necessity of establishing the physiologic limits of variability of uric-acid excretion; he himself attempted to do this, and concluded that the amount excreted in normal individuals per 100 kilograms of body weight is constant. Later, in 1892, he emphasized the importance of the relation of excretion of uric acid to that of urea and stated as his belief that when the proportion is greater than one of the former to thirty of the latter, an abnormally high uric-acid excretion is going on. All these calculations of Pfeiffer lost their value, however, when it was shown that uric-acid excretion stands in no definite relation either to body weight or to the excretion of urea. We have seen that urea excretion is related to albumin metabolism, while uric-acid excretion is independent thereof, being chiefly a product of the decomposition of nucleins.

(To be continued.)

THE BABINSKI PHENOMENON AND OPPENHEIM'S SIGN.

Neurologists have been active of late in seeking for new varieties of reflexes and in endeavoring to interpret clinically alterations which occur in them. Among the more interesting of the phenomena described are the Babinski phenomenon and Oppenheim's sign.

The former of the two reflexes is elicited by stroking the plantar surface of the foot with a needle or with the handle of a percussion hammer. In normal adult individuals, the response consists in plantar flexion of the toes, but in new-born infants, and in patients in whom the pyramidal tract is degenerated, there is dorsal flexion, particularly of the great toe.

The reflex known as Oppenheim's sign was described in 1902. On stroking the medial surface of the leg at the posterior margin of the tibia or a little behind it with the blunt handle of a percussion hammer, the stroke passing from above downward from a point a hand's breadth below the knee joint to the malleolus, healthy individuals react, as a rule, by plantar flexion of the toes. Patients with spastic symptoms of the lower extremities, on the contrary, respond with a contraction or a tension of the tibialis anticus, extensor hallucis longus, extensor digitorum communis and sometimes also of the peroneal muscles. To apply the test successfully it is often necessary, as with the patellar reflexes, to resort to reinforcement.

The tendon reflexes in the lower extremities may differ in their behavior from these cutaneous reflexes when the pyramidal tract is diseased. It seems likely that the two kinds of reflexes follow different paths in the central nervous system. The tendon reflexes, as a rule, are increased when the pyramidal tract is interrupted (except in certain cases of total transverse lesion of the cord in which all cutaneous and tendon reflexes may be abolished). The view that certain fibers running in the pyramidal tract act by inhibiting reflexes or by regulating tonus is that usually put forward to explain this phenomenon.

The cutaneous reflexes, however, are not increased by disease of the pyramidal tract, but instead there is pathologic alteration in the character of these reflexes. Entirely different muscles or groups of muscles are called into play in the reflexes under abnormal conditions of the pyramidal tract than those active under normal conditions. The fact that the Babinski phenomenon and Oppenheim's sign can be elicited in a new-born babe before the pyramidal tract is developed or, at any rate, before it is medullated, makes it probable, as Pfeifer[1] has suggested, that the reflex arc follows a phylogenetically older path than the pyramidal tract—possibly a bulbospinal or cerebrospinal path or one from the basal ganglia. During the first three months of life stimulation of the plantar surface of the foot causes dorsal flexion of the great toe or foot; after the pyramidal tract is developed, these cutaneous reflexes travel over a new path by way of the cortex and a new group of muscles is called into contraction—plantar flexion of the toes and of the foot occurs. When the pyramidal tract becomes diseased in an adult and stimulation of the plantar surface of the foot or of the medial side of the leg calls forth dorsal flexion of the great toe or dorsal flexion of the foot, we may assume that the reflex current has returned to its primitive path, the normal one to the cortex and return utilized by the adult having been interrupted. Of course, in cases where both paths are destroyed, as, for example, in complete transverse lesion, the plantar reflexes are totally abolished.

While the above theory seems plausible, it must be borne in mind that the whole problem of the nature of the reflexes is at present in an unsatisfactory state. Knowledge concerning it is in a period of flux, and further studies must be awaited before definitive conclusions can be reached.

AMEBIC APPENDICITIS.

In Musgrave's important contribution to the treatment of amebic dysentery[1] are incorporated observations on amebic appendicitis which are worthy of special mention, particularly on account of their interest to surgeons. In 150 necropsies in cases of intestinal amebiasis (amebic dysentery) which he reports in Manila, 14 cases showed appendicular lesions. Six of these were due to an amebic infection, and in all cases this was a direct continuation of a process secondary to a similar one in the cecum.

Where the records are complete, all cases showing

1. Pfeifer, B.: Ueber die Bedeutung des Babinskischen Fusssohlenreflexes und des Oppenheimschen Unterschenkelreflexes als Kriterien der Pyramidenstrangerkrankung. Monats. f. Psychiat. u. Neurol., vol. xvi, 1904, p. 565.

appendicular lesions at necropsy have given clinical symptoms during life, indicating an involvement of the appendix. These cases, however, form but a small number of the cases of amebic dysentery that have appendicular symptoms. Such symptoms are often produced by extensive ulceration of the cecum, by omental adhesions, or by a pericecal abscess, and occasionally no lesion is found at necropsy that would account for them.

Cases of intestinal amebiasis with symptoms of appendicitis may be divided into three general classes, according to the findings at operation or at necropsy: 1, No disease of the appendix; 2, a chronic appendicitis from other causes, but without amebic infection; 3, an amebic appendicitis. Thus determined, cases of the first class are frequently met in clinical practice in the Philippines, those of the second are not infrequent, while those of the third class are least frequent. In the necropsy records, however, the third class is more frequent, since practically all of its cases are fatal.

The differentiation of these three classes from each other during life is very difficult. In many instances it is even impossible to be sure that the appendix is involved at all. When, however, the lesions in the appendix are more important and the infection in the cecum is less intense, with care the diagnosis sometimes may be made.

On the other hand, the diagnosis in the tropics of an amebic process in or about the cecum, from an appendicitis due to other causes, offers, as a rule, no great difficulty. The history of dysentery or diarrhea and the finding of amebæ in the stools point to an amebic infection. The general symptoms also are usually less severe in an amebic process than in an ordinary appendicitis, the fever is slight or absent, nausea is less frequent, vomiting rare, muscle-spasm slight, and pain on deep pressure rarely acute. The tumor is generally soft and boggy, is rarely circumscribed, definite, and low in the iliac fossa, as in ordinary appendicitis.

The medical treatment of cases of amebic dysentery suggesting involvement of the appendix, is that applicable to appendicitis from other causes, plus high, large, quinin enemas. In all these cases a surgeon should be called in consultation. Operation is to be considered, but it is often inadvisable, since it necessitates the discontinuation of the quinin treatment.

Operation is contraindicated when the cecum alone is involved. It is rarely necessary when there is an aggravation of an existing chronic appendicitis from other causes, and it is unsatisfactory in the majority of cases of amebic appendicitis, for, although early operation is indicated here, the operator usually finds a gangrenous cecum and only succeeds in increasing his mortality rate. In 100 necropsies there were but two cases in which operation would probably have saved or prolonged life.

1. See page 1098, this issue.

SANITATION AT PANAMA.

Vindication of Dr. Reed's report is found in the fact that the President has accepted the resignation of the first Isthmian Canal Commission. To what extent this action is to be attributed to the Reed charges may never be known; but, according to the public press, they had much to do in justifying the President's action in the eyes of the people, to say nothing of its complete justification in the eyes of the medical profession.

To any one who has read the report of Dr. Reed, the answer of the commission will appear to be very weak, in fact, divested of the verbiage of argument and explanation, it will be found to be a confirmation of nearly all the important charges. Thus it incidentally admits that "modifications of the suggestions submitted by the medical staff were made from day to day"; that in refuting the charge that "Colonel Gorgas submitted an estimate for the establishment of emergency hospitals along the line; this estimate was reduced," the commission lets it crop out that "he (Gorgas) had suggested the establishment and equipment of twenty emergency hospitals," but that "it was decided that it would be better to establish only three"; the charge that Colonel Gorgas had asked for twenty inspectors and had been given only eight is "denied" by the statement that "the non-allowance of twenty sanitary inspectors to serve in the canal zone under the chief sanitary officer was one of the modifications of the suggestions of the chief sanitary officer already alluded to"; the charge that Colonel Gorgas had been denied mosquito screening asked for for Ancon hospital is "denied" by the statement that "the original proposition of the chief sanitary officer to construct screens entirely around the verandas and porches of Ancon Hospital buildings was modified"; the charge that the commission had established cheap medical competition is "denied" by quoting from a letter from Colonel Gorgas, in which he says: "I have discussed this with a committee appointed to represent the physicians (referring to the medical profession of Panama)"; the charge that the commission had established a cheap schedule of prices for medical and surgical services at Panama is "denied" by stating that "this is a quotation from page 166 of the minutes of the proceedings of the commission"; the charge that internes must stay a year to be entitled to free transportation home is "denied" in a statement in which occurs the rather embarrassing admission that "it is true that internes are expected to remain a year to entitle them to free return transportation."

There are numerous other statements in the commission's denial that similarly fail to deny, while the entire manifesto only emphasizes rather than refutes the accusation—the only essential charge in Reed's report—that the sanitary department at the Isthmus has been unjustly subordinated. The commission tries to dis-

credit this charge by speaking of changes having been "agreeable" and "acceptable" to the sanitary staff. The words are probably used to obscure conditions more accurately describable by such words as "acquiescence" and "submission." This, we are told, is what a soldier is presumed to do when his requests are denied and he receives orders contrary to those he had asked for. And it is precisely against this order of things, demonstrably established and enforced by the commission, that the medical profession has protested. It is a condition absolutely incompatible with that freedom of action necessary to secure the highest results for the greatest good.

The Journal took a decided stand on this point when the government first planned to build the canal, reiterated it when the commission was about to be appointed, and lamented the apparent disregard of it when the members of the commission were named. The principle must still be recognized.

The new commission—with the new arrangement—is certainly a great improvement. It is, in effect, an executive commission of three members, one to attend to business in the United States, one to administer the civil government in the canal zone and one to dig the canal itself. The four remaining members, while excellent men, are essentially supernumerary and their appointments are recognized as tentative pending the change in the law, which now makes it necessary to have a commission of seven members. There was, under such circumstances, no occasion to move for the appointment of a medical man on the commission. Mr. C. E. Magoon, as governor of the zone, will have sole control of sanitary matters, and his past record warrants us in believing that he appreciates the conditions and that Colonel Gorgas and his associates will now receive that cordial support which they ought to have had from the start. The sanitary outlook is certainly greatly improved by the change.

THE NEW PROFESSORS OF MEDICINE AT JOHNS HOPKINS UNIVERSITY.

Naturally, the American medical profession in general is directly interested in the careers and personality of the men who have been selected to continue the work of one of the first and most influential of its teachers and leaders toward higher standards. The advancement of Dr. Thayer to a full professorship in clinical medicine is a well-merited promotion. Professor Thayer has risen from the ranks, so to speak, as the result of continued, patient service in various capacities in Professor Osler's clinic, beginning his apprenticeship in 1891. Under the influence of his illustrious teacher he early became a productive worker in the great field of clinical medicine. In his St. Louis address last fall Professor Thayer urged strongly that the humanitarian side of the education of our practitioners must not be neglected if medical men are to maintain to the fullest extent their influence for good, for the moral, mental and physical health of the community. This shows us one phase at least of the ideal toward which he is striving in his work as physician and teacher. We confidently predict that Professor Thayer will grow in strength and influence as one of the leading clinical teachers in this country.

For the past five years Professor Barker has been head of the department of anatomy in the University of Chicago. The metamorphosis here illustrated of a genuine professor of anatomy into a professor of medicine is a rare occurrence. We are quite accustomed to the idea that so-called anatomists may turn surgeons, but here it has concerned mostly practitioners of medicine that lectured on anatomy in some medical school until they secured a more desirable post in clinical surgery. In the present instance the change seems perhaps more radical. The professor of anatomy in the University of Chicago does not practice medicine. Medical history, however, has examples of apparently equally radical transformations and in many cases with the most happy results. But when we look more closely into Professor Barker's previous work and his general qualifications it will be found that after all the change is not nearly so great as it may seem to be on first sight.

It is apparent that for many years Professor Barker must have had internal medicine in view as the chosen field for the work of his mature days. We have referred elsewhere to his early training and work in the medical department and the pathologic laboratory of the Johns Hopkins Hospital. His most important investigative work during his professorship of anatomy deals with a subject of medical, more particularly neuropathologic, as much as purely anatomic, interest, namely, the changes in the brain and spinal cord in hereditary ataxia. During the same period he investigated, as member of a commission appointed by the U. S. Public Health and Marine-Hospital Service, the plague situation in San Francisco, and published an article on "The Clinical Aspects of Plague."[1] Several of his general addresses deal with questions that concern medicine directly and anatomy only remotely. In Berlin last year he carried on investigations into the chemistry of the albumins. In the meantime anatomy was not neglected. Spalteholz's "Atlas of Human Anatomy" was translated. He wrote the article on the histology of the brain for Wood's "Reference Handbook," and not long ago there appeared "A Laboratory Manual of Human Anatomy" (J. B. Lippincott & Co.), which has been received with marked favor by distinguished teachers. Two addresses, "The Study of Anatomy," and "The Unveiling of the Cell," have appeared in The Journal. In both of these addresses, as well as elsewhere, is evinced a thorough and minute familiarity with chemistry, general and physiologic, as well as a clear appreciation of its increasing import-

1. Amer. Jour. Med. Sci., October, 1901.

ance in medicine. Part of the time during his last visit to Europe was spent in acquiring greater familiarity with chemical technic. In his well-known address on "Medicine in the Universities,"[2] an address that received much notice, especially from those that are interested in the upbuilding of the medical departments of our large universities, he outlined clearly what he styles the real university medical school, giving special attention to the organization and equipment of the clinical branches. We mention this address in particular because it shows that he has given much thought to the development of general medicine in this country on the highest scientific planes.

From this survey we see that the change from anatomy to medicine is not at all abrupt and radical. On the contrary, we learn that a gifted man who has devoted his energies to the study of medicine in many of its aspects and especially of the fundamental principles and sciences, giving particular attention to neurology and chemistry, now takes up the teaching and investigation of general medicine as the main work of his life. In place of the early and exclusive specialization often practiced nowadays in medicine, Professor Barker has secured a broad and thorough general discipline and a universality of medical interests that bespeak the exceptional man.

He is a man of fine culture and breeding, courteous, considerate, of a pre-eminently winning personality. Gifted with a ready command of felicitous expression, he has come to be much sought for addresses on various occasions not always of a medical character. He always has been a popular and inspiring teacher of students, both as lecturer and as guide and counselor in advanced work. Finally, we wish to emphasize one distinguishing characteristic in all his work and conduct, and that is his unfailing loyalty to high ideals. We congratulate Professor Barker on the auspicious conditions that mark the beginning of a new phase in his career and we also congratulate the Johns Hopkins University because it is able to provide so well for its clinical teaching and investigation in internal medicine by the appointment of comparatively young men who have received the essential parts of their training in its various departments, and in a large degree under the direct influence of its first professor of medicine.

SUBSTITUTION BEFORE EXAMINING BOARDS.

A constant danger which examining boards have to face is the possibility of impersonation of one man by another, and to avoid this some boards have required candidates to present their photographs, supported by affidavits. A recent attempt to defraud in Maine is mentioned in our news columns this week. The question arises, how many times has a more shrewdly planned and more carefully executed fraud of this kind been undiscovered. Men who will cheat in this way will commit other dishonest acts, and thus we have added to the ranks of the medical profession men who are sure to bring dishonor and discredit to its name.

2. The University Record, 1902; American Medicine, 1902.

A QUEER SURGICAL OVERSIGHT.

Such surgical accidents as the leaving of a forceps or a sponge in the abdomen during laparotomy are by no means unknown and every careful surgeon is alert to avoid them. The most remarkable accidental inclusion, however, is reported from Paris, where a young woman has started legal proceedings on account of the finding of a pair of noseglasses in her abdomen. It appears that a laparotomy was performed on her in America and, her condition not being improved, a second one was performed in Germany. Still later the French physicians had the last innings and removed the eyeglasses from their peculiar position. The question is, who left them there? The natural presumption is that if they were left there at the first operation they should have been found at the second. There would seem to be a good chance for determining the question by testing the respective operators' eyes. While we comment on the matter, we do not vouch for the occurrence, as we have only the newspapers for our authority; no mention is made of it in our foreign exchanges.

THE DISSEMINATION OF STREPTOCOCCI.

During the past, one of the most unexplainable facts in surgery has been the occurrence of infection in surgical wounds, after all reasonable precautions had been taken to prevent it. The experiments of Flügge show the possibility of the dissemination of tuberculosis germs through droplets of sputum, and the experiments of Alice Hamilton and of Mendez de Leon, furnish an explanation of this possibility. It appears from Dr. Hamilton's[1] studies and experiments, published in this issue of THE JOURNAL, that streptococci are found in the majority of normal mouths, and that they are expelled to varying distances in the acts of coughing, breathing and even talking. The fact that no absolute rule as to number of germs or distance to which they are expelled can be laid down adds the element of uncertainty to this danger, and renders it all the more difficult to guard against. Mysterious epidemics of septic infection are thus explainable, as well as the aggravation of such disorders as scarlatina. The aggravation of the virulence of germs by successive cultivations on suitable media add decidedly to the probabilities of evil from this source. Aseptic surgery and medicine are constantly meeting new problems, and these studies throw light on much that has been obscure in the past. The value of the mouth guard for operating surgeons and the necessity of isolation of septic cases are also clearly demonstrated.

PRISON LABOR LEGISLATION.

THE JOURNAL has called attention repeatedly to the evils existing in our state prisons where contract labor has been abolished by law. There is no place where rational employment is more necessary to mental and

1. See page 1108, this issue.

bodily health than in state prisons, and a penitentiary sentence without it may be equivalent to the infliction of hopeless insanity as a punishment for any kind of felony. The law does not contemplate this, but that is often the practical result. It has been proposed in the state of Illinois, in order to meet the conditions brought about by the laws enacted at the instance of labor organizations, to employ the inmates of the penitentiary in certain public works, such as improvement of the highways, etc. This would involve the necessity of transporting the convicts to their places of labor and probably the establishment of convict camps at various points throughout the state. So far as meeting the sanitary requirements, provided the law is humanely carried out, the plan is unobjectionable. Outdoor work and outdoor life for even a portion of the year would be a great safeguard against the mental and physical deterioration that idle prison life involves. There are objections, however; one is the expense, others relate to matters of discipline and safety and still others are sentimental to a certain extent. All of these will have to be carefully considered and the last perhaps not the least.

CHEMICAL PATHOLOGY OF GENERAL PARALYSIS.

The subject of the chemical pathology of the nervous system is a recently opened field for investigation. In his lectures on biochemistry of muscle and nerve,[1] the first Herter lectures in the University and Bellevue Hospital College in New York, Professor Halliburton reviews the work of Mott and himself on the chemical pathology of general paralysis of the insane. The attention was directed especially to the cerebrospinal fluid which, in this disease, is greatly increased in quantity in order to fill the place once occupied by the shrinking brain substance. It was found that the fluid from general paralytics contains an excess above the normal of proteid material (nucleoproteid) and, furthermore, that cholin is present not only in the cerebrospinal fluid but in the blood of these patients, which is not a normal occurrence. Now when nucleoproteid is injected intravascularly in certain animals it may produce thrombosis, and Halliburton suggests that an increased coagulability of the blood in the cerebral vessels, caused by nucleoproteid, may be a factor in producing circulatory cerebral disturbances and, consequent on them, the acute apoplectiform and epileptoid seizures characteristic of general paralysis. Cholin, which is directly traceable to, and indicative of, disintegration of brain tissue, is not markedly toxic, yet there is reason to believe that continual liberation of cholin in small doses may cause feeble circulation due to cardiac weakness—a characteristic concomitant of the latter stages of the disease—because cholin depresses the heart. In general paralytics prolonged convulsions are followed by a distinct fall of the blood pressure and, inasmuch as such convulsions are associated with the breaking down of nervous tissue, it is not at all far-fetched to attribute the fall of pressure to cholin. These observations and the more or less tentative deductions from them throw some light on the complex and hitherto almost wholly unexplained phenomena of general paralysis. We see that the work of Mott and Halliburton so far indicates that some of the symptoms of the disease are due to autointoxication with the products of disintegrating cerebral tissue. The main etiologic problem of the disease remains as enigmatic as before and the first cause that directly induces this breakdown of nerve tissue is still unascertained.

1. "Ten Lectures on Biochemistry of Muscle and Nerve," by W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. With illustrations. Cloth. Pp. 160. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

COUNCIL ON MEDICAL EDUCATION.

The Council on Medical Education of the American Medical Association will hold its next meeting in Chicago April 20. This will be an important meeting for the reason that to it have been invited representatives of the licensing and examining boards of the various states and territories, as well as representatives of the college associations. One of the objects of the meeting is that of securing the views of those connected with the licensing boards. Naturally, such views will be of great importance to the members of the council and will aid them in formulating plans. The attendance at the meeting promises to be a large one. About half the states have already appointed official delegates, and several more have signified their willingness to cooperate. The earnestness with which the spirit of the work has been received by all the boards of examiners promises much for the future. The subjects which will be brought before this conference are of interest to licensing bodies, to medical colleges, to the medical profession, to those interested in reciprocity, and to all interested in, and concerned with, medical education. Dr. Arthur D. Bevan will present a report considering the present status of the laws of the various states and territories with reference to licensure; Dr. Victor C. Vaughan and Dr. J. A. Witherspoon will present the subject of preliminary education, and Dr. W. T. Councilman and Dr. Charles H. Frazier will report on the subject of the curriculum of medical colleges. It is hoped that this conference will result in a better understanding of conditions as they exist, and in bringing about more uniformity in all matters pertaining to medical education, reciprocity, and the enforcement of medical laws.

Medical News

ILLINOIS.

Facilities for State Health Board.—The appropriations of the State Board of Health have been materially increased by the present general assembly. Funds for a state laboratory and a registrar of vital statistics have been granted.

Appropriations for Asylums.—The legislature has appropriated $380,600 for the maintenance of the Illinois Western Hospital for the Insane, Watertown, for the next biennium. ——The appropriation for the Illinois Eastern Hospital for the Insane, Kankakee, was cut to $154,000.

Fire at State Hospital.—A fire at the Illinois Southern Hospital for the Insane, Anna, damaged the power-house to the extent of $5,000. No casualties occurred, but the patients, as a matter of precaution, were taken from their rooms and marshalled in halls in case it proved necessary to remove them from the building.

Legislative Status.—Seven osteopathic bills have been introduced in the general assembly during the present session. One of these is dead. Three (House 228, 229 and 274) are still in the judiciary committee of the house. Two (Senate 169 and 292) are on the third reading in the senate. One (Senate 311) is in the judiciary committee of the senate.——Two optometry bills have also been introduced. Both (Senate 237 and House 432) are in the judiciary committee of the house. These bills are being opposed by the State Board of Health, which questions their constitutionality, and the secretary has requested an opinion on this point from the attorney general.——Senate Bill No. 271 for the regulation of scientific experiments on human beings and animals is on first reading in the house.——House Bill No. 141, requiring school teachers to present certificates that they are not affected with any communicable disease, is on second reading.——House Bill No. 414, providing for the sale and distribution of antitoxin under the direction of the State Board of Health, is on second reading.——House Bill No. 495, providing that physicians who attend court as expert witnesses shall be paid the sum of $10 per day, is in the committee on fees and salaries.——The status of other bills affecting the interests of the medical profession is as stated in previous issues of THE JOURNAL.

Chicago.

Smallpox Decreasing.—During the week ended April 1, 16 new cases of smallpox were reported. On March 31 there were 85 patients in the Isolation Hospital, but on April 4 there were only 79. Only one death from the disease occurred.

March Mortality.—During March the mortality was 2,592, or an annual rate of 15.28 per 1,000. Pneumonia caused 490 deaths; consumption, 316; heart diseases, 188; nephritis, 173; violence, 159; diphtheria, 30; influenza, 23; measles, 32; smallpox, 16, and scarlet fever, 7.

Deaths of the Week.—The mortality for the week ended April 1 was 577, equivalent to an annual mortality of 15.11 per 1,000, a slightly lower rate than that for the previous week or for the corresponding week of last year. Pneumonia still led important death causes with 106; consumption caused 69 deaths; nephritis, 56; heart diseases, 43; violence, 36; cancer, 21; whooping cough, 12, and measles, 11.

Sues State Board.—Dr. Frederick L. Orsinger, formerly of La Salle, who claims to be a graduate of Zurich, Switzerland, of 1870, and has a diploma from an eclectic institution of April, 1904, has asked that the State Board of Health be compelled by a writ of mandamus to issue to him a certificate to practice medicine in the state. On March 24 the appellant was fined $200 for violation of the medical practice act.

Health Conditions Relatively Satisfactory.—Public health conditions at the end of the week and of the month continue fairly satisfactory. There is some decrease of the hospital population, especially of typhoid fever and pneumonia. The worst of the pneumonia season is over and consumption will soon again resume its lead as cause of the greatest number of deaths. Between Nov. 1, 1904, and April 1, 1905—154 days—there were 2,263 deaths reported from pneumonia and 1,384 from consumption. During the corresponding period of 1903-04 there were 2,666, or 403 more, pneumonia deaths, and 1,295, or 89 fewer, deaths from consumption.

IOWA.

Left Estate to Hospital.—Daniel Colbert, Iowa City, who turned over all his property to Mercy Hospital about two years ago, with the provision that he should be cared for at the institution, died March 22.

Healer Convicted.—H. C. Weigert, a "magnetic healer" of Waterloo, has been convicted of practicing medicine without a license. The court instructed the jury that if it found that the accused had professed to heal disease, it could find him guilty of practicing medicine without a license, and he was found guilty on that point.

Personal.—Dr. Lee Wallace Dean, Iowa City, has been commissioned by the State Board of Control to attend prisoners at the two state penitentiaries who need the care of an ophthalmologist.——Dr. A. C. Moerke has been appointed a member of the State Board of Health and Medical Examiners, vice Dr. John A. McKlveen, Chariton.

Ottumwa Hospital Dedicated.—The new hospital at Ottumwa, erected at a cost of $27,250, which represents contributions from 2,324 individuals, was formally dedicated March 24. The medical staff is as follows: Attending—Drs. Lewis J. Baker, George C. Pope, J. B. Wilson, M. W. Pascoe, Murdoch Bannister, Horace W. Roberts, John F. Herrick, F. W. Bowles, Charles E. Huband, Smith A. Spilman, William B. La Force, Edward A. Sheafe and David C. Brockman; consulting—Drs. Lewis J. Baker, Benjamin W. Searle, David C. Brockman, D. A. La Force, Salisbury E. O'Neill and Alfred O. Williams; specialists—Drs. William Hansell, Burdette D. La Force and Austin J. Mummert; advisory board—Drs. David C. Brockman and Alfred O. Williams, and county physician, Dr. F. W. Bowles.

KANSAS.

New Hospital Opened.—St. Francis' Hospital, Atchison, has been opened for the reception of patients. It is undenominational and unsectarian and is open to all reputable physicians.

Adjudged Insane.—Dr. L. L. Sowders, West Mineral, who has been subject to epilepsy for several years, due to a blow on the head with a hatchet, has been adjudged insane and committed to the State Hospital at Parsons.

Communicable Diseases.—During February 689 cases of smallpox were reported, with 4 deaths; 132 cases of scarlet fever, with 4 deaths; 44 cases of diphtheria, with 5 deaths, and 44 cases of typhoid fever, with 12 deaths.

State University Medical School.—By action of the legislature the University of Kansas is enabled to take advantage of a gift of $70,000 by Dr. Simeon Bell, Rosedale, to be used in the erection and equipment of a hospital in connection with the school of medicine of the university. It hopes to have in full operation next fall a full four years' course in medicine. The clinical work will be done at the new hospital at Rosedale.

MAINE.

Adjudged Insane.—Dr. William King, Brunswick, has been adjudged insane and committed to the Maine Insane Hospital, Augusta.

Hospital Items.—Bar Harbor Medical and Surgical Hospital has been given an appropriation of $2,000 for 1905, and $2,000 for 1906.——Knox County General Hospital, Rockland, is now open to all "graduate physicians and surgeons in good standing in Knox County" for treatment of patients.——The legislature has made a biennial appropriation of $120,000 for the Eastern Main State Hospital, Bangor.——College Hospital, Saco, has been closed, as it did not prove a financial success.——The secretary of war has transferred to the state for the use of the Maine Insane Hospital, Augusta, the United States arsenal property in Augusta, valued at $200,000.

Alleged Substitutor Arrested.—News has been received of the arrest in Portland, Maine, of Dr. Haughton Baxley of Baltimore, on the charge of substituting at an examination before the Maine Board of Registration for Austin Francis O'Malley, a graduate of the Baltimore University School of Medicine. O'Malley was also arrested on the charge of being implicated in a conspiracy against the public health laws of the state. The dispatch states that Baxley made a full confession. The paper which Baxley put in contained his Baltimore address, and this led to detection, since O'Malley had given a Philadelphia address. Baxley is said to be addicted to cocain and morphin, and about three years ago was arrested and fined for attempting to shoot a man at Baltimore. He has for some time held the lectureship of histology and pathology at the Baltimore University, but on receipt of this news he was promptly expelled from the faculty.

MARYLAND.

Personal.—Dr. J. Clement Clark, superintendent of Springfield Asylum for the Insane, sailed for England March 29.

Must Report Tuberculosis.—The new law requires that all physicians report to the State Board of Health all cases of tuberculosis within seven days on special blanks provided by the board. Such reports are kept secret. The board has provided 30,000 sputum cups, 2,500 metal cup holders and a lot of chemical supplies, in order to deal with the disease.

Faculty Meeting.—The Medical and Chirurgical Faculty of Maryland will hold its annual session in Baltimore, April 25, 26 and 27. The opening session will be devoted to the presidential address by Dr. E. N. Brush. Dr. Clarence J. Blake will open the Wednesday evening session with an address on "Co-operation in Medical Teaching," followed by three short papers illustrating the benefits to the community of medical science, Dr. W. H. Welch speaking for preventive medicine, Dr. I. E. Atkinson for practical therapeutics and Dr. Robert W. Johnson for surgery. The annual oration will be delivered

on Thursday at 4:30 p. m. in McCoy Hall by Dr. William Osler, and will be followed by the annual dinner. Members of the faculty will be entertained by the president, Wednesday afternoon, at the Sheppard and Enoch Pratt Hospital, Towson, when the new hydropathic establishment will be formally opened.

Baltimore.

Last Week's Statistics.—There were reported for the week ended April 1, 196 deaths, 164 births, and 160 cases of measles.

New Hospital and Dispensary.—Announcement is made that Drs. William S. Gardner, Albertus Cotton, Lee Cohen, J. Williams Lord, Edward Bernstein and Arthur G. Barrett are about to found a hospital and dispensary in the northwestern part of the city.

Personal.—Dr. Percy M. Dawson was knocked down on the street by a negro rough, March 26.——Dr. Harvey W. Cushing was elected vice-president of the Yale Alumni Association of Maryland, March 31.——Dr. Albert K. Hadel is critically ill with paralysis and pneumonia.

Fund for Fighting Mosquitoes.—Dr. Howard A. Kelly is raising a fund for the purpose of fighting the mosquitoes here this summer. About $300 is needed. The services of Mr. T. H. Coffin, an expert on mosquitoes, have been secured and he will make a thorough investigation of local conditions.

MASSACHUSETTS.

Personal.—Dr. Edward S. Wood, professor of chemistry at Harvard University Medical School, is convalescing from an exploratory laparotomy done at the Corey Hill Hospital, Brookline.

Against Leprosarium.—The committee on public institutions of the state legislature has reported against the passage of a bill providing for the establishment of a hospital for persons afflicted with leprosy or other contagious disease.

Moth a Nuisance.—The boards of health of Boston, Salem and Waltham have declared the brown-tail moth a public nuisance and a menace to the public health. This means that citizens, when notified of its presence on their property, must abate the nuisance or be liable to a fine.

Public Institutions Report.—For the year ended Jan. 31, 1905, 960 cases were examined medically by the Boston Public Institutions Department. Of these 958 were committed, 552 to insane hospitals, 314 to the Observation Hospital on Deer Island, and the others to the state epileptic and dipsomaniac hospitals.

Meningitis Alarms Public.—Considerable anxiety among the general public, fostered if not produced by the sensational daily press, has been aroused in and about Boston because of the unusually large number of cases of cerebrospinal meningitis reported since January 1. Many towns and cities have made the disease returnable as one of the contagious diseases. Cambridge has ordered sealed caskets and Somerville requires private funerals. In the latter city one school was temporarily closed for fumigation. The disease is, however, very far from epidemic. Up to the end of March there were 87 deaths from the disease reported in the state, as against 55 in 1904 and 65 in 1903 for the same period.

MICHIGAN.

Personal.—Dr. Ralph P. Beebe, health officer of Kalamazoo, was thrown out of a sleigh into a barbed wire fence and sustained severe scalp wounds.——Dr. Mary Elizabeth Morse, Baltimore, has been appointed to the house staff of the Eastern Michigan Asylum, Pontiac.——Dr. Benjamin P. Brodie has started on a trip around the world.

Takes Cushny's Place.—Dr. Charles W. Edmunds, Ann Arbor, who for three years has been instructor in pharmacology in the University of Michigan, has been placed in charge of the department of materia medica and therapeutics for the balance of this year, temporarily assuming the position held by Professor Cushny previous to his recent departure for England.

Antituberculosis Society Organized.—At the close of a lecture by Dr. S. A. Knopf of New York City on "How to Combat the Great White Plague, or Tuberculosis," March 21, the Detroit Society for the Prevention and Cure of Tuberculosis was organized, with Mr. S. T. Douglass, temporary chairman, and Dr. Edwin S. Sherrill, temporary secretary and treasurer.

Law Not Retroactive.—An important ruling of state interest was handed down by Judge Coolidge March 29, at St. Joseph, deciding that the law of 1903, aimed at quack and freak doctors, did not apply to persons practicing medicine without a license prior to that time. This was decided in the case of the People vs. John Fabry, charged with practicing medicine without a license.

MINNESOTA.

Accidents.—Dr. James A. Quinn, St. Paul, lost the index finger of his right hand from the accidental discharge of a revolver.——Dr. O. Wellington Archibald, St. Paul, has been suffering severely from the effects of chrysophanic acid poisoning of the eye.

Said to Have Exposed Smallpox Patient.—Drs. Henry E. Wunder, Tower, and James Fowler, Soudan, have been found guilty of exposing to the public a smallpox patient whom they sent to Duluth. The defense was that the defendants did not recognize the disease.

Smallpox at Argyle.—Argyle is said to attribute the rapid spread of smallpox in the last two weeks to the fact that a local practitioner did not understand the use of the capillary tubes of vaccine virus, and attempted to force the virus through the needle, which he supposed was hollow.

Entomologist Wants Maggots from Human Subjects.—State Entomologist F. L. Washburn, St. Anthony Park, will be grateful to any one who will send him live specimens of dipterous parasites, "maggots" or "bots" found in human subjects. They may be packed in moist cotton or in earth. His desire is to rear these parasites and establish their identity for the furthering of knowledge along this line.

NEW YORK.

Coroner's Bill Reported.—The Elsberg coroner's bill has been favorably reported from the senate cities committee without amendment and is now in shape to be passed.

Do Not Report.—Health Commissioner Greene complains that Buffalo physicians are lax in reporting some of the infectious diseases, such as mumps, and that many do not report births.

Illegal Practitioner Convicted.—Louisa Busch was arrested on a charge of practicing without a license. She pleaded guilty in police court, was convicted, but sentence was suspended.

Disease from X-Ray.—With the purpose of overcoming a diseased condition of the left hand caused by the continuous use of the *x*-ray, Dr. Clarence A. Greenleaf, Rochester, has discontinued practice and will go to Cayuga Lake to spend the summer.

Bills Signed by the Governor.—Senator Carpenter's bill authorizing White Plains to appropriate $1,500 a year for the White Plains Hospital Association, and a bill prohibiting the use of methyl or wood alcohol for adulterative purposes have been signed by the governor.

Appropriation Assured.—An appropriation of $18,000 is assured for the State Cancer Laboratory, situated at Buffalo. This is $3,000 more than was appropriated last year. Experiments similar to those already reported for inoculation of the disease and formation of a serum are to be made on chimpanzees.

New York City.

Out on Bail.—Dr. Edward E. Conrad, who was convicted of attempted abortion and has been in the Tombs pending appeal, has been released on $16,000 bail.

To Take Census.—Commissioner Darlington has appointed 150 health inspectors from the civil service eligible list to make an enumeration of the congested districts of the city and work will be begun immediately.

Measles Epidemic Due.—The Health Department has asked for $4,500,000, and the Board of Estimate has granted $1,000,000 as a temporary arrangement. The health board announces that an epidemic of measles is due, that they expect to have at least 20,000 cases and that they need larger facilities.

Contagious Diseases.—There were reported to the Sanitary Bureau for the week ended March 25, 576 cases of tuberculosis, with 198 deaths; 379 cases of measles, with 9 deaths; 294 cases of diphtheria, with 38 deaths; 258 cases of scarlet fever, with 13 deaths; 167 cases of cerebrospinal meningitis, with 85 deaths, and 180 cases of varicella.

New Hospital Committee.—In accordance with action taken at the conference on hospital needs and hospital finances, held on March 23, the president of the New York Association for Improving the Condition of the Poor has appointed a committee of twelve to consider propositions looking to the welfare

of the city's hospitals and has called a meeting for organization.

The Meningitis Epidemic.—The week ended March 30 shows an increase of 600 per cent. in the number of deaths from this cause over the corresponding week of last year. Since March 25 the number of deaths has averaged 22 a day. There are 19 cases in the hospitals of the Bronx, and the superintendent of one of the hospitals said they were admitting on an average one case daily. Six victims are reported in one family.

Is St. Vitus' Dance Increasing?—A physician in charge of nervous diseases in children in the Presbyterian Hospital states that this disease is more prevalent than formerly. This is attributed to the fact that children are made nervous by overstudy. This announcement follows closely on that of Physical Director Gulick, who complains that children of delicate constitution are given curvature of the spine by carrying too many books to and from school. These statements have been presented to the Board of Education and a committee of physicians will be appointed to investigate their truth.

NORTH CAROLINA.

Examiners Meet in May.—The Board of Medical Examiners of the State of North Carolina will meet in Greensboro, May 17 to 23.

Osteopathic Bill Fails.—The osteopathic bill failed to pass the legislature, thanks to the organization of the profession of the state on the plan suggested by the American Medical Association.

Deaths for January.—The total number of deaths reported in January was 235, equivalent to an annual death rate of 18.8 per 1,000. Consumption caused 39 deaths; pneumonia, 37, and heart diseases, 21.

Medical Staff of National Guard.—The following appointments to the medical department of the national guard are announced: Surgeon-general, Col. Baxter R. Hunter, King's Mountain; deputy surgeon-general, Lieut.-Col. Charles S. Jordan, Asheville; majors and surgeons, Drs. Andrew L. Pendleton, Elizabeth City; Eugene H. Brooks, Reidsville; Frank H. Holmes, Clinton, and Eugene B. Glenn, Asheville; captains and assistant surgeons, Drs. A. R. Winston, Franklinton; Parks McC. King, Charlotte, and W. T. Parrott, Kinston; and first lieutenants and assistant surgeons, Drs. E. Crawford Boyle, Mount Holly, and B. J. Witherspoon, Jr., Charlotte.

PENNSYLVANIA.

Smallpox at Mount Union.—Many cases of smallpox have appeared at Mount Union during the past week.

Idiocy Bill Vetoed.—The governor has vetoed the bill for the prevention of idiocy which was mentioned in THE JOURNAL April 1. He said if idiocy could be prevented by the act of assembly, this course would surely have been adopted and such an act passed and approved by the state, and, furthermore, that such laws would be enacted in all civilized countries. He said the title of the bill is imperfect, because it does not clearly set forth its purpose. Of the operation, he said the nature of the operation should be described instead of leaving it to the judgment of the board and allowing them to decide as to the safest and most effective method of treatment.

Later Tuberculosis Legislation.—The two bills to establish two state sanatoria for indigent cases of incipient tuberculosis and appropriating $400,000 for this purpose, have been amalgamated into one, and instead of putting the two institutions into the hands of the forestry commissioner exclusively, the new bill calls for the appointment of a commission of three, consisting of two physicians and the forestry commissioner, who are to serve later as trustees for the institutions. One sanatorium is to be located near the south center of the state and near the state sanatory camp near Mont Alto, which was founded in 1903, and the other in the western part of the state, both being built on forestry reserves, thus permitting the entire appropriation to be used for buildings, equipment and maintenance. The appropriation for the institutions has been reduced from $400,000 to $300,000. The bill has passed both legislative bodies and now awaits the governor's signature. It is undoubtedly the indirect outcome of agitation begun years ago by the Pennsylvania Society for the Prevention of Tuberculosis, and regularly and intermittently renewed through the public press, public meetings and direct appeals to the legislature. The recent advocacy by the Philadelphia County Medical Society of a $500,000 expenditure by the state for the care of the tuberculous poor has also been largely responsible for this adequate approximation to a beginning at least in the public support of indigent consumptives.

Philadelphia.

Bequest.—By the will of Meyer Guggenheim of New York $20,000 is devised to the Jewish Hospital Association of Philadelphia.

Personal.—Dr. Joseph Leidy, who has been spending several weeks in Europe, returned home March 29.——Dr. Henry Leffman addressed the Engineers' Club, April 1, on "Sanitation in Office Buildings."

Examinations for Internes.—A competitive examination for six resident internes for St. Joseph's Hospital will be held at the hospital May 1, at 6 p. m.——Examination for two resident physicians at the Reading Hospital will be held in the Hotel Walton, Philadelphia, April 11. Applications should be made to Dr. Israel Cleaver, Reading, Pa.——Examination for resident physician for the Phoenixville Hospital will be held at the hospital, April 22.——The annual examination for resident physicians to the Episcopal Hospital will be held April 13 and 14. The term of service is 18 months. Applications should be made to Ewing L. Miller, Twelfth and Walnut streets.

Health Report.—The total deaths for the week ended April 1 numbered 545, an increase of 14 over last week, and a decrease of 53 from the corresponding week of last year. Typhoid fever still prevails, but the new cases, 231, show a decrease of 75 cases compared with those of last week; the deaths resulting from the disease were 32, or 15 more than last week. From March 4 to April 1 1,054 cases of typhoid existed in the city, and 91 deaths occurred. The principal causes of death were as follows: Typhoid fever, 32; tuberculosis, 58; cancer, 17; apoplexy, 36; heart disease, 49; acute bronchitis, 12; pleuropneumonia, 49; bronchopneumonia, 21; Bright's disease, 46; enteritis, 27, and cerebrospinal meningitis, 4. Measles and chicken-pox are prevalent. There were 50 new cases of each disease reported, and 3 new cases of cerebrospinal meningitis were also reported. In all there were 327 cases of contagious disease reported, with 37 deaths, as compared with 369 cases and 27 deaths for the preceding week.

SOUTH DAKOTA.

Hospital Addition Completed.—The addition to St. Luke's Hospital, Aberdeen, which practically doubles the capacity of the institution, has been completed and equipped, at a cost of $20,000.

Unlicensed Practitioners Fined.—Drs. W. C. Hamilton, Iona, and Antranig T. Ishkanion, Oacoma, have each been found guilty of practicing medicine without a license, and a fine of $50 was imposed in each case.

Battle Mountain Sanitarium.—The Army Sanitarium at Hot Springs will be ready for occupancy January 1 next. An additional appropriation of $32,500 has been secured for officers' quarters and a conservatory. The establishment will accommodate 450 patients.

TENNESSEE.

Commencement.—The annual graduating exercises of the Department of Medicine of the University of Nashville were held March 31.

Surgical Amphitheater Burns.—The amphitheater for surgical clinics at the Medical Department of the University of Tennessee, Nashville, erected in 1899, was destroyed by fire March 13, and the lecture room was damaged. The fire loss is estimated at $15,000.

Personal.—Dr. William A. Applegate, Chattanooga, has been appointed chief surgeon of the Southern Railroad Company.——Dr. William G. Ewing has been appointed chairman of the Nashville Water Supply Commission.——Dr. Kirby S. Howlett, Franklin, was thrown from his buggy March 10 and bruised about the head.——Dr. J. Sinclair Dye has been reappointed city physician of Chattanooga.——Dr. James Foster Scott, Jr., has been reinstated as city physician of Knoxville.

Staff Changes.—The following changes in the staff of the Knoxville General Hospital are announced: Dr. William R. Lockett, pathology; Dr. Henry P. Coile, medicine, vice Dr. Charles P. McNabb; Dr. William R. Cochrane, surgery; Dr. Charles E. Lones, gynecology, vice Dr. Samuel M. Miller; Dr. Drake, surgery, vice Dr. Walter S. Nash; Dr. Howard A. Ijams, obstetrics, vice Dr. Samuel L. Jones; Dr. Claudius M.

Capps, eye, ear, nose and throat, vice Dr. Benjamin F. Young; Dr. Douglas Caulkins, children, vice Dr. Ernest R. Zemp, and Dr. Charles E. Ristine, pathology.

TEXAS.

Graduates Seventeen.—A class of 17 received diplomas at the commencement exercises of the College of Physicians and Surgeons, Dallas, March 23.

Physiomedical Bill Defeated.—The house bill creating a physiomedical examining board was practically killed by postponing its consideration until April 6.

Accident.—Dr. F. Early Young, San Antonio, while on his way to West Point, fell between two cars on a passenger train at Sandy Fork, breaking an arm and a clavicle.

Cornerstone Laid.—The cornerstone of the new building for the Medical Department of Southwestern University, Dallas, was laid by Bishop Hess with appropriate ceremonies, April 3. The building is expected to cost $50,000.

VERMONT.

Verdict for Mistaken Arrest.—Dr. Ashbel P. Grinnell, Burlington, dean of the Vermont Medical College, has just received a verdict awarding him $10,000 for false arrest and imprisonment, which occurred in New York City four years ago, when he was mistaken for some one else.

Did Not Report Disease.—Dr. Nicholas J. Delahanty, Rutland, was fined $10 and costs, amounting to $23.33, for violating the state law requiring physicians to report cases of communicable diseases. The defendant stated that he did not consider that membranous croup was diphtheria and filed an appeal.

VIRGINIA.

Hospital Wing Opened.—The new wing of the University of Virginia Hospital, Charlottesville, erected at a cost of $35,000, has been informally opened, in the presence of many alumni of the university medical department.

Personal.—Dr. William F. Creasy has been reappointed quarantine officer of Newport News.——Dr. John B. Fisher, Midlothian, has been designated as a life member of the board of visitors of the Medical College of Virginia, Richmond, vice Dr. Thomas P. Matthews, Manchester, deceased.——Dr. Robert M. Wiley, Salem, has been made president of the Roanoke County Board of Health, vice Dr. Oscar Wiley, deceased.

Cocain Prescribers and Sellers in Trouble.—Drs. B. H. Sparks and Allen B. Montz, Charlottesville, who, it is alleged, have been giving indiscriminate prescriptions for cocain, have been notified that this practice should be discontinued.——Dr. A. G. Skelton, Bloodfield, has been fined $8.50 for selling cocain to negroes and has been committed to jail. He was convicted by a negro justice of the peace and intimates that the Circuit Court will investigate the matter.——S. J. Simmons, a druggist of Rivermont, was fined $100 in each of three charges of selling cocain. Jim Faulkner, convicted of buying cocain from Simmons and selling it to boys, was fined $25 and advised to leave the state for a year on pain of imprisonment.

WISCONSIN.

Money for Hospital.—Gifts of cash amounting to nearly a thousand dollars were received at the annual donation day of the Mount Sinai Hospital, Milwaukee.

Personal.—Dr. Gilbert E. Seaman, Milwaukee, has been commissioned major and surgeon in the Wisconsin National Guard, and has been assigned to the First Infantry, vice Dr. Joseph B. Whiting, Jr., Janesville, deceased.

Physicians Pay for Mistake.—Drs. Thomas W. Nuzum and Arick Sutherland, Brodhead, against whom Paul Parkhurst brought suit for $10,000, contending that the defendants had operated on the wrong foot, have settled the case for $5,000.

Smallpox Alarms.—Kenosha is alarmed because Bristol, 12 miles west, has 9 cases of smallpox.——Smallpox has broken out among the Chippewa Indians on their reservation near Ashland.——Two students of Milwaukee Medical College have been removed to the Isolation Hospital.

GENERAL.

Dinner to Dr. Osler.—As stated in The Journal, March 25, page 969, a farewell dinner will be given to Dr. William Osler at the Waldorf-Astoria, New York City, at 7:30 p. m., May 2. Invitations to subscribe may be obtained of the chairman, Dr. James Tyson, 1506 Spruce Street, Philadelphia, until April 20.

Anniversary of Frederick Stearns & Co.—The current issue of the *New Idea* commemorates the fiftieth anniversary of the founding of the house of Frederick Stearns & Co., devoting considerable space to the history of the institution, to the extent and character of the business and to the personnel of the present executive staff. The article relates that Frederick Stearns, the founder of the firm—who, at the age of 14, had begun his career in the drug business as a drug store apprentice—came to Detroit in 1885, started a drug store and began to manufacture pharmaceuticals for the trade in a back room twelve feet square. The numerous illustrations include pictures of various members of the staff and of the various buildings successively occupied by the firm from the earliest date up to the present immense plant. We congratulate Mr. Stearns and the firm on this semi-centennial.

New Professors of Medicine at Johns Hopkins.—Professor Osler's resignation, which goes into effect next month, has led to the appointments just announced of Lewellys Franklin Barker of Chicago as professor of medicine and of William Sydney Thayer of Baltimore as professor of clinical medicine in the Johns Hopkins University and Hospital. Like his former teacher and predecessor, Professor Barker is a Canadian by birth. He was born in Norwich, Ontario, Canada, Sept. 16, 1867. The principal events in his medical career may be epitomized as follows: M.B., University of Toronto, 1890; licentiate College of Physicians and Surgeons of Ontario, 1890; house officer, Toronto General Hospital, 1890-1; assistant physician, Johns Hopkins Hospital, 1891-2; fellow in pathology, Johns Hopkins University, 1892-4; associate in anatomy, ibid., 1894-7; student, University of Leipzig, 1895; assistant resident pathologist, Johns Hopkins Hospital, 1894-9; associate professor of anatomy, Johns Hopkins University, 1897-9; Johns Hopkins medical commissioner to the Philippine Islands, 1899; associate professor of pathology, Johns Hopkins University, 1899-1900; resident pathologist, Johns Hopkins Hospital, 1899-1900; professor and head of the department of anatomy in Rush Medical College and the University of Chicago, 1900-05. The most noteworthy work accomplished during the Baltimore apprenticeship is embodied in his work on "The Nervous System and Its Constituent Neurones" (D. Appleton & Co.), in which are explained and discussed, on the basis of personal study and with the clearness that comes only from perfect mastery of the complex subject, the newer knowledge and conceptions of the nervous system. The book has been an important factor in popularizing this knowledge. Professor Barker's interest in neurology included from the first all aspects of the subject and several articles on clinical and pathologic problems in neurology have appeared from him. Among other contributions from this period are studies of the pathologic changes in malaria, iron in eosinophile cells, pyocyaneus infections, etc. In the fall of 1903 Professor Barker married Miss Lillian Halsey of Baltimore. The following year was spent in travel and study in Europe; several months were passed in the clinic of Fr. Müller of Munich and in the chemical laboratory of Emil Fischer in Berlin. Our readers have had full opportunity to become familiar with Professor Barker's European observations and reflections through the interesting letters he sent to The Journal. Last fall a preliminary step was taken to cast his lot definitely with internal medicine when he accepted an appointment as professor of medicine in Rush Medical College and began to give clinical instruction in nervous diseases. And now, after this brief career as an actual clinical teacher in Chicago, comes the call to return to Baltimore.——William Sydney Thayer, who has been appointed professor of clinical medicine, was born in Milton, Mass., June 23, 1864. He received his A.B. at Harvard in 1885, and graduated from the medical department of the same university in 1889. He served as resident physician in the Johns Hopkins Hospital from 1891 to 1898; was appointed associate in medicine in the Johns Hopkins University in 1895, and advanced to associate professor about 1897, and has for some time been chief of the medical clinic in the hospital. Professor Thayer has made several substantial contributions to medical literature. His best known work deals with various phases of malaria, and Thayer and Hewetson's monograph on malaria is the standard English work on this disease. His interest and active work in malaria and blood diseases have stimulated others to undertake successfully research in this field. Following the example of his illustrious chief, Professor Thayer has busied himself with medical biography, especially of the French teachers and leaders in internal medicine who lived in

the early part of the last century. All his work is marked by great thoroughness, ability and genuine scholarship. On resigning his position as resident physician Professor Thayer became married and took up private practice in Baltimore in addition to his duties as teacher of medicine. He has been a frequent attendant on the meetings of the American Medical Association and in 1903 he was chairman of the Section on Practice of Medicine. He delivered one of the addresses on medicine at the International Congress of Arts and Science in St. Louis last fall.

CANADA.

Joint Meeting of Medical Societies.—There will be held in Winnipeg, Man., April 7, a joint meeting of the Southern Medical Association of Manitoba and the Winnipeg Medical Association.

Deaths in Montreal.—In 1900 the deaths in Montreal numbered 7,351; in 1901, 6,915; in 1902, 7,954; in 1903, 6,895. The deaths from tuberculosis in 1900 amounted to 692; in 1901, 647; in 1902, 644; in 1903, 633. The statistics for the week ending March 25 show 129 deaths in the city and 155 births.

Personal.—Dr. A. E. Vipond, Montreal, who has been in Europe for the past year and a half, has returned home.——Dr. J. F. W. Ross has returned to Toronto after spending three months in southern California, Texas, New Orleans and St. Augustine, Fla.——Dr. George R. McDonagh, professor of laryngology and rhinology in the University of Toronto, is returning from Italy after a two months' vacation.——Dr. A. P. Proctor, Kamloops, B. C., one of the members of the British Columbia Medical Council, has removed to Vancouver and will practice there.——Dr. Simon J. Tunstall, Vancouver, has been elected president of the British Columbia Graduates' Society of McGill University, and Dr. W. J. McGuigan, formerly mayor of that city, has been re-elected secretary.——Dr. John Stewart, Halifax, N. S., president of the Canadian Medical Association, which meets in that city in August, has been spending two weeks in Montreal and Toronto in the interests of the coming meeting.

FOREIGN.

South African Medical Congress.—The South African Medical Congress will be held at Pietermaritzburg, Natal, June 12-17, 1905, under the auspices of the Natal branch of the British Medical Association.

Cholera Congress at Moscow.—The latter part of March witnessed a large gathering of Russian physicians and hygienists at Moscow to discuss the epidemiology, pathology, treatment, prophylaxis, etc., of cholera.

Government Control of Drug Business in Japan.—It is stated in the *Public Health Reports* that a bill has been introduced in the Diet proposing legislation of a stringent character having for its object the more strict control of the drug business.

Emile Zola Home for Convalescent Nurses.—Zola's widow has presented her property at Médan to the *Assistance Publique*, which will fit it up and maintain it as a convalescent home for women nurses. Zola's study will be kept intact for sightseers.

Bill to Regulate Ads of Secret Medicines in Germany.—An appeal was recently presented in the German reichstag, indorsed by both the liberal parties, which petitioned the authorities to regulate the sale and advertisement of medicines whose composition is kept secret.

Wirtinger's Jubilee.—Dr. J. Wirtinger of Vienna—sometimes called the father of the clinical thermometer—celebrated on March 2 the fiftieth anniversary of his attaining his medical degree. He published in 1865 his first large work on the use of the thermometer in the clinic.

Floating Sanatorium.—The Hamburg-American Line has launched a twin-screw steamer of 8,600 tons, specially designed as a floating sanatorium. It starts on its first trip from Hamburg July 8, and will cruise around Scotland and Norway for twenty-six days.

Plague in Australia.—During February, according to the *Public Health Reports*, several cases of plague were found in and near Brisbane. Two of the patients were employed in a warehouse in removing matting and other wrappings from goods imported from Hongkong.

Plague in Chili.—In Pisagua, a seacoast city with a population of about 4,000, the outbreak of plague has assumed such proportions that the health authorities are incapable of dealing with the situation or even burying the dead. According to the *Public Health Reports*, the bodies in many cases are left in the places where death occurred.

The Father of Hydrotherapy.—Abroad this title is generally conferred on Prof. W. Winternitz of Vienna, whose seventieth birthday was celebrated March 1. He has been docent of hydrotherapy at Vienna for forty years, and founded his hydrotherapeutic establishment before that date. He has been publishing since 1890 a monthly, *Blätter f. klinische Hydrotherapie*, and is a frequent contributor to medical journals on hydrotherapy, dietetics and allied subjects.

From the Seat of War.—The *St. Petersburg. med. Wochft.* states that it is supposed that the flying column and hospital in charge of Zoege von Manteuffel has fallen into the hands of the Japanese, with a number of other physicians and hospital corps. The number of wounded "evacuated" from the hospitals around Mukden between February 15 and 28 is stated in the official report to have been 1,379 officers and 56,722 privates.

Spittoons in Public Places at Buenos Ayres.—The regulations at Buenos Ayres call for spittoons mounted on standards or fastened in the wall at a certain height from the floor, in all schools, colleges, theaters or other public places, the number proportional to the attendance. They must each contain water or some disinfectant. Above every cuspidor is a placard with the words: "Hygienic cuspidor. For reasons of public health it is forbidden to spit on the floor."

The Helmholtz Medal.—About the time that the world was doing homage to the father of laryngoscopy at London, another son of Spain was being honored by the presentation of the great gold Helmholtz medal from the Academy of Sciences at Berlin. This medal was endowed as a prize for work bearing directly on ophthalmology. It was first presented to the distinguished Dutch ophthalmologist, Donders, and was awarded this year to Ramon y Cajal of Madrid for his research on the optic chiasm.

International Congress on Industrial Accidents.—This international gathering will convene at Liège, Belgium, May 29 and will adjourn June 4. The opening of the congress will coincide with the coming into force in Belgium of the new law in regard to compensation for accidents to workingmen. Among the subjects appointed for discussion are "Traumatic Neuroses," "Malingering and Voluntary Aggravation of Results of Accidents," and the "Basis for a System of International Statistics of Industrial Accidents." The congress is under government auspices, and Dr. Poels, Marie Thérèse 2, Brussels, is the secretary.

Teaching of Hygiene in British Schools.—A system of instruction in hygiene has been prepared by a committee of physicians and recommended for use in the public schools of the United Kingdom. This action is the outgrowth of the agitation in 1903 on what was called the national physical deficiency and which was in part attributed to the use of alcoholic drinks and narcotics. In 1904 a committee of thirty-one British physicians issued a petition for public school study of hygiene and temperance. Over 15,000 physicians indorsed this plan. The committee included Sir Thomas Barlow, Sir Lauder Brunton, Sir Victor Horsley, Sir William Macewen, Sir Henry Thompson, Prof. G. Sims Woodhead and others. The system adopted is based on that in use in the schools of many of the states.

The Roentgen Congress at Berlin.—THE JOURNAL announced some months ago that great preparations were being made for a congress and exhibition this spring to celebrate the tenth anniversary of the discovery of the *x*-rays. A critical retrospect over what has been accomplished in these ten years in roentgenology, and the presentation of the actual status of technic, achievement and prospects have been planned for April 30 to May 3. The exhibition will be held in the Ressource building, Oranienburgerstrasse 18, Berlin. Professor Roentgen, of course, is to be the guest of honor. His statue has recently been installed on one of the city bridges. The German Congress of Surgery and of Orthopedic Surgery will immediately precede the Roentgen Congress, and the Congress of Internal Medicine will meet at Wiesbaden a fortnight before.

German Society for Social Medicine, Hygiene and Medical Statistics.—The first scientific meeting of this new organization was held at Berlin last month. The question of medical certificates in case of industrial accidents and the claims for indemnity based thereon was discussed by a high government official. Dr. Gottstein exhibited tables, made from the material collected by a life insurance society, which showed that the

relations between the chest measure and the height afford reliable presumptive data for estimation of the tendency to pulmonary tuberculosis. Another physician presented charts which showed the minimum eyesight required in various vocations. These tables were compiled for the purpose of guiding the young in their choice of a life vocation, warning them away from careers for which their visual acuity is not sufficient.

Smallpox in Shanghai.—The situation in Shanghai has become so acute that it is a menace to the entire shipping of the Orient. Eight vessels are already known to have carried smallpox from that port, and the true number is no doubt far in excess of the figures given. Acting Assistant-Surgeon C. A. Ranson has been asked to vaccinate all crews and steerage passengers before permitting vessels to proceed to ports of the Philippine Islands. According to the *Public Health Reports* the infection has even been conveyed aboard vessels which anchor at Woosung, a distance of 14 miles from Shanghai and from which the passengers are reported not to have left the vessel. In such cases the infection was no doubt carried aboard by the Chinese stevedores. Health authorities consider the situation sufficiently serious to warrant calling the attention of all quarantine officers stationed at United States ports to the liability of smallpox infection being present on vessels that have touched at the port of Shanghai.

Laryngology at the Approaching International Medical Congress.—A large number of prominent laryngologists from various countries attended the Garcia centenary celebration as delegates from various societies or as guests of the committee in charge. They took advantage of the opportunity to discuss the question whether to hold independent international congresses of laryngology or to be content with a special section in the international medical congresses. The matter has been brought up before and each time it has been decided that the opportunity afforded by the international medical congresses was sufficient. Great dissatisfaction was expressed, however, with the regulations of the approaching Lisbon congress, which has grouped rhinology, otology and stomatology with laryngology, the four forming Section XII. It was definitely agreed that unless the committee of organization change this state of affairs and give laryngology a more distinct position, the delegates assembled would take no part in the congress, and would use their influence to the same effect in the societies which they represented.

LONDON LETTER.

Hospital Economies.

Much attention has lately been devoted to the cost of the maintenance of hospitals. In 1903 the committee of the Hospital Sunday Fund reduced their awards to the 38 London hospitals on the grounds that the average cost of treating the in-patients was too high. The committee of the National Hospital for the Paralyzed and Epileptic at once made a systematic attempt to effect reforms. Although their expenditure was much lower than that of most of the institutions condemned, they commenced an inquiry into details and into the direction in which saving might be effected. As a result the cost per bed was reduced from $470 to $405 per annum. The change introduced effected a saving of $8,450 in the yearly domestic expenditure and of $1,000 in the expenses of the surgery and dispensary. These results were largely due to the help of ladies. A committee was appointed consisting of the matron of the hospital and six other ladies connected with hospitals and poor law institutions. By their advice the period of meat contracts was lengthened and town-killed foreign beef was substituted for English beef; the prices of fish, fowls, bacon and milk were reduced, and a method of purchasing vegetables and fruit based on taking advantage daily of the condition of the market was instituted. The ladies showed that the system of cutting bread for patients occasioned waste; that the cooking ovens were not the best suited for the work; that the employment of a skilled carver in the kitchen, instead of carving the joints in the wards, would effect large economies; that much cheaper crockery than that used would answer all ordinary purposes; that some electric light lamps were of unnecessarily high candle-power and badly distributed; and, finally, that it would be more economical in every way to employ a female housekeeper than a steward. The economies in the surgery and dispensary were due to the assistance of the medical staff, which was invited. Another fact which shows that there is a want of economy in the management of the London hospitals is the great variations in the cost of maintenance of them and the much higher figures of London than of Scotland. A man who was requested to subscribe to the London Hospital brings out this fact very well in a letter to the *Times*. He asked for a copy of their annual report and compared the cost of maintenance with that of the Dundee Royal Infirmary and found it to be twice as great. A higher cost was to be expected in London, but not such a difference. The following is the annual cost of maintenance per bed in a number of institutions (excluding out-patients): London Hospital, $530; Charing Cross Hospital, $495; Guy's Hospital, $515; Middlesex Hospital, $472; St. George's Hospital, $725; St. Thomas' Hospital, $568; Royal Infirmary, Aberdeen, $246; Royal Infirmary, Dundee, $228; Royal Infirmary, Edinburgh, $310; Royal Infirmary, Glasgow, $318; Royal Infirmary, Liverpool, $278; Royal Infirmary, Manchester, $323; General Infirmary, Leeds, $366.

The Garcia Centenary.

The one hundredth birthday of Don Manuel Garcia, the discoverer of the laryngoscope, who is living in London, has been fitly celebrated by the homage of the scientific and medical worlds. The old man is still wonderfully hale and was able to attend and to take part in the various functions held in his honor. The formal celebration took place at midday at the Royal Medical and Chirurgical Society's house in Hanover Square, which was crowded with delegates of universities, learned bodies, laryngologic and musical societies, and old friends. Among those present were the Spanish chargé d'affaires, Madame Garcia (wife), and Miss Garcia (daughter), Professor Fraenkel (representing the Prussian secretary of state for public instruction), Sir Felix Semon, Sir W. Broadbent, Mr. Sargent, R. A., Sir A. Mackenzie, Mr. Macfarren, Mr. Santley (the singer). On entering Signor Garcia was greeted with loud cheers. He wore the insignia of the Honorary Commandership of the Royal Victorian Order which had just been conferred on him by the king. He looked remarkably well and took a lively interest in the proceedings. He sat alone on a chair of state on a dais in full view of the company. Sir Felix Semon, chairman of the Garcia committee, in opening the proceedings announced that the king had just received Garcia at Buckingham palace in order to present his congratulations and to express his recognition of all that the old man had done for medicine and music. At the conclusion of the interview the king expressed a wish to be personally represented at the banquet that night and delegated his lord-in-waiting, Lord Suffield, to attend. The Spanish chargé d'affaires delivered a congratulatory message from the Spanish government and invested Garcia with the Royal Order of Alfonso XII. Professor Fraenkel said that the man whom they were assembled to honor had devoted his best days to the teaching of singing and had not been content to discover the secrets of voice culture by sound alone, but had proceeded in a thoroughly scientific way. His genius had thrown light on the hitherto dark place of the larynx and the source of the living human voice. He had thereby laid the foundation of the physiology of the voice. On behalf of the German emperor he conferred on him the rarely awarded distinction of the great gold medal for science. An address from the Royal Society was presented by the principal secretary, Sir Archibald Geike, Professor Darwin and Professor Halliburton. Other addresses were delivered from the University of Koenigsberg, the Victoria University of Manchester and the Medical Faculty of Heidelberg. An address was delivered from Garcia's old pupils, among whom are included Madame Marchesi and Mr. Santley. Mr. Otto Goldschmidt, the husband of Jenny Lind, said that his wife to the end of her days continued to venerate Senor Garcia. An address from the Royal Academy of Music was followed by one from the Royal College of Music. Addresses from laryngologic societies all over the world were then read. Among those represented were the American Laryngological Society and the Section of Laryngology of the New York Academy of Medicine. Congratulatory telegrams were received from the Moscow Laryngological Society and the Medical Society of Japan. The program was brought to a conclusion by the presentation to Garcia of his portrait, painted by Mr. Sargent, which was subscribed for by international admirers. In the evening Garcia was entertained at a banquet at which more than 400 persons were present. Sir Felix Semon proposed his health and related the history of the discovery of the laryngoscope. Garcia, who was almost overcome by emotion, responded, but after delivering a few sentences he was evidently somewhat exhausted and handed the manuscript of his speech to the chairman, who read the remainder. He was also able to attend a dinner party given

by Sir Felix Semon at the German Club, where he told many interesting anecdotes of his early days and delivered a speech in French.

Epidemics of Plague and Smallpox in India.

The official returns of plague mortality for the last week in India show that the deaths reached the enormous number of 45,000, 12,000 in excess of the highest record since 1896. Of this total the united provinces of Agra and Oudh are responsible for 20,000 and the Punjab for 12,000. In Bombay, in addition to plague, a severe epidemic of smallpox is raging. The fever hospitals are crowded with cases and the number of physicians and nurses is totally inadequate to deal with the outbreaks. Every obstacle is placed in the way of disinfection of stricken areas by the natives, who bitterly oppose it both in consequence of religious and of caste prejudices. In the larger of the afflicted communities some headway is being made in the direction of inducing the people temporarily to abandon their villages when shelter can be found for them elsewhere. As before, the greatest mortality is among women. This is attributed to the fact that they spend most of their time in their houses and rarely wear shoes, thus rendering themselves specially liable to contagion from dead and dying rats. In the towns a vigorous crusade against rats is being conducted with great vigor and a reward is given for every rat slaughtered.

Typhus Fever in London; Diagnosis Missed.

An outbreak of typhus fever has occurred in the borough of Stepney. The disease has been practically unknown in the metropolis for a considerable period, so that very few physicians have ever seen a case. The result, as in the recent epidemic of smallpox, has been that want of practical acquaintance with the disease has led to erroneous diagnoses. A family consisting of father, mother and six children lived in a house which was kept in good condition. The father, a tailor, had been working in a country town, returned home, and immediately fell ill. He was attended by a physician who thought that he detected pleurisy, but after some days the patient got better and returned to his work in the country. He found that he was too weak to work, and after a few days he returned home. Five days later his daughter, aged 12, was taken ill with headache, vomiting and fever, and attended once at the London Hospital. She was then treated by a physician at her home. After a week he diagnosed typhoid fever and she was removed to a fever hospital. There, in a few days, the superintendent diagnosed typhus fever. Some days after her removal one of her brothers fell ill and was taken to the London Hospital, where he was admitted as suffering from rheumatism, but three days later the diagnosis was changed to typhoid fever. Subsequently the suggestion of typhus fever was made, and this was confirmed on hearing of the sister's case. About a week after the removal of the boy to the hospital two other children, aged respectively 9 and 10 years, fell ill and were at once sent to the fever hospital, where typhus fever was diagnosed at once. The physician who attended the first child fell ill a few days after she was removed to the hospital. He was admitted to the London Hospital, where he was supposed to be suffering from influenza. He rapidly grew worse and had marked mental symptoms and died in a fortnight. The cause of death being obscure, a necropsy was made. The spleen was found enlarged and the lungs congested, while the blood presented the characters common in acute pyrexial diseases. The health officer believes the case to have been one of typhus, but the certificate given at the London Hospital gave as the cause of death influenza and toxemia.

The Importance of Truthful Answers by Applicants for Life Assurance.

The following case occurred recently. A man insured his life for $5.000 on Sept. 30, 1903, and died on November 31 of the same year. The insurance company refused to pay on the grounds that his answers were untrue. As usual, he had signed a declaration that his answers were true and that they were to be the basis of the proposed contract. In answer to the question whether he had ever met with an accident he said "No," but it was proved that in the preceding month he had met with an accident by falling, for which he had been attended by a physician and for which he had made a claim on, and received payment from, an accident insurance company. Asked whether he had consulted any physician within the preceding five years, he said "No." The case was taken into court and tried before the lord chief justice, who put the question to the jury whether in their opinion the questions referred to such an accident as had befallen the insured, adding: "There are all sorts of accidents; for instance, we may spill a teacup, and that is an accident." This summing up apparently upset the minds of the jury, who brought in a verdict that the injury was not of sufficient importance to need mentioning. While the jury were out of court considering their verdict the judge caused some surprise by informing counsel for the company that if the jury found against them he would not deliver judgment on that day, but would appoint a day when he would hear counsel again and give his decision. It looked, therefore, as if he thought that the jury might be led astray by his charge. When the case came before him again he said that he had been wrong in leaving the question to the jury and that he must give a verdict for the company. The case was taken to the Court of Appeal by the widow of the insured man. Her counsel urged that the accident was so trivial as not to affect the risk the company was taking. In giving judgment, Lord Justice William pointed out that a true answer to the questions was the basis of the contract, and without calling on counsel for the company, dismissed the appeal. Commenting on the case, the *British Medical Journal* points out the absurdity of the lord chief justice's charge which asked the jury to say whether the answers given by the proposer was sufficient for the purposes of the medical examiner, who uses them as the basis of his conclusions.

Why Sir Frederick Treves Retired from Practice: Too Much Success.

In an article contributed to a lay magazine Sir Frederick Treves has given an interesting account of his work and has explained why he relinquished practice when while still a comparatively young man and in the height of his fame. He simply found the work so great that life was not worth living. "Not that my labors were breaking me down. Nothing would, I think, do that. I have no nervous system, not having had need of one, and I have never had to keep to my bed. I was invariably downstairs at 5 a. m., I breakfasted at 7:30, and almost without exception there was an operation at 9. Then right up to 1 p. m. there were patients to see. After that I went out, and, having lunched in my carriage, devoted the afternoon to consultations. When did I get home? At all hours. I gave it up because there was too much to do. Performance of big operations every morning makes existence rather trying. I got tired of my duties; they bored me to death; so that after twenty-six years of practice I retired." Sir Frederick Treves retains, of course, his post of sergeant-surgeon to the king, which involves not only his personal services to the king, but also his being sent to consult in surgical cases when the patients are friends of the king. Recently he operated successfully for appendicitis on the Princess Victoria, the daughter of the king. Sir Frederick is also head of the medical civilian board of the army medical department.

Sir Frederick Treves on the Use of Hospital Funds.

Sir Frederick Treves has made some valuable criticisms on the recent report of the committee of the King's Hospital Fund on the financial relations between hospitals and medical schools, which has been referred to in THE JOURNAL. Though he considers the report valuable and lucid, he does not think that it considers the matter sufficiently from the patient's point of view. In a hospital with a medical school, he points out, the surgeon diagnoses a case or performs an operation, watched and criticised by students, who in the future can influence for good or ill his reputation. Under such criticism he does his best and the patient is benefited. If the surgeon goes round with only nurses and dressers, however honest he be, it is improbable that he will take the same anxious pains in the diagnosis and treatment of every case. Another important point is that in a hospital with a school, if the surgeon makes mistakes he is found out at the necropsies.

The Registrar General's Annual Report.

The registrar general's sixty-sixth annual report, for 1903, contains considerable matter of interest. Much attention in recent years has been given to the depression of the marriage and birth rates. As a result of criticism in the general register office, a new method of presenting the ratios of marriages and births has been adopted. The basis of the total population is not regarded as satisfactory. For the marriage rate, a better standard is obtained by eliminating the already married persons from the population, and calculating the rates on the unmarried and widowed above the age of 15, thus dealing with that section of the population alone in which marriages take place. Calculated by this method, the English marriage rate

has steadily declined during the last 20 years, while the rate calculated in the ordinary way shows a slight increase. For the birth rate, again, the total population is not regarded as the best basis of calculation, because it does not take into account age constitution of the female population, particularly of that portion at the child-bearing age. For example, the population of women aged from 15 to 45 years to the total population, which was 23.1 per cent. in 1871 and in 1881, rose to 25 per cent. in 1901. If, therefore, the average fecundity of the female population had remained constant, the births registered in 1903, which numbered 948,271, would have amounted to 1,250,000. Thus the better method of measuring the birth rate is to calculate the proportion of births per 1,000 women of the child-bearing ages. The result shows a decrease far greater than that indicated by rates based on the total population. The English birth rate calculated in the ordinary way appears to have decreased by 6.8 per cent. only in the last decade, but the decrease, based on the number of child-bearing women, amounts to 11.5 per cent. In mortality rates the same disturbing factor of changing age constitution of the population is operative. With regard to infant mortality, the rule is that it is high in countries with a high birth rate, but English experience shows that high infant mortality may accompany a comparative low birth rate. In the decade from 1893 to 1902 the infantile mortality averaged 152 per 1,000 births. The death rate in England has shown a steady decline since 1854, when it was 23.5. In 1903 it was 15.4. As to the causes of death, consumption still heads the list. The following are the principal causes of death per million of the population: Consumption, 1,203; pneumonia, 1,124; bronchitis, 1,112; cancer, 872; heart disease, 825; diarrhea, 542; Bright's disease, 283; measles, 274; influenza, 189; diphtheria, 182; scarlet fever, 125; typhoid fever, 100. Old age is returned as the cause of death in 902 cases per million. In the mortality from consumption there is a steady fall; it is only three-fifths of what it was 25 years ago. Cancer, on the other hand, is increasing. Some diseases are disappearing entirely. There was not a single death from rabies in 1903, which is to be attributed to the stringency with which the order for the muzzling of dogs was carried out some years ago.

Pharmacology

The Question of Proprietaries.

An editorial that appeared, some time ago, in the *Vermont Medical Monthly*, on the question of proprietaries, is being widely disseminated by manufacturers of secret nostrums as an argument in favor of the use of their particular product. While the editorial itself may be said to present a number of the more important phases of the question in a rather doubtful, if not altogether misleading manner, in its concluding remarks, it clearly outlines the true causes, or the underlying reasons, for what the editor is pleased to denominate hysterical opposition to the use of proprietary remedies. It will be safe to assert that no one who has given this question a reasonable amount of thought, would be willing to differ from the opinions expressed by the editor, when he says "In regard to dishonest proprietaries no argument or condemnation is necessary. They are not what they claim to be, they betray the trust, they falsely create and they are evils that should be fought. Experience is often necessary to discover them, but when discovered they should be given a wide berth."

This statement, as noted before, embodies the true cause of the present and of every previous atempt by fair minded individuals to inquire into, and if possible to regulate the use of proprietary medicines. It is the dishonest proprietaries, and the dishonest proprietaries alone, that are objectionable. The problem that confronts us, however, and it is here that many of us differ from the editor of the *Vermont Medical Monthly*, is the question of whether or not we may, individually, assume to segregate the honest and truthful from the dishonest and misleading by following the questionable, and frequently uncertain procedure of subjecting our patients to the risk and to the expense of the experimentation or by allowing ourselves to be used for exploiting some proprietary article as a patent medicine to the laity. As members of a liberal profession, as unbiased searchers for the germ of truth, or as fair minded and honest medical advisors of individual patients can we, under any circumstance, countenance or continue to use substances of whose composition, uses or limitations we can have little or no assurance other than the statements of the manufacturer or his agents!

Pharmacists' View of Physicians and Proprietary Remedies.

It is well at times to see ourselves as others see us, and in this connection it is interesting to quote from a paper by George M Beringer, Ph.M. "The Evolution of Nostrum Vending and Its Relation to the Practice of Medicine and Pharmacy," published in *The American Journal of Pharmacy*, April, 1905. After taking up the history of nostrums he says: "The blame, however, cannot be laid at the door of pharmacy alone but must be shared by both professions. We all know that in recent years a class of proprietaries have been directly offered to the physicians and prescribed by many, that have in most instances but very little to elevate them above the level of the common ordinary nostrums that are advertised direct to the public. Our prescription files show that physicians are prescribing such remedies without having but a very indefinite idea of the ingredients or actions." Mr. Beringer then quoted from a medical journal, "Boys, I'm going to give you a prescription which makes the treatment of pneumonia a cinch. Put 10 drops of tincture of ipecac and 10 drops of tincture of aconite to 4 ounces of respiton and give ½ to 1 teaspoonful every two or three hours. Is there a single pharmaceutical journal in America even among the 'house organs' that would lend its pages to such a thinly veiled advertisement and such an undignified appeal to its patrons?"

"To what, may be asked, can we attribute this tendency among physicians to depart from officially recognized preparations and methods of prescribing? Is it due to any lack of proper instruction in the medical departments of the universities and colleges? It is exceptional indeed to find among practitioners of medicine any great percentage who are proficient in chemistry, and to a still larger proportion, botany is a sealed book. Under these conditions was not the following statement, attributed to a prominent pharmaceutical manufacturer, well founded? The average physician of to-day gleans his knowledge of materia medica from the patent medicine man's circular.' It is certain that this lack of acquaintance with materia medica is appreciated by the manufacturer of such proprietaries, and his circulars and advertisings are framed accordingly. Of course, some of the remedies introduced as proprietaries have proved to be useful, and the success of such has always had an influence on the practice of medicine and likewise on the pharmacopeias. The present United States Pharmacopeia contains a number of such preparations, which are recognized under official titles and properly used. In the forthcoming edition of the pharmacopeia, probably under such titles as Liquor Sodii Phosphatis, Liquor Antisepticus and Cataplasma Kaolini, we will discern some substitutes for well-known proprietaries. It must be acknowledged that the practice of medicine is influenced to a considerable extent by the character of the surrounding community. The practice of pharmacy is still more influenced by the environment, and also by the medical practice of the neighborhood. There was no marked progress in pharmacy until the advance was inaugurated by medicine, and so in the elimination of this evil the two professions must work together, but it must be apparent that physicians must cease prescribing proprietaries before the pharmacist can cease dispensing the same. If the commercialism that has marked in many localities the practice of medicine could only be discontinued, and the physicians rise to the true dignity of their profession, how soon would the pharmacists seize the opportunity of elevating their calling and of relegating this abominable nostrum vending to ancient history. There is a great responsibility resting on pharmacy which it must bear independently of that shared by medicine. We are entirely too willing to encourage every new applicant that comes along to be advertised to the suffering public."

Correspondence

Cerebrospinal Meningitis in Animals and in Man.

UNIVERSITY OF IOWA, IOWA CITY, IOWA, April 3. 1905.

To the Editor:—The subject of cerebrospinal meningitis seems to have assumed considerable importance during the past few weeks because of the large number of cases which have recently occurred in New York and in other eastern places. It may not be inappropriate to mention at this time certain rather interesting results concerning this disease process, obtained recently, at the Iowa State Board of Health Bacteriological Laboratory.

On Feb. 20, 1905, Dr. H. E. Talbot, a veterinary surgeon residing in Des Moines, sent to the laboratory parts of the brains of several cattle which he reported had died with symptoms suggesting cerebrospinal meningitis. On bacteriologic examination of the specimen by Mr. Shekwana and myself, a diplococcus which from its morphologic, staining and cultural characteristics was found to be indistinguishable from the *Diplococcus intracellularis meningitidis* was found. A rabbit was inoculated beneath the dura mater with a pure culture of this micro-organism. The animal developed symptoms of cerebrospinal meningitis within fifteen hours and died in thirty hours. At autopsy a small amount of a serofibrino-purulent exudate was found in the pia-arachnoid membrane. The posterior half of the brain was found to be most extensively involved. The exudate contained quite a large number of diplococci, many of which were found to be within the cells. A careful examination of the organism was made and again it was found to be indistinguishable from the *Diplococcus intracellularis meningitidis*. We concluded therefore that it was the same organism.

On looking over the literature of the subject, I am able to find but one reference to the isolation of this organism as the causative agent of a disease process (excluding experimental studies) in a body not that of the human being. The one instance referred to is the identification of this organism as the cause of an epidemic among cattle in Minnesota—reported in the Biennial Report of the Minnesota State Board of Health for 1898, page 180 and also by Wilson and Brimhall in the January, 1904, number of the American Veterinary Review (Vol. XXVII, No. 10, page 944). That the specific form of cerebrospinal meningitis occurring in cattle and man and caused by the same organism is one and the same disease there seems to me to be little doubt. That the micro-organism is transferable from the one to the other appears to me most probable, and that the organism may cause meningitis in animals other than the human being is an interesting fact to note. Whether or not the passage of the organism through animals has a tendency to increase its virulence; whether or not such has anything to do with the outbreaks of the disease in epidemic form and whether or not this factor is of importance in connection with the recent epidemics in the east, would be interesting to determine. The cases among cattle in Iowa do not seem to be associated with any cases among human beings. A few days ago we were informed that the epidemic among the cattle is becoming more extensive. We shall continue our investigations and shall be pleased to report to you when further results are obtained.

HENRY ALBERT,
Director Iowa State Board of Health
Bacteriological Laboratory.

Association News

An Invitation to Portland Via Los Angeles.

LOS ANGELES, CAL., March 27, 1905.

To the Editor:—In your various allusions in THE JOURNAL to the Portland session and matters pertaining thereto, I beg that you do not fail to call the attention of the profession to the desirability of procuring a ticket to Portland via Los Angeles. There is a too-widespread belief throughout the East that, as this country is so warm in winter, it must be almost unendurably hot in summer. It is not so at all. San Diego, Los Angeles, Santa Barbara, in fact the coast towns, are cool and delightful. We who live here much prefer the summers to the winters. Then, too, the remarkable sea fishing at that enchanted isle, Catalina, is at its height in summer. I admit that the towns more than thirty miles to the interior are much hotter. But any of the physicians who will stop off en route to or from Portland, taking in the above mentioned places, will enjoy one of the treats of their lives. The government thermometer readings taken in this city show the mean temperature for July to have been, in 1902, 68; 1903, 68, and 1904, 70. Please come here, as many as can.

J. H. MARTINDALE.

Excursion to Alaska.

It is important that those who are thinking of taking in the Alaska trip after the annual session at Portland should at once inform the chairman of the committee of arrangements, Dr. K. A. J. Mackenzie, Portland, Ore. It is necessary that he should know approximately how many will go before he can make the preliminary arrangements.

NEW MEMBERS.

New members for the month of March:

ALABAMA.
Bowcock, R. L., Anniston.
Pitts, McLean, Selma.
Steele, A. N., Anniston.
Turner, Wm. B., Graselly.

ARKANSAS.
Biggs, E. L., Hot Springs.

CALIFORNIA.
Barber, George Holcomb, San Francisco.
Christal, J. F., Santa Cruz.
Enloe, N. T., San Francisco.
Filipello, E. A., San Jose.
Hurlbut, E. T. M., Sebastopol.
Hedgpeth, W. R., Santa Cruz.
Harris, Ross Allen, Los Angeles.
Hart, Morton E., San Francisco.
Love, J. H., Ventura.
Love, J. A., Fortuna.
McGuire, J. A., Santa Cruz.
Payton, J. E., Redlands.
Stoddard, C. S., Santa Barbara.

COLORADO.
Haviland, C. M., Ft. Collins.
Reed, D. W., Greeley.
Spencer, F. R., Boulder.

CONNECTICUT.
Blackman, Chester E., Bridgeport.
Butler, Wm. J., New Haven.
Chase, Arthur A., Plainfield.
Smith, H. F., Hartford.

DISTRICT OF COLUMBIA.
Smith, Harold W., Washington.
Strite, Clarence Edward, Washington.

FLORIDA.
Meagley, Frederick, Daytona.
Moor, F. Clifton, Tallahassee.

GEORGIA.
Cato, R. E., Americus.
Clay, T. S., Savannah.
Dorminy, E. J., Fitzgerald.
Hodgson, Fred Grady, Atlanta.
Meldrim, Chas H., St. Simon's Mills.
Murphey, Eugene E., Augusta.
Ross, J. T., Macon.
Todd, J. S., Atlanta.
Wilmerding, W. E., Atlanta.

IDAHO.
Poole, Francis H., Ross Fork.
Young, James A., Pearl.

ILLINOIS.
Bell, George, Chicago.
Barker, B. L., White Heath.
Churchill, Frank S., Chicago.
Curry, A. B., Bloomington.
Drueck, C. J., Chicago.
Dwyer, Anna, Chicago.
Green, Frederick R., Chicago.
Jacobson, A., Chicago.
Korssell, C. F. P., Chicago.
Lindquist, Jno. F., Chicago.
Poynton, R. A., So. Chicago.
Soliday, Virginia R., Chicago.
Sloan, E. P., Bloomington.
Wessels, Walter Fred'k, Mendon.
Yarros, Rachelle S., Chicago.

INDIANA.
Emerick, T. C., Mt. Vernon.
Spurgeon, Orville E., Muncie.

INDIAN TERRITORY.
Wilson, W. A., Cornish.

IOWA.
Blocklinger, A. H., Dubuque.
Middleton, G. M., Davenport.
Morrison, Jno. W., Alta.
Van Epps, Clarence, Iowa City.

KANSAS.
Hearst, A. L., Benedict.
Logsdon, W. T., Wichita.
Smith, Albert Godfrey, Oskaloosa.

KENTUCKY.
Chumbly, Chas. A., McGuffy.
Nichols, C. L., Louisville.
Thomas, Robert A., Bowling Green.

LOUISIANA.
Williams, Esby M., Morgan City.

MARYLAND.
Cox, N. H. D., Arlington.
Knorr, E. A., Baltimore.

MASSACHUSETTS.
Hayward, W. F., E. Brookfield.
Robertson, W. B., Worcester.

MICHIGAN.
Cornwell, Edwin S., LaSalle.
Hoag, F. L., Ionia.
Hubbert, W. R., Detroit.
Matthews, J. D., Detroit.
Parker, W. E., Dowagiac.
Shotwell, Carlos W., Detroit.
Smith, Virginia T., Spring Lake.
Seager, Geo. B. M., Adrian.

MINNESOTA.
Gordon, Geo. J., Minneapolis.

MISSISSIPPI.
Shepherd, Banks A., Lexington.

MISSOURI.
Hoagland, W. L., Kansas City.

Homan, Geo., St. Louis.
Lewis, Jacob K., Kansas City.
McDonald, Park L., Kansas City.
Schudde, O. N., Vienna.
Vernon, Geo. W., Dexter.

NEW HAMPSHIRE.

Buzzell, C. P., Conway.

NEW JERSEY.

Baketel, H. S., Jersey City.
Brückner, Charles Henry, Newark.
Seeds, John B., Trenton.

NEW MEXICO.

Strong, S. Meredith, Santa Rita.

NEW YORK.

Beal, Frederick E., New York City.
Greeff, J. G. William, New York City.
Howell, C. H., New York City.
Nellis, Irving O., Herkimer.
Pick, Chas. J., New York City.
Reich, A., New York City.

NORTH CAROLINA.

McCracken, J. Rufus, Crabtree.

OHIO.

Brokaw, W. F., Cleveland.
Bevington, E. E., Sulphur Springs.
Buechner, W. H., Youngstown.
Beach, P. E., Seville.
Brady, M. B., Cincinnati.
Crooks, J. H., Youngstown.
Dalbey, R. A., Youngstown.
Powell, E. A., Cleveland.
Smith, Anna G., Toledo.

OKLAHOMA.

Grantham, Elizabeth, Alva.

OREGON.

Wight, Otis B., Portland.

PENNSYLVANIA.

Baugh, A. W., Paoli.
Buchanan, S. A., Philadelphia.
Collmar, C., Easton.
Danzer, Wm. F., Hazleton.
Fell, John A., Doylestown.
Gillespie, Frank, Oxford.
Haworth Elwood B., Pittsburg.
Hammond, Henry P., Franklin.
LeCompte, W. C., Bristol.
McCombs, W. H., Pittsburg.
Myers, Hewitt Clyde, Steelton.
Smith, Chas. B., Newtown.

RHODE ISLAND.

Moore, Elmer E., E. Providence Centre.

SOUTH DAKOTA.

Baker, A. R., Lead.
Judd, Herman S., Lead.
Tarbell, Hervey A., Watertown.

TEXAS.

Davis, O., Cistern.
Keys, Thomas I., Rockwall.
Michie, Joseph D., Heath.
Quarles, J. M., Post Oak.
Wilder, H. Lawler, Granbury.

VIRGINIA.

Brumfield, W. A., Renan.
Blankingship, O. F., Richmond.
Hobson, E. L., Jr., Richmond.

WASHINGTON.

Cassel, Rufus J., Mt. Vernon.

WISCONSIN.

Beck, H. M., Green Bay.
Bellin, Julius Joseph, Green Bay.
Coleman, Harry M., Barron.
Evans, N. C., Mt. Horeb.
Goggins, Robert J., Oconto Falls.
Howison, N. L., Menomonie.
Hansen, Carl A., Argyle.
Lewis, L. V., Sun Prairie.
Omsted, N., Stoughton.
Oberembt, R., Milwaukee.
McCracken, R. W., Union Grove.
Newbury, F. H., Oshkosh.
Rogers, E. H., Stevens Point.
Tomelty, Thomas, Mukwonago.
Thompson, A. S., Mt. Horeb.
Whitney, D. C., Rice Lake.

PHILIPPINE ISLANDS.

Strong, R. P., Manila.

Marriages

Charles W. Houghton, M.D., to Mrs. S. J. Whitaker, both of Philadelphia, March 18.

George L. Wilkens, M.D., Baltimore, to Miss Annie Beatin, at Philadelphia, March 28.

Carl S. Bungardt, M.D., to Miss Linnie Eugenia Bush of Kansas City, Mo., April 3.

Earl M. Sappington, M.D., Darlington, Md., to Miss Hattie C. Porter, at Baltimore, March 23.

Burton C. Hauser, M.D., Wilkesbarre, Pa., to Miss Achsah L. Mitchell, at Baltimore, March 20.

W. H. Hall, M.D., Butte, Mont., to Mrs. Purden Smith-Miller of Los Angeles, Cal., March 22.

G. Lane Taneyhill, Jr., M.D., Baltimore, to Miss Ethel Cranston, at Washington, D. C., March 25.

Archibald C. Sheppard, M.D., Glen Carbon, Ill., to Miss Wilhelmina Beyerbach of St. Louis, March 21.

August Fredric Hunte, M.D., Truman, Minn., to Miss Christine Schaleben of Madelia, Minn., March 23.

Daniel Warwick Harman, M.D., U. S. Army, to Miss Vertie M. Irvine of Charlottesville, Va., March 20.

Otto L. Ricker, M.D., Cadillac, Mich., to Miss Nellie Beatrice Shupe of Fostoria, Ohio, at Cadillac, March 21.

Deaths

William H. Warder, M.D. University of Nashville Medical Department, 1859; Jefferson Medical College, Philadelphia, 1871; a member of the American Medical Association, Medical Society of the State of Pennsylvania, Philadelphia County Medical Society, Philadelphia Obstetrical Society and Medical Club of Philadelphia; orator of the Jefferson Medical Alumni Association in 1886, and president in 1887 and 1898; a member of the obstetrical staff of the Philadelphia Hospital from 1874 to 1881, died suddenly at his home in Philadelphia, March 28, from heart disease, aged 71.

Nathan E. Whitehead, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1867, a member of the American Medical Association; assistant surgeon of the Eighteenth Mississippi Infantry, and later major and surgeon of the Twenty-first Mississippi Infantry, C. S. A.; the dean of the medical profession of Leflore County, Miss., died at his home in Greenwood after a long and painful illness, March 25.

Joseph B. Whiting, M.D. Berkshire Medical College, Pittsfield, Mass., 1848, of Janesville, Wis., one of the oldest practitioners of southern Wisconsin; surgeon of the Thirty-third Wisconsin Volunteer Infantry in the Civil War; surgeon general of the Grand Army of the Republic in 1895; president of the Wisconsin State Medical Society in 1875, died at Palmer Hospital, Janesville, March 27, aged 82.

Frank Horton Rice, M.D. Vermont Medical College, Woodstock, 1854, for ten years city physician of Passaic, N. J., and for five years coroner of Passaic County; chief of staff of the Passaic General Hospital, of which he was one of the founders, died suddenly at his home in Passaic, from heart disease, March 27, aged 74.

Milton Jay, M.D. Eclectic Medical Institute, Cincinnati, 1859; Rush Medical College *ad eundem* 1895; a member of the American Medical Association; a life member of the Chicago Medical Society; for twenty years chief surgeon of the Chicago & Eastern Illinois Railroad, died at his home in Chicago, April 1, from exhaustion following influenza, after an illness of three months, aged 71.

Philip Wesley Lewellen, M.D. Medical College of Ohio, Cincinnati, 1865, formerly senator from Page and Fremont counties, Iowa, in 1878 and 1880; member and president of the State Board of Health; trustee and first superintendent of the Clarinda State Hospital, died at his home in Brookfield, Mo., March 19, from cerebral hemorrhage, after an illness of a year, aged 65.

George Tremont Hunter, M.D. New York University, New York City, 1891, of New York City, formerly of San Francisco, a member of the American Medical Association, New York State Medical Association, Medical Society of the County of New York, and the New York Academy of Medicine, died in St. Augustine, Fla., February 11.

John W. Gamwell, M.D. Berkshire Medical College, Pittsfield, Mass., 1852, formerly of Princeton, Ill., but for the last sixteen years a resident of Pittsfield, Mass., some-time selectman of Torrington, Conn., and in 1876 a member of the state legislature, died at Daytona, Fla., March 26, from asthma, aged 74.

George F. Leick, M.D. Medical Department of the Western Reserve University, Cleveland, 1885, of Cleveland, Ohio, health officer of the city for two years, demonstrator of anatomy at his alma mater, died at St. Alexis' Hospital, Cleveland, from nephritis, after a long illness, aged 48.

Henry C. Mooney, M.D. Chicago Medical College, 1876, a member of the American Medical Association, and one of the most prominent practitioners of Wabash County, Ind., died suddenly at his home in Laketon, March 24, from cerebral hemorrhage, aged 54.

Jesse F. Myers, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1884, city physician of Joplin, Mo., and formerly physician of Jasper County, Mo., died at his home in Joplin, March 22, from tuberculosis, after an illness of four months, aged 48.

William H. Doughty, M.D. Medical College of Georgia, Augusta, 1855, a member of the American Medical Association, and said to be the oldest practitioner in Augusta, Ga., died at his home in that city, March 28, after a protracted illness.

John McCormick, M.D. Western Reserve University Medical Department, Cleveland, 1882, of Greensburg, Pa., died at a sanitarium in Frankford, Philadelphia, from cerebral hemorrhage, March 25, after a long illness, aged 44.

Joseph Deal, M.D. University of Wooster Medical Department, Cleveland, 1849, formerly of Mount Union, Iowa, died at the home of his daughter in Southfork, near Mora, Minn., March 22, from senile debility, aged 84.

Howard Servis, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, of Junction, N. J., died at the home of his daughter in New York City, March 24, from cerebral hemorrhage, aged 75.

Agideous Noel, M.D. University of Maryland School of Medicine, 1862, surgeon of the Two Hundred and Fifth Pennsylva-

nia Volunteer Infantry in the Civil War, died at his home in Bonneauville, Pa., March 26, aged 71.

Lloyd W. Brown, M.D. Baltimore Medical College, 1849, who retired from practice forty years ago, died at the home of his daughter in Decatur, Ill., March 21, from pneumonia, after an illness of three weeks, aged 81.

Richard H. Sullivan, M.D. New York University, New York City, 1883, member of the Kings County Medical Society, died at his home in Brooklyn, March 27, from pneumonia, after an illness of one week, aged 49.

John Oscroft Tansley, M.D. College of Physicians and Surgeons in the City of New York, 1877, a fellow of the New York Academy of Medicine, died at his home in New York City, March 25, aged 60.

Theodore F. Davidson, M.D. Cincinnati College of Medicine and Surgery, 1870, some-time city physician of Portsmouth, died at his home in Columbus, Ohio, March 22, after an illness of ten weeks, aged 59.

Theodore Sittel, M.D. University of Giessen, Germany, 1854, one of the founders of St. Mary's Hospital, Cincinnati, died at his home in South Norwood, Cincinnati, March 25, after a brief illness, aged 76.

Edmund G. Pugsley, M.D. Medical College of Ohio, Cincinnati, 1845, a surgeon in the Army during the Civil War, and later a practitioner of Walla Walla, Wash., died in Tacoma, Dec. 3, 1904, aged 83.

Charles M. Hensel, M.D. Starling Medical College, Columbus, Ohio, 1896, died at his home in Lithopolis, Ohio, March 20, from pneumonia. He was a member of the Fairfield County Medical Society.

James B. Cargen, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1879, died at his home in the town of Oakland, Wis., February 5, from cerebral hemorrhage, after an illness of two years.

David E. Ellis, M.D. Geneva (N. Y.) Medical College, 1843, formerly of Belvidere, Ill., died at the Illinois Northern Hospital for the Insane, Elgin, March 18, from senile gangrene, aged 85.

Francis E. Buck, M.D. Cleveland Medical College, 1879, health officer of South Pasadena, Cal., died at his home in that city from poisoning by carbolic acid accidentally administered, aged 49.

Franklin Kimball Burr, M.D. Rush Medical College, Chicago, 1895, died at his home in Englewood, Chicago, February 20, from cerebral hemorrhage, after an illness of eight days, aged 36.

Charles A. Olcott, M.D. Bellevue Hospital Medical College, New York City, 1876, member of Kings County Medical Society, died from pneumonia at his home in Brooklyn, March 30, aged 50.

Frederic Danne, M.D. New York Medical College, New York City, 1863, died at his home in New York City, March 27, from nervous prostration, after an illness of one year, aged 68.

Charles Parker French, M.D. Castleton (Vt.) Medical College, 1848, died at his home in Denver, February 23, from injuries sustained in a fall two days before, aged 81.

Charles Wright Filler, M.D. University of Maryland School of Medicine, Baltimore, 1876, died at his home in Washington, D. C., March 22, after a prolonged illness, aged 52.

Thomas Dale Gilbert, M.D. The University and Bellevue Hospital Medical College, New York City, 1900, of Washington, D. C., died at Liberty, N. Y., March 29, aged 30.

Emil A. Chaffers, M.D. Michigan College of Medicine and Surgery, Detroit, 1896, died at his home in Detroit, March 26, from pneumonia, after a short illness, aged 42.

Charles Dearborn Wiggin, M.D. Medical Institution of Yale College, New Haven, Conn., 1875, died at his home in Mystic, Conn., from pneumonia, May 21, 1904, aged 63.

John A. Nelles, M.D. McGill University Medical Department, Montreal, 1858, died suddenly at his home in London, Ont., March 25, from cerebral hemorrhage, aged 79.

John Andrew Murray, M.D. Department of Medicine, University of Pennsylvania, Philadelphia, 1894, died at his home in Providence, R. I., Aug. 27, 1904, aged 37.

George W. Welborn, M.D. Medical College of Evansville, Ind., 1877, of Stewartsville, Ind., died in St. Louis, March 23, after a surgical operation, aged 60.

W. F. S. Murdy, M.D. Missouri Medical College, St. Louis, 1878, died at his home at Fort Madison, Iowa, March 30, after an illness of two months, aged 50.

George E. Bullard, M.D. Albany (N. Y.) Medical College, 1853, died at his home in Blackstone, Mass., March 25, after an illness of nine years, aged 78.

Rufus T. Kendrick, M.D. Examination Georgia, of Tifton, Ga., died at the home of his son in Brunswick, Ga., March 26, after a short illness, aged 74.

James Wiltse, M.D. Bellevue Hospital Medical College, New York City, 1890, died at his home in Benson Mines, N. Y., from pneumonia, March 19.

James Fielding Lewis, M.D. University of Louisville (Ky.) Medical Department, 1857, died at his home in Hebbardsville, Ky., February 20, aged 71.

Henry Jackson Shaw, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1854, died in Memphis, Tenn., March 3, aged 79.

Fabius Fox, M.D. Baltimore University School of Medicine, 1898, died suddenly from heart disease at his home in Baltimore, March 29, aged 42.

James R. Murphy, M.D. University of Louisville (Ky.) Medical Department, 1882, died at his home in Dunmore, Pa., March 27, from uremia.

Edward T. Brown, M.D. Illinois, 1872, died at his home in Lake City, Fla., March 22, as a result of injuries received nine months before, aged 79.

James H. Parcel, M.D. Years of Practice, Illinois, 1878, of Westfield, Ill., died at Anna, Ill., March 16, after a long period of invalidism, aged 76.

William G. Burriss, M.D. Central Medical College, St. Joseph, Mo., 1898, of Ottawa, Kan., died in Kansas City, Mo., from peritonitis, March 24.

Amasa P. Robertson, M.D. Cincinnati 1873, died at his home in Mount Liberty, Ohio, March 25, after an illness of seven weeks, aged 62.

William Bodenhamer, M.D. Worthington (Ohio) Medical College, 1840, died at his home in New Rochelle, N. Y., March 31, aged 97.

Mason J. Snowden, M.D. Meharry Medical College, Nashville, Tenn., of Marshall, Texas, died suddenly in Paris, Texas, March 23.

Oliver H. Irwin, M.D. Medical College of Indiana, Indianapolis, 1870, formerly of Sheldon, Ill., died at Elk City, Okla., March 23.

Abraham Chamberlain, M.D. Years of Practice, Pennsylvania, died at his home in Brooklyn, Pa., March 21, from pneumonia.

Frank D. Wortman, M.D. Ohio Medical University, Columbus, Ohio, 1898, died at his home in Gratiot, Ohio, March 20, aged 40.

Thomas F. Ijams, M.D. Detroit (Mich.) Medical College, 1871, died suddenly at his home in North Grove, Ind., March 26.

Christian J. Knaur, M.D., died at his home in Swissvale, near Pittsburg, Pa., March 26, after an illness of two years, aged 72.

Fernando C. Cook, M.D. New York City, 1874, died suddenly from heart disease at his home in San Francisco, aged 72.

Wellington W. Payne, M.D. Examination Ohio, died at his home in Ashtabula, Ohio, February 7, after a long illness.

James Johnston, M.D. Medical College of Ohio, Cincinnati, 1872, died at his home in Hudson, Ill., March 26, aged 60.

George Clarkson, M.D. St. Louis, 1878, of Providence, R. I., died in Pawtucket, R. I., Sept. 4, 1904, aged 61.

Philip T. Gans, M.D. Cincinnati, 1854, died at his home in West Florence, Ohio, March 20, aged 83.

William Harvey Walford, M.D. Chicago, 1885, died at his home in Chicago, March 29, aged 46.

Book Notices

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With 129 Engravings and 10 Full-page Plates in Colors and Monchrome. Cloth. Pp. 1120. Price, $5.00 net. Philadelphia and New York: Lea Brothers & Co. 1905.

This is the third text-book that Dr. Hare has prepared for the medical profession. His first, on therapeutics, was im-

mediately accepted as a standard, and has so remained. The second, on diagnosis, was similarly received. Both of these books became popular and have retained their popularity because the subject matter was presented in a practical manner; the author had recognized the needs of the physician in his daily work, and had supplied the needs. It was to be expected that a text-book on practice by the same author would be of the same character, and the book before us shows these expectations realized. One is not long in discovering that the author has again known what the student and the physician want and has supplied that want. Theory is made subordinate to practical information and facts, and these are presented in the clear and concise style that characterize the author's writings. The book is not a compilation, it is a reflection of the views of its author, whose twenty years' experience as a writer, as a teacher and as a practicing physician qualifies him to speak with authority. In some instances one would almost wish that the views of others might have been given more recognition, but these instances are rare; and better this than a jumbling of the views of a dozen men, leaving the reader in a maze of doubt and uncertainty, as is too often the case in some of the composite text-books. While the book is a large one, containing over 1,100 pages, there is no padding nor cumbering the pages with irrelevant matter. The importance of the subjects of diagnosis and treatment is appreciated and both are made important features. The author holds conservative views regarding the therapeutic value of drugs, and there are to be found from beginning to end repeated warnings against overdrugging. A knowledge of tropical diseases is of prime importance to American physicians since we have become possessed of tropical countries, and these diseases are given fuller consideration than has been usual in our text-books. According to the preface, the articles on these subjects have been prepared by Dr. Charles F. Kieffer, of the U. S. Army, whose experience in the Philippines well qualified him for the task. We congratulate the author on having given us a text-book that will appeal at once to the student, to the busy practitioner and to the teacher, as representing the practice of medicine of the twentieth century. The book is up-to-date and represents the latest knowledge on every subject treated.

The American Year-Book of Medicine and Surgery for 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery, Drawn from Journals, Monographs and Text-Books of the Leading American and Foreign Authors and Investigators. Arranged, with Critical Editorial Comments, by Eminent American Specialists Under the Editorial Charge of George M. Gould, A.M., M.D. In Two Volumes. Volume I, Including General Medicine; Volume II, General Surgery. Fully Illustrated. Cloth. Price, $3.00 net per volume. Philadelphia and London: W. B. Saunders & Co. 1905.

Each year we have had occasion to speak in complimentary terms of this excellent year-book. The method of recording the progress that has been made during the past year, as adopted in this annual, is all that could be desired. The subdivision of the work and the placing of these subdivisions in charge of men interested in the subject covered, make the work satisfactory, especially because it is reliable. A reference to individual subjects here and there shows that nothing of value is missed in the literature that is worth recording. The plan of issuing the annual in two volumes, one devoted to medical and the other to surgical subjects, makes the book more easily handled and of more practical value. We commend this work to those who desire to keep up with the progress that is being made in the various branches of medicine or who want a ready reference to the cream of the literature of the past year.

Miscellany

Aerophagia.—Heinrich Stern states in the *New York Medical Journal* that the presence of the excess of air in the stomach may cause anxiety, dyspnea, palpitation, vertigo and headache. The trouble may arise from hysteria or from extensive work or exercise in the open air. For the acute condition the stomach tube should be utilized to let the air out. Castor oil is useful in ameliorating pronounced intestinal tympany.

California Accepts Its First Chinese Physician.—Dr. Chang A. Holt has recently passed the California Board of Medical Examiners, being the first Chinaman licensed to practice medicine in California. He is 26 years old, and was born in Canton. He has become a Christian. His medical education was acquired in San Francisco. It is reported that he has decided to return to his native country to pursue his profession.—*Med. Book News.*

An Index of the Man.—We are not preaching a sermon, but we venture the assertion that a physician who can not control his own temper nor tongue, can not direct his mental energies nor guide his hands in attempting to solve medical and surgical problems so well as the man who does not expect the powers of heaven and hell to respond to all his little troubles. Neither do we believe that one can make filthy words his bodyguard without losing the intimacy with dignity, devotion and diligence in more serious matters, which the scientific student and trusted physician ought to enjoy.—*Medical Times.*

The Higher Preliminary Education of Medical Students.—A casual consideration of the theory of ions in chemistry, essentially electrical in its nature, shows that that science in the future will demand on the part of the student a knowledge of the higher mathematics. The old "algebra, as far as quadratic equations," will no longer serve his needs, and he must learn the theory of infinitesimals, a genuine knowledge of which requires a rather high quality of mind. Evolution will eventually dispose of the question of the overcrowding of the medical profession.—*New York Med. Journal.*

Dogmatism Out of Place.—The habit of dogmatism, of unconditional assertion and positive, strict directions is an essential qualification for success in the sick room. But it becomes such a fixed habit with the active practitioner that sometimes he can not lay it aside even where it is most inappropriate. In discussing matters of legislation where many interests must be consulted, many conflicting views harmonized, and the path of least resistance followed, to attain important practical ends, dogmatism is quite out of place.—*Colo. Med.*

Experimental Differentiation of Variola and Chicken-Pox.—According to the *Semaine Médicale*, Feb. 22, 1905, at a recent meeting of the Paris Société de Biologie, P. Salmon pointed out that variola is inoculable in the cornea of rabbits, while varicella is not. In from twenty-four to forty-eight hours after inoculation of smallpox material, small transparent lesions develop which become transformed into vesicles and which are accompanied by conjunctivitis. This test also enabled confluent acne of the face to be differentiated from smallpox in one instance. L. Martin announced that he has found monkeys refractory to varicella. H. Vincent also mentioned that inoculation of the rabbit cornea is a convenient way to determine the activity of vaccine. He has learned by this test that the vaccinal virus is arrested by the filter.

The Irresponsibility Farce.—Our German exchanges relate that a certain elderly irregular of Munich has been summoned into court several times within the last few years to answer to charges of fraudulent practices and of practicing medicine without a license. Each time he has been acquitted on the ground that he is mentally irresponsible. He is therefore turned loose to continue his irregular practices without further molestation, until some particularly flagrant act brings him again to the notice of the police and the legal farce is again re-enacted. The *Münch. med. Wochenschrift* is now agitating the question whether the public should not be protected by having him placed under restraint in some asylum or sanatorium for mental affections. This legal farce is similar to that which is sometimes enacted in this country when a criminal is acquitted because of insanity and yet is not put under restraint to prevent repetition of the crime.

Value of Echinacea.—"In my own experience," states Dr. C. S. Chamberlin of Cincinnati, in the *Louisville Monthly Journal of Medicine and Surgery*, "the results attending the use of echinacea have convinced me that there is no remedy of so

great value in the treatment of cases of septic infection, and I have repeatedly used it in the cases of septicemia following wounds of the extremities, which I am confident, by any other means of treatment, would have resulted in the loss of the limb and possibly of the life of the patient." He further recommends it to eliminate toxins and to alter conditions which favor suppuration and inflammation, as in the case of abscesses, ulcers, gangrene, bites of venomous insects and reptiles, tonsillitis, the exanthemata, eczema and psoriasis. Our observation of the medical literature indicates that echinacea is being used far more than formerly.

A New Diagnostic Sign in Basilar Meningitis.—The *Cronica Medica Mexicana* states that Squires reports a symptom which he has invariably found present in meningitis about the fourth or fifth day of the disease; it consists of a rhythmical dilatation and contraction of the pupils. To obtain this sign Squires advises the following procedure: Place the child on the nurse's lap, face upward, and with the head extending over the nurse's knee; the physician then places a hand on each side of the child's head and makes gradual forced extension. The pupils will be seen to dilate rapidly in proportion to the degree of extension. If the child's head be now gradually and forcibly flexed, the pupils will be seen to contract, almost completely closing as the chin touches the chest. This procedure may be repeated several times in order more fully to observe the phenomenon. Dr. Squires suggests that the extreme dilation of the pupils characteristic of the last stages of meningitis is largely mechanical and is due to pressure of the effusion on the centers at the base of the brain.

The Temperance Question in Europe.—The French, Russian and German nations are keenly alive to the dangers of alcoholic intemperance. The marked sensitiveness on this subject is not the result of fanaticism, but of facts brought to light by clinical investigation. These investigations have shown that national intemperance leads to national decay—directly by causing death through alcoholism, and indirectly, by causing physical mental decay of the offspring. None of the above-named nations can afford to face the numerical reduction of the respective populations, consequent on national intemperance in the use of alcohol. The political existence of all these countries is a matter of figures as applied to their respective populations. For this reason the governments of these countries have been actively concerned in the propaganda of popular temperance. Russia is trying to supplant the thirst for alcohol by opening tea-houses and soup houses for the poor; France is fighting her antialcoholic battle with lectures, both scientific and popular; Germany is intent on accomplishing the same aim by new and more drastic legal enactments.—*Journal of Mental Pathology.*

Uric Acid Diathesis.—Almost every layman, and a multitude of doctors continually speak of being "full of uric acid," meaning by this that they have muscular stiffness, or that the urine shows an excess of urates or even uric acid crystals. In the majority of instances this excessive deposit of urates or uric acid depends not on any abnormality in bodily metabolism, but on conditions of the urine which cause the precipitation or deposition of these solids. There is either a condition of acidity or a minimum quantity of mineral salts, and as a result precipitation takes place. For this so-called "uric acid diathesis" physicians prescribe large quantities of lithium and copious draughts of water. There can be no doubt that the water is advantageous, but the lithium only does good until a certain degree of alkalinity is reached, when it is of little value, and if the doses are large it acts as a depressant to the general system. It is quite true that persons who eat heartily, drink alcohol, and take no exercise, are not infrequently overloaded with effete materials representing imperfect metabolism, which cause disagreeable symptoms. It is also perfectly true that exercise, a proper diet, and the use of plenty of drinking water will overcome these symptoms, but this does not prove that the patient is a sufferer from "uric acid diathesis."—Hare's Text-book of the Practice of Medicine, 1905, p. 753.

Baths for the People.—The importance of frequent bathing to the health and comfort of the people is well recognized, and the establishment of the public baths of St. Paul a few years ago has done more to contribute to the happiness and welfare of an immense number of men, women and children than any other one thing in the history of this city. There are thousands who live in homes where there are no bathing facilities, and where water even in the small quantities necessary for washing the face and hands must be carried. It is time that public bath houses for the people should be established, which will be available every day in the year, baths whose actual bathing facilities shall be free.—*St. Paul Med. Jour.*

A New Method for Separation of the Urine by Massage.—Drs. Giordano and Nicolich of Triest have obtained the urine from the kidneys separately without the use of a ureteral catheter, says the *Medical Age.* (See also THE JOURNAL, XLII, page 1189.) Giordano observed during a nephrectomy that the urine in the manipulated kidney was pressed out. so that the first urine passed after the operation contained morbid products. Following this hint it occurred to him that the urine might be expressed for diagnostic purposes by massage. The bladder is first emptied, and then one of the kidneys and its ureter are massaged through the lumbar and abdominal regions. The resulting urine in the bladder is withdrawn, the bladder again carefully washed, and the same process applied to the remaining kidney. A number of diagnoses arrived at by this procedure were later confirmed by nephrectomy. The simplicity of this method will commend it to physicians owing to the fact that to catheterize a ureter, especially in the male, requires special skill, and it is a question of grave importance whether or not a catheter after passing through an infected bladder ought to be inserted into a healthy ureter.

Banquet Emotional Strain, Apoplexy and Cardiac Paralysis.—High cerebral vascular tension and the psychic emotional strain of the post-prandial speech have suddenly sealed the career of many meritorious and eminent men among us. The recent illness which fell on the Secretary of the Navy, Paul Morton, the stroke that ended the illustrious career of Daniel Manning of Mr. Cleveland's cabinet, are not yet forgotten illustrations of the dangers of high emotional strain after a full meal, as well as that of the historic and sudden death of the distinguished John Hunter, in the ward of his hospital while reprimanding a nurse for delinquency. The St. Louis *Star* looks on the after-dinner speech as a menace, and thinks the speaking should come first and the dinner follow. There is certainly wisdom in the suggestion. It undoubtedly would be wiser if the coffee and speaking preceded the wine, if the wine and brandy were not dispensed with altogether. A full meal after a flow of wit would direct blood from brain to stomach for digestion purposes, and help to hasten essential rest after the over-emotional excitation of those who are wont to set the table in a roar. A very light initial repast, if any, with coffee first, and later a full meal if desirable, would be more conservative of the brain of the spell binder banquet. The wise, habitual speaker would better adopt this plan of taking a light meal before "the meeting around the board" and turn down his glass till toward the close of "the feast of reason and the flow of soul," or never lift it. Medical men familiar with the phraseology and pathology of the reciprocal movement of brain and mind under psychic strain might wisely observe this as a sound physiologic rule in banquet speaking.—*Alienist and Neurologist.*

Medical Education in Japan.—Kakichi Mitsakuri states that the first western knowledge introduced into the Japanese empire was through a Dutch text-book of anatomy, which came into the hands of a Japanese physician about the year 1771. After years of study this physician and three of his friends published a good translation of this book. It had taught them that their former teaching had been wrong. On looking first at the illustrations in the book they dissected the body of a criminal in order to find out who was right, they or the teachings of the Dutch book. After the introduction of anatomy came chemistry, natural history, history, military tactics, etc. In 1868 the Imperial University was established. It had a four years' course, admitting 100 students to each course. In

the educational system of Japan there are three grades, the university, the professional school, and all the schools below that grade. The boy begins going to school at 6 years of age. In the high school one foreign language is studied, either English, French or German being generally taken. Those who plan to become physicians also take German, for that is the medical language of Japan. All physicians in Japan speak German and many of them write it. The arrangement of the course is based on that of the German schools and at one time all of the professors were German. Now they are all Japanese, except two honorary members of the faculty. The subjects studied in the medical college are similar to those studied in American colleges. Attached to the university is a hospital having about 400 beds. After the student receives his degree at the end of four years, he is allowed to practice without any further examination. But many students spend several more years at home and abroad in preparation for their life work. A number of easier schools have been established in Japan where students are allowed to go directly from high school. The Japanese language is used in these schools, but a very good class of physicians is turned out. The graduates of these professional schools are also allowed to practice without a state examination. There is a third class of students, who go through an irregular course of training. They are allowed to obtain a license by passing a state examination. The demand for physicians in Japan is not completely supplied, especially in the country districts, but this deficiency will be overcome in a few years.—*St. Louis Medical Review.*

Candidates for the Hall of Fame.—We have more than once referred to the Hall of Fame established by the University of New York and the fact that no physician's name appears therein. The *Western Medical Review* has taken up the matter in a business-like way and is securing statements of physicians as to the names of those that are considered most worthy of place in this hall. The *Review* has provided ballots and proposes to send the resulting petition to the council of the university with the hope of securing recognition for some of America's illustrious physicians. The following are the names suggested by the *Review* and its brief historical summary of each:

BENJAMIN RUSH.

1745—1815, Pennsylvania. Educated Princeton and Edinburgh. Professor chemistry Med. Coll., Phila. (1769). Author of essays on "Slavery," "Temperance," etc. (1771); oration "Medicine and North American Indians" (1774); member Continental Congress and signer of Declaration of Independence (1776); physician to Port of Philadelphia (1790-1793); wrote "Medical Inquiries," 5 vols. (1789-98); Treasurer U. S. Mint (1799); wrote "Diseases of the Mind" (1812).

J. MARION SIMS.

1813—1883, Alabama. Conceived and performed the first operation (1845) for the cure of vesico-vaginal fistula. Invented the Sims speculum (1852) which is still in use. Performed his operation with the greatest eclat in all the capitals of Europe. Founder (1855) of great Woman's Hospital in New York City. Granted LL.D. (1881) by Univ. of Penna.

VALENTINE MOTT.

1785—1865, New York. In many respects the greatest surgeon this country ever produced. The first (1818) to tie the innominate artery and did more surgery on the large blood vessels than any other man who has ever lived. First to extirpate the clavicle for tumor. Translated Velpeau's "Operative Surgery," a large and very valuable work.

JOHN COLLINS WARREN.

1778—1856, Massachusetts. First professor anatomy and surgery in Harvard. Patron of first administration of ether for a surgical operation. Founder of the *Boston Medical and Surgical Journal.*

DAVID RAMSAY.

1749—1815, South Carolina. Benjamin Rush said of him: "I never saw so much strength of memory and imagination united to so fine a judgment." Delegate to the Continental Congress (1776); wrote "History of the Revolution in South Carolina" (1785); "History of the American Revolution" (1789); "Life of Washington" (1807); "History of the United States" (1816-19).

WILLIAM T. G. MORTON.

1819—1868, Massachusetts. On Oct. 16, 1846, first administered ether to a surgical patient in the Massachusetts General Hospital, Boston. He devoted the remainder of his life to extending the influence of his wonderful discovery. French Academy of Sciences in 1852 investigated various claims to the discovery and awarded Dr. Morton 2,500 francs for having discovered the application of etherization to surgery.

OLIVER WENDELL HOLMES.

1809—1894, Massachusetts. Professor of anatomy, Harvard Medical School (1847-1882). First to call attention to the contagious character of puerperal fever. Coined the terms "anesthetic" and "anesthesia." Best known, however and most loved for his poems and prose writings, which are too numerous to mention here. "Medical Essays," "Currents and Counter Currents," "Autocrat of the Breakfast Table," "The Chambered Nautilus," are best known.

We congratulate the *Western Medical Review* on its enterprise and we urge each of our readers to co-operate by sending to the *Review*, at Lincoln, Neb., a postal card, indicating four names selected from the above list. It has been suggested that four names is not too large a number to ask places for, but not more than four should be mentioned.

Opinion of Professor Lorenz on Damage Suits.—Two years ago a damage suit was brought against Professor Adolph Lorenz of Vienna on account of the serious aggravation of the condition of a patient following an examination under an anesthetic. Prof. Lorenz told the patient and the family physician that the examination would be harmless and free from danger, and, as it was followed by general aggravation of the symptoms, a suit for damages followed, which Prof. Lorenz compromised for a considerable amount. In two other cases suits have been threatened. In one case he refused to operate because he thought that the patient was looking for an opportunity to bring a damage suit. He was held pecuniarily responsible nevertheless and had to pay for the patient's lost time and for the rent of the house he had taken when expecting to be operated on. In an article on this subject in the *Wiener klin.-therap. Wochft.* xii, Nos. 5-7, 1905, Lorenz states that whether the physician loses or wins his suit, the mere fact that he has been sued injures his professional reputation. Lorenz believes that there are persons who make a business of laying traps for the unwary surgeon and then bringing damage suits, and the whole trouble, he believes, is due to the excessive responsibility placed on the surgeon. The patient is likely to have overconfidence in the surgeon which is expressed by exaggerated praises when the operation is successful and by bitter denunciation when the results are unsatisfactory. Lorenz suggests as a remedy for this that the patient should be taught what he can demand of the surgeon, and that the surgeon should learn what he can safely promise the patient. When a patient places himself in the hands of a physician he passively assumes that he is justified in expecting a cure of his trouble, or at least an improvement, and he recognizes, as an obligation imposed on him, the necessity for obedience to the physician's directions, so long as they do not appear to be too rigorous. He may possibly have a vague consciousness that the obligation assumed by the physician requires material remuneration and that this remuneration ought to be as large as he is able to pay, but when the time for payment arrives he usually finds that the smallest possible remuneration will amply suffice to satisfy his sense of obligation. If, however, instead of the expected improvement or cure, the condition is aggravated and transient or permanent injury results, the patient generally considers that the physician is under obligation to indemnify him for the resulting injury. The physician recognizes as a matter of course that his duty is to serve the patient according to his best knowledge, and he is apt to assure the patient that any contemplated operation is free from danger, and often holds out the prospect of improvement or of cure. In order to earn an uncertain and generally very modest honorarium the physician summons all his knowledge and skill and in many cases risks his health and even life itself, besides exposing himself to the danger of financial ruin. The patient looks on his contract with the physician as a business contract; the pay depends on the amount of work done; poor work annuls the contract; no work entitles the first party to damages. The patient has all the rights and the physician all the obligations. The Austrian medical chambers are striving to introduce the regulation that the legal authorities shall submit to them applications for damage suits against physicians before they are allowed to be entered as suits. They claim that the reputation of the physician is such that the slightest breath tarnishes it and that the legal authorities should allow suits against physicians only on the basis of negligence, malicious intention or criminal error. When it is necessary to tranquillize a patient before a necessary operation by telling him that it is free from

danger, some member of the family should always be informed of the true state of the case. When the indication for the operation is not vital the surgeon should bear in mind that no operation is absolutely free from danger. Patients should be taught that even the slightest surgical intervention has a certain amount of risk. Lorenz believes that it should be distinctly understood that the patient has absolutely no right to demand anything more of the physician than to be treated according to his best knowledge and conscience and that the physician has no further obligation than to do this.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

REGULATIONS GOVERNING PRACTICE OF MEDICINE IN AUSTRIA.

ST. LOUIS, March 29, 1905.

To the Editor:—Can you give me any information regarding the laws governing the practice of medicine in Austria? Can a graduate of a U. S. medical college go there and practice or must he pass an examination? What are the educational requirements?

A. TRAUBITZ.

ANSWER:—It is necessary to pass a state examination or to obtain a university degree in medicine, a necessary preliminary to which is naturalization as an Austrian subject. Recognition of foreign diplomas may be obtained on passing certain examinations. Further information may be obtained by writing to the Anglo-American Medical Association, Vienna, Austria.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the two weeks ending April 1, 1905:

Turnbull, Wilfrid, asst.-surgeon, honorably discharged from the service of the United States, under the provisions of the act of Congress approved Oct. 1, 1890, as amended by act approved July 27, 1892, to take effect March 17, 1905.

McCulloch, C. C., Jr., surgeon, granted thirty days' leave of absence.

Mearns, E. A., surgeon, granted three months' sick leave of absence.

Davis, Wm. R., Owen, Leartus J., Zinke, Stanley G., Culler, Robert M., Weed, Frank W., Wickline, Wm. A., Brown, Henry L., Baily, Howard H., Humphreys, H. G., and Freeman, Paul L., asst.-surgeons, ordered on completion of course of instruction at Army Medical School, to Manila, P. I., for duty in the Philippines Division.

Winn, Robert N., asst.-surgeon, granted three months' leave of absence about June 1.

Hall, John D., asst.-surgeon-general, assigned to duty as chief surgeon, Department of California.

Bartlett, C. J., asst.-surgeon, leave of absence extended twenty days.

Rafferty, Ogden, surgeon, ordered to proceed to the Artillery posts in District of the Potomac and Baltimore, with a view to determine the requirements of medical department at each station participating in Army and Navy exercises from June 11 to 17, 1905.

Wing, Franklin F., dental surgeon, arrived at Fort Robinson, Nebr., from leave of absence.

Oliver, Robert T., examining and supervising dental surgeon, ordered from West Point, N. Y., to New York City, on business connected with the purchase of dental supplies for the Army.

Waddell, Ralph W., dental surgeon, ordered from Fort Leavenworth, Kans., to Fort Crook, Nebr., for temporary duty.

Stone, Frank P., dental surgeon, granted leave of absence for three months.

Ware, William H., dental surgeon, left Fort Apache, Ariz., for Whipple Barracks, Ariz.

Rebert, Michael A., contract surgeon, returned to Fort Totten, N. Y., from leave of absence.

Wythe, Stephen, contract surgeon, arrived at Presidio of San Francisco, Cal., for temporary duty.

Wells, George M., surgeon, ordered to proceed from San Francisco to Hot Springs, Ark., and report to commanding officer, Army and Navy General Hospital, for treatment therein.

Munson, E. L., asst.-surgeon, granted ten days' leave of absence with permission to apply for thirty days' extension.

Thomason, H. D., asst.-surgeon, advanced to rank of captain.

Bartlett, Cosam J., asst.-surgeon, relieved from duty at Army and Navy General Hospital, Hot Springs, Ark., and assigned to duty at Fort Miley, Cal.

Shortlidge, E. D., asst.-surgeon, relieved from duty at Fort Miley, Cal., and ordered to Army and Navy General Hospital, Hot Springs, Ark.

Shellenberger, James E., contract surgeon, arrived at his proper station, Fort Sam Houston, Texas, from temporary duty at Jackson Barracks, La.

Kierulff, H. Newton, contract surgeon, relieved from duty at the Infantry Cantonment, Presidio of San Francisco, and reported for duty as transport surgeon of the *Buford*.

Probert, Merton A., contract surgeon, ordered to accompany First Battalion, Thirtieth Infantry, on march from Fort Crook, Neb., to Fort Des Moines, Iowa, and then return by rail.

Byars, Caspar R., contract surgeon, ordered from Bay City, Texas, to Fort Sam Houston, Texas, for duty.

Cole, R. King, contract surgeon, granted leave of absence for two months.

Whinnery, Jean C., dental surgeon, left Fort Wright, Wash., for his proper station, Vancouver Barracks, Wash.

Public Health and Marine-Hospital Service.

List of the changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 29, 1905:

Williams, L. L., asst.-surgeon general, relieved from duty in the Bureau, and directed to proceed to Baltimore, Md., and assume command of the service, relieving P. A. Surgeon C. W. Wille.

Bailbache, Preston H., surgeon, reassigned to duty at Stapleton, N. Y., effective March 8.

Stoner, G. W., surgeon, reassigned to duty in the Immigration Service, Ellis Island, N. Y., effective March 8.

Stoner, J. B., surgeon, relieved from duty at Norfolk, Va., and directed to proceed to Evansville, Ind., and assume command of the service, relieving P. A. Surgeon B. W. Brown.

Young, G. B., P. A. surgeon, on being relieved by P. A. Surgeon B. W. Brown, to proceed to Chicago, Ill., and assume command of the service.

Brown, B. W., P. A. surgeon, on being relieved by Surgeon J. B. Stoner, to proceed to Louisville, Ky., and assume command of the service, relieving P. A. Surgeon G. B. Young.

Eager, J. M., P. A. surgeon, on being relieved by Assistant Surgeon A. J. McLaughlin, to proceed to Washington, D. C., and report at the Bureau for duty.

Blue, Rupert, P. A. surgeon, relieved from duty at the Plague Laboratory, San Francisco, Cal., and directed to proceed to Norfolk, Va., and assume command of the service.

Cofer, L. E., P. A. surgeon, reassigned as chief quarantine officer of the Territory of Hawaii, effective Dec. 1, 1904.

Grubbs, S. B., P. A. surgeon, on being relieved by P. A. Surgeon C. W. Wille, to proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters.

Foster, M. H., P. A. surgeon, detailed as inspector of unserviceable property at San Diego Quarantine Station.

Lumsden, L. L., P. A. surgeon, to proceed to Perth Amboy, N. J., for duty during absence of P. A. Surgeon W. A. Korn.

Corput, G. N., P. A. surgeon, on being relieved by P. A. Surgeon M. K. Gwyn, to proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters.

King, W. W., P. A. surgeon, one day's leave of absence, March 18, 1905, under Paragraph 189 of the Regulations.

Gwyn, M. K., P. A. surgeon, on expiration of leave of absence, to proceed to South Atlantic Quarantine Station and assume command of the service, relieving P A. Surgeon G. M. Corput.

Currie, D. H., P. A. surgeon, directed to assume temporary charge of the Plague Laboratory, San Francisco, Cal.

Korn, W. A., P. A. surgeon, granted leave of absence for seven days from March 29.

Wille, C. W., P. A. surgeon, on being relieved by Surgeon L. L. Williams to proceed to Gulf Quarantine Station and assume command of the service, relieving P. A. Surgeon S. B. Grubbs.

McLaughlin, A. J., asst.-surgeon, relieved from duty in the Bureau, and directed to proceed to Naples, Italy, for duty in the office of the American consul, relieving P. A. Surgeon J. M. Eager.

McLarty, A. A., acting asst.-surgeon, granted leave of absence for thirty days from April 1.

McKay, Malcolm, pharmacist, to report April 3, 1905, to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class.

Herty, F. J., pharmacist, granted leave of absence for four days from March 8, 1905, on account of sickness.

BOARD CONVENED.

Board convened to meet at Chelsea, Mass., April 3, 1905, for the physical examination of Pharmacist Malcolm McKay to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon R. M. Woodward, chairman; Acting Assistant Surgeon F. H. Cleaves, recorder.

Medical Organization

SOME FACTS REGARDING ORGANIZATION.

The Medical Association of Georgia will act on the matter of reorganization at its next annual meeting, which is to be held at Atlanta, April 19. At the last meeting a committee was appointed to report at the coming meeting, and it has just issued a circular preliminary to its report bearing on the matter. From this we quote:

"Desiring to place before the members of the association as much information as possible bearing on the results of reorganization in other states, your committee wrote to the officers of a number of associations asking that they would give conditions existing in their states before and since the adoption of the constitution suggested by the American Medical Association.

"Prompt replies were received in every instance and the following facts are taken from the letters of either the secretary or the president of the associations of the states named.

"In Kentucky, prior to the adoption of the new constitution, there were about 400 members in the state association, with less than 100 members usually attending an annual meeting. At the present time, two years after the adoption of the proposed constitution, there are 1,600 paid-up members, a large increase in the attendance on meetings and a general awakening of the profession at large.

"In Michigan, prior to 1902, the state membership had never exceeded 500; last year it was 1,800 paid-up members. Formerly only eleven counties in the state had any kind of medical society; now every county in the state is organized and working in harmony with the state body.

"In Tennessee, prior to the adoption of the new constitution, the membership had at no time been greater than 400; now it has passed 1,200; dues formerly collected had rarely been $700; last year it was over $2,000, while the quantity and character of scientific work done has been much improved.

"In Indiana, while the proposed plan was already virtually in existence, the state being organized on the basis of the county unit, still the membership increased 25 per cent. the first year, and a number of unorganized counties at once formed societies and sent delegates to the state association. No move in the state has ever given such promise of bringing all the medical men into societies for their scientific and social advancement.

"In Nebraska the membership increased the first year from 275 to about 800, and the sentiment is heartily in favor of the change.

"In Louisiana the new constitution was adopted in 1903, and reports a considerable increase in membership and a corresponding interest in scientific work. The president expresses satisfaction with the plan and writes that it is working well.

"Illinois reports that membership in the state association has increased fourfold, that there are now between 4,000 and 5,000 members in the association, or about 60 per cent. of the regular physicians in the state, with a live working unit in every county. Interest in medical matters has increased correspondingly and the rank and file of the profession are more than pleased with the change.

"Arkansas writes that in one year the membership of the association went from 150 to 700, and that the plan has given general satisfaction.

"Wisconsin had in 1903 in her state association 700 members, and there were ten feeble county societies in the state. The following year, after adopting the new constitution, the membership increased to 1,300, while every county in the state became organized and now have live working societies. At the meeting of 1904 there were 100 more members in attendance than at any previous meeting within the history of the association.

"In the neighboring state of Florida the president, Dr. Pierpont, writes in the most enthusiastic manner. He states that the membership has increased from 172 to 243, but it is especially in connection with the work of the county societies that he speaks most enthusiastically. Here he says the results have been most gratifying.

"Dr. Chase of Fort Worth, the secretary of the Texas State Medical Association, writes that prior to reorganization, or in April, 1903, there were 445 members, only about 10 per cent. of the regular practitioners, while the collections from all sources amounted to $1,815. In April, 1904, or one year later, the membership was 2,393, while the treasurer reported collections amounting to $5,986. Thus you see the increase was fivefold the first year, and the association now has enrolled on its list over half of the legalized practitioners of the state. This in a state 1,000 miles square. Dr. Chase goes on to say that there has never been any five-year period in the history of the state in which there has been so great an increase in good feeling among the profession, or in which more irregular practitioners have been forced out of practice or in which so much political influence for good has been exerted.

"From North Carolina we have letters from both the president and the secretary of the association. The president, Dr. Tayloe, says: 'Our medical society, now running under the plan suggested by the American Medical Association, has met with the universal approval of 99 per cent. of the doctors of our state. It has more than doubled the membership, put twice the money in the treasury and worked a success thus far in every particular.' The secretary, Dr. Way, of Waynesville, whom some of you may know, a fine fellow, says: 'I beg leave to say to you most emphatically, reorganize and do it now!' He then goes on to say that the membership increased in one year from 283 to 1,065 paid members, that 90 out of 97 counties have organized, and that owing to thorough organization, they had no trouble whatever in killing before the state legislature, a bill designed to recognize osteopaths.

"F. W. McRAE,
"Chairman Committee on New Constitution."

A Press Committee.

One of the objects of organization is the "directing of public opinion in regard to the broad problems of hygiene." Several county societies have already recognized this as part of their functions and are acting accordingly. One of the latest to take up this work is the Washington County (Iowa) Medical Society. Recently a press committee was appointed, with instructions to represent the profession of the county to the press. It was authorized to prepare authoritative papers on public health, sanitary science and medical ethics, and in every way possible to educate the public in regard to the broad problems of hygiene and public health. We are informed that the committee has outlined subjects which will take over a year to complete. Each week the committee publishes a short article in the local papers, and judging from the reprints of two of these, the committee is judicious, not only in the choice of subjects considered, but in the manner of presenting them. The newspapers are willingly co-operating, and seem to be glad to publish the matter presented. No names are used, each article being signed by the press committee of the Washington County Medical Society. We commend the idea to other county societies.

Kansas.

Dr. O. J. Furst, councilor of the Fourth District, organized the Sumner County Medical Society on March 29, with 24 members. The officers are: President, S. T. Shelley, Mulvane; vice president, H. A. Vincent, Corbin; secretary-treasurer, T. H. Jamieson, Wellington; delegate, J. L. Holliday, and censors, W. E. Bartlett, F. G. Emerson and S. W. Spitler.

Missouri.

The physicians of Jefferson County met at De Soto on Saturday, April 1, 1905, and after listening to a talk from Dr. J. A. McCormack, organized a county society and adopted the standard Constitution and By-laws. The following officers were elected: President, W. H. Farrar, De Soto; vice president, J. W. Pickel, Festus; secretary and treasurer, H. W. Elders, De Soto; board of censors, C. G. Harris, W. E. Gibson and A. H. Hamel, De Soto; delegate to the state association, A. H. Hamel, De Soto. A number of physicians were present from adjacent counties and societies will be organized in some of these at an early day.

Tennessee.

TENNESSEE STATE MEDICAL ASSOCIATION.—The seventy-second annual meeting will be held in Watkins Institute building, Sixth Avenue and Church Street, Nashville, Tenn., April 11-13. The House of Delegates will be called to order at 8 a. m., Tuesday, April 11, while the general session will be opened at 10 a. m. at a meeting opened to the general public, at which appropriate addresses will be delivered. The president, Dr. Paul F. Eve, Nashville, will deliver the annual address at the evening session of the first day. A program of thirty-two papers on various topics will be given during the three days of the general session. The feature of the second evening will be a discussion on the "Prophylaxis of Tuberculosis," participated in by members of the medical, legal and clerical professions, state and municipal officials, editors and representatives of business and railroad corporations. A rate of one and one-third fare has been secured and a large attendance is expected.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Assn. of State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Amer. Medico-Psychological Assn., San Antonio, Tex., Apr. 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.

Amer. Assn. Pathologists and Bacteriologists, Chicago, Apr. 21-22.
American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.

FIFTEENTH INTERNATIONAL MEDICAL CONGRESS.

To be held in Lisbon, Portugal, April 19-26, 1906.

Announcement of American Committee.

NEW YORK CITY, March 30, 1905.

To the Editor:—The Fifteenth International Medical Congress will be held at Lisbon in April, 1906. At a meeting of the national American committee, held at St Louis last September, the following physicians were appointed to represent the congress:

John H. Musser, Chairman.
Ramon Guiteras, Secretary.
Dudley P. Allen.
C. S. Bull.
E. C. Burnett.
E. G. Brackett.
H. E. Bell.
Frank Billings.
Herman M. Biggs.
Herbert L. Borell.
T. J. W. Burgess.
Wm. T. Corlett.
William T. Councilman.
Wm. H. Carmalt.
Richard C. Cabot.
Charles H. Dana.
N. S. Davis, Jr.
E. C. Dudley.
Simon Flexner.
Chas. H. Frazier.
R. H. Fitz.
W. E. Fischel.
C. M. Green.
Chas. Lyman Greene.
H. A. Hare.
L. Hektoen.
W. H. Howell.
Edward Jackson.
E. G. Janeway.
A. Jacobi.
C. G. Jennings.
George B. Johnson.
W. W. Keen.
Howard A. Kelly.
Chas. Kollock.
L. S. McMurtry.
James H. McBride.
A. T. McCormack.
K. A. McKenzie.
J. B. Murphy.
R. Matas.
Chas. S. Minot.
Robt. M. O'Reilly.
William Osler.
Chas. Powers.
W. F. R. Phillips.
B. Alexander Randall.
J. B. Roberts.
W. L. Rodman.
M. H. Richardson.
C. C. Rice.
Chas. A. L. Reed.
Presley M. Rixey.
H. M. Sherman.
Fred'k C. Shattuck.
Geo. H. Simmons.
Wm. G. Spiller.
Chas. G. Stockton.
Geo. Sternberg.
E. L. Trudeau.
Victor A. Vaughan.
John A. Witherspoon.
J. Collins Warren.
J. C. Webster.
Wm. H. Welch.
John A. Wyeth.
Horatio C. Wood.
Walter Wyman.

The executive committee appointed from this group consisted of Dr. J. H. Musser, chairman, and Drs. Frank Billings, William Osler, Frederick Shattuck and Abram Jacobi.

Any communications regarding the presentation of papers at this congress can be sent to Miguel Bombarda, secretary, at Lisbon; or to Dr. Ramon Guiteras, secretary for this country.

76 West Fifty-fifth Street. RAMON GUITERAS.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

Second Annual Meeting, held in Philadelphia, March 24, 1905.

The President, DR. THOMAS H. FENTON, in the Chair.

This second annual meeting was held in the College of Physicians at 8 p. m. Thirty-six new members were received.

The minutes of the council meetings and lists of contributions to the society's collections of literature and specimens were read by the secretaries.

Program on Panama.

Dr. Seneca Egbert read a paper on "Panama and the Panama Canal."

Dr. Joseph McFarland gave a description of the canal zone, with lantern demonstration.

Dr. Roland G. Curtin read a paper on "Impressions of Panama and the Pan-American Medical Congress."

The discussion was participated in by Drs. Stout, Thorington, Daland and others.

Public School Instruction in Hygiene in Tropical Colonies.

Acting on the advice of Sir Patrick Manson, it was decided to send to the proper authorities a resolution recommending that the curriculum of public school instruction in the tropical Colonial possessions of the United States, be made to include the general facts pertaining to the prophylaxis of tropical diseases.

Sanitation at Panama.

Resolutions were also adopted, calling the attention of the President of the United States to the inadequate sanitary arrangements now existing on the Isthmus of Panama, and urging that he use his influence in order that they be improved before the engineering work on a large scale begins.

Election of Officers.

The following officers were elected for the ensuing year: President, Dr. Roland G. Curtin; vice-presidents, Drs. Victor C. Vaughan and W. S. Thayer; treasurer, Dr. Wharton Sinkler; secretary, Dr. Joseph McFarland; assistant secretary, Dr. John M. Swan; council, Drs. Thomas H. Fenton, James M. Anders, Judson Daland, Ramon Guiteras, and B. F. Stahl.

(To be continued.)

BOSTON MEDICAL LIBRARY MEETING.

Meeting held March 8, 1905.

DR. GEORGE W. GAY in the Chair.

Nine Years' Experience in the Treatment of Diphtheria with Antitoxin.

DR. JOHN H. MCCOLLOM said that it is important to have a bacteriologic examination of all cases of sore throat. Twice during the past year epidemics in institutions in Boston have been checked by systematic taking of cultures. Often, however, diagnosis may be made from clinical appearances. In such cases do not wait for report from culture. Thus with negative cultures patient may cough up casts. Study the dyspnea. If characterized by rigidity of the sterno-cleido-mastoid muscles, supraclavicular and substernal retraction, treat it as diphtheria. Cultures from the intubation tubes are invariably positive in such cases. In 1894 the mortality from diphtheria in Boston was 18 per 10,000 of population. In 1904, under the use of antitoxin, it fell to 3.35. In 1888 it was the cause of 0.13 per cent. of all the deaths in the city, while in 1904 it was responsible for only 0.03 per cent. On the other hand, the cases received at the South Department of the Boston City Hospital in 1888 were but 0.08 per cent. of the population, while in 1904 they were 0.18 per cent., or 56 per cent. of all the cases in the city. The mortality from diphtheria in 1888 was 45 per cent. of all persons attacked; in 1904, 9.5 per cent. Mortality from intubations in 1888 was 76 per cent.; in 1904, 30 per cent. Of the intubations under 2 years old, 64 per cent. were fatal; 2 to 2½ years, 50 per cent.; 2½ to 3½, 39 per cent.; 3½ to 4½, 37 per cent.; 4½ to 5½, 36 per cent.; over 5½, 34 per cent.

Antitoxin gives relief in laryngeal diphtheria if given early; 4,000, 6,000 or 8,000 units will often give relief within twenty-four hours. In operative cases it prevents the extension of the membrane. When there is evidence of extension to the bronchi, give 20,000, 30,000 or 40,000 units. The bronchopneumonia, so generaly fatal and nine years ago responsible for 17 per cent. of the deaths, may then be averted. Intubation is the approved operation. It is better than tracheotomy. Inhalation pneumonia is not probable. The value of antitoxin in the operative cases is shown by the fact that of 327 tracheotomies reported from 1864 to 1887, from 70 to 95 per cent. died. During the last nine years intubation has been done 1,553 times, with 44 per cent. mortality. During the past nine years there have been 180 cases among the doctors, nurses and other employes of the South Department, with no fatality.

Give the full amount, from 4,000 to 8,000 units, every six or eight hours. Repeat till there is decided improvement in the looks of the throat and the general symptoms. Few cases are really hopeless. Many die because not enough is given, from nerve degeneration or sepsis. No instance of injury has ever been noted at the hospital. Albuminuria is no more common. Heart complications and paralysis are less common. Urticaria and arthralgia, which may come on any time from ten minutes after the injection to five weeks, are, at the most only uncomfortable. An abscess always indicates an error in the technic of administration or in the preparation of the serum. Immunization is especially useful in case of hospitals and scarlet fever patients.

The Present State of Opinion Concerning Sewer Gas and Its Effects.

PROF. WILLIAM T. SEDGWICK said the sewer gas theory so much favored thirty years ago is exploded. The fall of the theory came with the application of common sense. Definite disease germs were discovered. These are not common in sewers; indeed, the air there is very good, chemically and bacteriologically nearly sterile. Neither do germs thrive in sewage. So great is the change that the house trap is being called superfluous. Polluted air of any kind is deleterious to the human system. It lessens the vital resistance.

DISCUSSION.

DR. DAVID CHEEVER told of the changes he had noted in regard to diphtheria. Dr. John Ware, author of "Membranous Croup," was his professor. Diphtheria was in those days a horror, nearly always fatal. Remedies were harsh and unavailing. Antimony and mercury till salivation were lauded. Powerful emetics like sulphate of zinc added to the patient's distress. Tracheotomy was rarely done, and the doctor was forced to watch slow strangulation. Later inhalations of steam were thought absolutely necessary for all such operative cases. The late Dr. Gay reported a series of cases of tracheotomies of which only 66 per cent. died when no other man had saved more than 25 per cent. At first ether was used for an anesthetic, then chloroform and more recently nothing at all. Intubation has gradually supplanted tracheotomy and is best if done by experts. Yet when a case can not be constantly watched tracheotomy still fills a place. Antitoxin has changed our attitude toward diphtheria almost completely.

DR. THOMAS M. ROTCH spoke of the value of immunizing doses in preventing the outbreaks of diphtheria in institutions. At the Boston Children's Hospital it has been done 9,696 times. There has been no harm, no nephritis and but a single case of diphtheria. This last was in a boy who failed to get his second dose of serum at the end of twenty-one days, which is the rule. Nurses do have it and are not immunized. Children do not have it. Five hundred units is the dose, repeated every twenty-one days. All kinds of eruptions have been noted, resembling measles, scarlet fever and other erythemas, but not varicella. No arthralgia, and not as much pain as from vaccination. The Infants' Hospital also formerly had epidemics of diphtheria. Since February, 1900, all babies admitted, 1,184, have received their immunizing dose of antitoxin. Most of these babies are under 1 year old. There has been one case of diphtheria in a child who only received 300 units. Since then 500 units has been the rule. As at the Children's Hospital, there have been controls in the nurses who do not have immunizing doses and who do have diphtheria occasionally. Dr. Rotch makes it a practice of thus immunizing every member of families where there is a case of diphtheria.

DR. F. H. WILLIAMS has three rules: Get good antitoxin, give it early, give enough.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, held March 7, 1905.

The President, DR. JOSEPH FRAENKEL, in the Chair.

A Case for Diagnosis.

DR. SMITH ELY JELLIFFE presented this patient, a woman, 33 years old, and a dressmaker by occupation. She had seven sisters and one brother alive and in good health. One sister had died of consumption. Her father, aged 65, is a hemiplegic. Her mother, aged 70, is in good health. The patient had had scarlet fever at 7 years of age. Following this attack she was weak for a long time and would fall easily. There was no history of hemiplegia at this time. Later she had diseases of childhood and diphtheria. She had an attack of jaundice when she was 22 years old and malaria six years ago. Menstruation began when she was about 14, and was regular, lasting two days. Some years ago she had an attack of sciatica, and gave a history of painful swellings in the axillæ, elbows and knees, probably due to some lymphatic infection. When she was 18 she fell, striking the back of her head, resulting for a time in severe headaches. Her present illness began two years ago, and its onset was gradual. She first felt pain in the little finger of the left hand, was burning in character, and running up and into the shoulder along the course of the sterno-cleido-mastoid to behind the ear. The hand began to shake and to grow weaker. The pain had lasted two weeks before the tremor and weakness became apparent. The tremor at first was very pronounced. About a year later she noticed a loss of power in the left leg, with stiffness and drawing up of the muscles and with some pain in the knee. During the past summer the pain was referred to the ankle. She compained of frequent attacks of diarrhea, with colic. There were no bladder symptoms. Examination of the eyes showed slight diplopia and nystagmus, but no impairment of sight. There was slight inequality of the pupils, but no Argyll-Robertson pupil. Consensual light reflex was normal, and the skin reflexes were normal. There were no pains, no anesthesia, no disturbance of heat and cold sensation, no Romberg sign. There was slight tremor of the head at times. Musculature good. There was weakness and stiffness of the entire left side, more marked in the upper than in the lower extremity. The reflexes were increased on the left side. There was no Babinski sign, no clonus, no tremor of leg. The tremor of the arm was coarse, of the semi-intentional type, but not typical. The heart sounds were exaggerated, but there was no murmur. The legs dragged and there was marked stiffness and rigidity. There were no electrical changes and no atrophy. The patient claimed that her memory was not so good as formerly, especially for recent events; otherwise no change was noted. Her friends state that she is more irritable than formerly, but this is, perhaps, natural, as the tremor of the hand prevented her from carrying on her business as a dressmaker. Dr. Jelliffe said that the symptoms were suggestive of a multiple sclerosis.

DISCUSSION.

DR. L. PIERCE CLARK, who had had the patient under observation for several months at the Vanderbilt Clinic, agreed with Dr. Jelliffe that the case was one of multiple sclerosis, slowly progressive, and probably of the cerebral type, and that there were some of the evidences of involvement of the spinal cord.

A Case of Myotonia Congenita.

DR. GRAEME M. HAMMOND presented this patient, a girl of 16, the youngest of three children. The other children were boys. One of them, aged 18, died suddenly of heart disease. The child's parents were cousins. There was no other case of myotonia on either side of the family for three generations; beyond that nothing was known of the ancestors. The patient began to walk when she was 10 months old. With the exception of measles in childhood, she had always been well and healthy. When she was about 2 years old her mother noticed that after sitting a while, the child had great difficulty in getting up and walking. She arose slowly, on account of great stiffness in the muscles, and often fell. On attempting to walk she at first found it impossible to move, so rigid were her legs. Finally she would move one leg stiffly, then the other, and began to walk with stiff, mechanical movements like "a nursery doll." The more she walked, the more limber she became, and in a few minutes walking became easy and natural, and she could even run and dance. This condition had persisted all her life. The patient menstruated for the first time in March, 1904; then not again until September, 1904, and since that time not at all. Her body and arms were rather small, but the legs and thighs were very large. The knee-jerks, after sitting a while, were present and responded quickly, but the movement was short. After walking, when the legs were quite limber, the knee-jerks were normal. Both calves measured 14¼ inches; the thighs (seven inches above the patella), 20¼ inches. The legs were 33 inches long. The muscles of the arms reacted normally to both forms of the electrical current. The legs seemed to respond normally to faradism. When galvanism was used the muscles responded sharply and deeply, then immediately relaxed; then a second

contraction ensued which was not so well marked as the first. The muscle, when it contracted, did so with a wavelike or vermicular movement. The same muscular tone was observed after standing or lying down. The most difficult time the patient had was on attempting to rise in the morning.

DISCUSSION.

DR. G. L. WALTON, Boston, spoke of the liability of these cases to be mistaken for hysteria, on account of the apparently meaningless transition from clumsiness to agility. Continuous observation of these patients showed an unvarying adherence to fixed rules referable to disturbance of the neuro-muscular mechanism and independently of the mind. Dr. Walton also referred to a symptom that was present in two typical cases of myotonia congenita that had been under his observation, namely, the slow and clumsy ascent of stairs, followed by an active and nimble descent. This trial was then made on Dr. Hammond's patient, with the same result.

A Case of Progressive Muscular Atrophy of the Left Hand.

DR. EDWARD D. FISHER presented this patient, a young woman whose occupation was that of a machine worker. Her work was passing articles along under a machine, the left hand being engaged more than the right. Her family history and past history were negative, with the exception of the fact that when she was about 10 years old she complained of pain in the upper arms, between the shoulder and elbow, when carrying her school-books. About two years ago she began to notice some weakness in the left hand and a tendency to stiffness, especially when playing the piano. This was followed by wasting of the muscles, which appeared to be typical of progressive muscular atrophy. One peculiarity of the case was the extreme icy coldness of the hands in spite of efforts to keep them warm. The electrical reactions were impaired. There were no sensory disturbances, no symptoms pointing to syringomyelia and no scoliosis. The atrophy was gradually extending up the forearm.

Two Cases of Nerve Anastomosis.

DR. ALFRED S. TAYLOR presented two cases. The first patient, a boy, 8 years old, three years ago had an attack of anterior poliomyelitis which involved the right hand and forearm. The hand was entirely useless, but as the muscles of the shoulder and upper arm were in fairly good condition, the case was regarded as a suitable one for nerve anastomosis. A few days ago the brachial plexus was exposed and the seventh and eighth cervical and first dorsal roots were divided, turned up and inserted by lateral anastomosis into the junction of the fifth and sixth nerves. The anastomosis was effected without any tension on the nerves. The wound was then closed and the parts immobilized. The dressings were still in place and the ultimate outcome of the operation, so far as improvement of function was concerned, was doubtful.

The second patient was a boy, about 8 years old, who in the early summer of 1903 had scarlet fever, followed by otitis media and mastoiditis, for which he was operated on at the Randall's Island Hospital. Three days after the operation a facial palsy appeared, and rapidly progressed to complete paralysis. Three and one-half months later complete reaction of degeneration was found. A facio-hypoglossal anastomosis was done under chloroform anesthesia; the facial nerve was found to be soft and friable and gray in appearance. Only one suture could be made to hold to the hypoglossal, which was under such tension that a fine suture was passed through the hypoglossal sheath to anchor the nerve to the neighboring fascia, and to prevent tension on the anastomosis. Primary union was obtained. There was almost complete palsy of the muscles supplied by the hypoglossal immediately after the operation. Ten weeks after the operation some difficulty of speech remained, owing to imperfect use of the tongue. Difficulty in swallowing and mastication, and unilateral furring of the tongue, all of which were present for some weeks after the operation, and which were due to operative injury of the twelfth nerve, disappeared. Three months after the operation the face was far less asymmetrical than before and the eye could be partly closed. Reaction of degeneration was unchanged. At the end of eight months there was slight motion about the right side of the mouth; this improvement slowly continued, and fourteen months after the operation the patient had a fair amount of control over the formerly paralyzed side of the face.

DISCUSSION.

DR. B. SACHS stated that three and one-half months was rather too soon to consider an operation in a case of facial palsy, as in many of these patients improvement began after a much longer period.

DR. HAMMOND said that he did not think the return of power in the paralyzed muscles proved that the anastomosis had been successful. He mentioned the case of a boy who developed a facial palsy after a mastoid operation, and without any attempt at anastomosis motion in the affected muscles was first noticed at the end of fifteen months, and eventually was absolutely restored.

DR. LESZYNSKY said that he had seen a great many cases of Bell's palsy following mastoid operations, and in his experience a favorable outcome, like that reported by Dr. Hammond, was rather unusual.

Further Report of a Case of Hypoglossal-Facial Anastomosis.

DR. CHARLES H. FRAZIER, Philadelphia, said that his first opportunity to operate on a case of facial palsy was in August, 1903, when he was called in consultation with Dr. William G. Spiller to a see a patient who, five months previously, had shot himself, the ball entering the external auditory meatus. This resulted in a complete facial palsy. The case was one eminently suitable for operative intervention, as the nerve was irreparably damaged, and the muscles hopelessly paralyzed. The operation consisted in a hypoglossal-facial anastomosis. During the eighteen months that had elapsed since the operation the patient had been examined from time to time, and there had been a slow but progressive improvement. One month after the operation there was no response to the faradic current in any of the muscles. Reaction of degeneration and polar changes were marked. Six months after the operation there was no change in the condition. Nine months after the operation there was still no response to the faradic current, while with the galvanic current there was lessened irritability. At this date there appeared for the first time a peculiar involuntary movement of the angle of the mouth. Fourteen months after the operation there was still no response to the faradic current, but a slight increase of irritability under the galvanic current. Polar change was still distinct. Seventeen months after the operation voluntary movements at the angle of the mouth were observed for the first time. In addition to this, the patient was able to almost completely close the eye, and all the muscles responded to the faradic current.

Dr. Frazier called attention to the fact that it was not until after the fourteenth month had passed that a positive reaction to faradic stimulation was observed, with one exception, namely, the orbicularis palpebrarum, which responded slightly in the ninth month. Dr. Frazier said he thought no one would question the propriety of the operative treatment of facial palsy. The operation was founded on a physiologic law, and the only feature in the technic of the operation worthy of discussion is the choice between the eleventh and twelfth nerves. Dr. Frazier prefers the twelfth. So far as he has been able to learn, there had not been a single instance in which a voluntary effort to raise the shoulder has not been attended with contraction of the facial muscles, and these so-called associated movements constituted a very serious objection to the selection of the eleventh nerve. Theoretically an end-to-end anastomosis should secure the best results.

Some Newer Ideas on Nerve Anastomosis.

This paper, by DRS. WILLIAM G. SPILLER and CHARLES H. FRAZIER, was read by Dr. Spiller. He considered first the possibility of benefiting by surgical means patients afflicted with an incomplete hemiplegia. When the hemiplegia is complete, or nearly so, one can not hope to accomplish anything by

surgical procedures. There are many cases, however, in which there is a partial return of power in the paralyzed limbs, and experience shows that usually the restoration of motion is greater in the flexors in the upper limb and greater in the extensors in the lower limb, except those of the toes.

In order to study the conditions of paralysis existing in hemiplegia, Dr. Spiller examined 26 cases in which the paralysis dated from early childhood. The cases in which the hand had regained partial power were more numerous than those in which the foot had regained partial power. In 11 cases out of the 26 the flexors of the hand were so much stronger than the extensors that a nerve anastomosis might have been attempted, but only 4 cases offered much hope for improvement from an operation on the foot. From his investigations he concluded that there was probably a field for surgical intervention in certain cases of cerebral hemiplegia, but the cases must be carefully selected and thoroughly studied. Whether any benefit by nerve anastomosis would result to the hemiplegic individual or not, experience alone must decide. The subject, however, is one deserving attention. Dr. Spiller said that for several years he had been trying to devise some method for the treatment of athetosis, and the failure to control it in any degree is a reproach to medicine. In cases in which athetosis exists there must be irritation of the motor system somewhere. Theoretically, the proper procedure would be to cut the posterior roots of the affected limbs, the number to be cut depending on the condition in each case. This is always a serious operation, and the results at times have been unexpectedly grave. Division of one or more of the motor nerves of the affected limb, with immediate suture of the divided ends, might lessen the involuntary activity and might weaken the muscles slightly.

DISCUSSION.

Dr. Charles H. Frazier said that the adaptation of operations known as nerve anastomoses or implantations to the treatment of cerebral palsies, as proposed by Dr. Spiller, opened up a field in neurological surgery which seemed full of promise. His first clinical experience in this line dealt with a woman 65 years of age who had an apoplectic attack five years previously. When the operation was performed she was hemiplegic; there was marked atrophy of the muscles of the hand, arm and forearm, but the paralysis was so much more marked in the extensor than in the flexor group of muscles that she could only partially, and with great difficulty, extend the proximal phalanges. An incision was made along the inner border of the coracobrachialis, exposing the brachial vessels and the main nerve trunks. The median and musculospiral nerves were partially isolated, and a flap composed of one-half the median nerve was implanted into the musculospiral, and sutured in such a way that the nerve fibers of the median were imbedded in those of the musculospiral. The results of the operation up to the present time had not been very positive, although it is still possible that greater improvement may take place in time.

The Pathology and Surgical Treatment of Chronic Facial Palsy.

Drs. L. Pierce Clark, Alfred S. Taylor and Thomas P. Prout were the authors of this paper, which was read by Dr. Clark. He said it is not known why the facial nerve suffers from palsy with such frequency, nor is there adequate information regarding the nerve elements or the part of the nerve primarily involved. The extension of inflammation from the middle ear, or the effect of cold acting through this channel on the facial nerve, is easily understood. Facial palsy, both in men and animals, is relatively infrequent when the face and head are properly protected. A certain number of individuals suffer from a congenital narrowing of the foraminal exit of the nerve.

There are good reasons to believe that the initial changes of this condition take place in the perineural sheath, although the exact pathogenesis of Bell's palsy is still uncertain, because of the meagerness of the material at hand for study.

Dr. Clark said that the painlessness of Bell's palsy even to external pressure on the nerve trunk and the paralyzed muscles argued for a simple degenerative neuritis in the peripheral portion, and not a parenchymatous affection. There is good reason to believe that Bell's palsy is primarily a neuritis, which through strangulation of the nerve strands induces a low grade of secondary degenerative neuritis in the periphery. He briefly reported two cases.

DISCUSSION.

Dr. Alfred S. Taylor said that his technic of facio-hypoglossal nerve anastomosis involves the following steps: 1, The incision; 2, isolation and section of the facial nerve; 3, exposure of the hypoglossal nerve; 4, the implantation; 5, the closure of the wound; 6, the after-treatment. The isolation of the hypoglossal nerve is the most difficult and tedious step and involves whatever danger there is in the operation. Once identified, it is dissected upward until the stump of the facial nerve can be approximated to it without tension. This has to be done with care, so as not to divide the minute branches from the pneumogastric, the upper ganglion of the sympathetic and the two upper cervical branches, all of which were in the immediate neighborhood. The after-treatment is a most important feature in obtaining the desired result. Massage, electricity, and later, co-ordinate muscular movements, should be persistently and systematically resorted to for months. Dr. Taylor reported six cases of facio-hypo-glossal nerve anastomosis, and showed a number of new instruments that he had designed for the purpose of rendering the operation easier technically, and of avoiding distressing sequelæ.

Dr. Charles A. Elsberg reported a case of facial-spinal-accessory anastomosis which was of unusual interest on account of the duration of the paralysis at the time of operation (twenty-nine and a half years), and because of the absence of associated shoulder movements.

Dr. B. Sachs said that in deciding the question whether or not to anastomose the facial nerve with the hypoglossal or the spinal accessory, his preference would be in favor of the latter procedure, as it involves a nerve of lesser dignity than the former. The entire question of nerve transplantation is an extremely important one, and the physiologic aspects of the problem are still unsolved. In facial palsy several cases have been reported in which the nerve anastomosis was done three and a half or four months after the onset of the disability. This, he thought, is too early, as many cases are on record in which improvement began much later without treatment or in spite of treatment. A year at least should be allowed to elapse before operation.

Dr. Leszynsky said that he had seen patients with facial paralysis of long standing in whom the faradic irritability had returned, although there was no return of motility.

Dr. Walton said that Dr. Spiller's proposition should have the benefit of trial. In disease or injury of the lower neurons, every gain in motion, however slight, is gladly welcomed, and if hemiplegics can be helped by nerve transplantation, there is the added hope of lessening the cerebral spasm to which Dr. Spiller referred.

Dr. Spiller said that the statement made by Dr. Taylor that in late cases, in which the paralysis had existed for a long time, the nerve may have disappeared, is correct. He mentioned such a case in which the facial nerve could not be found at all. In facial palsy one of the earliest evidences of a return of power is a slight deepening of the naso-labial fold when the eyes were closed tightly.

Dr. Frazier said that in his cases of nerve anastomosis the hypoglossal was selected in preference to the spinal accessory purely on theoretical grounds and a study of former operations, and because associated movements followed the selection of the spinal accessory.

Dr. Clark said he thought that the proper time to operate could be fairly accurately decided on by the results of the electrical tests, and he did not think it wise to fix an arbitrary period of time. In most forms of peripheral neuritis the electrical tests formed a basis of prognosis that is almost absolute.

Dr. Taylor said that the operative damage to the hypoglossal and the tongue symptoms resulting therefrom were only

temporary, and he did not think they should be looked on as a serious objection to the selection of that nerve for the anastomosis.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Diphtheria.

In the employment of antitoxin in the treatment of diphtheria Voelcker, in *London Clin. Jour.*, recommends its use:

1. In every case of diphtheria, whether mild or severe.
2. In cases of faucial diphtheria use 3,000 units.
3. In cases of nasal diphtheria use from 6,000 to 9,000 units at once. In laryngeal diphtheria use 6,000 units and repeat the dose in twenty-four hours if the symptoms of obstruction are not diminishing.
4. When the symptoms call for intubation or tracheotomy it is better to employ the larger doses of antitoxin (doses of 6,000 units), and to repeat the dose in twenty-four hours if no improvement has taken place.
5. In cases of faucial diphtheria, if the membrane does not show signs of improvement and of separation the injection should be repeated after twenty-four hours.
6. The injection should be made into the subcutaneous tissues of the abdominal wall under antiseptic precautions by carefully washing the site of injection with an ethereal solution of soap, after which a compress of 1 to 1,000 solution of mercuric chlorid should be applied. The needle must be sterilized by boiling, fixed to the syringe, which is then filled with the antitoxin and the needle introduced obliquely through the pinched-up skin into the connective tissue and the solution injected slowly. The seat of puncture should then be sealed with a collodion dressing. In 307 cases the author reports only 2 cases of localized abscess formation.

In children the use of any local anesthetic is not advised, as cocain depresses the heart, which is dangerous in diphtheria, and freezing the skin makes the introduction of the needle and antitoxin more difficult, and when thawing takes place the presence of the pain proves that it was only postponed and not prevented. The site in the abdominal tissues has been recommended in preference to the back, in order that the patient may rest well on the back.

The author did not try the rectal injection of the antitoxin, as is recommended by Solteau Fenwick.

The general treatment should consist in keeping the patient in the horizontal position for three weeks, after which time the child may be allowed an extra pillow, then two, then a bed rest, followed by sitting up on the sofa, a walk in the ward, etc. The average stay of the patient in the hospital is forty days. During convalescence a careful watch must be kept on the pulse, and if it becomes rapid or irregular, the horizontal position must be assumed and cardiac stimulants such as strychnia should be given hypodermically, or atropin, or, better, port wine.

Regular feeding must be observed, avoiding overloading the stomach by giving small amounts at frequent intervals. In older children the period of recumbency may be shortened one week if no heart complications arise. Iron and nux vomica or cod-liver oil are of value during convalescence.

LOCAL TREATMENT.

The author does not advocate forcible removal of the membrane unless it be very loose and on the point of separation. He does not advise the use of caustics nor of 1 to 1,000 bichlorid solutions. In some cases a local application of a solution containing salol, glycerin and alcohol has been of service. A local washing with a boric acid solution every three or four hours for the first three days, and less often later, is recommended.

Chronic Dyspnea.

In the treatment of chronic dyspnea due to vascular changes, Foxwell, in *Ther. Gazette*, recommends the following combinations:

℞.	Liq. strych. (1 per cent.)	m. v	30
	Tinct. strophanthi	m. x	65
	Liq. trinitrini (1 per cent.)	m. ii	12
	Sodii bromidi	gr. xv	1
	Tinct. card. co	℥ss	2
	Aquæ q. s. ad	℥i	30

M. Sig.: To be taken in two or three divided doses, alternating with the following:

℞.	Pulv. rhei	gr. i-ii	06-.12
	Hydrarg. chloridi mitis	gr. 1/20-1/10	003-.006
	Ext. hyoscyami	gr. i-ii	06-.12

M. Ft. cap. No. i. Sig.: One such capsule once or twice daily.

Psoriasis.

Shoemaker, in *Med. Bull.*, advocates the following treatment of psoriasis:

℞.	Acidi hydrochlor. dil	gtt. ii	12
	Essentiæ pepsini	℥i	4

M. Sig.: To be taken at one dose and repeated after each meal. Also:

℞.	Podophyllotoxinii Aloini, āā	gr. x	65
	Pulv. jalapæ Massæ hydrarg., āā	gr. xxx	2
	Ol. menth. pip	m. iii	20

M. Ft. pil. No. xxx. Sig.: One pill at bedtime.

When itching is present, as is rarely the case, the following combination is recommended to give the patient relief:

℞.	Chloralis hydratis	℥ss	2
	Pulv. camphoræ	gr. xx	1 30
	Acidi carbolici	m. l	2 30
	Sulphuris sublim	℥i	4
	Ung. aquæ rosæ	℥i	30

M. Ft. unguentum. Sig.: To be applied locally.

In any cases of psoriasis the cause should be ascertained and treated; chronic indigestion and a rheumatic diathesis are frequent causes of this trouble. The foregoing outline of treatment is applicable when a history of digestive disturbances is obtained.

Convulsions in Childhood.

Ashby, in *London Lancet*, states that convulsions are most common in infants who have been artificially fed first on diluted cow's milk which causes flatulence and curdy stools. The fact that convulsions are unilateral does not always prove that they are not reflex.

Laryngismus stridulus is a form of reflex convulsions and is always associated with rickets. Adduction of the cords is easily produced during childhood and frequently results from such slight causes as anger, irritation of the fauces as in catarrh, or discomfort in the gastrointestinal tract. In some cases there is tetany. Convulsions may also be due to brain irritation, as in meningitis, encephalitis, thrombosis, hemorrhage, tumors and syphilis. Whooping cough may be the cause of convulsions in childhood. In the treatment of convulsions during the convulsive stage a subcutaneous injection of morphin is recommended by the author for allaying the irritability of the nerve centers and checking the spasms, whether due to colic, meningitis or laryngismus stridulus. A strong infant six months old may be given grain 1/40 (.0015) and one a year old double that amount. Morphin should not be given to wasted and feeble infants. Inhalations of chloroform also act quickly, but the action soon ceases. Chloral by rectum is slower in action, but more permanent. Four or five grains (.25-.30) dissolved in water, or in egg and milk, may be given to an infant aged from six months to a year. The bromids act too slowly to be of use during the fits, but may be of service later to prevent a recurrence. In all cases calomel should be given, if the patient can swallow, to clear out the intestinal tract.

Nervous irritability may be prevented by sea breezes rather

than by steam tents, avoiding too great changes in temperature, especially when laryngeal or bronchial catarrh is present. The child should receive a warm bath every morning, followed by a cold salt water sponge, being careful to rub the skin dry to get a reaction, and to increase the time in the fresh air from day to day. The diet must be regulated. Infants suffering from convulsions are often given too much milk and there is resulting intestinal intoxication. In convulsions of older children, whether epileptic or reflex, a modification in the diet is necessary, giving a mixed diet, moderate in amount, avoiding overfilling the stomach. Cut down the starches. Give cocoa with egg and toast for breakfast; a moderate amount of beef or mutton, with cooked vegetables and stewed fruit, cocoa, toast and honey, for dinner. Cascara may be necessary to promote sufficient elimination by the bowels. The child may be withdrawn from school, but should be given interesting employment for a few hours daily.

Grippal Tonsillitis.

The following résumé of the treatment of tonsillitis associated with organisms of la grippe as causative factors is recommended by E. D. Lederman of New York: The treatment may be divided into constitutional and local. The former should consist of thorough catharsis, preferably with calomel in one-tenth grain (.006) doses, taken every ten minutes for ten doses, followed five hours later by eight ounces of magnesium citrate. For the high temperature which is usually present, sponge baths should be employed at a temperature of 70 F., followed by alcohol rubbing and massage.

The diet should be confined to liquids such as beef juice, matzoon, Vichy and milk.

THE LOCAL TREATMENT.

Cold compresses or icebags to the throat, with the sucking of small pieces of ice, alleviate to a considerable degree the pain and soreness in the throat. During the time the follicles of the tonsils are involved excellent results are obtained by applying to the inflamed area every two hours a solution of adrenalin, either by spray of by local application. This solution has a twofold effect: 1, A reduction of local inflammation; 2, a stimulating effect on the heart and circulation.

Alternating with local application of adrenalin the tonsils should be swabbed with tinctura ferri chloridi or sprayed with a solution containing equal parts of hydrogen peroxid and water.

Cultures, of course, should be made from the tonsillar exudate to ascertain the presence or absence of the Klebs-Loeffler bacillus, and, if present, the regulation treatment for diphtheria should be instituted.

CONVALESCENCE.

The period of convalescence is very important and should not be overlooked, as the patient is invariably weakened by this infection. The following is of service in this stage of the disease:

℞.	Strych. sulph.....gr. 1/40		0015
	Spts. frumenti.....ʒi	30	

M. Sig.: To be taken at one dose and repeat three times daily. [In regard to Dr. Lederman's prescription containing alcohol and strychnin, we wish—without discussing the subject—to direct our readers' attention to an abstract in The Journal, Dec. 17, 1904, page 1846, in which mention is made of the therapeutic antagonism of these two preparations.—Ed.] Whisky may be administered in the form of an eggnog. The benefit derived from a change to a milder climate can not be overestimated.

Medicolegal

Province of Expert Witnesses.—The Supreme Court of Missouri, Division No. 1, says, in the personal injury case of Taylor vs. Grand Avenue Railway Co., that it would have been proper to state to the plaintiff's experts the nature and extent of the injuries received by the plaintiff as they appeared at the time of the accident, and then to ask them whether or not in their opinion such injuries might, could or would result in paralysis. The experts having thus given an opinion, it would have been for the jury to find the fact as to whether in this particular case the paralysis was caused as the plaintiff's experts said it might have been caused, or whether it was the result of other causes, as the defendant's experts testified might be the case. To the trained legal mind there is a very essential difference between permitting an expert to give an opinion and permitting him to draw a conclusion. The one is a province of a witness; the other is, in the first instance, the special prerogative of the jury. When a witness is thus permitted by the court to invade the province of the jury, it goes to the jury with the indorsement of the court, and is calculated to make the jury believe that it was proper for the witness to find the fact, instead of the jury doing so.

Administering Abortifacient Can Not Be Made Manslaughter.—Section 1825 of the Revised Statutes of Missouri of 1899 provides that "every person who shall administer to any pregnant woman any medicine, drug or substance whatsoever or shall use or employ any instrument or other means with intent thereby to destroy the fetus or child of said pregnant woman, unless the same shall be necessary to preserve the life of such woman, shall be guilty of manslaughter in the second degree." The Supreme Court of Missouri, Division No. 2, says, in the case of State vs. Hartley, that it was contended that this law, under which the indictment in this case was drawn and the defendant charged with manslaughter, was inoperative and invalid, in that it undertook to establish a degree of felonious homicide, where neither the death of the child nor of the mother resulted from the acts committed, and where there was no killing or homicide, and the court holds that the legislature could not make that manslaughter when the basis of its legislation did not in fact exist. In other words, there can be no manslaughter when there is no homicide; no more than there can be murder when there is no homicide.

Determination of Mental Capacity.—The Supreme Court of Tennessee says, in Nashville, Chattanooga & St. Louis Railroad Co. vs. Brundige, that the contest in this case was narrowed down to the question of whether the latter party had sufficient mental capacity at the time of a compromise for personal injuries to make a valid contract. Two physicians were permitted to testify, over objection, to the effect that she did not have sufficient mental capacity to transact business and to make a contract. The court holds that this was error; that the testimony was clearly incompetent, and should have been excluded. It says that the degree or quantum of mental capacity which the party whose act is called in question must have, to enable him to make a valid contract, is a question of law for the court to decide, and whether said party has the required quantum is a question of fact to be found by the jury from all the evidence; and the opinions of witnesses are not competent evidence, in cases of this kind, on either point. The mental capacity of the plaintiff in this case to contract was also the direct point—practically the sole point—to be decided by the court and jury; and the admission of the testimony mentioned was, in effect, a substitution of the opinion of the witnesses on both the law and the facts of the case for that of the triers provided by law to determine them. This could not be done. The testimony of witnesses must relate to the facts, and it is the province of the court to determine the law, and the jury the ultimate facts. Witnesses, in cases involving mental capacity, after stating the facts within their knowledge, may give their opinion, formed from those facts, of the soundness or unsoundness of the mind of the party in question, but can not be permitted to express an opinion whether such party had sufficient mental capacity to make a contract or to execute a will, as the case may be. There seems to be but little or no conflict in the authorities on this subject.

Complaints of Pain to Physician as Evidence.—The Supreme Court of Georgia holds, in Atlanta, Knoxville & Northern Railway Co. vs. Gardner, a personal injury case brought by the latter party, that, on the trial of such an action, complaints made by the plaintiff to her attending physician of pains in designated portions of her body were not admissible in evidence in her favor, unless made under such circumstances

as to be equivalent to spontaneous and involuntary exclamations or outcries, groans, convulsive movements and other physical manifestations of present pain and suffering. The court says that it devoted considerabe time and investigation to the question here presented, and examined a great number of cases in which, in one form or another, the question of the admissibility of statements of this character, made by one person to another, had been presented and determined. It finds that practically all of the courts in which the question has arisen hold that statements of present pain and suffering, made before suit brought, by a patient to his physician who has been called in solely for the purpose of examining, advising and treating him, may be given in evidence by such physician, when called as an expert witness, as part of the facts on which he bases his opinion as to the nature and extent of the patient's injuries or disease. As to the admissibility of statements of past pains or sensations, made by a patient to his physician, there is a decided conflict in the rulings of the courts, some holding that such statements are inadmissible, while others hold that it is admissible for the physician to testify to them when giving his opinion as an expert to the jury. The weight of outside authority, however, seems to be that statements or narratives of past pains and symptoms made by a patient to his physician are inadmissible. Some of the courts, impressed with the danger of opening the door of evidence for the admission of hearsay testimony, particularly in cases in which the hearsay statement may be of a self-serving nature, hold that statements of the above character, even when made by a patient to his physician, are not admissible if made after suit brought by the patient for his injuries. Others hold that they are not admissible if made to a physician or surgeon called for the sole purpose of qualifying himself to testify, as an expert, in behalf of the plaintiff in an action for damages. A few recognize no such distinction, but hold that the fact that the statements were made under such circumstances does not render them inadmissible, but is merely a circumstance to be taken into consideration by the jury in weighing the effect of such statements and the opinion of the expert based in part thereon. Continuing, the court says that while it feels some hesitancy in laying down a rule in Georgia which will run counter to what seems to be the rule generally, if not universally, accepted elsewhere, it has reached the conclusion that there is no sound reason for making any exception in cases of this character to the rule which excludes hearsay testimony. The court says, however, that the distinction between statements of pain and suffering made to a physician and such statements made to any other person, so far as admissibility in evidence is concerned, has been rejected by a number of courts, including the Supreme Court of the United States. So the court has eminent authority to sustain its view that. if complaints of a person of pain or other physical sensation which produce discomfort or suffering are admissible in evidence at all, there is no sound reason for distinguishing between those made to a medical attendant and those made to any one else.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 25.

1 Is the Common House Fly a Factor in the Spread of Tuberculosis? J. O. Cobb, Los Angeles.
2 Case of Extensive Carcinoma of Tongue and Neck Presenting Points of Special Interest. W. S. Bainbridge, New York City.
3 Dissertation on Temperament, Diathesis, Dyscrasia, Predisposition, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (Continued.) H. Wakefield, New York City.
4 Methods Employed in the Examination of Milk by City Health Authorities. A. H. Stewart, Philadelphia.
5 Nonsequitur in Medicine. H. A. Fairbairn, Brooklyn.
6 Delirium and Hallucinations of Digitalis. H. O. Hall, Washington.

New York Medical Journal.

March 25.

7 Medical Progress. J. A. Wright, Toledo.
8 *Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases, with a Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. David L. Edsall, Philadelphia.
9 Various Plastic Operations. Carl Beck, New York.
10 *Osteoarthritis of the Spine; Report of Case. H. F. Stoll, Hartford.
11 *Gonococcus Infections in Children with Especial Reference to Their Prevalence in Institutions and Means of Prevention. (Concluded.) L. Emmett Holt, New York.
12 Brief Résumé of the Action of Some of the Important Somnifacients, with Clinical Notes on a New Hypnotic. A. P. Stoner, Des Moines.
13 Indications for Treatment of Gastric Hemorrhage. F. G. Connell, Salida, Colo.
14 Diagnosis and Treatment of Acute Pelvic Peritonitis of Gonorrheal Origin. B. M. Anspach, Philadelphia.

8. **Milk Infections in Typhoid.**—Although Edsall recognizes the possibility of the milk infection origin of typhoid, he believes that there is another group of cases in which the effects of bad milk are very often overlooked, chiefly because they are rendered obscure by other factors that are present. He refers to cases occurring principally in persons on a milk diet, and especially in those with acute infectious diseases in which the symptoms are caused by the milk used in the diet, but in which they are not severe enough to arouse a suspicion as to their source. The milk does not itself produce grave and evident infection, but it succeeds in making worse a disease that is already more or less bad. He reports results obtained in feeding typhoid patients only pasteurized milk. Of 92 cases of typhoid, 8 patients had diarrhea on admission. In 5 of these it subsided in three or four days. Only 4 patients developed diarrhea while under treatment. One of these, a severe case, died of hemorrhage, and the autopsy showed numerous ulcers in the colon. Edsall considers a diet composed almost exclusively of good milk the best diet for most cases of acute infectious disease, particularly typhoid fever.

10. **Osteoarthritis of Spine.**—Stoll reports a case for the purpose of demonstrating the rather common mistake made in considering the leg pains of osteoarthritis to be sciatica.

11. **Gonococcus Infections in Children.**—That gonococcus vaginitis is a very frequent disease, one to be constantly reckoned with, in institutions for children, is shown by Holt. It is also very frequent in dispensary and tenement practice and not uncommon in private practice of the better sort. In its milder forms and in sporadic cases it is extremely annoying because so intractable; in its severe form it may be dangerous to life through setting up an acute gonococcus pyemia or infection of the serous membranes, and in its epidemic form it is a veritable scourge in an institution. It is imperative that children suffering from this disease should not remain in the same wards or dormitories with other children, because it is practically impossible to prevent the spread of the disease, if infected children remain in the wards with others. If a purulent vaginal discharge is present, a systematic microscopic examination of smears made from the discharge should be a matter of routine. In the absence of microscopic examinations, a purulent discharge in a young child may be assumed to be due to the gonococcus. In cases in which the gonococcus is found, but in which there is no vaginal discharge, or only a very slight discharge, the children should also be quarantined. One of the greatest difficulties in connection with the gonococcus vaginitis, says Holt, arises from the prolonged quarantine necessary, because these cases are of very chronic character and are very resistant to treatment.

Medical Record, New York.

March 25.

15 Manual Garcia: Teacher, Discoverer and Man. J. E. Newcomb, New York City.
16 *Radiotherapy and Surgery, with a Plea for Preoperative Radiations. W. J. Morton, New York City.
17 *Bile-tract Adhesions. R. T. Morris, New York City.
18 *Intratracheal Injections. J. W. Gleitsmann, New York City.
19 Present Status of Blood Examination in Surgical Diagnosis. F. E. Sondern, New York City.
20 *Preliminary Report on the Treatment of Chronic Dysentery, by Irrigation of the Colon Through the Vermiform Appendix or an Opening into the Cecum. Wm. H. Arthur, Washington.
21 A Warning and a Protector for X-ray Workers. A. Holding, New York City.

16. **Radiotherapy in Surgery.**—The nature of Roentgen and Becquerel radiations, their effect on tissue and their effect on disease, is considered by Morton. In cases of cancer he advises practicing x-radiations and radium radiations thoroughly

from six weeks to two months before operation, and as well after operations, for about the same period of time. He says it has been proved that radiation treatment exerts a retarding effect on the growth of some cancers, and that it cures some cases. Preoperative radiation not only increases the ratio of cures by operation, but it also transforms some inoperable cases into operable cases. It is recommended as a precautionary measure, probably quite as important as preoperative antiseptic preparation for surgical operation.

17. **Bile-Tract Adhesions.**—Morris says that very extensive functional disturbance of abdominal viscera is caused by webs of adhesion, like spider webs, that extend from the bile tract to the neighboring viscera and pull on the great sympathetic ganglia. He is convinced that many persons are suffering from the effects of such adhesions, and that often the symptoms produced have led to an operation on the gall bladder for the purpose of removing stone, when there was none to be found. Adhesions between the gall bladder and liver are, perhaps, the least harmful. Adhesions between the cystic duct and the adjacent peritoneum of other structures cause angulation of the cystic duct and give rise to symptoms that are mistaken for gallstone colic, or colic from the passage of inspissated bile. Adhesions between the bile tract and the pylorus can inhibit peristalsis and cause constipation, chronic dyspepsia, and dilatation of the stomach. Adhesions between the bile tract and the hepatic flexure of the colon can cause constipation and perhaps mucous colic. Morris believes that these "gall spiders" follow gastroduodenitis, diaphragmatic pleurisy, acute cholecystitis, acute indigestion and a group of cases without very definite diagnosis, in which there is a history of epigastric tenderness, rigors, febrile reaction, and general malaise extending over a few days. In going over these cases months or years after the acute symptoms have disappeared, we are to note if there is undue tenderness on pressure over the bile tract, a tenderness that is quite persistent. It may be absent on some days, but it is present to a greater or less degree most of the time. The patient will complain of a certain degree of discomfort in the bile-tract region, and at times, when he is most disturbed, the abdominal muscles will become rigid in order to splint the disturbed peritoneum. The pain or colic is less severe and more transitory than it is apt to be when the muscularis of the gall bladder or bile ducts is trying to force out a concretion.

18. **Intratracheal Injections.**—Gleitsman has found intratracheal injections useful in alleviating the dry cough in the beginning stage of pulmonary tuberculosis, and, at a later stage, in modifying favorably the putrid secretion. In bronchiectasis and blennorrhea the injections act almost as a specific. Many cases of asthma will be relieved. He has also treated successfully a number of cases of chronic tracheitis and bronchitis. Cases of obstinate tracheal syphilis have been cured, and the fetid pulmonary gangrene has been favorably influenced. In cases of hemorrhage the risk of increasing the hemorrhage has to be considered. As a vehicle he uses a petrolatum preparation to which may be added menthol, not more than 5 per cent., or ½ per cent. each menthol and camphor, but he has often found the camphor irritating. The list of remedies which may be used is very limited.

20. **Colonic Irrigations in Chronic Dysentery.**—Good results are reported by Arthur in the treatment of chronic dysentery by irrigation of the colon from the caput coli, utilizing the appendix as a tube through which to introduce the irrigating fluid, as suggested by Weir of New York. The usual incision is made as for appendicectomy, and the appendix is stitched to the skin. The abdominal wall is securely stitched layer by layer, down to the point where the appendix comes through. Forty-eight hours later the protruding appendix is cut off, a catheter is introduced and irrigations are begun at once. In a week all stitches are removed, the irrigating tube is left in, secured with a pinch-cock, and changed from time to time as it becomes worn out. A 1 to 2,000 quinin solution, or ¼ per cent. solution of silver nitrate is used for irrigation, 500 c.c. being poured in twice a day for six weeks or longer, if necessary. When the tube is finally withdrawn, if the opening does not close spontaneously, it is a simple matter to loosen the adhesions around the appendix, to draw it out, to ligate, cut off, and sterilize the stump with a thermocautery point, and to drop it back, closing the small opening in the abdominal wall with a single suture carried rather deeply.

Medical News, New York.

March 25.

22 *Roof Gardens on City Private Houses. W. P. Northrup, New York City.
23 *Fifteen Years' Experience in the Treatment of Typhoid Fever at the Roosevelt Hospital. W. H. Thomson, New York City.
24 *Clinical Studies in Blood-pressure and Shock in Traumatic Surgery. J. M. Wainwright, Scranton.
25 The Purpose of Eyeglasses. E. M. Alger, New York City.
26 Treatment of Chronic Empyema of the Antrum, both Simple and when Combined with Empyema of the Ethmoid and Sphenoid. R. Bishop Canfield, Ann Arbor.

22. **Roof Gardens on Private Houses.**—The object of Northrup's paper is to suggest how the roofs of private houses in cities may be adapted to become safe and sunny playgrounds for children, and the results obtained on Manhattan Island are described.

23. **Fifteen Years' Experience in Typhoid.**—Thomson submits a review of fifteen years' experience in the treatment of typhoid in the Roosevelt Hospital. The total number of admissions to his wards during four months, from May to July and from September to November each year, from May 1, 1889, to Nov. 1, 1904, were 574 patients, 398 of whom were males, and 176 females. The total number of deaths was 40; 31 males and 19 females, or 7.05 per cent. The total number of patients who died within a week after admission was 23; 15 males and 8 females, or 57 per cent. of all deaths, and 80 per cent. of these did not survive the fourth day. Among the remaining 551 patients, who were in the hospital for more than a week, there were 17 deaths, or 3.09 per cent. Diarrhea occurred after the first week in 12 per cent. of the patients, and in the majority of them it was not severe. Constipation was of frequent occurrence. Tympanites was recorded in 101, or 18 per cent. About 40 per cent. of the whole number of instances of tympanites were noted in 39 soldiers admitted for typhoid contracted at various camps in this country and in Cuba during the Spanish-American War. Deducting these soldiers, tympanites occurred in 62 patients, or about 26 per cent. It was noted in cases admitted late in the disease, and in the majority of those it disappeared soon afterward under treatment. Hemorrhage from the bowel occurred in 1 per cent., and it was readily controlled. Among the 31 deaths of male patients, 7 succumbed to intestinal perforation. One case also occurred in a woman during a relapse in the fifth week, and another in a boy on the tenth day. He was operated on and recovered. Fives others were operated on but died. Delirium was noted in 60 cases, or 16 per cent. Of this number 26, or nearly 50 per cent., were delirious on admission, and 12 of these patients died within that week; the rest recovered in a week or less. Fissure of the tongue was not recorded. Tremors and subsultus were too rarely observed to figure among the clinical symptoms. Sordes on the teeth and lips never developed after admission. Pneumonia occurred in 11 patients, or 1.9 per cent.; bronchitis in 65, or 18 per cent., but it was an initial symptom in more than 40 per cent. of the cases, and was easily controlled. Peripheral neuritis occurred in 28, about 7 per cent., and in each case was limited to the feet. Phlebitis occurred in 11, and was very troublesome in 2. Relapses occurred in 62, or 18 per cent. of all cases. As a rule, the prognosis is not unfavorable, except in those patients who begin the relapse with vomiting. Relapses appear to be more frequent in that class of patients in whom the brunt of the attack falls on the intestine. The patient with symptoms of pronounced abdominal lesions, such as persistent tympanites and tongue tremor, should not be allowed solid food in any form for ten days after the temperature has fallen to normal. The general line of treatment adopted by Thomson is as follows: Early attention to the state of the kidneys, using rectal irrigations of four gallons of normal saline solution at a temperature from 115 to 120 F., twice a day. Intestinal disinfection with calomel and the systematic employment of intestinal antiseptics—from 10 to 20 grains of bismuth subcarbonate, every

three hours. If tympanites is persistent, 5 grains of sulphocarbolate of soda is added to each dose. For cardiac weakness, 1 ounce of whiskey, every three hours, given after milk; or camphor given subcutaneously in 7½ gr. doses, dissolved in 20 minims of sterilized almond or olive oil. The diet should consist of milk diluted one-half with lime water. Five grains of scale pepsin or 10 grains of saccharated pepsin are given every three hours, and to this Thomson ascribes many of his good results. The Brand bath he considers the most effective of all agents in typhoid. The treatment is described in detail, and for this reference must be made to the original article.

24. **Blood Pressure and Shock in Traumatism.**—For the purpose of ascertaining the important clinical facts in the treatment of shock due to trauma, Wainwright has made a careful study of the blood pressure by means of the Riva-Rocci sphygmomanometer. He agrees with others that morphin is of great value to remove or diminish the causative nerve impulses in shock; but considers that the most effective treatment is the mechanical one. It suffices in many desperate cases; after it has been carefully applied strychnin and digitalin may possibly be of value, but these drugs alone without mechanical treatment are probably of no value in severe cases. Nitroglycerin, atropin and alcohol are inert or harmful, though alcohol is valuable in after-conditions. Intravenous infusions are of real and great value. The ordinary detailed attention to avoidance of exposure, the application of artificial heat, full and even anesthesia with ether and not chloroform, rapid operative work without unnecessary handling, the copious administration of water by mouth or rectum, etc., have the same great value as always. Wainwright has found the Riva-Rocci instrument of the greatest practical value in the care of severe traumatic cases, and says there is no way in which the operator can so easily keep informed as to the true condition of the patient as by the use of this instrument. The ideal stage for operative repair of the injury is the primary pressor period. The sensory impulses which finally cause shock at first cause a stimulation of the vasomotor centers and a rise in pressure for a certain period before exhaustion supervenes. This high primary pressure is generally markedly reduced when the sensory impulses are blunted by full anesthesia. In one case after a preliminary intravenous infusion, followed by one-fourth grain of morphin, a simultaneous amputation of the upper arm and the thigh was performed with a fall of only 20 mm. in the blood pressure. In a second case, not so treated, the blood pressure fell over 100 mm. In many cases, even when simple mechanical or no treatment at all has been employed after reaction, the blood pressure reaches an unusually high point. No explanation for this occurrence is yet evidenced. In one case, the handling of the abdominal viscera increased the pulse rate from 70 to 150, but the sphygmomanometer showed a rise in the pressure and no alarm was felt. The pressor effect of water by mouth is shown in 2 cases. This is due to reflex action, says Wainwright, and not to the mechanical effect of the water absorbed. The effect is greater after carbonated water than after plain. The pressor effect of a friendly visit is shown in another case.

Bulletin of the Johns Hopkins Hospital, Baltimore.

March.

27 Tumor of the Parathyroid Gland. W. G. MacCallum, Baltimore.
28 Bacillus Violaceus Manilæ. (A Pathogenic Micro-organism.) P. G. Woolley, Manila, P. I.
29 Report on the Agglutination Reactions of the Bacillus Dysenteriæ (Shiga) with the Blood Serum of Patients Suffering with Summer Diarrhea. C. K. Winne, Jr.
30 Repeated Copious Hemoptysis from an Aortic Aneurism, Extending into the Right Lung and Finally Rupturing into the Pleura. T. W. Clarke, Cleveland.
31 A Case of Cesarean Section Following Ventral Fixation. A. H. Clark and R. L. Bowley, Hartford, Conn.
32 Ovariotomy at Extremes of Life. Report of a Case in a Girl Aged Five. H. I. Wiel.

The Providence Medical Journal.

March.

33 Recent Debts to Biology. F. P. Gorham, Providence.

Lancet-Clinic, Cincinnati.

March 25.

35 Bacteriology and Immunity. "Cessante Causa, Cessat Effectus."—The Germ Doctrine—What It Is and What It Is Not. R. E. Haughton, Richmond, Ind.
36 Treatment of Dysentery. C. W. M'Collum, Erlanger, Ky.
37 Early Diagnosis of Cancer of the Body of the Uterus. R. B. Hall, Cincinnati.
38 Address, Academy of Medicine of Cincinnati. M. A. Tate, Cincinnati.

Journal of Nervous and Mental Disease, New York.

March.

39 Soul Paralysis. H. H. Hoppe, Cincinnati.
40 *Anatomic Findings in Korsakoff's Symptom-complex. F. R. Sims, Danvers, Mass.
41 *Case of Myasthenia Gravis with Autopsy. C. W. Burr, Philadelphia.
42 *Multiple Sclerosis with Autopsy in Two Cases. S. G. Webber, Boston.

40. **Korsakoff's Symptom-Complex.**—Sims reports the anatomic findings in two cases apparently of alcoholic origin in which the patients died in an early stage of the disease. The first case was an example of an acute polyneuritis with a chronic mild delirium, developing symptoms resembling cerebral hemorrhage. The second case was more chronic in onset and more typical. In both cases there were acute degenerations of many peripheral nerves; axonal, reaction in anterior horn cells, in cells of Clarke's column, and in some cranial nerve nuclei, and various non-systemic degenerations of intraspinal fibers, together with acute or axonal alterations of various cells of the cortex. In one case, proliferating glia cells were found in the neighborhood of altered Betz' cells of the motor cortex.

41. **Myasthenia Gravis.**—Burr's case is of pathologic interest because it adds another to the relatively large, though absolutely small, number in which the thymus gland was either persistent in the adult, or persistent and diseased, and associated with lymphoid infiltration of the muscles. It is interesting clinically because the patient exhibited visual symptoms most frequently met with in, and at one time regarded as pathognomonic of, hysteria, viz., contraction of the fields of vision, partial reversal of the red and blue fields and later color confusion. The course was typical of myasthenia, and the result was death. The lesions found at the autopsy were perivascular accumulations of free red blood cells in the region of the red nucleus and a lymphoid infiltration of the muscles.

42. **Multiple Sclerosis.**—Webber has seen in private practice over 20 cases which have been diagnosticated as sclerosis. Of these about half were marked with a question; the others were sufficiently well defined and the diagnoses need not be doubted. Two cases in which he obtained autopsies were diagnosticated as tumor of the brain and locomotor ataxia, respectively. In the latter case, appendicitis was found and the locomotor ataxia was discovered to be multiple sclerosis. In the first case the symptoms of headache, dizziness, vomiting and impairment of motion and sensation of the whole left side seemed to justify a diagnosis of tumor of the brain. A certain amount of nystagmus of the left eye, when the eye was turned to one side, was the only symptom strongly suggesting sclerosis, and this might well have been owing to the defective action of muscles caused by tumor. In the case diagnosed as locomotor ataxia, the symptoms were not clearly indicative of that disease, nor were they the usual symptoms of multiple sclerosis. The explanation of this is found in the fact that the patches of sclerosis were in the posterior columns of the cord, while those in the brain were not numerous nor large enough to give characteristic symptoms. In the first case, the cord was much less affected than the brain, which was comparatively small. Scattered throughout the cerebrum and cerebellum in the white substance, especially on the right side, were numerous patches of sclerosis, varying from a minute point to the size of a bean. The right corpus striatum and the right corpus dentatum were much changed. Sclerotic patches were found in the pons in the floor of the fourth ventricle and around the aqueduct of Sylvius. There were some spots in the medulla and one spot in the cord about an inch below the medulla.

Annals of Surgery, Philadelphia.

March.

43 *Diagnosis and Treatment of Fracture of the Carpal Scaphoid. E. E. Codman and H. M. Chase, Boston.
44 Fractures of the Tarsal Bones. D. N. Eisendrath, Chicago.
45 *Osteoplastic Resection and Laminectomy. W. S. Bickham, New York.

46 Case of Cervical Rib with Symptoms Resembling Subclavian Aneurism. J. B. Murphy, Chicago.
47 *Cases of Intussusception in Children Treated by Laparotomy. C. H. Fagge, London.
48 *Id. C. Wallace, London.
49 Interstitial Hernia. C. G. Cumston, Boston.
50 Relation of Mechanical Distention to the Etiology of Appendicitis. C. Van Zwalenburg, Riverside, Cal.

43. **Fracture of Carpal Scaphoid.**—Codman and Chase summarize their paper as follows: Cases of simple fracture of the scaphoid which have not been treated or which have been treated as sprains, by a short period of fixation, followed by massage, active and passive motion, etc., seldom, if ever, have union of the fragments. If the joint is kept fixed for a number of weeks immediately after the injury, union may occur, but the functional result is not perfect, although better than in cases of non-union. It is too late to obtain union if fixation is not attempted within a few weeks after the injury. Excision of the proximal half of the broken scaphoid promises a better ultimate result than any other form of treatment. Since operation, nevertheless, is an undesirable risk, a reasonable attempt should be made to obtain union by fixation, if the case is seen soon after injury. Operation should not be delayed many months, because secondary joint changes may occur and chronic arthritis result. The advisability of operation in cases of long standing is doubtful, and must be decided by the amount of disability present in each individual case. The clinical history of 18 cases is given in detail.

45. **Osteoplastic Resection and Laminectomy.**—Bickham discusses the general considerations of the osteoplastic resection of the spine and of laminectomy and their relative values, the features common to both operations and the technic of each. The paper is well illustrated and considers the subjects exhaustively.

47. **Intussusception in Children.**—Fagge discusses 18 cases. Of the patients under one year, 14 in all, 10 were stated to have been entirely breast-fed. In 16 of the 18 cases a tumor was felt either through the abdominal wall or by rectum. In 15 of these 16 cases the diagnosis was easy and treatment was prompt. In 1 case a diagnosis of tuberculous peritonitis was made, and in consequence of this operative interference was undertaken too late. This was probably a chronic intussusception in which the acute exacerbations were caused by an increase of the invagination. Both the cases in which no tumor was found ended fatally. Ten of the 18 cases were of the single ileocecal type. One case was of the enteric type, and was of interest in that the ileum at the apex of the intussusception was so much narrowed as to suggest the possibility of a congenital stricture at that spot having given rise to the intussusception. There were 7 double intussusceptions, 3 colic-ileocecal, 2 ileocolic-colic, and 2 enteric ileocecal. In 1 case there was possibly a triple intussusception, for the ileum was prolapsed into or through the ileocecal valve and there was a well marked and apparent invagination of the caput coli some distance from the right of the valve, so that this may have been colic ileocolic-colic and not ileocolic-colic, as mentioned in the statistics. In 17 cases a primary laparotomy was performed at the earliest possible moment; in the eighteenth case inflation had been twice tried and failed. Except in 2 cases the incision was made on the right side of the middle line, with the center at or below the level of the umbilicus; in the majority it was through the right semilunar line. Six patients died between four and twenty hours after the operation from shock and toxemia, which in four cases was clearly due to the resection of the bowel. One of these patients was so ill that nothing more than the formation of an artificial anus could be attempted. In 1 case the cause of death could not be determined. Death occurred on the fourth day. Fagge's immediate results show a mortality of 39 per cent.; if in this list are included two babies who were readmitted within a few days of their discharge, and whose deaths were indirectly a result of the intussusception, the mortality increases to 50 per cent. Both these babies died 23 days after laparotomy. Excluding 5 irreducible and gangrenous intussusceptions, the mortality is 15.4 per cent.

48. **Id.**—Wallace reports on 20 cases, 12 males and 8 females, Nineteen were enterocolic and 1 was of the colic variety. Of the former class 10 were single and 9 were double intussusceptions. The single intussusceptions were of the ordinary ileocecal type. Of the double tumors there were four cases of the enteric-ileocecal type and 5 cases of the ileo-colic-ileocecal type. Of the 16 cases in which a definite statement was made there was a history of improper feeding in only three instances. The extremes of duration before operation were seven hours and four days. The treatment was primary abdominal section. The mortality was 20 per cent. If the cases in which a resection was performed are excluded the mortality falls to 11.11 per cent. Under 1 year of age there were 16 cases, with 3 deaths. The causes of death were: 1, Bursting open of the wound; 2, thrombosis of cerebral veins; 3, gangrene of cecum and inanition, and 4, shock; extensive resection of nearly the whole of the large gut.

The Interstate Medical Journal, St. Louis.

March.

51 Some Thoughts on Exophthalmic Goiter. H. Tuholske, St. Louis.
52 Historic Review of the Development of Knowledge of the Relations of the Mind and the Nervous System. C. G. Chaddock, St. Louis.
53 Cholecystitis. J. L. Wiggins, East St. Louis.
54 Acute Appendicitis. J. M. Grant, St. Louis.
55 *A Simple Heat Method of Sterilizing and Storing Catgut—Preliminary Report. W. Bartlett, St. Louis.

55. **Heat Method of Sterilizing Catgut.**—A preliminary report is made by Bartlett of his method of sterilizing catgut. The treatment of the raw catgut is as follows: The strands are cut in convenient lengths, say 30 inches, and made into little coils about as large as a silver quarter. These coils are then strung like beads on to a thread so that the whole quantity can be conveniently handled by simply grasping the thread. The string of catgut coils is dried for one hour at a temperature of 180 F. and then for a second hour at 220 F., the change in temperature being accomplished gradually. The catgut is then placed in liquid albolene, where it is allowed to remain until perfectly clear, in the sense that the term is used in the preparation of histologic specimens. This is usually accomplished in a few hours, though it has been Bartlett's custom to allow the gut to remain in the oil over night. The vessel containing the oil is next placed on a sandbath and the temperature raised during one hour to 320 F., and this temperature is maintained for a second hour. By seizing the thread with sterile forceps the catgut is lifted out of the oil and placed in a mixture of iodin crystals, 1 part in Columbian spirits, 100 parts. In this fluid it is stored permanently, and is ready for use in twenty-four hours; the thread is then cut and withdrawn. It is important that the gut should be thoroughly cleared before the oil is heated, in order that the temperature of the center of the strand will be as high as that of the oil outside. Nor should the oil be removed from the gut before placing it in the storing solution, since catgut which is perfectly free from oil is so very sensitive to the action of water that it readily untwists and becomes tangled after it is used in a wound but a few moments. The iodin rapidly permeates the strand, which is found stained black after a few hours, and consequently the surgeon may have the assurance that he is introducing an antiseptic as well as a thoroughly sterile suture material.

The Chicago Medical Recorder.

March 15.

56 *Comparison of the Abdominal and Vaginal Routes for the Removal of Uterine Fibroids. H. T. Byford, Chicago.
57 Fracture of the Patella. W. C. Jones, Chicago.
58 Prevention and Reduction of Deformity in Pott's Disease. C. F. Eikenbary, Chicago.
59 Postpartum Hemorrhage. H. J. Dern, Chicago.
60 Diagnosis of Influenza or Acute Catarrhal Fever. J. R. Ballenger, Chicago.
61 *The Dunbar Antitoxin Method of Treating Hay Fever. Report of Cases. O. J. Stein, Chicago.
62 Pruritus Ani. C. J. Drueck.
63 Myringoplastic Surgery with Exhibition of Case. C. S. Losey, Chicago.
64 *Extirpation of a Carcinoma of the Rectum with Implantation of Bowel into Vagina. J. C. Stubbs, Chicago.
65 When is the Proper Time to Make Collections? W. E. Miller, Chicago.

56. **Uterine Fibroids.**—Whether a uterine fibromyoma or a fibromatous uterus should be removed by the abdominal or vaginal route depends largely on three things, says Byford: 1, The relative danger to the patient; 2, the possibility of completing the operation in a satisfactory manner, and, 3, the surgical training of the operator. Each route has its distinct and evident advantages. In all cases adapted to it, the vaginal route should be preferred on account of its comparative safety. In doubtful cases, particularly in those in which conservative surgery is called for, the abdominal route should be given the benefit of the doubt. Vaginal hysterectomy should be limited to cases in which the size and shape of the lower part of the tumors or uterus are such that the cervix can be pulled down near enough to the vulva to enable the operator to secure, without delay, the uterine arteries on either side of the cervix, as well as the middle hemorrhoidal arteries behind. Unless the uterine mass is very small, adhesions of the adnexa high up in the pelvis constitute a contraindication to the vaginal method, although the cervix itself is comparatively low. One of the chief advantages of the abdominal route is the possibility for conservative surgery.

61. **Dunbar Antitoxin in Hay Fever.**—Thirty-six cases of hay fever treated with Dunbar's antitoxin are reported by Stein. Regarding the remedy more as a prophylactic one, Stein found that in all but a few cases it proved efficient. When used during the height of an attack it usually modifies the severity, but never entirely relieves the patient. In one case the symptoms were easily prevented from developing when the remedy was used in time. One case obtained no relief whatever. In another case the severity of the symptoms was lessened so that the patient was scarcely disturbed. A peculiar feature in this case was that the patient could not use the serum in the eyes without producing considerable redness and swelling of the conjunctiva. To obtain the greatest degree of immunity Stein found that the remedy must be applied before the onset of an attack. When the disorder is once fully established patients do not obtain the relief expected.

64. **Carcinoma of Rectum.**—The lower border of the tumor in this case was about three and a half inches above the anal margin. As a preliminary procedure a hysterectomy was done. About two months afterward Stubbs performed a Kraske operation, removing the tumor by excision. As the severed ends of the gut could not be approximated, Stubbs made an opening through the vault of the vagina, through which the gut was invaginated into the vagina. Convalescence was slow but uneventful, and the patient, aged 57 years, says she has not felt so well in years. Defecation takes place through the vagina. After each morning bowel movement, the patient flushes the vagina and inserts a small cotton tampon, and is comfortable for the next twenty-four hours. The tumor was removed just twelve months ago.

Washington Medical Annals.
March.

66 *Aneurism of the Descending Thoracic Aorta. W. M. Barton, Washington.
67 *Myoma of the Intestine. G. W. Wood, Washington.
68 Position in Placenta Previa. M. F. Thompson, Washington.
69 *Postoperative Intestinal Obstruction. J. F. Mitchell, Washington.

66. **Aneurism of Descending Aorta.**—The death of Barton's patient was caused by a rupture of the sac into the left pleural cavity. The aneurism was not diagnosed until a few hours before the death of the patient. The only symptom was that of pain in the epigastrium, apparently connected with the digestive function. Radiographic examination showed a mass extending from the seventh to the eleventh dorsal vertebræ, but in the presence of persistent epigastric pain, spinal rigidity and exaggerated knee-jerks, a tentative diagnosis was made of Pott's disease, and the patient was treated accordingly. Later exploratory operation was advised on the theory that the tumor was a gastric neoplasm. The operation was performed with the result mentioned. The total length of the sac was seven inches, and it has caused erosion of the bodies of the seventh, eighth, ninth and tenth dorsal vertebræ. The shape of the aneurism was almost cylindrical. Its wall contained two perforations.

67. **Myoma of Intestine.**—Wood reports a case of this kind which was diagnosed as an appendicitis, the tumor being located in the right lower abdominal quadrant. An incision was made, about a pint of pus escaped, but a concretion and gangrenous mass was all that showed where the appendix had been. The patient recovered, but six months afterward the wound began to suppurate. It was opened again and a number of small calcareous masses were removed. Later she had chills and a swelling developed over the liver, which was diagnosed as an abscess of the liver. An operation substantiated this view. At the autopsy a tumor was found binding together the ileum and duodenum. A normal appendix was also found and there was no evidence of appendicitis.

69. **Postoperative Intestinal Obstruction.**—Mitchell has had two cases of intestinal obstruction following operation in a series of 36 cases, both these cases occurring in patients in whom the appendicitis had gone on to the stage of abscess formation. Both cases terminated successfully without operative intervention. Mitchell says that many cases can be relieved by palliative measures, but that operation should not on this account be delayed; the operative procedure should be as simple and as rapidly executed as possible.

Archives of Pediatrics, New York.
March.

70 *Case of Pulmonary Osteoarthropathy Limited to the Terminal Phalanges in a Child. D. J. M. Miller, Philadelphia.
71 Acute Pyelitis of Infancy; report of a case. R. G. Freeman, New York City.
72 *Lesions of the Upper Air Passages Due to Hereditary Syphilis. J. C. Sharp, New York City.
73 Umbilical Cord Hernia. J. P. Crozer-Griffith, Philadelphia.
74 *Causes of Incontinence of Urine in Children. J. R. Clemens, St. Louis.

70. **Pulmonary Osteoarthropathy.**—The case cited by Miller was that of a girl 8 years old who had a marked kyphosis embracing the first seven dorsal vertebræ with a compensating anterior curve from the latter to the sacrum. The thorax was quite prominent, the ribs distinct, and the sternum pushed forward. There was a marked rosary distended abdomen and emaciated arms and legs. The facial expression was that of an old woman. The urine was normal; the temperature from 99 to 101 F.; there was hectic flush, cough and signs of general bronchitis. The terminal phalanges of the fingers were markedly clubbed, the nails curved like a parrot's beak, elevated, of a rosy red hue and brittle. The fingers were long, and from hyperextension and enlarging of the terminal phalanges, resembled closely a drumstick. The toes presented conditions similar to those of the fingers, but very much less marked. There was no thickening of the radii, ulnæ, tibiæ or fibulæ; the joints were entirely unaffected, nor had there ever been any pain in the latter or in the deformed fingers. The face was broad and the head large and square, the malar bones prominent and the teeth carious. Examination of the lungs was positive. The case is cited as one of true osteoarthropathy, the deformities being limited to the distal phalanges in contradistinction to the club finger of chronic heart and lung affections. At the autopsy there was found marked interstitial pneumonia and purulent bronchitis, lesions sufficient to account for the phalangeal changes observed during life.

72. **Syphilis of Upper Air Passages.**—Sharp makes it a practice to give a course of antisyphilitic treatment to all young children with hypertrophy of the cervical and submaxillary nodes. He believes that cases of hereditary syphilis of the upper air passages are often erroneously diagnosed as cases of tuberculosis. All children suffering from enlarged cervical nodes are not the victims of hereditary syphilis, but by giving them the treatment early he thinks they are rendered less susceptible to serious illness. He says that many cases of postpharyngeal abscesses are caused by hereditary syphilis, but advises great caution in arriving at a diagnosis of this or of any other ulcerative condition of the upper air passages. The clinical appearances of ulcerations in hereditary syphilis in the mouth and pharynx differ very slightly from those of a

tertiary ulceration, except that in the latter there is more infiltration of the surrounding tissues. Gumma of the trachea is rare. When a child presents itself with a history of dyspnea a differential diagnosis must be made between papilloma of the trachea, tubercular infiltration or abscess and gumma. Ulcerations of the upper air passages due to hereditary syphilis may exist when none of the classical symptoms considered necessary to a diagnosis of the disease are present, viz.: Hutchinson teeth, keratitis and the frog-like appearance of the face due to the flattening of the bridge of the nose.

74. **Incontinence of Urine.**—In Clemens' experience the four commonest causes of incontinence of urine in children, in the order of their frequency, are: 1, Hyperacidity of urine (persisting by day and night); 2, adenoids (nocturnal incontinence—true eneuresis); 3, chronic interstitial nephritis (nocturnal and diurnal incontinence); 4, alkalinity of urine (due to fixed alkalies—incontinence by day and night). In some 148 cases Clemens has used belladonna and has been successful in all except those due to organic disease such as nephritis, and in some cases of hyperacidity or alkalinity, where the pendulum of urinary reaction in primary cases of hyperacidity swings too far over to the alkaline side, the converse obtaining in those primary cases of alkalinity. The great difficulty lies in bringing about just sufficient neutralization and keeping it constant. These are the cases that prove so disappointing.

Medical Examiner and Practitioner, New York.

February.

75 The Pulse in Life Insurance. E. F. Morrill, Chicago.
76 The Medical Department in Its Relation to Life Insurance Selection. C. L. Greene, St. Paul.
77 The Use of Intoxicating Liquors and Life Insurance. T. Millman, Toronto.
78 The Medical Director—His Responsibilities. H. A. Warner, Topeka, Kan.
79 Should Accidents be Considered a Factor in Life Insurances? B. E. Jones, Kansas City.
80 Location in Its Bearing on Life Insurance. Ira W. Porter, Omaha.

Indiana Medical Journal, Indianapolis.

March.

81 Treatment of Gonorrhea. F. C. Valentine and T. M. Townsend, New York City.
82 Diagnostic Value of the Reflexes. E. C. Reyer, Indianapolis.
83 Headaches of School Children. F. A. Morrison, Indianapolis.
84 Efficient and Painless Method of Skin-Grafting. B. Caffee, Terre Haute.
85 Health Conditions on the Isthmian Canal. I. Dyer, New Orleans.

The Medical Standard, Chicago.

March.

86 Uric Acid Calculus—Its Clinical Significance. B. Robinson, Chicago.
87 The Importance of an Early Diagnosis and Prompt Surgical Treatment of Cholecystitis With or Without Stone. B. Holmes, Chicago.
88 Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
89 Diphtheritic Paralysis. M. McGory.
90 Bladder Troubles in Actual Practice. J. E. Beatty.
91 Present Status of Malignant Tumors. H. Taylor.

Albany Medical Annals.

March.

92 Pathology and Bacteriology of Acute Meningitis. W. T. Councilman, Boston.
93 Symptoms and Diagnosis of Cerebrospinal Meningitis. H. L. Elsner, Syracuse.
94 Treatment of Cerebrospinal Fever. C. G. Stockton, Buffalo.
95 The Eye Symptoms of Cerebrospinal Meningitis. A. E. Davis, New York City.

The New York State Journal of Medicine, New York City.

March.

96 Pneumonia. A. Lambert.
97 Health of the Nation. W. Wyman, Washington, D. C.
98 Health of New York City. T. Darlington, New York City.
99 Health of the Port of New York. A. M. Doty, New York City
100 Health of the State of New York. D. Lewis.
101 Ocular Reflexes. S. W. S. Toms, Nyack, New York.

Pennsylvania Medical Journal, Athens.

February.

102 Need for Systematic Study of Individual Characteristics as Manifested by Organism's Reaction to Sensory Stimuli. W. K. Walker, Dixmont.
103 Practical Points Concerning Smallpox. Wm. M. Davis, Pittsburg.
104 Tests for Occult Blood in the Feces and Their Clinical Significance. J. D. Steele, Philadelphia.
105 Paraffin as a Surgical Medium. M. D. Ritchie, Pittsburg.
106 Twelve Years of Emergency Surgery. E. E. Wible, Munhall, Pennsylvania.
107 Disease of the Blood-Vessel System as the Underlying Cause of Nervous Diseases. T. Diller, Pittsburg.
108 Early Diagnostic Signs of Cancer of the Uterus. F. Blume, Pittsburg.

Denver Medical Times.

March.

109 Pregnancy Complicated by Tumors of the Uterus. D. S. Fairchild, Des Moines.
110 Remarks on the Pancreas. B. Robinson, Chicago.
111 Hygiene of Pregnancy and Labor Directions. T. M. Burns, Denver.

St. Louis Courier of Medicine.

February.

112 Baby Incubators on the Pike. J. Zahorsky, St. Louis.
113 Cystitis. C. C. Thayer, Clifton Springs, N. Y.
114 Bronchiectasis in a Four-Year-Old Child. J. R. Clemens, St. Louis.

The Post-Graduate, New York.

March.

115 Case of Unilateral Annular Scleritis. D. B. St. John Roosa, New York. With Report of the Pathologic Examination. L. Oatman, New York.
117 Case of High Myopia with Successful Operation. P. E. S. Peck.
118 Case of Supracondylar Fracture of the Humerus with Musculo-Spiral Paralysis. F. Hawkes.
119 Operative Treatment of Fractures in General. W. S. Bickham, New York City.
120 Treatment of the Consumptive Poor as Carried on at the Post-Graduate Hospital Dispensary from the Year 1898 to 1905. D. M. Barstow, New York.
121 Advantages of Prompt Surgical Interference in Acute Otitis Media. R. Opdyke.
122 Case of Acute Pott's Disease at the Twelfth Dorsal Vertebra in an Adult. A. F. Chase, New York.

Kentucky Medical Journal, Louisville.

March.

123 Importance of the Establishment of a Detention and Isolation Hospital for Contagious and Infectious Diseases, and also the Necessity for the Institution of a Sanatorium for the Care and Treatment of Tuberculosis in the City of Louisville. M. K. Allen, Louisville.
124 Isolation and Detention Hospitals for Country Districts. A. T. McCormack, Bowling Green, Ky.
125 Ventilation of Public Buildings. E. H. Mark, Louisville.
126 Need of Municipal and State Laboratories. V. Robbins, Louisville.
127 Problem of the Milk Supply of Cities. H. E. Tuley, Louisville.
128 Obligation of the Physician in Attendance on Patient with Infectious Diseases—Practical Methods for Preventing the Carrying of Infection—Methods of Disinfection for Hospitals, for Private Houses and for the Clothing and Person of Exposed Individuals. P. F. Barbour, Louisville.
129 Prevalence and Mortality of Smallpox in Countries Protected by Compulsory Vaccination Compared with Same in America. J. T. McClymonds, Lexington, Ky.
130 Differential Diagnosis of Smallpox. J. I. Whittenberg, Louisville.
131 Operation of Vaccinaton.—How It Should Be Performed to Be Most Effective and Least Dangerous—Imperfect Methods at Hands of Physicians Responsible for Failure of Protection—Bovine and Human Virus. A. Dixon, Henderson, Ky.
132 Contribution by the Kentucky State Board of Health: Rules and Regulations for Management of Smallpox, etc.
133 Differential Diagnosis of Diphtheria. D. M. Griffith, Owensboro, Ky.
134 Mortality of Diphtheria Before and Since the Introduction of Serum Therapy. A. O. Pfingst, Louisville.
135 Scarlet Fever—Has Its Causative Agent Been Isolated and Identified? Differential Diagnosis. J. G. Cecil, Louisville.
136 Typhoid Fever Prophylaxis. L. Southgate, Covington, Ky.
137 Tuberculosis—What is Being Done to Prevent Its Transmission? J. A. Flexner, Louisville.
138 Bovine Tuberculosis and Its Relation to Public Health. F. T. Eisenman, Louisville.
139 Prophylaxis of Venereal Diseases. J. T. Windell, Louisville.
140 Contagious Eye Diseases. J. M. Ray, Louisville.
141 Sanitation in Cuba—The Abolition of Yellow Fever—Malaria.—Problems to Be Met in Construction of Panama Canal. W. Bailey, Louisville.

Vermont Medical Monthly, Burlington.

January 25.

142 Etiology and Pathology of Pneumonia. S. M. Chisholm, Bennington, Vt.
143 Erythema Nodosum. William Lindsay, Montpelier, Vt.
144 Case of Epilepsy. E. J. Melville, St. Albans, Vt.
145 Treatment and Control of the Tuberculous Patient in His Home. Lawrence F. Flick, Philadelphia.

Alabama Medical Journal, Birmingham.

February.

146 Address, Jefferson County Medical Society. L. G. Woodson, Birmingham.
147 Etiology, Pathology and Public Prophylaxis of Tuberculosis. K. von Ruck, Asheville, N. C.
148 The "Open Air" or "Hygienic-Dietetic" Treatment for Consumption. E. A. Jones, Raton, N. M.

The Texas Medical News, Austin.

February.

149 Carbolic Acid. R. W. Skipper, Lovelady, Texas.
150 Trachoma. Crittenden Joyes, Fort Worth.

Pacific Medical Journal, San Francisco.

March.

151 A New Clinical Chart. H. D. Power, San Francisco.
152 Home Rules for a Doctor's Happiness. E. Wescheke, Oakland.
153 Typhoid Fever. Winslow Anderson, San Francisco.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

March 11.

1 Myasthenia Gravis. J. Taylor.
2 New Methods of Studying Affections of the Heart. J. Mackenzie, Burnley.
3 *Some Practical Aspects of Conjunctival Bacteriology. F. Fergus, Glasgow.
4 *Case of Acute Endocarditis Due to the Micrococcus Gonorrhea. W. Hunter, Hong Kong.

3. **Conjunctival Bacteriology.**—Fergus urges that bacteriology should be in daily use in every eye clinic: First, because it is an important aid to diagnosis, as the classification of conjunctival inflammation is becoming more and more a bacteriologic one. Second, because it is a guide in determining the safety of any operation. Disaster can often be prevented by a thorough bacteriologic investigation before attempting to operate. Third, because it materially influences our views of treatment. Prophylaxis is a matter of the first importance. The teachings of modern bacteriology give us important indications as to when an eye should or should not be bandaged. A bandage retains septic secretions, although sometimes it is of use in preventing an ulcer from becoming ectatic.

4. **Gonococcus Endocarditis.**—Hunter reports a case which is of interest from several points of view. It is an additional proof of a direct infection of the endocardium by the gonococcus. The subject of the disease presented well-marked pathologic changes throughout the genital tract. The lesions were clinically very suggestive of old gonorrheal infection. The specific micrococcus could not be demonstrated owing to the presence of many other micro-organisms. The aortic valve of the heart was the seat of the endocarditis, and the inflammatory process was of a distinctly malignant character.

The Lancet, London.

March 11.

7 Peritonitis, a Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
8 Changes Produced by Inflammation in the Conjunctiva. M. S. Mayou, London.
9 Toxic Mental Disorders. G. H. Savage.
10 *Diagnosis and Treatment of Hypertrophy of Pylorus in Infants. G. F. Still.
11 Acute Ascending Paralysis in Cases of Chronic Cystitis. T. J. Walker.
12 Further Notes on the After-history of Cases of Pyloroplasty. G. G. Turner.

10. **Hypertrophy of Pylorus in Infants.**—Of 20 cases seen by Still 17 were in males and 3 in females. Only 1 case began as early as the third or fourth day, and only 3 others within the first week. The symptoms very rarely date from birth. Of his own cases, 12 certainly, and 1 other probably, dated symptoms (vomiting) from before the end of the fourth week; in the remaining cases vomiting began between the fourth and the end of the seventh week. He has never seen a case in which vomiting began later than this. Vomiting *per se* is not characteristic of congenital hypertrophy of the pylorus. It is, however, the symptom which in most cases suggests the presence of this condition, but it is only when it is associated with the characteristic signs, the physical peristalsis of the stomach and the palpable thickening of the pylorus that it becomes diagnostic. Features of the vomiting which are suggestive of the disease are: 1, Its forcible character; 2, its occurrence in an infant who has been carefully fed; 3, its persistence in spite of such alterations of feeding and such general treatment as will usually control the vomiting of dyspeptic conditions. Its large amount shows that the vomit represents more than one feeding. The association of chronic constipation with this persistent vomiting is of some importance in diagnosis. Examination of the abdomen for the true characteristic signs, visible peristalsis of the stomach and palpable thickening of the pylorus, must be carried out very carefully. It must be recognized also that these two signs are only present at intervals, so that cursory inspection and palpation of the abdomen may result in overlooking the condition altogether. The abdomen should be examined immediately after the infant has been fed, and it is well also to watch the abdomen during the taking of the food. Still says that no doubt the diagnosis can be made with all but certainty from the visible well-marked peristalsis of the stomach alone, but that in every case the evidence should be clinched by feeling the thickened pylorus. If the disease were incurable by other than far less dangerous methods, says Still, we might well accept the chance that surgery offers, but there are cases in which no operation is necessary, and there are other cases in which the child's chance of surviving operation may be greatly increased by the use of simpler measures for a time until the infant is in a better position for operative treatment. Much time and much care must be given the case for many weeks if the infant's life is to be saved. Many cases are improved temporarily by change of diet, but it is probably very rarely that a cure can be effected by such treatment alone. Stomach washing is the method which, apart from operation, promises to be of most value. It is Still's opinion that when careful feeding with some thin fluid, such as whey and raw meat juice, after a trial of a few days, fails to arrest the loss of weight, stomach washing should be given a trial in every case, the duration of its trial to be determined by the effect on the weight. The stomach is washed out twice daily for several weeks just before a feeding, and once daily for some weeks longer with a solution of sodium bicarbonate, 2 grains to the ounce, through a Jacques soft-rubber catheter, No. 12 or 14. The frequency of the washings and the duration of the treatment depend on the improvement in the vomiting and especially on the weight. Two of his cases recovered under this treatment. In many cases stomach washing was not tried or was given up because it was assumed that the condition was incurable without operation. Before any definite data can be obtained the treatment advised must be given a more extensive trial.

Journal of Tropical Medicine, London.

March 1.

13 *Use of Cyllin in Sprue. W. Hartigan.
14 Breeding and Rearing of Foreign Cattle in the Tropics. P. N. Gerrard.
15 Relative Position of Schistosoma Cattoi and "Bilharzia" as Regards Pathogeny. G. L. Crimp.

13. **A New Remedy in Aphthae (Sprue).**—Sprue, says Hartigan, is a complaint so baffling, so difficult to cure, recurring so frequently after apparent recovery, that any hint as to its treatment is worth recording. The disease shows itself in various forms, and many seemingly favorable cases prove most intractable, while others make rapid and complete recoveries. In the majority of cases which quickly respond to treatment the disease is confined to about the lower eighteen inches of the bowel, while in the intractable cases the upper portion of the colon and probably lower part of the ileum are involved. Hence, in the former, the almost certain efficacy of copious antiseptic lavage, while in the latter they have little or no effect on the actual course of the disease. Little is known of the etiology of sprue. Its fatality is due to inability to assimilate food. The usual symptoms are wasting, sore tongue and frequent and abundant frothy stools. The patients are unable to take the mildest or simplest nourishment on account of the pain caused to the mouth and tongue and the almost immediate evacuation thereby brought on. The value of antiseptics applied locally to the bowel has been proved. Boric acid, however, produces headaches and increases digestive troubles. Carbolic acid is ill-borne; salol makes the stools more healthy, but does not cure the disease; perchlorid of mercury and naphthol are inefficient. Cyllin, a new disinfectant of the cresol series, given in the form of intestinal platinoids, 3 m. cyllin in each, is well borne, the number of stools rapidly diminishes, the bowels are regulated, and the general condition of the patient improves. The platinoids may be given every second hour if necessary, but rarely more than eight a day are required. They are best given an hour after food. All pain and tenderness over the lower part of the abdomen disappear; there is a steady increase in weight, and the patient is soon able to return to the ordinary diet. The cases treated solely by rest and milk diet take a much longer time to get

well, and their recovery is often not complete. Relapses, particularly on returning to a hot climate, are frequent.

Bulletin de l'Académie de Médecine, Paris.

Last indexed page 991.

16 (Year LXIX, No. 7.) Emploi du perborate de soude (eau oxygénée à l'état naissant) dans la pratique oto-rhino-laryngologique. M. Bloch.
17 *Nouveau biberon gradué (graduated nursing bottle). Variot.
18 *Traumatisme et tuberculose; influence des mouvements sur l'évolution des ostéo-arthrites tuberculeuses. Lannelongue and Achard.
19 *Fiévre jaune et moustiques (yellow fever). A Chantemesse and F. Borel.
20 Fiévre typhoide à début brusque, ayant simulé d'abord l'appendicite, puis la granulie. Mort. A l'autopsie ni appendicite, ni méningite, mais lésions de fièvre typhoide avec péritonite par propagation. A. Josias.
21 (No. 8) *Solubilité de la cholestérine dans la bile et ses principes sur l'origine des calculs biliaires. E. Gérard.
22 *Crachoirs (cuspidors). Fournier.
23 *Fiévre jaune et moustiques (yellow fever). A Chantemesse and F. Borel.
24 Transmission héréditaire homeomorphe d'un rétrécissement mitral de la mére à un fétus mort-né de six mois (inherited mitral stenosis). Boinet.
25 (No. 9.) *Quelques propos sur la paralysie générale de la syphilis. Fournier. (Commenced in No. 8.)

17. Graduated Nursing Bottle.—The graduated scale of the amount of milk the infant should have at different ages is stamped in relief on the bottle. Variot compiled his scale from comparison of the results of researches of Russian, German and Austrian confrères and those of Emmett Holt of New York and Morgan Rotch of Boston, controlled by extensive personal research. His scale is as follows:

First week	30 gm.
Second week	45 gm.
Third week	60 gm.
Fourth week	75 gm.
Sixth week	90 gm.
Ninth week	105 gm.
Third month	120 gm.
Fourth month	135 gm.
Fifth month	160 gm.
Seventh month	180 gm.
Ninth to twelfth month	200 to 220 gm.

The bottles are made in two sizes. The first is stamped with the scale up to the third month, and the larger bottle with the rest of the scale. The intervals between meals are also stamped beside the scale, and the number of meals, corresponding to the age of the infant. These graduated bottles have been found very practicable to use instead of ordinary milk bottles, and milk is distributed regularly in them at several French charity milk stations.

18. Traumatism and Tuberculosis.—Lannelongue and Achard emphasize the danger of exercising a joint which is the seat of a tuberculous affection. Their experiences with a number of animals showed that inoculation with pure cultures of tubercle bacilli, followed by traumatism of a joint, did not entail the localization of the infectious process in the injured joint. If the inoculation was made with pus or sputa, however, the traumatism invariably resulted in the production of a suppurative lesion in the injured joint. These results harmonize with what is observed in the clinic. The blood of a tuberculous subject is rarely virulent, and a local injury of a bone or joint is seldom followed by the development of a local focus of tuberculosis. Further experiments showed that a joint inoculated with tuberculosis remained latent or healed when the joint was kept at rest, but if it was gently mobilized even for five minutes twice a day the surfaces of the joint and the ends of the bones developed serious lesions and contracture in less than a month. Nothing of the kind occurred in the controls nor in the animals whose joints were kept at rest except for a single blow from a hammer once. These findings demonstrate the absolute necessity for immobilization of tuberculous joints, with or without extension, and they emphasize the evils of leaving a tuberculous joint free to be used at will, and especially the dangers of exercising the joint to increase its functional play.

19. Yellow Fever and Mosquitoes.—Chantemesse and Borel review the various epidemics of yellow fever that have occurred in Europe, and show how they all fit into the frame of our knowledge of the habits of the stegomyia. The 43d parallel of latitude has always been recognized as the northern limit of yellow fever in Europe. Sailing vessels are liable to be weeks traversing the torrid zone. This allows the stegomyia time to breed and yellow fever appears on board in successive series of cases. Steam vessels, on the other hand, traverse the torrid zone quickly and bring the stegomyia into a climate unfavorable for its propagation so that the vessels are practically sterile when they enter a northern harbor.

21. Solubility of Cholesterin.—Gérard describes research on the solubility of human cholesterin in beef bile and in the bile salts, and on the influence of lecithin, soap, etc., on this solubility. He ascribes biliary lithiasis mainly to the action of the colon bacillus. As this bacillus penetrates into the gall bladder it hydrolyzes, that is, draws out the water from the biliary salts, acting specially on glycocol and taurin, and thus precipitating the cholesterin which these salts had been holding in solution.

22. Wax Paper Cuspidors.—Fournier's new inexpensive models are made of paraffined cardboard and contain a little powdered charcoal. They are made to fit into a special standard if desired. They are burnt and fresh ones provided as needed.

23. Prophylaxis of Yellow Fever.—Chantemesse regards yellow fever as not contagious in France, owing to the absence of the stegomyia. There have been less than fifty cases in a century. Ships arriving from an infected country with a clean bill of health or even with one or two cases of yellow fever evidently contracted in some foreign port, may be given the freedom of the port. But a series of cases occurring on the trip compel more rigorous measures, and the ship should be fumigated, especially if a sailing vessel. The sick should be taken to the isolation hospital or to the ordinary hospital. A ship entering an infected port should anchor to windward of the shore. The crew should never be allowed to sleep on shore, and all the men coming on board should be examined afresh every morning. Everything on the ship containing water in which mosquitoes could possibly deposit their eggs should be kept scrupulously clean and watched daily. The cargo is seldom a source of danger unless it contains damp wood, bananas or fresh fruits. A ship carrying a cargo of this kind must carry on an active campaign against mosquitoes, and the physician should refuse to allow any sick with yellow fever on board when the ship is ready to leave, although convalescents can be received. During the trip, the inhabited quarters should be aired and ventilated incessantly to drive out mosquitoes, especially the hot kitchens, engine rooms, etc. If a case of yellow fever develops the patient must be kept under mosquito netting for three days.

25. General Paralysis of Syphilis.—Fournier has a record of 112 cases of syphilis in which the date of the primary sore and of the development of general paralysis later is positively known. The shortest interval was three years. In more than four-fifths of all cases the paralysis developed between the sixth and the fifteenth years, with the overwhelming majority at the tenth year. In 223 cases of cerebral syphilis with a hemiplegic onset, the first cerebral symptoms were noted during the first year in 25, during the second year in 26, during the third year in 39, and during the fourth year in 29, fully two-thirds of all the cases thus developing during the first five years. There was a record of insufficient antisyphilitic treatment in nearly every case, and in 15 out of the 112 cases there were certain other predisposing or adjuvant causes, worry in 8 cases, abuse of liquor in 5, great venereal excesses in 3, and decided nervous heredity in only 2. A significant fact brought out by his researches is that the early syphilitic infection in these cases of general paralysis had been almost invariably mild. Investigation of 243 cases of early malignant syphilis failed to disclose a single instance of general paralysis in this group, although other nervous manifestations were frequent. Out of 112 patients with general paralysis in private practice, all belonging to the educated and well-to-do class, only 5 had taken a systematic course of antisyphilitic treatment. Fournier qualifies these figures as disheartening and encouraging at the same time. They are encouraging because they show that systematic antisyphilitic treatment will reduce the number of cases of general paralysis later, but they are disheartening, as they reveal that even a well-conducted, sys-

tematic course of treatment will not infallibly protect against general paralysis later in every instance. He has records of 19 patients who had children before the advent of the general paralysis, and the 41 children show no trace of inherited syphilis. The birth of healthy children is not a certain sign of immunity for the father. Fournier's experience with treatment of general paralysis has been invariably unfavorable. He has conferred with neurologists and alienists and all say the same. Brissaud and Marie have pushed the dosage to the extreme limits without any better results, the former giving up to 14 cg. of mercury benzoate a day without benefit. Mercurial treatment does no good in general paralysis, and it is liable to do harm. Fournier thinks that the present technic of mercurial treatment does not accomplish as much as it should. He is convinced that greater benefit would be obtained if the four years of mercurial treatment were fractioned. He advises a series of energetic courses of mercurial treatment at the onset of the infection, kept up for two years, with occasional intermissions. Then suspend treatment for two years, and devote the fifth year to a second course of treatment. Then suspend treatment again and devote the seventh or eighth year to renewed vigorous treatment. The first two years' course generally suffices to arrest the early manifestations of the malady and to induce the secondary lull. Fournier is becoming more and more convinced that it is with mercury as with vaccination, the effects are outgrown in time, and revaccination and remercurialization are needed. This method of "chronic mercurial treatment at tardy terms" seems to offer the most and best guarantees for prevention, but it should always be accompanied by hygiene and by avoidance of overexertion, nervous strain and other causes liable to induce a predisposition to nervous affections. He cites as an instance in point the case of a robust young man with recent syphilitic infection who acquired a syphilitic myelitis a few days after a mad bicycle race from Paris to Amiens and back again. Although vigorously treated, his paraplegia soon proved fatal. Another syphilitic had a hemiplegic attack after excessive study for examinations. It subsided under mercurial treatment, but returned at the next annual examinations and proved permanent. Another patient was a physician who had contracted syphilis in his professional work. He was a great brain-worker, and prophesied that his syphilis would finish in the brain, as it did. Syphilitics should be advised from the first to lead peaceful, regular lives, in the country, if possible, with frequent vacations, reducing to the minimum all the stimulations liable to switch the diathesis toward the nerve centers. It may be possible to tranquillize the nerves from time to time by a prophylactic course of bromids—the author leaves this to the neurologists—but he is confident that cold or tepid hydrotherapy is a valuable adjuvant in the prevention of nervous affections of any kind. He orders it as a routine measure for all his syphilitics, to be kept up indefinitely. Of all the dangers possible with syphilis the most serious and the most numerous are those emanating from the nervous system. Out of a total of 5,749 tertiary manifestations, presented by 4,400 patients, 32 per cent. involved the brain, the spinal cord or the nerves, that is, one case in every three of tertiary accidents.

Semaine Médicale, Paris.

26 (XXV, No. 8, February 22.) *La névrite ascendante consécutive à l'appendicite. F. Raymond and G. Guillain.
27 Peruvian Balsam in Treatment of Wounds and Atonic Ulcers.—Mode d'emploi du baume du Perou dans le traitement des plaies et des ulcéres atoniques. Bohdanowicz (Nice).
28 (No. 9.) *Sur l'anaphylaxie. R. Lépine.
29 *Traitement des plaies par écrasement de la main (crushing wounds of hand). F. Lejars.
30 La tabagisme professionnel chez la femme au point de vue de la reproduction (professional tobacco poisoning in women).

26. **Ascending Neuritis Following Appendicitis.**—Raymond comments on the scantiness of literature on the subject of the nervous sequels of appendicitis. He has recently had occasion to observe a typical example of ascending neuritis with unmistakable causal relations to preceding appendicitis. The patient was a mason, 39 years old, who had had four attacks of appendicitis in a year and a half. Eight or ten days after the first symptoms of the first attack violent pains were experienced in the right thigh, suggesting crural neuralgia. The pains subsided with the symptoms of the appendicitis, but recurred in the form of sciatica during the second attack of appendicitis. They subsided again, but left a certain discomfort in walking. During the third attack of appendicitis pains developed in the calf of the right leg with formication in the foot and limping, and the limb became emaciated. At the third attack the crural and sciatic pain recurred, more intense than ever, and pain was also experienced in the region of the left sciatic. The appendix was removed, but the pains persisted and the legs became paralyzed, the trouble being most pronounced in the right leg. As the paralysis increased, the spontaneous pains subsided, but the legs were painful to pressure. The neuritis had involved the crural, the obturator and the sciatic nerves, with atrophy in the regions innervated by them. The question of ascending neuritis and of infections of the central nervous system by the route of the peripheral nerves is very important in general pathology. Raymond is confident that the nerves can transmit infections, that microbes and toxins can pass to the spinal cord by way of the nerves, their ascending progress being little barred by the anatomic barrier offered by the nerves. This assumption explains many cases of myelitis or neuritis whose origin has hitherto been a mystery.

28. **Anaphylaxis.**—After a drug or toxin has been administered, conditions return afterward to normal or there is a cumulative action of the drug inducing immunity to the same dose—what might be called prophylaxis—or a third condition may result, the reverse of the last, to which the term anaphylaxis may be applied. In the latter condition the subjects are rendered more sensitive to the same or a smaller dose. The anaphylactic action is most pronounced when an interval of three weeks at least elapses between the first and second dose. Grippe seems to have an anaphylactic action, predisposing to later attacks, as also certain streptococcus affections. The tuberculin reaction may be of the nature of anaphylaxis.

29. **Treatment of Crushing Wounds of the Hand.**—Lejars remarks that any attempt to wash the crushed hand of a laboring man results in a little cleaner hand, but with the wound much dirtier. He advises applying an Esmarch tourniquet, under general anesthesia, and then protecting the wound with gauze. The surrounding skin is then cleansed with ether or benzine, proceeding from the edge of the wound backward, scrubbing with tampons or a brush moistened with the benzine or soap solution. When this has been done, the wound is examined. It is neither washed, scrubbed nor rubbed. With forceps and compress the foreign bodies are removed, with débris of all kinds and all unattached fragments. It is not necessary to be too economical of fat, muscle or even bone, but the parts that do not grow again readily—the skin and tendons—should be carefully saved. The future functional use of the parts that do not grow again readily—the skin and tendons—in saving parts doomed to contracture and non-function later. The tourniquet is then removed and the hemostasis attended to, the parts well exposed. A little more blood may be lost, but the surgeon now knows his wound and can watch over it effectually later.

Mitteilungen a. d. Grenzgebieten, Jena.

Last indexed page 253.

31 (XIV, No. 3.) *Origin of Inflammatory Hyperemia.—Die Entstehung der entzündlichen Hyperämie. C. Ritter (Greifswald).
32 Stricture in Intestines After Experimental Interruption of Mesenteric Blood Supply.—Ueber Darmstrikturen nach Unterbrechung der mesenterialen Blutzufuhr. H. Schloffer.
33 *Ueber die Hodgkinsche Krankheit (pseudoleukemia). F. Warneke.
34 Ein Protozoen-Befund in einer erkrankten Parotis. A Tietze (Breslau).
35 *Functional Value of New-formed Capsule of Kidney After Decapsulation.—Untersuchungen über den funktionellen Wert der sich nach Entkapselung neubildenden Nierenkapsel. J. H. Zaaijer (Amsterdam).
36 Zur Pathologie der Basedowschen Krankheit. H. Passler.
37 Hernia in Linea Alba Without Objective Findings.—Bauchbrüche in der weissen Linie ohne objektiven Untersuchungsbefund. H. Mohr.
38 *Ueber Rachitis tarda. H. Curschmann (Erb's clinic, Heidelberg).

31. **Cause of Hyperemia in Inflammations.**—Ritter's research has confirmed the assumption that inflamed tissues attract and hold the arterial blood while the venous blood is expelled.

He ascribes this to the change in the osmotic conditions induced by the bacterial products and the consequent injury of the tissues. The arterial blood is attracted most, as it has a lesser osmotic pressure than venous blood. One of the features that distinguish a "hot" from a "cold" abscess is the abnormally high freezing point of the former. The freezing point in a "cold" abscess is normal. This difference in the freezing point explains the inflammatory hyperemia observed in the "hot" abscess. The change in osmotic pressure attracts the arterial blood.

33. **Pseudoleukemia.**—Warneke describes the pathologic anatomic findings in 4 cases of pseudoleukemia and of a number of extirpated "malignant lymphomata" on the neck or axilla. The microscopic findings were strikingly alike in all. No virulent tubercle bacilli were found in the lesions. The frequent association of pseudoleukemia with tuberculosis is, he thinks, merely a casual coincidence. The cases of Hodgkin's disease and the lymphomata all belong in the category of pseudoleukemia. He sifts the literature on the subject of Hodgkin's disease, and enumerates the constant findings: the swelling of the entire lymphatic apparatus, the nodule formation in the lymphadenoid preformed tissue of the organs, especially of the spleen, giving it the "appearance of red porphyry," the remarkable variability of the cells, all kinds mixed together, with predominant epitheloid cells, fibroblasts and giant cells, some resembling the bone marrow giant cells.

35. **Functional Value of New-Formed Capsule After Decapsulation.**—The conclusions deduced from considerable experimental work on rabbits are favorable on the whole. When the animals were killed four weeks after the decapsulation the anastomoses between the kidney and the capsule did not have the total capacity of the normal vascular conditions, but at some parts had locally a greater capacity. This occurred especially at the points where the kidney had been more injured. Five series of experiments were made: *a*, ligation of the renal artery with kidney intact and removal of kidney three or five days later; *b*, decapsulation of kidney and its removal after five days; *c*, decapsulation of kidney and simultaneous ligation of renal artery. Removal of kidney after two or five days; *d*, decapsulation of kidney with ligation of renal artery four weeks later and then removal of kidney after five days; *e*, half-decapsulation of kidney with ligation of renal artery four weeks or twenty-three days later, and removal of kidney after five days. In series *c* little influence on the process of necrosis could be detected, but under especially favorable circumstances a new capsule developed so rapidly and grew so intimately into the kidney that an important intermediary zone was formed, with a zone of demarcation. In series *d* the fibrous capsule became regenerated almost *ad integrum*. It was more closely adherent to the kidney than normally. Little islands of living parenchyma were found close to the capsule, the tissues evidently receiving extra nourishment from the capsule at these points.

38. **Tardy Rachitis.**—Curschmann warns that all vague disturbances in gait at puberty should not be summarily attributed to a spinal affection without first weighing the possibility of tardy development of rachitis. He reports a case of this kind. In another case he found an apparently monosymptomatic *genu valgum adolescentium* as the sole but unmistakable sign of tardy rachitis. He advocates treatment of the possibly underlying rachitis as a routine measure in cases of genu valgum and genu varum in persons between puberty and 20, putting them all on phosphorus and cod-liver oil, and keeping them in bed, with possibly hydrotherapy. These measures are particularly urgently indicated in incipient cases and will always prove a useful adjuvant to surgical or orthopedic measures. His 3 patients were a girl of 18 and 2 young men.

Zeitschrift f. Krebsforschung (for Cancer Research), Berlin.

Last indexed XLIII, page 364.

39 (II. No. 1.) *Natural History of Malignant Disease According to Clinical Experience.—Zur Naturgeschichte der Krebskrankheit nach kl. Erfahrungen. W. A. Freund.
40 Beobachtungen über Radium. M. Einhorn (New York).
41 Experimentelle Tierversuche mit Plasmodiophora brassicæ und Synchytrium taraxaci nebst Beiträgen zur Kenntnis des Letzteren. W. Loewenthal (von Leyden's cancer clinic, Berlin). Results negative.
42 *Two Cases of Chorioepithelioma in Men.—Fall von Chorioepitheliom beim Manne. H. Dillmann.
43 *Tumor und Trauma. Herzfeld.
44 Zur Chemie des Carcinoms (chemistry). H. Wolff.
45 *Seven Thousand and Eighty-one Cancer Deaths in Life Insurance Company.—7,081 Todesfä au Krebs, von 1885-1899, bei der "Friedrich Wilhelm" Preussischen Lebens- und Garantie-Versicherungs-Aktien-Gesellschaft in Berlin. P. Juliusburger.

39. **Natural History of Cancer.**—Freund remarks that his clinical experience is confirming him more and more in the belief that senilism, in the widest application of the term, is the primal etiologic factor in cancer. The senile changes may be premature or at the normal period; they may be localized in skin, mucosa or glands, or they may be generalized, and they may occur spontaneously and normally or abnormally in these parts of the body. He is further convinced that a local, slow and torpid affection, with mild and insignificant symptoms, may pass into an acutely malignant phase under the influence of depressing circumstances. He cites a number of instances in which an old, mild gastric trouble developed into a rapidly fatal cancer after excessive overwork or overworry. In regard to the curability of cancer, he thinks that we can count on permanent cures after early removal of primary carcinomata in certain regions of the skin, especially on the face, and in case of tumors that have developed from warts or nevi. He also believes that the prospects are better in case of spare elderly patients than for younger persons, especially pregnant women, and that metastases, as a rule, obscure the prognosis. It is remarkable, however, he adds, that the metastatic tumors are so much more amenable to curative measures than the primary growth. Freund further emphasizes the importance of hygiene, of regular habits of life and of avoidance of contact with cancer subjects, which may be dangerous for the predisposed. Spontaneous retrogression of metastatic tumors after removal of the primary focus is also liable to occur. He calls attention again to a method of treating cancer which he published some years ago. It is based on the observation that the individual cancer cells are very short lived. He excludes temporarily the affected limb or organ from the circulation and then tries to flush it through one of its main arteries with an alkaline fluid, washing out the residual blood by a counter opening in one of the main veins. His description of a cancer of the uterus thus treated in 1892 was published in Hegar's *Beiträge*, vol. i, No. 3. He adds that a promising field for cancer research is in the study of the parts most frequently affected with cancer before such growth occurs. Further important results may be obtained from study of the vitality of the cells of various adjacent tissues separated from their environment. Wentscher has already reported research in this line on the persisting vitality of the cells of the rete malpighii in detached scraps of skin. Study of such cells within twenty-four hours after death might also afford interesting results. It is important to study the favorite locating points of cancer in the lymph and blood vessels, as Kroemer and R. Freund have been doing for the uterus.

42. **Chorioepithelioma in Men.**—In the first case the tumor had been extirpated from the right testicle, but numerous metastases were found after death seven weeks later. The nature of the tumors was not absolutely certain. In the second case the diagnosis of chorioepithelioma was confirmed by the microscope. There was a large tumor in the abdomen and various metastases in the lungs. The left testicle contained a teratoma, with proliferation of elements identical with Langhans' cells in chorioepithelioma and with syncytium. These parts represent the malignant elements, and were found predominant in metastases. About 20 analogous cases have been published. In all but one instance the tumors were in the testicles. Dillmann says in conclusion that except for Pick's recent case, no instance is known of the occurrence of chorioepithelioma in women who have never been pregnant.

43. **Tumor and Trauma.**—Herzfeld discusses the history of 54 cases on record in which a causal connection between trauma and tumor seems to be apparent. Complete destruction of tissues is never followed by cancer, but it is liable to de-

velop on healed wounds. He thinks that the causal factors are the separation of some germinal cell thus left free to wander, and irritation of the soil, affording favorable conditions for the wandering germinal cell to settle down and to proliferate independently. Trauma is liable to create both these factors at once.

45. **Study of 7,081 Cancer Cases.**—The 7,081 deaths from cancer formed about 10.6 per cent. of the total mortality recorded by the life-insurance company in question. The particulars are arranged for comparison in tables. They fail to show any marked influence of liquor habits on the prevalence of cancer. There are, further, no data which incriminate trauma. Cancer claimed more victims among the well-to-do policyholders than among the working classes. Of all the causal factors, heredity looms up as the most important. A number of other interesting points are brought out in regard to the frequency of involvement of various organs, age, sex, etc. The proportion of gastric cancers was about the same, a trifle over 40 per cent. in both the well-to-do and the working classes, but with cancers of some other organs the former supplied much the larger contingent.

Nordisches medicinisches Archiv, Stockholm.

Last indexed page 255.

46 (XXXVII, Surgery, No. 1.) *Pararenal Cysts Communicating with Renal Pelvis.—Ueber die mit dem Nierenbecken kommunizierenden pararenalen Zysten. A. Krogius.
47 *Ueber die "Esmarch'sche Blutleere" nach Unglücksfällen (tourniquet after accidents). A. Ahlberg.
48 (Surgery, No. 2.) Symbolæ ad morphographiam membri virilis. R. Bergh.
49 Bacterial Relations of Accessory Sinuses and Their Means of Defense Against Bacteria. F. Törne. (Commenced in No. 1.)
50 Hämatometra im Nebenhorn (in accessory cornu). E. Essen-Möller.
51 (Internal Medicine, No. 1.) *Syringomyelie. H. J. Vellesen and F. Harbitz.
52 *Ovaritis. B. C. Vedeler.
53 (Internal Medicine, No. 2.) *Ueber die Addison'sche Krankheit in Schweden. E. O. Hultgren. (Commenced in No. 1.)
54 Note sur un mucor parasite végétal du cuir chevelu de l'homme (of scalp). E. Buffa (Turin).
55 *Le goutte et le bacterium coli commune (gout). H. Trautner.

46. **Pararenal Cysts Communicating with Renal Pelvis.**—Krogius has found records of 9 such cases and adds another to the list. The cysts were of congenital origin and some had attained enormous size. In all except Fenger's case, the cyst walls were of connective tissue only. Some of the cysts required resection of part of the kidney to remove them completely.

47. **Dangers of the Tourniquet.**—Ahlberg relates three instances of serious injury resulting from the application of the Esmarch bandage to arrest hemorrhage after an accident. In one case the tourniquet had been applied very tightly and left for a day and a half above the severed brachial artery. There had been considerable hemorrhage and the patient, a robust young man, soon succumbed. The fatality may have been due to the acute anemia alone, but there is a possibility that the products of decomposition after ligation of the artery may have induced intoxication of the organism, already enfeebled by the anemia, when the constriction was removed. The tourniquet should never be left long, but should be removed at the earliest possible moment. It should be applied as close to the wound as possible. In 2 of his cases the limb had to be amputated at a much higher point than would have been required by the trauma alone. It should be more generally emphasized that all the parts below a tourniquet left for more than three hours, are exposed to the great danger of tissue death. Another important point to be borne in mind is that the injured part should have all the cleansing manipulations done before the tourniquet is removed. It prevents foreign matters and fluid from being sucked into the circulation, and consequently they should all be cleaned off before the circulation through the parts is restored.

51. **Syringomyelia.**—A pronounced and typical case of syringomyelia in a woman of nearly 60 is described in all its aspects. The anatomic findings are compared with those of a case of cavity formation in the spinal cord, secondary to hemorrhage.

52. **Ovaritis.**—Vedeler contributes his article in English. It is based on 66 cases of ovaritis encountered in 5,903 patients. He restricts the term to a comparatively rare, painful, small swelling of the ovary, generally of the right. It is extremely rare in virgins, most frequent in women who have borne children. It is accompanied by pain in one side of the abdomen, and sometimes by lumbar pain, but without other local or constitutional disturbances. It seems to have no influence on menstruation. The genitals were normal otherwise in only 9 of the 66 cases. Six exceptional cases are described in detail. In one the symptoms suggested ovaritis with recurring dizzy headache, in a patient with complete amenorrhea. The attacks recurred at intervals, growing less intense with years. It is possible that congestion of abortive menstruation may have simulated ovaritis in this case. In a few others the symptoms were evidently of nervous origin.

53. **Addison's Disease in Sweden.**—Hultgren reviews in tabulated form the 59 cases of Addison's disease that have been reported in Sweden. The table includes 3 personally observed. Suprarenal extract was given in a few cases, but only one patient was much benefited. This was a man of 36 who felt "restored to health" after six weeks of daily administration of suprarenal tablets (3x3). He continued to take the tablets now and then for two years, whenever he felt depressed, and always with good effect. The disease at the end of two years became rapidly worse and soon terminated fatally. Temporary benefit was obtained in some of the other cases from iron, arsenic, cod-liver oil and cinchona, but rest for body and mind proved the most successful element in treatment.

55. **Gout and the Colon Bacillus.**—Trautner has been devoting much research to the relations between the colon bacillus and gout. He describes the technic of numerous tests which have conclusively demonstrated, he thinks, that the proportion of uric acid in the urine of a person subject to gout increases during times of partial or decided constipation. He believes that, under the influence of imperfect evacuation of the bowels, a reducing substance is generated by the chemical activity of the ordinary colon bacillus. This reducing substance acts on the residue of the food, and probably has some close connection with the uric acid in the urine. It is more than probable, he affirms, that the substance formed in the colon by the bacteria becomes transformed into xanthin and into uric acid during its passage into the blood. He regards it as probable that the first manifestation of gout is a mucous colitis. The *Bacterium coli commune* is the initial agent of gouty affections. Copious diuresis accompanied by high density should suggest an abnormally large proportion of uric acid. Food containing much animal albumin seems to increase the proportion of uric acid in the urine. In conclusion, he states that the "purin theory" probably has no foundation in fact.

NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

783173 Combined chest and throat protector, Berry A. Brown, Franklin, Ohio.
783280 Surgical bandage cloth, Ella Jagers, Salina, Kans.
783128 Powder atomizer, Romuald A. Oleshak, Philadelphia, Pa.
782878 Pasteurizer, Wm. J. Ruff, Quincy, Ill.
783226 Artificial limb, James E. Seeley, Los Angeles, Cal.
783921 Exercising apparatus for babies, Wm. P. Abell, Duffield, England.
783566 Bed pan, Ashbel P. Barlow, St. Joseph, Mich.
783924 Combined tweezers and blackhead extractor, Frederick J. Boehm, New York, N. Y.
783856 Massage machine, May Chaffin, Huntington, W. Va.
783688 Medicine dropper, John C. Dujat, New York.
783827 Convertible water bag and fountain syringe, Thomas O. Gasaway and J. S. Aydelot, Marion, Ind.
783859 Capsule stopper for bottles, Ewald Goltstein, Cologne, Germany.
783971 Sputum-cup and holder therefor, Christian W. Meinecke, Jersey City, and D. Hogan, Hoboken, N. J.
783466 Artificial limb, Stephan Rosenfelder, Nuremberg, Germany.
784018 Suture-supporting plate, Orville O. Witherbee, Los Angeles, Cal.
783563 Invalid-bed, Luther J. Zuerner, and A. F. Bahra, Jr., Newcastle, Pa.
784024 Dynamo electric massage instrument, Albert Barrett, and W. Condon, Kansas City, Mo.
784399 Medicine spoon, George C. Hohein, Norfolk, Va.
784425 Surgical apparatus, Henry W. Phillips, Norfolk, Va.
784194 Medicine bottle, Fannie S. Victor, Atlanta, Ga.
784830 Medicine spoon, Martin L. Beistle, Ingram, Pa.
784995 Surgical needle, Thomas C. Edwards, Salinas, Cal.
784632 Inhaler, Wm. M. Ricketts, Columbus, Ohio.
784809 Massage apparatus, Eugene W. Schneider, New York.
784643 Massage machine, George F. Trotter, Louisville, Ky.
784645 Inhaler, Hubert L. White, Utica, N. Y.

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Address

SURGICAL TUBERCULOSIS IN THE ABDOMINAL CAVITY WITH SPECIAL REFERENCE TO TUBERCULOUS PERITONITIS.*

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The foundation of modern medicine lies in the scientific study of the dead. Postmortem revelations made possible our present knowledge, but we must not forget that it teaches terminal states and has led to that therapeutic skepticism which has been so prominent a feature of the last decade of medical thought.

The reaction from this nihilistic tendency has come from the surgical side, which has permitted of an examination of diseased processes while in an early stage with corresponding possibilities of cure.

There are many hard worked statistics handed down to us which are perfectly true in themselves but which are misleading in their general application. Among these are the statistics of Eisenhardt, who, in 1,000 subjects, dead from tuberculosis, examined in the Munich Pathological Institute, found 563 with intestinal tuberculosis and not one primary. Quite true; yet, if we studied 1,000 deaths in diabetes we should find a considerable percentage dying of tuberculous bronchopneumonia, and, so far as postmortem proof could be produced, there would be small evidence of the diabetes. Compare a little alteration in the islands of Langerhans in the pancreas with the gross lesions in the lung. This is equally true if the primary focus is in the abdomen, it is likely to be overshadowed by the secondary lung changes. Tuberculous strictures in the intestine go to the surgeon, likewise tuberculous fallopian tubes and appendices, and not to hospitals for tuberculosis. The gross changes which took place in the susceptible lung tissue may all be secondary to a local primary focus in any part of the body, yet at postmortem this could not be demonstrated.

Sims Woodhead, in 127 autopsies in children, found 100 with tuberculous mesenteric glands, and so firmly had the belief in the universal primary lung theory become that lengthy articles have been written to show how the mesenteric glands developed secondarily to a chest lesion. The advent of surgery into the abdominal cavity is rapidly eliminating these errors and experimental work is confirming the clinical testimony which has been produced. The tubercle bacillus is a true parasite, existing only in living tissue and having no saprophytic properties. Therefore, it does not often destroy its host, otherwise it would kill itself. It is usually the secondary pyogenic infections which terminate life.

In America, somewhat over 60 per cent. of cadavers show some form of tuberculosis, active or healed, and in Germany as high as 86 per cent. of cadavers have evidence of tuberculous lesions. The tubercle bacillus may pass the intact intestinal mucous membrane into the lymph spaces, where they are ordinarily destroyed. In Adami's laboratory, it was found that leucocytes passed out on the free surface of the upper intestinal tract and picked up bacteria, especially bacilli along with particles of fat, and carried them into the lymphatic glands, where they were annihilated. In this way they assisted to secure that relative sterility of the duodenum and upper jejunum which has rendered operations for gunshot and other perforations in this locality so much more favorable than in the ileum and colon. Evidence has also been produced to show that through the portal circulation, bacteria are carried to the liver and there destroyed or strained out with the bile, and in this infected bile lies the direct etiology of gallstones. If the action of the liver is interfered with, the power to overcome or eliminate bacteria is lessened. Kelynack, in 121 cases of cirrhoses of the liver, found that 10 per cent. had tuberculous peritonitis.

That infected particles are carried to the liver for destruction is further shown by the embolic pneumonia which often follows on gastric operations on account of the communication with the general circulation, through venous anastomosis about the cardiac orifice of the stomach, although its main channel of venous return is through the portal system. The liver and intestines, under equal conditions, are not subject to this disaster on account of their limitation to a portal circulation.

Practicing, as my brother and I do, in an agricultural community, we have long noticed the relative infrequency of pulmonary tuberculosis, evidently due to less frequent exposure to inhalation sources of infection, while abdominal, bone, joint and lymphatic disease of tubercular origin are common. Clinically, I cannot consider the milk question settled by Koch's dictum that bovine tubercle bacillus is not infectious to man, and, for that matter, he offered no proof which Theobald Smith had not previously brought out. Koch merely showed that healthy animals did not acquire human tuberculosis, neither does the average healthy human being acquire human tuberculosis. It requires either an inherited or acquired susceptibility to the disease.

One can not help believing that much of the extrapulmonary tuberculosis has to do with uncooked milk, which is a common article of diet in the country. The difficulties of transporting raw milk to cities limit its use and lead to sterilization by cooking. The work of Salmon, Ernst, and a host of other accurate observers has shown the possibilities of infection through the milk and food supply. The lungs are the primary

* Address on Surgery at the meeting of the Mississippi Valley Medical Association, Cincinnati, 1904.

source of tuberculosis in perhaps 80 per cent. or more of cases, but this should not lead us to ignore undoubted instances of non-pulmonary origin. Next to the lungs, the most susceptible localities to tuberculous invasion are the tonsils, where the lymphatic tissue lies directly exposed on the mucous surface, and in the intestine and appendix, in which practically the same conditions exist. The structure of the follicles of the tonsils corresponds very closely with that of the large follicles of the intestine and of Peyer's patches. These tissues may permit the passage of tubercle bacilli, but are not necessarily involved themselves.

Inoculation tuberculosis is best studied in surface infections, such as the postmortem finger of demonstrators of anatomy, and as seen in butchers and hide handlers. Regional lymphatic invasion often occurs and tubercle bacilli may be found in the glandular involvement. There is a marked tendency for the trouble to remain local.

Statistics of postmortem examinations may err in tracing primary lesions on account of the overwhelming character of secondary and terminal conditions. Statistics from the operating room are liable to error because of the limited character of the examination. In St. Mary's Hospital, from Oct. 1, 1894, to Oct. 1, 1904, a period of ten years, there have beeen 6,408 abdominal operations performed. Of this number 5,687 were intraperitoneal and 184, or about 3 per cent., were for some variety of tuberculosis. Localized intestinal tuberculosis occurred 21 times, 13 cases were primary and 8 uncertain.

Tuberculosis of the intestine occurs in three forms: 1, multiple ulcers due to inoculation from sputum swallowed by tuberculous patients, which at once demonstrates the possibilities of intestinal infection; 2, single, or at most a few, ulcers usually in the ileum, which have a marked tendency to heal with stricture formation. Such cases come to the operating table with obstruction; 3, conglomerate tuberculosis, usually of the cecum at its juncture with the ileum, giving rise to tumor and having the macroscopic appearance of carcinoma. The last two forms are often, if not usually, primary and due to accidental inoculation. The stricture-forming ulcer of the ileum may be resected or an anastomosis around the diseased part may suffice for permanent cure (ileocolostomy).

The tumor-forming variety, with its masses of fibrous tissue in and about the cecum, are best excised closing both intestinal ends and doing a lateral ileocolostomy. The latter operation, without excising the diseased focus, leaves an ulcerative mass to its own devices, and the opportunity for removing perhaps the only tuberculous lesion should not be lightly disregarded. In some cases greatly enlarged tuberculous lymph glands exist in the mesentery, and as many as possible should be removed.

Tuberculous disease of the appendix we have found as a localized process 29 times, with no deaths, in 1,888 operations for appendicitis, (in addition to this number the appendix was removed 629 times not included in these statistics, because secondary to other operations in the abdomen.)

The lymph nodes in the mesoappendix were often invaded and showed typical caseation on section. Localized surgical tuberculosis of the intestine and of the appendix have occurred in our series of cases in both male and female in nearly equal numbers.

Tuberculosis was found localized in the fallopian tubes 44 times without tuberculous peritonitis, the tubal lesions being securely walled off. As to how the trouble gets to the tubes, there is much disagreement. Is it through the circulation or is it, like gonorrhea, an ascending infection; or is it possible that tubercle bacilli, finding their way to the peritoneal cavity from any source, at once attack this favorable soil? Tuberculosis of the vulva, vagina and cervix is very rare. Tuberculosis of the uterus is not only rare but is largely confined to young girls before puberty and to old women after the menopause, while tubal tuberculosis is typically a disease of menstrual activity, being most common from the twentieth to the fortieth year. The ability of the tubercle bacillus to pass through the intact mucous membrane and to travel in the lymph spaces to a suitable soil like the fallopian tube is suggestive of an ascending infection. We have recently had a typical case of acute tuberculous pus tubes with tuberculous peritonitis, coming on three weeks after confinement and operated on two months later.

Those interested in the question should read the masterly monograph of Murphy on "Tuberculosis of the Female Generative Organs." I will, however, take this opportunity to call attention to the relative frequency of tuberculous peritonitis in the male and female. At the operating table we found about four females to one male. Osler found somewhat over two females operated on to one male. In other words, between the ages of 20 and 40 years, tuberculous peritonitis is certainly very much more frequent in females, and, so far as direct sources of infection are concerned, the tube is the one which may explain this difference in frequency. *There were 89 cases of tuberculous peritonitis, with 3 deaths.*

The clinic of this hospital is drawn largely from a fixed agricultural community and the majority of cases operated on who left the hospital improved but failed to stay well, returned for further treatment. A considerable percentage did not maintain the improvement, and, in the course of years, patient after patient would return with relapse of the peritoneal condition or some other form of tuberculous infection. Some returned for further operation as many as four or five times. It became evident that, in a considerable percentage of cases, there was some source of reinfection of the peritoneum after apparent cure.

About three years ago, Dr. J. B. Murphy called our attention to the fact that in tuberculous peritonitis with ascites, in women, the fallopian tube of one or both sides would usually be found open, that is, an eversion of the fimbriæ with thickening of the tube, and especially of the mucous membrane. We have had an opportunity to verify this in a considerable number of cases. We further noted that, in some instances, after removal of the fluid by laparotomy with cure of the peritoneal condition there could later be detected in the region of the tubes masses which had not previously been felt. This observation was confined to a few individuals, but it led us to examine the pelvic condition of every case of tuberculous peritonitis which was operated on. Investigation showed marked tuberculous thickening of the tubes in the majority of such patients. On removal, these tubes showed typical lupus of the mucous membrane, with cheesy deposits, and in a number of specimens we were able to stain tubercle bacilli in the tissues. In a minority of cases the tubes were found to be normal.

Having under observation a small number of patients in whom simple laparotomy had failed to permanently cure tuberculous peritonitis, we began to do a radical operation, performing hysterectomy with removal of ovaries and tubes. The condition of the uterus and

ovaries, on examination, did not justify so mutilating a procedure, the tubes showing unmistakable evidence that they alone were the source of reinfection. It became clear that in tuberculosis of the peritoneum in the large majority of women a lupus of the mucous membrane of the tube was the source of infection of the peritoneum, and that the latter condition was secondary to the former, a conservative process on the part of Nature in the attempt to absorb products of tubal tuberculosis turned loose in the peritoneal cavity. Some of these operations have been among the most trying of our surgical experience, adhesions matting the intestines, bladder and uterus into a confused mass, with free fluid in the abdominal cavity, the tubes occupying the part of a roughly walled-off foreign body. In several instances the anatomy was indistinguishable, the uterus and tubes being located by tracing a round ligament from the abdominal wall downward. One is in constant fear of doing irreparable damage to the bowel or other viscus with a resulting fistula which would be impossible of closure. By patience and care we found it possible to enucleate tuberculous tubes in 26 cases of tuberculosis of the peritoneum. If the adhesion wall was fairly good, a pus tube containing a quantity of tuberculous débris and cheesy deposits would be found. The intestine, and especially the sigmoid, often showed a thick white degenerative patch, caused by extension from the tubes. Sometimes a tube of one side would communicate freely with the peritoneal cavity, while the opposite side would be more or less boxed off and contain products of the tuberculous disease. Occasionally a tube on one side would be converted into scar tissue with complete obliteration of the mucous membrane cured by natural processes, while, on the other side, active disease would be present. This last variety was most interesting as showing that Nature did cure at times and by the usual process of development and contraction of fibrous tissue.

In practically all these cases the peritoneal involvement was greatest in extent near the seat of local infection; this has been generally noted and heretofore ascribed to gravity. It is more likely to be due to proximity to the seat of infection. This is further borne out by those occasional patients with limited collections of fluid caused by tuberculosis of the pelvic peritoneum and which so much resembles ovarian cystic tumors. Spencer Wells accidentally cured the first case under misapprehension that it was an ovarian tumor. In tumor-like collections of fluid an open fallopian tube will usually be found to communicate with the interior of the sac. Two such cases in our late experience demonstrated this condition perfectly. There was a sacculation, having the physical appearance of an ovarian cystomata, the size of a seventh month gestation; the tubes were tuberculous and projected well into the cavity. In both cases we were able to completely enucleate the newformed sac and the tubes.

Theories as to the reasons for the curative effects of laparotomy in tuberculous peritonitis are too numerous to mention; Gatte gives more than 20. It appears to us that simple laparotomy, with removal of the fluid, acts in two ways: 1, that in tubal disease the fluid mechanically separates the fimbriated extremity of the tube from the surrounding tissue; 2, after removal of the fluid, contact with neighboring structures, with resultant adhesion, may follow. This prevents peritoneal reinfection and confines the products to the pelvis, and accounts for the lateral pelvic masses which are sometimes developed after the disappearance of the fluid. It also enables Nature to bring her resources to bear on a localized focus and develops the self cure that was noted in the cases mentioned. Undoubtedly the operative manipulation causes serum to be poured out and thereby increases the peritoneal powers of absorption. Lupus of mucous membrane in any part of the body is a most stubborn form of tuberculous disease. The fallopian tube is no exception to the rule and, in addition, seems to have a selective affinity for tubercle bacilli, in this respect nearly resembling the alveoli of the lungs. As previously noted, the frequency of tuberculous peritonitis in women is several times greater than in men, and this certainly confirms in a remarkable degree their peculiar liability on account of tubal lesions. In this agreeing with the splendid work of Williams.

In carrying out these investigations of the pelvic conditions in women with tuberculous peritonitis, we found in a minority of patients no tubal disease, but a well-marked chronic appendicitis with enlarged glands in the mesoappendix, and on section the glands showed typical caseation. In many instances the region of the greatest distribution of tubercular peritoneal nodules could be shown near the appendix. In some cases neither the tubes nor the appendix was diseased and the origin was doubtful. In four persons tuberculous peritonitis was found limited to the upper abdomen above the transverse colon. These patients had well marked symptoms and were operated on under the impression that the trouble lay in the gall bladder, duodenum or stomach. The ages ranged from 36 to 56. The primary source of infection we could not trace; 3 were in women, 1 in a man. Since January 1, this year, we have operated on 16 cases of tuberculous peritonitis; of these 11 were women, in 9 of whom the origin was in tuberculous tubes, 1 in the appendix, 1 unlocated; 5 were in men, 3 with tuberculosis of the appendix and cecum, 2 unlocated.

Fenger, in a most exhaustive analysis of the subject, sustained the opinion by Borchgrevink, who claimed that medical cures were as numerous as operative, and that it was not proved that tuberculous peritonitis was a surgical disease, even in its most favorable form, in which ascites was the prominent feature. So strong was he in his conviction that tumor-like collections of fluid existing in the pelvis were not excepted. The assertion was too sweeping and one which the trend of surgical thought had failed to sustain. Ochsner, in a most excellent résumé of this subject before the American Surgical Association, 1902, proved beyond question that laparotomy and evacuation of the ascitic accumulation had a most beneficial effect on the disease. While simple abdominal incision and drainage has failed to cure all the cases, it did cure many and usually gave relief for a time, and if reinfection could be prevented the cure might be expected to be permanent in a much larger number.

Can we prevent relapse? Certainly we can in many instances. Of the 26 radical tubal operations we have made on cases of tuberculous peritonitis, 25 recovered; of these 7 had been operated on by simple laparotomy from 1 to 4 times previously. In not a single patient as yet has another operation become necessary, and, as contrasted clinically with a preceding group of equal number, the favorable results are most striking. There is usually a temporary continuance of the peritoneal effusion, but reinfection has not occurred. The outcome where the appendix has apparently been the seat of trouble has been favorable but not so brilliant as in the tubal form of disease.

It has appeared to us that ascites has been more common in women with tubal tuberculosis, while in both males and females fibro-plastic forms have been relatively more common where the appendix or an unlocated intestinal lesion has been made the source of peritoneal invasion. This later condition is probably due to a mixed infection, but the secondary organism is evidently shortlived and we find only its results at operation. We have not often operated on the fibroplastic adhesive form and we have been slow to operate in any case during the acute stage.

In tuberculous peritonitis in women, we evacuate the fluid and place the patient in the Trendelenburg position, packing off the general abdominal cavity in the usual manner. The pelvic organs, appendix and cecum are examined. If the fallopian tubes, appendix and cecum are diseased, they are removed. The stumps and walls of tubercular abscess cavities are dried and a little sterile iodoform rubbed in and the abdomen closed without drainage. Drainage sometimes leads to secondary mixed infection with resulting fistulæ, which have a great tendency to become fecal.

In men, the incision is placed to the right of the median line over the appendix. The fluid is evacuated, the appendix and cecum examined, after which a radical operation, if indicated, is performed.

From the narrative of facts and observations so briefly set forth, I think we are justified in the belief that the failure of simple laparotomy and evacuation of fluid exudate in tuberculous peritonitis to maintain a high place in surgery is due to reinfection from lesions in the mucous membrane of the fallopian tube, appendix or some part of the intestinal tract. We have been treating a symptomatic peritonitis instead of removing the source of disease. That many times the infecting lesion cannot be discovered is true, and it is equally true that not all cases can be explained in this way. Experience teaches that under expectant treatment many of the primary lesions are cured by natural processes. Simple laparotomy and drainage aids recovery in a remarkable manner. Radical operation on the primary lesions in tuberculous peritonitis will greatly increase the percentages of cures and prevent reinfection of the peritoneum.

In conclusion, it seems reasonable to suppose that tuberculous peritonitis has its origin in a local focus in practically every case, as is the fact in septic peritonitis. Peritoneal reinfection may be prevented if the local focus can be removed. Whether the patient will regain and maintain general well-being must depend to a large extent on whether the local focus thus removed is primary or secondary and, if secondary, as to the possibilities of cure of the chief seat of disease.

Secret Nostrums in the United States.—The United States is a land in which patent medicines, and proprietary medicines flourish exceedingly. The drug consumption per capita of the inhabitants of America undoubtedly exceeds that of any other country. Some of the "remedies" sold are good, some are indifferent, and some are distinctly bad. But the worst feature of the situation is that the ordinary individual is unable to discriminate between the different kinds and is wont to take whichever one is recommended to him by the druggist or appears from the description on the bottle as the most likely to benefit the complaint from which he is suffering or imagines that he is suffering. The present situation has been largely brought about by the physician himself.—*The Lancet.*

Original Articles

STUDY OF THE ECONOMIC COURSE OF CONSUMPTION IN WAGE-EARNERS.*

MARSHALL LANGTON PRICE, M.D.

BALTIMORE.

It has been aptly said, and with some degree of truth, that a well-bred person never insists on facts. The person who forces his facts into the minds of others by the brute force of figures is usually called a statistician and is frequently considered a bore. Like other pests, however, he has his usefulness and, while it may not be the good fortune of the statistician to adorn a tale, it frequently falls to his lot to point a moral, and in medicine the brute force of figures will always be the court of final resort.

It is my misfortune to-day to have to offend from both points of view, to insist on facts and to drive them home by figures, but I will feel that I have not offered myself in vain as a sacrifice on the altar of science if I can aid in any way in the elucidation of the course of a great economic, social and medical problem.

Though I have placed the medical portion of this trilogy last and the economic first, I would not by any means maintain that the medical aspect of this problem comes last or the economic first in point of importance, as many statisticians hold, for the statistician is, as a rule, prone to assign a place of minor importance to the medical side of tuberculosis. My own inclination still is to place the medical side of the problem in the first place.

Of course, by medicine we do not understand the mere "practice of physic," which, while having something, no doubt, to promise from the curative standpoint, has nothing at all to promise in the way of prevention; I would understand rather the larger control of sanitary affairs by medical men from the medical standpoint. The physician, however, has yet to understand and to appreciate the importance of the economic and social sides of tuberculosis. This paper deals with the economic course of the already existing disease (a matter of lesser importance from the physician's viewpoint than the economic problems concerned in its development). It is certainly a practical necessity, however, for the members of our profession to be acquainted with all sides of the problem with which they will first (of all persons, I believe) be called on to deal.

The statistical considerations will give, in my opinion, the most complete and just estimate of the problem as well as the most perfect view of all its sides and phases. From the dry prehistoric bones the naturalist has reconstructed the pterodactyl, the megatharium, and other monsters of the pliocene period. We may reconstruct in the same way the modern apparition of tuberculosis from statistics dug from the dry conglomerate mass of figures with almost equal patience and labor. Statistics will incline, I believe, to give the greatest importance at the present time to the economic and social sides of tuberculosis. The remarkable sympathy of the economic and tuberculosis curves can leave no doubt whatever as to their intimate relations and much of the present improved state of tuberculosis must be laid to one or the other of these factors.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

We do not appear as yet to be able to lay the greater part of the present better conditions to the credit of medical progress, although I believe the latter to be undoubtedly the proper direction from which to attack this problem, as it comprises the direction from which to attack all other problems, namely, the standpoint of causation.

It will be well to remember, however, that we are called on to deal with actual and not ideal conditions, and there is always a large contingency connected with any such ideal generalization as Pasteur's statement of the possibility of the elimination of any parasitic disease. (*C'est dans le pouvoir humain de faire disparaitre du monde tous les maladies parasitaire.*)

The course of tuberculosis in any individual case includes a number of profound, divergent and far-reaching effects, produced by a common cause. Even considering alone the mere economic effects of tuberculosis and ignoring the social and moral problems connected therewith, we have to deal with very complex conditions.

The accurate study of one class of these factors, namely, the personal item of economic loss, is a foundation on which it appears all correct economic deductions must be built.

My personal experiences have convinced me of the possibility of obtaining a high degree of accuracy in this study—sufficient at least for accurate and correct statistical deductions.

It is a study of this character made in Maryland in the work of the State Tuberculosis Commission which I believe to furnish a sufficiently accurate and substantial foundation for statistical deductions—to justify its presentation before this Section of the Association.

The economic course of tuberculosis is wholly distinct from the clinical course, but closely related to and dependent on the latter. It does not affect the economic course of tuberculosis how many persons are suffering from the disease or to what extent so long as their economic powers remain unimpaired; and the economic

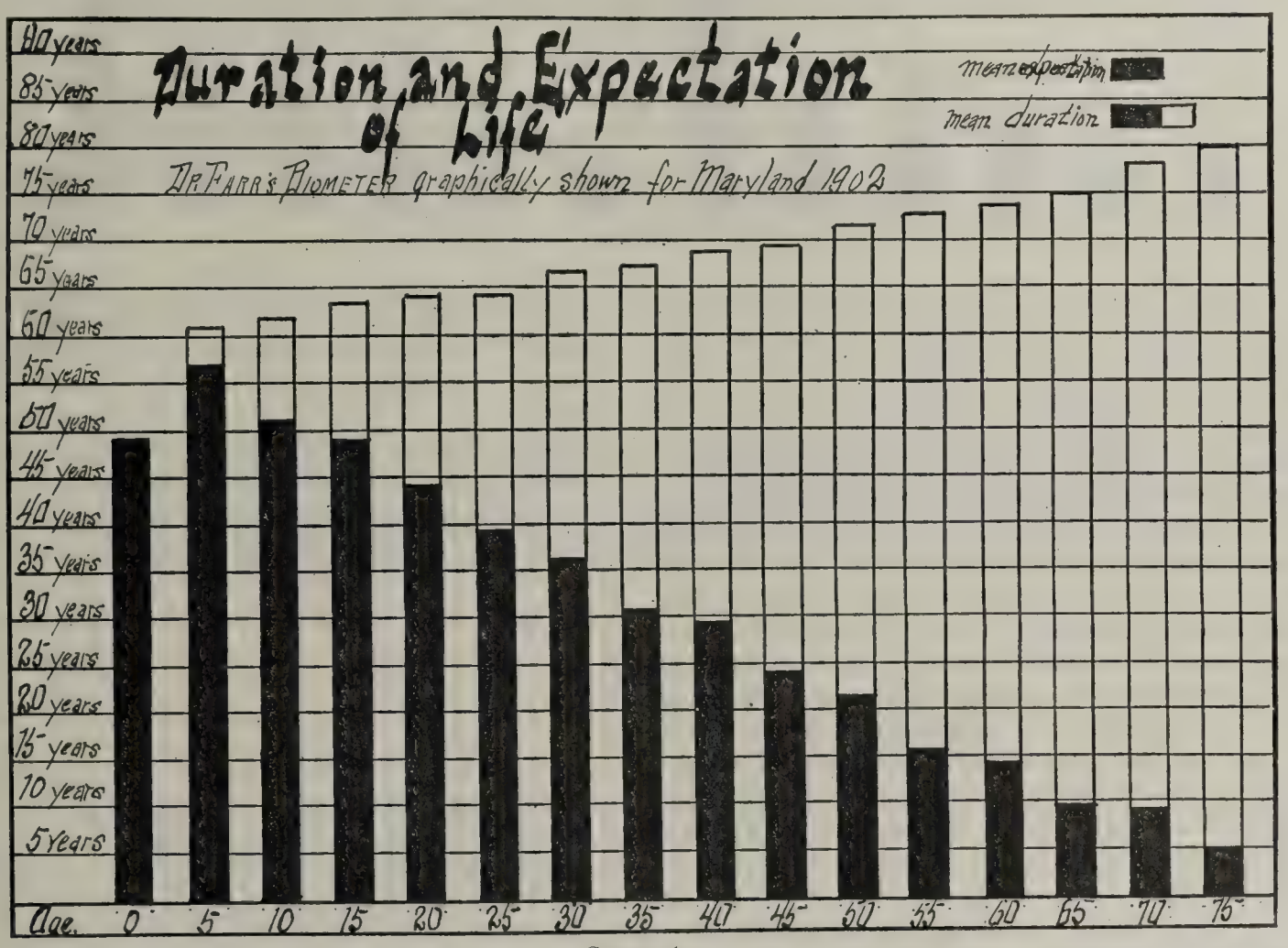


CHART 1.

While these effects may be grouped under generalizations, they are far from being general conditions and their individual potentialities are inextricably blended to produce a heterogeneous whole.

As a merely general classification we may consider the economic course of tuberculosis from some three or four standpoints.

1. Economic effects on the state.
2. Economic effects on the local community (town, county or village).
3. Economic effects on family.
4. Economic effects on the individual.

It is questionable if the generalizations, calculations and guesses by which many social economists have endeavored to determine the amount and directions of these influences have aided at all in the clearness of our conceptions. It may be safely said at least that the conclusions have, as a rule, been most inaccurate.

history of the individual does not become apparent in the columns devoted to loss until such a depreciation occurs. The duration of time during which the individual may have tuberculosis with unimpaired earning capacity depends not only on his constitution and the virulence of the disease, but on the nature of his occupation and the pressure of necessity. It goes without saying that the earning capacity of an individual whose occupation requires long and severe muscular labor, such as a coal miner, will be sooner impaired by the onset of tuberculosis than in the case of a corporation attorney, bookkeeper or other person engaged wholly in mental work.

The course of any case of tuberculosis will accordingly naturally fall into three periods.

1. *Working period* or period of unimpaired earning capacity, including the period of health from the commencement of a gainful occupation and the early period

of disease from the onset up to the time of diminished earning capacity.

2. *The period of partial disability,* or period of irregular work at reduced wages. This period may last in individual instances until the advanced stages of the disease.

too frequently the result of tuberculosis when it appears in the wage-earning member of the family.

The causes producing the final result are very much more far-reaching than the mere deprivation of the income of the wage-earning member. Histories of such families show that the result of such long-continued

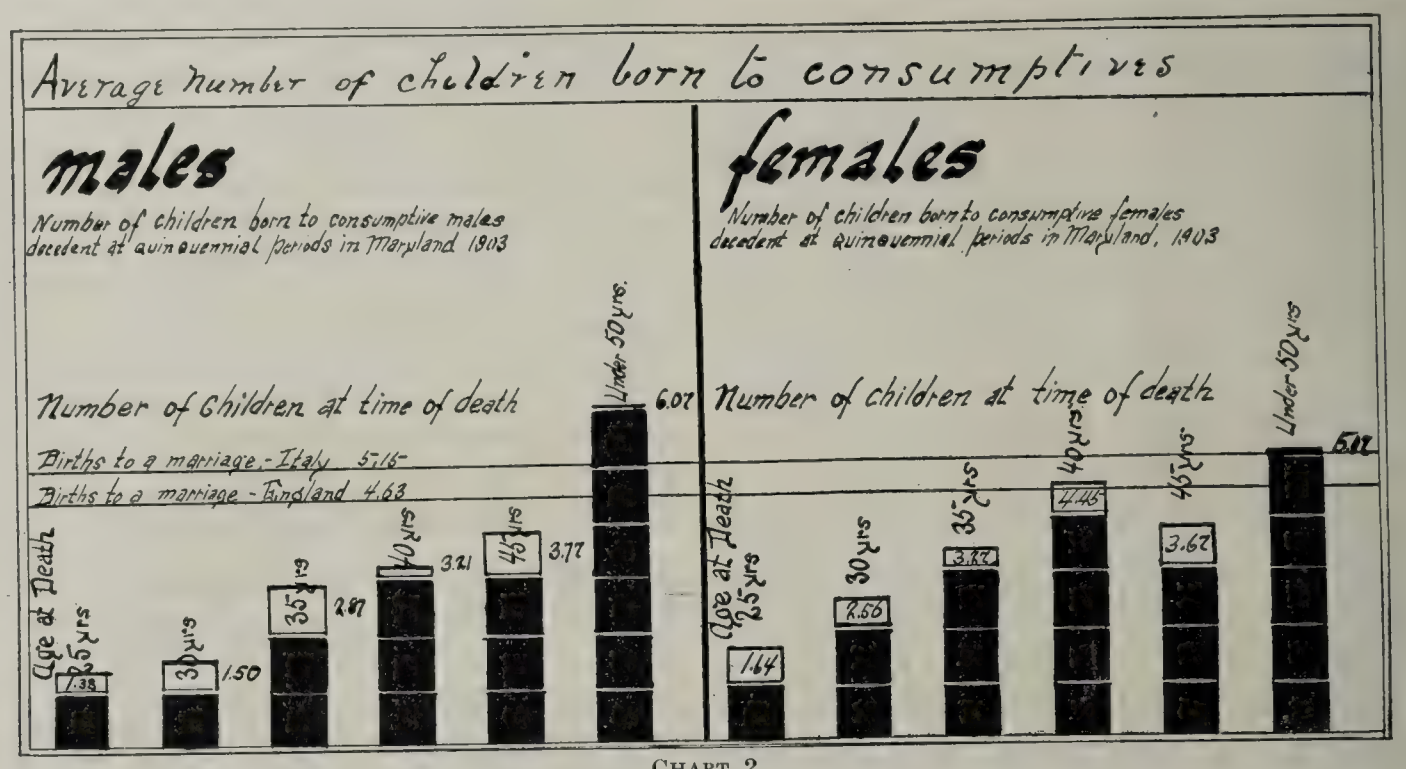


CHART 2.

3. *The period of complete disability* with or without dependency. Whether or not dependency occurs depends on many features, such as the duration of the disease and the earning capacity of the remainder of the family unit.

From the state's point of view the usefulness of any of its citizens ceases with the cessation of his economic activities. Not only is the state a loser in this way, but an immediate item of expense may arise in the ultimate dependency of a large proportion of wage earners. It is in this latter class that the heaviest loss to the state will occur, as these individuals not only cease to be producers, but the community must provide for their care and support. In the State of Maryland at the present time there are 10,000 consumptives, 8,000 of whom have ceased to be economic factors in their communities. The state may have to provide for the support ultimately of these 8,000 people who are not economic factors and the majority of whom have no likelihood of ever becoming such, a number larger and more expensive in proportion than the German army and who, far from procuring and guaranteeing the safety and integrity of the state, are a source of danger or an actual menace to those about them.

Among diseases tuberculosis ranks first, with the single exception of insanity, in the extent and amount of dependency it produces. Of 177 wage-earning males tabulated in this paper among whom careful inquiry was made concerning the original and ultimate economic condition, 72, or 40 per cent., became dependent on charitable aid during the course of their disease; 26, or 14 per cent., died in charitable institutions, and we have good reason to suppose that the majority of others received at some time charitable aid.

The influence of tuberculosis on the ultimate history of the family in which it appears causes infinitely more damage than that suffered by the state, as its effects rest on only a small number of persons. The ultimate destruction or disintegration of the family unit is only

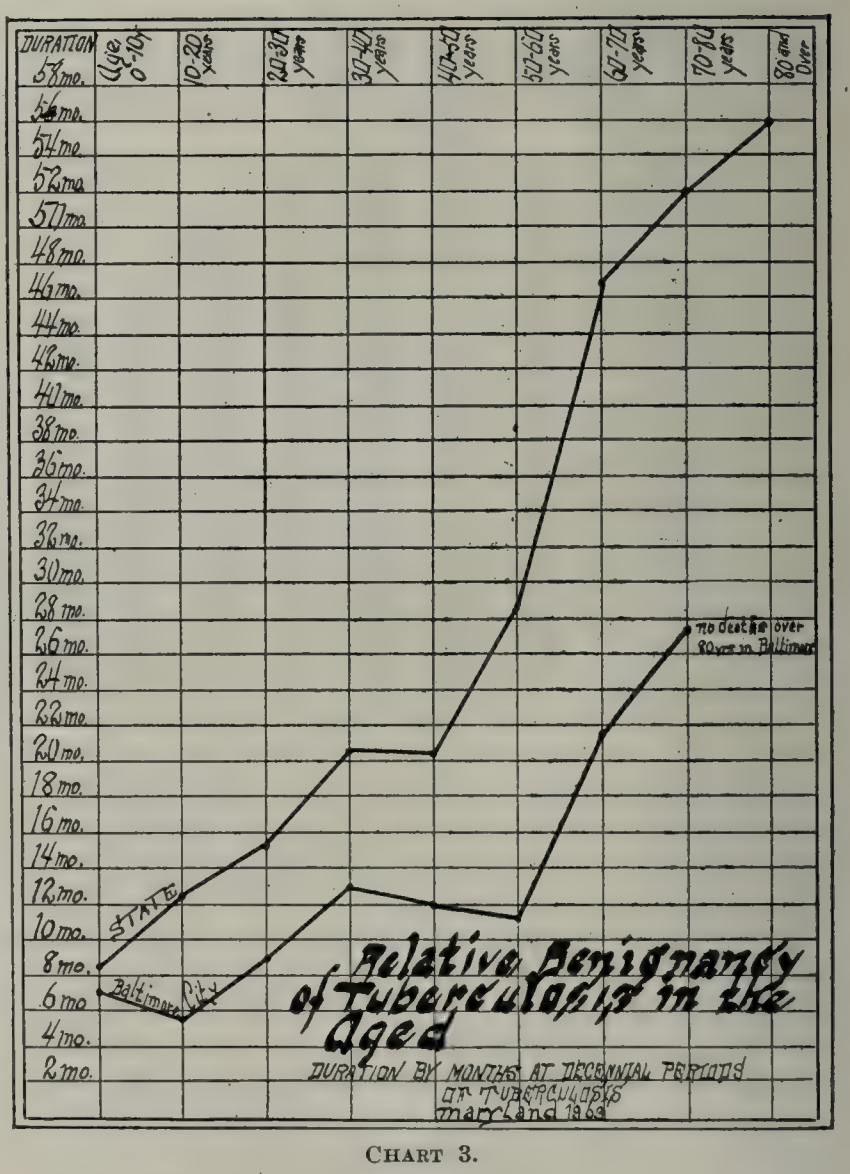


CHART 3.

illness is not only a complete exhaustion to the family treasury, but an ultimate destruction of a considerable portion of the family from the disease. There seems to be no other disease of such malign influence in its tendency to bring the family unit down to the lower levels of social and material welfare.

We have no method of computing in figures the effect on the family produced by the death of its non-productive members, more especially the mother, but the effect on the family will ultimately be as great or greater than in the death of the wage-earning parent, though the results may appear in other ways.

It is evident that many factors will enter into the duration of the three periods of the consumptive's economic life already specified and the economic loss connected therewith. Many of these can neither be ascertained nor described, but the influence of sex occupies a particular field in which the conditions are interesting and to a limited extent easily determined; but before the consideration of these varying features it becomes necessary to determine the normal working period of the wage earner, its normal duration, and the life capital dependent thereon.

The consideration of highest importance is the male wage earner, as the presence of the female engaged in a gainful occupation can not be considered a normal condition from a social point of view, and there are other considerations indicating that this condition is only a temporary and irregular expedient. The most important social duty of the female is the increase and the conservation of the human living capital of the state. This duty is fortunately not impaired by the conditions arising from tubercular diseases.

The study of the accompanying chart makes it plainly evident that in Maryland at least the deficiency in the birth rate of consumptive females is the result of death and not of impaired procreative power, though I am aware that the contrary view is usually held. The chart indicates that both consumptive males and females surviving to the age of 45 years and over, show a number of births in excess of the average fecundity of Italians and English, the former of whom are especially prolific.

The loss incurred by any particular case of tuberculosis must fall in one of two divisions. 1. Actual loss occurring during the course of the disease in the individual and extending up to the time of his death. 2. Potential loss beginning at the death of the individual and extending for an indefinite period; best estimated from the mean duration of life or expectation of life (provided the tuberculous infection does not intervene), at the age at which death occurs.

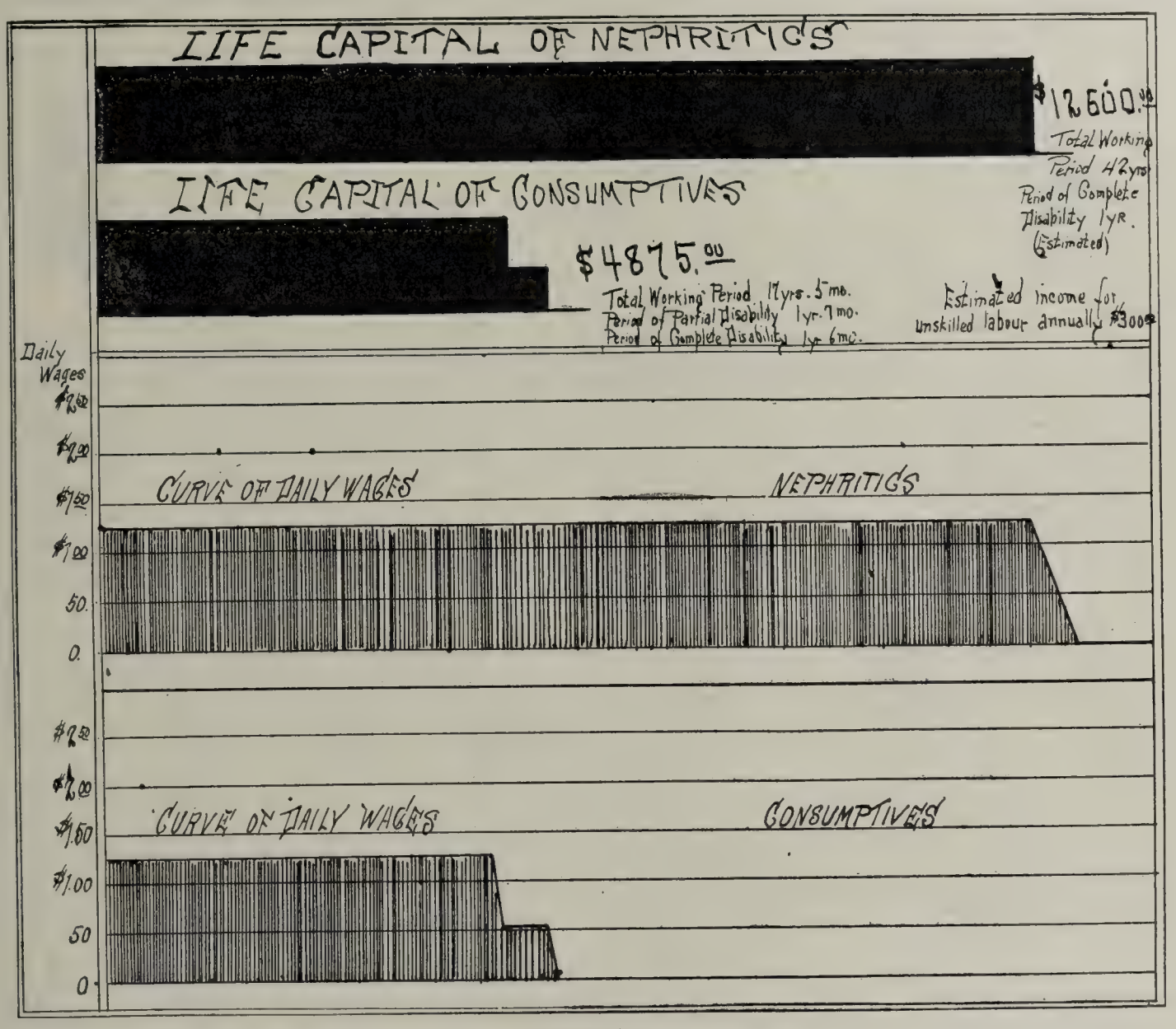


CHART 4.

The question of the mean duration of life will serve to illustrate the fallacy of calculations applied to the tuberculous based on the whole healthy population or any part thereof. It is not my purpose to enter into any of the other elements of fallacies which may arise in dealing with the very complex economic problems connected with this subject.

It may be shown by examining the chart that the mean duration of life of the consumptive at the age of the onset of his disease is not only not proportionate to the expectation of life of healthy persons as the specified age period, but is, in fact, in an inverse proportion thereto. From the tendency of tuberculosis to take a relatively benign course in those advanced in years the general economic law follows: *The actual economic loss of any given case of consumption is in direct pro-*

portion to the age of the consumptive, and the potential loss is in inverse proportion to the age, which is corollary to the more general statement that the longer the life of the consumptive the greater the actual loss and the less the potential loss produced by his disease, after the period of total disability is established, and conversely.

The consideration of first importance in determining the economic potentiality of an individual is the estimation of the life capital accumulated by him as the result of his labors during his life. For this comparison there has been selected on the chart the life capital of the unskilled laborer, as a class furnishing the largest number of deaths from consumption. The normal working period has been estimated, both for male and female wage-earners, from the eighteenth to the sixtieth year, after which the degenerations incident to age are considered to terminate the economic usefulness of the individual. In the chart the average life capital accumulated by the consumptive day laborer in Maryland is compared with that accumulated by those dying of chronic diseases of the kidneys, which are among the earliest and most frequent of the degenerative diseases appearing with advancing years. The long black column indicates the life capital accumulated by the average individual dead of chronic diseases of the kidneys, while the smaller column indicates the average life capital accumulated by the consumptive dying in the same year. Each seven-twentieths of an inch in the length of the column indicates one year's work with an accumulation of $300 capital. The nephritic will have worked forty-two years and accumulated the life capital of $12,600, while the consumptive will have worked fifteen years and six months and have accumulated the life capital by that time and during the succeeding year and seven months of his disease, during which he is able to do light work, of $4,925. Below, the curves of wages are indicated, usually terminating abruptly with the onset of the degenerative diseases, but showing a marked preliminary decline to a lower standard in the case of the consumptive; the usual course of the degenerative disease being progressive, and without marked remission, while the ultimate complete disablement of the consumptive is usually preceded by an irregular period of partial earning capacity. This period is greater in females and in those living in the country.

Another factor influencing this period and consequently the duration of the disease is the annual expenditure which the tuberculous individual is able to make for the betterment of his condition.

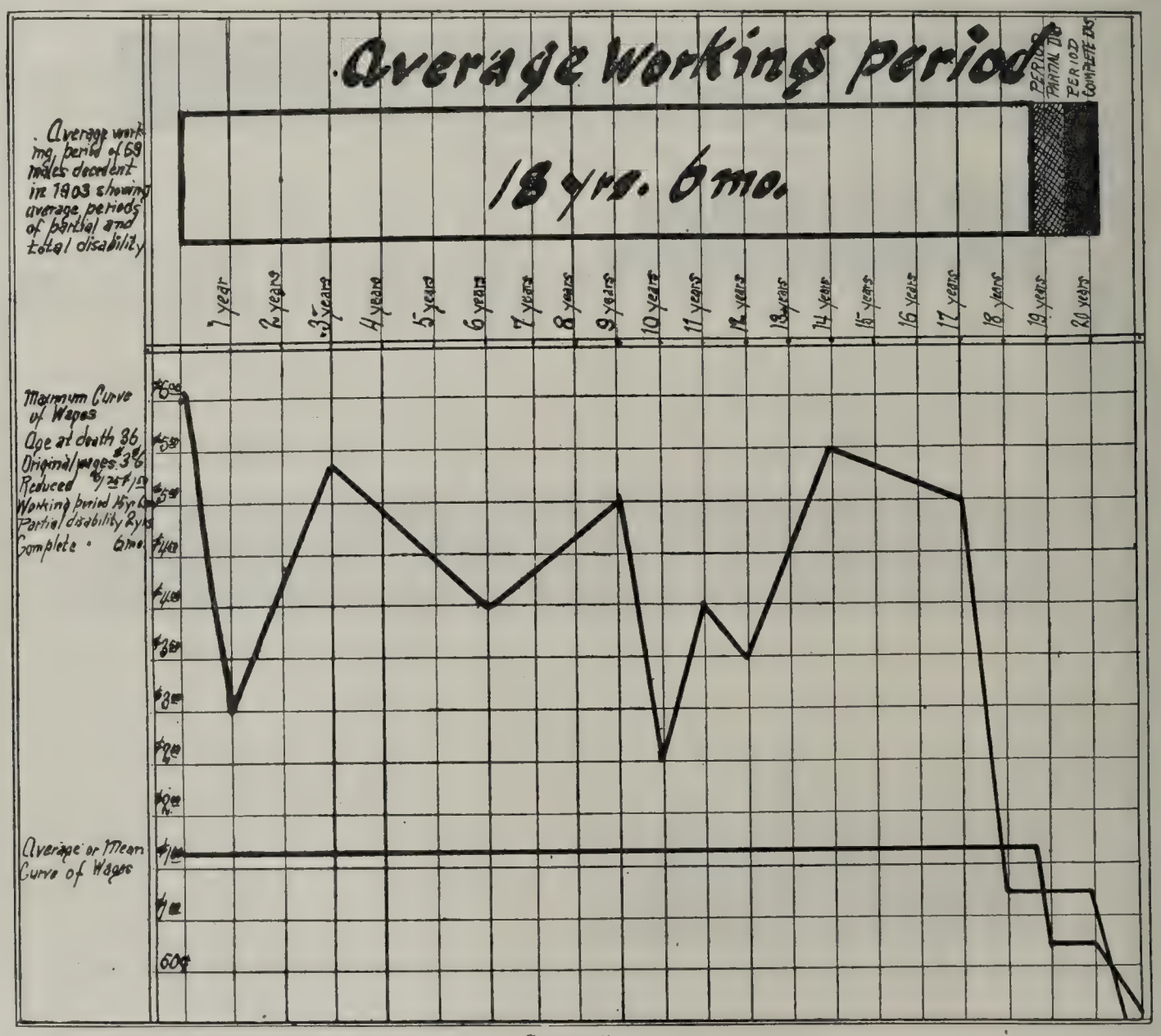


CHART 5.

Reincke's study shows a distinct advantage for the well to do, and the experience of the physician in private practice tends to show a more prolonged duration in this class than among manual laborers with uncertain incomes.

The factor of age should be eliminated from all calculations of this character, as in all occupations there is an increased income with the advance of age, and deductions made without reference to this factor may erroneously ascribe a gain to increased income really due to advancing years.

The statistics undoubtedly indicate a considerable

disadvantage of those capable of only a small expenditure, such as less than $250 annually. The ability to expend over $3,000 annually seems to possess a very questionable advantage. The items comprising the important factor of personal expenditure or loss incident to the disease include mainly the following:

The period of partial disability.
The period of complete disability.
Money loss in each period.
Expenditures falling on the patient.
Expenditures falling on the family.
Cost of maintenance.
Expenditures incident to death.

It is evident that no estimate can be complete in any given case until the disease has run its course and terminated either by death or in recovery. For statistical purposes and for the proper consideration of the course of the disease, the wage-earners tabulated and charted in these series have been divided according to sex. A further distinction has been made between cases in which there was partial disability and cases in which disability when it occurred was total from the onset. Further distinction may be made of fatal cases in which disability was never complete, the disease terminating abruptly by some of the accidents not infrequent in its course, such as edema glottidis or hemoptysis. No cases resulting in recovery were tabulated among this series of charts, as the class of persons among whom careful economic study was made did not furnish a sufficient number of recoveries to lend themselves readily to tabulation.

Theoretically, the periods of economic disability may appear at any part of the band which represents the whole working period. Though occurring usually at the further end they may occur in the center or appear twice or more in rotation.

The duration of the disease before economic injury becomes manifest is naturally a variable factor. The variation in the periods of disability is governed more by the economic than the clinical course of the disease, the pressure of necessity being potent in many instances to hold in their daily routine many cases well advanced in the disease.

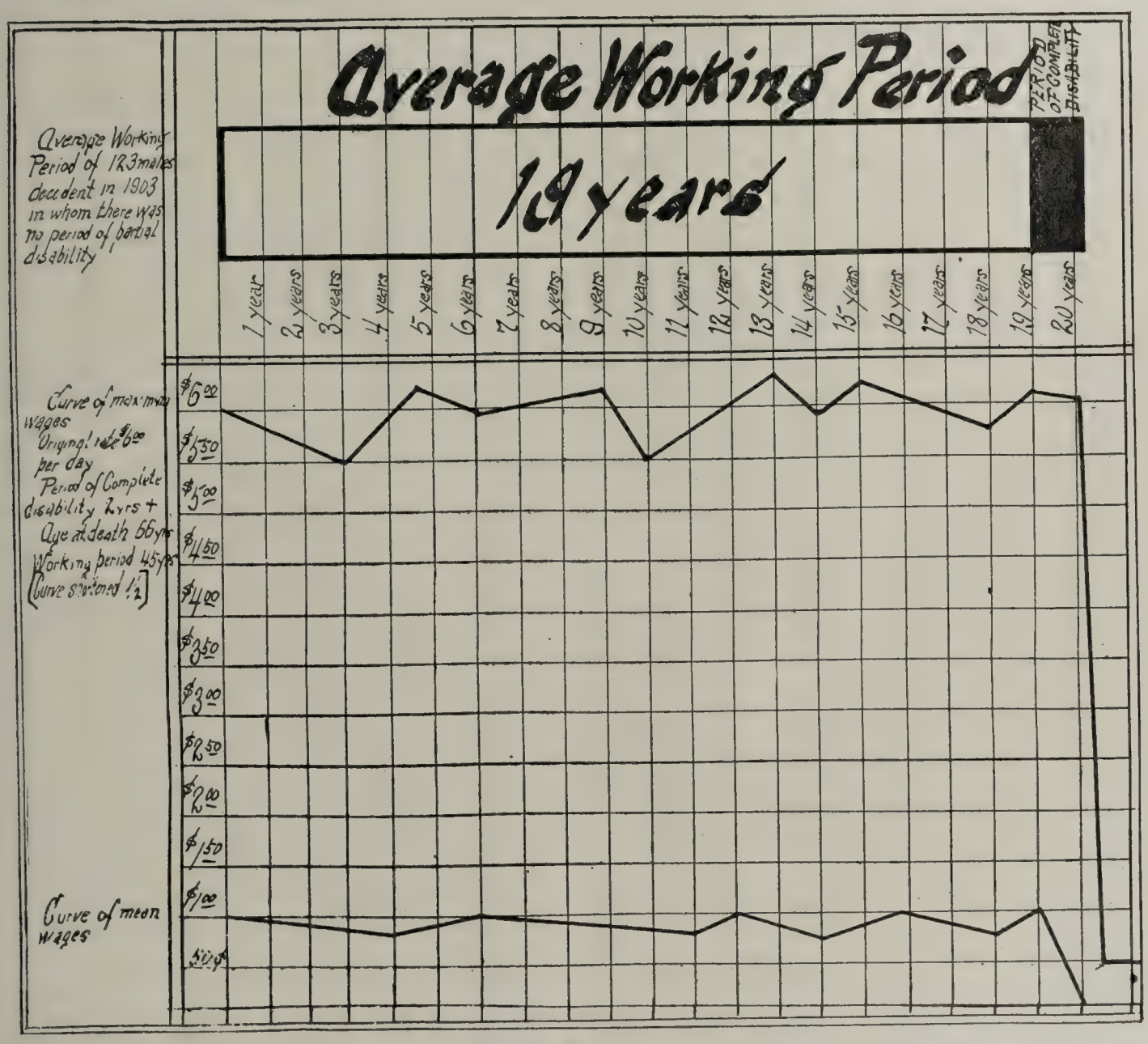


Chart 6.

Of the 71 wage-earning males charted in the series (5, 6, 7 and 8), one was tuberculous for nine years and eight months before economic impairment became manifest (maximum among these cases), one was tubercular nine years before his earning capacity became impaired, one over six years, five over four years. In 23 cases the patients reported themselves free from the disease up to the time their working powers became impaired, the onset of economic disability being apparently synchronous with the onset of the disease. The longest duration reported in the period of impaired earning capacity was eight years. In 2 cases the duration was over five years, in 2 over four years, in 3 over three years, in 10 over two years, in 14 over one year. In 36 cases there was no

TABLE 1.—WAGE EARNING MALES.

Period total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.	Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
18 months.	Not given.	Over 1 year.	$ 390	$1113.00	$14038.00	33	6 months.	2 months.	3 years.	$1000	748.00	27048.00	40
14 months.	2 years.	About 5 years.	.....	1200.00	4800.00		11 months.	Not stated.	8 months.	450	468.50	18693.50	20
6 months.	Not given.	.....	.....	204.00	5604.00		5 months.	Not stated.	8 months.	725	450.00	27575.00	26
12 months.	3 years.						2 weeks.	7 months.	7 years.	500	279.00	14779.00	37
3 months.	2 years.	25 years.	1000	752.00	15602.00	31	3 months.	4½ years.	5 years.	450	1262.50	10712.50	43
9 months.	3 months.	About 18 months.	.....	750.00	22875.00		3 years.	4 months.	13 years.	500	896.00	14046.00	42
9 months.	Not stated.	.....	.....	520.00	7720.00		6 months.	Not stated.	4 years.	260	405.50	10516.00	24
2 years.	2 years.	.....	468	1828.00	7220.00	61	5½ months.	4 months.	9½ months.	450	694.75	18919.75	21
6 months.	1 year.	8 years.	.....	519.55			6 months.	Not stated.	1 year.	486	474.40	7084.00	59
2 years.	.....	.....	.....	2100.00	23100.00		2 months.	Not stated.	6 months.	450	214.00	16864.00	25
6 years.	Not stated.	8 years.	390	2695 00	7945.00	60	6 months.	Not stated.	6 months.	300	176.00	12326.00	19
10 months.	None.	2 years.	.....	783.00			7 months.	Not stated.	2 years.	780	1719.15	14979.15	56
1 years.	None.						9 months.	9 months.	1 year, 3 months.	780	873.00	32463.00	22
3 months.	None.	1 year, 7 months.	520	318.50	5318 50	63	3 months.	4½ months.	5 years.	468	1262.50	.....	43
6 months.	1 year.	3 years.	.....	400.00	3200.00		6 months.	Not stated.	6 months.	312	176.70	12812.70	19
6 months.	None.	About 1 year.	312	285.00	3285.00	63	7 months.	Not stated.	2 years.	780	1709.50	14189.50	56
6 months.	None.	1 year.	168	608.00	18983.00	25	2 months.	Not stated.	6 months.	316	214.80	11906.80	25
10 weeks.	About 1 week.	About 7½ mos.	208	124.00	8124.00		6 months.	Not stated.	1 year.	421	474.40	6200.00	59
6 months.	None.	2 years.	156	280.00	6280.00	22	9 months.	9 months.	Not stated.	780	873.00	32463.00	22
3 months.	None.	2 years.	.....	125.00	7625.00		6 months.	2 months.	3 years.	1040	748.00	28100.00	40
4 yr., 11 mos.	Not stated.	5 years.	468	3307.00	15007.00	39	10 mos. 2wks.	Not stated.	8 months.	468	468.50	19422.50	20
1 year.	None.	1 year.	546	725.00	19100.00	26	5 months.	Not stated.	8 months.	754	450.00	28498.80	26
2 months.	5 months.						2 weeks.	7 months.	7 years.	520	279.00	16035.00	37
1 year.	None.	About 1 year.	.....	393.00	5343.00		1 year 5 mos.	4 months.	13 years.	520	896.00	14572.00	42
3 months.	None.						6 months.	Not stated.	4 years.	260	405.50	10935.00	24
1 year.	8 years.	About 8 years.	.....	1500.00	19500.00		5½ months.	4 months.	9½ months.	468	624.75	19578.75	21
1 month.	7 months.	9 years.	2496	1748.50	76148.50	34	2 months.	Not stated.	7 years.	468	123.85	13227 85	33
2 months.	5 months.	About 10 months.	150	238.00	8158.00	30	2 months.	6 weeks.	1. 8 months.	1310	490.90	39490.90	34
6 months.	None.	6 months.	390	175 00	10315.00	40	9 months.	Not stated.	1. 1 year.	936	720.00	16932.00	54
1 year.	2 months.	.....	.....	840.00	32040.00		2 months.	Not stated.	1. 4 months.	312	101.10	14541.10	17
13 months.	Not stated.	5 years.	.....	832 60			2 months.	Not stated.	1. 2 months.	260	96.50	9716.50	28
3 months.	1 year.	1 year.	312	411.00	10361.00	32	3½ months.	Not stated.	1. Not stated.	468	162.00	12116.00	44
2 years.	None	2 years.	312	1430.00	13430.00	18	3 months.	Not stated.	1. 1½ years.	360	114.00	10914.00	43
7 months.	None.	About 6 months.	514	339.35	10239.35	44	2 months.	None.	1. 2 months.	360	48.00	9828.00	42
6 months.	10 months.	1 year, 3 months.	468	500.00	14450.00	30	2 yrs., 9 mos.	3 months.	1. 8 years.	600	1626.00	15426.00	44
3 years.	None.	2 years.	1250	4925.00	46925.00	24	2 months.	2 months.	1. 10 years.	1560	2034.00	26394.00	54
3 years.	None.	3 years 2 months.	624	2144.00	8144.00	62	None.	None.	1. 6 months.	468	3.50	14043.50	36
6 weeks.	6 months.	1 year.	702	500.00	20725.00	35	6 months.	Not stated.	1. 1 year.	468	218.50	10982.50	45
7 months.	4 months.						1 year 2 mos.	Not stated.	1. 7 years.	624	1225.00	9711.40	57
9 months.	2 years.	3 years.	468	842.00	11642.00	40	6 weeks.	2½ years.	1. 18 months.	832	585.00	19721.00	43
2½ months.	1½ months.	4 months.	218	159.00	8559.00	21	Not stated.	Not stated.	1. 10 years.	156	.....	4002.80	43
¾ month.	None.	2 months.	208	280.00	6280.00	19	2 yrs., 3 mos.	Not stated.	1. 3 years.	.....	553.00	.....	29
7 months.	2 months.	7 months.	468	848.00	12098.00	34	4 months.	Not stated.	1. 2½ years.	936	521.00	27601.00	35
4 weeks.	None.	1 year.	260	288.00	7163.00	40	None.	None.	1. 1 to 3 years.	868	5.50	26045.50	35
5 months.	2 months.	7 months.	624	694.00	20494.00	29	19 days.	Not stated.	1. 4 years.	.....	.....	.....	34
1 year.	2 months.						4 years.	About 1 year.	1. 30 years.	468	2911.00	12177.40	51
4 months.	4 months.	1 year 1 month.	390	206.00	7706.00	50	1 week.	Not stated.	1. 2 to 3 months.	468	.....	14040.00	43
None.	None.	3 years.	.....	.....	24750.00		4 months.	Not stated.	1. 5 years.	676	307.00	20587.00	36
None.	None.	4 months.	.....	250.00			3 weeks.	2 months.	1. 5 months.	416	89.70	15481.70	27
20 months.	Not stated.	20 months.	468	1353.70	13053.70	40	4 months.	Not stated.	1. 4 months.	468	182.00	5330.00	63
10 months.	None.	3 years.	1300	870.00	16770.00	59	8 months.	Not stated.	1. 8 months.	524	528.20	25780.00	21
1 year.	None.	5 months.	400	758.00	11278.00	41	5 months.	3½ months.	1. 4 years.	780	2028.50	19968.20	44
9 months.	None.	12 months.	450	670.00	13725.00	33	1 year	Not stated.	1. 2½ years.	832	1019.00	25970.00	37
4 months.	2 months.	6 months.	370	.....	8510.00	33	4 months.	Not stated.	1. 4 months.	314	122.10	8380.30	41
6 months.	3 months.	1 year.	750	.....	18250.00	44	1 month.	2 months.	1. 9 months.	624	126.00	18846.00	34
3 months.	None.	6 months.	450	142.00	11977.00	40	1 year.	Not stated.	1. 13 months.	780	792.00	13272.00	56
3 months.	3 months.	8 months.	.....	.....	.....	55	3 weeks.	Not stated.	1. 1 year.	156	29.25	6347.25	20
6 weeks.	None.	18 months.	.....	.....	.....	54	3 weeks.	Not stated.	1. 3 months.	520	67 00	19307.00	27
8 months.	None.	3 years.	1000*	.....	30000.00	74	1 week.	1 month.	1.	390	22.60	11722.50	34
3 months.	2 months.	2 years.	300	.....	10800.00	23	3 months.	4 days.	1. 7 months.	286	103.50	11688.50	22
3 years.	2 years.	About 5 years.	225	1415.00	10527.50	20	Not stated.	4 months.	1. 4 months.	390	243.00	7965.00	51
3 months.	None.	1 year.	225	139.00	7609.00	30	Not stated.	Not stated.	1. 2 years.	.....	.....	.....	12
7 months.	5 months.	8 years.	750	751.00	15601.00	51	1 month.	6 weeks.	1. 1 year.	546	100.00	20411.20	34
9 months.	1 month.	10 years.	300	735.00	3215.00	71	2 months.	Not stated.	1. 2 years.	858	52.00	28537.60	32
6 months.	Not stated.	About 1 year.	375	.....	13875.00	26	9 months.	1 year.	1. 1 year.	468	566.50	21392.50	17
3½ months.	None.	2 to 4 months.	275	.....	7700.00	37	13 weeks.	Not stated.	1. 6 months.	624	608.00	22820.80	25
4 months.	2 years.	.....	.....	.....	.....	50	14 months.	2 years.	1. 4 years.	468	1013.00	13321.40	38
10 months.	6 months.	1 year.	.....	.....	.....	56	3 weeks.	Not stated.	1. 2 years.	780	78.10	31668.10	22
10 months.	7 months.	10 years.	.....	.....	.....	35	6 months.	Not stated.	1. 6½ months.	244	159.00	7479.00	33
2½ months.	None.	.....	600*	.....	24300.00	18	10 months.	Not stated.	1. 10 months.	468	402.00	17718.00	25
3 months.	3 months.	.....	500				6 weeks.	5 months.	1. 1½ years.	1170	435.00	31206.00	39
3 months.	None.	1 year.	.....	.....	.....	37	4 months.	3 months.	1. 8 months.	468	263.00	19217.00	20
4 months.	4 months.	.....	225	222.00	6139.50	38	1 week.	6 weeks.	1. 6 months.	468	77.50	15537.60	30
4 months.	• 15 months.	2 years.	450	500.00*	18725.00	20	3 months.	Not stated.	1. 26 years.	676	856.00	23299.20	29
3 weeks.	4 weeks.	7 weeks.	.....				3 weeks.	1 week.	1. 1 month.	780	62.00	25958.00	31
3 months.	None.	4 years.	300	142.00	7042.00	44	8 months.	Not stated.	1. 8 months.	660	832.00	18190.00	42
1 year.	1 year.	2 years.	500*	1425.00	19425.00	23	7 weeks.	Not stated.	1. 5 months.	416	77.00	16925.00	19
1 year.	Not stated.	About 2 years.	.....	465.00	.....	27	5 months.	Not stated.	1. 6 months.	364	163.00	14905.00	20
2 months.	4 months.	.....	600	228.00	21228.00	23	7 months.	Not stated.	1. 20 years.	764	439.00	31371.00	20
1 week.	None.	1 week.	375*	680.00	14555.00	25	1 year.	Not stated.	1. 1 year, 5 mos.	624	661.00	25933.00	20
2½ years.	None.	3 years.	450	.....	9900.00	43	1 week.	3 months.	1. 3 months.	520	52.20	13728.20	38
2 months.	None.	9 months.	1200	.....	27600.00	45	Not stated.	Not stated.	1. 2 years.	.....	10.00	.....	64
1 year.	Not stated.	18 months.	360	535.00	13855.00	24	3 months.	Not stated.	1. 8 months.	338	94.50		
8 months.	None.	2 years.	750	810.00	25710.00	32	5 months.	Not stated.	1. 2 years.	390	201.00	14631.00	24
2 months.	1 year.	.....	300	361.00	8251.00	42	7 months.	Not stated.	1. 7 months.	520	566.00	14242.00	25
2½ months.	None.	4 months.	600	146.00	15926.00	42	5 months.	2 weeks.	1. 5 months.	234	177.00	10707.00	17
None.	6 months.	18 months.	.....	885.60		66	2 weeks.	Not stated.	1. 1 year.	520	26.00	7098.00	62
3 years.	None.	3 years.	1800	8828.00	28328.00	66	Not stated.	Not stated.	1. 5 months.	.....	8.00	.....	22
17 months.	None.	17 months.	400	828.00	14108.00	31	2½ years.	Not stated.	1. 2½ years.	208	1069.00	9493.00	22
3 years.	Not stated.	3 years.	1200	3500.00*	39500.00	36	10 months.	Not stated.	1. 10 months.	780	636.00	32226.00	21
6 months.	None.	Not stated.	300	451.00	7351.00	46	5 weeks.	Not stated.	1. 8 months.	720	77.00	26710.00	24
8 months.	None.	1 year 2 months.	500	400.00	13550.00	40	1 month.	Not stated.	1. 2 years.	520	2.50		
3 weeks.	11 months.	1 year.	300	230.00	10190.00	32	2 years.	Not stated.	1. 2 years.	260	489.10	10109.10	25
1 year.	1 year.	2 years.	225	555.00	8880.00	23	3 years.	Not stated.	1. 5 years.	676	5663.00	28106 20	32
2 months.	5 years.	.....	300				5 months.	Not stated.	1. 2½ months.	420	210.50	18900.50	19
10 years.		.....					8 months.	Not stated.	1. 9 months.	364	359.00	13899.80	29
1 month.	Not stated.		450	84.00	16734.00	26	8 months.	Not stated.	1. 8 months.	520	411.00	16161.00	39
9 months.	None.	3 years.	.....	.....	.....	36	2 weeks.	Not stated.	1. 3 months.	1144	85.00	42641.80	25
3 months.	6 months.	1 year.	600	835.00	14665.00	44	10 months.	None.	1. 2 to 3 years.	360	495.00	7623.00	51
6 months.	1 year.	3 years.	500	820.00	7620.00	61	5 months.	None.	1. Over 2 years.	360	122.50	13514.50	24
1 year.	1 year.	2 years.	275	704.00	3069.00	68	18 months.	5 months.	1. 3 years.	306	400 00	8447.00	42
6 months.	Not stated.	2 years.	2000	1700.00			2 yrs., 9 mos.	3 months.	7 years.	720	1626.00	.....	44
3 months.	6 months	1 year.	.....	.....		27	6 weeks.	None	6 weeks.	468	124.00	.....	30
5 months.	10 months.	15 months.	500*	455.00	17055 00	31	8 months.	1 year.	1 year, 8 months.	312	350.00	.....	40
3 months.	Not stated.	1 year.	572	452.00	9032.00	57	3 months.	1 year.	6 years.	.....	325.00		
2 years.	About 10 years.	1 year 7 months.	.....	572.00	.....	77	3 days.	None.	5 years.	.....	340.00		
4½ months.	None.	1 year.	600	.....	22200.00	24	4 months.	None.	About 5 months.	.....	135.00		

TABLE 1.—WAGE EARNING MALES—Continued.

Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
				$	$	
5 months.	Not stated.	1 year.	416	$ 668.00	.....	20
6 months.	3½ years.	8 years.	936	3530.75	.....	66
10 months.	None.	10 months.		47.85		
6 months.	Not stated.	6 months.		300 00		
4 months.	None.	1 year.		200.00		
2 months.	None.	3 years.	220	494.00	.....	39
3 months.	Not stated.	9 months.		236.20		
1 year.	4 months.	4 years.	720	1895 00	.....	26
1 year.	Not stated.	14 months.	234	978.00	.....	29
7 months.	1 year.	1 year, 7 months.	780	616.00	.....	66
1 year.	Not stated.	About 5 years.	300	500.00	.....	36
5½ months.	4 months.	9 months.	858	754.00	.....	30
10 months.	Not stated.	5 years.		689.15	16538.00	
6 months.	4 years.	10 years.	312	4788 00	.....	44
6 months.	2 years.	2 to 3 years.	1300	1640.00	40540.00	36
3 months.	2 months.	1 year.	720	206.00	21806.00	33
6 months.	None.					
1 month.	Not stated.					
3 years.	2 years.	3 years.	312	1200.00	3900.00	67
1 year.	Not stated.	About 7 years.	312	853.00	4603.00	58
6 mos., 1 wk.	10 months.	.....	312	549.20	11049.20	28
1 year.	Not stated.	13 months.	624	793.00	16200.00	38
2 years.	Not stated.	2 years.	624	1540.00	7540 00	62
6 months.	Not stated.	6 months.	312	227.00	10729.00	27
1 year.	6 months.	18 months.	.....	614.25	1440.00	
2 months.	None.					
1 year.	None.	.....	624	528.20	20028.00	21
1 month.	6 months.	1 year.		253.00	12852.00	
6 months.	18 months.	3 years.	1300	2505.00	29505.00	42
2 months.	2 years.	4 years.	468	2325.00	24825.00	34
5 weeks.	None.	5 weeks.	390	202.50	.....	37
3 months.	2 months.	6 months.	156	163.00	4063.00	40
1 year.	Not stated.	17 months.	156	524.00	10424.00	37
3 weeks.	Not stated.	About 3 years.	260	29.00	3779.00	53
4 months.	None.	18 months.	343	871.00	27871.00	35
1 year.	None.	2 years.	468	555.00	14055.00	34
1 year.	Not stated.	1 year.	720	2100.00	22500.00	29
10 months.	None.	10 months.	432	1130.00	19994.00	23
1 year.	None.	1 year.	480	8331.00	.....	53
2 years.	5 years.	7 years.	.....	1730.50	11530.00	

Total number of males, 258.

period of partial disability, disability when it occurred being total from the onset.

The longest period of complete disability reported was ten years; in one case each the period was six, five and four years; in six cases over three years; in six cases over two years; in eighteen cases over one year. The maximum yearly income interrupted by total disability was $1,300. The greatest actual loss incurred incident to the disease was in a man of 66, who was totally disabled for three years, and suffered during that time a total actual loss of $8,828 and a potential loss of $28,628. The remaining economic loss appears in the succeeding tables. (Tables 1 and 2.)

A separate table was given for females, which may be of interest for comparison. Among wage-earning females the maximum annual income was $1,200, the longest period of partial disability was one year, the longest period of complete disability one year. The greatest actual loss incurred was $2,335, and the greatest potential loss was $36,000 in a female aged 36 years, whose annual income was $1,200, and who was totally disabled for two years. The next greatest potential loss among female wage-earners was $28,360 in a female dead at the age of 37 years, whose annual income was $800, and who was totally disabled for one year. (Table 2.)

All of the figures given on these tables and charts must be understood to represent a minimum with variable limits. It is naturally impossible to determine all the elements entering into a calculation of this character, though I believe that the total approaches accuracy in the majority of instances. It must be further understood that even when the estimate is complete a certain margin of profit must be allowed between the income received by the individual and its value to the community or state.

TABLE 2.—WAGE EARNING FEMALES.

Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
3 weeks.	Not stated.	1 year.	$ 250	$ 178.70	$ 8478.70	30
4 months.	None.	4 months.	416	592.00	17440.00	21
3 years.	3 months.	3 years.	300	2335.00	10225.00	39
9 months.	None.					
2 months.	None.	.....	250	100.00	7340.000	33
4 months.	None.	7 months.	600	434.00	16214.00	42
7 months.	None.	.....	450	1489.05	12739.05	38
3 months.	6 months.	2 years.	350	.....	12600.00	24
7 months.	None.	.....	75	.....	3300.00	13
7 months.	None.	7 months.	150	334.00		
3 months.	None.	1 year.	225	102.00	8659.00	25
5 months.	None.	10 months.	156	.....	6318.00	18
1 week.	None.	Several years.				
2 months.	None.	3 months.				
2 years.	None.	3 years.	208	736.00	8016.00	27
3 months.	3 months.	Not stated.				
3 months.	Not stated.	4 months.	65	71.00	2931.00	13
6 months.	Not stated.	1 year.	260	.....	9360.00	23
5 months.	Not stated.	Not stated.	300	785.00	10745.00	31
2 years.	Not statcd.	18 months.	225	382.00	4807.00	52
1 year.	6 months.	1 year.	105	311.00	2390.00	48
6 months.	None.	8 months.				
13 months.	Not stated.	1½ years.	225	540.00	7402.50	36
None.	None.	4 months.	300			
12 months.	None.	18 months.	120	120.00	4980.00	19
5 months.	None.	13 months.	225	230.00	7700.00	30
7 months.	None.	14 months.	150	.....	6075.00	21
3 months.	None.	About 1 year.				
6 months.	2 months.	2 years.	225	410.00		
2 months.	None.	.....	240	93.00	8378.00	32
6 months.	None.	2 years.	275	283.25	11420.75	22
6 months.	1 year.	8 to 10 years.	200	519.15	5119.15	44
6 months.	None.	6 months.	260	334.00	10864.00	19
4 months.	3 months.	7 months.	225	272.00	7742.00	32
4 months.	None.	.....	264	141.00	9381.00	23
1 year.	None.	2 years.	900	1360.00	28360.00	37
3 months.	Not stated.	1 year.				
6 months.	None.	1 year.	300	455.00	11555.00	26
8 months.	Not stated.	Not stated.	255	.....	11475.00	16
5 months.	1 month.	6 months.	.....	.....		27
2 years.	1 year.	3 years.	1200	.....	36000.00	36
3 weeks.	6 months.	1. 6 months.	130	147.20	14463.20	32
7 months.	Not stated.	1. 8 months.	208	141.00	6443.40	36
9 months.	6 weeks.	1. 3½ years.	104	228.60	2703.80	48
3½ months.	3 weeks.	1. 8 months.	364	314.00	12398 80	32
7 months.	Not stated.	1. 7 months.	364	119.00	6161.40	54
4½ years.	1 year.	1. 5 years.	208	389.90	3132.30	46
1 week.	Not stated.	1. 5 years.	78	25.50	3574.50	19
3 months.	Not stated.	1. 10 months.	130	70.00	5985.00	25
2 months.	Not stated.	1. 7 months.	247	119.00	9307.40	26
2 months.	2 months.	1. 5 months.	377	100.50		
9 months.	Not stated.	1. 1 year.	78	180.90	4252.50	14
8 months.	9 months.	1. 9 months.	360	235.00	19027.00	16
8 months.	Not stated.	1. 8 months.	286	224.00	10853.00	28
5 years.	Not stated.	1. 30 years.	156	891.00	3979 80	52
3 mos., 1 wk.	Not stated.	1. 3 months.	182	90.00	6860.40	29
2 months,	Not stated.	1. 3 months.	182	34.00	8315.00	19
5 months.	Not stated.	1. 5 months.	130	60.00	3869.00	34
10 months.	Not stated.	1. 1 year.	104	83.75	3952.55	24
2 months.	2 years.	1. 5 years.	204	437.00	4476.20	53
4 months.	Not stated.	4 months.	416	592.00	17440.00	21
3 weeks.	Not stated.	1 year.	108	178.75	3764.35	30
6 months.	Not stated.	1. 9 months.	48	95.00	2255.00	13
2 months.	Not stated.	1. 2 years.	208	83.00		
2 years.	Not stated.	1. 3 years.	208	736.00	8432.00	27
3 weeks.	None.	1. 5 years.	.....	.....	.....	25
1 month.	Not stated.	1. 1 month.	.....	.....	.....	22
2 weeks.	5 weeks.	1. 2 years.	236	27.00	8759.00	23
10 months.	Not stated.	1. 6 to 12 mos.	.....	.....		24
4 months.	1 year.	1. 1 yr. 11 mos.	288	454.42	4371.22	59

Total number of females, 70.

The average working period, the periods of disability, the curve of average wages are shown for consumptive wage-earners in the following series of six charts:

The first of these series (Chart 5) represents the average working period of 69 males decedent in 1903, showing the two terminal periods of partial and complete disability. Below are shown the average curve of wages of these periods and the maximum wages received by any one of the 69 persons. The band at the top represents the average working period of these 69 males. The first zone represents the period of partial disability and the second zone the period of complete disability. The vertical lines represent yearly periods.

By a study of the chart will be seen the average working period for these 69 males was eighteen years and six months. The period of partial disability then appeared, averaging eleven months, one week, followed by a period of complete disability of eleven months and three weeks, lasting up to the time of death.

The lower curve represents the average daily wage corresponding to these periods, which in this special series was $1.65 during the period of their earning capacity, and the average of $0.75 during the period of partial disability, and remaining at 0 from then on to the time of death. The upper curve indicates the maximum daily wages of this series. This man was aged 36 years at death, had a working period of fifteen years six months up to the time his earning capacity was first impaired by his disease; his daily wages were $3 to $6 during this period, declining during the period of partial disability to from $1.25 to $1.50 per day. This period of partial disability lasted two years, and was succeeded by a period of complete disability from two to six months, lasting up to the time of death.

Chart 6 gives the average working period of 123 males decedent in 1903, in whom there was no period of partial disability (disability when it appeared being complete from the onset). The average working period appearing on this chart is nineteen years, which is succeeded by an average period of complete disability of one year two months.

twenty years, followed by a period of partial disability of ten months and one week, and a period of complete disability which had lasted on an average of one year, eight months and two weeks up to the end of 1903.

The average original wages of persons of this series was $2.50, the average reduced wages during the period of partial disability $0.75.

The next three charts of this series deal with the average working period and average wages of consumptive wage-earning females.

Chart 8 indicates the working period of eight wage-earning females decedent in 1903, showing two terminal periods—one of partial and one of complete disability. The curve of average wages for the same period is shown below. The average wages range under $1 per day for this series, declining to a little over $0.50 per day during the period of partial disability. The average working period of this series is twelve years four weeks, the period of partial disability eleven months one week, and the period of complete disability four months one week.

The comparison of these three charts with the three

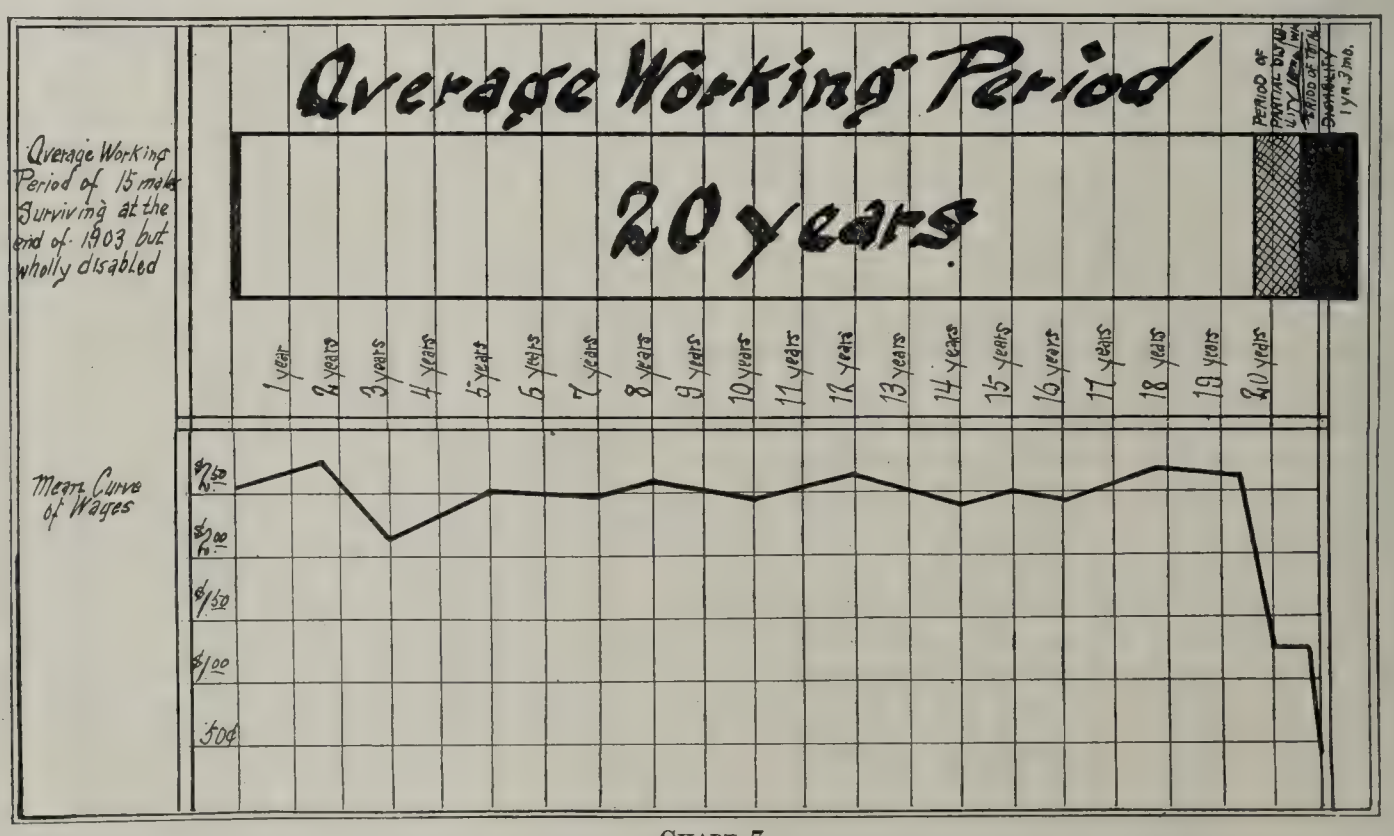


CHART 7.

As naturally appears in the chart, this series represents a class much lower in an economic scale, as the majority of persons making up this series worked continuously, pursuing their regular or irregular avocations until completely disabled and showing no period of partial disability.

The average daily wages during the nineteen-year working period ranges somewhat below $1. The majority of persons in this series began work at a much earlier age than in the preceding series, and hence their average working period was comparatively less than really appears on the chart. The maximum daily wage among these individuals was $6 per day, the working period of forty-five years, the period of complete disability three years and the age at death 66 years. The length of this curve has been shortened by a little over one-half in order to allow it to appear on the chart.

Chart 7 shows the average working period of fifteen males surviving at the end of 1903 but wholly disabled. The curve of wages for the same period is shown. The working period of the individuals of this series averages

preceding charts shows a number of interesting peculiarities in the working periods, periods of disability and curves of wages of females as compared to males. The small number of females showing any period of partial disability is peculiar to the sex, as an occupation once interrupted in the female by a course of chronic disease is seldom resumed. Change of occupation is also infrequent. The short average working period is also striking. Chart 5 may be taken as a fair average in which the working period is only nine years eight months, and is contrasted with eighteen years six months for the same class of consumptive wage-earning males. The shortness of the period of complete disability among the wage-earning females is probably accounted for by the fact that the majority of female wage-earners are very much younger than the male, and hence their disease takes a more rapid course.

Chart 9 indicates the average working period of 53 females decedent in 1903, in whom disability was never partial (being complete from the onset). The terminal period of complete disability is shown at the curve of

average wages. The average working period of these 53 females is nine years eight months; the period of complete disability is eleven months and three weeks. The average daily wages range below $0.50.[1]

The maximum wage-earner among these females was 37 years old at the time of death, having had a working period of eighteen years, during which time her daily income was $3, declining to 0 during the one-year period of complete disability.

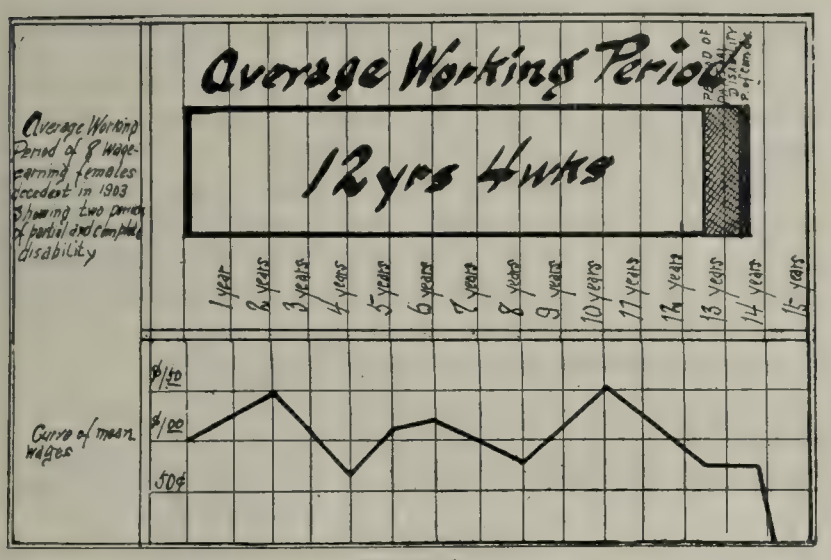


CHART 8.

Chart 10 is the average working period of six females surviving with tuberculosis in 1903, but completely disabled. There was no period of partial disability among these cases. The curve of average wages is shown for the working period. The average working period among these females until completely disabled was seven years, five months, two weeks.

The average period of complete disability up to the end of 1903 had lasted seven months and three weeks. The curve of average wages had exceeded $1 during this period.

A study of the course of each individual case of tuberculosis from the economic standpoint shows many interesting relations. On the four succeeding charts the economic course is considered for each individual after each has reached the stage of impaired earning capacity. The 79 cases considered on these charts have been divided into four classes, according to the institutions or societies under whose care they were reported. Each case is traced from the time of its economic impairment through the zone of partial disability, through the zone of complete disability to its final termination either in death or in recovery.

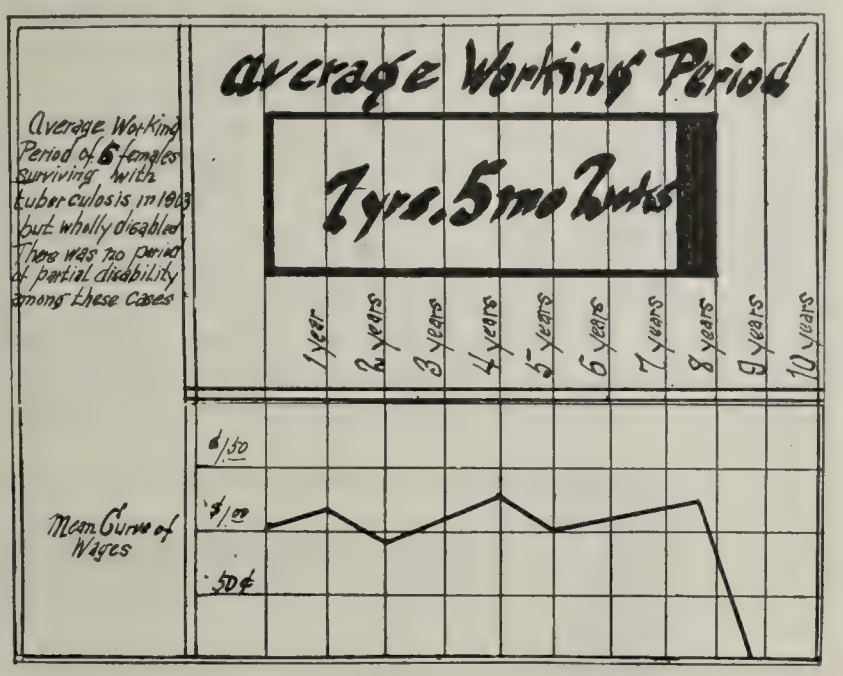


CHART 10.

Chart 11 represents fifteen cases reported by the Johns Hopkins Hospital terminating fatally, and shows the individual economic course for each individual. The appearance of each case on the chart notes

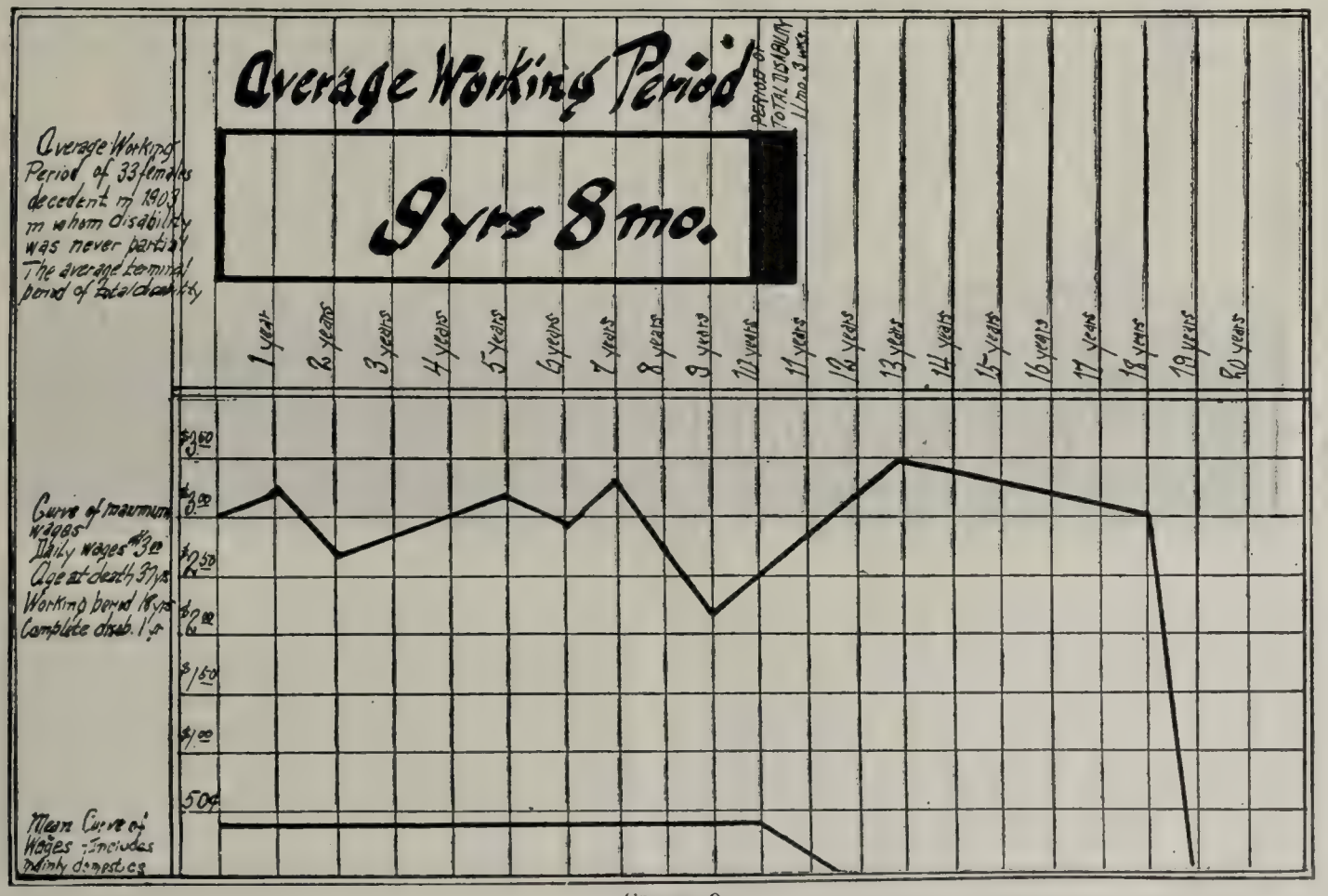


CHART 9.

1. This class includes a number of domestic servants in whom only the actual money wages is computed and no allowance made for board or lodging.

its entrance in the period of partial or complete disability. The center band indicates the zone of partial disability, the shaded band below complete disability and the black band at the bottom of the chart indicates the zone of death.

The duration of each case in each of the zones mentioned is indicated by vertical lines, which correspond to the months. The duration of each case up to the time of its entrance into one or the other of these zones is very variable. The longest duration before the period of economic loss noted on the chart is 116 months, Case No. 3. In one case it was over six years and in one case over three years; two cases over two years and in one case over one year. Six cases, or a little over 40 per cent., the duration was over a year before there was any impairment of their earning capacity. In four cases the economic disability appears synchronously with the onset of the disease. The longest period noted of any case in the zone of partial disability is over two years.

By examination of the chart it will be seen that 9 of these cases passed at once into the zone of complete disability, and did not remain at all in the zone of partial disability. In Case No. 7 the period of partial disability was only two months. He then remained in the zone of complete disability for six additional months, after which his course terminated in death. The shortest period of complete disability was two weeks in Case No. 4, which, after being partially disabled for seven months, became completely disabled only two weeks before his death.

Chart 12 of this series shows the economic course of 15 cases of tuberculosis reported by Bay View Asylum among wage-earners, 11 of which terminated fatally. Bay View Asylum receives the chronically sick and disabled of the city of Baltimore. No especial provisions are made for the treatment of the consumptives, and they can seldom be induced to enter the Municipal Hospital until the advanced stages of the disease has interrupted totally their economic powers. Nine of these cases had no period of partial disability, but passed at once into complete economic disability.

The longest duration before the period of economic loss among the individuals of this series was eight years. The next longest period was six years. In 9 cases the appearance of economic loss was apparently synchronous with that of the disease.

The class comprising this series represents on the whole a low economic level. A large proportion of these cases occurred among negroes, stevedores, berry-pickers and others having no regular occupations. Case

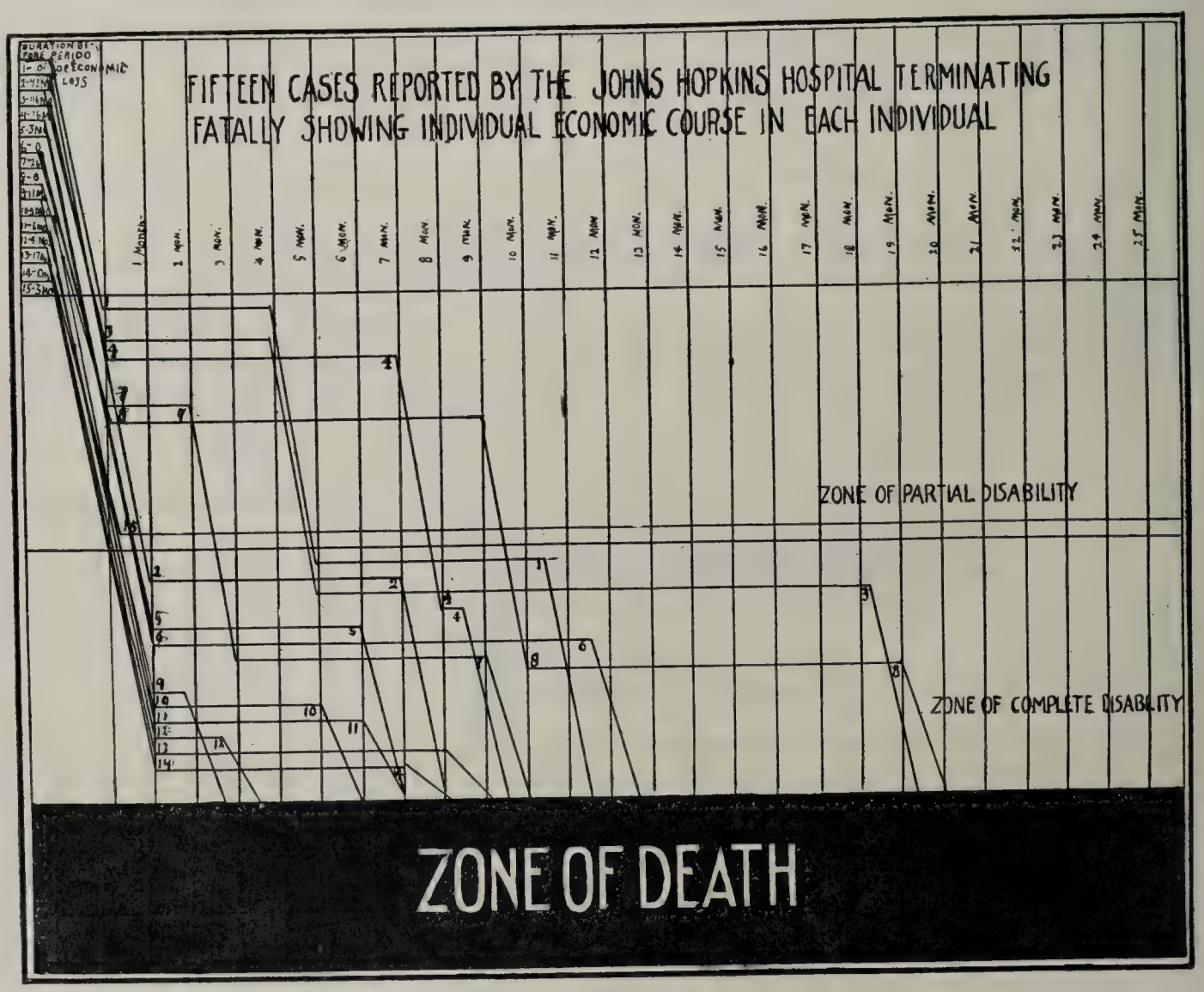


CHART 11.

No. 1 of this series shows the least period of partial disability, and apparently takes a very rapid downward course at the onset of his disease, remaining only one week in the zone of impaired earning capacity, and only two months and one-half in the zone of complete economic disability up to the time of his death. Two cases of this series were completely disabled over two years; in 3 cases the economic course is not complete, as the cases were still living, although in the advanced stages of the disease in 1903.

Chart 13 of this series represents the economic course individually shown of 15 cases reported by the Instructive Visiting Nurse Association, 9 of which terminated fatally. The series of cases shown on this chart includes mainly the very poor wage-earners, who have been reported by the various charitable societies of Baltimore usually after a very severe struggle to

maintain themselves in the upper zones of economic usefulness. The effect of this is plainly shown on the chart. In 11 of the 12 cases reported, the economic disability was complete from the onset and in only one case was there a period of partial disability. This patient, No. 1, who had maintained himself for six months in the zone of partial economic usefulness, sank into a lower level, and was completely disabled for over a month at the end of 1903.

This chart represents also the only case in the series in which there was return to a higher economic level after the original decline. This patient, after passing at once to the zone of total disability, in which he remained for three months, was able to resume light work for the period of three weeks, and was still working at the end of 1903.

Chart 14 of this series represents the economic course

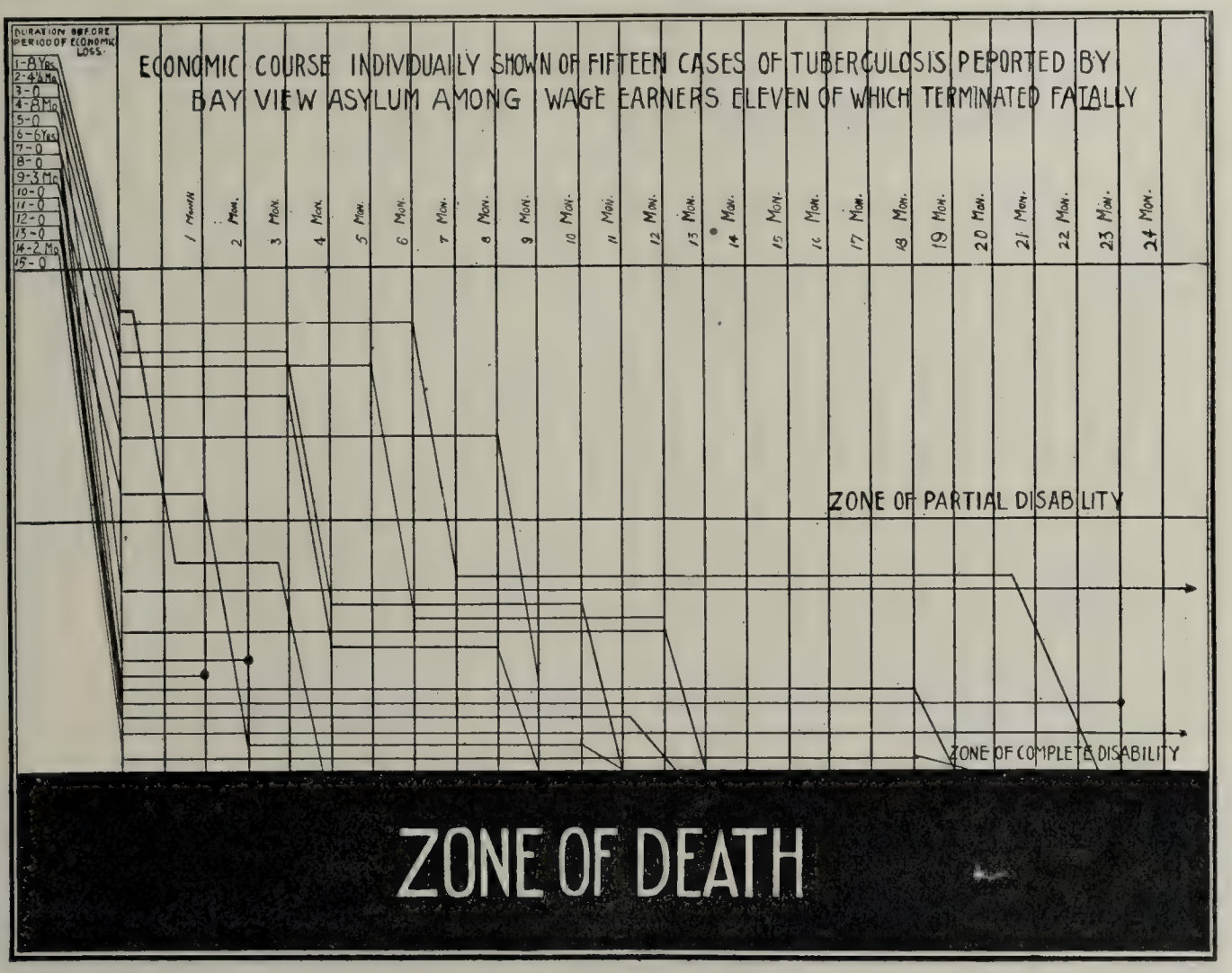


CHART 12.

individually shown for 27 cases reported by the Charity Organization Society and the Association for Improving the Condition of the Poor among wage-earners, 15 of which proved fatal. This series represents largely the same class of cases from which the preceding series was drawn, although showing on the whole a class much higher in the physical and economic scale.

In 17 of these cases, or over one-half, however, there was no period of partial disability. The longest duration for the disease before the appearance of economic loss in this series was nine years, in five cases over four years, one case over two years, in three cases over one year. In 9 cases the period of economic loss was synchronous with the onset of the disease. The average period of partial disability among these cases was one month and one-half; in two cases it was over two years. The shortest period of complete economic disability was two months and one-half, and in five cases it was over two years.

The economic course was not determined in six individuals, who were still surviving at the end of 1903, though in the advanced stages of the disease.

Chart 15 of this series shows the average economic course of consumption in the four classes of cases reported on the preceding four charts. The shortest average in the period of partial disability is shown by the Charity Organization Society and the Association for Improving the Condition of the Poor, average one year four months. The average period of partial economic disability reported in cases from Bay View Asylum is nine months and nine days; for Johns Hopkins Hospital, eight months and six days; the Instructive Visiting Nurse Association, one week and one day. The longest average of complete disability was reported from Bay View Asylum in the average of two years, six months one day; Charity Organization Society and Association for Improving the Poor, one year; Instructive Visiting Nurse Association, eight months, one week, five days; Johns Hopkins Hospital, five months three days.

There are few special conclusions to be drawn from this economic study, not self-evident, other than the fact that it is possible to determine accurately one item of the many losses due to pulmonary consumption, viz., the personal loss falling on the individual incident to his disease, and to determine from this the potential loss caused by the economic elimination of the individual from the field of production.

I have briefly reviewed a few of the fallacies and inaccuracies resulting from general studies made without reference to the factors peculiar to tubercular diseases, and I hope to have sufficiently indicated the simplicity

and facility with which economic studies can be made on the consumptive individual and the superior accuracy of the conclusions based thereon.

DISCUSSION

ON PAPERS OF DRS. PRICE AND KNOPF.*

SURGEON-GENERAL STERNBERG, Washington, D. C., said that in Washington the great difficulty is that all legislation must come through Congress, and it is extremely difficult to get action. Grand public structures are built there and elsewhere, but a very earnest effort to get $150,000 for a tuberculosis hospital failed. There is nothing of that kind in the district, although patients are scattered over the city who should be treated in sanatoria, but are unable to secure proper treatment on account of failure to get an appropriation from Congress for such an institution. Dr. Sternberg asked members of the Section to use their influence with members of Congress in impressing on them the necessity of doing something for Washington, which, unfortunately, has a higher death rate from tuberculosis than any other city in the country, with the exception of Los Angeles and Denver, where people go to die. This is due to the large colored population, and to the bad housing conditions among the lower classes. There is an enormous infant mortality in Washington, and though it is a rather disgraceful thing, Dr. Sternberg thinks the truth should be known. The infant mortality is higher than that of New York City, and the general death rate is much higher than that of New York City or of Chicago, although not so high as that of some of the southern cities. This high death rate is a result of the very large colored population, and of the insanitary conditions under which many of them live. For years physicians have been trying to get a law providing for the condemnation of insanitary houses. There are large numbers of frame shacks down on the ground, without any ventilation under the floors, and without any water in the house, and without sewer connections. These buildings are hidden away in the centers of the squares, and people living on the main streets are often unconscious of the fact that there is such a population on these interior alleys. That is where the "lung blocks" are. During the past winter physicians were able to get through the house a very satisfactory bill. The bill went to the Senate and was referred to a committee, the chairman of which was, unfortunately, down on the health officer. He opposed the bill and the whole thing has been knocked endways because he has brought in another bill as a substitute which is unsatisfactory to the physicians of Washington.

DR. CRESSY L. WILBUR, Lansing, Mich., stated that usually vital statistics fall short of reaching their full degree of usefulness. Physicians are content if they can compare the death rates, and the study of disability and loss of time is something that few vital statisticians have gone into. Dr. Price's figures will convince members of councils and legislatures that it is important to guard the public health. Dr. Wilbur called attention to the way in which the committee has undertaken to counteract the pernicious and false advertising in regard to specific medical treatment for consumption. He is afraid, however, that this circular will not appear with the frequency and force necessary to warn the public. These advertisements appear every day, and consumptives are led to use these methods of treatment when, if they resorted to local medical advice, they might be in time to prevent the occurrence of more serious symptoms. In Michigan there were one or more of these institutions, and Dr. Wilbur mentioned one rather pitiful case of a mother whose child was in a very advanced stage of the disease, who applied to the managers of one of these institutions, and afterwards tried to get a death certificate from them. They were not in a position, under the medical registration law, to issue a certificate, as they could have been punished in court for giving medical advice and treatment without being registered physicians.

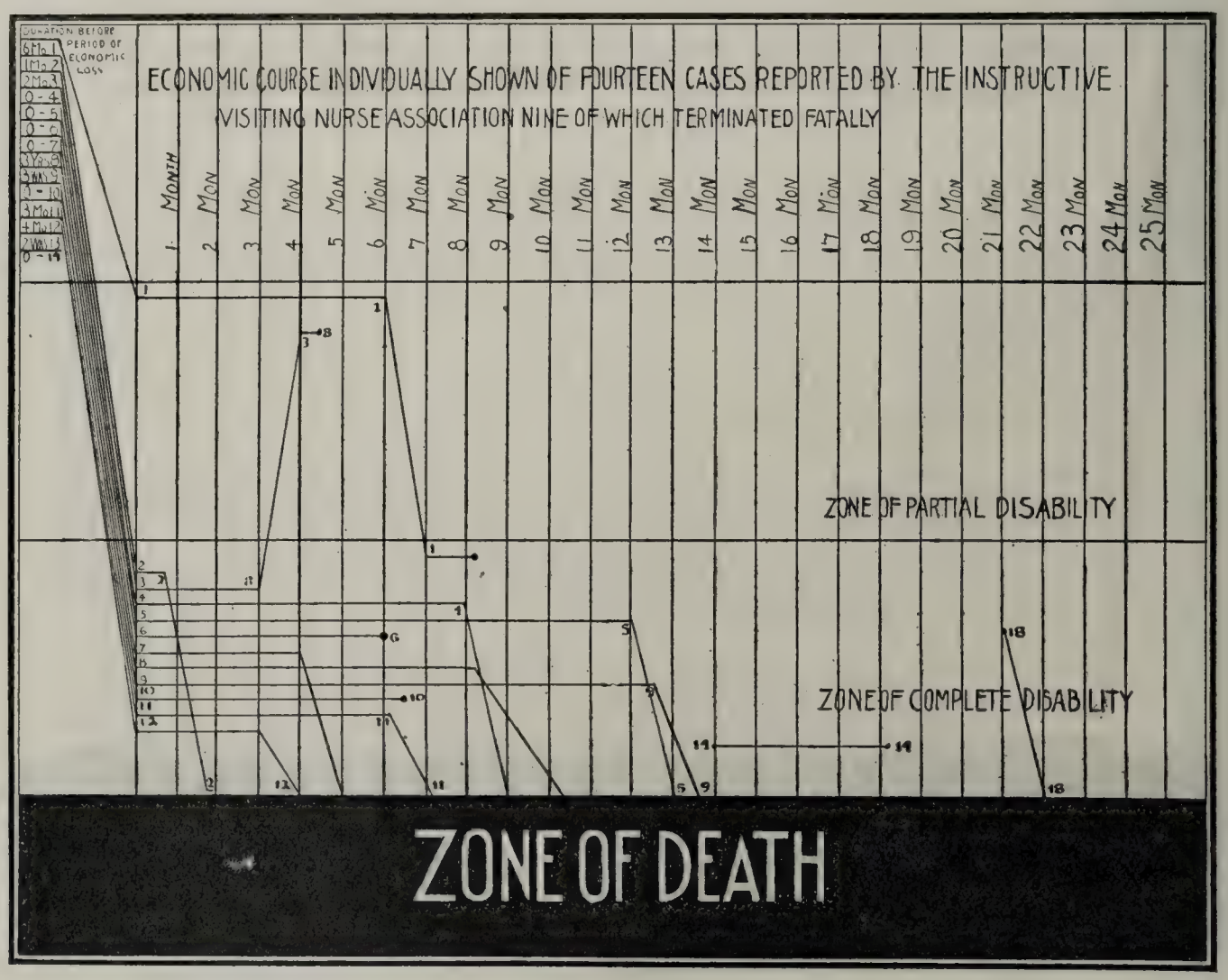


CHART 13.

DR. J. M. BARRIER, Delhi, La., stated that this subject is of great interest to people in the south. Tuberculosis is much more prevalent in the negro race than in the white race. During the last few years, since the negroes are leaving the

*The paper by Dr. Knopf appeared in THE JOURNAL Feb. 11, 1905.

agricultural districts and are flocking to the cities, tuberculosis is rapidly increasing, not only in the large towns of Louisiana, but in the smaller towns, and very little has been done toward improving these conditions. A committee is appointed at nearly every meeting of the state society to make an investigation and to report, and that is about all that is accomplished. There is no question but that the sanatoria treatment is the treatment for consumption. The profession has accomplished much, and the subject has been studied from almost every standpoint. The public has been kept informed of the improvements in the manner of treating this disease, not only as a disease affects the state from an economical standpoint, but from a social standpoint, and from nearly every standpoint. The only way in which physicians can get what they need is just simply by making a demand for those things; in other words, going into politics. Dr. Barrier said that, of course, nothing can be accomplished, politically speaking, in Louisiana until the profession is better organized, and until a sufficient number unite and can go to the politician and say to him that they want certain things done. For instance, in Dr. Barrier's county, when a man is running for the legislature they say to him that the parish has passed a certain resolution and ask him how he is going to vote when this question comes before the house. The politician is very much like putty, and when it comes to getting votes he will change his platform if it is necessary. If physicians will simply get together and demand what they want they will succeed in accomplishing good results.

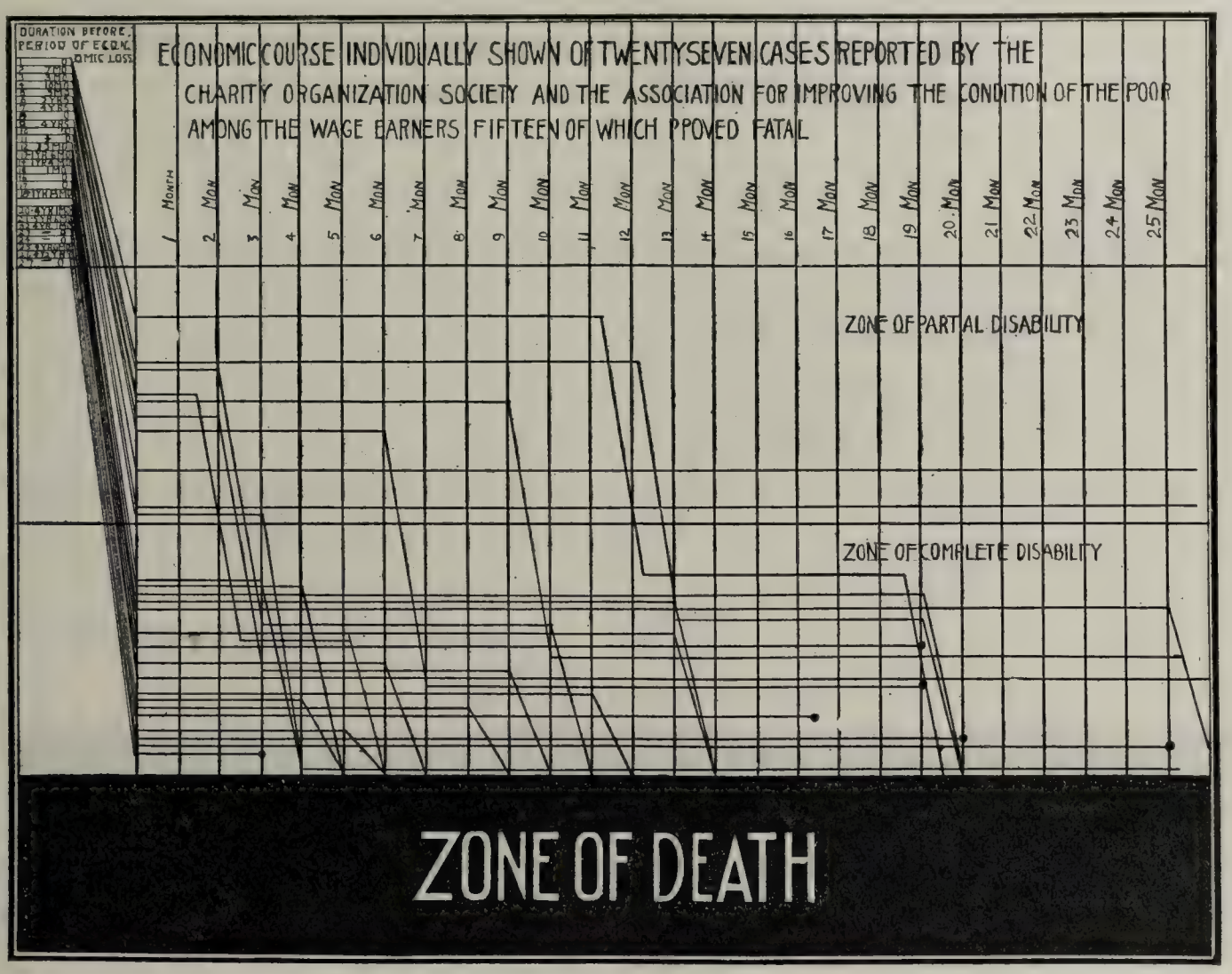


CHART 14.

Dr. C. C. Browning, Highland, Cal., stated that Dr. Knopf, in order to accomplish his results with the kind of politicians he describes, recalls the maxim of David Harum, which was: "Do to the other fellow as he would do to you, but do it first." He should get hold of the politician last, or some other fellow will get him and mold him in his own way. Dr. Browning called attention to the matter of individual effort. He said that he realizes when looking over the splendid laws of some of the eastern states that the sun rises first on the people of the east. It reaches California later, that is, in regard to sanitary laws. He was glad to say, however, that the twilight is breaking over the mountain tops, and when the next legislature convenes the sun will have fully risen. An honored member of the medical profession is governor of the state, and one of his first acts was to appoint an efficient state board of health. In the absence of adequate laws efforts have been made to accomplish something by organized effort. Southern California is one of the places where tuberculosis patients go to die; that is to say, many go and do die, and Dr. Browning referred to the cruelty that is perpetrated by physicians in sending patients out there without money, without friends and alone. Young people come there and go into tents, sheds and shacks, or any place that will afford them shelter. Two sisters went there with less than $5 between them, because they had heard that orange packers got from $1 to $1.50 per day. Under the auspices of the Southern California Medical Society an organization was perfected in December, 1903, known as The Anti-tuberculosis League. They have accomplished their work in this way: One of the members of the committee, who was in touch with one of the county board of supervisors, obtained from the superintendent of public instruction the number of families in the county represented in the schools. With that information he went to the board of supervisors and explained to them the nature of the literature that it was proposed to publish, and at the close of this conversation with the supervisors he suggested that the superintendent of public instruction might distribute these circulars as he visited the schools, which he does each year. The president of the board inquired how many would be needed for the county and was told. A motion was immediately made that the board pay the expense of printing these circulars. Now, within six months, four counties have paid for 120,000 of these circulars, and they are being distributed through the schools. The interest of the county superintendent of schools is very valuable, because at the teachers' convention he may call some competent physician to deliver an address on how these circulars should be used. That is one

way of getting this matter before the people in a manner in which it will be read, because the parents are apt to read what the children bring home from school. If the people become sufficiently interested in this subject then it will not be the physician alone who will demand legislation, but the people at large. In reply to a question Dr. Browning stated that tuberculosis is not very prevalent among natives of Los Angeles, but, of course, a certain number contract it, and nearly all of these patients die quickly.

DR. H. M. BRACKEN, Minneapolis, said that recently he visited a state sanatorium in course of construction. It was most disappointing—a big brick building, four stories high, located in the woods. It reminded him more of an asylum or prison than of a place in which to care for incipient tuberculous individuals. He visited also a municipal sanatorium that was all it should not have been. Each of these institutions cost about $225,000, and each will accommodate about 80 patients, which means a cost per patient for housing of nearly $3,000. There are but few cities where the sanitarian can secure any great amount of assistance from the municipal authorities to aid in this work. Medical men working with laymen through independent organizations will accomplish more good than is possible through any municipal government alone. An organization under the control of an unselfish board of directors often can expend money to much better advantage than can municipal or state officials. In Pennsylvania much has been done in caring for the tuberculous, although no sanatorium as yet has been established by the state. This work has been carried on by the charitable organization known as "The Free Hospital for Poor Consumptives." The state has given some money to this organization, which has been expended to much better advantage, and has accomplished more than could have been accomplished through a state institution. There is a tendency to spend too much money per capita in the housing of state tuberculous patients. When there are good organizations in cities and states, made up of laymen and physicians, they can then go to the governing powers and ask for aid. If, under such circumstances, these bodies give only money, more good can be done with it than if they were to give institutions and appoint the people to govern them. The state authorities should be urged to provide for tuberculous individuals in state institutions. Very few, if any, states have made proper provision for the care of their tuberculosis wards. A few years ago Dr. Bracken visited a state institution where tuberculosis was very general, indeed, the infection passing from one inmate to another. This was in an overcrowded reformatory. A farm plan might easily have been adopted for that institution and, in that way, much might have been done to prevent general infection of the inmates.

DR. W. G. YOUNG, Washington, D. C., asked what has been the effect of the establishment of different sanatoria and homes for consumptives in different localities, on the inhabitants or the natives of those localities. It seems to him that if an individual is afflicted with such a dangerous source of infection that he could be legally removed from a tenement district, that the segregation of such individuals in homes provided for them is likely to be a source of trouble, and unless some rules are adhered to it must be dangerous to the district. Dr. Young agreed with Dr. Sternberg in saying that the members of the Section can help very much as a Section and as individuals. Citizens of Washington have no senator and no vote. In other words, they are simply blank units, and will have to ask the help of the outside boards.

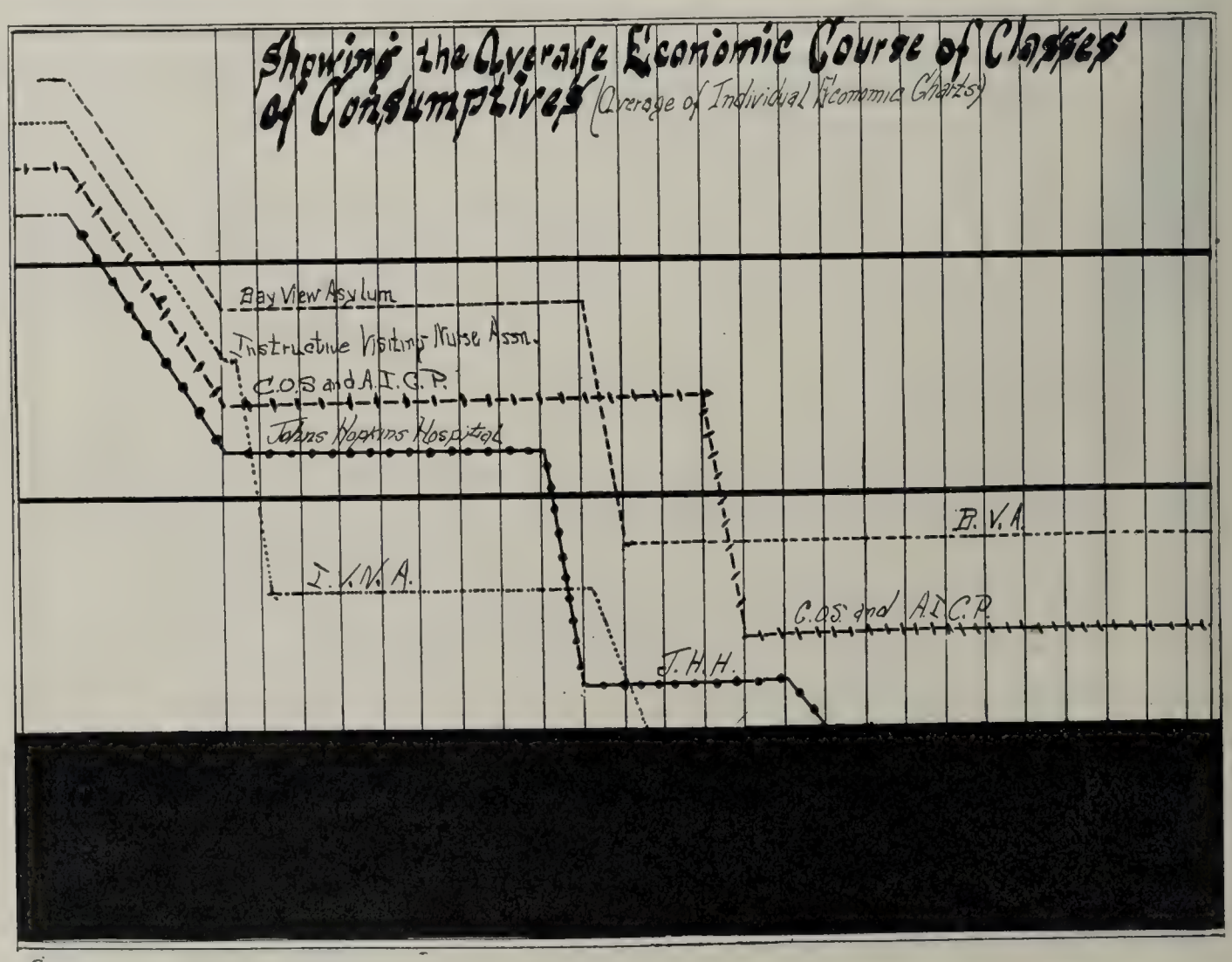


CHART 15.

DR. G. A. HARE, Washington, D. C., said that it seems to him a most important thing that a crusade of education be waged against tuberculosis. The only hope for success is by continual agitation. The facts must be brought before the people who are interested. Fifteen years ago fear of tuberculosis drove him west, and he has seen people by the thousands go into California only to die—most of them died from lack of knowledge. The economic problem has been forced on his mind many times, and he feels certain to-day that if a campaign of education is waged, as has been done in Michigan, New York and other places, great good will be accomplished. Dr. Hare does not believe that Dr. Barrier's plan is

a practical way to control this problem, because politics are influenced very largely by the present system of spoils, and there is not very much spoils for the politician in this proposition. It seems to Dr. Hare that if physicians would educate the people by giving them the facts and the results of the experiments that have been made, they could secure their co-operation in this work. Let it be known that every resident of every state is threatened by the present insanitary conditions because the poor and the unfortunate people in their district who suffer from tuberculosis are not properly provided for; and this very fact of itself will be sufficient, if it is made a matter of common knowledge, to secure a great deal of relief from philanthropic people and to mold a public sentiment that will demand legislative relief. The indirect economic side of this question is enormous—the deprivation to the family because of the lessened amount of wages earned, the impoverished feeding, the insufficient clothing, all of which lessen the vital resistance to this disease, and increase the dissemination of tuberculosis poison. These are some of the indirect effects which are in themselves extensive factors.

Dr. S. A. Knopf said that when a national association for the purpose of fighting tuberculosis in our country was formed, a distinguished professor of Johns Hopkins said that in the solution of the tuberculosis problem we must look for enthusiasm to the young men in the profession. Dr. Knopf indorsed everything said by Surgeon-General Sternberg concerning tuberculosis in the capital. The readers of the daily papers of New York were very much impressed by an account recently published by Jacob Riis, one of the most distinguished practical philanthropists in New York, of visits he had made to those dark alleys located behind the fashionable residences in Washington, and the picture he drew of what he had seen was appalling. In the miserably built shanties there were six and eight people living in one room, diseased and healthy, male and female, indiscriminately huddled together. With the surgeon general, Dr. Knopf said that he earnestly appealed to every American citizen to be helpful in seeking to remedy these conditions, as a result of which tuberculosis is so frequent among the colored population in Washington. Dr. Knopf said that his paper was so long that he did not relate his experience of what is done by some of the unscrupulous quacks. All had heard of the many so-called Koch concerns. A poor woman came to Dr. Knopf for examination and treatment in the hope that he could do something for her. He asked her about her family physician; she said she had none. He then asked her who had been treating her, and she replied that the Koch people had been treating her for the last three months and had taken all her money. Dr. Knopf examined her and found that she was in the last stage of consumption. She told him that they had offered to continue treating her for nothing if she would sign a certificate to the effect that she had been suffering from tuberculosis in an advanced stage and that the Koch concern had cured her. The poor woman told them that poor as she was she could not commit such a fraud on the public. That gives an idea as to how these advertising "sure-cure" concerns get their certificates. Dr. Knopf agreed with Dr. Barrier that physicians should go into politics. He thinks that their duty is to go into politics, and where politics is impure to purify it, and in that way to make their influence felt for the good of the community. He does not think that it is at all degrading for the physician to enter politics for the good of his fellow-men. In reply to questions he stated that he began his medical career in Los Angeles, Cal., and there first became impressed with the necessity of doing something else than relying on the climate. In the county hospital of Los Angeles the wards were constantly full of consumptives; they had all gone to California in the belief that the glorious climate of that great state would cure them. They went there with nothing, or with only from $10 to $25 in their pockets; of course, most of them too far gone, not able to work nor able to take proper care of themselves in time. Never was he more impressed with the criminality of sending patients so far away from home instead of allowing them to die in the midst of their own family than when serving as interne in the Los Angeles County Hospital. Only selected cases should be sent to Colorado or to California. Dr. Knopf believes in the climatic advantages of certain regions, but also believes that the majority of patients, who are of the laboring classes, must be treated in the same climate, or nearly the same climate, in which they have contracted tuberculosis, and in which they desire to remain after their restoration to health. It happens not infequently, when a patient is sent to California and he gets well, that he comes back in a year or two, and the result is a relapse. Such patients, if sent to California or to Colorado, should be told to stay there. There are relatively few patients who can return with safety to the eastern climate. He certainly believes in educating school teachers. The New York Committee on Tuberculosis of the Charity Organization Society gave a number of lectures before the Teachers' College of the Columbia University. A tuberculosis hospital or sanatorium, in order to do the most good, should be established near a large city. It should preferably be situated on porous soil where there is as little traffic as possible, and should have protection from cold winds. Experience has taught us that the large pavilion system is the most convenient and best way to build a sanatorium. If institutions where many consumptives are kept are equipped and managed according to the modern conception of the prevention of tuberculosis, there is no danger. In five German sanatoria, which have been established for fifty years, the mortality from tuberculosis in the surrounding villages is about one-third less than it was before the establishment of these institutions. The inhabitants around the sanatoria almost unconsciously adopt the hygienic methods of the patients in the sanatoria. If the patient is under the care of a physician he will be careful, but the danger comes from the patient being up and about without any supervision. It has been said that appeal should be made to philanthropists. Dr. Knopf has appealed to philanthropists and shall continue to do it. If they would stop building churches, monuments and libraries for a little while and devote the money to the improvement of the condition of the poor by better housing, building of public parks and sanatoria they would bestow a great blessing on their fellow-men and will be very helpful in solving the tuberculosis problem.

RELATION OF SCHOOL METHODS TO SCHOOL DISEASES.*

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The inquiry which was inaugurated in the Section on Nervous and Mental Diseases at the New Orleans Session (1903) as to the relation of school methods to the production of neuroses and psychoneuroses and other "school diseases" revealed the fact that the data for such inferences were not yet available.

Such data can only accumulate from a carefully planned system of medical inspection of school children: 1. At the time they enter on the school curriculum. 2. At frequent intervals during the years they are in attendance on school.

Moreover, before the school methods can be charged with any injurious effects that may be observed, there are many other possible causes of such ill effects that

*The committee appointed by the Section on Nervous and Mental Diseases of the American Medical Association, at the New Orleans session, 1903, made this report to the Section at the Atlantic City session, June 7-10, 1904.

will need to be eliminated, especially such as relate, 1, to the hygiene and sanitation of the school rooms, buildings and equipment; 2, to conditions to which the child is subjected outside of school hours. It would be manifestly unjust as well as unscientific to attribute results to school methods which may be due in a great measure, if not entirely, to other causes.

Such time as the members of the committee have had to give to the investigation assigned to them has, therefore, been used in an endeavor to discover what has been or is being accomplished throughout the United States and Europe in the way of medical inspection of schools, of school children, and of the conditions to which the school children are subjected both in and out of school.

Our inquiry, while it has brought to us the assurance that very hopeful progress is being made in this direction, shows plainly that we are still far away from that point where the question which was raised at the beginning of this investigation, namely, the effects of the school curriculum on physical and mental health, can be dealt with free from extraneous matter.

MEDICAL INSPECTION OF SCHOOLS.

It has long been recognized that the special knowledge acquired by the medical profession could be made to serve the cause of education in many ways, but it is only within comparatively recent times that the services of the physician have been called into requisition in any formal or systematic way to aid in perfecting the work of education.

Early in the nineteenth century Peter Frank of Austria considered the fittings for schools and the instruction in his "System of a Complete Medical Police." In Sweden, in 1832, the number of lessons in the schools was diminished for reasons of health. The first regulations concerning medical inspection in schools in France date back to the year 1833. In Germany, at Breslau, in 1864, Dr. Cohn, one of the most fervent advocates for medical inspection in schools, began the inspection of the Breslau school children, and from 1864 to 1866 he examined the eyes of over ten thousand children in search of the cause of the then recognized increasing short-sight. In Russia a physician has been appointed for each secondary school since 1871.

In Belgium, the city of Brussels first appointed special school physicians in 1874.

In England medical inspection of schools was instituted in London in 1889; in Scotland, at Edinburgh, in 1892.

In this country, medical inspection was introduced into the schools of Boston in 1890, in Philadelphia in 1892, in Chicago in 1896, and in New York City in 1897. The custom now prevails very generally in the cities throughout the United States, and it has been adopted in many of the cities of the South American countries, also in several of those of Japan.

Wherever the work of medical school inspection has been entered on, local conditions have governed the nature of the work done and the object that it has sought to attain. The kind of investigations that have been undertaken are of the greatest variety, therefore, but for the most part they may all be conveniently arranged in the following groups:

1. The inspection of pupils and teachers, with the view of detecting infectious and contagious diseases

2. Investigation as to the sanitary and hygienic conditions of school buildings, the school rooms, the equipment, the grounds and the environment.

3. Inspection of the individual pupils, especially of those who have attracted the attention of the teacher by giving evidence of impaired eyesight, hearing, or any other deficiency or peculiarity, physical or mental, other than those referred to under Group 1.

The first and second of these groups, it will be seen, relate to the conditions, favorable or unfavorable, to which the child is subjected, while the third group takes cognizance more especially of the child itself, its capacities, both physical and mental, with the view of determining in what manner it is likely to respond to these conditions.

It is a public duty devolving on the local government of any community to guard in every possible way the health and happiness of its members. When, either voluntarily or by compulsion, the children of any such community are brought into close contact and intimate relations, as in the school room, both public safety and individual right demands that all danger arising from such relations should, so far as possible, be suppressed.

CONTAGIOUS AND INFECTIOUS DISEASES.

Some of the most dangerous and destructive diseases can become widespread and epidemic through the close association of children in the school room with but one case of such disease. It, therefore, becomes the imperative duty of the official guardians of the public health, and of boards of education, to unite in the adoption of means for the suppression of diseases which might, through the association of children in school, become prevalent. This is very generally recognized as the primary duty of the medical school inspector, and is of itself abundant reason for the appointment of such an official. The evidence which can be adduced in support of the benefits conferred on a community as a direct result of this inspection are overwhelmingly convincing.

The records of the health departments of Boston, New York, Philadelphia and Chicago, as well as of many other cities, both in this and foreign lands, show a material decrease in contagious diseases among children since medical inspection of schools was instituted in them.

In Boston, from Nov. 1, 1894, to Oct. 31, 1896, out of 23,207 pupils examined there were 6,571 cases of disease, and of these 5,818 were too ill to be in school; fully 40 per cent. of these diseases were contagious in character; the total school population at that time being 83,303.

In three months, in New York, 4,183 children were excluded from school on account of contagious diseases out of 63,812 examined.

Nine months of inspection in Philadelphia showed the presence of 5,876 cases of disease, of which 3,446 were of a contagious character.

In Chicago the mortality of children from diphtheria for the months of September and October, 1900, was materially reduced, there being 42 and 77 deaths respectively for these two months of this year, while for several previous years, before inspection was introduced, the average number of deaths from disease for the corresponding months was 85 and 127 respectively.

During a period of four months, in Chicago, 233 public schools were visited by inspectors, with the result of finding 1,417 cases of diphtheria and 306 of scarlet fever; while later, in the same city, out of a school population of 200,000, as many as 76,805 pupils were examined, and 4,539 were found suffering from contagious diseases of various forms, necessitating their exclusion from school. The president of the School Board of that city, in his annual report for 1901, states that the

schools were saved from an invasion of smallpox by the vigilance of the medical inspectors, and he commends the efficacy of the system because of the direct effect of its work in checking epidemics and diminishing the amount of disease among the school children.

The frequency with which inspection is made for the purpose of removing contagious or communicable diseases varies greatly in different localities. In some places the visits of the inspector occur each week, in others only at the opening of the school in the fall, in others quarterly throughout the year, and in others the inspector responds only when summoned by the school board, superintendent or principal. The diseases looked for in some instances are limited to certain ones specially named in the local ordinance or board of health directions, while in other cases all communicable disorders that involve the general health or that of any important order, even such as affect personal cleanliness or decency, are taken into account. It will be readily appreciated that the more thoroughly this work is done in the interests of the public health the greater will be the benefit that will result to the individual pupil, and this in more ways than that of his physical well-being alone.

The custom of medical inspection even for this purpose, however, is by no means as yet a universal one. Many localities, both in this and foreign countries, still lack this safeguard to public health and security for the individual pupil. And it can be said, without hesitation, that wherever this precautionary measure is neglected to that extent at least the school method is at fault.

HYGIENE AND SANITATION OF SCHOOL BUILDINGS.

Closely allied and almost inseparable from medical inspection, with the view of guarding against contagion and infection, is that which takes cognizance of the conditions to which the children are subjected in the architecture, lighting, heating, ventilation, seating, provision for recreation and environment of the school buildings. (Such conditions as we have classified in Group 2.) Inspection made for this purpose is but a step closer to the study of influences which work for good or ill to any child subjected to them.

It may be said that, while the importance of this kind of inspection is very generally recognized, it is not aided by the imperative element which forces recognition to the requirement for attention to that of Group 1. The fixed conditions that exist in school buildings already erected, and the trouble and expense that would be required to change them, are of themselves formidable obstacles to the adoption of suggestions as regards defects in any one of the sanitary or hygienic factors above named, even though a medical or other competent inspector should discover them and bring them to the notice of the proper authorities. Again, the less tangible nature of these influences, when they are of a faulty character, makes it more difficult to point to them as the direct cause of ill health in the pupils.

The more necessity, therefore, for delegating to physicians this work, since they are best fitted by their training to determine the value of these several factors on the health of the pupils and teachers in any concrete instance.

It is true that matters pertaining to the location, architecture, the lighting, heating and ventilation of school buildings have their specialists who are not physicians, and there are many excellent physicians who are but indifferently informed on these subjects and whose opinion as regards them would be of little value. And yet these are topics which are more closely related to the line of thought which occupies the mind of the medical practitioners than that of any other class of persons engaged in professional work except, perhaps, the teachers themselves, and since by their effects on the school population they are likewise factors which have a direct relationship to the public health, they are properly subjects for medical consideration.

Is it not a fact that it is to medical sources we must go for the most exact and complete information extant on the subjects of school architecture and hygiene, as, for instance, to the masterly encyclopedic work, *"Das handbuch der Schulhygiene,"* of Dr. Leo Burgerstein of Vienna, Austria?

As has been said, in all the progressive countries on the continent of Europe medical inspection of schools has been established either in the large centers of population, by municipal authority, as in Great Britain, or in entire countries by authority of the minister of education or public health, as in France, Germany and Russia. In all of these countries almost without exception the inspection covers the matters of hygiene and sanitation of buildings; and the recommendation of the inspectors as to needed changes or as to the requirements that must be met in the erection of new buildings must be complied with.

In this country, a committee on school hygiene was appointed by President Schaeffer at the meeting of the Department of Superintendence, at Chattanooga, Tenn., Feb. 22-24, 1898 The chairman of that committee was the present U. S. Commissioner of Education, W. T. Harris, and he had for his eight associates two state superintendents of public instruction, two presidents of normal schools, two city superintendents and two other persons of special fitness.

This committee was appointed pursuant to the following resolution:

> This department approves of the plan of creating a committee whose duty it is to make or cause to be made a scientific determination of the factors involved in the subjects of seating, lighting, ventilating and heating of school buildings; and to this end prepare and present to this body at the meeting in 1899 a preliminary report setting forth the nature of the problems involved and its recommendations for the further prosecution of the inquiry.

This committee made a preliminary report through their chairman to the parent body in 1899, in which, after dealing with the fundamental principles in the light of the most recent information of the four subjects referred to them for consideration, and setting forth, from abundant knowledge, how deplorable were the conditions existing in the public schools of this country, and calling for more enlightenment on the part of school boards, teachers and others regarding the subjects of school hygiene and sanitation, they made the following recommendations:

They proposed two plans, the first of which contemplated the appointment of a committee of experts, with an appropriation of $2,500 or more.

The second proposed that

> A series of five prizes be offered for essays on the essential points of school hygiene, the same to discuss ideals and compare them with conditions that exist in such a manner as to aid the teacher, the superintendent and the members of school committees to criticise intelligently what they find in operation, apply cheap but effective devices to correct its defects, and decide rightly in regard to new models placed before them for adoption.

It was thought that the expense of securing the desired data and expert opinions and suggestions would be

much less on this plan, and at the same time the work would in all probability be done in a more efficient manner.

This report goes on to express the opinion that

The committee of experts on the special prize essays, should not undertake to exhaust the subject of school hygiene, on the one hand, nor deal with vague generalities, on the other, but treat of each of the most important topics one by one, and to aid the teacher to make the best of existing conditions and enlighten public opinion on the subject of hygienic ideals or models.

We have ventured to quote at some length from the report of this committee, since it makes known to us, through what must be regarded as the most authoritative source. the urgent need which exists in this country at present for an organized movement looking to the universal betterment of school room sanitation and hygiene, as well as to make known to the members of this Association, so many of whom are deeply interested both personally and professionally in the matter, that our national association of representative educators are like-minded with ourselves in these matters and have been moving in the same direction. We regret to be compelled to add, in this connection, that the Commissioner of Education has informed us that no action was taken on the recommendations made by the committee of nine.

May it not be that the time has arrived for the American Medical Association to join forces with the National Council of Education and advance, by mutual aid, into a field where the interests of both bodies are inseparable.

INSPECTION AND CARE OF THE CHILD.

We now turn our attention to the third class of inspection, that which has for its object the school child itself. In a study of the conditions needed for a harvest, excellent in quality and abundant, the seed is the most important factor; and when, as in this sowing, the seed contains the life of the nation, not alone must the soil be looked to, but we must know the nature of the seed we are attempting to cultivate.

Child study is a very comprehensive subject and one wherein new and interesting problems will never cease to arise. It is but the merest elementary work that is done when the attempt is made to take a simple inventory of the child's physical and mental equipment at the time it enters on the school curriculum and at certain stated periods during its course of school attendance.

To a certain extent this has been done by the teacher throughout all time. And the better the teacher the more accurate and discriminating has been her observation as to the physical peculiarities and mental disposition and aptitudes of each pupil. But no matter how careful an observer the teacher may be, she is not expected, as a rule, to have expert knowledge in other fields than that of her peculiar vocation. She is greatly aided in the detection of eccentricities and oddities in her pupils by the physician, and his suggestions as to the manner in which the facilities she has at her command may be made to adapt themselves to special cases has received her grateful acknowledgement.

This pupil, though bright in many ways, frequently blunders in reading the exercise from the blackboard. Has he defective eyesight? Another, though apparently attentive, does not seem to understand at times the simplest direction. Is his hearing imperfect? Still another, though provided with seat and desk of the most approved patterns, grows weary and listless in attitude and manner, long before the closing hour. Has he spinal weakness or other bodily infirmity to account for his mental dullness? Such questions as these are constantly arising in the mind of the alert and intelligent teacher. But they remain unanswered, the pupils in question continue the victims of uncertainty, and the school as a whole is handicapped until it becomes somebody's business to remove the doubt and correct the defect, or make clear the exact condition that must needs be dealt with.

Here again the interest of the whole community is involved, to quite as great an extent, though in a different way, perhaps, from that brought about by the presence in the school room of a case of contagious disease. Whatever time and energy is expended needlessly by the teacher in attempts to surmount difficulties which the oculist or the aurist can alone correct is so much taken from the rights of the remaining pupils; while the duty to educate brings with it the obligation to at least point out to the parent or guardian the obstacles met with which prevents the result from being as satisfactory as it should be.

These are certain of the grounds for that personal inspection of school children which has for its object, first, the very best result attainable for the child, and, second, the increased efficiency of the school work as a whole. School committees or boards of education can safely base their action in appointing medical examiners to do this work on these safe and sound principles. And in many enlightened communities such conceptions of public duty have been clearly discerned and put into practice.

The earlier in a child's school life his or her need of special attention can be discovered the more perfectly will all interests connected therewith be served. It is so common a custom for the personal medical inspection to be made of children at the beginning of their school life in the Swiss and German schools that it may be properly spoken of as the system of those countries. This is by no means true in other countries, and is lacking even in many places where medical school inspection in some form has been long established. It is deemed sufficient in many places to have each child examined once during its attendance on school, and this may not occur until it has been a pupil several years, while in still other places it is the custom to limit the personal inspection to such pupils as have, by some physical or mental peculiarity, attracted the special notice of the teacher, and this may be after it is well along in the school course.

In this country every variety of plan is in operation in different localities as to the time and extent of the individual examination of pupils, when made for other purposes than that of detecting the presence of contagious and infectious diseases.

In some few places the examination is a routine one, all pupils are subjected to it on entrance and at more or less frequent intervals during their school life. The examination takes into account the condition of the sight, hearing, physical development and posture, mainly, though in some few instances the inspection is much more minute and takes cognizance of the vital capacity, the nature of the respiration, the presence of nasal obstructions, the condition of the skin, the spine and the mental peculiarities and aptitudes.

This more detailed examination is usually undertaken only in such places as have made special provision for

"exceptional" children (to adopt the term suggested by E. L. Stevens, associate superintendent of the New York City schools, in place of "defective," which is objectionable for many reasons).

In Chicago a most elaborate method of physical and mental investigation of the public school children has been recently inaugurated, which all interested in this subject will watch carefully in order to discover what special advantages it may reveal. It consists of a combination of measurements, tests and experiments, such as are employed in departments for physical culture and in the psychologic laboratory. They are designed to obtain, after the most exact methods of scientific research, the information regarding the child's development and mental activities, which have up to the present been estimated by rule of thumb, without the use of laboratory apparatus or the aid of instruments of precision.

This attempt in the "Windy City" indicates, we may say, the high-water mark which efforts at medical inspection have so far reached either in this or any other country and is a fair sample of Chicago's originality and push. It is questioned as yet how far this personal examination of school children can be undertaken with profit. In the opinion of your committee, there is a great good to be gained from investigations such as these, provided they have a definite aim, for only from such systematic, careful and minute study can such data be gathered as will make clear to the educator the right adaptation of the amount and character of mental stimulus to the state and periods of physical development of the growing child.

Some of the results of personal inspection already obtained, however, leave no doubt as to their utility both as regards the benefit conferred on the individual child and their influence in improving the work of the school room.

It has been clearly demonstrated that from 20 to 45 per cent. of children attending our public school have defective eyesight. In fully two-thirds of these the vision is so imperfect as to be in need of treatment by properly fitted glasses or otherwise. Before examination by experts was made, in only a small proportion of this number, not to exceed 10 per cent., had the defective vision been known to either parent or teacher.

Less has been done in the way of testing the hearing, but an analysis of all available statistics as to the condition of this special sense among children show serious defects, varying from 3 to 20 per cent. of those examined, and our conclusions agree in the main with those set forth in a report made in 1900 by Superintendent Southworth of Somerville, Mass.:

"1. At least one child out of every five has some defect in one or both ears.

"2. In the majority of cases neither parent, teacher nor child is aware of the defect.

"3. Children defective in hearing are usually counted careless, inattentive or positively stupid by parents and teachers, who are ignorant of the real cause. Such children are often kept two or more years in the same grade, and, being the largest children, are not infrequently given seats in the rear of the room, where their chances of hearing are reduced to a minimum. This point is so important that it deserves special notice Out of 961 children examined in two cities, 176 (18.3 per cent.) were found to have defective hearing, while only 2 out of the 176 were known by their teachers to be deaf.

"4. A child who is hard of hearing can hear better at certain times than at others. This fact often leads parents and teachers to misjudge a child. The remark is often heard, 'Don't tell me Johnnie is deaf; he can hear as well as anybody when he wants to.'

"5. It is estimated that 90 per cent. of the cases of defective hearing can be cured if taken in time."

While in our methods of public school instruction the senses of sight and hearing are depended on too exclusively, nevertheless they are the main avenues for gaining and maintaining that relationship with the external world which is the foundation of all education, and a child's mental acquisitions and development will be in direct proportion, *ceteris paribus,* to the efficiency of these sense organs. If any testimony is needed in support of this almost self-evident proposition, one needs but to note the more frequent presence of defective eyes and ears in backward, feeble-minded and eccentric children as compared with the average child.

In the most progressive communities, as soon as a serious fault in the work of education is clearly recognized some plan for its correction is proposed and organized. Grave defects in sight and hearing, such as total blindness or deafness, have led to the creation of special institutions for the care of those so afflicted; but it is left for the public school system to provide means for meeting the requirements of the minor deficiencies of this nature, and in many places this is being done in a very creditable manner by the school authorities, stimulated and aided always by members of the medical profession.

A very large proportion of school children needing special attention are so slightly handicapped by physical defects that they can be cured, or adjusted to more favorable conditions in the ordinary school room, as soon as the nature of the defect is discovered Where the defect is of a graver or more pronounced character classes for such "exceptional" children have been organized and placed in charge of teachers having special fitness for such duty.

We have not had time for a thorough canvass of what has been done in this direction in the public schools of the European countries. But special provision was made for defective children in the public schools of Great Britain in 1892. In that country the defective child is made a study by the teacher as regards his habits, personal appearance, school record, disposition, moral nature and other peculiarities. This record is then sent to the clerk having supervision of special work for mentally deficient children, and if approved it is sent to the examining committee, the physician and the supervisor of special schools, to serve as a basis for their more expert examination. The pupils are examined both for admission and for discharge from these classes.

SPECIAL SCHOOLS FOR BACKWARD CHILDREN.

Special schools for the mentally backward have been established in this country in Providence, R. I.; Springfield and Boston, Mass.; Philadelphia, and New York City, in the order named. There are, no doubt, many other places deserving mention in this connection, but it has been impossible with the time and facilities at our disposal to make an exhaustive investigation.

Providence, R. I., however, deserves the credit for having, in 1894, taken the initiative in this country in providing special instruction for defective children in connection with a public school system. The classes organized include both sexes.

At Springfield, Mass., a class for defective children was established by the superintendent of schools, Dr. Thomas M. Balliet, in 1898. The number of pupils in

a class was limited to 15, and ages for entrance from 6 to 14.

In Boston, Superintendent Seaver, with the consent of the school board, engaged a teacher for children of this class in 1898, who was placed in charge of a class of 15 pupils in January, 1899.

At Philadelphia, the first school of this character was organized in the Hollingsworth public school in July, 1899, with the approval of the school authorities.

We have been unable to obtain the exact date at which the first class for exceptional children was started in connection with the New York City schools, but since the inauguration of the plan there it has been prosecuted with great discernment and enthusiasm by those officers and teachers who have had it in charge. Ten special, or ungraded, classes have been already organized in connection with nine of the public schools of that city, and certain of them are in charge of teachers of exceptional ability. A physician connected with the physical training department has been assigned to the examination of children who are reported by principals and teachers as defectives.

The report of the New York City Superintendent of Schools for 1903 contains an "admirable account of the work accomplished for such unfortunates in London and other English cities," prepared by Miss Elizabeth E. Farrel. It also contains a comprehensive and able discussion of the principles underlying this work as a part of the public school system, with some excellent suggestions by the associate superintendent. The motto selected for the opening of the associate superintendent's paper voices well the sentiment which has actuated all who have been aroused to lend their influence and action to this movement: "The aim of an education must be the development of the fullest and soundest mental, moral and physical life of which the particular individual is capable."

In the fulfillment of this purpose a good share of the work must, as has been seen, be done by the physician. The physician should see to it primarily that the environment of the child in the school is what it should be in the light of present knowledge, and that the child, carefully studied as to its individual capacities, is adjusted in the most favorable manner to that environment.

CONCLUSION.

As we have sought to show in the body of this report, this primary work is as yet but indifferently done; in some countries and in some places no attempt is made at it; in others the attempt is imperfect and feeble; in a few places it is done in a most satisfactory manner.

In the opinion of your committee, the American Medical Association should place itself on record as advocating and urging the inauguration of a thorough and systematic medical inspection of public schools and school children in every section of this country:

1. In the interests of public health, since it is a potent means for detecting and preventing the spread of contagious and infectious diseases.

2. For the purpose of securing to the child, while in attendance on school, the most favorable hygienic and sanitary conditions.

3. For the purpose of getting exact knowledge regarding the physical and mental capacities of each child, in order that the methods of instruction may be intelligently directed to meet individual needs.

Thus far it would seem we can safely go in support of what the most enlightened and progressive educators are seeking to accomplish, and in this effort they should receive from this national organization hearty indorsement and assistance, as they have in many localities from its individual members.

THE MORTALITY OF APPENDICITIS.

CHANNING W. BARRETT, M.D.
CHICAGO.

Long before the pathology of appendicitis was so well pointed out by Fitz in his classical paper in 1886, the profession understood that there was a disease in or around the cecum that had a large mortality. Even the ancients recognized a fatal swelling in the right inguinal region. The appendix was recognized anatomically in the sixteenth century. The early half of the nineteenth century saw an increasing interest in the disease now called appendicitis. John Burne published two interesting articles in the 30's (1837 and 1839), and, while he was hampered by the unsurgical methods then in vogue, he shows much ready knowledge of the subject and speaks of the disease as of "frequent occurrence, always dangerous, often fatal and characterized by a train of symptoms so peculiar and marked as to render the recognition of them certain and not difficult." His first paper records eight cases, of which three lived and five died. His later paper details seven cases, with four deaths. With a few exceptions, he located the pathology in the cecum, if the patient recovered, and in the appendix if a postmortem was held. Until the latter part of the nineteenth century the true pathology was not generally understood, some even thinking that the perforation found in the appendix at postmortem was secondary to the abscess in the cecal region. Fitz's paper in 1886, based on thorough postmortem study, revealed the fact that many cases of peritonitis had their origin in an appendicitis, and he gave us a basis for sound pathology. Antemortem examinations of healthy and diseased appendices since that time have added much to the general knowledge of the pathology of this organ. A contest, sometimes amicable, sometimes bitter, always spirited, was waged during the next twelve or fifteen years, and to a less degree up to the present time, as to whether appendicitis should be considered a medical or a surgical disease. This is ended by most authorities conceding that it is a surgical disease, yet the majority of cases are first seen by the general practitioner, and, therefore, the safety of a case depends on the wise coöperation of the physician and of the surgeon. The lowering of the present mortality depends on getting these men who see a few cases each year to recognize appendicitis early, to appreciate the pathology, and to recommend the proper treatment. This can best be done by the general practitioners retaining enough interest in the case to follow it to the operating room. This will facilitate a more ready appreciation of conditions in the next case.

STATISTICS ON APPENDICITIS, PERITONITIS AND TYPHLITIS.

To throw as much light as possible on the present mortality, I have, with the efficient aid of my assistant, Dr. Eddy, canvassed the death records of Chicago for the last two and one-half years, and also present in Table 1 and Chart 1 the statistics on appendicitis, peritonitis and typhlitis since 1890. The records show many things of interest and of value, although they are less valuable than we might wish, because they do not answer all of the following points: Age, sex, previous

attacks, date of onset of fatal attack, date of diagnosis, treatment advised, treatment followed, date of operation, if any, conditions found at operation, complications, length of sickness.

The answer to these questions in each of the several hundred cases, to say nothing of the complete clinical and postmortem records, would go far toward pointing out the proper course in dealing with appendicitis.

A study of the reports of the Bureau of Vital Statistics since 1890 shows as follows:

Date.	*Typhlitis.*	*Peritonitis.*	*Appendicitis.*
1890	220	16	...
1891	302	21	...
1892	412	25	1
1893	454	57	34
1894	369	...	87
1895	328	...	128
1896	211	...	158
1897	227	...	141
1898	103	...	174
1899	110	...	251
1900	87	...	233
1901	89	...	249
1902	71	...	262
1903	48	...	261
1904 (first half)	...	...	136

This table shows a marked increase in the recorded cases of peritonitis from 1890 to 1893, inclusive; then

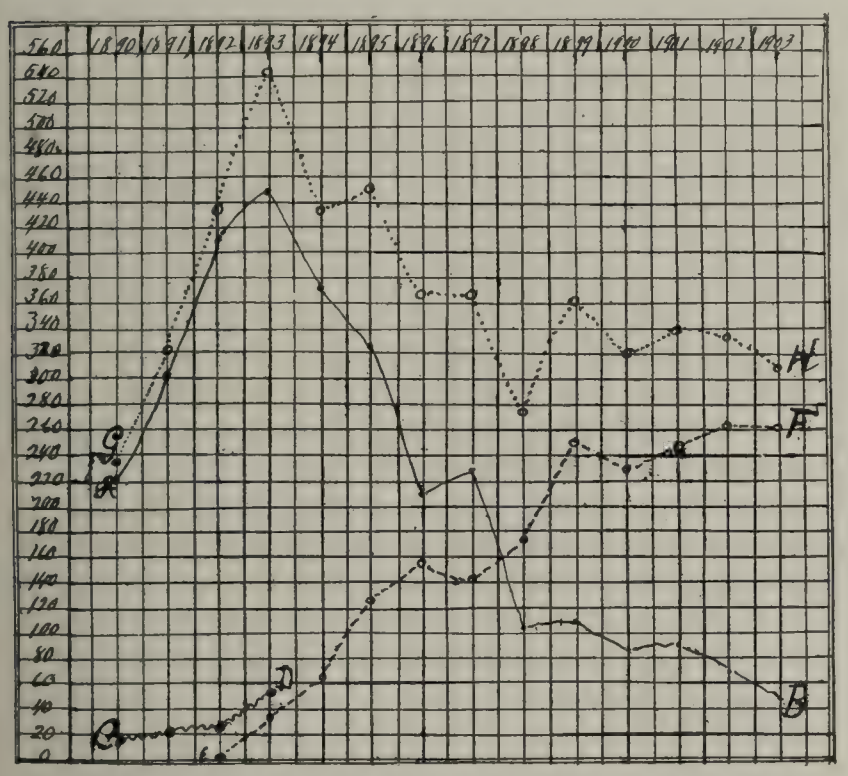


Chart 1.—A to B, peritonitis curve from 1890 to 1903, inclusive. C to D, typhlitis curve from 1890 to 1893, inclusive. E to F., appendicitis curve from 1892 to 1903, inclusive. G to H, curve showing totals of these 3 diseases from 1890 to 1903.

a marked and almost steady decline until the present time. The nomenclature "typhlitis" was dropped with the beginning of 1894. Appendicitis shows an almost steady increase up to the beginning of the second half of 1904, when our study ends.

It is to be understood that the report of vital statistics, while being taken from the death records, can not follow the uncertain nomenclature of the death certificates, and, therefore, it is to be further understood that there are still cases of "typhlitis" reported, but they are classed with appendicitis. If there was "appendicitis" reported before 1902, it was probably classed as "typhlitis." There are still many cases of peritonitis reported, but, when possible, the authorities determine from the physician making the report the cause of the peritonitis. Further, there are less cases than these figures show reported as appendicitis. These figures represent what are considered to be undoubtedly appendicitis, including reported appendicitis, typhilitis, inflammation of the bowels, with rupture and abscess, etc. These figures probably do not reach the full number, however. Possible cases of appendicitis are excluded from the list.

A canvass of the records of death certificates for two and one-half years, beginning Jan. 1, 1902, and ending June 30, 1904, shows, for 1902, 227 cases; for 1903, 211 cases, and for the first half of 1904, 116 cases, in which appendicitis is mentioned as the cause of death or is a factor in the cause of death. This is a total of 554 cases. But Table 1 shows that the Bureau of Vital Statistics for the same period considered that 659 cases died of appendicitis and its complications, a difference of 105 cases, or 18.95 per cent. more cases than were diagnosed. A number of the 554 cases were diagnosed by the coroner. In this connection it is interesting to note some of the diagnoses returned to see how this difference is accounted for and how, possibly, a greater number of cases should be accounted for. In the death records we find such returns as the following: Hundreds of cases of gastritis, gastroenteritis, enterocolitis, cholera morbus and cholera infantum. Cases of gastritis with obstruction of the bowel. Peritonitis; peritonitis, cause unknown; peritonitis, non-traumatic; peritonitis idiopathic (I had supposed that this disease had passed into history); peritonitis, general, with intestinal obstruction; peritonitis and enteritis; peritonitis, with abscess and rupture of the bowel; peritonitis, with gastritis; peritonitis, with perforation of the intestine; peritonitis, inflammation of the bowels; peritonitis, acute intestinal catarrh; peritonitis, constipation; peritonitis, diphtheritic; peritonitis, acute, following abdominal sinus; peritonitis, indigestion; peritonitis, exhaustion; inflammation of the bowels, acute (inflammation of the bowels is classed with enteritis by the Bureau of Vital Statistics); inflammation of the bowels, rupture; perforating ulcer of the bowels, ruptured intestines; perityphlitis, typhlitis, gastroenteritis and exhaustion (operation on the second day); sepsis following abdominal abscess (in male).

We find by a study of statistics that appendicitis is the cause of death in just about 1 per cent. of all deaths in Chicago; that very close to the same number die from appendicitis as from railroad accidents; that just about the same number of deaths are reported from appendicitis during the last five years as from smallpox, since 1883; that about two and one-half times as many die from appendicitis as from puerperal fever and just slightly less than one-half as many as from typhoid fever.

This does not take into consideration the numerous possible "appendicitis" cases masked under the above vague diagnoses.

Study of this large number of cases to throw some light on the influence of sex as an etiologic factor gave the following results:

TABLE 2.—Appendicitis Deaths by Sexes.

1897	104 males,	37 females,	or 26.24 per cent.
1898	118 males,	56 females,	or 32.18 per cent.
1899	150 males,	101 females,	or 40.23 per cent.
1900	138 males,	95 females,	or 40.77 per cent.
1901	141 males,	108 females,	or 43.37 per cent.
1902	151 males,	111 females,	or 42.37 per cent.
1903	145 males,	116 females,	or 44.44 per cent.
1904 (first half)	81 males,	55 females,	or 40.44 per cent.

For the last two and one-half years the total number of deaths from all causes was 68,950, of which 30,023, or 43.54 per cent., were females. For this same time there were 659 cases died of appendicitis, of which 282, or 42.79 per cent., were females.

There are many diseases common to both sexes that

show a smaller percentage of female mortality than does appendicitis, as typhoid fever, 40.62 per cent., and consumption, 38.52 per cent.

Taking the cases reported as appendicitis for the two and one-half years, numbering 554, we find that as to age they died as follows:

TABLE 3.

At 5 months... 1	20 years....19	39 years.... 7	58 years.... 3
2 years..... 2	21 years....12	40 years....14	59 years.... 1
3 years..... 3	22 years....15	41 years.... 6	60 years.... 2
4 years..... 6	23 years....20	42 years.... 8	61 years.... 2
5 years..... 5	24 years....14	43 years....11	62 years.... 1
6 years..... 7	25 years....14	44 years.... 8	65 years.... 1
7 years.....12	26 years....12	45 years.... 5	67 years.... 2
8 years.....16	27 years.... 8	46 years.... 9	69 years.... 1
9 years.....21	28 years.... 8	47 years.... 5	71 years.... 1
10 years..... 7	29 years....10	48 years.... 5	72 years.... 1
11 years.....19	30 years....17	49 years.... 3	73 years.... 1
12 years.....11	31 years....11	50 years.... 2	74 years.... 1
13 years.....14	32 years.... 9	51 years.... 3	78 years.... 1
14 years.....15	33 years.... 9	52 years.... 4	
15 years.....10	34 years....11	53 years.... 2	
16 years.....12	35 years.... 3	53 years.... 2	
17 years.....17	36 years....10	55 years.... 2	
18 years.....17	37 years.... 5	56 years.... 2	
19 years.....22	38 years....11	57 years.... 3	

The shortest time recorded between the onset of the disease and death is 1 1/3 days; the longest time recorded is 1,000 days. The greatest number died from the end of the fourth to the end of the fifth day. The average length of the time of the disease, as reported, 16.26 days. Leaving out all cases two months old and over as being cases of chronic appendicitis, the average length of time is 8.48 days. Murphy's tables show that the average length of time that his fatal cases lived after operation was 2.8 days. Estimating this as the average time in these cases, the operation must have been performed as late as the end of the sixth day, if at all.

Again, studying these cases as to complications, we find that of the 554 cases 78 are recorded "appendicitis" without any complication mentioned. But as patients do not die of appendicitis alone, these are to be left out of the consideration. In the remaining 476

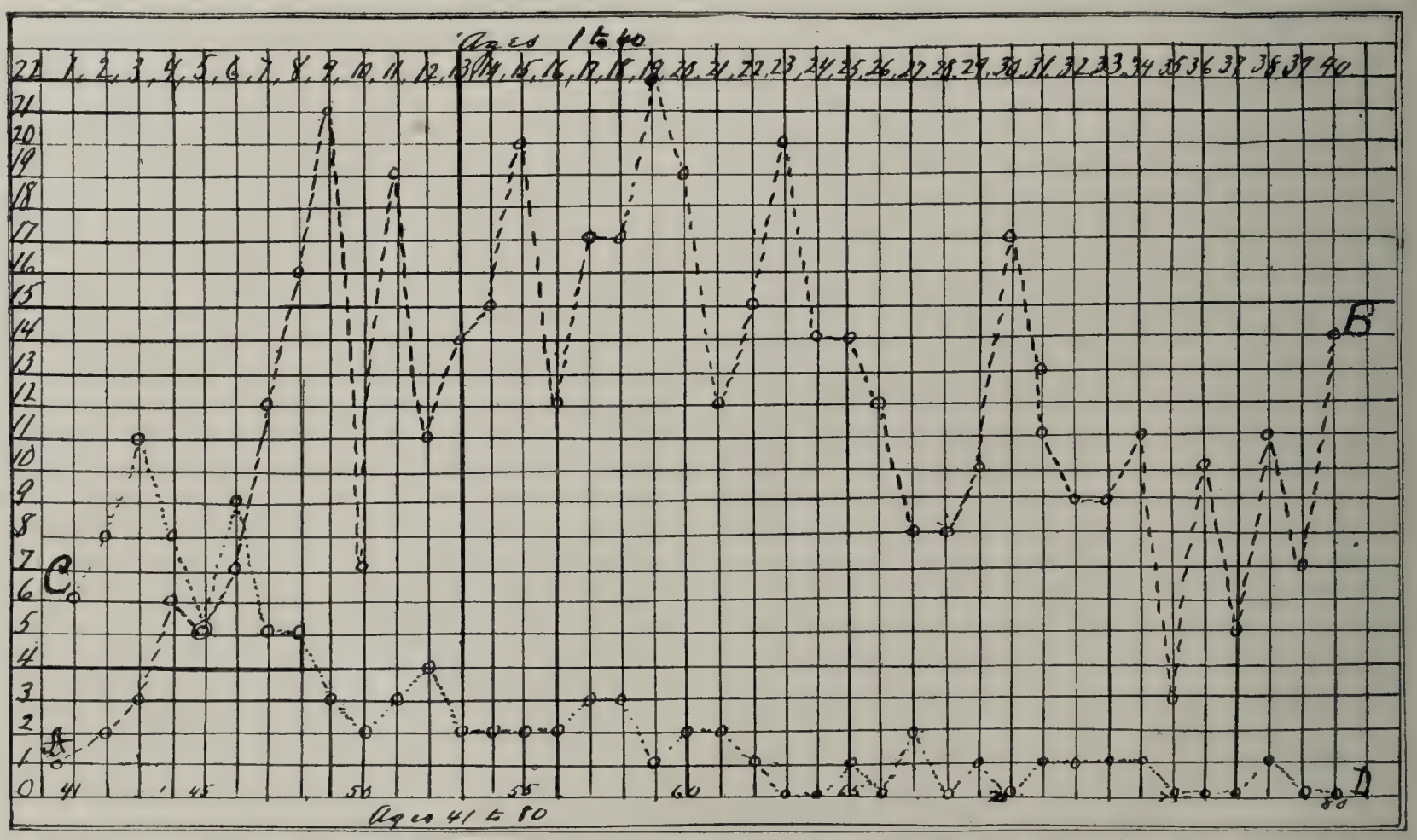


Chart 2.—Number of deaths per year of age. A to B, curve showing number of deaths each year from 1 to 40. C to D, curve showing number of deaths each year from 41 to 80.

The lowest age of death, 5 months; the greatest age, 78 years; age of the greatest number of deaths, 19, in which there were 22 deaths. The average age of death, 26.54 years.

A study of these 554 cases as to duration of the disease, while less accurate than the ages, shows some things of interest. The time is not stated in 182 cases; stated in 372 cases.

TABLE 4.

1 to 2 days..... 9	19 days 2		
2 to 3 days.....24	20 days 3		
3 to 4 days.....41	21 days 12		
4 to 5 days.....42	22 days 1		
5 to 6 days.....36	26 days 1		
6 to 7 days.....31	28 days 1		
7 to 8 days.....37	30 days 9		
8 to 9 days.....18	35 days 4		
9 to 10 days..... 6	40 days 1		
10 to 11 days.....29	43 days 1		
11 to 12 days..... 2	60 days 8		
12 to 13 days..... 8	75 days 1		
13 to 14 days..... 6	90 days 3		
14 to 15 days.....19	95 days 1		
15 days 4	111 days 1		
16 days 1	365 days 2		
17 days 2	1000 days 1		
18 days 3			

cases we have complications mentioned 702 times. Due allowance must be made for the inaccuracy which must necessarily accompany a superficial and incomplete record by so great a number of observers. Yet they derive a certain value by reason of this large number of observers. We find, in the 476 cases, the cause of death or complications was stated in the following number of cases:

TABLE 5.

Peritonitis 352	Exhaustion 4		
Perforation 117	Gangrene of the bowel 3		
Suppuration 40	Rheumatism 3		
Gangrene 38	Pyemia 3		
Abscess 24	Miscarriage 3		
Obstruction 24	Fatty heart 2		
Pneumonia 10	Cholangitis 4		
Uremia 9	Brights Disease 2		
Pyosalpinx 8	Pleurisy 2		
Shock 8	Acute dilatation of heart... 2		
Adhesions 6	Pericarditis 2		
Nephritis 5	Gastritis 2		
Tuberculosis 5	Sinus 2		
Endocarditis 4			

Each of the following complications are mentioned once: Perforation of the intestines, fistula, respiratory

failure, cholemia, congestion of the liver, abscess of the lung, subphrenic abscess, chronic apoplexy, hernia, paralysis of bowed, acute myelitis, typhoid following bronchitis, cholecystitis, gastroenteritis, embolism, diabetes, gallstones, sepsis (septic peritonitis mentioned many times).

Complications mentioned 702 times in 476 cases show that two or more must have been mentioned many times. In some we have perforation, gangrene and peritonitis; in some only perforation, and in some only gangrene; so the actual number of cases dying from peritonitis was in excess of the number mentioned under that head, 352.

A further study of the cases shows that 384 died in the different hospitals of the city, and 170 out of the hospitals; that is, 30.68 per cent. had not the advantage of hospital treatment.

In only 105 cases it is stated whether or not an operation was performed. Of this number, 85 were operated on and 20 were not. But little weight is to be attached to this, however, for, with but few exceptions, the hospital cases were undoubtedly operated on, and with but few exceptions the house patients were not.

We learn, then, from this study, first, in Table 1, that Chicago still has a mortality from appendicitis about equal to .01 of the mortality from all causes.

Second, from Table 2, we find that the percentage of female mortality from appendicitis varies very little from the percentage of female mortality from all causes, and that appendicitis is to be looked for as common in the female, notwithstanding the old belief that it was rare.

Third, Table 3 shows the greatest mortality at the best period of life, early adult life, the greatest number dying at any one year of age being 22 at the age 19, the average age for all deaths being 26.54 years.

Fourth, Table 4 shows that leaving out the chronic cases, the average duration of the disease in the 372 cases in which the time was mentioned, was 8.48 days. Murphy's mortality cases show that the average time after operation until death was 2.8 days. This demonstrates that this vast number of fatal cases were operated on at the end of the sixth day, while all authorities concede that an operation on the first or second day is safe and desirable.

Fifth, Table 5 shows that the most frequent cause of death in appendicitis is suppuration of the appendix, followed by perforation, gangrene or passage of the infection through the wall and peritonitis; and further, that adhesions and obstructions are common.

Sixth, we find that many cases did not have the advantage of hospital treatment or of an operation.

Seventh, an early diagnosis is most desirable, yet the Bureau of Vital Statistics considers that a diagnosis was not made at all in 105 cases; a few of the remainder were made by the coroner. Some were made postmortem, and we can never know how many were made too late for any operation to save life. The long but only partial list of vague diagnoses copied from the death certificates show that in all probability some cases escaped detection.

We learn by our mistakes, and here are over 600 of them when measured by the layman's yardstick, results. Viewing it from our standpoint, I think there is no denying the fact that a large percentage of these cases could have been saved by an operation at the right time. If the physicians who had charge of this large number of fatal cases were questioned as to the reason for delay, supposing a diagnosis had been made, the following answers would be common: First, the people would not consent to an operation. Second, I was treating the case medically until I could detect pus. Third, I was waiting for the "interval" when a safe operation could be performed. Fourth, I was treating the case by the "starvation" method. (This last, in my experience, is by far the most common.)

This paper can not interest itself with the reason for the layman's refusal to comply when an early operation is advised, further than to say that it is largely, although not entirely, due to the failure of the profession to have unanimity of mind as to what is best to be done. Too frequently we see physicians approach even so important a case as appendicitis with feelers projected to detect the people's wishes, and then advise accordingly.

WAITING FOR PUS.

"I was treating the case medically until I could detect pus."

There is no greater fallacy than the idea that an unruptured appendix deserves medical treatment, but that the advent of pus outside the appendix is an indication for insistence on an operation. A physician harboring this opinion—and there are not a few—should remember that so great an authority as Osler has said, "There is no medical treatment for appendicitis." Knowing the virulence of the appendiceal infection, its tendency to break through the wall of the appendix and cause a fatal peritonitis, the man who deliberately sits waiting for pus and peritonitis can only be likened to a fireman who would stand hose in hand and contemplate a beginning conflagration in your home, and withhold the stream for fear of soiling the rugs.

THE "INTERVAL" OPERATION.

The much-talked of "interval" operation is a wise thing to advocate for a patient in the interval. But it is sometimes a most dangerous thing to advocate and wait for during an attack. Any treatment that goes sparring for a diagnosis the first thirty-six hours and goes maneuvering for the advantage of an interval operation during the next few days, and then closes for a life or death struggle on the fifth or sixth day, will largely increase the death rate. With the onset of an acute attack of appendicitis there is an interval—but not the one so frequently alluded to—that should interest the patient and the physician. This is the interval between the onset of infection in the appendix and the time when a dangerous amount of the infection would be found outside the appendix if it were not removed. The interval between pus in the appendix and pus everywhere. This is the interval which, had a surgeon's knife cut short the possibility of "pus everywhere," would have saved the lives of most of these patients. This is the interval which must be appreciated by every physician and every surgeon in order to save a large percentage of the 600 odd cases of appendicitis which the present methods will lose in Chicago during the next two and one-half years.

"THE STARVATION TREATMENT."

So widespread has become the misapplication of this treatment, and so potent has it become as a factor in the mortality of appendicitis, that it is deserving of more than passing notice. First let it be understood that its chief exponents do not now claim to recommend this treatment for appendicitis itself, but for peritonitis, diffused, spreading or general. Let it also be understood

that this is not recommended as a treatment for a ruptured or gangrenous appendix at any time, if a localized abscess is formed, or a peritonitis limited by adhesion. There is little doubt but that too much stress was laid on this treatment in former writings, as a cure-all for acute appendicitis. And it is certain that harm has been done by regarding it as a distinct system of treatment, as opposed to operative measures. The belief has been current that if the "starvation treatment" was used an operation was not indicated, and if an operation was performed, food and cathartics could not be withheld. Now, as a matter of fact, intestinal rest bears the same relation to appendicitis and peritonitis that rest in bed and elevation does to osteomyelitis; that a dark room does to glaucoma; that quiet and rest does to an otitis media; yet neither of these things takes the place of an operation, but they are useful aids to the operation. Withhold food, certainly; wash out the stomach if it is behaving badly. But why deny a man a needed operation because we have washed out his stomach? The question of operation should be decided on merits of its own and apart from these minor procedures. This is not a system of treatment, but a factor in the proper treatment. Now, to get at the merits of the treatment, let us recall that infection spreads through the peritoneal cavity along the line of least resistance by reason of two important forces (Ochsner mentioned only one). One is peristalsis, and nature tries to limit this, and I see no reason why we should not aid her by withholding food.

The other very important factor is inflammatory products under pressure. This causes direct extension of infection and absorption. The best possible way of keeping the infection from traveling in a dangerous direction is to make an opening of least resistance in a harmless direction. The less wall that is formed, the greater need for the opening. The best way to keep infection from pouring into Lake Michigan was to make an opening of least resistance in the direction of St. Louis. Suppose, for illustration, we have an infected swollen appendix, not ruptured. We decide to operate. On the way to the operating room the intense pain ceases suddenly. The appendix is ruptured. Shall we send that patient with such a condition back to wait thirty-six hours for a limiting wall of adhesions to form, or is there not greater need of an operation because of the rupture? Would it not be better to allow this pus to escape through a harmless point of least resistance? So much for an infection with not yet a general peritonitis.

In a general peritonitis the argument for walling-off no longer obtains. It is now a question of how the patient can best take care of the toxins. The majority believe in operation. Murphy reports 16 cases of perforative peritonitis with immediate operation, with only one death.

Hawks reports 11 cases with two deaths, and he only included in this class cases in which pus was actually found in all parts of the abdomen. Ochsner reports 18 cases with ten deaths, and in another paper 33 cases with ten deaths, treated by the preparatory starvation treatment. This treatment seems of doubtful utility, then, when carried out with strict care by the author of the treatment.

What, then, shall we say of it when it is carried out imperfectly, as it must needs be outside the hospital, and at the wrong time, to the exclusion of surgery? From observations in my own work and from conversations with others, I am convinced that the misapplication of this treatment by its being used for early cases is one of the greatest factors in producing late neglected cases of appendicitis, and anything which turns an early case into a late one is fruitful of producing a mortality. If the layman, the physician and the surgeon could unite on the oft-repeated proposition that early cases should be operated on immediately, there would be a grand cutting down of the mortality, regardless of the treatment used for the late cases. The Germans are only recently adopting this method. The advocates of the starvation treatment admit that it does not contraindicate an early operation, but that very few cases find their way into the surgeon's hands during the first thirty-six or forty-eight hours. This latter statement is true to a lamentable degree.

CONCLUSIONS.

1. To decrease the mortality of appendicitis an early diagnosis is of the first consideration.

2. All troublesome appendices should be removed without waiting for an acute attack.

3. All acute cases should be dealt with surgically in the interval between the onset of appendicitis and the dangerous rupture, without waiting for pus outside the appendix, for peritonitis, for adhesions or for a possible but remote interval.

4. Cases of perforation or gangrene, with localized abscess, should be operated on with drainage or removal of the appendix, according to the judgment of the operator.

5. Cases with perforation or gangrene without a wall of adhesion are in still greater need of an outlet for the infection, to lessen the tendency of infection to travel inward.

6. Price, Murphy, Hawkes and others have shown a better percentage of recovery by the operative treatment of acute perforative peritonitis.

7. A case of acute appendicitis should be operated on at any time if the patient's condition will admit of an operation, unless the case is rapidly and beyond a question of doubt convalescing. And in this latter case we should wait until all acute symptoms have passed.

8. Healthy appendices should be left alone.

9. The proper treatment, as indicated above, does not contraindicate the use of stomach lavage or the withholding of food, and when proper, these things should be employed, with or without operation.

10. Lastly, life is not the only consideration. Time of cure and after conditions are important. A patient going through an acute attack without operation is saved by the adhesions. Adhesions are life-saving for the time, but they may be death-dealing afterward. The waiting treatment favors adhesions. The early operation avoids them. An early operation sends the patient home in from ten days to three weeks. Twelve cases treated by the rest treatment reported in THE JOURNAL of the American Medical Association, June 22, 1901, show an average of 60.5 days from the onset of the disease to the discharge from the hospital.

100 State Street.

Study Ordinary Cases.—Dr. Hugh T. Patrick says: "If we would put more time on cases of which we see a great many and less time on the cases which we see once in a lifetime, it would be a greater benefit to ourselves and to our patients."

AN EXPERIMENTAL AND CLINICAL STUDY OF THE VALUE OF CLAY-MIXTURE POULTICES.*

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One of the most interesting phenomena in the trend of our modern therapeutics is the present extensive use by physicians of the variously medicated clay mixtures as external applications in the treatment of pneumonia, bronchitis, pleurisy, rheumatism, synovitis, boils, etc., in place of the cotton jacket, mustard and flaxseed poultices, blisters, cupping, camphorated oils and hot stupes. By a clay mixture I mean any one of the various proprietary preparations which are said to have an antiphlogistic action in inflammations of superficial and deep structures. The essential composition of all such clay mixtures is a base consisting of silicate of alumina and magnesia combined with salicylic acid, peppermint, wintergreen, eucalyptus, iodin or ammonium iodid and iron carbonate. The glycerin is added to give the kaolin or white clay its thick, jelly-like consistency so as to allow of easy spreading, while the other substances are added for whatever antiseptic power and pleasant odor they may impart to the mixture.

I take it that these mixtures are used by physicians partly because they are widely advertised, but mainly because their use is based on a so-called theory or rationale of therapeutic action, and into the latter I thought it would be of interest more thoroughly to examine.

In order to state this theory fairly, the following is quoted from the handsome little booklet lately sent out to physicians by the manufacturers of probably the most widely advertised clay mixture.

The "therapeutic action is based in theory on the following fundamental principles":

(*a*) This clay mixture is a "vasomotor stimulant; it stimulates the cutaneous reflexes, causing a contraction of the deep-seated and coincidently a dilatation of the superficial blood vessels; at the same time it attracts or draws the blood to the surface—bleeds, but saves the blood. Blood pressure on the overworked heart is reduced, the muscular and nervous systems are relaxed and refreshing sleep is invited."

(*b*) "The skin may be regarded as a permeable membrane, separating two fluids of different densities, the blood and the clay mixture. If the clay mixture is applied hot under such conditions, something definite happens, and that scientifically—an interchange of fluids, most marked toward the clay mixture; hence the deduction that the mixture acts through reflex action and dialysis, the latter scientifically, including the physical processes of exosmosis and endosmosis."

(In the above quotation the general term "clay mixture" has been substituted for the name of the special brand.)

Let us now examine the first of these so-called fundamental principles. If the clay mixture is a vasomotor stimulant and causes a contraction of the deep-seated and, coincidentally, a dilatation of the superficial blood vessels by stimulating the cutaneous reflexes, then it must stimulate the cutaneous nerve filaments, for otherwise there could be no reflex action. There are just two ways in which the clay mixture could stimulate the cutaneous nerves—by means of its heat or by means of its irritant properties. The latter means may be excluded at once, since the mixture is not irritant, being not even a mild rubefacient, the non-irritability of the preparation being one of the virtues most lauded by the manufacturers. So, then, whatever reflex action it produces must be due to the fact that it is applied hot. Every one is well aware that the chief reactions brought about by the use of moderate external heat are a dilatation of the cutaneous blood vessels, some excitement of the general circulation, and an increase in the amount of perspiration. Furthermore, this dilatation of the cutaneous vessels is probably due to the direct effect of the heat on the blood-vessel walls rather than to a stimulation of the sensory nerves, though, of course, this latter agency may be involved to some extent in the result. In any case, the *modus operandi* is the same as that by means of which a hot flaxseed poultice produces its results, and one is constrained to believe, in view of what follows, that heat may be applied more efficiently, and certainly less expensively, by means of a well-made flaxseed poultice.

HEAT EXPERIMENTS.

Two 1-pound cans were taken, one filled with the clay mixture and the other with flaxseed poultice. Both were heated to 80 degrees C., or 176 degrees F. They were now placed side by side so that all conditions were equal and the temperature taken every hour to determine which gave up its heat the sooner.

	Clay mixture. 80 C.	Flaxseed poultice. 80 C.
After 1 hour.....	46	58
After 3 hours.....	21	27.5

The clay mixture gave up its heat in three hours, at the end of that time being at the room temperature of 21 degrees C., while the flaxseed mixture at this time still had a temperature of 27.5 degrees C. It is quite evident, then, that by means of a flaxseed poultice heat and moisture can be applied for a longer period than by means of the clay mixture, and this fact stamps the flaxseed poultice as more efficient than the clay mixture.

The further assertion is made that, as a result of this vasomotor stimulation, "the blood pressure on the overworked heart is reduced," and thus the favorable "remote" action is explained. We know that whenever the vasomotor centers are reflexly stimulated, either by heat or by irritation, the arterial blood pressure is somewhat increased, owing to the reflex constriction of the arterioles over wide areas of the body, especially of the abdominal organs. Hence, in all pruriginous skin diseases, the blood pressure is raised, and Oliver found that when a mustard pack was applied to the liver region the pressure went up from 105 to 135 mm. Hg. Furthermore, I found that in two cases in which a large, hot pack was applied to the chest and abdomen the pressure went up from 120 to 128 in one case, and from 132 to 141 in another. The effect on the blood pressure, as measured by the Stanton apparatus, was practically nil in two cases in which the clay mixture was used. In a third case the pressure increased from 143 to 155 mm. Hg, and, even though this increase may have been merely coincident, still the fact remains that there was no decrease in the blood pressure. The fallacy of the assertion that the blood pressure on the overworked heart is reduced thus becomes self-evident.

Let us now proceed to the second of the so-called fundamental principles, namely, that "the skin may be regarded as a permeable membrane, separating two fluids

* From the medical clinic of the Hospital of the University of Michigan. Read at the first annual meeting of the First Councilor District Medical Society of Michigan, at Detroit.

of different densities, the blood and the clay mixture. If the clay mixture is applied hot under such conditions something definite happens, and that scientifically—an interchange of fluids, most marked toward the clay mixture; hence the deduction that the mixture acts through reflex action and dialysis, the latter scientifically including the physical processes of exosmosis and endosmosis."

In order to test the validity of the above assertion, I proceeded in two ways: First, by making use of the clay mixture on patients at the university hospital who were suffering from pneumonia and from acute articular rheumatism. These experiments were carried out by Dr. Munson and myself. The mixture was applied hot, in a thick, even coat, following out the printed directions carefully, but the material was accurately weighed before application, and all evaporation guarded against during its use by means of coverings of oiled silk and bandages. After use the material was carefully scraped off and immediately reweighed. Thus the amount of fluid taken up could be accurately estimated.

In the second place, I made a series of experiments, using collodion sacs and dialyzers, with a membrane of fresh human skin, in order to test the dialytic power of the clay mixture. The results obtained by the case treatment were as follows:

CASE 1.—Mr. A. Diagnosis: Acute articular rheumatism. The clay mixture was applied to the arms one-half inch below the elbow, three-quarters way to the axilla; 240.6 gms. of the mixture used on the right arm gained during three and one-half hours' application 10.1 gms. in weight. A gauze pad (not heated) weighing 91 gms. and covering a like area of the left arm gained in three and one-half hours 8.2 gms.

CASE 2.—Mr. H. Diagnosis: Pneumonia. The clay mixture was applied to the most involved side; 203.5 gms. of the mixture gained .8 gm. in weight in three hours. Gauze pad (not heated) weighing 55.3 gms. applied to other side of chest gained .4 gm. in three hours.

CASE 3.—Mr. S. Diagnosis: Acute articular rheumatism and endocarditis. The clay mixture was applied to the chest; 235.2 gms. gained .9 gm. in six hours. A gauze pad weighing 58 gms. gained .4 gm. in six hours.

CASE 4.—Mr. S. Diagnosis: Myxedema and acute bronchitis 217.6 gms. clay mixture applied to the chest gained 1.7 gms. in four hours. A pad weighing 80 gms. (heated) applied to the other side of the chest gained 2.1 gms.

CASE 5.—Mr. F. Diagnosis: Acute articular rheumatism. The right knee was swollen and red; floating patella. As there was considerable fluid just beneath the skin and capsule, this was an ideal case for exosmotic action. A large area, 11 inches by 11 inches, was covered with a thick layer of the clay mixture, weighing 380 gms. The gain in weight after eighteen hours' application was 3.2 gms. A large heated pad alone, weighing 176.1 gms., was now applied to the same area and gained 3.7 gms. in weight in eighteen hours.

An analysis of the above results shows that, in the first case, the clay mixture gained 1.9 gms., in the second .4 gm., and in the third .6 gm., more fluid than a gauze pad similarly placed, but these gauze pads were not heated nor were they nearly so heavy as the clay mixture used. In Cases 4 and 5 the gauze pads gained, respectively, .4 gm. and .5 gm. more fluid than the clay mixture. In these cases the gauze pads were applied hot, but, again, were not one-half so heavy as the clay mixture used. On the whole, the gauze pads and clay mixture prove practically of equal value in taking up fluid from the skin. Furthermore, one is immediately convinced that no process of osmosis or of endosmosis is involved, for the much simpler explanation suffices, that the gain in weight is due to the absorption by the clay mixture or the gauze pad of the increased local perspiration, which latter, in turn, is due to the local application of continuous heat.

The results obtained in the dialysis experiments are also of interest. Large-sized collodion sacs were made by forming them over specially constructed test tubes. In one collodion sac was placed a sufficient amount of the clay mixture, removed from a freshly opened one-half pound can, to give a fairly thick, uniform inner coating to the sac. The total weight was 29.9 gms. This was suspended for twenty-four hours in a beaker containing normal saline solution, then removed and reweighed. There was an increase in weight of 4.6 gms. The second collodion sac was filled with absorbent cotton, the total weight being 18.46 gms. Suspended for twenty-four hours in normal saline solution there was a gain of 5.4 gms., or .8 gm. more than was gained by the clay mixture.

Two dialyzers were now constructed with membranes of fresh human skin. The epidermal layer was placed on the inner side of the dialyzer, so that the clay mixture would be directly in contact with it. Eighty-five grams of the clay mixture were then placed within one dialyzer and smeared over the membrane in a thick, even coating. The total weight was 265.7 gms. On removal, after twenty-four hours' suspension in normal saline solution, the gain in weight was 2.59 gms.

The second dialyzer was filled with absorbent cotton, so that the entire weight was 193.1 gms. On removal, after twenty-four hours' suspension in normal saline solution, the gain in weight was 3.15 gms., or .56 gm. more than gained by the clay mixture. The skin membrane in each case became softened and thickened, practically water-logged, before any fluid passed through. Whether such a condition ever occurs in the living human skin is extremely doubtful; indeed, the prevalent scientific opinion is that nothing passes from within outward through the intact skin except by way of the sweat glands. It follows, therefore, that we can rationally explain the increase in weight gained by the absorbent cotton only by absorption of fluid from the skin surface after secretion by the sweat glands, and, since absorbent cotton is more efficient, weight for weight, than the clay mixture when used under like conditions, the statement that the latter acts by means of a special process of dialysis becomes a *reductio ad absurdum*.

Whatever value the clay mixture may have in the treatment of boils is owing to the fact that it, like any other poultice, furnishes more or less constant heat and moisture; but the most ridiculous, and likewise dangerous recommendation is its use in open and septic wounds. Notwithstanding the fact that surgeons long ago discarded the use of poultices in all open-wound treatment, nearly every hospital surgeon can instance one or more cases like the following: Patient had a slight infected wound of hand; the attending physician applied a thick coating of the best known clay mixture, thus practically sealing off the infected focus. The pent up infection now rapidly involved the whole arm and the patient was brought to the hospital with a severe extensive septic cellulitis and areas of gangrene and sloughing. Such a case was quite recently treated in the surgical service at the university hospital.

In acute articular rheumatism the indications are to obtain rest and suitable support for the inflamed part and to administer the well-known internal remedies. If the local application of heat is desired, it can

be as well obtained by means of any one of our older, simpler and reliable methods.

The use of a clay-mixture poultice in pneumonia serves merely a single purpose, namely, a means for the application of heat to the chest wall. Aside from the demonstrated fact that a heated cotton pad or a flaxseed poultice is more efficient, the clay mixture has other serious disadvantages. Thus, I would point out that a thick layer of the heavy clay mixture applied to an infant's thin chest wall seriously impairs respiration; again, both in infants and in adults, the presence of the clay mixture makes it impossible to make with accuracy the careful physical examinations which here are especially needed, both to indicate the disease progress and as a basis for proper treatment. As a matter of fact, the use of heat in any form is rarely indicated in pneumonia, except when occurring in babies and in old people.

The use of cold by means of the icebag and coil is far more advantageous than heat. Cold not only relieves the pain as well as heat, but also relieves the cough and improves the breathing. Even in young children, a coil or light icebag, not kept on all the time, seems better than the use of heat, and in the cases above mentioned, where heat is useful, the cotton jacket should be used in preference to poultices. I may well end this discussion of the value of clay mixture and other poultices in pneumonia by quoting from Dr. Dock's article on "The Value of Internal Medication and Local External Applications in Pneumonia,"[1] in which he says:

> Two or three years ago it would have been unnecessary to speak of poultices in the treatment of pneumonia. They often relieve symptoms, but can usually be substituted without loss by the cotton jacket. Within a short time the poultice has been revived in a new form under the stimulating influence of printer's ink and an amount of physiologic and therapeutic misinformation that would make Rabelais laugh, but must make all judicious therapeutists grieve.

THE ETIOLOGY AND THE PATHOLOGY OF BRONCHOPNEUMONIA COMPLICATING MEASLES.*

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Bronchopneumonia is recognized as the most fatal complication of measles. While the pathology of the condition has been thoroughly investigated, there is yet much to learn regarding the etiology and the more minute pathologic changes which occur in the tissues. Many epidemics of bronchopneumonia following measles differ markedly in their clinical and pathologic features, and it is impossible to believe that such epidemics are always due to the same etiologic factor.

The occurrence of an epidemic of measles in one of the posts of the Department of California, many of the patients being sent to the U. S. Army General Hospital at San Francisco for treatment, and the complication of this condition by bronchopneumonia which occurred in a considerable proportion of these cases, has given me an opportunity to study minutely the pathology of this condition. In all, 89 cases were sent to this hospital for treatment; in 12 cases, nearly 13.5 per cent., bronchopneumonia developed, and, of these, 10 cases, nearly 84 per cent., terminated fatally.

On account of the high rate of mortality in this epidemic, and because of the similarity of the pathologic lesions in all the cases, I made a careful bacteriologic and pathologic study of each case, and I believe that the results obtained throw new light on the cause of this complication of measles. A complication which shows a mortality of nearly 84 per cent. certainly deserves a most careful study, in order to determine, if possible, the causation and character of the lesions present, in order that proper preventive and therapeutic measures may be taken to combat the disease. In this communication I shall not speak of the clinical phenomena present in these cases, but will give the pathologic conditions only.

All the cases occurred in young men between the ages of 21 and 30. In every case the disease began during the period of decline of the measles rash, although many authorities claim that bronchopneumonia is most apt to develop at the height of the eruption. The duration of the pneumonia in the fatal cases was as follows:

3 days	1 case	6 days	1 case
4 days	3 cases	7 days	1 case
4 days	2 cases	10 days	2 cases

The longest duration of the bronchopneumonia did not exceed ten days, while most cases proved fatal within a week. This epidemic was marked by great prostration of the patient and by all the symptoms of a septic intoxication. The pathology of the cases differed markedly, in many important respects, from that given by all authorities. Nine of the ten cases were accompanied by a purulent effusion into the pleura, which is stated by all authorities to be of very rare occurrence in bronchopneumonia following measles. Nine of the cases were also accompanied by abscess formation in the lung tissue, which by many good authorities is stated to be almost unknown in this disease. Beside these two marked differences in the pathology of the cases, there were numerous other pathologic lesions present in the organs which are of rare occurrence, and which show the intense virulence of the infection present in these cases. Because of these peculiarities, I believe that this epidemic is instructive, as showing what a terribly fatal disease bronchopneumonia may be in an adult when it complicates measles.

ETIOLOGY.

As I do not know the entire clinical history of these cases, I can not state whether or not exposure was a factor in producing the disease. In only three cases did the bronchopneumonia apparently originate in this hospital, and, in these cases, it was not due to exposure, as the ward was well heated and the patients were carefully nursed.

It is well known that the infecting poison in measles is especially active on the mucous membranes of the respiratory tract, and the accompanying bronchitis and coryza are depended on as initial symptoms in the disease. This peculiar action of the infective agent no doubt assists very greatly in the production of bronchopneumonia.

Cultures were made from the lungs, spleen and the contents of the lung abscesses, and in all cases examined the culture media showed a rather rapidly growing streptococcus, which in 6 cases was accompanied by the pneumococcus; in 1 case by the *Proteus vulgaris;* and in 3 cases by staphylococci. These bacteriologic findings

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1. The Journal A. M. A, Dec. 10, 1904.

* Published by permission of the Surgeon General, U. S. Army. From the Annual Report of the U. S. Army General Hospital, Presidio San Francisco, Cal., 1904.

agree with those of most authors who have studied this disease. Thus Aufrecht states that the streptococcus pyogenes is the most frequent organism found in bronchopneumonia complicating measles, together with the pneumococcus. He says: "As the cause of secondary pneumonias following the infectious fevers the streptococcus is pre-eminent." He also mentions the staphylococci, pneumobacillus of Friedlander, colon bacillus and the tubercle bacillus as having been found by various observers. Williams states that the most frequent organisms found are the pneumococcus, *Streptococcus pyogenes,* and the *Staphylococcus pyogenes aureus.* Hale states that in secondary bronchopneumonia the pneumococcus appears in about 75 per cent. of the cases, but seems less potent in giving character to the disease than the streptococcus. He also mentions the occurrence of staphylococci, Friedlander's bacillus, tubercle bacilli and the colon bacillus. There can be no doubt that the streptococcic infection produced the symptoms which were most characteristic in these cases, and which were those of a septic condition. The organs presented the lesions of a profound septic poisoning which I believe without doubt was due to the streptococcic infection of the tissues.

I have not had time nor opportunity as yet to test the virulence of these cultures on animals, but I am satisfied that experiments will demonstrate that the lesions found in these cases can be reproduced in animals, if the proper methods of inoculation are pursued, and that it will be possible to show whether these lesions depend entirely on the streptococcus or on a combination of this micro-organism with the staphylococcus or with the pneumococcus. I intend also to determine, by experiment, the value of antistreptococcus serum in combating the lesions due to this organism.

I believe that the bronchopneumonia in these cases was due to a secondary infection of the respiratory tract by the streptococcus pyogenes, the tissue of the bronchi and lungs being especially susceptible to such infection because of the infecting agent of measles, and that the great mortality was without doubt due to the peculiarly favorable condition of the tissues to such infection.

PATHOLOGY.

The lesions of this disease first appear in the bronchi and bronchioles, being quickly followed by the appearance of a peribronchial pneumonia involving the air vesicles in the immediate vicinity of the bronchus. This peculiar distribution of the lesions gives rise to the involvement of lobules instead of lobes, as in croupous pneumonia, and while in a very few cases the distribution of the lesions may become lobar, in all the cases observed during this epidemic the distribution was lobular. In describing the macroscopic appearance of the lesions in the lung, I have used the terms red and gray splenization because in every case there was present the typical lesions which are ascribed to these two stages of the disease. I do not believe that it is possible in this disease, as it is in lobar pneumonia, to separate it into distinct stages, as the lesions found differ so widely in different portions of the affected tissue. While macroscopically such a distinction often can be made, when sections of the lung are studied, it will invariably be found that it is impossible to separate the lesions into these stages with any degree of accuracy. In describing the pathology I shall only speak of the pathology of the lungs, including the pleura, the kidneys, the liver, and the spleen, as it was in these organs that the most characteristic changes occurred. In order to give an idea of the macroscopic appearances noted in the pleural cavity and in the lungs, the portions of the autopsy records describing them are here inserted.

CASE 1.—The right pleural cavity is filled with pus; the left pleural cavity is free from fluid. The right lung is partially collapsed, and the pleura is greatly thickened and covered with lymph. The lobes of the lung are adherent to one another by recent adhesions. The organ is not crepitant except at the upper lobe. Externally the lower lobe shows a marked atelectasis. On section of this lobe, condition present is that of bronchopneumonia in the stage of red splenization. A large abscess cavity measuring 2 cm. in diameter and filled with greenish pus is found at the lower border of this lobe. There are no other abscesses in any portion of the lobe. On section of the middle and upper lobes, condition present is that of bronchopneumonia in the stage of gray splenization. A small abscess cavity is present in the middle lobe measuring about ½ cm. in diameter and filled with rather thick fluid. The quantity of pus in the right pleural cavity is 1,600 c.c.

CASE 2.—The right pleural cavity is filled with pus. The lung shows a marked atelectasis, large portions being collapsed. The pleura is greatly thickened and covered with lymph and the lobes are adherent one to another by recent adhesions. The lung is not crepitant. On section, the cut surface is greyish-red in color, the bronchi being very prominent and filled with pus. The appearance is that of bronchopneumonia in the stage of red splenization. There are no abscesses present. The left lung appears fairly normal except the lower lobe, which shows marked atelectasis and is not crepitant. On section of this lobe, the condition present is similar to that in the right lung. There is no evidence of abscess formation.

CASE 3.—The right pleural cavity is filled with grayish pus. The lung is collapsed and the pleura is greatly thickened and covered with lymph. Crepitation is absent, and on section the lung is found filled with abscesses varying in size from those hardly visible to the eye to one measuring 10 cm. in diameter. These abscesses are filled with greenish pus. A large abscess is found at the lower portion of the lower lobe, measuring 10 cm. in diameter. Another measuring 2 cm. in diameter is situated at the junction of the lower and upper lobe; and another 4 cm. in diameter, involves the lower portion of the upper lobe. Beside these larger abscesses there are numerous abscesses present throughout all the lobes measuring from .25 to .5 cm. in diameter. The left pleural cavity is free from fluid, and the lung crepitant throughout. There is some evidence of atelectasis in the lower lobe, and on section of this lobe the condition present is found to be that of bronchopneumonia in the stage of red splenization.

CASE 4.—The right pleural cavity is filled with a purulent fluid. The right lung is collapsed and the pleura greatly thickened and covered with lymph. On section of this lung cut surface is rather pale in color and the bronchi are filled with pus. There are numerous minute abscesses scattered throughout the organ, measuring about .25 cm. in diameter. The left lung appears normal.

CASE 5.—The right pleural cavity is filled with pus. The left pleural cavity is free from fluid. The pleura is greatly thickened. The lower lobe of right lung is of almost solid consistence, as is lower portion of the upper lobe. On section of the lower lobe, the cut surface is dusky red in color and streaked with pus, which oozes in large quantities from the bronchi. There are numerous areas of commencing [illegible] formation and a few well-defined abscesses. On section of the upper lobe, there is no evidence of abscess formation, but the lower portion of this lobe shows marked bronchopneumonia. The left lung appears normal.

CASE 6.—The left pleural cavity is filled with pus. The right pleural cavity is free from fluid. The left lung is adherent over the apex to the chest wall by old adhesions. The lower lobe of the lung shows considerable atelectasis, but is crepitant. On section of this lobe, condition present is that of bronchopneumonia in the stage of red splenization. The bronchi are filled with pus and there are a few small abscesses

scattered through the lobe. The right lung is crepitant, save in the lower portion of the lower lobe, which on section shows a condition of bronchopneumonia.

Case 7.—The left pleural cavity is filled with pus, the right pleural cavity being free from fluid. The pleura, especially over the lower lobe of the left lung, is greatly thickened. The upper lobe of this lung is partially collapsed. The lower lobe is not crepitant and there are numerous firm tubercular feeling areas present at the lower portion of this lobe. On section of the lower lobe of the left lung numerous small abscesses are found filled with greenish yellow pus. The remainder of the lung tissue shows a condition of bronchopneumonia in the stage of red splenization. On section of the upper lobe, there is a marked atelectasis, but no evidence of very severe inflammation. The right lung is normal, save at the lower portion of the lower lobe, which shows a condition of bronchopneumonia, but there is no abscess formation.

Case 8.—The left pleural cavity is filled with fluid, which is just becoming purulent. The right pleural cavity is free from fluid. The lower lobe of the left lung is of almost solid consistence. The upper lobe is crepitant in places, and in other places there is a marked atelectasis. The pleura over the lower lobe is very greatly thickened and inflamed. On section of this lobe, the cut surface is seen to be very dark red in color. The condition present is typical of bronchopneumonia. There are numerous irregular yellow areas present marking the site of small abscesses, the largest abscess found measuring 1.5 cm. in diameter. These abscesses are filled with greenish pus. The upper lobe of this lung appears normal, save for slight congestion. The lower lobe of the right lung is involved, the condition present on section being that of bronchopneumonia in stage of red splenization.

Case 9.—The pleural cavities are free from fluid. The left lung is markedly congested externally. The pleura does not appear to be thickened, but there is considerable atelectasis present. On section, the cut surface presents typical appearance of bronchopneumonia. The remainder of this lung appears normal. The right lung is normal in appearance.

Case 10.—*Clinical Findings.*—This case is of great interest, as beside the lung condition present this patient developed metastatic abscesses in the subcutaneous tissues throughout the body. An abscess was found lying beneath the clavicle, measuring 6 cm. in diameter and filled with greenish pus. This abscess did not involve the shoulder joint, but was situated in the muscular tissue. Another abscess was opened measuring 8 cm. in diameter lying in the subcutaneous tissue behind the scapula. A large abscess was opened in the psoas region, which contained nearly 500 c.c. of greenish pus. The entire subcutaneous tissue in the lower portion of the lumbar region and the upper portion of the gluteal was infiltrated with pus, and several abscesses were also present in the subcutaneous tissue of the thigh and leg.

Autopsy Findings.—The right pleural cavity is filled with pus, the left pleural cavity being free from fluid. The right lung is not crepitant and shows an extreme degree of atelectasis. The pleura is greatly thickened and covered with lymph. The lobes are adherent to one another by recent adhesions. On section of the lower lobe of this lung, the cut surface is seen to be very dark mahogany red in color; the bronchi are filled with pus. The condition present is that of unresolved bronchopneumonia. On section of the lower portion of the upper lobe, the condition present is similar to that of the lower lobe. An abscess is opened, which is about one cm. in diameter and filled with greenish pus. On section of upper lobe, upper portion, the condition present is normal. The left lung appears normal.

THE LUNGS.

One of the most interesting characteristics of this epidemic of bronchopneumonia was the almost constant occurrence of empyema. Of the 10 fatal cases, 9 presented this condition, and in only one case was the fluid semipurulent in character, in the others the material present being rather thick pus. All authorities state that pleurisy and empyema in bronchopneumonia following measles are very rare. Thus Williams states that pleurisy with effusion is a very rare condition. Aufrecht, in his extensive article on bronchopneumonia,[1] does not mention the occurrence of this condition at all, while von Jurgensen states that effusions into the pleural cavity are not often observed in connection with bronchopneumonia, no matter in what way the latter may arise, and that the pneumonia in measles furnishes no exception to this general rule. He also states: "In my opinion, the occurrence at all of a pleuritic effusion during or following measles is a matter of chance."

The constant occurrence of empyema in these cases well illustrates the extreme severity of the infection, the quantity of pus present varying between 500 to 2,000 c.c., the average amount being 1,200 c.c. Five of the cases presented empyema on the left side and four on the right, only one case showing no pus in the pleural cavity. The pus was invariably of a greenish-yellow color, and of considerable consistence. The pleura was greatly thickened, especially over the lower lobes of the lungs, and covered with greenish-yellow lymph, which in some places had partly organized, binding the lobes together. On removal of this lymph the pleura presented a dark purple color, and numerous atelectatic areas were visible beneath it, in some places causing slight contractions of the pleura. The average thickness of the pleura was about .16 cm.

Macroscopic Appearance.—Externally the lung where empyema had developed presented the appearance which has just been described. Where empyema had not developed the lung externally was of a reddish-purple color and there was always present marked evidence of atelectasis. The areas of the lung showing this condition were greatly inflamed and collapsed. On incision the cut surface of the lung varied in appearance according to the stage of the infection. In those cases in which death occurred within three days the condition present was always that of red splenization. The bronchi were distinctly visible and presented the following structure: The cavity of the bronchus was filled with greenish-yellow pus, the walls standing out as dark reddish-purple areas surrounding this accumulation of purulent material. The surrounding peribronchial tissue presented a bright red appearance, the pneumonic condition being most marked in this situation.

In cases in which the pneumonic process had lasted for a longer time the cut surface of the lung did not present so many evidences of acute inflammation, the color being reddish-gray or grayish, and it was in these cases that abscess formation was most common. The bronchi invariably were filled with pus and the surrounding tissue was more or less inflamed. The areas showing atelectasis, which were especially frequent in those cases in which death had occurred within three days of infection, were distinctly outlined, due to the intense inflammation present.

Abscess formation: I have already spoken of the curious frequency with which empyema complicated bronchopneumonia in these cases, and shall now consider the most important complication observed, namely, abscess formation, which was metastatic in character. The occurrence of abscesses following bronchopneumonia is so rare that many authorities have denied that such a condition is possible. Aufrecht states: "No less doubtful is the appearance of abscesses in catarrhal pneumonia. They are confounded with collections of pus inside

1. Nothnagel's Encyclopedia of Medicine.

the bronchial lumen, which are not infrequently found; and if the bronchus undergoes saccular dilatation may assume a spherical form." Real abscess arising from destruction of the pulmonary tissue Damaschino had already declared to be exceedingly rare.

This statement, coming from so high an authority, illustrates the extreme rarity of abscess formation in the ordinary epidemics of bronchopneumonia, but this epidemic was characterized by the almost invariable appearance of multiple abscesses of the lung of the fatal cases, which could by no chance be confused with collections of pus in the bronchi. As will be seen from the autopsy excerpts, abscesses were present, varying in number from one to twenty or more, and in size from those just visible to the eye to those measuring 6, 8 or 10 cm. in diameter. The smaller abscesses were not well defined as regards an abscess wall and were irregular in shape. The contents did not consist of pus, but of necrotic lung tissue of a semi-fluid consistency. The larger abscesses had a well-defined wall and were filled with a thick greenish-yellow pus. Only one of the cases showed no abscess formation. The abscesses in most cases were situated in the lower lobe of the involved lung.

In one case a large abscess was opened in the upper lobe. Beside the distinct abscesses present in this case there were numerous irregular areas in which the lung tissue was necrotic for a considerable space, and so soft as to be of almost fluid consistency. These areas were no doubt gangrenous in character. The abscess invariably occurred where the atelectasis was most marked. In three of the cases abscess formation was so extensive that the cut section of the lung appeared to be entirely covered with pus, and it was only by removing it that the several abscesses present could be distinguished. In other words, the lower lobes of these lungs had been almost entirely destroyed by abscess formation. In those cases in which death occurred after the fifth day the cut section of the lung was generally of a grayish color and there were small areas present, standing out distinctly because of their light color. These gray areas are no doubt explained by the cutting off of the blood supply to the affected air vesicles, and the consequent softening and necrosis of the cellular elements.

Microscopic Appearance.—In considering the microscopic pathology of the lung in these cases the following structures have to be taken into account: The bronchi, the air vesicles, the blood vessels, the connective tissue and the pleura.

The Bronchi: In all microscopic sections it was found that the bronchioles and the smaller bronchi were occluded by material consisting of leucocytes, blood corpuscles, and more or less necrotic material, unrecognizable as regards structure. This occlusion of the bronchioles was evidently produced by inflammation of the bronchial walls, leading to a proliferation of the columnar epithelium lining them and to the exudation of serum into the bronchial canal. The sections showed an extension of this inflammatory condition into the muscular tissue and the infiltration of this tissue by large numbers of leucocytes. Where the inflammatory process had gone no farther this was the only noticeable change in the bronchioles. In the majority of cases, however, the inflammation had extended to the peribronchial tissue, involving the air vesicles surrounding the bronchioles. In every case properly stained, immense numbers of streptococci could be observed in the exudation within the bronchioles, and in those cases in which pneumococci were obtained by culture, these organisms also were present in this situation. The blood vessels in the vicinity of the bronchi were invariably engorged, in many places they were entirely occluded by plugs consisting of red blood corpuscles, lymphoid cells and leucocytes. In every case examined rupture of the smaller capillaries had occurred, and hemorrhagic areas were formed, filled with red blood cells.

Air Vesicles: The sections showed that the air vesicles in the immediate vicinity of the bronchi—that is, in the peribronchial region—were first involved. The surrounding capillaries were entirely filled with blood and were greatly distended; in some places so much so that rupture had occurred, resulting in the destruction of numerous air vesicles which were replaced by great collections of red blood corpuscles, lymphoid cells and leucocytes.

Where rupture had not occurred, however, the air vesicles were distinctly outlined by these congested capillaries. In the immediate vicinity of the bronchi the outline of the air vesicles was lost; this was due, probably, to the extension and accumulation of cellular material similar to that contained within the air vesicles. Where the air vesicles were distinctly outlined they seemed in the early stages of the process to be entirely filled with a cellular exudate composed of the epithelium lining the air vesicles; numerous leucocytes and a few red blood corpuscles which had penetrated the surrounding capillaries. As the process extended, this cellular exudation was so great that in places rupture of the walls of the air vesicles occurred, and large areas of the lung tissue were composed of this material alone. Beside the cells which I have mentioned as occurring in the air vesicles there occurred two peculiar forms of cells, one resembling the giant cell in structure, being irregular in shape and containing several nuclei. These, however, were not giant cells, but were produced by the destruction of numerous cells which became merged in each other, thus giving the giant-cell appearance. The other peculiar cell noticed was mononuclear in character and filled with pigment. This pigment occurred in the form of minute granules or slender rods of a brownish-yellow color, and in many instances almost filled the cell. These pigment cells were especially numerous in the peribronchial tissue, as were also the giant cells. The cells lying within the air vesicles were undergonig various forms of degeneration, the most common being a vesicular swelling of the nucleus. In fact, this form of degeneration was present in almost every cell lying within the air vesicles. Fatty degeneration of the protoplasm and albuminoid degeneration were almost invariably present. There was also great distortion of the individual cells, and globular cells were especially frequent. The occurrence of mononuclear cells, both large and small, was very characteristic in all the sections. In fact, the vast majority of the cells present in the affected areas were mononuclear in character.

Where atelectasis had occurred the walls of the air vesicles had collapsed and were lying together, and at such places there was always a marked accumulation of small mononuclear and polynuclear cells.

The microscopic examination showed numerous places in which there was marked focal necrosis, evidenced by extensive degeneration of the tissue and by the accumulation of immense numbers of leucocytes, and a large amount of granular necrotic material. These areas no doubt in time would have given rise to abscesses, as the structure of the smaller abscesses exactly resembled these

areas, save that the necrotic material was greater in amount; the larger abscesses were composed of a well-marked abscess wall, fibrous in character, but always showing a marked infiltration by leucocytes. Numerous streptococci could be demonstrated in the areas of focal necrosis and also in the contents of the smaller abscesses.

The cells lying within the air vesicles, at some distance from the peribronchial tissue, had undergone hyaline degeneration; they presented a homogeneous appearance as the nucleus had entirely disappeared. This form of degeneration is undoubtedly due to the action of the toxic materials.

Blood Vessels: I have already spoken of the intense engorgement of the blood vessels, which include both the larger vessels and the capillaries. In some places this engorgement had been so great that extensive hemorrhages had occurred from the capillaries, producing areas composed entirely of red blood corpuscles and leucocytes. This condition resulted in the destruction of the lung tissue in such areas.

Connective Tissue: The connective tissue was not increased in amount, but rather decreased except where the larger abscesses were situated and around some of the larger blood vessels. In these regions the newly-formed connective tissue was invariably densely infiltrated by young connective tissue cells and leucocytes.

The Pleura: Sections of the lung showing the pleura invariably presented marked thickening of this structure and infiltration by leucocytes and young connective tissue cells. A characteristic and peculiar lesion present was the formation of cystic areas, which were filled with blood and degenerated cellular material, at the junction of the pleura and the lung. These cystic areas were no doubt due to the rupture of capillaries and the consequent collection of the contents of such capillaries in cavities lying between the connective tissue fibers and the pleura. In many sections these cystic cavities were so numerous as to form an almost unbroken chain at the junction of the lung tissue and the pleura. The outer layer of the pleura was invariably found to be covered with necrotic material and in this material streptococci and other bacteria were demonstrated. In all sections of the lung the absence of fibrin was very noticeable, even in those areas where resolution was commencing. It was but seldom that bacteria could be demonstrated in the contents of the air vesicles.

Summary.—The pathologic lesions present may be summed up as follows: A marked inflammation of the bronchioles followed by extension to the peribronchial tissue; in many cases the process did not stop here, but extended further into the lung tissue, producing an almost lobar pneumonia, in that nearly the entire lobe was involved. The peculiar lesions found in this epidemic were the occurrence of empyema and abscess formation in the lung.

LIVER.

Macroscopic Appearance.—The liver was invariably enlarged. The capsule was smooth, color of the organ yellowish red and consistence decreased. On section, in every case, fatty degeneration was found present; generally it was of localized extent and was especially marked near the capsule. Congestion of the organ was invariably present. The lobules were indistinct and the cut surface presented a rather cloudy appearance.

Microscopic Appearance.—The examination of sections of the liver showed a condition of fatty degeneration and acute venous congestion. The capsule was not thickened, but the connective tissue in the portal spaces was increased slightly in amount and was infiltrated by young connective tissue cells, and by mononuclear and polynuclear leucocytes. The capillaries were congested in many places, so much so that rupture had occurred, and large portions of the liver lobules were replaced by red blood corpuscles and leucocytes which had escaped from the ruptured vessels.

A peculiar conditon present was the great accumulation of mononuclear leucocytes in the intralobular capillaries. This condition occurred in every case and was observed in every section of the liver. It was so marked as to resemble the condition found in lymphatic leukemia. The mononuclear cells did not present any evidence of degenerative changes. It is impossible to explain the occurrence of this variety of cell in such great numbers in the liver capillaries, but that it is of some practical significance I can not doubt, as it occurred in every case and in every section which was examined.

In the cases in which fatty degeneration was present the protoplasm of the liver cells was replaced by fat granules and the nucleus had been destroyed or stained poorly. When this form of degeneration was not present various other forms of degeneration were noticed in the liver cells, the most common being the albuminoid and the peculiar forms of hyaline degeneration which I have mentioned as occurring in the cells of the air vesicles. The liver cells were invariably distorted and swollen, and in many marked pigmentary deposits were observed, the pigment being in the form of minute granules or slender rods resembling that which has been described as occurring in the pigment cells in the lung. Many of the liver cells showed an entire destruction of the nucleus and a loss of staining properties.

Summary.—The microscopic pathology of the liver may be summed up in marked degenerative changes in the liver cells, great congestion of the capillaries, the occurrence of large numbers of lymphoid cells in the intralobular capillaries, and pigmentary deposits in the protoplasm of the liver cells and areas of focal necrosis.

THE KIDNEYS.

In every case sections of the kidneys showed the lesions of a very severe hemorrhagic nephritis.

Macroscopic Appearance.—In each case the kidney was somewhat enlarged and appeared greatly congested externally. None showed the presence of cystic degeneration, and in all the capsule was not adherent, and the stripped surface was very greatly congested. On section the cut surface in all the cases was intensely congested, but the cortex and pyramids were distinct. The cortex was considerably thickened and the malpighian bodies greatly enlarged, standing out very prominently as bright red dots in the cortex. The intertubular capillaries were engorged, giving the cortex a markedly striated appearance. The pyramids were intensely congested. The mucous membrane of the pelvis in all cases was considerably congested and the pelvis contained more or less urine almost semipurulent in character.

Microscopic Appearance.—The connective tissue of the kidney was not increased in amount, and the capillaries, especially the intertubular capillaries, were greatly engorged with blood. A characteristic lesion in all the sections was the presence of immense collections of blood lying between the tubules and in them, these collections being due to the rupture of the over-distended capillaries. In many sections this hemorrhage into the tubules was so marked as to constitute the chief pathologic picture present. The epithelium lining the tubules showed various forms of degeneration, the most common

being fatty, albuminoid and hyalin. The cells were distorted in shape and could be seen in all stages of detachment from the basement membrane. Large numbers of granular, epithelial and blood casts were present in the sections, and the hyaline degeneration mentioned was a characteristic lesion occurring in the cells of the tubules and in the glomeruli. These cells stained homogeneously and poorly. No structure could be distinguished, even with the highest power of the microscope, nor could the distinction be made out between the separate cells. Where this condition had occurred in the glomerulus the structure was entirely lost, the capillary tuft appearing as a homogeneous, structureless, faintly staining mass. In many places the tubules were greatly dilated and entirely empty, the entire epithelial lining of the tubule having been destroyed and removed.

The changes in the glomeruli consisted in great congestion of the capillary tuft, in many instances leading to rupture, and the occurrence of hemorrhage, filling the entire glomerular space. Where this condition was not present there was marked proliferation of the epithelium covering the tuft and lining Bowman's capsule, resulting in an entire obliteration of the capsular space. Areas of focal necrosis were observed in the glomeruli and rarely in the tubules and surrounding tissue. In two cases, metastatic abscesses, microscopic in size, were observed, consisting of a collection of necrotic material, mononuclear and polynuclear leucocytes, and bacteria, chiefly streptococci. In the capillaries were observed the same preponderance of mononuclear cells which were so conspicuous in the capillaries in the sections of the liver.

Summary.—The pathologic changes in the kidney consist, then, of lesions of a very severe acute nephritis, characterized by the occurrence of hemorrhage into the tubules and glomeruli, and by the occurrence of areas of focal necrosis and hyaline degeneration. A peculiar condition found in the tubules in which the hemorrhage had occurred consisted in the entire destruction of the epithelium lining the tubules and the covering of the basement membrane by a row of red blood corpuscles. In every section this appearance was observed, the kidney tubule appearing to be lined by red blood corpuscles instead of by tubular epithelium.

THE SPLEEN.

The pathologic lesions in the spleen consisted in acute venous congestion and the crowding of the splenic sinuses with various forms of cells, the most common being mononuclear leucocytes and macrophages.

Macroscopic Appearance.—In all the cases the spleen was greatly enlarged, generally being about twice as large as when normal. The capsule was tense and the organ of a dark reddish-purple color externally. The consistence was decreased, and the weight increased. On section the cut surface was dusky red in color, with numerous areas of a dark mahogany color marking the site of hemorrhages into the parenchyma. The malpighian corpuscles were invisible, or very slightly visible as light reddish areas, although microscopically these were found to be considerably enlarged. The substance of the spleen was almost diffluent in character.

Microscopic Appearance.—The cells in the splenic sinuses contained a large amount of pigment. The sections showed that the capillaries of the organ were greatly congested, and here again hemorrhages were very frequent, resulting in the production of large hemorrhagic areas replacing the normal splenic tissue. The connective tissue of the spleen was not increased in amount. The malpighian corpuscles were invariably enlarged and contained numerous pigmented cells resembling those found in the lungs and in the liver. The lesions in the spleen were not so characteristic as those found in the other organs, but were typical of an acute septic condition. In three cases small areas of focal necrosis were present in the spleen, resembling those found in the lungs, liver and kidneys.

FOCAL NECROSIS AND HYALINE DEGENERATION.

On account of the constant appearance of areas of focal necrosis in the lung, liver, kidneys and spleen, a more detailed description of this condition may be of interest. These areas were situated in the lung, in the exudation in the air vesicles, and also involved, in many instances, the capillaries and walls of the vesicles. In the liver they were situated within the lobules and involved the liver cells in the locality affected. In the kidney they were found chiefly in the cortex, involving, in some instances, the tubules alone, and in others both the tubules and the glomeruli, and in still other instances, portions of the glomeruli alone were affected. In the spleen they were found in the malpighian corpuscles, and also involved the splenic sinuses and the cells within them. This condition has been observed in some of the infectious diseases, such as typhoid, tuberculosis, and in forms of poisoning due to chemical agents; in these cases the focal necrosis was undoubtedly due to some toxic material circulating in the blood, as in very few of the areas showing this form of degeneration could any bacteria be demonstrated. The chief pathologic lesions present were degeneration of the nuclei of the cells in the region involved, and the hyaline or granular degeneration of the protoplasm, with loss of distinction of the separate cellular elements. The nuclear changes consisted in the breaking up into a number of particles and granules of the chromatin and dispersion of these chromatin particles throughout the entire affected area. In many instances the nucleus, while it retained its form, had lost its staining properties, due largely to the destruction of the chromatin. The cells in the involved areas were distorted in shape, and where the process had extended still further they were entirely destroyed, all that remained being a mass of granular deposit entangled in some peculiar material resembling fibrin. While these changes were noticeable in the cells of the tissues involved, the most marked change consisted in a great accumulation of leucocytes which infiltrated the mass of necrotic material. Many of these leucocytes showed granular, fatty and hyaline degeneration, some of them being almost entirely destroyed. In none of the areas observed was there any evidence of regeneration of the tissue. Microscopically these areas consisted of a mass of more or less degenerated cellular material derived from the cells normally found in the connective tissue infiltrated by leucocytes, and in a few instances by bacteria, chiefly streptococci. I believe that the cause of this condition was toxic material in the circulating blood, this material probably being present in the form of toxalbumins. The condition also may have been produced in part by thrombosis occurring in the capillaries, thus cutting off from the affected tissue its source of nutrition. Whether these areas of focal necrosis were due to the toxins produced by the streptococci or to poisonous materials produced during the measles infection it would be impossible to say, but I am inclined to believe they were due to the secondary infection by streptococci.

The form of degeneration which I have called hyaline, occurring so frequently in the cellular elements of the

lungs, liver, kidney and spleen, consisted in a peculiar degeneration of the protoplasm and nucleus, evidenced by great swelling and distortion of the cell, disappearance of the nucleus, and peculiar staining reactions. Areas showing this form of degeneration stained homogeneously, and the most careful examination did not demonstrate any peculiar structural change except the entire disappearance of the cell, nucleus, and the replacement of the normal protoplasm by a mass of hyaline material without distinct structure. Such areas were clearly mapped out in sections from the areas surrounding them by the fact that they took the stain homogeneously throughout, all trace of distinction between the cells being entirely lost. The name hyaline degeneration is generally applied to a peculiar change occurring in the connective tissues, and it is necessary to differentiate this form of hyaline degeneration from the form widely known as hyaline change.

The form of degeneration occurring in these cases affected the cellular elements as well as the connective tissue in the regions involved. It affected not only the cells in the connective tissue, but the capillaries also, the entire structure of the organ in such regions being lost and replaced by a homogeneous staining mass in which no structure could be recognized. There can be no doubt that this peculiar condition was due to toxic materials circulating in the blood. In all the organs the cellular elements were especially affected and the change was most noticeable in the kidneys, where the cortex showed the process in its greatest severity.

From a summary of the macroscopic and microscopic pathology of the organs from these cases of bronchopneumonia it is evident that the infection was of a septic character, producing very severe and rapidly fatal lesions in the organs mentioned. The peculiar pathologic lesions present were the occurrence of hemorrhages in all the organs, areas of focal necrosis, hyaline degeneration, empyema, and abscess formation in the lungs, kidney and spleen, and the occurrence in the capillaries of the liver and kidney, and in the air vesicles of the lung, of large numbers of lymphoid cells. I believe that it is justifiable, from the lesions present, to conclude that this epidemic of bronchopneumonia complicating measles, and showing such a high mortality, was due to secondary infection of the diseased mucous membrane of the respiratory tract by streptococci, with consequent production of a bronchopneumonia associated with a pyemic infection due to these organisms.

Special Article

IMMUNITY.

CHAPTER XII.

PRECIPITINS.

Because of their scientific importance and certain practical features the serum-precipitins should receive something more than the incidental mention which has been given them under agglutination and in other chapters.

In 1897 Kraus discovered that bouillon cultures of the organisms of typhoid, cholera and plague, from which the bacteria had been removed by filtration, would cause precipitates when mixed with their respective antiserums. The reaction is specific. As stated later, however, this specificity holds only when those quantitative relationships are observed which were found so essential for the agglutination test. The precipitins of Kraus are the bacterial precipitins. He proposed their use for the identification of micro-organisms. If, for example, one has in hand a culture which he suspects to be that of the typhoid bacillus, it may be grown in a liquid medium, the cells removed by filtration, and the filtrate mixed with a known antityphoid serum; if a precipitate occurs when the serum is sufficiently diluted, the reaction indicates that the organism in question is the typhoid bacillus. Inasmuch as precipitins are formed during the course of some infections it may be possible to use them in clinical diagnosis, but for either bacterial or clinical diagnosis the agglutination test is more readily performed and interpreted.

Bacterial Precipitins.

In addition to bacterial precipitins we have also to recognize the phytoprecipitins. These are produced by immunization with albuminous substances of plant origin, as ricin and albumin from grains, and their action is specific for the homologous substance. Zoöprecipitins are those which are obtained by immunizing with an albuminous fluid from some animal. Through the work of Wassermann and Uhlenhuth, of Nuttall and others, it has been demonstrated as a general law that immunization with an albumin from whatsoever source gives rise to the formation of a precipitin which manifests its action only against the particular albumin used for the immunization. Hence, the albumin of a particular serum, in some unknown respect, is different from that of all others; it is special to the species.

Phytoprecipitins and Zoöprecipitins.

Immunization with milk causes the formation of a precipitin which throws down the casein of the milk used for injection, but not that of milk from another species. The milk of the goat may be differentiated from that of the cow by the use of the lactoserum.

Lactoserum.

Likewise, after the injection of egg-albumin a precipitin is formed which is specific for the type injected.

Three substances are open to study in the precipitation reaction. First, the fluid or substance which is used for immunization; it bears the name of precipitogen, just as the analogous substance is called agglutinogen, as indicated in the preceding chapter. Second, the specific constituent of the precipitating serum-precipitin. Third, the precipitate, which is a consequence of the reaction between precipitogen and precipitin. We are able to recognize in this instance the actual end-product of a reaction, a condition which is not so easily realized in other "immunity reactions." It is true, of course, that little has been learned concerning the nature of the end-product; its chemistry is as dark as that of the proteids in general.

Precipitogen, Precipitin and Precipitate.

As stated in the chapter on "Natural Immunity," some serums normally have the power to cause precipitates in other serums. Precipitins for egg albumin and goat serum have also been found in extracts of organs, although at the same time they were absent from the serum of the animal. In this case the active body exists normally in the cells in the form of sessile receptors, as they have been called, and by the process of extraction they are brought into solution. During immunization these same receptors are stimulated to overproduction and are thrown into the circulation as free precipitin receptors, or serum-precipitin.

Formation of Precipitin.

The power of forming precipitins may be widely distributed among the organs; the leucocytes apparently have this function, and in one case they were formed locally in the anterior chamber of the eye.

For the artificial production of precipitins the precipitinogenous fluid may be injected into the veins, peritoneal cavity or the subcutaneous tissue. Within from four and a half to five days the precipitin has been formed to such an extent that it may be demonstrated in the serum of the immunized animal.

As in the case of agglutinin formation, not all animals have

equally the power of forming a precipitin for a given albumin.

Concerning Autoprecipitins and Isoprecipitins.

This point, as related to serum precipitins, is of particular importance, and involves a factor which is of no consequence in agglutinin production. In the first place, an animal will not form a precipitin which is active against its own serum; i. e., by bleeding an animal and reinjecting the serum a specific precipitin is not formed. If formed it woud be an autoprecipitin, and, as a general rule, animals do not form antibodies for their own tissue constituents. Again, animals are unlikely to form antibodies for the tissue constituents of other members of the same species; these, when formed, are called isobodies. Schütze immunized thirty-two rabbits with serum from the rabbit and obtained an isoprecipitin from only two of the number. In the third place, animals do not readily form antibodies for the tissue constituents of other animals which zoölogically or biologically are closely related; immunization of the guinea-pig with the serum of the rabbit, a pigeon with that of a chicken, or a monkey with human serum, are procedures which usually do not yield precipitating serums.

Chemically, little is known of precipitins. They are thrown down by certain salts in conjunction with the euglobulin fraction of serum, and are destroyed by those substances which alter albuminous bodies, as acids, alkalies, pepsin and trypsin.

Nature of Precipitin.

When the serum is heated to from 50° to 60° C. its ability to cause a precipitate in the homologous precipitogen is destroyed, although it may be demonstrated that the power to combine with the latter is unchanged. Hence precipitin, like agglutinin, is composed of two groups, a binding or haptophorous, and a ferment-like group in which the active property resides; the latter is the coagulin of the molecule. When precipitin has lost its coagulin it becomes precipitoid, and as precipitoid it may unite with precipitogen and thereby may inhibit the action of a fresh precipitin which may be added later. When a precipitating serum has partly degenerated into precipitoids, that is, when it consists of a mixture of precipitin and precipitoid, it is found that the latter have the greater affinity for precipitogen, hence, in concentrated solutions of the serum, precipitoid may be present in sufficient quantity to bind all the available precipitogen and the reaction would not occur in spite of the presence of active precipitin. This is spoken of as specific inhibition. The action is analogous to that of toxoids and agglutinoids, and the phenomenon is mentioned again in this instance in order to emphasize the fact that certain laws of action are common to many of the immune substances however much they may differ in their actual structure and in the nature of the changes they produce in their specific antitypes. Precipitoids, like toxoids and agglutinoids, are formed by long standing, by the action of heat and light and by other injurious influences.

Specific Inhibition.

The molecule of precipitin, like that of agglutinin, is a receptor of the second order (Fig. 6).

The attempt has been made to produce antiprecipitins by immunization with precipitating serums; this is immunization with an immune serum. It is reported that antibodies have been obtained for lactoserum, but not for bacterial precipitins. There is a limit to the cycle of antibody formation.

Antiprecipitins.

Precipitogen may be defined as any albuminous substance immunization with which will cause the formation of a specific precipitating serum. In addition to those mentioned above, albuminous urine, pleural exudates, ascitic fluid and that from hydrocele are precipitogens. The same is true of some albuminous fractions of serums, as globulin; one may speak, in this instance, of antiglobulin. Kraus believes that the precipitogen of bacterial filtrates also is associated with albuminous molecules, but although the tendency is to accept this relationship as general, Jacoby obtained by tryptic digestion of ricin, a precipitogen which gives no albumin reaction. On the other hand, certain precipitogens are destroyed by pepsin and trypsin, a fact which indicates their albuminous nature.

Nature of Precipitogen.

A given precipitogen sometimes consists of a portion which is resistant to heat and another which is destroyed at low temperatures. Certain precipitogens, for example egg albumin, when heated to rather high temperatures, lose their ability to participate in the precipitation reaction, although they retain the binding power for precipitin; therefore, precipitogen also consists of a binding group and another group which is similar to the coagulin of the precipitin molecule. In view of the fact that the two substances which enter into the reaction have similar structures it is difficult to say which assumes the passive and which the active rôle. The degenerated precipitogen is also called precipitoid. In order to distinguish the two precipitoids one must speak of the precipitoid of precipitogen, and the precipitoid of precipitin. The precipitoid of precipitogen yields precipitin by immunization; hence it is all the more analogous to the toxoids.

Precipitoid Derived from Precipitogen.

The precipitate which is caused when a bacterial filtrate is mixed with its specific serum forms in from one-half hour to several hours, and appears as a coherent white sediment which in the course of twenty-four hours has left the overlying fluid quite clear. The action of the antiserum precipitins is somewhat more rapid, and in either case sedimentation is hastened by placing the fluids at body temperature. As intimated above, the occurrence of the reaction depends on an intact condition of the coagulin groups of both substances. A low concentration of organic acid favors, whereas mineral acids and alkalies inhibit or prevent precipitation; a neutral reaction is indifferent. The precipitate contains albumin, which, however, has become changed so that it is not susceptible to the action of trypsin. The two in combining have in some way shut off the point of attack for trypsin. In milk, casein is precipitated by the lactoserum. As in agglutination, the presence of salts is necessary for the formation of the precipitate.

Precipitate.

Group precipitation is not so pronounced a feature of precipitins as we found group agglutination to be in connection with agglutinins, yet it exists to a certain degree and is of the utmost practical importance in attempting to differentiate serums by the precipitation method. Although bacterial precipitins are highly specific, it is important to observe the principle of serum dilution which was emphasized under agglutination, in order to obtain the adventitious precipitins in such small amounts that they do not interfere with the chief precipitin.

Group Precipitation and Specificity.

That feature of the precipitation reaction which has the most practical bearing has to do with its medicolegal use in the detection of human blood. For this purpose it has supplanted the specific hemolytic serums, which are to be referred to later. In the course of investigations it was found that even the smallest dried blood stain, although months old, when mixed with its homologous precipitating serum, would cause the formation of a sediment. It remained for certain important details to be worked out in order to render the test sufficiently reliable for forensic work. The specificity of the reaction appeared to be threatened somewhat, when it was learned that the serum of monkeys undergoes precipitation when treated by an immune serum which is specific for human serum. This is, again, group precipitation. Adventitious precipitation is, in fact, so widespread that some have felt justified in speaking of a mammalian serum reaction. Hence, in order to insure specificity it has become necessary to use precise quantitative methods in differentiating bloods or serums by this method. The immune serum to be used must be diluted to some extent, for the reason indicated; but even a more important precaution is the volumetric measurement of the precipitate which is formed. The technic of Schur may

Forensic Use of Precipitins.

be cited. Test tubes are so made that the lowermost portion consists of a graduated capillary tube; 1 c.c. of the fluid to be tested is placed in one of these tubes, to which is then added 0.2 c.c. of the precipitating serum. The mixture is kept at body temperature until the reaction is complete, and the sediment is then thrown into the capillary portion of the tube by centrifugation for a stated period of time (twenty minutes). The volume of the sediment may be read by the scale. Nuttall allows the sedimentation to occur naturally, with the tubes in an upright position. Other serums naturally must be used as controls. If the "unknown" blood is suspected of being human, a control tube must be prepared in which a similar amount of known human serum is submitted to the same test. If the two tubes yield similar amounts of precipitate when they are treated with 0.2 c.c. of a precipitin for human serum, the identity of the "unknown" blood as that of man is established. To obtain the specific precipitin it is customary to immunize rabbits with human serum for several weeks.

Another practical feature of the precipitation test has to do with the differentiation of meats. A precipitogenous substance which is characteristic for the animal may be extracted or pressed from the tissue, and will yield a precipitate when it is mixed with a precipitin of homologous nature. This is of particular interest in those countries in which the meat of the horse is put on the market as a substitute for that of beef.

Identification of Meats.

The possible relationship of precipitation to bacterial agglutination was referred to in the chapter on "Agglutination."

In connection with precipitation and also agglutination certain work with the so-called colloids may be mentioned briefly.

In view of the fact that the protoplasm of the body and the albuminous constituents of serum have a close relationship to, or really are, colloids, investigators have studied certain reactions which occur among the known colloids with the expectation that the reactions of protoplasm and those of serums would receive some elucidation.

Colloids and the Reactions of Immunity.

Substances which go into solution were classified by the English physicist, Graham, as crystalloids and colloids. Crystalloids include many inorganic salts. Usually they form clear solutions in water and exhibit an osmotic pressure, supposedly because of the small size of their molecules. They diffuse with some rapidity and many are conductors of electricity. Organic colloids comprise such substances as albumin, starch, dextrin, tannin, gelatin and many gums. By proper treatment of certain metals and their salts inorganic colloids may be prepared; for example, ferric hydroxid and the sulphids of antimony and arsenic. When colloids are dissolved in water the solutions are often more or less opaque, and are sometimes opalescent because the particles or molecules are of such size that they polarize light. They exist in water either as a solution of molecules of great size or as a suspension of considerable particles or aggregates of molecules. In some instances the particles are so large that they may be seen by a magnification of 1,000 diameters, while in others no degree of magnification renders them visible with the ordinary microscope. By the use of the recently devised ultramicroscope, however, the finest particles in some colloidal solutions may be discerned. Colloidal substances, such as albumin, diffuse very slowly and exert little or no osmotic pressure, supposedly because of the large size of the particles. They do not conduct electricity, but the particles themselves react to the electric current by alterations in the direction of their motion (i. e., toward the positive or the negative pole), and moreover carry electric charges themselves.

Properties of Colloids.

The features of colloids which bring them into relation with the subject in hand are their coagulable nature in certain instances and the fact that their particles may be agglutinated or precipitated by the addition of minute amounts of salts (electrolytes). In this connection one naturally recurs to the observation of Bordet, which was mentioned in the preceding chapter, concerning the inagglutinability of micro-organisms so long as salt is withheld from the solution. This analogy would suggest that the bacteria after their union with agglutinin may conduct themselves as colloidal particles. When colloids are precipitated by salts, it is thought that they so alter the electric condition of the particles that the surface tension is decreased, and as a result of this change neighboring particles coalesce in such quantities as to produce a visible sediment.

Precipitation of Colloids by Electrolytes.

Neisser and Friedberger have studied certain colloids, having in mind the similarity of their behavior to serum reactions. They found, for example, that two of our common dyes which are colloids and bear opposite charges of electricity (eosin and Bismarck brown), give rise to a precipitate when the two are mixed. Furthermore, the specific inhibition which may be obtained in the reaction with serum precipitins (see above) could also be realized with the eosin and Bismarck brown.

The agglutination of bacteria and of red blood cells may also be accomplished with colloids. Landsteiner agglutinated erythrocytes with colloidal silicic acid.

The facts which have been cited, and others which have appeared in recent literature, assume all the more significance when we bear in mind the colloidal nature of the albuminous portion of serum with which the "immune bodies" are so closely associated.

(To be continued.)

Clinical Reports

AN UNUSUAL CASE OF ANEMIA.*

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AND
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SAN FRANCISCO.

Patient.—F. J., aged 36, native of Germany, by occupation a teamster, entered St. Luke's Hospital Sept. 21, 1903.

History.—Family history unimportant. He drank to excess and smoked moderately. Six years ago he dropped a piece of iron on the first and second toes of the right foot, which accident was followed by "blood poisoning." Three years ago his right eye was destroyed by a shot. About two months ago he had a severe cold and a nosebleed, which lasted two and one-half hours; he lost a great deal of blood. Since then has felt weak and faint. He had nosebleed once since, but not so severely. Bowels were constipated.

Examination.—Patient was fairly well developed and nourished. Face was pale with dilated capillaries. Right eye was artificial; left reacted normally. Tongue was pale, flabby and tremulous. Lips were pale. Chest was fairly well developed. Heart dullness extended 2 cm. to the left of mammary line; sounds rather weak; first sound at mitral area impure, second pulmonic accentuated. A systolic murmur was heard over pulmonic area, and heard also very faintly over aortic area, and transmitted to vessels of the neck. In the lungs nothing abnormal was found. Liver and splenic dullness were normal and abdomen was not distended. Right leg and foot edematous, and discolored in small areas or patches, almost to the knee. A large gangrenous-looking ulcer was situated on the outer aspect of the lower third of the right leg, about 7 by 10 cm. in area; the ulcer had a slight odor. This ulcer had been present about a year. Temperature 100 F., pulse 96, regular; right pulse small; left could hardly be felt; respiration 24.

Urine: 56 ounces, pale, alkaline, cloudy. The specific gravity was 1,014, and the urine contained triple phosphate crystals and amorphous urates.

Blood examination: Red cells, 1,150,000; hemoglobin, 30 per cent.; leucocytes, 7,300; differential: polymorphonuclears, 6 per cent.; small lymphocytes, 91 per cent.; large lymphocytes, 2 per cent.; eosinophiles, 1 per cent.; no nucleated red cells; no marked poikilocytosis; no polychromatophilia.

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* Read before the California Academy of Medicine, 1904.

Later History.—September 27: About noon there was a hemorrhage from the nose, blood exuding from both nose and mouth. This hemorrhage lasted a considerable time, the patient meanwhile complaining of headache. This was followed the next day by another hemorrhage though not so severe, and again the following day (September 29) there was a prolonged severe hemorrhage. He grew progressively weaker following these hemorrhages, and on the morning of the day before his death he had a chill. His temperature from the time of his admission until September 25 fluctuated from normal to 101, gradually rising to 103 on the night of the 28th, when it slowly fell, reaching 97.4 before his death, which occurred October 1.

September 30: A blood count revealed 770,000 red cells; hemoglobin, as nearly as could be estimated, 10 per cent.; leucocytes, 2,300; polynuclears, 6 per cent.; small lymphocytes. 90 per cent.; large lymphocytes, 4 per cent.; no eosinophiles seen; there were no nucleated reds, but some poikilocytes.

An examination of the stools failed to reveal any evidence of intestinal parasites or ova.

Treatment.—Medication consisted in iron and arsenic; also calcium chlorid in dram doses by the rectum, and adrenalin chlorid hypodermically. Mechanical means were also used in the effort to control the hemorrhages.

Autopsy.—Two hours after death: Body is that of a medium-sized man. General nutrition is rather good. Postmortem rigidity is almost absent. There is slight lividity over back and buttocks. There are a few small petechial spots in skin of both arms, and larger petechial spot over left clavicle. Femoral glands on both sides are just palpable. No other superficial lymph glands can be made out. Right ankle is somewhat swollen, but does not pit on pressure. There is a large, deep ulceration 6 by 4.5 cm. just above external malleolus posteriorly, and a small superficial ulceration to right of large ulcer, also very small superficial one to left. Edge of deep ulcer shows little induration. Floor of ulcer is covered with pale, dirty-looking sloughy material. Small white scar is on dorsal surface of left hand, and old white scar 2.5 by 1 cm. below patella on outer surface of leg. There is a large scar on anterior surface, upper third of thigh 6.5 by 4 cm.

Abdomen: Subcutaneous fatty layer, average 1.2 cm. Peritoneum pale, smooth, shiny, no fluid. Liver 2.5 cm. below costal margin. Spleen, 11.5 by 5 by 2.2 cm.; weight, 108 gms. Capsule slightly thickened; consistency firmer than normal; rather pale. Adrenals, both sides normal. Left kidney, 11.5 by 5.8 by 4 cm.; weight, 166 gms. Remains of fetal lobulations seen; very pale; capsule adherent in a few small areas; kidney markings distinct, about normal. Right kidney, 11 by 5.8 by 4 cm.; weight, 161 gms.; capsule adherent over a few small areas; cortex contracted at these places. Bladder distended, containing about 500 c.c. of urine; appears normal. Prostate normal. Liver, 27.2 by 17.8 by 7.5 cm.; weight, 1,830 gms.; very pale, yellowish brown color. Diaphragm, fourth rib, right side; fourth interspace, left side. Omentum well supplied with fat. Gall-bladder duct patulous, contains about 150 c.c. dark greenish bile. Stomach contains about 300 c.c. of well-digested material. A number of small cyanotic areas about 5 mm. in diameter scattered over surface of stomach. Some postmortem digestion. Intestines pale, otherwise apparently normal. Lymph glands along inferior vena cava vary in size from the size of a millet seed to that of a shelled almond. Some glands enlarged also along right iliac vein.

Heart: Weight, 304 gms.; muscle, pale brownish color, rather flaccid consistency. Aorta: Circumference highest part of arch, 5.6 cm.; a number of small yellow patches seen on intima.

Liver: Moderate amount of fat, mostly in periphery of lobules; a small amount of brown pigment in some of liver cells; this pigment gives the iron reaction.

Pleura: No fluid on either side; no adhesions; pleura pale, glistening.

Left lung, 22.2 by 5.5 by 3.8 cm.; marked anthracosis; otherwise normal. Right lung, 19 by 10.5 by 4 cm.; marked anthracosis.

Peribronchial lymph glands: A few enlarged to about the size of a shelled almond; anthracosis and induration.

Microscopic Examination.—Heart: Small amount of brown pigment in some of the muscle cells.

Spleen: Slight thickening of capsule; some brown pigment in a number of the cells of the spleen pulp.

Lung: Marked anthracosis.

Adrenals: Normal.

Kidneys: Considerable increase in interstitial connective tissue in the small areas over which capsule was adherent; otherwise normal.

Ulcer of leg: Floor of ulcer is formed by young connective tissue with hyperemic veins; some infiltration with lymphocytes; small amount of necrotic material on surface of floor of ulcer; practically no arteritis of surrounding arteries.

Stomach: Small cyanotic areas show hyperemia and a considerable exudation of fluid rich in fibrin into the submucosa. Mucous membrane of stomach shows some atrophy.

Large intestines: Mucous membrane shows considerable atrophy.

Peribronchial lymph glands: Most of gland tissue replaced by fibrous tissue showing heavy coal pigmentation; the small portion of lymphoid tissue which remains shows a brown pigment in many of the cells.

Pancreas, adrenals, prostate, bladder, esophagus and small intestines normal.

Glands from inferior vena cava: Sinuses are much dilated and contain a large quantity of blood, also a number of cells that look like swollen lymphocytes containing brown pigment; the lymphoid tissue of the glands shows many swollen cells containing brown blood pigment. Also some pigment outside of the cells; this part of the gland is very hyperemic.

Piece of bone taken from skull shows fatty marrow with very few cells; no change to the lymphoid type, or the red type of marrow.

Brain: A few small hemorrhages beneath arachnoid; one anterior to fissure of Rolando along longitudinal sinus; one small hemorrhage over left parietal lobe.

Bacteriologic Examination.—Cultures were made from the following organs and incubated both under aërobic and anaërobic conditions. No growth was obtained from the following: Brain membranes, brain substance, pericardium, right ventricle, liver, peritoneum, right pleura, left pleura, right lung, left lung, left kidney. A number of colonies of colon bacilli were obtained from the spleen and from the right kidney.

Smears from ulcer showed a number of capsulated bacilli, rounded at ends, and varying in size; they were non-motile and negative to Gram's stain. Plate cultures developed two classes of colonies, one a *Bacillus mucosus capsulatus*, the colonies being of a creamy, gelatinous consistency, producing a luxuriant, creamy growth on potato; milk litmus acidified; glucose agar not fermented. A guinea-pig injected peritoneally died within twenty-four hours; same capsulated bacillus recovered from all the organs. The other class of colonies may be described as follows: A very opaque, creamy colony on agar agar; edge of colony irregular; potato, a very heavy luxuriant creamy growth; milk, litmus and glucose bouillon unchanged; gelatin not liquefied. Smears show a short, very coarse, almost coccus-like bacillus, which is not pathogenic for guinea-pigs.

Remarks.—This anomalous case presented several perplexing difficulties regarding its classification. The character of the onset and the relative lymphocytosis suggested acute lymphatic leukemia. True, there was no leucocytosis at the time the patient entered the hospital or subsequent thereto, but the leucocyte count is so easily influenced by intercurrent infections and other causes, such as certain drugs, that the absence of leucocytosis was not sufficient cause for ruling this out. Cabot[1] cites a case complicated by suppurating cervical glands, with a rapid decrease of the leucocytes subsequent to sepsis, the patient dying with a marked leucopenia, the leucocytes numbering 471 on the day of his death. Numerous other

1. Cabot: Clinical Examination of the Blood, 4th ed.

instances of rapid decrease of the leucocytes are cited by the above-named authority and by others; Dock,[2] having recently reported several such phenomena, one in which influenza supervened, being followed by a reduction of leucocytes from 367,000 to 5,000. In a patient suffering from myelogenous leukemia whom I have had under my care for over a year, and whose leucocytes had never been under 70,000, they recently dropped suddenly to 7,000 following pregnancy. I am not sure that this decrease was due to her pregnancy; I merely cite the coincidence. Among the various causes to which the decrease is ascribed, I have not seen pregnancy mentioned in the literature.[3]

The lymphocytosis of acute lymphatic leukemia is usually of the large-cell variety, whereas in the case here reported there was a preponderance of the small lymphocytes. I do not believe that acute or chronic lymphatic leukemia can be differentiated solely by the blood picture. It is difficult to draw arbitrary lines. The personal equation enters largely into the distinction between large and small lymphocytes. Indeed, with the more modern conception of hemogenesis, we must reclassify our large lymphocytes, and recognize, with Pappenheim and others, a lymphoid cell with special morphologic and staining characteristics by which it can be differentiated from the large mononuclear lymphocytes. Fraenkel calls attention to the identical blood picture in some cases of both the acute and chronic forms of the disease, and admits that a chronic case may take on the acute form. The literature cites several instances of preponderance of the small cell. Rosenberger[4] last month reported a case of the acute form, with small lymphocytes ranging from 22 per cent. to 92 per cent., though always in excess of the large cell; and also mentioned several other cases culled from the literature. Churchill of Chicago, at the same time, reported 15 cases of acute leukemia in early life, in 12 of which the small lymphocyte predominated. Reed[5] reported, in 1902, a case running an acute course, in which the small cell was in excess, where there were no evidences of involvement of either spleen or lymph glands, but where the examination of the bone marrow "proved conclusively that the lymphocytosis arose from proliferation of the lymphoid cells in the bone marrow, and death occurred before any other organ in the body showed involvement." Of course this conception of the origin of lymphocytes is diametrically opposed to the theory of Ehrlich, who taught that lymphocytes were derived exclusively from the lymph glands; but the new theory that the bone marrow contains lymphoid elements, is supported by most recent investigators, and such claim is very largely substantiated by the existence of the above cited case, and many others, where there was no involvement of the lymph glands. I have elsewhere stated my belief in the existence of a close relationship between the myelogeneous and lymphatic forms of the disease with a common pathologic basis in the bone marrow.[6] It is unfortunate that in this case we are unable to present satisfactory data concerning the condition of the bone marrow, for without this a doubt exists regarding its leukemic nature.

The intense anemia, the moderately high color index and the marked leucopenia just before death, were suggestive of pernicious anemia. A very careful search failed to reveal any nucleated erythrocytes during the life of the patient, and only recently two megaloblasts were found from preserved smears in counting over 1,400 leucocytes. This represents a search of more than half a cubic millimeter of blood, for it will be remembered his leucocyte count was 2,300 the day before his death. I believe the absence of nucleated red cells in severe cases of pernicious anemia can be satisfactorily explained on the ground that the intense hemolysis does not permit of the compensatory lymphoid and megaloblastic changes in the bone marrow, which changes "do not form an essential part of the pathology of pernicious anemia." Cabot calls attention to such cases under the term "aplastic anemia," the bone marrow being hypoplastic and incapable of responding to the demand for increased red cell formation, made necessary by the tremendous hemolysis. Lipowski[7] reports such a case in which an escharotic poison, taken with suicidal intent, was the cause of a hemolysis, which brought the red cells down to 2,115,000 and the hemoglobin to 18 per cent. Muir[8] reported a case of "purpura," with a similar onset and clinical history to the one under consideration, in which the red cells were reduced to 640,000, the hemoglobin to 12 per cent., with an intense leucopenia. In neither of these cases were nucleated red cells present, and in both the relative number of lymphocytes was much in excess. Dr. P. K. Brown at a meeting of this body recently reported a case of a child with a similar blood picture. If we accept the statement that the bone marrow changes form no essential part of the pathology of pernicious anemia, but are compensatory in their nature, and if, in cases where the hemolysis is intense, the compensatory activity of the blood-forming tissue in the bone marrow can not assert itself, then I do not believe there is sufficient justification for placing these severe cases of pernicious anemia in a class by themselves.

The autopsy findings were suggestive of pernicious anemia, and this is particularly noticeable in the hemolymph glands. To Warthin[9] of Ann Arbor we are indebted for much of our knowledge regarding the importance of these organs in hemolysis. He found in a series of eight cases of pernicious anemia, enlargement of these organs in most of them, together with dilation of the blood sinuses, and increase of phagocytes containing disintegrating red cells and pigment. It has elsewhere been shown that these bodies have normally a hemolytic function, the difference in their function in pernicious anemia being one of degree only. It is remarkable that most textbooks on the pathology of this disease are either silent regarding the condition of the lymph glands, or state that they are normal in this disease. In the case here reported these glands were enlarged, the sinuses were much dilated, and contained a large quantity of blood, also a number of cells which looked like swollen lymphocytes containing pigment. These large cells were also present in the lymphoid tissue of the glands.

While this report is somewhat incomplete in that the bone marrow was not thoroughly studied, and the spinal cord was not removed and examined for the changes usually found in the dorsal columns in cases of pernicious anemia, I believe that with the evidence herewith presented, this case must be placed in the category of pernicious anemias.

2. Dock: Amer. Jour. Med. Sciences, April, 1904.
3. In the case of pregnancy here referred to the uterus was emptied of its contents by dilatation and curettement, which was followed by a gradual increase in the number of leucocytes, and at the present time of writing, nine weeks after pregnancy was terminated, they numbered 44.000. There has been, however, a relative decrease in the number of myelocytes.
4. Rosenburger: Amer. Jour. Med. Sciences, October, 1904.
5. Reed: Amer. Jour. Med. Sciences, 1902.
6. American Med., Aug. 13, 1904.
7. Lipowski: Deut. med. Woch., 1900.
8. Muir: British Med. Jour., Sept. 29. 1900.
9. Warthin: Amer. Jour. Med. Sciences, 1902, August, 1904.

A POINT IN TREATMENT OF FRACTURED LOWER JAW.

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A 6-year-old boy fractured the neck of the lower jaw on one side. To make a diagnosis it was necessary to give an anesthetic. The boy had just eaten his dinner, so the anesthesia was put off three hours. After the dressing was completed vomiting occurred, emptying the stomach of the boy's meal. The food had become liquefied, however, and no damage came to the boy, because he succeeded in stretching the dressings sufficiently to let the mouth open.

The query is, what would have happened if the dressings had not stretched, and particularly if the anesthetic had been administered as soon as the accident occurred?

It would seem that a child under those circumstances would surely suffocate.

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APPENDICITIS AND THE PUERPERIUM.

A subject of perennial interest is the origin of the infections which so often prove fatal after childbirth. At one time there was a universal impression that puerperal fever had its source in the patient. Then, as the result of an accumulation of evidence, there came the definite conclusion that the infectious material was usually introduced from without and was due either to the carelessness of the physician or of the midwife in attendance, or to some mistake by the nurse or by the patient herself. In this, as in most things in medicine, it seems not unlikely that the pendulum of opinion swung too far and that there is about to be differentiated a series of cases in which the origin of the infectious material will be found, as was formerly thought, within the patient's tissues.

One thing is very clear, micro-organisms of various kinds, under certain circumstances, may become so walled off as to be rendered innocuous and yet retain their vitality within the tissues for many years. This has been demonstrated with absolute certainty in such diseases as tuberculosis and typhoid fever, and it is no longer a matter of surprise to find that an abscess in bone developing many years after an attack of typhoid fever may yet contain the typhoid bacillus in pure culture. In the same way, it seems not unlikely that certain intra-abdominal conditions, after being for the moment acute, may become so walled off as to be a source of no further immediate danger and yet the micro-organisms present may retain their vitality. Acute oöphoritis, for example, may cause a protective reaction sufficient effectually to occlude the infected part from surrounding tissues, and, in the same way, an appendicitis that has gone beyond the catarrhal stage may lead to the formation of adhesions that effectually protect the peritoneum.

In both cases, however, virulent micro-organisms remain, and it is easy to understand that during the serious intra-abdominal disturbance consequent on the enlargement of the uterus during the puerperium and then its rapid evacuation and firm contraction immediately after labor, the adhesions formed may be so disturbed as to permit the escape of such micro-organisms into the tissues. In not a few cases of puerperal fever it is noted that there are no signs of infection in the vagina itself or in the uterus. In such cases, also, local treatment of the external genital tract does not produce any material modification of the symptoms. Instead, then, of considering that the infection in such cases must necessarily be from the exterior, it seems much more justifiable to trace it to some internal source. Under such circumstances, a careful history of the patient may disclose the occurrence of attacks of appendicitis or of oöphoritis that would give a clue to the origin of the infectious material that is now producing the septic process.

Such considerations are valuable, not only as helping to solve an important problem in etiology, but also because of the indications which they furnish for treatment in cases that are otherwise so hopeless. When there is a history of any previous symptoms of appendicitis, an exploratory operation, undertaken not long after the first symptoms of fever are noted, might prove life saving by furnishing the opportunity for the evacuation of the infectious material that was finding its way into the tissues. Indeed, whenever the genital tract does not furnish any evidence of infection having taken place from without, a very careful investigation of all the antecedents of the patient should be made in order to determine whether there may not be some hopeful indication for surgical interference for other conditions. Besides appendicitis, a history of a previous abdominal operation that may have been followed by the formation of adhesions between the intestinal and the genital tracts must not be forgotten, as along such adhesions intra-intestinal micro-organisms not infrequently find their way. This fact is recognized by genito-urinary specialists, who find traces of colon bacilli in the bladder whenever adhesions between that viscus and the intestines are known to exist.

In a word, there would seem to be a splendid opportunity for a more thorough individual study of cases of puerperal fever than has hitherto been the case, since it has been the custom, as a rule, to group all such cases indiscriminately under the head of infection due to carelessness on the part of the attending physician or nurse. It is probable that not a few medical attendants have been brought under suspicion of carelessness in technic when in reality the source of the infectious material was some previously existent microbic condition newly aroused by the disturbance of anatomic relations within the abdomen and by the increase of physiologic function consequent on nature's effort to absorb as rapidly as possible the superabundant tissues left after labor has been completed.

THE ESSENTIAL LESION IN HEMOPHILIA.

There is probably no disease which is so characteristic clinically and so devoid of characteristics pathologically as hemophilia. The hereditary character of the affection, the peculiar transmission through the female line to the male descendants, the tendency to continued hemorrhage from slight injury or spontaneously, the subcutaneous hemorrhages, and the acute joint lesions

present a clinical picture which can hardly be confused with any other condition. It is true that in rare cases, such as those in which kidney hemorrhages are the only symptom, the diagnosis is not always so clear, but these are the exception.

The underlying cause of this interesting condition, which has been recently studied by Sahli,[1] has been a source of investigation and discussion since the disease was first discovered. The anatomic findings in fatal cases have been so inconstant and so uncharacteristic that either a new theory or a modification of an old one has been put forward by almost every new investigator. Early in the history of the disease, the theory that a hypoplasia of the heart and vessels was the causal factor was advocated because Virchow had found these lesions in certain cases investigated by him. Those who advocated this theory apparently overlooked the fact that Virchow had described essentially similar lesions in an entirely different disease, chlorosis. Later, when this theory was seen to be untenable, other conditions in the vessels or in the blood itself were held responsible for the disease. Some writers claimed that the vessels had unusually thin walls, others that they were ruptured with abnormal ease, and still others that a condition of fatty degeneration was present. The blood itself was said by some authors to contain an insufficient amount of fibrin or to lack in the power of coagulation from other unknown and mysterious causes. Still later, the observation that in some cases the heart was hypertrophied led to the assumption that increased vascular tension caused the hemorrhages. Even the theory of infection was dragged in by some writers to explain this typically hereditary disease. Recent investigations show that some of the hypotheses cited can not be backed up by observation, while others are probably in part correct. Furthermore, it is also evident that factors hitherto unnoted play a part. Changes in the blood itself, so far as its alkalinity, its molecular concentration, and its fibrin content are concerned, have not been found. The same can not be said with regard to its coagulability, as the researches of Sahli show distinct changes in this property of the blood.

The discordant observations of preceding observers on this point are shown to have been due to the fact that the coagulability varies at different stages of the disease. In the intervals between the periods of activity the blood shows a well-marked lack of coagulative power, evidenced by an increased length of the coagulation time. During the active period of the disease, however, the coagulation time is normal in length or even shorter than normal. This increased coagulability probably represents a reaction on the part of the organism as a result of hemorrhage, as it is most marked in patients who have lost a good deal of blood. The change in the coagulability alone will not explain the disease, and it seems probable that another factor comes into play. This is, most likely, a deficiency, hereditary in character, of the vessel walls, and perhaps also of the cells of the blood-forming apparatus. There is good evidence that in normal intravascular clotting of the blood the formation of fibrin is aided by certain products of the cells of the vessel wall itself. It seems likely that these secretions, which are presumably of the nature of ferments, are lacking in hemophilic patients. Inasmuch as the difficulty in hemophilia is not a lack of extravascular coagulation but a lack of intravascular clotting, an entirely different matter, such a view seems reasonable. It is certainly more reasonable than any hypothesis so far advanced, and has the advantage of a considerable support from observed facts.

If we assume this explanation of hemophilia to be reasonably likely, a revision of the therapeutics of this condition should follow. As it is, the therapeutics of this disease are purely empirical, or are based on the assumption that the hemorrhage is similar in character to the hemorrhage due to trauma or to pathologic conditions which erode the vessels. Many remedies have been used on the assumption that they might do good when it would have been better to question whether they could not do harm. It would certainly seem irrational to use the ordinary internal hemostatics to combat a hemorrhage due to a constitutional cell deficiency. These objections do not, of course, have the same force with regard to external applications, especially mechanical ones. It seems within the bounds of possibility that organotherapy, in the form of local or even of intravascular applications of macerated blood vessels, might be of value, if the enzymes which their cells secrete are sufficiently stable. The question is one which must be investigated further.

1. Zeitschrift für klin. Medicin, vol. lvi, Nos. 4-5.

SPECIAL TRAINING FOR EMPLOYES IN STATE INSTITUTIONS.

An edifying illustration of the general statement in our editorial of March 11 on the "Necessity of Special Training for Administrative Medical Work" is afforded by the present situation in Illinois. We pointed out in the editorial in question the need of expert knowledge and of special training for the administrative work of public institutions and of public boards. So palpable has been the deterioration of many public charitable institutions under the recurring political changes of the last dozen years that public opinion has compelled the introduction into the present legislature of a bill for a state merit law. As the agitation has been great enough to pledge both political parties and the governor of the state to such a measure, we may assume that a law will be secured which will protect all the appointments to the state public institutions from the control of politicians. This goes further than our suggestion, since it involves the 2,500 or more positions in the penal and charitable institutions, most of which are not filled by physicians. It is plain, however, that the filling of these

places also with experts would be in the line of medical progress. How are we to obtain these experts? That is the question which another bill now before the Illinois legislature undertakes to solve. This bill provides an appropriation of $15,000 yearly for the training of state employes in and by the State University.

Any training of experts for public service is still more or less experimental in this country; but this measure which actually provides that the university shall take a hand in the training of a prison guard or of an asylum attendant is bold, indeed. It will seem to the Philistine foolishness and to the politician a stumbling block, but to the student of criminal psychology and to the alienist it will seem a welcome public recognition of a condition that should be remedied. Every one at all acquainted with hospitals for the insane knows that the physician can only give the briefest personal attention to each patient and that the whole system of treatment depends for its efficacy on the attendant. In the same way it is the prison guard—the shop foreman—in whose hands, if anywhere, the reformation of the prisoner must lie. Yet these positions are filled by people chosen haphazard or, worse, "pulled" in.

We are not fully informed as to the details of the proposed training. In fact, we judge that they must be worked out somewhat tentatively by the university authorities. The German state universities train physicians admirably for institutional service, but they offer no direct suggestions for the proposed scheme whose democratic character is, indeed, so purely American that it will necessarily have to make its own precedents.

The training ought certainly to be practical, the student should be given a happy balance of clinical work and of theoretical teaching. There should be enough theory to make him understand the clinic and respect his task. We judge that much of the instruction would necessarily be given in the form of lectures by experts in the institutions themselves. Whatever the methods which experience might develop for the suggested teaching, the very proposal puts a new face on the otherwise cold and barren aspect of a civil-service law, whose more obvious virtues are merely negative. To keep plundering and ignorance out of public institutions should not be sufficient to satisfy us. We must fill these institutions with medical spirit and with scientific ardor. We must demand for the baffling task of restoring the mentally and morally sick the finest ability and the best training.

TRUTH AND POETRY CONCERNING URIC ACID.

XIII.—CONCLUDED.

After Burian and Schur had demonstrated that the uric acid excreted consists of two components, an exogenous part dependent on the purins of the food and independent of the patient's individuality, and an endogenous part, individually different but constant for each individual, it became important in studying uric-acid excretion in gout to ascertain (1) whether the amount of endogenous purin is altered, and (2) whether feeding purins to the gouty patient affects the exogenous component as in health. The examinations made by Kaufmann and Mohr[2] in 1902 indicate that the values for both components are normal in gout. As yet no one has tested the power of the body in gout to form uric acid synthetically in comparison with that power in health; this should be done.

After 1880, a number of investigators opposed Garrod's ideas regarding diminished uric-acid excretion in gout. Bouchard, in 1885, declared that the excretion is not diminished between the attacks of acute gout, but instead is normal in amount or even increased, and Mordhorst's (1891) figures average distinctly above normal. Since then, Vogel in 1893, Klemperer in 1895, and Camerer in 1896, have carefully studied uric-acid excretion in gout and obtained similar results. An analysis of all the data available affords no convincing evidence that gout, in the chronic stage or in the intervals between acute attacks, has any characteristic influence on the amount of uric acid excreted. Kolisch,[3] in 1895, believed that he could explain the contradictory results of his predecessors by a comparison of the amount of uric acid excreted with that of the alloxuric (xanthin or purin) bases. According to his view, uric acid is formed in the kidneys, from xanthin bases, and the amount of uric acid excreted depends on the functional condition of the kidneys. He asserted that the total alloxuric nitrogen is always increased in the urine of gout, but in the early stages the kidneys are able to convert the xanthin bases into uric acid and the uric acid in the urine is increased, while, in the later stages, when the function of the kidneys is impaired, the xanthin bases are less completely converted into uric acid and are partly given off as such in the urine, the amount of uric acid excreted in the urine becoming normal or even diminished in amount. These findings excited much interest, but careful controls made by Weintraud in 1895, Rommel in 1896, Schmoll in 1896, and Badt in 1896, failed to confirm them, so that Laquer,[4] summing up the whole matter, was able to state positively that in gout the alloxuric bodies behave in no constant or characteristic fashion; the alloxuric bodies are not increased *in toto* in the urine, nor is the excretion of the bases increased over that of uric acid. During the decade just past, investigators in numbers have confirmed this statement. We may therefore regard it as well established that the excretion of uric acid and the purin bases in chronic gout, and in acute gout in the intervals

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2. Kaufmann, M., u. Mohr, L.: Beiträge zur Alloxurkörperfrage und zur Aetiologie der Gicht. Deutsch, Arch. f. klin. Med., lxxiv, 1902, 348, 586.

3. Kolisch, R.: Ueber Wesen und Behandlung der uratischen Diathese, Stuttgart, 1895. See also Ueber Wesen und Behandlung der Gicht, Wien. klin. Wochft., viii, 1895, 787.

4. Laquer, B.: Ueber die Ausscheidungsverhältnisse der Alloxurkörper im Harn von Gesunden und Kranken. Verhandl. d. xiv, Kongr. f. inn. Med., 1896, 333.

between attacks, goes on within normal limits. Despite this restriction of the excretion to normal limits, there is one feature of the excretion, however, which is striking—there is a great variability in the purin excretion as contrasted with the constancy of the values in the same circumstances in health.

We must emphasize the fact that the relations dwelt on at some length above do not hold for the acute gouty attack. In it the uric-acid excretion is very typically altered. Views regarding the behavior in the acute attack were for a long time conflicting, but, thanks to the laborious researches of the younger His[5] and his colleagues, the matter has been definitely settled. The acute gouty attack is ushered in by a diminution in the amount of uric acid excreted, this diminution tending to precede the attack by two or three days. When the joint symptoms begin to appear, the amount of uric acid excreted increases and remains for some days considerably above the average level; then it gradually sinks until the average level of excretion is regained. If several joints are involved, there is a corresponding depression of excretion preceding every new attack, followed by the typical increase. Only when the attacks follow each other very irregularly does the picture become confused. This behavior of the uric-acid output in acute gouty attacks has been confirmed in this country by Futcher of Johns Hopkins; in Germany, Magnus Levy's findings agree with those of His regarding the increased output in the attack, though they do not seem to indicate a premonitory diminution. Wiener,[6] in his admirable review, epitomizes the whole subject with the statement, "While, therefore, we dare not assume that in gout as a whole the excretion of uric acid behaves in any characteristic way, we may grant that there is constantly a greater excretion in the acute gouty attack than in the free intervals, even if the excretion does not exceed normal limits; probably the attack is preceded by a somewhat diminished excretion."

It seems likely that this behavior of the uric-acid excretion during the acute attack is due first to a retention and then to a "sweeping out" of the previously retained uric acid. If this be the case, the fact is of the highest interest in connection with the pathogenesis of the acute attack of gout, but it is of no help in explaining the constant increase of uric acid in the blood in gout. Indeed, the study of uric-acid excretion has thus far thrown no light on this dark point; it does not tell us whether the increase in the blood is due to diminished destruction, to increased formation, or to retention.

5. His, Jr., W.: Untersuchungen an Gichtkranken. Wien. med. Blätter, xix, 1896, 291. See also Ueber Gicht, Schmidt's Jahrb., ccl, 1896, 266, and (with Cohnheim, Freudweiler, Respinger and H. His), Die Ausscheidung der Harnsäure im Urin der Gichtkranken mit besonderer Berücksichtigung der anfallsfreien Zeiten und bestimmter Behandlungsmethoden. Deutsch. Arch. f. klin. Med., lxv, 1900, 156.

6. Wiener, H.: Die Harnsäure in ihrer Bedeutung für die Pathologie. Ergebn. d. Physiol., ii, Abt. 1, 1903, 377.

OUR ATTITUDE TOWARD THE NOBEL PRIZES.

One not infrequently hears the fact that so far no American has received a Nobel prize commented on in a manner disparaging to American investigators. As already pointed out in these columns,[1] the work of Reed and his colleagues in the etiology of yellow fever, and the far-reaching consequences thereof, is more than sufficient to show the injustice of this reflection, so far as medicine is concerned, and perhaps similar injustice is done to American work in the other lines of achievement of which notice is taken in the award of these prizes. Be that as it may, however, it appears not unlikely that as yet names of Americans deemed worthy of the consideration of the awards committee have not been presented in the proper way by some association or university.

In its issue of April 1, 1905, the *Medical News* recommends that some association—and why not the American Medical Association?—take up the task of submitting a proper report to the Nobel committee, and mentions the yellow fever work as most deserving of immediate recognition.

In connection with this matter it may not be amiss to point out another American discovery of fundamental importance in the development of our knowledge of mosquito-borne diseases, and that is the discovery in 1893 by Theobald Smith of the parasite of Texas fever (*Pyrosoma bigeminum*), and the demonstration by Smith and Kilbourne that this hematozoön is transmitted by a tick (*Boophilus bovis*). This beautiful work cleared up the etiology of this widely spread disease and exercised a powerful influence on the trend of the investigations of the next few years that culminated in the discovery of the rôle of the mosquito in malaria. Indirectly, no doubt, the work of Smith and Kilbourne also influenced the work of Reed and his co-workers. The importance of the discoveries in Texas fever lies in the fact that they gave us the first demonstration of an intermediate host in an infectious disease of this class. They pointed the way for the subsequent work in regard to other diseases of the same class. In the event that an effort is made to secure Nobel prizes for American work, it may be just to consider also the work in Texas fever.

It is now several years since the discoveries in Texas fever and yellow fever were made, and the fact that formal application has not yet been made for Nobel prizes on their account may argue that little thought has been given the matter. While no one believes that the Nobel prizes can have much direct influence on investigators and investigation, yet we owe it to our own investigators to secure for them all adequate rewards in our power. We therefore heartily support the *Medical News* in the effort to set in motion the machinery necessary properly and forcibly to present the necessary statements.

1. Jan. 2, 1904, p. 38.

THE PREVENTION OF IDIOCY AND IMBECILITY BY CASTRATION.

The governor of the state of Pennsylvania in his wisdom has seen fit to veto a bill passed by the Pennsylvania legislature and directed toward the prevention, by means of castration, of procreation on the part of idiots and imbeciles in public institutions, and he has chosen to administer what he appears to consider a rebuke to too enterprising anatomists and surgeons. The governor, who by the way holds the opinion that his kinsman, the late Senator Quay, was as great a man as Webster or Clay, bases his objection to the bill on the fact that the nature of the intended operation is not sufficiently described, its only qualification being that it shall be the "safest and most effective" in the minds of a neurologist, a surgeon and a physician. By a process of subtle reasoning, the governor reaches the conclusion that the "safest and most effective" method of preventing procreation among the individuals under consideration would be to cut off their heads, but he is charitable enough to express the view that this means would probably not be resorted to, and only some part of the human organism would be destroyed. He has made the startling discovery that "scientists, like all other men whose experiences have been limited to one pursuit and whose minds have been developed in a particular direction, sometimes need to be restrained." It is his gratuitous judgment that "men of high scientific attainments are prone, in their love for technic, to lose sight of broad principles outside of their domain of thought." He thinks "a surgeon may possibly be so eager to advance in skill as to be forgetful of the danger to his patient." Further: "Anatomists may be willing to gather information by the infliction of pain and suffering on helpless creatures, although a higher standard of conduct would teach them that it is far better for humanity to bear its own ills than to escape them by knowledge only secured through cruelty to other creatures." The governor, who was a judge on the bench before he was placed in his present position by "the organization," reasons that "if idiocy could be prevented by an act of assembly we may be sure that such an act would long ago have been passed and would have been approved in this state, and that such laws would have been enacted in all civilized countries." The learned governor is not without views on the etiology of idiocy. "This mental condition," he states, "is due to causes many of which are entirely beyond our knowledge. It existed long before there were ever such inmates of such institutions." It would thus appear that the action of the governor was not taken merely because the exact nature of the operation contemplated by the act, namely, removal of the ovaries or testicles or vasectomy, was not specifically mentioned in the text of the bill. Rather, he sets his opinion against that of conservative experts, who have recommended the operation as looking toward the elimination of the most important factor in the continuance of the disorders at which it is aimed, namely, the transmission of the tendency to insanity.

THE PERIL TO THE COMMUNITY OF ALCOHOLIC MANIA.

As a people we are slow to learn certain facts. The recent murder in cold blood of a helpless and innocent wife and mother by a maniacal husband, whose insanity was of that type which regularly occurs in the alcoholic, reminds us that these frightful tragedies recur with distressing frequency. The relatives of those who abuse alcoholic beverages ought to be taught the danger signals. Whenever a drinking man begins, without cause, to suspect the virtue of his wife and the honor of his friends, it is time to confine him where he can do no harm, at least until the poison is out of his brain. Failure to do this is to invite murder in its most revolting forms. All this is well known to the members of the medical profession, but the physician is seldom asked for advice in such cases, and if he were his counsel would only rarely be followed. No man in the community is more dangerous to his family and to the public than the heavy drinker when he reaches the stage of alcoholic delusion that is marked by unfounded suspicions as to the conduct of those whom he naturally and in fact should most trust. When a man begins to harbor such delusions it is the instant duty of his friends to put him where he can do no harm and can get no more liquor.

MEDICINE AND POLITICS IN RUSSIA.

A striking fact was reported in the Associated Press dispatches from Moscow, April 5. In view of the probability of a cholera epidemic, a congress of physicians has just been held in that city and, as an essential first step toward the warding off of the threatened scourge, the members advise a complete and radical change in the whole government and administration of Russia. They demand, in fact, the immediate calling together of a constituent assembly; the stoppage of the war, which has thrown the country into excessive poverty; the reform of the tax laws and the whole general program of the leading Russian reformers of the day. Without all these, they claim, it would be impossible to carry out the needed sanitary measures. In the present unfortunate condition of the country, the political problems have, to this extent, become also the medical ones, and it would not, under ordinary conditions, such as exist under less autocratic governments, be especially remarkable to find the medical profession freely expressing its mind under such circumstances. In Russia, however, the case is different, and every one who has advocated or endorsed the propositions submitted runs a serious risk. Nevertheless, it appears that their endorsement was general, thus showing that our confrères have the courage of their convictions. Acting for the public good, they have not hesitated to risk, perhaps, even life and liberty. THE JOURNAL has often insisted on the duty of the physician to take his part in public affairs, at least in regard to questions involving sanitary welfare, but there has never been any occasion, and we trust there never will be anywhere else than in Russia,

calling for such demands on the part of the medical profession as these. An epidemic of cholera is not, at the present time, dreaded as in the past, but in the disorganized condition that exists in many portions of the Russian empire its invasion could not be otherwise than disastrous. It may be that the autocracy will consider that between the cholera and any surrender of its powers the cholera is the alternative of choice, no matter how great its extent and cost of human life. Whatever we may think of some of the methods of the Russian revolutionists, it is satisfactory to know that the members of our profession are willing to risk doing what they consider their duty without regard to consequences.

THE RATE OF ABSORPTION FROM INTRAMUSCULAR TISSUE.

Although various therapeutic agents have been injected intramuscularly at different times, it was rather with the view of minimizing pain and of averting the formation of abscesses than of any expected increase in the rate of absorption. As a matter of fact, it was believed by some that the rate of absorption from the intramuscular tissues was slower than that from the subcutaneous tissues. It has been conclusively demonstrated, however, by Drs. S. J. Meltzer and John Auer[1] that the relation of events is exactly the reverse and that the physiologic effects following intramuscular injection are only less prompt and less pronounced than those following intravenous injection. Observations were made with adrenalin, curare, fluorescein and morphin. The evidence shows that the fluid injected does not enter directly into the circulation, but is at first deposited between the muscular fibers, whence it is carried by some process of rapid absorption into the blood stream. While in general the difference between absorption from the intramuscular and subcutaneous tissues appears to be merely one of degree, there is reason for believing that some substances are better absorbed through the one than the other channel. The results of the investigation under consideration may find immediate practical application, inasmuch as smaller doses are required for intramuscular than for subcutaneous injection, while rapidity and intensity, in conjunction with long duration, of effect may be secured by combining both methods of administration.

BASOPHILIC GRANULATIONS IN RED BLOOD CORPUSCLES.

Granulations tingible with basic stains have been observed in the red blood corpuscles of the circulating blood especially in the presence of anemia, and they have been thought to represent a stage in the transformation of normoblasts into adult red corpuscles. Similar granulations, however, have been found also in the erythrocytes in cases of lead poisoning, and they have been induced experimentally by the administration of phenylhydrazin; and under such circumstances they have been attributed to a degenerative process of toxic origin involving the hemoglobin. The frequent presence of nucleated red corpuscles exhibiting various grades of nuclear degeneration suggests that the granules may represent fragments of disintegrated nuclei and that the morbid process may take place in the hemopoietic organs and not in the general circulation. Finally, basophilic granulations have been demonstrated in blood from normal individuals. In order to determine what relation, if any, exists between nucleated red corpuscles and the granular cells under consideration, Dr. W. B. Cadwalader[1] made a study of the blood from a number of apparently healthy individuals, from 27 cases of lead poisoning and from 10 cases of anemia, of both primary and secondary varieties. He found that basophilic granulations occur normally in small numbers in erythrocytes in the blood of man, but their number is increased under certain abnormal conditions, undergoing decrease as convalescence sets in. Further, he found that nucleated red corpuscles are common in the blood of individuals suffering from lead poisoning and that their presence is always associated with an increase in the number of granular red cells. It was noted that the anemia secondary to lead poisoning is, as a rule, only moderate in degree. The granular cells are most common in cases of lead poisoning. Possibly they have their origin in the blood-forming tissues and they are probably the results of a fragmentation of the nucleus of the red blood corpuscle.

1. Journal of Experimental Medicine, vii, 1, Feb. 25, 1905, p. 59.

THE SIGNIFICANCE OF TRACES OF BLOOD IN TYPHOID STOOLS.

Since Rossel originated the aloin test for the detection of traces of blood in the feces it has been used to a considerable extent in the detection of occult hemorrhage in gastric carcinoma and ulcer. In Naunyn's clinic a routine use of this test has been carried on for some time in connection with the typhoid cases. The result of the test in the first eighteen cases is described by Petracchi.[2] Of eighteen cases tested, eight showed traces of blood at some stage of the disease. In the great majority of cases the positive test was observed during the second and third weeks of the disease, during the period when hemorrhages apparent to the naked eye are likely to appear. In four of these cases large hemorrhages occurred, generally three or four days after the occult hemorrhage was detected. Most of the eight cases were severe, though the autopsies on three of them showed that the intestinal lesions were not unusually extensive. This shows, Petracchi thinks, that the occurrence of intestinal hemorrhage in typhoid is the result of the character of the infection rather than of the extent of the intestinal lesions. In some of the cases in which the presence of occult hemorrhage was detected, the hemorrhage was accompanied by a distinct increase in the rapidity of the pulse. In four cases in which this occurred large hemorrhages resulted in three. Petracchi considers the combination of occult hemorrhage with increased rapidity of pulse rate as a valuable index of a possible severe hemorrhage. It seems reasonable to assume that if by this test we can foresee the probability of intestinal hemorrhages, we will be able more successfully to combat them, and should be able to reduce the mortality from this cause.

1. Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, No. 2, January, 1905, p. 29.

2. Zeitschrift für klin. Med., vol. lvi, Nos. 1-2.

Medical News

ARKANSAS.

Smallpox.—Malvern reports 7 cases.——Warren has had 18 cases, but no new cases have developed for 17 days.——Little Rock reports 17 cases.

Deaths in 1904.—During the year 823 deaths occurred in Little Rock, of which 43 were from violence. The rate per 1,000 of population was 14.1. There were 50 deaths at the City Hospital.

Medical Department Commencement.—At the annual graduating exercises of the Medical Department Arkansas University, Little Rock, April 12, a class of 28 received diplomas from Dr. Hartzog, president of the university.

Sustains Federal Regulation.—In the case of Dr. S. C. Van Leer et al vs. the federal medical board of Hot Springs—the case in which the status of non-licensed physicians was sought to be established—Judge Trieber held that the act of the Arkansas legislature ceding jurisdiction over the reservation, and the act of congress of April 20, 1894, vesting the right in the secretary of the interior to make rules and regulations for the government of the reservation, are valid and binding. He took under advisement the question as to whether the allegations of the bill sufficiently charge any fraud against the board, in arbitrary actions under the guise of the regulations.

GEORGIA.

Fire in Griffin.—A fire in the business portion of Griffin, March 24, caused a loss to Dr. Joseph M. Thomas of $1,250 on which he had only $350 insurance.

Commencements.—The Atlanta College of Physicians and Surgeons graduated a class of 48, April 3. Dr. Richard Douglas, Nashville, Tenn., delivered the annual address and the diplomas were presented by the president, Hon. Howard Van Epps.——A class of 14 received diplomas from the medical department of the University of Georgia at the commencement exercises held in Augusta, April 1. Dr. De Saussure Ford, dean of the faculty, presided, and Hon. C. P. Pressly delivered the address to the graduating class.

State Association Meeting.—The fifty-sixth annual session of the Medical Association of Georgia will be held at Atlanta, April 19, 20 and 21. The meetings of the association will be held in the ballroom of the Kimball House. The session will open at 9:30 on Wednesday morning. On Wednesday night a supper will be tendered to the members of the association at the Piedmont Hotel. On Thursday night there will be a special meeting of the association to consider the adoption of the new constitution. A program of 66 papers has been prepared. The railroads will give a rate of fare and a third, and the hotels of Atlanta have agreed to make special rates to visiting members.

ILLINOIS.

Smallpox.—Danville is reported to have 25 cases of smallpox.

Nitric Acid Burns.—Dr. Stephen W. Jones, Danville, was seriously burned, April 4, by the breaking of a bottle of nitric acid which he was carrying in his pocket.

State Board Meeting.—The regular quarterly meeting of the State Board of Health was held in Chicago, April 11. Special attention was devoted to the prevalence of cerebrospinal meningitis in the East and its invasion of Illinois. The prevalence of this disease in Illinois will be thoroughly investigated and such preventive measures will be adopted as may be warranted by the results of this investigation. The publication of a new edition of the board's circular on consumption was ordered. The examinations of the board were held at the Great Northern Hotel, April 12, 13 and 14. The next examination will be held in Chicago, May 3.

Prison Tuberculosis.—The State Board of Health made an inspection of the Illinois state penitentiary at Joliet, April 7, to ascertain the sanitary condition of the prison and the effect on the health of the convicts of the enforcement of the anti-convict labor law. It has been alleged that since this law went into force and put the convicts out of employment tuberculosis has increased over 40 per cent. among the prisoners. The investigations were made by the president, secretary, chemist and sanitary engineer of the board, and will be concluded next week, when an exhaustive investigation will be made to determine the character of the air in the cell houses.

Wants Support of Profession.—The State Board of Health desires to request the physicians of the state through the columns of THE JOURNAL to enter their protests to their senators and representatives against the passage of Senate bills 169, 292 and 311 (osteopathic) now on passage in the senate, and Senate bills 237 (optometry) and 271 (antivivisection), now in the house. Also against the passage of House bills 228, 229 and 274 (osteopathic) and 432 (optometry) now in the House of Representatives. The board also wishes to urge the members of the medical profession to support House bill 330 (tuberculosis sanitarium), which is still in the House of Representatives.

Chicago.

Personal.—Dr. James B. Herrick sailed for Europe April 11. He will spend the summer in study in Berlin.

Appropriation for New Building.—The legislature has appropriated $75,000 for a new building for the Illinois Charitable Eye and Ear Infirmary.

Smallpox.—The city council has appropriated an additional sum of $10,000 to be employed in preventing the spread of smallpox.——Three cases were found on April 6 among the patients at the Illinois Charitable Eye and Ear Infirmary.

The Deaths of the Week.—For the week ended April 8 the deaths numbered 512, equivalent to an annual mortality rate of 13.40 per 1,000. Pneumonia still leads death causes with 70; other causes are, consumption, 67; nephritis, 44; heart diseases, 37, and violence, 36.

Deaths of the Quarter.—During the first three months of 1905 there were 7,500 deaths reported, or 186 fewer than the corresponding period of last year. This is equivalent to an annual mortality of 15.34. Pneumonia caused 1,526 deaths; consumption, 873; heart diseases, 511; nephritis, 489; violence, 339, and suicide, 108.

Comparative Mortality of the Quarter.—The comparative statement of mortality of the first three months of this year and of the corresponding period of last year is on the whole favorable to 1905. There were 186 fewer deaths and a decrease of 4.1 per cent. in the general death rate. But the deaths under 5 years of age number 429 more than in 1904, while the deaths among those over 20 are 630 fewer. Among the causes of death showing reduction are apoplexy, 4; cancer, 9; convulsions, 10; heart disease, 65; nervous diseases, 5; pneumonia, 286; scarlet fever, 37; typhoid fever, 29, and violence other than suicide, 11. Among those showing increase are acute intestinal diseases, 30; Bright's disease, 7; bronchitis, 8; consumption, 14; diphtheria, 6; influenza, 55; measles, 61; smallpox, 33; suicide, 4, and whooping cough, 90.

MARYLAND.

Personal.—Dr. John Mace, Cambridge, was operated on at the Cambridge Hospital for appendicitis, April 6.

Societies Meet.—The Frederick County Medical Society held its annual meeting at Brunswick, April 6.——The Howard County Medical Society held its annual meeting April 6 at Ellicott City, when the following officers were elected: President, Dr. Samuel A. Nichols, Dayton; vice-president, Dr. John W. Hebb, Jr., West Friendship; secretary and treasurer, Dr. L. Gillis Owings, Ellicott City, and censor, Dr. Bernard J. Byrne, Ellicott City.

Baltimore.

Pneumonia Leads Consumption.—The Health Department reported 49 deaths from pneumonia and only 31 from consumption for the week ended April 8.

Herter Lecturer.—Prof. Dr. Hans Meyer of the University of Vienna has accepted the invitation to deliver the Herter Lectures at Johns Hopkins University, October 5 and 6. His subject will be, "The Physiological Results of Pharmacological Research."

Correction Corrected.—Our Baltimore correspondent informs us that the bureau of information for visiting physicians is not at the Johns Hopkins University Hospital, as erroneously announced in THE JOURNAL of March 25, nor at the Baltimore University Hospital, as announced, also erroneously, in THE JOURNAL of April 1, but at the University Hospital.

Personal.—Dr. Jane E. Robbins, who has had charge of the Locust Point Social Settlement for some months past, has resigned.——Dr. John Williamson Palmer, the author of "Stonewall Jackson's Way" and other poems, celebrated his eighty-first birthday April 4.——Mr. James Taylor Lewis,

counsel for the New York State Medical Association, spoke on "Medical Quacks" at the semi-annual meeting of the Baltimore City Medical Society, April 5.

Free Treatment for Deformed Children.—Henry A. Wise, assistant superintendent of schools, informs us that by a mistake of his the newspapers announced that "Dr. R. Tunstall Taylor had been granted permission by the school board to treat deformed children free of charge," and that the item should read: "The Hospital for the Relief of Crippled and Deformed Children has been authorized by the school board to treat poor, deformed school children free of charge."

NEW YORK.

Convalescent Home Incorporated.—The Solomon and Betty Loeb Memorial Home for Convalescents has been incorporated. The foundation has been erected by the children of those for whom the home is named. The amount given for this charity is $750,000, of which $500,000 is set aside as a permanent endowment fund. A farm of 70 acres has been purchased at East View, Westchester County, on which a number of detached cottages are to be built.

Osteopathy Bill Amended.—The bill legalizing the practice of osteopathy has been amended on the senate side so as to give the board of regents authority and make the list of subjects for examination include therapeutics, practice and all other subjects which practitioners of other schools are required to know. The same bill met further opposition before the assembly committee on public health. Dr. Abraham Jacobi of New York, and Drs. Root, Shaw and MacDonald were those who spoke in opposition to the bill. As there were many others opposed who were not present because of an error in the date of the hearing, another hearing was promised.

Work of the Legislature.—The governor has signed the bill authorizing the state to give the buildings now used by the House of Refuge, on Randall's Island, to New York City in exchange for lands and buildings in Brooklyn now used for state hospital purposes.——Four bills have been favorably reported bearing on the question of the New York City water supply: Mayor McClellan's bill giving the city the right to go into Ulster County for a supply; Assemblyman Apgar's two bills giving villages and cities in Westchester County the right to tap the Croton mains and providing for a speedier settlement of condemnation proceedings; and the Yale bill, giving Putnam County the same rights as those contained in the Apgar bill, plus the right to use lakes for boating and fishing. ——The bill in regard to the State Water Commission has been reported on by the Assembly Ways and Means Committee and the five bills will be passed at the same time.——The same committee reported an appropriation of $150,000 to establish an insane receiving hospital in New York City to cost $300,000. It is to be used as a detention hospital for those thought to be insane, where they will undergo a course of examination and supervision before being admitted to a regular state hospital for the insane.——A bill has been introduced making it a felony for any one to sell or give away any compound or preparation composed in whole or in part of any unwholesome, deleterious or poisonous substitute for pure and wholesome liquor. The punishment for a violation is to be a fine not exceeding $2,500 or imprisonment for not more than ten years, or both fine and imprisonment.

New York City.

Personal.—Dr. Louis L. Seaman sails from San Francisco on a mission to the far East, April 18.

Buffalo Spitters Beware!—Detectives have been assigned on Buffalo street cars to arrest all violators of the antispitting ordinance.

Membership Full.—The New York Academy of Medicine now has 1,000 members, its limit of membership, and has established a waiting list.

For Cancer Patients.—About $2,000 will be netted for the cancerous poor of New York by the course of lectures on "The Women of the Renaissance," given by Dr. James J. Walsh.

Buffalo Personals.—Dr. Charles Van Bergen sails for Europe April 27.——Dr. Charles Banta has returned from a trip abroad.——Dr. Walter S. Goodale has been appointed special agent of the charity organization society in charge of the tenement house and tuberculosis work.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 1, 470 cases of measles, with 21 deaths; 413 cases of tuberculosis, with 172 deaths; 317 cases of diphtheria, with 31 deaths; 224 cases of scarlet fever, with 20 deaths; 189 cases of cerebrospinal meningitis, with 131 deaths; 45 cases of typhoid fever, with 6 deaths; 149 cases of varicella and one case of smallpox.

Tuberculosis Clinic a Success.—A statement has been given out that the clinic of the Department of Health for the treatment of communicable pulmonary diseases has successfully passed the experimental stage and has proved a valuable aid in the campaign against consumption. This clinic was opened March 1, 1904, and since that time 5,100 patients have applied for treatment, making 13,740 visits. Of this number 527 were placed in hospitals and sanatoria. The objects desired to be attained are early recognition of the disease, careful supervision of persons receiving treatment, a supply of milk and proper food to indigent cases, instruction in regard to sputum, etc., and the extension and strengthening of the sanitary control of consumption among the poor by the Health Department.

The Meningitis Epidemic.—The presumption that the epidemic of cerebrospinal meningitis was on the decline seems to have been a mistake, as the high mortality continues. Since the beginning of the year Dr. John S. Billings, chief of the division of communicable diseases of the Health Department, has kept a map on which the deaths from this cause are designated from week to week. So far the map shows 800 cases. Most of the cases have occurred near other cases. That part of the city bounded by Fifth Street, the Brooklyn bridge, Broadway and the East River has been most affected, about 200 cases occurring in this area. The map seemed to show that there were very few cases in the parts of the city populated by well-to-do people, and seems to bear out the theory that cleanliness is the chief preventive of the disease. It would also seem to support those who advocate the fumigation of houses after cases have appeared.

To Isolate Contagious Diseases.—An effort is being made by the Health Department to give the city an adequate and modern equipment for the care of cases of contagious diseases. At present there is no place where a patient with measles can be taken by the Department of Health for isolation. There are accommodations for only 60 cases of diphtheria, while from 8,000 to 10,000 cases are reported annually, 75 per cent. of these being in the tenement districts, where it is impossible properly to isolate them. Several buildings will be opened this year. The execution of the plans of the department will cost $7,000,000. It is intended to rebuild the isolation plant in Brooklyn. The buildings already constructed, those under course of construction, and those to be begun as soon as plans can be prepared, will cost about $500,000. Three new buildings to cost $703,000 will be opened at Willard Parker Hospital, a scarlet fever pavilion accommodating 300 patients, an administration building and a laboratory for the analysis of food products and for making bacteriologic examinations. A new site adjoining the present Willard Parker Hospital site is to be purchased with $250,000 of the appropriation. This is to be used for measles and diphtheria pavilions similar to the scarlet fever pavilion. In explaining the request for funds to provide for an epidemic of measles due next spring a chart was shown which had been kept since 1898, and this shows that every other year measles has been epidemic. In 1898 the maximum number of cases reported in any one month was about 2,600; in 1899, 1,700; in 1900, 4,200; in 1901, 1,500; in 1902, 3,900; in 1903, 1,750; in 1904, 7,100, and in 1905 up to April 1, 1,656.

PENNSYLVANIA.

Personal.—Dr. J. H. Funk, Boyertown, has been elected state pomologist by the State Board of Agriculture.

Hospital Staff Resigns.—The medical staff of St. Joseph's Hospital, Reading, resigned in a body March 28. Efforts have been instituted for the reorganization of a new staff. Dr. Harry D. Stryker has been elected president and Dr. David S. Grimm, secretary.

Osteopathic Bill Fails.—The senate bill regulating the practice of osteopathy and licensing osteopaths in Pennsylvania, the establishment of a board of osteopathic examiners representing the Pennsylvania Osteopathic Association, and providing for the punishment of persons violating the proposed act, failed in the house by a vote of 94 to 37, April 6.

Smallpox Spreading.—The smallpox epidemic at Mount Union shows no signs of abatement and new cases are being

reported daily. The town has been quarantined and no mail is allowed to leave the postoffice. The Pennsylvania System does not allow any of its trains to stop at the place. Other cases of the disease are being reported in the nearby towns, thus showing its tendency to spread. Cases have been reported in Mapleton, Orbisonia, Newton Hamilton, Reedville, Shirley Township and East Waterford, Juniata County.

Consumptive Bill Vetoed.—Governor Pennypacker on April 7 vetoed the bill appropriating $300,000 for the erection of two state institutions for the treatment of incipient tuberculosis. He says that the bill provides for a preliminary step in a movement the results of which are of the most extensive character, and, further, that the provisions for charitable work in this commonwealth have already reached formidable proportions. "At the outset," he continues, "and when making the first step, we ought not to shut our eyes to the fact that if we are to provide for consumptives, we may have in time to care also for those afflicted with dangerous contagious disease."

Meningitis in the State.—Cerebrospinal meningitis is being reported from different quarters of the state. One death was reported from Shenandoah, April 5; another death in Lebanon from the same cause, April 1, and one case was reported in Pittsburg, April 5. Efforts are being made by the authorities to prevent the spread of this disease. Under the act of June 18, 1895, every physician is required to report all such cases at once. The State Board of Health also directs that after the case is reported "they shall immediately place, or cause to be placed, in a conspicuous place or places on the house or premises in which such cases may be located, a placard or placards in which shall be printed in large letters the words: 'Epidemic cerebrospinal meningitis—spotted fever; an infectious, communicable disease.' All persons are cautioned against entering these premises without permission of the Board of Health. Any person tearing down or defacing this placard is liable to a fine of $100, or sixty days' imprisonment. The posting of the placard is not to be considered as establishing quarantine on the inmates of the house, but merely as warning the public of the danger of entering the same. After the recovery, removal or death of a patient suffering from the disease, the placard should remain posted for at least one week, and the same precautions in the way of disinfection should be taken as in the case of other infectious diseases."

Public Health Bills Passed.—The three important health bills introduced into the legislature in January have finally passed the house. The bill creating a Department of Health, although passed last, is the first of this series of bills. It abolishes the present State Board of Health and substitutes a Commissioner of Health, who must be a physician of ten years' practice. He is to be appointed by the governor and is to receive a salary of $10,000. An advisory board of six members is to be appointed, the majority of which must be physicians. The commissioner is empowered to issue subpenas and compel witnesses to testify in any matter to him, and to issue warrants for the arrest of persons who disobey quarantine orders or the regulations of the Department of Health. In the abatement of nuisance which threaten the health of communities the commissioner will have almost unlimited authority. The bill provides that the state be divided into ten districts, each district to be in charge of a physician of five years' practice, who shall receive a salary of $2,500 a year. This bill was passed by a vote of 145 to 24. The Commissioner of Health is given supervision of all the waters of the city used for drinking purposes. Municipalities and private corporations and individuals who supply water for the public are compelled to furnish the Commissioner of Health with a copy of the plans and surveys of their water works, with a description of the sources of supply, and no additional source of supply shall thereafter be used without the consent of the commissioner. Permits to establish water works will also be granted by the commissioner. This pure water bill passed the house by a vote of 125 to 48. The bill establishing a state bureau of vital statistics at Harrisburg, for the immediate registration of deaths and births in the state, was also passed without debate, by a vote of 123 to 25.

Philadelphia.

Personal.—Dr. Thomas C. Potter is seriously ill with angina pectoris at his home in Germantown.——Dr. David L. Edsall has been made assistant professor of medicine in the medical department of the University of Pennsylvania, and Dr. R. Tait McKenzie has been appointed professor of physical education, with a seat in the medical faculty.——Dr. Frank Abbott, resident physician in the Garrettson Hospital, has resigned and Dr. Walter M. Miller has been appointed to the vacancy.

Examination for Internes.—Examination for resident physicians to Mercer Hospital, Trenton, N. J., will be held in the laboratories of the University of Pennsylvania, April 15, at 2:30 p. m.——Examination for candidates for interneships in the Methodist Episcopal Hospital will be held April 17 in the hospital building, at 8 o'clock. Four residents will be appointed.——An examination for six resident physicians for St. Joseph's Hospital will be held in the hospital building, May 1, at 6 p. m.

Dr. Osler to Make Address.—Dr. William Osler will address the medical students of the University of Pennsylvania by invitation and under the auspices of the Stillé Medical Society of the University, in Houston Hall, April 19, at 8 p. m., on the subject of "The Student's Life." This will be the final address to medical students by Dr. Osler prior to his departure from this country, being the last of three addresses to the students of the universities with which he has been connected—McGill University, Johns Hopkins University and the University of Pennsylvania.

Health Report.—The deaths from all causes reported for the week ended April 8 aggregated 503. This is a decrease of 42 from last week, and a decrease of 94 from the corresponding period of last year. The decrease in typhoid fever of the previous week was maintained. The total number of cases reported reached 161, as compared with 231 for the previous week. The malady continues to prevail in the northeastern section of the city, where 60 per cent. of the entire number of new cases existed. The principal causes of death were: Typhoid fever, 23; diphtheria, 15; pulmonary tuberculosis, 52; cancer 27; apoplexy, 23; heart disease, 46; pneumonia, 53; enteritis, 24; Bright's disease, 45, and meningitis, 1. The total number of contagious disease cases reported was 280, with 42 deaths, as compared with 325 cases and 37 deaths for the preceding seven days.

GENERAL.

American Proctologic Society.—The seventh annual meeting will be held at the Hotel Henry, Pittsburg, Pa., May 5-6, 1905. The secretary-treasurer is Dr. A. B. Cooke, Nashville, Tenn., and the chairman of the committee of arrangements is Dr. W. M. Beach, Pittsburg.

The American Gastroenterological Association.—The eighth annual meeting of this association will be held at the Academy of Medicine, New York City, April 24-25. An interesting program is announced. The annual dinner will be on the evening of the 24th. Dr. Charles D. Aaron, Detroit, is the secretary and treasurer.

Meeting of Council on Medical Education.—The conference of the Council on Medical Education of the American Medical Association will be held in Chicago, April 20, 10 a. m., at the Great Northern Hotel. Some of the questions to be considered at this meeting are: What shall be the standard for the recognition of medical colleges, and how shall such standard be determined? Reciprocal registration; preliminary education; curricula; examinations, and the subject of co-operation among licensing boards and the medical profession. All but 14 states have been heard from, so that the conference promises to be productive of much good.

Conference of American Anatomists.—On invitation of the Wistar Institute of Anatomy, ten of the leading anatomists of the United States met in a conference in Philadelphia with the manager of the Wistar Institute in the interests of anatomy in America, on April 11 and 12. The object of the conference was to discuss the possibility, advisability and means of organizing central institutes for the promotion of research in the different subdivisions of anatomy, such as physical anthropology, comparative anatomy, topographical anatomy, embryology, histology and neurology, and also to establish relationship with similar institutes abroad. This conference was brought about through the efforts of Dr. M. J. Greenman, director of the Wistar Institute. He proposes also to extend the usefulness of this institute along the lines for which it was founded. The splendid equipment of the Wistar Institute with its broad plan of foundation, its devotion to advanced work only, with no undergraduate teaching, have led anatomists to suggest possibilities in co-operative research work by utilizing this institution as a sort of anatomical center, where

the committees may meet from time to time, the work be collated and correlated, where research material may be collected together, prepared for investigation and sent about the country to qualified investigators. The Wistar Institute stands unique in its position in the country to undertake and accomplish a national piece of work such as was proposed at this conference. If the plan is carried out it will do for all the great American universities certain important lines of work which no other institution could attempt. The following scientists were to be present: Dr. Lewellys F. Barker, professor of anatomy, University of Chicago; Dr. Edwin G. Conklin, professor of zoology, University of Pennsylvania, Philadelphia; Dr. Henry H. Donaldson, professor of neurology, University of Chicago; Simon H. Gage, professor of embryology, Cornell University, Ithaca, N. Y.; Dr. G. Carl Huber, professor of embryology, University of Michigan, Ann Arbor; Dr. George S. Huntington, professor of anatomy, Columbia University, New York; Dr. Franklin P. Mall, professor of anatomy, Johns Hopkins University, Baltimore; Dr. J. P. McMurrich, professor of anatomy, University of Michigan, Ann Arbor; Dr. Charles S. Minot, professor of embryology, Harvard University, Cambridge, Mass., and Dr. George A. Piersol, professor of anatomy, University of Pennsylvania, Philadelphia. It is expected that many other anatomists will participate in the work as soon as some definite plans of operation have been decided on. To begin the work, however, it was considered best to have only a few take part in the conference so that some conclusions might be quickly reached and some definite action taken. The guests were received by a committee consisting of General Wistar, the donor of the institute; Mr. Charles C. Harrison, president of the board of managers; Mr. Arthur E. Brown, vice-president of the Academy of Natural Sciences; Dr. John H. Musser of the University of Pennsylvania, and Dr. M. J. Greenman, director of the institute. No conference of the kind or for similar purposes has ever been held in the United States, and it is hoped by those interested that this may be the beginning of united efforts in co-operative research work in anatomy in America such as has been carried on so successfully abroad in astronomy for more than thirty years and in neurology and embryology for the past five years. It is unnecessary to comment on the co-operative plan in any line of work; the adoption of uniform methods, of uniform nomenclature, uniform weights and measures, the correlation of work as it progresses and its subdivision into specialties all tend to greater and better results.

CANADA.

Toronto Clinical Society.—This society met for the first time in the new Ontario Medical Library Building, Toronto, on April 5. The three medical societies of Toronto now meet in these comfortable quarters, the other two being the Toronto Medical Society and the Toronto Pathological Society.

Personal.—Dr. Wiliam Canniff, one of the oldest practitioners in the province, has returned to reside in Toronto after an absence of 10 years. Dr. Canniff was licensed in 1854 for the old province of Upper Canada, and was the first professor of pathology in Canada, being connected with the old medical faculty, now defunct, of Victoria University. He was also Toronto's first medical health officer, a department which he organized for the city in 1883.——Dr. Brefney O'Reilly has returned to Toronto from Baltimore and will commence practice.——Dr. James Stewart, professor of medicine in McGill, and Dr. F. W. Campbell, dean of the medical faculty of Bishop's, Montreal, are recovering from serious illnesses.——Dr. J. D. Lafferty, Calgary, N. W. T., has been spending several weeks in Ottawa, Montreal and Toronto. Dr. Lafferty is spoken of in connection with the governorship of one of the two new provinces about to be created out of the Northwest Territories. ——Dr. R. S. Thornton, Deloraine, Man., has decided to enter political life, having accepted the nomination for his county in connection with the local legislature of Manitoba.

FOREIGN.

Smallpox in Bombay.—Smallpox is almost epidemic in Bombay. According to the *Public Health Reports*, the great danger lies in the fact that the natives do not fear the disease and expose not only themselves but others unconcernedly.

International Antituberculosis Society.—The general assembly of this society was held at Paris, March 14, when Dr. S. Bernheim presented an address on the present status of the crusade against tuberculosis. The officers of the society are at present Professor Lancereaux, president, with Huchard and Richelot of Paris, von Schrötter of Vienna, Hermann Weber of London and de Lancaster of Lisbon, vice-presidents, and Dr. G. Petit of Paris and Count Ivan Tolnewski of London, general secretaries.

Epidemic of Cerebrospinal Meningitis in Germany.—The epidemic of this disease in upper Silesia has included 1,200 cases in the Oppeln district, with a mortality of 50 per cent. The schools have been closed in the infected district and the houses disinfected. Circulars instructing the people how to ward off the disease and to prevent its spread have been distributed, and the cable brings word this week that the epidemic has begun to subside. Families that had sheltered vagabonds from Russia were the first affected.

Second German Preventive Congress.—The first congress of the German Society for Repression of Venereal Diseases was held at Frankfurt two years ago, and the second convened at Munich, March 17 and 18, 1905. The society now has 4,000 members and 21 local sub-societies, and the congress had a crowded attendance. Lesser and Blaschko of Berlin presided. The audiences included the general public, with a very large official and legal attendance. From the reports published in our exchanges we note that the congress unanimously voted that the obligation of professional secrecy should be binding on the officials and employes of the hospitals, insurance and similar societies the same as on physicians. Neisser is president of the society, and although he is now studying syphilis in Java, a communication was read from him. It urged that the regulations now in vogue for contagious diseases in general should be extended to include syphilis whenever the attending physician thinks there is danger to the public health in a special case. A prominent legal authority declared that professional secrecy should be maintained, but that the physician will find legal precedent for emancipating himself from the strict letter of the law when exceptional circumstances demand that he should speak. The law permits it if the patient consents. Others insisted that the physician's declaration was liable to do more harm, between husband and wife, for instance, than the disease itself. The discussions on the question of prostitution were animated, as eminent authorities hold opposite views on the question of housing and compulsory medical inspection.

BERLIN LETTER.

Berlin Views on the Cancer Question.

German medical men—at least those of Berlin—have been enjoying a violent stirring up of the seething cancer question. Each weekly meeting of the Berliner Medicinische Gesellschaft for three weeks was recently given up to a free discussion of the matter by the leading authorities, and the crowds attending the meetings gave evidence of the intense interest that the German practitioner takes in the progress of research. The hall of the society is large, seating about 500 persons, but at each meeting it was filled to the doors, about which a crowd surged as at the entrance to an American football game or horse show. Advocates of the parasitic theory, and the much more numerous skeptics, each presented his respective claims in full, and although, of course, no conclusions could be finally reached, yet the sentiments of German scientists, both laboratory and clinical, were fully shown.

The leader of the positive side of the discussion was the aged von Leyden, whose appearance before the society aroused great interest. He seemed inclined to admit that it was still impossible to bring forward conclusive proofs of what was to him a conviction, namely, the parasitic etiology of cancer. Clinical considerations afforded him many reasons for taking this view, in that the general features of the disease were those of an infectious malady—the attack of a previous healthy individual followed by progressive emaciation and exhaustion. All the facts that speak for a traumatic etiology speak equally for infection, since trauma always opens the way for infection; so, too, cancer occurs chiefly in places exposed to infection while in the deep-seated tissues, such as the liver and the kidney, it is relatively infrequent. Numerous reports of epidemics of cancer both in men and in animals, cancer *à deux*, successful inoculation of cancer from animal to animal, development of new growths along the track of the trocar used in aspirating cancerous fluid, all seem to him to indicate a true infection of a host by a parasite. Lastly we have the peculiar bodies that can be found in tumor cells and which seem to him incapable of being readily explained away as merely cell inclusions or as products of cell degeneration.

Orth gave a remarkably clear and forceful presentation of the other side of the question. Americans have recently had an opportunity of learning his views during his visit to the St. Louis Exposition, and of reading some of his conclusions (*Annals of Surgery*, 1904, xi, 773). His chief arguments were, first, that so far no satisfactory proof has been brought forward that cancers are of parasitic origin; and secondly, that there is no necessity for assuming a parasitic origin since every feature of their growth can be explained without such assumption, whereas many features of tumors are difficult if not impossible of explanation on the ground of the parasitic theory. The essential feature of all cancers seems to be the cancer cell, without which no secondary growths arise—every metastatic growth begins in such transported cancer cells and consists solely of the descendants of these cells, not of cells derived from the affected organ. Herein lies the fundamental difference between cancer and such diseases as tuberculosis and syphilis, with which cancer is often compared in urging an infectious theory—in all the infectious granulomas the secondary growth consists of products of multiplication of the infected organ itself, and not of tissue cells brought from the primary site. Hence an analogy between infectious granulomas and cancer can not be accepted as supporting the parasitic theory. Likewise the successful transplantation of cancer from animal to animal is no evidence of infectious origin, since in each case cancer cells are transplanted and it is through multiplication of these transplanted cells that the new growth arises—a transplanted cancer is the same as any other metastasis, and no proof of infectiousness. If there is any parasite of cancer, Orth believes that it is the cancer cell itself and not a foreign organism. What have so far been described as parasites in cancer cells are as yet far removed from being a sufficient ground for scientific theories, and in his opinion "the parasitic theory of carcinoma is still completely in the air."

Von Hansemann also took the ground that inoculation experiments were of little positive value so long as they were not made with substances free from cancer cells. The so-called cancer parasites that he has seen demonstrated have never been at all convincing. The idea of hereditary influence is based on altogether untrustworthy evidence, and the so-called epidemics of cancer are so rare as to readily fall under the laws of chance. He also spoke of the danger that a premature belief by the public in an infectious origin for cancer might result in unnecessary hardships for the victims of the disease, as has so often happened with consumptives. His special point was the fallacy of speaking of a single cancer etiology, for he believes it probable that there may be many causes for cancer active in different cases; for example, it is quite probable that the etiology is different in an acute round-cell sarcoma following a blow on the testicle, in a malignant teratoma of the ovary, and in a slow-growing epithelioma of the skin in the aged. In the discussion, which occupied an entire evening, various minor points were added, but nothing of essential importance. From the trend of the discussion, and the comments and attitude of the audience, it seemed that the general sentiment was not far different from that expressed by Orth, namely, that while as yet the parasitic origin of cancer can not be dismissed as unworthy of careful consideration, yet so far it rests on slight and generally unsatisfactory evidence, and on the other hand it is quite unnecessary to assume the presence of parasites to explain all the known features of cancers.

LONDON LETTER.

The Crusade Against Consumption.

The sixth general meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis was held under the presidency of the earl of Derby. According to the report, the expenses have considerably exceeded the income for the year. The next International Tuberculosis Congress will be held at Paris in October, and the aid of the association has been sought by the authorities of the congress. Activity has been displayed throughout the country in the foundation of sanatoria for the treatment of consumption. Tuberculosis in children, especially the surgical forms, has engaged the attention of the association. This country lags behind some others in provision for such children; there is practically only one sanatorium where they can be received. Some of the speakers insisted on the fact that sanatorium treatment could not be expected to be beneficial if cases were not sent in the early stage. Sir William Broadbent moved that in the interest of the public health tuberculosis should be dealt with in a comprehensive manner and that this would be done most efficiently by the Metropolitan Asylums Board constituting itself the sanatorium authority for consumption in London. At present this board is the authority which controls all the fever hospitals of the metropolis. Sir William said that there is an enormous amount of tuberculosis disease in London, mainly in the lower classes. This is a source of danger to others. In poor law infirmaries the hopeless cases ought to be absolutely segregated. If the Metropolitan Asylums Board would undertake to deal with consumption which, to a certain degree, is a contagious disease, they would make a distinct impression on the amount which exists in London.

The Polyclinic.

At the annual meeting of the Medical Graduates' College and Polyclinic a very gratifying report was presented. The register now stands as follows: Life members, 48; members, 136; subscribers, 675; temporary subscribers, 12. Twelve hundred and twenty-five cases of disease, many of them of extreme rarity and interest, were shown at the clinics. During the year the attendances of physicians at the clinics amounted to 13,471. Four sessions of practical classes, each of six weeks' duration and a vacation course of three weeks in September, were held, and were attended by 192 physicians. Three hundred and forty-seven clinical investigations were carried out in the laboratory. This department of the college is receiving steadily increasing support, and it is hoped that soon the fees from this source will form a valued addition to the income. Many welcome additions have been made during the year to the Hutchinson Museum, and the whole collection has been classified and arranged so as to permit of speedy and easy reference. The decision of the council to abolish the special fee of one guinea charged for attendance at the composite course of lectures on medicine and surgery and the allied sciences has been much appreciated by the subscribers, many of whom have increased their annual subscription as a token of their satisfaction. Four lectures are delivered weekly by the most eminent teachers, not only of London, but of the whole kingdom. A special feature of the year's work was a course of six practical demonstrations on clinical methods of estimating the blood pressure, which was given by Dr. George Oliver. The financial position of the college had been for some time very difficult, but is now much more satisfactory. For the first time the year has closed with a credit balance.

Municipal Milk Depots: The Abolition of Sterilization of Milk.

The movement for the supply of milk by municipal authorities is increasing. Its *raison d'etre* is the impossibility of the poorer classes obtaining good and "clean" milk through the ordinary commercial sources. A conference on municipal milk depots and milk sterilization has been held at the Royal Sanitary Institute. The first municipal milk depot was opened at St. Helen's in 1899, and since then depots have been opened at Liverpool, Ashton-under-Lyne, Dukinfield, Battersea, Leith, Bradford, Dundee, Glasgow and Burnley.

The Increase of Lunacy in Scotland.

From time to time we have called attention in THE JOURNAL to the alarming increase of lunacy in the United Kingdom and have given figures dealing with England and Ireland. In a paper on the subject read at the Glasgow Eastern Medical Society Dr. W. A. Parker has dealt specially with Scotland. In the United Kingdom 1.86 insane persons per 1,000 of population were registered insane in 1862; the figure was 3.58 in 1902. In Scotland 5,824 lunatics were registered in 1848; in 1904 the number was 16,894. Thus the number of lunatics increased by 180 per cent. while the population increased by only 52 per cent. There is one hopeful fact, however, which suggests that the increase may have reached its limit; in 1892 the insane numbered 250 per 100,000 of the population; in 1904 the number was a little less—245. This is the first time that any check has occurred in the increase. Several explanations of the increase of lunacy have been given 1. In 1857, when district asylums were first instituted by parliament (owing to dissatisfaction with the treatment of lunatics in workhouses), a great impulse was given to the better care of the insane. This led to the gathering into asylums of many weak-minded persons who had been cared for in their own homes and were then for the first time registered as insane. Thus the increase so produced is only a registered one and does not represent a real increase. 2. There is a steady tendency of the rural population to drift toward the larger towns and many

weaklings and senile patients who would be cared for by their friends in quiet country places are sent to asylums. This again does not represent a real increase. A true increase is represented by the increase of general paralytics in the asylums. 3. The death rate of the inmates of asylums, in consequence of hygienic improvements, has diminished, which results in a greater number of registered lunatics.

Correspondence

A Just Protest.

Fall River, Mass., March 31, 1905.

To the Editor:—On advertising page 35 of The Journal, Jan. 28, 1905, is an advertisement of W. C. Abbott, M.D., of Chicago, entitled "Doctor, Do Your Pneumonia Cases Die? Mine Do Not. I Have Paid for This Space and I Want You to Read What I Have to Say." I have just received this week a brochure entitled "Pneumonia, a Modernized Successful Treatment," by W. C. Abbott, M.D., Chicago, 1905, starred "From the Journal of the American Medical Association." Anyone not having seen the article in The Journal would be led to suppose that this article was one of the regular contributed articles of The Journal of the American Medical Association, instead of being strictly advertising matter.

With the correctness or not of Dr. Abbott's views I am not at present concerned. I wish, however, as a member of the American Medical Association, to protest, and I wish The Journal to protest against anybody, especially a man of the prominence of W. C. Abbott, sending forth as advertising matter an article purporting to be original matter from The Journal of the American Medical Association. It is true that it did come from The Journal of the American Medical Association, but it is one of those truths that is at the same time a lie, or a lie that is at the same time a truth.

I would request that you call attention to this in The Journal. Geo. L. Richards.

[Dr. Abbott's attention was called to this matter, and he has readily agreed to destroy the reprints in hand.—Ed.]

American Anti-Tuberculosis League.

Atlanta, Ga., April 9, 1905.

To the Editor:—Our southern papers, especially those of Atlanta, are filled with announcements of the coming meeting of the "Anti-Tuberculosis League" which convenes in this city on the 17th, 18th and 19th of this month. The city council has voted $500.00 for their entertainment, and it is announced that there will be representatives from all the foreign countries, besides representatives from every state in the Union appointed by the governors. Since very few of the profession know the standing and status of this "Anti-Tuberculosis League" and since such an international convention will assemble so soon in this portion of the South, it has seemed strange that The Journal, representative of the medical profession of the United States, has not made some mention of this meeting and the profession thus made cognizant of such an important international event. Dr. Geo. Brown of this city is the president, and the papers announce that the attendance will be over one thousand. Will you kindly let your readers know something positive about this league?

Dunbar Roy, M.D.

An Appeal.

Baltimore, April 6, 1905.

To the Editor:—Would it in any way be contrary to the policy of The Journal to insert the following statement? One of the best known physicians of this country, a woman who has given her life to the arduous duties of the profession, as well as to work in numerous charitable associations, especially in those which are helpful to women, has suddenly been thrown out of a life of great activity and usefulness into one of absolute inactivity and dependence. The medical profession of Chicago, and I think of the country at large, will know well to whom I refer without my mentioning her name. It is my desire to raise a fund for her relief for the remainder of her days, and to this end I solicit subscriptions (to be sent to me personally), which will be applied for her relief. It is a pleasure to head the list with $100.00.

Howard A. Kelly.

Typhoid Fever.

Baileyville, Ill., April 8, 1905.

To the Editor:—The article on typhoid fever by Dr. Robin of Wilmington, Del., in The Journal April 8, 1905, leads me to quote from "Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps During Spanish War of 1898." The letter of transmittal states that data "furnish most positive proof that the dissemination of typhoid fever in the military camps in 1898 was largely from person to person by contact and not through infected food or water." The study of the conditions prevalent at Jacksonville convinced the board that there, at least, water was not responsible for the epidemic; then the inspection of the recently abandoned camps at Chickamauga plainly told the truth, and the fact that the most potent factor in the spread of typhoid fever in the camps was the pollution of the soil, of the feet, clothing, bedding, tentage, etc., was made evident, and the necessity for disinfection was pointed out in a way that could not be misunderstood.

Edwin A. Carpenter.

Marriages

B. Morgan Parker, M.D., to Miss Edna Merrell, both of Detroit, Mich., April 12.

Rudolph F. Harriman, M.D., to Miss Gretchen W. Fischer, both of Brooklyn, N. Y., April 5.

Lawrence P. Crawford, M.D., Earlville, Ill., to Miss Ruth Dixon of Fairview, Ill., March 22.

Gurdon Potter, M.D., Trenton, N. J., to Regina Flood Keyes, M.D., of Buffalo, N. Y., March 18.

Homer H. Wheeler, M.D., Indianapolis, Ind., to Miss Alice Garver Gladden of Memphis, Tenn., April 5.

William Engelbach, M.D., Arenzville, Ill., to Miss Fama L. Reynolds of Barry, Ill., at Quincy, Ill., March 27.

George Miller MacKee, M.D., New York City, to Miss Anna Laura Beegle of Far Rockaway, N. Y., March 22.

Deaths

Albert Kimberly Hadel, M.D. University of Maryland School of Medicine, Baltimore, 1889, a member of the American Medical Association, the Medical and Chirurgical Faculty of Maryland; registrar, historian and president of the Maryland Society Sons of the American Revolution; registrar general of the national body Sons of the American Revolution; president of the Maryland Society of the War of 1812; a well-known speaker and writer on historical subjects; a specialist on diseases of the nose and throat, died at his home in Baltimore, April 4, from cerebral hemorrhage, after an illness of four months, aged 54. He served at one time as secretary of the Baltimore Board of Health. Among the pallbearers at his funeral were Drs. Nicholas M. Dashiell, James D. Iglehart, Alexander D. McConachie, Charles E. Sadtler and Eugene F. Cordell.

Samuel Davies Drewry, M.D. Medical College of Virginia, Richmond, 1854, assistant surgeon in the Confederate Navy during the Civil War, died at his home in Centralia, Chesterfield County, Va., April 2, from nephritis, after an illness of several months, aged 72.

Peter Nelson Jacobus, M.D. University of Vermont Medical Department, Burlington, 1885, a member of the Medical Society of the State of New Jersey, died at his home in Washington, N. J., March 28, after a short illness, from debility following influenza, aged 71.

William S. Walker, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1877, surgeon of the St. Louis, Iron Mountain

& Southern Railway at Hot Springs, Ark., died at St. Mary's Hospital, Rochester, Minn., March 31, a short time after a surgical operation.

John D. Paige, M.D. Harvard University Medical School, Boston, 1888, of Savannah, Ga., a member of the Medical Association of Georgia, and a specialist in diseases of the eye, ear, nose and throat, died in Salt Lake City, Utah, March 28, aged about 45.

George W. Purnell, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, surgeon in the Confederate service during the Civil War, died suddenly at his home in Hazlehurst, Miss., April 4, from heart disease, aged 68.

Randolph N. Seaver, M.D. University of Wooster Medical Department, Cleveland, 1874, some-time mayor of Corry, Pa., died at his home in that city, April 3, from cerebral hemorrhage, after an illness of only a few hours, aged about 60.

Evan E. Hughes, M.D. Medical College of Ohio, Cincinnati, 1872, a member of the American Medical Association, died at his home in Oak Hill, Ohio, March 28, from cerebral hemorrhage, after an illness of only a few hours, aged 59.

William M. Linquist, M.D. San Francisco, 1896, for several years surgeon on the Pacific Mail Steamship Company's boats between San Francisco and Panama, died at his home in Ukiah, Cal., March 23, from pneumonia, aged 34.

Edwin Tomlinson, M.D. Jefferson Medical College, Philadelphia, 1872, some-time coroner of Camden County, N. J., and postmaster of Gloucester City, died at his home in that city, March 29, after a lingering illness, aged 65.

Rachel Brooks Gleason, M.D. New York Medical College, New York City, 1851, for many years in charge of the Elmira Water Cure, died at the home of her daughter in Buffalo, N. Y., March 13, aged 84.

Fletcher S. Dillman, M.D. Missouri Medical College, St. Louis, 1898, who was thrown from a buggy March 26, died at his home in Ingraham, Ill., April 4. He did not regain consciousness after the injury.

Samuel Tyler Miller, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1850, formerly judge of Gloucester County, N. J., died at his home in Paulsboro, N. J., April 3, aged 78.

Rufus P. Grindle, M.D. New York University, New York City, 1872, who served in both houses of the state legislature, died at his home in Bluehill, Hancock County, Maine, March 28, aged 59.

John Wesley Martin, M.D. University of Louisville (Ky.) Medical Department, 1879, died at his home in West Plains, Mo., March 26, from cancer, after an illness of several months, aged 52.

John W. Hamilton, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1887, died at his home in Lampasas, Texas, March 29, after an illness of one month, aged 45.

Dennis F. Smith, M.D. Jefferson Medical College, Philadelphia, 1881, of Plymouth, Pa., died in the Hospital for the Insane at Retreat, Pa., March 25, after an illness of two years, aged 54.

Theodoric F. C. Dodd, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1857, died at his home in Altoona, Pa., March 8, aged about 70.

Silas B. Kash, M.D. Hospital College of Medicine, Louisville, 1898, died at his home in Burdette, Mo., March 26, from pneumonia, after an illness of ten days, aged 33.

Justus Sutliffe, M.D. New York University, New York City, 1885, died at his home in Nanticoke, Pa., April 3, from pneumonia, after an illness of a week, aged 57.

William L. Coleman, M.D. Medical College of Georgia, Augusta, 1857, an expert on yellow fever, died at his home in Houston, Texas, Nov. 27, 1904, aged 77.

Louis Gotthelf, M.D. University of Berlin, Germany, 1846, founder of St. Mary's, S. D., died at his home in Parker, S. D., April 2, from senile debility, aged 85.

Malcolm R. Clark, M.D. Medical Department of the University of the South, Sewanee, Tenn., 1894, died at his home in Pontotuc, Miss., February 16.

Granville A. Newlon, M.D. Examination, W. Va., 1861, died at his home in Buckhannon, W. Va., April 1, from pneumonia, after a short illness, aged 68.

W. A. Houck, M.D. Examination, Ark., of Rhea, Ark., a Confederate veteran, died at Prairie Grove, Ark., March 14, from nephritis, aged 60.

Winfield Scott Scurlock, M.D. Medical College of Ohio, Cincinnati, 1883, died suddenly at his home in New Holland, Ohio, March 31.

John S. Chapel, M.D. University of Buffalo (N. Y.) Medical Department, 1865, died at his home in South New Lyme, Ohio, March 27.

Fred Sauerbrie, M.D. Albany (N.Y.) Medical College, 1895, died suddenly at his home in Clarksville, N. Y., April 2, aged 38.

Henry F. Wildasin, M.D. Cincinnati, 1872, died at his home in Plattsburg, Ohio, March 28, from septicemia, aged 67.

Henry W. Haldeman, M.D. Chicago Medical College, 1879, died recently at his home in Girard, Kan.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NURSING FROM AN INFECTED BREAST.

————, WASH., April 4, 1905.

To the Editor:—Is acute mastitis a contraindication for nursing? I was called to see a patient who complained of chilliness, loss of appetite and headache; her temperature was 102; pulse, 95. Her right breast was painful, swollen a little, but not red or edematous. Pressure was painful; nursing did not pain her. I applied a hot clay mixture poultice. The next day the breast was better, temperature normal, patient feeling better, and everything appeared favorable. Suppuration did not take place. The baby had been allowed to nurse during this time. The baby had been troubled with constipation some, though I never prescribed for the baby. Next day after mother was better; the baby had what the father called a bad attack of colic. They called a physician from another town, and the next morning the child was dead. The father said the abdomen swelled up considerably, though he did not think the baby very serious. The baby was about two weeks old. The physician from the other town claimed that it was the milk from the breast that I had been treating that killed the baby. Is that probable? Tillman says to let the baby nurse. Holt does not give it among his contraindications. Was my treatment correct? Or should I have been condemned, as I was by the physician that treated the case, for allowing the baby to nurse? B.

ANSWER.—There is no reason for holding that the milk from the infected breast killed the baby. Without a postmortem examination or a more detailed history it is impossible to state the cause of death. There may have been an intussusception of the bowels. A slight mastitis, such as described here, is probably of lymphatic origin, the lactiferous ducts do not become involved, and there are no pus cells in the secretion. It is, as a rule, better to put the breast at complete rest by applying a good supporting bandage and stopping nursing. The stimulation or irritation of the breast by nursing tends to prevent rapid control of the inflammation, and so nursing is contraindicated because of the mother, not on account of the child. In two or three days, or as soon as all tenderness has disappeared, nursing may be resumed. In the other form of mastitis, where there is inflammation of the lactiferous duct, which is characterized by a slower onset and by the presence of pus in the milk, there is more theoretical objection to nursing, but practically the same rule—let the child nurse as soon as fever subsides and local tenderness disappears—leads to no bad results.

INSECT POWDER AT PANAMA.

BEREA, IOWA, April 7, 1905.

To the Editor:—In THE JOURNAL, April 1, p. 1055, I notice that large quantities of "insect powder" is being used on the Isthmus. Can you tell me what its composition is and where it can be obtained and its probable cost per pound?

FRANKLIN T. DE WITT.

ANSWER.—This "insect powder" is probably pyrethrum—Persian or Dalmatian insect powder. This is much used by the United States Public Health and Marine-Hospital Service (see THE JOURNAL, July 9, 1904, p. 117). The Persian powder consists of the flowers of *Chrysanthemum roseum* and other allied plants growing on the Caucasian Mountains and in northern Persia. These are now being raised in large quantities in this country. The powder is obtainable at any drug store for from 15 to 25 cents per pound, and in large quantities for much less.

State Boards of Registration

COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

New Colorado Medical Act.

The new Colorado Board of Medical Examiners, recently provided for, consists of nine members, appointed by the governor, to hold office for six years. When an applicant for a license offers to the board satisfactory proof that he has complied with the educational requirements specified he is entitled to a license without examination; provided, that graduates in medicine, after Jan. 1, 1900, must have attended not less than four full courses of instruction in four separate years in a reputable medical school. Each applicant is required to name his system of practice, and no person is allowed to use the name of any system unless he holds a certificate from the state association of such system. Candidates whose credentials are not approved are subjected to an examination in anatomy, physiology, chemistry, symptomatology, toxicology, pathology, surgery and obstetrics (exclusive of materia medica and therapeutics). The credentials of applicants relating to their general reputation, their preliminary education and the courses of study they have pursued, the degrees they have received, their experience in general hospitals, medical department of the Army, Navy and Public Health and Marine-Hospital Service, licenses granted by other states and countries, and their experience as teachers of medicine, are given due consideration by the board in conducting its examination. The board is given power to revoke a license obtained by the employment of fraud or deception, either in passing the examination, the assumption of a false name for the personification of another practitioner of a like or different name; for the conviction of a crime involving moral turpitude; habitual intemperance to such an extent as to incapacitate for performance of professional duties; the procuring or aiding or abetting in procuring a criminal abortion; misrepresentations to the public and circulation of vicious or obscene advertisements. The board meets in Denver on the first Tuesday of January, April, July and October of each year.

Maine March Report.—Dr. William J. Maybury, secretary of the Board of Registration of Medicine of Maine, reports the oral and written examination held at Portland, March 28, 1905. The number of subjects examined in was 10; number of questions asked, 100; percentage required to pass, 75. The total number of applicants examined was 11, of whom 10 passed and 1 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Medical School of Maine	(1904)	88.6
College of P. & S., Boston (1903) 84.5;	(1904)	83.4
College of P. & S., Baltimore	(1904)	90.5
College of P. & S., New York City	(1901)	96.8
Laval University, Montreal (1903) 84.6;	(1904)	88.3
University of Pennsylvania	(1899)	94.7
Faculty of Medicine, Paris	(1903)	90.3
Bishop's College Medical Faculty	(1897)	92.9
FAILED.		
Baltimore University School of Medicine	(1904)*	

* Withdrew from examination.

Oklahoma March Report.—Dr. J. W. Baker, secretary-superintendent of the Territorial Board of Health of Oklahoma, reports the examination held March 29, 1905. The number of subjects examined in was 9; number of questions asked, 90, and percentage required to pass, 66.6. Twenty-one persons were examined, of whom 9 passed and 12 failed. The following questions were asked:

SURGERY.

What is inflammation? Name the varieties of inflammation encountered in our general practice. What is suppuration, a phlegmonous and a tuberculous abscess? Give the effects and treatment of primary, recurrent and secondary hemorrhage. Give symptoms and treatment of concussion and compression of the brain, and state what you would do to tap the lateral ventricle. What would induce you to do a colotomy, and where would you make your opening—right or left inguinal or lumbar region? Describe a compound dislocation and compound fracture and state what joint is most frequently affected with above dislocation. Give signs of a fracture, dislocation and reduction. What is a Colles and what a Potts fracture? Give a general treatment for fractures; also give treatment for ununited fracture. When does excision or resection become necessary, and why do you choose excision in place of amputation? Write a short article on asepsis and antisepsis.

ANATOMY.

Name and give the number of bones in the upper and lower extremities. Give the composition of bone and name the unclassified bones. Give number and varieties of motion in joints and structures entering into the formation of joints. Name the muscles in the male and female perineum. Why do they differ? What branches of arteries form the circle of Willis? What veins carry arterial blood and what veins have no valves? From what plexus of nerves is the spermatic plexus formed and what is this plexus called in the female? Give the structure and uses of the pharynx and esophagus. Name and give the number of apertures in the walls of the abdomen. Give the structure and uses of the liver and pancreas.

PHYSIOLOGY.

Give the physiologic properties of protoplasm. Give the physical and physiologic properties of connective tissue. What is intestinal digestion? How is absorption of food accomplished? How are the changes in the air effected by respiration? Name and describe the principal excrementitious fluids of the body. What are and where will you find the appendages of the skin? Give the physiologic cause of sleep. How long does it require the blood to make a complete circuit of the vascular system? Give the vital capacity of the lungs and give the functions of the iris.

CHEMISTRY AND URINALYSIS.

What is matter? In how many forms does it exist? Classify elements and name five most abundant in nature. Distinguish an organic acid; an inorganic acid. Give five examples of each. Give chemical antidote for carbolic acid, arsenic, corrosive sublimate. What results from triturating sulphur and potassium chlorate? From adding potassium permanganate to sulphuric acid? Give chemical formulæ of hydrochloric acid, magnesium sulphate, calomel, water, corrosive sublimate. Give chemical name of Epsom salts, cream of tartar, rochelle salts, lime salt. Describe normal urine and name four of its constituents. Give in detail the heat test for albumin, nitric-acid test. Give in detail a reliable test for sugar in the urine.

MATERIA MEDICA AND THERAPEUTICS.

Define materia medica, therapeutics, menstruum, collyrium, excipient. Define alkaloid, resin, tincture, fluid extract. Define ointment, liniment, plaster, cerate. Give source, physiologic action and therapy of glycerin. Give therapeutic uses of four mineral acids. What anesthetic do you use and why do you prefer it? Give indications for four remedies used in each of the following diseases: Malaria, la grippe, bronchitis. Give source, physiologic action, officinal preparations, therapy and dose of each of the following: Aconite, strychnin, cinchona flava.

OBSTETRICS AND GYNECOLOGY.

Define menstruation, ovulation, conception. Give frequency of menstruation, period of quickening, duration of pregnancy. Give visible signs of pregnancy. Give causes and treatment of antepartum hemorrhage and postpartum hemorrhage. Describe in detail the repair of a laceration of the perineum involving the floor of the vagina. Describe the application and use of the obstetric forceps. Under what conditions would you be justified in inducing premature labor? What anesthetic would you use in labor? Name some of the uses and abuses of irrigation during pregnancy and after labor. Give treatment of threatened abortion.

PRACTICE OF MEDICINE.

What are the most frequent complications and sequelæ of scarlatina? Give causes, symptoms and treatment of simple catarrhal jaundice. Give causes and treatment of croupous pneumonia. Define the term glossitis and give symptoms and treatment. What are the causes of acute parenchymatous nephritis? What is the differentiation of pericarditis from pleuritis? Give the treatment of typhoid fever and state briefly the measures to prevent infection. Give symptoms, management and treatment of smallpox. Give in detail the early diagnosis of tuberculosis of the lungs, and briefly, the treatment. Give the treatment of gastric ulcer with hematemesis.

PHYSICAL DIAGNOSIS.

Differentiate compression of the brain from injury and from the phenomena of alcoholism. Give the physical signs of the most usual valvular lesion of the heart. Give causes and symptoms and prognosis of cardiac dilatation. Give the diagnostic points in variola and in varicella, in regard to (a) the location of the skin lesion (b) the character of the skin lesion, (c) the time that elapses between the onset of the disease and the appearance of the skin lesion. Define and differentiate between illusion, delusion and hallucination. Define vertigo and give causes. Define fever. What is the normal temperature of the human body? Mention the sequelæ of measles and give treatment of them. Give differential diagnosis of measles and scarlet fever. Differentiate between typhoid and malarial fevers.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

Is a physician obliged to attend a patient who sends for him? What signs justify a physician in swearing that a woman is pregnant? What is the poisonous principle in rough on rats, in paris green, in verdigris, in oil of almonds? Of what does med-

ical jurisprudence treat? State the difference between criminal and civil malpractice. Give the symptoms of poisoning by arsenic and the treatment for same. What organs are diseased by alcoholism or poisoning by alcohol? Make an autopsy for the purpose of examination for strychnin poisoning. At what stage of intrauterine life does the fetus become viable? Differentiate abortion from miscarriage.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending April 8, 1905:

Kulp, John S., asst.-surgeon, relieved from duty in Department of California, and ordered to Philippine Islands for duty, to sail on transport April 30, 1905.

Adair, George W., deputy surgeon general, left St. Paul, Minn., on thirty days' leave of absence.

Frick, E. B., surgeon, to take charge of C. S. O., Department of Dakota, during chief surgeon's absence on leave.

Manly, C. J., asst.-surgeon, relieved from duty at Fort Brady, Mich., and ordered to Fort Yellowstone, Wyo., for duty.

Usher, F. M. C., asst.-surgeon, relieved from duty at Fort Yellowstone, Wyo., and ordered to Fort Brady, Mich., for duty.

Carter, Edward C., surgeon, relieved from further duty in the Philippines Division, and ordered to Washington, D. C., to report in person to the Military Secretary for further orders.

Wells, George M., surgeon, retired from active service.

Maus, L. M., deputy surgeon general, returned to Fort Riley, Kan., from sick leave.

Girard, A. C., brigadier general, appointed as such to rank from April 6.

Maus, L. M., deputy surgeon general, relieved from duty at Fort Riley, Kan., and ordered to San Antonio, Texas, for duty as chief surgeon of that department.

Edie, Guy L., surgeon, ordered to report to Secretary of War for duty as attending surgeon, to accompany him to the Philippine Islands and return to this city.

Birmingham, H. P., surgeon, ordered to make medical and sanitary inspection at Forts Clark and Bliss, Texas, Forts Sill and Reno, Oklahoma Territory, and Fort Logan H. Roots, Arkansas.

Rockhill, E. P., asst.-surgeon, granted thirty days' sick leave of absence with permission to apply for thirty days' extension.

Porter, Elias H., de Krafft, S. Chase, and Kellogg, Preston S., contract surgeons, and Casaday, George H., dental surgeon, sailed from San Francisco, Cal., for the Philippines, on the transport *Thomas*.

Rebert, Michael A., contract surgeon, left Fort Totten, N. Y., on leave of absence for ten days.

Peddicord, Harper, contract surgeon, granted leave of absence for three months.

Hallwood, James B., contract surgeon, returned from World's Fair Grounds, St. Louis, Mo., to his proper station, Fort Leavenworth, Kan.

Adair, George F., contract surgeon, returned to duty at Fort Wadsworth, N. Y., from leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the two weeks ending April 8, 1905:

Field, J. G., surgeon, appointed surgeon from March 3, 1905.

Farwell, W. G., medical director, retired from active service in accordance with the provisions of Section 1444, Revised Statutes, April 5, 1905, on which day he will have reached the age of 62 years.

Fitts, H. B., surgeon, detached from the *Buffalo* when placed out of commission and ordered to the *Lawton*.

Guthrie, J. A., surgeon, commissioned surgeon with rank of lieutenant commander from Dec. 15, 1904.

Orvis, R. T., surgeon, commissioned surgeon with rank of lieutenant commander from Jan. 1, 1905.

Clifford, A. B., asst.-surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Navy Yard, New York, N. Y.

Miller, J., Jr., asst.-surgeon, detached from the *Buffalo* when placed out of commission, and ordered to the *Lawton*.

Desses, P. T., asst.-surgeon, detached from the *Kentucky* and ordered to the Naval Hospital, Norfolk, Va., for treatment.

Freemen, G. F., P. A. surgeon, ordered to the Naval Station, Olongapo, P. I.

Cowan, J., pharmacist, retired, ordered to the Naval Recruiting Station, New York, N. Y.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending April 5, 1905:

Godfrey, John, surgeon, granted leave of absence for one month from April 15.

Magruder, G. M., surgeon, relieved from duty at Cincinnati, Ohio, and directed to proceed to San Francisco, assuming command of the service, and relieving P. A. Surgeon W. G. Stimpson.

Young, G. B., P. A. surgeon, detailed to represent the service at the meeting of the Council on Medical Education of the American Medical Association at Chicago, April 20.

Stimpson, W. G., P. A. surgeon, on being relieved at San Francisco, by Surgeon G. M. Magruder, to proceed to Port Townsend, Wash., assuming command of the service, and relieving P. A. Surgeon D. E. Robinson.

Nydegger, J. A., P. A. surgeon, granted leave of absence for one day, March 6.

Parker, H. B., P. A. surgeon, granted leave of absence for six days from April 2, 1905, under Paragraph 191 of the Regulations.

Billings, W. C., P. A. surgeon, granted leave of absence for one day, March 23.

Billings, W. C., P. A. surgeon, granted leave of absence for six days from April 5.

Robinson, D. E., P. A. surgeon, on arrival at Port Townsend, Wash., of P. A. Surgeon W. G. Stimpson, to report to him for duty and assignment to quarters.

Warren, B. S., asst.-surgeon, granted leave of absence for four days from April 3.

Collins, G. L., asst.-surgeon, granted leave of absence for seven days from March 31, 1905, under Paragraph 191 of the Regulations. Granted five days' extension of leave of absence from April 6.

Bailey, C. W., acting asst.-surgeon, granted leave of absence for four days from April 10.

Bean, L. C., acting asst.-surgeon, granted leave of absence for two days.

Brown, B. J., Jr., acting asst.-surgeon, granted leave of absence for two days from April 4.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for four days from March 29, under Paragraph 210 of the Regulations.

McCormack, J. T., acting asst.-surgeon, granted leave of absence for five days from April 4.

Stevenson, J. W., acting asst.-surgeon, to assume temporary charge of the service at Cincinnati, granted leave of absence for thirty days, on account of sickness, from February 27.

Walker, R. T., acting asst.-surgeon, granted leave of absence for twenty days from March 30.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to Surgeon General, Public Health and Marine-Hospital Service, during the period from March 24 to April 8, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 18-25, 3 cases.

Florida: Jacksonville, March 18-April 1, 7 cases; West Tampa, March 18-25, 5 cases.

Illinois: Chicago, March 18-April 1, 54 cases, 2 deaths; Danville, March 11-25, 7 cases, 4 deaths; Cairo, March 28, 7 cases.

Kentucky: Covington, March 25-April 1, 1 case.

Louisiana: New Orleans, March 18-25, 16 cases; 4 imported.

Michigan: Detroit, March 18-25, 1 case.

Missouri: St. Louis, March 18-April 1, 75 cases, 4 deaths.

Nebraska: March 18-25, Omaha, 1 case; South Omaha, 1 case.

New York: New York, March 25-April 1, 1 case.

Ohio: Cincinnati, Jan. 6-March 31, 66 cases, 2 deaths; Toledo, March 18-April 1, 7 cases.

Pennsylvania: Altoona, March 25-April 1, 1 case; Steelton, March 18-April 1, 2 cases, 1 death; Philadelphia, March 18-25, 1 case.

South Carolina: Charleston, March 11-25, 6 cases, 1 death; Greenville, 4 cases, 3 deaths.

Tennessee: Memphis, March 18-April 1, 19 cases; Nashville, March 18-25, 5 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Jan. 28-Feb. 11, 2 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, Feb. 11-18, 1 case.

Brazil: Pernambuco, Feb. 1-15, 105 deaths; Rio de Janeiro, Feb. 12-March 12, 65 cases, 19 deaths; Victoria, Feb. 7-18, 19 cases, 1 death.

Canada: Hamilton, March 1-31, 1 case.

Chile: Valparaiso, March 4, epidemic.

China: Shanghai, Feb. 4-March 4, 4 cases foreign, 29 deaths native.

Denmark: Copenhagen, Feb. 25-March 11, 2 cases.

France: Nantes, March 3-17, 38 cases, 8 deaths; Paris, March 4-18, 32 cases, 2 deaths; St. Etienne, Feb. 19-28, present.

Great Britain: Birmingham, March 11-18, 2 cases; Bradford, Feb. 25-March 11, 4 cases; Cardiff, March 4-11, 1 case; Glasgow, March 10-17, 1 case; Hull, March 11-18, 3 cases; Leeds, March 4-25, 30 cases; Leith, March 4-18, 3 cases; London, March 11-18, 9 cases; New Castle-on-Tyne, March 6-18, 5 cases; Nottingham, March 4-18, 2 cases; Sheffield, March 11-18, 2 cases; South Shields, March 6-18, 9 cases, 1 death.

India: Bombay, Feb. 21-March 7, 148 cases, 186 deaths; Calcutta, Feb. 18-March 4, 7 cases, 12 deaths; Karachi, Feb. 19-March 5, 25 cases, 4 deaths; Madras, Feb. 18-March 3, 4 deaths.

Italy: Catania, Feb. 23-March 23, 15 deaths; Lecce Province, Feb. 23-March 9, 9 cases; Palermo, Feb. 11-March 18, 66 cases, 18 deaths.

Japan: Formosa, Feb. 1-28, 1 case; Kobe, Feb. 22, 1 case; Matsuyama, Feb. 15, 1 case; Nishiwagun, Feb. 11, 16 cases.

Mexico: City of Mexico, Feb. 11-March 25, 22 cases, 9 deaths.

Russia: Moscow, Feb. 25-March 11, 12 cases, 4 deaths; Odessa, Feb. 18-March 18, 19 cases, 7 deaths.

Spain: Barcelona, March 1-10, 9 deaths.

Straits Settlements: Singapore, Feb. 4-11, 2 deaths.

Turkey: Constantinople, Feb. 26-March 12, 5 deaths.

West Indies: Grenada, Feb. 23-March 9, 8 cases.

PLAGUE—INSULAR.

Philippine Islands: Manila, Jan. 28-Feb. 18, 7 cases, 6 deaths

PLAGUE—FOREIGN.

Africa (British): Cape Colony, Feb. 4-25, 2 cases, 1 death; East Africa, Feb. 11, 25 deaths.

Arabia: Aden (corrected), Feb. 11-18, 254 cases, 204 deaths; Aden, Feb. 18-March 10, 568 cases, 510 deaths.

Australia: Brisbane, Jan. 2-18, 14 cases, 3 deaths; Bundaberg, Feb. 3, 1 death; Clarence River District, Jan. 10-Feb. 4, 1 death. New Castle, March 27, present.

Brazil: Rio de Janeiro, Feb. 12-March 12, 8 cases, 7 deaths; Taubete, Feb. 18, 1 death.

Chile, Arica, March 4, present; Iquique, March 4, present; Pisaqua, Feb. 27, 104 cases.

Egypt: Suez, Feb. 8-March 4, 7 cases, 6 deaths; Tukh, Feb. 16-23, 1 case.

India: Bombay, Feb. 21-March 7, 1,729 deaths; Calcutta, Feb. 18-March 14, 343 deaths; Karachi, Feb. 5-March 5, 125 cases,

121 deaths; Madras, Feb. 18-24, 3 deaths; Rangoon, Feb. 6-13, 25 cases, 8 deaths; general, Feb. 18-25, 34,154 cases, 29,465 deaths.

Japan: Formosa, Feb. 1-28, 177 cases, 169 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Feb. 12-March 12, 54 cases, 18 deaths.

Mexico: Coatzacoalcos, March 18-25, 1 case; Merida, March 18-25, 1 case, 1 death.

Panama: Colon, Jan. 23-March 22, 4 cases, 1 death; Panama, Jan. 1-March 18, 82 cases, 35 deaths.

CHOLERA.

India: Calcutta, Feb. 18-March 4, 54 deaths.

Russia: Baku, Jan. 31-Feb. 10, 1 case; Erivan, Jan. 23-30, 1 case; Ural Territory, Jan. 31-Feb. 10, 1 case.

Turkey in Asia (general): Jan. 21-Feb. 4, 7 cases, 4 deaths; Van, Jan. 21-28, 2 cases, 1 death.

Medical Organization

AN EPITOME OF THE HISTORY OF MEDICAL ORGANIZATION IN THE UNITED STATES.

By J. N. McCormack, M.D.

Chairman of the Committee on Organization of the American Medical Association.

BOWLING GREEN, KY.

As all of the states and territories except three, and including Hawaii and Porto Rico, are now organized on a practically uniform plan, with universal local societies, and coincident membership in them and the state associations as the cardinal feature, this seems an opportune time for the publication of a brief statement of pertinent historical facts and figures in regard to each of the reorganized states and of the national association, for the information and encouragement of all who are engaged or interested in the work, as well as to indicate and emphasize how much remains to be done in each jurisdiction before the profession will be so organized that it may safely and confidently undertake the great reforms demanded alike by its own interests and those of the great common people for whose service and conservation it primarily exists.

In order that the statement might be made authoritative an inquiry was addressed to the secretary of the respective state associations, and only in a few instances have these reports been supplemented by information which these officials were unable to obtain. It is a matter of regret to the writer that the reports from a few states and territories were not received in time to be utilized, but these will be made the basis of a supplementary report.

As will be seen, New Jersey leads in the age of its state organization, it dating from 1766, followed by Massachusetts in 1781, Connecticut in 1792, Maryland in 1798, Rhode Island in 1812, and the other states in an irregular order bearing little relation either to the time of their admission into the Union or the number and influence of their medical population. In this connection it is interesting to note that comparatively few states had even nominal organizations until the agitation began which resulted in the formation of the American Medical Association, and that most of them were contented with these nominal organizations, which, as in my own state, embraced and interested only a small per cent. of the profession, having, in fact, little existence except on paper, until the national movement for real organization began. It is frankly admitted by all that this movement for reorganization from above downwards has its objectionable features, and that, theoretically at least, the reverse plan would have been preferable, but not only are these objections more theoretical than real, but both history and a comprehensive knowledge of professional conditions indicate beyond controversy that it offers the only feasible plan for so organizing the profession of this generation as to enable it to fulfill the purposes of its existence, the choice being between doing it in this way or permitting it to remain unorganized and powerless, as in the past.

It will also be noted that New Jersey, Massachusetts, Alabama, Pennsylvania and Indiana, in the order named, have been long organized on the coincident membership plan, and, having a larger per cent. of the profession already enrolled, received less apparent advantages from the recent movement. In a majority of the other states, but one, or at most, two years have elapsed since their reorganization, all of the reports giving the membership as shown at the annual meetings in 1904, and most of them expect a large increase for 1905.

In addition to the historical data the summary gives the correct official names of the respective organizations, places and dates of meetings, names and addresses of offices, and methods of publishing proceedings, and is as follows:

Alabama.

The Medical Association of the State of Alabama was first organized in 1846. It was reorganized on the coincident membership plan, largely as the personal work of Dr. Cochran, beginning in 1868, but it was not until 1873 that the state association was made by law the state board of health, and the state board of medical examiners, and the county societies became the county boards of health, the organized profession being made in that year, and continuing since, as much a part of the civil government of state as the executive, judicial or legislative branches, although the last county society was not actually organized until 1888. The exact membership in 1868 is unknown, but it must have been small, as the total income from fees was about $500.00. The membership now embraces about 92 per cent. of the professional population, and the annual income is $2,500.00. This is unquestionably the most complete, compact and potential medical organization in this country, if not in the world, and it is able to confer benefits on the profession and people accordingly, but the fact that a considerable per cent. of the physicians of the state are not enrolled as members, and that no journal is maintained as a medium for promoting constant intercommunication and co-operation shows that much remains to be done, even there, before ideal conditions are secured.

C. C. Jones, East Lake, is president; L. C. Morris, Montgomery, secretary. The next meeting will begin at Montgomery April 18, 1905.

Arizona.

The Arizona Medical Association was organized in 1892. At the time of the reorganization in 1904 there were 75 members out of a total medical population of about 200. Four county societies have been organized during the year, and the physicians are so few and scattered in the other seven that hyphenated or district societies alone can meet existing needs. The annual income is only $120.00 but much professional interest has been aroused and a better future is anticipated.

W. H. Ward, Phoenix, is president; J. W. Foss, Phoenix, is secretary. The next meeting will be held at Prescott, beginning June 1, 1905.

Arkansas.

The Arkansas Medical Society was first organized in 1875, and was reorganized in 1902. At the annual meeting in 1904 the affiliated county societies had increased from none to 61, the membership from 192 to 756, and the annual income from about $600.00 to $1,572.00, the dues being decreased from three to two dollars. Under the stimulus of the movement a good medical law has been secured and put in operation, quackery has been suppressed at Hot Springs, where it has been a stench in the nostrils of both the profession and people, and in every way the increase in the interest and influence of the profession is reported as far exceeding the mere growth in membership and revenue. As 14 counties are still unorganized, with 663 eligible non-members in the state, and the transactions are still published in an annual volume instead of a live official journal, much remains to be done by councilors and other officers before the organization is complete.

J. P. Runyan is president, C. C. Stephenson is secretary, both of Little Rock. The next meeting will be held at that place beginning May 16, 1905.

California.

The Medical Society of the State of California was first organized in 1856, and reorganized in 1902. In 1904 the county societies had increased from about 18 to 34, the paid-up membership from 350 to 1,700, and the revenues from dues from $1,750.00 to $3,400.00, the dues being decreased from five to two dollars. The society maintains a live monthly journal instead of the annual volume of transactions. The organized profession has successfully resisted attempts to emasculate the strong medical law, a rigid and effective warfare has been instituted against quackery, and professional conditions have been improved in other lines. There are still 22 unorganized counties, and about 1,000 eligible non-members, but in some of these counties the physicians are so scattered as to make effective organization difficult, although it is recognized that much remains to be done.

Frank L. Adams, Oakland, is president; Philip Mills Jones, San Francisco, is secretary. The next meeting will be held at Riverside, beginning April 18, 1905.

Colorado.

The Colorado State Medical Society was first organized in 1870, and reorganized in 1902. In two years the county societies increased from 9 to 22, the paid-up membership from 280 to 560, and the revenues from about $1,400 to $1,650.00, the dues being cut down from five to three dollars. There are about 300 eligible non-members in the state and there are but two counties unorganized where there are enough physicians to maintain a society. A monthly journal has taken the place of the volume of transactions, a medical law, substantially as proposed by the legislative committee of the national association, has now been passed, and professional interest has been aroused and conditions improved in every way as compared with what existed under the old plan.

Connecticut.

The Connecticut Medical Society was first organized in 1792, and was reorganized in 1904. It had long been organized on the county plan, all of the eight counties having societies in affiliation with the state society for many years. There are 736 members, the annual income is $1,832.00 and the number of non-eligible physicians is unknown. Little change was necessary in reorganizing, but it was done to put the society in complete accord with the other states and the national association. Under its already effective organization many salutary reforms have been secured, amongst them being an operative and reliable system of vital statistics, and a school for township health officers, each being paid a diem and expenses while attending the meetings.

William E. Carmett, New Haven, is president; N. E. Wordin, Bridgeport, is secretary. The next meeting will begin May 24, 1905.

Florida.

The Florida Medical Association was organized in 1875, and reorganized in 1903. In the first year the county societies increased from 7 to 22, the membership from 170 to 236, and the revenues from about $500.00 to $708.00. There are still 23 unorganized counties, many of them large and sparsely settled, and in some instances counties have been hyphenated, or those desiring it held their membership in adjacent counties. The number of eligible non-members is unknown. Professional interest has increased greatly at Pensacola, Jacksonville, Tampa and many other places, and efforts are being made to secure better protection against quackery, as well as against pirates in the regular profession who overrun the health resort sections during the winter and migrate with the birds in the spring. The transactions are still published in pamphlet form.

Edward N. Leill is president, J. D. Fernandez is secretary, both of Jacksonville. The next meeting will be held at that place beginning April 20, 1905.

Idaho.

The Idaho State Medical Society was organized in 1893 and reorganized in 1901, district being substituted for county societies on account of the doctors being so widely separated. In three years the membership increased from 47 to 101 and the revenues from $235.00 to $444.00. Under the stimulus of the new order of things the medical law has been strengthened and better enforced, and professional interest has increased greatly. The proceedings are published in such journals as will do so, usually in the *Portland Sentinel.*

R. L. Nourse, Hailey, is president; E. E. Maxey, Boise, is secretary. The next meeting will begin at Boise October 3, 1905.

Indiana.

The Indiana State Medical Association was organized in 1849, and reorganized in 1903. The county society plan, with coincident membership, had been in operation in that state for fifteen years but had not been actively pressed. In one year's time the number of county societies increased from 75 to 88, some of them almost ideal in their work and results, the membership from 1,724 to 2,107 and the revenues from $1,724.00 to $2,107.00, the dues being but one dollar. Every phase of professional interest has advanced and been improved during the same time and a still brighter future is anticipated. There is much room for improvement, as there are over 3,000 eligible non-members in the state.

The transactions are still published in an annual volume but this will hardly continue.

Geo. T. McCoy, Columbus, is president; F. C. Heath, Indianapolis, is secretary. The next meeting will begin at West Baden June 7, 1905.

Iowa.

The Iowa State Medical Society was organized in 1851 and reorganized in 1903. The exact number of county societies at that time is unknown, as affiliation was not necessary for membership, but there were a few active and some nominal ones. In one year's time 94 counties were regularly organized, including all but 5 in the state. The paid-up membership has increased from 650 to 1,517, and the revenues from about $1,300.00 to $3,034.00. A law has been secured forbidding "nasty advertising," and in every way professional interest and enthusiasm has been aroused. There are still about 2,500 eligible non-members. The transactions are published in an official organ, the *Iowa State Medical Journal*, and then bound in book form.

D. C. Brockman, Ottumwa, is president; V. L. Treynor, Council Bluffs, is secretary. The next meeting will begin at Des Moines May 24, 1905.

Kansas.

The Kansas Medical Society was organized in 1866 and reorganized in 1904. No meeting has been held since the new plan was adopted and exact figures are not available, but there were about 500 members to begin with; 40 counties have been organized already, 65 are unorganized. The councilors and other officers are actively at work and greatly improved conditions are anticipated by the time of the annual meeting. The transactions are published in an excellent monthly journal.

Lawrence Reynolds, Horton, is president; Chas. S. Huffman, Columbus, is secretary. The next meeting will begin at Wichita May 3, 1905.

Kentucky.

The Kentucky State Medical Association was organized in 1847 and reorganized in 1902. At that time there were few county societies and the paid-up membership was 290. In 1904 there were 97 county societies and over 1,600 members, the revenues had increased from $870.00 to $3,200.00, after reducing the fees from three to two dollars. A live monthly journal has been substituted for an obsolete volume of transactions and the profession is active and united to a degree never before known in its history, attention being given to scientific, business and legislative affairs in the county societies in a way and to a degree never before possible. The medical law is probably now more satisfactorily enforced than in any other state in the Union, although the law is not stronger than others, because of the cordial co-operation of the profession of every school of practice in the work, and quackery has been practically eliminated. A salaried health official has been provided for each city and county, vaccination can be made compulsory in any jurisdiction, a comprehensive system of railway sanitation has been recently put in operation, the higher courts are constantly extending the powers of the health authorities in their constructions of the laws, and the public press is gradually leading and elevating public sentiment to a greater appreciation of the unselfish work of the profession in all of these matters. Much more remains to be done, as there are 22 counties in the sparsely settled mountain regions unorganized, and 1,800 eligible non-members still to be brought in. The transactions are published in a strong medical journal edited by the secretary.

Frank A. Clark, Lexington, is president; James B. Bullitt is secretary. The next meeting will begin in Louisville October 5, 1905, the time having been changed from spring to fall in accordance with the recommendation of the American Medical Association at Atlantic City.

Maryland.

The Medico-Chirurgical Faculty of the State of Maryland was organized in 1798, and reorganized in 1904. Most of the counties were organized immediately in advance of the adoption of the plan in the state and as no meeting has been held since it can only be said that a society exists in every county, that the councilors are active, and that the outlook is encouraging. The membership in 1904 was 693, and the revenues $2,300.00. No estimate of the eligible non-members has been made, but it was large at the beginning of this movement. The proceedings are published in an annual volume.

E. N. Brush, Towson, is president; John Ruhrah, Baltimore, is secretary. The next meeting will begin at Baltimore May 25, 1905.

Massachusetts.

The Massachusetts Medical Society was organized in 1780, and has always had coincident local and state membership,

small districts, not county lines, marking the boundaries of the local organizations. The number of members and eligible non-members is not reported, but its revenues and assets are large, and on account of the completeness and compactness of organization, and the high character and activity of its members it has always been one of the most influential medical bodies in this country. Its state board of health has taken the lead in many features of public health work, particularly in all matters relating to the protection and purification of water supplies and the disposal of sewage and factory wastes, its appropriatives for these purposes being practically unlimited. It manufactures and distributes vaccine and antitoxins, and has been able to secure and administer a practical statute regulating the collection of vital statistics, and is effective and is sustained by professional and public sentiment to an extent which it has not been possible in most other states. The transactions are published in an annual volume.

Arthur T. Cabot, Boston, is president; Francis W. Goss, Roxbury, is secretary. The next meeting will begin in Boston June 13, 1905.

Michigan.

The Michigan State Medical Society was organized in 1819, and reorganized in 1902. At that time there were 11 county societies, 452 paid-up members, and the annual income was $1,615.00. In two years 83 counties, all in the state, had been organized into 62 societies, the membership had increased to 1,772, and the income to $4,813.00, although the dues were cut down. Through the increased power given by this reorganization the medical law has been strengthened, "nasty advertising" has been prohibited, representation on the board of regents of the State University has been conceded to the profession, and in almost every way the influence and usefulness of the profession have been greatly extended. The work is in its infancy, as there are about 3,500 eligible non-members, but the councilors and other officers are active and the future of the profession was never before so promising. The transactions are published in a live, progressive monthly journal.

B. D. Harison, Sault Ste. Marie, is president; Andrew P. Biddle is secretary. The next meeting will begin at Petoskey June 28, 1905.

Minnesota.

The Minnesota State Medical Association was organized in 1869, and reorganized in 1903. In one year the membership increased from 492 to 930, the component societies from 12 to 36, some of them hyphenated and including every county, and the revenues have increased from $1,158.00 to $2,314.00. The increased interest in professional affairs has been marked, especially as shown in the regular attendance and work in the local societies, and the outlook was never before so promising. There are from 500 to 700 eligible non-members, and the transactions are published in an annual volume.

J. W. Bell, Minneapolis, is president; Thomas McDavitt, St. Paul, is secretary. The next meeting will begin at St. Paul June 1, 1905.

Missouri.

The Missouri State Medical Association was organized in 1858, and reorganized in 1903. In one year the number of affiliated county societies increased from 14 to 70, the membership from 258 to 1,600, and the revenues from $774.00 to $3,200.00, although the dues were reduced from three to two dollars. There are 45 unorganized counties and about 3,600 eligible non-members, but new societies are being organized constantly and a great increase is confidently expected before the next meeting, as conditions are steadily improving. Much remains to be done, as legislation has been difficult to obtain, and still more difficult of enforcement, but these are expected to disappear before a really organized and harmonious profession, which, for the first time in the history of the state, now seems possible. The transactions are published in an excellent monthly journal.

Jabez N. Jackson, Kansas City, is president; C. M. Nicholson, St. Louis, is secretary. The next meeting will begin at Excelsior Springs May 16, 1905.

Mississippi.

The Mississippi State Medical Association was organized in 1856, and reorganized in 1903. In one year the number of county societies increased from 2 to 51, the membership from 225 to 715, and the revenues from about $500.00 to $1,430.00. There are 25 unorganized counties and about 1,700 eligible non-members, so that the work has just began. The transactions are now published in a monthly journal and only a little increased effort is necessary on the part of the councilors and other officers to complete the organization and make it most effective.

T. J. Mitchell, Jackson, is president: J. J. Haralson, Forest, is secretary. The next meeting will begin at Jackson, April 19, 1905.

Montana.

The Montana State Medical Association was organized in 1891, and reorganized in 1903. In one year the county societies have increased from 5 to 9, the membership from 65 to 142, and the annual income from $130.00 to $284.00. There are 17 unorganized counties, sparsely settled, and only 50 eligible non-members. No regular publication of the transactions is made.

B. C. Brooke, Helena, is president; Grace W. Cahonn, Butte, is secretary. The next meeting will begin at Butte May 18, 1905.

Nebraska.

The Nebraska State Medical Association was organized in 1868, and reorganized in 1903. County societies were organized in anticipation of the adoption of the plan by the state and in 1904 the number of county societies had increased from a very few to 62, the membership from 275 to 736, and the annual income from $550.00 to $1,472.00. Professional power and usefulness have grown rapidly. An efficient law regulating the collection of vital statistics is one of the many evidences of this improvement in both professional and public sentiment. There is much still to be done, as there are about 850 eligible non-members. There are 28 unorganized counties, but no physicians in 5 of these, and so few in 20 others that a society would be impossible. The physicians in such counties can hold their membership in an adjacent county. The transactions are published in journal form, but this is not owned by the association.

R. C. McDonald, Fremont, is president: A. D. Wilkinson is secretary. The next meeting will begin at Beatrice, May 2, 1905.

New Jersey.

The Medical Society of New Jersey was organized in 1766, and reorganized in 1903, little change being required to conform its constitution and by-laws to those of the standard plan. Affiliated societies already existed in 20 of the 21 counties and the other was organized during the year. The membership increased during the year from 1122 to 1200 and as the annual dues were increased from $1.50 to $2.00 the income was correspondingly improved. This had long been one of the organized states, with good local societies, coincident membership and a monthly journal, its medical and health laws were well ordered and more than usually effective. Work remains to be done, however, as there are between 500 and 600 eligible non-members to be brought in and many health and medical reforms yet to be inaugurated, as well as constant watchfulness required to guard what has already been secured.

Walter B. Johnson, Paterson, is president; W. J. Chandler, South Orange, secretary. The next meeting will begin at Asbury Park June 20, 1905.

New Mexico.

The New Mexico Medical Association was organized in 1885, and reorganized in 1904. No meeting has been held since but the membership has increased from 53 to 76, leaving but 20 eligible non-members; the income has increased from $53.00 to $228.00. The reorganization has brought the profession closer together and this has been shown in the active and effective part it has taken in territorial legislation. The coming meeting at Las Vegas May 10, promises to be the best ever held. The proceedings are not published in regular form.

Edwin B. Show, Las Vegas, is president; G. H. Fitzgerald, Albuquerque, is secretary.

North Carolina.

The Medical Society of the State of North Carolina was organized in 1849, and reorganized in 1903. In one year the affiliated county societies increased from 8 to 90, the paid-up membership from 285 to 1,060, and the annual income from $600.00 to $2,120.00. This state has long had one of the most effective medical laws, and a fine profession, but the improve-

ment in power and usefulness has been as remarkable as the increase in numbers and local societies. This was shown by the influence brought to bear on and the prompt defeat of an unjust bill favoring osteopathy, and in many other ways. There are only 250 eligible non-members and most of these can be easily brought in so great is the enthusiasm for a perfect organization. The transactions are still published in an annual volume, but nearly everything is also published in the two journals in the state.

D. T. Taylor, Washington, is president; J. Howell May, Waynesville, is secretary. The next meeting will begin at Greenboro May 23, 1905.

North Dakota.

The North Dakota State Medical Association was organized in 1887, and reorganized in 1904. The number of organized counties has increased during the year from 2 to 44, leaving but 3 out, most of these being combined on account of the sparse medical population. There were 153 members in 1904, and the annual income was $306.00. These will be markedly increased but the reports are not yet available from many counties. A good medical law has been secured during the year and the increase of interest is manifest. There were about 250 eligible non-members last year. The transactions are published in pamphlet form.

James A. Rankin, Jamestown, is president; Ernest C. Wheeler, Fargo, is secretary. The next meeting will begin at Grand Forks May 24, 1905.

Ohio.

The Ohio State Medical Association was reorganized in 1902. In two years the number of affiliated county societies increased from 41 to 73, the membership from 992 to 2,640, and the annual income from $1,984.00 to $2,640.00, the dues being decreased to one dollar. The increased interest, usefulness and power of the profession is manifest almost everywhere, and this is gaining, although all this seems small compared with what is yet to be accomplished. There are still 4,200 eligible non-members and 15 counties remain to be organized. The transactions are published in an annual volume, but there is a strong sentiment in favor of a state journal.

S. S. Halderman, Portsmouth, is president; Frank Winders, Columbus, is secretary. The next meeting will begin at Columbus May 10, 1905.

Pennsylvania.

The Medical Society of the State of Pennsylvania was organized in 1848, and reorganized in 1902, although long having coincident membership and the general features of the uniform plan. In two years the county societies increased from 55 to 59, leaving but 5 unorganized, and the membership from 3,633 to 4,140. For obvious reasons the improvement has not been so manifest in this as in the states heretofore so imperfectly organized, but the growth in both membership and interest has been marked, especially in Philadelphia, and in the state society. There are still 3,500 eligible non-members, and ample work to do in many other directions, with a strong profession capable of almost anything back of and in the movement. The transactions are published in an excellent journal.

Adolph Koenig, Pittsburg, is president; Cyrus Lee Stevens, Athens, is secretary. The next meeting will begin at Scranton September 26, 1905.

Rhode Island.

The Rhode Island Medical Society was organized in 1812, and reorganized in 1904. Until that time all applicants for membership were required to pass an examination independent of the examination for a state certificate. The number of affiliated county societies at that time was 4, which has been increased to 6, having but one unorganized. The membership has increased from 275 to 302, and the annual income from $2,071.00 to $2,150.00. Although the time has been so short an undoubted increase is noted and it is probable that an organizer will be appointed to bring in the eligible non-members. The transactions are published in a journal and then are bound into an annual volume.

William R. White, Providence, is president; Stephen A. Welch, Providence, is secretary. The next meeting will begin in that city June 1, 1905.

South Dakota.

The South Dakota State Medical Association was organized in 1882, and reorganized in 1903. At that time there was one county and one district society. The counties of the state were divided into nine hyphenated or district societies, and eight of these are well organized. In one year the membership increased from 86 to 175, but there are about 325 eligible non-members and much to be done. The annual income increased from $150.00 to $350.00, and will be $500.00 or more this year. The improvement in professional conditions has been very marked. An effective medical law was secured and another providing for the collection of vital statistics, but it has been equally apparent in the better social and ethical relations. The transactions are published in an annual volume.

Charles B. Mallery, Aberdeen, is president; William Edwards, Bowlder, is secretary. The next meeting will begin at Deadwood July 5, 1905.

Tennessee.

The Tennessee State Medical Association was organized in 1830, and reorganized in 1902. In two years the affiliated county societies increased from 18 to 63, the membership from 386 to 1,097, and the annual income from $772.00 to $2,194.00. There are still 32 unorganized counties, most of them in the sparsely settled mountain regions, and there are about 1,500 eligible non-members. There has been an awakening in regard to all professional matters, but very much remains to be done in almost every department. The transactions are published in an annual volume.

Paul F. Eve is president, Deering J. Roberts is secretary, both of Nashville. The next meeting will begin in that city April 11, 1905.

Texas.

The State Medical Association of Texas was organized in 1869, and reorganized in 1903. In one year 123 county societies, including 160 counties, were formed, the membership increased from 435 to 2,390, and the annual income from $1,815.00 to $5,986.00. The increase in professional interest and enthusiasm has been more remarkable than in almost any other state, and is still growing. The difficulties met by the earnest, active, self-sacrificing councilors seemed almost insurmountable but they were soon overcome and turned to advantage. At first there were large district societies to which old members were naturally wedded, but these were woven into the plan and made an element of strength, and so with other seeming obstacles. There is still a great work before the Texans to which they will prove fully equal. There are 83 unorganized counties, some of them a hundred miles across, without a county town, civil government or physician. They cannot be organized yet, even by Texas councilors. Others have but one or two doctors, but there are 2,307 eligible non-members, and many of these will be brought in this year. The transactions are still published in an annual volume.

F. E. Daniel, Austin, is president; I. C. Chase, Fort Worth, is secretary. The next meeting will begin at Houston April 25, 1905.

Vermont.

The Vermont State Medical Society was organized in 1813, and reorganized in 1901. This state was already organized on the county plan in a measure, 12 of the 14 having societies. In three years the membership increased from 150 to 350, but the annual income was less, as the dues were reduced from three to two dollars. As a result of this movement Dr. Gorham reports the interest in the profession greatly increased in every way, and that a new and better medical law has just been secured. Much work is still needed, as there are about 600 eligible non-members. The transactions are published in an annual volume.

P. E. McSweeney, Burlington, is president; George H. Gorham, Bellows Falls, is secretary. The next meeting will begin at Burlington October 12, 1905.

West Virginia.

The West Virginia State Medical Association was organized in 1867, and reorganized in 1902. In two years the county societies have increased from 2 to 25, the paid-up membership from 200 to 600, and the annual income from $400.00 to $1,200.00. There has been a marked improvement in ethical, social and other relations, a new examining law has been secured and other reforms are in prospect as the profession becomes really organized. There are 30 unorganized counties, chiefly in the mountain regions, and about 1,000 eligible non-members in the state. The transactions are published in an annual volume.

T. M. Hood, Clarksburg, is president; William W. Golden, Elkins, is secretary. The next meeting will begin at Wheeling May 24, 1905.

Wisconsin.

The State Medical Society of Wisconsin was organized in 1841, and reorganized in 1903. In one year the organized counties increased from 8 to 72, every one in the state. The paid-up membership increased from 700 to 1,350, and the annual income from $2,100.00 to $2,700.00, the dues being cut down from three to two dollars. Still more active work has been carried on since the last meeting but the returns are not yet available. There are no more counties to be organized, and there were only 900 eligible non-members left in the state. Dr. Sheldon reports that "the effect of the county societies has unquestionably stimulated a far greater interest in the profession at large. It is developing a true professional spirit and bringing the individual members all over the state into closer touch, and the prospects are promising for still greater improvement in all ways." The transactions are published in a monthly journal.

C. W. Oviatt, Oshkosh, is president; Charles S. Sheldon is secretary. The next meeting will be held at La Crosse June 8. 1905.

The United States.

THE AMERICAN MEDICAL ASSOCIATION.

The American Medical Association was organized in 1847, and reorganized in 1901. During the intervening period—from June 1, 1901, to January 1, 1905—the membership increased from 10,817 to 17,570.

The association was organized on a broad and comprehensive basis, and was a strong and influential body from the first meeting. Always a delegate body, and with the elevation of the standard of medical education as one of its first objects, it invited representation from reputable bodies of medical men of every kind and degree, and courted it from the faculties of medical colleges. With this as a primary and evident duty, and with distinguished teachers, led by the masterful Gross, and untiring Davis, dominating its councils and shaping its policies always, it seems strange and almost paradoxical that this was the one medical interest which it did not materially influence, the regulation and elevation of standards being finally determined by the licensing bodies in the several states.

While the membership never before embraced such a large per cent. of the total medical population of the country as it now does, the meetings always attracted the attention of the best and strongest men from every section, the standard for scientific work was high, the social features were a delight, and each annual meeting was justly considered a marked period in the history of the profession and in the lives of the participants. In all of these fields the achievements of the Association were always conspicuously successful.

In its prevision and supervision of the material interests of the profession, legislative, financial and otherwise, as was true in regard to medical education, the failure along all lines was equally conspicuous. Nor was it difficult to account for either the success or the failure. The scientific men were divided into appropriate sections, and small groups of individuals, each with talent for that special field, worked out the problems in the line of their own life work. As has been said, it was designed from the beginning as a delegate body, but as the years went by this was lost sight of in practice, every one in attendance became a member of the business body, which was too unwieldy for the intelligent consideration or discussion of any weighty proposition, the evolution having been exactly the opposite of what had developed in the scientific departments, and for years the business of the profession of this country, in so far as it was transacted in the public body, was run as a widow runs a farm. The only safety then was in a strong, conservative, business committee, and the good judgment of the officers, and while little or no progress was made, the profession was protected from retrogressive and actual harm. A debt of everlasting gratitude is due to the wise leaders of that critical period.

From the early eighties Dr. N. S. Davis, always wise and forehanded, led the movement for reorganization, and in 1888, as chairman of a committee which had given careful study to existing condition and necessities, he presented a comprehensive scheme for this purpose, very similar to the one proposed and adopted at St. Paul in 1901. This plan makes the county societies not only the units of organization but the origin and basis of all authority, as nearly as possible in accordance with our system of civil government, specially selected delegates from these primary organizations making up the business bodies of the state associations, and these in turn selecting specially qualified men from the rank and file of the entire profession to represent the state in the national body. In this way the business of the profession for the entire country is looked after by a small body, the house of delegates, limited to 150 members, specially selected by the delegates from the county societies on account of their supposed training and qualification for such duties. Through such plan the Association hopes ultimately to have the county societies reach and help every physician within their respective jurisdiction, in every possible way, scientific, social or material, so far as it can do so.

This work of the association is absolutely altruistic. There is no American Medical Association except the physicians who compose its membership. It has now a large annual income, but every dollar of this belongs to the members, each being a stockholder to the extent of his annual dues. No one can hold more or less. The nine trustees who manage this fund can have no motive except to act for the best interest of the profession at every step. Trustees like Dr. William H. Welch, and others equally disinterested, attend these meetings and spend day after day in this self-sacrificing labor, for the good of the profession, receiving absolutely no compensation except their bare traveling expenses. In addition to its management of *The Journal*, now easily the foremost medical periodical in the world, and the work of organization, the responsibility and expense of which it has gladly borne, the association has gone back to the original purpose for which it was founded and established a Council on Medical Education to make a real investigation of the teaching methods of this country and acquaint the profession of the results. It has established a Council on Pharmacy and Chemistry with far-reaching powers and possibilities. It is preparing for a reliable National directory, owned by the profession and managed in its interest. It has in preparation model medical practice and public health laws to be recommended to the respective states for their approval and adoption in general principles, in the hope that practical uniformity will make reciprocity in licensure and other similar benefits possible to the profession of this country. These things are all being worked out. Besides, it has in contemplation a university extension course to be offered to all county society members who will avail themselves of it.

In acting as the agent and mouthpiece of the 120,000 medical men in this country the Association fully realizes the gravity of the responsibility it has assumed. The personnel of the management will change at the pleasure of the constituency, but it is believed that men equal to the needs of the hour will always be found. An order of statesmanship and breadth of grasp will be demanded when the profession purifies itself and comes into its own, which might appall those now at the helm, but nature's laboratories are inexhaustible and, as in the past, men will always be found to fill the hour and the duty.

Civic Sanitation Committee.

In the April number of the *California Medical and Surgical Reporter* are some suggestions as to a possible field of activity for the Los Angeles County Medical Association, which might well be noted by all medical societies in towns large enough to have municipal forms of government, dealing with sanitary problems. After commenting on the fact that manufacturers, merchants and property owners always present their views and endeavor to protect their interests on proposed legislation affecting them, while medical and sanitary legislation is often neglected, the *Reporter* asks:

"Why would it not be wise to have a standing committee on civic sanitation, the duty of which committee would be to keep a close watch on the city's hygienic and sanitary needs, reporting on needed measures at the various meetings of the society, obtaining the proper resolutions from the society, placing these resolutions before the proper municipal authorities and seeing to it that they receive proper consideration? If we are to remain true to the tenets of our profession we should ever be willing to give our best efforts not only to cure, but to prevent diseases."

This is an eminently practical suggestion for county societies looking for an opportunity directly and vitally to influence local conditions. A permanent committee from each

county society would soon become recognized as an authority on sanitary matters as well as an expert body for consultation in proposed legislation.

Colorado.

EASTERN COLORADO MEDICAL ASSOCIATION.—Representatives from Morgan, Washington and Yuma counties met at Wray, March 11, and organized this association with the following officers: President, Dr. Earl D. McGill, Wray; vice-president, Dr. Elisha J. Bales, Wray; secretary, Dr. George B. Bilsborrow, Yuma; treasurer, Dr. N. J. Phelan, Akron, and censors, Drs. A. L. Howe, Wray; N. J. Phelan, Akron, and W. E. Turner, Brush.

Iowa.

FREMONT COUNTY MEDICAL SOCIETY.—On call of Dr. H. J. Piper, Randolph, seven physicians of the county met at Sidney, February 1, and reorganized the county medical society on the standard plan, with the following officers: Dr. Evan F. Cowger, Riverton, president; Dr. Thomas G. Stevens, Sidney, vice-president; Dr. Edwin E. Harris, Tabor, secretary-treasurer, and Drs. H. J. Piper, Randolph, and Willis G. Morris and James M. Lovelady, Sidney, censors.

Kansas.

CHASE COUNTY MEDICAL SOCIETY.—Physicians of the county met at Cottonwood Falls, March 22, and organized a county medical society, electing Dr. Frank T. Johnson, Cottonwood Falls, president, and Dr. Samuel Steele, Strong, secretary.

SUMNER COUNTY MEDICAL SOCIETY.—Dr. O. J. Furst, councilor of the fourth district, organized this society March 29. The following officers were elected: President, S. T. Shelly, Mulvane; vice-president, H. A. Vincent, Corbin; secretary-treasurer, T. H. Jamieson, Wellington; delegate, J. L. Halleday, Wellington; censors, W. E. Bartlett, F. G. Emerson and S. W. Spitler. There are 24 charter members in the society.

Missouri.

FRANKLIN COUNTY MEDICAL SOCIETY.—The physicians of Franklin County met at Pacific, April 3, and after the discussion of the subject of organization by Dr. F. J. Lutz of St. Louis, councilor of the district, Dr. J. N. McCormack of Kentucky formed a new society under an existing charter and the Standard Constitution and By-laws. The following officers were elected: President, H. A. Booth; vice-president, J. P. Donnigan, Sullivan; secretary-treasurer, A. C. Brown, Moselle; censors, John A. Rush, Gray's Summit; W. P. Mattox, Sullivan, and H. A. Poppenhausen, Washington; delegate, A. L. McNay, Pacific.

Montana.

GALLATIN COUNTY MEDICAL SOCIETY.—The physicians of the county met at Bozeman, March 7, and organized a county medical society with the following officers: President, Dr. John M. Waters, Bozeman; vice-president, Dr. James F. Blair; secretary, Dr. Cornelius B. Boyle; treasurer, Dr. James E. Ragsdale; trustees, Drs. David H. Patterson, Joseph Piedalue and Clyde W. Jump, and delegate to the state association, Dr. John M. Waters, all of Bozeman.

New Mexico.

DONA ANA COUNTY MEDICAL SOCIETY.—The physicians of the county met recently in Las Cruces and organized a county medical society with Dr. Bruce E. Lane, Las Cruces, president; Dr. John H. Johnson, Organ, vice-president, and Dr. R. E. McBride, Las Cruces, secretary and treasurer.

Ohio.

ASHLAND COUNTY MEDICAL SOCIETY.—Physicians of Ashland County met at Ashland March 14, and reorganized the county society on the standard plan, electing the following officers: Dr. David S. Sampsell, Ashland, president; Dr. Jacob Fridline, Ashland, vice-president; Dr. Robert C. Kinnaman, Ashland, secretary; Dr. William H. Wirt, Loudonville, treasurer; Drs. Daniel E. Pocock, Jeromeville; Allen W. Budd, Perrysville, and Abram L. Sherick, Ashland, censors; Dr. Frederick V. Dotterweich, Ashland, delegate to the state association, and Dr. Charles B. Scott, Loudonville, alternate. A committee consisting of Drs. W. M. McClellan, Abram L. Sherick and Emery, all of Ashland, was appointed to make the necessary changes in the constitution and report at the next meeting.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore, July 11-14, 1905.

Medical Assn. of State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Amer. Medico-Psychlogical Assn., San Antonio, Tex., Apr. 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.
Amer. Assn. Pathologists and Bacteriologists, Chicago, Apr. 21-22.
American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.

PHILIPPINE ISLANDS MEDICAL ASSOCIATION.

Second Annual Meeting, held at Manila, March 1-4, 1905.

The meetings were held in the library of the government laboratories. At the opening session, addresses were made by Governor General Luke E. Wright and Dean C. Worcester, secretary of the interior. The presidential address was given by Dr. John R. McDill.

The papers read during the three days' session were mainly on tropical diseases and problems peculiar to the Philippine Islands. Among the subjects presented were the following: "Beri-Beri," by Dr. Erwin Baelz, emeritus professor of medicine, University of Tokyo; "Glaucoma Among the Friars," by Dr. Clarence J. Miner; "Symptoms, Diagnosis and Treatment of Amebic Dysentry in the Tropics," by Dr. W. E. Musgrave; "Chinese Medicine," by Dr. Tee Han Kee; "History of Plague in the Philippine Islands," by Maximilian Herzog, and "Endemic Neuritis," by Dr. J. M. Wheate.

The session closed Saturday night with a dinner at the Army and Navy Club, at which the Governor General, the Secretary of the Interior, Major-General Leonard Wood, Col. J. B. Girard and other distinguished visitors were guests of honor. The society numbers 61 members and has on its rolls American, English, German, Japanese, Spanish and Philippine physicians.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

Fifteenth Annual Meeting, held in Chicago, April 10, 1905.

The President, DR. SAMUEL C. JAMES, in the Chair.

Officers Elected.

The following officers were elected to serve for the ensuing year: President, Samuel C. James, Kansas City, Mo.; vice-presidents, William H. Earles, Milwaukee, and Eli H. Long, Buffalo, N. Y.; secretary-treasurer, Fred C. Zapffe, 1764 Lexington Street, Chicago; judicial council, W. J. Means (chairman), Columbus, Ohio; R. Winslow, Baltimore; T. H. Hawkins, Denver; P. Ritchie, St. Paul; G. M. Kober, Washington; H. Ward, Lincoln, Neb.; J. M. Dodson, Chicago.

The next meeting will be held in Pittsburg, Pa., March 19, 1906.

In his address as president, Dr. James reviewed the work done by this association and its influence on medical education.

New Constitution.

The principal business transacted in the executive session was the adoption of a new constitution and by-laws, which differ from the old in the following requirements: The annual dues are raised to $25.00. The minimum entrance requirement is made a diploma from an accredited high school, normal school, or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study, embracing not less than two years (four points) of foreign languages, of which one must be Latin; two years (four points) of mathematics; two years (four points) of English; one year (two points) of history; two years (four points) of laboratory science, and six years (twelve points) of further credit in language, literature, history, or science.

(One point is not less than five periods per week of forty-five minutes each for eighteen weeks.) Or the applicant is required to take an examination in prescribed subjects, equaling a credit of 30 points, or he must present certificates from reputable instructors recognized by the superintendent of public instruction in the city or state in which the college is located, or by any state board of medical examiners duly authorized by law, which may be accepted in lieu of any part of this examination.

Provision is made for a four years' course of study in four calendar years, each annual course to have been of not less than thirty teaching weeks' (including examinations) duration, and at least ten months intervening between the beginning of any course and the beginning of the preceding course.

Credit may be given to the holder of a bachelor's degree for any work in the medical branches which he has successfully completed in his college course only so far as it is the full equivalent of corresponding work in the medical curriculum. The holder of such degree may also be given time credits of not exceeding more than one year; provided, he has had at least 40 hours in physics, 144 hours in chemistry, 24 hours in osteology, 292 hours in human or comparative anatomy, 124 hours in histology, 85 hours in embryology, 145 hours in physiology, and 46 hours in materia medica, provided, that the applicant satisfies the professors of the chairs mentioned in the medical school as to his proficiency in these first-year medical studies.

Every student is obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit, and no credit shall be given unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. No student shall be graduated unless he attains a passing grade in each and all subjects of the required curriculum.

Article 4 provides for the following: Between January 1 in any year and the annual meeting of the association each college in membership shall prepare, on blanks of standard form and size, furnished by the secretary, a list of all students matriculated since the last report, showing for each case the character and extent of the credentials for entrance, the conditions entered against said student and the standard accorded him. Such reports must be certified to by the dean and registrar or secretary of the college. Violations of the constitution are punishable by expulsion from the association.

Provision is also made for a permanent visitation committee consisting of the president, secretary and chairman of the judicial council, whose duty it is to visit and investigate all colleges holding membership at least once every five years for the purpose of determining whether the members are enforcing the laws of the association.

New Members.

The judicial council reported favorably on the applications for membership of the School of Medicine, University of Indiana, Bloomington, Indiana, for the first two years of the medical course (the last two not being given), and the Medical Department of Washington University, St. Louis, Mo.

Committees Appointed.

The following committees were appointed: To represent the association at the conference meeting of the Council on Medical Education of the American Medical Association to be held in Chicago, April 20—S. C. James and J. M. Dodson. To represent the association at the meeting of the American Confederation of Reciprocating, Licensing and Examining Medical Boards, to be held in Indianapolis, April 27—F. C. Zapffe and W. J. Means. To represent the association at the meeting of the National Confederation of State Licensing and Examining Boards, to be held in Portland, July 10—S. C. James and F. C. Zapffe. To investigate liberal arts colleges with reference to the purely scientific subjects embraced in the medical curriculum and taught by them, for the purpose of determining the credit that may be given for such work (not yet named).

(*To be continued.*)

AMERICAN SOCIETY OF TROPICAL MEDICINE.

(*Concluded from Page 1140.*)

Slow Progress at the Isthmus.

Dr. Joseph McFarland showed a series of lantern slides made from photographs taken on the isthmus, giving a general idea of the country, the cities of Colon and Panama, the excavations thus far made on the canal, and of the canal hospital at Ancon. The chief impression that he had brought back was that the isthmus was a God-forsaken place, in which very little was being done. He had been much disappointed to find so little visible evidence of actual progress in canal construction. He found the principal hospital at Ancon improperly equipped and destitute of such essential paraphernalia as mosquito wire at the windows and microscopes for studying the cases. Considerable in the way of adjusting the sanitary affairs has been accomplished in the city of Panama, but the good that has been done seems to be counteracted by the conditions at Colon. He was under the impression that the canal never could be built unless an entire reorganization of the commission and a complete change in the methods is brought about.

Impressions of Panama and the Pan-American Medical Congress.

Dr. Roland G. Curtin said that the climate of Panama was typically tropical. When he arrived he was told that the rainy season was over and that the dry season had begun. It was not excessively dry, however, as it rained every day he was there, and five times the first day. The real rainy season usually lasts eight or nine months. At Colon there may be as much as 200 inches of rain in one year. The temperature varies from 85 to 96 F., in the shade. There are sometimes storms and even cyclones during the rainy season. The population of the city of Panama is 20,262, 90 per cent. being negroes, 5 per cent. white and 5 per cent. Indians and Chinese. The negroes are apparently healthy and surprisingly free from rickets.

The sanitary problems which Colonel Gorgas has before him, as chief sanitary officer of the commission, are exceedingly difficult. There are two cities, Colon and Panama, which must be placed under rigid quarantine, provided with a regular, wholesome water supply, under-drained, whose swamps must be drained, and in which adequate hospital facilities must be provided. Much has already been begun. The swamps and ditches found along the railroad have been drained; the filthy back yards have been cleaned; barrels for refuse furnished and covered; cisterns covered; cess pools cleansed, and standing water has been properly oiled to prevent the propagation of mosquitoes. He was well satisfied that the sanitary bureau was well managed and in excellent hands, all that is wanted being an opportunity to work without hindrance.

The climate is not so dangerous as has been represented. Four hundred United States marines are stationed at Empire, on Culebra Hill, and up to the time of his visit there had not been a single death among them, and the percentage of sickness was not larger than at an average military post. The prophylaxis of yellow fever is based entirely on the mosquito theory of its origin.

Malaria is not more common at the isthmus than in some parts of our own country, but it is an "all-the-year-round" disease. Dr. Gorgas states that the blood of 29 out of 44 school children examined at Bahio was found to contain the parasites. Beriberi is extremely prevalent and is always present in Panama city and is the cause of many deaths. Dysentery exists, but has never been epidemic.

Panama and the Panama Canal.

Dr. Seneca Egbert gave a brief history of the isthmus and the canal from the time of the discovery of the Pacific by Balboa (1513), and the founding of the old city of Panama (1519), until the present. Canals to connect the two oceans across this isthmus have been projected ever since 1520, and the republic of Colombia has been granting concessions for

the purpose since 1835, but actual work was first begun in 1881 by de Lesseps' company and was carried on by it until 1892. The $260,000,000 which the company spent in that time actually represents more than $1,000 for every linear foot along the line of the canal from ocean to ocean, or more than one dollar for every minute of time from the day Balboa first set foot on the isthmus until the present. A new company was organized with a comparatively small capital in 1894 and worked steadily, though on a small scale, during the next ten years. It is to this company that the United States is paying $40,000,000 for the property in its present state and for the concessions held by it.

As to the canal itself, it is almost two-fifths completed, and as practically all the future problems are now foreseen, American skill and enterprise should solve these and the work should be carried to completion speedily, honestly and efficiently.

Of these problems the most imminent, persistent and serious are those pertaining to the tropical diseases which prevail throughout the canal zone and which it is the province of this society to investigate. Consequently the chief sanitary officer of the canal work should be pre-eminent in his domain and should have every facility and assistance that the resources of our government and our science can give.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held March 9, 1905.

Dr. A. BERN HIRSH in the Chair.

Simulated Tabes with Ocular Paresis and Myosis in the Unaffected Eye.

DR. J. O. ARNOLD'S patient, 38 years of age, was for many years a worker in metallic lead, although there were no symptoms of lead poisoning. The peculiarity of the pupils was first noticed ten years ago, at which time he had no symptoms. Four years ago he came under the care of the author for an attack of gonorrhea, at which time there was very little response to the knee jerks; Lowenburg's symptom was absent and there was no history of gastric crises or sphincter involvement. Two years ago he first noticed a peculiar gnawing sensation over the right eye, extending up over the forehead, with Argyll-Robertson pupil. The symptoms gradually disappeared, but on failure to keep up treatment returned. Lately he has noticed some slowness in voiding urine. His wife, who died eight years ago, was always healthy. One daughter has symptoms of inherited syphilis, and between the birth of this child and the preceding one there was a history of several miscarriages. There are no sensory changes.

DISCUSSION.

DR. C. W. LEFEVRE stated that the ocular symptoms of tabes were quite as varied as the general symptoms, and divided them into three classes: 1. Those in which there was atrophy of the optic nerve. 2. Those in which there was involvement of the external and internal muscles. 3. Those in which there was the Argyll-Robertson pupil. He stated that the symptoms were due principally to sclerosis of the spinal cord, especially the superior cervical region.

DR. J. W. MCCONNELL viewed the case as one of pseudotabes.

DR. WENDELL REBER did not view this case as one of true tabes.

DR. GILLESPIE stated that the pupil did not resemble the Argyll-Robertson pupil.

DR. L. C. PETER referred to an epileptic condition which in the beginning resembles true tabes, and stated that he believed there was no doubt that this case was one of pseudotabicular syphilis.

Headache as a Symptom.

DR. WILLIAM CLIFTON DREIN considered the subject under the headings of intracranial and extracranial headaches. Under the first classification he considered (a) anemic headaches, with vertical pain, usually less marked when patient is reclining, pale face and eyegrounds, disturbed sleep, drowsiness, reduced heart's action and, in extreme cases, edema of the ankles. Two symptoms of diagnostic importance are feeble pulsation of the carotids and drooping of the eyelids. This form exists in general anemia, chlorosis and all forms of debility. (b) Hyperemic headaches, in which the pain is usually of a throbbing nature, with fullness of the head, flushed face, injected eyegrounds, irritability, sensory disturbances and increased heart's action. They exist in any condition that causes a rise of arterial tension, such as exposure to the sun, prolonged mental work, fever, excessive venery, etc. (c) Nervous or cerebral headaches, which resemble both the others, but differ from them in the fact that the circulatory disturbances are secondary to morbid changes in the brain substance; among the symptoms are malaise, irritability, digestive and visual disturbances, nausea, confusion of ideas and vertigo. (d) Toxic headaches due to poisons taken into the system from without, as lead, alcohol, etc., and poisons produced by the morbid process within the organism, as the headache of nephritis. The pain usually bears a direct relation to the amount of poison, the faculties of the mind are usually more or less affected, varying from a slight heaviness to delirium. Under the second subdivision he considered the headaches due to constipation, typhoid and cerebrospinal fevers, gout, diabetes, jaundice and syphilis. (e) Sympathetic headaches caused by ovarian and uterine disorders, hemorrhoids, decayed teeth, eye strain, nasal catarrh, intestinal parasites, slight digestive disturbances, biliousness, etc. (f) Headaches due to organic brain disease, in which the pain is usually circumscribed and accompanied by disturbances of sensation and motion, visual and mental impairment and vertigo, and headache with vomiting of a projectile character, in the absence of gastric disturbance, is strong presumptive evidence of organic brain disease. The most common lesions are arterial disease, syphilitic and other varieties of tumor, tuberculosis, cerebral softening, hydatids, meningitis and osseous formations within the cranial vault. Under the head of extracranial headaches he discussed: (a) Neuralgia, trigeminal and cervico-occipital, caused by heredity, wasting diseases, malnutrition, exposure, poor hygienic conditions, rheumatism, gout, diabetes, anemia, chronic malaria, acute infectious diseases, etc., caries and periostitis of nerve foramina, rheumatic influences affecting the nerve fibers, foreign bodies and growths, congestive and inflammatory conditions of the nerve sheaths and reflex irritation. (b) Osteal and periosteal headaches due to the ostitis and periostitis of secondary syphilis.

Nasal Headache.

DR. LEWIS S. SOMERS considered neuralgia and cephalgia, and cited as the etiologic nasal factor, stenosis, either partial or complete, and acute or chronic sinusitis. He emphasized the importance of examination of the nose in cases of intractable headache, and stated that if the condition was relieved by the discharge of pus or mucus from the nose it was strong presumptive evidence of sinus involvement. The location of the pain is more frequently frontal than in any other position; the headache is not limited to any particular variety, and the seat of the pain is inconstant as regards the relative position of the disease and the pain, although the original seat of the pain is usually continued in the individual case. The intensity of the pain varies both as regards the individual and the periodicity, and if it is worse when there is increased purulent nasal discharge, should arouse suspicion in that direction. The pain is more likely, however, to be influenced by extraneous causes, such as irregular living, menstruation, etc. He considered in detail the causative factors of nerve pressure, stenosis, chronic obstruction due to foreign bodies, rhinoliths, tumors and hypertrophy of the turbinals, bending of the septum, vasomotor alterations, epistaxis, sinus involvement (on which he stated the great majority of nasal headaches are dependent) including empyema of the maxillary antrum, frontal sinus involvement, ethmoid disease and sphenoidal sinusitis, giving in detail the character and location of the pain in each of the several conditions. When sinusitis is the cause of the

headache more than one cavity is apt to be involved and, therefore, if cephalgia or neuralgia be present, they are apt to be confusing, giving little indication of the site of the morbid process, and that other local or general facts must be eliminated before the nose can be shown to have a direct relation to the headache, and that one may have nasal disease with or without suppuration in the presence of continuous or intermittent headache and yet there be no relation at all between the two.

Ocular Headache.

DR. WENDELL REBER referred to the frequency of headache and the fact that in many instances the victims thereof finally gave themselves up to the idea that nothing could be done for it. He referred to the classification of headaches by Leszynsky: 1, toxemic; 2, neuropathic; 3, reflex; 4, circulatory; 5, migraine, the ocular headaches falling under the third class. He described the supraorbital headache, and mentioned as causes thereof, anxiety, care, worry or excitement, the headache in some instances not appearing until the following day. He referred to the observations of de Schweinitz that 60 per cent. of the headaches due to errors of refraction are caused by astigmatism with other forms of ametropia, and stated that in his experience the sites of pain occurred with the following relative frequency: 1, Supraorbital; 2, deep orbital; 3, fronto-occipital; 4, temporal. In many instances there were no evidences of changes in the gross appearance of the eyes, and the lesser errors of refraction produced the worse headaches. The individuality of the patient and the character of the work done by him has much to do with the character and severity of the symptoms.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held February 28, 1905,

The President, DR. DUDLEY TAIT, in the Chair.

Tuberculosis of a Metacarpal Bone.

DR. DUDLEY TAIT exhibited a patient who had had tuberculosis of the metacarpal bone of the index finger, the nature of which had been demonstrated before operation by means of the *x*-ray. The diseased bone was excised and a pice of the radius was transplanted to take its place. The disease has been eradicated, and the functional result is fair, the main trouble being that the graft is already somewhat too short and seems to be shortening still more.

Demonstration of X-Ray Plates.

DR. LEHMANN exhibited a number of *x*-ray plates, showing a tumor in the brain; several small, dense, sharply outlined spots in the lungs believed to be caused by lung stones; a number of bronchiectatic cavities in the lungs of a child.

Two Unusual Cases of Gastric Carcinoma.

DR. W. F. CHENEY reported two cases of gastric carcinoma, which produced no symptoms referable to the stomach. In the one, a large nodular liver gave rise to the suspicion that the patient had syphilis and, later, to the diagnosis of carcinoma of the liver. In the other, a large tender mass in the region of the spleen proved, at autopsy, to be a perigastric abscess. Neither patient had any symptom referable directly to the stomach. In both cases the carcinoma was situated in the fundus.

DRS. GEO. GROSS and C. M. COOPER referred to the test for occult blood in the stools as one which might have been of value in these cases.

DR. J. H. BARBAT recommended early operation on cases in which even a fair suspicion of carcinoma of the stomach is present.

DR. A. W. HEWLETT suggested that the reason that so few gastric symptoms were present in these cases was that the carcinomata had not produced an obstruction. Occult bleedings may occur, not only from carcinomata, but from ulcers of the stomach or intestines and even apparently from dilated stomachs.

DR. CHENEY stated that the blood may come from the food eaten. An exploratory operation should be done whenever a fair suspicion of carcinoma exists.

Bicornate Uterus.

DR. GEO. SOMERS reported two cases of bicornate uterus. In one the condition was suspected from the fact that on curettement the instrument passed into two distinct sacs at the apex of the uterus. Removal of the uterus for disease of the appendages confirmed this suspicion. In the second case, the diagnosis of myomata was made and operations showed two uterine bodies united below into one cervix. The history of this patient is of interest, firstly, because she menstruated about twice a month ever since the birth of her first child; and secondly, because the second pregnancy seemed to be different from the first. The uterus is enlarged distinctly to the left side, the patient suffered from considerable pain, and the pregnancy was terminated by a still-birth at term. Apparently the right uterus was impregnated in the case of the first child and the left in the case of the second.

Intestinal Obstruction from Meckel's Diverticulum.

DR. EMMET RIXFORD demonstrated a Meckel's diverticulum which had been the cause of an intestinal obstruction in a child. The diverticulum had attached to it a piece of fibrous tissue resembling a mesentery.

CLEVELAND ACADEMY OF MEDICINE.

CLINICAL AND PATHOLOGICAL SECTION.

Twenty-third Regular Meeting, held March 3, 1905.

DR. W. E. LOWER, Chairman, Presiding.

Congenital Hepatoptosis.

DRS. T. W. CLARKE and D. H. DOLLEY cited the case of a woman, aged 35, who was admitted to the Lakeside Hospital for acute articular rheumatism. On examination a mass was made out on the right side, and was considered to be a hepatoptosis. The rheumatism improved, but the patient developed acute appendicitis, with ulceration, and died of general peritonitis. At the autopsy, ulcers, probably syphilitic, were found in the large intestine. The liver consisted of two lobes entirely separated, except for a thick fibrous band from which the lower lobe was suspended. This lobe possessed absolutely no other ligamentous attachment. The coronary and lateral ligaments were absent. In their place were reflections from the upper margin of the upper lobe, which in the normal liver would be the left lobe, running over to the diaphragm and forming a distinct meso-hepar. The suspensory ligament was attached along the left margin of the left lobe and to the interlobar ligament, as the authors named the band of fibrous tissue between the lobes, and this interlobar ligament was also joined by the round ligament. The fissure of the vena cava was situated in the upper posterior margin of the inner side of the upper lobe, instead of being on the right or lower lobe. The umbilical fissure and that of the ductus venosus were lost in the separation of the lobes. The gall-bladder fissure and the transverse fissure were present, but not in their normal positions. The quadrate lobe was represented, but the caudate and the Spigelian lobes were absent. The upper lobe contained multiple small gummata in its center, and there was a moderate grade of syphilitic cirrhosis. The liver was completely displaced from its normal position, so that the part which should be the right lobe, lying under the diaphragm, was the lowest portion, and hung from the left lobe, which took approximately the place of the right. The marked abnormalities in the positions of the fissures and the ligaments are such that the condition could not have resulted from the ordinary causes of splanchnoptosis, which were absent.

Ectopic Pregnancy of Ten Months' Duration.

DR. F. E. BUNTS' patient, aged 31, had had a normal pregnancy in 1891, and no history of abortion at any time; last menstrual period, March 4, 1904. She developed chronic endometritis, and on May 16, abortion threatening, a curettage was done. No fetus was found, but some placental tissue. May 30 a tumor was felt, and on August 10 fetal movements were felt. September 27 pain was felt in the abdomen, and

December 4 hemorrhage began which lasted four days. January 17 the patient felt pain which was referred to the uterus. and it is supposed that fetal life ceased on this day. On account of the tumor at the side a diagnosis of fibroid was made and an operation was performed on February 21. A large cyst, resembling a dermoid, was found adherent to the uterus and to the intestines. On opening the cyst a seven months fetus was found enclosed in a sort of cyst wall resembling broad ligament rather than tube or ovary.

Cysts of the Small Intestine.

DR. E. M. GOODWIN'S patient, a girl of 21. had had cirrhosis of the liver for some time, and had had repeated tappings. The cysts were of the size of an orange and had a wall of peritoneum. Interesting cases were also presented by Drs. Corlett, Dittrick and Herrick. Dr. Feiss read a paper on "Limitations in the Interpretations of Radiograms."

EXPERIMENTAL MEDICINE SECTION.

Seventeenth Regular Meeting, held March 10, 1905.

DR. H. C. BLISS in the Chair.

Observations on the Digestive Power of Pepsin.

DR. P. W. COBB said that the activity of a pepsin solution (other conditions being equal) is proportional to the square root of the amount of pepsin present. This holds in the case of Mill's method. unless the pepsin concentration exceeds that required to digest 4 mm., or slightly less, of egg white in twenty-four hours, as may be shown by the use of pepsin solutions of known relative strengths. As the pepsin concentration exceeds this limit, the actual amount of digestion falls further and further short of the calculated amount.

This deficiency is far too great to be explained by the difficulty of diffusion of the solution in and out of the narrow (2 mm.) tubes which are used in the experiments, or by the exhaustion of the solution during the progress of the test. The question of the presence of inhibiting substances in the (commercial) pepsin used was considered in these experiments. By careful dialysis Dr. Cobb found that the digestive power of a very strong pepsin solution is increased two and a half times. This power is also increased by dilution with hydrochloric acid, but not to the same extent as by dialysis. The albumin froth method of pepsin estimation failed to give such results as claimed for by its authors. The relation of pepsin activity and hydrochloric acid concentration was investigated by means of Mill's method. It was found that for commercial hog's pepsin the maximum activity was shown when the hydrochloric acid was present to the extent of 0.25 to 0.3 per cent. The conclusion reached is that no estimation of the pepsin values, either absolute or comparative, can be reached until the possibility of the presence of inhibiting substances is completely excluded.

Contributions to the Study of Experimental Diabetes.

DR. MACLEOD stated that in order to determine whether atropin would prevent puncture diabetes, a rabbit was placed under the influence of the drug, and the fourth ventricle was punctured. No glycosuria followed until after three hours, when the atropin effect passed off, and sugar to the amount of 1 per cent. appeared in the urine. Re-administration of atropin caused the sugar to disappear. Further evidence of a mechanism independent of vasomotor changes in the liver was furnished by the fact that glycosuria follows stimulation of the central end of the cardiac depressor nerve. Since the glycogenic impulses may form connections in the sympathetic ganglia, it was thought possible that nicotin would also inhibit glycosuria by puncture. This was found to be the case, nicotinized rabbits not exhibiting any glycosuria when punctured. The action of the atropin and the nicotin was also studied on dogs rendered glycosuric by stimulation of the central end of the vagus, but neither drug was found to have any influence. It was further found that a marked fall of blood pressure such as that produced by extensive hemorrhage, also causes disappearance or, at least, a marked diminution of the glycosuria produced by stimulation of the central end of the vagus, in dogs and rabbits.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Typhoid Fever.

Thomson, in an article in *Med. News* (abstracted in THE JOURNAL, April 8, p. 1147), on typhoid fever and its management, recommends early attention to the state of the kidneys by the administration of a reliable diuretic, and for this purpose he advises hot normal saline solutions per rectum twice a day. He uses four gallons of the solution at a temperature of from 115 to 120 F., with a return flow instrument. By this method the course of the fever, according to his comparative statistics, has changed for the better. In some cases acute nephritis develops comparatively early and constitutes a serious complication with uremic coma, therefore the kidneys must be carefully watched and such remedies administered as may be necessary.

In the first stage of the fever intestinal disinfection is necessary and a calomel purge should be given every other night until the middle of the third week, combined as follows:

℞. Hydrarg. chloridi mitis.....gr. v | 30
Pulv. jalapæ co.....gr. xxxv 2 | 30

M. Ft. pulvis No. i. Sig.: One such powder every other night as a disinfectant.

The foregoing, according to the author, promptly checks diarrhea and lowers the temperature in the first week, often from one to three degrees. It also promotes renal elimination. After the middle of the third week it should be omitted owing to the risk of hemorrhage.

FEEDING.

The starvation plan is a preposterous one, according to Thomson, and the nutrition of the muscular system should be maintained in the best state possible, as that includes nutrition of the heart, on which so much depends. The peptic power of the stomach is decreased to a greater extent than in almost any other disease, including even carcinoma, according to the experiments of Fenwick, who found in some cases postmortem not a trace of pepsin. The only food, therefore, is a liquid diet, and milk is the best, diluted one-half with lime water, with the addition of sodium chlorid. Lime water is an antiseptic and counteracts the tympanites. Besides lime water the author recommends scale pepsin in five-grain doses (.30), or saccharated pepsin in ten-grain doses (.65), every three hours for twenty-four hours, which is certainly of great value in keeping up the nutrition of the patient.

The systematic employment of intestinal antiseptics is of great importance. Bismuth is the most serviceable of these disinfectants, as it is non-irritating and has local sedative properties which can not be said of the other preparations such as salol. From ten to twenty grains of the subcarbonate of bismuth combined with the pepsin is the best method of administration given every three hours, or from 80 to 160 grains (5.30-10.65) daily. If tympanites is persistent, the sulphocarbolate of soda may be added in five-grain (.30) doses.

When the first sign of dryness at the tip of the tongue appears, the oil of turpentine in from 15 to 20 minim doses (1-1.30) is also given in mucilage every three hours till the tongue is moist again.

Alcohol is recommended in the form of whisky for cardiac weakness. The author objects to repeated small doses, such as half an ounce, but prefers an ounce at a time, repeated every three hours and given in milk. In the beginning alcohol should be given only after midnight; later, in the evening, and still later on, as the disease progresses, in the afternoon, and recommends that it be omitted in the forenoon. It is only a temporary stimulant for prostration, consequently he recommends the large doses to produce the required amount of stimulation. Strychnin, when given as a routine and persist-

ent cardiac stimulant, produces harm, and it is well to stop its use every few days to note its effect on the heart's action. In marked cardiac debility the following combination is recommended:

℞. Strych. sulph.....gr. ss 2|
Caffeinæ citratis.....gr. xxxvi 2|65
Sparteinæ sulph.....gr. xv 1|
Ext. taraxaci q. s. |

M. Ft. pil. No. xx. Sig.: One pill every three hours.

The most certain of all cardiac stimulants, according to the author's experience, is camphor given hypodermically in doses of seven and a half grains each (.50) combined as follows:

℞. Camphoræ .....gr. viiss |50
Olei amygdalæ (sterile).....m. xx 1|30

M. Sig.: To be used subcutaneously at one dose and repeated once an hour to once in three hours, as may be indicated.

He recommends the Brand bath at a temperature of 70 F. as the best means of promoting elimination by the kidneys. The patient should be placed in the bath when the temperature reaches 102.5 F. and allowed to remain according to its effects. If the temperature drops from one to two degrees while in the bath he should be taken out, although he has been in the bath only five minutes. It should never be allowed to drop to 100 F., as it continues to fall after he is removed from the bath. On the other hand, if the temperature should rise instead of falling, after he has been in the bath for ten minutes, he should be allowed to remain in the bath until it begins to fall, though it may require half an hour to do so. Severe shivering should not be given any attention, and a good remedy to shorten this condition after the bath is a teaspoonful (4.00) of Hoffman's anodyne combined as follows:

℞. Spts. etheris co.....ʒi 4|
Aq. camphoræ .....ʒi 30|

M. Sig.: At one dose immediately after removal from the bath.

Some patients can not take cold baths on account of the pulse remaining weaker after the effects of the bath have been recovered from, than before it was taken. In such cases a warm bath from 95 to 98 F. is recommended if it will reduce the temperature; if not, the cold bath must be given fearlessly. He states that he has seen more bad results from timidity in using cold baths than from their excessive use. The only non-indication for Brand's method is the occurrence of intestinal hemorrhage.

With the first sign of intestinal hemorrhage the following is recommended:

℞. Argenti nitratis .....gr. v |30
Pulv. opii.....gr. v |30
Terebinthinæ resinæ .....ʒiii 12|
Liq. kali .....ʒi 4|

M. Ft. pil. No. lx. Sig.: Three pills at one dose.

The object of the turpentine in the foregoing combination is to prevent the absorption of the silver salt until the pill reaches the intestine. The author believes that these pills are of service both in checking hemorrhage and in preventing perforation. After the hemorrhage has been checked for thirty-six hours the baths should be resumed.

In the third and fourth weeks the patients complain of aching over the body due to the absorption of the subcutaneous fat leaving the nerves more exposed to pressure. This aching is best relieved by spreading sheepskins with wool on them, or buffalo robes, on the bed and over that a sheet, for the patient to lie on.

As a mollifacient the author recommends the following combination as a liniment:

℞. Ol. cinnamomi .....ʒi 4|
Aq. calcis .....Oi 500|

M. Sig.: Apply locally after warming the solution.

The foregoing should be applied once daily, and if applied to the back twice daily it is of service in preventing the development of bedsores.

The dangers to be looked for after the patient has reached the middle of the second week are: 1, Death due to continued hyperpyrexia; 2, tympanites, with or without diarrhea; 3, severe toxemia, with prostration, low fever, feeble heart, etc.

In the first instance the patient should be dealt with just as in cases of sunstroke, by keeping him in an ice bath for 15, 30, 40 or 48 minutes. The second tendency (tympanites) would indicate about one-half the average amount of milk and smaller quantities at a time. Five grains resorcin (1.30) given in an ounce of sweetened water three times a day, with the dose of bismuth doubled and in some cases with the addition of sodium sulphocarbolate five grains (.30) is advised. In the third case the following combination is of service:

℞. Tinct. ferri chloridi.....m. xx 1|30

Sig.: To be taken at one dose, and repeated four times a day. And:

℞. Quin. sulph.....gr. iii |20
Calcii sulphidi.....gr. 1/6 |01

M. Sig.: One such dose four times a day along with the iron. Camphor should be used as a cardiac stimulant.

Simple Sycosis.

Hall, in an abstract in *Ther. Gaz.*, recommends, as the best treatment close shaving daily and has obtained great success by this method; it must be kept up for several months. After a short time the patient will overcome the difficulty of shaving over the sore patches. Very hot water, prolonged lathering and previous oiling of the face helps to soften the beard. A boracic acid lint fomentation should be applied over the whole chin and cheek, covered with gutta-percha tissue and kept in place by means of a handkerchief carried around and tied at the top of the head and so worn at night. In the daytime the following should be applied:

℞.. Zinci oxidi .....ʒi 30|
Glycerini .....ʒii 8|
Lotio plumbi .....ʒss 15|
Aquæ rosæ q. s. ad.....ʒiv 120|

M. Ft. lotio. Sig.: Apply locally after shaving.

By means of the foregoing treatment, according to the author, the face soon becomes sightly and speedy improvement will take place. The only drawback is the slothfulness of the patient in his daily attentions and daily close shaving.

Menstrual Pain of Virgins.

In the treatment of menorrhagia in virgins the *Ther. Rev.* recommends fifteen minims (1.00) of the fluid extract of senecio in a hot infusion of lemons. As soon as the menstrual period appears the patient is put to bed, poultices containing laudanum applied to the abdomen, and suppositories containing the following inserted:

℞. Ext. cannabis indicæ |
Ext. belladonnæ, āā.....gr. 1/15 |004
Olei theobrom. q. s..... |

M. Ft. suppos. No. i. Sig.: One such suppository inserted as often as necessary.

As a substitute for the foregoing suppository enemata containing laudanum are recommended, or the following:

℞. Tinct. viburni prunifolii |
Tinct. piscidiæ erythrinæ, āā.....gtt. x |65

M. Sig.: To be taken at one dose in a hot infusion.

For the accompanying lumbar pains the following ointment is recommended:

℞. Spts. chloroformi .....ʒiiss 10|
Olei moschi |
Essentiæ caryophylli, āā.....ʒi 4|
Spts. etheris .....ʒiv 15|
Alcoholis .....ʒiii 90|

M. Sig.: To be applied locally to the lumbar region with thorough friction.

Medicolegal

Giving Eddyite Treatment Is Practice of Medicine.

The Supreme Court of Ohio holds, in State of Ohio vs. Marble, that the giving of "Christian Science" treatment. for a fee. for the cure of disease is practicing medicine within the meaning of the statute regulating such practice in this state. The statute making it a misdemeanor to give such treat-

ment for a fee is not an interference with the rights of conscience and of worship, conserved by section 7 of the bill of rights, and is not on that ground unconstitutional. Legislation prohibiting any one from treating a disease for a fee. excepting such persons as have qualifications, is a valid exercise of the police power of the state, and is constitutional. The act regulating the practice of medicine in this state exacts reasonable qualifications and excludes no one possessing them, and it is not void as discriminating against Eddyites in that it prescribes that any one possessing certain qualifications may practice osteopathy and does not make especial provision for those who wish to practice Eddyism.

The court says that the right to practice medicine has been so long and so universally subject to state regulation that it might almost be said to be not an absolute right, but a privilege or franchise. Assuming, however. that it is an absolute right, it was conceded to be subject to such reasonable regulations or conditions as the state in the exercise of the police power may prescribe. The Ohio statute provides that "Any person shall be regarded as practicing medicine or surgery or midwifery within the meaning of this act, who shall use the words or letters 'Dr.,' 'Doctor,' 'Professor,' 'M.D.,' 'M.B.,' or any other title. in connection with his name, which in any way represents him as engaged in the practice of medicine or surgery or midwifery, in any of its branches, or, who shall prescribe, or who shall recommend for a fee for like use any drug or medicine. appliance, application. operation or treatment. of whatever nature, for the cure or relief of any wound, fracture or bodily injury, infirmity or disease." It was contended that the word "treatment" was to be given its meaning as used in the practice of medicine and that as so read it means the application of remedies to the curing of disease, that a remedy is a medicine or application or process; that process is an action or operation and that prayer for the recovery of the sick is neither. Technically this may be correct but the science of medicine has made some advance since the time Macbeth wished to throw physic to the dogs because his doctor could not cure a mind diseased but told him "Therein the patient must minister to himself." Nowadays physicians cure imaginary diseases by means that would as easily as Eddyism escape the above definition. What Eddyism is we do not know. The practice of it is referred to as treatment by its followers. If its followers call it treatment they ought not to be heard to say it is not. Dr. O. W. Holmes (Med. Ess.) says: "Disease is to be treated by anything that is proved to cure it." The statute of 1896 had been held in this court not to comprise the practice of osteopathy and by a lower court not to apply to Eddyism. So that the use of the words "of whatever nature" in the amendment are quite significant and this court has no doubt the legislative intent was to bring within this definition every person who for a fee prescribed or recommended a cure for disease even though the cure was to come not from himself but, through his intercedence, from God. The next contention was that the statute interfered with the defendant's right to worship God according to the dictates of his conscience. The Supreme Court says it is to be observed that the statute does not prohibit the prescribing or recommending the treatment except for a fee and the court is not advised that it is a part of the defendant's religion to exact a fee as well as to pray. But if the inhibition of the statute tends to the public welfare and is not obnoxious on other grounds it is not within the provision of section 7 of the bill of rights that "All men have a natural and indefeasible right to worship Almighty God according to the dictates of their own conscience . . . nor shall any interference with the rights of conscience be permitted."

Taking up the question of whether the act, in so far as its application to Eddyism is concerned, is a valid exercise of the police power, the court says that the practice of medicine may be regulated by legislation has been decided in every court in which the question has arisen. But it is said that the offering of prayer to God for the recovery of the sick is not against public health or public morals or public safety or public welfare. Admitted. But is that a correct statement of the case? If the defendant prayed for the recovery of Hehl that was the treatment he gave him for the cure of his rheumatism and for which Hehl paid him. He was practicing healing or curing disease. To assume that legislation may be directed only against the administering of drugs or the use of the knife is to take a too narrow view. The subject of the legislation is not medicine and surgery. It is the public health or the practice of healing. The state might make it an offense, as has been done in New York, for any one to omit to furnish medical attendance to those dependant on him. and at the same time leave him his liberty to die in any manner he may choose. But this is not all. While the state may not deem it wise to go to the extent of requiring the individual to avail himself of the services of a physician yet it may not wish to hasten his death and so to transfer to itself the burden of supporting those dependent on him by making it possible for him to employ an empiric.

Again, where there is an infectious or contagious disease and the public welfare may be vitally affected by a failure promptly to recognize it, and so the state is interested in permitting to practice the art of healing only those possessing recognized qualifications. So that. regarding disease rather than the treatment of it as the subject of the legislation, it is not necessary that the statute be preventive of particular practices, but it may make the right to undertake the treatment of disease dependent upon the possession of reasonable qualifications. Then it was contended that Eddyism is a recognized system or school of healing, and that the statute is unconstitutional, on the ground that it discriminates against Eddyism, or in favor of certain schools of medicine. The court says that if it is correct in the conclusion that disease and not the method of its treatment, is the subject of the legislation, then it is putting the cart before the horse to say that every school of healing must be recognized. That the legislature, in its wisdom, might prescribe a uniform examination the court does not doubt, and that it may recognize one school without recognizing all, is also true, if the recognition be in the exercise of proper classification and for the public welfare, and not with a view to create a monopoly in the schools recognized or a discrimination against other schools. The court fails to find anything in the present act that discriminates against Eddyism. It does not provide for a special examination and limited certificate for the Eddyite practitioner, but he may obtain a certificate to practice medicine upon the same conditions as any other person and there is nothing in the act requiring him to use the knowledge after he acquires it. To admit that a practitioner may determine what treatment he will give for the cure of disease and that the state may examine him only respecting such treatment would be to defeat the purpose of the statute and to make effective legislation of this character impossible. If the present statute is too comprehensive the remedy is with the legislature. The conclusion reached is supported by State of Nebraska v. Buswell, 40 Neb. 158. and the following recent decisions throw more or less light on such legislation: The People v. Blue Mountain Joe, 129 Ill. 37L; Williams v. The People, 121 Ill. 84; The People v. Gordon, 194 Ill. 560; Bragg v. The State, 134 Ala. 165; The State of Iowa v. Barr, 112 Iowa, 466; The State of Kansas v. Wilcox, 66 Kan. 711; State of Maine v. Bohemier, 96 Me., 257; People V. Reetz, 127 Mich., 87; State v. Biggs, 133 N. C., 729; 98 Am. St. 731, monographic note. State v. Heath, 101 N. W. 429.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

April 1.

1 Relation of the Nervous System to Visceral and Trophic Phenomena. J. Fraenkel, New York.
2 *Perineum, Perineorrhaphy, and Prolapse. A. Sturmdorf, New York.
3 *Compound Traumatic Separation of the Lower Epiphysis of the Femur. G. G. Cottam, Rock Rapids, Iowa.
4 *Value of the Present Quantitative Tests for Hearing; with Demonstration of a New Apparatus. W. S. Bryant, New York.

5 *Rapid Bacteriologic Diagnosis of Diphtheria. H. A. Higbley, Brooklyn.
6 *Best Method of Administering Potassium Iodid. M. Huehner, New York.
7 *New Remedy for Ulcerative Processes, Acute and Chronic, Including Pulmonary Tuberculosis. H. W. Mitchell, New York.

2. **Perineorrhaphy and Prolapse.**—To facilitate accurate readjustment of original anatomic relations, Sturmdorf advises the preliminary introduction of guide sutures. At some convenient moment prior to the descent of the fetal presenting part from two to three silkworm sutures are introduced under proper precautions into the structures between vagina and rectum, from the cutaneous base of the perineum to its apex. The lowest suture running on a line with the anterior anal margin serves to locate the several sphincteral ends; the median suture embraces the levator fibers. while the upper one tends to coaptate the vaginal lesion. In passing these preliminary sutures neither the vaginal nor the rectal walls should be punctured. In late operations the surgical objective point is the broad anterior loop of the levator ani, which, springing from the posterior surface of the pubic rami, passes downward and embraces the lateral and posterior wall of the vagina. Under all conditions of perineal rupture the pubic attachments of this levator loop present permanent palpable ridges. With these ridges serving as guides to the muscle, the postero-lateral muco-cutaneous junction of the vagina is severed and the deep seat of lesion exposed by carefully raising the cicatrized vaginal openings. Utilizable remnants of the levator muscle can thus be readily located, and after isolation and trimming, should be coaptated by buried end-to-end suture. Having secured muscular readjustment, the raised vaginal flap is allowed to settle into position, and then only should such of its redundant tissue be sacrificed as may not be utilized in restoring the contours and bulk of the vagina and perineum. Trimming and suturing should be limited as far as possible to the cicatrices and lateral sulci, preserving the median aspects of the vaginal walls as much as possible.

3. **Traumatic Separation of Lower Epiphysis of Femur.**—Two cases of this kind are reported by Cottam, occurring in children aged 6 and 5 years respectively. In both cases the lower epiphysis of the femur was torn off completely. In the first case it was necessary to resort to wiring; in the second case reduction and immobilization was sufficient. At the nineteenth week the joint function of the first patient was fully restored and the boy could walk and run without perceptible limp. At the present time there is slight knock-knee on the injured side owing to unequal growth of the inner and outer aspects of the shaft of the femur. The second case is too recent to permit of any final observations.

4. **Quantitative Tests for Hearing.**—A new accoumeter for making quantitative tests for hearing is described by Bryant. The machine allows the operator to determine accurately the limit at which the patient is able to hear with sufficient distinctness to repeat the words spoken into the machine. Distance is no longer needed for the voice tests. The accoumeter provides a sure method of detecting feigned deafness. It also gives a test for hyperacousis, and it also measures the psychologic factor in audition. Eyesight aids are eliminated. It furnishes a test which does not vary and which can be multiplied and repeated indefinitely.

5. **Bacteriologic Diagnosis of Diphtheria.**—A method of arriving at a rapid diagnosis of diphtheria by means of stained smears made directly from the false membrane present is described by Higley. The smears must be as thin as possible and must be thoroughly washed and dried between the applications of the stains used. The material for the smears is obtained by means of a strong wire-loop needle, the wire being flattened by filing so as to form a sort of curette. The smear is made in a drop of distilled water. Two stains are used. No. 1, 5 drops of Kuehne's carbolic methylene blue in 7 c.c. of water; No. 2, 10 drops of carbol-fuchsin in 7 c.c. of water. Fix the smear with the flame in the usual manner. Apply stain No. 1 for five seconds, wash with water and dry with filter paper. Apply stain No. 2 for one minute, wash, dry and mount in balsam. The stains must be absolutely fresh. The diphtheria bacilli, if present, appear as dark red or violet rods, irregularly stained, and often containing polar dots. The epithelial cells are stained a bright red. Other micro-organisms may appear of the same color as the diphtheria bacilli, but the unevenness of contour of the latter and its mode of division obviates confusion in diagnosis. When properly carried out the diagnosis can be made in fifteen minutes.

6. **How to Administer Potassium Iodid.**—Huehner says that the method of administering potassium iodid should differ in accordance with the purpose for which it is given. For therapeutic purposes potassium iodid should always be given in solution, well diluted, and, if possible, never on an empty stomach. Milk is the best diluent, but compound syrup of sarsaparilla, mineral water or ordinary pure water may be used. The drug must be pure. Many bad effects are due to impurities. By observing strict cleanliness of the skin, disagreeable skin eruptions to a large degree may be prevented. Where accurate dosage is of importance it is safer to prescribe a 50 per cent. solution, two drops to equal one grain of the drug. Potassium iodid should never be given in phthisis or when there is even a suspicion or tendency to phthisis. In children it is best to give the drug very frequently in small doses, one-fourth of a grain every hour, rather than infrequently in large doses. A very convenient way is to dissolve the daily dose to be taken in twenty-four teaspoonfuls of water and have the child take one teaspoonful every hour while awake, and two or three teaspoonfuls on awakening after a two or three hours' sleep. In this way a six-months-old child may take as much as 15 or 30 grains in twenty-four hours for a long time without inconvenience. Special plans of administration are described for syphilis, locomotor ataxia, chronic endarteritis, asthma, nephritis, lead poisoning, rheumatism, gout and neuralgia.

7. **New Remedy for Ulcerative Processes.**—The remedy advocated by Mitchell is a solution of chlorobromid of sodium prepared as follows: To a convenient quantity of water add 3 per cent. sodium chlorid, 0.1 per cent. bromin and 0.5 per cent. hydrochloric acid (C. P.). Subject this mixture to the action of an electrical current until such chemical action has taken place within the mixture as to convert all free bromin into a compound with the other elements present. The resulting fluid is pale amber in color, with a strong odor of chlorin, a slightly acid taste and a specific gravity of 1,022. It must be kept in amber colored bottles in a cool place and tightly corked. Mitchell has used this solution locally with very satisfactory results in chronic ulcers of the leg, regarded as hopeless, suppurative bubos which had resisted all other methods of treatment, and ulcerative cervical endometritis. He has also administered it by mouth in pulmonary tuberculosis. It seems to have the power to check ulcerative processes in the lung and, if the disease is not too far advanced, ultimately to effect a cure. It must be given in free doses for a considerable period of time, from one to one and a half ounces four times daily, before each meal and at bedtime, on a stomach which is completely empty. One hundred cases were treated in this way. and the results were satisfactory.

New York Medical Journal.

April 1.

8 Concerning the New Electro-cystoscope. W. K. Otis, New York.
9 *Treatment of Acute Tuberculous Spondylitis in Infants and Young Children. D. D. Ashley, New York.
10 Recent Advances in Electro-therapeutics. W. J. Morton, New York.
11 Two Dipsomaniacs; Illustrating two Dipsomaniac Phases. T. H. Evans, Philadelphia.
12 *Management of Pneumonia in Infants and Children. C. G. Kerley, New York.
13 Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases. Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. (Concluded.) D. L. Edsall, Philadelphia.
14 *Some Clinical Deductions from the Performance of Ninety Alexander Operations with Abbe's Modification. H. P. Epstein, Newark, N. J.
15 Cerebrospinal Meningitis in Cattle. P. Shekwana, Iowa City, Iowa.

9. **Acute Tuberculous Spondylitis.**—The method employed by Ashley differs in some particulars from any procedure heretofore described. The child is supported, face downward, in the horizontal position, the body at right angles to a table, the upper third of the thighs resting near the edge of the table. Extension is made on the head and arms, the arms at right angles to the body, and counterextension on the feet, always sufficient to overcome any sagging of the body in lordosis. The kyphosis is gently pressed downward until nearly or quite obliterated, no considerable force being employed. A snugly fitting stockinet shirt is then applied over a rubbing bandage; over this is adjusted a felt pad amout three inches wide, extending the length of the spine, and felt pads cover the anterior superior spine. These are secured by one layer of sheet-wadding bandage, and over all is applied a light, closely fitting plaster-of-paris jacket, extending from the top of the sternum to the symphysis pubes. The spine is held in superextension until the setting of the plaster by one hand pressing down on the region of the kyphosis and the other pressing upward on the upper part of the sternum, slightly flattening the thorax. The patient is then transferred to a Whitman frame, which is bent to conform to the plaster. The cast is trimmed like an ordinary jacket, except that it is left longer than usual in front, there being no intention that the child shall assume the sitting position. After the jacket is well hardened an oblong fenestra is cut out in front, extending from the center of the gladiolus to about two inches below the umbilicus. In case any considerable kyphosis has been reduced a small fenestra is cut out at the back over the knuckle If the kyphosis is high dorsal or cervical the plaster is extended to the head and adjusted well to the occiput, the neck being moderately superextended and the head secured in position by a coronal band. The patients are confined on the frame for from six to eight months, after which they assume a semi-sitting position by elevating the head of the frame. The plaster is changed at intervals of from three to four months, the skin being kept clean in the meantime by the rubbing cloth. Careful attention should be given to prevent any disturbance of digestion. Some of the advantages claimed for the use of the plaster-of-paris jacket and the modified Calot procedure are: 1. The deformity and spasm are immediately overcome and the spine is placed in the position which is most conducive to the healing process. 2. The spine is securely held in position, and there is no undue flattening of the pelvis. 3. The necessary handling of the child is done with the least possible disturbance to the spine. 4. It conserves the labors of the surgeon and permits the treatment of patients from a distance where frequent observation is impossible. 5. The capacity of the thorax is increased, and pressure on the vital organs is relieved. 6. Paraplegia, with hardly an exception, becomes less or entirely disappears. 7. In marked deformity, when the angle of flexion is so great as to render the supine position almost intolerable, the reduction of the kyphosis makes this position at once comfortable.

12. **Pneumonia in Infants.**—The first step advocated by Kerley is to establish a sickroom régime, avoiding extreme measures. Temperature is controlled by the use of a pack; the temperature of the water should be 90 F. As heart stimulants he uses strychnin and strophanthus, when they are indicated, in heart weakness. The application of counterirritants to the skin over the thorax is of service in cases in which there is evidence of much bronchial congestion and bronchial spasm. Kerley uses the old-fashioned mustard plaster, repeated every six hours, usually for the first forty-eight hours. After this time it is used less frequently or discontinued. Expectant drugs should be given with great care, and when used should be prescribed in tablet or powder form. For a child 1 year of age Kerley occasionally gives 1/100 grain of tartar emetic and 1/40 grain of ipecac after feeding. In case the cough is severe and teasing and not relieved by steam inhalations, a small quantity, ¼ to ½ grain of Dover's powder may be added to each dose. In the treatment of pneumonia in the young he says the degree of success is measured in large part by the physician's ability to adapt the child to the unusual conditions caused by the presence of the disease.

14. **Deductions from Ninety Abbe-Alexander Operations.**—Of a series of 90 patients operated on according to this procedure, Epstein has delivered 18 women without a relapse in any case. In 76 cases which he has had the opportunity of seeing no relapse has occurred. In 42 cases the operation was performed for simple retroversion. Curettage was supplemented for the attendant endometritis. In 20 cases retroversions were accompanied by prolapse in which, in addition to curettage, anterior and posterior colporrhaphy was added; in 8 cases excision of hemorrhoids was performed, and 4 divulsions for fissure in ano were done. In 4 cases considerable annoyance was caused by pain in the scars; 2 cases required the dissection of the genital branch of the genito-crural nerve, owing to its inclusion in the cicatrix; the other 2 cases responded to mild galvanism.

American Medicine, Philadelphia.

April 1.

16 *Treatment of Cerebrospinal Fever. C. G. Stockton, Buffalo.
17 *Dessertation on Temperament, Diathesis, Dyscrasia, Predisposition, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (Concluded.) H. Wakefield, New York.
18 *Peritoneal Adhesions. C. Beck, New York City.
19 *Treatment of Hemoptysis. F. Hare, London.
20 Some Observations on the Treatment of Chronic Diseases. C. Pope, Louisville, Ky.
21 *An Interesting Tumor and Its Relations to Heredity. H. E. Radasch, Philadelphia.
22 Papillomas in Syphilitic Child, Occluding Both Nostrils. W. G. B. Harland, Philadelphia.

16. **Treatment of Cerebrospinal Fever.**—Stockton says that in the treatment of this affection the sanitarian is more useful than the therapeutist. Furthermore, the difference in virulence in different epidemics accounts for faulty notions arising as to the effects of measures of treatment. The most useful procedure is the bringing about of the best hygienic condition for the patient, such as: 1. Absolute quiet in a well ventilated, darkened room. 2. Giving the greatest attention to securing the proper performance of the various functions of the body. 3. The trial of the hot baths, after the method of Aufrecht, in all cases in which they seem to do good. 4. The practice of intraspinal puncture with drainage, when necessary, to relieve severe pressure symptoms, to be repeated, if needed, provided benefit follows the first puncture. 5. The use of antipyrin in cases in which the temperature is raised, not only for the relief of the pyrexia, but also for the mitigation of headache and hyperesthesia. In Stockton's experience the drug has also proved useful in improving the mental state, and it has not been followed by the expected depression. 6. The use of opium or of the bromids alone, or in combination with antipyrin, for the relief of convulsions, pain hyperesthesia, and the pressure symptoms generally, which are not relieved by other methods of treatment. 7. The use of mercury, when needed, for its laxative effect, or to assist in stimulating the organs of elimination.

17. **Temperament, Diathesis, Dycrasia, Etc.**—Wakefield reviews these various states and attempts to introduce, as a new conception of the involved problems, a definite and orderly biologic-retrogressive series of physical manifestations, constituting the symptomatologic expressions of the phases and stages of the pathology of catabolism, including an analysis of etiologic homogeneity. Clinical illustrations and quotations supplement his premises. He contends that protoplasm, both of unicellular life and of the parenchyma of the higher animals, obtains density in proportion to normal cell maturity and suffers expansion and elongation in ratio to its sub-catabolism. Susceptibility to parasitic infection is attributed to tissue atony and the morphologic changes of subcatabolism. Heredity he defines as substantially a congenital structural expression, and denies that diseases are specifically inherited.

18. **Peritoneal Adhesions.**—Beck shows that adhesions forming after repeated attacks of appendicitis and after operations on the abdominal or pelvic organs, may give rise to symptoms which may be mistaken for enteroptosis, pelvic neuralgia, or

even for ulcer and carcinoma of the stomach, or cholelithiasis. Sometimes differentiation is simply impossible. These adhesions form more frequently in the ileocecal region than elsewhere.

19.—See The Journal of Oct. 22, 1904, p. 1265.

21. **Tumor and Heredity.**—An interesting case is cited by Radasch. The patient, a girl, new-born, had a turnip-shaped growth at the second joint of each little finger connected to the skin by a short pedicle. A few days after birth one of these tumors was accidentally pulled off. Its stump bled freely, showing that the vascularity of the tumor was considerable. Investigation of the family history disclosed that the mother at birth possessed just two such tumors on the outer surface of each little finger at the second joint. Her mother at birth also possessed such tumors. The wall of the tumor was comparatively thick. The tumor mass was dark red and appeared to be attached to the wall at one point and was much smaller than the tumor itself. On microscopic examination the tumor was seen to consist of epidermis, derma and central connective tissue. For about two-fifths of the circumference of the growth the epidermis was detached and formed a wall. The central mass seemed to be made up from a large number of darkly staining fibers or bundles, resembling somewhat voluntary striated muscle. The tumor, from its position, seemed to resemble a supernumerary finger, but neither cartilage nor bone was found. The central mass of connective tissue, however, responded to both the Van Gieson and the elastica stain. The tumors were transmitted through the female side and to the female only.

Medical News, New York.

April 1.

23 *Coagulation of the Blood. L. Loeb, Philadelphia.
24 *Nephritis Complicating Mumps. J. A. Miller, New York.
25 Status of Suprarenal Therapy. S. Floersheim, New York.
26 "Specific Therapy of Tuberculosis." C. Denison, Denver.
27 *Intestinal Ileus with Strangulation. R. R. Huggins, Pittsburg.
28 Case of Large Parovarian Cyst, and Two Cases of Large Ovarian Cysts. F. C. Hammond, Philadelphia.

23. **Coagulation of the Blood.**—A review is presented by Loeb of the more recent investigations regarding the coagulation of the blood, with a consideration of what is usually termed the theory of the coagulation of the blood.

24. **Nephritis Complicating Mumps.**—According to Miller, acute nephritis complicating mumps may occur in either children or adults, and is much more frequent in males than in females. The parotitis is usually double and mild in character, and the nephritis is more liable to occur during early convalescence. Exposure to cold may be a predisposing factor. The nephritis is usually moderately severe, of less than one week's duration and ending in complete recovery. Rarely it may develop into chronic nephritis, or it may be so severe as to cause death. He advises that careful examination of the urine should be made and that strict precautions against exposure should be taken in all cases of mumps, both during the acute stage of the disease and during convalescence.

27. **Intestinal Ileus with Strangulation.**—Four cases are reported by Huggins to show the marked contrast in the result between early and delayed operative treatment. The two patients operated on made a rapid and uneventful recovery, whereas the two patients treated on the expectant plan succumbed.

Boston Medical and Surgical Journal.

March 23.

29 *Treatment of Appendicitis. Can We Wait for Localization when the General Peritoneal Cavity is Involved? C. A. Porter, Boston.
30 *Remarks on Appendicitis. M. H. Richardson, Boston.
31 *Some Observations on Appendicitis. R. H. Fitz, Boston.
32 *Choice of Method of Opening the Abdomen in Appendicitis. F. B. Harrington, Boston.
33 *Immediate Operation vs. Delay in Acute Appendicitis. G. W. W. Brewster, Boston.
34 Subphrenic Abscess as a Complication of Appendicitis. H. L. Burrell, Boston.
35 Bacteriology of General Peritonitis. T. J. Manahan, Boston.
36 Results of Operative Treatment of General Peritonitis Following Appendicitis at Massachusetts General Hospital During the Past Five Years. W. C. Quinby, Boston.
37 Results of Medical Treatment of Peptic Ulcer at the Boston City Hospital. G. G. Sears, Boston.
38 Angio-neurotic Edema: Report of a Case Operated on During an Abdominal Crisis. F. B. Harrington, Boston.
39 *Observations on Pneumonia with a Report of Two Fatal Cases of Extrapulmonary Suppuration. Suggestions for Treatment. D. E. Keefe, Springfield.
40 Eclampsia. W. R. Gilman, Worcester.

29. **Treatment of Appendicitis.**—Porter's paper may be summarized as follows: Purgatives should never be given in acute appendicitis before operation. Ochsner's treatment is the best to adopt from the onset of an attack, to carry out when operation is refused, and to employ after operation in almost all cases. Until the superiority of conservative treatment has been satisfactorily demonstrated immediate operation will be urged by the majority of surgeons in most cases of acute appendicitis in all stages. The present tendency of surgery is to become more and more conservative. Conservative treatment may be advised in certain cases of acute appendicitis in which the symptoms of rapid septic absorption are out of all proportion to the evidences of peritonitis. Also, when there is evidence of recent improvement, or the condition and surroundings of the patient are unfavorable for operation. Ochsner's treatment should be advised in most cases of spreading or diffuse peritonitis when a reasonably good surgeon can not be obtained. Irrigation of the general peritoneal cavity should not be undertaken unless the conditions are such that it can be thoroughly performed. It is indicated in recently diffused processes, particularly if the previously unirritated peritoneal cavity has been suddenly infected through rupture of an abscess. It may be used in some cases of spreading infections without adhesions, though local operation is probably preferable. After irrigation the danger of increased absorption is best prevented by a tube or cigarette drain to the bottom of the pelvis or, in women, vaginal drainage, with exaggerated Fowler's position for from twenty-four to thirty-six hours. The rapidity with which local operation with pelvic drainage and Fowler's position can be performed makes it the method of choice in very serious cases, in those with marked distension, and in operations outside of hospitals. Ochsner's routine, with turpentine stupes to the abdomen, is the best treatment for the first forty-eight hours after operation.

30. **Remarks on Appendicitis.**—Richardson considers the indications for operation, the cause of death, the objection to operative treatment and the remedy for the evils of indiscriminate operating by inexperienced men. In the past year out of 112 operations he had 3 deaths. Of the total number a large majority were interval operations in which he has had as yet no deaths, although the total number is nearly a thousand. His total mortality for the past year, between 500 and 600 operations of all kinds, was 17.

31. **Observations on Appendicitis.**—The question of immediate operation versus delay is answered by Fitz as follows: The physician is justified in delay until the conditions call for an immediate operation. These may be present at his first visit or may not appear until a later period. If, after twenty-four hours, there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay.

32. **Method of Opening Abdomen in Appendicitis.**—Harrington considers McBurney's gridiron incision ideal for a large majority of the interval operations. If more room is needed the incision may be enlarged, the so-called extended McBurney incision. In nearly every case of appendicitis Harrington makes it a rule to enter the free abdominal cavity beyond the appendix and the inflammatory mass in order to examine for secondary abscesses and to determine the condition of the rest of the abdomen. If the appendix mass extends beyond the semilunar line it is better to open the abdomen by a vertical incision through the rectus sheath and separate the rectus muscle or to retract it. If it extends to the middle line or beyond, Harrington opens in the middle line. The rectus incision for the interval operation is a good one, but has the objection that if drainage is found to be necessary the oblique and transversalis muscles, when they contract, tend to spread the opening in the rectus muscle and sheath.

33. **Immediate Operation vs. Delay in Acute Appendicitis.**—Basing his deductions on the experience derived from 240 operations, Brewster concludes that delay is indicated in mild cases in which there is no doubt about the recovery without operation, and that immediate operation is indicated in all other cases of acute appendicitis.

39. **Treatment of Pneumonia.**—Keefe describes a method of treatment of which he claims to be the originator. It is his custom in treating unilateral pneumonia to give virtually no medicine. The patient is instructed to lie on the side of the sound lung, thus favoring the emptying of the vessels of the lung by means of gravitation, while ice is applied to the affected side. The medicinal treatment, especially during the first stage, should consist of: 1, One active purge; 2, wet or dry cups or leeches; 3, free use, all over the affected lung, of as strong counterirritants as can be borne comfortably; 4, veratrum viride to bleed the lungs into the abdominal and general capillaries, or the direct abstraction of blood from a vein, followed, if necessary, by infusion. A few doses of morphin may be indispensable in pleuropneumonia. Plenty of fresh air should be admitted, but the body covering should be sufficient to promote perspiration and dilatation of the superficial capillaries. He does not use digitalis, ammonia or whisky in any stage of the disease.

Lancet-Clinic, Cincinnati.

April 1.

41 *Transverse Fascial Incision for Operations in the Pelvis. E. Ries, Chicago.
42 Electro-magnet in Ophthalmic Surgery. R. Sattler, Cincinnati.
43 Penetrating Wounds of Eyeball, with Presentation of Specimens, F. W. Lamb, Cincinnati.
44 Cancer of Rectum Treated by Sigmoido-proctectomy. G. W. Roberts, New York.
45 Recent Illustrative Experiences in Abdominal Surgery. C. A. L. Reed, Cincinnati.

41.—See abstract in THE JOURNAL of November 5, p. 1409.

St. Louis Medical Review.

March 25.

46 Appendicitis; Cancer of the Breast; Empyema. R. T. Morris, New York.
47 Two Cases of Lateral and Sigmoid Sinus Thrombosis, One with Jugular Exsection. Recovery Notwithstanding Meningeal Symptoms. C. Jackson, Pittsburg.
48 Rupture of Gall Bladder (Spontaneous and Traumatic; with and Without Operation); Historical Review of 273 Cases. (Continued.) B. M. Ricketts, Cincinnati.

American Journal of the Medical Sciences, Philadelphia.

April.

49 Syphilis of Lung. T. A. Claytor, Washington.
50 Some Aspects of the Theories of Immunity. B. H. Buxton, New York City.
51 Recurrent Oculomotor Palsy. W. G. Spiller and W. C. Posey, Philadelphia.
52 Myasthenia Gravis, with Paralysis Confined to the Ocular Muscles. W. G. Spiller, Philadelphia, and E. U. Buckman, Wilkesbarre.
53 Myasthenia Gravis; A Case Involving the Eyes Only. M. Frank, Chicago.
54 Myxedema Following Exophthalmic Goiter. N. B. Foster, New York.
55 Result of Removal of Spleen. J. W. Hunter, Jr., Norfolk, Va.
56 Advances in Technic of Roentgen-ray Therapy. C. L. Leonard, Philadelphia.
57 Universal Congenital Atrichia. A. A. Eshner, Philadelphia.
58 Primary Carcinoma of Omentum with Peritonitis Carcinomatosa. A. Sturmdorf, New York City.
59 Hypertrophy and Stenosis of Pylorus in Infants. F. L. Wachenheim, New York City.
60 Dermoid of the Female Urinary Bladder. J. Block and F. J. Hall, Kansas City, Mo.
61 Two Cases of Ulcerative Perforation of Rectum Originating from a Gonorrheal Salpingitis. J. Otradovec, Chicago.
62 *Dietetic Use of Predigested Legume Flour, Particularly in Atrophic Infants. D. L. Edsall and C. W. Miller, Philadelphia.
63 Poisoning by Potassium Cyanid; Three Cases. J. I. McKelway, Long Island.
64 Eventration of Diaphragm. J. Sailer and R. D. Rhein, Philadelphia.

62. **Use of Predigested Legume Flour.**—According to Edsall and Miller, bean flour in which the starch is predigested by means of a diastatic ferment seems to be well digested and absorbed by infants and adults. An extremely concentrated food may be given in this way in fluid and partially digested form; a 20 per cent. solution, although fluid, is practically equivalent to beefsteak in nutritive value. Its influence on the digestive tract of infants in the cases studied was usually distinctly favorable, and its influence on metabolism both in infants and adults is, at least, equal to that of milk. Of fifteen infants treated one did not gain; one gained rapidly, but had an intercurrent illness and the flour was stopped; one gained nine ounces and then almost ceased to gain. The others gained as follows: One, fifteen ounces in six days; one, thirteen ounces in six days, both continuing after the bean flour gave out; one, one and a half pounds in sixteen days; one, one and a half pounds in twenty-three days; one, one and a half pounds in seventeen days; one, over two pounds in four days, and, after readmission, twelve ounces in eleven days; one, one and a half pounds in twenty days; one, twelve ounces in eleven days; one, four ounces in three days; one, one pound in seven days; one, one pound in eight days, and one, one and one-half pounds in three days. All these were atrophic infants that had previously been stationary or losing. A child of 2 years that had had persistent and very dangerous disturbance of digestion with advanced malnutrition improved immediately, the child repeatedly gaining over two pounds a week. One point that appears to be of some importance is that one can administer in this way as much as from 0.75 per cent. to 1 per cent. of proteid, a fact of decided consequence in cases in which it is difficult or impossible to administer a proper amount of milk proteid.

The Illinois Medical Journal, Springfield.

March.

65 Cure of Inguinal Hernia. M. L. Harris, Chicago.
66 Scrofulous Ulcers of the Legs. W. F. Somerville, Glasgow, Scotland.
67 Nervous Sequelæ of Influenza. J. Grinker, Chicago.
68 Epidemic Smallpox. J. J. Conner, Pana, Ill.
69 Hysteria and Neurasthenia; Diagnosis and Treatment. C. W. Rutherford, Newman.
70 Leucocytes and Their Diagnostic Significance. H. E. Monroe, Shelbyville, Ill.
71 *Accidental Perforation of Uterus. H. E. Cushing, Champaign.
72 Treatment for Fracture of Patella. M. R. Barker, Chicago.

72. **Fracture of Patella.**—Barker has devised a method for treating fracture of the patella which has proven satisfactory in 20 cases. Figure 1 shows the manner of application of the cast above the upper fragment. Beneath the roller bandage (b) next to the skin, is placed a layer of cotton wadding torn in strips and applied the same as a roller bandage. To the skin above the wadding the ends of adhesive strips are fastened, the other ends being brought over the wadding and fastened to the roller bandage. Another turn of the bandage covers the lower ends of the strip. Strips of adhesive plaster are thus worked into the bandage over the whole length of the

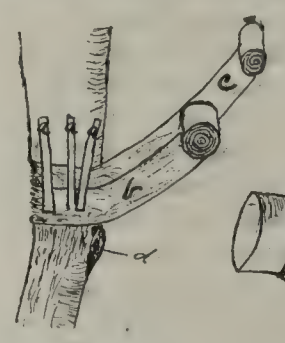


Fig. 1.

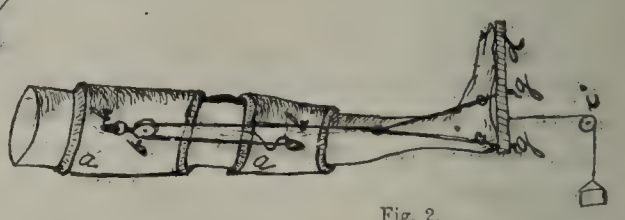


Fig. 2.

Fig. 1.—a, a, a. Adhesive strips. b. Cotton roller bandage. c. Cotton wadding bandage. d. Fractured patella.

Fig. 2.—a. a. Plaster casts. b. Pulley. h. Loops. d. Footrest and spreader. c. c. Ropes. g. g. Knots in ends of ropes. l. Pulley.

cast covering as much as possible of the quadriceps muscle. The plaster is applied over this foundation. As the plaster is applied two pieces of bandage are worked into the cast, one on each side of the leg, and brought out in loops as shown in in Figure 2. Two pulleys on each side of the leg are attached to the loops and thus fastened to the cast. A sash cord or small rope is fastened to the footrest, passed around the pulley b and fastened to the loop in the cast below the patella. The footrest is adjusted to the foot by the knots, and to it is attached a rope which passes over a pulley at the foot of the bed and which has attached to it a sufficient weight to

hold the fragments of the patella together. The cast below the patella is applied in the usual manner without the adhesive strips. The advantages claimed for this treatment by Barker are that a large portion of the quadriceps is grasped and firmly held by the adhesive strips worked into the cast, and when the cast is pulled down the upper fragment is brought down by pulling on the quadriceps rather than on the upper fragments, thus disturbance of circulation in the upper fragments is prevented. The lower casts hold the lower fragment firmly. The inconvenience of a long posterior splint is avoided and the patient is comfortable all the time and may be turned on his side. The apparatus is inexpensive and can be applied in a short time. The method does not take the place of the open method with sutures when that is indicated, but where the open method can not be used for any reason this one is the best.

Northwest Medicine, Seattle, Wash.

March.

73 Brain Cysts, with Report of Two Cases. W. House, Portland, Ore.

Iowa Medical Journal, Des Moines.

March 15.

74 Pleural Empyema. A. M. Pond, Webster City.
75 Some Advances in the Treatment of Urinary Diseases. G W. Jones, Keokuk.
76 Pneumonia. J. K. Milbourne, Clinton.
77 Cancers. G. G. Burdick, Chicago.
78 Case of Neurasthenia. F. S. Spearman, Whiting.

The Medical Sentinel, Portland, Ore.

March.

79 Concerning Genito-Urinary Tuberculosis; Report of Five Cases. G. S. Whiteside.
80 Should the Plea of Insanity Shield the Culprit in the Commission of Crime? J. L. Hill.
81 Henoch's Purpura. S. E. Josephi, Portland.
82 Treatment of Fractures. G. F. Wilson, Portland.

The Medical Herald, St. Joseph, Mo.

March.

83 Type of Operation in Gall-Bladder Disease. B. B. Davis, Omaha, Neb.
84 Control of Tuberculosis. H. M. Bracken, Minneapolis, Minn.
85 Nerve Injury Following Pressure and Mild Trauma. C. R. Whitney, Fonda, Iowa.
86 A Few Conditions of Importance Incident to Acute Phases of Insanity. J. M. Barstow, Council Bluffs, Iowa.
87 Observations on Surgery of Kidney. D. S. Fairchild, Clinton, Iowa.
88 Etiology and Treatment of Hypospadias. A. C. Stokes, Omaha, Neb.
89 Early Passive Motion and Massage in the Treatment of Fractures Involving Joints. F. H. Hornibrook, Cherokee, Iowa.

Woman's Medical Journal, Toledo, Ohio.

March.

90 Gastro-Enteric Infection. L. K. Hutchins, Freeport, Ill.
91 Diagnosis and Management of Transverse Presentation in the Later Months of Pregnancy. C. J. Baker, San Diego, Cal.

The Journal of Cutaneous Diseases, New York.

March.

92 Fordyce's Disease. C. J. White.
93 The Mould of Dermatitis Coccidioides. D. W. Montgomery.
94 Multiple Sebaceous Cysts: A Case. A. McPhedran, Toronto.

Cleveland Medical Journal.

March.

95 Clinical Report of Nine Cases of Diabetes Insipidus. T. B. Futcher, Baltimore.
96 Diagnosis and Treatment of Intestinal Perforations in Typhoid. R. H. Harte, Philadelphia.
97 The Typhoid Mortality of Cleveland for the Year 1904. G. W. Moorehouse.
98 Subcutaneous Injection of Paraffin in Facial Deformity and in Atrophic Rhinitis. S. H. Large, Cleveland.

Canada Lancet, Toronto.

March.

99 Sketch of the Beginning of Medical Education in York (Toronto). W. B. Geikie, Toronto.
100 Arthritis Deformans. F. W. E. Burnham, Winnipeg.
101 Progress of Medical Science During the Past 35 Years. W. H. Moorhouse, London, Ont.
102 Pharmacology—General Consideration of the Modifiers of Nutrition. Prof. Pouchet, Paris.
103 The Home in Its Relation to the Tuberculosis Problem. W. Osler, Baltimore.
104 Goiter in a Newborn Child. W. T. Burns, Toronto.
105 Eyestrain from the Physician's Point of View. G. H. Burnham, Toronto.

Journal Missouri State Medical Association, St. Louis.

March.

106 Phlebitis Following Abdominal and Pelvic Operations. R. M. Funkhouser, St. Louis.
107 The Seborrheic Process. J. Grindon, St. Louis.
108 Case of Hydrophobia. B. A. Wilkes, St. Louis.
109 Pulmonary Tuberculosis with Special Reference to Its Early Diagnosis and Home Treatment. J. T. Anderson, Leeton, Mo.
110 Medical Treatment of Appendicitis. E. F. Hauck, St. Louis.
111 Pneumonia. John D. Seba, Bland, Mo.

Memphis Medical Monthly.

March.

112 Puerperal Eclampsia. C. A. Turner, Dyersburg, Tenn.
113 Puerperium. I. A. McSwain, Paris, Tenn.
114 What Is the Value of a Urine Examination? W. Krauss, Memphis, Tenn.
115 Water Internally, an Aid to Secretion, Elimination and Digestion. T. J. Happel, Trenton, Tenn.
116 Perineal Prostatectomy—Report of a Case. A. A. McClendon, Marianna, Ark.
117—Hemophilia—Report of a Case. D. A. Mohler, Lake Village, Ark.
117½—Id. F. J. Runyan, Clarksville, Tenn.
118 Periodical Vomiting and Dyspepsia. M. Goltman, Memphis, Tenn.

The Journal of the Kansas Medical Society, Lawrence.

March.

119 Eye Malingering. J. S. Weaver, Kansas City.
120 The Perineum. J. E. Hunt, Atchison.
121 Management of Breech Presentations. H. J. Stacey, Leavenworth, Kan.
122 Nasal Obstructions. J. E.. Sawtell, Kansas City, Kan.
123 Immunity. (Continued.) G. H. Hoxie, Lawrence, Kan.
124 Chorea. S. S. Glasscock, Kansas City.
125 The Consultant, Conventional and Ideal. O. P. Davis, Topeka, Kan.

Buffalo Medical Journal.

March.

126 What Medicine Is Accomplishing To-day. H. D. Wey, Elmira, N. Y.
127 Practical Use of the Ophthalmometer. L. Burrows, Buffalo.
128 Electro-Magnet in Eye Work. A. C. Snell, Rochester.
129 New Genitourinary Table. E. W. Ruggles, Rochester.

Journal of the Mississippi State Medical Association, Vicksburg.

March.

130 Treatment of Lobar Pneumonia. W. C. Brewer, Columbus.
131 Pseudo-Diphtheria. E. W. Flowers, McComb City.
132 Influenza, Lagrippe or Russian Fever. W. H. Doty, Blackhawk.

Northwestern Lancet, Minneapolis.

March 15.

133 Headache: Cause and Cure, with Illustrative Cases. E. F. Reamer, Mitchell, S. Dak.
134 Undescended Testes: Report of Cases. W. Courtney, Brainerd, Minn.
135 Some Principles of Modern Treatment of Curvature of Spine. E. S. Geist, Minneapolis.
136 Removal of Iron and Steel from Parts of the Body Other Than the Eye by the Use of the Giant Magnet; Report of Two Cases. F. C. Todd, Minneapolis.

New Orleans Medical and Surgical Journal.

March.

137 Etiology of Acute Prostatic Inflammation and Suppuration. G. F. Lydston, Chicago.
138 Is the Etiology of Tubercular Adenitis and Hodgkin's Disease Identical? J. R. Briggs, Dallas, Texas.
139 Value of Antiblennorrhagic Drugs in Gonorrheal Urethritis. A. Nelken, New Orleans.
140 Diagnosis and Medical Treatment of Cholelithiasis. J. A. Storck, New Orleans, La.

Atlanta Journal-Record of Medicine.

March.

141 Causes of Appendicitis. J. N. LeConte, Atlanta.
142 Tuberculosis. J. R. Briggs, Dallas, Texas.
143 The Doctor, the Child and the Community. M. McH. Hull.
144 Need for Medical Organization in Georgia. J. N. McCormack, Bowling Green, Ky.

Dominion Medical Monthly, Toronto.

March.

145 Surgical Treatment of Renal Tuberculosis. H. A. Kelly, Baltimore.
146 The Finsen Light, Roentgen Rays and High-Frequency Currents in the Treatment of Skin Diseases. G. Chambers, Toronto.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

March.

147 Radium: Its Radiations, Physical, Chemical and Mental. W. H. Taylor, Richmond, Va.
148 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond, Va.

Texas Medical Journal, Austin.

March.

149 Modern Therapeutics and Pharmacy. F. Hadra, San Antonio.
150 Reminiscences of an Old Doctor. J. M. Fort, Paris, Texas.
151 Etiology and Treatment of Puerperal Eclampsia. F. S. Martin, Beaumont, Texas.
152 Strangulated Hernia in Man of 85—Operation. G. Harwood, Johnson City, Texas.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

March 18.

1 Present Teaching of Practical Midwifery in England. W. R. Dakin.
2 *Some Remarks on Puerperal Infection. A. W. W. Lea.
3 Increasing Use of Lead as an Abortifacient: Thirty Cases of Plumbism. A. Hall.
4 *New Methods of Studying Affections of the Heart. James Mackenzie Burnley.

2. **Puerperal Infection.**—The method of treatment adopted by Lea is based on 120 cases. He says a rise of temperature to 101 F., not accounted for by other causes, renders a careful examination of the generative tract necessary. If no sufficient cause is found in the vagina or perineum, and if the uterus is bulky and tender, a specimen of the lochia is removed and a uterine douche given, with due precautions. In 48 consecutive cases this was sufficient in 30 per cent. to bring down the temperature rapidly to normal. For some years Lea has supplemented this by careful swabbing of the interior of the uterus with absorbent wool soaked in a solution of biniodid of mercury in alcohol, 1 in 2,000. If this procedure is inefficient, or if the infection is severe, from the first, the uterus is explored with the fingers, preferably under chloroform anesthesia. If the cavity is perfectly smooth, showing an absence of retained products or of decidua—a condition which is rare—the uterus should be thoroughly swabbed out with the biniodid or some strong antiseptic solution, and packed with iodoform gauze soaked in an antiseptic. If a piece of placenta is found this should be removed, followed by swabbing and gauze packing. If the cavity is large and the surface irregular, due to hypertrophied and necrotic decidua, the patient's safety can only be insured by its complete removal. This is most efficiently done by the use of a suitable curette. Vaginal section may be done as supplementary to curettage if symptoms of pelvic peritonitis are present. If the uterus contains placenta or débris, accompanied by grave infection, hysterectomy is much more dangerous than curettage, and packing should never be done. The best results from hysterectomy have been obtained in cases of periuterine suppuration, gangrene of the uterus, or necrotic myomata.

4. **New Methods of Studying Heart Affections.**—In this paper Mackenzie discusses the action of digitalis on the human heart, particularly in regard to rhythm. He found that if the stimulus conduction or "dromotropic effect" of the heart muscle is normal, digitalis can not affect it. He has pushed the drug in many cases until other functions of the heart were affected, and until severe gastric disturbances resulted, without the slightest sign of conductivity being delayed. When conductivity is depressed digitalis may still further depress this function with great readiness. Patients suffering from slight depression of conductivity for years, with a regular heart rhythm, are exceedingly susceptible to the influence of digitalis, and a very small quantity of the drug may produce an arrhythmia due to the dropping out of the ventricular systoles. The auricle continues to contract with perfect regularity, but the stimulus occasionally fails to cross the fibers that connect auricle and ventricle.

The Lancet, London.

March 18.

5 Industrial Anthrax. T. M. Legge.
6 Physiology and Treatment of Surgical Shock and Collapse. J. P. Lockhart, Mummery.
7 Changes Produced by Inflammation in the Conjunctiva. M. Stephen, Mayou.
8 *Nature and Treatment of Epilepsy. W. A. Turner.
9 Mental Faculty in the Child; Its Growth and Culture. F. Warner.
10 *Acute Encephalitis and Perforation of the Sigmoid Flexure in Typhoid. J. McCrae.

8. **Nature and Treatment of Epilepsy.**—Speaking of epileptic equivalents, a term which really signifies a psychical state that in some degree takes the place of an epileptic seizure, Turner says that it is necessary to distinguish between postparoxysmal psychoses, or mental phenomena, following convulsive seizures, and psychical epileptic equivalents, or phenomena taking the place of ordinary epileptic seizures. The occurrence in the family history of similar or of allied conditions, interchangeable with forms of genuine epilepsy, or their association in the same person with the classical types of epilepsy, and the existence of definitely epileptic characteristics, such as sudden onset, transitory duration and irregular periodicity, may be accepted as sufficient reasons for regarding psychical clinical manifestations as epileptic equivalents. The best known and the most striking form of epileptic equivalent is that which is described as automatic wandering or epileptic ambulatory automatism. The condition more closely resembles the somnambulistic state than any other; so much so that some states of somnambulism in adults appear to be epileptic in character. Turner says that the condition known as narcolepsy, or periodical falling asleep, should also be regarded as an epileptic equivalent, and the close relation which exists in some cases between epilepsy and migraine leads him to the belief that some forms of migraine should be classified as epileptic equivalents. The scientific treatment of epilepsy should consist in more than an endeavor to subdue the convulsive element of the disease by drugs. As far as the treatment of the seizure is concerned, there is no single specific remedy, although the bromids come nearest to this definition; however, the influence of bromid salts on epileptic fits is variable. Bromid medication may arrest the seizures immediately or within a brief period of their administration. If any case is capable of arrest by treatment a satisfactory response will be apparent soon after the commencement of bromid treatment. Of 86 cases in which the fits were arrested for periods varying from two and a half to twenty-five years, rather more than 50 per cent. yielded to treatment within the first twelve months of regular bromid medication. Bromids may lessen the severity and frequency of the attacks, may change the time incidence of the seizures, or may exert no influence at all or may even make the attacks worse. The treatment should be commenced at the earliest possible time after the onset of the attacks and should be continued as long as is necessary in each case, but not less than two years. If benefit does not follow a daily dose of from 45 to 60 grains of one, or a combination of the bromid salts, some other remedy should be sought. Turner does not approve of large doses of bromids. The grand mal seizure is most amenable to their influence, the petit mal attacks and psychical equivalents being little influenced. In serial epilepsy and in the status epilepticus, chloral in combination with the bromids forms the most effective remedy, while in the postparoxysmal psychoses the bromids are of little service. Of the several forms of diet recommended in epilepsy, Turner has found that of salt starvation the most satisfactory. There are some cases in which the number of attacks is diminished during the continuance of the treatment, and others in which the improvement lasted after the diet was stopped. The chief disadvantage of the diet is its monotonous character, but as a relief to dyspeptic symptoms, it has been found distinctly useful. The chief feature of the method lies in the diminution of the bromid dose, from 20 to 30 grains of one of these salts at bedtime being sufficient. The most satisfactory management of the disease, says Turner, is that which is carried out in special institutions or under the care of a well-trained and sensible nurse or attendant. As important as therapeutic remedies, are congenial employment, hygienic modes of life and suitable amusements.

10. **Unusual Occurrences in Typhoid.**—The first case cited by McCrae developed a diphtheritic sore throat on the seventh day, the cultures giving a growth of diphtheria bacillus. On the thirteenth day blood culture gave a pure growth of the typhoid bacillus, and the Widal reaction was present. Death occurred on the fourteenth day. At the autopsy it was found that the entire left temporo-sphenoidal lobe of the brain was occupied by a soft dark red mass very definitely marked off from the surrounding tissue. Sections through the

brain tissue showed much blood, no evidences of nuclei of the original tissue and a general necrosis with hemorrhage into its site. The usual lesions of typhoid were also found. All the organs showed gas bubbles; in fact, the body was bloated beyond recognition by the effects of the *Bacillus aerogenes capsulatus*. The second case gave a positive Widal reaction on the ninth day. Abdominal pain was complained of on the eleventh, twenty-sixth, twenty-eighth and twenty-ninth days of the disease. There was tenderness and slight distension of the whole abdomen, but no rigidity. An hour later the pain in the lower abdomen was very severe, rigidity and tenderness were present all over the abdomen, and a diagnosis of perforation was made. A small perforation was found in the sigmoid flexure, which was repaired. The patient died a few hours later.

Journal of Tropical Medicine, London.

March 15.

11 Case of Mycetoma. G. A. Williamson.
12 Endemic Enlargement of Os Calcis in Formosa. J. L. Maxwell.
13 Measles Epidemic in Fiji during 1903. G. W. A. Lynch.

Intercolonial Medical Journal of Australasia, Melbourne.

February 20.

14 *Volvulus After Appendectomy. R. A. Stirling.
15 A Tack in the Right Bronchus for Nine Months. A. J. Wood.
16 Half-penny in Esophagus for Seventy-six Days. H. D. Stephens.
17 *Value of Ergot in Midwifery. J. W. D. Hooper.
18 Insolation in Infants. W. H. Summons.
19 Early Tubal Pregnancy; Abortion; Recovery. J. W. D. Hooper.

14. **Volvulus After Appendectomy.**—Stirling cites two cases of volvulus occurring after appendectomy. The first patient, seven weeks after the operation, when apparently quite well and walking about, suddenly felt a severe pain in the epigastrium. The next day he began to vomit, constipation became absolute and remained so for six days. On opening the abdomen a number of adhesive bands were seen stretching between the lower part of the ileum and the lateral wall of the iliac fossa. The dilated ileum filled the whole pelvis and was twisted into a horseshoe-shaped mass. The obstruction was readily overcome by untwisting the dilated coils, the operation was concluded in the usual way and the patient made a rapid and uneventful recovery. The second patient had had two previous attacks of appendicitis and was operated on in the "cold stage." On the evening of the ninth day she complained of pain in the epigastrium, later vomiting, with great prostration and absolute constipation. On opening the abdomen the small intestine was found to be everywhere distended and congested, and at the cecal region a collapsed loop of ileum was found adherent to the cecum, being glued to it by a wide band of omentum. The pelvis was completely filled with a volvulus of the small intestine, so dilated that, in one part, the serous coat had given way for several inches. This patient also recovered.

17. **Ergot in Obstetrics.**—In secondary hemorrhage, due to separation of thrombi in the uterine vessels, not associated with deciduoma malignum, Hooper believes that the free administration of ergot and strychnin hypodermically are necessary. For posthemorrhagic shock ergot must not be used, reliance being placed on increasing the fluid in the blood vessels by transfusions of normal, sterilized salt solutions, and stimulating the heart by strychnin and alcohol. In uterine inertia; during the second stage of labor, it is wise not to give ergot, but to secure a sound sleep for the patient, to empty the bladder and rectum, and to apply forceps early, so as to lessen the risk of hemorrhage. The preparations of ergot which have given Hooper most satisfaction are Tanret's ergotinin, dose 5 to 10 minims, injected into the muscle; its active principle is said to be cornutin, and it is seldom followed by suppuration at the site of puncture; or a dose of 1/30 of a grain of citrate of ergotinin administered in similar manner; and asepticized ergot, administered hypodermically. Ergot should never be administered until the source of the hemorrhage is accurately ascertained. It is unwise to give ergot to a patient who has renal inadequacy, or a diminished output of urea or albuminuria. By greater care during the puerperium, and especially by not allowing the second stage to be unduly prolonged, there is little reason to fear hemorrhage during the third stage or later; and if it does occur, and the uterus contains no retained portions of placenta or membranes, Hooper uses the hot water irrigation of the uterus advocated by Milne-Murray, supplemented by firm control of the fundus uteri through the abdominal wall, and then, he says, an injection of ergotinin may be given into the gluteus muscle.

Presse Médicale, Paris.

Last indexed page 506.

20 (1905, No. 1.) Fièvre typhoide galopante. H. Roger and M. Salomon.
21 *Pathogénie et traitement du rhumatisme chronique articulaire. C. Parhon and J. Papinian.
22 *Insuccès apparents ou momentanés de la digitale. Rouslacroix.
23 (No. 2.) *Les neurofibrilles d'après la méthode et les travaux de S. Ramon y Cajal. L. Azoulay.
24 Traitement du catarrhe de la trompe d'Eustache par l'air chaud (hot-air treatment of eustachian tube). M. Lermoyez and G. Mahu.
25 Metal Tape Tourniquet.—Nouvel appareil hemostatique stérilisable permettant de régler et de vérifier l'hemostase. R. Lhomme.
26 (No. 3.) *Rupture traumatique de la rate (of spleen). M. Auvray.
27 Le réflexe cutané abdominal au cours de la fièvre typhoide et de l'appendicite chez l'enfant (in children). J. A. Sicard.
28 (No. 4.) *L'ulcère malgache. Ulcère phagédénique des pays chauds (tropical ulcer). Fontoynont and E. Jourdean.
29 *Les sérums non spécifiques dans le traitement des tumeurs. Tuffier.
30 *Thérapeutique physique des hémorrhoides et de leurs complications. A. Zimmern.
31 (No. 5.) Tics et sommeil (sleep). R. Cruchet.

21. **Thyroid Treatment of Chronic Articular Rheumatism.**—A man of 47 had long suffered from pain and stiffness in the knees and other joints. Of all the various measures to relieve him of this trouble and also of an annoying eczema, large doses of sodium bicarbonate proved the most successful for a time, but they induced dyspeptic disturbances. The constant sensation of cold, dryness of the skin and the hypoazoturia suggested the possibility of thyroid insufficiency, and under thyroid treatment marked improvement was soon apparent. The pains vanished, the skin became soft and moist and the nails grew normal. Lancereaux, Claisse and others have reported similar success with thyroid treatment in certain cases of chronic articular rheumatism. The defective functioning of certain organs with an internal secretion, such as the thyroid and ovary, may have more to do with the origin of certain cases of articular rheumatism than has been recognized hitherto. Parhon remarks that there seems to be an antagonism between the ovary and the thyroid. When the function of one is defective or suspended altogether, then the functioning of the other becomes exaggerated. In regard to the production of urea, however, both of these organs favor its formation or its elimination. The proportion eliminated in the urine is diminished in case of both thyroid and ovarian insufficiency. This diminished output of urea may be a favorable condition for the development of chronic rheumatism. He is convinced that the thyroid gland takes some active part in the assimilation of lime, while the ovary favors its disassimilation. Hypofunction of the thyroid gland provides favorable conditions for the development of chronic rheumatism and also of certain forms of nephritis. A nephritic with edema, oliguria, albuminuria and low freezing point of the urine was put on thyroid treatment with the result that the amount of urine increased from 300 to 1,700 gm. and the albuminuria dropped from 6 gm. to zero. Viala has called attention to the action of thyroid treatment in the stimulation of the circulation, increase in the secretions and in the elimination of organic effete matters, reduced weight in proportion to the superactivity of the metabolic processes, and the attenuation or disappearance of the joint symptoms.

22. **Digitalis.**—"Not too much nor too little, nor too long nor too continuously" was Huchard's maxim in regard to digitalis. His "digitalis test" is the giving of 25 drops of digitalin in every case of arterial or endocardial cardiopathy when compensation begins to fail. If the test is negative,

that is, if the heart does not show any tonic effect from it. then other heart tonics are required, strophanthus or spartein. Rouslacroix outlines treatment as follows: In case of transient trouble, with a resistant myocardium, he gives large doses of digitalis in progressively smaller doses (constant effect). This is followed by a period of repose on a milk diet, returning to the digitalis in case of a new attack of asystolia. In case of chronic trouble, with a degenerated or sclerotic myocardium, he commences with the digitalis test and if the myocardium does not respond properly to the test he gives spartein and strophanthus alternately for a week. When the heart has been steadied, he then gives the digitalis in a single large dose (25 to 50 drops in two doses), then follows with repose on a milk diet. Whenever the myocardium shows signs of wavering, then the heart tonics should be resumed first, and later the digitalin. The official digitalin to which he refers contains 1 mg. of active principle in 50 drops of the alcoholic solution. He cites an instructive case to show how digitalis failed at first, but after the interposition of the heart tonics then the digitalis was able to exert its specific action and the patient was kept in comparatively good health by resumption of this alternate medication at need, with intervals of repose.

23. **Cajal's Study of Neurofibrils.**—Azoulay has published four preceding articles on this subject, in Nos. 59, 68, 74 and 80 of the last volume. The illustrations show the neurofibrils in the leech. The delicate neurofibrils all have their obvious use and he was unable to detect anything like the terminal. elementary, smaller fibrils which Apathy has reported. Even if they do exist, Cajal says, they must be enclosed in a sheath of cellular protoplasm like all the others. This sheath prevents the direct contact of the neurofibrils with each other. If the neurofibrils inside the sheath conduct, it can only be by a kind of induction. This is the same dilemma of pure physiology which confronted him in his study of the neurofibrils in vertebrates.

26. **Splenectomy by Resection of Cartilaginous Edge of Thorax.**—Auvray has cured 2 patients with ruptured spleen by prompt splenectomy, and 8 similar cases have been published in France. as he relates. In 2 other cases, the same intervention followed wounds of the spleen. He advocates his technic as affording better access and better postoperative results. He commences with a median incision and then carries it around under the costal arch. He then cuts the cartilage of the ninth rib with scissors and raises each stump, detaching from it the muscles attached to its rear surface. He gives his reasons why this severing of the cartilage is more effectual for the purpose than resection of the ribs. He resected the cartilaginous margin of the thorax for an extent of 10 cm. in his last case, and recovery after the splenectomy was remarkably rapid and smooth.

28. **Successful Phototherapy of Phagedenic Ulcers.**—Fontoynont reports nearly 400 cases of "Madagascar sore" treated at Tananarivoo during the last seven years. He is positive that these phagedenic ulcers are identical with the hospital gangrene of former centuries. He noted that the ulcers merely cleaned and exposed to the air healed better than those under dressings. Healing was much facilitated by painting the lesion with a 5 per cent. solution of eosin, and then exposing it to the sunlight all day, protecting it with a dressing at night. The chemical rays filtered through thick clouds seem to display the most curative power in this respect.

29. **Non-Specific Serums in Treatment of Tumors.**—Tuffier writes to emphasize the unmistakable effect on phagocytosis of any and all of the curative serums in vogue. Any one of them injected in turn into a cancer patient causes retrogression of the lesions to a certain extent and improvement in the clinical picture. The effect is slighter and more transient with each serum, until finally no influence is appreciable and the disease continues its inexorable course, possibly more rapidly than if the serum treatment had not been instituted. All these serums affect the number of leucocytes, inducing a superleucocytosis which is at first pronounced and lasts for a time. It grows constantly less and less decided and more transient as the injections of the same or of any other serum are repeated.

30. **Physical Treatment of Hemorrhoids and Their Complications.**—Among the measures suggested is the cultivation of the habit of defecation before retiring as hemorrhoids are more apt to subside in bed. The congestion may be relieved by having the anal region raised a little above the plane of the bed. In acute exacerbations, this alone will sometimes cure in two or three nights. A cool or cold sitz bath is indicated in case of inflamed and bleeding hemorrhoids. When the congestion prevents defecation, it may be found useful to sit on a vessel full of very hot water. Raynaud even advises searing the hemorrhoids by sitting on a vessel containing a burning piece of amadou (punk) or other tinder. Active movements of the abdominal region should not be allowed to persons with hemorrhoids, as such movements increase the abdominal pressure and oppose the reflux of venous blood. The only beneficial active movements of this region are those involving the muscles of the floor of the perineum. The patient reclines on the bed, partly sitting up, with supports for his heels and shoulders. Another person pushes his knees apart and the patient is told to try and bring his knees together at the same time also to lift his hips above the bed. Electricity has proved very effectual for the cure of hemorrhoids. The high frequency applications are most effectual. Two or three sittings of three minutes each will relieve the pain in acute cases, and the hemorrhoids will subside. In chronic cases Zimmern gives sittings for alternate weeks. The high frequency applications are especially effectual in case of pruritus and sphincteralgia. He remarks in conclusion that the uniformly fine results attained in the latter condition have established the superiority of electricity over all other known medical and surgical measures for anal fissure with sphincteralgia.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 1072.

32 (XLIV, No. 3.) Die Bruch-Operationen und deren Dauerresultate von 1896-1903 (herniotomies and remote results). Cluss (Wörner's clinic. Schw. Gmünd).
33 Operative Behandlung der Elephantiasis der Beine (of legs). G. Schmidt (Mikulicz' clinic, Breslau).
34 Traumatische Luxationen im Talo-crural-Gelenke. H. Ebel (Prague).
35 *Total-Exstirpation der Harnblase und die Versorgung der Ureteren (care of ureters after removal of bladder). T. Goldenberg.
36 Zur Diagnose und Therapie der Oesophagus-Divertikel. O. Bickel (Kümmell's service, Hamburg). One case.
37 Spiralbrüche an den langen Röhrenknochen der unteren Extremität (spiral fractures of long bones of leg). M. v. Brunn (von Bruns' clinic, Tübingen).
38 Saber-shaped Tibia in Hereditary Syphilis.—Zur Säbelscheidenform der Tibia bei S. hered. tarda. E. Finckh.
39 Beitrag zum Wesen der congen.-syph. "Tibia en lame de sabre." H. Moses (Königsberg).
40 Isolated Bullet Wound of Pancreas Cured by Operation.—Isolierte Schussverletzung des Pankreas, durch Op. geheilt. A. Becker.
41 Treatment of Cicatricial Stricture of Trachea.—Behandlung der Narbenstrikturen des Luftrohrs und die Mangoldt'sche Laryngo-Tracheoplastik. von Hacker (Graz).

35. **Total Removal of Bladder.**—Goldenberg epitomizes 25 cases from the literature and describes another from Garré's clinic. The operation was undertaken on account of malignant disease in nearly every case. The various technics, especially for care of the ureters afterward, are reviewed and compared, with the early and the remote results.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed page 1074.

42 (LXXV, Nos. 5-6.) *Remote Results to Date after Radium Treatment of Carcinoma.—Ueber die bisherigen Dauerresultate nach Radiumbehandlung von Carcinomen. A. Exner (Vienna).
43 *Outcome of Diffuse Peritonitis following Perforation of Ulcer in Stomach or Duodenum.—Heilungsresultate bei Peritonitis diffusa im Anschluss an acut in die Bauchhöhle perforiertes Magen-oder Duodenalulcus. P. Bonheim.
44 Exposure of Posterior Section of Urethra Without a Guiding Sound.—Freilegung des hinteren Abschnittes der Urethra von der Prostata ohne Leitsonde bei der Urethrotomia externa. F. Forgue (Montpellier).
45 Zur Urethra-Plastik. Reichel (Chemnitz).
46 Die Radikal-Operation der chronischen Kieferhöhleneiterung (maxillary sinusitis). Dreesmann.
47 Ascending Invagination.—Ueber aufsteigende Darmeinstülpung. N. Damianos.
48 Experimentelle Beiträge zur Anatomie und Pathologie des Gelenkknorpels (articular cartilage). R. Seggel. (Continued.)

49 *Heilung der Oesophago-tracheal-Fisteln (new esophagus suture). D. v. Navratil (Budapest).
50 *Zur Frage der Sterilität der Haut (of skin). P. Klemm (Riga).

42. Radium Treatment of Cancer.—Exner describes a case of carcinoma in the cheek of a woman of 73 which had been declared inoperable by some surgeons while others thought it might be removed by sacrificing part of the upper and lower jaw. The growth was treated with radium daily for a month, then curetted, and the radium rays applied again both from inside and outside the cheek for twelve days. Healing and cure progressed rapidly and there have been no signs of recurrence during the more than twelve months since. The ready dosability of radium is one of its advantages over the x-rays. He found that rubber absorbs the radium rays more than aluminum, so that he now prefers the latter metal for the holder. He grinds 60 mg. radium bromid with about 1.5 c.c. xylol and adds 2 drops of dammar. This mixture is then placed in an aluminum box, about 1.5 cm. square. The radium dust settles to the bottom very evenly when stirred. After evaporation of the xylol, a few more drops of dammar are added and a hard rubber cover is fitted into the aluminum box, strengthening its thin walls. For cavities he uses a similar box made in the shape of a cone. The strength of the radium is equivalent to 12 Holzknecht unities in four hours.

43. Diffuse Peritonitis After Perforation of Ulcer in Stomach.—Bonheim presents the clinical histories of 16 cases of perforation of an ulcer in stomach or duodenum. An operation was undertaken in every instance and 9 of the patients recovered. The interval before operation in the cured cases was generally less than twenty-four hours, but in one it was four days, in another twenty-six hours, and in a third, forty-eight hours. One patient succumbed to ileus a few hours after the perforation. The 6 duodenum cases were all in males, and only one recovered. In the majority of the cases, the ulcer had not been previously diagnosed. Bonheim attributes this fine result of more than 50 per cent. recoveries to his practice of systematic intravenous infusion of large amounts of physiologic salt solution or Ringer's solution during and after the laparotomy to counteract the "internal hemorrhage" induced by the peritonitis with consequent heart weakness.

49. New Suture for Esophagus.—Navratil relates that experiments on dogs and on the cadaver to make and then to cure a fistulous opening between the esophagus and the trachea have proved successful. He ligated the arteries in the thyroid gland and then detached the gland to render it movable. The next day he drew the gland to the point where the sutures had been applied in the esophagus and trachea, and thus reinforced them by the body of the thyroid gland. The dog thus treated was completely cured in a few days, the wound in the esophagus having rapidly healed by primary intention. By this utilization of the thyroid even large defects in the esophagus might be stopped. He used a rubber button to keep the fistula open. The thyroid gland was fitted in between the sutures in the trachea and esophagus and was held in place with a tampon and a few sutures in the skin. Recovery was rapid and complete and the anatomic healing and conditions were found ideal when the animal was killed two months later.

50. Sterility of the Skin.—Klemm admits that no means are known to date by which we are able to render the field of operation absolutely sterile. All other factors that make for asepsis can be controlled, but implantation infection from the ordinary germs always found on the skin, is the vulnerable point in our present surgical technic.

Münchener med. Wochenschrift, Munich.

51 (LII, No. 8, February 21.) Relations between Toxic Action of Cantharidin on Kidneys and Reaction of Urine.—Beziehungen zwischen der Giftwirkung des Kantharidins auf die Nieren und der Reaktion des Harns. A. Ellinger.
52 Zur bakteriologischen Diagnose. Gossner.
53 Raw or Boiled Milk?—Rohe oder gekochte Milch? H. Brüning (Leipsic).
54 Zur Behandlung des Ulcus cruris und seiner Ursachen. H. Vörner.
55 Epidemie der tropischen Malaria in Mostar (Bosnia). R. Fibich.
56 *Zur therapeutischen Verwendung des Sauerstoffs (oxygen). Cnopf.
57 Sodium phenylpropiolate in Laryngeal and Pulmonary Tuberculosis.—Inhalation von phenylpropiolsaurem Natron gegen Kehlkopf- und Lungentuberkulose. Bulling.
58 Gastric Catarrh and Administration of Hydrochloric Acid.—Zur Therapie des akuten und chronischen Magenkatarrhs und eine Form der Salzsäuredarreichung. F. Weitlaner.
59 Sepsis, verursacht durch Empyem der Nasennebenhöhlen (of nasal sinuses). Kretschmann.
60 Drillingsgeburt bei einem Uterus bicornis unicollis (triplets). A. Dreyfuss.
61 Torsion des Samenstranges (spermatic cord). H. Klinger.

56. Oxygen in Therapeutics.—Cnopf relates the details of a few cases in which inhalation of oxygen proved an actual life-saving measure. One patient was a child with laryngeal diphtheria and pneumonia. Tracheotomy was impossible on account of the suffocation at the slightest attempt to move the child. Inhalation of oxygen, however, quieted the symptoms to a remarkable extent and allowed tracheotomy to be undertaken and very easily carried through, with the ultimate recovery of the patient. In 2 other cases inhalation of oxygen had an unmistakably favorable effect on attacks of cardiac asthma in children. One of these children died suddenly soon after. It was found lying quietly and had not altered its position. Death must have been due to sudden arrest of the heart action. The thymus was found enlarged, with a small pus-filled cavity in the center.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed page 1075.

62 (XVIII, No. 9.) Beitrag zur Ernährung und Behandlung der chronischen Nierenerkrankungen (kidney affections). Lenné (Neuenahr).
63 Apparatus for Applying Kerosene to Stagnant Water.—Ueber Vernichtung der Larven und Nymphen der Culiciden und über einen Apparat zur Petrolierung der Sümpfe. B. Galli-Valerio and J. R. de Jongh (Lausanne).
64 Unguentum Credé in der Augenheilkunde (in ophthalmology). W. Feilchenfeld.
65 Malz-Extrakt ist ein wertvolles Nährmittel (malt extract a food). A. Wolff.
66 (No. 10.) Serum Treatment of Anthrax.—Zur Milzbrandtherapie mit Versuchen über die immunisierende Wirkung des Serums. R. Gonser.
67 Serum Treatment of Puerperal Fever.—Behandlung des Wochenbettfiebers mit Antistreptokokkenserum. H. Pilcer and M. Eberson.
68 Treatment of Detachment of Retina.—Zur Therapie der Netzhautabhebung unter bes. Berücksichtigung der Skleralresektion zur Heilung derselben. P. Schultz.
69 Zur Heilung der Unterschenkelgeschwüre (leg ulcers). Engelbrecht.
70 Ueber die Behandlung von Deformitäten mit Hilfe elastischer Heftpflasterzugverbände (adhesive plaster traction bandages). J. L. Beyer (Dresden).
71 Physikalisch-chemische Grundlagen für die therapeutische Beurteilung der Mineral Wässer (waters). M. Roloff (Halle). (Commenced in No. 9.)
72 (No. 11.) Zur Behandlung des Keuchhustens (whooping cough). Stepp.
73 Antiseptische oder mechanische Händedesinfektion. R. Schaeffer.
74 *Zur Behandlung des Erysipels. F. Franke (Braunschweig).
75 Subcutaneous Removal of Tuberculous Lymph Glands in Neck.—Ueber die Entfernung der tub. Lymphdrüsen aus dem Halse auf subkutanem Wege. J. Miclescu.
76 Ueber die bisherigen Resultate mit der elektromagnetischen Behandlung. E. Lindemann.
77 Treatment of Pulmonary Affections by Way of the Intestines.—Behandlung der Tuberkulose (und andere Erkrankungen) der Lunge, vom Darm aus. Meyer.
78 Zur Ozena-Behandlung. M. Cramer (Coburg).
79 Das Glücksmannsche Verfahren der Oesophagoskopie. P. Danielsohn (Berlin).
80 Zur Kritik der Iodbäder (iodized baths). A. Rahn.

74. Treatment of Erysipelas.—Franke announces that he has been almost invariably successful, during the last thirteen years, in curing erysipelas with collodion and ichthyol. His aim is to compress the cocci in the tissues and to let their products accumulate without a chance to escape, hoping that this will in turn stifle the cocci. On the limbs, he applied strips of adhesive plaster. Each was about four-fifths of the circumference of the limb in length, and they were applied around the limb about 2 cm. apart, the gaps lapping, so that the constriction was not entirely circular. The erysipelas was always arrested by these constricting bands. It never progressed as far as the second strip. The same constriction is obtained on the head with collodion painted like a frame around the patch of erysipelas. Several layers are applied as it dries. The strip of collodion is about the width of a finger and encircles the patch, extending across the brow or near the hair, in front of or behind the ears and down to the neck. The patient is told not to laugh nor frown for fear of cracking the collodion, and any cracks are brushed over again at once. The patch itself is treated with ichthyol salve,

but the salve must not come in contact with the collodion to dissolve it. The skin must be cleared of grease before using the collodion. preferably with benzine. The erysipelas never encroached on the strip in his experience, and he commends this technic as a simple, convenient and reliable means to conquer this affection.

Riforma Medica, Naples and Palermo.

Last indexed page 1076.

81 (XXI, Nos. 6-7.) *L'intervento chirurgico nelle cirrosi del fegato con ascite. O. Cignozzi.
82 Morbo di Parkinson post-infettivo e famigliare. P. Pennato.
83 *Effects of Extirpation of Pancreas.—Effetti della estirpazione del pancreas. T. Silvestri.

81. **Operative Treatment of Cirrhosis of the Liver with Ascites.**—The Italians have been active in this line, and Cignozzi's monograph gives the complete history to date of surgical treatment of cirrhosis of the liver with ascites. The latest compilation shows 224 cases thus treated, with 46 per cent. of operative cures or improvements, 42 per cent. mortality, and 12 per cent. recurrences when the cirrhosis of the liver was of the atrophic type with ascites. Cirrhosis of the liver with hypertrophy shows 70 per cent. cured, 15 per cent. mortality and 10 per cent. recurrences. Two cases have been operated on by Tricomi at Palermo, and are here reported in detail. The results at first were unfavorable but later became extremely satisfactory. Alcoholism was excluded in each case. The first was one of nutmeg liver, of cardiac origin, with considerable and rebellious ascites. In the other. the cirrhosis of the liver was of the atrophic type, and the toxic-infectious nature of the morbid process and its intestinal origin were apparent from anamnesis. The first case was in a girl of 12 with mitral and tricuspid insufficiency and a history of acute articular rheumatism, at the age of 6. The heart lesions were well compensated, the liver was functioning moderately well, and the kidneys were apparently sound. The only serious symptom was the rebellious and annoying ascites. The passive hyperemia and congestion of the liver were obviously the principal cause of the ascites, and indicated operative treatment to supply new routes for the blood to relieve the passive engorgement of the liver. The omentum was drawn up between the muscles and the parietal peritoneum through a slanting incision near the liver. The patient had to be tapped two or three times in a month to prevent strain on the healing wound. After this, there was no further recurrence of the ascites or of the edema anywhere, and the patient remained in comparative good health for a year and a half, but then succumbed to sudden aggravation of her heart trouble without further symptoms from the circulation in the liver. The other patient was a woman of 45, and the syndrome indicated toxic-infectious cirrhosis of the liver with sudden appearance of ascites. The heart and kidneys were apparently sound. This patient also had to be tapped three times, but has been free from all indications of ascites during the two years since, while the general health has been much improved. There are seven varieties of cirrhotic affections of the liver with ascites, Cignozzi remarks. When the ascites is due to a thrombotic or phlebitic process or if the obstruction is due to compression from without, the assistance of the surgeon may effect a radical cure. In case of gin liver, the mortality of surgical intervention is high and the successes are few. But the condition is so discouraging that a trial is justified and, in exceptional cases, great relief may be obtained. Conditions are most favorable for success in the form with hypertrophy of the liver. In cirrhosis of cardiac origin the ou look is less promising, but very satisfactory results have been occasionally reported. In cirrhosis due to toxic-infectious processes, which includes the Budd and Banti types, great benefit is also liable to be derived. In cirrhosis of syphilitic origin there is seldom ascites. but cases have been published in which it did occur and was cured by deviation of the portal circulation by omentopexy. Zuccaro has reported a cure of a congenital syphilitic affection of this nature. When malarial cirrhosis of the liver is due primarily to the spleen. surgical intervention offers better prospects than when the liver is more seriously affected. The latter is generally the case when the cirrhosis of this organ is primary. In the splenic variety it is advisable to develop the collateral circulation of the splenic region, as well as of the liver, in performing omentopexy.

83. **Effects of Extirpation of Pancreas.**—Silvestri's experiments were made on young dogs. Complete removal of the pancreas always entailed transient glycosuria for twenty-four to thirty-six hours, followed by very slight glycosuria proportional to the nature of the food taken. All glycosuria vanished in forty-five to sixty days. The animals also displayed at first various nutritional and metabolic disturbances, with excessive hunger and thirst. These disturbances gradually subsided and the animals returned to apparently normal conditions. In one of the 7 animals the glycosuria was more pronounced, and the animal became sicker and sicker, with final paresis of the hind legs. The symptoms correspond in every respect with those observed in apancreatic diabetes, and the liver was found atrophied, in fatty degeneration, with vacuolization, when the animal was killed in about a month. In this case there had evidently been infection and intoxication which had prevented the development of the compensatory processes which alone render it possible for the organism to resume its functions and to recuperate. In conclusion, Silvestri protests against the way in which every glycosuria is called diabetes. There are many diabetics who thrive with large proportions of sugar, and others who are in bad condition with very little sugar. He does not think that constitutional diabetes is the effect of the reduced sugar destroying capacity. Its essential characteristic is a progressive aggravation of the initial changes. The voracious appetite and thirst are the reaction, the response of the organism to abnormal or excessive decomposition going on within it. Diabetes is, therefore, in its essence an autolysis. This conception has been adopted by Ferrannini for diabetes insipidus, which he explains as an anomaly in metabolism due to the excessive instability of the albuminoid molecule. Hence the relationship between these two forms of diabetes, and the frequent transformation of one into the other. The discrepancies in the results obtained by various investigators have probably been due to predisposing conditions, to the age of the animals experimented on, and to complications such as shock, infections, autointoxications, etc.

Hospitalstidende, Copenhagen.

Last indexed page 919.

84 (XLVII, No. 35-36.) *Den kroniske Gastritis. K. Faber.
85 En Elevator-Pincet (ophthalmic forceps). A. Gad.
86 (No. 37.) Jequirity in Treatment of Pannus trachomatosus.—Om Behandling af hornhindeuklarheder med Jequiritol. S. Schou.
87 Sixth Northern Congress of Surgery, Göteborg, August, 1904. (Concluded.)
88 (No. 38.) *Om Behandling af Tubar-graviditet. J. Kaarsberg.
89 (No. 39.) *Causes of Tetania strumipriva.—Om Aarsagen til Tetania strumipriva. S. Christens.
90 (No. 40.) 26 appendektomier à froid (interval operations). H. Maag.
91 (Nos. 41-42.) *Elimination and Retention of Chlorids.—Om Udskillelse og Retention af Klorider. V. Scheel.
92 (No. 43.) Mastoidal-Operationer i Skopolamin-Morfin-Narkose. V. Saxtorph Stein.
93 (Nos. 44-45.) Frenkel's Re-educating Principle Applied Generally to Treatment of Disease.—Frenkel's Ovelsesterapi og ovelsesprincipets almindelige Anvendelse ved Sygdomsbehandling. H. Munch-Petersen.

84. **Chronic Gastritis.**—Faber has been studying the anatomic findings in the stomachs from 40 cases of chronic gastritis and in scraps obtained through the stomach tube in 20 other cases. Aside from the cancer cases, he has encountered 10 cases of achylia and in all of these there were evidences of decided gastritis as also in 10 other cases of achylia in which the condition was determined from scraps brought up by the stomach tube. His experience has demonstrated the possibility of the existence of achylia without entire destruction of the glands, but that it is always accompanied by gastritis. In fact, the diminished secretory functioning is a manifestation of the gastritis. Hypersecretion may also occur with gastritis, but probably both are due to the same cause, usually an ulcer. Their action is antagonistic, on the whole, as the gastritis, when it obtains the upper hand, leads to achylia. The latter may persist long after the gastritis has subsided. His clinical experience with 44 cases of gastritis during the

last year and a half seems to indicate that the affection passes through three phases: 1, increased production of mucus with normal secretion; 2, production of mucus with hypochylia, and 3, achylia. In the first phase there is slight, superficial infiltration; in the second phase, the infiltration is more pronounced and deeper; in the third, it is extensive and diffuse with more or less atrophy. The gastritis frequently runs a latent course; sometimes nervous symptoms predominate, in other cases intestinal symptoms—diarrhea. The latent cases are those which have been erroneously designated as "nervous hypochylia or achylia." Nervous achylia is possible, but has not been demonstrated to date. In 6 or 7 of his series of 44 cases and in a number of others in his private practice the gastritis was latent and the nervous symptoms predominated, the manifestations of dyspepsia being so slight as to be overlooked. One symptom liable to mask the gastritis in such cases is the *vertigo e stomacho laeso* which may come on after meals without a trace of other dyspeptic disturbances. Other cases may present symptoms characteristic of neurasthenia, but in reality due to the chronic gastritis. True hysteric symptoms may also be superposed on a chronic gastritis, as he has had occasion to witness in a number of cases. Repeated examination of the functional capacity of the stomach will reveal the underlying gastritis in many of these puzzling cases. Secondary, hematogenic gastritis may develop after intestinal troubles or after acute infectious diseases. Primary gastritis is generally the result of imperfectly masticated or irritating food. He found defective teeth in 23 out of his 44 cases. In 7 of his patients, chronic abuse of alcohol was evidently a prominent factor, but he has frequently found the stomach apparently normal in persons extremely addicted to the use of liquor. The gastritis in other cases was due to abuse of laxatives, to pyorrhea alveolaris, to the use of chewing tobacco or to gastroptosis, but in a number of patients no cause could be determined. The discussion on Faber's article follows in No. 39 of the *Tidende*.

88. **Treatment of Tubal Pregnancy.**—Kaarsberg remarks that the best treatment for a progressing tubal pregnancy is extirpation. An early diagnosis is the main thing. He has had 70 cases since 1898, and 25 were operated on; 35 uncomplicated cases were treated expectantly or with curetting, and 6, in which the hemorrhage was profuse, were treated by laparotomy. The 28 cases of hematocele were treated by colpotomy in 17; expectantly in 9, and by laparotomy in 2. The pregnancy had progressed as far as to the eighth month in only one case. With a single exception, the patients were dismissed in good condition; in this case a tumor developed from an organized hematocele expectantly treated and this tumor induced fatal ileus a year later. A tubal pregnancy should be suspected when there is a violent and abnormally protracted menstruation without an intermission or with only a very brief one. When there is at the same time pain in the hypogastrium, the patient should be examined by a specialist and if a tumor be discovered in the adnexa the woman should go at once to a hospital where she can be under close supervision. Even the smallest tumor should compel this. Among his patients treated on this principle hemorrhage occurred in only 3 cases under hospital treatment. Expectant treatment or curetting of the uterus is allowable with a tubal mole, as the pregnancy ceases with the development of the mole. A hematocele, if not too large. is best treated by colpotomy and drainage. In his 17 cases he left the tube untouched.

89. **Experimental Thyroidectomy and Parathyroidectomy.**—Among the facts noted in Silvestri's experimental research on cats and goats, was the loss in weight of the animals when the thyroid and parathyroid glands were removed. One parathyroid gland but none of the thyroid tissue was removed from one cat, and this was the only animal that increased in weight instead of losing after the operation. Three cases of tetany were in goats that had been thyroidectomized for the production of organ preparations for treatment of exophthalmic goiter. The symptoms indicated that the tetany in these cases was unmistakably due to parathyroid insufficiency. Tetany developed invariably when all the parathyroid tissue had been removed, even when much thyroid tissue was left, but there was no tetany when some parathyroid tissue was left. (See Vassali's report of treatment of eclampsia with parathyroid tissue, in Miscellany column.)

91. **Retention of Chlorids in Disease.**—Scheel examined the organs of 20 cadavers in order to determine the proportion of salt retained in their various tissues. The organs were cut up into small pieces and the blood expressed. The tissues were then dried and rinsed to extract the chlorids. The subjects had succumbed to some valvular, liver or kidney affection, pneumonia, peritonitis or pernicious anemia or to some sudden traumatism. He found the proportion of sodium chlorid about the same in the sound and in the diseased organs. There was no evidence of what he calls "histo-retention," that is, retention of salt in the tissues. Experiments on animals were equally conclusive, showing that the salt retained does not combine with the tissues but is merely held in solution in the accumulated fluids. The retention of water from some disturbance in the kidney entails the secondary retention of salt. The fluid in the body holds back the necessary proportion of salt to keep up the osmotic balance. The greater the amount of fluid accumulated the larger the amount of salt retained. By reducing the intake of salt the blood takes up from the effusions a part of their salt with some of their water. This can be accomplished only when the diuresis is satisfactory; otherwise the most that can be obtained is the maintenance of the *statu quo*. The osmotic concentration and the permeability of the kidney are the variable factors which make the effects of retention or deprivation of salt differ in individual cases.

Russky Vratch, St. Petersburg.

Last indexed page 511.

94 (III, No. 2.) Marked Chemical Changes in Organism of Rabbits Generated when Male Parent was Starving.—O chem. izmeneniyakh, etc. P. K. Ugrumoff.
95 *O sekretornikh depressivikh neurozakh (secretory depressive neurosis). T. Kitaeff.
96 Prevention of Industrial Accidents and First Aid.—O preduprezhdenii nestchastikh slutchaev, etc. L. B. Bertenson.
97 (No. 3.) *Treatment of Vesicovaginal Fistula.—K. terapii puzyrnykh svischtchei u zhenshtchin. V. S. Gruzdeff.
98 *Diffuse Peritonitis Originating in Gynecologic Affections.—Razlitie peritonity, vyzvyvaemye bolyeznami zhenskikh polovykh organov. J. B. Zeldovitch.
99 Brandenburg Test for Albumin.—O technikye kolitchestvennago opredyeleniya byelka v motchye i drugikh zhidkostyakh po Brandbergy. A. F. Gegerstedt.
100 *Operative Treatment of Prolapse of Rectum.—Ob op. letchenii vypadenii pryamoi kishki. K. Weber. (Commenced in No. 2.)
101 *Malaria Contagion in Hospital.—Estestvennoe zarazhenie bolotnoi likhoradkoi v. lazaretye v Noyabrye. V. C. Ostaptchuk.
102 *Krioskopie moloka (of milk). I. S. Bomstein.
103 (No. 4.) Healing Powers of Nature.—O tzyelitelnoi silye prirodi. S. D. Mikhnoff.
104 Appeal for Dispensaries for Treatment of Drunkards with Hypnosis.—Ob organizatzii ambulatorii dlya alkoholikov. T. Rybakoff.
105 Toxins of Bacillus of Soft Chancre.—O toksinov myagko shancroznoi palotchki. S. V. Sovinsky.
106 Russian Folk-lore in Regard to Measures for Drunkenness.—Russkiva narodno-vratchebniya credstva ot pyanstva. v. Demitch.

95. **Supposed Neurotic Gastric Achylia.**—Kitaeff applies the term of secretory depressive neurosis to a case of periodically recurring pains in the stomach and achylia gastrica which suggested the diagnosis of tabes although no other symptoms of the latter were apparent. The patient was a young man who had had a severe fall four years before. After the fall, ptosis of both stomach and liver were noted but without subjective symptoms from this cause. Notwithstanding the continuance of the achylia, the digestion did not seem to suffer as the intestines apparently had assumed the lacking digestive functions.

97. **Treatment of Vesicovaginal Fistula.**—Gruzdeff has had occasion to operate in 30 cases of vesicovaginal or vesicouterine fistula in less than four years. The better results attained in the last 18 cases must be due to the perfected after-treatment as the operative technic, suturing the fistula, etc., was the same in all. The permanent catheter is introduced to the extreme lowest part of the bladder and left for nine days. The patient is carefully instructed to lie in such a way as to keep the wound up, never in a position in which the

urine would flow down to the wound. If the wound is in the median line the patient is kept on her back; if on the right side, she lies on the left. The suture threads are removed from the walls of the vagina on the tenth day and the patient is then allowed to change her position at will. On the eleventh day the catheter is discarded and on the twelfth, the patient is allowed to get up. By carefully observing these precautions he was successful in curing 94 per cent. of his patients in the last 18 cases. while there were 50 per cent. of failures in the first 12, although the operative technic was the same. In his first 12 cases, only 5 were cured, and 2 of these required a second and one a third operation. In the last series. 15 out of the 18 were cured and only 2 required a second and one a third operation.

98. **Diffuse Peritonitis of Gynecologic Origin.**—Zeldovitch reviews his experiences with 272 cases of diffuse peritonitis during the last eight years. About 23 per cent.—64—of the cases were secondary to some gynecologic affection. and he devotes special attention to this group. The proportion would be 36 per cent. if he included the tuberculous and puerperal cases in which the primary focus was in the genitalia. The only chance for the patient in these gynecologic cases of general peritonitis, is from the assistance of the surgeon, and the prospects are more encouraging in this class than with peritonitis from other sources. He operated on 117 of the total 272 patients, in 9 tuberculous, 11 typhoid, 19 appendicitis, 38 mixed, and 40 gynecologic cases. In 31 of the latter, the records show that 9 recovered and 22 succumbed. This is a proportion of 29 per cent. of recoveries. The operation was not performed until after 4.6 days from the beginning of symptoms on an average, and some who recovered were not operated on until the fifth, sixth and seventh day. The deaths were in cases in which an operation was not performed until the third to the sixth day in 7. and from the seventh to the fourteenth day in the others. His experience has been that patients with general peritonitis of gynecologic origin, not operated on. lived on an average 10.5 days, while those with general peritonitis of other origin succumbed in 3.7 days. The former class of patients are not debilitated by such serious primary affections as those in the latter class. He protests against the prevailing pessimism in regard to diffuse peritonitis if it can be proved that it originates in some gynecologic affection.

100. **Treatment of Prolapse of Rectum.**—Weber reports 3 cases treated by Ott's technic for restoration of the floor of the pelvis with excision of the prolapsed portion. This portion is usually more or less degenerated and restitution *ad integrum* is generally impossible. The technic is described in detail and compared with other technics.

101. **Malaria from Hibernating Mosquitoes.**—A soldier entered a hospital in the Caucasus in August on account of a lingering leg ulcer. While still in the hospital in November he acquired malaria, and the parasites were found in his blood. The region has the reputation of being free from malaria, but a few specimens of the anopheles claviger were discovered in the room which he had been occupying.

102. **Cryoscopy of Milk.**—The French have been proclaiming for some time that it is possible to detect by the variation of the freezing point when milk has been watered. Bomstein confirms their assertions and states that even 5 per cent. water can be infallibly revealed by this means. The freezing-point of pure milk is about minus .55 to .57 C. (just below 31 F.)

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by H. R. M. Landis, M.D., Visiting Physician to Tuberculosis Department of Philadelphia Hospital. Vol. I, March, 1905. Surgery of the Head, Neck and Thorax—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza—The Diseases of Children—Laryngology and Rhinology—Otology. Paper. Pp. 298. Price, $6.00 per annum. Philadelphia and New York: Lea Bros. & Co. 1905.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia. Fourth Edition, Revised, Rewritten and Greatly Enlarged. Illustrated with Twelve Original, Full-Page Chromo-lithographic Plates; Twelve Full-Page Half-tone Plates of Photographs Taken from Nature, and 157 Half-tone and Photo-Engravings in the Text. Pp. xvi-468. Cloth. Price, $4.00 net. Philadelphia: F. A. Davis Company.

MANUAL OF PSYCHIATRY. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic of the Medical Faculty of Paris. Authorized Translation from the French by A. J. Rosanoff, M.D., Junior Assistant Physician, L. I. State Hospital, Kings Park, N. Y. Edited by Joseph Collins, M.D., Professor of Diseases of the Mind and Nervous System in the New York Postgraduate Medical School. First Edition. Cloth. Pp. 352. Price, $2.50. New York: John Wiley & Sons. 1905.

JAHRESBERICHT über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend bacterien, Pilze und Protozoën. Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten, Professor of Pathology, University of Tubingen, und Dr. med. F. Tangl, Professor of Physiologic Chemistry, University of Budapest. Achtzehnter Jahrgang. 1902. Zweite Abtheilung. Paper. Leipzig: Verlag von S. Hirzel. 1905.

WHARTON AND STILLES MEDICAL JURISPRUDENCE. Vol. II. Poisons. By Robert Amory. A.M., M.D., President of the Sixth National Convention of 1880 for Revising the U. S. Pharmacopeia, and Robert L. Emerson, A.B., M.D., Instructor in Physiological Chemistry, Medical School of Harvard University. Fifth Edition. Cloth. Pp. 858. Price, $18.00 net in three volumes. Rochester, N. Y.: Lawyers' Co-operative Pub. Co. 1905.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Price, with 129 Engravings and 10 Full-page Plates in Colors, $5.00 net. Cloth. Pp. 1,120. Philadelphia and New York: Lea Brothers & Co. 1905.

RECHERCHES CLINIQUES ET THERAPEUTIQUES SUR L'EPILEPSIE, L'HYSTERIE et L'Idiotie Compte-Rendu du Service des Enfants Idiots, Epileptiques et Arrieres de Ricetre Pendant L'Annee 1903. Par Bourneville. Ave la collaboration de J. Boyer, L. Izou. Lemaire, Reine Maugert, Julien Noir, Paul-Boncour. Vol. xxiv. Paper. Paris: Felix Alcan. 1904.

A MANUAL OF MECHANICAL DENTISTRY AND METALLURGY. By George W. Warren, A.M., D.D.S., Professor of Clinical Dentistry, Pennsylvania College of Dental Surgery. Second Edition, Revised and in Parts Rewritten, with 179 Illustrations. Cloth. Pp. 262. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

UNCOOKED FOODS AND HOW TO USE THEM. A Treatise on How to Get the Highest Form of Animal Energy from Food, with Recipes for Preparation, Healthful Combinations and Menus. By Mr. and Mrs. Eugene Christian. Cloth. Pp. 246. Price, $1.00. New York: The Health-Culture Co. 1904.

FIFTH ANNUAL REPORT OF THE WORK OF THE CANCER LABORATORY OF THE NEW YORK STATE DEPARTMENT OF HEALTH Conducted at the Gratwick Research Laboratory, University of Buffalo, for the Year 1903-4. Paper. Pp. 164. Albany: J. B. Lyon Co. 1904.

THE PHYSICAL CULTURE LIFE. A Guide for All Who Seek the Simple Laws of Abounding Health. By H. Irving Hancock, Author of Japanese Physical Training. Illustrated. Cloth. Pp. 229. Price, $1.25. New York and London: G. P. Putnam's Sons. 1905.

LEHRBUCH DER KINDERKRANKHEITEN für Arzte und Studirende von Dr. Adolf Baginsky, Professor der Kinderheilkunde an der Universität Berlin. Achte völlig neu durchgearbeitete und verbesserte Auflage. Paper. Leipzig: Verlag von S. Hirzel. 1905.

EIGHTEENTH BIENNIAL REPORT OF THE STATE BOARD OF HEALTH OF CALIFORNIA for the Fiscal Years from July 1, 1902, to June 30, 1904. Paper. Pp. 35. Sacramento: W. W. Shannon. 1905.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. 1905. Twenty-third Year. Cloth. Pp. 643. Price, $3.00 net. New York: E. B. Treat & Co. 1905.

TWENTY-NINTH ANNUAL REPORT NEW YORK STATE REFORMATORY AT ELMIRA for the Fiscal Year Ending Sept. 30, 1904. Paper. Pp. 48. Reformatory: The Summary Press. 1905.

FIFTY-SIXTH ANNUAL REPORT OF THE CENTRAL INDIANA HOSPITAL FOR THE INSANE for the Fiscal Year Ending Oct. 31, 1904. Paper. Pp. 86. Indianapolis: Wm. B. Burford. 1905.

ELEVENTH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE CRAIG COLONY FOR EPILEPTICS at Sonyea, N. Y., to the State Board of Charities, Oct. 1, 1904. Paper. Pp. 88.

NINETEENTH REPORT OF THE STATE BOARD OF HEALTH AND VITAL STATISTICS OF MINNESOTA, 1901-1902. Cloth. Pp. 417-xx. St. Paul: Pioneer Press Co. 1902.

TWENTY-FIFTH ANNUAL REPORT OF THE HEALTH OFFICER OF THE DISTRICT OF COLUMBIA, 1903-4. Cloth. Pp. 216. Washington: Government Printing Office. 1904.

THE WORK OF THE INTERSTATE COMMERCE COMMISSION. By H. T. Newcomb, of the Bar of the District of Columbia. Paper. Pp. 100. Washington: Gibson Bros., 1905.

THE LIFE OF FLORENCE NIGHTINGALE. By Sarah A. Tooley. with 22 Ilustrations. Cloth. Pp. 344. Price, $1.75. New York: The Macmillan Co. 1905.

THE THIRD REPORT OF THE CAROLINE BREWER CROFT CANCER COMMISSION of the Harvard Medical School. Paper. Pp. 124. Boston. 1905.

REPORT OF ILLINOIS GOOD ROADS COMMISSION to the 44th General Assembly. Paper. Pp. 56. Springfield: Ill. State Jour. Co. 1905.

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Original Articles

LABORATORY DIAGNOSIS OF VARIOLA.*

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The diagnosis of variola often presents difficulties, even to an expert. Patients, therefore, often have to be kept under observation for several days at considerable inconvenience, expense and danger to a municipality before they are finally released or sent to a smallpox hospital. This keeping of suspected patients under observation disturbs the peace of mind, not only of the patient, but of the physician on whom rests the responsibility of possibly sending a man who is not infected with variola to a smallpox hospital, or, on the contrary, of turning loose on the community a source of infection in an atypical case of smallpox. Most frequently these "observation" cases are those in which the evidence is just not quite enough to make the physician positive, and the patient has to furnish further evidence by the development of his disease.

It is desired in this article to suggest an aid to diagnosis that will furnish this added evidence at once and reduce the time of observation in these doubtful cases to a few hours instead of causing a delay of from one to several days. It will divide the responsibility of diagnosis between two men, just as a diagnosis of a malignant new growth is shared between the surgeon who operates and the pathologist who examines the tissue. The method advised is simply an application of laboratory diagnosis to variola. Why such a method has not been put into general use before, may be due to the facts that sufficient stress has not been laid on the specificity of the smallpox lesion, and that no good rapid method of diagnosis was at hand for examining such small portions of tissue, as by their removal, would cause no inconvenience to the patient.

I was enabled to obtain material for this study through the permission of Dr. John H. Simon, Health Commissioner of St. Louis, and by the kind aid of Dr. H. J. Scherck, chief dispensary physician, and of Dr. M. J. Dwyer, superintendent of the Quarantine Hospital, to all of whom I wish to express my sincere thanks.

Snipping of the skin, in all instances, was done only with the patient's permission, and in no case was there any subsequent complaint or untoward effects following such removal. The snipping of a piece of skin is less painful to the patient than pricking the skin, as is done in ordinary blood examinations. The bits of skin taken vary in size from 2 mm. to 5 mm. in diameter, i. e., a single papule, vesicle or pustule is taken, as the case may be.

For this study I was enabled to obtain skin in all stages of the disease. My earliest specimen was from a negro who developed variola while in the wards of the Missouri Pacific Hospital; the skin being taken a few hours after the appearance of the eruption. Most frequently the skin was taken the first, second or third day of the eruption. Skin was also taken at autopsy in the later stages of the disease.

TECHNIC.

While there are admirable rapid methods of diagnosis for ordinary surgical material, for example, Wright's[1] method for frozen sections, they present certain difficulties in this work. This is due to the small piece of tissue and to the trouble of mounting it. Methods more or less rapid also exist for celloidin and paraffin work, for example, that of Stein,[2] which, while they offer fair results, demand extensive detail and entail the chance of losing the piece of skin during the frequent changes of fluid to which it must be subjected.

Quite recently, however, a rapid method of paraffin imbedding has been described by Henke and Zeller,[3] which makes this work with very small pieces of tissue practical. The method is not only rapid, but is simple in the extreme, and gives results that can not be obtained with unimbedded tissue, as even the smallest snippings can be cut exactly where desired. A greater variety of stains can be used after this fixation than can be used after formol fixation. For instance, the eosin-methylene blue stain advised by Mallory,[4] which does not give good results after formol, works perfectly after acetone fixation. The method is as follows: The lesion selected (papule, vesicle or pustule) is spread out on a piece of filter paper to avoid curling and dropped immediately into pure acetone. The amount of acetone should be about twenty-five times the bulk of tissue. The tissue is left in the acetone from forty-five minutes to an hour and a half, and is then transferred directly into paraffin at 56° C. The paraffin at this temperature removes the acetone so that these two steps are all that are necessary. From one to two hours is sufficient time for the tissue to remain in the paraffin. The subsequent treatment is the same as with any paraffin material. The tissue is blocked and cut and the sections blotted to the slide. Xylol, absolute alcohol, thin celloidin, 95 per cent. alcohol and water are successively applied by the dropping bottle, and the sections are ready for the stain. It is

* From the Pathological Laboratory of the St. Louis University.

1. Mallory and Wright: Pathological Technic, p. 263.
2. Stein: Ueber Schnellhärtung u. Schnelleinbettung, Deutsche med. Wochft., vol. xxix, No. 44.
3. Henke and Zeller: Aceton-Paraffin Schnelleinbettung, Cent. für Pathologie, vol. xvi, No. 1.
4. Mallory: Scarlet Fever; Protozoon-like Bodies Found in Four Cases, Jour. of Med. Research, vol. x, No. 4.

important to use care in orientation of the sections. The lesions are mounted on edge. I find it most satisfactory to cut the whole piece serially, and then to select sections from both the center and edge of the lesion.

Staining may be done by any of the usual methods. Simple staining with a fairly dilute methylene blue often suffices for diagnosis. Hematoxylin and eosin are perhaps the most satisfactory stains for routine procedure. In doubtful cases, or when especial study of the section is desired the eosin-methylene blue stain previously referred to is undoubtedly the best. It offers, however, the disadvantage of requiring more time than the other methods.

This process, then, involves but four steps, and the result is a thin uniform paraffin section showing the exact part of the lesion desired and taking perfectly a variety of differential stains. A fair estimate of the time required for such sections is three hours from the time the skin is taken from the patient.

SPECIFICITY OF THE SKIN LESION.

Laboratory diagnosis of variola may be discussed under two heads: First, the specific histology of the lesion, which should present less difficulty to the pathologist than do many sections of carcinoma and sarcoma which he is called daily to decide on. Second, the presence in the early stages of certain specific bodies best described by Councilman, Brinckerhoff, and McGrath,[5] and later by Howard and Perkins,[6] and regarded by these observers as parasites and the cause of the disease.

It is unnecessary to go into detail regarding the specific histology of the skin lesion in variola. The lesion has recently been described at length by Councilman, Brinckerhoff, and McGrath,[5] and by Ferguson[7] and the specificity always insisted on. Ewing[8] says: "It is hardly to be expected that histologic changes exactly similar to variola should occur in any other lesion. There is apparently no other condition in which rapidly necrosing squamous epithelial cells are bathed in fluids under pressure as in variola."

Briefly, the main histologic features may be summed up as follows:

1. The earliest change in the skin is a dilatation of the lymph spaces of the corium just below the deepest cells of the malpighian layer. Following this bathing of the epithelial cells with lymph, there is a change in the cells; the nuclei become swollen and there is a reticular degeneration of cytoplasm.

2. An increased depth of the layer of epithelium affected is noted, and a pale staining area in the mesial zone of prickle cells is seen. This represents the earliest stage of vesicle formation. The cells of the malpighian layer show degenerative changes.

3. The exudate which causes this swelling of cells and increased depth of epithelium in the early stages is always fluid. There are no polymorphonuclear leucocytes seen coming to the lesion at this stage, as in the beginning of practically all other forms of skin inflammation. There may be some proliferation of the endothelial cells from the vessels of the corium.



Fig. 1.—Edge of a young vesicle. Section shows thickening of the epithelium due to swelling of the cells in the mesial zone, which is represented by lighter staining. The earliest stage of vesicle formation is seen at this point. Numerous cytoplasmic bodies can be found in and about the light staining area. The blood vessel in the corium shows proliferation of endothelium. Figures 1 and 2 were sketched from Zeiss AA. Oc. 3.; Figure 3 from Zeiss 1/12, oil immersion, Oc. 3.

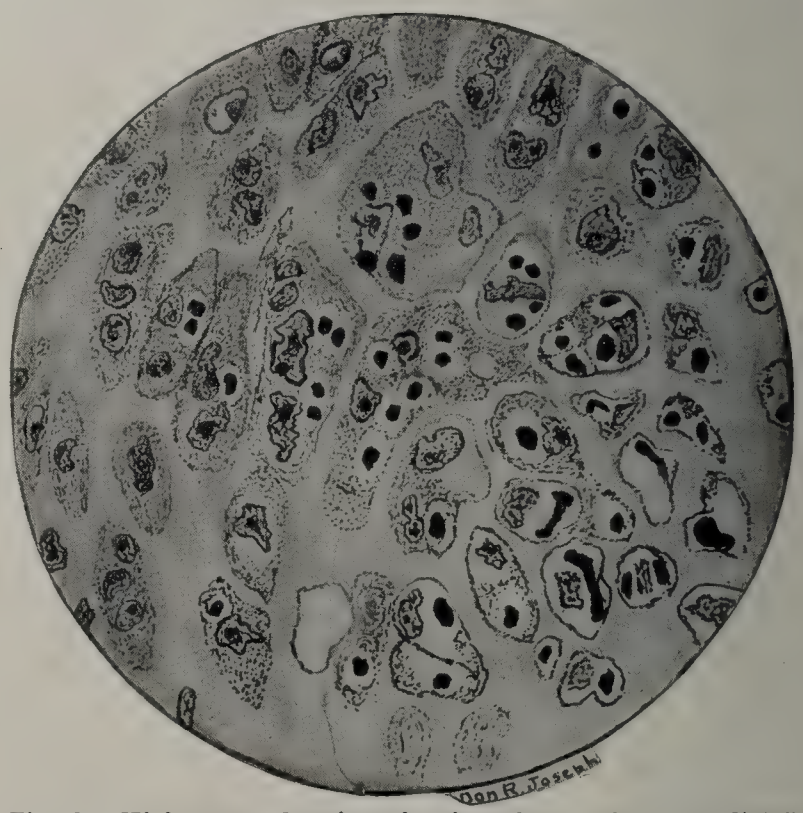


Fig. 2.—High-power drawing showing the number and distribution of the cytoplasmic bodies at the edge of an early vesicle.

4. The vesicle is a development of the process described in 2. As the exudate increases the cells rupture. The cell borders form a network by coalescence. Still further exudation causes a rupture of the coalescent cell borders. The result is a cavity filled with fluid, in which are irregular cell strings, bounded above by the horny layer, and below by the corium or by an intact layer of epithelium.

5. The cavity gradually increases in size and is invaded by cells; polymorphonuclear leucocytes and lymphocytes. The cells in the cavity quickly break down. The lesion is now usually termed a pustule.

THE SMALLPOX BODIES.

Leaving aside the nature and the more complicated forms of the structures, certain bodies may always be

5. Councilman, Brinckerhoff and McGrath: The Pathologic Anatomy and Histology of Variola, Jour. of Med. Research, vol. xi, No. 1.

6. Howard and Perkins: A Study of the Etiology of Variola, Jour. of Med. Research, vol. xii, No. 3.

7. Ferguson: The Histology of the Skin in Variola, Jour. of Pathology and Bacteriology, vol. x, No. 1.

8. Ewing: Comparative Histology of Vaccinia and Variola, Jour. of Med. Research, vol. xii, No. 4.

seen in skin lesions of variola, properly prepared, in the early stage of the disease:

1. Cytoplasmic Bodies.—These may be small structureless bodies, one to four microns in diameter; homogeneous ameba-like bodies lying in vacuoles; larger reticular bodies eight to ten microns in diameter; small dot-like bodies about one micron in diameter. In general, these bodies are best seen in the edge of a young vesicle. They occur in the cytoplasm of normal cells, degenerated cells and between the cells. They may also be seen in the corium before the formation of the vesicle. The presence of these bodies in the skin before there is any definite anatomic lesion is an important point in diagnosis.

2. Intranuclear Bodies.—I have not been able to find intranuclear bodies in the earliest cases. It is suggested by Councilman, Brinckerhoff, and McGrath,[5] that these bodies represent a further stage in the development of the cytoplasmic bodies. As the presence of these bodies is not necessary to a diagnosis they will not be discussed here. They are best found from the time of disappearance of the cytoplasmic forms until repair has begun. For complete descriptions of these bodies the reader is referred to the authors previously mentioned and to Calkins[9] and Tyzzer.[10]

All cases are not typical and variations of type must be considered in the laboratory just as in the clinic. Departure from the typical may consist in the incomplete development of the lesion (abortive type), or in the diffuse hemorrhage that takes place in some cases before the appearance of any lesion. I have not had the opportunity to study typical hemorrhagic cases, but Councilman[5] states that in cases where purpura preceded the eruption "there was no doubt about the character of the process. The skin showed the earliest stage of true lesions. In all cases there were parasitic inclusions." While laboratory diagnosis of variola may be sometimes quite as difficult as is the microscopic determination of the malignancy of certain tumors, I believe, however, that with the microscope fewer mistakes are liable to be made by a microscopist of reasonable skill in smallpox diagnosis than in tumor diagnosis.

CONCLUSION.

In conclusion, then, by means of acetone fixation, paraffin imbedding and hematoxylin-eosin staining, we can make a laboratory diagnosis of variola from a small skin snipping in an average time of three hours, based on a specific histologic lesion and on the presence of certain bodies in or adjacent to the lesion.

9. Calkins: The Life of Cytoryctes Variolæ, Guarnieri, Jour. of Med. Research, vol. xi, No. 1.

10. Tyzzer: Etiology and Pathology of Vaccinia, Jour. of Med. Research, vol. xi, No. 1.

LARGE CARCINOMATOUS TUMOR OF THE LIVER.

REMOVAL SEVENTEEN MONTHS AFTER NEPHRECTOMY FOR CARCINOMA OF THE LEFT KIDNEY. TEMPORARY RECOVERY.

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Although Brunn in 1870 removed a small hepatic tumor, the surgery of the liver does not seem to have attracted much attention until Lin, in 1886, successfully performed a partial resection. Since that date, however, more than 100 resections of portions of the liver have been reported. Among the exhaustive treatises on the subject those of Terrier and Auvray,[1] in France, and of Langenbuch,[2] in Germany, deserve especial mention. In America the name of W. W. Keen[3] of Philadelphia is intimately associated with the development of the technic of liver surgery. He has not only reported three cases of resection, in all of which recovered took place, but has also published an exhaustive review of the previous literature. Nor should it be forgotten that a Baltimore surgeon, Dr. Louis McLane

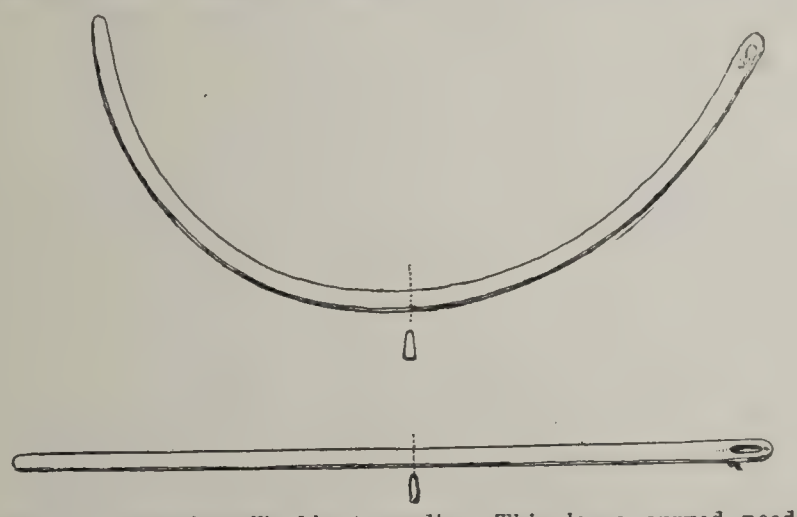


Fig. 1.—Kousnietzoff's blunt needle. This large curved needle has a rounded point. Its shape on cross section is shown in the small sketch below. The straight needle is preferable for mattress sutures.

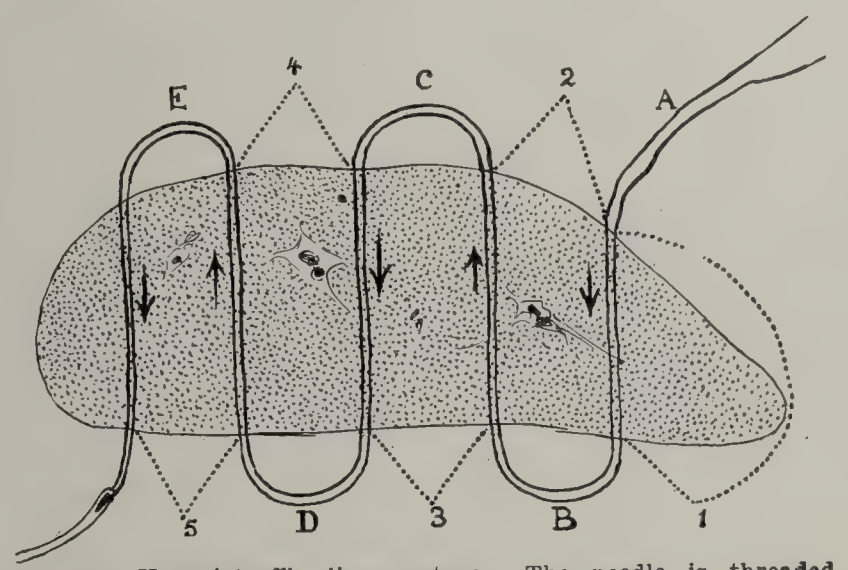


Fig. 2.—Kousnietzoff's liver suture. The needle is threaded double and is carried in and out through the liver, producing a continuous mattress suture, which is cut up into single mattress sutures before tying.

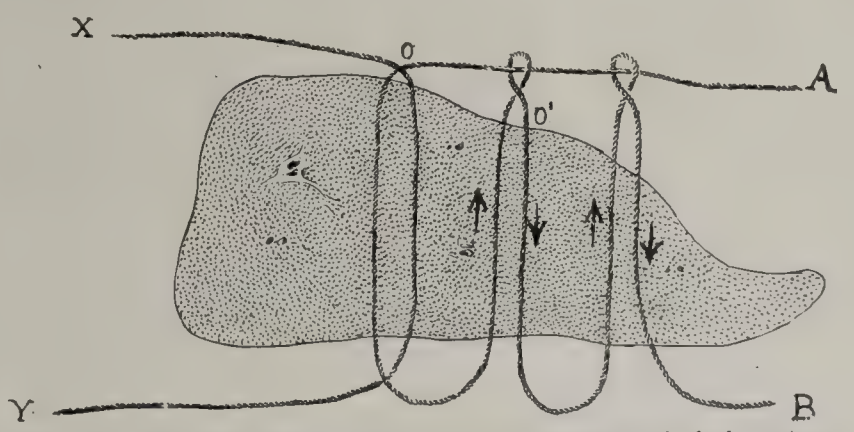


Fig. 3.—Auvray's liver suture. This is the so-called chain suture, and after insertion is drawn taut.

1. Terrier and Auvray: Les Tumeurs du Foie, Rev. de Chir., 1898, vol. xviii, p. 403.

2. Langenbuch: Chirurgie der Leber und Gallenblase, Deutsche Chirurgie, Stuttgart, 1897.

3. Keen, W. W.: Resection of the Liver, Boston Med. and Surg. Jour., vol. cxxvi, p. 405, 1892; Pennsylvania Med. Jour., 1897; report of a case of resection of the liver for removal of a neoplasm, with a table of 76 cases on resection of the liver for hepatic tumors. Ann. of Surg., September, 1899.

Tiffany,[4] was one of the first Americans successfully to remove a tumor of the liver.

The Nature of Hepatic Tumors.—Few operators have reported more than one case, and as each has had his own idea of the proper nomenclature of tumors, there is naturally much diversity of description. With the more thorough study of the subject, the varieties will undoubtedly be materially diminished in number. The list of those given is as follows:

Constricted and prolapsed lobe of the liver.
Fibroma.
Syphiloma or gumma.
Tubercle (occasionally single, may reach 3 or 4 cm. in diameter).
Adenoma.
Lymphadenoma.
Cysts: (a) echinococcus cysts; (b) biliary cysts (large and lined by one layer of cylindrical epithelium).

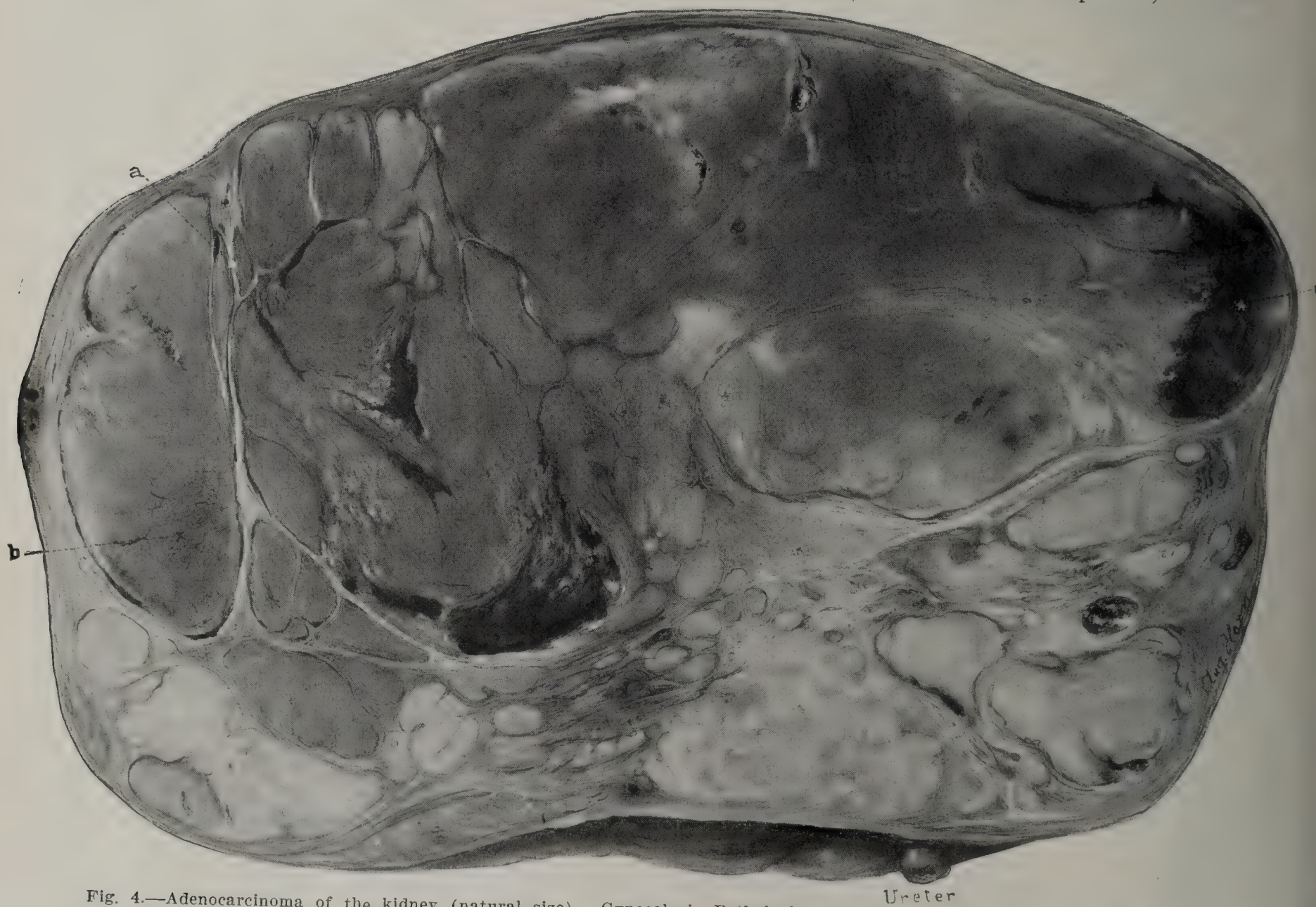


Fig. 4.—Adenocarcinoma of the kidney (natural size). Gynecologic Pathologic No. 6364. This is a longitudinal section of the hardened kidney. There is a well-defined outer capsule which consists almost entirely of connective tissue. Passing off into the growth from the capsule are trabeculæ (*a*) which divide it into large and small alveoli. The growth presents a decidedly mottled appearance. At *b* it is finely granular. In numerous places it has undergone necrosis and disintegration as seen at *c*. The ureter is little, if at all, enlarged.

Angioma: (a) congenital; (b) acquired.
Lymphangioma cavernosum.
Cancer: (a) primary; (b) secondary.
Sarcoma: (a) primary; (b) secondary.
Endothelioma.
Aneurism of the hepatic arteries.

Echinococcus cysts, cancers and syphilomata are the most common of hepatic tumors. The growths vary greatly in size, some being not more than 2 or 3 cm. in diameter, while others, as in Pfannenstiel's case, may be so large as to render the abdomen larger in its dimensions than that of a pregnant woman at term.

INCIDENCE AND SYMPTOMS OF HEPATIC TUMORS.

Tumors of this character may be found in the young or in the old. They are, however, most common between the twentieth and fiftieth years. As has been pointed out by Keen, hepatic growths are much commoner in women than in men. In 68 cases analyzed by him, 13 of the patients were males and 55 females. He thinks that the relative immunity in men is probably due to the looseness of the clothing worn. In the additional cases which I have collected, 4 of the patients were men and 12 were women.

The symptoms of hepatic tumors are in no way characteristic. Practically, they are those belonging to any growth developing in the right upper abdominal quadrant. When the growth is primary and situated near the lower edge of the liver in a thin patient, it is sometimes palpable, but if the individual be stout the growth can readily be overlooked.

DIAGNOSIS.

Hepatic tumors are rarely correctly diagnosed until the abdomen is opened. In the cases reported the growths have been mistaken for tumors of the kidney, ovarian cysts, uterine myomata, mesenteric and pancreatic tumors, tumors of the colon, aneurisms of the aorta, growths in the gall bladder and stomach, and abscess of the liver. This is equivalent to saying that in a series of cases they have at one time or another been confused with almost every tumor that may be present in the abdomen. Such a tumor is usually first noticed on the right side, in the region of the lower edge of the

4. Tiffany, Louis McLane: Maryland Med. Jour., 1890, vol. xxxiii, p. 531.

liver. In the rare instances in which the movement of the diaphragm is transmitted to the tumor, we possess a diagnostic sign of much value. Occasionally, percussion or palpation, or both, will enable us to detect a definite connection between the tumor and the liver.

Even after the abdomen has been opened and the tumor exposed, one is often still in doubt as to the exact nature of the growth. If the patient has given a definite history of syphilis, it may be assumed, with a relative degree of certainty, that a gumma is present; on the other hand, if a carcinoma of the stomach be present, the surgeon will be justified in concluding that the hepatic growth is a secondary cancerous nodule.

As a matter of fact, it is rarely possible to be able to make more than a tentative diagnosis, until the growth has been removed. In our case the left kidney had been removed nearly eighteen months previously for carcinoma. The symptoms accompanying the hepatic tumor were quite applicable to a case of liver abscess, and after the abdomen had been opened the general picture suggested an inflammatory process of the liver. Furthermore, on careful examination of the left renal region no evidence of a return of the former growth could be detected. The internal organs were in good condition, and in the liver no other nodules could be found. The absence of any inflammatory reaction at the junction of the tumor with the normal liver substance was the only sign that pointed against the presence of an abscess. In short, it was found to be impossible to determine with any degree of certainty whether the tumor was an abscess or a metastatic carcinomatous nodule. As the remaining kidney was already impaired, it was thought that, even should the swelling prove to be an abscess, an attempt at drainage would be associated with considerable danger of an acute peritonitis, and that even if this complication were avoided, the continual discharge from the abscess wall would militate against the patient's recovery. On the other hand, in



Fig. 5.—Secondary carcinoma of the liver (one-half natural size). The liver is markedly displaced downward. Occupying the greater part of the right upper quadrant of the abdomen is a hepatic growth. Downward this almost reaches the anterior superior spine; medianward it passes nearly to the umbilicus and laterally makes the abdominal wall prominent. The growth seems tense, is slightly lobulated and, although sharply outlined, gradually blends with the liver substance. The edge of the liver forms a prominent ridge along the lower margin of the growth and the gall bladder is seen lying against the under and inner surface of the tumor. It is readily seen that when the cystic duct was severed the greater part of this liver could be rolled out of the abdomen. For a cross section of the hepatic growth see Figure 7.

case the growth were malignant, it was evident that the only hope of success lay in its complete removal. Even after the tumor had been sent to the laboratory a provisional diagnosis of abscess of the liver was made after a thorough macroscopic examination, and the histologic revelation of adenocarcinoma came as a great surprise.

EXPERIMENTAL RESECTION OF PORTIONS OF THE LIVER.

The exhaustive articles of Langenbuch[2] and of Terrier and Auvray[1] give in detail the interesting animal experiments of Glück, Tizzoni, Griffini, Podvisotzky, Ponfick, Tillmanns and Ceccherelli. Ponfick[5] found that it was possible to remove three-fourths of a dog's liver without permanent injury to the animal, and that in thirty days the organ had regained its normal size. Regeneration was partly due to hypertrophy, but mainly to multiplication of the remaining liver cells. No new lobules were found. Judging from analogy, the surgeon would naturally infer that in man large portions of the liver might be removed and the patient recover;

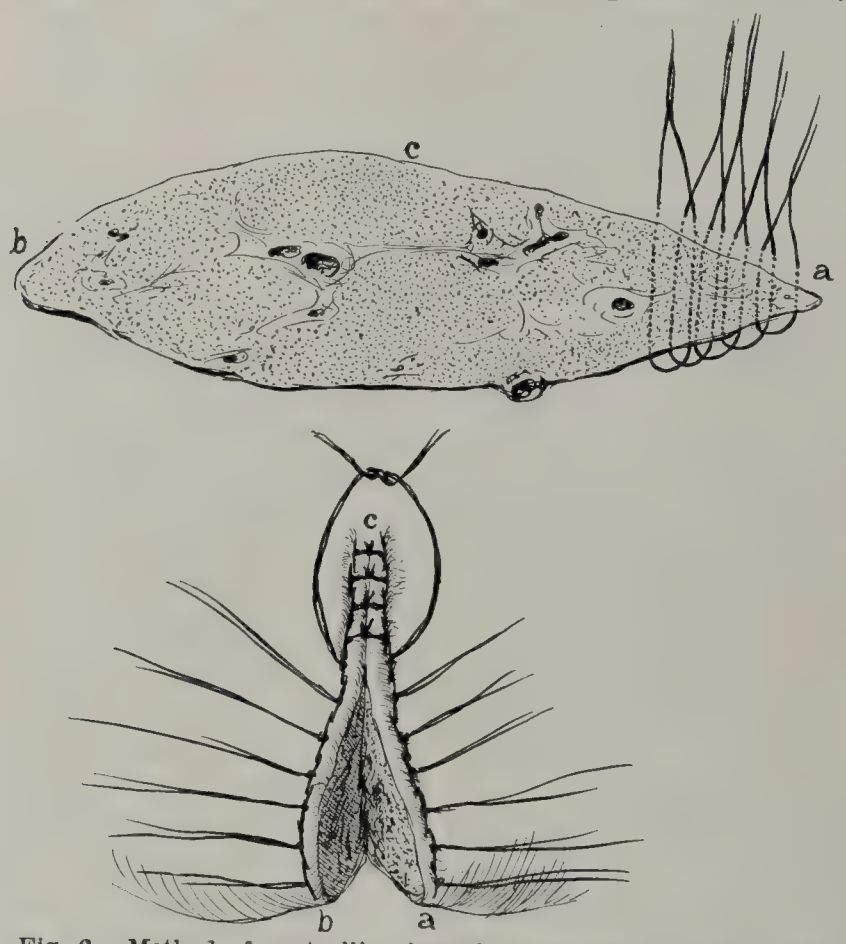


Fig. 6.—Method of controlling hepatic hemorrhage. The cut surface represented in the upper sketch measures 16x6 cm. Mattress sutures were applied about 1 cm. from the line of section. Each overlapped the other so that every particle of liver substance was controlled. Pagenstecker sutures were used, reinforced by catgut, where necessary. The large vessels were readily picked up with forceps and tied freehand. After all the sutures had been tied and lifted up, *a* and *b* tended to come together. Beginning at *c*, corresponding opposite sutures were drawn across and tied to each other. The approximation was good, but not quite so accurate as one would infer from the sketch.

and the reported cases prove that the suggestion is well founded, as in some instances large areas have been resected and the patients have regained perfect health.

INDICATIONS FOR RESECTION OF A PORTION OF THE LIVER.

It is important to determine (1) whether the growth be malignant or not; and (2) if malignant, whether it is primary or secondary. In the case of metastatic neoplasms, as a rule, operation is contraindicated, inasmuch as they are usually multiple. Primary carcinoma or sarcoma of the liver is rare. Should the hepatic growth be primary, the glands along the vessels and at the base of the liver should be carefully palpated to ascertain whether they have become involved. This point was first insisted on by Tuffier.[6] In cases of lymphadenoma, with secondary nodules in the liver, operation is not advisable. In all cases of liver growths the following points should be carefully considered: (*a*) Whether the growths be single or multiple; (*b*) situation; (*c*) size; (*d*) whether they are pedunculated or not.

If the growths are multiple and scattered over a wide area, removal is difficult or impossible. On the other hand, provided that they are near the lower edge of the organ, resection is feasible. In fact, in the majority of cases the situation is all important.

The size is of little importance when the growth is pedunculated and situated near the lower margin of the liver. In the case of a large tumor, however, located near the middle of the organ, removal is exceedingly difficult or impossible. If it is located near the edge, amputation is not difficult, but if it is near the middle of the lobe, a very large portion of the liver must be resected, or a cavity is left which may be the source of an alarming or even uncontrollable hemorrhage. When the growth lies near the portal vein or hepatic arteries, operation is contraindicated, since large branches of these vessels are liable to be injured with a resulting necrosis of correspondingly large areas of liver substance and the death of the patient. If the growth be pedunculated, its removal is easier, inasmuch as the liver substance forming the pedicle is much tougher than other portions of the organ. This toughening is due to partial atrophy of liver cells.

METHOD OF PROCEDURE.

After having decided that the growth is to be removed, free exposure of the liver is absolutely necessary. The abdominal incision is lengthened, and may be curved to the right or left as desired. If the liver is freely movable, the greater part can be brought out of the abdomen; but if the organ is fixed, it will be necessary to loosen it. This is accomplished by severing the suspensory and round ligaments and, if necessary, to a limited extent the ligamentous attachments of the diaphragm. Care must be exercised to avoid injury to the pleural or pericardial cavity, and in case of such an accident the opening should be immediately closed with catgut sutures. The mobility of the liver may also be considerably increased by cutting through the cystic duct, as was done in this case, after which two-thirds of the liver was easily brought outside the abdomen. If the liberation of the liver obtained in this manner is still insufficient, portions of the lower ribs may be cut through and turned back. This free exposure of the liver will be found of the greatest comfort to the operator during the subsequent steps of the operation; for not only is he able to control the blood supply much more thoroughly, but he is also working outside the body instead of deep down in the cavity.

TEMPORARY MECHANICAL CONSTRICTION.

Prior to cutting into the liver, a constricting band, if possible, should be thrown around the organ, at least an inch or more from the line of section. Many surgeons have employed strong rubber tubing; or a long piece of gauze twisted in the form of a rope, as used

5. Ponfick: Lancet, 1890, vol. i, 881.

6. Tuffier: Bull. et mém. de la Soc. de Chir. de Paris, 1897, n. s., xxiii, p. 70.

in this case, will answer equally well. Even after this has been drawn tight and clamped with forceps, it must be carefully watched throughout the entire operation, as it is liable to slip from the slanting liver substance and thus fail to prevent a free hemorrhage.

THE INCISION INTO THE LIVER SUBSTANCE.

When we remember the great number of blood vessels that are present one can readily understand the dangers connected with the removal of a large segment of liver substance. In Langenbuch's most graphic account of his experiences we are told that during an operation the hemorrhage was so sudden and severe that the abdomen was in an instant full to overflowing with blood and the field of operation was obliterated. Any one who has read his account will certainly never fail to have plenty of assistants, and every conceivable requisite is at hand to meet any similar emergency. Now-a-days, fortunately, the picture is not so disheartening, thanks to the improvements in technic introduced by Keen, Kousnietzoff[7] and Auvray. I shall not attempt to give in detail the various methods employed, but shall only sketch very briefly the procedures that have apparently yielded the best results.

The liver substance may be severed by: (1) The knife; (2) the cautery (at a dull red heat); (3) the blunt scissors or curette; (4) blunt dissection, peeling the tumor out with the thumb nail (Keen). Each method has its advantages and its drawbacks. The knife gives a clean-cut surface, but many vessels are opened and bleed freely. The cautery leaves a charred surface, and vessels that are temporarily controlled may bleed later. The operator hardly feels safe in trusting solely to small plugs of clotted blood to control the small and medium-sized vessels, when he knows that the escape of one of these may mean fatal hemorrhage. On the other hand, nothing checks capillary hemorrhage better than the cautery at a dull red heat. Blunt scissors, the curette and blunt dissection with the finger leave a much rougher base, but injure far fewer vessels.

THE CONTROL OF HEMORRHAGE.

Probably the safest plan is to control the bleeding before making any incision into the liver or to tie off different segments as they are severed. Langenbuch has pointed out that the liver substance often shows pathologic changes when tumors are present. Thus there may be a hyperemia associated with an increased friability of the organ rendering the application of sutures difficult. On the other hand, there may be an atrophy of the liver cells accompanied by an increase of connective tissue, which renders the tying of ligatures a relatively easy procedure.

Needles.—One of the chief sources of hemorrhage in liver operations has been from the needle holes; in fact, in some cases, the free oozing from these sources has been uncontrollable. Thanks to the ingenuity of

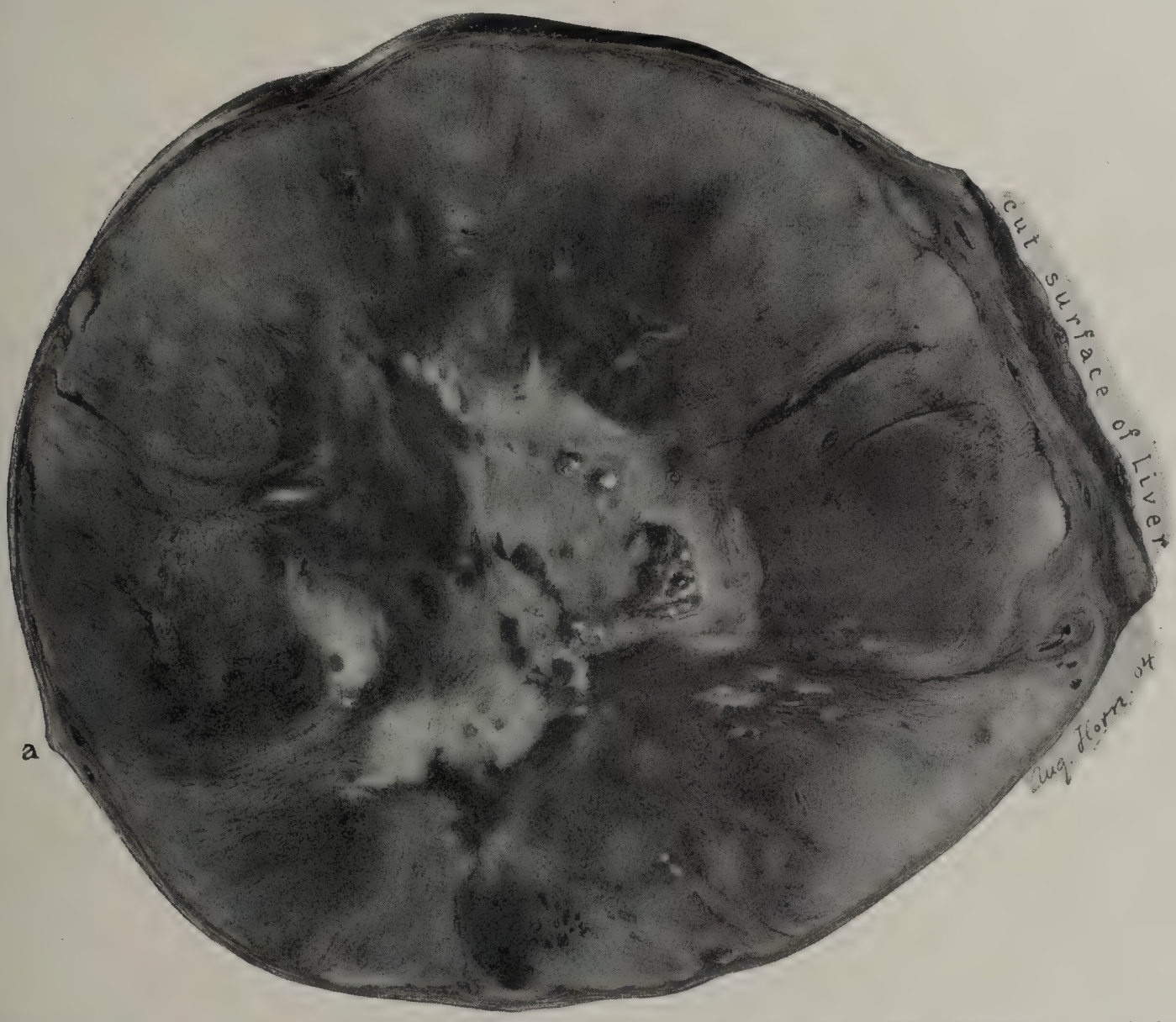


Fig. 7.—Secondary carcinoma of the liver (natural size). As the specimen was very soft it was impossible to cut it before hardening. Encircling the entire growth is a definite capsule varying from 1 to 3 mm. in thickness. *a* is the sharp edge of liver substance that passed over the lower surface of the growth. This growth bears much resemblance to the parent kidney tumor (Fig. 4), and in its central portion has undergone complete necrosis. The cut surface of the liver indicates the line of amputation.

7. Kousnietzoff (Kuznetsoff): Laitop. russk. Chir., S. Peterb., 1901, 6, 888-931. Mikulicz wrote the preface to this article and mentioned the number of cases operated on by him.

Kousnietzoff, we now possess a needle that renders the application of sutures almost or entirely bloodless (Fig. 1). This needle may be straight or curved; it is flat on the sides, and rounded at both ends. It is gently and slowly forced through the liver substance, and, being blunt, pushes the blood vessels to one or the other side. This needle has yielded admirable results in dogs, and Mikulicz, who has employed it six times in the human liver, says of it, with some enthusiasm: "To my mind Kousnietzoff's needles represent the egg of Columbus in the technic of liver surgery."

Cautery.—Keen slowly and cautiously employed the cautery at a dull red heat, and took twenty minutes to cut off the desired segment. He was usually able to see the larger vessels before they were opened. These he tied, both proximally and distally, and then burned through them. If a large vessel was opened before being tied, he plugged the opening with his left index finger, while with the right hand he passed a ligature threaded on a curved needle carefully through the surrounding liver substance; the ligature was then tied slowly by an assistant. In this manner he was able to remove the growth with little difficulty. Keen insists on the use of dull red heat, and points out that, if the tissue is cut through too rapidly, a sufficient eschar is not formed to check the oozing. In some of his work he combined blunt dissection with the finger with the use of the cautery.

Sutures.—Kousnietzoff has devised a rather complicated continuous suture (Fig. 2), which practically resolves itself into a series of mattress sutures. Auvray has advised a continuous chain suture which he has found to work well (Fig. 3), its object being to distribute more equally the strain on the liver substance and so render it less liable to tear. The sutures of Kousnietzoff and Auvray would seem, from the illustrations, to be open to the objection that hemorrhage might occur from the spaces between adjoining sutures. In our case simple mattress sutures were introduced with the blunt needle (Fig. 6), each suture overlapping the other so that no area was left unprotected. After the application of three or four sutures about 1 cm. from the line of section, the liver was severed over a corresponding area, an assistant in the meantime holding the placed sutures taut. The tumor was grasped firmly in order to prevent oozing.[8]

The sutures were now slowly and snugly tied; others were then applied in a similar manner, and the entire liver growth was readily removed in about ten minutes. The mattress sutures were tied after the tissues had been cut, instead of before, because the liver was stretched near the tumor, and there was danger that after tension was relieved they would be too loose to thoroughly control the vessels. Five or six large vessels were encountered. These were readily picked up with forceps and tied.

Suture Material.—In many of the reported cases catgut was used exclusively. In this case fine Pagenstecker thread, reinforced with catgut, was employed. Catgut is, of course, the material generally preferred, but where there are such large vessels and so much tension, sutures of silk or linen thread are, on the whole, more reliable; although the silk will gradually work its way out.

Treatment of the Stump.—After controlling all bleeding, it remains to deal with the raw area. Where the cautery has been used, one can not expect to bring charred surfaces together and get union. Again, only in very exceptional cases would it be possible to remove a large tumor and have such a satisfactory folding as in this case. As a rule, the cut surface must be left as it is. Some surgeons advocate stitching the omentum over it. Others close the abdomen without drainage. From a careful review of the cases I gather the impression that it is better to drain. Where this is done, bile is often found escaping through the wound from the cut surface of the liver for several days, and if the abdomen has been closed without drainage, this must of necessity flow into the abdomen. Keen has laid stress on this point, but says that the danger from absorption "seems to be more theoretical than practical." In this case an iodoform drain was carried to the under surface of the liver and another to the upper surface along the line of the sutures. Pfannenstiel[9] has called attention to the possible danger of using iodoform gauze where large areas of raw liver substance are left, and prefers sterile non-medicated gauze for this purpose.

COMPLICATIONS THAT MAY ARISE DURING AN OPERATION.

The operation is sometimes beset with many difficulties. Where the tissue is very friable the sutures may cut through the liver substance. To overcome this difficulty Ceccherelli and Bianchi used decalcified bone plates over the upper and under surfaces and sutured through them. In some cases, after removal of a nodule from the center of the liver, when it was impossible to check bleeding by sutures, the cavity was packed with gauze, held firmly in place by sutures passed through the liver substance.

In other cases, where it was impossible to check oozing, a rubber ligature was firmly secured around the liver, slipping being prevented by means of two hat-pins passed through the organ at right angles to each other. The edge of the liver was then sewed to the peritoneum of the abdominal wound. In some of these cases the growth was cut away and the stump left to granulate up. In other instances the growth was left to slough away, the constricting band being tightened from time to time.

IMMEDIATE AFTER-RESULTS.

Hemorrhage is the most serious complication. It may take place after a few hours or at the end of a day or two. The employment of the suturing method of Kousnietzoff or Auvray or the overlapping mattress suture will undoubtedly render secondary bleeding far less frequent. Where hemorrhage occurs, however, the abdomen should be opened at once, for the patient is not always exsanguinated. If the bleeding points can not be controlled a rubber ligature should be applied and prevented from slipping by means of hat-pins. The stump can then be treated extraperitoneally, the edge of the liver being fastened to the peritoneum.

MORTALITY.

Terrier and Auvray collected 38 cases operated on for the following diseases: Sarcoma, 4; carcinoma (considered primary at the time of operation), 7; sec-

8. In bisecting the uterus there is always free hemorrhage, especially in the case of a large myomatous organ. Dr. Kelly has taught that strong traction on each half almost completely checks oozing. This principle was applied to the distal segment of the liver with very satisfactory results. It must be said, however, that the liver substance removed with the tumor, in this case, was relatively small.

9. Pfannenstiel: Med. Centr. Ztg., Berl., 1898, lxvii, 177-179.

CASES OF RESECTION OF PORTIONS OF THE LIVER REPORTED SINCE 1899.

Reporter and Reference.	Sex.	Age.	Duration, Nature and Size.	Method of Removal.	Treatment of Liver Stump.	Result.	Remarks.
Carl Beck: Chicago Med. Recorder, 1901, xxi, 383-386.	Male...	20	Followed kick 5 years before. "Angio-adenoma" the size of man's head occupied the entire left lobe.	Controlled by rubber catheter, held by two hat pins through stump. Half the tumor removed, half left to slough off.	Extra-peritoneal . . .	Recovery	Largely an angioma, but with certain adenomatous areas.
Harrison Cripps: Brit. Med. Jour., Lond., 1903, ii, 18.	Male...	60	Pain after heavy lifting 11 years before. Angioma the size of a child's head.	Slightly adh. to abd. wall; incised; escape of 50-60 oz. blood. Tumor enucleated by dissecting; Volkmann's spoon. Bleeding controlled by sponge pressure.	Abd. closed without drainage.	Recovery	Angioma partly calcified.
Dahlgren. Nord. Med. Ark., Stockholm, 1902, 3, f. ii, No. 14, 1-24.	Female	33	Over a year. Angioma from left obe, larger than a kidney—pedicle 6 cm. broad; 1.5-2 cm. thick.	Bleeding controlled by continuous catgut sutures. Tumor removed by cautery.	Omentum attached to stump.	Recovery	Gives good résumé of the literature.
Macnaughton-Jones: Brit. Gynæc. Jour., Lond., 1901-2, xvii, 40-43.	Female	27	One year. Angioma, 3¼x 3x2¼ inches at liver. Irregular spaces lined by endothelium and filled with blood.	Tied by numerous ligatures; little bleeding.	Pedicle packed above and below with iodoform gauze.	Died 18 hours after operation.	Much shock at operation.
Ginlio, Filippini: Policlin., Roma, 1901, viii, Sez. Chir. 222-240.	Female	32	Tumor of left lobe the size of an adult head, 20x15x5.6 cm.	Rubber ligature and sutures.	Attached to abdominal wall.	Recovery	Angioma.
Ginlio, Filippini: Same reference.	Male...	62	Cancer of the liver involving the entire left lobe.	Rubber ligature	Attached to abdominal wall and allowed to slough off.	Recovery	Primary cancer of the liver.
Duret: Ass. Franc. de Chir. Proc. Verb. Par. 1898, xii, 363-371.	Female	46	Six months. Carcinoma; 16 cm. in its greatest diameter.	Cut away as a wedge. Vessels controlled by a few sutures; raw surfaces approximated by continuous catgut.	Iodoform gauze drain; exerting pressure.	Recovery	Gall-bladder contained calculi.
Jonnesco: Bull. et Mém. Soc., de Chir. de Bucarest, 1902-3, v, 104.	Female	..	Size of a small orange, adherent to the transverse colon.	Tumor resected; a modified d'Auvray ligature employed.	Closed without drainage.	Recovery	Thought to be syphilitic. Wound opened on 3d day to let out some blood.
Haubold: Annals of Surgery, 1904, xxxix, 240.	Female	26	Eight months. Gumma, the size of a large orange.	Removed by blunt dissection with scissors.	Hot saline. Gauze checked oozing—surfaces approximated by deep catgut sutures. Drainage.	Recovery	Growth first thought to be malignant.
Léonté: Bull. et Mém. Soc. de Chir. de Bucarest, 1900-01, iii, 161-164.	Female	50	Adenocarcinoma in the right lobe, the size of a lemon. Weight, 843 grams.	Sutures placed; tumor removed.	. . . . .	Died in 24 hours. Anuria from renal disease.	No bleeding.
Thompson: Tr. Texas Med. Assn., Austin, 1899, xxxi, 216-229.	Female	30	Gumma, size of a small orange; occupied parts of both lobes.	Tumor removed with scissors; transfixed by two needles at right angles. Appl. of rubber.	Fastened to abdominal wall. Infection.	Recovery	Histologic examination showed gumma.
Nicholson: Interstate M. J., St. Louis, 1902, ix, 427-430.	Male...	39	3¼ inches broad; projected 2 inches from surface of liver.	Cut out with scissors; vessel openings closed with chromicized catgut.	Packed with gauze; partially remov'd 2d day, some bleeding. Removed 4th day; edge of abd'l wound repaired and closed.	Recovery.	
Pfannenstiel: Allg. Med. Centr. Ztg., Berl., 1898, lxvii, 177-179.	Female	..	Growth noticed years before. About 12 pounds. Abd. before operation, 116 cm. in circumf. (considerably more than that of a pregnant woman at term). Tumor pale white. "alabaster-looking," fluctuating—sprang from under surface of left lobe. On section composed of large and small blood spaces—some spaces as large as a walnut, others as big as an apple. Micro. exam. showed growth to be an angioma.	A furrow made in liver substance both anteriorly and posteriorly at base of growth. Tumor then shelled out partly by cautery, partly by blunt dissection—bleeding vessels controlled by catgut passed with a Deschamp needle; in part by pressure, in part by strong traction on tumor. Some broad clamps applied, stump about 15 cm. broad thus produced—tied with about 20 catgut sutures; tumor cut away with cautery.	Large funnel-shaped stump left, attached in upper angle of abdomen wound. Packed with sterile, non-impregnated gauze. Length of operation 1¾ hours. Pulse at end, 120-140. Discharge at first, bloody; later, bile.	Recovery	Resembled an ovarian cyst, but on vag. exam. uterus and appendages were clearly outlined. The continual traction of tumor had probably rendered the liver substance of pedicle firmer than normal. Very little urine at first, probably from great loss of blood: salt sol. given freely.
Maresch (Hochenegg) Ztschr: F. Heilk., Wien u., Leipz., 1903, xxiv, 39-50.	Female	5	Three years; at first slowly, later rapidly. Abd. greatly distended. Lymphangioma 20x18 cm.	Punctured, supposedly an ovarian cyst; pedicle about 7.5 x 2.5 cm. Collar of peritoneum drawn back. Tumor then dissected out bluntly with forceps and elevators. Tremendous bleeding from torn vein. Abd. full. Firm pressure made. Hem. controlled with catgut sutures and needle.	Incision 6 cm. long made toward right abdomen wall, 3 cm. below the xiphoid. Pedicle of tumor sewed into this transverse incision. Original incision then closed.	Recovery; discharged on 21st day.	Supposed to be an ovarian cyst.
Terrier et Auvray: Revue de Chir., 1898, xviii, 719.	. . . .	50	Cancer the size of a closed fist, probably secondary to growth in bowel. Adherent.	Chain sutures of Auvray. One vessel tied free-hand.	Packed with gauze...	Recovery	Fistula still remaining; silk sutures came out gradually.
Barkoff Russ. Chir. Arch., St. Peterb., 1903, xix, 70-72.	Female	40	Ten years; the size of a hen's egg; oval and yellow.	Cut out elliptical depression; approximated with catgut. No hemorrhage.	Closed without drainage.	Temporary recovery.	Echinococcus.
Cullen, Thomas S. . .	Female	30	Recognized less than a week before operation. Adenocarcinoma of liver, secondary to primary growth in left kidney. Growth size of child's head. (Fig. 5.)	Cut away with knife after application of mattress sutures. Raw surface approximated. (See Fig. 7 in text.)	Iodoform gauze drainage.	Patient in good health 8 mos. after operation.	Evidence of return in scar where left kidney was removed nearly 2 years ago.

ondary carcinoma, 1; adenoma, 6; angioma, 4; tumors of an indefinite character, 3; gummata, 9; biliary cysts (non-parasitic), 4.

Of the patients, 32 recovered and 6 died. The deaths were due to hemorrhage, shock or sepsis. Keen has collected 74 cases. Some of these are included in Terrier and Auvray's lists. Sixty-three of the patients recovered and 11 died—a mortality of 14.9 per cent.

The causes of death were: Shock, hemorrhage and exhaustion, in 8 cases; septicemia, in 2 cases; pulmonary embolism, in 1 case.

In this group of Keen's are three of his own cases; all three patients recovered. As mentioned elsewhere, Mikulicz has had six cases with equally happy results.

Patient.—On Jan. 6, 1903, I saw Miss T., in consultation with Dr. E. R. Trippe. The patient was 30 years of age and of very slight build. For six months she had felt a small lump in the left side, but had hesitated to speak of it until a week previously. It was first noticeable in the region of the left kidney and at first had increased in size gradually, but later at a much more rapid rate.

Examination.—On examination the left renal region was found to be filled by a tumor which extended upward under the ribs, and downward almost to the pelvic brim. It was slightly movable.

Operation.—On January 8 an incision was made over the most prominent part of the tumor. This incision extended from the quadratus lumborum behind, obliquely downward almost to the median line just above the pubes. The tumor was everywhere firmly adherent and was liberated with a great deal of difficulty. Only at one point was there any escape of its contents. Here the capsule had broken slightly, allowing the escape of a small amount of friable, carcinomatous-looking material. After liberating all adhesions and tying every bleeding point with catgut the renal vessels were exposed and tied first *en masse*, and then singly. The abdominal cavity was opened in several places as the tumor was intimately blended with the peritoneum. We were, however, able to protect the abdomen from infection. The muscles were brought together with silver wire, the skin with silkworm gut. The patient, although much shocked, gradually recovered. Her temperature rose on one occasion to a little above 100 F. She made an uninterrupted recovery and left the hospital at the end of the fifth week.

Result.—On March 9, 1903, I received a letter from the patient saying she was very much improved; the wound had healed entirely and she was feeling much stronger. I saw her from time to time and she showed continued improvement and regained perfect strength.

Subsequent History.—On June 2, 1904, I received a message from Dr. Trippe saying that the patient was not so well and that her temperature was 102.5. Five days previous to this the patient had noticed a small lump just below the free edge of the ribs on the right side. At first it gave her no concern, but apparently doubled[10] in size within two days and during the following two days again showed marked enlargement.

Examination.—When I saw her it occupied the region between the edge of the ribs and the anterior superior spine. It was round, tense and somewhat movable. We were very careful in our examination, fearing that it might be a friable secondary growth following the removal of the large carcinomatous kidney in January, 1903. Her pulse was rapid; her temperature was 102.5 F.

Operation.—As she was losing ground rapidly an immediate operation was decided on. An incision having been made over the tumor, it was found to be perfectly smooth and free from adhesions. The incision was continued upward to the free margin of the ribs (Fig. 5) and downward almost to the anterior superior spine. The growth proved to spring from the liver; it was larger than a child's head and was almost globular in form. The edge of the liver appeared as a slightly elevated ridge, forming a crescent over the center of the anterior surface of the growth. Attached to the inner side of the growth was the gall bladder. I carefully examined the liver, but failed to find any secondary growths and also was unable to detect any evidence of metastases in the abdominal organs or any thickening in the renal region on the left side. The right kidney was about half as large again as usual, and was perfectly normal, considering the absence of the other. The urine, however, contained some pus and a little blood. On careful examination it was imposible to determine whether we were dealing with a cystic new growth or an abscess formation. In the former case we were at a loss to tell why there had been as yet no adhesions and why the surrounding liver substance was so firm. On the other hand, it was difficult to account for the elevation of temperature if no abscess was present. After some hesitation we decided to remove the growth together with a small portion of healthy liver substance. The gall bladder was exposed, the cystic duct clamped and cut and the proximal portion of the duct tied off. The lower half of the liver could then be readily drawn out through the abdominal incision. It was everywhere walled off from the abdominal contents by gauze, and a gauze rope was securely fastened around the liver about an inch above the point at which the cut was to be made. A cautery was called for, but—fortunately, as after results showed—the instrument would not work. I then took a long, blunt needle and, starting from left to right, passed mattresss sutures through the entire substance of the liver. These were about 1 cm. apart and each one overlapped the other for about 2 or 3 mm. The greater number of sutures consisted of Pagenstecker thread, the supplementary ones being of catgut. After placing two or three mattress sutures I commenced to cut, the tumor at the same time being held taut. The sutures were then tied. This process of applying sutures and cutting and then tying was continued until the entire growth had been removed. Five or six large blood vessels were encountered, which spurted freely. These were picked up with artery forceps and tied freehand with fine Pagenstecker thread. The entire growth was removed without the loss of more than two drams of blood. After the sutures had been tied there was absolutely no bleeding from the surface. After removal of the growth there remained a raw surface fully 16 cm. in length and 6 cm. in breadth. On making traction on the sutures I found that the raw surface could be rolled in on itself so that the two halves formed flaps. These were brought together, until little or no raw substance remained. The ends of the sutures that had already been tied were utilized to bring the opposite sides together. Iodoform gauze was placed beneath the edge of the liver and also on its surface. Although the patient was apparently in a desperate condition when she went on the table, she stood the operation well, and when she was taken from the operating room her pulse was only 104. On the next day her temperature dropped to 100 F. The general condition was excellent and the pulse 84. To look at her one would hardly have realized that any operation had been performed. She made a rapid recovery and left the hospital in about four and a half weeks.

Result.—I saw her on Aug. 4, 1904. She was looking very well and had regained her color; the wound had practically healed. She had little or no pain. On the left side there were areas of suspicious thickening in the old renal scar.

Note of Sept. 7, 1904: On examination some of the liver sutures are seen working their way through a small sinus. They are giving no trouble, however. The patient is up and around, apparently in good health. On the left side along the linear incision, where the kidney growth was removed a year and a half ago, several nodules are felt. These are rapidly increasing in size. One of them is fully 6 cm. in diameter and

10. The tumor had evidently existed for a considerable length of time, but was not recognized until it was suddenly forced from beneath the ribs on account of its increasing dimensions.

has already become slightly attached to the skin. It is bluish in appearance.*

PATHOLOGIC REPORT OF KIDNEY.

Miss T. Pathologic No. 6364. The specimen, roughly speaking, is kidney-shaped, irregular in outline and covered by many adhesions. It measures 20x13x12 cm. Attached to the lower end is the ureter, which is about 4 mm. in diameter. On palpation the tumor seems to be cystic. This condition is more noticeable at the upper pole. Toward the lower end the growth is firmer. On section little or no renal tissue is demonstrable. The tumor has a capsule varying from 2 to 5 mm. in thickness. Passing off from this capsule into the tumor are many connective-tissue partitions which divide the growth into large and small nodules. The greater part of the tumor is soft, and consists of a spongy-looking material resembling carcinoma. The more solid portions of the growth are homogeneous. At numerous points there has been disintegration of tissue. The growth, as a whole, is yellowish-white in appearance, but where degeneration has taken place the tissue is of a bluish tinge or is distinctly yellow.

Histologic Examination.—The capsule is composed of fibrous tissue, sharply outlined from the tumor, which is made up of a glandular growth. The gland type is particularly well marked. There are long stems carrying delicate blood vessels and covered by a single layer of epithelium. Passing off everywhere from these stems are secondary stems, likewise covered by one layer of epithelium. The epithelial cells are low cylindrical or cuboidal in type. Their nuclei are round or oval and stain fairly deeply. In many places a definite glandular arrangement is visible, but the tendency toward the papillary formation is everywhere in evidence. Here and there nuclear figures are visible. The specimen was hardened *en masse;* consequently one would not expect to find many cells undergoing division. In the older portions of the growth the cells have so multiplied that they form a homogeneous mass. At many points coagulation necrosis has taken place and the cells do not stain at all. Such an area, as a rule, is entirely devoid of infiltration, but here and there are aggregations of polymorphonuclear leucocytes. At some points are masses of bright orange pigment, evidently a result of old hemorrhages. Such masses have a fuzzy appearance and closely resemble the outer covering of a chestnut. The specimen is undoubtedly from an adenocarcinoma. The cells of this growth bear a striking resemblance to those of the collecting tubules of the kidney. Sections of the ureter just below the pelvis of the kidney show that it is perfectly normal.

PATHOLOGIC REPORT OF LIVER TUMOR.

The specimen consists of a tumor removed from the lower portion of the liver. Attached to this are the gall bladder and a small amount of normal liver substance. The tumor is 16 cm. long, 14 cm. broad and 13 cm. in its anteroposterior diameters. It is slightly lobulated, has a smooth surface and appears gradually to blend with the healthy liver substance. Passing over the middle of the lower surface of the tumor is a thin strip of liver substance representing all that remains of the lower edge of the liver. The raw surface corresponding to the liver attachment is 16 cm. in length, 6 cm. in breadth. The liver tissue is apparently normal. The growth on palpation seems to be filled with thick fluid contents and strongly suggests an abscess.

The specimen was hardened in alcohol before being opened. It is surrounded by a capsule 1 to 2 mm. thick. The interior is composed of a very soft homogeneous substance. In the outlying portions, however, it is rather spongy. In the hardened specimen the growth presents a mottled appearance; in places it is reddish-blue, at other points yellowish-white in color. Only a small amount of healthy liver substance is present. The gall bladder is firmly attached to the upper and inner side of the growth and measures 7 cm. in length, 3 cm. in breadth.

To describe the histologic appearance of this tumor would be to repeat what has been said of the histologic appearance of the kidney. It is identical in every particular. In other words, it is an adenocarcinoma secondary to the primary growth in the kidney. It also contains numerous areas of degeneration.

In 1892 T. S. Westcott tabulated 20 cases of partial resection of the liver for Dr. Keen. A second article by Keen, in 1897, contained a tabulation of Cases 21 to 59 by G. W. Spencer. For Keen's article, published in 1899, H. H. Cushing and M. L. Downs have tabulated all additional cases to that date. The accompanying tabulation includes the cases that I have been able to gather from the literature since 1899; for convenience the lines laid down by Keen have been followed.

This case is unusual for the apparently rapid development of the hepatic growth, the symptoms being of less than a week's duration. It is further unusual to find a single metastatic nodule in the liver following a primary growth in the kidney.

Considering the fact that the patient had only one kidney, that the urine contained blood and pus, that the temperature was 102.5 F., and the physical condition poor, I advised letting the growth alone. Dr. Trippe, who was not only the patient's physician, but also a near relative, on the grounds that her condition was rapidly growing worse and that she could not last many days, insisted on its removal. That he was right is clearly shown by the temporary recovery of the patient, and I freely confess that any credit for the operation is due entirely to him. Certainly no case that I could find in the literature offered less prospects of even a temporary success, but Dr. Keen, when reporting his last case, said: "After my experience with these three cases I should hardly hesitate to attack almost any hepatic tumor without regard to its size."

*Feb. 24, 1905: Dr. Trippe informs me that from time to time a few stitches have come away from the liver, but have occasioned absolutely no inconvenience. The nodules in the cicatrix in the side where the kidney was removed are somewhat larger, but they do not seem to cause her any inconvenience. "Her general condition seems to be very good."

RECLINATION OF THE LENS:

UNDER CERTAIN CONDITIONS A JUSTIFIABLE OPERATION.*

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A study of the literature of couching reveals the fact that earlier writers made a sharp distinction between depression of the lens and reclination, in the one the lens being pushed bodily downward while in reclination an attempt is made to turn it on its axis so that ultimately its anterior surface is uppermost. In reality, however, an attempt at one procedure is likely to result in the other, so little is the course of the lens under our control, and no distinction will be made in this paper, although as late as 1836 Argyll Robertson[1] said he had never seen the lens rise after reclination, although he had frequently seen it after depression, and that the former, if properly performed, is rarely productive of much inflammatory action.

Depression is the oldest known operative procedure for cataract,[2] and either by the insertion of the needle through the cornea, keratonyxis, or the sclera, scleronyxis, until the middle of the eighteenth century held complete sway, when it was superseded by extraction, and if since then it has been held in slight respect it is

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. J. Argyll Robertson: Edinburg M. & S. J., vol. xlvii.

2. Czermak: Augenarztlichen Operationen, Wein, 1904, Heft. 13-14, pp. 823-827,

largely because it has been forgotten and not because it is without value.

A description of the operation is found in Celsus,[3] and Petit states that it was in vogue in Egypt during the reign of Ptolemy Philadelphus. It gradually fell into the hands of charlatans and, although Wilburg[4] in 1785 attempted its revival as an original operation, it was mostly practiced by fakirs devoid of medical skill or knowledge, who traveled around operating in public and, after receiving their fee, departed for new fields, with no thought of the future welfare of the unfortunate sufferer, and the frequent loss of sight which resulted was in large measure due to the entire lack of care in the after-treatment of the case, and the unfavorable results must not be accorded full credit in estimating the ultimate value of the procedure.

The method employed by surgeons was with slight variation that described by Velpeau[5] and Lawrence,[6] while the more sensational procedure of the quack is described in the following account of the methods used by the native operators in India, taken from the *Medico-Chirurgical Review,* 1858.

"The operator commenced by wrapping a thread around the blade of a lancet to within an eighth of an inch of the point and a brass probe with a blunt point was similarly treated. The patient was now seated on the ground and the operator placed himself in front. He then opened and fixed the eyelids with the fingers of his right hand and desired the patient to look downward and, doing so, he thrust the lancet into the eye about a line beyond the cornea and, on its penetrating to the depth allowed by the thread, withdrew it and closed the lids. In a few seconds the eye was again opened and the probe was introduced with a boring motion till it had fairly entered the eye, when he turned the point downwards. A small tassel of lint was now placed between the handle of the probe and the cheek and the eyelids closed. A lighted ball of charcoal was now brought close to the eye for a few seconds, then elevating the handle of the probe, an endeavor was made to depress the lens. Failing to do this, the lids were again closed with the probe *in situ* and a second attempt was made. When the lens yielded and, with the probe still in place, the patient was asked if she could see, then the probe was withdrawn, the eye moistened with a cloth and the patient allowed to walk about, expecting the eye to be well in a few days."

Very few surgeons of the present day have had personal experience in couching the lens and, in the light of the published statistics of successes in extraction and of untoward results in traumatic dislocation of the lens, it is not to be wondered at that the procedure has few adherents. Yet one must not forget that before extraction was known reclination was in a measure successful, and that the effect of traumatism in the cases we see today is such an important factor in prognosis that were reclination practiced with due attention to aseptic methods and with the improved instruments at our hands, there is no doubt but that a certain success could be attained.

The argument of this paper is, first, that reclination has been successful in many instances; second, that it may be safely done; third, that it is under certain conditions entirely justifiable.

Evidence is not wanting to prove the truth of the first assertion. Argyll-Robertson,[1] in a paper read before the Medico-Chirurgical Society of Edinburgh in 1836, cites the following statistics of the operation for cataract by various methods:

Operator.	Cases.	Cured.	Relieved.	Failed.
Græfe	14	12	..	2
Hotel Dieu	43	24	4	15
Bowen	160	154	..	6
Lusardi	5,034	4,168	..	866
Dupuytren	306	263	..	43
Cloquet	166	97	..	69
Morand	6	3	..	3
	5,729	4,721	4	1,004

This gives 82 per cent. of successes, although it must be borne in mind that the acuity of vision which was then termed success was not that of to-day, and that ability to distinguish large objects and to safely go about was considered a cure. He then personally reports 115 cases of reclination with successes in 94, or 81 per cent., and certainly one is justified in assuming that reclination offered as good results as the other methods then in vogue. He says that if properly performed, reclination is rarely productive of much inflammatory action, and reports two cases where an opportunity was offered to examine an eye some years after a couching and in both the lens was firmly bound down by the hyaloid membrane with the vitreous perfectly clear and with no trace of the course of the lens, and quotes Scarpa as saying that internal ophthalmia (iridocyclitis) had only happened in a single instance during a long practice.

Power[7] says that it is singular that a method of such antiquity and even now practicable should have passed so completely, and quotes Hornley, who reported in 1843 50 cases with only two failures, and Maynard, who reported 16 cases of extraction where the other eye has been couched by native operators often with brilliant results.

Andrew[8] reports a case where the vision was 20/70 eighteen months after dislocation of the lens and a case where traumatic dislocation resulted in a vision of 20/30, while a reclination of the fellow eye with fluid vitreous and tremulous iris gave a vision of 20/70.

Beer says: "I have neglected no opportunity of examining carefully after death the eyes of those who had undergone depression or reclination. In almost all I have found the firm, undissolved lens generally much diminished."

Haynes Walton[10] says: "Although displacement is a very inferior operation to extraction, it should not be condemned or made obsolete." And regarding the ultimate state of the cataract he says: "If the capsule is lacerated it is absorbed; if not, it may lie for years, and this is proved by dissection after operation."

Truc[11] treated two cases with depression and gives the following indications for this method: Risk from restless patients; violent bleeding and suppuration of the eyes; and Delorde[12] believes that the historical operation of depression should not be wholly abandoned as in certain cases good results may be obtained.

Barrett[13] reports a case of couching for cataract with perfect vision thirteen years afterward as follows:

The subject of the following report presented herself at the Eye and Ear Hospital for treatment. Mr. Gault investigated

3. Brown: Historical Review of the Surgical Treatment of Cataract. Annals of Oph., April, 1904.
4. Wilburg: Betrachtung Operationen des Staares, 1785.
5. Velpeau: Op. Surg., vol. iii, p. 270, 1847.
6. Lawrence: Treat. of Dis. of Eye, London, 1844.
7. Power: Brit. Med. J., Oct. 26, 1901.
8. Andrew: Brit. Med. J., Dec. 30, 1882.
10. Haynes Walton: Prac. Treat. on Dis. of Eye, 1875, pp. 808-815.
11. Truc: Deux cas de l'abaissement de la cataracte. Congr. int. d'ophth., Aug. 4, 1900.
12. Delorde: De l'abaissement de la cataracte. Ann. d'oculiste, 1901.
13. Barrett: Australian Med. J., 1894, xvi, pp. 381-382.

the history and obtained for me this account. I think that it is only necessary for me to say that, if such an excellent result could often be obtained from couching, the ordinary relatively difficult cataract operation would fall into rapid discredit.

M. W., aged 60, widow for twelve months, a healthy looking woman, who says that she has never ailed at all. Thirteen and a half years ago she had an operation for cataract (she calls it couching), performed on her left eye by an Indian oculist at Ballarat. There was no anesthetic used and she was able at once to see the dark face of the operator. The vision had been failing in the left eye for two or three years and it sank to perception of light, before operation. Has had no trouble in the left eye since the operation with the exception of occasional attacks of slight pain in the region of the supra-orbital nerve, for which she used blisters to the temple. There is also somewhat troublesome epiphora.

Condition of the left eye: Some dilatation of the lachrymal sac; slight chronic conjunctivitis, with a little general ciliary congestion; cornea clear; good anterior chamber; iris healthy; wobbles freely with movements of the eye; pupil reacts well to light; vitreous free from opacities. In its lower and anterior part is seen the shrunken remains of the lens, just behind the margin of the iris and resting on the ciliary body. The lens does not appear to move. Fundus normal. Tension normal. L. V. c. + 11 D. Sph. + 2.5 D. Cyl. horiz. = 6/6.

Canton[14] reports a case where useful vision was obtained for nearly twenty-five years.

Bourgeois[15] operated on three cases with permanent results and considers as indication the following: Fear of expulsion, bleeding, threatened infection, chronic bronchitis and fluid vitreous.

Enough authorities have been quoted to show that where personal experience has been had the operation of reclination is considered at times not only feasible but advisable. More modern writers, however, either decry the operation or are silent.

Meyer[16] says that it possesses only historical interest. It is constantly menaced with serious complications and merits no place in surgery.

Berry[17] does not mention it.

De Schweinitz[18] gives as his opinion that couching is no longer practiced.

Juler[19] believes that trouble nearly always arises and that the eye is generally lost from irido-choroiditis or glaucoma.

Noyes[20] says that it has become obsolete.

Fox[21] does not mention it.

I assume that the opinions of ophthalmologists of large experience who are not authors of text-books are quite necessary in forming an estimate of the value of any procedure and to this end I sent to 100 prominent surgeons in this country the following letter:

Jan. 1, 1904.

Dear Doctor:—Will you kindly aid me in getting a consensus of opinion on the advisability of couching the lens in cases of cataract where one eye has been lost by suppuration after an operation and there is present, either from a dacryocystitis or conjunctivitis, an infection by the staphylococcus or streptococcus. A recent article advocated a dislocation of the lens in such cases, but I find that most surgeons are opposed to the procedure and I am desirous of knowing whether the operation has been done often enough to warrant any conclusions. I shall esteem it a favor if you will express your opinion and return this letter to me.

1. Have you had personal experience in this operation? (*a*) How many cases? (*b*) Why was it performed? (*c*) What was the ultimate result?

2. Do you believe it is ever justifiable? If not, why not?

3. What would be your treatment of such a case as that outlined above?

4. On how many such cases have you performed linear extraction and what was the ultimate result? Yours truly.

14. Canton: Tr. Path. Soc., London, 1850, iii, p. 182.
15. Bourgeois: Die Depression des Staares. Franz. Ophth. Gesellsch., 1902.
16. Meyer: Dis. of the Eye, 1887.
17. Berry: Dis. of the Eye. 1887.
18. De Schweinitz: Dis. of the Eye, 1892.
19. Juler: Ophth. Science and Pract., 1893.
20. Noyes: Dis. of the Eye. 1890.
21. Fox: Dis. of the Eye, 1904. Indian Med. Gazette, June, 1901.

CONCLUSIONS.

Replies received from seventy-six are appended in tabulated form. From a study of these seventy-six replies, representing the opinions of the most prominent surgeons in this country, we may draw the following conclusions:

1. Of the entire number only seven have personally done the operation, and with one exception they believe it both justifiable and at times advisable.

2. Twenty-two have not done the operation, but believe that it is justifiable in cases where one eye has been lost by hemorrhage, in the very old, the weak and the insane, as a last resort when treatment of morbid conditions fail, when the general health is so poor that the needed restriction after extraction would cause serious risk or when there is prospect of early death.

3. Forty do not believe it justifiable and prefer extraction with certain precautions.

4. Seven do not express an opinion.

5. The agreement on the treatment of cases with dacryocystitis is remarkable; extirpation of the sac, obliteration by cautery or tying the canaliculi are advised by all.

6. In cases of intractable conjunctivitis the opinions are not conclusive. "Treat the conjunctivitis," "treat until cured," "treat until the infection disappears" is good advice and is followed by all of us, but suppose that the trouble is not cured, that in spite of all treatment infection persists—what then? If, as Dr. Casey A. Wood says, "A test bandage should give negative results for at least two days before extraction is thought of," many of these cases can never be operated on, and the patient is doomed to blindness, for Dr. Chandler asserts that 90 per cent. of his cases show staphylococci before operation, and Weeks says, "Operate only after all discharge has ceased." Experience shows that in certain cases it is impossible to get a sterile culture from the conjunctival sac.

The various procedures recommended in these cases are conjunctival flap dissected up and brought over the corneal wound, stitching the flap, application of a solution of silver nitrate to conjunctiva before operating, open dressings, daily use of protargol, subconjunctival extraction,[2] constant application of cold without bandages, iodoform dusted into the eye, preliminary iridectomy; many, however, fail to state that they have successfully treated such cases by these methods and their argument is *a priori* and not fortified by experience.

The advisability of the operation of reclination may certainly then be considered:

1. On the aged and infirm or those suffering from exhaustive diseases.

2. When there is non-curable infection of the conjunctiva or lacrimal sac.

3. When one eye has been lost by suppuration or hemorrhage following operation and a similar result is feared.

4. In obstinate bronchitis.

5. In fluid vitreous with tremulous iris.
6. In the insane or unmanageable patient.
7. In the very deaf where the assistance of the patient can not be secured.

REPORT OF A CASE.

History.—Mr. A., American, 64, first came under observation in September, 1901, with the following history: For some years he had suffered from diabetes and at intervals, under strict diet, had been fairly well, but most of the time his health was poor and his condition was aggravated by certain ailments which dated from an extended army service and the occasional immoderate use of alcoholic stimulants. He is a heavy smoker. Family history is negative.

Vision began to fail from incipient cataract about three years ago and progressed till it was difficult for him to get about alone and, as the changes were mainly nuclear, he was advised to have a preliminary iridectomy made on the right eye in hopes that more speedy maturation would occur. Before doing this, however, for nearly a year he was under the care of a physician in Philadelphia, who attempted to absorb the cataract by massage. Failing in this, he was again advised to have an iridectomy and this was done in the summer of 1901. Infection of the wound very promptly followed in twenty-four hours and a few days later the eye was removed.

When first seen the stump was healed, but there was a mucopurulent secretion which kept the socket continually moist, glued the lids together and caused an excoriated condition of the lids most noticeable at the inner canthus. The left eye presented an immature nuclear cataract with vision under a normal pupil reduced to fingers, but increased somewhat with a dilated pupil. There was the same sticky secretion as in the other eye and the edges of the lids and cutaneous borders were red, excoriated and moist. There was no dacryocystitis, although there had been a moderate rhinitis for some years.

With the occasional use of a weak solution of scopolamin hydrobromate and the frequent cleansing of the eyes and lids with a solution of boric acid he got along comfortably until December of that year, when the rapid maturation of the lens so impaired the vision that the question of operation became urgent.

Bacteriologic Examination.—Dec. 13, 1901, by Dr. F. T. Fulton, pathologist of the Rhode Island Hospital, with the following result:

Two smears were made from the left eye and one from the right orbit, and cultures from both the left eye, the right orbit and from the nose.

Right Eye: Smear showed fairly numerous pus cells, a few large desquamated epithelial cells and an occasional bacillus which stained by Gram's method. Cultures contained a few colonies of white staphylococci and a few colonies of *Staphylococcus pyogenes aureus.* There was also in the culture a contamination with the bacillus subtilis.

Left Eye: Smear showed a few pus cells and desquamated epithelial cells and a few cocci. Culture showed numerous yellowish colonies of staphylococci, a few white colonies of staphylococci, and a few colonies of short, deeply staining bacilli. The *Staphylococcus pyogenes aureus* was in this culture, the chief organism.

Nose: Culture showed a few white colonies of staphylococci and fewer colonies of staphylococcus aureus.

It was decided to make a test of the behavior of the eye under the treatment to which it would be subjected after operation and, on December 28, he entered the hospital. The left lids were brushed with a 2 per cent. solution of silver nitrate and for two days they were treated with a 50 per cent. solution of protargol four times a day, with frequent washings of boric acid in solution. On the third day, after a thorough cleansing of the brows, skin and lids with a 1 to 1,000 bichlorid, the lids were filled with protargol and a sterile dressing loosely applied. There was during this time a marked increase in the sugar eliminated, reaching about 5 per cent. with 3,800 c.c. of urine. Each time the eye was dressed it was flushed freely with sterile salt solution and the lids filled with protargol. On January 3 a second examination was made.

Report of the Pathologist.—Cultures taken Jan. 3, 1902. This time there were taken smears and cultures from the skin near the inner canthus of the left eye, from the conjunctiva of the lower lid of the left eye, from the secretion on the external surface of the eyelid of the left eye, and a smear and culture from the right eye.

Right Eye: Smear showed only rarely a pus cell. No organisms found. Culture showed no colonies. In the water of condensation, however, there grew a few staphylococci which resembled the staphylococci epidermidis albus.

Left Eye: Smears from the inner canthus showed no pus but a slight amount of granular material. Cultures showed no growth. Smear from the secretion on the external surface of the lid showed a few desquamated cells and a little mucus. In the culture about fifty colonies of the *Staphylococcus pyogenes albus* developed. Smears from the conjunctiva showed a very few cells and a small amount of granular material. Culture showed one colony of the *Staphylococcus pyogenes albus.* These organisms from the lid and conjunctiva liquefied gelatin more rapidly than the one from the right eye.

Dr. Fulton adds: "The most striking thing in comparison with the former examination is the reduction in the number of bacteria in general and the entire absence of the *Staphylococcus pyogenes aureus* on January 4 after the systematic and persistent use of protargol in treatment."

This experiment seemed to prove that protargol would control the growth of staphylococci, but the effect of the salt in such strength on a fresh corneal wound was uncertain. As soon as the patient was allowed exercise and without any change in his diet his urine dropped to 800 c.c. and the sugar to less than 1 per cent. For a month protargol was used daily with careful attention to cleanliness and frequent douching of the nose, and on January 22 a third examination was made.

Cultures Taken Jan. 22, 1902.—This time cultures were made from the left conjunctiva, from the external surface of the lid, from the right eye and from the right cheek.

Right Eye: Smear showed no pus and a few deeply staining bacilli. Culture showed three kinds of colonies. 1. About one-half dozen colonies of *Staphylococcus pyogenes aureus* which rapidly liquefied gelatin. 2. About twenty-five smaller white colonies of a slowly liquefying staphylococcus albus, apparently the epidermis. 3. About fifty colonies of large, irregular, curved, deep staining bacilli.

Cultures from the right cheek showed the fewest colonies of any of the cultures taken. Two kinds. 1. Three yellow colonies of staphylococci. 2. Three small white colonies.

Left Eye: Smears from the conjunctiva contained no pus but a few short, deeply staining bacilli. Culture contained three kinds of colonies. 1. About thirty to forty yellowish colonies, similar to those in the right eye. 2. About equal number of smaller white colonies resembling the white colonies in the right eye. 3. One hundred to two hundred very minute colonies of short, irregular, curved, deeply staining bacilli.

Skin Near Angle: Smears showed a few pus cells and a few cocci. Cultures showed large numbers of closely packed, golden yellowish colonies of *Staphylococcus pyogenes aureus.* Culture also showed a very few of the short bacilli.

The result was disappointing particularly as the frequent washing of the eyes seemed to increase the eczematous condition of the lids and they were at all times moist. The protargol also produced a certain amount of argyrosis. For several weeks then the lids were kept filled with a 50 per cent. ointment of iodoform, the punctum was dilated and syringed freely and then powdered iodoform was dusted inside the lids twice a day, with careful diet and attention to exercise, until his general condition was somewhat improved and then a fourth examination was made. The continued use of the iodoform, however, irritated the cornea and there was a small spot of ulceration which healed rapidly on the cessation of the use of the powder.

Cultures Taken April 22, 1902.—Cultures were taken from

the skin of the lower lid of the left eye, from the conjunctiva and from the left side of the nose, also from the right orbit, with the following result:

Right Eye: Smear contained a few pus cells. Culture contained a few yellowish colonies of staphylococci and a number of white colonies of staphylococci. Cultures also contained a few curved deeply staining bacilli.

Left Eye: Smears from the skin of the left eye showed a few pus cells, a few desquamated epithelial cells, and some mucus. Culture showed about fifty whitish colonies of staphylococci and one or two yellow colonies of the same. Smear from the conjunctiva showed fewer pus cells than on the skin surface of the lid. Culture showed two white and five yellowish colonies of staphylococci. These did not liquefy gelatin.

Nose: Smear showed no pus cells. Culture showed about thirty colonies, some yellow, others white. These were staphylococci.

Cultures Taken April 28, 1902.—Cultures were taken from the conjunctiva, skin on the left lid and from the left side of the nose.

Left Eye: Smears from the skin and from the conjunctiva showed no pus cells or cellular elements, nor any bacteria. Culture from the conjunctiva showed about a dozen colonies of white and about a dozen yellow colonies of staphylococci. Culture from the skin showed about fifty colonies of *Staphylococcus pyogenes albus.*

Nose: Smear showed a slight amount of mucus and a few mononuclear cells, but no pus nor bacteria. Culture showed a number of colonies of the staphylococcus albus and a few small colonies of deeply staining, curved bacilli.

Consultation.—I did not feel like assuming the responsibility of an operation and at my request the advice of an eminent surgeon in New York was sought. He advised against operation, but thought that the conjunctivitis could be cured and then the operation would be safe, and suggested the same remedies that had been faithfully used for three months, so the journey was extended to Philadelphia and the case laid before a surgeon of great experience, who thought that the condition would probably not further improve by treatment, but that by an iridectomy, a conjunctival flap and an open dressing there was a chance of success. He did not, however, accede to my request to assume the responsibility of the case by operating himself.

During the summer and fall the patient kept up the cleansing process daily, with the constant use of various astringent collyria, lived out of doors and tried to improve his general condition in every possible way, and in December, 1902, another test was made with the same result, a culture from the left eye showing a hundred colonies of the staphylococus aureus. Influenced largely by an article by Dr. George F. Suker,[22] I then proposed the operation of reclination and, after due consideration and with a full knowledge of the possible outcome, the patient consented and the operation was done on June 1, 1903.

Operation.—With rigid adherence to the principles of asepsis, with a dilated pupil and the patient in a sitting position, the couching needle was entered 4 mm. from the corneal margin and carried close to the iris till its point engaged the lens at its upper fourth and then by a rotation of the handle, keeping it always in the same axis, the curved point was made to press the lens backward and downward. It was my aim to rupture the capsule above and allow the lens to fall backward like a hinge, but after a few moments of steady pressure it tore in a vertical slit and the lens, turning on a vertical axis, slipped through the rent and disappeared. There was immediate restoration of vision without pain or discomfort, save from the sudden glare of light. The iris immediately contracted to about 4 mm. although the anterior chamber was not evacuated, and at no time since then has it been possible to obtain a maximum dilatation.

In hopes that some shreds of capsule might become attached and, if the lens was not allowed to move, would so bind it in its new position that its subsequent rising would be impossible, the patient sat in an armchair with a specially devised headrest, so that he could sleep and yet keep the head erect for about four days. For two days ice compresses were applied for fifteen minutes in each hour. There was not the slightest sign of inflammatory action and I was able at all times to see the edge of the lens, but after the first twenty-four hours I could detect no motion imparted to it by moderate movements of the eye, although there was a tremulous iris.

Result.—The patient was kept quiet for three weeks and then allowed to walk about with much improved vision, but the rent in the posterior capsule closed quickly and presented an opaque membrane through which clear vision was impossible. From July 1, with a +8.0 lens, the patient went about the streets with comparative ease, was able to recognize friends and transact his business and, save on one occasion after indiscretion in diet, had no trouble with the eye. On September 21 the lens could not be seen, the eye was quiet and with +8.0 the vision was approximately 4/50. The first week in November found him actively engaged in the political campaign and the first evidence of an inflammatory action was noticed the day after election when, by his own story, he smoked twenty cigars. This subsided in twenty-four hours with ice and atropin and, on November 24, I divided the posterior capsule without any resulting inflammatory action, and, on December 3, the vision with +11.0 (+) 1.50 C. 90° was improved to 0.4.

Late in December he went to Washington to attend a meeting of the National Republican Committee and while there began to have pain in the eye. For about two months after his return there was an active iridocyclitis with great injection and pain, but at no time was the cornea involved or pupil occluded and the field was good. The disease was combated by every means in our power, but the greatest relief was experienced from leeches and mercurial inunction. Atropin, at times combined with dionin and cocain, was used all the while, but the pain was excessive and the general condition soon began to show the effect of it, there was a rapid increase in the sugar which later yielded to a stricter diet, but at the expense of physical weakness.

The pain was seldom located in the eye, but seemed purely neuralgic in character and was either at the ala of the nose, over the left nasal bone or at the vertex and would be excited instantly by a loud noise, turning in bed, the pressure of a pillow, the fatigue of talking or even listening to conversation, and presented many of the characteristics of facial tic. The eye would be comparatively white, it could be opened without pain, vision was good enough to allow him to get about the room and he would be feeling well when suddenly the pain would attack him, the tears would begin to flow and the eye would immediately become suffused and reddened; after an attack lasting from a few minutes to a few hours, the eye would again become dry and the redness subside.

Repeated attacks, however, during a period of two months seriously menaced his strength and the eye was not looking well, although the pupil was still clear and, when free from pain, the vision was fairly good. That this pain was not due to an active inflammation in the eye itself is proved by the fact that for days at a time there would be no injection, the sclera would be white and there would be neither photophobia nor lacrymation till an attack of pain would immediately suffuse the eye, and because repeatedly the application of cocain to the nose or a brisk counter-irritant over the forehead would at times stop the pain and almost immediately the redness in the eye would disappear. His general condition is now slowly improving, the attacks of pain are less frequent and not so severe and for quite a long time—some weeks—he has had no trouble with the eye. The vision is not good, but enables him to get about and to distinguish objects in the room and, if allowed to use his glasses, would certainly be much improved. If the diabetic neuralgia can be controlled I believe that he will ultimately regain some of the acuity of vision he had last fall and six months after the operation.

22. Suker: Am. Jour. Ophth., June, 1902.

My reasons for doing a reclination of the lens in this case instead of an extraction are, briefly:

1. The first eye was lost by suppuration after an iridectomy, an unusual occurrence.

2. The existence of a chronic intractable conjunctivitis with mucopurulent discharge and with the tarsal edges continually excoriated by reason of its irritating properties promised a probable infection.

3. The existence of diabetes and consequent impairment of nutrition.

4. A disinclination on my part to do an extraction with the probability of speedy and complete blindness and an unwillingness to experiment on a patient whose prominence in my city and state rendered my action subject to public comment and criticism.

The result of the operation, while in a measure unfortunate, had yet a certain degree of success and satisfies me that the operation can be safely done; that it affords a means of restoring sight where extraction is dangerous and that the dangers attributed to it by so many surgeons are the dangers to be expected and feared, but which do not necessarily follow. I believe that reclination should not be relegated to complete oblivion, but that in a certain class of cases like those enumerated by Power and Suker it is not only justifiable, but advisable.

REPLIES OF THOSE WHO HAVE DONE THE OPERATION.

DR. E. E. HOLT, PORTLAND, ME.—I have performed one operation by this method, using it because the other eye was lost by hemorrhage after operation. In the attempt to couch, the lens was broken up by the knife needle. It was absorbed in six weeks. The ultimate vision was 0.6. I believe the operation justifiable in such a case as that cited. This experience would lead me to do the operation by breaking up the lens a little, rather than to displace it bodily, as there was no swelling of the lens substance. It is impossible for me to tell on how many cases of infection by the staphylococcus or streptococcus I have performed linear extraction, as I have not had cultures of many, but in some cases it has been impossible to free the conjunctival sac from mucopurulent matter, and I have operated, after operation filling sac full of sterilized iodoform. The results have been good. I recall one case with primary suppuration. The sac was syringed with 1 per cent. carbolic acid solution, and carbolic acid, 25 per cent., was applied to edges of corneal flap. The eye was saved with a vision of 0.5.

DR. HASKET DERBY, BOSTON—I performed the operation once in a case of insanity. The case promised well, but was lost sight of, and the ultimate result is unknown. I think the operation distinctly justifiable under the conditions noted in your case. It is impossible to tell on how many cases of infection I have done linear extraction, as my hospital career ended before bacteriology had assumed prominence.

DR. JOHN H. THOMPSON, KANSAS CITY, MO.—I performed reclination once on a very old man with diabetes. There was considerable reaction for six days, but the ultimate result was good. The operation should be done more often than it is. Notwithstanding published statistics, very many patients lose their eyes from traumatic inflammation. In your case cited, I am inclined to think dislocation offers a better chance. I have done ten or more linear extractions on similar cases, with 70 per cent. good results. Suppurating cases have come unexpectedly, and those thought to be dangerous have come out all right.

DR. J. L. THOMPSON, INDIANAPOLIS—I have had possibly a dozen cases, but only performed in case of fluid vitreous. The first was in a woman of 45 years, with lamellar cataract from infancy. I did a preliminary iridectomy, intending extraction, but found fluid vitreous. The eye was bandaged and the lens couched six weeks later. A few months later I did the same operation on the other eye. Both did well. Five years ago the vision was 20/40. I should not care to do the operation without preliminary iridectomy (small) as safeguard against iritis and closure of pupil. I consider the operation justifiable, but not in the case cited by you, as there would be danger of suppuration in doing the iridectomy. In such a case I should obliterate the canaliculi and, if possible, the sac before doing any operation.

DR. H. BERT ELLIS, LOS ANGELES, CAL.—I performed couching in one case because of chronic dacryocystitis. The result was very good for a year, and then vision diminished to perception of light and then to degeneration of vitreous. I consider the operation occasionally justifiable, but ordinarily not so because of the liability of setting up vitreous trouble. In your case I should treat the dacryocystitis and chronic conjunctivitis for some months before operating. I have done two linear extractions on similar cases with excellent results, and have another now pending.

DR. C. M. HOBBY, IOWA CITY, IOWA—My personal experience in couching is of two kinds—couching done by others, and the little done by myself. I have performed the operation myself but once, in a patient of 92, with arteriosclerosis and overripe cataract. I was then doing cataract operations under ether anesthesia, it being before the days of cocain, and it was considered to be dangerous in this case to attempt general anesthesia. The result of the operation was good, but since cocain anesthesia I have not been able to reconcile the advantages of reclination in rapidity and ease to the added risks, and have therefore always made extraction. My one successful reclination taught me that there was, however, vastly more skill required than in extraction, and my fortunate result was a piece of luck. Dr. J. C. Hughes of Keokuk, Iowa, probably made nearly a thousand reclinations prior to 1880. Dr. Hughes was a skillful surgeon of the older generation of the day, and couched cataracts, as he has made lithotomies, fearlessly, and with results that would astonish our present surgical mentors. I never saw him do the operation, and I only met the bad results and occasional good ones seeking duplication from his last two hundred cases, but I saw enough of the results to recognize that it can give prolonged good results, and that the occurrence of sympathetic ophthalmia in the other eye or secondary glaucoma in the eye operated on is by no means necessary.

In the case made the basis of your question, I am inclined to think the operation not only justifiable, but the best possible, if the infective danger can not be controlled primarily. I believe that most of these cases, whether of conjunctivitis or infective dacryocystitis, can be controlled, and if the infective source of danger can be eliminated it is the best course, and I have succeeded several times under both conditions. If, however, there is doubtful possibility of control of infection we certainly can reduce the infective danger of a needle wound to a minimum. I have done probably fifty cases of linear extraction with about 60 per cent. good results. This included prolonged treatment, closing of the canaliculus, leaving eye open after operation, and cauterizing wound with crystals of carbolic acid.

DR. HERMAN KNAPP, NEW YORK—I performed the operation three or four times in 1860-3 because of suppuration in the other eye. The operations were failures by iridocyclitis and glaucoma. I do not consider it justifiable now. In your case I should cure the suppuration or extirpate sac. I never did a linear extraction in total cataracts except in children.

REPLIES OF THOSE WHO HAVE NOT DONE THE OPERATION, BUT WHO BELIEVE IT IS AT TIMES JUSTIFIABLE.

DR. H. GIFFORD, OMAHA—I consider it possibly justifiable in cases where one eye has been lost by hemorrhage and there is decided evidence of arteriosclerosis. In case of your patient, I should get the conjunctiva in the best possible condition and then do extraction, protecting the wound by a conjunctival flap previously dissected up and after the extraction brought down to cover at least one-third of the cornea. I consider that there is danger of glaucoma in couching, and have done extraction in two cases where the other eye had been lost by retinal hemorrhage, both with good results.

DR. H. B. CHANDLER, BOSTON—I have never seen a case, but can conceive of one, where the operation was justifiable. There are, however, the dangers of replacement of the lens, iridochoroiditis, glaucoma and hyalitis to be considered. In dacryocystitis I should remove the sac or operate after treating it, doing simple extraction with conjunctival flap, and stitch and buttonhole iris to prevent prolapse. Ninety per cent. of my cataract extractions show staphylococci before operation. I have done linear extraction in perhaps ten or twelve soft cataracts, with always satisfactory results.

DR. N. M. BLACK, MILWAUKEE, WIS.—I think it justifiable in the very old and weak, the insane, in the second eye where the first was lost by fluid vitreous and there is reason to believe this eye in the same condition, and occasionally in conditions as stated by you. In dacryocystitis I should tie off the punctum before operation and leave until wound healed, as Buller and Wood do; in purulent conjunctivitis of intractable nature, the method described by Ellett of covering cornea and corneal wound with the bulbar conjunctiva until the corneal wound is healed. I have done no linear extractions for such cases, but have seen Dr. C. A. Wood perform it in a case of dacryocystitis in which he ligated the puncti with perfect result.

DR. J. W. CHAMBERLIN, ST. PAUL, MINN.—It would be justifiable as a last resort when treatment of other conditions failed. I have operated on three or four cases where the patient was diabetic or had chronic inflammation of conjunctiva. One failure, one good result, one fair.

DR. E. JACKSON, DENVER—I should think it justifiable when the general health of the patient was so poor that the needed restrictions after extraction would cause serious risk, or where the prospect of early death makes later dangers from couching unimportant. In the case cited, I should improve the lacrimal and conjunctival condition as much as possible, perhaps ligate the canaliculi, make a thorough application of silver nitrate solution to conjunctiva for from twenty-four to thirty-six hours before operating, wash the conjunctiva very thoroughly with [illegible] solution, and do extraction with a section of the [illegible] conjunctival flap, close wound quickly and wash conjunctiva in twenty-four hours.

DR. A. E. BULSON, FT. WAYNE, IND.—I should not hesitate to do the operation under the conditions mentioned. I think the operation has a limited field of usefulness even now, as I have had occasion to see several cases where the same effect has been brought about by trauma as would be produced by couching. One case obtained with lenses 20/30 vision, and has to my certain knowledge retained it for five years. In a case of dacryocystitis I should eradicate the sac and in conjunctivitis treat it until under control, or decline to operate.

Dr. A. Alt, St. Louis—I consider the operation justifiable in exceptional cases—for instance, in patients certain to die soon. I have operated several times where one eye has been lost by infection, with successful results.

Dr. E. C. Ellett, Memphis, Tenn.—I might couch, particularly in old and feeble persons, if the treatment or plan following could not be carried out, in such a case as you outline. In the case of an otherwise healthy person, if the infection was due to the tear sac, I should tie off the canaliculi before extraction. If the discharge was from the conjunctiva I should raise the conjunctiva all around the cornea, extract, sew the conjunctiva over the cornea, letting it remain five days. I have operated twice with perfect success in cases of purulent conjunctivitis (streptococcus and pneumococcus).

Dr. A. R. Baker, Cleveland, Ohio—Yes, justifiable in aged persons when circumstances are such that preliminary treatment could not be given. I have suggested the procedure in choroidal hemorrhage, but never tried it. In the case in question I formerly would have injected sac daily with nitrate of silver, but have recently used protargol until the purulent secretion disappears. I should extract with iridectomy and conjunctival flap, and bandage only from twelve to twenty-four hours, continuing the daily injections of protargol. I have operated on from fifteen to twenty cases of dacryocystitis, and all recovered without infection. Several of the cases were those declined by confrères. I once lost both eyes in an old lady with general anasarca, dilated heart and albumin in urine, but with no local or general infection that I could discover.

Dr. O. F. Wadsworth, Boston—The operation might possibly be justifiable if circumstances absolutely prevent preliminary treatment and the patient understands the doubtful result. I should treat such cases to eliminate the cause. This should be possible in conjunctivitis. If dacryocystitis, the lacrimal sac should be extirpated. I have done very few linear extractions in such cases, none since cocci were recognized. I recall one earlier treated successfully by daily syringing through nose before and after operation.

Dr. W. K. Rogers, Columbus, Ohio—It might be done in some cases of insanity, and possible extreme senility. The loss of one eye by suppuration, however, would not justify me in advising couching, as the condition of infection is to be remedied. I have had several cases of both kinds, but have no cause to complain of results.

Dr. A. B. Hale, Chicago—The operation may be justifiable. In infective cases I should extract through corneal wound and should be tempted to try Czermak's lately devised subconjunctival extraction. I have had three cases, with two eyes saved and one lost.

Dr. N. L. Wilson, Elizabeth, N. J.—It might be used as a last resort if the dacryocystitis or conjunctivitis could not be controlled. I should try closing the punctum, paint the conjunctiva with silver nitrate for a week or two, scrub conjunctiva thoroughly before extraction. I have had three cases, with two eyes saved and one lost.

Dr. Myles Standish, Boston—I can conceive of cases in very aged people where I might consider the operation of couching.

Dr. Henry Gradle, Chicago—I should consider it justifiable only when patient's condition (imbecility, etc.) makes the success of extraction highly improbable.

Dr. H. V Würdemann, Milwaukee, Wis.—Yes, justifiable sometimes in the insane or very old or feeble, whose expectation of life is short. I think the following procedures are sufficient to successfully combat conjunctival and lacrimal suppuration: Cure of nasal, conjunctival and lacrimal disease, including operations on duct, excision of sac, argyrol and silver compounds, occlusion of canaliculi by suture as advocated by Dr. Casey Wood, peritomy and covering cornea temporarily with conjunctiva, as advocated by Dr. Ellett. I have had three cases where the other eye was lost by operation, and about a dozen where the other eye was hopelessly blind from trauma or disease. In 1,000 cases, three have been lost by suppuration, in one only where infection already existed, and two by traumatisms inflicted by patients after operation.

Dr. J. C. McReynolds, Dallas, Texas—The operation is possibly justifiable, but not preferable. If it should prove impossible to remove the focus of infection either by treatment of the diseased structures or by excluding them from communication with the field of operation, I should then proceed in the following way: 1. Make your incision quite peripheral, so as to pass through tissues well supplied with blood vessels, and hence well nourished. 2. Make a conjunctival flap which will quickly unite with the opposing denuded surface, thus preventing the infection of the interior of the globe. 3. Instead of closing the eyes for a few days with a bandage, as in ordinary cases, treat the eye very carefully as a wound of the cornea or sclera by frequent irrigations with mild antiseptics and by constant applications of cold pieces of gauze or linen after the manner of treating a purulent conjunctivitis. I have repeatedly treated such cases without a bandage, and with very satisfactory results.

Dr. James M. Ball, St. Louis—It is justifiable in those near death who wish to see again. In the case mentioned, I should treat conjunctivitis or excise lacrimal sac, and then do extraction with iridectomy. I do not believe in linear extraction.

Dr. S. D. Risley, Philadelphia—It might be done in very aged people, blind in both eyes from cataract, who had not long to live and when it would be dangerous to confine them to bed too long. I have seen, however, many cases where the lens has been dislocated by accident or couching with chronic or trophic choroiditis and tension. In case in question, I should treat conjunctivitis and tear passages for some time, sterilize as thoroughly as possible before operation, and extract lens with a large conjunctival flap, dust iodoform in retrotarsal fold below, and dress eye every twelve hours. I have had many cases where the danger of suppuration was recognized. I recall two where the eye was lost, one from suppurative iritis and the other from slow degenerative changes, probably uveitis. In both cases I felt that there was some relation between the conjunctival state and the ultimate loss of the eye, but these are the only two cases in which I have had to regret having operated on eyes with chronic lacrimal or conjunctival disease.

Dr. H. M. Starkey, Chicago—I have thought for several years that I might try couching, but have had no case in which it was required. I believe I should try it in your case mentioned. There comes to my mind only one case before attention was given to bacteriology in which linear extraction was done, a case of purulent dacryocystitis, in which the eye was lost.

Dr. Lucien Howe, Buffalo, N. Y.—The operation is probably justifiable. In cases of infection I should cure or improve the dacryocystitis or ligate the canaliculi, and then extract.

Dr. Hiram Woods, Baltimore—Yes, it is justifiable if such conditions exist as stated, and it is a question of blindness or taking what is apparently the smallest risk. I should try to get rid of the infection before operating, if possible. Couching should be considered if this seemed impossible. I have lost five eyes after cataract extraction by suppuration in certainly over two hundred extractions.

Dr. J. A. Lippincott, Pittsburg, Pa.—I think the operation of couching might be justifiable on the second eye after loss of the first from choroidal hemorrhage. If persistent treatment failed to eliminate the danger of infection, I should seal the canaliculi and trust to White's ointment of the bichlorid. I should not dislocate. The number of times I have operated on the second eye after the first was lost from suppuration either in my own hands or those of one of my colleagues is very considerable, and the results quite satisfactory, but in all such cases I have spent months in preparatory treatment, directed to the tear ducts and to the nasal cavities.

THOSE WHO DO NOT BELIEVE THE OPERATION EVER JUSTIFIABLE.

Dr. F. C. Hotz, Chicago—I do not consider it justifiable, as clinical experience of the past has shown that sooner or later a slow cyclitis develops and causes blindness. I should extirpate the tear sac or treat the conjunctiva with protargol until the coccus infection is removed, and bandage the eye for only twenty-four hours to get the wound closed, then use only a protecting shield. I can not tell just how many cases I have had, but there has resulted no wound infection.

Dr. T. Y. Sutphen, Newark, N. J.—It seems not justifiable, for, even if no suppuration follows, the result is far worse than after extraction, and I believe the danger of infection is just as great if not greater in puncture than in clean cut. The loss of the other eye after extraction would not deter me from making an operation on the other, but only after every effort to remedy the dacryocystitis or conjunctivitis, and the eye should be dressed more frequently after operation. I have operated on such cases, but do not remember losing an eye as a result.

Dr. Charles S. Bull, New York—No, an opaque lens displaced in the vitreous is a foreign body, presses on the ciliary processes and may give rise to a cyclitis and loss of eye. If the infection is from conjunctivitis, treat until cured. If the lacrimal sac is inflamed, divide the canaliculi, open sac, cauterize and treat by injection until cured. If chronic dacryocystitis, dissect out sac.

Dr. William C. Posey, Philadelphia—It is unwarranted in the light of present knowledge, the dislocated lens giving rise to glaucoma or iridocyclitis. Remove the sac or obliterate the canaliculi before operating.

Dr. Casey A. Wood, Chicago—I have never had a case where I considered it justifiable, owing to the certainty that sooner or later intraocular changes, especially secondary glaucoma, would set in. Other procedures are more likely to obtain useful vision. Where the infection is lacrimal or nasolacrimal, the lesions should be treated with the purpose of curing or relieving them. Then resort to the device advocated by Buller (mentioned in Norris and Oliver[23] by Knapp), which in his experience is effective in shutting off such sources of infection. Where bacterial toxin areas are mainly or entirely situated in the conjunctival sac and lids, these should be carefully looked after, not forgetting the general health, and the most rigid precautions (antiseptic) taken before, during and after operation, which ought to consist of preliminary iridectomy and subsequent extraction. I have done, within the past five years, extractions of this kind with happy results. The Buller method is practically adapted to cases of nasal or lacrimal infection where there is insufficient time allowed for the cure of the original disease. A bacteriologic examination of the conjunctival secretions and a test bandage should give negative results for at least two days before extraction is thought of.

Dr. Adolph Barkan, San Francisco—In thirty-two years I have never couched a cataract, and do not consider it justifiable. I have of late years made the regular extraction in such cases, guarding against wound infection by leaving the eye open after operation and keeping inner angle of eye well covered with iodoform xeroform after some treatment of the lacrimal duct. In five or six such operations no eye has been lost. The *modus operandi* is: Attending to lacrimal tract, probes, astringent injections (no closure of canal, which, in my opinion, produces draining of discharge under bandage). Even if an incomplete result is achieved in making lacrimal channel entirely permeable and aseptic, which is often the case, extract, do not bandage at all, patient keeping his eye closed, but winking occasionally; throw a good deal of xeroform or iodoform into inner angle, repeating application every two to three hours. I nearly always make a good conjunctival flap, and gener-

23. Norris and Oliver: System of Eye Dis., vol. iii, p. 794.

ally do simple extraction. I am not sure that in these cases the duct has always contained streptococci or staphylococci, but often.

DR. G. MELVILLE BLACK, DENVER—No, couching is never permanent in results, even if immediate danger is avoided. Extirpation of the lacrimal sac or other means can be used to make the extraction safe. I should do regular extraction, sliding conjunctiva over cornea, after method of Ellett.

DR. GEORGE H. PRICE, NASHVILLE, TENN.—No, it is not justifiable because the lens, acting as a foreign body, sets up inflammatory trouble which in all probability will result in ultimate loss of eye. The inflammatory condition should be treated until the infection is relieved, which should be accomplished in a reasonable time, and even if it should require considerable waiting it would, in my opinion, be the best line of treatment. I have had cases of not severe conjunctivitis in which results were good.

DR. OSCAR DODD, CHICAGO—Less dangerous means of getting rid of the lens can be used, as a large number of such operations terminate with loss of sight. Treat eye carefully until infection is gone. If necessary, eliminate lacrimal sac by cauterizing punctum or ligating as advised by Buller. Extract after preliminary iridectomy. I have never done linear extraction except in young people with a large nucleus to lens.

DR. G. C. SAVAGE, NASHVILLE, TENN.—No, the lens will act as a foreign body sooner or later. In infective cases treat and cure, if possible, the purulent inflammation and then extract. I have undertaken three or four of such cases with much dread, but successfully.

DR. STEPHEN C. AYRES, CINCINNATI—I do not consider it justifiable on account of danger from glaucoma. The chances of success are better with extraction after obliterating the tear sac, and, if necessary, removing the lacrimal gland.

DR. STEPHEN O. RICHEY, WASHINGTON, D. C.—I think not, as the lens remains as a foreign body in the eye, causing inflammatory action and not remaining anywhere long enough to become encapsulated. Conjunctivitis and dacryocystitis should be absolutely cured before the bulb is opened. Any other procedure invites misfortune.

DR. M. W. ZIMMERMAN, PHILADELPHIA—No, because the lens in the vitreous is a foreign body and a constant and greater danger than infection, which, at its worst, lasts but a few days. I should open and drain or seal the lacrimal nasal duct, treat the conjunctivitis, even use corneal suture and iodoform at time of operation. I have had several such cases. The two losses from infection of the wound were not the cases which before operation looked most dangerous.

DR. E. SWASEY, WORCESTER, MASS.—On general principles, no, as other and safer plans can be adopted to free the conjunctival sac from infectious secretions. Close the tear duct by suture and later, if necessary, remove the lacrimal gland. I had one case, an old man, in which a dirty lacrimal discharge, which had not been found at time of operation, developed under the bandage. The eye was lost by infection. I should first remove the blind eye before operating on the remaining one, as I feel sure that I lost one case from sympathetic inflammation by not doing so.

DR. H. W. RING, NEW HAVEN, CONN.—There are other methods more justifiable. By tying the punctum, dacryocystitis need have no terrors for a few days while the wound is firmly uniting. By closing the wound after extraction with conjunctiva until firm union occurs, the conjunctivitis is not likely to cause infection.

DR. JOHN E. WEEKS, NEW YORK—No, there are other methods which are safer. In infectious dacryocystitis I should advise excision of sac and in infectious conjunctivitis the correction of it by appropriate treatment. Operation after all discharge has ceased. I have operated in four cases of dacryocystitis after treatment, but without excision of the sac, and with satisfactory results. In one case without treatment the eye was lost. I have had good results in a number of cases of chronic conjunctivitis.

DR. JAMES THORINGTON, PHILADELPHIA—I do not believe it justifiable because of the danger of glaucoma, retinitis and degeneration of the vitreous. In a case of dacryocystitis, after preliminary treatment and thorough antisepsis I should operate with large conjunctival flap when making corneal section, dressing eye once or twice a day after operation. I have had three such cases, and good results in all. In none of these had the other eye been operated on.

DR. THOMAS R. POOLEY, NEW YORK—No, the operation is more dangerous than the risk of infection of the wound. I should obliterate or extirpate the sac if dacryocystitis were present; if not, do extraction with iridectomy under rigid antisepsis. I have done successful operations in six cases of dacryocystitis after obliteration and extirpation of the sac.

DR. LEARTUS CONNOR, DETROIT—No, because, 1, the eye is endangered by a foreign body, lens, in vitreous; 2, dacryocystitis and conjunctivitis can be cured and extraction rendered safe; 3, the eye would be endangered by the couching needle if the infection was in the conjunctival sac. Cure the conjunctivitis and dacryocystitis, and then extract lens. If haste was imperative, I might venture to occlude the canaliculi, remove the infection from the conjunctival sac and then extract lens. I recall five cases with good results.

DR. J. ELLIOT COLBURN, CHICAGO—No, the results of accidental luxation in patients over 40 years of age in my experience are uniformly unfavorable and terminate in intraocular disease. In case mentioned, remove the sac and treat conjunctivitis. I have four similar cases, one with poor vision, 20/80; two fair, 20/50, and one good, 20/20—1.

DR. B. BETTMANN, CHICAGO.—It is not justifiable in any circumstances. I should advise extraction and closure of lacrimal duct with cautery. I have had three cases, with good results.

DR. J. M. RAY, LOUISVILLE, KY.—No, because dislocated lens will sooner or later set up changes that are liable to cause destruction of the eye and call for enucleation. Dislocated lenses from injury show this. In dacryocystitis, excise sac and extract lens. In chronic conjunctivitis, get conjunctiva in best condition possible, then extract and leave off dressings as soon as possible. I have had several cases of dacryocystitis; one, in which the canaliculi were not obliterated, was lost.

DR. A. A. HUBBELL, BUFFALO, N. Y.—No, because any case deserving restoration of sight can be made amenable to extraction by suitable preliminary treatment, both local and general, and because couching leads to blindness sooner or later. I would cure the dacryocystitis or conjunctivitis as completely as possible, then do a preliminary iridectomy, and afterward extraction. I have done eight or ten, and every one successful (flap operation). I never do linear extraction.

DR. J. HERBERT CLAIBORNE, NEW YORK—No, not justifiable, since other measures properly carried out give good results. I should advise extirpation of sac and subsequently, after careful treatment of conjunctiva, do linear section.

DR. JOSEPH A. WHITE, RICHMOND, VA.—I have never done the operation, but have watched such cases in the hands of surgeons who preferred operating in this way to sending the case to a specialist, and in nearly every case I could watch to the end the eye has become irritable and lens had to be removed or eye lost. I have, however, seen a few exceptions to this rule. Should not consider it justifiable, as only in exceptional cases will the eye escape ultimate destruction. I should postpone operation until rid of the suppuration from the sac or conjunctiva when suppuration is present. I can not see what influence the loss of one eye from suppuration would have on an operation on the other if this was free from infection. I have operated on a number in which I had to control secretion before operating, but had no bad results in them.

DR. C. R. HOLMES, CINCINNATI—I do not believe it justifiable because of the liability to bring about serious disturbances of the eye at a later date, including glaucoma. My treatment of a case of suppuration of the tear sac would be its extirpation, including the lacrimal gland, prior to the operation, and, if purulent discharge from the lids, deferring the operation until such condition has been brought under control. I have extirpated the lacrimal sac in a woman of 84 years before extracting the cataract. I have not at hand the number of linear extractions, but they amount to several hundred, and so far as I can remember now have only lost two by suppuration, which occurred at the same time and in the same room in a dirty hospital, about ten years ago, where the nurse was an uneducated, half blind woman, and the infection was traced directly to a case of necrosis of the tibia which was being handled by the same nurse at the same time.

DR. CHARLES F. CLARK, COLUMBUS, OHIO—I could not bring myself to endorse such an operation without strong evidence of its safety, I have seen such disastrous results from dislocation of the lens. Should prefer to treat or remove lacrimal sac and later extract.

DR. GEORGE C. HARLAN, PHILADELPHIA—The immediate effect may be encouraging, but the ultimate is likely to be disastrous. In one case of a man of 52 years I had an excellent result by frequent careful needling, boring through center of lens. Twelve operations in the course of a year. Vision, 20/30.

DR. WILLIAM CHEATHAM, LOUISVILLE, KY.—I should fear couching, as I think a bead of vitreous would follow needle, rendering infection more certain. I fill the inner canthus with finely powdered iodoform after washing out sac well. Have had three cases and my assistant one. Good results in all, but I have lost cases where I failed to recognize the dacryocystitis.

DR. B. A. RANDALL, PHILADELPHIA—I recollect having couched a subluxated lens as a temporary expedient. This failed as a couching, but the lens was thereafter more easily extracted in capsule. Should not consider it justifiable in infection, as puncture is liable to destructive infection as an extraction wound. Treatment should be superficial in the effort to cure the infection before risking any cataract operation. I have several times lost cases where latent infection must have been present, unrevealed by conjunctival or lacrimal discharge.

DR. HERBERT HARLAN, BALTIMORE—Very doubtful if justifiable. I should try to cure the dacryocystitis, and get patient in best possible condition and do the linear extraction. I have done several with good results. I fear the result of extraction more in weak old people than in conjunctivitis or dacryocystitis if in good health.

DR. C. A. VEASEY, PHILADELPHIA—From a clinical study of several cases of complete dislocation of lens into the vitreous, it would seem a very doubtful procedure to place it there intentionally. I should treat for a long period the conjunctiva and lacrimal sac as well as the nares, close lacrimal punctum by cautery or suture if pus persisted, operate with large conjunctival flap and use cold compresses from the start. I have had probably half a dozen such cases.

DR. W. B. JOHNSON, PATERSON, N. J.—I should prefer not to do it. Have had about 200 cases, and the results were about equal to the usual percentage, vision ranging in acuity up to 95 per cent. or 96 per cent.

DR. HENRY B. YOUNG, BURLINGTON, IOWA—The operation would not be safer than closing punctum (either method) and not closing lids (open treatment). I have had two cases, both lost by suppuration, one twenty years ago and the other ten years ago. On the last, after treatment of the dacryocystitis, I made an iridectomy and got prompt healing without reaction.

DR. G. E. DE SCHWEINITZ, PHILADELPHIA—I had one case where the lens was accidentally dislocated into the vitreous while making capsulotomy in an unruly patient. Six months later V. with +10.0 =20/c, the eye having been perfectly quiet. Subsequently a capsule discission by another surgeon caused iridocyclitis and loss of

eye. I do not consider that I have had enough experience on which to base an opinion as to the justifiability of the operation. If dacryocystitis exists, excise the sac and close canaliculi; if conjunctivitis, I should think favorably of closing the wound with a stitch and keeping conjunctival sac filled with iodoform until healed. I have operated many times in marked chronic conjunctivitis or hyperemia, usually after preliminary iridectomy, but can not say what bacteriologic findings were in all cases. In two I knew staphylococci were present. Results were good in all cases.

DR. FRANK C. TODD, MINNEAPOLIS—In a case of incurable dacryocystitis extirpate the sac, or, if mild and canaliculi had not been slit, ligature of the canaliculi after cleansing. I operated on one case where the other eye had been lost by sepsis, and on a number of cases of dacryocystitis. The result in the first case was good, and no sepsis in the others.

DR. HOWARD F. HANSELL, PHILADELPHIA—I have had one case of infective trouble in which the result was good. The lower lid was everted and held by adhesive strips, enabling discharge to drain on cheek. The incision in the corneal limbus healed without interruption.

DR. H. G. MILLER, PROVIDENCE, R. I.—When a student in Paris, the operation of couching was frequently performed as a routine operation for cataract, especially by the general surgeon, with often good results.

DR. P. A. CALLAN, NEW YORK—I never had a case where couching was considered. I should destroy the sac, extirpate or tie the canaliculi, and treat the conjunctivitis, make corneal incision or Graefe modified linear. The former gives excellent results in suitable cases.

DR. D. ROY, ATLANTA, GA.—I have no case where the operation was considered. Obliterate the sac if necessary, give preliminary treatment, do preliminary iridectomy and later removal. Have had no case of just the character described.

Drs. William H. Carmalt, New Haven, Conn.; J. B. Emerson, New York; Frank Allport, Chicago; Harry Friedenwald, Baltimore; J. A. Stucky, Lexington, Ky.; B. Joy Jeffries, Boston, Mass., stated that they had not done the operation, but did not express opinion as to advisability.[24]

DISCUSSION.

DR. L. WEBSTER FOX, Philadelphia, said that he can not find it consistent with his teaching and practice to accept Dr. Rogers' views regarding reclination. Dr. Rogers, however, takes an impregnable position in stating that there are some conditions in which the operation is justifiable, and this stand is applicable to all ocular operations when we consider individual skill and experience as a large element to the success of any procedure. Dr. Fox rejects the operation of reclination under all circumstances, believing that the dangers of iritis, iridocyclitis and glaucoma more than counterbalance its better features. The various manifestations following the operation in Dr. Rogers' case would be sufficient, he thinks, to deter one from considering the operation even in the event of apparently incurable dacryocystitis and conjunctivitis, as the results in this case may be considered as the best that may be expected. Dr. Fox would prefer treating the lachrymal and conjunctival conditions over a much longer period and with less strong solutions; and, if still refractory to treatment, he would either ligate the sac or obliterate it and proceed to extraction of the cataractous lens. The technic he employs in all cataract operations is especially applicable under these circumstances. Two hours before the operation the skin around the eye to be operated on is carefully cleansed and eyepads saturated with a 1 to 2,000 solution of corrosive sublimate are placed over both eyes. As the infection is usually gross and not microscopic the conjunctival cul-de-sac is thoroughly irrigated with sterile boric acid solution by means of a pipette connected to a douche bottle by a piece of rubber tubing. Just before the operation a drop or two of a 1 to 2,000 corrosive sublimate solution should be instilled. The cocain should be fresh and the instruments made sterile by placing them in a solution of alcohol and distilled water in the proportion of 5 ounces to 32 ounces, as although the eye is usually very tolerant to considerable infection, the resistance may be greatly lessened by contributory negligence on the part of the operator. The question of the bacteriology in these cases is to Dr. Fox's mind of no practical moment, as it has been repeatedly shown that identical forms of ocular inflammation may be produced by dissimilar organisms, according to the character of the external influences. He said that he would hesitate to condemn those who practice reclination under the circumstances Dr. Rogers alludes to, as their experience and skill undoubtedly warrant its employment by them, but to the teaching of its acceptance as an alternate of extraction he is opposed.

DR. H. V. WÜRDEMANN, Milwaukee, declared that he is convinced that this operation is a live one, though it must be very rarely done. Theoretically he would reject two of the indications given by several recent writers on the subject and by Dr. Rogers, namely, chronic conjunctivitis and chronic suppuration of the lachrymal sac. Dr. Würdemann believes that we can sufficiently combat the infection in these cases, long enough at least to do a cataract extraction. He is more afraid of a puncture of the globe with a needle, or even a Graefe knife than of section of the cornea, because the vitreous is much more injured and more room is given for infection. In over a thousand cases applying for cataract operations he has only found one case in which he would do a reclination. The man was 68 years old, blind in both eyes for 32 years; eight years before nature had performed a partial reclination in one eye so that with a correcting lens he had good vision. A little over a month ago Dr. Würdemann did a reclination on the other eye, getting plus 6/12 vision. The patient remained in the hospital only one week. Of course, the patient was warned beforehand of the possible secondary consequences. Dr. Würdemann had never done the operation before except on pigs' eyes. He held the lens down for about five minutes, waiting to see if it would come up again. The patient is able to read and to get about.

DR. J. L. THOMPSON, Indianapolis, said that there is one class of cases in which nothing else will do; that is where there is fluid vitreous. He has had cases from excellent surgeons where one eye had been operated on and lost, and he knew that these surgeons knew how to do a perfect operation; then he made a preliminary iridectomy before operating for the extraction of the other cataract. Wherever there is any doubt at all, do a preliminary iridectomy. Then reclination may be performed if necessary. If Dr. Thompson were going to do a reclination he would certainly do a preliminary iridectomy first and at least six weeks before the couching.

DR. J. WALTER PARK, Harrisburg, Pa., mentioned a case in which he had intended to do a cataract extraction without iridectomy. After the usual incision he followed the Knapp method of lacerating the capsule and, whether due to carelessness on his part or to undue pressure in trying to get the lens out, instead of coming out it went down into the vitreous and a large bead of vitreous appeared. He at once closed the eye and watched it carefully. The case was some distance from his home, but he went to see the patient every other day. On the fourth day she complained of seeing "black spots," but that was all, and the eye did well. She made a good recovery and has been able to read up to within the last six months. Her vision is now commencing to grow dim and she is thinking of having the other eye operated on. Neither the family nor patient know that it was not an ordinary successful cataract extraction.

DR. S. D. RISLEY, Philadelphia, recalled the case of an aged negro, who came to the university some years ago. A famous Maryland surgeon was riding on horseback along a hot, dusty road in July, and met an old family servant painfully feeling his way along the road. The surgeon said, "Sam, what is the matter; can't you see your way?" He said, "Why, I'se blind, marster." "Well, let me see," said the surgeon. "Why, you have cataracts; let me take them off for you." Opening his

24. Other literature which may be consulted is as follows: Wilder, W. H.: Dislocation of the Lens, Chicago Med. Recorder, 1892, vol. iii, pp. 460-465. Theobald: Report of a lens totally dislocated into the vitreous and retention of useful vision, Tr. Am. Ophth. Soc., N. Y., 1881, vol. iii, p. 100. Wilson: Accidental Depression of an Opaque Lens, Ophth. Hosp. Rep., London, 1860-1862, vol. iii, p. 65. Noyes: Luxation der Linse in das Corpus Vitreum, Ber. a. d. Versammel d. Ophthal., Geselschaft, Stuttgart, 1884, xvi, 90-96. Higgins: Displaced Crystalline Lens Floating Freely in the Vitreous Chamber, London Lancet, 1892, vol. ii, p. 812. Martin, H.: On operations for cataract among the natives of India, Ophthal. Hosp. Rep., London, 1858, i, 161-168. Robertson, J. A.: Observations on Extractions and Displacement of Cataracts, Edinburgh M. & S. J., 1837, vol. xlvii, pp. 378-390. Fuch: Text-book of Ophth., p. 700. Schmidt-Rimpler: Augenheilkunde. Text-Book, p. 374.

saddle-bags, he took out his needle and reclined the lenses as the former servant turned his face upward in perfect confidence in his old master. The old servant, delighted with the result, expressed his gratitude, and master and man went their respective ways. Fifteen years later the aged and now decrepit negro came to Dr. Risley's clinic almost blind. The opaque lenses were bobbing about in a fluid vitreous which was full of opacities. When these subsided somewhat a study could be made of the fundus which showed one of those always remarkable pictures of atrophic choroiditis. Dr. Risley believes that this is what usually takes place from the presence of a reclined lens in the globe. He has seen it over and over again after dislocation of the lens as the result of accident. There is a slow choroiditis and gradual destruction of the eye through degenerative processes caused by the lens acting as a foreign body.

DR. F. T. ROGERS said that he appreciated as well as anyone the dangers from glaucoma and other secondary changes, but if called on to decide what is to be done for a man in this condition he is sure that nearly all would consider this operation seriously. He thinks that Dr. Risley's case of the old negro is not a good argument, because the man might have had a choroiditis before the operation and the immediate vision might not have been much better than when Dr. Risley saw him. The patient's statement can hardly be considered as accurate.

EYE STRAIN.

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The subject of eye strain, including the need for wearing glasses, has for some years been rapidly forcing itself into prominence and has assumed an importance far beyond any expectation. It is in no sense a fashion or fad, though there are many such in medicine. The eyes are, and have been in the past, the unsuspected cause of a great variety of nervous disturbances that were never understood and never satisfactorily explained. Modern methods of study, which have lately accomplished such wonders in all branches of science, when applied to the eye have brought order and truth out of what had been a tangle of theory, supposition and uncertainty. The eye has always been studied simply as a part of the body, under physiology; it needed to be studied as an optical instrument, under optics, a branch of science in which our knowledge is mathematically accurate. Strange to say, it has always been considered a satisfactory explanation, when eyes are painful, weary, dreading light or close work, to say that they are weak, and that the proper treatment is to rest and to avoid using them.

No organ of the body should fail to perform its own particular function or show difficulty in its performance unless something is out of order; the proper thing to do is not to give up its use, but to find the trouble, to correct it if possible, and to restore the organ to usefulness. Many people use their eyes almost constantly on fine, close work without a thought or a twinge of pain; they have normal eyes. Many others find more or less fatigue or trouble, even from very moderate work, and are compelled to give up the use of their eyes, even though they may see well. These people have abnormal, imperfect eyes, even though they have good, clear vision. It is not, therefore, the amount of work done that causes the pain and fatigue, it is the kind of eyes with which the work is done.

The value and usefulness of every optical instrument is well known to depend primarily on the exactness of shape of the lenses and on the accuracy of their position; and every instrument, though built to be correct for general use, has to have some means of adjustment, to focus or to adapt it to the varying conditions of light and distance. The eye is a camera, with its lens inside; the pupil the stop, or diaphragm; the eyelids the shutter; but instead of a plate or film to take each picture, it has the retina, or expanded optic nerve, ever ready to feel and to convey to the brain countless pictures in constant succession. It also has its adjusting power; not a screw nor a draw tube, but the delicate ciliary muscle, which acts on the lens and changes the focus according to the nearness of the object looked at, but which is not needed for distant vision. Being an optical instrument, the eye can not escape the fixed law of optics, the necessity for extreme accuracy in the original shape and position of its parts.

We know that all parts and organs of every living body vary much in size and shape and that many differ greatly from what is known to be the typical or perfect shape. Unfortunately, the eye is no exception. Since instruments have been invented to make accurate measurements, it has been found that the eye varies as much as everything else. Each person is born with his own pair of eyes; sometimes they are correct, oftener not so; often they are not alike and can not work together properly. If the eyes are not optically correct they are made correct so far as possible by using the ciliary muscles. The baby rapidly learns to do this, and grows up seeing very well because he works and corrects his errors. Since the errors are always there, however, and must always be corrected before he gets any clear vision, he is compelled to keep his muscles at work all the time if he wishes to see clearly. Though muscles are made for work and grow strong and healthy from it, rest in proper quantities and at frequent intervals is equally essential to their health and strength. Muscles tire if kept at work too long, and the more tired they become the greater the amount of nervous force required to keep them at work, and the sooner they become exhausted. The normal eye rests when looking at a distance, but eyes of faulty shape have their errors to correct even in distant vision; so they get no rest anywhere. It is not, therefore, the reading, writing or sewing (which is proper work for good eyes) that is responsible for the fatigue and eye strain; it is being compelled to do this work with imperfect eyes.

If variations in eyes are so common, and constant strain is present in so many people, why do they not all break down and show serious trouble? Because there are secondary influences that also have to be considered. First, muscles tire much more quickly with hard work than with slight work; one can carry ten pounds much longer without fatigue than a hundred. It is a law of optics that the work required of the adjusting power increases very rapidly as the object we look at comes nearer. A certain amount of effort of the ciliary muscles is necessary to adjust the eyes if an object twenty-five feet away is moved twenty feet nearer. It requires just as much increase of effort if an object three feet away is brought one foot nearer, or if an object one foot away is brought one inch nearer. It depends, therefore, very much on whether the owner of the faulty eyes is occupied chiefly in looking at objects several feet away, involving very slight effort, or whether he is reading, drawing or writing. Second, it depends greatly on the nervous system that has to supply the energy to the muscles. If the health is perfect and the supply of nerve power abundant the amount needed for the necessary correction of errors may not be felt for a

long time, perhaps it may never be noticed; but if the nervous system is not strong or if any other conditions arise which draw heavily on the available supply of nervous energy, illness, worry, overwork, anxiety, over-excitement, then the little errors may prove a heavy burden. With a good income, little expenses may be disregarded; but with a small one they become of serious importance.

To this extent only, eye strain is conditional on the general health and constitution, and on the high tension of modern life; but the cause once there is always there, a fixed tax on one's powers, ready to grow into a burden at any time. It is not difficult, therefore, to understand that the demand for clear vision all the time, and near vision most of the time, may cause severe strain on imperfectly shaped eyes. It is not quite so easy to realize that with keen vision and free use of it, without any eye symptoms, eye strain may be responsible for results, which appear far off, in some other place. But since we insist on having clear vision all the time, we are obliged to borrow the extra nerve power from elsewhere; and, while the sight may be all right, some other place suffers. It is found to be an actual fact that eye strain is often the principal factor producing nervous debility, hysteria, melancholia, vertigo, nausea, insomnia, nervous dyspepsia, palpitation, general nervousness, irritability, faintness, weariness, headaches, constipation, and dozens of other annoying conditions. Eye strain is not a temporary condition due to some recent extra eye work, though that may be the occasion that brings it into notice.

Eye strain is a permanent waste of nervous energy in correcting the slight congenital and permanent errors in the shape of the eyes. This waste is not felt by a strong, healthy system, but is ready to become a decided tax whenever the system gets below par, and its effects are intensified immensely by continued close work.

When once the muscles have been taxed to the point of exhaustion, and nervous reflexes or disturbances set up elsewhere, then any effort to force the eyes to continue their work may cause actual physical damage requiring a long time to repair. It is like the breakdown that comes from overwork in any other way, repair is slow and sometimes never perfect.

Generally, the first effects of eye strain draw no attention to the eyes, for it may not affect the vision and very often does not interfere with the use of the eyes, but it fatigues and taxes the nervous system and compels one to pay dearly for it in some other way. The great misfortune is that it is not usually discovered, nor even looked for, until the trouble is well established. All grades of disturbances may result from eye strain, from the slightest smarting or weariness of the eyes after close work to confirmed invalidism. It may show itself in the youngest child, as irritability or nervous excitability, or it may not appear till the burden of old age forces it into notice and uncovers the cause of many an unexplained fret and disability. It may be an unsuspected factor aggravating and intensifying some other weak spot or ailment, and may take different forms at different times; it may excite a weak heart, dull the mental powers, or put the whole system out of balance.

Now that the cause of eye strain is known, we have the choice of two methods of relief: we may remove the conditions that make it a burden, or we may correct, but not remove, the cause. We can stop using the eyes for reading and for all kinds of near-work; stop doing the things which have been using up our energy, and then the tired muscles will slowly recruit and be able to get on very well, so long as the eyes are used very moderately. This method gives relief, but at the cost of permanently giving up near-vision to a great extent. On the other hand, we can search out and measure the errors in shape and by using correcting glasses, obtain relief, so long as we submit to their use, sufficiently to avoid the accumulation of fatigue.

Both these methods are very unpleasant. One does not wish to give up near-work; it is always a pleasure, usually a necessity. One does not wish to wear glasses most of the time, they are an annoyance and a cross; and yet there is really no other way, except to bear the strain and its increasing results—one never gets a new pair of eyes. This, then, is the second, very unpalatable fact: there is no way to prevent the bad effects of eye strain that is not unpleasant, and, since the cause is permanent, the prospect is very discouraging.

Theoretically, glasses should be worn constantly, since the errors are fixed, but if the eyes can once learn how to rest, they are usually able to bear their overwork a fair share of the time without bad results; but they must have rest, and at frequent intervals. The dislike to wearing glasses is so great and universal, the reason for wearing them so little understood, and the temptation to the oculist to avoid forcing such an unpleasant remedy on his patients is so strong, that they have been worn generally, for close work only, or for temporary relief, and as little as possible. Wearing glasses for near-work simply, makes that work as easy for imperfect eyes as it is for good eyes without glasses. But good eyes, having done their work, look off at a distance and rest; imperfect eyes can not look off and rest unless they keep the correcting glasses on; and rest is the most important thing. Rested eyes are able and willing to work hard; weary eyes that are not permitted nor taught to rest are unfit for work. This is the reason why so many people get such unsatisfactory results from wearing glasses; they wear them to aid them on their hard work, but fail to wear them so as to get any rest.

The third unpleasant point is that if glasses are needed at all they are really more beneficial when worn for resting or distant vision than for close work; but that is exactly opposite to what people wish to do or find agreeable. Too many people decide to follow their own inclination, but are sure to find later that the cost of so doing is much greater than they had expected. Much study and experimenting, with the aid of skilled workmen, have succeeded in producing instruments and methods wonderfully accurate for measuring optical defects in the eye or elsewhere. With these, it seems as if the oculist ought to find it an easy matter to immediately correct the slight variations in the eyes, which may be the source of so much annoyance and nervous wear and tear, if patients would consent to wear the hated glasses.

Experience has brought out another troublesome fact that till recently baffled investigation and thwarted the best endeavors of the oculist and the expectations of those who looked for relief. It has long been realized that the eyes seem to vary very much and change as time goes on; that different observers, or the same observer, get different measurements at different times. Mydriatics have been used to paralyze the muscles, but it has been found that the eyes will generally refuse to accept as much correction as seems to be needed under

such examination; and only temporary relief is obtained from the correction they accept. Confusion results and confidence in oculists' measurements and opinions, naturally, is much shaken. But carefully kept records, following cases for years, and study of final successes, have brought out clearly the reason for all this. The fault is not with the instruments, the oculist nor the patient; it is the life-long habit of the ciliary muscle that prevents it from fully relaxing and exposing the whole error. It can not relax fully, because it is not under the control of the will; it acts automatically, from a habit, too strong to be given up all at once. It must be remembered that the child was born with its errors, and in every act of vision, during every waking hour, he has been obliged to use this muscle to get clear vision; he never saw without making an effort, and it has become as natural to make this effort, if he opens his eyes, as to speak his own language if he talks. So, when a child or a man is asked in the oculist's office to open his eyes and see small letters without correcting his errors, as he always has done, he is asked to do an impossible thing. He simply can not. He does relax partially, but he can not let go and rest. The error is measured by the instruments, just as far as he relaxes and lets it out; but they can not measure the part he still, involuntarily, continues to correct. It follows, therefore, that glasses have to be changed from time to time as fast as the patient learns to relax. No one can accept the correction of the whole error at once, for old habits can not be given up suddenly. Nor do the eyes accept full correction willingly, for they are so much more familiar with their own way.

It is, of course, the first and natural thought of every one (oculists also, till they learn by experience to the contrary) that the glasses which give the sharpest, clearest vision, and which can be worn immediately, without annoyance, are the proper ones. But such glasses must always permit the ciliary muscle to retain part, at least, of the old habit. The muscles can not give up their habit suddenly or easily; they have to be urged, against their will, to learn to rest. Of course, the patient naturally objects to wearing glasses much if he thinks he can get on without, or to be hurried out of his old familiar way; he prefers to relax a little at a time, and to retain clear, sharp vision everywhere. And, of course, it is much easier, perhaps more profitable for the oculist, to yield to the patient's earnest desire, and let him wear the glasses but little and make them weak enough to please him. This way usually involves many examinations, and slight changes of glasses, perhaps spread over many years and give, meanwhile, only partial relief. Rest and ease can not come without the use of glasses for distant vision, nor until relaxation of the tired-out muscles is complete. If decided, speedy and permanent comfort and ease in the use of one's eyes are desired, it is the duty of the oculist to urge the patient to accept as much correction as he can, not what he likes, and to learn, by much practice, to relax completely and as soon as possible. What reason or sense is there in correcting only a part of a known error and leaving the rest to keep up the strain. One does not rest a weary, uplifted arm by dropping it a little or a good part of the way; it is the letting go that gives ease; once rested, the muscles are ready to work again. We judge of a surgeon or a dentist by the thoroughness and permanence of his work. Why not judge an oculist in the same way? The work is not done till the eyes are taught to rest. The prevailing idea, that to use glasses too much, or to wear glasses seemingly overstrong, weakens and impairs the natural power of the eye, is a mistaken one. It is perfectly true that the eyes ought to do their own proper work themselves without assistance; just as it is true that a man should use all his muscles freely and even work hard with them, for he would be better and healthier for it. But it is not true that he is strengthened by using them all the time without any rest. Glasses which correct the optical imperfections of the eyes, when worn all the time, simply remove the abnormal tax on the muscles, resulting from the imperfect shape of the eyes, remove the constant strain, render the eyes normal and give them a fair chance to work and rest, just as much and under the same conditions as do perfect eyes. The glasses do not do a bit of the work the eyes ought to do; they simply correct imperfections, oil the machine, remove unnecessary friction and prevent waste of power. If, by chance, we should put on a little too much oil, no harm is done, the machine is not injured, no power is lost. It is vastly safer for the welfare of the eyes to err on the side of giving a trifle too much aid rather than leave them compelled to work a trifle, with no chance of ever resting. So, contrary to the general idea, sharp, clear sight, so highly prized and the boast of many, is not the proof or the test of a good eye; for many who have the keenest vision can not use their eyes much or with any comfort.

Easy vision—vision that can be used and enjoyed freely, without thought or fatigue—is the proper test of a good eye. The normal and the imperfect eye may see equally well; the imperfect eye may actually see the better; but one can be used with no consciousness but pleasure; the other wearies and has to be carefully guarded from bright light and from overuse, and may make its owner conscious of a lack of nerve power somewhere most of the time.

When the fact is realized that congenital and natural variations in the shape of the eyes are the cause, not only of so-called weak eyes, but a very large part of the nervous frets and weaknesses which mar the ease and comfort of so many lives, it will be considered wise to hunt for errors in the child. None can be found if they do not exist, nor can strain on the nervous system be avoided, if they do exist, by leaving them uncorrected. The child, who begins early, has no strong habits to break, easily learns to accept full correction, and by wearing glasses a few hours a day, at home in the house, keeps out of all trouble, and is not confined to the glasses, for he never gets exhausted and knows how to rest if he is tired; yet he should never discard them entirely, for his errors remain as long as his eyes do.

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SOME FALLACIES IN THE AGGLUTINATION TESTS;

A PLEA FOR THE EMPLOYMENT OF A MORE UNIFORM TECHNIC.

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The increased attention which has of late been extended to the serum agglutination of bacteria has brought into prominence certain fallacies which arise in the experimenter's hands, and which must have been noted, to a greater or less extent, by everyone working in this subject.

The literature which has now accumulated dealing with the agglutination of the typho-coli group alone is nigh unlimited, and many of the reports are so at variance with each other that we are landed in a hopeless confusion when we strive to draw the true inferences from them. Some have held that the agglutinins produced by each organism are specific, while a host of others have denied this and have pointed out that they are only special for closely allied groups of organisms. Others, again, have demonstrated that this agglutination reaction is not necessarily a vital one, but is also exhibited in inert substances in a fluid medium. This latter phenomenon, Sir Lauder Brunton[1] and Norris demonstrated by the use of bits of soaped cork floating on water which had been faintly acidulated. Hence, in recent years, one would almost be led to believe that the Gruber-Widal reaction, which was to become the only absolute test in differentiating various infections and to group the different organisms into their respective classes, must be overthrown.

Much of this confusion has been due to the different methods employed in the technic; in fact, there are almost as many methods as there are workers in the subject. In such delicate tests as are required for the agglutination reaction, our present methods, though much advanced through the experiences of eight years of research, are still very crude, so much so, in fact, that many personal errors, including technic, are only eliminated with difficulty. It was a similar state of confusion which led American bacteriologists to adopt a standard method of procedure in determining the biologic characters of bacteria.

Quite recently, Nicolle[2] has emphasized the necessity of the various workers employing a uniform technic. It is the first essential if we wish to obtain some comparable reports and results of agglutinins, to adopt common methods; not only in the instruments we use, but also in the treatment of the animals and cultures we employ. The fact that one observer obtains agglutination of an organism, even in a stated dilution of his serum, neither tells us the susceptibility of his organism nor the potency of his serum; all depends on the age of the culture, the medium in which the agglutination has been carried on, the temperature of incubation, the reaction of the medium and many other points which will be discussed in turn.

AGE OF CULTURE.

The term "age of culture" may mean one of two things—either the length of time that a given culture has been growing in or on one particular mass of medium, or the time that the organism has been isolated from the animal body or from its natural habitat in water and transferred to artificial media. Here we refer to the latter.

That environment plays a great part in modifying the characters of an organism is well seen in the following: Rodet, and Nicolle and Trenel[3] found that the *B. typhosus,* isolated from typhoid patients, would agglutinate with great difficulty unless it had been retained on artificial media for some months. Bail[4] observed this same difficulty in agglutinating organisms isolated from water, but that this difficulty could be partially overcome by heating the organisms to 60 C. Wyatt Johnston[5] pointed out in 1897 that the power to agglutinate varied widely with different cultures of the same organism more especially, he said, with the degree in virulence. The relationship of agglutination to virulence seems to be only one of activity of the organism. Thus a strain which is frequently transferred to fresh media, and hence culturally becoming more active with increase in its virulence, is found to be more sensitive to agglutination.

I found the same difficulty as Rodet and Bail in agglutinating newly isolated strains of the *B. typhosus.* A laboratory stock culture of *B. typhosus* which had been on an agar medium for over ten months was grown in a flask containing 400 c.c. of water and 50 c.c. of neutral bouillon. Another strain of *B. typhosus* recently obtained from the spleen of a patient, was taken from the first transfer on agar and inoculated into a similar mixture of broth and water. Both strains, incubated at 37 C. for eighteen hours, were tested against an alien typhoid-immune serum (rabbit).

Dilution of Typhoid Immune Serum.

	I-60	I-120	I-310	I-620	I-930	I-1240	I-2480
Old laboratory stock.	++ ++	++ ++	++ ++	++ ++	++ ++	++ ++	+
Recent strain.	++	+	±	0	0	0	0

In the table the following signs are used: ++ to indicate strong agglutination. + to indicate fair, but not intense and rapid. ± to indicate partial.

Evidently strains of *B. typhosus* newly isolated from the animal body have a diminished affinity for agglutinins. It would seem that the agglutinin receptors of the micro-organisms are already satisfied or partially satisfied by the agglutinins obtained from the reaction of the tissues of the recent host. That an organism once agglutinated, whether *in vitro* or *in vivo,* retains the inability to unite with the agglutinin haptophores, is borne out in all the experiments; and hence in testing the potency of a serum we must be careful in selecting our test organism.

The growth of the old laboratory stock strain in the flask was quite different from that of the recently acquired strain. The former showed a medium equally clouded throughout; the latter, though the medium showed similar cloudiness, also showed a fine granular layer at the bottom of the flask which consisted of pseudo-clumps. These clumps, microscopically, did not differ from true clumping except that, in the medium about them, there were still actively motile organisms. The lower limit of the dilution, obtained in the strain recently isolated, has been our experience in all such tests; and this, too, is the case when the organism has been isolated from the blood or feces of a patient. Different strains of *B. typhosus* do not agglutinate uniformly until grown for at least six months on agar. Up to this time they increase in susceptibility to the agglutinins. This latter point opens up a question: Can we distinguish, by the avidity with which an organism, isolated from water, becomes agglutinated, how long that organism has dwelt outside the animal body? The clearing up of this point would give the absolute value of finding *B. coli communis* in drinking water as establishing its source from recent contamination.

MEDIUM IN WHICH AGGLUTINATION IS CARRIED ON.

All living cells are influenced, more or less, by the

1. Lauder Brunton: Jour. Path. and Bact., 1901, vol. vii, p. 53.
2. Nicolle: Annal. de l'Institute Pasteur, 1904, vol. xviii, p. 209.
3. Nicolle and Trenel: Annal. de l'Institute Pasteur, 1902, vol. xvi, p. 562.
4. Archiv f. Hygiene, 1902, vol. xlii, p. 307.
5. Wyatt Johnston: Trans. Amer. Pub. Health Assn., 1897.

medium in which they are grown; either by its affecting their morphologic characters or perverting their secretions. Now, the agglutination process depends on a chemical or at least on a physicochemical reaction. This reaction must, of necessity, vary according to the nature of the secretions. The agglutinable substance produced by the micro-organism must take the form of an excretion which, along with other products, is modified by the medium in which the micro-organism is grown. The whole question of whether or not a microbe agglutinates well with its homologous serum (granting that the serum is potent) depends on the quantity of agglutinable substance it has produced or can produce. This frequently depends on the method of culture employed. Some prefer growing the micro-organism in a plain neutral broth to which an active serum is then added. Others use specially prepared media, as in our own[6] case, where a weak broth is used so as to dilute the albumins and proteids in the medium as much as possible without affecting the growth of the organism. Our dilute broth was made up of 450 c.c. of water, to which 50 c.c. of beef broth (as described by the Committee of American Bacteriologists) was added. We thus obtained a uniformly cloudy medium which was always of the same opacity after eighteen hours' incubation. Others, again, prefer to grow the microbe on agar, from which an emulsion is then made in water or in sterile salt solution, equal to the opalescence of a given solution. This will be referred to later.

In 1901 Savage pointed out that a spontaneous clumping occurred in certain of his strains of *B. typhosus,* but always in a broth medium. The clumping appeared mostly in cultures several days old, but it was also seen in twenty-four-hour growths. No modification in a medium could be found which prevented its occurrence or modified its appearance. Such a spontaneous agglutination was never noted by us in using the dilute broth medium.

A year-old laboratory culture of *B. typhosus* was grown in our weak broth medium, and another transfer made from the same strain into an artificial broth medium as used in the laboratory, made from Liebig's meat extract, using 3 grams of the extract, 10 grams of Witte's peptone and 5 grams of salt to 1,000 c.c. of water. Both were under the same conditions of temperature, time and reaction. After eighteen hours' incubation, each was tested against a common immune serum. It was found that the clumping in the weak broth appeared sooner, but, at the end of two hours, the reaction in it was not so nearly marked as in the stronger broth used. In seeking an explanation it was found that the filtrate of the more concentrated medium gave a precipitate with the serum, while the weak medium did not react. This brings up another point—that of peptone precipitants present in artificially produced sera due to inoculating peptone cultures into the experimental animal. We know that various proteids inoculated into the animal body will call forth the reaction of an antibody, which antibody, in the presence of the substance injected will cause a precipitation. With the latter view of Wassermann, that agglutinins and precipitins are identical in character, this would mean that the agglutinable substance within the body of the organism will, under favorable conditions, be extruded into the surrounding medium, and will exist in it as free bodies ready to be acted on by the agglutinins. Now, in carrying out experiments regarding agglutination, it is of great import to concentrate the agglutinable substances within the body of the microbe and to have as little free in the medium as possible. That the free precipitating body in the medium is identical with the agglutinable substance, is not proven as yet, but true it is that frequent washing of an organism relieves it of the power to agglutinate when acted on by an active serum.

The reaction of the medium in which the microbe is grown also plays a part in the sensitiveness of the microbe to agglutinins. I have found that *B. typhosus* is most sensitive when grown on media neutral or faintly acid, +2.0 N/10 to phenolphthalein.

Further, Bordet[7] points out that agglutination takes place much more actively in emulsions of the organism made in normal salt solutions, than in emulsions made in sterile water without the presence of salt.

TEMPERATURE OF INCUBATION.

Cultures obtained from the same stock and inoculated into weak broth media, but placed at different temperatures of incubation, are found to show a different power of agglutination. *B. typhosus* will grow well at 37 and 42 C. This organism grown at these temperatures shows a more active agglutination reaction in the cultures grown at 37 C. At this temperature well-marked agglutination was obtained at a dilution of 1 in 4,960, while only a faint agglutination resulted with the same serum in a dilution of 1 in 2,480, in the colony grown at 42 C. Whether there are more or less products excreted by the organism at one temperature than at another, which have an influence on the agglutinative reaction, or whether there is a difference in the number of organisms present in the medium, or both, I am not prepared to say.

Under this same heading I would also note another interesting phenomenon in the technic of agglutination. If a culture of the dilute broth be taken directly from the incubator at 37 C. and placed in the cold, the typical agglutination flocculi will result. This can be demonstrated very prettily by growing the *B. typhosus* in long tubes, such as described by Adami and Chopin[8] for macroscopic agglutination tests. After incubating eighteen hours place the tube in ice water. Within twenty minutes very decided flakes will be seen adhering to the sides of the tube which, in the course of several hours, will be precipitated in flocculent masses. The carrying of these tubes from an incubator at 37 C. to a cool laboratory at 17 or 18 C., is often sufficient to chill the culture and produce the pseudo-clumping.

NUMBER OF ORGANISMS PRESENT IN TEST EMULSIONS.

In our present belief that an immune serum contains agglutinins which are limited in amount or number for such serum, we can conceive that there must be an equally limited number of receptors which will exactly neutralize that serum. It matters not whether we consider agglutination as a chemical or a physico-chemical reaction. Should these receptors be too few in number, there being too few organisms in the medium acted on by the serum, there will be a definite amount of agglutinin, which is still potent, unsatisfied. This is somewhat similar to the observations of Castellani, who found that, in sera containing several varieties of agglutinins, he could satisfy and remove one without af-

6. My remarks apply to the methods in use at McGill University, Montreal.

7. Bordet: Annal. de l'Institute Pasteur, 1899, vol. xiii, p. 225.
8. Adami and Chopin: Jour. Med. Research, 1904, vol. ii, p. 469

fecting the other. Thus from a serum which agglutinated both the *B. typhosus* and *B. coli communis,* he could remove the agglutinins for either one by subjecting the serum to the respective organisms and still leaving the agglutinin for the other unaffected.

Again, if a medium contain so many organisms that the receptors are more numerous than the agglutinative haptophores of the serum, the total amount of the receptors will be unsatisfied by this serum with a consequent imperfect agglutination reaction. Thus it is impossible to compare the agglutinability of two strains of the same organism unless the condition as to the number of receptors—or, in other words, the number of bacteria—is the same. To obtain a medium having a standard number of organisms, Sacquépée and, later, Nicolle, used as indicators of opacity, suspensions of silver chlorid and lead carbonate, respectively, which were made with a definite formula. Emulsions of bacteria, either in broth or normal salt solution, were then made to the same degree of turbidity which represented the amount of opalescence in an eighteen-hour culture. We found that, by growing the organism in a large amount of medium—500 c.c. of weak broth—from a relatively small mass inoculated (three platinum loop fulls), that the degree of turbidity varied in imperceptible limits. When the food supply is in such relatively large quantities to the number of organisms inoculated in it, the growth, in the first eighteen hours, is constant.

A control emulsion of silver chlorid was prepared equal to the turbidity of one of the flasks, and this was compared with that of the succeeding cultures. When the time of incubation was kept constant, the opalescence of the growth did not vary in the different flasks.

MEDIUM USED IN INOCULATION OF ANIMALS.

Another process which leads to discrepancies in the agglutination test is the diluent used in the inoculation of animals for serum production. It has been frequently shown that the inoculation of proteids from different sources sets up in the animal the production of an anti-body in the form of a precipitin. Under these proteid bodies come also peptone and meat extracts. The injection of these substances calls forth precipitins special for each, and, if the sera from the inoculated animals are added to proteid solutions similar to those inoculated, we obtain the deposition of flocculent masses—the precipitate. Now, in inoculating animals with broth cultures, we set up a series of reactions— the formation of agglutinins for the microorganism and a special precipitin or precipitins for the proteid elements in the medium. The serum thus obtained, when tested against another broth culture, will show a distinct macroscopic reaction, whether the specific organism be present or no, the organism being mechanically carried down with the precipitate formed and appearing to afford in all respects a typical agglutination reaction.

To obviate the confusion arising from agglutinins and precipitins, the organism must be grown on solid media from which it is then removed with the platinum loop and emulsified in sterile water, or better, a normal salt solution. This emulsion, when inoculated, will produce no precipitins in the blood serum.

AGGLUTINATION REACTION DUE TO OTHER THAN SPECIAL SERA.

Agglutination following the addition of small dilute quantities of certain chemicals, has an interest beyond the mere experimental one. Such chemicals are used, not infrequently in disinfecting our reagent glasses, and also as preservatives for agglutinative sera. Among the reagents which, when added to a sensitive culture, produce the typical agglutination reaction, are mineral and organic acids, perchlorid of iron, calcium chlorid, mercury bichlorid, safranin, vesuvin and sodium sulphid; strong solutions of formalin will also cause the agglutination. Carbolic acid solution and chloroform are without effect, and hence can be safely used as antiseptics in preserving immune sera.

Blachstein,[9] working on the supposition that agglutination was a purely chemical phenomenon, concluded that there must be substances which will act equally specifically as the active sera against the homologous organism. Such a substance he found in chrysoidin which, in weak dilutions, has specific agglutinating reaction against the vibrio of cholera. Later it was shown that dilutions of chrysoidin would also agglutinate the vibrio of Finkler-Prior, though not in so high dilutions as was obtained with the cholera organism.

The dried blood test, which was instituted by Wyatt Johnston,[5] has its many advantages to the practitioner, but care must be taken in the selection of the paper on which the blood is collected. Testing a series of papers containing no blood, I found that the microscopic clumping could be obtained with some by using as an agglutinin a drop of water which has been in contact with the paper for some minutes. All papers do not act thus, but those which have an exceptionally glossy finish, as the cheap note paper, and leave a dull area where the water has been in contact, give a clumping of the organism.

Blotting paper, such as is used in the Talqvist hemoglobinometer, serves very well to collect suspected blood, and does not introduce any foreign clumping agent in the test. The blood stains are cut out and soaked in a watch glass with normal salt solution. The solution then represents our blood serum to be used.

Wesbrook[10] has devised a method which Wilson has put into practical use for making accurate dilutions of dried blood specimens, which the ordinary blood collection on paper does not allow. He provides the physician with a small sheet of aluminum foil on which the blood drops of a suspected typhoid patient are collected and allowed to dry. In this way the blood of a suspected typhoid case is sent to the laboratory where the dried blood is carefully shelled off of the foil and weighed. From numerous experiments he found that 0.001 gm. of the dried blood was equal to 0.004 gm. of the fresh blood. The weighed dried blood is then mixed with a sufficient amount of sterile normal salt solution to make a dilution of one in fifty or more. As Wesbrook has pointed out, the main difficulty in using this method is the weighing of the blood specimen. A little practice obviates this difficulty.

MACROSCOPIC VS. MICROSCOPIC METHOD OF EXAMINATION

Each method has its advantages and disadvantages, and each observer has his own reasons for choosing the one or the other. In testing strains of organisms against different sera, we have, at this laboratory, given preference to the macroscopic technic. By carrying out the technic recently described by Adami and Chopin,

9. Blachstein: Contribution to Science, Johns Hopkins Univ., 1900, p. 891.
10. Wesbrook and Wilson: Philadelphia Med. Jour., 1898, vol. i, p. 549.

the observer is relieved, to a great extent, of the fatigue in using the microscope, and, further, he can compare all his dilutions at a glance, gaining a much more exact picture of the potency of the serum and the sensitiveness of the organism. Much finer grades of dilution can be arrived at by using these large quantities of bacterial emulsion than is possible, even with the use of the mixing pipette of the hemocytometer, in the hanging-drop preparation.

SUMMARY.

Without entering into the discussion as to the chemical or physico-chemical nature of agglutination and the bearing this has on the differences in the agglutination reaction, and vice versa, I wish to point out that in carrying out these tests we require a greater uniformity in the technic to allow comparisons of the results obtained by different observers.

The susceptibility of an organism to agglutinins increases for the first six months from the time it has been isolated from the animal body and grown on artificial media.

Inoculations of animals with broth culture will produce in their sera, beside the agglutinins, precipitins whose reaction in broth culture can not be distinguished from true agglutination, as the organisms are mechanically deposited in the precipitate.

Pseudo-clumping may be obtained by using emulsions of bacteria in undiluted broth and testing against the above serum.

The agglutination of a micro-organism varies with the medium in which it is grown, the reaction of that medium, the temperature of incubation, and the number of organisms present in the emulsion.

Pseudo-clumping may be produced by sudden changes in the temperature and by the addition of certain chemicals. The addition of carbolic acid or of chloroform as preservatives in an immune serum does not interfere with the agglutination reaction.

In using the dried blood test, paper having a soluble gloss should be avoided for collecting the blood.

In our hands the macroscopic method for determining agglutination has proved the most useful and rapid. A time limit of three hours has been placed on all these reactions.

THE SCINTILLATING SCOTOMA OR TRANSIENT FUNCTIONAL HEMIOPIA.*

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The phenomenon of scintillating scotoma is well known, though it is not always described in the textbooks on diseases of the eye. My interest in this affection dates back many years, when I became more intimately acquainted with it through *personal experience.* Since then I have talked with many physicians, and especially ophthalmologists, who also had knowledge of it from personal experience, and what I have thus gathered is recorded here. It should be of particular interest to the general practitioner because patients suffering from this disturbance for the first time are greatly alarmed and apply to their family physician for relief. This condition was first described, so far as I know, in a dissertation by Vater and Heinecke,[1] in 1723. Since then many men eminent in medicine and in the natural sciences have described this condition as they have observed it. Various names have been applied to this phenomenon: Scintillating scotoma,[2] teichopsie,[3] *amaurosis partialis fugax,*[4] ophthalmic migraine,[5] and transient functional hemianopia.[6] The last name seems to me to be the most appropriate, though in many cases the defect occupies only a part of the half of the field.

SYMPTOMS.

The attack commonly begins with a disturbance of vision, which often greatly frightens the patient. If asked to describe the nature of the disturbance he can not do it; he is conscious, however, that there is something wrong with his sight. If he remains sufficiently calm to observe the phases of the phenomenon, he will notice if, for instance, he is looking at a printed page, that some of the letters or words either to the left or to the right, or perhaps also a little above or below the right or left of the point of fixation, are blurred, in a minute or two later they have entirely disappeared and are obliterated to his sight. Or, if he happens to be looking in the face of a person a few feet away from him, he will see only the left or the right eye, or only the right or left lower half of the face; or, if he is looking at a sign with the word Thompson on it, he will be able to see one-half of the word only, either the son or the Thomp; at the same time, his attention will be attracted by the appearance of a luminous disc at or near the place where the scotoma was first noticed. This disc is usually bounded by a far brighter and sometimes serrated outline. Very soon the disc is changed into a ring which in a short time breaks near the fixing point; the ends separate more and more, so that soon he sees a luminous arc instead of a ring. The arc gradually becomes larger and at the same time floats slowly on to the periphery of the field of vision, its convexity being directed either out, up or down. One of the ends of this arc often comes close to the point of fixation; it rarely reaches over the median line. With the enlargement of the luminous arc there is also an increase in the size of the defect towards the periphery, but it very rarely, if ever, reaches the fixing point. Sometimes the defect includes the entire half of the field of vision, and there is a complete hemiopia. The luminous arc or crescent gradually becomes fainter and then disappears entirely, in the outer periphery of the field of vision. The defect usually continues for a few minutes longer and then also disappears entirely, leaving a sensation of dazzling, which also vanishes after a few minutes.

The duration of the whole attack lasts from a few minutes to an hour or more. It leaves the eyes in the same condition in which they were previous to the attack, and, so far as I have been able to observe, never leaves a permanent defect. In a few of my cases the phenomenon was followed by a slight headache, and in a very few instances by a tingling in the extremities of the side in which the defect in the field was observed.

Some writers state that a slight vertigo often precedes the attack, but this I have never noticed. Gowers

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* Read before the Newark Medical and Surgical Society.

1. Vater u. Heinecke: Dissertatio, qua visus duo vitia variissima, alterum diplocati alterum dimidiati physiologice et pathologice considerati exponuntur; Wittenberg, 1723, quoted from Schmidt-Rimpler, Die Erkrankungen des Auges im Zusammenhang mit anderen Krankheiten. Wien, 1898, p. 104.

2. Listing: Nervoeses Scotom, Monatsbl. f. Augenheilkunde, v, 1867, p. 335.

3. Airy, Sir George: On a Distinct Form of Transient Hemiopia. Phil. Trans., London, v, 140, 1870.

4. Foerster: Ueber Amaurosis partiales fugax, Klinische Monatsbl. f. Augenheilkunde, 1869, p. 422.

5. Galezowskie: Recueil d'Ophthalmologie, 1883, p. 536.

6. Gowers, Sir W. R.: A Manual of Diseases of the Nervous System, vol. ii, pp. 157, 839, 2d edition, Philadelphia.

says that in 50 per cent. of the attacks of migraine the phenomena here described are the first symptoms of the attack, and other writers have made similar statements. This discrepancy between my experience and that of the writers mentioned is doubtless due to the fact that patients in whom symptoms of migraine follow the visual disturbance consult a general practitioner or a neurologist, while those without these symptoms seek the advice of an oculist.

While in my experience the sudden development of a scotoma, that is, a defect in either the right or the left half of the field of vision, always was the first phase, other writers report cases in which the appearance of a cloud preceded the scotoma, while others state that sudden darkness in one-half of the field ushered in the attack. I have never seen this nor heard others mention it. Several of my patients who have attacks now and then, have come to me, at my request, shortly after the attack had begun, and in every one I was able to assure myself of the presence of the defect, although it was small in some cases. Some people speak of this scotoma as a darkness or a shaded darkness, but in all my cases it was a real defect, a blank or a void; whatever had been in this spot on the printed page was entirely obliterated. This defect exists in identical parts of either the left or right half of the field of vision; it may closely approach the vertical dividing line of the two halves of the field, it rarely reaches the fixation point, and very rarely, if ever, crosses the vertical dividing line of the two halves. At the height of the attack there is occasionally, for a moment or two only, an obscuration of the entire field, and very rarely there are for a moment on a printed page a few letters missing next to the fixing point in the unaffected half of the field. Sometimes, in the same persons, the left half of the field will be affected in one attack and the right half in another. In other patients, in different attacks, sometimes only a quadrant of the field and at other times the whole half of the field will be defective.

METHOD OF EXAMINING PATIENT.

As the defect is always, or nearly always, in only one-half of the field, patients subject to these attacks will say that only the eye on the side of the defect is involved, but this is a mistake, as can be proved by examining the field of each eye.

Place the patient a foot away, with his back toward a large window. Have him close one of his eyes, and with the open one look at the physician's eye opposite his open one. Now the physician closes one eye, moves his fingers from the periphery toward the center from various directions. If the patient's field is of normal dimensions he will see the tips of the fingers as soon as the physician sees them.

SPECTRAL APPEARANCE.

It is difficult to give a satisfactory description of the spectral appearance, as the light phenomenon in these cases is called by Gower. The fleeting character of the phenomenon and the mental state of the observer at the time are probably responsible for the discrepancy in the published descriptions. The most common form and the only form that I have any personal knowledge of is the following: A luminous disc appears at or near the place where the defect in the field of vision first developed, the outer edge of which is much more brilliant than the central part. It is serrated, or it may assume a zigzag shape with prominent and re-entrant angles like the ground plan of a fortification and hence "fortification spectrum."

Inside the circle there may be luminous points in constant motion. In the zigzag outline there are at times indications of color, blue and red predominating, but I have never seen any such high colors as are seen on the drawings made by Airy.[7] The luminosity of the periphery is in marked contrast with the body of the disc. Very soon the part of the ring nearest the vertical dividing line of the halves of the visual field disappears, and there remains only an arc-shaped or crescentic line of very bright light. The ends of this arc may closely approach the fixation point at first, but they soon separate more and more, while the whole arc very gradually floats outward, downward or upward toward the periphery of the field. The convexity of the arc is always directed toward the outer periphery of the field and its outer edge is usually serrated as described above. The more brilliant middle part of the whole outer line in all the serrations appears to be bounded, outside and inside, by a dark line. Sometimes the angular projections of the outline are very irregular, and at times it looks as if two or several such outlines were intermingled. This brilliant arc is in continuous and tremulous motion. In persons subject to these attacks, not unfrequently an arc-shaped, brilliant line, like the above-described, will appear suddenly in the upper or lower portion of one of the halves of the field of vision; it seems to float in the air five or six feet away, will last for some minutes and then will gradually float out of the periphery of the field.

In several such cases which I have had an opportunity to examine while their phenomena continued, I was able to make out a defect in the field corresponding to the apparent location of the floating brilliant line. These spectral appearances, I think, are always present in both eyes, though it is stated by some writers that in some of their cases it was confined to one eye. The light phenomenon is seen with the eyes closed as well, if not better, than when they are open, and this makes it difficult to determine whether it is present in one or in both eyes. To most persons subject to this affection the spectral phenomenon here described is most startling, especially in their first attacks, and their attention is so completely absorbed by it that they are unaware of this simultaneous presence of the scotoma. In a few cases I have been able to examine the pupillary reactions, and found them normal. The attacks were almost over when they were examined. The ophthalmoscopic examination made during the attack revealed always a normal fundus.

FREQUENCY OF ATTACKS.

In most persons subject to these attacks familiarity soon breeds indifference toward the disturbance and they pay but little attention to it. Some are able to go on with the work in hand, especially if the left half of the field is involved, while a few find it necessary to sit down and keep their eyes closed until the attack is over. Some people begin to have such attacks early in life, and have them of varying severity at irregular intervals as long as they live. Others have only one or two attacks during their whole existence, while still others have them only during a certain period of their lives, at more or less frequent intervals. I know of one person who has had an attack daily for a period of ten

7. Transactions of Ophthalmological Society of United Kingdom, vol. xv, plates I and II.

years, and of another who for a limited period had two attacks a day. It is said that these attacks diminish in frequency as the patients advance in years, but I know of cases in which this was not true.

GENERAL HEALTH OF THE PATIENTS.

The great majority of the patients who have consulted me with regard to these attacks claimed to be in excellent health. Many of them admitted suffering occasionally from indigestion, some admitted being children of gouty parents, while others were afflicted with various morbid conditions. In many of these people there was present an oversensitive condition of the eyes; they disliked a glare; they were troubled with muscæ volitantes, and had unusually vivid after-images, which often lasted much longer than normally. These patients were annoyed by the distortion of objects, produced by flaws and imperfections in the window pane of glass through which they were seeing them; they were poor sleepers and had many of the disorders of sleep. Some had so-called explosions in their ears just before falling asleep; others were often awakened by a feeling of numbness and tingling, mostly in their hands or arms, and others had rheumatic pains in their limbs at night only or, at least, much more frequently at night than during the day. Most of these patients were so-called nervous individuals.

Most of the persons so afflicted had normal acuity of vision, normal fields of vision, and no visible disease of the eyes between the attacks. In others diseases of the lids and of the conjunctiva, cornea or sclera were present and caused the patient to consult me, and the occurrence of these phenomena under consideration was mentioned by them only incidentally.

ETIOLOGY.

Dr. Geo. M. Gould[8] would have us believe that uncorrected errors of refraction in 99 per cent. of the cases are the cause of migraine and, I suppose, of the phenomena under consideration also, but, considering how very many people have these attacks at times, and the great number of people who have uncorrected errors of refraction, it is not at all to be wondered at if the two conditions are sometimes found in the same person; any more than that the phenomena have occurred in persons having preputial adhesions or in persons having gonorrhea or syphilis. I have examined the eyes of many persons having such attacks, under atropin, and have found many of them free from refractive errors; weakness of the external and internal muscles of the eye also was absent in most of these cases.

Among the exciting causes given in the text-books are named faintness from fasting, fullness of the stomach after eating, excessive mental work, sleeplessness, overindulgence in tobacco, and many other things; but, after all, we know little or nothing about the exciting causes. I have known people to have attacks immediately on awakening after ten hours of sound sleep in a moderately dark room. I know that some of my patients had attacks at times while the stomach was quite empty and at other times immediately after a meal. Some of my patients, professional men, had attacks as frequently while they were spending their vacations in the woods as before they went there, and one man who had not had an attack for a year, during which he did an unusual amount of work, had an attack on the voyage home after a two-months' vacation spent in the mountains. I have had among my patients with this affection men and women, boys and girls, some engaged in intellectual work, while others were factory hands or farm laborers who rarely touched a book or even read a newspaper. Some of my women patients are confident that they have their attacks more frequently at the beginning of their menstrual period than at other times.

8. Gould, Geo. M.: Amer. Med., Jan. 21, 1905, p. 103.

PATHOLOGY.

With regard to the pathology of migraine, Gowers[6] says: "No anatomic changes are known to underlie the phenomena of migraine and, from the character of the symptoms and the analogies of the disease, it is unlikely that any will ever be discovered. Two chief theories have been held regarding the origin of the attacks; one is based on the alteration in the state of the vessel that is so conspicuous in the aspect of the patient. The pallor of the surface must be due to contraction of the arteries, and the blushing of the skin to their dilatation, and it is assumed that a corresponding condition of the vessels of the brain is the cause of the derangement of function. The suggestion that spasm of the central arteries is the cause of the symptoms was first made by Whytt, and the evidence in favor of this opinion afforded by the state of the accessible vessel was pointed out by Du Bois-Reymond. Mollendorf urged that vascular dilatation rather than spasm caused the symptoms, and the fact that the condition varies in different cases has led to the theory extensively held in Germany (by Eulenberg and most other writers) that there are two varieties of the disease already mentioned, the 'sympathetico-tonic' and the 'sympathetico-paralytic' form, as they are sometimes termed. According to these theories the disease is essentially one of the sympathetic nerves.

"Another theory is that the primary derangement is of the nerve cells of the brain. Their function from time to time is disturbed in a peculiar manner and the visible vasomotor disturbance is of secondary origin. The sensory symptoms must depend on deranged action of the sensory center of the brain. They indicate a combination of arrest of action and of overaction in the nerve cells concerned. In the language of modern pathology, there is a combination of inhibition and discharge. The loss of sight, for instance, must be due to inhibitory arrest of action, the visual spectrum to discharge. The peculiarities in the disturbance of migraine are its special, often uniform features, deliberate course, and its limitation to sensory structures. To explain them on the vasomotor hypothesis we must assume, first, an initial spasm of the arteries in a small region of the brain; second, that the contraction always begins at the same place, and third, that it can give rise to a definite, uniform and very peculiar disturbance of function. There is no evidence of the truth of any one of these assumptions, and we are not justified in assuming that the state of the surface vessels and accessible arteries is an indication of the condition of those internal organs. Last, that the vasomotor spasm can cause a deliberate uniform and peculiar discharge is not only unproved, but is in the highest degree impossible. In short, the difficulties in accepting the vasomotor explanation of the sensory symptom is so great that it would only be admitted as a tenable hypothesis if there were no other explanation of the coincidence of the two phenomena. We know that the vascular system is in a special way under the influence of the cerebral centers. An emotional blush and the pallor of fear are conspicuous examples

of this fact. It is at least as easy to believe that the vascular changes are the result of the disturbance in the nerve elements as it is to regard them as its cause. The vasomotor nerves are peculiarly sensitive to sensory impressions that are felt as pain. No symptoms at all resembling those of migraine have been observed when the sympathetic system is distinctively diseased or deranged.

"The peculiar character of the visual impression affords strong reason for regarding it as the result of a tendency to functional derangement in the cells themselves. This opinion is supported by the fact that it may occur as an isolated symptom, and that it may be related to an actual visual impression, as is shown by the facts mentioned. Such an occurrence can have been due only to a primary functional disturbance of the cells themselves, and that which exists in one case probably exists in all.

"The hemiopia also is best explained by the assumption of deranged function in the occipital lobe, especially since right hemiopia may correspond to almost simultaneous aphasia, and the opinion is supported by the fact mentioned above that hemiopia is fixed by a lesion in the cuneus. When all has been said, mystery still envelops the mechanism of migraine."

Jolly,[9] whose clinical experience with this affection is similar to mine, thinks: (1) That the seat of scintillating scotoma in its most frequent, hemiopic form in all probability is located in the primary optic channels and more particularly in the optic tract or in the region of the external geniculate body; (2) that the binocular central, and the hemiopic scotomata which cross over the median line have their place of origin in the more peripheral part of the channel, probably in the region of the chiasm; and (3) that the purely monocular scotoma originates in the optic nerve or the retina.

TREATMENT.

Gowers says in reference to the treatment of migraine: "If any errors in mode of life or defects in general health can be traced, their removal is the first and most essential step in treatment; of special importance is increased rest, regularity in meals and attention to diet; whatever is known to induce a paroxysm should be carefully avoided. Hot, crowded rooms are especially injurious. If inherited gout is probable, the regimen suitable for this should be adopted. In cases with conspicuous pallor in the early stage the drug that has most influence is nitroglycerin given regularly in the interval (migraine) twice or three times a day after food, beginning with a small dose 1/150, 1/180, 1/200 of a grain in 1 per cent. solution of alcohol."

During the attack absolute rest is essential; the recumbent posture is generally that in which the patient is most comfortable.

Some of my patients think that the attack is shortened by drinking iced water; others believe that spirits, coffee, tea and other beverages, taken immediately at the beginning of the attack produce a similar result. Others attribute the same result to taking from 10 to 20 drops of valerianate of menthol on a lump of sugar; while others, following the advice of Manz,[10] believe they have shortened the attack by gently pressing the eyeballs and rubbing the lids over the balls for a few seconds. In view of the great difference in the severity and in the duration of the attack at different times in the same person, it is impossible to say how much benefit was derived from any of the measures employed.

9. Jolley: Berliner klin. Wochft., No. 42, 1904, quoted from Nagel's Jahresbericht, 1902, p. 459.

10. Manz: Quoted by Schmidt-Rimpler, Die Erkrankungen des Auges im Zusammenhang mit anderen Krankheiten, p. 108.

INTESTINAL PERFORATION COMPLICATING TYPHOID FEVER.*

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Perforation of the bowel is one of the most serious complications which occurs in this disease, and it demands prompt attention first from the medical man, next from the surgeon. Before proceeding with the paper proper, I desire to report, in more or less detail, 12 operative cases which have occurred in my practice in the last twenty-one months.

These cases, in conjunction with 7 previously reported,[1] making a total of 19, have given eight recoveries, making a recovery percentage of 42.10.

Case 1.—Referred to me by Drs. T. L. Disque and Lawrence Litchfield, Pittsburg, Pa. Perforation, peritonitis, death.

Patient.—G. K. H., male, aged about 24, had an attack of typhoid fever with a relapse in December, January and February, 1902 and 1903, respectively.

History.—The initial course of the fever was mild. Dr. Disque attended him in this attack and made his last visit Jan. 4, 1903. The patient soon after was following his usual vocation.

On January 26 Dr. Disque was called again to see him and found him with a relapse of the fever. This attack was a little more severe than the first.

On Feb. 3, 1903, Dr. Disque called to see him at 12 noon and found him suffering from a pain in the abdomen. The muscles of the abdomen were slightly rigid at this time. There was no change in the pulse nor in the temperature. The onset of pain occurred about 10 a. m., and the pain and tenderness increased during the afternoon. At 8 p. m. Dr. Litchfield saw the patient, in consultation with Dr. Disque, and the diagnosis of perforation was confirmed.

Operation.—I saw the patient about 9:30 p. m. of the same day and we operated on him at 12 midnight. Fourteen hours had elapsed since the onset of the pain. The abdomen was opened, under cocain anesthesia, in the right semilunar line. The abdomen contained a flocculent fluid and the perforation was found in the lower part of the ileum.

The perforation was closed by two tiers of continuous Lembert sutures of silk and the bowel returned to the abdomen. The abdominal cavity was then flushed out with warm normal salt solution. A large glass drain was inserted to the bottom of the pelvis and the abdominal incision closed around it.

Result.—The patient did fairly well for about forty-eight hours. He passed some gas by the bowel and the rigidity of the abdomen disappeared to some extent. On the third or fourth day, as he was not passing much gas by the rectum and as he was becoming somewhat distended, we decided to open the bowel at the site of the perforation. This was done under a little chloroform anesthesia. This did not avail, and he died on February 7th, from peritonitis.

The abdominal fluid at the time of operation contained white blood cells, a motile bacillus and a coccus. The bacilli under laboratory culture produced gas, and hence belongs to the colon group.

Case 2.—Referred to me by Drs. A. Stanton and T. G. Simonton of Pittsburg, Pa. Perforation, peritonitis, death.

*Read before the Allegheny County Medical Society, 1904.

1. Amer. Med., Sept. 6, 1902.

Patient.—G. S., male, aged 30; developed fever about March 4, 1903.

History.—He had one slight hemorrhage on March 18, otherwise he did not present symptoms showing anything unusual until the afternoon of March 19, when he complained of a severe pain in the abdomen. The maximum temperature had been up to this time 102 F. Dr. Stanton had insisted on the use of a bed pan, but the patient said he could not have evacuations that way, and on this date sat up to use the closet or a commode. Immediately after doing this he had the initial onset of pain, which was severe and continuous. This occurred between 3 and 4 p. m. Dr. Stanton saw him at 4 p. m. He complained greatly of the pain and was in collapse, with its accompanying symptoms, and a diagnosis of perforation was made at this time.

Consultation.—Dr. Simonton, who was called in consultation, saw the patient about 9:30 p. m., and they found the following conditions present: Temperature, 104; pulse, 100. There was severe pain in the abdomen, more acute on the right side, and much distension of the abdomen. The walls were rigid. The liver and splenic dullness was absent. The peristalsis was impaired. There was tenderness on pressure all over the abdomen, more marked on the right side. The facies were characteristic of peritonitis.

Operation—As it was impossible to operate on him at his room, removal to the hospital was necessary. This was done, and he arrived about 12:30 a. m. at Mercy Hospital, where I saw him for the first time. The ride in the ambulance did not change his condition. At 1 a. m., nine and a half hours after the onset of pain, as near as we could determine, we opened the abdomen under cocain anesthesia. The incision was made in the right semilunar line, on a level with the cecum. The cavity of the abdomen contained much fluid. The perforation, ⅛ of an inch in diameter, was found in the ileum 6 inches from the ileocecal valve. The perforation was closed by two tiers of silk Lembert sutures introduced transversely to the axis of the bowel, which was then returned to the abdominal cavity. The abdomen was then thoroughly flushed out with warm normal salt solution. A large glass drain was inserted to the bottom of the pelvis for drainage and the abdominal incision closed as much as possible by sutures. He was then returned to his bed, placed in Fowler's position. He died March 21, 30 hours after the time of the operation.

CASE 3.—Referred to me by Dr. B. M. Dickinson of the medical staff of Mercy Hospital. Perforation, peritonitis, death.

Patient.—M. G., male, aged 27, was admitted to Mercy Hospital, April 28, 1903, with typhoid fever, having been sick 7 days previous to this time. I am not able to give the medical history and the symptoms of perforation in this case, as his record could not be found. From the appearance of his temperature chart I believe his infection was rather severe. The perforation occurred on May 5, 1903.

Operation.—Cocain anesthesia. Celiotomy was done on the afternoon of May 5, 1903. The perforation was found in the lower part of the ileum. The perforation was closed by two tiers of continuous silk sutures (Lembert) and the bowel returned to the abdomen. The abdomen was flushed out with warm normal salt solution and a glass drain inserted to the bottom of the pelvis. He died on May 6, a little more than 24 hours after operation. A bacillus and a coccus were found in the abdominal fluid.

CASE 4.—Referred to me by Dr. J. A. McCullough, Steubenville, Ohio. Perforation of the appendix—recovery.

Patient.—A. L., male, aged about 30 years, had been ill with typhoid fever for about 3 weeks.

History.—On May 29, 1903, between 2 and 3 p. m., he had a sudden pain, severe and continuous, in the cecal region. He soon afterwards had a chill with a rise of the temperature. I saw the patient with Dr. McCullough about 12 midnight. At this time he still complained of the pain. There was tenderness on pressure over the cecum and the right rectus was somewhat rigid at this point. There was no tenderness over the remaining part of the abdomen. The peristalsis was normal and the liver dullness was present.

Operation.—May 30, 1 a. m. The abdomen was opened under cocain anesthesia in the right semilunar line on a level with the cecum. The abdominal cavity did not contain any fluid nor was the peritoneum inflamed. The appendix was bound down by adhesions and when delivered it was found to be perforated. A small abscess was present around the appendix, but there had been no escape of pus into the peritoneal cavity. The appendix was removed.

Gauze was inserted to the position formerly occupied by the appendix.

Result.—He made a tedious recovery. No peritonitis developed.

If this patient had been left alone a large abscess would certainly have developed.

CASE 5.—Referred to me by Dr. B. M. Dickinson of the medical staff of Mercy Hospital. Perforation, peritonitis, pneumonia, death.

Patient.—B. G., a Pole, male, aged 21, was admitted to Mercy Hospital on Sept. 18, 1903, suffering from typhoid fever.

History.—He said he had been sick one week. On the evening of Sept. 19, one day after admission, he complained of a pain in the abdomen. This soon passed away and his history relates that he soon fell asleep. This pain occurred probably about 10 p. m., as his temperature chart shows he had a chill at this time. His temperature was then 104 and pulse 100. The next morning he again complained of pain in the abdomen. The temperature was 99, a drop of 5 degrees in 12 hours. The pulse was 100 and he was sweating profusely. His abdomen was rigid, distended, and peristalsis was absent. A laparotomy was performed under cocain anesthesia about 10 a. m. on September 20. The incision was made in the right semilunar line on a level with the cecum. The perforation was found in the ileum 8 inches from the ileocecal valve. It was closed by a purse-string suture first over which two tiers of silk Lembert sutures were introduced. The abdomen was then thoroughly flushed out with warm normal salt solution.

Result.—The hospital record of this patient is brief and I can not give the facts from memory. He was apparently doing nicely but pneumonia developed and he died on September 25, five days after the operation.

No organisms were found in the abdominal fluid and no growth occurred from culture.

CASE 6.—Referred to me by Dr. I. J. Moyer of the medical staff of Mercy Hospital. Perforation, peritonitis, recovery.

Patient.—J. N., male, aged 21, was admitted to Mercy Hospital November 19, 1903, with typhoid fever.

History.—His mother, one brother and five sisters living; his father died of heart disease and three sisters died in infancy. He had inflammation of the lungs when a boy of six and was one year in recovery. He had been ill subsequently from the same trouble and has never been strong.

Present Illness.—He was taken sick November 7, with headache, insomnia, pain in the back and in the legs, anorexia and diarrhea, having 6 or 7 stools daily. He was much emaciated. The spleen was enlarged and tender. The heart and kidneys were normal. A Widal test taken a few days after admission reported back negative. He had five or six severe hemorrhages from November 26 to November 30. At 10 p. m. November 30, the twenty-third day of the disease, he had a severe pain in the lower right quadrant of the abdomen. This man always complained of every pain very much and so little attention was attached to this important symptom. He passed a very restless night. He had a chill at 4 a. m. lasting twenty minutes. At 10 a. m. the symptoms had increased. The muscles of the abdomen were rigid but not pronounced. Peristalsis could be heard, the quality and quantity not marked. The abdomen was scaphoid,

and up to this time there had been no appreciable change in the pulse or temperature.

Operation.—December 1, 1 p. m. Celiotomy, ether narcosis. Thirteen hours had elapsed since the onset of the pain. An incision two inches long was made in the right semilunar line on a level with the cecum. The abdominal cavity contained a flocculent fluid. The perforation, ⅛ of an inch in diameter, was found in the ileum, four inches from the ileocecal valve. The opening in the bowel was closed by two tiers of continuous silk sutures (Lembert), after which the bowel was returned to the abdominal cavity. Large quantities of warm normal salt solution were then used to flush out the cavity of the abdomen. A large glass drain was inserted to the bottom of the pelvis for drainage and the patient removed to his bed, which was placed in Fowler's position.

Result.—Examination of the fluid obtained from the abdomen at the time of operation showed it to contain, beside blood cells, only a micrococcus. At 7 p. m., the day of operation, the bed was placed in a horizontal position for the reason that the pulse had gone steadily upward. Five minutes after the bed was lowered the pulse came down from 138 to 124. The glass drainage tube was also removed at this time, some gauze being first inserted through the tube to serve as drainage.

Enemas given at varying intervals during the first twenty-four hours always came away with much flatus and some fecal matter.

He made a tedious recovery. When he left the hospital, Jan. 21, 1904, to go to his home in Russia, he had an abdominal sinus four or five inches in depth.

I have since heard that he had entirely recovered.

CASE 7.—Referred to me by Dr. B. B. Wood, Pittsburg, Pa. Perforation, peritonitis, death.

Patient.—F. W. M., male, aged 24, first consulted Dr. Wood Dec. 27, 1903. He had been complaining for about ten days. He had a cough, with profuse night sweats at this time. Dr. Wood is of the opinion that he was a tubercular subject.

History.—Typhoid fever developed, which ran the regular course. January 13, at 3 p. m., he had a hemorrhage, and he passed some blood during the night, having several bloody stools. At 7 a. m. on January 14 he was weak from the loss of blood. At this time Dr. Wood saw no indication of perforation. At 9 a. m. his condition was changed. The abdomen was somewhat rigid and he had the expression of one suffering from shock. I met Dr. Wood in consultation about 5:30 p. m. at the patient's home. At this time he had the signs of peritonitis. His abdomen was rigid and peristalsis was faint. His pulse was weak and he was perspiring freely. It was not advisable to perform the operation at his home, so we transported him to Mercy Hospital. It was recognized that this was not a good case for operation, but as he did not have any chances without operative interference we decided to give this chance.

Operation.—7 p. m.; celiotomy; cocain anesthesia. Not more than twelve hours had elapsed since the perforation had occurred. An incision was made in the right semilunar line on a level with the cecum. The perforation was found in the ileum within eight inches of the ileocecal valve. It was closed by two tiers of continuous silk sutures (Lembert) and the bowel returned to the abdomen. The cavity of the abdomen was then flushed out with warm normal salt solution. A glass drain was introduced to the bottom of the pelvis and the abdominal incision closed as much as possible. He went into collapse on the table and it was necessary to give a saline transfusion. He reacted but little and died about 11 p. m.

CASE 8.—Referred to me by Dr. G. T. Ribetti, Pittsburg, Pa. Perforation, peritonitis, second perforation, death.

Patient.—S. H., male, aged 15 years, became ill with typhoid fever on June 5, 1903. He had a very mild attack.

History.—The temperature was not high at any time, and he did not have any bad symptoms whatever until June 26, exactly fifteen days after the onset of the fever. At 1 p. m. of this date he had a severe pain in the abdomen, accompanied by some rigidity of the right rectus muscle. The pain and the rigidity disappeared within two hours. No morphia was given. He was admitted to the hospital early the next morning with the following symptoms: The abdomen was rigid. Pain was present on pressure over the abdomen. The peristalsis was not entirely absent and he had the facies of peritonitis. Nineteen hours elapsed after the onset of the pain before celiotomy was performed.

Operation.—The operation was performed under cocain anesthesia. An incision was made through the right semilunar line on a level with the cecum. The abdomen contained a large quantity of a flocculent fluid. The perforation was found in the ileum, eight inches from the ileocecal valve. The opening in the bowel was closed by two tiers of continuous silk sutures (Lembert) and returned to the abdominal cavity. The abdominal cavity was then thoroughly flushed out with warm normal salt solution. A large glass drain was inserted to the bottom of the pelvis for drainage. He was then returned to his bed, which was placed in Fowler's position.

The fluid in the abdomen at the time of operation contained a diplococcus, many leucocytes and granular material.

Result.—The glass drain was removed the first day after operation and the head of the bed lowered at the same time. Before removing the tube a strip of gauze was inserted through the tube to act as drainage. The patient at once began to improve. He was soon passing much flatus, with and without the aid of enemas. He was troubled with some emesis for several days, but soon was able to take liquid nourishment. For ten days he did well. By this time he was gaining in weight, apparently; his color good; his bowels moved regularly and his abdomen was as soft as a baby's. On June 30 he complained of pain in the chest, and pleurisy and catarrhal pneumonia developed. Coincident with this unfortunate complication, a fecal fistula occurred, and peritonitis again became a factor in his case. He died July 2.

Autopsy.—Either complication would make the prognosis very serious. I thought, and naturally believe, that the fecal fistula was due to the opening of the perforation on account of the tearing out of the sutures, and was much surprised when a restricted autopsy, done by Dr. W. H. Ingram,[2] showed the cavity of the abdomen to contain fecal matter which came from a second perforation high up in the jejunum. The perforation was ½ inch in diameter, the largest I have seen. The sutures in the bowel at the site of the first perforation were found to be intact.

CASE 9.—Referred to me by Dr. B. M. Dickinson of the medical staff of Mercy Hospital. Perforation, peritonitis, second perforation, fecal fistula, recovery.

Patient.—J. F., male, aged 29; was admitted to Mercy Hospital June 22, 1904, with typhoid fever.

History.—The fever had evidently commenced two weeks before, with anorexia and malaise. The week previous to admission he had several liquid stools daily. During the first week of treatment in the hospital he had three hemorrhages from the bowels; the last one occurred the day before the perforation. Otherwise he did not have any unusual symptoms. On July 1, at 3:45 p. m., the twenty-second day of the disease, he had a severe pain in the cecal region, which came on suddenly and was continuous. Dr. J. A. Reidy, medical resident, saw him soon after this occurred, and made a diagnosis of perforation. At this time he was tender all over the abdomen on pressure; the tenderness was more acute on the right side. The abdomen was flat but rigid. Peristalsis was present but not marked. Liver dullness diminished. I saw him between 5 and 6 p. m. and he still presented the same symptoms, but a little more marked, and confirmed Dr. Reidy's diagnosis. Soon after perfora-

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tion occurred his temperature was 96.2 degrees. At 7 p. m. his temperature was 102.6 and his pulse was 126.

Operation.—Cocain anesthesia; 3¾ hours after onset of pain we made the usual incision in the right semilunar line. The perforation, ⅛ of an inch in diameter, was found in the ileum, six inches from the ileocecal valve. The opening was first closed by a purse-string suture of silk, the opening in the bowel being pushed into the lumen as the suture was drawn tight, over which two or three interrupted Lembert sutures, also of silk, were introduced.

Another ulcer, about four inches from the cecum was observed, but as the serosa over it seemed to be in good condition I did not think it necessary to invert it by suture, as is sometimes required. The abdominal cavity, which was filled with a turbid fluid, was washed out with warm normal salt solution. The portion of the bowel containing the perforation, although now closed by sutures, was anchored by a continuous silk suture to the peritoneum at the upper angle of the incision through the abdominal wall. A large glass drain was then inserted to the bottom of the pelvis. No sutures were introduced to close the abdominal incision. He was then removed to his bed with its head slightly elevated, but I did not keep him up very long, as his pulse was very weak and rapid, 168 to the minute.

Result.—The next day at 11 a. m. a strip of sterile gauze was inserted into the glass drainage tube and the tube withdrawn. I did this so early in this case for the reason that the fluid in the abdomen at the time of operation contained only blood cells and proved sterile under culture. The second day after operation I noticed that the gauze which had been introduced the day before was stained with fecal matter, and the gauze drain was then removed. This fecal matter did not come from the perforation closed by sutures, as it was intact, but must have come from a second perforation and most likely from the ulcer previously described. Although fecal matter in large quantities was constantly in contact with the site of the sutures over perforation, it never opened. The fecal fistula, which closed about October 1, opened October 18. The opening is, however, small. The resulting scar at site of abdominal incision is firm and shows no sign of hernia.

CASE 10.—The patient was referred to me by Dr. Karl Emmerling, Pittsburg, Pa. Perforation, peritonitis, fecal fistula, recovery.

Patient.—Miss A. M., schoolgirl, aged 14, was taken sick on July 3, and had an attack of typhoid fever with no unusual symptoms until July 31.

History.—The course of the fever would indicate that the infection was of a mild form. At 9 p. m. on July 31, the twenty-eighth day of the disease, she had a severe and continuous pain on the right side of the abdomen, in the region of the cecum. The pain came on suddenly and occurred just after a free movement of the bowels. At 11 p. m. I saw her, in consultation with Dr. Emmerling. She still complained of much pain and presented the following symptoms: Her features were pale and pinched. The pulse was about 120 and the temperature was 101 degrees. The abdomen was flat. The walls were rigid. Tenderness was present on pressure all over the abdomen, but it was more acute on the right side. Peristalsis of a fair character was present. Liver dullness was absent in the nipple line. The patient having the above symptoms, we did not hesitate to make a diagnosis of perforation and advised immediate operation, which we performed as soon as we could move the patient to Mercy Hospital.

Operation.—Ether. Four hours after the onset of pain we made an incision two inches long through the right semilunar line on a level with the cecum. The perforation, ⅛ of an inch in diameter, was found in the ileum, eight inches from the ileocecal valve. The perforation was treated as in the previous case. The portion of the bowel containing the perforation was anchored in the upper angle of the wound, as also in the previous case. The abdominal cavity, which contained a flocculent and turbid fluid, was washed out with warm normal salt solution and a large glass drainage tube inserted at the bottom of the pelvis. No sutures were introduced to close the abdominal incision. Patient was removed to bed, which was placed in Fowler's position. The drainage tube was removed in a few days.

Result.—From the first she did well. On the seventh day a fistula developed, caused by the opening of the sutures closing the perforation. A small amount of fecal matter escaped daily. At the present time the opening is almost closed and will be entirely so in a short time. During her convalescence she had some elevation of temperature, which lasted for three or four weeks. This temperature was most likely due to a typhoid reinfection, no other condition being present to produce it. The abdominal fluid contained a coccus and a motile bacillus. A mold grew on culture.

CASE 11.—Referred to me by Dr. J. G. Stewart, Pitcairn, Pa. Perforation, peritonitis, recovery.

Patient.—M. F., male, aged 19; the first symptoms of fever appeared on Aug. 4, 1904.

History.—He had a severe infection, but did not have any complications with the exception of three slight hemorrhages (on August 31, September 2 and September 4, respectively) until Sept. 6, 1904. On this date, at 11 a. m., he had a severe pain in the lower right quadrant of his abdomen. The pain was excruciating in character. It came on suddenly and was continuous. Dr. Stewart saw him at 12 noon. The pain was severe and continuous and was diffused over the abdomen. Morphia was administered for the pain, but perforation was suspected. Dr. Stewart saw the patient again at 3 p. m., and made absolute diagnosis of perforation. At this time the patient was in collapse. The temperature was 94 and the pulse was weak and rapid and he had the facies so characteristic of shock. I saw him, in consultation with Drs. J. G. Stewart of Pitcairn and G. H. Beswick of Wilmerding, Pa., about 7 p. m. At this time he had recovered from the shock, that is, his temperature had risen and he had a pulse of 120. He was very tender all over the abdomen. The muscles were rigid. Peristalsis was present but of no great quantity or quality. The liver dullness was absent in the nipple line. His features were characteristic of peritonitis and shock.

Operation.—8 p. m.; cocain (locally) and chloroform narcosis. Morphia, ¼ gr., had been previously given. This was the thirtieth day of the disease and nine hours had elapsed since the onset of pain. The usual incision was made in the right semilunar line. Two perforations were found, both of them in the ileum; one about eight inches from the ileocecal valve, the other about seven inches further along. A third ulcer was apparently almost through the walls of the bowel and this ulcer was inverted into the bowel by means of a purse-string suture of silk and which was reinforced by two or three interrupted Lembert sutures (silk). The first ulcer, nearest the cecum was closed as in Case 9. The second perforation was treated in almost a like manner. This one presented a peculiar appearance. When first discovered it had a white necrotic area at the apex of the ulcer, and which, on the manipulations of the bowel necessary in introducing the sutures, caused this neurotic area to become detached, leaving the opening similar to the appearance of perforations of later stages. This ulcer had not advanced to the final state of perforation, but through the necrotic area; organisms present in the bowel could easily pass and set up peritonitis.

The first perforation was one-eighth of an inch in diameter; the second perforation would have the same diameter had it gone on to the final state. The bowel at the site of perforation nearest to the cecum was anchored to the peritoneum at the upper angle of the abdominal incision, as described in Case 9. A large quantity of warm normal salt solution was then used to flush out the cavity of the abdomen. A large glass drainage tube was inserted to the bottom of the pelvis for drainage, a wick drain being used for the purpose. On September 9,

the third day after the operation, the bowel was opened to aid the escape of gas and fecal matter. He was at this time passing gas by the rectum, but he was also becoming more distended, and, as we had anchored the bowel for just such a complication following operation, the procedure was carried out.

Result.—He is making a good recovery. About three weeks after the operation he had a rise in temperature to 103 degrees, but it gradually came down and he is now convalescing. The fistula remains open. The cause of the temperature was probably due to a typhoid reinfection.

CASE 12.—Referred to me by Dr. B. M. Dickinson of the Mercy Hospital. Perforation, peritonitis, death.

Patient.—G. P. M., male, aged 24, was admitted to Mercy Hospital on Sept. 6, 1904, with the symptoms of typhoid fever well established.

History.—He had been sick for two weeks before admission. The infection was severe in this case. The nervous symptoms were pronounced at times and he had seven distinct and large hemorrhages in six days. He was troubled with emesis and hiccough, probably due to the use of morphia, which had been given to control the hemorrhages.

On September 22, about 7 a. m., he complained of pain in the lower right quadrant of the abdomen. The pain was not very severe at first and was referred to the end of the penis. There was no appreciable change in the pulse or temperature at this time.

At 1 p. m., when I saw him, in consultation with Dr. Dickinson, his pulse had increased 20 beats and was running at the rate of 130, and his temperature had gone up 1.8 degrees, being 102.2 degrees. There was tenderness on deep pressure all over the abdomen, but the pain was more acute in the lower right quadrant of abdomen. The muscles of the abdomen were slightly rigid. The peristalsis was good and the liver dullness was not obliterated. Dr. Dickinson had made a diagnosis of perforation and nothing remained to do but operate.

Operation.—Chloroform narcosis; 2 p. m. This was the thirtieth day of the disease, with the perforation occurring seven hours previous to this time, as nearly as we could determine. A two-inch incision was made in the right semilunar line, on a level with the cecum. Search was first made for the cecum and appendix, which were found not to be diseased. The ileum was next exposed and the perforation was found about twelve inches from the ileocecal valve. The perforation was closed as described in Case 9. Two ulcers in the bowel, one on either side of the site of the perforation, a few inches away, were turned in by a purse-string suture of silk.

The bowel at the site of perforation was then anchored to the peritoneum at the upper angle of incision, as in Case 9. The abdomen was then thoroughly flushed out with warm normal salt solution and a large glass drain inserted to the bottom of the pelvis. Two pieces of gauze were introduced in the drainage tube to act as a wick drain. He was then removed to his bed, which was placed in a modified Fowler's position. Immediately after operation, 3 p. m., his pulse was 140 and the temperature by the rectum was 105.2 degrees. The temperature gradually came down in 48 hours to 98.2 degrees, by axilla.

Result.—He was at times delirious and hiccough and emesis were troublesome symptoms at intervals. He was always able to pass flatus with the aid of enemas.

The temperature remained about 100 degrees all the time. His pulse averaged 120 beats to the minute. His abdomen became almost free from pain on pressure and fair peristalsis could always be heard, apparently showing the peritonitis to be lessening. He died on September 26, however, the fifth day after operation. No autopsy was obtained. The toxemia, due to the fever itself, seemed to be a prominent factor for his death.

MORBID ANATOMY OF THE ULCER.

It is obvious to all that the cause of perforation is the penetration of all the coats of bowel wall by the ulcer, the pathologic lesion in typhoid, but I wish to present what my observation has led me to believe is the process causing the complete penetration of the bowel.

To understand the process more thoroughly a review of the morbid anatomy of the ulcer may not be out of place.

The ulcers arise from the pathologic process which takes place in the lymphatic follicles known as the solitary glands and in the agminated glands known as Peyer's patches. The process is most marked in the lower end of the ileum, but occurs also in the cecum, the appendix, the jejunum, the rectum, the colon, and, according to Pepper, it has been observed in the duodenum and stomach.

First comes the stage of infiltration of the lymphoid glands and, if resolution is not established, the stage of necrosis follows; then ulceration and cicatrization come in sequence. Wherever inflammation exists the blood vessels become enlarged, tortuous and engorged with leucocytes. This occurs around the lesion just referred to, and begins when infiltration starts. The tissues beyond the area of the lymphoid glands are involved, extending over the edges of the lymphoid follicles to the healthy mucous membrane, and even into the muscular coats of the bowel. When one of these lymphoid follicles has gone on to the stage of ulceration, and the process has extended into the muscular coats, the serosa and the remaining coats of the bowel at apex of ulcer become deficient in blood supply, gradually become necrotic, and perforation is the result.

I have observed that the coats of the intestines over the site of a non-perforated ulcer are always darker in color than elsewhere, thus showing that the circulation is impaired.

The deficiency of the blood supply is due to two causes:

1. The extreme degree of inflammation with the accompanying swelling of the tissues causing a slowing and stagnation of the blood current.

2. The position of the ulcer. The ulcer of more or less size and depth being on the free border of the bowel and opposite the blood supply, would, by its own position, retard the blood current to the thin covering of the bowel over the ulcer where it is most needed. These two conditions, always present, are factors, it seems to me, in the penetration of all of the bowel coats by the ulcer.

DIAGNOSIS OF PERFORATION.

Highly congested and inflamed tissues are always very friable and it appears strange that we do not have more perforations under such conditions. The diagnosis of perforation is usually easy. The symptoms are so characteristic that even when the patient is a foreigner or is delirious the diagnosis can be made just as well. The symptoms are, as a rule, the same.

Symptoms.—The typical symptoms are as follows: Pain comes on suddenly, and is severe and continuous, although it may occasionally be intermittent. It is first noticed usually in the right cecal region and may be referred to the external genitals. The whole abdomen is usually tender on pressure. The right rectus becomes rigid, and the rigidity later extends to the left rectus. The peristalis is not much impaired at the time; in fact, it may be increased for a short period, but later it is lessened and finally is absent. Liver dullness in the nipple line is lost at varying times, depending on the

distension of the bowel and the amount of free gas in the cavity of the abdomen.

The facies is characteristic of one suffering severe pain and possibly shock. The shock is characterized by a blanched countenance, a pinched nose and a feeble, rapid pulse, and a subnormal temperature may be present. In my experience, in but few cases has there been a drop of temperature or a perceptible change in the pulse at the time of perforation. Slight nausea or vomiting is usually present. Whether the temperature has fallen or not it soon rises. This is due to a spreading peritonitis. The pulse increases in frequency, the rigidity of the abdomen and the tenderness is more marked, and the facies is one of peritonitis. The patient may have several evacuations of the bowels after the occurrence of perforation.

As time elapses after perforation has occurred, all the symptoms increase in severity. The symptoms are then due to a peritonitis. The leucocytic count may be of some value in making the diagnosis, but not much importance should be attached to this procedure, and, in any case, with the above symptoms, confirmation is not needed, even if the leucocytic count coincides with the symptoms.

In cases where hemorrhages occur it would be well to be on the watch for perforations. Four of the twelve cases just reported had hemorrhages.

The three cardinal symptoms are, however, the sudden pain, the rigidity and the tenderness of the abdomen to pressure. These three symptoms being present in any case of typhoid fever, operation is indicated and demanded.

Occasionally if the patient is seen soon after the occurrence of the perforation the rigidity will only be detected on deep palpation, and the tenderness will only be found over the site of the perforation. This being so, the sudden pain is the only symptom on which to make an early diagnosis unless a careful examination is made for rigidity and tenderness. These three symptoms should be firmly fixed in mind. The other symptoms, when present, should not be disregarded. They are, however, almost all due to the peritonitis.

Instructions to Attendants.—The parents, attendants or nurses who have charge of the patient should be instructed to notify the physician when any sudden, severe or unusual pain occurs in the abdomen. It is well to have a card with the symptoms of perforation on it; the card to be given the nurse or attendant of the patient.

Dr. Emmerling, in case 10, instructed the mother to notify him in case any sudden pain occurred. In this instance we saw the patient in consultation exactly two hours after the onset of pain, and the diagnosis was made at that time.

By following this plan it is possible to make the diagnosis of perforation early and to have prompt surgical intervention. Nothing is gained by waiting. Even if no cause is found for the symptom once in a while, it is better to err on that side than to lose lives by waiting for more pronounced symptoms.

Other Complications.—There are a few other complications occurring in the course of typhoid fever which give symptoms almost identical with perforation, such as the softened and ruptured mesenteric glands, softening of the spleen and rupture of the gall bladder due to ulceration. The treatment is practically the same as for perforation and will not be considered in this paper.

PROGNOSIS.

The prognosis is always serious. More so than from other causes of perforations for the reason that the complication comes in typhoid fever at a time when the normal powers of resistance are weakened by two or three weeks of previous illness. The final result, that is, recovery or death, depends on several factors.

First—The physical condition of the patient before the advent of the fever.

Second—The character of the typhoid infection, whether it is mild or severe.

Third—Other previous complications.

Fourth—The organisms found in abdominal fluid after perforation.

Fifth—The time of operation after the occurrence of the perforation.

Patients are occasionally heard of who have the symptoms of perforation and yet recover without operation, but their number is small. No one claims that more than 5 per cent. recover without operative interference.

This class of cases, "recovery without operation," can be subdivided as follows:

First—Those having abscess formation.

Second—Those without abscess formation.

Recovery at times occurs in cases of the first division. It is my belief that the abscess cases are usually the result of ulceration and perforation of the appendix. The appendix being a more fixed part of the bowel than any other in which perforations take place and so frequently the cause of abscess formation, this would seem reasonable. Of the second division, in which the patients simply recover, I believe that these are not cases of perforation and that the symptoms present are due to some other cause. When perforation occurs in any part of the intestine except in the appendix I believe they very rarely recover without operative interference. It is possible, but not likely.

TREATMENT.

The only treatment is operative. Prompt surgical intervention should be done early unless there is a great lowering of the temperature, when time should be given for the patient to react.

When the operation is done within six hours after perforation occurs it is the belief of the writer that we will have a recovery of 50 per cent.

The closing of the perforation is naturally the first thing to be done. There is usually some difficulty in this procedure because the bowel is very friable on account of the great degree of inflammation at this point. Of late I have first used a purse-string suture, over which I introduce one or two tiers of continuous Lembert sutures, always of silk.

The Lembert sutures should be introduced transversely to the long axis of the bowel. In my last four cases, after closing the perforation, I have made use of another procedure which has saved the lives of two, possibly of three, of the four patients. This procedure in dealing with the closed perforation of the intestine is original with me, although it has most likely been made use of by other surgeons. It consists in simply anchoring the bowel at the site of the perforation to the peritoneum at the upper angle of the incision through the walls of the abdomen. This should be done so that all the sutures introduced to close the perforation are extraperitoneal. The advantages of this over the old method of returning the bowel to the abdomen are great. They are as follows:

First. The bowel can not return to its normal position within the cavity of the abdomen, which, by reason of the perforation, is the site of the most intense inflammation of the adjacent peritoneum and intestines. In the old method, when the bowel is returned, it will come to rest at this point and bathe the sutures in pus, with the consequence that the sutures are more liable to pull out.

Second. Acute obstruction is not so liable to follow for the same reason.

Third. The contents of the bowel will flow outside of the abdomen and not inside in case the sutures in the bowel tear out.

Fourth. An artificial anus can easily be made should partial or complete obstruction develop.

The toilet of the peritoneal cavity is important. The constant repetition of the procedure carried out in every reported case was principally to impress this fact. Every part of the greater peritoneal cavity from the pelvis to the diaphragm should be thoroughly flushed out with warm normal salt solution. The flushing should be continued until the fluid coming out is clear.

There is always fluid in the abdominal cavity following a perforation. Sometimes it is almost amber colored, like ascitic fluid. At other times it is flocculent, dirty and bloody, and may contain bands of organized lymph and fecal matter. To leave this in the abdominal cavity is a serious mistake. It is only a pabulum for micro-organisms when present. The fluid can not be removed by sponges at all thoroughly, and flushing is the only procedure to follow. After flushing, dry the abdominal cavity by means of sponges or by means of a suction syringe, or both.

When this is done the cavity will be in as nearly a normal condition as it is possible to make it under the circumstances.

The insertion of a large glass drainage tube to the bottom of the pelvis is for the purpose of removing any fluid collecting there.

The patient being placed in Fowler's position, the fluid can not go elsewhere than in the pelvis. As a rule, there is but little fluid to remove after all of the salt solution is out.

The drainage tube or gauze is removed as soon as possible, depending on the amount of fluid and the nature of the organisms present at the time of operation.

Fecal fistulas are not pleasant nor to be desired by either the patient or the surgeon, but do not give much trouble, and usually close spontaneously.

I am deeply indebted to Dr. A. Leteve[3] for the interest shown in making many microscopic examinations and cultures of the abdominal fluid. This procedure is very necessary. It aids in the after-treatment, and it also aids in making a more certain prognosis.

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Medicine as a science and as an art ranks higher than it has ever done. Physicians and surgeons win victories over disease and death of which our predecessors never dreamed. We have progressed and the future holds for us even better things. Let us have done with the prevailing pessimism; it is an infection which has been sown into our ranks from the ranks of unbelievers. We know better things of medicine than they and we must not let the unbelief of an outside few deter us in our onward and upward march.—*Western Medical Review.*

THE EXTRACTION OF THE INTRACELLULAR TOXIN OF THE COLON BACILLUS.

WITH A PRELIMINARY STATEMENT CONCERNING ITS PHYSICAL AND CHEMICAL PROPERTIES.

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INTRODUCTION.

The large tanks for the growth of bacteria in mass in use for some years in the hygienic laboratory of the University of Michigan permit the collection of bacterial cell substance in large amount and thus afford opportunity for the study of cellular chemistry not obtainable in any other way. Already several researches along this line have been carried on in this laboratory, and recently Dr. Vaughan has published his theory of the composition of bacterial cells and the principles of immunity developed from these studies. It is the purpose of this paper to detail some of the work which has been done recently in the extraction of bacterial intracellular toxins, with special reference to the toxin of the colon bacillus, and to give some preliminary statements concerning its physical and chemical properties. The method for the extraction of the toxin has been followed repeatedly and with several species of bacteria, so that now it can be given as reliable in results, and it is believed suited for general application.

EXTRACTION OF TOXIN.

The details of the method for extracting the bacterial intracellular toxins may be stated as follows: The organism to be studied is grown on 3 per cent. agar on the large tanks for from ten to fourteen days at room temperature. When the tanks are kept at 38 degrees centigrade, a shorter time may suffice to give the best yield. When the growth has ripened, the layer of bacterial substance is detached from the agar with glass rakes and drawn into flasks by means of suction pumps. Should the growth be too dry to be removed in this way, sufficient 95 per cent. alcohol is added to permit the suspended germ substance to pass into the flask. The flasks are emptied into large precipitating jars and the germ substance washed several times with 95 per cent. alcohol by decantation. It is then covered with absolute alcohol, and is allowed to stand for several hours with frequent stirring, when it is collected on a filter and all the alcohol is allowed to drain off thoroughly. Prolonged contact with absolute alcohol hardens the cell substance and renders the subsequent extraction of the toxin difficult. The cellular substance is now placed in large Soxhlets and extracted with ether, after which it is air dried, pulverized and weighed. The process thus far is preparatory. As obtained in this manner the dry germ powder kills guinea-pigs in doses of 1 to 40,000 body weight within twelve hours.

The germ substance, thus purified, is boiled for one hour on the water-bath, under a reflux condenser, with from fifteen to twenty-five times its weight of absolute alcohol, in which 2 per cent. by weight of pure sodium hydrate had been previously dissolved. It is essential that the alcohol used in this extraction should be absolute, and that every trace of water in the germ substance should be removed before the extraction of the toxin is undertaken. If this point be neglected the toxin will be obtained in a sticky, gummy mass which does not give satisfactory results. By this process the germ

substance is divided into two distinct parts. From the golden brown alcoholic solution there is obtained a powder representing about one-third of the weight of the original dry germ powder, which is very toxic, killing guinea-pigs in small doses in about thirty minutes, while the residue insoluble in alcohol represents about two-thirds of the weight of the germ substance and is not poisonous. The germ substance does not yield all its toxin, as a rule, until the extraction with sodium hydrate in alcohol has been repeated at least three times. Boiling the germ substance thus with sodium hydrate in alcohol splits the cells along certain definite lines of cleavage, for when the extraction has been repeated several times, boiling for one hour at each extraction, it will be found that all the toxin is dissolved in the alcohol, that no more can be split off, and that the portion insoluble in the alcohol is now non-toxic. After these portions have been separated by filtration, the filtrate, which contains the toxin dissolved in absolute alcohol, and is alkaline in reaction, is neutralized with hydrochloric acid. This throws down practically all the base and acid as sodium chlorid, which is removed by filtration. There is thus obtained a solution of the toxic part of the germ cell in absolute alcohol. This is evaporated in vacuo at a temperature of 40 C., redissolved in absolute alcohol to get rid of remaining traces of sodium chlorid and again evaporated in vacuo at 40 C. The toxic part of the cell substance obtained in this way, provided there is no water present, forms a brown scale on the dish which may be pulverized to a brownish powder that is toxic in very small doses.

It is believed that this poisonous substance is an integral part of the bacterial cell split off from it by the alkali, and that it is a synthetic product formed by the germ during its growth. In order to demonstrate this point the colon germ was grown for seven days in flasks containing Fraenkel's modification of Uschinsky's medium of the following composition:

Water	10,000 parts.
Sodium chlorid	50 parts.
Asparagin	34 parts.
Ammonium lactate	63 parts.
Di-sodium hydrogen phosphate	20 parts.

After a week's development the contents of the flasks were poured into from two to three volumes of 95 per cent. alcohol. The precipitated substance was filtered out and put into absolute alcohol. Filtered from this it was extracted in Soxhlet with ether, then dried and powdered. From this germ substance the process for the extraction of a poisonous body with 2 per cent. sodium hydrate in absolute alcohol was carried out as given above. On concentration of the alcoholic solution there was obtained a poisonous body just as from the extraction of germ substance grown on agar. The same dose kills guinea-pigs in thirty minutes, with characteristic symptoms of colon toxin. Also, the toxin obtained from germ grown on Fraenkel's modification of Uschinsky's medium gives all the proteid color tests hereafter described as being obtained from colon toxin from agar-grown cultures. This demonstrates the fact that the toxic body is an integral part of the germ split off from the cell by alkali; and in consideration of the apparent proteid nature of the toxic part, set forth in detail subsequently, it is evident that the bacterial cell must synthetically produce this proteid body during its growth from the chemical compounds of the medium.

PROPERTIES OF THE CRUDE SOLUBLE TOXIN.

The poison split off from the cell substance by the method above given is designated as the crude soluble toxin; "crude" because it is undoubtedly a mixture of a number of substances, and "soluble" in contradistinction to the germ substance from which it has been obtained and which is insoluble.

The brownish toxic powder from the colon bacillus is very hydroscopic and dissolves freely in water, forming an opalescent solution, acid in reaction, and pale yellow to golden brown in color, according to its strength. The opalescence is removed by filtration through a hardened filter, but the toxicity of the solution is not thereby diminished, showing that a small but non-toxic part of the powder is insoluble in water, but the larger part is so freely soluble that for practical purposes the opalescence may be disregarded. On neutralizing the opalescent solution with sodium hydrate it becomes clear; on neutralizing with sodium bicarbonate, a brownish non-toxic precipitate is formed, small in amount, and when this is removed by filtration the solution obtained is clear and highly toxic. In absolute alcohol the solution is perfectly clear. After long standing in an absolute alcohol solution, there is a small part that settles out and becomes insoluble; also, after repeated evaporation to dryness and resolution in absolute alcohol, a small part each time becomes insoluble. The powder is insoluble in ether, chloroform and petroleum ether. Each of these will remove a very small amount of fatty substance, which is non-toxic, but they do not dissolve an appreciable amount of the poison. The powder is soluble in strong mineral acids, remaining clear on being boiled and on diluting with water. A few drops of mineral acid, however, added to a water solution, causes a precipitate. This would seem to indicate that the acidity of the water solution of the toxin is caused by the presence of some organic acid.

Although the toxic powder is so readily soluble in absolute alcohol, the tests point to the presence of an albuminous or proteid body. Practically all the proteid color reactions are obtained, with the exception of Molisch's test. It is interesting, too, that the part separating out from an alcoholic solution on long standing gives none of the proteid color reactions, indicating that the proteid part is permanently soluble in absolute alcohol. The Millon's reaction shows most perfectly, even in dilute solution, as does also the biuret test. Heated with strong nitric acid a clear pale yellow solution is formed, which, when ammonia to excess is added, turns to a deep orange color, thus giving the xanthoproteic test. The reaction of Adamkiewicz is positive, for when the substance is heated with acetic acid and sulphuric acid is added, a beautiful violet color develops. On boiling with concentrated hydrochloric acid, to which a drop of concentrated sulphuric acid has been added, the powder passes into solution and a violet color results, thus giving Lieberman's test. The reaction of Adamkiewicz is supposed to be referable to the presence in the proteid molecule of aromatic groups, together with a carbohydrate radicle, while Lieberman's reaction is conceded to depend on the formation of furfurol, and, although the toxic substance gives both these reactions perfectly, it does not respond to Molisch's test, which is given by the formation of furfurol on the splitting up of a carbohydrate group with sulphuric acid. Neither does the powder reduce Fehling solution, either directly or after boiling with dilute mineral acid.

The ordinary test for sulphur in proteids, that of heating with excess of sodium hydrate in the presence

of a small amount of the acetate of lead—is not given by the portion of the germ split off by alkali in absolute alcohol. If, however, a portion of the substance in a test tube is fused with metallic sodium, and the cooled mass treated with water, a few drops of a freshly prepared solution of sodium nitroprussiate added to part of the clear filtrate, give a beautiful violet color, indicating the presence of sulphur. Also, if the other part of the clear filtrate be treated with a lead acetate solution and acidified with acetic acid, lead sulphid is precipitated. If the solution is acidified before lead acetate is added a faint but unmistakable odor of hydrogen sulphid is detected. It is known that sulphur may exist in the albuminous molecule in at least two forms, one part being readily split off on heating with dilute alkalies as hydrogen sulphid, the other being obtained only when the destruction of the proteid molecule is carried much farther. Since the nitroprussiate reaction is very delicate, no conclusion as to the amount of sulphur can be drawn from this test, and although a good precipitate of lead sulphid is formed, the amount of sulphur is probably not large, since Leach, in this laboratory, failed entirely to find sulphur present in the ash of the colon bacillus. It may be of interest to note parenthetically that both the germ substance and the residue which remains after extraction of the toxin, respond to the nitroprussiate test for sulphur, and also give the lead sulphid precipitate in the clear acidified filtrate from the fused mass.

A solution of the toxic substance is not coagulated by heat in acid, neutral or alkaline solution, though, as already stated, a few drops of a mineral acid causes the appearance of a considerable precipitate which is not soluble on heating or on the further addition of acid. This precipitate is produced regardless of whether or not the opalescence of the water solution is first removed.

Among the metallic salts, copper sulphate produces no precipitate and ferric chlorid only on heating. Silver nitrate naturally precipitates any trace of chlorids present, but after the addition of an excess of ammonia there still remains a small precipitate. Potassium ferrocyanid gives a precipitate, also potassium bismuth iodid in acid solution. Lead acetate, mercuric chlorid, and platinum chlorid all produce heavy precipitates. These latter precipitates have been examined more in detail and will be referred to again.

From a water solution of the powder, bodies giving proteid reactions may be salted out by the addition of ammonium sulphate or sodium chlorid to saturation, but on the removal of the neutral salt from the filtrates, these filtrates still respond to the proteid color tests. In the case of the salting out with ammonium sulphate, the precipitate shows little physiologic effect, whereas the residue from the filtrate, after removal of the ammonium sulphate, is still toxic and still gives the proteid color tests.

NO EVIDENCE OF ALKALOIDAL BODY IN CRUDE SOLUBLE TOXIN.

Phosphotungstic, phosphomolybdic and picric acids all give abundant precipitates. Since these reagents are also used in the precipitation of alkaloidal bodies, the precipitates with phosphomolybdic and phosphotungstic acids were further examined, the possibility suggesting itself that the toxic body might be alkaloidal in nature and that the proteid part might be entirely separate from the poison. A sample was precipitated with phosphomolybdic acid in acid solution, the precipitate removed, washed and dissolved in ammoniacal water. This solution was then shaken with amyl alcohol. The alcohol was not colored and the residue obtained on concentration was so slight as to be practically nothing. Another sample was precipitated with phosphotungstic acid, the solution being acid in reaction. The precipitate was allowed to settle, removed by filtration, washed with acidulated water, decomposed with a saturated solution of barium hydrate and the remaining insoluble part filtered out. So far as possible the barium was removed from the filtrate with carbon dioxid, alternating with concentration and further addition of carbon dioxid. The solution was then allowed to concentrate to dryness, when the residue was dissolved in absolute alcohol, leaving barium salts behind. On concentrating the slightly opalescent solution, more barium salts came down during the process and were filtered out. The dry residue was taken up in water and ammonium carbonate used to precipitate the barium that still remained. After removing the barium carbonate, by evaporating on the water bath, both carbon dioxid and ammonia were expelled, the solution again becoming acid. Dryness being reached, absolute alcohol was once more used, leaving undissolved a small amount of inorganic material. In this way the final residue after evaporation of the alcohol was practically freed from inorganic impurities. Sulphuric acid no longer gave a barium precipitate in water solution. The amount obtained by this method was very small and an exceedingly small part of the original toxic powder used. Since the substance obtained in this way still gives good Millon's, biuret and xanthoproteic proteid reactions, it is fair to say that it is not alkaloidal. The very small amount obtained by this method was given a guinea-pig intra-abdominally and, though the animal was sick, it did not die. Either phosphotungstic acid does not precipitate the toxic body or else the amount obtained was less than a fatal dose.

Should the toxic powder contain an alkaloidal body existing as a salt in the acid solution, the possibility of extracting the base with ether or chloroform after the solution had been made alkaline with ammonia, is apparent. This was tried with negative results. To a water solution of the toxin, acid in reaction, ammonia was added, drop by drop, to a slightly alkaline reaction, the mixture shaken with ether, the ether separated and evaporated. The residue left was non-toxic. The ammoniacal water solution was next shaken with chloroform, the slightly colored chloroform drawn off and evaporated at low temperature, leaving a small amount of a dark, thick semi-liquid, which was non-toxic either as it was or after faintly acidifying with hydrochloric acid. The water solution remaining being still toxic, it is evident that the toxic part is not an alkaloidal body capable of being extracted directly.

Potassium bismuth iodid in acid solution of the crude soluble toxin produces an abundant precipitate, apparently more or less soluble in excess. This precipitate is soluble in ammoniacal water. On shaking with amyl alcohol so small an amount of substance is extracted as to be practically nothing.

Lead acetate produces a heavy precipitate which settles readily. The Millon test is given by the filtrate in this case and not by the precipitate. After removing the lead from both parts by means of hydrogen sulphid, both solutions were concentrated to a thick syrup. The residue from the filtrate still gave the Millon test, while that from the precipitate did not.

The residue from the filtrate was toxic for guinea-pigs, that from the precipitate was not, showing that lead acetate does not precipitate the toxic part. A determination of nitrogen by the Kjeldahl method in the toxic residue from the filtrate showed 9.90 per cent.

A saturated water solution of mercuric chlorid produces in a water solution of the poisonous powder, acid in reaction, an abundant rather curdy or fibrous-looking precipitate of a brownish color, but here again the proteid reactions are given by the filtrate and not by the precipitate and again after the mercury has been removed by hydrogen sulphid, the residue from the filtrate is toxic, that from the precipitate is not.

Platinum chlorid gives a good precipitate in both water and alcoholic solution of the crude soluble toxin. The alcoholic precipitate is perhaps the more abundant. It has been found that from 10 to 15 per cent. of the crude poison is thus precipitated. The precipitate is insoluble in water, hot or cold, acid, alkaline or neutral in reaction, in alcohol, ether, chloroform or acetone, so, naturally, all attempts to crystallize it failed. It gives the Millon test perfectly, also the biuret and xanthoproteic reactions. These tests are not given by the filtrate or by the residue from it after removal of the platinum by hydrogen sulphid. The precipitate after removal of the platinum is very toxic, having twice the toxicity of the crude poison.

As has already been stated, that part of the germ split off by alkali in alcoholic solution and designated as the "crude soluble toxin" is undoubtedly a mixture of substances. At present it is not known whether the toxic part itself is a single chemical compound or not. There is no evidence that it is an alkaloidal body, and it is interesting and it may be significant as well, that wherever the toxic part is found the proteid color reactions are given also. Another apparently constant factor is the acidity of the poisonous body. In places where, by precipitations, washings and purifications, there is no chance for any trace of inorganic acid used to remain, this acidity of the toxic part still remains, e. g., when the toxin has been precipitated by platinum chlorid in alcoholic solution, the precipitate carefully washed with alcohol, the platinum removed by hydrogen sulphid and the clear resulting solution concentrated to dryness on the water bath, the very toxic residue remaining is still acid in reaction.

TOXIN BROKEN UP WITH CONCENTRATED HYDROCHLORIC ACID.

Assuming the compound nature of the toxic substance and the possibility of splitting off therefrom a less complex toxic group, the effect of breaking up the crude poison by prolonged heating with concentrated hydrochloric acid was tried. Samples of the toxin were heated on a boiling water bath for five hours with from 20 to 30 volumes of concentrated hydrochloric acid. Practically everything was dissolved, the solution being very dark brown, almost black. This solution, after filtering, was neutralized with sodium carbonate and evaporated to dryness on the water bath, when the residue was thoroughly extracted with absolute alcohol, forming a pale yellow solution. This, on the addition of a saturated alcoholic solution of mercuric chlorid, gave a heavy white precipitate which, after thoroughly washing with alcohol, was dissolved so far as possible in boiling water, the precipitate being difficultly soluble in a large amount of hot water and leaving an insoluble part. The clear solution was concentrated on a water bath and from it were obtained sheaf-like aggregations of rather long, narrow, fragile-looking prisms. These were filtered out, put into water, and the mercury removed by hydrogen sulphid. On evaporation there remained a small amount of a brownish residue, acid in reaction again and very toxic, the symptoms produced resembling those given by the crude soluble toxin. It is known also that this residue dissolved in alcohol gives a precipitate with alcoholic platinum chlorid. Work is now in progress in the preparation of both the mercury and platinum compounds in quantities sufficient for their study and identification.

CONCLUSION.

Briefly, then, there is split off from the germ substance of the colon bacillus by treatment with a 2 per cent. solution of sodium hydrate in absolute alcohol a crude soluble toxin, leaving undissolved a residue which is almost completely soluble in water but which is not poisonous. That a definite cleavage takes place is shown by the fact that the germ substance is split so decidedly into two distinct and different parts, a point being reached where no more toxin can be split off, thus leaving an inert residue. The toxin is obtained whether the germ be grown on agar or on Fraenkel's modification of Uschinsky's medium, demonstrating that it is an integral part of the cell. The use of the modified Uschinsky's medium shows also that the organism is able to build the toxin synthetically from chemical compounds.

This poisonous substance, freely soluble in water, but more readily and perfectly in absolute alcohol, gives all the ordinary proteid color reactions, but does not yield a reducing carbohydrate. There is no evidence that it is alkaloidal in nature, the toxic part being precipitated directly by platinum chlorid alone, with the probable exception of phosphotungstic acid, and in both these cases the toxic body obtained still gives the proteid reactions. It may be broken up by concentrated acid, and a toxic crystallizable body precipitated by the use of mercuric chlorid.

The cell substance of typhoid and anthrax bacilli, as well as that from the colon bacillus, is broken up by dilute alkali in alcohol at 78 degrees, into portions A and B, the former being in solution in the alcohol while the latter forms an insoluble residue. Both A and B are soluble in water and aqueous solutions of A are poisonous, while similar solutions of B are inert or relatively so. Portion A from the colon bacillus, at least (the others not having been so thoroughly studied as yet), can be divided into two portions, *a* and *a'*, by precipitation with platinum chlorid. Portion *a* constitutes from 10 to 15 per cent. of A and is poisonous, while *a'* is inert. The proteid color reactions follow the poisonous portion in these separations. By breaking up portion A with concentrated hydrochloric acid, a crystalline toxic body is obtained.

The relation of these poisonous, alcohol-soluble proteid derivatives to similar substances obtainable from other proteids, also their relation to the alcohol-soluble proteins obtained by Osborne from seeds, are matters for further investigation.

A detailed study of the action of the poisonous portion on animals will be presented in a paper by a coworker in this laboratory.

Case Reports.—Every physician sees instructive cases not duplicated in the experience of others. If he does not report them, remarks the editor of the *Medical Council*, their lessons are lost to medical science.

LOCAL ANESTHESIA IN MAJOR AND MINOR OPERATIONS ON THE EAR,

AS OBSERVED IN PROFESSOR POLITZER'S CLINIC IN VIENNA.

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AND
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During our term of service as clinical assistants in Professor Politzer's clinic we had the opportunity to observe and to study the various methods of applying local anesthesia in otology.

Although the Schleich and other solutions from time to time had been used with various degrees of success, it remained for Neumann, assistant to Professor Politzer, successfully to develop a method of local anesthesia, by means of which almost any operation can be performed on the ear without more than passing inconvenience to the patient.

Neumann first tried this method in the case of a strong Hungarian—a coal miner by trade—who had suffered for years with a chronic otitis media. In this

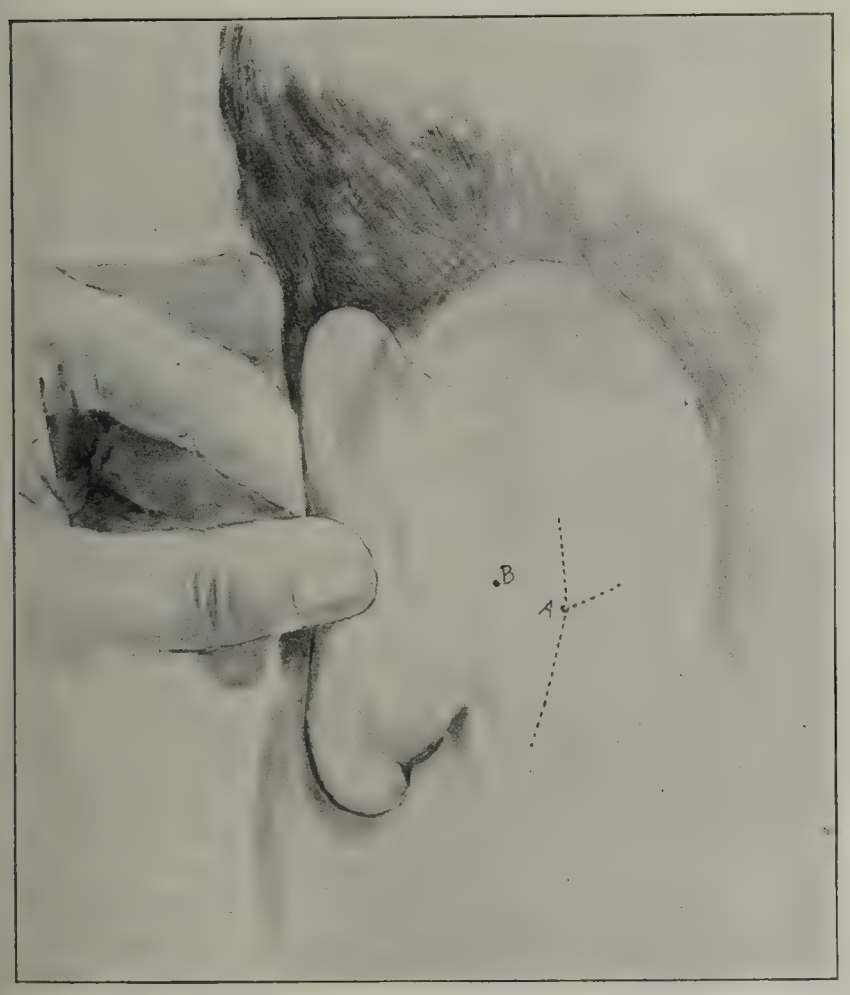


Fig. 1.—Showing the point of injection.

case he injected 7 c.c. of a 1 per cent. solution of cocain with five drops of tonogen[1] to each c.c. of the solution, and the result was most astonishing. A radical operation, lasting over an hour, was performed, according to Zaufal's method, without the slightest manifestation of pain on the part of the patient. Encouraged by the success of the anesthetic in this case, a number of operations were performed, and the technic was modified and improved from time to time till the present method was developed.

Preparatory to the operation, the patient is given a meal, as experience has shown that cocain is much less toxic when the patient has partaken of a meal shortly before its injection. The patient is then prepared as for any surgical procedure; the region of the ear is shaved, rubbed with ether, scrubbed with green soap, then washed with bichlorid solution 1:1,000. This is repeated twice, after which the part is again rubbed with ether.

The injection of the solution is best made with the patient in a sitting position, but if preferred, it can be done with the patient lying on the side.

The following three solutions should have been previously made:

(*a*) One per cent. solution of eucain in distilled water with five drops tonogen to each c.c.

(*b*) One per cent. solution of cocain in distilled water with five drops tonogen to each c.c.

(*c*) Solution of cocain, 20 per cent.

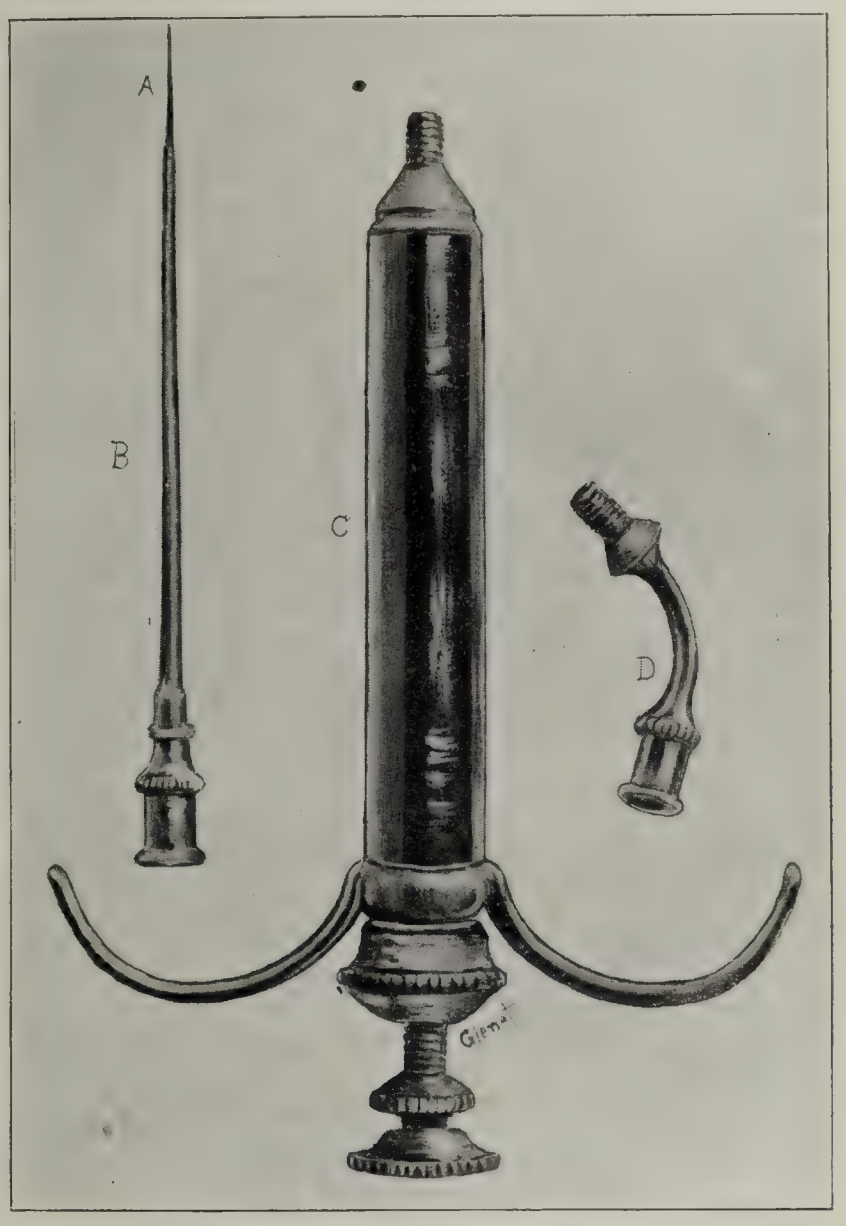


Fig. 2.—Syringe used in injecting the solutions. The arm d which unites the needle b and the syringe c allows the syringe and the hand of the operator to be below the line of vision. The point of the needle a is easily detachable so that the new points can be inserted from time to time.

The operator now fills the syringe with the eucain-tonogen solution, and places it in hot water until it is warmed to the temperature of 40 to 50 C. This is essential, as the anesthesia is more rapidly completed if injected at this temperature.

An assistant now takes the place of an anesthetizer and watches the pulse, pupils and general condition of the patient; he remains in this capacity during the entire operation.

SITE AND METHOD OF INJECTION.

The needle is now inserted over the mastoid process

1. This is an extract of the adrenal gland made in Austria and is similar to the various adrenal preparations of this country.

at the point "a," Figure 1, and forced upward through the tissues till it reaches the bone, when 1 c.c. of the eucain solution is injected beneath the periosteum.

The syringe is now refilled and the needle inserted through the same opening. This time, however, the direction being downward and the point carried in the region of the apex of the mastoid process where 1 c.c. of the solution is injected beneath the periosteum. The syringe is again filled with the eucain solution, and the needle inserted in the same opening and directed inward and somewhat backward.

The external ear is now drawn forward and 1 c.c. of the solution is injected between the anterior wall of the mastoid process and the cartilage of the ear at the point b, Figure 1.

A speculum is now inserted in the ear and 1 c.c. of the cocain solution is injected into the superior wall of the ear at the point of junction of the bony and cartilaginous portions. Another syringeful is injected into the inferior wall, and one-half syringeful each into the anterior and posterior walls. The injections must be made beneath the periosteum, and in such a manner that a protrusion of the wall can be seen following them. This protrusion will disappear as absorption takes place.

A small pledget of cotton is now saturated with the 20 per cent. cocain solution and is inserted into the tympanic cavity through the perforation in the tympanic membrane, which always exists in these cases. This pledget is not removed until the antrum is opened in the regular course of the operation.

The parts are now covered with a bichlorid dressing which remains in place until the operation is begun. All in all, not more than 4 or 5 cgm. of eucain and 3 cgm. of cocain are used, combined with the vessel contracting and antitoxic tonogen. Eucain is made use of in this connection, as the toxic properties of this drug are very much less than those of cocain. The latter drug, however, is injected into the auditory canal, as its action persists longer, thus allowing the operator to work in the antrum and attic with perfect freedom.

The symptoms following the injection are never alarming. As soon as the injection is completed, the patient is placed in a recumbent position, either in bed or on the operating table, and the assistant who takes the place of the anesthetizer continues to observe him. In a few minutes he may complain of slight headache or nausea, both of which are overcome with a few spoonfuls of hot black coffee with a little brandy.

THE RADICAL OPERATION.

After from 15 to 20 minutes, the anesthesia and anemia for the radical operation are complete, and one may begin as in any radical mastoid operation. Only small pieces of bone should be removed at a time, and the chisel should be held as flat as possible, thus avoiding the concussion which would ensue if the chisel were held perpendicularly. If preferred, the burr may be used in this operation with very good effect.

A pillow placed under the head of the patient also aids in reducing the jar to a minimum.

The patient feels that something is being done in this region, but has no symptom of positive pain. The only exception to this may be in the initial cut through the skin, which some of our patients claimed to have felt. Nervous subjects are sometimes apprehensive when they feel the jarring caused by the first hammer strokes, but after a few minutes even this disappears and they suffer no greater inconvenience than when undergoing treatment at the hands of the dental surgeon.

We are convinced that with the possible exception of children and hysterical subjects nearly every patient can be operated on by this method, and that in a great majority of cases a general narcosis can be dispensed with.

OTHER OPERATIVE PROCEDURES.

The procedure previously described is for the radical operation, but the efficiency of the anesthesia is by no means limited to this class of cases. In acute mastoiditis, which frequently demands operative interference, we find that by this method the operation can be painlessly performed without subjecting the patient to the danger of a general anesthetic.

In injecting the solution in these acute cases, the same technic is followed as for the radical operation, so far as it concerns the posterior auricular region; it is not necessary, however, to inject any cocain into the auditory canal. When there is subperiosteal abscess, the fact that the subperiosteal space is filled by the abscess interferes with the absorption of the solution.

We now turn our attention to those cases known as the intratympanic cases. This operation, although a relatively minor one, has always demanded a general anesthetic. Rather than run the risk of anesthetizing a patient twice, operators have generally chosen to perform the radical operation at once, thus ignoring the possibility of curing the condition by removing the ossicles, which he could easily have done had he been in possession of an efficient local anesthetic. By this method the extraction of polyps, granulations, endotympanal pseudoligaments, and even resection of the lateral wall of the attic, which has already been performed by Professor Politzer, may be made office operations.

As this method of anesthesia reduces the extraction of the malleus and incus to a minor operation, and at the same time allows the operator to thoroughly examine with the sound those parts of the ear which formerly it was not possible to examine, we believe that a more complete agreement as to what constitutes the indications for a radical operation will result.

We have performed many operations of this kind, in cases of chronic otitis media, with attic or antrum suppuration, or with partial or complete destruction of the drum, in which the malleus and incus were removed without any pain to the patients—a number of whom were children. In these cases a single injection of the cocain-tonogen solution was used, and even in the children there was not the least sign of any toxic symptom following the injection of the solution.

THE INTRATYMPANIC OPERATION.

The technic of the intratympanic operation is as follows:

The ear is cleansed with deodorized benzine and washed with hydrogen peroxid or lysol solution. The syringe is then filled with the 1 per cent. cocain-tonogen solution and warmed to 45 C. The speculum is now introduced in the ear and the needle inserted into the superior wall at the junction of the bony and cartilaginous portions. The needle is forced in until it reaches the bone, when a few drops are forced out of the syringe. The needle is then pressed cautiously forward and more of the fluid injected beneath the periosteum. In this procedure care must be taken that the needle is not forced through the cutis, or the fluid will

escape into the auditory canal. Should this occur, the injection must be repeated two or three times until the covering of the superior wall bulges downward, showing that sufficient fluid is retained.

The syringe is cautiously withdrawn and a small pledget of cotton saturated with tonogen is pressed against the field of operation. After waiting from ten to fifteen minutes to allow the anesthetic to take effect, the operation can be performed without the slightest inconvenience to the patient.

On the completion of the operation, the field is dusted with a mixture of equal parts of anesthesin and boracic acid to counteract the severe pain which would otherwise develop in an hour or two following the operation. This indication is fully met by this powder, as in the cases where it has been used the patients have not complained of any pain subsequent to the operation.

The syringe used for these injections is of metal, holding 1 c.c.; and with a needle modified by Neumann. A pair of half rings (which are detachable) have been added to the syringe to facilitate the injection.

In conclusion, we wish to express our gratitude to Professor Politzer and his assistants for the exceptional opportunities afforded us for study during our term of service in the clinic at Vienna.

PUS TUBES IN THE MALE, AND THEIR SURGICAL TREATMENT.

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Due attention is not generally accorded to the fact that the genital duct proper in the male—seminal vesicle, vas deferens and epididymis—is just as prone to suppuration as is the urethra. Suppuration in the vesicle, it is true, has been recognized, in recent years, as a frequent feature of gonorrhea; but the extension of this infection to the epididymis—frequent and familiar though it be—is not generally considered a suppurating process. Even the best of our modern treatises expressly state that suppuration is exceptional in epididymitis, gonorrheal or other; they consistently prescribe the usual medical treatment, but do not advise the evacuation of pus, except in those rare cases in which fluctuation becomes distinct.

The pus infections of the epididymis and of the vas deferens present a complete though neglected analogy with the familiar pus infections of the fallopian tubes. An epididymitis following prostatic pus infection, whether gonorrheal or other, is usually suppurative; pus tubes are quite as common in the male as in the female; hence the rational treatment of such acute epididymitis should frequently be surgical, i. e., it should include the evacuation of pus by incision.

In the mildest cases such incision may be needlessly radical, since the pus may presently find the natural channel into the urethra; on the other hand, the acute hydrocele and the scrotal edema, which so often accompany severe acute epididymitis, are infallible signs of suppuration in the epididymis, and the incision is followed by relief from pain and subsidence of the swelling. Even when no pus escapes, the relief of tension affords marked comfort and insures a relatively speedy convalescence.

If direct exit for the pus by incision into the epididymis be not provided, the gathering pus often burrows along the vas into the urethra; and thus is explained the familiar phenomenon that decrease of the pain of epididymitis is accompanied by marked increase in the discharge from the meatus. Moreover, persistent suppuration in the epididymis may feed the gleet which follows, just as pus-tubes in the female feed a leucorrhea; and this gleet may recur indefinitely, in spite of elaborate urethral and internal medication, until the hard and tender swelling of the epididymis is incised and the contained pus evacuated.

In other words, the successful treatment of a gleet sometimes requires incision into the epididymis.

Again, chronic epididymitis through pus infection may require surgical treatment; persistent pain and tenderness following the acute infection (sometimes miscalled neuralgia of the testis) is relieved by incision or excision of the epididymal pus focus; destruction of the testis by extension of the pus infection from the epididymis may be prevented by the same treatment.

The lower end or tail of the epididymis presents the chief swelling in acute or chronic epididymitis (pus infection), since in this tail is coiled the greater portion of the 20 feet of the epididymal tube; and into this lower end the incision usually should be made. Simple puncture with bistoury or aspirating needle may sometimes suffice; yet drainage is better assured by an incision a half inch or more long, the edges of the pus cavity being loosely stitched to the cut edges of the skin, and a small drain inserted.

In a few cases I have practiced a therapeutic measure which, according to my present information, is novel, namely, injections into the vas deferens and seminal vesicle, through a needle introduced into the vas just above the epididymis. As the dilated upper extremity of the vas, the ampulla, bears about the same relation to the vesicle that the auricle does to the ventricle of the heart, a liquid injected into the vas easily reaches the vesicle; this can be clearly demonstrated by injecting Prussian blue in water into the vas of the fresh subject.

The therapeutic value of such injection is not yet accurately determined; at present it can be merely affirmed that this is a practicable way—and as yet the only way—for directly medicating the male genital tube, including the vesicle, which is so commonly and so persistently infected by various pus bacteria and by the gonococcus.

Special Article

IMMUNITY.

CHAPTER XIII.

THE BACTERICIDAL PROPERTY OF SERUMS.

The Cellular and Humoral Theories.

There are two theories of note which concern the ability of the body to destroy bacteria. One of these is the phagocytic theory of Metchnikoff, according to which micro-organisms can not be destroyed without the direct or indirect participation of the phagocytic cells; this is the cellular theory. The second, the humoral theory, supposes that the power resides in the fluids of the body alone; in its improved form it now holds that antibacterial immunity should be considered cellulo-humoral, and that whatever bactericidal power the body fluids have is derived primarily from the body cells. Many who appreciate the action of the serum, however, also believe that phagocytic cells may take up and, in certain instances, destroy micro-organisms; this combined view seems best to fit the facts as known at present.

Antibacterial, bactericidal and bacteriolytic are three terms which are used in a rather loose, interchangeable way, although they are not strictly synonymous. A bactericidal serum is one which is able to kill bacteria, as the term implies; if at the same time it dissolves the organisms it is bacteriolytic. Inasmuch as some serums do kill bacteria without dissolving them (typhoid), while others have the dissolving power (cholera), the distinction is one of significance. In either case the serum is, of course, antibacterial. For lack of a more concise English term, bacteriolysis is used to designate the process in which bacteria are killed by serums regardless of the dissolving power of the latter. Bacteriolysin refers to the substances of the serum which accomplish this action. The means of determining the bactericidal power of a serum was indicated in a previous chapter. Bacteriolysis is best observed with the organism of cholera and its antiserum as described later under the title of the Pfeiffer experiment.

Bacteriolysis and Bacteriolysin.

Bacteriolysins are far more complex than antitoxins, agglutinins and precipitins. One may best appreciate the present situation by briefly tracing their history as they were evolved from the relatively simple alexins of Buchner.

Following the investigations of Fodor, Behring and others, which showed that normal blood may kill bacteria in the test-tube, and after additional facts were obtained by Nuttall, Buchner demonstrated that it was not necessary to use the full blood in order to obtain the bactericidal action, but that the serum alone had a similar effect. He spoke of the antibacterial substances collectively as alexins (substances which ward off), taking the reasonable view that natural immunity to bacteria depends on their presence.

Alexins.

Alexins were very sensitive substances; they disappeared spontaneously from serums in a few days, were destroyed by a rather low degree of heat (55° C.), by acids and alkalies, and were active only in the presence of certain salts, especially sodium chlorid. A striking feature of alexins, as distinguished from chemical bactericides, was their marked selective action on bacteria. The alexins of animal A might destroy one micro-organism readily and affect another little or none at all, whereas those of animal B might have opposite selective characteristics. The increased bactericidal power of serum which develops during immunization or infection, goes hand in hand with the increased resistance of the individual against the infection. The alexins have undergone a specific increase; they are now immune alexins or, as we say to-day, immune bacteriolysins. The new alexins are identical in their properties with those which occur normally; they exist merely in greater concentration in the acquired immunity.

Selective Action.

Work which was instituted by Pfeiffer and developed further by others led the way to a more correct understanding of the nature of alexins. Pfeiffer studied the bactericidal action of serums in the body of the living animal, i. e., in the peritoneal cavity. His most classic results were obtained with the organism of cholera. Guinea-pigs are immunized against this microbe by injections of the killed or living organisms. We have already learned of this process as that of active antibacterial immunization. When the animal is well immunized the experiment is begun by the injection of a quantity of culture which would be fatal to an unimmunized animal. At intervals during the next twenty or thirty minutes small amounts of the peritoneal fluid are removed for microscopic examination. In order to obtain the fluid, fine pipettes are drawn out in the flame, an incision is made in the skin, and the abdominal wall is then punctured with the pipette; the fluid flows into the tube by capillary attraction. A portion may then be examined in a hanging-drop preparation or dried on a cover-glass, fixed in the flame and stained with a dilute solution of carbol-fuchsin. In the hanging-drop preparations it is first noticed that the organisms have lost their motility; the comma- and S-shaped forms soon become spherical and at first appear swollen and clear, whereas in later preparations they gradually decrease in size and show a very rapid vibrating movement, the so-called Brownian movement, which is purely physical in nature. In the course of from twenty to thirty minutes the organisms have been completely dissolved. These changes may also be followed in the stained specimens, in which the altered cells eventually appear as fine red granules.

The Phenomenon of Pfeiffer.

As Metchnikoff, Bordet and others have shown, the same phenomenon may be followed without the intervention of the animal body, by mixing perfectly fresh anti-cholera serum with the vibrio and mounting as a hanging-drop preparation. The slide must be kept at the temperature of the body by means of a warm stage. The reaction, however, is far less vigorous than when it takes place in the peritoneal cavity and the solution of the cells may not be complete. No bacterium is so completely dissolved under these conditions as the vibrio of cholera, although the typhoid bacillus and similar organisms undergo some changes in their form.

The Experiment in Vitro.

The experiment of Pfeiffer may also be conducted in the abdominal cavity of a non-immune guinea-pig, if anticholera serum is injected in conjunction with the organism (passive antibacterial immunization). This is the classic Pfeiffer experiment. The immune serum should be of such strength and should be given in such quantity that the animal is saved in spite of the ten fatal doses of culture which the typical experiment demands. Experiments brought to light a condition which seemed paradoxic; an old immune serum which had lost its bactericidal power as manifested *in vitro*, or one in which the alexins had been destroyed by a temperature of 60° C., showed its original protective power when the experiment was performed in the peritoneal cavity. Furthermore, when an inactive immune serum was injected into the cavity, allowed to remain for a time and then withdrawn, its bactericidal power for experiments *in vitro* was found to be re-established. On the basis of these facts, Pfeiffer concluded that the specific substance is present in the immune serum in an inactive form, and that it becomes active as a result of contact with living tissue cells, supposedly the endothelial cells of the peritoneum. According to this conclusion, an inactive serum could become active again only after its introduction into the body.

The Activation of an Inactive Serum by the Tissues.

It remained for Bordet to show, on the contrary, that the serum could again be made active for experiments in the test-tube without the aid of living cells. This he accomplished merely by adding to the heated immune serum a small amount of fresh normal serum from the guinea-pig or goat, the quantity of normal serum which was used not being in itself bactericidal. We have, then, two serums which when combined are bactericidal, but when separated are inactive. The destruction of the active property of a serum by heat or by other means is called inactivation, and the re-establishment of its power by the addition of fresh normal serum is reactivation. The immune serum, when heated to 55 to 60° C., loses something which is essential to its activity, and this something may be replaced by the normal serum. That the substance in the normal serum is identical with that which was destroyed in the immune serum is indicated by the fact that it is destroyed by the same degree of heat; a heated normal serum will not reactivate an immune serum.

Inactivation and Reactivation.

The conclusion of Bordet that the bactericidal power of a serum depends on the combined action of two substances has been substantiated by numerous investigators. The properties of the two substances will be given in the succeeding chapter. At this point it is sufficient to say that these are the substances which in recent years have become familiar under the names of amboceptor and complement and their various synonyms. One of them, the

Two Substances in a Bactericidal Serum.

amboceptor, is heat-resistant (thermostabile), i. e., it is not destroyed at 56° C., whereas the other, the complement, is susceptible to heat (thermolabile), being destroyed at that temperature which killed the alexins of Buchner. The term alexin is still applied by some writers to the thermolabile substance (complement), but its original significance has been lost.

Specificity.

The specificity which prevails among antitoxins and agglutinins is found also in the action of bactericidal serums. When an anticholera serum is injected into the peritoneal cavity of a guinea-pig, protection is not afforded against other vibrios or other pathogenic organisms. The specificity is so great that the reaction of Pfeiffer may be used for the identification of bacteria. If one has in hand an unknown vibrio, its identity or non-identity as the organism of cholera may be determined by injecting it, in conjunction with anticholera serum, into the peritoneal cavity of a guinea-pig; if the microbe is transformed into granules it is the vibrio of cholera, otherwise it is not. Other bacteria may be identified in a similar manner by the use of the proper serums. In spite of this high specificity the group reaction may occur even with bactericidal serums. An antityphoid serum may have a stronger bactericidal action than a similar normal serum against organisms which are closely related to that of typhoid, as the colon bacillus, but the power is never so strong as against the typhoid organism. Hence, for the purpose of identifying bacteria, the method of serum dilution is as decisive as in connection with agglutination.

Group Reaction.

Bactericidal serums are not obtained with equal readiness for all organisms. We are most familiar with those which are yielded by immunization or infection with the microbes of cholera, typhoid, plague, the colon bacillus and related bacteria. Many other bacteria yield neither antitoxins nor bactericidal substances through immunization, nor are the serums protective when injected into animals; the pneumococcus, streptococcus, tubercle bacillus and others. Individuals who have suffered infections from these organisms are endowed with little or no immunity against subsequent attacks. The pneumococcus grows well in the serum of a convalescent from pneumonia. Thus it is seen that the field of antibacterial immunity is filled with many contraindications if one attempts to interpret it merely on the basis of the bactericidal properties of serums as they are manifested *in vitro*.

The Effect of Bactericidal Serums on Endotoxins.

In a preceding chapter micro-organisms were divided, first, into those which secrete soluble toxins, immunization with which causes the formation of antitoxins, and, second, those which do not secrete such toxins and for which no manipulations of cultivation and immunization known at the present time are successful in stimulating to the formation of antitoxins. After all, it seems plain that the bacteria of the second group must be pathogenic because of toxic substances which they carry with them into the body. In view of the fact, however, that they do not secrete soluble toxins in culture media, it is held that their toxic properties are integrally associated with the bacterial protoplasm; they are the endotoxins spoken of previously.

The question naturally arises: Does a bactericidal serum in dissolving or killing its homologous organism at the same time neutralize the endotoxin? On the basis of very positive experiments which have been performed, especially by Pfeiffer, it is evident that the serum has no such action. In the experiment of Pfeiffer, one may inject into the abdomen a sufficient quantity of anticholera serum to kill all the organisms which have been introduced, and yet the animal dies with the intoxication of cholera. Furthermore, if one considers a culture of the cholera vibrio, which has been killed by heat, as representing so much cholera toxin, anticholera serum protects against no more of it than does the same quantity of normal serum. It is believed that anticholera and similar immune serums may even increase intoxication by dissolving the bacteria and thus liberating an excess of toxins.

In spite of the classification of bacteria into the two groups just cited there are a few microbes which, according to manipulation, cause the formation of either an antitoxic serum or a bactericidal serum. In general it may be said that the character of the serum depends on the bacterial constituent which is used for immunization. If the diphtheria bacillus itself, or the pyocyaneus bacillus, is injected, the toxin having been washed away, bactericidal serums are formed, whereas if toxins alone are introduced, antitoxins are the result.

The Bactericidal Power in Relation to Natural Immunity.

In view of the fact that the increased bactericidal power of the serum of one who has had typhoid fever, cholera or one of the other diseases in this group, is so distinctive and so potent, it is generally believed that the immunity depends on this factor. May we with equal justification conclude that the bactericidal powers of normal serums are correct indices of the natural antibacterial immunity of the animals? Although this relationship has been found to exist in a number of cases, there are other instances in which it does not prevail. Anthrax may be cited as an example; *in vitro* the serum of the rabbit is strongly bactericidal for the bacillus although the animal is exceedingly susceptible; on the other hand, the dog has much more resistance to anthrax although its serum has but slight bactericidal effect on the organism. Experiments of some importance have to do with the ability of bacteria to absorb the homologous bactericidal substance from a serum when the two are mixed in test tubes. Hence, if natural antibacterial immunity depends on the bacteriolysin which is present in the circulation, a large mass of the bacterium when injected intravenously should absorb or fix the bactericidal substances; as a consequence, serum which is drawn later should show a great decrease in its bactericidal power for the organism which was injected. Although results of this nature have been obtained by a number of competent investigators, they are not without exception. In the same connection fatal infections should be accompanied by a decrease of the natural bactericidal power of the serum for the organism involved. This has been found to be true in man in relation to plague, and in some animal infections. At present general statements concerning this point can not be well made.

Origin of Bactericidal Substances.

We have little positive knowledge concerning the organs which form the bactericidal substances in acquired immunity. Pfeiffer and Marx, in relation to cholera, and Wassermann in typhoid, found that the spleen and the hemopoietic organs in general contain the immune bodies in greater concentration than the blood serum, and in immunization experiments the bodies may be demonstrated in these organs at a time when they are absent from the circulation. This fact is generally accepted as proof of their formation at these points. Wassermann and others have demonstrated the presence of complement in the leucocytes, and Metchnikoff holds that it is produced only by such cells.

Standardization.

The standardization of bactericidal serums is at present more of theoretical than of practical interest, because of their limited therapeutic use. Their values can not be determined with the same degree of accuracy with which one measures the unit of antitoxin. One may deliver from a pipette a definite quantity of toxin and if the toxin has been well preserved the same quantity may be obtained at any subsequent time. It is impossible to preserve a culture of living bacteria so that the number of the organisms and the virulence of the culture remain constant, nor will two cultures made at different times contain the same number of cells in a given volume. Hence, standard cultures which are necessary for the systematic valuation of serums are not easily available. One may use a definite volume of a bouillon culture of an organism which has grown for a certain number of hours, but in all likelihood no two cultures would contain the same number of organisms.

Pfeiffer uses the normal loop which has been mentioned, i. e., one which will take up from a surface of agar two milligrams of the bacterial mass. The culture must have grown for a definite period, eighteen to twenty-four hours. Tests having some value may be made in the test-tube, provided the antibacterial serum is used when perfectly fresh, i. e., when its complement has not yet degenerated; this, of course, gives one only the bactericidal power as it is manifested outside the body, and, as stated, this may not be a correct index of the protective power of the serum when it is injected into the living animal. For the test-tube experiment various dilutions of the serum are made, as 1 to 10, 1 to 100 and 1 to 1,000, and a similar quantity of each dilution is mixed with a given mass of the culture; the mixtures are then placed in the thermostat for a number of hours. At the end of this time plate cultures are made from each of the mixtures, the plates put aside for twenty-four hours, and the colonies which have developed are then counted. The quantity of serum required to kill all the bacteria used may thus be determined.

When the protective power of the serum is determined by animal experiment it is not essential to use the serum when fresh; in fact, the native complement in the immune serum may be disregarded, or, preferably, it may be destroyed by heat. If the latter procedure is adopted, or if an old serum is used in which the complement has degenerated, its reactivation is accomplished through the complement which is present in the body of the experiment animal. It will appear in more detail in the succeeding chapter that a given antiserum requires a particular complement for its reactivation, and that this complement may be present in some animals and absent in others. Hence, it must be known in advance that the animal chosen for the experiment possesses the suitable complement.

It is also necessary to know the virulence of the culture with which the antiserum is to be tested. It is possible to maintain some organisms at a rather constant virulence by passage, i. e., infecting animals with the microbe and recultivating it from the tissues. With others, abundant controls must be made at the time the serum is tested in order to know at that moment the precise virulence of the culture. In all probability it requires more serum to protect against very virulent cultures than against those of less virulence.

To find the value of anticholera serum Pfeiffer prepares dilutions similar to those mentioned above, and to the same quantity of each dilution adds ten fatal doses of a virulent culture of the vibrio of cholera. These are injected into the peritoneal cavities of three guinea-pigs and after periods of forty to sixty minutes hanging-drop preparations are made from the peritoneal fluid of each animal to determine the formation of the characteristic granules; the highest dilution which causes this change in the cells stamps the value of the serum. The animal must at the same time be protected against the ten fatal doses of the culture.

The value of an antityphoid serum may be determined in the same way, the result being judged by the protection which is afforded the animal rather than by the formation of granules.

Antityphoid, antiplague, and some other serums are also tested by injecting the serum twenty-four hours in advance of the culture.

Non-Specific Increase in Resistance.

In contrast to the specific immunization which may be accomplished with an immune serum, it is important to recognize that a non-specific increase in resistance may be caused by the injection of a number of substances, which in the test-tube have no destructive action on the bacteria. Issaeff injected into the peritoneal cavity such substances as bouillon, tuberculin and sterile urine, and found the resistance of the animals increased to peritoneal inoculation of virulent organisms. Normal serum has a similar effect, but, in this instance, the bactericidal substances of the serum may be of influence. Supposedly, this non-specific resistance is local, and it appears to depend on the attraction of an increased number of phagocytes and of additional complement to the peritoneal cavity. The suggestion recently made that preceding laparotomy nucleinic acid be injected into the abdominal cavity, in order to increase the local resistance, has its foundation in the experimental work just cited.

(To be continued.)

Clinical Notes

DIPHTHERIA ANTITOXIN IN THE TREATMENT OF GOITER.

ROBERT T. LEGGE, PH.G., M.D.
McCLOUD, CAL.

During the summer of 1903 I had occasion to treat a family with diphtheria; one patient died from the laryngeal form after tracheotomy had been performed and large doses of antitoxin had been administered. An aunt acted as a nurse; she had exophthalmic goiter, with all the classic symptoms. No immunizing dose of antitoxin was given her, and she was infected with moderately severe pharyngeal diphtheria. I immediately injected 1,500 units of antitoxin and repeated the dose on the following day, combined with local antiseptic and internal supportive treatment, with the result that at the end of the week she was convalescent.

Four months later I saw this patient and noticed that the large tumor of the neck had disappeared, and that the eye symptoms were a trifle better. She stated that since the attack of diphtheria the goiter had grown smaller to such an extent that she noticed the muscle lines of the neck. Her pulse rate became normal and the muscular twitchings and nervousness ceased. She is the only person I ever heard of who confessed to being glad she had had diphtheria. The case was of eight years' duration. One year has now elapsed with no return of the tumor. Since then I have had two cases of goiter, with the following experiments with diphtheritic antitoxin:

CASE 1.—Miss T., aged 22; simple goiter; no eye symptoms; disease of six years' duration. Her father died of heart disease.

Examination.—She was robust, had no anemia, but was very nervous and had palpitation of the heart. Pulse was regular, 90; no heart lesion. Tumor measured 33 cm.

Treatment.—July 16, 1904, I injected 2,000 units of antitoxin. July 25, 1904, I repeated the dose.

Result.—The pulse dropped to 85, tumor measured 32 cm. and she felt better. August 10, pulse 80, tumor 32 cm.; no palpitation or nervousness. A week later pulse was 72, but there was no apparent reduction of the tumor. I lost track of the case on account of removal of the patient. Four months later a friend of hers informed me that the tumor was nearly gone. She never complained again of her condition, and could button her collar bands easily on account of their looseness.

CASE 2.—Mrs. E., aged 35, had exophthalmic goiter of a pronounced type and of two years' duration, but worse during the past four months. No family history of goiter.

Examination.—She complains of being tired and is very nervous, with accentuated muscular twitchings. Pulse soft, 120; she is anemic, has a heart murmur, ankles are swollen and there is albuminuria. Tumor measured 35 cm. and there was a loud bruit.

Treatment.—July 18 I administered 2,000 units antitoxin and on July 28 repeated the dose; pulse 82.

Result.—August 8, pulse 80, tumor 33.5 cm. She felt stronger, there was no palpitation, the muscular twitchings were controlled and heart symptoms improved. At this visit I asked her to purchase more antitoxin, but she could not, on account of the expense. Five months later she stated that she felt perfectly well and that she was able to do her housework and to perform other duties which she had been unable to perform before treatment. On examination I found the tumor very much decreased, over half the parenchyma having disappeared, leaving a bunch of pulsating vessels that felt like a

varicocele. The eye symptoms were much improved, the muscular twitchings had disappeared and palpitation of the heart had been experienced but once since the treatment.

Remarks.—Whether the direct toxins from the diphtheritic infection in the first case were the cause of such a splendid result, or, as one author claims, goiter at times recovers on its own accord, is a question. If the former is the case, then this is a discovery which will bear further investigation. If the result was due to antitoxin, then my experiments with the above cited cases prove it. One thing positively demonstrated is the fact that the cardiac symptoms and muscular twitchings were markedly improved and that there was also a great reduction of the parenchyma of the tumor. This may have a bearing on the pathology of goiter as a microbic origin.

In conclusion I wish to state that the reduction of the tumor is greatly noticeable after from three to five months, the other symptoms being noticed much earlier.

LATERAL CURVATURE IN AN INFANT ELEVEN MONTHS OLD.*

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PHILADELPHIA.

Patient.—Sarah D., aged 11 months, was brought to the medical dispensary of the Children's Hospital, in Dr. J. Madison Taylor's service, Jan. 4, 1905.



Family History.—The father is living and well. The mother is living, but suffers from endometritis, and is of a nervous disposition. She has been married ten years and in that time has had four miscarriages, three premature births and two full-term infants.

History.—The child was born at term, after an easy labor, lasting one hour; no forceps were used. The child had no deformity at birth. She was fed exclusively on breast milk until six months old, and since then, besides the breast milk, she has been given milk and crackers, meat broth and mashed potatoes. With the exception of an attack of enteritis when six months old the child has never been ill. Since then she has not been so well nourished and she has not gained so rapidly in weight as formerly, and occasionally she has had green stools. The mother denies all history of traumatism, says the child has never had convulsions, nor has she ever been, even temporarily, paralyzed. She says that she carries the child as much on one arm as on the other.

Present Condition.—Ten days ago, while giving the child a bath, the mother noticed for the first time that the right side of the infant's back was much more prominent than the left. The deformity is not any greater now than when she first noticed it. The mother says that the child is otherwise in good health, and that there are no subjective symptoms. At times the child is inclined to be constipated.

Physical Examination.—The patient is a poorly nourished infant with a muscular development below par. Its present weight is 13¾ pounds. The infant is pale and anemic, but there are no visible signs of rachitis. It has three teeth. The condition of the back is most striking; there is a very decided right primary dorsal scoliosis, with rotation of the bodies of the vertebræ, and secondary compensatory lumbar and cervical curves. This lateral curvature is of the third degree; that is, the spine can not be straightened either by suspension, extension, lying or by pressure. There is no inequality of the lower extremities. There is apparently no pain or tenderness on pressure over the spine. There is no wry-neck.

Treatment.—The mother is made to carry the child in the position which tends to correct the deformity. Massage, electricity and passive motion are employed three times a week. Cod-liver oil is given internally.

* Exhibited before Philadelphia Pediatric Society, Jan. 10, 1905.

A GAUZE-RUBBER SPONGE.

EVERETT MINGUS, M.D.
MARSHFIELD, ORE.

Flat gauze sponges lined on one side with thin rubber tissue such as is used for a dental dam, or preferably thinner, are of special value and afford great protection against soiling the abdominal cavity with escaping contents of the hollow viscera and other infective material during operations in this region. When a coil of intestine is brought out for the purpose of anastomosis or similar work which involves the opening of its lumen, there is considerable danger of the contents passing through an ordinary sponge packing and infecting surrounding structures. The chances for this unfortunate accident to occur are greatly minimized, if not wholly prevented, by the use of gauze sponges lined on one side with rubber, the rubber side being placed down. The rubber forms a positive barrier against infective material going completely through, as is liable to occur with an ordinary gauze packing. A sponge of this make is also serviceable in operations on the biliary tract where there is liable to be a copious escape of bile which would oversaturate and pass through ordinary gauze packing. The same use may be made of it in the pelvic cavity. By properly disposing these sponges a bowl or cup is formed which will effectually catch any deleterious material escaping from the scene of the operation. If one is careful in removing the sponge to make traction on all sides equally so as to lift it directly upward nothing will escape around the edges of the rubber; or in the construction of the sponge the rubber tissue may be cut wider than the gauze and be brought up over the edges and thus secure a perfectly non-penetrable sponge.

Rubber-lined sponges, besides having all the advantages of ordinary sponges for walling off, possess additional value in that the rubber coming in contact with the intestines and other organs does not cause irritation. Frequently rough and hasty methods of packing gauze around and between inflamed intestines is responsible for the destruction and removal of their serous coat and for subsequent adhesions. By loosely tacking the rubber tissue to the gauze with a running stitch it can be removed and used in the making of new sponges.

GALL BLADDER THROUGH FORAMEN IN LIVER.

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OIL CITY, PA.

Mrs. S. was referred to me by Dr. John Hadley. The diagnosis of gallstones was made and operation was advised. The patient and her friends agreeing, the operation was performed at the Oil City Hospital, Feb. 16, 1905. Entering the peritoneal cavity, the fundus of the gall-bladder was found to be transmitted through a foramen in the liver. The lower margin of the foramen was about one-half inch from the thin edge of the liver, under which edge the gall bladder is usually found. I have never seen nor heard of such a formation before.

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THE FUNCTION OF THE THYMUS.

Of the four chief "ductless glands," the thyroid, adrenal, hypophysis cerebri (pituitary body) and thymus, in only the first two has their function been understood through the isolation of a definite internal secretion. As to the function of the hypophysis and the thymus we are still very much in the dark. Beyond its relation to acromegaly we still know little concerning the former, and even this relationship is by no means so well defined as might be desired. In the thymus we have an organ quite different from the other three, which are all typical epithelial glands, since it presents the peculiarity of being both an epithelial and a lymphoid organ, with the lymphoid tissue preponderating. In the past few years there has been a considerable growth in the interest taken in the thymus, corresponding with the general advance in the study of the ductless glands and their secretions, but we are still far from any final conclusion as to its real function. By far the greater part of all experimental work has given results of a negative character. Repeated attempts to demonstrate an internal secretion by the methods used in the study of other organs have failed. To be sure, some slight effects on blood pressure have been noted, but nothing of any real significance.

The obvious relation of the organ to infancy and childhood naturally suggests an intimate connection with the phenomena of development—the thymus reaches its maximum size at the second year, remains little changed until puberty, and then rapidly atrophies. Nevertheless, numerous experimental removals of the thymus from young animals have failed to show that it is in any way essential for the phenomena of growth, or, for that matter, that it is at all essential for the life of the animal. Fischel,[1] whose report is the latest, could observe no definite influence on the development or health of young animals deprived of the thymus, nor did rickets occur; the healing of fractures went on as in normal animals; other observers have found no change in calcium metabolism after thymus extirpation. Assuming that the thymus must have a function, it would seem that it must be one that is either not essential for life, or else that it can be vicariously accomplished by other organs. One of the few positive results has been obtained by Paton,[2] who claims to have observed an earlier development of the testicles in young animals deprived of the thymus, although no particular changes could be detected in the females.

Pathologic observations have so far done practically nothing toward explaining the problem of thymus function—when diseased it seems to cause no symptoms beyond those due to mechanical factors. Possibly the marked atrophy of the thymus that occurs in marasmus and wasting conditions in children, first described fully by Ruhräh and recently corroborated by Dudgeon,[3] may indicate some influence of the thymus on nutrition, but it seems equally probable that the thymus atrophy is entirely a secondary process, depending on the causes that produce the other phenomena of infantile marasmus. Histologic studies have so far given us perhaps the most valuable positive information, starting with the observations of Mauer and Beard. The former found evidence that the lymphoid tissue is not derived from the mesoblastic structures that surround the epithelial cords of the embryonic thymus, as had been generally believed, but that the lymphoid cells are derived directly from the epithelial cells. Beard corroborated this, and, finding that the leucocytes did not appear in the fetal blood until after the lymphoid tissue had developed in the thymus, considered this organ as the original source of the leucocytes. This was an extremely revolutionary idea, that epithelial cells could be the parents of supposedly mesoblastic structures, such as the lymph glands and the leucocytes, and has not been readily accepted—nevertheless more and more evidence seems to be pointing in the same direction.

One of the latest sources of confirmation lies in the study of the tonsil by Wood.[4] The tonsil is of all organs most closely related to the thymus in structure, for in both the essential arrangement is a mass of lymphoid tissue surrounding columns or crypts of epithelial cells, which in both cases are developed from the lining of the upper part of the alimentary canal. In agreement with the observations on the thymus, Wood found evidence that the lymphocytic and lymphoid elements of the tonsils are derived from the epithelium both in fetal and in adult life. This being the case, it is also possible that in the whole gastrointestinal tract the epithelial crypts dipping into lymphoid tissue may be a source of leucocytes derived from epithelium; in this connection may be mentioned that the puzzling plasma cells, with their intimate relations to connective tissues on the one hand and to leucocytes on the other, are found particularly in the intestinal submucosa. This is a fascinating idea, that leucocytes may be formed from epithelium, for it upsets many fixed conceptions; but on the other hand it must be said that many earlier observations have hinted at the same thing, so it is really not so revolutionary as it may at first seem. Reverting again to the question of the function of the thymus, it may

1. Zeit. f. exper. Pathol. u. Therap., 1905, vol. i, p. 388.
2. Journal of Physiology, 1905, vol. xxxii, p. 28.
3. Trans. Path. Soc. of London, 1904, vol. lv, p. 151.
4. Univ. of Penn. Med. Bull., 1904, vol. xvii, p. 246.

be concluded that, as the evidence stands at present, the chief office seems to be that of a leucocyte forming organ during fetal and infant life, this function perhaps disappearing later because of development of other lymphoid organs with similar function; everything so far speaks against the idea that the thymus produces an important soluble internal secretion, like the thyroid and adrenal, or that it is so essential to life as are these organs.

THE EFFECT OF THE ENTRANCE OF AIR INTO THE VEINS.

The fact that the entrance of air into the veins may lead to serious consequences was first observed by Heyden, late in the seventeenth century, but it was not until 1818 that the first authentic record of this accident in man was reported by Beauchêne. Since then the matter has been of great interest, particularly to surgeons and to obstetricians, as most of the reported cases have resulted from operative procedures, especially in the neck, or from the injection of foreign substances into the uterus.

There can be little doubt, as Welch remarks, that many of the cases reported as death from air embolism are based on entirely insufficient evidence. The researches of Welch and Nuttall, and later of Welch and Flexner, on the *Bacillus aerogenes capsulatus* made it very evident that in future all reports of air embolism must show that the possible action of this gas-forming organism was excluded. Especially in cases of so-called air embolism following uterine manipulation, the evidence, in most instances, favors infection rather than the introduction of atmospheric air. Still, all doubtful cases excluded, there can be no question that the introduction of air into the veins does in some instances cause alarming symptoms and sometimes death.

There seem to be certain etiologic conditions which must be present in order to allow air to enter the veins. As Delore and Duteil[1] have recently stated, the accident is a rare one, whereas the mere cutting of even large veins is very common. The entrance of air is most apt to occur after injury to the large veins at the base of the neck in the so-called "dangerous zone of Bérard." The danger is not confined to this region, but when it occurs elsewhere there is generally some pathologic change in the vein, either a thickening of the wall or infiltration of the surrounding tissue, which renders it less likely to collapse if opened. Then, too, a condition of anemia seems to favor the entrance of air, so that the accident is more apt to occur at the end of an operation when the patient has lost blood. The quantity of air introduced is of importance, and the old idea that a few small air bubbles were dangerous has been abandoned. The rapidity with which the air enters is also a factor not to be neglected.

1. Rev. de Chir., vol. xxv, No. 3, 1905. Abstracted in The Journal, April 22, 1905, p. 1321.

The symptoms which are produced by the entrance of the air into the heart are quite characteristic. Sometimes a sucking sound is distinctly heard at the site of injury, sometimes this is not apparent. The patient is effected immediately, if not under general anesthesia he often utters a cry of anguish, and almost immediately becomes unconscious. The face is pale and livid, the pupils dilated and fixed, the pulse feeble and irregular. In a few of the reported cases auscultation of the heart has been practiced immediately after the accident, and a distinct churning bruit has been detected over the right side of the heart. In some cases foamy blood has been forced from the cut end of the vein. Death often occurs in seven or eight minutes in such cases, but may be delayed for hours. A few patients have recovered.

The phase of the matter which has led to most discussion is the pathogenesis. Why should the mere entrance of air into the veins cause death? Some have held that death is due to cerebral disturbances from blocking of vessels in vital areas by the air bubbles, but this is unlikely, as the air does not usually get into the general circulation. Others have claimed that there is a mechanical arrest of the right heart from overdistension, just as the bladder may be paralyzed from overdistension. The theory most widely held is that of Couty, who believes that the right heart becomes paralyzed, since the mixture of air and blood which it contains can not be forced on because of its compressibility. Passet and Hauer, on the other hand, believe that the blood and air are driven on and cause death by multiple emboli of the pulmonary capillaries. Recently François-Franck has advanced the hypothesis that the air bubbles pass into the coronary vessels, especially the veins, and that the heart stops beating on account of an acute anemia of the myocardium. It is quite possible that all these factors, as Welch suggests, may enter into the causation of the symptoms. Whatever the solution, the fact remains, and must be taken into account especially in operations at the base of the neck.

ANAEROBIC BACTERIA IN GANGRENOUS SUPPURATION.

In the routine examination of pathologic material for bacteria very little emphasis, as a rule, is given to the detection and isolation of anaërobic organisms. This may be due to the very prevalent idea in medicine that the anaërobes, barring two or three rare forms, are of practically no importance in the production of pathologic lesions, and also to the fact that the cultivation of anaërobes is considered a complicated and difficult procedure. For a number of years past the French, especially, have called attention to the important rôle that this class of organisms plays in many of the most common affections in which the ordinary pus bacteria are thought to be exclusively concerned. Beginning with the work of Veillon,[1] and followed by the researches of

1. Veillon, XIII Internat. Med. Congress, Paris, 1900.

a number of investigators, much important information has been added to our knowledge of putrid and gangrenous suppurations and to the part played by anaërobic organisms in these processes.

It is a not uncommon observation in appendiceal and periuterine abscesses, liver abscesses, putrid pleurisies, mastoiditis, putrid placental infections and the like to find few or no organisms in aërobic cultures, yet smears of the pus show bacteria present, and often bacteria with an entirely different morphology from those seen in the aërobic cultures. In such cases, pyogenic cocci and colon organisms are often obtained and the whole process is attributed to their presence. Anaërobic cultures, however, often show a very abundant flora present, and this is especially true in those instances in which fetid and gangrenous suppuration occurs. Infections caused by pneumococci, streptococci or staphylococci alone are practically odorless, but in infections in which are found anaërobic organisms there is, as a rule, a marked fetid odor. In fact, Rist[2] says, from his studies of putrid pleurisies, that there never occur fetid or gangrenous processes without the existence of strictly anaërobic bacteria. It is of prime importance, therefore, in all cases where there is present this fetid pus, to make anaërobic as well as aërobic cultures if a complete bacteriologic analysis is desired.

A number of varieties of anaërobic organisms are usually found in such cases and many are found with some degree of constancy in certain classes of infections. That these anaërobic organisms are not simply ordinary saprophytes playing a secondary rôle in connection with other aërobic pathogenic bacteria but are really pathogenic in themselves is supported by numerous facts. In the first place, anaërobes are often in preponderating numbers in these cases of suppuration and, as has been stated, are constant. Again, it is not uncommon to find cases of gangrenous suppuration in which anaërobes are present to the exclusion of all aërobic germs. Most conclusive of all is the experimental production of gangrenous processes by the inoculation of pure or, better, of mixed cultures of anaërobes. In this way, typical lesions are produced, and a microscopic study of these lesions leaves no doubt, according to Rist, that they are produced by the anaërobic organisms injected.

As to the origin of suppuration of this character and the manner in which it occurs, there are many suggestive facts. It is known that the mouth and throat, the intestine, the genital canal in woman, the preputial space in man, also the biliary duct, are the seat normally of large numbers of anaërobic organisms, as well as aërobic, and it seems a remarkable fact that, as a rule, the former are more uniformly pathogenic than the latter and only require such conditions as traumatisms, placental retentions, calculi, some previous aërobic infection or even general weakness and emaciation to set up a fetid gangrenous process. Thus gangrenous processes in the lungs, noma, suppuration in the middle ear and the like may be caused by anaërobic organisms found commonly in the mouth and throat and which from here have found their way to these places. Gangrenous appendicitis is due to anaërobes from the intestine. The putrid infections of the female genital canal are caused by this same class of organisms normally existing in the vagina, which are ever ready to take advantage of favorable conditions for development. Many more examples might be given.

From a practical point of view, evidently, the treatment for such cases must consist in the thorough use of oxidizing agents, such as hydrogen peroxid and permanganate of potash, and as free exposure to the air as possible.

Such facts as the above indicate the importance of a convenient and simple method of growing and isolating anaërobic organisms.

According to Veillon, tubes containing a column of glucose agar, 10 or 12 cm. in depth, serve the purpose excellently. A number of fluid agar tubes, after being boiled, are inoculated with successive dilutions of the material and thoroughly shaken; no vacuum is necessary. In the lower layers, anaërobic colonies will develop and these may be obtained by drawing them into a fine pipette, and they are then studied in pure culture. Certainly with such simple technic a much more careful study of anaërobes should be made, in both surgery and pathology, than is being done at present.

2. Bull. L'Inst. Pasteur, No. 1, 1905.

SOME PRACTICAL LIMITATIONS OF THE GRUBER-WIDAL AGGLUTINATION TEST.

The discovery of a new and valuable aid to diagnosis is sure to be followed by a period during which extravagant expectations are entertained regarding the universal applicability and accuracy of the new method. Sometimes a rapid extension of the method is followed by attempts at simplification and popularization with their attendant dangers. The psychologic disadvantages of a fair degree of success have often been pointed out and they are plainly apparent in this matter of the agglutination test for typhoid fever.

Speaking generally, the appearance of the property of agglutination in the blood serum of a typhoid fever patient is to be considered as a cardinal symptom of the disease. In constancy, this symptom surpasses all others, and in the long run it can be depended on with greater confidence than the isolation of typhoid bacilli from the blood. At the same time, recent experimental studies have shown that the test must be applied with understanding and that the results are not always susceptible of easy interpretation. A recent paper by Scheller[1] emphasizes this aspect of the situation.

In testing numerous samples of human serum for the purpose of typhoid diagnosis, Scheller has encountered

1. Centralbl. f. Bakt. Orig., 1905, 38, p. 100.

a number of anomalous cases, some of which are described in his article. This investigator seems to have recognized fully the multifarious sources of error in the technic of the determination and to have guarded against them with unusual care. The actual observations are therefore deserving of all confidence.

In general, it is true that when specific agglutinating serum and agglutinable bacteria are brought together the reaction manifests itself with progressive intensity. A serum, for example, that fails to agglutinate in a dilution of 1:40 during 15 minutes may produce complete agglutination in this dilution in two hours, and after a longer period may show complete agglutination in a dilution of 1:160. Scheller has found that this rule of progressive intensification is sometimes departed from and that the agglutinative value of a serum may be very low after 15 minutes and very high after a few hours, or may be high after a short period of action and may show little or no increase on long standing. Comparison of two sera after a brief period, therefore, may be wholly misleading as to the final vigor of agglutination. The relative potency of agglutination after 15 minutes' action may be reversed when the comparison is pursued for several hours.

A singular phenomenon was observed by Scheller in one case. A serum that produced complete agglutination in low dilution after 15 minutes at room temperature showed the ordinary progressive intensification on continued maintenance at room temperature, but the control specimen kept at incubator temperature not only showed no increase in agglutination, but exhibited a lesser degree of agglutination after two hours at 37° C. than did the other after 15 minutes at 20° C. It seems possible that in such a case the higher temperature may have brought into play certain inhibitive substances (agglutinoids?) in the serum which were not functional at the low temperature. Whatever be the real explanation of this unusual occurrence, it is evident that the negative result reached by the ordinary procedure of incubation might lend itself to a false diagnosis in the hands of the ordinary observer.

It has been found, further, by this investigator that "inhibition zones" occur in the sera of typhoid patients similar to those sometimes encountered in work with artificially produced immune sera. In these cases the lower dilutions of the sera produce no agglutination, while the higher dilutions have a positive effect. This phenomenon is generally attributed to the presence of agglutinoids which occupy the agglutinogenic receptors of the bacterial cell and thus block the road to the active agglutinins. The absence of agglutination in the usual low dilutions (1:10, 1:40) may therefore in some instances give rise to an erroneous interpretation. In general it must be admitted that the visible manifestation of the agglutinin-agglutinogen reaction, namely agglutination, is dependent only in part on the simple combination of the two substances concerned. It appears wrong to assume that intensity of combination and of agglutinization will follow a parallel course.

The practical conclusions to be drawn from these and from other recent investigations are for the most part such as do not need special elaboration. Not only do numerous opportunities for manipulative error present themselves in the selection, cultivation and use of the typhoid culture employed, but the liability to mistakes of interpretation is shown to be very large.

TRUTH AND POETRY CONCERNING URIC ACID.

XIV.

The failure of studies of uric-acid excretion in gout to throw light on the cause of the excess of uric acid in the blood has been made evident. It now becomes necessary to ascertain whether or not studies of the total nitrogen metabolism or researches on the total phosphoric-acid metabolism in gout give us any help in connection with the problem referred to.

Certain earlier studies on the excretion of urea in gout may be neglected since in the determination no attention was paid to the nitrogen intake; moreover, these earlier investigations yielded contradictory results, some of them indicating that the amount of urea excreted in gout is increased, others that it is diminished.

The researches of Schmoll,[1] in 1896, since confirmed by Magnus-Levy, Zagari and others, were among the first that attained to that degree of completeness which makes such studies valuable. Vogel had shown that the excretion of urea is often abnormally low in gout, but Schmoll brought the proof that, at certain periods, the gouty patient excretes less nitrogen than he ingests; in other words, that actual nitrogen retention occurs for a time. This retention is not permanent, however; later comes a period when the nitrogen excreted exceeds in amount the nitrogen ingested, when there is an actual nitrogen deficit. These periods of nitrogen retention and of nitrogen deficit alternate irregularly with each other.

The question at once arose, to what can these disturbances in nitrogenous metabolism be referred? The somewhat similar disturbances which occur in nephritis were thought of, but the explanations given for the conditions in that disease can scarcely hold in gout; in the latter, the urine does not necessarily contain albumin; and, further, the excretion of phosphoric acid, the first to be affected in nephritis, is not markedly altered. Magnus-Levy, however, advanced the view that, in the periods in gout when the total nitrogen excreted is increased, there is actual increased destruction of albumin, probably toxogenic, inside the body. In the periods of nitrogen retention he sees simply a convalescence from the former disturbance, times when the albumin destroyed is being rebuilt. Unfortunately for this view, the body weight during periods of nitrogen retention

1. Schmoll, E.: Stoffwechselversuche an einem Gichtkranken Ztschr. f. klin. Med., vol. xxix, 1896, 510.

does not increase as much as it should if albumin is formed from the nitrogen retained; indeed, the body weight may actually decrease during nitrogen retention. Many, with Zagari, will be inclined to regard the form in which the nitrogen is retained as an open question, assuming only that the organism is in some way or another trying to replace a nitrogen loss of the details of which we are also ignorant.

Certain other attempts to explain the nitrogen retention must be referred to. Schmoll rejected the hypothesis that it is due to uric-acid retention on the ground that the amount of nitrogen retained is far too great to be thus accounted for, and Hager's supposition that the nitrogen is retained, not as uric acid, but as adenin, may be similarly disposed of. An admirable metabolic research was made by Vogt[2] in 1901. He showed that the nitrogen retention is not explicable by an increase in albumin, for while the retention in one instance amounted to as much as 24.6 grams of nitrogen, the patient remained in phosphoric-acid equilibrium. Nor is it referable to the retention of total nuclein, for when nuclein was fed to his patient its phosphoric-acid content was promptly excreted, while the nitrogen excretion remained further than ever behind the nitrogen intake. He concluded, therefore, that the retention is at least partly due to purin nitrogen, the nucleins absorbed being split at once into phosphoric acid and purins, the excretion of the latter being delayed, thus indicating a high degree of sluggishness of purin metabolism in gout. Vogt admitted, however, that there are probably still other reasons for the nitrogen retention.

The most careful investigation of the phosphoric-acid metabolism in gout we owe to Kaufmann and Mohr[3] (1902), who first thoroughly examined the "phosphoric-acid balance." They undertook their studies in the hope that the results would help them to decide whether the loss of nitrogen at certain periods in gout is due to the breaking down of albumin or to the sweeping out of "slag," and whether the nitrogen retention at other periods indicates an increase of albumin or merely a retention of end-products. They have concluded that no single explanation of retention or deficit of nitrogen is valid; on the contrary, nearly all contradictions vanish, they think, if we assume that entirely different processes, increase and destruction of albumin on one side, retention and "sweeping out" on the other, may be going on in a variable manner in different individuals and in different phases of gout.

Having thus shown that the nitrogen-excretion alone is not a safe criterion for judging of the causes of the alteration in uric-acid excretion, they turned to the phosphoric-acid excretion. In 1901, Loewi had suggested that the behavior of the latter in gout indicates that uric acid is retained in the disease; in health, on a constant diet, he found a constant relation between uric-acid excretion and phosphoric-acid excretion, while in gout the quotient deviated from normal and indicated uric-acid retention. Kaufmann and Mohr, however, find the quotient to be within normal limits, and, further, call attention to the fact that phosphoric-acid excretion varies with the varying needs of the body for phosphoric acid. Accordingly, it is unsafe to use the phosphoric-acid excretion or its relation to uric-acid excretion as evidence for the view that the cause of the excess of uric acid in the blood in gout is uric-acid retention.

2. Vogt, H.: Ein Stoffwechselversuch bei akuter Gicht. Deutsche Arch. f. klin. Med., vol. lxxi, 1901, 21.

3. Kaufmann, M., u. Mohr, L.: Beiträge zur Alloxurkörperfrage und zur Aetiologie der Gicht. 3 Teil, Stoffwechselbeobachtungen bei 5 Gichtkranken Deutsche Arch. f. klin. Med., vol. lxxiv, 1902, 586.

THE CONFERENCE AT THE WISTAR INSTITUTE.

Anatomy in America has been making progress by great strides during the last decade. University after university has established a professorship of the modern type in this subject. Men of thorough scientific training, who give their whole time to the teaching and investigation of anatomy, have been appointed to the chairs. Well-trained assistants are being developed, and in many schools liberal budgets for equipment and supply and expense now are regarded as necessary and no longer as merely desirable. *The American Journal of Anatomy* offers a worthy medium for the publication of the researches of American anatomic workers. The outlook for anatomic science in this country, if we may judge by the immediate past, is promising; and the Conference of Anatomists held at the Wistar Institute of Anatomy in Philadelphia last week makes the future even brighter. The Wistar Institute, founded some years ago, was intended to house safely the old Wistar and Horner Museum, to add to that museum, and, in general, to further the interests of anatomy in Philadelphia and in America. Under the directorship of Dr. Jayne, the present state of the institute has been developed. The collections already accumulated have been adequately cared for and several phases of the museum side of the foundation have received the attention they deserve. As far as the exhibiting side of the museum is concerned it is a model for other institutions to follow. On the retirement of Dr. Jayne, the directorship was accorded to Dr. Wm. G. Greenmann. The new director suggested to General Wistar, who is the principal donor, and to the other members of the board of managers, that some ten of the leading representatives of American Anatomy be invited to a conference at the Wistar Institute for the purpose of suggesting ways and means by which the institute can be made more helpful to the science of anatomy as a whole. This idea was favorably received and acted on and a conference was held the early part of last week. The detailed results of the proceedings have not been made public, but we understand that several important recommendations were made, among others the formation of a so-called "Central Institute" for neurologic, comparative anatomic and embryologic purposes, the collection and arrangement of donated specimens, the preparation of original material, the carrying on of active investigation along certain anatomic lines in the institute itself by

paid investigators of a high order, and the maintenance of a permanent advisory board composed of anatomists from various parts of the country. Should the authorities of the Wistar Institute decide to act on the suggestions offered, the influence of the institution is sure to be widely felt. Ultimately, of course, large funds will be necessary, but the income available at the present time is sufficient to permit of much good work in the directions indicated, and as new gifts accumulate the income will gradually be increased. It is matter for gratification to the medical profession of this country that the management of the institute has entered into this close relationship with the working anatomists of America. Anatomists can help the institute and the institute can help anatomy. We trust that the *entente cordiale* which has been established may be permanently maintained.

THE DANGERS OF SMALLPOX HOSPITALS.

The recent epidemics of smallpox in this country and abroad have strongly emphasized the value of vaccination and have also led to the restudy of various phases of this interesting disease. Among other aspects of the question, the relation of smallpox hospitals to the surrounding community has been reconsidered. The views of the profession on this subject have certainly not been unanimous. Excellent physicians have asserted that the isolated position usually chosen for such institutions is totally unnecessary, and that smallpox cases are no more infectious than cases of measles or scarlet fever. The recent statistics of Buchanan[1] show that this is not the case. This observer compared the house incidence of smallpox in houses within one and a half miles of the smallpox hospital with that in the remainder of the city of Gateshead. He showed that of the houses within a quarter of a mile of the hospital 82 per 1,000 were invaded, of those within half a mile 47 per 1,000, while in the rest of the city only 14 per 1,000 were attacked. Whether this was due to aërial conveyance of the disease, as Buchanan believes, or to contact infection from convalescents, which must be considered, the figures speak for themselves and indicate that the old plan should be adhered to.

ANTIRABIC INOCULATIONS AT THE PATIENT'S HOME.

It is possible that there are yet some who doubt the existence of rabies in man as a disease entity, and there may also be some who are still skeptical as to the utility of Pasteur's method of inoculation by means of attenuated virus obtained from the spinal cord of rabbits destroyed by means of a potent virus. Nevertheless, this method of treatment has demonstrated its efficacy and has been adopted, and institutes for its application have been established, in all civilized countries. It must be borne in mind that the treatment is not curative, but prophylactic, and that its success is the greater and the more certain the earlier it is instituted in the long period of incubation following the infecting wound, the object being to establish immunity before the development of the symptoms of the disease proper. It has been shown that when the treatment has been begun at once, the disease is invariably aborted, but the supposed necessity for having this done in an institute, often situated at a considerable distance from the patient's home and entailing at times a prohibitive expense, in many instances has prevented the employment of the procedure. It will be interesting, therefore, to know that this necessity no longer exists, and that the Pasteur Institute of the Department of Health of the City of New York, in addition to making antirabic inoculations itself, is prepared to send virus to a distance.

1. London Lancet, Feb. 4, 1905.

MEDICAL ASSOCIATION AGAINST WAR.

At a recent meeting of medical men in Paris, a very unique society was formed, the International Medical Association against War, whose object is to do away with war. The promoter is Dr. Rivière of Paris, who was elected the first president of the association. It is argued by the founders of the society that medical men, who are so intimately acquainted with human misery, both physical and moral, are by that very fact most fitted to collaborate in the great work of substituting arbitration for war. No mention is made as to how this association expects to carry out its work, nor where it will make a beginning. However, we venture to offer a suggestion, namely, that a most splendid opportunity presents itself for a maiden effort in Russia and Japan.

A CREDITABLE HOSPITAL REPORT.

The Central State Hospital of Virginia, under the superintendency of Dr. Wm. F. Drewry, presents a very creditable report for its last fiscal year. In this institution 1,334 persons with various mental disorders received careful individual treatment at an average per capita cost for the year of $89.11. (In this calculation there is excluded the cost of permanent improvements, insurance, etc.) The superintendent refers with just pride to the fact that not one patient "was subjected to any mechanical restraint," that "over 50 per cent. occupy unlocked rooms at night," and that "there has not been during the year a suicide, homicide or any gross violation of propriety." This speaks well for the assistants and attendants, as well as for the superintendent. Individualization in treatment is followed as far as possible. Tents are used for consumptives and a colony for epileptics, and all who are able engage daily in some kind of work or suitable recreation. The report includes an historical sketch of the hospital and its management. One interesting fact is that this institution was perhaps the first of its kind in the South to establish a separate building for the treatment of the epileptic insane.

THE IMPORTANCE OF THE ANESTHETIC.

That the responsibility for the life of the patient, in many cases, rests with the anesthetist is a fact not generally appreciated. Too often the anesthetist is more interested in the details of the operation than in the anesthetic, though in many cases the danger to the patient from the anesthetic is greater than from the operation. The anesthetist should remember that he holds

the patient's life in his hands and should allow nothing to distract his attention or to hurry him—not even an impatient surgeon. The administration of anesthetics should be a specialty in itself and a successful anesthetist should be specially fitted for the work and should concentrate all his thoughts on his task. One who is possessed of sufficient tact and sympathy to win the patient's confidence and to allay his very natural apprehension and his fear of the anesthetic will find that the patient takes the anesthetic better, requires less of it, and suffers less from the after-effects. A patient who is not afraid of the anesthetic breathes more naturally and thus inhales the fumes without swallowing them; in this way the chances of post-anesthetic vomiting are lessened. In such cases, the stage of excitement is shorter than in those in which the patient is nervous and frightened. A careless anesthetist often allows a patient to come partly from under the influence of the anesthetic and then "crowds" it in order to prevent a complete return of consciousness. A skillful anesthetist, on the other hand, keeps the patient under to the required degree, seldom uses tongue forceps or mouth gag, with the result that the patient is generally completely relaxed and quiet during the operation. It is seldom necessary to administer morphin or other drugs beforehand and the use of atropin as a routine procedure should be condemned, if for no other reason than that it masks the eye symptoms of impending collapse and of returning consciousness. The importance of this subject should be given more recognition by our medical colleges, and no student should be allowed to receive his degree unless he has had individual instruction therein.

Medical News

CALIFORNIA.

Sanatorium Burned.—The California Sanatorium at San Bernardino was burned by fire early on the morning of March 31, the damage being about $4,000. The patients were removed without casualty.

State Board of Health Reorganizes.—On April 1 the State Board of Health met for reorganization at Sacramento, re-elected Dr. Martin Regensburger, San Francisco, president; Dr. Wallace A. Briggs, Sacramento, vice-president, and Dr. Newell K. Foster, Oakland, secretary, and elected George D. Leslie, vital statistician.

Personal.—Dr. and Mrs. Frederick H. Tebbe, Etna Mills, had a narrow escape from death March 24, when their horses took fright and threw them sixty feet down a precipice. Fortunately, they sustained no injury aside from shock.——Dr. Sarah Vason, Philadelphia, has been elected superintendent of the Kaspare Cohn Hospital, Los Angeles. Drs. Philip Newmark, David W. Edelmann, Edmond M. Lazard and Adolph Tyroler have been appointed to the medical staff of the institution.

The Troubles of Unlicensed Practitioners.—I. H. Story, a "chiropractic" of Los Angeles, was found guilty of practicing medicine without a license March 25, and fined $125.——Ivan McLaughlin, Los Angeles, pleaded guilty to the charge of having given electrical treatments without a physician's license and was fined $100.——"Dr." William A. Anderson, who had been practicing medicine in Imperial for over a year, was arrested March 17 for practicing without a state license. He was taken to Brawley for a preliminary hearing, was ordered under bonds and had his trial set for the following Monday. After his return to Imperial he escaped from the officer in charge and fled into old Mexico. He was recaptured and taken to Brawley, but before the hour set for trial he again made his escape and has not been heard from since.

CONNECTICUT.

February Mortality.—There were 1,362 deaths in February, equivalent to an annual death rate of 16.8. The deaths were 49 less than in January and 61 in excess of the average for February for the five preceding years. The deaths from infectious diseases numbered 170, or 12.4 per cent. of the total mortality. The principal death causes were: Pneumonia, 222; nervous diseases, 155; consumption, 121; heart diseases, 120; influenza, 90; violence, 62, and bronchitis, 52.

Personal.—Dr. Harry C. Clifton has been appointed city physician of Hartford, vice Dr. Irving D. Blanchard.——Dr. Lewis Beers Porter, New Haven, has been appointed resident physician at the Manhattan Eye, Ear and Throat Hospital, New York City.——Dr. Henry P. Stearns, Hartford, after thirty-one years' service, has resigned the superintendency of the Retreat for the Insane, and has been succeeded by Dr. Whitefield N. Thompson, formerly of Brattleboro, Vt.

Biennial Hospital Appropriations.—The appropriations committee has reported the following appropriations: Hartford Hospital, $20,000; General Hospital Society of Connecticut, $20,000; Grace Hospital, New Haven; Grace Hospital, Bridgeport; Grace Hospital, Norwalk; Memorial Hospital, New London; Memorial Hospital, Waterbury; St. Francis' Hospital, Hartford; St. Francis' Hospital, Stamford, and St. Francis' Hospital, New Britain, $10,000 each; Danbury Hospital; Day-Kimball Hospital, Putnam; Litchfield County Hospital, Winsted; Meriden Hospital, and Middlesex Hospital, $6,000 each.

IDAHO.

Examiners Meet.—The State Board of Medical Examiners held an examination of applicants for licenses to practice medicine in Idaho, at Boise, April 4 and 5.

Personal.—Dr. Abraham L. Lehman, Wallace, sails for Europe, April 29.——Dr. J. B. Cooper, Boise, who held a license under the old law, but was charged with practicing medicine without a license, was found not guilty.

South Idaho Society Election.—The South Idaho District Medical Society met April 6, at Boise. The following officers were elected: President, Dr. James L. Stewart, Boise, and vice-president, Dr. James H. Bean, Pocatello. The session closed with a banquet at the Idanha Hotel.

ILLINOIS.

Smallpox Stamped Out in DeKalb.—DeKalb, by enforced vaccination and rigid quarantine, has brought under control in four weeks a threatened epidemic of smallpox.

Interne Examination.—An examination for three internships in the Illinois Charitable Eye and Ear Infirmary will be held at the infirmary, 227 West Adams Street, Chicago, May 3 and 4, beginning at 2 p. m. The service is for one year, beginning June 1.

Tuberculosis Sanatorium.—The Glackin bill providing for the erection of a state sanatorium for persons afflicted with tuberculosis has been favorably recommended by the house committee on appropriations, but the sum to be appropriated has been reduced from $200,000 to $50,000.

Hospital Annex Opened.—About one hundred physicians of Kane County and the counties adjacent attended the opening ceremonies of the annex to Sherman Hospital, Elgin, April 14. The addition nearly doubles the capacity of the institution, which can now accommodate 52 patients. The new building was erected at a cost of about $32,000.

National Guard Medical Department Examination.—An examination of candidate medical officers of the Illinois National Guard will be held April 29, at Senn Hall, Rush Medical College, Chicago, beginning at 9 a. m. The examining board is composed of surgeon-general, Col. Nicholas Senn; assistant surgeon-general, Lieut.-Col. G. Paull Marquis; Surgeon-Major Charles Adams and Surgeon-Captain S. C. Stanton.

Methods of Sewage Disposal.—The State Board of Health is about to make an exhaustive investigation into the methods of sewage disposal in the smaller cities of the state to remedy, so far as is possible, faulty conditions which may exist. The investigations will cover the various septic tanks in use to determine the degree of purification secured, and to what extent this method of purification may be recommended.

Osteopathic Legislation.—Senate bill No. 311, providing for the appointment of a board of osteopathic examiners consisting of five members, "two of whom shall be graduates of a

complete course in surgery," conferring on osteopaths the right to practice osteopathy, obstetrics and surgery and to use antiseptics, anesthetics and antidotes for poisons, requiring the board to issue "osteopathic physician's certificates," and making all statutory regulations controlling infectious and contagious diseases, and all requirements of public health acts apply to practitioners of osteopathy, was taken up for third reading, April 19. It is announced in the Springfield press that the sentiment of the senate is against the bill, but that it will be passed because of the popularity of its author, Senator Chaffee, who is deeply interested in the measure and is very anxious to have it given a trial on the statutes.

Chicago.

Illegal Practitioner Fined.—Mrs. Anne Borgard was fined $100 by Justice Chott, April 14, for practicing medicine without a certificate from the State Board of Health.

Hospital Incorporated.—The Chicago Emergency Hospital has been incorporated with a capital stock of $25,000 by Dr. Richard M. Fletcher, Anna Fletcher and W. M. Ford.

Deaths of the Week.—The total deaths for the week ended April 15 were 548, equivalent to an annual mortality of 14.35 per 1,000. Pneumonia caused 84 deaths; consumption, 59; nephritis, 55; heart diseases, 51; violence 45; bronchitis, 30, and cancer, 23. Measles and whooping cough are each reported to have caused 15 deaths.

Comparative Mortality by Decades.—Dr. Arthur R. Reynolds, at the close of his tenth year as Commissioner of Health, notes graphically the decrease in mortality in the city as compared with the previous decade. The annual mortality rate has decreased from 20.2 to 15.1 per 1,000, or 25.3 per cent. Of this saving 73.4 per cent. was among infants and children below the age of 5. There was a reduction of 86.2 per cent. in the mortality from smallpox; of 64.3 per cent. in that from diphtheria; of 59.5 per cent. in that from typhoid fever and diarrheal diseases; of 58.9 per cent. in that from measles; of 55.5 per cent. in that from scarlet fever; of 27.2 per cent. in that from whooping cough, and of 13.7 per cent. in the mortality from tuberculosis. Cancer shows an increase of 22.8 per cent.; influenza of 145 per cent.; pneumonia of 92.6 per cent.; nephritis of 172.9 per cent., and heart disease, 120.6 per cent. Among other important causes of death which show decreases in the second decade are bronchitis, 41.3 per cent.; cerebral apoplexy, 23.4 per cent., and nervous diseases, 45.8 per cent. With these decreases neither medical science nor sanitary administration can claim to have had much to do. They must be attributed to the general improvement of physique and increased vitality of the people of Chicago, due to saner modes of life, to better personal hygiene and to that popular education in sanitary matters which has made such vast strides in the last quarter of a century.

INDIANA.

Sanitarium Burns.—The Abbott Sanitarium, southeast of Fort Wayne, was burned early on April 6, with a loss of $35,000.

Shot by Insane Man.—Dr. Ira M. Washburn, Rensselaer, captain and assistant surgeon in the Indiana National Guard, was shot in the leg by an insane man, April 3.

Personal.—Dr. James N. Hurty, secretary of the State Board of Health, has received notice that he has been awarded a gold medal by the Louisiana Purchase Exposition.

Medical Graduates.—A class of 79 was graduated from the Medical College of Indiana, Indianapolis, at its thirty-fifth annual commencement exercises, held April 19. Prof. Stanley Coulter of Purdue University delivered the doctorate address.

Money for Hospitals.—St. Joseph's Hospital, Logansport, has received the estate of the late Father Marks, valued at $1,432.84.——The late Mrs. Anna Cage, Kokomo, bequeathed $5,000 to the city, to be made the nucleus of a public hospital fund.

Resurrection Cases Dismissed.—The five pending grave robbery cases against Dr. Joseph C. Alexander, late demonstrator of anatomy at the Central College of Physicians and Surgeons, Indianapolis, were dismissed April 11 on the ground that the defendant had not been retried on the original indictment nor on four others within three successive terms of court.

Personal.—Dr. George F. Edenharter, Indianapolis, superintendent of the Central Indiana Hospital for the Insane, has been for the fourth time reappointed superintendent for a term of four years.——Dr. William J. Fernald, Frankfort, sailed for Europe, April 8.——Dr. Elmer E. Morgan, Fort Wayne, was painfully but not seriously injured April 6, when his horse plunged over an embankment in the dark.

MARYLAND.

Meningitis Serum Experiments.—The State Board of Health has been experimenting on rabbits with a view to securing a protective serum for cerebrospinal meningitis.

State Hospital Staff Changes.—Dr. Robert F. Winterode, formerly pathologist, has been promoted to second assistant physician and director of the laboratory at Spring Grove Asylum for the Insane, and Dr. Thomas A. Hurley, clinical physician, has been made pathologist.

Medical and Chirurgical Faculty.—The subject of Dr. Edward N. Brush's presidential address before the Medical and Chirurgical Faculty of Maryland, April 25, will be "The Physician as a Citizen." At the session to be held at the Shepherd and Enoch Pratt Hospital, April 26, Dr. Simon Baruch of New York will speak on "The Physiologic Basis and Clinical Effects of Hydrotherapy in Chronic Disorders." The annual oration of Dr. William Osler on April 27 will be on "Unity, Peace and Concord." Immediately thereafter a portrait of Dr. Osler will be presented to the Faculty by his friends, Dr. George J. Preston making the presentation speech.

Baltimore.

Personal.—Dr. Carville V. Mace, Rossville, who was operated on April 1, for stone in the kidney, is rapidly improving.——Dr. Roland Whitbridge will spend the summer in Europe.

St. Joseph's Hospital Report.—The report of St. Joseph's Hospital for 1904 shows that 7,771 cases were treated in the dispensary. The work of the hospital, which is in charge of the Sisters of St. Francis, is increasing rapidly and the new buildings are fully occupied.

Work Against Tuberculosis.—The educational committee of the Maryland Association for the Prevention and Relief of Tuberculosis reports that during March 13 public lectures were given by the committee, mostly in crowded neighborhods, to more than 1,500 persons. Great stress was laid on the communicability, preventability and curability of the disease.

Will Be Painted by Sargent.—It is said that Drs. William H. Welch, William S. Halstead, Howard A. Kelly and William Osler, all of the original faculty of Johns Hopkins University, will meet in London during June and will then sit for a group portrait to be painted by John S. Sargent. The idea originated with Miss Mary E. Garrett of this city, the benefactress of the Johns Hopkins Medical School, who will bear the expense of the painting. Dr. Osler's departure is the first break in the original faculty of the medical school.

Baltimore Needs Sewage System.—The question of a sewerage system is being pushed with great vim and enthusiasm and in a few days a vote will be taken on the question of a loan with which to carry out this necessary improvement. Dr. Welch has said that "there is probably no other civilized city of the size and importance of Baltimore, certainly not in England, France, Germany or this country, which continues as this city has done to neglecet these fundamental demands of hygiene, and no such backward city can hope to maintain its position as an attractive and desirable place either of residence or of business."

MICHIGAN.

Money for Hospital.—James J. Hurley, who died in Flint, April 4, left a bequest of $25,000 to found a hospital for the city.

Health Conference.—The annual conference of health officials will be held June 1 and 2 at the State Laboratory of Hygiene, Ann Arbor.

Medical Mayors.—Dr. George E. Reycroft has been elected mayor of Petoskey.——In a contest for the mayoralty of Mason, Dr. William W. Root defeated Dr. Frank E. Thomas.

Comparative Morbidity.—For March, compared with the average for the ten years from 1895 to 1904, smallpox was more than usually prevalent, and pleuritis, pneumonia, erysipelas, intermittent fever, inflammation of bowels, measles, remittent fever, diphtheria, inflammation of brain and meningitis were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Meningitis was reported during March at 13 places; whooping cough at 18 places; diphtheria at 59 places; measles at 79 places; ty-

phoid fever at 95 places; smallpox at 101 places; scarlet fever at 133 places; pneumonia at 144 places, and consumption at 221 places. Meningitis was reported present at 6 places more; whooping cough at 2 places more; diphtheria at 5 places less; measles at 11 places more; typhoid fever at 2 places more; smallpox at 5 places less; scarlet fever at 28 places more; pneumonia at 2 places more, and consumption at 30 places less in March than in the preceding month.

Personal.—At the annual meeting of the State Board of Health, April 14, Dr. Victor C. Vaughan, Ann Arbor, was unanimously re-elected president of the board.——Dr. Frank W. Shumway, Williamston, has been appointed secretary of the State Board of Health, vice Dr. Henry B. Baker.——Dr. George Bunch has resigned the position of assistant physician of the Wolverine Mining Company, Calumet.——Dr. W. A. Burnham, surgeon to the Trimountain Mining Company, Calumet, has resigned, and has been succeeded by Dr. Edward V. Howlett.——Dr. William T. Morrison, Midland, who has moved to Pigeon, was the guest of honor at a banquet of the Midland County Medical Society, March 24.

Dr. Baker and the State Board of Health.—Henry B. Baker, secretary of the State Board of Health since its organization in 1872, to whose untiring zeal in public health work this board owes its high reputation, has been found by the dominant party in the state to be *persona non grata* and has been unceremoniously legislated out of office. His friends state that Dr. Baker has probably done more than any other man in this state to lessen sickness and death, but this counts for nothing when the politician demands his decapitation. The only sins that he is charged with are holding office too long and doing his duty too strenuously. Dr. Baker can, however, always have the consciousness of duty well done and he can better afford to bear this treatment, so undeserved, than the state can to bear the odium of having dismissed without ceremony one who has done so much for the welfare of its people.

MISSOURI.

Unlicensed Practitioner Fined.—In Justice Montgomery's court at Memphis, April 4, Dr. John M. Davis, Hamilton, Ill., was found guilty of practicing medicine without a license and was fined $100 and costs.

Trial Avoided.—To avoid the useless expense of a trial to the county, the prosecuting attorney dismissed the case against Dr. Annette H. Wagoner, Kansas City, charged with having caused the death of Mrs. Zeebe, by a criminal operation.

Personal.—Dr. Valentine R. King, Hopkins, has been appointed assistant superintendent of the National Cemetery, Mound City, Ill.——Dr. Larkin H. Callaway has succeeded Dr. Joseph F. Robinson as superintendent of State Hospital for Insane No. 3, Nevada.

Kansas City Commencements.—University Medical College held its twenty-fourth annual graduating exercises April 8, at which a class of 58 received diplomas. The address to the class was delivered by J. Willis Gleed.——The Medico-Chirurgical College graduated a class of 16 at its eighth annual commencement, held April 12. Rev. F. C. McConnell delivered the doctorate address. The college has been merged into the medical department of the University of Kansas.——Kansas City Medical College delivered diplomas to a class of 35 at its commencement exercises, April 11. Senator Warner and Chancellor Frank Strong of the University of Kansas delivered addresses.

St. Louis.

Exclusive Physicians' Building.—The Lister Building at Olive Street and Taylor Avenue is devoted exclusively to the housing of the offices of medical men. Another building, the Humboldt, is in course of erection at Grand and Washington Avenues. Medical men are deserting the downtown skyscrapers for these modern buildings in the residence portion of the city.

Medical Library in Own Building.—The St. Louis Medical Library Association is now comfortably housed in its own building at 3525 Pine Street. This building is also used as a meeting place for all the medical bodies of the city. A movement is on foot to build an annex to the library building in the shape of a suitable auditorium for the holding of the meetings of the St. Louis Medical Society and other medical bodies.

Personal.—Dr. Ralph Thompson, associate professor of pathology at the St. Louis University, sails for Europe, April 27, to spend six months in research in the Berlin laboratories of pathology.——Dr. Harry P. Wells was severely burned on the hands and arms by the explosion of an alcohol lamp in his office, April 8.——Dr. Hillel Unterberg has been appointed psychiatrist and neurologist at State Hospital for Insane No. 3, Nevada.

Sanatorium Bill Signed.—Governor Folk has attached his signature to the bill recently passed by the legislature creating the Missouri State Sanatorium for the Treatment of Incipient Tuberculosis. This bill carried with it an appropriation of $50,000 to erect the sanatorium in some mountainous part of the state. The site is not specifically selected in the bill.—May 10 the St. Louis Medical Society and the Medical Society of City Hospital Alumni will give a testimonial banquet to the medical members of the last legislature who were so active in the passage of legislation of benefit to the medical profession, particularly that legislation which has created the State Sanatorium for Tuberculosis.

Clarification of St. Louis Water.—A symposium on the present system of clarification of the St. Louis water supply was held at the meeting of the St. Louis Medical Society, April 15. Mr. John Wixford, chemist of the water department, explained the present effective process of treating the St. Louis water. This system consists in mixing solutions of sulphate of iron and lime with the water as it is pumped from the Mississippi River. The results achieved by this simple, cheap and harmless method of purifying water are remarkable. St. Louis now has clear water. Papers read showed a decrease in the number of typhoid cases in this city. The city bacteriologist showed that the present system of clarification rids the water of about 94 per cent. of the bacteria.

Fighting for Betterments.—The combined medical profession of St. Louis is endeavoring to change the management of the St. Louis City Hospital. The end in view is to have an organization like that of the Boston City Hospital or that of the Cook County Hospital, Chicago, namely, a board of governors or supervisors for the hospital, who shall select a competent medical staff and shall bring the hospital under modern management. At the present time the City Hospital has no regularly appointed medical staff. The internes have no guidance save that of the senior assistants, assistant superintendents and superintendent. The present superintendent is doing well in spite of the bad system under which he is forced to work, and he is in hearty accord with the movement to change the system of management.

NEW YORK.

Gifts to Nassau Hospital.—Mrs. Robert J. Dietz has given $3,600 to this institution at Mineola, L. I., in memory of her husband; Mrs. W. K. Vanderbilt, Jr., $2,000; W. B. Leeds, $3,000, and George Arents, $1,000. There will soon be sufficient to endow additional beds and possibly to enlarge the hospital.

Bills Passed.—All the bills adjusting the water supply of New York City have been passed by the assembly.——The Fish bill abolishing the boards of visitation of the lunacy commission and creating local boards of managers of the state hospitals has passed.——The annual supply bill which carried additional appropriations of $3,000,000, after some difficulty over appropriations of $3,505 and $904 for deficiency in the lunacy commission to make up losses by defalcations in the offices of two of the state hospitals, has also passed.

New York City.

More Milk Inspectors.—The Board of Councilmen has voted $5,000 for additional milk inspectors for the Health Department of Buffalo.

Personal.—Dr. Samuel Gluck lost several valuable books as the result of a fire in his home.——Dr. George T. Harrison arrived from Europe April 13.

Fever-stricken Ship.—The British steamship *Osceola*, which arrived from the River Plate, had three of her crew sick with a fever resembling malaria and two died at sea. One of these had a temperature of 109 degrees.

City Death Rate Low.—The statement of the Health Department issued on April 13 shows that the death rate for the week preceding was at the rate of 20.11 per 1,000 per annum, which is a decrease of 5.65 over the corresponding week of last year.

Hospital Sunday Collection.—The Hospital Saturday and Sunday Association reports that the collection on Hospital Sunday will amount to about $92.000, a gain of nearly 25 per cent. over last year. This fund will be distributed among the 40 hospitals in the association.

To Teach Prescription Writing.—As so many physicians are deficient in prescription writing the Kings County Pharmaceutical Society has undertaken the task of familiarizing physicians with the National Formulary compounds. A canvasser has been employed to visit physicians and show them how they can become more expert in prescription writing.

A Hospital Island.—Secretary Metcalf has awarded the contract for the construction of an island in New York harbor on which will be built one of the finest institutions in the world for the treatment of contagious diseases, and will be an addition to the immigrant station now at Ellis Island. It is expected that this model modern hospital will be completed within two years.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 8, 441 cases of tuberculosis, with 201 deaths; 422 cases of measles, with 13 deaths; 339 cases of diphtheria, with 27 deaths; 259 cases of scarlet fever, with 7 deaths; 191 cases of cerebrospinal meningitis, with 110 deaths; 26 cases of typhoid fever, with 13 deaths; 94 cases of chickenpox and 4 cases of smallpox.

Buffalo Personals.—Dr. Charles F. Durant has been appointed superintendent of the Quarantine Hospital.——At the recent examination for police surgeon the following were placed on the eligible list: Drs. William H. Marcy, George H. Westinghouse and Grosvenor R. Trowbridge.——Dr. Francis M. Rich was fined $10 for failing to report a case of scarlet fever. He claims that the case was not one of scarlet fever.

In Behalf of the Polyclinic.—In a letter to the *Sun* Dr. John A. Wyeth sets forth the value of the work done by this institution and appeals for aid. He describes the new building which has been undertaken with its larger dispensary, hospital and laboratory facilities, and says that it will require $300,000, of which $37,000 has been subscribed this year by the medical staff, and a donation of $20,000 has also been made.

New Floating Hospital.—The Burlee Shipbuilding Company has almost completed a floating hospital for the Health Department, which is 126 feet long and 30 feet beam, and will accommodate 160 patients. The boat is so constructed as to provide wards for any kind of contagious disease, and at the same time prevent the germs of one disease from reaching another ward. The boat will cost about $70,000 and will be put into commission about October 1.

Creameries Inspected.—Dr. Darlington of the Health Department of New York City, together with the chief milk inspector, chief sanitary inspector, milk inspector and photographer of the department, have made an inspection of the creameries along the line of the D., L. & W. Railroad. They report that the creameries are in much better condition than they were a year ago. Dr. Darlington has entered into a combination with Health Commissioner Greene of Buffalo and Commissioner Wheating of the State Agricultural Department to reach all the milk dairies of the state.

No Danger from Zoo Tuberculosis.—City Bacteriologist Bissell of Buffalo has submitted his report on the subject of recent investigations into the tuberculosis in the elk and red deer paddock at the park zoo, with special reference to the probable danger, through infection to visitors and persons living contiguous to the park. No danger is to be apprehended from this source. He recently took cultures from the soil of paddocks to ascertain how much tuberculosis it contains. The report states that since 1898, 20 elk, 7 red deer, 2 buffaloes, 3 monkeys and one wolf have died from tuberculosis. He states that there is more danger from the ordinary danger of street dust than from this soil. Disinfection of the soil is, therefore, not recommended.

PENNSYLVANIA.

Anonymous Donor.—A woman of Allentown has donated $6,000 to the Allentown Hospital for the erection of a sun parlor.

Interne Examination.—The Chester County Hospital, West Chester, will conduct its examination for resident internes in the hospital building, April 30.

State Board Examinations.—Examinations of the State Medical Examining Board will be held June 27, 28, 29 and 30, at Industrial Hall, Philadelphia, and the Pittsburg Academy, Pittsburg.

Vaccination Bill Passed.—The bill providing for compulsory vaccination of inmates in all institutions receiving state aid was passed by the house, April 11. The bill was once defeated, but passed finally by a vote of 158 to 4.

Appropriations.—The following appropriations have been made by the legislature: State Hospital, Blossburg, $16,000; State Cottage Hospital, Connellsville, $21,940; Christian H. Buhl Hospital, Sharon, $19,500; State Hospital, Scranton, $255,000, and Packer Hospital, Sayre, $24,000.

Tuberculosis Society Meets.—The thirteenth annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis was held in Philadelphia, April 12. The election of officers resulted as follows: President, Dr. Joseph Walsh; vice-presidents, Drs. Howard S. Anders, Mazyck P. Ravenel, William B. Stanton, Albert E. Roussel, Daniel J. McCarthy, Josephus T. Ullom, Seneca Egbert, Lawrence Flick, Benjamin Lee, Samuel Dixon, all of Philadelphia; Dr. William T. Cummings, Media, and Messrs. Talcott Williams, Samuel Castner and Samuel Scoville, Jr.; secretary, Dr. Ward Brinton, Philadelphia.

Osteopathic Bill Passed.—The bill licensing osteopaths to practice in the state, which failed to pass a short time ago, finally passed the house, April 11, by a vote of 104 to 50. Every effort is being made by the regular school and the homeopathic school to have the governor veto the measure, and it is generally believed that the effort will be successful. The bill is most ingeniously constructed. It appears to place severe restrictions on the osteopaths, but in fact gives them a privilege enjoyed not even by the practitioners of the other schools, namely, that it permits them to undergo an examination conducted by five osteopaths instead of taking the regular examination, as required by the regulars, homeopaths and eclectics. The examination papers of all these schools are the same in all branches, except in materia medica. It is considered strange by the opponents of the bill that osteopaths, if, as they assert they are, carefully schooled in all branches of medical knowledge, should avoid taking the regular examination, as this, if passed successfully, would give them the right to practice any sort of healing they desire.

Philadelphia.

Milk Inspection Report.—The report of the Health Bureau from the division of milk inspection shows that during March 4,743 inspections were made. The total quantity of milk inspected was 143,118 quarts; 129 chemical and 740 microscopical examinations were made of specimens, and 1,755 quarts were condemned.

Bacteriologic Work for March.—The report of the bacteriologic laboratory of the Bureau of Health shows that 1,513 diphtheria examinations were made and 536 examinations of the blood for typhoid; that 733 bacteriologic investigations were made of milk, and 189 of sputum, and that 1,135 doses of antitoxin were issued.

Typhoid Fever Condition.—The weekly reports of the Bureau of Health for March show 1,054 cases of typhoid fever in the city. Of this number only 3 occurred in the filtered water district of West Philadelphia; only 16 in the Roxborough filtration district; while 101 occurred in that part of West Philadelphia not supplied with filtered water.

Work of Medical Inspectors.—During March the number of inspections of individuals made, excluding schools, was 3,942; 614 fumigations were ordered; 49 cases were examined for special diagnosis, and 6,519 examinations were made in the different schools. The number of children excluded from the schools as a result of these inspections aggregated 1,097. There were also 355 cultures taken, 79 injections of antitoxin administered, and 765 vaccinations performed.

Reception to Medical Society.—Dr. Charles K. Mills, professor of neurology in the University of Pennsylvania, entertained the society named in his honor, of the same institution, at his residence, March 24. Beside the society members Drs. W. Joseph Hearn, William W. Keen, Francis X. Dercum, Charles H. Frazier, John G. Clarke, William J. Spiller, Charles S. Potts, Charles S. Turnbull, John Marshall, Barton Cooke Hirst, William J. Pickett, James Hendrie Lloyd and John B. Deaver were present.

Hospital Reports for March.—Presbyterian Hospital admitted 195 patients to the wards and treated 2,199 in the different dispensaries.——Howard Hospital admitted 47 patients and treated 747 in the dispensaries, and prepared 3,558 prescriptions.——Charity Hospital treated 1,005 patients in the different dispensaries.——St. Agnes' Hospital admitted 184 new cases to the wards, treated 592 new cases and 2,750 old cases in the dispensaries.——St. Mary's Hospital admitted 179

new patients to the wards and treated 3,832 cases in the various dispensaries.

Health Report.—The total number of deaths reported for the week ended April 15 aggregated 517. This is an increase of 14 over those of last week and a decrease of 53 from the corresponding period of last year. There were 147 cases of typhoid fever reported, a decrease of 14 from those of last week. The principal causes of death were as follows: Typhoid fever, 21; diphtheria, 10; cerebrospinal meningitis, 3; pulmonary tuberculosis, 79; cancer, 21; apoplexy, 24; heart disease, 50; pneumonia, 52, and Bright's disease, 43. There were 246 cases of contagious disease reported, with 35 deaths, as compared with 280 cases and 42 deaths for the preceding week.

Hospital Examinations.—Examination for resident physicians at St. Mary's Hospital will be held in the hospital building, April 28, at 8 p. m.——Examination for internes at the Howard Hospital will be held May 16, in the hospital building, at 8 p. m.——Examination for resident physician at St. Timothy's Hospital will be held in the hospital, April 22, at 8:15 p. m.——The City Hospital of Williamsport, Pa., will hold its examination for resident physicians in the Y. M. C. A. Hall, Philadelphia, April 29, at 9 a. m.——A competitive examination for positions as resident physicians to the Jewish Hospital of Philadelphia will be held at the hospital, April 4, at 5 p. m.——A competitive examination for internes to the Mercy Hospital, Pittsburg, will be held in the medical laboratories of the University of Pennsylvania, Philadelphia, April 8, at 2 p. m.

The Meningitis Situation.—Reports from the Bureau of Health show that between January 1 and March 31, 40 cases of epidemic cerebrospinal meningitis occurred. Of this number 13, or 32.6 per cent., proved fatal. Of the 40 cases 8 occurred in four houses, that is to say, 2 cases to a house. From two of the houses the cases were reported on the same day. From the third house there was an interval of three days, and from the fourth house an interval of six days between the dates of the reports. There is a possibility, therefore, of a transmission of the disease in the cases of the last two houses. Beyond this there is little evidence of the direct transmission of the disease from person to person. The cases reported were scattered throughout the city, and not confined to any one section. Approximately 63 per cent. of the cases occurred in persons between the ages of 1 and 21 years. Only 2 cases were in children less than 1 year old.

Appropriation for Hospitals.—The following appropriation bills have finally passed: Samaritan Hospital, $130,000; Frankford Hospital, $60,000; American Oncologic Hospital, $150,000; St. Joseph's Hospital, $15,000; Philadelphia Polyclinic and College, $95,000; Jewish Hospital Association, $20,000; Kensington Hospital for Women, $10,000; Orthopedic Hospital, $35,000; German Hospital, $75,000; Rush Hospital for Consumptives, $20,000; Garrettson Hospital, $50,000; Wills Eye Hospital, $80,000; Mount Sinai Hospital, $15,000; St. Mary's Hospital, $27,000; trustees University of Pennsylvania for hospital, $175,000; Lying-in Charity Hospital, $15,000; St. Timothy's Hospital, Roxborough, $24,500; Howard Hospital for Incurables, $10,000; Free Hospital for Poor Consumptives, $100,000; Frederick Douglass Hospital, $12,000; St. Christopher's Hospital for Children, $15,000, and Maternity Hospital, $5,000.

TEXAS.

Physician Acquitted.—Dr. Edward L. Fox, Houston, charged with causing the death of Anna Louise Lindley by a criminal operation, was acquitted March 29. The testimony showed that the death was due to tetanus, but not that it was superinduced by abortion.

State Association Meeting.—The thirty-seventh annual meeting of the State Medical Association of Texas will be held at Turner Hall, Houston, April 24 to 28. The house of delegates convenes April 24, and the general session April 25, at 9:30 a. m. A large number of scientific papers will be presented. At the opening meeting addresses of welcome will be delivered by Mayor Jackson and by Hon. C. R. Wharton of Houston. A rate of one fare plus 10 per cent. has been secured on all roads, good from April 21 to May 1.

Many Medical Graduates.—The Medical Department of Fort Worth University graduated a class of 21, April 6. Dr. W. Beverly West delivered the faculty address and President George H. MacAdam, D.D., delivered the university address and presented the diplomas.——Baylor University College of Medicine, Dallas, held its fifth annual commencement exercises April 4, when 24 applicants were awarded diplomas. Dr. Charles M. Rosser delivered the faculty address.——The cornerstone of the new Southwestern University Medical College, Dallas, was laid April 3, with appropriate ceremonies, and on the same evening the graduating exercises of the college were held, at which a class of 11 received diplomas. Rev. Alonzo Munk, Fort Worth, delivered the address.

WASHINGTON.

New Hospitals.—Work has begun on the new Sacred Heart Hospital, Spokane, a six-story building, to cost $300,000.——The Roslyn and Cle Elum Hospital is under construction and will be completed by the middle of summer.

The Physicians Won.—In the damage suit of C. O. Peterson against Drs. George and Roy S. Wells, Northport, in which $10,000 was asked because of alleged malpractice while the plaintiff was a patient in the defendants' hospital, Judge Carey took the case from the jury and found for the defendants.

Found Guilty.—O. V. Lawson, Seattle, prosecuted by the King County Medical Association for practicing without a license, has been found guilty.——"Dr." Wong Him, Seattle, charged with a similar offense, who made the plea that he should not come up for examination because he was not familiar with English, was also found guilty as charged.

Legislation.—The legislature passed three bills of medical interest, one prohibiting formaldehyd in milk and one amending the medical practice act, raising the fees to $25, eliminating reciprocity and requiring a four-year course of study. The third was to prevent noxious lost-manhood and syphilis advertisements, but it was passed in a changed form and its power is not certain. It originally referred to "sexual" diseases; it was changed to read "venereal" diseases at the behest of patent medicine proprietors, assisted by all the newspapers except the Seattle *Post-Intelligencer*. Several osteopathic bills failed. *Northwest Medicine* remarks: "From a medical standpoint the recent session of the legislature is noticeable for what it failed to accomplish rather than for its acts passed. . . . The lesson to be drawn by the profession from this year's experience is the necessity of organization and of well laid plans for legislative action. The state association should determine on desirable legislation and, by having the same properly fathered, there would be a reasonable prospect of securing its passage. This will doubtless be a subject of future deliberation."

GENERAL.

Dr. Wiley Addresses the American Philosophical Society.—Dr. H. W. Wiley, head of the Bureau of Chemistry of the Department of Agriculture, addressed the American Philosophical Society at its meeting in Philadelphia, April 13, on "The Effects on Metabolism of Preservatives Added to Food." Only the data concerning boric acid and borax were available for detailed discussion. The effect on the 12 persons experimented on was stated to be as follows: 1, to diminish or tend to diminish the weight of the body; 2, to diminish the activity of the appetite; 3, a tendency to diminish the per cent. of nitrogen excreted which slightly marked in a preservative period was even more marked in the after period, showing, therefore, the accumulative effect in this direction; 4, the development of the tendency to increase the excretion of phosphorus; 5, a tendency to increase to a slight extent the combustion of fat in the food; 6, a tendency to diminish slightly the total calories obtained from the food, and 7, a tendency to increase the quantity of solids in the food eliminated in feces. His work showed that nearly 80 per cent. of the total borax and boracic acid ingested in the food is excreted in the urine, and the rest apparently through the skin. The general result, he says, is a derangement of metabolic processes of a character tending to injure health.

National Tuberculosis Association to Meet.—The annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Washington, May 18 and 19. Addresses will be made by the president, Dr. E. L. Trudeau, and by the two vice-presidents, Drs. William Osler of Baltimore, and Hermann M. Biggs of New York City, on the morning of May 18. In the evening an address will be made by Mr. Talcott Williams of Philadelphia, to be followed by the business meeting. The afternoon of May 18, and the morning and afternoon of May 19 will be given up to meetings

of the three sections. The officers of the sections are as follows: Sociological—Homer Folks, New York, chairman; Miss Lilian Brandt, New York, secretary. Clinical and Climatological—Dr. Norman Bridge, Los Angeles, chairman; Dr. Sherman G. Bonney, Denver, secretary. Pathological and Bacteriological—Dr. M. P. Ravenel, Philadelphia, chairman; Dr. D. J. McCarthy, Philadelphia, secretary. The papers already announced promise an interesting and valuable series of meetings. The sociological section, in addition to the report by the chairman, will offer papers on "A Working Program for Associations for the Prevention of Tuberculosis, National, State and Local," by Edward T. Devine of New York; "Progress of the Sanatorium Movement in America," by William H. Baldwin of Washington, and "Infection in Transportation," by Dr. H. M. Bracken of St. Paul. The climatological and clinical program, in addition to the address of the chairman, includes a number of reports and papers of particular significance. The report of the committee on clinical nomenclature under the chairmanship of Dr. V. Y. Bowditch of Boston, will be discussed by Drs. Welch, Trudeau, Stengel and Vaughan. An authoritative pronouncement by a body of the authority of the national association is desirable. The report of the committee on early diagnosis, under the chairmanship of Dr. Arnold C. Klebs of Chicago, will be discussed by Drs. Osler, Janeway, Knight and Babcock. The rôle of climate in the management of tuberculosis is also the subject of a committee report by Dr. C. L. Minor of Asheville, the chairman. A symposium on the sanatorium treatment of consumption also promises matter of interest. Other papers are expected by Drs. C. L. Greene of St. Paul, William S. Halstead of Baltimore, C. F. Gardner of Colorado Springs, Edward O. Otis of Boston, S. A. Knopf of New York, J. A. Wilder of Denver, H. B. Loomis of New York and William Porter of St. Louis. The pathologic and bacteriologic section will be strictly technical in scope. An introductory address will be made by Dr. William H. Welch on "Channels of Infection in Tuberculosis." A large attendance is expected. The program will soon be completed and copies may be obtained of the secretary, Dr. Livingston Farrand, 105 East Twenty-second Street, New York.

CANADA.

Grants to Hospitals.—The Winnipeg city council has made a grant of $10,000 to the Grace Hospital and Rescue Home of the Salvation Army of that city.——Toronto has contributed $2,000 to the Toronto Free Hospital for Consumptives, situated about 10 miles from that city and under the control of the National Sanitarium Association.——The new government of Ontario is likely to make a special grant of $25,000 to the Muskoka Free Hospital for Consumptives.

British Columbia's Vital Statistics.—The thirty-second annual report of the provincial registrar of births, deaths and marriages of British Columbia shows that during 1904 there were 2,139 births, 1,252 marriages and 1,734 deaths recorded in that province. Of the births 1,121 were boys, 1.018 girls. One hundred and forty-five deaths were due to zymotic diseases, 194 constitutional, 808 local, 267 development, 287 violent deaths; ill-defined, 15; natural causes, 9. Pneumonia claimed by far the greatest number of victims, namely, 104. There were 79 deaths from tuberculosis.

Dr. Osler in Montreal, Ottawa and Toronto.—Dr. Osler visited Montreal April 14, Ottawa April 15, and Toronto April 16. At Montreal he addressed the medical students of Montreal on "The Student In and Out of College." On the evening of the same day Dr. Osler was the guest of honor at the banquet of the medical faculty and the students of McGill University. The following day he was the guest of the governor-general at Ottawa, whence he came to Toronto for a hurried goodby to his friends before leaving for Buffalo and Baltimore. Several Toronto physicians will attend the dinner in Dr. Osler's honor at New York, May 2.

FOREIGN.

The Chrobak Endowment.—Professor Chrobak of Vienna was recently presented by a group of ladies with $5,000 on his sixtieth birthday. He has endowed with it a fund for the promotion of scientific research in the Vienna gynecologic clinics.

G. Mayer Festschrift.—Dr. G. Mayer of Aix la Chapelle celebrated his eightieth birthday April 9. He is known as the discoverer of ankylostomiasis in miners, as well as by a number of other scientific works. He is the oldest living pupil of Virchow.

Russian Physicians Captives in Japan.—A Russian exchange states that the Russian physicians now prisoners in Japan have been appointed the medical attendants to the other Russian prisoners, and that they are to be paid by the Japanese government for their professional services.

Cancer Research Committee in Bavaria.—The mortality from cancer is exceptionally high in Bavaria, and a committee for special research has just been organized there. A local subcommittee has already been formed at Munich. It includes von Angerer, Bollinger, von Winkel and von Grashey.

Institute for Physicotherapy at Heidelberg.—A new university institute is to be installed at Heidelberg in connection with the medical polyclinic in charge of Vierordt. All kinds of electrotherapy, hydrotherapy, phototherapy, treatment by inhalation, sunbaths, *x*-rays and radium rays, etc., will be practiced and taught.

Proposed Monument to Servet.—Miguel Servet was a physician of Spanish birth who is said to have discovered the pulmonary circulation of the blood. He was burned at the stake in Genoa, Oct. 27, 1553, by the Inquisition and a committee has recently been organized to collect subscriptions to erect a monument to his memory.

Visit of von Noorden to New York and Chicago.—The Herter lectures are to be delivered at New York this season by Professor von Noorden of Frankfurt a. M. His theme will be "Disturbances in Metabolism," with special reference to diabetes. He will also speak on "Gout and Nephritis" at Chicago, on invitation of Professor Billings.

Plague in Chili.—The *Public Health Reports* state that the government has ordered the closing of the large schools and has put in force many measures to prevent the introduction of plague in Santiago. The intensity of the epidemic in Pisaqua has somewhat diminished, though a dispatch dated March 14 states that the population is greatly reduced.

Vaccination-Gambling Alliance.—It is reported that the alcalde of Madrid, in order to overcome the repugnance of the populace to vaccination, has organized a lottery, the tickets to be distributed free to all applying for vaccination at the city health office. He has given 3,000 pesetas (about $600) out of his own pocket to be distributed in the prizes.

The Berlin Children's Sanatorium.—An institution is opened this month, not far from Berlin, to serve as a country sanatorium for weakly children under school age and convalescents of any age. Bedridden and febrile cases are excluded. There are accommodations for 24, and Dr. H. Neumann is supervising physician. The institution is expected to be partially self-supporting.

Falling Off in Number of Physicians Licensed in Germany.—The number of "approbations" in the German empire has dropped from 1,562 in 1902-03 to 1,056 in 1903-04. This is the smallest number of physicians licensed in one year since 1886. The number of dentists has also dropped from 162 to 147, and of pharmacists from 37 to 23. The list of licensed physicians includes 11 medical women, and there are 2 women dentists.

Student Riots in Paris.—Again the medical school at Paris has had to be temporarily closed to put an end to the "manifestations" of the students. They rebelled against the severity of certain examinations and proceeded to the home of Professor Gariel in a turbulent crowd. The superintendent of police struck one of the students in his face with a cane and the Latin Quarter was in a ferment. The prefect of police apologized on behalf of the superintendent and published his apology in all the dailies.

Destruction of Medical College at Bahia, Brazil.—The medical college, with all its equipment and valuable library, was almost totally destroyed by fire in March. The building used to be a Jesuit monastery, but had been conveniently fitted up for the medical school. The loss of the reference books and numbers of rare works of the early masters and files of medical journals is irreparable, but the government is already taking steps to replace the building and to equip it with modern appliances. The official medical journal published there, the *Gazeta Medica da Bahia*, was founded in 1866 and is now in its thirty-seventh volume.

Smallpox in Sierra Leone.—An outbreak in smallpox is reported from Sierra Leone. The *Public Health Reports* state that the authorities seem to have the situation well in hand. The disease is confined principally to the suburban settlements, the central portion of the city, in which are the prin-

cipal business and government offices and consulates, being unaffected. The disease seems to have been introduced into the city and colony from the interior by means of the railroad. Some persons have been convicted of concealing cases from the health authorities and in this way the disease was firmly established before its presence was detected.

Lead Poisoning in France.—The discussion in the French senate on legislation prohibiting the use of white lead has brought out the fact that the number of cases of lead poisoning among painters is growing less every year. There are about 25,000 to 30,000 painters at Paris, and during the last ten years an average of 200 have been under treatment for lead poisoning in some form, almost invariably mild. During this period 13 painters have died in the hospitals of lead poisoning. About ten deaths from this cause occur annually in the city. These figures were supplied by A. Gautier, who has been connected with the Seine department of health for twenty-five years.

Centennial of Discovery of Morphin.—On March 20 the little German town of Hameln (Hamelin) in Hanover, witnessed a notable gathering of pharmacists and chemists to celebrate the hundredth anniversary of the discovery of morphin. They gathered around the building in the Osterstrasse in which the famous Sertürner, the discoverer of morphin, had his pharmacy for twenty years before his death. Among other ceremonies a memorial tablet was placed on the building in the name of the German association of pharmacists. Hamelin will also be remembered as the scene of the colossal suggestion or hypnotic suasion of the "pied piper of Hamelin," after the townspeople had refused to pay his promised fee for delivering the town from rats.

Incomes of German Physicians.—The official statistics recently published state that there are 3,956 physicians in the Brandenburg district, which includes Berlin and Charlottenburg. Among the 2,060 physicians of Berlin 54 have an income of only 900 to 1,050 marks, or about $225 to $262; 261 have less than $522, and 206 less than $725. These 521 physicians form about 26 per cent. of the total. In Charlottenburg the proportion is less than 21 per cent., but in Rixdorf it is 46 per cent. About 200 physicians in Berlin have incomes of from $725 to $1.050. The number of Berlin physicians with incomes over $1,250 is said to be 994. This group includes the chief luminaries of the profession, one being listed with an income of $82,500, and seven others with incomes of over $40,000.

Prizes Offered for Works on Lead Poisoning.—The International Association for Protection of Working People offers a dozen prizes for the best works on the prevention of lead poisoning. The first prize is $1,250, to be given for the best work on the means to prevent lead poisoning in handling ores containing lead. The second prize is $2,500 for the best work on means to avoid the dangers from lead in lead mines. Two prizes of about $500 each are offered for works on means to avoid the danger of lead poisoning in paint factories, storage battery works, etc., also four prizes of from $187 to $375 for the best works on the same subject applied to painters, varnishers, etc., and four similar prizes for works in regard to printers, type founders, etc. Competing articles should be sent to the "Secretariat der internationalen Vereinigung für Arbeiterschutz," at Basle, Switzerland, before December, 1906. Further information on request at this address.

Third German Preventive Congress.—This congress will be held next year at Mannheim or Königsberg (both cities are competing for the gathering). The question of "Sexual Pedagogics" is to be the main theme discussed, and a committee has been appointed to study the subject. The congress which has just closed its sessions was described in these columns on page 1207. Later reports state that the members of the congress unanimously agreed in respect to non-interference with advertising of measures to prevent contracting venereal disease. Neustätter of Munich and Bernhard and Lesser of Berlin stated that these measures can not be absolutely advised against. The advertising, however, should be restricted to proper limits. It should be expressly stated in the official regulations that measures to protect against the contracting of venereal disease do not come under the heading of articles prohibited on account of being destined to obscene purposes. Neustätter proposed that an official preventive censorship should be established for all advertising of protecting measures, medicines, etc. It was reported at the congress that a million copies of the preventive circular had been distributed to young men throughout Germany. A similar circular to be given to girls and women is now being prepared, and collective inquiries on questions in this branch of scientific work are to be undertaken. The preventive circular referred to above was mentioned in these columns on page 564 of volume XLI.

Damage Suit Against Vulpius.—Prof. O. Vulpius, the well-known orthopedist of Heidelberg, recently operated on a young man whose right knee was ankylosed at an acute angle. There was also a tumor on the inside of the leg, above the knee. Vulpius told him, it is said, that the knee could be straightened by a simple and harmless operation, and that he could return home in eight to ten days. Vulpius severed the flexor tendons behind the knee and divided the femur above, and placed the leg in a padded plaster cast in extension. The tumor was not removed and no hole was left for it in the cast, but the toes projected from the cast. In the course of twenty-four hours they became discolored, with loss of sensibility, as Vulpius determined himself by pricking with a needle. He made no change in the dressings and left town, leaving the further care of the case to his assistant. The leg became more and more painful and by the twelfth day the toes were blue and swollen, with fever. The assistant finally yielded to the patient's entreaties and removed the cast. The foot and leg were found gangrenous, and on the twenty-eighth day Vulpius—who had returned in the meanwhile—amputated the leg. The patient left the clinic after a three months' stay and instituted proceedings against Vulpius. He demanded that Vulpius should provide him with an artificial leg and pay him a yearly pension of $125 in quarterly installments and also a cash indemnity of $3,000. The local court decided in favor of the plaintiff, and appeal to the supreme court resulted in a confirmation of the verdict.

LONDON LETTER.

Plague in India.

The deaths from plague in India having reached the appalling total of over 1,000,000 per annum, the government has appointed an advisory committee for plague investigation. This committee has been constituted by the India Office, the Royal Society and the Lister Institute. It has for its object not the question of the administration of plague work, but the study of the bacteriology of the disease. The chairman of the committee is Surgeon-General Branfoot, president of the medical board of the India Office. The other members are Sir Michael Foster and Dr. J. Rose Bradford (nominated by the Royal Society); Colonel David Bruce and Dr. C. J. Martin (nominated by the Lister Institute). Dr. Martin has already sailed for India and is due to reach Bombay on April 14. He will then make arrangements for laboratory accommodation, etc. On receipt of information from him two bacteriologists will probably be sent out from England in a few weeks' time. Two members of the Indian Medical Service have also been lent by the Indian government for the work in India. The officers will probably travel over the plague area, and the headquarters of the committee will probably be the Pasteur Institute at Kassauli.

Ambidexterity in Art.

The second of the series of lectures arranged by the Ambidextral Cultural Society was delivered by Sir William Richmond. He referred to the extraordinary feat performed by Sir Edward Landseer, who drew the profile of a stag's head with its antlers complete with one hand while with the other he outlined the profile of a horse. Ambidexterity was taught to the Spartans, who were compelled to use the sword, the shield and the spear equally well with either hand. To educate the left hand requires perseverance. As examples of what can be done by perseverance two cases were mentioned. A congenitally armless painter copied the colossal picture of Reubens, "The Descent from the Cross," with his feet alone. A young man paralyzed in all his limbs learned to draw and even to engrave on copper, using his lips, teeth and tongue. A copy of Albert Durer's "Man of Sorrows," engraved in this astonishing manner, was handed round, and those present who were acquainted with the original pronounced the copy to be a perfect replica. The ambidexterity of Leonardo da Vinci was then referred to and it was shown to what a large extent in various handicrafts the Italians of to-day use the left hand, this being a survival of ancient custom. The lecturer concluded that the work of the society was of great importance and thought that a deputation should wait on the Board of Education to urge the adoption of its views in schools. The lecture was illustrated by drawings showing the difficulty of using the left hand without previous training, much amusement being caused by the lecturer's sketch made with both

hands simultaneously portraying a figure holding a stick, made with the right hand, and one holding a cigar, made with the left.

Pharmacology

FURTHER COMMENTS QUOTED.

We quote below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

Journal of the Medical Society of New Jersey: "We hope that every physician in our state will read, mark, learn and inwardly digest this report. . . . To our mind there can be no doubt of the issue of this vexed and troublesome question if the editor of The Journal of the American Medical Association and the editors of the state journals stand firmly on the ground laid out for them and scrupulously adhere to the excellent code of rules we have referred to."

Western Druggist (March): "The American Medical Association has finally undertaken a work which for many years engaged the serious attention of the American Pharmaceutical Association, but whether or not it will not meet with better success remains to be seen. . . . It is exceedingly doubtful if the proprietors will deliberately comply with this request, even though they have been accustomed heretofore to publish essentially the ingredients of their respective preparations, for the reason that the recognition by them of the principle of censorship would logically lead to enforced compliance with any further conditions now or hereafter to be imposed by the council. The 'community of interest' among the manufacturers will certainly prompt them to view with suspicion the creation of an official outside authority over their products and, knowing that unless the more popular preparations now in use by the profession shall place themselves under the council's censorship the entire scheme must of necessity fall through, they will be slow about entering the seductive little parlor of the council. . . . Few manufacturers, we imagine, will deliberately tie themselves up to perpetual accountability to a group of critics who may or may not be governed at all times by infallible intelligence or by recognized principles of mercantile equity."

Medical News, N. Y. (March 18): "There was a time in the history of medicine when the physician was chemist, botanist, pharmacist and healer. But that was many, many years ago. Since that time social relations have become very complex, but none more so than the relations of pharmacy to medicine.

"From time to time certain features that concern the medical profession very closely have received no small amount of criticism on the part of reformers, and sporadic attempts have been made to adjust certain questions which have been deemed prejudicial to the best interests of medicine. One of these problems has concerned the ethical stand that the profession, as a whole, should adopt toward the exploitation of proprietary remedies. At first sight it seems an easy problem to solve, but in reality it has shown itself to be one of extreme difficulty to grasp in its entirety. A beginning, however, has to be made, and the most radical step that has thus far been contemplated has been recently outlined by The Journal of the American Medical Association (March 4, 1905). Writing on 'The Secret Nostrum vs. the Ethical Proprietary Preparation,' it plunges at once into one side of the subject with a courage that deserves praise and an insight that commands the highest respect for its intelligent grasp of an intricate social question.

"That we as practicing physicians need light there is not the slightest doubt, and we welcome most heartily the effort on the part of The Journal to pull our chestnuts out of the ethical fire."

Wisconsin Medical Journal (March): "The Council on Pharmacy and Chemistry of the American Medical Association, which is composed of some of the best known chemists and pharmacologists of this country, is about to make an effort to solve the vexed problem of separating the wheat from the chaff among the many non-official pharmaceutical preparations placed on the market. . . . The plan outlined by this council will doubtless prove of very great service to the entire profession."

Misleading Statements Concerning Proprietary Remedies.

The article of Dr. Roth[1] on clay mixture poultices should serve to call attention to a widespread evil—the misleading statements in the "literature," distributed so generously by the manufacturers of proprietary products. It is an evil which is much more general than is commonly appreciated. Some of these misstatements are absurd on their face—such as the claim "to cure tuberculosis," the claim that a mushroom product is the "standard" of its kind, etc. Such statements should deceive no one; they should be recognized as an insult to our intelligence. Others, however, are invested with a veil of pseudo-scientific plausibility. These do by far the greater harm, for it is not always easy to perceive the wolf under the sheepskin. The published formulas of the clay mixture referred to in Dr. Roth's paper would lead one to believe that its efficiency depended largely on the essential oils or on the added antiseptics. These, however, are present in such infinitesimally small quantities that they can play but a very unimportant part in the action of the mixture when applied to the unbroken skin. The base, clay or kaolin, is also suggested as an important constituent of the mixture, but even this, apart from its mechanical action, does not constitute an essential part of the mixture. As any quality of clay will answer equally as well, it will be readily seen that there can be no specific therapeutic property in the clay used by any one firm. The most important constituent of the mixture, and the one on which its action largely depends, is anhydrous glycerin, or a glycerin that is as nearly anhydrous as possible. The glycerin in these mixtures is not added "to give the kaolin or white clay its thick jelly-like consistency," but is added for a definite purpose. It has long been known that glycerin, as such, is irritating when applied to the skin; this irritating action is due to the hygroscopic nature of this substance, or "the avidity with which it abstracts moisture from the tissues." While this action of glycerin has been recognized, and is made use of in other directions, its oversight in connection with the widely advertised clay mixtures well illustrates how little proprietary medicines really contribute to the progress of rational, scientific therapeutics.

The clay poultice, however, is not the only offender. There are many, many others—although in some the error is not so palpable. Dr. Roth's investigations, however, should serve to enlighten those who obtain their knowledge of materia medica and therapeutics from the manufacturers of proprietary remedies, and should warn the profession generally against an unquestioning acceptance of manufacturers' claims.

We believe that the condition would soon be remedied if those who encounter misleading advertisements would protest to the manufacturers. We fear, however, that few will take the trouble. A reform could be brought about most readily if the manufacturers themselves would take the initiative. We may be optimistic, but we trust that these misleading claims are made through carelessness; and we respectfully urge the manufacturers to be a little more conservative in their statements. This would be to their own interest. The houses which have not offended in this respect have always been the most prosperous. Let the products stand on their real merits. Clay poultices may be excellent things in their place, but extravagant claims will injure, not enhance, their permanent reputation.

"Patent" vs. Proprietary Medicines.

The avowed intention of several of the largest and most influential manufacturers of so-called patent medicines to

1. The Journal, April 15, p. 1185.

publish the, supposedly correct, formulas for their several preparations will prove of considerable assistance to the Council on Pharmacy and Chemistry of the American Medical Association in the prosecution of their proposed task of segregating the meritorious from the doubtful or positively objectionable proprietary preparations that are offered to, or exploited through, the medical profession. The direct gain, in this connection, consists in the breaking down of any possible suggestion of difference between the standing of a so-called proprietary medicine, for which the manufacturer publishes an erroneous and frequently misleading formula, and the standing of a patent medicine, or popular nostrum, the composition of which is usually regarded as the absolute secret of the manufacturer. Few physicians appear to appreciate how closely related many of these proprietary preparations really are to the admittedly vicious and frequently harmful nostrums that are exploited directly to the lay public. Lay people themselves are much more likely to see and to appreciate this relationship than physicians. That this is true is evidenced by the extensive use of many of the present-day proprietary medicines by the laity and also by the fact that a number of the best selling and most remunerative patent medicines of to-day were originally advertised to and exploited through the medical profession. The letters contributed by honest and well-meaning physicians, one, two or three decades ago, recommending the use of a proprietary medicine are published now in the patent medicine almanacs as evidence that the particular remedy has been used and recommended by medical practitioners. The compounds, elixirs, tonics, syrups and balsams of a quarter of a century ago are being reproduced today in the fantastically named preparations that are exploited through, and are used and recommended by, members of the medical profession only to be taken up later and sold directly to the laity for self-medication.

Correspondence

Malpractice Insurance and Medical Defense.

Fort Wayne, Ind., April 11, 1905.

To the Editor:—In The Journal, April 1, 1905, is an editorial commenting on the recent opinion of Attorney-General Mullan of Iowa in which he held that "physicians can not take out insurance in that state against malpractice suits." You state that "considering the fact that probably nine-tenths of all malpractice suits are pure blackmail, instigated by quacks and foraging lawyers, the finding seems to be a peculiar one." The opinion does not seem to us a peculiar one. It is the only rational opinion which could have been rendered, and but confirms the opinions of attorneys general of a number of other states.

The "physicians' liability policies" issued by casualty insurance companies purport to defend any malpractice suit brought against the policy holder, and in the event of a judgment being rendered against the physician, to pay the same within the limits provided in the policy. This indemnity feature of the insurance contract makes it against public policy. The policies are written and the subject is treated by the insurance company as an "accident." It is through this misapprehension of the subject that the insurance companies began the issuance of such policies.

Malpractice is not an "accident." The courts have held: "An accident is defined as a happening of an event without the aid and design of a person and which is unforeseen, and in this sense the word is to be understood in the absence of a plain, unequivocal exemption and provisions, in a policy insuring against injury or death caused by accidental means." Malpractice is the "bad professional treatment of disease, pregnancy or bodily injury, from reprehensible ignorance or carelessness, or with criminal intent."

If a physician charged with malpractice can show that the injury complained of was the result of an accident, a result not to be expected and for which, therefore, he could not prepare, or, if possessing the requisite qualifications and applying his skill and judgment with ordinary care and diligence, an honest mistake or error of judgment occurred, he can not be held liable, be the results what they may. The medical practitioner is not an insurer or a guarantor of results. All that he is required to do is to bring to his assistance the ordinary knowledge, learning and skill possessed by the average practitioner in similar localities and to exercise his best judgment. If, however, he is incompetent, and does not possess the ordinary knowledge and skill of the average practitioner, or if he is negligent or unskillful in rendering his services, or fails to exercise his best judgment and injury results, he can be held responsible in damages.

Indemnity, therefore, is not a protection to the reputable, competent and careful practitioner. Possessing the requisite knowledge and skill, applying his skill and judgment with ordinary care and diligence, he can not be held liable for any untoward results. What he does need when assailed by the blackmailer under the guise of malpractice is a vigorous and competent defense which will vindicate his diagnosis, treatment and work. For the negligent, incompetent, unskillful and quackish practitioner, indemnity is a *multum in parvo.* Having no professional reputation at stake and practicing strictly for the money there is in it, he will undertake to render services for which he is incompetent and unprepared, will guarantee results and can even neglect with impunity his patients, relying on the insurance company to pay the bill.

The state holds as its most valued possession the health of its citizens, and anything which will have a tendency to relieve one from responsibility imposed by common law or statute in the treatment of disease or injury, is against public policy. Organized defense is recognized as not being against public policy, but as a necessity for reputable practitioners. This fact is shown in the admission and authorization of the Physicians' Defense Company as a foreign corporation in Iowa. Before this company received its certificate of authority from the secretary of state of Iowa, the attorney general reviewed its charter and the defense contracts which it issues, and rendered his opinion that the company is not an insurance company, that its contracts are not insurance policies, and that it could be admitted as a foreign corporation and that its contracts for the defense of physicians, surgeons and dentists are legal contracts under the laws of Iowa.

From the foregoing it is clear that while Attorney-General Mullan's opinion holds the issuance of "physicians' liability policies" to be illegal under the law on account of the payment of judgments, yet the state is not opposed to organized defense.

E. H. Merritt.

History of Medical Organization.

Burlington, Iowa, April 16, 1905.

To the Editor:—In "An Epitome of the History of Medical Organization in the United States," published in The Journal, April 15, I note a statement concerning Iowa which may be misleading and I ask space for this, a more explicit account.

Section 4954 of the revised statutes of Iowa (code of 1897) is the "nasty ad." law referred to. It is almost identical in language with section 5337 of the code of 1880. Whether the Iowa State Medical Society was instrumental in having this law made I can not say, because I was not a member until 1880. Some of the older men may be able to tell you, but that the members generally were ignorant of its existence can be seen by reference to the October and December, 1903, issues of the *Iowa Medical Journal.* In the latter I have a letter on this subject, in reply to an editorial entitled "As Others See Us."

That there have been violations of this law there can be no doubt, but I have yet to hear of an attempt to enforce it.

Membership in the Iowa State Medical Society prior to 1903 was acquired only through membership in an affiliated county or district society. Of the former there were in 1897 sixteen listed as having made official reports of conditions; of the latter, eight. There were other societies of both kinds, some

of them large and active, as, for example, the Des Moines Valley. The district societies embraced many counties not individually organized, and thus the ground was well covered; so it is not impossible that the increased membership of to-day comes more from the "drumming up" process, which I vainly urged in 1893, than from lack of facilities. Iowa, as Dr. Hobby pointed out to you last year, has for years been largely represented in the American Medical Association meetings, second to very few, and this of itself should be sufficient answer to the critic.

H. B. Young.

Cerebrospinal Meningitis in Animals and in Man.

Humboldt, Tenn., April 8, 1905.

To the Editor:—I have just read Dr. Albert's letter in The Journal, April 8, p. 1132, on the identity of meningitis in animals and man. This is an interesting and important subject, especially as the question of contagion is beginning to receive the attention it should have had long ago. I am not familar with the disease in the cow, but I have seen a few cases in man and in horses and have long been impressed with the idea that the disease is the same in both. The disease in the horse is known in this locality as "blind staggers" and there is a popular impression that the horse contracts the disease from eating the "chaff" of old corn, and as it is undoubtedly more common about the time the farmers are cleaning out the corn-cribs preparatory to housing the new crop, it may not be unlikely that the dust inhaled in eating the "chaff" contains the germs; and, again, it may not be going too far to suppose that the germs are deposited in the dust by the rats, to the gnawing of which the "chaff" is mainly due. However this may be, if the unity of the disease is established, it may account for some of the heretofore unaccountable sporadic cases in man, and may help solve the problem of prophylaxis. This is merely a suggestion and is offered for what it is worth.

Sidney Thompson, M.D.

Association News

ROUTES TO THE PORTLAND MEETING.

Sketch of the Western Country and the Various Routes By Which to See Its Beauties.

All railroads will lead to Portland, Ore., for the coming session of the American Medical Association, on account of the Lewis and Clark Exposition that opens there June 1; and, therefore, a choice of routes will be available such as is not often possible, with side-trips and stop-over privileges practically according to each traveler's inclinations.

For the purposes of this article, we may class the various routes to Portland as direct and indirect, the former being all those on which the short-line rate will prevail, the indirect those which will carry the traveler a round-about route but at an additional railway fare. The latter, for example, permit the passenger for Portland to travel through California either going or returning, the other part of the trip to be by one of the direct lines. The principal routes are shown on the accompanying map.

By the direct routes, Chicago, St. Louis and Memphis passengers for Portland, or parties from points in the East or South ticketed through either of these three gateways, may, at their option, be routed through St. Paul and Minneapolis and thence to Portland via either the Canadian Pacific, the Great Northern or the Northern Pacific railways; or through Omaha or Kansas City, thence through Denver or Cheyenne and Salt Lake City, thence via Ogden, Utah, and Pocatello, Idaho (not via California from Ogden); or through Omaha or Kansas City and thence via Billings, Mont.

Without extra fare, the western or outgoing trip may be made by any of these so-called direct routes and the return by the same or any other of the direct routes; or one way may be by one of the indirect routes, as said above, by paying an additional charge, but the desired route must be determined on before buying the ticket so that the latter may be made out accordingly.

DIRECT ROUTES VIA ST. PAUL.

Tickets may be routed over any one of the lines between Chicago and St. Paul at the passenger's option, these being the Northwestern Line; the Chicago, Milwaukee and St. Paul; the Chicago, Burlington and Quincy; the Wisconsin Central; the Chicago, Rock Island and Pacific; the Illinois Central, and the Chicago Great Western. Any of these offer satisfactory service and picturesque scenery. After reaching St. Paul the traveler via this gateway has choice of but three routes from there to Portland, the Great Northern, the Northern Pacific or the Canadian Pacific, some of the advantages of these lines being given below:

The Great Northern Railway, which lies nearest the northern boundary of the United States, takes first a northwesterly direction from St. Paul, along the west bank of the Mississippi River, across the lake region of Minnesota, which offers some of the finest fishing grounds in this country, then up the famous Red River Valley to Grand Forks, N. D., whence the line takes a more westerly course across the agricultural and stock sections of northern North Dakota and Montana to the Rocky Mountains. Thence is afforded a continuous panorama of grand and magnificent scenery through northwestern Montana, where, at an altitude of only 5,199 feet, the range is crossed, the route then being across northern Idaho to Spokane, Wash., whence it proceeds west via the far-famed irrigation sections of that state—the Great Bend Country and the Wenatchee Valley—crossing the Columbia River at Wenatchee, to traverse the famous Tumwater Canyon and on through timber and lumber sections across the Cascade Range to Everett, where Puget Sound is reached. Here the line turns south and parallels the sound to Seattle. In the Rocky or Cascade mountains, various points afford excellent hunting and fishing stop-overs. The famous Kootenai Lake region and the mining sections of Rossland and Nelson, B. C., may be reached from Spokane; the noted Lake McDonald country and its glaciers, from Belton, Mont., and beautiful Lake Chelan and the Methow Valley from Wenatchee, Wash.

The Northern Pacific Railway, paralleling in general direction the Great Northern, between St. Paul and Puget Sound, enters North Dakota at Fargo, keeping thence nearer the southern line of the state, crossing the noted "Bad Lands" and following the Yellowstone River in Montana to Livingston. Then, via Butte or Helena, at the passenger's option, it crosses the famous Bitter Root Valley and the Flathead country and the mountain and lake region of northern Idaho to Spokane—a continuous stretch of magnificent scenery from Livingston west. From Spokane, this line takes a southwesterly direction through southeastern Washington's agricultural sections and across the far-famed Yakima Valley, where it turns northwest to climb the Cascade Range and to traverse—before reaching Seattle to turn south to Portland—some of the most extensive and interesting timber and lumber sections of the Northwest. Here may be seen the lumber industry at its best, and here, too, are hunting and fishing regions easy of access and unsurpassed, while Spokane offers many inducements as a stop-over point, with the hunting and fishing sections of northern Idaho most easily reached therefrom. From Livingston, Mont., over a branch line to Gardiner, is made the side trip to the Yellowstone National Park, whose wonders and scenic attractions will many times repay for the time spent and the additional expense incurred in making the five and one-half day tour through it.

The Canadian Pacific has as grand mountain scenery as is to be found anywhere in the world, unapproachable in magnificence and majesty, and for two days are to be seen panoramic views of mighty mountains, wonderful cascades, great glaciers, and awe-inspiring canyons. The pleasures of the trip will be greatly enhanced by stop-overs at Banff, in the Canadian National Park; at Lake Louise, one of the most charming lakes in the world; at Field, the entrance to Yoho Valley; and at Glacier, where is located the Great Glacier of the Selkirks, larger than all the glaciers of Switzerland combined. By this route passengers are given the option of traveling through Puget Sound without extra cost if a water trip is preferred to all rail.

DIRECT ROUTES VIA OMAHA.

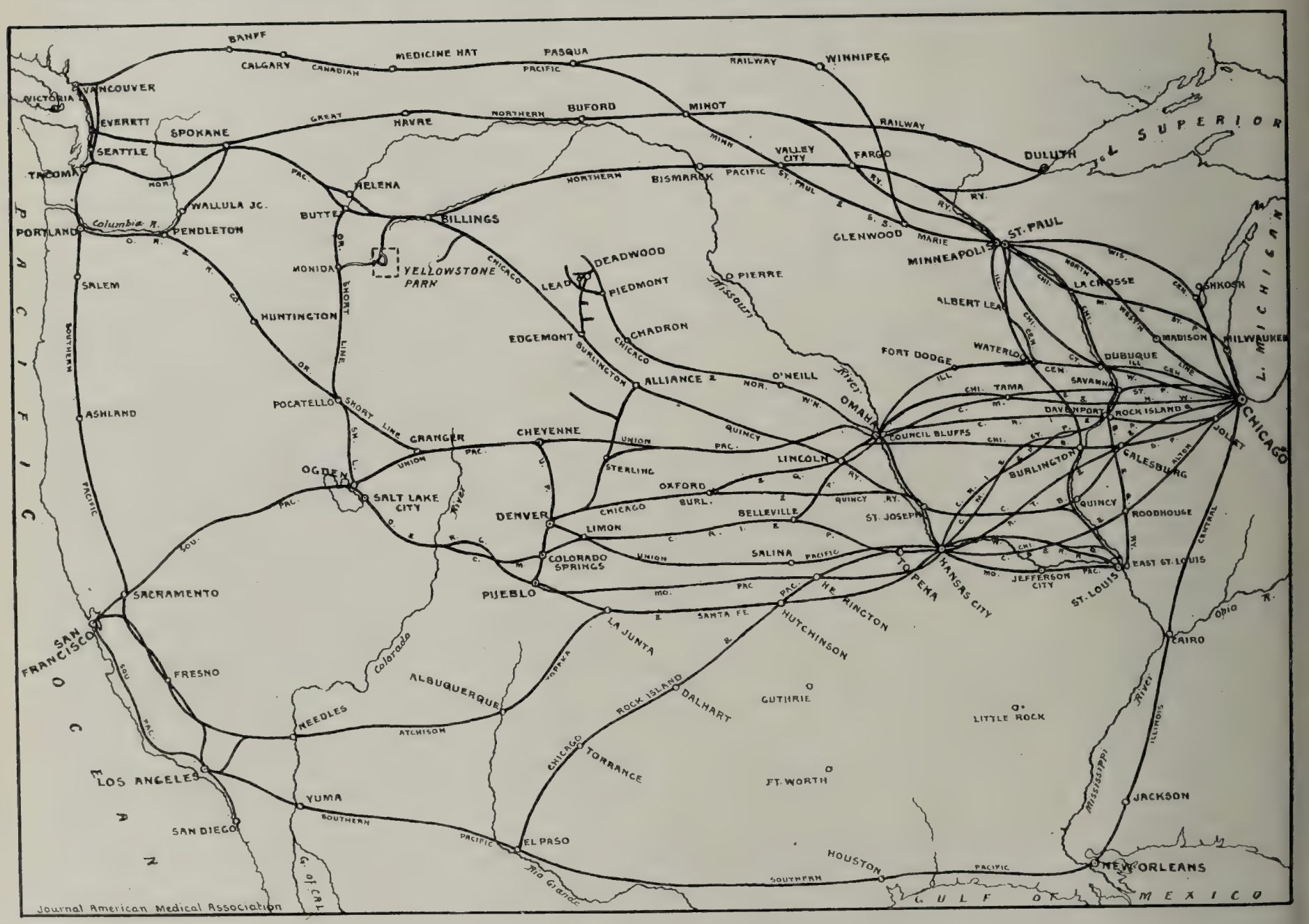
The railway lines that connect Chicago and St. Paul, noted above, also operate between Chicago and Omaha, each offering excellent service. Two, the Burlington and the Rock Island, have their own tracks from Chicago to Denver, and the Burlington also offers its own line to Billings, Mont., from which point its trains run to Seattle over the Northern Pacific Railway. The Chicago, Union Pacific and Northwestern Line has a daily service direct from Chicago to Portland without change.

Passengers using any other of the Chicago-Omaha lines may be ticketed to travel via any of the lines west from Omaha, at their option, these lines being the Burlington, the Rock Island and the Union Pacific. Each of these affords excellent service between Omaha and Portland via Denver and Salt Lake City, via Denver and Cheyenne and Salt Lake City, or via Cheyenne direct (main line of Union Pacific); or via Billings, Mont. From Denver to Portland the passenger has the further choice of traveling to Portland via either the Denver and Rio Grande, the Colorado Midland or the Union Pacific, via Salt Lake City, Ogden and Idaho. A few of the special points of interest along these three lines are mentioned below:

The Union Pacific makes especial boast of fine trains and fast time. By this route's main line from Omaha one crosses from the range sections of western Nebraska into southern Wyoming, where at Cheyenne the Denver portion of the train is added. Then the line continues westward near the Colorado-Wyoming boundary, crossing into Idaho, to traverse, beyond Pocatello, some of the most extensive irrigation sections in this country. Shoshone or Boise are good points for stopovers for study of these systems, and from the former the Thunder Mountain country may be visited. Portland passengers on the Union Pacific may travel via Ogden, between Granger, Wyo., and Pocatello, Idaho, to visit Salt Lake City, and free tickets from Ogden to this Mormon center are furnished. From either Ogden or Pocatello a side trip may be made to the Yellowstone National Park, the stage trip by this route through the park being made from Monida, near its western boundary. From Umatilla, Ore., this route follows the Columbia River into Portland, affording a scenic panorama of crags, mountains, gorges and rivers that probably has few if any equals; and from the Dalles passengers may make the remainder of the trip down the river by steamer, though the train parallels it. From Hood River, snow-capped Mt. Hood is easily reached, with its unsurpassed opportunities for hunting, fishing and mountain climbing.

The Denver and Rio Grande Railway, between Denver and Ogden, offers mountain scenery that is unsurpassed anywhere in the United States. Extending south from Denver through Colorado Springs to Pueblo, paralleling the Rocky Mountains, it then follows the Arkansas River in a northwesterly direction, to enter the mountains through the far-famed Royal Gorge, whose perpendicular sides tower 2,700 feet above the river and roadbed which crowd each other in this narrow defile that has no scenic equal. A stop at Canon City, the heart of one of Colorado's fruit valleys, will be repaid in a drive to the top of the Royal Gorge. From Salida to Grand Junction, optional routes are offered by this line, one over Marshall Pass, the other, the main line, through Leadville and over Tennessee Pass, where the line crosses the range at an elevation of 10,243 feet, thence follows the Canyon of the Grand River through Glenwood Hot Springs and on to Salt Lake City and Ogden. From Ogden the Portland equipment is carried on Union Pacific trains, via Pocatello, Idaho, as outlined above for that road.

The Colorado Midland Railway, the other route offered through Colorado, parallels the Rockies to Colorado Springs



and Manitou, where its westward climb is begun via Ute Pass. Stop-overs at either of these points, for the trip up Pike's Peak by the famous cog railway, will give wonderful scenic views, while the trip to the Cripple Creek district, made by the short line from Colorado Springs, is said to have no scenic equal anywhere. From Divide, on the Midland, the Cripple Creek district may also be visited before continuing westward over Hagerman Pass, past the Collegiate Range and Glenwood, beyond which the Midland and the Rio Grande routes traverse the same country, through Salt Lake City to Ogden. Glenwood offers much of interest to the physician, by reason of its hot springs, vapor caves, etc., and it is, besides, a convenient starting point for hunting and fishing trips into Colorado's well-known game sections. Colorado Midland equipment for Portland is also carried, beyond Ogden, on Union Pacific trains, through Idaho.

DIRECT ROUTES VIA KANSAS CITY OR ST. JOSEPH.

Between St. Louis and Kansas City or St. Joseph similarly excellent service to that via St. Paul or Omaha is offered by the following lines: Chicago and Alton; Chicago, Burlington and Quincy; Missouri Pacific; Chicago, Rock Island and Pacific, and the Wabash.

Between Chicago and Kansas City the same lines operate—except the Missouri Pacific—and in addition the Santa Fe, the Chicago, Milwaukee and St. Paul, and the Chicago Great Western.

From either point Portland passengers may travel via the Kansas City or St. Joseph gateway, if preferred, then through Denver, Salt Lake City and Ogden, Cheyenne and Ogden, or through Billings. Such routings will be, beyond Denver, by one of the lines noted above under Omaha routings through Denver, etc. Salt Lake City and the Great Salt Lake, aside from its interest as the center of Mormonism, will prove one of the most interesting of the stop-overs available to those traveling to Portland via Denver, either of the three lines between Denver and Portland carrying passengers via this city. For that portion of the journey between Kansas City and Colorado, one has choice between the Burlington, the Rock Island, the Santa Fe, the Missouri Pacific and the Union Pacific, the first three having their own lines from Chicago to Denver via Kansas City, the first two and the Missouri Pacific their own lines from St. Louis to Denver via Kansas City.

DIRECT ROUTES VIA BILLINGS, MONT.

The Burlington Route operates through trains between St. Louis and Seattle, with connections at Lincoln, Neb., from Chicago and Omaha, and at St. Joseph from Kansas City. West of Billings these trains use the Northern Pacific track to Seattle. On this route the famous gold mining sections of the Black Hills may be visited by a side trip from Edgemont, S. D., and the Big Horn Basin from Toluca, Mont. The Custer Battlefield is crossed near Billings, and west of that city the points of interest are those mentioned for the Northern Pacific.

INDIRECT ROUTES.

These are the routes by which the Portland passenger is carried through California either on the outgoing or on the return portion of the trip, an extra fare being charged therefor, with the requirement that the other portion of the trip shall be by one of the direct routes. As the majority of physicians in attendance on the Association session will doubtless make the return portion of the trip by the indirect routes, if at all, these are taken up here with Portland as their starting point rather than their terminal. But, as exposition tickets will be on sale late in May and also in June, with a 90-day limit, physicians who prefer to start in advance of the meeting time and to use one of the indirect routes on the going trip, will be able to do so, the only requirement as to the ticket's limit being that the return to starting point be in 90 days from date of starting.

All the indirect routes lead through California, and may be by boat or rail between Portland and San Francisco; and from the latter city the route may be eastward across Nevada and through Ogden, thence via any of the lines mentioned under direct routes, to destination: or from San Francisco the ticket may read via southern California, and to destination by any of the southern lines, as noted below.

The Southern Pacific, the only rail route from Portland to California, offers some of the most magnificent scenery in the west, traversing Oregon's far-famed Willamette and Rogue River valleys, the latter renowned for its fruits, crossing the rugged Siskiyou Mountains on the Oregon-California boundary, skirting the base of beautiful Mt. Shasta, whose snow-capped summit remains visible for hours as the train wends its way down the picturesque Sacramento River toward the Golden Gate. For climbing Mt. Shasta, stop should be made at Sisson. Shasta Springs is one of the most charmingly located resorts and offers many attractions for a stop-over, as do numerous other less notable summer resorts along the upper canyons of the Sacramento River.

To the traveler eastward from San Francisco, via Ogden, the Southern Pacific is again the only line, but this division offers excellent service and 200 miles of superb scenery before the Sierras are crossed and the Great American Desert entered in Nevada. From Truckee, near the summit of the Sierra Nevada Mountains, one of the most interesting trips in the West may be taken, in a side trip of twelve miles by rail, up the Truckee Canyon to beautiful Lake Tahoe, a mountain lake twenty-five miles long and twelve miles wide, at an altitude of 6,000 feet and surrounded by mountain peaks still higher, some snow-capped, its waters as clear as crystal, its setting making it, as said by many, the most beautiful mountain lake in America. A steamer plies between the various points of interest, and there are good hotels, with hunting, fishing and mountain climbing.

The routes available to the passenger who desires to go via southern lines from San Francisco are several, but for the part of the journey in California, three, the Santa Fe, the Rock Island, and the Southern Pacific. The former runs via the San Joaquin Valley and Mojave, then through Arizona and Albuquerque, N. M., the latter either by the San Joaquin Valley or its Coast Line to Los Angeles and El Paso, and on to New Orleans; the Rock Island runs via Los Angeles, using Southern Pacific tracks to El Paso, whence it takes a northwesterly course through southern New Mexico to eastern termini. Further optional routes are available east of El Paso, if the passenger prefers to travel through Fort Worth, San Antonio or Dallas, thence via any of the numerous lines through St. Louis, Kansas City or Chicago. Tickets routed through New Orleans may be over any one of the several lines north and east of that city, at the option of the passenger. Hot Springs, Ark., Eureka Springs and other well-known health resorts along these various lines will offer stop-overs of interest.

Between San Francisco and Los Angeles, via the Coast Line of the Southern Pacific, one crosses the Santa Clara Valley, the prune section of the state, to San Jose, then follows the coast to the "flower town"—Santa Barbara—and through the bean and walnut sections to Los Angeles. Palo Alto is the station for visiting the Leland Stanford, Junior, University, and from San Jose the ascent to the Lick Observatory may be made. In visiting the Santa Cruz big trees, which are big redwoods, these should not be misunderstood to be the "really big trees," for the big trees of California and the world are the sequoias found in the Sierra Nevadas and easily reached from points on the Santa Fe or the Southern Pacific's San Joaquin Valley line (see below). The old mission at Monterey, and the eighteen-mile cypress drive along the beach, will more than justify a stop, and at various points other old missions may be visited. The points of interest along the other line of the Southern Pacific to Los Angeles, the route through the San Joaquin Valley, are those mentioned in connection with the Santa Fe below, these roads covering the same territory through that portion of the state.

Rock Island passengers between San Francisco and El Paso, as noted, traverse Southern Pacific territory, hence the attractions of the two routes are the same as far east as El Paso. Southern California offers every variety of scenery—valley, mountain and beach—and desirable stop-over points too numerous to enumerate here. After leaving the Orange Belt of the state, its trains cross the Colorado Desert into Arizona.

where Phoenix and the Salt River Valley will prove of especial interest on account of their reputation as health resorts. Side trips into Mexico are easily made from El Paso; in New Mexico the government sanitariums for tubercular sailors and soldiers, at Ft. Bayard and Ft. Stanton, may be visited.

The Santa Fe System from San Francisco or Los Angeles to Chicago offers many attractions. Crossing the San Joaquin Valley, the wheat and grape section of California, intensive irrigation is seen at its best. No mountains offer a greater variety of easily arranged outings, by wagon road or trail, than the Sierras, reached from various stations in the San Joaquin Valley, the grandest of these being the Yosemite trip and that into Kings River Canyon. Stage lines into the marvelous Yosemite Valley, whose scenic attractions are unique and have no parallel elsewhere, make that side trip easy and comfortable. When the trip is made one way via the big trees, it is doubly interesting and attractive. Continuing east from California, this line crosses northern Arizona. A stop should be made at Williams, whence the Grand Canyon of Arizona is visited—that "titan of chasms" that is said to have no equal anywhere in the world—213 miles long, 12 miles wide and more than a mile deep, through which runs the turbulent Colorado River. Other stop-overs for the petrified forest, or various long-ago-deserted Pueblos whose fascination is added to by the mystery that surrounds their history, are permitted, and in addition visits may be made to the Navajo, Moki and other Indian reservations (the Moki's famous snake dance occurs in August). In New Mexico a side trip to the quaint old town of Santa Fe will be well worth while.

Railroad Rates.

The Committee on Transportation desires to submit the following rates which have been secured for the next annual session of the American Medical Association to be held in Portland, Oregon, July 11-14, 1905.

To Portland, Oregon, going via any regular direct route; returning via same or any other regular direct route: From Missouri River points; Sioux City, Iowa; Omaha, Neb.; Council Bluffs, Iowa; Pacific Junction, Iowa; Atchison and Leavenworth, Kan.; St. Joe and Kansas City and Missouri, $45.00. From St. Paul and Minneapolis, $45.00. From Chicago, $56.50. From St. Louis, $52.50. From New Orleans, $62.50.

To Portland, Ore., going via any regular direct route, returning via San Francisco or San Francisco and Los Angeles, and regular direct routes therefrom, or vice versa: From Missouri River points, $56.00. From St. Paul and Minneapolis, $63.00. From Chicago, $67.50. From St. Louis, $63.50. From New Orleans, $71.00.

From all points east of Chicago and St. Louis, the rate will be one fare plus $1.00 added to the rates above given. These tickets will be on sale on June 1, 2, 13, 14, 15, 19, 23, 24, 27, 28, 29, 30, July 1, 2, 3, 6, 7 and 8. These days apply to the points above mentioned. For points east of Chicago and St. Louis the date of sale will be advanced sufficiently to enable passengers to reach the points mentioned on any of the days specified. Tickets will be good for ninety days from date of sale, but not later than Nov. 30, 1905.

Going passage must begin on date of sale and must be continued up to first Colorado, Wyoming, Texas or Montana point en route and up to Alliance, Neb., and Ft. Williams, Ont. West thereof stopovers may be made at any point up to destination within final limit of ticket. Returning, passage must begin on date of execution. The joint agent at destination will execute tickets by attaching validation certificates thereto.

Returning stopovers will be allowed within final limit at any point west of the points mentioned above. While conditions governing stopovers are not complicated they vary somewhat and had best be learned of the joint agent by each purchaser at the time tickets are purchased or validated.

The above rates are the best which the Association has ever secured, and are so liberal that every member ought to attend this meeting and take his family for a summer's vacation in the Great West.

M. L. HARRIS.
Chairman Committee on Transportation.

Announcement from Portland Committee.

The committee desires to report that all arrangements for the meeting are progressing rapidly. The meeting places for the general assembly and for the special sessions and the exhibition hall are all situated within a radius of a few blocks and only a few minutes' walk from each other and from the hotels.

Hundreds of applications for rooms have been received and all such applicants will be definitely and comfortably located before arrival, so they will know just where they are to be.

Numerous applications for the Alaska trip and also for the trip to the Orient have been received and we would urge all who desire to make these excursions to let us know at the earliest possible moment, as our arrangements depend on the numbers. We will probably be able to obtain a $60 rate for the Alaska trip.

KENNETH A. J. MACKENZIE,
Chairman Committee of Arrangements.

Yellowstone Park-Portland-California and Colorado Special Train.

The arrangements are about completed for the special train party which is being organized to leave New York City Saturday, June 24, for a forty-day trip to the Yellowstone Park (six and one-half days), and Pacific Slope, in connection with the annual meeting of the association to be held at Portland July 11 to 14. The following is the condensed itinerary: Chicago, St. Paul, Lake Minnetonka, Yellowstone Park, Butte, Tacoma, Seattle, Portland, Columbia River, San Francisco, Mt. Tamalpais, Monterey, Santa Barbara, Los Angeles, Santa Catalina Island, Mt. Lowe, Riverside, Redlands, Lucky Baldwin's Ranch, Salt Lake City, Salt Air, Royal Gorge, Glenwood Springs, Manitou, Pike's Peak, Cripple Creek, Garden of the Gods, Denver, Georgetown Loop, Kansas City, St. Louis, Niagara Falls. The party will be limited to one hundred and twenty-five persons and as nearly one hundred names have already been secured it is most important that those desiring to join this excursion should communicate at once with Dr. Frederick Holme Wiggin, 55 West Thirty-sixth street, New York City. Railroad rates are given elsewhere.

St. Louis Delegation to Portland.

The Committee of Arrangements for the Portland session of the American Medical Association, appointed by the St. Louis Medical Society, has decided on the Burlington and Northern Pacific railroads for the out trip. The delegation will go in two parties, one leaving St. Louis June 27 and visiting the Yellowstone and Puget Sound on the out trip, the other leaving July 6 and going direct to Portland. Neither party is entirely filled as yet. Reservations should be made without delay through the committee. A considerable range of routes for the return trip is at our command. The committee consists of Dr. T. A. Hopkins, chairman, 319 Century building, and Drs. J. H. Tanquary and R. E. Schlueter.

Marriages

SAMUEL G. KELLY, M.D., to Miss Ethel Roemer, both of Sedalia, Mo., April 18.

THOMAS KEAN, M.D., to Miss Lillie Casey, both of Providence, R. I., March 23.

JAMES H. GREEN, M.D., to Miss Cora Lea Hinds, both of Guntown, Miss., April 12.

JOSEPH PAYNE, M.D., Midland, N. J., to Miss Edith Reader of Pittsfield, Mass., April 17.

JAMES FISHER, M.D., Dixonville, Pa., to Miss Amy F. Kane of Washington, D. C., April 5.

AUSTIN JAMES KEMP, M.D., Allapaha, Ga., to Mrs. Daisy Henderson of Leslie, Ga., April 6.

FREDERICK OAKMAN VIRGIN, M.D., to Miss Florence Soria, both of New York City, April 13.

SOLON L. COLEMAN, M.D., to Miss Willie Tisdale Hudson, both of Uniontown, Ala., April 4.

Hiram H. Gunby, M.D., to Mrs. Sallie R. Paterson, both of Crisfield, Md., at Philadelphia, April 6.

D. Lewis, M.D., Portland, Ore., to Miss Camille Gunlach, daughter of Dr. Louis W. Gundlach of Blaine, Wash., March 18.

Abner Osburn Albin, M.D., of Charlestown, W. Va., to Miss Gertrude Cornelia Show of Shepherdstown, W. Va., April 12.

Deaths

Jarvis King Mason, M.D. Harvard University Medical School, Boston, 1861, medical examiner for the town of Suffield, Conn., for 22 years, and once president of the Hartford County Medical Association; a member of the Harvard Alumni Medical Association and of the American Academy of Medicine, died at his home in Suffield, April 8, from cerebral hemorrhage, aged 73.

Julian Taintor Williams, M.D. Castleton (Vt.) Medical College, 1851, a member of the Dunkirk (N. Y.) Board of Education for 46 years, and its president for 26 years; for four terms representative in the House of Assembly; editor of the Dunkirk *Evening Observer*, died at his home in Dunkirk, April 10, from cerebral hemorrhage, after an illness of three weeks, aged 75.

John Waterman Harris Baker, M.D. Dartmouth Medical School, Hanover, N. H., 1843, for 50 years a practitioner of Davenport, Iowa; assistant surgeon of volunteers during the Civil War; formerly secretary and president of the Iowa State Medical Society, died at his home in Davenport, April 7, from senile debility, aged 83.

Loren True Day, M.D. Yale University Medical Department, New Haven, Conn., 1880; health officer of Westport, Conn.; president of Fairfield County Medical Society in 1900; a member of the Connecticut Medical Society, died at his home in Westport, April 1, from tuberculosis of the lungs after a long illness, aged 48.

John Gordon Stewart, M.D. College of Physicians and Surgeons, Baltimore, 1882, of Pitcairn, Pa., a member of the American Medical Association; one of the most prominent practitioners of the Turtle Creek Valley, died in Mercy Hospital, Pittsburg, April 9, after an operation for intestinal disease, aged 53.

Herbert W. Cardwell, M.D. Medical Department of Willamette University, Salem, 1887, a member of the American Medical Association, surgeon-general Oregon National Guard, 1895-1898; major and surgeon U. S. Volunteers 1898 to 1901, died recently and was buried from his residence in Portland, April 5.

Hector McNeill Grant, M.D. Louisville Medical College, of Helena, Ark., surgeon in the Confederate service during the Civil War; several times mayor of Helena, and four times state senator, died at the home of his daughter in Clarksdale, Miss., April 6, after a long illness, aged 82.

Samuel Gregg George, M.D. Medical College of Ohio, Cincinnati, assistant surgeon of Ramsey's Company, First Regiment, Ohio Volunteers, in the Mexican War, and thereafter a resident of California, died at his home in Porterville, April 3, after a short illness, aged 91.

Robert K. Carter, M.D. Jefferson Medical College, Philadelphia, 1858, of Stephens City, Va., a surgeon in the Confederate service during the Civil War, died in New York City in December last from nephritis, after an illness of five months, aged 68.

Andrew D. Hawley, M.D. Medical College of Ohio, Cincinnati, 1848, one of the founders of the Union District Medical Society, and a pioneer of Butler County, Ohio, died at his home in College Corner, March 31, from senile debility, aged 81.

Moses S. Hall, M.D. Examination, W. Va., of Harrisville, for half a century a practitioner of Ritchie County, W. Va., and at one time representative in the state legislature, died at the home of his daughter in Parkersburg, April 9, aged 81.

Henry Chenoweth, M.D. University of Louisville Medical Department, 1844, the oldest practitioner in Jefferson County, Ky., died at his home in St. Matthews, near Louisville, April 15, after an illness of only four days, aged 80.

Samuel N. Bemis, M.D. Vermont Medical College, Woodstock, 1848, thrice member of the legislature from Stamford and once from Dummerston, died at his home near Brattleboro, Vt., April 9, from influenza, aged 81.

William Chilton, M.D. Transylvania University Medical Department, Lexington, Ky., 1830, who retired from practice 30 years ago, died at his home in Hempstead, Texas, Dec. 2, 1904, from senile debility, aged 84.

Patrick H. Thornton, M.D. University of Louisville (Ky.) Medical Department, 1857, chief surgeon in the Confederate service during the Civil War, died at his home in Larkspur, Cal., March 24, aged 69.

Worthington William Myers, M.D. University of Maryland School of Medicine, Baltimore, for 12 years a medical inspector of the Philadelphia Board of Health, died in that city, March 11, aged 60.

Benjamin Smith Breczeal, M.D. Medical College of Georgia, Augusta, 1868, died at his home in Hawkinsville, Ga., February 12, from pneumonia, after an illness of one month, aged 72.

George A. Davie, M.D. College of Physicians and Surgeons in the City of New York, 1874, died at his home in Sidney Center, N. Y., from nephritis, after a brief illness, April 6, aged 55.

John W. Bricker, M.D. Detroit Medical College, 1871, at one time mayor of Fostoria, Ohio, died at his home in that city, April 15, from heart disease, after a long illness, aged 77.

Thomas E. Edwards, M.D. Medical Department University of Tennessee, Nashville, 1883, of Memphis, Tenn., died at Union City, Tenn., February 27, after a long illness.

Thomas J. Kennedy, M.D. Medical Department of the University of South Sewanee, Tenn., 1900, died at his home in Haleburg, Ala., early in April, from tuberculosis.

John S. Baker, M.D. Cincinnati, 1854, of St. Joseph, Mo., died in a hospital in that city, April 7, after an illness of a few hours, from cerebral hemorrhage, aged 74.

Presley A. Rosenberger, M.D. St. Louis Medical College, 1859, of Petersburg, Ill., died at the home of his son in El Reno, Okla., from heart disease, April 8, aged 80.

Joseph C. Wilson, M.D. Starling Medical College, Columbus, 1851, postmaster of Edinboro, Pa., from 1886 to 1890, died at his home in that city, March 25, aged 77.

James Milton Nichols, M.D. Missouri Medical College, St. Louis, 1881, died at his home in Milford, Ark., March 18, from pneumonia, after a short illness, aged 71.

Charles V. F. Ludwig, M.D. St. Louis Medical College, 1858, one of the oldest practitioners of St. Louis, died at his home in that city, April 14, from heart disease.

Alexander Kindermann, M.D. Rush Medical College, Chicago, 1883, died at his home in Eugene, Md., April 2, from cancer, after an illness of 10 months, aged 46.

Dumont Fairmount Morenzy, M.D. Philadelphia College of Medicine and Surgery, 1854, died at his home in Boody, Ill., April 7, from heart disease, aged 72.

Abner Crane Williamson, M.D. Ohio, 1879, died suddenly at his office in Champaign, Ill., from cerebral hemorrhage, April 8, aged 65.

William H. Hoskinson, M.D. Miami Medical College, Cincinnati, 1882, died at his home in Trimble, Ill., February 20, aged 50.

John F. Everhart, M.D. Medical Department of the St. Louis University, 1851, died recently at his home in Detroit, Mich., aged 73.

James W. Walker, M.D. Harvard University Medical School, Boston, 1880, died at his home in Los Gatos, Cal., April 5, aged 47.

Frank S. Filkins, M.D. Years of Practice, Illinois, formerly of Barrington, died at Arlington Heights, Ill., February 20, aged 65.

Thomas W. Fullilove, M.D. Bellevue Hospital Medical College, New York City, 1875, died at his home in Boerne, Texas, April 4.

Elizabeth Johnson, M.D. Massachusetts, died at her home in Brockton, Mass., March 2, aged 76.

Jacob G. Sharp, M.D. Pennsylvania, 1875, died at his home in Philadelphia, February 4.

Frederick A. Krill, M.D. Ohio, 1882, died recently at San Luis Obispo, Cal.

Miscellany

CLIPPINGS FROM LAY EXCHANGES.

CASE OF WATER ON THE KIDNEYS.

"Dr. —— died at his home * * * *. The cause of death was aqueous Bright's disease."—*New Bedford* (Mass.) *Standard*, March 9, 1905.

SPIT ONLY ON RED AND YELLOW CARS.

"Dr. ——, of C——, who was arrested for spitting while on a green car, was fined $1.00 and costs in C—— police court Tuesday."—*Cincinnati Post*, Jan. 14, 1905.

HAD A NEW NERVE.

"Mr. —— went to Jamaica for his health, he then being a sufferer with a disease of the frontal nerve in the head." —Stanton, Va., April 3, special dispatch to the *Baltimore Sun*.

INTESTINAL ANOMALY.

"A postmortem * * * * held on the body of Mrs. —— * * * * showed that the large intestine from the stomach to the bowels was closed by a growth."—*Hartford City* (Ind.) *Daily Gazette*, Feb. 20, 1905.

SHE HAD SEVERAL AORTAS.

"Coroner —— had the remains removed to the morgue, where a postmortem will be performed * * * *. The bullet entered the back and is supposed to have severed one of the lower aortae, causing death by internal hemorrhage." —*Baltimore Sun*, Jan. 18, 1905.

NEW SPECIALTY.

"Dr. —— has already leased an office and has a shingle out, ready for the practice of his new profession. Dr. —— re-recently received a diploma for the practice of spinology * * * * He has no competition in his particular branch of practice."—*Duluth News-Tribune*, Oct. 13, 1904.

MADE A POSTMORTEM STATEMENT.

BUFFALO, Feb. 2.—A special to the *News* from Hornellsville says that Mrs. —— has made a postmortem statement in which she blames Driver Q—— for the grade-crossing disaster. Two mothers and two daughters were among those killed. * * * * The party was given in honor of Mrs. ——, who was 75 years of age."

HE GOT IT IN THE NECK.

"F. W. R—— * * * * had been troubled with a cataract on his left eye * * * *. When the doctor seen that there were no hope of recovering the use of this eye * * * * Dr. —— performed one of the most skillful operations known to science, that of uniting the optic nerve of the left eye to the nerve of the right eye. The operation was performed in the back of the neck."—*Chandlerville* (Ill.) *Times*.

His Average Fee for Appendicitis.—A distinguished Boston surgeon, who not infrequently receives $1,000 or more for an abdominal or other major surgical operation, recently analyzed his operations for appendicitis from a financial point of view. He found that, taking them all together, he had received an average of $15 apiece for them. This, of course, means that the operations he had done for nothing greatly outnumbered those he had been paid for.—*St. Paul Medical Journal.*

New Journals.—The first number of the *American Journal of Surgery*, the origin of which has been described in THE JOURNAL, has been received and is worthy of commendation as to its shape, style, character of matter, etc. It promises to be a valuable journal for the general surgeon. Dr. Walter M. Brickner is the editor.——*Revista Medica Hispano-Americana* is the name of a new medical journal published in the Spanish language under the editorship of Dr. E. J. Gardiner, Chicago. The character of the contents indicates that the editor intends to make of this a high-class scientific journal. It may seem strange to publish in the center of an English-speaking country a journal in the Spanish language, but when we realize the number of Spanish-speaking countries immediately tributary to the United States, we can readily appreciate the advantage of such a journal. There is a certain amount of jealousy existing between the various small islands and countries south of us which prevents the co-operation of the profession of these various countries in patronizing a first-class journal published in any one of them. Coming from the United States, it is more probable that a journal in the Spanish language will receive the support that it would not otherwise receive. If the character of the journal is kept up to the standard of the initial number it deserves to succeed.——The initial number of *First Aid*, the official journal of the American White Cross First Aid Society, has just been received. Besides containing information in regard to the organization and its objects, with an outline of lectures, etc., it contains articles on the Red Cross Society of Japan, lectures on first aid, especially covering the skeleton, bandaging, etc., and other matters pertaining to health and preventive medicine. It is a creditable journal and speaks well for the enterprise of this new organization. It is published in Chicago.——*Archives of Physiological Therapy* is a new publication from Boston. The title is somewhat misleading, as the contents are almost wholly on the various subjects related to the uses of electricity and radiant energy. Dr. Clarence Edward Skinner is the editor, and his journal has an excellent appearance.——*The Way to Win* is a new journal published in Chicago and edited by Dr. Alfred S. Burdick, of the *Alkaloidal Clinic*. It is devoted to suggestions on success in the practice of medicine. It contains excellent advice on various subjects of interest to the physician.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

WHAT CONSTITUTES DISMISSAL FROM A CASE?

———, ILL., April 5, 1905.

To the Editor:—Dr. A and Dr. B are both very busy general practitioners in a town of between ten and fifteen thousand inhabitants. A is called to see a patient, and, when he reaches there, after due inquiry into the history of the case, he elicits the information that B, who formerly held the case, has not been duly notified. This A demands before he agrees to take the case. The parent of the patient immediately calls B by telephone in the presence of A and simply notifies B that, inasmuch as he had told them that the case was a hopeless one, they had decided to call A. The patient recovered. A later made application for membership in the county society and through the influence of B was rejected on the ground of being unethical in the above case, B claiming that A should not have consented to take the case until he had ascertained if B had been paid in full for services rendered in this case and that A himself should have asked B if he had given up the case. Is A or B right?

ANSWER.—This case should be capable of ready adjustment by the parties involved. On paper, the point at issue seems to be what constitutes dismissal from a case "in due form." One party contends that the method employed was sufficient, and probably most adjudicating bodies would so rule. The other party contends that dismissal "in due form" includes payment of the bill for services of the first attendant, together with direct communication between the last-called physician and the first attendant. It is usual for the dismissed physician to ask payment for his services, and it should certainly be granted by the family, but it seems to us arbitrary and uncalled for to demand that the bill be paid before the family may have any further medical advice. For example, a patient *in extremis* could not, in common humanity, be left without medical attention during negotiations looking to the payment of an abruptly presented bill. The breach of the niceties of the case—if any existed—would on its face seem hardly adequate ground for refusal of membership in the organization.

In any event, we would not pass judgment on the submitted case, because we are not the constituted tribunal and because we have only the facts as viewed by one side. As to what is to be done, the answer is easy. A should appeal to the councilor of the district and ask a proper hearing. Then he should pursue his appeal through the proper constituted authorities until it is clear that he has had a full hearing and a fair verdict on his right to organization fellowship.

COMPOSITION OF SOMNOFORM.

TOWNSEND, MONT., April 7, 1905.

To the Editor:—What is the composition of somnoform? Has it anything to recommend it over nitrous oxid or ether in minor surgery and dentistry? J. P. RITCHEY, M.D.

ANSWER.—Somnoform is a suggestive name given to an anesthetic mixture of ethyl chlorid, 60 parts; methyl chlorid, 35 parts, and ethyl bromid, 5 parts—all by weight. Similar mixtures have been proposed from time to time, notably that of Schleich and anesthol, originated by W. Meyer (THE JOURNAL, Feb. 28, 1903), composed of ethyl chlorid, 17 parts; chloroform, 36 parts, and ether, 48 parts—by weight. The theory regarding anesthesia produced by these mixtures concerns the adjustment of the specific gravities and boiling points by mixing these volatile liquids in certain proportions, and is considered at length in the article referred to.

THE AUTOMOBILE FOR PHYSICIANS.

MUSCODA, WIS., April 17, 1905.

To the Editor:—There has been no information published in THE JOURNAL for over three years concerning the automobile as a vehicle for physicians' use; yet THE JOURNAL of late has become a very popular medium for advertising this machine. Surely some physicians can give their fellow-workers valuable pointers that will be much appreciated by intending purchasers. Which power is best—electricity, steam or gasoline? How many horse power is needed for physicians' use? Is a top desirable? Can a country physician use an automobile successfully? Let us hear from your readers. C. R. PICKERING, M.D.

State Boards of Registration

COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

Connecticut March Report.—Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written examination held at New Haven, March 14-15, 1905. The number of subjects examined in was 11; number of questions asked, 70; percentage required to pass, 75. The total number of applicants examined was 26, of whom 20 passed and 6 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
College of P. & S., Baltimore	(1904)	79.1
Long Island College Hospital	(1901) 75.3; (1904)	83.7
Harvard University	(1903)	78.4
Yale Medical School	(1903) 84.3, 87.6; (1904) 81.9, 82.1, 86.4,	87.8
University of Naples	(1901)	79.1
University of Vermont	(1904) 76, 80.8, 81,	81.8
Maryland Med. Coll.	(1904)	78.2
University of Buffalo	(1900)	76.2
Tufts Medical College	(1903)	76.1
College of P. & S., New York	(1902)	84.4
Johns Hopkins University	(1903)	81.1
FAILED.		
Baltimore Med. College	(1903)	70.4
University of Vermont	(1898)	73.1
College of P. & S., Boston	(1904)	70.7
College of P. & S., Baltimore	(1901)	67.6
Laval University	(1904)	74.1
University of Maryland	(1904)	68.3

Montana April Report.—Dr. William C. Riddell, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, April 4 and 5, 1905. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of applicants examined was 23, of whom 14 passed and 9 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
*Hahnemann Medical College, Philadelphia	(1901)	76
Northwestern University	(1904)	75
Rush Medical College	(1903)	75
University of Missouri	(1905)	75
College of P. & S., Chicago	(1903) 82; (1904)	85
College of P. & S., Baltimore	(1903)	81
Harvard Medical School	(1901)	80
University of Edinburgh, Scotland	(1903)	82
University of Virginia	(1897)	84
Cooper Medical College	(1898)	85
University of Michigan	(1902)	80
Jefferson Medical College	(1893)	83
Medical School of Maine	(1901)	79
FAILED.		
University of New York	(1893)	42
Bennett Medical College, Chicago	(1897)	66
Medical College of Virginia	(1904)	66
University of Vermont	(1903)	62
**Rush Medical College	(1900)	..
Hamline University	(1903)	53
Illinois Medical College, Chicago	(1898)	62
University of Minnesota	(1904)	69
Detroit College of Medicine	(1903)	71

*Second examination.
**Withdrew from examination.

North Dakota April Report.—Dr. H. M. Wheeler, secretary of the North Dakota State Examining Board, reports the written examination held at Grand Forks, April 4-6, 1905. The number of subjects examined in was 13, and percentage required to pass, 75. The total number of persons examined was 13, of whom 10 passed and 3 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
University of Minnesota	(1904)	78, 84
University of Illinois	(1903) 75; (1904)	79, 80
Marion Sims-Beaumont Med. Coll.	(1904)	87
Northwestern University	(1904)	77
University of Toronto	(1904)	86
Chicago Homeo. Med. Coll	(1895)	78
Hamline University	(1903)	83
FAILED.		

Of the three failures, one was an undergraduate, one a graduate of Keokuk Medical College (1903), and one a graduate of Northwestern University (1904).

The Public Service

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending April 15, 1905:

Rockhill, E. P., asst.-surgeon, left Presidio of San Francisco, Cal., on 30 days' sick leave of absence.

Hathaway, L. M., asst.-surgeon, granted two months' leave of absence, to take effect when relieved from duty in Alaska.

Girard, A. C., brigadier-general, retired from active service at his own request, having attained the age of 62 years.

Fowler, J. B., acting asst.-surgeon, department letter of Feb. 13, 1905, granting leave of absence for thirty days revoked.

Ford, Clyde S., and Hartnett, E. H., asst.-surgeons, ordered to report to commanding officer, Artillery District, Potomac, Fort Washington, Md., not later than May 1, 1905, for duty in connection with joint Army and Navy exercises.

Wilson, James S., Greenlauf, Henry S., and Miller, Reuben B., asst.-surgeons, ordered to report to commanding officer, Artillery District of Baltimore, Fort Howard, Md., for duty in connection with joint Army and Navy exercises, not later than May 1, 1905.

Humphreys, H. G., asst.-surgeon, left Washington, D. C., on 30 days' leave of absence.

Manly, C. J., asst.-surgeon, granted 30 days' leave of absence.

Birmingham, H. P., surgeon, relieved from duty as chief surgeon, Department of Texas, and ordered to Fort McPherson, Ga., for duty.

Gray, Wm. W., surgeon, relieved from duty at Fort McPherson, Ga., and ordered to Atlanta, Ga., for duty as chief surgeon, Department of the Gulf.

Straub, Paul F., asst.-surgeon, relieved from duty at Fort Leavenworth, Kan., and ordered to report in person to the Secretary of War for further orders.

Banister, John M., surgeon, on arrival at San Francisco, to proceed to Fort Riley, Kan., for station.

Raymond, H. I., surgeon, on arrival at San Francisco, to proceed to Columbus Barracks, Ohio, for station.

Wickline, Wm. A., asst.-surgeon, left Washington, D. C., on 12 days' leave of absence.

Morris, Edward R., and Carter, Wm. F., surgeons, and Collins, C. C., Hess, Louis T., Eastman, W. R., Rich, Edwin W., Metcalfe, R. F., asst.-surgeons, relieved from duty in the Philippines Division, and ordered to proceed to San Francisco and report to the military secretary for further orders.

Lauderdale, Clarence E., dental surgeon, left Fort Ringgold, Texas, and arrived at Fort Bliss, Texas.

Rebert, Michael A., contract surgeon, granted an extension of ten days to his leave of absence.

Probert, Merton A., contract surgeon, left Fort Crook, Neb., on leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending April 15, 1905:

Smith, G. T., surgeon, ordered to the *Maryland*.

Lumsden, G. P., surgeon, detached from the *Minneapolis* and ordered to the *Olympia*.

Norton, O. D., surgeon, detached from the *Olympia* and ordered to the *Minneapolis*.

(Orders issued by the Commander-in-Chief of the Asiatic fleet.)

Strine, H. F., asst.-surgeon, detached from the *Helena* and ordered to the *Barry*.

Field, J. G., surgeon, detached from the *Bennington* and ordered to the *Solace*.

Cordeiro, F. J. B., surgeon, detached from the *Solace* and ordered home to wait orders.

Baker, J. W., surgeon, retired, ordered to additional duty in performance of medical attendance of officers of the Navy and Marine Corps in the vicinity of Boston, Mass., not otherwise provided with medical attendance.

Peck, A. E., P. A. surgeon, detached from the *Pensacola* and ordered to the *Bennington*.

Stepp, J., P. A. surgeon, detached from Training Station, Newport, R. I., and ordered to the *Topeka*.

Furlong, F. M., P. A. surgeon ordered to report to the Surgeon General for special duty in the Bureau of Medicine and Surgery, Navy Department.

Ohnesorg, K., P. A. surgeon, detached from the *Topeka* and ordered to the Museum of Hygiene and Medical School, Washington, D. C., for course of instruction.

Cather, D., asst-surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Naval Training Station, Newport, R. I., with additional duty on the *Constellation*.

Shipp, E. M., from the Naval Hospital, N. Y., Pryor, J. C., from the Naval Hospital, Narragansett Bay, R. I., surgeons, L. W. Bishop from the *Southery*, J. H. Iden detached from the Naval Hospital, Narragansett Bay, R. I., F. L. Benton from the Naval Recruiting Station, Philadelphia, Pa., Shiffert, H. C., from the U. S. R. S. *Franklin*, Murphy, J. A., from the Navy Yard, Washington, D. C., P. A. surgeons, Farwell, W. G., medical director, retired, ordered to the Naval Recruiting Station, Philadelphia, Pa., April 26.

Leys, J. F., P. A. surgeon, ordered to Washington, D. C., April 28, for course of instruction at the Naval Museum of Hygiene and Medical School.

Fiske, C. N., P. A. surgeon, detached from the Naval Hospital, Boston, Mass., April 26, and ordered to Washington, D. C., April 28, for course of instruction at the Naval Museum of Hygiene and Medical School.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending April 12, 1905:

Mead, F. W., surgeon, granted leave of absence for six days from April 24.

Cumming, H. S., P. A. surgeon, granted leave of absence for ten days from April 15.

Fricks, L. D., P. A. surgeon, granted three days' leave of absence from April 3, 1905, under Paragraph 191 of the Regulations.

Earle, B. H., asst.-surgeon, to proceed to certain points in Oregon for special temporary duty.

Stimson, A. M., asst.-surgeon, relieved from duty in the Hygienic Laboratory, and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty.

Wightman, W. M., asst.-surgeon, granted leave of absence for three days from March 18, 1905, under Paragraph 191 of the Regulations.

Mullan, E. H., asst.-surgeon, relieved from duty at New York (Stapleton), N. Y., and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty.

Drew, A. D., acting asst.-surgeon, granted leave of absence for two days, March 8 and March 24, 1905, under Paragraph 210 of the Regulations.

Stafford, M. V., acting asst.-surgeon, to proceed to Portland, Maine, for special temporary duty.

McKay, M., pharmacist, to report to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class.

Watters, M. H., pharmacist, granted leave of absence for fifteen days from April 12.

PROMOTIONS.

Asst.-Surgeon T. D. Berry commissioned (recess) as P. A. surgeon, to rank as such from March 24.

Asst.-Surgeon A. J. McLaughlin commissioned (recess) as P. A. surgeon, to rank as such from April 10.

APPOINTMENT.

Dr. Mary A. Israel appointed medical inspector for duty at Manila, P. I.

BOARDS CONVENED.

Board to meet at Washington, D. C., April 10, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board to meet at Boston, April 12, 1905, for the physical examination of Pharmacist M. McKay to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon R. H. Woodward, chairman; Assistant Surgeon W. C. Rucker; Acting Assistant Surgeon F. H. Cleaves, recorder.

Board to meet at Washington, D. C., April 17, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman: Assistant Surgeon H. McG. Robertson, recorder.

Board to meet at San Francisco April 20, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: P. A. Surgeon W. G. Stimpson, chairman; P. A. Surgeon J. M. Holt, recorder.

Board to meet at San Juan, Porto Rico, April 24, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: P. A. Surgeon W. W. King, chairman; Acting Assistant Surgeon P. V. Atiles, recorder.

Board to meet at Port Townsend, Wash., April 24, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the board: P. A. Surgeon J. H. Oakley, chairman; P. A. Surgeon, D. E. Robinson, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended April 14, 1905:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, April 1-8, 7 cases.
Illinois: Cairo, April 3, 5 cases; Danville, April 1-8, 3 cases.
Louisiana: New Orleans, April 1-8, 26 cases, 1 death, March 1-31, Pointe Coupee Parish, several cases; St. James Parish, several cases; St. John Parish, 1 case.
Michigan: Grand Rapids, April 1-8, 2 cases, 1 death; at 47 localities, March 18-25, present.
Mississippi; Natchez, March 25-April 8, 2 cases.
Missouri: St. Louis, April 1-8, 28 cases, 8 deaths.
Nebraska: April 1-8, Omaha, 1 case; South Omaha, 1 case.
New York: New York, April 1-8, 4 cases.
North Carolina: April 3, Goose Creek Island, 50 cases; Hog Island, 15 cases.
Ohio: Cincinnati, March 31-April 7, 6 cases.
South Carolina: Charleston, April 1-8, 2 cases.
Tennessee: Memphis, April 1-8, 7 cases.

SMALLPOX—FOREIGN.

Africa: Sierre Leone, March 10-17, 240 cases.
Brazil: Bahia, Feb. 25-March 11, 24 cases, 1 death; Escadia, March 11, epidemic; Rio de Janeiro, March 12-19, 8 cases, 4 deaths.
Ecuador: Guayaquil, March 7-14, 4 deaths.
France: Paris, March 18-25, 29 cases, 5 deaths; St. Etienne, March 1-15, 2 cases.
Germany: Bremen, March 18-25, 1 case.
Great Britain: Cardiff, March 25-April 1, 1 case; Hull, March 18-25, 2 cases; Leeds, March 25-April 1, 12 cases; March 18-25, London, 3 cases; Nottingham, 1 case.
India: Bombay, March 7-14, 172 deaths; Calcutta, March 4-11, 10 deaths; Karachi, Feb. 5-12, 18 cases, 2 deaths; Madras, March 4-10, 6 deaths.
Italy: Catania, March 23-30, 1 death; Lecce, March 8-16, 6 cases; Palermo, March 18-25, 13 cases, 4 deaths.
Mexico: City of Mexico, March 25-April 1, 2 cases, 2 deaths.
Russia: March 18-25, Moscow, 7 cases, 3 deaths; Odessa, 4 cases, 2 deaths; St. Petersburg, Feb. 11-March 18, 41 cases, 12 deaths; Warsaw, Jan. 21-28, 1 death.
Turkey: Smyrna, Dec. 25-Jan. 1, 1 death; Smyrna, Feb. 12-19, 1 death.

YELLOW FEVER.

Brazil: Rio de Janeiro, March 12-19, 8 cases, 3 deaths.
Mexico: Coatzacoalcos, March 26-April 1, 1 case, 1 death.
Panama: Jan. 1-March 27, 43 cases, 18 deaths.

CHOLERA.

India: Calcutta, March 4-11, 32 deaths.
Russia: Baku Government, Feb. 17-24, 1 death; Don Territory, Feb. 5-17, 7 cases, 3 deaths.

PLAGUE.

Africa (Britsh): Durban, Jan. 29-Feb. 11, 4 cases, 4 deaths.
Arabia: Aden, March 10-17, 60 cases, 55 deaths.
Brazil: Rio de Janeiro, March 12-19, 2 cases.
Chile: Coplano, March 10, present; Coquimbo, March 14, present: Pisaqua, March 10, epidemic.
Egypt: Tukh, March 4-11, 1 case; Bombay, March 7-14, 683 deaths; Calcutta, March 4-11, 315 deaths; Karachi, Feb. 5-12, 77 cases, 71 deaths.
Peru: Cajamarca, March 10, present.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore, July 11-14, 1905.

American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.
Nebraska State Medical Association, Beatrice, May 2-4.
American Proctological Society, Pittsburg, May 5-6.
American Therapeutic Society, Philadelphia, May 4-6.
Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.

CONFERENCE OF AMERICAN ANATOMISTS.

Held in Philadelphia, April 11-12, 1905.

(*Concluded from page 1207.*)

This conference was marked by harmony and enthusiasm. It is expected that the Wistar Institute will become a clearing house for anatomy in America. The result promises to show that the conference was one of the most important steps ever taken in the development of American anatomy.

Dr. Chas. S. Minot of Harvard University was elected chairman and Dr. M. J. Greenman secretary.

The Outlines of Work Proposed.

A general discussion resulted in an unanimous opinion that the Wistar Institute of Anatomy offered unusual facilities

for defining American anatomy. It was thought that research material might be collected and prepared there, especially material for neurologic and embryologic research; that original preparations, which had been studied and which are, therefore, of much greater value, should be deposited in the Wistar Institute Museum for future use of students who wish to review the work. Dr. Geo. S. Huntington spoke of the importance of organized efforts to collect and properly to prepare a vast amount of anatomic material which goes to waste and which should, instead, be used while fresh. Dr. Barker urged that the Institute could act as a trust company for all institutes and thus in it research material might be kept for reference and special collections received. Professor Gage suggested the photographing of valuable type embryo sections, which could be sent about instead of the originals.

Many of those present laid special stress on the importance of research. Dr. McMurrich said that the museum could not be separated from research, and mentioned the Hunterian Museum as an example. Dr. Piersol urged the immediate establishment of research work and the development of museum series of comparative anatomy. Dr. Conklin thought that the institute should develop a high degree of technical skill. Dr. Donaldson recommended the establishment of particular lines of research as a prerequisite for the collection of material and the development of a museum, and Dr. Mall advised that the institute should have a number of researchers in its own laboratories.

The Plan of Work Adopted.

As a result of this trend of thought the committee, Drs. Minot, Donaldson and Mall, appointed to form a plan of work, reported on the second day as follows:

1. The principal object of the Wistar Institute to be research and under these headings:
(*a*) A chair of investigation. (*b*) Research assistants or assistantships and men who shall divide their time between the museum proper and research. (*c*) Technical assistants.
2. Research and Materials: Researches shall be in the field of neurology, comparative anatomy and embryology.
3. Relations: Committee recommends (*a*) that the subvention to the *Journal of Anatomy* be granted. (*b*) That a committee be appointed to consider relations of the Wistar Institute to American anatomists. (*c*) That the Wistar Institute apply to the Association of American Anatomists for co-operation.
4. An advisory board of ten should be apointed for general purposes: (*a*) To form a committee on neurology as well as other committees which may be needed. (*b*) To establish relations with the committee of the International Association of Academies for Brain Investigation and with other committees for collective investigation.
While the general trend of work above outlined is recommended, there is no intention to advise limitation of the functions of the institute to it exclusively.

Election of Officers.

The report was accepted and the advisory board appointed. Dr. C. S. Minot was chosen chairman and Dr. M. J. Greenman permanent secretary. The advisory board appointed the following subcommittees: Neurology, Drs. Mall, Minot, McMurrich, Donaldson and Barker; relations of the institute to anatomists, Drs. Gage, Piersol and Huber; development of the institute in comparative anatomy and embryology, Drs. Mall, Conklin and Huntington.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

Fifteenth Annual Meeting, held at Chicago, April 10, 1905.

(*Concluded from page 1218.*)

Uniformity of Curricula.

The committee on uniformity of curricula, George M. Kober, W. J. Means and Parks Ritchie, recommended as a standard curriculum to be adopted as a minimum for the degree of M.D., the following: 1. The course shall consist of four terms in four separate calendar years. 2. Each term shall consist of at least thirty weeks of work, exclusive of holidays and of not less than thirty hours of college work in each week. 3. The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in table herewith, and no college shall be recognized that falls below this standard over 20 per cent. in any one branch, or over 10 per cent. in the total.

STANDARD CURRICULUM.

	Number of Hours of Lectures in Entire Course.	Number of Hours of Laboratory.	Number of Hours of Clinics.	Total.
1. Histology	30	60	.....	90
2. Embryology	30	60	.....	90
3. Osteology	30	.....	.....	30
4. Anatomy	190	230	.....	420
5. Physiology	180	120	.....	300
6. Chemistry and Toxicology	100	200	.....	300
7. Materia Medica	40	20	.....	60
8. Pharmacology	40	20	.....	60
9. Therapeutics	90	.....	.....	90
10. Bacteriology	40	100	.....	140
11. Pathology	100	140	.....	240
12. Medical Zoology, Postmortem work and Clinical Microscopy	30	60	.....	90
13. Physical Diagnosis	20	.....	80	100
14. Practice of Medicine	180	.....	360	540
15. Surgery	180	.....	360	540
16. Obstetrics	100	.....	60	160
17. Gynecology	50	.....	110	160
18. Pediatrics	40	.....	60	100
19. Eye and Ear	30	.....	30	60
20. Nose and Throat	30	.....	30	60
21. Mental and Nervous Diseases	60	.....	60	120
22. Electro-Therapeutics	20	.....	40	60
23. Genito-Urinary Diseases	30	.....	30	60
24. Dermatology and Syphilis	20	.....	20	40
25. Hygiene and Public Health	30	.....	.....	30
26. Dietetics	30	.....	.....	30
27. Medical Jurisprudence	30	.....	.....	30
	1750	1010	1240	4000

The report was adopted, as amended, namely, that colleges be permitted to substitute laboratory and clinic hours for didactic hours.

Discussion on Preliminary Education.

PROF. J. H. T. MAIN, dean of the faculty of Grinnell College, Iowa, discussed the question of the combined course, so far as it embraces the teaching by liberal arts colleges of subjects which are fundamental to medicine. He said the condition is the result, not of any design on the part of colleges of liberal arts, but of a natural and inevitable evolution due to the enormous enlargement of the field of knowledge which has taken place within the last fifteen or twenty years. The colleges which ten years ago offered fifty courses are now offering as many as 200 courses. This has been brought about by the so-called elective system, which makes it necessary for a man to choose his work, and to enlarge on it in order to have the required number of hours. Naturally, he will keep in mind what he is going to do in life, and choose his subjects accordingly. This is necessary, because if the student does not do this, he is likely to be required to spend eight years at college, including the course in the medical college.

The time has come for a mutual understanding and agreement between the colleges of liberal arts and the medical colleges. The university has recognized this in its own territory and has provided for the combined course. The medical college has also recognized it in its own territory, and has conceded that it is a good thing for a man to shorten his course, if he can do so. There is a debatable ground between the college on the one hand, and the medical college on the other, that is, the independent college that has no medical school in connection with it. There is danger that the independent college will be forced out of existence between these two contending forces. Something must be done to equalize conditions. Many courses are offered in colleges of liberal arts of direct bearing on medical education. The medical school requires these and teaches them. The colleges teach them, not because the medical school requires them, but because they are subjects in pure science and the college has a right to give them as a part of the liberal training. The man who takes these courses is entitled to consideration, not credit, but consideration; and the college in which he takes these courses is also entitled to consideration, no more or less. Can the college teach these subjects in such a way that they are entitled to consideration by the medical school? A number of universities are demonstrating the fact that it can be done. They are teaching these subjects with distinct reference to medicine, giving them in their department of liberal arts. It is the business of the

medical school to regulate a condition that already exists so that it will not be injurious to the medical school or unjust to the college of liberal arts. This question should be made an educational question. There is no reason why the independent college should be excluded from the medical school or why it should be forced to stop teaching these pure sciences. The whole question rests on the quality of the work done. If the college gives a course in histology, or physiology or chemistry, or any other of the pure sciences fundamental to medicine that is worth credit, it should receive that credit. Let the medical school pass on the quality of the work. If it is not fit to be recognized, tell the college where it is short, and the work will be brought up to the standard.

The colleges do not ask for a flat credit for the A. B. degree at the present time. They merely ask that credit be given for this work. The value of the work can be determined by inspection. This association is competent to appoint a commission for the purpose of inspecting every state university and all colleges of repute for the purpose of determining whether colleges offering these courses are offering them in a way entitling the student to consideration in the medical college. That board might be composed of men in the medical college, or it might include men from colleges of liberal arts for the purpose of advice. That board might also formulate courses that could be offered in colleges of liberal arts and define definitely what should be the standard and the character of the teaching. No profession requires and demands as much liberal culture and careful technical training as does the medical profession, and it is worth while giving some consideration and some encouragement to the college that is anxious that the men coming to it should receive that training. It is a great injustice to the college of liberal arts that their graduates must enter the medical college on the same conditions as do the graduates of the high school.

DR. GEORGE W. WEBSTER, Chicago, said that the matter of preliminary entrance requirements is one that has been neglected more than any other. In many medical colleges to-day the entrance requirements are not as high as they were for the first medical college organized in the United States, that is, in proportion to the conditions existing. He agreed with Professor Main that men who have taken certain work in the university should be given credit for such work by the medical college, so far as it applies on the work of the first year of the medical course. It is not necessary to have the first two years of the medical course taught in great centers of population, but until a college teaches these preparatory studies, and gives a course both in time and quality that is equivalent to the work as given at present in the best medical colleges, credit should not be allowed.

PROF. S. D. WILLISTON said that there must be co-relation between the subjects of pure science started in the college or university and the same subjects in the medical school. The medical profession should recognize such work. Students preparing themselves for the study of medicine should not be allowed to spend four years in desultory studies, but should be directed to the study of the pure sciences. The university has laboratories that are well equipped, and teachers who are competent to teach these pure sciences. It remains for the medical profession to say whether they will take advantage of these opportunities, and to say whether the student who has taken this work must take it again in the medical school. The medical profession will encourage advanced preparation by giving recognition to those colleges that teach these subjects and teach them well. This Association of Medical Colleges should occupy precisely the same position with reference to recognizing this work that university trustees occupy in recognizing the work of the high school. It is the duty of the association to examine the work done in liberal arts colleges, to lay down the requirements these colleges must meet, and when they do meet them, recommend that credit be given by the medical college for such work.

PROF. A. W. SMALL, Chicago, said that the universities are desirous of working with medical colleges, recognizing the exact value of things as they are. If the course in histology given in the college or university, where work is done on a thoroughly scientific basis, is well done, it is worth precisely as much and more under certain circumstances, as a part of medical education, as the same work done in the medical school. Students taking this work should be given credit for just what it is worth. If the work done in the college is the equivalent of the work done in the medical school, why should the student be asked to do it all over again? On the part of educators in general, two things are desirable; first, that the educational courses shall be arranged in such a way that there will be no artificial barriers for individuals going on as fast as possible in their chosen profession. Second, to induce persons to broaden the foundations of professional preparation by taking the pure sciences in the colleges where the equipment is ample and the work taught on a scientific basis.

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.

The President, DR. PAUL F. EVE, Nashville, in the Chair.

The association met in Watkins Hall. To the addresses of welcome by Mayor A. S. Williams and Dr. George H. Price, response was made by Dr. H. Berlin, Chattanooga.

Officers.

The following officers were elected for the ensuing year: President, Dr. Cooper Holtzclaw, Chattanooga; vice-presidents, Drs. S. W. Woodyard, Greeneville; Alfred Moore, Memphis, and A. F. Richards, Sparta; secretary, Dr. George H. Price, Nashville; treasurer, Dr. W. C. Bilbro, Murfreesboro; delegates to American Medical Association, Drs. W. J. Miller, Johnson City, and W. D. Haggard, Nashville; *alternates*, Drs. G. O. Bicknell, Madisonville, and Louis LeRoy, Nashville.

Memphis was selected as the place for holding the next annual meeting, April 10-12, 1906.

Food Adulteration in Tennessee.

MR. LUCIUS BROWN, Chemist, Nashville, in a paper on this subject, said that milk is peculiarly liable to sophistication on account of its perishable nature and the readiness with which it can be adulterated. This takes the form of watering, thereby reducing the quality, and the addition of preservatives to conceal or prevent decay. There is no form of food adulteration which is more despicable than this. Milk is the standard food of young children, and is largely used for invalids, and the addition to it of such materials which have a directly injurious effect on the digestion, and usually only takes down the danger signal without removing the danger, should be relentlessly and severely punished. An examination of pure-food legislation shows that twenty-two states have a regularly organized food-inspection department. It is significant that Kentucky has just increased its appropriation for this purpose from $7,500 to $10,500. For the proper enforcement of pure-food laws a qualified analytical chemist is an absolute necessity. Not less necessary is a wise and active pure-food commissioner. There need be, on the part of the retailer, no fear of a hardship being worked on him by a proper enforcement of food legislation. He is always given an opportunity to put himself right, if he desires to do so, under any food laws. But in order to reassure him, most states allow the retailer to be exempt from conviction if he produces a written guarantee from the wholesaler or his agent resident in the state.

Early Diagnosis and Early Treatment of Otitis Media.

DR. N. C. STEELE, Chattanooga, said that a large number of adults are permanently deaf in one or both ears. Of every one thousand seriously deaf ears, perhaps in 999 the disease is otitis media, and every aurist knows that chronic otitis media is generally incurable. He pointed out the general management and treatment and closed by saying that the physician who looks carefully and intelligently after the patient's general health, as well as the local treatment, will have the greatest success in otitis media, just as he would in other local diseases.

Tuberculosis Cutis.

DR. J. M. KING, Nashville, pointed out how the initial skin lesion is formed, and spoke of the differentiation of lupus from rosacea, eczema, and blastomycosis. Radiotherapy, Finsen light and violet rays are at present considered the most acceptable methods of treatment, and should always be used if the patient is within reach of it. The *x*-ray and Finsen light are both satisfactory, but the ideal instrument is the combined use of *x*-rays and Finsen light.

Medical Ethics.

DR. T. J. HAPPEL, Trenton, regretted that most graduates leave medical colleges with a vague sort of idea that there used to be in the dim past a set of rules governing the relations of medical men to one another, to their patients, and to the public at large, but that because nothing has ever been said to them by their professors on this subject those rules have long since passed into innocuous desuetude. In many instances they soon become imbued with the idea set forth by a certain lecturer of the importance of "getting there," and that they lay down for their own guidance "get there" in any way one can, provided he does not violate the eleventh commandment. They follow their own golden rule as written and interpreted in these days of greed for gain—Do unto the other fellow as you would expect him to do unto you if he can, and do it first.

Origin and Treatment of Malignant Growths.

DR. PAUL F. EVE, Nashville, selected this as the title of the president's address. He mentioned two varieties, one of the epithelial type of cells known as carcinoma; the other of the endothelial variety, or connective tissue cells, known as sarcoma. Both of these in many respects present clinical features very much alike. He referred to the theory that cancer is due to parasitic origin, but said he is very much more favorably impressed by the other theory which bases the origin of cancers on cell proliferation. Assuming that this disease is due to cell proliferation, if one can in any way check or change these cells, he has the promise of an ultimate success and recovery.

About two years ago he operated on a woman for scirrhous mamma, with involvement of the neighboring glands. A very complete operation was made, and every vestige of the disease removed, so far as could be discovered. Her recovery seemed complete in every respect, and he flattered himself that there would be no recurrence. Four months after the operation the woman returned with a reappearance of the disease in the scar tissue. A second operation was performed, which consisted of curetting the diseased structures. The patient was subjected to treatment with the *x*-ray for four weeks. At first improvement was noticed, but at the end of the third week the wound looked very unhealthy, and at the end of another week the patient returned to him, appealing for some means to save her life. The appearance of the ulcer was foul and fungous, and every indication pointed to general infection and a speedy death. He began to treat this wound with balsam of Peru, after first irrigating with bichlorid of mercury, 1-3,000. After the first few days the unpleasant odor ceased, and he was surprised to notice a decided change and granulations of a healing nature springing up in the wound. This treatment continued for five weeks, with an occasional touching up of the granulations with the solid stick of nitrate of silver. At the end of this time the wound was entirely healed, and the patient looked the picture of health. He had the pleasure of seeing this patient a short time ago. There was not the slightest evidence of any recurrence, and the woman was in excellent health.

Since this case he has had quite a number of other cases which have been treated in a similar manner. Improvement has been marked in every instance, and the ulcerations from the foul and fungous condition have assumed healthy granulations, healing occurring slowly but effectually. He cited two more cases.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held March 22, 1905.

The President, DR. JAMES M. ANDERS, in the Chair.

SYMPOSIUM ON PNEUMONIA.

The Health of the City.

DR. THOMAS DARLINGTON, commissioner of health of New York City, spoke of the pneumonia commission, saying that it would conduct its investigation along two main lines—clinical and bacteriological—and that information is especially desired on the following points: 1. The occurrence and virulence of the pneumococcus and organisms related to or resembling it, in the human mouth in health and disease. 2. The evidence and the extent of variations in virulence of the pneumococcus under different conditions. 3. The occurrence of the pneumococcus in children's hospitals, homes and asylums, and the bacteriology of the mouth before and after outbreaks of pneumonia. 4. The vitality of the pneumococcus under various conditions. 5. The value of mouth disinfection. 6. The bacteriology of the air of public places, conveyances and buildings, and private dwellings, especially in reference to its dust content. The public buildings to embrace stores, factories, large office buildings, public schools, theaters, hospitals, tenements and private houses. 7. The clinical evidence of the communicability of pneumonia as shown by the collection of cases in private houses and public institutions. 8. The seasonal relations of pneumonia. 9. The collection of statistics of pneumonia of the different varieties occurring in hospitals, special attention being paid to terminal pneumonia. 10. The collection of evidence as to the proportion of cases in which pneumonia can be regarded as an autoinfection, and the proportion of cases in which there is evidence of the communicability of the infectious agent. 11. The study of sporadic cases of pneumonia, special attention being given to relationships of the individual to crowds or to exposure to other cases of pneumonia, and the determination of the presence of the pneumococcus in the mouth in those cases and cases associated with them. 12. The evidence for the belief that pneumonia is infrequent in Arctic regions. 13. A statistical study of pneumonia, covering its prevalence in different latitudes and in different countries and cities, its yearly and seasonal variations and its types and mortality.

Symptomatology and Diagnosis of Atypical Forms of Pneumonia.

DR. J. C. WILSON pointed out that the application of the term pneumonia to two conditions clinically and pathologically essentially different, namely, bronchopneumonia and croupous pneumonia, has been the cause of misleading therapeutic conclusions, and has rendered many of the statistical data relating to the prevalence and death rate of croupous pneumonia absolutely worthless. Acute pneumonic phthisis, syphilitic pneumonia, inhalation or deglutition pneumonia, postoperative and anesthesia pneumonias, hyperstatic pneumonias and influenzal pneumonias, as well as the pneumonias of measles and pertussis, are not to be regarded as atypical forms of pneumonia, but are properly to be classed with bronchopneumonias. When the above cases are referred to their proper nosological position, there remains to be considered the great group of cases of croupous pneumonia. Dr. Wilson regards it as difficult to draw a sharp line between the typical and the atypical cases. It is generally agreed that the cases occurring in infancy, in old age and in drunkards are atypical, yet physicians have many times seen typical cases under these conditions. Nevertheless, the following forms are generally regarded as differing sufficiently widely from the type to deserve separate and special consideration: 1. Pneumonia in infants. 2. Pneumonia in the aged. 3. Pneumonia in the alcoholic—pneumonia potatorum. 4. Toxic, so-called typhoid pneumonia. 5. Epidemic pneumonia. 6. Larval pneumonia.

From the standpoint of the pulmonary lesion the following atypical forms are to be considered: 1. Upper lobe pneumonia, so-called apex pneumonia. 2. Pneumonia migrans. 3.

Central pneumonia. 4. Terminal pneumonia. 5. Pneumonia in pulmonary emphysema. 6. Hemorrhagic pneumonia.

The diagnosis of typical cases of croupous pneumonia is unattended with difficulty, errors arising much more frequently from carelessness than from ignorance. Too much importance, he believes, can not be attached to a systematic routine examination of the chest in all cases of acute disease beginning abruptly with chill followed by fever, or presenting pulmonary symptoms. The diagnosis becomes difficult in proportion as the departure from type becomes more marked. In the extreme forms of atypical pneumonia—the terminal pneumonias—the clinical diagnosis is very often impracticable. Herpes, which occurs in more than half the cases, is of diagnostic importance. The detection of the pneumococcus reinforces the clinical diagnosis. It can only rarely be utilized in diagnosis, except to this extent. Leucocytosis is an almost constant phenomenon. Its diagnostic importance is diminished by the fact that it also occurs in most of the conditions in which the question of differential diagnosis arises. Leucopenia is of most unfavorable prognostic significance.

Medical Treatment of Pneumonia.

DR. H. A. HARE agreed with Dr. Wilson that the statistics as to the mortality and as to the results of treatment in pneumonia are practically valueless, because different types of this disease are considered under the one heading of pneumonia, when in reality only the most careful differentiation of different types can give reliable statistics. Again, he says, much depends on the age of the patient and the time at which treatment is instituted. He advocated the use of moderate doses of digitalis and belladonna for a failing circulation and advised a more moderate employment of strychnin and the rare employment of nitroglycerin, except when definitely indicated. The subject of venesection, hypodermoclysis and intravenous injection was also considered.

Etiology and Pathology of Pneumonia.

DR. WARFIELD T. LONGCOPE said that in spite of the extensive investigations on the pathogenesis of lobar pneumonia, bacteriologists and pathologists have added little which aids in the diagnosis, treatment or prevention of the disease. Until recently observers have not been able to produce lobar pneumonia experimentally in animals, but within the last year, Wadsworth has succeeded in producing the typical disease in rabbits by intratracheal injections of virulent pneumococci into animals which had previously been partially immunized. It is now generally conceded that in the vast majority of pneumonia, if not all, that pneumococci gain entrance into the circulating blood and set up a general infection. Tizzoni and Pacuchi have recently shown that pneumococci may circulate in the blood of immunized rabbits for weeks or months without perceptible harm to the animals. Resolution has been shown by Flexner to occur through autolysis of the exudate. Antipneumococcic serum, according to Rimpau and Neufeld, contains a substance which prepares pneumococci for phagocytosis.

Surgical Complications of Pneumonia.

DR. JOHN H. GIBBON said that of the surgical complications of pneumonia, empyema is the most common, and that the success of the surgical treatment depends largely on early recognition. Confirmation of diagnosis is made by the exploring needle, which procedure should be carried out with as much care as any surgical opening of a clean healthy cavity. When pus is present, the procedure must be followed by thorough drainage. Dr. Gibbon uses chlorid of ethyl as an anesthetic, either alone, or as a precursor of ether. In practically every instance beyond the age of twenty, he would do a subperiosteal resection of the rib rather than simple drainage. Masses of lymph are removed by the fingers. There should be two drainage tubes as large as the finger, and they should be stitched in. The whole keynote of the treatment of empyema is the early and thorough evacuation of the pus, with the opening made as low down in the pleural cavity as possible. Another condition which is very common is lung abscess, due to foreign bodies lodged in the bronchi, to tuberculosis, or to pneumonia. Of the three varieties, that due to pneumonia gives the best results from surgical treatment. The diagnosis is attended with more difficulty than that of empyema. Drainage should be carried out exactly as in empyema. In the presence of adhesions between the lung and the chest wall either of two courses may be followed: The protection of the healthy pleural cavity by gauze packs and immediate drainage of the abscess; or the stitching of the lung to the parietal pleura, allowing the formation of adhesions before drainage.

DISCUSSION.

DR. JOHN H. MUSSER called attention, first, to the cases simulating abdominal conditions. In deciding whether the condition is one of inflammation in the upper abdomen or an infection above the diaphragm, attention to a few of the classical phenomena attendant on each condition aid in diagnosis. Of the greater importance are the phenomena attendant on supra-diaphragmatic cases. Here the rusty expectoration or the expiratory grunt are the most valuable signs of pneumococcic infection of the lung; or, the pulse and respiration ratio. Examination of the blood does not aid, because in both conditions there is leucocytosis. In differentiating between pneumonia and meningitis, the presence or absence of the phenomena which attend meningitis is more helpful than pneumonic symptoms. The slow pulse and the rather slow respiration are indicative of meningeal trouble. In other instances violent hemorrhage at the onset of the disease suggests tuberculosis. The course of the disease offers more help than do the specific symptoms or laboratory signs. In still other instances delirium is so marked in the period of convalescence as to make the case atypical. This delirium, both in hospital and private patients, comes on immediately after the crisis and rages violently for from three to five days or two weeks, unattended by fever or undue change in pulse rate. The patients recover without any unusual cerebral complications. In no instances has he seen empyema follow as a complication. In one case there was abscess of the lung. It should be remembered that empyema does not always loculate at the base, the infection often being between the lobes. Dr. Musser thinks it a mistake to regard pneumococcic infection as a self-limiting disease. No one can tell how quickly the simplest case may become gravely toxic.

DR. JOHN B. ROBERTS said that the surgeon comes in contact with traumatic pneumonia, ether pneumonia, pneumonia due to cold from insufficient clothing (no-undershirt pneumonia) in patients in hospitals, croupous pneumonia, influenza pneumonia and septic pneumonia. It is often difficult to determine whether a given case is one of true croupous pneumonia or influenza pneumonia. He stated that in the incipient stage of inflammation of the lungs, prompt and efficient dry cupping should be used. He puts on half a dozen large tumblers, using small pieces of paper dipped in alcohol, to make the vacuum in the glasses. These are left on for half an hour or more, and are followed usually by turpentine stupes. In sthenic cases of pneumonia, and particularly in pneumonia following gunshot or stab wounds of the lung, or injury of the lung from fractured ribs, venesection is often of great value. He is confident that he has prevented congestion of the lung from becoming a pneumonia by efficient dry cupping; and that he has also prevented disastrous results from acute pneumonia following injuries of the lung by phlebotomy. In cases with a great deal of mucus in the bronchial tubes, he has seen life apparently saved by inverting the patient in order that gravity might act as a mechanical expectorant. The serous effusion in the pleura, which occurs as a complication of pneumonia, should be treated by prompt tapping. This may be done as well by the ordinary hydrocele trocar properly sterilized as with the complicated apparatus known as an aspirator. In empyema it is necessary promptly to evacuate the pus and lymph masses. This is easily done by putting the patient in the semi-recumbent posture, freezing the skin with ice and salt, and making a 2½-inch incision with a straight bistoury. It is never necessary to resect the rib in order to get room for evacuation and drainage; and it is better not to take the time for resection

of the rib, when the patient is in a serious condition for which operation is done. If it is found, after a lapse of some weeks, that the lung does not expand and the chest wall does not sink in to close the cavity, resection may be done with much greater safety to the patient than at the time of the original incision. Many cases will never need the rib resected; and even in young children, not over a year old, it is easy to get a finger between the ribs and to insert a drainage tube. The incision should be made with a quick thrust of the knife, just as one would open an abscess elsewhere. The wound should then be expanded with two fingers to allow the pus to flow and the masses of lymph to escape. The latter may need to be hooked out with the finger tip. Two rubber drainage tubes placed side by side should be inserted and stitched to the skin to keep them from falling out of the wound; and each should have a safety pin in the outer end to avoid their being sucked into the chest, if the suture threads should cut through the skin unobserved by the physician. Abscess of the lung should be treated in a similar way by free incision and boring between the ribs with the finger to evacuate the pus. No resection of the rib is needed here. Irrigation is not needed in cases of empyema, unless the temperature should subsequently show that the cavity has become septic from putrefactive germs. Then it should be washed out once or twice a day with a weak antiseptic solution, or with sterile salt solution. The temperature curve indicates when the intervals between the irrigations may be lengthened.

Dr. James Tyson said that there is no single treatment which may be said to be curative, although there are measures which co-operate with whatever tendency nature has in the way of self-immunization or in the way of elimination. He does not believe, however, that treatment is without effect and to be ignored. He emphasized the early and prompt use of dry cups, after the manner described by Dr. Roberts, and repeated for a number of days. Certain cases are favorably influenced by the application of the ice bag to the inflamed lung. Where this method has seemed to be lacking in efficiency, he thinks it is due to the imperfect method of application. The best application of cold is by cloths rung out of ice-cold water and kept in place until they become warm. The ice-cloths induce deep inspiration, which is an added advantage. They also reduce temperature. When the temperature drops to a hundred, he has the ice-cloths removed to be reapplied, if the temperature goes above this point. He has found good results to follow the use of creosol, in ten-minim does, every four hours. This drug is less irritating than creosote and less dangerous of application. He believes the diagnosis of abscess of the lungs to be more difficult than Dr. Gibbon finds it. Dr. Tyson believes that cases of pneumonia associated with delirium are less apt to be fatal in their termination, although one would naturally think that delirium is an index of the severity of the toxin.

Dr. Judson Daland mentioned dilatation of the right ventricle as an important complication of croupous pneumonia. The use of venesection he finds of special importance. In no condition of the blood with which he is familiar is coagulability of the blood greater than in some of these cases of croupous pneumonia. In this class of cases the use of alkaline water in large amounts, to reduce the acidity of the urine, is important. Certain cardiac stimulants are also valuable.

Dr. Frank Woodrury thinks that possibly the upper air tract may occasionally be a source of entrance for the pneumococcus, though occasionally entrance is through the bronchial mucous membrane. He suggested the possibility that abnormal conditions of the nasal mucosa may afford entrance for the pneumococcus and that the entrance into the blood from the upper air passages may give some of the atypical forms referred to by Dr. Wilson.

Dr. James M. Anders said that attention should be directed to the limitation of the area of consolidation, to the assistance of nature in the elimination of toxins, and to the meeting of indications as they arise. He agreed with Dr. Musser that water is given too sparingly in pneumonia, and not sufficiently systematically. He emphasized especially the support and maintenance of the heart circulation. An important question is the decision of just when to aid the heart and with what agents; whether to wait until the pulse tension begins to fall off and the first sound of the heart becomes weak, or to give this aid before that period arrives. In Dr. Anders' experience, after an attack of heart failure in pneumonia, toxemia increases and death almost invariably is the result. On the other hand, when he has given cardiac tonics and stimulants sufficiently early, failing circulation has been warded off. Strychnia is the best agent for this purpose. Nitroglycerin is another valuable remedy. He believes that the pneumococcus often makes its entrance through the upper air passages.

Dr. Githens referred to his experimental work in the injection of adrenalin chlorid into animals. The chlorid causes punctate hemorrhages throughout the lungs, and, if the dose is too large, death is caused promptly by pulmonary edema. A similar effect in man may account for some of the bad results found in pneumonia.

Dr. Darlington emphasized the value of the drinking of water in pneumonia. He had lobar pneumonia himself ten years ago, with six others, all of whom died. The other men had been accustomed to a different kind of drink, and it was impossible to get water into them. Dr. Darlington had taken water in great quantities in the course of the disease, and considered himself a monument to the value of the drinking of water in pneumonia. He gives quinin in large doses, and the result of the remedy, in his opinion, depends on the particular epidemic. Last year pneumonia was very fatal; this year the mortality was less. In reference to heart stimulants, Dr. Darlington observed that if the heart commences to fail, it will go on to failure, irrespective of the giving of a stimulant.

OMAHA (DOUGLAS COUNTY) MEDICAL SOCIETY.

Regular Meeting, held March 28, 1905.

Carlsbad.

Dr. A. F. Jonas spoke of his personal experience as a patient, suffering from biliary calculi, requiring two operations. At the first operation the gall bladder was found to be practically filled by a stone. Recovery was prompt and he was at work again in about a month. In June, 1904, he again suffered from very severe pain, icterus and the most intolerable itching. He was operated on again and a small movable stone was found in the common duct. Recovery was very slow and tedious. The discharge of bile was ropy, touch and tenacious. The severity of the symptoms varied with the tenaciousness of the bile discharge. Pain recurred about two months after the second operation.

He therefore decided to go to Carlsbad. On the ocean trip he suffered no pain. On landing, the pain, jaundice and itching returned. The stools remained clay-colored. After a week's treatment at Carlsbad there appeared a terrific new pain. A grain and a half of morphin within a half-hour was ineffective. Ironing the abdomen with a rubber bottle filled with boiling water checked the pain. From this time he had suffered no further pain.

He was very greatly impressed with the method adopted by his physician. Directions for treatment had been written out very carefully and minutely. Beer and wine were absolutely prohibited. The hours when he was to drink the waters, the spring from which he was to drink and the quantity permitted were named. Hours were assigned for rest, for walking and for sleep. Minute directions were given as to the food permitted and forbidden. The Carlsbad waters have a very decided effect on the flow of bile. The stools became mahogany-brown after two or three days' use of the water, and remained so, with slight variation. He had been ordered to use the water from the cooler springs at first and had been told just when to change to the water of higher temperature. At the close of his stay of five weeks he was using a water of 163 degrees.

A stone in the bile passages is not the sole cause of pain and biliary colic. The irritability caused by the abnormal character of the secretions is sometimes a source of further pain, even after removal of a stone. Drainage does not always cure the infection. No greater mistake can be made by physicians than to send their patients to Carlsbad or any other springs with the general instructions to go there and drink the waters. Every patient should be placed under the care of a competent local physician. The best of the profession at Carlsbad find it necessary to have many of their patients subjected to operation for gallstones, and they agree that the waters have no value in the direction of dissolving any form of gallstone.

The season is from May to November. Carlsbad is one of the great resorts for pleasure as well as cure during the season, and about 110,000 guests go there each summer. The springs were all owned by the municipality. All guests who remain eight days are required to register and are called cure-guests. They have to pay a cure tax varying from 4 crowns to 20 crowns (of 20 cents each) for the season. Each one also pays a music tax of a smaller sum. These taxes maintain the beautiful permanent establishments, the band and the various parks. In former days the deposits from the waters of the springs would close the aperture and force the spring to seek another outlet. They have now learned to use an auger and bore out the spring once or twice a year, thus keeping it in a permanent locality. May 1 of each year the springs are all formally consecrated by church authority. A splendid band of sixty pieces furnishes music during the day. The physicians of Carlsbad are of all ranks and grades and are all private, employed there as in any other city. Hotel rates are not extortionate.

CHICAGO NEUROLOGICAL AND CHICAGO MEDICAL SOCIETIES.

Joint Meeting, held March 29, 1905.

DR. HAROLD N. MOYER, president of the Chicago Neurological Society, in the Chair.

Symptoms and Treatment of Exophthalmic Goiter.

L. F. BARKER said that while the nature of the affection is not yet wholly clear, great strides have been made toward an understanding of it. The theory that a disturbance of the thyroid gland is responsible for the symptoms of the disease is now the dominant one, and there are some points difficult to reconcile with any of the theories yet propounded. As regards the etiology, it is known that the disease occurs nearly five times as frequently in the female as in the male; that it is commonest in early life, and especially in the third decade; that it has a tendency to appear in the so-called neuropathic families; that many cases of the disease may occur in one family; that it often develops after emotional shock or prolonged emotional disturbance; that occasionally it appears as a sequel of some infectious process; and, finally, that climatic and terrestrial conditions play no important rôle in its causation, though it would appear that it is rather more common in districts where ordinary goiter is prevalent.

As the cardinal symptoms of the disease are usually described, we have the tetrad—tachycardia, goiter, exophthalmos, and tremor. In well-marked cases all these symptoms may be present, but in undoubted instances of the disease, one, two, or even three of them may be absent. Aside from the thyroid gland, it is the circulatory system, the nervous system, the eyes and the skin, the functions of which are especially disordered, though there are also evidences of disturbed activity in still other parts of the body. These circulatory disturbances were pointed out and discussed at considerable length. Perhaps the most important nervous symptom is the tremor. It has been carefully studied by Marie and is now regarded as a very constant phenomenon, though it undergoes marked variation in degree and continuousness. The eye symptoms of the disease are among the most characteristic. On the part of the skin, increased sweating is the most important symptom. Diarrhea is not infrequently a troublesome symptom. Four principal theories of the disease have been advanced: 1, That it is due to disease of the sympathetic nervous system; 2, that the seat of the malady is in the medulla oblongata; 3, that it is primarily a disease of the thyroid gland, and 4, that it is a neurosis.

Modern therapeutic measures have been largely based on the thyroid theory. The results of partial strumectomy indicate that the successful removal of a portion of the thyroid gland can lead to pure or to definite amelioration of the condition. On the theory that the thyroid secretion normally neutralizes certain general metabolic poisons in the body, Moebius and others conceived of treating cases of exophthalmic goiter in which there is presumably an excess of thyroid secretion in the body, by introducing subcutaneously or by the mouth the serum of thyroidectomized animals. It was hoped that the non-neutralized general metabolic poisons of such animals would nullify the toxic effect of the excessive thyroid secretion. As to treatment, experience has shown the great importance of general measures; complete rest for a time, fresh air, careful diet, mild balneotherapy, etc. The speaker personally favors rest, isolation and systematic psychotherapy as a routine treatment. In cases which do not respond to this or to antithyroid therapy, operation may be considered, but if it is to be done, it should be undertaken before marked cachexia develops, and before the heart is too seriously diseased.

The Larvated Forms of Exophthalmic Goiter.

DR. L. HARRISON METTLER said that a typical case must reveal tachycardia, struma, and exophthalmos. When combined or single, these symptoms will answer for the making of the diagnosis, if they are sufficiently pronounced, for their characteristics are such that they are not likely to be mistaken for similar phenomena in other diseases. The same may be said of tremor, but with less positiveness. There is a large class of cases in which tachycardia, with general nervousness, tremor, and possibly slight evanescent struma or exophthalmos occur. The heart irregularity comes on suddenly after a severe strain or sudden shock, mostly in a woman with hysterical tendencies, or with a neuropathic ancestry. It exhibits the typical traits of the Basedow tachycardia, such as the persistent elevation of the pulse beat, the peculiar thrill. With it is a general nervousness and possibly a number of symptoms, such as a mild psychosis, hyperidrosis, vertigo, aboulia, weakness, and even some general emaciation. These cases are not infrequently mistaken for simple neurasthenia, tuberculosis, and other affections. They are undoubtedly instances of the disease, but are masked and ill-defined. If they get well, with or without treatment, they remain as examples of the larvated forms; if they go on and in months or years ultimately develop all of the cardinal signs, they enter the class of typical but delayed cases. Their etiology is obscure; their symptomatology includes any of the more or less indefinite manifestations commonly recognized in neurasthenic and hysterical states, plus one of the cardinal symptoms of the disease, which cardinal symptom is usually the characteristic tachycardia. Their prognosis is uncertain, though generally it is good. Their course is brief and intermittent, and their treatment is simple and highly satisfactory. Caution is necessary in regard to hastily attributing the recovery of these cases to any specific mode of treatment, for as they so often recover with no other treatment but physical rest and mental quietude, any hasty conclusion as to the efficacy of this or that medicament may be the result of a mere *post hoc* reasoning.

Ocular Symptoms of Exophthalmic Goiter.

DR. HENRY GRADLE stated that in well-marked cases the patient had a wild, staring look, amounting to even an expression of terror. This is caused by protrusion of the eyeballs, together with retraction of the upper eyelid, whereby some of the sclera is exposed to view above the cornea. The widening of the lid aperture is peculiar to this disease. The exophthalmos varies in degree. These variations were pointed out. One-sided exophthalmos is not very rare. The diagnosis is occasionally certain, even without exophthalmos, or the latter may develop after the other cardinal symptoms have existed for a while. Conversely, protrusion of the eyes or even of one

eye only, when accompanied by the characteristic retraction of the upper lid, justifies the diagnosis of incipient or incomplete exophthalmic goiter, even though goiter and heart symptoms be absent. The retraction of the upper lid exposing the sclera to an abnormal extent is, perhaps, more characteristic of the disease than mere protrusion of the eye. Pigmentation of the skin, resembling the bronze color of Addison's disease, has been noted on various areas of the body and also around the eyes. Jellinek referred to the diffuse brown coloring of the skin of the eyelid, the upper more than the lower, as an early, though not constant and sometimes evanescent, symptom in exophthalmic goiter. Moebius has observed insufficiency of the converging power of the eyes as a fairly frequent occurrence. Pulsation of the arteries of the retina has been described by Becker as common. The protrusion of the eyeball is partly due to increased vascularity of the organ; it always diminishes after death. In some autopsies, the eyeballs, prominent in life, were even found receded to normal position, and no anomalies were observed in the orbit. In other postmortem records, the exophthalmos was explained by the increased amount of fat found within the orbit. The ocular muscles were infiltrated with fat and the optic nerves were elongated. When recovery occurs, either spontaneously or under treatment, the eye symptoms can disappear completely. There is a single case on record of the occurrence of conical cornea. The causative relation of the latter to the stretching and deformity of the cornea was suggested by Dor by the unusual improvement of the kerato-conus in both eyes, only one of which had been operated on, when the patient recovered from the goiter under the administration of thymus. Gradle recently saw a similar coincidence of these two obscure conditions—exophthalmic goiter and conical cornea.

The Serum Treatment of Exophthalmic Goiter.

Dr. Harold N. Moyer said that if the disease is the result of a too abundant or an excessively toxic secretion of the thyroid gland, the only rational form of therapy consists either in checking the secretion or else in neutralizing the toxic products thrown into the blood stream. The first of these alternatives was beyond our control, but as the thyroid secretion is normally neutralized by certain anti-bodies present in the blood, the serum or blood of animals from which the thyroid gland had been removed, and in which these anti-bodies had been allowed to accumulate for some time, should prove capable of neutralizing the excessive or perverted secretions causing the disease. The first experiments along these lines were undertaken independently of each other by Ballet and Enriquez, in Paris, and Lanz, in Amsterdam. The former used serum, the latter the milk of thyroidectomized animals. The results obtained by either method were very encouraging. Further experiments were conducted by Burghardt, Schultes, Goebel, Moebius, and others. The same properties which were found in the blood and serum proved to be present also, although in not as great a concentration, in the milk of these animals. The latter was preferred by some experimenters, because it proved less expensive than the pure sera.

Thyroidectin is derived from the blood of thyroidectomized animals. In the preparation of the capsules not only the serum but the entire blood has been utilized. It forms a reddish-brown powder, readily soluble, non-toxic, unirritating to and rapidly absorbed from the stomach. It is put up in five-grain capsules, of which one or two are administered three times a day, according to the needs of the individual case.

Personal Experience with the Serum Treatment of Exophthalmic Goiter.

Dr. Sydney Kuh reported 11 cases of exophthalmic goiter treated with the serum of a thyroidectomized animal. He believes that he is justified in saying that it is an excellent palliative. Among the 11 cases there was one in which the effect of the treatment was temporary only, and another one in which there was no effect at all. One thing was very striking, and that was the marked and rapid improvement in the subjective condition of most of the patients. Within a few days after taking the first dose of the serum they would report a change for the better. The remedy influences the pulse as much as anything that is employed in the treatment of tachycardia in exophthalmic goiter. It increases the appetite and decreases nervousness. It has a pronounced tendency to increase the weight. Theoretically, it seems hardly probable that the results from the serum should be permanent. One may expect that after some time a smaller dose may suffice, and that an intermittent treatment only may be required. In the first case reported, the patient has been without serum for quite a long period—two and a half years—and has remained in excellent health all that time, but the author thinks it is doubtful whether she will remain in that condition unless she occasionally takes a few doses of the serum.

Cases of Exophthalmic Goiter.

Dr. Charles L. Mix reported two severe cases of exophthalmic goiter treated by the serum. In one, the patient's pulse ranged from 120 to 140. Since taking the serum she has gained forty pounds in weight, and her pulse ranges in the nineties at present. She is able to work for her living. In addition to the improvement in tachycardia, the gain in weight and in strength, the doing away of myasthenia, there is a very pronounced effect in the condition of the thyroid gland, the neck has diminished materially in size, and the heart also has decreased in size materially.

The second case was a much more pronounced one. The patient had been seen by four eminent Chicago physicians, who gave her no hope. Her heart was giving way; edema was rapidly appearing; there was marked ascites; girth of the navel was 37 inches; pulse ranged between 140 and 150; neck measured 14½ inches in circumference. She was 20 pounds under weight, but after the disappearance of the ascites she gained twenty pounds. The patient took serum in doses of 2 c.c., three times a day, which was afterwards reduced to 1 c.c., three times a day, and then the serum was abandoned altogether, and dry serum given. The serum from a thyroidectomized horse was then injected, and patient grew worse. She took goat serum, and after taking it during the winter she gained twenty pounds in weight; pulse at present is about 111.

He believes there is a neutralization point in these cases. He noticed that if he gave too large doses hypodermically, the patient would have marked symptoms of cardiac failure, resembling those of angina pectoris, associated with pain in the arm. The danger of collapse was so great on one occasion that stimulants had to be given. After the dose had been decreased the patient got along better. On the other hand, he thinks that one can give too little of the serum. In the case with ascites he reduced the dose to ten grains a day, but this was too little, as the patient began to get worse again. She was able to take fifteen grains daily, without any particular difficulty, and he presumes in the course of time it will be possible to reduce that still further. It seems to him that the serum treatment affords very great possibilities.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Acute Prostatitis.

The causes of acute prostatitis, according to the *Cyclopedia of Med. and Surgery*, are exposure to cold and wet, traumatism to perineum, injury from instruments, calculus, foreign bodies and, most frequent of all etiologic factors, specific urethritis.

The symptoms most frequently complained of are a sensation of heat and weight to the perineum and in the rectum, frequent micturition associated with temperature of from 100 to 103 F.

The treatment consists in absolute rest, and that position which favors emptying the part of blood as much as possible,

which consists of rest in bed with the hips elevated. The local application of leeches to the perineum is of service in reducing the local congested condition of the blood vessels. Hot sitz baths or hot fomentations applied locally will assist in relieving this congestion by withdrawing the blood from the deeper parts. If there is marked vesical irritation the following combination is recommended:

℞. Acidi boracici
Sodii bromidi, āā.....ℨiiss 10
Tinct. belladonnæ .....ℨss 2
Liq. potassii citratis, q. s. ad.....ℨviii 240

M. Sig.: One teaspoonful every three hours.

If the temperature is high the following combination is advised:

℞. Acidi boracici
Potassii bromidi, āā.....ℨi 4
Pot. citratis .....ℨii 8
Tinct. aconiti .....m. xxiv 1 65
Tinct. belladonnæ .....ℨss 2
Spts. etheris nitrosi.....ℨss 15
Aquæ q. s. ad.....ℨvi 180

M. Sig.: One tablespoonful every three hours.

Morphin may be resorted to if the foregoing does not afford relief after a reasonable length of time, given in the form of a suppository, and may be combined as follows:

℞. Ext. hyoscyami .....gr. i 06
Morph. sulph.....gr. ¼ 015

M. Ft. suppos. No. i. Sig.: One such suppository once or twice daily. Or:

℞. Ext. belladonnæ .....gr. iii 09
Ext. opii aqueous.....gr. vi 40
Ol. theobromæ q. s.

M. Ft. suppos. No. xii. Sig.: One to be introduced into the rectum two or three times daily.

Straining at stool or during micturition should be avoided in order to avoid local congestion, and if the patient is unable to pass the urine naturally, it must be withdrawn by means of a catheter. The elimination by the bowels must be carefully regulated, and the diet must consist principally of milk. All stimulants should be avoided unless other conditions demand them.

Asthma.

Brodie and Dixon, in the *International Med. Annual*, have shown that asthma is due to spasm of the muscular walls of the finer bronchioles through the fibers of the vagus. Irritation of the nerve endings was found to be annulled by atropin. Lobelia produced transitory dilatation of the spasm and if the spasm was produced by nasal irritation cocain would check it. The constant current through the neck is supposed to act by preventing the conductibility through the vagus from the nerve endings, therefore relieving the spasm.

Good results have been reported from the use of atropin hypodermically, and Bass of Philadelphia reports cures by injections of five drops (.30) of a 2½ per cent. solution of silver nitrate into the neck over the vagus nerve. As to the cauterization of the septum which has been highly praised by some authorities, the general opinion prevails that if the asthmatic attack is relieved by the application of cocain to the nasal mucous membrane, then the patient can be informed that the cauterization can be done with beneficial results, but without general treatment relapses will occur, and this form of treatment can not be advised as a panacea in every case of asthma.

One of the most efficient remedies for the immediate relief of an asthmatic attack is the hypodermic administration of morphin valerianate in quarter-grain doses (.015). This form of morphin is recommended as preferable to the sulphate, because it is said to be a much more active spasmodic. Ammonium valerianate is also recommended, or the aromatic spirits of ammonia. Arsenic, belladonna, eucalyptus and lobelia are other remedies mentioned by him. He advises a plain, simple, easily digested but nutritious diet, avoiding all highly seasoned dishes and rich desserts. Alcoholic stimulants should be used very sparingly; the patient should dress warmly and have plenty of gentle exercise and plenty of sleep, with residence in a dry, warm, equable climate.

The following combination containing the three bromids is frequently sufficient to stop the attack:

℞. Sodii bromidi
Potassii bromidi
Ammon. bromidi, āā.....gr. v 30
Aquæ feniculi .....ℨii 8

M. Sig.: To be taken at one dose and repeated every half-hour until relief is obtained.

In the treatment of asthma Shoemaker recommends the following combination containing lobelia:

℞. Tinct. lobeliæ .....ℨi 30
Tinct. hyoscyami .....ℨss 15
Aquæ camphoræ
Spts. etheris nitrosi, āā.....ℨi 30
Syr. pruni vig.....ℨss 15

M. Sig.: One teaspoonful in water every half-hour or hour until relieved. Or:

℞. Aceti lobeliæ .....ℨss 2
Sodii bromidi .....ℨv 20
Syr. ipecacuanhæ.....ℨiv 15
Glycerini .....ℨiv 120

M. Sig.: Two teaspoonfuls every one or two hours. Or:

℞. Acetanilidi .....ℨi 4
Tinct. lobeliæ .....ℨii 8
Syr. eriodictyi arom. q. s. ad.....ℨiii 90

M. Sig.: Take one teaspoonful every fifteen minutes during the attack of asthma until relieved.

The extract of quebracho is sometimes recommended, combined as follows:

℞. Ext. quebracho .....ℨi 4
Morph. hydrochlor.....gr. ss 03
Syr. simplicis .....ℨv 20
Aquæ mellissæ q. s. ad.....ℨiv 120

M. Sig.: One tablespoonful every two or three hours.

Or the following, containing potassium iodid, may be of value:

℞. Potass. iodidi .....ℨii 8
Liq. potassii arsenitis.....ℨi 4
Vini ipecacuanhæ .....ℨiv 15
Tinct. hyoscyami .....ℨiv 15
Aquæ chloroformi q. s. ad.....ℨviii 240

M. Sig.: One tablespoonful three times a day, in water, after meals. Or:

℞. Chloralis hydratis
Potassii iodidi, āā.....gr. xxiv 2 65
Syr. simplicis .....ℨss 15
Aquæ .....ℨiv 120

M. Sig.: Two tablespoonfuls every three hours in water. Bartholow recommends the following containing lobelia:

℞. Tinct. lobeliæ .....ℨi 30
Ammon. iodidi.....ℨii 8
Ammon. bromidi .....ℨiii 12
Syr. tolutani .....ℨii 60

M. Sig.: One teaspoonful every one, two, three or four hours, as indicated. Or:

℞. Fld. ext. grindeliæ robusta.....ℨii 8
Ext. lobeliæ fluidi.....ℨi 4
Ext. belladonnæ fld.....ℨss 2
Potass. iodidi .....ℨiss 6
Glycerini .....ℨiss 45

M. Sig.: One teaspoonful in water and repeat in four hours.

Herpes Zoster (Shingles).

The local treatment indicated in herpes zoster, according to J. Nevins Hyde, consists in the protection of vesicles from rupture and the relief from pain. This may be accomplished by applying the following dusting powder locally:

℞. Morphinæ sulph.....gr. ii 12
Pulv. zinci oxidi.....ℨss 15
Pulv. camphoræ .....ℨiss 6
Pulv. amyli .....ℨi 30

M. Sig.: Apply locally.

Or a combination of lycopodium with pulverized opium is of value. Rupture of the vesicles, as is sometimes practiced, should not be permitted. Over the entire surface a soft piece

of lint, or of antiseptic cotton, with its meshes full of the powder, should be laid and held in place by a bandage. In the milder cases this treatment will suffice. In other cases, in which rupture has taken place and their bases have undergone erosion or ulceration, oleated lime water with zinc oxid, belladonna and opium should be applied.

The following lotions are valuable in such cases:

℞. Lotio plumbi et opii.....ʒiii 90|
Sig.: Apply locally. Or:

℞. Zinci carb. precip.
Pulv. zinci oxidi
Pulv. amyli
Glycerini, āā.....ʒss 15|
Aquæ .....ʒviii 240|
M. Ft. lotio. Sig.: To be applied locally.

The diachylon ointment should not be employed in the treatment of this condition, as may be said in general of other ointments. However, the author recommends the following to relieve the pain in some cases:

℞. Ext. opii aq.....gr. x-xx |65-1.30
Lanolini .....ʒi 30|
M. Ft. unguentum. Sig.: Apply locally. Or:

℞. Ext. belladonnæ .....gr. x-xx |65-1.20
Lanolini .....ʒi 30|
M. Ft. unguentum. Sig.: To be applied locally. Or:

℞. Cocainæ hydrochlor.....gr. xx 1|30
Menthol .....gr. x |65
Lanolini .....ʒi 30|
M. Ft. unguentum. Sig.: To be applied locally.

Pulmonary Emphysema.

The following combinations are recommended in cases of pulmonary emphysema:

℞. Potass. iodidi .....ʒi 4|
Tinct. hyoscyami .....ʒiii 12|
Elix. calisayæ q. s. ad.....ʒii 60|
M. Sig.: One teaspoonful every three hours in water or milk. Or:

℞. Potass. iodidi .....ʒss 2|
Tinct. belladonnæ .....ʒss 2|
Spts. etheris comp.....ʒss 15|
Aquæ q. s. ad.....ʒiii 90|
M. Sig.: One tablespoonful three times daily in water.

Medicolegal

Remedy Is Action Against Members of Board.—The Supreme Court of Rhode Island says, in the case of Maud A. E. Kenney vs. State Board of Dentistry, where a writ of mandamus was asked for to compel the issuance of a license to the petitioner to practice dentistry, that as to the allegation to the effect that the board was prejudiced against the petitioner, and had not given her a fair and impartial examination, it was sufficient to reply that this court could take no notice of such a charge in a proceeding of this sort. If she was rejected because of improper motives on the part of the board, her remedy was by an action for damages against the individual members thereof, alleging bad faith, and arbitrary disregard of their duties, or improper animus against the applicant, or other malversation in their discharge of duty, but not by mandamus. The court also says that whatever the purpose of the section of the statute requiring the board to keep the examination papers on file for two years might be, it was too clear for argument that such a provision had nothing whatsoever to do with regard to giving jurisdiction to this court to review the findings of the board. In short, jurisdiction in a case of this sort does not depend on the manner in which the board has discharged its duties in matters where it is called on to exercise judgment and discretion, but it depends on whether there has been an absolute refusal to perform either a ministerial or a judicial duty.

Law Against Owning or Managing Office Unconstitutional.—The Supreme Court of Washington holds, in the case of State vs. Brown, of considerable importance, in principle, to the medical profession, that the police power of the state does not authorize the enactment of a statute requiring examination by and license from a dental board before one may "own, run, or manage" a dental office. It says that it is solicitude for the physical well-being of the public, or that portion that may need dentistry work, which justifies that part of the statute providing for the examination and licensing of those who desire to "treat diseases or lesions of the human teeth or jaws, or to correct malpositions thereof." To perform such work with safety and with proper regard for health and comfort, the operator must possess technical knowledge and skill peculiar to the study and practice of dentistry. Can the same be said of one desiring to own, run, or manage a dental office? The court thinks not. To own and run property, it says, is a natural right, and one which may be restricted only for reasons of public policy, clearly discernible. To hold this portion of the statute valid would be to make possible conditions which were never designed to exist. To illustrate: Suppose a man thoroughly qualified and legally licensed as a dentist should die, leaving a perfectly and completely equipped dental office to his widow, who knew nothing of dentistry and was incapable of securing a license. By continuing to own this property any appreciable time she would become liable to prosecution under this part of the statute. Can the police or any other power be constitutionally invoked to produce such a result? The court is led to believe not. Carry the illustration a little further: The widow, not being able to sell the dental office to advantage, decides to hire competent and legally licensed dentists to treat patrons of the office, and undertakes the management herself—paying bills, collecting accounts, arranging credits, making appointments, and doing other acts necessary to the supervision and control of the business affairs of the concern. Then she becomes a criminal, if this portion of the statute have virtue, because she has managed a dental office. And yet it will scarcely be contended that any of these acts injuriously affect "the health, good order, morals, peace, or safety" of society, or menace "the lives, limbs, health, comfort, quiet, or property" of the patients treated in such office. Many similar illustrations will readily occur to the mind given to the contemplation of the natural results reasonably to be anticipated under the operation of such a statute. Should the owner or manager hire operators not legally qualified, or should they participate in the treatment or operations mentioned in the other portion of the statute, they would, of course, be amenable to and punishable under those provisions. But the court is unable to say or to perceive that the health, moral, or physical welfare of the public, or any of the personal or property rights of its individuals, are endangered by the ownership and management of a dental office, so long as those employed therein to do the actual dentistry work are qualified and licensed as by law required.

Burden of Proof and Presumed Continuance of Insanity.—The Supreme Court of Ohio says, in the case of State vs. Austin, that it must now be taken as the well-established rule of law in that state that in a criminal case when the insanity of the defendant is pleaded or relied on as a defense, such defense is affirmative in character, and the burden of maintaining or establishing the same by preponderance of the evidence rests with the defendant. The authorities would seem also to be in entire accord on the proposition that where a person is indicted and prosecuted for the commission of a crime, in order to make the insanity of the accused available and effective to him as a defense, such insanity must be shown to exist at the very time of the commission of the act complained of. The law requires that the insanity proved, in order that it may be defensive shall relate to the time of the commission of the alleged criminal act, and proof of the insanity of the defendant at a time prior thereto cannot of itself exempt him from punishment or acquit him of criminal responsibility. While it is entirely competent in a criminal case, where the sanity of the accused is put in issue, to show his mental condition both before and after the time of the commission of the alleged criminal act, yet from such evidence of his previous or subsequent mental condition no legal presumption arises that he was insane at the time he committed the criminal act, and

such evidence is proper for the consideration of the jury only in so far as it reflects or throws light on, or may aid the jury in determining, the question of whether in fact the insanity of the defendant existed at the time of the alleged criminal act. It appeared from the record in this case that the defendant, who was accused of having committed a homicide in August, 1903, had been adjudged insane and, in June, 1900, was committed to a state hospital for the insane, from which he was discharged September 1, 1900. He was afterwards readmitted to the same institution July 29, 1901, and discharged therefrom as restored on December 21, 1901. The nature of his disease or malady was, as testified by the physicians, that of "recurrent insanity or recurrent mania, with suicidal and homicidal tendencies." The court holds that the following instruction was properly refused: "Proof of prior insanity throws on the state the burden of proving the crime perpetrated during a lucid interval. It defeats the legal presumption of sanity and creates a legal presumption of continued lunacy." The court says that the particular vice of this instruction was that it stated the rule too broadly. It is doubtless true that insanity is often chronic and permanent; for instance, from senile dementia and congenital idiocy there can be, as a rule, no recovery; and, where insanity in such form is often proven to exist, its continuance may be inferred or presumed, such inference or presumption, however, being one of fact and not of law. There are, perhaps, but few other forms of insanity of which recovery may not be predicated, at least as a contingency, and as to these no presumption whatever is indulged or recognized that they are continuing in their nature. Therefore, the burden being on the defendant to show that he was insane at the time of the commission of the particular act charged, proof of mere temporary or recurrent insanity, such as was shown in this case, at a time prior thereto, was clearly not sufficient to rebut or to overcome the legal presumption of his sanity, and to impose on the state the burden of proving that at the time the act was committed the defendant was then sane. The burden of proof does not shift, but all along it rests with the defendant, and, if in any case he would overcome the legal presumption of his sanity and would exonerate himself from liability, he must show by a preponderance of the evidence that at the time of the commission of the alleged criminal act he was then so far mentally deranged or unsound as not to be answerable or accountable for his act. While proof of prior insanity is competent, whether a mental condition shown to exist has continued down to the time of the commission of the alleged criminal act is solely a question of fact to be determined by the jury. And the defendant in a criminal case who sets up insanity as a defense does not relieve himself from showing his insanity at the very time of the commission of the criminal act by proof merely that he was insane at an earlier time.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

April 8.

1 *Significance of the Urinary Examination in Women. G. L. Hunner, Baltimore.
2 *Optic and Ocular Factors in the Etiology of Scoliosis of School Children. G. M. Gould, Philadelphia.
3 *Advantages of Tendon Transplantation. H. A. Wilson, Philadelphia.
4 *Extrauterine Pregnancy at Full Term; Total Extirpation of Uterus and Placenta by a New Technic: Recovery. H. N. Vineberg, New York.
5 *Pathologic Changes Resulting from Prostatic Enlargement. C. E. Barnett, Ft. Wayne, Ind.
6 *Enterostomy. J. W. Long, Greensboro, N. C.
7 Two Cases of Landry's Paralysis: One Terminating in Recovery, the Other in Death. T. Diller, Pittsburg, and C. L. Billard, Allegheny.

1. **Urinary Examination in Women.**—Hunner urges a more frequent examination of the urine in cases of obscure diagnosis and discusses some simple methods of examination, citing illustrative cases.

2. **Factors in Etiology of Sclerosis.**—According to Gould, the school desks and seats, imperfect and unhygienic as they may be, are not the primary or chief factors in the production of morbid writing postures, and hence do not, *per se*, cause spinal curvature. They are not the cause of slant handwriting, nor has slant writing any relation, as a cause, to disease or to malposture, but is solely a result of malposture. With the head and body erect, the paper straight before the median line of the body and the penholder held as commanded, the writing and the writing field about the penpoint are hidden by the writing hand. The pupil skews the paper, tilts the head to the left and grasps the holder differently, all in order to bring the writing field and letters being made into clear view, and especially of the right or "dominant" eye. Beside the bending of the head and usually also of the body, to the left, there is a synchronous rotation or torsion of the head to the right in order to bring the predominant 90 and 180 degrees axes of astigmatism into alignment with the upright strokes and lateral lines of the pen and paper. The cervical vertebræ are thus forced into a combination of three morbid positions, caused by bending the head forward, canting it to the left, and rotating it so that the chin is turned to the right. There is thus produced a threefold increase of the scoliosis producing agency which is transmitted to the dorsal and lumbar regions of the spine in the effort at compensation. Other topics discussed are the head tilting from astigmatism, the organic results of such tilting, and the prophylaxis and cure of the malposture.

3. **Tendon Transplantation.**—Wilson concludes from his personal experience that tendon transplantation, alone or combined with arthrodesis or other bone operations, offers prospects of materially adding to the comfort, convenience and usefulness of a very large class of patients otherwise more or less dependent on forms of mechanical apparatus. Arthrodesis alone possesses advantages in cases incapable of benefit from tendon transplantation. Various forms of osteotomy, osteoclasis and other bone operations are available for the removal of deformity and for the prevention of undue strain on the soft parts around the joint.

4. **Extrauterine Pregnancy.**—In the case described by Vineberg the pelvis was filled with a hard, nodular mass which seemed continuous with the pelvic wall. The patient was very much emaciated and exhausted, and to save her life Vineberg adopted a new technic. He first ligated the ovarian and uterine vessels on the free side, cutting the uterus across at the level of the os internum without making any attempt to separate it from the mass to which it was most intimately united, and then ligating the uterine artery on the involved side. In this way he cut off the main blood supply before making the attempt to enucleate the enormous placental mass. The work of enucleation was also made easier by enabling the operator to work from below upward. The patient made an uneventful recovery.

5.—See abstract in THE JOURNAL of October 29, p. 1326.

6. **Ibid.**—December 24, p. 1988.

Medical Record, New York.

April 8.

8 *Treatment of Pyelitis. H. A. Kelly, Baltimore.
9 Etiology of Enlarged Prostate. L. B. Bangs, New York.
10 *Microscopic Examination of Fasting Stomach Contents and Its Diagnostic Value. W. Ackerman, Milwaukee, and L. M. Gompertz, New Haven, Conn.
11 Acute Cholecystitis in Puerperium. Report of Two Cases; Cholecystostomy; Recovery. H. N. Vineberg, New York.
12 Conservative Treatment of Protracted Cases of Acute Otitis Media Purulenta, with Its Complications. A. Wiener, New York.
13 *Modification of Heller Test for Albumin in the Urine. A. S. Payn, New York.

8. **Treatment of Pyelitis.**—Kelly endeavors to show from a personal experience extending over sixteen years that pyelitis is an affection of the utmost importance, and that in one of its most important phases, namely, its earlier stages, it is still rarely recognized, or, when found, is often thought worthy of but little attention because it is not immediately provocative of serious symptoms. A pyelitis of recent origin, which is let alone, often gets well spontaneously by the natural process of

irrigation as the urine sweeps the infecting organisms down through the renal pelvis and the ureter into the bladder. If there is an obstruction at any point causing a damming up of the urine, the pyelitis is almost sure to linger in a chronic form. Many cases of pyelitis remain for long periods *in statu quo*, while other cases grow worse, ending in a high grade of pyelonephritis or the kidney becomes converged into an abscess sac. A pseudo-cure may take place by the closure of the sac, in which case the abscess may either persist or may rupture into the bowel, into the pleura, into the loin, into the groin, or even into the peritoneum. It is important to take cognizance of a pyelitis of any grade whatever, as it may, at any time, become a menace to the functional value of the kidney or even to life itself.

10. **Diagnostic Value of Microscopic Examination of Stomach Contents.**—Attention is directed by Ackerman and Gompertz to the fact that not enough attention is paid to the importance of microscopic examination of the stomach contents. They advocate that when the diagnosis is in any way obscure it should be a routine practice to make a thorough microscopic examination of the contents of the fasting stomach. Such examination is especially indicated when the slightest suspicion exists of gastrosuccorrhea, stagnation—whether due to benign or to malignant obstruction—or ulcerating cancer not causing stenosis. The presence or absence of hydrochloric acid is easily determined with a microscope. The presence of unchanged epithelial cells signifies absence of HCl and pepsin; whereas the presence of free nuclei of leucocytes and of epithelial cells is positive evidence of the presence of hydrochloric acid and pepsin. The presence of sarcinæ, yeast cells and chains, food remnants, such as starch granules, muscle fibers, etc., prove the existence of stagnation. If the microscope shows the constant presence of pus and blood, and their origin can be excluded as coming from an acute phlegmonous gastritis or purulent inflammation from other parts, a positive and early diagnosis of ulcerating interosteal carcinoma can be made long before a tumor is palpable or characteristic symptoms are present. In all suspected cases, especially with progressive emaciation, anorexia, gastric distress, etc., without stagnation, but with achylia gastrica, an endeavor should be made to procure some of the fasting stomach content for examination. Infusoria are always found with pus and blood, and these conditions are present only in cases of interosteal carcinoma not attacking the pylorus. They are found long before the appearance of a tumor. In the stagnating stomach contents containing lactic acid the sarcinæ are supplanted by the Oppler-Boas bacilli, and these should be considered of even more diagnostic importance as indicating malignant stenosis than the finding of sarcinæ in benign obstruction. In pyloric carcinoma the situation of the growth is such that it is hidden by the liver and the detection of these bacilli often leads to a diagnosis long before the tumor is palpable. However, if from any cause whatsoever, a pyloric obstruction occurs, the Oppler-Boas bacilli are liable to be found in the stagnating stomach contents. According to Cohnheim, about 99 per cent. of the cases with stagnation and Oppler-Boas bacilli or lactic acid are pyloric carcinoma, therefore, the presence of the Oppler-Boas bacilli can be regarded as an indicator for operative procedure.

13. **Modification of Heller Test.**—Payn places the inclined tube which contains the Heller in a low flame, heating the urine just short of ebullition, care being taken not to disturb the contact. After a few moments the tube is examined by placing it against a dark background, when it will be noted that the urine is not only clarified, but at the line of contact there will be found precipitated small quantities of albumin not apparent when the test is performed cold.

Medical News, New York.

April 8.

14 *Further Notes on the Function of the Parathyroid Glands. W. G. MacCallum and C. F. Davidson, Baltimore.
15 Two Cases of Pernicious Anemia Due to the Dibothriocephalus Latus. A. Meyer, New York.
16 Case of Dibothriocephalus Latus Infection, Causing Pernicious Anemia, with Complete Recovery. W. Gilman Thompson, New York.
17 *Symptoms and Diagnosis of Cerebrospinal Meningitis. H. L. Elsner, Syracuse.
18 *Eye Symptoms of Cerebrospinal Meningitis. A. E. Davis, New York.

14. **Function of Parathyroids.**—This is a further report by MacCallum and Davidson of the results of their experiments carried out for the purpose of determining the function of the parathyroid gland. They found that after complete parathyroidectomy the life of the animal can be maintained only with the greatest difficulty by the injection intravenously of relatively large quantities of parathyroid material. They believe that the cases in which the symptoms are relieved for a long time by insignificant doses given subcutaneously, are instances in which the extirpation of the parathyroids was incomplete. From this it follows that the treatment of the tetany which has been seen to follow the extirpation of the thyroid (with the parathyroids) in human beings, by the use of parathyroid extracts, would probably be almost impracticable, although the use of such material might, perhaps, be beneficial in those cases in which symptoms are due to a less intense parathyroid insufficiency. The condition is different from that found after extirpation of the thyroid alone, in that the symptoms appear so rapidly, are so quickly fatal, that there is no time to apply the usual methods of administration of the organ extracts which are so effective in the case of myxedema. The emulsion or extract of parathyroid, to produce its maximum effect, must be introduced into the veins in considerable quantity.

17. **Cerebrospinal Meningitis.**—Elsner rehearses his experiences with cerebrospinal meningitis in the central counties of New York state. He says the disease may be either sporadic or epidemic and that it appears every year. House epidemics in which from two to five members of a household were attacked, without further spread of the disease, has been met on five different occasions. Another interesting fact noted was the presence of other infectious diseases of the nervous system during the prevalence of even limited epidemics of cerebrospinal meningitis. On three occasions within the past ten years cases of cerebrospinal meningitis, acute choliomyelitis anterior and Landry's paralysis have occurred almost side by side. With either sporadic or epidemic cerebrospinal meningitis mixed infection is not uncommon; occasionally the pneumococcus may be found with the Friedlander bacillus. Elsner says the pneumococcus as certainly causes cerebrospinal meningitis as it does malignant endocarditis, and both of these fatal infections without pulmonary inflammation. The infection is malignant, the clinical picture is characteristic, cerebral, spinal and peripheral symptoms are abundant. Early death is the rule. These cases are less frequent than are those associated with pneumonia. Cases of cerebrospinal meningitis with pneumonia have been uniformly fatal in Central New York. In the majority of cases it is exceedingly difficult to diagnose this complication. Timely and frequent lumbar punctures offer aid which may prove conclusive. Meningococcus pneumonia may complicate cerebrospinal meningitis. Pneumococcus meningitis may follow distal infection, such as extraction of the teeth, following an attack of otitis media, and subsequent to a transverse fracture at the base of the brain.

18. **Eye Symptoms of Cerebrospinal Meningitis.**—Davis divides the eye symptoms of this affection into two groups—motor and visual. Besides these two main groups there is frequently present a conjunctivitis, which at times is attended with marked swelling and edema of the lids. Among the motor symptoms are mentioned paralysis of the third, sixth, fourth, ophthalmic division of the fifth, and seventh nerves, which may be partial or complete from pressure on the nerve trunks. There also may be conjugate deviations, nystagmus and ptosis from cortex lesions. Optic neuritis, neuroretinitis and perineuritis, optic atrophy, panophthalmitis, photophobia, keratitis, iridochoroiditis and venous congestion of the fundus and visual symptoms are sometimes present. Although, as a rule, the diagnosis of cerebrospinal meningitis may be made from the general symptoms, there are cases in which these are not well marked and in which the eye symptoms, especially

where there are changes in the fundus, may serve to clear up the diagnosis. Inequality of the pupils, particularly if accompanied by squint, should place the general practitioner on his guard. The prognosis in these cases in which there are eye lesions, especially when the fundus is affected, is always more grave than in those cases in which there are no eye symptoms. Of eight cases affected with neuroretinitis four died, two were cured, and two were not followed to a conclusion, making the percentage of deaths equal to 66.6 per cent., while in 10 cases where there were no eye symptoms there were but 50 per cent. of deaths.

New York Medical Journal.

April 8.

19 Operative Treatment of Chronic Suppurative Otitis. A. B. Duel, New York.
20 *Spondylose Rhizomyelia: Study of the Relative Frequency of Spinal Involvement in Rheumatoid Arthritis with Autopsy Findings. D. J. McCarthy, Philadelphia.
21 Asepsis and Antisepsis in Obstetrics: Also "Sterile Gauze" and "Sterile Water." J. M. Mabbott, New York.
22 Clinical Lecture on a Case of Typhoid Cholecystitis. J. C. Da Costa, Philadelphia.
23 Food Preservatives and Food Adulterations. H. W. Wiley, Washington, D. C.
24 Gonococcus in Vulvovaginal Region. H. J. Boldt, New York.
25 *Two Unusual Conditions Affecting the Gastric and Epigastric Regions. W. Moser, Brooklyn.
26 Atony of Rectum and Anal Sphincters: Its Etiology, Pathology, Diagnosis and Treatment. W. Bodenhamer, New Rochelle, N. Y.
27 Diet in Typhoid Fever. (To be concluded.) S. Stalberg, Philadelphia, H. M. Pierce, St. Louis.

20. **Spondylosis Rhizomyelia.**—A study of the relative frequency of spinal involvement in rheumatoid arthritis is presented by McCarthy and two cases are reported for the purpose of contrasting it with rheumatoid arthritis associated with involvement of the spinal column. One of the cases was of considerable interest on account of the early age at which it developed and because of the presence of sensory and reflex symptoms indicative of root and spinal involvement. The author also cites twelve cases of rheumatoid arthritis with spinal involvement.

25. **Two Unusual Conditions.**—The first case reported by Moser was one of epigastric myoclonus or gastroclonus; the second case was one of hysterical acute gastrospasm.

Boston Medical and Surgical Journal.

April 6.

28 History of the Boston Society of Psychiatry and Neurology for Twenty-five Years. W. Channing, Brookline.
29 *Surgical Treatment of Nephritis. A Résumé. P. Thorndike, Boston.
30 Diet in Nephritis. H. Jackson, Boston.
31 Some Further Observations on Leucocytoxins. H. A. Christian and T. F. Leen, Boston.

29. **Surgical Treatment of Nephritis.**—Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcts of kidneys, and in dogs with normal kidneys, but with additional work thrown on them, Thorndike found that in all his cases of two days and under and in controls, where the capsule was removed, for over two-thirds the surface there was a certain amount of immediate increase in size of the decapsulated kidneys, persisting up to one month at least, and afterwards a decrease to approximately normal size, complete at the end of six months. There was congestion, moderate in degree, most marked in the intertubular blood vessels in the cortex, lasting from three to five days after the operation. No histologic change in the renal epithelium was noted, but a new capsule, very vascular at first, and from two to four times the thickness of the old, was well marked at the end of eight days. This new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue which is present in the new bed of the kidney. No new vessels are formed which anastomose with those of the kidney. The increase in size is due primarily to the increase in blood supply, possibly resulting from the removal of the capsule. Thorndike says that the evidence at hand proves that a new capsule forms within a few weeks after operation, but that the establishment of a collateral circulation, sufficient in degree to materially affect the renal tissue, may at present fairly be doubted.

Lancet-Clinic, Cincinnati.

April 8.

32 Puerperal Convulsions—Cases and Treatment. M. A. Tate, Cincinnati.
33 Malignant Growths of the Eye. A. O. Pfingst, Louisville, Ky.
34 Question of Wound Infection, with Special Regard to Those Due to Catgut. J. W. Robinson, Chicago.

St. Louis Medical Review.

April 1.

35 Some Things Proctologic. W. M. Beach, Pittsburg.
36 Penetrating Gunshot Wounds. J. Y. Brown, St. Louis.
37 Review of Treatment Immediately Before and After Abdominal Section. L. S. McMurtry, Louisville.
38 Some Points in the Practice of Hypnotism. C. L. Tuckey, London.
39 Rupture of the Gall Bladder (Spontaneous and Traumatic, with and Without Operation), an Historical Review of 273 Cases. (Concluded.) B. M. Ricketts, Cincinnati.

American Journal of Obstetrics, New York.

March.

40 Can Our Present Method of Utilizing the Principle of Axis-Traction in Obstetric Practice be Further Developed? A. C. Jacobson, Brooklyn.
41 Prevalence of Puerperal Septicemia in Private Practice at the Present Time, Contrasted with That of a Generation Ago. S. P. Warren, Portland, Maine.
42 Cesarean Section for Dystocia Following Myomectomy. J. C. Hubbard, Boston.
43 Indications for Cesarean Section: Report of Two Cases: Recovery. J. F. Moran, Washington.
44 Theories of Eclampsia. J. B. De Lee, Chicago.
45 Treatment of Eclampsia. C. B. Reed, Chicago.
46 Application of Forceps in Contracted Pelves. E. Sothoron, Washington, D. C.
47 Fibromyomata of Uterus. D. G. Lewis, Washington, D. C.
48 Sequelæ and Treatment of Abortion. A. B. Keyes, Chicago.
49 *Hand Sterilization with Special Reference to Use of Oil of Cloves. J. C. Webster, Chicago.
50 *Hand Sterilization by Oil of Cloves. E. Rosenow.
51 Postoperative Complications Involving the Bronchi, Lungs, etc. G. B. Miller, Washington, D. C.
52 *Non-Operative Treatment of Eclampsia. C. S. Bacon, Chicago.
53 *Technic of Operation of Ventrosuspension of the Uterus. H. Beyea, Philadelphia.
54 *Results of Ventral Suspension of Uterus at Johns Hopkins Hospital. G. R. Holden.
55 *Cesarean Section Following Ventrofixation. M. A. Smith, Boston.
56 Uncomplicated Varicose Veins of Female Pelvis. S. M. Miller, Peoria, and A. B. Kanavel, Chicago.

49. **Hand Sterilization.**—Webster describes his method as follows: The hands are scrubbed for five minutes with any good soap and hot water, the latter being frequently changed. A boiled stiff nail brush is used. The skin is then dried with a sterile towel and rubbed for one minute with alcohol in order to remove any remaining moisture. When it is dry, unpurified clove oil is rubbed into the skin for four or five minutes and afterward washed off with alcohol. Clove oil is a powerful solvent of fats and penetrates deeply into the skin. The unpurified oil is less expensive and is probably a better germicide, its impurities being acid in nature, than the purified oil. The hands thus cleansed are thoroughly rubbed with sterilized talc powder and covered with smooth dry rubber gloves which have been boiled for fifteen minutes. The skin of the hand is the same at the end of the operation as at the beginning. It is very smooth, the sterile talc having been rubbed into all the irregularities. The operator should wear gloves of medium thickness, which are made from a model of his hands, thus securing a perfect fit.

50. **Id.**—Bacteriologic experiments made by Rosenow with a view to determining the value of the above method showed conclusively that clove oil as an antiseptic is far superior to creolin (80 per cent.) and bichlorid (1 to 2,000). It was also found that clove oil possesses a marked degree of antiseptic power.

52. **Non-Operative Treatment of Eclampsia.**—All forms of non-operative treatment of eclampsia are classified by Bacon under the two heads of eliminative and symptomatic, which includes antispasmodic and supporting. As eliminative treatment are included all measures of securing catharsis, diuresis and diaphoresis, while symptomatic treatment includes the administration of morphin, chloral, chloroform and ether, veratrum viride and oxygen inhalation. In the pre-convulsive stage attention to diet and the bodily activities with regulation of the elimination are practically the only means of con-

trolling the disease and of averting its climax. Strict rest in bed for serious cases is of equal importance to a proper diet. As diuretics the rule will exclude specifically the metals, coal-tar products, volatile oils, digitalis, aloin, as well as most of the salts of the alkali. Salt solution should be used with great caution. To control the convulsions Bacon favors the hypodermic use of morphin, beginning with an initial dose of from 1/3 to 1/2 grain when the patient is first seen, and then giving from 1/6 to 1/4 grain after each subsequent attack until from 1 grain to 1½ grains are given. Danger of asphyxia is avoided by the use of oxygen. Veratrum viride he regards as a dangerous heart poison which can well be discarded from our armamentarium. Oxygen inhalation is especially indicated during an attack when there is great danger of asphyxiation. In case morphin is given in large doses oxygen should be used to counteract the slowing of the respiration, and it should be administered constantly when an anesthetic is given. It is one of the first things to be procured when taking charge of a case of eclampsia. The conditions existing after the successful delivery of the patient either spontaneously or by operative measures call for supporting or symptomatic eliminating treatment in which besides the agent already mentioned strychnin and nitroglycerin may be valuable.

53. **Ventrosuspension of Uterus.**—See abstract in THE JOURNAL, Jan. 14, 1905, p. 162.

54. **Id.**—From April, 1892, to June, 1903, the uterus has been suspended to the anterior abdominal wall over 900 times at the Johns Hopkins Hospital. In 445 of these cases, Holden has succeeded in securing a more or less complete postoperative history. The intervals which elapsed between the operation and the subsequent report vary from four months to eleven years. In 184 cases suspension alone, or suspension preceded by dilatation and curettage was done. In 154 cases, plastic operations on the perineum were also done in addition to the suspension. In 46 cases pelvic inflammatory disease was present to such an extent that, in addition to the suspension, portions of the adnexa were removed. In 61 cases suspension was associated with miscellaneous operations, namely, kidney operations, appendectomies, myomectomies, etc. In considering the results obtained in the relief of the subjective symptoms, Holden includes only those cases in which the retroposition was the sole or a prominent factor. In no case was the period from operation to report less than one year. Of 182 cases in which suspension alone was done, 109 cases, or 60 per cent., were successful; 33 cases were relieved partially; 40, or 21 per cent., had no relief. Of 154 cases of suspensions with plastic operations on the outlet, 102, or 66 per cent., were successful; 19 cases were relieved partially; 33, or 21 per cent., had no relief. The prognosis in nulliparæ after suspension of the uterus is not so favorable as in multiparæ with retroposition associated with relaxation of the outlet provided that the relaxed outlet be repaired in addition to the suspension. Of 120 nulliparæ, 109 suffered from dysmenorrhea before operation. Fifty-one patients were absolutely or very greatly relieved; 33 had no relief; the remaining 36 did not state their condition. In 202 multiparæ, dysmenorrhea occurred in 113 cases. In 70 of these, a definite statement was made as to dysmenorrhea after operation; forty-three patients were absolutely or very greatly relieved; 22 had no relief. In 69 of the 445 cases, examinations were made at periods varying from four months to nine years after the operation. In 8 of these 69 cases, the uterus was again in retroposition; in 5 of these 8, recurrences occurred after pregnancies. In 59 cases, the uterus was movabe, but could not be thrown into retroposition. In 2 cases it was fixed to the anterior abdominal wall. An examination of the suspensory ligament in 19 cases, in which a secondary laparotomy was performed later, made it evident that the length of the ligament does not depend on the time which has elapsed since the operation nor on the diameter or breadth of the ligament. The length of the ligament varied from 2 cm. to 18 cm. in 238 of the cases the patients were in the child-bearing period, were not sterilized by operation and were married. One hundred and forty-five reported that they had not borne children since operation; 23 made no report on this subject, while 69 had borne children since operation. The number of labors in these 69 women was 83; 66 of these were entirely normal. In the others, the abnormalities were: Severe nausea and vomiting, 1 case; puerperium and labor normal, died of puerperal septicemia, 1; retained placenta, 1; phlebitis, 1; child still-born, 3; forceps were used in 5 cases. In 2 of these dystocia arising from the suspension can be excluded. Five patients complained of abdominal pain during pregnancy, 4 of them were delivered normally, forceps were used in 1 case. Fourteen cases were examined after labor; 2 cases two weeks after; the others at periods varying from three months to six years. In 5 cases the retroposition had recurred. In 46 cases of pelvic inflammatory disease associated with retroposition of the uterus various portions of the adnexa were removed in addition to the suspension of the uterus. Of the 46 cases, 35 were entirely cured or very greatly relieved; but 2 of these required a second operation for pelvic inflammatory disease. Twenty-nine patients were married, in the child-bearing period and were not sterilized by the operation. Three of these had children after the operation. The right tube and ovary had been removed in 2 cases, the left ovary in 1 case.

55. **Cesarean Section Following Ventrofixation.**—Smith's paper may be summarized as follows: 1. Ventrofixation is contraindicated during the child-bearing period. 2. If ventral suspension is undertaken, care must be exercised that it does not unwittingly become a fixation. 3. Alexander's operation, or some one of the many varieties of intra-abdominal shortening of the ligaments are more suitable operations for women at this period. 4. In severe cases of dystocia from this cause, immediate cesarean section is preferable to prolonged attempts at vaginal delivery. 5. To prevent a recurrence of the trouble the offending band should be removed.

Fort Wayne Medical Journal-Magazine.

March.

57 Arthritis Deformans. L. P. Drayer, Fort Wayne.
58 Treatment of Arthritis Deformans. A. P. Buchman, Fort Wayne.
59 Diseases Frequently Mistaken for Acute Inflammatory Rheumatism. B. Van Sweringen, Fort Wayne.
60 Clinical Results of High-Frequency Currents. A. W. Crane, Kalamazoo, Mich.

Annals of Surgery, Philadelphia.

April.

61 *Pathology and Etiology of Obstructive Hypertrophy and Atrophy of the Prostate Gland. P. M. Pilcher, New York.
62 Has the Catheter a Place in the Treatment of Chronic Prostatic Hypertrophy? P. Thorndike, Boston.
63 *Prostatism Without Enlargement of Prostate. C. H. Chetwood, New York.
64 Some Anatomic Points Connected with Prostatectomy. F. S. Watson, Boston.
65 Question of Priority in the Adoption of the Method of Total Enucleation, Suprapubically, of the Hypertrophied Prostate. E. Fuller, New York City.
66 *Treatment of Prostatic Hypertrophy by Enucleation Through a Suprapubic Incision. H. Lilienthal, New York.
67 Suprapubic Prostatectomy with Nitrous Oxid Anesthesia. J. Wiener, Jr., New York.
68 *Conservative Perineal Prostatectomy. H. Y. Young, Baltimore.
69 Cause of Incontinence as a Sequel of Prostatectomy. E. W. Ruggles, Rochester, N. Y.
70 *Choice of Operative Method for the Removal of the Hypertrophied Prostate. L. S. Pilcher, New York.
71 Study of Various Forms of Prostatic Hypertrophy from Postmortem Specimens and by the Cystoscope, with Reference to Operation. J. H. Cunningham, Jr., Boston.
73 Transperitoneal Ligature for Aneurism of External Iliac Artery. O. J. Currie, Pietermaritzburg, Natal.
74 Osteoma of the Frontal Sinus. H. Hastings, Los Angeles.

61. **Pathology and Etiology of Enlarged Prostate.**—Pilcher summarizes his paper as follows: 1. Pathologically there are three types of prostates causing urinary obstruction: (*a*) the large, soft type; (*b*) the hard, small, contracted type, and (*c*) the mixed type. 2. Infection does not influence the variety of the pathologic change. 3. A contracted form of prostate is not a secondary stage of the large, soft type of hypertrophied prostate, but is distinct from it. 4. In many cases of hypertrophy of the prostate there is present a true muscular hypertrophy. 5. In some of the atrophic cases, the glandular elements are relatively diminished, and the muscular elements relatively increased. 6. Gonorrhea is not an important etio-

logic factor in the production of this disease, and there is no necessity for assuming it to be. 7. The theory of obstruction to the ducts causing passive dilatation of the glandular elements does not satisfactorily explain the pathologic findings. 8. Hypertrophy of the prostate results from glandular overgrowth influenced by the degenerative changes of old age and other agents which tend to produce the formation of fibrous connective tissue in an actively functionating gland.

63. **Prostatism Without Enlarged Prostate.**—The experience derived from the study and treatment of 36 cases leads Chetwood to the conclusion that contracture of the neck of the bladder is a common cause for vesical obstruction; that its relief is safe and sure by means of a galvano prostatotomy through a perineal opening; and, finally, that it is often an explanation of what has been termed prostatism without enlargement of the prostate.

66. **Suprapubic Incision in Prostatectomy.**—From an experience in 31 cases, Lilienthal believes that the suprapubic route is the safest and most thorough of all the operations for the relief of prostatic obstruction. It is radical; no important vessels or nerves are cut, the urethra is not injured and wounding of the rectum is exceedingly rare. Palpation and inspection of all parts of the interior of the bladder are easily and accurately made. There is no need for pre-operative cystoscopy. There is an almost total absence of shock and the patient may be out of bed in forty-eight hours. No part of the urethra having been removed, treatment by the passing of sounds is avoided. The operation may be easily performed under nitrous oxid anesthesia. The method is a rapid one, it may, if necessary, be performed in two stages and impotency rarely supervenes. Great care and watchfulness are necessary during the course of the after-treatment.

68. **Conservative Perineal Prostatectomy.**—Young details the results obtained by prostatectomy through the perineal route by the technic previously described by him. During the past two years, he has operated on 75 patients, 4 being over 80 years of age; 23 over 70; 29 over 60; 14 over 50, and 5 under 50. Among these 75 cases there were no deaths definitely attributable to the operation, although 4 patients died; 1 five weeks after operation, from uremia; 1 two weeks after operation, from pulmonary embolism; 1 two weeks after operation, from double pro-hydronephrosis, and 1 on the twenty-fifth day, from double pneumonia. In only two cases of the entire series was there residual urine of any consequence. All the patients can void urine naturally, and no case of continual incontinence has occurred. In a large proportion of the cases the sexual power was maintained after operation. A perineal fistula persisted in only 2 cases. In one of these the prostatic tissue was found to be carcinoma. Young says that while the Bottini method is the simplest and quickest for a certain limited number of cases, it is not so safe and nothing like so uniformly certain of relieving the obstruction as the perineal enucleation.

70. **Prostatectomy.**—This exhaustive article by L. S. Pilcher is concluded with the statement that, as a rule, the method of free curved transverse perineal incision with full exposure of the gland in the operation wound is to be preferred.

American Journal of Orthopedic Surgery, Philadelphia.

April.

75 Study of Angles and Lines Defining the Relationship Between the Pelvis and the Femur. Stewart L. McCurdy, Pittsburg.
76 Trans-pelvic Lines for Determining Displacement at the Hip. Stewart L. McCurdy, Pittsburg.
77 *Three Cases of Double Hip Dislocation, Supplemented by a Report of Seven Cases Operated on by Professor Lorenz. A. J. Steele, St. Louis.
78 Sacro-iliac Disease in a Young Child. A. Thorndike. Boston.
79 Means of Lengthening, in the Lower Limbs, the Muscles and Tissues which are Shortened Through Deformity. A. Codivilla, Bologna.
80 Two Cases of Suppuration of Retromesenteric Lymph Nodes. J. C. Pegram, Jr., Providence.
81 *Operative Treatment of Pes Cavus. H. M. Sherman, San Francisco.
82 Apparatus for Handling Cases of Acute Pott's Disease in Adults. C. Riely, Baltimore.
83 Apparatus for Developing *X*-Ray Negatives. C. Riely, Baltimore.
84 Two Cases of Congenital Dislocation of Shoulder Joint. F. E. Peckham, Providence.
85 Value of *X*-Ray Negatives in Study of Orthopedic Pathology. R. B. Osgood, Boston.
86 Sayre's Wire Cuirass. A. G. Cook, Hartford.
87 Consideration of Treatment of Flexible Flat Foot. E. H. Bradford, Boston.

77. **Double Hip Dislocation.**—Steele summarizes the results obtained in the hip cases operated on in St. Louis by Lorenz in November, 1902. There were 7 cases; 10 hips; patients were all females; 3 double and 4 single dislocations. Of the 10 hips operated on 6 had anterior replacement, 2 are in the dorsal position, and 2 (same patient) "not in anatomic reposition" (Dr. Mueller). Whether or not the anterior replacements will improve in functional use remains to be seen. Steele believes that in one case, at least, the head was in the socket on removal of the plaster and that it was permitted to slip out again.

81. **Treatment of Pes Cavus.**—It is true, says Sherman, that section of the plantar fascia and a forcible extension of the fore part of the foot on the hinder part and, perhaps, an achillotomy added to correct the relation of the foot to the leg has overcome the deformity; but the position gained has not been maintained because no force is arranged for in the foot and leg to maintain the corrected position, and an extraneous retentive force is either painful or inefficient.

Sherman cuts the tendons of the long toe extensor muscles from their insertion into the toes and transplants them into the metatarsal bones just behind their heads. Because of the difficulty of holding a foot in a certain position while five tendon sutures were done, Sherman, after such subcutaneous sections of fascia and tendons, and such a manual or instrumental remodeling as was necessary to correct a malposition or deformity, put the foot into a plaster-of-paris splint in the corrected position. Then, immediately after the setting of the splint, he cuts away as much as is necessary from the dorsum, exposes the field of operation, and works on the tendons without the danger of any slipping of the foot which might tear out some of the earlier sutures while the later ones are being placed. Because of the practical difficulty in putting the tendon under the periosteum of the metatarsal bone, and suturing it there while working wholly on the dorsum and in a somewhat limited space, he has carried his sutures directly through the foot and the plantar part of the splint fastening them firmly on the outside of the latter. In this way it is possible to hold the tendon closely against the denunded bone under the periosteum, maintaining the position as long as an absorbable suture will last, and that may be about forty days, if chromicized catgut is used. The operation is described in detail.

Annals of Gynecology and Pediatry, Boston.

March.

88 Secondary Abdominal Operations. II. Remote. E. W. Cushing, Boston.

Ophthalmic Record, Chicago.

March.

89 Concerning the Relationship of Nasal Disorders to Vitreous Opacities. J. A. Patterson, Colorado Springs, Colo.
90 Gunshot Wound of Orbit; Post-Traumatic Delirium; Removal of Bullet with Conservation of Globe. W. C. Posey, Philadelphia.
91 Breechpin in Orbit Three Years. S. L. Ledbetter, Birmingham.
92 Recent Changes in Technic of Some Operations of Eye and Adnexa. J. J. Thompson, New York City.
93 Fracture of Floor of Orbit. G. F. Keiper, La Fayette, Ind.
94 Breechpin in Ophthalmology and Surgery. H. Gifford, Omaha.
95 Combined Anterior Chamber Irrigator and Lachrymal Syringe. E. C. Ellett, Memphis, Tenn.

Wisconsin Medical Journal, Milwaukee.

March.

96 Double Perforation of the Urinary Bladder. E. Evans, La Crosse.
97 The Use of Opium in Mental Diseases. A. W. Rogers, Wauwatosa, Wis.
98 Chores Gravidarum. G. Seiler, Monroe, Wis.
99 Carcinoma of the Breast. G. F. Shimonek, Milwaukee.
100 Urea: Its Estimation and Importance. C. J. Combs, Oshkosh.
101 The Shades of Modern Surgery. J. Hund, Wausau, Wis.

Journal of the Association of Military Surgeons, Carlisle, Pa.

April.

102 Proposed Medical Reserve Corps for the Army vs. Major Azel Ames' Opinions. W. C. Borden, U. S. A.
103 Is the Common House Fly a Factor in the Spread of Tuberculosis? J. O. Cobb, Los Angeles.

104 Practical Hearing Tests. W. S. Bryant, New York.
105 Radiography in Armies in the Field. H. Mareschal.
106 Relation of the Medical Department to the Health of Armies. W. Hill-Climo, London.

Southern Medicine and Surgery, Chattanooga, Tenn.
March.

107 Etiology of Prostatic Enlargement. G. F. Lydston, Chicago.
108 Mechanism of Immunity Against Tuberculosis. J. R. Briggs, Dallas, Texas.
109 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond, Va.

Virginia Medical Semi-Monthly, Richmond.
March 10.

110 Vaccination. L. Eliot, Washington, D. C.
111 Uterine Reflexes. J. N. Upshur, Richmond.
112 Vicarious Menstruation or Hemorrhage. M. D. Delaney, Alexandria, Va.
113 Tonsillitis—A Contagious Disease. W. C. Gwynn, Washington, D. C.
114 Methods Employed in Modern Refraction Work. H. H. McGuire, Winchester, Va.
115 Treatment of Prostatic Hypertrophy. L. C. Bosher, Richmond.
116 Gastroenterostomy. W. H. Wathen, Louisville.

Therapeutic Gazette, Detroit, Mich.
March 15.

117 Case of Hour-Glass Stomach the Result of an Ulcer on the Lesser Curvature which Produced a Septum of the Anterior Wall of the Stomach; Anterior Gastrogastrostomy; Recovery; Cure. W. W. Keen, Philadelphia.
118 Limitations and Possibilities of Electricity in Treatment of Diseases of Women. B. C. Hirst.
119 Treatment of Anterior Gonorrhea. S. G. Brown, Montreal, Canada.
120 Rational Treatment of Typhoid Fever. W. R. Lastrapes, Opelousas, La.

Physician and Surgeon, Detroit and Ann Arbor.
February.

121 Present Relation of Otology to the Practice of General Medicine. R. B. Canfield, Ann Arbor.
122 Technic of Operation for Appendicitis. H. C. Wyman, Detroit.
123 Pernicious Anemia. E. H. Pomeroy, Highland Park, Ill.

Western Medical Review, Lincoln, Neb.
March.

124 Pathology and Treatment of Criminal Abortion. W. O. Henry, Omaha.
125 Criminal Abortion—the Nebraska Law. W. A. De Bord, Omaha.
126 Ethics of Criminal Abortion. W. B. Ely, University Place, Neb.
127 Social Causes of Criminal Abortion. I. C. Philbrick, Lincoln.
128 Measures for Prevention of Criminal Abortion. A. B. Somers, Omaha.
129 Hyperchlorhydria Gastrica. A. O. Peterson, Omaha.
130 Malpositions of the Uterus. E. Brown, Omaha.
131 Necessity of Exploratory Abdominal Section in Some Cases. B. B. Davis, Omaha.

Medical Fortnightly, St. Louis.
March 25.

132 Case of Brain Tumor; Operation; Recovery. C. Pope and A. M. Cartledge, Louisville.
133 Salisbury Plan in Treating Consumption. J. H. Adams, Paoli, Pa.
134 Literature on Cancer. (Continued.) C. E. Black, Jacksonville, Ill.

Columbus Medical Journal.
March.

135 Treatment of Acute Non-Suppurative Otitis Media. E. Pynchon, Chicago.
136 Prevention of Tuberculosis. J. W. Clemmer, Columbus.
137 Tuberculosis—Causation. C. L. Spohr, Columbus.
138 Membranous Croup and Its Therapeutics. G. H. Mayhugh, Westerville, Ohio.
139 Meeting Emergencies. W. C. Gates, Marysville, Ohio.
140 Management of Abortion. J. H. Ray, Coalton.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.
March 25.

1 *Affections of Some Joints as Met with in General Practice. E. Owen.
2 Short Note on the Nose and Naso-pharynx. S. Paget.
3 *Opening of Peritonsillar Abscesses. S. Thomson.
4 Soft Fibroma of Larynx and Neck. F. T. Paul.
5 Commonly Overlooked Factors in Vocal Mechanism. R. F. E. Austin.
6 Some Observations on the Pathogenesis and Prevention of Loss of Voice in Singers. J. Horne.
7 *Preliminary Note on Renal Activity During Anesthesia. W. H. Thompson.
8 Transillumination of the Antrum of Highmore. A. B. Kelly.

1. **Affections of Joints.**—Owen strongly urges that more attention be paid by general practitioners to affections of joints, no matter how trivial they may be. A thorough examination should always be made, and though there may be nothing wrong with the joint so far as sight or touch can make out, it is the duty of the physician to put the limb at rest the moment advice is sought. Owen uses side splints made of flannel or leather, preferably of the latter, and describes in detail their use, manufacture and application, for different joints.

3. **Opening of Peritonsillar Abscesses.**—Thomson has adopted the following procedure: To reach the abscess, the soft palate itself must be traversed and the sight of election is a point which can readily be located by drawing an imaginary horizontal line across the base of the uvula and a vertical line along the anterior faucial pillar. The point of intersection is found to overlie the supratonsillar fossi. Just external to this is the best point for opening the abscess. Another guide is that this point will be found on an imaginary line extending from the base of the uvula to the upper wisdom tooth on the same side. The field of operation is cleansed and sprayed with a 5 per cent. cocain solution. The abscess is opened with a pair of Lister's sinus forceps, or a modification of this instrument as devised by Thomson. It is better to use the forceps than the knife. There is less risk of wounding a large vessel, and the patient is more likely to permit the proceeding. The duration of the illness is also curtailed considerably.

7. **Renal Activity During Anesthesia.**—Recent observations carried out by Thompson have disclosed an unexpected effect on the secretion of urine produced by ether and chloroform when inhaled for the purpose of producing anesthesia. In one series of experiments the urine was collected by means of canulas placed in the ureters, the animals being narcotized with morphin supplemented, when necessary, by a short inhalation of a mixture of ether and chloroform. In the second series the urine was drawn off from the bladder by a catheter, no previous narcotics being required. Two opposite effects were noted in the case of each anesthetic. During the administration some of the animals showed a pronounced increase in the secretion of urine, others a marked depression. Both types were exemplified in each class of experiments, but the increased effect was more frequent and pronounced in the ureter experiments, the decrease in the catheter experiments. From these experiments it appears that the early effect of both ether and chloroform, lasting up to the period of complete insensibility, is ordinarily an increase of the secretion of urine. This, as a rule, is more pronounced in the case of ether than of chloroform, but during full anesthesia, however prolonged, the secretion of urine is almost completely arrested. The depressing effect during this period is more pronounced with ether than with chloroform. On removal of the anesthetic the kidneys rapidly recover, and there is hyperacidity which lasts for some hours.

Practitioner, London.
April.

9 *Obscure Cases of Cancer of the Stomach. G. N. Pitt.
10 *Treatment of Scalp Ringworm. T. C. Fox.
11 Pathology and Treatment of Puerperal Eclampsia in the Light of Recent Work. A. W. Sikes.
12 *Cytodiagnosis of Pleural and Cerebrospinal Fluids. E. Turton.
13 Attempts to Find a Specific Remedy for Tuberculosis. C. H. Cattle.
14 Review of Recent Investigations on the Physiology and Pathology of Secretory Tissues. H. B. Shaw.
15 Review of Recent Work in Obstetrics. W. E. Fothergill.

9. **Obscure Cases of Stomach Cancer.**—Pitt reviews a series of 17 cases of cancer of the stomach in which the main symptoms were unconnected with that organ. The symptoms of ascites and pleuritic effusion were present in 7 cases; of matted intestine, 3 cases; of intestinal obstruction, 2 cases; of abdominal suppuration, 2 cases; of profound anemia, 2 cases; of iliac tumor, 1 case. In the history of these cases the gastric symptoms frequently were trivial, and although in some it was realized that there was malignant disease, the involvement of the stomach was but rarely diagnosed. In this connection Pitt draws attention to the valuable information

which sometimes may be obtained by a systematic examination of the glands above the clavicle, and especially of those behind the left sternomastoid muscle. The most important gland and often the only one to be involved, lies behind the two lower roots of the muscle. It may be the only external gland infected by cancer of the abdominal cavity. Growth in this gland in more than half the cases indicates primary disease in the stomach, less often in the uterus and exceptionally in the pancreas, liver, kidney or ovary. The left gland is involved four times as frequently as the right. The history of each case is given in detail.

10. **Treatment of Scalp Ringworm.**—Fox reviews the general rules of procedure and the choice of a method and remedies, that advocated by Aldersmith being given the preference. Fox applies an ointment containing one gram of croton oil to the ounce of a base, and this is rubbed in daily, or as often as necessary, to excite the desired degree of inflammation. Such a state is then maintained by judicious reapplication until all the diseased stumps have fallen or have been epilated. All pus formation is rigorously cleansed away, and the pus formation is not allowed. There is no method, says Fox, comparable to croton oil, needling for residual and isolated stumps.

12. **Cytodiagnosis of Pleural and Cerebrospinal Fluids.**—This subject is thoroughly discussed by Turton. In pleural effusions an excess of lymphocytes generally indicates a tubercular origin; a preponderance of polymorphonuclear cells, an inflammatory process due, for instance, to a pneumococcal or streptococcal infection. A passive or mechanical transudation contains, as a rule, a large number of endothelial cells. The cerebrospinal fluid in meningitis of tubercular origin usually shows lymphocytosis, while in inflammatory states caused by the meningococcus, the pneumococcus or streptococcus, and in posterior basic meningitis it is characterized by an excess of polymorphonuclear cells. The presence of lymphocytes is almost constant in general paralysis of the insane, in tabes dorsalis and in syphilitic diseases generally of the central nervous system. The importance of early antisyphilitic treatment in these diseases is generally acknowledged, and cytology would seem to afford the means of making an early diagnosis.

Bulletin de l'Académie de Médecine, Paris.

16 (Year LXIX, No. 10, March 10.) *Discussion sur la paralysie générale de la syphilis. Raymond and Joffroy.
17 (No. 11.) Foreign Bodies in Joints.—Note sur les corps étrangers articulaires et en particulier sur les corps traumatiques étudies au point du vue expérimental et histologique. V. Cornil and P. Coudray.
18 *Discussion sur la paralysie générale de la syphilis. A. Pinard, Hallopeau and Lancereaux.
19 Action toni-musculaire et diurétique de l'acide formique et des formiates. H. Huchard.

16 and 18. **General Paralysis and Syphilis.**—In the discussion that followed Fournier's communication on this subject, summarized in these columns on page 1153, Raymond emphasized the fact that heredity plays a very important rôle. General paralysis requires a soil prepared by a condition of lesser resistance, inherited or acquired, on the part of the cortex. Joffroy denied any connection between general paralysis and syphilis, affirming that they are two distinct affections both in their origin and in their nature. Syphilis is merely a good manure to render the soil fertile; it does not contain the seed. The geographical distribution of syphilis and general paralysis differs. In certain countries in which syphilis is prevalent and severe, such as Japan, Algiers, Bosnia, Tunis, Abyssinia, Indo-China, Corea and the Malabar coast, general paralysis is exceptional, at least among the natives, and is, in some entirely unknown. When tertiary lesions are observed in a general paralytic, mercurial treatment will cure these lesions although it does not affect the paralysis. On the other hand, syphilitic visceral lesions are exceptional in general paralytics. He regards mercurial treatment as no protection against general paralysis, and as dangerous after it is established. In response, Raymond cited Marchand's recent work which obtained one of the Académie prizes last year. He presented evidence to show that the brains of general paralytics frequently show unmistakable syphilitic lesions. They have to be sought with care in series of sections, examining especially the depths of the furrows separating the convolutions. He found evidences of inherited syphilis in 67 per cent. of all cases of juvenile general paralysis.

Pinard urged that physicians should devote more thought to preservation of the species from syphilis. The profession has accomplished wonders in preserving the wife from contamination, but it has paid too little attention to preserving the offspring. The birth of a healthy child is not a decisive proof that the father has been cured of syphilis. Every syphilitic who wants to have healthy children should take a "heredity course" of mercurial treatment, supplementary to his own course. After the usual careful course of antisyphilitic treatment, when the patient is free from all trace of syphilis and wishes to procreate healthy children, Pinard's practice for twenty-six years has been to institute then a six-months' course of mercuric iodid and potassium iodid before he gives the patient permission to procreate. Pinard orders the same course of treatment for the wife during the entire period of gestation. He orders also a repetition of the same treatment before the procreation of each child. He has never had a failure and he appeals to all physicians to protect the race from the ravages of syphilis. The present prophylaxis protects the man himself, it protects the wife, but it is insufficient to protect the offspring in all cases. Hallopeau regards general paralysis in a syphilitic as an affection induced secondarily in a predisposed subject by specific neoplasms in the meninges or in the brain substance, developing independently later. He suggests the name deuteropathy for such an affection, as this implies its filiation with the mother disease and the independence of the secondary inflammation which has its own evolution and may in time dominate the situation. General paralysis he accepts as a deuteropathy usually induced by syphilis, but liable also to develop under the influence of other causes. Energetic treatment of syphilis may, therefore, ward off the specific lesions, and thus the general paralysis. If the premonitory symptoms of the condition can be detected, with specific treatment on their appearance, the development of the neoplasms may be aborted and the deuteropathy averted. Lancereaux affirms that the lesions of diffuse periencephalitis—which is the essence of general paralysis—differ in every respect from the lesions of syphilis. They differ in character and in evolution and are two affections between which there is no connection. Raymond in reply cited data to prove that better knowledge has revealed a closer connection between many things than was at first imagined. He added that when the data furnished by histology seem to contradict those of the clinic, we must always appeal from pathologic anatomy with imperfect technic to better informed pathologic anatomy.

Presse Médicale, Paris.

Last indexed page 1231.

20 (1905, No. 6.) *Pathogénie de certains cas d'edème aigu du poumon (acute edema of lung). O. Josué.
21 Indications de l'hystérectomie abdominale pour annexites. J. Delage.
22 *X*-rays in Ophthalmology.—Action des Rayons X sur l'oeil et radiothérapie oculaire. G. de Lapersonne.
23 (No. 7.) Medical Mutual Life and Accident Insurance.—L'assurance mutuelle-médicale. Vimont.
24 *Procédé de néphrectomie pour cancer. R. Grégoire.
25 L'action du muscle court supinateur dans la paralysie du nerf radial. G. Guillain and Courtellement.
26 (No. 9.) *Polyurie et éliminations urinaires dans le méningite cérébro-spinale. Loeper and X. Gouraud.
27 *Les maladies infectieuses et l'herédité. J. De Nittis.
28 (No. 10.) L'enseignement ostétrical à la clinique Tarnier (instruction in obstetrics). Budin.
29 *Les neurofibrilles d'après la méthode et les travaux de S. Ramon y Cajal. L. Azoulay.
30 (No. 11.) *Les nouveaux appareils à chloroformisation. F. Jayle and G. Berruyer.
31 *Paraplégies diphthériques frustes. C. Aubertin and L. Babonneix.

20. **Acute Edema of the Lung.**—Josué is convinced that there is some close connection between arterial hypertension, atheroma and acute edema of the lung in many cases of the latter. The symptom-complex, in his opinion, suggests some functional disturbance in the suprarenals. Repeated injections of small amounts of the active principle of the suprarenals produce typical lesions of arterial atheroma in animals. On the other hand, he has found indications of excessive functioning of the suprarenals in 3 atheromatous cadavers. If considerable

amounts of the active principle of the suprarenals are injected into rabbits the animals invariably succumb with symptoms of acute edema of the lungs. His experimental research failed to show that kidney lesions had any direct predisposing influence on the occurrence of acute edema of the lungs, phenomena were noted, however, which suggested the possibility that a primary kidney lesion, with its resulting autointoxication, might be the primal cause of the excessive functioning of the suprarenals.

24. **Nephrectomy for Cancer.**—Grégoire describes a technic by which the kidney, the tumor and the surrounding tissues, the lymphatics and the cellular adipose tissue and ganglia can all be removed in one piece as in operating on the mamma. He followed this technic in several cases and found it exceptionally simple and easy, while the results promise to be permanent. The patient lies half way between the dorsal and the lateral decubitus, with a block of wood under the lumbar region. The incision is on an extension of the axillary line, and reaches from the costal arch to the iliac crest. It is then carried forward, skirting the costal arch for 4 or 5 cm., and then downward along Poupart's ligament, thus outlining a flap, down to but not through the peritoneum. This allows ample access to the kidney and its environment. The article is illustrated.

26. **Urinary Elimination in Cerebrospinal Meningitis.**—Loeper asserts that polyuria dominates the urinary syndrome in ordinary cerebrospinal meningitis. He has had patients with a temperature of 40 C. and over, who passed from 3 to 4 quarts of urine a day. The urine is clear, only slightly, if at all, albuminous, but azoturia is the rule. From 34 to 47 and 57 gm. of urea were found in the urine of some of the patients, the largest amount being 84 gm. in one patient with 2 liters of urine. The elimination of chlorids is uneven, from 5 to 17 gm. were noted and 24 gm. in the morning with 7 in the evening in one patient. Phosphates were found in large proportions in the 3 cases examined from this point of view. Drugs ingested appeared in the urine exceptionally promptly and abundantly, showing exaggerated permeability of the kidneys in this disease. The proportions of sugar and urea in the blood were also remarkably high. The phenomena observed indicate overproduction and overelimination from bulbar irritation. If the case is a very grave one, or if it is due to the pneumococcus, this polyuria does not occur. When the toxic infection is intense, this overproduction and overelimination are not observed. The character of the urine is so special that it serves to differentiate ordinary cerebrospinal meningitis from typhoid fever, grippe and tuberculous meningitis, and the differentiation is confirmed by examination of the cerebrospinal fluid.

27. **Infectious Diseases and Heredity.**—De Nittis marshals arguments from botany and natural history to show that certain diseases are capable of modifying the race until the modification becomes a normal condition in the race, as it were, and the lesions characteristic of the disease reappear in the later generations. He cites the potato as an instance, stating that the tubers are not normal growths but are parasitic tumors reproduced by heredity in successive generations. The conditions of nutrition and evolution are modified by the parasite, and these modifications may be transmitted to the descendants without the intervention of new infection.

29. **Ramon y Cajal's Stains for Nerve Tissue.**—Azoulay gives in minute detail Cajal's technic for staining nerve tissue. Fresh tissue is wet with a solution of silver nitrate and is then reduced with some organic reducing fluid, such as pyrogallic acid. A 3, 6 or 8 per cent. solution of silver nitrate is best for the neurofibrils of the invertebrates and gives the best results after two to five days. The vertebrates give better results when a .5 to 1.5 per cent. solution is used, with final results by the fourth to sixth day or even later. Certain animal species have still proved rebellious to the stain, the earthworm, among others.

30. **Apparatus for Chloroformization.**—Jayle gives illustrated descriptions of the four principal apparatus devised to supply chloroform mixed with air, with or without oxygen.

31. **Abortive Diphtheritic Paraplegia.**—The abolition of the kneejerk may be the sole symptom of a postdiphtheritic paraplegia, or the paralysis may exist in an infinite number of forms, ranging from mere paralysis of the velum to the diphtheritic poliomyelitis in acute ascending spinal paralysis.

Revue de Chirurgie, Paris.

Last indexed page 1071.

32 (XXV, No. 3.) La castration contre l'inversion sexuelle. C. Fere.

33 *Entrance of Air into Veins During Operation.—De l'entrée de l'air dans les veines. X. Delore and R. Duteil.

33. **Entrance of Air into Veins During Operations.**—Delore and Duteil report a case of sudden death due to entrance of air into a vein during removal of a very large malignant tumor from the neck of a man of 36. They epitomize the published history of cases in which air has entered a vein during operations, and remark that the rarity of the occurrence is probably owing to the preliminary compression of the blood vessels for provisional hemostasis. The veins in the field of operation should always be compressed to prevent such a contingency as the entrance of air. When the catastrophe has occurred, relief might be obtained by drawing blood from the arm. In any event, when it has been definitely established that air has penetrated into a vein the auricle should be punctured without delay. Experiences with animals and on the cadaver have shown that such a puncture is perfectly harmless, and, if done in time, can not fail to prove as invariably successful as in the experimental tests. The auricle suffers most from the distension, owing to the thinness of its walls. An aspirating puncture of the right auricle would not only relieve the heart but would also aspirate the air from the vein trunks. The needle connected with the suction apparatus is introduced through the third left interspace, about 1.5 cm. from the margin of the sternum, and the point is directed toward the middle of the sternum as soon as it has pierced the wall. The needle will probably traverse a little lung tissue, but the hole is so minute that no harm results. In the case described in detail puncture was done but not until late. The result might have been different if it had been done more promptly.

Semaine Médicale, Paris.

34 (XXV, No. 10, March 8.) *Cure of Myxedema by Thyroid Grafting.—La guérison du myxédème par la greffe thyroidienne. H. Cristiani (Geneva).

35 *De l'hémostase provisoire et préventive dans les désarticulations scapulo-humérale et coxo-fémorale et dans les amputations intéressant le quart supérieur des membres. E. Estor (Montpellier).

36 *La stérilisation facultative de la femme. Editorial.

37 (No. 11.) Pathogénie et variétés cliniques du rétrécissement mitral (mitral stenosis). E. Barié.

38 Drinking Water and Milk Regarded as Articles of Food and Responsibility for Their Adulteration.—De l'assimilation de l'eau potable et du lait aux denrées alimentaires, etc. Editorial.

34. **Thyroid Grafting in Treatment of Myxedema.**—Cristiani has been continuing the research on this line, described in The Journal, page 846 of the last volume. He has followed to date his patients first operated on, and reports a number of new cases. One was an English girl of 21, of a healthy family and healthy herself until the age of 15, when she began to exhibit symptoms and by the end of two years presented the complete syndrome of myxedema with difficulty in breathing. Partial thyroidectomy in 1902, to relieve the dyspnea, was followed a year later by removal of all the rest of the gland. It was found completely degenerated, and the symptoms of myxedema increased in intensity. They were somewhat relieved by fluid thyroid extract, and it was found that 30 drops, in three doses during the day, kept the patient permanently in a bearable condition, although the slightest fatigue brought on more or less prostration. In July, 1904, 16 pieces of the histologically sound parts of a hypertrophied thyroid gland removed from another young woman were grafted into the patient. Each scrap weighed about 10 cg., and they were implanted in little tunnels burrowing in different directions from four incisions in the skin about 2 cm. long, one between the breasts, two on the posterior axillary line and one in the scar on the neck from the thyroidectomy. One scrap was implanted in the ear to serve as a control. The total thus grafted was

about one-tenth of a normal thyroid gland. The manifestations of the myxedema in the cheeks, neck, mammæ and hips vanished at once. There was absolute metamorphosis of the patient in three days as the signs of myxedema rapidly subsided. In order to spare the young grafts, the thyroid extract was kept up for a time in doses of 5 to 20 drops a day. It was found that the patient was kept in the best condition when she took 20 drops a day continuously. This was two-thirds of the amount previously necessary, and it was assumed, therefore, that two-thirds more of thyroid substance were required for a complete cure. In October, 1904, 28 scraps from another patient were implanted as before through four incisions. The results were as prompt and striking as after the first operation, and the patient grew progressively better. The fluid thyroid extract was soon completely suspended and the young girl has since been in apparently perfect health, even through the stress of an ultra-fashionable wedding. Most of the grafts are evident on palpation, and have become durable and functionally capable neo-thyroid organs, the same as in Cristiani's experiments with animals, and in the other experiences related. The latter include the cure of cretinism in a child of 3 after thyroid grafting.

35. **Preventive Hemostasis in High Amputations of Limbs.**—Estor's method of hemostasis is to be applied wherever the slope of the parts renders it difficult to keep the Esmarch bandage from slipping. He takes up a fold in the skin and nips this fold with a pair of forceps. Three or four other forceps are applied in the same way on the fold of skin, which encircles the limb. The Esmarch bandage is then applied, centrally of the forceps, which are held perpendicularly by assistants. After the bandage is in place the forceps are laid over backward on the skin, over the Esmarch band, and a rubber tube is passed through the handles and fastened, thus forming a second loose band above the root of the limb. The tourniquet can then be drawn as tight as desired, the grasp of the row of forceps on the fold of the skin absolutely preventing it from slipping down. The second band is merely to hold the forceps handles loosely in place. In disarticulation of the hip, the external iliac artery can not be compressed by the tourniquet as it lies below the plane of compression, but this is remedied by introducing a pad under the bandage at this point. The femoral artery did not bleed a drop in amputating the upper third of the thigh in a recent case, under this technic, and it has proved equally effective for the shoulder and hip.

36. **Facultative Sterilizing of Woman.**—This editorial states that the idea of operative sterilizing of woman is ancient, but that it was first carried into practice by J. Kocks of Bonn in 1878. He obliterated both tubes with the actual cautery in a consumptive woman, a iv-para. The operation found no imitators, but nineteen years later Kehrer, of Heidelberg, reported section of both tubes after anterior colpotomy in an invalid, who in seven years had borne seven children. Other communications on the subject were published afterward, nearly all German, discussing the best technic for operative sterilization. The editorial concludes by stigmatizing the whole question of facultative sterilization, temporary or permanent, as one with which the physician should have absolutely nothing to do.

Berliner klinische Wochenschrift.

39 (XLII, No. 8, February 20.) Paralysis from Fright—Recovery Under Psychic-Suggestive Treatment.—Ein Fall von Schrecklähmung. E. v. Leyden.
40 Die klinische Anwendung des Streptokokkenserums (especially as prophylactic). F. Meyer.
41 Ueber dialysiertes Diphtherie-Gift (toxin). P. H. Romer (Marburg).
42 Ein neuer Fall von intrauteriner Skelettierung. A. Hirschberg.
43 *Ein Fall von congenitaler Pulmonal-Stenose, sowie Bemerkungen über die Diagnose des offenen Ductus Botalli. G. Arnheim.
44 Lokale Anaesthesia und Analgetica.—Ozaena. G. Finder.

43. **Congenital Pulmonary Stenosis.**—The diagnosis of patency of the ductus arteriosus is still very uncertain, Arnheim remarks. He describes the findings in a case of congenital pulmonary stenosis and tabulates these of 9 other cases of stenosis with or without a patulous foramen ovale. The behavior and transmission of the sounds in each case are also listed in the tables. Cyanosis was by no means constant in the 10 cases of pulmonary stenosis. The pulse was weaker on the left in one case, and on the right in another; in the others it was even and regular. The murmur was not always systolic. In the case with persistent ductus arteriosus the murmur was presystolic, diastolic, loudest in the third left interspace, and the pulmonary sound was strongly accentuated but was not heard from behind. In 40 cases of pulmonary stenosis on record, all the fetal passages were obliterated in only 2. In 5 the septum was normal but the foramen ovale was patulous.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 1073.

45 (XXXII, No. 10, March 11.) Ein Fall von Milzexstirpation wegen Aneurysma der Arteria lienalis (splenectomy). V. Winckler.
46 New Pelvis Support.—Eine neue Beckenstutze. A. Hofmann (Freiburg).
47 (No. 11.) *To Facilitate Vaginal Hysterectomy in Case of Thickened Cervix.—Eine Erleichterung der vaginalen Uterusextirpation bei verdickter Cervix. C. Lauenstein.

47. **To Facilitate Vaginal Hysterectomy.**—When the cervix is abnormally thick and large, Lauenstein removes first the lower segment of the uterus. This is done by an oblique incision as for Schröder's supravaginal high amputation of the cervix. The rest of the uterus then shells out with remarkable ease.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 1073.

48 (XXIX, No. 10, March 11.) Acute Edema of Cervix During Pregnancy.—Fall von akutem Odem der Muttermundslippen während der Schwangerschaft infolge Koprostase. L. Seitz.
49 *Avoidance of Bladder Disturbances After Gynecologic Operations.—Die Vermeidung von Blasenstörungen nach gynäkologischen Operationen. A. Gutbrod.
50 "Studien zur Physiologie des Uterus." E. M. Kurdinowski.
51 (No. 11.) Ueber Facialis- und Hypoglossus-Parese nach Spontangeburt (after spontaneous birth). A. Stein.
52 Die Symphyseotomie ist eine chirurgisch inkorrekte Operation. L. Gigli.

49. **To Prevent Bladder Disturbances After Gynecologic Operations.**—Gutbrod ascribes such disturbances to pressure on the bladder from the previously misplaced uterus. He counteracts this by leaving a catheter in the bladder for five days. When removed after this period, the bladder has adapted itself to the new conditions and there is no further trouble. He has never had a failure in fifty cases thus treated. He leaves the catheter in place for eight days after a colporrhaphy; drainage of the bladder in this way during the first week prevents recurrence later.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

53. (XXXI, No. 7, February 16.) *Die Prophylaxe und Abortiv-Behandlung der Gonorrhoe. E. Finger.
54 Sacrifice of Living Child in Behalf of Mother.—Zur Frage der Opferung des lebenden Kindes zum Vorteil der Mutter. O. v. Herff.
55 Erfahrungen auf dem Gebiete der Chirurgie der Gallenwege (of biliary passages). Riese.
56 *To Increase Agglutinability of Bacilli.—Steigerung der Agglutinierbarkeit der Typhus-Bacillen und ihr Wert für die Typhus-Diagnose. Sehrwald.
57 *Die Verwendung der Spiritusverbände (alcohol dressings). Brugger.
58 (No. 8.) *Ueber Indikationen und Methoden der fakultativen Sterilisierung der Frau (induced sterility of woman). O. Sarwey (Tubingen).
59 *Ueber Misch-Narkosen im Vergleich zur reinen Chloroform- oder Aether-Narkosen. B. Müller.
60 Einige Fälle von Perforation des Duodenums und Magens (of stomach). O. Croce.
61 Zur Abortiv-Behandlung der Gonorrhoe nach Blaschko. F. Block.
62 *Light Phenomena After Rubbing Skin with Incandescent Lamp.—Licht-Erscheinungen nach Reibung der menschlichen Haut mit Glühlampen. Sommer.
63 Hemostasis with Jet of Superheated Air.—Ueber Blutstillung an parenchymatosen Organen (Leber, Nieren) mittels Heissluft Dusche. H. Schlee.
64 Infection from Kissing the Hand.—Influenza und Handküssen. A. Duhrssen.
65 Die Sanatorium-Frage in Italien. M. Segale.

53. **Prophylaxis and Abortive Treatment of Gonorrhea.**—Finger commences a systematic course of treatment in every case of recent infection. The more recent and the slighter the symptoms, the stronger the concentration of the silver salt he uses, while with established lesions he uses one-quarter this strength. In regard to individual prophylaxis, experience has demonstrated that none of the measures recommended to date are either absolutely reliable or harmless.

56. **To Enhance Agglutinability of Typhoid Bacilli.**—Sehrwald announces that stems of typhoid bacilli which do not agglutinate readily can be modified in this respect by being grown on sterile potato or on media containing potato juice. They acquire the property of becoming agglutinated much more rapidly and thus hasten the response to the test.

57. **Alcohol Dressings.**—Brugger indorses the advantages of the permanent alcohol dressing for pain, inflammation and suppuration of all kinds. The dressings must be large and must be kept moist, but not wet, with the alcohol. Vollbrecht applies the alcohol on a bag of sifted sawdust. This fits like a soft cushion over the part and keeps moist for about twenty-four hours. The pain is relieved, the inflammation subsides and the general effect is very favorable. The alcohol dressings are as useful for the hospital and army surgeon as for the general practitioner and in dispensary practice. There are no inconveniences from their use except the trifling and transient puckering of the skin and the danger of fire.

58. **Facultative Sterilization of Women.**—The editor of the *Wochenschrift* commissioned Sarwey, professor of gynecology at Tübingen, to present in concise form the present status of the question of facultative sterilization, how far the physician is justified in performing it, under what circumstances it appears to be necessary and how it can be accomplished. He accepts as indications for it: 1. A pelvis so contracted that cesarean section will probably be required, or one in which a previous childbirth has been very difficult; 2. A general and local affection accompanied by general depression, with the probability of aggravation by a pregnancy. This list includes osteomalacia, psychoses, especially those of a melancholic or maniacal character, chronic heart, lung, intestine or kidney disease, severe anemic and cachectic conditions and disturbances of the general health such as may be induced by various physical anomalies. The third indication he calls the "social." He remarks that this indication is not generally recognized, but that all the objections urged against it are confronted by the fact that when the family keeps increasing continuously year after year in a home where poverty rules, the mother's strength and health become undermined and she is unable to rear and care for her children properly. The excessive number of children in the homes of the poor is, in some cases, he believes, the direct cause of the crime and ruin that overwhelm certain families. The prevention of such tragedies by prophylactic instruction Sarwey regards as a grateful task for the family physician, after he has maturely weighed all the circumstances and realizes his responsibility. A fourth indication for facultative sterilizing of the wife is afforded by a grave family history of tuberculosis or insanity, when the physician's advice has not been heeded that such persons should not marry. Sarwey reviews in detail the operative and other means of preventing conception, temporary or permanent, chemical, mechanical and surgical. He thinks that the ethics and technic of facultative sterilization of woman should be taught in the medical schools and incorporated in the textbooks. He remarks that the present abuse of temporary measures to prevent conception might be controlled by more stringent legislation against them, allowing their sale only on a doctor's prescription.

59. **Mixed Anesthetics.**—Müller reports the results of experiments on animals, mostly dogs, anesthetized with various anesthetics in turn, chloroform, ether, etc., with subsequent investigation of the condition of the parenchymatous and other organs. The anesthesia proceeded more smoothly sometimes when two or more different drugs had been used, but the toxic influences on the organs were much more pronounced than with one alone. The toxic action of the two drugs seemed to be superposed with a cumulative action, while the by-effects of the drugs had an unmistakably depressing influence besides.

62. **Light Phenomena After Rubbing Skin with an Incandescent Lamp.**—When a new incandescent lamp, with the current turned off, is rubbed on the skin, or on wool or fur, light is generated. The light is sufficient to take the outline photograph of solid objects. The amount of light generated varies with different parts of the body and with different persons. Sommer thinks that the phenomenon may repay further study of the physiologic conditions as influencing these differences.

Münchener medicinische Wochenschrift.

66 (LII, No. 9, February 28.) *Ueber chemische Befunde bei Nephritis (chemical findings). T. Rumpf.
67 *Beitrag zur Behandlung der myeloiden Leukämie mit Röntgen-Strahlen (*X*-Rays). K. Schleip and W. Hildebrandt.
68 *Extraction of Foreign Body in Esophagus.—Fremdkörperextraktion im Oesophagoskop. H. Starck.
69 *Id.—Die Diagnose und Extraktion von Fremdkörpern der Speiseröhre mit dem Oesophagoskop. A. Reizenstein.
70 *Inflation of Esophagus to Promote Passage of Foreign Body.—Ueber Oesophagusaufblähung zur Beseitigung eines Fremdkörpers. O. Franck.
71 Value of Cystoscopy in Injuries of Bladder and Ureters.—Was leistet die Cystoskopie bei Verletzungen der Blase und der Ureteren? L. Thumim.
72 *Zur Technik der Laparotomie. B. Müller (Hamburg).
73 Zur endermatischen Anwendung des Guajakols. Hecht.
74 Ueber innerliche Darreichung von Lysol bei Anämie und seine mächtig den Appetit anregende Wirkung. F. Burger.
75 Tuberkulose und Gravidität. M. v. Holst.
76 Zur Frage der therapeutischen Dosierung der Röntgen-Strahlen (dosage of *X*-rays). F. Dessauer.

66. **Chemical Findings in Nephritis.**—Rumpf here relates the results of chemical study of cases of nephritis, the research extending over the years since 1894. The blood, kidneys, heart, liver and spleen were exhaustively analyzed postmortem. Among the facts thus ascertained is the unmistakable retention of organic substances in the blood and tissues in the early stages of chronic nephritis. The proportion of water was below normal while the proportion of solids was unusually high. In the later stages this finding is less distinct. The proportion of sodium chlorid in the kidney of adults was much above that in the blood and other organs in many cases. This finding was particularly marked in certain cases of nephritis, but not invariably in all. In many cases of nephritis the proportion of sodium chlorid in the blood and tissues was quite high, but not the maximum encountered. In certain cases of chronic nephritis, the percentage of sodium chlorid in the blood and other organs was rather below than above normal although associated with edema, albuminuric retinitis and uremic phenomena. Pericardial, pleural and peritoneal effusions in case of nephritis, not complicated with dropsy of cardiac origin, were sometimes unusually rich in sodium chlorid and sometimes not, so that the origin of the effusion can not be ascribed to retention of sodium chlorid. The proportion of sodium chlorid in 9 cases of peritoneal effusion without nephritis (6 cases of cirrhosis of the liver, one of tuberculosis, and one of a complicated heart defect), was considerably higher than was encountered in any case of nephritis The retention of sodium chlorid is not so important for the dropsy of kidney disease as has been lately proclaimed, although there is no doubt that it has a certain importance from this point of view. There is retention of various other salts as well as of the chlorid; potassium, sodium, calcium and magnesium salts are also retained. The proportion of the latter in the blood was found remarkably high both in acute nephritis and in the cases of nephritis complicated with arteriosclerosis The frequent increase in the mostly organically bound potassium confirms the assumption of retention of organic substances in the blood and tissues.

67. **Roentgen Treatment of Myeloid Leukemia.**—The spleen in the case reported by Schleip extended a hand's breadth to the right of the linea alba and reached down to the region of the symphysis. It was firm to the touch but not painful. The blood findings were those of typical myeloid leukemia, with symptoms first noted two and a half years before. The changes in metabolism and in the composition of the blood are tabulated. They show great improvement under the Roentgen treatment. The exposures aggregated 800 minutes in the course of four months, about 650 minutes being devoted to the spleen and the rest to the bone marrow. At the end of this time the red corpuscles numbered 3,600,000, the leucocytes 28,600, and the hemoglobin 80 per cent.; the patient felt and looked extremely improved. The course was supplemented by arsenic. The treatment was suspended at the end of four months on account of symptoms on the part of the intestines and peritoneum, diarrhea and ascites, first commencing with the arsenic.

68-69. **Esophagoscopy.**—Starck related a few months ago his experience with esophagoscopy in 65 cases in which it afforded extremely valuable diagnostic information. He here describes 4 cases in which it allowed the extraction of a foreign body, and mentions that 73 instances of the kind have been published. He urges it as a routine measure, in every case of an impacted foreign body, in the place of any other maneuver. If the extraction through the esophagoscope is not feasible, then gastrotomy should follow without delay.

Reizenstein echoes his recommendation of the esophagoscope, and urges that it should be used at once, before damage has been done to the wall of the organ by the foreign body. He relates 6 instructive instances of its use.

70. **Inflation of Esophagus to Promote Passage of Foreign Body.**—Franck tells of a case in which a chunk of tough meat had become impacted in the esophagus and caused much distress. It was on shipboard, and no means of relief were at hand. He finally applied the principle used in inflating the stomach for diagnostic purposes. He mixed the two parts of an effervescent powder with a little water and had the patient drink each separately. He held his mouth and nose so that the fluid could not escape. Palpation of the stomach showed that the occlusion of the esophagus had been complete as none of the gas generated found its way into the stomach. After a brief, violent effort, the patient felt the chunk pass on downward into the stomach.

72. **Improved Technic of Laparotomy.**—Müller recommends what he calls his "laparotomy cuff" to prevent infection of the lips of the wound. It consists of rubber tissue made with parallel narrow strips of steel, about 3 cm. apart. Two pieces of the rubber tissue are cut, each a little longer than the length of the wound. They are bent over the edge of each lip of the wound, the steel strips being bent like a stirrup, the cuff thus fitting close over the edge of the wound and for some distance back over the skin above and under the peritoneum below. If desired, a string is passed through a hole in the longer end of each steel strip above the skin, the ends of the strings being brought together and a weight fastened to them, serving as an automatic retractor for each lip of the wound. The weights are not necessary, as the elasticity of the bent steel strips holds the cuff in place. It protects the wound from all contact with instruments, hands, forearms, or infecting material, and against every possible infection from the exterior, from the air, from droplets, etc. If the cuff becomes soiled it is easy to replace it with a clean one. The sheet of rubber is made by the yard with the flexible metal strips running through it at 3 cm. intervals. The long end of each metal strip measures about 8 cm., the shorter end about 5, and the central part, bent at right angles, measures from 3 to 5 cm. The short end of the strip terminates in a knob or plate, to prevent injury of the peritoneum. The short end is bent inward a little to ensure an elastic hold on the abdominal wall.

Therapeutische Monatshefte, Liebreich's, Berlin.

Last indexed page 1233.

77 (XVIII, No. 12.) Serum Treatment of Hay Fever.—Zur Serumbehandlung des Heufiebers. A. Lübbert (Hamburg).
78 Night Sweats in Phthisis.—Ueber Nachtschweisse bei Lungen-Tuberkulose und deren Bekämpfung. Ulrici.
79 Urotropin als Prophylacticum gegen Scharlach-Nephritis (scarlatinal). K. Patschkowski.
80 *Zur Technik der Bandwurmkuren (tape-worm expulsion). I. Boas.
81 Zur Pathologie und Therapie der Pädatrophie (atrophy of digestive glands). A. Hecht.
82 Behandlung eingeklemmter Brüche (incarcerated hernia). Hüls.
83 *Detection of "Occult" Blood with H_2O_2.—Blutnachweis durch Wasserstoffsuperoxyd. F. Schilling (Leipsic).

80. **Treatment of Tape Worm.**—Boas slights the preliminary preparation of the patient and uses a much smaller dose of the vermifuge than some consider necessary. He gives from 5 to 8 gm. of extract of male fern in the morning, fasting. Six hours later—not before—he gives the purgative, preferring a "bitter water" for the purpose. Oil is liable to promote the absorption of the fern extract, and calomel is unreliable in these cases. He relates several instances to show the success of this simple technic after the failure of ten or more previous "tape worm treatments." When the patient vomits easily, he pours the extract into the stomach in the form of a thin gum arabic emulsion. In one instance he injected morphin at the same time.

83. **Detection of Blood with H_2O_2.**—Schilling calls attention to the value of the information afforded by addition of a few drops of H_2O_2 to any substance in which the presence of blood is suspected. Tiny bubbles form in the presence of blood, and rise up in foam. These bubbles are always clear as water; the substance being tested becomes decolorized in the bubbles. He uses a 20 per cent. solution of H_2O_2. Tests have shown that the bubbles still form at a dilution of the blood long past the point of visibility, even at 1 to 1,600. Clinical tests with stomach content, feces, etc., demonstrated that this simple test for "occult hemorrhage" deserves to rank with the guaiac or aloin-turpentine test.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

DISEASES OF THE SKIN, their Description, Pathology, Diagnosis and Treatment, with Special Reference to the Skin Eruptions of Children and an Analysis of 15,000 Cases of Skin Disease. By H. Radcliffe-Crocker, M.D. (Lond.), F.R.C.P., Physician for Diseases of the Skin in University College Hospital. Third Edition, Revised and Enlarged. Special Illustrated Edition, with 76 Plates and 112 Illustrations. Vols. I and II. Cloth. Pp. 1466. Price, $8.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

RECURRENT EFFUSION INTO THE KNEE JOINT AFTER INJURY, with Especial Reference to Internal Derangement Commonly Called Slipped Cartilage. An Analysis of 750 Cases. A Clinical Lecture Delivered at St. George's Hospital. By Sir William Bennett, K.C.V.O., F.R.C.S., Senior Surgeon to St. George's Hospital. With 11 Illustrations. Cloth. Pp. 28. Reprinted from the *Lancet*. New York and Bombay: Longmans, Green & Co. 1905.

DISEASES OF THE HEART. A Clinical Text-Book for the Use of Students and Practitioners of Medicine. By Edmund H. Colbeck, B.A., M.D., B.C. (Cantab); F.R.C.P. (London); D.P.H. (Cantab), Physician to Out-patients at the City of London Hospital for Diseases of the Chest. With 43 Illustrations. Second Edition, Revised and Enlarged. Cloth. Pp. 350. Price, $2.50. Chicago: W. T. Keener & Co. 1905.

MALFORMATIONS OF THE GENITAL ORGANS OF WOMAN. By Ch. Debierre, Professor of Anatomy in the Medical Faculty at Lille. With 85 Illustrations. Translated by J. Henry C. Simes, M.D., Emeritus Professor of Genito-Urinary and Venereal Diseases in the Philadelphia Polyclinic. Cloth. Pp. 182. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

A GERMAN-ENGLISH DICTIONARY of Terms Used in Medicine and the Allied Sciences. By the late Hugo Lang, B.A. Edited and Completed by Bertram Abrahams, M.B., B.Sc., F.R.C.P., Assistant Physician, Westminster Hospital. Cloth. Pp. 598. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

THE THYROID AND PARATHYROID GLANDS. By Hubert Richardson, M.D., Late Pathologist to Mount Hope Retreat. With 77 Half-tone Illustrations Made from Special Drawings by F. P. Wightman. Cloth. Pp. 261. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

ISTHMIAN CANAL COMMISSION. Sanitary Conditions on the Isthmus of Panama. Report of Dr. C. A. L. Reed, with Reply of the Isthmian Canal Commission and Letters of the President and Secretary of War in Reference Thereto. Paper. Pp. 63. Washington, D. C. 1905.

NINTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE SPRINGFIELD STATE HOSPITAL of the State of Maryland, Sykesville, Md., to His Excellency, the Governor of Maryland, Oct. 1, 1904. Paper. Pp. 61. Baltimore: The Sun Book and Job Printing Office. 1905.

FIFTY-SIXTH ANNUAL REPORT of the Board of Trustees and Superintendent of the Central Indiana Hospital for the Insane for the Fiscal Year Ending Oct. 31, 1904. Paper. Pp. 86. Indianapolis: W. B. Burford. 1905.

TWENTY-NINTH ANNUAL REPORT OF THE LADIES' UNION CHARITABLE SOCIETY, Conducting the Lawrence General Hospital and Children's Home, for the Year Ending Sept. 30, 1904. Paper. Pp. 71. Lawrence, Mass. 1904.

TWENTY-NINTH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE NEW JERSEY STATE HOSPITAL at Morris Plains, for the Year Ending Oct. 31, 1904. Paper. Pp. 134. Paterson: News Printing Co. 1905.

TRANSACTIONS OF THE AMERICAN ROENTGEN RAY SOCIETY. Cloth. Fifth Annual Meeting, St. Louis, Mo., Sept. 9, 10, 12 and 13, 1904. Cloth. Pp. 183. Philadelphia: A. H. Sickler Co. 1905.

EIGHTH BIENNIAL REPORT OF THE EASTERN INDIANA HOSPITAL FOR THE INSANE, for the Period Ending Oct. 31, 1904. Paper. Pp. 107. Indianapolis: Wm. B. Burford. 1905.

ANNUAL REPORT OF THE ASYLUM FOR CHRONIC INSANE, Milwaukee County, for the Year Ending Sept. 30, 1904. Paper. Pp. 54. Milwaukee: E. Keogh Press. 1905.

REPORT OF THE TUBERCULOSIS COMMISSION OF THE STATE OF VERMONT in the General Assembly, 1904. Paper. Pp. 28. Rutland, Vt.: Tuttle Co. 1904.

MEDICAL PHILOLOGY. Gathered by L. M. Griffiths, M.R.C.S. Eng. Part 1. A—El. Cloth. Pp. 100. J. W. Arrowsmith, Bristol. 1905.

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Original Articles

SOME INTERESTING AUTOPSY FINDINGS IN EPILEPTICS.*

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[From the Pathological Laboratory of the Craig Colony for Epileptics.]

When I assumed the duties of pathologist to the Craig Colony, a year ago, the task before me of studying the pathology of epilepsy seemed a hard one, promising but little fruit. That such a pessimistic feeling had justification will be seen from the following passage by an author of such repute as Gowers,[1] and whose name is so intimately associated with the subject of epilepsy:

> Of the histologic changes revealed by the microscope, most of those which are not common, apart from symptoms, are apparently of secondary origin, the result and not the cause of the convulsions; and the various changes that have been described and have been supposed to be related to the origin of the disease have probably no connection with it, and do not even deserve enumeration. No greater significance can be ascribed to the induration of the cornua ammonis (pes hippocampi) to which weight has been attached by Meynert. Nor is there at present much likelihood that our knowledge will be more definite. The changes in the nerve elements are probably of that molecular character which is revealed only by altered functions and deludes the most minute research.

With such a basis to start from, the prospect of throwing new light on the pathogenesis of epilepsy along the lines of pathologic anatomy and pathologic histology seemed very small indeed. Nevertheless, an expectant neutral attitude of unprejudiced observation seemed indicated and has brought forth some gratifying results, showing that the field of pathologic anatomic and pathologic histologic research is not altogether exhausted and that quite a little may be learned yet about epilepsy from investigation in this direction.

In a recent paper, Dr. M. Allen Starr[2] makes the statement that a careful review of many facts offered by recent advances of our knowledge of the nervous affections seems to him to demonstrate the fallacy of the prevailing opinion and to prove conclusively that epilepsy is usually, if not always, an organic disease.

Whether and to what extent Dr. Starr's statement is borne out by the facts to be presented below is left to the judgment of the reader. The said facts are the outcome of experiences gained in sixteen autopsy cases of "epilepsy," in thirteen of which the brain was examined.

It should be said here that it is more appropriate to speak of epilepsies than of epilepsy, since the variety of the forms of this disease, if we so choose to call it, is so great that they ought to be kept apart. Indeed, it is my conviction, expressed in a previous publication,[3] and supported by such an author as Féré, that we should rather consider epilepsy as a symptom than as a disease, which symptom may accompany pathologic processes of different nature and location.

If we put ourselves on this broad and neutral basis, then the anatomic findings here presented may find their due appreciation and, eventually, classification.

Before proceeding to the enumeration of the autopsy findings, a word should be said regarding the difficulties that assail us in attempting to obtain material for pathohistologic investigations.

In the first place, it is very often difficult to obtain an autopsy. This difficulty has been greatly diminished by the legislative efforts of Dr. William P. Spratling, which, pursued through several years, have finally borne fruit. The result of this effort is the passage of a law allowing, under certain restrictions, autopsies on all indigent cases dying at the colony, and affording thus a greater number of autopsies than it was possible to obtain before it was passed. While the restrictions above mentioned are still quite considerable, the passage of this law is a great step in advance, the breaking of ground for further gains in that direction. However, even under this law the autopsy has sometimes to be made as late as forty-eight hours after death, which would, under ordinary circumstances, entirely spoil the nervous system for histologic investigations. This impossibility of obtaining an early autopsy being of very frequent occurrence, means had to be found of preserving the central nervous system preliminarily as soon as possible after death, so as to make the material available for investigations even under such unpropitious circumstances. This was done by injecting into the dural sac a 12 per cent. solution of formalin by means of lumbar puncture and of puncture through the foramen magnum. This method, which I described in the *Medical Record*, July 9, 1904, proved very efficient, as shown by the fact that pieces from the cortex of the motor region, cerebellar cortex, caudate nucleus and the medulla of a brain preserved in such manner[4] reacted beautifully to the neuroglia stain. This, in view of the rapidity with which neuroglia otherwise undergoes postmortem decomposition, shows the value of the method.

The further advantage of the method is that it hardens at the same time and thus preserves the shape of the different structures. It shares this virtue with

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Gowers: A Manual of Diseases of the Nervous System, 2d Edition, Philadelphia, 1898, page 753.

2. M. Allen Starr: Is Epilepsy a Functional Disease? Jour. of Nerv. and Men. Dis., vol. xxxi, March, 1904.

3. B. Onuf: Some Features of the Epileptic Attack, Amer. Medicine, vol. vii, No. 5, p 183, Jan. 30, 1904.

4. The preliminary subdural formalin injection was made one hour after death, the autopsy 43 hours after death.

the method of Drs. A. Meyer and Dunlap practiced at the Pathological Institute of the New York State Hospitals, namely, hardening of the brain by means of injecting 10 per cent formalin solution into the ascending aorta, after tying off the thoracic aorta. While



Fig. 1.—Tortuosity and dilatation of capillaries. Drawn from a specimen with camera lucida.

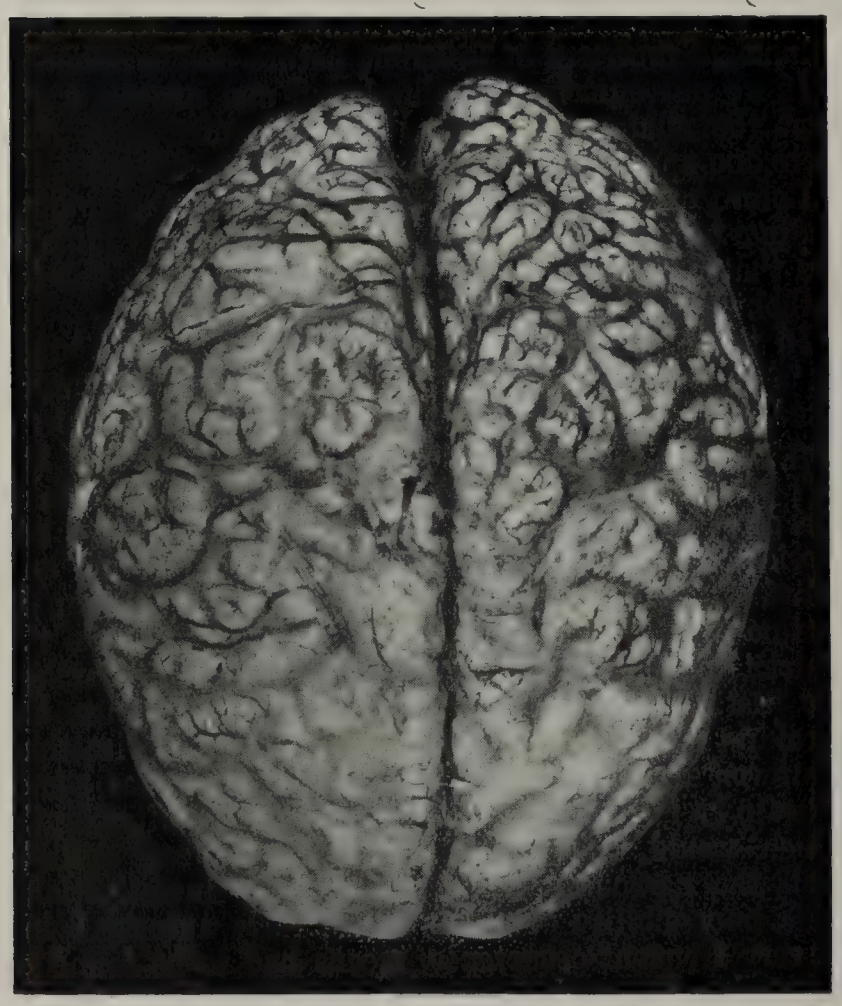


Fig. 2.—Case 13, showing thickening of the pia over the frontoparietal lobes.

this latter method is to be preferred when an early autopsy can be made and when expense plays no rôle, the subdural injection requires much less formalin and is, therefore, more economical. Moreover, it leaves the body unmutilated.

I proceed now to the enumeration of certain changes found in the deceased epileptics on whom I performed the autopsy. The total number from June 1, 1903, until June 1, 1904, amounted to 16.

It is not intended here to enumerate all changes found, but only those which, by their frequency, aroused attention, namely, first, valvular changes of the heart; second, aneurismal dilatation and tortuosity of the capillaries, particularly those of the lungs and of the kidneys; third, acute pneumonia; and fourth, changes in the brain to be specified below.

For clearness sake, the changes found have been tabulated.

VALVULAR LESIONS.

The number of cases in which an autopsy of the heart was made was 15 (since in Case 17 only a brain autopsy had been permitted). Of these 15 were 12 who showed distinct changes of one valve or the other, or 80 per cent., while in the thirteenth case (20 per cent.), they were so slight that we excluded it from consideration.

The valve most frequently affected was the mitral, which, indeed, was involved in every case in which there was a valvular lesion at all; i. e., 12 times out of 15.

Next in frequency was the disease of the aortic valve; namely, in 5 cases, or 33 per cent., marked involvement, while in 3 cases (Cases 4, 13 and 16) it was of very slight extent or doubtful.

Less frequent was involvement of the tricuspid, which was distinctly diseased in 3 cases (20 per cent.) and slightly, if at all, in the fourth case (Case 13).

By excluding the cases in which the changes were

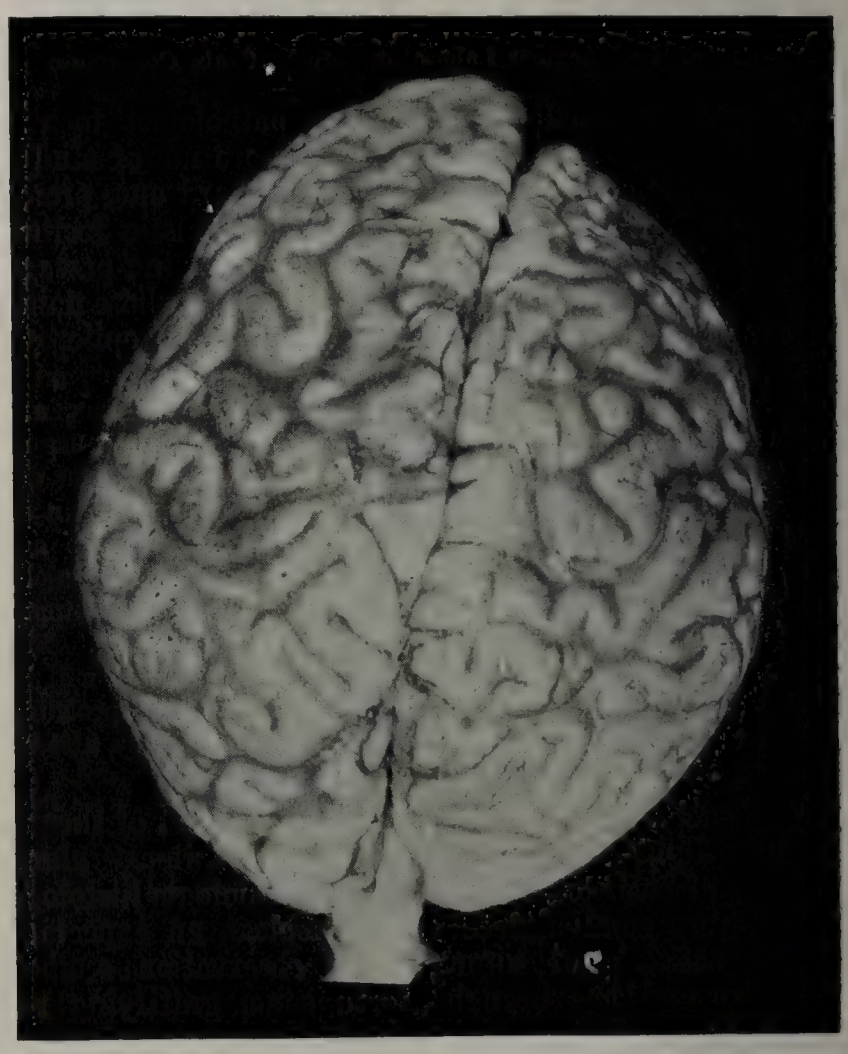


Fig. 3.—Case 12. Circumscribed atrophy of the right frontal lobe.

slight or doubtful, we find the respective valves affected in the following numerical proportions and combinations:

	Cases.	Per cent.
Mitral valve alone, diseased	6	40
Mitral valve plus aortic valve, diseased	3	20
Mitral valve plus tricuspid valve, diseased	1	6.6
Mitral valve plus tricuspid plus aortic, diseased	2	13.3
Total	12	79.9

As to the nature of the change, Case 22 ought to first be thrown out as presenting changes of a different character than the rest. In this case the mitral valve showed a wart-like granulation of soft consistency. In all other cases the changes consisted chiefly in a shortening of the valve and a thickening and hardening of its margin. The appearance was most like that of atheroma. No erosions nor calcareous deposits were present on the surface of the valve.

As to the rôle that age might play in the production of these changes, a look at the table shows that only in

a small percentage senility could be considered the cause, even if liberal allowance were made in this regard. In Case 15, the age was 94; in Case 9, it was 61; in Case 10, it was 50; in Case 6, it was 42, and in Case 21, it was 35. In these last two cases, senility can really not be considered, and all others were considerably beneath 35, so that senility can not account for the majority of the cases. Another issue to be discussed was whether the presence of these valvular changes stands in any relationship to the severity and number of attacks of the respective patients. For the suggestion of investigating this particular point, I am indebted to a discussion at a conference at Buffalo of the Physicians of the Western State Hospitals of New York, held in May, 1904. Before this conference I read a paper on the same subject, and this suggestion was called forth when I brought up the question whether the valvular changes reported were

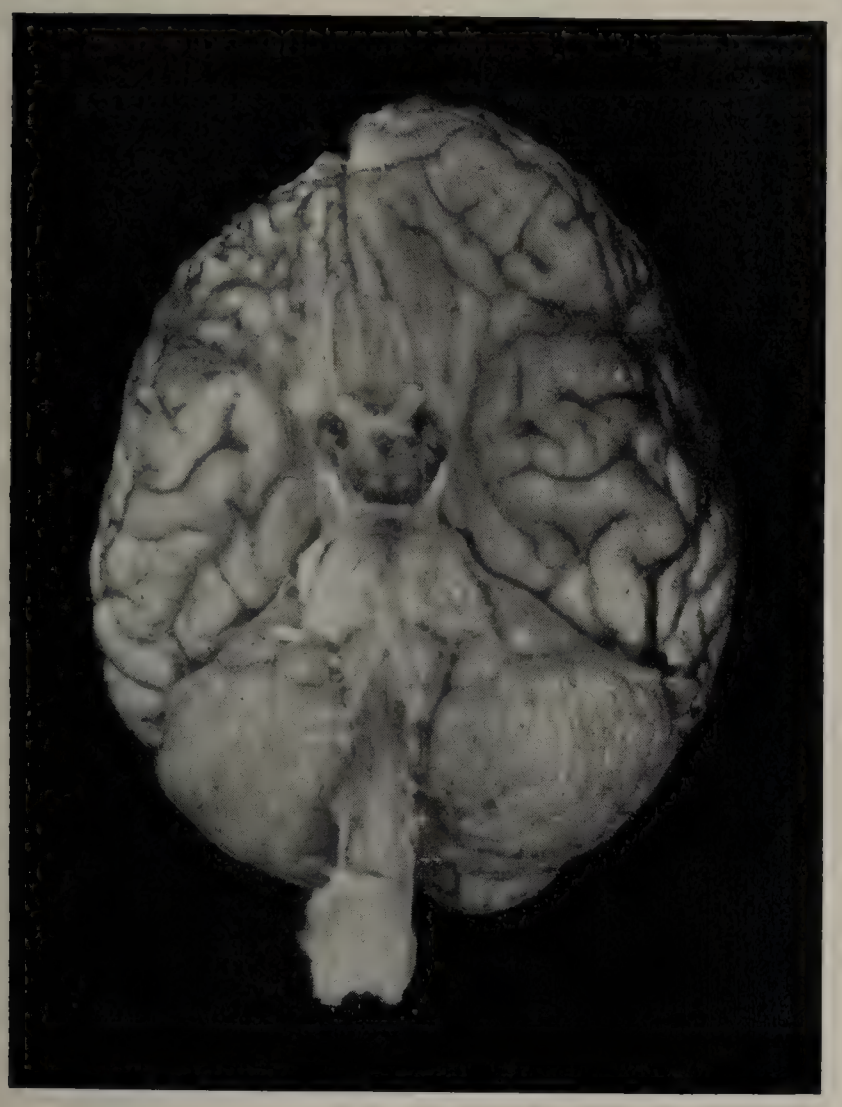


Fig. 4.—Case 12. Circumscribed atrophy of the right frontal lobe.

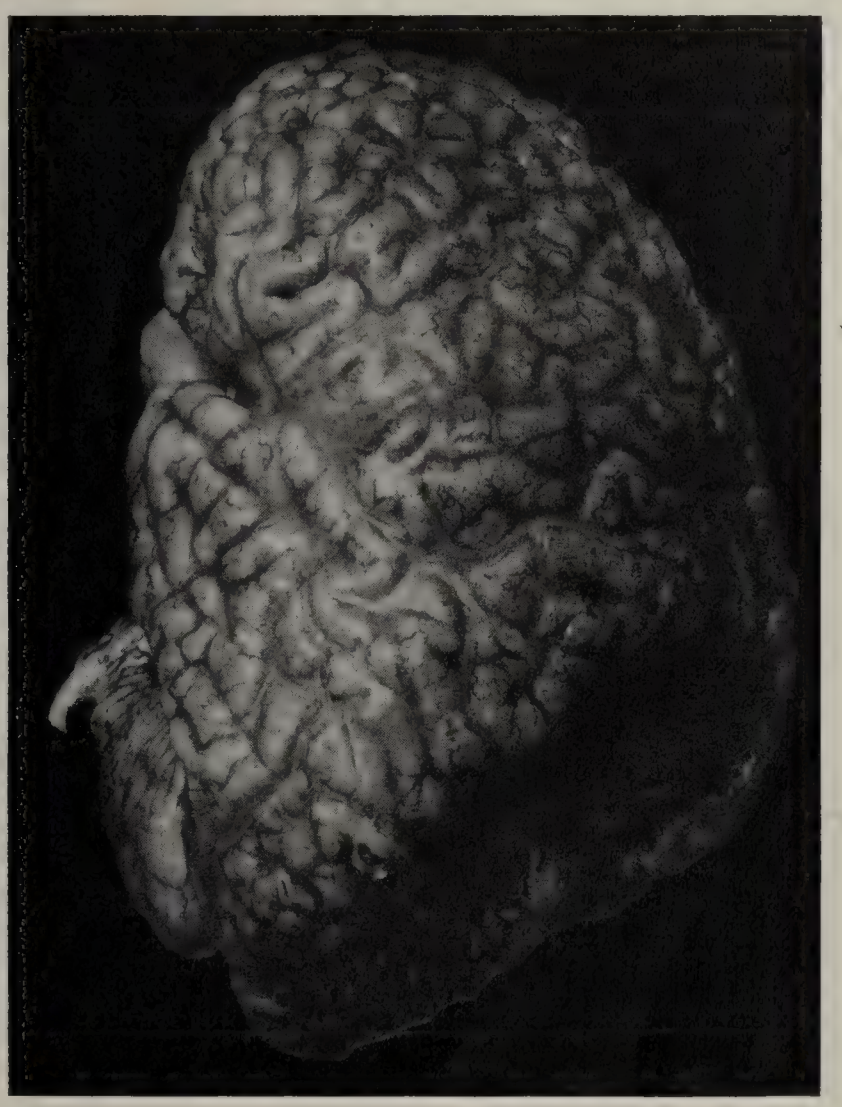


Fig. 5.—Case 17. Hydrocephalus. Left lateral view. Ventricles empty.

to be considered as primary or as secondary; i. e., produced by the severe strain accompanying severe seizures. In following up this idea, I tried to calculate, so far as possible, the total number of grand mal and petit mal attacks during the life of each patient. That such a calculation can only be approximate is evident. In making it, chief reliance had to be placed on the observations made at the colony, since here each attack, so far as feasible, was recorded. The table gives the result of this attempt, and, on the whole, it does show an unusually large number of severe attacks; i. e., grand mal attacks. In only one case (Case 15) the total number of grand mal attacks was too small to count as an etiologic factor and, in this case, the age of the patient (94 years) warrants us in considering the changes as senile atheromatous ones. (Case 22, as will be remembered, was excluded, as there the changes were of a totally different character.)

Barring this case, evidence is, therefore, considerably in favor of looking on the valvular changes as secondary and as brought about by the strain to which the circulatory system is put in a grand mal seizure.

Histologic investigations of these valvular changes have not sufficiently advanced to permit a report of the findings.

PATHOLOGIC CHANGES OF THE CAPILLARIES.

In several of the autopsy cases, the capillaries of certain organs, particularly of the lungs and kidneys (at least, I have investigated these chiefly) presented striking changes; striking not only by their intensity, but also in their extent, since the majority of the capillaries in these organs were thus involved. The changes consisted in tortuosity of the capillaries and of aneurismal dilation of the same, such as is illustrated in Figure 1.

In all the cases so far examined in which these capillary alterations were found, valvular changes were also present, and I was first inclined to consider them as secondary to these. It now seems more probable, however, that they are both due to the same cause; i. e., the tension of the circulatory system in severe seizures.

ACUTE PNEUMONIA.

How frequent a chief or contributory cause of death acute pneumonia was, is evident from the table, which shows the presence of this disease in eight of the fourteen autopsy cases in which the lungs were subject to examination; i. e., in 58 per cent. One of these was an aspiration pneumonia; the others were all lobar pneumonias, with perhaps one exception.

In some of the cases the microscopic diagnosis of pneumonia was supplemented by histologic investigation which confirmed it in each case.

CEREBRAL CHANGES.

Of the sixteen consecutive cases in which I have performed the autopsy, one was unavailable for investigation of the brain, as the brain autopsy was not allowed. In the second it was omitted for some other reason, and in the third the brain was lost. Abstraction of these three leaves thirteen cases in which the brain was examined.

Whenever it seemed desirable, a Meynert section was made; i. e., the pallium was detached from the cerebral axis.[5] In four cases, however (Cases 12, 14, 17, and 22), this was omitted, so as not to spoil the brain for definite lines of investigation.

This leaves nine cases in which the cerebral axis was examined.

On looking over the table, one is struck with the fact that not one case was free from some distinct organic change of the brain itself, exclusive of meninges or blood vessels.

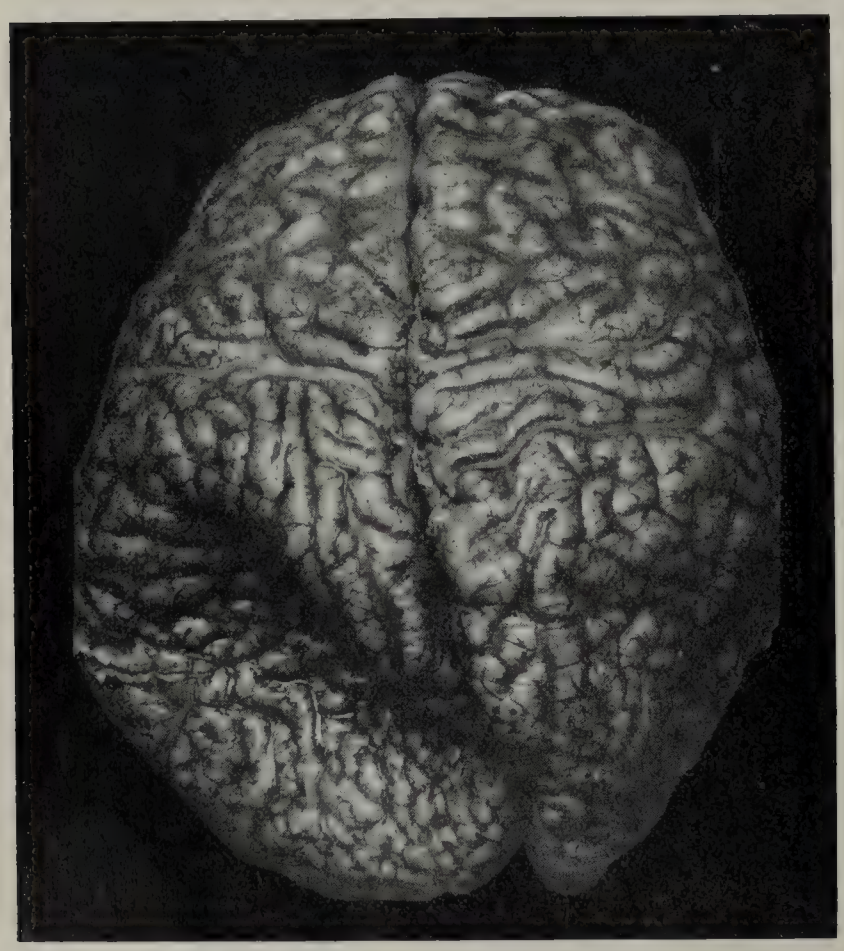


Fig. 6.—Case 17. Upper view. Ventricles empty.

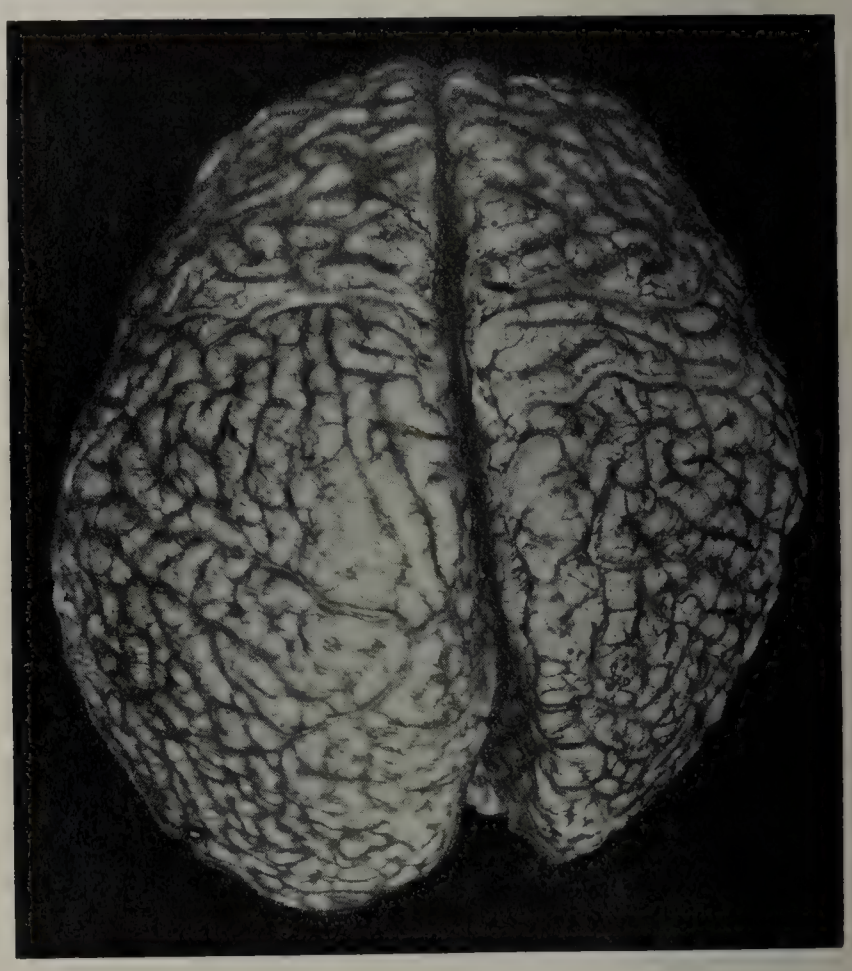


Fig. 7.—Case 17. Upper view. Ventricles filled.

I shall first discuss the lesions of the hemispheres found, then those of the cerebral axis and of the cerebellum.

GROSS LESIONS OF THE CEREBRAL HEMISPHERES.

One feature common to at least ten cases was a very marked thickening of the pia over the hemispheres, chiefly over the convexity of the fronto-parietal lobe. In some of these cases it was, in some regions, as thick as a normal dura. In all of the cases but one (Case 19), there was at the same time a more or less marked shrinkage of the convolutions beneath the thickened pia, affecting on the convexity the frontal lobe, the central convolutions and the upper parietal lobule, sometimes also the lower parietal lobule.

This thickening of the pia is well illustrated in Figure 2 (Case 13).

It is of interest to know that the convolutions of the base of the brain and those of the occipital and temporal lobes, with the exception of the vicinity of the sylvian fissures, were in most of these cases free from gross atrophic changes.

Gross Vascular Lesions.—Distinct gross vascular lesions affecting the circle of Willis and its branches were present in five cases (Cases 9, 14, 19, 20, and 22). The arteries in these cases showed tortuosity, irregularities in caliber, and thickening and stiffening of the walls, some features being more marked in one case, and others in another. Beside these diffuse changes, some cases presented marked focal changes, namely:

Circumscribed Atrophy of the Right Frontal Lobe (affecting its entire base and the anterior half of its convexity).—This was found in one case (Case 12), and is illustrated in Figures 3 and 4. Unfortunately, the history was inadequate to account for the lesion.

Subdural Hemorrhage Over the Posterior Part of the Second and Third Frontal Convolutions and Lower Part of the Central Convolutions.—In this case, the epileptic seizures were of a Jacksonian character, with preservation of consciousness during the entire attack. Strange enough, however, the muscles involved in the seizures were the arm and neck on the left side, while the lesion was found over the left hemisphere, and none over the right. A few days before death, the patient developed thick speech, marked aphasic disturbance, slight difficulty of swallowing, and some symptoms pointing to slight laryngeal involvement. The diagnosis was accordingly made of a lesion at the lower end of the central convolutions. This diagnosis was to a great extent confirmed by the autopsy; only, instead of a hemorrhage, a syphilitic lesion, in the nature either of a circumscribed meningitis or a gumma, had been expected, there being the history of a chancre antedating the onset of the epilepsy by about one year.

Internal Hydrocephalus.—This was found in one case. This may be classed among the focal cases, as it affected almost entirely the temporal, parietal and oc-

5. The cerebral axis consists of the basal ganglia, plus island of Reil, corpora quadrigemina, pons and medulla.

cipital lobes, to the complete or almost complete exclusion of the frontal lobe. The left hemisphere was much more affected than the right.

A feature of interest in this case was the smallness and great number of convolutions of the parietal, occipital and temporal lobes, which were of a vermiform type, while those of the frontal lobe were of about normal size and type. This abnormality of gyration suggests a congenital origin of the hydrocephalus. This finds also some confirmation in the history, which says that "labor was prolonged" and the child delivered by forceps. The mother had a severe fright while pregnant. For illustration see Figures 5 to 8, showing the hydrocephalic brain in different aspects, with the ventricles filled and with the ventricles emptied.

GROSS LESIONS OF THE CEREBRAL AXIS AND CEREBELLUM.

Cerebellar Cyst.—The cerebellum showed a marked

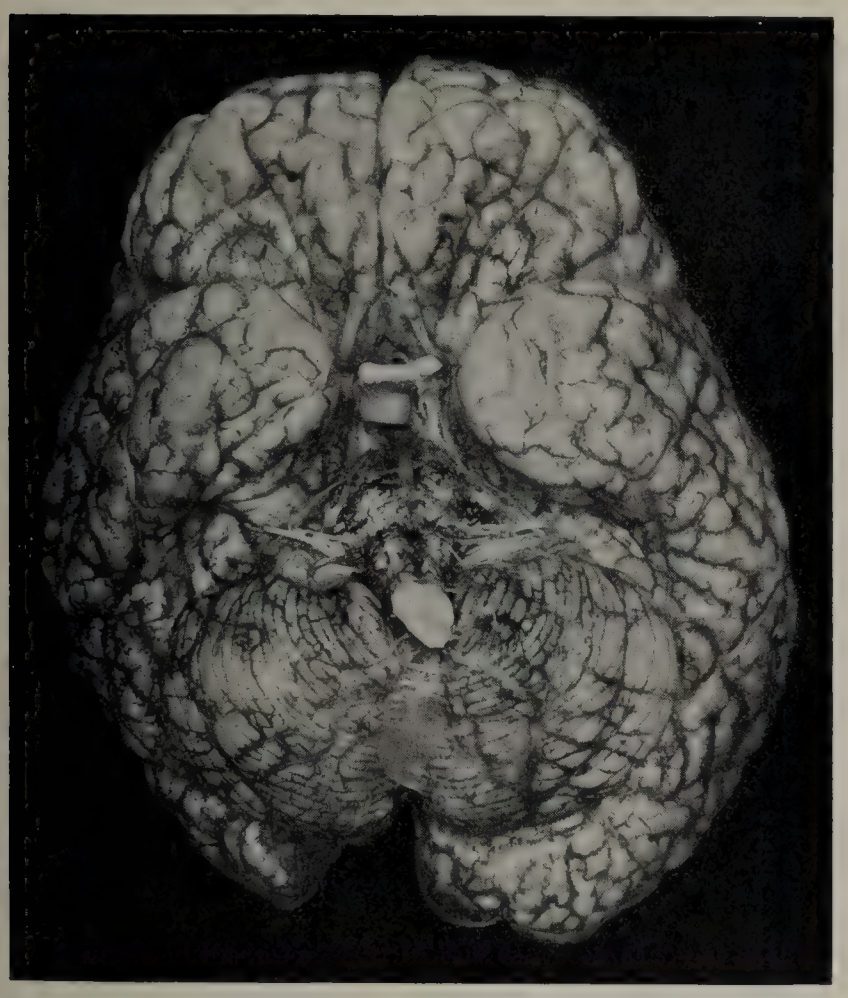


Fig. 8.—Case 17. Basal view. Ventricles filled.

focal lesion in one case, namely, cyst of the upper vermis and of the adjoining part of the cerebellar hemisphere (Case 20). This cyst was about the size of a crabapple and had caused a slight atrophy of the entire cerebellar hemisphere in which it was located. The contralateral olivary body was markedly atrophic.

The cyst was almost directly beneath the surface, being covered mostly by thickened pia. Nothing was left of cerebellar tissue as a covering except a few narrow, thin bridges, passing in transverse directions (Fig. 6, Case 22).

Here the method of preliminary subdural formalin injection proved extremely valuable, as the appearance of the focus would have been greatly changed without it. The autopsy in this case was made 58 hours after death.

Shrinkage of Cerebellar Convolutions.—Another interesting cerebellar change was found in three cases, namely, shrinkage of the convolutions of the upper vermis and of the cortex of the adjacent parts of the cerebellar hemispheres (Case 16, Fig. 10; Case 18, Fig. 14; Case 21, Fig. 17). This was particularly striking in Case 16.

Cerebral Axis.—Here the most interesting changes were found in the thalami and geniculate bodies. The cerebral axis was examined in nine cases, and in seven of these nine cases distinct changes were present in one or both thalami (Figs. 9 to 17).

It must be emphasized that the nine cases in which the Meynert section was performed and in which consequently the cerebral axis could be inspected were not picked out from among the rest. The reason why, in the remaining four cases in which the brain autopsy was made, the Meynert section was not performed, was that doing so would have spoiled them for definite lines of investigation.

The changes in the thalamus and geniculate bodies were in the nature of an atrophy. In some cases the surface had a decidedly shriveled appearance—see, for instance, photographs of Cases 6, Fig. 11 (left side) and 21, Fig. 17 (both sides). A difference in the size



Fig. 9.—Case 9. Left thalamus smaller than right and marked attenuation of pulvinar thalami on both sides.

of the two thalami was noted in Cases 6 (Fig. 11), 9 (Fig. 9), 16 (Fig. 10), and 18 (Fig. 14), in which the left thalamus was smaller than the right one, and in Case 13 (Fig. 13), in which the right thalamus was smaller than the left. Whether in Cases 19 (Fig. 15) and 20 (Fig. 16) the right thalamus was also slightly smaller could not be definitely made out, although it seemed so.

Sometimes the change affected more the pulvinar, sometimes more the other parts of the thalamus.

The pulvinar changes were in some cases extremely marked, the pulvinar being thinned out to a ledge-like wedge instead of forming a well-rounded prominence. This is particularly well illustrated in Cases 9 (Fig. 9) and 13 (Fig. 13) on both sides, and in Case 21 (Fig. 17) on the left side.

The anterior tubercle of the thalamus was likewise extremely reduced in size in some cases (symmetrically or asymmetrically), as a look at the pictures of the nine

cerebral axes easily shows. In Case 21 (Fig. 17) it was detached to some extent from the remainder of the thalamus, and in Case 20 (Fig. 16) this separation was still more marked, giving the two anterior tubercles an almost pedunculated appearance. It is true that this latter case was the one containing the cerebellar cyst.

The external geniculate body seemed much attenuated and the internal geniculate body unusually small in a number of cases. However, in this respect I would reserve judgment until further investigation.

The details as to which part was affected in each particular case are also recorded in the table.

A point worthy of note is, further, the disproportion between the size of the corpora quadrigemina on one side and the thalamus on the other. A look at the figures of the different cases shows the differences of the proportion between these two structures. For illustration, two extreme cases may be picked out. In Case 18 (Fig. 14), for instance, the mass of the four corpora quadrigemina is almost the size of the left thalamus. In Case 19 (Fig. 15), on the contrary, this mass is only about one-quarter of the size of the left thalamus. The



Fig. 10.—Case 16. Left thalamus smaller than right. Note also the difference in size of anterior tubercles of the thalamus. Marked shrinkage of convolutions of the superior vermis cerebelli and adjoining parts of the cerebellar hemispheres.

pineal gland here masks the picture somewhat, but leaves, nevertheless, no doubt as to the discrepancy, in this regard, of the two cases mentioned.

It is very probable that in these cases it is the size of the thalami and not that of the corpora quadrigemina that is at fault, nevertheless a reduction in size also of the corpora quadrigemina cannot be quite excluded *a priori*.

The great frequency and intensity of the changes found in the thalamus and cerebellum call for special discussion of their possible significance, particularly that of the thalamic changes.

EPICRISIS OF THE THALAMIC CHANGES.

A question that first suggests itself in relation to the observed findings in the thalamus is whether such do not represent perfectly normal conditions, *i. e.*, whether it is not perfectly common and normal to find such differences in size between the two thalami or between parts thereof, as have been here reported. This question it is safe enough to answer in the negative, since, if such marked asymmetries and proportional differences were common, they could not have escaped observation by many authors and would therefore be well known.

Moreover, the shriveled appearance of the surface of the thalami observed in some cases, as also the wedge-like attenuation of the pulvinar seen in a number of the cases, suggest a process of shrinkage rather than a congenital difference of proportion; *i. e.*, an unequal development. So much can be said previous to histologic investigation.

The changes being acquired ones, the other question to consider is whether they are simply accidental accompaniments, or whether, on the contrary, they have some bearing on the epilepsy, direct or indirect. The conception that they are accidental can hardly be maintained, in view of their great frequency. But, on the other hand, if we assume a relation between these thalamic changes and the epilepsy, three possibilities must again be weighed against each other:

1. The alterations in the thalami might form part of some general process and yet not have anything to do with the causation of the epilepsy itself. To give an illustration: The thalamic pathologic process might

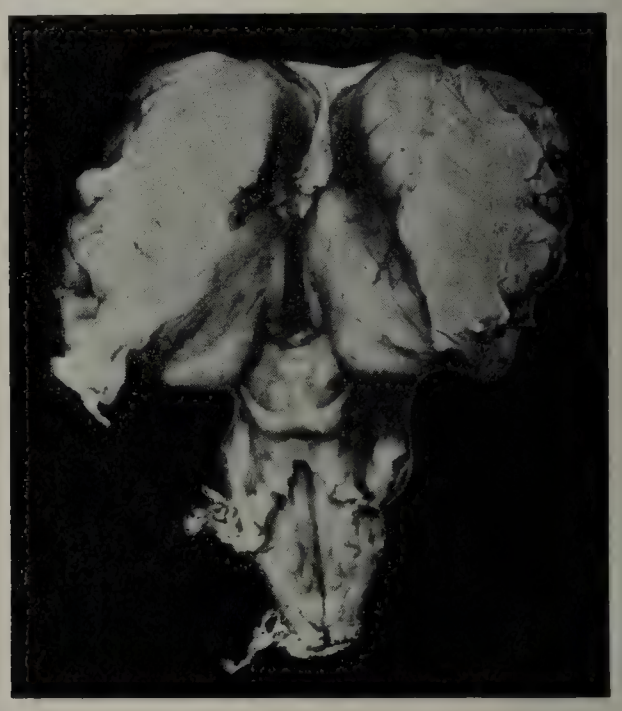


Fig. 11.—Case 6. Also left thalamus smaller than right and difference in size of anterior tubercles of thalamus.

be part of a process affecting the brain *in toto*; i. e., diffusely; but only that part of this diffuse process involving the cerebral cortex would have anything to do with the causation of the epilepsy. If this were so, such processes would certainly deserve to be known.

2. The thalamic lesion might be entirely secondary, the result of multiple seizures; whether such result is in the nature of inflammatory processes, or of circulatory disturbances, or of toxic changes produced by each attack.

3. The third possibility is that of a direct bearing of the pathologic process of the thalami to that of the epilepsy. As we have grown used to consider epilepsy as a cortical disease, the conception that the thalamus may have something to do with it seems like a step backward; i. e., a relinquishment of ground gained; yet the recent advances in our knowledge of the anatomic connections of the thalamus make it appear possible to ascribe to the thalamus some rôle in the provocation of epileptic seizures without denying the instrumentality of the cortex in their production.

H. H. Hoppe[6] in discussing the anatomic connection and physiology of the thalamus makes the following statement:

It has been established as an anatomic fact, by the researches of Dejerine, Long, Probst, von Monakow, Koelliker, Bechterew, Flechsig, Schäfer and Spiller, that, first, the thalamus is connected by fibers with a large section of the cortex, and reversely that the cortex is connected with the thalamus opticus; and that, second, all the centripetal sensory tracts end in the thalamus.

Hoppe, furthermore, quotes Monakow as having the view that the optic thalamus is an important link in the central apparatus for the perception of impressions made on the special senses and the skin, more especially on the latter.

These facts lend considerable strength to the speculation that an excess of stimulation proceeding from the thalami to the cortex—as might occur in an irritative pathologic process of the thalami—would lead to an overcharge of the elements of the latter, which would



Fig. 12.—Case 5. Thalamus and geniculate bodies apparently free from changes.

from time to time be relieved by an explosive discharge of the accumulated surplus of nerve energy.

While this theory for the present must remain a speculation, it is strengthened by the result of physiologic experiments made by Ziehen.[7] This author first refers to former experiments, in which he states to have proved that in the dog the clonic part of a convulsion as brought about by faradic cortical excitation was of cortical origin, its tonic part and the running movements, however, of infracortical origin. He then proceeds to a description of his last experiments, the chief results of which concerning us here were as follows:

Superficial mechanical and weak faradic excitation of the thalamus was without effect. Strong faradic excitation owing to coexcitation of the internal capsule causes tonic contractions (of face, forelegs and hindlegs). Severance of the thalamus (by cutting) in the anterior level causes only a momentary startling movement (*Zusammenfahren*); severance in the posterior levels leads to a mild upheaval (*Aufsturmen*) of the animal and an excessive running movement, the latter being occasionally followed, after a short pause, by a tonic convulsion, due, probably, to secondary excitation of further removed parts.

Mechanical or faradic excitation in the domain of the anterior corpora bigemina (as well as the external geniculate body) produces the same morbid running movements, but in markedly exaggerated degree, often accompanied by cries (Schreien). They outlast the excitation by several minutes. Frequently a tonic convulsion follows.

Mechanic and faradic excitation as well as severance (by cutting) in the domain of the posterior corpora bigemina give rise to an extreme tetanic convulsion outlasting the excitation by a long period.

Ziehen concludes from these experiments that in the region of the optic thalami and of the corpora quadrigemina must be situated centers for higher co-ordinated movements. In the above experiments they were prob-



Fig. 13.—Case 13. Right thalamus smaller than left, and marked attenuation of pulvinar thalami on both sides.

ably not excited directly, but reflexly. He deems it probable that the intracerebral pathway of the optic nerve might play a conspicuous part in this. Also the convulsion produced from the posterior corpora bigemina is probably in the nature of a reflex.

No matter what importance we lend to these experiments of Ziehen—and it seems to me that they deserve some attention—the thalamic changes found in such number in the brains of deceased epileptics at the Craig colony demand an explanation. They show that it is one-sided to exclusively investigate the cortex or association tracts and no other structures of the brains of epileptics. It is but fair to admit that the majority of cases forming the basis of this report were advanced ones with marked mental deterioration. Nevertheless, they may also be found in more recent cases; at any rate, such should be investigated in this regard.

Which of the three possibilities of interpreting the thalamic changes will prove to be the correct one, or whether a combination of one with the other will prove

6. H. H. Hoppe: A Clinical and Pathological Contribution to the Study of the Central Localization of the Sensory Tract, Jour. of Nerv. and Men. Dis., vol. xxxi, May, 1904, p. 281.

7. Ziehen: Zur Physiologie der subcorticalen Ganglien und über ihre Beziehungen sum epileptischen Anfall. XIII. Wanderversammlung der südwestdeutschen Neurologen und Irrenärzte Arch. f. Psychiatrie, vol. xx, 1889, p. 584.

the right solution, must remain a subject for further research and thought.

It is of some interest to quote here what Dr. Spratling[8] says relating to Tuke's classification of epilepsies. Tuke speaks of "thalamic epilepsy," and defines it as "a form of epilepsy supposed to be due to a lesion in the optic thalamus. Special sense auræ are supposed to oftenest occupy this form."

CLINICAL DEDUCTIONS AND REMARKS.

Some important clinical deductions are to be drawn from the facts presented in this paper. The changes in the pulvinar and apparently also in the external geniculate body were so marked in some cases that the ophthalmoscope in all probability would have revealed an atrophy of the disc. The importance of examining the fundus in all cases becomes thus evident.



Fig. 14.—Case 18. Left thalamus smaller than right.



Fig. 15.—Case 19. Right thalamus smaller than left.

Likewise, the smallness of the internal geniculate bodies points to an involvement of hearing which also ought to be given clinical consideration. It is to be regretted that in the cases reported by me these points had not been inquired into clinically. I am responsible only for the anatomic investigation, with the exception of Case 22, which I had the opportunity of examining clinically.

It was first intended to append the clinical histories of the cases, but as these were inadequate, especially in their neurologic aspects, they have been omitted.

It should be said, however, that there was no doubt about all the cases reported being epileptics.

How important a thorough clinical investigation is for the understanding of these cases is shown by the various anatomic findings in those cases I reported, which must have had some clinical equivalents. It is only by a careful comparison of the clinical with the anatomic evidence that these cases can attain their full value. Certainly the routine method so much in vogue of simply taking what the German calls an "anamnesis," that is, the family and previous history of epileptics, without making a thorough medical, neurologic and psychic examination of these patients does not do these patients justice, and will not lead to any progress in the understanding of this disease.

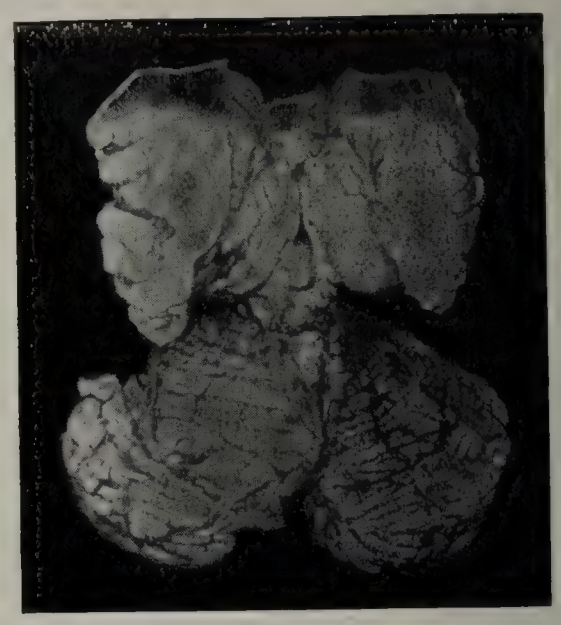


Fig. 16.—Case 20. Cerebellar cyst on left side; also peculiarly shaped, almost pedunculated anterior tubercles of the thalamus. They are unusually small.



Fig. 17.—Case 21. Right thalamus smaller than left. Pulvinar thalami markedly attenuated on left side.

The cerebellar changes noted in three cases (shrinkage of the convulsions and adjoining part of the hemispheres in two, cerebellar cyst in one) deserve a brief

8. Tuke: Dictionary of Psychological Medicine, vol. 1, p. 449, quoted by William P. Spratling in Epilepsy and Its Treatment, Philadelphia, 1904, p. 26.

TABLE OF AUTOPSY FINDINGS IN 16 AUTOPSIES OF EPILEPTICS.

Laboratory No. of Case	No. 4	No. 5	No. 6	No. 9	No. 10	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No. 22
Age at death (in years)	19	34	42	61	50	18	18	19	93	33	11	18	23	20	35	23
Age at onset of epilepsy (in years)	0	4?	0	44	20	8	11	1½	88 or 89.	1 or 3?	11/12	6½	14	2	21	21
Duration of epilepsy (in years)	19	30?	42	17	30	10	7	17½	4 or 5.	28 or 30	10	11½	9	18	14	2
Number of petit mal seizures. Average per annum before admission.	0?	?	0?	0?	6-12-200	?	?	Probably numerous.		?	?	?	?	?	?	?
Number of petit mal seizures. Average per annum at colony.	5	28	0?	95	14	3	9	49	1	43	1	36	5	18	12	1399
Number of petit mal seizures. Approximately ascertainable total during life.	.....	840	0?	1600	520	30	60	900	5	1200	10	400	45	300	150	3600
Number of grand mal seizures. Average per annum before admission.	70?	50?	100?	700?	3-4	100-150	1-365	12-52	12	52-365?	12-365-730	1-2-365	About 50	100-365	About 12	?
Number of grand mal seizures. Average per annum at colony.	50	31	21	27	4	131	250	179	1	264	?	98	60	128	45	55
Number of grand mal seizures. Approximately ascertainable total during life.	.....	1000	800	450	100	1200	1500	1500	25	6000	?	1000	500	2000	500	100
Valvular lesions. Mitral	1	.....	1	1	1	1	.....	1	1	1	Only brain autopsy allowed.	1	1	1?	1	See note. 11
Valvular lesions. Aortic	?	.....	1	1	.....	.....	?	.....	1	?		1	.....	.....	1	.....
Valvular lesions. Tricuspid	.....	.....	.....	.....	.....	.....	?	.....	1	1		1	.....	.....	.....	.....
Valvular lesions. Pulmonary	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		.....	.....	.....	.....	.....
Pneumonia	.....	.....	1	1 Aspiration.	1	1	*	.....	.....	1		1	1	1	.....	.....

*Lungs not examined.

Laboratory No. of Case	No. 4	No. 5	No. 6	No. 9	No. 10	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No. 22
BRAIN. Gross lesions of cerebral hemispheres. Marked thickening of pia over hemispheres, chiefly over convexity of fronto-parietal lobe	Brain has been lost	1	1	1	No brain autopsy made	?	1	1	No brain autopsy made	See note No. 1.	.....	1	1	1	1	1
Gross lesions of cerebral hemispheres. More or less marked shrinkage of convolutions of the fronto-parietal lobe over convexity of hemisphere.		1	1	1		.....	1	1		1	.....	1	.....	1	1	1
Gross lesions of cerebral hemispheres. Gross vascular changes of circle of Willis and branches		.....	.....	1		.....	?	1		.....	.....	.....	1	.....	1	1
Gross lesions of cerebral hemispheres. Circumscribed atrophy of right frontal lobe affecting its entire base and anterior half of its convexity.		.....	.....	.....		1										
Gross lesions of cerebral hemispheres. Subdural hemorrhage over posterior part of 2nd and 3rd frontal convolutions and lower end of central convolutions.		.....	.....	.....		.....	.....	.....		.....	.....	.....	.....	.....	.....	1
Gross lesions of cerebral hemispheres. Hydrocephalus, probably congenital, apparently confined to the temporo-parieto-occipital lobes leaving out the frontal ones. 850 cc. of fluid escaped from ventricles.		.....	.....	.....		.....	.....	.....		.....	1					
Cerebellum. *Cyst* of left upper *vermis* and left cerebellar hemisphere, probably congenital.	Cerebral Axis not examined	.....	.....	.....	Cerebral Axis not examined	.....	.....	.....	Cerebral Axis not examined	.....	Cerebral Axis not examined	.....	.....	1	Cerebral Axis not examined	
Cerebellum. Shrinkage of convolutions of upper vermis		.....	.....	.....		.....	.....	.....		1		1	.....	.....	1	
Gross lesions of cerebral axis and cerebellum. Thalamus and geniculate bodies. Marked reduction in the size of one or both *thalami*. Left one smaller.		.....	1	1	.....	.....	.....	.....		1		1	.....	.....	.....	
Right one smaller.		.....	.....	.....	.....	1	.....	.....		.....		.....	.....	.....	.....	
Both too small.		.....	.....	.....	.....	1	.....	.....		.....		.....	.....	1	1	
Thalamus and geniculate bodies. Marked attenuation of the *pulvinar* on one or both sides. Left one smaller.		.....	.....	.....	.....	1	.....	.....		1?		.....	.....	.....	.....	
Right one smaller.		.....	.....	1	.....	.....	.....	.....		.....		.....	.....	.....	1	
Both too small.		.....	.....	1	.....	1	.....	.....		.....		.....	.....	.....	.....	
Thalamus and geniculate bodies. Smallness of *external geniculate body* on one or both sides. Left one smaller.		.....	.....	.....	.....	.....	.....	.....		?		.....	.....	.....	.....	
Right one smaller.		.....	.....	.....	.....	1	.....	.....		.....		.....	.....	.....	.....	
Both too small.		.....	.....	?	.....	?	.....	.....		?		.....	.....	.....	1	
Thalamus and geniculate bodies. Smallness of *internal geniculate body* on one or both sides. Left one smaller.		.....	.....	1	.....	1?	.....	.....		?		.....	.....	.....	.....	
Right one smaller.		.....	.....	.....	.....	.....	.....	.....		?		.....	.....	.....	.....	
Both too small.		.....	.....	.....	.....	.....	.....	.....		?		1	.....	.....	?	
Thalamus and geniculate bodies. Smallness of one or both *anterior tubercles* of the thalamus.		.....	.....	1	.....	.....	.....	.....		1 left side.		1 left side.		1	1	

Lab. No. of Case.	No. 4	No. 5	No. 6	No. 9	No. 10	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No 22
Itenllectual state.	Mentally fair some congenital deficiency, can read and write.	Mentally feeble.	Mentally feeble silly talk incoherent.	Progredient dementia.	Progredient dementia.	Marked mental feebleness; progressive.	Mentally feeble; imbecile echo-speech.	Imbecile, idiotic.	.....	Progressively feeble-minded; formerly bright.	Mentally very deficient.	Mental infeeblement, evidently progressive.	Progressive mental enfeeblement.	Imbecile progr.?	Fairly good intellect.	Intelligent.
Emotional state	Obedient well disposed.	Irritable at times.	Usually very talkative, noisy; sometimes depressed. One attack of fury, assaulting.	Much depressed.		Short periods of maniacal excitement, hallucinatory.	Frequently noisy, destructive, aggressive, screaming, agitated.	Contented and harmless.			Very destructive, talkative, restless. Masturbates.	Quarrelsome, irritable, destructive, abusive, vile language.	Periods of maniacal excitement.	Destructive, irritable	Sullen, irritable, extremely quarrelsome.	Shortly before death easily moved to tears.
History or symptoms of focal disease, or of organic nervous disease in general.		See note 2		See note 3	See note 4			See note 5		See note 6	See note 7	See note 8	See note 9			See note

NOTES SUPPLEMENTARY TO TABLE.

Note 1.—Case 16. In this case pia is also thickened, but over different regions and asymmetrically.

Note 2.—Case 5. Exaggeration of deep reflexes on left side.

Note 3.—Case 9. Infantile cerebral palsy at six months, i. e., right hemiplegia. Examination showed athetoid movements of left (or right?) side, athetoid movements of right hand.

Note 4.—Case 10. Spastic ataxic gait. "Exaggerated reflexes" on both sides. Temporary paraplegia at age of 21. Syphilitic infection at age of 25 (or earlier?).

Note 5.—Case 14. Spastic gait. No history notes accounting for it.

Note 6.—Case 16. Slight right hemiplegia; defective, uncertain, slow speech. "Exaggerated reflexes." Paralysis came on at age of 3 or 3½ years, during an illness accompanied by high fever and convulsions. Attributed to overdose of opium (?).

Note 7.—Case 17. In this case of hydrocephalus there was divergent strabismus, present since admission and for some hours before death a tonic spasm of right arm and right side of face. Otherwise no reliable date pointing to organic brain lesion.

Note 8.—Case 18. At age of 2½ stroke of right hemiplegia; at 6½ years stroke of left hemiplegia. Both recovered (?). Epilepsy set in after the second stroke. Clinical notes say only: "Exaggerated reflexes."

Note 9.—Case 19. "Left knee jerk exaggerated."

Note 10.—Case 22. Weakness of left arm, chiefly after attacks. Epileptic seizures of Jacksonian type, with preservation of consciousness and involvement almost exclusively of left arm, left side of face and left side of neck. Chancre two years before death. A few days before death he developed thick speech, partial aphasia and paraphasia, disturbance of deglutition and apparent involvement of vocal cords.

Note 11.—Also Case 22. The valvular lesion was here evidently an acute one, possibly a syphilitic one.

discussion. In view of their relative rarity as compared with the thalamic changes, they can not be given as much attention as the latter, but yet should not be allowed to pass without mention.

Claus and Van der Stricht,[9] who discuss the pathology of epilepsy quite extensively, make the following statements on cerebellar changes in epilepsy.

The sclerotic indurations of the cerebellum are very frequent. They are often found at the autopsies of the epileptics. They have no special significance, they indicate likewise (*egalement*) a more generalized state of sclerosis. If localized exclusively in the cerebellum they can, just like the sclerosis of the cornea ammonis, of the olivary bodies, or of other parts situated outside of the motor centers, have an etiologic significance in the production of epilepsy.

The authors then go on to quote Duquet as having reported three cases of sclerosis of the cerebellum. They further mention Claus as giving the history of a female epileptic whose gait at the onset simply unsteady (*chancelante*) became more disturbed in the further course of the disease. The autopsy revealed a sclerous atrophy of the cerebellum. The cells of Purkinje and the nerve cells of the external layer were also diminished and atrophied.

Finally, Claus and Van der Stricht mention Pierret as quoting without comments a case of peripheral atrophy of the cerebellum with accompanying atrophy of the two olivary bodies and integrity of the rhomboid bodies. They conclude by saying: "We find it useless to multiply these instances."

If I have dwelt at some length on the changes of the cerebellum in epileptics it is because some authors have attributed to the cerebellum a relation to emotions. Close contact with epileptics shows, on the other hand, how frequently in these patients the emotions are at fault. (See table, emotional state.) However, I am fully aware that the small material at hand and the speculative character of the emotion theory of the cerebellum does not permit of any definite conclusions.

DISCUSSION.

DR. DAVID I. WOLFSTEIN, Cincinnati, declared that this paper is valuable, as it certainly supports in a startling way the recent contribution to the study of these cases made by Dr. Starr, in which he made an effort to pick out a class and place them under the head of organic. It seems that in this group there is confirmatory evidence that organic lesions would be found.

DR. WILLIAM G. SPILLER, Philadelphia, stated that he has many brains of epileptics from the Pennsylvania Training School for Feeble-Minded Children, and has observed changes similar to those which have been noted by Dr. Onuf. He does not think it wise to remove the pia, though by so doing better photographs can be made, but one can not then study the condition of the pia. Dr. Onuf's method of hardening the brain has been employed in a somewhat modified form by others. A physician, for the purpose of studying the retina, injected formalin into the eyeball immediately after the death of the patient, and succeeded very well in preserving the nerve cells. Dr. Spiller agreed with Dr. Onuf that it would be well to devote more time to the clinical study of the ocular and aural symptoms.

DR. N. B. ONUF said that in principle Dr. Spiller's objection to removal of the pia is entirely justified. He explained, however, that the removal is not so objectionable as it seems on the surface, since the removed pieces were marked in the relation to the region from which they were taken. The pia was, for instance, removed in a strip over the second frontal convolution, and a note was made which end was the anterior one and which end adjoined the anterior central convolution. In such a manner the pia strips were all marked and removed for future study. Dr. Onuf declared that it is but fair to state that most of these cases were cases of advanced epilepsy with marked mental changes, usually marked dementia, but this does not exclude the possibility of finding such changes also in earlier stages of the disease.

9. Claus and Van der Stricht: Essai sur la pathogénie et le traitement de l'epilepsie, Bruxelles, 1895, p. 165.

CEREBROSPINAL FEVER.

EPIDEMIC CEREBROSPINAL MENINGITIS.

J. C. WILSON, M.D.
PHILADELPHIA.

HISTORICAL.

Two diseases have especially excited the interest and baffled the researches of students of epidemiology and clinical medicine. One is influenza, the other epidemic cerebrospinal meningitis. Influenza has occurred in world pandemics which have been succeeded for varying periods extending over years by recurrent epidemics and sporadic cases and finally by periods of apparent absence of the disease until the sudden recurrence of another great pandemic. The opportunities afforded by the outbreak which began in 1889 have resulted in the discovery of the pathogenic agent of influenza—the bacillus of Pfeiffer—in the recognition of the transmissible nature of the infection and of the existence of sporadic cases by which the disease has been maintained for an indefinite time. But the regions in which the organism has continued to exist and the efficient mechanism by which, after long periods of latency, it suddenly gives rise to its pandemic effects, have thus far eluded research.

Epidemic meningitis—cerebrospinal fever—for about a century has been recognized as a substantive disease. Its occurrence in epidemics more or less extensive and prevailing under conditions wholly at variance with those which obtain with other transmissible or contagious diseases, its terrible symptom-complex, high mortality and the desperate state of many of those who survive the attack, together with the fact that the disease remains in sporadic form as a continuing menace to the health of communities in which it has once oc-

curred in the epidemic form, have given it a singular and gloomy position among the pests of mankind.

The preliminary work of Weichselbaum (1887) and Jäger (1895) and the definite report of Councilman, Mallory and Wright (1897) have demonstrated the exciting cause of this specific form of cerebrospinal meningitis to the *Diplococcus intracellularis meningitidis.* A few days ago Councilman[1] published a most important contribution to the bacteriology and pathology of the subject, in which a brilliant side-light is thrown on the obscurities of the disease in certain of its epidemiologic and clinical aspects.

Quincke's lumbar puncture as a familiar procedure in clinical work has proved of inestimable advantage in the differential diagnosis between cases of pneumococcus and streptococcus meningitis and those due to the *Diplococcus intracellularis meningitidis.* Much has thus been done to clear up the obscurities regarding the origin and nature of cerebrospinal fever, but much remains to be done, especially with reference to the cases that are not well characterized and in the direction of treatment. The subject acquires a peculiar interest at this time on account of the epidemic which has prevailed in New York City since February, 1904, resulting in more than 1,000 deaths, the number recently reaching 130 deaths per week, and the evidences of its tendency to spread in Philadelphia since the localized outbreak of 23 cases which occurred at the U. S. Navy Yard at League Island in the spring of 1904. At the present time there are 3 cases in the medical service of the Pennsylvania Hospital. It is also reported that the disease has assumed an epidemic form in some parts of Europe, especially in Silesia.

Cerebrospinal fever may be defined to be an acute, infectious, epidemic disease caused by the *Diplococcus intracellularis meningitidis,* characterized clinically by sudden onset, with headache, vomiting and painful contraction of the muscles of the back of the neck, irregular fever, profound nervous symptoms, rapid course and high death rate; anatomically by inflammation of the meninges of the brain and cord.

This disease was first recognized as a distinct affection about the beginning of the nineteenth century. It is probable, however, that it has existed from a remote period. Vieusseaux described an outbreak which appeared in Geneva in the winter and spring of 1805. The following year an outbreak in Medford. Mass., was described by Danielson and Mann. From that time the disease was extensive in the New England states, prevailing in circumscribed epidemics until 1816. At the same time and subsequently, as shown by Hirsch, the disease prevailed in various parts of Europe and in the United States, chiefly in isolated epidemics. Stillé fully described the disease as it prevailed in Philadelphia and in other parts of Pennsylvania in 1867. In the last three decades scattered cases occurring singly or in small groups have led to the belief that the disease has become naturalized in regions in which it previously prevailed in epidemic form.

Climate appears to have little influence as a predisposing factor. Epidemics have occurred in Sweden and on the Mediterranean coast, and in this country from the Gulf coast to Canada. Outbreaks are more common and extensive in the winter and spring than in the warm seasons of the year. Densely populated cities and sparsely settled agricultural regions are alike subject to its prevalence. Observers concur in the statement that damp, overcrowded and unclean habitations favor its spread and that persons living on the ground floor are especially apt to suffer. In adult life the proportion of males attacked is greater than that of females. Among children the number of males and females is about equal. Cerebrospinal fever is especially a disease of children and young adults. After 40 it is uncommon, though the diagnosis has been verified postmortem in individuals over 70. Individuals of all occupations and professions are liable to this disease. Military life involves a special liability.

1. The Journal A. M. A., April 1, 1905.

COMMUNICABILITY.

Cerebrospinal fever does not appear to be contagious in the sense in which we are in the habit of using the term in speaking of smallpox, scarlet fever and typhus. Councilman, in his first report, states that the evidence, on the whole, is not conclusive that the disease is incapable of being transmitted from one individual to another. The definite micro-organism which causes it is, in the majority of instances, confined to the meninges of the brain and cord, with little or no opportunity of transmission to other individuals. In cases in which there are lesions in the lungs, ears and nose, however, infection of neighboring objects or persons may readily take place. It is important at this point to note the following statement of Councilman in the recent contribution to the subject above referred to:

> The presence of (these) sporadic cases is of importance in the occurrence of epidemics. The diplococcus intracellularis is an organism of feeble vitality; it dies out easily on exposure to drying and light and is incapable of a saprophytic existence. In the absence of intervening infections, it would be impossible for the period of epidemics to be bridged over. Not only this, but there is evidence that this organism can produce other infections and may even live as an inhabitant on the normal mucous membrane.

The older literature contains numerous accounts which suggest the possibility of the specific exciting cause of this disease being communicable from one person to another, or at least portable on the person or among the effects of those who have been exposed to it. Many of these relate to the outbreaks among French troops and are highly suggestive. The two following cases are cited by Hirsch as occurring in the epidemic of West Prussia in 1865:

> On February 8, K., aged 20, fell ill in the township of Sczakau. He was nursed by the girl W., who had hastened to him out of the village of Sullenczyn. After the death of K. his nurse returned home and there died, on February 26, of epidemic meningitis. This was, with the exception of one on January 15, the first fatal case of meningitis in Sullenczyn. To the burial of this maid came the family of the farm-steward K., to Sullenczyn from the township of Podgass, accompanied by the servant D. and the 4-year-old daughter O. of the teacher R. in Podgass. After their return from the funeral a little child of K.'s fell ill and died in twenty-four hours, then the servant D., who died on March 4, and finally the girl R. on March 7.
>
> At another village, two children of one family, aged, respectively, 1½ and 3½ years, died of the epidemic, one on January 27 and the other on February 7. The clothes of the deceased were taken to a neighboring village, and came into the possession of a girl, aged 5 years. She soon sickened of the epidemic and died on February 14.

Stokes reports the following case:

> A child was seized with epidemic cerebrospinal meningitis and died. A second child of the same family was attacked with the malady a few days later. The day following the

attack of this child the mother, who slept in the same bed with it, sickened of the disease.

The next case was observed by J. Lewis Smith:

A boy, 12 years of age, died of cerebrospinal fever and was buried on Saturday or Sunday. On the following Monday the mother washed the linen of the boy, which had accumulated, and within two days was herself affected with the disease. She and her infant, who was also seized with it, died.

The following personal observation is not without interest:

I saw at 8 o'clock in the evening of March 13, 1905, in consultation with a medical colleague, a physician 33 years of age, suffering from fulminant cerebrospinal fever, the first symptoms of which had appeared on the previous evening and which terminated fatally during the course of the night in a little more than twenty-four hours from the onset. This man had been in constant attendance on a patient who had died of malignant cerebrospinal fever of two days' duration about twelve hours before his own sickness began.

In view of the foregoing facts it can not be affirmed that cerebrospinal fever is not under certain circumstances a transmissible disease.

THE SPECIFIC ORGANISM.

Second attacks are exceedingly rare. The Massachusetts report refers to five instances collected from the literature. It is probable that in most cases persistent immunity follows the attack. The pathogenic organism is found in the fluid obtained by lumbar puncture and in the meningeal exudate. The cerebrospinal fluid is usually more or less turbid, sometimes very turbid, especially early in the course of the attack. In a chronic case under the care of my colleague, Dr. Lewis, in the Pennsylvania Hospital, the fluid was turbid when first withdrawn, but perfectly clear on a second puncture made 43 days later, although the symptoms persisted. In one of my own cases in which the duration of the illness could not be determined and the patient prior to his admission to the hospital was supposed to be suffering from uremia, the fluid was perfectly limpid, but showed pure culture of the *Diplococcus intracellularis meningitidis*.

While turbidity of the spinal fluid is of diagnostic importance, its perfect limpidity does not constitute a negative sign, and in either case cultures are necessary to the diagnosis.

The organism grown in pure culture appears in diplococcus form with an unstained interval. It reacts to ordinary stains and is decolorized by the Gram method. It grows best on Loeffler's blood serum mixture. In the tissues the diplococcus is almost constantly confined to the interior of the polynuclear leucocytes. The diplococci are found only in connection with the lesions of the disease. Mixed infections are not uncommon. In the Boston cases the pneumococcus was found seven times, once in connection with Friedlander's bacillus. Terminal infections with staphylococci and streptococci were occasionally found. Lumbar puncture was performed in fifty-five cases and in some of these several punctures were made. Diplococci were found either on microscopic examination or in cultures in thirty-eight of these cases. The average period from the onset of the attack before the puncture was made was seven days in the positive cases and seventeen days in the negative cases. The longest time after the onset in which the fluid drawn by puncture gave positive results was twenty-nine days.

SYMPTOMS OF THE ORDINARY FORMS.

Cerebrospinal fever presents a great diversity of symptoms in different cases. No other acute disease appears in such various guises. Stillé has well called it a "chameleon-like disorder." The period of incubation is unknown. Prodromes are rare. When present they consist of headache, dragging muscular pains, vertigo and a sense of fatigue. The onset of the attack is usually abrupt. It is marked by a chill, agonizing headache, nausea and vomiting. In some cases headache is not a conspicuous symptom. The attack begins with vertigo and the patient acts like a drunken man. This was the mode of onset in a case which I recently had the opportunity of seeing. Presently dragging pains in the neck come on, which spread along the spine and into the extremities and are soon followed by motor symptoms which progressively develop. These consist of titanic stiffness of the spinal muscles, great pain on attempting to bend the head forward or to turn it from side to side and awkwardness and difficulty in movements of the extremities. Strabismus, inequality of the pupils and palsies of the facial muscles are common. In the course of a little time opisthotonos develops, the head is drawn back, the spine curved, the forearms flexed on the arms and the legs on the thighs. Muscular cramps and spasmodic twitchings come and go. In young children general convulsions may occur.

Hemiplegia has been frequently observed. Paraplegia may also occur. Paralysis may develop during the course of the attack and disappear shortly or it may persist for some time.

The sensory symptoms consist of headache, which may be sharp, lancinating or boring and commonly referred to the back of the head; sometimes it is felt as a constricting band; pain in the back of the neck and in the lumbar and epigastric regions and general hyperesthesia, most marked in the face and neck. Various disturbances of the special senses occur. There is a photophobia, intolerance of sounds, ringing in the ears and vertigo.

The physical disturbances are striking. The patient is restless and distressed. His face is seldom flushed, usually pale and slightly cyanotic. In children there is great irritability. Delirium occurs early and may be active, even maniacal or of a busy wandering character. After a time it passes into somnolence or stupor, which may be still attended by more or less restlessness and continual movement on the bed. In the worst cases stupor deepens to coma.

The symptoms referable to the alimentary tract are not characteristic. The tongue is at first slightly covered with a whitish fur. In conditions of great depression it becomes dry and brown and sordes collect. Taste is lost and the patient refuses food; nevertheless the vomiting persists. Constipation is commonly present throughout the sickness. Toward the end of the attack, however, diarrhea and involuntary discharges may take place. The abdomen, as a rule, is neither tender nor tympanitic. Slight, exceptionally marked enlargement of the spleen may be made out.

The fever is generally moderate, very irregular and does not observe a typical course. There are frequent remissions. In some instances fever is slight or absent altogether. On the other hand, the temperature may reach 105° or 106° F. In some cases it abruptly rises before death. The fever, even when intense, may be of short duration. There is no constant relation between the intensity of the febrile movement and the severity of the other symptoms. Defervescence may take place without improvement in other respects, so that there

are cases in which severe nervous symptoms persist for weeks after the temperature has fallen to normal or even to subnormal ranges. Many of the cases show a temperature range of irregularly remittent type. In the milder cases the temperature is sometimes distinctly intermittent. The subfebrile temperatures are sometimes broken by rapid and transient elevations.

The pulse is also irregular. There is no constant correspondence between the pulse and temperature. It may be soft and weak, even slower than in health, and is often intermittent and arythmic. Abrupt changes in the force and frequency of the pulse are common. Change in the frequency from 80 to 100 has been observed in the course of a minute. The rhythm of the respiration may be disturbed and Cheyne-Stokes breathing may occur in the graver cases.

Leucocytosis is present throughout the disease, diminishing toward the end of the attack in cases which recover. In 33 cases in the Boston epidemic in which blood counts were made the maximum number of leucocytes was 31,000, the minimum 9,350. In a case under my observation at the present time there is a leucocytosis of 40,000. Differential counts show that the increase is chiefly due to the polynuclear leucocytes.

Lesions of the skin are common. To their prominence is due the old name of spotted fever. They vary greatly in different epidemics. In many cases they are absent altogether. They have been more frequent in the American and Irish epidemics than on the Continent. They are polymorphous and several different forms may occur in the same case. Herpes is far more common than any other eruption. It usually appears on the lips and nose, but may involve other parts of the face or body and may vary from a crop of a few fine vesicles to an abundant eruption of large vesicles. A petechial rash is frequently observed, and in some instances extensive hemorrhagic areas develop in the skin. The petechiæ often resemble flea-bites. They are distributed in varying numbers over the whole surface, but particularly about the knees and elbows. In some cases the rash is abundant and develops with great rapidity. Patches of erythema, dusky mottlings and rose spots disappearing on pressure, like the rash of enteric fever, have been observed. Among the rarer cutaneous manifestations are urticaria, erythema nodosum, pemphigus and gangrene.

The urine is, as a rule, increased. It may be much increased even with high temperature. The reaction is usually acid. A moderate amount of albumin is frequently present. Recent personal observations lead me to believe that there is a special form of cerebrospinal fever characterized by symptoms of an acute nephritis and corresponding to the renal form of enteric fever—the nephrotyphus of the French. I have seen two such cases in which the urine from the onset was densely albuminous, of high specific gravity and contained epithelial and blood casts and free blood. One of these cases terminated fatally; the other is still under observation. Glycosuria occasionally occurs, and in malignant cases hematuria has been observed. Retention of the urine is common in the graver cases. Polyuria is frequent in children, and in some cases has persisted for years after convalescence.

The eye lesions are referable to three causes. First, neuritis, due to the involvement of the nerve in the exudate at the base without extension of the inflammatory process to either the orbit or the eye. This condition may affect the oculomotor and the optic nerve. Second, inflammation from the meninges may extend directly into the eye along the pia-arachnoid of the optic nerve, causing purulent choroido-iritis and in very rare instances suppuration in the orbit. Keratitis may arise in consequence of an extension of the inflammation from the iris and ciliary region. The third cause is neuritis of the fifth nerve, with destruction of the gasserian ganglion and loss of sensation. To this most of the cases of keratitis and purulent conjunctivitis are due.

Symptoms relating to the auditory apparatus are very common. The auditory nerve is generally swollen and surrounded by the exudate. Extensive degeneration of the nerve fibers is frequently found, the degeneration being most marked in the chronic cases.

The subject has been especially studied by Moos, who found that of 64 cases of meningitis which recovered 59 per cent. were deaf, in 7 per cent. the hearing was impaired and in 31 per cent. it remained normal. Of 43 cases closely investigated, deafness appeared in 2 on the tenth day, 6 on the second, 3 on the third, 17 between the fourth and tenth days and 15 between the fourteenth day and the fourth month. This observer thinks that it is possible that the abortive form of epidemic cerebrospinal meningitis is the cause of many cases of early acquired deafness. Deafness is frequently due to disease of the labyrinth. Otitis media and mastoid disease occur. The diplococci are found in the pus cells.

Coryza has been frequently observed in the course of the attack. Weigert first advanced the opinion that in meningitis the nose forms the portal of entry for the infectious organisms. It may be, however, that their presence is due to an extension from the brain and not to primary invasion. Epistaxis occurs also. In 15 of the Boston cases 10 showed the presence of the diplococci in the nasal secretion, and in 18 cases examined by Scherrer the diplococci were found in the pus cells.

The wasting in severe cases is rapid and extreme. An early, sudden and great loss of strength is a frequent and prominent condition in this disease.

The symptoms may be divided into those due to the inflammatory lesions of the cerebrospinal organs and those due to a general infection. In the malignant cases both these groups of symptoms are of overwhelming severity. In the mild cases the nervous symptoms are predominant. The foregoing symptoms indicate the nature and severity of the disease in its ordinary form.

SYMPTOMS OF THE ANOMALOUS FORMS.

A. *Malignant* (*Meningitis Cerebrospinalis Epidemica Siderans*).—The patient is struck down without warning and speedily falls into a state of collapse. A violent chill is followed by cyanosis, coldness of the surface, profuse perspiration, intense headache which alternates with drowsiness and brief delirium followed by unconsciousness. There may be contraction of the neck. Respiration is slow and labored; the pulse rapid and feeble; the urine scanty and loaded with albumin. Purpuric blotches appear on the surface. Cases of this kind have occurred in many epidemics and with greatest frequency at the beginning of the outbreak. They may occur sporadically. Death may ensue in the course of a few hours.

B. *Abortive* (*Meningitis Cerebrospinalis Epidemica Abortiva.*)—The onset of the attack is severe. In the course of a few days the symptoms subside and convalescence is rapid. Under this head must be included

the mildest ambulant cases. Patients complain of headache, stiffness in the neck and spine and malaise. Vomiting occurs. Fever is, as a rule, absent. Stillé relates the case of a girl who was fully convalescent on the fifth day, and states that he observed many slight but distinctly marked cases that were convalescent within a week. J. Lewis Smith has reported similar cases in childhood. Cases of this kind can only be recognized in the light of a prevailing epidemic.

c. *Intermittent* (*Meningitis Cerebrospinalis Epidemica Intermittens.*)—Intermittent and remittent cases are common. Not only the fever, but other symptoms of the disease show extraordinary exacerbations and remissions, which may be repeated at intervals of twenty-four or forty-eight hours. These cases may be due to successive involvement of areas of the meninges or to fresh growths of the organisms. They rarely, however, present the well-marked periodicity of the malarious diseases.

d. *Chronic* (*Meningitis Cerebrospinalis Epidemica Chronica.*)—Cases of this form occur in all epidemics. The disease lasts, with numerous complications, remissions and exacerbations, for several weeks or in some instances for five or six months. Emaciation is extreme. The symptoms may be due to the persistence of conditions left by the acute attack, such as chronic hydrocephalus or abscess of the brain, or general neuritis.

COMPLICATIONS AND SEQUELS.

Among the complications and sequels are pleurisy, endocarditis and pericarditis. Bronchial catarrh and deglutition pneumonia are very common. Croupous pneumonia has been very common in some of the epidemics. This complication occurs more frequently at the close than at the beginning of an epidemic. This was especially the case in an epidemic observed by Immerman and Heller at Erlangen. It is uncertain whether in some instances the cases of pneumonia reported in connection with epidemic meningitis have been cases of true croupous pneumonia or cases of diplococcus pneumonia. In the Boston epidemic the latter condition was found in 8 cases, in one of which the amount of lung involved was so extensive as to resemble both clinically and anatomically ordinary croupous pneumonia.

Arthritis, commonly slight, but in rare instances suppurative, has been noted. The wrist joints are most commonly involved. I have observed transient, painful swelling, usually involving the wrists or knees, in a number of cases. In the League Island epidemic, among 23 cases there were 8 in which purulent arthritis occurred. Swelling of the parotid glands is an occasional accident of the disease. It may be slight or may run on to suppuration—parotid bubo.

Intestinal catarrh may occur as a complication. Malarial and enteric fever and measles, scarlet fever and cholera have been encountered as intercurrent affections.

The convalescence is irregular and uncertain. After severe cases it is apt to be tardy. Relapses are not uncommon and are often fatal.

Among the more important sequels are prolonged debility and emaciation, palsies and various forms of paralysis, impairment of intelligence in consequence of chronic meningitis and chronic hydrocephalus, especially in children, and more or less complete deafness and loss of vision. General motor weakness and paralysis of individual cranial nerves or of the lower extremities may persist for a long time. They depend on lesions of the brain or spinal cord or pressure exerted by extensive organized inflammatory exudate, or on peripheral neuritis.

The symptoms of chronic hydrocephalus are paroxysmal. They consist of severe headache, intolerance of light and sound, vertigo, pains in the neck and limbs, vomiting, involuntary discharges, convulsions and loss of consciousness. The attacks occur either at long and irregular intervals or in rapid succession. The mental and bodily condition of the patient during the intervals is sometimes such as to lead to delusive hopes of his recovery.

DIAGNOSIS.

The direct diagnosis of cerebrospinal fever by ordinary clinical methods is a matter of difficulty in sporadic cases and at the beginning of outbreaks. The diagnosis of any form of meningitis is occasionally obscure. Sudden onset, chill, fever, vomiting, delirium, tremor and painful rigidity of the back of the neck may occur in pneumonia, the malignant form of variola, typhus and especially in the cerebrospinal form of enteric fever. The phenomenon described by Kernig in 1884 and known as Kernig's sign is found to be present in 80 to 90 per cent. of the cases of meningitis and only exceptionally present in other cases. This test is often attended by evident pain on the part of the patient. Kernig's sign is not available in cases of rheumatic or other forms of arthritis of the knee or hip, myositis, contractions from nervous disease and sciatica.

If meningitis be present there is usually no great difficulty in recognizing cerebrospinal fever during an epidemic. The ordinary and anomalous forms alike show a symptom-complex that in the course of a little time is distinctive. In doubtful cases and, indeed, in all cases when practicable lumbar puncture should be performed. The method is easy and has been shown by experience to be devoid of danger. If carried out early in the attack, at the time when the diagnosis is often as important as it is difficult, the result is commonly conclusive.

If the patient has meningitis the fluid withdrawn is, as a rule, but not invariably, more or less cloudy; if cerebrospinal fever, the *Diplococcus intracellularis meningitidis* (meningococcus) will be found on direct microscopic examination or in cultures. Positive conclusions can only be drawn from positive results. When the result is negative the operation must be repeated.

DIFFERENTIAL DIAGNOSIS.

The differential diagnosis between cerebrospinal fever and the following diseases demands consideration:

1. Pneumococcus Meningitis.—This may occur alone or in connection with croupous pneumonia. The pulmonary lesion may be latent. In fact until very recently this organism was very generally regarded as the cause of epidemic cerebrospinal fever. Symptoms indicating extensive infection of the meninges, of the cord and spinal roots and extension of the infective process along the cranial nerves are less marked or absent altogether. Contraction of the muscles of the neck may be absent, delirium and coma are present and occur early, and this form of meningitis is commonly fatal, while cases of the epidemic form may recover.

2. Streptococcus Meningitis.—This form is secondary to infection elsewhere. Fracture of the skull, especially fracture of the base, local abscess formation, acute endocarditis, erysipelas of the face and scalp, otitis media

with extension to the mastoid or the meninges, are forms of primary infection. Opisthotonos is neither common nor well developed. The symptoms develop slowly and are often for a time obscure. The association of painful rigidity, intense headache and vomiting is not conspicuous. Eye symptoms are common.

3. Tuberculous Meningitis.—This, perhaps the most familiar form of meningitis, is to be distinguished from cerebrospinal fever by a protracted period of prodromes, more gradual onset, slower course, slow and irregular pulse, great irregularity of the respiration and the absence of eruption. Antecedent tuberculous disease, failure of health following measles or influenza, tuberculous glands or a hereditary predisposition to tuberculous infection are found in the history of the patient. In children or during the prevalence of an epidemic of cerebrospinal fever and in cases in which the tuberculous process involves the spinal meninges (Hirsch) the diagnosis is far from easy.

4. The Cerebrospinal Form of Enteric Fever.—The onset is sudden and the symptoms of the period of invasion are those of cerebrospinal fever. About the end of the first week the cerebrospinal phenomena usually subside more or less abruptly and the subsequent course of the illness is that of an ordinary case of enteric fever.

5. Scarlet Fever.—In some instances the sudden onset, high febrile movement, vomiting, convulsions and stupor suggest cerebrospinal fever as it occurs in children. The presence of the peculiar redness of the palatine half arches rapidly followed by general erythematous angina are important. In the course of twenty-four or thirty-six hours the efflorescence will clear up any uncertainty.

6. Typhus Fever.—At one time cerebrospinal fever was confounded with typhus or regarded as a variety of that disease. To Stillé is due the credit of having finally settled every question of doubt concerning the identity of these two diseases in this country. They are in strong contrast in respect of their causes, symptoms, course, lesions and sequels.

7. Hysteria.—Cases of cerebrospinal fever occurring in nervous females at the close of epidemics or sporadically have presented a delirium so peculiar and an array of symptoms so little characteristic that they have been looked on as manifestations of hysteria. This error in diagnosis is no longer possible.

PROGNOSIS.

In individual cases the prognosis can never be made with certainty. The abortive and fulminant cases run the most rapid course. Hirsch has emphasized the fact that certain cases which at the onset present the symptoms of cerebrospinal fever recover after an illness of a few hours, which terminates in free sweating. The malignant cases, on the other hand, prove fatal in a few hours or two or three days. Moderately severe cases may last one or two weeks or several months. The first week is the time of greatest danger. Symptoms rendering the prognosis unfavorable are intense excitement, early depression, persistent vomiting, irregular respiration and convulsions alternating with coma. The average mortality is about 40 per cent. It varies in different epidemics from 20 to 75 per cent. The mortality in the Boston outbreak was 68 per cent.

Relapses are not infrequent and are often fatal.

Bad as the prognosis in cerebrospinal fever is it is still worse in pneumococcus, streptococcus and tuberculous meningitis, these conditions almost invariably terminating in death.

PROPHYLAXIS.

In times of epidemics cleanliness of dwellings and the avoidance of overcrowding should be instituted in the hope of diminishing the severity and mortality of the disease. The successive attack of different members of a household demands the abandonment of the dwelling and thorough disinfection. Isolation of the patients and sterilization of their clothing should be carried out.

TREATMENT.

The mildest cases require no treatment; the malignant cases react to none. Medicine with all its resources is neither capable of combating the attack nor responsible for its results. Of this group of cases Stillé has said "the first symptoms of the disease are the first phenomena of death."

The room occupied by the patient should be darkened and quiet. The diet should consist of milk, eggs, meat juice and broths administered at regular intervals. When food can not be taken by the mouth, nutritious enemata should be given. Water should be freely administered. Alcohol is to be given when the symptoms of depression appear, whether at the onset of the attack or later. A guide as to its amount is the effect on the character of the pulse and the first sound of the heart. Venesection, generally practiced in the early history of the disease, is in no case admissible. On robust individuals wet cups may be applied to the nape of the neck and along the spine or leeches to the temples and in the neighborhood of the mastoid process. The continuous direct application of cold to the head and spine by means of ice-bags is of value. The pain is relieved and in some instances quietude and sleep ensue. If the temperature be high systematic cold bathing may be practiced. During the application of cold to the head and spine and after cold bathing the patient should be covered with warm blankets and artificial heat applied to his sides, thighs and extremities. Warm baths, 104° F., of ten minutes' duration, have been recommended. Blisters applied to the occiput and nape of the neck early in the attack have appeared to be of service. They should be carefully watched and immediately removed on the development of signs of vesication, which is liable to be followed by troublesome sloughing. The thermo-cautery may be used.

Laxative doses of calomel should be given early in the attack. Quinin has been extensively employed. There is no evidence that it exerts a favorable influence, much less that it is capable of aborting the disease. Opium may be regarded as one of the indispensable remedies in the treatment of epidemic meningitis. The indications for its use are to be found in the headache and spinal pains, restlessness, spasm, hyperesthesia and sleeplessness. It should be given early and in full doses. Experience has demonstrated a remarkable tolerance for this drug in cases of cerebrospinal fever. Strong gave in one case 60 drops of laudanum every half-hour until half a fluid ounce was taken. Some of the early American physicians gave enormous doses, half an ounce of the tincture of opium or from 30 to 60 grains of the crude drug in the course of twelve hours. These large doses were frequently followed by recovery. Stillé gave one grain every hour in grave cases and every two hours in moderately severe cases without even an approach to narcotism. He adds that "under the influence of the medicine the pain and spasms subsided, the skin grew warmer and the pulse fuller, and the entire condition of the patient more hopeful." Morphia may be administered hypodermically

in doses of from 1/6 to ½ grain. With great restlessness and jactitation hyoscin hydrobromate is indicated. In the case of children the dose must be cautiously regulated.

Ergot, belladonna, cannabis indica, gelsemium, chloral, zinc oxid and the bromids are of inferior value. They are frequently, however, given in connection with opium or morphia. Inhalations of ether or chloroform may be cautiously employed to secure temporary relief from torturing pain, jactitation and spasm. Veratrum viride and aconite are mentioned only to condemn their use in this disease. The modern analgesics may be employed alone or in conjunction with opium and its derivatives in the management of the milder cases of the disease. Large doses are to be avoided.

℞. Phenacetini ..... 3|
Chart No. viii.
Div. S. One powder q. tertia vel quarta hora.

℞. Pactophenini ..... 2|
Sacch. alb..... 1|
Chart No. vi.
Div. S. One powder q. t. v. q. h.

℞. Antipyrini ..... 3|
Sacch. alb..... 1|
Chart No. viii.
Div. S. One powder q. t. v. q. h.

If the headaches and pains increase cerebrospinal fluid may be withdrawn by lumbar puncture in order to diminish the intracranial pressure. Performed early in the course of the disease and repeated at intervals, it has been frequently followed by beneficial results.

Manges has reported 3 successful cases treated by the injection of lysol in 1 per cent. solution into the spinal canal after the removal of the exudate. This method was originally suggested by Carlos Franca at Lisbon in 1903. Wolff, of Hartford, Conn., basing the procedure on an antagonism which he found to exist between the *Diplococcus intracellularis* and the Klebs-Loeffler bacillus and the fact that the former were precipitated from active bouillon cultures on admixture with diphtheria antitoxin serum, was led to use the antitoxin in the treatment of this disease with satisfactory results, and Waitzfelder[2] treated 17 cases in the same manner, employing from 4,000 to 10,000 units, according to the age of the patient and the severity of the symptoms, at intervals of two or three days. Of his 17 cases, 5 recovered completely, 3 died and 9 were still under observation at the time of the publication of the report, 5 of the last "giving promise of speedy recovery." These observations are now being extensively repeated. In two cases of which I have knowledge the antitoxin treatment was employed without result, but these two cases were of fulminant type, one dying at the end of forty-eight hours and the other in a little more than twenty-four hours.

During a period of depression stimulants are to be freely given. Preparations of alcohol, ammonium carbonate and the spirit of chloroform are recommended. Cold effusion may be occasionally practiced.

During convalescence the bitter tonics and iron may be given. Cod liver oil and iodid of potassium are also employed. Delirium, spasm and irritability of the stomach too often in the severe cases render the administration of medicine and food impracticable. As recovery takes place the appetite is often excellent and an abundant, easily digested and nutritious diet of mixed solid food should be given.

2. Med. Record, N. Y., March 11, 1905.

THE ACTION OF THE INTRACELLULAR POISON OF THE COLON BACILLUS.*

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It is now generally conceded that the pathogenic bacteria bring about those changes in the body cells which form the basis of what we call disease by virtue of certain poisons which they produce. These poisons are supposed to be specific for each kind of bacteria and to them the name of toxin has been given. Certain bacteria possess a toxin which is not an integral part of the cell itself, and hence is not essential to its existence. As examples of such organisms may be mentioned the bacillus of tetanus and that of diphtheria.

With these bacteria the toxin is found free in the culture medium and there are differences in opinion concerning its origin, some regarding it as a cleavage product formed by the action of the bacillus either directly or through a chemical ferment on the constituents of the culture medium, while others think that the soluble toxin represents a group of the bacterial cell which easily drops off. On the other hand, the filtrates of cultures from such bacteria as the typhoid and the colon bacillus are non-toxic, or, at the most, possessed of but feeble toxicity. In the later instance the poison exists as an integral portion of the bacillus itself and can be set free only on the death of the latter. We therefore have two distinct classes of so-called specific bacterial poisons, the one being easily cast off from the living cell and hence called an extracellular toxin to distinguish it from the toxin which can not be split off from the bacterial cell without destroying the latter, the intracellular toxin.

That the colon bacillus, when introduced into the animal body, is one of the most deadly of all bacteria is a fact which is too well known to require further proof. There is no other germ which causes more anxiety to the abdominal surgeon, and the fatal results following typhoid perforation, strangulated hernia, and appendicitis when left to pursue their course uninterruptedly are in almost all instances due to its ravages.

The colon bacillus is a normal inhabitant of the intestinal canal, and so long as it remains within the canal it is practically outside of the body and can do no harm. When it obtains an entrance into the peritoneal cavity, however, it multiplies and at the same time is disintegrated by the protective agencies of the body. As it is broken up, its intracellular poison is set free and then, and not until then, is it capable of acting on the body of the host. It is not, therefore, from the growth of the bacterial cell in the peritoneal cavity that death directly results, but rather from its destruction. Primarily, of course, it is essential that the growth of the organism should have advanced to such a degree that enough bacterial cellular substance shall be present to furnish a sufficient quantity of the poison to cause a fatal issue in the body on its liberation. The necessity of employing a large amount of the living culture in order to obtain a fatal dose of poison from it has long been urged as one of the principal arguments against the intracellular poisons being true toxins. As compared with diphtheria and tetanus, this is, indeed, true, but the comparison is hardly a fair one. Thus, in the case of the diphtheria bacillus, the same germ may go on producing toxin without loss of life, for all one knows, indefinitely, whereas, in the case

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of the colon bacillus, the bacterial cell must die and undergo disintegration before its toxin can be liberated, and then only a definite amount can be obtained from each bacillus.

It is not the purpose of this paper, however, to prove absolutely that the intracellular poison of the colon bacillus is a true toxin but to show that such a poison can be obtained and to compare its action on the animal body with that of the living organism. Whether or not this poison is a true toxin will be discussed when we take up the subject of immunity in a later paper. The fact that a potent intracellular poison can be obtained from the colon bacillus is of especial interest, since several authors have recently denied the existence of the so-called endotoxins, affirming that the colon and typhoid germs cause disease in the same manner as does the diphtheria bacillus, by the production of soluble poisons within the body of their host. These authors explain the absence of such poisons from artificial cultures on the ground that the medium is not suitable for their production, and that consequently the soluble toxins are elaborated solely within the animal body. It is needless to state that such a theory rests almost entirely on negative evidence and if it can be conclusively shown that the colon bacillus, when grown on artificial media, does produce a powerful poison which causes death in much the same manner as does the living germ, the endotoxic explanation would seem to be much more plausible. In discussing the action of the intracellular poison of the colon bacillus, it will be found convenient to take up the action of (1) fatal doses of living cultures, (2) fatal doses of the dead germ substance in which the poison still exists in the bacterial cell, which has, however, been deprived of life; (3) doses of the poison obtained by chemically splitting up the bacterial cell by boiling with a 2 per cent. solution of sodium hydrate in alcohol. In this case the poison is obtained in a comparatively free form.

THE ACTION OF THE LIVING GERM.

When a guinea-pig is inoculated with a fatal dose of the living colon germ, practically no symptoms whatever are noticeable for a period varying from five to seven hours, according to the size of the dose given. This may be considered as the period of incubation and is roughly proportional to the amount of living germ injected. We have always worked with a bacillus 1 c.c. of a 12-hour or older, bouillon culture of which has invariably proved fatal for guinea-pigs within 24 hours. If 1 c.c. of such a culture is given, no effects will be seen for a period of from 10 to 12 hours. If, on the other hand, 2 c.c. of the same culture be injected, the animal will begin to manifest symptoms of illness in from 8 to 10 hours, and if still larger doses are given the symptoms will become apparent in a still shorter time. This period of incubation undoubtedly represents the time taken for the bacillus to multiply and to be destroyed to such an extent that sufficient poison may be liberated through its disintegration to produce noticeable toxic effects in the animal. This period of incubation is, therefore, in reality the crisis of the disease and the outcome depends solely on whether all germs have been destroyed before a lethal dose of the poison has been set free or not. It is during this period that individual resistance and acquired immunity are important factors acting by causing increased bacteriolysis and the destruction of all germs before a fatal dose of poison has been set free. During this time the temperature of the animal may rise to a greater or less extent or may remain stationary; the animal remains active, eats; its coat is not roughened and it appears in all respects as well as a normal animal. At the end of this period, however, the appearance changes. The animal becomes less active. it remains in one corner of its cage; its coat becomes roughened; it hangs its head and apparently enters into a state of stupor. At the same time the rectal temperature begins to fall abruptly, as can be seen from a study of Chart 1.

Indeed, this fall of body temperature is often the first marked symptom and, when occurring to a marked degree, it is invariably a bad omen. The body temperature will often fall from 101 F. to 94 F. or even lower within from 2 to 4 hours, and this fall is progressive and continuous until the animal's death, immediately preceding which a temperature as low as 87 F. or 86 F. is not uncommon. At the same time the animal shows signs of the most marked peritoneal inflammation, as is evidenced by rigidity and spasm of the abdominal muscles on pressure. At autopsy, the only gross lesion present is a marked hemorrhagic peritonitis with a large amount of bloody fluid containing intact red corpuscles and leucocytes in the peritoneal cavity.

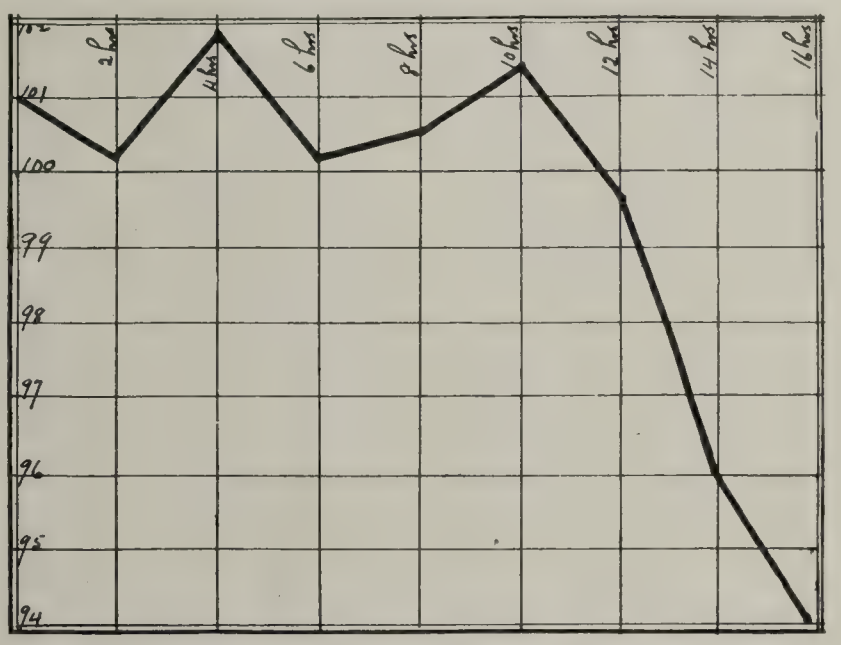


Chart 1.—Temperature curve of guinea-pig after inoculation with 1 c.c., 16 hr. bouillon culture of the colon bacillus. Death occurred 20 hours after inoculation.

The parietal and visceral peritoneum are studded with minute punctiform hemorrhages. Hemorrhage is an especially prominent feature in the great omentum and is present to a less marked degree in the mesentery.

THE ACTION OF THE DEAD GERM.

The dead germ substance used in the following work was obtained by growing a large amount of the colon germ on tanks filled with agar for a period of two weeks at room temperature. At the end of this time the growth was removed from the tanks and extracted with absolute alcohol and ether. The crude bacterial substance thus obtained was reduced to a fine powder by pulverization in an agate mortar and was then ready for use.

It is interesting to note that the person who did the pulverizing was often quite seriously poisoned during the process unless he took the precaution of wearing a mask which hindered the inhalation of the powder. The symptoms of such poisoning were exceedingly interesting. The first thing noticed was a marked irritation of the nasal mucous membrane and a huskiness of the voice, due no doubt to the mechanical irritation

of the inhaled powder. This was followed by a feeling of depression and malaise, and chilly sensations. Occasionally a decided chill would be experienced. It is unfortunate that no accurate observations of temperatures were taken in these cases. Nausea and even vomiting were occasionally noted. After a period of discomfort varying from 6 to 10 hours, during which the patient often complained of dull pain in the various joints, recovery would rapidly and completely take place.

On examining the powder obtained in this manner microscopically we found that it consisted of colon bacilli which still retained their morphologic characteristics and could still be stained by anilin dyes. On the other hand, cultures made from this powder have, of course, never given a growth. In other words, the bacillus has not been broken up by this treatment, but simply has been deprived of life and of the power of reproduction. It is worthy of note that neither by the action of alcohol, ether, physiologic salt solution, distilled water nor any simple solvent have we been able to extract a poison from the colon bacillus. Nor, again, can a poison be split off by the action of heat even when the germ substance is heated to 184 degrees C. in a sealed tube for 30 minutes. It is only when we make use of agents which will chemically break up the colon bacillus that we are enabled to obtain a poison apart from the rest of the germ substance. The powdered germ substance is not soluble, but can be held in suspension in normal salt solution and, since it can be boiled without appreciably affecting its toxicity, suspensions were always heated to 100 degrees for 15 minutes before injection in order to insure sterility.

This coarsely powdered germ substance killed guinea-pigs when injected intraperitoneally in doses of 1 to 40,000, body weight, and invariably proved fatal within 12 hours, usually causing death at the end of from 6 to 8 hours. Smaller doses did not produce a fatal result. On the injection of a fatal dose of the germ substance intraperitoneally, we noticed that the most marked change was in the length of the period of incubation. Thus, whereas in the case of the living germ from 8 to 12 hours passed before noticeable symptoms appeared, in that of the dead germ substance the animal almost invariably showed symptoms of illness at the end of 4 hours. In regard to the character of these symptoms it may be stated that they are similar in all respects to those induced by the living germ. The temperature remains the same or may rise slightly during the first two hours. At the end of the 4 hours it has begun to fall and there is a decided drop from then on until the time of death, provided the dose given is a fatal one. If a non-fatal dose has been injected intraperitoneally the temperature, as will still be seen from reference to the accompanying chart, has reached a minimum at the end of from 6 to 8 hours and has returned to normal again in from 12 to 20 hours.

Moreover, as a general rule, it may be stated that the fall in temperature in non-fatal cases seems to be directly proportional to the amount of bacterial substance injected. That this should be the cases seems to be only natural when we consider the fact that in this instance we have largely done away with that factor which is known as the individual resistance of the animal. As has been previously mentioned in the case of the living bacillus, the individual resistance plays an important part in determining the amount of poison which will ultimately be set free in the body. For example, whereas 1 c.c. of a 12-hour culture of our colon bacillus invariably proved fatal, .25 c.c. never did. The explanation of this is to be found in the fact that all animals were able to cause disintegration of all bacilli injected before a fatal dose of poison was set free. If now .5 c.c. be given some would recover, while others would die. In this case we would speak of the former as possessing a greater individual resistance than the latter. This simply means that, in the first instance the animal has possessed a sufficient quantity of bactericidal substance directly available to cause disintegration of all bacilli before the latter have multiplied to a sufficient extent to furnish enough poison to kill the animal on its liberation. On the other hand, those animals which succumbed did not possess quite enough of the bactericidal substance, or at least did not possess it in a form available for immediate use. When, however, the dead bacterial substance is given the dose of poison which the animal receives is a certain definite amount and is not capable of subsequent increase.

Accompanying the fall in temperature there is apparent lassitude, stupor and roughening of the coat. In cases in which many times the fatal dose has been given, the animals occasionally die within from 4 to 6 hours with convulsions, a feature which can now and then be observed after the injection of large quantities of the living bacillus. At autopsy we find a picture similar in all respects to that following inoculation with

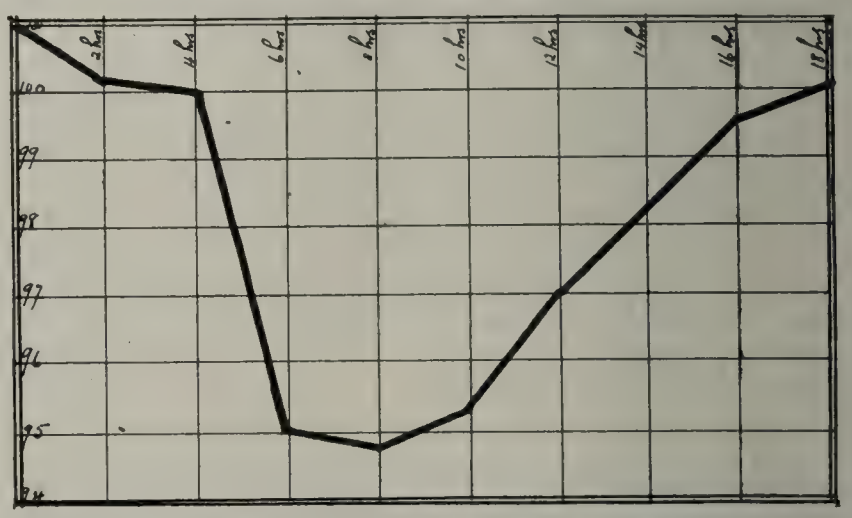


Chart 2.—Temperature curve of guinea-pig after intraperitoneal injection of non-fatal dose of crude bacterial cell substance.

the living colon bacillus. There is a marked hemorrhagic peritonitis, the peritoneal cavity containing bloody fluid, together with unabsorbed bacterial cell substance, and the omentum and mesentery showing numerous punctiform hemorrhages. It is needless to state that in all cases cultures were made from the peritoneal cavity and heart's blood immediately after death, and these proved to be sterile. From this we see that practically the sole difference between the effects following inoculation with the living bacillus and the injection of the dead bacterial substance is a shortening of the period of incubation due, no doubt, to the fact that the intracellular poison is liberated much more rapidly and in greater concentration in the second case. As will be seen later, it is not so much the absolute quantity of the poison which is injected that determines the result, as the amount which is active at a given time.

THE ACTION OF THE SOLUBLE POISON.

On heating the crude bacterial substance used in the above experiments with a 2 per cent. solution of sodium hydrate in absolute alcohol, precipitating with hydrochloric acid to remove the excess of sodium and evap-

orating the filtrate *in vacuo,* a residue is obtained which can be reduced to a powder which is freely soluble in water. The resulting solution is acid in reaction, and consequently is rendered neutral or slightly alkaline with sodium bicarbonate before it is injected into animals in order to avoid possible irritative effects from the acid. It may be stated here that all the poison contained in the colon bacillus is present in this portion, the residue after extraction with the sodium in alcohol being possessed of no toxic properties whatever. The poison is not obtained in a pure state and, as has been seen in the paper by Dr. Wheeler, it probably makes up but a small portion of the powder, there being more or less sodium chlorid certainly, and other constituents of the colon bacillus itself probably, present. Although we are certain that the poison is not pure, for reasons which will appear later, we are inclined to believe that it exists in an uncombined or very loosely combined state.

When doses of this powder are given intraperitoneally in amounts varying from 8 to 60 milligrams, according as to whether we have been careful to remove most of the common salt or not, a fatal result follows in guinea-pigs in from 30 to 60 minutes. Within 15 minutes after injection the temperature begins to fall and sometimes within half an hour has reached 94 F. or even lower. At first, after an interval of from 5 to 10 minutes immediately following the injection the animal appears restless, runs about the cage and shows a great tendency to scratch itself, this undoubtedly being due to itching sensations in the skin caused by irritation of the peripheral nerves. The animal then begins to show evidence of lack of co-ordination, which is rapidly followed by partial paralysis, which is especially marked in the hind extremities. This stage lasts for from 5 to 10 minutes, during the later part of which the animal usually lies quietly on one side. From this state the animal passes into what one might term the convulsive stage. These convulsions are usually clonic in nature and, as a rule, at first involve only the neck muscles, the head being momentarily drawn backward on the back. At first these convulsions are but slight in degree and are separated by considerable intervals of time. Soon, however, they become much more frequent and of much greater severity. Gradually they become more and more general in their extent until all the muscles of the body become involved in violent clonic convulsions. This stage when present invariably presages a fatal outcome. During a convulsion, or occasionally in the interval of calm, respiration ceases. The heart, however, continues to beat, at first with perfect regularity and no acceleration; indeed, the rate seems to be somewhat slower than normal. Gradually the beat becomes more and more feeble, the rate and regularity being preserved to the end. It is usually only after an interval of from 3 to 4 minutes after the cessation of respiration that the heart ceases to beat. As has been previously stated, a fatal issue, if it occurs at all, always results within one hour after injection and usually within from 30 to 40 minutes. This is to a large extent independent of whether the dose is the minimum lethal one or two or three times that amount. It is certainly entirely independent of the size of the pig. Death, of course, results at slightly different times with different batches of the poison, but even in this case the interval of time between injection and a fatal issue does not vary to any great extent. A dose which has proved to be the minimum fatal dose for one pig will almost surely prove to be the same for another. In other words, we have done away practically entirely with the period of incubation, and the poison acts so rapidly that individual resistance plays no part; hence, the animal acts almost with the exactitude of a chemical compound into which for all practical purposes it has been converted. The period of incubation has ceased to exist since the poison is no longer contained within either the dead or the living bacillus, but is present in a free and uncombined form, capable of uniting immediately with those body cells for which it may possess a special affinity.

At autopsy no special gross lesions can be made out. The peritoneum is smooth and shiny throughout and there is not the slightest evidence of either hemorrhage or even marked congestion in the omentum or mesentery. This is a very important feature and in marked contrast to the hemorrhagic peritonitis found after injection of either the living or the dead colon bacillus. We are inclined to believe that it is the distinguishing feature between the injection of the poison in a comparatively free and in a combined state. At one time we attempted to obtain the poison by a simpler method, omitting the extraction of the crude substance with ether. The result was that on evaporation of the alcoholic filtrate we obtained a sticky residue which it was utterly impossible to pulverize or to weigh. We were compelled, therefore, to content ourselves with evaporating it to a sticky mass, which was then immediately dissolved in water. The solution of the poison thus prepared was very toxic but, as a rule, took from one to two hours or even longer to bring about a fatal result. The animals showed the roughening of the coat and the stupor characteristic of the living and dead bacillus, but not as a rule seen in the case of the powdered poison. Furthermore, the majority of these animals showed during life unmistakable signs of peritoneal inflammation. They died in convulsions. At autopsy an intense hemorrhagic peritonitis was present, which was particularly prominent in the omentum and mesentery, and hemorrhage was often present in the capsules of the liver and the spleen. From the fact that death was slower in these cases and that the symptoms were more like those seen after inoculation with the living bacillus, we are inclined to believe that in this instance the poison, although split off from the bacillus itself, still exists in combination with some other cell group and that it is essential that this combination be broken up before the poison can be set free and can act on the body cell.

Another interesting fact in this connection is furnished by the action of the poison in solutions which have been rendered strongly alkaline by the addition of sodium bicarbonate. As has been previously stated, the aqueous solutions of the poison are slightly acid in reaction and in order to avoid the irritative effects which might follow their injection into the peritoneal cavity, they were neutralized or rendered slightly alkaline by the addition of sodium bicarbonate. At first no attempt was made to secure perfect neutralization, with the result that sometimes we were making use of neutral, while again slightly or decidedly alkaline solutions were employed. It was soon noticed, however, that the results obtained in the three cases were very different. Thus, whereas in the neutral or faintly alkaline solution the injection of 60 mgs. of the powder invariably killed, in the case of a stronger alkaline solution the same amount did not cause a fatal result, although

the animals were very ill. From this fact it became evident that some change had taken place in the poison on standing in alkaline solution. In order to study this change more in detail, experiments were conducted with solutions of different degrees of alkalinity, with the results found in the following tables:

TABLE 1.

RESULTS WITH SOLUTION OF POISON BARELY NEUTRALIZED WITH SODIUM BICARBONATE AND PLACED IN INCUBATOR.

No. of Animal.	Dose of Poison.	Solution Kept in Incubator.	Weight of Pig.	Result of Injection.	Time of Death After Injection.
1	60 mgs.	Fresh.	325 gms.	+	30 minutes.
2	60 mgs.	2 hours.	330 gms.	+	20 minutes.
3	60 mgs.	20 hours.	370 gms.	+	20 minutes.
4	60 mgs.	2 days.	320 gms.	+	15 minutes.
5	60 mgs.	4 days.	350 gms.	+	20 minutes.
6	60 mgs.	6 days.	350 gms.	+	45 minutes.
7	60 mgs.	8 days.	320 gms.	+	20 minutes.

TABLE 2.

RESULTS WITH SOLUTION OF POISON RENDERED DECIDEDLY ALKALINE WITH SODIUM BICARBONATE AND PLACED IN INCUBATOR.

No. of Animal.	Dose of Poison.	Solution Kept in Incubator.	Weight of Pig.	Result of Injection.	Time of Death After Injection.
1	60 mgs. (barely neut.)	Fresh.	350 gms.	+	30 minutes.
2	60 mgs. (decidedly alk.)	Fresh.	370 gms.	Very sick for 2 hrs.	Recovered.
				[sick.	Recovered.
3	60 mgs.	2 hours.	325 gms.	Not very	
4	80 mgs.	4 hours.	310 gms.	Sick.	Recovered.
5	120 mgs.	24 hours.	280 gms.	+	More than 5 hours.
6	160 mgs.	3 days.	350 gms.	+	7 hours.

TABLE 3.

RESULTS WITH SOLUTION OF POISON RENDERED DECIDEDLY ALKALINE WITH SODIUM BICARBONATE AND KEPT AT ROOM TEMPERATURE.

No. of Animal.	Dose of Poison.	Time at Room Temperature.	Weight of Pig.	Result of Injection.	Time of Death After Injection.
1	60 mgs.	Fresh.	350 gms.	+	35 minutes.
2	60 mgs.	12 hours.	265 gms.	Sick.	Recovered.
3	90 mgs.	2 days.	280 gms.	Sick.	Recovered.
4	120 mgs.	2 days.	460 gms.	+	20 minutes.
5	120 mgs.	7 days.	405 gms.	Sick for 5 hours.	Recovered.
6	160 mgs.	7 days.	440 gms.	Sick for several hours.	Recovered.

From the above tables it will be seen that the degree of alkalinity of the solution, and especially the length of time that the poison has stood in alkaline solution are very important factors in determining its toxicity. Thus in Table 1, in which the solution was barely neutralized, the poison seems to have retained its full potency after eight days in the incubator, whereas, in the case of the strongly alkaline solution, the potency has decreased markedly within from 24 to 48 hours. Again, there are great differences to be seen depending on whether the strongly alkaline solution has been kept at room temperature or at that of the incubator, the decrease in toxicity being much less rapid in the first instance.

A more detailed result of the effects on animals than it was possible to give in the above tables is not without interest. For example, in Table 2, No. 2, which received 60 milligrams immediately after the solution had been rendered decidedly alkaline, was very sick indeed, whereas No. 3, which received the same amount after two hours in the incubator, was only slightly affected. In the case of Nos. 5 and 6 the effects observed corresponded more closely to those obtained with the crude bacterial cell substance. It is unfortunate that the time of death was not ascertained in the case of No. 5. No. 6 did not succumb until seven hours after the injection. On autopsy there was considerable fluid in the peritoneal cavity and the vessels of the mesentery were markedly congested. The omentum was particularly injected and a few minute hemorrhages could be made out. The most plausible explanation of the above facts is found in the theory that the poison has not been destroyed in the alkaline solution but rather has entered into chemical combination with the alkali and that we are again dealing with it in a combined instead of in a free state. The fact that the same amount will not cause a fatal result is thus readily explained, since the outcome depends largely on the rapidity with which the poison acts. If it is present in a state of combination which must be broken up before it can exert its deleterious action on the body, and if this combination is only slowly decomposed, the nerve cells, for which it apparently has a special affinity, are not subjected to an overwhelming dose at one time, as in the case of the intraperitoneal injection of the free poison.

The results obtained in animals Nos. 5 and 6, Table 3, are very interesting. In these instances there were two distinct illnesses, the first becoming manifest within from 20 to 30 minutes after the injection and corresponding in all respects to that following a non-fatal dose of what we have for convenience termed the free poison. The animals were decidedly in better condition at the end of an hour; however, they then began to show symptoms similar to those noticed after the injection of the crude cell substance, i. e., roughening of the coat, stupor and slight convulsive movements. Recovery from this state did not occur until after the lapse of from 5 to 6 hours. It is evident that here the first signs of illness were due to some of the poison which had not as yet combined with the alkali and hence still existed in the free state, whereas the later symptoms were due to the effects of the slow liberation of the same poison from its combination. In this connection it is interesting to note that the combination between the poison and the alkali which apparently takes place in decidedly alkaline solutions is not an immediate one but occurs gradually and reaches a maximum only after the lapse of a considerable interval of time. That the rapidity with which this combination is effected depends largely on temperature is shown by the fact that it occurs much more rapidly in a solution kept in the incubator than in one which is allowed to stand at room temperature.

The results which follow the injection of a fatal dose of the soluble poison intraperitoneally have already been described. When a non-fatal dose has been injected the symptoms first noticed are similar in all respects to those following a fatal dose. The animal becomes restless, shows signs of irritation of the peripheral nerves, inco-ordination and partial paralysis. The convulsive stage is not present, as a rule, and when it is noticed is evidenced solely by slight movements separated by considerable intervals of time. We have never seen a case showing marked generalized convulsions which recovered. Recovery is apparently rapid and complete and within two hours after injection the animal which has been desperately ill appears as well as any untreated animal. The maximum effect is obtained within from 45 to 60 minutes in every instance. The study of the changes in temperature in these animals is particularly interesting. Within 15 minutes the rectal temperature has begun to fall and has reached a minimum within one hour.

It remains stationary for a short time and then be-

gins to rise again and at the end of three hours after the injection has usually returned to normal or above.

On injecting the soluble poison subcutaneously, we find that the animals are able to withstand a much larger dose than when the poison is given intraperitoneally. Thus, in the case of a poison, 60 mgs. of which invariably killed when given intraperitoneally, it was found that 120 mgs. could be given subcutaneously without causing a fatal result. However, the injection of a solution containing 180 mgs. invariably caused death, the fatal issue occurring in about the same length of time as in the case of animals treated intraperitoneally. Thus, a dose of 180 mgs. always proved fatal in from one-half to three-quarters of an hour. The symptoms are practically identical with those following the intraperitoneal injection with the exception of the fact that the various stages are much more sharply defined. For example, the stage of peripheral irritation is much more marked. The animal soon after

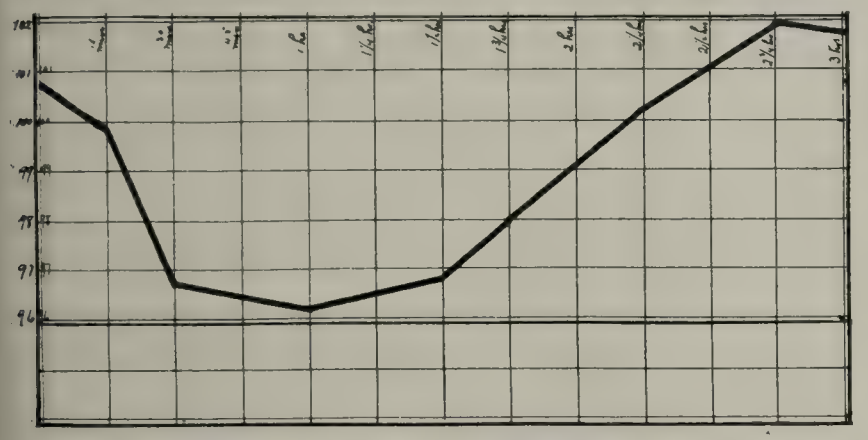


Chart 3.—Temperature curve of guinea-pig treated with 45 mgs. of the soluble poison intraperitoneally.

injection becomes very restless, runs around his cage and scratches his body. This itching seems, however, to be general from the outset and is not, apparently, more pronounced in the immediate neighborhood of the site of injection. If the animal has been injected under the skin of the abdomen, his attention is not necessarily first attracted to this spot, but he may begin by scratching his nose or one of the extremities. Another peculiar symptom, which is probably due to peripheral irritation and which is seldom seen in cases of intraperitoneal injection, is the tendency which the animals show to dig furiously in the shavings in the bottom of their cages. This feature is quite characteristic and is seldom absent in pigs which have been treated subcutaneously. The later stages are similar in all respects to those seen following the intraperitoneal injection. The animal shows symptoms of inco-ordination, lies on one side and finally develops convulsions, with failure of respiration, the heart continuing to beat regularly for some time after the complete cessation of respiration. Here also the symptoms are accompanied by a decided fall in the body temperature.

The results following the intravenous injection of the soluble poison are given in the following table:

TABLE 4.

No. of Animal.	Amount of Poison Injected Intravenously.	Time of Cessation of Respiration After Injection.	Time of Cessation of Heart Beat After Injection.
1	10 mgs.	4 minutes.	7 minutes.
2	10 mgs.	Recovered.	
3	10 mgs.	3 minutes.	6 minutes.
4	10 mgs.	Recovered.	
5	15 mgs.	4 minutes.	6 minutes.
6	15 mgs.	3 minutes.	5 minutes.
7	15 mgs.	4 minutes.	7 minutes.
8	15 mgs.	4 minutes.	6 minutes.
9	20 mgs.	3 minutes.	5 minutes.
10	20 mgs.	4 minutes.	6 minutes.
11	20 mgs.	3 minutes.	6 minutes.
12	20 mgs.	3 minutes.	7 minutes.

From the above table it will be seen that in all cases respiration ceased within four minutes after injection. Indeed, the respiratory embarrassment becomes pronounced immediately following the injection. The animal struggles for breath and there is violent retraction of the sternum. No convulsions are seen following the intravenous injection, this being probably due to the inhibitory influence of the anesthetic which has been used during the preparation of the animal for the operation. The failure of respiration in the absence of convulsions would seem to be conclusive evidence that the cessation of this function is due not to mechanical interference during a convulsive attack but to a direct paralysis of the respiratory center itself. Furthermore, the fact that the heart continues to beat in a perfectly normal manner for from two to four minutes after respiration has entirely ceased would tend to show that the immediate cause of death is asphyxia brought about by paralysis of respiration through the action of the poison.

This action of the heart after the cessation of respiration is exceedingly interesting, and is entirely analogous to that mentioned as following the intraperitoneal injection. The rate of the beat is decidedly lessened and at first the individual beats are stronger. They gradually become more and more feeble, however, until finally the heart stops in diastole, the rate after the preliminary slowing remaining unchanged until the end. It is worthy of note that in the case of intravenous injections the fall of temperature, which is so marked a feature after the intraperitoneal and subcutaneous injections of the poison, does not occur. The explanation of this fact is doubtless to be found in the very short interval of time which elapses between the injection and a fatal outcome. As regards the size of the lethal dose when given intravenously, we see that 10 milligrams often, and 15 milligrams invariably, proved fatal.

For purposes of comparison, we have always made use of the poison obtained from the same extraction in our intravenous, subcutaneous and intraperitoneal injections and have therefore been able to ascertain with a fair degree of accuracy the differences in dose required to bring about a fatal result in the three cases. Thus, whereas 60 mgs. represents the fatal dose when given intraperitoneally, it requires between 120 and 180 mgs. subcutaneously and only from 10 to 15 mgs. of the same poison to cause death when given intravenously. These differences are undoubtedly due to the rapidity of absorption in the various cases, and a fatal issue depends entirely on whether sufficient poison reaches the respiratory center at one time to cause cessation of respiration or not.

It has now been shown that a very powerful intracellular poison can be obtained from the colon bacillus. As has been previously stated, the results given in the foregoing experiments are those obtained with the poison from one extraction only. It must be understood that the poison is not in a pure state and when it is stated that 60 mgs. causes death when injected intraperitoneally we refer simply to the powder obtained from a given extraction. We have been able to procure powders which kill in doses of 15 and even as low as 8 milligrams when given intraperitoneally. This difference is in large amount due to the presence of sodium chlorid, since no attempt has been made to remove this salt in the case of the less toxic powders by redissolving in absolute alcohol.

There are several facts which lead us to believe

that this poison is the one which causes the symptoms of illness and death in animals infected with the colon germ. Most of these facts have already been brought out, but it may not be out of place to briefly recapitulate at this point. As has been previously seen, the results obtained with the living germ, the dead bacterial substance and the soluble poison can best be explained on the ground that the toxic body in each case is the same. The differences in action are not differences in symptoms but simply in the rapidity with which these symptoms become manifest. While it is undoubtedly true that in animals dying with the minimum fatal dose of the living germ, the convulsive stage is not present or is only slightly marked, it is rarely absent in cases where from three to four times the fatal amount has been given. The sole difference between the living germ and the soluble poison which would appear to demand an explanation is the lack of evidence of a peritonitis in the latter case. This, we think, is best explained by the fact that in the case of the soluble poison the toxic substance exists in an uncombined form, which, of course, is not true in the case of either the living or the dead bacterial cell. The uncombined poison is rapidly absorbed from the peritoneal cavity and hence the irritative effects which would result from its retention in this place are absent.

As has been stated, one of the first signs of the action of the poison is a lowering of the body temperature. This hypothermia is usually present to a marked degree and is noticeable before any visible symptoms occur. It is therefore, the best index which we have as to the exact time at which the poison begins to exert its effect. In the same manner, the rise of temperature after the development of hypothermia is the first indication of recovery. Moreover, if in an animal with a subnormal temperature a rise occurs, it is an infallible sign of ultimate recovery, no matter how grave the general condition may appear to be at the time. We have laid great stress, therefore, on the changes in body temperature as furnishing the most delicate test of the action of the poison. It may be here stated that the body temperature of guinea-pigs is ordinarily fairly constant within certain narrow limits, and they are much more satisfactory animals to work with in this respect than are rabbits. Moreover, their temperature does not seem to be materially altered by the injections of sterile salt solution or of such inert substances as a suspension of pumice stone into the peritoneal cavity. As has been seen in the case of the living germ, it is only after the lapse of several hours that a fall in temperature occurs. This would indicate that it it is not until this time that sufficient poison is liberated to cause noticeable toxic effects in the animal. That it takes an appreciable time for the poison to be liberated from the bodies of the bacilli is well illustrated in the instance of the dead bacterial substance. Here it is only a question of dissolution of the bacilli and the setting free of the contained poison, and yet it will be noticed that an interval of at least two hours and usually longer elapses before there is any noticeable fall in temperature. The maximum effect in this case is reached between four and six hours, and if the dose has been a non-fatal one, recovery begins at the end of from eight to ten hours, as is indicated by the upward trend of the temperature curve at this point. In the case of the soluble poison, the toxic effect begins at once. Within fifteen minutes the temperature has begun to drop and within an hour has reached a minimum. Recovery then begins and within three hours the effect of the poison has worn off, as is best evidenced by the return of the body temperature to normal or above at this point.

As has been previously mentioned, it is not the purpose of this paper to prove that this poison is a true toxin; such proof can be established only by the demonstration of the production of an antitoxin. It is our intention to treat of this subject in a later paper. Again, it is not claimed as yet that the intracellular poison of the colon bacillus is specific in the sense that similar poisons can not be obtained from other sources. A comparison between the poison of the colon bacillus and certain poisons obtained from other proteid substances will form the basis of a subsequent paper.

Finally, as has been shown in the paper of Dr. Wheeler, this poison can be obtained from the colon germ when the latter is grown on a medium which contains no proteids. This would seem to indicate conclusively that the colon germ is able to build up its poison synthetically, since the latter is unquestionably a proteid body.

CONCLUSIONS.

The conclusions which we have drawn from the above data may be summarized as follows:

1. The colon bacillus produces a powerful poison when grown on artificial media.
2. This poison is intracellular in character, and is contained within both the living and the dead bacterial cell.
3. The poison can be separated from the other constituents of the bacterial cell only by means which chemically break up the latter.
4. The peritonitis which occurs after intraperitoneal inoculation with the colon bacillus is due to the presence of the poison in a combined and not in a free state.
5. The intracellular poison of the colon bacillus causes a marked fall in the body temperature.
6. The poison of the colon bacillus apparently causes death by paralysis of respiration.
7. The intracellular poison is an essential group of the bacillus, and can be built up synthetically on proteid-free media.
8. This intracellular poison is the poison which causes death in animals inoculated with cultures of the living colon bacillus.

THE DIAGNOSIS OF SYPHILOMA OF KIDNEYS.*

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CHICAGO.

It will not be possible to consider all the syphilitic diseases of the kidney in the few minutes allotted to this subject. There can be no question that syphilis as an etiologic factor must be seriously taken into the consideration of the inflammatory kidney diseases. That syphilitic nephritis exists, however, is doubted by some of the best authorities, it being classed with nephritis, and syphilis is considered only as an etiologic factor. I do not wish to insist that a syphilitic treatment should be instituted in such cases; in fact, authorities differ; some advise strongly against the use of mercury in these conditions. It certainly

* Read before a joint meeting of Chicago Urological and Chicago Medical societies.

seems, however, that if it be a syphilitic process it should be treated as such. Neither do I wish to discuss whether or not amyloid kidneys are based on syphilis as an etiologic factor.

Virchow, in 1858, first reviewed the subject of syphilitic changes in the kidneys. It might be said that what he stated at that time is looked on to-day practically in the same manner. Beer, in 1858, was the first to report a typical case of gummata of the kidney. It was not until 1867 that his work on kidney syphilis appeared. These two works, in addition to Lancereaux's, which appeared in 1866, were the pioneers in this field of work, and we still consider them our standards. Seiler studied syphilitic gummata clinically as early as 1881. Numerous writers have taken this subject (gumma) into consideration, but much more literature can be found on the so-called syphilitic albuminurias.

Undoubtedly, it is syphiloma of the kidney which is of especial interest to the surgeon, and, as I have been asked to take up this topic, I have only mentioned the other forms of syphilitic kidney disease.

These gummatous manifestations of syphilis must naturally fall into the class of late syphilitic manifestations. If infection should have occurred in childhood, such manifestations could appear in early life. Middle life, however, is the time when such cases are most often expected. These facts are demonstrated by the statistics of Karvonen. This holds true, one might say, of all visceral (gummata) affections. In taking this condition into consideration, it is wise to disregard a negative history, which can never be taken as proof that the patient has never had syphilis, for there are certainly many instances in which the patient has not been made aware of his infection.

In individuals who have had syphilis and who have lacked treatment altogether, or have had but insufficient treatment, syphiloma of the kidney must always be taken into consideration in the differentiation of obscure kidney troubles. These affections may be concomitant with other forms of kidney diseases, and it must not be forgotten that only one kidney is usually involved in a gummatous process.

In the diagnosis, it is desirable to note the presence of or previous evidence of any gummatous manifestations elsewhere. It is essential to eliminate in the diagnosis all symptoms which may be caused by a simultaneous nephritis. In doing this, it has been practically established that up to the present time no typical clinical array of symptoms exists on which we can base a diagnosis of gumma of the kidney. Considering the pathologic anatomy, this readily can be understood. Lancereaux pointed out that scarcely any urine is secreted by that portion of the kidney involved in the gummatous process, and hence the clinical findings in the urine are not typical. Leucocytes and casts occasionally can be found microscopically, and the appearance of albumin is not unusual. These findings have been noticed to be intermittent. Cohnheim states that numerous miliary gummata may cause symptoms similar to those of an interstitial nephritis.

Finally, if syphilitic scars set in, they produce a severe atrophy of the kidney, and cause symptoms similar to those found in a severe grade of contracted kidneys. Such could be the course of the disease, but a kidney has never been demonstrated which shows all these different steps.

In case a gumma ruptures and the contents empty into the pelvis of the kidney, and finally into the bladder, would it be possible to make a probable diagnosis? In such cases, no general symptoms need accompany the passing of a dirty brownish-colored urine containing débris. No fever, no chills, no particular symptoms and no pain need follow such a rupture of a gumma. A cystoscopic examination and segregation or catheterization may collect the urine separately, and the functional capacity of each kidney may be looked into. In such a case, the capacity need not be greatly impaired. If, however, the kidney substance should be studied with miliary gummata, undoubtedly the sufficiency would be greatly influenced.

I might add that in such a case the microscopic examination might show red blood corpuscles, degenerated cells and detritus. As already stated, a concomitant nephritis might be present, and if so, the usual findings, both microscopic and chemical, would be expected.

After such a cavity empties itself, the course may be variable; the appearance of the above-mentioned microscopic findings with a trace of albumin may gradually or suddenly disappear, and if no nephritis coexists, one might not find even a trace of any pathologic product in the urine. As no symptoms need have been present, the whole trouble might pass over without any further untoward signs or symptoms. If other gummata are present, similar attacks may reoccur. The interval of breaking down may be short, or a long time may elapse before such another occurrence.

Undoubtedly, an interstitial nephritis might be expected in cases of repeated gummatous rupture. The symptoms of a gumma may be overlooked, especially if a diffuse nephritis or amyloid degenerative process coexists.

It is the object of this paper to point out the possibility of gumma of the kidneys, especially when dealing with "surgical kidneys," and where the amount of blood and débris is large or small, which would cause us to consider surgical interference.

The rôle played by the minute examinations, such as injection of indigo carmine, the production of artificial glycosuria inhibition of methylene blue, etc., can only be surmised, as I know of no case up to the present in which such findings are reported.

In establishing the diagnosis of syphiloma of the kidney, it must be remembered that if the gumma or gummata are of large size, the kidney with these irregularities may be palpated. There may be cachexia present, the patient may naturally have lost in weight. With all these signs and symptoms, it becomes necessary to differentiate from a malignant growth. The indolent character and the benign course of such a tumor, however, always speak for a luetic cause.

Wherever these findings are present, a nephrectomy must not be done until the possibility of syphilis has been excluded.

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Business Hints.—There is little chance of accumulating money from the practice of medicine. A small competence can be saved by diligence, frugality, and good management. The saving must be done between the ages of thirty and fifty. He should protect his family with adequate life insurance. He should never be foolish enough to speculate, but should stick closely to his own business. Accumulations of a lifetime have often been swept away in the foolish hope of large speculative returns.—N. H. Adams.

THE PATHOGENESIS AND TREATMENT OF GOUT.*

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SAN FRANCISCO.

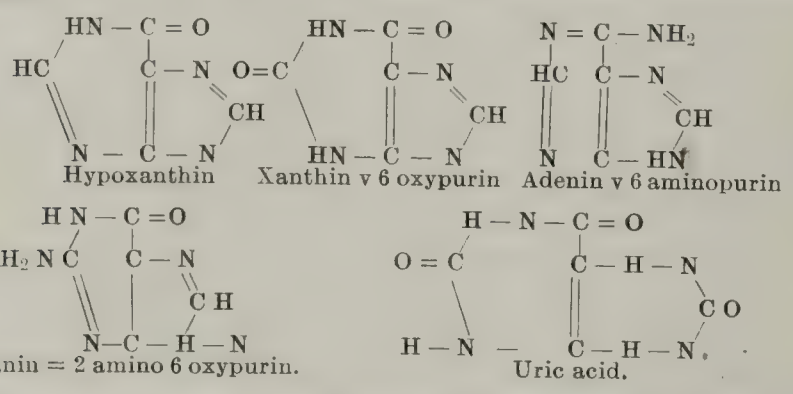
Since the classical investigations of Garrod we know that gout is characterized by the presence of uric acid in the serum and that the gouty attacks are caused by the precipitation of this acid into the joints. Every theory of gout must explain these characteristic features, and every pathogenic conception of the disease is based on these facts.

Before we enter the discussion of the different theories which attempt to explain the pathogenesis of gout, I should like to give a short review of the formation of uric acid in physiologic conditions. While till about ten years ago uric acid was considered to be a product of imperfect oxidation of albuminous bodies, it has been proved since that uric acid has nothing whatever to do with albumin, but must be looked on as a specific oxidation product of the purin bodies derived either from the nucleic acid of the food or from the breaking down of the cell nuclei in the catabolism.

The nitrogenous bodies which are oxidized in metabolism belong to three categories: 1, Albumin; 2, paranuclein; 3, nuclein. Of these three only the nucleins are able to form uric acid in the following manner:

Nuclein
Albumin Nucleic acid
Thymic acid Purin bases.

The purin bases consist of xanthin, hypoxanthin, guanin and adenin.



Uric acid is formed by oxidation of those purin bodies; only when they are present can uric acid be found. The purin bodies may be ingested in the food and form what is called the exogenous part, or may be available for oxidation by the catabolism of the tissues and so form the endogenous part of the uric-acid excretion. The normal uric-acid excretion consists of about 0.2 to 0.3 gr. of endogenous uric acid, and of about 0.2 to 0.4 gr. exogenous. So nearly half of the uric-acid excretion is the result of tissue catabolism.

Such is the origin of the uric acid, which plays so important a rôle in the pathogenesis of gout by its presence in the serum and by the precipitation thereof into the tissues.

There have been several theories put forward to explain these two facts and they may be divided into two groups. The first one considers a retention of uric acid the cause of its presence in the serum, and of its precipitation into the tissues; the second considers the cause an increased production of uric acid.

The first of these theories was the one proposed by Garrod; his views may be summed up as follows: The formation of uric acid in gout varies within normal limits, but it is retained in the body owing to the inability of the kidneys to excrete the formed uric acid. This inability is mostly due to anatomic lesions, in some cases to functional changes in the kidneys. The retention is more marked at certain periods, during which the excretion is sometimes entirely stopped. In those cases the blood contains an amount of uric acid so great that it is unable to hold it in solution. Therefore, the blood gets rid of its excess of uric acid by a vicarious excretion into the joints.

The work of Garrod was based on the estimations made by the method of Heintze, which was proved later to lead to erroneous results.

Repeated investigations of metabolism in gout, by the method of Ludwig-Salkowski, the only one which allows an accurate estimation of uric acid, have shown that the results of Garrod could not be confirmed; while in some cases the uric-acid excretion is below normal or normal, it has been shown that there are cases of gout in which the uric-acid excretion exceeds the amount which is considered to be normal. To account for that, a view different from Garrod's was put forward. It explained the presence of uric acid in the serum and its precipitation into the joints by an increased production.

Neither of these explanations can be accepted for the following reasons: If one increases the formation of uric acid in a gouty patient by giving thymus gland in large amounts, the surplus of uric acid, the excretion of which can even attain 2 gr. in 24 hours, is eliminated by the kidneys without showing any difference from normal conditions. This experiment, which has been often repeated and confirmed since it was first published by me about ten years ago, shows that neither a retention nor an increased production can explain the symptoms of gout; a retention can not take place, because the kidneys are able to excrete a much larger amount than is formed in normal conditions; an increased production on the other hand, all other conditions being identical, could have but one result, an increased secretion.

Since these two theories fail to account for the features of gout, it is evident that their explanation can not be found by quantitative changes, and we must therefore look for the solution by qualitative changes. A close study of the physiologic excretion of uric acid will show in what direction those qualitative changes may be found. We have seen that in normal conditions uric acid is only formed by oxidation of the purin bases, and that at the same time as a result of the same process thymic acid is formed. Now it has been shown by Kossel and Minkowski that the uric acid is able to form a compound with thymic acid. The compound thus formed shows the peculiarity that the uric acid can not be detected by any of our reactions for it. It disappears completely for our methods of investigations and can not be precipitated.

There can be little doubt that in physiologic conditions this compound of thymic and uric acid is the form in which the uric acid circulates through the body and the blood. It accounts for one fact, otherwise unexplained, that we can not find any uric acid in normal blood, although we know that it must be present there, because it is not formed in the kidneys, only excreted. Therefore the morbid feature in gout is not the presence of uric acid in the blood, but its precipitability. Normal blood also contains uric acid, but we can not detect it, because it is combined with thymic acid; gouty blood

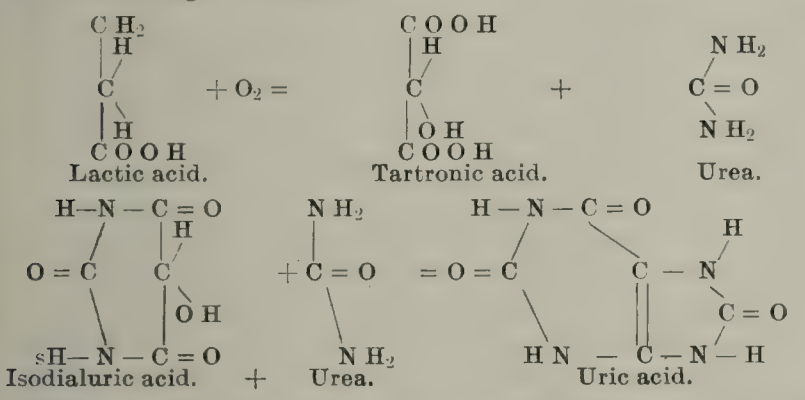
* Read before the San Francisco County Medical Society.

may contain an amount not exceeding the normal, but it is precipitable and we therefore conclude not combined with thymic acid.

Hence the answer to the question why the uric acid is not combined with thymic acid we believe will clear up certain points in the pathogenesis of gout.

There are two possibilities: The first is that the uric acid is formed normally, that is by oxidation of the purin bases, but is for some reason not combined with thymic acid.

The second possibility is that the uric acid is formed synthetically and not by oxidation. We know that the largest part of the uric acid is formed synthetically in the avian organism, as has been shown by Minkowski and Wiener. On the other hand, we know that during infancy the human organism can synthesize the purin ring, and that even the adult body is able to form the same synthesis, I have shown in a paper in the Johns Hopkins Bulletin.[1] This formation can be shown by the following formulas:



The possibility of a synthesis of uric acid in the human organism is therefore to be granted.

To decide which possibility is realized in the gouty organism I had to make two series of experiments.

1. I had to prove that the uric acid has not lost its ability to form a compound with thymic acid.

To do this I fed several gouty patients with thymic acid and have been able to demonstrate that the output of uric acid is much increased during the medication with thymic acid. Therefore the uric acid combines with thymic acid and regains the physiologic conditions under which it is excreted in normal metabolism.

One could object to this experiment that the increase of uric acid is not due to an increased excretion of the uric acid already performed in the blood, but to an increased formation caused by the pyrimidin group in the thymic acid. Therefore I have checked my experiments in feeding a normal man with thymic acid, and in this case I have not obtained any increased output of uric acid. It shows that the increase in the output of uric acid caused by thymic acid in the gouty organism is due to an increased excretion of already present uric acid, not to increased formation.

2. The second point which I had to prove was the synthetic formation of uric acid in the gouty metabolism. I increased in a gouty patient the amount of paranucleins in the food and obtained a very marked increase in the uric acid output (0.15 0.45 gr). In the case of a normal man this experiment would not have influenced the uric acid, because the paranucleins do not contain any purin bases; it proves that the uric acid was formed synthetically.

Those experiments lead to the following conception of gout:

In gout the uric acid is not only produced by oxidation of purin bases, but also by synthesis; this synthesized uric acid, therefore, has not at its disposal the thymic acid necessary for its solution. It is the reason why we can detect uric acid in the serum. If the formation of the synthetic uric acid increases for one reason or another, there follows a saturation of the serum with this kind of uric acid, and as no thymic acid prevents it from precipitation it is deposited in the joints as tophi.

I believe that this view explains most of the features in gouty metabolism, but there are still some difficulties which have to be accounted for.

The principal one is the precipitability of uric acid in the serum in some other diseases, as in pneumonia, etc., and after administration of thymus. But all those cases can be explained by the fact that the molecule of the moleic acid, obtained either from the tissues or the food is split before the formation of uric acid, and that therefore the thymic acid can not form its compound with uric acid, because it is not present when uric acid is formed.

We know that in pneumonia the presence of uric acid follows the resorption of the exudate in the lungs, which takes place by autolysis of the inflammatory products demonstrated by Müller. By the autolytic process, however, the nucleic acid is split up into purin bases and the decomposition products of thymic acid. Therefore the uric acid formed by oxidation of the free purin bases has no thymic acid at its disposal with which to combine.

The same explanation can be applied to the uric acid after administration of thymus. We know that thymus contains a large amount of uncombined purin bases; by cooking a still larger amount is set free; those free purin bases resorbed without the complementary thymic acid yield precipitable uric acid.

The precipitation of uric acid in the case of nephritis may be explained in the following way:

The compound of uric acid and thymic acid is split up in the kidneys; it is shown by the precipitability of uric acid in the urine. It becomes free in the kidneys, but can not be excreted by the diseased epithelial cells, and is so returned into the circulation, where it becomes accessible to the precipitation by acids.

Our view of the formation of the uric acid explains also some very old observation, which offered some difficulties. It is the fact that meat in large quantities, and especially gamey meat, produces gouty attacks. Meat contains about 2 per cent. of free hypoxanthin which, having no thymic acid at its disposal, behaves like synthetically-formed uric acid. On the other hand, the gamey meat contains by the autolytic process which it has undergone, and which splits up the nucleins, a still larger amount of free purin bases.

Thus this old observation, which is recorded by every writer on gout, finds a rational explanation.

It was quite natural to apply the views resulting from our experiments to the treatment of gout. I have given the thymic acid to about 30 cases of gout, and have been able to observe some of them for several months. In about nine cases I have estimated the excretion of uric acid during the medication. I will not go into the details of the histories, but give a short résumé of the observations. As we have seen before, the excretion of uric acid is constantly increased during the medication. The increase varies between .17 and .42 gr. for 24 hours, amounting to from 15 to 45 per cent. of the daily excretion. This increase lasts for about ten days, and returns then slowly to the former amount. It can be easily explained by the fact that after the uric

1. E. Schmoll: The Chemical Origin of Leucocytes, Johns Hopkins Hospital Bulletin, July-August, 1904, p. 238.

acid accumulated in circulating form is excreted, the daily amount of synthetically formed uric acid is too small to be demonstrated by our analytical methods. The patients felt very well during the medication, and I have never seen any gouty attack occur during the medication or for some time after the medication was stopped. The movement in the diseased joints became easier and in several cases the swelling of the joints lessened, and in two cases disappeared entirely.

I have only once had the opportunity of treating an acute gouty attack, with the results that the swelling of the great toe, and the elbow, in which two articulations the attack was localized, disappeared entirely within 6 hours. In the other cases, in which the swelling of the joints was due to deposits and tophi in the articulations, the thymic acid seemed to be without any effect on the enlarging. It can not be expected that the thymic acid should dissolve deposits, because it does not dissolve the uric acid, but prevents it from precipitation, and therefore prevents further attacks.

The dose of thymic acid to be given is about .25 gr. from 3 to 4 times a day. When I started my experiments, I gave doses of 3 or 4 grams in 24 hours, but observed in three cases that a local reaction followed the ingestion of that amount. Wherever uric acid was present a local inflammation started, which lasted for about 48 hours. In giving the aforementioned doses I never saw any local reaction following the medication. I observed in some few cases gastric disturbance, as a secondary effect on the organism; it can be easily avoided by giving the thymic acid after meals. The action of the heart or the kidneys was never interfered with, although special attention was paid to those two organs.

In closing, I should like to insist on the fact that this theory explains only two symptoms of the gouty metabolism; the precipitability of the uric acid in the serum and the uric acid deposits in the joints. It stands to reason that those two phenomena are only the result of a primary disturbance in the metabolism, the character of which we are unable to explain, but which shows its presence by the synthetic formation of the uric acid. For the same reason, the medication by the thymic acid would only be able to neutralize the effects of this primary disturbance, but does not pretend to cure gout.

THE INTERCOMMUNICABILITY OF HUMAN AND BOVINE TUBERCULOSIS.*

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Prior to Professor Koch's[1] memorable address in 1901 a considerable amount of evidence had accumulated which seemed to indicate that the human and the bovine tubercle bacillus were not identical and that the former was incapable of causing a generalized tuberculosis in cattle. Not only had the earlier work of Bollinger,[2] Chaveau, Günther and Harms, and others shown that the feeding of calves, swine and goats with human tuberculous material was unattended by ill effects in these animals, but, in more recent times, a number of experiments had been reported in which attempts to infect cattle with human tubercle bacilli were followed by absolutely negative results.

Baumgarten,[3] who in 1891 sought to determine the identity of human tuberculosis and *Perlsucht*, failed to produce the slightest trace of tuberculosis in a calf which he inoculated with human tubercle bacilli, whereas the control calf which was infected with bovine tubercle bacilli died at the end of six weeks of acute general miliary tuberculosis.

Later Gaiser[4] inoculated a calf, into the eye and also subcutaneously, with human tubercle bacilli; but the irritation of the eye infection, which was decided at first, soon diminished, and after three weeks the cornea had become again entirely clear and transparent. At autopsy, three months after infection, no tuberculosis was found, although the control animals, a rabbit and a guinea-pig, died five and a half months after inoculation, showing that the infecting material was virulent. In this country Frothingham[5] inoculated intraperitoneally two calves with a culture of human tubercle bacilli from the liver of a child. In both only slight local changes were produced. Of two other calves inoculated into the trachea, in one there occurred a local abscess in the muscles of the neck, with a few minute tubercles devoid of tubercle bacilli in the liver and in the lungs, while in the other no lesions whatever were to be found. Thus only local effects were induced. Dinwiddie[6] made similar experiments with like results, and finally Theobald Smith,[7] in an extensive comparative study of bovine tubercle bacilli and of human tubercle bacilli from sputum, demonstrated very clearly the restricted character and the lack of all tendency toward progressive disease of the lesions produced in cattle by bacilli of human origin.

While the results of experimental work up to the time of Koch's communication at the London congress indicated that human tuberculosis was not transmissible to cattle, the circumstantial evidence of clinical experience seemed to show that pearl disease constituted a grave danger to man, and, therefore, the medical profession as a whole very properly continued to urge the general adoption of stringent prophylactic measures against infection through the milk and meat of tuberculous animals. In this connection it should be remarked that Koch did not absolutely deny the possibility of human infection from bovine sources, but stated that from the results of the experiments carried out with Professor Schütz of the Veterinary College in Berlin, he felt justified in maintaining that human tuberculosis differs from bovine and can not be transmitted to cattle. This fact was abundantly evident from the pathologic specimens exhibited in London and of which Virchow[8] said: "The infections with human tubercle bacilli of the experiment animals have produced no lesions whatsoever which can be compared with bovine tuberculosis." On the other hand, regarding the question of infection of human beings with bacilli of bovine origin, in the light of the infrequency of the occurrence of primary intestinal tuberculosis in man, Koch reasoned by analogy that the bovine tubercle bacillus bears the same relation to human tuberculosis that the human tubercle bacillus does to bovine tuberculosis.

For the further investigation of the subject Koch

* Read before the Buncombe County Medical Society at Asheville, N. C., 1904.

1. Koch, R.: Deut. med. Wochft., vol. xxvii, 1901, No. 33, p. 549.
2. Bollinger: Arch. f. exper. Path. u. Pharm., vol. i, 1873, p. 356.
3. Baumgarten: Jour. of Tuberculosis, vol. v, 1903, No. 1, p. 1.
4. Gaiser: Inaug. Diss., Tübingen, 1893.
5. Frothingham: Report of Mass. Cattle Commission for 1897.
6. Dinwiddie, R.: THE JOURNAL A. M. A., vol. xxxix, 1902, No. 25, p. 1574.
7. Smith, Theobald: Jour. of Exper. Med., vol. iii, 1898, p. 451.
8. Virchow: Berl. klin. Wochft., vol. xxviii, 1901, No. 31, p. 818.

himself suggested the study of cases of primary intestinal tuberculosis and the isolation of the tubercle bacilli from the lesions in such cases, as an aid in the determination of the question, inasmuch as if the tubercle bacilli thus obtained had a bovine origin this would be shown by their characteristic behavior on artificial culture, as well as by their pathologic effect on cattle. His own experience, however, as also the rarity of the findings of primary intestinal tuberculosis in various pathologic institutes in Germany, warranted him in the statement that the frequency of human infection from bovine sources was probably not greater than that of congenital tuberculosis, and that, therefore, preventive measures against bovine tuberculosis were not necessary in the degree then considered essential, since the simple boiling of the milk would protect infants in whom cow's milk was substituted for that of the mother, whereas prophylaxis against human tuberculosis was still greatly inadequate and in this direction the chief effort should be made.

Koch did not consider the question entirely closed, however, and it was through his instrumentality that more extensive experiments were undertaken at the Imperial Health Bureau. From the time of the organization of a special commission for this purpose until last spring, when the commission made report, a great number of experiments were performed, chiefly to determine the relation of human tuberculosis to that of cattle. During this time cases of primary intestinal tuberculosis were carefully sought for and, also at the instance of Koch, the pathologic institutes in Prussia were requested to report every case found.

During the past three years a large number of experiments have been reported by numerous investigators, the majority of whom claim positive results in the transmission of human tuberculosis to cattle. As a whole this work is more or less subject to just criticism, and there is scarcely one of these experiments in which there have not been possible sources of error. Before examining the evidence, however, let us look back to the experimental investigations of Villémin's time when so much confusion was rife as to the infectious nature of tubercle.

By the inoculation of animals with tuberculous material which had presumably been rendered innocuous before introduction, also with non-tuberculous material from cadavers and even with all sorts of indifferent substances, the contemporaries of Villémin caused lesions which in minute detail simulated true tuberculosis.

For example, by inoculation in the necks of experiment animals of tubercle and of material from caseous lymph glands which had been soaked for months in alcohol and had in addition been boiled immediately before inoculation, Waldenberg[9] succeeded in producing miliary gray nodules in the internal organs. Experimental inoculations made by Wilson Fox[10] in 117 guinea-pigs and in 12 rabbits in which non-tuberculous substances were introduced subcutaneously, produced not only pseudotuberculous lesions locally and in the neighboring lymph glands, but also in multiple internal organs. Panum[11] in studying embolism noted in the course of his experiments that when he introduced foreign substances (metallic mercury, wax globules, and even air) into the vessels of animals, minute foci occurred with great regularity which were apparently analogous with miliary tubercles. Like results were obtained by Lebert and Wyss[12] by the intravenous injection of coal dust and quicksilver. Again Cohnheim and Fraenkel[13] injected into the jugular vein of guinea-pigs fresh blood of another healthy guinea-pig with the production of typical miliary pseudotuberculosis of the lungs and liver. Likewise, these same authors introduced into the peritoneal cavity of guinea-pigs bits of filter paper, lint, gutta-percha, raw and vulcanized rubber. Some of the animals died soon of general peritonitis, but others gradually became emaciated and died, and in these autopsy showed disseminated pseudotuberculous lesions of the peritoneum, liver and lungs. In more recent years it has been shown by Prudden and Hodenpyl[14] and others that dead tubercle bacilli, when introduced into the serous cavities or injected intravenously in animals, are capable of producing histologic tubercle.

In the light of these and of numerous other similar experiments which were performed prior to the discovery of the tubercle bacillus, some of the sources of error in the attempts which have recently been made artificially to transmit human tuberculosis to cattle become at once apparent.

Such evidence Baumgarten[3] had in mind when he pointed out at the International Tuberculosis Conference in Berlin that all the experiments which had been made up to that time had been performed in an objectionable manner. As Baumgarten there insisted, inoculations should not be made otherwise than subcutaneously, and the number of tubercle bacilli introduced must not be too large, for only thus can it be shown whether a tuberculous infection takes root at the point of inoculation and extends therefrom within the organism through the lymphatics and the blood stream. For this purpose intravenous injections are useless, because, even with dead tubercle bacilli, a disease can be produced similar to tuberculosis and which can result fatally, not because of the existence of true infectious tuberculosis, but on account of embolism due to foreign bodies which in this instance would be tubercle bacilli. Experience having shown that by the intraperitoneal application of dead tubercle bacilli, and even of indifferent substances, an affection simulating true tuberculosis can be engendered on the peritoneum, it follows that intraperitoneal infection must be avoided.

Keeping in mind the possible sources of error as indicated above, we may now proceed to examine the evidence which has recently been brought forward for the purpose of disproving Koch's proposition.

The following experiment is that of Professor Orth:[15] A piece of tuberculous kidney of a rabbit, which had been infected with a pure culture of tubercle bacilli obtained from a human phthisical subject, was placed in the peritoneal cavity of a calf. Twenty-six days after inoculation the calf died of general tuberculous peritonitis. At autopsy the peritoneal serosa was covered with miliary and submiliary gray nodules; the great omentum, the intestinal serosa and the parietal layer of the peritoneum were studded with miliary nodules and there was marked swelling of the mesenteric, portal and cardiac lymph glands. In addition there was an enlarged gland at the left knee joint and the left shoulder gland was swollen but of these glands the author says that the

9. Waldenberg: Die Tuberculose, die Lungenschwindsucht und Scrofulose, Berlin, 1869.
10. Fox, Wilson: The Artificial Production of Tubercle in the Lower Animals, London. 1868.
11. Panum: Virchow's Arch., vol. xxv, 1862, pp. 308-433.
12. Lebert and Wyss: Virchow's Arch., vol. xl, 1867, pp. 142-551.
13. Cohnheim and Fraenkel: Virchow's Arch., vol. xlv, p. 216.
14. Prudden and Hodenpyl: New York Med. Jour., June 6 and June 20, 1891.
15. Orth: Berl. kl'n. Wochft., vol. xxxix, 1902, No. 34, p. 793.

evidence of tuberculosis was uncertain. The other organs were free from tuberculous changes. Microscopic examination of the peritoneal nodes and of the various glands showed tuberculous granulation tissue containing giant cells.

From the result of this experiment Orth insists that he has produced not only a local but a progressive tuberculosis in the calf and that human tuberculosis is transmissible to cattle. The objection to intraperitoneal infection has been stated above, and that Orth has produced nothing more than could have been produced by the introduction of dead tubercle bacilli or of indifferent foreign substances there can be no doubt, as is shown by the experiments which have been cited, and in which lesions were produced in the experiment animals not only of the peritoneum, but of the liver and lungs as well.

Positive results in the transmission of human tuberculosis to cattle are also claimed by Fibiger and Jensen.[16] In three of their experiments in which the material used for inoculation originated from cases of apparent primary intestinal tuberculosis, calves were infected intraperitoneally. The results in these instances, therefore, need not be further considered. In two other cases the subcutaneous method was employed and these will be discussed in their proper place. Intraperitoneal infections have been made also by Ravenel,[17] Crookshank,[18] de Schweinitz, Dorset and Schroeder,[19] and others, with supposed positive results. These experiments are of course subject to the same criticism as that of Orth.

The following experiment of Ravenel[17] is of especial interest since it illustrates so perfectly the objection to the intravenous method of inoculation: From a child in which the evidence of primary intestinal tuberculosis seemed clear guinea-pigs were inoculated intraperitoneally with an emulsion of the mesenteric glands. From one of the guinea-pigs a culture was made and a suspension of 5 c.c. of the fifth and sixth generation of this culture was injected into the right jugular vein of a calf which had not responded to a tuberculin test. On the next day the temperature had risen to 103.2 F.; after a slight remission it rose to 103 F. on the seventh day after inoculation and continued to rise each day, reaching 106.4 F., after which it fell slightly until death, which occurred on the seventeenth day. Ravenel further stated that the animal showed marked illness during life, the respiration reaching 68 a minute.

At autopsy both lungs were thickly studded throughout, with remarkable uniformity, as Ravenel says, with miliary nodules. The left lung was pneumonic owing to the position of the calf for some time before death. The bronchial and mediastinal glands were much enlarged and soft. The liver showed several nodules on the surface, the spleen showed slight changes and the kidneys were normal.

No argument is needed to show that this calf succumbed to an embolic affection, a result which could have followed just as certainly had entirely indifferent substances been employed instead of the culture.[20]

A third experiment made by Ravenel in which a grown cow succumbed on the seventeenth day after receiving 5 c.c. of a suspension of this same culture, 2.5 c.c. intravenously and 2.5 c.c. intraperitoneally, is doubly objectionable and needs no further comment.

The intravenous method was also employed by Arloing,[21] and in one of their experiments by de Schweinitz, Dorset and Schroeder.[19]

Among the experiments in which the successful transmission of human tuberculosis to cattle is alleged, subcutaneous inoculation has been the mode of infection in but a few instances.

Fibiger and Jensen[16] have communicated the following case: A four-months-old boy, who had been artificially fed after the age of five weeks, succumbed to tuberculous enteritis. At autopsy, most extensive ulcerations were found in the intestinal tract; the largest, in the ileum, penetrated to the muscularis and extended transversely nearly one-half the circumference of the bowel. There were two other similar ulcers higher up. The vermiform appendix was also ulcerated and the entire colon from the valve of Bauhin into the rectum presented sharply circumscribed ulcers. The mesenteric glands were caseous, and numerous miliary tubercles were present throughout both lungs.

By rubbing up a caseous mesenteric gland from this case, in normal salt solution a turbid fluid was prepared which contained comparatively few tubercle bacilli, but other germs. Of this fluid a "few" c.c. were injected into the neck of two young calves. Both these animals died of a putrid embolic affection of the lungs. A third calf which was injected into the neck with material from one of the former died several weeks later. The postmortem showed at the point of inoculation a large tumor of fibrous tissue containing many caseous nodules and a large excavation filled with necrotic, caseous, purulent and disintegrated, foul-smelling tissue. The neighboring glands were enlarged and also the middle and deep cervical. The pleura and pericardium presented fine, red connective tissue formations. The lungs contained innumerable small nodules. There were further caseous processes of the bronchial and mediastinal glands, isolated caseous nodules in the myocardium and scattered tubercles in the liver, spleen and kidneys, etc.

I can not agree with the authors that in their work Koch's propositions have found their refutation. They have themselves shown that the two calves first infected died of putrid pulmonary embolism. It is to be regretted that no statement as to the exact amount of fluid injected appears, but the results in these animals are more than suggestive that in making the subcutaneous injections an unintentional introduction of some of the material into a vein occurred. The very generally distributed small nodules in the lungs of the third calf, and the dissemination of lesions practically throughout the whole organism, awaken the suspicion at least that such an accident happened in this instance also.

Furthermore, the presence of other pathogenic bacteria in the material used for infection renders the experiment additionally questionable, for how much these may have contributed to the effects produced is a matter of conjecture. But above and beyond these sources of error the experiment is incomplete. The tubercle bacilli should have been isolated from the dead animals, their cultural and morphologic characteristics should have been identified and their degree of path-

16. Fibiger and Jensen: Berlin klin. Wochft., vol. xxxix, 1902, No. 38, p. 881.
17. Ravenel: Univ. of Pa. Med. Bulletin, May, 1902.
18. Crookshank: The Lancet, London, vol. ii, Nov. 2, 1901, p. 1176.
19. De Schweinitz, Dorset and Schroeder: Amer. Med., vol. iv, 1902, No. 22, p. 850.
20. Compare the experiences of Panum, Cohnheim and Fraenkel, and Lebert and Wyss, which have been referred to in the preceding pages of this paper.
21. Arloing: Cited by Baumgarten.

ogenicity should have been demonstrated by infection of other cattle, in order to determine whether or not the tuberculosis in the child had in the first instance a bovine origin. This, unfortunately, Fibiger and Jensen failed to do, and the experiment in consequence has no value as evidence on either side of the question.

The subcutaneous method of infection was resorted to in one instance by de Schweinitz, Dorset and Schroeder.[19] They inoculated a heifer back of both shoulders, respectively, with a piece of the lung and a piece of the intestine of a child dead of generalized tuberculosis. Autopsy six months later showed at the seat of inoculation small multiple abscesses in the skin. The regional glands were enlarged and contained many necrotic foci. On the pleura of the lung numerous pale red excrescences were found and similar growths were sprinkled over the diaphragm. The authors claim a positive result in this case, but, inasmuch as only local non-progressive changes were produced the experiment rather confirms Koch's views than otherwise.

The positive experiment of Max Wolff[22] needs but brief mention here. It is sufficient that with material from the same case of primary intestinal tuberculosis, Koch inoculated calves with diametrically opposite results, and that of the specimens which Wolff exhibited at the Berlin tuberculosis conference Baumgarten[3] suggested that the lesions were older than the experiment.

In addition to these which have been mentioned, positive results have been claimed by Schottelius,[23] Delepine,[24] Westenhöffer,[25] Karlinsky and others.

On the contrary, absolutely negative results are reported by Latta and Casco,[26] Cipolina,[27] Moeller,[28] Park, Hallock and Wilson,[29] and Pearson and Gilliland.[30]

In the experiments made at the Imperial Health Bureau[31] since the Prussian commission was appointed, a large number of cattle have been used in the elucidation of the question of the communicability of human tuberculosis to cattle. More particularly has primary intestinal tuberculosis of man been studied, as suggested by Koch, with a view of determining whether bacilli from such cases can produce bovine tuberculosis. In all, 57 cattle were infected with 41 cultures of tubercle bacilli from 40 different sources. Of these 41 cultures, 4 corresponded culturally and morphologically with the bovine type and by subcutaneous inoculation caused generalized tuberculosis in cattle. Three of these 4 cultures were obtained by passage through the guinea-pig from the mesenteric glands of children in whom it was reasonable to conclude that infection had occurred primarily through the intestine. The ages of the children were 3½, 5½ and 6 years, respectively.

These three cases in which the primary intestinal infection is attributed to bovine sources are, however, not entirely free from all objection. It is possible that the disease of which the children died may have been due to infection with human tubercle bacilli, and bacilli of pearl disease may also have reached the mesenteric glands through milk without having produced changes beyond localized lesions in these glands. An illustration in point is to be found in the experience of Kruse[32] while studying the relation of avian and mammalian tuberculosis. Cultures which were isolated from guinea-pigs which had generalized tuberculosis corresponded exactly in cultural and pathogenic characteristics with those of avian tubercle bacilli. These cultures when inoculated into chickens caused generalized tuberculosis, but when reinoculated into guinea-pigs they produced only local changes at the point of infection. Similar relations may have existed in the children from which the three bovine cultures were isolated, but the converse experiment not being permissible in man, we can only reason by analogy.

Granting that the primary infection of these three children was of bovine origin, examination of the autopsy findings of the 40 cases from which the material for inoculation was obtained shows that, in addition to these 3, there were 7 other cases of primary tuberculosis of the intestine and mesenteric glands in which the disease could not be transmitted to cattle. Thus of 10 cases of primary intestinal infection, only 0.3 had a bovine origin.

It is generally admitted that infection through milk or other food products of tuberculous animals can be rightly assumed only when the intestine or mesenteric glands are first involved, but such cases are far from frequent.

Among 1,407 autopsy records of the Tübingen Pathologic Institute, Grosser[33] found only 1 case. Eisenhardt,[34] in 1,000 autopsies of tuberculous subjects, also found but a single case. During 1902 and 1903, out of 5,142 necropsies at the mortuary in Hongkong, 35 per cent. of which were children under 5 years, Hunter[35] found only 5 cases. Bovaird,[36] basing his conclusion on the statistics of the New York Foundling Hospital, estimated that primary intestinal tuberculosis occurs in about 1 per cent. of cases among tuberculous children in New York. Northrup[37] reports 125 autopsies of children, in every one of which the bronchial glands were tuberculous, but in only one of which there was involvement of the mesenteric glands. Orth[38] reports 4.25 per cent. of primary intestinal affections in 47 children from the age of 3 months to 15 years.

Baginsky,[39] in 933 postmortem examinations of tuberculous children, never found the intestine affected without simultaneous disease of the lungs and bronchial glands.

To these findings and to those of many others the extremely high percentage of Heller and his pupils, Wagener and Hof, and the report of Councilman, Mallory and Pearce from Boston stand sharply contrasted. Of 714 children who had died of diphtheria, Heller[40] found 140 tuberculous, and of these 37.8 per cent. showed primary tuberculosis of the intestine and mesenteric glands. Wagener,[41] the assistant of Professor

22. Wolff, Max: Deut. med. Wochft., vol. xxviii, No. 32, p. 566.
23. Schottelius: Münch. med. Wochft., vol. xlix, 1902, No. 39, p. 1610; Ziegler's Beiträge, vol. xxxiii, Nos. 1-2, p. 32.
24. Delepine, Sheridan: Brit. Med. Jour., Oct. 26, 1901, p. 1224.
25. Westenhöffer: Deut. med. Wochft., vol. xxix, 1901, No. 14, Ver. Beilag., p. 110.
26. Latta and Casco: Tipografie Tiberina, Roma, 1903; Ref., Centralbl. f. Bakt., vol. xxxiv, 1904, Nos. 22-23, p. 707.
27. Cipolina, A.: Berl. klin. Wochft., vol. xl, 1903, No. 8, p. 163.
28. Moelier: Deut. med. Wochft., vol. xxviii, 1902, No. 40, p. 718.
29. Park, Hallock and Wilson: N. Y. Univ. Bull. of the Med. Sciences, vol. ii, 1902, No. 3, p. 142.
30. Pearson and Gilliland: Phila. Med. Jour., vol. x, 1902, No. 22, p. 843.
31. Kossel, Weber and Heuss: Tuberculose-Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1904, No. 1.
32. Kruse: Cited by Weber and Boffinger, Tuberkulose-Arbeiten aus dem Kaiserlichen Gesundheitsamte, No. 1, 1904.
33. Grosser, K.: Inaug. Diss., Tübingen, 1900.
34. Eisenhardt: Cited by Goldschmidt, Monogr., Leipzig, 1894.
35. Hunter, Wm: Brit. Med. Jour., May 14, 1904, p. 1126.
36. Bovaird: Arch. of Ped., December, 1901.
37. Northrup; Med. News, vol. lxxxv, 1904, No. 7, p. 330.
38. Orth: Berl. klin. Wochft., vol. xli, 1904, No. 11, p. 265.
39. Baginsky: Deut. med. Wochft., vol. xxviii, 1902, Ver. B. No. 35, p. 270.
40. Heller: Deut. med. Wochft., vol. xxviii, 1902, No. 39, p. 696.
41. Wagener: Münch. med. Wochft., vol. l, 1903, No. 48, p. 2095.

Heller, reports on 600 autopsies made at the Kiel Institute during the year 1903. There were 76 subjects between 1 and 15 years of age, and among these alone there were 13, or 17.1 per cent., which showed primary intestinal or mesenteric tuberculosis. Hof,[42] who carefully worked out the 15,000 sections of the years of Heller's directorship, found primary intestinal tuberculosis without involvement of the lungs in 16.6 per cent. of the tuberculous subjects, and in addition in 8.5 per cent. in which miliary tuberculosis of the lungs appeared to have been secondary to intestinal lesions.

In this country, Councilman, Mallory and Pearce,[43] among 220 cases in which death was due to diphtheria, found tuberculosis in 35 with evidence, according to their interpretation, of primary infection through the intestine in 14, or 37.1 per cent.

The marked contrast in the statistics of Heller and his pupils and of those from Boston, as compared with those of others, can only be reconciled by the position of the observer as to what shall be interpreted as a primary and what as a secondary process. A differentiation of the pathologic lesions in the cadaver must ever be difficult and often impossible, for a tuberculous process, as a rule, does not remain confined to the first point of localization or to the regional glands.

The autopsy findings of Heller and his pupils show that they have classed as instances of primary intestinal tuberculosis cases in which the presence of cicatricial changes in the bowel was suggestive of antecedent tuberculous ulceration, and even cases in which the only lesions were calcareous or caseous mesenteric glands wherein neither histologic tubercle nor tubercle bacilli were demonstrated.

Inasmuch as many of these lesions may have had other than tuberculous origins, it is not likely that other pathologists have included like cases in their statistics. But, granting that these lesions actually represented obsolete tuberculous processes, it might be argued that they are suggestive of infections of bovine origin, which had not advanced beyond the seat of primary localization or the nearest glandular structure, a behavior which would bear a striking analogy to that of human tubercle bacilli when inoculated into cattle.

Still, the frequency of primary tuberculosis of the intestine is not a measure of the frequency of bovine infection, as is shown by the fact that only 3 out of 10 cases of primary intestinal tuberculosis included in the material of the Imperial Health Bureau were apparently caused by bovine tubercle bacilli. If now we estimate the frequency of primary intestinal infection from all sources at all ages at 1 per cent., which is probably a high enough average, then the proportion of such cases attributable to bovine sources is represented by 0.3 per cent. Infection with bovine bacilli occurs, then, in but 1 of 333 cases of all tuberculosis in man, and even this proportion would undoubtedly prove far in excess of actual occurrence if the true relation could be known, for in none of the 10 cases of primary intestinal infection could a bovine origin be shown in an individual above the age of 6 years.

From the foregoing analysis of the evidence which has been submitted up to the present time, it is apparent that Professor Koch's statement that cattle are insusceptible to human tuberculosis stands unrefuted. Neither have the experiments in cattle in regard to the relation of bovine infection to the frequency of primary intestinal tuberculosis, shown that the danger to man from the tuberculosis of cattle is by any means a paramount one as compared with that of human tuberculosis. For further aid in the determination of this, the vastly more important consideration, we may now proceed to study the question of infection of man through the milk and meat of tuberculous cattle, from the standpoint of clinical experience and other circumstantial evidence.

In regard to milk infection, a most unique position is taken by Behring,[44] who insists that practically all tuberculous infections in man have a bovine origin, and who has even gone so far as to announce that not a single case of epidemiologic human infection has been proved. Behring holds that the bovine tubercle bacillus is more virulent for man than the human tubercle bacillus. According to him, the permeability of the intestinal mucosa in early infancy (up to the second month) permits the penetration and passage of the bovine tubercle bacillus, ingested in milk, directly to the lymphatic glands. Here it lies dormant, causing no alterations in the tissue, in most instances, until with the physiologic changes of puberty or after intercurrent affections it is awakened to destructive activity. This period of latent infection constitutes the so-called predisposition, and without such infection in infancy Behring says there can be no phthisis in the adult.

In Behring's own statements a contradiction is at once apparent. If, as Behring says, the bovine tubercle bacillus is more virulent for man than the human tubercle bacillus, a more virulent disease must result from bovine than from human infection, and, moreover, if practically all infections occur in nurslings from infected milk, then the greatest prevalence of tuberculosis should be in the years of infancy and early childhood. Inasmuch as tuberculosis is well known to pursue a rapidly fatal course in infancy and in early childhood,[45] the greatest mortality should also occur in the earliest periods of life. Tuberculosis, however, is rare in infancy, as the observations of Westenhöffer,[46] Froebelius,[47] Baginsky,[48] Biedert,[49] Lannelongue,[50] Heubner,[51] and all pediatrists show. Moreover, the mortality increases from birth until about the fifth year and then declines to the age of puberty, after which it again steadily increases with advancing age. These facts are not to be explained by a dormancy, for varying periods of time, of bovine bacilli which have been deposited in the tissues, but by the opportunities for epidemiologic infection; and here, in passing, it should be remarked that not even dead tubercle bacilli can remain in the tissues without causing histologic alterations. In the first years of life the child is intimately associated with mother and nurse, who are but too often tuberculous. Now, the opportunity for constantly repeated infections is responsible for the increasing mortality rate. When

42. Hof: Diss., Kiel, 1903.
43. Councilman, Mallory and Pearce: Diphtheria, Boston, 1901, cited by Heller.

44. Von Behring: Beiträge zur Exper. Therapie, 1904, No. 8; Deut. med. Wochft., vol. xxix, 1902, No. 39, p. 689; Berl. klin. Wochft., vol. xli, 1904, No. 4, p. 90; Wien. klin. Wochft., vol. xvi, 1903, No. 12, p. 337.
45. H. Schmidt (Diss., Erlangen, 1896) reports 198 cases of pulmonary tuberculosis of children up to the age of 10 years, in which autopsies were made at the Pathologic Institute of Erlangen. In 194 of these cases the disease was of the caseous pneumonic form.
46. Westenhöffer: Berl. klin. Wochft., vol. xli, 1904, No. 7, p. 152.
47. Froebelius: Cited by Westenhöffer.
48. Baginsky: Deut. med. Wochft., vol. xxx, 1904, No. 12, p. 44.
49. Biedert: Cited by Westenhöffer.
50. Lannelongue: Cited by Westenhöffer.
51. Huebner: Lehrbuch der Kinderkrankheiten, 1903.

the child reaches school age the contact with tuberculous elders becomes less close and less frequent, hence the decrease in the death rate after the fifth year. The increase of deaths from tuberculosis after puberty is in turn explained by increasing exposures to infection; for after the school years are past the individual comes in contact with the world at large, and in his association with a greater number of individuals, socially or in occupation or business, is again subjected to more numerous and more frequently repeated infections. In respect to this question the observations of Epstein[52] have an especial interest. Epstein in four years did not find a single case of tuberculosis in the autopsy material of the foundling asylum at Prag, where the children were received directly from obstetric clinics without having been associated with tuberculous mothers. In one series of 200 autopsies of children between the ages of 10 weeks and 10 months he found 9 cases of tuberculosis. Two of these children had been given out of the asylum for care and subsequently had been returned; one of the foster mothers was tuberculous; the other was not examined. The other seven children had been placed in the institution because their mothers had to be taken to the hospital on account of phthisis.

Again, if Behring's proposition be correct that the bovine tubercle bacillus is the chief and practically the only source of infection, the mortality from tuberculosis of children nourished with cow's milk should at least far exceed that of breast-fed infants; but this is not the case. In Berlin records have been kept of the method of feeding all children under one year who have died of tuberculosis, and the figures are cited by Fraenkel,[53] as follows:

In 1899 the total infantile death rate from all causes was 10,933; in 1900, 11,762; in 1901, 11,325; in 1902, 8,927. Of these there received mother's milk exclusively, 898, 895, 832, 733, respectively, of whom there died of tuberculosis in 1899, 11—1.1 per cent.; in 1900, 8—0.9 per cent.; in 1901, 4—0.5 per cent.; and in 1902, 5—0.7 per cent. Of children reared exclusively on cow's milk there died in 1899, 6,631; 1900, 7,305; 1901, 6.982; 1902, 5,246; and of these death was due to tuberculosis, respectively, in 79—1.2 per cent.; 70—0.9 per cent.; 63—0.9 per cent.; and 61—1.1 per cent. From these figures it will be seen that the maximum difference in any one year between the two series is represented by only 0.4 per cent., a fact which does not bear out Behring in his views.

In this connection additional facts are not wanting. Speck,[54] in order to determine the degree of danger of tuberculous infection in infancy from milk, made inquiry of the various sanatoria for tuberculous patients in Germany concerning the method of feeding of patients up to the third month of life. It was shown that of 4,467 phthisical patients of the sanatoria, that 3,455 had been breast fed, or 77 per cent., and 1,012 had received cow's milk, or 23 per cent. Of 259 cases reported by other physicians, 181, or 70 per cent., were breast fed. Jacob and Pannwitz[55] reported of 2,921 tuberculous patients that 1,877, or 67 per cent., were breast fed, and 969, or 33 per cent., were raised on cow's milk. Schroeder's report of 264 cases shows that 203 were breast fed, or 77 per cent., and 61, or 23 per cent., were fed with cow's milk, and Servae reports on 99 cases, of which 63 received women's milk, or 64 per cent., and 36 received cow's milk, or 36 per cent. These figures Speck has summed up, making a total of 8,010 cases of tuberculosis, of which 5,854, or 73 per cent., were breast-fed children, and 2,156, or 27 per cent., were raised on cow's milk. While these statistics represent conditions on the continent, the records of the Winyah Sanitarium at Asheville, N. C., show that 75 per cent. of tuberculous patients have positively stated that they had been breast fed. 15 per cent. could not make definite statements, and 10 per cent. were raised on cow's milk.

Another discrepancy between Behring's theories and facts Biedert[56] has remarked in the following: In the lower Pfalz district there are 182 head of cattle per 1,000 inhabitants, and according to meat inspection there are 7.5 per cent. of tuberculous cows. Here the mortality from tuberculosis is 35.9 per 10,000 inhabitants. In the upper Pfalz there are 314 head of cattle per 1,000 inhabitants and of tuberculous cows 17.3 per cent. Here the mortality from tuberculosis is 29.1 per 10,000.

Again, Tonzig[57] cites the statistics of the city abattoir of Padua, which show that bovine tuberculosis occurs with rarity. Yet this city furnishes the greatest mortality of all Italian cities from tuberculosis with a remarkable frequency of intestinal tuberculosis.

In a letter to the editor of the *Medical Record* Carter[58] says that the average mortality from tuberculosis in the city of Havana represents more than 21 per cent. of the total death rate, and yet raw cow's milk is never used in Havana.

In Sweden, where for generations nearly all mothers have nursed their children, we find a higher death rate among children from tuberculosis than in certain other countries where artificial feeding is frequently resorted to. Hirsch[59] cites the comparative statistics for four countries as follows: Switzerland, 1.86; Prussia, 2.94; Norway, 2.21; Sweden, 3.5.

According to Babes,[60] tuberculosis is very prevalent in Roumania, where the children receive no cow's milk, and according to Arthur Meyer,[61] in England, where milk is used raw much more than in Germany, the tuberculosis mortality is less than on the continent, although Ransome, Delepine, Boyce and others have shown that milk contained tubercle bacilli in large numbers of the samples which they examined. On the other hand, in Sardinia and in Sicily, where bovine tuberculosis, according to Dr. Vestea, is almost unknown, the tuberculosis of man causes a greater mortality than in England.

Of Greenland, Heymann[62] tells us that infants are almost exclusively breast fed, and yet tuberculosis is so prevalent that it is easier to name those who are free from it than to attempt to report the widespread presence of this disease.

52. Epstein: Cited by Neumann, Deut. med. Wochft., vol. xix, 1893, No. 18, p. 306.
53. Fraenkel, B.: Deut. med. Wochft., vol. xxx, 1904, No. 6, p. 227.
54. Speck, A.: Zeit. f. Hyg., vol. xlviii, 1904, No. 1, p. 27.
55. Jacob and Pannwitz: Entstehung u. Bekämpfung der Lungentuberculose, Leipzig, 1901, vol. i, p. 253.
56. Biedert: Berl. klin. Wochft., vol. xxxviii, 1901, No. 47, p. 1177.
57. Tonzig: Cited by Ott, Deut. Aertzte Ztg., No. 23, December, 1902.
58. Carter: Med. Rec., vol. lxv, 1904, No. 8, p. 309.
59. Hirsch: Cited by Oppenheimer, Münch. med. Wochft., vol. li, 1904, No. 5, p. 204.
60. Babes: Rumän. Akademie der Wissenschaften, Feb. 6, 1904; Ref., Münch. med. Wochft., vol. li, 1904, No. 27, p. 1218.
61. Meyer: Berl. klin. Wochft., vol. xli, 1904, No. 10, p. 257.
62. Heymann, B.: Zeit. f. Hyg., vol. xlviii, 1904, No. 1, p. 45.

According to Cobb,[63] tuberculosis in all its forms is the greatest scourge in China. Nevertheless, the use of milk as a food by the Chinese is so rare that one may practically say they do not use it. Very few cattle are raised by the Chinese and these are mostly used for ploughing.

Finally, we are informed by Shiga[64] that bovine tuberculosis was unknown in Japan until thirty years ago, when foreign cattle were imported, and from Professor Asyama[65] of Tokio we learn that tuberculosis has been widely disseminated in Japan for centuries, in spite of the fact that until a few decades ago the feeding of nurslings has been only by the mother's milk or that of wet nurses, for ritual and religious reasons.

From such an array of facts, to which many more might be added, Behring's position is clearly shown to be untenable, and it does not appear that the milk of tuberculous cattle is of very great significance in the spread and perpetuation of tuberculosis in man. Nevertheless, it must not be forgotten that isolated instances have occurred from time to time in which it seemed most reasonable from the clinical evidence to attribute infection to bovine sources.[66]

While in such cases the evidence has pointed most strongly to an infected milk supply, yet it has been only circumstantial in character, and there has been no means of excluding absolutely a possible human source of infection. One or two cases may be quoted here which make this point clear.

In the celebrated case of Ollivier,[67] which he communicated to the Academy of Medicine of Paris in 1891, in the course of a few years, in a girl's school 13 of the pupils became ill of tuberculosis, 6 of whom died. Among them were several cases of primary intestinal tuberculosis. Investigation brought to light the fact that a cow which had been kept in the institution for some years suffered from tuberculosis of the udder, and that the milk from this cow had been drunk by the pupils. Here was a case in which the clinical evidence appeared strikingly convincing, and it has been cited over and over again as a classical example of infection through milk containing *Perlsucht* bacilli. The second communication of Ollivier in regard to this case seems to have escaped the notice of all those who have made use of it as a proof of the danger of milk infection. At the very next session of the academy, Ollivier was obliged to admit that he had been mistaken. He had since learned that the milk of the cow in question had not been drunk by the pupils, but by the teachers and domestics of the school, among whom not a single case of tuberculosis had developed.

In the oft-quoted case of Dr. Stang,[68] a 5-year-old boy showed for some time symptoms of an abdominal affection. Ascites appeared and enlarged lymphatic glands could be felt through the abdominal wall; after a few weeks the boy died. The autopsy showed tuberculosis of the lymph glands of the abdomen, of the serous membranes and of the lungs. There had been no history of tuberculosis in the family on either side for two generations, but it was found that the child had drunk for a year the warm milk directly from a cow which later died of tuberculosis. It is not stated that the cow had tuberculosis of the udder, and it should be remarked that in such a case possible sources of human infection can not be absolutely excluded.

The following instance reported by Demme[69] may serve as an illustration of the care that is essential in attributing cases of tuberculosis to certain sources of infection. In 4 cases of tuberculosis in infants, autopsy showed the disease to be confined to the intestine. It was afterward discovered that these children were all infected by the same nurse, who was found to have a tuberculous affection of the right antrum of Highmore communicating with the oral cavity through a fistula. It was the custom of the nurse to feed the children with a spoon and to test the temperature of the food by placing the spoon between her lips, and if too hot, to blow on it to cool it. Thus she infected the children with tubercle bacilli contained in her saliva. Now, if the unusual affection of the nurse had not been discovered, and, on the other hand, it could have been shown that these children had received milk from a tuberculous cow, four more cases of milk infection might have been added to the literature.

There still remain for consideration infections of the skin in the persons of those who handle tuberculous meat, and which are attributable to bovine tubercle bacilli. These cases all have this in common, that the tuberculous process remains localized and does not extend to the internal organs. In a number of such cases which were recently demonstrated before the Berlin Medical Society by Professor Lassar,[70] in not a single instance had there been an extension of the affection beyond the point of inoculation, although the local lesions had existed for a long time, in one case for over ten years. It must be conceded that if such infections were prone to lead to generalized tuberculosis, butchers should show a higher mortality from tuberculosis than those pursuing other occupations. But this is not so, and it has been shown for the city of Copenhagen by Heilberg[71] that with an average of 618 butchers altogether, but 25 have died of tuberculosis in ten years. In regard to accidental cutaneous infections with human tuberculous material, however, little need be said, for it is well known that large numbers of such cases are on record in which the local affection extended by way of the lymphatics and caused the death of the subject from generalized tuberculosis.

With all the circumstantial evidence available, the question of the susceptibility of mankind to bovine tuberculosis can not be satisfactorily settled. The problem can only be solved by experiments in human beings, and these are excluded. Such experiments, however, have been made, although they were undertaken with another motive.

Based on Rokitansky's theory of the existence of antagonism between tuberculosis and carcinoma, over half a dozen patients who suffered from inoperable malignant disease were inoculated with bovine tubercle bacilli in a last effort to save them from inevitable death. At that time the belief was current that the bovine tubercle bacillus and the human germ were identical, and, therefore, as cultures of the latter were not available, a cul-

63. Cobb, J. O.: Zeit. f. Tuberculose u. Heilst., vol. vi, 1904, No. 1, p. 1.
64. Shiga: Zeit. f. Hyg., vol. xlvii, 1904, No. 2, p. 209.
65. Schoenborn: Beiträge zur Klinik der Tuberculose, vol. ii, 1904, No. 2, p. 103.
66. In the Amer. Jour. of the Med. Sciences, vol. cxxvi, 1902, p. 884, will be found an article by Dr. George M. Kober, in which 86 cases are tabulated in which infection was supposed to have come from bovine sources.
67. Koch, R.: Deut. med. Wochft., vol. xxviii, 1902, No. 48, p. 857; Transl. Jour. of Tuberculosis, vol. v, 1903, No. 1, p. 40.
68. Aerztliches Intelligenzbl., München, 1876, vol. xxiii, p. 34.
69. Demme: Cited by Grosser, Diss., Tübingen, 1900, p. 11.
70. Lassar: Berl. klin. Wochft., vol. xl, 1903, No. 31, p. 708.
71. Heilberg, P.: Zeit. f. Tuberculose u. Heilst., vol. v, 1904, No. 3, p. 235.

ture of the bacilli of pearl disease which had proved highly virulent for rabbits was used. After inoculation the patients survived, respectively, from several months to a year, and when subsequently they died of their malignant disease it was found that not in a single case had an infection resulted. Baumgarten,[72] as official prosector of the hospital in which the experiments took place, performed the autopsies. He found at the point of inoculation only small scars, the tissues of which contained no tubercle bacilli, and he assures us that a critical macroscopic and microscopic examination of the adjacent lymph glands and of the various internal organs failed to reveal tubercles or tubercle bacilli.

Any discussion of the relation of human and bovine tuberculosis is incomplete without at least a brief consideration of the subject from the standpoint of prophylaxis. The information which is available regarding the danger to man from bovine infection clearly indicates, as Professor Koch maintains, that such infections are extremely rare in comparison with the overwhelming preponderance of epidemiologic infections. Nevertheless, that progressive infection of man and more particularly of children can occur from bovine sources seems to have been shown by the experiments of the German Imperial Health Bureau. On the other hand, the cases of infection of human beings with *Perlsucht* bacilli, which Baumgarten has published, proved absolutely negative. The subjects of these experiments were adults, however, and it is not beyond the realms of possibility that the result might have been different had a number of infants been inoculated.

From the standpoint of prophylaxis, we are not so much concerned with the frequency of infection of man from bovine sources as with the question: Do such infections occur at all? So long as it can not be demonstrated beyond all doubt that they do not, preventive measures against bovine tuberculosis must remain imperative.

The object of all prophylaxis against tuberculosis is the eradication of the disease; on this point all are agreed. But, in order to accomplish this most certainly and most quickly, the greatest efforts should be made to protect against the greatest danger. On this account the lesser evil need not be ignored.

As Professor Koch pointed out, the danger to man from the tuberculosis of cattle can be overcome by boiling the milk and by sufficiently cooking the meat of tuberculous animals which may be used for food. This more simple and inexpensive prophylaxis against bovine tuberculosis, Koch recommended in order that the vast sums which must be required in the way of remuneration for tuberculous animals judicially destroyed might be diverted toward the establishment and maintenance of a more thorough and more effective prophylaxis against the chief source of human infection, the tuberculosis of man himself.

But, were it proved that bovine tubercle bacilli could at the very most cause only localized non-progressive lesions in man, the use of food products of tuberculous animals would still be objectionable, for such lesions can lead to serious impairment of nutrition and possibly to death from tabes mesenterica.

The flesh or the milk of diseased animals is not fit for human consumption under any circumstances, and for this reason alone, if for no other, the careful inspection of meat and milk would still be indicated and the eradication of the tuberculosis of cattle would always be desirable on this account, as well as for purposes of economy.

72. Von Baumgarten: Berl. klin. Wochft., vol. xxxviii, 1901, No. 35, p. 894.

THE TREATMENT OF GONORRHEAL ARTHRITIS BY HYPEREMIA.

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All physicians who have seen gonorrheal arthritis know how unsatisfactorily the usual treatment—rest, massage, passive movements, salicylates, etc.—often proves in chronic cases, and how hard to overcome in those cases is the extreme painfulness and the stiffness of the diseased joint. It seems to me worth while, therefore, to call attention to a method of treatment which, so far as I have observed, in this country, has by no means found the notice and practice it deserves. I refer to congestive hyperemia by damming according to Bier, which, as his assistant, I saw him employ.

As is generally known, Bier recommended hyperemia by damming at first for tuberculous joint diseases; later he employed it also for other diseases, and in his book, *"Hyperœmie als Heilmittel,"* writes: "Yet much more marked is the effect of hyperemia by damming on that form of gonorrheal joint inflammation which is so extremely painful. In these cases the pain becomes easier in from one-half to one hour after the application of the rubber bandage."

During the last few months I have had occasion to employ, and with the best results, hyperemia by damming in several of those cases of gonorrheal arthritis which are marked by extreme pain and a tendency to stiffness.

Case 1.—Man, aged 34.

History.—Five months after an apparently slight gonorrheal infection he suddenly experienced severe pain in the right knee. The joint became severely swollen and was soon quite stiff. For about five weeks he was treated by his physician with salicylates, etc., and with tincture of iodin without any result. During this time the pain was so great that he was given narcotics in order to make him sleep. The circumference of the joint was 8.5 cm. larger than that of the other knee.

Treatment and Result.—While the joint was in this condition the rubber bandage was applied. The very first night the patient wore the bandage he slept without any narcotic and in a few days he was able with the help of a stick to take a few steps and with almost no pain. Soon the pain entirely ceased and the patient walked quite well, but the stiffness of the joint improved comparatively slowly.

Case 2.—A woman, aged 27.

History.—For nine weeks she had suffered with an inflamed ankle joint with much swelling and very severe pain. For weeks she was treated for rheumatism and without result.

Treatment and Result.—In this case also after application of the rubber bandage in a few days there was marked improvement and she began to walk quite well. The recovery was somewhat retarded, due to an acute cold and to catarrh of the bladder, which the patient refused to have properly treated; nevertheless, after a short time, she was able to put on her boots and felt so well she wanted to walk home.

Case 3.—Another case was that of a woman, aged 29, who, on previous occasions had made herself remembered in the hospital because of her timidity and lack of self-control.

History.—This patient, eight weeks before the beginning of the treatment, was said to be severely ill with measles and grip. After two days' illness, severe pain started in the right knee and continued until the beginning of the treatment with

the rubber bandage. In this case gonococci could not, as in the two foregoing cases, be found, but the symptoms clearly pointed to a gonorrheal inflammation in the right knee. The joint was severely swollen, extremely painful, and any movement absolutely impossible. Only with the greatest pain could the patient turn herself in bed.

Trreatment and Result.—Soon after applying the bandage the pain grew less, and continued to grow less until at the end of ten days she was able to take a few steps without pain. Though the extraordinary timidity of this nervous woman kept her from exercising and therefore prevented a more speedy return of the joint movement, yet the patient was soon able to walk around all day and the pain completely disappeared.

In describing the technic of damming I will follow the directions given by Bier himself in his book entitled *"Hyperæmie als Heilmittel,"* and I will restrict myself to the technic as it is used for gonorrheal arthritis, omitting the employment of the method for other diseases.

For the damming it is best to use a thin pliant rubber bandage, the same as is used to make a limb bloodless for an operation. If such a bandage is applied moderately tightly in several layers—not necessarily directly over each other—around a limb, it will soon be noticed that the subcutaneous veins swell, that the skin becomes of a red hue which is slightly tinged with blue, and that the limb becomes bigger and edematous; it feels warm to the touch and gives the subjective sensation of increased warmth in the limb. If there is pain in the joint it ceases, as a rule, very soon, and the stiffness of the joints becomes gradually less. The rubber bandage in this case ought not of itself to cause any uncomfortable feeling; the patient can even forget its presence. This degree of hyperemia, the so-called *"heisse Stauung"* (hot damming) is the right one and the only one that can be used as a remedy.

It is sometimes very difficult to obtain this degree of hyperemia, and it requires careful attention and some practice to apply the bandage in such a way that the arteries are not compressed, while at the same time the veins are so far compressed as to partly check the reflux of the blood, so that the flow of the blood is retarded while the circulation is not entirely suspended.

In applying this treatment to a knee or an elbow joint sometimes it seems easier to get the right degree of hyperemia by bandaging the distal part of the joint with a flannel bandage. Other aids, recommended by Bier, to obtain the "hot damming" are: Previous heavy coating of the diseased joint with tincture of iodin, which causes a slight inflammation, and then, in the inflamed area, the bandage causes a very good hyperemia; or one can make the limb for a few minutes bloodless, according to Esmarch, then wait for the reactive hyperemia and afterward dam with the bandage the copious amount of blood from the reactive hyperemia.

To prevent any unpleasant results, such as atrophy of the muscles or irritation of the skin at the place where the bandage is applied, a few layers of gauze can be interposed between the skin and the rubber. It is also expedient to change the place of the bandage, for instance, to put it at night directly above the diseased joint and during the day farther away from the joint.

If the bandage is too tight, the skin of the limb soon looks grayish blue, and there appear whitish and particularly vermilion-colored spots, which grow larger and larger so long as the too tightly drawn bandage remains. The joint is cold to the touch—so-called *"kalte Stauung"* (cold damming)—while there is, as a rule, even now a subjective feeling of warmth; also there appear under these conditions paresthesia and pain. In rare cases, Bier has also seen what he calls white damming, in which there seems to be especially a damming of the lymphatic vessels.

All these latter phenomena, blueness and coldness of the limb, white or vermilion-colored spots, paresthesia and pain, show that the bandage is too tight and must be loosened.

To the application of the hyperemia as a remedy we become entitled and impelled through observation of nature.

In every function—in growth, in regeneration, in all remedial efforts of our system—nature uses hyperemia either active (arterial), or passive (venous). Our efforts, therefore, must be to find out the ways nature takes and to help her by limiting the hyperemia if it gets stronger than necessary—antiphlogistic régime in acute inflammation—or by increasing the hyperemia if nature does not seem to react with enough force against the disease, as seems to be the case in chronic arthritis and in some cases of gonorrheal arthritis.

If we ask now what are the effects of hyperemia, we find that the first and most marked effect is the lessening of pain, which every physician has noticed who has applied hyperemia by damming or by hot air, for the effect of hot air is hyperemia. If one properly employs the hyperemia by damming, this anodyne effect is so marked that Bier emphatically calls attention to the fact that the bandage is not properly applied if, after its application, the pain is increased instead of being lessened.

But it is not the anodyne effect alone that makes the hyperemia a remedy. Hyperemia by damming certainly has a bactericide effect, whether this depends on increased leucocytosis, on a larger quantity of serum with its alexins and products of the change of matter in the bacteria, or on increase of the carbonic acid and thereby of the alkalinity of the blood.

Finally, hyperemia by damming has a dissolving effect. In those stiff joints of gonorrheal arthritis in question, as well as in joints with chronic arthritis, the adhesions consisting of connective tissue become infiltrated with serum, swell, and are dissolved and may be removed with the serum by means of massage, which should be employed after the bandage is taken off.

Only the above-described, so-called *"heisse Stauung"* (hot damming) has these effects, and I wish to emphasize the fact that special attention must be given to obtain the right degree of hyperemia and to maintain the same during the time the bandage is applied. At the first application of the bandage the patient must be strictly admonished to tell at once if he feels more pain, if the joint becomes blue or pale, or if it feels cold or numb. In the beginning of the treatment of these gonorrheal joints it seems best to let the bandage remain only a few hours; but soon the time must be lengthened until in a few days the bandage should remain for ten hours during the day and ten hours at night. After the removal of the bandage it is well to massage slightly and to move the joint, and the patient must as soon as possible leave his bed.

The results of this plan of treatment of those painful cases of gonorrheal arthritis which tend to stiffness in most cases, so far surpass all other methods that I most urgently recommend the hyperemia by damming according to Bier.

SMOKELESS POWDERS.

THE NATURE AND EFFECTS OF THE DELETERIOUS GASES GIVEN OFF IN THEIR EXPLOSION.*

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Ever since the introduction of the so-called smokeless powders, injurious effects have been observed from their use. In small quantities, the gases resulting from the explosion of powders of this class, cause varying degrees of disturbance in the cardiac and vasomotor apparatus. "Dynamite headache" has become a common phrase among those who work in the manufacture of the powders; among miners, who use them for blasting purposes, and among sportsmen, soldiers and rifle shots, who use them in firearms. In larger quantities, these gases have produced profound intoxications, and have caused numerous fatalities. Haldane[1] says: "In the gold mines in India and in the Transvaal, accidents involving the loss of as many as twenty men at a time have sometimes occurred in this way from dynamite catching fire underground, and serious injury to health may easily be caused by the fumes of imperfectly detonated high explosives where the ventilation is bad." Key[2] says: "Many instances are recorded of fatalities due to the inhalation of these fumes." An accident occurred from the fumes of exploding nitroglycerin, during the construction of the Severn tunnel, in which two men lost their lives. These cases are fully reported by Ford,[3] who quotes other cases by Dupré. A striking instance of the lethal effects of the fumes of modern high explosives was seen in the Philippine Islands, when fourteen men perished after a blast in the quarries of Mariveles. They sought refuge from the explosion in a protected gallery in the pit-like quarry. The fumes of the explosion settled into the quarry, and before aid could be given the men they were all dead. Numerous isolated instances have been reported.

It seemed profitable to determine, if possible, the particular gas or gases causing these symptoms and to study their effects. For this purpose the experiments which are here detailed were undertaken. Some very positive and interesting results were obtained. The literature bearing directly on the subject is very sparse. With the exception of some simple experiments with smokeless powders, by Torel, the field is a new one. The results run a close parallel to some of the results obtained by Haldane in his masterly experimental studies of the effects of poisoning by carbonic oxid.

The following is a brief extract of a paper by Torel,[4] a medical officer of the French navy. He refers to a number of cases occurring on the *Massena*: "Six shots were fired in rapid succession from a 274 mm. gun in a closed turret. There was a gentle breeze blowing toward the muzzle of the gun in such a fashion that when the breach block was opened after each shot a large portion of the gases of the explosion was blown into the turret. A number of the men suffered slightly from the effect of the gases, while one was very severely affected. There was a complete loss of consciousness. The face was pale and covered with a cold sweat; the pupils were dilated. There were convulsive movements of the body and limbs; the respiration was labored and jerky; the pulse small and irregular, and the beats of the heart feeble and tumultuous. After he recovered consciousness, he complained of severe headache, of lassitude and of epigastric pain. He stated that when he lost consciousness he had severe vertigo and anginose pain in the precordium." Torel believes that the embarrassment of speech, the delirum and the convulsions observed in this case, point to a central intoxication by nitrous vapors rather than to poisoning by CO, in which the action is slower and more prolonged. To test the toxicity of the vapors he made two experiments on rats. The first rat was placed under a bell jar, of a capacity of 160 liters, and a mass of powder weighing 4 grams ignited and burned under it. The rat died in five seconds, and was in a state of rigidity with dilated pupils. He allowed a portion of the gas to escape from the bell and placed another rat under it. The rat died in fifteen seconds, after strong convulsions.

Not strictly related to this inquiry, but casting a great deal of light on some of the effects, is the so-called "cordite eating" in the British army. The first mention I can find of this practice is by Purdy:[5] "There were a few cases where men were admitted with a temperature of 103 degrees or 104 degrees one day, and after a night in hospital the thermometer registered normal. It was found that one or two of the 'weary Willies' and 'tired Tims' had resorted to eating cordite as a means of creating a temperature, and so bluffing the doctors. This means of raising the temperature was discovered by the men noticing the effects of cordite fumes when lighting a pipe with a stick extracted from a cartridge."

A fuller report on this subject was made by Jennings.[6] The following is a brief abstract of his paper; he records the cases of several men who were in the habit of eating cordite for the sake of the intoxication it produced: "Cordite, when taken in the strand form, rapidly produces a violent splitting headache in the temporal and occipital regions, the headache continuing all day." "As an experiment, I tried one-fourth of a strand from a Lee-Metford cartridge, which I kept in my mouth and sucked for two minutes. Its diminution in size was scarcely appreciable, and yet I experienced the most racking, splitting headache that I ever felt in my life, together with hammering and ringing noises in my ears; the headache lasted quite thirty-six hours." "Its physiologic action is similar to but slower than amyl nitrite, viz., throbbing headache, flushing of the face, visible carotid pulsation, giddiness and disordered action of the heart." When taken with beer or tea it appears to produce heavy sleep, followed by a stupor lasting approximately from five to twelve hours. He also notes the habit of the men lighting their pipes with sticks of cordite and says that when so used it gives the smoke a not unpleasant sweet taste and a slight passing headache or giddiness. Cordite alone does not seem to make men crazy, but taken with beer or spirits it brutalizes the mildest man and makes a temporary maniac of him. He also reports from personal observation that the habit seems apparently to age a man rapidly and to make him exceedingly negligent of his personal appearance.

* Special report to the Surgeon General, U. S. Army, and published by his authority.

1. Quoted by Oliver; Dangerous Trades. pp. 614 *et seq.*
2. A. Cooper Key: In Oliver, Dangerous Trades.
3. Ford: Chief Inspector of Explosives, British Government Report, No. 26, Oct. 30, 1879.
4. Torel: Accidents Produced by the Deleterious Gases of Smokeless Powder, Archives de Médecine Navale, 1903, p. 373.
5. Purdy: New Zealand Medical Journal, March 31, 1902.
6. J. W. Jennings, Major R. A. M. C., D. S. O., Journal Royal Army Medical Corps, October, 1903.

My experiments were divided into two groups. One group, to determine the nature of the gases given off in the explosion of smokeless powders, and the other group to determine the effect of these gases on man. The first group was made by firing blank cartridges into a sealed box and then aspirating the gases of the explosions through various test reagents. The second group of experiments was made in a closed and sealed room of about 1,200 cubic feet capacity. The subjects of the experiments were myself, Sergeant, First class, Clare and various privates of the hospital corps detachment on duty at this station. After entering the experiment building, the door was sealed and a varying amount of powder was exploded in a United States magazine rifle. The average exposure to the action of

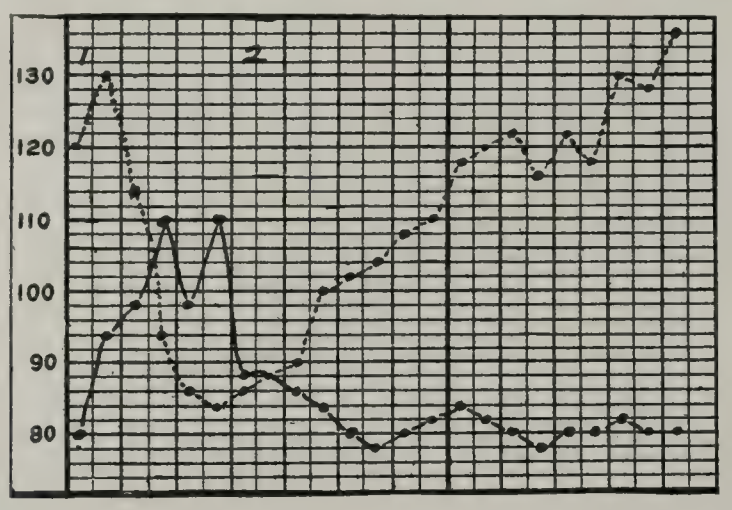


Chart 1.—Continuous line shows pulse; dotted line shows blood pressure. Amount of powder exploded equals 10 grams. 1. Exposed to the fumes. 2. Out of the fumes. Observations ten minutes apart.

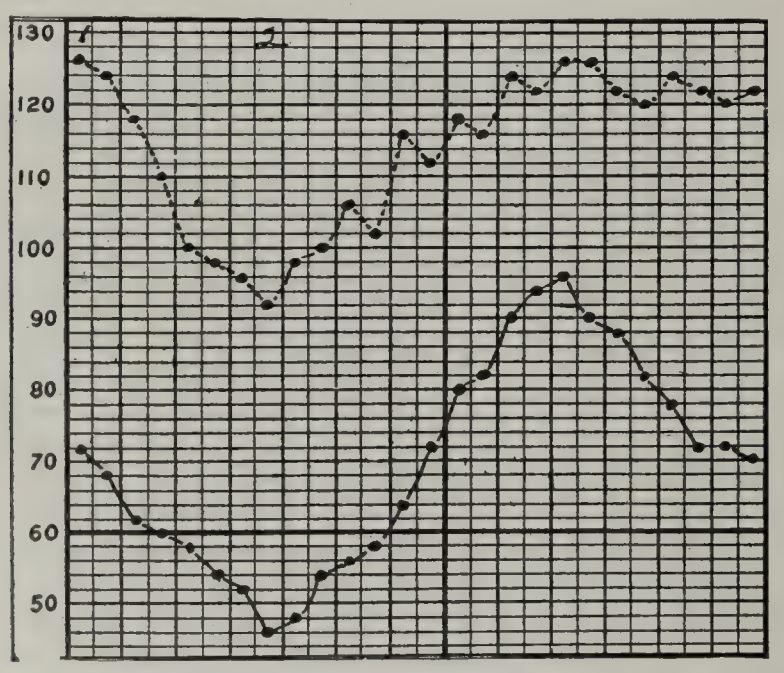


Chart 2.—Showing delayed action on pulse and blood pressure. Observation interval ten minutes. 1. Entered fumes. 2. Out of the fumes.

the fumes was one hour. During this time observations on the heart, vaso-motor system, blood pressure, hemoglobin and temperature were made.

It required considerable resolution to keep these experiments going, and they were carried over a long time, on account of the necessary intermissions that had to be made between them. This was due chiefly to the headache that invariably followed the experiments, frequently extremely severe and lasting for from four to forty-eight hours. Numerous sphygmographic traces were made. A great variety of powders was tried, but as no appreciable differences could be found in their action, with the means at hand, the experiments were completed with the United States Army small-arms powder. This powder contains gun cotton, nitro-cellulose, nitroglycerin, a metallic nitrate accelerator and an unknown deterrent. The action and function of these deterrent bodies will be considered later. Positive results were obtained with as small an amount of powder, exploded, as 8 grams.

The first and most notable effect of the powder fumes was on the heart and circulation. In small amounts (8 to 10 grams of powder, exploded) there ensued in from five to ten minutes palpitation of the heart with rise in the pulse rate. (Chart 1.) In only one instance, with the fumes from 7 grams of powder, there was a slow but steady fall in the pulse rate to 46, with

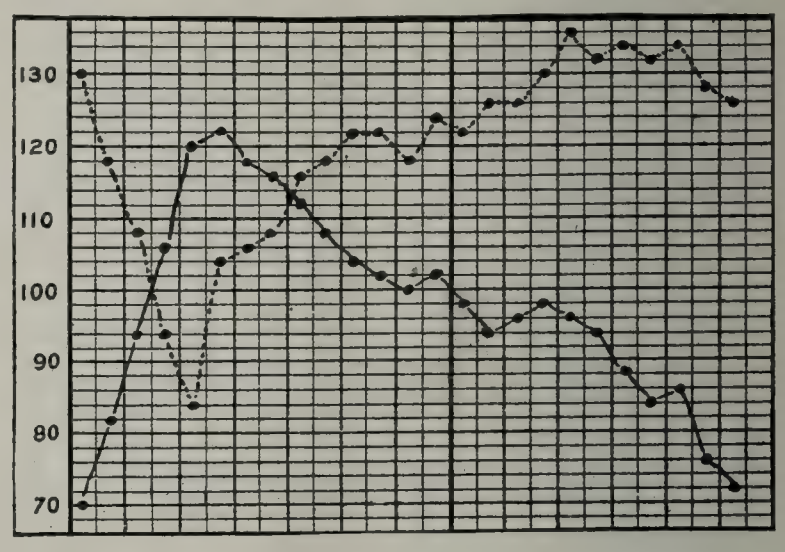


Chart 3.—Showing the effect of 20 grams of powder. Observation interval five minutes.

a great sense of distress in the chest, marked cyanosis and a tendency to faintness. In this instance the rise, as seen in Chart 1, No. 1, followed one hour after leaving

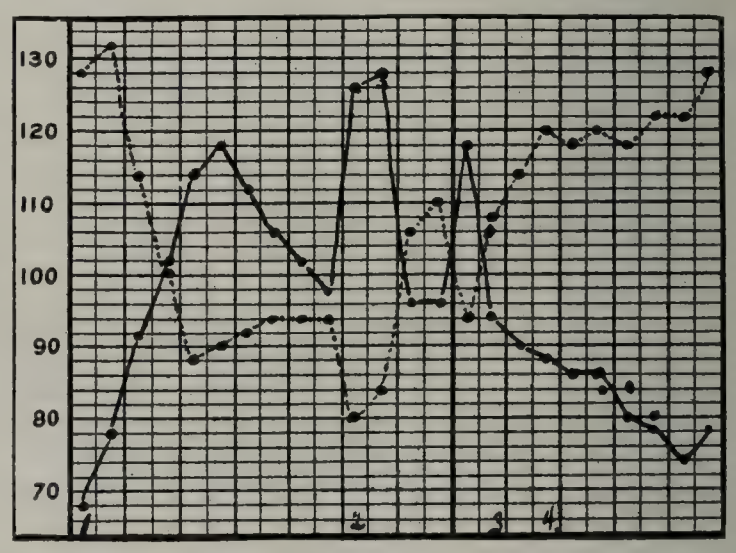


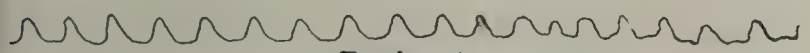
Chart 4.—Showing the full effect of smokeless powder fumes. Amount of powder exploded 37 grams. 1. Entered fumes. 2. Walked thirty steps. 3. Same. 4. Left fumes. Interval between observations five minutes.

the fume room, and then was the same as usually observed. (Chart 2.)

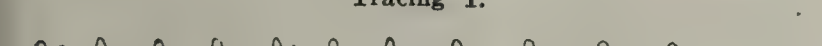
In larger quantities of the fumes, from 20 grams of powder, the effect on the heart was more pronounced. In a few instances an initial but very brief fall was noted. (Chart 3.)

Following this the pulse rose rapidly to 110 and 115. There was a most distressing, tumultuous feeling in the chest. The face was flushed, the pupils dilated. In from fifteen to twenty minutes cyanosis appeared. Chart 4 shows the full effect of smokeless powder fumes.

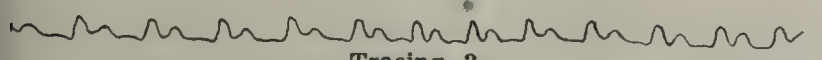
In this experiment, 37 grams of powder were exploded, and it was found that this was about the limit of safety, beyond which I could not go, without unjustifiably endangering everyone concerned in the experiment. The initial pulse was 70. It rose rapidly to 118 and then began to fall. When slight exercise was tried, walking thirty steps at a slow walk, it rose to 128, became arrhythmic and markedly dicrotic. The loss of vasomotor tone was very evident in the fall of blood pressure with the increase in the rate of pulsation. The dicrotism was apparent to the finger, and was marked in the sphygmographic traces, which are here shown. (Tracings 1, 2, 3.) After exposure to the fumes for thirty minutes, the man staggered and swayed in walking. The power to remain stationary, with the eyes closed, was almost abolished. The reflexes were not increased. In addition to great distress in the chest and angor cardii, he complained of a severe feeling of oppression in the head, smarting of the eyes and dryness of the throat. There was marked loss of hearing, diminished acuity of vision and apparent mental confusion. The sense of oppression in the head rapidly developed into a violent general headache, more marked in the occipital region, which lasted thirty-six hours. This particular experiment has been detailed at length because it is the typical expression I found, over and over again, of the full effect of the powder fumes.



Tracing 1.



Tracing 2.



Tracing 3.

Tracings 1, 2 and 3 correspond to Chart 4 and illustrate the loss of vasomotor control and dicrotism.

The influence on the vasomotor system was equally pronounced. An initial flushing, particularly of the face, was always seen, and, with this flush, there was a subjective sense of heat. The flush was followed by cyanosis, apparent in the lips, finger nails and malar prominences. The color was a curious one, and suggested turgidity rather than lividity. The blood pressure fell rapidly with the rise in the pulse. The average fall was 50 points, from 130 to 80 mm. of mercury.

Respiration showed less change than the other functions. There was always some hyperpnea, and not so much a sensation of air hunger as a feeling of respiratory insufficiency; a subjective sense of unsatisfied breathing. Where there was full exposure to large amounts of the fumes, nose bleed was frequently observed.

Under the same circumstances locomotion and co-ordination were markedly affected. Swaying and staggering on walking was commonly observed. Walking along a line marked out on the floor was difficult. Even in small doses, when the feet were placed together and the eyes were closed, there was a curious sense of instability and a subjective feeling as though one were about to fall. In large doses the swaying was very apparent, while in full doses the position could not be maintained at all. No alteration in the reflexes was observed. Failure of co-ordination was also shown in increased difficulty in performing manipulations involving careful movement. Thus it became very difficult to make the sphygmographic traces, and there was more or less tendency to drop small articles like pencils, thermometers and tracing papers.

I could not satisfy myself that there was any influence whatever on the body temperature. The sensation of heat has already been mentioned, but the thermometer failed to show any actual rise. The observation by Purdy,[5] already quoted, of the temporary rise observed in men who ate cordite for the purpose of malingering, led me to expect some temperature variations. However, none were observed, and, therefore, there must be some difference in the action of cordite powder fumes and the internal effect of cordite when eaten, in this respect, although most of the other phenomena are somewhat similar.

Although I could find no effect on the temperature of the body, it was noticed that the temperature of the outside air had a marked influence on the effect of

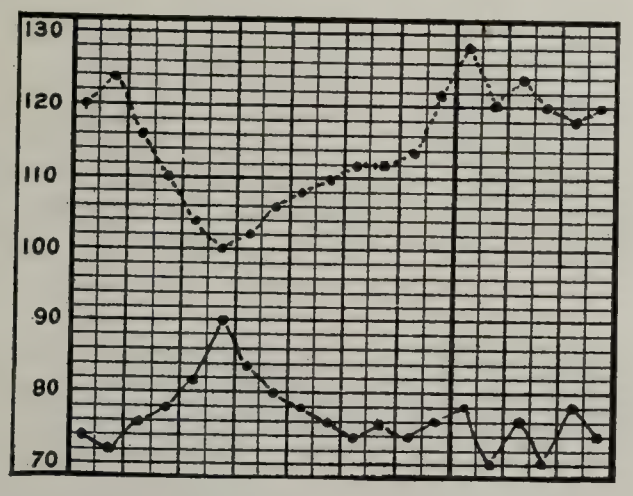


Chart 5.—Showing influence of heat and cold. Amount of powder exploded 20 grams. Temperature of room 74 F. The reaction is very moderate.

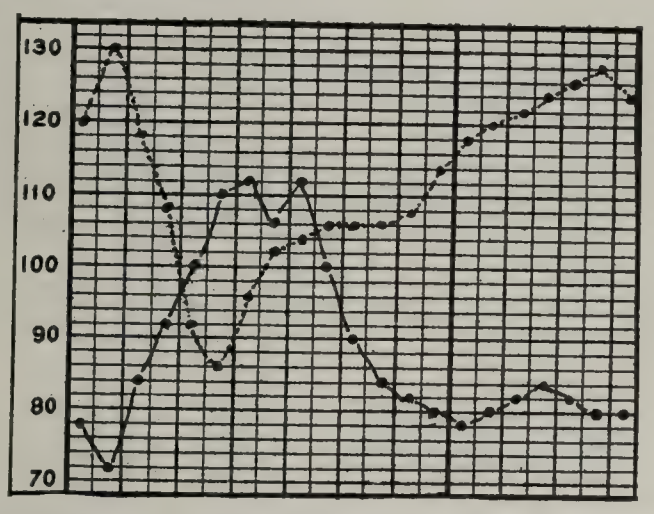


Chart 6.—Showing influence of heat and cold. The conditions are the same as in the preceding chart excepting the temperature of the room, 47 F. The reaction is more decided.

the powder fumes. Charts 5 and 6 show this very plainly. Generally speaking, it was found that decrease in the temperature increased the effect of the powder fumes. Both of these charts show experiments on the same man made under exactly similar conditions, excepting the room temperature. Chart 5 shows the effect of the fumes of 20 grams of powder on the man at a room temperature of 74° F. It will be observed that the reaction is very moderate. Chart 6 shows the experiment repeated with the same man and the same quantity of powder at a room temperature of 47 F. The effect is very much more marked.

I do not pretend to interpret this phenomenon, but a very similar observation is recorded by Haldane[7] in

7. John Haldane: The Journal of Physiology, 1895, vol. xviii, p. 430.

his studies of CO poisoning: "Another point which may probably be of importance is to prevent fall of temperature. My attention was first called to this point by observations on mice and subsequently by a fact communicated to me by one of the rescue party after the terrible colliery explosion in South Wales in 1894. It was noticed that some of the men found still alive, but suffering from the effects of after-damp, got worse and gradually sank when brought to the fresh air at the bottom of the down-cast pit. At this point the air would be cooler and dryer than in the workings. The fall is apparently accelerated by dilatation of the blood vessels of the skin."

It is possible that this explanation may apply to these observations as well; that the dilation of the vessels produced by the powder fumes is augmented by the peripheral dilation caused by the cold. I also made an effort to determine the effect of moisture by saturating the room with steam. The effect of the fumes in moist air seemed to be less than in dry air, but of this observation I am not by any means sure.

Vision became less acute under the influence of the powder fumes, the average diminution being from 5/20 to 7/20. The visual fields were slightly contracted uniformly. I could discover no scotomata. Hearing was more decidedly obtunded. When the full effect of the fumes was obtained there seemed to be a loss of

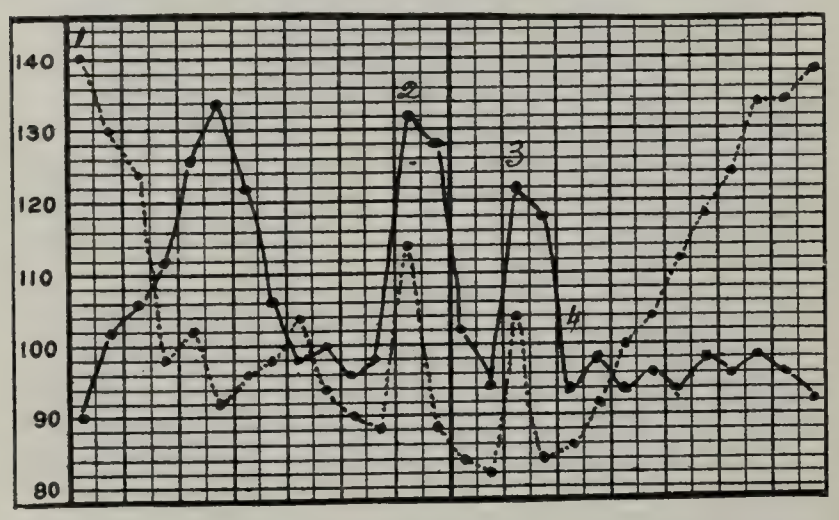


Chart 7.—Showing effect of alcohol and powder fumes. Amount of powder exploded 25 grams. 1. Entered fumes. 2. Exercise. 3. Exercise. 4. Left fumes. Interval between observations five minutes.

nearly one half in hearing. A degree of mental confusion was also observed, chiefly expressed in dullness and failure of concentration. "Dynamite headache" always followed the experiments. It varied in intensity, but was usually severe. Frequently it was almost intolerable, on account of the severe, crashing, splitting pains. Occasionally it was milder, with a general sense of constriction and a localized pain in the occipital region. It lasted from four to forty-eight hours. It is undoubtedly congestive in character and due to the filling up of the cerebral vessels from vasomotor paralysis. There was nearly always a feeling of malaise and depression after the experiments.

Free nitrites could be demonstrated in the urine within one hour after exposure to the fumes. No other changes were noted.

I was able to make one observation of the conjoined action of alcohol and powder fumes. One day one of the men presented himself slightly under the influence of liquor. The results of the experiment are interesting. The amount of powder exploded was 25 grams. The effect on the pulse was very pronounced. (Chart 7.) The stimulating effect of the alcohol, however, lessened the loss of vasomotor tone. The points marked 2 and 3 on the chart show the effect of exercise, and it will be noted that with the rise of the pulse rate the blood pressure also rose, in contrast to the effect shown in Chart 4. No tendency to dicrotism was observed.

Similar symptoms to these here recorded in the present experiments, have been observed in workmen engaged in the manufacture of smokeless powders. They are produced not only from the fumes arising from the powders, but also by handling the finished or unfinished product. Key[2] states that "nitroglycerin headache" is caused "either by inhalation of nitroglycerin vapor or by absorption through the skin, so that it results from handling the manufactured compound as well as from being present in a building in which the hot explosive is deposited. No one can enter a cordite drying room or 'stove' without experiencing a peculiar sensation at the heart and at the back of the head, which, in the absence of fresh air, soon develops into a headache which reduces to insignificance all the other ills of life." This effect is so well known that the occupation commands higher wages, not because of its perilous nature, but rather on account of the inconvenience from this source to which the men are subjected.

In nearly all the men used in the experiments a degree of tolerance was gradually established to the powder fumes. This is also a common observation among those engaged in powder-making. On this point Key[2] says: "Some suffer more than others, and on most people the fumes appear to lose their effect after a few days. With certain individuals, on the other hand, it is a matter of weeks before they become inured, and during that period they are never free from sickness and headache; moreover, a very few days' absence from contact with the explosive causes a return of the original susceptibility."

Among the men used in these experiments one was found who was practically unaffected by exposure to the powder fumes. The only effect observed was a fall of about ten beats in the pulse rate after exposure to dense fumes. The blood pressure was practically unchanged. This man had previously served in the infantry, and stated that he had inhaled powder fumes a number of times, during constant heavy firing, but he had never experienced any after-effects, although the other men about him had noticed the "powder headache." He was given nitrite of amyl by inhalation, and showed a very faint response to it. He gave practically no response to hypodermic injections of nitroglycerin gr. 1/100. This man represents an infrequent group, who are strangely resistant to the effects of the nitrites. I saw such another case in the clinic of the late Professor DaCosta. This was a man who had been given nitroglycerin to take by the mouth, with instruction to increase the dose to the point of tolerance. He returned, saying that he had taken large doses of the drug, and that he could see no effect of any kind. The drug was then pushed until he was taking, several times daily, the tremendous dose of 650 drops of the *spiritus glonoini*. I saw him take a dose of this size, in the clinic, and it had only a transient effect on his pulse.

Now the question arises, What gas or gases evolved from smokeless powders cause these effects? Smokeless powders are, practically all, composed of varying proportions of nitroglycerin, gun cotton and nitro-

cellulose, to which are added small proportions of metallic nitrates or organic bodies like urea or vaselin to act as accelerators and deterrents.

The explosion of nitroglycerin is usually represented as follows: $2(C_3H_5O_3\ (NO_2)_3)$ exploded $= 6CO_2 + 5H_2O + 3N_2 + O$.

The disruption of trinitrocellulose is shown in this reaction: $2(C_6H_7O_5(NO_2)_3)$ exploded $= 7H_2O + 9CO + 3CO_2 + 3N_2$.

Gun cotton is simply a highly nitrated nitrocellulose, containing more than 12.9 per cent. of nitrogen. Its explosion formula is considered to be the same as nitrocellulose.

The varying proportion of these ingredients in the principal smokeless powders is shown in the following table, which is taken from artillery notes No. 16 (12).

TABULATED CLASSIFICATION OF POWDERS.

PURE COLLOIDS.

ACETONE.

Maxim Schupphauss No. 1.
G. C. .....80.
N. C. 19.5
Urea 0.5
Powder B. (Vieille).
G. C. 68.21
N. C. 29.79
Paraffin ..... 2.
Rifleite.
G. C. 74.16
N. C. 22.48
Volatiles ..... .84
$C_6H_4(NH_4)$ 2.52
Swiss Normal Powder.
G. C. 96.21
N. C. 1.80
Resin 1.99

ETHER-ALCOHOL.

Pyrocollodion (Mendeleef's Powder).
$C_{30}H_{38}O_{25}(NO_2)_{12}$.
Powder for U. S. Army.
Nitrocellulose containing not less than 12.65 per cent. ± .05 per cent. of N.
Powder for U. S. Navy.
Nitrocellulose containing from 12.4 to 12.8 per cent. of nitrogen.

ACCELERATED COLLOIDS.

METALLIC NITRATE ACCELERATORS.

Plastomenti.
N. C. 67.18
(N= 12.33.)
$Ba(NO_3)_2$ 9.76
Toluene-di-nitrate 22.06
Powder BN.
G. C. 38.67
N. C. 33.23
$Ba(NO_3)_2$ 18.74
KNO_3 ..... 4.54
Na_2CO_3 ..... 3.65
Volatile 1.29
Schultze.
G. C. 32.65
N. C. 27.71
Cellulose 1.63
Ba $(NO_3)_2$ 27.62
KNO_3 ..... 2.47
$NaNO_3$ 2.24
Paraffin 4.2
Volatile 1.48
Troisdorf.
G. C. .....
N. C. .....
$—NO_3$ .....
U. S. Naval (small arms).
N. C. .....80.
Ba $(NO_3)_2$ .....15.
KNO_3 ..... 4.
$Ca(NO_3)_2$ ..... 1.
U. S. Army (small arms).
G. C. .....
N. G. .....
N. C. .....
$—NO_3$ .....
Deterrent .....
Indurite.
G. C. .....40.
Nitrobensin .....60.

NITROGLYCERIN ACCELERATORS.

Ballistite.
G. C. .....50.
N. G. .....49.
Diphenylamin ..... 1.
Cordite.
G. C. .....37.
N. G. .....58.
Vaselin ..... 5.
Leonard.
G. C. .....24.
N. G. .....70.
Lycopodium ..... 4.
Urea ..... 2.
Maxim-Schupphaus No. 2.
G. C. .....80.
N. C. .....10.
N. G. ..... 9.
Urea ..... 1.
Peyton (California).
G. C. .....40.
N. G. .....38.
? ? ? .....
W. A. (Aspinwall-Whistler).
G. C. .....
N. G. .....
$—NO_3$ .....
Wetteren.
G. C. .....
N. G. .....

According to the formulæ given, nitroglycerin gives off no fumes that could be noxious or that could produce the symptoms that have been detailed. Gun cotton, however, and nitrocellulose give off large quantities of CO. The former yields on detonation amounts of carbonic oxid equivalent to from 28 to 45 per cent., depending on the pressure under which it is exploded. Reference will be made to the effects of carbonic oxid, and it will be seen that many of the symptoms produced are undoubtedly due to this gas. But there must be some other factor at work to produce the marked vasomotor and cardiac phenomena. This agent is nitric peroxid, NO_2. The formulæ given presuppose the complete and perfect detonation of the powder. Now detonation does not take place in military, sporting or blasting explosives. Instead, the action is a combustion, more or less rapid, according to the special use for which the powder is intended. The checking of the rate of explosion, by which it becomes more or less rapid combustion, is effected by means of deterrents. These deterrent bodies, or rather their effects, are of the greatest interest in this study. For this purpose most varied substances have been employed as urea, paraffin, resin, toluene, vaselin, lycopodium and the metallic nitrates. Many of them are unknown, and constitute the "secret" in most of the special powders. Now, under the influence of these "holders back," when smokeless powders burn instead of detonating, in addition to and replacing some of the products as given in the theoretical formulæ, the oxids of N appear. And they are developed in proportion to the slowness of the combustion. Hence slow-burning blasting powders which depend rather on the quantities of gas produced, than on the initial violence of the explosive blow for their disruptive effect, will produce large quantities of the oxids of nitrogen. It has long been known that when any of these powders burn quietly in the open air, still greater proportions of these compounds are formed. On this point Key[2] says the following: "If, however, nitroglycerin be decomposed by simple combustion, not detonation, the nitrogen and oxygen in the NO_2 molecules do not appear to be dissevered, the result being that not only are highly poisonous nitrous fumes given off, but the proportion of available oxygen is also so much diminished that a considerable quantity of CO is formed. Many instances are recorded of fatalities due to the inhalation of these nitrous fumes. In the cases where death has resulted from breathing nitrous fumes only, the end has generally been deferred for some time, amounting in one instance to no less than forty hours after the inhalation." Haldane[1] makes the following observation on burning explosives: "The most serious accidents in mines from gases from explosives have been due to the accidental burning of high explosives, such as dynamite or gun cotton. When substances of this class burn quietly instead of detonating, nearly the whole of the nitrogen is given off as nitric oxid (NO), instead of as free nitrogen. The nitric oxid at once combines with the oxygen of the air to form nitric peroxid, which is a very dangerous gas. Even when a charge is detonated for blasting purposes, it may happen, particularly with badly or roughly handled explosives, that part burns quietly and forms nitric peroxid. The latter is an irritant gas, but when sufficiently diluted may be breathed for some time without the person exposed to it being aware of the danger."*

* Since this paper was written I have received the "Report of the Surgeon General of the Navy for the Year 1904." It contains (page 230) a report by J. F. Urie, surgeon U. S. Navy, on the powder explosion and fire on the U. S. S. *Missouri*, April 13, 1904. It will be remembered that in this disaster out of 36 people directly exposed to the flame of the burning powder, 32 perished. One charge of 360 pounds of smokeless powder was ignited in a turret and two charges of the same weight each in the handling room. The following remarks of Surgeon Urie are particularly germane to this paper: "The gases generated by the combustion of 720 pounds of smokeless powder in the handling room permeated the different parts of the ship in its vicinity and was a source of danger to those fighting the fire and rescuing the victims. The composition of these gases has not been fully determined. A number of officers and men were variously affected by inhalation of the gases. An exhilaration was experienced at first, followed in a few cases by a partial loss of consciousness. This was probably the effect of the absorption of the compounds of nitrogen—nitrites and nitrous acid. Other effects of the inhalation of the products of combustion were those caused by the irritative action of gases on the lining of the respiratory tract. Two cases of pulmonary edema resulted, 1 proving fatal, and 8 others were severely affected. A large number of the officers and men were affected to the extent of experiencing a soreness of the trachea and bronchi and a slight distress in breathing."

It is apparent, then, that the gases producing the ill effects described are either carbonic oxid or nitric peroxid, or a combination of the two. An interesting study might be made in separating these two gases from smokeless-powder fumes and studying their effects separately. There is only one explosive that might facilitate this. Sir F. Abel states that "tonite" produces "little or no CO" in its combustion. Unfortunately, I could procure none of this particular explosive for study.

The symptoms of CO poisoning have been thoroughly studied by Haldane.[7] He made experiments on himself with carefully measured quantities of carbon monoxid gas. I have here extracted the salient facts of three of his experiments. For further data I must refer the reader to his splendid paper in the original.

Experiment 2.—Proportion of CO = 0.39 per cent. was inspired for 11½ minutes.

After 22 minutes: There was slight palpitation, pulse 102.

After 26 minutes: Hyperpnea, palpitation, pulse 120.

After 30½ minutes: Became giddy, much palpitation, out of breath and could not see well; singing in ears.

Experiment 6.—Proportion of CO = 0.12 per cent. inspired for 120 minutes.

After 15 minutes: Pink tinge in blood discernible.

After 37 minutes: Palpitation, pulse 96.

After 67 minutes: Slight palpitation; feel rather sleepy.

After 90 minutes: Moderate exercise caused distinct dimness of vision and hearing and a tendency to stagger.

After 120 minutes: On running up stairs once, became distinctly weak in the legs and had to lean against a table. Distinct impairment of vision and hearing and mental confusion.

After 138 minutes: Distinct throbbing headache, which lasted for two hours, with dimness of vision.

Experiment 7.—Proportion of CO = 0.21 per cent.; duration of inhalation, 71½ minutes.

After 34 minutes: Feeling of fullness and throbbing in head.

After 37 minutes: Fullness and throbbing more distinct.

After 45 minutes: Pulse 104, breathing distinctly deeper.

After 59 minutes: Beginning to look pale and yellowish.

After 63 minutes: Felt worse after making any movement in chair.

After 65 minutes: Hyperpnea marked, slight mental confusion.

After 71 minutes: Vision dim, limbs weak, gas stopped.

After 73 minutes: Could walk fairly straight across room; could not form letters on board as well as usual; confused.

After 77 minutes: After walking four times across room, staggered and nearly fell; vision impaired.

After 84 minutes: Attempted to walk along line of one of the boards of floor; did so with much difficulty and much staggering and waving of arms.

During the whole of the evening following this experiment, suffered from headache without nausea or loss of appetite; and during succeeding day, suffered from slight headache.

In these experiments it will be noted that the symptoms were developed slowly. Palpitation only occurs in from fifteen to thirty-five minutes. Acceleration of the pulse comes slowly and is not pronounced excepting in Experiment 2. Yet all the symptoms correspond very closely to the later phenomena observed in my series of experiments. This is because carbonic oxid is a cumulative poison. It produces no effect until a certain degree of saturation of the blood has occurred and a given percentage of the hemoglobin has been reduced. Haldane says: "Distinct symptoms appreciable during rest are not produced by carbonic oxid in otherwise normal air until about .05 per cent. of the gas is present; with about .2 per cent. urgent symptoms are produced." The symptoms depending on the extent to which the hemoglobin is saturated.

The presence of carbonic oxid in the gases of combustion was determined by the hemoglobin reduction test and spectroscopic examination. The test used was Vogel's. One part of blood is mixed with 100 parts of water. To this mixture ammonium sulphid is added to reduce any oxyhemaglobin. If the mixture is now examined with the spectroscope, carbonic oxid is shown by the presence of the double absorption band of reduced hemoglobin in the spectrum. This test was not found to be sufficiently delicate when applied to the blood of the men taking part in the experiment. Positive results were, however, obtained by Haldane's test.[8] A drop of blood is diluted with about 100 times its volume of water; for purposes of comparison a solution of about the same depth of color is prepared from normal blood. Part of this normal solution is saturated with coal gas which alters the color from yellow to pink. The three solutions are then poured into narrow test-tubes of equal diameter and compared. If the depth of color of the first solution now appears to be greater than, or less than, that of the other two solutions, water or blood must be added (to the first solution) until equality is established. The tints of the three solutions are now compared. According to the percentage saturation of the sample of blood under examination, the tint of the first solution will approach to that of the normal blood, or the blood saturated with coal-gas, and thus a rough estimation may be made of the percentage of saturation. This test is much simpler and much more delicate than with the spectroscope, but can not be carried out in artificial light. "In undiluted blood examined in bulk, the peculiar tint, due to the presence of carbon monoxid, can hardly be recognized." I modified the test by making a series of standard colors and comparing the blood to be tested on white filter paper in the same manner as hemoglobin estimations are made with the Tallqvist scale, and found this method to be easy and rapid.

The presence of NO_2 in the fumes of the powders is evidenced by the acrid, reddish fumes so irritating to the fauces and conjunctivæ. Chemically, it could be demonstrated, by the copper, spongy-platinum test, to be present constantly. Its absorption into the body was shown by the constant occurrence of free nitrites in the urine. Nitric peroxid in large doses and prolonged exposure cause fatal pulmonary irritation. In small doses it produces the same effects as any of the nitrite compounds. In fact, the latest theory of the action of the nitrites is that they break up into this gas in the body. Knott[9] gives the following formulæ: $C_5H_{11}NO_2+H_2O=C_5H_{11}OH+HNO_2$. Amyl nitrite, water, amyl alcohol, nitrous acid.

The nitrous acid thus pro[illegible] rapidly und[illegible] full oxidation: $3HNO_2=HN$[illegible]

The oxid of nitrogen so formed instantaneously exerts its well-known affinity for oxygen: $NO+O=NO_2$.

So that we have, then, apparently the identical factor of NO_2 to deal with in each case as the active agent.

Ultimately the NO_2 or the "nitrites convert the hemoglobin of the blood, not simply into methemoglobin, as commonly assumed, but into what appears to be a mixture of methemoglobin and nitric-oxid hemoglobin.

8. John Haldane: Report to the Secretary of State for the Home Department on the Causes of Death in Colliery Explosions and Underground Fires, London, 1896.

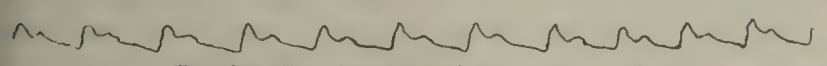
9. John Knott: Angina Pectoris, American Medicine, Oct. 29, 1904.

The color and spectroscopic appearance of this mixture are quite distinct from those of ordinary methemoglobin. Amyl nitrite in excess causes further changes, a body apparently identical with photohemoglobin being formed."[10]

The similarity of the action of the nitrites and the fumes of smokeless powders is graphically shown in the appended tracings, Nos. 4, 5, 6 and 7. These rep-



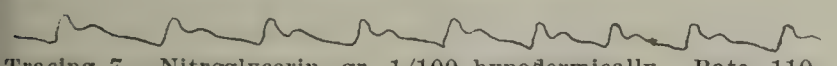
Tracing 4.—Normal rate, 70.



Tracing 5.—Amyl nitrite. Rate, 115.



Tracing 6.—Powder fumes. Rate, 112.



Tracing 7.—Nitroglycerin, gr. 1/100 hypodermically. Rate, 110.

resent the normal pulse of the man in No. 4; the pulse one minute after the inhalation of 5 minims of amyl nitrate in No. 5; the pulse after ten miutes' exposure to the fumes from 30 grams of smokeless powder, exploded, in No. 6, and the pulse five minutes after hypodermatic injection of 1/100 grain of nitroglycerin in No. 7. They differ in degree only, and in the rapidity with which the effect is produced. I believe the slower action with the powder is attributable, possibly, to an inhibitive effect of the carbonic oxid.

Lyddite was not investigated. When first introduced it was supposed to have tremendous and widespread suffocative effects. These suppositions have not been borne out in actual experience. Lyddite $C_6H_2(NO_2)_3OH$, trinitrophenol, picric acid, on detonation yields large quantities of carbonic oxid and free carbon. It is likely that any suffocative effect it might possess would be due to the carbonic acid.

Another explosive with marked toxic properties, both in its fumes and on handling, is dinitrobenzene. Oliver[1] reports that 400 milligrams of lanolin containing 0.1 gram of dinitrobenzene rubbed into the groins of a man, produced lividity, cyanosis, and other pathognomonic symptoms in a few hours. Ten minutes' exposure to the fumes evolved in its manufacture has resulted fatally. The symptoms of acute poisoning are[1] nausea, vomiting, congestive headache, faintness and giddiness, loss of control over the limbs, numbness and tinglings. Deep cyanosis is characteristic. Pulse quick, weak, rate of 120, with very low arterial tension. The temperature ranges from 99° to 102° F. The urine may be dark and may contain free dinitrobenzene or nitrates and nitrites. I have had no opportunity to study this explosive.

I have seen what I believe to be a practical application of this question in ordinary city life. Of course, in mining communities it comes up all the time. In Philadelphia, in 1903, on the Fourth of July, vast quantities of cannon crackers were exploded. The day was muggy and close, and in some of the closely built streets the powder fumes lay thick and heavy. The sweetish, acrid, irritating odor of dynamite powders was unmistakable. On that day and the following day, I saw numerous cases of typical "dynamite headache." In two other cases I saw severe intoxications which, I believe, were due to nitrite poisoning. One of these cases I saw with Dr. J. L. Salinger. The patient was a child of 2 years. It was collapsed, stupid, slightly cyanotic, the forehead covered with cold sweat, the pupils dilated, and with a rapid, disordered and barely palpable pulse. There was also diarrhea. After thorough examination we came to the conclusion that the child was suffering from poisoning from the fumes of the cannon crackers. Afterward we learned that, in the immediate vicinity of its dwelling, in a rather narrow, closely built street, there had been an unusually heavy display.

The treatment of powder poisoning must be directed to the dual condition, the nitrite poisoning and the carbonic-oxid poisoning. The former must be met with remedies to restore vasomotor tone. Strychnin in full doses is indicated. Ergotin has been recommended. In moderate cases, the elimination of the carbonic oxid from the blood will proceed rapidly and certainly. In the more profound intoxications oxygen inhalations are indicated, and artificial respiration as long as there is any embarrassment of respiration, the idea here being to establish a degree of hyperoxygenation and to permit mechanical solution of the oxygen where an appreciable amount of hemoglobin is so reduced by the carbonic acid as to exclude it as an oxygen carrier. For the control of the "dynamite headache" the ordinary coal-tar products are not only useless, but dangerous when the heart and vasomotor system are profoundly affected. The coal-tar products seem to have no influence whatever on this headache. The best remedy is that advised by Key,[2] "strong coffee and a linseed poultice to the back of the neck."

These studies show that:

1. The explosion of smokeless powders produces gases which, under some circumstances, may lead to profound intoxication or death.

2. The gases are nitrogen peroxid and carbonic oxid.

3. The symptoms produced are attributable to inhalation of both of these gases.

My thanks are due to Col. S. E. Tillman, professor of chemistry at the U. S. Military Academy, West Point, for valuable aid in some of the chemical problems involved, and to Sergeant, First class, Jean Clare, Hospital Corps, U. S. Army, for assistance in most of the experiments.[11]

10. Haldane, Makgill and Mavrogordato: The Action of Nitrites and Physiologically Allied Substances, Proceedings Physiological Society, Nov. 14, 1896; Journal of Physiology, 1896.

LOCAL ANESTHESIA

BY INJECTIONS OF STERILE WATER.

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BRIDGEPORT, CONN.

The subcutaneous injection of water for the relief of non-operative pain was suggested as early as 1868, and since then local anesthesia has been successfully produced by injecting solutions of various drugs into the skin and subcutaneous tissues.

In 1901, Dr. Samuel G. Gant of New York began his experiments with sterile water and has demonstrated that local anesthesia can be obtained quickly by injecting into the skin, mucosa and deeper structures

11. Other references which may be consulted are: M. Eissler: Handbook of Modern Explosives. Bernadou: Smokeless Powders. Cundill: Dictionary of Explosives. Walke: Lectures on Explosives. Weaver: Notes on Explosives, Bulletin No. 16 of the United States Artillery School, 1904. Guttman: The Manufacture of Explosives. Berthelot, translated by Hake and Macnat: Explosives and Their Power.

sufficient water to produce a glassy appearance of these tissues; the anesthesia being due, apparently, to the pressure on the terminal nerve filaments. His results were so satisfactory that he now employs it to the exclusion of general and medicinal local anesthesias in most of his rectal operations. Using Dr. Gant's technic, as given below, I have successfully employed sterile water for the production of local anesthesia in the following operations: One exploratory laparotomy, thirty-nine operations for hemorrhoids, three for fistula in ano, two for fissure in ano, three for sebaceous cysts and three for varicose veins of the leg.

The method of producing water anesthesia is very simple. The only requirements are warm sterile water and a hypodermic syringe fitted with a long fine needle.

The temperature of the water is unimportant in producing anesthesia, but warm water causes less discomfort than hot or cold. After thoroughly sterilizing the syringe, needle and skin, the anesthesia is produced in the following manner:

The skin along the line of incision is first anesthetized. This is accomplished by using a very fine needle and by introducing it into (not under) the skin almost parallel to the surface. If the skin is compressed for a few seconds between the thumb and forefinger at the point of insertion, the momentary pain caused by the prick of the needle and the first injection is diminished and often prevented.

A few drops of water are slowly injected, causing a slight wheal to appear, which is absolutely without sensation. The point of the needle is pushed further under the skin through this area of insensibility, and a few drops of water are again injected. Another wheal arises close to the first, and by extending these injections farther and farther the whole line of incision is distended and rendered anesthetic.

When the syringe is empty, it is withdrawn, refilled and the needle reintroduced within the anesthetized area and the injections are repeated as before. After the skin has been anesthetized, the needle is pushed through this distended line into the subcutaneous tissue and injections are made until a firm whitish, ridge-like swelling, about as wide and thick as the index finger, is produced. These deep injections may cause a temporary discomfort due to the rapid distension of the subcutaneous tissues.

If the procedure has been properly carried out, the skin and underlying tissue can now be incised, and, in almost every instance, without pain. The following are some of the advantages of water anesthesia: 1. Effective local anesthesia is quickly and easily produced. 2. No elaborate preparations are necessary. The only requirements are an ordinary hypodermic syringe fitted with a suitable needle and warm sterile water. 3. There are no toxic effects. 4. No nausea, vomiting nor straining follows its use. 5. It can be used in heart, lung or kidney complications without danger. 6. There is no pain following the operation as is often the case after cocain, freezing, etc. 7. Its value in an emergency when general and medicinal anesthetics are not at hand.

On Feb. 27, 1904, water anesthesia was used for an exploratory laparotomy at the Bridgeport Hospital by Dr. Garlick and myself with the following results:

1. The abdomen was opened without pain. 2. Careful handling of the viscera caused no pain. 3. Traction on the mesentery caused pain. 4. Ruptured tubal pregnancy was found and the necessary traction in attempts to bring out the ovary and tube caused pain. As haste was necessary, due to profuse hemorrhage, ether was administered to complete the operation.

In operating for hemorrhoids, it is only necessary in the external thrombotic tumors to anesthetize the skin over the clot which can easily be turned out after the incision is made. For external cutaneous hemorrhoids both the skin and tumor should be distended tightly to produce anesthesia. In operations for internal venous hemorrhoids, the injection is made into the center of the tumor until it is distended tightly and turns white, when it can be removed painlessly by the ligature method.

The advantages of water anesthesia in hemorrhoid operations are: 1. No preliminary preparations are necessary. 2. No dilation of the sphincter is necessary. 3. The operation may be performed either in the office or at the patient's home. 4. The patient is able to continue at his business without loss of time. 5. There is no pain nor bleeding following the operation. 6. There is no danger to heart, lungs or kidneys.

In operations for fistula in ano, the skin and subcutaneous tissue up to the anal margin should be distended and in some cases the mucosa, submucosa and external and internal sphincters have to be infiltrated. In operating for sebaceous cysts, the skin overlying the cyst is first anesthetized and then the needle is plunged between the skin and the cyst wall; as the water is injected it separates the skin from the cyst wall and allows the adhesions, if present, to be cut without injuring the sack. In operating for varicose veins, the skin and subcutaneous tissues are distended and the veins ligated.

In conclusion, I would recommend that water anesthesia be given a thorough trial. Failure at first attempts should not condemn its use for practice will soon enable one to distinguish the proper amount of distensions necessary to produce the anesthesia. I feel sure that when this method has become more familiar, the advantages will be so apparent that its use will soon become general.

Special Article

IMMUNITY.

CHAPTER XIV.

AMBOCEPTORS AND COMPLEMENTS.

Experimental Value of Hemolysins.

The simplicity of hemolytic experiments and the rapidity with which they may be performed and terminated have rendered hemolytic serums particularly useful in the study of amboceptors and of complements, for we are to understand that such serums are toxic to erythrocytes only because of the amboceptors and complements which they contain. All the most important facts which have been learned concerning the action of hemolytic serums have been found to hold true for bactericidal serums as well; hence it is an indifferent matter if principles which are common to both are illustrated by frequent references to serum-hemolysins.

Technic of Hemolytic Experiment.

The corpuscles for such experiments are obtained by the defibrination of freshly-drawn blood and the removal of the fibrin. Usually they are made into a 5 per cent. suspension by dilution with isotonic (physiologic) salt solution. Inasmuch as the serum which is present may interfere with the action of the complement or amboceptors of the hemolysin, it is customary to remove it by the so-called washing process. The 5 per cent. emulsion, or the undiluted blood, is centrifugated, the overlying fluid drawn off by means of a pipette and substituted by fresh salt solution;

the corpuscles are thoroughly mixed with the new solution and the process of centrifugation repeated. After from two to four washings any residual serum usually may be disregarded. To test the hemolytic power of a serum one measures identical quantities of the 5 per cent. washed blood into each of a series of test-tubes by means of a graduated pipette and then adds increasing quantities of the serum to succeeding tubes. All tubes are then diluted to equal volumes by means of salt solution, as it is of some importance to maintain a uniform concentration of the corpuscles. The contents of the tubes are mixed evenly by shaking and the series is placed in the thermostat for about two hours; this temperature is necessary for complete and rapid action of the toxic substances. At the end of this time the tubes are placed in the ice chest and left over night in order that the cells may settle to the bottom; or, sedimentation may be accomplished at once by centrifugation.

In either case, the overlying fluid is colored red by the dissolved hemoglobin in proportion to the extent of destruction of the erythrocytes. In case solution has been complete, the sediment is indistinct and colorless, being made up only of the stromata of cells, whereas in the tubes showing only partial hemolysis the sediment is red and has an indirect quantitative ratio to the coloration of the overlying fluid. By suitable variations in the amounts of serum used, in different tubes, its exact dissolving dose for the given volume of corpuscles may be determined. Although the term hemolysis is a perfectly proper one, we are to understand that serums cause solution of the hemoglobin but not solution of the whole cell; we speak loosely of solution of the corpuscles.

Hemolysis.

After Bordet had shown the analogy between bactericidal and hemolytic serums, and after the phenomena of inactivation and reactivation had been developed by Bordet and Metchnikoff, Ehrlich and Morgenroth undertook the study of amboceptors and complements as they occur in hemolytic serums. The facts ascertained by them and the methods of research which they devised have provided many investigators with a starting point for work of the highest importance concerning the bactericidal serums and antibacterial immunity, and their interpretations, moreover, served to extend the side-chain theory of immunity to its present comprehensive limits.

Similarity Between Bactericidal and Hemolytic Action.

For the sake of convenience one may speak of a heated immune serum, or one in which the complement has become inactive from age, as a solution of amboceptors, disregarding temporarily the agglutinins, precipitins and perhaps other bodies which the serum contains. Also, since fresh normal serums are rich in complements and usually contain but a small amount of any one amboceptor, they may conveniently be considered as solutions of complements; yet normal serums may not be considered as pure complement and used as such in unlimited quantities for actual experiments, because of the bacteriolysins and hemolysins which many contain. Only a quantity of the normal serum (which in itself is not toxic for the cell) may be used for complementing purposes; this may be as low as, or lower than, 0.1 c.c. for a particular experiment.

Solutions of Amboceptors and Complements.

As pointed out in the preceding chapter, the combined action of amboceptor and complement is necessary for the cytotoxic action of a serum. In view of the fact that the toxic power is lost by exposure to that temperature which destroys complement, it seems that the latter is the actual dissolving or toxic substance, whereas the amboceptor must play some intermediary rôle. Investigations have shown that the two act together in a very definite manner in that the absorption of the amboceptors by the cells is a prerequisite for the absorption and action of the complement. This may be verified by simple experiments. Mix erythrocytes with the homologous amboceptors, and after a period of from twenty to thirty minutes centrifugate the mixture and remove all the free serum from the cells by repeated washings with isotonic salt solution. If the cells are again suspended in salt solution and a small amount of complement is added and thoroughly mixed, the hemoglobin is dissolved out; a control must, of course, show that the complement alone has not the dissolving power. The result indicates that the erythrocytes during their contact with the immune serum had absorbed or combined chemically with the amboceptors, and that the latter remained attached to the cells in spite of the washings to which they were submitted.

The Absorption of Amboceptors by Cells.

It would seem that the union of amboceptor with cell has the effect of rendering the latter susceptible to the action of complement, and for this reason amboceptor-laden cells are spoken of as sensitized cells. Hence, according to the cells and serums employed, we may refer to sensitized erythrocytes, sensitized bacteria, etc. The experiment is called the sensitizing, absorption or binding experiment. An immune serum may be deprived of all its amboceptors in the binding experiment if a sufficient quantity of cells has been used, and it would thereby be rendered incapable of further reactivation by the subsequent addition of complement.

Sensitization.

If, instead of performing the experiment in the manner described, the process is reversed so that the corpuscles are first treated with the solution of complement and then with the amboceptors, the corpuscles are not hemolyzed. During the washing process the complement is entirely separated from the cells, and from this fact it is clear that direct union between corpuscle and complement does not occur; only sensitized cells take up complement.

The question as to whether the corpuscles in taking up amboceptors do so by chemical combination or by physical absorption has been contended with some vigor. Ehrlich believes that the process is one of chemical union, and if one adheres to this view it becomes necessary to assign binding or haptophorous groups both to the red blood cells and to the amboceptors. In contrast to another haptophore which the amboceptor possesses and which will be described below, that one which unites with the cell is called the cytophilous haptophore. The haptophore of the erythrocyte which enters into the union is an essential part of a receptor of the red cell; consequently we say that the amboceptor unites with a receptor of the corpuscle.

Order of Action of Amboceptor and Complement.

The heating of serum to 56° C. provides one means of apparent isolation of the amboceptors from the complement, but this is not a true isolation in that complement is merely rendered inactive by the heat rather than totally eliminated.

Ehrlich and Morgenroth devised a method by which the amboceptors may be separated from a fresh immune serum without in any way injuring the complement. This is accomplished by performing the binding experiment already alluded to, at a low temperature. The serum, containing both amboceptors and complement, is cooled to 0° C. or slightly above, by means of a freezing mixture of salt and ice. A suspension of the homologous corpuscles is cooled to the same point, the serum is added and the mixture maintained at 0° to 4° C. for fifteen to twenty minutes. At the end of this time the sensitized cells are removed by immediate centrifugation at a low temperature, and are washed entirely free from serum by the use of ice-cold salt solution. If the low temperature has been adhered to rigorously and the work done quickly, the corpuscles are not laked during the manipulations in spite of the presence of both amboceptors and complement. Furthermore, the washed sensitized cells remain intact even when their temperature reaches that of the thermostat, whereas if some fresh normal serum or the serum from which the amboceptors were extracted is added, they undergo hemolysis as readily as when treated with the active immune serum. The original immune serum is now a solution of complement, and fresh corpuscles which are added to it are not dissolved because of the absence of amboceptors.

The Absorption Experiment in the Cold.

These results show the following important facts: Amboceptor and complement exist side by side in an immune serum, not as a united substance. Union of amboceptor with cell is independent of complement, the latter being taken up only after the amboceptor-cell reaction has occurred. Amboceptors unite with cells at a low temperature, whereas complement requires a higher temperature for its union and for the ferment-like activity by which it dissolves or kills the cells.

That constituent of amboceptor which unites with the cell has been referred to as the cytophilous haptophore. Ehrlich and his followers believe that complement in establishing connection with the cells does so by combining with a second haptophore of the amboceptor, after the latter has sensitized the erythrocyte or bacterium. Hence, amboceptor has, as the name implies, two receiving groups or haptophores, the second being the complementophilous haptophore (Fig. 7). It is hardly desirable to enter here on various experiments which furnish additional evidence of the amboceptor nature of the thermostabile body. The observed phenomena allow one to assign to it the two haptophores mentioned.

Complementophilous Haptophore of Amboceptor.

There is a conflict of ideas as to the nature of the change produced by the amboceptors, as a result of which the cells are made susceptible to the action of complement. Bordet speaks of the amboceptor as the substance sensibilisatrice, the sensitizing substance; and his conception of the action of the two substances he has compared roughly to the opening of a lock for which two keys are demanded. One key, amboceptor, is needed to prepare the lock for the action of the second key, complement, the latter really being the one which opens it.

Action of Amboceptors.

Metchnikoff applies the name fixator to the thermostabile body, having in mind the action of a mordant in preparing tissues or other substances for the reception of a dye; this differs little from preparator, the word used by Gruber.

The idea of Ehrlich, however, is distinctly at variance with the conceptions mentioned, for he sees in the union of amboceptor with cell nothing more than the introduction of a new chemical affinity, i. e., one which attracts complement, and this new affinity does not lie in the cell itself but rather in the amboceptor (complementophilous haptophore) after the union has occurred. Hence, the terms intermediary body (*Zwischenkörper*), copula of Müller, and desmon of London, are words which carry with them the meaning that the amboceptor first unites with the cell and then acts as a linking substance through which complement finally is put in relation to the cell. This also is the meaning embodied in the amboceptor of Ehrlich, the word indicating more accurately his conception of the method by which the substance acts as an intermediary body.

If we consider it established that in the process of cytolysis union occurs between complement and amboceptor we must at the same time assign a haptophorous group to complement. Union would be impossible without it. Corroborative proof of the existence of this haptophore lies in the fact that immunization with complement results in the formation of anticomplement, a prerequisite for which is union of complement with cell receptors in the immunized animal; and this union, it seems necessary to assume, takes place through a binding group. The mere possession of a haptophore, however, does not account for the ferment-like activity of complement. The latter characteristic resides in the so-called zymotoxic group; hence, complement, having a binding and a toxic group, has a structure like that of a toxin.

Structure of Complement.

Somewhat loosely we have said that the inactivity of a serum which has been heated to 56° C. depends on destruction of the complement. This is not strictly true, however, for such treatment destroys only the zymotoxic group, the haptophorous constituent remaining uninjured. Complement altered in this respect is called complementoid, and it is analogous to toxoid, agglutinoid and precipitoid. Two essential facts go to show that this is the essential change wrought by heating. First, immunization with complementoid, heated complement, causes the formation of anticomplement, which could not occur except for the retention of the haptophore. Second, complementoid may exceed true complement in its affinity for the amboceptor, and if sensitized cells are treated with a serum containing a mixture of complement and complementoid, the latter may occupy completely the complementophilous haptophores of the amboceptors and thus may block the way for action on the part of complement. This is again the specific inhibition which has been mentioned in connection with toxoids, agglutinoids and precipitoids. This is the *Complementoid-Verstöpfung* of Ehrlich.

Complementoid.

The amboceptor, as the characteristic property of a bactericidal or of a hemolytic serum, is a specific product of the immunization, whereas the amount and character of complement in the immunized animal undergoes little or no change. We are, of course, obliged to consider the amboceptors as a product of the cells of the body. In the terminology of Ehrlich, they are discarded cell receptors, and with their two haptophores represent a more complex structure than either the receptors of antitoxin or agglutinin; the latter are uniceptors; the former amboceptors, and because of their higher differentiation Ehrlich has called them receptors of the third order (Fig. 7).

Formation of Amboceptors.

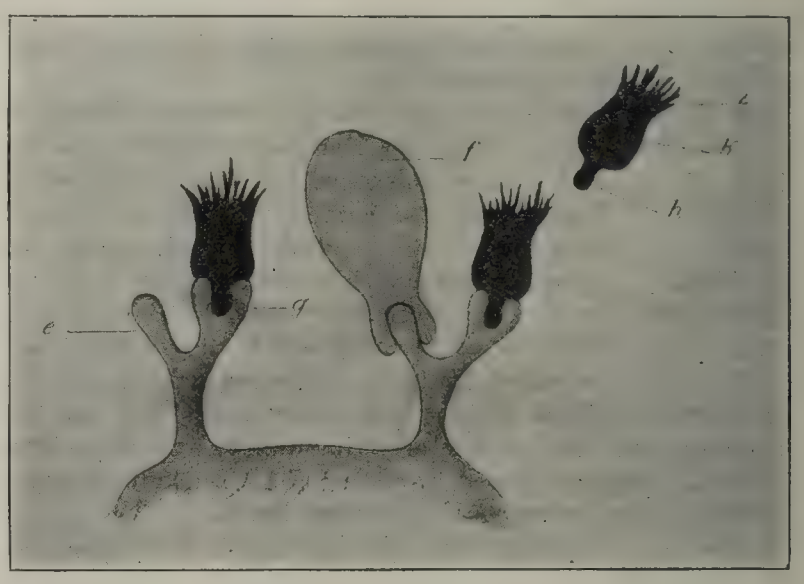


Fig. 7.—Graphic representation of receptors of the third order, and of some substance uniting with one of them. *c*, Cell receptor the third order, an amboceptor; *e*, one of the haptophores of the amboceptor, with which some food substance or product of bacterial disintegration, *f*, may unite; *g*, the other haptophore of the amboceptor with which complement may unite; *K*, complement; *h*, the haptophore, and *z*, the zymotoxic group of complement. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii.

When micro-organisms gain entrance to the body they are killed and dissolved in considerable masses. As a result of the solution, certain bacterial constituents reach the circulation, and among them are molecules or receptors which possess haptophores capable of uniting with a particular type of amboceptor, the latter being an integral part of some tissue cells. This union having taken place, an affinity for circulating complement may be created as in the test-tube experiments. We have thus the possibility of stimulation of the cell by the bacterial constituent itself as a toxic or unusual food substance, or the toxic action may be caused by products of disintegration of the bacterial substance, the disintegration having been accomplished by the digestive action of the complement which was taken up by the amboceptor. The effect is that of an unusual stimulation, in response to which the cell, if not fatally injured, reproduces many amboceptors corresponding to the type which was occupied or injured. As in the formation of other antibodies, the new-formed amboceptors reach the general fluids of the body.

Concerning the specificity of serum-hemolysins and serum-

bacteriolysins for their homologous cells, we, of course, refer to the specificity of the whole amboceptor-complement complex. It is necessary to throw the responsibility on both substances, because of the variations which exist among complements as well as among amboceptors. Inasmuch. however, as the heat-resistant body alone is increased during immunization or infection, the greater part of the specificity would seem to depend on the nature of the amboceptor rather than on that of complement. No theory except that of Ehrlich offers at present a tangible explanation of the feature under discussion.

Specificity of Bactericidal Amboceptors and Complements.

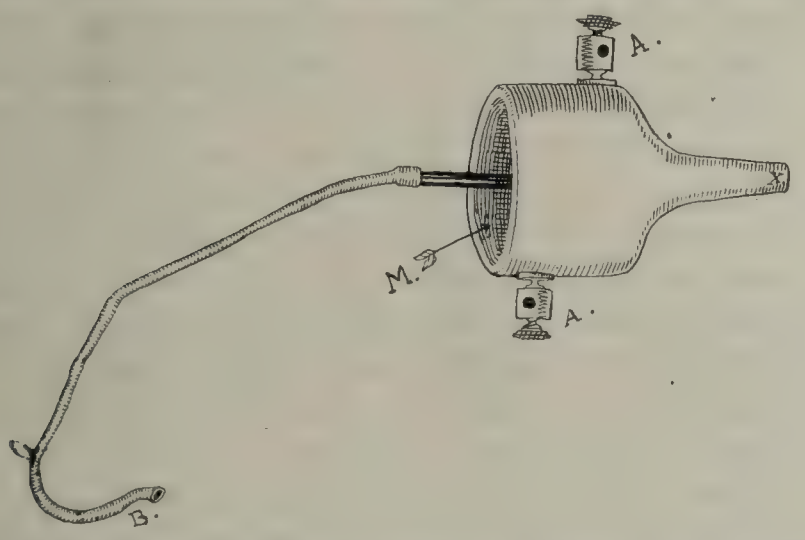
(To be continued.)

New Appliance

AN APPARATUS FOR APPLYING HEATED AIR TO THE EAR.

ALBERT C. HEATH, M.D.
ST. PAUL, MINN.

This appliance may be used with any cautery battery or motor for cautery use by attaching the cords (wire) which one ordinarily uses to the cautery handle. After making these connections the current is turned on, slowly at first, till the required amount of heat is obtained. Air is then forced through the rubber tube, either by means of compressed air (small pressure), hand bulb, or by blowing with the lips. If



Aural air heater. X, End of otoscope for insertion into external auditory canal. A, Binding post for attachment of end of cautery cord (wire). B, End of tubing through which the air passes that is to be heated. M, Open end of otoscope through which, by aid of illumination, the definite application of heated air to any part of the external canal or drum membrane may be observed.

the end (X) is put very near the operator's cheek or in his ear, he can find out the temperature of the heated air. This may be increased or decreased at pleasure, by means of the rheostat connected with the cautery battery. I have found that almost one-half the amount of current necessary to light, so to speak, a large cautery nasal knife, will generate a considerable amount of heat. If the full strength of the cautery current is turned on at once it may melt the connections of the metal tube.

This appliance has the following advantages:

1. Prompt graduations of heated air by means of the rheostat.
2. The otoscope, with illumination, makes it possible to see what is being done and so makes the application more definite.
3. Lack of danger of burning the external canal, because no part of the instrument is any hotter than the heated air that is being utilized.
4. Simplicity of construction and operation.
5. It can be used in combination with pump massage, so to speak; when the alternate out and in strokes are used, each in stroke of the pump produces a gentle puff of heated air.

It is my custom to put the otoscope in the ear, with a very small amount of current turned on, and then to force air through the rubber tube and gradually, by means of the cautery rheostat, to increase the current and consequently the heat. I usually increase the heat to the point of toleration and keep it there for a greater or less period. I use a gentle blowing pressure and try not to force the air through too violently.

I am convinced that this heater makes the application of heated air a definite therapeutic procedure; the degree of heat being controlled, as well as the point of application being under the direct observation of the operator.

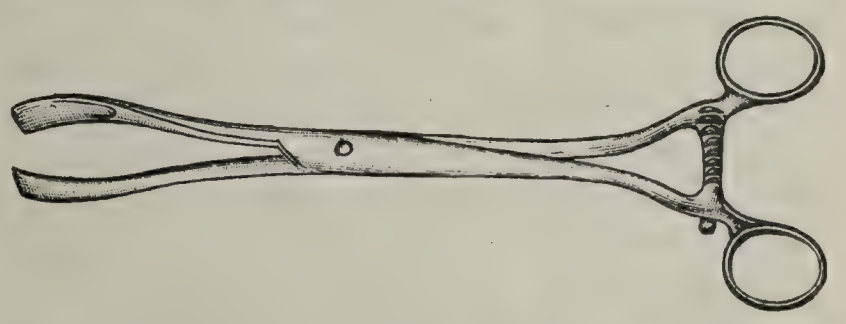
New Instrument

UTERINE ELEVATOR FORCEPS.

THOMAS S. CULLEN, M.B.
BALTIMORE.

When dealing with adhesions in the pelvis, it is often necessary to draw the uterus upward and forward so that the adhesions can be cut under guidance of the eye. Traction may be made by grasping the round ligament, the margin of the tube or the utero-ovarian ligament with artery forceps, but in inflammatory cases the tissue is peculiarly prone to tear and considerable bleeding is liable to follow if much traction be made. The uterus may be grasped with bullet forceps. These are apt to tear out if much traction be exerted, and, even if they do not, subsequent bleeding from the points where the instrument grasped the organ is a source of annoyance and several sutures are often required to check it.

About two years ago, I had forceps made that obviate most of these difficulties. One might very well speak of the instrument as a "cross" between obstetrical and artery forceps. The handles are those of a pair of artery forceps, the blades are



nearly an inch broad and viewed from the inner surface are concave from side to side and from above downward. In other words, they are so formed that they will accommodate themselves to the general contour of the uterus, and if tightly applied will hold the organ firmly. If the forceps be snugly applied to a thumb, it is impossible to withdraw it and yet at the same time no pain or unnecessary pressure need be felt. The forceps may be fenestrated if desired.

The traction forceps have the following disadvantages: 1. They sometimes slip off, especially if the uterus be infantile. 2. It sometimes requires both hands to apply them.

In the two years I have, on the whole, found them very satisfactory. Even when dealing with the large, boggy uteri, which bleed so readily, there has been no injury nor subsequent bleeding, save in one instance, where a slight abrasion occurred. Often in such uteri a depression fully 3 mm. is made by the forceps, but in a few minutes all trace of it has disappeared.

When suspension of the uterus is advisable the sutures can be easily placed through the fundus between the blades of the forceps.

Cultivation of Rubber in Ceylon.—The *Journal of Tropical Medicine* states that the cultivation of rubber is being taken up seriously in Ceylon. During October about 60,000 trees of the Para and Castillon varieties were planted in the island.

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THE ROUTES OF INVASION BY THE BACILLUS TUBERCULOSIS.

Just now the prominent question in the pathology of tuberculosis is the relative frequence of infection through food and through inhalation, the importance of bovine tuberculosis as a source of the disease in man being a part of the same problem. We are fairly familiar with the possible ways in which the body may be invaded, but in spite of the enormous material always at our disposal we have still failed to find a way to determine in just what manner each particular case has been infected; and this information is essential for the solution of the problem. Clinical observation can help but little, chiefly because of two factors: the long period of time that may separate the infection of the body and the development of symptoms, and the omnipresence of the tubercle bacilli. Hence, the source of infection of each case must nearly always be uncertain, however strongly a certain origin may be suspected; for example, if a patient develops tuberculosis after drinking milk from tuberculous cows, it is still possible that the disease as manifested may be the result of an infection received years before, and it is highly probable that the patient has been inhaling bacilli from various sources nearly every day.

Anatomic investigations are also inconclusive. Not long ago it was thought proper to consider the largest and most advanced area as the primary site of the infection, and the smaller areas as secondary, and many theories have developed on evidence of this sort, which is altogether worthless. Experimental inoculations have shown conclusively that the place first infected may show but a few minute tubercles, while more remote lesions have advanced to a large size. Another mistake was that of assuming that infection of the tissues must occur at the point where the bacilli entered the body, and that hence a food tuberculosis should show intestinal lesions, and that an inhalation tuberculosis should always start in the lungs. We now know, however, that the bacilli can penetrate the tissues without producing recognizable changes, and may infect first the regional lymph glands; they may even enter the blood directly through the thoracic duct and may produce the primary lesion in any part of the body. It is perfectly possible, therefore, to have a primary tuberculous meningitis, or synovitis, or osteomyelitis, with no other tuberculous lesion existing in any other part of the body; how often such is the case, however, is a question that is most difficult of solution.

New observations from Weichselbaum's laboratory have added difficulties, by showing the possibility of the latent existence of tubercle bacilli within the human body without the production of anatomic changes. The mesenteric, mediastinal, and cervical glands, and also the tonsils were taken from bodies of children dead from acute infections and free from all evidences of tuberculosis. Part of each gland was injected into a guinea-pig and part was studied microscopically. In a considerable number it was found that the glands contained virulent tubercle bacilli, as shown by the infection of the animals, although there were no microscopic evidences of tuberculosis. If tubercle bacilli can live in lymph glands without producing any lesions, it is easy to imagine them passing from gland to gland until they eventually lodge and produce the first tubercles at a point remote from the site of their entrance. Bartels and Spieler have obtained some similar results in a series of interesting experiments, in which they aimed at reproducing as nearly as possible the conditions under which human infections may occur. Guinea-pigs were kept in as normal circumstances as possible in the rooms occupied by consumptives, and they often developed tuberculosis, both of the lungs and of the mesenteric glands; here, also, it was possible in some cases to find tubercle bacilli when there were neither macroscopic nor microscopic lesions. When tubercle bacilli were fed to guinea-pigs, or when the bacilli were simply placed in their mouths, they often developed widespread tuberculosis without any lesions of the mucosa.

Evidently the occurrence of marked pulmonary lesions does not by any means prove that the infection is through inhalation, any more than a predominance of lesions in the mesenteric glands proves that the bacilli have been taken in with the food. There is no certain relation between the point of entrance of the infection and the point of development of the disease. Of great clinical interest in this connection is the possibility of apical tuberculosis of the lungs as a direct extension from the tonsils by way of the cervical lymphatic apparatus. M. Wassermann[1] has particularly urged this, believing that in many cases the bacilli enter the tonsils and pass along the cervical lymphatics (we have shown above that this can occur without the development of recognizable lesions in the lymph glands,) to the parietal pleura over the apex, producing here a pleuritis which involves the visceral pleura, and in turn the lung tissue. He cites cases which he thinks have originated in this way, one of the clinical characteristics being the occurrence of sharp pains under the clavicle and in the shoulder, before evidences of tuberculosis appear. In support of this theory may be mentioned

1. Berl. klin. Woch. Abstract in THE JOURNAL, page 76.

the extremely common occurrence of dense bands of adhesions between the two pleural surfaces at the apex, often associated with definite evidence of healed tuberculosis. It can hardly be denied that this is a possible route for infection, but, again the important and unsolved question is the relative frequence. Probably it is not the usual source of apex tuberculosis, for careful dissections have shown that this most frequently begins in a small branch of the posterior superior bronchiole, and not in the pleural surface.

THE RELATION OF THE HYPOPHYSIS CEREBRI TO ACROMEGALY.

There is no aspect of modern medicine more fascinating than that which deals with those glands which possess a so-called internal secretion. While the physiology of some of these structures is still incomplete, that of others is fairly clear, and the field is one in which pathologic lesions with the concurrent alterations in function may well serve as aids in clearing up obscure physiologic questions. In the case of the thyroid gland, and to a lesser extent in the case of the adrenals, physiology has been aided both by pathology and by experimentation, but in the case of the hypophysis cerebri experimentation is extremely difficult, on account of the anatomic situation of the gland, and we must rely largely on clinical and pathologic data to furnish us with physiologic facts.

The question of the function of the hypophysis cerebri or pituitary body has been investigated to some extent by observing the effect of the injection of extracts of the gland into animals. It can not be said that striking results have been obtained by this method. Substances which raise the blood pressure, and others which lower it, have been isolated, but in no case have lesions in any way resembling acromegaly or giantism been produced. Perhaps such results could hardly be expected if we accept the widely held view that acromegaly is due to a hypersecretion or to a changed secretion of the hypophysis. The disease is generally a chronic one, and it is likely that injection experiments would have to be carried on for months or even for years to imitate the effects of such a hypersecretion. As far as pathologic anatomy is concerned, one fact stands out in the recent studies of acromegaly, and that is the constant presence of some lesion of the hypophysis. While the majority of observers see a causal relation between the enlarged hypophysis and the acromegaly, a fair minority think that the enlargement is an effect and not a cause. This latter view is supported largely on account of the fact that there are a good many cases on record in which a tumor of the hypophysis existed without acromegaly. It is questionable whether this apparent disagreement with the hypersecretion theory of acromegaly can not be shown to be invalid in many, if not in most, of the reported cases of hypophyseal tumor without acromegaly.

Assuming, for the moment, that acromegaly is due to a hypersecretion of the hypophysis, how can we explain these cases of hypophysis tumor without acromegaly? A review of such cases shows at once that some of the so-called tumors are destructive inflammatory lesions, such as gummata or tubercles. In other cases, the growths are metastatic, and these tumors also necessarily destroy the gland substance. The same is true of spindle cell sarcomata and similar tumors which spring from the gland framework and destroy the more important structures. The difficulty arises when we attempt to explain the lack of acromegaly in cases with adenomata of the hypophysis, as this is the lesion most frequently found in latter years in this disease. In some instances, acromegaly is probably overlooked, for we know that there are cases, the so-called *fruste* form of the French, in which the ordinary lesions are very slight in degree. In other cases, the hypophyseal lesion may have occurred in individuals of advanced age.

Cestan and Halberstadt claim that acromegaly does not occur after the age when the periosteum ceases to have marked bone-forming tendencies. In some such cases there is evidence to show that excessive obesity may take the place of the ordinary lesions, a sort of vicarious acromegaly. On the other hand, it is difficult to explain true acromegaly resulting from primary sarcomata of the hypophysis, just as it is difficult to explain a lack of Addison's disease in primary new growths of the adrenals.

There is a good deal of evidence to show that in such cases the tumor cells may take on the function of the gland cells from which they originated. Such a thing has been observed in bile-forming liver tumors, for example. Whether the hypophyseal enlargement is secondary, as Kollavits[1] claims, or whether it is primary, as the majority of observers hold, is not yet satisfactorily settled and more work must be done before we can reach a definite conclusion.

EPIDEMIC CEREBROSPINAL MENINGITIS.

During the month of April and the last week in March the deaths from epidemic cerebrospinal meningitis in New York City have averaged over 100 a week, and toward the end of the month the fatality was rather on the increase than on the decrease. Over 1,000 deaths from the disease have occurred in New York City since the beginning of the present year. It is easy to understand, then, that every effort is justified in preventing any further spread. Accordingly, though the affection has not been proved to be contagious, the New York City Department of Health has announced that hereafter the disease must be reported and that every room in which it has occurred must be disinfected and every patient as carefully isolated as for any of the known virulently contagious diseases.

This does not determine the contagious nature of the

1. Deutsche Zeit. f. Nervenheilkunde, ol. xxviii. No. 1.

disease, but is only an extraordinary precaution adopted in order to try to meet a puzzling dilemma. In New York, so far, medical attendants on those suffering from the disease have not shown any special liability to contract the affection, but this can not be used as an argument against its contagiousness, since a physician in Philadelphia and one in New Haven caught the disease from patients and died. An argument, however, against the ordinary contagiousness of the disease is the fact that many physicians, in the treatment of the affection, have freely tapped the spinal canal and have removed quantities of pus containing the micro-organism that is considered to be causative. Even with the most careful precautions, some of this material has been sure to soil the hands of the operator, and very few physicians are without cutaneous lesions around the finger nails, especially during winter weather, through which, if the micro-organisms were likely to gain an entrance in this way, it would surely have obtained a foothold within the body; yet no such cases have been reported. The subject certainly needs much study. The affection has, however, at present a definite tendency to occur in the crowded portions of cities, and there is every justification for supreme precaution in order to prevent, if possible, its spread, or at least to test the efficacy of thorough disinfection.

In some fifty cases in different hospitals of New York City, diphtheria antitoxin has been used either subcutaneously or by injection into the spinal canal, but few who have watched the results consider that this remedy has produced any beneficial effect. In a smaller number of cases aseptic horse serum has been used in the same way, but with equally futile results. While in some cases the well-known anomalous course of the disease has seemed to justify the thought that some remedial measure, employed just before a change for the better began, was the causative factor in producing this change, larger experience has proved that all the remedial efforts during the present epidemic have added to the chaff and not to the grain of therapeutics. Unfortunately there comes with this the definite announcement that the disease is much more fatal than it was last year, the death rate in most of the hospitals being at least 20 to 25 per cent. greater. Besides, the convalescence of those who recover is, as a rule, much more prolonged than it was last year and the sequelæ are much more serious and give little promise in many cases of ever permitting the patients to be quite themselves again.

THE TREATMENT OF ACUTE HEMORRHAGIC PANCREATITIS.

Our knowledge of diseases of the pancreas, apart from neoplasms, is of comparatively recent origin, but enough has been learned to place them therapeutically in the category of surgical disorders. The etiology of these affections is exceedingly obscure, the causative factors in some instances no doubt being bacterial, while in others they are with even greater certainty chemical. In yet another group of cases, arteriosclerosis and atheroma are the underlying factors. The exciting agents may be conveyed through the blood stream or through the ducts of the pancreas. The inflammation to which they give rise under these circumstances may be hemorrhagic, suppurative or gangrenous. The resulting symptoms are often suggestive of intestinal obstruction, with constipation, severe abdominal pain and distention and vomiting. The expression becomes anxious and pinched, and the skin and conjunctiva may assume a yellowish tint. The pulse is small and rapid, while the temperature is irregular and variable. A tender mass may be palpable in the epigastrium.

The clinical picture is thus not distinctive and the diagnosis is accordingly difficult. When, however, the condition is suspected and its presence can with reasonable certainty be recognized, the only hopeful method of treatment is surgical. A case illustrative of the good results to be obtained from such a course has recently been reported by Mr. T. C. Litler Jones.[1] The patient was a woman, 26 years old, obstinately constipated, who on turning in bed was seized with severe abdominal pain, as "if something had twisted." In a little while vomiting set in, the abdomen became distended, the expression anxious, the mouth dry, the tongue covered with a foul fur. Free fluid was demonstrable in the abdominal cavity and a painful area was present in the epigastrium with localized swelling. The pulse was feeble, fluttering and accelerated, the temperature subnormal. It was thought that perforation of a gastric ulcer had taken place; accordingly, the abdomen was opened and about three pints of bright blood mixed with serum were evacuated. Areas of fat necrosis being observed at the entrance to the lesser sac of the peritoneum, an opening was made through the gastrocolic omentum, disclosing the discolored, edematous and in places hemorrhagic pancreas. A longitudinal incision was made through this organ after the surrounding area had been packed with gauze. The presence of a possible obstructing stone or abscess was looked for, but only a dilated space was discovered by the examining finger. This space was packed with gauze, the end of which was brought out of the abdominal wound, and the latter in turn was closed in its lower two-thirds. The packing was removed after thirty-six hours, when a discharge of clear pancreatic fluid began and continued for a time. Except for an abscess in the abdominal wall, recovery was uncomplicated.

The foregoing case of hemorrhagic pancreatitis is but one of a considerable number that have now been placed on record in which, sometimes after a correct diagnosis, at other times after an incorrect diagnosis, successful operation has been undertaken, whereas merely expectant treatment would in all likelihood have terminated

1. Lancet, Feb. 18, 1905, p. 418.

fatally. Here, as in a number of other conditions, the ground can be taken that the risk of operation is less than the dangers from non-interference. Of course, the chances are better for successful results from surgical intervention the earlier the diagnosis is made, and with this end in view the possibility of pancreatic disease should be considered in any case presenting obscure abdominal symptoms, and especially those of intestinal obstruction not attributable to any obvious condition or to one of the ordinary causes.

TRUTH AND POETRY CONCERNING URIC ACID.

XV.

Despite the discouraging results of the attempts to explain the excess of uric acid in the blood in gout by studies of uric-acid excretion, total nitrogen excretion, and phosphoric-acid excretion, investigators have tried in various other ways to get clues to the explanation of the phenomenon. Some have sought to show that the excretion of uric acid is faulty owing to disease of the kidneys, others that there is a retention owing to the occurrence in the blood either of a form of uric acid unsuitable for excretion or of conditions which are unfavorable to solution of ordinary uric acid and urates, and still others that there is an increased production of uric acid, oxidative or synthetic, owing to the hyperactivity of certain organs. No efforts have been made so far as we know to determine whether or not the destruction of uric acid which normally goes on in the body is decreased, though it is important that we should be definitely informed on this point.

The idea that uric acid is retained in the blood in gout on account of impairment of the excretory power of the kidneys, due to organic or functional disease, has been strongly held by Garrod, by Levison, by Luff[1] and by Strauss,[2] and as strongly opposed by Cantani, by Ebstein, by Pfeiffer, by Schreiber,[3] by Schmoll, by Smith-Jerome and by Reach. Those who favor the view urge (1) that there are periods of diminished uric-acid excretion in gout, followed by periods of increased excretion; (2) that it is rare to find cases of gouty arthritis at autopsy unassociated with disease of the kidneys; (3) that it is common at autopsies on nephritic patients to find joint deposits which have been wholly unsuspected during life, especially in one particular form of kidney disease, namely, granular atrophy; (4) that toxic influences such as lead poisoning and alcoholism stand in an etiologic relation both to gout and to contracted kidney; (5) that uric-acid retention obviously occurs in nephritis and is associated with excess of uric acid in the blood; (6) that in gouty cases, without albuminuria or casts in the urine, defective functioning of the kidney may often be detected by observing beginning hypertrophy of the heart, changes in the eye grounds, nitrogen retention without increase in body weight, slowed excretion of methylene blue and alterations in the molecular concentration of the urine. On the other hand, those who oppose the view maintain (1) that the excess of uric acid in the blood in gout precedes the development of kidney disease and that many gouty patients have normal kidneys; (2) that the disease of the kidneys common in the later stages of gout is not the cause but the effect of the gouty disorder, and (3) that the kidneys in gout are capable of excreting far larger amounts of uric acid than normal if the formation of the substance in the body be markedly increased by thymus feeding. The first objection has been met by Minkowski's assumption that when the kidneys seem normal, in reality a functional disease exists in which the secreting elements of the kidney alone are affected, leading to an increase of the "threshold" for uric-acid excretion; and Strauss has tried to deprive the third objection of its force by bringing the proof that, even in true nephritis, uric-acid excretion may be increased by feeding large amounts of meat extract.

The hypothesis that an excess of uric acid accumulates in the blood in gout, not on account of diseased excretory organs, but owing to its existence in some forms other than the ordinary—in a form, in fact, in which the kidneys can not seize hold of it to excrete it, is an old one; it was suggested as early as 1860 by Parkes, and has since been revived by various physicians. For a time, Pfeiffer held this view, but the evidence he brought in favor of it by means of his so-called "uric-acid filter," has been shown to be invalid. Still, no less a scientist than Minkowski has recently expressed the opinion that uric acid may circulate in the blood in a form which does not appear to be suitable for excretion into the urine, and the possible existence of such conditions should therefore be borne in mind. Others think it less probable that a special form of uric acid exists in the blood than that the conditions of solubility vary; a decreased alkalinity of the blood, for example, being held guilty, by Roberts and others, for uric-acid retention.

In contrast with the above views, in which uric-acid retention is held answerable for the excess of uric acid in the blood in gout, are the speculations which assume that the established excess is the consequence of increased formation of the substance. When such speculations first arose, disease of certain organs—the spleen or the liver, according to the prevailing view at the time of uric-acid formation—was postulated as the cause of the increased production. At the period when uric acid was supposed to be derived from albumin by faulty oxidation, slowing of the metabolic processes in various tissues, it was thought, could account for increased formation in gout; and, later, when the oxidative origin from nucleins had been demonstrated, the excess of uric

1. Luff, A. P.: The Pathology and Treatment of Gout. Brit. Med. Jour., Lond., 1898, i, 150; 1066.
2. Strauss, H.: Pathogenese und Therapie der Gicht im Lichte der neueren Forschungen. Würzburger Abhandl., 1902, ii, 209.
3. Schreiber, E.: Gicht: Ueber die Harnsäure unter physiologischen und pathologischen Bedingungen. Stuttgart, 1899.

acid in the blood was attributed by some to hyperactivity of the bone marrow and muscles, by others to increased destruction of leucocytes and by still others to a generally increased cell destruction in the body. There is no proof, however, of the existence in gout of any of the conditions mentioned and, should they exist, it is not easy to see why their effects should not be neutralized either by increased destruction of uric acid or increased excretion of the same.

The question of an increase of uric acid by synthesis in gout has scarcely yet been put. Wiener suggests it as a possibility, on account of the relation of oxaluria to gout, but no experimental work of any importance in this connection has yet been done.

Finally, since we are totally ignorant of any modification of uric-acid destruction in gout, we can sum up our knowledge concerning the cause of uric-acid excess in the blood by saying that it is not yet wholly clear, but that probably several factors are variably concerned, and that none of the factors alone can explain a permanent excess without the assumption of a pathologic retention, for otherwise equilibrium would always be restored by increased excretion.

SANITARY CONDITIONS IN THE BAHAMAS.

The Geographical Society of Baltimore two years ago undertook a scientific expedition to the Bahamas, the islands off the Florida coast which are owned by Great Britain. The report of this expedition has recently been published and that portion entitled "Sanitary Conditions in the Bahama Islands," by Dr. C. A. Penrose, is of especial interest. He states that as different islands are inhabited by descendants of different races it is possible to study racial peculiarities under similar tropical conditions and varying degrees of civilization. In certain islands the whites outnumber the negroes, while in others the negroes are in the majority; and between these two extremes mixtures of black and white blood can be noted. From a racial and scientific standpoint this affords an excellent opportunity of studying the immunity, or lack of it, of the whites, blacks and mulattoes and of contrasting the one with the other. Dr. Penrose describes in detail the equipment and method of work among the natives. He states that by far the greater proportion of diseases are of the commoner varieties. Tuberculosis on the islands, he found, is generally of the fibroid or "chronic" type, and he did not see a case of the so-called "galloping consumption." This fact should be given consideration as the Bahamas have frequently been recommended as a health resort, especially for pulmonary conditions. Rheumatism and lumbago and, at certain seasons, malaria are prevalent diseases. Everywhere throughout the islands he found diseases of the eye. He found several cases of congenital pigmentary retinitis and choroiditis with optic nerve atrophy, considered by the authorities to be due to consanguineous marriages. Leprosy is very common. With the exception of a lazaretto at Nassau, the government has made no provision for these unfortunates. In studying the cases of degeneracy on the islands, Dr. Penrose came to the conclusion that it is largely caused by intermarriage. A genealogic chart is included in the report which illustrates this very clearly. The family in question includes among its members idiots, lepers, deaf mutes and blind. Dr. Penrose is of the opinion that unless new blood is introduced into the islands succeeding generations will sink to even a lower state of degeneracy, and that the colony will ultimately exterminate itself by intermarrying. He advises empowering the authorities to remove and to isolate all lepers and all persons whom they have reason to suspect will develop leprosy; to confine all idiots and imbeciles in an asylum, and to introduce new blood among the inhabitants. The government supports a well-equipped hospital at Nassau; there are no private wards and treatment is free, but in spite of this many of these people are suffering for lack of medical attention.

SKIPPING-ROPE FATALITIES.

Even among the apparently milder forms of children's athletics there are some that are capable of producing injury or are even deadly at times. The newspapers have recently reported the death from heart failure of three children in a skipping-rope competition and a little later another case of fatal appendicitis from the same cause was also reported in the press dispatches. Such deaths are not so rare and it would seem a proper subject of inquiry just how far and why this particular form of exertion is more dangerous than other similar pastimes indulged in by young children so commonly at this season of the year. In some respects it would seem an almost ideal exercise in moderation, but we do not hear so often of death occurring in other games involving equal or even greater, though more varied, muscular exertion. All excesses and overexertion should, of course, be discouraged, but if there is any special peril in the skipping-rope exercise *per se*, it certainly should be discouraged as a child's pastime.

THE CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION.

The Council on Medical Education of the American Medical Association held the first of its annual conferences with the various state and territorial licensing and examining boards, and other bodies interested in medical licensure and medical education, at Chicago last week. The governors of twenty-nine states appointed representatives of their respective examining boards, seventeen states being represented. Representatives were also present from both of the college associations and from the United States Army and the Marine-Hospital Service, the American Medical Association being represented by the members of the council and by the president-elect, Dr. Lewis S. McMurtry. The subjects that came up for discussion were uniform entrance requirements, uniform college curricula, a uniform standard for recognition of medical colleges by all the states, the relation between the college of liberal arts and the medical school, and reciprocal registration. The importance of reciprocity among the states was emphasized by the earnestness with which this subject

was discussed. Especially noteworthy was the discussion on the question of how the American Medical Association can co-operate with these various bodies in elevating and controlling medical education. All the representatives were unanimous in the opinion that the association, through the Council on Medical Education, is pre-eminently fitted for bringing together the various bodies that are so earnestly working, each in its own way, to raise the standard of medical education. A full report of the proceedings of the conference will be published in The Journal later.

Medical News

ALABAMA.

Isolation Hospital Ready.—The new isolation hospital for Montgomery, consisting of five separate buildings, commodious and thoroughly equipped, is ready for formal transfer to the city.

Personal.—Dr. Coleman D. Gay has been elected a member of the common council of Lineville.——Dr. Gilbert B. Wimberly, Reform, missed his footing while attempting to board a street car in Mobile and fell, cutting a gash in his chin and knocking out a tooth.

Commencements.—The thirty-ninth annual commencement exercises of the Medical College of Alabama were held at Mobile, April 7. Dr. George A. Ketchum read the report of the faculty, degrees were conferred on a class of 31 by Hon. J. A. Abercrombie, president of the University of Alabama, and Lieut.-Gov. Dr. Russell McW. Cunningham, Ensley, delivered the annual address on "The Doctor—His Qualifications, His Work and His Reward."——Birmingham Medical College held its eleventh annual graduating exercises April 3. Degrees were conferred on a class of 14 by Dr. Benjamin L. Wyman, dean of the faculty; Dr. Edward H. Sholl delivered the charge to the class, and Dr. Harris A. Gant, Jackson, Miss., delivered the annual address on "The Importance of Medical Organization, Which Leads to Higher Medical Education." Lieut.-Gov. Cunningham also addressed the class.

CALIFORNIA.

Banquet President.—Dr. Frank L. Adams, Oakland, president of the Medical Society of the State of California, was the guest of honor at a banquet, April 8, at the Hotel Metropole, given by the Alameda County Medical Society.

Hospital Notes.—The new hospital at the Odd Fellows' Home, Oroville, was dedicated April 7.——Providence Hospital, Oakland, was opened with formal ceremony, April 5, just one year after its dedication.——The annex to the Los Angeles County Hospital, consisting of two ward buildings, an isolation hospital and a power house, has been completed and turned over to the authorities.

Personal.—Dr. Frederick H. Huning, Ventura, has been appointed physician of Ventura County.——Dr. Irzael M. Proctor, Petaluma, has resigned as president of the local health board. ——Dr. Henry C. Brown, San José, has returned after a ten months' stay abroad.——Drs. Franklin M. Seibert, W. Lee Norris and I. R. Goodspeed have been appointed members of the San Mateo Board of Health.——Dr. Gerald J. Fitzgibbon has returned to San Francisco after a six months' tour abroad.

The Governor's Veto.—Governor Pardee's message which accompanied his veto of the antivaccination bill recently passed by the legislature, which has been commended in The Journal, contains the following paragraphs which are noteworthy for the clear expression of the principle involved in the vaccination question:

> Before the discovery and application of vaccination by the immortal Jenner, smallpox was nearly universal, and it was considered to be a grave disadvantage not to have had the disease in childhood. Severe and terrible epidemics have gradually but surely become things of the past, except when from any cause vaccination has been neglected. That accidents of many kinds, even death, may follow vaccination, is not and can not be denied. But that the number of these accidents, compared to the many, many thousands—even millions—of times which this beneficent procedure is practiced is anything but infinitesimal is not borne out by the facts. When vaccination is compulsory, and the law is well administered, there is but little smallpox; so little that those protected by vaccination soon lose their fear of the dread disease; and turning our attention to the lesser evils of the vaccine virus, many of us conjure a fear, not warranted by facts, against the very thing that saves us from a much worse fate. This, I think, is what has called into being the bill which I now return to you unsigned. Were it to become a law, there can be no doubt that vaccination would soon fall into practical disuse; and thus would be prepared among our children (not mine, for they shall always be protected) a field for smallpox to fairly revel in.

COLORADO.

Hospital Sold.—St. Luke's Hospital, Leadville, has been purchased by a syndicate of physicians and will be remodeled and enlarged.

Goes to Penitentiary.—Dr. Emmett E. Sonnanstine, Colorado Springs, was taken to Canon City, April 12, to serve a term of five to six years in the state penitentiary for a statutory offense against a young girl.

State Board Organizes.—The State Board of Health met at Denver, April 10, and organized. Dr. William H. Davis, Denver, was elected president; Dr. George C. Steinen, Denver, vice-president; Dr. Frank N. Carrier, Canon City, treasurer; Dr. Hugh L. Taylor, Denver, secretary, and Dr. Minnie C. T. Love, Denver, chairman of the executive committee.

GEORGIA.

Personal.—Dr. Fred Grady Hodgson has been appointed to the medical staff of the Wesley Memorial Hospital, Atlanta.

Applies for Charter.—The Atlanta Society of Medicine filed application for a charter, April 5. The incorporators are Drs. Alexander W. Sterling, Luther P. Stephens, Miller B. Hutchins, Walter B. Emery, Emil Van Goidtsnoven and E. Bates Block.

Anti-Tuberculosis Commission's Work.—The anti-tuberculosis commission appointed by the governor met at Atlanta, April 18. Dr. Bernard Wolff, Atlanta, the secretary, has sent out blanks to all the physicians of the state. To these about 400 replies had been received which show that there have come under the observation of these physicians in the last year 1,555 cases of tuberculosis, and that about 50 per cent. of the cases have proved fatal. There have been recoveries in about 9 per cent. of the cases. It is estimated that there are about 10,000 cases of tuberculosis in the state.

ILLINOIS.

Personal.—Drs. Roy F. Rogers, Shelbyville, and Emil Ries, Chicago, have gone to Europe.

Change in Examination Date.—The examination for internes of the Illinois Charitable Eye and Ear Infirmary, Chicago, will be held May 8 and 9, at 2 p. m., instead of May 3 and 4.

Society Elections.—Whiteside County Medical Society, at its meeting in Sterling, April 12, elected the following officers: Dr. Frank Anthony, Sterling, president; Dr. Charles A. Griswold, Fulton, vice-president; Dr. Clarence M. Frye, Rock Falls, secretary, and treasurer, Dr. John F. Keefer, Sterling.——At its fifth anniversary meeting, held April 20, Jo Daviess County Medical Society elected the following officers: President, Dr. Alfonso C. Czibulka, Warren; vice-president, Dr. Thomas J. Stafford, Stockton; secretary and treasurer, Dr. Domer G. Smith, Elizabeth, and censors, Drs. Hugh F. Gunn, Galena, H. B. Gratiot and Charles E. Wright, Scales Mound.

Legislative News.—Senate bill No. 311, the osteopathic measure described in the last issue of The Journal, passed the senate April 20 by a majority of one. The bill was reported to the house April 21, and a motion was made that it be advanced to second reading without reference to a committee, but through the efforts of Representative Smejkal this was lost. The bill was ordered to a first reading, but it had not been read up to April 25. After the first reading the bill will be referred to a committee. The optometry bill (Senate No. 237), and the osteopathic house bills (Nos. 228 and 229), are still in the judiciary committee of the house. The antivivisection bill (Senate No. 271) is in the license committee of the house. The senate bills, unpassed (Nos. 169 and 292), are still on third reading in the senate. The general assembly will adjourn early in May. The representatives of the medical profession in Springfield are hopeful that none of the osteopathic optometry or antivivisection bills now pending will find a place on the statutes of 1905.

Chicago.

The Week's Mortality.—During the week ended April 22, 558 deaths occurred, 10 more than for the preceding week, but 85 less than for the corresponding period of 1904. Consumption caused 78 deaths; pneumonia, 72; heart diseases, 45; nephritis, 40; cancer, 32; violence, 28; bronchitis, 25; measles, 13; diphtheria, 8; whooping cough, 8; scarlet fever, 3, and smallpox, 2.

New Hospitals.—The first spadeful of earth in the excavation for the new Michael Reese Hospital was turned April 21, by Isaac Greensfelder, who performed the same office when the original building was commenced, a quarter of a century ago. The new hospital will cost $475,000.——Plans have been prepared for the new Swedish-American Hospital to be erected at Green and Sixtieth Streets at a cost of $100,000.

Consumption Again Leads.—After a briefer term than usual, pneumonia again yields to consumption as the principal cause of death. During the week there were but 72 deaths reported from the former and 78 from the latter disease. Between Nov. 1, 1904, and April 22, a total of 2,489 deaths were reported from pneumonia and 1,583 from consumption—these figures showing 556 fewer pneumonia and 75 more consumption deaths than for the previous corresponding pneumonia season, when the totals were 3,045 pneumonia and 1,513 consumptive deaths. The decrease of pneumonia has been the chief factor in the reduced general mortality rate of this period. During the 175 days ended April 23, 1904, there were 14,741 deaths from all causes reported; during the corresponding period ended April 22, 1905, there have been 13,387 deaths from all causes reported—or 1,454 fewer, of which number 556 were of the pneumonia deaths.

KANSAS.

Personal.—Dr. William S. Lindsay, Topeka, has been elected dean of the Kansas Medical College; Dr. William E. McVey, Topeka, has been elected secretary of the college, vice Dr. Robert S. Magee, Topeka, resigned.

Commencement.—The fifteenth annual commencement exercises of the Kansas Medical College, Topeka, were held April 18, when eight graduates received diplomas from the president of Washburn University, Rev. Norman Plass, D.D. The faculty address was delivered by Dr. William F. Bowen.

Communicable Diseases.—During March 137 cases of tuberculosis were reported in the state, and 86 deaths; 166 cases of scarlet fever, with 9 deaths; 1,123 cases of smallpox, with 5 deaths; 63 cases of diphtheria, with 6 deaths, and 97 cases of typhoid fever, 75 of which were in Kansas City, with 14 deaths.

Fraud Order Issued.—The postmaster general has directed the issue of a fraud order against the Physicians' Protective Association and the United States Protective Association of Kansas City, Mo., and Coffeyville, Kan., for conducting a fraudulent business. The concerns are identical and advertise as "sure collectors" of old accounts due physicians.

Increase in Epidemic Disease.—The reports received for March indicate an increase of all epidemic contagious diseases, particularly smallpox, and the State Board of Health urges that disinfection of all infected places and things be thorough and complete, that the epidemic may be controlled and not break out again on the arrival of cold weather next fall.

MARYLAND.

Will Maintain Hospital.—The Washington County commissioners have agreed to levy $2,000 annually in perpetuity for the maintenance of a hospital at Hagerstown.

Endows Room for Poor Male Patients.—Mrs. James Wallace has offered to equip a room in the proposed Washington County Hospital and endow it for poor male patients.

Smallpox in Hagerstown.—Smallpox has appeared in six families in Hagerstown. The houses have been closely quarantined, with guards to watch them day and night. Dr. Fulton, secretary of the State Board of Health, believes the disease was brought from Virginia by a cigar salesman.

Baltimore.

Personal.—Dr. L. McLane Tiffany is at his summer home, Mount Custis, in Accomac Co., Va.——Dr. William H. Baltzell spent the Easter holidays in Jerusalem.——Dr. Mattie B. Ingold, a graduate of the Woman's Medical College and for seven years a medical missionary at Seoul, Korea, has returned to America on a visit.

Physicians Approve Sewage Plan.—As a result of a conference, a committee of medical men has sent out a strong appeal to the profession to assist in securing the passage of the sewerage loan on May 2. The paper is signed by Drs. Isaac E. Knison, John S. Fulton, William H. Welch, William Osler, Hugh H. Young and many others.

Hospital Notes.—There were 2,001 cases treated at St. Joseph's Hospital last year.——The Franklin Square Hospital, belonging to the Maryland Medical College, is undergoing reconstruction. A fourth story and also two large four-story wings will be added, making a building 84 by 100 feet. The capacity will be increased from 40 to 100 patients. About $30,000 will be expended.——The Board of Public Improvement has approved the city council ordinance appropriating $25,000 for the construction of a hospital for infectious diseases, to be located on the grounds of the city almshouse.

Aims of Medical Inspection of Schools.—Dr. R. Tunstall Taylor of the Hospital for Crippled and Deformed Children summarized the aims of public school inspection before the teachers' institute as follows:

To detect infectious and contagious diseases and prevent epidemics in schools.
To rectify, as far as possible, physical ailments in the children which cause frequent absence from school.
To detect imperfect sight and hearing.
To promote cleanliness.
To note limping and call attention to detrimental habits in standing and walking.
To detect the causes and aid the prevention and correction of spinal deformities.

Diphtheria Statistics.—During November and December, 1904, the weekly cases of diphtheria reported to the Bureau of Health were considerably in excess of those of the preceding months and also of the same months of the two preceding years. This led the authorities to believe that in some quarters the condition was unusual and presaged an alarming epidemic. Comparative studies of the winters 1902 and 1903, 1903 and 1904, and 1904 and 1905 were made. The results of these studies show that for the winter of 1902-03, during the four months of November, December, January and February, there were reported 798 cases, with 127 deaths, a mortality of 16 per cent. During the same months of the following winter, 1903-04, there were reported 1,254 cases, with 204 deaths, a mortality of 16.3 per cent., while for the same four months of the present winter there were reported 1,517 cases, and 193 deaths, equivalent to a mortality of 12.7. While the number of cases for the four months of this winter was 21 per cent. greater than that of the corresponding period of last year and 90 per cent. greater than the same period in 1902-03, the number of deaths this year was 5 per cent. less than in last year, and only 52 per cent. greater than that recorded for 1902-03, notwithstanding the fact that the number of cases was almost 100 per cent. greater than in that winter. From 1902-03 to 1903-04 the increase of cases was 67 per cent. and that of deaths 61 per cent., so that a fair parallel between the two increases existed, but from 1903-04 to 1904-05 the increase of cases was 21 per cent., while the deaths diminished 5 per cent. The records of the Municipal Hospital for the same period exhibited a fair degree of correspondence with the foregoing figures for the city as a whole, as shown by the following:

Nov. 1 to March 1.	Cases admitted.	Deaths.	Mortality, per cent.
1902-03	190	36	18.9
1903-04	276	62	22.5
1904-05	357	46	12.9

No single satisfactory reason is given for this. It may be due to several causes. The disease this year may have been of a milder type than usual, a deviation not unknown to epidemiologists, and a condition that is most favorable to its wider dissemination, for mild cases rarely receive the care given to severe ones, or the care warranted by their true nature. The use of antitoxin, both as a prophylactic and therapeutic agent, is growing in favor, as is shown by the following report of the antitoxin dispensed by the Health Bureau:

	Nov.	Dec.	Jan.	Feb.	
1902-03	324	433	319	319	Total—1,395 doses
1903-04	605	1,081	508	731	Total—2,925 doses
1904-05	1,444	1,990	1,676	961	Total—6,071 doses

It has also been shown that careful bacteriologic examinations of inflammatory conditions of the throat show many apparently benign conditions to be etiologically of a serious nature, and the careful work of the school instructors has resulted in the discovery of a number of mild cases of diphtheria that would otherwise have been unrecognized. Whatever the explanation may be, it is gratifying to know that there have been many more cases during the four winter months of this year than in the corresponding period of the preceding two years, but that the death rate is almost 25 per cent. less than those recorded for other years.

MASSACHUSETTS.

Food Adulteration Prosecutions.—Besides the usual number of prosecutions for milk adulteration, there have been detected and fined recently in Boston several oyster dealers, who were using borax and boric acid as preservatives.

Would Abate Spitting Nuisance.—The United Improvement Association of Boston is seeking to assist in abating the nuisance of spitting in public places. The members feel that the present fine of $100 is too high and are urging that a fine of $5 or $3 would be more efficient, as there would be more prosecutions.

Boston Disease and Deaths.—For the 14 weeks ended April 22 there were 3,159 deaths reported in Boston, as against 3,150 in the corresponding period last year. There were reported 434 cases of diphtheria, with 54 deaths; 396 of scarlet fever, with 18 deaths; 135 of typhoid fever, with 22 deaths; 132 of measles, with 6 deaths; 645 of tuberculosis, with 354 deaths, and 6 of smallpox. There were 554 deaths from pneumonia, 6 from whooping cough, 355 from heart disease, 92 from bronchitis, and 42 from marasmus. Of the decedents 485 were under 1 year, 697 under 5 years and 895 over 60 years.

Personal.—Dr. William G. MacDonald has been appointed medical examiner of Suffolk County to succeed Dr. Frank W. Draper, resigned.——Mayor Collins has reappointed Dr. Samuel H. Durgin a member of the Boston Board of Health.——After 20 years of service Dr. Edward B. Lane has resigned as superintendent of the Boston Insane Hospital. His successor is Dr. William Noyes, who has been assistant superintendent and in charge of Pierce Farm.——Dr. George E. Maxfield has been appointed first assistant in the men's department, and Dr. Franxis X. Corr assistant physician in the women's department.

MISSOURI.

St. Louis Graduates.—St. Louis College of Physicians and Surgeons held its annual commencement exercises April 14, when a class of 29 was graduated.

Neurologists Form Society.—A number of St. Louis physicians met February 27 and organized the St. Louis Neurological Society. Dr. Frank R. Fry was elected president, and Dr. Given Campbell, Jr., secretary.

St. Louis Hospital Improvements.—The new City Hospital pavilions are nearly ready for occupancy.——The new St. Ann's Infirmary, on Union and Bell Avenues, is nearly ready for occupancy.——Of the $100,000 required to build two new wings to the Jewish Hospital, $80,000 has been received and work will begin at once.

Personal.—Dr. Thomas E. Graham, Albany, was appointed attending physician at State Hospital for the Insane No. 2, St. Joseph, vice Dr. William L. Whittington, St. Joseph.——Dr. St. Elmo Sanders has been confirmed by the Kansas City common council as city physician.——Dr. Daniel McSwegan has returned from Europe and has located at Excelsior Springs.——Dr. Horace M. Julian, St. Louis, was injured in a runaway accident, April 13.

St. Joseph Commencements.—Ensworth Medical College graduated a class of 22 at its twenty-eighth annual commencement exercises, held April 20. The address was delivered by President Green of William Jewell College, Liberty, Mo.—A class of 17 received diplomas at the commencement exercises of Central Medical College, held April 17. The faculty address was given by Dr. Arthur B. McGlothlan, and Dr. Thompson E. Potter, president of the college, conferred the degrees.

NEW YORK.

Will Extend Term.—The faculty of the medical department of the University of Buffalo has resolved to lengthen the annual term from seven to eight months.

No Cause of Action.—In the case of Mary Smith vs. Dr. Martin Cavana, Oneida, in which malpractice was alleged and $3,000 damages asked, the jury found for the defendant with a verdict of "no cause of action."

Legislative News.—The assembly recommitted the three bills at the request of the State Health Bureau. They are very drastic, as they compel all plans for water supplies, as well as sewage systems of cities and villages, except New York City, to be submitted to the Health Bureau for its approval.

Did Not Report Contagious Disease.—Dr. Francis M. Rich, Buffalo, was fined $10 and $2 costs for violating the city ordinance requiring physicians to report to the Health Department all cases of contagious diseases under their care. Dr. Rich claimed that he had twice called up the Health Department to make the report, but could get no answer.

Hospital Gifts.—An anonymous benefactor has given $10,0[illegible] to the Titusville Hospital endowment fund.——Mrs. Emily H. Grummond has given a children's ward to the Binghamton City Hospital, as a memorial to her late husband.——Remington Vernam has donated five lots at Arverne, L. I., as a site for a proposed emergency hospital.——The Cohoes Hospital fair netted $2,230.17 for the institution.

Health Board Changes.—Dr. Sylvester C. Clemans, city physician of Gloversville, resigned.——Dr. Charles V. Patchin appointed to Dansville village and town board of health.——Dr. Roy B. Dudley appointed health officer of Clinton.——Dr. Christian C. Vedder appointed health officer of St. Johnsville.——Dr. Frank W. Green appointed health physician of Sinclairville, vice Dr. George F. Smith, resigned.——Dr. Charles W. Shaver appointed health officer of Camden.——Dr. Andrew J. Martin appointed health officer of North Tonawanda.——Dr. Jeremiah H. Sullivan appointed health officer and registrar of Charlotte.

Personal.—Dr. Louis A. Weigel, Rochester, who was severely burned by continuous exposure to *x*-rays, has returned from Jamaica and will resume practice. He suffered amputation of the right hand and of part of the left hand.——Dr. Henry C. Baum, Syracuse, assistant surgeon of the Third Battalion, N. G., N. Y., has applied for retirement after continuous service of twenty-five years. He has been succeeded by Dr. Reeve B. Howland, Elmira, first lieutenant and assistant surgeon of the Thirtieth Separate Company, N. G., N. Y.——Dr. William H. Marcy has been chosen surgeon of the Buffalo fire department as the result of a civil service examination. The position is for life and the salary is $1,500 per year.

New York City.

Personal.—Dr. Antonio Fanoni, of New York, has been made a knight (Cavaliere) of the Italian Order of the Crown.

Contagious Diseases.—There were reported to the Sanitary Bureau for the week ended April 15, 473 cases of measles, with 9 deaths; 372 cases of tuberculosis, with 175 deaths; 325 cases of diphtheria, with 31 deaths; 260 cases of scarlet fever, with 11 deaths; 182 cases of cerebrospinal meningitis, with 117 deaths; 16 cases of typhoid fever, with 6 deaths; 180 cases of chicken-pox, and 2 cases of smallpox, with 1 death.

Hospital Notes.—A slight fire occurred in the Metropolitan Hospital, which was controlled without much difficulty or serious loss.——A new emergency hospital has been opened at Coney Island, which is under the charge of Dr. John J. Dooling, Brooklyn.——Plans have been filed with the Building Bureau for the enlargement of the New Amsterdam Eye and Ear Hospital by annexation of the adjacent building.

A Lower Death Rate.—The figures given out by the Health Board for the week ended April 20 show a death rate of 4.06 points lower than for the corresponding week of last year. There were 248 deaths from pneumonia, while for the corresponding week of 1904 there were 409 deaths from this cause. In the week ended April 8 there were 232 deaths from pneumonia, while in the corresponding week of 1904 there were 429 deaths.

New Training Schools.—Through the efforts of Dr. Abraham Mayer a new training school for nurses will be established in connection with the Lebanon Hospital. The building will accommodate about 75 nurses and will cost $50,000.——A training school for nurses has been started at the new French Hospital. Applicants are not required to speak French, but will receive instruction in the language as a part of their course. The hospital has a capacity of about 130 beds, including private rooms.

Hospital Fund Divided.—The distribution of the hospital fund, after deducting $10,000 for gifts to particular hospitals and $6,000 to meet past expenses, has been made by the committee of the Hospital Saturday and Sunday Association among 38 institutions. This fund amounted to about $76,000 and among the chief beneficiaries were: Montefiore Home and Hospital, $7,600; Mt. Sinai Hospital, $5,059; St. Luke's Hospital, $4,370; German Hospital, $4,397; Roosevelt Hospital, $3,941; Nursery and Children's Hospital, $3,879; Lebanon Hospital, $3,682; Lincoln Hospital and Home, $3,654; Ruptured and Crippled Hospital, $3,569, and Post-Graduate Hospital, $3,000.

Cerebrospinal Meningitis.—The death rate from this disease now averages about 15 a day. The number of deaths from January 1 to the present time is 1,006, while for the whole of last year it was only 1,411. The commission appointed to investigate the spread of this disease, while it does not take on itself to advise the Board of Health, believes that the communicability of cerebrospinal meningitis has been sufficiently well established to warrant isolation. Henceforth such disease must be reported to the Health Department. At the regular meeting of the Academy of Medicine, April 20, Dr. George L. Peabody read a paper on the treatment of cerebrospinal men-

ingitis by diphtheria antitoxin, and the statement was emphatically made that this treatment was good for nothing. Gouverneur Hospital is the only hospital of importance in New York City that favors its continuance. Dr. Peabody's opinion was heartily indorsed by Drs. Francis P. Kinnicutt, Presbyterian Hospital; Henry P. Loomis, Bellevue Hospital; William K. Draper, Bellevue Hospital; Richard Van Santvoord, Harlem Hospital, and William M. Leszynsky, Lebanon Hospital.

PENNSYLVANIA.

Personal.—Dr. William B. Ulrich, ex-president of the state medical society, is seriously ill at his home in Chester, with influenza.

Memorial to Dr. Drown.—Lehigh University, it is said, proposes to erect a memorial hall to cost $80,000, to the memory of the late president of the university, Dr. Thomas Messenger Drown, who died last year.

Health Bill Approved.—The bill granted to those having charge of the public health and sanitation in Philadelphia, the power to make rules and regulations governing the care and control of persons suffering from cholera, typhoid fever, yellow fever, typhus fever, scarlet fever, relapsing fever, smallpox, chicken pox, diphtheria, diphtheritic croup, membranous croup, cerebrospinal meningitis, measles, mumps, whooping cough, tuberculosis, pneumonia, erysipelas, puerperal fever, plague, trachoma, leprosy, tetanus, glanders, hydrophobia and anthrax, was approved by the governor, April 20.

Right to Operate Without Consent.—The suit of $20,000 against Dr. Daniel P. Maddux of the Chester Hospital resulted in the failure of the jury to agree after 24 hours' deliberation. The plaintiff entered suit after the death of his 15-year-old daughter, who died at the Crozier Hospital, Chester, 15 hours after she had been operated on for appendicitis by Dr. Maddux. The plaintiff contended that the operation had been performed against his express wishes. The defense produced evidence showing that the case was one of life or death, and that the operator was justified in taking the chances he did, in the endeavor to save the girl's life. It is said that the jury stood five for the plaintiff and seven for the defendant.

Hospital Examinations.—The Allegheny General Hospital will hold competitive examinations for resident physicians in the civil service rooms, City Hall, Philadelphia, and also in the Y. M. C. A. rooms, Pittsburg, Pa., April 29, at 9 a. m.——The City Hospital, Wilkesbarre, will conduct its examinations for resident physicians at the office of the secretary, Dr. Lewis H. Taylor, April 29.——The Hamot Hospital, Erie, will hold its examinations for internes May 15. Applications by letter with two letters of recommendation should be sent to Dr. F. A. Goletz, Erie, Pa.——The Western Pennsylvania Hospital, Pittsburg, will hold its examinations at the hospital April 29. ——The Harrisburg Hospital has arranged to examine applicants for resident physicians May 29.

Baby Farm Bill Vetoed.—The bill providing that any person who shall in cities of the first class, take into his custody for hire or reward, a child or children under the age of 3 years without having first obtained a license in writing from the Department of Public Health and Charities, shall be guilty of a misdemeanor punishable with imprisonment for one year. This bill the governor vetoed. He says that no doubt the bill has a worthy purpose which it is intended to serve, but it is not clearly defined. The terms in which the bill is drawn will prevent a mother from entrusting a child to a nurse or from sending it out to the park with a servant. The custody of the child may be given by the parents to other persons for many purposes besides that which is known in popular parlance as "baby farming."

Philadelphia.

Memorial to Dr. Craig.—In response to the universal sympathy caused by the death of Dr. A. B. Craig, a committee has been appointed to receive subscriptions for a memorial. It is proposed to erect a suitable tablet to his memory in the new Jefferson Hospital.

Personal.—Dr. George Y. MacCracken sustained a fracture of his right patella April 18. He had just recovered from a similar injury due to a fall on the ice nine weeks before.——Dr. Robert N. Willson, instructor in physical diagnosis at the University of Pennsylvania, has been elected a lecturer on physical hygiene at Union Seminary, New York.

Research Students.—A department of research is in process of development in Jefferson Medical College. The organization is under the supervision of Dr. W. M. Late Coplin, professor of pathology. The plan of organization contemplates the appointment of a small number of selected students who will be assigned special advanced work in the laboratories, clinics and wards of the hospital during the summer vacation. The appointees will be known as special research students, and for the present year will not exceed six or eight in number. It is hoped that this number may be increased after the completion of the new hospital. The selection of the men will be based on college and laboratory standing, availability and preliminary training.

Health Report.—The total number of deaths reported for the week reached 415. This is 62 less than the number reported last week, and 140 less than the number reported for the corresponding period of last year. There is also a decrease in the number of contagious disease cases reported. Typhoid fever, however, is still prevalent, though the malady is of a mild type, and the mortality therefrom comparatively low. The principal causes of death were as follows: Typhoid fever, 19; tuberculosis, 60; cancer, 15; paralysis, 11; heart disease, 54; acute respiratory disease, 48; enteritis, 7; appendicitis, 8, and Bright's disease, 45. The total number of contagious disease cases reported aggregated 258, with 22 deaths, as compared with 246 cases and 35 deaths for the preceding week.

Need Asylum for Criminal Insane.—At the meeting of the Medical Jurisprudence Society Dr. H. Hendrie Lloyd read a paper on "The Need of an Asylum for the Criminal Insane." He argued that such unfortunates require special treatment, and should not be confounded with the insane criminal class. In the former class he said insanity is the chief factor, while in the latter criminality is the chief factor. He argued that the state might profitably differentiate between innocent insane, the criminal insane, and the insane criminal, and provide separate asylums for each class. The verdict of advanced thought is that the criminal insane and insane convicts should not be permitted to associate with the innocent insane, neither should the former class be treated in the same asylum. The insane convict requires and should be given the same prison discipline as that of the penitentiaries. The object of the Pennsylvania law regarding the insane is in the main just and humane. The records show that there are 400 criminal insane in asylums, almshouses and penitentiaries throughout the state, or, in other words, a number sufficient to warrant a separate asylum being established for their care and treatment. The following officers were elected: President, Dr. Henry W. Cattell; vice-presidents, Drs. Adolph Eicholz and Dr. W. M. Late Coplin; secretary, Dr. Henry Leffmann, and treasurer, Dr. Paschal H. Coggins.

GENERAL.

American Gynecological Society.—A change of date has been made, so that this body will hold its annual meeting May 25-27, instead of two days previously.

International Association of Climatologists.—This body will hold its annual meeting in Portland, July 11-14. The secretary is Mr. Charles H. Péck, 259 William Street, New York City.

Plague in the Philippines.—According to the *Public Health Reports*, sporadic cases of plague are found in Manila on an average of one a week. One case was reported recently from Cebu.

Warning Against a Collector.—THE JOURNAL has again received complaints that Frank B. Kennett, against whom its readers were warned Dec. 24. 1904, page 1979, is again endeavoring to obtain subscriptions in Kansas, claiming to be an authorized agent. This individual is not authorized to represent THE JOURNAL, nor to collect money, and we once more give warning not to pay money on account of THE JOURNAL or of the American Medical Association to any one who can not show proper credentials.

Memorial to Finsen.—The committee authorized to receive subscriptions in America for the Niels Finsen memorial fund desires to announce that the collections will be closed in this country by June 1, 1905. Those desirous of contributing to a fitting memorial to the late distinguished Norwegian scientist may send their contributions to Dr. James Nevins Hyde, 100 State Street, Chicago. The nature of the memorial has not yet been decided, but it is fair to infer from the custom of the Danish people with regard to others of its great men that a monument will perhaps be erected in Copenhagen.

CANADA.

Personal.—Dr. F. S. Nicholson, surgeon-major Nebraska National Guard, is visiting in Toronto. Dr. Nicholson is a graduate of Trinity University, and has just completed a post-graduate course in the Army Medical School, Washington, D. C.

Postgraduate Work at McGill.—In the tenth regular course of postgraduate medical instruction to be given at McGill University during June, the faculty will depart somewhat from previous lines and will make each branch optional, attaching thereto a special fee.

The Samaritan Women's Hospital, Montreal.—At the eleventh annual meeting in Montreal last week, the surgeon-in-chief, Dr. Lapthorn Smith, presented the annual report. Of the 146 women admitted during 1904, 28 received medical treatment and the remainder surgical treatment. There were fifty major operations, with but one death.

Ontario Statistics for March.—The deaths throughout the province of Ontario during March numbered 2,417, making a mortality of 14.9 per 1,000 of the population. There is a marked reduction in smallpox, scarlet fever and diphtheria. There were 16 cases of smallpox to 48 last year; scarlet fever, 168 cases to 234 last year; diphtheria, 223 to 267 for the same month during 1904. Tuberculosis caused 200 deaths the same as in March, 1904.

Medical Matters in the Militia.—Authority has been granted for medical attendance to warrant officers, non-commissioned officers and men of the headquarters command and district staffs, ordnance stores corps and their families at public expense, in Nos. 4, 5, 8 and 12 military districts, in which there are no permanent army medical corps, the fees for such to be $1 per visit per diem, and fifty cents for the second and each subsequent visit paid on any one day.

Southwestern Manitoba Physicians Meet.—The annual convention of the Southwestern Medical Association of Manitoba, held in Winnipeg, April 7, was representative of all sections of that province. Dr. McKenty, Gretna, read a paper on "Tubercular Pleurisy"; Dr. J. O. Todd, Winnipeg, and Dr. Montgomery, of the General Hospital, Winnipeg, gave the hospital statistics for the past year and the treatment pursued in the cases of typhoid fever admitted into that institution.

Tuberculosis Disinfection in Montreal.—The Tuberculosis League of Montreal has decided to bring to the notice of the citizens the advisability of disinfection of houses after removal; and will advise prospective tenants to ascertain that the by-law governing this has been complied with. This by-law provides that all houses previously occupied by consumptives shall be disinfected by the proprietors. The league will make arrangements whereby this may be done at a nominal cost.

Dr. Wilfrid Grenfell in Toronto.—For thirteen years Dr. Wilfrid T. Grenfell, a young English medical man, has devoted his life-work to the fisherfolk of Newfoundland and Labrador, his constituency covering over 2,000 miles of coast. At the present time Dr. Grenfell is in Toronto on his annual visit to the United States and Canada, interesting philanthropists in his mission. Dr. Grenfell gives an interesting account of the work done in the three hospitals he has established along the coast and of the hospital-ship donated for the work by Lord Strathcona. The hospitals are wooden structures, and an illustration that they are not of the modern variety is the fact that one of the patients had an ear frozen while lying in bed last winter. Every year about 2,000 people are treated by Dr. Grenfell and his colleagues. This year two specialists have promised to sail with him and to assist him at his work.

FOREIGN.

Search for the Tuberculous.—The city of Strasburg, Germany, is discussing the establishment of a central office to which physicians are to report all cases of tuberculosis among their patients. The central office will then search out the patients and see that they have proper food, etc., and sanatorium treatment. The expense is to be shared by the city and the state sickness insurance company.

Declaration of Cerebrospinal Meningitis.—Our Berlin exchanges are publishing a notice from the president of police asking physicians to notify the authorities of every case which even suggests the possibility of its being epidemic cerebrospinal meningitis. On account of the epidemic in Silesia and the danger of its importation into Berlin, physicians are urged to co-operate with the authorities in this way, although the official regulations call for declaration of only pronounced cases of the disease.

Prize for "Guide to Care of Infants."—A German public health society offers three prizes of about $37.50, $25 and $12.50 for an article suitable to be printed in pamphlet form for distribution among young mothers. It must be short, easily understood by the least intelligent mother or nurse, and the provisions must be the simplest possible. The text must not be more than 1,440 words, or 160 lines of nine words each. Articles to compete must be sent in anonymously, and be received before June 15. Address Prof. Dr. Lent, Cologne, Germany. The competition is open to the world and articles already published may be entered.

Accessory Sciences in the Medical Curriculum.—The disturbance in the Paris medical school, mentioned in these columns last week, is mainly due to the strictness of the examinations in physics, chemistry and natural history. The students regard these studies as secondary and begrudge the time spent over them, which they think should be devoted to the medical sciences proper. Failure to know the coefficient of the expansion of glass or Kékulé's hexagonal formula is enough to trip the fledgling physician and to set him back. The students are clamoring for a revision of the medical course of study in this respect. The French medical students are also facing much severer regulations after this year in regard to their term of compulsory military service. Hitherto they have profited by certain exemptions, but they will soon have to serve the same as all other young men, for two consecutive years.

LONDON LETTER.

The Protection of an Upright Life and Methodical Habits.

A recent case in the divorce court shows the dangers to which physicians are exposed from unscrupulous persons and also the value of keeping a complete record of all professional work. In this case the husband sought a divorce on the grounds of the adultery of his wife with the family physician. He alleged that frequent notes had passed from his wife to the physician and that they were seen together under circumstances of grave suspicion, and finally that his wife had confessed to him. An almost damning circumstance was the fact that the wife entered the witness-box and swore that she had committed adultery with the physician. Fortunately, it was shown that the husband had seduced the wife before marriage, and the judge pointed out that implicit reliance could not, therefore, be placed on her evidence. Still more fortunately, the physician was a methodical business man and kept a private diary as well as his professional day-book, from which he was able to show his movements on the days that the adultery was alleged. The records showed that these were strictly professional visits and his partner and dispenser proved that the notes sent by the wife were only requests for his attendance, and to which the partner responded when the defendant was unable.

The Teaching of Hygiene and Temperance.

A conference of physicians has been held to consider the teaching of hygiene and temperance. Sir William Broadbent, who presided, said that the object was to carry a step further the movement for the promotion of the teaching of hygiene and temperance in the elementary schools. It was initiated by a memorial to the government signed by 15,000 physicians. Sir Victor Horsley reported to the conference the continued success of the action taken by the profession. The Board of Education was meeting them. The importance of teaching the value of temperance to children was supported by Dr. Collier, president of the British Medical Association; Dr. F. W. Mott, Professor Sims Woodhead and Dr. Symes Thompson.

A Prehistoric Vesical Calculus.

At the Pathological Society Mr. S. G. Shattuck exhibited a specimen of much historical interest which proved the existence of urinary calculus at a very remote period. It was found by Prof. Elliot Smith in one of the graves of the prehistoric cemetery at El Amrah, in upper Egypt, and was presented by him to the museum of the College of Surgeons. The presence of a stone vase showed that the grave antedated by many generations the time of Menes, the first dynastic king (B. C. 4800). The age of the calculus was thus at least 7,000 years. It was found between the innominate bones of a boy, aged about 16 years, and it consisted of compact uric acid, which gave the usual chemical reactions, thickly encrusted with phosphates. Microscopic section of the uric acid "body" showed that it consisted, as usual, of coarse, pale yellow crystals radially disposed in columns. After solution of the uric acid with caustic potash a transparent matrix was revealed as under normal circumstances. The complete absence of calcium oxalate was noteworthy. In India 70 per cent. of the urinary calculi consist of this substance, which must be ascribed largely to the use of vegetable food. In the later dynasties the food of the ancient Egyptians was chiefly vegetable. It was, therefore, interesting to notice that the recent investigations on the prehistoric people showed that they

were hunters; this was shown by the discovery of hunting lances of flint in the prehistoric graves, in which clay models of kine had also been found. Immensely more interesting would the calculus have proved had it been possible to associate it with bilharziosis, which is commonly held to explain the great frequency of calculus in modern Egypt, but this after considerable trouble Shattuck was unable to do. Had the chitinous capsules of the ova been present they would certainly have been preserved and would have been discoverable. The occurrence of bilharziosis in the prehistoric age is, therefore, not yet shown.

Physicians' Bravery.

Two conspicuous examples of bravery of physicians in circumstances of great danger have lately been furnished. In both cases the heroes were Irishmen. One case occcurred off the coast of Donegal. During the height of a furious gale a signal was made from the island of Innisboffin that a patient was dangerously ill. Without a moment's hesitation Dr. McDonald of Tory went down to the shore to find volunteers to row him over. The only possible conveyance was an open boat. With four plucky fishermen to man it, the doctor started. The wind was dead in their teeth, the rain descended in torrents, and a fearful sea was running high, but gradually the little boat worked its way across and the patient was attended to. On the return journey the sea was even worse and the boat, in spite of constant bailing, was soon half full of water. In this plight the men struggled for a while until a squall struck the boat and overturned it. The crew managed to cling to the keel of the boat, but the doctor was swept away by the waves and would have been drowned had not one of the men swam to him and given him an oar to cling to. Then another boat put out from the shore to give help to the men in the water. It took about an hour to rescue them. The doctor was picked up almost exhausted. In the other case the hero was Surgeon-Captain Mackenzie, who, at the annual festival of the Irish Medical Schools and Graduates' Association, was presented with the Arnot memorial medal for saving life at sea. On his way home from Mauritius, on the Ionian Sea, one of the crew fell overboard, and though the sea was running high and a strong wind was blowing, Captain Mackenzie dived, fully dressed, over the ship's side and, securing two lifebelts which were thrown to him, lashed the drowning sailor to one and retained the other himself. The order was given to stop the vessel, but owing to its speed and to the roughness of the sea, the men in the water were lost sight of, and it was forty minutes before they were taken on board in an exhausted condition.

The Indian Pasteur Institute.

The director, Lieut.-Col. Semple, has issued his fourth annual report, for the year ending August, 1904. There has been a steady increase in the number of patients treated for hydrophobia, the figures for the years 1901-04 being respectively 321, 543, 584, 612. The results also show a slight improvement—0.81 per cent. of failures against 1.03. In the cases of Europeans the treatment was uniformly successful. In Paris since 1886 the percentage of failures is 0.3. Among the Indian natives the rate works out 1.56 per cent. But it must be remembered that the circumstances are unfavorable, the bites in general are of greater severity and more frequently on naked or thinly-clad parts; there is greater delay in commencing treatment, the wounds are often insufficiently cauterized, neglected and suppurating, and finally the patients can not often afford the generous regimen desirable throughout the twenty days of treatment. In natives the average interval from infection to the first inoculation was 11.6 days; in Europeans, 7.2 days. For safety not more than three days should elapse after a bite on the head or face, and not more than five in any case. Intensive methods are used when treatment commences after the fifth day. In three cases hydrophobia supervened during the course of inoculations, and in two others within the fourteen days limit. These fatalities are not included in the statistics of failures. As in other institutes, the difficulty is in enforcing public appreciation of the paramount importance of early treatment. All but one of the fatal cases came late. Some years must elapse before full confidence is established among the native population. With the Europeans it should be otherwise, yet the director remarks: "It is not unusual for railway, postal and telegraph employes and native policemen to waste days and sometimes weeks in obtaining official sanction before setting out for treatment, or to waste an equal period in hospital waiting for their wounds to heal." The value of antirabic serum yet remains uncertain, for the routine treatment was followed in every case. Other work of the institute was the preparation of large quantities of antitetanic and antidiphtheritic serums. The work of Captain Lamb, the assistant director, on snake venoms is well known. In addition to anticobra serum two other preparations have been made—one for the venom of the *Daboia russellii* and the other for a mixture of this and cobra venom. But these serums have not yet been issued.

Pharmacology

Cleveland Society Endorses Plan.

The Cleveland Academy of Medicine passed the following resolutions April 21:

WHEREAS, The Academy of Medicine of Cleveland realizes the many evils connected with indiscriminate use of proprietary medicines by the medical profession; and,

WHEREAS, It believes that an authoritative body, appointed by the American Medical Association, is best adapted to work out a solution of this intricate problem; therefore be it

Resolved, That it endorses the creation of the Council of Pharmacy and Chemistry by the Trustees of the American Medical Association; that it has the fullest confidence in the personnel of this council; that it approves the general plans and the ten rules governing the admission of articles already formulated by the council; and that it hereby pledges to this movement its support and its hearty co-operation.

Supervision of Proprietary Articles.

Shall a physician be content to trust to the manufacturer of proprietary remedies for his knowledge of these preparations, or shall he refrain from using them because of uncertainty concerning their ingredients?

The more logical plan appears to be to devise some method by which the physician may be assured of the identity and uniformity in strength and product of medicinal articles that he may be able to use with confidence certain articles and may be on his guard against such as do not conform to medical ethics. The great body of physicians in this country have organized for their mutual interest and protection along various lines, and their efforts are now beginning to bear fruit. Why should they not invoke the organization in the work of examining into all the medicines they employ, just as well as into the more limited number in the U. S. Pharmacopeia, which is under their direction and control?

This is the plan pursued now in nearly every department of activity in which the preservation and protection of human health and life is involved. All transportation machinery, for example, is most carefully supervised and its operation controlled by strict laws and rules, for without such regulation danger to life would be too great to be endured. Recently, for example, it has been shown that the breaking of rails to which many railroad wrecks are ascribed is due to the poor quality of rails furnished by the steel trusts. As soon as this fact is generally recognized, the railroad managers will at once improve the system of testing the rails so as to exclude all poor rails in the future. In the animal industry a most thorough supervision has been in operation for many years under local, state and Federal control for the protection of the public. On every hand are found organized efforts to protect and to preserve public health. Then why not in this matter of proprietary medicines? Is there any reason why special privileges should be accorded a medicine because it is proprietary? On the contrary, because such articles enjoy a certain protection, they should be required to comply with such demands as may be necessary to insure their safe and intelligent use. This is the view taken of this question by all reputable manufacturers who have the interest of the medical profession at heart.

A Flattering Offer?

We have before us a circular containing testimonials from various members of our profession of certain proprietary preparations, and also a copy of a very attractive certificate of

stock which contains the information that the bearer is the owner of stock, etc., in the Rebekeh Chemical Co. A blank application for stock accompanies the rest of the literature, and closes with the following interesting promise which is to be made by the doctor:

"In consideration thereof, I promise to prescribe Pulvis Bis. Talc. Compound (Gray's), also Kleko Tonic (Rebekeh Chemical Co.), in cases where indicated, to the extent as suggested by the by-laws of said Rebekeh Chemical Co., and trust you will acknowledge receipt of this promptly."

The circular tells us that the Rebekeh Chemical Co. has been incorporated "with a view to issuing a quantity of common stock . . . to those interested, and you may get as high as 25 per cent. dividends. However, at any rate, you are guaranteed dividends of from 5 to 10 per cent., it depending entirely on your individual efforts as to how much more you may get, as the *physician* holds the *balance of power*. . . . Write us at once, fill out the coupon in back of this booklet and mail the same to us so that we may record it, which means that you have begun to prescribe (Gray's) Bismuth Talcum Compound, and when you have done so to the extent of $20.00 worth, that is, caused your patients to have secured it through your nearest druggists or druggist, whichever the case may be, have these prescriptions preserved for you, and when you have prescribed the required amount, or $20.00 worth, have these prescriptions O.K.'d by the druggists who have filled them, send the same in to us for record, and we will issue you one full paid share valued at $10.00 par. We guarantee the same to draw anywhere from 5 to 10 per cent. per annum. . . . Now Kleko, the great German tonic. This is a preparation that is practically new, having only been in existence about one year. It would be necessary for you to try a bottle of it in order to satisfy yourself as to its virtue. So that neither of us will be subject to any loss, send us 50c to cover the cost of packing. . . . There is nothing ever produced that has such marvelous results as Kleko in anemic conditions. Is a specific for bronchial affection, an expectorant, an emollient, no depressing effect whatever, palatable, strengthening, stimulating, contains no ingrediences that are injurious, thoroughly indicated in anemia, chlorosis, rachitis, neurasthenia and general blood degeneracy."

Here is another opportunity for him who plays at being a doctor, for him who is in practice for graft and for what he can get out of it, for him who has lost his self-respect and who no longer respects the interests of his patients. We have no doubt this flattering offer will be accepted by some doctors. It would be interesting to know just how many there are who have lost their self-respect sufficiently even to consider such an insulting proposition.

A Good By-Law.

We quote the following from the constitution and by-laws of the Mississippi Medical and Surgical Association: "Sec. 4. Any physician who shall . . . enter into a collusive agreement with an apothecary to receive pecuniary compensation or patronage for sending his prescriptions to said apothecary, or who prescribes a remedy without knowing its composition, or who shall hereafter give a certificate in favor of a patent remedy or instrument, shall be disqualified from becoming or remaining a member."

FURTHER COMMENTS QUOTED.

We quote below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

The Apothecary (April): "The statement of the Council on Pharmacy and Chemistry of the American Medical Association, published below, is fraught with vital interest to both the medical and the pharmaceutical professions of this country, and is, we sincerely believe, the announcement of the beginning of a better order of things, when much that is unfair, and dishonest, and uncertain, and unethical in the practices of druggist, physician and manufacturer will be cleared away.

"Heaven knows we need a clearing up—a throwing out of rubbish—a sweeping down of cobwebs and dirt—a clearer defining of the true ethical and efficacious in medicine and pharmacy. In no other field has the faker found such encouragement. In no other profession has the element of competition so tarnished the true purpose of existence. Science and humanity still exist in great abundance, but through the widespread corrosion of greed and dishonesty the position of the humane man of science has become uncertain, anomalous.

"The American Medical Association is the proper founder of the work contemplated. The physicians—influenced largely by the manufacturers, whose purpose may or may not have been honest, and whose goods may or may not have been valuable—are largely responsible for the conditions which the A. M. A. now seeks to remedy. The adoption of therapeutic agents, the prescribing of medicines, is in their hands. The pharmacist was—and under their practices has become still more—a mere automatic purveyor of the material they designate for the cure of the sick. The pharmacist, we fear, was all too blind to the path along which he was being forced. The physician, indeed, did not realize the trend matters were taking. The impetus behind both was the manufacturer's desire to make money.

"Mind, we do not condemn the manufacturers as a whole. As a rule they were in—regarded from a commercial view point—an honest pursuit of wealth. Though handling professional articles and shaping professional destinies, they planned along up-to-date lines. And their less astute, unorganized—ah, there's where the fault lay—customers, the doctors and druggists, slipped along, too unconsciously, quite unwittingly, before them."

The New Idea. (This periodical is published by Frederick Stearns & Co., and we presume that this editorial represents their views.) April 15: "There are strong indications that the day of secrecy in medicine is dying and that ere long will dawn the era of open formulas. More and more frequently are bills, requiring publication of formulas, introduced in our state legislatures; and though these are doubtless often intended merely as gentle hints that it is time to put up more money, it is equally certain that many of them are brought forward in good faith, and therefore indicate clearly a trend of legislation. Consider also the recent action of a large proprietary house in announcing that hereafter the formulas of its preparations would be published on respective packages. Is not this significant in the highest degree?

"It is pretty well known that the American Medical Association is preparing to take a very decided stand relative to prescription proprietaries, by which those whose composition is not known, or if known in part, is stated in vague and ambiguous terms designed to mystify, shall no longer be admitted to the advertising columns of The Journal. The progressive commonwealth of New Zealand recently forbade the importation of all secret medicinal preparations, thus practically demanding publication of formulas; and though this order has been modified it has not been rescinded by any means, and the probability is that no great length of time will elapse until it is put in full force. Still other instances of almost equal importance might be cited if necessary.

"After all, why should the maker of any really meritorious secret medicine object to stating its exact composition? It is highly probable that its sale would be helped rather than hurt by such action. There are already well-known proprietary medicines of open composition which have a very extensive sale—in fact, may be said to be the most popular of their class. The commercial value of fast-selling secret medicines of real merit—and we must concede that there are such—lies not in the secret of their composition, but in the trademark rights of their owners. We shall be able to realize this more clearly perhaps if we consider two of the most valuable trademarks of the grocery business, sapolio and royal baking powder. While each of these is nominally secret in composition, it is likely that any soapmaker would have no difficulty in practically reproducing sapolio; and the exact composition of royal baking powder has been determined over and over by chemists. But as no one can sell his product under these names the monopoly in the business remains secure. Therefore it is the trademark and not the secret of manufacture that is valuable. There is no reason why it should not be equally true in medicine.

"The patent medicine manufacturer who is engaged in marketing a worthless or a dangerous preparation, however, may well look with alarm on the fast approaching day when the law shall put a stop to his nefarious business by requiring him to disclose the disgraceful secret that his 'catarrh cure' is a low-grade whisky, flavored with cubebs; or that his catarrh snuff or ointment is full of cocain; or that his soothing syrup contains a dangerous amount of morphin; and so through the whole list of 'patent' fakes. Such manufacturers have the same reason to dread publicity as do swindlers of any other sort, and that is all the more reason why an outraged public should label them for what they are by requiring them to label their merchandise as truthfully."

Correspondence

Tampon for Nose and Nasopharynx.

MINNEAPOLIS, April 18, 1905.

To the Editor:—In THE JOURNAL, April 1, page 1073, you abstract G. Lennhoff's description of a tampon for nose and nasopharynx, a long narrow strip of gauze tied at one end with a strong thread which is passed through several folds of the gauze, the string to be held by an assistant while the operator packs the gauze into the nose to the required extent. Permit me to make an addition to the technic, which makes the tampon the best possible. I have used such a tampon, which I devised five years ago, as an improvement on Ingals' many string tampon, with great satisfaction. The one difficulty is that of packing the gauze along the thread without entanglements. The best "assistant" is a tube, through which the string is passed, which serves to carry the tied end of gauze to the nasopharynx, and over which the folds of gauze are easily slipped to the required extent with dressing forceps. After a few folds have been passed into the nasopharynx the tube is withdrawn an inch or more, the folds drawn forward by the string, and tube and string held firmly while the rest of the gauze is packed. The tube is easily withdrawn and the patient has been subjected to the least possible discomfort. A decided advantage will be found in dipping the tampon in melted vaselin just before it is used.

EDWARD J. BROWN, M.D.

Association News

Announcement of Portland Committee.

The Committe of Arrangements of the Portland session have issued a circular of information to members of the American Medical Association from which we quote:

PORTLAND.

Portland is a city of approximately 150,000 inhabitants. The climate in July is delightful, the days never excessively warm and the nights always cool and refreshing. It is situated on the beautiful Willamette River, six miles from the Columbia (by trolley line) and 100 miles from the ocean. From any of the elevated points back of the city, easily accessible by car lines, can be seen the snow-capped peaks of Mount Hood, Mount St. Helens, Mount Rainier, Mount Adams and Mount Jefferson, ranging from 10,000 to 14,000 feet in altitude, presenting a view such as perhaps can not be obtained from any other city in the world.

The social features of the entertainment include: Car rides to these view points; a river excursion up the river through the great gorge of the Columbia, where the basaltic cliffs rise on either side to a height of 3,000 to 4,000 feet, over which plunge the waters of some of the most beautiful falls in the United States or the world; a railroad excursion to the Pacific Ocean and a day on the beach. These and other social events will be afforded delegates and members.

SIDE TRIPS.

Arrangements have been made for side trips for those who may desire them, at reduced rates, to Alaska, Japan and the Hawaiian Islands. The following rates have been obtained for a party of not less than twenty to each place:

San Francisco to Honolulu and return	$110.00
San Francisco to Yokohama and return	240.00
San Francisco to Hong Kong and return	270.00
Seattle or Tacoma to Alaska and return	70.00

The Alaska rate is a general excursion rate, and not limited to any number. The Alaska trip includes stops at Ketchikan, Wrangel, Douglas Island, Juneau, Skagway and Sitka, and is the most attractive scenic trip in the world to-day. If a sufficient number signify their desire to make this trip, it is probable a special steamer will be chartered to accommodate them. The fare from Portland to Tacoma and Seattle is $4.35 and $5.60, respectively. The Alaska trip takes twelve days. Dates have not yet been set.

Reservations for the trip to Honolulu, Yokohama or Hong Kong must be made before July 1. The *Korea*, a first-class Trans-Pacific steamer, leaves San Francisco, July 22. Application should be made as soon as possible to the Committee of Arrangements, so that they may know whether the required number (20) desire to avail themselves of this opportunity to take advantage of these greatly reduced rates.

Cloud Cap Inn is at the snow line of Mount Hood. A trip to this place, situated at the foot of the glacier of Mount Hood, at an elevation of 7,000 feet, is easily made from Portland at small expense of money and time. The trip can be made from Portland to Mount Hood by daylight, at a round-trip fare of $9.50. Expense at the inn, $3.00 per day. Ascent of the mountain to its summit can be made from this point in one day. The route is by rail to Hood River; thence twenty-seven miles by stage to the inn. The stage trip is through magnificent forests and amid continuous mountain scenery unsurpassed in the world.

HOTEL ACCOMMODATIONS.

Portland is well supplied with hotel accommodations; but on account of the great number of people who will attend the Lewis and Clark Fair it would be well for all intending visitors to secure rooms in advance through the Committee of Arrangements. The committee having this in hand expect to secure rooms sufficient to meet all requirements of our visitors and by an organized messenger service to be able to locate them promptly on arrival. Rates will probably be a slight advance on ordinary charges, but we intend to see that they are not excessive in any case.

Address all communications to Dr. K. A. J. Mackenzie, chairman of the Committee of Arrangements, Portland, Ore.

Indiana's Route to Portland.

Drs. F. C. Heath and F. B. Wynn, Indianapolis, have arranged for through sleeping cars to leave Indianapolis June 30, 11:50 p. m., to join the Yellowstone Park Special leaving Chicago 11:00 a. m. July 1 and to arrive in Portland July 10, 11:30 a. m. The return will be over the Canadian Pacific, leaving Portland July 17 and reaching Indianapolis July 25, 3:40 p. m.

Marriages

JAMES R. GRAHAM, M.D., Allen, Neb., to Miss Beryl Hathaway of Manning, Iowa, April 2.

LEON MOYE, M.D., Adrian, Ga., to Miss Katherine Westbrook, of Atlanta, Ga., April 12.

ROBERT ALPHA WESTON, M.D., Anita, Iowa, to Miss Hattie Bovee, at Atlantic, Iowa, April 12.

HIRAM R. STILLWELL, M.D., Denver, Colo., to Miss McClintock of Los Angeles, Cal., at Denver.

PERRY ENGLE, M.D., to Mrs. Mary C. Barker, both of Newton, Iowa, at Des Moines, Iowa, April 12.

FRANK KELLS BOLAND, M.D., Atlanta, Ga., to Miss Mollie Lelia Horsely of West Point, Ga., April 25.

LUTHER MARTIN LEISENRING, M.D., Placerville, Cal., to Miss Ethel Cora Wilcox of Omaha, Neb., April 26.

CARLETON MITCHELL, M.D., New Orleans, to Miss Kate Ronaldson of Baton Rouge, La., at Jackson, Miss., April 11.

Deaths

Ernest J. Mellish, M.D. Rush Medical College, Chicago, 1886, a member of the American Medical Association, American Association for the Advancement of Science, Cook County Hospital Alumni Association, Chicago Medical Society, State Medical Association of Texas, El Paso County Medical Society and Physicians' Club of Chicago; fellow of the Chicago Surgical Society, formerly instructor in surgery, Rush Medical College; surgeon to the Union Hospital and attending assistant gynecologist St. Joseph's Hospital, Chicago; surgeon to the Hotel Dieu, El Paso; prominent as a surgeon and an anesthetist; who was obliged to leave Chicago for Texas on account of ill health, three years ago, died at his home in El Paso, April 24, from tubercular meningitis.

William Wallace Burns, M.D. University of Louisville Medical Department, 1843, a member of the American Medical Association, twice president and three times mayor of Polo, Ill.; for 27 years a member of the local school board; commissioned surgeon in both the Mexican and Civil wars, one of the oldest and most prominent practitioners of northern Illinois, died at his home in Polo, April 18, from senile debility, after an illness of several weeks, aged 83.

Patrick J. Lynch, M.D. New York University, New York City, 1857; chief of clinic for seven years to Dr. Valentine Mott; a member of the American Medical Association, New York State Medical Association, New York County Medical Society, New York Academy of Medicine, Physicians' Mutual Aid Association and Medical Union, died at his home in New York City, April 21, aged 76.

William Bryant Small, M.D. Bellevue Hospital Medical College, New York City, 1888, a member of the American Medical Association; president of the Maine Academy of Medicine and Science; member of the Maine Medical Association and Androscoggin County Medical Society, attending physician to the Central Maine General Hospital, Lewiston, died at his home in that city, April 13, aged 41.

Charles M. Taylor, M.D. Transylvania University Medical Department, Lexington, Ky., 1856, formerly of South Bend, Ark., assistant superintendent of the Kentucky State Asylum, surgeon and assistant surgeon-general in the Confederate service during the Civil War, died at his home in Little Rock, Ark., April 15, after a brief illness, aged 72.

John Herald, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1884, a prominent practitioner of Kingston, and professor of clinical medicine and dermatology in Queen's University, died at the Toronto General Hospital, February 13, after an operation for the removal of gallstones. aged 49.

J. Lee Adams, M.D. University of Georgetown Medical Department, Washington, D. C., 1868, chief of the claims division of the United States Internal Revenue Bureau, died at the Emergency Hospital, Washington, D. C., April 17, from kidney disease, after an illness of three weeks, aged 63.

Isaac S. Weyand, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, formerly mayor of Belle Fourche, S. D., committed suicide in Denver, Colo., by opening an artery in his leg, April 20, while despondent because of indictment for illegal use of the mails.

J. Wadsworth Terry, M.D. Medical Institution of Yale College, New Haven, Conn., 1862, a surgeon during the Civil War; a member of the American Medical Association, and of the Medical Society of the State of New Jersey, died at his home in Englewood, N. J., April 10, aged 71.

James L. Day, M.D. Medical Department of the University of Tennessee, Nashville, 1885, of Lebanon, Mo., for two years an acting assistant surgeon in the Army, serving in the Philippine Islands, died from disease of the brain at a sanitarium in Tecumseh, Okla., April 10, aged 40.

Benjamin Haile Matheson, M.D. Medical College of the State of South Carolina, Charleston, 1855, surgeon in the Confederate service during the Civil War, died in Gainesville, Fla., March 29, after an illness of more than three years, from nephritis, aged 78.

James J. Giltenan, M.D. Cincinnati College of Medicine and Surgery, 1867, of Chicago; for a long time connected with the Department of Health as medical inspector, died in Alexian Brothers' Hospital, April 20, after an illness of several weeks, aged 62.

Byron J. De Witt, M.D. Medical Department of the University of Buffalo, 1850, for many years a member of the American Medical Association; a surgeon in the Army during the Civil War, died at his home in Oswego, N. Y., April 18, aged 78.

Willard H. Coffron, M.D. University of Georgetown Medical Department, Washington, D. C., 1888, formerly professor of chemistry at his alma mater, died at his home in Grindstone City, Mich., and was buried April 11, aged 44.

Henry C. Sloggett, M.D. London, 1878, superintendent of the Oahu Insane Asylum, Honolulu, H. I., formerly president of the local board of health, died suddenly from cerebral hemorrhage while making a call in Honolulu, March 24.

Edward Moeller, M.D. Examination, New Jersey, 1876, formerly of Newark, N. J., died at his home in Baltimore, March 9, aged 72. He was surgeon of the Twenty-seventh Pennsylvania Volunteer Infantry in the Civil War.

N. Newlin Stokes, M.D. Jefferson Medical College, Philadelphia, 1854, for many years one of the board of managers of the New Jersey State Hospital, Trenton, died at his home in Moorestown, N. J., April 19, aged 72.

Calvin M. Boswell, M.D. Willamette University Medical Department, Salem, Ore., 1870, the pioneer physician of Colfax, Wash., died at his home in that city, April 8, from tuberculosis, after an illness of a year, aged 60.

Thomas B. Gordon, M.D. Missouri Medical College, St. Louis, 1889, formerly of Mechanicsburg, Ill., died at the Illinois Central Hospital for the Insane, Jacksonville, April 10, after an illness of several years, aged 42.

Fayette Coleman Clark, M.D. Rush Medical College, Chicago, 1897, of De Smet, S. D., died from cerebral hemorrhage at the home of his parents in St. Charles, Minn., April 11, after an illness of five weeks, aged 30.

Wright J. Chittock, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882, died at his home in Jackson, Mich., April 14, from pneumonia, after an illness of only three days, aged 48.

Wiley L. Dixon, M.D. University of Louisville Medical Department, 1894, formerly of Morganfield, Ky., died at his home in Clarkston, Mo., March 1, from pneumonia, after an illness of six weeks, aged 36.

Elton W. Townsend, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1905, died at his home in Princess Anne, Md., April 15, from cerebrospinal meningitis, after an illness of two days.

M. L. Meriwether, M.D. University of Louisville Medical Department, 1847, the oldest practitioner of Greene County, Ark., died at his home in Paragould, April 15, from senile debility, aged 76.

John Saunders Williams, M.D. New York University, New York City, 1860, assistant surgeon in the Confederate service during the Civil War, died at his home in Gladys, Va., April 9, aged 69.

James Masten, M.D. Years of Practice, Pennsylvania, the oldest practitioner of Tioga County, Pa., died at his home in Westfield, April 14, from cancer, after an illness of a year, aged 77.

Eli Dimock, M.D. New York University, New York City, 1844, a member of the Ohio State Medical Society, died at his home in Dupont, Ohio, March 12, from senile debility, aged 82.

Courtney L. Smith, M.D. Rush Medical College, Chicago, 1879, died at his home in Aurora, Ill., from labioglossopharyngeal paralysis, April 15, after an illness of several months, aged 47.

Benjamin Brooke Temple, M.D. Medical College of Virginia, Richmond, 1860, surgeon in the Confederate service during the Civil War, died at his home in Danville, Va., March 11, aged 66.

Albert Horatio Webb, M.D., of Lexington, a member of the Davidson County (N. C.) Medical Society, died in Salem, N. C., April 2, from pneumonia, after a short illness, aged 64.

James Carter Ellis, M.D. Louisville National Medical College, 1897, died at his home in Anderson, Ind., April 14, from tuberculosis, after an illness of several months, aged 33.

Charles W. Hilliard, M.D. Macon (Ga.) 1860, health registrar of Troy, Ala., for several years, died at his home in that city, April 15, from influenza, after a short illness.

Charles D. Brown, M.D. Rush Medical College, Chicago, 1852, for many years a practitioner of Laporte County, Ind., died at his home in South Bend, Ind., April 16, aged 79.

Patrick H. Reaney, M.D. Michigan College of Medicine and Surgery, Detroit, 1903, died at his home in Detroit, April 17, from tuberculosis, after an illness of two years.

Herman Schroeder, M.D. Cleveland Medical College, 1850, died at his home in Bloomington, Ill., April 7, from heart disease, after an illness of five years, aged 84.

Hosea B. Townsend, M.D. Berkshire Medical College, Pittsfield, Mass., 1844, a pioneer physician of Coldwater, Mich., died at his home in that city, April 13, aged 86.

J. Albro Eaton, M.D. Ohio, 1876, of Farmingdale, N. Y., died at Nassau County Hospital, Mineola, April 12, from pleuropneumonia, after an illness of two days.

Alonzo Lewis Kennedy, M.D. Massachusetts, 1875, died at his home in Brookline, Mass., April 13, from heart disease, after an illness of 18 days, aged 60.

A. B. Duncan, M.D. Medical Department of the University of Tennessee, Nashville, 1881, of Picklosi, Texas, died recently at his home near Quitman, Texas.

A. M. C. Smith, M.D. Examination, California, 1877, a pioneer of Siskiyou County, Cal., died at the home of his daughter in Lodi, April 6, aged 76.

Charles Ellsworth Hewitt, M.D. Jefferson Medical College, Philadelphia, 1891, formerly of Bradford, Pa., died in Williamsport, Pa., April 14, aged 38.

J. Mathiot Cummins, M.D. Jefferson Medical College, Philadelphia, 1858, died at his home in Larned, Kan., April 8, after an illness of four months.

Loren M. Nichols, M.D. Kentucky School of Medicine, Louisville, 1886, died at his home in Janssen, Ark., April 13, after a short illness, aged 45.

William C. Ravenel, M.D. Medical College of the State of South Carolina, Charleston, 1850, died at his home in Charleston, April 21, aged 77.

Marshall Enfield, M.D. Rush Medical College, Chicago, 1873, of Clarinda, Iowa, died at Montrose, Colo., April 12, after a long illness, aged 60.

Henry H. Parrott, M.D. M.R.C.S. England, 1842, pioneer physician of Marquette County, Wis., died at his home in Douglas, April 18, aged 85.

Albert B. Woodward, M.D. New York City, 1876, died suddenly at his home in Tunkhannock, Pa., April 10, from heart disease, aged 80.

Oliver A. Dooley, M.D. St. Louis, 1899, of Glensted, Mo., died in Miller County, Mo., February 20, after an illness of a year, aged 27.

Adolph Hoffman, M.D. Jenner Medical College, Chicago, 1896, died suddenly at his home in Oak Park, Ill., April 13, aged 43.

J. C. W. Kennerly, M.D. Savannah (Ga.) Medical College, 1855, died at his home in Mount Willing, S. C., April 13, aged 78.

Isaac W. Jones, M.D. New York University, New York City, 1857, died recently at his home in Zeb, Rowan County, N. C.

Sarah A. Henderson, M.D. Ohio, 1876, died at her home in Cleveland, Ohio, April 14, after an invalidism of 16 years.

Edgar C. Bass, M.D. Albany (N. Y.) Medical College, 1858, died at his home in Cazenovia, N. Y., April 15.

Harriet T. Dwyer, M.D. Cincinnati, Ohio, 1878, died at her home in Cincinnati, April 14, aged 85.

Deaths Abroad.

Paul Garnier, M.D., of Paris, a well-known alienist and medicolegal authority. His works on neurology, criminology and psychology were numerous and important, a number of them having received prizes from scientific societies. He had long been medical inspector of the public insane asylums of the Paris district and official medicolegal expert to the Paris courts. He was one of the experts summoned recently by the court of Vienna to examine the mental condition of the princess of Coburg. His report had not been completed when death surprised him, March 20, at the age of 57.

G. Meissner, M.D., the eminent professor of physiology and anatomy at Göttingen, whose name is associated with early investigations of the so-called touch corpuscles and of various phases of the digestion of albumin, died at Göttingen, March 30, aged 76.

J. S. A. Hjort, M.D., a prominent ophthalmologist of Christiania, Norway, originator of the open treatment after cataract operations and other operations on the eye, and author of several works on ophthalmology, died at Christiania, March 6, aged 70.

W. Schulek, M.D., professor of ophthalmology at Budapest, died March 14, aged 62.

Book Notices

PRINCIPLES OF PHYSIOLOGICAL PSYCHOLOGY. By William Wundt, Professor of Philosophy in the University of Leipsic. Translated from the Fifth German Edition (1902) by Edward Bradford Titchener, Sage Professor of Psychology in the Cornell University. Vol. I. With 105 Figures in the Text. Cloth. Pp. 345. Price, $3.00. New York: The Macmillan Co. 1904.

A distinct service has been rendered English-speaking students of mental phenomena by this translation of Wundt's "Gründzuge." The unique position which the author holds as one of the fathers of modern psychology, and as one whose contributions to psychology, physiology and philosophy have covered almost half a century, has made this detailed statement of his investigations and beliefs a veritable bulwark of science. On account, however, of the almost Kantian complexity of its style, delving into the "Gründzuge" heretofore has been a forbidding task which has turned many to the already translated "Outlines of Psychology" and to the "Lectures on Human and Animal Psychology" for an expression of Wundt's views. Titchener, a most valiant translator, as shown by his statement that the present edition is the third one translated by him but only the first one published, has mastered this difficulty of style and has succeeded in putting the text into understandable form.

Although the work as a whole is intended, Wundt states, as an exposition of his own experiences and convictions, this first volume is mostly concerned with reviewing such researches into the anatomy and physiology of the nervous system as seem to bear on psychology. One can take few exceptions to this review which covers the most important discoveries up to 1902. Modern neurologists, Luciani, Bechterew, von Monakow, Cajal and other masters, are drawn on liberally. It is interesting herein to note the influence of pathologic observation on psychology. Wundt broke away from the school of Ferrier and Munk, who thought that intelligence is a diffuse function of the whole cerebrum, and argued in his "Outlines" of 1896 that certain pathologic findings were suggestive of localization of intelligence in the frontal lobes. Now, in 1902, he states that there is direct evidence of the presence in the frontal lobes of nodal points of conduction, made up intrinsically of comparatively simple elements, but themselves of greatest importance for that complex of functional co-operation equivalent to intelligence. That occasionally lesions of the frontal lobes occur without permanent moral or intellectual injury is not sufficient to outweigh the direct evidence, says Wundt. One thinks at once of the excellent work of Phelps and wishes our author had known before he wrote that mental default is frequent when the lesion is limited to the left prefrontal lobe, the intelligence generally remaining intact when only the right lobe is involved. Altogether, there is much of value for neurologists and psychologists in this thorough ploughing up of the field of physiologic psychology represented by Wundt's "Principles," but in reading the work one earnestly wishes the ploughman had left the furrows straighter and had gathered into a clear, clean heap at the end of each all things of "muckle worth" turned up in its course.

RECHERCHES CLINIQUES ET THERAPEUTIQUES SUR L'EPILEPSIE L'HYSTERIE, ET L'IDIOTE. Compte-Rendu Service des Enfants Idiots, Epileptiques et Arriérés de Bicêtre Pendant L'Année, 1903. Par Bourneville. Avec la collaboration de J. Boyer, L. Izou, Lemaire, Reine Maugeret (Mlle.), Julian Noir, Paul-Boncour. Volume XXIV. Avec 72 figures dans le texte et 17 planches. Paper. Paris: Felix Alcan, Editeur, Boulevard St. Germain, 108. 1904.

In the entire literature of neuropathology there is nothing more remarkable than the series of volumes issued by Bourneville, written by him and his pupils or assistants. The first number appeared about 1881, and the present volume of 530 pages is the twenty-fourth—an average of one volume per year. The set constitutes almost a cyclopedia on idiocy, imbecility and epilepsy, and although they are modestly called clinical and therapeutic studies, medical literature contains no better example of the clinico-pathologic method. Nowhere is to be found such a wealth of clinical detail with autopsy findings relating to defective and epileptic children. The industry, patience and scientific acumen displayed in this collection of

papers are something to conjure with. That this mine has been worked so little by students and writers is simply a literary marvel. In quite a different branch of the subject have the labors of Bourneville and his associates been equally remarkable. How much do our present teachers of defective children know of Bourneville, his methods and results, and how often do they mention him in speech and writings? And yet for years he has been leading the van in the development of pedagogic methods for the development of defectives and has been publishing his work in these annual reports. Volume XXIV is no exception to the rule of excellence established by its predecessors. It is divided into two parts. The first, of 184 pages, is devoted to a report of Bourneville's remarkable service at the hospice of Bicêtre and contains much of interest and value to physicians in institutions where idiot and imbecile children are cared for. Part two, of 346 pages, contains 16 papers or communications of 2 to 185 pages each, with some beautiful illustrations, and some information of the personnel. The principal papers are on various forms of dwarfism (nanisme); atrophic cerebral sclerosis; imbecility, hemiplegia and epilepsy with autopsy; temperature in status epilepticus; cranial changes in cerebral atrophy and several statistical papers.

The Medical Examination for Life Insurance and Its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D., St. Paul, Professor of the Theory and Practice of Medicine in the University of Minnesota. Second Edition. Revised and Enlarged, with 99 Illustrations. Cloth. Pp. 466. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

The second edition of this work shows careful revision and change of arrangement. The rules governing selection of applicants have been greatly amplified, tuberculosis, appendicitis and diseases of the heart are even more exhaustively considered than in the first edition, and a great deal has been added to the section on the insurance of women. The bearing of occupation on the value of risks for insurance is mentioned at great length and a report of the collective investigation of the Actuarial Society of America has been added.

Life Insurance Examinations. A Manual for the Medical Examiner and for All Interested in Life Insurance. By Brandreth Symonds, A.M., M.D., Medical Director Mutual Life Insurance Co. of New York. Cloth. Pp. 213. Price, $1.00. New York and London: G. P. Putnam's Sons. 1905.

In this bringing together of the lectures on life insurance examinations which he delivered at the University and Bellevue Hospital Medical College, New York City, the author devotes the first part of the work to introductory and historical matters. He then considers the relations of the examiner to the applicant, the bearing of disease on value for life insurance, physical examination and frauds. In two appendices the author gives an excellent summary of the chemical examination of the urine and of heart murmurs.

Uncooked Foods and How to Use Them. A Treatise on How to Get the Highest Form of Animal Energy from Food, with Recipes for Preparation, Healthful Combinations and Menus. By Mr. and Mrs. Eugene Christian. Cloth. Pp. 246. Price, $1.00. New York: The Health-Culture Co. 1904.

This volume is certainly interesting. Without discussing the uncooked food plan—which is to most thinking people only a fad—we recommend this book to those who wish to prescribe a variety in diet or to eliminate certain troubles from errors and excesses in eating. There are scores of recipes and the book might be called a cook-book were it not for the necessity of calling it an uncook-book.

American Alkalometry. Vol. IV. A Digest of Clinic Teachings 1902 and 1903. Editors, W. C. Abbott and W. F. Waugh, Chicago. Cloth. Pp. 734—VIII. Price, $2.00 net. Chicago: The Clinic Publishing Co.

This volume is a compilation in alphabetical order of the contents of the *Alkaloidal Clinic* of 1902 and 1903, thus giving articles, correspondence and editorial comment on various alkaloidal treatment subjects. Those who use these remedies will find the volume valuable. The rearrangement should have been carried further; some articles treat of several subjects and yet are placed under one heading without reference to the other subjects.

Miscellany

Opium in the Philippines.—The *Pharmaceutical Era* states that the Filipino Progress Association has sent a petition to Congress asking that power be conferred on the Philippine commission or on the Philippine legislature, soon to be organized, to enact a law for the restriction or prohibition of the sale of opium in the islands. As a means of abolishing the opium trade it is suggested that the regulations adopted in Formosa by the Japanese government be substantially followed in the Philippines. It is also claimed that our tariff laws, as applied in the Philippines, have proved no adequate barrier.

Doctors.—"No title is better than that which it represents. 'Doctor' as applied to medical men does not convey the sense of dignity or learning to any remarkable degree, because the title is exploited by a dozen or more classes of men who possess neither the one nor the other." Thus remarks the *Pharmaceutical Era*, commenting on the letter of a correspondent who would add to the list of "doctors" by conferring the title on pharmacists. "Honor must come spontaneously if it is to be worth having, and recognition of merit by the public in this way is equal to that conferred by any institution of learning or introduced by any set of resolutions."

Philanthropy and Business.—It has been shown by a number of writers that sanitary tenements may be constructed on a financial basis which will pay 4, 5 or 6 per cent. on the investment. These will be well lighted and ventilated, and may be rented at $7.00 or $8.00 a month for three or four rooms. It is stated that a company has been formed in Washington, D. C., to arrange tenements on this plan as a business enterprise, but having with it the very desirable and charitable feature that it is a work of great benefit to those who have to live in the slums. If the project is successful it ought to be extended into other cities, because it means a combination of business investment with philanthropy and civic improvement.

Etiology of Smallpox: Bacillus V.—A. Mendonça is assistant at the Bacteriologic Institute of S. Paulo, Brazil, and co-editor of the *Revista Medica de S. Paulo*, now entering on its eighth year. The issue for January 15, 1905, contains an illustrated description of a bacillus isolated by him from smallpox pustules. He states that it is extremely virulent and induces in dogs a disease closely resembling smallpox in man. Living cultures of the bacillus—which he calls the bacillus V—inoculated into dogs display decided preventive and curative properties. His research further demonstrated that the serum of animals immunized against the bacillus V seems to enhance the virulence of ordinary vaccine. The bacillus resembles the non-pathogenic pseudodiphtheria bacillus, and requires inoculation of animals for positive differentiation.

Facial Anastomosis.—Francis Villar (*Rev. Hebdom. de Laryngologie*) recommends in the surgical relief of facial paralysis the union of the facial with the hypoglossal for several reasons. While the operative difficulty is somewhat greater than in the union with the spinal accessory, the operation is not really formidable. The anastomosis with the hypoglossal avoids the danger of atrophy and paralysis of the shoulder or the synergizing of its muscles with those of the face, which are objections to the other method. The cortical center, moreover, of the facial is much more closely connected with that of the hypoglossal than with that of the spinal accessory and the bulbo-protuberential nuclei of the facial and hypoglossal are united by a posterior longitudinal bundle. The anatomic arrangement altogether is, he thinks, more conducive to the re-education of the facial movements. The importance of educational exercises, as recommended by Taylor and Clark, is insisted on as better than relying too much on electricity and massage.

Tuberculin Treatment in Belgium and Holland.—The eighth Flemish Medical Congress was held at Antwerp recently, and from the reports presented it appears that tuberculin is being used in therapeutics more extensively in Belgium and Holland

than anywhere else to date. The tuberculin used is made in Belgium, and better results are said to have been reported at the Congress than have been published by Turban, Petruschky, Goetsch, Moeller and others in regard to Koch's tuberculin. The rule is followed that all febrile reaction must be avoided. If there is any febrile reaction, three days must pass without temperature before another dose can be given. Denys produces the tuberculin by merely filtering out the bacteria. He thinks that the Koch method of heating destroys some of the properties of the serum. It is applied in the treatment not only of pulmonary tuberculosis but also of tuberculous peritonitis and laryngeal tuberculosis, lupus and tuberculous bone and joint affections. The principal communications on the subject were made by J. Gervaerts and E. Wildiers. They are reviewed in the *Münch, med. Wochft.* of Feb. 14, 1905. M. Roebroeck reported a case of caries of the fifth rib, not benefited by three different operations, but finally cured by a five-months' course of tuberculin treatment.

Insanity Witness Falls Into Awkward Blunder.—When Dr. C., said to be an insanity expert, was called in that capacity to testify in the O'Shea murder trial yesterday afternoon before Judge McEwan, the physician was treated to an embarrassing surprise.

On cross-examination, Assistant State's Attorney Olson was quoting from a book of which Dr. C. is the author, as follows:

Thus development is the intrinsic law of life, which, with the extrinsic complement (environment), gives extension and expansion along the lines of affinity limited by the specific character of the entity.

"Why, I don't know the meaning of that stuff," answered Dr. C. "It is not intelligible."

"I don't know what it is, either," answered Mr. Olson; "but you, doctor, ought to know."

"But I do not," he answered.

Mr. Olson smiled as he held up the book and said:

"Why, you wrote it yourself, doctor. I took it from your own book."

"Impossible," replied the witness. "That was never in my book."

Mr. Olson handed it to the physician, and a look of embarrassment overspread his features as he finally admitted that he had written the words.—*Chicago Tribune.*

State Boards of Registration

COMING EXAMINATIONS.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

South Dakota January Examination.—The report of this examination appeared in THE JOURNAL, Feb. 25, 1905, p. 646. The following questions were asked:

SURGERY.

1. Give differential diagnosis of articular rheumatism and of arthritis deformans. Give treatment of latter. 2. Describe dislocation of knee joint. Give prognosis of a complete dislocation of the femur behind the head of the tibia. 3. How would you treat a case of fracture through the symphysis of the pubis, with a rupture of the urethra? 4. Describe Colles' fracture, and differentiate it from other injuries of the wrist. 5. Describe the operation for direct inguinal hernia, and say whether there is any difference in the anatomic coverings from those in indirect inguinal hernia. 6. Give diagnosis and treatment of floating kidney. 7. Give symptoms and treatment of fracture at the base of the skull. 8. Describe the operation of ligation of the common carotid artery and tell how the collateral circulation is established. 9. Give diagnosis and different operations for stone in the bladder. 10. Give differential diagnosis of a dislocation of the shoulder and a fracture of the neck of the humerus. Give treatment of latter.

BACTERIOLOGY.

1. Describe the Klebs-Loeffler bacillus. 2. Name five pathogenic bacteria that do not stain by Gram's method. 3. Describe the Widal serum reaction. 4. Give in detail two methods of staining the Koch bacillus. 5. Name three color-producing bacteria.

ANATOMY.

1. Describe the frontal bone; the sagittal and lambdoidal sutures. 2. Describe the shoulder joint and name the bones and ligaments forming it. Give attachment of ligaments. 3. Describe the gracilis, gastrocnemius and rectus femoris muscles, giving origin and insertion of each. 4. Give origin of the renal arteries and the sacra media artery. Describe the celic axis. 5. Describe Luschka's gland, suprarenal capsules and lachrymal glands. 6. Give nerve supply of the spleen and of the gracilis muscle, and describe Meckel's ganglion and Arnold's ganglion. 7. Describe the pons varolii. 8. Describe the pericardium. 9. Describe the pancreas. 10. Describe the wrist joint, giving names and arrangement of bones.

DISEASES OF WOMEN.

1. Give symptoms, etiology, diagnosis and treatment of dysmenorrhea. 2. Give causes of uterine hemorrhage. 3. Differentiate between chronic metritis, early pregnancy, fibroid tumors and malignant disease of the uterus. 4. Mention principal causes of sterility in the female; also of vaginitis. 5. Prepare the patient, and describe a trachelorrhaphy for deep bilateral laceration with extroversion.

EYE AND EAR.

1. Give technical name, describe and treat what is popularly known as "pink eye." 2. Sympathetic ophthalmia. Give early symptoms, causes and treatment. 3. What are the causes, symptoms and treatment of chalazion? 4. Describe fully the effect of nasopharyngeal adenoids on the ear and its function. 5. What are the most common causes of pus discharge from the ear, and how would you treat it?

SKIN AND VENEREAL DISEASES.

1. Draw a clear cut clinical difference between chickenpox and smallpox. 2. Describe the seborrhea of the scalp, and give treatment. 3. Diagnose and treat impetigo contagiosa. 4. What do you know about barbers' itch, and how would you treat it? Differentiate it from eczema and from impetigo. 5. Give a clinical picture of erysipelas and treatment. 6. Give the history and description of syphilitic dermatitis. 7. Differentiate hard and soft chancre, and give their respective treatments. 8. Give history, diagnosis and treatment of gonorrhea in men. 9. Enumerate causes of orchitis, and how would you treat it? 10. How would you treat a case of gleet?

CHEMISTRY.

1. What does a chemical formula represent? 2. Define deliquescence, efflorescence, valance. 3. What is meant by an allotropic modification of an element? Give an example. 4. Give the flame test for potassium and sodium. 5. Name three abnormal constituents of urine frequently found, state their clinical significance, and give chemical test for each. 6. How would you detect sugar in urine? How estimate the daily quantity? 7. What is a disinfectant? Name some. 8. How can you prove the presence of free iodin? 9. What is formed when sulphur burns? 10. Give chemical antidote for poisoning by lunar caustic. Also its chemical name and formula.

HOMEOPATHIC THERAPEUTICS.

1. Differentiate diphtheria and follicular tonsillitis. Give two remedies for each, with indications for their use. 2. Outline your treatment of pleurisy, giving remedies you would use before and after effusion. 3. How do you treat puerperal fever? Name with indications the remedies you would administer. 4. Differentiate aloes, podophyllum and mercurius in diarrheas. 5. On what indications would you administer arsenicum, graphites and sulphur in eczema? 6. Diagnose and treat a case of scarlet fever. Also give two of the complications most likely to occur. 7. Name, with indications for its use, what you consider the most prominent remedy in the treatment of cholera morbus. 8. Describe a clinical case fully in which you would prescribe cuprum. 9. Diagnose and treat earache in an infant. 10. Name, with indications, two remedies for chronic constipation.

MEDICAL JURISPRUDENCE.

1. Define idiocy, imbecility, cretinism. 2. What is monomania? Name and define two common forms. 3. What are the duties of a coroner's inquest? 4. How would you diagnose rigor mortis from hysteria, catalepsy, apoplexy and epilepsy? 5. What are the disabilities of an unlicensed practitioner of medicine?

OBSTETRICS.

1. Describe the third stage, and your management of the same, in an ordinary case of labor. 2. Define involution. When should it be complete, and what conditions may retard it? 3. Give early diagnosis in breech presentation. What the danger? Give method of delivery when interference is necessary. 4. Give principal causes and treatment in rupture of the uterus. Also rupture of cervix. Also rupture of perineum. 5. Describe manner of applying forceps with head in upper strait; and when you would use them. 6. Describe a case of phlegmasia alba dolens, giving diagnosis, time of occurrence, cause, termination and treatment. 7. Differentiate ovarian cyst, ascites and pregnancy at beginning of fifth month. 8. Name the diameters of the fetal head and give average measurements at full term. 9. Describe a case of puerperal fever, giving cause, time of invasion, symptoms, course and anatomic appearance on postmortem examination, death occurring after three weeks. 10. Name and describe fully the contents of the uterus at full term, before labor begins, detailing the presentation and position of the child most frequent, in an uncomplicated, healthy case.

GENERAL PATHOLOGY.

1. Describe lardaceous degeneration and give synonyms. 2. Name the principal pathogenic bacteria. 3. Define the word tumor. 4. Define anemia, aglobulism and achromatosis. 5. Define chlorosis, leucocytosis and leucocythemia.

REGULAR THERAPEUTICS AND PRACTICE.

1. Define volt, ampere, ohm, and give Ohm's law. 2. Is the ampere used in electrotherapeutics to measure dosage? 3. Is

the Roentgen ray an electrical therapeutic agent? 4. Would you give Kl in tablet, powder or pill? Why, or why not? 5. What is the best solution for hypodermoclysis? 6. Which is the artery of cerebral hemorrhage? 7. Describe a case of cerebral hemorrhage. 8. Make a diagnosis of acute rheumatism, excluding similar diseases. 9. Name all the causes of neuralgia you can call to mind. 10. How would you treat a case of acute lobar pneumonia? 11. Diagnose a case of trichina spiralis, excluding similar diseases. 12. Sketch a typical ammonio-magnesian phosphate crystal. 13. Make a drawing of a probable microscopic field containing tubercle bacilli —×1000. 14. What would you say ailed a patient aged 55 years if you found the following facts: Pulse 70, temperature 98.5, laborious respiration, abundant purulent sputum, barrel-shaped thorax, percussion note full and clear over whole of both lungs, but not tympanitic, area of cardiac dullness reduced, rough vesicular breathing, excessively prolonged expiration, sonorous râles and pulmonary second sound accentuated?

ECLECTIC MATERIA MEDICA, THERAPEUTICS AND PRACTICE.

1. Name three drugs belonging to each of the following classes: Narcotics, diaphoretics, sedatives. 2. Name the official preparations of gold, and describe its therapeutic uses. 3. What is the adult dose of (a) atropin sulphate, (b) strychnia sulphate, (c) tincture of cantharides? 4. How is nitrite of amyl administered, and for what purpose? 5. Give the common name, therapeutic uses and dose of sodium sulphate. 6. Write a prescription containing tincture of digitalis and tincture nitroglycerin, with the proper dose for a child of six years. 7. Give symptoms and treatment of an uncomplicated case of sciatica. 8. Mention the salts of lithium, and give doses and uses. 9. Name the official preparations of copper, and give dose of each. 10. Give the symptoms you would expect to find where an overdose of chloral hydrate had been taken, and your treatment in such a case.

PHYSIOLOGY.

1. Describe the normal pulse, and give the average rate during infancy, youth and old age. 2. Describe the action of the kidneys. 3. What are the normal constituents of the urine? 4. Describe rigor mortis. Also tetanus. 5. What is osmosis? Give an example. 6. In what respect does the temperature differ in old age from that in adults? 7. What is the normal ratio of heart pulsations to respiration in a healthy adult? 8. In what respect do fresh blood stains differ from older blood stains? 9. What is color blindness, and what colors are most commonly indistinguishable by a person so affected? 10. Describe the physical characteristics of cartilage, and give illustrations of temporary and permanent cartilage.

The Public Service

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending April 22, 1905:

Tolfree, H. M., asst.-surgeon, ordered to report to the Surgeon General April 28 for a course of instruction at the Naval Museum of Hygiene and Medical School, Washington, D. C.

Dennis, J. B., surgeon, detached from the *Detroit* and ordered to Philadelphia for special duty, and thence to Washington, D. C., to report to the Surgeon General.

Ledbetter, R. E., P. A. surgeon, detached from the *Dixie* and ordered to the *Detroit*.

Porter, F. E., asst.-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the *Dixie*, sailing from New York about April 26.

Sturt, A., P. A. surgeon, ordered to the Naval Hospital, Chelsea, Mass., April 24.

Geiger, A. J., asst.-surgeon, detached from the Naval Station, Port Royal, S. C., and ordered to the *Chesapeake*.

Dean, F. W. S., surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the *Frolic*.

Oman, C. M., asst.-surgeon, detached from the *Frolic* and ordered home.

Owens, W. D., and Chapman, R. B., asst.-surgeons, detached from the Naval Hospital, Mare Island, Cal., May 12, and ordered to the Asiatic Station, via the *Lawton*.

Strite, C. E., asst.-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Asiatic Station, via the *Lawton*.

Mink, O. J., asst.-surgeon, detached from the Naval Hospital, New York, and ordered to the Asiatic Station, via the *Lawton*.

Neilson, J. D., and Munson, F. M., asst.-surgeons, detached from the Naval Station, Guam, L. I., and ordered home to wait orders.

Stoops, R. E., asst.-surgeon, detached from the *Pensacola*, May 12, and ordered to the Asiatic Station, via the *Lawton*.

McLean, H. T., asst.-surgeon, detached from the Naval Hospital, Boston, April 29, and ordered to the Naval Station, Guam, L. I., via the *Solace*.

Clifford, A. B., asst.-surgeon, detached from the Navy Yard, New York, April 29, and ordered to the Naval Hospital, Canacoa, P. I., via the *Lawton*.

Smith, H. W., asst.-surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Naval Hospital, Canacoa, P. I., via the *Lawton*.

Wickes, G. L., asst.-surgeon, detached from the *Lancaster*, April 29, and ordered to the Asiatic Station, via the *Solace*.

Berryhill, T. A., surgeon, detached from the *Oregon* and ordered home to wait orders.

Nash, F. S., surgeon, ordered to the *Oregon*, via the *Lawton*, May 15.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending April 19, 1905:

Carrington, P. M., surgeon, granted leave of absence for one month and fifteen days from May 2.

Trask, J. W., asst.-surgeon, relieved from duty at Chicago and directed to proceed to Washington, D. C., and report at the Bureau for duty.

Robertson, H. McG., asst.-surgeon, detailed as inspector of unserviceable property at the Hygienic Laboratory, Washington, D. C.

Collins, G. L., asst.-surgeon, bureau telegram of April 5, 1905, granting Assistant Surgeon Collins an extension of leave of absence for five days from April 6, 1905, amended to read three days.

Duke, B. F., acting asst.-surgeon, granted leave of absence for two days from April 20.

Hamilton, H. J., acting asst.-surgeon, granted leave of absence for six days from April 24.

Jackson, J. M., Jr., acting asst.-surgeon, granted leave of absence for seven days from April 16.

Kurtz, W. E., acting asst.-surgeon, granted leave of absence on account of sickness, for sixteen days from March 25.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended April 22, 1905:

SMALLPOX—UNITED STATES.

Florida: April 8-15, Jacksonville, 5 cases; West Tampa, 2 cases.
Illinois: Chicago, April 8-15, 9 cases.
Kansas: Topeka, April 1-8, 2 cases; in 46 counties, March 1-31, 1,123 cases, 5 deaths.
Kentucky: Louisville, April 6-13, 3 cases.
Louisiana: New Orleans, April 1-15, 39 cases.
Maine: Portland, April 1-8, 1 case.
Michigan: Ann Arbor, April 1-8, 1 case (imported); April 8-15, Detroit, 1 case; Grand Rapids, 2 cases; at 42 localities, March 25-April 1, present.
Missouri: St. Louis, April 8-15, 24 cases, 1 death.
New York: New York, April 8-15, 2 cases, 1 death.
Ohio: Cincinnati, April 7-14, 1 case.
South Carolina: Charleston, April 8-15, 2 cases; Greenville, April 1-8, 3 cases.
Tennessee: Nashville, April 8-15, 1 case.
Washington: March 1-31, Mason County, 1 case; Snohomish County, 2 cases.
Wisconsin: Milwaukee, April 15, 8 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Feb. 18-25, 2 cases, 1 death.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Jan. 1-31, 28 deaths.
Brazil: Rio de Janeiro, March 19-26, 4 cases, 5 deaths; Bahia, March 11-25, 16 cases, 2 deaths.
Great Britain: March 18-25, London, 3 cases; Birmingham, 1 case; Cardiff, 2 cases; March 25-April 1, Liverpool, 1 case; Southampton, 9 cases; contacts from an imported case.
India: Bombay, March 14-21, 143 deaths; Calcutta, March 11-18, 9 deaths; Karachi, March 12-19, 15 cases, 2 deaths; Madras, March 11-17, 5 deaths.
Mexico: City of Mexico, April 1-8, 4 cases, 3 deaths.
Russia: Moscow, March 18-25, 4 cases, 4 deaths.
Straits Settlements: Singapore, Feb. 25-March 4, 1 death.
Uruguay: Montevideo, Feb. 6-24, 56 cases, 8 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, March 19-26, 14 cases, 3 deaths.
Ecuador: Guayaquil, March 21-28, 4 deaths.
Panama: Colon, Jan. 23-April 2, 6 cases, 3 deaths; Panama, Jan. 1-March 28, 44 cases, 18 deaths.

CHOLERA.

India: Calcutta, March 11-18, 30 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, Feb. 18-25, 1 case, 2 deaths.

PLAGUE—FOREIGN.

Africa: Cape Colony, March 4-11, 4 cases, 3 deaths.
Arabia: Aden, March 17-24, 45 cases, 34 deaths.
Argentina: San Nicolas, March 18-30, present.
Brazil: Rio de Janeiro, March 19-26, 1 case, 1 death.
Chili: Atacama, March 16, present; Copiapo March 15, present; March 16, Port Mont, present; Valparaiso, present.
India: General, March 4-11, 52,250 cases, 45,541 deaths; Bombay, March 14-21, 648 deaths; Calcutta, March 11-18, 405 deaths; Karachi, March 12-19, 102 cases, 91 deaths; Rangoon, March 18, increasing.
Peru: March 12-19, Chiclayo, 23 cases, 10 deaths; Guadalupe, 1 case, 1 death; Lambayeque, 1 case; San Pablo, 2 cases, 4 deaths; Mollendo, 11 cases, 4 deaths; Lima, 2 cases, 2 deaths.

Medical Organization

Kansas.

Jefferson County Medical Society.—Subject to call, 13 physicians of the county met at Oskaloosa, March 15, adopted the standard constitution and by-laws and perfected the organization of a county medical society, electing the following officers: Dr. Albert G. Smith, Oskaloosa, president; Dr. Edgar C. Rankin, McLouth, vice-president; Dr. W. A. Aitken, Valley Falls, secretary; Dr. Al. D. Lowry, Ozawkie, treasurer; Dr. George W. England, Valley Falls, delegate to state society, and Drs. Stephen E. Smith, Grantville; J. R. Mains, McLouth, and Samuel Johnston, Oskaloosa, censors.

Michigan.

MECOSTA-NEWAYGO MEDICAL SOCIETY.—At a special meeting of the medical societies of these two counties, held at Big Rapids, January 13, consolidation was effected under the above title. Dr. Benjamin F. Brown, Morley, Mecosta County, was elected president; Dr. Willard A. Whitney, Big Rapids, Mecosta County, first vice-president; Dr. John W. McNabb, Fremont, Newaygo County, second vice-president, and Dr. Arthur A. Spoor, Big Rapids, secretary-treasurer.

FIRST COUNCILOR DISTRICT MEDICAL SOCIETY.—The first annual meeting of this society was held in Detroit, February 20. Dr. Leartus Connor, Detroit, district councilor, called the meeting to order. Dr. Charles T. Southworth, Monroe, was elected temporary chairman, and Dr. Guy L. Connor, Detroit, temporary secretary. The committee on organization recommended that the executive committee be composed of the secretaries of the various county societies, and that the president and secretary of the district society be the president and secretary of the medical society of the county in which the meeting is held.

Missouri.

COLE COUNTY MEDICAL ASSOCIATION.—On April 4 a meeting of the association was held in Jefferson City, at which Dr. J. N. McCormack delivered an address on standard reorganization.

JASPER COUNTY MEDICAL SOCIETY.—The society held its regular meeting at Joplin, April 8, with a large attendance from surrounding counties. Dr. J. N. McCormack spoke on medical organization. The meeting closed with a banquet at St. John's Hospital.

BATES COUNTY MEDICAL SOCIETY.—Pursuant to call of the president, Dr. Edward N. Chastain, Rich Hill, a special meeting of this society was held in Butler, April 10, to hear addresses on organization by Drs. J. N. McCormack and Jabez N. Jackson, Kansas City, president of the state association.

MONTGOMERY COUNTY MEDICAL SOCIETY.—Physicians of the county met at Wellsville, April 12, and organized a county medical society on the standard plan, with the aid of Dr. Woodson Moss, Columbia, councilor for the sixth district. Dr. J. Luther Jones, Jonesburg, was elected president; Dr. M. M. Wheeler, High Hill, secretary, and Dr. George E. Muns, Montgomery City, treasurer.

VERNON COUNTY MEDICAL SOCIETY.—Physicians of the county met at Nevada, April 8, and after listening to an explanation of the plan of organization by Dr. J. N. McCormack, formed a county society and adopted the standard constitution and by-laws. The following officers were elected: President, Dr. Henry C. Jarvis, Schell City; vice-president, Dr. Edgar A. Dulin, Nevada; secretary-treasurer, Dr. Thomas B. Todd, Richards; censors, Drs. W. T. Bohannon, George O. Wilson and Samuel A. Johnson, all of Nevada.

CLINTON COUNTY MEDICAL SOCIETY.—Physicians of the county met at Plattsburg, April 11, and after talks by Dr. Elijah H. Miller, Fayetteville, councilor of the third district, and Dr. J. N. McCormack, organized a county society on the standard plan and elected the following officers: President, Dr. John Sturgis, Perrin; vice-president, Dr. Stephen D. Reynolds, Gower; secretary-treasurer, Dr. E. A. Colley, Plattsburg; censors, Drs. Robert W. Rea, Plattsburg; John C. Starks, Gower, and R. J. Woods, Trimble, and delegate to the state association, Dr. Robert W. Rea, Plattsburg.

ANDREW COUNTY MEDICAL ASSOCIATION.—At a meeting of the physicians of the county held at Savannah, April 12, Dr. J. N. McCormack addressed the meeting on organization, and a county association was formed on the standard plan with the following officers: Dr. David B. Bryant, Savannah, president; Dr. Oscar T. Bloomer, Rochester, vice-president; Dr. Clarence O. Jefferies, Savannah, secretary-treasurer; Dr. Elijah C. Bennett, Bolckow, delegate to the state association; Dr. Warren E. Danley, Avenue City, alternate, and Drs. William H. Bailey, Savannah; William M. Kerr, Savannah, and Ezekiel Houston, Savannah, censors.

LIVINGSTON COUNTY MEDICAL ASSOCIATION.—This association was reorganized at Chillicothe, March 22, with the following officers: Dr. David Gordon, Chillicothe, president; Drs. William A. Swope, Wheeling, and O. L. Alberty, Dawn, vice-presidents; Dr. John F. Cherrington, Chillicothe, secretary; Dr. Byron N. Stevens, Chillicothe, treasurer; Dr. G. W. Hutchison, delegate to the state association, and Dr. Reuben Barney, alternate.——Representative physicians from Livingston, Daviess, Mercer, Caldwell, Grundy, Linn, Sullivan and Carroll counties met with the association at Chillicothe, April 13, listened to an address by Dr. J. N. McCormack on the standard plan of organization and the benefits to be derived therefrom, and discussed the advisability of adopting this plan.

Texas.

LAVACA COUNTY MEDICAL ASSOCIATION.—This society has been reorgnaized at Hallettsville with the following officers: Dr. J. D. Gray, Shiner, president; Dr. Absalom A. Ledbetter, Hallettsville, vice-president; Dr. Arthur L. Fuller, Hallettsville, secretary-treasurer, and Dr. William E. Drisdale, Yoakum, delegate to the state association.

LIMESTONE COUNTY MEDICAL ASSOCIATION.—Dr. Garland B. Foscue, Waco, councilor of the twelfth district, met with the physicians of the county at Groesbeck, March 23, and effected a permanent county organization on the standard plan, with the following officers: Dr. Reuben B. Jackson, Mexia, president; Dr. William W. Brown, Groesbeck, vice-president, and Dr. George W. Stone, Thornton, secretary-treasurer.

Georgia Adopts Reorganization Plan.

The Medical Association of Georgia began its annual session at Atlanta, Wednesday, April 19, 1905, with the largest attendance in its history, and a program covering three days of interesting scientific work. The meeting began its labors on the last day of the Anti-Tuberculosis League in the same city, and this contributed to the increased attendance, but more of it was probably due to the fact that it was known that the proposed new constitution and by-laws, which had been pending and widely discussed during the past year, would come up for final adoption or rejection.

The program made the matter of reorganization a special order for Thursday evening. As the constitution and by-laws had been published in the transactions, and had been made the subject of much good-natured controversy for months, much interest had been aroused, and all were ready for the free discussion of the questions at issue. This was pitched on the high plane befitting the important subject and the high character of the disputants on both sides. After this full and free discussion the proposed constitution and by-laws were adopted, and on the following day the state was divided into eleven councilor districts, with the following councilors as leaders of the work of organization in each:

First District, John S. Howkins, Savannah; Second District, William L. Davis, Albany; Third District, R. E. Lee Barnum, Richland; Fourth District, W. L. Fitts, Carrollton; Fifth District, Edward C. Davis, Atlanta; Sixth District, Mallie A. Clarke, Macon; Seventh District, Alfred F. Calhoun, Cartersville; Eighth District, Samuel C. Benedict, Athens; Ninth District, William B. Hardman, Commerce; Tenth District, Wyman W. Pilcher, Warrenton; Eleventh District, Jefferson D. Herman, Eastman.

William Z. Holliday, Augusta, was elected president; Roberts P. Izlar, Waycross, first vice-president, and Charles T. Nolan, Marietta, second vice-president, and Louis H. Jones, Atlanta, was re-elected secretary and treasurer for a term of five years. The next annual meeting will be held at Augusta, April 18-19, 1906.

Georgia has a strong profession, and with the interest which has been aroused in the work of local organization by the discussion during the year and at this meeting, insuring the councilors the cordial co-operation of the profession in probably a majority of the counties at the outset, the gain in membership and otherwise promises to equal that secured under this plan in any other state.

The Purpose of the County Society.

"On other occasions," says *Northwest Medicine*, "we have urged the formation of county societies where they do not now exist and where a sufficient number of physicians is available for their organization. But the most important field for united effort lies in the cities of the state, where the physicians are found in large numbers and where the county societies enroll only a portion of them. It seems to us that the most important work for these societies for the coming year is to gather into their membership every eligible, reputable physician in their midst. Thus will be established a powerful and influential body that will be in a position to secure local and state legislation in the interests of public health and sanitation beside conserving the interests of the medical profession. Whenever, by reason of enlarged membership, the society becomes unwieldy for successful scientific work, it will be timely to establish sections of smaller bodies of physicians possessing similar interests where special work can be conducted. But first of all let us assemble in the county society and make that the unit of organization."

Society Proceedings

COMING MEETINGS.

American Medical Association, Portland, Ore, July 11-14, 1905.

Nebraska State Medical Association, Beatrice, May 2-4.
American Proctological Society, Pittsburg, May 5-6.
American Therapeutic Society, Philadelphia, May 4-6.
Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.

AMERICAN ANTI-TUBERCULOSIS LEAGUE.

Annual Session, held in Atlanta, Ga., April 18-19, 1905.

The President, Dr. George Brown, Atlanta, Ga. in the Chair.

The governor of Georgia welcomed the delegates on behalf of the state; Hon. Clark Howell, on behalf of Atlanta; Dr. Willis F. Westmoreland on behalf of the State Board of Health; Dr. William Perrin Nicholson on behalf of the Georgia State Medical Association, and Dr. John Olmsted on behalf of the Atlanta physicians.

President's Address.

In the opening address, Dr. George Brown, the president, welcomed the delegates, paying them an eloquent tribute as men who for love of humanity were willing to sacrifice time and money to come to this meeting that they might help along the great work of the prevention of tuberculosis. Their mission is to plead that tuberculous sufferers might have better treatment, better laws and better attention.

Tuberculosis in the Negro.

Dr. Searle Harris, Union Springs, Ala., read the first paper, in which he considered the cause and prevention of tuberculosis in the negro from a sociologic standpoint. He held that the great death rate from consumption in the negro race was due to lack of sanitation and to improper modes of life.

Susceptibility of Children to Disease.

Dr. William S. Alexander, Oxford, Ohio, considered the susceptibility of children of tender ages to disease, and emphasized the care that should be exercised in rearing them until they come to an age at which they can offer vital resistance. In the discussion of this paper the question of the heredity contagiousness or infectiousness of tuberculosis was brought up and the advocates presented their views which were strongly convergent.

The Tuberculous Woman.

Dr. Mary Hawes, Denver, in her paper on "The Tuberculous Woman in Colorado," made it plain that a climatic prescription was not the desideratum. It made a difference whether the consumptive woman in the west was sent there with the disease or whether she contracted the disease after she came there. The author believed that temperament, age, financial condition, etc., had rarely been given the thought which they required by eastern physicians.

State Control.

Dr. Robert E. Conniff, Sioux City, Iowa, in his paper on "State Control of Tuberculous Diseases," suggested the necessity of isolation of tuberculous patients and asserted that health boards assume control of other diseases far less fearful and less deadly than tuberculosis.

The Physician's Duty in Tuberculosis.

Dr. Chase P. Ambler, Asheville, N. C., read a paper on "The Physician's Paramount Duty to the Patient and Family in Tuberculosis." He averred that tuberculosis was not the fatal disease that many had been taught to believe, and declared that too many physicians were in the habit of keeping the truth regarding the disease from tuberculous patients. He asserted that it was within the province of the family physician to educate the family to the necessity of conditions existing in tuberculosis cases. With proper care the disease could be handled and the knowledge of its existence was better for all concerned. He insisted that:

1. Tuberculosis is not the fatal disease commonly believed.
2. While communicable, it can practically be made innocuous by the proper course on the part of the patient.
3. The chief cause of the large mortality is late diagnosis.
4. Late diagnosis is caused by indifference of patient to early symptoms and carelessness on the part of the physician consulted.
5. By thorough, systematic instruction of the patient better results can be accomplished than by medication.
6. Instructions of patient, family and friends and close observance on their part of the rules laid down will practically rob the disease of its method and means of extending.

To Overcome Spread of Tuberculosis.

Dr. James M. Masters, Newport, Tenn., presented a paper entitled "How Conditions Chiefly Responsible for the Spread of Tuberculosis Can Be Overcome." He laid especial stress on expectoration and the great harm it did in the home as well as in public places and on sidewalks, and commended the various anti-expectoration ordinances passed by muncipalities. He said that all spitters should be required to carry cups, that handkerchiefs should not be used by consumptives, and that the bacilli are expectorated and not exhaled.

Importance of Disinfection.

Dr. Edward L. McGehee, New Orleans, a member of the State Board of Health, enlarged on the importance of disinfecting any apartment occupied by tuberculous subjects. He demanded thorough disinfection of every room and every house which had been the home of a tuberculous patient, and demonstrated that germs of the disease could lie dormant in a room for years and then, when disturbed, could enter on a new campaign of disease and possibly of death. He stated that by disinfection only could the germs be annihilated.

Dr. Quitman F. Kohnke, New Orleans, demanded disinfection, but doubted the wisdom of a compulsory law.

The Creed of the League.

The committee on resolutions submitted its report, in which it presented the following preamble and resolutions as the creed of the league:

1. Tuberculosis is communicable, not inherited. A predisposition to this disease may be transmitted from parent to child, but not the disease itself.
2. Tuberculosis is curable. When the presence of the germ is early recognized, it may be destroyed in the individual by the adoption of proper remedial measures.
3. Tuberculosis is preventable. Two factors are essential to its development. First, the presence of the germ, and, second, a soil favorable for its development. To some extent one or both of these factors are subject to intelligent control. The disease is, therefore, to this extent preventable.
4. We respectfully recommend the appointment by this league of three physicians in each state, whose duty it will be to form state antituberculosis leagues, to invoke the aid of the profession and the state in the crusade against this dreadful disease.

Resolved, That this league respectfully transmits a copy of these resolutions to the secretary of each state society to be presented to the societies for consideration and action thereon, and asking their co-operation.

Resolved, That the object sought to be accomplished by this congress of the American Anti-Tuberculosis League is to present to the American public practical and practicable methods and measures to avoid the infection of tuberculosis, to suppress its spread, and in furtherance of this end to endeavor by education to encourage a healthful condition of living, through personal hygiene and domestic sanitation.

Resolved, further, That a committee be appointed by the chair to prepare concise and forcible leaflets, tracts, pamphlets and other literature intended for the information of the public, on the subject of tuberculosis and the manner in which it is usually acquired, how to prevent its spread by proper living, and proper sanitary care of the patient and his dwelling, and for the presentation of this subject interestingly, practically, understandingly. Such literature to be distributed widely throughout the United States, in home, store, workshop and factory.

Be it also resolved, That the committee so appointed shall be authorized to solicit funds by popular subscription to defray the expenses for carrying out the purpose of this resolution.

Presentation to President.

At the opening of the third day's session Dr. Walter F. Boggess, Louisville, presented to Dr. George Brown, the president, on behalf of the league, a three carat diamond pin, set with emeralds.

Election of Officers.

The officers selected for the coming year are as follows: President, Dr. Robert E. Conniff, Sioux City, Iowa; vice-presidents, Drs. T. V. Hubbard, Atlanta, Ga., Arthur H. Van Dyke, Atlanta, Ga., Chase P. Ambler, Asheville, N. C., Charles A. Snodgras, St. Louis, Mo., Edward L. McGehee, New Orleans, La., Mark Millikin, Hamilton, Ohio, Preston M. Hickey, Detroit, Mich., Urbane V. Williams, Frankfort, Ky., Joseph Y. Porter, Key West, Fla., Gray of New Jersey, and William J. McMurray, Nashville, Tenn.; secretary and treasurer, Dr. Walter N. Vilas, El Paso, Texas.

Entertainment.

On the evening of April 18, the delegates were entertained at a reception at the Piedmont Hotel by Dr. George Brown, the president, the officers of the league, and the ladies reception committee.——On the afternoon of the second day the delegates were the guests of Dr. Arthur H. Van Dyke, chairman of the local reception committee, at an old-time Georgia barbecue, at the Cold Springs 'Cue Club.

The next annual session will be held in El Paso, Texas.

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.

(*Continued from page 1307.*)

Melancholia.

DR. S. T. RUCKER, Memphis, said that heredity is encountered in this disease in about 50 per cent. of the cases. Ill health, mental strain, worry over financial affairs, domestic troubles, and disappointment in love are also factors largely responsible for most cases. Auto-infection undoubtedly plays a considerable rôle in some cases. Pregnancy in primiparæ is an aggravating cause, and generally begins about the third or fourth month. The puerperal state does not so often produce melancholia as pregnancy and lactation. Several forms of agitated melancholia are occasionally associated with chronic alcoholism. The sobering up after a prolonged spree or debauch will precipitate an acute attack of melancholia, not infrequently ending in suicide. The onset of melancholia is almost always gradual. At first, it may be only a feeling, which takes no definite shape, and there may be no delusions. Every thought and everything in the environment had a sorrowful color. When questioned, the patient will simply say that he feels depressed or has the blues. The morbid feeling constitutes the disorder. The symptoms vary from a simple state of dejection to a state of profound depression, in which the patient is either paralyzed by the dreadful nature of his concepts, or is thrown into a state of agitated suffering, associated with marked precordial distress and peculiar pains in the back or top of the head. The author mentioned three varieties of melancholia, the acute, subacute and chronic. There is no known pathologic anatomy for melancholia. It is considered a functional disease of the brain. Melancholia can hardly be mistaken for acute mania, as in the former there is a slowing of the thought process, while in the latter there is an accelerated flow of ideas, and the maniac is unusually cheerful and talkative. The prognosis in melancholia is very favorable, inasmuch as fully 90 per cent. of the cases recover. Thorough investigation, speedy separation from relatives and friends, and an early commitment to an institution for treatment should be the rule in this class of patients.

DISCUSSION.

DR. M. CAMPBELL, Knoxville, said that melancholia agitata and simple melancholia, are symptoms of one and the same disease. Melancholia itself is not, strictly speaking, a mental disease, but a symptom of a pathologic state which underlies the symptom of depression which is most prominent, whether it be an organic or functional disease. A large percentage of the cases of melancholia that are sent to hospitals for the insane do not recover. He does not think half of them get well. In treatment, he suggested a change of scene, getting away from the conditions that produced the disease, building up the patient physically and giving hypnotics to produce sleep, warm baths, etc.

DR. W. J. BREEDING, Taylors, related the history of a woman, 42 years of age, mother of eight children. An aunt in the family was insane. He saw her in the sixth week of pregnancy, at which time she was in a depressed condition. He made a diagnosis of hysteria. The woman recalled her experience during a former pregnancy, and said she could not live through this one, believing she would have a repetition of vomiting and nausea. There was no pathologic condition. She had numerous delusions up to the seventh month of pregnancy, when a miscarriage occurred; the fetus was badly deformed. It was thought she would now recover, but in two weeks she lapsed into a condition of melancholia, eked out a miserable existence for two or three months, and then committed suicide by hanging.

DR. C. P. MCNABB, Knoxville, cited two cases, in neither of which the family consented to sending the patient to a hospital. One patient had three attacks of melancholia, with three partial recoveries. The other was now in her third attack.

DR. A. F. PASCHALL, Crossland, thinks that in the case of young men advertising literature by quacks plays an important rôle in the causation of melancholia.

DR. S. S. CROCKETT, Nashville, said there is a popular impression that there is an insanity which develops in puerperal women that differs from other forms of the disease. There never was a greater mistake. Pregnancy and lactation should be regarded as one factor which may produce insanity in a woman who is otherwise predisposed to it.

DR. LOUIS LEROY, Nashville, agreed with Dr. Crockett that there is no special type of insanity peculiar to the pregnant woman. The condition has been recognized as an etiologic factor, possibly as the exciting cause of the disease, to such an extent that, even though incorrect, from the standpoint of pathology, clinically the term puerperal insanity is recognized both professionally and by the laity. The probability is that the causes are few in number: First, that the shock to the nervous system resulting from the profound changes occurring in pregnancy may bring on an attack which is impending or accentuate the nervous disturbance otherwise held under control. On the other hand, many cases are the result of auto-intoxication.

Diagnosis of Kidney Diseases.

DR. LOUIS LEROY, Nashville, said that in renal diseases more than in others, accurate discrimination in diagnosis is important. Failure to distinguish between parenchymatous or interstitial nephritis, or to make a snap diagnosis of nephritis from a trace of albumin without further investigation of general clinical conditions and the exclusion of some other lesions microscopically, or a repeated examination, in the absence of casts, microscopically to determine some cyclic or functional albuminuria, may render the physician a subject of ridicule for which years of careful and conscientious work can scarcely atone. While malformations of the kidneys are of great rarity, their importance in surgical cases should cause the possibility to be constantly borne in mind. The absence of one kidney or fusion of both into one mass should be considered and the presence of an organ on both sides determined, if possible, while debating the admissibility of operative procedures. It is not always possible, and frequently quite difficult, to determine the presence of the kidney when in normal position, either by percussion or palpation, especially in patients with thick abdominal walls, or large, well-developed spinal muscles. In such cases the presence of the organ may be determined by the *x*-rays, or both ureteral orifices may be determined by a cystoscopic examination, in which case the presence of two kidneys may be considered as assured, the possibility of a single kidney having two pelves and ureters being so slight as to be negligible. In case of movable kidney, however, it is usually possible to recognize the condition by palpation, sometimes assisted by percussion, and one may sometimes be surprised to find no clinical symptoms associated. With some cases the kidney readily returns to its normal position, where it remains for some time, and it may be necessary to make several examinations at different times before finding it when displaced.

Perinephritic Abscess.

Dr. W. A. Bryan, Nashville, discussed the differentiation of this form of abscess from other abdominal conditions, and reported a case. Mr. F., locomotive fireman, aged 28, has had no evidence of disease since childhood. In August, 1904, patient received a superficial burn on his left olecranon, which became infected, but healed kindly. After a few days an abscess developed with the burn. This was opened and healed. A few weeks later three or four other abscesses formed around the site of the original abscess, were opened, or ruptured, and healed. In October he began to have pains in the right lumbar region, and soon afterward quit work and went to his bed. Pain in the right side was described as a "catch"; his back ached constantly. He became distinctly septic. Liver dullness was elevated one inch in the right nipple line; right side one and one-half inches larger than the left. Enlargement of the right loin was very perceptible, and fluctuation was present; pus on aspiration; urine normal. December 15, 1904, the author operated, removing 24 ounces of pus. Patient improved, but had pain again from the beginning after the operation in his left side. Aspiration was resorted to, pus was found, and two weeks from the first operation a second one was performed, removing eight ounces of pus from the left side, after which the patient made an uninterrupted recovery and has since gained forty pounds. The pus gave a pure culture of staphylococcus aureus. There was no connection between the two abscesses.

(*To be continued.*)

A Postoffice Exposure

FRAUDULENT USE OF U. S. MAILS.

Circuit Court Decision in Case Denying Use of Mails to Lost-Manhood Advertiser.

The record in a case recently decided in the U. S. Circuit Court for the Northern District of Illinois by Judge Christian C. Kohlsaat will be found of interest to our readers. We give first an abstract and then the full text. In the text the subheadings have been added by The Journal.

For some time prior to September, 1903, T. B. Ganse had been engaged in his own name, or under the name of the Chicago Cure Company, in the mail order business for advertising, distribution and sale of certain remedies, purporting to be adapted to the permanent and effective cure of sexual diseases of men. Following a number of complaints received by the U. S. Postoffice Department, an investigation of the business was begun, with the assistance of Dr. H. W. Wiley and staff of the Department of Agriculture.

On Sept. 18, 1903, Mr. Ganse was notified that charges were pending against him to the effect that he was engaged in conducting a scheme for obtaining money through the mails by the means of fraudulent pretenses, in violation of the postal laws. A memorandum of the charges was sent him, and Oct. 12, 1903, was set for a hearing. The advertiser filed a sworn statement, in which he asserted the truthfulness of all representations he had made, and asserted that the curative qualities of his remedies had been truly stated. At the hearing of the complainant, correspondence and samples of all circulars and advertising matter, etc., were gone over.

The next procedure was a full consideration of all the data by the Assistant Attorney General of the United States, and the conclusion was reached that this Chicago Cure Company was "using the mails for obtaining money by means of false and fraudulent pretenses as to a medicine incapable of producing the benefits claimed." This report was submitted to the Postmaster General, and he duly issued a fraud order, June 2, 1904.

From this fraud order, Mr. Ganse appealed. The case was entitled, "T. B. Ganse, vs. F. E. Coyne, Postmaster, etc.," F. E. Coyne being the postmaster of Chicago, and the local authority most concerned in the enforcement of this fraud order against the advertiser. The point to be decided was apparently this: Did the officials of the government give a full and judicial hearing to all possible necessary evidence to establish the point of fraud on which the order was based.

The entire evidence of the government's investigations and of all the procedures that had been taken were given consideration by Hervey W. Booth, special master in chancery, who was ordered to report to the judge of the Circuit Court. We here acknowedge the kindness of Mr. Booth and of the U. S. District Attorney, S. H. Bethea, in furnishing a copy of the master's report, and in giving further information about the disposition of the case. This report was approved by the Federal Circuit Court, which procedure involved the dismissal of the appeal of the complainant, Mr. Ganse, for want of equity. When the status of the case had been determined thus, Mr. Ganse was indicted for fraudulent use of the mails, he pleaded guilty, and the matter was continued for sentence later.

IN THE U. S. CIRCUIT COURT FOR THE NORTHERN DIST. OF ILLINOIS, NORTHERN DIV., CHANCERY: MASTER'S REPORT.

To the Hon. Christian C. Kohlsaat, Judge of said court:

The undersigned, who was heretofore by order duly entered herein, appointed special Master in Chancery to assist the standing master, William M. Booth, to whom said cause was referred by order entered therein on the 17th day of June, 1904, to take proofs and report the same together with his conclusions, having been by order entered on Sept. 19, 1904, on account of the death of said standing master, given the same power and authority to make report of proofs and findings of law and facts as were given said standing master, respectfully reports as follows:

The undersigned as such assistant master, prior to the death of said standing master, and under his directions, caused the parties in said cause to attend before him on the 27th day of June, 1904, and on various other days subsequent thereto, as will more fully appear from the transcript of the record which is filed herewith, and thereon certain oral and documentary evidence and certain physical exhibits were adduced on behalf of the respective parties; and certain other proceedings were had; all of which documentary evidence and exhibits, together with a full, true and correct transcript and report of said oral evidence is filed herewith, and constitutes all the evidence of every description produced before the undersigned master on behalf of either of the parties to said cause.

And thereon, afterward, oral and printed arguments were submitted to said master by counsel for the respective parties, and the master, having considered the said arguments, and the said evidence and proceedings before him, has reached the following findings and conclusions.

I.—IDENTITY OF THE PARTIES.

The complainant, T. D. Ganse, is a citizen of the state of Illinois, residing in the said Northern District of Illinois, in the said Northern Division thereof; and the defendant, F. E. Coyne, is the postmaster of the United States in and for the city of Chicago, in said Northern District of Illinois, duly commissioned and acting as such.

II.—THE ISSUING OF THE FRAUD ORDER.

In September, 1903, and for some time prior thereto, the complainant had been and was engaged, either in his own name or by the name and style of "Chicago Cure Company," in a business in the nature of a mail order business for the advertising, distribution and sale of certain remedies purporting to be adapted to the permanent and effective cure of sexual diseases of men, the principal office of which business was located at said city of Chicago. In distributing his advertising matter in search of patrons, and in communicating with and sending his preparations to customers, and in collecting from them payment for medicines furnished, Ganse made extensive use of the United States Postoffice establishment and of the United States Mails.

Prior to September, 1903, various communications in the nature of complaints of the business conducted by Ganse had been received by the United States Postoffice department, and through its proper officials said department had been conducting an investigation of such business. On September 18, 1903,

by direction of the Postmaster General, the complainant was notified that charges were pending against him in the Postoffice Department at Washington, to the effect that he was engaged in conducting a scheme or device for obtaining money or property through the mails by means of false or fraudulent pretenses, representations or promises, in violation of Sections 3929 and 4041 of the United States Revised Statutes, and a memorandum of such charges was at the same time submitted to him, and a day fixed for considering the charges and complainant's reply thereto; in which memorandum the complainant's business was described as a scheme to effect the sale at an enormous profit of a combination of drugs palmed off as a wonderful discovery, by falsely representing its curative powers.

To this charge complainant filed a sworn statement in which he asserted the truthfulness of all representations made by him, and that the curative qualities of his remedies had been truly stated.

The matter came on for hearing at Washington, D. C., before Edwin W. Lawrence, the acting assistant attorney general, on Oct. 12, 1903, at which hearing the complainant was represented by his counsel. On the hearing there was submitted to the assistant attorney general various proofs and exhibits adduced in support of and in disproval of said charge, such proofs consisting in part of the several complaints before the department and correspondence connected therewith (being government's exhibits Nos. 11 to 44), also the postoffice inspector's reports in the case; also formulas submitted by complainant purporting to show the composition of his various remedies; also a complete file of all circulars and advertising matter used by the complainant; various circulars that had been distributed by him through the mails to certain customers; a number of testimonials submitted by complainant said to have been received from patrons who had been treated by him, and various medical authorities cited by complainant's counsel in support of his contention of the efficacy of the remedies.

Thereafter the government caused samples of the complainants' remedies to be procured and submitted to the Department of Agriculture for analysis. Some of these samples were already in the possession of the government, having been received from one of the complaining parties above referred to; other samples were obtained by Inspector McAfee of the Postoffice Department, through correspondence with the complainant under an assumed name. There was some delay in completing the analysis owing to the necessity of procuring these additional samples, the quantity first submitted to the Agricultural Department having been insufficient for a satisfactory analysis. Ultimately the analysis was finished, and a report of the results arrived at was submitted to the Postoffice Department, which report is in evidence before the master as government's exhibit No. 34.

Thereafter, at the request of the Postoffice Department, Dr. Wyley of the Agricultural Department furnished to the Postoffice department his opinion in writing of the efficacy of the samples of Robusto analyzed, which opinion, omitting the formal beginning and ending, is as follows:

> I beg to acknowledge receipt of your communication of the 17th inst., asking for a further statement in regard to the alleged remedy known as "robusto." I have also looked over carefully the circulars of various kinds issued by the company making this alleged remedy. Many forms of this remedy are mentioned in the circulars which we have examined. We have not had samples of "robusto" course for external use, special robusto vitalizer and developer, nor any of the forms of the alleged remedy described on the back of the reduction check No. 159670, marked in blue pencil, No. 13. I, therefore, can give no opinion respecting the efficacy of any of these substances. I beg, however, to state that, in my opinion, the samples of "robusto" which we have examined, and the results of which examination were transmitted to you in my letter of April 22, 1904, can not possibly have the properties ascribed to them in the advertising circulars of the Chicago Cure Company which you have submitted for examination. In my opinion, these remedies are practically inert. The circulars are calculated to excite groundless fears in the minds of those reading them and to develop false hopes of the benefits which are promised. Any good effect which may be noted in the patient as a result of the application of this alleged remedy is probably due to the mental condition noted above, and not to the efficacy of the remedy itself.

The case was finally considered by Mr. Goodwin, the Assistant Attorney General, and his assistant, Mr. Lawrence, on all of the above proofs, analyses, communications, formulas, testimonials submitted and medical authorities cited by Ganse's counsel, and also on evidence showing numerous other concerns selling alleged cures for lost manhood and claiming to use practically the same drugs as those shown in Ganse's formulas; and a conclusion was reached by them which was embodied in a memorandum and recommendation signed by the Assistant Attorney General, and submitted by him to the Postmaster General. This memorandum, omitting its formal beginning and conclusion, is as follows:

> This company was duly called on, Sept. 18, 1903, to show cause before this office by Oct. 12, 1903, why it should not be denied the further use of the mails in the conduct of its business, which was charged to be fraudulent within the meaning of the above-mentioned statutes. The company, in response thereto, submitted a written answer, as well as appearing by its attorney, W. Knox Haynes, Esq., of Chicago, on the day fixed for hearing, to supplement its written answer by oral argument. Careful consideration has been given this case, and samples of the company's alleged cures have been submitted to the Department of Agriculture for chemical analysis and advice.
>
> This company has for sale what it claims is a cure for "nervous debility and sexual inability," etc. To induce the unfortunate to become its patients for the treatment of such conditions, the company makes many extravagantly false and misleading representations and statements regarding the properties and efficacy of its alleged remedies. A few of these are quoted below:
>
> "NEW LIFE!! NEW HOPE!! ROBUSTO: A MAN BUILDER. WHAT ROBUSTO DOES: Robusto is a combination of remedies prepared on a scientific plan far in advance of the usual stimulating method. It is a system so planned that its powers and effectiveness increases as it progresses, until a cure is established upon a solid basis that will last for life. Those who are looking for a temporary stimulant will please pass us by. We aim to do PERMANENT GOOD, and in no case will we do injury. ROBUSTO is effective in all cases of WEAKNESS, no matter what the cause. It will BUILD UP any man who is run down, whether from sickness, overwork, dissipation, or whatever else. If you suffer from temporary exhaustion or brain fag, ROBUSTO will fit you for the duties which must be met. It has saved the day and brought business success to many a man. ROBUSTO fills out thin men, gives calm nerves, and imparts self-reliance. ROBUSTO is particularly recommended in all forms of nervous debility and sexual inability. It will stop the life waste attendant upon spermatorrhea, and restore health to the entire sexual organism. It is particularly effective in cases of atrophy, lack of power, etc. And in this respect we challenge the world for its equal. In cases of Varicocele, Hydrocele, Stricture, Gleet and Prostatic Irritation, ROBUSTO seems to have a soothing effect upon the irritated parts, while its strength-building qualities will build up such a vigorous state of health that nature will have power to eliminate the diseased tissues and establish normal health. Even in the most severe cases we suggest a little caution, and the use of ROBUSTO before resorting to instruments which are likely to carry the disease still deeper. We claim that the ROBUSTO progressive plan is as far above the old fogie drug stimulants and poisons as usually administered as sunshine is ahead of darkness. We need not go into the usual harrowing and sometimes indecent details. You will know whether or not you are up to the mark, and if you find yourself failing, or even if you have given up hope, just give ROBUSTO a trial upon the liberal terms which we name, we taking the risk. We firmly believe that there is not a man living, young or old, who is so weak that ROBUSTO will not revive him; none so strong that it will not benefit, if used at the right time. ROBUSTO will give you rich, red blood, strong nerves, active brain, and all that goes to make ATTRACTIVE MANHOOD.
>
> "ROBUSTO is NOT a stimulant, but a strength-building nerve food, with added ingredients to eliminate disease, restore the tissues and establish normal manhood upon a firm foundation.
>
> "ROBUSTO is a fixed method of treatment, consisting of the most potent remedies known to science, so combined that they increase in power and effectiveness as the system progresses.
>
> "ROBUSTO is a tonic for overworked or dissipated men. It stops life waste and restores proper strength and development.
>
> "ROBUSTO fills out thin men, brings calm confidence, clear complexion, and all that goes to make attractive manhood.
>
> "ROBUSTO is a true bracer for young men, married men, middle-aged and old men. It will revive you and put new sunshine into your life.
>
> "ROBUSTO is in every sense A MAN BUILDER.
>
> "ROBUSTO is the grandest remedial plan ever devised for the relief of SEXUAL DEBILITY. It is a combination of agencies, prepared on a fixed system, which increases in power as it progresses. The test course is merely the commencement of the *building up* process, to be consummated by the addition of other ingredients, all of which act in harmony to establish normal health without stimulation or reaction.
>
> "ROBUSTO will strike at the foundation of your trouble and rescue you from the SEXUAL SUICIDE which threatens.
>
> "You have got to TOUCH THE SPOT AND HEAL IT and this is accomplished by our PROGRESSIVE STRENGTH BUILDING PLAN, which enters into your entire system, vitalizing every nerve and fiber of your being, until almost imperceptibly and before you realize it you find yourself A NEW MAN.
>
> "During this process the sexual organs will become properly developed and strengthened. Your will power will grow, so that you will have proper SELF-CONTROL; in cases complicated with varicocele, stricture, prostatic irritations, etc., the diseased tissues will be eliminated, the irritation soothed and a healthy tone established. The nerves will become calm, the brain active, and all that miserable condition of sympathetic health, often complicated by constipation, stomach distress, liver disease and whatever else, will gradually disappear, to be replaced by the Magnetic Vigor and Self-Reliance of PERFECT MANHOOD."
>
> Samples of the company's remedies submitted to analysis by the Bureau of Chemistry of the Department of Agriculture were found to contain about 50 per cent. sugar, with the remainder composed of the active constituents, spanish flies, red pepper,

ferrous carbonate, and a bitter material which could not be identified. The active agent of these remedies is probably the Spanish flies and they are recognized as being aphrodisiacal. The conclusion of the Department of Agriculture as to the efficacy of these remedies is:

"I beg, however, to state that, in my opinion, the samples of 'robusto' which we have examined, and the results of which examination were transmitted to you in my letter of April 22, 1904, can not possibly have the properties ascribed to them in the advertising circulars of the Chicago Cure Company which you have submitted for examination. In my opinion, these remedies are practically inert. The circulars are calculated to excite groundless fears in the minds of those reading them and to develop false hopes of the benefits which are promised. Any good effect which may be noted in the patient as the result of the application of this alleged remedy is probably due to the mental condition noted above and not to the efficacy of the remedy itself."

Being convinced that it is using the mails for obtaining money by means of false and fradulent pretenses, representations, etc., as to a medicine which is incapable of producing the benefits claimed, I recommend that a fraud order be issued against this company.

This memorandum, together with a fraud order, prepared in the usual form for signature, was submitted to the Postmaster General, and on due consideration thereof, he approved the same, and signed and issued said order under date of June 2, 1904.

III.—BASIS FOR THE FRAUD ORDER.

The evidence which was before the Assistant Attorney General, and which was considered by him, and on which he based his recommendation and finding to the Postmaster General, was considered by him as satisfactory and sufficient to warrant the same.

In coming to the decision reached by him embodied in his memorandum to the Postmaster General, the Assistant Attorney General considered that the analysis made by the Department of Agriculture was a correct statement of the composition of the alleged cure; but he also further concluded that even on the assumption that the formulas submitted by Ganse correctly stated the ingredients of the cure, and assuming further that some of said ingredients might have a beneficial effect in the treatment of certain of the diseases prescribed for, nevertheless, there were numerous and material false representations in the literature of the complainant sufficient to bring the case within the fraud statutes.

Shortly after the issuing of the fraud order, counsel for the complainant called on Mr. Goodwin, the Assistant Attorney General, and requested that said order be stayed for a few days to give him an opportunity to disprove the analysis of the Department of Agriculture, which request Mr. Goodwin declined to comply with, but offered to take up the case and hear additional proofs at any time.

It does not appear that any further effort was made by counsel for complainant to secure a rehearing of the case before the Postoffice Department, or to present any further or other proofs before said department.

IV.—AUTHORITY FOR THE FRAUD ORDER.

The procedure following the hearing, consideration and determination of this matter was the usual and customary procedure of the Postoffice Department in all similar cases. Under the authority conferred by Section 161, Title IV, of the United States Revised Statutes, the Postmaster General had adopted certain rules and regulations for the government of his department and the performance of its business, among which rules and regulations are the following, which were in force in October, 1903, and thereafter, being portions of Section 21, Postal Laws and Regulations of 1902, viz.:

Sec. 21. The Assistant Attorney General is charged with the duty of giving opinions to the Postmaster General, * * * with the hearing and preparation of cases relating to lotteries and the misuse of the mails in furtherance of schemes to defraud the public.

The assistant attorney for the Post Office Department is assigned to the office of the Assistant Attorney General for the performance of such duties as the latter may direct. During the absence of the Assistant Attorney General, the assistant attorney will perform the duties devolving on that officer.

Mr. Lawrence was the assistant attorney for the Postoffice Department, and the oral hearing on October 12, was before him, in the absence of the Assistant Attorney General. All the proofs in the case were subsequently laid before the Assistant Attorney General, and were considered by him, in conjunction with Mr. Lawrence, on the final determination of the matter.

None of the proofs, other than those that are recited in the Assistant Attorney General's memorandum, were submitted by the attorneys to the Postmaster General.

In determining cases of this nature, the Postmaster General does not always limit himself to a consideration of the memorandum submitted to him by the Assistant Attorney General, but frequently inquires further into the facts of the case. Whether or not he did so in this particular instance, and if so, to what extent, is not affirmatively shown.

V.—HISTORY OF THE ADVERTISER.

The master finds that the complainant is not a physician, nor a graduate of any school of medicine, nor is he a pharmacist. He had a common school education in the public schools of New York City. From the age of fifteen until he was twenty-one, he was a clerk in the glass business or wholesale warehouse business; thereafter he successively was a buyer for a St. Louis drug house; manager for Armour & Co., at Kansas City; then associated with his brother in the sale of office furniture at Kansas City; office manager for a firm dealing in physicians' supplies; three or four years in charge of the western department of the Hartman Manufacturing Company, manufacturers of steel picket fences, etc., then sales agent for the same people at Chicago; and finally sales manager for a real estate association at Chicago for a couple of years, during which time he started his robusto business as a side line. Altogether he had spent about three or four years in the drug business prior to starting robusto, and he claims that through opportunities for talking with physicians, and through reading medical books, he had gained information concerning the medicinal effects of his various remedies. He has been conducting his business for the sale of remedies for sexual diseases in men for about ten years. At one time he was interested with his father-in-law, one Dr. Lansdowne, in a drug business at Kansas City. His attention was called by Lansdowne to a system of treatment for sexual weakness used by him and sold in his drug store. It consisted of a combination of remedies composed of a tonic containing phosphorus, nux vomica and damiana, and a laxative. Ganse was arranging to enter into business with Lansdowne for the sale and distribution of said remedy by mail, when the matter was cut short by the death of Lansdowne, which occurred in 1889. It was in 1894 that Ganse commenced the sale of remedies for sexual diseases of men, and he conducted the same as a side line to his regular business until it grew to such proportions as to demand his entire time and attention. The name robusto, as applied to this system of remedies, was adopted by him at the outset in 1894, and has been retained ever since. For many years the system was advertised as adapted to the cure of sexual diseases only, but in February, 1903, the complainant made a change in his system by arranging with one Dr. Krieger to enter into business together for the cure of diseases of every kind, and to conduct a mail and an office practice. New circulars, pamphlets and advertising matter were prepared and were used with reference to the new business, for which the original name of Robusto was retained. This new business continued only about four months, and in June, 1903, the complainant dissolved relations with Krieger, and resumed practically the same business he had been conducting prior to February, 1903. The advertising matter which had been prepared for the new business was discarded, and its further dissemination through the mails was discontinued, and new advertising matter, circulars and pamphlets were prepared and used in the business as thereafter conducted.

Several of the circulars that were distributed during this period of time, from February to June, 1903, were attached as exhibits to the defendant's answer herein, and were introduced in evidence on behalf of the government, both at the hearing before the Postoffice Department and now before the master. There does not, however, appear to be any material difference in the statements contained in such former circulars bearing on the efficacy of complainant's remedies in the cure of sexual diseases, and the statements contained in the advertising matter that was substituted therefor and used thereafter, and the master does not find that the introduction of such earlier circulars before the Postoffice Department worked any prejudice against the complainant in the determination of said case.

V-A.—ANALYSES OF THE REMEDIES.

The master finds that the remedies that were used by the complainant for the cure of sexual diseases were certain tablets and pills, referred to as the red tablets, the white tablets, the red ellipsoid pills and the white round pills.

There were in evidence before the master four different statements of the composition of these remedies, to-wit: the analysis by the government's chemist, the formulas furnished by Ganse to McAfee, the formulas furnished by Sharp & Dohme, manufacturing chemists, who supplied said remedies to Ganse, and the analysis of the complainant's witness, Gudeman, which concurs qualitatively with the Sharp & Dohme formulas. All the others differ from each other.

The master finds that the formulas furnished by Ganse to McAfee were not correct, and did not truly show the composition of the remedies used by him; that the analysis by the government chemist of the pills and tablets examined by him was correct, and that said pills and tablets did not contain nux vomica in appreciable quantities, but did contain Spanish flies; and that the analysis by the complainant's chemist correctly showed qualitatively the constituents of the pills and tablets examined by him.

No satisfactory explanation is furnished of the difference shown by the analysis of the two chemists. It was suggested by counsel for Ganse that owing to the smaller quantity of material examined by the government chemist and the consequent greater difficulty in detecting nux vomica therein, the analyst may have failed to find it, and yet it may have been present. This explanation the master does not consider probable, in view of the great experience and skill of the government chemist, and the fact that he made careful search in testing for nux vomica, and failed to find it.

It, however, becomes unnecessary to reconcile the two analyses, in view of the master's conclusion hereinafter stated, that none of the several combinations of remedies shown could effect the cures advertised by the complainant in his literature.

VI.—COMPOSITION OF THE REMEDIES.

According to the formulas submitted by Sharp & Dohme, who are well-known, reputable chemists, the red tablets and the white tablets were of the same composition, and differed only in color. The formula by which they were compounded was No. 4,834, and called for a powdered extract of nux vomica, zinc phosphid, cantharides and damiana; the red ellipsoid pill was compounded according to formula No. 8,123, which called for Blaud's mass and extract of nux vomica; and the white round pill was compounded according to formula No. 3,892, which called for aloes, extract of podophyllin, nux vomica, belladonna leaves, capsicum, croton oil and aloes. Formula No. 4,384 is a good general and nerve tonic; No. 8,123 is also a good general tonic; formula No. 3.892 is a mild laxative.

VII.—METHOD OF ADVERTISEMENT AND SALE.

The master further finds that at the time of the issuance of the fraud order in this case, the complainant, in the regular course of his business, was making extensive use of the Post-office establishment of the United States and of the United States mails, in distributing his circulars and advertising matter and in sending his remedies to patrons and collecting payment therefor; and that during the year preceding the 2nd of June, 1904, he had furnished his remedies, through the United States mails, to between 25,000 and 30,000 patrons. His method of carrying on said business was as follows:

He had purchased or rented lists of names and addresses or persons from certain letter brokers, who made it a business to collect letters written in response to newspaper advertisements. The lists thus procured by Ganse were of letters written in response to advertisements of remedies for nervous debility, and he had in this manner procured lists containing upward of 15,000 names and addresses. To the persons whose names appeared on these lists, he mailed a reply post-card. This post-card (government's exhibit 78) was signed "T. G. Ganse," and contained among other statements, the following:

Having satisfied ourselves by the most thorough tests that we have a PRACTICAL SYSTEM for *the quick and lasting cure of sexual and nervous diseases*, we are going to GIVE AWAY 5,000 COURSES and let them speak for themselves by *actual results*. We find that if we can cure one person in a community, it is an easy matter to reach others. This new system goes *right to the weak spot*, and we ask the opportunity to demonstrate that it will quickly revive new vigor.

This new, vitalizing system has just been perfected and you can not realize how far it is ahead of the old fogy poisons, the played out Electric Belts, the C. O. D. and other frauds until you try it. * * * This New System will CURE TO STAY CURED all forms of Sexual and Nervous Debility, with their distressing complications, Spermatorrhea, Varicocele, Atrophy and all associated diseases that result in loss of sexual vigor. Young, Middle Aged and Old will find it truly "A MAN BUILDER."

The return half of the post-card is addressed to Ganse, and contains a blank form, to be filled out with the acceptance of the offer. The card is headed: "A Course Free," and states: "To introduce our system we will send a course free of charge to one person in each locality," and such cards were sent not merely to one person, but to as many persons in any locality as Ganse had addresses of.

On receipt of the return part of the postal card a so-called six days' supply, consisting of twelve pills each of the red ellipsoid pill and the white round pill, was mailed to the address given. A circular giving directions for use was mailed with these remedies, which circular also contained the following matter, headed "Important."

Bear in mind that ROBUSTO is a fixed system of formulas which act on an entirely new, progressive principle. This process is in the hands of the most skillful chemists of the land, and the plan of carrying out the system which eventually includes an internal and external combination, *increasing in power as it progresses*, is not deviated from. * * * WE KNOW that the ROBUSTO Strength Building Method, as now established, will cure one thousand infirmities while others will be patching up a hundred.

Two days after sending this test course, a circular letter (exhibit 47), together with a booklet (exhibit 48), was mailed to each party to whom the test course had been sent. The letter contained an offer to send a full course of treatment for the sum of four dollars, and in case such course should not be sufficient to effect a cure, another course would be mailed free of charge. Both letter and booklet contained many statements regarding the complainant's system of remedies and the curative effect of robusto on different sexual diseases, some of which statements are recited in the Assistant Attorney General's memorandum hereinbefore quoted.

If no reply was received to this communication, the complainant then mailed another letter to each of said parties, offering easier terms for the purchase of his remedies, and with this letter, a printed circular, entitled or bearing the heading "Robusto, a Man Builder." (Government's exhibit 51.) The quotations from the complainant's literature that are recited in the memorandum from the Assistant Attorney General to the Postmaster General, are all found in these three exhibits, Nos. 48, 49 and 51, and therefore they will not be here repeated.

If still no reply was received, the complainant then sent a circular making still easier terms in the way of payment for his medicines, and accompanied this circular with a booklet, entitled "Robusto, a Man Builder, a Bracer and Developer," which reiterates many of the statements contained in Exhibit 48, already referred to, and also stated, as follows:

This advanced "Strength-Building" method is acknowledged now by the highest authorities to be the most effectual in cases of weakness, anemia, etc., but more particularly in the various forms of SEXUAL WEAKNESS, for which we believe it is the only reliable specific.

If you have that worn out feeling, ROBUSTO will cure it, as it will torpid liver, imperfect circulation, stomach weakness, headache, sleeplessness, lack of energy of either body or brain. If you are thin or wasted, it will give you weight and strength. It will develop and equalize all the forces which nature has stowed within your body, with the result that within a short time it will fit you for more real happiness and satisfaction with yourself than you now dare to hope for.

When orders for the full course came in reply to these communications, a so-called fifteen days course was mailed to the patron, consisting of 15 red and 15 white tablets and 30 of the white round pills. With this fifteen days' supply was sent an order entitling the customer on signing and returning the same, to another fifteen days' course without charge. The second fifteen days' course was usually regularly sent, whether it was ordered or not.

Thereafter, complainant's method was to quote prices for treatment by the month for his robusto remedies, and to mail circulars containing various so-called confidential offers and promises and reduced prices, seeking to induce a continuance of patronage.

VIII.—FALSE STATEMENTS.

The master finds that many of the statements made by the complainant and contained in the circulars, letters, and other advertising matter circulated by him through the United States mails, were materially and substantially false and misleading in material matters of fact, and that the necessary and inevitable result and effect of such false and misleading statements were to cheat and defraud those into whose possession such advertising matter came, and who dealt with the complainant under the faith and hopes inspired thereby.

IX.—FALSE CLAIMS OF NOVELTY.

All the combinations of remedies shown by the Sharp & Dohme formulas and the chemical analysis, and all the drugs entering into them, are old and well-known remedies, and have been used generally among the medical fraternity in the same or similar combinations for very many years, and the formulas are standard formulas and are found in the advertising lists of the regular supply houses engaged in the furnishing of physicians' supplies.

It is claimed by the complainant that although the remedies used by him may not be novel, yet the method of administration, constituting what he calls his progressive plan, commencing with small doses and increasing as the system progresses, with added ingredients and greater strength and power, is new and different from anything ever before heard of, and warrants the claims made by him in that regard.

The master finds that the so-called progressive plan existed only in the complainant's literature and advertising matter, and was not found to any extent in his actual practice. The only internal medicines used by him in the treatment of sexual weaknesses and diseases of the sexual system were the red and white tablets, the red ellipsoid pills and the white round pills. He did not use any remedies or combinations of remedies with added ingredients and of increasing strength as the treatment progressed. It is true that he professed to have certain other remedies for certain specific diseases, such as catarrh, rheumatism and dyspepsia, and in the treatment of varicocele, he claimed to use an external ointment or varicocele absorbent, the composition and effect of which have not been shown; but in the treatment of sexual diseases generally under the robusto system the only internal remedies used by him were as above stated.

All of the pills and tablets were procured from Sharp & Dohme, and he obtained his remedies from no other source. The statement of his account with Sharp and Dohme (government's exhibit 201), covering all purchases made by him for upward of two years, shows that during the year prior to the issuance of the fraud order, practically the only remedies purchased by him were the red and white tablets and the red and white pills, and of those his purchases amounted to many hundreds of thousands.

The master, therefore, finds that the progressive plan feature of the complainant's method of treatment existed only in his advertising literature, and not in actual practice, and that neither in the remedies used nor in the course of treatment adopted by the complainant was there anything novel or peculiar.

X.—REAL STATUS OF REMEDIES.

The remedies that were sent by the complainant through the mails, whether their ingredients were as shown by the government's chemist's analysis or as shown by the Sharp & Dohme formulas, did not and could not cure all forms of sexual and nervous debility with their distressing complications; said remedies did not and could not effect a quick and lasting cure of sexual and nervous diseases; they did not and could not cure spermatorrhea, nor varicocele, nor hydrocele, nor stricture, nor prostatic irritation, nor constipation, nor liver disease; they did not and could not reduce fatty tissue; said remedies had no power to eliminate diseased tissue, nor to develop and restore shrunken and atrophied sexual organs to their normal proportions and strength; said remedies are not a specific in the various forms of sexual weakness: in cases of constipation the effect of their temporary use would be simply to cause a looseness and movement of the bowels, but their continued use would have the effect to aggravate the constipated condition of the patient and make it permanent; several of the above-mentioned diseases, such as stricture, varicocele and hydrocele, can not be cured by the use of any internal remedies, but are capable of being cured, if at all, only by a surgical operation.

XI.—REMEDIES HAVE SOME BENEFIT.

The complainant's system of remedies hereinbefore described consisted of certain tonics that are well known as general and nerve tonics, and of other drugs well known for their effects as laxatives, or in large doses, as cathartics. It is unquestioned that the tonic remedies have a medicinal effect and are frequently useful in the proper treatment of many diseases, including certain of the diseases claimed to be cured by the complainant; such use is as aids or adjuvants to the specific treatment, owing to their tonic effects on the general nervous system, and especially because of the generally debilitated condition of the patient's system, which is frequently coincident with the specific disease.

So, too, in cases complicated with constipation, it is frequently helpful that the bowels should be kept open and free from accumulated matter, for which purpose the use of a mild laxative is proper treatment. These uses of remedies similar to the tonics and laxatives employed by the complainant are approved generally by physicians and are recommended by standard medical writers on the treatment of disease.

XII.—UNWARRANTED CLAIMS.

The master finds that the fact that such remedies have such medicinal effects, and are used as aids in the proper treatment of disease for the purposes stated above, furnishes no warrant for the extravagantly false and misleading statements of the complainant relative to the positive cures effected by his remedies on the various diseases above mentioned.

This new system will cure to stay cured all forms of sexual and nervous debility, with their distressing complications, spermatorrhea, varicocele and atrophy.

It will develop wasted, atrophied parts to normal proportions and strength.

It is the grandest remedial plan ever devised for the relief of sexual debility.

It consists of the most potent remedies known to science.

It will eliminate the diseased tissues in varicocele or stricture or prostatic inflammation.

In the various forms of sexual weakness it is the only reliable specific.

These and also many others that might be quoted, find in the proofs no basis of fact to sustain them, and rest on no substantial results of experience.

XIII.—NATURE OF THE FRAUD.

Many of the above and similar averments are statements of absolute matters of fact.

As to such as may be claimed to be matters of opinion, the master finds that they were made by one who had or professed to have, or is presumed to have had, superior sources of information and especial knowledge on which to base his opinion, and the statements were furthermore made with reference to the curative powers of certain compounds, the actual composition and ingredients of which were concealed and not disclosed. These statements were widely circulated for the purpose of influencing those to become complainant's patrons who were without such special means of information, and who relied and had a right to rely on complainant's superior knowledge, information and judgment.

If, under such circumstances, opinions not honestly entertained, are expressed concerning the quality, merits and curative effect of the medicines which are sought to be marketed, with the intent of influencing prospective purchasers, such opinions may justly be regarded as false and fraudulent misrepresentations within the meaning of the Federal Statutes respecting the fraudulent use of the mails.

XIV.—ADVERTISER KNEW HE WAS DECEIVING.

The master finds that the complainant was acquainted with the properties and curative effects of the remedies advertised and sold by him; that he had read various standard authors on the treatment of sexual diseases, and understood the proper use and limitations of said remedies: that he know that the only possible beneficial effect that they could have on the human system would be due to their tonic or laxative properties; he knew that his medicines were incapable of producing

the effects on disease that are claimed in circulars and advertising matter; and particularly he knew that certain of the diseases advertised by him to be permanently cured by his remedies, are capable of cure, if at all, only by a surgical operation, under the care of a competent physician, and could not be cured by any medicines known to science. He also knew that the remedies used by him were not new remedies, nor were the combinations thereof new, but that both the remedies and the combinations were old and well known and had been in common use among physicians and in the medical world for very many years. He also knew that the alleged novel features of his robusto system, consisting of the so-called progressive, strength-building plan, with added remedies of increasing power, had no existence in fact.

In claiming for his remedies curative qualities and powers which he knew they did not possess, he fraudulently and wilfully intended to mislead and deceive and impose on the public, and by inducing prospective patrons under the guise and influence of false hopes of being cured of their diseases to become purchasers of his compounds, he schemed to obtain, and did obtain from them, large sums of money by means of false and fraudulent representations.

XV.—INDISCRIMINATE SALE.

The master finds that in the sale and distribution of his medicines, the complainant made no inquiry into the specific character of the disease in any individual case, and failed to examine into the symptoms or causes of the maladies with which those with whom he was dealing were affiicted or believed themselves to be afflicted; but he supplied the same remedies and prescribed the same mode of treatment indiscriminately and to all alike, and to all alike gave the same unbounded assurances of positive cure, with no knowledge before him of their physical condition or the nature of their diseases or supposed maladies further than the mere fact that they had at some time responded to a newspaper advertisement for a cure for nervous debility.

XVI.—NO QUESTION OF FAITH HEALING INVOLVED.

The master finds that the complainant did not pretend or attempt to lead his patrons to believe that his method of cure of disease was based on faith, or on anything in the nature of Christian Science, or that it was in any respect founded on the theory that the mind of the patient is a perceptible factor in the treating, curing, benefiting and remedying of disease; but his representations were wholly regarding the efficacy of certain medicines which he declared to be specific cures for the diseases specified.

CONCLUSIONS OF LAW.

As applicable to the foregoing facts, the master finds the following conclusions of law:

1. The complainant does not come into this court with clean hands, but the evidence shows that he is engaged in conducting a scheme or device for obtaining money through the mails by false and fraudulent pretenses, representations and promises, and, therefore, a court of equity will not lend its aid in furtherance of such scheme.

2. While a reasonable degree of exaggeration is justifiable in advertising and extolling the virtues or qualities of that which one is endeavoring to sell, and some degree of commendation and praise of his goods is permissible to a vendor, yet the latitude ordinarily allowed him to puff his wares would not at all justify the extravagant representations and false statements contained in the advertising matter distributed by the complainant.

3. There was presented to the Postmaster General and personally considered by him certain evidence strongly tending to support the finding of the fraud order. Such evidence consisted of the recitals contained in the memorandum and recommendation that was submitted to him by the Assistant Attorney General, and was competent evidence to be considered by the Postmaster General in determining the question of the issuance of such order.

The fact that all of the evidence considered by the Assistant Attorney General may not have been presented to the Postmaster General and been personally considered by him, will not, under the circumstances of the case, affect the legality of his action in issuing the fraud order. To have such effect, it must at least be shown that by reason of certain evidence not having been presented to and considered by the Postmaster General, he has based a fraud order on a palpable mistake of the controlling and material facts. No such proof has been made in this case.

4. When a fraud order has been signed and issued by the Postmaster General, reciting that the facts therein found are based on the evidence satisfactory to him, it partakes of the nature of a final decision by a tribunal duly established by law for the determination *pro hoc vice* of the facts found. It will be presumed in aid of such order and its validity, that the finding was based on satisfactory evidence, and this presumption will prevail unless the contrary is made satisfactory to appear.

Under the circumstances of this case, such presumption will not be rebutted by proof that the Assistant Attorney General did not submit to the Postmaster General certain of the evidence that was heard by him. It was frequently the practice of the Postmaster General, in cases of this nature, not to limit his investigation to a consideration of the memorandum submitted by the Assistant Attorney General, but to personally make further inquiry into the facts, and in the absence of countervailing proofs, it will be presumed in aid of the validity of the fraud order, that such further inquiry was made by him in the case at bar.

5. The fact that no opportunity was given the complainant, prior to the issuance of the fraud order, to contest the accuracy of the government's chemist's analysis, and to prove complainant's contention that his remedies did contain the drugs set out in complainant's formulas, to be true, would not affect the legality of the Assistant Attorney General's action in recommending the fraud order, nor the action of the Postmaster General in issuing the same, nor furnish any cause for holding the fraud order invalid.

Assuming it to be true that the remedies used by the complainant were compounded of nux vomica, Blaud's mass, and the other constituents shown by his formulas, such medicines are shown to be wholly incapable of effecting the cures or working the results on sexually debilitated patients that are set out and promised in the complainant's advertising matter. It is, therefore, immaterial whether the actual composition of complainant's remedies was as shown by the government's chemist's analysis, or by his own formulas, because neither compound could have the effect of producing the cures advertised by him.

6. The master finds that by Section 1, of Chapter 1, of the United States Revised Statutes it is provided that the reference in said statutes to any officer shall include any person authorized by law to perform the duties of such office, unless the context shows that such words were intended to be used in a more limited sense. By section 161 of said Revised Statutes the Postmaster General is authorized to prescribe regulations not inconsistent with law for the government of his department, the distribution and performance of its business, etc. The postal rules and regulations cited in the earlier part of this report are in due compliance with the foregoing statute, and have the force and effect of laws, and the designation by said postal rules and regulations, of the Assistant Attorney General as the officer "charged with the hearing and preparation of cases relating to lotteries and the misuse of the mails in furtherance of schemes to defraud the public," is an authorization *by law* of such officer to perform said duties.

7. The master finds that the context in sections 3929 and 4041 of said revised statutes does not show that the reference therein made to the Postmaster General was intended to be used in a limited sense, or to mean that the hearing of cases under such sections must be had before him personally, or that such hearing could not, under Section 1 of Chapter 1 of said revised statutes, be had before any person authorized by law to perform such duty.

8. The master further finds that under the provisions of the revised statutes aforesaid and under the regulations which have been adopted by the Postmaster General in pursuance of the authority conferred by said statutes, the Assistant Attorney

General, and in his absence the assistant attorney for the Post-office Department, were duly charged with and authorized by law to discharge the duty of hearing and preparing cases relating to the misuse of the mails in furtherance of schemes to defraud the public; and that the methods pursued by the Postmaster General and by his subordinates in the hearing and determination respecting the issuance of a fraud order in this case, were in conformity with law and in conformity with the rules and regulations of the Postoffice Department.

The master is of the opinion that the fraud order issued against the complainant by the Postmaster General, was, under the facts and circumstances as disclosed by the proofs herein, lawful, and was authorized by Sections 3929 and 4041 of the Revised Statutes of the United States.

10. The master finds that the hearing and determination of the question as to whether or not the complainant has been guilty of a scheme to obtain money through the mails by means of false and fraudulent misrepresentations has been lodged with the Postmaster General and his subordinate officers charged by law with such duty. The jurisdiction thus vested is exclusive, and no court is empowered to review the proceedings in such cases held in conformity with the law, where the finding is based on evidence tending to sustain it, and the proceedings are not tainted with fraud. It follows, therefore, that the finding of the Postmaster General in this case is one which this court has no power to revise or over-rule, and that his action in directing the issuance of the fraud order is final.

It is, therefore, respectfully recommended that the complainant's motion for a temporary injunction herein be overruled: that his prayer for a permanent injunction be denied, and that the bill of complaint be dismissed at the complainant's costs.

All of which is respectfully submitted.

HERVEY W. BOOTH.
Special Master in Chancery of the Circuit Court of the United States for the Northern District of Illinois.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of Wounds.

Dr. Burger, in an abstract in *Med. Fortnightly*, recommends, in the treatment of wounds such as usually occur in factories, that the wound be cleansed with a sublimate solution, after which pure balsam of Peru be dropped over the affected areas and gauze immersed in the balsam applied. The gauze does not adhere to the wound as occurs in dry dressings, nor does it macerate the tissues as do moist dressings. The dressings should be changed every two or three days. In this way the wounds heal quickly and are easily kept clean. Varicose ulcers may be treated in the same way with fairly good results.

Varicose Ulcers.

The following ointment is recommended by Petretto in treatment of varicose ulcers:

℞.	Argenti nitratis	gr. v	30
	Balsam Peru	3iss	6
	Ung. simplicis	℥iii	90

M. Sig.: Apply locally to the affected areas after thoroughly cleansing the parts.

By this method the ulcers become clean, the secretion and odor are diminished and healing takes place rapidly.

Coryza.

The following combinations are recommended by *Med. Press* in the treatment of acute coryza:

℞.	Acidi borici	3i	4
	Menthol	gr. x	65
	Cocainæ hydrochlor.	gr. v	30
	Pulv. talci	3ii	8

M. Sig.: To be insufflated into the nose. Or:

℞.	Sodii iodidi	3i	4
	Syr. aurantii.		
	Syr. limonis, āā	℥i	30
	Aquæ	℥vi	180

M. Sig.: One tablespoonful three times a day in milk.

As an alkaline wash the following is recommended by some authors:

℞.	Acidi carbol.	gr. xv	1
	Sodii boratis	3i	4
	Glycerini	3ii	8
	Aquæ destil q. s. ad	℥vi	180

M. Sig.: To be used as an alkaline wash by spraying into the nares three times a day.

This should be followed with an oil spray as follows:

℞.	Thymol	gr. 1/4	015
	Olei caryophylli	m. iii	20
	Liq. petrolati	℥i	30

M. Sig.: To be used as a spray in the nose.

Internally the following is valuable in relieving the acute congestion:

℞.	Camphoræ	gr. xv	1
	Quin. hydrochlor.	gr. xlv	3
	Tinct. aconiti		
	Tinct. belladonnæ, āā	gr. xl	2 65
	Sacchari lactis q. s.		

M. Ft. cap. No. xv. Sig.: One capsule every two or three hours.

In some cases the following may be prescribed:

℞.	Morphinæ sulph.	gr. 1/12	005
	Atropinæ	gr. 1/300-1/600	0002-.0001
	Caffeinæ	gr. 1/4	015

M. Ft. capsula No. i. Sig.: One such capsule three or four times daily.

The following combinations have also been recommended in the form of insufflations:

℞.	Aluminis pulv.	3ss	2
	Sodii boratis	3ss	2
	Menthol	gr. 1/3	02
	Zinci tannatis.		
	Bismuthi tannatis, āā	gr. xlv	3
	Lycopodii	3ii	8

M. Ft. pulvis. Sig.: As an insufflation. Or:

℞.	Zinci salicylatis.		
	Bismuthi tannatis, āā	3i	4
	Sodii boratis	3ss	2
	Salol	gr. xx	1 30
	Magnes. carb.	3ii	8

M. F. chartula. Sig.: As an insufflation.

In chronic rhinitis the following may be used:

℞.	Cocainæ hydrochlor.	gr. ii	12
	Camphoræ.		
	Aluminis, āā	gr. iss	09
	Menthol	gr. 3/4	05
	Sacchari q. s.		

M. Ft. pulvis. Sig.: As an insufflation into the nares twice daily.

Syphilis.

The treatment of syphilis should be commenced just as soon as the diagnosis is made, according to Hackett and Aronstam in *Med. Age.* The initial sore requires only cleanliness and the application of an innocuous antiseptic powder such as bismuth subnitrate or boric acid alone, or in combination.

Cauterization is contraindicated and should be resorted to only when the initial lesion is complicated by chancroidal infection and threatens to become phagedenic. The system should be gotten under the influence of mercury without delay, and mercury should be taken regularly for twenty months with periods of short intermission. The authors recommend what they call the "cyclic method," consisting in the administration of mercury in variable, changeable and alternate forms, and in the intervals giving tonics and eliminants.

METALLIC MERCURY.

This should be given the preference in the early part of the treatment, administered combined as follows:

℞ Hydrarg. cum cretæ.....gr. xxiv 1|65
Ext. nucis vomicæ.....gr. iii |20
Ext. hyoscyami .....gr. iv |25
Ferri lactatis .....gr. xv 1|

M. Ft. capsulæ No. xii. Sig.: One capsule three times a day, two hours after meals.

The foregoing should be continued for seven days, after which a bitter tonic in combination with belladonna and arsenic should be administered as follows:

℞ Tinct. nucis vomicæ.....3i 4|
Tinct. quassiæ .....3iii 12|
Tinct. belladonnæ
Liq. potassii arsenitis, āā.....3i 4|
Essentiæ pepsini q. s. ad.....℥iv 120|

M. Sig.: One dessertspoonful before meals, in water. This should be continued for three days.

PROTOIODID OF MERCURY.

The protoiodid of mercury is the form next to be employed. given in doses of grain ⅛ to ¼ (.008-.015) and administered alone or in combination with the tartrate of iron and ammonium. This should be continued for one week, followed by the same tonic mentioned above for three days. This constitutes a second period.

INUNCTIONS.

Inunctions of mercury may be employed next, first washing that portion of the skin to be anointed with a saline solution, followed by a brisk alcohol rub, after which the mercurial ointment is applied with thorough friction. The most appropriate time is an hour before retiring. This must be repeated for twelve consecutive nights, applying it: 1, On right arm and corresponding axillary space; 2, on left arm and corresponding axillary space; 3, on anterior thoracic region; 4, on the abdomen; 5, on the right thigh and inguinal region; 6, on the left thigh and inguinal region; 7, on the right leg; 8, on the left leg; 9, on both hands; 10, on both feet; 11, on the lumbar and sacral region; 12, on the dorsal and cervical areas. Two grams (gr. 30) of the ointment are used for each inunction. On the completion of the twelve applications a warm alkaline bath is taken and three days of repose, during which time the tonic is taken.

MERCURIC IODID.

The mercuric iodid is then given in doses of grain 1/12 to 1/8 (.005-.008) three times a day, in the same manner as the protoiodid, followed by a period of remission.

MIXED TREATMENT.

The "mixed treatment," which consists of the simultaneous use of mercury and iodin, the former as the bichlorid or biniodid and the later in the form of the sodium or potassium salt, is as follows:

℞ Hydrarg. biniodid .....gr. ii |12
Sodii iodid .....3iiiss 14|

M. Ft. cap. No. xxi. Sig.: One capsule two hours after meals. Or:

℞ Hydrarg. biniodidi.....gr. i |06
Potassi iodidi .....3ii 8|
Tinct. gentianæ co.....3iii 12|
Syr. trifolii co. q. s. ad.....℥ii 60|

M. Ft. solutio. Sig.: One teaspoonful, with water, two hours after meals.

If anemia be present the following combination is advised by the authors:

℞ Acidi arsenosi .....gr. 1/5 |012
Sodii iodidi .....3iss 6|
Hydrarg. biniodidi .....gr. ss |03
Ferri lactatis .....gr. xxiv 1|65
Quin. sulph.....gr. vi |40

M. Ft. capsulæ No. xii. Sig.: One capsule two hours after meals.

This mixed treatment should also be continued for the same length of time as the other preparations.

The use of mineral acids must be avoided, but the fruit acids are permissible.

Pork and pastry must be excluded, also alcohol, coffee and tea; smoking must be abstained from.

ELIMINATIVE TREATMENT.

The patient is next put on ascending doses of sodium or potassium iodid for one week, beginning with one minim of a saturated solution, gradually increased. If the iodids are not well borne the syrup of hydriodic acid may be substituted or the iodids may be given per rectum, and a few drops of the tincture of opium may be added to allay rectal tenesmus. After a period of repose for three days, with the tonic treatment administered, warm alkaline baths should be given daily for one week. All treatment is suspended then for a longer interval, perhaps two weeks, at the end of which time the above method should be resumed. The above outline of treatment, according to the writers, possess the following advantages:

1. It never salivates the individual.
2. No untoward after-effects are discernible.
3. Gastrointestinal disturbances are avoided.
4. Consecutive mercurial dermatoses are not apt to appear.
5. It possesses greater efficacy, promptness and permanency.
6. It is more systematic and thorough.
7. The tertiary phenomena are held in abeyance.

Capillary Bronchitis in Children.

Heubner recommends in the treatment of capillary bronchitis in children counter-irritation by mustard to combat the suffocative conditions. He advises half a kilogram of fresh mustard flour stirred into two liters of warm water until the fumes arising from the mixture irritates the conjunctivæ. A sheet is wrung out of the solution and spread on a blanket. The child is then wrapped in this sheet from head to neck and the blanket drawn over the sheet, giving the patient a mustard pack in which he remains for ten minutes or until the skin is irritated and reddened. The child is then removed from the pack and bathed in warm water and placed in an ordinary warm pack for one or two hours, depending on the reduction of the temperature. If the temperature should increase, or the perspiration become too profuse, he should be taken out before the time stated, again bathed in warm water, dried and clothed in a gown and placed in bed. This treatment may be repeated in twenty-four hours if necessary.

Administration of Water Before Giving Chloroform.

In order to prevent vomiting after administering chloroform, Prof. Denuce, in *Med. Rev. of Reviews*, states that water should be given before the anesthetic as deglutition takes place during the anesthesia and the air charged with chloroform is swallowed. The chloroform irritates the mucous membrane of the stomach, which, according to the usual practice, is empty and thus causes vomiting. According to the author's idea, the water prevents the chloroform from coming in contact with the mucous membrane, as the most troublesome vomiting may occur on an empty stomach, and the vomiting of a small quantity of water would not be attended with danger. It must not be forgotten that the water passes quickly from the stomach. The writer uses the following method in the administration of the water: An hour and a half before the operation he gives the patient a large glass of water, and this amount is repeated every half-hour until the time for the operation, the patient taking in all four glasses. He relates that in many instances the operations were long, including laparotomies and in none did vomiting occur.

Medicolegal

Communications to Physicians—Refusal to Waive Privilege.—The Kansas City Court of Appeals says, in the personal injury case of Arnold vs. City of Maryville, that it is but repeating the statute itself to say that all information obtained by a physician, whether by communication from the patient or observation of the physician, "which information is necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon," is privileged, and can not be used against the patient without his

consent. Therefore, though a physician called to attend a plaintiff personally may learn all about the nature of his injuries, or the disease said to have followed therefrom, and no one else may know so well as he, yet the plaintiff need not call him as a witness, and, if he does not do so, no unfavorable inference should be drawn therefrom. It is not even permissible to ask of the party whether he will waive the privilege and permit the physician to testify, since his refusal would tend to discredit him, and thereby in a manner force him to consent. It must be clear that if an unfavorable presumption against one should be allowed when he refused to waive his privilege, or failed to call the physician as a witness, the privilege itself would be destroyed and the policy of the statute thwarted. The first object of the statute may be said to be a humane object; that is to say, to render as much aid as possible to the restoration of the patient's health or relief from his suffering and injury. It, therefore, adopted the policy of rendering every assistance to the physician by holding inviolate any communication made to him in his professional capacity and any information he might receive from an examination of his patient which was necessary to enable him to prescribe; thus encouraging and inducing the patient to offer every aid in his power toward imparting the information. It is apparent that the information gathered by the physician or surgeon must be in his capacity of waiting on the patient with a view to his cure or relief, if possible; that is to say (in the words of the statute), to enable him to prescribe for the patient as a physician, or do any act for him as a surgeon. So, therefore, if a physician or surgeon examines a sick or injured person, not with a view of prescribing for him or doing any act for him in the line of surgery, he is not disqualified as a witness. It was no part of the object of the statute to facilitate the efforts of a litigant in obtaining evidence with which to advance his cause. The court, therefore, holds that, if it appears that physicians or surgeons were called to examine the plaintiff only with a view of qualifying them to testify in the cause, the result of their examination was not privileged.

Friendly Visit Does Not Establish Professional Relation—No Moral Insanity.—The Supreme Court of Louisiana holds, in the case of State vs. Lyons, that it does not follow, because a physician visits a person with whom he is acquainted, and who, being charged with murder, is lying in a hospital, under treatment for a wound, that such visit is paid in a professional capacity, or that the relation of physician and patient is thereby established between them. It also holds that the doctrine of moral insanity, which consists of irresistible impulse coexistent with mental sanity, has no support either in psychology or law.

Admissibility in Evidence of Exclamations of Pain.—The Supreme Court of South Dakota says, in the personal injury case of Klingaman vs. Fish & Hunter Co., that the rule admitting evidence as to complaints or exclamations of pain or suffering is clearly an exception to the general rule that self-serving declarations of a party are inadmissible, but such evidence seems to be admissible under the great weight of authority. However, the rule should not be extended so as to include a narration or statement as to the condition or extent of the injury, and not in their nature exclamatory or expressive of present suffering. Witnesses are not permitted to testify to complaints or statements of physical condition or feeling made by an injured person which are made in answer to a question or interrogation descriptive or narrative in their nature, and which are not a part of the res gestæ (essential circumstances of the case).

Drugless Healing Is Practice of Medicine.

The Supreme Court of New Mexico says that in the case of Territory vs. Newman, where the defendant was indicted for practicing, or offering to practice, medicine without having obtained a license, the jury were instructed as follows: "'The practice of medicine' . . . means (1) to open an office for the practice of medicine; or (2) to announce to the public or to any individual, in any way, a desire or willingness or readiness to treat the sick or afflicted, or investigate or diagnose, or offer to investigate or diagnose, any physical or medical ailments or disease of any person; or (3) to suggest, recommend, prescribe, or direct for the use of any person any drug, medicine, appliance, or other agency, whether material or not material, for the use, relief, or palliation of any ailment or disease of the mind or body, or the cure or relief of any wound, fracture, or bodily injury or deformity, after having received or with the intent to receive therefor, either directly or indirectly, any bonus, gift, or compensation." This instruction, which was objected to, seems to the court to have been favorable to the defendant, rather than otherwise, since it greatly restricted the number of acts which the jury might otherwise have found the defendant committed in violation of the statute. It says that the subdivision complained of was a proper and appropriate one, under the circumstances.

Then the defendant objected that by the statute a new, unusual, and false meaning was given to the phrase "practicing medicine"; that he never engaged or offered to engage in the practice of medicine; that, on the contrary, the evidence showed him to be a practitioner of a system of drugless healing; and that the legislature could not so extend the meaning of said words "practice of medicine" as to cover and include methods of healing diametrically opposed to the practice of medicine as theretofore commonly understood and defined. The court answers it would perhaps have been possible for the legislature to choose a better phrase under which to group healing methods of all kinds, although the use of the expression "practicing medicine" to mean the art of healing is by no means new, but rather a return to the original meaning of the word "medical." But whatever may be thought of the terms in which the prohibition of the statute is expressed, there can be no doubt of their meaning; and the defendant was clearly forbidden to do that which the evidence showed, and he did not deny, that he did, without a license from the board of health as provided for by the statute. That it was not claimed he had, and, if the statute was valid, he was liable to the penalty imposed by it.

Again, the court says that it should be noted that the statute does not forbid the use of methods which the defendant said he followed for the cure of disease, or any other methods whatever, but only requires that those who prescribe or make use of them in the practice of medicine, as defined by the statute, shall have qualified themselves for such practice, and received a license, as evidence of such qualification. That the practice of the art of healing, in whatever form and in whatever name it may be followed, is subject to regulation by legislative enactment, under the police power of the state, is so well established that it is no longer open to question. If there were no such rights and regulations, it would be necessary to create them, for the protection of the public against those who take advantage of the widespread ignorance which exists in relation to the human organism to impose their useless and often harmful nostrums and treatments on those who are, or may be led to believe they are, in some way diseased. It is equally certain that the right to regulate should be exercised only in the public interest, and not to create monopolies, or otherwise to violate those fundamental rights which are secured to all citizens.

That certain acts should be made punishable if done for gain, which are not prohibited if done without bad motive, seems to the court to be a matter properly within the discretion of the legislature. It says that it may reasonably have been assumed that the public needed no protection against charitable or friendly ministrations, in which the elements of good faith and sincerity of belief in the remedies prescribed would naturally be present, and in which greed could have no place. It is true that the statute commits the licensing power to a board composed of physicians who shall be graduates of some medical school in good standing, but the inclusion under the term "practice of medicine" of what it is made to cover by the statute might reasonably be construed to extend the meaning of the words used to describe the members of the board in like manner. Whether that view be taken or not, it is certain that the board provided for could be held by the courts to the exercise of its powers in a reasonable and just manner, and

would have no right to refuse to issue a license to any one merely because of his being a practitioner of some school of healing different from that to which the members of the board belong. The defendant claimed, also, that the educational qualifications imposed by the statute were not adapted to or required in the simple method of healing which he followed, and that they amounted to a prohibition of his constitutional right to follow his calling. But the court says that the requirements are the same for all who purpose to engage in the practice of medicine, as defined by the statute in question, and therefore not open to the objection that any particular class is unduly favored.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

April 15.

1 *Hysterectomy for Fibroids of the Uterus, with a Report of 259 Operations. J. B. Deaver, Philadelphia.
2 Radical Treatment of Gastric Hemorrhage, with a Review of a Personal Case and 99 Collected from the Literature Since 1900. F. G. Connell, Salida, Colo.
3 Paratyphoid Fever, with Report of Six Cases. J. N. Henry, Philadelphia.
4 *Chronic Eczema as a Complication of the Senile Degenerations. M. Leale, New York.
5 *Postpartum Hemorrhage. H. H. Loveland, Syracuse, N. Y.
6 Contribution to Pathology of Sciatica. J. R. Hunt, New York.

1. **Hysterectomy for Uterine Fibroids.**—In discussing this subject Deaver says that fibroids of the uterus do not require removal unless they are productive of symptoms; but when they do become symptom-producing they should be removed promptly before the patient has been weakened by toxemia, hemorrhage or sepsis. Abdominal supravaginal hysterectomy is the operation to be preferred in the majority of cases. Myomectomy is applicable only to younger women in whom the tumors are few in number and subperitoneal in character. Panhysterectomy is to be employed only when intraligamentary growths, whether uterine or ovarian, render the performance of supravaginal amputation difficult or dangerous. Deaver advises that the ovaries or a part of one ovary should be preserved in every woman who has not reached the age of the menopause, unless they are distinctly and indisputably diseased, or unless their retention would needlessly prolong and complicate the operation. The electric treatment of uterine myomas he condemns without reserve. Among 250 operations for uterine fibroids, Deaver has found myomectomy applicable in only 13 instances. Eleven times he enucleated the tumors by the abdominal route, and twice by the vaginal, the growths in the latter instances being large submucous tumors, with no distinct pedicle. In a fourteenth case in which the submucous tumor was pedunculated, he removed the mass by means of the Downes' cautery. All the myomectomy cases recovered and have not had a recurrence of the growths. Among the series of 250 cases, 34 were complicated by gross disease of the adnexa. For this reason, Deaver considers vaginal hysterectomy for fibroids of the uterus distinctly inferior to hysterectomy by the abdominal route. He favors supravaginal amputation because it is attended by a lower mortality rate and is easier of execution in the majority of instances. Panhysterectomies are done only when the myomatous growths extend so far down in the pelvis and are so close to the cervix that it is difficult, if not impossible, to find any suitable line of cleavage for performing a supravaginal amputation. He has employed supravaginal hysterectomy 219 times, with a total of 20 deaths, only 3 of these occurring in the last 105 operations. He never resorts to catheterization of the ureters in either abdominal or vaginal hysterectomy. In 250 abdominal hysterectomies, the ureter was injured but once, when it could not have been avoided, even if there had been a catheter inserted, on account of adhesions.

4. **Chronic Eczema Complicating Senile Degenerations.**—Eczema occurring in old age is attributed by Leale to circulatory changes and their consequent degenerations. Usually it is an eczema erythematosum. These cases often prove very resistant to treatment, yet it is possible to secure a permanent cure in very many of them, and in all cases a great amelioration of the symptoms can be effected if the treatment is persevered in and carried out carefully. Before doing anything at all, it is necessary to determine accurately the condition of the heart and blood vessels, the kidneys, the lungs and the other organs, meeting any pathologic condition by appropriate treatment. The circulation should be properly maintained, and the emunctories carefully watched. Water should be taken frequently, but in small quantities at a time to secure a constant flushing rather than an overdistention of the heart and blood vessels. Local treatment is essential for the purpose of improving the peripheral circulation in the blood vessels as well as in the lymphatics. Carefully regulated and systematic rubbings and frictions best meet these conditions. He adopts a combination of effleurage and massage with friction, the strokes of the hands following as nearly as possible the course of the veins and lymphatics. For lubrication a fine quality of olive oil is used, and with this, for medication, a pure, finely powdered zinc oxid. Each application lasts from twenty to forty minutes, and should be given at night, preferably just before retiring to secure sleep. When more stimulation is required, a strong tincture of pix liquida is used. Every second night, before the application, the patient is given a bath at 94 F., using a pure olive-oil soap. Under this course of treatment one may expect a more or less permanent cure in most cases within from two to eight weeks.

5. **Postpartum Hemorrhage.**—Loveland is of the opinion that postpartum hemorrhage is not always preventable by careful management of the third stage of labor, as some authors seem to believe. The first step in his treatment of a rapid and severe case is the insertion of the hand in the uterus, the other meanwhile manipulating the fundus through the abdominal wall. Of all the intrauterine treatments, except the first mentioned, hot water douching is the most convenient, the most cleanly, and the most effective. The benefit to be gained by packing the uterus with gauze is doubtful; the danger is evident. Later experiences have firmly convinced Loveland that it is not wise to put anything into the uterus that is not necessary, nor to leave anything there that can be avoided, even though impregnated with antiseptics.

Medical Record, New York.

April 15.

7 *Cerebrospinal Meningitis—Epidemic and Sporadic. G. G. Speer, Los Angeles.
8 *Recent Studies in the Diagnosis of Rabies. D. W. Poor, New York.
9 Modern Methods of Treatment in Obstetrics and Gynecology. J. A. Schmitt, New York.
10 Some Points of View in Regard to the Time when to Perform Myringotomy and the Mastoid Operation. E. Amberg, Detroit.
11 *Decapsulation of the Appendix. A. E. Isaacs, New York.
12 *Tuberculous Testicle and the *X*-ray. W. B. DeGarmo, New York.
13 Granulation Wound Adhesions, with a Preliminary Report on a New Application in Preventive Treatment. F. Griffith, New York.

7. **Cerebrospinal Meningitis.**—After presenting a brief historical review of this disease, Speer discusses the clinical history and directs attention to an early pressure symptom which, together with Kernig's sign, he has invariably found present. It consists in a turning in of one or both feet until, if not disturbed, one lies across the other. The legs later become flexed and also tend to cross each other. The plan of treatment is described at length and comprises the use of sedatives, the ice cap, sinapisms to the body, and potassium iodid to promote absorption of the morbid products. Speer prefers the following sedative to opium:

℞ Potassii brom.
Chloralis hyd., āā ..... ℥ii 8
Cannabis ind.
Hyoscyaminæ, āā ..... gr. i .06
Elix. simplicis q. s. ad ..... ℥i 30

Of this a child of three is given from 10 to 15 drops every twenty minutes until profoundly under its influence, and it must be repeated as soon as there is either moaning or restless movement of the limbs. The dose for an adult is half of one teaspoonful administered in the same manner. All methods of treatment may be made effective and reliable if used with

decision and pushed to the limit of therapeutic effect. Speer says that cerebrospinal meningitis in its worst form is amenable to treatment.

8. **Diagnosis of Rabies.**—The diagnostic value of the so-called Negri bodies or corpuscles, is attested by Poor. He made use of material obtained from 21 dogs, 24 guinea pigs, 10 rabbits, 3 horses and 4 human cases. Of this number, there were 17 cases of rabies occurring naturally. In 16 cases, the disease was produced artificially and 22 animals were used as controls. The Negri bodies are found chiefly as cell inclusions in the Purkinje cells of the cerebellum and in the large ganglion cells in the region of the ammon's horn (hippocampus major). They are minute structures, varying in size from one to 23 microns in diameter, are round or oval in shape; staining reaction eosinophile. In structure they may be homogenous, ring-formed, or vacuolated, and they may contain irregularly grouped granules. A small portion of the brain from both the cortex of the cerebellum and from the ammon's horn is fixed in Zenker's fluid and stained with an eosin-methylene blue combination, in which case the inclusions stand out very clearly as red structures in the blue background of the cell body.

11. **Decapsulation of the Appendix.**—Observing how easily the peritoneal coat could be peeled from the proximal portion of the appendix, Isaacs concluded to utilize the same principle in dealing with the whole appendix when adherent. Having tried this method in a number of instances in which conditions called for it and having found it of decided advantage, it has become an established procedure with him. It saves considerable time and trouble, shortens the operation, and spares considerable handling and manipulation of the viscera. The method is especially useful in those cases of extensive adhesions where but a portion of the appendix can be located, be it either the proximal or the distal portion, and where the rest loses itself in the adhesions and can not easily be traced. The method is as follows: Having located some portion of the appendix, preferably the proximal, the capsule is incised longitudinally, opposite the mesenteric attachment, if possible, so as to avoid the larger blood vessels. The hemorrhage is insignificant. The white glistening surface of the middle layer is the guide to the depth of the incision. The incised serous coat peels off very easily, and the core can be easily separated and raised from its bed without fear of hemorrhage. This white core serves as a guide to the capsule inside of which it can be loosened up a short distance, then the capsule is split for that distance, and the procedure is repeated until the whole length is delivered. A perforated or gangrenous appendix merely makes conditions somewhat more difficult; the decapsulation can be accomplished just the same. As an illustration of the utility of the method, Isaacs gives in detail the history of two cases.

12. **X-Ray for Tuberculous Testicle.**—One case is reported by de Garmo, which was treated with the *x*-ray. There has been no recurrence of the disease after two years. One hundred and twenty-six treatments of ten minutes each were given during a period of ten months. A medium tube was used at a distance of about ten inches.

New York Medical Journal.

April 15.

14 Cases of Enteroptosis and Cardioptosis with Return to the Normal. M. Einhorn, New York.
15 Dietl's Crisis and Some Cases of Movable Kidney. L. W. Atlee, Philadelphia.
16 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
17 Atony of the Rectum and Anal Sphincters; Its Etiology, Pathology, Diagnosis and Treatment. (Concluded.) W. Bodenheimer, New Rochelle, N. Y.
18 Erythema and Urticaria, with a Condition Resembling Angio-Neurotic Edema, Caused Only by Exposure of the Sun's Rays. S. B. Ward, Albany.
19 Contribution to the Alcohol Question. S. P. Beebe, New York.
20 Prophylaxis in Pregnancy and Labor. T. A. Rogers, Plattsburgh, New York.
21 Diet in Typhoid. (Concluded.) J. P. Miller, Washington, and G. N. Murphy, Paducah, Ky.

Medical News, New York.

April 15.

22 *Intracranial Traumatic Hemorrhage. J. S. Wight, Brooklyn.
23 *Preliminary Report on the Use of Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis. F. Huber, New York.
24 Some Points in the Construction of a High-Frequency Machine. C. A. Wright, Leydenstone, Eng.
25 Report on the Use of Stovaine. C. G. Coakley, New York.
26 *Treatment of Chronic Osteomyelitis and of Chronic Bone Cavities by Iodoform Wax Filling. C. A. Elsberg, New York.
27 Significance of Epigastric Pain. A. M. Pond, Webster City, Iowa.
28 *Gastrointestinal Conditions in Epilepsy. J. W. McLaughlin, Galveston.

22. **Intracranial Traumatic Hemorrhage.**—The clinical history of this condition is discussed in detail by Wight, and two cases are reported, one of which terminated fatally.

23. **Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis.**—Huber makes a preliminary report on the use of diphtheria antitoxin in the treatment of epidemic cerebrospinal meningitis. The antitoxin was injected indirectly into the subarachnoid space. A lumbar puncture was performed, from four to six drams of cerebrospinal fluid were allowed to escape, then from 1,500 to 2,000 units of antitoxin were slowly injected. No ill effects followed in the series of cases in which this was done. In one case an antitoxin rash was observed seven days later. In some of the cases, only one dose was given. In others the injections were repeated two or three times. This treatment should be resorted to early, before anatomic changes have taken place. The malignant type of the disease is not affected by this method. Not only was there observed in most cases an amelioration of the clinical features, but in several cases in which lumbar puncture was repeated within from thirty-six to forty-eight hours, the number of polynuclear cells was less and the diplococci had diminished in number.

26. **Iodoform Wax Filling of Bone Cavities.**—Elsberg reports the results of his experience with the iodoform wax filling of chronic bone cavities proposed by Mosetig-Moorhof (The Journal, Feb. 18, 1905, p. 583). He has used this material in three cases of chronic osteomyelitis of the hip; four cases of chronic osteomyelitis of the femur; one case of tuberculous disease of the tibia; one of chronic disease of the ulna; and one of chronic tuberculosis of the bones of the elbow-joint. All the patients had been repeatedly operated on according to other methods without permanent cure. Elsberg says that although the results he has obtained with the iodoform wax filling are not so good as those obtained by the author, the improvement in his cases was such as to warrant him in recommending the method for further trial. He thinks it better to remove the Esmarch constrictor before the wax mixture is introduced so that the hemostasis in the bone cavity may be more perfect and the oozing from the bone be perfectly controlled when the normal circulation is established. He has also modified the original technic somewhat. In order to facilitate its hardening, he pours the melted mixture into a basin of sterilized cold water and molds it with the hands until it has about the consistency of putty. He then presses bits of the mass into the walls of the cavity and thus stops the very slightest oozing from the bone and fills up all the small spaces. Then the cavity is tightly packed with a filling in the same way that the dentist fills the cavity in a tooth. He never uses more than 20 per cent. of iodoform in the wax mixture so as to obviate the occurrence of iodoform poisoning, an accident which was observed in one of his cases. In 6 patients, the wounds healed by primary union, except for the drainage opening. In four of these cases, the filling remained *in situ;* in one, a small part of the wax was extruded; in the sixth case all the filling was extruded in the course of two weeks, and the wound then closed rapidly. Success, says Elsberg, will depend to a great extent on the thoroughness with which the operation is done. Reports of his cases will be published in detail later.

28. **Gastrointestinal Conditions in Epilepsy.**—McLaughlin calls attention to the fact that the condition of the gastrointestinal tract in epileptics may have considerable bearing on the production of the seizures. He refers to six cases of genuine idiopathic epilepsy in which the treatment adopted was local, dietetic and general. The results obtained have been uniformly good. The patients are brighter and stronger, and are less nervous and more cheerful. There has been no attack in over two years in one case, and over one year in

another. In other cases the attacks have been milder and less frequent. The local treatment consists of lavage with water containing a teaspoonful of sodium bicarbonate or chlorid to each pint of water, followed in cases of fermentation with solutions of silver nitrate 1 to 4,000, allowing the latter to remain in the stomach five or ten minutes. The faradic current, one electrode intragastrically and the other over the dorsal spine, was also used. The diet must be carefully regulated in accordance with the digestive capacity of the patient. General treatment consisted of the administration of strychnin, quinin, nux vomica, bitter tonics and iron, rhubarb and the preparations of mercury.

Boston Medical and Surgical Journal.

April 13.

29 Cancer in and About the Mouth: Importance of Early Diagnosis. F. C. Cobb, Boston.
30 *Results in Cases of Cancer of the Tonsils, Tongue and Jaws, Operated on at the Massachusetts General Hospital During the Eight Years from Jan. 1, 1892, to Jan. 1, 1900. F. Cobb and C. C. Simmons, Boston.
31 *Results of Treatment of Cancer in and About the Mouth at the Boston City Hospital. H. A. Lothrop and D. D. Scannell, Boston.
32 Use of the *X*-rays in Postoperative Treatment of Cancer of the Mouth. E. A. Codman, Boston.
33 Thermotherapy as a Part of Physical Therapeutics. O. Rozenraad, Berlin.
34 Weather Conditions at the Sharon Sanatorium. W. A. Griffin, Sharon.
35 Suggestion for a Practical Apparatus for Use in Intrathoracic Operations. F. T. Murphy, Boston.

30. **Cancer of the Tonsils, Tongue and Jaws.**—Cobb and Simmons report the results obtained in a series of 92 consecutive cases of cancer involving the mouth, observed at the Massachusetts General Hospital during eight years. There were 71 males and 21 females. Almost all used alcohol and tobacco, and many dated the first symptoms from trouble with the teeth. The average age was 54 1/3 years. Taken by decades, that from 50 to 60 gave the largest number of cases; 60 to 70 years came next, with the decade from 40 to 50 third. The extremes in age were 74 years and 21 years. The operation consisted of everything from a simple curetting, or excision of the tumor, to a complete removal of the tongue, or jaw, with an elaborate dissection of the triangles of the neck. Six patients died soon after operation, giving an operative mortality of 10 per cent. Excluding one case of general purulent peritonitis, which was in no way brought about by the operation, the mortality was 8.5 per cent. One patient died of shock, 1 of delirium tremens and 3 of sepsis. There are 8 cases of cures following operation, and all of these patients are alive and well to-day, the time from the date of operation varying from four to fourteen years. In the ninth case the patient lived four years after operation and returned with a sarcoma. Life in the patients operated on was longer than in those not operated on, 33 of the former living over one year from the first appearance of symptoms to 19 of the latter. The patients living over a year were 23 against 5. In 54 cases of cancer of the tongue, 34 patients were operated on, with an immediate mortality of 8.5 per cent. Four are alive and well to-day; 2 thirteen years after operation, 1 six years after operation and 1 four years after operation. A fifth patient lived four and a half years and then died of sarcoma. The percentage of cures of the original carcinoma is 14.3 per cent. The cures all occurred in old cases, the patients being 70, 74, and two 62 years old. There were 8 cases of cancer involving the tonsils, in only 2 of which an attempt was made to remove the whole growth. All these patients are dead. There were 15 cases of cancer of the upper jaw, in 11 of which operations were performed without mortality. Fourteen of these patients have been followed and all but 2 are dead, the average length of life in the patients operated on being 38.75 months. Two of the 9 patients operated on died within a year, 1 lived three years, 2 lived four and a half years, and 1 is alive and well to-day, eight years after operation. In one case of partial excision the patient is alive and well six years after operation. Of 15 cases of cancer of the lower jaw 12 patients were operated on and all but 2 are dead. This series of cases shows that although in malignant disease around the mouth the prognosis is very grave, a certain per cent. of patients are cured by operation.

31. **Id.**—Lothrop and Scannell base their report on records of the Boston City Hospital during a period of nine years. These records embrace 69 cases, 60 of which have been traced. Carcinoma of the tongue occurred in 30 cases; of the inferior maxilla in 22; of the superior maxilla in 9, and of the tonsil and fauces in 8. Seven cases occurred between the ages of 30 and 40; 17 between 40 and 50; 25 between 50 and 60; 15 between 60 and 70, and 5 between 70 and 80. Fifty-six patients were males and 13 were females. Of the total number of 60 cases which were traced, 17 were either considered inoperable or else the patients refused operation. The average duration of symptoms before application was made for treatment was about seven months. Of the 60 patients traced 56 are dead and 4 are alive, the latter seven, five and one-half, five and two years respectively after operation, the lesions in these cases occurring in the tongue and inferior maxilla (each two). In the patients reported as dead the average duration of life, whether operated on or not, was about nine months, the longest being seven years and the shortest twenty days. The average duration of life from time of first symptom, sixteen months; average duration in those not operated on, six months; average duration in those operated on, nine and one-half months. In cancer of the tongue operated cases lived twice as long as non-operated cases. In cancer of the inferior maxilla operated cases lived four times as long as non-operated. In cancer of the superior maxilla, tonsil and fauces there were not enough patients not operated on to justify a comparison.

St. Louis Medical Review.

April 15.

36 Two Cases of Landry's Paralysis; One Terminating in Recovery, the Other in Death. T. Diller, Pittsburg, and C. L. Billard, Allegheny.
37 Uterine Disease as a Factor in Brain Softening. E. A. Hall, Victoria, B. C.
38 Some Predisposing Causes of Bronchial Diseases Peculiar to Pittsburg and Vicinity. W. T. English, Pittsburg.

Lancet-Clinic, Cincinnati.

April 15.

39 Study of Tuberculosis from a Surgical Standpoint. J. C. Oliver, Cincinnati.
42 Some Dermatologic *X*-ray Abuses. M. L. Heidingsfeld and A. J. Markley, Cincinnati.
43 Splenic Anemia—Banti's Disease (?) Splenic Enlargement for Five Years; Hemorrhages for One Year. J. M. Withrow, Cincinnati.

Journal of the Missouri State Medical Association, St. Louis.

April.

44 Influenza Complicating the Puerperium. W. Hall, St. Louis.
45 Brachial Paralysis Following Surgical Anesthesia: Report of Two Cases. H. S. Crossen.
46 *New Test for Detecting Minute Quantities of Albumin in Urine. A. N. Ravold, St. Louis.
47 Presentation of Specimen of Sarcoma and Patient. J. C. Morfit.
48 Unusual Vitality. F. W. Abeken, St. Louis.
49 Topography of the Vertebral Spines and Lower Ribs, with Reference to the Identification of the Individual Bones. V. P. Blair, St. Louis.
50 Uterine Replacement. D. Forster, St. Louis.
51 Tuberculosis. J. W. Nieweg, Owensville, Mo.
52 Treatment of Certain External Diseases of the Eye by *X*-rays. J. Green, Jr., St. Louis.

46. **New Albumin Test.**—Ravold describes his method of detecting very minute quantities of albumin in the urine by increasing the specific gravity of the solution used, that known as the Speigler-Jolles. This is done by adding sulphate of magnesium; the efficiency of the fluid is not interfered with in any way. Fifty c.c. of a saturated solution of sulphate of magnesium are added to a mixture containing 2 grams of corrosive sublimate, 4 grams of succinic acid, 4 grams of common salt and 50 c.c. of water. The urine is first acidified by adding 1 c.c. of acetic acid to 5 c.c. of urine; filter. Then, by the aid of a pipette the urine is slowly floated on the surface of the reagent in an inclined test-tube. If a ring of albumin appears, then heat. The albumin will not disappear. Further examination should be made for globulin, nucleoalbumin or mucin, and the albumoses. The test is exceedingly delicate, is easy of application, simple to prepare, and absolutely free from fallacies.

Cleveland Medical Journal.

April.

53 *Clinical Report of Nine Cases of Diabetes Insipidus. (Continued.) T. B. Futcher, Baltimore.
54 Phlyctenular Ophthalmia. A. R. Baker, Cleveland.
55 Eyestrain and Reflex Disturbances. E. P. Morrow, Canton, Ohio.
56 *Cesarean Section with Torsion of Uterus, Due to Ventrofixation. H. H. Powell and F. E. Bunts.

53. **Diabetes Insipidus.**—After reporting 9 cases of this affection Futcher reviews the clinical history. Four of the cases belonged to the so-called idiopathic group and 5 to the secondary or symptomatic group. All the latter showed very striking cerebral manifestations, and 4 were undoubtedly syphilitic in origin. Thirst appears to be the first symptom complained of in the majority of cases. The knee jerks are usually exaggerated, contrary to the usual findings in diabetes mellitus. In the 9 cases reported they were exaggerated in 5, diminished in 2, normal in 1 and not noted in 1. All the patients with exaggerated knee jerks had cerebral manifestations. There is no constant anatomic finding at autopsy characteristic of the disease. The most frequent changes are enlargement of the kidneys, congestion of the vessels, and dilatation of the tubules. In the symptomatic cases the organic lesions are variable. The prognosis is good in the so-called idiopathic cases, the disease not tending to shorten life. It is graver in the symptomatic cases, emaciation and general weakness often developing rapidly. Death may occur early in the latter group. The treatment in the majority of cases is very unsatisfactory. Opium, ergot and valerian effect only temporary benefit. The cases which appear to do best are those of luetic origin. Antisyphilitic treatment usually promptly relieves the cerebral manifestations and improves the general health and nutrition. Although potassium iodid may cause a decided diminution in the polyuria and polydipsia, it is seldom that these symptoms are completely relieved. The most striking effects, however, are manifested in the improvement in the cerebral symptoms, and in the gain in weight after the patients have been placed on the antisyphilitic treatment.

56. **Torsion of Uterus, Ventrofixation; Cesarean Section.**—In the case reported by Powell and Bunts it became necessary to interrupt gestation because of severe lumbar and hypogastric pains. The uterus failed to respond to introduced bougies on account of its firm adhesion to the abdominal wall. It could not rise up from the spinal column, giving an increase of its perpendicular diameter at the expense of its transverse. The uterus was in a state approximating tonic contraction. After making continuous efforts at dilatation, which resulted in failure, it was decided to perform a cesarean section. On opening the abdomen it was found that the uterus was attached to the abdominal wall at a point about six inches from its fundus by a very short broad ligament. Attached to this ligament also was a portion of omentum. On manipulation the uterus gradually began to contract, and after severing the adhesions it made a complete rotation on its cervical axis, showing that the fundus had escaped in the process of enlargement from beneath the band of fixation and rotated about this as a center. A piece of silkworm gut used for fixation five years previously was found in the band of adhesion.

Journal of the Medical Society of New Jersey, Newark.

April.

57 Gastro-uterine Disease. J. M. Rector, Jersey City, N. J.
58 An Accidental Nephrectomy. E. W. Hedges, Plainfield, N. J.
60 *Some Principles of the Diagnosis of Incipient Insanity. W. H. Hicks, Newark.
61 Medical Societies and Preventive Sanitation. T. N. Gray.
62 *Injuries to the Vaginal Tract During Childbirth, Their Significance and Correction. E. Marvel, Atlantic City.
63 *Treatment of Ano-rectal Fistulæ. A. H. Lippincott, Camden.
64 Conservatism in Medicine. C. Knecht, Matawan, N. J.

60. **Diagnosis of Incipient Insanity.**—The symptoms of mental dissolution are summed up by Hicks as follows: 1. Mental pain—depression. 2. Loss of interest and energy; lack of decision—vacillation. 3. Inattention—absent-mindedness. 4. Decline in object consciousness. 5. Rise in subject consciousness. 6. Decline in the rational elements of the perceptive powers. 7. Marked fatigue of conscious effort. 8. Indifference to welfare of the lifelong cherished ideals of the empirical self. 9. Lessened seriality of thought-incoherence—forgetfulness. 10. Change of disposition, affections and habits, suspicious deceptive. 11. Blunted sense of the social, moral and ethical proprieties. 12. Restricted volition—false judgment. 13. Delusions, hallucinations, destructive impulses, etc. 14. Genesis of a new, confused or illogical ego.

62. **Injuries to the Vaginal Tract.**—Marvel summarizes his paper as follows: 1. Vaginal lacerations are the most common injuries met by the mother in childbirth. 2. Vaginal lacerations produce organic and complex symptoms. 3. Assistance can be given the mother to prevent entirely, or to lessen in extent, her injuries. 4. The only treatment is operative, the earlier the better, and the success of this depends on securing true approximation of the torn parts.

63. **Treatment of Ano-rectal Fistulae.**—The procedure of operation and after-treatment of these cases in the main must be governed by the conditions presented by each individual case. In ordinary cases, however, Lippincot operates as follows: After having had the bowel thoroughly emptied the day before, and the patient put on liquid diet, the field is prepared as in any operation. After the patient is anesthetized he is placed in the dorsal position, the legs being held by means of the clover-crutch. The fistula is probed to give the operator some idea of the direction of the main tract. The sphincters are slowly and gently but thoroughly dilated and the lower part of the bowel is irrigated with a salt or creolin solution. The grooved director is introduced through the main tract and through the internal opening, bringing the end of the instrument out at the anus. With a curved bistoury or scissors the bridge of tissue is divided above the director. It is very important to cut at right angles across the sphincter muscle, thus lessening the danger of fecal incontinence. As much of the sphincter muscle as possible is preserved and the internal sphincter should not be cut more than once. If the fistula is of the horseshoe variety, and by a complete extirpation much damage would be done to both sphincters, it would be safer to do a secondary operation later. After the tract is laid open the back wall of the fistula is incised, thoroughly curetted, and with the curved scissors all fibrous scar tissue is carefully trimmed away. All overhanging edges and the outer edge of the wound are trimmed away, leaving a "V"-shaped wound having its apex at the back wall of the fistula. All bleeding vessels are ligated. After thoroughly flushing the lower bowel and the wound the latter is packed tightly with iodoform gauze, soaked in sterile olive oil, and dressed generously with layers of dry gauze, fastened in place with a T bandage. It is best for the bowels not to move during the first twenty-four hours; after that period there should be a daily evacuation. After twenty hours the first packing is removed. The wound should be dressed daily. After the third day the packing is discarded entirely. Unless the dissection has been a very extensive one the patient may be allowed to get out of bed after twenty hours. The early use of tonics and plenty of good, nourishing food is indicated.

Medicine, Detroit.

April.

65 *Clinical Value of Feces Examination. J. H. Salisbury, Chicago.
66 *Syphilis as Related to the Problems of Longevity. J. N. Hyde, Chicago.
68 Treatment of a Case of Severe Burn and Frost-bite Occurring in the Same Patient. J. F. Percy, Galesburg, Ill.

65. **Feces Examination.**—Despite the difficulty of the investigation and the incompleteness of our knowledge, the examination of the feces should occupy a most important place in diagnosis. The deviations from the function of digestion, continues Salisbury, are often only partly revealed by the symptoms, which in some cases may have no apparent connection with the organ affected, and may even simulate disease of an entirely different organ. Dyspeptic symptoms referred by the patient to the stomach, may depend on the condition of the small or large intestine, and vice versa, diarrhea or constipation may arise in consequence of abnormality in the gastric functions. Imperfection of the digestive processes will be indicated by the presence in the feces of undigested material, or of material which has undergone digestion but has failed of absorption. Evidence of the activity of the liver is afforded by the presence of urobilin in the stools. With marked disturbance of fat absorption, a failure more or less complete of fat-splitting, and the presence of much neutral fat, many undigested muscle fibers and free starch, the presumption is in favor of disease of the pancreas. The light thrown on func-

tional disturbance of the pancreas by the examination of the feces is at present, however, insufficient to permit very valuable conclusions to be drawn. The functions of the intestine may also be gauged by examination of the feces. Such examinations especially recommend themselves because of the accessibility of the material. No apparatus or disagreeable operation is necessary to secure it, as in the case of stomach contents, and the examination may be repeated as often as necessary without risk to the patient. The methods employed are exceedingly simple. Fifteen minutes will suffice for the necessary examination by one who has some little experience. No unusual skill is necessary.

66. **Syphilis and Longevity.**—Briefly stated, Hyde's conclusions in answer to the question, to what extent are the longevity prospects of a man or woman affected by the accidents of syphilis, are as follows: Syphilis may destroy life, or it may disfigure and mutilate the human body to a formidable extent. The disease should be counted among the dangerous scourges of the human family. Neither the physician nor the patient can afford to neglect skillful, energetic and prolonged treatment with a view to setting aside the possibilities of future danger. In the case of inherited syphilis, the fatality, working destruction alike of ovum, fetus and infant, varies between 80 and 90 per cent. of the infected. The percentage of fatality in acquired syphilis is probably less than 2 per cent., and results less often from the active invasion of the disease than from an entailed loss of resistance, by reason of which common agencies of disease produce serious effects, especially in the nervous system. The damage wrought by syphilis is not to be measured solely by its lethal issues. The lowering of the standard of health wrought by the inroads of the malady, and the moral result of the acquisition of the disease popularly described as loathsome, may jeopardize the best play of the body functions, pave the way for the inroads of other toxins, and possibly lay the foundation for mental degeneration, alienation and even suicide. The longevity prospects are unquestionably better for women than for men, by reason of the relative placidity of existence of the former.

New York State Journal of Medicine, New York.

April.

69 Acute Appendicitis and Abscess of the Liver. A. Rupp, New York.
70 Brief Story of a Smallpox Epidemic. E. Munson, Medina. New York.
71 *Prolonged Fasting as a Factor in Treatment of Acute Diseases. N. J. Sands, Portchester, N. J.
72 *Clinical Observations in Scarlet Fever, with Especial Reference to Heart and Other Complications; Therapeutic Suggestions. L. Fischer, New York City.
73 Methyl (Wood) Alcohol. J. P. Atchinson.
74 Legislative Aspects of Alcohol. M. N. Clement.

71. **Prolonged Fasting in Treatment.**—The question is raised by Sands whether we do not eat too much when ill. For many years he has advocated and practiced the opposite extreme of overfeeding—namely, absolute fasting in acute diseases of any grade of severity. His experience with prolonged abstinence from food as an aid in the management of acute illnesses dates back twenty-one years, when he first tried it, in a case of typhoid. Since then he has pursued this plan with all his typhoid cases, and has gradually extended it to the management of all acute diseases of any gravity. The digestive and assimilative powers of a patient are in abeyance in proportion to the severity of the sickness, and, on account of fever, possibly of toxins in the blood and of shock to the nervous system following sudden invasion of disease, nourishment fails to be appropriated to the benefit of the system and handicaps the patient's chances of recovery. He keeps his typhoid patients on a strict "water diet" for about twenty-one days. The amount of water which is ordered and insisted on for the patient to drink is at least two quarts in the twenty-four hours, until in the third week, when, with the falling temperature, less is desired. It should be taken pleasantly cool, not iced. The abdominal symptoms are practically nil; there is no diarrhea; no tympanites, no pain or tenderness. He has never had a case of severe hemorrhage, nor one of perforation, since the institution of this treatment. In gastrointestinal disorders other than typhoid, food is withheld until the symptoms have subsided. It is quite possible for a patient to fast three or even four weeks without the development of a more pronounced weakness than would be expected in any acute exhausting disease of such a duration.

72.—See abstract in THE JOURNAL of November 5, p. 1411.

Journal of Cutaneous Diseases, New York.

April.

75 *Acquisition of Syphilis Professionally by Medical Men. D W. Montgomery.
76 *Some Cases of Diseased Nails. G. T. Jackson, New York.
77 *Ethyl Chlorid in Treatment of Zoster. H. Morrow, San Francisco.

75. **Acquisition of Syphilis Professionally By Physicians.**—The object of Montgomery's paper is to present a danger to which medical men are continually exposed, and to draw attention to the indifference they exhibit toward the terrible calamity of infection by syphilis. A number of instances in point are cited.

76. **Diseased Nails.**—Jackson reports a dozen cases of diseases of the nails for the purpose of directing attention to these affections, of which comparatively little is known at the present time.

77. **Ethyl Chlorid in Zoster.**—Used as a counter-irritant to overcome the severe pains of zoster, Morrow has found ethyl chlorid particularly effective. Patients who have not slept for days and who are in constant pain, can be greatly relieved by this treatment. An area the size of a dollar is frozen at a point where the nerve emerges from the spinal column. Although this usually relieves the pain along the entire nerve, it is better to freeze areas where the pain is localized. In some cases this treatment will relieve the pain for a day or more, whereas in others, only for a few hours. When this is the case there is no objection to applying the ethyl chlorid frequently. Morrow has treated ten patients successfully by this method.

Maryland Medical Journal, Baltimore.

April.

78 Intubation Experiences. W. T. Watson.
79 Abdominal Massage: Indications and Technic. R. Tauer, Baltimore.

University of Pennsylvania Medical Bulletin, Philadelphia.

March.

80 Congenital Defect of Abduction Associated with Retraction of the Eyeball. J. T. Carpenter.
81 Aneurism of the Descending Thoracic Aorta, Causing Erosion of the Vertebræ and Symptoms Simulating Pott's Disease. C. W. Burr.
82 Influence of Copious Water Drinking. P. B. Hawk.

Vermont Medical Monthly, Burlington.

February 25.

83 Experimental Study of Movements Produced in Stomach and Bowels by Electricity. G. G. Marshall, Wallingford, Vt.
84 One Hundred Pregnancies. L. H. Ross, Bennington.

St. Louis Courier of Medicine.

March.

85 Possible Victory over the Great White Plague. S. A. Knopf, New York City.
86 Early Diagnosis of Uterine Cancer. G. Gellhorn, St. Louis.
87 Baby Incubators on the "Pike." (Continued.) J. Zahorsky, St. Louis.
88 Etiology and Management of Brow Presentations. F. J. Taussig, St. Louis.
89 Left Hemiplegia. H. W. Soper, St. Louis.

New Orleans Medical and Surgical Journal.

April.

90 Therapeutic Paralysis. W. F. Waugh, Chicago.
91 Upper Respiratory Tract as Source of Systemic Infection. H. Dupuy, New Orleans.
92 Rare Form of Facial Spasm. R. M. Van Wart, New Orleans.

Louisville Monthly Journal of Medicine and Surgery.

April.

93 Chronic Gastric Ulcer. L. Frank, Louisville.
94 Hydrocele. T. L. Butler, Louisville.
95 Medical Education in the United States. S. G. Dabney, Louisville.
96 Growths in Larynx. J. M. Ray, Louisville, Ky.
97 Management of Acute Middle Ear Inflammation of Children. T. C. Evans, Louisville.

Medical Examiner and Practitioner, New York.

March.

98 Consideration of What Fraternal Societies May Do in the Crusade Against Tuberculosis. W. K. Harrison, Chicago.
99 Arteriosclerosis. O. Millard, Flint, Mich.
100 Iritis. Diagnosis, Prognosis and Treatment. D. H. Weisner, New York.

101 Cervix as a Guide in Locating the Fundus, and the Importance of Making an Early Diagnosis in Inflammation of the Cervix Uteri. S. C. Jaques. New York City.
102 Insanity and Epilepsy in Relation to Life Insurance. W. R. Gowers.

Virginia Medical Semi-Monthly, Richmond.
March 24.

103 Conservative Gynecology. C. R. Robins.
104 Volvulus Constituting Intestinal Obstruction Following Cesarean Section, with Uncertain Symptoms. J. N. Winston. Washington.
105 Movable Kidney—Its Causes, Symptoms and Diagnosis. B. L. Hillsman, Richmond.
106 Treatment of Erysipelas with Formalin. T. Dowling, Jr., Washington.
107 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond.

Alabama Medical Journal, Birmingham.
March.

109 Some Points in the Technic of Gallstone Operations. G. S. Brown, Birmingham.
110 The Lawyer and the Doctor. E. Floyd, Birmingham.

Northwestern Lancet, Minneapolis.
April 1.

111 Suggestion in the Treatment of the Sick. O. F. Way, Claremont, Minn.
112 Binocular Radiography. C. D. Harrington, Minneapolis.
113 Operative Treatment of Fractures and Sprains. A. E. Benjamin, Minneapolis.

Albany Medical Annals.
April.

114 New Revision of U. S. Pharmacopeia. R. W. Wilcox.
115 Surgery of Twenty-five Years Ago. S. B. Ward.
116 Diagnosis of Acute Intestinal Obstruction. A. H. Traver.
117 Evolution of Surgery During the Past Twenty-five Years. A. Van der Veer, Albany.

Indiana Medical Journal, Indianapolis.
April.

118 Bacteriology of Puerperal Infection—Its Relation to Treatment. C. E. Ferguson, Indianapolis.
119 Isthmic Tubal Mole. L. J. Willien, Terre Haute.
120 President Garfield at Elberon. A. H. Smith, New York City.

Journal of the Kansas Medical Society, Lawrence.
April.

121 Embryos—Methods of Treatment. I. Hardesty, University of California.
122 Physician as a Business Man. J. T. Axtell, Newton.
123 Injuries to the Eye. J. W. May, Kansas City.
124 Radical Operation for Hernia. S. McKee, Leavenworth, Kan.
125 Autopsies. G. H. Hoxie, Lawrence.
126 Typhoid Fever. E. Smith, Lawrence.
127 Paresis. C. C. Goddard, Leavenworth.
128 Purulent Conjunctivitis. H. L. Alkire, Topeka.

Journal of the Mississippi State Medical Association, Vicksburg.
April.

129 Relation of Physicians to Each Other. J. H. Plunkett, McComb City.
130 La grippe. D. B. Stevenson, Poplarville.

Buffalo Medical Journal.
April.

131 Case of Cystic Goiter. N. Jacobson, Syracuse.
132 Multiple Herniæ. Large Angioma Hypertrophicum. W. S. Bainbridge.
133 Acute and Chronic Middle Ear Suppuration, with Special Reference to Treatment. G. F. Cott, Buffalo.

Canadian Journal of Medicine and Surgery, Toronto.
April.

135 Diphtheria Complicated by Subcutaneous Emphysema. W. J. Wilson, Toronto.

Southern California Practitioner, Los Angeles.
March.

136 Fundus as a Diagnostic Accessory. F. W. Miller, Los Angeles.
137 Symptomatology of Pneumonia. G. L. Cole, Los Angeles.
138 Complications of Pneumonia. W. A. Edwards, Los Angeles.
139 Massage—History, Theory and Practice. F. S. Seely, Los Angeles.
140 Typhoid—Five Divisions of Treatment. D. C. Strong, Redlands.
141 Study of the Unconscious Mind Under Stress of Bodily Disease. R. Moore.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.
April 1.

1 Some New Therapeutic Methods in Dermatology. M. Morris.
2 *Chronic Constipation; Its Medical and Surgical Treatment. W. A. Lane.
3 New Methods of Studying Affections of the Heart. (Concluded.) J. MacKenzie, Burnley.
4 *Diagnostic and Prognostic Value of the Leucopenia of Cachexial Fever and Kala-azar. L. Rogers.
5 Experimental Transmission of Mediterranean Fever. E. H. Ross and G. M. Levick.
6 Intermittent Fever in Malta. T. Zammit and G. C. Scicluna, Malta.
7 Ship Beri-beri. G. A. Turner, Kimberley, S. Africa.
8 Spirillum Fever in Uganda. A. D. P. Hodges and P. H. Ross. Uganda.

2. **Treatment of Chronic Constipation.**—Lane discusses particularly the conditions consequent on an imperfect evacuation of the large bowel. In the majority of cases this is associated with the symptoms popularly comprehended under the term constipation, but in a small proportion, while the large bowel up to the hepatic flexure or even to the splenic flexure may be constantly or frequently loaded, yet the patient obtains from the overflow a daily movement which is usually solid, and, consequently, makes no complaint of constipation. The large intestine, whose vitality has been depreciated, both by local inflammatory changes and by the general loss of tone, is thereby rendered liable to some specific infection, and ulcerative, membranous or other forms of colitis may develop in consequence. The condition frequently dates from a very early period, when, owing to the unsuitable feeding of a child, the intestines, and particularly the large bowel, are distended with gas, rendering the whole of the abdomen abnormally prominent. The cecum and ascending colon appear to suffer most severely, owing to the fact that this portion of the bowel is hung up at the hepatic flexure, which is rendered more acute by the distension and consequent elongation of the transverse colon in a downward direction. This distension, by dragging on the band which supports the splenic flexure, renders it difficult for the contents of the transverse colon to pass into the descending colon. In consequence of this distension, the large bowel becomes more or less inflamed, and this inflammation may be sufficient to produce a distinct peritonitis, as manifested by effusion. The inflammation of the cecum and ascending colon produces an adhesive process between the outer wall of the bowel and the peritoneum. These adhesions help to support the increasing weight of this portion of the bowel and to some extent oppose its distension and downward displacement. Precisely similar changes take place at the splenic flexure. After a time these adhesions develop into distinct mesenteries and strong bands. The bowel is less able to perform its functions; the intestine finally becomes bound down; the sigmoid is so contracted up that it ceases to be a loop and forms a straight conduit, the presence of the inflamed bowel in the true pelvis interferes with the functions of the ovary and the fallopian tube, and in this way constipation would appear to play an important part in the sterility so common among women. The stomach function is finally interfered with and the kidneys become mobile. The treatment is purely operative.

4. **Leucopenia of Cachexial Fever and Kala-azar.**—The diagnostic and prognostic value of leucopenia in the so-called cachexial fever and in kala-azar is considered by Rogers. A very marked decrease in the leucocytes is always found in uncomplicated cases of cachexial fever, and when they number below 2,000 per cubic millimeter this is almost diagnostic of the disease, but may rarely occur in true malarial cachexia. In cachexial fever the white corpuscles are reduced to a greater degree than the red, so that the ratio falls below 1 to 1,000 in all uncomplicated progressive cases. This is rarely so in true malarial cachexia, while a reduction in the ratio to below 1 to 1,500 appears to be quite diagnostic of cachexia from other Indian fevers. The most marked degrees of reduction of the leucocytes, and especially of the polynuclears, is of bad prognostic import, and *vice versa*.

The Lancet, London.
March 25.

9 Industrial Anthrax. T. M. Legge.
10 Physiology and Treatment of Surgical Shock and Collapse. J. P. L. Mummery.
11 *Relation of the Parasitic Protozoa to Each Other and to Human Disease. E. J. McWeeney.
12 *Treatment of Pleuritic Effusion by Paracentesis and Incision in Serous Effusion, Empyema and Pyopneumothorax. S. West.
13 Case of Intrapelvic Extravasation of Urine. D. Lowson.
14 Pre-menstrual Pregnancy in a Girl Aged 13 Years. A. W. Addinsell.
15 Case of Chronic Intestinal Obstruction with Perforation of the Sigmoid Flexure. G. A. Clarkson.

April 1.

16 *Growth of Cancer. E. F. Bashford.
17 Industrial Anthrax. T. M. Legge.

18 *Physiology and Treatment of Surgical Shock and Collapse. J. P. L. Mummery.
19 Pericolitis Sinistra. H. D. Rolleston.
20 Vibrating Sensation in Affections of the Nervous System and in Diabetes. R. T. Williamson.
21 Case of Pressure Statis. R. L. Joynt.
22 Carcinoma of the Bronchus and Liver Associated with Glycosuria in a Youth. G. Hall and R. H. Tribe.
23 *Soluble Button for Intestinal Anastomosis. P. Paterson.
24 *Crounotherapy in Exophthalmic Goiter. W. B. Jones.

11. **Relation of Protozoa to Disease.**—McWheeny's paper is a brief survey of the advances made during the past three years in our knowledge of the disease-producing protozoa, their biology and their relation to human diseases.

12. **Treatment of Pleuritic Effusion.**—The indications for these operations, indications against, and methods of their performance, are discussed by West.

16. **Growth of Cancer.**—According to Bashford, cancer is identical in all vertebrates, and in growing accommodates itself in a striking manner to the time limitations imposed by the compass of life in different animals. Under favorable experimental conditions the growth of the cancer is undefined, of enormous and limitless amount. Artificially propagated cancer displays all the characteristic features of the growth of sporadic tumors. The growth of artificially propagated cancer is due to the continued proliferation of the parenchyma cells. They cause no symptoms in the organism to which they have been added. The power of differentiation is definitely in one direction only, even three and a half years after separation from the original host. The number of chromosomes constant for the healthy body tissue is retained, notwithstanding the recurring reduction of this number to the exact half. The balance of evidence is in favor of the growth being interrupted and not uniform and continuous. From the standpoint of therapeutics the investigations of the Imperial Cancer Research Fund thus far establish the early surgical treatment of cancer, and of the conditions suspicious of cancer, on that experimental and rational basis which has hitherto failed. Artificially propagated tumors produce metastases as do sporadic tumors. Sufficiently early removal of the local transplanted tumor removes metastases from the region of possibility, and the immediate practical outcome of the whole investigation is a strong experimental justification of early operation in cancer.

18. **Treatment of Surgical Shock and Collapse.**—As causes of these conditions, Mummery mentions exhaustion of the vasomotor centers, and the resulting great fall in blood pressure; lowering of blood pressure from hemorrhage or from paralysis of the vasomotor centers; the anesthetic, and the time consumed in performing the operation. Ether and the C. E. mixture are the best anesthetics for cases in which there is danger of shock. In the treatment of shock stimulants, and especially strychnin, are absolutely contraindicated. The position with the head down and the foot of the bed raised, is of considerable value in the treatment of shock and should be more extensively used. So too, compression of the abdomen, either manually or by the application of a tight abdominal binder. The intravenous infusion of salt solution raises the blood pressure in all degrees of shock, but as a method of treatment it is disappointing because its action is fleeting and can not be continued indefinitely. The introduction of saline solution into the abdomen at the end of an abdominal operation is a valuable method of combating shock, and is not contraindicated by the presence of pus in the abdominal cavity. Mummery believes the best line of treatment in the event of shock occurring or threatening during an operation is the following: If the operation is an abdominal one, the peritoneal cavity should be filled, before being closed, with physiologic salt solution, and if a severe degree of shock is already present, adrenalin should be added to the solution in the proportion of 1 in 40,000. Whether or not the operation be an abdominal one, a firm tight abdominal binder should be applied at the end of the operation, and in bad cases, in addition, the limbs should be firmly bandaged from the extremities upward. Raise the foot of the bed, keep the patient warm and administer some good nutrient enema. No stimulants should be given. The hypodermic injection of ergot is indicated at the earliest sign of shock and should be repeated if any improvement in pulse tension follows its administration. Except where absolutely contraindicated, an injection of morphin should be given at the end of the operation, and if there is any restlessness afterward the morphin should be repeated. If, in spite of these measures, the blood pressure remains low, and the patient continues in a dangerous condition of shock, a solution of adrenalin in physiologic salt solution, in the proportion of 1 to 20,000, should be intravenously infused at a rate of about 3 to 5 c.c. a minute. The infusion should be continued until, on stopping it, the blood pressure is found to remain at a safe level. In collapse following severe hemorrhage intravenous infusion with physiologic salt solution should be performed as soon as possible. The amount of fluid introduced into the veins should be as nearly as possible equal to the amount of blood lost.

23. **Button for Intestinal Anastomosis.**—Paterson has devised a button or bobbin made of gelatin which has been treated with chrome alum. Besides being easy of manipulation and remaining *in situ* for the necessary length of time without injuring the intestine, the button has the additional recommendation that it can be prepared in such a manner as to be more or less resistant to the action of the digestive secretions according to the activity of these in the part operated on, or to suit the particular purpose which the surgeon may have in view. By varying the strength of the solution or the time that it is allowed to act, or by both these means, almost any degree of insolubility can be obtained. Paterson has found that the most suitable strength for intestinal buttons is 10 grains of chrome alum dissolved in one ounce of cold water. The buttons, which are not unlike Murphy's in shape, are made by pouring a strong watery solution of gelatin into molds of suitable size, these having been previously lined with a layer of strong muslin or dressing cloth. This fibrous material becomes saturated with the gelatin and incorporated with the outer part of the button and gives additional strength whilst at the same time it diminishes the tendency to brittleness. When the gelatin has set, the casts are removed and placed in the chrome solution, of which there should be an ounce or so for each button. Casts up to three-quarters of an inch in diameter should soak for from ten to twelve hours. They are then kept in 50 per cent. alcohol until required. It is important to note that when finished a projection on the male part of the button should fit accurately the opening in the female half so that some pressure is necessary to send it home, and to increase this adhesion it is better to have the two made slightly oval in section. A button three-quarters of an inch in diameter, prepared as described, resists solution for from five to seven days. The method of fixing this support is almost the same as that employed in using Murphy's button. A purse-string suture is passed around each end of the divided intestine, and the button, which has its halves opened but not quite detached, is placed in position and the sutures are pulled tight and tied. Should the parts of the button not fit tightly the opening in the female half should be smeared with a layer of thick hydraulic dental cement, and the ends then pressed together.

24. **Exophthalmic Goiter.**—Remarkable results were obtained by Jones in a case of exophthalmic goiter treated by crounotherapy. The patient was prescribed a course of the Llangammarch mineral water, a glass to be taken three times daily, and a course of baths, one on each alternate day. He was encouraged to take a moderate amount of exercise, including hill-climbing. He soon began to improve, the pulsations were less frequent and less violent and soon subsided to 94 per minute. Seven months afterward he was quite free from palpitation, attended to his business without discomfort, and walked several miles a day. The water used contains chlorid of barium, which has an action in slowing the pulse similar to that of digitalis.

Journal of Tropical Medicine, London.

April 1.

25 Elephantiasis of the Scalp. G. A. MacDonald.
26 Occurrence of Relapsing Fever in the Tropics and Its Relation to "Tick Fever." F. C. Wellman, Angola, West Africa.
27 Note on Occurrence of Filariæ in Fijians; from Blood Examinations. G. W. A. Lynch.
28 Effect of Drainage and Other Measures on the Malaria of Kland, Federated Malay States. M. Watson.

Annales de Dermatologie et de Syphiligraphie, Paris.

Last indexed page 1265.

29 (V. Nos. 8-9.) Les substances toxiques et immunisantes dans la syphilis. H. Hallopeau.
30 Contribution à l'étude clinique et histologique des manifestations cutanées de la leucémie et de la pseudo-leucémie. Nicolau.
31 *Syphilis et cancer. J. Etcheverry.
32 (No. 10.) De la blastomycose cutanée. W. Dubreuilh.
33 Report of V International Congress of Dermatology, Berlin, September, 1904.
34 (No. 11.) L'epithéliomatose pigmentaire, type de Unna (Seemannshautcarcinom). Dalous et Constantin.
35 Neuro-fibromatose généralisée avec molluscum pendulum de la moitié droite de la face et ptosis de l'oreille (with hypertrophy and ptosis of ear). Benaky (Smyrna).
36 Autopsie d'un cas d'adénome sébacé de Balzer. M. Pelagatti.
37 Osteitis Deformans and Inherited Syphilis.—Maladie osseuse de Paget et hérédo-syphilis. G. Etienne.
38 (No. 12.) *Le liquide céphalo-rachidien des syphilitiques en période tertiaire (cerebrospinal fluid). P. Ravaut.
39 Thirty-two Instances of "Syphilis by Conception," with Tardy Manifestations in Child or Mother or Both.—Syphilis conceptionnelle à manifestations tardives. L. Perrin.
40 Lymphangite nodulaire intra-labiale au cours d'un chancre syphilitique de la lèvre inférieure (lower lip). P. Delauney.
41 (VI, No. 1.) Le vernix caseosa, l'hérédo-séborrhée et l'acne fetales. L. Jacquet and Rondeau.
42 (No. 2.) Sur les relations du vitiligo et de la syphilis. G. Thibierge.
43 "Scrotal Tongue" in Grandmother, Mother and 3 Daughters.—Langue scrotale en série familiale. J. Payenneville.
44 Recherches sur l'alopécie atrophiante, variété pseudo-pélade. L. Brocq, Lenglet and Aurignac. (Continued from No. 1.)

31. Syphilis and Cancer.—Etcheverry believes that syphilis has an active influence on the development of cancer of the mouth, and that this influence is exerted by the preliminary leucoplasia providing a soil for cancer, by the cancer becoming installed in local lesions such as scars on the gums, etc., and by the general lowering of the resisting powers which the syphilitic infection induces. In his experience at Toulouse, he has had occasion to observe 13 cases of cancer following leucoplasia, and a still larger number in which the cancer developed in local syphilitic lesions in the mouth. He cites also a number of cases reported by others. In a third group of 15 cases the cancer developed in the mouth of a syphilitic without appreciable preceding local lesions. Under energetic mercurial treatment the cancer continues its inexorable course while the syphilitic lesion, with which it is associated, shows the effect of the specific treatment. Potassium iodid seems to aggravate epitheliomata, but mercury may induce a transient improvement. The above considerations apply also, probably, to cancer of the rectum in syphilitics, but the literature on this subject is still very scanty.

38. **Cerebrospinal Fluid in the Tertiary Phase of Syphilis.**—Examination of the cerebrospinal fluid of 46 syphilitics showed it always normal when the manifestations of the disease were restricted to the skin, bones or mucosæ, with the exception of cases of perforation of the soft palate. When there were ocular lesions, the cerebrospinal fluid almost always showed evidence of a strong cytolytic reaction. The reaction is more intense the more recent the lesions, and it subsides as the lesion retrogresses. In old syphilitics without any apparent manifestations of the disease the cerebrospinal fluid was always normal. When the nervous system was affected, the fluid always presented indications of a reaction. Any cytologic reaction, therefore, in the cerebrospinal fluid in a syphilitic, isolated or accompanied by other manifestations of syphilis, is a sign that the nerves are affected, if the reaction can not be otherwise explained. The discovery of such a reaction should be a warning to institute specific treatment at once without waiting for further symptoms. The reaction in the cerebrospinal fluid should be accepted as a symptom fully as characteristic as a cutaneous or visceral lesion, requiring the same treatment. Ravaut even pleads that lumbar puncture should be practiced as a routine measure in syphilitics. By the information thus obtained the nervous complications, which are the more dangerous as they develop in such an insidious latent way, may be aborted or warded off by timely, energetic treatment.

Presse Médicale, Paris.

Last indexed page 1320.

45 (No. 12.) Epidémiologie de la méningite cérébro-spinale. A. Mandoul.
46 Les matériaux de l'urine (materials of urine). M. Labbé and H. Labbé.
47 *Traitement du tétanos par les injections épidurales de sérum antitétanique. G. Mornac.
48 (No. 13.) Le traitement de la tuberculose par les inoculations. A. E. Wright.
49 Action of Anesthetics on Blood.—L'action des anesthésiques sur le sang. P. E. Weil.
50 (No. 14.) *De la syphilis stomacale. G. Hayem.
51 *Aortite, tabes et paralysie générale. E. de Massary.
52 (No. 15.) La fièvre méditerranéenne en Tunisie. C. Nicolle and M. Triolo.
53 (No. 16.) Le radium en thérapeutique "Radiumthérapie." P. Desfosses.
54 Results and Improved Technic of Broncho-Esophagoscopy.—Des résultats généraux obtenus par la broncho-oesophagoscopie et des perfectionnements apportés à cette méthode. J. Guisez.
55 Glycerinated Dressings for Vagina.—Pansements vaginaux glycérinés. M. Sayanno.
56 (No. 17.) Tubercle Bacillus and Blood of the Tuberculous.—Le bacille de Koch et le sang des tuberculeux. A. Bergeron.
57 Abcès de la paroi abdominale du à la migration des vers intestinaux (of helminths). P. Sikora.
58 Etudes sur la pathologie et sur l'étiologie de la variole et de la vaccine. W. T. Councilman, G. M. Magrath, W. R Brinckerhoff, E. E. Tyzzer, S. E. Southard, R. L. Thompson, I. R. Bancroft, G. N. Calkins.
59 (No. 18.) La scopolamine comme anesthésique général en chirurgie. F. Terrier and A. Desjardins.
60 Mécanisme des décollements epiphysaires (separation of epiphysis). A. Broca.

45. Prophylaxis of Cerebrospinal Meningitis.—Mandoul had occasion to study 6 cases of cerebrospinal meningitis occurring in the barracks at Angoulème in the course of four months. No regular period of incubation was evident, but the diplococcus was isolated from the cerebrospinal fluid in all. He examined mucus from the nose of 15 healthy men who had been in contact with the sick, and found a diplococcus resembling the virulent germ in all but 3, and actually virulent in 2 of the men. These 2 healthy persons harbored the virulent germ of cerebrospinal meningitis without injury. Another fact he noted was that the cerebrospinal meningitis had developed in every instance secondary to some affection involving the nasopharynx, such as grippe or measles. The natural conclusion from his finding is that periodical rinsing of the nasopharynx, to keep it as aseptic as possible, is the true prophylaxis of cerebrospinal meningitis.

47. **Epidural Injections of Antitetanus Serum.**—Mornac was not successful in curing the patient whose case he describes; the injection was not made until the fourth day of the tetanus. The improvement observed, however, the simplicity of the technic, and the technical success of the procedure as determined at the autopsy, justify further experiments in this line. He thinks that the epidural route is theoretically the one of choice in case the wound is on the legs. The chances for success are of course better the earlier the injection is made. He injected 20 c.c. three times in two days, with two more injections of 10 c.c. each on the third day. Apert has reported a case in which the patient recovered after epidural injection of the serum.

50. **Syphilitic Gastric Troubles.**—Hayem reviews 4 typical cases of tertiary syphilitic manifestations located in the stomach. One type simulates an ulcer, as there is ulceration with hematemesis. Another type suggests benign stenosis, without a tumor. In the third type, there is a tumor in or near the pylorus, suggesting the possibility of cancer of the pylorus. The fourth type is a deceptive simulation of cancerous stenosis. The chemistry of the stomach, however, is liable to be that of an ordinary chronic gastritis. In the ulcerative form the analysis may suggest the findings of cancer. One of the 4 patients was 60 years old and presented the aspect of a cancer subject. No one thought of inquiring for syphilis in this case, but a history of a chancre forty years before was learned after the operation. If it had been suspected before, specific treatment would have been tentatively instituted, as there was no urgent haste, and the syphiloma might have subsided under it. In the absence of a history of syphilis Hayem would refrain from mercurial treatment in such a case as all unnecessary medication may do harm. The possibility of syphilis in presence of a serious stomach affection of obscure origin should not be forgotten. If it is even probable or possible, mercurial treatment may do wonders, and may avert the necessity for surgical intervention.

51. **Aortitis, Tabes and General Paralysis.**—De Massary has had 2 patients who applied on account of aortitis alone, but his examination revealed incipient tabes. In others the vascular

affection that brought them to the physician was accompanied by an unsuspected general paralysis. He urges the necessity for minute investigation of the nervous system in every case of a vascular affection of a possibly syphilitic origin.

Berliner klinische Wochenschrift.

62 (XLII, No. 9, February 27.) Zur Natur des Heufiebergiftes und seines spezifischen Gegengiftes (hay fever toxin and antitoxin). C. Prausnitz (Hamburg).
63 *Neumann's Orcin Test for Sugar.—Die Brauchbarkeit der Orcinreaktion nach Neumann für die Zuckeruntersuchung des Urins. G. Mann.
64 Bismuth Poisoning.—Ueber Bismuth Vergiftung. W. Mahne.
65 *Permanent Results of Bloodless Reduction of Congenital Dislocation of Hip.—Dauerresultate nach der unblutigen Einrenkung angeborener Hüftverrenkungen. G. Joachimsthal.
66 Later Works on Bacteria of Tubercle-Bacillus Group.—Neuere Arbeiten über die Bakterien der Tuberkel-Bacillen-Gruppe. Kutscher.
67 (No. 10.) Favorable Influence of Temp. of 131 F. on Agglutination Test.—Ueber den Einfluss des Temperatur Optimums von 55° C. auf die Agglutination beim Fickersehen und Widal'schen Versuche. K. Sadler.
68 Ueber die makroskopische Agglutinations-Probe bei Typhoid-Fieber. P. Aaser.
69 *Refrigeration in Treatment of Cutaneous Affections.—Gefrierbehandlung bei Hautkrankheiten. M. Juliusberg.
70 Ueber Meningo-Encephalitis serosa nasalen Ursprungs (of nasal origin). J. Herzfeld.
71 Der forensische Blutnachweis (forensic blood test). H. Marx.
72 (No. 11.) Complement in Blood in Tuberculosis.—Der Komplementgehalt des Blutes bei verschiedenen Formen der Lungentuberkulose. J. Kentzler.
73 Limited Dorsal Flexion of Foot in Peroneus Paralysis.—Ueber eine bisher noch nicht bekannte Begleiterscheinung der Parese des Nervus peroneus. H. Hirschfeld.
74 Action of Brine Baths.—Die physiologische Wirkung der Solbäder. T. Groedel II.
75 *Die moderne Behandlung der Herzleiden (heart affections). E. de Renzi.
76 Sunshine and Epidemic of Catarrhal Fever.—Beziehungen des Sonnenscheins zu der Saison-Epidemie des Winters 1904-05. J. Ruhemann.
77 Rapid Dilation of Cervix.—Einiges über die schnelle Dilatation des Cervicalkanals und über die Bedeutung der Dilatationsmethoden für den Praktiker. Stoeckel.

63. **Neumann's Orcin Test for Sugar.**—Mann praises this test as not only more sensitive than the Nylander and Trommer tests, but as serving to differentiate various kinds of sugars with the single and very simple test. The color reaction differentiates the various hexoses and these from the pentoses.

65. **Permanent Results of Bloodless Reduction of Congenital Dislocation of Hip Joint.**—Joachimsthal presents radiograms of a number of patients treated years ago by bloodless reduction. The remote results have been perfect cures in 60 per cent. of the cases, while in the others mere transposition of the head was all that was accomplished. He regards this percentage as very promising. This method of treatment and after-treatment, he is convinced, makes less demands on the patient than other methods, while experience has shown that the results remained permanent under years of observation.

69. **Refrigeration in Treatment of Cutaneous Affections.**—Juliusberg states that carbonic acid is the refrigerating fluid preferred for this purpose at Neisser's clinic at Breslau. The surface is sprayed with the carbonic acid as when making frozen sections. The broad, perforated nozzle of the vial is held about 1 cm. from the skin, and the fluid is forced out by a bulb. In half a minute the skin is frozen hard. There is anemia at first; this is followed by intense hyperemia, and half an hour later by profuse serous transudation. In twelve hours an inflammatory redness develops, with blisters. When the freezing has been very intense, actual ulceration may follow. When it is necessary to repeat the application, an interval of five to ten days is interposed. Three sittings in less than a month are generally sufficient. This method of treatment proved particularly effectual in 9 cases of lupus erythematodes thus treated. From 3 to 9 applications were made and the patches healed remarkably promptly, but traces of recurrence became visible after a few months, showing that the refrigeration needs to be combined with some other measure to ensure permanency. He thinks the ideal combination is with crude hydrochloric acid, according to Dreuw's technic, described in these columns, page 2002 of the last volume, substituting carbonic acid for the ethyl chlorid. Tuberculous skin affections are evidently the chosen field for this mode of treatment when phototherapy is impracticable for any reason. A lupous patch about six months old, on the forearm, healed with a keloid cicatrix after two applications of the carbonic acid and hydrochloric acid. In another case, two lupous patches on hand and arm ulcerated at first under three weeks of the combined treatment, but then healed over smoothly. All were favorably influenced and apparently cured to date. The experiences at the clinic were with psoriasis, primary sores, leg ulcers and sycosis, besides the tuberculous affections. The primary sores all healed rapidly after a single application of the refrigeration and hydrochloric acid before mercurial treatment had been instituted.

75. **Modern Treatment of Heart Affections.**—In that part of his article devoted to prophylaxis, De Renzi urges that greater attention should be paid to warding off and to treating the affections which we know favor the development of a cardiopathy. Acute articular rheumatism stands in the front rank in this respect, and he asserts that the physician should not be content to treat it with mild measures, but should combat it vigorously. Doses of from 6 to 8 gm. a day (3iss to 3ii) are none too large. The physician content with less is liable to be doing his patient great harm. These large doses may induce symptoms of salicylic poisoning, but the danger of a mild and transient intoxication is slight in comparison with the danger of permitting an incurable heart affection to become installed because the articular rheumatism has not been adequately treated. The delay of a day or even of a few hours may allow the inception of a fatal cardiac defect which might have been avoided. Gout and obesity should be treated promptly for the same reason. He protests against Huchard's advocacy of repose as beneficial to heart patients. His own opinion is directly contrary. He believes that exercise trains and strengthens the heart, and is the sovereign remedy for all cardiopathies. Cardiac defects are benefited as the heart becomes hypertrophied, and the heart muscle develops as it is exercised.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

78 (XXXI, No. 9, January 31.) Experiences with Early Operating in Appendicitis.—Erfahrungen mit der Operation der akuten Epityphlitis in den ersten 48 Stunden. J. Rotter.
79 Thrombophlebitis mesaraica, eine verhängnisvolle Komplikation der Appendicitis. E. A. Polya. (Commenced in No. 7.)
80 New Form for Administering Iron.—Eine neue Form der Eisendarreichung. P. Meissner.
81 Zur aktiven Therapie des Abortus. A. Sittner.
82 Progress in Care of the Sick.—Fortschritte der Krankenpflegetechnik. P. Jacobsohn. (Concluded.)
83 (No. 10.) Principles for Treatment of Mental Affections.—Grundzüge zur Behandlung der Geisteskrankheiten. O. Binswanger.
84 *Progress in Treatment of Suppurative Perforation-Peritonitis.—Ueber unsere Fortschritte in der Beurteilung und Behandlung der eitrigen Perforations-Peritonitis. Barth.
85 Ueber die Scopolamin-Morphium-Narkose. Dirk.
86 Ueber die Verwendbarkeit des Panendophon zur Feststellung der Organ-Grenzen (unfavorable verdict on modified phonendoscope). O. Kaiserling.
87 *Ueber Herz-Perkussion (of heart). Goldscheider.
88 Great Differentiating Value of Koplik's Spots in Measles.—Ueber die Bedeutung der Koplikschen Flecke für die Diagnose und Differential-diagnose der Masern. H. Brüning.
89 Recent Legal Decisions in Medical Matters.—Die Rechtsprechung in ärztlichen Angelegenheiten. Flügge.
90 (No. 11.) Treatment of Gout.—Die Behandlung der Gicht. O. Minkowski.
91 *Diphtheria Antitoxin as Protective.—Ueber Schutzimpfungen mit Diphtherie-Heil-Serum. J. Ibrahim.
92 Zur Kasuistik der hysterischen Schlafzustände (sleep). C. Bruck.
93 Ueber Wirbel-Frakturen (of vertebræ). O. Croce.
94 Quinin as Oxytoxic.—Ueber Chininum sulfuricum als wehenverstärkendes Mittel. J. Backer.
95 Rapid Embedding.—Ueber Aceton-Celloidin-Schnelleinbettung. F. Scholz.
96 *Filariasis in Tropics.—Beitrag zur Filariakrankheit der Menschen und Tiere in den Tropen. H. Ziemann.
97 Results of Bacteriologic Research in 1905.—Rückblick auf bakteriologische Forschungsergebnisse des Jahres 1904, die von allgemeinerem Interesse sind. Meinicke.
98 Zur Prophylaxe der Rezidive bei Erosionen der Hornhaut (of cornea). H. Feilchenfeld.
99 Plague in Northern China.—Die Pest in Nord-China im Herbst 1903. Eckert.
100 Zum 100. Geburtstage des Sängers Manuel Garcia, des Begründers der Laryngoskopie. A. Jurasz.

84. **Treatment of Perforation Peritonitis.**—Barth counsels early operating and extols the benefits liable to be derived by enterostomy even in apparently desperate cases of peritonitis caused by perforation. He has saved 7 out of 11 patients by this means in the acute phase of peritonitis. One patient was a boy with ileus from progressive peritonitis. The intestine was punctured at three different places and the child recovered. In another case, the intestine was punctured at two

places with a similar favorable result. The contracting power of the intestine is the guide to intervention and the criterion for the prognosis. When the intestine is paralyzed, the contents of the loop that is punctured are all that flows out, but when the intestine is still functioning then the feces are passed along and evacuated. If success is not complete in the next few hours or days—and siphoning out the stomach contents is the criterion for this—then there is every probability that a second obstacle exists, and a second or even a third puncture is needed. The technic is very simple. A loop of the intestine is drawn up through a short incision and sutured to the peritoneum. The puncture is made with a fine trocar at once or after tamponing for a few hours. After removing the metal guide, a rubber tube is fastened to the trocar, which is left in place. By this means the wound is kept from being soiled, while the hole in the intestine is so small that it usually closes spontaneously. The mechanism of ileus in case of perforation peritonitis may be open to question, but it is positive that a large proportion of the patients may be saved by enterostomy in time. The details of the 11 cases thus treated are appended.

87. **Percussion of the Heart.**—Goldscheider recommends extremely light, barely audible percussion, as by far the most instructive. Absolute silence should prevail, and the tracings of this extremely light percussion will be found to harmonize most perfectly with the findings of orthodiagraphy, etc.

91. **Diphtheria Antitoxin as a Prophylactic Measure.**—Ibrahim's extensive experiences at the children's clinic at Heidelberg speak convincingly in favor of the great value of protecting injections of diphtheria antitoxin. It confers immunity to diphtheria for three weeks at least, without fail; 250 to 300 immune units is the effectual dose. Children already having scarlet fever, whooping cough, and especially measles, should be given 500 units. The same dosage applies also to infants. In the contagious ward the injections should be repeated every four or, better still, every third week, and in case of measles, every second week.

96. **Filariasis in the Tropics.**—Ziemann has made a study at Kamerun of affections caused by the *Filaria perstans, Filaria bancroftii and Filaria loa.* He found the *Filaria perstans* in a number of Europeans, and noted that the cases of migrating, painful swellings and of multiple abscesses increased in parallel proportion. When the *Filaria loa* was found in the eye there was frequently a history of migrating swellings. Prophylaxis should be the same as for malaria, by annihilation of mosquitoes. No treatment proved effectual, but in one case the recurring migrating swellings were permanently banished by a course of baths at Kreuznach.

Münchener medicinische Wochenschrift.

101 (LII, No. 10.) *Two Cases of Extramedian Symphyseotomy.—Zur Indikation des Schambeinschnitts nach Gigli. O. v. Franqué.
102 *Functional Capacity of Female Mammary Gland.—Zur Leistungsfähigkeit der weiblichen Brustdrüse. O. Rommel.
103 Zur Morphologie der pathogenen Mikroorganismen, Diphtherie- u. Pseudo-Diphtherie-Bazillus. E. Saul.
104 *Significance of Pleurisy for Diagnosis and Treatment of Abdominal Affections.—Pleuritis in ihrer Bedeutung für Diagnose und Therapie der Abdominalerkrankungen. B. Auerbach.
105 *Ueber die Beziehungen von Infektion, Gefäss- and Blutdrüsen-Erkrankungen zur Sklerodermie. L. Huismans.
106 Zur differential-Diagnose der choreatischen Geistesstörung (mental disturbances). L. Ruppel.
107 Fall von disseminierter Fett-Nekrose infolge Schussverletzung des Pankreas (fat necrosis after bullet wound). R. Kindt.
108 Fall von Simulation epileptischer Krämpfe bei einem 13 jährigen Schulknaben (by schoolboy). Aronheim.
109 Neue elektrische Beleuchtungs- und Untersuchungs-Lampe (illuminator). F. Schaefer (Munich).
110 *Prevention of Puerperal Fever.—Zur Verhütung des Puerperalfiebers. H. Doerfler (Regensburg).
111 The Medical School of Fifty Years Ago.—Ein ärztlicher Rückblick auf ein halbes Jahrhundert (1855-1905). A. Riedel.
112 (No. 11.) *Action of Mercury.—Ueber Quecksilberwirkung. E. v. Düring.
113 *Quantitative Test for Air in Lungs.—Ueber die quant. Bestimmung des Luftgehaltes der Lungen, besonders bei Neugeborenen, eine Erweiterung der Lungen-Schwimm-Probe. J. Stumpf.
114 Influence of Fever, Infection and Kidney Injuries on Suprarenin Glycosuria.—Der Einfluss von Fieber, Infektion und Nierenschädigung auf die Suprarenin-Glykosurie. A. Ellinger and A. Seelig.
115 *Sigmoiditis chronica granulosa.—E. Helber.
115½ Zur Frage der Hämolysin-Bildung pathogener Staphylokokken-Stämme.—A. Lohr.
116 *Erfahrungen mit dem Uterus-Krebs in Nürnberg (cancer at Nuremberg). S. Flatau.
117 *Treatment of Sclerodermia with Mesenteric Gland.—Fall von zirkumskripter Sklerodermie, behandelt mit Mesenterialdrüse. C. Schwerdt (Gotha).
118 *3 Fälle von Morbus Basedowii. Peters.
119 Zur Kasuistik des Strümpellschen Zehen-Phänomenons (toe sign). H. Koerber.
120 Operative Treatment of Subcutaneous Rupture of Spleen.—Subkutane Zerreissung der normalen Milz und ihre chirurgische Bedeutung. Neck.
121 3 Cases of Veronal Poisoning.—Zur Kasuistik über das Veronal. W. Alter.
122 *Kolposkop. A. Foges (Vienna).
123 Double Tissue Forceps.—Dreiteilige Pinzetten. J. Hertzka.
124 Presence of Radium in Kreuznach Waters.—Das Vorkommen von Radium in den Kreuznacher Solquellen. K. Aschoff.

101. **Extramedian Symphyseotomy.**—The results in the 4 cases in which von Franqué has performed symphyseotomy by Gigli's extramedian technic, have been so favorable that he thinks its indications can be extended to include even infected cases. The edges of the wound separated in one of his patients, who had endometritis—acquired intrapartum—and although there was some temperature at times, the wound healed by granulation without suppuration and there was no cause for concern at any time.

102. **Technic of Nursing.**—Among the points emphasized by Rommel in his study of the best means to promote the nursing capacity, is the advisability of giving the child only one breast at a meal. This allows the one breast used to be thoroughly emptied, while the other breast has a doubly long rest. The longer the intervals between meals the hungrier the child, and the more energetically it sucks. This energetic sucking is the most important factor for the development of a good nursing capacity. The breast generally responds to energetic sucking with a copious secretion of milk; feeble sucking elicits but a feeble secretion. He has had wealthy women with weakly infants come to his maternity for a week or so to give the breast to strong, energetically sucking infants, while their infant was nursed by someone else with well-developed breasts. When they left their infants were much stronger, while their breasts had responded to the energetic sucking with a copious secretion of milk. A generous diet without any special restrictions should be advised. It seems to be immaterial whether the woman drinks milk or water for her beverage, but two to two and a half quarts of fluid should be ingested during the twenty-four hours. One of his wet nurses trained on these principles secretes 3,610 gm. of milk a day, and has been nursing five infants for several weeks, and is in robust health.

104. **Pleurisy Secondary to Abdominal Affections.**—Chance has thrown in Auerbach's way during the last few months 5 cases in which a pleural effusion was a secondary phenomenon accompanying an abdominal affection. The effusion was serous and sterile in 3 cases in which a puncture was attempted. The presence of the effusion was accepted as a sign of some suppurative affection in the abdomen below. This assumption was confirmed by the course of the case in every instance. When there are no symptoms, or merely slight symptoms pointing to the abdomen and the progressive inanition and temperature indicate some serious malady, a history of some stomach or gallstone affection or of a suppurative process in the abdomen or of some kidney or bladder trouble, will sometimes point the way; but still more suggestive is the discovery of pleurisy, even in a mild form, if a lung affection can be excluded. The pleural effusion justifies the suspicion of some suppurative process below the diaphragm, usually on the same side, and puncture confirms the diagnosis.

105. **Sclerodermia and the Vascular System.**—Huismans found the blood glands in a morbid condition as evidenced by the symptoms exhibited by the patient in the case of typical sclerodermia which he describes. From study of this case and of others in the literature he asserts that sclerodermia can not possibly be a pure neurosis in all its stages. There is evidently a neurosis of the sympathetic as the foundation for the affection, but it is unable alone, to produce the sclerodermia. Secondary infection of the blood glands and blood vessels is indispensable for this.

110. **Prevention of Puerperal Fever.**—Doerfler remarks that restless progress is apparent on every hand and in every field of human activity except one. The centuries have made no change in the midwife. (He evidently refers to the country

district of Bavaria.) She still examines, with dirty hands, the parturient woman, repeating the examination ten, twenty times, or even more, her finger nails still filled with the dirt from digging or washing potatoes or weeding the garden. He insists that the law should compel her to wear rubber gloves when making an examination, and that all water used about the parturient should be boiled, and that the vaginal douche should be legally forbidden. He states that Bavaria has nearly 5,000 midwives and they take charge of about 215,000 childbirths annually. The state should supply the necessary rubber gloves. Prevention of puerperal fever would also ward off the consecutive gynecologic troubles and invalidism of the wife and mother, and the defective development of children born later.

112. **Action of Mercury.**—The synthetic production of indigo has been a comparatively difficult process until recently, when it was learned that the addition of a little mercury induced catalysis with which the synthesis proceeded rapidly and smoothly to its consummation. This induced Schade to study the electric catalytic action of mercury since this discovery, and he has learned some interesting facts which throw light on the action of mercury in the organism. The catalytic processes are practically independent of the amount of the catalyzer; the extent of catalyzing surface is the main thing. The more finely divided the mercury, the greater the catalyzing surface and the greater its catalytic action. Guaiacol or naphthol added to H_2O_2 causes a change in the color of the fluid from the oxidation that slowly proceeds in it. This oxidation is promptly activated if a little mercury or other heavy metal be added to the fluid. The metal does not cause any chemical reaction in the fluid, but accelerates to a remarkable extent the oxidation processes.

113. **Quantitative Test for Air in Lungs.**—Stumpf hooks to the lungs to be examined a small wire basket, like a tea-strainer, and places the whole in a jar of water. He then puts some shot or other weights in the wire basket until the lung is weighted down by them and begins to sink. He has found that each gram of the weight corresponds to 1 c.c. of air. His experience has further shown that adult lungs weighing as much as 1,500 to 1,600 gm. with 800 c.c. and over of air, are encountered only in case of death from suffocation or of sudden death which had more or less of the character of suffocation. When the weight of the lung is surpassed by the figure representing the amount of air, this finding speaks for death from drowning. The probability of death from hemorrhage is increased as the figure representing the amount of air approaches the weight, if it is low. A high weight, with small amount of air, suggests the probability of some preceding inflammatory process or morbid changes in the lungs or a protracted death agony. He applies the term *Lungentragfähigkeit*, or "capacity of holding up," to the figure which represents the amount of the weight required to submerge the lung. He points out that the temperature of the water in which the lung of the newborn is floated has great influence on the outcome of the test.

115. **Chronic Granular Sigmoiditis.**—Helber records a case of recurring sigmoiditis distinguished by the characteristic symptoms of frequent hemorrhages, exaggerated mucus secretion and tendency to spasmodic contraction. There was pain in the region of the left tube, due to pressure on the inflamed segment of the intestine. Constipation was obstinate, but there was no tenesmus. The first symptoms had been pains in the upper abdomen and stomach, probably due to spasmodic contraction in the colon with stagnation of feces. The endoscope showed intense inflammation in the descending portion of the sigmoid flexure, stopping about 2 to 3 cm. below the junction of the flexure with the rectum. A gonorrheal origin was possible. Treatment included rest in bed, compresses externally and opium internally, with injections of water for the coprostasis. After the spasmodic contraction had subsided, high enemas with from .5 to 1 per cent. tannin were found useful, with application of a 5 per cent. solution of silver nitrate directly to the parts, through the endoscope. The parts swabbed with the silver were not bleeding when inspected again through the endoscope. The patient was thus cured of the debilitating daily hemorrhages.

116. **Uterine Cancer at Nuremberg.**—Flatau analyzes his experiences with the 259 cases of cancer of the uterus which he has had occasion to observe during the last twelve years. They formed 1.95 per cent. of his total gynecologic practice. He found that a number of the patients had been previously under medical care, but in more than 10 per cent. the physician had neglected to make a digital examination of the genitalia. Only 12 of the 121 patients operated on are permanently well to date. All the others have succumbed to recurrence. Eight of these 12 were cases of carcinoma of the body of the uterus. Discharge and bleeding had been noticed by the patients for from two weeks to a year before they applied to the physician.

117. **Organotherapy in the Treatment of Circumscribed Sclerodermia.**—Schwerdt believes that neurasthenia, enteroptosis, exophthalmic goiter, myxedema and sclerodermia are intimately connected. He is convinced that sclerodermia is an affection due to the passage of some intestinal toxin into the chyle vessels. This toxin passes unaltered into the blood if the mesenteric glands fail in their functions. He has treated a case of sclerodermia on this assumption, administering the substance of the mesenteric glands, and reports the progressive improvement of the patient to almost complete cure at present. He theorizes to explain how the hardening and impermeability of the subcutaneous lymph glands and lymphatics would induce the picture of sclerodermia, especially the circumscribed form. He uses the mesenteric glands of sheep, in powdered form or in tablets of .3 gm. each. His patient was a girl of about 8, and she took the one tablet a day. There were no subjective disturbances.

118. **Exophthalmic Goiter.**—In a severe case described, all the symptoms spontaneously retrogressed under careful hygiene. The 2 other patients made remarkable improvement under organotherapy.

122. **Colposcope.**—The instrument for visual inspection of the vagina is a broad, short tube with a transparent glass cap. The tube is inserted in the vagina, closing the opening, and the vagina is inflated through it with a double air bulb. As the air distends the walls of the vagina, they can be inspected through the glass cap. Foges adds that he has recently learned that a similar instrument was presented by Laws in 1900, under the name of the pneumatic sigmoidoscope.

Gazzetta degli Ospedali, Milan.

Last indexed page 752.

125 (XXV, No. 145.) *Bulging of Pyloric Region.—Bozza pilorica. S. Mircoli.
126 *Action of Antimony on Blood.—Azione dell' antimonio sui sangue. S. Montemagno.
127 *Resultati del metodo Fiorani nella cura degli angiomi (angiomata). F. Bindi.
128 *Febrile Malarial Enterorrhagia.—Sulla febbre enterorragica da malaria. D. Scozzati.
129 Della polimiosite primaria. A. Prandi.

125. **Pyloric Bulging.**—In an abstract in these columns, on page 752, Mircoli's previous communication on this subject was summarized. He applies the term *bozza pilorica* to the bulging sometimes noted in the epigastrium with the stomach empty. He here presents arguments to sustain his idea that the human stomach is really the rudiments of four distinct organs, that is, of the four stomachs of the ruminants. The fundus, the body, the antrum, and the pylorus each represents one of these ancestral organs. The antrum is particularly distinct from the rest of the stomach, especially during the digestive period. The antrum is eminently a motor organ, with scanty elaboration of gastric juice, while the rest of the stomach is very slightly motor and predominantly secretory in its functions. The secretion of the body of the stomach is acid; that of the antrum is decidedly alkaline. During the process of digestion the antrum works differently from the rest of the stomach, its systole and diastole serving to pump the contents along, and serving, besides, as regulator to hold back or to pass along the chyme. In morbid conditions, the antrum may work excessively, outside of digestion, and may show as a bulging in the epigastrium. The bulging may be due to spasm of the two sphincters, on each side of the antrum, or it may be due to loss of the muscular tone of its walls from neuromuscular influences, or it may be referable to infiltra-

tion of the walls by some primary or secondary catarrhal process, or to all these causes together. The initial clinical manifestations of the pyloric bulging only slightly resemble those of gastrectasia. On the other hand, the general symptoms are particularly marked, and in the majority of cases assume the aspect of essential neurasthenia, that is, they present a syndrome apparently not imputable to the stomach. The discovery of the bulging explains other puzzling manifestations, and it also allows the gastrectasia to be combated in time. Treatment should be both dietetic and mechanical, and should include the wearing of an abdominal band to support all the viscera, but especially the antrum and the pylorus region. Such a support gives a more solid foundation for the motor functioning of the stomach to work on. Sodium sulphate or its equivalent may be given or a little nux vomica. The study of stomach affections in general and of gastrectasia in particular should be directed along different lines from those hitherto followed. The stomach should be regarded from the standpoint of its structure, its function and its pathology as a multiple organ, double at least, whose two segments can become morbidly affected together or alone, independently of each other.

126. **Action of Antimony on Blood.**—Montemagno's experiments on dogs and rabbits demonstrated that minute doses of antimony improve the composition of the blood as they increase the proportion of hemoglobin, the number of red corpuscles and their resisting powers. This improved composition of the blood persists for some time after cessation of the drug. Large doses have a hemolytic action.

127. **Corrosive Sublimate Treatment of Angiomata.**—Bindi relates three cases of disfiguring angiomata cured by Fiorani's technic of local applications of collodion containing 13 per cent. of corrosive sublimate. When the eschar dropped off the parts beneath were found covered with normal epidermis, the angiomata having been completely destroyed by the caustic applications.

128. **Malarial Gastrointestinal Hemorrhage.**—Scozzari describes the case of a civil engineer whose business took him temporarily into very malarial regions. He suffered from attacks of malarial fever, with hemorrhages from the stomach and intestines. The spleen and liver were not enlarged to any extent, and all the symptoms subsided under quinin. He ascribes the hemorrhages to a neuroparalysis of the walls of the vessels due to the action of the malarial poison. He does not think that any actual lesions were the source of the bleeding.

Medicinskoe Obozryenie, Moscow.

Last indexed page 432.

130 (LXI, No. 4.) Hepatopexia. V. N. Rozanoff.
131 *K kazuistikye ostrago gonorroinago parenchymatoznago prostatita (gonorrheal prostatitis). A. P. Jordan.
132 Experimental Data on Large Dogs for Study of Origin of Arrhythmia of the Heart.—O proiskhozdenii aritmii. D. Pletneff.
133 (No. 5.) *Asymmetrical Radial Pulse with Mitral Stenosis.—O razlitchnom puls v lutchevykh arteriyakh pri stenozye lyevago venoznago otverstiya. N. E. Kusheff.
134 *Chorionepithelioma motchevogo puzyra (of bladder). Devitzki.
135 Anti-alcohol Measures. Z. A. Blum.
136 (No. 6.) *Importance of Syphilis in Etiology of Tabes. Case of Tabes in Child.—O znatchenii syphilisa v etiologii spinnoi sukhotki. P. A. Preobrazhensky.
137 Case of Geophagia.—Slutchai nepreodolimago vletcheniya k zemleyedstvu.
138 2 Cases of Primary Angiosarcomata of Kidney.—2 slutchai perv. opukholi potchek. I. Pozhariski.
139 (No. 7.) Two Operations for Wounds of the Heart.—K kazuistikye ranenii serdtza. P. Gertzen.
140 3 Cases of Bladder Complications in Appendicitis.—Oslozhneniya so storony motchevogo puzyrya pri appendicitye. G. Baradulin.

131. **Acute Gonorrheal Prostatitis.**—Jordan has observed this complication in about 3.7 per cent. of his 482 cases of gonorrhea. One of the 13 patients had four abscesses and another two. The pus emptied into the urethra from 13 of the abscesses; into the rectum from 2; and once it found an outlet through the perineum. To prevent evacuation of the pus through some dangerous byway he advises an early incision without waiting more than ten days for fluctuation. In local treatment he orders rectal injections of hot water or instillations. He gives sodium salicylate internally, and finds it very useful.

133. **Cause of Asymmetrical Pulse in Mitral Stenosis.**—The findings during life and after death indicated that the cause of the differences in the radial pulse was evidently a compression of the arch of the aorta and of the carotid and subclavian arteries from the enlarged left auricle.

134. **Chorioepithelioma of the Bladder.**—The microscope confirmed the diagnosis of malignant chorioepithelioma of the bladder in the case described. It was in the bladder of a woman of 75, a virgin, and was evidently primary. There were numerous myofibromata in the uterus, but no traces of chorioepithelioma in the genitalia.

136. **Syphilis in Origin of Tabes.**—Preobrazhenski asserts that everything tends to show that there can be no tabes without syphilis any more than there can be a diphtheritic paralysis without preceding diphtheria. He does not think that preceding antisyphilitic treatment has much, if any, influence in preventing the development of tabes. His own experience, as well as that of others, has shown that it may develop after and even simultaneously with persevering specific treatment the same as without any treatment. He describes a case of tabes in a child of 12 whose mother was under treatment for cerebral lues and tabes, the tabes developing nearly simultaneously in mother and son.

Hospitalstidende, Copenhagen.

Last indexed page 1234.

141 (XLVII, No. 46.) Research on Catgut Introduced into Anterior Chamber. Sterilizing by Boiling.—Undersogelser over Catgut, indbragt i forreste Ojekammer. C. F. Heerfordt.
142 (No. 47.) *Et Tilfaelde af medfodt total Farveblindhed med Bemerkninger om Stav- og Tapfunktion (congenital color blindness). J. Bjerrum.
143 (Nos. 47-49.) Rhinoplastik. J. Boysen.
144 *Undersogelsen af Thorax' Bevaegelser (movements of thorax). E. Bocher.
145 *Appendicitis pelvica. A. Borgbjaerg.
146 (No. 50.) *On Behandling af Myxedemet med meget smaa Thyreoidin doses. S. Alsted.
147 Origin of Sensation.—Om Folelsens anatomiske og fysiologiske Oprindelse. S. Thalbitzer.
148 (No. 51.) *Meddelse om organoterapeutiske Forsog ved Morbus Basedowii med Praeparater af Thyreoidektomerede Geder (organ treatment of exophthalmic goiter). S. Christens.
149 (No. 52.) *Behandling af tor traumatisk Arthroitis med Vaselin-Injektion. T. Rovsing.
150 (XLVIII, Nos. 1-2.) Bidrag til det kroniske Mavesaars Patogenese (gastric ulcer). C. E. Bloch.
151 Et Tilfaelde af Veronalforgiftning (veronal poisoning). J. Kuhn.
152 (Nos. 3-5.) Behandlingen af Appendicitis. L. Kraft.

142. **Case of Congenital Total Color Blindness.**—Bjerrum's patient was a fisherman, 21 years old, and the ophthalmic findings were typical of congenital total color blindness, similar to the findings in Grunert's 5 cases. The patient's two brothers seemed to have been affected in the same way. Bjerrum has made a careful study of the physiology of color vision deduced from its absence in this case, and thinks that our present views in regard to the functions of the rods and cones need considerable modification, which he describes in detail.

144. **Movements of the Thorax.**—Bocher gives an illustrated description of an apparatus devised to record the movements of the thorax. He calls it the "differential respirometer," and relates a number of instances of its use and of the important information derived therefrom. The difference between the excursions of each half of the thorax frequently reveal the existence of lesions within before any other signs are evident.

145. **Pelvic Appendicitis.**—This form of appendicitis is considered less serious than other forms by Borgbjaerg, as there is less danger of peritonitis. The appendix is liable to be held down in the pelvis afterward by adhesions, which reduces the liability to recurrences. He describes 4 cases in detail to show the clinical peculiarities of this form and the indications for treatment. There is not the necessity for prompt radical operation here as in the other forms. The lesion soon becomes walled off; this should be favored by immobilization under careful supervision. One of his cases terminated fatally, and this was the only patient operated on. Perforation occurred in a gangrenous loop which had been deemed sound at the operation five days before. In 2 of his cases, the large tumors palpated through the rectum subsided spontaneously under medical treatment. One of these patients had not even

submitted to immobilization. Borgbjaerg emphasizes the importance of examination by palpation through the rectum, and advises this route for the incision when an abscess renders it necessary. He does not think that it is advisable to remove the appendix. When an abscess is found low in the pelvis during a laparotomy it should be drained from below, not through the laparotomy wound. The easiest route is through the rectum. The diet should be regulated after an attack of appendicitis to prevent constipation, as this is liable to favor recurrence of trouble.

146. **Treatment of Myxedema with Very Small Doses of Thyroid Extract.**—Alsted reports a case of myxedema in a woman of 60. The illustrations confirm the entire recovery of the patient under thyroid treatment instituted on the principle of gradually increasing doses, commencing with doses so small as to have actually no action or next to none. For two months the daily dose was only .5 cg. and then 1 cg. was taken and continued every day. By the end of six months the patient was as well as before the onset of the myxedema, and has kept well during the year since, still continuing her daily dose of 1 cg. of the extract, representing only about one-thirtieth of a lamb's thyroid gland.

148. **Treatment of Exophthalmic Goiter with Blood of Thyroidectomized Goats.**—Christens has treated 18 patients and reports very encouraging results. The goats had been thyroidectomized, and he wanted to use their serum to inject into his patients as the theoretically preferable technic. But this mode has so many disadvantages that he tried giving the desiccated blood, powdered and mixed with gum arabic to form tablets, containing each about .35 gm. The treatment is symptomatic, requiring to be kept up continuously, the same as thyroid treatment in myxedema, but the great improvement observed justifies its use. The nervous tension relaxed, the patients were able to sleep better, digestion and nutrition were very much improved, the sweating and tremor ceased, and the patients increased in weight. In the mild cases it arrests the progress of the disease, and in the severer ones it protects the organism against further damage from the toxin. Treatment by the milk of thyroidectomized animals has several disadvantages, among them the fact that the milk secretion soon dries up in the animals after removal of the thyroid. He appends the clinical histories of a number of typical cases to show the constant improvement with 2 or 3 of the blood tablets daily. He urges a trial, at least, of organtherapy in every case of exophthalmic goiter, although, of course, it can have no influence on already established organic changes.

149. **Treatment of Joint Affections by Injection of Vaselin.**—THE JOURNAL chronicled two years ago Delagénière's success in treating a case of arthritis of the shoulder by local injection of vaselin. Rovsing now reports this treatment applied in 2 cases of "dry" arthritis. He used much larger quantities than Büdinger, who recorded last year 4 cases treated with 10 c.c. in one and 2 to 4 c.c. of the vaselin in the others. The results were much better in the patient treated with the larger amount. Rovsing's first patient was a woman of 33, with congenital dislocation of the left hip. It had been successfully corrected for years, but finally began to give trouble, becoming very painful. Various attempts were made to correct this, but the pains persisted at the slightest attempt to use the limb. He then injected 10 c.c. of warm vaselin directly into the capsule. There were severe pains and slight temperature at first, but these soon subsided, and the patient found that she had been freed from all pain in the joint. This lasted for four weeks, when the symptoms returned. He was convinced that the amount injected had been too small to lubricate the whole of the capsule. Consequently he opened the joint under chloroform, and injected 25 c.c. of vaselin into the capsule, through an incision over the trochanter. There were severe pains at first but no temperature, and when the transient reaction had subsided, all pains in the joint had been permanently banished. There has been no recurrence to date, more than a year and a half after the intervention. The other patient was a gardener of 28, with ankylosis of the right hip from a tuberculous coxitis at puberty. He was able to walk with a cane until about a year before, when there were pains and cracking sounds in the other hip joint. They increased until he was unable to use the limb. Rovsing believed that the trouble was merely inflammation without effusion, due to the extra demands made on this hip. Under ether, 20 gm. of vaselin were injected through a puncture hole. There was no reaction, and in four days the patient was walking and using his limb freely without pain or cracking in the joint, and there has been no return of the pains during the ten months that have since elapsed. Rovsing has since treated a third case with equal success. He remarks that there need be no fear of embolism if the needle is inserted until its tip can be moved freely around in the cavity of the capsule. He thinks that these injections will be found a very valuable aid in the treatment of arthritis without effusion, of almost any origin. His first patient was operated on in April, 1902, more than a year before Delagénière's first publication on the subject.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE DRUG TRADE IN FOREIGN COUNTRIES. Vol. xiv. Reports from the Consuls of the United States on the Laws and Regulations Governing: 1. The Drug Business. 2. Druggists v. Pharmacists. 3. Exports of Drugs and Chemicals. 4. Imports of Drugs and Medicines. 5. Sale of Drugs and Medicines in Lay Stores. 6. Disposal of Prescriptions. 7. Renewal of Prescriptions. 8. Practice of Pharmacy. Issued from the Bureau of Foreign Commerce, Department of State. Paper. Pp. 417. Washington: Government Printing Office. 1898.

COLONIAL ADMINISTRATION, 1800-1900. Methods of Government and Development Adopted by the Principal Colonizing Nations in Their Control of Tropical and Other Colonies and Dependencies, with Statistical Statements of the Area, Population, Commerce, Revenue, etc., of Each of the World's Colonies. Including Bibliography of Colonies and Colonization Prepared by the Library of Congress. O. P. Austin, Chief of Bureau. Paper. Washington: Government Printing Office. 1903.

DISEASES OF THE BLOOD (Anemia, Chlorosis, Leukemia, Pseudoleukemia). By Dr. P. Ehrlich, of Frankfort-on-the-Main; Dr. A. Lazarus, of Charlottenburg; Dr. K. von Noorden, of Frankfort-on-the-Main, and Dr. Felix Pinkus, of Berlin. Entire Volume Edited, with Additions, by Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Fully Illustrated. Cloth. Pp. 714. Price, $5.00 net. Philadelphia: W. B. Saunders & Co. 1905.

A TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By James W. Holland, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. Fully Illustrated, Including 8 Plates in Colors. Cloth. Pp. 600. Price, $3.00 net. Philadelphia: W. B. Saunders & Co. 1905.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AT THE FIFTY-SECOND ANNUAL MEETING held at Kansas City, Mo., September, 1904. Also the Roll of Members. Cloth. Pp. 1,034. Baltimore: Published by the American Pharmaceutical Association. 1904.

THE PREPARATION AND AFTER-TREATMENT OF SECTION CASES. By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon of the Lewisham Hospital for Women and Children, Sydney. Cloth. Pp. 651. Price, 15 shillings net. London: Bailliere, Tindall & Cox. 1905.

DIE DIREKTE BESICHTIGUNG DER SPEISEROHRE OSOPHAGOSKOPIE. Ein Lehrbuch für den Praktiker. Von Prof. Dr. Hugo Starck, Heidelberg. Mit Drei Farbigen Tafeln und Zwanzig Abbildungen. Paper. Pp. 219. Wurzburg: A. Stuber's Verlag (C. Kabitzsch). 1905.

INFANTILE MORTALITY AND INFANTS' MILK DEPOT. By G. F. McCleary, M.D., D.P.H., Medical Officer of Health of the Metropolitan Borough of Battersea. Cloth. Pp. 135. Price, 6 shillings net. London: P. S. King & Son. 1905.

A HAND-BOOK OF NURSING. Revised Edition. For Hospital and General Use. Published under the Direction of the Connecticut Training-school for Nurses. Cloth. Pp. 319. Price, $1.25. Philadelphia: J. B. Lippincott Co. 1905.

THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS. By F. W. Burton-Fanning, M.D. Cantab., Physician to the Norfolk and Norwich Hospital. Cloth. Pp. 176. Price, $1.50 net. Chicago: W. T. Keener & Co. 1905.

DISEASES OF THE HEART AND AORTA. By Thomas E. Satterthwaite, M.D., Professor of Medicine in the New York Postgraduate Medical School. Cloth. Pp. 304. Price, $3.00 net. New York: E. R. Pelton.

NINETEENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH and Vital Statistics of the Commonwealth of Pennsylvania. Vols. i and ii. Cloth. Pp. 1,102. Wm. Stanley Ray, State Printer of Pa. 1904.

A REFERENCE HANDBOOK FOR NURSES. By Amanda K. Beck, of Chicago. Bound in Flexible Morocco. Pp. 150. Price, $1.25 net. Philadelphia: W. B. Saunders & Co. 1905.

REPORT OF THE TRUSTEES OF BELLEVUE AND ALLIED HOSPITALS for Three Months ending June 30, 1904. Paper. Pp. 13. New York: M. B. Brown Co. 1904.

FOURTEENTH ANNUAL REPORT OF THE OHIO HOSPITAL FOR EPILEPTICS, at Gallipolis, for the Year 1904. Paper. Pp. 59. Columbus: F. J. Heer. 1905.

TWENTY-SEVENTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF GEORGIA for the Year 1904. Paper. Pp. 65.

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Original Articles

THE CURABILITY OF EARLY PARESIS.*

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NEW YORK.

I wish to present what to my mind is convincing evidence that paresis, in its very earliest stages, in that stage which may be called one of "præparesis," is a disease that sometimes can be arrested. This arrest may be permanent, and may be attended with so little mental defect that one may call the patient practically cured.

PARESIS, TABES AND SYPHILIS.

It is now quite generally admitted that paresis is almost always a parasyphilitic disease; that is to say, one which is due to the late and degenerative influence of a luetic poison. Paresis is also looked on as a disease which has the same relation to the brain that tabes dorsalis has to the spinal cord. This relationship, indeed, is so often and so plainly observed that it can be considered a proved clinical and pathologic fact. We find, for example, in from 5 to 10 per cent. of the cases of degenerative syphilis of the nervous centers that the patient suffers both from paresis and from tabes, and has what is termed "tabo-paresis," the paresis gradually associating itself with tabes, or *vice versa*.

THE ARREST OF TABES.

Now, nothing is more clearly established than the fact that tabes dorsalis is often arrested in its early stages, so that a patient may live for 10, 20 or 30 years, and exhibit no practical progress or change in his symptoms. I have a number of patients under observation who illustrate this undoubted condition; and my experience, I am assured, is the common one.

If, then, tabes may be arrested in its early or pretabetic stage, there seems no reason to suppose that we can not also arrest and cure paresis in its earlier stage, and this is what I believe can be done.

The cases which I report, taken in connection with other clinical experiences which it is impossible to present without making my paper too long, have been sufficient to make me feel quite sure of my position in the matter. I am not asserting that paresis, when it is once well established, can be cured. In fact, I do not think it can be; and I know of no more hopeless malady when it has once got a full start.

Paresis not infrequently shows remissions, and these remissions may be prolonged to one or two, or even to five or six years. In these remissions, however, the mind, by no means, is restored to its original tone or vigor. The patient has only a "let-up," and is never the sound, vigorous-minded man he was previously. My patients have been more than cases of remission; their condition of mind and body has been restored, practically, to a normal level. I am not asserting the existence of remissions in paresis; that is one of the admitted features in the natural history of the disease. What I do assert is that in some cases in which the patient has shown unmistakable evidences of a degenerative and paretic process starting in the brain, this process has been arrested, evidences of it have even sometimes entirely disappeared, and the patient has gone on with his usual work.

I have not yet had patients under observation for a sufficiently long period of years to enable me to say that the paresis will never return. I can only argue from analogy in the cases of tabes dorsalis, and since we know that here the arrest of progress is sometimes permanent, we may legitimately infer that when it has occurred in paresis in the same way it may also be permanent. I would say, further, that there is nothing *a priori* impossible in the idea that paresis may be arrested and cured when it first starts in. We are able to arrest degenerative processes in other parts of the nervous system; we arrest degenerative processes, or we see them arrested, in the kidneys, in the liver and in other organs. Given a vigorous constitution poisoned with disease, it may well be that when it is put under the best possible conditions for fighting this poison, when its known antidote has been administered with heroic thoroughness, we might expect that the tendency of the tissue to die may cease.

PSEUDOPARESIS.

Also, in speaking of paresis, I wish to be understood that I am speaking only of general paresis or paralytic dementia, not of the so-called "pseudoparesis" of alcoholics or the "pseudoparesis" of syphilis. I have used these terms personally, and I know they are widely adopted as convenient expressions. I do not think, however, that this term, "pseudoparesis," is a very fortunate one, inasmuch as the disorders above mentioned are essentially simply forms of organic dementia, with an entirely different pathologic basis and clinical course from the real paresis. The so-called pseudoparesis of alcoholism, for example, is only an organic dementia, due to the connective tissue proliferation, the vascular changes, and the cellular atrophy brought on by the continued use of alcohol. The pseudoparesis of syphilis is simply a dementia brought on by the exudates of syphilis, leading to more or less severe secondary changes in the meninges and in the vascular supply. It is really an organic dementia, due to an exudative inflammation of the meninges and blood vessels. In true paresis the organic changes are comparatively slight at the beginning, and are probably mostly of a parenchymatous na-

*Read at a meeting of the Psychiatrical Society of New York, 1904.

ture. There is no exudate and no early gross organic change. It is true, however, that in the early stages of paresis there may be some slight amount of luetic exudate, and that perhaps the degenerative changes in the cell are started by this process. We know also that there are cases of paresis in which there are both true primary degenerative changes and real syphilitic exudates present at the same time, so that the patient may be said to be suffering both from brain syphilis and from a paresis. It is strictly analogous to the conditions which occur in a spinal cord, where at times there may be a true tabetic degeneration and at the same time a decided syphilitic exudate, so that we have both locomotor ataxia and spinal syphilis together.

It is at this point that the weakness of my case, as I freely admit, may lie. It may be and probably will be contended that the cases which I assert are in the stage of "præparesis" are really cases only of slight exudative brain syphilis, and that my patients have simply been cured of a slight degree of a perhaps rather diffuse vascular and meningitic exudate. To this I can only reply that I have many times seen precisely this class of cases passing directly into a condition of true paresis, and that in all of my cases where there were admittedly some symptoms of syphilitic exudate, or some kind of gross organic lesion, there were with it also decided psychical and somatic symptoms, such as occur only, or mainly, in connection with the degenerative process of paresis. An Argyll-Robertson pupil, for example, is the sign of the onset of a degeneration, not of exudation. At the very most, while admitting that my opponents may be academically right, I would claim that they are practically wrong, for the reason that, basing my argument on experience with other cases, I feel sure that all or nearly all of these patients would have gone into a condition of true paresis if they had been let alone. Thus, when a patient who has given a distinct history of syphilis develops a form of agitated melancholia, and at the same time shows signs of cerebral degeneration, like the Argyll-Robertson pupil and disturbances in the knee reflexes, I should certainly be apprehensive that, under ordinary conditions, he would eventually develop a paresis, for I have seen a number of patients who entered paresis through this peculiar gate of melancholia, with somatic signs as indicated.

Again, if a patient with a history of syphilis, after a certain period begins to develop convulsions and shows Argyll-Robertson pupils, exaggerated reflexes, then begins to develop symptoms of loss of memory, change of character and disturbances of the instinctive feelings, I should feel very certain that if left alone he would pass into the condition of paresis, for it is through the gate of convulsive disturbances, epileptiform seizures and peculiar somatic signs that paresis sometimes develops.

Still further, when a patient, who gives perhaps a doubtful history of syphilis but whose life is such that he might easily have been subjected to it, and who has a headache, an eye-palsy, and previous to that has for some time shown great extravagance in action and ideas, with a decided change in character and weakness of memory, I would here also feel very sure that a paresis was developing.

Having observed the total disappearance of all these symptoms, under treatment, and the restoration of the patients practically to their former health, it has seemed to me that I may be right in claiming that it is possible to arrest for an indefinite time a disease which is certain to become a general paresis.

With these preliminary remarks, I submit the following records. They are not published in every detail because it seemed to me not necessary. I have given the salient facts with regard to the symptoms and course; besides this, the patients were all private patients of my own or of physicians who referred the cases to me, and some of the patients were men of prominence, whose intimate lives and identity I should dislike to expose. The histories should perhaps carry greater weight for the reason that they are not records of hospital or dispensary cases, in which data are often uncertain and the mental development of the patients of mediocre type:

CASE REPORTS.

CASE 1.—M. S., aged 40, married; occupation, broker.

History.—Family history shows a very bad indirect heredity. The patient had an infection before he was 20, which was treated. He had had seven healthy children. He had led a life of much social activity and business excitement. Three months before I saw him he began to get ideas of poverty and self-reproach, and when I saw him he had a distinct melancholia.

Examination.—The pupils were unequal, the left larger than the right; both distinctly Argyll-Robertson in type, though the right reacted very feebly to light. He claimed, however, that the left pupil had been larger than the right for fourteen years, and that this condition was due to a sunstroke (?). The left knee jerk was lively, the right weak. He had some tremor of the hands, but none of the face. There was no speech disturbance. He had had no seizures. Mentally he showed no dementia, but only a very profound and anxious depression, with some delusions of poverty and self-accusation. He suffered from insomnia, but had no headaches, and had no cranial nerve palsies except those of the eyes, and no disorders of the spinal centers or ataxia.

Treatment and Result.—He was seen by two physicians, one a very competent neurologist, who thought that he was developing paresis. He was sent to a sanitarium, where he was put under active treatment. In six months he came back practically well. The pupil of the right eye had become normal; the left was the same as before; knee jerks same as before. He has continued well and has been in active business now for over three years.

CASE 2.—J. D. H., aged 37, married; merchant by occupation.

Family History.—Direct heredity good; one sister had epilepsy; no other neuroses in the family.

Personal History.—He had a luetic infection twelve years ago. He was a man of temperate habits, but worked extremely hard. About two years before I saw him he began to run down and complained of sensations of pressure on the side of his head, which symptom continued very persistently.

Examination.—The pains and paresthesias extended down the back of the neck and into the shoulders. In other words, he had the annoying head, neck and shoulder paresthesias seen in beginning paresis. As his condition grew worse he began to be drowsy, and apparently required more sleep than normal. Three weeks before I saw him he had had two convulsions of an epileptiform character. At that time he was emotional and depressed, crying easily, and having apprehensions about his mind giving way. When seen by me he had been taking for some days 15 grains of bromid in the morning and 6 grains of trional at night. At this time he was depressed, his memory was poor, his speech was syllabic, but he had no tremor, and the pupils were normal, as were also the knee jerks. He was then having attacks of excitement at intervals with, at times, some brief delusions, but no hallucinations. He complained of his head and was very depressed and apprehensive. He appeared to me to have the physiognomy of a patient likely to develop paresis, and the history of convulsions, his speech disturbance, his feeble memory and his melancholia, all pointed in that direction. At the time I made a diagnosis of paresis, with a question mark.

Treatment and Result.—The patient was sent to the Wat-

kins sanitarium, where he remained for several months under the care of Dr. King. He had one more convulsion. He returned much improved and gradually recovered. He has continued well to the present time, which is four years from the period when I first saw him.

CASE 3.—B. R., aged 34, married; occupation, business. Family history negative.

History.—He has smoked a great deal. At 18 he had a luetic infection and "secondaries," and was treated for two years. Since that time he has had occasional periods of depression. In the two months before his visit to me he had again become very much depressed and melancholy.

Examination.—When seen by me he had no objective symptoms of any form of nervous syphilis. A week or two later he complained that at times he had shooting pains in the legs, the right pupil was then larger than the left, but the pupils both reacted to light and to accommodation. The reflexes were present, and he had no ataxia.

Subsequent History.—I lost sight of him then, but saw him again six months later. He then complained that his memory was poor, and that he was unable to concentrate his mind at business. He felt generally weak. His speech was not perfectly good, his articulation being somewhat thick at times, and he now had a distinct facial tremor and Argyll-Robertson pupils. His symptoms in general were those of forgetfulness, inability to concentrate the mind, occasional headache, and depression at times, though this had improved of late. This, it seemed to me, was sufficient to justify a diagnosis of probable paresis, and what I at first considered to be merely a mild attack of melancholia seemed now to be probably a very serious condition.

Treatment.—He was placed on mercury and tonics and sent off to rest. He steadily improved, and at the present time, now three and a half years since I last saw him, he is perfectly well and has been attending to his work for the last three years.

Remarks.—This might, perhaps, be interpreted as a case of recurrent melancholia with cerebral syphilis, but I think that, at least, with the speech disturbances, Argyll-Robertson pupil and facial tremor in mind, we may assume that a paresis would naturally have developed.

CASE 4.—J. R. K., aged 30; lawyer.

History.—He had an infection ten years before and was thoroughly treated for four years; he had had "secondaries," and during the last three years had had throat trouble, but not of a specific character. His habits are good, except that he has been a very hard worker. Two years before I saw him he began to have a slight amount of ataxia, and at the same time had some deafness. Six months ago the ataxia was very much better. One month ago he had pain in the eyes and diplopia, due to a paresis of the right externus.

Examination.—The fundus was normal. He had Argyll-Robertson pupils. He had great exaggeration of the patellar reflexes, no ankle clonus nor Babinski sign, some ataxia on standing and locomotion; mentally he was very nervous and excitable; he was unable to concentrate his mind and had some impairment of memory.

Remarks.—The diagnosis was made of impending tabo-paresis. This was two years ago. Since then he has been steadily improving and became able to resume work. He has now been attending to his work as a lawyer regularly for nearly two years, and though still ataxic and not by any means well, his mental and physical trouble at least has been improved and arrested.

CASE 5.—S. B., aged 40, married; broker. Family history is good.

History.—He has always been a very hard-working man; he has smoked immoderately and drank moderately. He had a luetic infection five years ago, with "secondaries," which were thoroughly treated. I saw him first in October, 1903. For nearly a year previous his mental condition had been changing. His wife had noticed that he was more morose, less inclined to social life, often unreasonable, and irritable and forgetful. This was simply attributed to his overwork and to the excitement of his occupation. In August, 1903, he had an epileptiform attack during the hours of business. He recovered from this promptly and continued his work. Later, in the month of October, he had another epileptiform attack at night, followed by a period of maniacal excitement, lasting for one or two hours, in which he became quite violent.

Examination.—I saw him the next day. He was a large, robust man, with a very healthy physiognomy. Mentally he seemed practically normal, although he was naturally much disturbed and apprehensive over what had occurred. He exhibited to me no traces of forgetfulness or ideas of grandeur. Physically he had distinctly the Argyll-Robertson pupils, and the knee jerks were exaggerated; there was no facial tremor or hand tremor. The writing was normal. He had no lightning pains and no paresthesias.

Subsequent History.—This patient has now been under observation for over a year. For some time he showed an abnormal exhaustibility and irritability, of both body and mind, so that he tired very easily in walking, and had a disinclination to the mental activity involved in social intercourse. His disposition was for some time a good deal changed; he was morose, childish and suspicious of his wife, unreasonable and irritable. He, however, never showed any lack of judgment or any forgetfulness in business affairs; he was only childish in his domestic and in certain social relations. After about six months the pupils, which had been stiff, became normal the knee jerks remained about the same. He had no further convulsive seizures. At the present time this patient seems in every way to be a normal man. He had not had any severe headaches, no lightning pains, no disturbance of the spinal centers.

Remarks.—The probability of an impending paresis was based on the very marked syphilitic infection, which had been rather obstinate in his case, and the occurrence of two convulsions, without previous headaches, the change in his disposition and character, the forgetfulness about things in his domestic relations, a carelessness of speech and manner, which were not natural to him, and the condition of his pupils. His own physician, Dr. Sherwell of Brooklyn, and with whom I had several talks about the case, shared with me, I think, though perhaps to a less degree, the fear that he might develop paresis. This was the club held over his very impetuous nature which obliged him to change entirely his mode of life, and by reason of which I think he escaped the catastrophe.

CASE 6.—H. B., aged 43, married; occupation, broker. Family history unknown.

History.—The patient, from boyhood, had always been a very hard-working, excitable man. He had lived a pretty fast life, drinking considerably, but he was not a smoker. He was a man whose habits of expression and thought were always very extravagant, and whose business dealings had been, normally, of a very large kind. He denied any specific infection, but I am sure he had lived a life which would have exposed him to it. In the spring of 1904 he was under a specially severe strain and had lost a good deal of money. In June he had a paresis of the left internal and right external rectus for which he consulted Dr. Koller, who kindly referred him to me.

Examination.—When I first saw him in July he talked in a very extravagant and excitable way, telling me remarkable stories about his business, which I believe were more extravagancies than actual delusions, and I learned from his friends that this was his way of talking. He had double vision on account of the internal rectus of the right eye. His pupils were dilated, the left larger than the right, and neither reacted to light, but reacted to accommodation; the optic nerve and vision were normal. He had a fine tremor of the hands, but none of the face or tongue, and speech seemed clear, though occasionally there was a little slip; his writing also was fairly good. The knee jerks were somewhat exaggerated, but there was no clonus. He had no ataxia and no lightning pains. The bladder and sexual functions were normal. The memory did not seem impaired.

Treatment.—He was given a course of hypodermic injections of mercury, and then went to Europe for six weeks, where he

became more depressed. On his return he continued under the treatment of Dr. Koller for his eye condition. He gradually improved, both mentally and physically, until now his eye is nearly normal; he has no tremor, the knee jerks are less exaggerated, and his mental condition is, perhaps, better than it ever was in his life.

Remarks.—This case might be interpreted as possibly one of paresis, with a remission, but I feel very confident that he did not have a frank attack of paresis when he came to see me, and that he was then suffering only from a sort of grandiose excitement, with Argyll-Robertson pupils, and an eye palsy. A little further delay and he would have been fairly a paretic.

CASE 7.—This case was less striking than the others, but, taken in connection with them, it has significance.

Patient.—J. H., aged 46; family history good; designer.

History.—He had syphilis at the age of 23 and was treated thoroughly by specialists. At 34 he had some mental depression and rheumatic pains. He was relieved by hypodermic treatment with mercurials. He married at 37 and had a healthy child. At 46 he had nervous attacks consisting of agitation and trembling, and he has also had a good deal of dyspepsia. On this was engrafted an "anxious depression" or mild form of hypochondriacal melancholia, which did not keep him from work. He had no objective symptoms, but complained of his depression and dyspepsia. He gradually recovered, but a year later complained of entire loss of sexual power, annoying failure of memory, difficulty in concentration and work, and dyspeptic symptoms. This condition continued for a year, with some remissions, but finally he reported himself as practically well of everything but his sexual weakness. He had no symptoms of tabes at any time, except his sexual weakness. I watched constantly for the development of signs of paresis, but he had only the failure of memory, inability to concentrate his mind, and the initial melancholia.

The patient, from the time he was 34 till he was 46, took courses of mercury by injection. At first he took an injection every two weeks for two years. They acted on him as a tonic, the effect lasting for a week or more. Later he took the injections at much longer intervals.

These histories, I might repeat, may seem to present inconclusive evidence of the real existence of paresis. I think, however, that most of those who are familiar with such cases will admit that they have seen paresis beginning in this way and going on to the full-fledged condition. Such cases certainly have occurred in my experience, and usually after these initial symptoms were already matters of the previous history.

The importance of recognizing paresis before it is in a way real paresis is the very evident lesson of these histories.

TREATMENT.

In conclusion, I would say a word only in regard to the treatment of these conditions. It seems to me that if the cases are recognized early there is no need of any very novel methods of treatment; there were none employed here. I believe that the patients should at once be turned entirely from their former modes of life; that they should be sent where they can get rest and fresh air; that they should receive, if possible, hypodermics of the bichlorid or salicylate of mercury, and that this should be accompanied or followed with iodid of potassium and tonic measures. I attach special importance to the effect of hypodermic medication, though all the patients did not receive it. It is not always necessary to give large doses, i. e., gr. ¼ twice a week is sometimes enough, but this may need to be kept up for two or three months. In other cases gr. ii or even gr. iii once or twice a week are required. The technic requires care. During the course of treatment there should be a very liberal use of lukewarm and hot bathing (a warm bath every day and a hot bath once or more weekly), and every possible attention should be given to the general nutrition of the patient.

With these measures I believe that a good proportion of persons who are threatened with paresis can be permanently helped, and it is my hope that the medical profession will become trained to recognize these cases so quickly that before many years we may get the same gratifying results in paresis that we do in tabes.

I have to express my obligations to Dr. Carl Koller, Dr. Alex. Duane, Dr. Samuel Sherwell, Dr. Jas. K. King of Watkins, and Dr. Sollace Mitchell of Jacksonville, Fla., for referring some of the cases to me, for aid in treatment and for furnishing me special notes for the histories.

DISCUSSION.

DR. A. E. MACDONALD does not think that the diagnosis of the cases reported by Dr. Dana, except the first one, was conclusive. In such cases he looks for just such a suspension of the symptoms as described by Dr. Dana. He has often found it a very difficult thing to satisfy the friends of such patients that treatment should be continued because the improvement is so marked that they object to the patient remaining longer in the hospital and claim that he has recovered.

DR. ADOLPH MEYER said that it is difficult to say when general paralysis can be considered as established. The first case that Dr. Dana quoted was such as could give rise to little doubt, with its marked expansiveness, yet Dr. Dana took pains to describe it as one of but slight exaggeration of attitude of the normal Wall street man. A great deal of weight would have to be placed on forgetfulness and on inconsistencies. In one of the cases very little forgetfulness and no dementia was said to be present in the account of the case, but from a retrospective point of view, in the statement that the patient has recovered, he is said to have recovered from his dementia. The fact of there having been distractibility of attention before is then interpreted as a beginning dementia. It is exceedingly difficult to demonstrate with any certainty whether one is dealing with an actual deterioration of memory for several reasons. A physician should be especially cautious in the use of the term dementia when the only evidence is a certain feeling of insufficiency in the patient, an exhaustibility, and in the interpretation, as he may be influenced by the suggestion that the patient has had syphilis. One would naturally think that since general paralysis is a disease with a definite, generally slow evolution we should come across "*formes frustes*" which are merely approaching the period of decided development. The cytodiagnosis should be positive, a point of value, although the ordinary forms of syphilitic affection have also positive reactions and not only general paresis. The question of what constitutes paralysis has lately been brought under consideration by Nissl, who has split off a diffuse cerebral syphilis, and especially by Gaupp, who has lately reviewed carefully the cases of so-called recovery from general paralysis.

DR. L. PIERCE CLARK said that the histories of the cases Dr. Dana presented are suggestive of paresis and, in most of the cases, he thought all would reach the same tentative diagnosis. The final termination, however, would show the error in diagnosis. We must demand the established clinical entity of paresis, particularly mental deterioration. General paresis may present a period when deterioration is but slightly in evidence, possibly a diagnosis at such a time would more nearly approximate the contention of Dr. Dana. Dr. Clark's opinion in the matter of the curability of paresis centered on the question of early diagnosis. It has not been proven that such a diagnosis is yet possible. In his asylum experience, cases are often admitted so early in general paresis that another diagnosis is entertained for a long time, yet recovery never occurs. In such cases remission and non-progression of the disease is often present for several years, yet the cases ultimately terminate in paresis. If iodids and mercury are at all effective in suspected cases then the diagnosis of paresis is

doubtful. He has never known paresis to be favorably influenced by these drug agents. Improvement and remission, on the other hand, are brought about by general care, hydrotherapeutics, diet, rest and quiet, simple living. Paresis from a chemico-pathologic, as well as a clinical viewpoint, is a parasyphilitic affection, a postsyphilitic toxic disease. It is beyond the reach of antisyphilitic remedies, and it is important to remember also that in many undoubted cases of paresis these drugs do harm. He looked on Dr. Dana's first case as one of probable paresis with remissions; he thought the others were anomalous types of cerebral lues. He thought that the curability of early general paresis is mentally conceivable, but that we are very far from realizing its practical accomplishment at present; therefore, it may be classed as one of the most hopelessly incurable mental diseases.

DR. FLAVIUS PACKER said that those who are engaged in asylum practice must look on paresis as practically incurable. He has seen cases which presented long periods of remission yet they returned, and when he was satisfied with the diagnosis the incurability of the disease has never been questioned. One patient left the hospital and was away a year and a half when he returned.

DR. CARLOS F. MACDONALD thought that the correctness of Dr. Dana's attitude respecting the curability of paresis hinges on the correctness of the diagnosis. His view of paresis, or more properly, general paralysis of the insane, is that this is a form of insanity having a distinct entity and essentially different from any other form of insanity, just as scarlet fever differs from smallpox, having its own pathology and clinical history, with a characteristic combination of diagnostic symptoms which alone would warrant a diagnosis. Many writers speak of making a diagnosis of paresis without mental symptoms but he contended that this is a very difficult thing to do in any form of insanity. Without mental symptoms one can scarcely make a diagnosis of mental disease. Paresis, at the outset, has somatic symptoms which sometimes precede the fully developed mental symptoms. He has long since come to regard paresis as an absolutely hopeless form of disease so far as recovery is concerned. He is inclined to question the correctness of Dr. Dana's diagnosis made in the predeveloped stage of the disease if those patients fully recovered. The first case cited struck him as being a well-marked, almost typical case of paresis, both as regards the mental and the physical symptoms. He would regard the patient's declarations as evidence of a pronounced delusion; also that he was in the delusional state was shown by his manner and appearance as described. Dr. MacDonald has never known a complete and permanent recovery from true paresis, and he has been led to doubt the diagnosis in many cases, but he has never known an authentic recovery from paresis. Those cases that have recovered were in his opinion not true, but pseudoparesis, probably of the syphilitic or alcoholic variety. He asked Dr. Dana how he would classify those cases which are described and classified by most writers, as pseudo general paresis, either alcoholic or syphilitic. He said that in a considerable number of cases it is doubtless true that syphilis must be regarded as an etiologic factor, but there is a certain proportion in which syphilis does not enter as a cause. He could not understand how one would be justified in assigning syphilis as a cause in those cases in which there is no evidence whatever of syphilis in the history. He quite agreed with Dr. Dana that occasionally, though rarely, cases of paresis improve, both mentally and physically, sufficiently to enable them to return to their homes and to resume their business and social relations for a time, but in his opinion, such cases never make a true recovery, and if the diagnosis has been correct, they invariably relapse and eventually terminate fatally.

DR. WILLIAM HIRSCH thought that, up to the present time, the feeling in general has been that general paresis is an incurable disease. He has always taken the standpoint that when a case has been diagnosed as general paresis and, after a reasonable time, the patient seemed to get well, that a wrong diagnosis has been made.

The question whether general paresis in the early stages is a curable disease or not should not result in *a priori* statements before we have absolute evidence for calling it an incurable disease. He regarded the first case as one of remissions and did not agree with Dr. Dana that with these remissions the patient may recover so long as the remissions remain; he regarded the remissions as only a partial recovery. He mentioned one case in which the patient has been treated in an institution many years. The patient was an officer in the German army and had a clear case of general paresis. He had all the classical symptoms. He was engaged to the daughter of a general. After six months he had his remission; it was such that his family insisted on his going home and he was, therefore, discharged. The family was told regarding his condition, that he was not cured but only had a remission. He asked permission to marry but did not seek medical advice. He married and remained apparently well for one year and his wife gave birth to a healthy child. After one year the disease developed and he died within a year of general paresis. During this one year he had been perfectly well, all the somatic and mental symptoms having entirely disappeared. This is only one of many cases that he could report where the remissions have been such that nobody could find any symptoms of any kind. The minds cleared up perfectly. He believed that one should be extremely careful in drawing any conclusions as to the curability of the disease and one should demand that three or four years should elapse before drawing any conclusions.

In Dr. Dana's second case one should consider the differential diagnosis between general paresis and lues cerebri and this is often very difficult. Some of the cases present all the classical symptoms of cerebral syphilis and some of cerebrospinal meningitis. One of the chief differential points relates to the reflexes; when there is a difference in the patellar reflex the point is in favor of syphilis. In general paresis, the patellar reflex is exaggerated or absent. The same applies to the pupil reflexes. The diagnosis of general paresis and of syphilis is extremely difficult especially during the early stages. If the patient recovered under antisyphilitic treatment he would always leave it open whether or not the case was one of cerebrospinal syphilis. He said that he is a firm believer in the importance of syphilis as an etiologic factor in these cases but undoubtedly there are cases of general paresis in which there is no history of syphilis at all. He referred to a patient from San Francisco who had general paresis; in this instance it could be proved beyond a doubt that there was no history of syphilis. He said he knew of several cases where syphilis was not ony denied but it could be proved that it was not present. If it were necessary to demand mental deterioration in making a diagnosis of the early stages of the disease, one could never make such a diagnosis. He believed that physicians, as a rule, are proud of the ability to make diagnosis of general paresis so much earlier than they did twenty or thirty years ago. The question should be left open whether or not general paresis is curable.

DR. ALLAN MCLANE HAMILTON said that, so far as his experience goes, he has never seen a case of true general paresis cured. The cases that have recovered have been those of alcoholism, the pseudoparesis of Fournier, and obscure examples of drug habits. He could not imagine such serious conditions as those described by Dr. Dana with profound organic changes, and generally absent deep reflexes, where the treatment employed, or in fact any other, could have given such astonishing results.

DR. CHARLES L. DANA said that he believed that a more conservative view must be taken of this question of the curability of paresis and he thinks that most of the criticism of his position is based on misapprehension. He used the term cured or arrested with reference only to the early stage of paresis, a stage for which the term preparetic may be applied. He had seen personally a large number of patients in whom the symptoms described in his paper occurred but then had gone on to develop general paresis in spite of treatment in some cases, or without any treatment in others. If one would go back in the history of two paretics two or three years before the patients reached a hospital one would find, in a considerable

proportion of cases, that they had had precisely the same conditions he had described in his paper; and he believed that it was the duty of psychiatrists and neurologists to be able to recognize the condition in the early stages when it is possible to stop the progress of the disease. He does not believe that they are able to stop the disease in any case unless it is diagnosed early. He does not claim that the cases he reported are real cases of general paresis as ordinarily described but only that they would become so. He agreed with Dr. MacDonald that when paresis is in full bloom it is an incurable disease. He said that he hesitated to bring up the subject of the relation of paresis to syphilis because he thinks the subject is a closed one. He believes that it is generally accepted that syphilis has the same relation to paresis that it has to tabes. Every year the proportion of cases of syphilis and paresis increases, and for practical purposes syphilis may be considered the chief factor in its production. In alcoholic pseudoparesis there is a sort of chronic mental deterioration or dementia and he prefers to call these cases alcoholic dementia rather than to use the term paresis, because these cases do not present any close resemblance to the picture of paresis. Syphilitic pseudoparesis is really an exudative cerebral syphilis taking the form of a general syphilitic meningitis or arteritis. Cases of so-called pseudosyphilitic pseudoparesis sooner or later develop a true paresis. Some of the cases he thinks it would be better to term organic dementia of syphilitic origin. He said that regenerative processes are not always progressive. He has even seen cases of progressive muscular atrophy of a typical kind arrested for years. In answer to a question Dr. Dana said that loss of the knee jerk is a clinical fact and that it is probably explained by the fact that there has been a syphilitic lymphangitis or exudate, and that when this is absorbed the reflex returns.

In answer to another question he said that in tabes sometimes there is both a degeneration and an exudation; the antisyphilitic treatment would remove the latter and the reflexes then would be restored.

DR. MACDONALD assumed that the symptoms of true paresis are both outward expressions of organic disease in the central nervous system, that is, in the central cortex and asked Dr. Meyer if it would not follow that the condition would necessarily be an irrevocable one?

DR. MEYER said that is the burning question, especially since the investigations of Alzheimer and others have divided off a new process as a diffuse cerebral syphilis; distinct from the condition of a general paralysis process. Since these investigations the whole situation has been made more complex. Dr. Meyer stated that he believed with Dr. Dana that we should give all our attention to therapeutics, even though general paralysis be probable, and that we should at least strive for a remission as if the disease could be cured. He has doubts whether these really curable conditions are accompanied by the typical changes of paresis and can be verified anatomically. On the other hand, he has not had any cases of general paresis that he could vouch for clinically without showing definite changes in the central nervous system, organic changes with participation in it of the blood vessels, neuroglia, derangement of certain elements in the cortex, etc. He mentioned a patient of Dr. Howard, at the Rochester State Hospital, who had "general paresis" for two years, and who then passed into a paranoic condition with marked expansiveness and some paralytic symptoms of inconsistency, etc. When this patient was examined by Dr. Meyer a few months before he committed suicide, there still were a certain number of symptoms that could safely be classed as belonging to general paresis.[1] In this case there was only a residual of the disease process to be found, both clinically and in the microscopic examination. He said we must further admit that occasionally there are cases of protracted type, cases of general paralysis that cannot truly be described as "progressive" general paralysis, cases that become arrested for from ten to fifteen years or even more. Hence, we should not, *a priori*, exclude the possibility of a lasting remission at the outset.

DR. DANA said that if the earliest symptoms of general paresis could be recognized it might be possible to arrest the process and the patient might become practically a healthy man; i. e., if the brain cells were not sufficiently destroyed by the paretic process to interfere with a sound mental action.

DR. MEYER said that nature is evidently vicious regarding that point. The important point about general paresis seems to be finding out what makes general paresis a progressive disease. If one could determine that, much would be gained. But at present nothing of that sort is at hand.

DR. DANA argued that there is an allied condition in tabes; in tabes the diseased process can be arrested and the patient have no more than simple tabetic pains.

DR. HIRSCH stated his belief that in general paresis as well as in organic diseases the clinical symptoms preceded what is called the anatomic changes. It is a fact that in very early stages when the clinical symptoms are developing, the microscope does not reveal changes in the tissues.

1. A self-satisfied, unreasoning, expansive delusional system with peculiar inconsistencies, inability to give the date of marriage or the year of the birth of a son, slight hesitancy of speech, tremor of tongue, no elbow or thumb reflex on the left, exaggerated knee jerks, no eye symptoms, unsteady writing with omission of letters.

PNEUMATOCELE OF THE CRANIUM.*

L. L. McARTHUR, M.D.
CHICAGO.

In calling attention to pneumatocele of the cranium I do so not with the idea of conveying some new or important information or advanced treatment, but rather to recall to mind a decided rarity, if we may judge from the few recorded cases, and to make easier, perhaps, the recognition of future cases.

What I can at least offer is the record of an additional case and a thorough résumé of the literature, which I will present as briefly as possible, with a synopsis of all recorded cases. These number as yet but 33, of which 23 were occipital, 10 frontal. With a full bibliography added it will be an easy matter in the future to make reference to this subject.

Patient.—A. C., aged 63, was admitted to the hospital May 26, 1902, and was operated on June 17, 1902.

History.—Two years ago the patient noticed a small tumor mass about the size of a bean just above and behind the ear; it grew to the size of an egg. It was lanced by Dr. Frank, but reappeared in four days and since has gradually grown to the present size. When the tumor is pressed the patient says "it feels like air coming from the ear." He has pain all the time over the tumor. He says that he can not hear from left ear; he never had earache.

Examination.—His general appearance is that of an aged man of good build. His muscular system is somewhat flabby.

Head: The eyes react to light and to accommodation. The right eye has a nebula on the cornea; the left eye has pterygium extending over the edge of the cornea.

Mouth: The upper teeth have nearly all disappeared except for a few roots. The tongue has a whitish coating.

Cranium: Over the left portion of the cranium, over the posterior inferior portion of the left parietal bone, over nearly the entire occipital bone and over the posterior portion of the left temporal bone is a large bulging tumor. The scalp covering is very tense but can be compressed against the bone beneath. A hollow tympanitic note is elicited on percussion. There is no fluctuation and no pulsation. The bone beneath seems thinned, and in some places small fragments can be moved about. No cerebral symptoms appear when pressure is exerted on the scalp. The contents of the tumor are not reducible. There are three areas where the bulging is more marked, as if there were separate compartments, and there is some pain on pressure.

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* Read at the Milwaukee meeting of the Western Surgical and Gynecological Association, 1904.

Thorax: The chest is large and barrel-shaped. Respiratory excursions are somewhat restricted. There is a prolonged expiratory sound, but no râles.

Heart: The area of dullness is diminished, and is covered by lung tissue. A loud systolic murmur is heard over the entire chest with its maximum intensity along left border of sternum.

Abdomen: Negative.

Left Inguinal Region: There is a large oblique inguinal hernia which is easily reducible. A distinct impulse is imparted. There are very large external and internal rings.

Extremities: In the left lower extremity there are evidences of a previous osteomyelitis of femur. There are a number of cicatrices on thigh. The knee and ankle are both ankylosed, and there are a number of scars around the ankle. Reflexes are sluggish.

Glandular system negative.

Operation.—A long incision was made over the tumor mass, on the left side of the head, from the mastoid process toward the parietal eminence. As the incision was continued in depth the entire mass collapsed, the contained air escaping. Underneath the scalp and springing from the bony vault were numerous exostoses, giving a honey-combed appearance to the cavity. These exostoses were chiseled away and removed. At the mastoid process an excavation was found with a fistulous tract which, on being probed, could be distinctly felt to lead through to the external auditory canal. Considerable hemorrhage was encountered, one vessel deep in the bone requiring tamponing to arrest its bleeding. A counter opening was made in the scalp toward the right side. A large strip of iodoform gauze was packed through this opening and through into the first opening. The entire wound was left open and packed with iodoform gauze. A recurrent head bandage was applied. The patient was in good condition on being put to bed.

June 18, wound redressed; June 19, wound repacked; June 21, packing partially removed; June 23, remainder of packing removed; June 25, head redressed; June 27, head redressed; wound packed with iodoform gauze; Thiersch dressing applied; June 29, head redressed; discharge somewhat purulent; July 1, head redressed; July 3, head redressed; July 4, head redressed; July 6, head redressed; discharged.



Fig. 1.—Side view.

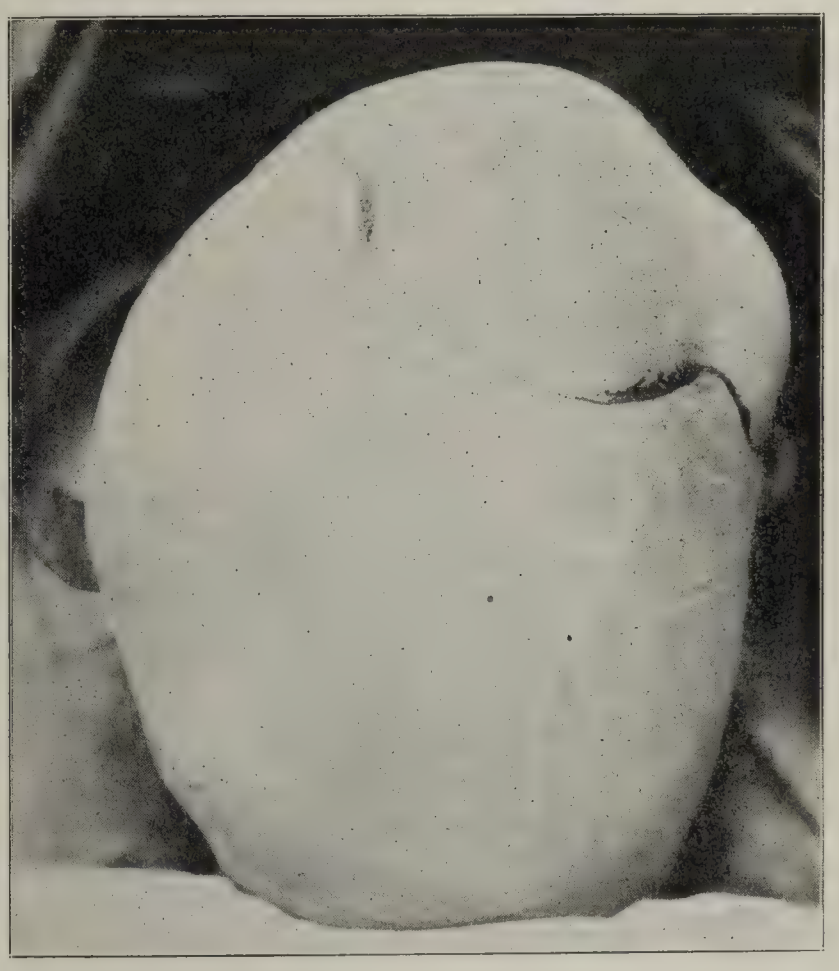


Fig. 2.—View from above (forehead resting on table).

DEFINITION.

Pneumatocele may be defined as a gaseous tumor of the cranium, a term proposed by Chevance de Wassy as being the more proper surgical name with which to replace that of *"tumeur gazeuse"* or *"tumor flatulans,"* that had been used in the four previously recorded cases. The term should not be confused with the condition now described as emphysema of the scalp, from which it differs in being one air-containing sac, while emphysema consists of numerous finely divided bubbles of air in cellular tissue. Nor should it be confused with pneumocele, which applies only to hernia of lung.

These tumors have for their external wall the skin and periosteum and all tissue between. They have been observed almost invariably in two positions. First, over the mastoid region and occiput; second, over the frontal sinus and forehead. By some authors they are described as pneumatocele occipitalis and pneumatocele sincipitalis.

DIAGNOSIS.

For developmental reasons these tumors are never found in the first decennium of life.

They vary in size according to their age. They have been described from the size of a hazel nut to an enlargement sufficient to give the head a circumference of 2½ feet. Because of the varying degrees of attachment of the periosteum to the bone they assume irregular shapes, giving a grotesque appearance to the patient, as accompanying photograph will demonstrate. The irregularity is chiefly determined by the stronger attachment of the periosteum at the sutures.

When complications are absent, the tissues covering these tumors retain a normal appearance, neither reddened, edematous nor inflamed.

These tumors are not usually sensitive when palpated, and give a sense of extreme elasticity or of exaggerated fluctuation. They do not pulsate. On pressure, such as

TABLE OF CASES REPORTED TO JANUARY, 1905.

Author.	Location of Tumor.	Sex and Age.	Special Senses Affected. Dizziness, Etc.	Origin.			Treatment.	Result.
				Traumatic.	Inflammatory.	Spontaneous.		
Lecat, 1741....	Began below right ear, later covered two-thirds of skull.	?	Hearing (?)...	.....	.....	Unknown. "Scrofulous t'mp'ram't." Cause unknown.	Large incision; caustics..	Death after 133 days from sepsis.
Olof Acrel, 1777	Over frontal to malar bone.	Boy.	"Heaviness in head."	.....	.....	After lifting heavy w'ght.	Pressure	Recurrence on removal of pressure.
Lloyd, 1779....	Junction of sagital and lambdoidal sutures.	F 35	Dullness, stupor, vertigo.	Fell from horse eight years previously.	.....	. . . . .	Incision; lint poultice. "Healed in 3 weeks."	Recurrence after 7 months, finally cured.
Pinet, 1833.....	Occipital; later like "enormous turban."	M 33	?	.....	.....	"No appreciable cause."	Successive punctures, incision and setons later	5 months later still carrying seton. All but small area adherent.
Chevance de Wassy, 1850-51	Behind left ear. Extended later over vertex nearly to right ear.	M 33	Hearing. "R'mbli'gs" in the ear.	Fall from tree "resulting in fracture of wall of tympanum" (?). ("Of 'Rocher' at level of ear drum.")	.....	.....	Punctured at first, later opened and seton inserted. Abundant suppuration.	Recurrence after 2 months, seton again and after short time complete cure.
Belassa, 1853..	Right side of head. Later another over parietal bone.	M 16	Hearing.....	.....	.....	"Lymphatic constitution."	Incision, permanent gutta percha canula. Compression.	Erysipelas and abundant suppuration followed by cure after from fifteen to twenty weeks.
Voisin, 1858...	"Back of right ear." Became occipital and parietal.	M 57	None mentioned.	.....	.....	"Painless development."	Incision and compression	Suppuration with final cure.
Costes, 1859...	Over right ear; occipital.	M 57	None mentioned.	.....	.....	"Painless swelling."	Incised, lint wick, suppuration.	Cure.
Guthrie	Frontal.....	?	?	"Frontal sinus wound."	.....	.....	Compression.....	Result not stated, probably negative.
Duverney	Frontal "to middle of nose."	F	Smell ?.....	.....	Inferior maxillary and nasal bone necrosis.	.....	Incision.....	Cure after 12 days.
Sante Foi	Frontal, extended below orbit.	F 12	Smell ?.....	.....	Nasal inflammation.	.....	Compression.....	Cure after 6 weeks.
Ribeiro, Vianna, 1862.	Occipital, began behind left ear.	M 20	.....	.....	Slight auditory canal inflammation following "prick" some mos. before.	.....	Cross incision and curette; cure for 3 mos., reappearance followed by compression.	Recurrence.
Warren, 1862..	Frontal	?	? Pain in side of head.	Blow on head by tree four years before. Irregular loose masses of bone.	.....	.....	Several operations, removal of bone fragments.	Not known. "Condition poor when last seen." "Brain symptoms at times." "Recovery after removal of last fragments."
Denonvilliers 1866. Rep'ted by Thomas.	Right occipital, over large area.	M 29	"Bruit." Later some deafness in right ear. A previous attack of vertigo and unconsciousness.	Kicked in he'd by horse at 12 years of age; later head symptoms.	"Never had otitis."	.....	Trochar, compression....	Small local swellings persisted, also occasional attacks of vertigo.
Fleury, 1867-68	Occipital, mastoid right.	?	"Bruit" vertigo.	"No history of trauma."	"No infection."	Evidently.....	Puncture, lint; became purulent.	Death, following edema of face and throat.
Jarjavay, 1869.	Right frontal, extended to border of occipital.	M 25	Sight and smell affected; hearing intact; headaches and vertigo.	History of severe fall 7 years previously.	.....	Headaches (frontal) from 9 years of age.	Punctures, incision and canula. Abscess and counter openings.	"Cure, but there remained a permanent fistula to frontal sinus."
Krabinski, 1869	Frontal left.....	M 46	Sight (from swelling).	.....	.....	Spontaneous at first; recurrence attended by nasal and frontal sinus inflam'ation.	Puncture drain and compress. Later a small "pelotte" was applied and fastened by rubber band. Later recurrence, sequestrum removed. Large compress.	Probably not a cure.
Schmidt, 1871.	Mastoid occipital.	M	Hearing ?.....	.....	Typhus and otitis media; irrigations, etc. Politzer and Valsalva's procedures.	Says exact cause not known.	Pressure bandage.....	"Cure after 8 days."
Wernher, 1873.	Mastoid occipital; "whole right half of hairy part of head."	M 20	"Noises." Hearing somewhat impaired.	.....	.....	Evidently, though followed by violent sneezing	Iodin injections.....	Cure.
Mazzoni, 1874.	Behind ear. Left occipito-parietal boundary.	M	"Hearing intact."	.....	.....	Evidently.....	Drain and "cerat" plaster pressed down on skin.	Recurrence; probably not final cure.
Birnbacher, 1881.	Frontal (right)...	M 17	No interference with vision.	.....	Frontal sinus disease	.....	Puncture and drainage..	No return for 2 years.
Brunschwig, 1883.	Above and behind ear, right side.	F 15	.....	Swelling increased after a fall on head.	Also accentuated by "cold in head."	Spontaneous at first.	Repeated punctures and compression.	Cured.

TABLE OF CASES REPORTED TO JANUARY, 1905—Continued.

Author.	Location of Tumor.	Sex and Age.	Special Senses Affected. Dizziness, Etc.	Origin.			Treatment.	Result.
				Traumatic.	Inflammatory.	Spontaneous.		
Turner, 1888...	Over right mastoid process.	F 20	Audition negative.	Fell from sofa and struck right side of head 2 years before.	.....	.....	Incision, irrigation with 4 per cent. carbolic acid solution. Tampon of iodoform gauze; compression. Drain removed 5th day.	Complete cure after 13 days.
Sonnenburg, 1889.	Behind right ear. "More over parietal bone."	F 12	Evidently none	.....	.....	No cause known.	Long incision and tampon.	Cure after some weeks.
Von Helly, 1890	Left side over frontal bone.	M 28	Headaches....	Blow over right eye 7 years before, followed by loss of vision.	Nasal discharge 3 years before; later ozena and erysipelas.	.....	Left hospital when erysipelas disappeared.	"Appeared to be a complete cure."
Kramer, 1896..	Occipital. "Opening more than centimeter back of mastoid."	M 28	"Hearing normal."	Blow in back of head four weeks before	.....	.....	Incision, compression; recurrence. Iodin and gauze, recurrence; plastic with flap.	No recurrence for 6½ months.
LeDentu, 1896	Frontal.....	.....	.....	Fracture of skull by fall 20 days before.	.....	.....	Incision, some pus trephined.	Not known.
Lannois, 1897	Mastoid. "Swelling back of ear."	31	?	.....	Suppuration in ear for sev'ral yrs.	.....	Tumor became inflamed..	Unknown.
Nove, Josserand and Carle, 1897-98.	Mastoid both sides, right the larger.	M 31	"Very nervous." Vertigo marked; slight deafness.	.....	"No evidence of mastoiditis."	Neuralgic pains about ears at 11 years; no discharge.	Incision was followed by air bubbles and small amount of pus. Antiseptic dressing.	"Radical cure." "Case of inflamed pneumatocele."
Malapert, 1900 ('85).	Right mastoid....	M 44	Hearing impaired.	.....	Purulent discharge from auditory canal sometime before.	.....	Considered an abscess and lanced.	Not known.
Martel, 1901...	Occipital. Began as two umors, one in temporal region.	M 26	Impaired audition, headaches and vertigo.	.....	.....	Evidently	Punctured at first, recurred later; drainage by seton with counter drain, compression, large opening later; external plate removed and mastoid process uncovered, iodoform gauze and tube for drainage. "Minerva" later applied.	"Left hospital on road to recovery."
Strom, 1902....	Left temporal and parietal.	M 19	Hearing somewhat impaired.	.....	"Catarrh in nose for years."	.....	Bow-shaped incision; curette and chisel, removed outer lamella of mastoid process, drainage.	Cure. (No return in 2 years.)
McArthur, 1904	Left occipital and parietal.	M 63	Impaired hearing.	.....	.....	Spontaneous..	A former puncture with recurrence. Incision, chisel and curette, wound left open and packed with iodoform gauze.	Cure. No recurrence in 2 years, still has impaired hearing.

Total: 33 cases. Location: 23 occipital; 10 frontal. Sex: Male, 22; female, 6; unknown, 5. Age: 12 to 66 years. Traumatic history, 10; inflammatory history, 10 (3 traumatic also). Spontaneous, 16. Result: Cure, 17; recurrence, 6; doubtful, 8; death, 2.

might be used to reduce a meningocele or to collapse an angioma or varix, the tumor mass often will diminish in size. The patient frequently hears a sound as of rushing air or water in the ear when the tumor is occipital, and in the nose or throat when frontal. When tense, the tumor gives such a sense of fluctuation that the surgeon frequently thinks that he has to deal with a fluid collection. This idea is opposed by the finding of a bony outgrowth or ridge at the line of juncture of tumor with the normal scalp, for if the tumor has existed for some time there will be found a distinct bony elevation rising from the normal cranial wall on to the surface of the tumor to the distance of from one-fourth to one-half inch. The margin of this ridge which joins the elevation is serrated, sharp and irregular. In those cases in which the size of the tumor can be reduced by pressure one can also feel through its coverings numerous bony irregularities, elevations and depressions over its entire base. Efforts on the part of the patient to inflate the middle ear, or the use of the Politzer bag, will usually restore the size of the tumor. It is sometimes possible after the temporary reduction by pressure of one of these tumors to feel the opening into the sinus of the mastoid process. They are dependent for their occurrence on connection with air-containing sinuses.

Auscultation is negative. Percussion offers the most important diagnostic sign, for one obtains thereby a highly exaggerated tympanitic note. In this location, however, percussion is the procedure in the examination least likely to be made, for one expects to obtain no other than a flat note and therefore omits the test.

PATHOLOGIC ANATOMY.

Pneumatoceles, then, being tumors produced by air dissection of the periosteum from the bone, will have for one-half their lining periosteum, for the other half bony wall. This periosteum, being normal, retains its natural ability to produce bone. Hence, at the junction of the periosteum with the calvarium a bony ridge forms. This ridge marks the outlines of all long-standing pneumatoceles. From varying points of the thus elevated periosteum strands of tissue still connected with the bone remain. Along these strands osteophytes may form which, if the tumor be opened, will appear like stalactites and stalagmites, and in this way are produced those irregularities that can be felt when the tumor has been collapsed by pressure.

The air entering into the formation of these tumors, just as in the analogous condition of emphysema, is usually sterile and therefore remains as a simple non-irritant.

Chevance de Wassy and others took pains to have careful analyses made of the contained gases and found

them to consist of nitrogen 87 per cent., oxygen 10 per cent. and carbonic acid gas 2 per cent. The proportion of oxygen, being small, led him to believe that the gaseous mixture was not air.

We now know, experimentally, that if air be injected into one of the body cavities its oxygen will be readily absorbed, while the nitrogen remains for a long time. It is probable that air so injected, by a process similar to the exchange of gases in the lung, would gain in carbonic acid gas what it lost in oxygen. This the investigations of LeComte have experimentally demonstrated.

ETIOLOGY.

In the few exhaustive memoirs on this subject, the writers have considered the various modes of formation of these tumors. The more logical deductions have pointed to a destruction of the bony walls, traumatic, inflammatory or spontaneous, and have rather dismissed as untenable both the congenital defect idea and that of an escape of air through vessel foramina. Theoretically, it is conceivable that the bony wall of either the frontal sinus or of the mastoid cells could be of such parchment-like thinness congenitally as to give way under unusual pressure from within or without. We do know that in later adult life the walls of these cavities atrophy or become so thin that this could occur, and possibly some of the pneumatoceles described as spontaneous may have had such an origin. The suggestion by Helly that it would be possible for gas to escape from either frontal or mastoid cells through vascular bony foramina seems unlikely, for, during the existence of the blood vessels, these foramina would be filled by them, and in processes which resulted in vessel obliteration there would be left behind the obliterated structures to occlude the foramina. It sometimes happens that the squamous mastoid fissure in the process of development fails to unite, and in such a way one case is believed to have been caused. In one case (Kramer) the pneumatocele was found over the occipital prominence. At the operation, after careful search, the air was found to have followed along the bony suture to that point from the mastoid process.

While the real causes in a few cases are obscure, in the great majority of cases we have one of two etiologic factors that can be elicited by the clinical history: 1, trauma; 2, sudden increased pressure within the buccal and oral cavities. The trauma in 10 cases has been by direct violence; in 10 cases by the changes which inflammatory processes within these bony cavities could easily induce—that is, the outer bony shell can be easily fractured without tearing the periosteum, or can be readily absorbed by inflammatory processes, can become carious, or can disappear by direct pressure from granulation tissue or new growth, leaving the periosteum intact. When to such a condition we have the added factor of a sudden decided increase in the air pressure within the mastoid or frontal sinus, this intact periosteum may be elevated and dissected loose by the burrowing influences of the escaping air, and finally there may result the formation of a tumor of varying size and form, the contents of which is simply air.

Instances are related in which sudden violent efforts, as in the case of a baker lifting a barrel of flour, or a hostler struggling with a vicious horse, have made the increased pressure necessary to make the bony wall give way—or, if already missing, to elevate the periosteum. Nevertheless, 16 (about 50 per cent.) of the cases collected have occurred spontaneously so far as history of injury or of inflammatory conditions go.

During the growth of the tumor the patient not infrequently will hear—on efforts at sneezing or blowing the nose or inflating the ear after Valsalva's method—the escape of air into the tissues back of the ear, with a corresponding increase in the size and tension of the tumor. He will sometimes call attention, too, to the possibility of reducing this by a reverse process of pressure on its surface. It is easily conceivable why many of them can not be so reduced, for the periosteum lying over the mastoid or frontal sinus may remain so nicely in apposition with the opening through which the air escapes that it will act like the valve of a bellows or Davidson's syringe—rising readily to permit ingress of air to the tumor cavity, but falling flatly against the orifice to prevent its exit.

The partially collapsed tumor can be artificially filled with air by use of the Eustachian catheter and the patient himself may accomplish the same result by attempting to blow hard when his nose and mouth are closed.

TREATMENT.

Since the majority of these tumors were observed in the pre-antiseptic era, it is easily understood how considerable differences of opinion arose as to the best methods of handling a growth perfectly benign in itself, but capable of very disastrous results if not protected against infection. The following procedures have been carried out at different times: 1, compression; 2, puncture; 3, opening and packing; 4, osteoplastic resection. Since, in a fair proportion of the cases observed, it was possible to reduce the size of the tumor by compression, varying methods of this were tried. There was temporary success in some cases, but frequent recurrences. The usual method was to pad the tumor well and then, by means of bandages of muslin or caoutchouc, to maintain continuous direct pressure. After some weeks of this treatment, in a few cases, it was found possible almost to obliterate the tumor but the distress was so great to the patient and the recurrences so frequent that other means of treatment were sought. Aspiration through a hollow needle was made and this was followed by compression. The results tallied nearly with those of compression alone, unless infection followed, as was to be expected in pre-antiseptic days.

During the period that puncture was popular, many of the observers noted that their needles, after passing through the tumor coverings, came in direct contact with denuded bone. Gaining thus the idea of a caries or necrosis existing, they proceeded at once to treat the imagined bone disease after the methods then employed. Laying open the sac, air would escape and the peculiar elevations described as resembling stalactites and stalagmites would be scraped away or chiseled off and the wound packed with charpie or lint. This was promptly followed by an abundant suppuration, violent infection and sometimes death. As said before, we now recognize these bony irregularities as simple osteophytes and exostoses due to the displaced bone-forming elements of the periosteum. One author (Wehrner) demonstrated the possibility of cure in his case by the injection of tincture of iodin. Beginning at a point distal to the mastoid, he practiced an injection of a few minims of iodin and applied compression. This resulted in a partial obliteration of the walls at that point. Following this by a series of injections extending over a period of two

months, he succeeded ultimately in causing aseptic adhesions between the tumor walls, having allowed, prior to the injection, the escape of air through his needle or back through the channels through which it came.

We understand now why the third method of treatment—that of boldly laying open the gaseous cavity—became so disastrous a procedure, for we know the dangers of a suppurative process which has extended to the mastoid cells. Since the era of antiseptic surgery, these dangers have been so nearly dispelled as to render the general opening of these cavities a safe procedure and, in nearly every instance, a perfect cure is effected if pains be taken to so dispose the incision as to make the point of final healing immediately opposite the bony perforation through which the air entered the tumor. In my case it was easily possible to find the openings in the mastoid process, to enlarge them, and, having removed the major portions of the osteophytes and bony ridges, to bring the walls of the gas-containing cavity in contact, and by simple compression to secure their adhesion to those surfaces from which they had been torn.

Some writers (Sonnenberg, etc.), after opening widely such cavities, have been unable to demonstrate the existence of any perceptible opening in the mastoid process—even though they allowed the patient to come out of his anesthesia and made either inflation of the Eustachian tube or had the patient repeat the process by which he formerly had been able to drive air into the tumor. The failure of the patient's efforts to force air through these openings may be rationally explained. By the time he was sufficiently awakened to make the effort the openings were probably plugged with clotted blood.

For the convenience of future investigators of this subject and of those desiring to consult the original literature, I have appended a table giving a synopsis of the salient features of each reported case from which, by easy deductions, the percentage mortality, the prevailing treatments, the more frequent location and what associated special senses were disturbed can easily be ascertained. A list of the literature consulted is likewise appended.

Costes of Bordeaux, reporting the fifth recorded case and making an exhaustive study of the four preceding cases, prepared so excellent a memoir on this subject that in all details except treatment he has covered the ground completely and the conclusions which he arrived at in 1859 still hold absolutely true for the present time. They are as follows:

1. Pneumatoceles are very rare.
2. They always depend on perforations of the bony walls.
3. They are always tympanitic.
4. They are more or less reducible by pressure.
5. They can take their origin from the mastoid or frontal sinuses only.
6. They are of very slow and indolent formation.
7. They are never dangerous except from complications (infections).

In conclusion, I desire to acknowledge the very able assistance rendered me by Dr. J. C. Hollister in reviewing the literature of the subject and in collecting the data.

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THE PROTECTION OF THE ROENTGEN RAY OPERATOR.

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The serious nature of the injuries which have been inflicted on two expert Roentgen ray operators, and which necessitated the amputation or partial amputation of both hands, should be sufficient warning to all engaged in the the employment of this powerful agent. A further word of caution seems necessary, however, as many operators who have had no experience are entering the field.

The claim made by the manufacturers of static machines that these do not, or are less liable to, produce serious injury has proved fallacious. It is a dangerous doctrine, as it engenders a false sense of security. One of the physicians, who has practically lost both his hands, did most of his work with a static machine.

The Roentgen ray is itself the effective agent or the transmitter of that agent to the tissues. The injury or the good results only where it is applied. The same caution must be observed by the operator in handling the Roentgen rays, no matter what their source.

The more powerful the source of energy the greater will be the danger, but that danger exists wherever effective Roentgen rays are present. The danger is the greater because the injury is produced insidiously and does not make itself manifest for two or three years after the operator commences his work.

The injury is done slowly and insidiously. There is a gradual accumulation of injurious effects, and when the lesion manifests itself it is in a chronic form, with the formation of slow, indolent ulcers and horny, corn-

like growths on the dorsal aspect of the fingers, and a cracking and brittleness of the nails. There is at times intense itching and acute pain. The slow, tedious process of trophic change will go on and the lesions will grow worse as long as the cumulative or latent effect is present. Recovery is always tedious, if it ever takes place, while a true malignant growth may become engrafted on the devitalized and irritated tissues.

The unconsciousness of danger makes it the greater. Because the injury manifests itself slowly the victim feels secure, and before he realizes it a chronic trophic lesion has been produced. Since the injury manifests itself slowly, its full extent can only be determined by time. Complete relief or protection from further injury does not stop its course nor lessen the injury already produced.

These factors make the warning more imperative, and the need for care and for the employment of every precaution greater. Text-books on this subject do not give the protection of the operator enough attention, nor do they warn the student of the dangers he must avoid or tell him how to avoid them. In a recent standard work on the Roentgen ray, the author advises his readers to test the quality of the rays they are employing by observing their hands on the fluorescent screen. More dangerous advice could not be given to the student. The operator's dermatitis is due, in a majority of cases, to this practice, which was generally employed before its dangers were known. On the other hand, this method of determination is both crude and inaccurate.

The acute dermatitis produced on the patient does not possess the elements of danger found in the operator's chronic trophic lesion. There is practically no danger to the patient who is exposed a few times for diagnostic or for therapeutic purposes.

The lesion does not develop in the operator for two or three years, and then only after constant exposure. Day after day he is subjected to almost constant doses of the most potent alterative and stimulant agent of cell metabolism that has ever been introduced into therapy. The autolytic action of the cells is stimulated constantly, karyokinetic changes, metaplasia and hyperplasia follow, and, under continued stimulation of their autolytic action, the production in the cells of malignant growths may follow; though I do not believe that they must necessarily follow. The hyperplasias are no more malignant in their nature than overgrowths of epithelium in any other portion of the body. These may be either benign or malignant, and those produced by exposure to the Roentgen rays likewise may prove to be benign or malignant. This, in a measure, may depend on the amount of alterative, irritant or stimulant that has been applied in producing the lesion.

The production of malignant disease in the hands of operators by this agent leads to the conclusion that malignant disease can be produced by the overstimulation or protracted irritation of normal tissue cells by this agent.

Beneficial results in the therapeutic application of these rays can only be secured after diligent and patient observation by the student. The essential technic for accurate radiography or for effective radiotherapy is the result of long and careful study and clinical experience. The operator must be constantly near the tube and must be carefully observant of its action, for he must know all its moods and whims if he would use it effectively. He can not do this with safety to himself unless he realizes fully the dangers that must be avoided. He must observe the utmost caution and must never enter the irradiated field with any part of his body.

It is practically impossible for the operator to protect himself by wearing impervious clothing or shields. Various cloths impregnated with opaque metallic salts have been devised, but they are necessarily so clumsy as to preclude freedom of movement and deftness of manipulation.

The most practical method is to limit the irradiated field by covering the Roentgen tube. The field of its action can thus be confined to the part of the patient to be examined or to be subjected to treatment. Many shields with varying diaphragms have been devised to protect the patient, but they leave the operator unprotected and constantly exposed to the rays.

The placing of the tube in an opaque box has been suggested by many authors, and, among the first, by Williams of Boston. I have used the following simple device for over two years and it has proved very satisfactory; its chief merits are efficiency, simplicity and cheapness; it can be made by any operator and used with any tube:

A pasteboard box three-eighths or one-half inch wider than the diameter of the tube is cut at the ends to admit the tube. There is a round opening through which the prolongation of the cathode end can extend and another at the anode end, which can be reached by a cut through the intervening pasteboard. The box is suspended from the ends of the tube and surrounds only the bulb. It can be held in place by rubber bands or cord.

This box is covered with *x*-ray foil, a heavier lead foil than the ordinary tea lead.

It is only necessary to cover the irradiated portion of the box, i. e., the luminous hemisphere of the tube. The lead surrounds the box and extends two inches below the bottom in flexible curtains, that can be so adjusted that the irradiated field can be limited to any extent. It is not necessary to cover the anode end or that portion of the sides behind the plane of the anode. At the cathode end, the lead must be cut away, one and one-half inches from the cathode prolongation, where it passes through the box. Where the lead hangs below the bottom of the box it is cut at the corners and thus forms three flexible curtains. The bottom of the box is removed so that in adjusting it the operator, by looking over the anode, can limit the irradiated field to any desired area by bending the lead curtains in or out.

During all treatments, the patient lies in comfort on a couch, while the tube is held, on a bracket, over the portion of the body to be treated. The lead shield cuts off the rays from all but the field of operation. Where a small area is to be treated, all but this area may be covered by a small contact shield while the remaining rays are cut off by the box. It is generally better to treat a considerable area surrounding the actual lesion, and it is seldom necessary to use any protection other than the lead-covered box. This always protects the operator.

The chief value of the box shield to the operator is that it protects him as well as his patient. It is simple, readily adjusted, efficient and always interposed between the operator and the source of Roentgen rays and of injury.

If the fluoroscope must be used the operator should

never place his own hand on it for the purpose of estimating the quality and intensity of the light; there are more accurate methods and instruments of precision for making these measurements without risk to the operator. In every instance the screen of the fluoroscope should be covered with a sheet of one-fourth inch plate glass; this does not afford absolute protection, however, as some rays will penetrate it.

The operator should stand behind a thick lead screen, made of sheet lead with an opening corresponding to the plate glass in the fluoroscope. A fluoroscopic examination under other conditions is dangerous to the operator if frequently repeated. The patient's body affords some protection, but the observer is certain to enter the irradiated field if great precaution is not used.

Although it is highly probable that the serious results produced in operators' hands are due to the action of the Roentgen rays, there are probably other contributing causes. Among these the repeated introduction of the hands into the high induction fields surrounding the coil must be considered. Any contributing factor, if it is an agency whose action is unknown, should be avoided as far as possible. It is safer, therefore, to place the induction coil in an adjoining room, leading in the secondary wires through porcelain tubes and having the controlling apparatus in the operating room. This is especially necessary in large hospital laboratories where more than one coil is in use, and where many patients are being treated.

Since I have employed these methods of protection I have noted marked improvement in, and practically a cure of, a severe dermatitis that had been so intense as to cause loss of sleep from the pain.

If Roentgen operators would avoid serious injury, such as has proved fatal in one case, and has caused two experienced operators to lose their hands, they must observe the utmost caution in subjecting themselves to radiations from a Roentgen tube. An operator should never place his hand in the irradiated field and should never employ it on the fluoroscope to test the light. He should always employ an opaque shield surrounding the tube and should keep his hands out of high potential induction fields.

I have been variously and often erroneously quoted in reference to the treatment of Roentgen ray burns. The following is the treatment which I employ and which I have found the most efficient in treating my own dermatitis:

The hands should be washed and soaked in water as hot as can be borne. It will be found that they gradually accustom themselves to very high temperatures, and that the temperature of the water can be gradually increased. The hands should be scrubbed with a sterilized brush, using Eichhoff's superfatted resorcin soap. This will be found very soothing. After thorough washing, the hands should be well rubbed in an ointment of lanolin containing one-half ounce of boracic acid and one dram of resorcin to the ounce. This should be done both morning and night and the hands should always be washed in hot water with the superfatted soap. Simple superfatted soap or soap and lanolin can be used if the resorcin is too severe, with the substitution of benzoic acid in the ointment.

The thickened epidermis and horny growths, with the indurated edges of the indolent ulcers, can be softened by covering them with ointment under oiled silk. The softened epidermis then should be gently removed. The ointment should be renewed after each washing. Small healing ulcers that have become healthy can be covered with surgeon's isinglass plaster, after the hands have been washed and anointed; these ulcers often take from four to six months to heal and may cause intense pain.

In treating the acute erythema resulting from Roentgen ray treatment, I have employed the stearate of zinc composition with 10 per cent. ichthyol. It is very efficient, subdues the inflammation and itching, and helps to produce the tanning which is so essential before deep treatment can be efficiently employed. The powder should not be confused with the stearate of zinc ointment, as any ointment will soften the skin and render it more liable to break down and to slough. The substitution of the ointment for the stearate powder resulted, in one case, in the formation of a large ulcer. The entire epidermis adhered to the ointment and came away with it.

Where an open ulcer has formed, strict antisepsis should be maintained, and irritants should be carefully avoided. Sterile water is an irritant, while normal salt solution and boric acid solution are not. After cleansing, the resorcin ointment should be applied to relieve the pain and to promote healing. The employment of the stearate of zinc composition powder with 10 per cent. ichthyol seems to act as a prophylactic and prevents the production of serious burns during severe Roentgen ray treatment.

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THE SIGNIFICANCE OF TUBERCULOUS DEPOSITS IN THE TONSILS.*

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The object of the research which is outlined in this paper has been to determine, as nearly as possible, the relative importance of the tonsillar tissues of the throat as portals of entrance for a general tuberculous infection. To arrive at a definite conclusion, it seemed necessary to ascertain the truth concerning certain fundamental questions.

First. Are tuberculous lesions produced more easily in the tonsils than in other portions of the gastrointestinal tract?

Second. Does tuberculous adenitis of the neck have its starting point in the tonsils?

Third. What is the importance of tuberculous cervical adenitis as an etiologic factor in systemic or pulmonic infection?

From clinical data collected from literature, and from postmortem examinations which I have made, it is evident that in cases of pulmonic phthisis secondary tuberculous infection takes place more readily in the tonsils than in any other part of the upper respiratory tract.

Seifert[1] has shown that infected sputum plays a most important rôle in the infection of the tonsils, the bacilli finding the crypts of these organs a suitable place for lodgment. It has been proven by Goodale[2] that minute foreign bodies, such as carmin dust, are rapidly

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Handbuch der Laryn. u. Rhin., P. Heymann, vol. ii, p. 714.

2. Absorption of Foreign Bodies by the Human Faucial Tonsil, Especially in Regard to the Origin of Infection Processes, Arch. f. Laryn. u. Rhin., 1897, vol. vii, p. 90.

absorbed by the tonsils from their crypts, and that these particles pass to and through the interfollicular tissues. This has been confirmed by Hendelsohn[3] and Kayser.[4]

Piera,[5] however, went further, and demonstrated that micro-organisms were likewise absorbed through the epithelium, though if they were not capable of resisting the vital action of the tissues, they were destroyed practically as soon as they entered the tonsillar parenchyma. Virulent germs, however, could not only cause local disease, but could be carried to the neighboring lymphatics and thence to almost any part of the body.

Lexer[6] confirmed these results of Piera by a large series of experiments on rabbits.

STATISTICS OF SECONDARY INVOLVEMENT OF THE TONSILS.

The following statistics concern the frequency of secondary involvement of the tonsils in cases of pulmonary tuberculosis. In phthisis a large number of tubercle bacilli pass over the surface of the throat and tonsils, and this condition affords a very good test as to the relative absorbing power of the tonsils and the rest of the pharyngeal mucous membrane.

Schlenker,[7] in a rather elaborate and extensive article, reviewed carefully 22 cases of tuberculosis of the lungs. He found the tonsils diseased in 15. In 13 of the 22 cases involvement of the lungs was extensive, and the tonsil was diseased twelve times. In 9 cases of slight involvement of the lungs in only 3 was tonsillar tuberculosis present.

Schlesinger,[8] in 13 cases of galloping consumption, found tuberculosis of the tonsils twelve times; but in 4 cases of chronic involvement of the lungs, he failed to find any tuberculous changes in the tonsils. He concludes that tuberculosis of the tonsils is a sign of virulent infection of the lungs, and is, therefore, of very serious import. In healed lung lesions or in any circumscribed tuberculous disease the tonsillar involvement was absent.

Walsham[9] examined after death the tonsils of 34 tuberculous patients. Only two of these patients had shown any symptoms of tuberculosis of the tonsils during life, and yet in 20 cases the tonsils were found to be more or less diseased.

Ito,[10] in 6 cases of pulmonary tuberculosis in children, found tonsillar involvement three times, and in 7 cases of miliary tuberculosis the tonsils were involved three times. His statistics cover some 104 autopsies, but in only 10 of the autopsies was the pharyngeal tonsil examined histologically, and, therefore, I can not accept all of his statistics. They are valuable in a positive sense, in that we must believe that he found at least 6 cases of tonsillar tuberculosis.

Dmochowsky[11] examined the tonsils of 15 phthisical patients, 5 of whom had involvement of the larynx, and in all 15 cases tuberculosis of the tonsils could be recognized through the microscope, although no change could be noted with the naked eye. He found the tubercle bacilli penetrating between the epithelial cells of the crypts, especially in those places where there were apparent gaps.

Kruckmann,[12] in 64 autopsies, found some tuberculous condition in the body in 25. Among these 25 there were 12 cases of tonsillar tuberculosis, and of the remaining 13, 5 cases showed either excessively slight or no lesion of the lung. These 5 cases must, therefore, be excluded so far as secondary infection of the tonsil is concerned, so that Kruckmann's statistics should be 20 cases of tuberculosis of the lungs with secondary tonsillar tuberculosis occurring twelve times. In those cases of tuberculosis of the lungs in which there was no tonsillar involvement, the lesion in the lung was either very small or of a fibrous character.

Strassmann[13] examined 21 cases of tuberculosis of some portion of the body. In 15 cases there was pulmonary tuberculosis, and of these 15 the tonsils were involved thirteen times. None of the other cases showed tonsillar tuberculosis.

Ozeki[14] reports 9 cases of secondary tonsillar tuberculosis.

Gourc[15] has made a general study of adenoid growths, bacteriologic examination being carried out in 202 cases. He states that although he examined 17 cases of active tuberculosis, and 18 cases in which the condition was supposed to be hereditary, in no case did he find the tubercle bacillus.

Cornil[16] examined the tonsils of 70 cases of phthisis, finding tuberculosis only four times. The results of these last two observers seem so contrary to all other evidence that I fear that their technic must have been faulty.

A summary of the foregoing statistics, excepting those of Gourc and Cornil, gives us the following table:

Name.	Pulmonary tuberculosis.	Tonsils involved.
Schlenker	22	15
Schlesinger	17	13
Walsham	34	20
Ito	13	6
Dmochowsky	15	15
Kruckmann	20	12
Strassmann	15	13
	136	94

These statistics show that in at least 69 per cent. of cases of pulmonary tuberculosis the tonsils are tuberculous. The majority of the pathologic diagnoses made by the foregoing observers were based on histologic findings. Lately it has been shown that a positive diagnosis of tuberculosis can not be made by the character of the histologic changes. Occasionally giant cells and lesions resembling tubercles result from the irritation of foreign bodies, and it has been definitely demonstrated that certain acid fast bacilli will sometimes give rise to changes scarcely distinguishable from true tubercles. It must, however, be admitted that these lesions caused by foreign bodies and by acid fast bacilli are exceedingly rare, and especially so in the human being. If, in a patient suffering from active tubercu-

3. Absorption by Tonsils, Arch. f. Laryn. u. Rhin., 1898, No. 8, p. 476.

4. Absorption by Tonsils, Therap. Woch., v. Schnirer, Oct. 17, 1897.

5. Die Drusen des Waldeyer'schen Schlundringes, special die Gaumentonsillen betrachtet als Eingangspforte für Micro-organism, Arch. Ital. di Laringol., April 1, 1900.

6. The Mucous Membrane of the Throat as a Port of Entrance for Pyogenic Infection, Arch. f. klin. Chir., 1897, vol. liv, p. 736.

7. Untersuchungen über die Tuberculose der Halsdrüsen, besonders über ihre Beziehungen zur Tuberculose der Tonsillen, Inaug. Diss. Zurich. 1893, u. Virchow's Arch., 1893, vol. cxxxiv.

8. Die Tuberculose der Tonsillen bei kindern, Berlin. Klinik, 1896, vol. xcix.

9. Latent Tuberculosis of the Tonsil, British Medical Journal, May 7, 1898; Lancet, June 18, 1898.

10. Untersuchungen über die im Rachen befindlichen Eingangspforten der Tuberculose, Berlin. klin. Woch., 1903, vol. xl, p. 27.

11. Ueber sekundäre Erkrankung der Mandeln und der Balgdrüsen on der Zungenwurzel bei Schwindsüchtigen, Ziegler's Beitr. zur pathol. Anat., vol. x, p. 481.

12. Ueber die Beziehungen der Tuberkulose der Halslymphdrüsen zu der Tonsillen, Virchow's Archiv, vol. cxxxviii, p. 3.

13. Ueber Tuberkulose der Tonsillen, Virchow's Archiv, 1884, vol. xcvi, p. 319.

14. Die Tuberkulose der Tonsilla palatina, Diss., Würzburg, 1899.

15. Die W. Meyer'sche Mandel, ein Beiträg zur Bacteriologie der Adenoidgeschwülste, These de Paris, 1897.

16. Sur la tuberculose larvee de trois amygdales, Semaine Médicale, 1895, p. 223.

losis of the lungs, lesions should be found which are characterized by epithelioid cells, giant cells and necrosis, these lesions must be looked on as tuberculous, and I believe that the above statistics are practically correct.

I have made postmortem examinations of the tonsils of nine patients, in whom death was due to tuberculosis of the lungs, and in three of these the tonsils were so much involved that a diagnosis of tuberculosis was readily made macroscopically. In the remaining six cases tubercles and giant cells were found when sections of the tonsils were examined under the microscope. In one case numerous sections had to be made before a tuberculous nodule could be detected, but this tonsil had practically disappeared, being represented only by invaginations of intact squamous epithelium and a thin layer of lymphoid cells. Schlesinger is probably not far wrong when he says that in active pulmonary phthisis tuberculosis of the tonsils is almost always co-existent.

The important element in the secondary infection of the tonsils is the presence of tubercle bacilli in the sputum or other secretion which passes over the surface of the tonsil. That the tonsils can be infected by an ascending tuberculosis of the cervical lymph glands is practically impossible. It has been shown by Schlenker, Washam, Schlesinger, Kruckmann, Strassmann and perhaps others, that in obsolete involvement of the lungs, tuberculous infection of the tonsils rarely takes place. This is due to the absence of the tubercle bacilli from the sputum.

Secondary pharyngeal tuberculosis occurs in a very few number of cases by infection from the tuberculous sputum. Laryngeal tuberculosis is more common, but both of these conditions are rare as compared with the frequency with which the tonsils become diseased. To infect a tonsil it only requires that a sufficient number of tubercle bacilli be brought in contact with its surface.

PRIMARY INVOLVEMENT OF THE TONSILS.

We now come to consider the subject of primary tuberculosis of the tonsils. It is a most difficult question to decide, even at autopsy, whether a lesion in any given organ is primary or not, and it is impossible to say positively from a clinical examination that any given tuberculous lesion is the only one in the body or that it is the primary seat of the disease.

The evidence which I intend now to bring forward to show that primary tuberculosis of the tonsils occurs much more frequently than is generally supposed, is conclusive simply because of the enormous quantity of data. Any part of the evidence taken individually is perhaps in itself not unassailable, but I insist that, considered as a whole, it affords positive proof of the occurrence of primary lesions in the tonsils in a certain proportion of children.

Brown[17] reported a case of a woman with a tubercular ulceration on the left tonsil. This healed up under applications of lactic acid without any involvement of other organs.

Pilliet[18] found histologic evidence of primary tuberculosis of the pharyngeal tonsil in 3 out of 10 cases.

Tusseau[19] has observed 3 cases of primary tuberculosis of the tonsils. He believes that it was possible for infection to take place from the food.

Broca[20] examined 100 cases of adenoid vegetations histologically, but in none did he find tuberculosis.

Dieulafoy[21] found 8 cases of primary tuberculosis of the pharyngeal tonsil among 61 adenoids examined. He proved the presence of the condition by inoculation tests in guinea-pigs.

Brindel[22] reports a case of undoubted primary tuberculosis in a child 8½ years old.

Pluder and Fischer[23] found two cases of primary tuberculosis of the pharyngeal tonsil out of 32 examined.

Ruge[24] made very careful examinations of the tonsils of 18 patients, and six times found undoubted tuberculosis.

Lermoyez and Macaigne[25] reported a case of tuberculosis of the tonsil characterized by tubercles with giant cells and a few Koch's bacilli.

McBride and Turner[26] examined 100 cases of enlarged pharyngeal tonsil and in 3 per cent. found distinct histologic evidences of tuberculosis.

Dempel[27] examined 15 pharyngeal tonsils from otherwise healthy individuals and found tuberculosis once.

Ozeki[28] reports two cases of primary tuberculosis of the tonsils.

Piffl[29] in 100 cases of adenoid vegetations which he examined microscopically found tuberculous deposits three times.

Lewin[30] examined 200 cases of adenoids and in 10 of these he found tuberculous deposits. From his studies he believed that this latent tuberculosis of the tonsils can be not only the first but the only tuberculous lesion in the whole body.

Schreibner[31] made very careful examinations of 14 faucial tonsils and 15 pharyngeal tonsils. In none was he able to find tubercle bacilli, but in two of the pharyngeal tonsils he found typical tubercles and giant cells. In 32 examinations at autopsy, while not able to prove absolutely primary infection of the tonsils, he thought it most probable that in two cases such had taken place.

Rethi[32] examined 100 pharyngeal tonsils and found tuberculosis 6 times.

Hynitsche[33] reports the microscopic examination of 180 postnasal tonsils. Seven of these showed tuberculous changes. Tubercle bacilli were found in three instances, while the other cases showed tubercles made up of epithelioid cells and typical Langerhan's giant cells.

Baup,[34] in a very extensive article, probably the most

17. Lar. Sect. d. IX Intern. Congr., Washington, 1897, Centralbl. f. Lar., vol. iv, p. 186.

18. Ueber das Workommen von Riesenzellen in den Adenoiden Vegetationen des Rachens, Societe Anatomique de Paris, March 25, 1892.

19. De l'etiologie de la tuberculose des amygdales et de son traitement, Lyon Med., No. 16, 1894.

20. Adenoide Vegetationen des Nasenrachenraums. 9 Französ, Congress für Chirurgie, Paris, October, 1895.

21. Die larvirte Tuberculose der 3 Mandeln, Acad. de Med., April 30, May 7 u. 14, 1895.

22. Tubercul. ulcer. del' amygdale, de la langue et du larynx chez un enfant de 8½ ans. Gaz. hebdom. d. sc. med. d. Bordeaux, March 8, 1896.

23. Ueber primäre latente tuberculose der Rachenmandel, Arch. f. Laryn. u. Rhin., vol. iv, 1896, No. 3.

24. Tuberculosis of the Tonsils Studied from a Clinical Standpoint, Virchow's Archiv, vol. cxliv, 1896, p. 431.

25. Primäre Tuberculose der Mandeln, Soc. Anatom., Paris, June 11, 1897.

26. Nasopharyngeal Adenoids, Edinburgh Medical Journal, No. 43, p. 1, 1897.

27. Zur Frage der Tuberculose der adenoiden Wucherungen des Nasenrachenraumes und der Gaumenmandeln bei sont gesunden Leuten, Chirurjija, September, 1898.

28. Die tuberculose der tonsilla palatina, Diss., Würzburg, 1899.

29. Hyperplasie und Tuberculose der Rachenmandel, Wiener klin. Woch., No. 39, 1899.

30. Ueber Tuberculose der Rachenmandel, Fränkel's Archiv f. Laryngologie, vol. ix, p. 377, 1899.

31. Bilden die Tonsillen haüfige Eingnagspforten f. die Tuberculbacillen, Deutsche med. Woch., 1899, No. 21, pp. 343-348.

32. Latente Tuberculose der Pharynxtonsillen, New York Medical Record, Aug. 4, 1900.

33. Anatomic Investigations on the Hypertrophy of the Pharyngeal Tonsil, Archives of Otology, 1900, p. 357.

34. Les Amygdales Porte d'entree de la Tuberculose, Paris, Georges Carre et C. Naud, 1900.

carefully worked out of any that has been done on tuberculosis of the tonsils, reports the inoculation of 43 guinea-pigs with pharyngeal tonsils, only a small portion of the tonsil being used in the inoculation. One guinea-pig became tuberculous and it was in the pharyngeal tonsil with which the pig was inoculated that the tubercular lesions were found by histologic examination.

Theissen[35] reports the examination of 45 tonsils and in two cases found primary tuberculosis.

Latham[36] was careful to employ for inoculation tests only the interior portions of the tonsils. In 45 consecutive cases of children seen at autopsy he found tuberculosis of the tonsils 7 times.

Friedman[37] examined the tonsils obtained at autopsy from 91 children and 54 tonsils removed by operation. Of the 91 autopsies 3 showed tuberculosis of the tonsils, probably not primary, and 5 which probably were primary with secondary involvement of the lymphatic glands, intestines and bone. In only one case could tubercle bacilli be found. In 3 cases tubercle bacilli were demonstrated in smear preparations, although no histologic changes were seen in the tonsils. Only one of the 54 operative cases showed primary tuberculosis.

Tarchetti and Zanconi[38] inoculated guinea-pigs with fragments of adenoid growths from 17 persons, but failed in every pig to find evidences of tuberculous infection.

Macfayden and Macconkey[39] found absolutely negative results from the inoculation of guinea-pigs with portions of 44 pharyngeal tonsils and 34 faucial tonsils.

Ito[10] in 104 autopsies failed to find one case of true primary tuberculosis of the tonsils, but in only 10 cases was the tonsil examined microscopically.

Johnston[40] reports one case of primary tuberculosis of the tonsils.

Glas[41] reports two cases of primary tuberculosis of the tonsils.

Name.	Cases examined.	Tonsillar tuberculosis.
Pilliet	10	3
Broca	100	0
Dieulafoy	61	8
Pluder and Fischer	32	2
Ruge	18	6
McBride and Turner	100	3
Dempel	15	1
Piffl	100	3
Lewin	200	10
Schreibner	29	2
Rethi	100	6
Hynitsche	180	7
Baup	43	1
Theissen	45	2
Latham	45	7
Friedman	145	6
Tarchetti and Zanconi	17	0
Ito	10	0
Macfayden and Macconkey	78	0
	1,328	67

To these cases may be added a few more statistics gathered by Richardson[42] which I have been unable myself to find.

Name.	Cases examined.	Tonsillar tuberculosis.
Lermoyez	32	2
Gottstein	33	4
Brindel	68	8
Wex	210	7
	343	21
	1,328	67
	1,671	88

This gives us a collection of 1,671 cases in which the tonsillar tissues of the throat were examined for tuberculous lesions, which were found in 88 cases, that is, in 5.2 per cent. of the whole number examined. In the majority of the cases which were diagnosed as tuberculosis the microscope was the means of examination, although some of the observers inoculated guinea-pigs. It is to be noted that in the inoculation tests the percentage of lesions found was markedly lowered. Many claim that the only method of investigating the presence or absence of tuberculosis is by animal inoculations, and that results so obtained should have more weight than those from histologic examination.

In the first place some very careful investigators have obtained by inoculation results showing more than 5.2 per cent. of primary tuberculosis of enlarged tonsils, while other equally careful observers have failed to find any tonsillar tuberculosis. This discrepancy between observers using the same method argues for a faulty technic on some one's part. Personally, I believe that for the purpose of finding isolated or small tuberculous lesions in the tonsils, the inoculation test is inadequate. It is a known fact that to produce tuberculosis in guinea-pigs or other animals a sufficient number of germs must be introduced to overcome the vital resistance of the organism, and in order to produce lesions sufficiently severe to kill the animal the dosage of germs has to be considerable. The consensus of opinion is that in tuberculous lesions of the tonsils very few bacilli are present and in primary tuberculosis of the tonsils the lesion may be so small as only to be detected after numerous sections have been made. Further, a large number of guinea-pigs inoculated with portions of the faucial and pharyngeal tonsils die from rapid septic infection before tuberculous changes have had time to develop. Therefore, the claim that the presence or absence of tonsillar tuberculosis can be absolutely proven by inoculating a fractional part of a tonsil into a guinea-pig seems to me to be an unscientific one.

I have examined about fifty faucial tonsils which were removed from otherwise apparently healthy children and found one case of undoubted tuberculosis. In about thirty pharyngeal tonsils examined I have three times found characteristic tubercles.

There is one important fact brought out by the statistics which have been given and that is that primary tuberculosis of the pharyngeal tonsil is much more frequent than primary disease of the faucial tonsils. On the other hand, in secondary involvement of the tonsils the faucial tonsil is the one most frequently diseased. The explanation of this is simple. In most cases of secondary tuberculosis the sputum comes more in contact with the faucial tonsil than it does with the pharyngeal. In primary involvement of the pharyngeal tonsil, I believe that the inspired air is the chief source of infection. That the tubercle bacilli may enter the nasal fossæ and lodge on the nasal mucous membranes has been shown by Strauss,[43] Jones[44] and others, who have

35. Quoted from Baup (34).
36. Lancet, Dec. 22, 1900.
37. Deutsche med. Woch., June 14, 1900, No. 24; also Ziegler's Beiträge zur path. Anatomie, 1900, vol. xxviii, p. 66; abstract by Dr. A. O. J. Kelly, Amer. Jour. Med. Sciences, February, 1902, p. 292.
38. Beitrag zum Studium der latenten Tuberkulose der Tonsillen und der adenoiden Vegetationen, Gazzet. degli ospedali e delle cliniche, Sept. 7, 1902.
39. An Experimental Examination of Mesenteric Glands, Tonsils and Adenoids, British Medical Journal, July 18, 1903, p. 129
40. Primary Tuberculosis of the Tonsils, Carolina Med. Jour., 1903, vol. xlix, p. 369.
41. Zur Pathologie der Tuberculose der Gaumentonsillen, Wien. klin. Woch., No. 36, 1903.
42. The Pathology of Adenoid Growths: The Laryngoscope, 1900, p. 327.
43. Bull. de l'Acad. de Med., Paris, 1884, vol. xxxiii, No. 2, p. 8.
44. The Presence of Virulent Tubercle Bacilli in the Healthy Nasal Cavities of Healthy Persons. Med. Rec., Aug. 25, 1900, vol. lviii, p. 285.

found virulent tubercle bacilli in normal nasal cavities and in the nasopharynx. The retention in the nose of all forms of bacteria is favored by hypertrophy of the pharyngeal tonsil. The normal secretions of the nasal fossæ lose their vital bactericidal property when overcharged with organisms. The raising of the soft palate during swallowing forces any mucus with the contained germs directly into the crypts and folds of the enlarged pharyngeal tonsil.

Tuberculous adenitis of the cervical glands is, as we all know, one of the most frequent surgical conditions occurring in children. For many years the tuberculous nature of this condition has been recognized and it has also been known that it could exist as practically an isolated lesion and be recovered from without the involvement of other organs. The majority of text-books on surgery suggest that in cervical adenitis the tubercle bacilli enters either through abrasions of the skin or mucous membrane, through the mucosa of the nasal fossæ, through lesions in the middle ear and in every possible and impossible way, except by the gate through which they really do enter, namely, the tonsils. I believe that in about 90 per cent. of tuberculous infection of the glands of the neck the tonsils are the portals for the infection. As an illustration let me briefly quote the following case:

A colored child 3 years old, extremely poorly nourished, died as the result of a retropharyngeal abscess. At the postmortem the upper deep lateral pharyngeal glands were found caseous and enlarged. The retropharyngeal space, by the breaking down of the retropharyngeal glands, had been converted into a large abscess holding two or three ounces of purulent material. The bronchial and mesenteric lymph glands showed tuberculosis and there was a small abscess at about the fourth dorsal vertebra. There were beginning tuberculous changes of the spleen, but no involvement of the lungs or kidneys. The most interesting point in the case was the finding of distinct tuberculous lesions in the pharyngeal tonsil. The pharyngeal tonsil drains directly into the retropharyngeal glands and through or by them to the upper deep cervical glands. As these groups were the only glands of the neck involved it is not difficult to trace the connection between the lesion in the adenoids and the consequent involvement of the lymphatics.

It seems scarcely probable that in tuberculous adenitis the tubercle bacilli ever gains entrance through the intact normal mucosa of the pharynx. The epithelium covering the mucous membranes of the mouth and throat is of the squamous pavement variety and is especially adapted as a protective covering. The surface of the tonsillar tissues is covered with the same epithelium, but in the invaginations which form the crypts, the epithelium becomes so differentiated that its normal protective function is lost. In no other place in the throat is so good an opportunity provided for bacilli to gain access to the subepithelial tissues.

A series of experiments which I made on guinea-pigs demonstrates the difficulty of inoculating tubercle bacilli through the throat of an animal in which the tonsillar tissue is absent or rudimentary. The microscopic examination of a series of fifteen sections cut from above downward through the pharynx and including the upper part of the larynx, failed to show any more than a trace of lymphoid accumulation beneath the epithelium. We can safely say that guinea-pigs do not have tonsils. The method of inoculation in these pigs was to place as much as possible of a pure culture of the mastoid process. They are dependent for their mal's mouth.

Guinea-pig No. 1 was inoculated on March 18, 19, 21, 22, 23, 24, 25, 26, and killed on March 28 with chloroform. At the postmortem the submaxillary lymphatics and other cervical lymph glands varied in size from a millet seed to an oval form not more than one-fourth inch long. No traces of tuberculosis could be found in any portion of the body.

Microscopic Examination.—The microscopic examination showed a slight proliferative inflammation of the cervical lymphatics.

Guinea-pig No. 2 was inoculated in the same manner and at the same time as guinea-pig No. 1, but was not killed until April 7. At the postmortem the submaxillary glands were very slightly enlarged, possibly a little more so than in guinea-pig No. 1. There was one slightly enlarged bronchial gland, and a small white node on the left kidney. There was no lesion in the lungs or other viscera, and no enlargement of the mesenteric glands.

Microscopic Examination.—Microscopic examination showed no tuberculous lesions.

Guinea-pig No. 3, inoculated in the same manner and at the same time as guinea-pig No. 1, died on May 9.

Postmortem examination showed marked enlargement of the submaxillary glands and of the deep cervical. The largest of the cervical glands measured one-fourth inch in diameter. The bronchial glands were matted in one large mass, measuring ½ by ¾ of an inch. The mesenteric glands were markedly enlarged, almost twice as large as the cervical or bronchial glands. The lungs were congested and showed scattered miliary tubercles.

Microscopic Examination.—The cervical lymph glands, the bronchial glands and the mesenteric glands all showed distinct tuberculous disease. In all numerous tubercle bacilli were found. In the lungs there was congestion and catarrhal pneumonia, but no distinct tubercles and no bacilli.

Summary.—The first guinea-pig, killed ten days after the first inoculation, did not show tuberculosis. The second guinea-pig, killed twenty days after the first inoculation, also did not show tuberculosis. The third guinea-pig, dying fifty-two days after the first inoculation, showed a general tuberculosis of the lymph glands, those of the mesentery being most diseased. The case is evidently one of tuberculous infection taking place through the gastrointestinal tract. The inference to be drawn from these three experiments is that, in the absence of tonsillar tissues in the throat, the tubercle bacilli will infect the mesenteric glands as easily, if not more readily, than they will either the cervical or bronchial glands.

Baup[34] attempted to produce tonsillar tuberculosis in two dogs and seven rabbits. He failed entirely with dogs on account of the rudimentary condition of the tonsils. In rabbits, however, he found it very easy to produce a pharyngeal tuberculosis and could limit the lesion to the tonsils by careful manipulation and regulation of the dose. In animals thus inoculated, thoracic and abdominal tuberculosis was very rare, but involvement of the glands of the neck almost constant. He believes that the infection took place through the tonsils though he did not find the tubercle bacilli in the tonsillar tissue. Ravenel[45] infected four hogs through the mouth by feeding them ten meals containing pure cultures of the tubercle bacilli. All of the animals contracted general tuberculosis, most marked in the lungs and ending in death. In three of the four hogs ulcerative lesions of the tonsils were present, and in the fourth many tubercle bacilli and areas of caseation were found by the microscope in the tonsils.

The throat of the hog is well supplied with tonsils.

45. The Passage of Tubercle Bacilli Through the Normal Intestinal Wall, The Jour. of Med. Research, vol. x, No. 3, pp. 460-462, December, 1903.

Though macroscopically they do not conform to the shape of the tonsils in the human being, they resemble it more or less closely under the microscope.

The following experiments were made in the laboratory of the State Live-Stock Sanitary Board of Pennsylvania.

General Outline of Experiments.—Five pigs were used in this series of experiments and were all inoculated in the same manner. The animal was held by an assistant and the jaws kept open by a piece of wood placed between the molar teeth. A cotton swab saturated with a virulent culture of bovine tuberculosis was rubbed over the posterior portion of the mouth so that it probably came in contact with the surface of the tonsils. It is possible that a number of the bacilli were directly rubbed into the crypts of the tonsil. There was no reason to believe that any lesion of the epithelium was produced during these manipulations.

After varying intervals of time the hogs were killed by being knocked on the head and bled through the chest. In making the postmortem examinations an incision was made in the median line of the body from the symphysis of the lower jaw to the symphysis of the pubic bone. The tongue, pharynx, nasopharynx, the glands and vessels of the neck, larynx and esophagus were all dissected out in one piece. The thoracic and abdominal viscera were removed from the body, carefully inspected, and all suspicious parts saved for microscopic examination. Portions of the tonsils and submaxillary lymphatics were taken for microscopic examination.

HOG 66.—April 27. A pure culture of virulent bovine tuberculosis was rubbed over the posterior portions of the mouth. May 19, animal killed.

Postmortem Examination.—Pathologic diagnosis: Beginning tuberculosis of the tonsils and cervical lymph glands.

Pharynx and tonsils: No lesion visible.

Cervical lymphatics: The submaxillary glands were enlarged, almost the size of an English walnut, and on section a few tuberculous areas were seen. The lower cervical glands were very slightly enlarged, about the size of a pea.

Lungs: No lesion visible.

Bronchial and mesenteric glands: Not enlarged.

Liver and spleen: No lesion visible.

Intestines: No lesion visible externally.

Microscopic Examination.—Tonsil: There were a few small accumulations of polymorphonuclear leucocytes surrounded by a narrow zone of epithelioid cells. These beginning tubercles were rich in tubercle bacilli.

Submaxillary lymphatic glands: Several distinct tubercles scattered through the substance of the gland, made up of epithelioid cells with central cores of polymorphonuclear leucocytes. A few giant cells were seen. Numerous tubercle bacilli were found.

Mesenteric glands: One or two small areas closely resembling tubercles were found. No tubercle bacilli were found.

Remarks.—There was only one inoculation in this animal, and twenty-two days had elapsed between the inoculation and the time of death. The lesion in the mesenteric gland was probably not tuberculous. The finding of the tubercle bacilli in the tonsil and in the submaxillary gland proved the presence of tuberculosis. The important feature of this case was the non-involvement of the lungs or of any other organ except the tonsil and adjacent lymph glands.

HOG 56.—A pure culture of virulent bovine tuberculosis was rubbed over the posterior portion of the mouth, April 18, 27, May 10, 11:30 a. m. May 10, 3:30 p. m., the animal was killed.

One c.cm. of an emulsion made from the right submaxillary lymphatic gland was inoculated into the peritoneal cavity of a guinea-pig.

June 1, guinea-pig died. The postmortem examination showed the presence of tuberculous peritonitis, involving the parietal peritoneum and the omentum. The lungs were apparently normal. Numerous tubercle bacilli were found in the omentum.

Postmortem Examination.—Pathologic diagnosis: Primary tuberculosis of the tonsils, with secondary involvement of the cervical lymphatics. Miliary tuberculosis of the lungs. Miliary tuberculosis of the liver.

Pharynx and tonsils: No lesions visible.

Cervical lymphatics: The submaxillary glands were markedly enlarged, almost the size of a hen's egg, the whole group measuring about 3 by 2 by 1 inches. On section the glands showed advanced caseation. The lower cervical glands were also enlarged, although the disease was not as far advanced as in the submaxillary glands.

Lungs: Numerous miliary tubercles were scattered over the surface, and through the interior. In the smaller lobes the disease was more advanced than in the larger ones.

Bronchial and mesenteric glands: Not enlarged.

Liver: A few whitish nodules were seen on the surface.

Spleen and intestines: No lesion visible externally.

Microscopic Examination.—Tonsils: About half of the section examined was normal; the remaining portion was made up of illy defined tubercles, consisting of epithelioid cells, necrotic tissue and polymorphonuclear leucocytes. Giant cells were found in moderate numbers. A few tubercle bacilli were found.

Submaxillary lymph gland: Almost all of the gland was taken up by the tuberculous tissue, consisting of necrotic material, epithelioid cells, a few giant cells and numerous polymorphonuclear leucocytes. Very few tubercle bacilli were found.

Lungs: Typical miliary tubercles were found and were made up of epithelioid cells surrounding a central necrotic core. In some places there were numerous polymorphonuclear leucocytes; epithelioid cells were scattered through the whole mass. A moderate number of tubercle bacilli were found.

Liver: The nodules seen on the surface of the liver were characterized by the disappearance of normal liver cells and the presence of epithelioid cells. There was, however, no necrosis, no giant cells and no polymorphonuclear leucocytes.

Mesenteric glands: Normal.

Remarks.—In this pig, although only twenty-two days had elapsed between the first inoculation and the death of the animal, the disease was much more advanced than in the foregoing animal; this is probably due to the greater dosage, possibly also to the lessened individual resistance. The barrier formed by the lymph glands of the neck had been broken through and a distinct miliary tuberculosis of the lungs was in progress. In spite of the frequent dosage, the mesenteric glands did not in this animal show any tuberculous lesion. The production of tuberculosis in a guinea-pig by inoculating it with an emulsion of the submaxillary gland was a rather superfluous proof of the tuberculous nature of the disease.

HOG 55.—A pure culture of virulent bovine tuberculosis was rubbed over the posterior portion of the mouth, April 18, 27, and May 10. The animal was killed May 17.

Postmortem Examination.—Pathologic diagnosis: Tuberculosis of the tonsils and cervical lymphatics. Beginning miliary tuberculosis of the lungs and liver. Beginning tuberculosis of the bronchial glands and mesenteric glands.

Pharynx: No lesion visible.

Tonsils: Left tonsil showed an ulceration about the size of a split pea. On the right tonsil were a few elevated areas scarcely the size of a split pea.

Cervical lymphatics: The submaxillary glands were greatly enlarged, completely broken down and filled with pus. The lower cervical glands were considerably enlarged, and though caseous, were not so completely disintegrated as the submaxillary glands.

Lungs: Miliary tubercles were scattered over the surface. Small pneumonic areas were found in one of the smaller lobes.

Bronchial glands: Not enlarged.

Liver: A few white nodules, varying in size from a grain of wheat to a little larger than a pea, were scattered over the surface. Some of these areas seemed very diffuse and not sharply differentiated from the surrounding parenchyma.

Spleen and intestines: No lesion visible.

Mesenteric glands: Glands possibly slightly enlarged.

Microscopic Examination.—Tonsil: In the section examined a small tubercular area was seen made up of epithelioid cells, necrotic material and a few giant cells. A few small tubercles

were scattered around the periphery of the central area. No tubercle bacilli could be found.

Submaxillary glands: A peripheral zone made up of epithelioid cells, connective tissue, and a few giant cells formed the wall of one large necrotic mass.

Lungs: The miliary tubercles showed a central core of necrosis infiltrated by polymorphonuclear leucocytes and surrounded by epithelioid cells. No tubercle bacilli were found.

Bronchial glands: The presence of a few scattered tubercles made up of epithelioid cells and an occasional giant cell, but without necrosis, showed beginning tuberculous changes.

Liver: The nodule removed was made up of round cells and elongated cells approaching the connective tissue type. This tissue displaced the normal liver cells and extended to a varying degree into the interlobular trabeculæ. There was no necrosis and no giant cells.

Mesenteric glands: A few tubercles were seen, made up of epithelioid cells, with surrounding central foci of polymorphonuclear leucocytes. A few giant cells could be made out, and there was beginning necrosis. No tubercle bacilli could be found.

Remarks.—The pathologic evidence in this experiment, as shown by the naked eye examination and by the use of the microscope, was sufficiently characteristic to justify a diagnosis of tuberculosis. For some reason which I can not explain I was unable to find tubercle bacilli by the ordinary carbofuchsin method. This experiment is simply confirmative of No. 56, but shows more advanced disease of the cervical lymph nodes. There was also a beginning involvement of the bronchial and mesenteric glands.

Hog 54.—A pure culture of virulent bovine tuberculosis was rubbed over the posterior portion of the mouth, April 9, 11, 14 and 18. The animal was killed May 24.

Postmortem Examination.—Pathologic diagnosis: Tuberculosis of the tonsils. Advanced tuberculosis of the cervical lymphatics. Well-marked miliary tuberculosis of the lungs. Beginning tuberculosis of the bronchial and mesenteric lymph glands.

Tonsil: Three or four punched-out ulcers, about one-fourth inch in diameter, were scattered over the surface of both faucial tonsils.

Pharynx: No lesion visible.

Cervical lymph glands: Submaxillary glands were greatly enlarged, about the size of a hen's egg; they were broken down and caseous. The lower cervical glands were considerably enlarged and well advanced in tuberculosis.

Lungs: There was well-marked miliary tuberculosis. Nodules were scattered all over the surface and through the substance of the lung, some of them beginning to be caseous.

Bronchial lymph glands: Enlarged to almost the size of a pigeon's egg. On section several tuberculous areas were seen.

Liver: A few whitish nodules were scattered over the surface. These spots did not seem to be connected with the liver parenchyma.

Intestines: No lesions visible externally.

Mesenteric glands: Somewhat enlarged, and some of them showed caseation.

Microscopic Examination.—Tonsil: The section examined showed marked caseation and destruction of the tonsillar substances. Very few bacilli were found.

Submaxillary gland: There was complete destruction of the glandular substance. No tubercle bacilli were found.

Lungs: Miliary tubercles were scattered through the substance of the lung, some beginning to break down and others just forming. No tubercle bacilli were found.

Bronchial glands: The glandular substance was greatly destroyed, though some normal lymphoid tissue was still present. No tubercle bacilli were found.

Mesenteric glands: There was considerable caseation, but some normal lymphoid tissue was still left. A few tubercle bacilli were found.

Remarks.—Forty-five days elapsed between the time of the first inoculation and the death of the animal. The miliary tuberculosis of the lungs was much more marked than in any of the other hogs, also the involvement of the mesenteric and bronchial glands. The disease in the tonsils was also in a more advanced stage.

SUMMARY OF THE FOREGOING SERIES OF EXPERIMENTS.

There can be no doubt but that the disease in all of the above animals was tuberculosis. The first lesion probably appeared in the tonsil and very shortly afterward the submaxillary glands became involved. The tuberculous changes in the submaxillary gland developed much more rapidly than in any other portion of the body. As the cervical glands broke down and the barrier which they offered to the progress of the tubercle bacilli was thus removed, a miliary tuberculosis developed in the lungs. Later the bronchial glands became infected. The mesenteric glands generally showed a tuberculosis about as severe as that of the bronchial glands.

From these experiments it seems that the tonsillar tissue is more resistive to the action of the tubercle bacilli than the adjacent lymph glands. This is shown by the fact that the disease in the cervical glands was always more advanced than that of the tonsils, although the lesions appeared in the tonsil after inoculation as soon as they did in the submaxillary glands.

Ravenel[45] injected an emulsion of equal parts of melted butter and warm water containing a large number of tubercle bacilli through a tube into the stomach of a number of dogs. Tuberculosis developed in a majority of guinea-pigs inoculated with the chyle and mesenteric glands removed from these dogs four hours after their injection; and yet, in no instance was there any lesion in the intestinal wall of these dogs. Bollinger[46] furnishes further evidence along this line. Because the bacillus can pass through the epithelium of the intestinal tract there is no reason to believe that these organisms can penetrate through the whole tonsillar substance without some reaction taking place. The lymphoid tissue of the tonsil acts as a filter just in the same manner as does the lymphoid tissue of an ordinary lymph gland. That the tonsil is not so easily destroyed by the tubercle toxin as is an ordinary lymph gland is simply an indication of the resistive power of the tonsillar tissue against bacterial toxins.

METHODS OF GENERAL SYSTEMIC INFECTION.

The most important question concerning tuberculosis of the tonsils relates to the possibility of a general infection. As the efferent vessels of the tonsils drain first to the lymph glands of the neck we must have involvement of these glands before further mischief is possible. That tuberculous adenitis of the cervical lymphatics originates from infection through the tonsils has been proven clinically as well as by the above experiments, and it seems scarcely worth while to dwell on this subject further. This being so it then becomes a question as to the importance of cervical adenitis.

Without going deeply into the subject may I call attention to a few thoughts which have suggested themselves during my work on the tonsils? It is first necessary to recall the anatomy of the lymphatics of the neck and especially the termination of their efferent vessels. Practically all the lymph of the head and neck empties finally into the internal jugular chain of glands. A collecting trunk from the internal jugular chain unites with the efferent vessels of the subclavian glands and forms the jugular trunk. On the right side this lym-

46. Ueber d. Infectionswege des tuberculösen Giftes, M. M. W., 1890, August 19, No. 33, p. 567.

phatic trunk terminates in the internal jugular vein at its junction with the subclavian vein. The left jugular trunk usually ends in the terminal bend of the thoracic duct, but it may terminate directly at the junction of the two veins as it does on the right side. Therefore the tubercle germ, following out the cervical system of lymphatics can not possibly gain access to the body as a whole until it has entered the blood. The vessels into which the jugular trunks empty are conveying the blood directly to the lungs. These facts would lead us to suppose that the first general infection from tuberculosis of the cervical lymphatics would be a miliary tuberculosis of the lungs. This happened in every pig of the series above reported except No. 66, in which there was no involvement of the lungs. In No. 66 the barrier to the progress of the bacillus offered by the cervical lymph glands had not yet been overcome, so that infection of the lung by this route was not possible.

We must remember, however, that bacteria may gain access to the general system from a localized area by direct inoculation of the vascular system from a breaking-down foci, and also by the extension of the disease through the continuity of structure. In tuberculosis of the cervical lymph glands the tubercle, before breaking down, becomes surrounded by a distinct fibrous capsule, so that the local inoculation of the circulation is very rare. Extension of the disease by continuity of structure, as, for instance, the production of a cervical Pott's, is not outside the range of possibility. However, so far as the lymph glands of the neck are concerned, I think we are safe in saying that these two methods of extension of tuberculosis have killed very few people.

In an adenitis arising from a tonsillar infection the germ has to pass through two sets of glands before gaining access to the large jugular trunk. It seems, therefore, that in ordinary tuberculous cervical adenitis the danger of systemic or pulmonary infection is scarcely any greater than would come from a localized tuberculous lesion in any other portion of the body. If the dosage is sufficiently large to quickly overcome the vital resistance of the lymphatic tissues a general miliary tuberculosis of the lungs is to be expected, but the rarity of this condition following tonsillar involvement is shown by a study of phthisical patients. In these cases, as has been before stated, a large number of bacilli are brought in almost constant contact with the surface of the tonsils. While in the majority of cases of phthisis there is infection of the tonsils, in comparatively few is there very marked involvement of the cervical lymphatics, and the occurrence of a miliary tuberculosis following breaking down of the lymphatic glands of the neck is a very rare occurrence.

The infrequency of glandular involvement in this secondary tonsillar tuberculosis seems at first sight inconsistent with the idea which has been advanced in this paper concerning the origin of the etiology of tubercular adenitis. We must remember, however, that in cases which have had perhaps for years an active tuberculous process in their lungs, there is developed a certain degree of immunity. For this reason secondary inoculations of the various portions of the upper respiratory tract outside of the tonsils are comparatively rare. When we consider that the whole of the trachea, the larynx, the pharynx and the mouth are almost continuously bathed with multitudes of virulent organisms, it is remarkable that a general pharyngeal tuberculosis is scarcely ever seen during life, and that laryngeal tuberculosis is the exception and not the rule.

Baumgarten,[47] in a series of experiments on animals, demonstrated that tubercle bacilli when placed in the unwounded urethra and bladder cause production of tuberculosis in the lungs. To obtain these results, however, it was necessary to use the most virulent bacilli and in not too great a quantity. Similar results were obtained by subcutaneous and intraocular inoculations. He believed that these results were due to the fact that only a few bacilli obtain an entrance to the general circulation, and that they were gradually lodged in the point of predilection, namely, the lungs. If these results obtained by Baumgarten could be confirmed by clinical data we would have to acknowledge that a tuberculous lesion, no matter how small or in what part of the body it is placed, is of very serious import. Osler believes that scarcely a man reaches the age of forty-five without having had a tuberculous lesion in some portion of the body, and this view is accepted by the majority of experts on tuberculosis. From a careful study of the foregoing experiments, and of a rather extended literature, it seems to me that tuberculosis of the cervical lymphatics becomes dangerous only when the glands break down, and the possibility of miliary tuberculosis is to be feared.

CONCLUSIONS.

In conclusion I desire to summarize the more important facts which have been suggested by the foregoing study.

The tonsillar tissue of the throat, because of its peculiar anatomic construction and its topographical relations, is more liable to become infected by tuberculosis than any other part of the upper respiratory tract. In nearly all cases of advanced pulmonary phthisis the faucial tonsils become inoculated. In about 5 per cent. of hypertrophied pharyngeal tonsils some form of primary tuberculosis will be found. Primary infection of the faucial tonsil is a rarer condition.

Tuberculous adenitis in the cervical lymphatics develops in the majority of cases from infection originating sometimes in the faucial tonsils, but more frequently in the pharyngeal tonsil.

The tubercle bacillus is probably unable to pass through the tonsils without having first overcome the vital resistance of the tonsillar tissue.

The danger of systemic or pulmonic infection resulting from a tuberculous lesion in the tonsillar tissues of the throat is about equal to that of tuberculosis of the cervical lymphatics. The lesion to be expected as a resultant infection from the broken-down glands of the neck is a miliary tuberculosis of the lungs. Further than this possibility, tuberculosis of the lymph glands of the neck is no more dangerous than a localized tuberculous lesion in any other portion of the body.

The tonsils are more resistant to the action of bacterial toxins than ordinary lymphoid tissue.

DISCUSSION.

DR. HENRY L. SWAIN, New Haven, Conn.—In considering the question of tubercular deposits in the tonsils, we have to keep in mind the fact that the latter are in every sense of the word lymphatic glands. Tubercular infection in the tonsil is no more important than infection of a lymphatic gland in the neck. We also have to consider whether the tonsil has any greater defense against infection than the other portions of the mucous membrane of this region. We can answer this question in the affirmative, for it possesses phagocytes which the other portions of the nose and throat do not. There is just as much lymphoid tissue present in the columns of the pharynx as in the small tonsil of some individuals. If the tonsil is provided with

47. Wien. med. Woch., 1901, Nov. 2, p. 2049.

these agents for protection, would it not be safer for the infection to occur through the tonsil than through other portions of the nasopharynx? There are always leucocytes wandering outward between the cells of the epithelium of the pharynx and nasopharynx, and it is through these openings that the tubercle bacilli enter when the tonsil is infected. Around the mouths of the racemose mucous glands we frequently see masses of lymphoid tissue which we term follicles, which are just as capable of infecting the system as the pharynx or the faucial tonsils. When 1,671 cases have been found in literature, and only 5 per cent. of them with tubercular tonsils in non-tubercular individuals, the percentage is seen to be very small. A much greater per cent. of these individuals, according to prevailing theories, must have had some form of tubercular infection if they live to 30 years of age; the tonsil is to blame in but 5 per cent. The tonsil is probably not the only point in the upper air passages through which the infection can enter. If it be true that the healthy tonsil protects itself against the invading host of germs, ought we so resolutely to bend our efforts to the eradication of this tissue? In all our literature on tuberculosis it is evident that the lung is the place of least resistance. Why is it that when we have an infection in any part of the body that the lung is the place that gets the final infection? The question has not been entirely settled, but I think sufficient attention has not been paid to the investigations of Dr. Miller of the University of Wisconsin, who has given especial attention to the study of the minute anatomy of the lungs. He finds that there are islands of lymphoid tissue well down toward the lobules. I believe that we harbor the germs in our bronchial glands or elsewhere in the system, and they are finally presented to the circulation in the lungs. The germs then multiply, especially in these lymphoid portions. Dr. Wood's work shows the absolute possibility of infecting the tonsils by a very simple process, and his observations concerning the production of miliary tuberculosis in certain cases are most interesting.

DR. J. J. KYLE, Indianapolis—One reason why secondary tuberculosis of the tonsil has been overlooked is because we have been considering tuberculosis as an incurable disease. At the present time we know that the majority of cases of tuberculosis of the lung get well under favorable circumstances. I can not but think that in the majority of cases it will become a routine practice to remove the tonsils in all cases of tuberculosis of the lungs. In a number of cases coming under observation of hyperemia of the tonsil and pharynx with tubercular infiltration, removal of the tonsil has effected changes for the better in the metabolism of the patient.

DR. C. M. COBB, Boston—One point brought out in the paper seemed to me of special importance, namely, that the point of entrance was diseased. Quite a large number of cases of subadenitis do not have active tuberculosis of the tonsil or ulceration of the tonsil; if the infection is tubercular, it either comes from some other part of the body or else the adenitis is due to the presence of some other bacteria.

DR. EMIL MAYER, New York City—The practical side of Dr. Wood's paper is that primary tuberculosis of the upper air passages is found in the pharyngeal tonsil at an early date, and we are, perhaps, too lax in not examining lymphoid growths that we remove. A case in point is that of a young lady who was referred to me for a slight irritation in her throat. Her physician found evidences of consolidation, and desired all irritative conditions attended to. I found adenoids and removed them; these on examination were found to contain tubercle bacilli. An early diagnosis of tuberculosis was thus made possible long before it could be established in any other way, to the ultimate benefit to the patient.

DR. ROBERT C. MYLES, New York City—It has been a question with me ever since I began the study of diseases of the respiratory tract that if 80 or 90 per cent. of people have tuberculosis in some form, and 12 per cent. die, in what way does the infection take place? I believe it is through some of the lymphatics of the respiratory tract. Absorption may occur in the small area between the rhinopharynx and the larynx and be carried through the circulation into the lungs. That has always been my idea, but I could never prove it, and Dr. Wood is now doing this.

DR. E. FLETCHER INGALS, Chicago—Is the danger of infection greater through diseased tonsils than through healthy tonsils? The significance of the number of cases in which the bacillus has been found in the tonsils is hard to determine. Dr. Swain placed the percentage of tuberculosis very low as compared to the figures of Nageli. His thorough examination of 500 successive bodies showed the tubercle bacillus present in 97 per cent., and as he did not find it in any children under 1 year of age, and in only a few cases of children under the age of 6, it appears that practically every adult had the infection somewhere in the body. So it is not singular that it is found in the tonsil in 5 per cent. of cases.

DR. NORVAL H. PIERCE, Chicago—The presence of epithelioid cells and giant cells around a common center is not conclusive evidence of tuberculosis. I believe the only real conclusive evidence is the reproduction of tuberculosis after the infection of animals, and not even this can be considered absolute evidence, because the bacilli may have been taken from the surface of the tonsil when the emulsion is made. I do not think we should be led by this paper to look on every tonsil as an enemy, and that we should not operate on every tonsil we find to be slightly enlarged. I believe too much of that is being done; as we can never take out the entire tonsil, it is better not to touch it at all than to leave a mutilated base which will be all the easier to infect. Of course, where the tonsil is enlarged so much as to interfere with respiration or speech, or where there is demonstrable disease of the crypts, then it should be removed; but this should not be done simply because it may become the seat of disease.

DR. E. PYNCHON, Chicago—Any tonsil that pours out a diseased secretion can not be a healthy tonsil. Any tonsil that can absorb tubercular germs is not a healthy tonsil, and it is advisable to totally remove it. It must be remembered that a tubercular patient is in position to receive a fresh infection, and, therefore, these diseased tonsils, when present, should not be allowed to remain. I have frequently done this operation on tubercular patients, with the most favorable results. As regards the failure to thoroughly remove the tonsil, I claim that if by my method I can convert that space into mucous membrane free from all visible follicles, leaving it as pink as the roof of the mouth, I have practically cured the condition and thoroughly removed the growth.

DR. G. V. WOOLLEN, Indianapolis—In 1888 I said there was no such thing as a tonsil as an anatomic structure, and I have repeated that statement on several occasions since, and have been freely criticised for it. We go on talking about healthy tonsils and diseased tonsils as if there were such a distinction. All tonsils are diseased tonsils; they are pathologic and not anatomic products. If you view this subject from the standpoint of diseased throats, making the examination of people promiscuously, you will find a small percentage of tonsils. Since 1888 I have made a record of every case examined and noted all kinds of tonsils, large and small. I have never looked over my record, but I think I am safe in saying that not more than 25 per cent. of patients examined show anything like a tonsil. If my observations are correct, they play a small part in the production of disease. One out of every five people dies of tuberculosis; it is the great white plague. If these figures be correct, and if only 25 per cent. of diseased throats have tonsils, and 5 per cent. of this 25 per cent. have infection, it greatly minimizes the matter. I throw this out as a suggestion, and not as criticism, for I want Dr. Wood to continue his investigations.

DR. EDWARD R. BALDWIN, Saranac Lake, N. Y.—There is difficulty encountered in the technic of experimentation and there are few experiments which have brought much of value to the study of this subject. The question at the present day is regarded as one of the most important in the whole field of medicine. It is being fought over throughout Europe, whether the invasion of tuberculosis is through the intestine, tonsil or nasopharynx; or whether it is inhaled directly into the lung. The

most persistent advocate of tonsillar invasion is Aufrecht, who has held that the nasopharynx is the point of entrance, going from thence into the blood vessels. It is an interesting question whether the bacillus can pass through a healthy tonsil or a diseased (not ulcerated) tonsil, without leaving behind any trace of its passage. There seems to be good evidence that it can do so. The question to be worked out is: Can the bacillus pass through the tonsil, through the chain of cervical glands, and enter the circulation without leaving this trace? Dr. Wood's work is a contribution in this line. The solution of this problem may change all our ideas regarding the point of entrance of tuberculosis. We have been believing for years that the bacillus is inhaled directly into the alveoli; this has seemed absolutely conclusive from Cornet down. Now we have evidence that the infection is by ingestion. The question is an exceedingly complex one, and experimental work is extremely difficult. There are many things to be considered before final conclusions can be reached, but it is evident that there are various methods by which the bacillus can reach the pulmonary area.

DR. GEORGE B. WOOD—I can not agree with Dr. Swain that the faucial and the pharyngeal tonsils are not the most active source of infection of the cervical lymph glands, and I do not believe that the solitary lymph follicles show a less resistance to bacterial invasion nor that they absorb infectious material any more than their comparative size would lead us to suppose. Invading bacteria are killed unless they can overcome the vital resistance of the surrounding tissues, but if they live they must by the very act of their living produce toxins which, in the case of pathogenic organisms, give rise to specific tissue reaction. Pathogenic germs can not, therefore, pass through normal tissue without some sign of their presence being manifested. The experiments of Ravenel, however, proved that tubercle bacilli could pass through the normal intestine within four hours after being placed in the gastrointestinal tract. Absorption through the intestinal wall is a different question from the passage of bacteria through lymphoid tissue. It is well known that all lymphoid tissue acts as a filter for micro-organisms, and until the resistance of the tissue is overcome this filtration is active. Hence it would seem that some lesion must exist in the tonsil before infection of the cervical lymph nodes is possible. So far as the possibility of a general infection from a tuberculous tonsil is concerned, I scarcely believe I would have my tonsil taken out because of a tuberculous lesion, any more than I would have my finger amputated if I contracted a tuberculous deposit from making an autopsy. At present I am inclined to believe that in the great majority of cases infection of the lungs takes place through the air and not through the blood. Tubercle bacilli gaining access to the lungs through the blood produce a miliary tuberculosis, whereas the ordinary tuberculous pulmonary lesion begins as a single focus in the apex, which, gradually spreading, involves the rest of the lung.

THE ETIOLOGY OF EYE STRAIN.

FROM A PHYLOGENETIC AND ONTOGENETIC STANDPOINT.

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Eye strain may be divided into two general classes—that due to irregularities in refraction and that due to muscular imbalance. To the average physician the irregularities in refraction constitute the sum total of what may be termed normal variations, in contradistinction to pathologic disorders. The consideration of the muscular insufficiencies is limited more exclusively to the specialist who justly recognizes their importance, and, to judge from the recent literature on heterophoria, the subject is still open for investigation. As an anatomist, however, I have only to deal with the anatomic facts bearing on the causes of variations and will confine myself to this side of the subject, which has hitherto been dealt with sparingly. To understand why an organ is degenerating or subject to troubles unknown to the lower forms, it is necessary to study its comparative anatomy. I purpose to call attention to facts which in their sequence form themselves into a hypothesis that may aid in the explanation not only of the muscular difficulties but of the refraction errors as well. Strange as it may seem, muscular insufficiency is phylogenetically older than refraction error but both are intimately connected because the muscular apparatus is merely an accessory to the sense of sight. The comparative anatomy, therefore, must be followed from the lower vertebrates to the highest in the hope that the findings in some stages may throw light on the question, and a comparison must be made between the phylogeny and the ontogeny in the animal most concerned—the human being.

It may be well to state in advance how it comes that I interest myself in the province of the ophthalmologist, a field so far removed from my present line of research. I suffer from an exophoria of from 4 to 8 degrees, and while at Freiburg in Baden I consulted Professor Axenfeld. Here I learned that the insufficiency is most marked when the eyes are raised, and I was advised to hold the head well back and look down a little even when doing distance work.

About that time, an exhaustive article by G. Lindsay Johnson[1] appeared on "The Comparative Anatomy of the Mammalian Eye." It is replete with beautiful illustrations of the ophthalmoscopic appearance of the retina of practically all the mammals in the London Zoological Gardens. A chapter is also devoted to the influence of domestication and a part to the position of the eyes. Several interesting ideas developed in my study of this paper, and these, together with some grosser facts in comparative anatomy, I submitted to Professor Tichener of Cornell University, to whom I express my thanks for valuable suggestions and criticism.

I hardly deem myself qualified to discuss the practical outcome of the hypothesis I present. There may or may not be a grain of truth in the deductions from the facts, which I hope to give clearly and concisely, in this paper. A larger and more exhaustive treatise is needed to bring out all the points in detail and a greater amount of material and more thorough investigation are required than I can offer at this date. At the conclusion of the discussion on the comparative anatomy, I will review briefly the grounds for assuming that the human eye is subject to abnormality because of the domestication of civilized man from an aboriginal form—an idea which may not meet with unanimous approval. Civilized man, to my mind, is undoubtedly a domesticated aborigine and therefore is subject to the same changes from unnatural environment to which any domesticated animal is subject.

In the lower forms the eyes are placed on the sides of the head and the animal is, more or less strictly speaking, monocular in its vision. In the fish, for example, the eyes, although intrinsically different from the mammal's are moved by the same muscles, which possess relatively the same origin in the orbit and the same insertion into the eyeball. I will only consider the internal and external recti because they are the most affected in the changes in position of the eyeball.

In the pilot fish the optical axis of one eye passes through that of the other—a full 90 degree divergence

1. Transactions of the Royal Society of London.

for each eye. The eyes look out (lateral) and are capable of little movement, probably because the range of vision in the fish is necessarily small. The movement of the eyeball is practically confined to a forward one. The eye fits snugly into the rounded orbit, and the two recti, internal and external, take their origin well back on the posterior (caudal) wall. The insertion of these two muscles is about the same in the human being —equidistant from the corneal margin into the sclerotic.* The line passing through these insertions falls within the plane of muscular attachment, and is at right angles to the apparent optical axis—the direction in which the eye looks. The origins of the internal and external recti are about the same, but the internal is longer and swings around the back of the eyeball to the anterior (cephalic) insertion, while the external is short and direct. The arrangement shows clearly that the internal rectus is more powerfully placed and has the greater range of action—anatomically, leaving the check ligaments out of the question, the direct opposite of the human. The animal tends to see what is in front of it rather than what is behind, probably relying on the special development of the nervous system for protection from that quarter.

In birds, the owl family excepted, the arrangement is similar to that in the fish, except that the anatomy of the eye is intrinsically different and that the range of motion, because of the larger orbits, is necessarily greater. The bird, like the fish, is monocular in vision. The orbits are perhaps a trifle less divergent and comparative measurements must be made to determine this point. The internal and external recti have the same relation to the orbit and eyeball as in the fish and reptile.

Passing from bird to mammal and through a series of the mammals from types with the most divergent eyes to the highest forms with sustained binocular vision, I note, according to Johnson, the divergence in each eye, for the hare, 85 degrees; for the giraffe, 72 degrees; for the skunk, 45 degrees; for the pig, 33 degrees; for the dog, 20 degrees; for the cat, 10 degrees; for the lemur, about 5 degrees, and for the monkeys and apes, as in man, no degrees. As the animal advances in the scale, the eyes become more ventrally placed, the exceptions being found in the monotremata and the bats, where the position of the eyes is probably a special development dependent on the habits and environment of the animals.

The hare, with eyes each 85 degrees divergent, enjoys a visual field of 190 degrees for each eye. The fields cross in front as well as in back and the animal sees the whole horizon without moving the eyes or the head, a feature necessary to the protective motionless position and unimpeded flight. This animal, according to Johnson, is probably capable of receiving sharp impressions, even to the periphery of the visual field, and for this reason there must be some binocular vision for objects directly in front and in back. Probably no mammal is strictly monocular, although that is the usual mode of vision.

As we pass from the lower forms to the higher, the visual field becomes more and more contracted and the animal moves the head and the eyes, preferably the former, to make up for the deficiency. Up to the *Simiæ* the eye movements are not co-ordinated and are merely accessory to the head movements. In the dog, for example, the head movement is well developed and a decided preference for monocular vision is displayed. This is also manifested in the cow—the animal always turns the head and is content with monocular vision. In the cat the divergence is not so marked—first, because it is a higher form than the dog, although not nearly so well domesticated, and second, because its prey is small and usually directly in front of it.

In the next highest family, the *Prosimiæ*, we find the nearest approach to the monkey. These small nocturnal animals (lemur, tarsius, etc.) have a divergence of about 5 degrees for each eye. In the monkeys, apes and man, the divergence is entirely overcome and the eyes are placed with parallel axes. The plane of muscular attachment remains the same at right angles to the apparent optical axis in all mammals, but the eyeball in man is rotated through 85 degrees on comparison with the hare. All mammals with eyes of less than 25 degrees divergence each are twilight animals, with the exception of the *Simiæ*.

In the advance from the *Prosimiæ* to the *Simiæ* several marked differences appeared. The *Simiæ* were probably developed from a twilight form into a daylight type and a portion of the retina lying directly in the visual axis was specialized for acute daylight perception. With the sustained parallel axes, the co-ordination of the eye movements was developed. The macula lutea, sustained binocular vision and co-ordinate eye movements are therefore confined to monkey, ape and man.

During the rotation of the eyeball to the front, the orbits also became less divergent. While in the fish the eye fits the orbit, in mammals the orbits become relatively larger and more pyramidal as the form advances. The primitive origin of the internal and external recti, however, is maintained. Both muscles elongate progressively, particularly the external rectus. The orbits approach each other until the two inner walls are parallel and in relation with the nasal fossæ, as in man. The outer wall is directed at an angle of 40 degrees to the inner, giving an orbital axis in the human being of 20 degrees divergence from the middle line.

If a human eye were to be placed in an orbit of 20 degrees divergence and if the recti were of equal strength, the optical axis would correspond with the orbital axis, the plane of muscular attachment would be at right angles to both axes, the recti would be of equal length and the eye would be 20 degrees divergent, as in the dog, and muscularly balanced. The 20 degrees divergence is overcome by a rotation of the eyeball and, undoubtedly, is phylogenetically due to muscular pull. As the muscles rotated the eyeball, however, they obtained ligamentous support from the walls of the orbits—the check ligaments—which "took in the slack," as it were, and limited the amount of return to the former state. In every mammal there is a tendency toward a reversion to a lower form and the apparent optical axis is less divergent during life than after death or during a state of perfect muscular relaxation—sleep or anesthesia. The ligamentous support limits the amount of divergence and theoretically no mammal should revert to a greater degree of divergence than the next lowest form. In man, for example, the latent squint normally should not be more than the position of the eyes in the *Prosimiæ*, or 5 degrees divergence for each eye—exophoria in contradistinction to divergent strabismus. In dogs, as in monkey and man, the eyes roll out during sleep and anesthesia, or after death.

* The equi-distant insertion of the recti muscles from the corneal margin is granted to avoid complicated angles. The spiral line of insertion is too well known to need any mention.

In the development of the human embryo we find a similar picture to that described for the ascending scale of mammals. The eyes develop on the sides of the head, as in the fish—a relic of our ancestry. Gradually, with the formation of the face, they are brought around to their permanent ventral position and are in place about the end of the second month. In this the ontogeny agrees with the phylogeny and the rotation as described in the mammals is also to be found in the developing embryo.

With the upright position a second displacement of the eyeball was necessary. The eyes in the lower mammals are directed on a plane with the horizontal vertebral column or above this plane. With the assumption of the upright position, the head was not tilted forward to an angle of 90 degrees to the animal head, and the eyes were depressed to maintain the horizontal plane. This naturally involves a strain on the inferior rectus. In the relaxation occurring during anesthesia the eyes of the monkey, as of the man, roll up and out—the position of perfect muscular rest and ligamentous support. In the horizontal position, the eye is held by the internal and inferior recti, but when the eyes are raised the strain, otherwise shared by the inferior rectus, is thrown entirely on the internal rectus and for this reason the latent divergence is more marked when looking up. The latent squint is therefore indirectly affected by the upright position because of the poorly balanced and heavy head tending to drop forward, which tendency is made up in an elevation of the eyes.

The reversion of the eyes to a former position is not entirely confined to the amniota. In the flat fish family (*Pleuronectidæ*) during the earlier periods in the development, the fish is like any other fish. When it reaches a certain stage it lies down on one side on the bottom. The eye that is directed down is then pulled to the top side of the head, mostly through muscular effort, and in the adult living flounder the eyes are side by side and are parallel or even convergent. On the death of the fish they become widely divergent, illustrating the tendency to assume the original position and acting similarly to the divergence in the eyes of dogs, monkeys and man.

The stimulus to the animal to see what is directly in front of it attains its highest development in the Simiæ who use both eyes. Man, however, carries the matter still farther and develops an inco-ordination of the eye muscles to enable him to see things which are close by with both eyes. The monkey can only maintain a limited convergence for a short time and man, as Johnson says, is the only animal with sustained convergence. As man advanced, the near work became more and more essential and convergence was correspondingly more developed until at the present day the eye has practically become a contact organ, as well as one of distance perception. (Emmetropia.)

Convergence is ontogenetically a trained effort and, like any trained effort, is best developed when begun early. The training of convergence ought, therefore, to be marked in the precocious myopic child who prefers to read rather than to play, and, because such children begin the near work at a very early age, the latent insufficiency should theoretically be less pronounced than in the hyperopic individual whose refraction interferes with this exercise. Whether the distortion of the eyeball has anything to do with the matter is still to be determined. The matter is still hypothetical as far as I am concerned. I shall endeavor to measure volunteer students for the grosser errors of refraction and for the amount of latent squint in each case and shall present my findings in a future paper.

Sightseer's headache, therefore, is not due to the strain on the elevator muscle, as suggested by Snell, but to the greater strain on internal rectus to overcome the more marked divergence in the raised position of the eye. Convergence when looking up is an appreciable effort and, granting that there is always a muscular pull necessary to hold the parallel axes, this slight exertion is also increased.

There is a tendency toward a divergence in all mammals. In the highest form the muscular effort is increased because the orbits are not capable of any less than 20 degree divergence and a rotation of the eyeball is necessary. The check ligaments are probably the means of limiting the divergence in muscular relaxation. The latent squint is overcome in man mostly through an early training of the adducting muscles for convergence and, finally, exophoria has a phylogenetic origin which is substantiated in the ontogeny and is an inheritance from a lower form.

The explanation of the refraction errors is not so simple. Are they, as Johnson suggested for animals, a result of domestication? What is domestication but an adaptation to unnatural and false surroundings with more or less complete interference with the laws of natural selection. The survival of the fittest, as far as the eyes are concerned, is undoubtedly interfered with in the present civilized state. Rabbits, dogs and horses are subject to myopia and astigmatism—a difficulty unknown in the wild state. All wild animals, with few exceptions, and those to be found mainly in the semi-aquatic forms, are hyperopic and anastigmatic, including savage man. With domestication the same eye errors arise in the animals that occur in educated man, and it appears that the individual with degenerate eyes is better fitted to survive than his far-sighted brother.

Emmetropia is an adaptation of a far-sighted eye to near work, through development of the muscle of accommodation. Is this any different from the arrangement found in the seal, where a slit pupil and highly developed accommodative apparatus overcomes the enormous astigmatism? The normal eye was not made for near work and must be considered a mildly hyperopic eye with a limited degree of latent lateral squint. The adaptation of the eye as a contact organ seems to be inevitable. This is the age of the short-sighted with the large amount of necessary reading, the instruments of precision and the arts involving the near work. The oculist may step down the hyperopic eye with the + spherical, but the muscular insufficiency always remains the unsurmountable obstacle. As age advances the eye loses accommodative power and near work is made still more difficult in the approach to the animal normal. It appears that the more perfect our eyes are the less they are adapted to the present conditions.

It leaves the problem in a very interesting situation. Are we voluntarily to become a race of myopics or are we going to hold to the animal normal? The answer is obvious, and to achieve this result two things must be accomplished—as far as possible the eye must be fitted for the present conditions, and a reasonable method must be found of doing a large part of the near work in the distance. The errors in refraction may be corrected, but distance work decreases the strain on the already poorly placed internal rectus muscle.

The subject is not without its pedagogic side, but this

must be deferred until later, when all the inferences shall have been verified or disproved. For further investigation of the comparative anatomy, I have two fishes with normal eyes and the complete series of the flounder, including all the changes in position from the beginning to the completion of the wandering. In birds, I have also two species with normal eyes, and the owl as the aberrant type. In mammals, I have the hare, skunk, pig, dog, cat, lemur and man—of the latter embryo and adult specimens. This material will be supplemented by investigations on normal individuals in order to obtain the grosser refraction errors and the muscle status.

I shall be grateful for any criticisms or suggestion regarding the ideas advanced in this article or in the methods to be followed, and I shall take pleasure in replying to and in acknowledging such communications.

SOME ASPECTS OF SCIENCE AND FALLACY AS THEY RELATE TO MEDICINE.*

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"Faith, fanatic Faith, once wedded fast
To some dear falsehood, hugs it to the last."

In the preparation of this paper I have had in view several motives. First, to emphasize the fact that the practice of medicine consists simply in the intelligent application of common-sense principles and forces. It has nothing of the mysterious and supernatural about it. The further one gets from common sense the further he gets from scientific medicine.

Second, to call general attention to the value and to the dangers of that force which we call "suggestion." For, while the forces of nature intelligently employed may result in great good, wrongly employed they are equally as potent for harm. Take whatever force or power you will and reason out the principle; see if these powers wrongly used are not equally as dangerous as they are beneficent when rightly used. Merely for illustration, I will mention fire, water, powder, dynamite, steam and electricity. Anything incapable of doing harm is also incapable of doing good. To argue, then, that anything may do good should suggest that it may do harm. Yet many people seem to think (and it is because they are ignorant of the forces) that they can try with impunity any quack remedy. We see the results often when it would not be humane to the victim to relate the consequences.

Third, I wish to call attention to the danger of drawing deductions from imperfect knowledge or when unfitted by education or training to discriminate. As the same end is at times obtained by widely different means, the question is suggested, what, then, is the force or what are the forces giving rise to the results? These are usually the curative power of nature; in some, nature plus suggestion, etc. On the other hand, in many instances, there is self-deception. Just as in consumption the sufferer often fancies he is improving, so thousands of certificates of cure have been obtained from the diseased whose troubles were never delayed and who never received the slightest benefit from the treatment. They are like "Sir William Edward Peary and his party, who were going straight towards the pole in one of their Arctic expeditions, traveling at the rate of 10 miles a day, while the ice over which they were traveling was drifting straight to the equator at the rate of 12 miles a day, and yet no man among them would have known that he was traveling 2 miles a day backward unless he had lifted his eyes from the track in which he was plodding."[1]

"The science of medicine had its birth in necessity."[2] It has materially lengthened the average duration of human life, and rendered worth living the lives of countless thousands. It has reached a point in its development where its claims as a science are generally acknowledged. Yet, as from primeval times to the present, fallacies have so often been exploited as infallible cures, I think an analysis of some of them may prove interesting. With each changing cycle some new error is born, to be in turn clasped to the bosom of those "who follow the lead of their emotions" rather than the dictates of common sense and, as Gould states, "the emotions are good incentives, but poor guides."

Four hundred years before the birth of Christ, Hippocrates wrote: "Life is short and the art long; the occasion fleeting; experience fallacious and judgment difficult." Though the truth of this aphorism, which has come down to us through the centuries, is fully appreciated by the thoughtful physician and is as true now as when written, it is really wonderful to note, even in this advanced age, the ease with which so many people succumb to "fallacy" and, finding a sprig of truth, at once mistake it for the whole tree, trunk, roots and branches, and attempt thus to make the part greater than the whole. The scientific physician is neither the slave of custom nor the victim of circumstance. In the pursuit of his calling, he brings to his aid many forces the logical application of which tends to alleviate human suffering and to dissipate disease. Wedded to no creed, handicapped by no narrow dogmas, above the plane of blinding prejudice, he toils on, bringing to bear on the case in hand whatever force or forces reason and wisdom have shown to be of value. Even with this, "it takes half a lifetime to learn how not to make useless mistakes." (Gould.)

In regard to the many panaceas that have at times claimed the attention of the public (besides the curative power of nature, which many seem never to have considered), one dominant force pervades them all. A force which has been used and utilized from the days of Hippocrates to the present time. A force which has been used ignorantly by the untrained, who never appreciated its character, its source, its powers or its limitations. It runs like a thread through every method of treatment, wise or otherwise. It is this force and nature which give a life-history to every new form of treatment, however absurd it may be. I refer to the power of "suggestion," now vulgarly known as the "mind cure." Its use is as old as history, but it is a force hardly yet fully appreciated by some and by others employed to a degree beyond the warrant of reason. "The earliest practitioners of medicine concerning whom we have any authentic information were the Æsclepidæ, or priest-physicians, who endeavored to cure the sick partly by superstitious modes of working on the imagination" (mind cure), "and partly by more rational means, suggested by observation and a patient study of the phenomena of disease."[2] That "suggestion" is a power for good in suitable cases every physician knows; that it is also a power for evil the many wrecks of Christian

* President's address, read before the Middle Tennessee Medical Association, 1904.

1. Holmes: "Currents and Counter Currents."
2. Adams: "Life of Hippocrates."

science and like methods of treatment abundantly attest. The desirability at all times of a proper mental attitude is suggested in the legend of "Pandora's Box." She unfortunately turned loose on the world all the evils therein contained, but shut the box just in time to prevent the escape of "Hope." The good effect of mental measures has been recognized for centuries, not only for its influence on the body but its influence on morals as well. For instance, in Philippians, fourth chapter and eighth verse, the advice is given, "whatsoever things are true, whatsoever things are pure," etc., "think on these things." Suggestion is the secret power of the mother's kiss, which so quickly dissipates the pain of the minor bumps and bruises of childhood. It is the same power, acting through the lullaby of the nursery, that so quickly sends the child to the land of peaceful sleep. Songs often used for the same purpose gain by repetition in suggestive value. I suppose we have all been struck by the monotonous character of these songs. This serves a distinct purpose; the monotony of rhythmical sound through its influence on the brain enhances the sleep-producing power of suggestion.

These things all point to the influence of "suggestion," which I shall define as we usually attempt to use it in the treatment of disease, that influence which incites in the mental makeup hope, confidence, effort, determination, expectation or belief. This is usually accomplished through "assertion," repeated and re-enforced in every possible way. The forms of suggestion are many and the object aimed at generally suggests the method. At times almost any change in the mental state will accomplish the desired result. The main object is to change the whole current of thought from a morbid to a wholesome nature. Now, strange as this may seem from a casual examination of this form of force, it is a power that may be abused and may result in great and even in lasting harm. Carried to extremes, it leads to neurasthenia and to other forms of nervous unbalance. "But wise men have long ago come to the conclusion that truth does not dwell with extremes."[3] Imagine, for instance, the absurdity of the Christian scientists in denying the existence of pain and of disease of which their followers are constantly dying. Does this not prove mental unbalance? Yet who would deny that the "mind cure" in trained hands has its mission in therapeutics? "Mind cure, so-called (says Mitchell), has in some shape its legitimate sphere in men who know their profession." Further, he states, "I can not leave this subject without a further word of solemn warning. In my youth we had mesmerism with its cures, then we had and have spiritualism with its like pretensions. From time to time we have had faith-cures. They come and they go and have no stable life. The evil they do lives after them in the many mental wrecks they leave. When the charlatan, Newton, was ordering every class of sick to get well, I was called on to see case after case of the most calamitous results on mind and body. Now and then he had the luck to meet some one who was merely 'idea-sick,' a class we know well. Then he made a cure which would have been as easy to me as to him. I made much inquiry, but could never find a case of organic disease with distinct tissue changes which he had cured. A man with hopeless rheumatic alterations of joints was made to walk a few steps without crutches. This he did at sore cost of pain, and then came to me to tell his tale, with a new set of crutches, the healer having kept the old set as evidence of the cure. And now we have the mind cure, Eddyism and the like, a muddle of mystical statements, backed by a medley of the many half-examined facts which show the influence of mental and moral states over certain forms of disorder."[4] Mitchell states the case well; while it has its place in the hands of those "who know their profession," its attempted use by others frequently ends in disaster.

Goodell states in his article on "Nerve Counterfeits": "I know of another sofa-ridden lady of wealth who for many years had been treated by some of our best gynecologists. She was put on her feet and made well by a family quarrel resulting in a prolonged lawsuit. These are the cases which are so constantly being cured by mesmerists and itinerants, by faith and by pilgrimages." Archibald Church[5] states: "Suggestion, however, is a mighty aid to the physician, and without producing hypnosis positive and intelligent assertion can accomplish all that is likely to be done by hypnotism short of the somnambulistic stage. A fair realization of the part suggestion plays in therapeutics is one of the recent achievements of the most progressive medical minds." Again: "No scheme of treatment in neurasthenia is complete that ignores the mental element of the disorder." Again: "Recognizing in hysteria a mental disturbance principally, the treatment must be psychic. Methods are usually successful in proportion as they are novel to the patient, strike the fancy and stimulate the imagination."

Charlatans recognize this, hence the peculiar garb they affect; their long hair and the many other ruses practiced, seeking thus the aid of suggestion. So, it may be noted, "suggestion" is practiced in different ways. To the old question, "What's in a name?" I would answer, "Much." The quack appreciates this, and so his medicine is given some Indian or other uncommon name, the more suggestive of mystery the better. None of us are entirely free from superstition and, to some extent, such things appeal to us all.

To be a little more specific, I will briefly mention a few of the remedies that have been brought forward and that have at times achieved great reputation. First, the "weapon ointment."[6] This ointment was applied not to the wound but to the weapon that caused the wound. At one time it had great reputation and contained substances addressed specifically to the imaginations, as portions of mummy, of human blood, of "moss from the skull of a thief hung in chains." The wound was washed and bandaged and the ointment applied to the weapon. So here we get the advantage of the healing power of nature and suggestion. I will merely allude to the "royal touch" for "King's Evil" (scrofula), in vogue in England from the time of Edward the Confessor to that of Queen Anne. Besides touching the patient, a gold piece was ordinarily hung about the patient's neck. From this treatment (nature and suggestion), many immediate cures were reported. "Indeed, according to the statements of the advocates and contemporaries of this remedy, none ever failed of receiving benefit unless their little faith and credulity starved their merits. Some are said to have been cured immediately on the very touch, others did not so easily get rid of their swellings, until they were touched a second

3. Gould: "Borderland Studies."

4. Mitchell: "Doctor and Patient."

5. Nervous Diseases.

6. I am indebted to Holmes' Essays (Homeopathy and Kindred Delusions), for my accounts of the "Weapon Ointment," "Royal "Touch" and "King's Tractors," some of which is taken verbatim.

time. Several cases are related of persons who had been blind for several weeks and months and obliged even to be led to Whitehall, yet recovered their sight immediately on being touched, so as to walk away without any guides." So widely was this fallacy believed that in the course of 12 years nearly a hundred thousand persons were touched by Charles the Second.

While this seems strange to us, stranger things are believed even in this age of enlightenment. Nature and suggestion were here the only possible forces. Of course, among many such cases and others to be mentioned there were many untimely deaths and much useless suffering. It reminds one of a man struggling in the water while senseless friends, instead of throwing him a rope, only encourage him with their shouts. The encouragement is good enough as far as it goes, but it needs to be supplemented. Of course babies, except in the lines indicated and those with clouded brains, as from fevers, could not possibly receive benefit from suggestion, and nature was then the sole dependence. While in ordinary diseases "suggestion" may or may not be of benefit, its field of great usefulness is in cases of disease more imagined than real. Those who are "idea-sick," or who suffer from "dream pains," and are frequently relieved by a hypodermic of water and, strange to say, there are others in whom opiates pushed to the limits of safety have no apparent control over the pain(?). These cases sometimes deceive for a time the most astute physicians, and we all know that in many instances of a supposed illness or rather when the disorder is entirely or principally mental, it is not prudent or wise to so inform the patient or the family; sometimes because we would not be believed, or because it would sacrifice the friendship of the patient or the family, or because it would uselessly mortify the patient, for she, too, is often deceived and intends no deception. Often to tell the patient would be to exaggerate the condition and defeat the plan of cure. It is possible that in these cases a future pathology may reveal some abnormality in the chemistry of the secretions.

The success of any given treatment is merely a matter of percentage. Cases of pneumonia, of typhoid fever, of consumption, etc., not infrequently recover without the aid of medicine or anything else except nature. but who in his right mind would be willing to pass through such an illness without the aid of a skillful physician, for his chances of recovery are then correspondingly enhanced?

"King's tractors" consisted of two pieces of metal, iron and brass. These were laid on the patient and were supposed to exert great healing power. Their period of popularity was from 1796 to 1811, and during that time 1,500,000 people in Great Britain alone were supposed (according to their publications) to have been cured by them. Nature and suggestion here could have been the only aids. But think of the useless suffering and sacrifice of life that must have occurred among those who were foolish enough to risk such a folly. The originator of these was a shrewd Yankee, who became rich from the credulity of the people. Clergymen were frequently given a pair along with the receipt of the usual cost price, five guineas. Many testimonials set forth the wonderful powers and virtues of these worthless objects and physicians were bitterly denounced for their skepticism. Even when physicians made imitations of wood and obtained the same results the storm of indignation against them was not allayed. At this day it might be possible to find a pair among the collection of curios of some medical man along with Mrs. Eddy's book, works on osteopathy, the electropoise, and other such things that are of peculiar psychologic interest to many of us.

Strange to relate, clergymen and religious bodies are usually first approached by such people and have proved the most credulous. Religion, unfortunately, has so often lent its influence to charlatans, or been designedly used by them, that medical men look askance at the man who mixes medicine and religion too freely. Religion should be a thing entirely apart from the practice of medicine and those who cherish its ideals should jealously guard it from the sordid, who would use it as a cloak for ulterior purposes. In reading the history of fake cures, one notes with a feeling of regret the number of certificates of clergymen as compared to those of other people. So marked has this been that it has long been a matter of general comment. They have been trapped into this by noting recoveries from real or apparent diseases and have gone no deeper into the matter than *"post hoc ergo propter hoc."* Their intentions are good, but the evil they do is enhanced on account of their prominence.

Homeopathy, which Holmes said consisted of "sugar of milk and a nomenclature," has changed much of recent years. The most advanced homeopaths of to-day differ from us (in the practice of medicine) only in name. Most of them have now renounced the laws of Hahnemann and there is really no longer any excuse for the separate existence of the schools.[7] Many of their most successful practitioners and teachers use the same text-books and have simply changed their signs.

Of course, as a curiosity, one occasionally sees a true homeopath, but Mrs. Eddy boasts that Eddyism has practically usurped his place. As a matter of fact, the only advantage the strict homeopath had over Mrs. Eddy in the treatment was in diet and hygiene and in not trying to urge patients to that mental attitude which if completely attained must mean insanity—for no sane person could accept and believe such utter foolishness as Mrs. Eddy teaches. The Eddyites deny the existence of disease and when one is ill claim that he is not sick but only thinks so. They say that there is no such thing as poison, but that strychnin, arsenic, etc., become poisons just because they are thought to be so. This sometimes leads to rather confusing results. The following story from Mark Twain illustrates this point: "A certain mule was being fed on popcorn, when his well-stored crib caught fire. The heat caused the corn to pop, and as it fell back on him the mule, thinking he was in a snowstorm, froze to death." This, without any exaggeration, is a fair sample of Christian science logic. It reminds me of the comment of the *Medical Record* on a new form of treatment just being advocated, which was specially ludicrous. The *Medical Record* stated that the fellow would get rich if he could "keep his face straight long enough."

Mrs. Eddy, Dowie, and the fellow who gives absent treatment all seek the same end with somewhat different methods. To quote a lay writer and student of such methods, "Each of the indefinite number of sects of mental healers now in evidence in this country tells us that it has a law of its own, and that it is the only genuine article, all the others being only feeble imitations or wholly fraudulent, wicked and diabolical. They

7. Quine: "Reasons I Am Not a Homeopath." JOURNAL A. M. A. April 29, 1899.

agree in but one thing and that is in hating the medical profession; and they hate but one thing more than they do that profession and that is each other."

Manipulations and movements are forms of force long used by the medical profession or under their direction. They are but branches of the tree of medical science and have their legitimate place as therapeutic agents. They also have their dangers, as is well known to medical men, yet the osteopaths have now brought these forward as cures for all ills. From them one gets the benefit, if benefit follows, of three forces, namely, nature, massage (and medicogymnastics) and suggestion. Cowling used to say: "Massage is a very good thing for a lazy man." This indicates partly its sphere of usefulness, but it is (rightly used) a power for much good in suitable cases. It is of real and decided value in quite a number of chronic diseases, but no osteopath, with his meager training, is able properly to select the cases. Some of their egregious blunders have come under my observation, and they would have been ludicrous had they not been so serious. The graduates in massage and Swedish movements are far more thoroughly trained than are the osteopaths and, in addition, they are not falsely taught.[8]

I would like, did time permit, to go a little further into these subjects, as well as to discuss other such methods in vogue in the treatment of disease. Many of them, as well as some I have mentioned, in many instances serve only to subvert the attention of the patient, while nature does, or fails to do, the work.

I would have no one think that any regular physician considers medicine a complete science. It is far from it. Neither would I have one think we are not cognizant of our many deficiencies. The very purpose of this association and of other similar bodies is to overcome these defects as far as possible. Even with these aids and added years of study and experience we can never even hope to perfect ourselves in this most difficult field of human endeavor.

THE X-RAY TREATMENT OF MALIGNANT GROWTHS.*

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I began *x*-ray work as a skeptic, doubting the therapeutic value of the ray. After giving my first case of epithelioma six exposures and seeing the scab become thicker, I advised the patient to have the growth excised. This was done and I examined the tissue microscopically and was impressed with the decided retrogressive changes observed in the carcinomatous cells. The next epithelioma I treated with more confidence, and after six weeks' treatment it had healed.

The results of the practical use of the ray as reported by different operators have varied greatly. The general profession has been misled by the over-enthusiastic as well as by the pessimistic operators, so that the true value of the ray has yet to be demonstrated. It is not a magic light that will heal every malignant growth to which it is applied, nor should it be placed on the shelf with other discarded therapeutic agents. It is a natural force of great variation, having a decided influence on living organic matter.

The microscopic changes in the tissues which have been exposed to the *x*-ray have been studied and reported by many observers, and their observations, in general, agree. It is these observations which should give us the basis for the possibilities and limitations of the ray.

To determine the value of the ray as a therapeutic agent, we have to consider first the factors concerned in the production and variation of the *x*-ray and the methods of the application in treatment; second, the histologic changes due to the *x*-ray, and third, the nature and location of the growth to be treated.

The *x*-ray is capable of wide variation, both in its penetrating quality and in its intensity or effective energy. Among the variable factors which have to be considered in each treatment are the voltage and amperage of the current supplied to the primary, the number of interruptions made by the interrupter, the resistance in the secondary circuit represented by the number of spark gaps in series, and the degree of vacuum of the tube, the distance of the tube from the surface to be exposed, and the duration and frequency of the exposures. The successful application of the ray is dependent on the proper co-ordination of these factors for each individual case.

Until recently, there was no way to measure the energy given off from a tube. This could only be approximated by one's experience with his individual appalate or may even increase the vitality of the less differ- a distinct advance and enables one to measure the dosage with a fair degree of accuracy. The technic is being steadily improved by experience and the proper appreciation of the physical laws governing the ray, especially that the intensity varies inversely as the square of the distance.

With so many variable factors to be considered in the proper application of the ray, there is no wonder that the therapeutic results of different operators have been so inconstant.

According to the effective energy given off from a tube, there are decided changes in the tissues as revealed by microscopic examination; cells are affected and undergo atrophy, or granular degeneration. The nuclei stain feebly, become swollen, vacuolated and disappear or break into fragments. The cells swell, lose their outlines, become granular and disintegrate. These changes are especially noticeable in the cells of the glands, hair follicles, the skin and those lining the blood vessels, but to a less extent in the cells and fibers of muscles and connective tissues. The effects on these latter may be secondary, dependent on the inflammatory process resulting from the death of the cellular elements. There is more or less round-cell infiltration depending on the degree of reaction. The ray may stimulate or may even increase the vitality of the less differentiated tissues.

From these observations, it is evident that the elements of the tissues which are most affected by the ray are the cells and in the proportion that they exhibit the manifestations of life. Dead organic matter is not influenced by the ray. Another evidence that the ray acts on the vitality or life of a cell is the fact that a tissue, immediately after a destructive exposure to the ray, shows no macroscopic or microscopic change and it is only after the lapse of several days that the changes consequent on the death of the cells begin to appear. We would conclude, therefore, that the tissues most influenced by the ray are those having a large proportion

8. Jakob Bolin: JOURNAL A. M. A., April 6, 1901.

* Read by invitation before the College of Physicians, Philadelphia.

of cells whose vital processes are very active. Such tissues are found chiefly in malignant tumors, carcinomas and sarcomas. It is on them, therefore, that the ray has the most decided effect.

Sarcomas, as a rule, are more deeply seated than carcinomas; they contain more intracellular material and more blood vessels, and there is less rapid proliferation of the cells as evidenced by the fewer mitotic figures. These facts may explain why more carcinomas than sarcomas have been healed by the ray.

The benign tumors are composed largely of intracellular substance with a small proportion of cells not actively proliferating. They are, therefore, only slightly or not at all influenced by the ray. We thus understand why epithelial tissue, on account of the large proportion of cells, is affected more than any other normal tissue, and why the cells of the glands and hair follicles, because their vital processes are more active, succumb more readily to the ray.

If now, as it seems, the ray affects cells in proportion to their vital activities, it is to be expected that the actively proliferating cells of the malignant growths will be more susceptible to the influence of the ray than the cells of the skin and subcutaneous tissues which exhibit the vital manifestation in a less degree. This explains the apparent selective action of the ray for malignant growths. If the ray is properly applied, a tumor of this kind may be destroyed and may disappear without any destruction of the surrounding normal tissues.

From these considerations, we conclude that the prognosis in the treatment of new growths depends on the character of the growths and on their accessibility to the proper quantity of radiant energy. Since we have shown that the tissues composing the malignant growths are especially susceptible to the ray, the prognosis in their treatment depends on their accessibility to a ray of sufficient energy. Success or failure depends on the accomplishment of these two objects by the proper coordination of the variable factors in applying the ray. The light may have the proper energy, but unless it reaches the whole of the tumor, especially the periphery, where the most rapid growth takes place, it will be of no avail. On the other hand, the light may reach every part of the growth, but unless it has sufficient energy it will not accomplish its work.

From what has been said it may be inferred that the growths most readily and most uniformly healed are the superficial carcinomas and superficial sarcomas. This is the result of actual practice.

The deeper the growth the more doubtful becomes the prognosis because of the difficulty of carrying deep into the tissues a ray of sufficient energy to destroy malignant cells without destroying the overlying tissues. That moderately deep growths can be affected has been shown by many well-authenticated cases. The difficulty has been in establishing a technic by means of which results may be obtained with a fair degree of constancy.

For example, if a carcinoma four inches below the surface is being treated and the time required to destroy carcinomatous cells on the surface be one hundred (100) minutes, with a tube at a distance of ten inches, let us assume that one hundred and eighty (180) minutes will be required to destroy the healthy cells, the tube being at a distance of ten inches. According to the law of the variation of intensity, the equivalent of one hundred (100) minutes at ten inches is two hundred (200) minutes at fourteen inches. In other words, to destroy the growth at fourteen inches there must be an exposure of two hundred (200) minutes, which would cause a necrosis of the overlying tissues. But if we place the tube eighteen inches from the surface the growth will be twenty-two inches from the tube. The number of minutes required to destroy the growth will be five hundred (500), and the number of minutes required to produce a necrosis on the surface at eighteen inches will be six hundred (600). Thus we see that it is possible, by increasing the distance from the tube, to destroy a deep growth without destroying the overlying tissues. What is impossible to accomplish with a tube at ten inches is possible with a tube at eighteen inches.

In the example cited above there is a margin of one hundred (100) minutes. This can be drawn on to compensate for the loss of energy due to penetration. Another point to be considered in the treatment of deep growths is that the ray must be more penetrating. The more penetrating a ray the less is its effective energy, therefore due compensation must be made in the duration of the exposure.

In the preceding remarks I have attempted to give a clear idea of the *x*-ray as a therapeutic agent and the factors to be considered in its production and application and also to explain its influence on living cells and why it is especially adapted to the treatment of malignant tumors. It now remains for us to consider its use in the treatment of these conditions as compared with other therapeutic agents.

For superficial growths the ray is indicated because it is so uniformly successful, its application is painless and there is less scar and deformity and the growth is less apt to recur than with any other form of treatment.

For deep growths, until we can show more uniformly good results, radical surgical procedures should be recommended. We must give the patient the benefit of the probabilities and not possibilities. It is, however, but rational that the surgical procedure should be followed by sufficient *x*-ray exposure to destroy malignant cells several inches from the surface. This is possible, as has been shown, and the patient should have every possible chance to have the malignant cells completely eradicated or destroyed.

Inoperable cases should be treated with the ray because remarkable results have been obtained and the most distressing symptom, pain, may at least be relieved. It is by means of these cases that we must demonstrate the value of the *x*-ray and so extend its usefulness.

In conclusion, I would reiterate that we have in the *x*-ray an agent that has a specific and destructive effect on malignant tumors by taking away the life of their cells, and that its application in treatment is limited only by the ability to reach the growths with the proper amount of energy and safety to the patient.

This mysterious form of radiant energy is still in its infancy, yet, what it has already accomplished makes us hope and expect that by careful study and conservative practice we can bring it more and more to our aid, especially in destroying the malignant tumors, which are mercilessly attacking their victims with increasing and alarming frequency.

Many cases of skin irritation in the fall in Canada are said to be due to the presence of particles of the Canadian thistle in the wool from which winter undergarments are manufactured.

THE FEAR OF DEATH:

MORBID MANIFESTATIONS OF THE INSTINCT.

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The instinct of life and the fear of death, the last but a manifestation of the first, occupy and have always occupied a supreme place in human consciousness. To mitigate the pain inspired by fear of death metaphysicians have goaded their wits since the beginnings of history, while believers in various religions, by affirming the existence of man beyond the tomb, have either diminished or increased the dread of dissolution, depending on whether or not the dogma was believed and whether happiness or the reverse was predicted.

This article is a consideration of the origin and nature of the morbid exaggeration of the natural, instinctive fear of death shown by some individuals and which, in some cases, amounts to a dominating tyrannical besetment, or to a monomaniacal obsession. This morbid dread of death is a psycopathic condition and concerns chiefly the neurologist and alienist, but any physician suddenly may be called on to treat it.

The instinctive fear of death, like the pain sense, is necessary to the preservation of the organism; the one is a psychical, the other a physical warning; the exaggeration of either is morbid, tragical. In animals, at least in those more highly organized, the dread of death plays a similar part, with this important difference, however, that whereas in the animal the instinct is aroused by the imminence of death only, in man, by reason of his intelligence, it is rife as a possibility of the present and a certainty of the future. This fact is by no means trivial; on the contrary, a due appreciation of its significance bears directly on the correct interpretation of that process which in the human subject underlies the development of the fixed, delirious dread we are now considering.

It is to be noted that the dread of death is usually absent during the actual process of dying. The submerging of the dominating concept, its disassociation from the field of consciousness by pain, as well as the eventual diminution of the acuity of consciousness itself, serve in most instances to account for the apparent paradox. The dread, then, is not evoked by the process of dissolution. In my opinion, it has and must always have as an indispensable condition to its true obsessional manifestation, a neuropathic foundation, either inherited or acquired.

The following case, taken from my own notebook, exhibits the essential psychology:

Patient.—Mr. H., a neurotic individual, already past middle life, consulted me some time ago in regard to an obstinate type of insomnia that had debilitated and racked him for a long time.

Family History.—His father, long since dead, was a native of South Germany, and had been of a highly eccentric and melancholy cast of mind. His mother, a native of Alsace, likewise deceased, had been a victim of night terrors and morbid religiosity. Of his remoter ancestry nothing significant was known.

Personal History.—I could gather nothing very characteristic of his childhood and early education save that, at school, his memory and appetite for mathematics gained him commendation. From the obvious blight resting on his immediate progenitors the patient had not escaped. He was somber, shrinking, unstable in his moods and purposes, and subject to sudden and uncontrollable outbursts of anger on insignificant provocation. He showed at least three of the physical stigmata of degeneration—asymmetry of the head and face; small ears, undeveloped and ill-set; and a well marked *taurus palatinus*. At puberty, however, or shortly afterward, his thoughts and dreams were tainted with lasciviousness, while at the same time he underwent an extraordinary experience of religiosity. Later, when set to work in a commercial house, he began to dabble in the writings of speculative philosophers. These and other unfathomable crotchets, colliding with the theological concepts of an earlier day, made havoc of his peace of mind, transforming consciousness, as it were, into a kind of Donnybrook. A victim of this welter of antagonisms, pirouetting precariously between his theology and his philosophy, he became in opinion as vagrant as a shuttlecock. He began to be afflicted by the dolor of uncertainty and by the mental pain consequent not so much on the character of his conflicting ideas as on the conflict itself. Later, when this uncertainty as to his earlier beliefs had deepened into conviction of their falsity, he suffered acutely from the pain of disillusion. The belief in the possibility of a future existence, of the preservation of his ego through all eternity having vanished, he could detect no "meaning" in his present life. Yet despite the apparent tragedy involved in the conviction he clung to life with a tenacity born of this sense of its evanescence and of its futility.

Symptoms.—With the stir of his enhanced desire to live, he began to have a fear of death increasing in poignancy with the vanishing hours and days. During the day he thought of it, spoke of it; at night he conned the trist outgivings of the sages, mournful cajolery of death, assembled by his dark infatuation into a kind of mortuary library. So wakefulness left him at the coming in of day, a sad, disheveled figure, limp, wan and impotent. He was thoroughly obsessed by this; his whole mentality circled, as it were, about that black, imperious concept of death. Persecuted day and night by his implacable besetment, his terror took on a new aspect; he began to fear his fear or death, to regard with the poignancy of an unutterable consternation, not the idea so much as its relentless pursuit of him. He began, at length, to long for rest and oblivion. Then he declares he heard a voice at night, during the flickering consciousness of half slumber, saying: "Make away with it—of yourself! Put a term to the eternal thrall of consciousness! Away! Away! Death to escape death!"

Treatment.—He was put on large doses of sedatives, which quieted him considerably during the day; at night hypnotics of the more potent sort procured him betterment both in the amount and quality of his sleep. In time his appetite improved and in due course his general bodily condition. This renewal of energy, coupled with the prolonged exemption from his obsession produced by forced sleep, caused an abatement of his suicidal thought. From the morbid dread of death, obtruding itself during the waking interval, nothing, however, has availed to relieve him.

In another case, that of a degenerate, religious man of 35, the evolution of the fear of death was different, having been inspired not by lack of, but rather by belief in a life after death, with the accompanying corollary of condign retribution beyond the grave.

Coming on in the train of a severe illness (typhoid fever), this dread, growing steadily in intensity, attained to the dimensions of a monomaniacal besetment, against whose fixity arguments were of no avail.

Here the use of stimulants, notably opium, with forced sleep and change of scene and occupation, achieved a considerable mitigation. But neither absolute freedom from the delirious idea nor exemption from sudden and unaccountable exacerbations in its dominant intensity was ever attained.

Such cases as these, especially at their anxious climax, have often been taken for melancholia. This is a great error. In melancholia the emotional disturbance—the depression—is the primary factor; in monomania the intellectual element—the delirious

idea—comes first, the unrest and anxiety being largely if not entirely secondary. Moreover, the peculiar etiologic feature of monomania, degeneration, with its characteristic mental discords, marks the fundamental cleavage between the two disorders.

While these cases are undoubted instances of monamaniacal obsession, the morbid fear of death does not always go to such extremes. There are, in fact, individuals, religious or philosophical, or neither one nor the other, who disclose this dread in such full measure, harping on it in conversation, or dwelling on it in their meditations, that it is apparent that in them the sentiment has become, as it were, a veritable "hypertrophy," monopolizing consciousness, casting precursory shadows on the mind, and despoiling life of its heritage of happiness. Such persons, while usually free of the brand marks of degeneracy, frequently disclose a neurotic, hypersensitive temperament. They are acutely aware of the dissonances of existence, and alive to its pains and disappointments, and they can not endure to behold in others sufferings which are so poignantly appreciated by themselves. To these persons pain is the positive, pleasure the negative element of life. As has been said, neither religion nor philosophy avail to quiet in such persons the heightened sense of the inevitable tragedy. Having had repeated and convincing proof of this, I have sought, by the help of a kind of discipline of death (I can think of no other name for it), to infuse into the mind of an individual so affected a personal, an experiential appreciation, as it were, of the essential benevolence of death.

I have insisted, in the first place, that inasmuch as the loss of the sense of personality, of the ego, confers the chief terror on the thought of death, he may appreciably diminish that terror by thinking of sleep as death—not of death as sleep. By causing him to habituate himself to this idea by saying to himself when about to sleep, "I die now," I have sought, through the help of autosuggestion, to make him feel that he already knew the worst that death could inflict on him; that, in short, he had died, to all intents and purposes, every twenty-four hours. Further, I have endeavored to engender the conviction, by actual trial on himself, that unconsciousness is the greatest of all boons.

To achieve this, I have seen to it that during the day he was kept employed, mentally and physically, to the full limit of his capacity. At night, however, when overcome with weariness he betook himself to bed, an attendant awoke him whenever he fell asleep. In the morning, when very irritable and exhausted he demanded coffee, he was compelled to content himself with bread and a meager store of milk. Thereafter, he was still further tormented by drowsiness, but, despite his entreaties, he was not allowed to sleep all day. During the second night, however, about 11 o'clock, having declared that he "would rather sleep, even if he never woke up," than keep on with the experiment, he was allowed to become unconscious. One such experience as this does more to impress the mind with the benevolence of unconsciousness, whether of limited duration or not, than much fine-spun philosophy. By virtue of its experiential potency the reason concedes that, while sleep suffices to make good the curable shortcomings of the mental mechanism, death only is able to antidote its immedicable dilapidation.

A galling experience, then, of the pangs of a consciousness unduly prolonged is the most convincing testimony to the supreme benevolence of death.

53 West Thirty-eighth Street.

RHEUMATISM AND OTHER AFFECTIONS OF THE JOINTS.

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To the question, "Have you ever had rheumatism?" the great majority of my adult dispensary patients have answered in the affirmative, but when questioned further as to the location and character of the trouble there were nearly as many answers as there were patients. In some cases the trouble was in the large joints, which were affected singly or multiply; in other cases it was limited to the small joints; again, it was in the muscles, in the nerves, in the bones, in the head, in the throat, in the stomach, in the uterus, or in the heart, for there is scarcely a part of the body which seems free from this omnipresent malady. Some of the attacks were acute, but more often they were chronic or recurrent. At times they were so severe as to confine the patients to bed, but more often they merely inconvenienced them at their work. Indeed, there seems to be only one symptom common to all cases, and that symptom is pain.

Is this pain in all cases rheumatic, as the patients suppose, or are there not a number of diseases which cause pain, and which, therefore, are considered to be rheumatic? Some of these troubles are at first glance seen to be due to other causes, such as syphilis, but how about the remainder, which are harder to separate? Shall we take the patient's diagnosis, or shall we investigate further? The only way to get at the real nature of the complaint is to find out the cause of the trouble, but this is especially difficult in these cases, and, in consequence, physicians have been forced to accept the patient's diagnosis, though they have been dissatisfied with it and with the consequent treatment.

This is no new trouble, for Haygarth said in 1805: "The term rheumatism has been applied without sufficient discrimination to a great variety of disorders, which, except pain, have few symptoms that connect them together." Indeed, it has only been in the last few years that any real advance has been made in this line.

Having grouped all these troubles together, we have naturally tried to find one causative agent for them all. The patient is pretty sure to attribute his rheumatism to taking cold, and in some respects he is right, for sudden changes in temperature and exposure to cold and wet certainly aggravate many of these affections, and must often be considered as predisposing factors, though it is doubtful if cold is ever the sole or even the chief cause of any one of these diseases. We do not know how it acts, but we have good reason to believe that no small part of the effect of cold is due to the decrease of the skin's action and the consequent increase of irritating substances in the body fluids.

When it was found that our old scapegoat "cold" could not bear all the responsibility for the so-called rheumatic diseases, a large part of the medical profession eagerly accepted Haig's plausible theories. These are based on the supposition that this class of disease, as well as many others, is dependent on faulty "proteid metabolism," which results in the formation of an excess of uric acid, the so-called lithemic condition. Haig, however, does not bring forward the experimental proof necessary to verify his statements, and other experimenters have absolutely failed to get his results, which was to be expected, when one considers the number of diseases the uric-acid theory is made to cover.

In a negative way Haig's work has been of the great-

est value, as it has stimulated work in pathologic chemistry, more especially in regard to the group of diseases at present under discussion. The great fault with his work is that, instead of seeking for the true causes of disease, he has formulated a theory, and has tried to group many utterly diverse troubles in accordance with it, without first having obtained the necessary experimental proof. He is a very plausible writer, however, and as a result many patients have been unnecessarily starved, often to their great detriment, though others have doubtless been much benefited, as our people are unquestionably given to eating too heavily. Haig's star, however, is far past the meridian, as is shown by the following quotation from THE JOURNAL A. M. A.: "Haig, using methods which are known to be unreliable, secured data which can not be corroborated, and with these as a basis, followed out a marvelous train of logic to the ultimate conclusion that practically all disease is due to uric acid, and that a vegetable diet is a guarantee against the sufferings of mortal man."

Let us give up the idea of finding one cause for all these troubles and try to separate them, so that we can look at each disease by itself. This, however, will be no easy task, as our knowledge of the subject is still very incomplete. Nevertheless I am going to try to separate some of the diseases commonly grouped together under the term rheumatism, but it must be borne in mind that this is merely a tentative classification, which will of necessity be greatly modified as our knowledge of the subject increases.

DISEASES OFTEN TREATED AS RHEUMATISM.

A. Diseases involving the joints.
   1. Acute articular rheumatism.
   2. Arthritis deformans.
   3. Gout.
   4. Specific or secondary arthritis.
      (*a*) Tubercular.
      (*b*) Gonorrheal.
      (c) Septic.
      (*d*) Following acute infectious diseases.
   5. Traumatic arthritis.

B. Diseases which do not involve the joints.
   1. Neuritis (neuralgia, myalgia).
   2. Periostitis, osteomyelitis, rachitis.
   3. Bursitis, tendo-synovitis, etc.
   4. Deformities (e. g., flatfoot).
   5. Referred pains.

ACUTE ARTICULAR RHEUMATISM.

This is the true rheumatism, and is now generally looked on as an acute infectious disease, which is supposed to be the result of an infection by a specific microorganism. It is a general infection, affecting not only the larger joints, but other serous membranes, more especially the endocardium. It is accompanied by high fever and is characterized by severe pain and tenderness, and its tendency to jump from joint to joint. Like other acute infectious diseases, it has a tendency to spontaneous recovery, and apparently does not run into chronic rheumatism, the joints seeming to recover completely, though it often leaves behind it a weakened heart valve. This disease is not followed by immunity, but, on the contrary, seems to predispose to a second attack. The prognosis as to life is usually good. Uric acid certainly has nothing to do with this disease. There may be trouble in differentiating it from polyarticular gout, from acute arthritis deformans or from gonorrheal or tubercular arthritis, but it will be better to discuss this when the other diseases are treated.

ARTHRITIS DEFORMANS.

This term has only recently come into general use in this country, though it is common enough abroad. Thus more than ten years ago Strümpell said: "The two diseases known as chronic articular rheumatism and arthritis deformans are considered together here, because it is impossible to draw a sharp distinction between them." At present the best authorities seem to think it wise to abandon the term chronic articular rheumatism, as this implies a chronic form of the acute disease, which, as we have just seen, does not become chronic. Arthritis deformans is probably of infectious origin, though it often appears to be connected with nervous disturbances and conditions which depress the general health. Some authors claim that it is of nervous origin, and that this, in turn, is dependent on a toxemia. There also seems to be an hereditary lack of resistance to this disease.

The pathologic findings speak for an inflammatory condition at the outset, with a secondary degeneration. There always seems to be changes in the cartilage of the joints, and later the bone may be involved, with considerable thickening and deformity, while it often produces hyperostoses, such as Heberton's nodes on the fingers. Atrophy of the muscles around the joints may be a striking feature.

The most marked features of this disease are a polyarthritis, which does not shift about, slight fever, and a rapid pulse. It is especially common in the small joints of the hands and feet, though it may affect any joint, and usually affects the same joints on both sides. When the vertebræ are involved there is a marked rigidity of the spine with pain, which is frequently called lumbago or sciatica. It occurs most often in women and in people past middle life, though it may occur in childhood. There is an acute form, which affects many joints simultaneously and which is apt to be taken for sub-acute rheumatism, but the chronic form is far more common. There is rarely, if ever, endocardial involvement. Yeo says that it differs from polyarticular gout in the absence of uratic deposits, and from rheumatism by the presence of structural lesions. The *x*-ray is of great value in diagnosing old cases.

GOUT.

Articular Gout:—An attack of acute articular gout usually begins with an agonizing pain in the big toe, which is red, swollen and very tender. The symptoms generally subside during the day, to return again the next night. These attacks, as a rule, are preceded by indigestion, and are prone to occur at irregular intervals, sometimes involving other joints, until the joints may be permanently crippled by deposits of urates. In the chronic forms the feet are most often involved, and then the hands, but there may be concretions about the elbows, the knees and along the tendons, as well as tophi in the ears. These patients usually have chronic acid dyspepsia, and later develop arteriosclerosis. In such cases intercurrent attacks of acute polyarthritis may occur with a temperature from 101 to 102, though the patient may never have more than subacute attacks.

Nonarticular Gout.—A similar blood condition may also apparently produce arteriosclerotic and renal changes, as well as headaches, neuralgia and eczema, without involving the joints.

There is a marked hereditary tendency in gout, which is prone to appear in an adult man, "who has not lived wisely, but too well," more especially in beer drinkers, while it is often associated with lead intoxications.

This is the disease to which the uric-acid theory applies, if it applies to any, but it is strongly disputed here, though the controversy has not yet been settled. There is an increase of uric acid in the blood in acute attacks and a deposit of urate of sodium in the affected joints, still, according to Bouchard, "it has by no means been demonstrated that uric acid is the only or even the chief matter contaminating the fluids. The disease itself is not due to uricemia," for we have uricemia in other diseases (e. g., in leucemia) without gouty manifestations. Yeo believes gout to be a disorder of elimination, especially of hepatic elimination, which causes an increase of toxic substances in the body, these last being responsible for the symptoms.

We seldom have difficulty in diagnosing a typical attack of acute gout, but the more chronic polyarticular form is often hard to distinguish from arthritis deformans. Here we have to consider the history of the case, more especially of previous attacks and of the patient's habits, while the presence of tophi is diagnostic. Acute gout also responds quickly to colchicum, which does not help any of the other troubles.

SPECIFIC OR SECONDARY ARTHRITIS.

There are a number of joint infections which are due to specific agents and which are rightly classed with other diseases, but which are often mistaken for rheumatism, and which will have to be mentioned here for the sake of diagnosis.

(*a*) *Tubercular Arthritis.*—The acute tubercular joint may well give rise to trouble in diagnosing it from acute articular rheumatism. McCrae thinks it best to regard all monarticular forms as tubercular or gonorrheal till other symptoms prove them to be rheumatic. The chronic form is a purely surgical trouble, and has long been recognized as something entirely distinct from rheumatism. Nevertheless it is still sometimes treated medicinally, this being especially true of hip-joint disease, which I have seen diagnosed and treated as "chronic rheumatism of the knee" to the permanent injury of the patient. It is well here to remember Dr. A. M. Phelps' rule, "Never treat rheumatism of the knee in a child without first examining the hip."

(*b*) *Gonorrheal Arthritis.*—We may have an arthritis immediately following a gonorrheal infection elsewhere, and gonococci have been found in such joints. In the acute form it usually involves only one joint, usually the knee. In the more chronic variety several joints are often affected, and here it may be mistaken for arthritis deformans, but an examination of the genitals with careful questioning is generally sufficient to make the diagnosis. The acute form must be differentiated from acute articular rheumatism, but the pain is not as a rule so severe, the fever not so high, and it does not tend to leave one joint and to appear in another. A gonorrheal septicemia with involvement of the heart and several joints is very difficult to distinguish from acute rheumatism.

(*c*) *Septic Arthritis.*—This may occur in the course of pyemias, most often in puerperal fever. The inflammation is accompanied by pus formation, and the diagnosis is usually easily made. The monarticular acute arthritis of infants, which goes on to pus formation, seems to belong to this class. Under this head it is better to mention joints involved in the infection of osteomyelitis, though this will be referred to later.

(*d*) *Accompanying Acute Infectious Diseases.*—In scarlet fever, smallpox, dysentery, pneumonia, cerebrospinal meningitis and dengue there may be joint involvement, which is hard to distinguish from acute articular rheumatism. These may go on to pus formation, and are now generally attributed to the causative factors of the accompanying disease.

TRAUMATIC ARTHRITIS.

A swollen joint which is the direct result of injury is seldom attributed to rheumatism, but it is well to always bear this possible cause in mind.

NEURITIS.

Myalgia (muscular rheumatism), neuralgia, and certain forms of neuritis (such as the so-called sciatic rheumatism) are at present so hopelessly confused that it is very hard to unravel the tangle. They are all, however, often classed and treated as rheumatism, though none of them are joint affections. It will be well first to consider the meaning of the terms. Myalgia means "muscle pain"; neuralgia, "nerve pain," both being mere symptoms, while neuritis is the only real disease of the three. The "muscle pain" may be from injury to the muscle itself, as in severe strain, but it is apparently more often of nervous origin or a neuralgia. The "nerve pain" may be from a more or less marked neuritis or may be referred from some distant organ. Now a neuritis may occur from injury or from pressure, as in some cases of sciatica, besides which any irritating substance in the body fluids may affect the nerves and cause more or less inflammation, as is shown in neuritis from alcohol, lead and arsenic, or from the toxins of syphilis, diphtheria and other infectious diseases, or from the auto-intoxications of diabetes, nephritis, intestinal disturbances, and those faulty eliminations, which produce a gouty condition. These substances may produce a transient irritation, which may be termed neuralgia or myalgia, or a more permanent inflammation, which may be called neuritis, but the difference between the two seems to be only one of degree. When a nerve once has been affected it is left in a more sensitive condition, and small things, such as changes in temperature, are enough to produce a fresh attack. A faulty blood supply, either a general or a local anemia, is a predisposing cause of neuritis, while a lack of nerve control will heighten the neuralgic attack.

PERIOSTITIS, OSTEOMYELITIS, RACHITIS.

Various diseases of the bones are at times mistaken for rheumatism, though this is especially the case when the joints are involved secondarily. Thus, acute osteomyelitis may be mistaken for acute articular rheumatism, while the chronic tubercular form may be treated for chronic rheumatism. Periostitis, even of syphilitic origin, is often considered to be rheumatic by the patient, and I have known it to be treated as such. The tender and enlarged epiphyses of rachitis also in a few cases have been ascribed to rheumatism. It is needless to add that none of these troubles are rheumatic, and that rheumatic treatment is worse than useless.

BURSITIS AND TENDOSYNOVITIS.

Inflammation of the tendon sheaths near the joints, or even more superficial inflammations, more especially bursitis, may be mistaken for rheumatism, though, naturally, they have nothing in common with this disease.

DEFORMITIES.

Certain deformities, especially "flatfoot," must be mentioned, as I have heard of a number of such cases being attributed to uric acid and dieted.

REFERRED OR REFLEX PAINS.

These pains are all neuralgic (i. e., nerve pains), and

are referred to parts at some distance from the seat of the trouble. They may be due to disease of the spinal cord, as in locomotor ataxia, and in acute poliomyelitis, or they may be referred from the viscera. Thus, there may be pain in the right shoulder and back from the liver; pain in the left shoulder from the heart, the colon or the diaphragm; pain around the hip from the ovaries, the kidneys or the ureters. While it should never be forgotten that pain near the knee may be referred from the hip. All these have been treated as rheumatism, and naturally such treatment has been of little avail.

"CHRONIC RHEUMATISM."

I know it is customary to give chronic rheumatism as a distinct disease, but it is getting to be generally felt that there should be no such head. A large number of the cases usually called chronic articular rheumatism are more or less marked cases of arthritis deformans, while the rest are usually found to be due to gout or to some specific variety such as gonorrheal arthritis. Acute articular rheumatism, the real rheumatism as we have seen, does not become chronic, and consequently a chronic joint affection should not be called rheumatism, as this leads to needless confusion. The so-called chronic muscular rheumatism is not the result of real rheumatism, but, as we have seen, in all probability is an affection of the sensory nerves of the muscles, though it is sometimes superinduced by a gouty toxemia.

TREATMENT.

Acute Articular Rheumatism.—This is an acute febrile disease, and requires rest in bed and a skimmed milk diet, with local applications of heat or cold to the affected joints. The salicylates are indicated here in large doses, though Osler says they are no longer to be considered as specific in this disease. It may be necessary to give morphin or the coaltar products to quiet the pain.

Arthritis Deformans.—Here an entirely different line of treatment must be followed. Rest in bed is seldom necessary, though the joints should not be over-exercised during the more acute stage of the disease. The diet should be as liberal as can be digested, and a strict anti-uric-acid diet does great harm. Tonic treatment should be instituted, the syrup of the iodid of iron being especially useful. Dry hot air and galvanism should be used on the affected joints and later on massage and passive movements. If ankylosis has occurred, good results can not be expected, but in earlier cases the treatment just laid down will give good chances of success if it is persisted in.

Gout.—The acute attacks call for rest in bed, free movements of the bowels, a milk diet, large quantities of water, colchicum and possibly morphin, when the pain can not be endured. Hot lead and opium wash locally is often very soothing. The salicylates are generally said to be contraindicated. In the more chronic form or between the attacks insist on a light general diet, regulated to suit the digestion of the patient, iodid of potash and plenty of water. Also see that the skin, kidneys and bowels are doing their work, and that the patient is taking regular moderate exercise.

Tubercular, Gonorrheal and Septic Arthritis.—These cases all call for absolute rest, even immobilization of the joint and an alleviation of the pain. The causative trouble (the gonorrhea or the local infection), must be treated. Surgical interference nevertheless is often required, and the advice of a competent surgeon should be sought early. There are no specific remedies for these troubles, and the most to be expected from drugs is the alleviation of pain, but local applications of heat or cold are commonly more useful than any drug.

Non-articular Affections.—Though we are really only considering joint affections, I think it wise to add a word or two on the treatment of those forms of neuritis which we commonly term muscular rheumatism. The acute form calls for rest and relaxation of the affected nerves and muscles, together with an alleviation of pain. This is obtained by rest in bed, with heat, gentle massage, galvanism or acupuncture, if there is spasmodic contracture of the muscles, while the pain may be controlled by the salicylates or by the coaltar products. In the more chronic or recurrent cases the cause of the trouble must be searched for. If it is due to a toxemia of any kind the cause of the toxemia must be removed and the irritating substances must be eliminated by promoting a freer action of the skin, bowels and kidneys. If it is due to an anemia, that must be remedied, and as one attack makes the nerves more sensitive, such a patient should be made to wear warm clothing. Do not diet the patient unless the trouble seems to be due to an intestinal or gouty toxemia.

CONCLUSION.

Finally, do not put every patient who has pain in or around the joints on the salicylates, or on "a lithemic diet," but look for the true cause of the trouble, for there are different affections of the joints as well as different affections of the digestion. The results of this treatment have been notoriously poor, as was to be expected when we consider what a small percentage of the cases it really suited. Let us, therefore, sift out our cases and try to treat them rationally, and so remove one of the so-called reproaches of modern medicine.

Special Article

IMMUNITY.

CHAPTER XIV—CONCLUDED.

Bacterial Receptors.

All bacteria which stimulate to the formation of bactericidal serums do so because of certain receptors which they possess. These are, of course, analogous to the receptors of erythrocytes which cause the production of the hemolytic bodies in serum. They have, in addition, many other receptors, some of which cause the development of agglutinins. In the latter instance we speak of the agglutinogenic receptors of the cells, but there is no name of equal convenience which is used to designate the receptors which stimulate to the formation of amboceptors. No two micro-organisms contain an identical receptor apparatus; if the contrary were the case their antiserums would coincide in their bactericidal action. Therefore, the sessile amboceptors with which they unite during immunization differ correspondingly in their cytophilous haptophores. The cytophilous haptophore of the typhoid amboceptor finds its specific counterpart in the typhoid bacillus, and finding no such counterpart in the vibrio of cholera, the latter can not be sensitized by the antityphoid serum; on this fact depends the specificity of the serum. This conception does not interfere with the explanation of the group reaction among bactericidal serums on a similar basis, for it is conceivable that the colon bacillus, for example, has, in addition to those receptors which characterize the organism, a small percentage of receptors which are identical with those characterizing the typhoid bacillus. In accordance with this possibility an antityphoid serum may well, as it does, show some increased bactericidal power for closely related organisms. Hence the explanation of group bacteriolysis is identical with that of group agglutination.

There is a wide difference of opinion regarding the unity of

complement, or alexin, its synonym. Bordet and his followers stand for the unity of the alexins, and their position rests on the fact that a given normal serum may be used to activate many different amboceptors. We should appreciate that this phenomenon might depend on the broad range of action of a single complement, or on the presence of different complements each being specific for a particular amboceptor. Ehrlich and his school take the latter view and have actually demonstrated a multiplicity of complements in a few instances. Ehrlich and Sachs treated fresh normal serums (complement) in various ways, such as digestion with papain, partial destruction with alkalies, heat, etc., and were able by these methods to destroy the complement for one kind of amboceptor, while the serum still retained its power for activating other amboceptors. Accordingly, it seems clear that the ability of a normal serum to activate a given amboceptor depends not only on the presence of complement in a general sense, but on the presence of a suitable complement, i. e., one the haptophore of which corresponds to the complementophilous haptophore of the amboceptor. This point is of great importance in reference to the treatment of infectious diseases with antibacterial serums, for the efficacy of the serum would seem to depend on the introduction of suitable complement in conjunction with the amboceptors, or on the existence of such complement in the body of the patient.

Multiplicity of Complements.

Added proof of the multiplicity of complements has been obtained by experiments with anticomplements. As stated, the latter are obtained by immunization of suitable animals with normal or immune serums which contain complement or complementoid; when they are mixed with the homologous complements the haptophores of the latter are bound by means of the haptophores of the anticomplements. The evidence of this union lies in the fact that a complement which has been treated with its specific anticomplement is no longer able to activate the appropriate amboceptor. With properly selected serums, it may be shown that a given anticomplement will neutralize a complement which is specific for one amboceptor, but will have no effect on another complement which activates a different amboceptor. Hence, complements differ at least in this respect that not all have identical haptophores. Immunization with leucocytes, cells which contain complement, also causes the formation of anticomplement. Both natural and acquired antibacterial immunity may be lowered by the injection of anticomplement which is homologous to the complement of the animal.

Anticomplements.

If one immunizes with an immune serum the product is spoken of in a general way as an anti-immune serum. The latter contains, as stated, anticomplement; through the agency of this substance the antiserum antagonizes the action of the serum which was used for the immunization. Inasmuch, however, as the immune serum contains amboceptors also the antagonistic action of the antiserum may depend in part on the presence of antiamboceptors. Differentiation between the action of anticomplement and antiamboceptor is difficult, but it may be accomplished in certain cases by appropriate binding experiments. Serum 1, an inactive hemolytic serum, i. e., a solution of amboceptors and complementoid, is treated with serum 2. Serum 2 has been obtained by immunization of an animal with serum 1, and contains anticomplement and possibly antiamboceptors. If serum 2 contains only anticomplement, it will have no effect on the amboceptors of serum 1, when the two are mixed. The amboceptors are free to sensitize corpuscles which may be added, and when sensitized they undergo hemolysis in the presence of complement. If, however, serum 2 contains antiamboceptors, either the cytophilous or the complementophilous haptophore of the amboceptor will be bound. In either case corpuscles which are added subsequently would not appear as sensitized, for if the cytophilous haptophore had been bound by antiamboceptor union between cell receptor and amboceptor could not occur; and if the complementophilous haptophore had been preoccupied complement would have no effect even if the amboceptors had united with the cells by their unbound cytophilous haptophores. Ehrlich and Morgenroth demonstrated such antiamboceptors for certain hemolytic serums, and it is their belief that they combine with the cytophilous rather than with the complementophilous haptophore of the amboceptor. Pfeiffer also reports the demonstration of antiamboceptors for the specific amboceptors of anticholera serum. The possibility of antiamboceptor formation is one of practical bearing, in view of the fact that the prolonged treatment of a patient with a bactericidal serum may result in the development of such antibodies; if present in sufficient amount they would combine with new amboceptors which were injected and thus deviate the latter from the bacteria.

Antiamboceptors.

Danger of Formation of Antiamboceptors.

A phenomenon equally of theoretical and practical importance has to do with the so-called deviation (*Ablenkung*) of complement. It has been found that the action of a bactericidal or hemolytic serum is lessened, if a great excess of amboceptors over complement is added. To explain this fact Neisser and Wechsberg have supposed that when so many amboceptors are present that all can not be taken up by the cells, those which remain free are able to combine with some of the complement which is present and thus prevent the accession of the latter to the sensitized cells; that is to say, the complement is deviated from its natural course of action. This amounts to a protection of the sensitized cells from the action of the complement. The phenomenon led Wechsberg to suggest that in the therapeutic administration of bactericidal serums it may be possible to give too much of the serum. Although deviation of complement is a demonstrated fact, its importance in serum therapy is perhaps not definitely settled.

Deviation of Complement and Its Theoretical Danger.

It is of interest that amboceptors are widely distributed in the animal kingdom, and that in certain instances they may be demonstrated in the secretions. It has long been known that the venoms of serpents owe a great deal of their toxicity to their power of destroying red blood cells. A given venom may contain several toxic properties, and the poisons of different serpents by no means coincide in their various properties. Cobra venom has at least two distinct toxins, one for the nervous tissue and one which dissolves erythrocytes, the neurotoxin having the greater pathogenic significance; it, moreover, agglutinates red blood corpuscles. The venom of the rattlesnake, on the other hand, is neurotoxic to a less degree, but has a pronounced influence in causing capillary hemorrhages. The latter power Flexner ascribes to a toxin for endothelial cells, which he calls hemorrhagin. Through the works both of Kyes and of Flexner and Noguchi, facts were learned concerning the hemolytic toxin of cobra venom, which may be of great importance in problems of general immunity. It seems that the hemolysin of venom is an amboceptor rather than a toxin of the usual nature, and that the aid of complement is necessary for its toxic action. Strange as it may seem, the venom itself contains only the amboceptors, so that the toxicity of the substance depends on its being complemented after it is introduced into the body. The possession of suitable complement, therefore, is a source of danger in this instance rather than a means of protection for the individual. One may very well suspect that a similar relationship is possible in connection with other substances which are as yet unknown.

Hemolytic Amboceptors of Venom.

A fact of additional importance is that the amboceptor finds suitable complement not only in the serum of the animal, but it may also be activated by a complement which the erythrocytes themselves contain. Kyes speaks of the latter as endocomplement, i. e., endocellular complement.

Endocomplement.

In attempting to discover the nature of the complement which is present in the erythrocytes, various substances existing normally in the red cells, as cholesterin and lecithin, were obtained in pure form and their activating power for the cobra amboceptors was tested in reagent-glass experiments. From this work it was learned that lecithin, a definitely known chemical substance, has the activating power, and it was, therefore, assumed that the endocomplement of erythrocytes is nothing

Lecithin.

more or less than lecithin. All erythrocytes contain lecithin, yet not all are equally susceptible to the action of venom in the absence of serum complement; that is to say, endocellular lecithin does not act as complement with equal readiness in all cases. In order to explain this variation it was necessary to assume that the lecithin in the cells of one animal may be more available as complement because it is bound to other cell constituents only in a very loose way, whereas in more resistant cells the union is of a firmer nature.

Cobra-lecithid.

The relationship between cobra amboceptors and lecithin seems to be a very definite one, for Kyes was able to obtain a union of the two without the intervention of erythrocytes. The resulting substance, the cobra-lecithid of Kyes, is a completed toxin and needs no further activation. We have yet to learn of the true nature of this new compound, the discovery of which seemed at first to augur a more intimate chemical knowledge of the substances which are concerned in immunity.

Hemolysis by the Combined Action of Colloids.

Lecithin is a colloid, and in this connection it is most interesting to note that it may be used in combination with still another colloid in such manner that the hemolysis which they cause is analogous to that produced by the action of hemolytic amboceptor and complement. Landsteiner tried the effect of colloidal silicic acid on erythrocytes which were entirely freed from serum, with the result that the corpuscles were agglutinated under its influence. It developed further, however, that colloidal silicic acid not only acts as an agglutinin, but also simulates a hemolytic amboceptor, and in the latter capacity it may be activated either by the ordinary complement of serum or by lecithin. Hence, we have here an instance of the entire cytolytic action being performed by two known chemicals, which in their action appear to be analogous to amboceptors and complements. Yet even the action of these substances is obscure, for although the chemical formulæ of silicic acid and lecithin are sufficiently well known, the explanation of their activity as colloids is equally obscure with that of the albuminous substances.

Neutralization of Complement by Salts.

Another recent discovery which tends to bring the immune substances into closer touch with pure chemistry is that of Hektoen concerning the ability of certain salts (calcium chlorid, barium chlorid, etc.), to combine with complement in such a way that the latter loses its activating and combining function in relation to amboceptors. This was mentioned incidentally under the subject of antitoxins. The activity of the complement is again restored if the inhibiting salts are precipitated by suitable chemicals. The salts are used in such dilutions that they are largely ionized, and Manwaring believes their inhibiting action is due to the formation of compounds of the positive ions with the complement, resulting in such substances as Ca-complement, Ba-complement, etc. When the precipitating chemicals are added the ions are freed from this combination, as a result of which the complement recovers its activating properties. It has not as yet been determined whether variations in the salts in the fluids of the body cause changes in resistance by their action on native complements.

(*To be continued.*)

Clinical Reports

A CASE OF EXOPHTHALMIC GOITER,

WITH ACUTE SYMPTOMS AND DEATH PROBABLY CAUSED BY THE USE OF THYROID EXTRACT.

M. V. BALL, M.D.

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Patient.—M. A., female, aged 24, no occupation; tall, blonde, slender. Family history is unknown, as she was taken from an orphanage when young.

History.—She has never had any serious illness and has always been very vivacious in temperament. She has had a small goiter for three or four years and a rapid heart, with some throbbing at the neck. She has been taking 5-grain tablets of thyroid extract for over a year to reduce the thyroid swelling. She has not been obliged to consult a physician in the past two years. Her friends noted a tremor about the hands last summer. Her eyes were not prominent, but sometimes there was a noticeable stare, and she was in the habit of rolling them so as to make the sclera appear prominent.

Present Illness.—On Oct. 11, 1904, while on a visit to a neighboring city, she was affected with vomiting, diarrhea and headache and was indisposed for a week. Ever since that time she has had a poor appetite, but complained very little until about December 1, when she seemed excitable and confused, complained of severe headache and was unable to retain food. She was very restless and emotional, was thought to be hysterical. She improved, however, and toward the middle of the week was up and around, though her stomach was still irritable and she was unable to sleep. A physician was called, but no mention was made of the existence of palpitation and tremor previous to the present indisposition, and her symptoms were attributed to hysteria. She had no fever, a slight purpuric eruption was noticed about the knees and arms, and it was attributed to the friction of the bedclothes, as she was extremely restless while in bed. There was no pain. As she did not improve, her physicians had her sent to the hospital because of the extreme restlessness that no drugs seemed to relieve, and the very rapid action of the heart and a gradual increase of the bodily exhaustion.

Condition in Hospital.—On admission to the hospital, December 14, 9 p. m., the temperature was 99 in the axilla, pulse 142, respiration 34; December 15, 10 p. m., temperature 99, pulse 150, respiration 32; December 16, 6 a. m., temperature 98.2, pulse 140; 6 p. m., temperature 99, pulse 154, respiration 26. She slept a few hours and was slightly delirious when awake. She was quieter under aconite and sedatives.

December 17, 6 a. m., asleep, pulse 150, respiration 24. She slept a number of hours. 10 a. m., temperature 96.2, pulse 132, respiration 24. She retained nourishment well and slept several hours, but the conjunctiva became very highly inflamed and a muco-purulent discharge appeared. Mind is clear. Urine examined showed specific gravity 1018, acid reaction; no albumin or sugar. At 6 p. m. the temperature in the axilla was 98, pulse 134, respiration 24.

December 18, 2 a. m., temperature in axilla 98.2, pulse 140, respiration 26, eyes very painful; 8 a. m., temperature in axilla 98.1, pulse 136, respiration 28; 2 p. m., temperature in axilla 97.2, pulse 140, respiration 32.

She had several thin, watery and involuntary bowel movements during the afternoon. 6 p. m., temperature in axilla 98.4, pulse 130, respiration 32; 10 p. m., temperature in axilla 98, pulse 140, respiration 26. The conjunctiva now became intensely congested and there was a profuse muco-purulent discharge.

Examination.—I was called in consultation and examined the patient at 10 p. m., December 18. The corneal surface was abraded. I had difficulty in getting a good view of the eye-ground because of the restlessness of the patient, but the fundus appeared to be fairly clear. A culture of the discharge was made which next morning showed a capsulated diplococcus (pneumococcus). I noted the goiter, but found no undue prominence of the eyes. The patient was much emaciated about the face, tossed from side to side and moaned. She said her eyes pained; she had difficulty in swallowing; the tongue was glazed and very dry; the face flushed and the limbs cold and covered with purpuric blotches. Her mind was confused and somewhat drowsy. The diagnosis of exophthalmic goiter was suggested next morning to the physicians in attendance, and on inquiry among her friends the history as outlined above was obtained, thus substantiating the diagnosis. These important elements in the case, the previous history of tachycardia and goiter were unknown to her physicians or to me, and my diagnosis was based on the rapid action of the heart, the goiter, the absence of fever and absence of marked lesion of the heart or its membranes.

Termination of the Disease.—Unfortunately, this knowledge was derived too late to be of any service, for during the night the temperature began to rise and the patient became stuporous and passed away in coma at 2:30 p. m., temperature having reached 106, pulse 200 and respirations 70; the acute symptoms had lasted less than four weeks.

Autopsy.—An autopsy was held in the evening. The meninges were slightly congested, but the brain showed no gross lesion and appeared normal in every particular; the thyroid gland was uniformly enlarged, soft in consistence, normal in color. The pericardial sac was empty and the pericardium normal in appearance save for a slight roughening on the visceral portion near the base of the heart and posteriorly. The ventricular walls were hypertrophied, the valves all perfect and smooth, the heart itself not enlarged. The spleen was normal in size and texture. There was no evidence of peritoneal involvement, and the other organs were not examined. From the negative findings in the heart and brain the diagnosis of exophthalmic goiter was confirmed.

Remarks.—Such a rapid course and fatal termination is mentioned as occurring in several cases by Osler, Gowers and others. It is likely that the thyroid extract which she had taken in tablet form for over a year and which is now conceded to be contraindicated in this condition, helped to bring on the acute thyroidism. That the disease had existed for upward of two years is evident from the observations made by her friends. They remarked that they noticed the heart beating through the clothes, and the vessels in the neck throbbing, and that her hands trembled, and when they urged her to seek medical advice she replied that the condition was an old one and was not worth considering. The exophthalmus was the only classic symptom not well marked, but her appearance as her friends now recall it was at times staring and fixed.

The peculiar and severe conjunctivitis which developed shortly before her death was not due to the exophthalmus as is the case in the more pronounced types. It may have been due to traumatism, but Ramsay[1] mentions increased lachrymation, acute pain and rapid ulceration of the cornea as sometimes occurring in this malady without extreme exophthalmus, and he is inclined to attribute these symptoms to an affection of the fifth nerve through its close connection with the sympathetic, a form of neuroparalytic ophthalmia. The purpuric eruption about the joints was probably due to disturbance of the vasomotor apparatus since various skin eruptions have at times been observed in this disease. There was no edema at any time or pain about the joints. The vomiting and diarrhea which seemed to accompany the illness is mentioned by many writers. In two other cases which I have seen the patients were women and under 30, which is in accordance with Eshner's statistics, who found the disease four and one-half times more frequent in women than in men and most common in early adult life.

HAS TYPHOID FEVER INFECTION ANY INFLUENCE ON THE BACILLI OF TUBERCULOSIS?

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I have heard recently of two cases of tuberculosis, as diagnosticated, which have been either cured or favorably affected as a result of typhoid infection. I submit them through THE JOURNAL to the profession for what they may be worth. I am indebted to Dr. Francis W. Gallagher of El Paso, Texas, for the notes, and I refer all investigators to him for further inquiry. I have observed that patients are, as a rule, in better health after typhoid fever than before. May it not be due to the fact that the typhoid bacillus has killed all the other more or less pathogenic organisms which occupied the body? Is there not a hint here regarding the possibility of immunity from that fearful scourge, tuberculosis?

CASE 1.—Mr. J. C. W. came from Wisconsin to El Paso in September, 1899. From this time until the middle of November, 1900, he lived in a tent under medical supervision and good hygienic surroundings. During this period he had afternoon temperatures and during the early months it reached 102 F. Physical examination Dec. 21, 1899, revealed on the right side from apex to nipple line abundant crepitant râles, dullness on same side and progressively more marked from apex to lower margin, and on the left side exaggerated and roughened respiratory murmurs with cog-wheel inspiration. There were no râles on this side. Tubercle bacilli were present. In the middle of November, 1900, he contracted typhoid fever and was removed to the Hotel Dieu and was there confined to bed until the middle of January, 1901. Convalescence was uneventful. Jan. 22, 1905, there was no cough, no expectoration, weight 145 pounds. This is as much as he ever weighed when in the best of health. He is constantly occupied as part proprietor and manager of a large newspaper plant.

CASE 2.—Mr. O. C. P. had a pulmonary hemorrhage while at college in January, 1901, and came to El Paso in May of that year. He lived in a tent from this time until September 1 following. During this time he had daily afternoon temperatures of 101 F. and over. Physical examination, May 3, 1901, showed a small cavity at the right apex; at left apex, prolonged expiration; over both lungs, vesicular murmur much diminished. Tubercle bacilli were present. He was removed to the Hotel Dieu, Aug. 31, 1901, with typhoid fever and was there confined to bed until October 12. Convalescence was uneventful. In January, 1905, he was in the City of Mexico. Dr. Gallagher writes that he had not heard from him in several months and has no doubt that he would have heard if he were not well. He has been working at railroad office work since the spring of 1902. He has increased in weight to beyond the normal average before his illness. He has no cough and no expectoration.

1. External Diseases of the Eye.

A CASE OF VOLUNTARY IRIS.

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KANSAS CITY, MO.

I am indebted to my colleague, Dr. Guy H. Black, Madison, Kan., for the facts in this case. This phenomenon is very rare and seems to be generally unknown, as it is not mentioned in the text-books on ophthalmology to which I have had access. In Landois' physiology it is stated that Bechterew had observed a case of unilateral voluntary control of the iris.

The present example is one of bilateral voluntary iris which occurred in a married woman. It was first observed at the age of 9 years. Attention was drawn to the phenomenon at that time by the ability which the child then developed, of rotating the eyeballs in different directions independently of each other. From that time on it was a matter of fact established by almost daily demonstration, and observed by the various members of the family and their friends, that the iris of either eye could be dilated at will to very near the disappearing point. Vigorous exercise of the irides under the control of the will in this anomalous way was accompanied by some aching of the eyeballs. When menstruation was established, at the age of 12, the pupil of the right eye became dilated to twice the size of the left. Later the normal equal size was regained. The color of the irides is brown. No complaint of double vision has been made, and there have been no symptoms of asthenopia, although she has made a good record as a bright student and has gained an enviable reputation as a musician. The power to simulate convergent strabismus which is possessed by some individuals is possessed by this woman to a very marked degree. The patient's mother was American-born of English parents. Her father's father was a Spaniard and her father's mother was a gypsy.

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THE CURABILITY OF PARESIS.

Paretic dementia, or as it is more commonly called, paresis, is usually considered one of the opprobria of the medical profession, a disease which it is beyond the power of the physician to cure. It is true that now and then a recovery is reported, but the account is almost invariably received with skepticism and reports of such cases are hardly considered creditable to the physician making them. All the possibilities of error, faulty diagnosis, lack of continued observation, and mistaking of remission for recovery, are brought forward and one or the other ascribed as the true fact in the case.

In this issue of THE JOURNAL,[1] however, one of our distinguished neurologists, whose opportunities for observation can not well be questioned, comes forward with what is to him convincing evidence that paresis in its very earliest stages is a disorder that can be arrested or cured. His cases are perhaps less convincing than his arguments, for they are, like all other clinical histories, open to possibilities of interpretation that will not absolutely support his theory. Nevertheless, accepted according to the ordinary rules of evidence, they are not to be summarily rejected and, while the periods of their observation are not perhaps absolutely sufficient to exclude all other possibilities, it seems possible, if not indeed probable, that some of them at least would, but for the treatment received, have developed into characteristic paresis, and it is, moreover, an assumption to say that the apparent recovery is not a lasting one. Time only will determine that point. It is, moreover, in the experience of many alienists that a case diagnosed with every apparent probability of correctness has occasionally turned out something else or has made an unexpected recovery. In such cases it is usual to assume that an incorrect diagnosis has been made, but it is hard to say why it might not have been just as legitimate, in some of these cases at least, to count them as genuine recoveries from this formidable disease. If paresis is a strictly-defined, unvarying, pathologic entity and we should define it only from this particular point of view, then the diagnosis could be confirmed only by an autopsy, for it is a generally recognized fact that the clinical symptoms of the disorder may exist with various pathologic conditions and the question as to what are the first pathologic changes is by no means fully settled. The distinction between the pseudoparesis of brain syphilis and true incipient paresis is a rather arbitrary one, the clinical criteria being inconclusive. Pathologically, the distinction is clear. There should be no confusion as to the diseases, but there may be in the recognition.[1] Moreover, as Dr. Dana says, we may have the degenerative conditions of paresis existing at the same time, pathologically demonstrated, with those of cerebral syphilis. Paresis is a consequence of earlier syphilis in nearly every case, but no one can say exactly how much time must elapse between the cause and the late result. There is also, as he says, no *a priori* impossibility of the arrest of paresis in its early stages, judging by the analogy of our experience of other degenerative changes in the nervous system and elsewhere. How many cases of real recovery of paresis have been masked by the assumption of false diagnosis no one can say, but many asylum physicians of long experience have knowledge of such possibilities.

In spite of the general skeptical and critical tone of the discussion of Dr. Dana's paper, it is noticeable that few if any of those who took part ventured to assert the absolute impossibility of recoveries of the disease in its earlier stages. If Dr. Dana's views are correct, the importance is emphasized of an early diagnosis and treatment, or of at least tentative treatment, even in cases in which such symptoms as the Argyll-Robertson pupil or convulsions indicate decided degenerative changes. We are very far from having reached the last word as to the nature and the curability of paretic-dementia.

1. See page 1413.

THE ULTRAMICROSCOPE AGAIN.

Approximately two years ago the apparatus which has come to be generally known as the ultramicroscope was first described by Siedentopf and Zigmondy. Since then a number of contributions have been made relating to the application of this instrument in physico-chemical and biologic fields. While so far no very remarkable discoveries have been made, yet it may be stated that the instrument has found a definite place in chemical and biologic work and its field of usefulness is becoming more and more clearly defined and extended.

In bacteriology we should expect it to serve a valuable purpose in the study of those diseases which we now know are caused by a virus—presumably an organism—that will pass through a porcelain filter and therefore can not be seen by the aid of our ordinary microscopes. Rinderpest, foot and mouth disease, peripneumonia and probably also hog cholera and hydrophobia may be mentioned as diseases of this character. With the ultramicroscope it is very difficult or perhaps impossible to differentiate non-motile organisms from colloidal particles present in body fluids or media, but if perchance the causative organism in such diseases as the above mentioned were motile or passed through a motile stage, as may occur, especially in protozoa, they might readily be detected with this apparatus.

Already motile bacteria have been seen in filtered putrefying fluids in which no evidence of organic life otherwise could be detected, and, also, it has been reported that peculiar ultramicroscopic bodies have been seen in fluids from animals suffering with foot and mouth disease. The organism of peripneumonia may readily be seen with the ultra-apparatus, but it may also be seen, if properly stained, with a very high power of an ordinary microscope, though it is so small that little can be made out concerning its morphology.

Recently, Siebert,[1] in Behring's Laboratory, has obtained some excellent ultramicroscopic photographs of various bacteria, both stained and unstained, which bring out certain features of internal structure, branching, etc., very well.

In the field of chemistry, observations have been limited largely to colloidal solutions. Statements in textbooks concerning the invisibility of colloidal particles will have to be changed, for in many of both the inorganic and the organic colloids, myriads of minute particles in rapid oscillatory motion may be seen with the greatest ease, and their behavior studied under the influence of the electric current and enzymes; also such phenomena as precipitation, coagulation and agglutination may be observed.

According to v. Behring,[2] it is by far the most delicate test known for albumin. He has been able to detect as little as one ten-millionth part of a gram of albumin in a cubic centimeter of fluid, and considers it possible to use the ultramicroscope for both qualitative and quantitative albumin determination in urine, comparing it to the use of the polariscope for sugar determinations.

Michaelis[3] does not believe that it can be used for quantitative determinations of albumin because part of the albumin is in complete solution and in this condition can not be seen with the ultramicroscope. He gives a very interesting classification of stains based on their appearance in solution with the ultramicroscope. Three classes are distinguished. The first class is perfectly homogeneous at all dilutions and includes among others eosin, methylene blue, thionin and toluidin blue. At high dilutions, some of these are highly fluorescent. The second class exists in two phases—one completely soluble and therefore homogeneous, and the other consisting of visible particles. In this group are fuchsin, methyl violet, neutral red and picric acid. In the third class are included those dyes which resemble metallic colloidal solutions in that even in the highest dilution they present visible particles and do not show any homogeneous solution of the dye. Anilin blue, indulin and violet black belong here. Dyes of this group stain more diffusely and also very intensely. Fuchsin may be changed from the second to the third group by adding anilin and similar substances, as is done in staining for tubercle bacilli, thus becoming a much more intense stain.

Gruzewska and Biltz[4] have shown that glycogen in water is in reality a colloidal solution, the size of the particles changing with the dilution, and also that the precipitation of glycogen by reagents advances continuously according to the concentration of the precipitating solution.

The ultramicroscopes at present on the market are large and expensive instruments, and therefore they will find their way slowly into the laboratories of the country, but that the apparatus has a definite place in science and is of distinct service in certain fields there can be no doubt.

1. Beiträge zur Experimentellen Therapie, No. 10, 1905.
2. Ultramicroskopische Protein Untersuchungen. v. Behring's Beiträge, No. 10, 1905.
3. Virchow's Arch., vol. clxxix, No. 21.
4. Pflüger's Arch., vol. cv, 1904.

TRUTH AND POETRY CONCERNING URIC ACID.

XVI.

Many attempts have been made to explain the two chief symptoms of gout, the occurrence of gouty deposits or tophi, on the one hand, and the origin of the acute gouty inflammation or paroxysm on the other.

The tophi, which usually develop slowly and painlessly in the skin or in fibrocartilage, consist chemically chiefly of mononatrium urate with some admixture of monocalcium urate (Ebstein and Sprague.[1]) The anatomy of the nodule has been carefully studied (Riehl,[2] Freudweiler[3]). Along with the uratic deposit in the center there is necrosis; this is surrounded by a connective-tissue capsule in which "foreign-body" giant cells may occur; accumulations of lymphoid cells are met with about the adjoining vessels; doubly refractive granules may be seen inside the giant cells; a few crystals are present in the uninjured tissue at the periphery of the nodule. Precisely similar nodules can be produced experimentally by injection of mononatrium urate (Freudweiler), especially if alcohol be given at the same time (His, Jr.[4]) The nodule is not due to the mechanical action of the urate alone, but the urate, in addition, has a specific effect. The immediate cause of the deposit has not yet been made out, though hypotheses are rife regarding it.

The acute gouty inflammation has been ascribed by many to deposits of uric acid in the joint, but others assert that the acute attack may occur in the absence of deposits in or about the joint, and among these is Ebstein, who holds that the acute attack is due to stasis of urates in solution. Virchow pointed out that when deposits occur in the joints they are in the car-

1. Ebstein, W. u. Sprague, C.: Beitrag zur Analyse gichtischer Tophi. Virchow's Arch., 1891, cxxv, 207.
2. Riehl, G.: Zur Anatomie der Gicht, Wien. klin. Wchnschr., 1897, x, 761. See also Ueber die Anatomie der Gichtknoten, Schmidt's Jahrbücher. 1897, cclii, 271.
3. Freudweiler, M.: Experimentelle Untersuchungen über das Wesen der Gichtknoten, Deut. Arch. f. klin. Med., 1898, lxii, 266, and Experimentelle Untersuchungen über die Entstehung der Gichtknoten, *ibid.*, 1901, lxviii, 155.
4. His, Jr., W.: Nachtrag zu der Arbeit von Freudweiler, Deut. Arch. f. klin. Med., 1899, lxv, 618. Schicksale und Wirkungen des sauren harnsauren Natrons in Bauch, und Gelenkhöhle des Kaninchens, Deutsche Arch. f. klin. Med., 1900, lxvii, 81.

tilage, while the inflammation involves the synovial membrane, not the cartilage. Some even deny that the joint is mainly involved, placing the irritative process in the skin (Pfeiffer, Aronsohn), in the lymph vessels (Mordhorst) or even in the peripheral nerves (Wade, Ewart). The inconstancy of the deposits is the point which is disturbing to the acceptance of the view that the acute attack is due to them, but it should be borne in mind that when they are not found they may really have been present for a time and subsequently may have been removed by solution or by the activity of phagocytes. The studies by His, Jr., of uric-acid excretion in the acute attack have shown that uric acid is retained in the period just preceding the attack and is excreted in excess during the attack, a fact which makes it probable that deposits occur somewhere just before the attack and are redissolved again during the attack. But whether this fact stands in a causative relation to the attack, or is a mere coincidence therewith, is not known. Since deposits of urates are frequently found in the joint cartilages after an acute attack, and since in the attack it is the skin and soft parts about the joint (and not elsewhere) which are involved, it seems fair to localize the acute attack in the joint and its immediate neighborhood. Whether the deposits or their solution cause it, or simply accompany it, is not known.

Why the tophi should be painless and chronic and the paroxysm painful and acute has exercised the minds of various observers. It has been suggested that tophi occur in looser tissues, the deposits in firm cartilage leading to a more energetic inflammatory reaction (Garrod). It may be that the rapidity of the deposits is a factor, the tophi forming too slowly to be markedly irritative (Laquer), or it may be that the amount of the deposits dissolved determines the intensity of the inflammation, the deposit itself acting chiefly mechanically, while the dissolved urates act as chemical irritants; the motion at a joint might lead to rapid solution, with production of an acute attack (His, Jr.).

We have hinted that hypotheses concerning the mode of formation of the deposits are abundant. Some ascribe the precipitation to the excessive production of uric acid in the blood and tissue juices; others to a decrease in the solvent power of the blood and juices for uric acid or mononatrium urate; others to the occurrence of uric acid in some less soluble modification than the form we know; and still others to local changes in the tissues themselves rather than in the body fluids or in the uric acid or urates.

The hypothesis that the deposits are due to increased formation of uric acid in the blood has had but few supporters, but a larger number of investigators have been appealed to by the view that the urates are precipitated on account of some diminution of the solvent power of the blood and juices. Many felt sure that the alkalinity of the blood is altered in gout, and there are a host of researches dealing with this point, most of them unfortunately with imperfect technic. The most reliable studies on the alkalinity appear to be those of Magnus-Levy[5]; from them it seems clear that, though the alkalinity of the blood is somewhat variable in gout, the variations occur within narrower limits than those which hold for normal individuals, and, moreover, variations are independent of the acute attacks. It is hard to see, anyway, why, if the deposits are due to diminished alkalinity of the blood, they should not be general instead of local. Ebstein, to avoid this difficulty, assumed locally limited acid production in the tissues as the cause of the deposits. He based his theory, however, on the ground that necrosis precedes the deposit, and this basis has been destroyed by the researches of His and Freudweiler, which demonstrate, we think conclusively, that the deposits precede the necrosis. A better founded view than that of diminished alkalinity is one which supposes that the solvent power of the fluids is diminished through the presence of other salts in solution. The work of Roberts, Ritter and Strauss has gone far to show that deposition may depend on the relative amounts of other salts present, especially the amounts of mononatrium and dinatrium phosphate. Here, again, however, the question has to be asked, How can local rather than general precipitation be accounted for? Of the efforts to answer it none can be regarded as wholly satisfactory. Freudweiler thinks inflammatory change a prerequisite; von Noorden assumes the local activity of some ferment; Zagari and Pace suggest some local alteration in the vital activities of cell nuclei—all vague and unsupported hypotheses. That some local cause, however, must be conceived of as responsible for the local deposits seems necessary; we must wait for future researches to reveal it to us.

That distally placed joints and certain special fibrocartilages should be picked out by the gouty deposits is certainly interesting and peculiar. It can be no accident that these particular localities are sites of predilection. Some believe that nervous influences are answerable—a disease of peripheral trophic nerves (Paget) or disturbances of trophic centers (Duckworth, Luff). Others point out that the parts affected are, as a rule, poorly vascularized. Some of the localities, such as the joint of the great toe, are unusually exposed to pressure and trauma. Possibly the fact that cartilages are rich in sodium salts (Roberts) may be a factor. That the ears and peripheral joints, more than other parts, are exposed to cold is adduced by Mordhorst as, perhaps, important. Our knowledge at present is obviously wholly unsatisfactory regarding the matter.

To sum up this portion of our review, it may be said, then, that, while the tophi and the acute gouty paroxysm appear in different ways, both are apparently associated

5. Magnus-Levy, A.: Harnsäuregehalt und Alkalescenz des Blutes in der Gicht, Verhandl. d. xvi Kongr. f. inn. Med., 1898, 266.

with deposits of mononatrium urate. The mechanism of deposition is not yet wholly clear, though local conditions in the tissues must probably be held responsible in connection with the excess of uric acid in the blood. As to what those local conditions may be, we are as yet profoundly ignorant.

THE LARGER CHARITY.

The old Greek proverb ran, "Count no man happy until his death." In the more modern time it has been said, "Judge no man absolutely until you have read his last book." For those who felt that, in spite of its formal legal punishment, Oscar Wilde's fall was due to mental rather than to moral torsion, to the manifestation of a mind diseased rather than of a will impatient of restraint and hopelessly malicious, his last book, "De Profundis," which he deliberately left to be published posthumously, will prove the confirmation of this impression. Most physicians who have followed his career must have realized that many of his actions were associated with delusions of grandeur, though the world looked on them as scarcely more than the exhibition of overweening vanity. One of the most striking passages in De Profundis is that in which Oscar Wilde sums up what he considers to have been his influence on his generation. This passage reveals better than long hours of investigation of the living subject might have done the true pathologic character of the man. "I was a man," he says, "who stood in symbolic relations to the art and culture of my age. I had realized this for myself at the very dawn of manhood, and had forced my age to realize it afterward. Few men hold such a position in their own lifetime, and have it so acknowledged. It is usually discerned, if discerned at all, by the historian or critic, long after both the man and his age have passed away. With me it was different. I felt it myself, and made others feel it. Byron was a symbolic figure, but his revelations were to the passion of his age and its weariness of passion. Mine were to something more noble, more permanent, of more vital issue, of larger scope." This is, of course, superlatively egotistical, though not much more so than are many passages in Rousseau's Confessions. In both cases, however, the mental degenerescence is patent. Some time there will come the proper appreciation of these pathologic mental conditions that mean so much even for the apparently sane and consequent on it will inevitably develop that larger charity which forgives readily because it knows more of the real conditions, for it has been very well said that to know all would be to forgive all.

SMALLPOX HOSPITALS.

The report issued by the local government board of Liverpool with reference to the influence of smallpox hospitals in spreading the disease among persons living in their neighborhood, confirms the fact that these hospitals should be used not only for the purpose of isolating persons affected with smallpox, but should be themselves isolated so far as locality is concerned. Investigations from Liverpool during the recent severe and protracted epidemic of smallpox show that inhabited areas within a mile of each of the three hospitals used have suffered more severely than the city as a whole, and that within these hospital areas the dwellings nearer the hospitals have sustained a far heavier incidence of smallpox than those farther away. It is shown, further, that the exceptional incidence of smallpox within these areas has corresponded in point of time with the use of these hospitals for the treatment of acute cases of smallpox. It would be of interest, as well as of great importance from the standpoint of prevention, to know whether these findings are also true of the American isolation hospitals. As a rule, however, the isolation hospitals in this country are situated at some point remote from the city or in unpopulated or, at most, thinly populated portions of cities. So far as we are aware, comparatively few cases of smallpox, in proportion, have occurred in the inhabited areas surrounding the isolation hospitals.

ANTICIGARETTE LEGISLATION.

The anticigarette movement does not differ widely from the other "anti" industries in that it is marked by a disregard of facts and that its motive seems to be prejudice based on misinformation. It is peculiar, however, in the respect that one woman seems able to stampede state legislatures into the enactment of ridiculously drastic laws against the least harmful form of tobacco consumption. Indiana and Wisconsin recently have adopted anticigarette legislation that revives memories of the Inquisition. So far as purely physical well-being goes, those who totally abstain from all forms of tobacco have slightly the advantage. Some men for a good lifetime use large amounts of tobacco with impunity. Other men are unable to use even small quantities without more or less early ill effect. Between these groups are the majority of smokers who find that moderate use of tobacco does them no appreciable harm. Until maturity, men should not use tobacco in any form, as its ill effects at that period are definitely established. As to the different forms in which the tobacco temptation is set before us, cigarettes—unless they are sophisticated with the more injurious opium—are no worse for boys than are cigars or a pipe, but their very mildness puts them within the tolerance of the immature smoker. We hold that cigarettes should be kept away from boys, just as should all tobacco; and we endorse all rational efforts to that end. Among adults the use of cigarettes does less harm than the use of tobacco in any other form, with the sole exception that here, again, the very mildness of "the smoke" tempts many to inhale the vapor, and this habit of inhaling is likely in the long run to be detrimental to health. Cigar smoke is not usually inhaled, simply because it is too strong to be withstood by any but an organism most resistant to tobacco. On the other hand are numbers of men who without harm smoke cigarettes moderately and with enjoyment. The paper wrapper, from the hygienic standpoint, has certain decided advantages over the leaf wrapper. Finally, it seems peculiar that the "anticigaretters" should appear in the rôle of advocates of the use of the stronger preparations of the drug, but this is explained

by the vehement unreason of the movement which temporarily overrides the intelligence of the ill-informed. In its present instance it is overreaching itself. Too drastic laws can not be enforced, and the courts will fill them full of holes. This is unfortunate, because the inevitable reaction will again bring the temptation within reach of the young. What we need are moderate laws against the sale of any tobacco to boys, and then their strict enforcement. The cigarette will be with us long after the people of Indiana and Wisconsin have forgotten their present funny statutes.

THE CORSICAN METHOD IN PURE FOOD OPPOSITION.

The interests opposed to a national pure-food law are not noted for the nicest scruples in the choice of methods to postpone the inevitable day when the public health may no longer be made the sport of adulterating plunderers. Few, nevertheless, were prepared for the appalling revelation to be found in the editorial columns of *Collier's Weekly,* May 6, 1905. Therein it is alleged that, recognizing the inevitable failure of a fair combat of fact and argument, the associated adulterators have, without compunction, endeavored to deliver a stab in the back to the pure-food movement. We are told that two sensational and grossly overexaggerated articles, depicting in impossible terms and figures the evils of food and drug adulteration, which recently were widely circulated in the press as having been read before a late meeting in Chicago of the executive committee of the National Association of State Dairy and Food Departments, were never in any way presented to or endorsed or authorized by that association. One of these apocryphal articles was attributed to Dr. J. N. Hurty, secretary of the State Board of Health of Indiana, who, according to *Collier's,* has received a letter of regret from the secretary of the association. Dr. Hurty "delivered no address at all, and was not in Chicago at the time." Some of the devious ways of the "Senegambian" are not yet quite clear, but the plan seems to be to "out-Herod Herod," thus making the pure-food cause ridiculous and at the same time setting up a man of straw which can later be picked to pieces with great indignation and much parade of injured virtue. If *Collier's* information is accurate, its caption for the editorial is apt—"The Poison Campaign." The other article repudiated by the association is said to be by Dr. Edward Gudeman, a New York chemist whose past affiliations have not been with the pure-food cause. There is mention of a "pure-food expert," one "Professor" Hough, who, 'tis said, receives a $25,000 retainer as attorney for "the most powerful organization opposing pure-food legislation." Another who "receives mention" is Mr. Paul Pierce, who propounds in a recent issue of *Public Opinion* terrifying but unconvincing figures. Every physician must constitute himself a committee of one to get these and other facts concerning pure-food legislation before the public in their true light. Then it will be easy next autumn to lay before Congress a clean-cut issue. This is just what the adulterators fear, as the next Congress is a new one elected under the inspiration of the Roosevelt campaign. *Collier's* deserves credit and thanks for uncovering this apparent plot to lead the pure-food advocates into an untenable position.

STATE BOARD EXAMINATIONS DURING 1904.

We publish this week in tabular form,[1] the results of the examinations for medical licenses for 1904 in the various states and territories, together with the number of those licensed on diplomas. The peculiar conditions existing in Florida and in Indian Territory made it impossible to obtain from them reports that could be utilized. The statistical information regarding medical education and licensing included in these tables will be found most valuable and will bear careful study. Many lessons can be learned from these tables by those who are sufficiently interested to dig them out.

TABLE E—COLLEGES GROUPED BY STATES,
Showing Number Examined and Percentage of Failures.

COLLEGES OF	Graduates 1904.		Graduates 1900-04.		Graduates 1899 & prev.		Graduates all Years.		Rank Acc'd'g to No. Examined.	Rank Acc'd'g to Low Per Cent.
	Number Examined.	Per cent Failed.	Number Examined.	Per cent Failed.	Number Examined.	Per cent Failed.	Number Examined.	Per cent Failed.		
Alabama	32	3.1	36	2.8	5	20.0	41	11.1	21	10
Arkansas	1	0.	1	0.	1	100.0	3	33.3	32	30
California	116	18.1	157	17.8	6	50.0	163	18.9	11	23
Colorado	2	0.	20	5.0	4	0	24	4.2	28	2
Connnecticut	14	0.	36	5.5	4	0	40	5.0	23	3
D. of Columbia	82	12.2	135	12.6	12	33.3	148	14.8	14	17
Georgia	73	1.4	82	6.1	7	28.5	91	8.8	18	9
Illinois	720	4.9	936	6.6	81	23.4	1023	8.2	1	7
Indiana	34	8.8	40	10.0	4	75.0	45	15.5	22	19
Iowa	139	10.1	149	12.1	22	36.4	171	15.2	10	18
Kansas	8	0.	7	14.3	4	50.0	11	27.3	31	25
Kentucky	99	28.3	155	29.7	40	40.0	211	32.2	9	29
Louisiana	74	6.7	79	10.1	6	16.7	107	15.9	17	21
Maine	25	20.0	29	17.2	3	0	32	15.6	25	20
Maryland	399	27.8	579	28.8	41	26.8	620	28.7	4	26
Massachusetts	179	6.7	259	6.2	35	17.1	294	7.5	8	5
Michigan	67	3.0	119	7.5	40	27.5	159	12.5	12	13
Minnesota	101	8.9	139	12.9	10	10.0	149	12.8	13	14
*Missouri	176	16.5	230	24.3	79*	48.1	310	30.3	7	27
Nebraska	83	6.0	100	10.0	8	25.0	108	11.1	16	11
New Hampshire	5	0.	12	8.3	2	50.0	14	13.6	29	15
New York	391	2.5	564	2.8	82	22.0	646	5.3	3	4
North Carolina	44	34.1	58	39.6	.....	.....	58	39.6	20	32
Ohio	211	9.0	257	14.8	58	39.7	316	19.3	6	24
Oregon	28	3.6	29	3.4	.....	.....	29	3.4	26	1
Pennsylvania	439	8.0	610	10.6	49	22.4	659	11.5	2	12
South Carolina	21	4.8	24	4.2	2	50.0	26	7.7	27	6
Tennessee	219	25.1	315	3.0	72	29.2	476	30.7	5	28
Texas	25	16.0	33	15.1	2	0.	35	14.3	24	16
Vermont	56	8.9	74	8.1	13	69.2	87	17.2	19	22
Virginia	80	6.2	119	8.4	9	11.1	129	8.5	15	8
Wisconsin	8	37.5	12	33.3	.....	.....	12	33.3	30	31
All States	3951	11.2	5395	13.9	701	30.5	6241	16.0	....	....

* Figures for Missouri would doubtless be different, but owing to the fact that the year of graduation was not kept we could not use their report, not being able to differentiate between graduates and non-graduates.

As will be seen, Illinois had the largest number examined before the various state boards, followed by Pennsylvania, New York, Maryland, Tennessee and Ohio. Of the states having 100 or more examined, New York ranks first in having the lowest percentage of failures, followed, respectively, by Massachusetts, Illinois, Nebraska and Pennsylvania. Twenty-one states secure rank above the average.

Table A shows the number licensed from all colleges, and from the undergraduates. Table B gives the results of 1904 graduates. It is seen that of all candidates examined during 1904, 3,982, or 56.5 per cent., were graduates of 1904. In Table C we have taken graduates from 1900 to 1904, inclusive, to represent recent graduates, while Table D is made up of graduates of 1899 and previous years as representing older practi-

1. The larger tables are inserted opposite page 1476.

TABLE F—COLLEGES HAVING 50 OR MORE EXAMINED.

TABLE SHOWS TOTAL NUMBER EXAMINED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES.

NAME OF COLLEGE.	Graduates 1904.			Graduates 1900-1904.			Graduates 1899 and Prev.			Graduates all Years.			Margin No.
	No. Examined.	Per Cent Failed.	No. States.	No. Examined.	Per Cent Failed.	No. States.	No. Examined.	Per Cent Failed.	No. States.	No. Examined.	Per Cent Failed.	No. States.	
Rush Medical College	124	0.8	13	221	2.3	25	39	25.6	16	260	5.8	26	32
University of Illinois	191	3.6	17	227	5 3	20	17	29.4	13	244	7.0	22	25
College of Physicians and Surgeons, N. Y.	135	3.7	14	221	3.2	22	17	11.8	10	238	3.8	26	101
Jefferson Medical College	136	7.3	22	195	10.3	29	20	30.0	16	215	12.1	34	130
Northwestern University Medical School	129	2.3	17	147	1.4	21	12	0.	9	161	1.3	23	31
Memphis Hospital Medical College	58	26.3	7	81	25.9	10	11	9.1	6	161	36.7	13	141
Harvard University Medical School	90	0.	6	134	0.	13	22	4.5	13	156	0.6	17	70
University of Maryland	93	24.7	18	134	23.1	18	7	14.5	8	141	22.7	20	65
University of Pennslyvania	70	5.7	9	118	5.9	21	13	8.3	9	131	6.1	26	128
College of Physicians and Surgeons, Balt.	80	30.0	14	107	28.0	20	19	15.8	12	126	26.2	25	62
Baltimore Medical College	84	21.4	16	114	24.5	20	8	25.0	10	121	24.0	26	60
University of Michigan	52	3.8	19	87	4.6	26	22	31.8	13	109	10.0	29	76
University of Minnesota	80	1.3	6	98	2.0	11	8	0.	7	106	1.9	13	79
Medico-Chirurgical College, Phila., Pa	78	16.7	7	98	21.4	13	4	0.	4	102	20.8	16	132
Bellevue Hospital	38	2.6	6	58	1.7	6	41	26 8	27	99	12.1	30	107
Maryland Medical College	74	37.8	13	91	39.6	16	.....	.....	.....	91	39.5	16	67
Tulane University	69	4.3	5	69	4.3	5	4	25.0	4	89	7.8	9	58
University of Vermont	56	8.9	8	74	8.1	10	13	69.2	7	87	17.2	12	154
Hahnemann Medical Col. and Hos., Pa	69	1.4	8	82	2.4	15	2	50.0	3	84	3.6	16	129
Western Pennslyvania Medical College	53	7.5	4	68	16.1	5	4	50.0	3	72	18.0	7	133
University of the South	38	47.4	9	63	49.2	15	3	66.7	3	70	51.4	17	142
Columbian University, D. C	44	4.5	7	66	3.0	13	4	25.0	5	70	4.3	16	15
Cornell University	47	2.1	4	67	1.5	7	2	50.0	2	69	2.8	8	102
Tufts College Medical School	44	6.8	4	63	7.9	11	6	83.3	4	69	14.5	11	71
Illinois Medical College	42	11.9	10	61	19.7	17	2	50.0	2	65	21.5	19	29
University of Iowa	55	10.0	6	57	8.7	5	8	37.5	8	65	12.4	8	46
Baltimore University	27	45.9	13	59	67.8	14	5	80.0	5	65	69.2	15	61
Barnes Medical College	33	12.1	10	51	23.5	18	12	50.0	11	65	30.8	24	89
Keokuk Med. Coll. of Physicians and Surg.	45	15.5	3	53	18.9	5	9	33.3	9	62	21.0	11	43
Ohio Medical University	37	5.4	5	42	11.9	10	18	38.9	14	61	19.7	20	121
Johns Hopkins University	26	3.8	15	58	1.7	20	1	0.	1	59	1.7	20	63
Medical College of Virginia	44	6.8	4	54	7.4	4	3	0.	4	57	7.0	6	155
Hahnemann Medical Col., and Hos., Chi.	45	2.2	6	52	1.9	9	3	33.3	4	55	3.6	22	26
Woman's Medical College of Pennsylvania	32	9.4	10	48	8.3	13	6	16 7	5	54	9.2	12	131
Chicago Homeopathic Medical College	40	7.5	9	49	12.2	11	4	0.	5	53	11.3	14	23
Marion Sims-Beaumont Col. of Med., St. L.	40	10.0	9	44	13.6	11	8	25.0	10	53	15.1	17	90
Albany Medical College	38	2.6	3	46	4.3	5	5	60 0	3	51	9.8	7	100
Long Island College Hospital	35	0.	2	48	2.1	3	3	0.	4	51	2.0	7	104
Vanderbilt University	24	0.	6	29	0.	8	22	9.1	13	51	5.9	18	138
Kentucky School of Medicine	20	35.0	7	40	27.5	15	10	40.0	9	50	30.0	21	51
University of Buffalo	39	5.1	3	44	6.8	3	6	16.7	5	50	8.0	7	109
Medical College of Ohio	37	0.	2	43	0.	6	7	14.5	7	50	2.0	11	118
Totals	2591	10.0	.....	3561	11.6	.....	430	26.7	.....	4088	14.0	46	

Eleven of the above 42 colleges had a failure percentage of 5 or less, and ten were between 5 and 10 per cent. Therefore half of the group had a percentage of 10 or less. Only two colleges had a failure percentage above 40, Baltimore University reaching 69.2 and the University of the South 51.4.

Some of the colleges show a better percentage among their older graduates than among the recent, an apparent retrogression. The majority, however, as shown by the average percentages seem to be lowering their failure percentages, which points to a higher standard.

In making comparisons, beside the percentage, one must consider also the number examined and the number of state boards before which the college was represented. The above group is arranged according to the number examined. As to the representation before state boards, Jefferson leads with a record of 34, followed by Bellevue, 30; University of Michigan, 29, and Rush, Physicians and Surgeons, New York, and Baltimore Medical Colleges, each before 26. Sixteen colleges were represented before twenty or more different state boards.

tioners. Tables B, C and D are made for the purpose of showing the standing of graduates of the year, of the recent graduates—since 1900—and of the older practitioners. The information here supplied may help in solving the problems connected with the reciprocity movement. We find 5,551, or about 79 per cent. of the total, to be recent graduates, while about 12 per cent. of the total are older practitioners.

Table E is based on the first four tables, and is interesting since by it we can see whether the colleges in a particular state, as a group, are progressing. It is encouraging to note that in almost all states the percentage of failures is smaller for the 1904 graduates than for the 1900-1904 group and is smaller for this second group than for the graduates of 1899 and previous. Further, this table shows which states send out the most physicians and, if grades mean anything, the class of physicians.

Table F, likewise based on the first four tables, allows us to make comparisons between the larger colleges, or the 42 having 50 or more candidates examined before state boards during the year. There were 147 colleges represented, while 105, or 71 per cent., had less than 50 candidates each, and 62, or 42 per cent., had less than 25 candidates each. To put it another way, 2,271, or about 32 per cent. of all the candidates, came from 14, or 9.5 per cent. of all the colleges represented, while 4,088, or 58 per cent. of all candidates, came from 42, or 29.3 per cent., of the colleges.

A study of the failures is likewise interesting. The 14 colleges above mentioned, while furnishing 32 per cent. of all candidates, had less than 20 per cent. of all failures, while the 42 largest colleges, although having 58 per cent. of all candidates, had only 41.4 per cent. of all failures, thus favoring the larger colleges from the standpoint of excellence.

While 1904 graduates made up 56.5 per cent. of all candidates, they had only 449, or 32.9 per cent., of the 1,363 failures. The recent graduates (of 1900 to 1904, inclusive), while giving 5,551, or 79 per cent.

TABLE G—COMPARING RESULTS IN HOME STATES AND ELSEWHERE.

Marginal Number.	Result in home state.		Results in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
1	3	..	..	..	....	3
2	27	1	1	..	....	29
3	1	..	..	..	....	1
4	35	3	1	..	1	40
5	22	2	..	..	....	24
6	3	2	..	1	....	6
7	6	..	..	..	....	6
8	7	10	..	..	2	19
9	..	..	..	..	....	..
10	20	3	1	..	....	24
*11	..	..	..	..	26	26
*12	..	..	..	..	6	6
*13	..	..	2	..	13	15
14	11	..	3	..	....	14
15	28	..	14	2	....	44
16	8	1	9	..	1	19
17	3	3	10	4	....	20
18	24	..	4	..	....	28
19	15	..	1	1	....	17
20	25	..	2	..	....	28
21	1	..	4	..	....	5
22	10	..	2	..	....	12
23	25	..	12	3	3	43
24	11	4	1	1	1	18
25	141	2	43	5	6	197
26	35	1	9	..	....	45
27	15	2	2	1	....	20
28	8	..	7	..	....	15

Marginal Number.	Result in home state.		Result in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
29	29	2	8	3	....	42
30	18	1	..	..	....	19
31	72	..	54	3	3	132
32	103	..	20	1	4	128
33	13	4	2	..	....	19
34	19	2	3	..	....	24
35	18	..	..	..	....	18
36	8	..	..	1	....	9
37	13	2	6	..	....	21
38	3	..	..	..	....	3
39	..	..	..	..	....	..
40	1	..	..	..	....	1
41	..	..	..	..	....	..
42	13	..	..	..	....	13
43	37	6	1	1	1	46
44	12	..	4	2	1	19
45	8	..	..	..	....	8
46	48	3	2	2	1	56
47	..	..	3	..	....	3
48	1	..	4	..	....	5
49	..	..	..	..	....	..
50	..	1	5	8	62	76
*51	..	..	13	7	31	51
*52	..	..	15	1	29	45
*53	..	..	..	..	....	..
*54	..	..	..	1	....	1
*55	..	..	17	5	35	57
*56	..	..	21	5	23	49

Marginal Number.	Result in home state.		Result in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
57	2	2	1	..	....	5
58	53	..	13	3	1	70
59	19	5	1	..	....	25
60	12	6	54	12	....	84
61	..	2	10	15	8	35
62	15	10	41	14	2	82
63	5	..	20	1	....	26
64	12	..	2	..	....	14
65	31	13	39	10	1	94
66	1	..	..	..	....	1
67	8	10	38	18	1	75
68	12	..	8	1	....	21
69	9	4	7	4	....	24
70	82	..	8	..	....	90
71	37	3	4	..	....	44
72	4	..	8	..	1	13
73	1	..	1	..	....	2
74	..	..	1	..	....	1
75	..	..	..	..	....	..
76	30	..	20	2	1	53
77	..	..	..	..	1	1
78	..	..	..	..	....	..
79	63	1	16	..	....	80
80	9	6	4	2	....	21
81	..	..	..	..	....	..
*82	..	..	4	2	6	12
*83	..	..	4	3	36	43
*84	..	..	2	..	7	9

Marginal Number.	Result in home state.		Result in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
*85	..	..	6	3	8	17
*86	..	..	2	1	9	12
*87	..	..	3	1	4	8
*88	..	..	6	1	13	20
*89	..	..	29	4	66	99
*90	..	..	36	4	32	72
*91	..	..	25	4	22	51
*92	..	..	..	1	6	7
*93	..	..	1	4	5	10
*94	..	..	27	1	29	57
*95	..	..	2	..	5	7
96	28	..	1	..	2	31
97	23	..	7	..	....	30
98	18	4	1	1	3	27
99	1	..	4	..	....	5
100	35	1	2	..	....	38
101	102	4	28	1	1	136
102	42	1	4	..	....	47
103	7	..	..	..	3	10
104	34	..	1	..	....	35
105	17	..	1	..	....	18
106	4	..	..	..	....	4
107	30	..	7	1	....	38
108	27	..	3	..	....	30
109	37	2	..	..	2	41
110	2	1	6	14	....	23
111	..	..	..	..	....	..
112	16	..	1	..	....	17

Marginal Number.	Result in home state.		Result in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
113	4	..	..	..	....	4
114	25	..	..	1	....	26
115	11	..	1	..	....	12
116	13	3	4	2	1	23
117	6	1	6	2	....	15
118	37	..	..	..	1	38
119	4	..	1	1	1	7
120	14	..	3	2	6	25
121	30	2	5	..	5	42
122	26	2	3	1	....	32
123	3	2	..	..	....	5
124	..	..	..	..	....	..
125	16	..	2	..	....	18
126	8	..	1	1	....	10
127	1	..	..	..	....	1
128	56	4	10	..	1	71
129	52	..	16	1	....	69
130	78	7	48	3	1	137
131	17	1	12	2	2	34
132	50	13	15	..	....	78
133	45	4	4	..	....	53
134	19	1	1	..	....	21
135	2	2	..	..	2	6
136	..	..	..	..	....	..
137	8	1	10	1	2	22
138	17	..	7	..	....	24
139	5	4	4	2	5	20
140	7	4	20	5	7	43

Marginal Number.	Result in home state		Result in all other states.		Registered on Diploma.	Total.
	P	F	P	F		
141	12	4	31	11	....	58
142	..	..	20	18	....	38
143	..	..	..	..	....	..
144	5	..	14	2	1	22
145	..	..	2	1	....	3
146	..	..	1	..	....	1
147	17	..	1	..	....	18
148	..	1	1	..	....	2
149	..	..	..	..	....	..
150	1	2	..	1	....	4
151	..	..	..	..	....	..
152	..	..	..	..	....	..
153	..	..	..	..	....	..
154	30	..	21	5	....	56
155	30	2	11	1	....	44
156	17	1	8	..	....	26
157	6	..	3	1	....	10
158	..	..	..	..	....	..
159	..	2	2	..	....	4
160	2	1	1	..	....	4
Total..	2596		1355		559	4510
Passed	2402		1105		....	3507
Failed.	194		250		....	444
Per Cent of Failures.	7.5		18.4		....	11.2

This table is a summary of Table B. All graduates who were examined in the state in which the college is located are grouped in one column, while all the graduates of that college who were examined in other states are in another column. This is for the purpose of showing the number of graduates who stay in the state in which the college is located; also to show what is evidently a fact, that, as a rule, the graduates of a certain school have a much better chance of passing the examination in the state in which the school is located than they have elsewhere. This should always be considered in making comparisons between colleges. A college having an exceedingly low standard, by having its graduates all locate in the home state, may thus show a lower percentage of failures than a college of much higher standard. This table will enable one to correct such an impression.

Colorado, Kentucky and Missouri registered without examination graduates of their own schools. These are starred in the table. There is nothing, therefore, to appear in the first double column opposite the colleges of these states.

To save space, marginal numbers are used in place of names of colleges. The numbers correspond with those in the large tables.

To illustrate the working of the table, take college No. 15: By reference to Table B, 15 is seen to be Columbian University, which is located in the District of Columbia. This institution had 28 graduates pass in the home state (District of Columbia) and none fail. In all other states there were 16 graduates examined, of whom 14 passed and 2 failed. P means passed, F failed.

of all candidates, have only 781, or 57.3 per cent. of all failures. On the other hand, the older practitioners, having 824, or 12 per cent. of all candidates, furnished 250, or about 18 per cent. of all failures.

The largest percentage of failures, of course, came in the 660 undergraduates (and others where the year of graduation had not been recorded). These furnished about 9 per cent. of all candidates and 340, or 24.8 per cent. of all failures. These results show progress in the right direction.

States vary much in the severity of marking. Kentucky, where the law requiring examination began only during the year, rejected 8 out of 12, or 60 per cent. of all applicants. Oklahoma is next (likewise but recently holding examination), rejecting 54.5 per cent. of all applicants.

The percentages by the various state boards must not be considered alone, however, since some states—New York, for example—scrutinize the applicants' credentials very carefully beforehand and thereby reject without examination most of those who otherwise would swell the number of rejected applicants.

Colorado, Kentucky, Missouri and Wyoming issued licenses without examination during part or all of 1904 on presentation of a diploma from a recognized medical college. The first three also held examinations the latter part of the year and hereafter in those states all applicants will have to pass examination. Undergraduates are allowed licenses on passing examination in Alabama, Arkansas, Colorado, Mississippi, Missouri, Oklahoma, Tennessee and West Virginia.

It is certainly gratifying to THE JOURNAL to be able to publish such complete statistics on this subject, and for this it desires to thank the secretaries of the various boards for their hearty and complete co-operation with us. We feel that the results are well worth the labor.

Medical News

DISTRICT OF COLUMBIA.

Smallpox.—It is reported that smallpox in virulent type has broken out in Washington.

Hospital Changes.—Dr. T. J. Sullivan has been made resident physician of the Washington Asylum Hospital, vice Dr. David C. Coleman, resigned.——Dr. Martin has been appointed resident physician at the Emergency Hospital, Washington, vice Dr. De Haven Sharp, resigned. Dr. John Holmes succeeds Dr. Martin.

Army Medical School Commencement.—The annual commencement exercises were held in Washington, April 11, when Surgeon-General Robert M. O'Reilly presented diplomas to 11 officers of the medical corps of the army; 2 contract surgeons, and 5 National Guard medical officers. Col. Charles L. Heizmann, assistant surgeon general, presided.

New Army Hospital.—The Secretary of War has approved the recommendation of the surgeon general for the erection of a new general army hospital nearly opposite the Battle National Cemetery. The property acquired contains 43 acres and cost about $98,000. The limit of cost of the hospital as fixed by congress was $300,000, of which $100,000 was made immediately applicable for the purchase of the site.

ILLINOIS.

March Smallpox.—During March 227 cases of smallpox, with 6 deaths, were reported to the State Board of Health.

Will Give Hospital.—Dr. John Warner, Clinton, will build and endow a public hospital at Clinton. The building is expected to cost $35,000.

Personal.—Dr. William J. Eddy has been elected mayor of Shelbyville.——Dr. Edmund B. Owens, has been appointed health commissioner of Dixon.——Dr. Jane R. Keefer, Sterling, was recently operated on for appendicitis and gallstone disease, at Augustana Hospital, Chicago, and is progressing favorably toward recovery.

Steal March on County Society.—It is reported that three practitioners of Champaign County, whose names do not appear either in the Illinois Official Register or in Polk's Directory, and who were barred from membership in the Champaign County Medical Society, have retaliated by incorporating as the "Champaign County Medical Society or Association, Champaign; Scientific; Fraternal."

Legislative News.—The Committee on Judiciary of the House of Representatives gave a hearing on the optometry bill (Senate No. 237) May 2. The passage of the bill was urged by the secretary of the Illinois Optical Society. Drs. Wm. H. Wilder and E. V. L. Brown, representing the Chicago Medical Society, and J. A. Egan of the State Board of Health, argued against the bill. At the conclusion of the hearing the bill was killed by a unanimous vote of the committee.——The status of the anti-vivisection bill is unchanged.——Senate bill No. 311 (osteopathy), referred to the House April 21, was read the first time May 2, and referred to committee on judiciary.

Chicago.

On Coroner's Staff.—Dr. Warren H. Hunter has been appointed a member of the medical staff of the coroner's office. ——Dr. Otto W. Lewke, it is announced, will be retained.

Low April Death Rate.—Up to April 29 there had been reported 2,222 deaths, equivalent to an annual death rate of 14.02 per 1,000. This is the lowest April death rate except one, in 1897, which was 13.84. The average April death rate for the decennium was 16.22 per 1,000.

Meningitis Figures.—Since the last cerebrospinal fever flurry in 1898, when the disease caused 17 deaths all told in Chicago, there has been an average decrease of 21 per cent. in the deaths from the different forms of meningitis—epidemic, tubercular, cerebral and spinal—and the greatest total number of deaths from the epidemic form in any year was 18 in 1899.

The Deaths of the Week.—During the week ended April 29, 527 deaths were reported, equivalent to an annual mortality of 13.80 per 1,000. Consumption retains the lead with 83, followed by pneumonia, 74; nephritis, 42; heart diseases, 36; acute intestinal diseases and cancer, each 30; violence, 29; whooping cough, 27; measles, 9; diphtheria, 6, and typhoid fever, 3.

German Hospital Staff.—The revised list of the medical staff of the German Hospital is as follows: Consulting physician, Dr. Julius H. Hoelscher; attending physicians, Drs. Rudolph Menn and Frank W. Lambden; attending surgeons, Drs. William C. Wermuth and Emanuel J. Senn; attending gynecologists, Drs. H. Edward Sauer and Cecil von Bachelle; attending oculist and aurist, Dr. David Fiske; attending obstetrician, Dr. Wallace F. Grosvenor, and skin and urinary diseases, Dr. Louis E. Schmidt.

MICHIGAN.

Appropriation Allowed.—As a result of persistent effort on the part of the medical profession of Detroit, the common council appropriated $100,000 for the contagious disease hospital, of which the city is in great need.

Commencement.—The thirty-seventh annual commencement exercises of the Detroit College of Medicine were held at the Light Guard Armory May 4.——From April 26 to May 6, the annual clinic of the Alumni Association of the college was held.

In Peril by Fire.—The house of Dr. Oliver P. Barber, Saginaw, was destroyed by fire April 17. Dr. Barber, who was alone in the house, attempted to lower himself from his bedroom window by means of a sheet, which gave way and he fell, breaking several fingers and spraining both ankles. The loss was about $20,000.

Personal.—Dr. Ernest Shillito has been appointed health officer of Marcellus township.——Dr. Arthur S. Scott, Laingsburg, has been appointed health officer of that village and of Sciota township.——Dr. Elliott K. Herdman has been re-elected city physician of Ypsilanti.——Dr. Walter E. Wilson, Grand Ledge, has been appointed a member of the State Board of Pardons, vice Dr. Frank W. Shumway, Williamston.——Dr. Louis S. Joy has been re-elected health officer of Marshall.——Dr. George L. Chamberlain has retired from the superintendency of the Upper Peninsula Hospital for the Insane, Newberry.——Dr. Charles Freiberg has succeeded Dr. Morton Gallagher as a member of the Bay City Board of Health.

NEBRASKA.

Creighton Commencement.—A class of 34 was graduated from Creighton Medical College, Omaha, April 29. Dr. Albert P. Condon delivered the doctorate address.

Silver Jubilee of Hospital.—Creighton Memorial (St. Joseph's) Hospital, Omaha, celebrated the twenty-fifth anniversary of its institution, with solemn ceremony, April 27.

Personal—Ray L. Pheasant returned to his home in Osceola, from Europe, April 14.——Dr. William H. Slattery has been made city physician of Lincoln, vice Dr. John V. Beachly.

Governor Vetoes Medical Bill.—The medical profession of Nebraska again passed through its biennial struggle for better medical legislation in vain. The McMullen Bill was a clear, legal definition of what constitutes a physician and how one shall be recognized as such. It provides that any one shall be considered a legal physician, and required to apply for and to receive a license, after a successful examination, who holds himself out to the public as being able to diagnose human disease, who prescribes any form of treatment for the palliation, relief or cure of any physical or mental ailment, with the intention of receiving compensation therefor, or one who uses any title to indicate that he treats human diseases, or one who maintains an office for the diagnosis or treatment of disease. It also provides that any one who thus holds himself out as a physician and who does not possess a license shall be fined, on conviction, $50 to $300 and costs. This bill was passed by the house without amendment. It covers every phase of medical practice, and was modeled on the ideal medical bill, first suggested by Dr. Van Meter of Colorado. The senate amended the bill so that the osteopaths were to be exempted from examination in all questions relating to the administration of drugs and the treatment of disease. This amendment was concurred in by the house and the amended bill was sent to the governor for his signature, but the governor vetoed the bill.

NEW JERSEY.

New Hospital.—The Jersey City Board of Finance has ordered the issue of bonds to the amount of $200,000 for a new city hospital. The construction is to be under the charge of the Board of Health.

Hospital Examinations.—An examination for the position of resident physician in the Atlantic City Hospital was held in the hospital building, May 6.——Examination for two positions on the resident staff of St. Joseph's Hospital, Paterson, was held at the hospital April 11.

Donation to Trenton Hospital.—Charles G. Roebling, head of the Roebling corporation in Trenton, has donated $20,000 to St. Francis Hospital, the income of which is to be used annually toward the running expenses of the institution. The money is invested so as to net the hospital $1,000 a year.

Personal.—Dr. Frank C. Henry, member of the assembly, has been appointed health officer of the port of Perth Amboy.——Drs. Paul L. Cort, Trenton, and Paul Traub, Bordentown, have been elected to the staff of Mercer Hospital, Trenton.——Dr. Daniel Jenifer, Loch Raven, Md., has been appointed resident physician at the Atlantic City Hospital.

Medical Society Meeting.—At the annual meeting of the Camden County Medical Society, April 25, Mrs. Lydia Mecray presented to the society a portrait in oil of the late Dr. Alexander Mecray. The following officers were elected: President, Dr. William A. Westcott, Berlin; vice-president, Dr. Joel W. Fithian, Camden; secretary, Dr. Paul M. Mecray, Camden; treasurer, Dr. Sylvan G. Bushey, Camden; historian, Dr. Alfred Cramer, Camden; reporter, Dr. Ezra B. Sharp, Camden; censor, Dr. Duncan W. Blake, Gloucester City, and trustee, Dr. H. Genet Taylor, Camden.

NEW YORK.

Sanatorium Burned.—Verona Springs Sanatorium, owned by Dr. Gilbert N. Lehr, Rome, was destroyed by fire, April 21, with a loss of $25,000.

Albany Medical College held its seventy-fourth annual commencement exercises, May 2, graduating a class of 53. Dr. Hermon C. Gordinier delivered the address of welcome, and Hon. Judson S. Landon delivered the address of the day.

Osteopathy Bill Defeated.—Senator Davis' bill regulating osteopathy was defeated by a very close margin of 2 votes. As he promised to introduce it again later it behooves the medical profession to watch and guard this most pernicious class legislation.

Alumni Clinics.—A feature of this year's meeting of the Alumni Association of the University of Buffalo, aside from the scientific papers and the annual banquet, was a well-arranged series of clinics given May 4 and 5, at various hospitals, especially for the benefit of the alumni.

Hospital Notes.—Malone Hospital Association has been incorporated "to erect and maintain a hospital for the reception and treatment of suitable medical and surgical patients."——The new hospital in connection with the Orleans County Almshouse, Albion, erected at a cost of $25,000, has been completed.

Work of the Legislature.—The bill abolishing coroners in the City of Greater New York passed the senate by a vote of 29 to 16.——The assembly has passed the bill abolishing the state boards of visitation of the state hospitals and restoring the local boards of management. Each local board will consist of seven members, two of whom are women, and will be appointed by the governor.——After a hard fight the senate, by a vote of 24 to 19, defeated the bill placing the osteopaths under the jurisdiction of the State Board of Regents and compelling all masseurs to pass an examination.——Another bill passed by the senate provides that any member of the State Lunacy Commission or medical inspector may visit any sanitarium or other institution to see if insane persons are confined in them.——The Fish bill has passed the assembly. This bill requires every person having charge of a milk-gathering station shall be licensed by the State Commissioners of Agriculture. The bill is designed to break up the practice of skimming milk, to get the cream, at stations where milk is received for shipment to New York.——The governor signed the bill authorizing New York City to cancel assessments against Manhattan Hospital for local improvements.——A bill has been introduced repealing the compulsory vaccination law by providing that a pupil in a public school need not submit to vaccination if a parent or guardian will submit an affidavit that such vaccination would endanger the health of the child.——A bill has been presented to increase the pay of all inspectors of the Health Department, irrespective of the work performed. This measure has been denounced by the secretary of the City Club.

New York City.

New Milk Laboratory.—Nathan Straus has purchased property on East 32d Street on which he will erect a new laboratory for the pasteurization of milk for the poor of the city. Work will be begun on the new building June 1.

Personal.—Dr. L. Pierce Clark has been appointed consulting neurologist at the Craig Colony for Epileptics, Sonyea.—Dr. Silas C. Blaisdell, Brooklyn, had his right leg fractured, April 23, when his automobile collided with an electric car.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 22, 356 cases of measles, with 16 deaths; 314 cases of tuberculosis, with 189 deaths; 294 cases of diphtheria, with 42 deaths; 212 cases of scarlet fever, with 12 deaths; 111 cases of cerebrospinal meningitis, with 104 deaths; 15 cases of typhoid fever, with 7 deaths; and 61 cases of chicken-pox.

Sloane Maternity Statistics.—Among the first 15,541 confinements there was a fetal mortality for induced labor in contracted pelves of 21 per cent.; for medium forceps in contracted pelves 20 per cent., and for high forceps operations performed for contracted pelves 57.6 per cent. Where version was performed for pelvic deformity, the fetal mortality was 46.3 per cent. In 5 symphysiotomies, one baby was stillborn and two mothers died from sepsis, a maternal mortality of 40 per cent., and an infant mortality of 20 per cent. The records show that 56 craniotomies have been performed for pelvic obstructions.

OREGON.

Personal.—Dr. Kenneth A. J. Mackenzie, Portland, has been appointed medical director of the Lewis and Clark Exposition.

Dr. Mackenzie Weds.—Dr. Kenneth A. J. MacKenzie, Portland, chairman of the Committee of Arrangements for the coming session of the American Medical Association, was married, April 26, to Mrs. R. E. Brown of Spokane, Wash.

New Building for Sanitarium.—A new building is being erected at Mount Tabor for the Crystal Springs Sanitarium, of which Dr. Henry W. Coe has been president for the last 12 years. Dr. Robert L. Gillespie is resident medical director and Dr. William House, resident physician.

Hospital for Fair.—An emergency hospital is under construction on the exposition grounds, near the Forestry building. The structure will be one story in height, and will contain about ten rooms. Two trained nurses and two house surgeons will be in charge under the supervision of the medical director.

Health Board Changes.—At the meeting of the State Board of Health, March 21, Dr. Andrew C. Smith, Portland, was re-elected president; Dr. E. Barton Pickel, Medford, was elected vice-president, and Dr. Robert C. Yenney, Portland, secretary and State Health Officer, vice Dr. Woods Hutchinson, resigned.

Colleges Send Forth Graduates.—The commencement exercises of the medical department of the University of Oregon, Portland, were held April 17. A class of 27 was graduated. Hon. M. C. George delivered the annual address. Dr. George B. Story delivered the charge to the class, and President P. L. Campbell of the university, conferred the degrees.——On March 31, a class of 7 was graduated from the Medical Department of Willamette University, Salem. Dr. Walter T. Williamson, Portland, delivered the address to the graduates and President Coleman of the university awarded the diplomas.

PENNSYLVANIA.

Smallpox.—Fannett township, Franklin County, is under quarantine on account of 50 cases of smallpox.——The epidemic at Paxtang is said to be over.

Personal.—Dr. David S. Quickel has been made president of the York Haven Board of Health.——Dr. J. D. Hogue has been appointed resident physician at the Altoona Hospital.——Dr. Thomas B. Weaver, Allentown, has been selected as resident physician of St. Luke's Hospital, South Bethlehem.——Dr. Frank Swartzlander has been elected president of the Doylestown Board of Health.

Again Expelled.—Dr. James R. Care, Norristown, who was expelled from the Montgomery County Medical Society, who appealed to the County Court, alleging that the action of the society was irregular and without cause, and who was sustained and ordered reinstated, tendered his resignation; it was not accepted, as charges had been preferred against him, and he was again expelled, the cause assigned being the rules relative to dues.

Bills Approved.—The bills creating a department of health with a commissioner at its head at a salary of $10,000, appropriating $50,000 to be used as an emergency fund by the department for the suppression of epidemics in the next two years were signed and approved by Governor Pennypacker, April 27. The bill abolishes the State Board of Health and advises the governor to appoint an advisory board of five physicians, and one civil engineer to assist the Commissioner of Health. The commissioner is authorized to apportion the state in 10 districts for the registration of vital statistics, and to appoint an officer for each district at an annual salary of $2,500. The bill also gives the commissioner control of the streams of the state, except waters pumped from coal mines or tanneries, and authorizes him to establish sanitary regulations for the state.——The bill prohibiting the use of preservatives and harmful coloring matter in fruit syrups was also approved and signed by the governor.

Philadelphia.

Philadelphia, Not Baltimore.—The news item entitled "Diphtheria Statistics," which appeared in last week's issue under the head of "Baltimore," should have appeared in the news from Philadelphia, to which the statistics refer.

Health Report.—The total number of deaths reported for the week reached 552, an increase of 97 over the number reported last week, and a decrease of 39 over the number reported during the corresponding period of last year. There was a decided increase of typhoid fever, which is spread throughout the city. There were 289 cases of typhoid fever reported for the

week, with 20 deaths, as compared with 149 cases and 10 deaths for the previous week. The principal causes of death were as follows: Typhoid fever, 20; tuberculosis, 70; cancer, 18; apoplexy, 26; heart disease, 67; acute respiratory diseases, 73; enteritis, 14, and nephritis, 45. The total number of contagious disease cases reported for the week were 380, with 24 deaths, as compared with 358 cases and 22 deaths for the previous week.

Personal.—Dr. Edward E. Montgomery and Dr. S. Lewis Ziegler were guests of honor at a banquet given by the Sigma Chi Fraternity of the Medical Department of the University of Pennsylvania, May 4.——Dr. Horatio C. Wood delivered a lecture before the Academy of Medicine, Columbus, Ohio, April 24, on "Proprietary Therapeutics." A banquet was given in his honor after the lecture.——Dr. Charles H. Frazier addressed the York Alumni Association of the University of Pennsylvania at the annual banquet, April 27.——Dr. Albert C. Sautter sailed for Europe April 27.——Dr. Adolph Koenig of Pittsburg, president of the state association, was the guest of honor at a reception given by the Medical Club of Philadelphia, April 28.——Dr. George Y. MacCracken, who was reported last week in THE JOURNAL to have sustained a fracture of the patella, was operated on in the German Hospital for this condition.

Must Support Rich Insane.—It is estimated that over $100,000 a year will be saved by this city under the decision handed down by Judge Beitler, to the effect that the Quarter Sessions Court has the power to commit for contempt any person not complying with the order to pay $1.75 for the support of a relative in a state insane hospital. It is also stated that even a larger sum can be collected from persons well to do, who have paid nothing for relatives kept as paupers in the insane hospitals in some cases for a period of many years. The decision was based on a rule against Henry M. Tait, to show cause why an attachment should not issue for his failure to obey an order made by the court to pay $1.75 per week for the support of his wife. Judge Beitler, in his opinion, says: "Margaret M. Tait was committed to the State Hospital at Norristown in 1893. Since that time the county of Philadelphia has been paying for her maintenance at the rate of $1.75 per week. On September 24, 1904, this court made an order on the defendant that he pay the county of Philadelphia $1.75 for the maintenance of his wife. This order the defendant had never complied with. The question is, can he be attached for failure to obey the court's order, or is the city confined to suits from time to time to collect from him the money owing. The act of May 21, 1889, provides that the expense of the care and treatment of the indigent insane in the State Hospital for the Insane is hereby fixed at the uniform rate of $1.75 per week for each person charged to the respective counties, or poor districts from which the insane shall come, and the excess over this sum shall be paid by the state. It is under this act that the charge is made by the trustees of the hospital for the care and treatment of the wife of the defendant. The act of April 13, 1867, provides that if any husband shall neglect to maintain his wife it shall be lawful for any magistrate to issue his warrant for his arrest and bind him over. The court may make an order that the husband pay such sum as shall be reasonable for the support of his wife. It is not apparent why a husband whose wife is in a state hospital and for whose care the county is compelled by law to pay $1.75 should not under this act be ordered to pay at least that much for her. That the order of the court for the payment may be enforced by attachment can not be doubted. In the case before the court, the husband has been ordered to pay $1.75 for the support of his wife. He has refused. The court making the order was satisfied of his ability to pay. The evidence taken on the rule shows that he is still able to pay the sum. He is liable to be attached for his refusal to comply with the court's order. The rule is, therefore, made absolute."

RHODE ISLAND.

Gives Up Practice.—Dr. Nelson Perrin, Olneyville, Providence, has given up practice on account of ill health and has retired to his farm near Pawtucket.

State Sanatorium Appropriation.—The lower house has passed the bill establishing a state sanatorium for tuberculosis and has appropriated $48,000 for its establishment.

Appropriation for Isolation Hospital.—The common council of Providence has appropriated $175,000 for a new city hospital for contagious diseases, and $21,940 for a site for the hospital, containing more than 14 acres and located at Chalkstone and River avenues.

SOUTH CAROLINA.

Offers Site for Hospital.—John H. O'Neale has offered Greenville a site for a city hospital, outside the city limits and two miles from the center of the city.

Medical Examiners Elected.—At the meeting of the South Carolina Medical Association the following medical examiners were elected: First district, Dr. Walter P. Porcher, Charleston; third district, Dr. R. Andral Bratton, Yorkville, and fifth district, Dr. Samuel C. Baker, Sumter.

Personal.—Dr. Francis L. Frost has been made health officer of Charleston, vice Dr. J. Mercier Green.——Dr. William D. Crum has been confirmed by the senate as collector of customs at Charleston.——Dr. Pinkney V. Mikell, Columbia, has so far recovered from his recent operation for appendicitis that he has been removed from the hospital to his home.

Large Class Graduates.—The Medical College of the State of South Carolina, Charleston, held its seventy-fifth annual commencement exercises April 5. A class of 27 was graduated. Dr. Allard Memminger welcomed the assembly on behalf of the faculty and presented the report of the dean; Major Theodore G. Barker, president of the board of trustees, conferred the degrees, and Hon. M. L. Smith, Camden, delivered the address to the class.

State Association Meeting.—The South Carolina Medical Association assembled for its fifty-seventh annual convention at Greenville, April 11. The visitors were welcomed on behalf of the city of Greenville by Major Mahon, and by Dr. Thomas T. Earle on behalf of the Greenville County Medical Society. The annual address was delivered by Dr. John H. Musser, Philadelphia. The address of the president, Robert Wilson, Jr., Charleston, laid especial stress on the necessity for action against illegal practitioners throughout the state. The association decided to issue a monthly journal instead of the annual transactions heretofore published, and Drs. Robert Wilson, Jr., T. Prioleau Whaley and Charles P. Aimar, all of Charleston, were named as editors. The election of officers resulted as follows: President, Dr. Davis Furman, Greenville; vice-presidents, Drs. Stewart W. Pryor, Chester; Crown W. Torrance, Union, and David B. Frontis, Ridge Spring; secretary, Dr. T. Prioleau Whaley (re-elected); treasurer, Dr. Charles P. Aimar (re-elected), and councilors, Drs. Edward F. Parker, Charleston, first district; Theodore G. Croft, Aikin, second district; Orland B. Mayer, Newberry, third district; J. Wilkinson Jervey, Greenville, fourth district; R. Andral Bratton, Yorkville, fifth district; Frank H. McLeod, Florence, sixth district, and W. P. Moorer, Georgetown, seventh district. The association decided to meet in 1906 at Columbia on the third Wednesday in April.

TENNESSEE.

Senate Downs Osteopath Bill.—The act providing for a state board of osteopathic examiners was defeated on third reading by the senate March 29.

Fire at State University.—The recent fire at the University of Tennessee, Nashville, damaged the clinical building to the extent of about $6,500. The building will be restored in time for the opening of the next term.

Temporary Hospital.—The members of the faculty of Tennessee Medical College, Knoxville, who recently withdrew from that institution, and are having a new hospital built, have secured temporary hospital apartments in the Harris building.

Smallpox Conditions.—At the meeting of the State Board of Health, April 4, the secretary reported that during the past six months there had been reported 2,052 cases of smallpox, a reduction of 434 as compared with the previous half year. Maury County reported 321 cases, Montgomery County 183 cases, and Shelby County 173 cases.

Personal.—Dr. John W. McQuillan, Chattanooga, has been expelled from the Chattanooga and Hamilton County Medical Society on account of his connection with the O'Neil Electric Ray Institute.——Dr. James J. Neely, superintendent of the Western Hospital for the Insane, Bolivar, was fined $50 and costs for failing to obey a summons of court.

Commencements.—The University of Nashville Medical Department graduated a class of 72, March 31, at its fifty-fourth annual commencement. Dr. William G. Ewing delivered the faculty address and Chancellor James D. Porter conferred the degrees.——The Medical Department of the University of Tennessee, Nashville, held its thirtieth annual graduating exercises April 3. Dr. Paul F. Eve delivered the charge to the graduating class, which numbered 33; Adjutant-General Harvey H. Hannah delivered the address of the evening, and Dr. Brown Ayres, president of the university, conferred the degrees.——

Vanderbilt University Medical Department, Nashville, conferred degrees on a class of 35 at its annual commencement exercises, April 3. Dr. John T. Altman delivered the charge to the class, and Rev. George A. Gowen the address of the evening on "Truth Triumphant," and Chancellor J. H. Kirkland awarded the diplomas.——A class of 39 was graduated from Chattanooga Medical College, the Medical Department of Grant University, April 3, at the close of the sixteenth annual course of instruction. Dr. Henry Berlin delivered the faculty address and Dean Hooper conferred the degrees.

GENERAL.

Banquet to Dr. Osler.—A farewell banquet was given to Dr. William Osler in New York City, May 2, an account of which will appear in the next issue of THE JOURNAL.

Special Ship to International Medical Congress.—Dr. Charles W. Fassett, St. Joseph, Mo., is making arrangements to charter a first-class steamer to carry the American delegates to the International Medical Congress at Lisbon in April, 1906.

American Roentgen Ray Society.—The sixth annual meeting of this society will be held at Baltimore, September 28-30. The papers for the first day will deal with *x*-ray diagnosis, and those of the second and third days, therapeutics. There will be an evening exhibit of lantern slides which promises to be extremely interesting. Dr. Russell H. Boggs, Pittsburg, Pa., is secretary.

American Gastro-Enterological Association.—At the eighth annual meeting held at the Academy of Medicine, New York City, April 24-25, 1905, the following officers were elected for the ensuing year: President, Dr. H. W. Bettmann, Cincinnati; vice-presidents, Drs. S. W. Lambert, New York City, and John P. Sawyer, Cleveland; secretary and treasurer, Dr. Charles D. Aaron, Detroit; councilors, Drs. William G. Morgan, Washington; A. L. Benedict, Buffalo, and J. Kaufmann, New York.

National Association for the Study and Prevention of Tuberculosis.—The first annual meeting of this association will be held at the New Willard Hotel, Washington, D. C., May 18-19, 1905. The present officers of the association are: President, Dr. Edward L. Trudeau; vice-presidents, Drs. William Osler and Herman M. Biggs; treasurer, Surgeon-General George M. Sternberg; secretary, Dr. Henry Barton Jacobs, 11 Mount Vernon Place, west Baltimore.

Health Report of the Philippine Islands.—The report of the Board of Health of the Philippines for November, 1904, states that there were 666 births in Manila during that month. Of these 349 were males and 317 females, a birth rate of 36.91 per 1,000. There were 1,048 deaths during the month, of which 957 were residents and 91 transients. Infantile convulsions caused 353 deaths, the greatest number from any one cause; tuberculosis caused 102 deaths and meningitis 30. There were 96 deaths among children under 30 days of age, and 490 between 1 month and 1 year. There were no deaths during the month from either smallpox or bubonic plague.

CANADA.

Winnipeg Hospital Report.—For the week ending April 22, 279 patients were treated in the wards of the Winnipeg General Hospital, of whom 194 were men, 69 women and 16 children. There were 110 out-patients treated.

Ontario Board of Health.—At the regular quarterly meeting of the Ontario Board of Health in Toronto the past week, the report of the secretary, Dr. C. A. Hodgetts, stated that there had been 500 deaths from tuberculosis in the province of Ontario for the first quarter of 1904. Dr. Hodgetts suggested provisional treatment in dispensaries until such times as sanatoria are established fit to cope with the ravages of the plague. The report also strongly urged the disinfection of sleeping cars. At the next regular meeting, the question of the government creating a separate department of public health will be discussed.

Dr. Charles O'Reilly Resigns.—Dr. Charles O'Reilly, medical superintendent of the Toronto General Hospital for twenty-nine years and a half, has resigned, to take effect at the end of June. Dr. O'Reilly was appointed in 1876, and has built up the hospital until to-day it is the largest hospital in the Dominion of Canada, having over 400 beds. During his tenure of the office over 100,000 patients have passed through the institution, and there have been 4,000 births in the maternity branch. Several years ago he was instrumental in having established in the very heart of Toronto the emergency branch which annually attends to 2,500 emergency cases. Dr. O'Reilly will travel abroad for two or three years with his son, Dr. Breffney O'Reilly.

Ontario Hospitals Association.—The annual meeting of this organization was held in Toronto, April 12, and a deputation waited on the premier to ask for a raise of the government grant from 50 to 75 cents per diem. The total government grant to the various hospitals in Ontario amounts to $110,000. The statistics for the Ontario hospitals show that during 1904 39,223 patients were treated, as against 35,912 during 1903. The total revenue of all these hospitals in 1904 amounted to $844,881, including the government grant, which would be about 17 cents each day for each patient entitled to receive it, while the actual average cost was 89 cents. Mr. Edward Gurney, Toronto, was elected president, Dr. Charles O'Reilly, vice-president, and Dr. John Ferguson, Toronto, secretary-treasurer.

FOREIGN.

Plague in Chile.—Bubonic plague is reported to be causing many deaths in the city of Pisagua, Chile.

Belgian Congress of Professional Medicine.—The physicians of Liège are issuing invitations to a national congress to meet there in August to discuss questions affecting the material and ethical interests of the profession. The project is being greeted with much enthusiasm.

Prohibition of Absinthe in Belgium.—Our French exchanges comment with envy on the recent drastic decree passed by the legislature in Belgium which prohibits the manufacture, transportation and sale by wholesale or retail of the liqueur absinthe. The bill was passed by 127 yeas to 3 nays, 2 members not voting.

German Laryngological Association.—The first biennial meeting of this association is to be held at Heidelberg June 13. It was organized last August by the efforts of Moritz Schmidt, who convinced the various local and provincial laryngologic societies of the great benefits to be realized by combining all the laryngologists of Germany, Switzerland and Austria into a single comprehensive association. It does not conflict in any way with the aims and autonomy of the various local societies, but merely supplements them. The opening address at the approaching meeting is to be by B. Fraenkel of Berlin on "The Future of Laryngology." Dr. Avellis of Frankfurt a. M., Bockenheimer Anlage 48, is secretary. Membership dues are 3 marks or about 75 cents.

Thirty-fourth German Congress of Surgery.—This congress met at Berlin April 26 to 29, the principal attraction being Bier's application of congestion hyperemia to the treatment of acute inflammations, as already described in these columns on page 1075. He gave daily demonstrations of its action at von Bergmann's clinic which was thronged by visiting physicians and surgeons. Appendicitis was, of course, one of the leading topics, followed by addresses and discussions on "Functional Diagnosis of the Kidneys" and "Kidney Extirpation," "Postoperative Pneumonia" and "Treatment of Fractured Patella." Krönlein's orbital resection was also demonstrated, and Killian's tracheo-bronchoscopy. Professor R. U. Krönlein of Zurich was the president of the congress.

Fourth German Congress of Orthopedic Surgery.—This congress immediately preceded the congress of surgery mentioned elsewhere. Over 40 addresses or communications by prominent orthopedists were on the program, and a number of others were presented later. Spitzy described his later experiences with plastic operations on nerves, and Werndorff his new method of diagnosis of joint affections. Drehmann of Breslau discussed the deformities that follow joint affections in early infancy and Bum of Vienna the bloodless treatment of ankylosis. The principal theme discussed was the "Mechanics of Scoliosis," the main addresses being by Lovett of Boston, Schulthess of Zurich and Schanz of Dresden, with further communications on "Hysteric Scoliosis" by Hoborka and Muskat. Stein of Wiesbaden described the technic of photographic measurement of scoliosis.

A Physician Appointed Cabinet Minister in Spain.—Our Madrid exchange, the *Siglo Medico*, appears in gala dress in its issue for April 15. The rejoicing is on account of the fact that for the first time in thirty years a physician has been appointed a member of the national cabinet. More than this, the physician in question is Don Carlos M. Cortezo, one of the three physicians who own, edit and publish the *Siglo Medico*. Dr. Cortezo was appointed chief of the public health department six years ago, and for the last year or so has been president of the International Association of the Medical Press. April 8 he was appointed "minister of public instruction and fine arts," and the entire medical profession in Spain is delighted at this distinction conferred on one of its members. The *Siglo Medico*, by the way, suggested recently a novel mode

of congratulating Ramon y Cajal on his recent honors. It proposed that on a given date, May 1, every physician throughout Spain should send a postal card to the illustrious histologist, with a few brief words of appreciation. May 1 was selected, as it is a kind of "labor day" in Spain, and it is well known that Cajal works far more than the regulation eight hours a day.

Twenty-second German Congress of Internal Medicine.—None of our German exchanges has yet commenced its report of this congress, which was held at Wiesbaden, April 12 to 15, but the Paris *Semaine Médicale* for April 19 devotes thirteen columns to a full account of the proceedings. The principal topic was "Heredity," with addresses by Ziegler of Jena and Martius of Rostock, and reports of interesting experimental work by others. Ziegler described the biologic importance of the fact of fecundation and the progress realized of late years in our knowledge of the chromosomes which are of primordial importance for heredity. The chromosomes always form groups of four, two derived from the father and two from the mother. Martius emphasized the necessity of discriminating between what is inherited and what is congenital. The entire heritage of a new individual is contained materially and virtually in the two germinative cells which blend in fecundation. When they have blended the fact of heredity is complete, and all that develops afterwards is due to external causes. The rôle of the father is terminated. Diseases can not be inherited, only the predisposition to them, and there is no such thing, he stated, as heredity of acquired morbid properties. The recent researches on immunity do not conflict with this view, as they establish that the antitoxins of the mother pass to the fetus by way of the placental circulation, and that there can be no question of their transmission by way of real heredity. The clinic forces us to accept an inherited individual constitutional factor as a point of lesser resistance. This morbid "determinant" may combine with other morbid determinants or may be compensated by others. Study of biology reveals always a vast current of healthy, vigorous life traversing humanity. The weak die off, but nature keeps the general standard of the race high, and we may well be optimists in regard to heredity. Lorand of Carlsbad remarked that heredity is influenced by the condition of the thyroid gland more than is generally recognized. The defective development of the offspring of syphilitic and malarial parents is due more to the inherited state of the thyroid than to anything else. Several speakers ascribed great importance to the "paralytic thorax" as producing conditions which invite tuberculosis. The angle of the manubrium with the body of the sternum is abnormally acute in this condition. Turban has noted in 100 families that when tuberculosis attacked the members it always selected the lung on the same side, confirming the assumption of a point of less resistance. Neuburger of Frankfurt stated that he had the clinical histories of a number of families for eighty years and more, as attended by his father-in-law and himself through four generations. His observation has convinced him that the predisposition to tuberculosis is inherited and not acquired. It may not manifest itself until late in life. He knows families in which all the members became consumptive after 60. The heredity of cancer is even more striking. Chronic nephritis, coronary arteriosclerosis and diabetes are likewise hereditary. He knows of entire families affected with exophthalmic goiter. A number of speakers reported symptomatic improvement and cure of leukemia under radiotherapy, but no one was able to relate a single permanent cure.

LONDON LETTER.

A Case of Intestinal Anthrax.

An example of the very rare intestinal form of anthrax, which has never previously been recorded in Great Britain, has been observed in Glasgow. A lead worker died from intestinal anthrax and careful inquiry was made as to the source of infection. His occupation was the grinding of white lead in refined linseed oil. In his work he came into contact with the following substances, which under varying conditions have been associated with outbreaks of anthrax: linseed oil, spent oak bark, tallow used for lubricating a machine, and waste with which he wiped his hands. The oil was excluded because it was refined and had, therefore, been exposed for hours to a high temperature. As to the spent bark, cases of anthrax have occurred in association with tan works, but they have arisen from hides before being submitted to the liming process. As the liming destroys the anthrax infection the spent bark could not be held responsible. The tallow had been refined at such a temperature as to make it free from anthrax. The waste was cotton and jute waste, which is not associated with anthrax. Moreover, no case had occurred at the works from which these four substances were derived. In common with others he had partaken of part of a pie and a steak, and the meat was traced to possible sources of origin, but no definite anthrax infection could be found. The anthrax bacillus, but not its spores, is readily destroyed by the gastric juice. The conclusion was reached that the man must have partaken of a portion of infected meat containing the spores, which the others escaped because they ate portions which did not happen to contain spores.

The Confederation of the Medical Societies of London.

The proposal to confederate the medical societies of London, which has been reported previously in THE JOURNAL, is making considerable progress. Sir William Church, president of the Royal College of Physicians, presided at a large and influential meeting, at which the various societies were represented by their presidents. He gave a short historical survey of the various attempts which had been unsuccessfully made since 1808 to unite the societies. Those who are now promoting the union propose that a new central body which Sir William Church termed "The Royal Society of Medicine," should be established and that all the existing societies should be regarded as subdivisions of it. The idea is that the existing societies should not lose their individuality, but should be embraced and covered by the wing of the Royal Society of Medicine. Medicine at the present day is necessarily split up into a number of branches, which are in danger of becoming dissociated from general medicine. Anything that tends to keep up the connection between general medicine and the special branches is to be encouraged. It is proposed that there shall be two grades in the proposed society: fellows and associates. The fellows will join the Royal Society of Medicine on certain financial terms, which will give them the right of attending all the meetings of the included societies. The associates will consist of those who prefer to be members of one or more sections of the society and have certain advantages and privileges by belonging to the Royal Society of Medicine, such as the use of the library and all the rooms of the society. The separate sections will receive and consider their own communications as each thinks proper, and will publish monthly the papers, while the parent society will, with a strong publication committee, select from these communications and publish the results as the "Transactions of the Royal Society of Medicine." The proposal was warmly supported by Sir Frederick Treves, Sir Thomas Smith, Mr. Langton, Dr. Theodore Williams, Sir Douglas Powell and Sir William Broadbent. The latter proposed the following resolution, which was carried unanimously: "That the councils of the Medical, Royal Medical and Chirurgical, Pathological, and Clinical societies be invited to form, with the president of the Royal College of Physicians, the president of the Royal College of Surgeons and five others, a committee which shall make such inquiries as may be necessary and submit a scheme to the various societies for their consideration." He suggested that the Medical and Royal Medical and Chirurgical societies, as the oldest societies and as having property, should have two representatives each on the committee, and the Clinical, Pathological, Obstetrical and Epidemiological societies one each. With regard to the local medical societies in the outlying parts of the metropolis he thought that they ought to be invited to cooperate, but that it would be a great misfortune to interfere with their efficiency. There is more in the idea than amalgamation; there is a new creation, which will raise medicine to a higher plane.

Pharmacology

Not With Us.

We have printed abstracts of letters received from some of the leading manufacturing pharmaceutical houses which favored the movement recently undertaken to separate the good preparations, as far as is possible, from the fraudulent and secret nostrums with which physicians are flooded and which they are expected to prescribe for the sick under their care. Under the circumstances, we think it only fair to give the other side. We are especially constrained to give physicians a chance to read what Battle & Co. have to say, because they have sent the correspondence to various manufacturing pharmaceutical firms, and our readers should have the same favor shown them. With the correspondence they say: "We commend the above correspondence to your

attention as showing the position we take in regard to the Council on Pharmacy and Chemistry of the A. M. A. We would like to hear any comments you have to make." The correspondence is as follows:

AMERICAN MEDICAL ASSOCIATION.
COUNCIL ON PHARMACY AND CHEMISTRY.

CHICAGO, April 22, 1905.

MESSRS. BATTLE & CO., St. Louis, Mo.

GENTLEMEN:—The Council on Pharmacy and Chemistry is now ready to take up "Bromidia," provided you wish to submit it to that body. We take it for granted that you received the announcement which we sent on February 28, and consequently know the functions of this council.

If you desire to submit the preparation, will you kindly forward five original packages, and also any information you may desire to submit to the council for its guidance? By referring to the tentative rules, as set forth in the announcement, you will readily see the scope of the information desired. If you send printed matter, kindly supply us with fifteen sets of each.

We shall be pleased to hear from you at your earliest convenience.

Very truly yours,
GEORGE H. SIMMONS, Chairman.

ST. LOUIS, April 25, 1905.

DR. GEORGE H. SIMMONS, Chairman,
103 Dearborn Ave., Chicago, Ill.

DEAR SIR:—Yours of the 22d instant received and contents noted. In answer would say that we read very carefully the circular sent by the Council of Pharmacy and Chemistry, February 28. In regard to that and your request, will say: In the northern district of New York, United States Circuit Court, held in the court house at Utica, N. Y., May 3, 1887, Judge Alfred C. Coxe granted a temporary injunction restraining Byron Fenner of Westfield, N. Y., to "desist from printing, publishing or circulating in any book or formula hereafter to be issued by the defendant, his agents, etc., the word Bromidia or Bromidio in connection with the receipt now appearing in Fenner's Formulary, etc., etc." This injunction was made permanent June 7, 1887, the same judge presiding.

We don't recognize the right of any man or set of men to interfere with our property. We do not propose to submit any of our preparations to the so-called Council of Pharmacy and Chemistry. Furthermore, if we learn that the said Council of Pharmacy and Chemistry attempts to incorporate any of our preparations in the book referred to, we will ask for an injunction restraining any interference with our property.

Yours respectfully,
BATTLE & CO., Chemists' Corporation.
C. A. BATTLE, President.

We wish to assure Messrs. Battle and Company that it will not be necessary for them, under the circumstances, to get out an injunction to prevent the council from incorporating Bromidia in the proposed book. Indeed, the underlying principle on which the council is working is that until there is something more than the unsatisfying statement of the manufacturer concerning the composition of his "property," physicians ought not to "interfere" with that "property" by using it on an innocent public.

Some Misconceptions Set Right.

The Council on Pharmacy and Chemistry has asked for criticisms of its plan. We may naturally reserve the right to criticise the criticisms. One that has been made seems to us particularly fallacious. We refer to the comments of a local medical journal which assert that the defects in the plan are as follows:

First, that the reform is made dependent on the voluntary co-operation of the manufacturers; second, that it proceeds on the novel assumption that the way to distinguish and punish the guilty is to compile a list of the innocent; third, that it would not vest authority in a legally irresponsible body which can be safely and effectively exercised only by the government.

To effectually answer the first point it is only necessary to call attention to the primary purpose of this council. This council is an advisory body to determine what articles may be ethically advertised in THE JOURNAL A. M. A. It is certainly optional with the manufacturers, etc., whether or not they shall ask to advertise in the columns of THE JOURNAL. It, therefore, certainly must be optional with them whether or not they come up to the requirements laid down by THE JOURNAL. As a separate matter, but as a corollary, it is proposed to put the results of the decisions of this council in a book in order that the results may be accessible to others. It was taken for granted that interest would attach to the results of the work of this council because of the wide interest in the subject and because of the high standing of the members of the council.

Recommending the publication, not of a list of the innocent, but of a list of the guilty, we contend is contrary to the usual experience. In choosing foods, man selects the harmless substances and uses them. It is true that he condemns the deleterious substances when he finds them, but he does not hunt for them. The same is true in medicine. When a remedy is found to be unsuited for a certain condition the search is kept up for one which is suitable. The work of the council is primarily to place its approval on the products which it is safe for the profession to use and which, therefore, may be mentioned in THE JOURNAL'S advertising pages. It is true that as harmful and fraudulent preparations are brought to its notice they will be exposed, but that is a secondary matter. The third objection is that the method is wrong; that the proper course would be to secure government legislation against products which have been analyzed and proved to be objectionable. The throttling of the pure food bill in the United States Congress—in spite of the crying necessity for a law of this kind and in spite of the pronounced agitation in its favor throughout the country—is sufficient answer to this proposition. It may not be out of place to say that the anxiety shown by some papers lest the council be swamped with damage suits is uncalled for. When the council has anything to say in condemnation of any preparation it will be because of absolute knowledge of what is said, and the blow will be from the shoulder.

The Use of Proprietary Medicines in Great Britain.

In a recent paper presented to the Western Chemists' Association,[1] London, Eng., Mr. Peter MacEwan gave a summary of an analytical study of upward of 1,700 prescriptions, sent to him by chemists from various cities and towns in the United Kingdom. The investigation itself had been undertaken for the purpose of ascertaining to what extent proprietary medicines were being prescribed by medical men in Great Britain. The resulting figures ranged from 2 per cent. in Newcastle-on-Tyne, to more than 20 per cent. in some of the larger cities. Taking all of the replies the total would appear to indicate that in about 10 per cent. of the prescriptions written in Great Britain, proprietary medicines are included among the ingredients. These resulting figures, particularly when compared to the figures recently published in this country by Dr. M. Clayton Thrush,[2] reflect credit on the practices of our British fellow practitioners, and would suggest the conclusion that the average medical man in Great Britain recognizes the folly of using medicinal preparations about which he knows little or nothing and is content to use official or pharmacopeial medicines. This conclusion is further justified by the comments of some of the pharmacists who contributed prescriptions. These comments and opinions would appear to indicate that British physicians are prescribing proprietary preparations much less than is the case on this side of the water.

Unpaid Peddlers of Secret Nostrums.

Evidently there must be a considerable number of physicians in the United States who sell themselves cheaply. Last week we printed in this department a description of a scheme that a St. Louis chemical company had for getting the doctors to work for them for very small pay. This week we have to record another St. Louis firm in the same delightful business. This scheme comes in the form of a triple postal card arrangement, on which the following liberal offer is made:

Dear Doctor: In order to give you an opportunity to further test the properties of our MANOLA TONIC, we make you the following liberal proposition: Fill out the attached cards Nos. 1 and 2, mail No. 1 to US and hand Nos. 2 and 3 TO YOUR DRUGGIST. Upon the receipt of the order for 1 dozen MANOLA TONIC from your druggist we will send with his order 3 full size bottles of MANOLA TONIC free of charge to YOU.

Yours truly,
THE MANOLA COMPANY.

Card No. 1 is directed to the company, and the doctor is to fill in the name of his druggist, sign his name and put on the stamp. (The company ought to be willing to furnish the stamp.) On this card is this statement:

Gentlemen:—I have this day accepted your offer through Mr. ———————— Druggist.

Card No. 2 is as follows:

Mr. ————————, Druggist:

Please order of the Manola Company, St. Louis, Mo., 1 dozen MANOLA TONIC, all of which I agree to prescribe in my prac-

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1. Chemist and Druggist, London, Eng., April 1, 1905.
2. THE JOURNAL A. M. A., Jan. 4, 1905.

tice. By filling out the attached card No. 3 and forwarding it to the above company, they will forward me, with your order, 3 full-size bottles MANOLA TONIC free for clinical purposes.

Yours truly, ——————————M.D.

In this instance the poor doctor either has to put this card in an envelope and put on a two-cent stamp, or carry it to the druggist himself. As he will probably be a cheap doctor in any event, he will no doubt save the two cents.

Card No. 3 is as follows:

Date ——————————19

MANOLA COMPANY, St. Louis.

Gentlemen: Please ship (me us), as per your offer, 1 dozen MANOLA TONIC at $8.50 per dozen. ¼ dozen MANOLA TONIC free, for Dr. ——————————.

(Signed) ——————————Druggist.

Ship through my jobber.

Here we have the doctor not only used as an unpaid peddler for a secret remedy, but also as a club to make the druggist fill up his shelves with the stuff. Of course, the three bottles the doctor gets for his labor are to be given to his patients, who will thus become acquainted with what the preparation is good for, and will then buy it direct.

Certainly, it can not get very much worse, unless the nostrum manufacturers get the doctor to go on the street and peddle their stuff on a percentage.

FURTHER COMMENTS QUOTED.

We submit below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

MEDICAL TIMES (April): "This is indeed a subject vital to every physician who is conscious of his own dignity of character; who is anxious to resent every factor—and how many such there are!—tending to degrade the profession with which he has become affiliated; who, while being of all humanitarians the most self-abnegating, is not ready to become a cat'spaw by means of which better business men than he shall accumulate their millions; and who is sufficiently scientific to realize that he can not in all conscience prescribe for a patient's malady a remedy in the nature of which he does not and is not permitted to know. . . . In one year $62,000,000 has been expended on patent medicines in the United States, enough to give every practitioner in the country a yearly income of $2,000. How could such results be brought about if many physicians did not ingenuously help by their laudatory office conversations with the agents of these medical firms and by their complacent distribution of samples to patients? In the face of such facts as these all talk of love of humankind, altruism, self-abnegation and the like, becomes cheap and nauseating. There are many physicians who get from the subtly deriding world in return for their labor and their sweat, praise of this sort—and little else. It appears to us that all such buncombe should give place to homely common sense. It is more dignified for the medical man to earn money for himself and his own, rather than for others; and to require a just return for his work. All this is by way of introduction to the excellent proposals made by THE JOURNAL."

WASHINGTON MEDICAL ANNALS (March): "It will no doubt be conceded that the advertising pages of a medical journal should receive the same careful editorial scrutiny that is given to the subject matter proper of the journal itself. . . . There are, of course, many advertisements as to the fitness or propriety of which there can be no question. The chief difficulty has been with regard to patented and proprietary pharmaceutical products. Talk as we may of the ethics of the question, a large proportion of the profession has given evidence that it will prescribe what it chooses, regardless of these considerations. This phase of the question is not to be summarily dismissed. Results we must have, and the man who is in earnest will get them by whatever means offered. It is certainly unfortunate that any method or means for the relief of human suffering should be restricted by mere commercial greed. On the other hand, it must be admitted that not every preparation or combination of healing agencies can be compounded extemporaneously at the nearest pharmacy and in the best possible form for administration. It is worth something to be able to rely with confidence on the means we are using, and the laborer who has given us confidence is worthy of his hire. . . . We may expect much of interest and profit from the work of this council; its personnel bespeaks the confidence of the whole profession."

Correspondence

Conservation of Blood in Operations on Anemic Patients.

MINNEAPOLIS, MAY 1, 1905.

To the Editor:—In performing a perineorrhaphy on a very anemic woman recently. I used a one to one thousand solution of sterilized adrenalin chlorid in the vagina and a practically bloodless operation was performed. The mucous membrane of the vagina blanched almost immediately and the anesthetizer reported a marked improvement in the heart's action. Healing occurred without any drawback. Have any similar cases been reported? If so, are there any contra-indications?

LESTER W. DAY.

A Reminder of "Auld Lang Syne."

NEW YORK, April 25, 1905.

To the Editor:—Through the courtesy of Mr. James Douglas of New York I have a copy of the papers relating to the apprenticeship of his father when he became a student of medicine. Notwithstanding that this was made in the early part of the last century, the paper is so curiously quaint and interesting that I send a copy of it to you for publication in THE JOURNAL. Few in the present day realize the great changes that have taken place in less than one hundred years.

THOMAS DARLINGTON, Commissioner of Health.

"THIS INDENTURE Made the third Day of October in the year of our Lord one thousand eight hundred and thirteen between The Reverend George Douglas of Penrith in the county of Cumberland and James Douglas of the same place the son of the same George Douglas of the one part and Thomas Law of the same place surgeon and apothecary of the other part Witnesseth That the said James Douglas of his own free Will and by and with the License and consent of the said George Douglas his natural and lawful father and guardian (testified by his being a party to and signing and sealing these presents) Hath put placed and bound himself Apprentice to the same Thomas Law to learn and be taught the trade art mystery or business of a surgeon apothecary and man-midwife which he the said Thomas Law now practices and to continue with and serve him as an apprentice from the day of the date of these presents for and during and unto the full end and term of five years from thence next ensuing and fully to be completed and ended And the said George Douglas Doth for himself his Heirs Executors and Administrators and for each and every of them and for the said James Douglas his son covenant promise and agree to and the said Thomas Law his executors administrators and assigns by these presents in manner and form following (that is to say) That he the said James Douglas shall and will diligently and faithfully serve him the said Thomas Law his secrets keep his lawful commands do and perform Damage to his said Master he shall not do nor willingly permit to be done by others the goods of his said Master he shall not waste nor lend them without his consent to any he shall neither buy nor sell without his Master's leave Taverns Inns or Alehouses he shall not frequent At cards Dice or any unlawful games he shall not play fornication commit nor Matrimony contract nor from the service of his said Master Day or Night shall absent himself but in all things as an honest and faithful Apprentice shall and will demeen and behave himself towards his said Master and all his during all the said term of five years Also That he the said George Douglas shall and will during all the said term of five years provide and allow for the said James Douglas his son sufficient and proper meat Drink Wearing apparel Washing and Lodging And the said Thomas Law in consideration of the premises and for and in consideration of the sum of five shillings of good and lawful money of the said Kingdom Great Britain and Ireland current in England in hand well and truly paid by the said George Douglas at or before the signing and sealing of these presents The receipt Whereof is hereby acknowledged Doth for himself his heirs Executors and Administrators and for each and every of them covenant and agree and

promise to and with the said George Douglas and James Douglas That he the said Thomas Law according to the best of his power skill and knowledge shall and will instruct or cause to be taught and instructed the said James Douglas in the said trade Art Mystery and business of a surgeon Apothecary and Man-Midwife and in all things Whatsoever incident and belonging thereto in such manner as he the said Thomas Law now or at any time hereafter during the said term of five years shall use practice teach or deal in the same In Witness Whereof the said parties to these presents have hereunto set their hands and seals the day and year first above Written.

Signed sealed and delivered (being first duly stamped).

George Douglas.
James Douglas.
Thos. Law.

In the presence of
Henry Law.
W. Jackson.
Penrith, Sept. 1st, 1818.

I hereby certify that James Douglas has faithfully completed his Apprenticeship to this day and that I give him the remainder of his service that he may visit his Father and Friends.

Thos. Law."

Association News

Details of the Alaska Trip.

The Committee of Arrangements has arranged with the Alaska Steamship Company to handle the American Medical Association excursion to Alaska, and makes the following announcement: A round trip rate of $60.00 from Seattle has been obtained and the steamer *Jefferson*, a splendid vessel, designed and built especially for this route, will be used. She has spacious social halls and decks and every modern improvement to make the voyager comfortable. The cuisine is equal to that of the best first-class hotels. This trip is without equal anywhere. It is not an ocean trip in the usual sense, with its many unpleasant accompaniments of seasickness and stormy weather; but rather like a river trip amid a thousand islands and underneath beetling cliffs and snow-capped mountains, with just an occasional dash of old ocean as the vessel crosses some wider strait.

Without specifying in particular the various ports of call on the trip it can be said that all the points of interest on the Alaska route will be touched at between Seattle and Sitka. All applicants for reservations for the trip will be supplied with literature by the steamship company. The *Jefferson* will leave Seattle at 9 a. m. July 17, and returning will discharge at Tacoma July 28, thus consuming eleven days in the trip. She will touch at Vancouver on the return trip and if any of the excursionists desire to visit Victoria, they will be given tickets from Vancouver by way of Victoria to Seattle on the company's regular steamers. All intending to make this excursion are requested to send in their applications at once to the Committee of Arrangements, as the number already applying suggests the possibility that they may have to engage a second steamer.

The following quotation from the steamship company's "A Trip to Wonderful Alaska" may be of use in the selection of clothing for the trip. "Making preparations for a tour of Southeastern Alaska does not mean that one must provide himself with thicksoled shoes and fur robes. Pack your trunk with summer clothing, wear a Panama hat, and with a light overcoat as a protection in the cool evenings you are ready to depart on the voyage north."

The committee would also call attention to the Honolulu, Yokahama, and Hong Kong trips; they have had several applications, but not yet enough (20) to secure the reduced rates.

K. A. J. MACKENZIE,
Chairman of the Committee of Arrangements.

Missouri Valley Special to Portland.

Arrangements have been made for a special train to accommodate the physicians of Kansas City, St. Joseph and vicinity. It will leave Kansas City June 29, 6:10 p. m.; St. Joseph, 8:25 p. m.; Omaha, 11:30 p. m., and Lincoln, 1:20 a. m.; will arrive in Yellowstone Park Saturday morning, July 1, remaining there about a week, and in Portland Sunday evening, July 9. Another train will leave Kansas City, St. Joseph, Omaha, etc., on the evening of July 5, for those who wish to go direct to Portland. Stopovers in Seattle, Tacoma and other points will be allowed. Further particulars may be obtained from Dr. Charles Wood Fassett, St. Joseph, Mo.

Marriages

JAY C. KNIPE, M.D., to Miss Ruth D. Krauss, both of Philadelphia, April 24.

JESSE L. MAHAFFEY, M.D., to Miss Alice Fogg, both of Camden, N. J., April 26.

ADEN C. HART, M.D., to Mrs. Allie H. Chase, both of Sacramento, Cal., April 18.

DAVID C. BURKS, M.D., to Miss Eudora Belle Mallory, at Petersburg, Va., April 26.

ROBERT CONOVER WILSON, M.D., to Miss Louise Crepin Hoyt, both of Chicago, April 26.

ALBERT F. HENNING, M.D., Chicago, to Miss Mary B. Meager, of St. Paul, Minn., April 26.

GUSTAV SCHWYZER, M.D., to Miss Mary Robinson, both of Minneapolis, Minn., April 20.

PAUL H. ELLIS, M.D., Omaha, Neb., to Miss Lillian Covert of Council Bluffs, Iowa, April 21.

JESSE H. CHILES, M.D., Brooks, Iowa, to Miss Elzene A. Hall of Villisca, Iowa, April 13.

WILLIAM STURGIS THOMAS, M.D., to Miss Emma Rheinfrank, both of New York, April 25.

HARRY PICKETT TAYLOR, M.D., to Miss Mary Etta Smith, both of Flemingsburg, Ky., April 19.

PAUL MONROE PILCHER, M.D., New York City, to Miss Mary Finley of Montclair, N. J., April 26.

PAUL BARTHALOW, M.D., New York City, to Miss Anna Lewis Brice of Philadelphia, April 25.

ROGER H. DENNETT, M.D., Adamsville, R. I., to Miss Agema V. Wheeler, of Brooklyn, N. Y., April 12.

ABRAM F. LUMPKIN, M.D., Amarillo, Texas, to Miss Maude Roland Gunn of Blossom, Texas, April 19.

WILLIAM J. BLALOCK, M.D., Atlanta, Ga., to Miss Karoline Louise Kiene of Dubuque, Iowa, April 24.

JAMES MARVIN SALMON, M.D., Ashland, Ky., to Miss Charlotte Susan Seem of Bangor, Pa., April 27.

OLIN ROSCOE BATES, M.D., to Miss Flora Beals, both of Climax, Mich., at Battle Creek, Mich., April 19.

THOMAS JOSEPH STEWART, M.D., Cherry Valley, Ark., to Miss Ella Gilliland Jordan of St. Louis, Mo.

SAMUEL MYERS DEAL, M.D., Columbia, S. C., to Miss Mary Littell Davis, at Indianapolis, Ind., April 19.

WILLIAM J. MCCAUSLAND, M.D., South Quincy, Mass., to Miss Gilliland of Tewkesbury, Mass., April 12.

GEORGE W. FITHIAN, M.D., Perth Amboy, N. J., to Miss Mary W. Stathem of Cedarville, N. J., April 19.

GEORGE REVIS, M.D., La Fayette, Ind., to Mrs. Mary Hudlow of Fort Worth, Texas, at Indianapolis, April 19.

THEODORE F. HEAVENRICH, M.D., to Miss Katherine Forrest Ballentine, both of Port Huron, Mich., April 18.

WILLIAM FRANKLIN DRIVER, M.D., Broadway, Va., to Miss Ida Valentine Trice of Flanagan's Mills, Va., April 19.

Deaths

Charles Smart, C.M., M.D., University of Aberdeen, Scotland, 1862, ranking assistant surgeon general of the United States Army, died in St. Augustine, Fla., April 23, after a long illness from cerebral hemorrhage, aged 64. Colonel Smart was a native of Scotland, came to New York immediately on his graduation, and at once entered the military service as assistant surgeon of the Sixty-third New York Infantry in the Civil War, was mustered out of the volunteer service April 15, 1864, became lieutenant and assistant surgeon in the same year; was made captain and assistant surgeon in 1866; was promoted to major and surgeon in 1882; to lieutenant colonel and deputy surgeon general in 1897, and

received his final promotion to colonel and assistant surgeon general in 1901. After the war he served at many different points in the United Stated until he came to Washington in 1879 for duty with the National Board of Health, on which duty he continued until 1883. He was sent to Memphis, Tenn., and other fever-stricken cities in the South to investigate the water supplies, and conducted many other important investigations for the board. From 1883 to 1902 he was on duty in the office of the Surgeon General of the Army. During this period of service he compiled and edited the third medical volume of the Medical and Surgical History of the War of the Rebellion, and subsequently was disbursing officer of the Medical Department in Washington, and in charge of the Sanitary Division of the office. He was a member of the faculty of the Army Medical School from its organization in 1893 until his departure for the Philippines, and was its president subsequent to July 2, 1902. He served as a member of various boards, including examining boards for admission of candidates to the Medical Corps, board for preparation of hospital corps drill, and for Manual for the Medical Department, and board on emergency rations. He compiled and published a "Handbook for the Hospital Corps," which is still in use as a textbook on the subject. He represented the Medical Department of the Army at the meetings of the American Public Health Association in 1892, 1894, 1896 and 1897, and for many years was chairman of its committee on pollution of water supplies. In connection with the Act of March, 1887, organizing the hospital corps, he arranged for the system of examination for the appointment of hospital stewards and acting hospital stewards. In 1890 he was president of a board convened at Fort Leavenworth, Kansas, which provided a system of drill regulations and first-aid lessons for the hospital corps. In 1889 he organized the present identification system for deserters by means of outline figure cards. During the Spanish-American War he did important work inspecting the large camps and camp sites, notably those at Alger, Meade and Montauk. Besides his Handbook for the Hospital Corps of the U. S. Army and State Military Forces and many valuable papers in American Health Reports, General Smart was a frequent contributor to medical literature, especially to the Encyclopedic Medical Works. In the Reference Handbook of the Medical Sciences he wrote the articles on Air, Malaria, Miasm, Water, Quarantines, and Army Field Hospital Organization. General Smart had but recently returned from the Philippines, where he had been serving as chief surgeon of the Division since Nov. 30, 1902, a stroke of apoplexy having necessitated his being returned to this country, and subsequently placed on the retired list, with rank of brigadier general. General Smart was a member of the American Medical Association and of the Association of Military Surgeons of the United States, and was for many years Washington correspondent of, and an editorial contributor to, THE JOURNAL. He combined with brilliant scientific attainments a great capacity for hard work, together with an unfailing loyalty to duty. His death is a great loss to his corps, and to the medical profession in general.

William Baggs Ulrich, M.D. Philadelphia College of Medicine and Surgery, 1850, a member of the American Medical Association, one of the oldest practitioners of Chester, Pa., sometime president of the Medical Society of the State of Pennsylvania, and of the Delaware County Medical Society; surgeon of the Philadelphia, Wilmington and Baltimore Railroad; formerly chief of staff of Chester Hospital, died at his home in Chester, April 24, from complications following influenza, after an illness of three weeks, aged 83.

Charles Henry Hertzog, M.D. Western Pennsylvania Medical College, Pittsburg, Pa., 1896, a member of the American Medical Association; Medical Society of the State of Pennsylvania; Allegheny County Medical Society and the South Side Medical Society, Pittsburg; one of the incorporators of and a member of the surgical staff of St. Joseph's Hospital, and a director and member of the staff of the South Side Hospital, died at his home in Pittsburg, April 18, from scarlet fever, aged 34.

Robert William Harper, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1852, formerly of Tallahatchie County, Miss., surgeon in the Confederate Army throughout the Civil War, and for many years a practitioner of Minter City, Miss., died at the home of his daughter in Memphis, Tenn., March 30, 1905, from organic heart disease, after an illness of six weeks, aged 76.

Franklin H. Allen, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1877, a member of the American Medical Association, Massachusetts Medical Society, and Essex North District Medical Society, a prominent physician, and at one time an alderman of Haverhill, Mass., died at his home in that city, April 23, from diabetes after a long illness, aged 49.

Leonidas S. Buchard, M. D. University of California Medical Department, San Francisco, 1882, a member of the American Medical Association, and a prominent practitioner of Oakland, Cal., died at his home in that city, April 23, from typhoid fever, after an illness of two weeks, aged 50. The Alameda County Medical Association attended the funeral in a body.

Isaac Newton Gard, M.D. Medical College of Ohio, Cincinnati, 1834, organizer and for many years president of the first medical Society in Darke County, Ohio; a member of the state legislature in 1841; for 16 years one of the trustees of the Dayton State Hospital; the oldest resident of Greenville, died at his home in that city, April 24, from uremia, aged 94.

Gideon A. Weed, M.D., Rush Medical College, Chicago, 1870, twice mayor of Seattle, Wash., for ten years a regent of the University of Washington; and organizer and first president of the King County Medical Society and one of the organizers of the Washington State Medical Association, died at Berkeley, Cal., April 22, after many years of invalidism, aged 72.

William M. Edwards, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1884, superintendent of the Michigan Asylum for the Insane, Kalamazoo for 14 years; a prominent alienist; died at the University Hospital, Ann Arbor, April 26, from chronic valvular heart disease, after an illness of more than a month, aged 48.

Alexander Taliaferro Nelson, M.D. Medical Department of the Columbian University, Washington, D. C., assistant physician at the Western State Hospital, Staunton, Va., a young man of fine promise, was accidentally shot and killed in Covington, Va., April 19, aged 32. He was a member of the Medical Society of Virginia.

Walter Haigh Drane, M.D. New York University, New York City, 1854, surgeon of the Twenty-Seventh Georgia Infantry C.S.A., in the Civil War, a member of the Confederate Veterans Medical Association, died at his home in Batesville, Miss., March 28, from heart disease, after an illness of two years, aged 73.

William Henry Johnson, M.D. Toronto University Medical Faculty, 1873, of Fergus, Ont., surgeon-lieutenant colonel in the Ontario Volunteers, councilor and reve and member of the county council, died at the home of his brother in Eramosa, Ont., April 18, after an illness of four months, aged 54.

Hiram Barber, M.D. Albany (N. Y.) Medical College, 1847; member of the legislature in 1848; some-time collector of internal revenue for the Twelfth District of Illinois; from 1880 to 1891 surgeon at the state penitentiary, Sing Sing, N. Y., died at his home in Ossining, N. Y., April 24, aged 85.

William B. Beach, M.D. University of Maryland School of Medicine, Baltimore, 1875, for many years postmaster of Eatontown, N. J., and a member of the board of education, died at his home in Long Branch, N. J., from cerebral hemorrhage, after a long illness, April 19, aged 54.

John H. Hinton, M.D. College of Physicians and Surgeons in the City of New York, 1852, a member of the New York Academy of Medicine and the New York Pathological Society, died at his home in New York City from dropsy, April 26, after an illness of several weeks, aged 78.

Anthony L. Brown, M.D. Howard University Medical Department, Washington, D. C., 1894, of Springfield, Mass., for three years a member of the local board of health, died at the Springfield Hospital, April 22, from pleuro-pneumonia, after an illness of five days, aged 42.

John Magnus O'Brien, M.D. University of Maryland School of Medicine, Baltimore, 1854, who retired from practice in 1865, died at the home of his son in Danville, Va., March 5, from gastritis and senile debility, after an illness of two or three weeks, aged 89.

Frederick Jacob Delker, M.D., one of the first physicians to use embalming fluid; connected for many years with the coroner's office, died in Philadelphia, February 14, from septicemia contracted in embalming, after an illness of nearly seven years, aged 68.

William T. Miracle, M.D. University of the State of Oregon, Medical Department, Portland, 1896, a member of the American Medical Association, of Richland, Ore., died at McPherson's Hot Springs, on Snake River, Ore., April 14, after a long illness.

Joseph Sill, M.D. New York University, New York City, 1847, said to have been the oldest physician in Kalamazoo, died at his home in that city, April 23, after an illness of several years following an injury to the hip, aged 83.

Robert Amory Scott, M.D. Long Island College Hospital, Brooklyn, 1882, a member of Harrison County Medical Society,

died at his home in Richmond, Ohio, April 9, after an illness of two years from arteriosclerosis, aged 49.

John M. Zarecor, M.D. Vanderbilt University Medical Department, Nashville, 1883, died at his home in West Nashville, Tenn., April 21, from lung disease, following influenza, after an illness of three months aged 45.

George C. Raynor, M.D. New York University, New York City, 1852, president of the Will County (Ill.) Medical Society for several terms, died at his home in Joliet, April 23, after an illness of three weeks, aged 79.

Stephen Harris Rushing, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1853, surgeon in the Confederate service during the Civil War, died at his home in Alexandria, La., April 20, aged 75.

George F. Mooney, M.D. Northwestern University Medical Department, Chicago, 1900, died at his home in Whittemore, Mich., April 21, from inflammation of the bowels, after an illness of five days, aged 35.

John L. Capen, M.D. Pennsylvania, 1875, a phrenologist of Philadelphia, died at the Pennsylvania Hospital in that city, April 23, from pneumonia, after an illness of two weeks, aged 82.

Charles W. Carpenter, M.D. Bellevue Hospital Medical College, New York City, 1880, died at his home in Newark, N. J., April 18, from cerebral hemorrhage, after a lingering illness.

Van B. Thornton, M.D. Medical Department of the Columbian University, Washington, D. C., 1861, died at his home in Hempstead, Texas, and was buried, Sept. 29, 1904.

George A. Weems, M.D. Cincinnati, College of Medicine and Surgery, 1871, surgeon in the Confederate service during the Civil War, of Pomona, Cal., died recently.

H. C. Allen, M.D., formerly of Washington County, Ky., died at the Central Kentucky Asylum for the Insane, Lakeland, April 2, from senile dementia, aged 80.

Charles E. Walker, M.D. Michigan, 1878, West Henrietta, N. Y., died in Lee Hospital, Rochester, N. Y., April 17, after an illness of several weeks, aged 50.

James Bretton Baucom, M.D., Louisville Medical College, 1884, died at Milford, Ky., March 31, from tuberculosis, after an illness of four months, aged 49.

Floyd A. Whiting, M.D. Ohio, 1891, died suddenly from heart disease, superinduced by heavy drinking, at his home in Telluride, Colo., April 15, aged 45.

J. D. Anderson, M.D. Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1903, died at his home in Stanhope, Iowa, April 18.

Ross Van Meter, M.D. Miami Medical College, Cincinnati, 1895, died at his home in Greensburg, Ky., April 17, after a short illness.

Oliver A. Goodhue, M.D., formerly of Englewood, Chicago, died in Tighland, Cal., April 16, from senile debility, aged 86.

William Byrd Scudder, M.D. Cincinnati, 1890, died at his home in Redlands, Cal., April 19, after a prolonged illness.

Death Abroad.

E. Hervieux, M.D., former president of the Paris Académie de Médecine, chief of the public vaccination service and physician-in-chief to the Maternité for many years, died at Paris, April 2, aged 86. His principal works were on variola and on the prophylaxis of puerperal infections.

Book Notices

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES. By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Second Edition, Thoroughly Revised and Much Enlarged. By Frederick R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. Fully Illustrated. Cloth. Pp. 278. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

The first edition of this work was reviewed in these columns Jan. 12, 1901, p. 121. In this, the second edition, the descriptions of technic have been brought up to date, and several chapters have been added, that dealing with obstetrical nursing being especially practical. The book is well illustrated, and should be of value to physicians, especially recent graduates, as well as to nurses, as it takes up many little points which are omitted from the curriculum of the average medical college.

THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS. By F. W. Burton-Fanning, M.D. Cantab., Physician to the Norfolk and Norwich Hospital. Cloth. Pp. 176. Price, $1.50 net. Chicago: W. T. Keener & Co. 1905.

This little work gives in condensed form the results of the author's experience during the last ten years in the treatment of tuberculosis in general hospitals, sanatoria and private houses. Dr. Fanning takes up the etiology in detail and pays especial attention to the temperature, pulse and respiration, the selection of cases, the treatment of febrile and convalescent patients, diet, results of sanatorium treatment and requisites for open-air treatment.

A GERMAN-ENGLISH DICTIONARY of Terms Used in Medicine and the Allied Sciences. By the late Hugo Lang, B. A. Edited and Completed by Bertram Abrahams, M.B., B.Sc., F. R. C. P., Assistant Physician, Westminster Hospital. Cloth. Pp. 598. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

This work will prove of great service to those who read German medical articles. It does not pretend to analyze the German words or to dilate on the translation; only the briefest medical synonyms are used. These are usually well chosen.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TO VISIT YOSEMITE ON THE PORTLAND TRIP.

PAYNE, OHIO, April 24, 1905.

To the Editor:—I wish information: 1. Will there be any special advantage in taking one of the specials to Portland to the meeting of the American Medical Association? 2. Will not the regular through and fast trains give the same service? 3. Will not the specials be more expensive? 4. Are the tourist sleepers comfortable and pleasant? 5. How can we best see Yosemite Valley and yet take in Los Angeles? 6. We do not want to be hurried on our trip. Any other information will be thankfully received.

J. W. CARTWRIGHT.

ANSWER.—1. No special advantage except that of companionship. 2. Yes, but there is only one through service without change from Chicago, and that is over the Northwestern-Union Pacific. Over other roads a change will have to be made somewhere, depending on the route taken. 3. No. 4. Yes, and in the summer time more so in certain respects, because the furnishings are of cooler material. The company may not be quite so select. 5. The Yosemite Valley can be reached from Merced, a point on both the Sante Fe and the Southern Pacific between San Francisco and Los Angeles, a stage line running from Merced to the Yosemite Valley, a distance of 88 miles, the fare for the round trip being $20. This route passes directly through two big tree groves. Yosemite can also be reached by way of Raymond, Madera County, some big trees being on this route. Leaving San Francisco at 7:30 a. m., one reaches Merced at noon. The stage trip includes a stop over night and Yosemite is reached the second afternoon. Hotel rates there are $3 and $4 a day; camp rates, $2. The Santa Fe and the Southern Pacific railroads will send descriptive folders with maps and full details on request. 6. All tickets allow stopovers west of certain points; in most cases all that is necessary is to notify the conductor on the train before he takes the ticket. It is best to receive instructions from the ticket agent, since the different railroads have different customs, as noted in the official announcement of the Committee on Transportation in THE JOURNAL, April 22, 1905, page 1300.

WORKS ON PRACTICE OF MEDICINE.

BANNER, ILL., April 18, 1905.

To the Editor:—What two text-books on the Practice of Medicine do you consider the latest and best for a general practitioner; also what are the two best books on Materia Medica and Therapeutics?

G. S. BETTS, M.D.

ANSWER.—The latest work on the Practice of Medicine is that by Hare, which was reviewed in THE JOURNAL, April 8, 1905, p. 1134. Other standard works on this subject are "Principles and Practice of Medicine," Osler, "Practice of Medicine," Anders, new editions of both of which have been published recently; "Practice of Medicine," Walsh, "Practice of Medicine," Tyson, and "Medical Diagnosis." White & Wilcox's work on "Materia Medica and Therapeutics" is very practical; if a larger work is desired, Butler's Materia Medica and Therapeutics will be found well adapted for physicians' use. Other useful works on this subject are "Manual of Materia Medica and Pharmacology," Culbreth, "Text-Book of Pharmacology and Therapeutics; the Action of Drugs in Health and Disease," Cushny, "Materia Medica,"

Hatcher and Sollmann, "Materia Medica and Therapeutics," Potter, and "Manual of Materia Medica and Pharmacy," Muirl.

ROSSEL'S ALOIN TEST.

NEWARK, N. J., April 18, 1905.

To the Editor:—In your editorial of this week under the heading "The Significance of Traces of Blood in Typhoid Stools," you mention Rossel's aloin test. I will greatly thank you for a description of the technic of this test. B. H. WOOLF.

ANSWER.—Rossel's method may be found in the *Deutsche Archiv für klinische Medicin,* Vol. 76, No. 6, 1903. About one dram of the feces is put in a test-tube and extracted with 5 to 10 c.c. of ether to remove the fat. After pouring off the ether the feces is thoroughly shaken up with 5 c.c. of glacial acetic acid. The acid is then poured into another test-tube and extracted with 5 to 10 c.c. of ether. The test is then made with this ether. To the ether is added 20 to 30 drops of old oil of turpentine and 10 to 15 drops of a 1 to 4 per cent. solution of Barbadoes aloin in 60 to 70 per cent. alcohol. In the presence of blood the mixture takes on a light red color, turning to bright cherry red in about ten minutes. The aloin solution should be prepared fresh each day. Rossel makes it by adding enough powdered aloin to cover the point of a small spatula to 3 to 5 c.c. of the 60 to 70 per cent. alcohol. Some of these figures are not very exact, but that is the way Rossel gives them.

State Boards of Registration

COMING EXAMINATIONS.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, Greensboro, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Arkansas April Report.—Dr. J. P. Runyan, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination, held at Little Rock, April 11-12, 1905. The number of subjects examined in was 7; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 68, of whom 51 passed and 17 failed. Of those who passed 6 were graduates and 45 undergraduates. All the unsuccessful applicants were undergraduates.

Nebraska February Report.—Dr. George H. Brash, secretary of the Nebraska State Board of Health, reports the oral and written examination held at Lincoln, February 8. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of applicants examined was 9, of whom 7 passed and 2 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
College of P. & S., New York		(1904)	75.75
Barnes Med. College, St. Louis		(1903)	87.66
Grant University, Chattanooga		(1903)	80
University of Colorado		(1904)	86.37
Rush Medical College		(1902)	92.75
Woman's Medical College, Philadelphia		(1903)	80.37
College of P. & S. Keokuk		(1902)	82.87
	FAILED.		
Eclectic Med. Inst., Cincinnati*			74.66
Barnes Med. Coll., St. Louis**		(1902)	

*Year of graduation not given.

**Withdrew from examination after writing one paper. Two persons failed to appear after making application.

New Nevada Medical Practice Act.—Under the new law, a certificate will be issued, without special examination, to a person who furnishes satisfactory proof of having received a diploma from a medical school whose requirements, at that time, conformed to those of the Association of American Medical Colleges. A person possessing a diploma granted by any other college must in addition pass a satisfactory examination before the board in the subjects prescribed. The examination and registration fee is $25. The act provides for the usual exemptions, and also contains a reciprocity clause. Dr. S. L. Lee, Carson City, is the secretary of the Board of Examiners.

Oklahoma March Report.—Dr. J. W. Baker, secretary of the Oklahoma Examining Board, reports the written examination held at Guthrie. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 66.6 in each branch. The total number examined was 21, of whom 9 passed and 12 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
University of Missouri		(1904)	79
College of P. & S., St. Louis		(1897)	66
University Med. Coll. of Kansas City		(1884)	70
University Med. Coll. of New York		(1880)	69
Rush Medical College	(1900) 68;	(1902)	85
Baltimore University School of Medicine		(1904)	75
Central Medical Coll., St. Joseph, Mo		(1904)	70
Chicago Homeopathic Med Coll		(1896 and 1904)	98
College of P. & S., Baltimore		(1885)	74
Hospital College of Medicine, Louisville		(1887)	70
	FAILED.		
Kentucky School of Medicine, Louisville		(1890)	44
Missouri College of Medicine, St. Louis		(1859)	59
Meharry Med. Coll., Nashville, Tenn		(1904)	53
Barnes Med. Coll., St. Louis		(1899)	64
Kansas City Homeo. Med. Coll		(1893)	65
Gate City Med. Coll., Texarkana, Texas		(1903)	54
Arkansas Industrial University		(1894)	49
Name of college not given			53, 55

Utah January and April Reports.—Dr. R. W. Fisher, secretary of the Board of Medical Examiners of the state of Utah, reports the January and April examinations. The following colleges were represented:

College.	PASSED (JANUARY).	Year Grad.	Per Cent.
Rush Medical College	(1896) 82;	(1903)	82, 86
College of P. & S., San Francisco		(1904)	81
Victoria Med. Coll. (Canada)		(1874)	81
Univ. of Denver, Med. Dept		(1895)	78
Gross Med. College		(1895)	76
	PASSED (APRIL).		
Medical Department, St. Louis Univ		(1904)	75
Baltimore Medical College		(1894)	86
Univ. of Denver Medical Department		(1901)	85
Chattanooga Med. College		(1901)	75
	FAILED.		
Laval Univ. Med. Dept		(1901)	48
St. Louis Univ. Med. Dept.*			68.8

*Year of graduation not given.

The Public Service

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, for the two weeks ending April 29, 1905:

Reynolds, F. P., surgeon, ordered to proceed from Presidio of San Francisco, to Presidio of Monterey, Cal., with Fourth Cavalry, for duty at the Yosemite National Park, Cal.

Kiersted, Henry S., asst.-surgeon, ordered to proceed from Presidio of Monterey, Cal., with Fourth Cavalry, to Sequoia National Park, Cal.

Powell, Junius L., surgeon, relieved from duty at Fort Hamilton, N. Y., and ordered to Manila, P. I., for duty in Philippines Division, about June 30, 1905.

Ewing, Charles B., surgeon, relieved from duty at Columbus Barracks, Ohio, and ordered to Manila, P. I., for duty in the Philippines Division, about July 31, 1905.

Harris, H. S. T., surgeon, relieved from duty at Fort Slocum, N. Y., and ordered to Manila, P. I., for duty in Philippines Division.

Stiles, Henry R., asst.-surgeon, left Washington Barracks, D. C., on ten days' leave of absence.

Winn, Robert N., asst.-surgeon, advanced to rank of captain asst.-surgeon.

Willcox, Charles, surgeon ordered from Fort Totten, N. Y., to Fort Wadsworth, N. Y., for duty with 56th and 57th Companies

Coast Artillery, to Artillery District of Baltimore, and then report for duty, during Army and Navy maneuvers.

Truby, Willard F., Cox, Walter, Robbins, C. P., Reno, William W., Roberts, William, Thornburgh, R. M., Jean, George W., and Jones, Percy L., asst.surgeons, ordered to the Artillery District of the Chesapeake, Fort Monroe, Va., for duty, during Army and Navy maneuvers.

Raymond, H. I., surgeon, granted ten days' leave of absence.

Craig, Chas. F., asst.-surgeon, order relieving him from duty at U. S. Army General Hospital, Presidio of San Francisco, Cal., and assigning him to duty on transport *Sherman* for duty in Philippines Division is revoked.

Carter, Edward C., surgeon, granted two months' leave of absence, with permission to return to the United States from the Philippines via the Suez Canal and Europe.

Billingslea, C. C., asst.-surgeon, granted two months' leave of absence.

La Garde, Louis A., surgeon, left Ancon, Canal Zone, on six weeks' leave of absence.

Richardson, William H., contract surgeon, ordered from Cincinnati, Ohio, to Fort Sheridan, Ill., for duty.

McAllister, John A., dental surgeon, arrived at San Francisco, Cal., on the transport *Sherman,* and ordered to the Presidio of Monterey, Cal., for duty.

Craig, Emmett J., dental surgeon, relieved from duty at the Presidio of Monterey, Cal., and ordered to the Philippines Division for duty.

Rebert, Michael A., contract surgeon, returned to duty at Fort Totten, N. Y., from leave of absence.

Probert, Merton A., contract surgeon, granted an extension of twenty days to his leave of absence.

Wilson, James S., asst.-surgeon, assignment to duty with the joint Army and Navy exercises, Fort Howard, Maryland, is revoked.

Yost, John D., asst.-surgeon, ordered to proceed from Honolulu, H. T., to Presidio of San Francisco, for examination for advancement to rank of captain; on completion of examination to return to Honolulu.

Webber, Henry A., asst.-surgeon, detailed member of board to meet at Vancouver Barracks, Washington, to examine candidates for admission to U. S. Military Academy, West Point, N. Y.

Brown, Henry L., asst.-surgeon, ordered to accompany First Squadron, Seventh Cavalry, from Fort Meyer, Va., to Manila, P. I., for duty, instead of Ninth Infantry, from Madison Barracks, N. Y.

Craig, Charles F., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and assigned to duty as surgeon, transport *Logan;* on arrival in Manila to report for duty in the Philippines Division.

Wadhams, S. H., asst.-surgeon, relieved from duty as surgeon, transport *Logan,* and to report to the military secretary of the Army for further orders.

Rockhill, E. P., asst.-surgeon, sick leave extended thirty days.

Straub, Paul F., asst.-surgeon, having reported to Secretary of War, is ordered to duty with the Isthmian Canal Commission.

Hutton, Paul C., asst.-surgeon, left General Hospital, Fort Bayard, N. Mex., on ten days' leave.

Williams, A. W., asst.-surgeon, assigned to temporary duty with troops from Fort Hamilton, N. Y., to Army and Navy exercises, Fort Monroe, Va.

Brown, Henry L., asst.-surgeon, granted fourteen days' sick leave of absence.

Palmer, Fred W., asst.-surgeon, reports for duty at U. S. Rifle Range, Arcadia, Mo.

Bushnell, Geo. E., surgeon, detailed to represent the Medical Department of the Army at meeting of the National Association for the Study and Prevention of Tuberculosis, in Washington, D. C., May 18-19, 1905.

Chidester, Walter C., asst.-surgeon, granted two months' leave of absence.

Edwards, James F., asst.-surgeon, granted two months' leave of absence.

Hutton, Paul C., asst.-surgeon, leave of absence extended thirty days.

Reynolds, F. P., surgeon, relieved from duty at Presidio of San Francisco, and ordered to Fort W. H. Seward, Alaska, for duty.

Clayton, Jere B., asst.-surgeon, relieved from duty at Fort W. H. Seward, Alaska, and ordered to proceed to Seattle, Wash.; and report by telegraph to the military secretary for further orders.

Rockhill, E. P., asst.-surgeon, relieved from duty at Presidio of San Francisco, and ordered to Fort Wingate, N. Mex., for duty.

Russell, Fredk. F., asst.-surgeon, relieved from duty at Fort Wingate, N. Mex., and ordered to the Presidio of San Francisco, for duty.

Ebert, Rudolph G., surgeon, ordered to make inspection of medical department at Forts Walla Walla, Wright, Worden, Casey, Flagler, Lawton, Ward, and Columbia, Wash., and Fort Stevens, Ore.

Roberts, William, asst.-surgeon, reports arrival at Fort Greble, R. I., for temporary duty.

Long, Charles J., dental surgeon, left Fort Assinniboine, Mont., and arrived at Fort Harrison, Mont., for temporary duty.

McCall, James H., contract surgeon, left Key West Barracks, Fla., for Fort Moultrie, S. C.

George, William R. S., contract surgeon, left San Juan, P. R., and arrived at Henry Barracks, Cayey, P. R., for temporary duty.

Mabry, William C., contract surgeon, granted leave of absence for one month.

Hogue, Gustavus I., contract surgeon, ordered from Fort McDowell, Cal., to the Depot of Recruits and Casuals, Angel Island, Cal., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending April 29, 1905:

Urie, J. F., surgeon, ordered to the *Pennsylvania,* April 25.

Bell, W. L., P. A. surgeon, ordered to the Naval Hospital, Mare Island, Cal., for treatment.

Manchester, J. D., asst.-surgeon, detached from the *Petrel* when put out of commission, and ordered to the *Princeton.*

Garton, W. M., P. A. surgeon, ordered to Washington, D. C., and to report to the Surgeon General, April 29, for a course of instruction at the Naval Museum of Hygiene and Medical School.

Purlon, F. M., P. A. surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, April 29, and ordered to report to the Surgeon General for course of instruction at the Naval Museum of Hygiene and Medical School.

Dessez, P. T., asst.-surgeon, when discharged from treatment at the Naval Hospital, Norfolk, Va., granted sick leave for two months.

Reynolds, C. F., pharmacist, detached from the *Hancock,* April 29, and ordered to Mare Island, Cal., for duty in the medicine and surgery storehouse of that yard.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending April 26, 1905:

Sawtelle, H. W., surgeon, to report at Washington, D. C., for special temporary duty.

Cumming, H. S., P. A. surgeon, leave of absence for ten days granted by Bureau letter of April 10, revoked.

Billings, W. C., P. A. surgeon, to proceed to Quebec, Canada, for duty in office of U. S. Commissioner of Immigration.

Francis, Edward, asst.-surgeon, to proceed to Missoula, Mont., for special temporary duty.

Burkhalter, J. T., asst.-surgeon, granted leave of absence for three days from April 27.

Trask, J. W., asst.-surgeon, assigned as Chief of Miscellaneous Division in the Bureau, Washington, D. C.

Smith, F. C., asst.-surgeon, granted leave of absence for seven days from April 22, 1905, under Paragraph 191 of the Regulations.

Goldsborough, E. W., acting asst.-surgeon, granted leave of absence for four days from April 25.

Rice, W. E., acting assistant surgeon, granted leave of absence for fourteen days from May 1.

PROMOTION.

McKay, Malcolm, pharmacist of the second class, promoted to the grade of pharmacist of the first class, effective Jan. 8, 1905.

BOARD CONVENED.

Board convened to meet at Port Townsend, Wash., April 27, 1905, for the Physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon J. H. Oakley, chairman; P. A. Surgeon D. E. Robinson, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended April 29, 1905:

SMALLPOX—UNITED STATES.

California: Los Angeles, April 8-15, 3 cases.
District of Columbia: Washington, April 15-22, 2 cases, 1 death.
Florida: Jacksonville, April 15-22, 5 cases.
Illinois: April 15-22, Chicago, 29 cases, 2 deaths; Danville, 2 cases.
Louisiana: New Orleans, April 15-22, 22 cases, 4 imported.
Michigan: April 15-22, Detroit, 2 cases; Grand Rapids, 9 cases.
Missouri: April 15-22, St. Joseph, 1 case, imported; St. Louis, 8 cases, 2 deaths.
Ohio: Toledo, April 1-15, 2 cases.
Pennsylvania: April 15-22, Lebanon, 3 cases; York, 13 cases.
South Carolina: Charleston, April 15-22, 2 cases; Greenville, April 8-15, 1 case.
Tennessee: Nashville, April 15-22, 1 case.

SMALL-POX—INSULAR.

Philippine Islands: Manila, March 4-11, 1 case.

SMALLPOX—FOREIGN.

Brazil: Pernambuco, March 1-15, 181 deaths; Rio de Janeiro, March 26-April 8, 41 cases, 8 deaths.
Chili: At many ports, March 31, present.
China: Shanghai, March 4-11, 2 cases (foreigners); 3 deaths (native).
Colombia: Cartagena, March 26-April 1, 1 case, 1 death.
France: Nantes, March 18-April 8, 42 cases, 8 deaths; Paris, March 26-April 8, 41 cases, 8 deaths.
Great Britain: Birmingham, April 1-8, 1 case; Bradford, March 25-April 8, 19 cases, 1 death; Cardiff, April 1-8, 1 case; Hull, March 25-April 1, 1 case, 1 death; Leeds, April 1-15, 3 cases: Leith, April 1-8, 1 case; London, March 25-April 1, 2 cases: April 1-8, Southampton, 2 cases, 1 death; South Shields, 5 cases, 1 death.
India: Bombay, March 21-28, 127 deaths: Calcutta, March 18-25, 7 deaths: Karachi, March 19-26, 8 cases, 3 deaths.
Malta: Malta, March 25-April 1, 1 case, 1 death.
Norway: Christiania, April 1-8, 2 cases.
Russia: Odessa, March 25-April 8, 18 cases, 2 deaths: St. Petersburg, March 18-April 1, 8 cases, 6 deaths; Warsaw, Jan. 28-Feb. 11, 4 deaths.
Turkey: Constantinople, March 19-April 9, 8 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, March 26-April 2, 13 cases, 5 deaths.
Mexico: Coatzacoalcos, March 18-April 8, 3 cases, 1 death: Tehuantepec, April 9-15, 1 case.

CHOLERA.

China: Tientsin, March 4-11, 1 case, 1 death.
India: Bombay, March 21-28, 1 death; Calcutta, March 18-25, 68 deaths.

PLAGUE—INSULAR.

Philippine Islands, Manila, March 4-11, 2 cases, 3 deaths.

PLAGUE.

Africa (British): Cape Colony, March 11-18, 2 cases, 2 deaths; Uganda, Feb. 11, 25 deaths.
Arabia: Aden, March 24-31, 33 cases, 32 deaths.

Australia: Brisbane, Feb. 18-March 11, 6 cases, 3 deaths.
Chili: March 31, Arica, 3 cases, 2 deaths; Pisagua, 150 cases, many deaths.
India: General, March 11-18, 47,602 cases, 42,088 deaths; Bombay, March 21-28, 652 deaths; March 18-25, Calcutta, 570 deaths; Karachi, March 18-25, 140 cases, 127 deaths.
Peru: Arequipa, March 31, reported; March 19-26, Chiclayo, 12 cases, 9 deaths; Eten, 1 death; Lambayeque, 3 cases, 1 death; Huanchaco, 1 death; Chepen, 1 death; San Pablo, 1 case, 1 death; Mollendo, 24 cases, 3 deaths; Lima, 2 cases.
Straits Settlements: Singapore, Feb. 25-March 4, 1 death.

Medical Organization

Arizona.

COCHISE AND GRAHAM COUNTIES MEDICAL SOCIETY.—The physicians of these counties met at Bisbee, March 18, and organized a medical society for Cochise and Graham counties. The following officers were elected: President, Dr. Allen R. Hickman, Douglas, Cochise County; vice-president, Dr. Harris W. Horn, Clifton, Graham County; secretary, Dr. Bledsoe, Bisbee, Cochise County; treasurer, Dr. John E. Bacon, Tombstone, Cochise County, and censors, Drs. Francis E. Shine, Bisbee, Cochise County; Charles L. Caven, Bisbee, Cochise County, and Frederick T. Wright, Douglas, Cochise County.

Arkansas.

TENTH COUNCILOR DISTRICT.—The society for this district met at Fort Smith March 21. Dr. John S. Shibley delivered the councilor address, "The Value of Co-operation in Medical Work," in which he said that this is an age of concentration and organization. To do the work of the world to-day requires co-operation and combination. The individual is no longer sufficient. Formerly competition was the rule, now amalgamation and fraternity in all lines of activity are recognized as necessary. The medical profession must catch the spirit of the times, organize its forces and unify its efforts, or it will be left behind in the march of progress.

Some of the benefits of medical societies are: Acquisition and diffusion of knowledge. Friendly criticism from others working along the same lines. Sharing with others the results of one's own experience and discoveries. Better acquaintance among physicians. The local medical society is a good equalization board of personal values. The local medical society creates and fosters an *esprit de corps* in the profession. Organization enables the profession to mold public opinion and direct action on sanitary matters.

Among the hindrances to organization are meager support on the part of the physicians as a class and selfishness and indifference on the part of the individual physician.

Medicine is a profession, not a trade. Its prime object is to do good, not to make money. To do his best work a physician must have money, and yet money is not his prime object. It is largely a question of motive. If a physician's chief aim is to do the most service to the profession and to society, he can find time to attend district, state and national medical societies and to work for their success.

Indian Territory.

CENTRAL DISTRICT MEDICAL SOCIETY.—At the session of this society held in South McAlester, April 12, much of the discussion was on the medical law for the proposed new state. The following officers were elected: Dr. Frank L. Watson, Alderson, president; Dr. Thomas J. Long, Atoka, vice-president, and Dr. Le Roy Long, South McAlester, secretary-treasurer.

Iowa.

MAHASKA COUNTY MEDICAL SOCIETY.—Pursuant to a call eleven physicians of Mahaska County met at Oskaloosa, April 25; reorganized the society on the standard plan; applied for a charter, and signed the constitution. Dr. Joseph C. Barringer presided and Dr. Herman C. Homer acted as secretary. The old officers were retained.

FAYETTE COUNTY MEDICAL SOCIETY.—The physicians of the county met at Oelwein, April 11, organized a medical society and adopted the standard constitution and by-laws. The following officers were elected: President, Dr. James W. McLean, Fayette; vice-president, Dr. George D. Darnall, West Union, and secretary, Dr. Elizabeth Smith, Oelwein.

Kansas.

WABAUNSEE COUNTY MEDICAL SOCIETY.—Nine of the 21 physicians in this county met recently at Alma and organized a medical society.

MARION COUNTY MEDICAL SOCIETY.—A county society was recently organized at Marion with the following officers: Dr. Llewellyn A. Buck, Peabody, president; Dr. Nathaniel M. Smith, Marion, vice-president; Dr. Gideon P. Marner, Marion, secretary; Dr. R. C. Smith, Marion; treasurer, and Drs. Joseph N. Hannaford, Marion, Leonard S. Wagar, Florence, and Grant Meyer, Lincolnville, censors.

POTTAWATOMIE COUNTY MEDICAL SOCIETY.—This association completed its organization on the standard plan, at Westmoreland, April 18, by adoption of the constitution and by-laws in conformity with that suggested by the American Medical Association. The following officers were elected: Dr. Edwin F. Richardson, Onaga, president; Dr. William P. Wilson, Westmoreland, vice president; Dr. Egdar L. Simonton, Warnego, secretary, and Dr. Peter T. Conlan, St. Mary's, treasurer.

Kentucky.

BOYD COUNTY MEDICAL SOCIETY.—Dr. James W. Kincaird, Catlettsburg, will organize a county medical society in Ashland early in May.

Missouri.

LINCOLN COUNTY MEDICAL SOCIETY.—Dr. Walter B. Dorsett, St. Louis, councilor for the seventh district, met physicians of the county at Troy, April 20, and organized a medical society on the standard plan with the following officers: Dr. Solomon R. McKay, Troy, president; Dr. J. Strickland, Moscow Mills, vice-president; and Dr. William P. Smith, Troy, secretary-treasurer.

PIKE COUNTY MEDICAL ASSOCIATION.—A county association was organized at Bowling Green, April 24, with the aid of Dr. Woodson Moss, Columbia, and Dr. Edwin S. Cave, late councilor for the sixth district. The following officers were elected: President, Dr. Marion O. Biggs, Bowling Green; vice-president, Dr. James C. Shelton, New Hartford, and secretary-treasurer, Dr. T. Guy Hetherlin, Louisiana.

New Mexico.

LUNA COUNTY MEDICAL SOCIETY.—The physicians of the county met in Deming, March 8, and organized a medical society with the following officers: Dr. John G. Moir, president; Dr. Jesse O. Michael, Deming, vice-president; Dr. Samuel D. Swope, Deming, secretary, and Dr. Pinckney M. Steed, Deming, treasurer.

Philippine Islands.

ANNUAL MEETING OF THE PHILIPPINE ISLANDS MEDICAL ASSOCIATION.—At the annual meeting of this association the following officers were unanimously elected: President, Major Edward C. Carter, U.S.A.; vice-presidents, Drs. W. G. Heiser and B. Cuervo; secretary-treasurer, Dr. Robert E. L. Newborne; councilor for five years, Dr. Richard P. Strong.

South Carolina.

ANDERSON COUNTY MEDICAL SOCIETY.—This society has been reorganized with Dr. Waller H. Nardin, Anderson, as president.

NEWBERRY COUNTY MEDICAL SOCIETY.—This society was organized at Newberry, March 15, with the following officers: President, Dr. James K. Gilder, Newberry; vice-president, Dr. George Y. Hunter, Prosperity; secretary-treasurer, Dr. J. G. McMaster, Newberry, and delegate to the state association, Dr. W. Gustav Houseal, Newberry.

HAMPTON COUNTY MEDICAL SOCIETY.—At the meeting of this society in Hampton, March 23, Dr. Edward F. Parker, Charleston, councilor for the district, was present. The following officers were elected: President, Dr. Southwood Smith, Garnett; vice-president, Dr. J. L. Folk, Brunson; secretary-treasurer, Dr. Charles A. Rush, Hampton; delegate to state association, Dr. M. B. Monsen, Luray, and censors, Drs. J. W. Colson, Varnville; C. P. Walter and C. R. Peeples.

LEE COUNTY MEDICAL ASSOCIATION.—Dr. Walter Cheyne, Sumter, councilor of the seventh district, visited Bishopville, March 25, and organized a county society on the standard plan, with the following officers: President, Dr. Robert Y. McLeod, Bishopville; vice-president, Dr. A. C. Baskin, Bishopville; secretary-treasurer, Dr. L. H. Jennings, Bishopville; delegate to state association, Dr. Jesse B. Bullock, Lucknow, and committee on public health and legislation, Drs. Bush McLauchlin, A. C. Baskin, Bishopville, and Thomas B. Manning, Bishopville.

West Virginia.

TYLER COUNTY MEDICAL SOCIETY.—This county has organized and has elected Dr. George B. West president and Dr. Victor H. Dye, secretary, both of Sistersville.

Wyoming.

SHERIDAN COUNTY MEDICAL SOCIETY.—Physicians of Sheridan met, April 17, and effected a permanent organization in co-operation with the Wyoming State Medical Society. The following officers were elected: Dr. Charles R. L. Halley, president; Dr. G. B. Simpson, vice-president; Dr. T. E. Marshall, secretary; Dr. Hurd, treasurer, and Drs. F. A. Hodson, G. B. Simpson and William Miller, censors, all of Sheridan.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore, July 11-14, 1905.

Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.
West Virginia State Medical Association, Wheeling, May 24-26.

COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION.

First Annual Conference, held in Chicago, April 20, 1905.

Chairman, DR. ARTHUR D. BEVAN, Presiding.

This meeting was called for the purpose of conferring with representatives of state and territorial licensing and examining boards, the American and Southern Medical College associations, and the Government medical services. These bodies were represented by the following:

STATE DELEGATES: Colorado, S. D. Van Meter, Denver; District of Columbia, Wm. C. Woodward, Washington; Illinois, George W. Webster and W. H. Hipp, Chicago; Indiana, J. C. Webster, Lafayette, and J. M. Dinnen, Fort Wayne; Iowa, Fred W. Powers, Waterloo; Kentucky, Wm. Bailey, Louisville; Louisiana, A. F. Barrow, St. Francisville; Nebraska, A. B. Somers, Omaha; New Mexico, George W. Harrison, Albuquerque; New York, Albert Vander Veer, Albany; North Dakota, H. M. Wheeler, Grand Forks; Oregon, H. E. Currey, Baker City; South Carolina, S. C. Baker, Sumter; West Virginia, A. R. Warden, Grafton.

Association American Medical Colleges: J. M. Dodson, Chicago; Southern Medical College Association: G. C. Savage, Nashville; U. S. Army: Col. Philip F. Harvey, Assistant Surgeon-General; U. S. Public Health and Marine-Hospital Service: P. A. Surgeon, George B. Young.

Others present were:

Dr. L. S. McMurtry, Louisville, President American Medical Association; Dr. Geo. H. Simmons, Secretary American Medical Association; Prof. J. H. T. Main, Dean Grinnell College, Iowa; Prof R. D. Harlan, President Lake Forest College, Illinois; Dr. L. F. Barker, University of Chicago.

The delegates from the following states, appointed by the respective governors, were absent:

Alabama, W. H. Sanders; Arkansas, J. P. Runyon; Georgia, P. D. Patterson; Kansas, G. F. Johnston; Maryland, J. McP. Scott; Mississippi, J. A. Rhodes; Montana, W. C. Riddell; New Hampshire, J. F. Robinson; New Jersey, E. L. B. Godfrey; Oklahoma, E. G. Sharp; Pennsylvania, H. Beates, Jr.; Texas, D. J. Jenkins; Utah, R. W. Fisher; Vermont, W. S. Nay; Virginia, R. W. Martin; Wisconsin, W. T. Sarles; Wyoming, E. O. Rohrbaugh.

DR. LEWIS S. MCMURTRY, President of the American Medical Association, being introduced to the conference, directed attention to the fact that ever since the foundation of the American Medical Association its chief purpose has been to promote and to advance the standard of medical education in the United States. For years the delegates to the annual meetings of the Association represented the medical colleges of the country; hence, the Council on Medical Education is carrying out one of the most important purposes of the parent bodies.

This meeting, he said, was called for the purpose of bringing together the various examining and licensing powers of the states and territories, to secure a mutual interchange of ideas and counsel. It is evident that any movement looking toward reciprocal registration between the various states and toward uniformity in standards and requirements should be held under the auspices of the American Medical Association, for the reason that it has for its great purpose the elevation of the masses of the profession, which it is fulfilling by bringing together the doctors from all parts of the country.

The History of the Council and the Scope of Its Work.

The scope of the work of the Council was outlined in full by the chairman. After giving an elaborate history of the organization of the Council and of the events which led up to it and making a statement of what it had accomplished, he said:

The program of to-day includes the reports of subcommittees on Preliminary Education on Curricula, and the discussion on such phases of the subject of medical education as the Council considered were especially pressing at the present time, as, What shall be the standard of recognition of medical colleges? The question of reciprocal registration. The relation between the college of liberal arts and the medical school. And, most important of all, and, in fact, the real purpose of this conference is found in the last section of the program, i. e., the question of coöperation between the American Medical Association and the state licensing bodies in the effort at elevating medical education.

The existing conditions of medical education in this country are unsatisfactory as compared with the conditions found in England and Germany. The existing conditions are well shown by an abstract of laws regulating the practice of medicine in the various states and territories of the United States, published in pamphlet form by THE JOURNAL of the A. M. A., Jan. 1, 1905.

A table giving the principal features of the different state laws shows that all of the 52 states and territories, including Hawaii and Porto Rico, have medical laws of more or less value. Of these 52, 35 require both a diploma and a state examination; 12 an examination alone; 5 either a diploma or an examination. In 13 the examining board is a separate body; in the remainder the examining is a function of a board, such as the state board of health. Only 5 states demand a preliminary examination by the state. In 17 the examining board is either nominated or approved by the state medical societies.

Although a critical analysis of existing conditions shows an unsatisfactory state of affairs, still, as compared with the conditions which existed twenty years ago, even the most pessimistic critic must admit that we have made great progress. Then many states had no medical laws at all. In many registration and the payment of a small license fee was all that was required. Many accepted a diploma, and but two, or at most three, years of medical work was insisted on; and practically none demanded any evidence of preliminary education.

What would be regarded as a perfectly satisfactory state of affairs for medical education, we might say ideal state of affairs, from our present view-point? Such medical education must be equal to that required by England and Germany. It would comprise:

1. A preliminary education such as would enable the student to enter our standard universities, with an average age of about 18; the passing of this preliminary education by the state authorities.

2. Five years of medical work, the first year to include physics, chemistry and biology. This year to be taken either in a medical school or in a college of liberal arts; and the last year of the medical course to be so arranged as to bring the student in actual contact with patients at the bedside.

3. A diploma from a medical school in good standing, this being evidence that the student has completed his work and passed examinations satisfactory to the medical school; and, further, that the medical school, as shown on investigation either by the state board or by the Council on Medical Education of the American Medical Association, or both, is doing the kind of work which entitles it to recognition.

4. This diploma should be accepted as evidence entitling the holder to take an examination before his state board. And, on passing such examination, which should be so conducted as to test in the most thorough way the candidate's knowledge, he should be entitled to practice.

5. Essentially the same state of affairs medical should exist in all the states and territories, and the license to practice conferred by one state should be recognized by all.

In view of the rapid progress made within the last twenty years, it would seem reasonable to believe that within another period of twenty years we shall find medical education in this country advanced to the condition which we have outlined. However, in order to accomplish such results, much must be done, and all the agencies which can assist must co-operate toward the desired end, and the advancement can not take place all at once, but one step at a time. There are many practical obstacles which must be overcome. They must be recognized,

and their weight and influence considered. Among them two are especially important: First, the inequality, as far as general education is concerned, between the various states. It is easier to demand a high standard in New York and Minnesota than in some of the Western and Southern states, because public opinion and professional opinion has not been educated to demand a high standard in those states. It is believed, however, that the profession of every state and territory can do very much to correct this by preaching and demanding higher ideals.

A second obstacle, and one of a good deal of moment, is found in the medical colleges which are conducted as private corporations. There can be no longer any excuse for the existence of a medical school which is conducted by a body of men for profit. It is only necessary to state the demonstrated fact that it costs more to furnish a student with a medical education than he pays for fees to show conclusively that a medical school supported solely by the fees of students, and which pays a profit to its owners, is doing poor work and has no warrant for existence. Fortunately, with the increase of requirements, especially for preliminary education, these medical schools will be forced either to seek endowments or absorption by universities which will enable them to do acceptable work, or else they will be condemned to extinction by the law of the survival of the fittest.

However, these schools represent property and professional interest, and honorable achievement in the past, which are not to be ignored, and, if possible, sufficient notice of increase in requirements should be given and the advances made at a rate which will enable those which are worth saving to bring themselves up to the higher requirements.

What can we reasonably demand as a minimum requirement at the present time of those seeking to enter the medical profession, and how can this demand be best enforced? These are the questions which are vital and pressing. Personally, I feel that the following requirements are reasonable and can, by the cooperation of the agencies interested in medical education, be made at once effective:

1. Preliminary education, a four-year high school or academy education, such as shall prepare a student to pass the entrance examination to our standard universities. The preliminary education to be passed on by the state authorities, or, at least, not by the faculty of the medical school.

2. A medical course of four years, each year of at least thirty weeks (exclusive of holidays) in a medical school in good standing; such standing to be determined by a joint conference of the Council on Medical Education of the American Medical Association and delegates from the state licensing bodies.

3. The presentation of a diploma from such school in good standing shall entitle the holder to appear before his state board for examination for license to practice.

4. The passing of a satisfactory examination before a state examining board.

It would seem that we might obtain action from the legislatures and medical examining boards which would insure the adoption of the general plan outlined above; and, further, we could hope that, as one after the other of the states conformed to these regulations, a scheme of reciprocity might be developed which would soon embrace all but the most backward of the states; and when the great majority of the states agreed the weaker sisters soon would fall into line.

What we need is co-operation, especially the co-operation between the medical profession, represented by the American Medical Association, the state and county medical societies and the state authorities, represented by the state licensing and examining boards. The most important question, therefore, before this conference is, How can the American medical profession and the state licensing bodies co-operaate to elevate and control medical education? It is believed that such co-operation is possible. In such co-operation it will be the function of the American Medical Association to represent and possibly mold the opinion of the medical profession, and to employ its influence and the influence of the county and state medical societies in obtaining proper medical legislation. In such co-operation it will be the function of the state licensing bodies to protect the interests of the public and the profession by seeing that the medical laws are properly interpreted and enforced, and from their intimate knowledge with the medical acts they can often be of service in securing or modifying medical legislation.

It is not the purpose of the Council on Medical Education of the American Medical Association to attempt to arrogate to itself any special powers, nor does it desire either to criticise or interfere in any way with any of the agencies which are already in the field. If its creation is to result in good, it must be the means of obtaining co-operation between the medical profession, the medical school, the college of arts, the state examining boards, the government services, and all the factors which are interested in elevating and controlling medical education.

Gentlemen, with such objects in view, we ask your assistance and advice and co-operation, and we thank you for responding to our invitation and for your attendance here to-day. It is hoped that the questions submitted will have the fullest discussion, in which you are all asked to take part. It is hoped that this first conference may lead to the establishment of an annual conference between the bodies which are represented here to-day, and that such conferences may be productive of much good.

Preliminary Education.

On behalf of the Subcommittee on Preliminary Education, Dr. V. C. Vaughan reported as follows:

REPORT OF THE COMMITTEE ON REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOLS.

To the Council on Education of the American Medical Association:

Gentlemen: Your committee appointed to report on the requirements for admission to medical schools submits the following:

Medicine has from the remotest times been known as one of the learned professions, and its history, in a general way at least, justifies this honor. Professional pride should, therefore, lead those in whose charge the good name of the profession now rests to see to it that its ranks are recruited with the best. It is true that the medical charlatan still flourishes, and that the credulity of the mass of mankind in medical matters grows less, if at all, very slowly; yet there has never been a time when the regular medical profession had more absolute control of the portals through which aspirants for its honors must pass than at the present time. The schools can set their standards as high as they wish, and beyond and above the schools are the state boards of medical examiners which can act as a second barrier to the admission of the undesirable. If, therefore, in this condition of affairs the reputation of the profession for wide and accurate learning suffers in the least, its leaders and teachers are responsible for its abasement.

There is no crying need for more physicians and surgeons. The supply quite equals the demand, and for this reason the time is propitious for raising the barrier to admission one notch higher. We do not mean that a close corporation or a trades union should be formed, but we do mean that the reputation of our profession for culture and learning should be strengthened, and so long as the supply outruns the demand we are in duty bound to select with more care the individuals that constitute the supply.

Modern medicine consists of those facts, gathered from the various sciences, that are capable of utilization in either the prevention or cure of disease. All the physical sciences, at least the fundamental ones, have made and are still making contributions to medical knowledge, and medicine can advance no faster than the sciences on which it is founded advance. Discovery of facts must precede their application. Therefore, medical men must encourage research work, and it is a duty imposed on every medical school to advance the bounds of scientific knowledge. For centuries there were individual medical men who believed that certain diseases are disseminated by low forms of life, which, multiplying parasitically in the bodies of men, elaborate poisons and thus induce the symptom-complex of these diseases. But the germ theory of disease had to await the discovery of the compound microscope before it could pass from the list of theoretical conceptions into that of demonstrated facts. Times that are marked by scientific discoveries are closely followed by medical advances. The chemist had to produce ether and chloroform before they could be applied in anesthesia. The perfection of the laryngoscope by Garcia opened up the way to the study and treatment of diseases of the larynx, and without the ophthalmoscope we would still be blind so far as the recognition of pathological conditions of the fundus of the eye are concerned. The laborious and long-continued investigations of Beaumont laid the foundations of all our present-day knowledge of disturbances of digestion. Illustration after illustration along these lines might be given, but inasmuch as the fundamental statement that every advance in medicine is founded on discovery can not be questioned, a great array of examples is not necessary.

However, some may be ready to ask, What has this to do with the requirements for admission to medical schools? It has everything to do with it; it is the keystone to the arch. Medicine consists in the application of scientific facts. It is the medical man who must apply these facts, and how can he do it if he be ignorant of the sciences from which they come? Without this knowledge the medical man is as helpless as a South Sea islander would be if asked to work a complicated machine. The man who is entering on the study of medicine must know the essential facts of the fundamental sciences, and what he does not know he must have the means of acquiring. To sum up, then, we may say that medical schools should require of all matriculates a knowledge of the primary and essential facts and theories of those sciences that most liberally contribute to medicine, and a sufficient knowledge of language and literature to enable him to make constant additions to his knowledge of the sciences. Possibly it will be better to discuss the language requirement first.

Certainly no one should be permitted to enter on the study of medicine if he be ignorant of his own language, its syntax and its logic. We do not mean that a hypercritical knowledge of grammatical construction, which is so pedantically aired by many teachers of English, should be required; but the medical man should be able to read and write without gross violence to the rules of grammar and so that a person of average intelligence can understand him, and it is equally important that he be able to understand what intelligent people say and write.

This is so self-evident that I need not dwell on it. Should our medical students know any other living language? This is a question about which there may be some diversity of opinion. There are many eminent men both among the scientific and practical leaders of our profession whose knowledge of language is confined to their mother tongue. This is true of some of the greatest teachers of Europe as well as of America. However, this does not render less true the statement that the man who reads easily and intelligently German and French, in addition to his native English, has a great advantage over his brother who is confined in the acquisition of knowledge to his native speech. Everything of value sooner or later reaches the industrious and intelligent reader, even when he is confined to the English language, but his more fortunate colleague will often be ahead of him in time, and less frequently in the accuracy and extent of his information, because translations are often late and frequently are more or less faulty either in scope or in accuracy. We would not say that a reading knowledge of German and French should be required for admission to all our medical schools, but it certainly should be recommended and those schools which can require it should do so.

The nomenclature of our profession is based on the Latin language to such an extent that all medical educators agree that at least two years' study of this language should be demanded of all medical matriculates.

It seems that there can be no marked differences of opinion concerning the amount of mathematical knowledge that should be required of the prospective medical student. It is to be presumed that he has adequate knowledge of arithmetic: that he knows how to solve problems algebraically, and that he understands plane geometry. Beyond this the medical student should have a short but thorough drill in plane trigonometry. Without this training physics must practically remain to him a *terra incognita*.

Physics, chemistry and biology, the last including botany and zoology, are generous contributors to medicine, and in their essential facts and fundamental theories should be fairly understood by the medical matriculate. There is probably no other subject of equivalent importance so generally disregarded in medical education, either as a requirement for admission or as given in

the course, as physics. How medical men can be fitted for the duties of the profession without any adequate knowledge of physics is a question frequently asked of us by French and German teachers, for in these countries the medical students take the thorough courses given in this subject to those who are working for the higher scientific degrees. In most medical schools in this country the most superficial courses in physics in high schools, often without any laboratory work, are accepted for matriculation, and no instruction in this branch is given in the medical curriculum, and yet a knowledge of this subject is needed in the application of all mechanical means for the correction of deformities, for the treatment of fractures and dislocations, for the study of errors of refraction, and in the use of the microscope, ophthalmoscope, laryngoscope, Finsen light, *x*-ray, etc. College or advanced physics should be either required for admission or given in the medical curriculum.

The requirement in chemistry for admission to most of our medical schools is well-nigh worthless, and the instruction in this subject and its numerous branches in our medical curricula is often of but little value, embracing, as it does, one or possibly two semesters of lectures, with demonstrations covering the whole range of general, analytical, physiologic and toxicologic chemistry, supplemented by a brief course in the laboratory of analytical chemistry. How can it be expected that one whose knowledge of chemistry is thus limited should comprehend Ehrlich's side-chain theory or have any comprehension of food principles, to say nothing of their assimilation and utilization in the human body. A knowledge of the fundamental facts and theories of general chemistry should be required for admission, and either before or after admission each student should be thoroughly instructed in the theories of organic chemistry and the general principles of physiologic chemistry and to some extent in the methods of toxicologic investigation.

The prospective medical student should have a broad and comprehensive knowledge of general biology, a subject which is now taught quite adequately only in the best high schools. This instruction should be, in part at least, given in the laboratory. This furnishes a good basis for both the morphologic studies, as histology, embryology and bacteriology, and for those of physiology and physiologic chemistry that come in the medical curriculum.

To sum up this part of the subject, we think that the following should constitute the requirements for admission for the present to our medical schools:

1. At least three years of English, including grammar, rhetoric and logic. To this a year or more of English literature might be added with advantage.
2. At least two years of Latin, including the grammar, composition and at least four books of Cæsar. We believe that four years of Latin will be all the better, but the shorter course might be permitted as a minimum.
3. We regard an easy reading knowledge of German of great value to the medical man, and if the same familiarity with French be added, when he enters the profession he will have his own indolence to blame if he does not keep abreast of professional advance.
4. Mathematics should be pursued through higher arithmetic, school algebra, geometry and trigonometry.
5. The fundamental facts and theories of physics, chemistry and general biology should be impressed by laboratory instruction.
6. The medical man should not be lacking in general knowledge and he should be expected to be informed in descriptive and political geography and in the history not only of his own country, but of the world.

Experience has shown that it is easy to get medical schools to place requirements on paper, but more difficult to have them enforced. For this reason we look with favor on the enactment of laws taking the decision on preliminary requirements out of the hands of medical faculties and placing it on official boards, and, although the official standard may be too low, as it certainly is in at least one state, its enforcement is more certainly secured. We can see no reason why our country should not have the best medical schools in the world, and if four years be too short a time to secure such a training let us lengthen the time either by requiring more thorough collegiate training of our matriculates or by adding a year to the medical curriculum. Let us elevate the profession and leave it on a higher plane than we found it.

(Signed) VICTOR C. VAUGHAN.
J. A. WITHERSPOON.

The discussion of this report was opened by PROF. RICHARD D. HARLAN, President of Lake Forest College. He said that these preliminary studies in science should be taught as pure science entirely, and that the liberal arts college is better prepared to do this than is the medical college. By delegating this work to the liberal arts college, the medical college will relieve congestion in the first year of its curriculum.

DR. S. D. VAN METER, Colorado, called attention to the fact that the majority of states require some evidence of the moral standard of the applicant; therefore, it might be well, for those in charge of deciding the question of preliminary education, to keep this fact in mind and select men who have the proper breeding to fit them for a college course.

DR. A. F. BARROW, Louisiana, said that their state board has noted the advancement of the medical education of students presenting themselves for licensure, but that they also noted an absolute disregard on the part of some medical colleges of the educational requirements for matriculation. For this reason his board refuses to recognize the graduates of two colleges. That condition of affairs might easily be corrected by the co-operative influence of the American Medical Association, through the Council on Medical Education, by requiring that entrance certificates come from somebody, such as the board of medical examiners of a state, a certificate from whom will admit to a medical college.

DR. L. C. WEBSTER, Indiana, referred to the matriculation requirements of the Indiana State Board of Examiners. In order for a college to turn out good material, it must start with good material. Indiana is ready to co-operate with other bodies to attain the accomplishment of this object.

DR. S. C. BAKER, South Carolina, suggested that a knowledge of Greek is fully as essential as a knowledge of Latin, French or German; hence, it would be advisable to include Greek in the preliminary requirements. South Carolina requires of applicants for licensure evidence of graduation from a medical college of established reputation, and of possessing sufficient preliminary education, at least a first-grade teacher's certificate granted by a county or state superintendent of education.

PROF. J. H. T. MAIN, Grinnell College, proposed offering an option between Latin and Greek. The latter is a creative language and the fundamental terms in anatomy, bacteriology, chemistry, etc., are absolutely Greek. Hence there is good reason why, if emphasis is put on any ancient language, there should be an option between Latin and Greek.

DR. G. W. WEBSTER, Illinois, said that, while there has been much talk about raising standards, no real standard has as yet been established.

The report was also discussed and commended by Drs. J. M. Dinnen, Indiana; H. E. Currey, Oregon; H. M. Wheeler, North Dakota; F. W. Powers, Iowa, and A. B. Somers, Nebraska.

The report of the subcommittee on curricula was presented by Dr. Charles H. Frazier.

Report of Subcommittee on Medical Curriculum.

Your subcommittee on the medical curriculum begs leave to present its report in two sections. From a study of the catalogues and from his knowledge of the training of most medical schools, Dr. Councilman found, in attempting to form what seemed to be an ideal curriculum, that there were certain difficulties in the way of putting into successful operation the best methods of medical education. These he believed to be mainly two: First, there is a lack of appreciation of the true methods of medical education; second, the relation of medical schools and hospitals, the latter practically controlling the appointments in the schools, prevent proper methods from being carried out. As a preface, therefore, to the curriculum which he proposes for consideration, he presents his views on the conditions underlying medical education.

The second section of the report, which was prepared by Dr. Frazier, contains an expression of opinions with reference to the methods of formulating a standard curriculum, and submits for consideration a curriculum which in essential particulars corresponds to that of Dr. Councilman.

Your committee has studied carefully the catalogues of the majority of the medical schools, and is struck with the great variations, not only in the arrangement of the course, but in the methods of instruction, as well as in the hours which are allotted to each. Thus, for example, in some schools anatomy is taught in the first three years, and in others only in the first year. In some only 20 lectures are given; in some 160 hours; in some only 174 hours are allotted to practical work, and in some 522 hours. In some schools no lectures are given in histology, and in others 128; in some but few hours in practical work, in others 288. Bacteriology is taught in different schools in the first, second, third and fourth years of the curriculum; in some instances with no practical work at all. In medicine the number of clinics varies from 32 to 288, and the lectures from 20 to 140; and in surgery the number of clinics varies from 48 to 288, and the lectures from 28 to 192. These data are sufficient to bring out the wide discrepancy that exists, and serve as an argument for the necessity of reform.

PART I.—BY DR. COUNCILMAN.

The object of medical education is to train individuals so that they may be of service in combating disease. Some of the individuals so trained will deal with the great questions of disease as it affects the general public; some will seek by the experimental study of disease to increase knowledge; but by far the greatest number will deal with disease in the individual. The same methods of education are applicable to all.

Tact, sympathy, generosity of character, knowledge of human nature, all qualities of the highest importance in determining the usefulness of the physician, can not be taught in the medical school. These qualities are partly innate, partly the result of culture.

The student may acquire in the medical school knowledge of disease and proficiency in the use of methods by means of which knowledge is acquired. Knowledge in medicine, as in any other branch of science which deals with things, is derived from the study by the senses of objects and the phenomena exhibited by them. The study is aided by various methods, by the use of which the territory covered by sense impressions is extended. From the interpretation of sense impressions and by analogy, hypotheses may be formed which are to be tested by experiment and future observations. The experiment is also of great value in enabling observations under known conditions to be made. The study of disease is difficult because of our lack of knowledge of the living tissues and the conditions acting on them to which the disease is due. Every day teaches us more of the complexity of the tissues and fluids of the body, and we are only beginning to understand how complex are the relations between living tis-

sues and parasites. Every case of disease presents some variations from the type, and general knowledge of a peculiar disease gives little assistance in ascertaining the conditions produced in the individual affected. Knowledge of the conditions produced in the individual by disease is essential, and can only be obtained by the methods of science.

In medical education it must be recognized that the student can acquire knowledge of the things he is studying only by means of the senses. Lectures in medical education play a very subordinate rôle. The lecture has its place, but it has to be given in connection with the student's work, and it is for the purpose of amplifying and co-ordinating the knowledge he has obtained from the study of objects by means of his senses.

The four-year course in medical schools has been generally adopted. Two of these years can be devoted to the preparation of the student for clinical work, the other two to the various classes of clinical work. The first two years present little difficulty. Their success depends on laboratory facilities and material for study, both of which can be provided, in some cases in fuller measure than in others. The difficulty comes in the last two years which are devoted to clinical work. For the proper teaching of clinical medicine, contact of the student with clinical material is essential. This can be provided only in hospitals.

The hospital must be regarded in a certain sense as a laboratory for the study of disease. The three purposes of a hospital are to provide care and comfort for the sick, to instruct others in administering to their care and comfort, and to increase knowledge of disease. None of these purposes can be efficiently carried out without the study of disease. In very few hospitals in this country does a medical school have any control of hospital appointments. Where there is such control both medical school and hospital show a greater degree of efficiency than in the case where the hospital, through the men who have clinical material in their hands, controls the appointments in the medical schools. In hospitals not vitally connected with medical schools, the prevalent method of making appointments and promotions is opposed to the attainment of the highest degree of efficiency in teaching and in the care of patients. It must stand to reason that the best men, who are trained and skilled in the most exact methods, who base their procedures for the relief of disease on knowledge rather than on conjecture or intuition, and who take infinite pains, must obtain the best results.

Present methods as followed by most hospitals do not lead to the best training and best development of men. As a rule, only the lowest positions in the out-patient departments of a hospital are filled by introducing new men into the hospital. Young men are chosen for these positions, and promotion is based on seniority of service. There is so little control exercised over the methods in these minor places that it is impossible for efficiency of service to be fully recognized. If the young man does his work according to the traditions of the hospital and does not make himself obnoxious to his superiors by too great a degree of activity or independence of thought and action, his promotion is sure. In the out-patient department the number of patients is usually too great for exact work to be done. Lax methods prevail, and the young man in his best years learns lax methods and does things by routine. By constant promotion control of clinical material for certain months of the year is obtained, and then the hospital appointee becomes a candidate for important teaching positions in the medical schools. By this time he usually possesses a lucrative private practice, his youthful enthusiasm is past, and the training which he has received has not been conductive to the best development.

The medical school should possess the power of appointment in hospitals, and the appointments should be made on merit alone. If it is not possible to obtain control of all appointments of a hospital, university clinics, consisting of a certain number of beds controlled by the medical school, should be established. The hospital will surely benefit by the introduction of new men with new ideas, and who have developed in different surroundings. Such men must be of recognized ability, for no other consideration should dictate their appointment by the medical school. The future and the highest development of medical education in this country is wholly controlled by hospital trustees.

The efficiency of laboratory teaching in most medical schools in this country far surpasses clinical teaching, and this is due to the fact that hospitals can not be used in the best manner for the study of disease. The greater ease of teaching the branches of medical education which lie outside of hospital work has led to giving relatively too great prominence to anatomy, physiology and pathology. The same discipline which is given in these branches can be given in clinical medicine, with the advantage that the student in clinical medicine has constant exercise in methods which he must constantly use when he leaves the medical school. We are beginning to see that the same method of study, placing the student in close relation with the objects studied, which is used in anatomy, physiology and pathology, can be used in clinical teaching, and the clinic can never reach its true dignity and importance until this method is adopted. Disease can not be studied at long range. The tendency on the part of the hospital trustees to discourage the study of disease in the wards is to some degree passing away, and it is to be hoped that in the future they will come to see that the greatest good accomplished by a hospital can take place only when the hospital appointments are given in the interests of medical teaching and its wards are fully used for the study of disease.

In submitting this curriculum of study, I have been guided in part by personal knowledge of what has worked well, and in part by the views as to the division of subjects and time in medical schools in which teaching is efficient. In the first two years of study I have given almost the arrangement of studies which is used in the Harvard Medical School and which has given good results. In this arrangement the work of the student is on one subject at a time. He studies the form and structure of the material in anatomy, the function in physiology, the disorders of form and function and their causes in pathology. The second half of the second year is devoted chiefly to the study of clinical methods, which will be used in the third and fourth years. The advantages of this method of concentrating study on one subject are: 1, It is found to work well; 2, the student keeps up his interest better and makes better progress; 3, teaching and study can be made more thorough; 4, the work of individual students can be better controlled; 5, it facilitates research by the teachers by giving time apart from teaching which can be devoted to research; 6, it is economical of time, the student loses much time in other methods by frequent changes of place and subject; 7, it is economical of space, the same teaching laboratories can be used at different times of the year for different subjects. One of the disadvantages urged against it is that the student memorizes a subject and then without constant repetition forgets it. If it were possible to teach medical science by exercises based on the memory this might be so.

I have regarded the year as giving 1,245 hours of work, allowing for the usual holidays and leisure hours in the day. In addition to the regular curriculum, special lectures or courses of lectures on subjects on which the lecturers have special knowledge should be encouraged. Such lectures can be attended by both teachers and students. In clinical studies I have included large amphitheater clinics in medicine, surgery and neurology. Such clinics could take the place of didactic lectures in these subjects. I have also included a weekly demonstration in pathologic anatomy. In such demonstrations the relation between the clinical phenomena and the lesions demonstrated should be held in view.

It is essential that every student must have during the third and fourth year a place in a laboratory and be provided with a microscope and clinical reagents in order that he can make at his convenience the necessary examinations of the products of disease in cases which he is studying. By making such work a matter of routine he obtains a proper reliance on methods, and will continue in them after leaving the medical school.

FIRST YEAR.

First half year: Anatomy (organology, histology, embryology), 624.

Second half year: Physiology, 384; physiologic chemistry, 240.

SECOND YEAR.

First half year: Pathology (gross and microscopic), including bacteriology and parasitology, 624.

Second half year: Physical diagnosis, 148; Pharmacology and toxicology, 126; Obstetrics (including histology and pathology), 242; hygiene, 48; surgical pathology, 60. Total, 624.

THIRD YEAR.

Medicine: (a) Clinics, 64; (b) O. P. D., 248; (c) clinical microscopy, 288; (d) practical therapeutics, 48.

Neurology: (a) Clinics, 32; (b) O. P. D., 181; (c) neuropathology, 45.

Surgery: (a) Clinics, 64; (b) O. P. D., 200; (c) operative surgery on animals, 14.

Obstetrics: (practical work). Six cases for each student.

Special lectures on general medicine (fever, edema, comparative etiology of infectious disease, etc.), 32.

Pathology: (Demonstrations of gross material), 32.

FOURTH YEAR.

Medicine: (a) Clinics, 32; (b) wards and laboratories, 330.

Psychiatry: (a) Lectures, 16; (b) ward visits, 48.

Pediatrics: (a) Clinics, 32; O. P. D., 32.

Dermatology: (a) Clinics, 32; (b) O. P. D., 80.

Surgery: (a) Clinics, 32; (b) wards and operating room, 180; (c) G. U. Surg. Clinics, 32; (d) G. U. Surg. O. P. D., 64; (e) Orthopedics (lectures, clinics or demonstrations), 32.

Obstetrics: (a) Obstetrical wards, 32.

Gynecology: (a) Gynecologic pathology, 32; (b) wards and operating room, 64.

Ophthalmology: (a) Lectures, 16; (b) O. P. D., 32.

Otology: (a) Lectures, 16; (b) O. P. D., 32.

Laryngology: (a) Lectures, 16; (b) O. P. D., 32.

Pathology: (Demonstrations of gross material), 32.

PART II.—BY DR. FRAZIER.

There has never been a decade in the history of medical education in which more time and thought has been given to the subject than during that which has just passed. This has been due, in part, to the healthy rivalry that exists between the various medical schools; in part to the enormous additions which have been made to the material equipments and endowments, and in part to the stupendous increase in the sum of medical knowledge, necessitating a complete reorganization of the methods of instruction.

It may be truthfully said that on the essential points in the construction of medical curriculum the minds of those who have given to the subject their especial attention are beginning to crystallize. It is therefore possible to present a scheme for an ideal course to which few will take exception in any of its essential particulars. One of the most important duties of this Council, second only to the adoption of a minimum standard of requirements for admission to medical schools, is to bring to the attention of medical schools the desirability of having a uniform standard, and having framed one, the Council should use its influence through the proper channels to secure its adoption.

To make a standard curriculum possible, two questions must be settled at once: what subjects must be taught in each of the four years, and how much time should be devoted to each and what disposition should be made of the allotted time.

The assignment of subjects in the first two years will be a matter of little difficulty whether the concentration or the semi-concentration plan is adopted. The logical arrangement would place in the first year anatomy and chemistry, with, possibly, bacteriology, and in the second year physiology and pathology. In the second half of the second year the student, in addition to the above studies, should receive a thorough course in physical diagnosis in order that he may be able to begin intelligently his clinical observations at the beginning of the third year. The course in hygiene and pharmacology may be included in this period.

The third year should be given over in a large measure to clinical studies; it should be regarded as the period of transition from the practical exercises in the fundamental subjects of the first two years to the purely practical exercises of the clinical subjects of the last year. In this year should be included the systematic courses in medicine, surgery and obstetrics, partly didactic and partly clinical, the latter including as much practical instruction in the wards and out-patient departments as time will allow. It should include, further, courses in which

the fundamental subjects are elaborated in their relation to the clinical subjects; thus surgical or applied anatomy, surgical physiology and surgical pathology, neuropathology, gynecologic pathology and medical pathology, if that term could be applied to a critical study of the findings at the autopsy, and the bearing they have on the conditions noted in the clinical record. These courses to consist in clinical as well as laboratory demonstrations, and exercises so arranged with relation to each other that the student is trained to associate the nature of the lesion with the clinical manifestations of the disease. In the third year should be included also a thorough course in the clinical laboratory, in order that the student may be thoroughly versed in laboratory methods before he is called on to put them in practice in his fourth year. To summarize the work of the third year, it embraces all the systematic instruction and some of the practical instruction in the three major subjects, medicine, surgery and obstetrics, together with the applied sciences, pathology as applied to medicine, surgery, gynecology, neurology, applied therapeutics and practical applications of laboratory tests to the body fluids, secretions and excretions.

The last or fourth year should be spent entirely in the hospital, a considerable portion of it in the wards, and the remainder in the laboratories, operating room, out-patient departments and to some extent the clinical amphitheater. Such a system is only possible where the school has under its control or at its disposition at least one large general hospital. The courses in medicine, surgery and obstetrics are continued, and to these are added neurology and pediatrics. While the two latter are not to be rated of equal importance with the three former subjects, they are too important to be classified with the specialties, and the time to be devoted to these should be prescribed accordingly.

I have as yet made no mention of the so-called specialties. To my mind they constitute the only bugbear in the medical curriculum. Just when they should be taught and how much time should be devoted to each is one of the most difficult questions to decide. Whatever disposition is to be made of them, one principle should always be adhered to: They should never be allowed to encroach on or to crowd the major subjects. Better, by all means, regard them as postgraduate, and require the student to add one-half or one more year to his course of study than to allow them to curtail his instruction in any of the major subjects. With reference to the specialties, I believe a medical school has discharged all its duties to the student as an undergraduate when it has taught him to distinguish between the conditions which he should be able to treat himself and those for which he should call on the services of a specialist there is enough time in the third and fourth years to give the requisite amount of instruction. The student should have some knowledge of each of the specialties and therefore I disapprove of a system of electives which enables him to elect some studies to the exclusion of others. Since there is not enough time in the fourth year to crowd in the courses all the specialties, these courses must be divided between the third and fourth years. Thus in the proposed curriculum (at Pennsylvania) we have assigned the courses in otology, larynogology, dermatology and ophthalmology to the third year, at the same time affording opportunities for students who may be especially interested in one or the other subjects to continue his studies for a limited time of the fourth year in the out-patient department. To this extent only is specialization tolerated as an undergraduate system. There remain of the specialties, orthopedic surgery, genitourinary diseases, gynecology and psychiatry; all these may be included in the curriculum of the fourth year.

In reviewing the statistics which have been collected from the hundred or more medical schools of the country one is struck more by the disparity between the time allotted to the similar subjects in the various schools than with the variation in their sequence; while it is practically impossible to ascertain from the majority of catalogues the precise number of hours of instruction given to each student in the various subjects, sufficient information from this source can be secured to confirm the above statement. This disparity is due, in part, to differences of opinion, in part to the limitations necessary because of inadequate facilities, and partly to certain factors which may be operative in one school and not in another. Among the latter may be included certain traditions and customs, which are not always easy to overcome, of the undue influence of an ultra conservative element in the governing body, the influence of an active, ambitious director in one department, and that of an indifferent director in another.

Unhampered in any way whatsoever, it would not be a difficult task to arrange the schedule of instruction. To do this one should first determine the relative importance of the subjects. Thus on a basis of 100 per cent., what percentage of time should be devoted to this as compared with that course, or to this group as compared with that group of studies? Having answered this question the remainder of the problem could be worked out almost with mathematical precision.

Of equal importance with proper apportionment of time to each subject is the establishment of a ratio between actual practical work; that is to say, work in which each student actually participates in an exercise, whether it be in the laboratory or in the hospital, and that in which the information is conveyed to the student through the medium of an instructor, whether by the didactic lecture, by the so-called clinical lecture or by a demonstration. It should not be a difficult matter to establish at least a minimum ratio, and once established the ratio should be obtained. In other departments of a great university, as in the graduate schools, the student in course for the degree of doctor of philosophy must give evidence that he has taken so many major or minor courses and each of these courses represents so many hours, and the proportion of laboratory to didactic work, or, as may well be paraphrased, the direct to the indirect method of instruction, is clearly specified. Thus in a course covering twenty hours a week, at least sixteen of these must be spent in the laboratory, representing a ratio of 4 to 1. It should be quite as possible to fix on a ratio in the courses for a medical degree. There might be some variation in the ratio according to whether we are dealing with the fundamental sciences or the clinical subjects, but once the proper ratio is established, we will have a basis on which to construct each course.

It is scarcely necessary to point out the advantages of a standard uniform curriculum. Its adoption would be a great step toward establishment of interstate reciprocity; it would stamp the medical degree with a definite and uniform value; it would unquestionably raise the standard of medical education to a higher average of efficiency. Not the least among the advantages to be derived from the adoption of a standard medical curriculum would directly affect the medical student, in that it would enable him to migrate from one school to the other. By receiving credit for the work which he has accomplished, he could continue his studies in any other school of the country. Such an elective system would make it possible to take any one, two, or group of subjects wherein he thought he could do so to advantage. Beginning his studies in a school with a splendid equipment for teaching the fundamental subjects, though in a small community, he could pass on to another where, because of the larger population, there were better opportunities for instruction in the clinical branches. This is one of the features of education in the German university which we could well afford to introduce into the medical institutions of this country. This practice is not at all uncommon in the graduate schools of other departments. Why should this privilege not be accorded to the medical student? Apart from these purely scholastic or technical advantages, it must be admitted that a migratory system would do much toward correcting the tendencies toward provincialism, and in more ways than one give to the student greater opportunities of observation and a very much broader view of medicine; he would at the same time enjoy the refreshment, physical and intellectual, that would come with a change of environment and of teachers.

Assuming that there are 32 weeks of actual study, not including the examination period, and allowing two weeks for holidays, the total amount of time would amount to 1,200 or 1,300 hours, or an average of 1,250 hours per year. These may be prescribed as follows:

First year: Anatomy, 60 per cent.; chemistry, 30 per cent.; bacteriology, 10 per cent.

Second year: Physiology, 30 per cent.; pathology, 40 per cent.; physical diagnosis, 10 per cent.; hygiene, 5 per cent.; pharmacology, 15 per cent.

Third year: Medicine.—1, Clinics and lectures; 2, clinical laboratory; 3, ward classes; 4, O. P. D.; 5, practical therapeutics; 6, recitations, 40 per cent. Surgery.—1, Surgical pathology and physiology; 2, surgical anatomy; 3, clinics and lectures; 4, O. P. D., including minor surgery; 5, recitations, 35 per cent. Obstetrics.—Lectures, clinics and practical work, 5 per cent. Pathology.—Autopsy and demonstrations of gross material, 5 per cent. Ophthalmology.—Clinics and O. P. D., 2½ per cent. Otology.—Clinics and O. P. D., 2½ per cent. Rhinology.—Clinics and O. P. D., 2½ per cent. Dermatology.—Clinics and O. P. D., 2½ per cent. Total, 10 per cent.

Fourth year: Medicine.—1, Clinics; 2, clinical conferences; 3, ward classes; 4, ward work; 5, O. P. D.; 6, laboratories, 40 per cent. Surgery.—1, clinics; 2, clinical conferences; 3, ward classes; 4, ward work and operating room; 5, O. P. D.; 6, laboratories, 35 per cent. Obstetrics.—Practical work. Pedriatics.—1, Clinics; 2, ward work; 3, O. P. D., 10 per cent. Neurology.—1, Clinics; 2, ward work; 3, O. P. D., 10 per cent. Gynecology.—1, Clinics; 2, ward work, 5 per cent. Orthopedic Surgery.—1, Clinics; 2, ward work and O. P. D., 2½ per cent. Genitourinary Diseases.—1, Clinics; 2, O. P. D., 2½ per cent.

DR. WILLIAM C. WOODWARD, D. C., called attention to the fact that the Association of American Medical Colleges has adopted standards for entrance to medical colleges and for medical curricula which might serve as a basis.

DR. G. B. YOUNG, U. S. P. H. and M.-H. S., suggested that more time be devoted to hygiene, inasmuch as applicants for this branch of the government service are woefuly deficient in that subject.

The report was also discussed by Drs. George W. Webster, Illinois, and A. Vander Veer, New York.

What Shall the Standard Be for Recognition of Medical Colleges and How Shall Such Standard Be Determined?

DR. J. M. DODSON, Illinois, in opening the discussion on this subject, spoke briefly of the deficiency of state board examinations, and urged greater severity and more comprehensiveness in determining the applicant's fitness to practice medicine. As to entrance requirements, he proposed to add two years of collegiate training to the high-school training, so as to make room in the medical curriculum by eliminating such subjects as chemistry, physics and general biology, which can be taught to better advantage in colleges of liberal arts. The college term should be uniformly increased to nine months. Under the present arrangement students loaf for five months or so, or are engaged in some breadwinning occupation. This is a distinct loss of time, because after returning from a vacation it takes the student some time to get under way again.

As to a standard curriculum, it is needed, but educators must keep in mind the fact that students must have time for preparation, study and reflection. For each hour of recitation work the average student should have two hours of preparation, and for each two-hour laboratory or clinic period he should have one hour of preparation. Therefore, a curriculum ought to be prepared on the basis of study periods.

Schools to be recognized should have adequate equipment, adequate laboratories and suitable hospital facilities; they should have competent instructors, and those engaged in teach-

ing the subjects embraced in the first two years of the medical curriculum ought to give their whole time to teaching and research work. The only way to determine that colleges are doing good work is by actual and efficient inspection, to be conducted under the auspices and by the authority of the state licensing and examining bodies.

DR. A. F. BARROW, Louisiana, proposed to raise the standard of medical education by raising the standard of medical preparation. It is most important what shall be required of the applicant for matriculation in a medical college. When medical colleges will refuse to matriculate all but those possessing the education necessary to pursue intelligently the study of medicine, two-thirds of the colleges will be eliminated.

DR. L. C. WEBSTER, Indiana, agreed that inspection of medical colleges would be most valuable, but a minimum standard of equipment should be agreed on so that the boards would have some guidance in their action.

DR. S. D. VAN METER, Colorado, suggested strengthening the power of the boards to enforce not only standards of education and equipment, but also the granting of licenses. Every applicant for licensure should make affidavit that he has complied with the preliminary requirements of the board, and that the college from which he has graduated enforces these requirements, making it a penalty of forfeiture of his license and penal servitude of ten years for violation of the law.

DR. G. C. SAVAGE, Tennessee, spoke of the conditions in the South as compared with those of the North, and the work of the college associations and its recognition by the various state boards. He appealed to the committee in the name of the southern medical colleges not to recommend any advancement in preliminary requirements or curriculum until two years hence, because the South is not ready for it. He said the inspector of medical colleges should not be an individual, because on making an unfavorable report, a suit might be filed against him. Therefore, if an inspector is appointed to look into the equipment and teaching facilities of institutions he must represent a corporate body, and there is no better than the American Medical Association.

The Relation Between the College of Liberal Arts and the Medical School.

PROF. J. H. T. MAIN, Grinnell College, Iowa, discussed this question from three propositions: 1. The tremendous increase in the field of knowledge. 2. Increasing demands made by the public on educated men. 3. Comparative inadequacy of individual men to meet these demands.

DR. L. F. BARKER, University of Chicago, considered the question from the standpoint of the medical school, the college of liberal arts, and the state examining and licensing boards. He said that the state boards prescribed too literally the subjects which men must take in the medical school. Such regulations deprive students of the possibility of election, and it also makes it impossible for colleges to develop their curriculum in accordance with progressive ideas of medical education.

Reciprocal Registration.

DR. A. VANDER VEER, New York, discussed in full the methods adopted by the University of the State of New York for establishing reciprocity.

DR. GEORGE W. WEBSTER, Illinois, referred to the heterogeneous conditions existing and the large number of associations dealing with this problem from different view points. Reciprocity may be brought about more rapidly than is being done at present by education and evolution, by harmonizing discordant elements. All associations concerned with elevating the standard of medical education are working toward this end, but each body sets up its own standards and ignores those of others. He urged that the Committee on Medical Education make a persistent effort to obtain the co-operation of all the other associations and to merge them into this committe, which, representing the American Medical Association, is the proper organization to do this work. Instead of having many organizations with varying standards, there would be a single organization, with one standard, carrying on this work under the guidance of the American Medical Association, which is ready to carry on this kind of work along these lines. The committee should be empowered to visit every medical college in the country, and should furnish state boards with all the information they may desire. As a rule, state boards are not very familiar with the laws of other states, and this committee could furnish the boards with the necessary information. In that way more could be done in five years to bring about reciprocity than can be done under present conditions in twenty-five years.

DR. WILLIAM F. BAILEY, Kentucky, said that reciprocity must come through the influence of the American Medical Association. If the Council on Medical Education will go before the profession and urge better entrance qualification and better courses of study in medical colleges, it will eventually bring about the desired result.

Co-operation Between the American Medical Association and the Licensing Boards.

DR. L. S. MCMURTRY, President of the American Medical Association, briefly reviewed the history of the Association, its scope, the work done by it, and its power as a factor in medical education as well as in professional standing. In connection with this question it is necessary, he said, that the Association exert its influence in establishing and developing a strong public sentiment in the medical profession that will co-operate in establishing the advances desired.

DR. GEORGE H. SIMMONS, Secretary of the American Medical Association, said that the real first step that will result in practical benefit to all concerned was the creation of the Council on Medical Education, whose function it is to bring together and co-ordinate various enterprises so that definite, tangible results may be obtained. In order to bring the various boards together it is necessary to have some means of communication that is accessible to all, and the American Medical Association will be ready to assist in this work. There must be a central body through which all the licensing boards can work, a body something like the Medical Council of England, whose visitors inspect all the colleges. The boards can not pay to have this work done, and the college associations can not afford to have it done very long.

DR. VAN METER, Colorado, urged to place in the hands of the American Medical Association certain powers, and on behalf of the Colorado state board promised its co-operation in this work. He urged that the committee prepare a treatise for state examining boards on the following subjects: 1. Range of the police power of licensing boards. 2. Methods of procedure in conducting the trials of offenders against the medical laws. 3. Salient points relating to the reliability of evidence. 4. Best methods of examining the credentials of applicants for licenses to practice medicine. 5. Standard of credentials to be accepted as proof of moral and educational qualifications without a technical examination. 6. Detailed report on medical colleges and state boards which maintain a high standard. 7. Suggestions for the preparation of examination questions and for the exclusion of "catch" questions. 8. Suggestions for the improvement of the personnel of examining boards.

DR. WILLIAM C. WOODWARD, D. C., said that no amount of education would result in reciprocity unless legislation is forthcoming, and that is the field for work for the American Medical Association in determining what legislation is necessary and desirable, so that state boards will have a basis for work.

BOSTON MEDICAL LIBRARY MEETING.

Regular Meeting, held April 5, 1905.

FRANCIS B. HARRINGTON, M.D., Chairman.

SYMPOSIUM ON RESULTS IN NON-TRAUMATIC SURGERY OF THE BRAIN AND SPINAL CORD.

Observation on the Actual Results Obtained at the Massachusetts General Hospital.

DR. ERNEST A. CODMAN explained that the figures which he presented were not selected cases but the ordinary record of

the hospital and that as in several other papers read before these meetings during the past two years, the figures are available only by the courtesy of the staff. He suggested that probably better results could be attained if some one individual surgeon, specially interested in this branch of surgery, could have charge of all such cases. Various other elements will also contribute to better results: Better diagnosis not dependent on the long delay of the therapeutic test of potassium iodid; more frequent postmortem examinations; the prevention of shock and hemorrhage by the use of the pneumatic rubber tourniquet and the dental engine; the prevention of sepsis formerly so common and fatal. The statistics presented were as follows: Class 1.—Operations to remove tumor if possible, and if not, to relieve pressure symptoms, headache and failing eyesight: 28 cases, 7 deaths within two weeks, 11 patients not improved, 7 improved, 3 not traced. Class 2.—Operations to relieve pressure symptoms, headache and failing eyesight: 8 cases, 4 deaths within two weeks, 2 patients improved, 2 not traced. Class 3.—Operations for the relief of epilepsy, usually post-traumatic: 21 cases, no deaths within two weeks, 12 patients not improved, 9 improved. Class 4.—Operations for the drainage of cerebral abscess: 6 cases, 5 patients died within two weeks, 1 was improved. The operation for epilepsy was usually to remove an old depressed fragment or to separate adhesions of the dura. The abscesses were chiefly mastoid. Dr. Codman considers it better to attempt palliative rather than radical operations, for the latter are very difficult and the former give relief. He also advises operation at a distance from the motor areas, which will give the same relief from pressure symptoms and avoids the danger of injury to the cortex or of hernia cerebri. Lumbar puncture as a means of relief of pressure has not been successful. Of 4 cases 2 patients died on the table and 1 while ether was being administered. Only three attempts were made to remove a tumor. Two patients died at once and in the other the tumor recurred.

DISCUSSION.

DR. JAMES J. PUTNAM said that there was no complete cure in any one of the 36 cases in Classes 1 and 2, but 9 patients were much relieved. One patient who had a sarcoma weighing one pound had complete relief for a year. Others were able to be about or were so far relieved that their care was much easier. We have reason to hope for better results in the future. Operation for epilepsy is beneficial in a fair proportion of cases.

Results at the Boston City Hospital.

DR. WILLIAM N. BULLARD reported 44 cases, 39 being intracranial and 5 intraspinal. The intracranial included cases of epilepsy, headache, unconsciousness and intracranial growth, 4 of these latter being cerebral and 2 cerebellar. He confined his paper, however, to a discussion of the cases of epilepsy, 18 in number; 3 patients could not be traced. Twelve cases were traumatic; 8 patients were relieved by operation; 3 were not relieved and in 1 the result was doubtful. Three cases were non-traumatic; 2 patients were relieved by operation and 1 was not relieved. Four cases of cysts were found, 2 antemortem and 2, both multiple, postmortem. Results of operation for epilepsy may be long delayed.

Removal of Tumor of the Cerebrum and of the Cerebellum.

DR. F. B. LUND said that the technic of craniotomy has been much improved, and that it is often possible to remove cerebellar tumors. The dura should not be sutured. He reported 10 operations; 6 of the Boston City Hospital and 4 of his own. Six were for the removal of tumors of the cerebrum and 4 for tumors of the cerebellum. Of the 6 cerebral operations 3 patients died on the table, of whom 2 were found to be inoperable at autopsy. One patient was improved; 1 was not improved. Three cerebellar operations were fatal, but the patients all had delayed operation long after it was advised.

DR. W. B. ODIORNE reported 3 cases of intraspinal tumors operated on by Dr. J. C. Warren. Two were extramedullary and operable, 1 intramedullary and inoperable. In the first one a tumor at the level of the ninth dorsal vertebra was easily freed.

The Findings at Autopsy in Cases of Brain Tumor, and Their Bearing on the Selection of Operable Cases.

DR. GEORGE L. WALTON said that cases may be classed as: 1, operable; 2, inoperable; 3, doubtful. 1. This includes chiefly cases of tumor of the dura—endotheliomata. 2. This includes tumors involving deeper structures. 3. Tumors which are near the surface and in accessible locations. He has studied 171 cases of autopsy reports from the Massachusetts General Hospital, Boston City Hospital, other hospitals and his own records not elsewhere reported, and has included other reports to make a total of 374 cases. Of these 25 were operable, 300 inoperable and 49 doubtful. In searching for a tumor, exploration on the surface is wiser than puncture, which is only valuable for a cyst and should always be preceded by the surface exploration. Gumma is rare. It has not been met at autopsy at the Massachusetts General Hospital since 1896. He urged surgeons to persist in the use of the best methods of diagnosis, location and operation and not to be discouraged by a single failure.

Results of Operation in Mastoid Abscess.

DR. FRED L. JACK spoke as an otologist on the results of operation on mastoid abscess. He reported 14 cases occurring at the Massachusetts Eye and Ear Infirmary, of which only one patient recovered, and 15 at the Massachusetts General Hospital of which only one recovered. He enters under the lobe of the ear, through the temporo-sphenoidal lobe, from one-fourth to one inch below the surface. He believes that imperfect drainage is responsible for some of the failures and advocates a rubber drainage tube.

Brain Tumor Operated On.

DR. JOHN R. BOTTOMLEY reported from the Carney Hospital 12 cases of brain tumor; 10 patients were operated on; 6 were trephined, 2 trephined and tapped, and 2 trephined and tumor removed. There were 5 deaths within a few days or months, 2 patients had no relief and 3 were relieved of pressure symptoms. There were 4 cases of cysts. All patients were operated on and the cysts drained; 1 died, 3 were relieved. There were 10 operations for epilepsy; 8 patients were trephined and 2 were trephined and drained. There were no deaths. Two patients were much relieved, 5 were slightly relieved and 3 were not relieved. One patient with spinal tumor was operated on with much relief. One patient with chronic pachymeningitis was operated on with relief. It is advisable to use potassium iodid for a definite period, but few cases are helped by this method.

Cerebellar Tumors and Intraventricular Pressure.

DR. MORTON PRINCE said that cerebellar tumors cause intraventricular pressure and require tapping. He urged the necessity of surgeons being better neurologists so that they may know the reasons for their technic. Much harm results from indiscriminate probing and no good.

TENNESSEE STATE MEDICAL ASSOCIATION.

Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.

(*Concluded from page 1391.*)

Treatment of Hypertrophied Tonsils.

DR. J. F. HILL, Memphis, entered a protest against the promiscuous and wholesale excision of children's tonsils. There are three kinds of diseased tonsils: First, a tonsil which is constantly swollen, red and easily irritated. This tonsil is of a specific, scrofulous, or tuberculous nature. 2. A tonsil which is diseased in the interior, which forms occasionally an acute abscess. 3. A tonsil with ulcers on the surface, which may be either indolent or active. Tonsils under the first head should be treated by complete excision. Tonsils of the second variety are diseased internally; have openings leading from the surface to the interior, and at the bottom of these openings there is a quantity of fungous tissue, with the formation of acute abscesses. These openings to the tonsils allow the escape of

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TABLE A.—PHYSICIANS EXAMINED BY STATE BOARDS DURING THE CALENDAR YEAR 1904.

| Number. | Name of College. | Alabama. P | Alabama. F | Arizona. P | Arizona. F | Arkansas. P | Arkansas. F | California. P | California. F | Colorado. P | Colorado. F | Connecticut. P | Connecticut. F | Delaware. P | Delaware. F | D. of Columbia P | D. of Columbia F | Georgia. P | Georgia. F | Idaho. P | Idaho. F | Illinois. P | Illinois. F | Indiana. P | Indiana. F | Iowa. P | Iowa. F | Kansas. P | Kansas. F | Kentucky. P | Kentucky. F | Louisiana. P | Louisiana. F | Maine. P | Maine. F | Maryland. P | Maryland. F | Massachusetts. P | Massachusetts. F | Michigan. P | Michigan. F | Minnesota. P | Minnesota. F | Mississippi. P | Mississippi. F | Missouri. P | Missouri. F | Montana. P | Montana. F | Nebraska. P | Nebraska. F | Nevada. P | Nevada. F | New Hampshire P | New Hampshire F | New Jersey. P | New Jersey. F | New Mexico. P | New Mexico. F | New York. P | New York. F | North Carolina. P | North Carolina. F | North Dakota. P | North Dakota. F | Ohio. P | Ohio. F | Oklahoma. P | Oklahoma. F | Oregon. P | Oregon. F | Pennsylvania. P | Pennsylvania. F | Rhode Island. P | Rhode Island. F | South Carolina. P | South Carolina. F | South Dakota. P | South Dakota. F | Tennessee. P | Tennessee. F | Texas. P | Texas. F | Utah. P | Utah. F | Vermont. P | Vermont. F | Virginia. P | Virginia. F | Washington. P | Washington. F | West Virginia. P | West Virginia. F | Wisconsin. P | Wisconsin. F | Wyoming. P | Wyoming. F | Totals. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representatives. | Number. |
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TABLE B.—GRADUATES OF 1904 EXAMINED BY STATE BOARDS DURING THE YEAR 1904.

| Number. | Name of College. | Alabama. P | Alabama. F | Arizona. P | Arizona. F | Arkansas. P | Arkansas. F | California. P | California. F | Colorado. P | Colorado. F | Connecticut. P | Connecticut. F | Delaware. P | Delaware. F | D. of Columbia P | D. of Columbia F | Georgia. P | Georgia. F | Idaho. P | Idaho. F | Illinois. P | Illinois. F | Indiana. P | Indiana. F | Iowa. P | Iowa. F | Kansas. P | Kansas. F | Kentucky. P | Kentucky. F | Louisiana. P | Louisiana. F | Maine. P | Maine. F | Maryland. P | Maryland. F | Massachusetts. P | Massachusetts. F | Michigan. P | Michigan. F | Minnesota. P | Minnesota. F | Mississippi. P | Mississippi. F | Missouri. P | Missouri. F | Montana. P | Montana. F | Nebraska. P | Nebraska. F | Nevada. P | Nevada. F | New Hampshire P | New Hampshire F | New Jersey. P | New Jersey. F | New Mexico. P | New Mexico. F | New York. P | New York. F | North Carolina. P | North Carolina. F | North Dakota. P | North Dakota. F | Ohio. P | Ohio. F | Oklahoma. P | Oklahoma. F | Oregon. P | Oregon. F | Pennsylvania. P | Pennsylvania. F | Rhode Island. P | Rhode Island. F | South Carolina. P | South Carolina. F | South Dakota. P | South Dakota. F | Tennessee. P | Tennessee. F | Texas. P | Texas. F | Utah. P | Utah. F | Vermont. P | Vermont. F | Virginia. P | Virginia. F | Washington. P | Washington. F | West Virginia. P | West Virginia. F | Wisconsin. P | Wisconsin. F | Wyoming. P | Wyoming. F | Totals. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representatives. | Number. |
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Number.	Registered on Diploma.	Examined—Passed.	Examined—Failed.	Percentage of Failures.	No. of States having Representatives.
83	6	66	29	12	5
84	36	7	1	3.4	2
85	7	8	0	0.	1
86	9	4	0	0.	1
87	4	13	0	0.	1
88	6	29	0	0.	1
89	12	43	0	0.	1
90	9	17	1	5.5	2
91	17	12	1	7.7	2
92	8	20	2	9.	2
93	20	99	20	16.8	6
94	12	80	21	20.8	6
95	1	53	1	1.8	1
96	13	12	1	7.1	2
97	7	1	0	0.	1
98	21	24	0	0.	1
99	24	90	0	0.	1
100	20	44	0	0.	1
101	1	70	1	1.4	2
102	1	46	1	2.1	2
103	1	75	1	1.3	2
104	1	57	0	0.	1
105	76	51	0	0.	1
106	62	31	0	0.	1
107	3	5	0	0.	1
108	13	46	0	0.	1
109	7	19	0	0.	1
110	1	8	0	0.	1
111	9	21	0	0.	1
112	3	0	0	0.	1
113	1	57	0	0.	1
114	84	35	0	0.	1
115	8	82	0	0.	1
116	25	14	0	0.	1
117	94	1	0	0.	1
118	1	75	1	1.3	2
119	21	24	0	0.	1
120	90	44	0	0.	1
121	5	70	1	1.4	2
122	25	1	0	0.	1
123	13	12	1	7.1	2
124	1	53	1	1.8	1
125	20	99	20	16.8	6
126	8	20	2	9.	2
127	17	12	1	7.7	2
128	9	39	2	4.8	2
129	43	12	0	0.	1
130	0	0	0	0.	1
131	1	1	0	0.	1
132	0	6	0	0.	1
133	2	0	0	0.	1
134	1	1	0	0.	1
135	0	1	0	0.	1
136	1	0	0	0.	1
137	1	0	0	0.	1
138	0	1	0	0.	1
139	0	0	0	0.	1
140	0	0	0	0.	1
141	0	0	0	0.	1

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TABLE C.—GRADUATES OF 1900 TO 1904 INCLUSIVE EXAMINED BY STATE BOARDS DURING 1904.

| Number. | Name of College. | Alabama. P | Alabama. F | Arizona. P | Arizona. F | Arkansas. P | Arkansas. F | California. P | California. F | Colorado. P | Colorado. F | Connecticut. P | Connecticut. F | Delaware. P | Delaware. F | D. of Columbia P | D. of Columbia F | Georgia. P | Georgia. F | Idaho. P | Idaho. F | Illinois. P | Illinois. F | Indiana. P | Indiana. F | Iowa. P | Iowa. F | Kansas. P | Kansas. F | Kentucky. P | Kentucky. F | Louisiana. P | Louisiana. F | Maine. P | Maine. F | Maryland. P | Maryland. F | Massachusetts. P | Massachusetts. F | Michigan. P | Michigan. F | Minnesota. P | Minnesota. F | Mississippi. P | Mississippi. F | Missouri. P | Missouri. F | Montana. P | Montana. F | Nebraska. P | Nebraska. F | Nevada. P | Nevada. F | New Hampshire P | New Hampshire F | New Jersey. P | New Jersey. F | New Mexico. P | New Mexico. F | New York. P | New York. F | North Carolina. P | North Carolina. F | North Dakota. P | North Dakota. F | Ohio. P | Ohio. F | Oklahoma. P | Oklahoma. F | Oregon. P | Oregon. F | Pennsylvania. P | Pennsylvania. F | Rhode Island. P | Rhode Island. F | South Carolina. P | South Carolina. F | South Dakota. P | South Dakota. F | Tennessee. P | Tennessee. F | Texas. P | Texas. F | Utah. P | Utah. F | Vermont. P | Vermont. F | Virginia. P | Virginia. F | Washington. P | Washington. F | West Virginia. P | West Virginia. F | Wisconsin. P | Wisconsin. F | Wyoming. P | Wyoming. F | Totals. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representatives. | Number. |
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TABLE D.—GRADUATES OF THE YEAR 1899 OR PREVIOUS EXAMINED BY STATE BOARDS DURING 1904.

| Number. | Name of College. | Alabama. P | Alabama. F | Arizona. P | Arizona. F | Arkansas. P | Arkansas. F | California. P | California. F | Colorado. P | Colorado. F | Connecticut. P | Connecticut. F | Delaware. P | Delaware. F | D. of Columbia P | D. of Columbia F | Georgia. P | Georgia. F | Idaho. P | Idaho. F | Illinois. P | Illinois. F | Indiana. P | Indiana. F | Iowa. P | Iowa. F | Kansas. P | Kansas. F | Kentucky. P | Kentucky. F | Louisiana. P | Louisiana. F | Maine. P | Maine. F | Maryland. P | Maryland. F | Massachusetts. P | Massachusetts. F | Michigan. P | Michigan. F | Minnesota. P | Minnesota. F | Mississippi. P | Mississippi. F | Missouri. P | Missouri. F | Montana. P | Montana. F | Nebraska. P | Nebraska. F | Nevada. P | Nevada. F | New Hampshire P | New Hampshire F | New Jersey. P | New Jersey. F | New Mexico. P | New Mexico. F | New York. P | New York. F | North Carolina. P | North Carolina. F | North Dakota P | North Dakota F | Ohio. P | Ohio. F | Oklahoma. P | Oklahoma. F | Oregon. P | Oregon. F | Pennsylvania. P | Pennsylvania. F | Rhode Island. P | Rhode Island. F | South Carolina P | South Carolina F | South Dakota. P | South Dakota. F | Tennessee. P | Tennessee. F | Texas. P | Texas. F | Utah. P | Utah. F | Vermont. P | Vermont. F | Virginia. P | Virginia. F | Washington. P | Washington. F | West Virginia. P | West Virginia. F | Wisconsin. P | Wisconsin. F | Wyoming. P | Wyoming. F | Totals. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representatives. | Number. |
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Number.	Totals.	Registered on Diploma.	Examined—Passed.	Examined—Failed.	Percentage of Failures.	No. of States having Representatives.
1	1 4	1	1 3	0 1	0.0 25.0	1 3
2	2 2 1	1	1 1	1 0	50.0 0.0	2 2 1
3	1 4	1	1 3	0 1	0.0 25.0	1 3
4	5 6 7	2	3 4	2 3	40.0 42.8	3 4
5	1 2 1	1	1 1	0 1	0.0 50.0	1 2
6	1 1 2	1	0 2	1 0	100. 0.	1 2
7	5 6 1	1	4 1	1 0	20.0 0.0	3 1
8	5 6 1	1	4 1	1 0	20.0 0.0	3 1
9	4 5 6	2	3 4	1 2	25.0 33.3	3 4
10	1 1 2	1	0 2	1 0	100. 0.	1 2
11	4 5 6	2	3 4	1 2	25.0 33.3	3 4
12	1 4	1	1 3	0 1	0.0 25.0	1 3
13	1 4	1	1 3	0 1	0.0 25.0	1 3
14	4	1	4	0	0.	3
15	5 6 1	1	5 1	0 1	0. 16.7	3 1
16	9	2	8	1	11.1	3
17	5 6 1	1	5 1	0 1	0. 16.7	3 1
18	4 2 1	1	4 1	0 1	0. 50.0	3 1
19	4 2 1	1	4 1	0 1	0. 50.0	3 1
20	2	1	2	0	0.	2
21	3 5	1	3 5	0 0	0. 0.	2 2
22	1	1	1	0	0.	1
23	2 2 1	1	2 2	0 0	0. 0.	2 2
24	13 4 3	2	12 3	1 1	7.7 25.0	3 3
25	5 6 1	1	5 5	0 1	0. 16.7	3 1
26	5 6 1	1	5 5	0 1	0. 16.7	3 1
27	1 4	1	1 4	0 0	0. 0.	2 2
28	2	1	1	1	50.0	2
29	30	2	29	1	3.3	3
30	1 1	1	1 0	0 1	0. 100.	2 1
31	9 16	2	9 12	0 4	0. 25.0	2 3
32	5 6 1	1	5 5	0 1	0. 16.7	3 1
33	3	1	3	0	0.	3
34	4	1	4	0	0.	3
35	3 5	1	3 5	0 0	0. 0.	2 2
36	1	1	1	0	0.	1
37	2 2 1	1	2 2	0 0	0. 0.	2 2
38	2 2 1	1	2 2	0 0	0. 0.	2 2
39	3 9 8	2	3 9	0 2	0. 18.2	3 3
40	10 6 19	2	10 6	0 1	0. 14.3	3 3
41	3	1	3	0	0.	3
42	3 17 2	2	3 17	0 2	0. 10.5	3 3
43	11	1	11	0	0.	3
44	2 8 1	1	2 8	0 1	0. 11.1	3 3
45	1 6 1	1	1 6	0 1	0. 14.3	3 3
46	3 15 13	2	3 15	0 1	0. 6.2	3 3
47	4	1	4	0	0.	3
48	2	1	2	0	0.	2
49	2 5 1	1	2 5	0 0	0. 0.	2 2
50	1	1	1	0	0.	1
51	1 4 4	2	1 4	1 0	50.0 0.	2 2
52	3 9 8	2	3 9	0 2	0. 18.2	3 3
53	1	1	1	0	0.	1
54	1 46.7	1	1 8	0 7	0. 46.7	1 3
55	2	1	2	0	0.	2
56	2 0	1	2 0	0 0	0. 0.	2 2
57	1 4	1	1 3	0 1	0. 25.0	1 3
58	2	1	2	0	0.	2
59	2	1	2	0	0.	2
60	10 5 12	2	10 5	0 0	0. 0.	2 2
61	2 10 1	1	2 10	0 1	0. 9.1	3 3
62	8	1	8	0	0.	3
63	1 1	1	1 1	0 0	0. 0.	2 2
64	1 1	1	1 1	0 0	0. 0.	2 2
65	8	1	8	0	0.	3
66	1	1	1	0	0.	1
67	1	1	1	0	0.	1
68	4	1	4	0	0.	1 3
69	13	2	13	0	0.	3
70	4	1	4	0	0.	3
71	10 1 3	2	10 1	0 1	0. 50.0	3 2
72	10 0	1	10 0	0 0	0. 0.	2 1
73	2 1 0	1	2 1	0 0	0. 0.	2 2
74	1 5	1	1 5	0 0	0. 0.	1 2
75	7 1	1	7 1	0 0	0. 0.	2 2
76	13 2	1	13 2	0 0	0. 0.	2 2
77	1	1	1	0	0.	1
78	1	1	1	0	0.	1
79	7 3	1	7 3	0 0	0. 0.	2 2
80	7 3	1	7 3	0 0	0. 0.	2 2
81						
82	2	1	2	0	0.	2
83	2	1	2	0	0.	2
84	2 10 1	1	2 10	0 1	0. 9.1	3 3
85	8	1	8	0	0.	3
86	1 1	1	1 1	0 0	0. 0.	2 2
87	1 1	1	1 1	0 0	0. 0.	2 2
88	4	1	4	0	0.	3

	Alabama.	Arkansas.	California.	Colorado.	Connecticut.	Delaware.	District of Columbia.	Florida.	Georgia.	Idaho.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Louisiana.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Mississippi.	Missouri.	Montana.	Nebraska.	Nevada.	New Hampshire	New Jersey.	New Mexico.	New York.	North Carolina.	North Dakota	Ohio.	Oklahoma.	Oregon.	Pennsylvania.	Rhode Island.	South Carolina	South Dakota.	Tennesee.	Texas.	Utah.	Vermont.	Virginia.	Washington.	West Virginia.	Wisconsin.	Wyoming.
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diseased mucus from the interior of the tonsil. When these openings are closed from cold or otherwise, the mucus is retained and decomposition sets in; hence an abscess. Tonsils of the third variety can be relieved with 2 per cent. solution of nitrate of silver, but those of the second variety give more trouble. His treatment consists of passing a small curette through the openings into the bottom of the tonsil, and removing all the diseased or granular tissue, then carrying a 10 per cent. solution of nitrate of silver into the tonsil. This should be repeated in from three to six days, and continued until the tonsils are cured, which usually requires six treatments.

DISCUSSION.

DR. J. T. HERRON of Jackson emphasized the importance of removing hypertrophied tonsils and not allowing them to remain, thus weakening the mental and physical strength of boys and girls. He cited a number of cases on which he had operated with gratifying results.

DR. G. C. SAVAGE, Nashville, said it is a great mistake to allow children to go on from year to year with enlarged faucial tonsils, especially if they are subject to repeated attacks of inflammation. The only danger from clipping a tonsil is that of hemorrhage, and severe hemorrhage rarely occurs. A tenotome, shaped after the manner of the tonsillotome, is just as easy to use on the pharyngeal tonsil as the tonsillotome on the faucial tonsil.

DR. T. J. HAPPEL, Trenton, prefers Tiemann's tonsillotome for removing tonsils, but the practitioner should select that instrument which is best adapted to his use, then the work can be done more successfully.

Gastric Dilatation Without Stenosis.

DR. FENTON B. TURCK, Chicago, cited the class of cases usually observed, and advanced the statement that many severe diseases may go on indefinitely without symptoms and without serious consequences, but as soon as there is gastric atony and dilatation the medical adviser is called in to the relief of pressing symptoms. In childhood the dilatation is usually acute, due often to indiscretions in diet, but the stomach ejects the cause of the trouble, giving itself the only remedy required —rest. In these cases the symptoms are mostly confined to vomiting and rarely prove troublesome. In adults the severest lesions may have been present for indefinite periods of time; gastroptosis from various causes; gastritis, either acute or chronic, including atrophy, and yet the symptoms be wholly absent. But when gastric atony with dilatation supervenes, there are at once symptoms of a most positive character, and many diseases that progress to a fatal ending without recognition are on postmortem examination discovered to be gastric atony with dilatation, the fundus of the stomach often resting on the pelvic apparatus. He outlined a number of experiments to show that it is not due to any stimulation of the stomach contents that causes the muscularis of the stomach to begin activity.

In dietetics, no fast and hard rule can be laid down, the prime requisite being to give the greatest possible amount of rest, the shortest possible period of muscular activity, and the most serviceable foods to maintain the strength of the patient. He prefers two meals daily at the outset of treatment, one in the morning and one in the evening. Theoretically, a liquid diet is preferable, but he employs solid food in a finely divided state, properly prepared, with a sufficient amount of liquid to aid the stomach in the maceration of the mass, so that it may be easily propelled into the intestines. Certain mechanical methods employed, such as lavage, galvanic and faradic electricity, exercise, and the more or less systematic bathings and drugs, he considers of very little value. The high frequency current with the Oudin resonator he has found sometimes of advantage as an adjuvant.

Gastrointestinal Diseases of Children in Summer.

DR. ZEB. L. SHIPLEY, Cookeville, divided the acute diarrheas of infancy into two main classes, namely, those due to nervous origin, and those due to infection. Simple diarrhea is of nervous origin, manifested by an increased peristalsis caused by various conditions acting through the central nervous system or by the mechanical action of undigested food. Among the most important factors acting through the central nervous system are sudden changes in temperature, prolonged exposure to heat or cold, fright and fatigue. Food may fail of digestion from being unsuitable, or from the digestive organs being functionally weak. In either case the food becomes a foreign body. In this form of diarrhea the intestinal mucous membrane shows no pathologic lesion unless it be a slight hyperemia. The stools are increased in number and fluidity, and usually contain particles of undigested food. The chief factor in the treatment of this form of diarrhea is the removal of the cause, when the diarrhea usually ceases. But should it continue, the treatment must be directed to the control of the excessive peristalsis.

In the prophylactic treatment of infective diarrhea, the infant should have the best possible hygienic surroundings, be given plenty of fresh air and bathed frequently and fed carefully.

How Shall We Feed and Treat the Baby?

DR. HERMAN HAWKINS, Jackson, laid down three cardinal rules: (1) A food should be given the baby which can be assimilated and given at regular intervals. (2) One should obtain the best possible hygiene of person and surroundings. (3) As little medicine as possible should be given.

Amyloid Degeneration.

DR. C. P. MCNABB, Knoxville, defined this disease, then discussed its clinical history. Treatment consists of removal of the cause.

The More Serious Complications of La Grippe.

DR. E. A. COBLEIGH, Chattanooga, said that one of the primal results of influenza which has been impressed on his mind is not simply the usual debility which accompanies most of the cases, but its indefinite persistence and extreme degree in many cases. The next condition, often occurring by itself, is marked by extreme nervousness. A third condition, not very frequent, but seen often enough to impress the clinician, is marked by mental involvement, occasionally amounting to prolonged delirium, to stupor a little short of coma, to hallucinations during or even after convalescence from the real attack, and rarely to mania or continuing insanity. One of the most impressive and rare complications of la grippe consists in extreme clonic spasmodic seizures involving the heart, the diaphragm and muscles of respiration, with perfect mentation during it all, but giving rise to the most pitiable agony of fear of impending death.

The Clinical Significance of Ascites.

DR. RAYMOND WALLACE, Chattanooga, reported two cases. One case illustrated unusual difficulty in making an accurate diagnosis. The pronounced alcoholic history in this case with excessive peripheral arteriosclerosis, taken with the gastric symptoms and the presence of ascites, naturally led to a diagnosis of atrophic cirrhosis; and the absence of any cirrhotic changes in the liver is a point of interest. The disappearance of the miliary carcinosis of the peritoneum after scrubbing and exposure to the air presented a phase analogous to the operative cure of miliary tubercle of the peritoneum.

Acute Septic Osteitis.

DR. JERE A. CROOK, Jackson, presented a specimen of a tubular sequestrum that he removed from a femur of a 10-year-old boy. This was a case of chronic osteomyelitis that had been discharging freely for several months. On cutting down on the femur a large cloaca was found, and a freely movable sequestrum. The opening was enlarged with a chisel, the sequestrum removed, and almost the entire cavity of the shaft curetted. It was irrigated and packed with gauze and allowed to granulate from the bottom. A second case was one of severe chronic osteomyelitis of the femur in a 12-year-old boy. The disease had existed for a year, and the necrosis had progressed so far that the shaft of the bone was entirely consumed for about two inches. The ends of the remaining bone in this case were rounded with bone forceps, all loose pieces removed, the two freshened ends put in apposition, drainage inserted, and the limb encased in splints. The result was unusually good. The bone united, the wound healed entirely, and

the patient had a useful leg with only about three inches of shortening. Here amputation seemed indicated, but conservative treatment saved the limb. He has only amputated twice for osteomyelitis, and then after making every effort to save the limb.

Prophylaxis of Tuberculosis.

At the evening session of the second day, to which the laity was invited, this subject was discussed, and speeches were made by Dr. J. A. Witherspoon, Rev. Collins Denny, Capt. A. J. Harris and Mr. G. H. Baskette.

Gallstones in the Common Duct.

DR. W. D. HAGGARD, Nashville, said that gallstones in the common duct have been found once in every five cases operated on by Robson, and once in every seven cases of the Mayos. It is estimated that 67 per cent. occur in the duodenal end, 15 per cent. in the hepatic end, and 18 per cent. in the middle of the choledochus. He spoke of the various sizes of these stones, and exhibited eight stones removed from the common duct, after the patient had passed 45 by the bowel during a period of five years, but had had no jaundice, except once for a period of two days. The duct was dilated so much that the bile escaped alongside the stones. Operation is not urged in acute obstruction by stone, but recommended in all cases that have been in existence for several weeks or longer, unless there are ecchymotic spots from long-standing cholemia. A quiescent interval between ague-like attacks and in the absence of jaundice, is recommended for operation, if such an interval can be attained. Choledochotomy and cholecystotomy were illustrated by large drawings. The Robson incision was recommended, and with a large cushion under the thorax the ducts can be brought almost to the surface by traction on the gall bladder and in a straight line; with the finger in the foramen of Winslow the stones could be palpated and extracted. The finger inserted into the duct, if possible, is said to be the best. The duct should be drained by tubage or gauze tied with catgut to the duct. Drains should be surrounded with gutta-percha tissue. Cholecystectomy is advocated if one is absolutely certain of the patency of the common duct, if the gall bladder is (a) contracted, suppurating, thick-walled and useless; (b) in gangrene; (c) neoplasms; (d) fistula into other viscera, and (e) in obstruction to the cystic duct. Robson's mortality in choledochotomy was 5 per cent. in the last 21 cases; 6.5 per cent. in 137 of Kehr's cases; 7 per cent. in 137 of the Mayos' cases, with an additional 4 per cent. who survived the operation, but died some weeks after. The Mayos did 30 consecutive cases without a death.

Etiology and Pathology of Appendicitis.

DR. WALTER LENEHAN, Nashville, found the following organisms in 12 cases: *Bacillus coli communis, Streptococcus pyogenes aureus,, Staphylococcus pyogenes aureus, Bacillus influenzæ, Bacillus typhosus*, Klebs-Loeffler bacillus, *Bacillus tuberculosis*, and the *Diplococcus pneumoniæ*. Some non-pathogenic organisms, notably the gas bacillus and a few yeast fungi, were also found, but were invariably associated with one or more of the pathogenic organisms. The organism most frequently found was the colon bacillus. The author drew the conclusions that any micro-organisms capable of producing inflammatory changes in any other part of the body may also produce the same changes in the appendix.

Laryngeal Diphtheria.

DR. O. H. WILSON, Nashville, emphasized the importance of early mechanical relief when mechanical obstruction threatens life. Rapidity of progress is the characteristic feature of laryngeal diphtheria. While in no other operation does skill show to better advantage, intubation is not a difficult procedure, but can be learned easily by practice. An early operation, though possibly awkward, is better than waiting to give a moribund case to an imported consultant. Moral: Do not wait; intubate.

Tabes Dorsalis.

DR. G. P. EDWARDS, Nashville, said that this disease predominates in males 10 to 1. A neuropathic heredity is an important predisposing factor. The disease may appear in childhod from hereditary syphilis, but in the acquired form it occurs between 25 and 50 years of age; the greater proportion occurring about the age of 40. The symptomatology of tabes embraces almost every function in the body. The treatment should be directed, first, to the removal of any syphilitic processes present or suspected; to the improvement of the general health, to stimulate the function of the cells impaired but not lost, to encourage restoration of co-ordination in the muscular system, and correct any incidental disorders which may retard or complicate the desired result. The author believes that any stage or condition of tabes may be improved or benefited by properly directed treatment. The development of the degenerative changes can be arrested completely in nearly every preataxic case, and that much of the impaired function can be restored. He believes that these results may also be obtained in a large majority of the ataxic cases, and that this majority is reduced somewhat in proportion to the duration and intensity of the ataxia and the abuse of the specific remedies employed. The author's clinical observation, aggregating 14 cases, has been uniformly satisfactory. In 9 cases marked improvement in co-ordination, gait and general health has persisted. In 5 cases the knee-jerk has been restored to normal; all painful sensory symptoms have disappeared; dribbling of urine has ceased, and little evidence of the disease remains. In 2 cases the pupillary reflex to light has returned to normal. In 6 cases the Rhomberg sign is barely noticeable with both feet close together and the eyes closed. In 2 cases the patients can stand on one foot with the eyes closed. The author has demonstrated, to his own satisfaction at least, that the *x*-ray, when of sufficient penetration to obliterate the shadow of bony structures, will stimulate cell activity in the diseased cord, facilitate the restoration of the lost function in cells not completely destroyed, and relieve the crises and other lightning pains.

Alcoholic Insanity.

DR. I. A. MCSWAIN, Paris, offered the following suggestions on this subject: 1. The children of drunken and debauched parents ought to be taken away from them and placed in decent homes, or removed to industrial institutions provided by the state. This will check their hereditary tendencies to drunkenness, and therefore reduce the number being raised to become a burden to the state in the way of paupers, criminals and lunatics. 2. Young people, who early in life contract the pernicious habit of drinking, should also be removed from the temptation of their environment, and placed in institutions in which they should be taught some useful employment and restrained from vicious habits. 3. The drinking man, as soon as he begins his spree, before he is crazed by it, should be taken into custody, not as a mere nuisance, but as a dangerous man or one likely to become so, because of insanity in the incipient stage. 4. The confirmed drunkard, the chronic alcoholic subject, should on no account be allowed to exercise his personal liberty in the pursuit of delusions which result from prolonged excesses. The following papers were also read:

"Some Recently Collected Statistics on the Increasing Frequency of Abortion and Some Causes for the Same," by Dr. J. L. Andrews of Memphis; "Keratosis Follicularis," by Dr. G. P. Edwards, Nashville; "Bone Surgery," by Dr. R. A. Barr, Nashville; "The Physician as an Advertising Medium," by Dr. F. J. Runyan, Clarkesville; "Circumcision," by Dr. E. A. Timmons, Columbia, and "Appendicitis," by Dr. John A. Gaines, Nashville.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Potassium Iodid.

BEST METHOD OF ADMINISTRATION.

Acting on the principle that the best method of administering a drug is by obtaining the results desired with the least possible undesirable effect, Hühner, in *Med. Record*, states that the best method of administering potassium iodid must differ with the different purposes in view. If given in cases which

will require it for a long time, as in arteriosclerosis, it must be given differently than in cases which require rapid action as in gumma. General principles, in considering the different methods of administration, will apply to all of them.

1. For therapeutic purposes potassium iodid should always be given in solution, well diluted and, if possible, never on an empty stomach. For dilution milk is by far the best vehicle, as it not only disguises the taste, but also prevents disagreeable after-effects of the medicine. Syrup of sarsaparilla is another vehicle suggested; also the mineral waters or plain water.

2. The preparation must be pure potassium iodid, when pure can be taken for a very long period and in large doses without causing gastrointestinal disturbances, and many of the bad effects produced in the course of its administration are due to an impure preparation.

3. It is necessary to observe strict cleanliness of the skin by daily baths while taking the iodid internally. In this way the usual skin eruptions may be avoided, the eruption being due to the decomposition of the iodin salt excreted with the perspiration by the fatty acids, setting free the iodin, which acts as an irritant.

4. It is better to prescribe a 50 per cent. solution where two drops of the solution represent one grain of the salt rather than a 100 per cent. solution as the latter is not obtained when the druggist prepares it in the ordinary way, consequently the dosage is not so accurate.

5. It must be kept in mind that potassium iodid is incompatible with the alkaloids and soluble metallic salts such as calomel.

6. Small doses may produce symptoms of iodism while large doses in the same patient may not have this effect.

7. Potassium iodid should never be given in phthisis or even when there is a suspicion of phthisis. Its irritating effect on the bronchial mucous membrane makes it decidedly objectionable. If phthisis should be associated with syphilis it is of service.

SYPHILIS.

Potassium iodid should never be given in the primary stage of syphilis. In the secondary stage it should not be administered until the patient has had at least six months of treatment by mercurial inunctions unless, as sometimes happens, some tertiary symptoms appear ahead of time and threaten some important organ as the brain or the eye. Occasionally it is necessary in such cases to begin the administration of potassium iodid at once.

In the ordinary cases the author begins the iodids with the following combination:

℞.	Hydrarg. iodidi rubri	gr. ss	03
	Potassii iodidi	gr. cxxviii	8 60
	Syr. sarsap. co	ʒi	30
	Aquæ, q. s. ad	ʒii	60

M. Sig.: One teaspoonful after meals three times a day, well diluted.

After a few weeks it is better to give the iodid alone by the mouth and to give the mercury by inunction at intervals for another six months, giving especial attention to the mouth, teeth, gastrointestinal tract and the skin. When so giving the iodid the author recommends the following combination as preferable to the drop method:

℞.	Potass. iodidi	3viii-3x	30.-40
	Syr. sarsap. co	3i	30
	Aquæ, q. s. ad	ʒiii	90

M. Sig.: One teaspoonful in half a glass of water three times a day, after meals.

When giving potassium iodid for its specific effect it should be stopped when the symptoms of poisoning appear, and after a short interval it should be begun again with a smaller dose. In tertiary syphilis, especially when a vital organ is involved or threatened, the dose should be gradually increased regardless of rhinitis, pustulations, etc., because by increasing the dose the symptoms of poisoning may disappear, and it is essential that the system becomes saturated, increasing the dose at the rate of six drops a day (two drops at a dose).

CEREBRAL SYPHILIS.

This form of syphilis is benefited only in the early stage by absorption of the gumma or swelling of the intima. If improvement does not take place after two months the iodin should be discontinued, as it may do harm. In all cases of cerebral or spinal cord tumors it should be given a trial, as it sometimes is of service in tumors of non-syphilitic origin.

LATE VARIETIES OF SYPHILIS.

In some of the late varieties of syphilis Shoemaker recommends the following combinations containing potassium iodid:

℞.	Potassii iodidi	3v	20
	Tinct. cimicifugæ	3ii	8
	Syr. sarsap. co	ʒv	150

M. Sig.: Two teaspoonfuls in water three or four times daily. Or:

℞.	Sodii iodidi	3iiss	10
	Vini erythroxyli (N. F.)	ʒx	300

M. Sig.: One tablespoonful three or four times daily. Or:

℞.	Ammon. iodidi	3v	30
	Tinct. nucis vom	3i	4
	Ext. rhamni purshiani flu	ʒi	30
	Glycerini	ʒiv	120

M. Two teaspoonfuls in water three or four times a day.

In some cases the following is preferable:

℞.	Hydrarg. iodidi rubri	gr. iii	20
	Potassii iodidi	ʒi	30
	Tinct. iodi	3i	4
	Syr. ferri iodidi	ʒi	30
	Aquæ	ʒiii	90

M. Sig.: One teaspoonful in water after meals.

In combination with the salicylates the iodids may prove valuable, according to some authors, in acute rheumatism, as follows:

℞.	Potass. iodidi	3iii	12
	Sodii salicylatis	ʒss	15
	Spts. etheris nitrosi	ʒi	30
	Syr. aurantii	ʒiiss	75

M. Sig.: One to two teaspoonfuls every two hours, well diluted in water.

If the stomach shows intolerance the iodid is recommended given in the form of an enema, as the bowel absorbs it very readily and about as rapidly as does the mucous membrane of the stomach. It may be given combined as follows:

℞.	Potassii iodidi	gr. xlv	3
	Potassii bromidi	gr. xv	1
	Ext. belladonnæ	gr. v	30
	Aquæ	ʒvii	210

M. Sig.: One and a half tablespoonfuls added to three ounces of water and given as an enema.

When there is a tendency to iodism the following is recommended by Lang:

℞.	Potassii (sodii) iodidi	3iiss	70
	Ext. belladonnæ	gr. iss-ii	09-.12
	Aquæ fontanæ	ʒvi	180

M. Sig.: One to three teaspoonfuls daily in half a glass of water, milk or beer.

As a preparation which may be used subcutaneously he recommends the following:

℞.	Potass. iodidi	gr. lxxv	5
	Codeinæ	gr. 3/4 to iss	05-.09
	Aquæ destil.	3iss	6

M. Sig.: Fifteen to forty-five drops to be injected subcutaneously once daily.

TABES DORSALIS.

Although the iodids do not have the brilliant results in this condition which they have in other syphilitic lesions, Hubner says that potassium iodid should be given a trial, running the dose up to a hundred grains (6.65) a day.

CHRONIC ENDARTERITIS.

Whether the endarteritis is syphilitic or not, potassium iodid should be given in doses of from five to twenty grains (.30 to 1.30) four times a day for a considerable length of time, omitting it at intervals for a short period.

CHRONIC ENDOCARDITIS.

It matters not what valves are diseased if the arteries are contracted, potassium iodid is of value given in doses of from five to ten grains (.30 to .65) three times a day, kept up for a considerable period. It may be given in combination with digitalis, if the latter is indicated, to modify the action on the

arteries. The only effect potassium iodid has on the heart is shown only when large doses are taken and then it is due to the potassium.

ASTHMA.

If the asthmatic attacks are brought on by nasal polypi the iodid will only do harm by increasing the nasal congestion, and likewise when the attacks are due to swelling of the mucous membrane of the bronchi. If the attacks are due to simple spasm of the arterioles, good results are derived from its use. The author recommends, first, large doses of nitroglycerin, followed by potassium iodid in doses ranging from ten to twenty grains (.65 to 1.30) three times a day.

CHRONIC BRONCHITIS.

If the bronchitis is secondary to chronic endocarditis or endarteritis, it is of value in doses of from five to ten grains (.30 to .65) each.

LEAD POISONING.

In this condition the preparation must be given in small doses, grains five to ten (.30 to .65), for a long time, and must not be abandoned if the symptoms get worse, as this may be caused by the liberation of the lead and its circulation through the system, and likewise may produce cerebral symptoms. In anemic persons it is best combined with iron.

RHEUMATISM.

The iodid is useless in acute articular and in muscular rheumatism, as a rule. In chronic rheumatism it is of value combined as follows:

℞.	Potassii iodidi.	
	Sodii salicylatis.	
	Vini colchici sem., āā.....3ii	8
	Aquæ, q. s. ad.....℥iv	120

M. Sig.: One tablespoonful four times a day.

In administering potassium iodid to children the preparation may be given either to the mother or to the wet nurse, in the hope that it be excreted in the milk, but this is an unreliable method. In giving it directly to children, the symptoms of iodism are shown mainly through the gastrointestinal tract; children can stand larger doses proportionately, as a rule, than can adults. It should be given well diluted and preferably in small doses frequently given than in large doses infrequently given. In other words, it is better to give grain one-fourth (.015) every hour than one grain (.06) every four hours.

Chronic Rheumatism.

The *Clinical Review* recommends the following in the treatment of chronic rheumatism:

℞.	Potass. iodidi 3i	4	
	Sodii salicylatis 3ii	8	
	Colchicin.		
	Strych. sulph., āā.....gr. ss		03

M. Ft. capsulæ No. 30. Sig.: One capsule three times a day.

In connection with the foregoing a teaspoonful of the following should be given as follows:

℞.	Sodii benzoatis.		
	Sodii phosphatis, āā.....℥i	30	

M. Sig.: One teaspoonful in glass of hot water before breakfast.

Medicolegal

Constitutionality of Compulsory Vaccination Law.

The Supreme Court of the United States says that the case of Jacobson vs. Massachusetts, as it is now entitled, was one where an adult, who, for aught that appeared, was in perfect health and a fit subject of vaccination, yet while remaining in the community refused to obey the Massachusettts statute empowering compulsory vaccination and a regulation adopted in execution of its provisions for the protection of the public health and the public safety, confessedly endangered by the presence of a dangerous disease. The court, however, now decides only that the statute covered this case, and that nothing clearly appeared that would justify the court in holding it to be unconstitutional and inoperative in its application to the defendant (Jacobson).

The court passes without extended discussion the suggestion that the particular section of the statute of Massachusetts in question was in derogation of rights secured by the preamble of the Constitution of the United States, because, although the preamble indicates the general purposes for which the people ordained and established the constitution, it has never been regarded as the source of any substantive power. The court also passes without discussion the suggestion that such section of the statute was opposed to the spirit of the constitution.

According to settled principles, the police power of a state, the court says, must be held to embrace, at least, such reasonable regulations established directly by legislative enactment as will protect the public health and the public safety. It is equally true that the state may invest local bodies called into existence for purposes of local administration with authority in some appropriate way to safeguard the public health and the public safety. On the principle of self-defense, of paramount necessity, a community has the right to protect itself against an epidemic of disease which threatens the safety of its members. Smallpox being prevalent and increasing at Cambridge, where the regulation in question was adopted, the court would usurp the functions of another branch of government if it adjudged, as matter of law, that the mode adopted under the sanction of the state, to protect the people at large was arbitrary, and not justified by the necessities of the case.

It was said, however, that the statute, as interpreted by the state court, although making an exception in favor of children certified by a registered physician to be unfit subjects for vaccination, made no exception in case of adults in like condition. But this could not be deemed a denial of the equal protection of the laws to adults; for the statute was applicable equally to all in like condition, and there were obviously reasons why regulations might be appropriate for adults which could not be safely applied to persons of tender years.

Certain offers of proof were made which in the main seemed to have had no purpose except to state the general theory of those of the medical profession who attach little or no value to vaccination as a means of preventing the spread of smallpox, or who think that vaccination causes other diseases of the body. But the court says that what everybody knows the court must know, and therefore the state court judicially knew, as this court knows, that an opposite theory accords with the common belief, and is maintained by high medical authority. It must be assumed that, when the statute in question was passed, the legislature of Massachusetts was not unaware of these opposing theories, and was compelled, of necessity, to choose between them. It was not compelled to commit a matter involving the public health and safety to the final decision of a court or jury. It was no part of the function of a court or a jury to determine which one of two modes was likely to be the most effective for the protection of the public against disease. That was for the legislative department to determine in the light of all the information it had or could obtain. It could not properly abdicate its function to guard the public health and safety.

Whatever may be thought of the expediency of this statute, it can not be affirmed to be, beyond question, in palpable conflict with the constitution. Nor, in view of the method employed to stamp out the disease of smallpox, can any one confidently assert that the means prescribed by the state to that end has no real or substantial relation to the protection of the public health and the public safety. Such an assertion would not be consistent with the experience of this and other countries whose authorities have dealt with the disease of smallpox. And the principle of vaccination as a means to prevent the spread of smallpox has been enforced in many states by statutes making the vaccination of children a condition of their right to enter or remain in public schools. Since, then, vaccination, as a means of protecting a community against smallpox, finds strong support in the experience of this and other countries, no court, much less a jury, is justified in disregarding the action of the legislature simply because in its or their opinion that particular method was—perhaps, or possibly—not the best either for children or adults.

The defendant offered, among other things, to prove that he

refused to submit to vaccination for the reason that he had, "when a child," been caused great and extreme suffering for a long period by a disease produced by vaccination, though he did not offer to prove that, by reason of his then condition, he was in fact not a fit subject of vaccination at the time he was informed of the requirement of the regulation adopted by the board of health. The court says that it was entirely consistent with his offer of proof that, after reaching full age, he had become, so far as medical skill could discover, and when informed of the regulation of the board of health was, a fit subject of vaccination, and that the vaccine matter to be used in his case was such as any medical practitioner of good standing would regard as proper to be used. The matured opinions of medical men everywhere, and the experience of mankind, as all must know, negative the suggestion that it is not possible in any case to determine whether vaccination is safe.

Was the defendant exempted from the operation of the statute simply because of his dread of the same evil results experienced by him when a child, and which he had observed in the cases of his son and other children? Could he reasonably claim such an exemption because "quite often," or "occasionally," injury had resulted from vaccination, or because it was impossible, in the opinion of some, by any practical test, to determine with absolute certainty whether a particular person could be safely vaccinated? It seems to the court that an affirmative answer to these questions would practically strip the legislative department of its function to care for the public health and the public safety when endangered by epidemics of disease. Such an answer would mean that compulsory vaccination could not, in any conceivable case, be legally enforced in a community, even at the command of the legislature, however widespread the epidemic of smallpox, and however deep and universal was the belief of the community and of its medical advisers that a system of general vaccination was vital to the safety of all.

This court is not prepared to hold that a minority, residing or remaining in any city or town where smallpox is prevalent, and enjoying the general protection afforded by an organized local government, may thus defy the will of its constituted authorities, acting in good faith for all, under the legislative sanction of the state. If such be the privilege of a minority, then a like privilege would belong to each individual of the community, and the spectacle would be presented of the welfare and safety of an entire population being subordinated to the notions of a single individual who chooses to remain a part of that population. The court is unwilling to hold it to be an element in the liberty secured by the Constitution of the United States that one person, or a minority of persons, residing in any community and enjoying the benefits of its local government, should have the power thus to dominate the majority when supported in their action by the authority of the state.

In order, however, to prevent misapprehension as to its views, the court thinks it appropriate to observe that the police power of a state, whether exercised directly by the legislature, or by a local body acting under its authority, may be exerted in such circumstances, or by regulations so arbitrary and oppressive in particular cases, as to justify the interference of the courts to prevent wrong and oppression. Extreme cases can be readily suggested. Ordinarily such cases are not safe guides in the administration of the law. It is easy, for instance, to suppose the case of an adult who is embraced by the mere words of the act, but yet to subject whom to vaccination in a particular condition of his health or body would be cruel and inhuman in the last degree. The court is not to be understood as holding that the statute was intended to be applied to such a case, or, if it was so intended, that the judiciary would not be competent to interfere and protect the health and life of the individual concerned. But, until otherwise informed by the highest court of Massachusetts, this court is not inclined to hold that the Massachusetts statute establishes the absolute rule that an adult must be vaccinated if it be apparent or can be shown with reasonable certainty that he is not at the time a fit subject of vaccination, or that vaccination, by reason of his then condition, would seriously impair his health, or probably cause his death.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are marked below.

American Medicine, Philadelphia.

April 22.

1 *1. Transmanual Auscultation. 2. Ulnar Palpation. D. Riesman, Philadelphia.
2 The Destructive Skin Diseases: Epithelioma, Lupus, Vulgaris and Syphilis. H. W. Stelwagon, Philadelphia.
3 Cholecystitis. R. Lilienthal, New York.
4 Study of Homogenized Cultures of Tubercle Bacilli. R. C. Rosenberger, Philadelphia.
5 *Typhoid in Relation to the Urban and Rural Population of the United States. S. Egbert, Philadelphia.
6 *Cure by Operation of an Intractable Pronated Foot. W. Hoke, Atlanta.

1. Transmanual Auscultation and Ulnar Palpation.—Transmanual auscultation consists in auscultating through the hand placed on the precordia, and can be used satisfactorily only with one of the newer binaural stethoscopes. This method greatly facilitates the timing of a murmur inasmuch as the palpation and the auscultation are done at the same time and place. Almost equally good results can be obtained by placing the finger, flexed at a right angle, on the apex beat and then resting the stethoscope lightly on it. The principal advantage of transmanual auscultation will be found in distinguishing presystolic from systolic murmurs. The successful practice of the method presupposes the existence of a palpable heart-beat. The method may also be of value in timing peculiar murmurs having a wide area of diffusion. Ulnar palpation consists in laying the ulnar side of the hand in each interspace successively while the patient counts. The palpating surface must be placed firmly in the interspace, the hand being held almost at a right angle with the chest. It is advisable to stand a little to the side of the patient and to use the same hand for both sides of the chest. The method gives accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces and of corresponding areas on the two sides. It has its best field in the diagnosis of effusions, especially in determining the upper level of the exudate. As a rule, it is practiced most successfully on the front of the chest. It is not offered as a substitute for the method of palpation now in use, but as an addition to it.

5. Urban and Rural Typhoid.—Egbert shows by reference to the United States Census Report of Vital Statistics for 1900 that typhoid is much more prevalent in the rural portions of the country than in cities. This is attributed to the unsanitary conditions prevalent in many towns and villages that, being under 8,000 in population, are too small to be classed with the urban, and which, therefore, make up a large part of the so-called rural population. The paper concludes as follows: 1. That although proper education in sanitary matters is essential and necessary throughout the whole country, it is especially important in so far as it relates to the causation and dissemination of typhoid in the localities indicated by the charts shown in connection with the paper. 2. That it is the duty of the medical profession in these particular localities not only to do all they can to educate the public along these lines, but also to impress their typhoid patients with the necessity of the utmost care as to disinfection, both during the illness and long after the convalescence. 3. That the medical practitioners should not only join hands with all progressive citizens, but should be the first to urge the improvement, purification and care of public water supplies, and should likewise use every reasonable means to induce those depending on private sources, whether in town or country, to protect themselves against the danger of infection. That it is likewise the duty of the members of the profession to help to secure for their respective localities and states uniform and satisfactory methods and laws governing the registration of vital statistics, not only because these are direct agents for the increase of sanitary information and knowledge, but because they also always react to bring about marked improvement in the sanitary conditions of the people supplying the statistical data.

6. Intractable Pronated Foot.—Hoke reports three cases in which the head of the astragalus was abducted and fixed in a pronated position by bone union at the astragulo-fibular ar-

ticulation. After the astragalus had been released the usual methods of treatment resulted in a perfect anatomic and functional result. Hoke says that these cases are frequently overlooked, and emphasizes the necessity of carefully palpating the ankle in examining flat feet in order to determine whether the astragalus is fixed.

Medical News, New York.

April 22.

6½ Alcohol as Food, R. H. Chittenden, New Haven, Conn.
7 Alcohol in Disease. G. L. Peabody, New York.
8 What the State of New York Is Doing for the Insane. F. Peterson, New York.
9 *Abdominal Nephrectomy, with Illustrative Cases. N. Jacobson, Syracuse, N. Y.

9. **Abdominal Nephrectomy.**—Attention is called by Jacobson to the surgical conditions which not only demand the removal of the kidney, but in which existing manifestations indicate that the preferable route for its removal is through the abdomen. Two conditions are encountered which can be more easily and more safely met by the abdominal operation. The first depends on the size of the mass, which may be so great that it can be removed through the back only with great difficulty. The second consideration is the presence of extensive adhesions which can not be freed satisfactorily through the lumbar incision. Therein lies the great advantage of the abdominal route. If the surgeon is able to see what he is doing, his work is greatly simplified and done with greater safety and dispatch. The establishment of drainage through the loin Jacobson looks on as an essential feature of abdominal nephrectomy. He does not recommend the abdominal operation in preference to the lumbar in all nor in the greater number of cases requiring nephrectomy. When the tumor is of great size, when it is placed well down in the pelvis, when it is fixed by adhesions, when, in a word, it is necessary to have an abundance of room in order to expose the field of operation for the reasons mentioned, the abdominal route is less dangerous than the lumbar. Four cases are cited: a hydronephrosis due to abnormal origin of the ureter, with nephrolithiasis; a hydronephrosis due to calculous obstruction and subsequent traumatism; an enormous hydronephrosis due to acute insertion of the ureter, and a tuberculosis of the kidney with extensive suppuration and destruction of the organ.

Medical Record, New York.

April 22.

10 Visual Function the Cause of Slanted Handwriting; Its Relation to School Hygiene, School Desks, Malposture, Spinal Curvature and Myopia. G. M. Gould, Philadelphia.
11 Simple Ulcer of the Stomach and Its Surgical Treatment. J. J. McGrath, New York.
12 Erysipelas with an Excessive Production of Fibrin. R. Floyd, New York.
13 Acute Posterior Periurethral Abscess. F. C. Walsh, Washington, D. C.

New York Medical Journal.

April 22.

14 Value of the Radiograph in Diagnosis. S. Tousey, New York.
15 Hematoma of the Vulva and the Vagina. I. L. Hill, New York.
16 Symptomatology and Diagnosis of Atypical Forms of Pneumonia. J. C. Wilson, Philadelphia.
17 Nasal Obstruction as a Cause of Disorders of Nutrition. P. Fridenberg, New York.
18 Malnutrition in Young Children. T. W. Kilmer, New York.
19 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
20 *Method of Measuring the *X*-Rays. M. Franklin, New York.
21 Review of the Treatment of Inflammatory Conditions of the Throat by Irrigation and Description of a New Irrigator Tip. E. L. Kellogg, New York.

20. **Method of Measuring X-Rays.**—Franklin proposes a method which is based on the power of the *x*-rays to ionize the gases through which they travel. The method, excepting for necessary modifications, to make it conform with the special requirements of the *x*-rays, is substantially analogous to that now commonly employed to measure the radioactivity of the radioactive substances. Air is rendered a conductor of electricity by the ionizing agent, and measurement of the amount of current flowing through it under given conditions gives an absolute index of the activity of the radiation. The instrument used, the electroscope, is charged by having brought into contact with the knob a rod of vulcanite which has been electrified by friction. The knob is brought into communication with a filament while the vulcanite is in contact and is released as soon as the filament has assumed a horizontal position. The electroscope is brought to the same distance from the tube as the patient or plate (in any position) and while the tube is running the shutter is open, and the time in seconds occupied by the filament in transit is noted. The number of seconds is the exact coefficient of energy of the rays, and when compared with any other reading made, under any circumstances whatever, with a similar instrument, the ratio of energy of the two radiations will equal that of the two times. The apparatus used is described in detail.

The Boston Medical and Surgical Journal.

April 20.

22 *Method of Producing Ether Narcosis by Rectum. J. H. Cunningham, Jr., and F. H. Lahey, Boston.
23 *Serum Treatment in Multiple Infectious Arthritis. E. G. Brackett, Boston.
24 *Communicability of Cerebrospinal Meningitis. E. M. Buckingham, Boston.

22. **Ether Narcosis by Rectum.**—Experience has shown, say Cunningham and Lahey, that with this method of producing narcosis with ether, the patient passes under the influence of the drug rapidly and with no sense of suffocation; that less ether is used, not only in producing the narcosis, but also in maintaining it; that the stage of excitement is lessened or absent; that the ether recovery is more rapid, and that the disagreeable after-effects of inhalation ether narcosis are diminished or absent. It is also noteworthy that alcoholics pass through the stage of excitement with little if any resistance or struggling. Although the greater part of the ether is eliminated through the lungs, the direct irritation of the concentrated vapor is overcome and postoperative pneumonia should be lessened. A free and continuous access to the field of operation is a great advantage to the surgeon. In operations on the head, face, mouth, nose, throat, ear, eye and neck, the absence of the ether cone not only lessens the technical difficulties of the operation, but also minimizes the chances of sepsis and lessens considerably the time necessary to perform the operation. To overcome irritation of the rectum the authors use a specially devised apparatus for producing narcosis. To obtain the best results it is essential that the bowels should be thoroughly cleaned out. The authors report 41 cases, 17 of which received ether by mouth preliminary to the rectal method and 24 cases which were started by rectum. Among this series were cases of fracture of the skull, tubercular glands of the neck, carcinoma of the upper lip, skin graft, plastic operations on the face, adenoids, amputation, circumcision, osteotomy, etc. The apparatus used and the method of administration are described in detail.

23. **Serum Treatment in Multiple Infectious Arthritis.**—Brackett reports on the use of antistreptococcus serum in the treatment of 4 cases of multiple infectious arthritis. In 2 the acute stage was shortened very markedly; in 1 other, which was more extensive and subject to frequent and persistent exacerbations, the acute attacks were done away with and the general condition was very much improved. In the fourth the injections were given in the quiescent stage and with no result. In these cases, the greater the reaction from the injection, the more rapid and more decided the improvement. It would seem that the time of election for the trial of such measures is the acute stage, when there is a marked sensitiveness, pain and progression of the disease, given only with the idea of cutting short this stage, so that the greater resulting deformity and stiffness be lessened, allowing the later treatment to be begun at an earlier period. It in no way does away with the work to be accomplished after the acute stage is over. The amount of serum used in these cases varied from 1 to 10 c.c. The upper part of the back or the side of the thorax was chosen for the site of the injection.

24. **Communicability of Cerebrospinal Meningitis.**—Buckingham attempts to show that living in the same room and breathing the same air with patients ill with cerebrospinal meningitis is not of itself dangerous; that some other way of transmission must be sought.

St. Louis Medical Review, St. Louis, Mo.

April 22.

25 Gonorrheal Rheumatism. G. F. Lydston, Chicago.
26 The Etiology of Nervous Affections. T. H. Evans, Philadelphia.

Lancet-Clinic, Cincinnati.

April 22.

27 Traumatic Tetanus. R. Carothers, Cincinnati.

28 Ectopic Pregnancy. F. F. Lawrence, Columbus, Ohio.
29 Etiology of Ectopic Gestation. H. B. McCall, Kansas City, Mo.
30 Use of a Normal Saline Solution in Surgery. L. G. Bowers, Richmond, Ind.
31 Two Mastoid Cases; Death from Cerebral Complications. L. R. Culbertson, Zanesville, Ohio.

Archives of Ophthalmology, New Rochelle, N. Y.

March.

32 *Use of Paraffin Spheres in Frost's Operation (Modified Mules'). C. M. Spratt, Minneapolis.
33 Case of Probable Rupture of the Optic Nerve. W. N. Sharp, Indianapolis.
34 Congenital Deficiency of Abduction Associated with Impairment of Adduction, Retraction Movements, Contraction of the Palpebral Fissure and Oblique Movements of the Eye. A. Duane, New York.
35 *Studies in Light Sense. P. J. Hay, Birmingham, England.
36 Thrombosis of the Central Vein of the Retina in Chlorosis. T. Ballaban, Lemberg.

32. **Paraffin Spheres in Frost's Operation.**—For the purpose of obtaining a permanent movable stump on which to wear an artificial eye, Spratt has been inserting paraffin globes in Tenon's capsule in 23 cases. Among these there was but one failure. The causes for enucleating were as follows: Injuries, 8; disorganized globe, 8; staphyloma, 2; glaucoma, 2, and keratoiritis, 3. The spheres are prepared as follows: Paraffin with a melting point of about 60 C. is melted and filtered through ordinary filter paper into clean test tubes. These are stopped with cotton and placed in a steam sterilizer. When they have become cool and the paraffin is solid, the glass is heated in hot water or over a flame until the layer of wax next to the glass is liquid. The central solid paraffin rod is readily removed and placed in a warm solution of bichlorid. With a knife, this long, candle-like piece of wax is divided into suitable sized pieces, and while yet warm is rolled into spheres. These spheres are kept for future use in a wide-mouthed bottle containing a 5 per cent. solution of formalin. The most convenient-sized sphere is one 17 mm. in diameter. Spratt believes that the insertion of a paraffin sphere in Tenon's capsule is the operation of choice in all cases requiring the removal of an eye, except when a malignant growth involves the orbital tissue or when panophthalmitis is present. In the former case exenteration of the orbit, in the latter condition evisceration with good drainage of the scleral cavity, are the operations preferred. The modified Mule's or Frost operation combines the cosmetic results of Mule's with the advantages of simple enucleation. These are: 1. Good cosmetic results; good motion of the artificial eye; no recession of the eye; contact with the lids. 2. Secretions will not accumulate in the hollow behind the eye, as this is occupied by the stump. 3. No danger of overlooking malignant intraocular tumors. 4. Best prophylaxis against sympathetic ophthalmia. Paraffin is the most suitable material for the prothesis because it is non-irritating and least likely to be extruded; the spheres can be easily made and are inexpensive; there is no danger of their being broken, and the paraffin adapts itself to the shape of the cavity, is soon surrounded by fibrous capsule, and is firmly held in place by connective tissue growths.

35. **Studies in Light Sense.**—Hay has devised a new photometer and summarizes the results obtained from its use as follows: Refractive errors, if low, do not affect the light sense; if high, they tend to increase the light difference. Vitreous opacities increase both the light minimum and the light difference. Choroiditis, other than syphilitic and disseminated choroiditis, affects both the light minimum and the light difference. The light minimum is generally more affected than the light difference, but not invariably so. The implication of the light sense seems to vary in extent according to the position of the lesion. It appears to be more impaired if the lesion is close to the macula. Glaucoma chiefly increases the light difference, and this may be one of the earliest signs of the disease. Optic atrophy generally affects the light difference, but there are cases in which the light minimum is very much increased. Retinitis increases both the light minimum and the light difference. Affections involving the internal layers of the retina more than the external ones do not seem to affect the light sense as much as those situated in the external layers.

Illinois Medical Journal, Springfield.

April.

37 *Clinical Experiences with Sauerbruch's Operative Cabinet. D. B. Hahn, Breslau, Germany.
38 Something About Urethritis. H. Crutcher, Chicago.
39 *Attempt to Use the Electric Conductivity of Urine for Clinical Purposes. G. Kolischer and L. E. Schmidt, Chicago.
40 Tricuspid Obstruction Associated with Mitral and Aortic Lesions. J. M. Patton, Chicago.
41 Gastroenterostomy. A. H. Ferguson, Chicago.

37. **Sauerbruch's Cabinet.**—Hahn describes the incidents leading to the invention of this cabinet, which was first suggested by Mikulicz for the purpose of avoiding pneumothorax during intrathoracic operations. A cabinet constructed according to Sauerbruch's plans has been used by Mikulicz on several occasions with a fair degree of success. The heart, esophagus and chest wall have been operated on successfully by various operators. For a description of the cabinet see THE JOURNAL of Nov. 5, 1904, p. 1424.

39. **Electric Conductivity of Urine.**—Taking as a starting point the idea that the vitality and normal and abnormal status of any tissue can be tested by observing its reactions to certain interferences brought to bear on it, and that certain stains brought into the circulation will appear at different times and with different intensity in the urine, Kolischer and Schmidt investigated whether or not the secreting efficiency of normal and abnormal kidneys might be influenced in a way peculiar and characteristic for normal and abnormal conditions of secreting tissue. As the most sensitive test they resorted to the test of electric conductivity, and as a method of staining they selected hypodermic injections of indigo carmine. They found that any increase after staining of electric conductivity beyond 10 international ohms is characteristic of impaired health of the kidney. If this increase stays inside the limit of 20 ohms the kidney still may be considered as safe in a surgical sense; that is, it can reasonably be expected to be of sufficient functional capacity to attend to the eliminating process after its mate is removed. The authors feel that they will be able to determine whether a given individual will react as to his kidneys favorably or unfavorably to the administration of a general anesthetic.

Laryngoscope, St. Louis.

March.

42 History of the Laryngoscope. S. Thomson.
43 Observations on the Human Voice. M. Garcia.
44 Pioneers of Laryngology. F. C. Ewing.
45 *Chronic Laryngitis. E. F. Ingals, Chicago.
46 *Laryngo-Tracheal Injections. T. Hubbard, Toledo.

45. **Chronic Laryngitis.**—Ingals says that from 80 to 90 per cent. of his cases of catarrhal laryngitis result from nasal obstruction or, at least, are kept up by that condition. In these the nasal trouble must be removed in order to cure the larynx.

46. **Laryngo-Tracheal Injections.**—Hubbard says that in ordinary bronchial affections properly administered tracheal injections take the place of so-called stimulating expectorants, and during the period of convalescence from acute bronchitis the recuperative power of the patient is decidedly fortified and nutrition is favored by relieving the gastrointestinal tract from the disturbing influence of cough sedatives and expectorants in syrups *ad nauseam*.

Chicago Medical Recorder.

April 15.

47 Two Cases of Complete Perineal Prostatectomy by Young's Technic. J. Frank, Chicago.
48 *Infiltration Anesthesia in General Surgery. R. M. Parker, Chicago.
49 Treatment of Chronic Obstructive Rhinitis. G. P. Head, Chicago.
50 Infant Mortality. W. J. Butler, Chicago.
51 Insurance for the Working Man. D. Lewis, Chicago.
52 Criminal Abortion from the Coroner's View Point. J. E. Traeger, Chicago.

48. **Infiltration Anesthesia in General Surgery.**—The solution which Parker has found most satisfactory for general use is the following:

℞. Cocain hydrochlorate .....gr. iiss |1
Sodium chlorid.....gr. x |6
Suprarenal ext. (1-1,000)....gr. lxxv-℥iiss 5-10|
Aquæ dest. q. s. ad..... 100|

Sixty c.c. of this solution will suffice for the large majority of operations, although the entire 100 c.c. can be used safely at one sitting. Parker has employed infiltration anesthesia to relieve his patients of the small amount of pain in those slight operations which are usually done without any anesthetic, such as aspiration of the chest, tapping of an ascites, vaccination.

He has used the method about twenty-five times for the latter purpose and has found it very satisfactory. The absolute contraindications to infiltration anesthesia are: 1. Insurmountable fear on the part of the patient. 2. Where muscular relaxation is required. 3. In plastic operations where infiltration would destroy relations.

Denver Medical Times.

April.

53 Neurasthenia in Pulmonary Tuberculosis. J. E. Courtney, Denver.
54 *General Septic Peritonitis. I. B. Perkins, Denver.
55 Normal Obstetrics, the Physiology of Labor. T. M. Burns, Denver.

54. **General Septic Peritonitis.**—Perkins urges an early diagnosis and immediate operation. Free flushing of the abdominal cavity with removal of all poison possible is of the greatest importance when the infection is general. An elevated position, draining the contents of the abdomen into the pelvis, the point of greatest resistance, is of great benefit. In profoundly septic cases in which general infection is present adhesions form slowly, allowing frequent subsequent flushing of the abdominal cavity with hot salt solution, which does no harm and aids materially by removing large quantities of toxic material from the abdomen. The subcutaneous or intravenous dose of salt solution is valuable in that it dilutes the poison, lessens the toxemia and stimulates the kidneys to free action. Free catharsis should be obtained at the earliest possible moment, and should be kept up during the entire convalescent period, thereby aiding in the elimination of much septic material which has been cast into the bowel and which would be reabsorbed if left alone. Furthermore, troublesome adhesions are less liable to form if the bowel is kept active. The use of some cathartic salt in the water used for washing out the stomach aids materially in establishing peristalsis.

The Therapeutic Gazette, Detroit, Mich.

April 15.

56 *Antitoxin Treatment of Diphtheria, with a Plea for Rational Dosage in Treatment and in Immunizing. B. F. Royer, Philadelphia.
57 Treatment of Sciatic Neuritis. C. Pope, Louisville.
58 Malarial Hemoglobinuria, or Hemorrhagic Malarial Fever. W. E. Sparkman, Georgetown, S. C.
59 *Treatment of Yellow Fever. A. M. Fernandez de Ybarra, New York City.

56.—See abstract in THE JOURNAL of February 18, p. 568.

59. **Treatment of Yellow Fever.**—The great desideratum in the treatment of yellow fever, says de Ybarra, is not to disturb the stomach and to relieve the congestion of the kidneys. The hot mustard foot-bath relieves cerebral congestion and headache and often induces free perspiration followed by sleep. Applications of ice or of cold water to the head, face, hands or back during the febrile stage are dangerous, because they produce a sudden cooling of the body surface and increase the existing congestion of the viscera. Sinapisms over the epigastrium relieve pain in the stomach as well as visceral congestion. Diaphoresis and diuresis should be promoted by means of large draughts of lemonade made with seltzer water, hot decoctions of orange leaves, Vichy or soda water, or by rectal injection of fresh water. Opium, in whatever form, should never be given. Neither are stimulants indicated, except in some cases in which the patient has been in the habit of using them. Iced champagne is best. When the pulsations of the heart fall to 50 or 60 a minute digitalis should be given. Proper alimentation is of prime importance. During the onset of the attack no food should be given, and until convalescence is fully and completely established no solid food should be given to the patient. Absolute rest in bed in a ventilated room without draughts of air, of even temperature, is very important to the successful treatment of yellow fever. More essential than that is a calm and hopeful state of the mind and spirit of the patient.

Colorado Medicine, Denver.

April.

60 The X-Ray in the Diagnosis of Bone and Joint Injuries and Diseases. S. B. Childs, Denver.
61 *Indications for Nephropexy. J. N. Hall, Denver.
62 Unique Case of Traumatic Hernia. R. W. Corwin, Pueblo.
63 Operative Treatment of So-Called Medical Diseases. J. G. Sheldon, Telluride.
64 Puerperal Sepsis. A. F. Hutchinson, Durango.
65 Genius and Insanity. H. T. Pershing, Denver.

61. **Indications for Nephropexy.**—According to Hall, the majority of cases of movable kidney demand no operation. The degree of mobility should influence the surgeon's judgment but little as to the advisability of operation, for marked symptoms exist with but little displacement oftentimes, and vice versa. Cases in which no symptoms exist are distinctly non-operable. The same is true of the movable kidney often seen in wasting diseases, notably in tuberculosis, and in the old and feeble. Operation is distinctly indicated in cases presenting symptoms of indigestion, loss of weight, debility, and albumin and casts in the urine; cases in which following a fall or other injury, symptoms attributable to a floating kidney immediately supervened; the occurrence of Dietl's crises; floating kidney associated with chronic appendicitis; cases in which the symptoms are chiefly those of nervousness, debility and lack of ability to stand work, without marked neurasthenia, aching pain in the kidney region, always worse after exercise; intermittent hydronephrosis and cases in which various nerve pains exist from pressure on the genitocrural nerve.

Bulletin of the Johns Hopkins Hospital, Baltimore.

April.

66 Surgery of the Posterior Mediastinum; Its Past and Future. J. D. Fauer, Paris.
67 Aplastic Anemia Associated with Lymphoid Hyperplasia of the Bone Marrow. G. Blumer, San Francisco.
68 Preliminary Communication Regarding an Immune Body Capable of Inhibiting the Development of Cancer in Mice (Adeno-Carcinoma, Jensen). G. H. A. Clowes.
69 Multiplex Slide-Holding Device. E. F. Miller.
70 Dr. Heinrich or Henry Keerl of Baltimore, The "Hessian Surgeon." E. F. Gordell.
71 Bacillus Aerogenus Capsulatus in Puerperal Infection. H. M. Little, Baltimore.

The Physician and Surgeon, Detroit and Ann Arbor.

March.

72 Tribute to Albert B. Prescott. V. C. Vaughan, M. L. D'Ooge and E. D. Campbell.
73 Crime and Criminals, and What Shall be Done with the Latter. H. Hatch, Quincy, Ill.

The Archives of Physiological Therapy, Boston.

March.

74 Radioactivity. A. D. Rockwell, New York City.
75 Cataphoric Diffusion of Metallic Ions in the Destructive Sterilization of Cancer and Tuberculous Deposit. G. B. Massey, Philadelphia.
76 Roentgen Ray Diagnosis of Calculi. R. H. Boggs, Pittsburg.
77 Radium in Surgery. J. Rudis-Jicinsky, Cedar Rapids, Iowa.
78 X-Ray in Tubercular Adenitis. M. C. Rice, Chicago.

Southern Medicine and Surgery, Chattanooga, Tenn.

April.

79 Treatment of Placenta Previa. J. B. De Lee, Chicago.
80 Movable Kidney: Its Causes, Symptoms and Diagnosis. B. L. Hillsman, Richmond, Va.
81 Tuberculous Meningitis. S. D. Acuff, Knoxville.
82 Treatment of Dysentery. W. F. Waugh, Chicago.

Old Dominion Journal, Richmond, Va.

April.

83 Operations on the Gasserian Ganglion. J. S. Horsley, Richmond.
84 Hemorrhages at Confinement. C. Roberson, Greensboro.
85 Comments on the So-Called Radical Operation for Long-Standing Purulent Otorrhea. J. Dunn, Richmond.

Southern California Practitioner, Los Angeles.

April.

86 Los Angeles Versus Eastern Climate. D. W. Edelman, Los Angeles.
87 Mountain Climbing. W. Rodman, Los Angeles.
88 Los Angeles Medical History. G. MacGowan, Los Angeles.
89 Uncinaria Duodenalis, or Hookworm Disease. D. S. McCarthy, Los Angeles.
90 Uncinaria Duodenalis (Hookworm Disease). Its Presence in Porto Rico and Treatment Suggested. L. L. Seaman.

Columbus Medical Journal.

April.

91 Recent Views as to Etiology of Diabetes. J. H. J. Upham, Columbus.
92 Medical Study and Care of Inebriety. T. D. Crothers, Hartford.
93 Endometritis. E. G. Lupton, Gallipolis.
94 Review of 1,000 Operations for Gallstone Disease, with Especial Reference to the Mortality. W. J. and C. H. Mayo, Rochester, Minn.

Virginia Medical Semi-Monthly, Richmond.

April 7.

95 Contribution to Study of Dislocations of First Carpometacarpal Joint. D. P. Hickling, Washington, D. C.
96 Pain as Symptom in Urinary Diseases. C. G. Cumston, Boston.
97 Cocain in Surgery: with Special Reference to Its Use in Operations for the Cure of Hernia. J. S. Horsley, Richmond.
98 Treatment in Influenza. W. F. Waugh, Chicago.
99 Observations in Typhoid: with a Report of 153 Cases. H. G. Nicholson, Charleston.

100 Ectopic Gestation Twice in the Same Patient within Eleven Months. H. A. Royster, Raleigh, N. C.
101 X-Ray Burns. L. R. McCready, Grand Rapids, Mich.

Northwestern Lancet, Minneapolis.
April 15.

102 Etiology, Diagnosis and Treatment of Acute Inflammations of the Anterior Group of the Nasal Accessory Sinuses. W. R. Murray, Minneapolis.

Medical Fortnightly, St. Louis.
April 10.

103 Interesting and Unusual Complications in Typhoid. W. Lloyd, Philadelphia.
104 Biliary Obstruction as a Cause of Nephritis. M. F. Porter, Ft. Wayne.
105 Nature and Treatment of Nosebleed. J. H. Morris, Philadelphia.
106 Relation of Man to Nature (a Study Prompted by "Testimonials of the Sepulchres"). A. A. Ashmead, New York.

St. Paul Medical Journal.
April.

107 Complete Excision of the Bladder for Carcinoma. A. Schwyzer, St. Paul.
108 Use of Creosote in Treatment of Pulmonary Tuberculosis. H. L. Taylor, St. Paul.
109 Intermittent Gastric Hypersecretion. J. S. Gilfillan, St. Paul.
110 Chronic Adherent Pericarditis (a Study of 55 Cases). G. D. Head, Minneapolis.
111 Trained Nurse. W. Courtney, Brainerd, Minn.

American Practitioner and News, Louisville, Ky.
April.

112 Acute Abdominal Disturbances. Are They Ever Functional and Temporary, or Are They Always Organic and Inflammatory? E. Marshall.
113 Albuminuria: Its Significance and Detection. W. A. Jenkins, Louisville.
114 Hygiene of Tuberculosis. M. F. Coomes.
115 Phimosis in Infancy and Childhood. C. G. Russman.
116 Diseases of the Bronchi. M. S. Allen.

Kansas City Medical Index-Lancet.
April.

117 Nervous Diseases of Children and Their Relation to School Life and Work. J. Punton, Kansas City.
118 Retention of Urine in the Male; Its Causes, Diagnosis and Treatment. H. E. Pearse.
119 Vaginal Celiotomy or Anterior Colpotomy. H. C. Crowell, Kansas City.

The Journal of Nervous and Mental Disease, New York.
April.

120 Bilateral Cervical Sympathectomy for the Relief of Epilepsy, with Report of Three Cases; Notes on the Physiologic Effects of Cutting the Sympathetic, and on the Histologic Changes Found in the Cases in Question. W. P. Spratling, Sonyea, N. Y., and R. Park, Buffalo, N. Y.
121 Myelomalacia, with Especial Reference to Diagnosis and Treatment. F. W. Langdon, Cincinnati.
122 Traumatic Epilepsy in Its Medicolegal Relations. A. C. Brush, New York City.

Bulletin of the American Academy of Medicine, Easton, Pa.
April.

123 How May the Public Schools Be Helpful in the Prevention of Tuberculosis? S. A. Knopf, New York.
124 Considerations Regarding Medical Inspection in the Public Schools. E. Jackson, Denver.

The Post-Graduate, New York City.
April.

125 Memoranda Relating to the Discovery of Surgical Anesthesia, and Dr. William T. G. Morton's Relation to this Event. W. J. Morton, New York.
126 Etiology and Constitutional Treatment of "Bright's Disease." W. H. Foster, New York.
127 Interesting Case of Adherent Intestine Cured by Operation. L. Weber.
128 Syphilis of the Liver with Perihepatitis. H. A. Houghton, Bayside, L. I.
129 Two Cases of Recovery from Toxic Amblyopia. D. B. St. John Roosa.
130 One Case of Primary Carcinoma of the Jejunum. R. H. Halsey and E. W. Peterson.

The Canada Lancet, Toronto, Canada.
April.

131 Forty Years and After—A Reply to Dr. Osler. J. Ferguson, Toronto.
132 Maternity Packet. A. G. A. Fletcher.
133 Canadian Society for the Prevention of Tuberculosis. E. J. Barrick, Toronto.

Kentucky Medical Journal, Louisville.
April.

134 Dental Advice to the General Practitioner. H. B. Ray, Tompkinsville.
135 Watching the Pendulum, or the Ups and Downs of Medicines and Measures Since My Short Acquaintance with Medicine. E. B. Willingham, Cunningham.
136 Aneurismal Varix of Left Subclavian. J. D. Trawick, Louisville.
137 Country Obstetrician. W. R. Burr, Auburn.
138 Tubercular Meningitis. G. P. Sprague, Lexington.
139 Hydrophobia. A. S. Brady, Greenup.
140 Experience of a Doctor in the Kentucky Mountains. W. G. Bailey, Millersburg.

Texas Medical Journal, Austin.
April.

141 The Care of the Insane in Texas. M. L. Graves.

Oklahoma Medical News-Journal, Oklahoma City.
April.

142 Downfall of the General Practitioner. M. M. Lively, Blackwell.

Northwest Medicine, Seattle, Wash.
April.

143 Intestinal Intussusception. W. S. Durand, Everett.
144 Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. (Continued.) A. W. M. Robinson, London.
145 Acute Leptomeningitis. J. W. Bailey, Seattle.

St. Louis Courier of Medicine.
April.

146 Fallacies, Aims and Methods of Hydrotherapy in Fevers. S. Baruch, New York City.
147 Case of Chronic Seminal Vesiculitis; Removal of the Vesicles; Recovery. B. Lewis, St. Louis.
148 Baby Incubators on the "Pike." (Continued.) J. Zahorsky, St. Louis.

Alabama Medical Journal, Birmingham.
April.

149 Conservative Surgery of the Female Pelvic Organs. W. M. Jordan, Birmingham.
150 Tuberculosis of the Sclera. J. R. Briggs, Dallas, Texas.
151 Importance of Medical Organization which Leads to Higher Medical Education. H. A. Grant, Jackson, Miss.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.
April 8.

1 *Surgical Treatment of Ulcer of the Stomach and of Its Complications. B. G. A. Moynihan.
2 Cases Illustrating Alternative Operations for Intestinal Obstruction. A. E. Barker.
3 *Removal of Gall Bladder in a Woman Aged 75. A. W. Addinsell, London.
4 New Methods of Studying Affections of the Heart. J. Mackenzie, Burnley.
5 Obliterative Arteritis, Leading to Gangrene of Extremities in Otherwise Apparently Healthy Men in the Prime of Life. E. Michels and F. P. Weber.
6 *Incidence and Effect of Some Diseases on Others. J. R. Charles.
7 National Importance of the Thorough and Systematic Removal of Adenoids in Childhood. G. C. Wilkin, London.
8 Fatal Case of Acute Mercurial Poisoning. E. S. Sugden.
9 Case of Acute Strychnin Poisoning in a Child; Recovery. J. R. Pooler.
10 Correct Anatomic Form of Bicycle Pedals. R. A. Lundie.

1. **Surgical Treatment of Gastric Ulcer.**—Since 1897 Moynihan has had under his care 22 cases of perforating ulcer of the stomach or duodenum. There were 14 recoveries (63.6 per cent.) and 8 deaths (36.4 per cent.). There were 7 cases in which a duodenal ulcer perforated and 15 in which a gastric ulcer perforated. In the first 10 cases there were 6 deaths; in the last 12 cases there were 2 deaths. He has operated on 22 patients for the purpose of arresting hemorrhage, which, so far as could be judged, was likely soon to prove fatal. Three patients died; 19 recovered. Excision of the ulcer alone was performed in 1 case, the patient dying suddenly on the eighth day, when apparently doing well. Excision of the ulcer, followed by gastroenterostomy, was performed in 3 cases; 2 patients recovered and 1 died. In the remaining 18 cases gastroenterostomy alone was performed; 17 patients recovered and 1 died. For chronic ulcer of the stomach or duodenum, or both, excluding the cases of acute hemorrhage and of perforation just mentioned, Moynihan performed gastroenterostomy in 153 cases, with 2 deaths. In 1 case gastroplication was performed and later a gastroenterostomy which gave the patient complete relief. In 3 cases pyloroplasty was performed; in 2 of these gastroenterostomy has since been necessary. In 2 cases Finney's operation was performed; both patients recovered. Secondary operations were necessary in 2 cases; in 1 on account of regurgitant vomiting, an enteroanastomosis being performed; in the other vomiting began a few weeks after operation and persisted. This was found to be due to a small hernia through the opening in the mesocolon into the lesser sac. Regurgitant vomiting may be prevented by making the anastomosis as high as possible in the jejunum, and hernia may be prevented by suturing the margins of the opening in the mesocolon to the jejunum near the line of stitches between it and the stomach. Moynihan has

also operated on 20 cases of hour-glass stomach due to simple disease, with 3 deaths. The operations performed were as follows: Gastroplasty in 7, gastroenterostomy in 6, gastroplasty and gastroenterostomy in 2, gastrogastrostomy in 1, gastrogastrostomy and gastroenterostomy in 3, dilatation of stenosis in 1.

3. **Removal of Gall Bladder.**—Addinsell removed the gall bladder from a woman aged 75 because of repeated attacks of jaundice due to gallstones. The neck of the cystic duct was placed in the lower angle of the peritoneal wound. The peritoneum was then closed and the fascia and muscles sewn around the orifice of the duct, but the skin was not attached to the stump. The dressing was changed daily for a week, and several ounces of normal saline solution were injected into the duct daily for seven days. In a month the wound was healed. Two years after operation the patient had improved in general health, had no pain or jaundice and was stronger than she had been for years past.

6. **Incidence of Diseases.**—For the purpose of studying the incidence and effect of some diseases on others, Charles studied the postmortem records of 488 subjects of chronic disease. Of this number 156 patients died with the interstitial form of chronic nephritis. Of these 52 succumbed to the results of secondary infections, which included 31 cases of lobar pneumonia, 3 of bronchopneumonia, 6 of pericarditis, 1 of pulmonary gangrene, 1 of pleurisy, 4 of empyema, 4 of phthisis and 2 of general miliary tuberculosis. Of 37 cases of chronic mixed nephritis 35.8 per cent. of the patients died from secondary infections, consisting of 6 of lobar pneumonia, 2 of pericarditis, 1 of pyemia and 4 of phthisis; while of 22 cases of chronic parenchymatous nephritis 31.8 per cent. of the patients died from secondary infections, including 3 from lobar pneumonia, 1 from bronchopneumonia, 2 from pericarditis and 1 from peritonitis. With the exception of congenital heart disease, cirrhosis of the liver is the worst predisposing factor for secondary infections. Of 45 cases 44 per cent. of the patients succumbed to a secondary infection, namely, 7 from lobar pneumonia, 3 from bronchopneumonia, 1 from empyema, 1 from pyemia, 2 from tuberculous peritonitis, 4 from phthisis and 2 from general miliary tuberculosis. Cirrhosis of the liver was associated with cirrhotic kidneys in 17 cases. Of the cases which might be classed as primary arteriosclerosis 19 per cent. of the patients died of pneumonia. Only 1 among 8 deaths from congenital heart disease was due to phthisis, although 3 patients died from pneumonia and infantile diarrhea respectively. Secondary infections were responsible for over 15 per cent. of the deaths which occurred among 109 subjects of chronic valvular disease. Pneumococcic infections were the most numerous, being 14 times more common than tuberculous infection. Six patients out of a series of 31 cases of diabetes succumbed to phthisis, while of 18 patients who died either from coma or convulsions, recent pulmonary tuberculous lesions were found in 4. Non-tuberculous gangrene of the lungs and pneumonia occurred in 2 cases. Charles also discusses in this connection, epilepsy, blood diseases, cancer and tubercle, and chorea and rheumatism, but does not mention any statistics.

The Lancet, London.

April 8.

11 Some Considerations on the Nature of Diabetes Mellitus. W. C. Bosanquet.
12 Dissemination of Mammary Carcinoma. W. S. Handley.
13 Mental Disorders of Decay. G. H. Savage.
14 *Investigation into Causation of Puerperal Infections. A. G. R. Foulerton and V. Bonney.
15 *Case of Multiple Neurofibromatosis. H. Littlewood, W. H. M. Telling and S. G. Scott.
16 *Treatment of Tuberculosis of the Lungs by Means of Tuberculin and Other Bacterial Derivatives. H. B. Shaw.
17 *Case of Esophageal Pouch Successfully Treated by Excision. A. Boyce Barrow and J. Cunning.

14. **Causation of Puerperal Infections.**—The results quoted by Foulerton and Bonney were obtained from the examination of 54 cases in which fever, slight or severe, occurred after either miscarriage (6 cases) or labor at full term. In each of the 54 cases a detailed bacteriologic examination of the contents of the uterus was made, and all bacteria present on the primary culture tubes were isolated in pure culture and studied. In nearly all of these cases a similar examination was made of the vaginal secretion. With a view of obtaining other information a complete bacteriologic examination of the contents of the uterus was made in 12 cases after a normal labor and a normal puerperium. The authors also examined the secretion of the cervical canal of 30 women who showed no signs of pregnancy. In the 12 cases of normal labor the contents of the uterus proved sterile of bacteria. Out of 48 cases of fever after labor at full term, 12 terminated fatally, giving a mortality of 25 per cent. Of 34 cases in which, after labor at full term the temperature rose to above 102, 12 patients died, giving a mortality for this group of 35.3 per cent. In 48 cases of fever after labor at full term the contents of the uterus were sterile in 15 and contained bacteria in 33; the case mortality when bacteria were present in the uterus was 36.3 per cent.; in the other group of cases no deaths occurred.

15. **Multiple Neurofibromatosis.**—At the necropsy in this case tumors were found near the sacrum; in front of the eleventh rib; in the substance of the left pectoral muscle; beside the rectum; in the course of the right median nerve; opposite the left rhomboid muscle; in the substance of the left soleus; in connection with the great sciatic nerve at the edge of the left gluteal muscles; in the course of the left pneumogastric on both sides; in connection with the sympathetic; in the angle between the innominate and carotid arteries; in connection with the plexus gulæ; at the esophageal opening in the diaphragm; in the hepatic fissure; in the spinal canal; in the cauda equina; within the dura mater, and on the posterior root of one of the lowest dorsal nerves.

16. **Treatment of Pulmonary Tuberculosis with Bacterial Derivatives.**—Shaw reviews the treatment of pulmonary tuberculosis by means of various sera and bacterial derivatives, and the results obtained. He says that judging from the evidence at hand, it seems that the use of the tuberculins materially improves the results of treatment, and that, therefore, it is quite justifiable to supplement the ordinary treatment by sanatorium methods with this specific one. Tuberculin treatment is of little use alone.

17. **Esophageal Pouch.**—The symptoms in the case cited by Barrow and Cunning simulated those produced by a malignant disease of the esophagus, plus regurgitation of food, which, on examination, was found not to contain free hydrochloric acid. It was also possible, by making pressure at the base of the neck, to squeeze up gas. A large esophageal bougie met an obstruction of some kind eight inches from the teeth. At the operation there was found at this point, to the left and behind the esophagus, a white fibrous coated pouch one and a half inches long. The neck of the pouch was in the lower part of the posterior wall of the pharynx. The fibrous coat of the neck of the pouch was divided and turned back as a cuff. The mucous membrane was ligatured and cut through, and the fibrous coat was stitched up over it. A few stitches were put in to bring the muscular coat together over the site of the neck of the pouch. The patient was fed by nutrient enemata for seven days, and at the end of a fortnight was discharged with the wound healed and able to swallow any kind of food.

Journal of the Royal Army Medical Corps, London.

April.

18 Local Influences in Enteric Fever and Their Investigation. R. J. S. Simpson.
19 Hints for Beginners on the Development, etc., of *X*-Ray Negatives. H. Henry.
20 Cox's New Platinum Contact Breaker, for Use with Spark Coils. W. F. Stevenson.
21 *The Active Immunization of Experimental Animals with Typhoid Cell Juices. A. B. Smallman.
22 Medical Notes on War. E. B. Knox.
23 *Local Analgesia. J. W. Houghton.
24 Researches on Malaria. R. Ross.
25 *Zittman's Treatment for Syphilis. G. H. Sylvester and C. B. Crisp.
26 Malignant Syphilis. H. C. French.
27 Report on Enteric Fever Among the Personnel of No. 4. General Hospital Mool River, Natal, with Reference to Drinking Water Filtration. H. H. Johnston.
28 *Modification of the Telephone Bullet Extractor. W. Sheen.
29 Seven Cases of Perforating Gunshot Wounds of the Skull. G. E. Moffet.

21. **Immunization with Typhoid Cell Juices.**—The purpose of the inquiry made by Smallman was to test the feasibility of preparing a bacteria-free and fluid vaccine, and of standardizing the same, not in terms of bacilli, but in terms of the soluble immunizing substance it might happen to contain. The

material was obtained with the aid of the cold-grinding method employed by MacFadyen and Rowland. The typhoid organisms were grown on the surface of agar bottles, at blood heat, for about 20 hours. The growth was washed off with salt solution and the bacteria spun out in a high-speed centrifuge. The spun-out bacteria were next reduced to the consistency of a pasty mass on the surface of a Chamberlain filter, and triturated at the temperature of liquid air. The resultant mass was taken up in salt solution and centrifugalized. The cell juice was, as a rule, equivalent to a 10 per cent. solution of the intracellular constituents contained. This typhoid cell juice, as Smallman terms it, contained from .15 to .2 per cent. of solid matter. It was injected subcutaneously into guinea-pigs, and after varying intervals of time the protection afforded was tested by the intraperitoneal injection of virulent typhoid bacilli. The dose ranged from .06 to .006 c.c. of typhoid cell juice. The smaller dose had the same protective effect as the larger, and that after a period of eleven days. A protective effect was demonstrable with a dose of 1/1000 c.c. at the end of seven days. A series of animals which had been inoculated with 0.25 c.c. of the cell juice was tested on the tenth day after injection. Out of 5 guinea-pigs tested 4 survived an injection of from 3 to 5 lethal doses of the typhoid bacillus. Smallman is convinced that a bacteria-free and fluid typhoid vaccine can be prepared by the mechanical method employed, and that a very small amount of the soluble constituents of the typhoid organism is necessary for the active immunization of experimental animals.

23. **Local Analgesia.**—Houghton comments on the value of local analgesia produced by the injection of B. eucain and adrenalin chlorid. Some of the operations in which he has employed this solution are: 1. Removal of a cystic tumor attached to the periosteum of the scalp. 2. Removal of a fibroma attached to the posterior aspect of the left trochanter, involving dissection from the bone. 3. Opening a knee joint for removal of loose cartilage. 4. Excision of five varicose veins. 5. Excision and ligature of external piles in a case where chloroform was inadmissible. 6. Opening and draining abscess of liver. 7. Varicocele. 8. Laparotomy for perforating enteric ulcer.

25. **Zittman Treatment of Syphilis.**—Sylvester and Crisp have subjected 23 cases to this method of treatment. Of these 18 went through the treatment once, 4 twice, 1 thrice. In 17 cases a great deal of good resulted; in 2 there was some improvement only; in 1 there was very slight improvement only; in 3 there was practically no result. In all these cases there was considerable gain in weight after the treatment and the general condition was greatly improved. Ulcers, when present, became smaller and often dried up, and syphilitic pains in the joint generally became less severe. The authors say that, taken as a whole, the Zittman treatment seems to have much more effect on skin and connective tissue lesions, and in improving the general health and causing increase in weight, than it has on cases suffering from syphilitic pains in the joints.

28. **Modified Telephone Bullet Extractor.**—The ordinary Hedley's telephone probe has been modified by Sheen so as to increase its utility and to insure asepsis when it is in use. The wire connecting the probe with the telephone receiver has a fixed covering of rubber for two feet nearest to the probe. This part of the apparatus can, therefore, be boiled or immersed in a disinfectant. The silver probe used is graduated in centimeters. It retains its original form, blunt at one end, and pointed at the other. Two pairs of forceps have been constructed. They are graduated in centimeters from the extremities of their jaws. The smaller pair is a slender, rounded forceps 17 cm. long, and is intended especially for brain work. having the joints situated as near to the handles as is consistent with adequate rigidity so as to minimize the excursion of the blades. The larger pair, 21 cm. long, is more strongly constructed for general work, and is in pattern similar to the well-known "French" model of bullet forceps. In each pair of forceps the jaw part of one blade is grooved obliquely on its interior from base to point, the groove running a very short distance on the outer aspect of the forceps. When the probe has detected the foreign substance this groove permits the forceps to be slid along the probe down to it. For attaching the forceps to the telephone wire a piece of stout silver wire, No. 6 French catheter gauge, is used. This wire fastens into an attachment on the handle of the forceps, and its use permits all parts of the apparatus that may come in contact with the wound area to be sterilized by boiling.

Bristol Medico-Chirurgical Journal, London.

March.

30 *Prevention of Apoplexy. T. C. Allbutt.
31 Some Notes on Examinations for Life Assurance. R. S. Smith, Bristol.
32 *Nephropexy by Means of the Application of Strong Carbolic Acid and Temporary Support, with Report of 8 Cases. T. Carwardine.
33 *Advantages of Enucleation of the Tonsils Over Their Removal by the Guillotine. E. W. H. Groves.

30. **Prevention of Apoplexy.**—Allbutt contends that prevention of apoplexy must lie first in the detection of a special tendency to a persistent mean rise of the arterial blood pressure. If this tendency be detected in its earlier phases, in many instances it can be reduced and kept down; but the longer the story, the older the rearrangement of parts, the harder reduction becomes. Every adult of the age of 40 and upward should have his blood pressures measured by the best instruments available every five years until the age of 60, when, if there be no great increase, the danger of apoplexy may be disregarded. Persons showing a persistent rise of mean pressure should be advised to revise their mode of living, to take regulated exercise, to abstain from alcohol, and to reduce the intake of food.

32. **Nephropexy.**—Carwardine describes his method as follows: The transverse or the oblique lumbar incision is employed, the patient lying on the side with the opposite loin supported by a pillow in order to increase the ileocostal space, although the longitudinal dorsal incision can be made if preferred. The muscles are in part divided and in part separated in the direction of their fibers. On complete division of the lumbar aponeurosis all excess of loose perirenal fat is excised. The kidney is stripped of its surroundings and is then brought carefully onto the loin by its lower pole, the body and upper pole following. Gauze pads are placed in the wound, and the whole surface of the exposed kidney is thoroughly painted with strong liquid carbolic acid two or three times by means of a swab held in pressure forceps. The upper pole in particular should receive thorough treatment. The gauze is then removed and the kidney is replaced in its normal position. The center of a strip of iodoform gauze some 18 inches long is next placed around the lower pole of the kidney to act as a loose temporary sling during the granulating stage. and after the anterior part of the wound has been sutured a second piece is inserted lightly down to the kidney, and over this the two ends of the first piece are tied together loosely. This securely anchors the kidney for the time. Plenty of absorbent dressing is applied, a firm pad of absorbent wool is placed over the hypochondrium in front, and the whole is secured by a carefully adjusted binder. The wound may be dressed every other day during the first week, the gauze packing being renewed when necessary. The sling of gauze may be left for ten days, or a fortnight, or longer, if necessary. The recovery in each of the 8 cases in which Carwardine employed this method was perfectly satisfactory. From a careful examination of the cases so treated he thinks it impossible for the kidney to become loose again.

33. **Enucleation of Tonsils.**—It is suggested by Groves that if the tonsils have to be removed, the aim should be to remove them completely, and this can only be done by enucleation in a number of cases occurring chiefly in adults. Furthermore, enucleation should be resorted to without delay in those cases of recurrent tonsillitis in which the whole tonsil lies buried behind the level of the fauces. The advantages of the operation are that it insures complete and thorough removal of the gland, thus securing a relief from annoying throat symptoms which can not be obtained in any other way; and the operation is performed more easily than the one usually resorted to—removal by guillotine. Its only drawback is that it requires a deep anesthesia by ether or chloroform. There are no dangers in the operation apart from the anesthetic. Hemorrhage is less than in the cutting operation, and can be

reduced to a minimum by a preliminary injection of 5 minims of a 1 in 1,000 solution of adrenalin chlorid into each peritonsillar region. There need be absolutely no fear of wounding the internal carotid artery.

Revue de Gynécologie, Pozzi's, Paris.

Last indexed page 427.

34 (VIII, No. 6.) *De la dégénérescence néoplasique des ovaires dans le cancer de l'utérus. F. Jayle and E. Papin.
35 *Le sarcome primitif de l'estomac (of stomach). P. Lecène and J. Petit.
36 (IX, No. 1.) *Etudes sur les hémorragies des grands Kystes de l'ovaire sans torsion du pédicule. C. Daniel.
37 *Eventration abdomino-vulvaire droite. Mauclaire.
38 Note sur 2 cas de hernies avec glissement du gros intestin, descente du rein et déviation de l'aorte (with sliding down of large intestine and kidney, etc.). A. Baumgartner.
39 *Duration of Process of Reduction of Oxyhemoglobin in Abdominal Surgery and in General Pathology.—De la durée de la reduction de l'oxyhemoglobine. E. Duroux (Lyons).
40 *La cure esthétique des hernies. H. Morestin.

34. **The Ovaries in Case of Cancer of Uterus.**—Jayle and Papin advocate the systematic removal of the ovaries with the uterus in all cases of uterine cancer. Even when the ovaries are apparently sound, they may be histologically affected, and they are liable to have a primary epithelioma develop in them sooner or later. In one of Jayle's cases a cancer developed in the ovary five years after vaginal hysterectomy for cancer of the body of the uterus. In another case a primary cysto-epithelioma developed in both ovaries after abdominal hysterectomy for cancer of the cervix. Cases of direct propagation or metastasis to the ovaries are not rare, and the ovary is also liable to be the seat of a papilloma or fibroma, with or without evidences of epithelioma.

35. **Primary Sarcoma of Stomach.**—Lecène and Petit add another to the 58 cases on record of primary sarcoma of the stomach. The most common variety is that which projects into the abdominal cavity as a large symmetrical tumor, sometimes even being pedunculated. Gastric sarcoma may simulate gastric carcinoma from the clinical point of view, or it may develop without any symptoms on the part of the stomach, and may suggest merely an abdominal tumor. The youth of the patients (17 to 20, as a rule), aids in differentiating the sarcoma. Thirty-four cases from the literature, not operated on, are summarized, and 23 in which an operation was performed. The patients were generally extremely debilitated before surgical interference, but about a dozen were cured by it.

36. **Hemorrhages in Case of Ovarian Cysts.**—All kinds of ovarian cysts are liable to bleed inside. The hemorrhage is favored by degeneration of the coats of the cyst and by rupture, puncture or other complication. The signs of the hemorrhage vary with its amount, and according as the effusion makes it way into the walls or into the cyst proper or into the peritoneum. The diagnosis is easy when the hemorrhage is severe, but otherwise it is usually first discovered during the operation. Laparotomy without delay should be the rule in every case of a bleeding ovarian cyst. Even during pregnancy, the same rule prevails. Pinard asserts that all danger of interrupting the pregnancy may be averted by systematic use of injections of morphin during the days after the operation. Daniel gives a résumé of 18 cases from the literature.

37. **Postoperative Hernia and Its Cure.**—A woman of 35 had been operated on for double salpingitis. Hernia in the median line developed a few months later, the hernial sac finally sliding into the right labium. The hernia was cured by suturing the neck of the sac and then turning it back sideways on itself to form a three-fold cover for the opening; this cover was then sutured to the aponeurosis of the rectus.

39. **Reduction of Oxyhemoglobin as Test of Vitality.**—Duroux bases this test on the fact that the life of the tissues depends on the life of the oxyhemoglobin. The latter is reduced by the tissues with more or less facility in proportion to its vitality. Reduction with ammonium sulphid of oxyhemoglobin from different specimens of blood always proceeds the same in case the blood is normal. The variations from this standard behavior are characteristic and instructive. Two drops of blood drawn from the finger are examined in the spectroscope and the two broad black bands characteristic of oxyhemoglobin are noted. Two drops of ammonium sulphid are then placed on top of the blood. In case the blood is normal the two black bands will be seen to draw closer together by the sixtieth second, and by the seventieth second they blend into a single band. In case of a person in shock, the oxyhemoglobin will be found inert; the normal interchanges are suspended, and the oxyhemoglobin is no longer able to preside over them. In this case its bands in the spectrum are likewise inert and show no tendency to blend into a single band, even after one, two or three minutes, until they finally creep together and reduction and fusion take place. On the other hand, in blood from a febrile subject the bands fly together and rapidly unite to make a single band by the thirtieth second. The pulse rate is another element that may be regarded in the diagnosis from the reduction of oxyhemoglobin. In a normal subject, with a 70 pulse the reduction of the oxyhemoglobin occurs in 70 seconds. Hence we can say that 70 divided by 70 equals 1, the normal standard. In 30 healthy persons the reduction occurred invariably at the seventieth second. The difference did not once surpass 5 to 10 seconds. In 34 patients with cancer, the reduction did not occur under 95 seconds in a single instance and the average was in the neighborhood of 2 minutes. In 5 traumatic cases, the reduction required 3 minutes in some cases, but as the patients recuperated reduction occurred in 85 seconds, and returned to normal as recovery progressed. Jaboulay thinks that there can be no question that operation, a traumatism, a brain affection or an infection can act on the nerve centers that control the respiratory functions and also on the blood-forming organs. Under the influence of an anesthetic, these nerve centers suspend their functioning more or less. The incitation which they transmit to their agents is, therefore, lessened and deteriorated in quality or it is suspended altogether. The oxyhemoglobin, thus suffering from lack of normal control, gives up its oxygen sluggishly. The whole series of phenomena observed is essentially a slowing of the nutritional processes for the time being. If the inhibition of the centers is complete, the nutritional processes are not only slower than normal, they are liable to be suspended altogether, and we behold traumatic shock. The sum of the reflexes is liable to be so large in such a case that the inhibition may be total and death may ensue before the oxyhemoglobin has shown the least tendency to reduction. His clinical experience has fully confirmed these assumptions. Cases of dementia with stupor are like the Hindoo fakirs. They can exist for months on a quart or a pint of milk and yet they keep in the same condition, as the reduction of their oxyhemoglobin proceeds so slowly that the combustion of their tissues is retarded likewise and their vitality is husbanded. In fever, the reverse is observed. The centers are irritated and perform their functions in a hasty, irregular way. The oxyhemoglobin is unable to retain its oxygen and yields it at once to the tissues, which soon become exhausted and used up by their over-active combustion.

40. **Esthetic Treatment of Hernia.**—Morestin describes with 5 illustrations the technic by which he operates in case of inguinal or other hernia without leaving a perceptible scar. The incision is very short, in the hair above the pubis, and the results in his 12 cases have been remarkable satisfactory. He epitomizes the salient points of each.

Archiv f. Gynäkologie, Berlin.

Last indexed page 252.

41 (LXXIV, No. 1.) Origin of Intramuscular Branching of Lumen of Tube.—Zur Frage der Enstehung intramuscullärer Abzweigungen des Tubenlumens. O. Hoehne.
42 Serum-Behandlung bei Puerperal-Fieber. H. Peham.
43 Benign Tumors of Ovary.—Zur Kenntnis der gutartigen bindegerwebigen Neubildungen des Ovariums, insbes. der Myome. G. L. Baso.
44 Thrombosis in Puerperium.—Thrombose und Embolie im Wochenbett, sowie die auf. derselben Grundlage beruhenden Lungen-Erkrankungen der Wöchnerinnen. A. Richter.
45 Die Leukocytose in der Gravidität, intra- und postpartum, und die Leukocytose Neonatorum. J. Arneth.
46 Carcinoma clitoridis. C. Schmidlechner (Budapest). Two cases.
47 Perithelioma labii majores. Id.
48 Ulcus vulvæ rodens Virchow. Id.
49 Origin and Significance of Leucocytosis.—Zur Frage der Entstehung und Bedeutung der Leukocytose. R. Bernbaum.
50 Is It Superfluous to Suture the Peritoneum After Vaginal Hysterectomy?—Ist die Peritonealnaht nach vaginaler Total-Extirpation des Uterus überflüssig? K. Czerwenka.

51 (No. 2.) *Artificial Interruption of Pregnancy; 228 Cases.—Ueber die künstliche Unterbrechung der Schwangerschaft durch die Bougiemethode. Erfahrungen über die Indikation und Methode aus 228 Fällen. Jacoby (Mannheim).
52 Action of Streptococcus on Uterine and Vaginal Mucosa.—Experimentelle Untersuchungen über die Einwirkung des Streptococcus pyogenes auf die Schleimhaut der Gebarmutter und der Scheide. G. Heinricius.
53 Accumulation of Blood with Double Genitalia and One Side Occluded.—Ueber Blutänhaufung bei doppelten Genitalien unit Verschluss einer Seite. R. Katz.
54 *Beitrag zur Klinik der Ovarialtumoren. W. Lippert.
55 Ueber die Genese, Diagnose und Therapie der Pyo-Tubo-Ovarial-Cysten. O. Schaeffer.

51. **Artificial Interruption of Pregnancy with the Bougie.**—Jacoby reports 228 cases and states that the mortality was 4 in the last series of 121 mothers. In 50 cases of contracted pelvis, 31 of the children, 65 per cent., were born alive. The article issues from Mermann's maternity at Mannheim. The morbidity of the bougie deliveries was no higher than that of the normal births. The cases are grouped by indications. The bougie used was about 8 to 10 mm. in diameter, and it never failed to accomplish its purpose.

54. **Ovarian Tumors.**—Lippert reviews 638 cases of ovarian tumors or parovarian cysts operated on at Zweifel's clinic, at Leipsic. The total mortality was 5.17 per cent. In the malignant cases, the mortality was 13 per cent. and in the non-malignant 3.7 per cent. Five patients succumbed to embolism of the lungs. The operations had been exceptionally complicated in these cases, with adhesions, or a supplementary fixation of the uterus or herniotomy. With one exception, the embolism occurred in the second week, as the patients were convalescing finely. No overexertion was known in any case as cause of the embolism. The patients were lying quietly in bed when taken with dyspnea, which proved fatal in twenty minutes at farthest. The origin of the emboli could not be discovered in one case, but in the others thrombosis in the pelvic or hypogastric veins was evident.

Münchener medicinische Wochenschrift.

56 (LII, No. 12, March 21.) *Treatment of Epidemic Cerebrospinal Meningitis.—Zur Behandlung der epidemischen Genickstarre. H. Lenhartz.
57 *Die Resultate der prophylaktischen Impfung mit Diphtherie-Heilserum im städtischen Mariahilf-Krankenhause zu Aachen. F. Wesener.
58 *Blood in Tuberculosis.—Blutuntersuchungen bei der Tuberkulose der Lungen und bei der Tuberkulinkur. J. Arneth.
59 "Thinned-out Regions" in Central Nervous System.—Ueber sogenannte "Lichtungsbezirke" im Zentralnervensystem. H. Schmaus.
60 *Ueber menschen-pathogene Streptokokken. E. Fraenkel.
61 *Ueber hydroelektrische Behandlung der Herzfunktionsstörungen (of functional heart disturbances). G. Zimmermann.
62 *Ueber die Dilatation zikatrizieller Stenosen der Speiseröhre durch das Oesophagoskops. A. Reizenstein.
63 *Ueber Pseudo-Aszites bei Ovarial-Tumoren und dessen klinische Bedeutung. K. Hörmann.
64 *Diagnosis of Death from Drowning.—Weiterer Beitrag zur gerichtsärztlichen Diagnostik des Ertrinkungstodes. Revenstorf.

56. **Treatment of Epidemic Cerebrospinal Meningitis.**—Lenhartz has had occasion to treat 45 cases of epidemic cerebrospinal meningitis during the last ten years. His experience has confirmed him more and more in the belief that systematic and repeated lumbar puncture has a decided and favorable effect on the disease. He gives several case reports in detail to show the marked benefit that followed the punctures. In the case of one young woman the punctures were repeated daily for six days and then twice more at longer intervals. The cerebrospinal fluid was under pressure of 360 and 430 at the two first punctures, and 14 and 24 c.c. of the fluid were allowed to escape. It was very turbid. The leucocytes numbered 22,000 once, but generally ranged from 15,000 to 19,000. He cites also a case illustrative of the group in which the punctures were first made late in the case to ward off threatening acute hydrocephalus. The aggravation of symptoms about the fortieth day suggested this complication and puncture showed a pressure of 490 and 320 mm. After escape of 25 and 37 c.c. the condition improved remarkably, but severe symptoms recurring two days later, the punctures were repeated morning and evening and again the next morning, after which the patient, a young man of 21, was able to sit up for an hour. This was the sixty-seventh day of his illness, and complete recovery soon followed. No ill effects from the punctures were observed in any instance; the technic is simple and easy, and can be applied in the home. He warns against allowing more than 50 c.c. of the cerebrospinal fluid to escape. The Weichselbaum-Jäger intracellular diplococcus was found in 40 out of his 45 cases.

57. **Antidiphtheria Serum as Prophylaxis of Diphtheria.**—Wesener reviews his experience with 1,745 cases of diphtheria at Aix. It is his practice to inform the person accompanying the sick child to the hospital of the danger of the spread of the disease, and to propose to give all the children in the family a preventive injection of the serum if they are brought to the hospital. This is usually done, and nearly two hundred and fifty of such injections have been made. Only 4 of the children thus protected contracted the disease, and in 3 it developed within forty-eight hours, showing that it must have been already installed. In the single failure in the series the disease was so mild that it seemed to be merely an ordinary sore throat, but the discovery of diphtheria bacilli caused it to be accepted as genuine diphtheria. The protection conferred by the injections is not absolute, but it enables the isolation of the patient to be less strict. The period of protection lasts about three or four weeks; this is usually sufficient for the purpose if the premises are disinfected.

58. **The Blood in Tuberculosis and Under Tuberculin Treatment.**—Arneth's original views in regard to the behavior of the leucocytes in infections were summarized in THE JOURNAL on page 577 of the last volume. The blood is always much altered in case of febrile tuberculosis, he affirms. Examination of it from time to time will show the progress that is being made under treatment. When the blood findings remain bad, although other signs indicate recovery, the prognosis is unfavorable, and vice versa. Almost all the remedies and measures recognized as beneficial in tuberculosis possess the property of stimulating the leucocytes, and it is to this property that they owe their effect, as they increase the capacity of assimilation and nutrition of the neutrophiles. These cells act only in the way of reaction, that is, after having previously had some increased demand made on them. This renders the possibility of the discovery of some ideal active cure a very remote one. But it renders more promising the prospects of the ultimate discovery of some sovereign cure by way of passive immunization.

60. **Pathogenic Streptococci.**—Fraenkel describes the peculiarities of the two kinds of streptococci which Schottmüller segregated by his blood-agar plate cultures. One of them, the *Streptococcus viridans*, seems to be concerned in the production of certain forms of endocarditis distinguished by a protracted course and special temperature curve. The other, the *S. mucosus*, seems to be involved in the production of true fibrinous lobar pneumonia. Fraenkel urges that greater attention should be paid to bacteriologic examination of the blood from the heart postmortem. Very valuable and reliable information can thus be derived.

61. **Electric Baths in Heart Disease.**—The capability of the heart to respond to stimuli is the criterion as to the possible efficacy of hydroelectric procedures. There must be a reserve force to call on, and this is the main point, not how much the organ is hypertrophied. As general indications for the alternating current baths, he accepts disturbance in the circulation with low blood pressure, signs of incipient failure of compensation, moderate fatty infiltration with general corpulence, and atonic conditions of the heart muscle and arteries. In advanced cases of sclerosis of the heart and arteries, the indications are more for the Nauheim baths. A combination is excellent in certain cases.

62. **Esophagoscopy in Dilation of Stenosis of Esophagus.**—Reizenstein has found it possible to work a flexible sound through what had appeared to be an absolutely impermeable stricture before the esophagoscope had been introduced. He relates some of his experiences. Among them is that of a small child who preferred esophagoscopy to blind groping with sounds. Cocain can be dispensed with for the esophagoscopy.

63. **False Ascites in Case of Ovarian Tumors.**—The necessity for exploratory celiotomy, even when sure of malignant disease, is well brought out by the 2 cases reported by Hörmann. The symptoms imposed the diagnosis in one case of cancer of the ovaries with metastases in the cul-de-sac and

hydromphalocele with considerable ascites. The tumor was the size of two children's heads, but proved to be a benign pseudomucinous cystadenoma, and the effusion had been the pouring out of its secretion through a perforation. This fluid had induced symptoms of irritation in the cul-de-sac, and they had been accepted as malignant metastases. If it had not been for the routine practice of exploratory laparotomy in every case at von Winckel's clinic, this one would have been deemed inoperable as the diagnosis and hopeless prognosis were considered beyond all question.

64. **Medicolegal Points in Death from Drowning.**—Revenstorff epitomizes his article in the following statements: Hemolysis of the blood is one of the earliest macroscopic signs of putrefaction. It is not due to physical influences nor to autolytic processes, but rather to bacterial action. The blood in the portal vein shows this cadaveric hemolysis most; next comes the blood of the right heart and of the afferent vessels, while the left heart and the arterial system show the hemolysis least. If an anisotonic fluid makes its way into the capillaries or lung tissue and thus comes in contact with the blood corpuscles—provided that there is enough difference between the concentration of the fluid and that of the body fluid—the blood corpuscles involved become dissolved. This is what he calls "drowning hemolysis." This drowning hemolysis differs from the ordinary cadaver hemolysis by the fact that the serum of the left heart shows a higher degree of hemolysis than the serum of the right heart. Lung tissue juice, pleural transudate and pericardial fluid, if they do not contain any free hemoglobin, are free from admixture with the drowning medium. Edema caused by presence of water always has a serum containing hemoglobin. A colorless serum indicates true lung edema. The drowning hemolysis is a qualitative sign of death from drowning which is more delicately accurate than any other physical method of determining the presence of the drowning fluid in the blood. The lack of appearance of pigment in the contents of the portal vein, with the existence of drowning hemolysis in the blood of the heart, is a positive sign that the drowning fluid did not diffuse until after cessation of the movement of the blood in the heart.

Wiener klinische Rundschau, Vienna.
Last indexed page 750.

65 (XIX, No. 4.) Pre-Columbian Bones.—Ueber präkolumbische Knochenfunde im Hinblick auf die Frage über die Provenienz und das Alter der Syphilis. J. Neumann.
66 Beitrag zur Osophagoskopie der gutartigen Osophagusgeschwülste. L. Harmer.
67 *Mental Disturbances in Revival After Hanging.—Zur Kasuistik der Geistesstörungen bei Erhangten nach Wiederbelebung. B. Bayerl.
68 (No. 5.) Angina, Erythema exsudativum multiforme, Pleuritis exsudativa dextra. D. Epstein (Kiev).
69 (No. 6.) Thermo-elektrische Versuche zu diagnostischen Zwecken. W. Goebel.
70 Ueber einige seltene Fälle von Brustdrüsenerkrankungen (unusual cases of mammitis). B. Müller. (Concluded.)
71 (No. 8.) Das Manifest-Werden latenter Darm-Stenosen infolge Peritoneal Infektion. E. Fuchsig.
72 Ein Beitrag zur traumatischen Lungenhernie. Durlacher. (Concluded.)
73 (No. 9.) *Die neuen Erfahrungen und Fortschritte auf dem Gebiete der Pathologie der Wutkrankheit (rabies). E. Bertarelli (Turin).
74 Aneurysma der Aorta ascendens und Aneurysma der Arteria innominata mit Durchbruch in die Vena cava superior. C. Hödlmoser. (Concluded.)
75 Inhalation, ein wertvolles therapeutisches Hilfsmittel. A. Bulling (Reichenhall).
76 (No. 10.) Ueber disseminierte Fettgewebsnekrose der Bauchhöhle (fat tissue necrosis in abdomen). B. Müller.
77 (No. 12.) Neurologische Kasuistik. A. Fuchs. (Commenced in No. 10.)
78 *Influence of Cortex on Menstruation and Treatment of Menstrual Disturbances by Hypnotic Suggestion.—Der Einfluss zerebraler Momente auf die Menstruation, etc. H. Delius. (Commenced in No. 11.)

67. **Mental Disturbances After Revival from Hanging.**—A young man arrested for murder tried to commit suicide by hanging, but was revived. As the vital functions were restored the patient was found in acute mania, with dilated, non-reacting pupils, etc. This maniacal condition lasted for several days and gradually subsided. He never showed any evidences of mental disturbance before or after.

73. **Italian Researches on Rabies.**—Bertarelli reviews the work that has been done in Italy during the last two or three years on the etiology, diagnosis and treatment of rabies. He states that in more than a thousand tests, the Negri bodies were never found in animals that were free from rabies, as determined by inoculation of rabbits. On the other hand, they were always found in infected animals with only 3 exceptions, and in these only a part of the nervous system had been examined. These constant findings suggest that examination of the hippocampus major—their chosen site—will decide that the case is one of rabies in case of positive findings, while negative findings almost inevitably exclude the disease. It is wise, however, to make a supplementary test by inoculation of rabbits. Mere examination of the hippocampus major will be found sufficient in most cases, and will thus simplify the procedures in case of a suspected animal. The scraps of the hippocampus may be hardened in saturated sublimate solution or in absolute alcohol; the staining is best done by the Mann eosin-blue technic or by fixing the scraps in osmic acid, leaving them then for a few hours in alcohol. Sections can then be made by hand and may be tested at once in glycerin, or after treating with balsam, when the Negri bodies show up black at once. This simplified technic, dispensing with other staining and embedding in balsam, has proved very successful in practice at Turin. It is advisable to have a few scraps of the cerebellum and some ganglia ready in case of negative findings. Extensive research by numerous Italian investigators has established that it is impossible to produce these Negri bodies by any artificial measures, and that they are never observed in any condition except rabies. Volpino has presented evidence to show that these bodies contain each a central, basophile small body, which consists of two parts with different staining affinities. The saliva of rabies patients is sometimes virulent and sometimes not. Nitsch has tried to solve the question as to the harmlessness of "fixed virus" by injecting a certain amount subcutaneously into his own abdomen. Several months have since elapsed and he has shown no symptoms of any kind from this source. Valenti of Pavia has recently demonstrated that quinin is able to neutralize the virus of rabies in the test tube and also in the living subject, while no other alkaloid has displayed this property. This, Bertarelli remarks, confirms the assumption as to the protozoon nature of the Negri bodies and suggests new therapeutic possibilities. [The Negri bodies are described as being found usually inside the cells, but exceptionally outside. They consist of a fundamental, non-granulated substance, homogeneous, resembling coagulated albumin in appearance, with bright spaces which may be smaller bodies or merely vacuoles. Very rarely the bodies assume peculiar shapes, curved or long drawn out or fragmented. They react to an iodoiodid solution like the red corpuscles, but the smaller bodies or vacuoles take the stain fainter. These central dots respond with blue instead of red to the methylene blue-eosin stain. D'Amato reported extensive research on the Negri bodies in the *Riforma Medica* last year, Nos. 23 and 45, 1904. His results confirmed those of previous workers. Poor's work in this line was summarized in these columns, recently, page 1401.—ED.]

78. **Hypnosis in Treatment of Menstrual Disturbances.**—Delius writes from Hanover to report his successful experience in curing by suggestion painful menstruation or restoring the menses after long amenorrhea, or arresting excessive menstrual bleeding. He regards menstrual disturbances in general as an evidence of altered excitability of the brain cortex, inducing general nervousness, neurasthenia, hypochondria or hysteria, which manifest themselves in disturbances in the menstrual functions. The excessive or deficient discharge is governed by the same exaggerating or inhibiting influences that induce nervous diarrhea and nervous constipation. The pains are due to the centripetal stimuli which are too weak to cross the "stimulation threshold" in normal individuals. In the overexcitable cortex of the cases in question, these stimuli are perceived as painful sensations. He tabulates the particulars of 60 cases treated by application of hypnosis, which he regards as an excellent means to reduce the overexcitability of the cortex and to restore normal transmission of stimuli. The difference between waking suggestion and suggestion in the hypnotic sleep is only a question of degree; there is no qualitative difference between them. Every abnormal menstruation irritates anew the overexcited neuron in the cortex, and this reduces the "stimulation threshold" still lower each time.

Suggestion, re-enforced by encouraging and stimulating advice, will raise the stimulation threshold until the neuron no longer feels the stimulus, and thus gets a chance to recuperate, and soon its normal balance is restored. Among his patients was one woman of 32 who complained of uterine colic every fourteen days. A single hypnotic sitting cured the pain and restored the normal interval. Climacteric hemorrhage was also controlled in a single sitting in 2 instances. Only a single one of the 60 patients proved refractory to the suggestion. Amenorrhea for more than a year, with recurrence of pains each month, was promptly and permanently cured by a few sittings at the onset of the monthly period, repeated the second month. In one case a dysmenorrheic opera singer begged to have the menses advanced a few days to allow her to fill a certain engagement. In another case of nervous prostration the patient made the same request to enable her to start on a journey at a certain date. Suggestion in hypnotic sleep in each case produced the desired effect. The period recurred regularly and painlessly afterward. He found somnambulism in more than 41 per cent. of his 60 cases while in a series of cases of constipation it occurred in only 19 per cent. He ascribes this difference to the large numbers of anemic patients in the menstrual series. Chlorotic subjects generally respond with deeper sleep than others.

Russky Vratch, St. Petersburg.

Last indexed page 1235.

79 (III. No. 5.) *Acute Ileus in Connection with Gynecologic Affections.—Ob ostroe neprokhodimosti kishek s svyazi s zabolyevaniyami zhenskikh polovykh organov. G. T. Tzeidler.

80 *Saline Infusion in Treatment of Mental Disease.—Solevya vlivaniya v terapii dushevnykh bolyeznei. B. S. Greidenberg.

81 Electric Baths in Treatment of Cardiac Insufficiency.—O lyetchenii nedostatotchbosti serdetchnoi myshtzy posredstvom vann s 3-phazym sinusoidalym peremyennym tokom. A. A. Ekk.

82 (No. 6.) *Radical Treatment of Cancer of Uterus.—O korennom lyetchenii raka matki. V. N. Orloff.

83 (No. 7.) Fundamentals of Medicine and Tasks of Medical Societies in Russia.—Principialnya osnovy myshleniya v med., etc. A. D. Pavlovskii.

84 The Individualizing Method for Studying Laws of Growth in Human Body.—Individ. sposob pri izutchenii zakonov rosta, etc. A. O. Karnitzki.

85 Phagocytosis and Leucolysis After Injection of Virulent Streptococci into Abdominal Cavity.—O phagotzitoz i leukoliz pri vpryskivanii v briushniu polost virulentykh streptokokkov. F. V. Bukoemski.

86 (No. 8.) *Omentopexy in Ascites from Cirrhosis of Liver.—Operatziya Talm'y pri briushnoi vodyanki ot cirrhosa petcheni i resultaty eya. V. S. Kozlovski.

87 Sovremennoi sostoyanie utcheniya o rozovom shelushashtchemeya lishaye (pityriasis rosea Gibert'a). A. I. Lyanz (Moscow).

88 *Weight of Children in Case of Contracted Pelvis.—Vyes dyetei pri yazkom tazye. S. S. Kholmogoroff.

89 Mineral Mud in Caucasus Resorts. History and Special Features.—O gryazelyetchenii na Kaukazkikh mineralnykh vodakh. Ego istoriya i osobennosti. D. A. Parysheff.

90 (No. 9.) *O t. naz. "vozvrashtchayushtchikheya fibroidakh" matki (recurrent fibroids of uterus). V. S. Gruzdeff.

91 Experimental Study of Heart Muscle.—Ob okotchenyenii serdetchnoi myshtzy. A. N. Zimin.

92 (No. 10.) Fundamentals and Tasks of Operative Obstetrics.—Osnovy i zadatchi op. akusherstva. A. A. Anufrieff.

93 *Technic of Removal of Larynx Under Local Anesthesia.—K technikye vylushtcheniya gortani pod myestnym obezbolivaniem. R. R. Vreden.

94 Technic of Injecting Lymphatics for Specimens.—Sposoby inektzii lymph. sosudov. G. M. Iosiphoff.

95 Decidual Cells in Endometritis.—Detzidualnya klyetki pri endometritakh. F. N. Tabildaroff.

96 Lymphosarcoma in Retroperitoneal Glands in Boy of 3.—Melkoklyetotchkovaya sarcoma zabriushinny zhelez u 3-lyetnei dyevotchki. P. Y. Korolkoff.

97 K biologii trypanosom. V. L. Yakimoff. (Concluded.)

79. **Acute Ileus in Connection with Gynecologic Affections.**—Tzeidler says that 16 or exactly one-fourth of his cases of acute ileus in women presented evidences of pathologic changes in the genitalia, and describes them in detail. He operates at once in these conditions as laparotomy in acute ileus is a comparatively harmless intervention and is borne well by the patient. All but 32 per cent. of his patients recovered; in ileus from other causes the mortality averaged nearly 52 per cent. In 3 of his 5 fatal cases death was due to the progress of a malignant tumor, and in the others to peritonitis.

80. **Saline Infusion in Treatment of Mental Affections.**—Greidenberg advocates subcutaneous injection of physiologic salt solution as a powerfully efficient aid in the treatment of brain troubles. It seems to quiet the psychomotor centers, promote sleep and appetite, and in many cases may be advantageously substituted for the warm bath. The indications for it are psychomotor restlessness, with resulting insomnia and refusal to eat. The patients take the injections without any special resistance. He has thus treated 36 patients; all but 7 were women. The psychosis was acute insanity, generally of a maniacal character, in 10 cases, 4 men and 6 women; periodical and circular psychosis in 8 women; premature weakmindedness in 8 women; mania and melancholia in 2 women each; paralytic dementia in 2 men, catatonia in 1 man and in 2 women, and primary insanity in 1 woman. Each patient received about 5 or 6 injections, the maximum being 15 in a single case. The dose was 250 c.c., gradually increasing to a maximum of 1,500 c.c. The injections were made very slowly, from twenty-five to fifty minutes being devoted to each injection. The patient was placed on a low couch, about 21 inches above the floor, and the injection was generally made in the abdomen. The stimulating effect was evident in some cases after an hour or so, in others not until after three or four hours. The tranquillizing effect in many cases after injection of from 1,000 to 1,200 c.c. was as marked as after a warm bath.

82. **Experiences with Cancer of the Uterus.**—Orloff has operated on 190 patients on account of cancer of the uterus. There has been no recurrence in 23 to date, now three years since the operation, in 9 after five years and in 4 after ten to eleven years, and they all declare that they are perfectly well.

86. **Omentopexy in Case of Ascites with Cirrhosis of Liver.**—Kozlovsky describes the technic of omentopexy as he has performed the operation on 8 patients. He groups and tabulates 168 cases from the literature. In the first group of 51 cases the liver was enlarged; more than 50 per cent. were cured or improved (16 cured and 10 improved). In the second group of 69 cases with atrophic liver, over 42 per cent. were improved (18 cured and 11 improved). In the group of 48 cases in which the liver was of normal size, more than 47 per cent. were improved (14 cured and 9 improved). This gives a total of 78 improved, 7 in which the issue was unknown and 83 in which no improvement was realized. The earlier the operation is undertaken the better the prospects, and especially when the liver is in the phase of hypertrophy.

88. **Weight of Children in Case of Contracted Pelvis.**—The records of deliveries at the Moscow maternity show that the children born in cases of contracted pelvis averaged less in weight and were shorter than the children born of a mother with a normal pelvis. The proportion of boys was larger than under normal conditions. The pelves with a conjugate diameter of 18 cm. or less and a diagonal conjugate of 12 cm. or less are regarded as under normal size; they formed 14.47 per cent. of the total. The second and third children always weighed more than the first one.

90. **Case of Recurrent Fibroids.**—Gruzdeff's patient was a woman of 44. Another fibroid rapidly developed two or three months after removal of the first, and a third after removal of the second. Hysterectomy was then done, but palpation disclosed not long after seven enlarged lymph glands in the abdomen, some as large as an apple. They were removed by a second laparotomy, and the microscope showed them to be sarcomatous. The patient succumbed in a few months to recurrence.

93. **Extirpation of Larynx Under Local Anesthesia.**—Vreden describes his successful removal of the cancerous larynx in a man of 51, under local anesthesia. He performed the operation by Billroth's technic, and used a dozen syringefuls of a 1 per cent. solution of cocain. The patient recovered rapidly from the operation, and was exhibited in fine condition at the national medical congress a few months later. By avoiding general anesthesia Vreden hoped to prevent the postoperative pneumonia which it favors.

Hygiea, Stockholm.

Last indexed page 916.

98 (LXVII. No. 1.) *Measles and Diphtheria.—Morbilli och difteri. T. Hellström.

99 Difteri-bacillens tenacitet vid olika temperatur. A. Alfven.

100 *Radiography of Kidney Stones.—Njursten diagnosticerad medels Röntgenfotograf. T. Stenbeck.

101 *Technic of Publishing Medical Reports.—Nagra ord om sättet att publicera med. afhandlingar. C. G. Santesson.

102 (No. 2.) Experiences with Radical Operation in Chronic Suppurative Otitis Media.—Erfarenheter om den s. k. radikalop. vid kronisk varig otitis media. K. Dahlgren.
103 Om serum-terapiens inflytande pa mortaliteten i difteri och strypsjuka i Göteborg. H. Wennerberg.
104 Behandling of kancer med Röntgen-bestralning. I. Bagge.

98. **Measles and Diphtheria.**—Hellström has had occasion to observe 112 cases of measles as a complication of diphtheria, and 117 cases of diphtheria as a complication of measles, during the last ten years at the Stockholm Hospital. In the first group, when the diphtheria was complicated by croup, only 37 recovered and 61 died, while in the 14 cases without croup all the patients recovered but 1. Forty of these deaths were in children under 3. The mortality in the measles-croup cases was 62.24 per cent., while it was only 27.3 per cent. in the cases of uncomplicated croup. The mortality in the 117 cases of measles after diphtheria was only 8. About 91 per cent. of the patients in this group were under 6, and 81 per cent. of those in the first group. In 21 of the patients the diphtheria before the onset of the measles had been of the croup variety. The respiratory organs did not seem to be more seriously affected in these cases than in those without preceding diphtheria. Only one child exhibited a complicating pleuritis later. Since the introduction of serum treatment the mortality of measles-croup has been reduced by nearly 18 per cent., and most of the deaths occurred in cases not seen until almost moribund. The literature on the subject is analyzed, and the necessity for early recognition of the complicating diphtheria is emphasized. When this possibility is borne constantly in mind and serum treatment is instituted in time, the outcome will be far better than at present.

100. **Roentgen Pictures of Kidney Stones.**—A fine radiogram is given of two large oxalate stones in the kidney of a young woman of 21. For comparison, an ordinary photograph is then shown of a group of kidney stones on a card, with those removed from the patient in the center, and a Roentgen picture of the same group. The latter picture is identical with the aspect of the stones in the radiogram of the living subject. The symptoms had been puzzling during the year preceding the detection of the stones in the kidney with the Roentgen rays, but the patient was soon restored to health on their removal through a lumbar incision.

101. **Brevity in Medical Articles.**—This is considered editorially.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

WHARTON AND STILLE'S MEDICAL JURISPRUDENCE. Vol. I. Mental Unsoundness. Legal Questions. By Frank H. Bowlby of the Publishers' Editorial Staff. Insanity: Forms and Medicolegal Relations. By James Hendrie Lloyd, A.M., M.D., Neurologist to the Philadelphia Hospital. Vol. III. Physical Conditions and Treatment. Medical Aspects by Truman Abbe, A.B. (Harvard), M.D. (Col.), Assistant to the Professor of Surgery and to Professor of Physiology at the Georgetown University Medical School. Legal Aspects. By Frank H. Bowlby of the Publishers' Editorial Staff. Fifth Edition. Cloth. Pp. 1031 and 692, respectively. Price, $18.00 net, in three volumes. Rochester, N. Y.: The Lawyers' Co-operative Publishing Company. 1905.

THE DETECTION OF POISONS AND STRONG DRUGS, Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials. By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg. Authorized Translations from the Third Enlarged German Edition. By William H. Warren, Ph.D., Professor of Chemistry, Medical Department of Washington University, St. Louis, Mo. Seventeen Illustrations. Cloth. Pp. 222. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

APPENDICITIS. Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technic of Operation, Complications and Sequels. By John B. Deaver, M.D., Surgeon-in-Chief to the German Hospital, Philadelphia. Third Edition, Thoroughly Revised and Enlarged. Containing 64 Full-Page Plates, 8 of Which Are Colored. Cloth. Pp. 492. Price, $7.00. Philadelphia: P. Blakiston's Son & Co. 1905.

FOOD PRESERVATIONS. Their Advantages and Proper Use. The Practical Versus the Theoretical Side of the Pure Food Problem. By R. G. Eccles, M.D., Ph.D., Fellow of the American Association for the Advancement of Science, with an Introduction by E. W. Duckwall, M.S., Member of Society of American Bacteriologists. Paper. Pp. 202. Price, 50c. New York: D. Van Nostrand Co. 1905.

AN INTRODUCTION TO CHEMICAL ANALYSIS, for Students of Medicine, Pharmacy and Dentistry. By Elbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology and Head of the Department of Chemistry in the University of Iowa. Second Revised Edition. Illustrated. Cloth. Pp. 255. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

POISONOUS PLANTS OF ALL COUNTRIES, with the Active Chemical Principles Which They Contain; and the Toxic Symptoms Produced by Each Group. By A. Bernhard Smith, Late Acting House Surgeon to Lord Lister, King's College Hospital, London. Pasteboard. Price, 2/6 net. Bristol: John Wright & Co. 1905.

AN INTRODUCTION TO DERMATOLOGY. By Norman Walker, M.D., Fellow of the Royal College of Physicians of Edinburgh. With 49 Full-Page Plates and 50 Illustrations in the Text. Third Edition, Revised and Enlarged. Cloth. Pp. 285. Price, $3.00 net. New York: William Wood & Co. 1905.

THE CONJUNCTIVA IN HEALTH AND DISEASE, Being a Record of Some Research Work. By N. Bishop Harman, M.A., M.B., Cantab. F.R.C.S., Eng., Ophthalmic Surgeon to the Belgrave Hospital for Children. Cloth. Pp. 276. Price, $2.50 net. New York: William Wood & Co. 1905.

JUGGERNAUT, Christian Science Exposed. By W. H. Watson, with 243 Illustrations by the Author. Printed in English, German and French. Cloth. Pp. 69. Price, $1.00. Davenport, Iowa: Investigation Committee, Publishers. 1905.

VACCINE VIRUS: METHOD OF PREPARATION AT THE SERUM LABORATORY. Department of the Interior. Bureau of Government Laboratories, Serum Laboratory. By Paul G. Woolley, M.D. Paper. Manila: Bureau of Public Printing. 1904.

INFORMATION CONCERNING THE MILCH GOATS, U. S. Department of Agriculture, Bureau of Animal Industry—Bulletin No. 68. By George Fayette Thompson, M.S. Paper. Pp. 82. Washington: Government Printing Office. 1905.

EIGHTEENTH BIENNIAL REPORT of the Trustees, Superintendent and Treasurer of the Illinois Northern Hospital for the Insane at Elgin. July 1, 1904. Paper. Pp. 72. Springfield, Ill.: Phillips Bros., State Printers. 1904.

THIRTY-FIRST ANNUAL REPORT OF THE MEDICAL DIRECTOR OF THE CINCINNATI SANITARIUM for the Year Ending November 30, 1904. Paper. Pp. 10. Cincinnati: The Pounsford Sta. Co. 1904.

TWENTY-FOURTH ANNUAL MEETING of the Hamot Hospital Association, with Reports of Managers and Officers. 1904. Paper. Pp. 65. Erie, Pa.: Herald Printing & Publishing Co. 1905.

MERCK'S 1905 MANUAL of the Materia Medica. A Ready-Reference Pocket Book for the Physician and Surgeon. Cloth. Pp. 282. New York: Merck & Co. 1905.

MONTHLY CONSULAR REPORTS. January and February, 1905. Paper. Pp. 324 and 259, respectively. Washington: Government Printing Office. 1905.

REPORT OF ST. JOSEPH'S HOSPITAL of Baltimore, Md., for the Year 1904. Paper. Pp. 32. Baltimore: Thomas & Evans Printing Co. 1905.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume XII. Paper. Pp. 548. Baltimore: The Johns Hopkins Press. 1904.

ANNUAL REPORT of St. Anthony's Hospital, Denver, Colo., for the year ending 1904. Paper. Pp. 32.

DEPARTMENT OF COMMERCE AND LABOR, Bureau of Statistics, Nos. 292-3.

NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

785692 Vaporizer, George H. Bell, Brooklyn.
785402 Machinery for the manufacture of medicines, James F. Buckley, Dartford, England.
785354 Sterilizer, Horace N. Fowler, Philadelphia.
785635 Instrument for shaking down the mercurial columns in clinical thermometers, Jens Peterson, Tacoma, Wash.
785639 Body stretcher, Wm. W. Seidler, Bowie, Texas.
785524 Surgical saline-infusion apparatus, John J. Shea, Beverly, Mass.
785638 Hot-water bottle, Amos J. Scritchfield, Janesville, Wis.
785185 Apparatus for handling sewage and clarifying septic matter, Fred P. Smith, New York.
785391 Massage steamer, John P. Weis, Nyack, N. Y.
785855 Invalid lifter, Henry P. Camp, Maysville, Ga.
786004 Preparing dressings for bandages, Max Cohn, Berlin, Germany.
786112 Inhaler, Milton D. Good, Kansas City, Mo.
786136 Catamenial bandage, Emma C. Morrison, New York.
785769 Apparatus for purifying septic matter and manipulating sewage, Fred P. Smith, New York.
785838 Manufacture of sanitary antiseptic mats, John P. Sutor, Scarsdale, N. Y.
786717 Clinical thermometer case, Oscar G. Bell and R. C. Stofer, Norwich, N. Y.
786722 Surgical appliance, Andrew Breslin and J. Lees, Summithill, Pa.
786358 Vaccine case and holder, Elijah M. Houghton, Detroit, Mich.
786457 Speculum, Frank McGinnis, Higginsville, Mo.
786453 Inhaling compound for firemen's use, Wm. M. Mitchell, Louisville, Ky.
786529 Device for applying remedies, Desiderius A. Stapler, San Francisco.
786697 Syringe, Frederick Wackenhuth, New York.
787083 Ophthalmoscope, Henry L. De Zeng, Philadelphia.
787162 Invalid-bedstead, Wm. C. Feely, New York.
787167 Respirator, Wm. G. Gates, Fort Benton, Mont.
787168 Movement-cure apparatus, Marion E. Gibson, Columbus, Ohio.
787170 Instrument for rendering visible the luminous effects produced by radio-active substances, Frederick H. Glew, London, England.
786892 Capsule cutter, Ernst Happe, Hamburg, Germany.
786819 Sterilizing milk or other fluids, Corstiaan de Jong, Huize Snippeschrik Amstelveensche Weg, near Amsterdam, Netherlands.
786921 Crutch, Arthur L. Smith, Auburn, N. Y.
787250 Artificial leg, Chester B. Winn, Buffalo, N. Y.

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Address

THE THERAPEUTIC ART.*

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NEW HAVEN, CONN.

Many societies of internal medicine and many prominent clinicians believe therapeutics to be such an integral part of practice as not to require separate consideration or special study. We naturally take strong and positive exception to this belief, and it is my purpose to present the reason for the inauguration of special societies to discuss and to study this neglected branch of medicine.

The definition of therapeutics involves everything of importance to the patient. All the scientific physiology, etiology, and pathology of the world is of no use to him without their final practical application through the knowledge of therapeutics. I may illustrate this point by the following diagram:

Etiology produces Physiology is disturbed by The Pathology is the result of The Symptoms are indications of	The Disease=Treatment to	Stop the Etiology. Help the Physiology. Remove the Pathology. Ameliorate the Symptoms.

It is inane to say to this audience or to the profession that the patient cares nothing for what the physician calls the disease or how he arrives at his decision and diagnosis. To the patient it is only important whether or not the physician can aid in curing his disease and in relieving him of troublesome and imperative symptoms.

I do not think anyone will accuse me of an undue belief in symptomatic treatment, as each and every clinician well knows that it is only the consultant who can ignore the treatment of troublesome symptoms. All successful quackeries succeed because of their ability to relieve symptoms or to cause such mental suggestion as will relieve overtaxed minds, and many a loyal patient is driven to employ quackery by scientific neglect.

It is unnecessary to trace the study of therapeutics from the time of the votive tablets in the temples of the Asclepiadæ to the patriarch Hippocrates, through the anatomists Erasistratus and Herophilus, to the clinicians Celsus and Galen, through the Arabian Avicenna, back to Europe and the wonderful school of Salerno, then to England and Scotland, with their many "isms" and "methods," with the greatest brilliancy in Edinburgh, back to Germany to the practical chemical mystic Paracelsus, through the plodding Hoffmann and brilliant Stahl, to the wonderful Boerhaave, all illuminated by the grand anatomic studies presented by such men as Versalius, Fabricius, Eustachius, Fallopius, Bartholini, Varolius, Sylvius, and the illustrious Malpighi and Morgagni, aided by Cowper, Haver, Glisson, Reil, Harvey, and Brüner, through ever-increasing brilliant French surgery, back to solid English medicine represented by Sydenham, the Hunters, Bright, and the Irishmen Graves and Stokes; again to France for histology, and later to Bouchart, and still later to Pasteur; then to Germany for solidity of pathology, von Recklinghausen, Valdeyer and Virchow, the acme of bacteriology and neglect of therapy, to America for the grand association of all medical knowledge massed together in electric brilliancy, dimmed in places by the worst quackery the world has ever known, flashing in some places by wonderful scientific acumen, sputtering in others by gallery displays, ever urged on by American enterprise, smudged at times by overbearing egotism and self-aggrandizement, but ever advancing in ever-widening brilliancy, with here and there an arc light. All for what? For the advance of the prevention, treatment, and amelioration of disease, i. e., *therapeutics*.

Until recent years the treatment of disease was the most studied branch of medicine. It was first surrounded by mysticism of all kinds, but embodied, even in earlier times, management as well as the actual giving of drugs. All good results, however, were accredited to the ingested or applied remedy, and, like the "lack of sufficient faith" plea of the Christian Scientists for their unsuccessful cases, failure to cure in these times was ascribed to the special devil or special devilishness of the disease. Leaving this period of amulets, talismans, and elaborate mixtures of almost everything available, and the wonderful panaceas and cures by all kinds of mental impression, through the chemical age to the age of wonderful cures by multitudinous dilutions of nothing, and its wonderful success on the mind, we come to Majendi, the Nestor of physiologic investigation of drugs and to scientific medication.

The educated physician of to-day, thanks to the physiologists, the pathologists, the bacteriologists, and the pharmacologists, rarely speaks of "curing," but constantly of "managing" a disease. He leaves the word cure for practitioners of a dogma, for quacks and for nostrum venders. The management of a disease means the care of the diet, hygiene, climate, water, electricity if indicated, and the necessary drugs, and altogether it means "therapeutics."

The subject of therapeutics is the hardest of the practical subjects to master, and it is safe to say that the young graduate in medicine, even after a hospital course, is less prepared in the bedside management of disease than in any other branch of medicine. Hence, each medical school should have a special chair of

* President's address at the annual meeting of the American Therapeutic Society held in Philadelphia, 1905.

therapeutics held by a clinical man, a specialist in internal medicine. It has been demonstrated that the professor of practice can not spend the necessary amount of time on therapeutics, as his time is completely filled with applied pathology, symptomatology, diagnosis, and the demonstration of signs of disease at the hospital bedside or in the dispensary clinic. In these hospital and dispensary cases, the treatment necessarily is much restricted to general routine and to formulary preparations; the patient is not individualized, and other therapeutic measures are not often available, especially in dispensary cases. The students rarely learn in this manner fine individualized scientific therapy for private practice. In the hospital, the diet, bathing, electricity, massage, drugs and preparations are always given and used according to some one rule which can not well be varied in these institutions to suit an individual taste or need. The graduate, and even the postgraduate, thus starts to practice medicine in his own office very narrowly equipped therapeutically. He has no resources if his first dogmatic treatment has failed or has not been suited to the patient. It may be contended that he then can read up his therapeutics. Yes, but everyone knows how unsatisfactory that is.

Many, indeed most, books on materia medica contain whole individual theses on each drug, and the reader is convinced after reading one of these articles that that particular drug is the most important one in the pharmacopeia and that it is good for everything. He reads up the next drug, and lo! he finds that drug to do the same, and that Dr. So-and-so of European prominence has found it of wonderful value in this very disease concerning which the reader is seeking information. But neither the European referee nor the author of the materia medica tells how this drug should be administered in this condition, the dose, the frequency, or the preparation to be used. The reader then looks for the preparations of the drug and selects the tincture with a dose ranging from five to thirty drops, too indefinite to be of value, for who shall say that he can not give more to obtain results? Then he re-reads the pharmacologic action to see what is the first symptom to show that the drug has reached its safe limit of use, and behold, the book does not tell what action to look for first. Then he looks through several books to find how the tincture will taste, and learns that it is intensely bitter and acrid. He also refers to the pharmacopeia to ascertain with what it is incompatible while seeking some way to make it palatable. He then bethinks himself of the dispensatory, which tells him that the drug is rarely now used. He then reads two or three books on practice on this disease which he is now studying, and finds his most trusted author tells him this drug was lauded by the European referee some years ago, but that in his hands it has failed utterly. The young physician then goes to his druggist and asks for some of this particular tincture, and the druggist says that he can not remember when he had a call for it, but thinks it may be somewhere on a top shelf. He finds it, blows the dust from the bottle, and then the question is, how can it best be given? The druggist says it is very incompatible and can only be diluted in a certain manner. This is discussed, the prescription written, memorized, and later written at the patient's house and the family is told to have it filled at this particular druggist's, "as others may not have it." The next day the patient says, "Doctor, that new medicine ought to do some good, as it is positively the worst stuff you have ever given me."

Is it any wonder that the young educated practitioner as well as the uneducated one listens to the dulcet tones of the pharmaceutical drummer? The pharmaceutical visitor presents "something new, palatable, it will not interfere with digestion, does not dissolve until it gets into the intestine, has replaced the old depressant, is used by such good men as Dr. X, Dr. Y, and Dr. Z, is all ready for administration, can be ordered in such quantities as you desire, its dose is so much, its only limit in administration would be such a symptom, and it is almost a specific for that disease (the very one the young physician is investigating), and here is the sample."

It is not because each and every practitioner desires to put gain into some pharmaceutical firm's pocket, it is not because each druggist wishes to load his shelves with pharmaceutical and patented preparations that these firms and their preparations are constantly multiplying, but because not enough time is spent in the study of therapeutics in the undergraduate and postgraduate medical schools.

Now, how can this be remedied? As before stated, by a special chair of therapeutics, and the holder of the chair should be well versed in the science of pharmacology, but not necessarily in the laboratory side of it. In fact, the department of laboratory pharmacology should be taught by a purely scientific man and the therapeutic application by a purely practical man, though these two courses should be so interwoven as to constitute one department, a sort of factory of the crude material to the finished product.

Good therapeutics is to the thoroughly equipped physician what the armament is to a war vessel. With the best of methods some students will graduate as protected cruisers only, others as armored cruisers, and others as fully armed battleships, depending on the plan on which the model is made and on the material used in the early construction, but a well-equipped medical school should be able to produce the best medical battleships even if monitors or torpedo boats only are often ordered.

There are various methods of beginning and of completing the therapeutic armament of the medical student, and I will present one which, of course, can be improved on as the plant grows.

An experimental pharmacologic laboratory course should begin early in the second year, after anatomy, histology, physiology and chemistry have been nearly, or quite, mastered. This course should consist of experiments on animals with the most important drugs that are representative of certain pharmacologic actions, such as digitalis for the cardiac tonic group, atropin for the belladonna group, alcohol for the stimulant-excitant group, strychnin for spinal excitant action, chloral for depressant action, ether, chloroform, curare, cocain, pilocarpin, suprarenal extract, ergot, and perhaps others, each graphically demonstrating positive actions on organs, secretions, and nerve functions.

At these experiments, the students should be divided into groups of four or five, each group in turn to be active assistants at the experiments. One student should take notes of conditions as dictated by the instructor, and all should carefully later describe the experiment in their notebooks. At the end of the year these notebooks should be handed to the instructor for his criticism, and the attendance at these experiments

and the thoroughness of the written picture should count as a component part of the student's preparation or non-preparation for advance to the third, or junior, year. During this year the students are quizzed on these laboratory experiments.

In the latter half of this second year, a series of twenty-five lectures are given on toxicology. These are largely experimental demonstrations of the effects of poisons on animals and of the controlling power of antidotes, with also graphic demonstrations of poisonous and non-poisonous doses of strong drugs, and what is meant by tolerance. Many medicolegal aspects of poisons which may be of value to the medical man are not only discussed but demonstrated. Notebooks describing these experiments must be kept by the students, and must be handed to the instructor for criticism and marking.

In the last third of this second year, a series of twelve laboratory lectures on pharmacy are given. At these lectures a type of each of the pharmacopeial groups is prepared, and all the various methods of administering drugs are described; also, the meaning of chemical and pharmacal incompatibility is demonstrated. Quizzes follow, and the students must take notes and hand in their notebooks to the instructor for criticism. It has been demonstrated to my satisfaction that this method, combined with what follows, is better for the medical student than a bench pharmacy course.

As soon as this pharmacy course is completed, the introduction to materia medica and prescription writing is begun. Pharmacopeial preparations are discussed, with the advantages of each, and the general rules for doses and dosage are studied. It is taught that no dose is too small to administer if the physician so desires, and the only maximum dose is when the desired physiologic action has been obtained. Hence, to this end the doses of all pharmacopeial classes are put down as that from which some slight non-poisonous but positive effect is to be expected. All preparations are divided into weak and strong, then subdivided into poisonous and non-poisonous, and the doses are thus not difficult to remember. For instance, the tincture of digitalis is a strong preparation of a poisonous drug, and the dose must be a few drops.

Next, the crude drugs are demonstrated in therapeutic classes, in my opinion the only classification of value to the student. I do not believe in chemical, physiologic, atomic, alkaloidal, or any other scientific classification, as they are of no practical use to the practitioner and are remembered only long enough to pass an examination. A classification of drugs is almost hopeless by any method, and is not attempted by some authors, who name them alphabetically. I believe, however, that some classification is advisable, and that which will be of use to the future physician is the best, viz., a therapeutic classification, in which all the drugs that are used to produce a certain therapeutic result are grouped together. For instance, if digitalis does not act well, the young practitioner will immediately remember strophanthus, cactus, convallaria, sparteïn, caffein, etc. Idiosyncrasy and tolerance are carefully discussed, and prescription writing is begun by personal blackboard instruction, the class benefiting by the corrected individual mistakes.

At the end of this second year a written examination is held, including questions on all materia medica and pharmacologic work done during the year. If the student passes, he enters on his third year in medicine, not a therapeutic nihilist, but well understanding the potency of drugs and able and willing, therefore, to use them with respect.

During the summer vacation, before the beginning of the third year, each student is required to spend fifty hours in the prescription department of some drug store. He thus acquires a definite idea of the appearance, weight, and cost of the various drugs and preparations, learns how to make pills, capsules, ointments, tinctures, etc., and becomes a witness of incompatibilities and incorrect dosage. He sees how readily the druggist can determine whether or not a physician has made a diagnosis, and what is meant by the "gunshot" prescription of the groping physician and the polypharmacy of the physician ignorant of therapy.

At the beginning of the third or junior year the student comes to the study of detailed pharmacology, or the physiologic action of drugs, well prepared and better equipped than most of us were when we graduated. He now, three hours a week for two-thirds of this year, has recitations and explanatory talks on a pharmacologic text-book that gives the physiologic action in groups, i. e., describes in detail the most important drugs, and hangs the other drugs of this class on this hook, briefly stating slight differences in action and use. A materia medica that gives a thesis on each and every drug is not a good one for teaching purposes, though it may be very valuable for reference.

The last third of this year is devoted to lectures on hypodermic medication, rectal injections, transfusions, inunctions, inhalations, plasters, wet dressings, hot and cold applications, hydrotherapy, electricity, massage, organic extracts, diet, climatology, mineral springs, etc. During all this year blackboard work on prescription writing is continued daily. Chemical, pharmacal, and physiologic incompatibilities, mistakes in dosage, polypharmacy, bad treatment and bad Latin are weekly demonstrated by clipped prescriptions from the formulary department of some of our best medical journals. These are written on the blackboard and the students are asked to criticise them. Students so instructed will never depend on the formulary of journals for their therapy.

Toward the end of this year, lectures are given on the history of medicine from the earliest times to the present day, the advance of scientific therapy being specially noted. These students, if they pass their written examination at the end of the year, are then ready for instruction in the applied therapy of the fourth or senior year.

The study of therapeutics of this fourth year is continued by lectures on the management of the various diseases. In these lectures the physiology of the part affected is reviewed, the pathology of the disease is briefly recalled, the symptomatology is referred to as indicative of the degree to which the pathology has advanced and of the amount of the disturbance of the physiology. The etiology is then discussed, and the decks are cleared for the proper understanding of the therapy, namely, to remove the cause of the disease if possible, to correct, or at least not to interfere with, physiology, to remove if possible the pathology, to keep up nutrition, to assist elimination and other normal functions, to give a specific if there is such, to remove or to ameliorate troublesome symptoms, if possible by non-medicinal methods, but if must be with such drugs as by their physiologic action best combat the symptoms.

If drugs are advised, the best preparations, the best method of administration, and the beginning doses are carefully pointed out. It is also emphasized that if a dangerous condition can perhaps be overcome by a strong drug used fearlessly but thoughtfully, it should be used, as a surgeon uses his knife, to save, if possible, a desperate case. The management of convalescence and of incurable diseases is carefully mapped out.

Throughout this senior year two clinical lectures a week are given at which the symptoms and signs of disease are carefully noted and written down, and the most rational possible treatment then given. The patient, on his return to the clinic a week later, is particularly questioned as to each detail of his previous history, and the results of the treatment are written down opposite the treatment given on his previous visit. This graphically shows the mistakes in diagnosis, mistakes in judgment, in the choice of drugs, dose, or management, as well as the success of treatment. Also, reference to the probable prognosis written down at the first visit shows how much was expected of the treatment. The senior students all through this year act as clinical assistants in the dispensary, taking histories and writing prescriptions under dictation.

At the end of this year, after passing a written examination on therapeutics, it would seem that the graduate should know something of this subject.

All this instruction should be under the management of the professor of materia medica and therapeutics, and thus all can be amalgamated into one progressive homogeneous course.

That this ability to practice the art of therapeutics as we understand it need not be lost after graduation, hospitals should more especially individualize their medical cases and should avoid the use of cut-and-dried formulas as much as possible.

Hospitals are preventing the establishment of the metric system almost as fast as the medical schools are inaugurating it. They should use the easy decimal system; translations from one system to the other are hopeless.

Postgraduate schools are more and more meeting the demand of their students that more time be spent on therapeutics, and hence we need not urge them to emphasize this branch of medical need.

Lastly, the therapeutic societies have come to stay, and the greater the number established the more rapid the advance in this neglected science. It is absurd for societies and sections devoted to the practice of medicine to declare that therapeutics is a branch and part of medicine. No one denies it, but for the last twenty years it has been a neglected part, and it should now be given special study and special discussion. Where would the practical societies stand without the work of the pathologists? On the other hand, how helpless would the trained diagnostician be, how would the patient fare, without the work of the pharmacologist and the study of rational therapy? Societies devoted to the study of therapeutics will do much to prevent the phrase "how do you treat pneumonia?" and abolish the ridiculous, often absurd, often dangerous advice given in the medieval formulary departments of our medical journals. Some of the worst errors in prescriptions are copied from journal to journal because some man of renown was supposed to have some time recommended that particular prescription, though he may not be guilty of the mistakes in it.

Original Articles

THE THERAPEUTIC USE OF X-RAYS.

THREE YEARS AFTER.*

WILLIAM ALLEN PUSEY, A.M., M.D.
CHICAGO.

In March, 1900,[1] in November, 1900,[2] and in February, 1902,[3] I read papers before this society on the therapeutic use of *x*-rays. The first paper was a consideration of their use in skin diseases; the second, a report and a demonstration of lupus successfully treated with *x*-rays; the third, a report and a demonstration of a number of cases of various kinds showing the results of exposures to *x*-rays. The cases reported included lupus, epithelioma, senile keratosis, recurrent carcinoma of the breast, deep-seated carcinoma of the head and neck, sarcoma, keloid, pseudoleukemia and leukemia. In another report[4] the use of this agent in various forms of dermatoses was considered. Three years now have passed since the last of these reports, and I venture to hope that it will not be unprofitable nor without interest to review the subject and to undertake to estimate from the results the therapeutic limitations and possibilities of this agent. I fear this paper will appear unduly personal, since I am only undertaking to review my own experience, but for this I offer the apology that one's personal experience is that which he can best review. I hope it will not seem that I am overlooking the work of the many men who have made valuable contributions to the subjects on which I am giving my own experience.

So far as the use of *x*-rays in cutaneous diseases is concerned, that can be quickly summarized, for there is pretty general unanimity in the experience of dermatologists.

HYPERTRICHOSIS.

The use of the *x*-rays for the permanent removal of hair has not equaled my early expectations. In my experience I should say that they have given satisfactory results in about 50 per cent. of the cases treated, but to get these results has required long and painstaking treatment, and in some cases even this has failed. This application is so beset with difficulties that I do not undertake it unless the conditions are very urgent. Hypertrichosis is the one condition in which my experience with *x*-rays has been less satisfactory than I anticipated.

SYCOSIS AND TINEA.

In sycosis and tinea sycosis the results with *x*-rays are exceedingly satisfactory and in some intractable cases they give results that are obtainable by no other method. The results are permanent. Some of my cases have been well more than three years.

ACNE.

In my experience acne offers one of the best illustrations of the value of *x*-rays. It is little short of marvelous to see the improvement produced in most obstinate acnes from careful *x*-ray exposures. I have treated a large number of acnes by *x*-rays, and the results in most cases have been good. I have occasionally had results that were not completely successful, even after long-

* Read before Chicago Medical Society.
1. Journal of Cut. and Genito-Urinary Dis., July, 1900.
2. THE JOURNAL A. M. A., Dec. 8, 1900.
3. Ibid., April 12, 1902.
4. American Dermatological Association, May 31, 1901.

continued treatment, these partial failures being attributable, I believe, to failure to get enough *x*-ray effect, but I believe I can say that I have never failed to see an improvement take place after a reasonably long period of treatment, and in many cases I have seen results which no other method can approximate.

As to the permanency of the results, the patient may occasionally have the recurrence of a lesion, but in some cases not even this has taken place. When relapses have occurred, they have shown themselves easily amenable to treatment. The results are attributable, I believe, chiefly to the decrease in the activity and size of the sebaceous glands produced by the *x*-rays. In these cases of acne, the gaping follicles decrease in size, comedones disappear, oiliness is diminished, and the appearance and texture of the skin are greatly improved. In many cases the improvement is quite remarkable.

Of course, the application of *x*-rays for acne has to be carried out with great care, and it should not be undertaken until the operator knows with reasonable assurance the *x*-ray effect he is going to produce by his exposures. The objection to this method is that, if one proceeds safely, the treatment extends over a considerable period of time, perhaps several months. Unfavorable after-effects on the skin, which have been urged as a possible danger here, I have not seen, and I believe the treatment can be carried out without any danger, immediate or remote.

The favorable results in acne I have seen in all types of the disease; in simple juvenile acnes in healthy subjects and in the most deep-seated indurated acnes in patients who are out of health. Of course, the method has its greatest usefulness in the deep-seated, severe and otherwise intractable cases of acne indurata.

ROSACEA.

In rosacea the results have been quite as satisfactory as in acne. Not only can the folliculitis be controlled, but in some of my cases I have been surprised to see the nose become of normal color and contour again; and, what was more surprising, dilated blood vessels disappear. These cases show only a very slight tendency to relapse; in some cases that I have had under long observation and treatment the results have been permanent. I had one case of as ugly rosacea as one often meets, which has been practically well for three years, and without any treatment has not had a relapse in the last two years.

HYPERIDROSIS.

From the effect of *x*-rays on the appendages of the skin I suggested[4] the theoretical possibility of the value of *x*-rays in the treatment of excessive localized sweating. The value of the agent in this connection has been confirmed by the experience of several operators.

INFLAMMATORY DERMATOSES.

The use of *x*-rays in chronic inflammatory dermatoses has proved of much value. In chronic indurated eczema, my experience, like that of numerous others, testifies to their value. They have been particularly useful in the chronic intractable eczemas of the hands. I have also had satisfactory results from their use in chronic indurated eczema of other parts and in acute exacerbations of old eczemas. Their effect in relieving itching in these cases is frequently quite marked, but sometimes fails. Their effect is not limited to the relief of itching, but there is a positive influence on the metabolism of the affected tissues that frequently causes the complete disappearance of the disease. I have also seen the rays fail to produce any appreciable effect on some cases of eczema. I have in mind particularly two cases of that distressing form of eczema of the face, which we call neurotic, that is seen occasionally in people beyond middle life. The only two cases of this sort that I have had the opportunity of treating thoroughly with *x*-rays have proved totally rebellious to them, as they have to everything else.

In the subacute or chronic inflammatory diseases of the skin, accompanied by a good deal of scaling, such as psoriasis and lichen planus, the effect of the rays is very beneficial. Their application is free from the disagreeable circumstances of the usual local treatment of these conditions, and in some cases they do more than can be done by other means. But here their value is not unique, for we have other satisfactory methods of treating these conditions.

LUPUS ERYTHEMATOSUS.

The results in lupus erythematosus do not show that *x*-rays furnish the much-needed effective method of treating that extremely uncertain affection. Decided improvement may take place from their use, but one can offer no assurance of a satisfactory result. They are inferior, in my experience, to the application of the high-frequency current.

PRURITUS.

In pruritus ani and vulvæ I have seen the benefit from the use of *x*-rays that other observers have reported. The temporary relief of itching has been very common in my experience, but I am not sure that any case has been permanently cured. The relief that can be given to these miserable sufferers, however, fully warrants the use of the treatment. In the indurated dermatitis that frequently accompanies these cases, I have seen the same improvement as in eczemas of similar type elsewhere.

PIGMENTED AND VASCULAR NEVI.

In both pigmented and flat vascular nevi my experience with a few cases has led me to believe that *x*-rays offer a method of treatment of distinct value. The most satisfactory result in pigmented nevi has been in the case of the daughter of a physician who had a hairy, pigmented nevus, involving the entire right side of the forehead and temple from the eyebrow to the scalp. The skin was black, had a thick, horny layer, and was covered with a growth of black hair, quite as heavy as that on the scalp, with which it was continuous. By careful treatment all the hair was removed and the skin of the surface made almost normal in appearance. It is slightly darker than the adjacent skin, but is smooth and soft and of good color. We succeeded in this case in getting an eyebrow and a hairy border of the scalp of normal contour, so that practically the deformity was entirely obliterated. This patient has now been well for two and one-half years. I am sure that such a result could not have been obtained by any other method. In a few other cases I have been able almost to obliterate similar but smaller nevi.

In the only two vascular nevi I have treated I have been able to cause improvement which was satisfactory to the patients. In neither of these cases has the red color been entirely removed, but it has been converted from a dark conspicuous red to a light, pinkish color that is very much less obtrusive; and in doing this the texture of the skin has been improved, so that the skin

over the surface of the nevus is smooth and soft. There can be no doubt of the positive improvement in these cases, because small outlying areas that were left as checks to determine accurately any change of color remained much darker. I do not mean to suggest *x*-rays as a method entirely satisfactory in these cases, but until some more satisfactory method of treating them is devised than we now have I believe this method has here a field of usefulness.

KELOID AND SCARS.

In my demonstration three years ago I showed a case in which a large keloid on the arm had been made to disappear under *x*-ray treatment. There had been no recurrence of this keloid two years after, when I last saw the patient. I have treated successfully several typical keloids, most of them on the chests of women. The keloids flattened down into soft, pliable, white scars, and the pain which exists in some of them completely disappears. Such cases seem to leave no room for doubt that keloid can be cured by this method—which, I believe, is more than can be said for any other. *X*-rays also offer an eligible method of treatment of other bandlike scars.

LUPUS VULGARIS.

There is unanimity of opinion among dermatologists as to the value of *x*-rays in lupus vulgaris, and my experience corroborates this. I have seen but one case of lupus vulgaris which failed to yield satisfactorily to the rays, and that was a case of lupus of the face extending deep into the tissues, which had recurred after a plastic operation. In my experience, lupus has yielded readily to *x*-rays, and when the treatment could be carried out satisfactorily the results have been all that could be hoped for. As to the permanency of the results, the patients whom I showed symptomatically cured at the meeting of this society four years and three years ago have had no recurrences. I have had some failures in lupus vulgaris, but they were failures which, I believe, may be reasonably attributed to the fact that it was impossible, on account of the patients, to carry out the treatments satisfactorily.

There is surely no other method of treating lupus vulgaris that stands in the same class with *x*-rays, except Finsen's method. The results from Finsen's method are as good, but I believe, even in my limited experience with lupus vulgaris, that I can duplicate any of the results of Finsen's method. *X*-rays have certain very decided advantages over Finsen's method. The results are more rapidly obtained; the treatment is applicable to mucous membranes; it will reach lesions much more deeply situated; it does not require the aid of supplementary painful, mechanical or caustic methods of treatment; there is no discomfort from the application of pressure to the surface to drive out blood; and the treatment can be applied at one sitting to large areas, while in Finsen's method it is impossible to treat more than about one square centimeter of diseased tissue at one time. I have treated some cases of widely disseminated and very extensive lupus in which treatment by Finsen's method would have been unending.

TUBERCULAR GLANDS.

I have had a somewhat extensive experience in the treatment of tubercular glands, especially those in the neck. My experience has been variable. In the treatment of primary cervical adenitis without involvement of the skin, in many cases I have been able to reduce the size of the glands and by long-continued treatment to cause them to decrease to the point of disappearance. In other cases, however, there has not been much improvement. In the treatment of cervical adenitis, in which there was already involvement of the skin, my results have been more positive. In nearly all cases it has been possible to cause healing of the sinuses and distinct improvement in the condition. A case referred to me three years ago by Dr. A. J. Ochsner, which is about the most severe of this sort that I have treated, illustrates the extent of the results that can be obtained. This patient had had repeated operations, extending over several years, for tubercular glands on both sides of the neck and in both axillæ. Operation after operation had been done until all the tissue that could be spared had been taken out. The disease, however, had recurred in all four localities. There were numerous sinuses and the skin and the subcutaneous tissue were thickened and indurated and unhealthy. Under *x*-ray treatment given twice a week for three months the sinuses all healed, the tissues became healthy, and she has remained well now for three years, practically without further treatment.

TUBERCULAR JOINTS.

My experience in tubercular joints has not been extensive. In some cases the rays have not appreciably affected the condition. In a few cases, however, there seems to be little doubt of very positive benefit. I have treated a very severe case of this sort during the last year for Dr. J. B. Murphy. In this patient, a young man, there were tubercular lesions of many joints—the feet, the ankles, the knees, the wrists—some of them with involvement of the skin, some of them without. Under *x*-ray exposures nearly all the discharging lesions have healed, the patient has become so that he can use his joints without pain, the swelling has very greatly decreased and he has gained forty pounds in weight. From being an invalid on crutches and almost completely confined to bed he has got on his feet again, is able to exercise without discomfort, and has been able to go to New Mexico alone to spend the winter. How much of this is due to *x*-rays may be open to question, but it is certain that during the time that he was subjected to the exposures his condition vastly improved without change in his surroundings or in his other treatment.

ABDOMINAL TUBERCULOSIS.

In one case of abdominal tuberculosis, which I have treated during the last two years in conjunction with a surgeon of Chicago, there has been improvement, which has been attributed by the surgeon very largely to *x*-rays. In his opinion, I believe, it rendered possible an operation for the relief of an intestinal obstruction, which has been followed by great improvement of the patient. I have no other cases of this sort that have had extended treatment, but on theoretical grounds and from my small experience I believe the method is worthy of careful trial, not, however, at the expense of omitting other means for combating the condition.

DEEP SINUS.

I have treated numerous deep sinuses of various sorts with *x*-rays, usually without radical relief. In one abdominal sinus, however, the result was surprising. This was in a young woman, in whom a laparotomy had been done for pelvic abscess. A sinus resulted which resisted all attempts at relief. When she came under treatment she had a sinus between the umbilicus and the pubis, from which there was a very

abundant discharge of foul pus. She was weak and greatly emaciated. Under *x*-ray exposures, extending over a period of four months, there was a rapid diminution in the discharge until it entirely disappeared, and a month after stopping treatment, in June, 1903, the sinus permanently healed. The patient, a woman of large frame, gained fifty pounds in the next few months.

BLASTOMYCOSIS.

In blastomycosis my experience with *x*-rays, extending over a half-dozen cases, has been uniformly favorable. The results have been radical in all except one case, in which the patient would not continue treatment. In all of the cases *x*-ray treatment has been combined with potassium iodid in from 10 to 20 grain doses, *t. i. d.*, and my experience leads me to agree with others that the use of *x*-rays in combination with potassium iodid offers an ideal method of treating cutaneous blastomycosis. In addition to the treatment of demonstrated cases of blastomycosis I have treated successfully by this method two large suppurating, papillomatous tumors, one over the knee, one on the thigh. Both patients were women and both lesions had resisted for at least two years other methods of treatment. The first of these patients, a middle-aged woman, was on crutches and the condition was serious enough to warrant the consideration of amputation of the leg. The use of the leg was entirely regained and there has been no recurrence in two and one-half years.

ACTINOMYCOSIS.

My experience in actinomycosis has been confined to one case in the jaw, in which ulceration had not occurred and the diagnosis was clinical. The patient was referred to me by Dr. A. J. Ochsner. In this case *x*-ray exposures, combined with 20 grains of potassium iodid, *t. i. d.*, was followed by complete and permanent resolution in a few weeks.

I have another case in which the diagnosis lay between actinomycosis and sarcoma, in which the result was remarkable. This patient was referred to me by Dr. L. L. McArthur in September, 1902. Six months previously the patient had noticed a painful tumor in the left side of the breast which at first grew slowly, but then rapidly extended. At the time he was referred to me there was a large tumor occupying the whole front of the chest between the axillary lines and from the lower end of the sternum to the clavicles. It was densely hard, immovable, of purplish color, and involved the skin. Over the center the tumor showed a few small ulcerating points. There were indurated glands in both axillæ. In Dr. McArthur's opinion, it was a case of sarcoma, and the patient had had a piece of tissue excised at the hospital for microscopic examination. After it was too late to get another specimen it was discovered that this was lost, and the diagnosis was never confirmed microscopically. In a little over a month of *x*-ray exposures this mass, which was over a foot in diameter and three inches thick at the center, completely disappeared and with it the axillary glands. He had no other treatment besides *x*-rays. His cachexia disappeared and his health was completely restored so that he was able to return to hard labor. There has been no recurrence, now in over two years. I have seen nothing in the use of *x*-rays more striking than the result in this case.

CUTANEOUS CARCINOMA.

My experience with epitheliomas now covers a large number of cases, including lesions of all descriptions, from the smallest epitheliomas to larger lesions than I have seen anywhere described, and the results which have been obtained have given me the utmost confidence in the use of the *x*-rays in this condition. I am almost prepared to say that I believe that any cutaneous carcinoma can be cured with *x*-rays. When I say cutaneous carcinoma I mean to exclude metastases or extensions deep into the underlying structures; but this exclusion does not limit the application of this method to cases that are easily amenable to surgical methods, because there are still left certain lesions which from their extent are beyond surgical intervention, and numerous other lesions in which surgical treatment is unsatisfactory or undesirable, if not impossible. As to the class of epitheliomas which are suitable for *x*-ray exposures, I believe it may be said broadly that all epitheliomas are suitable for this method of treatment except those cases in which conservative surgery requires the removal of contiguous glands. For epitheliomas in certain localities the *x*-rays offer particular advantages on account of the favorable character of scars that result. This applies especially to epitheliomas on the nose, of which I have had many cases, to epitheliomas on the ears, of which I have had several cases, and especially to epitheliomas on the eyelids.

I have treated by this method several cases of epithelioma on the lower lid in which there was no involvement of the deeper tissues of the orbit, and in all of these, except one in which the patient would not allow sufficient treatment, a successful result has been obtained without interfering with the function of the lid or in any way affecting the eye. The unsuccessful case shows improvement that has remained permanent for two years. There has not been any relapse in any of the others and one has been well two and a half years.

Among my cases of epithelioma on the nose are a few successful cases of very extensive epitheliomas, involving the tip and the alæ of the nose and the contiguous parts of the cheek, which had failed of relief from operation or in which surgery offered no prospect of relief except by extensive and very mutilating operations. One of these cases is among those I demonstrated three years ago symptomatically cured, and this patient remains well now.

There is a type of epithelioma of the nose which we fortunately see rarely, which is situated deep in the tissues and is of very rapid growth. When patients with this type of lesion come under observation the nose is usually almost completely destroyed. There are large nodular masses at the border which melt away rapidly with great destruction of the tissues. I mention this type of lesion because in two cases of this sort that I have seen, one of which, I thought, had adequate treatment, *x*-rays did not materially check the course of the disease. Likewise, I have failed of successful results in several extensive carcinomas of the orbit. I refer now to the very destructive lesions which we sometimes see that involve the whole orbit and in time leave an enormous cavity. Very great improvement can be made in these cases and the course of the disease can be almost completely checked, but I have not seen radical relief. I have had one very interesting case of this sort in a middle-aged man who had only one eye and had a carcinoma involving that one. The carcinoma had extended from the inner canthus deep into the orbit and involved the contiguous bony structures. This patient has been under my care at intervals for two years. A year ago Dr. Casey Wood, at my sugges-

tion, removed as much of the carcinoma as was possible without destroying the eye, and during the two years I have given him *x*-ray treatment as vigorously as possible. There has been no superficial ulceration and, in view of the previous history of rapid growth and the course of such cases ordinarily, there seems to be no doubt that in this case we have succeeded in preserving for him a useful eye for two years. How much longer this result may be maintained I do not know, but he is apparently in as good condition now as he was two years ago.

I have failed in two deep, rapidly destructive lesions involving the ear and the surrounding parts. Neither of these patients was well situated for treatment, but I am inclined to believe that I would have failed under any circumstances. These cases about cover the failures which I have had in adequately treated cases of epithelioma without metastasis.

I have had one or two surprising experiences in having epitheliomas get well under very vigorous exposures after I had practically decided that the treatment was a failure. This, I believe, was solely due to unusual resistance of the tissues to the influence of *x*-rays. I have recently had a case of epithelioma of the forehead of the size of a half dollar, which was referred to me by Dr. Leonard St. John, in which I treated the patient for two months without effect; indeed, the lesion spread under the exposures. The failure was so complete that I went to Dr. St. John and said that I was willing to admit a failure and to have him take the patient for operation. He was generous enough, however, to leave the case to my further care. I then applied *x*-rays for two weeks, vigorously enough, I am sure, to cause a severe burn in an individual of ordinary susceptibility. The result was that in six weeks I had a smooth, perfectly healthy-looking scar. I think there is no doubt that the explanation of the intractability of this lesion was the unusual tolerance to *x*-rays of this patient, not of the tissues of the tumor, but of all the patient's tissues, because the healthy surroundng skin reacted only very slightly under severe exposures.

EPITHELIOMA OF THE LOWER LIP.

Epitheliomas of the lower lip, in view of the danger of the involvement of the submaxillary glands, should be attacked by *x*-rays or by any other method which does not involve removing the contiguous glands, with extreme caution. I have treated 20 cases of epithelioma of the lower lip, most of which were referred to me by surgeons, and in all of which the treatment with *x*-rays was decided on after operation had been considered. Except one case, these were regarded as favorable cases for *x*-ray treatment; that is, they were of the superficial type of epitheliomas. Most of them were cases that involved a large surface of the lip but did not extend deeply. In 19 of the 20 cases there was no palpable involvement of the glands. It so happens that 19 of the cases gave healthy scars. Ten of them have been well for more than a year, 9 of them were treated during the last year. One case was that of an old man who had positively declined operation, and who had a large submental and a large submaxillary gland palpable when the treatment began, and that case was a failure.

All of my epitheliomas of the lower lip have been in men. I have treated only three epitheliomas of the upper lip and, curiously enough, two of the three were in women. In two cases I obtained a healthy scar. In the third, a very old woman with a deep-seated nodular recurrence after operation, there was healing but with a suspicious scar which after a year without treatment, although this was advised, broke down, and at present there is a recurrence.

Unquestionably, *x*-rays do not offer so radical a method of treating epitheliomas of the lip as does the operation which includes the removal of the submaxillary glands; but, if the removal of these glands is not to be done—and in many cases for various good reasons this is not the practice—all can be done by *x*-rays that can be done by any other method. I do not want to be understood as advocating the substitution of *x*-rays for radical operation in epithelioma of the lip, but only as saying that the method is efficacious on the lesions of the lip itself and is entitled to consideration in those cases in which the radical operation is not thought to be necessary or is for any reason impracticable.

As regards the treatment of epitheliomas covering large surfaces, *x*-rays offer a method of successful treatment for some cases which are so extensive that operation is out of the question. One such case I demonstrated three years ago symptomatically cured, and at the time of this patient's death—from acute illness—18 months later, there was no recurrence except a nodule in the skin the size of half a wheat grain. The possibilities of the method in cases of this sort are shown in a patient, referred to me by Dr. E. M. Marquardt, in which there was a rodent ulcer involving the entire forehead, extending down over the left eyebrow, involving both lids of the left eye, the skin of the nose almost down to the tip, and the upper right eyelid. Under *x*-ray treatment this promptly got well and, except for a pea-sized recurrence, has remained so for two and a half years. I have at present an old woman who, when treatment was begun, had an epithelioma on the middle of her back larger than a hand and excavated to the depth of an inch at the center. At present this is reduced to an abraded surface the size of three fingers and only slightly depressed. The tissue is free from evidence of carcinoma, but epidermis has not yet formed over the center of the lesion. These are cases in which nothing else offers prospect of relief.

As to the permanency of the results, I presented, three years ago, 7 epitheliomas symptomatically cured with *x*-rays. Of these 1 patient, who had an epithelioma larger than a hand, died 18 months later from an acute illness, with a recurrence half the size of a wheat grain. The other patients are well to-day. Four of them have had no recurrences, 2 of them have had minute recurrences which were not difficult to get rid of. Two of the cases were simple, small lesions which were not difficult to handle by any method; the other 5 cases were most of them extensive and all of them had failed of relief by previous treatment. In all of these cases, of course, there had been a microscopic diagnosis. My experience as to permanency in my subsequent cases has been quite as good. Where I have obtained a scar satisfactory to myself, recurrences practically have never taken place. Occasionally there have been small recurrences around the border of the lesions, but, as a rule, these have been of no gravity and have been readily handled. I am sure the cases will bear fair comparison as regards permanency of results with any similar number of cases treated by any other method.

One of the early objections to the use of *x*-rays in the treatment of epitheliomas was the length of time re-

quired for treatment. Occasionally now one finds a patient who is very insensitive to *x*-rays and in whom it requires numerous exposures to produce the necessary effect; in most cases, however, all the *x*-ray treatment necessary can be given in a few exposures. I have had numerous cases which have had only from three to five exposures, and in which the entire treatment to the point of production of a healthy scar did not extend over three weeks. A minor objection is that occasionally patients are quite susceptible and a dermatitis occurs which leaves an abraded surface that takes according to its size, from three to six weeks to heal. I have never, however, seen any of these burns that gave more trouble than moderate tenderness and the slight inconvenience arising from an abrasion of the epidermis. I have never had a sloughing *x*-ray burn in an epithelioma, although I have thought that I was running the risk of it many times.

SENILE KERATOSES AND LEUCOPLAKIA.

In connection with epithelioma it seems that a word should be said about the treatment of two lesions which are so very frequently the forerunners of epithelioma, senile keratoses and leucoplakia buccalis. I have treated many senile keratoses with *x*-rays, some of which were not inflamed, and others which had irritated bases and presented the early stage of epithelioma. In some of my cases the lesions have been very numerous over the face, or over the face and hands. Senile keratoses can be made to disappear almost invariably. As there is no other satisfactory method of treating these lesions, and as they are so frequently the precursors of rodent ulcers, a successful method of treating them is no small gain.

I have not been nearly so successful in leucoplakia buccalis. I have succeeded in some cases in clearing off these patches, but I have also failed in some cases.

CARCINOMAS IN THE NECK.

I have treated many metastases of carcinoma in the neck arising from carcinomas in the mouth or on the lip. My experience with *x*-rays is that they are as futile as every other method in the treatment of the deep carcinomas in the neck. I have had two cases, however, in which there was a development of carcinoma in the scars after operations on the neck for carcinoma, which have been successful. In one of these cases there was a recurrent nodule in the scar on the lip and small nodules in the scars under the chin where glands had been removed; a third operation had been advised by a prominent Chicago surgeon. In the other, a similar case, there was development of small nodules in the scar. Both of these patients have been well now more than two years. In all my other cases the ultimate result has been failure. There has been distinct benefit in some of these cases in the way of relieving pain and of getting rid of much carcinomatous tissue, but in some of the cases there has not been even this.

MIXED TUMORS OF THE PAROTID.

During the last year I have had the opportunity of treating several cases of these curious, and clinically only slightly malignant, so-called mixed tumors of the parotid. All the cases are still under treatment, several of them showing decided diminution in the size of the tumor. In one such case, referred to me by Dr. L. L. McArthur, there has been almost complete disappearance of the tumor which had caused a very pronounced swelling over the parotid and had been gradually growing for several years.

RECURRENT CARCINOMA OF THE BREAST.

I have treated a large number of recurrent carcinomas of the breast, almost every one of which has been referred to me by a surgeon, and all of which were hopeless of other methods of relief. The results have been so surprising occasionally that I have not refused to treat any case unless there was already well-developed evidence of mediastinal or pulmonary involvement or of deep-seated distant metastases. It goes without saying that in such a desperate class of cases I have had failure after failure, and yet in many of the ultimate failures the treatment has been well worth while in healing ulcerations on the chest wall and in similar palliative ways. I am sure also that there can be no doubt that in many of these cases the course of the disease has been greatly checked and the patients' lives have been prolonged in comparative comfort for many months, or even for a year or more.

This statement is notably illustrated in one of the cases which I demonstrated three years ago in which a very extensive recurrence on the chest wall had been gotten rid of between Nov. 1, 1901, and March 1, 1902. This patient had a year of good health and comfort with only a slight recurrence, which yielded to a few *x*-ray exposures, the only treatment that she had during this time. The disease then recurred again, she declined to return for any further treatment and died after six months. Many similar cases could be cited.

In a good many cases results have been obtained which have proved permanent to the present time. Of the three cases of recurrent carcinoma of the breast which I presented three years ago, one, the patient last referred to, died eighteen months later of carcinoma of the lung; the second case died fifteen months later of carcinoma of the spine without recurrence in the chest wall. The third case remains well to-day. This patient had had two operations and on the third recurrence consulted Dr. Ochsner, who refused to operate further and referred her to me in September, 1901. She then had two ulcers the size of a fifty-cent piece in the scar surrounded by an indurated border of carcinoma. When her case was reported in February, 1902, Dr. Ochsner, in referring to the case, said that in his opinion she would have died before then had she not had *x*-ray treatment. She has never had another recurrence. She has had several series of *x*-ray exposures since that time as a precaution, but has now had no treatment for over a year, and she has remained symptomatically cured for three years. She has been in good health during all this time and has been able to earn her living. I have a good many similar cases with symptomatic cures that have persisted for from one to two and a half years.

In April, 1902, a woman, aged 46, was referred to me by Dr. Brannon of Manhattan, Ill. She had had a slowly-growing carcinoma which had been removed in September, 1901, and when she came for *x*-ray exposures there were nodules along the course of the scar, a large mass of fused glands in the axilla, a similar but smaller mass in the supraclavicular space, and slight edema of the arm. Physically she was much reduced. Under *x*-ray exposures the recurrence in the scar entirely disappeared, then the supraclavicular glands disappeared, and finally the axillary mass. The edema of the arm disappeared and she was restored to her normal health. She has been symptomatically cured for two and a half years.

On Nov. 19, 1902, Dr. Frank Billings referred to

me a woman, aged 67, with the following note: "Dr. Fenger removed the left breast Nov. 28, 1901. There is, as you will see, infiltration again above the clavicle. There is some dyspnea, but I can find no physical evidence of involvement of the lung or heart. There may be, of course, mediastinal disease now." Under *x*-ray exposures, vigorously given, the puffiness of the supraclavicular space subsided, and the supraclavicular glands, while not disappearing, diminished and softened and became hardly palpable. This patient has had no *x*-ray treatment for twenty-two months, and has shown no evidence of spread of the disease. In view of the utter hopelessness and progressive course of such cases, these results are certainly of interest.

PRIMARY CARCINOMA OF THE BREAST.

Of course, *x*-rays as a method of treatment of primary carcinoma of the breast should never be undertaken when operation is feasible; but that something can be done in primary carcinoma of the breast is shown by postmortems that were made in two patients of mine who had been treated in this way. One case was a large primary carcinoma of the breast with involvement of the axillary glands and with spinal involvement at the time the treatment was begun, and treatment was only given on the family's insistence. The patient was referred to me by Dr. Wyllis Andrews. She had *x*-rays to the point of producing a dermatitis before she died. Postmortem, the breast was found a mass of connective tissue with little gland tissue and no carcinoma tissue left. The axillary glands had almost entirely disappeared and there was increase of connective tissue in their place. Another case of primary carcinoma of the breast was referred to me by Dr. J. B. Murphy. Three months after beginning treatment, Dr. Murphy wrote me concerning her: "The carcinoma of the breast has entirely disappeared." She died a short time afterward from acute illness, and postmortem it was found by Dr. W. A. Evans that the tumor had been converted into a small fibrous mass about the diameter and two-thirds the length of an index finger. The axillary glands had not been affected by the *x*-rays.

These findings warrant the attempt to treat by *x*-rays carcinomas of the breast in which, for any reasons, operation is out of the question; but they certainly do not warrant any one in advising *x*-rays as a substitute for operation.

Up to January, 1904, I had used *x*-rays in 15 cases of primary carcinoma of the breast. Of these 15 patients, 6 have died. Every one of these 6 was in an advanced stage of carcinoma, and absolutely hopeless; they were referred to me by men like Dr. Fenger, Dr. Wyllis Andrews, Dr. Murphy, and Dr. Ochsner. Seven of the remaining 9 are living, from one to three years after they came under treatment, and if the disease is still present, its extent has diminished very greatly and it has shown no tendency to increase. These were all comparatively favorable cases; none of them had ulcerated, but nearly all of them showed large tumors in the breast with retraction of the nipple and with involvement of the axillary glands. Concerning the diagnosis in these cases, I believe there can be no room for doubt. They presented characteristic pictures, and all of them had been pronounced carcinomas by competent men.

I do not know whether the two remaining patients are alive. These two were both old women with extensive ulcerating carcinomas, and there seemed no reason to hope for more than palliation. In one case the ulceration was entirely healed and in both cases there was certainly decided improvement of the condition. Both the patients were living when I last heard from them, more than a year after they came under my observation.

I certainly do not believe that *x*-rays are entitled to any consideration as a reliable method for treating primary carcinoma of the breast, but, if operation is out of the question, I believe considerable hope of benefit, even of indefinitely prolonged relief, can be offered from *x*-rays.

CARCINOMA OF THE ABDOMEN AND OF THE PELVIS.

In carcinomas of the abdomen and of the pelvis, I have little that is definite to present. In carcinomas in the abdomen I have never convinced myself that anything has been done. In one case of carcinoma of the chest there has seemed to be very marked palliation from the use of *x*-rays. This was a case of carcinoma of the esophagus referred to me from Johns Hopkins by Dr. Halsted. Under *x*-ray treatment there was great improvement which was maintained for over a year. Then the tumor began to increase and killed the patient twenty months after he came under treatment.

I have treated several cases of recurrent carcinoma in the pelvis, usually after carcinoma of the uterus. I believe I correctly represent Dr. H. T. Byford and Dr. E. C. Dudley when I say that they thought there was considerable palliation in cases, which they observed, in the way of preventing vaginal involvement and perhaps in retarding the course of the disease. One such patient, referred to me by Dr. Byford, lived for one year in perfect comfort; her vaginal discharge and hemorrhage were quickly relieved and never returned; she was able to lead her usual life without inconvenience, and died within a week after the onset of her first acute symptoms. In another case, referred to me by Dr. Dudley, in which there was an enormous carcinoma extending well above the pelvis, the patient lived for one year without ever having a vaginal discharge and died within three days after she became bedridden.

The most radical improvement in any pelvic carcinoma that I have seen is in the case of a woman, referred to me by a Chicago surgeon. In October, 1903, after a history of hemorrhage beginning six months previously, the uterus and ovaries were removed for carcinoma. New nodules soon appeared in the scar which were treated assiduously after the usual methods, but continued to grow. At the time she came to me, on April 30, 1904, at the site of the vaginal scar there was a nodular mass about the size of a walnut, so large that it could not be entirely taken in by a Ferguson speculum. It was ulcerating and bleeding. In three weeks under *x*-ray exposures it had flattened down completely and there remained an ulcer the size of a ten-cent piece. In two months this had healed and left a healthy-looking scar. Since that time the patient has had one series of prophylactic *x*-ray exposures and she has remained well now for ten months. The vagina is perfectly clean and the scar is soft, without induration, and is healthy looking. The patient now weighs 175 pounds and is, as far as she knows, perfectly well.

SARCOMA.

My experience in sarcoma, of course, is not nearly so large as that in carcinoma, but it includes a considerable number of cases. The experience indicates that sarcomas are affected by *x*-rays in practically the same way as carcinomas. I am inclined to believe that they

are affected somewhat more readily. As the results, on the whole, are similar to those in carcinomas of similar extent, I will not burden this already overlong paper by an analysis of the cases. In general, it may be said that, as we rarely get sarcomas without the presence already of metastases, the results have been less favorable. Much can be done in way of palliation in many cases and symptomatic cures can be obtained in some.

PROPHYLACTIC USE OF X-RAYS AFTER OPERATION FOR MALIGNANT DISEASES.

The number of cases in which I have been able to carry out this procedure, while considerable, is not sufficient to allow of definite findings, and, as I have analyzed them elsewhere, I will not take the time to consider them here. This use of *x*-rays, I believe, is logical, and, as far as my experience extends, its utility is strongly confirmed by the results. I have a good many cases after operations for carcinoma and some after operations for sarcoma in which there are strong reasons for believing that the use of *x*-rays has thus far saved the patients. A few of the patients had had repeated operations for recurrences, and under *x*-rays have remained well now for a much longer time than any of the intervals between their previous recurrences. In a very few, the most desperate cases of this sort that I have treated, recurrences have taken place in spite of *x*-rays, but I believe I am correctly stating the impressions of the surgeons, who have sent me most of these cases, when I say that their record in the cases so treated seems to be better than it was before this became their practice.

It has been suggested many times that possibly the danger of the spread of carcinoma or sarcoma was increased when a lesion was exposed to *x*-rays. I have had this closely in mind, but in the several hundred cases that I have treated I have never seen a metastasis occur that seemed reasonably attributable to the use of *x*-rays. Metastases have certainly not occurred more frequently than would be expected naturally. I have, indeed, seen many lesions clean up without the development of metastases when there seemed to be every reason to fear them from the natural course of the disease. If this accident were probable it would show itself in my record of epitheliomas, and no such unexpected accident has happened in any of these cases.

PSEUDOLEUKEMIA AND LEUKEMIA.

The first suggestion, as far I know, of the use of *x*-rays in leukemia or in pseudoleukemia was made to me by Dr. A. J. Ochsner, and the first cases of this sort reported were three cases which I reported three years ago, two of which were demonstrated. One of these cases was a splenic leukemia which had inadequate treatment and was reported as a failure. The other two cases were cases of pseudoleukemia which I showed symptomatically cured. The first of these patients, a child 4 years old, had a recurrence of the disease in the neck seven months later, which was removed by operation, and the child died within a few days of inspiration pneumonia. In the second case, in which there had been very large glands, the patient is living and at his work at the present time. For two years after he was presented to the society he was well, he thought, and had no further treatment. A year ago he developed large mediastinal glands with pressure symptoms, but, much to my surprise, recovered under *x*-ray exposures given for a month. Recently he appeared again with some glands the size of an olive in the neck and groins which have just disappeared under *x*-ray exposures. Except for these two months he has been in his usual health and vigor for three years. I have had several cases of pseudoleukemia which have cleared up under *x*-rays, but no other case that I have been able to follow so closely as this one.

My experience in removing the enlarged glands in true leukemia has been as favorable as in pseudoleukemia, but in most of the cases that I have seen the improvement in the blood has not kept pace with the decrease in the glands; while the patients improved, the results have not been radical. I have recently, however, had an extraordinary experience in true leukemia.

Patient.—A physician, aged 34, was referred to me on Oct. 3, 1904, by Drs. W. A. Evans and Adolph Gehrmann with a diagnosis of splenic leukemia. He had not been in vigorous health for about a year, and on August 16 had had his appendix removed, and at that time his spleen was not enlarged.

Examination.—Soon after this he began to grow weak and five weeks later, on examination by Dr. Evans, he was found to have a well-developed splenic leukemia; it had developed, therefore, rapidly. On October 4 the spleen filled almost the entire left side of the abdomen, extending two inches below the umbilicus and inwards to the middle line, and was tender on pressure. The only other gland palpable was a pea-sized gland in the right clavicular space. He was much reduced in flesh and had rapidly lost strength until he was incapacitated for any exertion.

Blood.—The blood analysis of the Columbus laboratories at that time was as follows:

Percentage of hemoglobin	75
Number of red cells per cm	4,080,000
Percentage of red cells	81.6
Corpuscle hemoglobin index	91.8
Number of white cells per cm	160,000
Polymorphonuclears (per cent.)	58.6
Large mononuclears (per cent.)	10
Small mononuclears (per cent.)	.4
Eosinophiles (per cent.)	1.2
Eosinophile myelocytes (per cent.)	1.2
Myelocytes (per cent.)	25

Treatment and Result.—The patient was given daily *x*-ray exposures, one over the spleen and a general exposure to take in all the body except the head. He was also given 10 mg. of sodium cacodylate, t. i. d. The improvement in his general condition was rapid. At the end of the first week he insisted that he felt distinctly better, and this improvement constantly continued. In two weeks the spleen was reduced to one-half its former size. On November 5, just one month after beginning treatment, the *x*-ray exposures were stopped on account of considerable erythema over the spleen, and he has had no further exposures, although the *x*-ray effect promptly subsided and at no time gave any trouble. By this time the spleen was reduced until it was just palpable. He had regained his normal health and vigor and had resumed his usual work. Since that time the general improvement and the improvement in his blood has been maintained. He has gained twenty pounds in weight, has a good color and the general appearance of a man in good health. The spleen shows no indications of returning enlargement and is not palpable.

Weekly differential blood counts showed continuous improvement until the blood became normal. Myelocytes were present in decreasing numbers until the middle of December, when they disappeared. At my request the Columbus laboratories made a count on December 28, which is as follows:

Percentage of hemoglobin	82
Number of red cells per cm	4,736,000
Percentage of red cells	94.7
Corpuscle hemoglobin index	86.6
Number of white cells per cm	6,900
Polymorphonuclears (per cent.)	73
Large mononuclears (per cent.)	6
Small mononuclears (per cent.)	19
Eosinophiles (per cent.)	2
Basophiles (per cent.)	1
Volume percentage	92

Coagulation firm in three minutes.

GOITER.

I have used *x*-rays in a good many cases of goiter. In some small parenchymatous goiters there has been per-

manent diminution in their size. In one of these cases the gland has shown no returning enlargement after eighteen months. In most of the cases, however, there has been no benefit.

70 Madison Street.

A BACTERIOLOGIC AND CLINICAL STUDY OF A CURATIVE SERUM FOR TYPHOID FEVER.*

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Although the production of an effective curative serum for typhoid fever would be a great addition to therapeutics, yet the accomplishment of this result is beset by several difficulties. It is well known that the typhoid bacillus is usually present in the blood and tissues, and that it increases in the tissues. The destruction of the bacilli in the circulation and tissues depends on the successful interaction of two distinct bodies.

The body which actually destroys the typhoid bacillus is the complement and is present as a ferment-like body in the serum or cells of the body. The second substance is usually the product of artificial immunity, though it too may be normally present in the body. It is well known as the intermediary body. Following out the theories of Ehrlich as so clearly explained by Welch[1] in the Huxley lecture for 1902, this intermediary body is produced in an immune serum by means of certain so-called haptophore groups which are possessed by the typhoid bacilli themselves. These groups of atoms have a special affinity for corresponding haptophorous groups in the cells of the body.

The continued appropriation of these receptors by the body cells causes an excessive production of similar receptors on the part of these body cells. Many of these are cast off into the lymph and blood and form the free amboceptors or intermediary body.

According to Ehrlich's latest statements, both the complement and the amboceptor, or intermediary body, are composed of several complex chemical groups. One group of the complement is called the zymotoxic group, and this causes the injury to the foreign cell which in the present instance is the typhoid bacillus. The complement also contains other groups which unite with complementophilic groups in the amboceptor, or intermediary body. The amboceptor in addition contains another haptophore group, which unites with a receptor of the foreign cell.

The destruction of the typhoid bacillus in the blood and tissues therefore depends on the assimilation of the zymotoxic group of the complement and the haptophore group of the intermediary body by receptors present in the typhoid bacillus.

EXPERIMENTAL WORK IN ANIMALS.

The work which we have undertaken has consisted in the production of a serum containing a large amount of the intermediary body, and it is therefore proper to first consider the question of the efficacy of an immune serum in the treatment of experimental typhoid infection in animals.

It has long been known that the injection of nonfatal doses of typhoid bacilli into guinea-pigs will render these animals immune to further inoculations, and the mechanism of this immunity has been explained by the work of Pfeiffer, Metchnikoff and Ehrlich. These experiments have only resulted in the protection of normal animals against typhoid infection, and have still left the cure of infection an open question.

Abell and Loeffler[2] were among the first to demonstrate the power of immune serum to cure typhoid infection in animals, and the serum which they used was prepared by injecting fresh fluid cultures of the typhoid bacillus into dogs in gradually increasing doses. The bacillus which they used would kill guinea-pigs weighing 300 grams in doses of 1/50 of a cubic centimeter, but 0.001 c.c. of the immune serum would protect guinea-pigs against 100 times the minimum fatal dose in non-protected animals. They could also cure guinea-pigs infected with double the fatal dose of typhoid bacilli as late as eight hours after infection by injecting 0.5 of a cubic centimeter of this immune serum.

Ainley Walker[3] also made a number of experiments which prove that animals can be protected against typhoid infection, and also cured after artificial infection has been produced.

In order to secure the maximum effect of a curative serum this writer considers that the animal yielding the serum should be injected with several different strains of *Bacillus typhosus*. This serum was prepared by first injecting a horse with dead carbolized cultures of one special strain of the typhoid bacillus. The dose was gradually increased to 150 cubic centimeters and this serum might be called serum No. 1. Serum No. 2 was prepared later from the same horse by injecting a similar mixture of four varieties of the typhoid bacillus, and it was therefore polyvalent. He found that serum No. 1 produced agglutination in much greater dilutions with the typhoid organism used for the immunization of the horse, than it did with the other typhoid bacilli. Serum No. 2, however, which was prepared by mixing the four different organisms, agglutinated all the types in much greater dilutions, although it still agglutinated the original bacillus in the highest dilution.

Rabbits were also immunized with races of bacilli from three different sources, and each strain was used for a definite period of time, one following the other.

It was found that the agglutinative power of the rabbit's serum rose toward each special bacillus during the period in which it was used for immunizing purposes, but remained much lower for other typhoid organisms.

The immunizing properties of the horse serum No. 1 and No. 2 were also tested by determining the least amount of serum which would protect guinea-pigs against the fatal dose of several different typhoid bacilli. Serum No. 1 was only protective in large doses when a type of bacillus was used which had not been used to immunize the horse. The polyvalent serum No. 2, in which four different types of typhoid bacilli were used for immunization of the horse, protected the

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Welch: The London Lancet, Oct. 11, 1902.

2. Abell and Loeffler: Centralb. f. Bak. Erste Abt., Jan. 23, 1902.

3. Ainley Walker: Antityphoid Sera. Journal of Path. and Bact., June, 1901; Ibid., Immunization Against Immune Serum. Jour. of Path. and Bact., March, 1902; Ibid., Production and Specific Treatment of Typhoid Infection in Animals. Jour. of Path. and Bact., November, 1901.

guinea-pigs against the least fatal dose of all of the bacilli used for injecting the horse in much smaller doses than those which were effective against the same organisms with the first monovalent serum. As an example, monovalent serum No. 1 protected 100 grams of guinea-pig in doses of 0.3 c.c. of serum against bacillus 7, which was not used in its production. Bacillus 7 was used mixed with three other strains in injecting the horse for serum No. 2.

This serum No. 2, therefore, as might be expected, protected 100 grams of guinea-pig against the least fatal dose of bacillus 7 in a dose of 0.1938 cubic centimeters.

From what has gone before, it will be seen that the most effective serum for the general protection of animals against typhoid infection is a polyvalent serum.

Walker[3] was also able to produce a disease in rabbits, which ran a course similar to typhoid fever, and then cure such animals by the use of immune serum. In order to produce a continued fever, he injected protective serum intraperitoneally along with the typhoid bacillus, and while not enough to entirely protect the rabbits, it caused a prolonged fever in most cases.

If the rabbits received intraperitoneal doses of the typhoid bacillus and the protective serum for seven days a continued fever with emaciation was produced which usually terminated fatally in from ten to fifteen days. At the autopsy these animals showed distinct typhoid lesions, such as enlargement of the spleen and mesenteric lymph glands, and even swelling, hemorrhage, and occasionally ulceration of Peyer's patches.

Other rabbits were treated in a similar way, but after the infection had been established at the end of seven days the injection of the typhoid bacilli was discontinued. The injection of the protective immune serum was continued for from four to seven days longer, usually until the beginning of convalescence was noted. These animals almost always recovered from the infection.

Although Walker's experiments are not numerous, yet it can be concluded that in animals immune serum can cure typhoid infection, if used during the height of the disease.

DIFFICULTIES OF PRACTICAL APPLICATION.

One of the first objections to be met is the fact that a protective or curative serum for man must be prepared from another species, but this also partially holds good as against diphtheria antitoxin. Walker[3] thinks that the difference in the immune serum from different species consists in a distinct and separate immune body for each species. He proved that the immune body of the horse and guinea-pig for the typhoid bacillus were different in the following ingenious way: He injected guinea-pigs with gradually increasing doses of typhoid horse immune serum, and thus produced an anti-immune serum in the guinea-pig. This was caused by stimulating the receptors of the guinea-pig's cells to form many free receptors for the immune body of the horse's serum. After allowing the guinea-pigs several weeks in which to get rid of the immune serum, he tested them with a typhoid bacillus whose minimum fatal dose had already been established. He found that a substance had been formed in the guinea-pig's blood which was simply an antibody to the immune body in the horse's serum, since it took larger amounts of horse immune serum than usual to protect the guinea-pig against the known minimum fatal dose of the typhoid bacillus.

He found, however, that this substance was not an antibody toward the guinea-pigs' immune body, since the minimum fatal dose of the typhoid bacillus remained the same for these guinea-pigs, as for normal animals. The free receptors for the immune body of the horse could not combine with the immune body of the guinea-pig when called into play to destroy the bacilli. It therefore follows that the immune body of the horse and guinea-pig must differ since receptors forming an antibody and combining with the horse's immune body could not combine nor interfere with the immune body formed in the tissues of the guinea-pig, and the minimum fatal dose remained the same.

Walker does not think that this fact interferes with the immunization of one animal with the blood serum of another, since these different immune bodies all have the same haptophore atoms for the complement, and the practical results are just as satisfactory. Indeed, as above stated, he proved that he could cure rabbits suffering from typhoid infection with horse immune serum.

It has also been claimed by some that the injection of an immune serum will gradually produce an antibody to the immune serum, and that the bacteria will thus be allowed full sway. This anti-immune body would only be an antibody for the foreign immune serum injected, and in the case of a human being with typhoid fever would not interfere with the intermediary body of the human species, since the intermediary bodies are special to the species. Walker's experiments also show that it takes several weeks to form an anti-immune serum. He injected guinea-pigs with an immune serum every other day for 10 days, and then waited another week before drawing their serum. He still found that these animals were protected by a smaller dose of immune serum than normal animals, so that no anti-immune serum was produced even after seventeen days. It was only after waiting longer that an anti-immune body formed, so that reasoning from these experiments, the production of an anti-immune body would not play any practical part in the routine injection of four or five doses of immune serum in treating typhoid fever in human beings.

It may be also urged against the use of an immune serum, that during infection the complement becomes exhausted, and that the immune body is thus rendered useless and unable to destroy the bacteria without the complement.

The gradual loss of the complement in typhoid fever was first proved by Mark Richardson[4] who showed that the serum of typhoid patients, and even of convalescents, was not usually able to destroy typhoid bacilli, but that if the serum of normal persons was added to the mixture of typhoid serum and bacilli that complete bacteriolysis took place. If he mixed the normal serum and typhoid serum first and then added the typhoid bacilli no bacteriolysis or destruction of typhoid bacilli took place. Apparently the immune body must combine first with the typhoid bacillus in order to render the destructive and digestive effect of the complement effective.

Longcope[5] has studied the serum complement in typhoid fever, and his researches seem to show that there is a special complement in the blood for the immune body produced by the typhoid bacillus. Typhoid bacilli showing control plate cultures of from forty to

4. Richardson: Jour. of Med. Research, vol. vi, No. 1.
5. Longcope: Jour. of Hygiene, vol. iii, No. 1, January, 1903.

sixty thousand colonies were usually destroyed in five hours, by one cubic centimeter of serum from typhoid patients, but the diminution of complement was shown by the large amounts of the typhoid serum which were necessary to render active heated serum in destroying the typhoid bacillus. It took from 1/10 to 2/10 of a cubic centimeter of the untreated typhoid serum to reactivate heated serum for the *Bacillus dysenteriæ* and *Bacillus paratyphi*, and from 2/10 to 4/10 of a cubic centimeter of this unheated serum to reactivate the heated serum and cause it to destroy the typhoid bacilli in five hours.

Although Longcope's experiments indicate a slight diminution in the typhoid complement in typhoid fever, yet this does not prove that it is absent or even beyond the reach of an immune body when injected.

The most serious danger to be avoided in the use of immune serum in the treatment of typhoid fever is the use of an excessive amount of serum. Such serum in great excess, according to Walker, may do harm by absorbing all the complement, and thus prevent bacteriolysis.

He used tubes containing from ten to twenty drops of fresh rabbit's serum and found that such quantities destroyed one loopful of typhoid bacilli in about five hours. He then added immune rabbit or horse typhoid serum to the fresh rabbit serum which had been heated to 55 C., thus only leaving the immune body. Quantities of the immune serum equaling from 1/4 to 1/2 the fresh serum caused a decrease in the destruction of the typhoid bacilli, and equal parts of the immune serum entirely prevented bacteriolysis. Walker thought that the excessive amount of the intermediary body combined with the complement and prevented its action in dissolving the typhoid bacilli. When 1/10 of the immune serum was added bacteriolysis was not interfered with, and certainly such a quantity of immune serum as compared to the normal serum of the body would never be used in the treatment of a typhoid patient.

In the body of a patient during typhoid infection an excessive amount of immune body will probably find other materials with which to combine in preference to the complement. Welch[1] in "The Huxley Lecture" has called attention to the fact that while it has been well recognized that the injection of typhoid bacilli or other foreign cells into the tissues of an animal host will produce an intermediary body from the cells of the host, yet the final action of intermediary bodies upon the bacteria has not been considered. He advances the theory that the foreign bacteria may stimulate the cells to the formation of intermediary bodies, which in turn call forth the production of intermediary bodies by the invading bacteria themselves. These, if they find suitable complements in the serum, can produce cytolysis or injury to the various tissue cells, and this theory can thus account for the extensive injuries to the various body cells in such an infection as typhoid fever. An excessive amount of immune body which could not be used in bacteriolysis might combine with these discharged bacterial receptors and prevent their injuring the cells of the body.

It is important, therefore, to prepare an immune serum by using dead as well as living cultures, as Walker has shown that a serum made only from live cultures will not protect guinea-pigs against injections of dead cultures containing the intracellular poisons of the typhoid bacillus.

METHODS OF PREPARING AND STANDARDIZING THE SERUM.

The preparation of the first serum which we used on patients was begun in July, 1900, and the results were published in *The Proceedings of the American Public Health Association* for 1901, and the *Maryland Medical Journal* for August, 1902.[6] Since that time several other serums have been prepared, but as the methods of preparation have not changed, the following quotation from our first article will explain our general method of preparation of the serum in detail. It has not been thought necessary to publish more than one table in explanation of the injections of the hog, the changes in agglutination, and the determination of the minimal fatal dose and the protection afforded animals against multiple fatal doses by the serum. Certain statements at the end of these typical tables will briefly summarize the work which has been performed in connection with these points in relation to the other serums which we have prepared:[7]

An organism was obtained from the Johns Hopkins Pathological Laboratory called bacillus No. 16, which was found to be virulent for guinea-pigs in doses of 1 c.c. when introduced into the peritoneal cavity. Forty-eight-hour-old cultures were used for injection, and on July 24, 1900, a dose of 10 c.c. was injected into the tissues of the abdomen of hog No. 1. These injections were continued in increasing doses at intervals of about ten days until Dec. 31, 1900, when the dose had reached 1,130 c.c. of a pure bouillon culture of the typhoid bacillus. The temperature during all this time was never lower that 39.5 degrees C., and never reached over 41 degrees C. As the larger injections were given the animal would sometimes remain quiet for a day and lose its appetite. No sloughs occurred, and the health of the animal remained practically normal.

It is a difficult matter to inject such quantities as a liter of bouillon into the subcutaneous tissues of the abdomen of a hog, but we succeeded well by using the glass vessel intended for injecting salt solution. The fluid can be forced into the tissues by attaching the foot bellows of a blast flame by rubber tubing to the glass tube entering the top of the salt-solution apparatus. The needle for injecting should be very stout, with a large lumen. The one which we used had a lumen of 1 mm. By this means a liter can be injected through two punctures of the skin, one-half of a liter being forced into the loose tissue on each side of the groin. The skin should be washed and disinfected with 5 per cent. carbolic acid before each injection.

The animal was bled three times, 1 liter of blood being drawn each time, which yielded about 200 c.c. of serum. After the first bleeding a month elapsed, when 500 c.c. were again injected, and in two weeks the animal was again bled. This was again repeated, and serums No. 1, No. 2 and No. 3 were thus produced. This serum was kindly drawn and trikresolized at Mr. Mulford's laboratory, and we desire to thank him and Dr. J. J. Kinyoun for their kindness.

On Aug. 1, 1902, hog No. 2 was injected with 5 c.c. of a twenty-four-hour culture of the typhoid bacillus made virulent by the celloidin capsule treatment in the peritoneal cavity of a guinea-pig. This killed 300-gram guinea-pigs in doses of .3 of a cubic centimeter of the suspension from blood serum cultures described later. In two weeks 100 c.c. were injected without any bad results, and the dose was increased every two weeks until at the end of eleven months the hog received 1,000 c.c. of a virulent typhoid culture. On August 1, 200 c.c. of serum were obtained from this hog and was called serum No. 4.

6. Stokes and Fulton: Proceedings of the Amer. Pub. Health Assn., 1901, and Maryland Medical Jour., August, 1902.
7. Quotation from former article.

Hog No. 3 was treated at the same time to similar injections, and was bled in eleven months from the left carotid artery and 200 c.c. of serum were obtained. The artery was ligated, and at intervals of two weeks the hog was again injected with doses beginning with 500 c.c. and ending with 1,000 c.c. After two months' treatment 200 c.c. of serum was again obtained and the hog was allowed to die from this bleeding from the right carotid artery. The serums were called No. 5 and No. 6.

Hog No. 4 was first injected with 50 c.c. of a typhoid bacillus called bacillus No. 6, on April 15, 1903, and in four days the dose was increased to 100 c.c. The doses were rapidly increased until at the end of twenty days the hog received 400 c.c. At the end of 70 days 800 c.c. of a virulent twenty-four-hour culture of the typhoid bacillus was injected, and similar doses of a second and very virulent bacillus called *Bacillus wassermannii* were injected every two weeks for 70 more days. To some extent, at least, this last serum was made polyvalent, and the serum thus obtained we shall call polyvalent serum No. 1, to distinguish it from the other serums, which were monovalent. This *Bacillus wassermannii* was fatal to guinea-pigs in a dose .25 cm. of the suspension from a blood serum tube in 4 c.c. of salt solution which is described later as the routine standard for determining the minimum fatal dose.

In order to show how virulent this Wassermann bacillus had become, it might be mentioned that we treated hog No. 5 just as we had hog No. 4, but on giving the animal its first injection of 800 cubic centimeters of *Bacillus wassermannii* the animal died four days later of general typhoid bacteriemia with extensive necrosis at the seat of inoculation, and areas of necrosis in the various viscera.

PRODUCTION OF AGGLUTINATION BY THE VARIOUS SERUMS.

A series of experiments had been carried on with hog No. 1 in which a liter of pure bouillon typhoid culture was given to the animal as food every day for one month. This did not even cause a distinct agglutinative reaction at a dilution of 1 to 10. When the subcutaneous injections were begun, however, the agglutinative reaction began to rise, and on March 1, 1901, the serum gave a distinct agglutinative reaction at a dilution of 1 to 45,000. This was called serum No. 1. On April 12, after the second bleeding, the agglutinative reaction fell to 1 to 30,000, and on May 15, after the third bleeding, the serum only gave a reaction at 1 to 15,000. Only complete reactions after two hours were counted, and all of these showed complete agglutination and cessation of motility even after twenty-four hours. Table No. 1 will show the gradual increase in the power of the agglutinative reaction.

The serums prepared from hogs No. 2 and No. 3 were tested for the power of agglutination, but this was very weak, only reaching a positive reaction with the bacillus which was used for immunizing the hogs in a dilution of 1 to 1,000. These serums were Nos. 4, 5 and 6.

The polyvalent serum No. 1, from hog No. 4 was tested for the strength of its agglutinative power with several different types of typhoid bacilli, including the organisms which were used in immunizing the hog. As our results correspond to those obtained by Ainley Walker, a description of his experiments will first be made.

This observer found when he immunized rabbits with a certain race of the typhoid bacillus that the serum of these rabbits would agglutinate this special bacillus in much higher dilutions than those effective in agglutinating other races of typhoid bacilli. If he used another race of the typhoid bacillus for a second set of injections in the same animal he found that the serum would agglutinate this second organism in dilutions just as great as that obtained for the first organism, but that no cumulative effect could be obtained from these two sets of injections. In other words, the serum from rabbits prepared by injecting them with bacillus A. and bacillus B., would only agglutinate these organisms in as high a dilution as the serum prepared by simply injecting either bacillus A. or bacillus B. separately.

TABLE No. 1.

AGGLUTINATION EXPERIMENTS.—Record of Widal test in pig injected with cultures of the typhoid bacillus.

Date of Test.	Results.	Dilution.
August 22, 1900	+	1-100
August 22, 1900	+	1-500
August 22, 1900	+	1-1000
August 22, 1900	—	1-2000
August 22, 1900	—	1-5000
August 22, 1900	—	1-10000
August 22, 1900	—	1-15000
August 29, 1900	+	1-1000
August 29, 1900	—	1-1500
August 29, 1900	+	1-2000
September 15, 1900	+	1-1500
September 15, 1900	+	1-2000
September 15, 1900	Slight.	1-3000
September 15, 1900	Slight.	1-4000
October 16, 1900	Slight.	1-3000
October 16, 1900	—	1-4000
November 1, 1900	+	1-3000
November 1, 1900	+	1-4000
November 13, 1900	+	1-4000
November 13, 1900	+	1-5000
November 13, 1900	+	1-6000
November 13, 1900	+	1-7000
November 20, 1900	—	1-8000
November 20, 1900	—	1-9000
December 4, 1900	+	1-7000
December 4, 1900	+	1-8000
December 15, 1900	+	1-9000
December 15, 1900	+	1-10000
Serum No. 1, Drawn Feb. 27, '01.		
March 13, 1901	+	1-14000
March 13, 1901	+	1-15000
March 13, 1901	+	1-16000
March 13, 1901	+	1-17000
March 13, 1901	+	1-20000
March 21, 1901	+	1-22000
March 21, 1901	+	1-24000
March 21, 1901	+	1-26000
March 21, 1901	+	1-28000
March 21, 1901	+	1-30000
March 28, 1901	+	1-32000
March 28, 1901	+	1-34000
March 28, 1901	+	1-36000
March 28, 1901	+	1-38000
March 28, 1901	+	1-40000
April 12, 1901	+	1-45000
April 12, 1901	Slight.	1-50000
April 12, 1901	Slight.	1-55000
April 12, 1901	—	1-60000
April 12, 1901	Slight.	1-65000
Serum No. 2, Drawn Mar. 10, '01.		
April 13, 1901	+	1-15000
April 13, 1901	+	1-20000
April 13, 1901	+	1-25000
April 13, 1901	+	1-30000
April 13, 1901	+	1-35000
Serum No. 3, Drawn April 5, '01.		
May 1, 1901	+	1-15000
May 1, 1901	°	1-20000

On June 13, after the hog No. 4 had received 650 c.c. of a bouillon culture of bacillus No. 6, the serum agglutinated this organism at a dilution of 1 to 10,000, and on September 25, it gave an agglutinative reaction at a dilution of 1 to 50,000 when added to bacillus No. 6. Injections with this organism had ceased about July 15, when the dose reached 80 c.c., and similar injections of a typhoid bacillus called *Bacillus wassermannii* were given so as to make the serum polyvalent. Yet, strange to say, on September 25, when the serum agglutinated bacillus No. 6 at 1 to 50,000 it did not agglutinate *Bacillus wassermannii* even in as strong a dilution as 1 to 100. The hog was bled on September 20, and from that time until October 15, the Wassermann typhoid bacillus was injected every two weeks in doses

TABLE No 2.—SHOWING ANIMAL EXPERIMENTS.

No. of Guinea Pig.	Dose of Serum No. 3.	Dose of Typhoid Bacillus.	Died.	Result of Autopsy.
No. 1	None	1 cm. Bouillon Culture	No.	
No. 2	None	1 cm. Bouillon Culture	No.	
No. 3	None	1 cm. Bouillon Culture	No.	
No. 4	None	1 cm. Bouillon Culture	No.	
No. 5	None	1 cm. Bouillon Culture	No.	
No. 6	None	1 cm. Bouillon Culture	No.	
No. 7	None	1 cm. Bouillon Culture	No.	
No. 8	None	2 cm. Suspension fr. Serum, Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 9	None	2 cm. Suspension fr. Serum, Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 10	None	2 cm. Suspension fr. Serum, Bacillus No. 2	No.	
No. 11	None	2 cm. Suspension fr. Serum, Bacillus No. 2	No.	
No. 12	None	2 cm. Suspension fr. Serum, Bacillus No. 3	No.	
No. 13	None	2 cm. Suspension fr. Serum, Bacillus No. 3	No.	
No. 14	None	2 cm. Suspension fr. Serum, Bacillus No. 4	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 15	None	2 cm. Suspension fr. Serum, Bacillus No. 4	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 16	None	2 cm. Suspension fr. Serum, Bacillus No. 5	No.	
No 17	None	2 cm. Suspension fr. Serum, Bacillus No. 5	No.	
No. 18	None	2 cm. Suspension fr. Serum, Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 19	None	2 cm. Suspension fr. Serum, Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 20	1 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 1	No.	
No. 21	1 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 1	No.	
No. 22	1 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 1	No.	
No. 23	1 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 4	No.	
No. 24	1 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 4	No.	
No. 25	1 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 4	No.	
No. 26	0.5 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 1	No.	
No. 27	0.5 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 1	No.	
No. 28	0.5 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 1	No.	
No. 29	0.5 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 4	No.	
No. 30	0.5 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 4	No.	
No. 31	0.5 cm. Subcutaneous	2 cm. Suspension fr. Serum, Bacillus No. 4	No.	
No. 32	None	1 cm. Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 33	None	1 cm. Bacillus No. 1	Yes; 48 hours.	Purulent Peritonitis; General Septicemia
No. 34	None	0.5 cm. Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 35	None	0.5 cm. Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 36	None	0.5 cm. Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 37	None	1 cm. Bacillus No. 4	Yes; 36 hours.	Purulent Peritonitis; General Septicemia
No. 38	None	1 cm. Bacillus No. 4	Yes; 24 hours.	Not Autopsied.
No. 39	None	0.5 cm. Bacillus No. 4	Yes; 48 hours.	Not Autopsied.
No 40	None	0.5 cm. Bacillus No. 4	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 41	None	0.5 cm. Bacillus No. 4	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 42	None	0.5 cm. Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 43	None	0.5 cm. Bacillus No. 1	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 44	None	0.5 cm. Bacillus No. 1	Yes; 5 days.	No Autopsy.
No. 45	None	0.5 cm. Bacillus No. 1	Yes; 9 days.	No Autopsy.
No. 46	None	0.5 cm. Bacillus No. 1	Yes; 4 days.	No Autopsy.
No. 47	0.1 cm. Subcutaneous	0.5 cm. Bacillus No. 1	No.	
No. 48	0.1 cm. Subcutaneous	1.0 cm. Bacillus No. 1	No.	
No. 49	0.1 cm. Subcutaneous	1.5 cm. Bacillus No. 1	Yes	Purulent Peritonitis; General Septicemia
No. 50	0.1 cm. Subcutaneous	2.0 cm. Bacillus No. 1	Yes	Purulent Peritonitis; General Septicemia
No. 51	0.1 cm. Subcutaneous	2.5 cm. Bacillus No. 1	Yes	Purulent Peritonitis; (No Cultures).
No. 52	0.1 cm. Subcutaneous	3.0 cm. Bacillus No. 1	Yes	Purulent Peritonitis; (No Cultures).
No. 53	0.1 cm. Subcutaneous	3.5 cm. Bacillus No. 1	Yes	Purulent Peritonitis; General Septicemia
No. 54	0.1 cm. Subcutaneous	4.0 cm. Bacillus No. 1	Yes	Purulent Peritonitis; General Septicemia
No. 55	None	1 cm. Bacillus fr. capsule to increase virulence	Yes	Purulent Peritonitis; General Septicemia
No. 56	None	0.5 cm. Bacillus fr. capsule to increase virulence	Yes	Purulent Peritonitis; General Septicemia
No. 57	None	0.3 cm. Bacillus fr. capsule to increase virulence	Yes	Purulent Peritonitis; General Septicemia
No. 58	None	0.2 cm. Bacillus fr. capsule to increase virulence	No.	
No. 59	None	0.1 cm. Bacillus fr. capsule to increase virulence	No.	
No. 60	0.1 cm. Intraperitoneal	0.3 cm. Bacillus fr. capsule to increase virulence	No.	
No. 61	0.1 cm. Intraperitoneal	0.5 cm. Bacillus fr. capsule to increase virulence	No.	
No. 62	0.1 cm. Intraperitoneal	0.7 cm. Bacillus fr. capsule to increase virulence	No.	
No. 63	0.1 cm. Intraperitoneal	0.8 cm. Bacillus fr. capsule to increase virulence	No.	
No. 64	0.1 cm. Intraperitoneal	1.0 cm. Bacillus fr. capsule to increase virulence	No.	
No. 65	0.1 cm. Intraperitoneal	1.0 cm. Bacillus fr. capsule to increase virulence	No.	
No. 66	0.1 cm. Intraperitoneal	1.5 cm. Bacillus fr. capsule to increase virulence	No.	
No. 67	0.1 cm. Intraperitoneal	2 cm. Bacillus fr. capsule to increase virulence	Yes; 48 hours.	Purulent Peritonitis; General Septicemia
No. 68	0.1 cm. Intraperitoneal	2.5 cm. Bacillus fr. capsule to increase virulence	Yes; 24 hours.	Purulent Peritonitis; General Septicemia
No. 69	0.1 cm. Intraperitoneal	3 cm. Bacillus fr. capsule to increase virulence	Yes; 24 hours.	No Autopsy.
No. 70	0.5 cm. Intraperitoneal	1.0 cm. Bacillus fr. capsule to increase virulence	No.	
No. 71	0.5 cm. Intraperitoneal	1.5 cm. Bacillus fr. capsule to increase virulence	No.	
No. 72	0.5 cm. Intraperitoneal	2.0 cm. Bacillus fr. capsule to increase virulence	No.	
No. 73	0.5 cm. Intraperitoneal	2.5 cm. Bacillus fr. capsule to increase virulence	Yes	Purulent Peritonitis; General Septicemia
No. 74	0.5 cm. Intraperitoneal	3.0 cm. Bacillus fr. capsule to increase virulence	Yes	No Autopsy.
No. 76	None	0.3 cm. Dead Bacilli	No.	
No. 77	None	0.5 cm. Dead Bacilli	No.	
No. 78	None	0.8 cm. Dead Bacilli	No.	[Fatty Degeneratio
No. 79	None	1.0 cm. Dead Bacilli	Yes	Focal Necroses, General Congestio
No. 80	None	1.2 cm. Dead Bacilli	Yes	Focal Necroses, General Congestio
No. 81	0.5 cm	0.8 cm. Dead Bacilli	No.	[Fatty Degeneratio
No. 82	0.5 cm	0.8 cm. Dead Bacilli	No.	
No. 83	0.5 cm	1.0 cm. Dead Bacilli	No.	
No. 84	0.5 cm	1.0 cm. Dead Bacilli	Yes	
No. 85	0.5 cm	1.5 cm. Dead Bacilli	Yes	Focal Necroses.
No. 86	0.5 cm	1.5 cm. Dead Bacilli	No.	
No. 87	0.5 cm	2.0 cm. Dead Bacilli	No.	
No. 88	0.5 cm	2.0 cm. Dead Bacilli	No.	[eral Congestio
No. 89	0.5 cm	2.5 cm. Dead Bacilli	Yes	Focal Necroses, Enlarged Spleen, Ge
No. 90	0.5 cm	2.5 cm. Dead Bacilli	Yes	No Autopsy.

of 800 cubic centimeters. The first bleeding, the cessation of injections with bacillus No. 6, and the use of the second organism, or the Wassermann bacillus were all probably effective in causing a drop in the agglutinative strength of the hog's serum toward bacillus No. 6, and in increasing its effect toward *Bacillus wassermannii*. At any rate, tests made with serum after the second bleeding on Oct. 15, showed that this serum would only agglutinate bacillus No. 6 in a dilution of 1 to 10,000, while the same serum from September 25 to October 15, while *Bacillus wassermannii* was being used as an injection, had risen in its strength toward this organism from 1 to 100 to 1 to 10,000. It also caused the agglutination of a typhoid bacillus obtained from a typhoid orchitis and a second organism obtained from the spleen of a typhoid case in the same dilution, but when the serum was heated at 56 C. for one hour it only agglutinated these organisms at a dilution of 1 to 5,000. These facts correspond with McFarland's statement that the agglutinins are diminished in activity by a temper-

TABLE No. 3.

	Experiments for Bacteriolytic Effect of Rabbit Serum.	Colonies in Agar Plates.			
		No hours.	3 hours.	6 hours.	18 hours.
1.	1 c.c. unheated immune hog serum + Wassermann bacillus....	160	33	36	60
2.	1 c.c. unheated immune hog serum + laboratory typhoid No. 6..	300	14	6	0
3.	1 c.c. heated immune hog serum + Wassermann typhoid bacillus	630	405	1260	0
4.	1 c.c. heated immune hog serum + laboratory typhoid No. 6...	630	10	30 (Compare.)	1
5.	1 c.c. unheated rabbit serum + Wasserman bacillus.....	1440	3600	2,4000 (about.)	48,000 (about.)
6.	1 c.c. heated rabbit serum + laboratory typhoid No. 6.....	150	300	3000	50,000 (about.)
7.	1 c.c. heated immune hog serum + 1/20 c.c. rabbit's serum + Wassermann typhoid	1500	270	600	6000
8.	1 c.c. heated immune hog serum + 1/20 c.c. rabbit's serum + laboratory typhoid No. 6.....	180	18	10	4200
9.	Immune serum 1 c.c. + rabbit serum 1 c.c. + Wassermann bacillus. (Experiments to see if the complement in rabbit's serum for typhoid will combine with small quantities of immune body from immune hog serum of hog. Immune serum added before bacillus.).....	540	360	300	3000
10.	1 c.c. rabbit's serum + 1/10 c.c. immune hog serum + Wassermann typhoid	750	1050	12,000 (about.)	100,000 (about.)
11.	1 c.c. rabbit's serum + 1/10 c.c. immune hog serum + laboratory typhoid.....	90	180	6000	12,000
12.	Dog serum + Wassermann typhoid bacillus.....	540	50	10	0
13.	Dog serum + laboratory typhoid bacillus.....	720	20	0	0
14.	Heated dog serum + laboratory typhoid.....	640	1080	Innumerable.	Innumerable.
15.	Dog serum heated + Wassermann typhoid + 1/10 c.c. immune hog serum.....	600	1140	"	14400
16.	Heated dog serum + laboratory typhoid + 1/10 c.c. hog immune serum	600	1200	"	Innumerable.
17.	Heated dog serum + laboratory typhoid + 1/100 c.c. immune hog serum.....	700	3600	"	"
18.	Unheated dog serum + laboratory typhoid + 1/10 immune serum	890	2	0	0
19.	Heated dog serum + laboratory typhoid + 1/10 immune serum heated	420	5 hours. 480	7 hours. 50	90
20.	Heated dog serum + laboratory typhoid + 1/100 c.c. immune serum heated	570	5400	24,000 (about)	Innumerable.
21.	Heated dog serum + laboratory typhoid + 1/1000 c.c immune serum heated	480	6000	36,000 (about.)	"
22.	Unheated dog serum + laboratory typhoid + 1/10 heated immune serum.....	540	0	0 (few contaminations.)	0
23.	Unheated dog serum + laboratory typhoid + 1/100 c.c. heated immune serum	Contaminated.	0	0	Contaminated.
24.	Unheated dog serum + laboratory typhoid + 1/1000 c.c. heated immune serum.....	660	0	0	0

TABLE No. 4.

	Experiments on Bacteriolytic Effect of Hog Serum, Immune and Normal.	Colonies in Agar Plates.			
		No hours.	3 hours.	6 hours.	24 hours.
1.	Hog serum + laboratory typhoid.....	720	.....	2700	Innumerable.
2.	Heated hog serum + laboratory typhoid.....	675	1050	2400	"
3.	Heated hog serum + unheated immune serum 1/10 c.c. + laboratory typhoid.....	1200	150	75	"
4.	Heated hog serum + heated immune hog serum 1/10 c.c. + laboratory typhoid..... (All the rest have 3 drops bouillon except No. 13.)	1350	600	360	"
5.	1/10 c.c. hog serum + 9/10 c.c. normal salt solution 3 loops bouillon + laboratory typhoid.....	1200	360	760	"
6.	1/10 c.c. hog serum + 8/10 c.c. normal salt solution + 1/10 c.c. immune serum + 3 loops bouillon + laboratory typhoid..	1030	420	350	"
7.	1/10 c.c. hog serum + 1/10 c.c. heated immune serum + 8/10 c.c. salt solution + 3 loops bouillon + laboratory typhoid....	1200	900	660	150
8.	Same as No. 7, + 1/100 c.c. heated immune serum. 0.9 c.c. salt. 3 loops of bouillon.....	675	1050	450	Innumerable.
9.	0.5 c.c. hog serum + 0.3 salt solution + 1/10 c.c. immune serum + laboratory typhoid. 3 loops bouillon.....	600	750	3500	"
10.	0.3 c.c. hog serum + 0.6 c.c. salt + 1/10 c.c. immune serum + laboratory typhoid. 0.6 c.c. salt.....	420	Contaminated.	Contaminated.	"
11.	0.5 c.c. hog serum + 0.4 c.c. salt + 0.1 c.c. heated immune serum + laboratory typhoid 0.5 c.c. salt.....	1650	600	.....	6000
12.	0.9 c.c. salt + 1/10 c.c. heated immune serum + laboratory typhoid. 3 drops bouillon. 0.9 c.c. salt.....	1500	600	660	60
13.	1 c.c. salt solution.....	2100	780	360	1050
14.	1 c.c. salt solution + 3 drops bouillon.....	1800	1110	14400	Innumerable.

ature of 60 C. They are destroyed by a temperature of 80 C. Ainley Walker's article on "Antityphoid Sera" contains an excellent account of the variations in agglutination following the injection of different races of the typhoid bacillus.

THE MINIMAL FATAL DOSE AND THE PROTECTIVE INFLUENCE OF THE SERUMS.

In a former publication[6] we described the results of the serum treatment of six cases of typhoid fever, and as the method of testing the minimal fatal dose and the protective influence of the serum has not changed, we have included the description of these methods in our present article, as the following quotation will show:

"It was found that it was not profitable to use bouillon cultures of the typhoid bacillus for injection into animals, because such large doses were needed to produce fatal results. It was found to be much more convenient to use a growth from Loeffler's blood serum, and the following uniform method was pursued:

"The blood serum slanted in a small tube measuring 15 mm. by 8 cm. will usually grow about four loopfuls of typhoid bacilli if the circumference of the loop measures 3 mm. in outside diameter. Four c.c. of sterile Dunham's solution were added to each blood serum tube after the typhoid bacillus had been allowed to develop for twenty-four hours. The growth from the surface was thoroughly mixed with the sterile Dunham's solution, and each cubic centimeter of this suspension, therefore, equaled one loopful of a twenty-four-hour slanted blood serum culture of the typhoid bacillus."

Bacillus No. 1 and bacillus No. 4 which we obtained from the Johns Hopkins Hospital were found to pro-

TABLE No. 5.

EXPERIMENTS IN BACTERIOLYSIS WITH SERUM FROM FIRST AND SECOND BLEEDING. ALL + 3 LOOPFULS OF STERILE BOUILLON	COLONIES IN AGAR PLATES.			
	No hours.	3 hours.	6 hours.	24 hours.
1. 1 c.c. salt solution + 1/10 c.c. immune pig serum, drawn on Sept. 20, + laboratory typhoid	180	720	405	Sterile.
2. 1 c.c. salt solution + 1/10 c.c. heated immune serum. Sept. 20 + laboratory typhoid	220	348	525	"
3. 1 c.c. salt solution + 1/100 c.c. immune hog serum. Sept. 20 + laboratory typhoid	435	360	330	1800
4. 1 c.c. salt solution + 1/100 c.c. heated immune serum of Sept. 20 + laboratory typhoid	288	150	750	9000
5. 1 c.c. salt solution + 1/1000 c.c. immune serum + laboratory typhoid	300	344	150	2400
6. 1 c.c. salt solution + 1/1000 c.c. heated immune serum + laboratory typhoid	510	268	675	4200
7. 1 c.c. salt solution + 1/10000 c.c. immune serum + laboratory typhoid	600	390	300	6000
8. 1 c.c. salt solution + 1/10000 c.c. heated immune serum + laboratory typhoid	350	450	710	3600
EXPERIMENTS ON SERUM FROM BLEEDING OF OCT. 15, OR SECOND BLEEDING.				
9. 1 c.c. salt solution + 1/10 c.c. of immune serum No. 2 of second bleeding + laboratory typhoid	960	15	Sterile by microscope.	Sterile.
10. 1 c.c. salt solution + 1/100 c.c. of immune serum No. 2 + laboratory typhoid	345	10	"	1500
11. 1 c.c. salt + 1/1000 c.c. of immune serum No. 2 + laboratory typhoid	464	360	300	1500
12. 1 c.c. salt + 1/10000 c.c. immune serum No. 2 + laboratory typhoid	276	600	300	9000
13. 1 c.c. salt + 3 loops bouillon + laboratory typhoid	Control 950	950	1050	6400

TABLE No. 6.

SHOWING THE BACTERIOLYTIC EFFECT ON RACES OF TYPHOID NOT USED IN IMMUNIZING THE HOG. ALL + 3 LOOPS BOUILLON.	COLONIES IN AGAR PLATES.			
	No hours.	3 hours.	hours.	24 hours.
1. 1 c.c. salt solution + 1/10 c.c. serum No. 2 + Wassermann typhoid	840	480	2500	180
2. Same + 1/10 c.c. heated serum No. 2 + Wasserman typhoid	1200	1050	1570	30
3. 1 c.c. salt solution + 1/100 c.c. No. 2 serum + Wassermann typhoid	1800	840	1300	1800
4. 1 c.c. salt solution + 1/100 c.c. serum No. 2 heated + Wassermann typhoid	600	1200	570	6000
5. 1 c.c. salt solution + 1/10 c.c. serum No. 2 + orchitis typhoid	1200	1350	1390	Sterile.
6. 1 c.c. salt solution + 1/10 c.c. heated serum No. 2 + orchitis typhoid	1380	900	2040	60
7. 1 c.c. salt solution + 1/100 c.c. serum No. 2 + orchitis typhoid	1500	1200	1500	4800
8. 1 c.c. salt solution + 1/100 c.c. heated serum No. 2 + orchitis typhoid	1500 900	1500	900	1800
9. 1 c.c. salt solution + 1/10 c.c. serum No. 2 + typhoid from spleen	540	1500	1600	9000
10. 1 c.c. salt solution + 1/10 c.c. serum heated No. 2 + typhoid from spleen	12000	12000	830	510
11. 1 c.c. salt solution + 1/100 c.c. serum No. 2 + typhoid from spleen	480	600	760	12000
12. 1 c.c. salt solution + 1/100 c.c. serum No. 2 heated + typhoid from spleen	540	900	2100	13200
13. 1 c.c. salt solution + orchitis typhoid	1080	1200	1830	5400
14. 1 c.c. salt solution + spleen typhoid	540	990	900	30000

duce fatal purulent peritonitis in doses of 2 cubic centimeters, when injected intraperitoneally into guinea-pigs weighing about 300 grams. A subcutaneous injection of 1.0 c.c. and 0.5 c.c. of a curative serum into each of three guinea-pigs protected these six animals against 2 c.c. of the bacillus No 1, and bacillus No. 4 injected intraperitoneally twenty-four hours later.

In order to determine whether the bacilli Nos. 1 and 4 were virulent and fatal for guinea-pigs in smaller doses than 2 c.c., two animals were inoculated with 1 c.c. of bacillus No. 1, and three animals were inoculated in the abdominal cavity with 0.5 c.c. of this bacillus. Similar inoculations were also made with bacillus No. 4. All of these animals died in from twenty-four to forty-eight hours of typical experimental typhoid fever except two guinea-pigs. One of these had received .5 c.c. of bacillus No. 1, and the other had received .5 c.c. of bacillus No. 4. From these experiments it was assumed that the serum would protect guinea-pigs against four times the minimal fatal dose of these typhoid bacilli. Five pigs were inoculated intraperitoneally with .5 c.c. of bacillus No. 1, and two died in twenty-four hours, while the other three died in from four to nine days of experimental typhoid infection. This confirmed the minimal fatal dose as .5 c.c.

As we wished to see whether smaller doses of the serum would protect guinea-pigs against the typhoid bacillus No. 1, we injected .1 c.c. of serum No. 3 subcutaneously, and in two days these animals were inoculated with doses beginning with .5 c.c. of typhoid bacilli and increasing to 4 c.c. All died in twenty-four hours except the .5 c.c. and 1 c.c. pigs, which survived. This showed that .1 c.c. of serum subcutaneously would protect only against twice the minimal fatal dose.

In order to increase the virulence of the laboratory stock culture of the typhoid bacillus, we introduced it inclosed in celloidin capsules within the peritoneal cavity of the guinea-pig, and allowed it to remain there for two weeks. This reduced the minimal fatal dose from 1 c.c. to .3 c.c., and this was the most virulent organism which we could obtain. We were compelled, therefore, to use much larger doses for comparative experiments than Abell and Loeffler, who used bacilli fatal in doses of 1/50 c.c.

Their experience also showed that if the serum was injected into the peritoneal cavity that it would protect against larger doses of typhoid bacilli than would subcutaneous injections of serum.

On July 25, 1901, five guinea-pigs were given .1 c.c. of serum No. 3 intraperitoneally, and in two days these animals were given .3-.5, .7-.8, and 1 c.c. of the bacillus whose minimal fatal dose was .3 c.c. All of the animals remained well for two weeks. On August 6 a second series of animals were given a similar dose of serum, and in two days they were given, respectively, 1 c.c., 1.5 c.c., 2 c.c., 2.5 c.c., and 3 c.c. of the same bacillus. The first two animals survived, showing that .1 c.c. of the serum No. 3 would protect against five times the minimal fatal dose of the typhoid bacillus, since this dose was .3 c.c. Five guinea-pigs inoculated with the same doses of bacilli after protection with .5 c.c. of serum gave even better results.

Only the 2.5 c.c. and 3 c.c. pigs died, showing that .5 c.c. of serum injected intraperitoneally will protect against about seven times the minimal fatal dose.

These animal experiments might be summarized by stating that the subcutaneous injection of the serum in doses of from 1-600 to 1-800 of the body weight will protect guinea-pigs against four times the minimal fatal dose of intraperitoneal injection with the typhoid bacillus. The injection of 1-3000 to 1-4000 of the serum by weight into the abdominal cavity will protect against five times the minimal fatal dose, and a dose of 1-600 to 1-800 of the body weight will protect against seven time the minimal fatal dose of the typhoid bacillus.

It was not expected that this serum would exhibit any marked antitoxic properties, but in order to determine this the typhoid bacillus was grown on blood

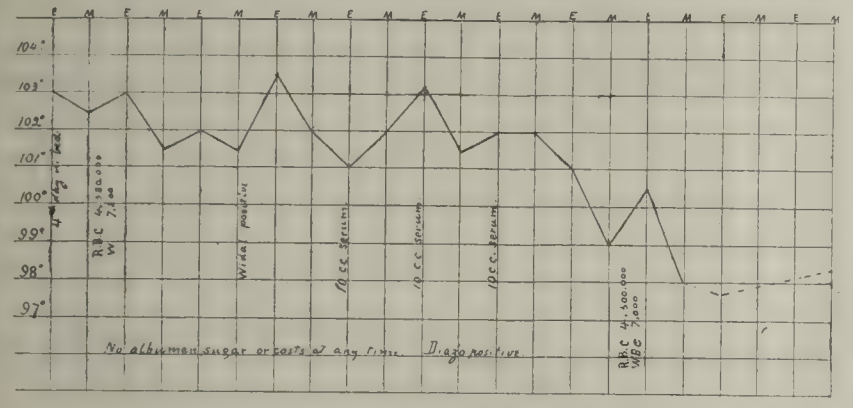


Chart 1.

serum and destroyed by a temperature of 60 C. for one hour. Five guinea pigs were inoculated with the usual suspension of 0.3-0.5, 0.8, 1 and 1.2 c.c of dead bacilli, and the last two animals died in twenty-four hours, while the others survived. The minimal fatal dose was therefore 1 c.c. of dead bacilli. Ten pigs were given 0.5 of serum, and were then inoculated with doses of dead bacilli varying from 0.8 c.c. of the suspension from the blood serum to 2.5 c.c. The two pigs given 2.5 c.c. and one pig given 1.5 c.c. died of tox-

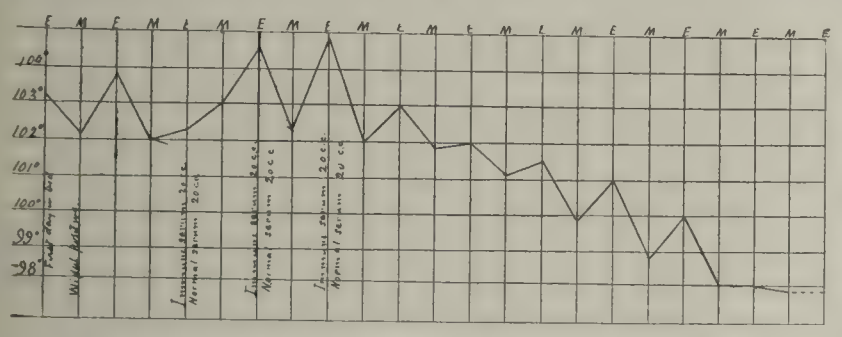


Chart 2.

emia in twenty-four hours, but the seven other pigs which had been given 2 c.c., 1.5 c.c., 1 c.c., and 0.8 c.c. dead bacilli survived the inoculation. The serum seems to protect against about twice the fatal dose of dead typhoid bacilli.

In addition to the above experiments, a number of tests were performed with polyvalent serum No. 1 from hog No. 4. The same suspension of a twenty-four hour blood serum growth of the typhoid bacillus in 4 c.c. of salt solution was used, and guinea-pigs were inoculated intraperitoneally with varying doses until the minimal fatal dose was found. The Wassermann bacillus was fatal to guinea-pigs weighing from 400 to 500 grams in doses which averaged about 100 cubic millimeters. One pig died of typical typhoid peritonitis from an intraperitoneal dose of 50 cubic millimeters, but 4 others remained well, while of 4 pigs all died when 100 cms. were used. One or two pigs recovered from 200 cms., while others died, and the minimal fatal dose of 100 cms. is only approximate. Three hundred cubic millimeters were invariably fatal.

Considering this as the correct minimal fatal dose, we injected 0.1 c.c. of a serum heated at 56 C. for one hour into the peritoneal cavity of a guinea pig, and similar doses of trikresolized and non-trikresolized serum were also used on other guinea-pigs. Two days later all of these animals received 1.5 c.c. of the Wassermann bacillus intraperitoneally, but they all remained well for two weeks.

These injections showed therefore that the polyvalent serum protected against 5 times the minimal fatal dose of the typhoid bacillus.

BACTERIOLYTIC ACTION OF THE IMMUNE SERUM.

A large number of tests were made with polyvalent serum No. 1, in order to test its effect in destroying

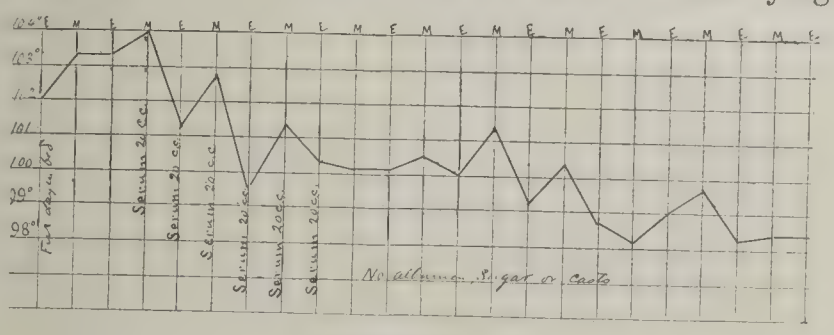


Chart 3.

the typhoid bacillus both alone and in contact with other normal sera of various animals. The animals were bled and the serum obtained free from contamination, although no trikresol was used, and the following technic was employed in testing the effect of the serum on *Bacillus typhosus*.

The various types of the typhoid bacillus were grown for twenty-four hours on the slanted surface of Loeffler's blood serum in a small test tube measuring 10 by 2 cms., and one loopful of the growth from a standard loop measuring 3 mms. in outside diameter was placed

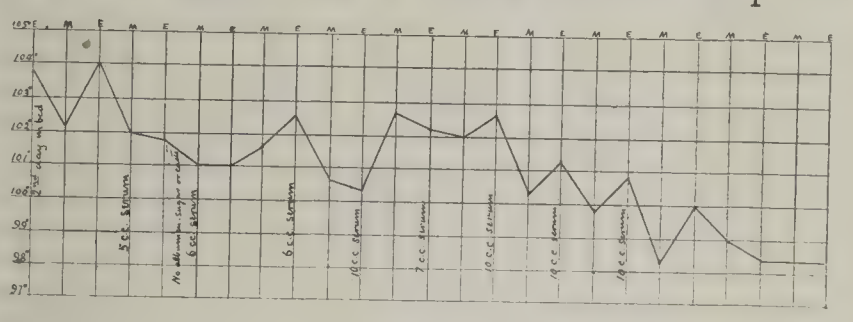


Chart 4.

in 10 cubic centimeters of normal salt solution. Two loopfuls of this suspension was always transferred to the various combinations of the sera. One loopful was always introduced into the melted agar used for the comparative plate cultures, and these were made at once, and at the end of 3-6, and twenty-four hours. The heated serum was exposed to 56 to 58 C. for one hour. This method forms a splendid way of estimating the destructive action of various sera on bacteria.

The preceding table No. 3 shows that both the Wassermann and the laboratory typhoid bacillus No. 6 were practically destroyed by 1 cubic centimeter of the immune hog serum even when heated, as shown by Nos. 1, 2, 3 and 4. It would seem from these experiments that the serum of the hog contains a complement which is not destroyed by 56 C. Nos. 5 and 6 show that un-

heated and, of course, heated rabbits' serum after twenty-four hours on ice, in which time the serum separated from the clot, is not destructive to the typhoid bacillus. It is interesting to note in 7 and 8 that heated immune serum will only inhibit the bacilli if 1/20 part of normal rabbit's serum be added. Equal parts of immune and rabbit's serum are not destructive. Experiments 10 and 11 show that small quantities of immune serum cannot make effective combinations with rabbit complement in destroying the typhoid bacillus, although later experiments demonstrated that these small amounts of immune serum were effective when mixed with bouillon, human serum, and dog's serum. The immune serum was used from the first bleeding of the hog, and the plates were kept forty-eight hours before counting them.

Table No. 3 also shows that dog serum is absolutely destructive to different races of the typhoid bacillus, as shown by 12 and 13, but 14 to 17 show that the immune body can not form an effective combination in bacillus, yet when the immune serum is heated to 56 C. it forms a combination with the hog serum which almost completely destroys the bacilli. Smaller quantities than 1/10 of a c.c. were not effectual. All of the other experiments show that various combinations of normal hog serum, and immune serum are not destructive, but No. 12 shows that heated immune serum is destructive to these bacteria. The effect of heated serum in destroying the typhoid bacillus may be due to setting free the complement by heat, as Kyes found in regard to snake venom complement.

Table No. 5 shows the comparative effect of serums from the first and second bleeding of the hog. This bleeding has been previously described in the section describing the injections of the hog. These had been kept on cold storage for some time, and seem to have lost part of their strength, although 1/10 of a c.c. of both heated and unheated serum were still effective in destroying typhoid bacilli.

The typhoid bacillus (see table No. 6) from a typhoid

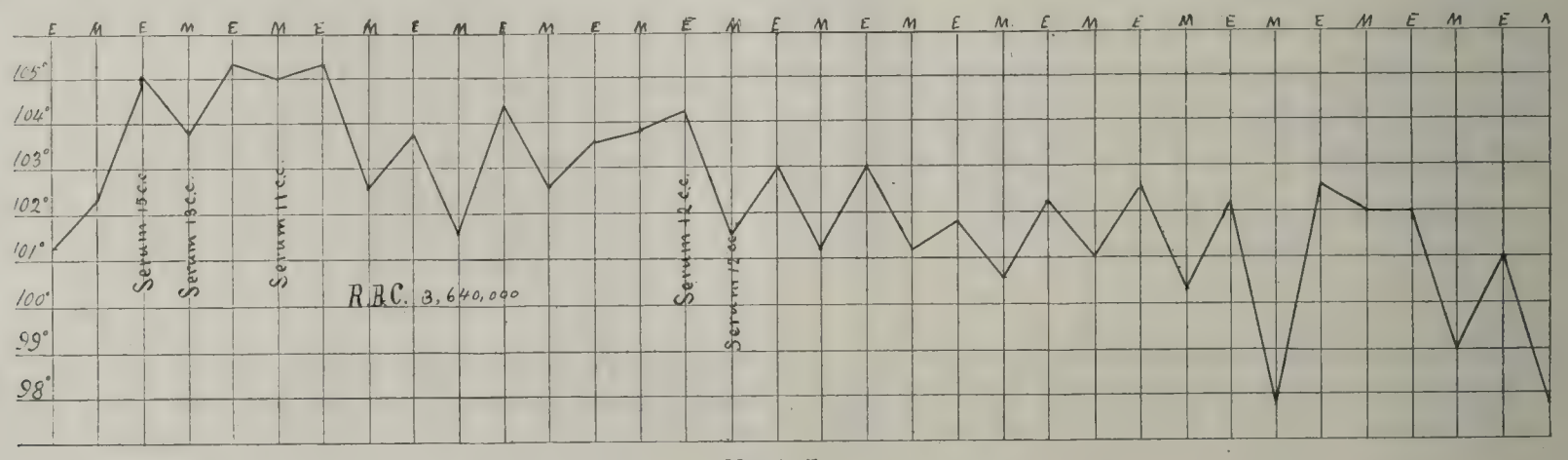


Chart 5.

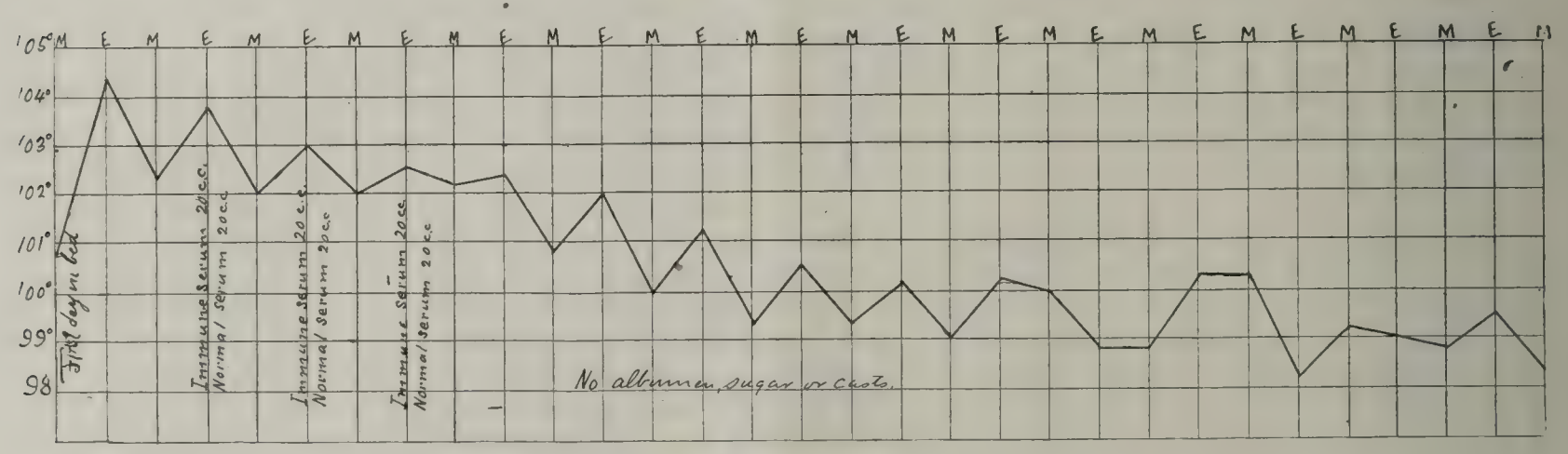


Chart 6.

heated serum. Experiment 19 shows a curious phenomenon, namely, that although unheated immune serum in heated dog's serum is not destructive to the typhoid bacillus (see 16), yet if the immune serum is also heated to 56 C. it forms a combination with the heated dog's serum which almost entirely destroys the bacilli. Greater dilutions than 1 to 10 were not effective. Twenty-two, 23 and 24 simply show again the bacteriolytic effect of unheated dog serum on the typhoid bacillus.

On examining the preceding table No. 4, it will be seen that normal hog serum, and, of course, heated serum, are not destructive to the typhoid bacillus. as shown by 1, 2, 3 and 4. Nos. 5, 6, 7 and 8 all show that varying amounts of hog and immune serum are equally as ineffective, but No. 7 shows a curious phenomenon. Although the immune serum and the complement of hog serum will not act against the typhoid orchitis, and from the spleen of a fatal case were tested along with the Wassermann organism in order to see whether the serum was destructive to a typhoid organism which had not been used in immunizing the animal. It will be seen that Nos. 5 and 6 give the most satisfactory bacteriolytic results, and this was exerted on an organism which had not been used for injecting the hog. It had little or no effect on the organism isolated from the spleen, as shown by Nos. 9 and 10.

RESUME OF THE BACTERIOLYTIC ACTION OF THE SERUM.

These experiments might be summarized by stating that one cubic centimeter of immune serum, even after being heated to 58 C., was completely destructive to the typhoid bacillus, while control cultures in twenty-four hours showed from 50,000 to 100,000 colonies. Normal hog serum was not destructive to *Bacillus typhosus*. The tests also showed that similar results were obtained

if either heated or unheated immune serum in quantities as small as 1/10 of a cubic centimeter were added to 9/10 of a c.c. of bouillon, or salt solution and bouillon containing the typhoid bacillus. Heating to 58 C. did not destroy the bacteriolytic effect of the serum, as the plates were absolutely sterile, while the controls numbered about 50,000 colonies.

Heated and unheated serum 1/10 of a c.c. plus 9/10 c.c. of bouillon were also used on two cases of typhoid bacilli which were not used in producing the serum, and they completely or almost completely destroyed the organism in twenty-four hours. Even equal parts of human and immune hog serum showed no hemolysis, and the immune serum was bacteriolytic when mixed with human serum in 1 part to 9 of human serum.

HEMOLYTIC EXPERIMENTS.

Experiments in hemolysis were performed with human blood from the placenta. The blood was washed three times in normal salt solution after centrifugalizing each time and pouring off supernatant fluid.

One to 12 inclusive, after three hours in incubator at 37 C., showed a clear supernatant fluid, and bright arterial red sediment. This examined under microscope consisted of normal red blood corpuscles, 16 to 19, inclusive, showed similar condition. Thirteen, 14 and 15 showed a darker venous red sediment which re-

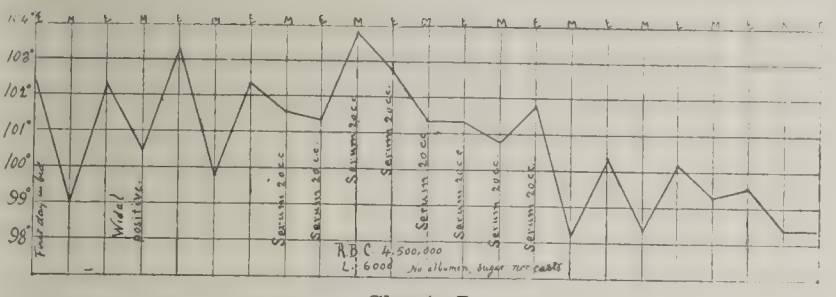


Chart 7.

sembled a partially decomposed clot, and under the microscope the red blood corpuscles were of normal appearance, but showed distinct agglutination.

All were then placed in incubator for five hours and condition was the same except 13, 14 and 15.

TABLE No. 8.

Human Serum from Umbilical Cord.	Colonies in Agar Plates.		
	No hours.	6 hours.	24 hours.
1. 0.5 c.c. serum + laboratory typhoid + 0.5 c.c. salt solution....	1020	Sterile.	Sterile.
2. 0.5 heated serum 58 C. + laboratory typhoid + 0.5 c.c. salt solution	600	9000	Innumerable.
3. 0.5 c.c. human serum + 0.01 c.c. immune serum + 0.5 c.c. salt + laboratory typhoid.....	420	Sterile.	Sterile.
4. 0.6 c.c. serum + 0.01 c.c. immune serum + 0.5 c.c. salt + laboratory typhoid.....	400	"	"
5. 0.7 c.c. serum + 0.01 c.c. immune serum + 0.5 c.c. salt + laboratory typhoid.....	750	"	"
6. 1 c.c. serum + 0.1 c.c. immune + laboratory typhoid.....	600	"	"
7. 0.5 immune serum + 0.01 c.c. human + 0.5 c.c. salt + laboratory typhoid	180	750	"
8. 0.6 immune serum + 0.01 c.c. human + 0.5 c.c. salt + laboratory typhoid	600	300	"
9. 0.8 immune serum + 0.01 c.c. human + 0.2 c.c. salt + laboratory typhoid.....	720	75	"
10. 1 c.c. immune serum + 0.01 c.c. human + 0.2 c.c. salt + laboratory typhoid.....	600	345	"
11. 1 c.c. human serum + 0.1 c.c. immune serum + laboratory typhoid	600	Sterile.	"
12. 1 c.c. heated human serum + 0.1 c.c. immune serum + laboratory typhoid	750	800	5000
13. 1 c.c. human serum + 0.01 c.c. immune serum + laboratory typhoid	450	Sterile	Sterile.
14. 1 c.c. human heated serum + 0.01 c.c. immune serum + laboratory typhoid	3000 (½ c. c.)	6000	Innumerable.
15. 1 c.c. salt solution + 1/10 c.c. immune serum + laboratory typhoid	1200	1200	12

A microscopic examination of the sterile tubes shows no bacteria present showing complete bacteriolysis.

Three cubic centimeters were then placed in each of 15 tubes. The fluid represented 2 c.c. of pure blood + 8 c.c. of sterile solution.

Varying amounts of serum heated at 56 C. sterile serum No. 2, and trikresolized serum No. 2 were added to these tubes; they were then placed in the thermostat for three hours, and then placed on ice for 12 hours.

TABLE No. 7.—HEMOLYTIC WORK. HUMAN BLOOD.

	Hemolysis.
1. 3 c.c. blood + 0.03 c.c. of heated serum.....	0
2. 3 c.c. blood + 0.3 c.c. of heated serum.....	0
3. 3 c.c. blood + 0.6 c.c. of heated serum.....	0
4. 3 c.c. blood + 1.5 c.c. of heated serum.....	0
5. 3 c.c. blood + 3 c.c. of heated serum.....	0
6. 3 c.c. blood + 0.03 c.c. of serum No. 2.....	0
7. 3 c.c. blood + 0.3 c.c. of serum No. 2.....	0
8. 3 c.c. blood + 0.6 c.c. of serum No. 2.....	0
9. 3 c.c. blood + 1.5 c.c. of serum No. 2.....	0
10. 3 c.c. blood + 3.00 c.c. of serum No. 2.....	0
11. 3 c.c. blood + 0.03 c.c. trikresolized serum No. 2.....	0
12. 3 c.c. blood + 0.3 c.c. trikresolized serum No. 2.....	0
13. 3 c.c. blood + 0.6 c.c. trikresolized serum No. 2.....	?
14. 3 c.c. blood + 1.5 c.c. trikresolized serum No. 2.....	?
15. 3 c.c. blood + 3 c.c. trikresolized serum No. 2.....	?
16. 3 c.c. blood + 0.003 c.c. trikresolized serum No. 2.....	0
17. 3 c.c. blood + 0.006 c.c. trikresolized serum No. 2.....	0
18. 3 c.c. blood + .009 c.c. trikresolized serum No. 2.....	0
19. Control.	0

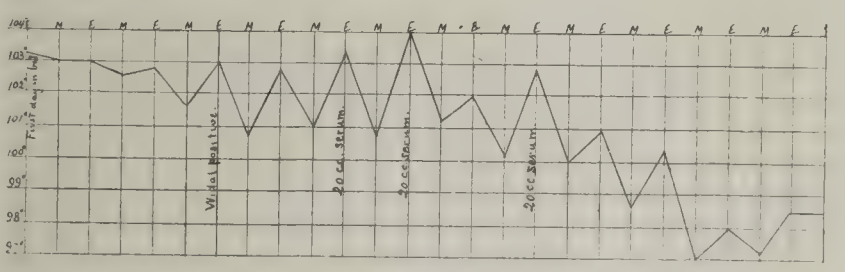


Chart 8.

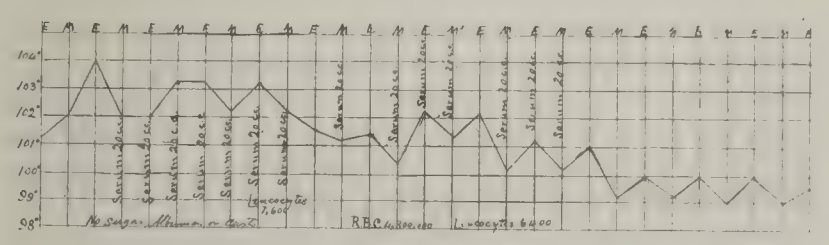


Chart 9.

In these the supernatant fluid was cloudy and the sediment chocolate brown, and on shaking up the fluid it became chocolate brown.

Under the microscope in 13, 14 and 15, about one-third of the red blood cells consisted of a clear colorless disc containing a few scattered yellow granules of hemoglobin. This effect is probably due to the trikresol, and not to the serum.

After twelve hours on ice the condition was the same. These experiments show that the immune hog serum has no injurious effect on red blood corpuscles, and the normal number of red blood corpuscles in the counts on our clinical cases also bears out this point.

immune body, or amboceptors. No. 15 shows the destructive effect of 1/10 c.c. of immune serum alone.

CLINICAL OBSERVATIONS.

Before recording our own observations we shall briefly record the work which has been previously performed by others in treating cases of typhoid fever with a curative serum.

Chantemesse[9] prepared a serum from horses by injecting them with a toxin prepared by filtering the

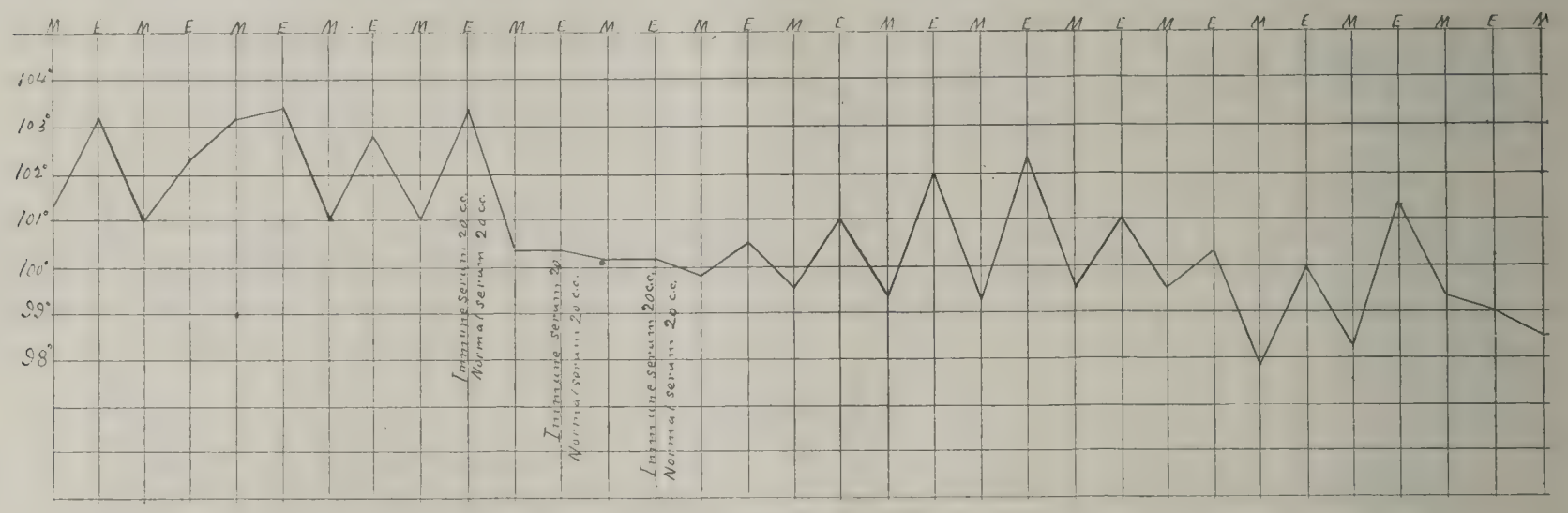


Chart 10.

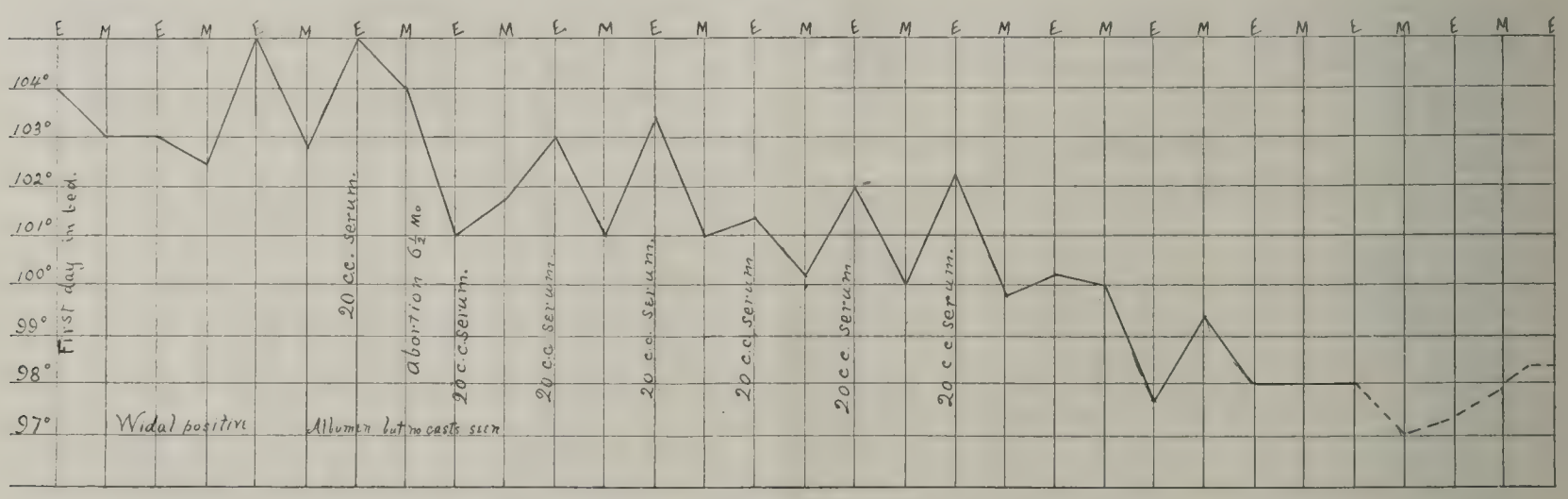


Chart 11.

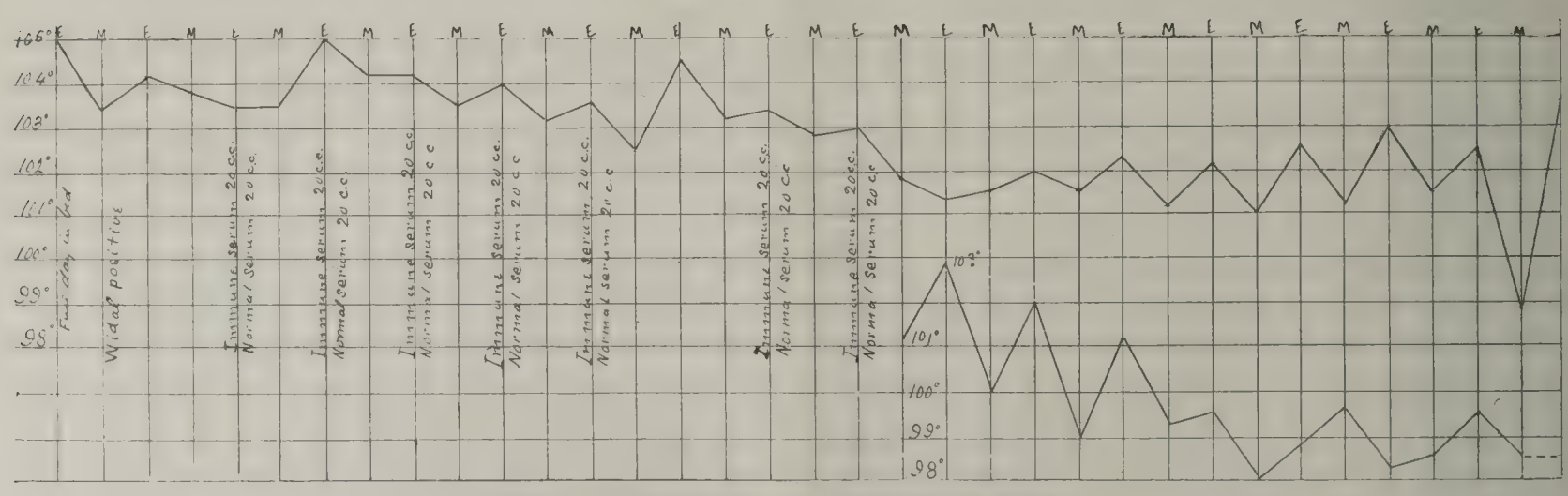


Chart 12. Temperature not influenced by serum.

Table No. 8 shows that human serum is quite destructive to the typhoid bacillus, and that quantities varying from 1/10 to 1/100 of a c.c. of immune hog serum find a congenial complement in the human serum. This also shows that one-tenth part of the immune hog serum does not cause any deviation or side-tracking[8] of the complement, by means of an excessive amount of fluid cultures. This serum in doses of .01 of a cubic centimeter prolonged the lives of guinea-pigs injected with varying doses of the soluble filtrate. He thinks that this serum is antitoxic, since its injection renders animals more resistant toward the soluble poison.

Chantemesse found that the general fatality from typhoid fever in the Paris hospitals was about 19 per cent., but in 186 cases which were treated with the se-

8. As for us, I know this term was prepared by Dr. Harry T. Marshall, of Johns Hopkins University.

9. Chantemesse: La Presse Med., No. 103, Dec. 24, 1902.

rum the fatality was only 3 per cent. He attributed this reduction to the use of the serum. The seven fatal cases had either peritonitis, hemorrhages or perforation.

Professor Tavel[10] of Berne has also used an immune serum in the treatment of typhoid fever, which is prepared by incubating 1.5 liters of a bouillon typhoid culture for two weeks, and then adding 0.5 per cent. of carbolic acid. This kills the bacilli and releases the intracellular poisons. Two horses were injected with gradually increasing doses of this bouillon until 150 c.c. could be taken. Later mixed dead cultures of four different races of typhoid bacilli were used, and at last living mixed cultures were injected. The serum was thus made polyvalent.

Tavel[10] has recorded 4 cases in which he used from three to six injections of his serum. In all of these cases the plateau stage of the fever was greatly lessened, and this was rapidly followed by the stage of decline. The pulse and respiration also fell with the temperature, and no unfavorable symptoms were noted. These four cases reached a normal temperature in 18, 20, 18, and 13 days respectively. He noted a fall of temperature often twenty-four hours after the injection of the serum, but found that a future rise of temperature had to be again combated by further injections.

Our series included 23 cases with two deaths. Autopsies were not obtained in either of the fatal cases.

CASE 1.—The first was a boy of 14, who had been in the hospital ten days when the injections were begun. He received eight doses of 10 c.c. each in four days. After the serum treatment began the boy developed a bullous dermatitis. The injections appeared to cause some decline in temperature, but in the middle of his third week in the hospital he developed otitis media followed by streptococcus septicemia, which proved fatal. (Chart 1.)

The other fatal case was seen in private practice.

CASE 2.—Man, aged 44, overfat, a civil engineer. He was seen in the beginning of his attack, having a temperature of 100 degrees.

Treatment.—Two days later his blood gave a distinct and prompt Widal reaction, and on the following day serum treatment was begun. His urine was not examined before the first dose of serum was injected, but was found to contain albumin and casts immediately after. He received in five days six doses of serum, 90 c.c. in all. After the third injection of serum the temperature began to drop and we were inclined to think that good results were to follow, but the temperature rose to 103 degrees on the thirteenth day in bed and the fifth day after the last injection. Intestinal hemorrhages appeared on the fourteenth day in bed. There were several copious losses on this day. Two days later hemorrhage reappeared, and on the night of the nineteenth day in bed he died.

Among the 21 cases ending in recovery, there were 15 in which we considered that the influence of the serum contributed to the favorable result. The temperature charts of 10 of these cases are shown. The cases in which no effect for good or evil was observed were 6 in number, and one of these is illustrated by a temperature chart.

One of the distinctly favorable cases was that of a young married woman of 23, who was six and a half months' pregnant. She aborted on the evening of the day when the first injection was given, but completed her defervescence in fourteen days. (Chart 2.)

One of the cases admitted to Johns Hopkins on the fourth day in bed was defervescent in ten days after admission, or on the fourteenth day in bed. No unfavorable effects on the kidneys or blood were reached by urinalysis or blood counts in any of the cases. The average period from admission to defervescence was in thirteen favorable cases, 12.6 days.

The laboratory experiments coincided with the clinical observations that the immune hog serum is not hemolytic for human blood. In one or two instances we encountered discouragement from associated clinicians who feared injury to the kidneys or hemolysis from the use of such large amounts of serum. In one case we stopped the serum in deference to the suspicion that it caused collapse. This patient was a sailor who came to the City Hospital in an exceedingly feeble state, having had diarrhea on ship board for two weeks. He was exceedingly depressed after each bath. The use of serum was, however, resumed after an interval of days, though tubbing was not resumed. The case appeared to be one of those favorable to the use of the serum.

CONCLUSION.

In conclusion, we believe that by the use of this serum the febrile period may be shortened, and the daily variation may be favorably modified.

DISCUSSION.

DR. CHARLES C. YARBROUGH, Detroit—In the experiments on hogs, was any air injected? If so, what results were observed from it?

DR. WILLIAM ROYAL STOKES—As we could not always shut off the injection just at the moment because it went in under rather heavy air pressure, air certainly got in; we noted an emphysematous condition of the tissues at times, but we did not see the slightest unfavorable results. It is hard to kill a hog.

DR. CHARLES C. YARBROUGH—The general opinion among the profession is that the injection of air is very dangerous. The average physician is very careful when he makes hypodermic injections, especially injections of serum, to see that every particle of air is expelled from the syringe before making the injection. A large number have a great dread of injecting even the minutest quantity of air. This dread, I believe, is wholly unfounded.

DR. JOSEPH MCFARLAND, Philadelphia—I have intentionally injected air under the skin of 16,000 guinea-pigs without noticing any unfavorable result. I did that in order to drive out of the hypodermic syringe every particle of mixture of diphtheria toxin and antitoxin in order to test the value of it.

10. Tavel: Schweizerisches Serum und Impf.-Inst., März, 1899.

LEAD POISONING.

A STUDY OF THE GASTRIC CONTENTS IN TWELVE CASES.*

JOSEPH SAILER, M.D., AND JOHN M. SPEESE, M.D.

PHILADELPHIA.

Last winter during my service at Blockley a patient was admitted suffering from severe intestinal colic due to chronic lead poisoning. In the hope of obtaining some information on the nature of the colic, a test-meal was obtained, and the findings were so interesting that, at my suggestion, my resident physician, Dr. John Speese, obtained test-meals of all the cases of lead poisoning that were available during the rest of the winter. The results were so nearly uniform that it seems unlikely that a more extended series of investigations will show any material difference. The technic was as follows: Usually with, sometimes without, a preliminary washing, the patient was given a test-meal of two slices of bread and about twelve ounces of water. One hour after the patient commenced eating, the stomach contents were withdrawn by aspiration, measured

* Read before the medical section of the College of physicians.

and tested for free acid with Congo red, then filtered and examined. The total acidity was tested with decinormal soda solution, using phenolphthalein as an indicator, the first permanent pink being employed to determine the degree of acidity. Free hydrochloric acid was tested for qualitatively by Congo red and phloroglucin vamillin, and quantitatively by dimethylamidoazobenzol occasionally using Günzberg's reagent as a control. Lactic acid was tested for with Uffelmann's reagent, using the reaction produced in another tube with a dilute solution of lactic acid for comparison. Pepsin was estimated by a slight modification of Hammerschlag's method, as follows: The white of one egg (about 30 cm.) was dissolved in 1,000 c.c. of 0.4 per cent. HCl. To 10 cm. of this solution 5 cm. of filtered gastric juice were added, and to another 10 cm., 5 cm. of distilled water. The tubes were plugged, placed in the incubator for one hour, and the percentage of albumin estimated by centrifugation after precipitation with acetic acid and potassium ferrocyanid, according to Purdy's method. Hammerschlag's method has been subjected to a considerable degree of criticism, and has been as warmly defended. Undoubtedly, it does not give accurate, merely approximate results, but no method hitherto devised for the estimation of pepsin that is clinically applicable does any more than this. As a clinical test it certainly seems satisfactory. Dr. Speese and Dr. Lavenson performed it nearly 200 times last winter on different cases of gastric disease, and in nearly all instances it conformed very closely to what would theoretically have been expected. Most conservatively estimated, it suffices to show at least three degrees of peptic digestion, i. e., "none," " little" and "much." and its most enthusiastic supporter will hardly claim that the range of error is less than 10 per cent. in either direction. It can not, therefore, be considered scientifically accurate, but absolute accuracy is not essential. In all cases microscopic examination was made for the presence of the Oppler-Boas bacillus, and wherever possible the blood stained for basophilic degeneration, but this, unfortunately, could not be done in every case. The cases are as follows:

CASE 1.—J. S., male, aged 26, Russian, a painter. A satisfactory history was not obtainable. The symptoms were a blue line on the gums, constipation, abdominal pain and vomiting. Blood: Hemoglobin, 68 per cent; white blood cells, 5,000; red blood cells, 3,100,000. Granular degeneration of reds present.

GASTRIC ANALYSIS.

	First.	Second.
Total acidity	17	10
Free HCl	Absent	Absent
HCl deficit	10	13
Lactic acid	Present	Present
Pepsin	50%	20%
Oppler-Boas	Negative	Negative

CASE 2.—P. C., male, aged 40, leadworker. He had lead colic four years ago, when he stopped working in lead; he returned to it three weeks ago, with a recurrence of symptoms. These were constipation, pain in the abdomen, blue line on the gums and nausea.

GASTRIC ANALYSIS.

Total acidity	10
Free HCl	Absent
HCl deficit	10
Lactic acid	Present
Pepsin	8%
Oppler-Boas	Negative

CASE 3.—T. M., aged 44, white, paint mixer. He had had lead poisoning in 1899 and a second attack in 1902, with wrist-drop, which became bilateral in 1904. There was abdominal pain, constipation, fetid breath, a blue line on the gums, and wrist-drop. After one hour's digestion of an Ewald meal, 3 ounces were recovered containing some undigested food, mucus and blood.

GASTRIC ANALYSIS.

Total acidity	8
Free HCl	Absent
HCl deficit	12
Lactic acid	Present
Pepsin	10%
Oppler-Boas	Negative

CASE 4.—F. R., aged 44, white, Ireland, a painter. He had had several previous attacks of lead colic and on admission complained of pain in the abdomen and constipation. There was a blue line on the gums and anemia. The blood showed granular degeneration of red blood cells. The Ewald meal was given; one hour's digestion; two ounces withdrawn containing a few particles of undigested food, no blood nor mucus.

GASTRIC ANALYSIS.

	First.	Second.*
Total acidity	10	16
Free HCl	Absent	Absent
HCl deficit	18	14
Lactic acid	Present	Present
Pepsin	Absent	Absent
Oppler Boas	Negative	Negative

* Second admission with same symptoms.

CASE 5.—W. R., aged 43, white, leadworker. The symptoms were anemia, constipation, a blue line on the gums, and, in addition, acute mania. The blood showed granular degeneration of the red cells.

GASTRIC ANALYSIS.

Total acidity	6
Free HCl	Absent
HCl deficit	8
Lactic acid	Present
Pepsin	6%
Oppler-Boas	Negative

CASE 6.—J. C., aged 42, white, painter. The symptoms were a blue line on the gums, constipation, abdominal pain, anemia and weakness in the muscles of the arms.

GASTRIC ANALYSIS.

Total acidity	13
Free HCl	Absent
HCl deficit	18
Lactic acid	Present
Oppler-Boas	Negative

CASE 7.—T. R., painter, aged 26, Philadelphia. The patient had never had symptoms of lead poisoning, although he had worked at this trade for several years. He was somewhat anemic, slightly constipated, and had a blue line on the gums. He was admitted with pneumonia, and a test meal was given as an experiment. It was retained for one hour and two and a half ounces withdrawn; it was white in color and the digestion was complete. There was no blood but some mucus.

GASTRIC ANALYSIS.

Total acidity	34
Free HCl	25
Lactic acid	Absent
Pepsin	100%
Oppler-Boas	Neg.

CASE 8.—J. C., ward 5. He has been a lead worker for several years, although there is no history of a previous attack. He complained of pain in the abdomen, constipation; there was a blue line on the gums, loss of power in the left arm, with some atrophy of the muscles, but no wrist-drop. There was granular degeneration present in the blood; reds, 3,600,000; whites, 6,000. Toast and water, one hour's digestion, one and a half ounces recovered, partially digested, no blood, no mucus. On washing, a considerable amount of food was recovered.

GASTRIC ANALYSIS.

	First.	Second.
Total acidity	14	9
Free HCl	Absent	Absent
HCl. deficit	14	10
Lactic acid	Present	Present
Pepsin	Absent	Absent
Oppler-Boas	Suggestive	

CASE 9.—E. S., aged 34, white, lead burner. He had never had any previous attack of lead poisoning. The symptoms began several weeks before admission. He first noticed constipation, followed by severe abdominal pain centering at the umbilicus. There was a blue line on the gums, loss of power in the left arm and hand, but no wrist-drop. He has worked

steadily at his trade for the past sixteen months. Toast and water given, digestion one hour. About an ounce recovered, consisting of a few particles of undigested food, but no blood or mucus. On washing a small amount of undigested food was recovered.

GASTRIC ANALYSIS.

	First.	Second.
Total acidity	12	11
Free HCl	Absent	Absent
HCl. deficit	12	5
Lactic acid	Present	Present
Oppler Boas	Negative	
Pepsin		7%

The blood showed degeneration of the red blood cells.

CASE 10.—M. H., aged 46, white, Ireland. He has worked in lead and brass. He had lead poisoning one and a half years ago. Three months ago he developed pain in the abdomen, weakness in the arms and legs, and a blue line on the gums. The active symptoms of lead poisoning have disappeared, and the chief trouble at present is due to paralysis and weakness of the muscles of the arms. No granular degeneration in the blood. Ewald meal, one hour digestion, three ounces recovered. Some undigested food and mucus, but no blood.

GASTRIC ANALYSIS.

Total acidity	9
Free HCl	Absent
HCl. deficit	8
Lactic acid	Present
Pepsin	23%
Oppler-Boas	Negative

CASE 11.—J. F., white, aged 42, Ireland. He had lead poisoning five years ago, and has been a lead worker at intervals for the past seven years. He complains of general weakness, pain in the abdomen, headache, vertigo, anorexia and weakness of the wrists. Ewald meal, one hour digestion; watery contents and undigested food. No mucus or blood.

GASTRIC ANALYSIS.

Total acidity	9
HCl. deficit	9
Lactic acid	Present
Pepsin	Absent
Oppler-Boas	Negative

CASE 12.—G. E., white, aged 39, Sweden. He had been a lead worker for three weeks; he had been very careless about his habits. He developed severe abdominal pain, which was present on admission, constipation, and had a slight blue line on the gums. His appearance was anemic. Blood: Hemoglobin, 61 per cent.; red blood cells, 3,290,000; white blood cells, 11,800. Basophilic degeneration of the red cells. Ewald meal, one hour digestion. Slight amount of mucus, some undigested food, and no blood, regained. Two ounces recovered. On washing a considerable amount of food was recovered.

GASTRIC ANALYSIS.

Total acidity	35
Free HCl	8
Lactic acid	Negative
Pepsin	40%
Oppler-Boas	Negative

SUMMARY OF GASTRIC ANALYSES.

No.	Total Acidity.	Free Acid.	HCl. Deficit.	Lactic Acid.	Peptic Digestion.	Oppler-Boas.	Granular Degeneration.
7	34	25	0	0	100%	Neg.	
12	35	8	0	0	40%	Neg.	Present.
1	17	0	10	Present.	50%	Neg.	Present.
1	10	0	13	Present.	20%	Neg.	
2	10	0	10	Present.	8%	Neg.	
3	8	0	12	Present.	10%	Neg.	
4	10	0	18	Present.	0	Neg.	Present.
4	16	0	14	Present.		Neg.	
5	6	0	08	Present.	6%	Neg.	Present.
6	13	0	18	Present.		Neg.	
8	14	0	14	Present.	0	Sug	Present.
8	9	0	10	Present.	0		
9	12	0	12	Present.	7%	Neg.	Present.
9	11	0	5	Present.			
10	9	0	8	Present.	23%	Neg.	Absent.
11	9	0	9	Present.	0	Neg.	

These twelve cases fall naturally into two groups, the first comprising Cases 7 and 12, and the second, Cases 1 to 6 and 8 to 11, inclusive. Case 7 may be dismissed briefly. It is probably not a case of lead poisoning, the only symptom being the blue line on the gums, which is occasionally seen on workers in lead apparently as a result of a deposit of dust containing lead on the mucous membranes. His gastric analysis was practically normal. Case 2 was evidently one of acute lead poisoning. The man had only worked in lead for three weeks; the symptoms were moderate, but the basophilic degeneration of the reds may be accepted as proof that intoxication had occurred. The gastric analysis showed a mild degree of subacidity, and a rather pronounced reduction in the activity of the pepsin. The remaining 10 cases are all examples of achylia gastrica, or of subacidity with reduction of the pepsin. Altogether, 14 test-meals were obtained, which gave the following results:

SUMMARY OF TEST MEAL RESULTS.

The total acidity varied from 6 to 17; the average was 11.

Free hydrochloric acid was absent in every analysis.

The deficit of hydrochloric acid varied from 5 to 18; the average was 11.5.

Lactic acid was present in every case. No quantitative estimations were made.

The peptic digestion was absent in three cases. It was 50 per cent. of normal in the first test meal of the first case and 20 per cent. of normal in the second test meal of this case. In Case 10 it was 23 per cent. of normal and in the remaining cases it varied between 6 per cent. and 10 per cent. of normal.

The Oppler-Boas bacillus was not found. In Case 8 it was reported as suggestive but the mere finding of a few long, thick bacilli can not be regarded as indicating its existence, at least not in the typical manner that occurs in carcinoma.

The red blood cells were stained for basophilic degeneration in seven cases. In six cases it was present (Cases 1, 4, 5, 8, 9 and 12), and in one case it was not found (Case 10).

In the cases of achylia and subacidity abdominal pain was noted in every case excepting the fifth.

The blue line on the gums was present in every case excepting the eleventh.

Constipation was present in eight cases; anemia in four.

One patient had vomiting, and one complained of nausea.

Unfortunately, the absence of symptoms was not noted, and it is impossible to be sure that these statistics are accurate. Lead encephalopathy was present in one case; weakness of the arms, sometimes amounting to wrist-drop, was present in six cases.

The duration of these cases was fairly long. Four of them had had previous attacks at various intervals up to nine years. In two cases the duration was not noted excepting the statement "for some time;" in all the others the duration was a year or more.

I have made a careful study of the literature in order to discover confirmation of these investigations, and have been unable to do so. I have gone in vain through the *Archiv für Verdauungskrankheiten*, including the abstracts from the literature, and through most of the recent text-books on the subject. Von Jaksch fails to mention it. It seems to me curious, in view of the pronounced digestive symptoms produced by lead, that this is the case.

Of course, a small series of cases is not decisive, but it seems fair to expect that in the majority of cases of chronic lead poisoning, or intoxication, disturbance not only of the gastric secretion, but (when they can be tested) of other forms of secretion, will be found. It is one of the misfortunes of the present day in clinical medicine that we have no means of obtaining the pancreatic secretion; but the salivary secretion may be obtained, and I hope to investigate it in a subsequent series of cases.

The mechanism by which this alteration of secretion is brought about is not clear. Whether it is merely a

functional disturbance of the glands, or whether there is actually some anatomic alteration, is not known. I have been entirely unable to obtain portions of the stomach from a fatal case of lead poisoning in order to determine this point, but the opportunity will certainly arise in the course of time.

The only conclusions that are at present justifiable appear to be:

1. In a series of 12 cases of lead poisoning, or suspected lead poisoning, there was deficiency in the secretion of HCl in 10 of the chronic cases, and no deficiency in 2, one of which was doubtful and the other acute.

2. This deficiency in the secretion of free HCl in the majority of cases is associated with an extreme reduction in the percentage of peptic digestion, and with the presence of lactic acid.

3. It is not justifiable at present to regard it as an indication for treatment, at least not until the effects of the ordinary treatment for achylia gastrica in cases of lead poisoning have been tested.

BRAIN HEMORRHAGE.*

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While brain hemorrhage is not of common occurrence, it happens with sufficient frequency to make its discussion of more than passing interest to the general practitioner. In this paper I shall take into consideration only those cases which are the result of degeneration of the arterial tunics.

Degenerative changes in the coats of the blood vessels were noticed and commented on in the early days of medicine by Lobstein, who gave it the name by which it has since been known—arteriosclerosis. Morgagni and Senac also speak of it. To Rokitansky and Virchow and, more recently, to Thoma we are indebted for a thorough investigation of the nature of the process, which I shall not take the time to discuss. I shall assume that the pathologic changes in arteriosclerosis and atheroma are practically the same—differing only in degree. In the small arteries of the brain substance we find minute aneurismal pouches caused by the gradual giving way of the diseased coats. As these blood vessels possess no true outer coat, their dilatation under the combined influence of disease and increased blood pressure becomes an easy one. Of capillary hemorrhages following the plugging of a vein I shall not speak, and while hemorrhage from a vein may occur, hemorrhage is practically always from an artery. It will not be amiss, I think, but profitable to notice at the outset some of the causes that lead to changes in the coats of the blood vessels. These alterations may result from a multiplicity of conditions, some of which are fairly well understood, while others are decidedly obscure. When we think of arterial degeneration, we are too prone, I fear, to picture to ourselves an old man who has lived his allotted time on earth and in whom decay and deterioration are plainly visible in every body cell. This is a fatal error. Arterial degeneration may and often does take place, from causes we can not well fathom, in those who are comparatively young; and that it does occur in these cases is patent to all who have had a fairly wide clinical experience.

That the consumption of large quantities of alcoholic beverages is a potent factor in bringing about this degeneration has been recognized for years. It is true that not all who use alcohol in its various forms have disease of the arterial coats, but it is found too frequently in this class of cases to be more than a mere coincidence. Not only does this poison affect the blood vessels, particularly of the brain, but also, in consequence of the effect of the alcohol on the glands and mucous membrane of the stomach and liver, poisons of varying degrees of intensity and non-oxidizable in character are found circulating in the body fluids, and we have this secondary cause added to the primary, with greater or less disease in the coats of the blood vessels.

I am satisfied that among business men, weighted with the responsibilities of large enterprises, who think long and persistently and yet drink constantly, these phenomena are most marked and come on earliest. At the last session of the American Medical Association, Cabot[1] of Boston read a paper in which he brought forward statistics to prove that alcohol is not the potent factor in the production of arterial degeneration that it is supposed to be; and yet the experience of the profession as a whole lends color to the belief that alcohol is, both directly and indirectly, a cause of this condition. Indeed, those who do not use alcohol in any of its forms but who lead a strenuous life, with but little freedom from worry and anxiety and with practically no exercise, become prematurely old and have premature vascular decay. In these cases, in some mysterious way, chemic or otherwise, toxins are developed which slowly but nevertheless surely bring about arterial degeneration. Or it may be, as has been suggested by Romberg, that the irregular blood pressure caused by an unstable and overwrought nervous system is the cause.

Next to alcohol as a factor in the production of these pathologic changes stands syphilis, and like alcohol its evil effects are seen in a most pronounced way in the blood paths of the brain. The syphilitic poison, whatever it may be, interferes with the nutrition of the walls of the blood vessels, destroying in a measure their elasticity, and thereby allowing them to become weakened and dilated. In some cases we may find both alcohol and syphilis operating as causes, as in a case I have under observation now.

In brain hemorrhage, chronic interstitial nephritis with its unknown antecedents should always be thought of and looked for, and is next in importance to the causes I have already assigned. In this disease, as prominent symptoms there are marked changes in the walls of the blood vessels, increased peripheral tension, followed by cardiac hypertrophy with its augmented potential energy. Whether the degeneration of the blood vessels is primary and the kidney lesion secondary or vice versa, I can not say. It is certain that toxic substances circulating through the blood and not eliminated by the kidneys, must sooner or later produce this form of degeneration. Indeed, these poisons bring about destructive changes in the kidneys in the same manner as in the coats of the arteries.

It is within the range of possibility that an increased activity on the part of the suprarenal glands may be a cause of greater or less intensity in the production of arteriosclerosis. Just to what extent this is operative as a cause can not be definitely stated, as it will require

* Read at a meeting of the Northwestern Ohio Medical Association at Tiffin, 1904.

1. THE JOURNAL, Sept. 17, 1904, p. 774.

a great deal of experimental, as well as clinical, research to determine it.

A multiplicity of other factors might be mentioned as leading to vascular decay, but as these are sufficient for the purpose of this paper I will not consume time in their discussion. Aside from the disease of the blood vessels, another factor is essential to the production of cerebral hemorrhage, and that is increased intracranial blood pressure. Branches of the middle meningeal artery are the ones most frequently ruptured; and particularly is this true of the lenticulostriate artery. Mendel has pointed out that the normal blood pressure is higher in this artery than it is in the cortical or other small arteries of the brain. If this be true, it will account in a rational way for the more frequent rupture of this artery.

There are so many causes that lead to increased blood pressure that it would be impossible to mention them all. Indeed, the patient is seldom seen until after the artery has been ruptured. If the physician is consulted before actual mischief has been done, he should point out the danger arising from sudden, severe, muscular effort, such as lifting, running to catch street cars, straining at stool, in short, anything that is liable to excite the heart's action. I wish to emphasize particularly the injurious influence arising from the pleasures of the table. Attacks of indigestion, which in this class of cases are so liable to follow a full meal, are a very great source of danger. The heavy meal should be at midday and the last meal should be taken at least three hours before going to bed. All articles of diet which produce flatulence should be avoided because of the danger of bringing on disturbed heart action. This distention of the stomach and bowels with resulting increased cardiac force, will explain many of those cases of sudden death which are encountered at times. The individual will go to bed at a seasonable hour after a hearty meal, apparently in the best of health and with perfect tranquillity and will be found dead in the morning. Tea and coffee should be entirely omitted from the dietary for the reason that they, too, disturb cardiac repose. For the same reason, anything containing alcohol should be tabooed. There can be no doubt that as man grows older less food should be eaten, particularly meats. This applies with greater force to those who have the responsibilities of business and professional work. We are a nation of high livers, and sooner or later we must pay the penalty.

As I have already said, we are seldom called until after the hemorrhage has taken place. These bleedings are not always profuse, but at times are slight in character and well-directed management will be of incalculable benefit to the patient. Nowhere in the whole domain of medicine is it more necessary to have well-defined ideas of what to do, and then do it. In these cases we must act quickly. Delays are dangerous. The individual should be subjected to as little handling as possible. This is a matter of vital importance. If at home, he should be made comfortable just where the attack comes on him. The head should be elevated and the clothing loosened. If the extremities are cold they should be surrounded with bottles of hot water. The dosing of the patient with ergot, iron, tannic acid and bromid is worse than useless. We have two factors to contend with—a broken blood vessel and a rapidly working, forceful heart pumping blood into it.

Manifestly, then, what is needed is quickly acting, powerful cardiac depressants, something that will limit the ability of the heart to pour blood into the bleeding vessel. I need hardly say that we can not stop the flow of blood into the ruptured artery, but we can lessen it. Moreover, there is increased peripheral tension, which must be relieved. The remedies to be used, named in the order of importance, are aconite, veratrum viride and gelsemium, and venesection. If the fluid extract of aconite is used it should be given in good-sized doses until its physiologic effects are apparent, say from five to ten minims every 30 minutes, when the dose is to be lessened or the interval lengthened. In the more pronounced forms of the trouble, when the patient can not swallow well, aconitin, in 1/50 or 1/100 of a grain, should be given hypodermically and repeated when necessary. When veratrum viride is used the initial dose of the fluid extract should not exceed five minims. This drug is a powerful cardiac depressant, but its action should be carefully watched in order to avoid producing nausea and vomiting. Gelsemium, by its direct action on the heart, is a most serviceable drug in these cases, and because of its lessened liability to produce nausea it is possibly to be preferred to veratrum. When the face is markedly cyanosed and when the individual is decidedly full-blooded, phlebotomy may be practiced with most gratifying results; but when the individual is of spare habit the loss of sufficient blood to be beneficial might put him at a disadvantage in his future struggle for recovery. Hypodermoclysis, by reason of its causing increased cardiac action, is not to be thought of. There is a growing belief that gelatin, by reason of its increasing the coagulability of the blood, is indicated in cases of concealed hemorrhage. It may be given by the mouth or injected under the skin. The amount hypodermically is usually about 250 c.c. of a 1 per cent. solution in a normal saline mixture.

To the larger portion of the profession, however, this procedure is lacking in practicability because gelatin might not be at hand from which to prepare the solution. Another objection is its slowness of action, and this I consider a serious one, for in cases of this character a prompt, energetic response is required. It goes without saying that stimulation with whiskey, brandy or strychnia is contraindicated.

Cathartics of any kind should not be used for the first few days because of the disturbance the act of defecation produces. When a cathartic is given, I think the mild chlorid of mercury the best.

The ice-cap to the head is recommended by competent physicians, and yet I regard it as of doubtful utility. I am at a loss to know how it can in any way influence the circulation in the deep structures of the brain, particularly such small arteries as those that are ruptured.

The patient should be kept absolutely quiet in bed for ten days or two weeks, and during this time should not be allowed to see any one except the physician and those in immediate attendance.

Clear-Cut Therapeutics.—One of the fatal mistakes made by the unthinking physician is to so medicate as to mask symptoms—a veritable burying of clean-cut therapeutic possibilities in medicines not indicated. This is a direct outgrowth of uncertain remedies, always the precursor of uncertain application. Given true remedies, there is courage for the physician to study certainty of application, out of both of which comes scientific practice.—*Alkaloidal Clinic.*

THE MANUFACTURE AND USE OF TIN SPLINTS.

WITH SOME SPECIAL APPLIANCES.*

ARTHUR T. MANN, M.D.

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MINNEAPOLIS.

I have chosen this subject not because tin splints are not used but because the general practitioner does not realize how easily he can make them himself to fit each individual case, and because I have some special devices to offer which I have found of considerable value.

Sheet tin is a material peculiarly adapted to form some of the common splints we are called on to use. It is thin and light, when shaped into a splint it has considerable firmness, and it is a material which is easily manipulated. The equipment is simple—a small vise, tin shears, a hammer, a 5-cent punch and a few small rivets. I have made all the splints which are illustrated in this article out of about 30 cents' worth of tin. I have a metalworker's hammer; it is a convenience, but most of my work has been done with a common, cheap, carpenter's hammer. A small block of soft metal or a piece of hard wood is a convenience.

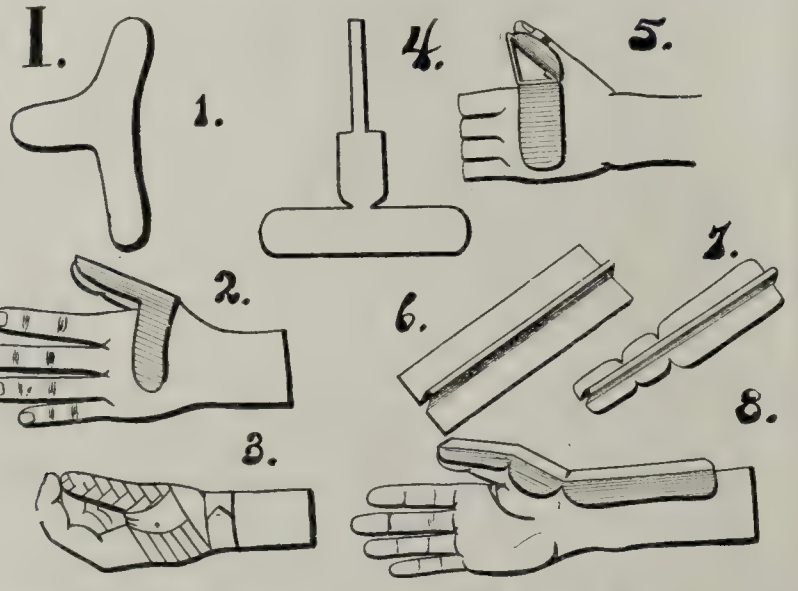


Chart 1.—Thumb splints. 1, 2 and 3, Dorsal splint; 1, Pattern; 2, outline for pattern; 3, splint applied. 4 and 5, Goldthwait splint; 4, Pattern; 5, splint; 6, 7 and 8, long dorsal splint; 6, Shows the ridge for strength; 7, outline cut; 8, bent and shaped.

In the manufacture of splints it is no small consideration that we can make a splint to fit the individual case. A pattern is easily made by laying a sheet of paper on the place to be fitted and then marking a rough outline of the splint to be made, e. g., on the dorsum of the thumb for the dorsal thumb splint (Chart 1, Fig. 2). The paper is now removed and the rough outline is again gone over with the pencil to smooth out its irregularities. This is cut out and serves as a pattern (Fig. 1). This pattern is laid on the tin sheet and outlined with a pencil or scratched with a metal point, such as a nail or scissors. The splint is then cut out and shaped to fit the part. In order to give it a finished appearance and to cover any ragged edge it may have, a narrow strip of surgeon's plaster is rounded over the edge about the splint.

This dorsal splint makes a firm splint for the thumb when properly fastened, and it lends itself gracefully to bandaging (Fig. 3). In Figures 4 and 5 we have the splint devised by Goldthwait of Boston. The pattern, Figure 4, may be made by marking the lower wings the width and length for the bearing on the hand, the middle portion the length and width desired for the thumb, and the upper portion about one-quarter of an inch wide and long enough to bend downward and then backward to or beyond the angle at the base of the thumb and thus to act as a brace for the thumb piece, Figure 5. A strip of surgeon's plaster placed downward over this strip and then turned under the hand-piece serves to hold it firmly in place. The middle portion is trimmed and shaped to fit the thumb and the splint is finished, as all the splints are, by a narrow strip of surgeon's plaster about the edges.

These two patterns form serviceable splints for the thumb and they are simple and easy to make. There are several other patterns which suggest themselves, but these will suffice and we will pass on to the long dorsal thumb splint (Figs. 6, 7 and 8). This splint gets its strength from the ridge, which is made by folding the strip of tin along its middle line, first by hand and then by pounding it with the hammer along the bend, using repeated blows of medium force until it is quite flat and straight. This fold is placed about a quarter of an inch deep between the jaws of the vise and the

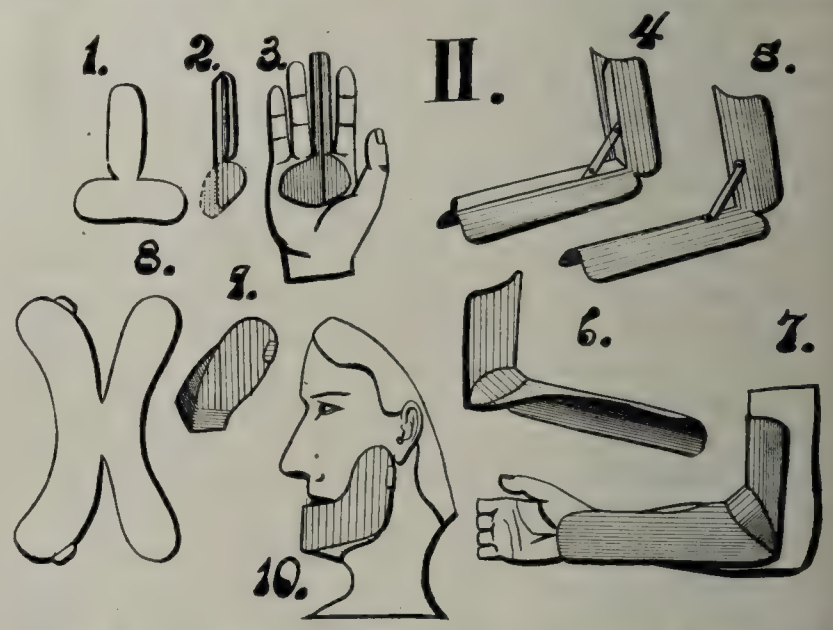


Chart 2.—1, 2 and 3, Finger splint: 1, Pattern; 2, splint; 3, splint applied. 4, 5, 6 and 7, Internal angular elbow splint; 4, With the ridge; 5, without the ridge; 6 and 7, with forearm piece swung to the inside for "thumb-up" position. 8, 9 and 10, Jaw splint: 8, Pattern; 9, splint bent—shows half of splint; 10, splint applied.

free edges are bent outward in successive portions from one end of the splint to the other. To make it flat and smooth along the center it is hammered while still in place but with the vise just loose enough to allow it to be drawn slowly through from one end to the other. It is evident that the strip of tin from which the splint is to be made should be cut half an inch wider than the splint is intended to be in order to allow for the double fold in the ridge, and it should be as long as the desired splint.

The splint is to be bent to conform to a natural position of the thumb and of the wrist. At the points corresponding to the base of the thumb and to the bend at the wrist, the tin should be cut straight in to within a quarter of an inch of the ridge, to allow the shaping of the splint after it is bent. The three segments of the splint should be trimmed to fit the parts they are to lie against. The ridge is now grasped in the vise and the splint bent backward at the wrist angle. The wrinkle made in the ridge is pounded smooth. This rivets it

* Read at the meeting of the Western Surgical and Gynecological Association in Milwaukee, 1904.

to itself and makes it firmly support the bend in the splint. The angle for the thumb is bent in the opposite direction. This time the ridge is stretched but it is very firm. The tin is now rounded to fit the parts and the ridge is beveled at the ends of the splint by cutting, or is smoothed over by being hammered flat.

This long dorsal thumb splint is of service in those cases in which, in addition to fixation of the thumb, we wish to fix the wrist also, as in some cases of dislocation of the thumb, some sprains of the thumb, tenosynovitis of the thumb tendons, some fractures of the metacarpal bone of the thumb and in suture of the thumb tendons.

Finger splints need little description (Chart 2, Figs. 1, 2 and 3). The patterns are simple; they are easily made; they have a narrow ridge to strengthen them, and this may be left standing or may be hammered over flat.

Fracture of the radius, of the ulna, or of both bones of the forearm above the middle, and some other conditions are best treated with fixation of the elbow at a right angle, in addition to other appliances. While plaster-of-paris fixation is suitable in some cases, many cases are more conveniently treated with the internal angular tin splint (Chart 2, Figs. 4, 5, 6 and 7). This

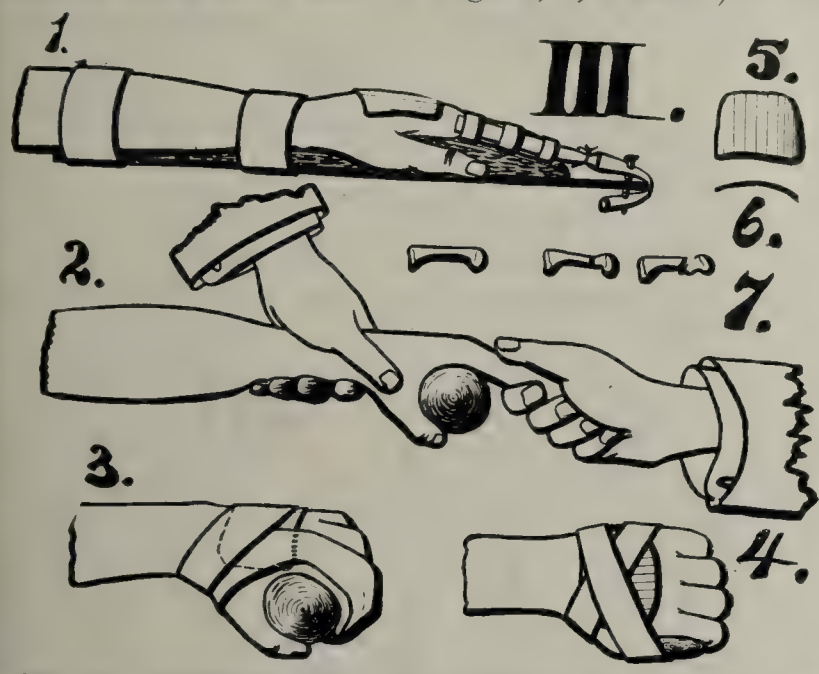


Chart 3.—Dorsal tin splint for metacarpal fractures. 7. Tendency of bone to cave downward.

is light in weight; it is easily removed and reapplied; it offers a certain amount of freedom of inspection even when not removed; and when once made it is always ready for use. The chart shows tin splints which can be easily made. Figure 4 shows one with the ridge bent in it. A small folded piece of tin riveted across the angle adds materially to its strength. Figure 5 shows one nearly as strong, bent from a single piece of tin without the ridge. These are both cut in at the elbow to allow bending at right angles.

A splint which is of greatest convenience is the one shown in Figures 6 and 7. This is cut so that the piece for the forearm swings over to the inside and makes it easy to place the arm in position with the thumb up, a position which is the most satisfactory one for most cases, as it is a position in which the ulna and radius are far apart, a thing of prime consideration in the treatment of fractures of these bones and it is the most natural and comfortable position for the arm to be in. The splint is constructed of three pieces, one for the upper arm, one for the lower arm and a small elliptical piece to strengthen it at the elbow. The upper piece should be cut out from its pattern first. It is bent to fit the curve of the arm and is then placed in position, with its lower edge against the paper which is being used to mark out the pattern for the forearm piece. This will allow an accurate outline at the elbow. The remainder of the pattern is outlined as in the figure. The splint may be fastened together in various ways. A simple method would be to fasten it at the elbow line with narrow strips of tin riveted into place, and to substitute for the elliptical brace one or two small folded strips of tin, as in the other splints described.

Fractures of the lower jaw, as a rule, are best treated in some other way than by the use of a splint, but if an external splint is used, a tin splint is light, strong and easily made (Chart 2, Figs. 8, 9 and 10). A pattern is easily cut out, as follows: Apply the upper

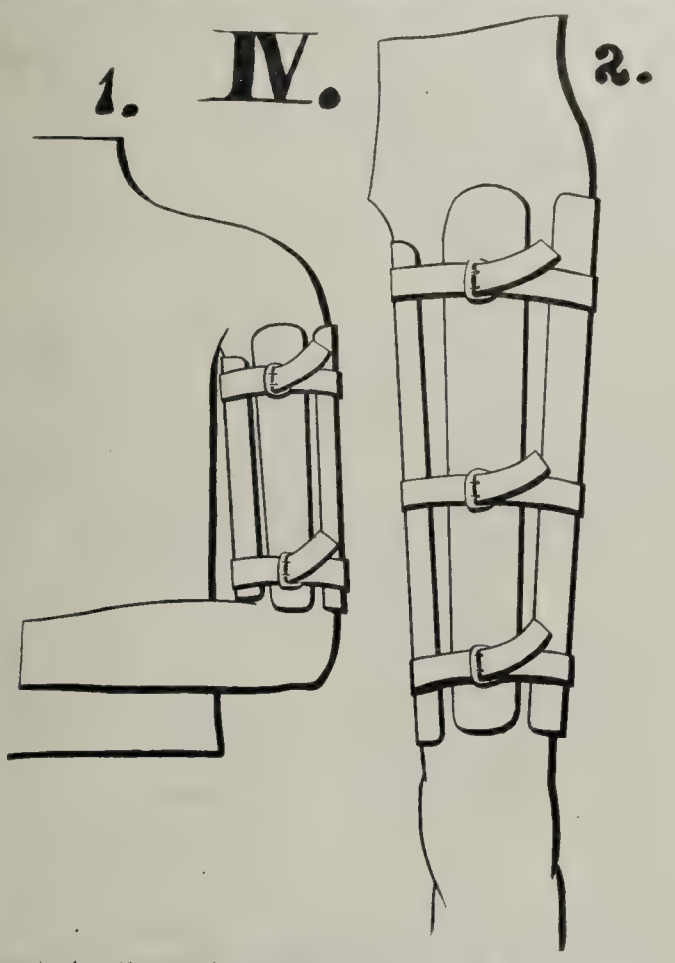


Chart 4.—Coaptation splints for thigh and forearm.

part of a sheet of paper over the mouth and jaw, back as far as the ears, and mark the outline corresponding to the lower jaw. Now hold the paper at the point of the chin and tip the lower portion up under the jaw, and fold the sides up to the ears and mark the outline of the jaw on each side, and the curve of the throat between. This gives a pattern such as shown in Figure 8. The wings are bent with the fingers and the lower portion bent up at the proper angle for the chin. If a small piece of tin is left on the upper wings, as shown in the pattern, these can be bent over and will act as hooks to catch the lower wings when bent up and will lock them into place instead of a rivet which might be used.

Fractures of the metacarpal bones are often unsatisfactory to treat. The usual tendency is for the bones to cave down (Chart 3, Fig. 7). Most of the devices for the treatment of these fractures aim at traction to overcome shortening, and then at some form of rounded pressure in the palm to force up the arch of the bone.

To these methods I have added a dorsal tin splint, curved to fit the back of the hand but straight in the line of the metacarpals (Figs. 1, 3, 4, 5 and 6). This

offers a firm surface against which to force the fractured metacarpal by the palmar padding.

Fracture of the shaft of the femur and of the shaft of the humerus are best treated, as a rule, by coaptation splints for their inner set of dressings. Plaster of paris is not satisfactory; it is rigid and can not be tightened to keep pace with the atrophy of the soft parts. By the use of buckles and straps of webbing, coaptation splints can be tightened, daily if necessary, without disturbing the fracture (Chart 4). Tin lends itself very readily to the formation of coaptation splints. It is easily rounded to fit the curve of the thigh or arm, and when so rounded it is in the form of an arch and is exceedingly strong. It is light and it is so thin that it offers the least possible interference with any outside apparatus which may be used. Large hospitals could have a number of these splints made, of various lengths, padded, covered with muslin, and stored away ready for use.

With fractures of the humerus high in the shaft, the control of the upper fragment is often unsatisfactory. A properly-fitting shoulder cap might help to do this, but I have never been able to find a prop-

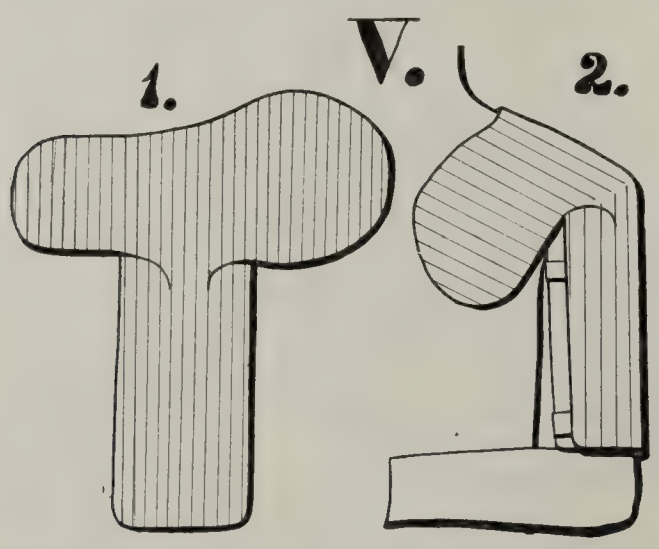


Chart 5.—Shoulder cap: 1, Pattern; 2, splint.

erly-fitting shoulder cap on the market. The most that they do is in effect to lengthen the outside coaptation splints. They do not get a grasp on the shoulder and fix the shoulder girdle. One can be made of tin, however, which will do this (Chart 5, Figs. 1 and 2). By laying a sheet of paper over the shoulder, we can mark out a pattern well down on the chest in front and in the back, and then, holding it at the point of the shoulder, we can tip the lower end against the arm and mark out a sufficient arm-piece well down toward the elbow. This serves as a pattern. The splint may be made from one piece of tin or from two. The tin is bent to fit the arm and shoulder, hammered a little at the shoulder to round it, and fastened with two or three small rivets on a side along the line of junction while held at the angle which best fits the shoulder. This splint, when properly fastened by adhesive plaster strips and bandage, gives firm support to the shoulder girdle and fixes the arm.

This brings me to the second portion of my paper, in which I hope to present briefly two original devices. The first one was worked out while trying to gain full flexion and extension at the elbow after a "T" fracture into the joint. It was successful beyond my expectations, and consists of two sets of appliances, one to gain flexion and the other to gain extension. The apparatus to gain extension (Chart 6, Fig. 1) consists of a tin brace extending from the upper to the lower arm, two tin shields to take the direct pressure of the ends of the brace off from the soft parts, a hammock of strong cloth doubled beneath the elbow and sewed in such a manner that a strap can be run through the end on one side, brought up over the brace and passed through the end on the other side and back above the brace again until it passes through the buckle. When the strap is drawn tight, the elbow is drawn directly up toward the brace, which is rounded in the form of an arch and is very strong. This allows the elbow to be strapped up toward the brace with all the force the patient can stand without too much pain, and it allows the restless patient to walk about, while the strap still does its work. When the arm yields a little, the strap can be

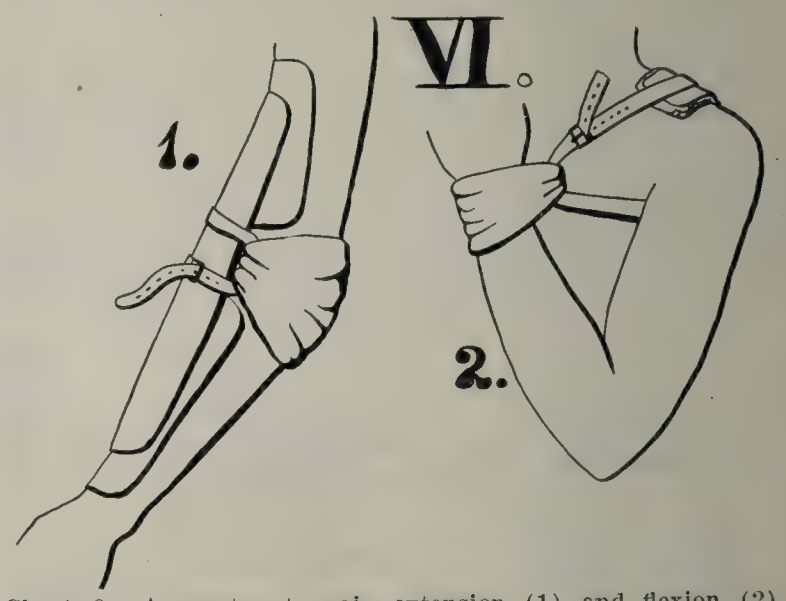


Chart 6.—Apparatus to gain extension (1) and flexion (2) at the elbow joint.

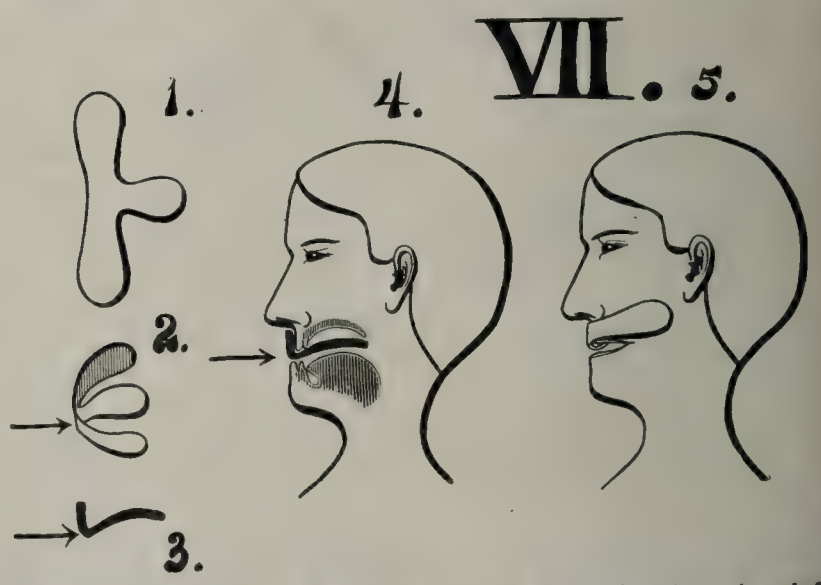


Chart 7.—Device for protection of the line of suture in cleft palate operations: 1, Pattern; 2, splint; 3, section; 4 and 5, splint applied.

tightened again. When the arm is nearly straight, it is best to prop the brace up a little distance above the arm by putting a pad under each end. This gives more room between the brace and the bend of the elbow, and allows the arm to come up more easily.

The device to gain flexion is even more simple (Fig. 2). A small tin shield, well padded, takes the direct pressure of a strap which passes over the shoulder and beneath the axilla and then about the wrist, or through a broad band of strong cloth at the wrist and then through the buckle. The shield may be placed behind the upper arm and the strap run around the arm instead of around the shoulder, if desired, when some degree of flexion is gained. The advantage of this device, as well as of that for gaining extension, lies in

the fact that as strong a pull as the patient can well stand can be applied, and it can be exerted as long a time as desired.

I have found that it is of greater comfort to the patient to use forced flexion one day and forced extension the next rather than to attempt both on the same day. This method of applying force, of course, can be used on elbows in which motion is limited from other causes, as after dislocations.

The last device is represented in Chart 7, Nos. 1, 2, 3, 4 and 5. It is made for the purpose of protecting the line of suture after operations for the closure of a cleft palate. The pattern is easily made. The center strip, which is to protect the suture line, is readily cut out, not quite so wide as the arch of the teeth, and not quite so long as from the lip to the back of the soft palate. The upper portion of the paper is turned up against the lip and cheeks, and the wings used as a support, for the splint may be marked out. The middle piece is bent to a flat arch, much flatter than the vault of the palate, and it gets its bearing either along the palate near the line of the teeth, or on gauze packing placed in the incision usually made near this line.

In actual use it best can be kept clean by wrapping the entire splint in rubber tissue.

THE DIAGNOSIS AND TREATMENT OF ABDOMINAL PAIN.*

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Satisfactorily to elucidate within the limits of an address the subject of the diagnosis and treatment of abdominal pain is a task like that of cleaning the stables of Augeas and would require a second Hercules for its performance. Pain is probably the most constant of all symptoms, no matter what the disease nor where the pathologic lesions are situated, and the abdomen is surgically the most extensive and the most important part of the human body. From the sudden stab of momentary indigestion to the chronic agony of cancerous ulceration, from the burning ache of gastric or intestinal perforations to the prostrating pain of ruptured extrauterine pregnancy, through the whole fell gamut of abdominal disease the surgeon's mind must run, as he seeks here and there a note of hope from the discord of pain, in the effort to snatch his suffering patient from the grave. If at times the opportune moment is lost, if the correct diagnosis is missed, what inexpressible sadness must fill the surgeon's heart, as he is compelled to stand idly by, watching the lone sufferer sink beneath the pestilential blast of peritoneal inflammation. How keen must be his self-reproaches when he realizes, as he mostly does, that timely operation would have saved the life which is now ebbing away before his eyes, and would have restored to the happy family circle a loved husband or wife, an only son or an idolized daughter. Vain, then, are his regrets; vain are his efforts to slow the fevered pulse, to check the constant vomiting, to quiet the anxiety of mind and the unequaled distress of body, attendant on fatal peritonitis. The violence of the symptoms at times, indeed, may be soothed in the happy slumbers of an opium trance; but it is a trance which lasts until the wan sufferer has reached that land from whose bourne no traveler returns.

To a surgeon who has seen in his own practice or in that of others such deaths as these, and who has had brought home to him, perhaps, by the death of one dearly loved the sense of loss which is doubly calamitous under such circumstances, no efforts of human ingenuity, no laborious procedures of human skill, no pains to acquire that experience without which diagnosis is but a haphazard guess and prognosis a leap in the dark, no means, I repeat, human or divine, appear too insignificant to be availed of in the study of the diagnosis and treatment of abdominal pain.

I trust, therefore, that you will bear with me if I seem to lay too much stress on the advisability, on the indispensability, on the absolute necessity of attentively studying every case in all its details, trivial as some of them may seem, before arriving at definite conclusions. Superficiality is a trait which the abdominal surgeon of all others must shun at the present day. There are many individuals who are satisfied if from a hasty examination they can come to one of two conclusions—either that the patient must be operated on or that he must not be operated on, leaving until after the abdomen is opened the determination as to what the operation shall be. Such operators say, "If we do not know what is inside where is the harm in cutting a hole to look through?" The most appalling disasters in surgical history are the results of this teaching. No surgeon should feel satisfied with his own ability until he is able to say, with a reasonable degree of certainty, whether, after the abdomen has been opened, anything further can be done to relieve the patient's condition.

Nor would I have it understood that an exploratory laparotomy is never justifiable. In many abdominal conditions, such as cancer of the stomach, we explore to ascertain the extent of the disease, with the hope of removing it, if possible, and with the expectation of at least being able to render the patient's remaining days less painful and distressing. In some patients, when first seen, peritonitis is so extensive, and the history so obscure or deficient, that we explore to seek the source of infection, with the hope of removing it, if possible, and with the certainty of being able to give a means of exit to the products of inflammation, whose systemic absorption is producing the toxemia or possibly the hopeless septicemia of the disease.

Delay in the diagnosis of abdominal pain should be studiously avoided. Every diagnosis made at the post-mortem table or at an antemortem operation is sometimes, indeed, merely sad evidence that the art is long and time short—that the art of surgery is not yet a perfect science—but it is more often a demonstration of the culpable negligence of the surgeon or physician in his manner of eliciting the patient's history, of noting his symptoms, and of making the physical examination.

Abdominal pain is nature's signal of intra-abdominal mischief, and it is criminal to shroud it over with a foggy mist of opiates. Opium is probably the most valuable single drug in the pharmacopeia, but it is the remedy of all others which is most outrageously abused. A physician who makes a practice of administering a hypodermic injection of morphin to the patient who complains of abdominal pain, before he makes a conscientious and systematic physical examination of the abdomen, and before he arrives at a diagnosis which shall be at least tentatively correct, is, in my opinion, a physician not worthy of the name.

* Read before the Hartford (Conn.) City Medical Society, 1905.

CHARACTER OF THE PAIN.

Abdominal pain may be acute or chronic; it may be due to intra-abdominal disease or to thoracic disease; it may be due to colic or to inflammation, to disease or to trauma; and it may be classified in various other ways: It may be pricking, stabbing or lancinating, cutting, tearing, burning or aching. It may be spontaneous to all appearances or due to some well-known cause. To discuss in detail the many lesions, abdominal, thoracic, spinal or other, which may give rise to abdominal pain of whatever variety, would lead me too far afield; and they may be found, moreover, in many text-books of surgery and may be studied there to better advantage. But what we do not find in surgical text-books, and what I venture to think is of great importance to the general physician as well as to the abdominal surgeon, is a clinical study of pain in the abdomen; and to this point I now beg leave to call your attention.

PATIENT'S HISTORY.

We may learn, first, from the history of the patient whether similar pain was ever experienced before; how long the intervals of freedom from pain have been; the duration of each attack; and the character of the pain. If the pain is recurrent, it is more likely to be due to the repeated action of the same cause than to be produced entirely *de novo;* that is to say, it is more probably due to gastric or to duodenal ulceration, to recurrent attacks of appendicitis, to biliary or renal calculi, or even to locomotor ataxia, than to such causes as ruptured extrauterine pregnancy, strangulated hernia, pleuritis or pneumonia, from recurrent attacks of which diseases a patient is rarely liable to suffer. If the pain recurs with considerable regularity after the ingestion of food we are naturally lead to examine the patient for gastritis, ulceration of the upper intestinal tract, or peritoneal adhesions following some previous illness. If the pain recurs periodically with menstruation we instinctively look to the generative organs for its cause. If it occurs with persistence, but irregularity after the ingestion of food, gallstones, pancreatic disease and appendicitis must be recalled. If it invariably follows, precedes or accompanies defecation, then hemorrhoids, fissure of the anus and cancer of the rectum are brought to mind. If the pain is acute and occurs for the first time, we must look to the history of its onset with even more attention. Pain following sudden exertions may be due to strangulation of a hernia, either external or internal, to ruptured extrauterine pregnancy, to the loosening of old adhesions, to the formation of a volvulus, to the rupture of an overdistended bladder, or to an ovarian cyst twisted on its pedicle, or to an abortion. If the pain follows injury, either a fall, a blow or a crush, the previous history is of considerable moment. If the accident followed a heavy meal, the stomach may be ruptured; if the patient was intoxicated, the bladder is often ruptured; while the location of the injury, with other well-known symptoms, may suggest injury of the intestinal tract, the liver, the spleen or of one of the kidneys. In a pregnant woman, an impending miscarriage or an actual rupture of the uterus is to be feared. The history of the case is not so helpful in cases of chronic pain as is the physical examination, unless there have been acute attacks.

AGE AND SEX.

Age and sex are of great value in the diagnosis of abdominal pain. In the female sex, the great preponderance of lesions of the pelvic organs over those of the intestinal tract should be recollected; but sudden pain, sometimes causeless, in anemic young women, especially those of a sedentary occupation, is frequently almost pathognomonic of perforated gastric ulcer. In children, the overwhelming importance of gastroenteritis, enterocolitis, or simple enteralgia must be kept prominently in view; but these should not make us forget the possibility of appendicitis, intussusception, Pott's disease, and pneumonia as frequent causes of abdominal pain in children. In the aged, malignant diseases of the stomach, the cecum and the rectum are usual causes of abdominal pain; while in adults, besides the diseases already mentioned, we have gall-bladder or pancreatic diseases and perforation of gastrointestinal ulcers.

OCCUPATION.

The occupation of the patient is not usually of much aid in the diagnosis of abdominal pain; but painter's colic would at once be suggested if the patient were a worker in lead in any of its forms, while young and anemic seamstresses are notoriously prone to gastric ulcer, and barbers and others who stand much are apt to develop piles. Brewers are considered especially liable to hepatic congestions and cirrhosis.

LOCATION OF PAIN.

The location of the pain is of great importance. In the first place, it may be either superficial or deep. The superficial sensitiveness of abdominal pain, which has been studied by Sheeren[1] and others in its relation to appendicitis, is due, as demonstrated by these writers, to an overflow of sensation from that part of the spinal cord with which the sensory nerves of the diseased area are in connection. In the case of appendicitis, the sensory nerves primarily affected are those connected with the eleventh dorsal segment of the spinal cord, and accordingly the overflow of sensation may occur into any of the other nerves connected with this segment, usually into the eleventh and twelfth dorsal and the first lumbar nerves. The irritation of the filaments of these nerves thus produced causes the superficial sensitiveness of the abdomen already referred to. This sensitiveness is best detected by gentle pinching, stroking or pricking motions, starting in unaffected areas and gradually outlining the region of cutaneous hyperalgesia. It is not out of place in this connection, perhaps, to devote a few words to the method of production of abdominal rigidity, which will occur whenever the reflected irritation affects a motor rather than a sensory nerve; the rigidity, therefore, is local or diffused, according to the extent of the intra-abdominal irritation, and is strictly analogous to the muscular contraction by which an inflamed joint is held rigidly at rest, a phenomenon which was long since explained by Hilton.

The sixth and seventh dorsal nerves supply the epigastric region, popularly spoken of as the "pit of the stomach," and pain in that region is not infrequently due to the existence of Pott's disease of the spine, the carious process compressing that portion of the spinal cord from which these nerves are derived. The eighth dorsal nerve is attributed to the region between the epigastrium and the navel, while the tenth supplies the skin in the umbilical region, and branches of the eleventh and twelfth dorsal nerve pierce the rectus muscle over the appendix. A twig of one of these lower nerves is found at McBurney's point, and thus explains

1. Sheeren, Lancet, Sept. 19, 1903.

the very great frequency of pain and cutaneous hyperalgesia in this situation when the appendix is diseased. The iliohypogastric, or first lumbar nerve, is distributed to the skin over the pubes and external abdominal ring, but also sends a twig to the tunica vaginalis testis, thus explaining the tenderness of the right testicles that may be found in appendicitis. Certain of these nerves, as previously implied, may be affected in various diseases of the spinal cord, producing at one time the well-known sense of constriction and at another the gastric or intestinal crises of locomotor ataxia. The erythematous group of skin diseases, moreover, is sometimes attended by abdominal crises more or less severe.

REFERRED PAIN.

The pain may be referred in some diseases into widely distant parts of the body; mere reference will suffice to the pain in the right shoulder blade sometimes encountered in hepatic affections, and to the tender spot to the right of the lower dorsal vertebræ often occurring in cases of duodenal ulcer; the pain in the thighs attendant on uterine and rectal disease is not to be overlooked, and I am cognizant of a case in which pain from pressure of an appendiceal abscess closely simulated sciatica.

With regard to the region of the abdomen in which the deep pain is felt, it may be said, as a rule, that the surgeon's knowledge of anatomy, which is the solid foundation of true surgical knowledge, will be a safe guide to him; but he should not take it for granted that the pain to the left of the linea alba can not be significant of appendicitis, nor that epigastric pain is never the chief subjective symptom of rupture of the urinary bladder. It has been my experience that an inflamed appendix situated in the pelvis frequently is productive of left-sided abdominal pain; and, although this may often be satisfactorily attributed to reflected pain involving the nerves of the left rather than the right side of the abdominal wall, as already described, yet the pain is sometimes deeply seated and exists in the appendix itself. Pain commencing in the kidney is exceedingly apt to run down the ureter or into the corresponding testicle; pain due to disease of the bladder may be felt only at the end of the penis; pain due to constipation and retained flatus may circle the whole abdomen in the course of the colon and be brought to an abrupt stop by the ileocecal valve in the neighborhood of a healthy vermiform appendix. A sagging loop of intestine, or the omentum, by pressure on the internal abdominal ring, may closely resemble chronic appendicitis; and I have seen such symptoms relieved on more than one occasion by the adjustment of a light truss. A proptosed stomach may hang well below the umbilicus, and may thus produce pain in the suprapubic region, and a similar condition of the sigmoid may be productive of rectal pain thought to be malignant in origin. A floating kidney or a wandering spleen may reach nearly every part of the abdomen and may simulate or be simulated by an ovarian cyst with twisted pedicle.

LOCALIZATION OF PAIN.

Another matter of importance in connection with abdominal pain is whether the pain is first diffuse and later becomes localized, or whether it is first circumscribed in character, but subsequently becomes general. In appendicitis, for instance, the pain, as is well known, is usually at first somewhat widely diffused in the umbilical or epigastric regions, and only when the peritoneal inflammation commences is it distinctly localized to the right iliac fossa, and subsequently it may spread again over the whole abdomen as the peritonitis increases. In ptomain poisoning, on the other hand, the pain, early in the attack, is fairly well localized to the epigastric region, but in time involves the whole abdomen, yet without signs of peritonitis, thus pursuing a directly opposite course to appendicitis, in which the pain is first general and later is localized. In intestinal perforation, moreover, the immediate pain is local and fixed, but spreads with the peritonitis all over the abdomen, whereas in appendicitis the diffuse pain precedes the local. So, too, with relation of abdominal pain to vomiting. If sharp pain precedes the act of vomiting it will almost invariably be found that peritoneal involvement is present; whereas, if vomiting is the first symptom the diagnosis of any peritoneal lesion, especially appendicitis, must be accepted with great reservation.

DIFFERENTIAL DIAGNOSIS.

There are a few affections which it is so essential to diagnose correctly, and in which an error is productive of such grave results, that particular pains should be taken to avoid mistakes. Among these the abdominal pain due to thoracic disease, which has been already referred to, is of great importance. In the case of pneumonia or pleurisy, when there is pain referred to the upper abdomen, the presence of a cough, rapid breathing out of proportion to the pulse, associated with high temperature; breathing in which the nose takes an active part, together with the presence of cyanosis, should satisfy us as to the thoracic nature of the disease. Examination of the chest should show the presence of physical signs.

Perforated typhoid or gastrointestinal ulcer is capable of simulating chest disease from dyspnea, cyanosis and the condition of the abdominal walls produced. Peritoneal friction consequent on perforated gastric ulcer has been mistaken for pleuritic friction.

Uremia, as is well known, may be accompanied by almost incessant vomiting; and Musser[2] has called special attention to abdominal pain due to uremia. He has seen it precede the uremic convulsions of puerperal nephritis.

The presence of severe abdominal pain when associated with vomiting always calls for careful examination for the presence of a hernia, as the rupture may be so small as never to have attracted the notice of the patient. On the other hand, the pain caused by appendicitis has been thought to be due to strangulation of a hernia which when operated on was found to be uninflamed, though irreducible.

In intestinal colic after eating indigestible food the pain is usually accompanied by vomiting. In colic due to poisoning with lead or brass the pain may be very severe and the paroxysms may continue for many days, accompanied by rigidity and tenderness of the abdominal walls. Pal[3] has expressed the opinion that the pain of lead colic is due to irritation and constriction of the blood vessels in the intestinal walls, which indirectly irritate the sympathetic nerve filaments. He has shown that this vascular tension is increased, during the persistence of the pain, from one-half to twice the normal pressure.

It must not be lost sight of that in the passage of gallstones the pain may be referred to the right groin,

2. Musser: American Medicine, 1904, vol. i, p. 503.
3. Pal: Wien. med. Presse, 1903, No. 2, p. 57.

and hence may be mistaken for that caused by appendicitis; but the history of the sudden onset, and possibly the previous passage of calculi, the intensity of the pain, perhaps the presence of shock and the marked board-like rigidity of the abdominal wall, the pulse not being accelerated and the absence of temperature, should be very suggestive of the former.

I have seen renal colic mistaken for intestinal obstruction, chiefly, I believe, on account of the presence of bowel distension and inability to move the bowels owing to large and frequent doses of morphin having been administered. I recall one case in which the diagnosis of intestinal obstruction had been made; to this diagnosis I took exception, diagnosing the condition as renal colic; eventually the ureter was found blocked by a stone. In this case the bowel symptoms were the result of frequent and large doses of morphia.

Pain referable to the loin and shifting in the direction of the groin, with tenderness of the kidney, the presence of blood in the urine, and particularly if the patient has suffered like attacks in the past, would be of great value in excluding serious intraperitoneal lesions.

In perforated duodenal ulcer the inflammatory exudate of the extravasation of the contents of the bowel may extend so far downward as to simulate an appendiceal abscess; and when the patient is first seen after this extension of the process has occurred it may be impossible to differentiate between the two conditions until after the abdomen has been opened. If an accurate history of the attack is obtainable, however, or if the case is seen at the time the perforation occurs, the different location of the symptoms and the more marked shock, together with a history of more or less chronic pain in the duodenal region, should enable a differential diagnosis to be made.

The pain of a perforated gastric ulcer is not always sudden in its onset and, therefore, peritonitis may be present before the condition is recognized; but in cases of abdominal pain, when there is reasonable doubt, the abdomen should be opened before peritonitis occurs, as it is better to err on this side than to defer operation until too late to accomplish any good. The absence of liver dullness in perforation of the gastrointestinal canal, particularly in perforated typhoid ulcer, is not always significant, as this condition may be brought about by great distension of the colon. The passage of fluid from the stomach into the lower abdomen in some cases may explain this position of pain.

The twisting of the pedicle of a freely movable kidney and obstruction of the renal veins which leads to congestion of the organ is a cause of abdominal pain which must be borne in mind; also traction on the duodenum by a movable kidney, causing severe attacks of abdominal pain and vomiting.

A cause of abdominal pain, which, it is true, is rare, yet which must not be lost sight of, is embolism of the mesenteric vessels. This produces pain, vomiting and constipation so closely simulating intestinal obstruction and peritonitis as to render it impossible to determine the exact condition. Acute hemorrhagic pancreatitis so closely simulates acute intestinal obstruction that a differential diagnosis is not always possible.

The abdominal symptoms, the result of irritation of the sympathetic ganglia or nerve roots in the lower abdomen, may simulate acute disease of the abdominal viscera. The visceral crises of locomotor ataxia and of the erythematous group of skin diseases, reference to which has already been made, are probably to be explained on this hypothesis. Buch[4] has called attention to abdominal pain due to the presence of arteriosclerosis. The manifestations of this condition in other regions of the body are now fairly well known, and those due to arteriosclerosis of the vessels of the splanchnic area thus described by Buch, who divides these patients into two main classes. In the first class the abdominal symptoms dominate the picture. The patients, usually over 40 years of age, are unexpectedly seized with severe attacks of epigastric pain, resembling more or less closely the typical attacks of angina pectoris. These attacks may last from a few minutes to an hour and may recur many times a day, being often precipitated by the factors usually provocative of the attacks of angina pectoris. In the second class he places those patients in whom anginoid attacks or true angina pectoris are present. In patients subject to this abdominal pain of arteriosclerotic origin there are present almost always distinct evidence of arterial degeneration in other parts of the body; and as the abdominal pain is practically independent of digestive disturbances and is only exceptionally attended by meteorism, the diagnosis, he thinks, should not be impossible if the condition is borne in mind. Tenderness of the abdominal aorta may often be elicited, but the aorta is seldom enlarged or misplaced.

The pain consequent on ruptured extrauterine pregnancy is always accompanied by a pallor, which is usually extreme; and there may possibly be shifting of the dullness in the flanks. It is usual, moreover, in these cases to obtain a more or less typical history.

It is thus clearly seen that the determination of the cause of pain in the abdomen is not always an easy matter, and that the surgeon who is widest in his experience and most painstaking and accurate in his examination and interpretation of the phenomena present will be least likely to err in his diagnosis, or, in case an error is made, will be less to blame than one who merely jumps at a conclusion without due reflection or who confessedly makes habitual resort to an operation as a means of discovering his patient's ailment. To call a patient a "neuro" who complains of pain, the cause of which can not be easily discovered, is too often only a cloak for ignorance.

TREATMENT.

In considering the treatment of abdominal pain we must first and foremost keep before our minds the true cause of the pain. It is idle to dose the patient with castor oil or with paregoric or to order a mustard plaster or an ice bag until we have discovered that which we desire to treat; and when this, which is not always easy, has been accomplished we may then prescribe the appropriate remedy. The whole matter of the therapeutics of any disease may be tersely summed up in the phrase, "Remove the cause," and the enthusiastic surgeon should not forget that there are other means than the scalpel, in very many cases, by which the cause may be "safely, swiftly and pleasantly" removed.

Although it is a subject which has already been alluded to, I feel it can do no harm to devote a short time to the discussion of the administration of opium in cases of abdominal pain. My unabated opposition to this drug as a remedy in appendicitis and in other inflammatory conditions of the peritoneum is so well known that any further elucidation of my views may

4. Buch: St. Petersburger Med. Woch., 1904, xxix, No. 27, p. 298. Abstracted in Amer. Jour. Med. Sciences, 1905, No. 1, p. 532.

seem superfluous. I am willing to acknowledge that opium relieves the pain. That is one of its chief therapeutic actions, and is a result that can not be denied; but in diseases for which it is employed, as in appendicitis, for example, there are other means equally pleasant and quick, as well as much safer, by which the primary pain—known as appendiceal colic—may be relieved. If the patient is seen early, very soon after the onset of the first symptom of appendicitis, that is, while still in the stage of appendiceal colic, and if there is the history of the ingestion of indigestible food, then the administration of a brisk cathartic, not a drastic purge, with rest in bed, and the local application of an ice bag to the abdomen, in a few cases of appendicitis will result in abeyance or even complete disappearance of the pain. Such a course of treatment has the additional recommendation that it does not paralyze the sensory nerves of the patient, with the result that if the secondary pain of appendicitis—the pain due to peritoneal involvement—should occur the gravity of the lesion will be readily recognized, and operative treatment, if not already undertaken, can then be instituted; this will not be the case if the sensibilities of the patient are so obtunded by opiates that gangrene or perforation of the appendix passes unnoticed.

It is also claimed by the advocates of the opium treatment—few though they be—that the use of this drug arrests the cell changes, and so arrests the progress of inflammation. This is a theory which is not readily proved or disproved by experiment; but even if it were true for such an organ as the appendix, which I doubt, it would not remove the cause of the inflammation, the deadly bacteria; it would at most only preserve the appendix in its primitive state of inflammation; and as soon as the specific action of the opium ceased the bacteria would continue their work and systemic absorption of their toxins would recommence.

I am not, on the other hand, one who can claim never under any circumstances to have employed morphin in cases of appendicitis. I feel that when the diagnosis has been surely made, and when preparations for the aseptic removal of the offending organ are already under way, then it is inhuman to deny these patients, if they still suffer pain (which is only exceptionally so severe as to require it), the solace derived from a hypodermic injection of morphin.

In certain far-advanced cases of malignant disease of the abdomen I hail opium as the most valuable drug, and consider its prolonged use for purposes of euthanasia perfectly justifiable.

While we must recognize that removal of the cause of the abdominal pain is the ideal treatment, I think it should be emphasized, as I have already remarked, that there are other methods open to us than cutting the pain out with a knife or dulling our patient's sensibilities with opiates. In the colic of children nothing will remove the cause, whether it be green apples or plum pudding, so surely as an emetic, if the case is seen early, or a purge, if it is seen late. In the case of pain due to foreign bodies which have been swallowed, no surgeon should be so guilty of malpractice as to administer a purge. The Vienna treatment of mashed potatoes and other soft foods, so ardently advocated by Billroth, is the only rational plan to adopt; and emetics and purges should be studiously avoided. In these, as in certain cases of colic, the use of opium may relax the contracted intestines and permit of copious fecal evacuations.

The abdominal pain of spinal caries, as we all know, is best treated by placing the patient in bed in the supine position and employing continuous extension of the spine. This is a very efficacious method of removing the cause of the pain—pressure—when its removal by operation is inadvisable; the rationale is the same as extension in early hip-joint disease. Pain from other forms of pressure may be likewise successfully relieved by position. Who does not know of the relief to pelvic and rectal congestions obtained by a rest in bed; of the freedom from nausea and vomiting in cases of gastritis or varicose veins in the stomach or esophagus, which may be obtained by the simple expedient of lessening the congestion by the position of the patient? Rest on the affected side in cases of diaphragmatic pleurisy, of pneumonia with abdominal pain, even in cases of appendicitis, will in great measure relieve the pain. After an abdominal operation pain in the small of the back is so readily relieved by arching the lumbar spine over a pillow, or by supporting it with the nurse's hand, that so simple a remedy is often overlooked, and the nurse will ask for her patient to be drugged out of the pain, instead of removing it by change of position.

Support to the abdominal walls is often a factor of great moment in relieving abdominal pain. A good firm belt, though in my opinion of no value in preventing the formation of a hernia, will often entirely relieve its symptoms. In patients with many old peritoneal adhesions, the most intense intestinal discomfort is at times produced by discarding their abdominal support. A child with a comparatively insignificant umbilical hernia may be transferred from a miserable dyspeptic to the picture of health by the application of a suitable support.

The regulation of a patient's diet as a means of diminishing intestinal pain of various kinds can not be too prominently kept in mind; but even after this has been attended to, and after all other palliative methods have been tried, there still remain cases where the only cure is by operation. An operation, moreover, even in chronic cases, should not be left too long untried and should not be regarded as the last resort not only from the standpoint of treatment, but also from the standpoint of diagnosis. I think little of "last resort" operations and rarely perform them. The responsibility for these cases should remain where it belongs. The reason why a surgeon is called on oftener to operate than to assist in making the diagnosis is his own fault and the result of the fallacious teaching of exploratory incision. The natural forerunner of an operation should be the diagnosis, and until the diagnosis is made, with but few exceptions, an operation should not be done. It should be the aim of a good surgeon to be a diagnostician as well as an operator, and, being such, his judgment is of as much moment in deciding the question of operation as well as the nature of the operation. There are very few instances in which a prompt operation in the case of acute peritonitis would not cure the disease; and in almost as many instances an operation at a still earlier stage of the disease would have effectully prevented the onset of peritonitis. Especially true is this of the various forms of intestinal perforation, and I am firmly convinced that where gastric or duodenal perforation, or perforation by a typhoid ulcer, is unsuspected, immediate laparotomy offers the patient a far better chance of recovery even if the diagnosis is not absolutely certain than does hesitation and procrastination in seeking the surgeon's knife. The abdomen

should always be explored if there is reason to believe in the existence of hemorrhage; not only may the immediate danger to life from the loss of blood be great, but if the patient survives the hemorrhage the probability of fatal peritonitis is great. As Richardson[5] well says, the use of intravenous infusion of saline solution may render such an operation possible even if the patient when first seen is in collapse and almost pulseless. In such cases as these—either intestinal perforation or intestinal hemorrhage—death without operation is so certain and so immediate, while a fatal termination in a laparotomy negative in its findings—the *laparotomie blanche* of the French—is so nearly unheard of, that the proper course to pursue, it seems to me, is no longer a subject for discussion.

Of the various classes of operation demanded for the relief of abdominal pain I have not left myself time to speak. Those for removing the cause of the disease, such as appendicectomy, cholelithotomy, prostatectomy, suprapubic lithotomy, oöphorectomy, hysterectomy, etc.; those for repairing lesions in the continuity of the intestinal tract, such as typhoid perforations, or perforations of gastric or duodenal ulcers, etc.; those for short-circuiting the ingested food on account of intestinal stenoses—all these operations, with the indications and results of each, might well be discussed in connection with the subject of abdominal pain. But if I have succeeded in drawing your attention to the salient points in the diagnosis and to the main principles of treatment of abdominal pain, I will feel that my remarks have not been entirely devoid of interest.

REPORT OF THE MEDICAL DEPARTMENT OF THE UNIVERSAL EXPOSITION, ST. LOUIS, 1904.

LEONIDAS H. LAIDLEY, M.D.

Medical Director.

ST. LOUIS.

ROSTER OF MEMBERS OF MEDICAL STAFF.

MEDICAL DIRECTOR: Dr. Leonidas H. Laidley, Jan. 15, 1902, to Jan. 1, 1905.

ATTENDING SURGEONS: Dr. Josiah G. Moore, surgeon in charge, Emergency Hospital, July 1, 1902, to Dec. 12, 1904; Dr. M. E. Sheets, April 15, 1903, continued in service; Dr. Otto A. Wall, March 31, 1904, to Dec. 1, 1904; Dr. Clyn Smith, April 29, 1904, to Dec. 1, 1904; Dr. W. S. Lawrence, Jan. 4, 1904, to Feb. 3, 1904.

VISITING PHYSICIAN: Dr. Luther P. Walbridge, Nov. 15, 1902, to Dec. 15, 1904.

BACTERIOLOGIST: Dr. Carl Fisch, July 20, 1904, to Dec. 1, 1904.

SANITARY OFFICER: Dr. James M. Gassaway, lieutenant-colonel, Marine Hospital Service, June 14, 1904, to Dec. 1, 1904.

AMBULANCE SURGEONS: Dr. George E. Adams, Aug. 12, 1904, to Sept. 30, 1904; Dr. Ned O. Lewis, March 27, 1904, to Aug. 12, 1904; Dr. Henry M. DeMenil, April 30, 1904, to Nov. 15, 1904.

SANITARY EXPERT: Dr. George W. Dumphy.

SANITARY INSPECTOR: M. T. Sweeney, Feb. 1, 1903, to Feb. 28, 1903.

ORGANIZATION.

The Chief of the Medical Department received his appointment January 13, 1902, with instructions to report to the Committee on Sanitation. At a meeting held to formulate plans for the organization of this department, the following general arrangement was made and approved: The title of the Chief Medical Officer should be "Medical Director," the appointment having already been accepted. The Medical Director shall have authority to appoint, subject to the approval of the Committee on Sanitation, such assistants as he may deem necessary for efficiency in organization and for the prosecution of the work. The duties of the Medical Director were thus formulated: To organize a Medical Department having jurisdiction over all cases of personal injury in the line of duty; to assume the care of the resident population and visitors, and of such other cases as the Exposition Company might be responsible for, or which in their judgment should be cared for; to exercise a supervision over all sanitary and hygienic matters connected with the grounds and buildings and over all matters pertaining to the health and physical well-being of the employes engaged in the conduct of the Exposition. A temporary hospital was opened in the Athletic Club House, which had been fitted up for the care of patients, two wings, offices, and examination and operating rooms were constructed, thus making reasonable provision for the care of the sick and injured. The Medical Director, after the preliminary work in organization had been effected, was instructed to report to the president all matters pertaining to this department. At the end of the month, a full report was rendered both to the president and to the chairman of the Sanitary Committee. Blank vouchers, payrolls and other stationery were furnished for future use. All orders for supplies were sent to the president, and were forwarded by him to the committee on supplies to be furnished.

In the selection of my staff, I gave preference to those who had hospital experience for one or more years, and likewise selected those who did clerical work from those who had army experience, and found them well trained and willing help.

The large resident population, many of whom lived in tents, with a large force of workmen, called for resident surgeons, who spent their time in the hospital, and one visiting physician, who cared for the sick in the camps and temporary buildings.

No one was employed in any department who would not give all his time and attention to the care of the sick and injured. The hospital service was placed under the care of the senior surgeon, to whom all should answer in the absence of the Medical Director.

A full report was kept of each case brought to the hospital, both as to its medical character and the circumstances attending the injury which might have any bearing on liability as it affected the corporation. Early in the construction period, an inspector was sent to our aid from the Engineers' Department, and he reported daily any insanitary condition within the grounds.

BUILDINGS.

The temporary hospital contained one ward, with six cots and eight wicker lounges, a drug room, an operating and examination room, diet kitchen and sterilizing room and office of the Medical Director. The active force on duty day and night began their work July 1, 1902, Dr. Josiah G. Moore being placed in charge of the hospital. Additional members of the staff were appointed as the necessity arose.

On January 7, 1904, the permanent Emergency Hospital was delivered to the Medical Director; it was situated at the east end of the grounds, making one of the group on the Model Street, accessible to the cars and surrounded by the park, one of the most desirable locations for the accommodation of all. In arrangement, it was well adapted for its purpose; it was built of wood, and was two stories high; the lower floor was covered with granitoid. On this floor there were two wards, each containing twelve beds and six wicker couches; one ward was set apart for men and one for women. Two other rooms were constructed, one for isolation and the other for sunstrokes. The latter room was especially fitted up for emergency in case of a hot season, but was found to be useless as there was not one case of insolation to care for. In the rear of the building were located the general operating room, the dressing room and the sterilizing room, all of which were fitted out with a complete hospital supply of the very latest and improved instruments used. I wish, in connection with this, to note that these were contributed without charge to the Exposition by the firm of Blees-Moore & Co., of this city; also all dressings and every need was furnished by them promptly and freely. At the entrance, were located the offices of the Medical Director, the staff, an *x*-ray room, the superintendent of nurses, chief of sanitary department, storeroom, drug room, and diet kitchen; on the second floor were the dormitories for the staff, nurses and attendants. The kitchen was used to prepare meals for the attendants; and

5. Richardson: Boston Med. and Surg. Jour., 1902, vol. cxlvi, p. 224.

under the direction of the nurses, soups and various stimulating delicacies were prepared for the patients. It was a rule to remove all patients from the hospital before 10 p. m., but in a few cases they were allowed to remain over night owing to the inability to secure ambulance service from outside the grounds. I wish to acknowledge, in this connection, the prompt response with which the city department answered all the calls on them, not only with transportation but with willingness to care for all who sought aid at the public institutions.

AMBULANCE SERVICE.

An ambulance was placed at the service of this department at the beginning of the construction period. It was under the charge of David Stewart, who, during the exposition, became chief of the corps, and served in this capacity with eminent satisfaction, having had a number of years' experience in the Hospital Department of the Army. One ambulance was sufficient to care for all the calls and not until the dedication day was there any need for additional service. On that day, the city placed two ambulances, three surgeons and five nurses at the disposal of the Medical Director; these were located at a sub-station in the Administration Building. One surgeon, with the two house surgeons at the temporary Emergency Hospital, and three nurses, with an additional ambulance, made the complement assigned to that point. In the Liberal Arts Building, where the exercises were held, a station was established under the charge of Dr. L. P. Walbridge, who was assisted by two nurses, a sufficient number of assistants to meet all demands on that occasion, where there were more in attendance than on a like exercise of any previous exposition. During the presence of the greatest crowds, on and after the opening day, the two ambulances, well equipped and provided with a surgeon, a driver on duty constantly and a police officer, made up the complement that was able to meet all the demands of every occasion. Great apprehension was felt lest we should not be able to care for the various occasions with large attendance but we were favorably disappointed in finding that, owing to the splendid care on the part of the guards and police officers on the spacious grounds, and owing to the sense of responsibility of the citizens of St. Louis endeavoring to make the Exposition not only the greatest, but the most orderly and desirable place for its people and their guests to visit, there was a smaller number to treat during the greatest attendance. This was noticeably so on Dedication Day, Opening Day, Saint Louis Day, President's Day, Missouri Day, Fourth of July and D. R. Francis Day.

The following rules were established for the government of the corps:

1. Two surgeons shall be on duty at the hospital, aided by one nurse in the operating room and one in the ward, their hours of service being from 8 a. m. until 3 p. m.; and a like number from 3 p. m. until 11 p. m.
2. One ambulance, with its attendant surgeon fully equipped for any emergency, and usually a metropolitan police officer, shall be on duty constantly, subject to the call of the chief, who shall receive all messages and convey the same to his subordinates.
3. The commandant of the "Guards" instructed all his subordinates to aid in every possible way in caring for the sick and injured before the arrival of the surgeon and his aids, and in assisting in placing them properly for transportation in the speediest time.
4. Every consideration must be shown by all employes of the Exposition to the sick and injured, and under all circumstances the patient must be taken to the hospital in the shortest time possible.
5. No one shall be allowed to take the ambulance or wagons used by the visiting physicians off the grounds, except by permission of the Medical Director, and under no circumstances is any one allowed to ride in any of the wagons except those in their line of duty.

By the order of the President, approved by the Superintendent of the Division of Works, the Medical Department was given the right of way and by common consent this was agreed to by every one on the grounds.

6. In every case a written report must be made to the medical director or to his representative, a copy of which is to be placed on file; likewise a more extended report shall be made by the representative of the accident insurance company with whom the corporation is insured. By so doing the legal right of the corporation may be protected.
7. The equipment of stretchers and appliances must be distributed over the grounds at such places as can be easily reached by guards and other employes near at hand; likewise all officers must be trained in their use.

Lastly, the strictest decorum and courtly attention must be given to all, avoiding noise, undue haste or any semblance of rudeness to those who come under your care. When any controversies arise they are to be referred to the chief of this department, or to his immediate representative.

LEONIDAS H. LAIDLEY, Medical Director.

SANITATION.

The sanitary section was organized early in the work of this department. During the construction period Dr. L. P. Walbridge, in charge of the work of visiting the sick in the camps and also in inspecting the grounds, with the inspectors in the Engineers' Department, were able to report daily any unsanitary condition, which was ordered abated immediately. This duty devolved on the Chief of the Engineers' Department, Mr. Richard H. Phillips, and it is my pleasure to testify to his efficiency and promptness in discharging every duty. A number of camps were established on the grounds to accommodate the workmen and their friends, which required special regulations for their government. The following order was issued in order to control the health of those residing within the grounds:

1. The Louisiana Purchase Exposition Company will furnish prompt and competent medical or surgical service without charge.
2. No one in the camps will be permitted to employ a physician not employed by the exposition company without the approval of the Medical Director.
3. Under no circumstances will a case of any contagious or infectious disease be permitted to remain on the grounds.
4. All cases of illness should be reported to the Emergency Hospital, or, if the patient be unable to go to the hospital, report should be made to the sanitary inspector, who will see that the proper notice is given to the medical department.

L. H. LAIDLEY, Medical Director.

The above rules greatly aided in keeping the grounds under surveillance and aided the detection of any contagious disease. The disposition of garbage and waste from the camps elicited no little concern at first, but a police regulation compelled all to use the improvised water closets consisting of openings in the ground, well disinfected with sulphate of copper and chlorid of lime, and garbage, was destroyed daily in a crematory established for that purpose.

The spring water found on the grounds was examined by Dr. Carl Fisch, bacteriologist, and was found to contain many colon bacilli. An order was issued forbidding every one from using it under penalty of being driven from their camps. The city water was freely furnished by hauling until a connection with the city mains was established, furnishing comparatively pure water. During the Exposition period, a supply of water was furnished by the special water mains and pipes furnished for sprinkling and general use, except for drinking purposes. Water for drinking was provided by the Exposition Water Company in machines and booths furnished for the purpose. This water was transported from DeSoto, Mo.; it was taken from an artesian well, which after most careful examination was found to be free from micro-organisms. During the early part of the Exposition a long-felt want was met by the improvement of the water furnished by the city in the removal of all vegetable matter, leaving a clear and comparatively healthy water. The sewering system provided by the Superintendent of the Division of Works was all that could be desired.

The garbage was collected every night and in part through the day, carted to the southwest part of the grounds, where it was cremated in a manner demonstrating all the new and well approved methods of caring for the refuse of a city.

In the appointment of James M. Gassoway, M.D., Lieutenant-Colonel, U. S. Marine Hospital Service, as Sanitary Officer, June 14, 1904, began the final and efficient organization of the Sanitary Department of the World's Fair. Dr. Gassaway made daily inspection of all parts of the grounds, reported all insanitary conditions to the President and issued a warning to all who might be responsible for insanitary conditions. In dealing with concessionaires and those who were located on the "Pike," in order to avoid the trouble in other Expositions, a clause was inserted in every contract which gave the Medical Department absolute authority to cancel their contract unless they obeyed the rules of this department. I am happy to say that the extreme penalty was not resorted to and that the grounds, especially that part occupied by the live stock, were kept in a sanitary condition, as the following report from Chas. F. Mills, Superintendent of the Live Stock Department, will indicate:

In compliance with your request I have the honor to report that the precautionary measures taken by the Exposition to insure the health and freedom from exposure to disease of the live stock exhibited at the World's Fair resulted in having the best of sanitary conditions provided.

The exhibit of live stock held in connection with the Exposition was the largest in point of numbers on record, and the displays came from all of the breeding districts of the world and over all the leading lines of transportation.

The various classes of live stock, including horses, cattle, sheep, swine, poultry, dogs, etc., in succession were on exhibition with short intervals during the heat, cold and storms incident to the season extending from Aug. 22 to Nov. 12, 1904.

The careful daily inspection revealed no evidence of any disease among the stock while on exhibition at the World's Fair, and the chief veterinarian gave all applicants a clean bill of health with permits for outgoing shipments of all classes of live stock.

The lavatory service was especially troublesome for a time, but with the use of scrubbing and the free use of kresol as prepared by Parke, Davis & Co., bad odors and other difficulties were overcome. I wish to note the scientific manner in which this product was used by the sanitary expert during the summer months.

The question of contagious diseases being allowed to remain on the grounds was attended with great concern, especially on the arrival of strange people from every part of the earth. This was especially so of the Philippinos. On their arrival, a number of them had smallpox, one or more having died in transit. All persons who could not give a perfect bill of health were excluded from the grounds and those who remained on the grounds were vaccinated. This rule was adhered to without exception. During the Exposition beriberi appeared; there were forty-five cases with three deaths. Not being familiar with this form of illness, there being little to learn from the literature on the subject, it caused great alarm on the part of the Fair officials and for a time it was a serious question whether the infected tribes should not be immediately returned to prevent its spread. Dr. Carl Fisch, the official bacteriologist, with Surgeon Gassaway, made their report prompting a delay for action in the matter. Dr. Hunt, who was in charge of the Iggorotes, contended that it was due to a faulty diet and that it was not communicable to those who were not similarly situated. The food as to quality and preparation was changed and immediately there was an improvement noted in most of the cases. Dr. Fisch made postmortems on those that died demonstrating the character of the disease, as follows:

The observations that I have had an opportunity to make on a number of the cases of beriberi occurring among the natives encamped on the Philippine reservation have yielded nothing that would add to the knowledge so far obtained about the character or the etiology of this disease. The impression that clinical study, as well as the postmortem examination gave was, however, decidedly that of the effects of a chronic or more acute intoxication. The nature of the toxic substance could not be discovered, although the result of two autopsies very much suggested the presence of a chronic infection, analogous in its pathologic effects to those of, for instance, malaria or trypanosomiasis. Careful search in the blood and tissues (especially the spleen) for anything resembling parasitic organisms was negative. Cultures made from tissues taken at autopsy yielded only the ordinary forms. Guinea-pigs, rats and rabbits injected subcutaneously and intraperitoneally with cultures of spleen, and portions of various nerves from two cases coming to autopsy remained well and showed no symptoms of disease, except one rabbit, which died from a purulent (staphylococcus) peritonitis.

It can not be decided, therefore, whether the intoxication is due to a toxic substance, or whether it is the product of a toxin-forming parasite. The epidemiology of the disease certainly points to the latter conclusion; this, too, is suggested by the variability of the clinical course that was observed, most cases being mild and chronic, and recovering, while others showed the pernicious form and ended life in a few days. As there is no reason to assume that a toxic agent could have been ingested by these patients, under the conditions under which they were kept (some cases seem to have developed primarily at the reservation), that would not have affected in the same way a greater number, the analogy with other infectious diseases presents itself.

Against a bacterial infection are to be adduced the findings at autopsy. The blood in both cases examined (Moro Peplon 7-28-1904 and Iggorote 8-27-1904, the latter a case of fulminant disease) was found to be sterile, even at autopsy. As before mentioned, cultures from the tissues yielded no results either. The histologic tissue changes were all of a character that would exclude the action of a bacterium in bringing about inflammatory reactions, although they to a degree resembled those, for instance, found after tetanus and hydrophobia. The pronounced enlargement of the spleen, with all the evidence of a chronic congestion, was the most characteristic finding in both cases, although, of course, it is doubtful whether it was a consequence of the disease itself. For the Iggorote case, running a course of only a few days, other causes are more probable. The heart, in both cases, exhibited the picture of a chronic interstitial hepatitis. The neuritic processes were very marked in all cases examined, leading often to a complete degeneration of the fibers. They were more advanced in the Moro case, where secondary proliferation of the perineurium and endoneurium had taken place, while, for the Iggorote, the picture of a fresh degenerative change of the fibers obtained.

HOSPITAL RECORDS.

The character of surgical and medical cases treated during the construction period afforded a fine field for surgery, especially the cases due to violence and to falls from great heights, which comprised a list of injuries of the thoracic, abdominal and pelvic viscera. The extremities likewise suffered to a great degree in fractures and dislocations. In most cases in which death ensued there was found rupture of the stomach, liver or other of the vital organs, which with shock produced immediate or ultimate death. A number of workmen escaped fatal results after falling fifty feet or more, and in one case, during the local cyclone where eight persons were injured, one patient fell one hundred and twenty feet, suffering little injury. The number of gunshot wounds were not very numerous, only one death resulting from that cause; fourteen perforations were found in this case, and death was caused by hemorrhage. One of the cases was of such importance at the time that I hope I may be pardoned in giving a short report of the same:

Patient.—E. M., Aged 18, a visitor, of remarkably vigorous constitution and of unexceptional health, was shot in the abdomen during a brawl on the Pike at the Saint Louis World's Fair, June 18, 1904. He was admitted to the Emergency Hospital on the grounds, and within one hour an abdominal section was made.

Examination.—It was found that the ball had passed through the abdominal wall near McBurney's point, passing inward and slightly downward. On examining the viscera, it was found that the ball had penetrated the cecum, making two openings, one in front and another behind, and had passed down into the soft parts lining the pelvis.

Treatment and Result.—These openings were closed up by Lembert sutures, the abdomen was cleansed of large quantities of blood and escaping contents of the bowel, and the incision was closed with through-and-through sutures. The patient left the table within an hour under very favorable circumstances, the pulse being 72 and temperature normal. The next morning he complained of great pain in the hip joint, and was unable to move that limb. For ten days his condition was favorable, then he gave evidence of disturbance, especially about the joint. Chills and fever and increased pain suggested an examination with the *x*-ray, which would have been done earlier had we been provided with such an appliance. On July 11, an incision was made over the joint, disclosing the presence of pus outside of the joint, which was opened, showing that all of the head of the bone within the capsule was entirely destroyed and fractured; the acetabulum also was fractured and necrosed. Following up the course of the bullet, the missile was found lodged in the upper and outer margin of the cavity of the socket and was removed. The necrosed portions of the bone were chiseled out, the dead portion of the head of the femur was removed, the cavity was curetted, packed with gauze, and thoroughly drained. The patient afterward showed evidences of sepsis, which prompted me, on Juy 22, to reopen the wound, wash out the cavity and introduce further drains. These are continually used up to the present time.

Subsequent History.—About three weeks ago he manifested evidence of acute nephritis. On examination, it was found that he had a large quantity of albumin, with casts, evidently due to toxemia, as in scarlet fever. Since that time, by repeated cleansing of the cavity and thorough drainage, these evidences are disappearing, leaving him in a fair condition for recovery. The subsequent treatment will be to free the cavity and its surrounding structures of all suppuration, and by that means we hope to restore our patient to normal health, probably leaving him with a shortening of the limb, and perchance a degree of ankylosis.

At the time of writing I am happy to report the recovery of the patient with only one inch shortening of the limb.

SUMMARY OF CASES TREATED AT THE EXPOSITION.

I hereby present a summary of the cases treated from the beginning of construction period to December 1, 1904:

LOUISIANA PURCHASE EXPOSITION MEDICAL DEPARTMENT. SUMMARY OF WORK DONE AT EMERGENCY HOSPITAL DURING THE CONSTRUCTION AND EXPOSITION PERIODS.

CASES TREATED.

	Construction period.	Exposition period. May	June	Jly	Aug.	Sept.	Oct.	Nov.	Total.
New—									
Surgical	3,412	499	515	467	489	472	388	284	6,326
Medical	2,736	436	650	815	740	884	728	392	7,381
Retreated—									
Surgical	3,920	787	612	621	499	446	454	353	7,692
Medical	2,758	678	886	824	820	625	411	444	7,446
	12,826	2,400	2,663	2,727	2,548	2,427	1,981	1,473	29,045

New cases, construction period	6,148
New cases, exposition period	7,759
Total	13,907
Cases retreated, construction period	6,678
Cases retreated, exposition period	8,460
Total	15,138
Grand total	29,045

DEATHS.

Deaths from violence during construction period	11
Deaths from natural causes during construction period	5
Total	16
Deaths from violence during exposition period	12
Deaths from natural causes during exposition period	12
Total	24
Grand total	40

BIRTHS.

Births during construction period	3
Births during exposition period	4
Total	7

AMBULANCE CALLS.

The ambulance responded to the following number of calls:

May	168
June	172
July	210
August	224
September	253
October	191
November	97
Total	1,315

CLASSIFIED LIST OF CASES.

	Construction Period.	Exposition Period.	Total
Abscess	110	170	280
Abortion	2	8	10
Adenitis	5	11	16
Alcoholism	12	32	44
Appendicitis	1	13	14
Arteriosclerosis	1	0	1
Asthma	3	10	13
Beriberi	0	45	45
Bronchitis	106	83	189
Burns	51	122	173
Common cold	476	201	677
Contagious diseases	43	33	76
Conjunctivitis	42	123	165
Dermatitis (poison ivy)	27	10	37
Diseases of skin	43	138	181
Diarrhea	150	233	383
Dislocations	12	26	38
Dysentery	9	9	18
Enteritis	10	4	14
Epilepsy	18	32	50
Epistaxis	2	13	15
Exhaustion	12	225	237
Exhaustion (heat)	13	0	13
Fever, intermittent	776	413	1,189
Fever, typhoid	16	7	23
Foreign bodies in eye	110	306	416
Fractures, compound	4	6	10
Fractures, Colles'	14	11	25
Fractures, femur	3	5	8
Fractures, long bones	74	48	122
Fractures, miscellaneous	43	22	65
Fractures, skull	16	7	23
Fractures, spinal column	1	0	1
Frost bites	6	0	6
Gastritis	21	26	47
Heart disease	15	17	32
Hemoptysis	5	9	14
Hemorrhoids	16	16	32
Hernia	9	6	15
Hysteria	2	30	32
Indigestion	291	991	1,282
Insanity	2	6	8
La grippe	55	15	70
Laryngitis	15	5	20
Nephritis	2	10	12
Neuralgia	49	63	112
Otitis	15	33	48
Paralysis	2	0	2
Pharyngitis	19	116	135
Pleurisy	4	14	18
Pneumonia	7	6	13
Poisoning	3	9	12
Rheumatism, articular	56	91	147
Rheumatism, muscular	46	47	93
Sprains	263	222	485
Sunstroke	2	0	2
Syncope	17	136	153
Tonsillitis	115	92	207
Tuberculosis	11	3	14
Ulcers (unclassified)	16	5	21
Vertigo	16	7	23
Venereal diseases	21	11	32
Wounds, abraded	45	62	107
Wounds, contused	805	411	1,216
Wounds, incised	189	204	393
Wounds, infected	282	349	631
Wounds, lacerated	487	414	901
Wounds, punctured	486	174	660
Wounds, scalp	185	102	287
Wounds, gunshot	0	18	18
Wounds, unclassified	5	16	21
Miscellaneous, surgical	137	491	628
Miscellaneous, medical	221	1,166	1,387
Totals	6,148	7,759	13,907
Retreated	6,678	8,460	15,138
Totals	12,826	16,219	29,045

EXPENSES.

Pre-exposition period—	
Dec. 6, 1901, to April 29, 1904	$22,052.24
Exposition period—	
April 30 to Dec. 1, 1904	14,375.47
Postexposition period—	
Dec. 2, 1904, to Feb. 15, 1905	795.00
	$37,222.80

In making this report I cannot fail to form conclusions concerning the work of this department of the Exposition; I believe that a permanent staff, including nurses, is the best, and that one well equipped hospital with an efficient ambulance service, without substations, is the most desirable and efficient in a work of this kind.

Special Article

IMMUNITY.

CHAPTER XV.

CYTOTOXINS.

Following the discovery of immune hemolytic serums it was a short step to experiments which involved immunization with various other tissue cells, and as a result of such work we are to-day familiar with antiserums for almost every organ of the body.

Cytotoxin or Cytolysin.

Metchnikoff gave the name of cytotoxins to those serums which destroy cells other than bacteria and erythrocytes; the word cytolysin is used synonymously. Naturally a serum which destroys any cell whatsoever is a cytotoxin, but according to the rather loose custom which prevails, we may properly recognize bacteriolysins, hemolysins and other cytolysins, including among the latter serums which destroy leucocytes, the cells of the liver, kidney and other organs.

Theoretical Utility of Cytotoxins.

Cytotoxins are of interest, not only because they are produced in accordance with the general laws of antibody-formation, but they have had and perhaps still have a special theoretical importance. Immediately on their discovery the possibility was evident that they might be utilized in the elucidation of certain physiologic and pathologic problems. For example, by putting the thyroid out of function through injections of thyrotoxic serum it might be possible to confirm, or to prove incorrect, certain theories as to the rôle of the gland in metabolism. Or, by the selective destruction of a tissue, facts concerning its regenerative powers might be learned. The use of an antipancreatic serum might throw some light on the nature of diabetes. Therapeutic possibilities also suggested themselves. Anticytotoxic serums might counteract cytotoxins which were being formed in the body. Or, by injecting a small amount of a cytotoxin, perhaps one could stimulate to a renewed production of the homologous cells; small doses of a hemolytic serum might be useful in combating anemias. Or small amounts of leucotoxic serum might cause an increase in the number of leucocytes, and thereby an increased resistance to infection. Per-

haps autocytotoxins are formed in some such manner as the following: An extraneous toxic substance causes the destruction of a few kidney cells, the constituents of the latter reach the circulation and stimulate other organs to the formation of autonephrotoxic amboceptors, which then assist in the destruction of more renal tissue, with the result that a vicious cycle is set up.

In spite of so many theoretical values the study of cytotoxic serums has not yielded the results which were anticipated, perhaps chiefly because of their lack of specificity. Although the cells of the different organs may differ widely in their morphology and function there are no doubt certain chemical constituents (receptors) which they possess in common. Of this we have experimental proof from the fact that immunization with one type of cell often yields a serum which is toxic for the cells of various organs. It is difficult or impossible to injure one organ to the exclusion of all others. One may attempt to purify a cytotoxic serum through absorption of the adventitious amboceptors by means of the corresponding cells; inasmuch, however, as the result is a decrease in the chief amboceptors as well as of the adventitious, the desired object was not fully realized. Theoretically the cytotoxic treatment of malignant tumors offers an important field for research. But here, too, various difficulties are involved, as lack of specificity of serums, the multiplicity of cell-types which constitute different tumors, and other points which will be considered later.

Lack of Specificity.

Experiments with cytotoxic serums may be conducted *in vitro* or in the living animal. In either case a necessary condition for the recognition of the cytotoxic action is the presence of some distinctive sign of vitality on the part of the cell, the loss of which may be taken as evidence of cell-death. Loss of motility and of proliferative power indicate the death of bacteria, and solution of hemoglobin the death of erythrocytes. Under particular conditions loss of motility on the part of certain tissue cells, as spermatozoa, leucocytes and ciliated epithelium, is an evidence of cell death or cell injury. The toxic action of serums on cells of fixed form is more difficult to determine, and for evidence one must rely on such points as clearing of the protoplasm (digestion?), swelling of the cell and nucleus, actual solution of the cytoplasm, or degenerations of the homologous organs when the serum is injected into the living animal.

Determination of Cytotoxic Action.

Cytotoxins, like bacteriolysins and hemolysins, are complex substances, in that they consist of amboceptors and complements. The amboceptors alone are increased during immunization, the complement being a normal constituent of the serum of the animal. The phenomena of inactivation and reactivation are observable here as in connection with other cytolytic serums. Anticytotoxins are readily produced by immunization with many cytotoxins; the antiserum usually consists of anticomplement, but in some instances antiamboceptors have been described. Immunization with solid organs is easily accomplished, a necessary preliminary for injection being a thorough disintegration of the tissue by grinding with sterile sand; the resulting mass when suspended in salt solution passes through the injecting needle readily.

Amboceptors, Complements and Anticytotoxins.

Simultaneously, or nearly so, Landsteiner in Vienna and Metchnikoff in Paris reported the production of spermotoxic serums by immunization with spermatozoa, the natural motility of which rendered the recognition of cell death easy. The technic which Landsteiner first employed was that of the Pfeiffer experiment in that he immunized guinea-pigs with the spermatozoa of cattle and observed loss of motility on the part of the cells when they were injected into the peritoneal cavity of the immunized animals. Comparable with many other cytotoxins, spermotoxin kills the homologous cell without causing its solution. The loss of motility is also observed in hanging-drop preparations provided a fresh or a complemented serum is used. Most normal serums show a greater or less degree of toxic action for the spermatozoa of other animals, and normal spermotoxins like the immune consist of amboceptor and complement. Metchnikoff claims to have produced an autospermotoxin by immunizing guinea-pigs with the spermatozoa of other guinea-pigs.

Spermotoxin.

When a spermotoxic serum is injected into the living animal it is thought that the amboceptors are taken up by the homologous cells, and this would seem to affect the vitality of the spermatozoa, inasmuch as De Leslie rendered male mice sterile for 16 to 20 days by the injection of the serum.

It is of theoretical interest that castrated animals will yield spermotoxin by immunization, showing that the amboceptors are not of necessity produced by the analogous tissue of the immunized animal. From the fact that spermotoxic serums are hemolytic it is assumed that certain receptors are common to erythrocytes and spermatozoa. Hemolytic serums, on the other hand, may not be spermotoxic. There is nothing contradictory in this lack of reciprocal action, for those receptors which are common to the two cells may not be important for the life of the spermatozoon, whereas the opposite condition prevails with the erythrocyte.

It is certainly of interest that immunization with the plasma of ova causes the formation of spermotoxic amboceptors, a fact which points to certain common constituents of the two cells.

Antispermotoxin may be produced by immunization with spermotoxic serum (anticomplement or antiamboceptor).

Following technic similar to that employed by Landsteiner, von Dungern obtained a cytotoxic serum for ciliated epithelium of the trachea; the cells disintegrated in the peritoneal cavity of the immunized animal but not in that of a normal animal. This serum also proved to be hemolytic in spite of the fact that no erythrocytes were included in the injections. That the receptors which characterize ciliated epithelium are widely distributed is shown by the fact that immunization with cow's milk causes the formation of a cytolytic serum for the tracheal epithelium of the cow.

Cytotoxin for Ciliated Epithelium.

Leucotoxic, lymphotoxic or lymphatotoxic serums are prepared by immunization with exudates which are rich in leucocytes, or with the emulsions of lymphoid organs: lymph glands, spleen, bone marrow. Metchnikoff prepared the first serum of this nature by the injection of the spleen of rats into guinea-pigs. Leucotoxic serums are toxic, not only for leucocytes but also for red corpuscles and endothelial cells. When injected into the peritoneal cavity the endothelium is thrown off, and when given subcutaneously the capillary endothelium is attacked with the result that blood escapes to form a large hematoma. The action of the serum on leucocytes may be observed *in vitro*. The mononuclear cells are often more susceptible than the polymorphonuclears, although this depends somewhat on the animals and the particular organ used for immunization. The cells lose their motility, the cytoplasm becomes transparent, and swells to form a large clear vesicle, which appears to be surrounded by a sharp, thin membrane. The cell contents may be discharged or entirely liquefied, the nucleus alone being recognizable. Leucocytes are agglutinated by the serum. A strong leucotoxic serum may be fatal to the animal when injected into the peritoneal cavity or blood stream, the exact cause of death being obscure.

Leucotoxin.

(To be continued.)

Hematuria.—The effect of oxygenated water on blood can be utilized for the detection of the latter in the urine, as pointed out by Sabrazes (*Gaz. Hebd. des Sci. Med. de Bordeaux*). If a few drops of oxygenated water be added to a normal urine of acid reaction there is a slight disengagement of oxygen. If the urine is neutral or alkaline the oxygen is given out much more abundantly. Diabetic or albuminous urine foams perhaps a little more than normal urine. Bile causes very little foam. Any blood content in the urine, however, even if only detectable by the microscope, causes an excessive foaming of the liquid. Pus also causes much foaming, though somewhat less than blood.

Clinical Report

A METHOD FOR MAKING PERMANENT MOUNTS OF SPECIMENS STAINED BY WELCH'S CAPSULE METHOD.

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NEW YORK CITY.

For purposes of demonstration it is often advantageous to be able to make permanent balsam mounts of specimens stained by Welch's capsule method. I have frequently employed the procedure, which I describe, in making preparations from the blood and exudate of white mice, guinea-pigs and rabbits infected with the pneumococcus and with the *Streptococcus mucosus capsulatus*.

It is well known that the best pictures are obtained when the specimens are mounted in some fluid, such as the 2 per cent. watery saline solution. The capsules of the pneumococcus and *Streptococcus mucosus capsulatus*, taken from infected animals, when stained by the Welch method, present a fairly well limited, almost hyaline appearance when examined in a fluid. If such specimens be dried and mounted in balsam, the capsules are no longer visible. At times a number of faintly stained, poorly outlined capsules will remain, but only very rarely can a good preparation be obtained if balsam be used.

The following procedure will enable one to make satisfactory balsam mounts:

After washing off the gentian violet solution with a 2 per cent. saline solution, the specimen is rapidly flushed with a 5 to 10 per cent. solution of potassium ferrocyanid, dried between filter papers, and mounted in balsam.

Specimens treated in this way are but little changed. The clearness of the general picture and the definition and beauty of the capsule suffer somewhat, but the results are satisfactory and permanent. If desired, the preparation may be examined first in the salt-water and then may be made permanent by this method.

I have examined the subcutaneous and peritoneal exudates of a large number of white mice and guinea-pigs, inoculated with the pneumococcus and *Streptococcus mucosus capsulatus* by means of the Welch stain and have often found that the following "rapid" modification has been time saving and has given eminently satisfactory results.

When the exudates are thin, as a rule they can be spread on a cover-slip without a diluent. The procedure may be outlined as follows:

1. Spread on a cover-slip and fix by heat.
2. Glacial acetic acid, five seconds; drain off.
3. Flush twice with anilin-water gentian violet.[1]
4. Saline wash, and mount; or
5. Flush with a 5 to 10 per cent. potassium ferrocyanid solution, dry with filter paper and mount in balsam. A preparation can be completed in from 30 to 40 seconds.

A similar method has proved successful in the preparation of permanent mounts of specimens stained by the capsule method which I recommended in a previous article.[2] It has been found applicable to specimens made from cultures as well as from exudates.

Although the employment of the rapid method, with or without the potassium ferrocyanid solution, has regularly given me good results in the exudates of test animals, my experiments with sputum have been too few to warrant drawing any conclusions in regard to it. Specimens of exudates containing the pneumococcus and the *Streptococcus mucosus capsulatus*, stained in the way described and mounted in balsam, have not undergone any change after a period of three months. It seems very probable, therefore, that they will remain permanent after the lapse of even a longer period of time.

1. A weaker anilin oil gentian violet solution than is ordinarily employed for the Gram stain has been found just as serviceable. It is made up as follows: Anilin oil 10, water q. s. 100. Shake, filter; add 5 c.c. saturated alcoholic gentian violet solution.

2. Medical News, Dec. 10, 1904.

New Appliance

THE GAVIN OPERATING ROOM BASIN.

S. GRIFFITH DAVIS, M.D.

BALTIMORE.

About eight years ago Dr. F. D. Gavin, superintendent of the Church Home and Infirmary, devised a simple basin for the operating room. This basin has given so much satisfaction that it may be well to bring it before the profession.

As can be seen from Figure 1, it consists of a frame which fits into the usual rectangular basin sink. This frame is composed of silver-plated tubing about three-eighths of an inch in diameter. Occupying the center of the frame is a circular opening into which an ordinary porcelain basin can be placed. The ring that supports the basin revolves from right to left through a quarter of a circle.

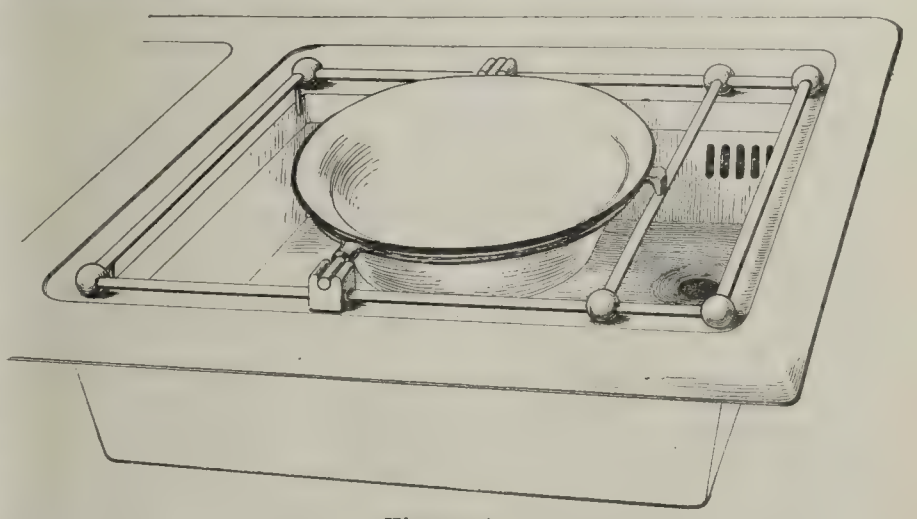


Figure 1.

The basin is easily emptied by the hands in the basin. The left hand presses downward, the right prevents the basin from tipping over too far. The lever principle is employed, the axis or revolving point being two-thirds of the distance toward the left of the circle (Fig. 2).

The chief advantages of this basin are:

1. It is very simple and cheap.
2. If out of order it can be repaired by any machinist.
3. It will accommodate a simple porcelain basin that can be purchased in any hardware store.

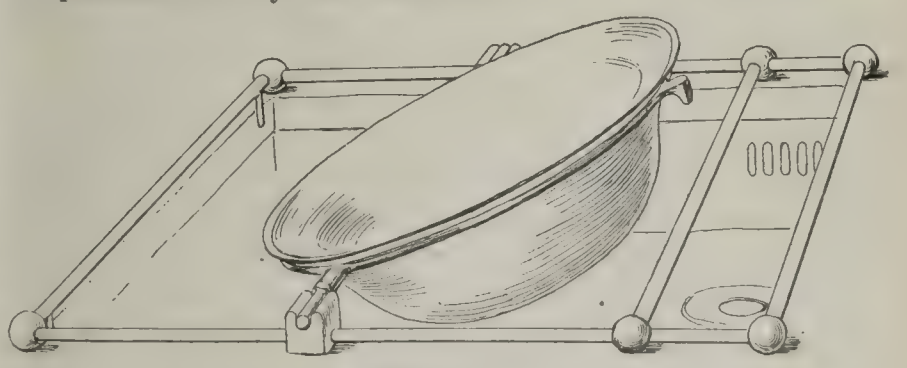


Figure 2.

4. The frame and basin can readily be placed in the sterilizer and steamed.
5. Fresh basins can be used for each operation.

The complete frame and basin should not cost over five dollars. That they have answered their purpose well is evidenced by the fact that those employed at the Church Home have been in continuous use for over eight years.

The question of the foot treadle and of continuous running water has purposely been omitted, as these may be adapted to this or to any other basin.

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THE CURE OF CANCER BY X-RAY.

The determination of the limitations and possibilities of the therapeutic application of *x*-ray is undoubtedly one of the important questions before the profession today. The whole subject of radiotherapy is one which appeals strongly to the imagination and to popular interest. Two years ago it was suggested that in time the use of radium would supplant the use of *x*-ray and the subject of the therapeutic use of radium was one which excited great popular interest. But radium has not thus far fulfilled its early promises as a therapeutic agent, and interest in it has subsided. With *x*-ray the situation is different. It is being widely used, and, it is to be feared, a good deal abused, and it is therefore highly important that there should be a definite comprehension of its field of usefulness.

The report in this issue of THE JOURNAL by Dr. Pusey, in which he gives his results of the use of *x*-ray in various affections, more particularly malignant tumors, is presented in so careful and conservative a manner that there is little or no danger of arousing unfounded hopes. In the face of evident temptation to advance extravagant claims, Dr. Pusey continues to maintain a critical attitude which is highly commendable. The use of *x*-ray in the treatment of malignant tumors is wholly empirical. An enormous amount of experience and observation is necessary before the exact limits of its usefulness in this field may be determined. At the present time we have little evidence that *x*-ray has any real value in the treatment of internal cancer. It is true that we have reports of recessions, of arrest of growth, even of symptomatic cures of internal cancers during treatment with *x*-ray, but as yet we have no reports of absolute cures that can withstand criticism. The clinical course of cancer, internal as well as external, is variable. Periods of apparent recession follow periods of progress. Every physician and surgeon has observed that patients with cancer sometimes continue to live in comparative comfort even for years after the unquestioned development of metastatic tumors in vital organs. It is part of the natural history of the scirrhous form of carcinoma, for instance, to advance with comparative slowness at the outskirts while in the central part cicatricial shrinking equivalent in many cases to a kind of spontaneous healing is taking place. There is, indeed, very good reason to believe that while the human being "in the majority of cases falls victim to the invasion of carcinoma once started, yet it is not altogether without the calling into operation of opposing forces that this sad result is achieved."

Under these circumstances and at this time a correct estimate of the value of *x*-ray in internal cancer is, therefore, out of the question, and startling reports—"too good to be true"—of the great changes produced in a comparatively short time by *x*-ray in individual cases should not be permitted to unbalance conservative judgment in the slightest degree. Indeed, the publication of reports of the character mentioned, at the very best in every sense premature, is reprehensible because they tend to lessen respect for scientific conservatism and truthfulness of the medical profession.

APLASTIC ANEMIA.

The hematologic studies of recent years have not only more clearly defined existing blood diseases, but have also brought to light conditions not heretofore known. This has been the case particularly since stress has been laid on the importance of a study of the blood-forming organs as well as of the circulating blood. We are, in fact, coming to recognize more and more that the lesions in the lymph nodes, spleen, and particularly in the bone marrow, are the criteria on which our conceptions of these diseases must be based, and that the blood picture is merely a symptom.

The condition known as aplastic anemia was first described by Ehrlich nearly twenty years ago, but until recently the reported cases have been so few in number that general attention has not been directed to it. Within the last year or two a considerable number of cases has been recorded, and it would seem that the condition is not nearly so uncommon as was at first supposed. Probably many cases have been overlooked on account of the clinical resemblance to ordinary pernicious anemia. As the name indicates, the condition is one in which a clinically grave anemia is unaccompanied by the ordinary regenerative changes in the circulating blood. There is an almost complete absence of nucleated red cells, and, further than this, there is in most cases a great diminution in the leucocytes. As few as 200 white cells to the cubic millimeter of blood have been noted, a truly remarkable reduction from the normal. Qualitative changes of a marked character are also present in most cases. Over 90 per cent. of the leucocytes may be of the mononuclear type, eosinophiles may be entirely lacking over long periods of time, and polynuclears are strikingly rare. The cases may run an acute or chronic course, though the former is more common. Some of them show hemorrhagic tendencies, purpuric skin eruptions, oozing from the mucous membranes, hemorrhages into the retina. Fever and enlargement of the spleen may be noted, as in the cases in old people recently described by Kurpjuweit.[1] The

1. Deutsches Archiv für klin. Medizin, vol lxxxii, Nos. 5 and 6.

pathologic picture in these cases seems to have varied somewhat, though the variations are not great if we consider all the recorded cases together. It seems likely that the supposed variations are merely different stages of the same process. Superficially scanned, the complete bone-marrow aplasia which has been found in some cases seems pathologically irreconcilable with the complete lymphoid hyperplasia which has been found in others. A search of the literature shows, however, that intermediate cases exist. There are cases on record in which aplasia was present in the marrow of some bones, while lymphoid hyperplasia existed in the marrow of others. Again, there is at least one case, that of Wolff, in which to the naked eye aplasia was present, though smears of the marrow showed the qualitative changes of lymphoid hyperplasia. It seems quite possible, in fact probable, that the condition of aplasia is a terminal one, and that at some time a lymphoid hyperplasia is present in all cases.

A question naturally arises as to the nature of this lymphoid hyperplasia. It is essentially the lesion ordinarily found in the bone marrow in lymphatic leukemia. Inasmuch as cases of lymphatic leukemia with lesions only in the bone marrow are now well recognized, we can see no reason why aplastic anemia should not be regarded as an atypical form of this disease. We know that in other cases of lymphatic leukemia the number of leucocytes in the circulating blood may be normal or even subnormal. Why should we not have a combination of these two unusual types in some cases? Certainly this assumption helps us to explain both the leucopenia and the lack of red-cell formation. If we assume, as Senator does, that the hyperplastic lymphoid cells of the bone marrow are the parent cells of both the erythrocytes and the granular leucocytes, their proliferation, with failure to differentiate, explains the whole process. It is true that this is only an hypothesis, but it is such a reasonable one that it seems worthy of provisional support until it is either confirmed or disproved by future observation.

A NEW FORM OF SERUM DIAGNOSIS.

The agglutination test of serum is now universally employed in all hospitals and to no small degree also in private practice in the diagnosis of typhoid fever and kindred diseases. There are other diseases in which a practicable serum diagnosis would be a welcome addition to our diagnostic armamentarium, e. g., staphylococcus infections. Staphylococci may cause hidden abscesses, acute endocarditis, and peculiar solid chronic inflammatory swellings of bones that often are difficult to distinguish from genuine tumors. Specific agglutinins do not appear to develop to any extent in staphylococcus infections, but it has been shown that all pathogenic staphylococci produce a hemolysin and furthermore, that this lysin is a genuine toxin because it gives rise in animals (including human beings) to an antitoxin.

Bruck, Michaelis and Schultze[1] propose to apply the determination of this antilysin to the diagnosis of staphylococcus diseases. They assume that in every staphylococcus infection there must arise at some time a demonstrable increase of the normal antistaphylolytic powers of the serum. They determined that in the case of normal serum 0.1 c.c. is, as a rule, sufficient to neutralize 0.05 c.c. of staphylococcus filtrate, which quantity contains, on an average, sufficient lysin to lake one drop of fresh rabbit blood. In 19 of 25 sera from patients with definite staphylococcus infection the antilytic power was increased from 10 to 100 times that of normal serum. In the remaining 6 cases the authors found considerable increase in antilytic power, but they think that the relative low degree of increase was due to the recent date of the infections. It seems that the antilysin develops gradually and, of course, the reactive faculty of various persons may vary considerably. So far as we know now, this antistaphylolytic reaction is specific.

It would seem that we have here an interesting specific reaction that merits further clinical study on account of its probable diagnostic value. It concerns a new step in the use of laboratory methods in clinical diagnosis. Perhaps the busy practitioner may say that this test is not practical because it necessitates the facilities of the laboratory and considerable skill and experience in a rather new form of experimentation. Clearly this work is yet in the experimental stage, but it shows well the relation between biologic studies and clinical medicine, a relation of so undoubted benefit in a practical way that the practitioner can not afford to ignore it wholly. So long as practitioners are constrained by virtue of diagnostic inability to make exploratory operations for diagnostic purposes will there be need for new and refined means of diagnosis.

TRUTH AND POETRY CONCERNING URIC ACID.

XVII.

We have reviewed in considerable detail, as we promised to do, the important work that has been done on this subject. The processes of uric-acid formation, excretion, destruction, retention, deposition and solution in health and disease have, one by one, been considered, and we have sifted as carefully as possible what we consider the wheat from the chaff. In a subject so complex it would be surprising if we did not include some worthless matter among the wheat and discard as refuse at least a little valuable grain. Despite the immense amount of work which has been done, it is surprising what a small bulk of well-determined fact has been accumulated and how much time and trouble have been required to prove the unreliability and harmfulness of a majority of the speculative views which have been ad-

1. Zeitsch. f. Hyg. u. Infektionskr., 1905, vol. l, p. 145.

vanced. Though the bulk of facts is not large, their value is precious, and we will do well to hoard them jealously, and to rejoice that we may consider them by themselves, uncontaminated by the paltry rubbish in which they have been hidden.

It is worth much to us on the physiologic side to have grown familiar with the chemical and physical qualities and relationships of uric acid; to have realized its connection with nuclein metabolism; to have become acquainted with the distinction between exogenous and endogenous uric acid of oxidative origin, and between these and the uric acid of synthetic source; to have been informed, even partially, as to the way in which uric acid is destroyed in the body; to have determined, more or less accurately, the localization of the processes of uric-acid formation and uric-acid destruction; and to have recognized that the substance probably circulates in the blood chiefly as mononatrium urate or in combination with an organic acid. On the pathologic side it is important to us to have found out in what conditions deviations from the normal uric-acid relations have been observed and to have discovered that gout is the only disease in which there is yet any strong probability that disturbances of uric-acid metabolism are directly and mainly responsible for the clinical symptoms. It has been shown that uric acid is increased in the blood in gout; that the deposits in the joints and in the tophi in gout consist of crystalline mononatrium urate; that the latter is dependent in all probability on irregularities in uric-acid excretion, including a slight diminution of the amount excreted before an attack and an increase later; that the local deposits at sites of predilection are in some way dependent on unknown local influences; that the acute gouty paroxysm is very prone to occur in the night; that the anomaly of metabolism responsible for gout is often met with in a succession of generations in the same family; that the development of gouty symptoms in the predisposed may be favored by excessive eating, lack of exercise, abuse of alcohol, chronic lead poisoning, and digestive disturbances of various kinds.

The rational treatment of gout will, then, consist, first, in combating the primary disturbance of metabolism; the patient must be protected from all the influences which experience has taught us favor the development of gout. In addition, the effort may be made to prevent the accumulation in excess, or the deposition, of uric acid or urates in the body. This has been attempted in various ways: (1) by lessening the amount of uric acid formed in the organism, (2) by trying to increase uric-acid excretion, (3) by increasing uric-acid destruction, and (4) by making the effort to increase the solubility of uric acid in the blood and tissue juices.

The formation of exogenous uric acid is largely within our power; the amount can be diminished by limiting the forestages of uric acid—nucleins and purin derivatives—in the food. Hence in gout the eating of sweetbreads, liver and kidneys—all rich in nucleins—should be prohibited, and the amount of meat and meat soups permitted should be small. Peas and beans are also rich in purin bodies and should be sparingly allowed. The well-known harmfulness of beer in gout has been attributed by some to its relatively high purin content. The temporary relief afforded by purgatives may be due, in part, to the sweeping out of forestages of uric acid from the intestine before they are absorbed. There is no certain proof that drugs can diminish uric-acid formation, though Weiss has ascribed such an action to china acid. A large number of the much-vaunted "gout specifics" consist of this china acid combined with other drugs, e. g., urosin (china acid with lithium), sidonal (china acid with piperacin), chinotropin (china acid with urotropin), urol (china acid with urea) and "new sidonal" (china acid anhydrid). If china acid affects the symptoms favorably at all, we do not know how it does so; it has been suggested that, being tetraoxybenzoic acid, it is more or less allied to salicylic acid (monoöxybenzoic acid) and so may, like the latter, exercise a pain-stilling effect.

To increase uric-acid excretion the best means we have is to increase the secretion of urine, and that is best effected by copious water drinking; mineral water or any pure table water will do. Whether or not it is possible directly to increase uric-acid excretion by drugs is still disputed. It is thought by some that the salicylates (salicylic acid, salol, aspirin—monacetic-acid-ester of salicylic acid—etc.) increase the excretion of uric acid; others believe that they increase uric-acid formation, and still others think that the amelioration of symptoms caused by them in gout is due only to their pain-relieving and diaphoretic actions. Ideas as to their effects are merely preconceived; they have not yet been subjected to adequate experimental control.

Attempts to increase uric-acid destruction in the body have frequently been made, but there is no proof that there is any general diminution of the oxidative processes in gout, nor is there any basis for the view that drugs hasten uric-acid destruction, though alkalies, oxygen inhalations, thyroid tablets and spermin have all been recommended for the purpose!

The hypothesis which has appealed most to the profession and to the laity, and the one which, on the whole, has proved most profitable to the drug manufacturers, is that which attempts to prevent uric-acid deposits and gouty conditions by trying to increase the solubility of uric acid in the blood and tissue juices. Alkalies and especially bases which form very soluble salts with uric acid have been suggested for this purpose. The attempts are futile for two reasons. In the first place it has not yet been found possible, owing to the complexity of the blood and the tissue juices, to produce in them exactly the form of urate, the solubility-conditions of which are the most favorable. In the second place, the studies of His and Paul, applying the modern conceptions of physical chemistry, have shown that the solubility of any urate in the blood is decreased by the sodium

salts of the blood. It does no good to bring into the solution along with mononatrium urate other bases whose uric-acid salts are more soluble than sodium urate; for physical chemistry has shown that on bringing an acid together with several bases the first salt to fall out is that whose "solubility product" is smallest. This fact holds not only for inorganic bases, like lithium, but also for organic nitrogenous bases, like piperacin (di-ethylen-diamin) and lysidin (ethylen-ethenyl-diamin), from which so much was expected. The whole group, therefore, of so-called "antilithics" and "uric-acid solvents" based on the above theory is robbed of any scientific support. If uric acid is to be rendered more soluble in the blood, it must be, therefore, by the formation of some easily soluble combination with other organic atom-complexes, with production of substances which are not dissociable, i. e., are not "salts." Uric-acid and thymin acid (the phosphorus-containing residue of nucleinic acid) may combine in this way; the use of thymin acid (nucleotin-phosphoric acid) has been recommended in gout, but the pure substance is not yet commercially available for the purpose; the preparations on the market said to be pure contain in reality quantities of purin bases, and the increased excretion of uric acid following their administration may be due to the uric acid made by the body from the impure chemical itself. Indeed, some investigators doubt the existence of the substance called thymin-acid. Another substance with which uric acid forms a non-saltlike compound is formaldehyd, and it has been shown that on giving hexamethylene tetramin[1] the formaldehyd split off from it in the body appears in the urine as easily soluble diformaldehyd-uric acid. Another combination called citarin (formaldehyd combined with citric acid) is said to act similarly. It is as yet doubtful whether such substances ever exert any beneficial effect in gout. In addition to the preparations named many others are on the market, some of them of known composition, others advertised with vague statements regarding their content.

On the whole, the best that can be hoped from drugs at present in gout appears to be the relief of pain by the various antineuralgic substances, such as the salicylic preparations, with which every one is now familiar. One drug deserves especial mention here, and that is colchicum. It has an enviable empirical reputation. It can be used as tincture or wine or as pure colchicin, the latter given in pill form, 1/100 grain (.001 gram) in each pill. In acute attacks one pill may be given every half-hour or hour until three or four have been taken.

The best treatment of gout—the mainstay of therapy in the disease—consists in a well-regulated regimen. The diet must be carefully chosen and rather spare, as a rule. It should consist of 100 to 120 grams albumin, 80 to 100 grams fat and 250 to 300 grams carbohydrates (Minkowski). The amount of animal food should be moderate, that of easily digestible vegetable food more liberal. Pastry, confections, sharp sauces, mayonnaise, mushrooms and all foods hard to digest are to be proscribed. Alcohol and coffee should be forbidden or used in minimal amounts. Very weak tea may be permitted, but waters (especially slightly alkaline mineral waters) form the best drink. Two hours or more of gentle exercise in the open air daily, where not contraindicated, should be enjoined. In acute attacks rest and local applications are necessary. For the tophi or chronic residues in the joints local phagocytic activity may be excited by means of hot applications and massage.

After all, it may turn out that disturbances of metabolism, of a nature unguessed as yet by us, may be more important in the pathogenesis of gout than the disturbances of uric-acid metabolism discussed in this review.

1. This substance is on the market under the names urotropin, cystogen, aminoform, formin, etc.

THE THYROID AND THE REPRODUCTIVE FUNCTIONS.

The most evident and best known functions of the thyroid are those connected with the processes of metabolism and with certain nervous phenomena, but it is also certain that the thyroid has a marked influence on sexual functions, particularly in the female. The swelling of the gland during menstruation, sexual activity and pregnancy, its relatively greater size and much more frequent disease in the female, are all evidence of this influence. Myxedematous patients are usually sexually inactive, and cretins generally fail to mature, although rare instances of pregnancy in cretins have been reported. As the thyroid does not normally functionate to any considerable extent before birth, the mother is called on to furnish thyroid secretion both for her offspring and for herself. Halsted observed that puppies whose mothers had been deprived of most of the thyroid before pregnancy had very much larger thyroids at birth than normal puppies, indicating an attempt at compensatory hypertrophy. Certain clinical observers have believed that the thyroid has an important relation to eclampsia, stating that in eclamptic women the hypertrophy of the gland which is normal during pregnancy is usually absent.

During his numerous experiments on the treatment of exophthalmic goiter with the serum and milk of thyroidectomized goats, which we recently discussed editorially,[1] Lanz[2] has had occasion to observe the effects of thyroidectomy on a large number of such animals. Goats, like all herbivora, seem to need the thyroid much less than does man or the carnivora, for they can live long without a trace of thyroid tissue, yet even in them the sexual and reproductive capacity is greatly decreased when the thyroid is missing. A large proportion of them show no sexual activities, many of the

1. THE JOURNAL A. M. A., Jan. 7, 1905, p. 41.
2. Beitr. zur klin. Chirurg., 1905, vol. xlv, p. 208.

others do not become pregnant, or else abort, and the number of offspring that can be obtained is small. Such offspring are very abnormal, being small, poorly-formed weaklings, seldom maturing sexually and showing many of the features of cretinism. It is well known that cretinism is particularly likely to occur in the children of women with diseased thyroids, and is hence most prevalent in the districts where goiter is endemic.

From these studies it may be deduced that the thyroid extract has a field of usefulness in certain conditions related to obstetrics and pediatrics other than frank cretinism and myxedema. In women with goiter who become pregnant, the advisability of cautious use of thyroid extract to supplement the function of the diseased organ during this period of increased demand is worthy of careful consideration. So, too, in the cases of children of either sex in whom maturation is unduly delayed, the possibility of deficient thyroid function exists, and offers a rational ground for thyroid medication, even when there may be no definite evidences of cretinism. Such treatment needs always to be undertaken with great caution and careful observation, for thyroid extract is by no means a simple and harmless agent—it must always be administered with a careful eye on physiologic conditions which it may profoundly modify.

SEROTHERAPY IN PNEUMONIA.

Since the unsuccessful attempt of Pane in 1898 but little has been accomplished in the line of specific serotherapy in lobar pneumonia. Later, however, our theoretical knowledge of the principles which underlie the production of sera antagonistic to bacteria of the pneumococcus class has greatly increased, thanks to Ehrlich and his coworkers. It is now generally believed that the spontaneous healing of pneumococcus infections is due to the production of bacterial antibodies rather than of antitoxins. In other words, a serum to be curative for pneumonia must possess bactericidal rather than antitoxic properties. There are many theoretical difficulties to overcome in the production of such a serum, if we assume that Ehrlich's views are correct. According to his theory specific immune bodies (amboceptors) combine on the one side with bacterial cells and on the other with complements produced by the body cells. Both amboceptors and complements are necessary to produce a bactericidal effect. Unfortunately, the complements are unstable bodies and can not be preserved in a serum, and consequently our antibactericidal sera contain only amboceptors. The complement must be supplied by the patient or introduced with fresh serum. To supply complements artificially is difficult, as the introduction of foreign complements may lead to the formation of anticomplements and defeat our aim. Practically, the action of the amboceptors depends on the complements remaining in the body of the patient, and as the disease may restrict complement formation the most powerful antiserum may be insufficient or useless. At present there is no known means of artificially stimulating the formation of complements. Furthermore, the bactericidal action of serum may be valueless even though plenty of amboceptors and complements be present. In order to work the two must combine, and this they will not do under all circumstances. The same organism injected into different animals produces different kinds of amboceptors, and these will combine with the complements of some species but not with those of others. The greater the number of amboceptors a given serum contains the greater the chance that they will combine with the complements of a given species. Then again, different varieties of a bacterial species vary in their combining power with different amboceptors. In the case of the pneumococcus, Roemer has attempted to obviate these difficulties by injecting different species of pneumococci into different kinds of animals and mixing the sera. In this way he has produced a serum which is polyvalent in a double sense.

Pässler[1] has recently reviewed the results which have been obtained with such a serum in the Leipzig clinic. His conclusions are based on a study of 24 cases and, making due allowance for the small number of cases, the results are certainly encouraging. Comparing the cases treated with Roemer's serum with those of the previous year, one is forced to conclude, making all allowance for the well-known variability of pneumonia epidemics, that something has been accomplished. The most marked improvement seems to occur in the general condition of the patients, severe cases taking on a milder course, and complications being rare. The duration of the disease seems to be appreciably shortened, the temperature is in many cases markedly reduced, and the tendency of the disease to spread to neighboring lobes seems to be less than is usual.

The method of action of the serum is not clear, though it gives the impression of being bactericidal rather than antitoxic. The number of pneumococci in the sputum is said to be unaffected, but in cases of pneumococcic septicemia those in the blood disappeared. An encouraging sign is the conservatism with which the author draws conclusions, and the reserve with which he advocates the use of the serum. It is not advocated as a specific and its use is advised only in severe cases and in patients whose resistance is lowered from alcoholism or intercurrent disease. One receives the impression that the outlook for a successful serum treatment of lobar pneumonia is a little more hopeful than it has been heretofore.

SAFEGUARDS FOR DUELISTS.

It has been facetiously declared that the greatest peril undergone in a French duel is that of catching cold. There are, however, possibilities of being scratched and consequently the introduction of pathogenic germs

1. Deutsches Archiv für klinische Medizin, vol. lxxxii, Nos. 3-4, 1905.

under the skin. We do not know the kind of weapons used, but we presume that they are like those described by Daudet in his "Immortals," with a nice little groove in the side for the blood to run down the blade. Hence, the greater chances for contamination. Of course, they would be disinfected, but this might not be altogether effectual. The persons of the combatants themselves may also furnish bacilli that only want to be introduced below the protecting cuticle. Certain of our French confrères, therefore, have devised still further protections. The combatants must take certain medicines over night, and on reaching the field of honor be soaped and scrubbed from head to foot, rubbed down with alcohol and sprayed with corrosive sublimate. Then, supplied with the necessary amount of sterilized clothing, the performance may begin. The real danger of catching cold, however, seems to have been somewhat neglected and it might be well to suggest that the participants be thoroughly examined by physicians as to the condition of their lungs. It has been shown by Fluegge and others that a consumptive by coughing or even speaking may project droplets containing tubercle bacilli a distance of several feet, and in even the moderate exercise of a French duel one should be protected also from this peril. With these and proper precautions against the inclemencies of the weather, it would seem that French duelists ought to be particularly favorable insurance risks. As a lay contemporary suggests, the action of the French physicians looks a little like a "fine bit of professional satire" on that traditionally safe transaction, the French duel.

INSANITY AND RELIGIOUS EMOTION.

A certain asylum superintendent is credited with the remarkable statement that there is no greater crime against the state than holding religious revivals; he considers religious enthusiasm as one of the chief causes if not the chief cause of insanity. It is odd that this discovery has not been made before by the many competent alienists who have studied the causation of insanity. Religious excitement, in common with other varieties of emotional stress, such as domestic troubles, business failures, political campaigns, etc., has been generally recognized as a cause of insanity, but only as a secondary one and usually only as an exciting cause in specially unstable subjects. In fact, the greatest extravagances in religious revivals and the highest expression of emotionalism in religion occur in the communities where actual insanity is comparatively infrequent. The negroes have always been especially subject to such exciting causes, but before they received their freedom, with its responsibilities and lack of compulsory moral restraint, insanity was a rare occurrence among them. Religious revivals, properly conducted and even if accented with some emotional excesses, are not specially conducive, according to the observation of most alienists, to serious or permanent mental disorder. There is far greater danger in this regard from a certain kind of morbid religiosity which is quite different from the noisy excitement of a revival and in this case also we must look back of the apparent cause to a pre-existing state of mental instability.

THE MENSTRUAL FEVER OF CONSUMPTIVES.

The great necessity in pulmonary tuberculosis is a means of early diagnosis. Perhaps we overlook the fact, in our hunt for specific diagnostic and curative means, that the clinician who makes the early diagnoses is the one who puts together the minor symptoms and signs, rather than the one who waits for striking and characteristic phenomena. It is well that we should note in this disease, as in others difficult of early diagnosis, those slight deviations from the physiologic which often occur and which are often overlooked. It has long been known that in women with outspoken pulmonary tuberculosis there is often a febrile crisis which can announce and accompany the menses. It is perhaps less well known that in very early cases fever may occur only at the menstrual period. The natural history of such cases has lately been exhaustively studied by Sabourin.[1] He shows that this fever is accompanied by an increase in the physical signs in the lungs, which probably accounts for the phenomenon. The observations of this author suggest that in all doubtful cases of tuberculosis in women it is well to examine the chest at the time of the menses, and they also suggest the necessity of greater care than usual at this period in the treatment of the disease.

THE PENNSYLVANIA OSTEOPATH BILL.

Governor Pennypacker of Pennsylvania has vetoed the bill passed by the legislature to legalize and to regulate the practice of osteopathy in that state. In his veto message he says that he has examined the bill carefully and can not obtain from its text or from the published statements of the founder of this so-called science a sufficiently definite idea of what it really is. Assuming that it has some scientific truth which is to be utilized by the osteopathic practitioners in the cure of disease and by them exclusively, he sees a certain injustice in the act. With what propriety can the legalized practitioners of medicine and surgery in Pennsylvania be prevented from using, and their patients from being benefited by, such acquisition? On the other hand, why should the osteopaths be prevented, as they voluntarily propose to be, from using whatever is beneficial to the sick in drugs or surgical operations? "If both drugs and surgery are useless," he says, "they may be rejected, but if they should at (any) time be found to be beneficial why should any science for the enforcement of a theory make the effort to exclude their use?" He says if this bill should become a law any physician who should attempt to practice what the osteopaths have discovered would be liable to punishment by imprisonment for ninety days. The whole idea of different schools of medicine, he remarks in a general way, is unscientific and every one engaged in the treatment of the sick should seek the truth wherever it may be found and utilize it. He calls the bill an "anomaly in our legislation" on the subject and therefore withholds his approval. In our columns this week, attention is called to another point by the president of the Pennsylvania Board of Medical Examiners, namely, that the osteo-

1. Revue de Medecine, vol. xxv, No. 3.

pathy bills which have been offered in certain of our legislatures, including that of Pennsylvania, contain clauses authorizing licensure on a diploma alone, provided it has been issued by a so-called reputable college of osteopathy. Such a provision completely emasculates all such laws so far as they claim to protect the public. The object is sufficiently clear. The diploma mills of the osteopath must have business and this must not be imperiled by even a so-called examination in physiology, anatomy, etc., by a board of osteopath examiners. The fact is that bills with this clause leave the whole matter as wide open as possible and it would be well to have the public and the profession, as well as the legislatures, informed as to the presence of this little card up the sleeve. "For ways that are dark and tricks that are vain," the various faddists, osteopaths included, are somewhat peculiar. A veto message like that of Governor Pennypacker will do much good and, further, it will help to hide a multitude of possible executive sins.

Medical News

ALABAMA.

Personal.—Dr Humphrey B. Thompson, Tuscumbia, has returned from Europe.——Dr. Willie F. Cobb, Barlow Bend, was brought to Camden for treatment, April 19, suffering from an accidental gunshot wound of the face.——Dr. Samuel C. Cowan, Union Springs, is ill with typhoid fever.

ARKANSAS.

Changes on Hot Springs Register.—The Secretary of the Interior has ordered the names of Drs. J. C. Parish and M. W. Purifoy stricken from the list of registered physicians of Hot Springs, and the addition to the list of Dr. J. W. Bush.

Memorial Hospital Appointments.—The following staff appointments have been made for the Logan H. Roots Memorial Hospital, Little Rock: Visiting surgeons—Drs. William C. Dunaway and Carle E. Bentley; visiting physicians—Drs. Frank L. French and Rezin W. Lindsey, and ophthalmologist, Dr. Charles C. Stephenson.

Prefer Sanitation to Salvation.—The authorities of Little Rock, threatened with an invasion by "Jeters Host," a band of negroes marching from Pine Bluff to show the inhabitants of the capital city the errors of their ways, were stopped by health officers, five miles from the city, vaccinated and not allowed to enter Little Rock.

The Smallpox Situation.—The conditions at the state penitentiary and at the state convict farm, Cummins, Lincoln County, have improved. The eight patients at the penitentiary are improving, and the one case and two suspects at the convict farm are quarantined, and the other convicts have been vaccinated.——Yellville has eight cases of smallpox.

Graduation.—The twenty-seventh class graduated from the Medical Department of the University of Arkansas, Little Rock, 32 in number, received diplomas April 12. Dr. Edwin Bentley, dean of the medical department, presided; President Henry S. Hartzog of the university delivered the annual address, and Dr. William C. Dunaway, Little Rock, the faculty address.

CALIFORNIA.

Afflicted with Diphtheria.—It is reported that there are 70 cases of diphtheria in and around Benicia and that the public schools have been closed on account of the disease.

Personal.—Dr. Thomas M. Hayden has been chosen health officer of Fresno.——Dr. Daniel E. Osborne, St. Helena, has been elected president, and Dr. Edwin Z. Hennessey, secretary and treasurer of the Napa County Board of Health.

Licensed to Practice.—Dr. C. La Verna Carvin, Oakland, who was arrested a year ago at the instance of the Board of Medical Examiners, on the charge of practicing medicine without a license, was acquitted, passed the examination and has now been granted a license to practice.

Fabiola Hospital Receives Legacy.—The bequest of the late Mrs. Theresa L. Merchant, Oakland, for the benefit of the Oakland Red Cross Society or some soldiers' hospital managed by the society, which now amounts to $3,100, has been paid over to Fabiola Hospital on its promise to keep and maintain a room for the care of soldiers.

Health Officers Meet.—At the annual meeting of the California Public Health Association in Riverside, April 17, Dr. Edward von Adelung, health officer of Oakland, was elected president; Dr. William Simpson, health officer of San Jose, vice-president, and Dr. Newel K. Foster, Sacramento, secretary of the State Board of Health, was re-elected secretary-treasurer.

ILLINOIS.

Blessing Hospital Staff.—At the annual meeting of the medical staff of Blessing Hospital, Quincy, Dr. Edmund B. Montgomery was elected president and Dr. Ernest Zimmermann, secretary.

Personal.—Dr. Karl F. Snyder has returned to Freeport, after an operation for ulcer of the duodenum, much improved in health.——Dr. Frank Anthony, Sterling, has been re-elected a member of the council of the United Spanish War Veterans' Association.

Bills Not Passed.—The general assembly adjourned *sine die*, May 6, leaving unpassed the six osteopathic and two optometry bills, and one anti-vivisection bill introduced since February 1.——House bill 495, providing that physicians attending court as expert witnesses shall be entitled to receive a sum of $10 for each day's attendance, failed to become a law. This bill was not supported by the medical profession.——House bill 577, giving the State Board of Health sanitary supervision over the lodging houses in Chicago, also failed of passage. The jurisdiction of the board in these lodging houses is now limited to cubic-air space.

Defeat of Osteopathic Bill.—The committee on judiciary of the house of representatives gave a hearing on Senate Bill No. 311 May 4. The physicians present at the hearing were Drs. William A. Evans, Robert B. Preble, and George W. Webster, Chicago; William K. Newcomb and Charles B. Johnson, Champaign; Munroe G. Reynolds, Aledo, and James A. Egan, Springfield, secretary of the State Board of Health.——Drs. Evans and Webster spoke against the passage of the bill. The committee, by a close vote, ordered that the bill be sent out with the recommendation that it be not passed. On the following day the bill was tabled in the house of representatives.

Bills Passed.—The following is a synopsis of bills of especial interest to the members of the medical profession, passed by the house and senate of the 44th general assembly: House 119, prohibiting the embalming or preparing for transportation of dead bodies except by persons licensed by the State Board of Health, and providing for examination and license; House 121, placing the employes of state charitable institutions under civil service; House 182, empowering overseers of poor to provide treatment for patients afflicted with rabies, under the direction of the State Board of Health, appropriating $2,000; House 330, providing for the location, erection and maintenance of a state sanatorium for consumptives, appropriating $25,000; House 414, providing for the sale and free distribution of diphtheria antitoxin under the direction of the State Board of Health; Senate 158, placing physicians and nurses of the Cook County Hospital under civil service; Senate 225, establishing a state board of examiners for nurses, and providing for examination and license; Senate 226, creating a state board of dental examiners and providing for the regulation of the practice of dentistry.

Chicago.

A Healthy April.—Notwithstanding the excess of mortality among children under five years of age the completed returns of deaths for the month show April to have been one of the most healthful Aprils on record. The annual rate, 1,398 per 1,000 of population, is only 0.12 higher than that of April, 1897—the lowest in the 63 years from 1843-1904, inclusive. The total number of deaths was 2,287, of which pneumonia caused 330, and consumption 315.

Last Week's Deaths.—Despite an unusual number of deaths reported from violence——11 from suicide and 40 from other forms—the total mortality is but 3 more than that for the previous week. Pneumonia temporarily again assumed the lead, with 85 deaths, while consumption fell from 83 of the week before to 74. No marked changes among other important causes of death are noted, and the generally satisfactory conditions of the previous month continued, except, of course, as to measles and whooping cough. The under-5-year deaths are 21 fewer than during the previous week.

Will Make Serums.—It is announced that the Memorial Institute for Infectious Diseases of Chicago has established a serum division as a branch of its scientific and experimental work. This division will undertake the preparation of various curative and protective sera and will also prosecute investigation into some of the problems of immunity and serumtherapy. In connection with this work it is expected that a limited amount of diphtheria antitoxin will be available for distribution at cost. Professor Edwin O. Jordan, of the University of Chicago, has been placed in charge of the serum division, and preparations for the new work are now well under way.

MARYLAND.

Acquitted.—The second trial of Dr. Joseph C. Ohlendorff, charged with causing the death of Margaret Hale by malpractice at the Beltsville Sanitarium, Upper Marlboro, was concluded, April 28, by a verdict of acquittal. On ne first trial he was found guilty of manslaughter.

Personal.—Dr. Charles A. Wells has been elected mayor of Hyattsville for the fourth successive term.——At a meeting of the sanitary officers of Baltimore County, May 3, Dr. James F. H. Gorsuch, Fork, the president, resigned, and Dr. Charles L. Mattfeldt, Catonsville, was chosen in his place.

Baltimore.

No Money for Hospital.—All hope of an infectious diseases hospital has vanished for this year, it being discovered that there is no money available for the purpose.

Interne Examinations.—The examination for the selection of six internes for St. Joseph's Hospital was held, April 25. Of 28 men who had applied for permission to enter the competition, 18 reported, but two withdrew after two questions, which were rather hard, had been read.

Personal.—Dr. George A. Hartman has recently been appointed one of the visiting physicians to St. Joseph's Hospital. ——Dr. Elizabeth Hurdon sailed for England April 29.——Dr. José L. Hirsh has been appointed pathologist to the Hospital for the Women of Maryland.——Dr. George L. Wilkins has returned from a five weeks' trip to Europe.

Commencements.—Baltimore University School of Medicine graduated a class of 16, May 2. Rev. Harris E. Kirk was the orator of the occasion.——Maryland Medical College, Baltimore held its annual commencement exercises May 5. Dr. Harry C. Gross awarded diplomas to 91 graduates. Albert C. Tolson delivered the address of the evening.

MASSACHUSETTS.

Waltham Hospital Completed.—The new contagious disease hospital, erected at a cost of $25,000 at Waltham, is now completed and ready to receive patients.

State Association of City Physicians.—City Physician Edwin P. Gleason, Brockton, has written to 32 city physicians throughout the state, suggesting the organization of a state association for the interchange of ideas and suggestions regarding problems of civic sanitation.

Excessive Verdict Reduced.—The verdict for $1,000 returned in favor of Louis Bromberg against Drs. Herbert B. Howard and Elisha Flagg, Boston, for an autopsy alleged to have been made on the body of the plaintiff's son, without the plaintiff's consent, has been reduced to $300.

Personal.—Dr. William A. Dunn, Boston, has become a member of the medical staff at the Vatican.——Dr. George L. West, Newton Center, has been appointed medical examiner for the seventh Middlesex district, vice Dr. Julian A. Mead, Watertown.——Dr. Charles A. Peabody, Worcester, who was sentenced to three years' imprisonment for embezzlement in 1902, has been pardoned.

Consumptive Hospital Bill a Law.—The Massachusetts legislature has passed a bill authorizing the establishment of a hospital for consumptives, to be built at an expense of $150,000, not far from Boston.——They have also authorized the city of Boston to borrow outside the debt limit in order to establish a relief station in East Boston, similar to the one which is so successful in Haymarket Square, and the city council has voted to proceed at once with its establishment.

Find Farms Foul.—After an eight weeks' tour of the dairy farms of Massachusetts the State Board of Health found over 60 per cent. in such an insanitary condition as to require immediate improvement. Unless such changes are promptly made the farmers will be forbidden to sell their milk. This is a continuation of the work started two or three years ago by the Boston Board of Health to secure pure milk for the city. The inspectors have also detected 30 tuberculous cows, which is of importance, since just now the farmers are urging the abolition of the tuberculin test, which they claim is unnecessary.

MISSOURI.

Tuberculosis Sanatorium Bill Passed.—The general assembly has passed a bill providing for a state sanatorium for incipient consumptives and has appropriated $50,000 for its establishment and maintenance.

Public Comfort Houses.—A movement is on foot in the St. Louis Medical Society to co-operate with the Civic Improvement League to establish houses for public comfort about the city, such as exist in European cities.

Bringing Them In.—The St. Louis Medical Society recently appointed a committee to canvass the medical profession of the city for the purpose of increasing the membership of the local body by urging all eligible members of the profession to join.

Must Report Tuberculosis.—An ordinance declaring consumption to be communicable and prescribing regulations to control the spread of the disease was passed, April 28, by the municipal assembly of St. Louis. This requires each case of tuberculosis to be reported to the Board of Health.

Commencements.—The graduating exercises of the Medical Department of St. Louis University were held May 8. Dean John M. Dodson of the University of Chicago delivered the commencement address.——Barnes University, St. Louis, on May 3, graduated a class of 123 in the medical department.

Addition to Hospital.—The building formerly occupied by the Missouri Medical College on Jefferson Avenue, St. Louis, has been remodelled and equipped throughout as an annex to the old Polyclinic Hospital, the two now constituting what will be known in the future as the Washington University Hospital.

Do Not Want Advertisement.—The Moberly Medical Society, at a recent meeting, passed a resolution requesting local newspapers to make no mention of physicians' names in connection with newspaper accounts of births, accidents, surgical operations, etc. A resolution was also adopted asking every member of the society to attend all society meetings and inviting the co-operation and membership of all physicians in Moberly.

Annual Meeting.—The annual meeting of the St. Louis Medical Library Association was held, April 26, when the following officers were elected: President, Dr. Norman B. Carson; vice-president, Dr. John H. Duncan; librarian, Dr. Frank J. Lutz; secretary, Dr. Walter B. Dorsett; treasurer, Dr. Paul Y. Tupper, and trustees: Drs. Edwin C. Burnett, Hugo Ehrenfest, Washington, E. Fischel, Robert M. Funkhouser, Joseph Grindon, and Harvey E. Mudd.

Banquet to Medical Legislators.—The St. Louis Medical Society of Missouri and the Medical Society of City Hospital Alumni, St. Louis, gave a complimentary banquet to the medical members of the forty-third general assembly of Missouri, in recognition of services to the public and profession in securing legislation for the establishment of a state sanatorium for persons having incipient tuberculosis, at Hotel Jefferson, May 10. The guests of honor were the governor, the president of the senate and the speaker of the house; Senator Dr. Frank De Vilbiss, Spring Garden; Representatives Drs. William L. Gillmore, Winona, Christopher D. Kelly, Barry County, Abra C. Pettijohn, Brookfield, Irvine Phillips, Lead Mine; Horace D. Quigg, Blackwater, James Stewart, Warren County, Alonzo Tubbs, Gasconade County, and Goldburn H. Wilson, St. Louis; the Surgeon General of the United States Public Health and Marine Hospital Service; the presidents of the Missouri State Medical Association; Missouri Institute of Homeopathy and Eclectic Medical Society of Missouri; the editor of THE JOURNAL of the American Medical Association, and the president of the State Board of Health of Missouri.

NEW YORK.

Fair for Hospital.—The fair for the benefit of Jamaica Hospital which closed April 28, netted $1,300 to the hospital organization.

Buffalo Graduates.—The fifty-ninth annual commencement exercises of the Medical Department of the University of Buffalo were held May 4, when a class of 37 was graduated. The address to the graduating class was given by Rev. Richard Earle Locke.

Personal.—Governor Higgins has appointed Dr. Eugene H. Porter, New York City, as the State Commissioner of Health to succeed Dr. Daniel Lewis.——Governor Higgins has re-appointed Dr. Stephen Smith, New York City, to the State Board

of Charities.——Dr. George S. LaMoree, Highland, was thrown from his buggy, April 24, and sustained painful injuries.——Dr. John H. Pratt has been appointed health physician of Manchester.

Buffalo Alumni Meet.—The thirtieth annual meeting of the Alumni Association of the Medical Department University of Buffalo was held May 3 and 4. The entertainment provided included clinics in the various hospitals; a luncheon given by the resident to the non-resident alumni; a luncheon given by Drs. Matthew D. Mann, Roswell Park, Charles G. Stockton, Charles Cary, Irving M. Snow, Herbert W. Williams and De Lancey Rochester, to the association; a smoker given by the faculty, and the annual dinner at the Iroquois Hotel. The following officers were elected: Dr. Fridolin Thomas, Buffalo, president; Drs. William R. Campbell, Niagara Falls, Malin B. Shaw, Eden Center, Mary M. Huntley, Buffalo, George A. Himmelsbach, Buffalo, and Hiram P. Trull, Williamsville, vice-presidents; Dr. Herman K. DeGroat, Buffalo, treasurer, and Dr. Nelson G. Russell, Buffalo, secretary.

Final Work of Legislature.—The McMannis bill establishing a hospital in New York City for the treatment of habitual drunkards and persons addicted to the use of opiates, drugs or narcotics, passed the senate.——The Hackett bill authorizing the establishment of a new public hospital in New York City, to be located on the west side between Twentieth and Forty-second streets, has passed the assembly. The bill provides that the institution shall be under the control of the Commissioner of Public Charities. There is some objection to this, as it has been found that the hospitals of New York have been better managed by a special board of trustees. It is thought that the new hospital should be established under the same control as other city hospitals.——A bill has been passed increasing the pay of police surgeons in New York City from $3,000 to $3,500.——Two additional bills affecting the water supply have been passed; one of these, the Agnew bill, provides for the appointment by the governor of five citizens of the state to constitute the State Water Supply Commission; the other, known as the Mayor's bill, provides for the appointment of three commissioners to constitute a local water board for the City of New York. The bill defines the duties, regulates the salaries, etc. It is understood that these bills will be approved immediately and that plans will be submitted for the acquiring of additional sources of water supply for the City of New York at the earliest possible date.——The Hill bill abolishing the office of curator of the Medical Department of the University of Buffalo, and vesting his powers in the faculty of the institution, was passed by the assembly May 1.

New York City.

Impure Milk Dealers Sentenced.—Five milk dealers were convicted in Court of Special Sessions of selling impure milk, The heaviest fine levied was $100.

Personal.—Dr. Frank A. McGuire was the guest of honor at the fourteenth annual banquet of the New York Celtic Medical Society, April 27, and was presented with a gold badge in the form of a harp.

Many Would Go to Portland.—Thus far 180 applications have been received for reservation on the special train from New York City for Portland, on which accommodation for only 125 was originally provided.

A New Ambulance.—The Health Department has acquired a thirty horse-power electric ambulance, geared to travel twenty-five miles an hour, at a cost of $4,000. It will be used exclusively for contagious diseases in the Borough of Queens, where long distances must frequently be traversed.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 29, 356 cases of measles, with 16 deaths; 314 cases of tuberculosis, with 189 deaths; 294 cases of diphtheria, with 42 deaths; 212 cases of scarlet fever, with 12 deaths; 111 cases of cerebrospinal meningitis, with 104 deaths; 15 cases of typhoid fever, with 7 deaths; and 61 cases of varicella.

A Ward for Meningitis.—A pavilion for the treatment of cerebrospinal meningitis patients under the age of twelve has been set aside at Bellevue Hospital. There are now 45 cases suffering from this disease at Bellevue Hospital. This ward will relieve, in a measure, the overcrowding of the city hospitals, and will enable the investigating committee to study the disease to better advantage.

Cerebrospinal Meningitis Commission.—At the conclusion of the meeting of this commission May 5, it was announced that it had been concluded that the best treatment for the disease was fresh air. Sunlight should also be freely admitted to the sick room. It was also announced that no benefit had been derived from the injection of any serum or antitoxin. Further experiments, however, will be made along this line.

Pneumonia Commission.—After having worked steadily for nearly six months this commission held its first general session on May 4, when reports were received from the various committees. A large quantity of material has been collected and will be published in the form of monographs by the individual members of the commission. The work will be continued, and a more definite report will be made in a few months on the causes, methods of treatment and means of prevention of this disease.

PENNSYLVANIA.

Osteopathic Bill Vetoed.—The governor's veto of the osteopath bill is discussed elsewhere in this issue.

Hospital Examinations.—An examination for two internships in St. Vincent's Hospital, Erie, will be held in the hospital after June 10. All applications should be sent to Dr. J. H. Montgomery, Erie, or to Dr. C. M. Montgomery, Philadelphia.

Personal.—Dr. James W. Macfarlane has been re-elected secretary of the West Penn Hospital, Pittsburg.——Dr. Franklin J. Evans has been appointed inspecting physician of the Chester Board of Health.——Dr. Thomas M. Livingston has been re-elected president of the Columbia Board of Health.——Dr. George Hay, Johnstown, who was recently operated on for appendicitis, is making a rapid recovery.

Hospital Notes.—Andrew Carnegie has agreed to endow two private rooms in the Columbia Hospital, Wilkinsburg, at an expense of $16,000. They will be named in honor of Mrs. Carnegie and Miss Marguerite Carnegie.——Bloomsburg Hospital will henceforth be known as the Joseph Ratti Hospital in honor of its founder and donor.——The courts have decided that bequests of $10,000 each to the Washington Hospital and the Presbyterian Hospital, Allegheny, by the late Mary Gregg of Washington, are invalid because the bequests were made within thirty days of the death of the testator.

Philadelphia.

Visitors from Abroad.—Dr. Gunnar Nystron, Upsala, Sweden, and Dr. Hall of London, England, visited the medical colleges and hospitals of the city during the first week of May.

Members of American Therapeutic Society Entertained.—Dr. John V. Shoemaker entertained at luncheon at his home on May 5 an assemblage of members of the American Therapeutic Society.

Bequests.—By the will of the late Mrs. Clement B. Newbold the Home of the Merciful Saviour for Crippled Children receives $5,000 and the maternity department of the University Hospital $10,000.

Hospital Physicians Organize.—At a meeting of the physicians of the Samaritan Hospital, held at the residence of Dr. Wilmer Krusen, May 6, a permanent society of the staff was effected, and the following officers were elected: President, Dr. Samuel Wolfe; vice-president, Dr. Henry C. Groff, and secretary, Dr. O. J. Arnold.

Internes for St. Joseph.—The following men were appointed resident internes in St. Joseph's Hospital, May 1: Dr. A. H. Harrigan, Columbia University; Dr. James G. Cullen, University of Pennsylvania, of Dunmore, Pa.; Dr. Thomas O'Brien, University of Pennsylvania, of Philadelphia; Dr. E. B. Starr, Jefferson Medical College, of Springfield, Ohio, and Dr. Rice R. Jackson, Jefferson Medical College, of Texas.

Hospital Reports.—During April 262 patients were admitted to the German Hospital; 255 were discharged cured and 186 remained; 4,200 patients were treated in the dispensaries and 1,429 prescriptions were issued.——The Charity Hospital treated 882 patients and compounded 785 prescriptions.——During 1904 the Pennsylvania Hospital treated a patient every twenty minutes, day and night. Altogether 44,138 patients were treated, and the ambulance made 1,565 calls.

Health Report.—The total number of deaths reported for the week ended May 6 reached 481, as compared with 552 for the previous week and 572 for the corresponding period of last year. The principal causes of death were as follows: Typhoid fever, 20; diphtheria, 8; consumption, 49; cancer, 22; apoplexy, 17; heart disease, 45; acute pulmonary disease, 74; enteritis, 23, and Bright's disease, 41. There were 342 cases of contagious disease reported, with 32 deaths, as compared with 380 cases and 24 deaths for the previous week. A slight decrease in typhoid fever is noted.

Gift to Dr. Forbes.—The students of the classes of 1905, 1906, 1907 and 1908 of Jefferson Medical College will, on com-

mencement day, June 2, present to Dr. Forbes, the professor of anatomy, a life-size portrait of himself. The gift is a testimonial to Dr. Forbes for his indefatigable efforts toward legalizing dissection in this commonwealth, for it was by his efforts that this law was passed and the State Anatomical Board established. Dr. Forbes completed his twenty-sixth year as professor of anatomy in the college this year, while he has taught anatomy in this city for 49 years.

SOUTH DAKOTA.

Special Train to State Meeting.—The twenty-fourth annual session of the South Dakota State Medical Association will be held at Deadwood, S. D., July 5 and 6. This is the first time that the meeting has been held west of the Missouri River, and the date makes it possible to go on to Portland in time for the American Medical Association session the next week, so that a very instructive and pleasant outing is made possible. Special through sleepers will leave Aberdeen on the morning of July 3, and will pass south through the eastern part of the state to Sioux City, Iowa, where a special train will be formed, to run over the C. and N. W. R. R. to Deadwood, arriving at 12:20 p. m. July 4. July 7 will be occupied in a trip up the Spearfish Canyon and in seeing the sights of the Black Hills, until 6 p. m., when the train will leave for Cheyenne and will complete the journey via the U. P. and Oregon Shortline, arriving at Portland at 5:25 p. m. Monday, July 10. Physicians from other states who desire to visit the wonderful Black Hills will be very welcome at the meeting, announces the secretary, Dr. Charles B. Mallery, Aberdeen, and can join the party at Sioux City. The fare, including the side trip to Deadwood is $50.65, the return routes are the same as given in THE JOURNAL, April 22, 1905.

GENERAL.

More Yellow Fever at Panama.—Two natives died of yellow fever on the isthmus, April 28 and 29, and three employes of the commission were reported sick. Bad weather and scarcity of water make conditions abnormally bad. The new water supply will soon be in operation.

Tuberculosis Association Meeting.—A rate of one fare and a third on the certificate plan has been granted by many railroads for the first annual meeting of the National Association for the Study and Prevention of Tuberculosis, to be held at the New Willard Hotel, Washington, D. C., May 18 and 19, 1905.

The Department of Sanitation at the Isthmus of Panama.—The Isthmian Canal Commission, at its meeting held in Washington, May 3, 1905, approved the estimates which were submitted by Col. W. C. Gorgas, Medical Corps, U. S. A., chief sanitary officer on the isthmus, and which were favorably recommended by Commissioner Magoon in charge of government and sanitation. These estimates provided for the allotment of $656,444 for the fiscal year beginning July 1, 1905, for the payment of salaries and wages in the health department, including professional employes and skilled and unskilled labor, which is a net increase of $150,140 over the allotments for the preceding year, which increase is based on the proposition that the forces of the commission will be largely augmented by July 1. This allotment for the coming fiscal year does not include the cost of construction of necessary buildings and hospitals or for the purchase of medical supplies and other necessary equipments, but is merely for the payment of the professional corps and the large number of laborers engaged in work looking to the sanitation of the isthmus. As the expansion of force involves increase of duty and responsibility on the heads of the several offices and institutions included within the department of health, the commission authorized approximately a 15 per cent. increase in the salaries of the heads of the departments and fixed them as follows:

Chief sanitary officer	$10,000
Director of hospitals	8,000
Chief quarantine officer	7,000
Superintendent of Ancon Hospital	7,000
Superintendent of Colon Hospital	5,000
Health officer of the Panama health office	3,600
Health officer of the Colon health office	3,000
Resident physicians of emergency hospitals along the line of the canal	3,000
Chief sanitary inspector	3,600

The commission also authorized the immediate erection of an additional hospital building in Colon at the estimated cost of $40,000.

The Osler Farewell Dinner.—The dinner given to Dr. William Osler previous to his departure for England to assume the regius professorship of medicine in the University of Oxford, took place at the Waldorf-Astoria, in New York City, May 2. There were present over 500 physicians from various parts of the United States and Canada, the larger number naturally coming from the large cities on the Atlantic seaboard. Dr. James Tyson of Philadelphia presided. In the middle of the dinner Mrs. Osler and other members of the Osler family took seats in the center of the first balcony facing the guest table. Their appearance was signaled by general applause, the diners rising and waving their napkins. By the time the tables were cleared and the cigars lit the two balconies surrounding the dining hall were filled with visitors, mostly ladies, so that the speakers faced an attractive gathering. The first speaker was Dr. F. J. Shepherd of Montreal, who spoke about Dr. Osler's career in Montreal as "Student and Teacher" in the early seventies. He was followed by Dr. J. C. Wilson of Philadelphia, who spoke about Dr. Osler in Philadelphia and his work there as "Teacher and Clinician." Dr. Wm. H. Welch of the Johns Hopkins University then spoke of Dr. Osler's work in Baltimore as "Teacher and Consultant." Dr. Welch referred to the difficulty of forming a correct estimate of the lasting significance of work of contemporaries; he believed, however, that Osler's efforts to place the teaching of clinical medicine in this country on a sound basis would prove to have lasting influence. "Our Regius Prof.," to the tune of "America," was sung by the whole company. The venerable Dr. A. Jacobi spoke of Dr. Osler as "Author and Physician." Then Dr. S. Weir Mitchell presented Dr. Osler with a copy of an English translation of Cicero's "de Senectute," printed in Philadelphia by Benjamin Franklin. Dr. Mitchell's remarks were most happy. He accused Cicero of being an "anticipatory plagiarist" because he wrote that it behooves a man to know when it is best for him to die. Dr. Osler's response was brief, but forceful and largely in the nature of expressions of thankfulness to colleagues, students, and the profession at large for all he had received at their hands. He took occasion to emphasize very particularly the need in this country to abolish our many-headed hospital staffs and to establish everywhere good services, medical and surgical, under the permanent charge of individual physicians and surgeons, with adequate assistants and laboratories. Only by so doing can America hope to contribute its share to the solution of the many problems now pressing in clinical medicine.

CANADA.

Personal.—Dr. W. D. Brydone-Jack, Vancouver, is visiting New York hospitals.——Dr. Glen Campbell, Vancouver, has returned from Germany.——Dr. W. H. B. Aikins, Toronto, has returned from Vienna.——Dr. Perry Goldsmith, Belleville, Ont., has gone to Vienna.

Toronto Clinical Society.—At the last meeting of the season, May 3, this society elected the following officers: President, Dr. Adam H. Wright; vice-president, Dr. H. B. Anderson; recording secretary, Dr. George Elliott; corresponding secretary, Dr. W. J. McCollum; treasurer, Dr. Geoffrey Boyd; executive committee, Drs. E. E. King, W. B. Thistle, D. J. Gibb-Wishart, R. I. Dwyer and H. J. Hamilton. The annual banquet was held at the Albany Club May 6.

Western Hospital, Montreal.—Work will be begun, June 1, on a fine new wing to the Montreal General Hospital, which will cost $200,000. The following medical board has been appointed to co-operate with the architects: Dr. J. B. McConnell, Dr. James Perrigo and Dr. George Fisk. The new wing, when completed, will provide for 100 extra beds for this hospital. The addition is necessitated owing to the constant crowded condition of the institution, as many as ten patients being often refused admittance in a day.

FOREIGN.

French Congress of Climatology and Urban Hygiene.—The second French congress was held at Arcachon and Pau, April 24 to 29, with a large attendance. Part of the sessions were held at one place and part at the other, a special train conveying the members, and also giving them a day or so at Biarritz. Dr. H. Barbier delivered the report on the seaside sanatoria for children and adults in France, and Arnozan demonstrated the model disinfecting and drainage service at Arcachon.

Fifth International Congress of Psychology at Rome.—There were four sections in this congress which convened at Rome, April 26 to 30. The sections were as follows: Experimental psychology; introspective psychology; pathologic psychology; and criminal, pedagogic, and social psychology. Professor Sergi presided over the general congress, Lombroso had charge of the fourth section and Tano, Ardigo and Morselli of the others.

Epidemic Cerebrospinal Meningitis in Austria and Germany.—The Austrian government has sent three physicians, including A. Ghon, Weichselbaum's assistant, to study the epidemic of meningitis that is spreading into the Austrian territory from Prussian Silesia. In February and March 437 cases and 153 deaths were reported in Galicia. Several cases have appeared in Berlin, and Westenhoeffer has been sent to Silesia to study the disease. Two cases had developed in Vienna by April 23.

Homage to Beco.—Dr. Beco is one of the most public-spirited and energetic physicians of Belgium. He has long served as secretary general of the public health department. About sixty physicians gathered to do him honor on a recent anniversary, and asked his "personal co-operation" in the making of a marble portrait bust to be installed in a prominent place. Beco's name is always associated with every forward stride of the organized profession in Belgium, and with medical progress in general.

Hygiene of Laundries in France.—The French authorities have recently regulated the conveyance and sorting of soiled linen in the laundries. It has been found that 25 per cent. of the laundry employes in France are tuberculous, and measures have been taken to reduce the danger of contagion from soiled linen. It must be carried in closed bags or boxes and, before it is sorted, it must be disinfected or boiled in an alkaline fluid, or at least, well moistened to prevent dissemination of dust as it is sorted. The bags and linen from hospitals, etc., must be disinfected. All who handle the soiled linen must be supplied by the proprietor with overalls or aprons, and there must be no lunching in the room devoted to this purpose. The soiled linen before disinfection or moistening must never be taken into the ironing room. An exchange remarks that these measures should be supplemented by hygiene in the home, while the soiled linen is waiting for the laundryman. Instead of being kept in a dark, covered, unventilated basket or bag, it commends Cazalis' plan of having a place for the soiled linen on the outside of the wall of the house, built from the landing at the head of the stairs. the door opening into the house.

The International Roentgen Congress and Celebration.—The congress opened, April 30, in a blaze of enthusiasm and closed May 3, a most remarkable event, as it celebrated only the tenth anniversary of the discovery of the Roentgen rays. Professor Roentgen, himself, was too modest to face the ovation all wished to offer him, and stayed at home in Würzburg, merely telegraphing his appreciation of the honor. From every country tributes to the therapeutic efficacy and the value in diagnosis of the rays were presented, Lassar stating that he had had only 3 failures out of the hundreds of cases of cancer he had submitted to the rays. (His experiences to date were summarized in THE JOURNAL on page 79). He recognizes the limitations of the treatment, stating that one-fifth of an inch is the extent of its effectual therapeutic penetrating power. Similarly favorable results were reported from Lisbon by Comas. Unger of Berlin and Sjoegren of Stockholm knew of no case of cure of mammary cancer, but Wohlgemuth has witnessed the vanishing of a cancer of the breast in a woman of 75 after seventy-two exposures, three a week. Our German exchanges have all blossomed out with articles on roentgology, delivered at the congress, describing its importance for surgery, for internal medicine, etc. Rumpf defined the present status of Roentgen treatment of leukemia as promising marked improvement, but not a permanent cure. No instance of the latter is yet known. The benefit to the general health and the blood findings are explained by Heineke's and Perthes' researches on the deleterious action of the Roentgen rays on lymphoid tissue and on ascaris eggs. Fittig has successfully treated lymphoma of the neck and symmetrical parotitis. Rumpf mentioned in speaking of the differential value of the rays that he has recently had a case in which a splinter of bone had lodged in the left bronchus and caused a small inoperable abscess. Two weeks in the abdominal decubitus with the head low was followed by the spontaneous evacuation of the abscess, and with the pus the piece of bone. Among the innumerable technical improvements exhibited was an alarm clock contrivance that rang a bell when the rays reached the burning point. This was presented by Gocht of Halle. The address made by Leonard of Philadelphia, president of the American Roentgen Society, will be reviewed elsewhere.

LONDON LETTER.

The Care of the Consumptive Poor of London.

The difficulty of providing sanatorium treatment for the consumptive poor of London has been the subject of much consideration and discussion. A deputation organized by the Incorporated Society of Medical Officers of Health has urged the Metropolitan Asylums Board (the authority which controls the fever hospitals of the metropolis) to provide sanatoriums. In the deputation were represented the National Association for the Prevention of Consumption and Other Forms of Tuberculosis, the Royal College of Surgeons, the Royal Sanitary Institute, the National Health Society, the Hospital Saturday Fund Association, the Hospital Sunday Fund Association, and the Charity Organization Society. It was pointed out that over 7,000 persons (the large majority in the prime of life) die every year in London from pulmonary phthisis. This loss, as well as a large amount of illness from the same disease, might be prevented were hospitals provided. The present provision of hospitals is totally inadequate and it is impossible to treat the poor in their own homes or in poor law infirmaries with any reasonable hope of cure. Sir William Broadbent, who spoke as the representative of the National Association for the Prevention of Consumption, said that there were over 40,000 persons suffering from consumption in London, of whom over 7,000 were in the earlier stages and could be successfully dealt with by sanatorium treatment. He hoped the board would not be satisfied with simply getting itself constituted the sanatorium authority for London, but would become the authority for dealing with tuberculosis as a whole so that, step by step, this great question might be dealt with from both the preventive and the curative aspects. The initial expense need not be heavy. There is no need for palatial buildings. Sanatoriums may be started with a number of light buildings, bungalows and huts. The children suffering from surgical tuberculosis should not be forgotten. In London thousands of children are being made cripples by tuberculosis of the spine and joints. No class of disease yields more readily to treatment than this.

New President of the Royal College of Physicians.

At the election of the Royal College of Physicians, held to select a successor to Sir William Church, who had held the office of president for the unusually long period of 6 years, the first ballot resulted as follows: Sir Richard Douglas Powell, 51 votes; Sir William Broadbent, 50; Dr. Pye Smith, 27; scattering, 7. The second ballot resulted in the election of Sir Douglas Powell, who received 74 votes, against 59 for Sir William Broadbent. The new president was physician in ordinary to the late queen.

Cerebrospinal Fever in England.

In view of the outbreak of cerebrospinal fever in New York, the occurrence of some sporadic cases in England is of interest. A man, aged 36, has been admitted into one of the London hospitals under the care of Dr. Ferrier. The usual symptoms of meningitis developed and in the fluid obtained by lumbar puncture were found diplococci which, on cultivation, proved to be those of Weichselbaum. Subsequently a fatal case occurred at Liverpool, which has attracted much attention in the lay press for the following reasons: The patient was involved in a quarrel a month before his death, and a suggestion was raised that his illness was due to injury. Accordingly a coroner's inquest was held. Though the *Diplococcus intracellularis* was found in the cerebrospinal fluid, the doctor who had attended the patient previously to his admission to the hospital maintained that the cause of death was abscess of the brain. However, the necropsy negatived this, for pus was nowhere found at a distance from the meninges.

Prizes of the Royal College of Surgeons.

The Jacksonian prize essay for 1904 has been awarded to Mr. H. J. Patterson for his essay on "The Diagnosis and Treatment of Such Affections of the Stomach as Are Amenable to Direct Surgical Interference." The following subject has been selected as the subject for the Jacksonian prize for 1906: "The Diagnosis and Treatment of Those Diseases and Morbid Growths of Vertebral Column and Spinal Cord and Canal Which Are Amenable to Surgical Operations."

Another Victory Over Malaria.

More than a year ago Dr. Ronald Ross reported the remarkable success against malaria achieved by the Suez Canal Company, an account of which was published in THE JOURNAL. He now reports an equally brilliant victory obtained in the British possessions at Klang and Port Swettenham, in the Malay States. Full details have been given by Dr. Malcolm Watson, district surgeon, in the *Journal of Tropical Medicine.* Klang is a town with a population of 3,576 in 1901. Port Swettenham is 5 miles distant, on the mouth of the Klang River, and has a population of about 700, mostly official. In the year 1900 both places were hotbeds of malaria. Dr. Watson doubts

whether more than 3 out of 293 houses in Klang escaped infection during the last 4 months of that year. Port Swettenham was opened in September, 1902, and within 2 months 41 out of 49 government quarters became infected, while 118 out of 196 government servants were attacked before the end of the year. An energetic system of drainage similar to that which proved so effectual in Havana and Ismalia was instituted. Swamps were filled up, jungle and undergrowth cleared, and a contour drain was constructed round the declivities in order to intercept incoming springs. The cost up to date was $26,000 (Mexican) for Klang and $59,000 (Mexican) for Port Swettenham, this comparatively large expenditure being sanctioned in order that the work of reclamation should be as permanent as possible and should provide good building sites in both towns. The admissions to hospital for malaria fell considerably. Only 2 out of 260 children, or 0.77 per cent., residing in Klang and Port Swettenham were found to contain the malarial parasite in November and December last, as against 91 out of 298 residing in the surrounding district, or 34.8 per cent. The amount of sickness in officers in the two towns showed a remarkable fall. The following are the figures: Sick certificates—1901, 236; 1902, 40; 1903, 23; 1904, 14. Days of leave—1901, 1,026; 1902, 198; 1903, 73; 1904, 71. Further, no officer has suffered since July, 1904, that is, during the worst malarial season. Perhaps Dr. Watson's most convincing statement, which he says he can not help recording with less satisfaction, is that his fees from private patients suffering from malaria have fallen to zero. He sums up thus: "The two areas which were so malarious in 1901 are now practically, if not absolutely, free from the disease, and the district surrounding them remains much as it was." Ninety-nine per cent. of the breeding places of anopheles have been removed. There is no evidence of any considerable emigration of anopheles into the drained areas from the extensive breeding grounds outside—a most important fact, for the possibility of such emigration has always been an excuse for neglecting anti-mosquito work.

Lord Lister's Birthday.

Lord Lister, famous in the earliest days of antiseptic surgery, has just celebrated his seventy-eighth birthday. His admirers throughout the world will be delighted to hear that he is still in good health.

Correspondence

Abuses in Medical Literature.

SAN ANTONIO, TEXAS, 1905.

To the Editor:—I believe that the ponderous systems of medical literature are indefensible on economic and on moral grounds. Our literature, in its present bulk, is accessible to the student, but, in two respects at least, it is wholly inadequate. The most brilliantly endowed and acquisitive mind can hardly grasp, in all its ramifications, the essential literature of a single department of medicine, and yet some general knowledge of all departments is a necessary prerequisite to the intelligent practice of any of its specialties. When every branch of medicine has a half dozen or more systems devoted to it, is it not a gross imposition on the reader's mind, a confusion of his memory and a waste of his time? In the desire to be just, rather than critical, in my search for motives, I have been forced to indulge hypotheses, and to ask myself if these repetitious compilations are honestly put together, and diluted through countless pages, to suit the assumed lower intelligence of the reader. It may be presumed that many collaborations, not a few of them displaying in their pages the blurred literary images of men of deserved eminence, grow out of the notion that the reader's respect for authority is weighed by the bulk and heft of the volume. Evidence might be adduced to support the graver charge, that it is not the first aim of expansive authorship to present concisely, to the more or less credulous and dependent reader, new and important knowledge, or old knowledge in new and improved form, but elaborately to display itself as high consultant authority. The desire for a wider clientele is peculiarly seductive, and there is a certain objectiveness about increasing fees which seems to blunt the moral perceptions and to confuse the most virtuous intentions. Even writers of conspicuous ability and of unimpeachable moral character give the weight and influence of their commanding names to many of these successful impositions on the patience of the profession.

Recently I was permitted to read the manuscript of an exceptionally able and conscientious writer, under contract to contribute 15,000 words to a certain new system. He assured me, with charming innocence of any intentional complicity in wrong doing, that his paper was a compilation, that it added not an iota to the knowledge of the subjects, and that he could have completed his part of the work in 2,500 words. I am an advocate of the one book for the one man, and I would qualify the man and hold him to certain rigid conditions. He should not be permitted to write, with nothing but the itch for inspiration, air egotistic puerilities or display the turbulent impulses of covert ambition, in too much space. He should not confuse his subject and the reader by senseless repetitions, forsake the sufficient pamphlet for the degenerated book, or needlessly abstract from its original accessible source knowledge already familiar to the reader.

It is a matter of common knowledge that medical literature is luxuriant in its growth, abundant in its knowledge and brilliant in its achievements; but it does not courageously adhere to its own intrinsic ordinances, and its ethics are too much under the influence of alien and prohibitive influences. It flaunts its wretched superfluities in the face of knowledge, and its benefits are administered too seclusively to the writer and exclusively to the reader.

Without, however, seeking to pry too curiously into the character of personal responsibility to science, impartial evidence seems to confirm the statement that each member of the profession has contributed, in one way or the other, to the general confusion and misbehavior of medical literature. We have not recognized and sustained with the right intelligence or moral courage its superior claims to impersonal consideration, nor have we opposed, as individual units of resistance, the impositions that have weakened its vitality and compromised its character. By what initiative and with what force and persuasiveness shall we undertake the re-establishment of literary authority? It is easier to ask this question than to answer it. Nevertheless, it may be suggested, as a beginning, that it is possible for each of us to discourage in himself, and to oppose in others, the suave and fluent insinuations of self-interests. It is possible to refuse to sanction collaborations of dubious merit, even when we discover held over them, in editorial benediction, the palms of some acknowledged high priest of medical thought. An aroused general sentiment, expressing itself along these lines, would separate, in time, the wheat from the chaff, attach responsibility where it belongs, and relegate to the background the conscious and willing disturbers of literature's more honest and capable efforts to meet the requirements of scientific progress.

When the general demand for truly expressive literature is raised high enough, in quality and morals, both writer and publisher will be forced to adapt themselves to the higher claims of literary propriety. This disposition apparently settles the question of mischievous authorship, for it may be argued that without readers the publisher must fail, as without a publisher the writer must fail. It is certainly true that the right demand will produce the right book, for it is as obviously a fact that the cultivated intelligence of the reader has its source and authority in books as it is that the book has its source and authority in the writer.

JAMES HALL BELL, M.D.

Clay Mixture Poultices.

UNIVERSITY OF MICHIGAN,
DEPT. OF MEDICINE AND SURGERY.

ANN ARBOR, MICH, May 4, 1905.

To the Editor:—Certain medical journals are publishing a letter from the Denver Chemical Company criticising Dr. A. H. Roth's article on clay mixture poultices (THE JOURNAL, April 15, p. 1185), and criticising THE JOURNAL for publishing it. The letter contains several erroneous statements and as I had something to do with the article, as I shall show below, I think it only fair to Dr. Roth and to THE JOURNAL to give the facts.

The gist of the letter can be condensed into the following statements, viz.:

1. That the manufacturers of the substance formerly carried an advertisement in THE JOURNAL of the American Medical Association.

2. That this advertisement was withdrawn.

3. That the manager of THE JOURNAL, influenced by this loss of the advertisement, sent an abstract of Dr. Roth's article to medical journals.

4. That the article failed to specify the name of the substance, though quoting from its literature.

5. That the firm expect their substance to be a topic of medical discussion.

6. That THE JOURNAL would have done better had it published an article by a "man of years and clinical experience" instead of one from a "youth."

7. That the conclusions of Dr. Roth are at variance with the clinical findings of 90 per cent. of the active practitioners of this country.

8. Finally, the letter requests that if the medical journal addressed publishes the abstract it will also publish the letter under consideration immediately following, so that readers may be aware of the circumstances surrounding the publication of the article.

1, 2 and 3: THE JOURNAL had nothing to do with the conception of the article and, so far as I can learn, nobody connected with THE JOURNAL knew anything about the article until the typewriten copy was sent to it. The full page advertisement was in THE JOURNAL when the experiments were begun. I understand that THE JOURNAL makes it a practice each week to send to those journals which have requested it an advance sheet containing abstracts of the original articles. Naturally an abstract of Dr. Roth's article was included among these abstracts.

4. Dr. Roth did not specify the particular brand of clay poultice used because he was concerned not so much with the species as with the general question. As he pointed out, different brands of similar preparations are on the market. I have even heard that such a preparation is to be mentioned in the United States Pharmacopeia. Simply because we happened to have several samples of one particular brand this was used in the experiments. Dr. Roth quoted from the literature of the makers for very natural reasons, and quoted not in order to plagiarize but to explain the reason for some of the points brought out in the article.

5. The statement that the makers expect the substance to be a topic of medical discussion can hardly be reconciled with the letter.

6. As regards Dr. Roth's age and clinical experience, I hardly think any defense is necessary. He probably is quite as old and has quite as much experience as many of those who get favorable clinical results. Dr. Roth's experiments speak for themselves; if his observations or conclusions are faulty that can easily be shown.

As regards No. 7, it may be that Dr. Roth's results are at variance with the findings of 90 per cent. of the active practitioners of this country. I have no means of contradicting this statement, but the following seems to me to be of interest: Dr. Roth read his article before a large medical society. I think it is safe to say that there were 150 men present. The general trend of the discussion was adverse to the use of such substances. One physician warmly objected to the reading of such a paper on the ground of impropriety, because, he said, no reputable physician would use such material.

The article was instigated by me. I suggested the experiments to Dr. Roth in the beginning of 1904. Before that I had frequently discussed the use of clay poultices in clinics and before medical societies, when the question of the use of such substances was brought up. Dr. Roth (then Mr. Roth) and Mr. Munson began the experiments in my clinic on Feb. 4, 1904, and carried on a number of clinical observations in the next two or three months. Dr. Roth then finished the work in the fall of 1904, and it was ready for publication early in 1905. It was then announced on the program of a district medical society, and at the meeting was read and discussed. The editor of a medical journal published by a drug house asked the privilege of publishing the article. I told Dr. Roth that the article ought to go into a journal free from commercial affiliations and advised him to send it to THE JOURNAL of the American Medical Asssociation.

Dr. Roth has received a number of letters from men of standing in the profession congratulating him on the work and asserting a disbelief in the usefulness of such substances. He has not received any adverse criticism in this way.

8. I cannot imagine that an editor of a medical journal would be influenced by the letter of the company; but the mere fact that such a letter was sent out puts in rather an unpleasant light the estimate that the writers have of the independence of editors. It is well known that many articles are written at the instigation of manufacturing firms. One can hardly object to this, but an effort to prevent the publication of adverse criticism strikes me as a very undesirable condition in medical journalism. GEORGE DOCK.

The Pennsylvania Osteopath Bill.

PHILADELPHIA, May 4, 1905.

To the Editor. The governor of Pennsylvania has just vetoed the osteopathic bill, which passed both houses of the legislature, by methods which perhaps had better remain unnoticed. As the effort of these pretenders has been made in several states, a comparison of the bills submitted discovers one fact, which I believe it would be well to make plain through the columns of THE JOURNAL of the American Medical Association.

This point is best discovered and demonstrated by a quotation from Senate Bill No. 311 of Illinois, and, parallel therewith, from Bill No. 115, file of the Senate of Pennsylvania. Each of these bills, every physician should recognize, apparently provides for an examination for licensure to practice osteopathy on proving, before a proposed board of examiners, that the candidate is possessed of a standard of qualification approximating that of the medical laws of the highest standard as operative in a few of the states.

The common point, to which attention should be directed, is that a provision, more or less vaguely worded, is incorporated in these acts, which deprives the proposed law of the very strength and protection to the community, which it apparently bears on its face, because it imparts to the proposed board the right to dispense with examinations, and to issue licenses to practice.

In Section 4, of the Illinois bill, it is provided, that "he or she files with the board a certificate of the Illinois Osteopathic Association, a corporation duly organized and chartered under the laws of the state of Illinois, setting forth under seal attested by the president and secretary of the association that the person named in the certificate is a graduate of a reputable college of osteopathy; that he or she is of good moral character and that he or she is in good standing in his or her profession; that such applicants *shall* (mandatory), on the payment of five dollars ($5.00) receive an osteopathic physician's certificate *from the board without an examination.*" (Italics mine.)

The last three words unfold the plot.

Now, a parallel consideration of a similar provision in the Pennsylvania bill: In Section 2, it is provided that "A majority of the members of the whole board *shall* (mandatory on them) issue certificates of qualification (at this point it is not stated whether the qualification refers to the possession of credentials admitting to examination for licensure or qualification for practicing) to all applicants having a diploma from a legalized *reputable* recognized and regularly incorporated college of osteopathy in good standing as such *at the time it was issued.*" (Italics mine.)

In other words, this forces the board to recognize the diplomas of all the colleges of osteopathy, which the board considers to have been in good standing. It would thereby perpetuate the imperfections of these institutions, from the time of their origin.

"Said certificate shall be signed by the president and secretary of said board and attested by its seal (now for the point),

and *shall be conclusive of the right of the lawful holder thereof to practice osteopathy in the state.*" (Italics mine.)

A more flagrant attempt to pass off on a commonwealth an apparently protecting law, requiring qualification for those who attempt and profess to be able to treat all diseases by manipulation, could not well be conceived. The provisions quoted absolutely emasculate both laws, and perpetuate the evil by legalizing a body of men, a majority of whom would be empowered to exercise such far-reaching and weighty responsibilities, as licensing such a class of so-called practitioners.

I hope you will take this matter up at this juncture, as states like Texas, Missouri, New Jersey, New York and Illinois are keenly sensitive to this question, and in a state of mind to be thoroughly educated in this subject.

HENRY BEATES, JR.

Book on Immunity.

MARION, OHIO, May 6, 1905.

To the Editor: There has been appearing in THE JOURNAL for some time a series of articles on the subject of immunity. The articles are of a splendid character, and it has occurred to me that it would be a good idea to publish them in book form, making them more convenient for reference. I believe that the above voices the sentiment of hundreds of readers of THE JOURNAL, and I think that many other readers of THE JOURNAL and of other medical magazines would be glad to avail themselves of so valuable a publication. Will they be published in book form? A. MELVILLE CRANE.

[EDITOR'S NOTE: The above and many similar letters influence us to announce that the series will be published in book form, bound in cloth, at a probable price of about $1.00.]

Technic in Agglutination Tests.

MONTREAL, MAY 4, 1905.

To the Editor: In a letter just received Dr. F. F. Wesbrook points out to me that I have credited him in my paper on agglutination (THE JOURNAL, April 22, 1905, p. 1261) with *devising* a method for making accurate dilutions from dried blood in agglutination tests, whereas the method was *suggested* by him while the originality and perfecting of the *technic* belongs to Dr. Wilson. I should be very pleased if you would make this correction in your columns. OSCAR KLOTZ.

Association News

List of Those Who Will Go to Portland.

The "Portland Number" of THE JOURNAL, June 3, which will be the 1905 issue of the annual illustrated exposition of the annual session and the meeting place, will contain a list of all the special trains to Portland from various cities and a list of all physicians who have made reservations thereon, as far as this data is furnished by those in charge. Attention is here called to this proposal. Those in charge of trains are asked to have all such lists in this office Monday, May 22. Additions received up to May 25 will be used if the Portland write-up has not gone to press.

Stopovers Allowed at St. Paul and West.

In addition to the stopovers that are allowed at Denver, etc., and points west thereof, as described in THE JOURNAL, April 22, p. 1300, we are informed by Mr. C. A. Mathews, general agent of the Northern Pacific Railway, stopovers will be allowed at St. Paul, Minneapolis and points west thereof. We repeat the advice that physicians purchasing tickets learn the exact conditions governing stopovers.

Company Wanted to Portland, Alaska and Yellowstone.

AKRON, OHIO, May 6, 1905.

To the Editor: I wish to go to the session at Portland via the Canadian Pacific Railway, to join the excursion to Alaska, and to return via Yellowstone Park, but I do not wish to start on so long a journey alone.. It occurs to me that there are others planning the same route. Will you be so kind as to publish this, that we may arrange to travel together? J. G. GRANT.

NEW MEMBERS.

New members for the month of April:

ALABAMA.

Barclay, Jno. W., Birmingham.
Holloway, Wm. A., Lauderdale.
Foshie, Mason, Brewton.
Roe, L. W., Mobile.

ARKANSAS.

Dake, Charles, Hot Springs.
Dake, Frank Borland, Hot Springs.
Dorr, Robinson C., Batesville.
McKnight, J. F., Walnut Hill.
Tarver, B. F., Star City.
Walker, Henry Owen, Newport.

CALIFORNIA.

Abbott, Geo. Knapp, Glendale.
American, S., San Francisco.
Barrett, G. M., San Francisco.
Baylis, John N., San Bernardino.
Black, Stanley P., Pasadena.
Card, Egerton F., San Francisco.
Fly, Edw. M., National City.
Hastreiter, Rolland Frederick, Los Angeles.
Knowles, Cal W., San Francisco.
McConnell, E. G., San Francisco.
Osmun, Wm. F. H., San Francisco.
O'Bannon, R. W., Hollister.
Preston, Walton, San Francisco.
Pressley, James Fowler, San Francisco.
Perrault, E. L., San Francisco.
Robertson, H. M., Riverside.
Sherk, Henry Howard, Pasadena.
Sartori, Henry J., San Francisco.
Vaux, Exeter P., Santa Cruz.
Vassault, T. E., San Francisco.
Voorhies, Alfred Hunter, San Francisco.
Whitney, James Dorr, San Francisco.
Williams, T. M., Palo Alto.
Watts, Herbert C., Pinole.

COLORADO.

Darnall, Rolland F., Pueblo.
Engzelius, A. E., Denver.
King, W. W., Cripple Creek.
Monahan, D. G., Erie.
Oettinger, Bernard, Denver.
Powell, Cuthbert, Denver.
Senger, William, Pueblo.
Stough, Charles F., Colorado Springs.
Walker, Chas E., Denver.

FLORIDA.

Cox, J. H., New Smyrna.

GEORGIA.

Chason, Gordon, Bainbridge.
Saliba, M. M., Savannah.

HAWAIIAN TERRITORY.

Sawyer, Frank Everett, Honolulu.

ILLINOIS.

Brown, Richard H., Chicago.
Berry, J. C., Chicago.
Brumback, A. H., Chicago.
Brower, D. R., Jr., Chicago.
Campbell, J. F., Chicago.
Callaway, W. L., Chicago.
Cook, A. L., Mason City.
Clark, John Sheldon, Freeport.
Davis, Charles J., Deerfield.
Davis, H. I., Chicago.
East, Clarence W., Chicago.
Flint, Helen C., Chicago.
Guertin, J. A., Beaverville.
Going, Z. H., Chicago.
Good, R. H., Chicago.
Hemala, Richard, Onarga.
Heath, Clarence W., Chicago.
Hager, S. M., Chicago.
Hood, J. J., Chicago.
Hagey, H. H., Chicago.
Howell, H. L., Bloomington.
Hughes, G. W., Armstrong.
Kraft, J. C., Chicago.
Miner, Elizabeth R., Macomb.
McConnell, G. G., Chicago.
McClare, A. W., Chicago.
Newell, Mary B., Onarga.
Newell, A. J., Onarga.
Olney, Thomas A., Chicago.
Oswald, J. W., Chicago.
O'Brien, G. G., So. Chicago.
Pearrs, Geo. M., Joliet.
Phillips, F. A., Chicago.
Perekhan, J. S., Chicago.
Parker, R. M., Chicago.
Rice, E. Perry, Chicago.
Steen, Earl R., Joliet.
Seidel, Albert W., Chicago.
Solliday, Monroe H., Owaneco.
Wells, William H., Chicago.

INDIANA.

DuBois, F., Liberty.
Flynn, E. W., Jeffersonville.
Hardesty, J. C., New Castle.
Mottier, Guilford A., Richmond.
Runcie, Geo. U., Poseyville.
Smith, Geo. H., Knightstown.
Sugg, Henry H., Mt. Vernon.
Tilford, A. S., Martinsville.

INDIAN TERRITORY.

Hardy, Walter, Ardmore.

IOWA.

Carpenter, G. P., Cedar Rapids.
Clark, Margaret V., Waterloo.
Graham, D. E., Bradgate.
Goodale, L. H., Nashua.
Ghrist, Jennie G., Ames.
Jones, N. Jasper, Shelby.
Janss, Henry, Marshalltown.
Kime, J. W., Fort Dodge.
Melott, E. H., Ogden.
Rice, N. J., Council Bluffs.
Robb, Winifred A. Yelton, Hiteman.
Robb, Robert, Hiteman.
Rust, David, Whiting.
Schlag, R. A., Monroe.
Thompson, O. P., Shell Rock.
Van Ausdall, G. M., New London.
Warren, Alexis M., Sioux City.
Wyatt, W. W., Kamrar.
Williams, Edw. B., Montezuma.

KANSAS.

McGuire, Clarence A., Topeka.
Maxson, J. C., Goff.
Nichols, Roscoe Townley, Liberal.
Neptune, John W., Salina.
Spain, Clifford R., Jewell.
Sippy, John J., Belle Plaine.

KENTUCKY.

Cecil, J. G., Louisville.
Griffin, Silas, Henderson.
Harvey, Charles W., Louisville.
Newman, Howard D., Drakesboro.
Percefull, R. C. J., Yost.
Stevens, W. F., LaCenter.

LOUISIANA.

Kittredge, W. E., Napoleonville.

MAINE.

Bayard, Clayton H., Orono.
Bell, Charles W., Strong.
Wheet, Fred C., Rumford Falls.

MARYLAND.

Edmunds, Page, Baltimore.

MASSACHUSETTS.

Baff, Max, Worcester.
Burger, G. L. Hagen, Boston.
Brown, Melvin J., New Bedford.
Bruce, F. C., Easthampton.
Cummings, Michael A., Fall River.
DeNormandie, R. I., Boston.
Friedman, L. V., Boston.
Jackson, A. W., Milford.
Keith, Halbert Lynn, Milford.
Lucksinger, Harry W., Husatonia.
Palmer, L. M., So. Framington.
Smith, Wm. Henry, Boston.
Thompson, F. H., Fitchburg.

MEXICO.

Turpin, T. J., Monterey.

MICHIGAN.

Canfield, R. B., Ann Arbor.
Clifford, R. A., Ypsilanti.
Hayward, E. H., Detroit.
Morris, Roger S., Ann Arbor.
Seymour, Wm. J., Detroit.
Van Baalen, M. R., Detroit.
Ver Meulen, John, McBain.

MINNESOTA.

Bishop, C. Wesley, Minneapolis.
Beckman, E. H., Minneapolis.

Budd, J. Danly, Two Harbors.
Desmond, Michael A., Eagle Bend.
Higgins, J. H., Rockford.
Loberg, Adolph E., Minneapolis.
Osborn, Lida, Mankato.
Pine, Alcinda A., St. Paul.
Shaleen, Arthur W., Hallock.
Stemsrud, A. A., Dawson.

MISSISSIPPI.

Castle, Sara Allen, Meridian.

MISSOURI.

Allen, T. C., Bernie.
Gilmore, E. E., Adrian.
Rea, Robert W., Plattsburg.
Shutt, C. H., St. Louis.
Sturgis, Jno., Perrin.

MONTANA.

Schapps, Jno. C., Butte.

NEBRASKA.

Barnes, Chester D., Tecumseh.
Boylan, J. H., Eddyville.
Cook, E. W., Plattsmouth.
Kaspar, Jos. Francis, Prague.
McCoy, Hiram F., Benson.
McCrea, Edw. Lee, Table Rock.
Sample, Jos. Richard, Hastings.
Sanders, S. F., Holdrege.
Wertman, Harry J., Milford.

NEVADA.

Mooser, Chas. Edw., Reno.

NEW HAMPSHIRE.

Dougherty, Thos. J., Somersworth.
Eastman, Oliver D., Woodsville.

NEW JERSEY.

Ranson, Briscoe B., Jr., Maplewood.

NEW MEXICO.

Swope, S. D., Deming.
Wylder, M. K., Albuquerque.

NEW YORK.

Bermingham, F. H., Brooklyn.
Cook, F. B., New York City.
Cohn, Felix, New York City.
Eversfield, F. J., New York City.
Francis, Lee Mastin, Buffalo.
Griffin, John M., Warrensburg.
Gould, J. P., New York City.
Horn, John, New York City.
Halpern, Julius, New York City.
Haas, L. F., New York City.
Riggio, Louis D., New York City.
Ruzicka, D. J., New York City.
Stern, A. R., New York City.
Townsend, C. E., Newburgh.
Wells, S. W., Liberty.
Willard, T. H., New York City.

NORTH CAROLINA.

Adams, M. R., Statesville.
Jones, Wm. M., Jr., Hendersonville.
Kirk, Wm. Redin, Hendersonville.
Long, H. F., Statesville.

NORTH DAKOTA.

Crane, C. S., Grand Forks.

OHIO.

Beam, A. H., Hillsboro.
Borts, Matthias, Cleveland.
Clapp, H. T., Cleveland.
Garlick, H. S., Cincinnati.
Rattermann, Frank L., Cincinnati.
Smith, D. B., Cleveland.
Scholtz, Moses, Cincinnati.

OKLAHOMA.

McLennan, E. J., Medford.
Stoops, R. P., Norman.

OREGON.

Dodds, H. C., Dufur.
Pohl, Esther C., Portland.

PENNSYLVANIA.

Andreas, G. R., Wilkesbarre.
Buyers, Edgar Stanley, Norristown.
Banks, W. B., Philadelphia.
Douglass, W. Tyler, Harrisburg.
Duffy, Ralph, Pittsburg.
Fox, Herbert, West Philadelphia.
Foulkrod, Collin, Philadelphia.
Gilbride, John J., Philadelphia.
Hertz, John Lincoln, Lititz.
Hall, Wm. M., Conshohocken.
Hopkinson, O., Philadelphia.
Henry, John Norman, Philadelphia.
Johnson, Chas. M., McVeytown.
Kilduff, Robert O., Philadelphia.
Klopp, Peter P., Philadelphia.
Kistler, Clinton J., Lehighton.
Metheny, L. A. Sterrett, Philadelphia.
Masters, Geo. B., Rockwood.
Schiefly, John E., Edwardsville.
Sherrer, F. A., Easton.

RHODE ISLAND.

Kingman, Eugene, Providence.

SOUTH CAROLINA.

Blake, L. J., Spartanburg.
Lee, H. B., Summerville.
Mazyck, W., Charleston.

SOUTH DAKOTA.

McWhorter, Port, Miller.
Templeton, C. V., Woonsocket.

TENNESSEE.

Venn, Jos. H., Memphis.

TEXAS.

Ardrey, L. L., Bandera.
Brown, Alexander A., San Antonio.
Boyles, James H., Houston.
Bell, Jessup D., San Antonio.
Brown, W. W., Groesbeck.
Brokaw, C. P., Dalhart.
Denman, Richard L., Lufkin.
Frizzell, Thos. D., Powell.
Ford, Frank C., Houston.
Hollis, L. W., Abilene.
Jeffries, J. W., Del Rio.
Lowry, David O., Enloe.
Lyon, James R., Rising Star.
McCarty, James F., Comanche.
Selman, H. S., Llano.
West, O. C., Del Rio.

VERMONT.

Thomson, J. E., Rutland.

VIRGINIA.

Baird, Thompson M., Crewe.
Buxton, J. T., Newport News.
Creasy, W. F., Newport News.
Glover, Perkins, Arvonia.
Kirk, T. Allen, Roanoke.
Pitman, W. E., Lynchburg.
Painter, Margaret V., Salem.
Robertson, L. A., Danville.
Robinson, W. L., Danville.
Rennie, John G., Petersburg.
Strohecker, T. H., Salem.
Willis, F. D., Newport News.
Wiley, R. M., Salem.

WASHINGTON.

Russell, Walter Eugene, Walla Walla.
Stephens, L. L., Monroe.
Watkins, Harry C., Hoquiam.

WEST VIRGINIA.

Johnson, H. R., Fairmont.
Maxwell, Cyrus H., Morgantown.

WISCONSIN.

Birkelund, John R., Phillips.
Bancroft, H. V., Bluemounds.
Echols, C. M., Appleton.
Hinn, Louis P., Fond du Lac.
Thielke, G. O., Wausau.

Marriages

GEORGE F. CHOPIN, M.D., to Miss Frances Gleeson, both of St. Louis, April 24.

SAMUEL ROBINSON, M.D., to Miss Ellen Derby Bellows, both of Boston, April 29.

W. E. DRAPER, M.D., Manilla, Iowa, to Miss Lucy Heim of Dawson, Neb., April 6.

FRANK B. HARMISON, M.D., Chicago, to Miss Sylvia Powers of Peoria, Ill., April 26.

RALPH E. JENNINGS, M.D., Chicago, to Miss Edna G. Gill, at Warsaw, Ind., April 23.

HORACE L. JONES, M.D., to Miss Martha Ann Pope, both of Jackson, Tenn., April 26.

MICHAEL F. WANSBURY, M.D., to Miss Jennie Petley, both of Troy, N. Y., April 26.

CORNELIUS A. BARNETT, M.D., to Miss Agnes Hayes, both of Potsdam, N. Y., April 24.

CLAUDE BARTON, M.D., Homestead, Pa., to Miss Olive Landis of Carlisle, Pa., April 27.

EDUARDO ANDRADE, M.D., to Miss Mary McLaughlin, both of Jacksonville, Fla., April 26.

JAMES AVERY DRAPER, M.D., Wilmington, Del., to Miss Elsie Ford of St. Louis, April 26.

EDWARD LUKE, M.D., Coin, Iowa, to Miss Delia Johnson of Monroe City, Mo., April 26.

JOHN LAWRENCE YATES, M.D., Chicago, to Miss Katherine Gross of Baltimore, April 26.

SAMUEL D. NIXON, M.D., Chicago, to Miss Lillian Maude Reddy of Gibbon, Neb., April 27.

ROY ORCHARD WOODRUFF, M.D., to Miss Veray May Hall, both of Bay City, Mich., April 26.

NORMAN D. MORRISON, M.D., San Mateo, Cal., to Miss Amy Bull of Santa Clara, Cal., April 26.

ROBERT B. RIDLEY, JR., M.D., Atlanta, Ga., to Miss Roberta Render of La Grange, Ga., April 27.

ROGER DURHAM, M.D., to Miss Helen Holman, both of Brooklyn, N. Y., at Radnor, Pa., May 10.

CHARLES C. MOORE, M.D., Owensburg, Ind., to Miss Emma Nixon of Washington, Ind., April 16.

THOMAS HARTLEY HALL, M.D., Macon, Ga., to Miss Carolle English of Vineville, Macon, April 26.

JOHN CHARLES DARBY, M.D., to Miss Winifred Bryant Dudley, both of Cleveland, Ohio, April 26.

JAMES B. PURNELL, M.D., Snow Hill, Md., to Miss Margaret R. Spence of Jacksonville, Fla., April 30.

FRANK KELLS FELAND, M.D., Atlanta, Ga., to Miss Mollie Leila Horsley of West Point, Ga., April 25.

JONAS J. MOYER, M.D., Mayfield, Cal., to Miss Vernie Shuler of Los Angeles, at San Francisco, April 19.

RODNEY PAUL MCLAIN, M.D., Iconium, Iowa, to Miss Goldie Georgia Worster of Keokuk, Iowa, April 26.

HORACE T. RIVERS, M.D., to Miss Eula McKinney, both of Paducah, Ky., at Jefferson City, Mo., April 25.

JOHN H. BUNN, M.D., Cable, Ohio, to Miss Nellie Vance of Woodstock, Ohio, at Marysville, Ohio, April 22.

THEODORE E. SANDS, M.D., Battle Creek, Mich., to Miss Elizabeth Millspaugh, at Evanston, Ill., April 23.

RALPH HUSTON SPANGLER, M.D., Philadelphia, to Miss Marilla Kemmerer Keifer of Scranton, Pa., April 27.

WILLIAM DEMPSEY PARTLOW, M.D., Tuscaloosa, Ala., to Miss Margaret Cummings Nixon of Birmingham, Ala., April 26.

KENNETH ALEXANDER JAMES MACKENZIE, M.D., Portland, Ore., to Mrs. Marion Higgins Brown of Spokane, Wash., April 26.

Deaths

J. Howard Pugh, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1852, a member of the American Medical Association; the oldest practitioner of Burlington, N. J.; congressman from the second New Jersey district in 1876; for 36 years president of the Mechanics' National Bank, Burlington; some-time president of the Burlington County Medical Society; died at his home in Burlington, April 30, from senile debility, aged 77.

Robert Maurice King, M.D. Jefferson Medical College, Philadelphia, 1867, treasurer of the St. Louis Medical Society, formerly lecturer on physiology and clinical medicine in the St. Louis College of Physicians and Surgeons, and professor of materia medica and clinical therapeutics in Beaumont Medical College, died at the St. Louis Baptist Hospital, May 2, two days after an operation for the removal of gallstones, from uremia, aged 61.

Oliver Woodson Nixon, M.D. Jefferson Medical College, Philadelphia, 1854, medical director of the Army of the Missouri, on General Pope's staff during the Civil War; twice treasurer

of Hamilton County, Ohio, and thereafter devoting himself to literary pursuits; author of "How Marcus Whitman Saved Oregon"; one of the founders of Marcus Whitman College, Walla Walla, Wash., died at Biloxi, Miss., May 9, aged 79.

Israel A. Powell, M.D. Years of Practice, Illinois, 1900, for more than 40 years a practitioner; a member of the legislature in 1871; collector of internal revenue for the Eleventh Illinois district, under President Grant; one of the organizers of the first medical society in the Wabash Valley, died at his home in Homer, Ill., May 1, from senile debility, after a long illness, aged 79.

Samuel Henderson Griffith, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1873, surgeon (lieutenant commander) U. S. Navy, fleet surgeon of the Atlantic Training Squadron, was taken ill with cholecystitis at Guantanamo, Cuba, and brought to his home in Washington, where he died, April 23, after an illness of six weeks, aged 53.

James Porter Parker, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1901, of New Orleans, a member of the American Medical Association, visiting surgeon to the Eye, Ear, Nose and Throat Hospital, and a most promising young scientist and physician, died at the Hôtel Dieu, New Orleans, April 27, after an illness of three weeks, aged 28.

Lee Henry Streaker, M.D. University of Louisville Medical Department, 1900, formerly assistant physician of the Northern Indiana Hospital for the Insane, Logansport, and physician to the Indiana Northern Penitentiary, Michigan City, died at his home in Salem, Ind., April 29, from tuberculosis, after an illness of five months, aged 30.

John Calvin Allen, M.D. Louisville Medical College, 1883, a member of the American Medical Association, formerly of Slaughter, East Feliciana Parish, La., but for the last eight years a resident of Baton Rouge, died at the Touro Infirmary, New Orleans, April 28, after an operation for appendicitis, aged 48.

Story N. Goss, M.D. Dartmouth Medical School, Hanover, N. H., 1856, assistant surgeon of the Ninth Vermont Volunteer Infantry, and later acting assistant surgeon, U. S. Army, during the Civil War, died at his home in Chelsea, Vt., April 27, from locomotor ataxia, after a long illness, aged 74.

Andrew Douglas Hall, M.D. University of Pennsylvania, Philadelphia, and Jefferson Medical College, Philadelphia, who was connected with the Wills Eye Hospital for 30 years, and served as surgeon in the Army during the Civil War, died at his home in Philadelphia, April 25, age 72.

Alexander Muckle, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1853, for many years assistant assayer and refiner at the United States Mint in Philadelphia, died at his home in that city, April 29, from cerebral hemorrhage, after a short illness, aged 75.

Albert Newman, M.D. Darmouth Medical School, Hanover, N. H., 1850; surgeon of the Third Kansas Volunteer Infantry in the Civil War, a pioneer physician of Kansas, died at his home in Lawrence, Kan., April 28, from senile debility, after an illness of two weeks, aged 80.

John M. Cox, M.D. Starling Medical College, Columbus, Ohio, 1854, a member of the Ohio State Medical Society, and a practitioner of South Salem, Ohio, for more than half a century, died from pneumonia at his home in that village, April 10, after a short illness, aged 81.

Francis Wayland Campbell, M.D. McGill University Medical Department, Montreal, 1860, dean of the Medical Faculty of Bishop's College University, and for many years editor of the *Canada Medical Record*, died at his home in Montreal, May 4, after a long illness, aged 67.

William Cummings Shannon, M.D. Bellevue Hospital Medical College, New York City, 1875, major and surgeon, U. S. Army, who was retired from the Army in 1898 on account of ill health, died at his home, Oakland Farm, Elkhorn, Neb., April 21, from nephritis, aged 53.

Gilbert E. McKeeby, M.D. Bellevue Hospital Medical College, New York City, 1868, of Pueblo, Colo., sometime state senator in Wisconsin and Nebraska, and mayor of Red Cloud, Neb., died suddenly in Pueblo from cerebral hemorrhage, April 24, aged 60.

Albert A. Davis, M.D. College of Physicians and Surgeons in the City of New York, 1864, a member of the New York Academy of Medicine, and the Medical Society of the County of New York, attending physician to St. Luke's Hospital, died May 6.

William Hammond, M.D. University of Maryland School of Medicine, Baltimore, 1847, assistant surgeon in the Army until 1853, and thereafter a resident of California, died at his home in San Francisco, May 5, aged 80.

James B. Grady, M.D. Jefferson Medical College, Philadelphia, 1875, formerly in the Medical Department of the Army, died at his home in Los Angeles, Cal., May 1, from cerebral hemorrhage, aged 54.

Myron Allen Todd, M.D. Ohio, 1876, for several terms health officer and city physician of Bradford, Pa., died at his home in that city, May 4, from septicemia, after an illness of three days, aged 58.

Asa Hopkins Churchill, M.D. Medical Institution of Yale College, New Haven, Conn., 1857, died at his home in Meriden, Conn., Oct. 17, 1903, from heart disease, after an illness of two years, aged 72.

George W. Marshall, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1873, died at his home in Lima, Ill., April 28, from cerebral hemorrhage, after an illness of one week, aged 81.

William Milner, M.D. University of Louisville Medical Department; 37 years' practice, Kentucky, 1893, died at his home in Union Star, Ky., April 22, from cerebral hemorrhage, aged 74.

James M. Hutchinson, M.D. Chicago Medical College, 1867, one of the three first internes to be appointed to Cook County Hospital, died at his home in Chicago, May 6, from paresis, aged 62.

Clara M. Davidson, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1893, died at her home in Newberg, Ore., April 20, from septicemia contracted in a surgical operation.

Isaac M. Miller, M.D. Kansas City (Kan.) University Medical Department, 1883, died at his home in La Due, Mo., April 16, after a prolonged illness, from heart disease, aged 50.

Frank P. Harris, M.D. Jefferson Medical College, Philadelphia, 1892, died at his home in Wilmington, Del., April 30, from pneumonia, after an illness of one week, aged 52.

John A. Cake, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1893, died at his home in Sunbury, Pa., April 23, from consumption, aged 36.

Charles Edgar Greenman, M.D. Albany (N. Y.) Medical College, 1889, died at his home in Troy, N. Y., April 25, from heart disease, after an illness of one day, aged 37.

Julius Adolph Nordbrock, M.D. New York City, 1900, died at his home in Brooklyn from rheumatism of the heart, April 25, after an illness of two weeks, aged 37.

Frank Preston, M.D. University of Vermont Medical Department, Burlington, 1903, of Greene, N. Y., died recently at Ticonderoga, N. Y., from pneumonia.

James P. Foster, M.D. Cincinnati, Ohio, 1856, died at his home in Cloverdale, Ind., February 10, from senile debility, after an illness of ten days, aged 81.

Enoch C. Ross, M.D. Cleveland (Ohio) Medical College, 1870, twice representative in the Ohio legislature, died at his home in Malvern, Ohio, April 28, aged 55.

Washington L. Baird, M.D. University of Louisville Medical Department, 1885, died recently at his home in Jackson, Tenn., and was buried, April 23, aged 65.

John Goode, M.D. New York University, New York City, 1858, died at his home in Magnolia, Ark., April 27, after an illness of several weeks, aged 67.

Ithamar C. Stevens, M.D. St. Louis, 1877, died at San Antonio, Texas, February 9, from chronic bronchitis, after an illness of four months, aged 59.

Lawrence R. Stablein, M.D. Missouri, 1898, died from tuberculosis at his home in Los Angeles, Cal., April 16, after an illness of several years, aged 40.

S. H. Tindal, M.D. Medical College of the State of South Carolina, Charleston, 1867, died suddenly at his home in Denmark, S. C., April 28, aged 73.

William A. McCoy, M.D. Jefferson Medical College, Philadelphia, 1884, died at his home in Dallas, Texas, April 25, from heart disease, aged 60.

Joseph Henry Campbell, M.D. Cooper Medical College, San Francisco, 1888, died in San Francisco in March, from pneumonia, aged about 40.

Benjamin F. Pendery, M.D. Examination, California, 1883, died at his home in Sacramento, April 27, after a long period of ill health, aged 53.

Nelson C. Hancock, M.D. Medical Department of the Uni-

versity of Tennessee, Nashville, 1881, died recently at his home in Chickaska, I. T.

N. Prentiss Potter, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1871, died at his home in Bridgton, Maine, April 18.

John R. G. Allison, M.D. Jefferson Medical College, Philadelphia, 1884, formerly of Le Roy, Pa., died recently in Centre County, Pa.

D'Albert Hiller, M.D. California Years of Practice, 1876, died at his home in San Francisco, April 25, after a long illness, aged 65.

James E. Thompson, M.D., died from erysipelas at his home in Kansas City, Kan., April 17, after an illness of four days, aged 54.

Kristian G. Hofflund, M.D. Keokuk (Iowa) Medical College; 1891, of Baltic, S. D., died recently at Dell Rapids, S. D.

Richard W. Birchett, M.D. Louisville Medical College, 1873, died at his home in Owenton, Ky., May 3, aged 67.

Julia A. Powers Mills, M.D., died from uremia at Mills Mills, N. Y., February 10, aged 85.

Book Notices

THE DISEASES OF SOCIETY (The Vice and Crime Problem). By G. Frank Lydston, M.D., Professor of Genito-urinary Surgery, State University of Illinois. Cloth. Pp. 624. Price, $3.00 net. Philadelphia: J. P. Lippincott Co. 1904.

As its title indicates, this book covers an extensive subject and one in which the physician as well as the sociologist is, or should be, deeply interested. The social diseases of our times as well as of the past form what we might call an attractively repulsive subject, one that is of wide general interest to the student of social problems, covering in fact the larger part of his field of investigation. Man as an individual is a bundle of evil possibilities, many of them realized, and in the aggregate he cannot be said to be much better. Lydston's book, therefore, is a portrayal of the darker side of humanity and what will be a vivid and startling one to most casual readers. Its point of view is that of a scientific materialism; the criminal and the social transgressor as a class are looked on as largely the product of heredity and environment. We say "largely" because the author admits that the pendulum of progress has swung possibly too far in the material direction and therefore rejects some of what he considers the extreme opinions of the present day. To those who read the work with an orthodox theological bias, however, there will be many things to which to take exception. The author's personality is very strongly in evidence in many ways, but the book is a live one, and one that ought to be studied by all social and moral reformers even if they can not share its author's views in all respects. To some his ideas on political and social matters will seem too pessimistic, and to others his remedies offered may appear inadequate. The reformation of society will be brought about, in his opinion, by such measures, among others, as the scientific regulation of marriage, the sterilization of criminals and defectives, etc., and he possibly does not take sufficiently into consideration the element of the idea of a super rational sanction on the motives of human conduct in the evolution of morals and in human progress. This, however, is a matter in which the reader will agree or disagree with the author according to his predilections. Lydston's humanitarian spirit, however, is manifest throughout and the most orthodox reformers will find in his practical views far more with which they are in accord than with which they must disagree. As a collection of valuable information on the subjects of which it treats too much cannot be said of the work. It is needless to say that it is written in the usual vigorous English with which the other writings of this author have made us acquainted; it is altogether one of the very best works that has yet appeared on this now more than ever engrossing branch of social study.

THE MODERN MASTOID OPERATION. By Frederick Whiting, A.M., M.D., Professor of Otology, Cornell University Medical College. Illustrated by 25 Half-tone and 23 Key Plates Made from Original Drawings. Half Leather. Pp. 353. Price, $6.00. Philadelphia: P. Blakiston's Son & Co. 1905.

The half-tone reproductions, a special feature of this work, have been excellently done from a series of artistic original drawings, true to nature, illustrating the details of the various steps in the operation, together with other drawings showing the points in the anatomy of the temporal bone which must be kept clearly in mind while performing the operation on the mastoid. In order not to detract from the clearness of these reproductions the author has made a set of pen sketches from which zinc etchings have been made. These are labeled and printed on the pages opposite the half-tone plates and serve as keys. The value of the volume as an atlas will be well worth the price of the book to one who would familiarize himself with the details of the modern mastoid operation. The illustrations will serve as an excellent guide which a beginner can use in working out for himself the technic of the operation on the cadaver. The careful attention to detail which the author has shown in the preparation of the drawings indicates well the character of the text. No detail from the preparation of the patient to the closure of the wound is too insignificant to receive his most careful critical attention. The first three chapters of the book dealing respectively with "The Development of the Operation for Drilling the Mastoid Process," "The Schwartze Operation," and "The Complete Modern Mastoid Operation, a Flap Operation," serve as an excellent introduction to the subsequent chapters on the technic of the modern operation, for a knowledge of the history of the operation on the mastoid is necessary for an understanding of the modern operation and a just appreciation of its various details. The chapters on the technical portion of the operation also show painstaking critical attention to detail. The clear and definite manner in which each step of the operation is treated gives evidence of the careful work of the experienced surgeon. The author makes a strong plea for the flap method of making the opening in the integument, and also for the complete exenteration of all the mastoid cells. His logical conclusions on these questions have the support of an ample experience with the other methods in vogue.

THE VERMIFORM APPENDIX AND ITS DISEASES. By Howard A. Kelly, A.B., M.D., Professor of Gynecology in the Johns Hopkins Hospital, Baltimore, and E. Hurdon, M.D., Assistant in Gynecology in the Johns Hopkins University, Baltimore. With 399 Original Illustrations. Some in Colors, and 3 Lithographic Plates. Cloth. Pp. 827. Price, $10.00 net. Philadelphia and London: W. B. Saunders & Co. 1905.

This is by far the most elaborate work that has yet appeared on this subject. The opening fifty pages are historical and trace in an interesting manner the growth of our knowledge of the affections of the appendix and their treatment. Following are about one hundred and fifty pages devoted to the anatomy and physiology of this organ and associated parts. Here one finds not only practically all of the almost innumerable anatomic variations of this region carefully described and depicted, but also an extensive description of its embryology and comparative anatomy. There is scarcely a clinical form, or a symptom or a complication of this multiform disease which is not mentioned, and many unusual cases and interesting points connected therewith not elsewhere published have been obtained by personal communication from many prominent operators throughout the country. An interesting chapter is that on appendicitis in typhoid fever. That the appendix should be involved in typhoid fever is not surprising considering the large amount of lymphoid tissue contained in it. In a number of cases the symptoms referable to the appendix have overshadowed for the time those due to the typhoid fever, and operations have been done, the cases subsequently passing through a regular typhoid. An entire chapter is devoted to appendicitis in the child, and the frequency with which mistakes in diagnosis are made in these young subjects, with resulting improper treatment, is clearly presented. The treatment, which is of so much interest at this time, is handled in a very judicious manner. One very pertinent sentence will bear repeating and should never be forgotten. "It may be positively stated that no case of appendicitis where an operation was necessary was ever operated on too soon, and when the decision to operate is made no consideration, however plausible, should be admitted as a reason for unnecessary delay." The publisher's part has been unusually well done, and the illustrations are unequaled in

excellence in any similar work which has been presented to the profession. In fact the illustrations are marvels of excellence and are a credit to all concerned. The authors and publishers deserve special credit for the volume.

Climate and Health in Hot Countries and the Outlines of Tropical Climatology. A Popular Treatise on Personal Hygiene in the Hotter Parts of the World, and on the Climates That Will Be Met with Within Them. By Lieut.-Col. G. M. Giles, M.B., F.R.C.S., Indian Medical Service (Retd.). Cloth. Pp. 109. Price, $3.00 net. New York: William Wood & Co. 1905.

The first and larger part of this volume is devoted to a popular exposition of the points of personal hygiene as applied to hot countries. Although written for the non-professional reader, it is of interest and value to physicians as well. The subject is treated under such headings as housing and domestic architecture, clothing, water and food, the tropical day, management of children in hot climates, tents and camp sanitation, prevention of malaria, prevention and treatment of common tropical diseases. The author writes with authority and his recommendations show that he is perfectly conversant with the conditions which must be met by traveler and resident in the tropics. The second part is devoted to a detailed description of localities within the tropics. The fact that climates in the hot parts of the world vary more than those in temperate zones is not generally appreciated. Numerous meteorologic tables increase the usefulness as a book of reference. As is to be expected of an English writer, those countries which are dependent on Great Britain are most fully described. Fifty-seven pages are devoted to the lands bordering the Mediterranean, other portions of Africa, Madagascar, Mauritius, the Red Sea and its coasts, Asia, the Malay Archipelago, Northern Australia and the Pacific islands, but less than twenty are given to the American continents, i. e., the southern states of this country, Mexico, West Indies, tropical South America, Bermuda and Madeira. Although the subject of tropical hygiene is intrinsically interesting, it now appeals to Americans more than formerly, since many of our people will hereafter live within the tropics.

The Preparation and After-Treatment of Section Cases. By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon of the Lewisham Hospital for Women and Children, Sydney. Cloth. Pp. 651. Price, 15 shillings net. London: Bailliere, Tindall & Cox. 1905.

Mr. McKay was a co-worker with Christopher Martin under the late Lawson Tait. His training, though supplemented by continental observation, is distinctly British, and his books reflect the methods in vogue in Britain in the preparation and post-operative management of celiotomies. As American operators are now closely in touch with continental surgeons, they will doubtless be interested in the viewpoint of the British laparotomist transplanted, though he be, to antipodal shores. The object of Mr. McKay has been to prepare for the beginner in abdominal technic, a work so circumstantial and minute in its method as to take the place of a hospital interneship, as far as possible. He has certainly brought together a remarkable amount of elementary information, much of which will be of value to the experienced surgeon, while the frequent references to individual cases gives a touch of concreteness to theoretical statement. The author discusses with much ability the complications occasionally observed after abdominal section, and enters into their management or relief by secondary operation with his customary thoroughness. It is a pleasure to commend a book into which the writer throws himself so unreservedly and generously as does Mr. McKay in the present work.

Miscellany

Proportion of the Sexes in the United States.—Statistics of the United States Census Bureau show that there are in the United States 1,638,321 more males than females, the relative excess of males being greater than the average for all countries whose population has been counted with distinction of sex. The cities of the United States, however, contain more females than males. Perhaps more women find employment in cities.

The Automobile and Tuberculosis.—A French physician, M. Blanchet, advises the use of the automobile by consumptives. He claims that the rapid movement in the open air reduces the tendency to cough and improves the appetite. It causes refreshing sleep, the motion acting as a sedative to the nervous system and the increased oxygenation assisting to the same effect. The dangers of the automobile are dust, which should be avoided, chilling the cutaneous surface, and overdoing the exercise by excessive speed. Great speed induces anxiety and enervates the patient.

Resection of Nerve for Gangrene of Foot.—Bardescu of Roumania reports in *Spitalul*, No. 22, 1904, the case of a farmer, 33 years old, who suffered from painful, spontaneous gangrene of one foot. Epidural cocainization failed to relieve, as also stretching of the external and internal popliteal nerves. Finally, the internal popliteal nerve was resected for 4 to 5 cm. in the popliteal space, and the pains were at once abolished. The gangrene also began to show signs of demarcation, allowing disarticulation later under favorable circumstances. The sensibility of the entire region returned.

Pharmacist and Physician.—"At present the market is flooded with ready-made preparations suitable for all ills and diseases. All that is required is to read the printed matter on such a package, follow the directions, take from one to twenty bottles and you are cured. It requires no skill or knowledge to sell these preparations, either by a graduate pharmacist or by a department store clerk who does not know arsenic from indigo." Thus wrote J. H. Droge in the *Pharmaceutical Era*. His words apply well to some remedies used by physicians and it requires little knowledge to prescribe these remedies.

The Best General Liniment.—Looking over the whole field of such preparations, and having used it in practice for over thirty-five years, the *National Druggist* declares the following to be the best liniment for general use:

R.	Glacial acetic acid.	
	Oil of turpentine, āā.....ʒi	30
	Yolk of one egg.	
	Water q. s. ad.....ʒviii	240

Mix the oil of turpentine, yolk of egg and acetic acid by shaking vigorously together. To the resultant emulsion add the water, a little at a time, shaking well after each addition. Of course, this must not be used on an inflamed surface.

Tobacco and Audition.—According to Delie (*Revue Hebdomadaire de Laryngologie*), tobacco has a direct action on the auditory nerve, producing a trophoneurosis by its action on the circulation through the sympathetic. Like other toxic neurites it is progressive, affecting both ears simultaneously without affording any objective symptoms. He specially advises caution in the use of tobacco by those subject to weakness of audition or ear disease, or those predisposed to arteriosclerosis by heredity, all the more so the younger the patient. L. Schott of Nauheim has observed arterial sclerosis in smokers of fifteen years of age, and Wyatt-Wingrave has found eight cases of nervous deafness among patients aged between twenty-four and forty years.

Tuberculosis Mortality in Paris.—Tuberculosis is the cause of between 12,000 and 13,000 deaths per annum in the city of Paris, or about a quarter of the total mortality. Ferdinand Marie-Davy (*Journal de Hygiene*) reports a study of the subject with special reference to the density of population in the different sections of the city and also with special reference to the ventilation, using the number of doors and windows per each house dweller as an index. The proportion of deaths from tuberculosis ranges from 1.3 per 1,000 in the eighth *arrondissement*, where the proportion of doors and windows is 4.2 for each inhabitant, to 8.2 per 1,000 in the twelfth *arrondissement*, where there are only 1.8 doors and windows per inhabitant. This proportion of doors and windows is in accordance with a certain interior space and therefore affords an index to the overcrowding of the population as well as to the ventilation. The importance of these factors in the mortality from tuberculosis is sufficiently evident.

Social and Economic Importance of Physicotherapeutics.—Buxbaum remarks that the science of therapeutics during the last ten years has passed through three phases: 1, polypragmatism; 2, nihilism. and 3, physicotherapeutics. It is still in the latter period. Hydrotherapy, massage and movements are among the most important branches of physicotherapy, and the lay public prefers this kind of treatment to drugs. Physicians are slow to recognize this, but irregulars have long appreciated it and flourished as "nature healers," etc. A "nature cure" society was founded not long ago at Vienna, and by the end of the year it had over 30,000 members. One woman, who had been cured by a course of hydrotherapy of anemia, lack of appetite and lassitude, reproached her former physician that he had tried to dissuade her from taking the course. She cited his words to the effect that hydrotherapy could do her only harm, as she was intensely anemic, and the water would deprive her of vital heat, which she needed. She had much better leave water alone and take iron. Such statements, coupled with the unmistakable success of the hydrotherapy, do much to lower the prestige of the profession and drive patients to irregulars.

Anesthesia by the Rectum.—In 1847 Pirogoff demonstrated that general anesthesia could be produced by the introduction of ether vapor into the rectum. More recently another Russian surgeon, A. V. Krougilitch (*Voyenno Medicinsky Journal*) has experimented with the method and claims that it has decided merits. The patient quickly comes under the influence of the vapor sufficiently to permit of major operations being performed. Occasionally, however, the anesthesia is insufficient, then he supplements it with a few whiffs of chloroform, repeating it in minute doses as required. Rectal anesthesia is, he says, the method of choice for operations on the head and neck and he advises it also for other operations on account of its comparative safety, except in cases where it is contra-indicated by inflammatory conditions of the intestines, peritonitis, etc. He precedes the administration, after a cathartic has taken effect, by washing out the intestines, followed by a general bath, and uses a special apparatus permitting the outflow of the liquid formed by the condensation of the ether vapor. There is at first a slight intestinal irritation or tenesmus lasting only two or three minutes. There is rarely any preliminary excitement and only slight and transitory reactive phenomena.

The Physician's Hardest Problem.—In beginning his career the young physician finds his hardest problems to be those of diagnosis and treatment. But as the years give him opportunities for observation and experience he begins to realize that the problems of disease *per se* are as nothing compared with those presented by each individual patient's habits, character and disposition. In his college course he is taught to regard each disease as a pathologic entity. In his practice he finds that few diseases present classical aspects and that pathologic conditions are almost invariably modifications or variations of a type. When a physician awakes to this all-important fact his real usefulness as a practitioner of medicine just begins. From now on he will individualize his cases and adapt his treatment to conditions as he finds them in each patient. He will recognize, therefore, how important a bearing habits, disposition and environment, to say nothing of heredity, have on the symptoms of the disease he is called on to treat, and henceforth, if he is wise, he will treat his patients and not their disease. It is easy to give drugs for each ailment, but it is not easy to correct the errors of diet, hygiene, etc., the influences of temperament and of environment that modify each disease. Herein lies the physician's hardest problem.—*Vermont Medical Monthly.*

Delivery of Twins with an Interval of Seventeen Days.—Pauplin reports the case of a married woman of twenty-five who was delivered of a living child, and soon thereafter of a normal placenta, during the eighth month of her second pregnancy. A second fetus was distinctly palpable, its heart sounds being clear and loud. Some soft tissue could be felt in the vagina, and adjoining it on the left a cervix was found, comparatively hard and firm, its external orifice being partially closed. The examining finger could not pass through the cervical canal. Labor pains stopped completely, and the woman went to sleep. The next day no uterine contractions could be observed. There were no lochia nor any signs of the secretion of milk. Nine days later the patient left the bed. Sixteen days after the delivery of the first child the membranes of the other fetus ruptured suddenly, and the next morning another living child was born. The placenta was shortly afterward expelled. Like the first, the second puerperium took an absolutely normal course. This time the breasts soon became engorged, and milk was secreted in sufficient quantities for both children. An examination a few weeks later showed that the uterine cavity was divided into two sections by a broad septum, the presence of which was ascertained with the uterine sound. On palpation the uterus did not show any anomalies.—*Interstate Medical Journal.*

The Remedy for Fraud in Medicine.—We must reform our ways. We must cultivate the highest ethical (and that means moral) standard, so that we shall be looked on as the first refuge in the hurricane of greedy selfishness that is overwhelming society since the era of the captain of industry began. Be pure and clean; think, feel, act and speak only from the most disinterested motives; and the time will not be long when the world will recognize your worth and trust you as you deserve. Nothing is so urgently needed to-day as men who are worthy of confidence. We must improve our methods of treatment. We must use better remedies, and must apply them more intelligently. We must study our cases better, must learn to recognize the pathologic conditions, rather than to name the diseases. We must learn to know our remedies, and to see the precise indications for the use of precise remedial agents; and to recognize the effect of these so that we use neither too little nor too much, but just enough to accomplish our definite, well-considered purposes. Guesswork and chance must be eliminated from our practice. We must be prepared to use that most impressive branch of our art, prognosis, so as to teach our patients our mastery of the case in a way no pretender can possibly do. These are the things that make for better physicians, and we can not afford to be turned aside from anything that tends in that direction, by the sneers of self-interest or arguments addressed to prejudices, that do not touch the merits of the question. And if there be any other or better methods of opposing quackery I know of them not.—W. F. Waugh, in *Alkaloidal Clinic.*

Tabes and Virility.—G. Milian (*Archives Generales de Medecine*) reports the results of a study of twenty-six tabetics, twenty-one men and five women, with special reference to their reproductive capacity and heredity. (Luetic infection was proved in twenty-one cases. The total percentage of syphilis was 88.46. This nearly agrees with that of Fournier of 90 per cent.) Milian finds that the majority of these patients preserved their virile power intact. In a few it was impaired and very rarely was there complete impotence, which was chiefly observed in cases where there were vesical symptoms. The fecundity seems to be diminished, as the number of sterile marriages was large. This, as well as the great mortality among the children, he attributes to the pre-existing syphilis rather than to the tabes itself. . Most of the cases reported as hereditary tabes have been cases of Friedreich's disease. Cases of undoubted hereditary tabes occur (Remak, Babinski) but are extremely rare. This small proportion as compared with the much larger one of cases of juvenile tabes in children of syphilitic parents suggests the probability of hereditary syphilis being the direct cause. The proportion of children of tabetics affected with nervous diseases is large but no more so than in cases of children of syphilitic parents; and hereditary syphilis may be assumed as the probable cause and not specially aggravated by the later occurring tabes. The conclusion he considers is not absolutely definite but one that may be modified by a more extensive research. It is rather a notable fact, however, that Pitres found a larger proportion of still-born and prematurely dying children among those born of subsequently tabetic parents than among those born after the appearance of the tabetic symptoms, and Milian's figures accord with those of Pitres.

Taxing Cripples.—The New York legacy tax law is characterized by *Charities* as a tax on the lame, the halt and the blind. It is not the institution as a co-operative entity which suffers from the tax, but the beneficiaries of the institution. "It will be remembered that in the case of the federal war revenue tax law, a similar situation was presented and the action of Congress in repealing the tax on benevolent institutions and in refunding all taxes paid by such institutions may be recorded as indicative of the general opinion on the subject, and of the force of the reasons against such taxation in their effect on clients disposed to leave their property to public institutions —institutions which save the state great expense in the care of certain classes. The policy to exempt legacies to such institutions from such succession taxes has been adopted and is in force in Maine, Massachusetts, New Jersey, Virginia, Ohio, Illinois, California and other states. That the New York law is absurd is shown by a glance at its operation. A legacy to a tract society is exempt, a legacy to a hospital is subject to taxation; property left to a bishop—even for his own personal use—is exempt, to a charitable society is subject; a legacy of less than $10,000 left to a relative is exempt, a like amount left to an educational institution is subject to the full tax." The court of appeals, in construing the act in a certain case, called the act "an assault on charitable transfers," and said: "The organized charities and benevolent agencies which actually relieve human misery, and labor in unselfish devotion to improve the moral and physical condition of mankind, are alike the fruits and aids of good government, and to exempt their property—usually gifts of the benevolent—from the burdens of taxation is scarcely less the duty than the privilege of the enlightened legislator. Clearly this exemption should be placed on broad, equitable grounds."

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TOTAL REMOVAL OF A LUNG.

NEW HAVEN, CONN., April —, 1905.

To the Editor:—Where can I find literature and histories of removal of lung for empyema? Are there any cases on record of complete removal of one lung? CHARLES R. MITCHELL.

ANSWER.—An entire lung has not been successfully removed from man, but it has been removed experimentally from animals. A very extensive bibliography of the subject is found in Rickett's "Surgery of the Heart and Lungs," published by the Grafton Press, New York City, 1904, price $5.

State Boards of Registration

COMING EXAMINATIONS.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, Greensboro, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Rhode Island April Report.—Dr. G. T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, R. I., April 6 and 7, 1905. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number examined was 9, of whom 5 passed, and 4 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Harvard University	(1901) 84;	(1904)	82
Yale University		(1903)	90.2
University of Pennsylvania		(1904)	86.6
Baltimore Medical College		(1900)	78.1
	FAILED.		
Maryland Medical College		(1904)	72.4
University of Vermont		(1898)	73.7
Baltimore Medical College		(1904)	68.1
Kentucky School of Medicine		(1904)	70.1

Minnesota April Report.—Dr. C. J. Ringnell, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, April 4-6, 1905. The number of subjects examined in was 12; total number of questions asked, 95; percentage required to pass, 75. The total number of applicants examined was 17, of whom 13 passed and 4 failed. The following colleges were represented:

College.	PASSED.	Year. Grad.	Per Cent.
Toronto University		(1896)	79.9
McGill University		(1882)	75.55
Laval University		(1904)	76.8
Hamline University		(1903)	75.55
Washington University		(1904)	77.55
Jefferson Med. College		(1893)	83.8
University of Michigan		(1901)	75.2
College of P. & S., Chicago	(1902) 82.45;	(1904) 75.35, 78.8,	78.7
Rush Med. Coll	(1882) 82.45;	(1902)	88.1
	FAILED.		
Hamline University		(1904) 72.6, 67	
Keokuk Med. Coll		(1884)	66.65
College of P. & S., Chicago		(1904)	73.5

The following questions were asked:

MEDICAL JURISPRUDENCE.

1. Define viability; at what period of pregnancy is it usually manifest? 2. In death of a mother from suspected abortion, what postmortem condition of the genitalia would corroborate this suspicion? 3. What symptoms and postmortem conditions would lead you to search for strychnia in the stomach? 4. In a case of drowning, what postmortem conditions would you expect to find? 5. In a case of death from hydrocyanic poisoning, what symptoms and postmortem condition would obtain?

THEORY AND PRACTICE.

1. Define chorea and give treatment. 2. Give general treatment for acute eczema. 3. Define gout; give prognosis and treatment. 4. Give symptoms and prognosis of chlorosis. 5. Give symptoms and diagnosis of cerebral abscess. 6. Give etiology and diagnosis of cardiac dilatation. 7. Give etiology and prognosis of gastric hemorrhage. 8. How would you manage a case of acute appendicitis? 9. Give etiology and treatment of progressive pernicious anemia. 10. Diagnose acute pleurisy with effusion from pneumonia and empyema.

SURGERY.

1. How should a patient be prepared for the administration of ether or chloroform? 2. Describe traumatic fever, its causes and symptoms. 3. What are the peculiarities of a chronic ulcer; how should it be treated? 4. What are the symptoms and what the treatment of acute prostatitis? 5. Treat a case of fracture of the femur in a child. 6. What is necrosis, its causes, symptoms and treatment? 7. Describe a case of hematocele and the treatment of same. 8. What are the symptoms of stone in the urinary bladder? 9. How would you treat ankylosis? 10. What are the various dislocations of the humerus and the methods of effecting a reduction?

DISEASES OF CHILDREN.

1. Give differential diagnosis between iliocolitis and cholera infantum. 2. Give symptoms and treatment of empyema. 3. Give symptoms of acute anterior poliomyelitis; also differentiate fully from multiple neuritis. 4. Give the early symptoms and usual course of hip-joint disease. 5. How would you usually manage and treat a severe case of chorea in a girl 8 years old?

OBSTETRICS.

1. Give differential diagnosis between pregnancy; ovarian systoma; ascites; myoma. 2. Give anatomic differences between male and female pelvis and their significance. 3. Describe the normal mechanism of labor. 4. What conditions cause antepartum hemorrhage? How is it treated? 5. Describe your method of applying the forceps high; low? 6. How do you guard against rupture of perineum? Treatment if it occurs. 7. What is Cesarean section? When used? 8. What is postpartum hemorrhage? How treated? 9. How do you manage third stage of labor? What precautions do you use to prevent infection of mother? Of child?

DISEASES OF WOMEN.

1. Give symptoms and diagnosis of fibroid tumors of the uterus. 2. What are the principal diseases and symptoms of the female

generative system caused by gonorrhea? 3. Give treatment, mechanical and surgical, of retroversion of the uterus. 4. Give causes and symptoms of pelvic hematocele. 5. Give symptoms and treatment of cystitis in women.

MATERIA MEDICA AND THERAPEUTICS.

1. What is the physiologic action of a full dose of atropin? 2. Name the principal drugs whose continued use is liable to produce a drug habit. 3. What is the physiologic action of saline purgatives? Name two, with dose of each. 4. Prescribe an ointment for a case of scabies in an adult. 5. What is wrong with this prescription? ℞ Sodii boratis, dram j; tinct. myrrhæ, oz. ij; aquæ q. s., ad oz. iv; misce et solve. Sig.: Use as a gargle. 6. Name the three best cardiac tonics, giving the preparation and dose of each. 7. Give a single dose for an adult, a dose that will be effective yet not dangerous, of each of the following: Extract of nux vomica; yellow mercurous iodid (protiodid); phenacetin; extract of aloes; codein. 8. How would you treat scurvy in a child of eighteen months? 9. What hypnotic would you use for an adult? Give dose. 10. What may the diabetic eat and what should he avoid?

CHEMISTRY, TOXICOLOGY, URINALYSIS.

1. What substances cause explosion when mixed with potassium permanganate? 2. Give chemical test for determining the presence of lactic acid in stomach contents. 3. Give treatment of acute carbolic-acid poisoning. 4. What abnormal constituents are found in the urine in nephrolithiasis? 5. Name four (4) proteids of the blood found in the urine in various pathologic conditions of the kidneys, the blood, or the system at large.

ANATOMY.

1. Describe the greater trochanter of femur, name muscles attached to it. As a landmark, how is it found? 2. Describe the elbow joint, briefly, and name ligaments in formation of same. 3. Name the muscles that bring about the movement of circumduction of the thumb. 4. Give collateral circulation around the scapula, after ligature of the third part of the subclavian artery. 5. In making an incision through the abdominal wall at McBurney's point, what structures are incised, and give direction of muscular fibers of each muscle. 6. In the operation for stretching the median nerve, at what point is it reached, and give relations. 7. In Pott's fracture, name bones that may be involved. 8. Give sensory nerve supply of the anterior surface of the thigh. 9. Name the openings of the orbit and their contents. 10. Make a diagram of the abdominal region and indicate the principal anatomic landmarks.

PHYSIOLOGY.

1. What part, if any, do the lacteals play in the absorption of proteids? Of fats? Of sugars? 2. Where do white corpuscles originate, and where are they finally destroyed? 3. What are polysaccharids? Name one, and give its chemical formula. 4. Name and describe two of the most important proteids of the blood plasma. 5. Trace the various steps in the digestion of a bolus of food containing albumen, fat, sugar and starch. 6. Tell how urea is formed, and how and by what channel excreted. 7. What is the function of the cerebellum? 'Medulla oblongata? 8. Describe and locate the spleen, giving its physiology. 9. From what center are the vasomotors controlled? 10. Give a brief description of the portal circulation.

EYE AND EAR.

1. Define: Astigmatism, hyperopia, myopia, heterophoria, heterotropia. 2. Give test for color sense. 3. Give varieties, diagnosis and treatment of purulent conjunctivitis. 4. Name three (3) diseases of the eye occurring in diabetes mellitus. 5. Give cause, symptoms and diagnosis of acute otitis media.

HISTOLOGY AND PATHOLOGY.

1. Describe following varieties of epithelium and state where found: Pavement, columnar, ciliated. 2. Describe red and white blood corpuscles; give function of each. 3. Give histology of striated muscle. 4. Differentiate serous and synovial membranes; state where found. 5. Name and describe the glands found in mucous membrane. 6. Describe structure of the aorta and pathologic changes in arteriosclerosis. 7. What is the result of admitting air into the veins? 8. Differentiate fatty degeneration and fatty infiltration; give cause of each. 9. Define tumor; give classification. 10. Describe briefly the pathologic changes taking place in acute lobar pneumonia.

The Public Service

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending May 6, 1905:

Borden, W. C., surgeon, detailed to represent Medical Department at meeting of Interstate National Guard Association, at St. Paul, Minn., June 19, 1905.

Duncan, Wm. A., Bruns, Earl H., and Gibner, Herbert C., asst.-surgeons, appointed first lieutenant, asst.-surgeons, to rank from May 1, 1905.

Raymond, H. I., surgeon, leave of absence extended two months.

Ekwurzel, Geo. M., asst.-surgeon, left West Point, N. Y., with cadets, en route to Gettysburg, Pa., for field exercise.

Roberts, Ernest E., contract surgeon, granted three months' leave of absence, in the United States.

Hutson, T. Ogier, contract surgeon, ordered from Beaufort, S. C., to Fort Oglethorpe, Ga., to accompany the Third Squadron, Seventh Cavalry, to Philippine service.

Adair, George W., contract surgeon, left Fort Wadsworth, N. Y., and arrived at Fort Banks, Mass., for temporary duty.

McCall, James H., contract surgeon, arrived at Fort Howard, Md., for temporary duty; granted leave of absence for twelve days.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending May 6, 1905:

Dunn, H. A., asst.-surgeon, ordered to the *Terror*, May 1.

Huntington, E. O., surgeon, detached from the Naval and Marine Recruiting Stations, Chicago, Ill., and ordered to the *Albatross*.

Thompson, J. C., P. A. surgeon, detached from the *Albatross* and ordered home to wait orders.

Moore, J. M., P. A. surgeon, ordered to duty at the Naval and Marine Recruiting Stations, Chicago, Ill.

Wheeler, W. M., surgeon, ordered to the *Cleveland*, sailing from New York about May 10.

Holcomb, R. C., P. A. surgeon, detached from the *Cleveland* and ordered to the Naval Station, Culebra, W. I.

Angeny, G. L., P. A. surgeon, detached from the Naval Station, Culebra, W. I., and ordered home to wait orders.

Hammer, A., pharmacist, detached from the Navy Yard, New York, and ordered to the Army General Hospital, Fort Bayard, N. M., for treatment.

Brister, J. M., P. A. surgeon, detached from the Naval Hospital, Philadelphia, and ordered to the *Atlanta*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 3, 1905:

Vaughan, G. T., assistant surgeon general, relieved from duty in charge of the Bureau Division of Sanitary Reports and Statistics, and assigned to duty in charge of the Bureau Division of Marine Hospitals and Relief.

Eager, J. M., assistant surgeon general, assigned to duty in charge of the Bureau Division of Sanitary Reports and Statistics.

Carmichael, D. A., surgeon, granted leave of absence for fourteen days from May 12.

Woodward, R. M., surgeon, to proceed to Providence, R. I., for special temporary duty.

Robinson, D. E., P. A. surgeon, detached from the Marine Hospital, Port Townsend, Wash., and directed to report to medical officer in command, Port Townsend Quarantine, for temporary duty.

Currie, D. H., P. A. surgeon, to report to medical officer in command, Marine Hospital, San Francisco, for temporary duty.

Burkhalter, J. T., asst.-surgeon, bureau telegram of April 24, 1905, granting leave of absence for three days from April 27, 1905, amended to read two days.

Adams, F. B., acting asst.-surgeon, granted leave of absence for ten days from April 29.

Rosello, M. M., acting asst.-surgeon, granted leave of absence for twenty-three days from May 15.

Safford, M. V., acting asst.-surgeon, granted leave of absence for two days from April 30, 1905, under Paragraph 210 of the Regulations.

Gahn, Henry, pharmacist, to proceed to Washington, D. C., for special temporary duty.

Woods, C. H., pharmacist, granted leave of absence for thirty days from May 15.

Gibson, F. L., pharmacist, granted leave of absence for twelve days from May 6.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended May 6, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, April 22-29, 1 death.
Florida: Jacksonville, April 23-30, 5 cases.
Illinois: April 22-29, Chicago, 21 cases; Danville, 3 cases.
Louisiana: New Orleans, April 22-29, 16 cases, 1 death; five cases imported.
Missouri: April 22-29, St. Joseph, 3 cases; St. Louis, 21 cases, 1 death.
Nebraska: South Omaha, April 23-30, 1 case.
New York: New York, April 22-29, 1 case.
Ohio: Cincinnati, April 21-28, 4 cases; Toledo, April 15-22, 1 case.
Pennsylvania: April 22-29, Altoona, 3 cases; infection imported. Lebanon, 3 cases; Steelton, 1 case; York, 13 cases.
South Carolina: Charleston, April 22-29, 4 cases.
Tennessee: Memphis, April 22-29, 9 cases.
Wisconsin: LaCrosse, April 15-22, 2 cases; Milwaukee, April 15-29, 6 cases.

SMALLPOX—FOREIGN.

Canada: Hamilton, April 20-27, 2 cases.
Chili: Antofagasta, Jan. 24-31, 1 death.
France: Marseilles, March 1-31, 1 death; Paris, April 8-15, 29 cases, 1 death; St. Etienne, March 17-31, 1 case.
Great Britain: Hull, April 1-8, 3 cases; April 8-15, Southampton, 4 cases, 2 deaths; South Shields, 6 cases.
India: Bombay, March 28-April 4, 118 deaths; Calcutta, March 25-April 1, 11 deaths; Karachi, March 26-April 2, 8 cases; Madras, March 25-31, 7 deaths.
Italy: Catania, March 30-April 6, 3 deaths; Palermo, March 25-April 15, 46 cases, 4 deaths.
Russia: Moscow, March 25-April 8, 9 cases, 3 deaths; Odessa, April 8-15, 8 cases, 1 death.
Spain: Cadiz, March 1-31, 2 deaths.
Straits Settlements: Singapore, March 11-18, 2 deaths.
Turkey: Constantinople, April 8-16, 6 deaths.

YELLOW FEVER.

Mexico: Coatzacoalcos, April 8-15, 1 case, 1 death.

CHOLERA.

India: Calcutta, March 25-April 1, 71 deaths.

PLAGUE.

Africa: Cape Colony, March 18-25, 3 cases, 1 death.
Arabia: Aden, March 31-April 7, 11 cases, 10 deaths.
Chili: Antofagasta, March 1-28, 1 case; Arica, March 27, 3 cases; Pisagua, to March 21, 133 deaths; Valparaiso, March 31, 1 case.

India: Bombay, March 28-April 4, 681 deaths; Calcutta, March 25-April 1, 719 deaths; Karachi, March 26-April 2, 168 cases, 155 deaths.

Peru: March 26-April 2, Chiclayo, 7 cases, 4 deaths; Eten, 1 case; Lambayeque, 1 case; Chepin, 3 cases, 3 deaths; San Pablo, 1 death; Mollendo, 16 cases, 3 deaths; Lima, 1 case, 2 deaths.

Medical Organization

THE STATUS OF ORGANIZATION IN MISSOURI.

By J. N. McCormack, M.D.

Chairman of the Committee on Organization of the American Medical Association.

BOWLING GREEN, KY.

In making an extended itinerary in Missouri, carefully planned by the council and covering every geographical division of the state, an opportunity was given for a close study of professional affairs, and the causal conditions producing and modifying them. In a state with practically unlimited agricultural and mineral wealth, with a total population of 3,500,000, over 6,000 physicians, and with soil, products and material development as varied as it is possible to imagine, problems were presented in medical sociology as complex and interesting as those found in any other state I have visited.

There is a sense in which Missouri is a newer state than the bare facts of its history would indicate. It is only in recent years, comparatively, that its great natural wealth has been fully understood, and since then the development has been by leaps and bounds. The medical profession has had its full share of this growth, as indicated by the abundant representation in it from every section and country, and the over-supply of medical schools within its own borders. The proper assimulation of such a rapidly accumulating and diverse professional material would have been difficult under any circumstances, and but little effort was made in this direction. Two years ago the Missouri State Medical Association had but 258 members, less than 4 per cent. of the medical population, and but 14 of the 114 counties had even nominal local societies. It is true that there was a number of district societies overlapping each other in every direction, but in most of them the active membership was small, the meetings infrequent, and neither they nor the state body could claim to be representative of the profession, and they did not exert, or seriously attempt to exert, any great influence on its rank and file.

The results of these conditions were reflected in all professional affairs, but were most evident in regard to legislation and its enforcement. Fads and isms sprung up and flourished as they have not been able to do elsewhere, while the ordinary forms of quackery became more firmly entrenched, and were more brazen and blatant than in any other state in the Union, except it be in Illinois.

Within two years after the adoption of the new plan of organization the membership in the state association grew to 1,600, 70 county societies had been established, and, on the surface, the progress seemed great. On investigation, however, it was found that most of these societies had little existence except on paper, that few of the officers and councilors appreciated the responsibilities of their positions, the feeling seeming to be general that in some way the scheme would work itself out without special effort on the part of these leaders. It is true that the president, secretary, chairman of the council, and a few of the individual councilors, had done good work in a desultory sort of way, but others had done nothing, and there had been little of the systematic, comprehensive planning and effort which will have to be made before the profession of Missouri is organized.

I have been in no other state where the profession was more responsive to appeals for the new order of things, and with proper effort it would be comparatively easy, within the next few years, to build up real, vital scientific and business organizations which could be made helpful to each member in his everyday work, as is contemplated under the new plan, in almost every county in the state. This will require a careful study and treatment of the conditions in each county by the councilor. In this connection it may not be improper for me to say that the impression was made on me that the initiative of the individual councilors was not being relied on and developed here as in other states where the work is being done more successfully. This was well illustrated in the arrangements for the meetings called in my itinerary. The notices were sent from the secretary's office alone, where they should have been at least supplemented by letters from the individual councilors, making him, and he in turn making his county society officers, responsible for the success or failure of the meeting. The association officers, and the council as a body, should do more rather than less, but the execution of their orders should be more and more through the councilors, those being dropped or asked to resign who are not found equal to the tasks set for them. This is what organization means. To bring it all about will require much careful thought and self-sacrificing labor, but Missouri is so ripe for the work, and the returns to its profession and people would be so great, that it is worth all of these and more.

In Kansas City, Sedalia, Jefferson City, and probably other points not visited by me, there are now fairly effective organizations, and good material for similar ones were found almost everywhere. The leaders of the profession impressed me on this trip, as they always have heretofore, as equal to those of any other state or section, and it is urged that they can, should and will unite, and persist in this great work until it is accomplished. It is this hope and belief, and because I know that they will be received in the kindly spirit in which it is done, that these criticisms, which might otherwise seem harsh, are made.

Iowa.

SECOND COUNCILOR DISTRICT.—The convention of physicians of this district was held at Davenport April 25. There was an unusually large attendance and an interesting program was given. It was at first thought advisable to effect a permanent organization for the district and elect officers and formulate a constitution and by-laws, but it was later decided to form no permanent organization, but to allow officers of the county society, who were the hosts, to act as district officers for the session. This, it was thought, will be a more convenient method and will avoid the creation of unnecessary offices.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore, July 11-14, 1905.

American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.
West Virginia State Medical Association, Wheeling, May 24-26.
Arizona Medical Association, Prescott, June 1-2.
Minnesota State Medical Society, St. Paul, June 1-2.
Rhode Island Medical Society, Providence, June 1.
American Laryngological Association, Atlantic City, June 1-3.
American Laryn., Rhin. and Otol. Society, Boston, June 5-7.
American Orthopedic Association, Boston, June 6-8.
Indiana State Medical Association, West Baden, June 7-9.
Maine Medical Association, Portland, June 7-9.
Wisconsin State Medical Society, La Crosse, June 8.
Amer. Assn. of Genito-Urinary Surgeons, Montreal, June 13-14.
Massachusetts Medical Society, Boston, June 13-14.

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

Thirty-fifth Annual Meeting, held in Riverside, April 18-20, 1905.

The President, DR. FRANK L. ADAMS, Oakland, in the Chair.

Dr. William W. Roblee, president of the Riverside Medical Society, delivered an address of welcome. In the presidential address, Dr. Adams congratulated the society on the work that had been accomplished and urged the members to still greater effort.

The State Board of Health.

The principal address on the second morning was delivered by Dr. Newel K. Foster, Sacramento, secretary of the State Board of Health, on "The Hopes, Disappointments and Successes of the State Board of Health," in which he traced the course of the work of the board and referred especially to the care of consumptives in public institutions, the separation of consumptives from other patients and the open-air treatment.

Tuberculous Patients a Menace to Los Angeles.

Dr. George H. Kress, Los Angeles, read a paper in which he discussed the question of the tuberculous population of Los Angeles and the question of their menace to the health of those not so afflicted. He analyzed the vital statistics of the city and concluded that, despite the relatively low mortality, the preponderance of deaths from tuberculosis was a grave menace to the health of the city. He suggested as means of neutralizing these dangers, compulsory notification, a new and properly enforced ordinance regarding lodging houses, a municipal dispensary, and the establishment of a sanatorium for incipient cases and of hospitals for patients in advanced stages of the disease.

Good Reports Received.

The registration at the meeting reached 230, the largest number for several years. The society was reported to be in a very healthy condition; there are now about 1,700 members and almost every county society in the state has increased somewhat in membership during the year.

The committee on arrangements provided an automobile ride and a polo game for the members, a tea and a ride into the foothills for the accompanying ladies, and a banquet at the Glenwood on the evening of April 20, over which Dr. Ernest W. Fleming presided as toastmaster.

Election of Officers.

The election of officers resulted as follows: President, Dr. Robert F. Rooney, Auburn; vice-presidents, Drs. William W. Roblee, Riverside, and William T. Maupin, Fresno; secretary, Dr. Philip Mills Jones, San Francisco (re-elected); assistant secretaries, Drs. Walter B. Hill, Santa Clara, and Albion W. Hewlett, San Francisco; board of medical examiners, Drs. Abraham L. Cothran, Santa Clara, John C. King, Banning, George F. Reinhardt, Berkley, Dudley Tait, San Francisco, and Frank B. Carpenter, San Francisco; alternates, Drs. George E. Abbott, Pasadena, Ray L. Wilbur, Stanford University, and Andrew M. Henderson, Sacramento; delegates to the American Medical Association, Drs. Philip Mills Jones and Herbert Moffitt, San Francisco; committee on public policy and legislation, Drs. James H. Parkinson, Sacramento, George H. Evans, San Francisco, and H. Bert Ellis, Los Angeles. It was decided to hold the next meeting in Santa Clara.

MEDICAL ASSOCIATION OF THE STATE OF ALABAMA.

Fifty-eighth Annual Meeting, held in Montgomery, April 18, 1905.

The President, DR. CAPERS C. JONES, East Lake, in the Chair.

Dr. Isaac L. Watkins welcomed the association on behalf of the medical profession of Montgomery and Alderman John P. Cone on behalf of the city of Montgomery.

The Addresses.

In the annual presidential address, the president paid especial attention to tuberculosis, the Walter Reed memorial and the indiscriminate use of patent medicines.

The Jerome Cochrane lecture was delivered by Dr. Robert Abbe, New York City, on "The Problem of Surgery," in which, after a tribute to the late Jerome Cochrane, he sketched the progress of surgery, with especial reference to the qualifications of the successful surgeon and to the modern discoveries which had robbed surgery of many of its former terrors. He stated that the great problems of to-day are septicemia and cancer. In the latter disease, he spoke of the employment of radium, stated that it was potent in curing and arresting the disease, but that the great problem was the development of sufficient radio-energy.

Symposium on Tuberculosis.

The afternoon session was devoted to tuberculosis, with papers by Dr. Charles L. Minor of Asheville, on "Purposes and Plans of the National Association for the Study and Prevention of Tuberculosis"; Eli P. Smith, of the *Birmingham News*, on "A Layman's View of the Practical Side of Tuberculosis," and Dr. Edgar A. Jones, Raton, N. M., on "Some Essentials to the Successful Treatment of Tuberculosis." Mr. Smith advocated the appointment of a tuberculosis commission in Alabama similar to those established in other states for the study of the disease and the adoption and promulgation of means for its suppression.

The vice-presidents reported the progress of organization in the several counties and stated that during the year the increase in membership of the association has been 78, and that there were at that time 55 illegal practitioners in the state. In the northern district of the state there are still 325 practitioners who are not members of the association.

The papers read at this meeting were of excellent grade and were thoroughly discussed.

Election of Officers.

Dr. Eugene D. Bondurant, Mobile, was elected president; Dr. Louis W. Johnson, Tuskegee, vice-president; Dr. J. Buckner Killebrew, Mobile, councilor; and Dr. Vivian P. Gaines, Mobile, censor. Birmingham was selected as the next place of meeting.

BUFFALO ACADEMY OF MEDICINE.

Regular Meeting, held March 14, 1905.

DR. ALLEN A. JONES, Chairman, presiding.

Some of the Newer Problems in Diabetes Mellitus.

DR. ELLIOT T. JOSLIN of Boston, Mass., stated that there have been marked improvements in the treatment of this disease as is proven by the statistics of 172 cases treated in the Massachusetts General Hospital from 1824 to date. The tolerance of diabetics for carbohydrates can be increased by rest, which relieves the body of carbohydrates in food, blood and urine, so removing the carbohydrates from the body. It is just as important to give a diabetic rest as it is to give a gastric ulcer rest. This rest is obtained by a strict diet. Under ordinary conditions if a diabetic takes 100 gms. of bread he will excrete 20 gms. of sugar. If you increase the body tolerance by rest, the same amount of bread will give but 1-2 gms. in the urine. There are several methods by which this rest may be obtained: By restricting the carbohydrates in the food and in severe cases totally excluding the carbohydrates from the food.

If the restricting or diminution of carbohydrates does not diminish the sugar it is advisable to diminish the albumins in the meat. If still the sugar continues, then a vegetable day is urged, when the patient gets spinach, salads containing oil and alcohol. In some cases the sugar still does not decrease and then a starvation day is urged. This regulation of diet can be done only under the strictest supervision in a hospital or sanatorium. The change in diet must be gradual, for a sudden change from a carbohydrate to a starvation day might induce coma, and so when a return to the more liberal diet is made, it must be done gradually for the same reason.

He spoke first of placing the patient on cream, adding it gradually, day by day, until one-half pint is taken. Next the milk cure was mentioned, which was not recommended for all cases. Then the potato cure, which is not so good as the milk cure. The oatmeal cure recommended by von Noorden, which really is not strictly an oatmeal cure but consisted of 250 gms. oatmeal, 100 albumin, and 300 gms. butter, accomplished results in some cases. Suppose the patient is on a carbohydrate free diet, and is taking small quantities of cream, and there is no sugar in the urine, milk may now be added, day by day; later a little grape fruit and fruit can be given. If this does not satisfy, then potato may be added. Fat is essential in the diabetic, but it should be added gradually.

The author does not recommend the use of drugs. Drugs do not increase the body tolerance for carbohydrates, nor do they check the further progress of disease. He uses bicarbonate of soda to counteract the acidosis. When signs of coma appear, such as acetonuria, restlessness, increased thirst, etc., he gives a definite quantity of milk and bicarbonate of soda. If signs of coma increase, more milk and more bicarbonate of soda are added, but it is well not to give too much liquids because of danger of dilatation of the stomach. Give one

dram of bicarbonate of soda every hour, and after a few hours diminish the dose; the use of bicarbonate of sodium intravenously in well-marked cases of coma is useless.

DISCUSSION.

DR. CHARLES G. STOCKTON said the use of gluten and gluten bread in diabetics is harmful and is apt to lead us astray. He was glad to have heard of the danger of too suddenly changing from a carbohydrate to a non-carbohydrate diet but has not personally seen the changes referred to. The difficulty in diabetes is that the patient suffers from a carbohydrate hunger, for he can not utilize the carbohydrates taken, and carbohydrates are withdrawn from him. He, therefore, craves starches. Patients do better at one time on one dietary, and not so well at another. One patient will do well on potatoes, another will get worse. His experience with a milk diet and fruits has not been good.

It is true that drugs are useless in diabetes, but we must remember we are not treating the disease alone, but also the patient, and often the patient fares better by using drugs, although the progress of the disease continues. Dr. Stockton has seen patients approaching coma improve under rest, the use of alkalies, and free elimination; but once coma has developed under this treatment they may emerge from it only to sink into it again. There are certain factors which precipitate coma, such as sudden withdrawal of carbohydrates, fatigue, and mental trials.

DR. A. L. BENEDICT stated that in Buffalo diabetics existed probably in the proportion of 1-10,000. It is essentially a failure to transform the sugars of the body. He has used strontium and the salicylates in the treatment of diabetes.

DR. FRIDOLIN THOMA referred to the hereditary factor, one-third of the cases showing an hereditary tendency, and to the lesions in the pancreas and in the islands of Langerhans. He believes that exercise and fresh air will often diminish the sugar excreted.

DR. THOMAS G. ALLEN uses the salicylate of ammonium, and 1/100 grain of bichlorid of mercury. He believes in baths and moderate exercise.

DR. CLOWES believes that the question of diet is of great importance in the treatment of diabetes. Starvation is of importance so far as his chemical analyses have shown and in his examinations he has found that large quantities of proteids are also prejudicial. He called attention to individual idiosyncrasies to different kinds of food, and stated that it was possible to slowly adapt organs to different kinds of food.

DR. EDMOND BLAAUW recalled the teaching at the University of Amsterdam. He gives diabetics the soft portions of the bread, and never the crust.

DR. ALLEN A. JONES stated that the treatment of diabetic coma is its prevention. He has never seen a case which did not ultimately die. It is also of value in diabetes to increase the bodily resistance, and for this reason tonics, such as nux vomica, arsenic and the glycerophosphates are of distinct value.

Care of the Premature Infant.

DR. DE WITT H. SHERMAN reported the results of the incubators at the Children's Hospital. They have had twenty-nine cases, six of which died within twenty-four hours, and ten later. He reviewed the principal points of the lack of development of the premature. He dealt with the treatment under three heads: 1, Maintenance of body temperature; 2, judicious feeding; 3, general care. All the infants were out-patients. Thirteen had subnormal temperatures, 96 degrees or less, and eleven died. One, with a rectal temperature of 94, survived. His statistics showed the necessity of attending to the proper maintenance of temperature immediately after birth in order to prevent shock from chilling. Diluted breast milk is given almost immediately after admission, without apparent ill-effects. The amount is small, the interval short—day and night. Plain breast milk is given as soon as tolerated. Some of the infants were too weak to suckle, and were fed through the nose. Gastric lavage was not used, being too disturbing a procedure. He laid emphasis on pure air of proper humidity; on quiet and freedom from handling; on anointing rather than bathing, except in so far as absolutely essential for cleanliness; on the use of the fewest possible drugs, those used being mild cathartics and stimulants, and beef juice in place of iron.

The smallest infant received weighed 1 pound, 13 ounces. It died. The smallest surviving child weighed 2 pounds, 11 ounces. One babe developed scurvy on breast milk. He claims that a premature infant can develop as well as one born at full term, and that the old notion that a seven months infant is more liable to survive than an eight months infant is groundless. He gives oxygen, and keeps the infant in a moist atmosphere. To overcome the jaundice he gives 1/20 gr. calomel with milk of magnesia.

THE AMERICAN CONFEDERATION OF RECIPROCATING, EXAMINING AND LICENSING MEDICAL BOARDS.

Meeting held at Indianapolis, April 27, 1905.

The President, DR. W. A. SPURGEON, in the Chair.

The examining boards of the following states were represented: Ohio, South Carolina, New Mexico, District of Columbia, Wisconsin, Iowa, Kentucky, Indiana, Nebraska and Michigan.

Report of Committee on Uniform Entrance and Graduation Requirements.

The committee recommend that after July 1, 1905, the confederation shall only recognize such schools and colleges as require for admission, as a minimum, the diploma of a high school or its equivalent in credits, the same to be such number and character of credits as may be recognized by the superintendent of public instruction or by some legally established state examining board of the state in which said college may be situated.

Further, that the graduation requirements shall be a completed medical college course that shall have consisted of at least 4,000 hours, and at least 40 per cent. of said 4,000 hours shall consist of clinical and laboratory work. That no college shall be recognized that falls below this standard 20 per cent. in any one branch or over 10 per cent. in the total; the curriculum of studies to be that adopted by the Association of American Medical Colleges at Chicago April 10.

The report was adopted.

Report of Committee on Advanced Standing.

This committee reported:

First: That graduates, holding degrees of A.B., B.S., or equivalent qualifications from a reputable college or university may be given credits not exceeding one year; provided, that the curriculum of the college from which the applicant comes provides at least within 10 per cent. of the same hours of instruction in the same several branches as the school to which applicant applies; and, provided, such advanced standing is approved by a certified examiner of the state board of medical examiners in the state in which the medical college is located subsequent to the time that the applicant for time credits satisfied the professors in charge of the various subjects as to his proficiency in the subjects for which he seeks time credits.

Second: That in case of transfer of students from one medical school to another the dean of the recipient institution must secure an official statement from the school from which the student comes as to the latter's educational and moral status.

Third: That no student shall be advanced to a higher class in his own school or any other medical school, who has more than two conditions in his previous year's work, and these conditions must be passed off before the end of the school year on which the student enters. That is to say, that the conditions of the first year must be passed off before the end of the second year, and the conditions of the second year must be passed off before the end of the third year, but no student shall be permitted to enter the fourth year until all conditions of the third year shall have been removed.

The report was adopted.

Report of the Committee on Uniformity and Scope of Examinations.

The committee recommended the adoption of the following regulation covering examination for license, viz.: That all

candidates for license in state board examinations, in addition to other requirements, be required to pass a written examination consisting of one hundred questions, in the following subjects: Anatomy, including histology and embryology, 10 questions; general surgery, 10 questions; materia medica and therapeutics, 10 questions; medicine, 10 questions; obstetrics, 10 questions; pathology and bacteriology, 10 questions; chemistry, 5 questions; etiology and hygiene, 5 questions; physiology, 7 questions; neurology, 3 questions; gynecology, 6 questions; laryngology and rhinology, 2 questions; medical jurisprudence, 2 questions; physical diagnosis, 5 questions; ophthalmology and otology, 3 questions; pediatrics, 2 questions.

That an average of at least 75 per cent. of correct answers shall be required from each candidate.

The report was adopted.

Report of Committee on Modifications in Reciprocal Qualifications.

For the purpose of establishing medical reciprocity among the states composing it, the confederation agrees to the following propositions as a basis of reciprocal medical registration:

(A) As a prerequisite to reciprocal registration, the applicant therefore shall file in the office of the board of the state of which he is a licentiate such evidence as will enable the said board to certify that he is of good moral and professional character. In connection therewith as evidence of moral and professional character after graduation and licensure, each applicant shall present, from his former home, to the state board in which registration is sought, satisfactory evidence that he has been, for at least one year, a member in good standing of the county, state or national medical organization of the school or system of practice to which he belongs, and a certificate of recommendation issued to him by vote, at a regular meeting of the society in which his membership originated, that he is worthy of registration anywhere, and such certificate of recommendation may be treated as part of such appplication and considered in connection with the other evidence presented.

(B) Each applicant shall be required to furnish in addition to the evidence under (A) an affidavit that in good faith he has abandoned practice in the state from which he came and that it is his intention to become a permanent resident of the state in which such application is made.

(C) A certificate of registration showing that an examination has been made by the proper board of any state, on which an average grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the state where reciprocal registration is sought, may be accepted, in lieu of examination, as evidence of qualification. Provided, that in case the scope of the said examination was less than that prescribed by the state in which registration is sought, the applicant may be required to submit to a supplemental examination by the board thereof in such subjects as have not been covered, and, provided, that the applicant had been engaged in the reputable practice of medicine at least one year in the state issuing the certificate on which endorsement is sought.

(D) A certificate of registration, or license issued by the proper board of any state, may be accepted as evidence of qualification for reciprocal registration in any other state. Provided, the holder of such certificate had been engaged in the reputable practice of medicine in such state at least one year; and also provided, that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the examination test in such state.

In qualification A it will be noted that evidence is required which may be furnished easily and without expense by any physician who is a member in good standing in the organizations of the system of practice to which he professes to belong, and, what is probably of still more importance, as quacks are nearly always migratory characters, it requires a character of evidence which they can never furnish.

Qualification B is a necessary safeguard against the abuse of the privileges of reciprocity, especially in the health-resort states, by a class of practitioners who desire to move in and out with the pleasure and health seekers. These requirements put the whole question of reciprocity on such a broad and comprehensive basis, as to seem to put them ultimately within the reach of all of the states.

Dr. Fred. C. Zapffe, secretary of the Association of American Medical Colleges, and Dr. W. J. Means, chairman of its judicial council, addressed the meeting, and suggested that in the future the confederation and the college association could accomplish much good by keeping closely in touch with each other, and by exchanging reports of inspection of colleges. Their suggestions were heartily endorsed by the confederation.

The boards of the following states were added to the membership of the confederation: South Carolina, New Mexico, District of Columbia and North Dakota.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held March 6, 1905.

The President, DR. ARTHUR P. HITCHENS, in the Chair.

SYMPOSIUM ON INFLUENZA.

Etiology and Diagnosis.

DR. G. MORTON ILLMAN stated that the disease was of very ancient record, being mentioned by Hippocrates as far back as 400 B. C., and particularly referred to the epidemics of 1847 and 1889-1890. He contrasted the theory of Pfeiffer, who regards it as due to a bacillus, with others, who say it is due to a toxemia, and expressed the belief that the latter was the result of the bacillus rather than the cause of the infecion. He described the bacillus, and discussed the etiology of the disease in general, as well as its diagnosis.

Influenza Complicating the Ear and Upper Air Passages.

DR. WILLIAM HITSCHLER considered first its relation to the ear, and stated that it might affect either the inner ear or the middle ear, involving either the drum membrane alone or the entire middle ear. It differs from the ordinary otitis media in that in the early stages of the condition there is a marked tendency to hemorrhage, which may be observed as punctate or diffuse ecchymoses on the tympanic membrane, or as bloody vesicles raised from its surface, sometimes extending beyond the confines of the membrane itself and involving the posterior superior wall of the external auditory meatus. The pain is more severe and is more likely to be present on pressure over the mastoid, and the symptoms of the tinnitus, deafness and discharge are intensified. The mastoid is much more likely to be involved than in other conditions, and the external attic is often the subject of purulent inflammation. The diagnosis between this condition and severe simple acute inflammation is very difficult, the prognosis is not as good, and the tendency to chronicity greater. In the upper air passages, in addition to the usual catarrhal signs, there are frequently whitish-gray patches due to necrosis of the larynx and trachea. Hemorrhage, in the shape of nose bleed or hemorrhagic laryngitis, edema of the larynx and pharynx and abscesses of the larynx and thyroid gland have also been observed. The recurrent laryngeal nerve is frequently affected and paresis of the soft palate are among the nervous symptoms. He referred to the tendency to sinus disease in these cases, and also to the fact that many of the cases get well without and many are assisted by appropriate treatment, still there are a certain number which result either in chronic sinusitis, or a transmission of the infective process to the orbital or cranial cavities, sometimes resulting fatally.

The Prognosis and Treatment.

DR. SAMUEL WOLFE stated that the prognosis must be considered (1) in relation to life, and (2) as to the liability to complications, on account of the fine field for infection, among the prominent being pneumonia, endocarditis, pericarditis, pleurisy and meningitis. He believed the season of the year has much to do with the complications, winter being particularly favorable to pulmonary involvement, and the summer and fall to gastrointestinal involvement. He stated that each epidemic is liable to have peculiar complications, and

believed that the individuality of the patient and management of the case has much to do with the duration of the attack, as well as the sequelæ. Among the complications following the condition, which he considered in detail, were influenzal pneumonia, catarrhal bronchitis, and the neurotic affections, such as neuralgia, hysteria and hypochondriasis. He believed that persons who have once had the disease are more liable to a second attack. The treatment should be directed (1) to the fever; (2) to the pain; (3) to the respiratory symptoms, (4) to the gastrointestinal and nervous symptoms.

DISCUSSION.

DR. LEWIS S. SOMERS referred to the increase in the number of operations for morbid conditions of the accessory sinuses during the last decade brought about by influenza. This winter he has seen about 15 to 18 cases of frontal sinus involvement, while in the last three or four years involvement of the maxillary antrum seems to be the prevailing condition. He referred to the fact that complications of the upper respiratory tract are comparatively rare in those cases that went to bed immediately at the onset of the condition. In many instances the severe headaches and trifacial neuralgias following influenza are the result of catarrhal conditions of the accessory sinuses, which theory was borne out by the fact that local treatment of these regions often removes the trouble. He did not regard the hemorrhagic form of otitis as peculiarly characteristic of influenza in Philadelphia, and, furthermore, felt that in many instances abnormal conditions of the sinuses were induced by improper douching of the nose.

DR. SWITHIN CHANDLER has observed many women with diseases of the tubes who stated that it had started with influenza.

DR. CHARLES LEE FELT has found very little difference in the middle ear conditions following influenza and other middle ear conditions, except the severity of the disease. He cited several cases following influenza, in which between the attacks the ears were perfectly normal..

DR. FRANK C. HAMMOND has also observed that the pelvic viscera may be influenced during the acute attacks. He had seen three cases, two in single women, both 18 years of age, who on the third day showed marked pelvic involvement. He referred to a case in which there was pain and rapidly increasing leucocytosis in which appendicitis was suspected, but exploratory examination showed the appendix to be normal. There was, however, pus in the abdomen, which was evacuated and drainage established. The woman made a good recovery.

DR. SAMUEL P. GERHARD referred to the selection of the various mucous membranes as the sites of complications attending or following influenza, and dwelt on the importance of producing elimination as quickly as possible.

DR. P. K. SCHWENCK referred to the fact that the ear complications following influenza are mostly unilateral. He believes that most of the severe headaches are due to sinus complications. He has had very few mastoid operations following influenza, and believes that involvement of this region is more frequently caused by other conditions. He emphasized the importance of rest in bed as a part of the treatment of influenza.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Ringworm of Scalp.

In considering the treatment of ringworm of the scalp, T. Colcott Fox of London, in *The Practitioner*, states on examination, attention must be directed to any patches on the smooth skin, to a possible involvement of the nails and to the distribution in the scalp.

CUTTING THE HAIR IN PREPARATION.

The extent of this procedure must depend on the distribution and extent of the diseased areas, the age of the patient and his surroundings. Complete removal of all the hair is most satisfactory to prevent auto-inoculation.

The diseased areas should be marked out, taking care to locate any small commencing spots by painting with iodin or an anilin pencil. A proper inexpensive head covering should be worn night and day and all toilet articles used about the patient must be kept from other children and thoroughly disinfected. Excepting an occasional cleansing, the less the head is washed the better, as it does not assist in the cure and is apt to cause a scattering of the ringworm.

It is recommended by the author that some unirritating parasiticide such as carbolized vaselin or glycerin, be applied to the healthy surface. The use of the tincture of iodin combined as follows is recommended:

℞. Tinct. iodi .....ʒi 30
Alcoholis (90 per cent.) .....ʒiii 90

M. Sig.: To be applied locally to the scalp as directed three or four times a week.

Iodism seldom occurs, but in children sometimes it may cause restlessness and dreams. Under such circumstances the following may be substituted:

℞. Potass. iodidi
Iodi, āā .....gr. iii 20
Aquæ .....ʒiii 90

M. Sig.: Apply locally as directed.

He does not recommend long-continued applications of iodin or other chemicals, such as incessant washing with strong soaps, as they are apt to excite desquamation.

CHOICE OF REMEDIES.

The parasiticide can easily reach the fungus in the epidemic layers or small hairs except where a strong growth of hair exists, there it is difficult to make the preparation penetrate into the follicle sufficiently deep. On this account various methods have been used to assist in the penetration, such as the removal of the oil preliminary to the application of the parasiticide; combining the parasiticide with ether, chloroform, turpentine, glycerin, lanolin, etc.; the continuous application of the remedy under an impermeable head dressing; forcing it in by a special vacuum-producing apparatus and by means of cataphoresis. None of the foregoing methods will insure success, according to the author, in all cases on account of the great difficulty in penetrating to the depths of the follicle and to soak into the hair so as to come in close proximity to the fungus. Only in young children is it possible to effect a cure with a purely parasitic application.

The author mentions the following ointments which are so commonly used but which have not given proper results in his experience:

℞. Ung. acidi salicylici
Ung. sulphuris, āā.....ʒss 15

M. Sig.: Apply locally; or:

℞. Ung. hydrarg. nitratis.....ʒii 60
Sulphuris sublim. 3i 4
Olei olivæ
Acidi carbol.
Ceræ albæ, āā.....ʒi 30

M. Ft. unguentum. Sig.: Apply locally.

EPILATION.

Epilation, according to the writer, sometimes proves an invaluable aid to cure. He recommends a triangular glover's needle lightly coated with croton oil and inserted deeply into the follicles, observing care not to penetrate the skin. By this means the hair is loosened and is easily extracted. He is of the opinion that treatment with *x*-ray must dominate. It is painless and comparatively rapid and the danger of infection to others is overcome. The main obstacle to its use is the prolonged baldness. Setting up a local inflammation by means of drugs limited to the diseased follicles is sometimes used with the disadvantage that great discomfort and sometimes pain is produced, such as the use of strong iodin, formalin, and glacial acetic acid. The following is recommended by some authors:

℞. Hydrarg. iodidi rubri .....gr. iv-xv | 25-1.
Sol. sodii iodidi (1-4) q. s.
Spts. chloroformi .....3ii-iv | 8.-15
Aquæ q. s. ad.....ʒi | 30

M. Sig.: Apply locally to the diseased areas.

Sheffield's treatment, as mentioned by the author, is as follows:

Apply to the entire scalp by means of a painter's brush once a day for five successive days, the following:

℞. Acidi carbol.
Olei petrolati, āā.....ʒii | 60
Tinct. iodi
Olei ricini, āā.....ʒiii | 90
Olei Rusci (German) q. s. ad.....Oi | 500

M. Sig.: Apply once a day for five days.

On the sixth day wipe off with a rag dipped in plain oil, clip the hair again, wash thoroughly with green soap and with soft nail brush remove all scales and loose hair, and on the seventh day reapply the ointment.

When the new hair grows apply for a few days a 10 per cent. sulphur ointment and then the following:

℞. Resorcin
Acidi salicylici, āā .....3iv | 15
Alcoholis .....ʒiv | 120
Olei ricini q. s. ad.....Oi | 500

M. Sig.: Apply locally.

He also mentions Fouli's treatment, which consists in: 1. Rubbing in spirits of turpentine to the patches for several minutes until it hurts. This should be followed by a rub with 10 per cent. carbolic acid soap and then warm water to make a lather. Dry the parts and apply two or three coats of iodin to the patches, and when this has dried, rub carbolized oil (1-20) over the entire head. This treatment should be carried out twice daily.

Chrysarobin is useful and can be applied in any strength desired to excite the proper amount of inflammation in each particular case, but it is criticised by the author as being dirty and stains. Formalin treatment has met with failure in his hands. It is painful and has a tendency to set up eczematous inflammation.

Of all the ointments the following are recommended by the author as capable of setting up the most desirable grade of inflammation without pus formation:

℞. Cupri oleatis .....3i-v | 4.-20
Olei amygdalæ .....3ii-iii | 8.-12
Adipis lanæ hydros. q. s. ad.....ʒi | 30

M. Ft. unguentum. Sig.: Apply locally; or:

℞. Hydrarg. oleatis .....3ii-iiss | 8.-10
Adipis lanæ .....3ss-ii | 2.-8
Acidi oleici q. s. ad.....ʒi | 30

M. Ft. unguentum. Sig.: To be applied locally.

The foregoing ointments can be gradually increased and more vigorously applied until the desired results are obtained. Crusts should not be allowed to form.

Pus formation is a drawback and hindrance, and is liable to set up boils and lead to crust formation. In this connection he mentions the salt treatment, using it in equal parts with vaselin or stronger. It frequently excites pustular dermatitis, which is often effective and is of more service than castor oil.

CROTON OIL.

This is painless, except on inflamed spots, and the author regards it as most certain and effective, but requires care in its use, and must not be placed in inexperienced hands. Aldersmith recommends its use as follows: Rub one drop of croton oil into a patch and prevent its spreading to healthy tissue by surrounding the patch with carbolized lanolin (1 to 8). After four hours apply to the patch a soft, sticky, linseed poultice and cover with a piece of oiled silk. The poultice must remain fixed, otherwise it may cause the croton oil to spread. The following morning the patch should be bathed and all pus removed, followed by a new application of croton oil and poultice. The inflamed surface must be kept clean and free from pus. Keep up the inflammation by these applications until all diseased stumps have fallen out or have been extracted.

Lailler recommends that one drop of croton oil be applied to the spot and all excess removed. If the inflammatory action is severe and vesico-pustules form, he recommends the application of equal parts of tincture of iodin and alcohol (90 per cent.) on the following day to relieve the inflammation and to dry up the pustules. After three days the crusts should be removed by a moist dressing and thick crusts must be prevented. The croton oil should only be applied once in 12 or 15 days. Epilation of the stumps is of great value.

The author recommends the following ointment:

℞. Olei tiglii .....3i | 4
Olei petrolati .....ʒi | 30

M. Ft. ung. Sig.: Rub in daily or as often as is required to excite the desired degree of inflammation. This state is then maintained until all the diseased stumps are removed or have been epilated; keeping it clean and avoiding crust formation.

Tinea Tonsurans.

In the treatment of tinea tonsurans of children the *Medical Record* recommends that the hair be cut as close as possible once a week. Every third day the head should be washed with soap and warm water. Morning and evening the scalp should be massaged, triturating the diseased areas vigorously. Following the massage prolonged friction should be applied with the following application:

℞. Olei ricini
Tinct. cantharidis, āā .....3i | 4
Spts. camphoræ .....ʒiv | 120

M. Sig.: To be applied locally to the scalp.

Phlebitis.

The following combinations are of value in the treatment of phlebitis:

℞. Plumbi acetatis .....gr. xxx | 2
Tinct. opii .....3iii | 12
Aquæ .....Oi | 500

M. Sig.: Apply locally on gauze to the affected area, or:

℞. Ung. belladonnæ .....3vi | 24
Ung. zinci oxidi.....ʒi | 30
Lanolini .....3x | 40

M. Ft. unguentum. Sig.: Apply locally and wrap the limb in cotton wool.

Gingivitis (Inflammation of the Gums).

The following combinations are recommended by *Merck's Archives* in the treatment of gingivitis:

℞. Salol .....gr. xv | 1
Spts. menth. pip. .....3x | 40
Tinct, catechu .....3i | 4

M. Sig.: One teaspoonful in half a glass of warm water as a mouth wash; or:

℞. Acidi carbol. .....gr. xx | 1|30
Pot. chloratis .....gr. xx | 1|30
Syrupi simp. .....ʒi | 30
Aq. camphoræ .....ʒiii | 90

M. Sig.: One dessertspoonful as a mouth wash diluted in half a glass of water.

Medicolegal

Medical Examination Not Indispensable in Rape Case.—The Supreme Court of Oklahoma holds, in Harmon vs. Territory, that a medical examination of the prosecutrix is not indispensable to warrant a conviction for the crime of rape.

Liability to Seaman Not Ended with Voyage.—The United States District Court, in Massachusetts, says, in the case of McCarron vs. Dominion Atlantic Railway Co., that it can not believe that the liability of a vessel and owners for the cure of an injured seaman is limited absolutely by the termination of the voyage; that, if the seaman is seriously hurt while anchoring the vessel in the harbor of destination, he may be abandoned by the captain without further help.

Care Incompetent Entitled To—Itemizing Account.—The Supreme Court of California says, in re Hayden's Estate, where the ward was an old lady, paralyzed, helpless and needing the care of a nurse at all times, and who had plenty of property to support her, that in such case it was the duty of the guardian and of the court to see that she had all the necessary comforts that could be supplied to her in her last days, even if it had taken the principal for such purpose. The court should not have allowed her to be deprived of suitable food, nursing, and medical attendance in order that the estate

left might be larger, or that some distant relative might be benefited. If she was not cared for by another party who had agreed to care for her, and the guardian gave her such care, his account would not be disallowed because such other party had made an agreement to care for her.

As to the contention that some of the charges contained in the guardian's account were not properly itemized, the court says that the only portion of the account called to its attention in the brief was for medical attendance. The items were as follows: "April 25, Dr. Harry, 20 visits, at $2.50, $50.00. September 4: Dr. Arthur, medical services, $70.00." The above charges were sufficiently itemized within the meaning of the statute. They showed the date of payment, the amount, the person to whom paid, and the nature of the services. It is not necessary that a bill of a physician should contain each item that goes to make up the charge. If the amount of the claim is disputed, or if it is denied that the services were rendered, the court on the hearing may go into the particulars.

Difficult Operation and Loss of Childbearing Power.—The Supreme Court of Appeals of West Virginia holds, in Normile vs. Wheeling Traction Co., that, in an action for personal injuries, where, as a result of such injuries, a surgical operation is necessary to be performed, evidence which shows or tends to show that such operation is attended with great difficulty and dangers, and that comparatively few physicians perform such operation, is admissible. It says that these facts would increase the expense of securing a physician to do the work, and, this being an element of damages which the plaintiff would be entitled to recover, it would alone make the evidence admissible. Then, again, to show that it was such an operation that but very few physicians would perform would go to show the difficulties attending its performance, and the gravity of it, which would also make the evidence admissible.

Furthermore, the court holds that it is not error to instruct the jury that the loss of childbearing power is an element of damage to be considered by them in an action for personal injuries sustained through the negligence of the defendant, when such loss is the reasonable and probable result of such negligent act. It says that the loss of the power of childbearing is certainly an element of damage to be taken into consideration by the jury, as much so as an injury to any other part of the human body, and the question as to whether or not the injury is the reasonable and probable consequence of the negligent act is a question of fact for the jury. So here it was for them to say whether or not the operation of laparotomy was made necessary by reason of the accident, and, if so, was the loss of childbearing the reasonable and probable consequence of such negligent act.

Questions and Answers as to Health.—The Supreme Court of Minnesota says that in the case of Rupert vs. Supreme Court of United Order of Foresters an applicant for life insurance was required to warrant not only her good faith as to her family history, but apart from construction, was made to guaranty opinions as to herself which no candid physician would be likely to assert with positiveness, and to insure against objective conditions which the company's own expert was unable to detect. Invariably, interrogatories of this kind are a medley of conclusions and facts. The answers called for are in part expressions of scientific opinion, and in part narrations of individual experiences. On its face, such an application requires the exact, literal truth as to ailments, the precise nature of which an operation in major surgery might not reveal, and which only an autopsy could discover. The questions are not scientifically arranged, so that the classes of diseases are mutually exclusive. A number of them are but "big bags to put many diseases in." It would require dialectical skill of no mean order to consistently interpret, and technical knowledge of no considerable extent to accurately answer, all that is thereby required. When the questions propounded to an applicant are in such terms as to include trivial ailments and injuries, unconnected with any specific disease, they should be interpreted as referring only to such ailments and injuries as affect the risk to be assumed, unless by express terms they preclude such interpretation. Answers which are purely expressions of opinion are warranties of the bona fide belief and judgment of the applicant. Questions concerning the physical condition of the applicant, or anything that tends to shorten his life, do not invariably require absolute truth in answering. An answer to a question concerning previous consultations of physicians which admits one examination, and omits others clearly proved, but does not purport to be a full and complete reply to all questions in that connection, and is accepted in its obviously incomplete form, is not affirmatively shown to have been false, so as to prevent recovery on the policy.

Hypnotism and Qualification of Expert Witnesses.—The Supreme Court of Iowa says that the connection of hypnotism with the case of State vs. Donovan, a prosecution for seduction, was merely a matter of evidence. It says that, according to the story of the prosecutrix, the defendant claimed to control her movements by what he termed "suggestions," and exercised hypnotic influence over her at different times. To prove his power in this direction and its nature, the trial court received, over objection, evidence of instances where he had operated on other subjects, and of the control exerted over them. This court knows of no other way by which such proof could have been made. The evidence was admissible. Again, the Supreme Court says that the jury were instructed to take into consideration, in connection with other evidence, "the testimony relating to the exercise or attempted exercise of hypnotic influence." This was proper, for, regardless of whether such influence was in fact exercised, the evidence tended to show that he was pretending to exert it on her, and thereby having some effect on her mind. Whether exercised by the accused, or only pretended was not very important, if in either event it was resorted to as a scheme or artifice to procure the debauch of the prosecutrix. Two physicians were called, and, as tending to establish their qualification to testify as experts on the use of hypnotism as an anesthetic stated—the one, that he was the superintendent of an insane hospital; had not made an extensive study of the subject, but knew, to a certain extent, what modern authorities said on the subject; had never practiced hypnotism, but had witnessed experiments by others; and the other, that he had made some study of the subject; had practiced it somewhat, and knew a few of the works recognized as standard authorities, but had never attended a school teaching hypnotism; there being but one in existence, located in France. The Supreme Court holds that there was no error in overruling an objection to their competency. It says that the inquiry related to matters connected with the profession of the witnesses, and, in order to testify concerning the same, they were not required to have derived their knowledge from actual experience or observation. Experts, as every one knows, obtain much of what they know from books, and may express opinions based thereon as well as on experience. Whether a person may testify does not depend on any well-defined standard by which his qualification to speak shall be measured. He should always possess such a degree of knowledge or skill as to enable him to speak intelligently on the subject, and, beyond this, in passing on the preliminary proof, much must of necessity be left to the discretion of the trial judge. These witnesses had studied the subject in different authorities, and were able to say from their investigation that surgical operations may be performed on patients in the hypnotic state; having been previously informed of what would be done, and that no pain would result.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

April 29.

1 *Adaptation and Tuberculosis. J. G. Adami, Montreal, Canada.
2 *Biliary Drainage in Operations on the Gall Bladder and Biliary Ducts. E. A. Smith, Buffalo, N. Y.
3 *Case of Fatal Chorea, Apparently from Excessive Muscular Action. J. P. C. Griffith, Philadelphia.
4 *Method of Uniting Intestines of Very Small or of Unequal Caliber. J. S. Horsley, Richmond, Va.
5 Briefs on Genitourinary Surgery. G. F. Lydston, Chicago.
6 *Intra-abdominal Anastomosis. A. Groves.
7 Pathogenesis of Lead Intoxication, Apropos of the Pathologic Findings in a Case. A. Gordon, Philadelphia.

1. **Adaptation and Tuberculosis.**—Adami emphasizes the fact that in infectious diseases in general, while the bacteria grow more particularly in one organ or tissue, the successful counteraction of the disease is not a local matter. The counteraction is by the rest of the organism; in part by the leucocytes developed in the bone marrow and elsewhere, in part by other tissues, which discharge into the blood diffusible antitoxic and bactericidal substances. He calls attention particularly to the recent observations of Wright and Douglas on the phagocytic activity of the leucocytes. These substances appear to be developed apart from the leucocytes, that is to say, by other tissues of the body. Applying these considerations to tuberculosis, he points out that when the tubercle bacilli grow locally, there is a slow diffusion out of their toxins, and it is by the adaption of the rest of the tissues to these toxins that the leucocytes and these other tissues become accustomed to produce diffusible antibacterial substances. In favorable cases these are present in amounts so considerable that the local growth of the tubercle bacilli is arrested and healing ensues. Postmortem observations show that this arrest is the rule rather than the exception. Applying these considerations to the treatment of tuberculosis, he shows, first, that the tuberculin treatment is but an attempt to carry out the natural process; that tuberculin is merely a concentrated extract of the toxins of the bacilli, and that these now are injected into the organism at a distance from the site of local growth of the bacilli. Their action must be to stimulate the cells of the rest of the organism, and to produce increased amounts of antibacterial substances. The cells, however, may be in a state of low vitality so that they do not react, and hence this treatment is by no means constantly successful. Modern treatment similarly, is a carrying forward of the same idea. The disease as such is left severely alone, every attempt is made to improve the general tone of the organism by rest, good food, and fresh air. The cells gain improved tone and respond to the toxins, producing increased quantities of the antitoxic and antibacterial substances. Here, again, it is the body as a whole and not the local reaction that brings about arrest of the tuberculous process. The adaptive processes on the part of the bacilli are next considered. They also are capable of being modified according to alterations in their environment so that by passage they are found to adapt themselves more and more to the organism of any particular species. By passage through the organism of one species, the bacilli become more and more virulent for that species and thus may become less and less adapted to growing the organism of another species. Adami is of the opinion that this is the case in general, and with tubercle bacilli grown in the human and bovine organisms, respectively, in particular.

2. **Biliary Drainage in Operations on Gall Bladder and Biliary Ducts.**—Smith says that biliary drainage, in the majority of cases, is best carried out by cholecystostomy, which is easier and safer than cholecystectomy. The latter is indicated for stricture of the cystic duct, in cases with thickened, distorted, perforated or gangrenous gall bladder, and when malignancy is suspected or found. Cholecystectomy should be accompanied by drainage of the cystic duct below the point of removal of the gall bladder. Patients suffering from the toxemia of cholemia long continued, should be offered exploratory operation and biliary drainage by cholecystostomy or cholecystenterostomy. Obstruction of the common duct by stricture and chronic pancreatitis may be treated with good hope of cure by this procedure, and in malignancy life is prolonged with comfort. The author describes at some length the technic of his operative work.

3. **Fatal Chorea Apparently from Excessive Muscular Action.**—Griffith reports an instance occurring in a boy 11 years of age. The child had had an attack of chorea two years before. The cause of the second attack was not known. A month before, he commenced to show restlessness, which advanced to choreic movements and grimaces. For a week the movements had been excessive. On admission to the hospital nothing abnormal could be found in the organs, except the presence of a systolic murmur in the mitral area. The boy could not speak, although he seemed to understand perfectly. The movements were so excessive that the child was thrown violently about the bed, and was bruised all over. Sleep was almost absent. Hyoscin hydrobromate given hypodermically relieved the condition to a certain extent, morphin, potassium bromid and chloral hydrate having been entirely ineffective. The excessive movements continued and exhaustion finally ensued, and death. The autopsy showed the presence of an endocarditis with micro-organisms in the heart muscle and in the mitral leaflets. While it can not be affirmed positively that death did not follow from endocarditis, yet the case bore all the evidences of death from exhaustion, the result of the enormous muscular activity.

4. See abstract in THE JOURNAL, Jan. 7, 1905, p. 58.

6. **Intra-abdominal Anastomosis.**—Groves advises the use of McGraw method, using silk instead of rubber ligatures, and is opposed to the use of antiseptics. The abdominal wound should be closed by the layer method. He urges drainage of the stomach by gastrojejunostomy in cases of gastric ulcer, irremovable pyloric cancer, dilated or displaced stomach, and believes that many cases of dyspepsia and so-called neurosis of the stomach can be cured by drainage. He contends that there are no functional, neurasthenic or neuralgic diseases, but holds that all diseases have an organic cause which usually can be found and often removed. Attention is directed to eyestrain as a commonly overlooked cause of intraabdominal derangements.

Medical Record, New York.

April 29.

8 *Multiple Myeloma (Kakler's Disease). J. Collins, New York.
9 *Let the Lungs Alone in Consumption. W. Hutchinson, Portland, Ore.
10 *Aerophagia and Flatulence. C. D. Spivak, Denver, Colo.
11 *Conduct of the Perineal Stage in Normal Labor. B. A. Fedde, Brooklyn, N. Y.
12 Case of Premature Separation of a Normally Situated Placenta. J. W. Robinson, Chicago.
13 Presentation of the Portrait of Dr. Fessenden Nott Otis to the Academy of Medicine of New York. L. B. Bangs, New York.

8. **Multiple Myeloma.**—For the purpose of showing that the occurrence of albumose in the urine is not pathognomonic of this affection, Collins cites a case in which repeated examinations of the urine failed to show albumose. A further point of interest in the anatomic side of the case was the extensiveness of the new growth, invading all the bones of the skeleton without the slightest indication of metastasis, although the disease had existed for over two years. Certain clinical features of the case are worthy of emphasis. In the first place, there was no deformity or alteration in the contour of the bones to be made out during life. Despite the fact that the substance of the bone was so largely replaced by new growth, and the existence of rarefying osteitis to a high degree, there were no indications that there had ever been fractures or dislocations. In the second place, the urine failed to show the albumose, as has already been mentioned.

9. **Let the Lungs Alone in Consumption.**—The reasons advanced by Hutchinson for letting the lungs alone in the treatment of consumption are: 1. Consumption, properly speaking, is not a disease of the lungs, but merely a local (pulmonary) expression of a disease which involves the entire system. 2. The lungs are practically beyond the reach of any known remedy. 3. In the vast majority of cases, so-called pulmonary gymnastics and the demands made by them on the lungs to expand beyond their natural limit, as is done in most methods where the air tension is artifically increased, as by breathing out against resistance, simply drive the infectious material into hitherto uninvaded areas of the lungs.

10. **Aerophagia and Flatulence.**—From a study of the literature and of his own cases, Spivak has arrived at the following conclusions: Swallowing of air in small quantities is a normal phenomenon. Abnormal swallowing of air may be voluntary (hysteria), and involuntary (dyspepsia, idiopathic). Air may enter the stomach by swallowing, aspiration, or gulping. Cases of aerophagia are not as rare as earlier writers used to think. Although this condition, as a rule, is a sequel to some other affection, yet when it is let alone it may, in its turn, produce grave symptoms and undermine the health. Aerophagia, tympanites, nervous eruptation,

pneumatosis, and merycism have an etiologic relationship. The best treatment in voluntary aerophagia is to impress the patient with the fact that he can stop it, if he will.

11. **Conduct of Perineal Stage in Normal Labor.**—Fedde describes a method devised by Dr. A. B. Davis to be employed in forceps cases. It consists in aresting the progress of the head by direct pressure when the biparietal diameter has passed the ischiopubic rami and before it has reached the rima pudendi; then, by gentle manipulations with the other hand—thumb and fingers on the opposite side of the vulva—slipping the labia first over the parietal eminences, then backward over the forehead and face without allowing the head to extend until it is fully delivered. By pressure back of the anus with the hypothenar eminence, the head meanwhile is maintained in flexion close under the pubis. In practice one receives the impression that tension actually diminishes with the progress of delivery. Chloroform is given during pains in the latter part of the second stage. When the head begins to distend the vulva, the patient is turned on her side with a pillow between the knees. Just before delivery, when the parietal eminences have passed the pubic rami, the chloroform is pushed to the point of cessation of pains, the head is steadied, and the vulva is slipped over the parietal eminences and the face, as described. Chloroform is then withdrawn, and the delivery is completed in the dorsal position.

Medical News, New York.

April 29.

14 Protest Against Radiologic Misinformation. H. G. Piffard, New York.
15 *Intramuscular Injections of Insoluble Preparations of Mercury in Syphilis. H. G. Klotz, New York.
16 Case of Syphilitic Pseudoparalysis. J. Sobel, New York.
17 *Two Cases of Gastrostomy with Examination of Stomach Walls by Means of the Cystoscope. R. E. Pick, New York.
18 *Continuous Current in Relation to Inflammatory Exudates. M. A. Cleaves, New York.
19 Rheumatism and the Eye Muscles. F. Valk, New York.

15. **Intramuscular Injections of Insoluble Mercury Preparations in Syphilis.**—Klotz repudiates the claims made by some enthusiasts that insoluble injections are likely to effect an entire and permanent cure of syphilis in the shortest time and with the minimum amount of mercury. He believes that in the insoluble injections we possess one of the most effective methods of bringing the organism infected with syphilis under the influence of mercury, a method, however, destined to supplement rather than to exclude other older methods. Up to the end of 1904 he has records of 2,500 injections made on 204 patients; 2,112 of the salicylate, 150 of the yellow oxid, 216 of calomel, and 3 of gray oil. The age of the patients ranged from 18 to 60 years. The number of injections varied from 1 to 42, sometimes distributed over three and four years. The usual dose was the entire contents of a syringe measuring exactly 1 c.c., representing 10 cgms. (one grain and a half) of the salt suspended in oil or liquid vaselin. The injections were given at intervals of one week, whenever symptoms of syphilis were present, up to their disappearance; then 2 to 4 injections were added at intervals of 10 to 14 days. Ordinarily not more than 10 injections were given continuously except when the intervals had been longer. Such a series was followed by an intermission of several months without any treatment, so that patients who were more or less exclusively treated by injections received 4 to 6 series of from 6 to 8 injections up to about the end of the second year. Under ordinary conditions this was considered sufficient treatment. So-called regular cases during the first two years are hardly available for any definite judgment of the value of a treatment, because a similar course of the disease may be observed with every method, and even occasionally without any treatment at all. In quite a number of the cases other methods were freely alternated with the insoluble injections. An intermission of several weeks or months, with iodids or quinin and other tonics, will render the patient better prepared for the renewal of mercurial treatment. In 129 cases the injections were made in the first two years after infection; in 15 in the third year; in 18 in the fourth and fifth years; in 22 between five and ten years; in 11 between between 10 and 15 years; in 4 between 20 and 30 years; in 9 the term of infection could not be ascertained. The manifestations which were the objects of treatment in these cases were periostitis, 3; gummata of extensor muscles of thigh, 1; gumma of scalp, 1; of lip, 2; lip and tongue, 4; gummatous processes of nose and palate, 6; in diffuse superficial ulcers of pharynx and palate, 3; tubercular syphilide, 13; gummatous ulcers of leg, 6, and of other regions, 4; gumma of the testicle, 2; cerebral syphilis 4. No pain results from the injection itself, if properly made, nor is there any flush around the needle puncture, nor inflammation of the skin. Patients with flat nates, flabby muscles and skin are not favorable subjects for the injections. The salicylate is the best salt to use. Abscess formation results but rarely, only 4 instances occurring in the 2,500 injections. The constitutional symptoms following the injections are slight and of short duration. The patient can attend to his business without inconvenience.

17. **Cystoscopy of Stomach.**—Pick reports two cases to show the value of this method of examination of the stomach. The patient does not eat any food for 6 hours preceding the examination, in the meantime washing his stomach thoroughly until the water returns absolutely clear; then his stomach is filled with water, and, with the patient lying flat on his back, the cystoscope is introduced. The paper is illustrated with photos of the interior of the stomach showing both the cardiac and the pyloric openings.

18. **Continuous Current in Relation to Inflammatory Exudates.**—Cleaves reports 7 cases showing the efficacy of the continuous current for dispelling inflammatory exudates.

Boston Medical and Surgical Journal.

April 27.

20 *Stricture of the Rectum: A Plastic Operation for the Relief of Certain Varieties. H. A. Lothrop, Boston.
21 *Chronic Gonorrheal Prostatitis. C. G. Cumston, Boston.
22 Employment of the Blind for Massage. N. B. Potter, New York.
23 Chronic Bronchitis in the Adult as Influenced by a Change of Climate. E. O. Otis, Boston.
24 Evolution and Tuberculosis. J. B. Huber, New York.

20. **Rectoplasty.**—A case of stricture of the rectum is cited by Lothrop for the purpose of describing an operation performed with a technic differing from any previously published. Under ether anesthesia, the sphincter ani muscles were dilated so as to cause temporary paralysis. A curved incision about three inches long, anterior to the anus and extending transversely across the perineum, was made. It was concave anteriorly and the extremities were near the openings of the ducts of Bartholin's glands. As in the operation for posterior colporrhaphy by the Tait method, the vaginal wall was dissected forward and upward for a distance of about three inches so as to expose the anterior wall of the rectum. The hemorrhage was very moderate. A steel bougie-aboule (French No. 18) was passed through the stricture and the tip could be felt through the rectal wall in front, thus giving an idea of the extent of the cicatricial mass. While the tip of this bougie was still above the stricture, it was directed so as to press the rectal wall into the wound. With a knife this tip was cut down on and the incision enlarged vertically one and one-half inches, so that the rectum above the stricture could be explored. Examination showed a uniform, circular constricting mass of fibrous tissue about three-quarters of an inch thick, forming a sort of diaphragm horizontaly across the lower portion of the rectum. The opening was situated in the anterior portion of the diaphragm. The bougie was not removed, but bent down in the form of a hook for the purpose of exerting traction. The vertical incision was then continued downward through the stricture, making a cut about two and one-half inches long. The margin of the stricture was slightly ulcerated. There was no sign of malignant disease, and the cicatricial tissue seemed to involve all the layers of the rectum. Working through this vertical incision, a second vertical incision, about two inches long, was made in the median line of the posterior wall of the rectum through the stricture. The rectal wall in the vicinity of this incision was freed. The upper and lower extremities of this posterior vertical incision were easily approximated so that the incision could be closed horizontally by the application of five sutures of No. 1 chromicized catgut. After this the anterior incision was closed in a similar manner in a horizontal plane. No feces appeared in

the rectum during these manipulations. From time to time the wound was irrigated with a warm saline solution. The rectum having been shut off from the perineal wound, this was closed as in the Tait method, first burying a continuous strand of chromicized catgut for the deeper regions. The external wound was then closed with six silkworm-gut sutures. On completion of the operation the caliber of the rectum at the site of stricture readily admitted three fingers. A rectal plug, four inches long, made by binding together three rubber drainage tubes with iodoform gauze and covering the whole with rubber dam, was inserted. The operation wound was such that no recto-vaginal fistula could follow, but, if the wound had suppurated, only what would correspond to a fistula in ano would have resulted. The operation lasted about one hour, and the patient rallied well. After operation the patient suffered no particular discomfort. The diet consisted of liquids, without milk, for two or three days, and this was increased gradually so that about eight days after operation the patient was on full diet. The rectal plug was removed on the fourth day, and the rectum irrigated with a warm boric acid solution. The small rubber tube was left in the rectum for a few days longer. On the fourteenth day the silkworm-gut sutures were removed. There was no swelling about the vulva or rectum. The stitches held perfectly and the wound healed without complication. Digital examination showed plainly two horizontal lines of sutures in the rectum. The bowels were kept quiet for one week, at the end of which time an oil enema was given, followed two hours later by a suds enema. After that date the patient was given regularly 10 minims of fluid extract of cascara, three times a day. This served to keep the bowels regular. Patient had complete control of the sphincter muscles and the formed movements were normal in size, a circumstance which had not obtained for a number of years. Patient had left the hospital about four weeks after entrance. Thirteen months after operation the patient is in excellent general health and suffers no local discomfort of any sort.

21. **Chronic Gonorrheal Prostatitis.**—The principal points in the treatment outlined by Cumston may be summed up as follows: First, dilate the strictures, especially those seated in the membranous urethra, proceding with delicacy so as never to cause hemorrhage. Second, rectal massage of the prostate for from three to five minutes. Third, have the patient urinate to wash out the prostatic urethra and thus to remove the secretions that the massage has caused to accumulate there. This is sufficient and is preferable to large irrigations of potassium permanganate which are dirty and often produce useless traumatisms. Fourth, instil 1 c.c. or 2 c.c. of a solution of silver nitrate (1 to 100 for the first few times and rapidly arriving at 1 to 50) into the prostatic urethra. The treatment should be carried out every other day, and the length of time that it must be kept up varies considerably, but, as a rule a cure can be accomplished in less than six or seven weeks. The results Cumston has obtained have been, on the whole, excellent, and 27 of the 32 cases thus treated have been absolutely cured. They have been closely followed for periods varying from eighth months to four years after all treatment had been stopped, and have been submitted on several occasions to the beer test, which has always remained negative.

New York Medical Journal, New York.

April 29.

25 *Nephropexy, pro and con. A. E. Gallant, New York.
26 *Gallstone Disease; Remote Effects and Treatment. S. P. Gerhard, Philadelphia.
27 Contribution to the Plastic Surgery of the Urethra. G. F. Lydston, Chicago.
28 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
29 Problem of Exterminating Mosquitoes; Discovery of Inaccessible Breeding Places. H. A. Eberle, Greensboro, S. C.
30 Primary Epithelioma of the Uvula, with Report of a Case Where Recurrence Took Place After Two Operations for Removal. H. Smith, New York.
31 Infection Through the Tonsils. W. S. Anderson, Detroit, Mich.
32 Modern Motherhood. T. Bannan, Syracuse, N. Y.

25. **Nephropexy.**—Gallant discusses the pros and cons of the performance of nephropexy. He says that the majority of clinicians now accept Glenard's theory that the movable kidney is merely an incident in the general ptosis, and symptoms referred to the kidney are much more likely to be the result of intestinal displacement, as is also the case in troubles caused by deformity or abnormal mobility of the spleen, liver or kidney, and dilatation of the stomach, and as the symptoms due to kidney mobility (Dietl's crises, with hydronephrosis, jaundice, or hematuria) can be differentiated by their acuteness, recurrence, and subsidence when the patient has been placed in the inclined dorsal position, and the kidney replaced; and, per contra, as the evidences of gastrointestinal displacement and disorders (gastritis, constipation, malnutrition, nervous instability, splashing sound, and distorted abdominal outline) are notable for their chronicity and rebelliousness to treatment, that nephropexy is justifiable on a displaced kidney after operation thereon, involving it or its pelvis or ureter, or to relieve hydronephrosis or hematuria from a non-replaceable kidney. Hepatopexy, splenectomy, gastroplication, gastrojejunostomy, and suture of the recti may occasionally be indicated. The main obstacle to nephropexy in women lies in the greater obliquity of the lower ribs, which prevent suturing the kidney high enough to avoid harmful compression by the ordinary corset and waistbands. Nephropexy is unjustifiable when, in order to place the sutures, it is necessary to drag the kidney farther down. Nephropexy may relieve the symptoms due to kidney mobility, but in order to overcome those caused by the general ptoses it has been necessary to adopt a new principle, viz., (a) gravity replacement by the semiopisthotonos posture; (b) support of the replaced viscera by a corset made to order from measurements taken while the woman is lying down, laced with two strings, inserted from above down, put on while in the inclined dorsal posture, and fastened in front from below upward. By this method the viscera can not prolapse while the corset is worn, and with this support nephropexy for replacing kidney, *per se*, is but rarely indicated, multiple operations can be avoided, and the patient can be placed under curable conditions.

26.—See abstract in THE JOURNAL, Feb. 18, 1905, page 571.

Lancet-Clinic, Cincinnati.

April 29.

33 *Piroplasmosis Hominis. P. M. Ashburn, Missoula, Mont.
34 Dermatologic Malingering. M. L. Heidingsfeld, Cincinnati.

33. **Piroplasmosis Hominis.**—Ashburn's article is a rearrangement of a report submitted to the Surgeon General of the Army, in July, 1904, and read before the Cincinnati Academy of Medicine in October of the same year, but not printed. It embraces all cases of "spotted fever" occurring in the Bitter Root Valley and the vicinity of Missoula, Montana, in 1904, and the conclusions drawn from their study.

St. Louis Medical Review, St. Louis, Mo.

April 22.

35 Gonorrheal Rheumatism. G. F. Lydston, Chicago.
36 Contribution to the Etiology of Nervous Affections. T. H. Evans, Philadelphia.

Interstate Medical Journal, St. Louis.

April.

37 Review of Methylene Blue Eosin Blood Stain; Report of Some Modifications in Method of Preparation. G. C. Crandall, St. Louis.
38 Amputation Neuromata; Report of Three Cases. T. H. Manley, New York.
39 Indifference to Diagnosis One of the Dangers of Modern Surgery. J. Block, Kansas City.

California State Journal of Medicine, San Francisco.

April.

40 Consideration of Congenital Dislocation of the Hip. H. M. Sherman, San Francisco.
41 Report on an Epidemic of Diphtheria. R. L. Wilbur, Stanford University.
42 Postoperative Ventral Hernia—Its Causes and Prevention. C. G. Bull, Alameda.
43 Etiology of Locomotor Ataxia. J. O. Hirschfelder, San Francisco.
44 Acute Delirium. H. E. Sanderson, Stockton.
45 Uncinariasis; Report of Seven Cases. H. Gunn, San Francisco.

Archives of Otology, New York.

April.

46 Distribution of Blood Vessels in the Labyrinth of the Ear of the Sheep and the Calf. G. E. Shambaugh, Chicago.
47 Anatomy of the Child's Ear, Emphasizing Points of Practical Importance. W. S. Bryant, New York.
48 The Pathology of the Infant's Ear Underlying Aural and General Disease. J. A. Kenefick, New York.
49 Otitis Media in Children. A. Jacobi, New York.
50 Operative Treatment of Diseases of the Ear in Childhood. E. B. Dench, New York.

Brooklyn Medical Journal.

April.

51 High Rectal Cancer. C. Jewett.
52 Cardiac Status in Renal Disease. J. M. Van Cott.
53 Report of Present Condition of Cases Operated on for Congenital Dislocation of Hip. C. D. Napier.
54 Conservatism and Radicalism in the Practice of Medicine. E. E. Cornwall.
55 Case of Epithelioma of External Auditory Canal, Tympanic Cavity and Mastoid. B. C. Collins.
56 Elephantiasis of the Scrotum. W. F. Campbell.
57 Case of Hysterical Aphasia and Paralysis. L. G. Kerr.

Memphis Medical Monthly.

April.

58 Greatly Increased Frequency of the Occurrence of Abortion, as Shown by Reports from Memphis Physicians. J. L. Andrews, Memphis.
59 Cholelithiasis. J. A. Crisler, Memphis.
60 Pyelitis. M. Goltman, Memphis.
61 Mitral and Aortic Incompetency, with Special Reference to Therapeusis. R. N. Greene, Greenville, Fla.
62 Pleurisy Complicating Pneumonia. O. S. McCown, Memphis.
63 Cesarean Section Complicated by Rupture of the Uterus; Recovery of Mother and Delivery of Living Child. B. C. McMahon, New York City.

Iowa Medical Journal, Des Moines, Iowa.

April 15.

64 Introduction of Soft Rubber Tube in Intestine Through the Stomach for Medical and Surgical Purposes. W. J. Latta, Des Moines.
65 Treatment of Diphtheria. E. F. Cowger, Riverton.
66 Physician's Duty. C. A. Boice, Washington, Iowa.
67 Emphysema. W. W. Hunter, Monticello.
68 Use of a Solution of Adrenalin Chlorid in Oil in the Acute Forms of Rhinitis and Laryngitis. J. M. Brown, Chicago.

Archives of Pediatrics, New York.

April.

69 Work of the Babies' Wards of the New York Postgraduate Hospital for Convalescent Children. H. D. Chapin, New York.
70 Primary Adenosarcoma of the Liver in a Child of Nine Months. L. E. Holt, New York.
71 Congenital Obliteration of the Bile Ducts. J. P. C. Griffith, Philadelphia.
72 Sclerema Neonatorum; Report of a Case with Complete Recovery. J. Sobel, New York.
73 Errors in Diet as a Cause of Infantile Diarrhea. St. G. T. Grinnan, Richmond.

Wisconsin Medical Journal, Milwaukee.

April.

74 "Radio-Activity." The Therapeutic Result We May Expect at Its Present Stage of Development. William Sickles, Milwaukee.
75 Complete Diagnosis. E. Evans, La Crosse.
76 Anatomic Anomalies Encountered in Abdominal Operations. H. Reineking, Milwaukee.
77 Remarks on Pneumonia. F. W. Epley, New Richmond, Wis.
78 General Practice in Northern Wisconsin. J. P. Cox, Spooner, Wis.

Journal of Medicine and Science, Portland, Me.

April.

79 Thermometers and the Measurement of Temperature. A. L. Clark.
80 Weather Forecasting. H. I. Allen.
81 Panama Canal Mismanagement. C. A. L. Reed.

Canadian Journal of Medicine and Surgery, Toronto.

May.

82 Treatment of Tuberculosis in Ontario. J. H. Elliott, Gravenhurst, Ontario.
83 Case of Multiple Sebaceous Cysts. A. McPhedran, Toronto.

Medical Fortnightly, St. Louis.

April 25.

84 Why Quackery Thrives. R. W. Wilcox, New York.
85 Duty of the Medical Expert to the Individual and to the State. R. B. H. Gradwohl, St. Louis.
86 Relation of Man to Nature (a Study Prompted by "Testimonies of the Sepulchres"). A. S. Ashmead, New York.
87 Anatomic Eponyms. R. S. Gregg, Chicago.

Virginia Medical Semi-Monthly, Richmond, Va.

April 21.

88 Case of Extensive Embolic Gangrene: With Remarks on the Indications for Multiple Amputations of the Extremities. M. H. Richardson, Boston, Mass.
89 Immediate Repair of Lacerations of Cervix. E. McGuire, Richmond, Va.
90 Circumcision—Its Technique, Anesthesia, Operation, After-Treatment and Report of Cases. E. A. Timmons, Columbia, Tenn.
91 Asthma. J. G. Nelson, Richmond, Va.
92 Case of Multiple Perforations of Stomach, Mesentery and Intestines, with Recovery. J. E. Cannaday, Paint Creek, W. Va.
93 Contract Doctor. G. A. Hogan, Bessemer, Ala.

Dominion Medical Monthly, Toronto.

April.

94 Cocaine Anesthesia. I. Olmsted, Hamilton, Ontario.
95 Lympho-Sarcoma. B. Milner.
96 Case of Hysterectomy for Fibroid of the Uterus; Recovery. A. L. Smith, Montreal.

New Orleans Medical and Surgical Journal.

May.

97 Plasmodium Malariæ Outside the Body of Man. C. D. Simmons, Baton Rouge, La.
98 Salient Points in the Morbid Psychology of Maniacal States. E. M. Hummel, Jackson, La.
99 Influenza; Complications, Sequelæ and Treatment. B. O. LeBlanc, St. Gabriel, La.
100 Beta-Naphthol in Uncinariasis. E. M. Dupaquier.
101 Case of Hysterical Arthralgia or Brodie's Joint. F. W. Parham.

Woman's Medical Journal, Toledo, Ohio.

April.

102 Exencephalus; Report of Case. M. M. S. Johnstone, Chicago.
103 "The Woman Physician." L. H. Branson.
104 Case of Achondroplasis and One of Sublingual Tumor in Baby of Eleven Months. H. Michael, Chicago.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

April 15.

1 *Treatment of Empyema. J. H. Pringle, Glasgow.
2 Contribution to the Treatment of Chronic Empyema. O. Grunbaum, London.
3 *Iron Acetate in Treatment of Pneumonia. H. J. Robson, Leeds.
4 New Methods of Studying Affections of the Heart. J. MacKenzie, Burnley.
5 Case of Purulent Pericarditis in an Infant; Operation; Death. J. A. Coutts and R. P. Rowlands, London.
6 Hepatic Factor in Biliousness. F. Hare, Queensland.
7 Closure of Traumatic Defects of the Skull. C. L. Green, Birmingham.

1. Treatment of Chronic Empyema.—The treatment advocated by Gruenbaum consists in the application of a negative pressure to the pleural cavity for several hours every day. The development of a negative pressure of 10 to 15 mm. Hg can be easily maintained by inexpensive apparatus. In selecting the pump, it must be remembered that there may be a slight leak at the chest wall, so that it is wise to choose a pump which will remove considerable quantities of air, and not one which is designed to develop a perfect vacuum. For this reason Fischer's filter pump is almost ideal, because the regulation of the negative pressure developed is easily carried out by altering the length of the tube used, and that form of pump requires very little water—less than half a gallon an hour—and thereby gives but little trouble. It would not be wise to connect the pump direct with the empyema, for two reasons—(1) if anything should go wrong with the pump, water would pass into the cavity; (2) if there were much discharge, the pump would become dirty and would refuse to act. A large bottle is connected between the pump and the chest, and this is partially filled with carbolic lotion; by placing the bottle on a higher level than the pump, it is found that even when the water is flowing extremely slowly, respiratory movements do not lead to sufficient alteration in pressure to draw the water into it. A negative pressure of 80 mm. Hg is used in adult cases, and this is accomplished by having a fall of nearly 2 meters. Since the apparatus described above, although possessing the advantage of costing less than ten shillings, nevertheless labors from the disadvantage of requiring a slight amount of attention, it was thought worth while to devise one that would work without any attention at all. A small exhaust pump of about 16 c. cm. capacity was run by a small electric motor; with this arrangement it is necessary to place a valve in the system to prevent too great a negative pressure being developed. The arrangement which was adopted consisted in connecting the pump with a large wide-mouthed bottle, through the cork of which three tubes passed. One of these was connected with the pump, one with the chest, and the third was open above, but inside the bottle passed into a cylinder containing mercury. The depth of the mercury was over 15 cm., the tube could be drawn up so that the distance of the end from the surface of the mercury could be adjusted with ease. It is necessary for the cylinder to be at least 2 centimeters in diameter, because air bubbling through mercury agitates it so greatly that if a small cylinder be used the mercury would be thrown out of it; gauze should be tied over the top of the cylinder. The negative pressure de-

veloped depends on the depth of the opening of the tube below the surface of the mercury and efficiently prevents a dangerous exhaust being established. The treatment is painless; usually the pulse rate is slightly accelerated, but that may be due to the excitement of having the apparatus by the bedside. The advantages which may be claimed for this treatment are two: The negative pressure tends to expand the lung without necessarily causing emphysema of the other lung, which may be expected from the use of James's bottles. 2. The negative pressure produces a hyperemia of the tissues of the pleural cavity, which probably increases their local resistance.

3. **Iron Acetate in Pneumonia.**—For the last seven years Robson has treated all cases of pneumonia—whether bronchopneumonia or lobar pneumonia—by iron acetate, and severe cases by alternate doses of iron acetate and strychinin, with surprisingly good results. The prescriptions used are:

℞. Liquor ferri perchlor. .....m. xv 1
Liquor ammon. acetat.....3ii 8
Aq. chloroformi ad.....℥ss 16

Sig., No. 1: Take every 4 hours in water when given alone; take every 6 hours alternately with the strychnin mist. when this latter is needed. (It is administered every 6 hours until the patient is well over the crisis; then it is given every 8 hours, and later every 12 hours alternately with the strychnin.

℞. Liquor strychninæ .....m. v 3
Aq. chloroformi ad.....℥ss 16

Sig. No. 2: Take every 6 hours in water alternately with the ferri mist. and as above stated (in severe cases only).

℞. Pine oil, for dry inhalation on a clean handkerchief.

Alcohol is seldom given until toward or after the crisis, and often it is not required at all, and then only as the pulse or condition of the patient directs. Oxygen is seldom required, but when it is given it is administered "warm," being either gently blown into the patient's mouth and nose at a temperature of 90 degrees or 95 degrees F., at which temperature there is no cold draft or feeling of cold, or inhaled directly at a temperature of 65 degrees F. from an oxygen warmer. Quinin is never given. Digitalis seems seldom needed if the treatment by iron acetate is adopted early. Antipyretics of the coal-tar series are carefully avoided. Tepid sponging or the cold pack is resorted to for lowering a high temperature; though under the above treatment it seems to be seldom required. The temperature of the bedroom is kept at 63 degrees F., and free ventilation is encouraged. For pleuritic pain an occasional mustard leaf and a flannel binder, carefully applied round the chest, are resorted to. If these fail to relieve the pain, a small dose of morphin is given. Systematic poulticing is condemned. The treatment by this alternate administration of iron and strychnin (where the latter is called for) seems to be particularly useful under the following conditions:

1. Cases of severe bronchopneumonia in infants or children, and in catarrhal and lobar pneumonia in debilitated subjects. 2. Where one has not two properly trained nurses for night and day respectively, as by the regular administration of the strychnin through the night as well as through the day, the heart action is kept up, and the danger of heart failure at the crisis is very much lessened. 3. In the infectious, creeping, and spreading form of pneumonia which follows influenza. 4. The crisis is hastened and favorably modified, the virulence of the disease is lessened, and the complication of emphysema seldom occurs. 5. Even when bronchitis is present, there seldom is need to order depressing drugs like ipecacuanha, as the iron acetate seems to act as a good expectorant.

The Lancet, London.

April 15.

8 *Cure of Cancer. E. Owen.
9 Cyllin Inhalant. E. Klein.
10 Relationship Between Dental and Other Diseases. R. D. Pedley.
11 *Tetanus Successfully Treated with Antitetanic Serum and Curare. E. Collins, London.
12 *Investigation into the Causations of Puerperal Infections. A. G. R. Foulerton, England.
13 Nature of Diabetes Mellitus. W. C. Bosanquet.
14 Dissemination of Mammary Carcinoma. W. T. Handley..

8. **Cure of Cancer.**—Answering the question, is a surgeon ever justified in claiming that he has cured a patient of cancer, Owen says that at present "no sign of return" is as much as a surgeon is justified in claiming as the best result of his treatment of cancer. He cites one case of cancer of the breast that was operated on by him for the last time in 1879. The patient is still living, enjoys perfect health, and there has never been any return of the disease.

11. **Antitetanic Serums and Curare in Tetanus.**—The case reported by Collins received 70 c.c. of antitetanic serum within 48 hours, and 20 grs. of chloral hydrate and potassium bromid every 4 hours, without any improvement in his condition. Two days later one-twelfth grain of curare was injected hypodermically into the forearm; repeated 8 hours later, and again on the following day, the dose being gradually increased to one-half a grain. The curare was given for about a week. For 4 days the patient was given 20 grains each of chloral hydrate and potassium bromid every 4 hours. For the next 5 days, the dose of each was decreased to 10 grains, when it was again increased to 20 grains. Collins says that after removing the site of inoculation, antitetanic serum should be injected under the skin of the abdomen in large doses (from 20 to 30 cubic centimeters) and repeated daily for a week or ten days. Theoretically, this should neutralize the poison already absorbed into the system; anyhow, it is the only means which we have of achieving that object, and large doses cause no ill-effects. He cannot conceive that curare has a direct action on the specific poison, but it has some influence in diminishing the severity of the clonic tetanic spasms by paralysing the nerve endings. It should be injected hypodermically, morning and evening, commencing with one-sixth of a grain and gradually increasing the dose, according to the severity of the spasms, to one grain. Chloral hydrate and potassium bromid (20 or 30 grains of each every four or six hours) are the most likely drugs to give beneficial results in producing sleep and relieving the irritability of the motor nerve cells in the brain and the spinal cord. Other details in the treatment of tetanus, such as absolute quiet in a darkened room, the administration of chloroform for relieving severe tetanic convulsions of for passing the feeding tube or catheter, and the choice of suitable aperients, need no comment.

12. **Puerperal Infections.**—Foulerton and Bonney conclude the results of their investigations into the causation of puerperal infections. They are of the opinion that the old classification of cases of peurperal fever into sapremic, septicemic, and pyemic has but little value; a comparison of clinical observations with bacteriological findings shows that it is practically impossible to distinguish between cases of septicemia which are, for the time, of a mild type and cases of "sapremia," using the latter term in the sense in which it was formerly used in this connection, and bacteriologically the distinction between a case of septicemia and one of "sapremia," or toxemia, as it is now termed, is often extremely indefinite. While no really useful, and at the same time concise, scheme for the classification of a class of diseases presenting the variety of features which is presented in puerperal fevers is practicable, the following scheme at any rate indicates the main pathologic processes concerned in the production of the symptoms of these infections: I. Infection of lacerations of the perineal tissues or of the vaginal wall (sometimes with direct extension by contiguity of surface to the cavity of the uterus). 1. Localized infection plus toxemia. 2. Localized infection plus toxemia, plus generalized infection. II. Primary infection of the contents of the uterus or of the placental site. 1. Localized infection plus toxemia. 2. Localized infection plus toxemia plus generalized infection. The chief point which presents itself among the results of their investigation is the predominating importance of streptococcic infection in the causation of puerperal fevers. The next most important organism was micrococcus pneumonia. Infection by various strains of streptococci or by micrococcus pneumonia was present in 33 out of 40 cases of severe puerperal fever, and these organisms may be held responsible for 13 out of the 14 deaths which occurred. Between streptococci generally and micrococcus pneumonia there are such close affinities with respect to pathogenic action that, apart from the question of specific antitoxic serum treatment, the same general treatment may be regarded as applicable to either. As a general rule, in the absence of a

definite bacteriologic diagnosis, the safe course for the practitioner to adopt is to deal with every case of puerperal fever in which the temperature rises above 102 degrees F. as if it were a case of streptococcic infection. For serum treatment to be applied with any reasonable hope of success under present conditions a polyvalent or compound serum from a horse immunized against the various strains of streptococcus which are met with in puerperal infections is necessary. The authors believe that by the use of such a compound antistreptococcic serum, recently obtained from the horse and used in sufficiently large doses, a considerable reduction in the mortality caused by streptococcic puerperal fever could be affected. In the case of either a streptococcic or pneumococcic infection of the uterus, with or without secondary infection by other bacteria, curettage would seem on the one hand to be incapable of doing any good, and on the other hand might be productive of most serious results by infecting the hitherto intact deeper tissues of the uterine wall. Nor is it probable that in cases in which the uterus is invaded by bacteria which, unlike the streptococcic and micrococcus pneumonia, have little tendency to infect the deeper layers of the uterine tissues, the operation is likely to effect any definite good by removing all infection, however thoroughly the curettage may be carried out. Therefore, the use of the curette should be absolutely discarded in the treatment of peurperal uterine infection. The best local treatment to adopt is that which is now commonly carried out in Great Britain at the onset of puerperal fever—digital exploration of the uterus, the removal in this way of any retained fragments and subsequent douching of the cavity of the uterus with an antiseptic solution. A clinical fact of some importance is that, although invasion of the uterus by streptococci is marked by a sharp rise of temperature and other symptoms of same severity, the fever may be transient, subsiding within 48 hours without any special treatment. This fact is one that may be useful when tracing the conveyance of infection in puerperal cases. As to preventive measures which can be taken against the risk of auto-infection, more especially the use of vaginal douching with antiseptic solutions before the commencement of labor, the procedure is generally a useless one, but, at the same time, the objection which has been urged against it, that by means of it bacteria may be conveyed from the vulva to the upper part of the vagina, appears to be without good foundation.

Bulletin de l'Académie de Médecine, Paris.

Last indexed page 1320.

15 (Year LXIX, No. 12.) *Ankylostomiase. Calmette and Breton.
16 Maladies endémiques, epidémiques et contagieuses qui ont régné dans les Colonies françaises en 1903. Kermorgant.
17 (No. 13.) *Diabète et la cure arsénicale. Verdalle.
18 Variations de l'astigmie cornéenne avec l'age. F. Lagrange.
19 *La poussière des routes (dust on highways). A. Josias and Guglielminetti.
20 Discussion sur la paralysie générale de la syphilis. Motet, Cornil and Fournier. See abstract page 1320.

15. **Experimental Ankylostomiasis.**—Calmette reports that he has succeeded in infesting young dogs with the human and the canine ankylostomata by way of the skin. The eggs were found in the dejecta in a few weeks. The same parasites given by way of the mouth or injected into the eye failed to produce infection when of human origin. The canine parasites propagated after ingestion by the mouth. The skin is, therefore, a mode of entry for this parasite, at least in dogs.

17. **Mineral Waters in Diabetes.**—Verdalle presents evidence to demonstrate that certain forms of diabetes are particularly amenable to arsenical waters, especially to those of La Bourboule. The variety of diabetes to which he refers is that accompanied by hypertrophy of the liver and hyperfunction of this organ. He relates a number of convincing instances.

19. **To Prevent Dust on Highways.**—Josias discusses the various attempts that have been made to prevent dust on highways. The petroleum products have not proved satisfactory, he says, and westrumite is not effectual, according to Cristiani and Michelis' recent tests. Automobile makers, he says, should study to prevent the raising of dust; the escapement should not point downward, the tires should be full, and the under part of the frame should be smooth. The ideal would be to have the body egg shaped, sloping up toward the back.

Presse Médicale, Paris.

Last indexed page 1407.

21 (No. 19.) *L'habitation coloniale. J. D. Anfreville (St. Louis, Senegal).
22 Le rôle du réflexe oesophago-salivaire dans la déglutition. H. Roger.
23 Adéno-phlegmons iliaques et pelviens consécutifs aux lymphangites du membre inférieur. M. Savariaud.
24 Histoire d'un epithélioma palpébral. A. Trousseau.
25 (No. 20.) Air confiné et tuberculose. R. Brunon.
26 L'examen clinique du détroit supérieur (of inlet). V. Bué.
27 (No. 21.) Campaign Against Ankylostomiasis in Germany.—La lutte contre l'ankylostomiase en Allemagne. E. Fuster.
29 (No. 22.) Le vernix caseosa. L'hérédo-séborrhée et l'acné foetales. L. Jacquet et Rondeau.
29 De l'atrophie optique tabétique. F. Terrien.
30 (No. 23.) *Rupture de l'aorte. Ch. Achard et G. Paisseau.
31 High-Frequency Currents and Hemorrhoids.—Courants de hautes fréquences et hémorroides. Delherm et Laquerrière.
32 (No. 24.) J. P. Pawlow. J. P. Langlois.
33 Le centenaire de Manuel Garcia, inventeur du laryngoscope. M. Lermoyez.
34 L'artérite aigue rhumatismale. E. Barié.

21. **Houses in the Tropics.**—D'Anfreville writes that in Senegal it is now a law that every one planning to build must consult with a medical hygienist. He gives plans for the ideal home in the tropics, preferring a rectangle, the partitions running across the house, which is only one large room deep, the length divided into three rooms. The glass doors opening on the veranda, which encircles the house, are all opposite each other, with doors in the middle of each end of the house, with doors in the partitions opposite them. This allows a sweep of air through each room from end to end and from side to side. The roof should be in two parts, one overlapping the other, with an air space between and also between the sloping roof and the flat ceiling of the rooms. He advises a single story, and urges the use of native bricks, made hollow, and nearly eight by twelve inches square. This makes a very light and thick wall. Wood should be the last resort for a building material in the tropics. All exposed surfaces should be painted or varnished in some light color. The kitchen and privies should be at a distance from the house. The space around the house should be kept free of trees, but at a little distance a few scattered trees, carefully chosen, eucalyptus, filaos and tamarinds, will give shade without interrupting the circulation of air. Heavy foliaged trees should be avoided, and the stables should be as far from the house as possible.

30. **Rupture of Aorta.**—Achard describes the case of a man of 44 who was suddenly seized while at the dinner table with distress and dyspnea. The symptoms moderated, but he said he felt as if "he had a clot of blood in his throat." There was no hemoptysis. He passed a restless night, rising several times to drink large quantities of water. He rose early on account of increasing dyspnea, and after sitting quietly in a chair fell unconscious and died in a few minutes. A slit was found in the aorta, and the left pleural cavity was full of blood. The man had been a wrestler and acrobat, a hard drinker, but had settled down as a photographer about a year before. Achard reviews the similar cases in the literature. Atheroma is generally noted on the ruptured artery, but not always at the point of the rupture.

Semaine Médicale, Paris.

35 (XXV, No. 12.) *La rétention chlorurée sèche (retention of salt without tendency to effusion). L. Ambard and E. Beaujard.

35. **Retention of Chlorids Without Fluids.**—Ambard and Beaujard quote with approval Chrestien's saying: "Milk or death," when speaking of interstitial nephritis. But they modify it by substituting "hyposalt régime" or salt starvation in place of milk alone. They emphasize, further, that this deprivation of salt can not be temporary, but must be kept up indefinitely. They relate in detail a number of case-reports with curves, showing retention of chlorids and the effect of a salt-free diet without any variation in the weight, that is, without any corresponding increase or loss in the fluids of the body. This "dry retention of chlorids" is observed in certain cases of interstitial nephritis, while epithelial nephritis is accompanied by retention of fluids also. In epithelial nephritis the retention of chlorids is generally proportional to the amount of the chlorids ingested, and is accompanied by edema, while in interstitial nephritis the retention of chlorids usually follows ingestion of extra amounts, and

later the chlorid saturation is relieved by elimination of the ingested salt in a flood. There is the closest connection between the clinical signs and the retention of salt, or "chloridation" as the French call it. This is the cause of the permanently high arterial tension in nephritis. Every individual reacts with vasoconstriction and hypertension to effort and pain. The subject with Bright's disease, however, instead of reacting moderately like the healthy subject, has his vasoconstrictors forever on the defensive with an extraordinarily vigorous heart. All other causes of hypertension induce a transient reaction, but retention of salt induces a permanent hypertension if the vascular system is capable of responding with any reaction. Other symptoms of interstitial nephritis are influenced likewise by retention of salt. The headache is unmistakably affected by it. In a number of cases of interstitial nephritis the writers were able to produce and to banish at will a very severe pulsating headache as also dyspnea by "chloridation' or "dechloridation." The dyspnea is alimentary, but the salt is the exclusive cause. Polyuria is not observed in interstitial nephritis, except when salt food is being ingested or large quantities of fluids to disguise the taste of milk, or when there is an extraordinary large output of salt. The polyuria disappears if such subjects are put on a salt-free diet, although allowed to drink at will. Dry retention of the chlorids is liable to entail a supersaturation of the tissues with salt. In interstitial nephritis the chlorid test of the permeability of the kidneys is not reliable when based on increased intake of chlorids, but only when based on total deprivation. In the functionally, if not anatomically, curable stage the diet should be free from salt. This hypochlorid diet, supplemented by theobromin, purgation and temporary rest in bed, is the treatment *par excellence* of the retention of chlorids, and of the headache, dyspnea and arterial hypertension. It may not be able to restore the latter entirely to normal, but it reduces it within reasonable limits. Experience has shown that the tendency to retention of chlorids, once acquired, is liable to persist permanently, and hence the salt-free diet is required indefinitely to ward off this impending contingency.

Archiv f. Gynäkologie, Berlin.

Last indexed page 1488.

36 (LXXIV, No. 3.) Behavior of Vessels in Tubal Pregnancy.—Gefässe bei Eileiterschwangerschaft. Autothrombose. O. O. Fellner.
37 Nursing Capacity.—Stillvermögen. G. Martin.
38 *Ueber den Riesenwuchs der Neonatorum (giant growth). Jacoby.
39 *Childbirth in Case of Giant Growth and Duration of Human Pregnancy.—Ueber Geburten bezw. Spätgeburten bei Riesenwuchs der Kinder und über die Dauer der menschlichen Schwangerschaft. E. Starcke.
40 Deciduale Zellbildungen am Wurmfortsatz bei Tubenschwangerschaft (Periappendicitis decidualis). A. Hirschberg.
41 Kurze Uebersicht über 1000 von Prof. Fenomenoff ausgeführte Laparotomien. E. V. Podhoretzky.
42 Ueber Verkalkung in den Fimbrien der Tuben (calcification). G. A. Wagner.

38 and 39. **Giant Growth of the Newborn.**—Jacoby states that 5.87 per cent. of 6,976 children born at the Mannheim maternity weighed 4,000 gm. and over. The minimum duration of pregnancy with these large children was 247 days and the maximum 349. Artificial premature delivery is the best measure to prevent injury from delivery of extra large children. He discusses the various aspects of giant growth of the fetus, comparing the data from several clinics.

Starcke reports from Leopold's clinic at Dresden that 3.43 per cent. of 34,000 newborn children weighed 4,000 gm. and over. The list includes 16 children who weighed 5,000 gm. and over, and 7 of this group were spontaneously delivered. About 10 per cent. were born dead or did not survive the delivery. The duration of the pregnancy was not extraordinarily long except in .257 per cent. The German law accepts 302 days as the maximum.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed page 992.

43 (LXXV, No. 3.) *Beitrag zur akuten Erkrankung der Bauchspeicheldrüse (pancreatitis). Nobe.
44 Klinische und experimentelle Beiträge betreffend das Aneurysma arteriovenosum. Franz.
45 Zur Casuistik der Finger-Tumoren. F. A. Suter.
46 Zur Aetiologie und pathologischen Anatomie der Coxa vara. A. Schlesinger.
47 *Erfahrungen über Friedensschussverletzungen (bullet wounds). M. Kromer.
48 *Nerves of Abdominal Cavity.—Ueber die Nerven der Bauchhöhle, insbes. den Plexus coeliacus und ihren event. Einfluss auf die Pulsfrequenz bei Peritonitis. H. Strehl.
49 Toxic Action of Chloroform on Kidneys of Rats, Guinea-pigs and Rabbits.—Experimenteller Beitrag zur toxischen Wirkung des Chloroforms auf die Nieren. Offergeld.
50 (No. 4.) Ein Wort für die radicale operative Behandlung des chronischen Magengeschwürs (gastric ulcer). A. Krogius.
51 Hemolytic Phenomena After Burns.—Ueber Art und Ursache der nach ausgedehnten Verbrennungen auftretenden hämolytischen Erscheinungen. Burkhardt.
52 Functional Kidney Tests.—Ueber die Methoden vor den Nierenoperationen die physiologische Leistungsfähigkeit der Nieren zu bestimmen. T. Rovsing.
53 Fatty Metamorphosis in Internal Organs After Use of Anesthetics.—Ueber Fettmetamorphose in den inneren parenchymatosen lebenswichtigen Organen nach einfachen und Mischnarkosen. B. Müller.
54 Ileus from Adhesions in Suppurative Appendicitis.—Ueber Adhäsionsileus im Verlauf einer eitrigen Perityphlitis. Federmann.
55 Lacerations of Liver.—Ueber Leberzerreissungen. Rammstedt.
56 Ein Fall von Chyluscyste (chyle cyst). J. Speckert.

43. **Acute Pancreatitis.**—Nobe reports from the Braunschweig Hospital 2 cases of acute pancreatitis cured by operation. The first was accompanied by diffuse peritonitis, but there was no fat necrosis of the pancreas. After the operation and tamponing, a fistula developed which required eight weeks for its complete healing. In the other case the pancreatitis caused the development of an encapsulated exudate, and large fragments of necrotic pancreas tissue were thrown off. The first patient was a housemaid 18 years old, the second, a stoker of 64. Both are in good health at present.

47. **Bullet Wounds in Peace.**—The Urban Hospital at Berlin has had occasion to care for 150 firearm wounds during the last ten years. This experience is reviewed in Kromer's article. The head was injured in 54 cases, the breast in 42, the abdomen in 16, and the limbs in 33. The cases treated by laparotomy are each summarized.

48. **Nerves of Abdominal Cavity.**—Strehl removed the celiac ganglion in 22 cats and found that the only appreciable result was the acceleration of the movements of the intestines. Diarrhea was the rule afterward, with corresponding loss of weight and strength. He ascribes the diarrhea to the exclusion of inhibiting control of the intestinal movements from centers in the brain or spinal cord. The normal regulating inhibition is lacking, while the tonicity of the ganglia in the intestinal walls is permanently increased. The intestines were found always in contraction when the animals were killed. Further experiments, in which the vagi were also severed in addition, resulted negatively.

Berliner klinische Wochenschrift.

57 (XLII, No. 12, March 20.) *Etiology of Cancer.—Was wissen wir über die Ursache der bösartigen Geschwülste? v. Hansemann.
58 *Function of Sebaceous Glands and Their Relation to Fat Metabolism.—Ueber die Funktion der Talgdrüsen und deren Beziehung zum Fettstoffwechsel. A. Buschke.
59 *Influence of Alcohol on Changes in Pupillary Reaction.—Ueber die Wirkung des Alkohols auf die Veränderung der Pupillenreaktion. H. Vogt.
60 *Ueber Rectal-Gonorrhoe bei Vulvovaginitis infantum. K. Flügel.
61 *Die Morphologie der Krebse und die parasitäre Theorie (cancer). J. Orth.
62 *Reciprocal Actions Between Diabetes and Surgical Interventions.—Ueber Wechselwirkungen zwischen Diabetes und chirurgischen Eingriffen. Karewski. (Concluded.)
63 Latest Research on Origin and Treatment of Myopia.—Entstehung und Behandlung der Kurzsichtigkeit. Helbron.

57 and 61. **Etiology of Cancer.**—This address by von Hansemann on "What do we know in regard to the cause of malignant tumors" was summarized in the Berlin letter on page 1207, as also Orth's address which follows.

58. **Functions of Sebaceous Glands.**—Buschke has been making a study of the functions of the Meibomian glands in healthy guinea-pigs. He found that subcutaneous injection of a 1 per cent. aqueous solution of physostygmin salicylate caused a remarkable increase in the secretions of these glands. Within one to four hours a milky fluid could be seen accumulating at the edge of the lids or pouring in a stream from the outlets of the ducts. Study of the secretion has convinced him that the sebaceous glands secrete fat and that the destruction of the cell is essentially a secondary process. Tests with oil of sesamum confirmed the possibility that, under particularly favorable conditions, fat from the food may be excreted through these glands.

59. **Pupil Reaction Under Influence of Alcohol.**—Cramer's research has confirmed the results obtained by others, namely, that all the reflexes are more or less affected by acute alcohol intoxication, with the exception of the pupil reflex. This is not affected in the normal human subject. In degenerates, on the contrary, the pupil reflex is liable to be notably affected, even by a single, small dose of alcohol. Persons who respond with this modification in the pupil reflex under these circumstances can be regarded as very unstable and liable to react even to a small dose of alcohol with criminal tendencies. In a third of the tests the pupil reaction occurred with remarkable sluggishness under the influence of the test dose of 40 c.c. rum in a glass of hot water. In the other cases no effect was apparent, although conditions apparently favored it. Arteriosclerotic subjects presented the phenomenon in an intenser degree, and some writers have stated that it was also evident in persons addicted to alcohol, otherwise apparently healthy. The modification in the pupil reflex is probably due to the inhibiting influence of the alcohol on the brain.

60. **Rectal Gonorrhea with Vulvovaginitis.**—Flügel states that in 20 per cent. of 56 children with gonorrheal vulvovaginitis, the rectum was involved in the morbid process. The conditions are less favorable than in the vagina, and consequently the affection yielded to treatment more readily, the cocci vanishing from the rectum while they were still lingering in the vagina. The possibility of involvement of the rectum should never be overlooked in case of gonorrhea in children.

62. **Surgery in Diabetics.**—Karewski reviews the various operations and their contraindications in diabetics. In inflammatory and gangrenous processes he advises excision instead of incision, operating in sound tissue. Sometimes coma comes on after mere incision. He has had 5 such cases but saved one by prompt extirpation of the focus. Already established coma, therefore, is no contraindication to operation. As a rule, it is wiser to reduce the sugar and raise the patient's resisting powers before attempting intervention, except in case of cancer. He has had one patient recover out of 3 operated on for removal of a cancer of the rectum. An artificial anus is advisable in certain cases, especially in those in which the tumor is operable, but the patient's general condition forbids its removal. The conditions are far more favorable for extirpation of a cancer of the large intestine or stomach, as asepsis can be maintained. Boas recommends resection of the bowel in such cases, excluding only those with acetonemia. In other surgical affections, if there are no indications of general sepsis, it is better to aim for natural healing rather than to use the knife and open a route for infection. This applies especially to inflamed corns and ingrowing nails in diabetics. They seldom induce severe conditions, if unoperated on, while their well-meant removal has cost many a diabetic his life. On the other hand, suppurations in tendon sheaths and joints require to be extensively opened up to allow the escape of the last trace of pus, with ruthless disregard of possible interference with function later. The tendons, ligaments and muscles must be severed or removed, and even the limb amputated, to banish completely the morbid secretions. By operating in this way he cured 2 patients already in coma and apparently lost, an ordinary panaritium having caused suppuration creeping upward into the elbow, impossible to arrest by any means except by these radical and finally successful measures. He reviews the entire field of surgery in diabetics in detail, and shows that by observing certain precautions the knife may prove a life-saving measure even in cases in which its use was apparently most to be dreaded.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

64 (XXXI, No. 12.) *Present Status of Preventive Typhoid Serum Treatment.—Ueber den Stand der Typhusschutzimpfungsfrage auf Grund der neuesten Untersuchungen. W. Kolle.
65 Klinische Beobachtungen und Erfahrungen mit dem Pneumococcen-Serum Roemer bei der croupösen Pneumonie. Knauth.
66 Beiträge zur Kenntnis des Diabetes mellitus im Kindesalter (in children). Langstein.
67 Erfahrungen über die Behandlung des Scharlachs mit Antistreptococcen-Serum (in scarlet fever). L. Mendelsohn.
68 *Anesthesia Under Atmospheric Over-Pressure. Ein neurer Beitrag zur Frage der Ueberdrucknarkose. H. G. Engelken.
69 Pro and Con Artificial Premature Delivery.—Für und wider die künstliche Frühgeburt. K. Baisch.
70 "Shorthand Speech" for the Deaf-Blind.—Ein Versuch zur Verständigung bei Fehlen des Gehörs und Gesichtssinnes. A. Goldschmidt.
71 Cosmetic Advantages of Black Bandages.—Schwarze Binden. Oppenheim.
72 *Soziale Medizin. Umschau.—Landsberger.

64. **Protective Typhoid Inoculations.**—Kolle's experience at the Berlin Institute for Infectious Diseases has shown that the immunizing effect of typhoid inoculations depends to a great extent on the special culture. Some cultures are efficient and others are less active. Wassermann places most stress on the binding power of the culture. The power to elicit production of bacteriolysins does not parallel the virulence, he believes, but it parallels the capacity of the culture to bind the specific amboceptors of a serum *in vitro*. Kolle's experience has confirmed this, and he is using now for the protective inoculations a culture picked out from a collection of several hundreds. One-fifth to one-tenth of a loop confers active immunity on guinea-pigs and induces the pronounced accumulation of bacteriolysins in the rabbit with an extraordinarily high binding power. The protective injections rendered the serum of the persons thus treated very active in respect to cultures derived from persons recovering from African typhoid. The doses were 1 loop, 2 loops and 3 loops at eight or ten-day intervals. During the first days after the injection the subject's blood becomes less bactericidal, but this negative phase is transient. It suggests, however, that it is wise to avoid contact with infection during this negative stage, as it is possible that the susceptibility is increased during this phase. Those of the German troops going to southwest Africa recently, who voluntarily submitted to these protective inoculations, were given two or three injections, a total of nearly 2,000 officers and privates. The agar tubes sown with the typhoid bacteria were kept in the incubator for twenty-four hours, and then an equal amount of physiologic salt solution was added. The whole was then heated to 60 C. (140 F.) for one hour, tested for sterility and .3 per cent. phenol added.

68. **Anesthesia Under Atmospheric Over-Pressure.**—Engelken gives illustrations of the improved pneumatic cabinet which he has devised for the purpose of keeping the patient's lungs filled with air under greater pressure than the surrounding air, and thus enabling the thorax to be opened without danger of the lungs collapsing. (See THE JOURNAL, page 1181 of the last volume.) The walls of the cabinet are of glass in an iron frame, and the head of the patient projects into the cabinet where the anesthetist sits. The floor of the cabinet is on a level with his waist, and a loose rubber "muff" fits around his waist and another around the neck of the patient to prevent ingress of air. A few clinical cases from Czerny's clinic are described, showing the ease with which extensive intrathoracal operations can be performed by this technic.

72. **Vital Statistics in Germany.**—Landsberger comments with surprise on the official statistics for 1896-99 compiled by the official sickness insurance bureau for the German empire. During this period disability pensions were granted to 300,000 policy holders, classified into 28 groups of maladies. Pulmonary affections were the cause of the invalidism in 35.9 per cent. of the pensioned men and in 20.9 per cent. of the women. It is surprising to find, however, that only 15 and 9.5 per cent. respectively of this proportion were due to tuberculosis, while 16.7 and 8.9 per cent. were attributed to "affections of the lungs exclusive of tuberculosis," and 3.7 and 2.2 per cent. to "affections of the air passages," and .5 to .3 per cent. to "affections of the pleura." The decline in the number of deaths from tuberculosis has been more than made up of late years by the increase in the non-tuberculous acute pulmonary affections. The fact that this increase is noticeable also in the invalidism from the chronic forms, Landsberger cites as a matter for surprise and comment.

Jahrbuch f. Kinderheilkunde, Berlin.

Last indexed page 585.

73 (LIX, No. 1.) Die Säuglings-Atrophie und die Paneth'schen Cellen. C. E. Bloch.
74 Ueber einen noch nie beschreibenen Fall von hochgradiger, congenitaler Erweiterung der Arteria pulmonalis in toto (dilatation). B. Zuber.

75 Ueber einen pseudo-diphtherischen Symptomkomplex bei Neugeborenen (in the newborn). A. P. Brecelj.
76 Zur Buttermilch-Ernährung und deren Indikation (buttermilk in infant feeding). H. Rensburg.
77 Ueber Milch gewinnung und Milchversorgung (milk supply and preservation). B. Sperk.
78 Action of Cooking on Albuminoids in Milk.—Wirkung des Kochens auf die Eiweissstoffe der Kuhmilch. R. Popper.
79 (No. 2.) *Local Treatment of Pressure Ulceration in Larynx.—Zur örtlichen Behandlung der Druckgeschwüre des Kehlkopfes. J. v. Bokay (Budapest).
80 Ueber den sog. Hikan (Xerosis conjunctivæ infantum ev. Keratomalacie). M. Mori (Berne).
81 Zur Behandlung der diphtherischen Stenosen. C. A. Thümer.
82 Zur Kenntnis der progressiven spinalen Muskel-Atrophie im frühen Kindesalter. G. v. Ritter.
83 *Zur Lehre von der Rachitis. F. Siegert.
84 (No. 3.) Zur Tetanie im Kindesalter (in children). C. Beck.
85 Ueber Darm-Gase bei Säuglingen mit Tympanites. R. Quest.

79. **Local Treatment of Pressure Ulceration in Larynx.**—Local applications are advocated by von Bokay in the form of a coating of gelatin and alum on a bronze tube. This prevents decubitus and promptly heals it if already established, as has been his experience in 16 cases. The bronze tube is made with a neck smaller than usual, and the medicated coating soothes and heals the lesion. This "healing tube" was inserted and left three days in place. The preceding ebonite tube had been worn for 93 to 294 hours. The patients were all under 7 years old. Secondary tracheotomy was avoided in all his cases.

83. **Rachitis and Breast Feeding.**—Siegert reviews a series of 2,152 children and states that among them rickets occurred almost exclusively in the artificially fed infants unless there was an inherited predisposition. Breast feeding is not an absolute protection against the affection, but it renders the children more resistant to its inroads.

Zeitschrift f. klinische Medicin, Berlin.

Last indexed page 333.

86 (LV, Naunyn Festchrift.) *Ueber renalpalpatorische Albuminurie und ihre Bedeutung für die Diagnose von Dystopien sowie von Tumoren im Abdomen. J. Schreiber (Königsberg).
87 Zur Pathogenese des Icterus. Minkowski.
88 Zur Lehre von der Akromegalie. E. Stadelmann.
89 Struma und Katarakt. A. Vossius.
90 Zur Klinik der Cholelithiasis. von Wild.
91 *Polyglobulie und Milztumor (enlarged spleen). W. Weintraud.
92 Pseudoleukämie und Tuberculose. H. Falkenheim. One case in small boy.
93 Zur Morphologie und Biologie der Tuberkel-Bacillen. E. Levy.
94 *Fever in Syphilitic Liver Affections.—Ueber Fieber bei Syphilis der Leber. F. Klemperer.
95 *Psychisches Trauma und progressive Paralyse. H. Kriege.
96 Experimental Study of Circulation in Lungs and of Mechanical Action of Pleural Effusions.—Exp. Beiträge zur Lehre vom Lungenkreislauf und von der mech. Wirkung pleuritische Ergüsse. D. Gerhardt.
97 Disturbances in Absorption of Fat and Their Relation to Elimination of Lime, Magnesia and Ammonia.—Ueber Störungen der Fettresorption und ihre Beziehung zur Ausscheidung von Kalk, Magnesia und Ammoniak. W. Schlesinger.
98 Ueber das Verhalten der stereoisomeren Methyl-Glykoside im gesunden und diabetischen menschlichen Organismus (behavior in health and in diabetes). S. Lang.
99 *Fever in Biliary Lithiasis.—Ueber das Fieber bei der Gallensteinkrankheit. H. Ehret.
100 *Banti's Disease and Metabolism Before and After Splenectomy.—Zur Pathogenese der Bantischen Krankheit, mit bes. Berücksichtigung des Stoffumsatzes vor und nach der Splenectomie. F. Umber (Altona).
101 *Operative Behandlung der otitischen Meningitis. P. Manasse (Strasburg).
102 *Ueber das gleichzeitige Vorkommen von manifester Syphilis und Tabes (simultaneous occurrence). C. Adrian.
103 *Ueber infectiöse Labyrinth-Erkrankungen. W. Kümmel (Strasburg).
104 *Trauma und Diabetes mellitus und Glykosurie. W. Kausch.
105 Multiple Sklerose und Diabetes mellitus. U. Rose.
106 Zur Kenntnis von Secretions-Anomalien der Niere (of kidney). A. Steyrer.
107 *Zur Hygiene und Therapie der Wüste (of the desert). H. Engel (Heluan, Egypt).
108 Die Remissionen der Dementia precox. K. Pfersdorff.
109 *Ueber intravitale Beeinflussung autolytischer Vorgänge im Körper (intravital influencing of autolytic processes). Helle (Breslau).
110 Fall von Dermographismus bei einem Icterischen. L. Bollack.
111 Thermodynamische Betrachtungen über die Reactionen zwischen Colloiden und über das Wesen der colloidalen Lösungen (essence of colloidal solutions). U. Friedemann.
112 Ueber Polyposis intestinalis. O. Funkenstein.
113 Ueber Albuminurie bei Scabies. H. Hübner (Leipsic).

86. **"Renal-Palpatory" Albuminuria.**—Schreiber has been investigating for several years the conditions under which albuminuria develops from compression of the kidney. This organ reacts with albuminuria to any decided interference with its circulation, but it subsides with the removal of the cause. Compression of the upper part of the thorax and direct palpation of the kidney are able to elicit this transient albuminuria. In 42 cases of wandering kidney examined, the displacement of the kidney was considerable in 29, and all of these patients showed marked albuminuria after direct palpation of the organ. The findings were also more or less positive in all the others, with a single exception. The proportion of albumin ranged from traces to 3 per 1,000 Esbach. The larger proportions were always in elderly persons. Indirect palpation of the kidney, through the liver, sometimes gave vaguely positive findings. The albuminuria was more pronounced the better the access to the front and rear surface of part of the kidney. Palpation and compression of the pole alone are enough for the purpose. The albuminuria thus induced differs from that of nephritis by its transient character and by the absence of casts. If it persists into the next day the presence of inflammation may be surmised. This "renal palpatory" albuminuria serves to differentiate a wandering kidney from an abdominal tumor as Schreiber shows by 6 convincing examples. The appearance of the albuminuria demonstrated that the tumor was the kidney and not the spleen, or a stone-filled gall bladder or a liver tumor. Six other cases are related to prove the great differential value of the results of direct palpation of the kidney by the absence of this transient albuminuria. Admixture of blood supplements the information thus derived in some cases. Schreiber proclaims that this "renal palpatory albuminuria" will undoubtedly render exploratory incision or catheterization of the ureters superfluous in many cases.

91. **"Polyglobulia with Enlarged Spleen."**—Weintraud thinks that the cases with enlarged spleen belong in a different category from those without, and consequently that Osler was right in classing his 3 cases of "chronic cyanosis with polycythemia and enlarged spleen" as a new clinical entity. Weintraud has observed 3 similar cases, which bring the total on record to 16. Only 6 of the patients were women. All were between 27 and 53 years of age. Malaria, alcohol and syphilis seem to play no part in the etiology. The subjective disturbances can be classed as those due to disturbances in the circulation of the brain and those resulting from the enlarging of the spleen. The first symptoms dated from six to ten years before in many of the cases. One of his patients had edema of the legs, with phlebitic processes and development of gout later, with general dropsy to which he succumbed. Years before the first symptoms of gout appeared, an excess of uric acid had been noted in the blood. The 2 other patients are still alive, and one seems to be benefited by venesection every six months, although the composition of the blood does not seem to be altered by it. His relief after a severe hemorrhage from the stomach was unmistakable. The third patient was apparently benefited for a time by a course of Marienbad waters, vegetable diet and restriction of fluids, but serious complications on the part of the heart supervened, calling for digitalis and diuretics. The spleen in this case has subsided to nearly normal size. Weintraud analyzes also the cases on record in which nearly the same clinical picture was presented, but without enlargement of the spleen, and theorizes to explain its etiology. It can not be ascribed to increased blood pressure, as this was approximately normal in his cases.

94. **Fever in Syphilitic Affections of Liver.**—Klemperer had occasion to observe 2 cases in the last few months in which the most prominent symptom was a protracted fever of a pronounced remittent and sometimes intermittent type, with chills. No signs of any lesions could be discovered, except a slight enlargement and tenderness of the liver, with traces of icterus. Both patients were promptly and permanently cured by tentative mercurial-iodid treatment. He reviews the literature on febrile lues of the viscera, and advocates specific treatment in all conditions of obscure origin in which the predominant symptom is a persisting hectic fever. The trouble may be a syphilitic affection of the liver, lungs or other organs.

95. **Psychic Trauma and Progressive Paralysis.**—Kriege describes a case and summarizes 2 from the literature in which a severe fright, an attack by bandits or an explosion, was fol-

lowed by the development of progressive paralysis. He is confident that an intense fright is able to induce vasomotor disturbances as severe as from a physical concussion of the brain. Syphilis and an inherited predisposition are not excluded in his own case.

99. **Fever in Biliary Lithiasis.**—Ehret's opinion in regard to fever is that it has nothing to do with irritation of the walls of the biliary passages or with reflex action. It is rather, he thinks, an index of the presence of an infection still unconquered by the defenses of the organism. The fatalities in his gallstone operations have always been in patients with high fever at the time of intervention. When the bile was found sterile at the operation, there was never post-operative fever, but whenever the bile contained quantities of germs, temperature was the rule. He thinks that gallstone operations should obey the same indications as appendicitis operations. The best time for them is in the prefebrile or the post-febrile stages.

100. **Banti's Disease and Splenectomy.**—Umber relates cases and presents arguments to show that true "splenogenic toxic anemia" is the only type of Banti's disease in which splenectomy is indicated. Study of the metabolism shows that the diseased spleen in these cases contains some element which is not only destructive to the blood, but has also a toxic influence on the metabolism. Removal of the spleen does away with this poisonous influence. He tabulates the results of chemical analysis of the urine in a case of this type, showing an abnormally increased destruction of albumin and periodical increased elimination of purin bodies on a purin-free diet. In an apparently similar clinical case the albumin and purin kept within normal limits, and there was no question of splenectomy after this was found out. The gradual spontaneous recovery of the patient confirmed the assumption that this case differed essentially from the first one by the absence of the spleen toxin.

101. **Operative Treatment of Otitic Meningitis.**—Manasse's 3 patients recovered from severe meningitis secondary to otitis, after mere evacuation of the focus in the bone in one case, after puncture of the meningeal sac at the primary site of the infection in the second, and after a similar puncture with incision of the dura in the third. All were in early stages. He believes in daily aspiration of cerebrospinal fluid in case the meningitic symptoms persist, with, eventually, incision of the dura and exposure of the pia mater.

102. **Simultaneous Syphilis and Tabes.**—Adrian tabulates the particulars of 16 cases of tabes with active manifestations of syphilis in the cerebrospinal system, also of 15 cases of active manifestations elsewhere than in the central nervous system —all of the above being anatomically established—and also of 65 cases in which during life there had been evidences of active constitutional syphilis accompanying tabes. In more than 12 per cent. of the cases the syphilitic infection had been ignored during life. Among the numerous conclusions deduced from this study is one to the effect that the prospects of treatment of the tabes are brighter when it is accompanied by these manifestations of florid syphilis, as they suggest an earlier and hence more curable stage.

103. **Infectious Labyrinthitis.**—Kümmel classifies the various symptoms noted in 12 cases and reviews 8 in detail, appending a diagram of the various disturbances and results of various tests in 2 typical cases.

104. **Trauma and Diabetes.**—Kausch is skeptic in regard to the possibility of traumatism as able to induce genuine chronic diabetes.

107. **The Desert as a Health Resort.**—Engel's experience seems to indicate that the summer climate of Egypt, especially in the desert, is particularly beneficial for cases of chronic and subacute nephritis with a vigorous constitution and not too much enfeebled heart.

109. **Intravital Influencing of Autolytic Processes.**—Heile's conclusions from his extensive research are to the effect that the body is constantly striving to eliminate injurious and damaged elements by means of its endocellular enzymes. The leucocytes are especially important as the conveyors of these enzymes. These efforts on the part of the body can be promoted from without under appropriate conditions. In iodoform treatment of tuberculous abscesses, for example, the leucocytes are attracted to the spot, and as they are destroyed, the enzymes are liberated which in turn dissolve the contents of the abscess and render it absorbable. Roentgen ray treatment also sets the enzymes free in the tissues, and by attracting the leucocytes to the spot, increases the quantity of enzymes there. The result is the breaking down and reabsorption of the normal or morbid tissue.

Grèce Médicale, Syra, Greece.

Last indexed page 667.

114 (V, No. 23.) Successful Tendon Transplantation Paralytic Pes Equinus.—Guérison d'un pied-bot équin paralytique par transplantation tendineuse. J. G. Chrysospathes.
115 (No. 24.) *Observations cliniques sur 11 reductions de luxation congénitale de l'articulation coxo-fémorale. Id.
116 (VI, No. 1.) Discussion of Operative Treatment of Abscess of Liver.—Traitement chirurgical le plus convenable des abcès et des kystes hydatiques du foie. Kateriopoulos and Petridis.
117 (No. 2.) *Les dernières recherches sur la resistance de l'organisme. La prédisposition et l'immunité. S. Zografidi (Athens).
118 Discussion of Operative Treatment of Hernia.—Des résultats du traitement op. des hernies (notamment de la hernie inguinale), pour arriver à leur guérison complète. Kalliontzis and others.
119 (No. 3.) *Relations Between Malaria and Cancer.—Quel est le rapport du paludisme avec les tumeurs malignes. J. Cardamatis (Athens).
120 *Quelques observations sur les procidences cachées du cordon ombilical (hidden prolapse of the cord). M. N. Ca-I-Ris.
121 (No. 4.) Discussion of Relations Between Malaria and Female Genital Sphere.—Des rapports qui existent entre le paludisme, la grossesse, l'accouchement, la puerpéralité et vice versa. Cardamatis (Athens), Tsakyroglous (Smyrna), and others.
122 (No. 6.) *Influence of Climate and Atmospheric Changes on Development, Progress and Treatment of Affections of Pharynx, Tonsils, Larynx, Trachea, Bronchia, Nose and Ears.—Influence du climat, etc. M. Mangakis (Athens).
123 *Discussion of Technic of Administration of Quinin in Malaria. Kotrosos (Macedonia), Economou (Sparta), and others.
124 *Oil in Typhoid.—Gneftos (Alexandria).

115. **Congenital Dislocation of the Hip.**—Chrysospathis comments on the predominance of the left side and of the female sex in his experience. He treats the dislocation by a modification of Lorenz' method, as he describes in detail, and has had no recurrence in his 11 cases thus treated.

117. **Predisposition and Immunity.**—Zografidi concludes from his study of the literature on this subject and his own personal observation that the human race can be made and kept healthy in a not very distant future. A healthy heredity, an ideal hygiene, serotherapy and a very few drugs—these are all that is necessary to insure a healthy race, and his idea is that all are attainable if the race so wills it.

119. **Malaria and Cancer.**—Cardamatis has frequently encountered cancer associated with malaria, and denies that there is any real antagonism between them. But at the same time he states that the mortality records show that cancer is less prevalent in the regions in Greece where malaria is endemic and severe, while it is more frequent in the regions free from malaria or only slightly affected by it. He has witnessed the development of malaria in a woman with an operable cancer, after she has been bitten by infected mosquitoes.

120. **"Hidden" Prolapse of the Cord.**—Ca-I-Ris warns that the fetus may be asphyxiated by prolapse of the cord when such prolapse entirely escapes our notice and means of investigation. When the fetal heart beat drops from 120 to 100 or 80 something of the kind should be suspected and delivery hastened.

122. **Atmospheric Changes and Respiratory Affections.**—Mangakis has been studying this subject for five years, and has compiled some instructive tables with his 1,229 patients. The majority were young soldiers, living under the same conditions, and consequently well adapted for this comparative research. His conclusions are the same as those in the textbooks in regard to the favoring of respiratory and aural affections by chilly, damp, gray weather with wind. He does not accept these factors as producing the affections. They merely predispose to them by reducing the resisting powers of the organism. Microbian association is indispensable in most cases.

123. **Quinin in Malaria.**—Economou of Sparta has found that preliminary administration of sodium bicarbonate materially

enhances the action of quinin in malaria. In 25 out of 27 cases of continuous malarial fever, the fever was arrested within forty-eight hours by this combination. He believes that the blood is less alkaline than normal in case of malarial infection.

124. **Oil in Typhoid.**—Gneftos tries to prevent absorption of the typhoid toxins through the walls of the intestines. He strives to accomplish this by coating the lining of the intestines with oil. He gives small repeated doses of some concentrated solution of oil, almond oil, for instance, a teaspoonful every two hours. He has not had a death in 60 cases since he has adopted this technic. The fever subsides a little by the second or third day and the nervous symptoms soon abate. By the end of the second week convalescence is well established.

Riforma Medica, Naples and Palermo.

Last indexed page 1234.

125 (XXI, No. 8, February 25.) *Caso di setticemia diplococcica. E. Tedeschi.
126 Pneumonic Paralysis.—Di un'emiplegia in pneumonico. C. Fedili. (Commenced in No. 7.)
127 Omentopexy.—Lintervento chirurgico nelle cirrosi del fegato con ascite. O. Cignozzi. (Commenced in No. 6.) See abstract page 1234.
128 *Cultivation of Anaërobic Germs.—Sulla biologa di alcuni germi anaërobici e su di un facile mezzo di cultura dei medesimi. G. Tarozzi. (Commenced in No. 6.)
129 *Influence of Saline Waters on Gastric Secretions.—Influenza delle soluzioni clorurato-sodiche naturali ipotoniche sulla secrezion dello stomaco. P. Casciani.
130 *Studio sull azione della stricnina come cardiocinetico (heart tonic). C. Gennari.
131 *Diagnostic Significance of Propagation of Heart Sounds.—La propagazione dei rumori e relativi criteri cariodiagnostici. G. Cattani.
132 (No. 10.) Antibacillary Serum in Tuberculosis.—Ricerche sperimentali sul valore immunizzante e curativo del siero antibacillare. Figari and Marzagalli.
133 Contributo allo studio della malattia di Dercum. G. Norsa.
134 (No. 11.) *Ulteriori ricerche sulla sieroterapia antisifilitica. A. Risso and A. Cipollina.
135 Sulla pretesa esaltazione di virulenza del bacillo di Eberth (increased virulence). C. P. Goggia.
136 (No. 12.) *Value of Intestinal Putrefaction.—Sul valore della putrefazione intestinale. A. Rovighi (Bologna).
137 *Sulla tabe giovanile. A. Gianelli (Rome).
138 Specific Changes That Occur in Blood Serum After Injection of Sputa of Different Kinds.—Sul cambiamenti specifica che avvengono nel siero sanguino in seguito ad iniezioni di sputi di varia natura. C. Quadrone (Turin).

125. **Diplococcic Septicemia.**—Tedeschi's patient was a young woman, previously healthy, who was taken with sore throat, headache and pains in the joints with fever. As these symptoms improved in the course of four or five days, others developed showing inflammation and effusion in the pleura and peritoneum. The temperature was scarcely above normal, the effusions were soon reabsorbed and the patient dismissed in symptomatic good health, but Fraenkel's diplococcus was found in the blood and in the effusions and also in the throat.

128. **Anaerobic Cultures.**—Tarozzi reports extensive research on anaerobic germs by an improved method of cultivating them. This consists in the addition of a piece of fresh animal tissue to broth, agar or other ordinary culture medium. Scraps of the parenchymatous organs or lymphatic glands are the best for the purpose. Germs with a terminal spore grow readily under these conditions, and he communicates several new facts in regard to their biology learned by this technic.

129. **Action of Saline Mineral Waters on the Gastric Secretion.**—Casciani has charge of the course of medical hydrology and balneotherapy of the Rome medical school. He here describes comparative tests of various mineral waters. The results indicate that natural, hypotonic, saline mineral waters augment the secretion of gastric juice and of hydrochloric acid.

130. **Action of Strychnin on the Heart.**—Gennari's conclusions from his clinical experiences and research are to the effect that strychnin does not act directly on the heart. Its action is exerted on the nervous system, inducing vasoconstriction with increased blood pressure. It is indicated in cases of heart trouble and neurasthenia with depressed vitality and lessened elasticity of the vessel walls. He has frequently found that it produced great subjective improvement with increased strength and appetite. He gives about 5 mgm. a day for ten days as the maximum dosage, bearing in mind the cumulative action of the drug. He relates a number of instructive examples of its use in various heart affections.

131. **Propagation of Heart Sounds and Its Diagnostic Value.**—Cattani has evolved a system of diagnosing by study of the propagation of the sounds of the heart. The sounds are propagated differently according to the site, shape, extent, height and density of the pericardial effusion. These differences in the propagation are enumerated and their significance explained.

134. **Later Experiences with Antisyphilitic Serum Treatment.** Continuing the experiences previously mentioned in these columns Risso and Cippollina report still more favorable results in a later series of cases. In 6 cases of secondary, in 2 of tertiary and in 5 of parasyphilitic manifestations of syphilis the lesions were more severe than any in the first series, but the success of the serum treatment was even more striking. As already mentioned, the serum is obtained by repeated injection of dogs with blood from syphilitics in the midst of the secondary phase. Small amounts of the blood corpuscles from the same animals are added to the serum on the assumption that the immunizing power is a property that is inherent in the histologic elements of the blood as well as in the serum. Two of the first series of patients present evidences of partial recurrence of secondary lesions. The others have been free from any manifestations to date, with the exception of one patient who has been lost to sight.

136. **Intestinal Putrefaction.**—Rovighi reviews the results of extensive research on this question. Among the points brought out is the remarkable influence of a milk diet in reducing intestinal putrefaction. Kefir in certain cases had a still more powerful influence in this respect.

137. **Juvenile Tabes.**—Giannelli's communication describes the case of a girl of 17, a virgin, in fairly good health, free from any signs of inherited or acquired syphilis. She was staying at the seashore and went in bathing during a menstrual period. She experienced at the time what she described as an "intense emotion," and the next day she had pains in all her joints. The pains gradually subsided in the course of five or six days. Three months later she experienced lancinating pains, with violent, unilateral headache. They recurred at intervals with progressive frequency, until at 22 she presented the typical syndrome of juvenile tabes. Gianelli reviews the literature on the subject, remarking that a number of the 40 cases on record belong in the category of Friedreich's atony, others are due to a symptom complex resulting from a specific meningitis, and only a very few present the typical picture of pure tabes.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

DENTAL SURGERY FOR MEDICAL PRACTITIONERS and Students of Medicine. By A. W. Barrett, M.B., M.R., M.R.C.S., London. Fourth Edition, with Illustrations. Cloth. Pp. 159. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

ABDOMINAL PAIN. Its Causes and Clinical Significance. By A. Ernest Maylard, M.B., B.S., London. Cloth. Pp. 304. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

ST. PETER STATE HOSPITAL, Biennial Report of the Superintendent for the Year Ending July 31, 1904. Paper. Pp. 22. St. Paul, Minn.: McGill-Warner Co. 1904.

EIGHTH ANNUAL REPORT of the Loomis Sanatorium and Annex for the Treatment of Tuberculosis. Paper. Pp. 52. Liberty, New York: 1904.

REPORT OF THE WISCONSIN STATE TUBERCULOSIS COMMISSION. Paper. Pp. 43. Madison, Wis.: Democrat Publishing Co., State Printer. 1905.

REPORT OF THE COMMISSIONER OF EDUCATION for the Year 1903. Vol. I. Cloth. Pp. 1216. Washington: Government Printing Office. 1905.

SEVENTEENTH ANNUAL REPORT of St. Margaret's Hospital of Kansas City, Kansas, for the Year 1903 and 1904. Paper. Pp. 24.

TWENTIETH ANNUAL REPORT of the Adirondack Cottage Sanitarium. Paper. Pp. 16. Saranac Lake, N. Y.: November, 1904.

TRANSACTIONS OF THE VERMONT STATE MEDICAL SOCIETY for the Year 1904. Cloth. Pp. 239. Rutland: The Tuttle Co. 1905.

MONTHLY CONSULAR REPORTS. March, 1905. Paper. Pp 272. Washington: Government Printing Office. 1905.

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Original Articles

ANKYLOSIS.

ARTHROPLASTY—CLINICAL AND EXPERIMENTAL.*

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CHICAGO.

The subject of ankylosis and its treatment presents many problems for consideration. In order immediately to emphasize the salient points of the subject, we will ask some questions: What are joints? What is the embryology of joint formation? What is the pathologic histology of acquired arthroses or false joints? What is the pathology of hygromata (acquired endothelial lined sacs)? Can they be produced artifically? What is ankylosis? What are the pathologic and anatomic changes included in the term? What tissues are involved? From a practical standpoint, into what classes may it be divided? When ankylosis has formed, what are the limitations of surgery for its relief? Can we re-establish a movable, functionating joint with synovial lining? Can we restore motion and to what degree? In what class of cases can the best results be secured? Can we for the future promise better than the flexible, fibrous unions that we have secured in the past?

These were the questions that most forcibly presented themselves when I began the investigation of this subject in July, 1901. Subsequent experience has shown that, from a clinical standpoint, the majority of these have been answered favorably. Experimental work on joints in dogs is unsatisfactory on account of the difficulty in controlling infection and motion. A preliminary report of this work with demonstration of one of the cases was made to the Chicago Surgical Society at Mercy Hospital, October, 1902.

EMBRYOLOGY OF JOINTS.

From a practical standpoint the classification of joints is as follows: The synarthrosis, the amphiarthrosis and the diarthrosis. The subdivisions of the latter, the ginglymus (elbow, ankle, wrist, etc.), the ginglymo-arthrodial (knee, temporo-mandibular), and the enarthrodial (shoulder and hip) are the only joints which concern us in this class of surgical work. The types of motion which are present in these joints are the hinge and ball and socket, which are the sliding and rotary motions of the forearm, shoulder and hip; the two latter are the most favorable for the restoration of motion after ankylosis, as the degree of sliding motion is extremely limited compared with that of the elbow and knee. The histology of joint formation is best illustrated by the works of Hertwig, Meyer and Gegenbaur and may be summed up as follows:

Diarthrosis is a differentiation of primitive synarthrosis of which it is a transformation. This mode of union exists almost exclusively between parts of the skeleton and is preceded by preformed cartilage during their development. When a joint is formed between two bones which are not developed from primordial cartilage, it is formed secondarily from cartilaginous tissue between the rudiments of these bones.

The origin of joints seems to be in connection with the differentiations and perfection of the cartilaginous parts of the skeleton. These are separated for a long time by interposed indifferent tissue (Fig. 1, A). At the same time that the cartilaginous elements of the skeleton increase, the interposed connective tissue which separated them at first, is itself transformed into cartilage and disappears. Figure 1, B, shows the beginning of this cartilage formation at the expense of the interposed connective tissue.

At the end, the two terminal cartilaginous surfaces of the two skeletal organs are found in immediate contact; they each have a predetermined form, characteristic for each joint. The two contiguous extremities of the skeletal parts are found separated by a mass of cartilaginous tissue, formed at the expense of the primary intermediate tissue (Fig. 2).

A slit, at first very delicate, soon appears in this intermediate cartilage, and divides it into two layers, one and the other applied against the terminal surfaces of the cartilaginous skeletal parts. These layers constitute the articular cartilages (Fig. 3, A). At the same time, the slit has become more extensive—the joint cavity; it separates the articular surfaces of the two bones. Externally, the joint cavity is limited by connective tissue extending from one skeletal piece to the other. This connective tissue is continuous beyond the joint surfaces with the periosteum (perichondrium) of the two developing bones. It is this connective tissue surrounding the joint cavity which gives rise to the joint capsule (Fig. 3, B). The external layers of this tissue are differentiated into a fibrous membrane, generally tough, called the capsular ligament, and an inner softer layer turned toward the joint, which it bounds; it is richly vascular and constitutes the synovial membrane.

The capsular ligament is not equally developed over its whole extent. It remains thin in certain places, and thickens on the contrary in others, so as to form bundles of more rigid fibers. These bundles develop in a given direction, acquire a variable freedom, and may even become completely separated from the capsular ligament. Thus are formed the accessory or auxiliary ligaments.

The intermediate interposed tissue, which existed in the rudimentary joint, is not always entirely used up in the increase of the articular ends of the bones. When the joint surfaces do not correspond closely to each other, remnants of this tissue persist at the periphery of the joint cavity united to the synovial membrane of the capsule. These remnants project into the joint

* Read before the American Surgical Association, St. Louis, 1904.

cavity and constitute prolongations or folds of the synovial membrane.

In other cases, the differentiation of the contiguous articular ends does not go so far. The two articular surfaces do not touch over their whole extent, but only a part of it; in this case a larger part of the intermediate tissue persists in the joint capsule. The joint surfaces are thus more or less discordant. This intermediate tissue is then transformed into fibro-cartilage and constitutes an organ which on cross section is semilunar in shape (Fig. 3, A).

In some cases, a continuous joint cavity is not formed, the embryonic intermediate tissue being less utilized in the formation of the articular cartilages. Before the transformation of the articular surfaces in contact can

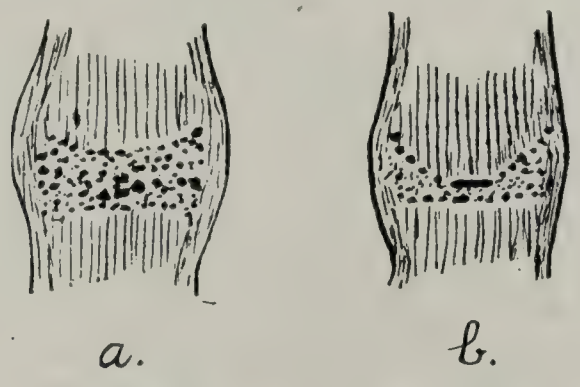


Fig. 1.—(*a*) Indifferent tissue interposed between ends of developing bones. (*b*) Beginning cartilage formation in interposed tissue (Gegenbaur).



Fig. 2.—Cartilaginous tissue between ends of developing bones (Gegenbaur).

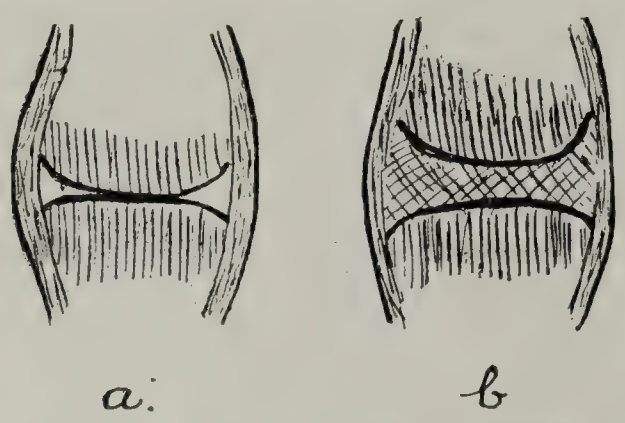


Fig. 3.—(*a*) Joint cavity and articular cartilages formed by division of intermediate cartilage. (*b*) The external connective tissue, which is continuous with the intermediate tissue, forms the joint capsule (Gegenbaur).

take place, a slit appears between the joint surfaces and the intermediate tissue, which develops into a joint cavity. It follows, then, that each of the articular ends will be lodged in a special joint cavity, separated from the one containing the other bone by a layer of intermediate tissue. This latter is finally transformed into an interarticular cartilage, separating the two articular cavities of the same joint, as in the temporomaxillary articulation (Fig. 4). These interarticular cartilages may be continuous or discontinuous. When they are discontinuous, as is the case with the semilunar cartilages, the two special joint cavities are incompletely separated from each other. When they are continuous, on the contrary, the joint cavities are completely separated by them. In both cases, they are the remains of the primitively continuous intermediate tissue.

The first stages of joint development occur during fetal life, when no muscular action is present. The characteristic feature and disposition of the joint surfaces are already formed before the joint can functionate. The final transformation, i. e., the extension of the joint cavity, etc., only occurs after the joint is put to use. It is determined by the skeletal movements and by muscular action.[1]

EMBRYOLOGY OF JOINTS.

The wrist and ankle have a purely endochondral ossification,[2] the cells of connective tissue grow into the cartilage from the perichondrium, dissolve the matrix of cartilage and unite with one another in the center, and there arises a network of medullary (marrow) cavities, in the vicinity of which there is a deposit of salts of lime (a provisional calcification). The medul-

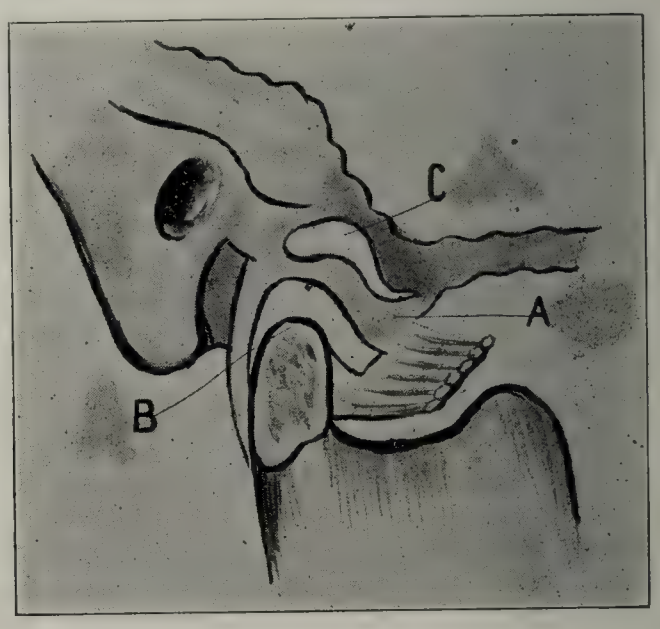


Fig. 4.—This shows the interarticular cartilage, (A) separating the joint into two distinct cavities, B and C temperomaxillary articulation.

lary spaces extend farther and farther by destruction of the cartilaginous substance; then there are formed by the superficially located medullary cells, bone lamellæ, which gradually increase in thickness. The osseous nucleus thus formed slowly increases in size, until finally the cartilage is almost entirely replaced, only a thin layer of it remaining at the surfaces as a covering for the bone.

The question whether the extremities of bones, the articular surfaces, are subject as far as their form is concerned to mechanical laws only, has been much discussed. According to Bernays,[3] the early and typical form of joints appears to be a matter of heredity. The muscles also have a decided influence on the later forms of articular surfaces.

According to His, the development of the body of vertebrates in the ovum is determined and controlled by mechanical laws, while Haeckel considers heredity as a determinant factor.

1. Gegenbaur: Zur Morphologie der Gliedmassen der Wirbelthiere, Morphol., vol. ii, 1876.
2. Hertwig-Mark: Text-Book of Embryology.
3. Bernays, A.: Die Entwickelungsgeschichte des Kniegelenks des Menschen, und Bemerkungen über Gelenke im Allgemeinen.

L. Fick[4] states that at the end of the second month, the joints show a tendency to shape, still "the greatest irregularity exists in the form of articular surfaces." There are not two joints alike at that period, among the articular surfaces of phalanges.

In regard to the question, what determines the form of articular surfaces, Fick has shown in his monograph that muscular activity is responsible for the peculiar form of the different articular surfaces. By experimenting on young dogs, he has noticed that the section of muscles is followed by a change in the form of the corresponding articular surfaces and also of the interarticular space. By experimental immobilization of the joints of growing dogs, the space and form of articular surfaces was changed; the interarticular line became irregular.

As to the question why it is that one extremity of bone becomes a prominent surface, while the next extremity of bone becomes an articular cavity, several explanations are given.

Fick says that beside the muscular activity, on account of more active circulation, the multiplication of cells is more marked in one end than in the other, so that it penetrates the latter and forces it to excavate.

Henke and Reyher[5] explain this by the fact, that the muscles force the bone, on which the insertion is nearer to the articular surface, against the other bone, on which the insertion is further from the interarticular line, so that it determines the formation of a cavity by means of pressure in the former.

The essential phenomena, says E. Retorer,[6] concerning the formation of the joint cavity take place when the cartilaginous segments are nearly in contact and before there is any articular slit. We find that at this stage the superficial layers of the cartilaginous segments are not yet free; the flattened and crowded cells limiting these segments are succeeded by a much clearer connective tissue. This is made up of fusiform and stellate cells, whose numerous prolongations enclose meshes filled with Wharton's jelly. In other words, the embryonic connective tissue which is not transformed into cartilage has developed into mucous connective tissue, the interval between the cartilaginous segments where the future joint will be. Little by little, these meshes become larger and larger, the prolongations of the cells more and more thinned; the cell body less and less clearly outlined, staining with difficulty. In short, the cells with their prolongations atrophy and with the nuclei disappear, and at the same time, the joint surfaces become free. By undergoing mucoid transformation in the interval between the cartilages, the embryonic connective tissue gives rise to the first synovial fluid. On the inner side of the joint capsule, the connective tissue persists as closely packed elements and gives origin to the synovial membrane which is lined with many tiers of flat cells.

Hence there are the following stages in the formation of a joint cavity:

1. Existence of an embryonic connective tissue with closely packed cells.
2. The production of fusiform and stellate cells whose prolongations anastomose.
3. Elaboration of mucoid substance in their meshes.
4. Atrophy of the cellular elements and their prolongations.

4. Fick, L.: Ursachen der Knochenformen, 1857.
5. Henke und Reyher: Sitzung. der k. k. Wiener Akademie, 1875, vol. lxx.
6. C. R. Soc. de Biologie, 1894, p. 862.

The joint cavity succeeds the evolution of this embryonal connective tissue, which, in place of producing cartilage or bundles of areolar tissue, elaborates the mucoid substance giving rise to the first synovial fluid.

Every joint begins by a stage where the segments present are bound together by a compact tissue, which establishes their continuity. While most joints remain thus, we see in movable joints this connective tissue persisting only at the capsules, ligaments, etc., which becomes fibrous, fibro-cartilaginous, or even osseous tissue.

At the places were the skeletal segments come in contact, however, their continuity is changed into contiguity, because the thin layer of intervening connective tissue has disappeared by mucoid degeneration. In other words every diarthrosis passes through a transition state which may be compared with an amphiarthrosis..

HYGROMA-BURSA.

While in the embryology of joint formation, always primarily formed without a cavity, a splitting or liquefaction of cartilaginous or connective tissue between the cartilages takes place, the superficial bursæ are made by the same splitting between fat capsules (subfascial) on aponeurotic mesoblastic tissue.[7] Fat tissue rapidly or easily changes to connective tissue. Bursa formation is due to the absorption of fat from fatty tissue and the coalescence of the small fat capsules with an increase or hyperplasia of the connective tissue and its degeneration with the development of collagen.

It is the solution of liquefaction of the collagen in the center that forms (fibrinoid—a degeneration product) the fluid in the cavity of the bursa. The fluid is a liquefied collagen, not a secretion from the surface of the cavity (serous) as Virchow taught. The "rice bodies" are dead proliferations of partially developed tissue or fibrin of the small villi or *"zotten."*

Hygroma is, then, the result of a degenerative or absorptive process in fatty tissue with hyperplasia of the connective tissue element, the segmentation of the collagen into solution, "fibrinoid," a liquefaction of hypertrophied connective tissue. The cells lining the newly developed cavity appear as flattened endothelial cells; these are really transformed connective tissue cells.

The hygroma has no vessels and, therefore, can not become inflamed. It may be the center of phlegmon and necrosis, but it is not itself a part of the process. (It can not be cured by drainage unless necrosis takes place, but it can be cured by extirpation.) Hygromata and ganglia are the combined products of liquefaction of hypertrophied connective tissue.

In the artificial development of joints, it is important to utilize these facts. The aponeurosis that is to be used in the construction of artificial joints should have in it a considerable quantity of fatty tissue, which when subjected to pressure forms the hygroma. This is not infrequently seen in the nonunion of fractures in the shafts of the long bones, forming what is known as the "false joint" or "interosseous sac." It is the recognition of this pathologic condition that has led to its utilization in arthroplasty. That this sac with lining resembling endothelium is formed, was demonstrated beyond question in animal experiments reported later.

EXPERIMENTS.

1. Large white dog. Operated on Dec. 15, 1903. Operation: (*a*) U-shaped incision over right hip.

7. Langemak: Arch. klin. Chir., vol. lxx, No. 4, p. 946.

(*b*) Skin and fascia lata reflected upward.

(*c*) Great trochanter divided by chain saw and upper fragment, with muscles, reflected upward.

(*d*) Head of femur dislocated from acetabulum.

(*e*) Cartilage gouged out of acetabulum and removed from head of femur.

(*f*) Fascia lata so dissected from skin flap that it is brought down in front of muscles attached to great trochanter.

(*g*) Fascia lata sutured, by kangaroo tendon, about neck of femur so that muscular surface of fascia lata lines the inner surface of the acetabulum.

(*h*) Edges of fascia then drawn together over head of femur, thus capping same—kangaroo tendon sutures.

(*i*) Head of femur returned into the newly lined socket.

(*j*) Upper fragment of trochanter sutured to lower.

(*k*) Skin returned and sutured in place—horsehair.

(*l*) Collodion dressing.



Fig. 5.—Section through neck of femur. AA represents the new collogen cavities, and B the split neck of femur.

The dog did not use the extremity operated on at all in locomotion. The thigh was carried slightly flexed on the abdomen. The dog was killed with chloroform, April 12, 1904, and after death, free passive movement was demonstrated in every direction. A complete dissection of the joint was made, and the following conditions noted: The muscles about the joint were atrophied, and there was considerable scar tissue formation at the site from which the flap was dissected, and around the joint. Interposed between the upper extremity of the femur and the acetabulum there was a small sac with a smooth lining. (Fig. 5.) It contained a small amount of slightly turbid sticky fluid. Its total surface was about that of the normal acetabular cavity. The end of the shaft of the femur where the cartilage had been taken off was smooth and covered by the newly formed synovial endothelium-lined membrane. About the sac there was a moderate amount of newly formed connective tissue. Sections were made from the sac wall and examined under the microscope; they showed on the inner surface a well formed endothelial lining. (Fig. 6.) The nuclei of the cells were elongated and the cytoplasm stretched out so as to form a thin homogeneous membrane. Beneath this one celled layer was a vascular connective tissue matrix with cells lying in all directions. There were a large number of polymorphonuclear leucocytes present, probably indicating a recent inflammatory reaction.

2. Black and white dog, male, weight about 30 pounds. Operated on Dec. 8, 1903.

Steps of operation: Placing of fascia lata in hip joint to determine subsequent changes in fascia.

1. U-shaped incision over hip joint concavity upward an inch above great trochanter.

2. Incision through fascia below area of fascia, cut greater than that of skin.

3. Retraction of skin and fascia in one flap.

4. Great trochanter severed by chain saw and upper fragment, with attached gluteal muscles, retracted.

5. Capsule of joint incised and excised.

6. Head of femur dislocated from acetabulum.

7. Cartilage in acetabulum gouged out.

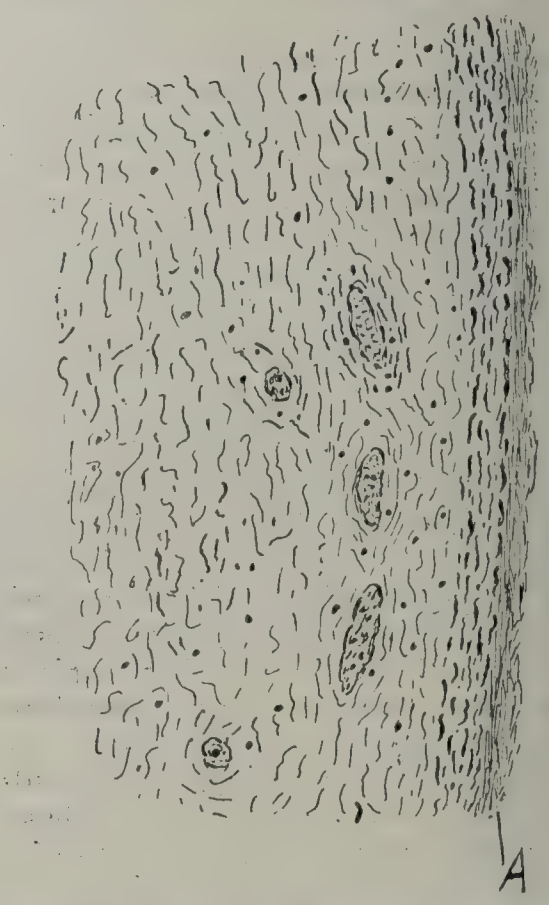


Fig. 6.—Shows the layer of elongated endothelial cells (A) which lined the new capsule formed in the case of Experiment No. 1.

8. Cartilage on head of femur bitten off with cutting forceps.

9. Fascia lata on under side of skin so dissected that it was swung down in front of the gluteal muscles attached to trochanter—the fascia retaining its attachment by a fairly broad pedicle.

10. Fascia carried into acetabular socket and sutured with kangaroo tendon to posterior surface of neck of femur, the muscular surface of the fascia lata being in contact with the acetabulum, while the outer surface came in contact with the head of the femur.

11. Head of femur rotated back into its newly lined socket.

12. Another kangaroo suture passed through the fascia and the periosteum over the still intact part of the greater trochanter in order to anchor the flap still more securely.

13. Two parts of greater trochanter approximated with kangaroo tendon.

14. Collodion dressing.

Condition Dec. 12, 1903: Wound clean, no tenderness, dog does not eat very well, hobbles about a little. Dog died Dec. 20, 1903. Postmortem findings: (a) Head of femur

dislocated from acetabulum; (b) fascia lata sloughed away; (c) muscles and joint filled with pus.

ANKYLOSIS.

Ankylosis is a generic term and does not represent a pathologic entity. It is due to varied pathologic conditions; it involves many tissues, either separately or combined and may be classified as follows:

- Ankylosis (true and false).
  - Periarticular
    - Capsular
    - Extracapsular
      - Tendinous
      - Tendovaginal
      - Muscular
  - Articular
    - Synovial-Fibrosis
    - Cartilaginous
    - Osseous

In the particular variety, in which the capsule is the seat of the disease which produces the immobilization of the joint, the capsule is infiltrated, indurated and adherent throughout the margin of the joint, thus limiting the motion. The extracapsular varieties include the inflammations and adhesions of the tendons and tendon sheaths, as well as the muscular agglutinations, at and close to the joint. They may not include the capsule at all, the entire restraining structure being extracapsular. These lesions differ entirely from the articular variety of ankylosis, in which the lesion is in the synovial membrane which has lost its endothelial lining and has undergone fibrosis and transarticular union.

The cartilaginous variety exists when the synovial membrane has undergone complete destruction, and when there is a union of the cartilage or cartilaginous remnants with no vestige of the synovial structure remaining.

The most serious type of ankylosis is that in which the synovial membrane and cartilage both have disappeared and in which osseous union has taken place between the opposing bone ends.

The last three types of ankylosis will more particularly concern us in this paper.

ARTHRITIS.

The types of arthritis which lead to the varieties of ankylosis mentioned above may be classed as follows:

- Arthritis...
  - (a) Primary hematogenous fibrous arthritis
  - (b) Dry fibrous arthritis. Non-traumatic
  - (c) Traumatic fibrous arthritis
    - With fracture into joint
    - Without fracture—Contusion
  - (d) Suppurative
    - Hematogenous
      - Cryptogenic
      - Metastatic
        - Typhoid
        - Scarlatina
        - Pyemia
        - Gonorrhea
      - Traumatic
    - Extension
      - Osteitis
        - Tuberculous
        - Osteomyelitic (Infective)
      - Periarthritis—Phlegmon
      - Panarthritis
  - (e) Ossifying arthritis. Primary
  - (f) Static adhesive

The primary hematogenous fibrous arthritis is usually ushered in with a chill, followed by intense pain and sensitiveness in one joint, rarely more, accompanied by a high temperature and pronounced manifestations of sepsis, with only moderate effusion into the joint cavity. The diagnosis is usually monarticular rheumatism. It is not a rheumatism in the common acceptance of the term, either in its etiology, clinical course or final result. It is an acute, virulent, synovial infection followed by necrosis of the endothelial and subendothelial tissue, with subsequent organic union. It lasts for many weeks and even months. It is not associated with urethral infection, and it terminates with a fibrous ankylosis and agglutination of the capsule; the periarticular tissues (tendons, etc.) usually are not involved. This variety runs an entirely different clinical course from the dry fibrous arthritis; in this there is no evidence of septic intoxication, no effusion into the joint, practically no constant pain; there is sensitiveness to motion, which gradually becomes more and more limited until it entirely ceases, and there is formed a fibrous adhesion of the approximated surfaces. Both of these varieties differ from the traumatic fibrous arthritis, the form following fractures into the joint and resulting in complete agglutination of the surfaces and fixation of the bones. This fortunately is a rare result of fracture; it occurs most frequently in the shoulder, elbow and knee. The traumatic fibrous arthritis, without fracture, is not uncommon and gives a lamentable result from a comparatively slight injury. For instance, a patient falls and strikes on the elbow. The trauma is accompanied by pain, the surgeon is consulted and he carefully examines the part and determines that there is neither a fracture nor a luxation. For the first few days after the accident the part is comparatively painless; in a week or ten days the pain increases and continues to increase for from three to four weeks, when motion in the joint becomes intolerable and, even under force, the motion is very limited. The limitation of motion becomes more and more marked, and at the end of twelve weeks, to the horror of the patient and the chagrin of the surgeon, ankylosis is complete. Although the surgeon is in no way responsible for this condition, he is severely criticised. So far as we know, there is no means of avoiding this catastrophe; it seems to be an idiosyncrasy of the connective-tissue formation in the joints of some patients, resembling the keloid tendency in the skin of others. Fortunately, the joints which tend most to this type of arthritis are best adapted to arthroplastic procedures. Here, too, the periarticular tissues are not involved.

It is the suppurative type of arthritis which most frequently results in ankylosis; and of this the hematogenous variety is the most severe and destructive in its nature. In the cryptogenic variety we not infrequently see an acute, virulent, purulent inflammation of a joint, without knowing where the primary infective focus existed or where the primary blood invasion occurred. This type is more severe and destructive to the elements of the joint than is the type usually recognized as metastatic and which is the sequence of typhoid, scarlatina, pyemia or gonorrhea. The typhoid type of articular infection, as emphasized by Keen, may be divided into two great classes, namely, the mixed infection (pyemic and typhoid) variety and the pure typhoid variety. The former usually terminates fatally, and, if the patient survives, the treatment of the ankylosis following would come under the same treatment as for ordinary pus infection. The hip is usually the joint of election in typhoid, as well as in scarlatinal infections. This arthritis is so severe in degree that in over 50 per cent. of the cases it is accompanied by luxation. The tendency is not to suppuration in these cases, as pus rarely forms, but there is often osteitis, with softening. The scarlatinal infections of the joints are rarely accompanied by destruction of the synovial membrane or cartilage; they are of the purulent or seropurulent varieties, which develop rapidly, require simple drainage and are followed by a complete restoration of the joint. The more destructive varieties, however, are followed by destruction of the synovial membrane and cartilage, and this by ankylosis, without much involvement of the periarticular tissue. The pyemic variety usually terminates fa-

tally; when the patient survives, the conditions remaining are the usual sequelæ of panarthritis, with bony ankylosis. Following gonorrhea, there are three types of arthritis—the chronic, painful and dry—extending over months and even years, and followed by a plastic, adhesive synovitis; the acute and subacute serous synovitis, which runs rather a rapid course and terminates without ankylosis and the mixed infection variety, which terminates in suppuration, synovial necrosis, fibrous or bony ankylosis without involving the periarticular tissues.

Traumatic suppurative arthritis may be divided into the nonpenetrating and the penetrating. Suppuration of the joint following a trauma may occur without an abrasion or laceration. Usually, however, it is secondary to a traumatic osteomyelitis which subsequently affects the joint; it occurs much more frequently in the young and growing. The penetration of the joint from without inward may be considered as puncture and stab penetrations and bullet wounds. Since antiseptic surgery, with the immediate sealing of penetrating stab and puncture wounds, has become the practice, and the probe condemned, suppuration rarely follows these types of punctures. The same may be said of bullet wounds, but, in civil practice, bullet wounds are more frequently followed by infection than in the recent military cases. When evidence of infection is manifest, free drainage, without the use of antiseptics or manipulation, is all that is indicated and gives fairly good results. It must be timely and must relieve the pockets of the joint and its periphery. When perforations occur from within outward, as in compound fractures and luxations, when the joint is opened by the protrusion of bone through the soft parts, the danger of infection is very much less, or practically *nil*, if care be taken immediately to seal the wound. These cases do not require drainage. Hermetical sealing of this class of injuries has given the most brilliant results—the most positive proof of the value of asepsis. In Billroth's "Surgery and Surgical Pathology" (translation of 1876) amputation was advised for all compound fractures involving joints. At the present time, however, when infection takes place, these injuries are frequently followed by ankylosis and many times by deformity. The latter is avoidable if care be taken to keep the limb in proper position, either by extension or by mechanical support.

Osteitis of the tuberculous type is probably the most common cause of ankylosis. While pathologically there is primary tuberculous synovitis, practically all cases of tuberculosis in joints are secondary to a primary focus in the bone, usually occurring near the junction of the diaphysis and epiphysis. This tuberculous granuloma enlarges, softens the bony structures, frees the cartilage and finally ruptures into the joint, there producing a tuberculous arthritis. If a mixed infection exists, the capsule ruptures, the pus discharges and the destruction of the joint will be rapid. If it be simply tuberculous infection, the process of destruction of the cartilage and synovial membrane is slow, but nevertheless effectual, and finally results in a partial or complete bony ankylosis or in a fibrous organic union of the two ends of the bone.

The frequency of the osseous origin of tuberculous arthritis may be judged from my experience with the knee joint. In 128 cases of tuberculosis of the knee, in all but two it could be clearly demonstrated that the origin of the disease was in the bone. In one of the two it was doubtful, and in the other it appeared to be a clear case of synovial tuberculosis. In a large percentage of the cases in which I formerly did an excision I feel now that the bony destruction was of such a mild degree that an interposition arthroplasty might have been performed and the motion in the joint restored. From observation I consider that tuberculous synovitis of the hip is more frequent than tuberculous synovitis of the knee, but the difficulty of carefully examining the head of the femur and acetabulum may account for the apparent disparity. In planning to operate on these cases for the restoration of motion, the question of luxation or subluxation must be given grave consideration, as restoration of position is a very difficult undertaking.

Osteomyelitis of the epiphyseal or "end" type, of the British authors, not infrequently secondarily infects the joint and produces extensive destruction of cartilage, synovial membrane and bone ends, even to a panarthritis; to be followed later by an osseous ankylosis. It differs from tuberculosis in the fact that the tuberculous process does not affect the joint or bone end to an incapacitating degree until five to seven weeks after the trauma or exposure, while the osteomyelitic processes produce profound manifestations, local and constitutional, in the way of pain, swelling, arthritic effusion, etc., with chills, high temperature, delirium and severe septic intoxication within from 48 to 96 hours after the trauma or exposure. The clinical history of the onset of these two diseases is so clean cut that they can not be confused if carefully analyzed. The periarticular involvements following acute septic osteomyelitis may lessen the chances for free motion after operative procedure.

Periarthritis, due to phlegmonous inflammations in the neighborhood of joints, not infrequently inhibits or entirely obliterates motion by the fixation of the periarticular tissues (ligaments, tendons, etc.); if fibrous synovitis does not result, however, and if the joint is not penetrated by the infection, a fair degree of motion may be secured. If the joint has been penetrated by the infection, then all the tissues of the joint may be involved and a panarthritis may result.

In panarthritis, the bone, cartilage, synovial membrane, capsule and periarticular tissues are infected, no matter in which tissue the primary focus originated. This type of inflammation frequently results in luxation and adhesion of the tendons, and even ulceration and necrosis of the capsule, ligaments, bone and muscular tissue around the joint, so that a complete luxation of the bone results. (I recently saw a case of this type, with infection of the hip joint.) The destruction of the tissues here may be so complete that no effort at the restoration of motion should be attempted.

Primary ossifying arthritis is a rare type of joint disease, not associated with pronounced inflammatory symptoms, insidious in its onset, slow in its advancement, but resulting inevitably in osseous ankylosis. Fortunately, it usually occurs in patients beyond middle age, and attempts at restoration of the joint should not be made.

Static adhesive arthritis is a sequence of prolonged fixation. This fixation may be due to diseases of the bones which make up the joint or it may be due to periarticular inflammations or trauma. There is rarely ever an osseous ankylosis as a sequence of this trouble. The capsule, however, becomes firmly organized to the cartilage, and the endothelial layer of the synovial membrane is destroyed. In other words, there is a fibrous synovial fixation. In such cases, before undertaking

operative procedures, an accurate estimate must be made of the part played by the periarticular tissues, rather than the adhesive synovitis. In burns, extensive phlegmons and severe contusions the cicatrices around and in the neighborhood of the joints produce ankylosis, which may or may not be associated with adhesive fibrinous synovitis. If these cases are operated on soon after the process of repair of the soft parts is complete, the joint will not have to be opened, the periarticular cicatrices demanding our entire attention. The most pronounced example of this type is the mandibular fixation following ulcerative stomatitis or noma.

TREATMENT.

Treatment must be directed against any one of the following types of anatomic pathologic conditions:

A—Extra capsular disease	1. Tendon elongation—(tendoplasty). 2. Tendo vaginitis (exsection of sheath). 3. Cicatrices—removal.
B—Capsular	1. Adhesive synovitis—exsection of capsule. 2. Replacement by aponeurosis or muscle.
C—Osseous	1. Disconnect bones. 2. Remove neighboring bony processes or prominences. 3. Liberate soft parts. 4. Prevent subsequent bony contact. 5. Interpose tissue to form hygroma or fibrous surface.
D—Joints suitable for operation	1. Mandibular. 2. Hip. 3. Shoulder. 4. Elbow. 5. Knee.
E—Technic	1. Flap formation—skin flap with fascia or muscular. 2. Exposure of ankylosed area. 3. Osseous separation. 4. Transplantation and fixation of interposition flap. 5. Replacement of bone. 6. Fixation of parts. 7. Drainage.
F—Subsequent treatment	1. Passive motion. 2. Active motion. 3. Forcible extension.
G—Prognosis	1. Mandible. 2. Hip. 3. Shoulder. 6. Elbow. 5. Knee

The treatment of ankylosis in the past may be classified as the forcible separation of the adherent surfaces, and endeavor to maintain motion after the adhesions had once been freed (*brisement*). In a very small percentage of the cases, namely, those of synovial adhesion without organic union, the result was gratifying. In the enormous percentage of cases in which the lesions were due to necrosis of the synovial membrane or to fibrous or osseous union of the articular surfaces, ankylosis recurred after *redressement,* and the limb was in as bad, if not in worse, condition than before.

Schuh, in 1853, mobilized the patella with the chisel by cutting the synechia, but interposed nothing, and the ankylosis recurred. Cramer[8] says that operations in which the adhesions were separated by forcible distension (Ollier), by the mallet (Hueber), or by the chisel (Schuh) rarely have been successful, and that the Brachi method of establishing movement of the patella by manipulation is equally unsatisfactory.

Helferich, in 1899, proposed to free the patella with a chisel and to interpose part of the vastus internus between the patella and femur to prevent adhesion. He did not perform the operation.

Cramer[9] saw 10 cases of ankylosis of the patella, in 7 of which he operated by interposition of the vastus internus; 6 operations were successful. This does not imply ankylosis of the knee joint, but of the patella alone.

Verneuil[10] and Helferich preceded him in this idea, both in suggestion and performance, by the interposition of portions of the muscle and fascia in temporomaxillary ankylosis.

Chlumsky[11] states the following: "The treatment of complicated contractures and ankyloses of the joints as far as *restitutio ad integrum* is concerned gives very unsatisfactory results. I have collected 14 cases of ankylosis, other than tuberculosis of the knee joint, with contraction, which occurred in the last 10 years in the Breslau Surgical Clinic and were there treated, and in not a single case was there improvement in the mobility of the joint." He found also no better results recorded in the literature on the joints, and for that reason undertook experiments in the endeavor to clear up the question. He then attempted, through forcible extension and flexion repeatedly done under anesthesia, to secure mobility of the joint. After each trauma there were additional deposits of osseous and fibrous tissue, and the cases were uniformly worse after than before the operation. He reasoned that the interposition of muscle or fascia, such as takes place in pseudoarthroses after fracture, should give good results. Good results along this line were obtained by Mikulicz, Helferich, Lenz and Riegner, and, with this knowledge, Chlumsky concludes that in large joints this procedure is not possible, either through failure of preservation of the interposed parts or on account of technical difficulties.

Not satisfied to abandon the field, he decided to resort to the interposition of foreign bodies and conducted a large number of experiments. The materials used were plates of celluloid, silver, zinc and rubber, cambric, and layers of collodion, and, while he succeeded in retaining mobility with these interposed materials in some cases, a fair preservation of the articulation beyond four and one-half months was not obtained. The ankylosis ultimately occurred and the foreign body became extruded from the joint. He, therefore, concluded to substitute, for the unabsorbable material, absorbable material, such as decalcified bone, ivory and magnesium. In these cases, at the end of from three to twelve weeks, he found various degrees of absorption and in some a moderate attempt at the formation of a joint, but with very unsatisfactory results on the whole.

At this period, Oct. 5, 1901, I performed my first operation, Mr. D. (full particulars given under the heading of "report of cases").

Hubscher[12] used magnesium foil, 5 millimeters in thickness, in ankylosis of the patella. Speaking of the different methods and experiments, he mentions Bruns, who has successfully transplanted the flexor tendons after five years of immobilization by adhesions. He failed to secure freedom of the patella.

McIlhenny[13] operated for temporomaxillary ankylosis by osteoclasis and the formation of a new joint. The details of the operation were as follows:

An Esmarch incision was made on the right side, exposing the jaw bone from the sigmoid notch to a point a little anterior to the angle. The masseter was retracted and a wedge of bone, one-half inch in diameter, was removed from the neck of the condyle just above

8. Paper read before the 30th Congress of the Deutsche Gesellschaft für Chir., Berlin, April 13, 1901.
9. Arch. klin. Chir., 1901, vol. lxiv, p. 696.
10. Verneuil, A.: Archives de Medecine, 1860, p. 284.
11. Chlumsky: Centralb. f. Chir., Sept. 15, 1900. Wien. klin. Woch., 1902.
12. Hubscher: Corresp.-blatt f. Schweiz. Aerzte, Dec. 15, 1901, vol. xxxi, p. 785.
13. McIlhenny: New Orleans Med. Jour., April, 1901.

the insertion of the external pterygoid. The same procedure was followed on the opposite side, with the result that the mouth could be opened to almost normal. The tongue was found attached and was carefully freed. The ends of the bone were rounded off and the cavity was packed with iodoform gauze. Fibrous bands in the side of the mouth gave trouble and these were stretched, divided by tenotomy and the external wound finally closed. The patient was able to chew for the first time in 15 years. (From the description of this case I infer that the union was a fibrocartilaginous one and not the formation of a new joint.) Shortening the neck and removing the head of the mandible allowed the temporal and masseter muscles to act as a pivot on which the jaw revolved. The practical result was excellent.

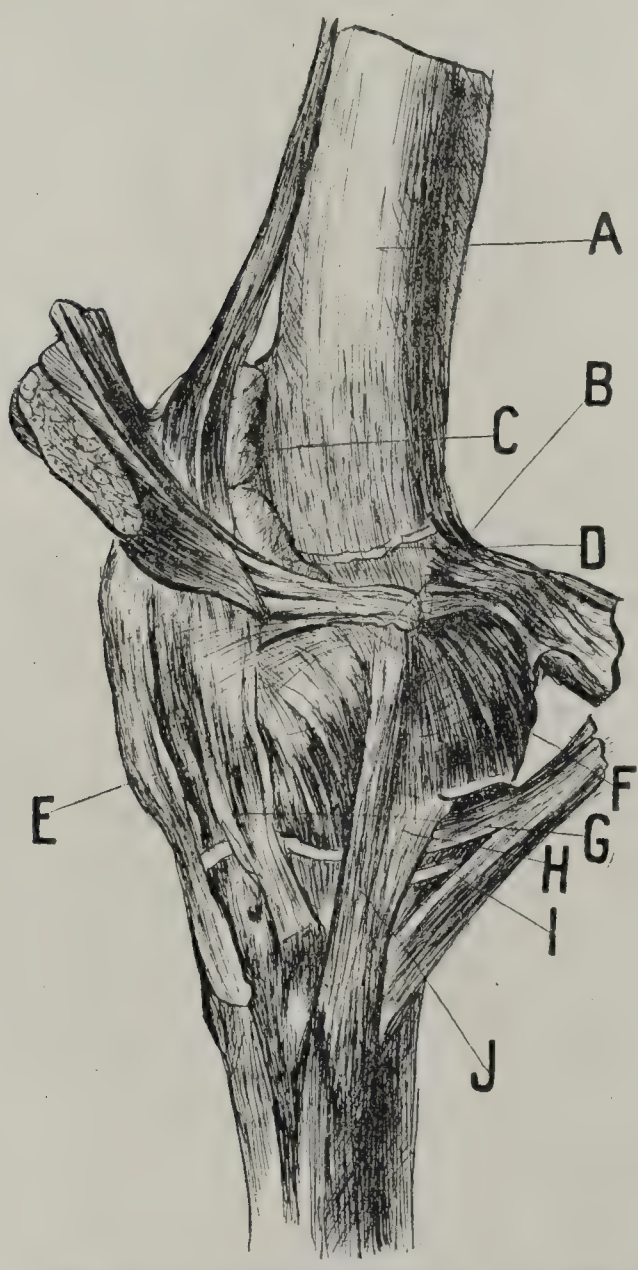


Fig. 7.—The ligamentous bands extending from supreme point of inner condyle (B) to inner tuberosity (I) should be retained.

Gluck, of Berlin, at the 31st Congress of the Deutsche Gesellschaft für Chirurgie (Berlin, April 2-5, 1902), presented a little girl whom he had treated for gangrenous stomatitis and septic phlegmon of the mouth. The alveolar process and the teeth were gone. The cicatricial tissue was removed after Gussenbauer's method and a flap of skin transplanted into the mouth. He referred to two other cases of bony ankylosis of the temporomaxillary articulation. The joints were mobilized and the wound was tamponed. Ten days later, with the hammer and chisel, portions of the bone were removed. A cutaneous wedge was implanted, with attachment to the bony surfaces, to interpose and prevent union. The wound healed; the mouth could be opened to the maximum. He believes the cutaneous flap is the best for this purpose. He promised a more complete report later, which did not appear.

A. Blencke[14] advocates conservative treatment of these joints with the apparatus of Lorenz and Helferich. Calot does not believe in force or violence in the restoration of motion in ankylosed joints.

Golebiewski recommends his apparatus for the treatment of ankylosis and says he has obtained very good results. (If by this he means good results where bony or fibrous ankylosis existed and the synovial membrane and cartilage had been destroyed, it does not correspond with our knowledge of the process of repair of these surfaces under such circumstances. I, therefore, believe that he must have referred to the purely adhesive cases of arthritis.)

In treating ankylosis the points to be considered are the type of ankylosis, the tissues involved, and the pathologic lesion producing the ankylosis.

In the extracapsular variety, elongation of the tendons should be performed; by that I do not mean forcible elongation, but plastic elongation, either by

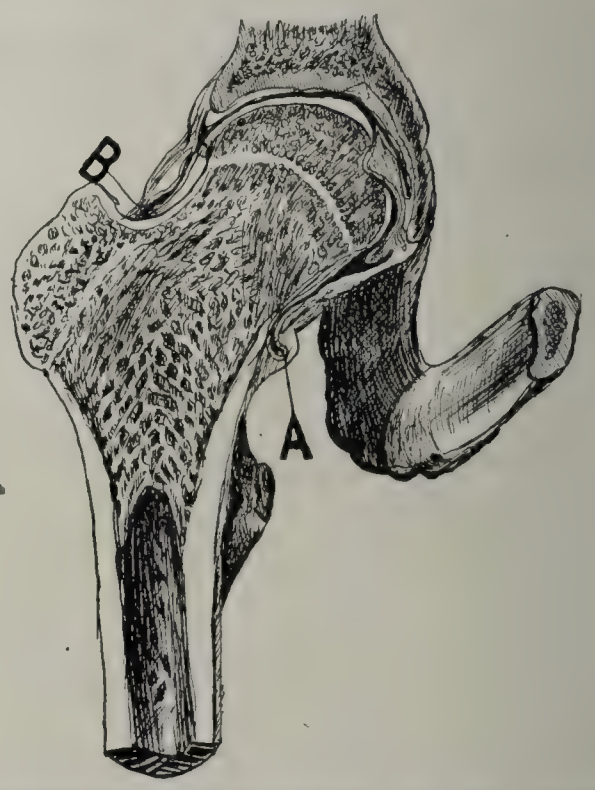


Fig. 8.—Vertical section through the hip joint, showing extension of the synovial membrane onto anatomic neck of femur.

tendoplasty or myoplasty. The forcible elongation of a muscle or tendon that has been fixed for a long time is very unsatisfactory, both in its immediate and ultimate results. Tendoplasty properly performed is a safe and rational procedure and tends to immediate and permanent restoration of function.

Tenotomies and myotomies with forcible extension in all muscular contractions fail to give free motion in the joint. Plastic elongation of the muscles gives very desirable results. The extensor tendons should always be given the advantage, as they are always weaker than the flexors. A portion of the true capsule of the joint can be dissected from beneath the quadriceps tendon, and spread out over the surface of the femur in cases of ankylosis of the patella. This will least interfere with the functions of the joint. It is possible that this capsule may be utilized to cap the end of the femur in tibio-femoral ankylosis.

Where a tendo-vaginitis has existed, and there is agglutination or organic union of the tendon to its sheath, exsection of the sheath is the proper procedure. After

14. Blencke: Zeitz. f. orthoped. Chir., vol. viii, No. 1.

exsection the tendon should be surrounded or covered with a layer of connective tissue, with as much of the fatty tissue as can possibly be secured; or the aponeurosis of a muscle may be turned over, or turned upward or downward, so as to cover the tendon and protect it from union to fixed bony prominences, or to immovable and inelastic ligaments or adhesions to the skin. In connection with the knee and elbow, this procedure is of great importance in securing a rapid restoration of function. Cicatrices, either from phlegmons or burns, should be extensively dissected and their places supplemented by large cutaneous flaps, with much of the fatty tissue attached. Area flaps that are transplanted enlarge about one-third of the original size later if they are subjected to pressure or to traction. After transplantation they do not enlarge beyond one-third.

Ankylosis from adhesive synovitis, with fixation of the capsule to the head and neck of the bone, and with subsequent contraction and cicatrization of the capsule, promises excellent results, if the capsule be completely excised and with it the closely attached ligaments. The head and neck of the bone should then be surrounded by an aponeurosis or muscle, to prevent the reforming of adhesions. The mere division of the capsule, without its exsection, does not tend to produce a favorable result, as it reunites and so fixes the joint. It must be borne in mind, as a principle in all of these operations, that the

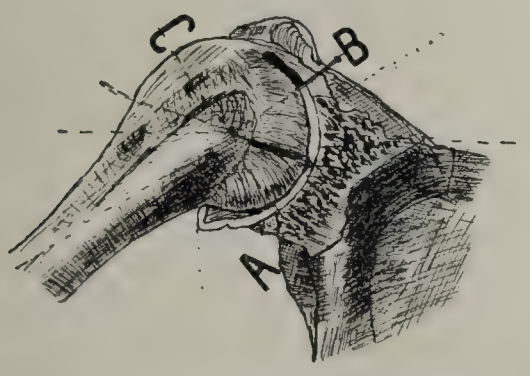


Fig. 9.—Vertical section through shoulder joint. The capsule surrounds the head of the humerus and extends onto the anatomic neck.

joint should permit of free motion and should be free from severe tension on tendons, capsule or ligaments. If there be great tension under anesthesia, there will be tension and pain beyond the ability of the patient to tolerate when the effect of the anesthesia has subsided. In all of these operations liberation of the articulation should be to the degree of easy, flail motion, rather than to restricted and limited mobility. In the knee, when the capsule and periarticular tissues have been involved in pathologic processes, the posterior hamstring tendons and quadriceps and patellar tendons with the crucial ligaments are the only attachments that should be allowed to remain at the time of the operation. All the other ligaments and the capsule should be carefully dissected and removed and the flaps so arranged that these ligaments will not be reproduced. If the capsular ligaments of the joint alone be divided and a muscle or aponeurosis interposed, the union through this muscular aponeurosis will become so strong and firm before the joint admits of painless passive motion that passive or active motions will be impossible. A point to be remembered in arthroplasty is that flaps receive nutrition rapidly from the rich vascular supply to the ends of the bone, and that, as flaps are made up principally of fatty and elastic fibrous tissue elements which have but a slight vascularity, they receive nutriment by osmosis, while a circulation is developing.

I believe that my early failures in production of motion in the knee joint were due to the fact that I did not remove a sufficient portion of the lateral ligaments and capsule of the joint. In other words, I did not free the tissues sufficiently to permit early, free, unrestricted motion. If the lateral ligaments of the knee joint be retained at all, they should be retained as small bands extending from the supreme point of the internal and external condyles to the internal and external tuberosities, and not more than half an inch of these bands should be left (Fig. 7). This is the pivotal point in retention in the joint, and the distance between these two points is not changed, no matter in what position the limb may be placed. It can be seen from Figure 8 (Toldt) that the synovial membrane extends well out

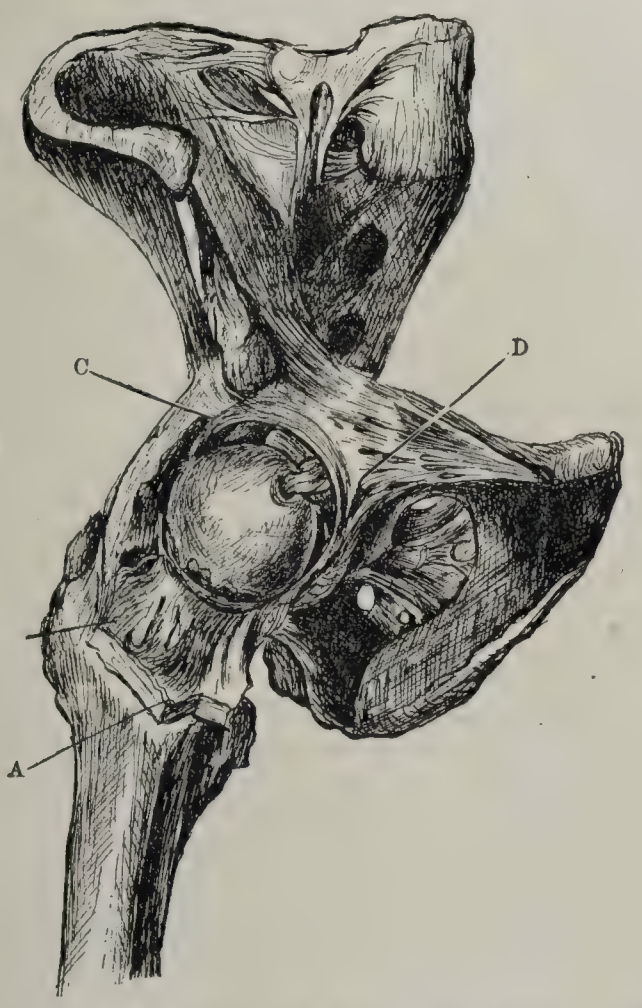


Fig. 10.—Interior of right hip joint. The synovial membrane and capsule from B to C and from A to D must be removed.

onto the anatomic neck of the femur and in the shoulder the true capsule extends out to the major tubercle and completely surrounds the head of the humerus, as well as the glenoid cavity (Fig. 9). This capsule must be freed by a complete excision if one hopes to get a movable joint from the interposition of aponeurosis or muscle. In the same manner must the synovial membrane from *B* to *C* and *A* to *D* in Figure 10 (Toldt) be removed, with the capsule, if one hopes to get a movable joint, without tension on the capsular ligament.

The same law governs the temporomaxillary and elbow joints, but it requires more accurate skill and care to remove the capsule in the two latter than it does in the three former articulations. In all these joints it will be noted from the drawings that there are pivotal points of retention, and the tissues left attached must be so balanced as not to bring tension when the circumference of these pivotal points is put in motion; further-

more, the limbs must be hyperextended and abducted, as the adductor and flexor muscles are usually the ones that are contracted, and the extensors and abductors, as a rule, are the weaker set of muscles. This weaker set, therefore, should be given the advantage in position of the limb immediately after operation. Tenotomy, myotomy, tendoplasty or myoplasty may be performed at the time of the operation. Great care must be taken, however, in operating on the quadriceps or on the triceps tendons that the line of union is not permitted to adhere to the bone, as this would permanently incapacitate the muscle and prevent contraction. This can be readily avoided by interposing a flap of fatty tissue, muscle or aponeurosis from the neighborhood.

In general the elements which have contributed most to the failures have been:

1. The insufficient or defective exsection of the synovial membrane, capsule and ligaments.
2. Insufficient interposition of fat and aponeurosis, or of fat and muscle, between the separated bony surfaces.
3. Infection.
4. Sensitiveness to pain on motion after operation.

Where osseous union has existed, it is important to disconnect the bones in as nearly their normal line of union as possible. This can be done with the narrow chisel better than with the saw. In the shoulder and hip the chisel can be used to separate the bones so as to outline the line of fracture as deeply as is necessary to secure nearly the normal conformation both of the head and cavity. All bony prominences that may impinge against other bones in extreme degrees of motion should be removed; for example, the coronoid process and the tip of the olecranon process. The soft parts should be liberated most thoroughly. It appears a repetition, but it can not be too forcibly impressed on the operator that this is essential to a good result, and muscular aponeurosis with fat makes the best interposed tissue. If the aponeurosis can not be found, then the muscle and some fatty tissue should be substituted, as the muscle, when subjected to pressure, gradually flattens out into an aponeurosis in many joints, but it does not well withstand the early pressure which is necessary to a good result.

The development of a hygroma from pressure of fatty tissue should be the uniform result, as was shown in experiment No. 2 and as occurred so perfectly in my first hip case. When the muscular contraction is great it may be overcome by Buck's extension. So much for the general consideration of the operative technic. Now to the individual joints.

The temporomaxillary ankylosis was the first to direct the surgeon's attention to the necessity of this type of surgical intervention. So far the results have been mostly of the fibrous union type, but by using the temporal fascia and fat, which can readily be interposed on the cadaver, it should be possible to produce movable and perfect joints on the living subject. In cases in which there is cicatricial contraction of the cheek muscles and fascia, following trauma, the head of the bone should be excised. If much cicatricial tissue exists on the mucous side, a flap of skin from the neck, with its pedicle below the ear, can be passed into the mouth and the skin kept toward the teeth. The skin acts as a good substitute for the mucosa and excellent motion can be secured, as in a case I operated on in this manner in 1898. The result is good at the present time.

(To be continued.)

THE TREATMENT OF BONE CAVITIES.

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Every surgeon knows how necessary it is to secure apposition of the soft tissues in order that perfect union may follow. He also knows that by the judicious use of buried absorbable sutures and pressure he can avoid the dangers of dead space. There are some wounds where soft and bony tissues are both involved; for example, an excision of the elbow, in which it is impossible to avoid dead space, because it is necessary to keep the cut bone ends separated to prevent bony union, and in which it is not practical to fill the gap with the soft tissues. Under perfect conditions, Schede's method of allowing the space to fill with blood clot will yield favorable results, but, unfortunately, perfect conditions seldom obtain. This blood clot is the very thing we are trying to avoid when we try to obliterate dead space, because it is such a good culture medium and is so liable to end in suppuration. Although the intelligent use of the blood clot is of very great value, it is open to so many objections that we are constantly trying to avoid it by obliterating dead space. That we should ever deliberately use it is a surgical paradox.

The surgeon experiences even greater difficulty in overcoming bony defects because nature seems to be less helpful in dealing with bony tissues. Schede's method has also been employed in filling cavities in bone, but it is open to the same objections here as in the soft parts—with one exception—and when it does succeed shrinks so that the end results are not eminently satisfactory. The exception is that in bony tissues the size of the blood clot can be better controlled.

Newber's method of turning the periosteum and integumentary flap into the bone cavity and fastening it there is only applicable to very superficial bones like the tibia, and leaves very unsightly scars.

The modern surgical belief is that a local tuberculosis should be treated by removing it just as if it were a malignant growth, because untreated it has a natural tendency to spread, and because the removal is so successful. Having removed a focus of this kind from bone, a very common method of treatment is to pack the wound with iodoform gauze and to keep repacking it until it is healed from the bottom. This is a tedious and at first a painful process, and not infrequently there is a recurrence of the disease in the sinus in spite of every precaution. A bone cavity made for the removal of a tuberculous focus where there is no mixed infection is an ideal one to fill with some artificial material which will permit the complete closure of the wound.

The modern operation of necrotomy for the removal of a sequestrum following osteomyelitis is a very safe and satisfactory one. The dangers from sepsis are removed by our present methods of wound treatment, and the danger from hemorrhage which was at one time a very grave one, is now completely overcome by the use of the Esmarch's bandage. Another very great advantage of this bandage is that when it is applied we can use the strongest disinfectants without fear of poisoning from absorption. It is very important that it be always used in operations on chronically inflamed bones, because without it the hemorrhage is always troublesome and ofttimes dangerous. Having removed the dangers from this operation, the only drawback is the very slow healing of the open wound. When we

can fill this cavity with some material that will admit of the immediate closure of the wound, thus doing away with the protracted convalescence, we shall have attained surgical perfection.

Chronic bone abscess without necrosis is also a very favorable condition for the use of an artificial bone plug, because the cavity is easily sterilized and the immediate closure of the wound saves the patient weeks, and sometimes months, of time and suffering.

Dentists have for a long time excited our admiration by the skill with which they fill cavities in teeth with artificial filling, but they admit that they have not yet found a perfect filling material. Surgeons have faithfully applied dentists' methods and materials to the filling of bone cavities, but have failed because the materials act as foreign bodies on the soft parts and cause trouble. Plaster, cement and copper amalgam have been tried and found unsatisfactory. The last notable effort made in this direction was by Senn, who advocated the use of decalcified bone chips. These chips were dusted with iodoform, packed into the cavity and the wound closed. The interspace between the chips necessarily became filled with blood clot. While meeting with a measure of success, the failures were so numerous as to prevent this material from coming into general use.

In January, 1903, von Mosetig reported a large number of successful results from the use of a new bone plug. In my original title I spoke of this material as Moorhof's bone plug, because my knowledge of it came from his extensive and successful use of it in his clinic at Vienna.

This material consists of sixty parts iodoform, forty parts spermaceti and forty parts of oleum sesami. These ingredients are slowly heated to 100 C., and when allowed to cool form a soft solid which remains solid at the temperature of the body. For use it is heated to 50 C., being constantly stirred to keep the iodoform evenly distributed. At this temperature it can be poured into the cavity, where it immediately solidifies. This material does not act as a foreign body, nor does it act as a culture medium. It possesses the inhibitory and medicinal properties of iodoform without causing iodoform intoxication. Its physical properties are such that it is gradually absorbed and replaced by granulations and finally by new bone. Moorhof shows many skiagraphs illustrating this process.

In using this material the most important part of the technic is the preparation of the cavity. It must be dry and sterile. When the cavity is largely surrounded by soft parts it is impossible to prevent some oozing into it, and it is advisable to provide for some temporary drainage, preferably by a few strands of catgut which will absorb and thus avoid the necessity for an early change of dressings. In tubercular cavities where there is no mixed infection, and in chronic bone abscess where the cavity is practically sterile, success is almost certain, but in tubercular cavities with mixed infection and in those made for necrotomy it requires the utmost care to secure asepsis. The soft parts and the periosteum should be retracted, and the bony covering sufficiently removed to admit of free access to the cavity. All diseased or necrotic tissue must be removed and the cavity dried and disinfected. The drying can usually be done by means of gauze. An adrenalin solution has been used where oozing is persistent. One to 500 bichlorid or a 12 per cent. solution of chlorid of zinc have been used for disinfecting the cavity, but I prefer the 95 per cent. carbolic acid followed by alcohol. With the Esmarch's bandage applied and the cavity thoroughly dried the cavity can be filled with the acid, which may be left for several minutes with impunity. Moorhof uses an electric hot-air blast in his clinic, which both dries and disinfects the cavity. A Paquelin can be used, but is not so convenient.

The cavity having been prepared, it is poured full of the melted material. The periosteum is closed with catgut and the integument with fine silk, after which a copious surgical dressing is applied and the part is put at rest. This treatment can not be used in acute osteomyelitis, because the cavity can not be sterilized.

My experience with this material, although limited, is sufficient to satisfy me that better results can be obtained in these cases through its use than by any older method.

As an illustration, I will briefly report 4 recent cases:

CASE 1.—W. B., of Minneapolis, a boy aged 6 years, with a badly united fracture of the inner condyle of the humerus. Both extension and flexion are greatly limited by bony impact. Aug. 16, 1904, at the Northwestern Hospital, Minneapolis, arthrotomy was performed. The condyle was found rotated on its transverse axis and united in such a manner as to make improvement impossible without an operation. It was impossible to separate the fragment and restore it to its normal position without endangering its circulation, so the projecting points were shaved off with a cartilage knife until the joint could be flexed and extended to the normal limits. After careful hemostasis the cavity was filled with paste, the wound closed without drainage and the arm put up in a plaster-of-paris bandage in full extension. In two weeks the dressings were removed and the wound found to be perfectly healed. A plaster splint was then applied with the arm flexed to a right angle. At the end of about five weeks all dressings were removed, passive motion employed and the boy encouraged to use the arm.

The arm at the present time is very much improved, although somewhat restricted in both flexion and extension. I am satisfied that the presence of the paste, by keeping the raw surfaces apart enabled me to secure a much better result than I otherwise would.

CASE 2.—Rose W., of Loretta, Minn., 19 years of age, with a well-marked tuberculosis of the elbow and failing health. Operation at the Northwestern Hospital Aug. 19, 1904. Through a straight posterior incision a complete excision of the joint was made, all of the synovial membranes and the ends of all three bones being removed, leaving quite a large cavity but no trace of disease. After most careful hemostasis the cavity was completely filled with the bone plug and the wound closed without drainage. Over a copious dressing a plaster bandage was applied with the arm in full extension. Very little pain or reaction followed and at the end of two weeks the dressings were changed and the stitches removed. The wound was healed with the exception of one small point where some blood serum was escaping. A copious surgical dressing and plaster splint were applied with the arm in extension as before. After three weeks the dressing was removed and the wound found perfectly healed. The arm was then flexed and a plaster splint applied. Two months after the operation all dressings were removed and the patient advised to begin careful use of the arm. On December 17, four months after the operation, the patient reported for examination. She has gained over twenty pounds in weight and has the most perfect result I have ever seen after a complete excision of the elbow. With the patient standing and the arms hanging there is no perceptible difference between them. She has complete extension and supination. She can pronate freely, can readily grasp her nose and can even do up her back hair with the operated arm. No trace of the bone plug can be felt. The bone plug, by filling the dead space and keeping the bones well apart, gives nature a chance to form a new joint, at the same time, by

its gradual absorption, it allows the bones to approximate so as to prevent a flail joint. The lateral motion in this joint is only perceptible when one takes hold of the arm and bends it sidewise. It is evident from my experience in this case that when the soft parts are extensively involved it would be better to provide for temporary drainage of blood serum.

CASE 3.—Mrs. M. R., of St. Paul, aged 49. Early in 1904, at a St. Paul hospital, this patient had the ninth rib removed from her left side for tuberculosis. The wound was packed with iodoform gauze and was about six months in healing. When she came to me early in September there was an extensive tubercular infection of the fascia in the epigastric region and of the ninth costal cartilage on the right side. Sept. 9, 1904, at the Northwestern Hospital, I lifted an extensive flap from the epigastric region and dissected out the diseased tissues. The wound was closed without drainage. An incision was then made over the tender swelling along the rib and cartilage. The whole cartilage of the ninth rib was found loose in a bed of tubercular granulations. The cartilage was removed, the granulations curetted away and the cavity filled with 95 per cent. carbolic acid. This was followed by alcohol and the cavity thoroughly dried. The cavity was then poured full of the melted bone plug and the wound closed without drainage. The stitches were removed on the eighth day. Union was perfect throughout, although there was considerable effusion of serum under the larger skin flap in the epigastrium. This all disappeared without leakage and in two weeks the patient went home free from pain and temperature. Two months after the operation there was no depression at the point where the cartilage had been removed, showing that the gradual absorption of the plug had enabled nature to fill in the space without deformity. This case demonstrates the advantage of filling a cavity with the bone plug over the open method with gauze packing.

CASE 4.—Sam S., of Iron River, Wis., aged 28. The patient was suffering from hypertrophic osteoarthritis of the left hip. November 20, at the Northwestern Hospital, I removed the roughened hypertrophied head of the femur through an anterior opening. Hemorrhage from the bone was very severe, which required temporary packing and hot water to check. It was impossible to check it entirely so as to allow me to fill the cavity with the bone plug at once, as I had hoped to do. The cavity was packed with iodoform gauze, which was left for two weeks. Notwithstanding the fact that I had repeatedly tested the temperature of the hot water used to check the hemorrhage with my hand, it was so hot that it caused necrosis of the subcutaneous fat and quite a slough around the wound. However, by careful cleansing and free use of 95 per cent. carbolic acid, I was enabled to pour in the bone plug when the packing was removed after two weeks. The patient has been practically free from temperature and pain since the introduction of the plug and is rapidly convalescing. He certainly has been more comfortable and is making a more rapid recovery than he would under any other treatment with which I am familiar. It is extremely doubtful if an infection of the joint could have been avoided in any other way in this case.

MODERN TREATMENT OF TUBERCULOSIS.

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It would be impossible fully to present this phase of the subject in the time allotted, so I will speak only of essentials, and be as brief as possible.

By modern treatment I mean the general lines of treatment now carried out in practically all closed sanatoria for tuberculosis, following after Brehmer, the leader. Closed sanatoria are those in which patients are compelled to follow a daily routine prescribed by the physician in charge.

This system of treatment rests on the hygienic tripod —pure air, special diet, and rest, rest including exercise. This seems so simple as to require very little study on the part of the physician. Indeed, the danger is that the public may come to believe that there is scarcely need for a physician, once the diagnosis is made. Only recently a lady asked me to give her, by telephone, directions for the fresh-air treatment of consumption, which she wished to send to an acquaintance in another city. Fresh air day and night, milk and eggs in abundance, and rest when the temperature is above 100 degrees—that seems to some to be all there is to it.

If there be a specific in medicine it is mercury and iodid of potash for syphilis; but what different results are obtained by different physicians in the use of these two drugs!

In no other disease is it more essential that we treat the patient and allow the disease to take care of itself than in pulmonary tuberculosis. Thousands of patients get well without a physician; many of them never suspect they had the disease.

Tuberculosis is a fight between the bacillus and the body, which makes use of its vital force to kill, to expel, or to capture and imprison the invader. The struggle is often a losing one because these bodily forces were originally lacking or weak, or because they were not supported and augmented by proper hygienic measures at the right time. That is, modern treatment was not instituted until the bacillus and its toxins had gained such an ascendancy as to make resistance impossible.

Individuals differ so much, and tuberculosis varies so greatly in its effect on the patient, that no two cases can be exactly alike; nor will precisely the same treatment be appropriate in both. Broad lines may be laid down, but there must be constant departures and variations in detail if the patient is to secure the greatest possible benefit from treatment.

Of first importance is pure air for every hour in the twenty-four. It is not possible to have the air in any enclosure as pure as the air out of doors, though we may approach it. An open window in one wall of a bedroom with all other openings closed will not afford pure air. With cross ventilation it is much better.

If a patient must occupy a bedroom there is a choice in location, and the physician should decide. A room facing south is preferable; extra windows may be cut. A fireplace and chimney help in ventilating the room, but soft coal gives off too much dust. The floor should be bare, painted, and with cracks filled. It is advisable to have the walls painted for from three to four feet from the floor, or covered with washable paper. No broom or dusting brush should ever enter this room; the floor should be wiped with a moist cloth every day. None but the patient should occupy it.

It is needless to say that the most scrupulous care should be taken of the sputum. Patients may reinfect themselves as well as others. The temperature of the room may be kept at 50 degrees, or even 55 degrees, if pure air is not shut out to do it. We should aim to have patients comfortable, but they easily support low temperatures if constantly exposed to cold pure air.

Where patients eat with the family, and spend a part of their time in living rooms heated to 75 degrees or more, they may complain of the cold. The family must make sacrifices for the sake of good ventilation if the patient is to spend much time with them.

The patient may secure pure air at night by pushing the head of his bed out of the window. I know of a case where this plan has been followed every night for more

than a year. Most of the patients in sanatoria in the Adirondacks sleep on verandas even in winter. These usually have sliding glass windows to shut off direct winds. A suitable portico may be found in a private dwelling and arranged so that the patient may use it both for a day room and for a sleeping place.

Tents may be used. Canvas is practically air-proof, hence sails are made of it. An ordinary tent with curtains down is a bad place for a consumptive. There are a few good ventilating tents on the market, but they are somewhat expensive.

To aid patients to support lower, and especially sudden changes in, temperature a daily sponge bath and brisk rub are useful. It may be necessary to commence gradually, with alcohol and tepid water; some patients do not react well, and these the cold bath may harm. The cold sponge stimulates many bodily functions, and is usually of great help. Direct sunlight is a potent stimulant, and sunbaths, exposing the naked body, may be used at times with advantage.

Suitable arrangements should be made for those who must rest lying down most of the day. They may have a comfortable reclining chair in a sheltered nook out of doors. Covers of the right sort must be provided, and possibly, especially in the beginning, artificial heat. Nose and ears must be guarded from frostbite.

Clothing should be warm but light and porous, and wool is the best. Pettenkofer has shown by the use of tiny anemometers that currents of air are constantly produced in our clothing. This is especially marked in clothing of loose texture. These air currents carry off body emanations. A flannel night-dress (a woolen bath robe is good) is needed at night in winter. Walking patients should go out in all kinds of weather except in a driving rain or wind storm. The feet should be kept warm and dry.

Many other points could be mentioned, and may need to be made use of, in providing for the pure air and outdoor life so essential in these cases.

Food and feeding come next. Dettweiler said: "The kitchen is my pharmacy!" The patients need an abundance of fatty and nitrogenous food. In taking the history of cases, so far I have found but one with a fondness for fat; nearly all the others expressed repugnance for it. Loss of weight is a common but by no means universal symptom of pulmonary tuberculosis.

The appetite is usually impaired or lost. Ability to digest food is nearly always in excess of the appetite. Adroitness and firmness may be required to get patients to eat enough, and artificial digestants may be of temporary use. Milk and eggs are exceedingly useful to supplement other food in many cases, but some patients can not take them. There are few, however, who can not digest and assimilate these articles.

Some excellent authorities, mostly the Germans, favor five meals a day, but many of the German people habitually eat five times a day. In most cases, I would advise three regular meals a day, with meat twice, and milk and eggs or other supplemental food in the forenoon, afternoon and at bedtime. Dr. Flick thinks he has better results in giving patients but one meal a day, supplementing this with rather large quantities of milk and eggs.

Here again the individual must be studied. Where weight has been lost we must try in every way to restore it. If the weight has always been below normal for the height, we should endeavor to get above the weight before illness. A few patients gain enormously, and are show patients in some sanatoria. It is not wise to go too far, however; flabby fat in excess of natural weight is rather harmful than good.

This part of the treatment, for patients at home, will usually cause the physician much trouble. There is always hope for a consumptive who has appetite and a good digestion, and any treatment, drugs or other things that tend to destroy either are certainly harmful.

There are great variations in regulating rest and exercise. It has been laid down as a rule by some authorities that a daily temperature of over 100 degrees demands absolute rest, and this fits many cases, but not all. Gentle exercise, in some patients, especially those of the nervous type, seems even to help lower temperature; some patients do well with morning exercise and afternoon and evening rest.

Other features of the case help decide the matter, especially the heart. The heart muscle is often affected and may be easily overstrained. I know of a case where the patient was given much physical exercise, including long bicycle rides, greatly to his detriment.

Nature, as far as possible, puts a diseased lung to rest. There is less movement of the ribs and of the diaphragm on the affected side, and this is a point in diagnosis. It may be necessary to help nature in this, and a reclining position will give the lungs the most rest. I can not agree with those who would give lung exercises in the acute or in the advancing stage of tuberculosis.

Rest and fresh air improve the quality of the blood, and increase the hemoglobin, which is deficient in this disease. There should be rest before and after eating, as it greatly aids digestion. Rapidly wasting patients should be given complete rest, but it must be remembered that muscular movement greatly aids blood circulation, and in turn, digestion and assimilation. Rest cases may often have massage in bed, as recommended by Dr. Weir Mitchell in nervous cases, to improve the circulation.

Brehmer was an advocate of hill climbing, beginning with gentle grades and always starting up hill. Febrile cases should usually be put to bed and kept there for ten days or two weeks. When there is only slight afternoon temperature, these patients may be started off with a slow five minutes' walk in the morning. Afebrile cases may usually take gentle exercise *ad libitum* short of much fatigue.

Exercise, however, must be prescribed like morphin—by its effect—and it is perhaps the thing most needful of medical direction.

The mental side of the case requires much attention. No patient will long carry out the treatment here recommended without implicit confidence in his physician. This enables the physician to inspire hope and to give encouragement. We do not understand, but must acknowledge the potent influence of the mind over the body, therefore we should use the patient's mind as well as our own in treating tuberculosis; and the great impressibility of many of these patients must be taken into account. Dettweiler found that emotional music, an exciting book, a close game of cards, would often elevate the temperature and do harm. We must provide and regulate the amusements of most of these cases, and usually, for a time, they must be cut off from church, the theater or other crowded assemblies. There is, indeed, nothing a tuberculous patient may do that is too trivial for the physician's notice; a seemingly little thing may turn a doubtful case.

The successful treatment of pulmonary tuberculosis depends very largely on an early diagnosis, and the pa-

tient must be plainly told of his condition in order to get him to carry out hygienic treatment. It is still too frequently the case that the lungs are found much involved before the physician pronounces that ominous word—tuberculosis. Suspected cases should be repeatedly examined—such patients are wronged by telling them there is nothing the matter.

A patient run down from any cause will be benefited by the hygienic treatment recommended for tuberculosis, and we can well afford to give the patient the benefit of the doubt.

Nothing has been said of drugs. They are seldom made use of in well-conducted sanatoria. They should be resorted to only when positively indicated to relieve symptoms that are harming the patient. They should still be withheld if this can be accomplished in another way. There is no specific for tuberculosis unless Maragliano has discovered one, and for the proof of this we must wait, and may wait long.

What has been said applies mainly to home treatment. It is usually, but not always, better to send a patient to a sanatorium, but we should carefully study him before deciding on this, and his character and disposition as well as the progress of his disease must be taken into consideration. In selecting a sanatorium, the physician in charge is of more importance than climate or location.

Even a month's training in a well-managed sanatorium is generally of great value to the patient, and home treatment may then be carried out without difficulty. I strongly protest against sending patients away for a change in climate without medical control. Improper food, stuffy bedrooms and ill advised exercise are as harmful in Colorado as in Ohio. We should know in advance what the patient's surroundings will be, and should place him under the care of a competent physician. Some patients will do better at home than under the most favorable conditions elsewhere, and here again, the patient's disposition must be studied.

In conclusion I would emphasize three points:

First, the supreme importance of early diagnosis.

Second, the strict enforcement of a daily régime, reduced to writing, and carefully planned for each individual case.

Third, the necessity of a comprehensive understanding of the character of the patient, a knowledge of the nature and extent of his lung lesion, and a full appreciation of the importance of even the minute details of his environment.

THE IMPORTANCE OF AN EARLY DIAGNOSIS IN CANCER OF THE UTERUS.*

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There are two forms of cancer of the uterus which we must consider. The more frequent form arises in the cervix of the uterus and grows more rapidly than the other form and sooner invades, by extension or metastases, the neighboring parts. On this account the diagnosis usually has not been made until after the growth has extended beyond the uterus, and, therefore, the operative treatment of this condition has been most unsatisfactory. On the other hand, the form of growth which arises in the fundus of the uterus is much rarer, grows more slowly, and remains restricted to the uterus for a much longer time. For these reasons the diagnosis is made earlier in the course of the disease and the operative treatment of cancer of the fundus is attended with a lower primary mortality and a much higher percentage of cures. In this communication I wish to refer especially to carcinoma of the uterine cervix, and, unless otherwise stated, that will be the form understood throughout the paper.

Cancer of the uterus needs the attention of the medical profession of this country for the following reasons:

1. Dr. Welch[1] has shown from his analysis of over 31,000 cases of cancer, collected from various sources, that the uterus is the organ most frequently affected by primary cancer, forming somewhat less than one-third of all forms of cancer. There have been 11,382 patients admitted to the gynecologic department of the Johns Hopkins Hospital during the fifteen years of the existence of the department ending Aug. 17, 1904. Of this number 412, or 3.6 per cent., suffered from carcinoma cervicis uteri.

2. Unfortunately cancer of the cervix is a disease of midlife. Over 94 per cent. of these 412 cases were over 30 years old, and less than 7 per cent. over 60. The number of cases for any decade between the ages of 30 and 50 years was quite evenly distributed. The number of cases occurring between the ages of 30 and 40 was nearly as great as that of those occurring between the ages of 40 and 50, each forming about 30 per cent. of the cases; and the number of cases between the ages of 35 and 45 was a little greater than any other decade, forming about one-third of all the cases. The oldest patient was 70; on the other hand, six patients were less than 25 years old, three of these being 22. When, in addition to the above, one considers that nearly all of these cases have borne children, for only about 3 per cent. of the 412 cases had never been pregnant, and that the disease apparently runs a more rapid course in young women, and that pregnancy seems to increase the rapidity of the growth, we must realize that those are afflicted by cancer of the cervix who are most important for the welfare of the home, and at a time when they can least be spared.

3. The clinical course of cancer of the cervix is usually most distressing, with the foul discharge, recto-vaginal and vesico-vaginal fistulæ, and pain which can only be controlled by morphin; all of which are so apt to be associated with the advanced stages of this disease. As so many of the cases recur after operation, we realize that the above fate has been only temporarily postponed in a large percentage of the cases operated on.

We all recognize the importance of an early diagnosis in the cure of any diseased condition and that this can be best accomplished by the proper education of the medical profession and through it the people, for whose welfare it is directly responsible.

The above is especially true in regard to carcinoma cervicis uteri, because:

1. It can be cured in a large percentage of the cases if operated on in its incipiency.

2. A diagnosis should be made in the majority of the cases before the disease extends beyond operative relief, for in about 76 per cent. of the 162 operable cases and in about 81 per cent. of the 250 inoperable cases there had been a history of bleeding for over three months before the patient came to the hospital, and bleeding had been

*Read in the Section on Gynecology in the Medical Department of the International Congress of Arts and Science at St. Louis, 1904. (At that time the author was Resident Gynecologist, Johns Hopkins Hospital.)

1. Welch: Pepper System of Medicine, vol. ii, p. 533. Lea Brothers & Co., Philadelphia, 1885.

present for over six months before their admission in about 51 per cent. of the operable cases and in about 60 per cent. of the inoperable cases.

3. Of the 412 patients admitted to the Johns Hopkins Hospital with cancer of the cervix, 250, or 61 per cent., of the cases came too late for anything but palliative treatment, and in addition many inoperable cases were refused admission, thus making the percentage of inoperable cases applying for admission considerably greater than 61 per cent. Even of the 162 patients who were operated on we can not hope that 25 per cent. will be living and apparently free from cancer five years after operation. The failure to obtain these cases earlier is due to—

1. Ignorance on the part of the patients, who consider a bloody vaginal discharge of no consequence, or, through the dread of an examination, delay in consulting a physician until after the growth has extended beyond operative treatment; and, in addition, many believe that if it should be cancer they can not be cured and prefer to remain ignorant of their true condition.

2. The failure of physicians to examine patients who come to them complaining of a bloody vaginal discharge or with other symptoms referable to a diseased uterus, and the inability of many physicians to recognize cancer of the cervix even when it should be recognized, for physicians who have brought patients to that hospital have said that it began as an ulcer of the cervix, which they treated locally with astringents, then curetted, and finally it became cancerous.

3. Malpractice on the part of the physician who knowingly treats such conditions locally for the daily or weekly fee.

4. Growths which do not give rise to any symptoms until after they have extended beyond operative relief. Fortunately these probably form only a small percentage of all the cases; for only about 19 per cent. of the 250 inoperable cases did not have a history of bleeding for over three months, and in nearly all of the cases in which bleeding was either absent or of short duration there were other symptoms present which should have called attention to the local trouble long before it was diagnosed.

The remedy of the above lies in the better education of the physician, so that even if he is unable to make a diagnosis he will undertake means to find out the cause of the trouble. Through the physicians the women of this country should be made to realize that any unnatural vaginal discharge or other manifestations of local trouble may be indicative of some slight disorder which can be easily remedied; or, on the other hand, may be the first symptom of a cancerous growth which, if recognized in time, may be cured.

THE CURABILITY OF CARCINOMA CERVICIS UTERI.

Many physicians believe that cancer of the uterus is incurable, and through them the laity have a similar belief. Patients have been admitted to that hospital who have been told by their physicians that if they have cancer they can not be cured, and physicians have asked if a case of cancer of the cervix had ever been cured. There are at present sixteen women living and apparently well five years and longer after a hysterectomy has been done in that hospital for carcinoma of the cervix. In four of these cases more than ten years have elapsed since the operation. In all but one of the sixteen cases above referred to the clinical diagnosis was confirmed by the use of the microscope. It must be admitted that the growth may return after five years, but the percentage of cases in which it does is very small. One of the patients died at the end of six years from general carcinosis without a local return, and a third patient was apparently well for over five years when a bloody vaginal discharge appeared and a recurrence was found in the vaginal vault. On the other hand, out of 60 patients who have died from a return of cancer of the cervix after operation, and the date of whose death was known, only 4 lived over four years after the operation. Three of these four cases have been mentioned. Of these 60 patients, 26, or 43 per cent., died within the first year, and 44, or 73 per cent., within two years, and 52, or 86 per cent., within three years, and 56, or 93 per cent., within four years of the operation.

WHAT PERCENTAGE OF THE OPERABLE CASES CAN WE HOPE TO CURE?

The comparison of statistics is very unsatisfactory, for many surgeons will operate on favorable cases only and will include in their statistics those cases alone in which they think that the entire growth has been removed; while others (as has occurred in the Johns Hopkins Hospital) have recognized before the operation that the growth was probably ineradicable and at the close of the operation have given an unfavorable prognosis, thinking that the entire growth had not been removed. Generally the unfavorable prognosis has been speedily confirmed; on the other hand, we have had the satisfaction of seeing a few cases in which the patients are apparently well five years and more after the operation, but which were considered unfavorable even at the close of the operation. On account of the above, we had counted as operable all cases in which hysterectomy had been done, irrespective of the nature of the prognosis given at the time of the operation. Previous statistics[2] published by me were made on this basis. In reviewing the cases for the present communication three cases were removed from among the previous operable ones and placed among the inoperable ones. While a hysterectomy had been done in these three cases, the operation was clearly only a palliative one, for no attempt was made to remove all the diseased tissues. On account of this, there is a slight difference between the percentage of cures in this and in the previous publications.

There have been 84 cases in which five years or longer had elapsed since operation, 8 patients died as the result of the operation, and we have been unable to hear from 10. Of the 66 patients of whom we have been able to keep track, the growth reappeared in 50, or 75 per cent. of the cases; and at present 16 patients are living and apparently well, namely, 24 per cent. of the 66 patients heard from. We know that 16 of the 84 patients operated on, or 19 per cent., are at present apparently free from recurrence. Of the 162 patients operated on in this hospital we can not hope that 25 per cent. of them will be living and apparently well five years and more after the operation, for to the percentage of recurrences must be added that of the primary mortality. Two things are obvious: First, that cancer of the cervix of the uterus apparently can be cured, and, secondly, that had these operable cases been diagnosed earlier (and we realize that in over 50 per cent. of

2. Sampson: The Importance of a More Radical Operation in Carcinoma Cervicis Uteri as Suggested by Pathologic Findings in the Parametrium. Johns Hopkins Hospital Bulletin, 1902, vol. xiii, 299-307.

these cases there was a history of bleeding for over six months) the percentage of cures would have been greater and the primary mortality less, for the greater the extent of the growth the less the resistance of the individual and the more severe the operation necessary for its removal, and, in addition, the more likely the return of the diseased condition.

PROGNOSIS IN CARCINOMA CERVICIS UTERI.

A positive diagnosis of this condition can only be made by the microscope, and I should liked to have considered only such cases in this paper, but, as the microscope had been used as a means of diagnosis in only a little over one-half of the inoperable cases, we would have to exclude all those cases which had not been so diagnosed and yet which we realized were cancer. The elimination of a large number of the inoperable cases and of only a small number of the operable ones would give rise to a false conception both of the prevalence and of the operability of cancer, and the changes in its operability from year to year. While we tried to exclude all sources of error in compiling these statistics, we nevertheless realize that they do exist, and for these reasons the percentages in this article must be considered only as approximately correct. Of the 162 operable cases the clinical diagnosis has been confirmed by the use of the microscope in all but 10, and the history of these cases before and *after* operation, together with the description of the pelvic examination and operation, were such as to leave little doubt as to the correctness of the clinical diagnosis, especially as only one of the 10 cases appears in the list of apparent cures. On the other hand, in many of the inoperable cases, the patients were not curetted, and so tissue was not obtained for microscopic examination; but, as the diagnosis of these advanced cases is even more easily made than in the operable ones, there can be little doubt of the correctness of the diagnosis in the 250 inoperable cases, especially as we have not been able to hear of any of them who have lived over three years after the diagnosis was made in this hospital. The only source of error is that in a very few cases the disease may have started in the fundus and the cervix become involved secondarily, and the diagnosis should be carcinoma of the fundus with secondary involvement of the cervix; and a few may have been sarcomata.

It is impossible to keep track of all the patients, because many are admitted to the hospital through the dispensary. These patients are, for the most part, poor, many can not speak English, and others are colored. They belong to the so-called "floating population," who live wherever they can obtain work. In every instance, the hospital has not only the name and address of the patient, but also that of a relative or friend and, in addition, that of her family physician, if she has any. In spite of these three sources for obtaining information concerning the patients after they leave there, we are usually able to hear only from the better class of patients who come from Baltimore, while we are unable to keep track of the greater part of the poor of that city. Fortunately we are able to hear from a large proportion of all those coming from small towns and cities other than Baltimore, because they are sent to the hospital by physicians.

Of the 162 operable cases 135 patients have recovered from the operation, and of this number we have been able to keep track of all but 10 after they left the hospital; while of the 250 inoperable cases we have been able to obtain information from only about 100 patients, because we have not been following them so closely as we have the operable cases, and, then, more of the inoperable cases occur among the poor than among the better class of patients.

In making a prognosis in cancer of the cervix one must consider—

1. The clinical course of the disease not operated on.
2. Whether or not one can determine the extent and further course of the disease from the history of the case, pelvic examinations, findings at operation and a study of the specimens removed.
3. The clinical course of recurrences.

I. THE CLINICAL COURSE OF THE DISEASE NOT OPERATED ON.

Cancer of the cervix usually gives rise to one symptom which can usually be easily recognized by the individual, and that is bleeding. The bleeding may be very slight, "only a show," appearing at intervals, as on exertion or after coitus or after using a douche; or it may be slight, but constant, the patient noticing that her clothes are slightly soiled on taking them off at night. In other cases the bleeding is more profuse, so that it may appear like a prolonged profuse menstrual flow or as an irregular menstruation or a return of the flow after the menopause. In still other cases there may be severe hemorrhages, so severe that the patient may faint. These hemorrhages may occur without any apparent cause or following some unusual exertion. By this usual manifestation of the growth, in many instances, we have a probable means of estimating the duration of the disease. In some cases bleeding may be absent or present only in the later stages of the disease, but such cases are apparently less frequent; and, even in these cases, other symptoms are usually present which should make the patient realize that something is wrong and so lead to an examination and diagnosis, as has been mentioned.

We realize that certain factors must influence the rate of growth. Certain types of cancer may grow more rapidly than others and sooner invade the neighboring parts by direct extension or by metastases. Also, some individuals may be less resistant to the extension of the growth than others, and apparently the growth is slower in women past the menopause, while in younger women it seems to run a more rapid course, and pregnancy seems to hasten the rate of growth. In considering bleeding as giving us an idea as to the duration of the disease, before the patient entered the hospital in some of the cases, we find that in the operable cases, as compared with the inoperable, bleeding was absent in about 9 and 6 per cent. of the cases, while it was present for over three months in about 76 and 80 per cent.; over six months in about 50 and 60 per cent.; over one year in about 20 and 29 per cent.; and over two years in about 7 and 9 per cent. of the cases. We have been able to learn the date of death in 90 of the inoperable cases, and 75 per cent. of these patients lived less than one year after leaving the hospital and over 50 per cent. lived less than six months, and only two of the 90 patients lived over two years after leaving the hospital. The duration of the disease as indicated by bleeding in these 90 cases was less than three years in 92 per cent. of the cases and over six months in 75 per cent. and from one to two years in 45 per cent. of the cases. There have been two among the 250 inoper-

able cases in which there has been a history of bleeding for five years before the patient's admission, and there were two patients among the operable cases with a history of bleeding for three years before admission. If we take bleeding as usually giving the first indication of the disease in some of the cases we must conclude that the disease seldom exists with this clinical symptom for over three years, and that three-quarters of the patients die within two years, and about one-third within one year after the appearance of the first sign of bleeding.

Patient.—Mrs. E. L., aged 34 (Gyn. No. 7493), was admitted to this hospital in January, 1900. Bilateral ovarian cysts were removed, together with the uterus and appendix, a supravaginal hysterectomy having been done, leaving in the cervical stump.

Present Illness.—The patient was readmitted (Gyn. No. 11404) in July, 1904, complaining of bleeding of eight months' duration.

Examination.—On examination an extensive cancerous involvement of the cervical stump was found, which extended along the anterior vaginal wall almost to the external urethral orifice. The cervix was apparently normal at the previous admission, and this entire change must have taken place since she left the hospital a little over four years ago, and, judging from the symptoms, was only of eight months' duration. This is the only instance we have been able to find of cancer of the cervix developing after the patient left this hospital.

II. CAN A PROGNOSIS BE MADE AT THE TIME OF THE OPERATION?

Under this head one must consider the history of the case, what may be learned from an examination and also what is found at operation and the results of a study of the specimen removed.

Prognosis Made from the History of the Case.—Of 26 cases living and apparently free from cancer three years and more after operation 20 per cent. had bleeding as a symptom for over one year and 45 per cent. had the same symptom for less than six months. In 74 cases in which a recurrence occurred after operation 16 per cent. of the patients had bleeding as a symptom for over one year and 47 per cent. had the same symptom for less than six months. One must conclude that a history of bleeding over a long period does not necessarily imply that the disease is far advanced, or if the period is of short duration that the disease is also "very early." On the other hand, a history of no bleeding or one of short duration may reveal an extensive growth, as shown in the study of the 250 inoperable cases, where in 19 per cent. of the cases the bleeding was either absent or of less than three months' duration. Again, when the bleeding has existed over a long period of time, as over a year in 20 per cent. of the 26 cases free from recurrence three years and more after operation, it may indicate that in the case in question the disease grew very slowly, due either to the type of growth or to resistance of the individual; and on this account the prognosis may be favorable. One patient (Gyn. No. 5853, squamous cell carcinoma) had a history of bleeding, apparently due solely to the cancer, for over three years before coming to the hospital. She is at present living and apparently well, seven years after the operation, although an unfavorable prognosis was given at that time.

Prognosis Made from the Examination of the Patient.—Usually if the uterus is fixed in the pelvis one thinks that the disease has extended beyond operative relief, and if freely movable that the prognosis is favorable. One must remember that the disease may be associated with an inflammatory condition of the pelvic organs and that the movements of the uterus may be limited by adhesions of inflammatory origin and not by an extension of the growth. Wertheim[3] has shown that even in those cases in which the parametrium is apparently thickened that this thickening may not be due to cancer. He has emphasized the fact that the presence of cancer in the parametrium can only be diagnosed by the use of the microscope, for an apparently infiltrated condition of the parametrium is not necessarily carcinomatous and a "natural-feeling" parametrium does not exclude cancer. There is also no relation between the size of the primary growth and the presence or absence of cancer in the parametrium or pelvic lymph nodes, for the growth may be very large and still limited to the cervix. On the other hand, a small primary growth may give rise to metastases to the parametrium and pelvic lymph nodes. It is evident that a prognosis can not always be made before operation, or even afterward, for the surgeon may think that he has removed the entire growth and yet it returns; and in another case he may feel confident that he has not been able to remove it all, and the patient recovers and is living and apparently free from recurrence long after the operation. We have had such cases, and in one instance (squamous cell carcinoma) eleven years have elapsed since the operation, and the patient is apparently well and free from a recurrence, although it was thought that the entire growth had not been removed by the operation.

Prognosis Made from a Study of the Specimen Removed.—In looking over our pathologic records I find that a prognosis was made from a study of the specimen removed in twelve of the sixteen patients who are apparently free from a return of the disease, five years and longer after operation. In three of the twelve cases the prognosis was favorable, as "very early" or "entirely removed;" in three other cases the prognosis was questionable, while in six cases the prognosis was unfavorable, as "apparently not all removed," "disease far advanced," or "the growth extends out to the cut surface of the specimen removed;" and all these cases are apparently cured. In studying the pathologic records of 29 specimens from patients where the growth recurred and a prognosis was made by the pathologist at the time the specimen was studied I find that it was favorable in 8 of the cases and unfavorable in 21. It is evident that, with our present knowledge of the subject, a prognosis can not be made from the specimen removed.

It is along these lines that work is especially needed; i. e., a classification of the various forms of growth, a careful study of the specimens removed, determining whether or not and how the growth invades the neighboring parts. Reconstructions of the relation of the growth to the uterus and surrounding parts should also be done. This work may show us that different types of cancer grow in different ways, some slow, others rapid, some causing metastases early and others causing them rarely or never. The mode of growth in any case may give us knowledge concerning the malignancy of that growth in that particular case. As we may determine the variety and virulence of an infectious or-

3. Wertheim: Zur Frage der radical Operation beim Uteruskrebs. Arch. f. Gyn., 1900, vol. lxi, No. 3, p. 662. Also Kundrat: Uber die Ausbreitung des Carcinoms in parametranen Gewebe bei krebs des Collum uteri. Arch. f. Gyn., 1903, vol. lxix, p. 355-409.

ganism by the way it grows and by the changes it produces in various culture media in the mucus membrane of the uterus and vagina, so we may study the growth of cancer by the changes it produces and by the manner in which it invades the uterine wall and the surrounding parts, and whether or not and if so how it wanders to distant parts. All of these structures may be looked on as culture media for the growth and cultivation of cancer. The form of growth and the changes produced in the various tissues and structures included in these parts should enable us to classify the different types and to determine the malignancy of each type. The further clinical histories of these cases will control and modify the results of our pathologic studies. These studies may not lead to the discovery of the cause of cancer, but by them we may become thoroughly familiar with the pathologic changes produced by it and their clinical manifestations, so that we may recognize the conditions present sooner and more wisely and efficiently combat this disease. The duty of the physician is to do the best for the patient with what knowledge he has, and it is along these lines that knowledge is needed most in the treatment of cancer of the uterus. Even if the cause of cancer should be discovered, we have no assurance that by this discovery we will be any the better able to deal with it.

III. CLINICAL COURSE OF RECURRENCE.

Many important questions may be asked in regard to the apparent reappearance of cancer following operation.

Is there ever a true reappearance of the growth, i. e., does cancer ever recur in a place where a similar growth has previously been entirely removed? Such a thing is not impossible, but the so-called recurrence is usually a remanifestation of a growth which has not been entirely removed.

In what percentage of the cases operated on will the disease reappear? We realize that probably at least three-quarters of the 135 patients who have been operated on in this hospital and who have survived the operation, will die from cancer.

Where does the recurrence take place? It is difficult to determine whether the disease starts from a portion of the primary growth not removed or from a metastasis. Many of our patients come from a distance and others are among the very poor, so that the number of patients whom we could examine at intervals is very small; and even if we could the exact origin of the recurrence could not always be determined. The appearance of a local recurrence in the vaginal vault does not exclude a simultaneous extension of the growth from diseased lymph nodes.

Even if the recurrence takes place, has the patient been sufficiently relieved to warrant the operation? I think this can be answered in the affirmative. While out of 60 patients who died from a recurrence of cancer of the cervix, and the date of whose death we know, only 34 patients, or 57 per cent., lived over one year after the operation and only 8 patients, or 13 per cent., lived over three years; nevertheless, several patients have been relieved for over a year, feeling "as well as they ever felt" during that time, and four patients were apparently relieved for over three years.

Another important question is, Can we ever hope to cure a recurrence of cancer of the cervix?

Patient.—Mrs. Z. M. S., aged 33 (Gyn. Nos. 1723, 2115 and 2230), was admitted to this hospital with a diagnosis of cancer of the cervix, "the cervix being represented by a protruding fungoid mass." A vaginal hysterectomy was done Dec. 17, 1892.

Recurrence.—The patient was readmitted in June, 1893, and an apparent recurrence in the vaginal vault was cauterized with a Paquelin cautery. The patient left the hospital and was readmitted three months later, when the recurrence was excised. A letter was received from her in July, 1904, nearly eleven years after the operation, in which she stated that she felt perfectly well and that there was no evidence of a return of the growth.

Examination of the Growth.—Microscopic studies of the mass excised as a recurrence show that it is an epithelial growth with a great proliferation of the surface epithelial cells, and while there is but little invasion of the underlying tissue, the growth must be considered an epithelial cancer. One would judge that it grew very slowly. Unfortunately I have not been able to find the original tumor, which is described as a fungoid mass occupying the cervix, and we are unable to positively consider this as a cure of a recurrence.

It is very doubtful if the operative treatment of recurrences is justifiable except in very occasional cases.

WHAT CAN BE DONE TO INCREASE THE PERCENTAGE OF CURES IN CARCINOMA CERVICIS UTERI?

Two ways present themselves—first, an earlier diagnosis, and, secondly, a more radical operation.

How May an Earlier Diagnosis Be Made?—If there was a history of bleeding for over six months in about 50 per cent. of 162 operable cases and in about 60 per cent. of 250 inoperable cases admitted to this hospital, it seems that with the proper education of the medical profession and the laity this should not have occurred. If the women of this country understand that uterine bleeding and also other symptoms referable to the uterus may be indicative of some slight disturbance which can be easily remedied, or, on the other hand, that it is usually the first symptom of cancer of the uterus, which, if taken in time, can be cured, they will not only consult their physicians early, but will also more readily consent to an examination and to operation if necessary. As long as women through ignorance disregard these symptoms and consider cancer incurable the present condition will exist. Frequently physicians do not realize the importance of making a diagnosis in such cases, for they often do not examine their patients, but give them some medicine "to stop the bleeding or to relieve the symptoms," or, if they examine these patients and find an "ulcerated cervix," they may treat it with local applications until it becomes cancerous; and also many share the belief with the laity that if it is cancer it can not be cured.

It is only by the proper education of the physicians and of the laity that this condition can be remedied.

In our own cases we can see the effect of education in increasing the percentage of operable cases, and thus the percentage of cures, in the following ways:

1. Each year there is an increase in the percentage of cases diagnosed before the disease becomes inoperable, as may be seen by comparing the percentage of operable cases admitted during the first year of the Johns Hopkins Hospital with those admitted in the later years.

The hospital has been open for over fifteen years. During the first five years 106 cases of carcinoma cervicis uteri were admitted with an operability of 28 per cent., as compared with 162 cases admitted the second five years with an increase in the operability to 32 per cent., and 144 cases in the last five years with a still

higher percentage of operable cases, namely, 53 per cent., as compared with 28 per cent. for the first five years. Two factors must be considered in this increase in the operability of the cases—first, the education of the people, and, secondly, the use of the abdominal operation.

2. The percentage of cures is also higher, which is due to an earlier diagnosis and to a wider excision of the uterus and growth. As has been mentioned, 24 per cent. of 66 patients heard from are apparently free from cancer five years and more after operation. On the other hand, similar statistics taken three years ago show that only 12 per cent. of 41 patients heard from were living and apparently free from cancer five years and more after the operation.

3. The highest percentage of operable cases appear among the better educated and well-to-do women.

There are three wards open to gynecologic patients in that hospital, in which 11,382 patients have been treated, and of this number 412, or 3.6 per cent., suffered from carcinoma cervicis uteri. The private ward has received about 25 per cent. of all patients and about 26 per cent. of the cancer cases. The general or public ward for white patients has received about 59 per cent. of all cases and about 57 per cent. of the cancer cases, and the ward for colored patients about 16 per cent. of all cases and 16 per cent. of the cancer cases. The percentage of cancer cases in each ward has been about the same, namely, a little over 3.5 per cent. On the other hand, the percentage of operable cases is greatest in the private ward, as one would expect, and least in the ward for colored patients. There have been 110 cases of cancer of the cervix admitted to the private ward, of whom 45 per cent. were operable, as compared with 235 admitted to the free white ward, with an operability of 40 per cent., and 67 with only 23 per cent. operable admitted to the ward for colored patients. One interpretation of the above could be taken, and that is that the growth runs a more rapid course in the colored race; but the more correct one is that the patients admitted to the private ward are better informed and employ more competent physicians, and on account of both these factors the growth is diagnosed sooner than in those who are less fortunately situated.

Still another manifestation of education as a factor in the earlier recognition of this disease asserts itself. We have been able to hear from 125 of the 135 operable patients who survived the operation, after they have left the hospital, and only about 100 of the 250 inoperable patients, and we realize that it is easy to keep track of the well-to-do and educated people, while it is very difficult to keep track of the very poor. We have a right to infer that most of the inoperable cases we hear from belong to the better class of patients in the private and free white ward, and that the large number, 150 out of 250, whom we have been unable to hear from, must, for the most part, be among the poor and illiterate, thus demonstrating the higher percentage of inoperable cases among the poor than among the well-to-do.

The question arises, How should we educate the medical profession and the laity in regard to this matter? Clark,[4] in considering the importance of an earlier diagnosis in this condition, concludes that "the education of public opinion in medical subjects depends on the general medical practitioner," and we want "first an appreciation by the medical practitioner of the importance of the early recognition of cancer, and if this once is established it will soon be recognized by an intelligent contemporary public."

We must realize that it is difficult to reach or to change the views of all physicians who are in practice, and that it will take time for those just graduating to become influential in a community, and, as the result of the above, the education of the women through the family physician must be slow, especially as many women seldom consult a physician. The question presents itself as to whether or not it is justifiable to deal with the women more directly.

Winter[5] believes that, with the first appearance of symptoms, cancer of the uterus is always operable, and, influenced by this belief, he started a campaign against this disease in East Prussia. The results of this campaign have been published. In the year 1902 pamphlets were sent to all physicians and midwives in this region, and this was followed by a "warning to women," which was published in all the leading newspapers. As a result of this, family physicians not only examined their patients for cancer on the slightest suspicion, but the women consulted their physicians earlier and were more willing to be operated on. In one year the operability of uterine cancer in East Prussia was increased from 62 to 74 per cent. When one considers that during the last five years only 52 per cent. of the cases admitted to the Johns Hopkins Hospital were operable, and that many inoperable cases were refused admission, thus making the percentage of operable cases of all coming to the hospital considerably less than 52 per cent., the need and possibility of making an earlier diagnosis asserts itself.

THE IMPORTANCE OF A MORE RADICAL OPERATION.

In considering the prognosis made at the time of the operation in some of our cases, one is impressed that in certain cases in which the disease was apparently in a very early stage and the prognosis favorable, the growth returned, and that others are apparently cured where an unfavorable prognosis was made at the time of the operation on account of the extent of the growth. The above can easily be explained. In the apparently early cases, a hysterectomy was done with as little disturbance of the surrounding parts as possible, and on this account the disease was not all removed; while in the advanced cases a wide excision of the growth was indicated, and by doing this some of the patients were cured It would seem that a radical operation was especially indicated in the so-called early cases, for the chance for a cure is not only greater, but the patient is in excellent condition, and, the uterus being freely movable, the operation can the more easily be accomplished, and on this account the primary mortality will be low.

WHAT MAY BE ACCOMPLISHED BY A MORE RADICAL OPERATION.

It should be the object of the surgeon to cure as large a percentage of patients as possible of all cases of cancer coming under his charge. In this hospital, we may hope to cure 20 per cent. of the cases operated on, but less than 6 or 7 per cent. of all the cases applying for admission. The surgeon, by operating on only the fav-

4. Clark: Progressive Medicine. Lea Brothers & Co., Philadelphia, 1904, vol. ii, p. 131.

5. Winter: Bekämpfung des Uteruskrebses in Ostpreussen. Cbl. f. Gyn., xxviii, p. 441, reviewed in THE JOURNAL, xliii, p. 229.

orable cases, might have a large percentage of cures, and yet, by so doing, the percentage of operable cases would be small and also the cure of all patients seen by him. So the first demand is to increase the operability of cancer not only by an earlier diagnosis but by a more radical operation. On the other hand, the percentage of cures must always be discounted by the primary mortality. With a very extensive operation it may be possible to increase both the operability of cancer, and the percentage of cures, but, if the primary mortality is too great it is contraindicated, for that operation should be done which will give the highest percentage of cures of all patients treated, with the lowest primary mortality. Undoubtedly, the highest percentage of cures would be accomplished by removing all the pelvic lymphatics and with them the uterus and all the tissue from pelvic wall to pelvic wall, including the lower ends of the ureters, and implanting the renal ends of the ureters into the bladder. The results of ureterovesical implantations are uncertain, the danger of ascending renal infection great, for cystitis following these operations occurs in a large percentage of the cases. An implanted ureter is an injured one, which is not likely to protect the kidneys from ascending renal infection as efficiently as a natural ureteral orifice.[6] From a study of specimens removed by the more radical operation (in which an attempt was made to remove the pelvic lymphatics and all the tissue lateral to the uterus, with the primary growth and uterus, either freeing the ureters from this tissue or removing their lower ends with it), it was found that the disease by direct invasion or metastasis had extended beyond the uterus in 12 of the 15 specimens. In these 12 cases, hysterectomy alone would not have removed the entire diseased condition. In seven of these cases there was a direct extension of the growth from the cervix; there were metastases to the parametrial lymph nodes in four cases; while an apparent metastasis to a parametrial lymph space (at some distance from the cervix) was found in only one case. In twelve cases in which the pelvic (iliac) lymph nodes have been studied, cancer has been found in six. These studies are unfinished and further investigations of the same cases may show an even greater number in which the growth is not limited to the cervix. The study of these cases has shown that there is no relation between the size of the primary growth and the presence or absence of lymphatic involvement and that only by the use of the microscope can we make a positive diagnosis of the presence or absence of metastases in the parametrium or pelvic lymphatics.

Are these more radical operations justifiable? Some claim that it is impossible to effect a cure in a case of cancer of the cervix if the disease has extended beyond the uterus, and on this account the vaginal hysterectomy is indicated, for it is attended with the lowest primary mortality. Of the 162 hysterectomies previously mentioned, 63 were vaginal, 26 combined abdominal and vaginal, and 78 abdominal. Comparison of the percentage of cures and also of the primary mortality in these three classes of cases is of no value, for the abdominal or combined abdominal and vaginal operations in many instances, have been used instead of the vaginal operation, because the growth was too far advanced for the vaginal route. It can never be hoped that the abdominal operation will be attended with as low a primary mortality as the vaginal; on the other hand, by the vaginal route the wide excision of the parametrium and pelvic lymph nodes is impossible. Whether one shall employ the vaginal route or the more radical operation in these cases, cannot be determined from statistics, for sufficient time has not elapsed since the use of the more radical abdominal operations to furnish enough cases to compare with those removed by the vaginal route.

Past clinical experience demonstrates the need of a more radical operation, and a study of the specimens removed by these operations show that the growth has invaded the surrounding tissues in a large percentage of the cases, 12 out of 15 cases studied in this hospital, and, on this account, hysterectomy alone seldom cures this condition.

Since the object of the surgeon is to save and not to take the life of the patient, these operations are justifiable only if they are not attended with too high a primary mortality, and for this reason we must clinically consider two distinct classes of operable cases from this standpoint.

1. Patients in whom the uterus is freely movable and the growth apparently early.

2. The cases in which the growth is apparently extensive and its removal difficult, the so-called "borderline cases."

In the first class of cases the patients are usually in good condition and the operation is relatively easy. In these cases, we should try to do as thorough an operation as possible. The lymphatics should be removed from the sides of the pelvis, the ureters freed, and all the tissue lateral to the cervix removed. (Later studies show that only a very small per cent. of the cases can be cured if the growth has metastasized.) We are thus able to improve the chances of a cure, and the patient being in excellent condition and the parts freely movable, the operation can be quickly accomplished and with a low primary mortality.

In the second class of cases, the patients are apt to be in poor condition and the extensive growth makes the operation very difficult. If the operation is indicated, the first demand is the removal of the primary growth, and the removal of the pelvic lymphatics should be a secondary consideration and should be reserved for the last and should be removed only if the condition of the patient warrants it, for we should expect to find them involved in only from 50 to 60 per cent. of these cases. In these cases, the operation is difficult and the primary mortality necessarily high, especially as the patients are apt to be in poor condition and unable to stand a severe operation. It seems that unless all can be removed, nothing should be tried, for severe operations are not justifiable for gaining very uncertain and temporary palliative results. These are the cases in which excision of the lower ends of the ureters and portions of the bladder is justifiable if indicated. By so doing, I believe that we may hope to cure some of these cases, for the parametrium apparently is able temporarily to check the further advance of the disease, and by a wide excision of the entire growth we should expect to cure these cases, unless metastases have occurred in parts which cannot be removed.

WHAT CAN BE DONE FOR THE EXTENSIVE INOPERABLE CASES.

The resection and reimplantation of the ureters above the growth, in order to prevent the threatened renal in-

6. Sampson: Ascending Renal Infection, etc. Johns Hopkins Hospital Bulletin, 1903, vol. xiv, pp. 334-352; and subsequent publications in the same journal.

sufficiency due to the pressure of the growth on the ureters, does not seem to be desirable, for the relief can only be temporary. The attempts to starve the growth by the ligation of the blood vessels supplying these parts has given at the best only temporary relief, and, in a few instances, by interfering with the nutrition of these parts, has given rise to disastrous complications. We can not hope to cure these cases by the cautery, for the growth has involved the various neighboring structures, as bladder, ureters, rectum, large blood vessels and nerves, all of which would be injured by the extensive use of the cautery. It would seem that these cases should be treated as their symptoms arise, and one should attempt to relieve symptoms and not to prolong life, unless especially so desired by the patient and her friends, and on this account as little as possible should be done locally.

It is the duty of those who are interested in cancer of the uterus thoroughly to study the subject and to determine by what means the growth can best be removed, and to impress on the medical profession and through them, the laity, that cancer of the uterus, if taken in time, can be cured in a large percentage of the cases, and that bleeding in some form is frequently but not always the earliest symptom of this condition. For this reason, a diagnosis should be insisted on not only in every case of uterine bleeding but in all cases with symptoms referable to any pelvic trouble. With the proper education of the medical profession and of the public, not only would the percentage of operable cases be increased, but as these would be diagnosed earlier the primary operative mortality would be less and the percentage of cures greater.

CARCINOMA OF THE FUNDUS OF THE UTERUS.

Carcinoma of the fundus of the uterus is less important than cancer of the cervix, because it is rarer, its duration is longer, and operative treatment is more satisfactory on account of the higher percentage of cures and lower primary mortality, for apparently only late in the disease does it extend beyond the uterus. The clinical diagnosis of cancer of the body of the uterus is more difficult and can only be made positively by the microscope. We have had 78 cases of cancer of the body of the uterus as compared with 412 cases of cancer of the cervix. Of these 78 cases, the clinical diagnosis was confirmed by the microscope in 67, and, on account of the difficulties of diagnosing this condition without the microscope, only the 67 cases will be considered. Only 11 of these 67 were inoperable, namely, 16 per cent. as compared with the 61 per cent. of the 417 cases of carcinoma of the cervix which were inoperable. One slight source of error exists and that is all the cases of inoperable cancer of the cervix were not curetted, and in a few of them the growth may have originated in the fundus and the cervix may have been involved secondarily. A comparative study of the two forms of cases is interesting.

In comparing the 56 operable cases of carcinoma of the fundus with the 162 operable cases of carcinoma of the cervix, we note that those afflicted with carcinoma of the fundus are older, over 67 per cent. of the cases being over fifty years old, as compared with about 30 per cent. of the other cases. The youngest patient with cancer of the fundus was thirty years old, while 6 of the 162 operable cases of cancer of the cervix were women less than thirty, the youngest being twenty-two years old. Forty-two per cent. of the patients with cancer of the body of the uterus had never been pregnant, as compared with only 3 per cent. of the operable cases of cancer of the cervix. The duration of the disease is longer in cancer of the fundus, as 67 per cent. of the cases had been bleeding for over a year before admission, as compared with only 21 per cent. of the operable cases of cancer of the cervix. In 10 of the 56 cases of cancer of the fundus there was a history of bleeding for over four years. In two of these 10 cases, the bleeding may have been due to a submucous myoma; in one case, however, the bleeding was of six years' duration and the cancer was the only condition found to account for it. On the other hand, in only three of the 162 cases of cancer of the cervix was there a history of bleeding for three years, and possibly in one of these three cases the bleeding had existed for over four years. The most interesting comparison of the two classes of cases occurs in the results of the operative treatment. The primary mortality in the operative treatment of the 56 cases of cancer of the body was 7 per cent. as compared with 16 per cent, for the 162 cases of cancer of the cervix operated on. Five years or more have elapsed since the operation in 24 cases of cancer of the body. Of this number, 2 patients died from the operation, we have been unable to hear from 6, the growth returned in 3, and 13 are living and apparently free from recurrence. Eighty-one per cent. of the 16 patients heard from as living, or, if we wish to count those not heard from as having died from recurrence, we realize that 13 of the 24 patients operated on are living and apparently cured, namely, 54 per cent. Of the 84 cases of cancer of the cervix, in which five years or longer have elapsed since the operation, 8 patients died from the operation, we have been unable to hear from 10, we know the growth returned in 50, and 16 are living and apparently free from recurrence; i. e., 24+ per cent. of the 66 patients heard from are living, or 19 per cent. of the 84 cases. We can readily see that on account of the slow growth of cancer of the body of the uterus, it is more frequently diagnosed before it becomes inoperable than cancer of the cervix, and because it remains restricted to the uterus for so long a time, the operative treatment is less severe and therefore the primary mortality is lower and the percentage of cures higher, for hysterectomy in a large percentage of cases removes the entire diseased condition. It is of the greatest importance to make a diagnosis in cancer of the fundus, because the operative treatment is attended with such a low primary mortality and such a favorable prognosis can usually be given.

The Usefulness of Drugs.—Many practitioners expect entirely too much from drugs and there are others who refuse to recognize the value accruing from the intelligent use of remedies tending to effect a modification of pathologic processes or the alleviation of symptoms. There should be more unanimity of opinion among physicians as to the usefulness of drugs. What is needed is a better knowledge of the natural cause of the different diseases. In all of the acute specific diseases, as pneumonia and typhoid, we have no drug which will shorten the process, and it seems worse than useless to continue the administration of remedies for any other purpose than palliation and the promotion of the patient's comfort. That patient will be saved much useless drugging whose physician has a clear conception of the pathology of the ailment and the limitations of his medicines.—*Ft. Wayne Med. Jour.-Mag.*

CESAREAN SECTION FOR PLACENTA PRÆVIA AN IMPROPER PROCEDURE.

THE STATISTICAL STUDY OF 25 REPORTED CASES WITH THE COMPARATIVE MORTALITIES OF 1,257 CASES OF CESAREAN SECTION AND 4,731 CASES OF PLACENTA PRÆVIA TREATED OBSTETRICALLY.*

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On account of the marvelous results obtained by asepsis and antisepsis, and by the safe administration of anesthetics, obstetrics is becoming an inviting field for surgical intervention. Indeed, operative obstetrics has so broadened in the past decade that now the care of parturient women is a distinct surgical specialty, and its wealth of literature vies with that of other specialties. In fact, in certain directions, it almost seems as if the *furor operativus* which swayed the ovariotomist one and two decades ago, has seized those who come in contact with pregnant and parturient women. Operations which are safe and expedient when performed for one type of indications are applied erroneously to complications of a very different sort; deductions made from one class of cases are fallaciously made to fit another without due consideration of the consequences. The application of the Cesarean section to placenta prævia comes within this category. It is folly to compare the results of Cesarean section for a contracted pelvis with those of placenta prævia; at most we may compare the orthodox methods of treating placenta prævia with the abdominal operation for the same indication.

No one can deny that Cesarean section is of signal value in conditions complicated by hemorrhage from placenta prævia, but this new impetus, started by general practitioners and surgeons, who candidly admit that they know little or nothing about obstetrics, will not receive the approval of obstetricians. I feel keenly that a word of warning should be given against the indiscriminate application of Cesarean section for placenta prævia, for most certainly American and Italian physicians, who alone are treating this obstetric complication by laparotomy, will regret their advocacy of the procedure when the reaction comes. Thus far Cesarean section for placenta prævia, *per se,* has not been performed by an obstetrician whose experience would permit him to speak authoritatively—with one exception, all the obstetricians who have used the procedure have operated in the face of dangerous complications which dictated the conduct of the case; *per contra*, the other operators, with the exception of one, possibly two, had no obstetric reason for their course.

THE MORTALITY OF CESAREAN SECTION.

Much has been written of the safety and simplicity of Cesarean section. For example,: "This is not a difficult operation," writes Dr. Andrews[1]; "The classic Cesarean section has as low a mortality as an easy ovariotomy," according to Boyd[2]; "Its (Cesarean section's) extremely low maternal mortality renders it again the preferable operation"—Reynolds.[3] In sharp contrast to the statements of those who minimize the dangers, Schauta's[4] opinion is worthy of a place in contradiction: "No one is justified in regarding Cesarean section as a simple operation, free from danger, or harmless in its after-effects." Also, Williams[5] decries the assertions of its simplicity.

TABLE I—CESAREAN SECTIONS.

Authority.	Total Cases.			Conservative Operations.			Porro Operations.			Children.		
	No.	Died.	Per Cent.	No.	Died.	Per Cent.	No.	Died.	Per Cent.	No.	Died.	Per Cent.
Ahlfeld[6]	13	4	30.7	11	4	36.	2	0	0	13	2	15.4
Braun[7]	74	6	8.3	34	4	11.8	40	2	5	74	6	8.1
Deny[8]	12	5	41.6	10	5	50.	2	0	0	12	4	30.7
Gummert[9]	11	0	0	9	0	0	2	0	0	11	1	9.
Leopold[10]	100	10	10.	71	7	9.8	29	3	10.3	100	8	8.
Strebel[11]	12	1	8.3	10	1	10.	2	0	0	12	1	8.3
Weber[12]	10	1	10.	....	....	.....	....	....	....	10	2	20.
Zweifel[13]	76	1	1.3	....	....	.....	....	....	....	76	0	0
Heidenhain[14]	4	0	0	....	....	.....	....	....	....	4	0	0
Coe[15]	23	3	13.0	....	....	.....	....	....	....	23	2	8.7
Harris[16]	21	2	9.5	....	....	.....	....	....	....	21	0	0
Charles[17]	10	0	0	....	....	.....	....	....	....	10	0	0
Bar[18]	10	1	10.	....	....	.....	....	....	....	10	0	0
Cragin[19]	9	1	11.1	....	....	.....	....	....	....	9	1	11.1
Truzzi[20]	16	2	12.5	....	....	.....	....	....	....	16	3	18.7
Chrobak[21]	19	3	15.8	10	1	10.	9	2	22.2	....	....	....
Schauta[22]	67	8	11.9	58	6	10.34	9	2	22.2	....	....	....
Baumm[23]	10	2	20.	....	....	.....	....	....	....	....	....	....
Everke[24]	37	12	32.	....	....	.....	....	....	....	....	....	....
Hinschius[25]	30	2	6.7	....	....	.....	....	....	....	....	....	....
Olshausen[26]	29	2	6.9	....	....	.....	....	....	....	29	0	0
Reynolds[27]	23	0	0	....	....	.....	....	....	....	....	....	....
Williams[28]	12	1	8.3	....	....	.....	....	....	....	....	....	....
Cameron[29]	30	3	10.	....	....	.....	....	....	....	....	....	....
Pasquali[30]	9	1	11.1	....	....	.....	....	....	....	....	....	....
Huebl[31]	51	2	3.9	....	....	.....	....	....	....	....	....	....
Hahn[32]	11	2	18.1	....	....	.....	....	....	....	....	....	....
Frommel[33]—1893.	76	13	17.1	44	5	11.3	32	8	25.	15	2	13.3
Frommel—1894...	86	10	11.6	51	4	10.3	35	6	17.1	62	6	9.6
Frommel—1895...	68	18	26.4	38	11	28 9	30	7	23.3	66	13	19.7
Frommel—1896...	91	12	13.1	51	7	13.7	40	5	12.5	90	16	17.7
Frommel—1897...	111	14	12.6	83	9	10.8	28	5	17 8	108	15	13.8
Frommel—1898...	96	11	11.4	76	10	13.1	20	1	5.	98	11	11.2
Totals	1257	153	12.1	556	74	13.3	280	41	14.6	869	93	10.7
Ces. Sec. for Plac. Præv.	25	5	20.	20	5	25.	5	0	0	25	9 *16	36 64

*Seven died within 14 days.

My compilation of statistics proves indisputably that the claims made by Schauta and Williams are just ones. The collective maternal mortality for 1,257 (Table 1) conservative and Porro operations was 12.1 per cent.; the Saenger operation in 556 cases had a mortality of 13.3 per cent., while the Porro operation was performed 280 times with a mortality of 14.6 per cent. The collective fetal mortality in 869 cases was 10.7 per cent. Of course, most conservative sections were done in the interest of the child, while many Porro operations were made on behalf of the mother, with, perhaps, the presence of a dead child. Surely these figures are sufficient to prove that Cesarean section and its Porro modifications are serious operations, not to be lightly undertaken.

Operators are too prone to practice a process of exclusion in determining their mortality rates by eliminating the unfavorable cases which terminated in death; I am in perfect accord with those who desire to classify their Cesarean section operations, but the method generally in vogue of excluding certain fatal terminations can but vitiate their conclusions. The only logical course is to divide all cases into those operated on under favorable and those under unfavorable circumstances, and to estimate the several mortalities—this would remove all doubt at once. Including unfavorable cases which recovered with those treated under ideal conditions, or transferring deaths which properly come under the latter class to the former, only furnishes us with erroneous statistics. Surgeons generally classify their appendectomies into "interval" cases and cases with active peritoneal inflammation; to include the results of the former with the latter would be simply juggling with figures.

* Read before the Chicago Gynecological Society.

In obtaining the data for the mortalities of Cesarean section, I have appropriated all clinical cases obtainable; it is presumed that the reports of large clinics, or of individual operators of considerable experience, are more favorable from the special experience acquired, than collective data from the literature—the data furnished by Frommel[33] tend to corroborate this statement. If reporters give a corrected mortality, I have given the full number of deaths, as the patients operated on under adverse conditions who recovered were included among the successful cases to swell the statistics. This explains why, in some instances, the deaths tabulated by me do not conform to the numbers usually quoted—examples being the results of Zweifel,[13] Leopold,[10] Schauta,[22] Chrobak,[21] Braun,[7] and Williams.[28] It is not here necessary to argue as to the difficulty or simplicity of the Cesarean operation, that depends largely on the skill and ability of the operator in carrying out surgical details, and the training of his assistants, but this much may be stated: this operation clearly is one with sharp lines drawn for its technic in uncomplicated cases. The most vital danger is in the liability of infection from the parturient canal, a danger which is not absolutely under the control of the operator even under the most favorable circumstances. Hernia is particularly liable to develop in the scar after a Cesarean section, probably from the length of the wound; Abel[34] had 8 of such postoperative accidents in 53 women. Again, adhesions may occur between the abdominal wall, uterine incision, intestine or omentum, which may have a very deleterious effect on the health of the patient, or which may be an item of great danger during the puerperium (Table 4, Case 21), or during a subsequent pregnancy.

THE MORTALITY OF PLACENTA PRÆVIA.

General Considerations.—The rule in all surgical hemorrhages is to arrest bleeding at once. In obstetric work, practitioners do not see the same necessity for stopping bleeding. If the slightest show of blood during pregnancy is recognized as being of serious import, much harm to women may often be prevented; hemorrhages in pregnancy never should be lightly considered. After a diagnosis of placenta prævia is made, much danger and many deaths could be prevented if the attendant would actively manage the case. It is an unwise procedure to attempt to carry a woman along with placenta prævia, unless she be in a hospital, or at least under the immediate care of a skilled attendant. Placenta prævia in nearly all instances should be held an indication for most energetic treatment—just as are all surgical hemorrhages. We should always consider that a woman afflicted with this complication of pregnancy is in grave danger until the child and secundines are delivered. If Tait's[35] estimate of the mortality of 50 per cent. in placenta prævia in general practice is correct, then the mortality is not due to the want of a proper procedure, but to procrastination, to half-hearted methods of treatment, to slovenly and careless application of asepsis, to the absence of adequate skilled assistants, and, finally, to a lack of a full armamentarium to combat the complications present. No surgeon would undertake to perform a dangerous operation without sufficient preparation and trained assistants, but the rule still is for physicians unassisted to hazard major obstetric operation in the face of most portentious complications, or with untrained help—a custom which should be condemned. As obstetric cases are so often emergency ones, we must condone the necessity, but congratulate the country practitioner who unaided successfully carries a parturient woman through the stress of a difficult delivery; but such a thing is inexcusable in a city with assistants within easy call. I have in mind a young woman in a wealthy family in Chicago, the birth of whose first-born was expected. When about seven months of the pregnancy had elapsed a severe hemorrhage occurred; in consultation it was agreed that placenta prævia centralis existed; it was further agreed that the woman should be tided over a period in hopes of giving the child a better chance. Suddenly an alarming hemorrhage occurred; the physician, with no definite plans laid for this likely contingency, rushed to the house, turned and delivered an asphyxiated child. While he and the nurse were enthusiastically laboring over the baby, entirely ignoring the mother, the patient died of postpartum hemorrhage. Such care of parturient women accounts for many deaths in placenta prævia.

The custom of reporting a series of cases of placenta prævia without clearly summarizing the data of the various types of placental presentations offers inexact information; it is indispensable that the cases should be classified as lateral, marginal, partial, and complete placenta prævias. Without such classification we are presented with a jumble of facts which can not be of much clinical or scientific value. Lateral implantations of the placenta in the presence of a normal vertex or of a breech presentation, ordinarily require no further treatment than the timely artificial rupture of the membranes—rarely need such cases terminate fatally. Central implantations, or cases in which there is an abnormal presentation, demand energetic treatment; between the extremes, the procedure elected depends on local conditions. The too common mistake is to consider that there is one method of treatment which will fit all cases. It is not the time or place to enter on the treatment of such hemorrhages, but the brilliant results of Behm,[36] Blacker,[37] Stratz,[38] Fry,[39] Hirst,[40] Drejer,[41] Koblanck,[42] Welti-Pinard,[43] Murphy,[44] De Lee,[45] Amadi et Ferri[46] (Table 3), offer encouraging results for obstetricians, and eliminate the need of more drastic and fatal measures. In 1,029 cases treated by the above the mortality was 3.3 per cent. These results were obtained generally by Hicks' version, metreurysis, and rupture of the membranes.

In compiling my statistics I availed myself of the exhaustive investigations of Read,[47] who collected 1,024 cases of placenta prævia recorded from the time of Portal, in 1672, to 1861, his information, largely, almost exclusively, being that found in the English and French literature. As his tables and deductions have not received proper recognition, and have never been collectively tabulated, even by Read himself, I have deemed it of value to give a mortality résumé of his tables.

Indeed, I have computed practically all the figures credited to Read in this paper from a study of the reports compiled by him. Müller's[48] statistics have been very popular and need no introduction. The results shown by Read and Müller are widely divergent from the statement of Tait[35] that the mortality of placenta prævia is near 50 per cent. He based his opinion entirely on his own mortality, which reached that appalling figure. The combined death rates of Read and Müller (Table 2) for 1,975 cases of all kinds, 692 complete prævias and 618 incomplete prævias, were 23.6, 30.9 and 15.0 per cent., respectively. It must be fully

recognized that all these cases were treated before the days of antispesis and asepsis. In Read's work, 229 women died, of which only 38 are specifically recorded as dying of peritonitis, inflammations, slow fevers, etc., a percentage of 16.5. Müller[48] shows that of 212 deaths, 94 occurred shortly after delivery, 54 (25.4 per cent.) succumbed to infections, and 46 died from other diseases of the puerperium. Undoubtedly, many of these latter instances were really due to infective processes. K. Braun[49] offers more conclusive data: of his 37 cases, 4 died from excessive blood losses, and 5 from infections. Finally, Strassmann[50] lost 22 of his 231 patients, 9 falling victims to infections.

Rigid Cervix.—Our surgical friends would have us believe that a rigid os is present in many cases of placenta prævia—a statement contrary to the experience of nearly all obstetricians. The popular conception of not be so denominated. Read's collection contains 453 cases in which the condition of the cervix is mentioned —of these 93 (20.5 per cent.) were "rigid." Müller gives 48 patients with the cervix described as rigid in 531 cases of placenta prævia—9.05 per cent., but he considers an os less than a *"Thalergrosse"* as in the domain of rigidity, so claims that it is nearly 50 per cent. In sharp contrast to these figures are the findings of Strassmann[50] with 231 cases, Schauta[4] with 234, Webster[51] with about 50, C. G. Cumston[51] with 17, Richardson[52] (at the Boston Lying-in Hospital), 75 cases, a total of 606 placenta prævias without one rigid os. C. M. Green[52] writes me that he never saw an instance of rigid os in placenta previa, and states that Professor Richardson has had the same experience in his extensive observation. Higgins[53] has ably reported Richardson's hospital work on the treatment of hemor-

TABLE II—CASES OF PLACENTA PRÆVIA COLLATED BY WILLIAM READ, BOSTON 1861.

(Collective Mortality Rate has not been heretofore estimated).

	Total Cases.							Complete Prævia.							Incomplete (Partial).						
	Mothers.			Children.				Mothers.			Children.				Mothers.			Children.			
	No.	Died.	Per Cent.	No.	Died.	?	Per Cent.	No.	Died.	Per Cent.	No.	Died.	?	Per Cent.	No.	Died.	Per Cent.	No.	Died.	?	Per Cent.
Column	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Table 1. Spontaneous separation of placenta; spontaneous birth of fetus.	52	0	0	52	26	15	70.2	11	0	0	11	8	....	72.7	6	0	0	6	4	1	80.
Table 2. Spontaneous separation of placenta; artificial delivery of fetus.	26	5	23.8	26	17	7	89.4	0	0	0	0	....	....	0	1	0	0	1	1	..	100
Table 3. Artificial separation of placenta; spontaneous delivery of fetus.	31†	2	66.6	31	24	4	88.8	17†	1	6.25	17	12	2	80.	7	1	14.2	7	6	1	100.
Table 4. Artificial separation of placenta; artificial delivery of fetus.	51	11	21.5	51	29	13	76.3	25	4	16.	25	14	7	77.7	6	2	33.3	6	3	1	60.
Table 5. Partial separation of placenta; spontaneous delivery of fetus.	123	14	11.3	124*	56*	12	50.	18	2	11.1	19*	10*	1	58.8	75	7	93.3	75	34	4	47.8
Table 6. Partial separation of placenta; artificial delivery of fetus.	555†	139	25.0	559*	247*	95	53.6	201	56	27.8	203*	100*	33	59.5	122†	23	19.0	123*	69*	10	60.7
Table 7. Placenta perforated; fetus delivered.	40	11	27.5	40	20	8	62.5	35	10	28.5	35	17	7	60.7	1	0	0	1	1	..	100.
Table 8. Died undelivered	32	32	100.	34*	34*	0	100.	20	20	100.	22*	22*	....	100.	2	2	100.	2	2	..	100.
Table 9. Placenta completely separated; spontaneous delivery of fetus.	58	2	3.4	58	36	3	65.4	5	0	0	5	3	....	60.	0	..	0	0	....	..	.....
Table 10. Separation of placenta; artificial delivery of fetus.	34	5	17.2	34	24	1	72.7	3	1	33.3	3	3	....	100.	0	..	0	0	....	..	.....
Table 11. Partial separation of placenta; spontaneous delivery of fetus.	4	0	0	4	2	1	66.6	0	....	0	0	....	....	0	4	0	0	4	2	1	66.6
Table 12. Partial separation of placenta; artificial delivery of fetus.	18	8	46.4	18	5	2	68.7	13	5	38.4	13	8	1	66.6	1	1	100.	1	....	1	0
	1024	229	20.4	1031	526	161	60.4	348†	99	28.5	353	197	51	64.9	225†	36	16.0	226	122	19	58.9

CASES OF PLACENTA PRÆVIA COLLECTED BY WM. READ AND L. MUELLER.

Cases Collated Previous to 1877.

Read's Cases:	1022	229	20.4	870	526	....	60.4	347	99	28.5	302	197	....	64.9	224	36	16.0	207	122	..	58.9
L. Mueller: Placenta Prævia; 1877. Pp. 228, 229, 251, 255.	953	237	24.8	2365	1518	....	64.18	345	109	31.5	320	223	....	69 6	394	57	14.2	382	182	..	47.6
Total Cases: From 1661 (Portal) to 1877	1975	466	23.6	3234	2043	....	63.1	692	208	30.9	622	420	....	67.5	618	93	15.0	589	304	..	51.6

? Designates uncertain termination of children. † Designates uncertain termination of mother. * Designates occurrence of twins, of which there were 7.

this matter is that in placenta prævia the cervix is characteristically softened and the os dilatable, if not dilated, at any period of pregnancy or labor in which the first noteworthy hemorrhage occurs. Therefore, too many operators, relying on this erroneous opinion, attempt to dilate manually with the expectation that the os will open at once and with ease, or that they may turn and rapidly extract the child. If the practice of rapid dilatation be supplanted by a method which will surely stop bleeding, soften the cervix, and secure dilatation, and if extraction through a partially dilated os is not attempted—which always is a serious obstetric error—most of these instances of "rigid os" will cease to exist. These practices were common in the days of Read and Müller, so they record incorrectly many examples of cervical rigidity which now would rhages due to this cause. Strassmann lost 7 women from cervical tears, due entirely to too rapid extraction.

OBJECTIONS TO CESAREAN SECTION FOR PLACENTA PRÆVIA.

The objections to Cesarean section for this indication naturally fall under these headings: 1, the child. 2, the lower uterine segment as the placental site; 3, absence of facilities for a laparotomy; 4, the operation can rarely be a primary procedure; 5, infection.

1. *The Child.*—I feel strongly that the life of the mother is a far more valuable unit of the home, of the community and of the state than her unborn baby, and that she is entitled to first consideration in the face of the grave dangers of a difficult labor. I have had frequent opportunity to test the lay opinion on this matter and have found an almost unanimous concurrence in

this belief. I can not too strongly deprecate the frequency of so-called therapeutic abortion, or of craniotomies on the living child without due consultation, but it should be an obstetric aphorism that the mother must not be sacrificed to save a child.

If patients have implicit confidence in a physician they will rely on his judgment, and will accept the more serious, more dangerous procedure because he minimizes the dangers, or possibly does not fully appreciate them himself. The first awakening of the maternal instinct in most women comes with the perception of fetal life, and takes deep root with the new-born babe at her breast. This must be true, for if it were not so how could so many women ruthlessly have criminal abortions produced, or produce them themselves? In this country, as in France, the low birth rate is due to true race suicide, not lowered fecundity of women. If it is a scientific procedure to perform a therapeutic abortion to save the life of the mother, or only too often for a lesser indication, it is tenable to believe it is equally justifiable to do the craniotomy for the same purpose, or, perhaps, to elect that operation which will jeopardize the mother the least, even though the fetal death rate is higher. The latter method is permissible, as it does not aim to take fetal life, while the former methods are absolutely prohibited by the Catholic Church. The profession may not know it, but the church prohibits operations for extrauterine pregnancy; this prohibition would not be countenanced by physicians.

Even at best, the life expectancy of a new-born baby can not compare to that of an adult; the mother is a social entity, the child at best is but a possibility. The mortality of children under 20 years of age in Chicago in 1903 was 37 per cent. (advanced data furnished by the courtesy of Dr. Reynolds, Commissioner of Health). In 1896 the mortality was 49.6 per cent. In other words, a new-born baby has the same chance of living to 20 as a woman of 55 has of living to 77.5 years of age (data furnished by the Mutual Life Insurance Company of New York.[54]) Budin[55] has shown that in France the mortality of children under 1 year of age is greater than of people between 80 and 90 years.

Table 3 shows that the brilliant results of the modern (since 1877) treatment of placenta prævia are principally on the side of the mother, the mortality being reduced from 23.6 per cent. to 7.36 per cent (column 3), a reduction of nearly 70 per cent. Fetal deaths have not declined so materially, the death rate before 1877 being 63.1 per cent., and since that year 54.1 per cent., a reduction of about 15 per cent. Read[47] had 569 cases in which the period of pregnancy was noted —373 (65.6 per cent.) were premature. Müller showed that in 595 infants 329 (55.3 per cent.) were premature. The high fetal mortality is due to placental separation, produced or spontaneous, which causes asphyxiation, if not fatal fetal hemorrhage, to the immaturity of the fetuses, and to the operations employed. Even though the children are born alive, their life expectancy is not great. Kuhn had 43 placenta prævias in private practice—at the end of two months 2 children remained alive, a gross mortality of 96 per cent.

TABLE III—PLACENTA PRÆVIA. ANTISEPTIC PERIOD.

	Total Cases.						Complete.						Partial and Lateral.					
	Mother.			Child.			Mother.			Child.			Mother.			Child.		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	No.	Died.	Per Cent.	No.	Died.	Per Cent.	No.	Died.	Per Cent.	No.	Died.	Per Cent.	No.	Died.	Per Cent.	No.	Died.	Per Cent.
Blacker[56]	22	1	4.5	22	8	36.3												
Kouwer[57]	8	3	37.5	8	3	37.5												
Ribbius[58]	98	7	7.1	98	39	40.8												
Stratz[38]	57	1	1.7	57	36	63.												
Fry[39]	14	0	0	14	5	35.7												
Galabin[59]	92	15	16.1	92	69	75.												
Haeutel[60]	123	12	9.7	123	92	74.1												
Hirst[40]	28	0	0	28	14	50.												
Siebert[61]	24	4	16.8	24	8	33.6												
Dorman[62]	84	10	11.9	84	38	45.												
Welti-Pinard[43]	149	4	2.6	149	34	32.7												
Lomer[63]	236	21	8.9	178	105	60.												
Drejer[41]	49	2	4.	50§	12	23.5												
Platzer[64]	46	4	8.7	46	25	53.2												
Zedler[65]	16	2	12.5	16	6	37.5												
Higgins[53]	75	8	10.6															
Rotunda Hospital[66]	74	3	4.0															
Murphy[44]	61	2	3.2															
Klein[67]	138	13	9.4															
Schauta[4]	234	16	6.8	234	127	54.	50	9	18.	50	35	70.	182	7	3.8	182	92	50.5
Strassmann[50]	231	22	9.5	231	144	61.25	55	12	21.8	55	48	87.3	176	10	5.6	176	96	53.9
Driessen[68]	125	19	15.2	125	80	64.	53	13	24.5	53	43	81.3	72	6	8.3	72	35	49.3
Doranth[69]	216	20	9.3	216	152	70.3	50	4	8.	50	41	82.	80	6	7.5	80	40	50.
Fournier[70]	7	0	0	7	3	43.	2	0	0	2	1	50.	3	0	0	3	2	66.6
Koblanck[42]	467	18	3.8	.....	.....	.....	86	7	8.1	.....	.....	.....	381	11	2.8	.....	.....	.....
DeLee[45]	30	1	3.3	31§	13	41.9	6	1	16.6	6	6	100.	24	0	0	25	7	28.
Amadi et Ferri[46]	100	5	5.	100	32	32.	28	1	3.5	.....	.....	.....	72	4	5.5	.....	.....	.....
Behm[36]	52	0	0	52	30	60.	20	0	0	.....	.....	.....	32	0	0	.....	.....	.....
Totals	2756	213	7.36	1985	1075	54.1	350	47	13.4	216	174	80.5	1022	44	4.3	538	272	50.5
Read-Mueller	1975	466	23.6	3234	2043	63.1	692	208	30.9	622	420	67.5	618	93	15.0	589	304	51.6
Grand Totals	4731	679	14.3	5219	3118	59.7	1042	255	24.4	838	594	70.8	1640	137	8.3	1127	576	51.1
Cesarean Section for Placenta Prævia.	25	5	20.	25	9 *16	36. 64.	9	1	11.1	9	2	22.2	9	2	22.2	9	3	33.3

* 7 died in 14 days (added as interesting data). § Designates occurrence of twins.

2. *Lower Uterine Segment.*—There is normally a paralysis of the placental site—that of Rokitansky.[71] This usually is not of moment when the placenta is normally situated, but when it is attached to the lower segment this paralysis often is of grave moment, for the uterine wall below the retraction ring has a minimum power of contraction and retraction. In placenta prævia, therefore, we often have disturbances in the third stage from an exaggerated placental site paralysis. Aside from this physiologic explanation for placental retention, there is often an actual pathologic adhesion of the placenta—the occurrence of which offers a most dangerous complication to the labor. Müller found 78 instances of placental adhesion in 341 cases—22.8 per

cent. The combination of imperfect retraction of the lower segment and placental adhesions would seriously compromise the technic of Cesarean section, which, with the concomitant anemia, would directly jeopardize the life of the woman. These factors alone substantiate Schauta's statement that "to replace version by Cesarean section in such cases (placenta prævia) would add another greater danger to that already existing." The uterovaginal tamponade has been recommended as an active remedial agent, or as a routine prophylactic measure in the after-treatment of placenta prævia by Duhrssen[72] and others. I believe thoroughly in this postpartum uterovaginal tamponade, and use it as a routine in placenta prævia. Vicarelli[73] has recommended this tamponade after Cesarean operations, and has used it in 7 cases. Bernays[74] and Swift (Table 4, Cases 4 and 26) used small pieces of gauze for the same purpose, but the amount used could not be denominated uterovaginal tamponade, as they were in Vicarelli's cases. We feel that uterovaginal tamponade in Cesarean section may be dangerous by exciting too active uterine contractions, thereby jeopardizing the sutures, and yet may be ineffectual from the inability of the operator to pack tightly the point most needed, the placental site.

3. *Absence of Facilities for a Laparotomy.*—The observance of minute surgical details determines the success of all surgical work; if one fact has been definitely, absolutely, proven it is that the best results in surgery can only be obtained in a well-equipped operating room with skilled assistants. Obstetrics is a surgical specialty, and Cesarean section is an abdominal operation which demands skilled assistants with most scrupulous regard to an aseptic technic. Great as are the risks of puerperal infection in placenta prævia, opening the abdomen offers immeasurably greater dangers with untrained help and hurried, inadequate preparation. In this connection may be mentioned the qualifications of the operator, as laid down by two surgical advocates of the Cesarean operation for placenta prævia. Bernays[74] wrote in 1882: "I would recommend Cesarean section if a man had performed or assisted at 200 abdominal operations and the mortality was below 7.5 per cent. as a substitute to Hicks' version, or the alternative measure—if a surgeon is not at hand—do version."

Donoghue,[75] entering the domain of obstetrics, proclaimed this in 1900: "For the successful performance of version an obstetrician having the necessary experience (the performance of at least 50 versions, for instance, being considered sufficient experience) is not so readily obtainable," and then continues with a rhapsody on Cesarean section for placenta prævia with obstetric considerations omitted. As there are exceedingly few available men with surgical proclivities who have performed 200 laparotomies, and still fewer practitioners, yes obstetricians, who have had opportunities of performing 50 versions, we are constrained to believe our surgical friends would have nearly all women afflicted with placenta prævia buffet the ebbing waves of their own life-blood stream between Scylla and Charybdis, awaiting the 50-case versionist, or the 200-case laparotomist.

4. *Rarely Can the Operation Be a Primary Procedure.*—Rigidity of the soft parts, cervical rigidity especially, is the indication most frequently suggested by surgeons. The consistency of a particular cervix is generally only determinable by attempts to secure dilatation of the os. Again, during the protracted period of preparation, hemorrhages may continue, necessitating vaginal tamponade. Attempts at dilatation, or measures instituted to allay bleeding, or efforts to deliver, at once make the Cesarean section a secondary operation. Obstetricians are almost a unit in agreeing that after vaginal procedures have been employed, the safe time for a Cesarean section is gone.

5. *Infection.*—At term the vagina normally is free from active pathogenic germs, but under circumstances not always under control, or in conditions as yet not fully recognized, a bacterial flora of marked virulency may develop. Undoubtedly, the presence of blood clots, or of active bleeding, by alkalinizing the vaginal secretions, will offer a habitat for the development of the micro-organisms usually present, or introduced by unclean hands, and dirty instruments. A puerperal infection whose atrium is the placental site is peculiarly dangerous to the parturient woman on account of its intimate relation to the veins and lymphatics. The almost direct communication of the veins and lymphatic of the lower uterine segment and of the cervix with their allied structures in the parametrium makes an infection introduced in these uterine divisions particularly liable to dissemination. These anatomic considerations go a long way toward explaining the great frequency of postpartum infections in placenta prævia. The clinical picture is completed by unclean fingers and unsterilized instruments coming in contact with the placental site during a protracted operative delivery; during the lying-in period the ascent of infective lochia may offer additional liability of an infection. We also must remember that, even when no examinations are made in spontaneous births, an infection of the puerperium may follow. Kroemer[76] has shown us that such an accident occurs in from 10 to 11 per cent. of such labors. While such an infection is rarely serious after physiologic labors, it may be the explanation of many lethal inflammations following Cesarean section. Truesdale's[77] statement, "Cesarean section should be done before anything else has been tried or not at all," owes its force to these various considerations. In general, the best results in Cesarean section may only be obtained by a rigorous regard to Schauta's rule that the operation should be done when sufficient time has elapsed from the diagnostic examination to preclude contamination from the vagina.

ANALYSIS OF REPORTED CASES.

"It must be acknowledged, however, that all errors of practice do not proceed from ignorance of the art. Some of them may justly be imputed to our entertaining too high an opinion of the art, or of its application in practice, when it is not absolutely required, and when its application is prejudicial, and to too much confidence in our own dexterity"—Denman,[78] 1805. This explains why Lawson Tait[35] hazarded the treatment of placenta prævia by hysterectomy—he was an expert abdominal surgeon, an authority on gynecology, but he had entirely neglected practice in obstetrics. To quote him: "I have all my life avoided in every possible way contact with obstetric practice, and for thirty years have had no personal association with it save in occasional consultations." What was more to be expected than that he should have had a fearful mortality in placenta prævia, a grave surgical disease in a branch of medicine in which he had developed no operative technic, and that he should employ an abdominal operation in an attempt to lower his mortality, which was treble, even quintuple, the death rate of obstetricians of his own

time? I believe Deaver[39] has done himself the greatest injustice, and set an example which should not be followed, when he performed his Cesarean section for placenta prævia, as he was less familiar with version. Surely this is on a par with a practitioner who amputates a leg because he does not know how to treat a fracture.

In the same way, it is not in accord with good obstetrics for Drs. Robert T. Morris[80] and Lanphear[81] dominal hysterectomies are perhaps reasonably safe procedures, but we can not see their utility when the simple tampon, possibly a metreurysis, will arrest bleeding and secure sufficient dilatation for the exit of a small collapsible fetus and a diminutive placenta.

Fry's[98] case is incompletely reported in a footnote; to the uninitiated his patient appears to have presented features analogous to those of Morris and Lanphear, but we know that Fry's experience with placenta prævia

TABLE IV—CESAREAN SECTION FOR PLACENTA PRÆVIA.

	Operator.	Age.	Para.	Mos. Preg.	Preliminary Treatment.	Type of Operation.	Result Mother.	Result Child.	Contributory Indications—Remarks.	Degree of Plac. Prævia
1	Sligh[82]	32	5	7	Tamponed for day or more; hydrostatic dilators; ruptured membranes.	Conservative.	Died.	Died in 2-3 days.	Cervix hard and short; possibly a carcinoma of cervix (?)	To back and left--Partial.
2	Lodemann[83]	39	5	8	Tampon	Conservative with ovariotomy.	Lived.	Died.	Absolute indication for Cesarean section: osteomalacic pelvis.	Partial.
3	Hypes & Hulbert[84]	..	..	7-9	Data refused	Conservative.	Died.	Died.	Performed as a last resort	
4	Bernays[74]	42	4	8	Tamponed for 12 hours	Conservative.	Lived.	Died in 10 hours.	Os admitted finger; rigid os, but after delivery of child, os found easily dilatable.	Complete.
5	Pasquali[85]	..	..	6		Conservative.	Lived.	Not Viable.	Contracted pelvis	
6	Pasquali	..	..	6		Conservative.	Lived.	Not Viable.	Contracted pelvis	
7	Morris[80]	34	..	5	Planned to dilate os rapidly, but feared to do it as consultant saw two deaths from such plan.	Porro.	Lived.	Not Viable.	Hysterectomy done for a five month miscarriage; not appropriate case.	High lateral.
8	Bossi[86]	..	..	7-9		Conservative.	Lived.	Died.	Rupture of uterus	
9	Braun[7] (case 47)	37	1	7	Cervix tamponed for 32 hours; colpeurynter for day and half.	Porro.	Lived.	Died in 3 days.	Rigid os; severe atony; other treatments of no avail—last resort; myoma of uterus.	
10	Braun (case 58)	38	4	7-9		Porro.	Lived.	Died in 2 days.	Rigid os; endometritis with chills, high fever; tympani uteri	
11	Mattoli[87]	28	2	7-9	Tampon used— of no avail; did section as he did not have colpeurynter.	Conservative.	Lived.	Dead.	Os admitted finger tip; in absence of dilators did Cesarean section.	Complete.
12	Tait[35]	..	4	Near term.	Ruptured membranes; and many other orthodox methods of treatment used.	Porro.	Lived.	Died in a month.	Os rigid, admitting one finger: did hysterectomy on account of his previous high mortality.	Not complete.
13	Donoghue[75]	40	2	7-9	Tampon and temporized	Conservative.	Lived.	Lived.	Os extremely rigid, admitting two fingers—dollar size.	Complete.
14	McCalla[88]	37	Mult.	7-9	Operated after hemorrhage stopped spontaneously.	Porro.	Lived.	Died in a week.	Os soft, patulous. Operated when hemorrhage stopped spontaneously.	Complete.
15	Covington[89]	29	4	9	No vaginal treatment	Conservative.	Lived.	Lived.	Three bad labors	Complete.
16	Gillette[90]	40	5	Near term.	Tampons; tried to dilate forcibly—severe hemorrhage, so desisted.	Porro.	Died.	Lived.	Os size of ten cent piece; procrastination for month; bed and room looked like a slaughter house.	Central.
17	Hare[91]	37	3	8	Refused treatment for 28 days; tampon.	Conservative.	Died.	Died in 13 days.	Os dilating; lost "quarts of blood."	Partial.
18	Lanphear[81]	34	1	4	Attempts to dilate rapidly produced alarming hemorrhages.	Porro.	Lived.	Not Viable.	Undilated os; profuse stinking discharge; slightest attempts to dilate caused hemorrhages. Merely a neglected miscarriage.	?
19	Webster[92]	13	1	8	Tampon until Cesarean section could be done.	Conservative.	Lived.	Dead.	Justo-minor pelvis; rigid undeveloped soft parts—a child mother.	Lateral.
20	Conroy[93]	35	5	7-9	Tamponed twice in brief peroid	Conservative.	Lived.	Dead.	Os admitted finger tip	Partial.
21	Donoghue[94]	40		7-9	Text implied that there was no preliminary treatment.	Conservative.	Died.	Alive.	Patient died from "stoppage of intestines"—adhesions of omentum to uterine and abnormal wounds.	Complete.
22	Hopkinson[95]	29	3	9	No treatment; hemorrhage appeared while waiting for an elective Cesarean on account of contracted pelvis.	Conservative.	Lived.	Lived.	Contracted pelvis—two difficult craniotomies; an elective Cesarean for contracted pelvis.	Marginal.
23	Omboni[96]	..	..	7-9		Conservative.	Lived.	Living when extracted.		
24	Truesdale[77]	33	7	8	Tampon for four hours; treatment considered. Rapid dilatation; version or Cesarean section.	Conservative.	Lived.	Died in ½ hour.	Os resistant, not rigid, admitting two fingers; gravity recognized after two and one half months of treatment.	Partial (?)
25	Willard[97]	40	1	5	No treatment locally as placenta prævia only discovered in laboratory after hysterectomy done.	Porro.	Lived.	Not Viable.	Woman 18 inches tall—weighed 39 pounds; 54 fractures; marked compression of lungs and heart.	Marginal.
26	Swift[103]	34	1	Near term.	None mentioned although bleeding had continued for 10 hours.	Conservative.	Lived.	Lived.	Cervix partially effaced, os admitted one finger; tampon placed in uterus postpartum.	Partial (?)
27	Deaver[79]	41	6	8	Tampon for 36 hours	Conservative.	Lived.	Lived.	Os half dollar size; Cesarean section done as operator was more familiar with it than version.	Complete.
28	Fry[98]	31	1	5-6	Tamponed twice for hemorrhage; consultants agreed on Cesarean.	Conservative.	Lived.	Not Viable.	Small vagina; no cervical effacement; os closed; strong labor pains.	Complete (?)
29	Zamboni[99]	..	..	..	Data not obtainable.					

(Table 4, Nos. 7 and 18) to perform hysterectomies for miscarriages at the fourth and fifth months, even though there were hemorrhages present from placenta prævia (?). It is to be expected that severe hemorrhages will occur when rapid dilatation, instrumental or manual, is employed in instances of placenta prævia. Abis a wide one; yet we wonder if the continued use of the tampon, later supplemented by the rubber bag, would not have produced the desired result without recourse to the knife, as the hemorrhage was stopped by the tampon, and pains were increasing. Willard's[97] patient (Table 4, No. 25) can not be considered to have had

placenta prævia, clinically at least, for there was no bleeding; hysterectomy was done for an exceedingly rare condition; a woman 18 inches tall (buttocks to cranial vault), weighing 39 pounds, with such extreme deformity that even at the fifth month her life was despaired of on account of excessive pneumonic compression; on opening the hardened uterus some weeks after the operation a placenta prævia marginata was found. H. R. Storer's case has been included in previous studies; it was omitted in the table as it was a postmortem Cesarean section—twins were delivered, one was dead, the other deeply asphyxiated, but could not be resuscitated.

These facts were furnished by Dr. Storer himself in a personal communication. I would say *en passant* that Dr. Storer was the first to perform a hysterectomy in pregnancy or labor, ten years before Porro used the same procedure, although Blundell[100] had suggested the technic of the Storer-Porro method years before and had successfully carried out the operation on rabbits. In making up my data I have omitted the cases of Morris, Lanphear and Willard for reasons already specified; as the mothers all recovered, the omission raises the maternal mortality in certain deductions, and, as all the fetuses were non-viable, the fetal mortality is lowered proportionally. Hopkinson's report deserves special mention, for the Cesarean section was determined on on account of a contracted pelvis. The patient was permitted to go into labor—while awaiting the knife, bleeding began. If she had not the pelvic deformity, most certainly she would have been treated obstetrically.

For the purpose, therefore, of obtaining data I have used 25 cases—5 women died, 20 per cent. Of the children, 9 were born dead, 36 per cent. Of the 16 babies delivered alive, 7 died within the puerperal period of 2 weeks, making 16 deaths, 64 per cent. We find the direct fetal mortality has been reduced approximately 35 per cent., but, in obtaining this result, the maternal deaths have been raised threefold. The brilliancy of these results is manifested if we make tables, on a basis of 100 cases, of the mortalities according to the new treatment and the orthodox plans.

CESAREAN SECTION.

100 mothers, 20 dead .....20 per cent.
100 babies, 36 dead .....36 per cent.

OBSTETRIC PROCEDURES.

100 mothers, 7 dead ..... 7 per cent.
100 babies, 55 dead .....55 per cent.

Brilliant results, indeed! Cesarean section saves 19 babies, but kills 13 mothers. Further, when we consider the deaths of the 7 weaklings, we find that 12 babies are saved at an expense of 13 mothers. This is but a corroboration of Schroeder's[101] opinion: "We are convinced that those who would aim at the most happy results in the treatment of placenta prævia take the least possible consideration of the child."

Type of the Prævia.—In 7 cases no information is given, or it is so vaguely expressed that it is not justifiable to consider them; 2 died, one from rupture of the uterus, which was the direct indication for the operation, 28.5 per cent. There were 9 complete prævias, with 1 death, 11.1 per cent. maternal mortality. Of the children, 2 died, 22.2 per cent.; 2 died later, one in 10 hours, the other in a week—an ultimate mortality of 44.4 per cent. There were 9 incomplete prævias, with 2 deaths, 22.2 per cent. Of the 9 babies, 3 were born dead, 33.3 per cent.; of the 6 infants born alive, one died in a half-hour, the second in 2-3 days, the third in 13 days, and the fourth in a month, leaving 2 alive—an ultimate mortality of 66.6 per cent.

Period of Pregnancy.—There were 5 cases in the sixth and seventh months of gestation—one died, 20 per cent. None of the children lived. The remainder, 20 operations, were on women with viable children—of these women 4 succumbed, 20 per cent. Operations were performed on 6 women at the eighth month, 5 at the ninth month or near term, and 9 between seven and nine months (exact data not being given). Of the 16 cases with definite statements as to the period of pregnancy, only 5 were at term, 31.2 per cent.; this percentage closely agrees with Read's report that 34 per cent. of pregnancies complicated by a placenta prævia each term.

Type of Operation.—Conservative Cesarean sections were performed 20 times, with a maternal mortality of 25 per cent.; 7 babies lived, 9 (45 per cent.) were born dead, and 4 died within 13 days—an ultimate mortality of 65 per cent. There was not a maternal fatality among the 5 Porro operations. All the children were born alive, but only 1 lived; 1 died on the second day, 1 on the third, 1 on the seventh day, and the last at the end of the month—an ultimate fetal mortality of 80 per cent.

Status of the Operators.—It is of interest to study the professional positions of the various operators, and with special relation to the indications for the sections. Here, perhaps, it is expedient to use all the reports (29) tabulated by me without omissions. The status of the various American operators was obtained from Polk's Directory, and the headings of their respective papers: the European men, by reputation. We find that 9 obstetricians operated on 11 women, 5 surgeons on 6 women, 5 general practitioners and 4 gynecologists had 1 case each; their mortalities were, respectively, 18.1, 16.8, 20.6 and 25 per cent. The branch of medicine to which 3 reporters largely devoted themselves was not ascertainable.

The Indications.—The obstetricians resorted to the operation five times for contracted pelvis, once for rupture of the uterus, twice for rigid os associated with severe atony, tympani uteri and infection, once for a small vagina, once as a last resort (this being the third case mentioned in the literature), and the last for an uncomplicated placenta prævia.

The other operators had 18 cases. There were 6 cases of "rigid os," but in one instance, strangely enough, the os was found to have dilated passively as soon as the child was delivered, and in a second the operator was influenced by his previous high mortality; one patient had had "three bad labors"; miscarriage was the indication twice; a rachitic dwarf with fragilitas ossium required an operation; the surgeon in one case did not know the technic of version; and, finally, 7 did not furnish data showing contributory indications, if there were such. One surgeon (Donoghue) makes the startling announcement that a transverse presentation and a prolapse cord are indications for Cesarean section, and contraindications for an obstetric version; as the child must be turned in order to remove it after a uterine incision has been made, we imagine he would have to perform a procedure which he believes contraindicated. Obstetricians have always held, and will continue to believe, that version is the operation of election in transverse presentations and funic prolapses; that these conditions are present in placenta prævia only more strongly demands the turning.

Finally, these cases tabulated by me show conclusively that Cesarean section generally can not be a primary procedure. The tampon was used on 10 patients.

various expedients were tried on 4, no treatment was mentioned in 5, and the remainder may be considered uncertain as to whether or no attempts were made to deliver per vaginam. In certain instances of rigid os nothing is said as to preliminary treatment, but the mere fact that the os was characterized as rigid strongly implies that attempts to dilate were made.

In conclusion, I have not found one obstetrician whose word may be authoritative who recommends the procedure. Surgeons, general practitioners and gynecologists who presumably rarely see physiologic and pathologic parturient women, advise it. A physician must have a close, intimate, working knowledge of normal labor to appreciate the refinements of pathologic obstetrics. J. W. Williams,[5] E. B. Cragin, P. A. Harris, C. Jewett, E. P. Davis and E. H. Grandin, all obstericians, condemn the operation for the indication under consideration, reserving it for severe complications. J. C. Webster (personal communication), whose case (No. 19, Table 4) is included in my report, considers it an unscientific procedure—only to be done under great necessity, as a contracted pelvis. Schauta[4] denies its necessity, and all European obstetricians condemn it by refusing to perform Cesarean sections for placenta prævia.

CONCLUSIONS.

1. Cesarean section for placenta prævia lowers the fetal mortality 30 per cent. and raises the maternal death rate nearly threefold. Approximately the life of one mother is taken to save the uncertain existence of one baby.

2. Table 4 shows that the maternal mortality for incomplete prævia is twice that for the complete variety, which is an absurdity, and is due to the few cases reported.

3. Unquestionably some maternal deaths have been suppressed, as in Cesarean sections for pelvic indications.

4. A rigid os is one of the rarest complications of placenta prævia. Undoubtedly most cases of so-called rigid os are simply instances of cervices unprepared for dilatation, or a misconception based on too brusque and rapid attempts to dilate or to extract. A true cicatricial cervix, and rigid cervices of old primiparæ, may offer an indication for Cesarean section in placenta prævia.

5. Pelvic contractions are indications for Cesarean section in the presence of a prævial hemorrhage; the pelvic contraction, not the prævia, is the determining indication. The earlier the interruption of gestation, *caeteris paribus*, the more may pelvic deformity be disregarded.

6. In general, the presence of a placenta prævia will not be recognized before hemorrhages appear.

7. Cesarean section for placenta prævia never will have so low a maternal mortality as when performed for a pelvic indication. Repeated examinations by the physician and his consultants must be made for diagnostic purposes; often a vaginal tampon must be introduced as a temporizing measure, at least until the woman may be transported to a hospital or preparations made at home for the laparotomy. The acute anemia and finally the anatomic conditions postpartum all render the operation a peculiarly dangerous one.

8. Placenta prævia cases appropriate for Cesarean section generally will demand the procedure irrespective of the fetal condition, as the primal motive should be to save the mother.

9. Cesarean section for placenta prævia should only be considered a *dernier ressort*.

10. If an abdominal operation is forced on the obstetrician, he should remove the uterus as a prophylactic against hemorrhage and infection.

11. The profession should await the adjudication of the field for Cesarean section in placenta prævia by obstetric authorities before resorting to the operation.

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THE UNIVERSAL METHOD OF CLINICAL WRITING BY MEANS OF CLINOGRAPHY.

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All the medical world feels the necessity of gathering together the clinical histories of the patients in a uniform method, so as to render them easily understood by all, and thus utilize them for increasing medical knowledge.

The method which I published a year ago, and which now is known and practiced in the principal centers of Italy, in the hospitals and the ambulances, has been proved by me for many years in the largest number of cases which I have observed in private practice and in the hospitals.

I have given the name of "clinography" or "universal method of clinical writing" to my system. It has two objects. The first object is to express the narration of the facts by means of a history in the Latin language, composed of three separate parts:

I. *Notæ Subjecti.*—The qualities of the subject, namely, age, sex, profession, heredity, habits, etc.

II. *Historia Subjecti.*—History of the preceding maladies.

III. *Historia Morbi.*—History of the present disease.

The second object consists in presenting a diagram, that is, a figure representing the parts of the patient, which are examined by means of physical examination, percussion, palpation, etc., and showing the results of these examinations. Therefore, the diagram is made by means of topograms, showing the examined parts, and semiograms, which represent the various symptoms which have been found by the physical examination.

The object of this article is to present some diagrams of disease, and thus to explain a great part of the system.

LEFT-SIDED EXUDATIVE PLEURISY.

The part examined was the posterior surface of the thorax. The two vertical parallels (Fig. 1) represent the vertebral column from the seventh cervical vertebra, represented by the small upper arch, to the limit between the eleventh and twelfth thoracic vertebræ or the lower edge of the lungs. This limit on the right side is indicated by the dotted line (abandoned line) because the lower margin of the right lung is lower by one centimeter, as is shown by the cifra above the dotted line, terminating in two small angles (the line of distance). The letters *a. p.* (axillary line, posterior) indicate that the topogram, and, therefore, the part examined, extends to these lines (it is a rule that the extent of the topogram corresponds exactly to the extent of the part examined).

The posterior surface of the left lung is divided into two parts by a line composed of strokes and dots. This serves to limit all the examined surface, when the limits are not made by topographical lines (artificial limiting line). If, instead of this line, there was a continued line, this would represent, in the figure in question, the cleft between the lobes.

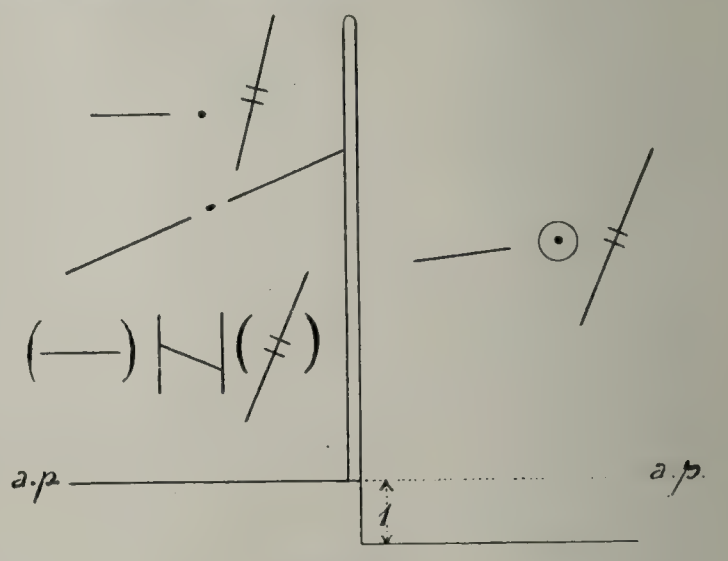


Figure 1.

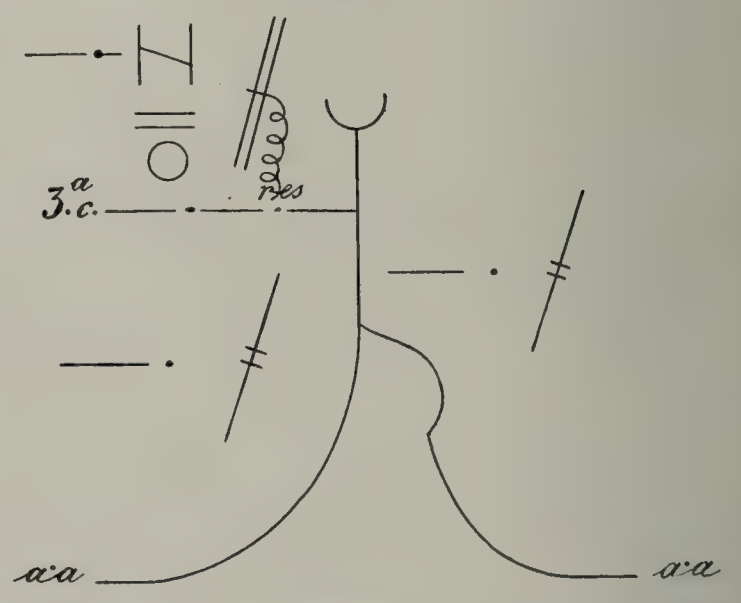


Figure. 2.

The symptoms observed by the physical examination in this case were as follows:

In the upper part of the posterior surface of the left lung there are three signs which indicate, respectively, normal vocal fremitus, normal pulmonary sound by percussion, normal inspiration and expiration, inspiration being represented by the lower part of the line, expiration by the upper. In the lower part of this same surface there are two signs already explained above; but they are in parenthesis. That is to say, the two symptoms are absent, namely, vocal fremitus and auscultated respiration are not to be found. On the contrary, in the place of the pulmonary sound there is a sign composed of two little vertical lines, with an oblique line between them, signifying a dull sound. In order to aid the memory, the oblique line represents the suppression of air

from the part enclosed by the two vertical lines—the physical condition in which occurs the dull percussion sound.

In the posterior surface of the right lung there are the semiograms, already explained, but the pulmonary percussion sound is closed within a circle, which represents the tympanitic percussion sound, and this signifies that in this region the pulmonary sound has a tendency to the tympanitic sound. The small circle reminds one of an air-ball, that is, the physical condition in which occurs the tympanitic percussion sound.

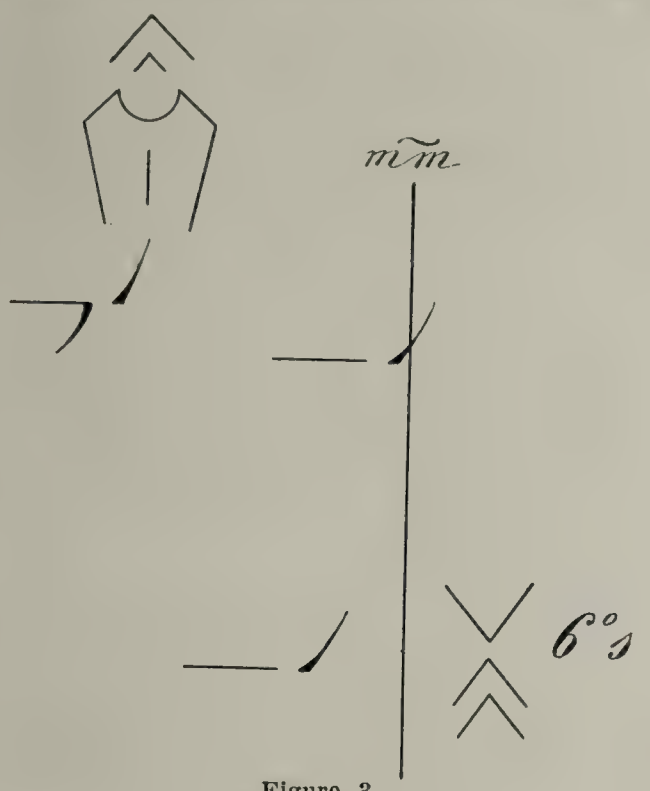


Figure 3.

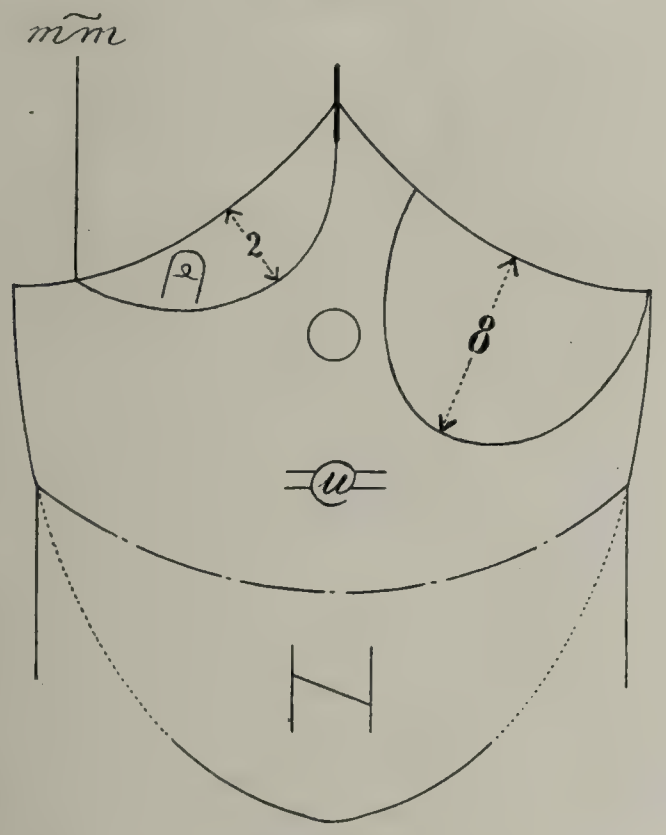


Figure 4.

CAVERNOUS TUBERCULOSIS OF THE APEX OF THE RIGHT LUNG.

The topogram of Figure 2 is composed of a small arch (jugulum or upper margin of the sternum), from which departs a figure like an *h*, which represents the anterior margins of the right and left lungs. The letters *a. a.* form the limits of the topogram, and indicate that the examination of the patient was made only on the anterior surface of the thorax (*a. a.* signifies anterior axillary line).

In the surface of the left lung, and in the lower part of the right, there are three semiograms which we already know (Fig. 1). The upper part of the anterior surface of the right lung is separated from the lower by means of an artificial limiting line, which corresponds to the third rib. In this part the vocal fremitus carries a sign formed of a dot from which, on the right, goes off a small line. This sign indicates the great intensity of the fremitus, while a dot with a small line on the left indicates weakness, a dot with a small line above or below indicates, respectively, the certainty or uncertainty of a phenomenon. By these four representations it is easy to aid the memory.

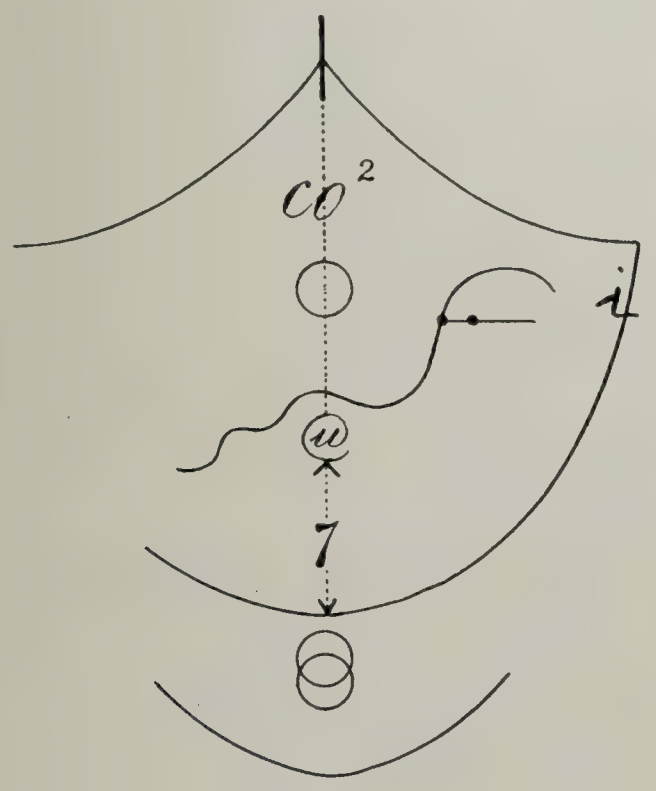


Figure 5.

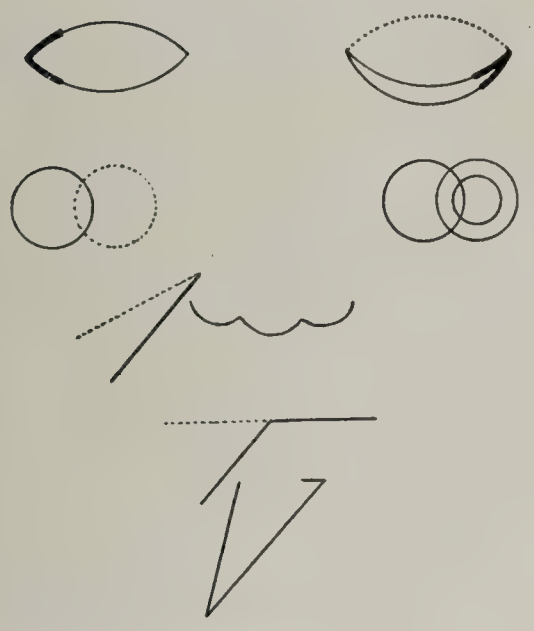


Figure 6.

The semiograms of the dull and tympanitic percussion sound are separated by two small horizontal lines, and this indicates that the gentle percussion produces the dull sound, and the strong produces the tympanitic sound.

The semiogram of the auscultated respiration (also Fig. 1) is here doubled, to indicate a soft bronchial respiration in both the acts.

In the first of these acts there is a figure representing a series of small circles. They remind one of bubbles of the mucous râles, and, therefore, one must read that in the inspiration there were some mucous râles (small sized). Finally, "res" indicates that these râles are resonant.

DILATATION OF THE ASCENDING AORTA FROM ATHEROMA, WITH HYPERTROPHY OF THE HEART.

The small jugular circle (also Fig. 2) reminds one that the examination has been made on the anterior surface of the chest; but here (Fig. 3) is represented the entire manubrium. On the left one sees the mammillary line (*mm*). On the manubrium is the semiogram of the reduced percussion sound. Above it is a sign which represents a strong pulsating area. (If the pulsation were of middle strength, instead of the double angle there would be a single one.)

The semiogram of a *V* indicates the apex of the heart, and this diagram signifies that this apex pulsates strongly and outside of the mammillary line, and in the sixth intercostal space.

In the three points of auscultation of the heart, there are two signs which represent the two normal sounds of the heart, separated by the short pause. The space which reunites the upper extremity of the second sound with the beginning of the first represents the long pause. This space completes an imaginary circle, which represents the cardiac revolution, with the well-known succession of the first sound of the heart, the short pause, the second sound, and finally the long pause. In our diagram, in place of the pulmonary valve auscultation, and also in the apex of the heart, the two sounds were found normal, and in the place of the aortic valve auscultation the first and second sounds are replaced by a murmur, and, therefore, the signs of the sounds are terminated by a hook.

COMMON HEPATIC CIRRHOSIS.

The topogram (Fig. 4) is formed by two arches, which remind one of the lower outline of the chest, and between these there is a small vertical line which reminds one of the apex of the sternum. The remaining part of the topogram is formed by an oval which, together with the two arches, forms the topogram of the anterior face of the abdomen. In the center of this there is an encircled *u*, which indicates the umbilicus. The two small horizontal lines on both sides of the umbilicus signify that it has lost its concavity and has become flat. To indicate that the sides of the abdomen are enlarged (ascites), a part of the abdominal ovoid is dotted; in place of this abandoned line (Fig. 1) we have near it a continued vertical line.

By the palpation is found a tumor of the spleen whose maximum measure is 8 cm. The liver is represented by a small zone, between the mammillary and median lines. The figure of a finger on the liver indicates that it is resistant to palpation, and the figure like an *e* on this finger indicates nodular resistance. The other semiograms are already explained above.

HYPERTROPHY AND DILATATION OF THE STOMACH WITH STENOSIS OF THE PYLORUS.

The topogram of Diagram 5 is the same as the preceding one. By means of inflation with carbonic acid (CO_2) we have very strong peristaltic movements, and the figure of the stomach is visible (*i*) and palpable, with an outline, which crosses the median line at 7 cm. below the umbilicus. The tympanitic sound of the surface is different from that of the inferior part because this latter is higher.

PARALYSIS OF RIGHT FACIAL NERVE, SUPERIOR AND INFERIOR BRANCHES, WITH PARALYSIS OF HYPOGLOSSAL NERVE, ETC.

Diagram 6 represents many different nervous symptoms, from the examination of the face. On the top there are the two apertures of the eyelids. The outlines of these apertures correspond exactly to the margins of the eyelids. To the right the exterior angle of this aperture shows a thicker line to signify that it is impossible to close it (a pose or forced position). On the left side the forced position is put on a closed eye. This closed eye is indicated by the abandoned line (lagophthalmus, ptosis). A similar abandoned line is used to express that the line of the cheek and the half of the mouth are lowered on the right side. The tongue is drawn under the mouth by means of an angle, whose left side is longer and curved, to indicate that there is a deviation of this organ toward the right side. Finally, there exists in the diagram two crossed circles, both on the right and left. They indicate the reflexed movement of the iris, by light and by adaptation to distance. In the right eye the first is normal, the second absent; in the left eye the first is normal, the second is weak (double-lined circle).

TUBERCULAR MENINGITIS.

REPORT OF THREE CASES.*

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To the physician who sees much of disease in children, tubercular meningitis is a specter that forever haunts the scene. Sometimes we fail to observe it as it lurks in the shadow, not yet ready to declare itself openly; more often, perhaps, we imagine we see it hovering over our patient, when subsequent developments prove we were deluded. How to recognize this evil spirit, so that we may know from the beginning with what we are contending, is a problem worthy of our utmost effort; and it is to this that I wish to direct your attention. During 1904 I saw three cases of tubercular meningitis, an account of which will serve to emphasize the difficulties in the way of making a diagnosis and the steps to be taken to overcome them.

CASE 1.—A boy, aged 3, always previously well, was taken by his parents to Los Angeles early in January, 1904.

History.—While there he was closely associated with his father's father, who had a chronic cough and had been told he had laryngeal tuberculosis. About February 1 the child began to complain of headache, putting his hand over the forehead when asked to locate the pain. At the same time he became listless and lost his appetite. On February 8, because of the child's indisposition, the parents brought him back to San Francisco. On the journey home he began to vomit and vomited persistently for nearly a week afterward. Then for a week there was no vomiting, then once more a recurrence, and at intervals subsequently during February the vomiting continued. During the whole time the headache persisted, always in the forehead. The bowels were continually and obstinately constipated. The child gradually grew restless and weak from loss of food. He had a little fever all the while, as noted by the mother, who possessed a clinical thermometer, and he lost a good deal in weight during his illness. On February 22 it

* Read before the San Francisco County Medical Society, 1905.

was noticed, for the first time, that he was drowsy and could not be interested in any way. I first saw him on February 23, when the foregoing history was elicited.

Examination.—The boy was still very drowsy and slept continually if left alone, but could be aroused. His pulse was from 70 to 80 and its rhythm slightly irregular. His temperature by rectum was 100.4 F. His abdomen was much depressed. The pupils were moderately dilated and reacted sluggishly to light. As soon as my examination was completed the child immediately dropped asleep again. On February 24 and 25 the condition was practically unchanged, except that the stupor was even deeper and the pulse even more slow and irregular. The temperature remained below 101 F.

Subsequent History.—On February 25, on my advice, the child was taken to Lane Hospital, and there he stayed during the remainder of his illness. On February 26 a lumbar puncture was made and about 12 c.c. of clear fluid were withdrawn from the spinal canal; this was submitted to Dr. William Ophüls for examination, and his report showed that the sediment contained a moderate number of leucocytes, of which 10 per cent. were polymorphonuclears, 81 per cent. were lymphocytes and 9 per cent. large mononuclears; no tubercle bacilli were found in the sediment and no other bacteria. The blood count showed a leucocytosis of 12,000.

From this time on the clinical history was that of irregular fever and persistent stupor, with gradually progressive increase in the pulse rate and decrease in strength until the end. Peculiar symptoms noted from time to time, characteristic of this disease, were the "tache cerebrale"; the bright flush on one cheek, while the rest of the face was pale; the grinding of the teeth; the irregular respiration rate, now and then approaching the Cheyne-Stokes type; the twitching of one or of the other extremity; the rigidity of joints, now in upper, now in lower limbs; the frequent vomiting, regardless of food taken; the retraction of the head and stiffness of the neck; the recurring strabismus, now divergent, now convergent; the irregular pupils, at one visit both widely dilated, at another unequal in size; and, finally, toward the end, general convulsions lasting for several minutes and repeating themselves at longer or shorter intervals. The child died on March 9 after an illness of approximately five weeks. No autopsy was permitted.

CASE 2.—On the evening of Sept. 22, 1904, a negro boy was found by the police lying unconscious on one of the streets of San Francisco.

History.—He was taken at once to the Receiving Hospital. There papers were found in his pockets that established his identity, and he was sent to the home of his parents. He remained there under the care of a surgeon until September 23; but, as his condition did not improve, he was then sent to Lane Hospital. At that hospital he was first referred to the care of the surgical staff; but, as no injury could be discovered by them to account for his coma, he finally came into the hands of the medical service. I saw him first on September 26.

The history of his illness was a very meager one. His parents could only relate that the boy was 18 years old, had run away from his home a year before to go to sea, and that they had never seen him since then until they were called to the Receiving Hospital to find him lying unconscious there.

Examination.—He was in a deep coma and could not be roused. His head was retracted and could not be brought forward, because of the rigidity of the muscles at the back of the neck. The pupils were moderately dilated and did not react to light. There was a facial paralysis on the right side so that the right eye was widely open and staring, while the left side of the face was much distorted. There was continual twitching, now of the hands, now of the feet, and at times a nervous tremor of the entire body sufficient to shake the bed. He seemed very restless and uneasy, moaning and groaning much of the time. Physical examination revealed no disease of heart, lungs or abdominal viscera, but the abdominal walls were much depressed. There was no swelling of any joint, but all the limbs were held rigidly and could be bent only by force. There was a typical Kernig sign in both lower limbs. Fever had been continuous from the date of his admission, ranging from 100 to 102 F. The pulse was regular but rapid, averaging from 100 to 110. The white blood count showed a leucocytosis of 10,500 on September 24 and of 11,200 on September 26. Lumbar puncture, made several times, revealed always a clear fluid, which flowed freely, as much as 35 c.c. being drawn on one occasion. This fluid, examined by Dr. Ophüls, showed no bacteria in coverslips, no visible growth in beef tea or in glycerin agar-agar inoculated with several c.c. and no bacteria in coverslips from the cultures. The sediment from the fluid showed a few lymphocytes, a few polymorphonuclear leucocytes and a moderate number of large bean-shaped diplococci, but none of them intracellular and all staining by the Gram method. The urine was continually voided involuntarily, and a specimen obtained by catheter showed a light cloud of albumin and an abundance of pus corpuscles, but no casts. Examination of the eye backgrounds by Dr. Edward Sewall showed normal discs, except that the veins appeared engorged and tortuous.

Subsequent History.—From the time of his admission the patient was unable to swallow, and, therefore, had to be fed by rectum and ultimately by means of a catheter passed through the nose. He never regained consciousness and the coma grew deeper and deeper. His pulse gradually grew more rapid and weak and his fever continued to rise higher each day until, finally, at the last examination before his death, the pulse rate was 192 and the temperature 107.4 F. He died at midnight on September 28, five days after entering the hospital and six days after he was found on the street.

Autopsy.—An autopsy was made on September 29 by Dr. William Ophüls. I quote from his report as far as it concerns the brain: "The skull cap is easily detached from the dura mater. A little fluid blood and some soft clots are found in the longitudinal sinus. The dura shows diffuse dark red and purple discoloration. It is very tense. The inner surface shows marked redness. There is very marked hyperemia of the pia mater, the surface of which is dry. In some of the sulci along the convexity and in those near the Sylvian fissure there is a moderate collection of slightly yellowish opaque exudate. This exudate is all in the subarachnoid space. In both Sylvian fissures, in the pia mater, back of the optic nerves, and in front of the pons and medulla there is a purulent infiltration of the membrane. A little clear fluid escapes from the spinal canal. The purulent infiltration extends a little way along the olfactory bulb. The right temporal lobe is very soft; both lateral ventricles are very considerably dilated and filled with clear serous fluid. There is also moderate dilatation of the third and fourth ventricles. The brain substance at the base is soft, almost liquid. There are no signs of tubercles around the area of purulent infiltration, but there are some just visible translucent nodules in the ependyma of the lateral ventricles."

Besides these conditions found in the brain, the autopsy revealed in the upper lobe of the left lung a cavity about the size of an almond filled with broken-down cheesy material; there were a few tubercles in the surrounding area. In the peribronchial glands on the right side were found a few old tubercles, and in one on the left side there was a large caseous area; but there was no tuberculosis in the right lung. One of the deep cervical glands on the left side, about the size of an almond, was almost completely caseated; and there was extensive tuberculosis of one of the lymph glands at the arch of the aorta. Finally, in a Peyer's patch in the upper ileum and in one just in front of the ileocecal valve there was found a slight swelling in the center, with an irregular superficial defect; in the neighborhood of the first lesion there were a few just visible tubercles in the mucous membrane.

The anatomic diagnosis was as follows: "Tubercular meningitis; hydrocephalus internus; two recent small tubercular ulcers in the intestine; tubercular cavity in the anterior part of the upper lobe of the left lung; old tuberculosis of the deep cervical glands on the left side, of the lymph glands of the arch of the aorta and of the left peribronchial lymph glands."

CASE 3.—A boy, aged 3, an only child, was brought from the country to my care at Lane Hospital on Nov. 2, 1904.

History.—In June previous the child fell downstairs, eighteen steps, but apparently sustained no serious injury and no bruises could be found about the body. The latter part of July he awoke from his daily nap, complaining of a cramp in his left leg. This pain and cramp persisted for several hours in spite of treatment, then passed off entirely and left no

lameness; so that the child in the afternoon could run about the house without difficulty. In the evening, on going to bed, complaint was again made of some lameness. The next morning, on waking, the child again had cramp in the left leg and could not put the foot to the floor. For four weeks following this the boy could not walk. He was brought to Oakland and kept there during that time under treatment in a sanitarium. The limb continued painful and the child lost in weight and in color. Gradually, however, he again improved in appetite and weight and his limb grew better, so that finally he could walk once more. By the end of September he was able to return to his home in the country and to be about constantly on his feet. Early in October the limb again began to give trouble and ever since had made him walk lamely, sparing his left leg. For months past it had also been observed that the boy placed his hands on his knees to support himself in rising from a chair or in sitting down and that he held himself stiffly in movements involving any bending of the spine. On October 30 the child began to complain, for the first time, of pain in the head. Since then the pain had been persistent, and he did not want the head moved because it hurt him. He had been observed for weeks past to have a slight elevation of temperature every afternoon, running as high as 100 or 100.5 F. by rectum. Since the onset of the pain in the head the temperature had gone higher—as high as 102 F. at night. The night of October 30 the child vomited, again on the 31st and again on November 2, without apparent reason, for no food had been given meanwhile except a little broth and milk. He had lost his appetite completely and it was difficult to make him take any food since the onset of the pain in the head. He had also become drowsy during the few days since the headache began, and slept most of the time if undisturbed.

Examination.—The little patient was found to be pale and poorly nourished. His pupils were dilated, but equal and responded to light. The head was held stiffly, and the child cried if it was forcibly moved forward. No abnormality was found about the lower limbs. They were equal in size and development, and there was no limitation of motion at knee or hip in either limb. In the lumbar region of the spine there was found a decided swelling, extending more to the left than to the right of the median line and involving three spinous processes. There was no redness over this swelling, but there appeared to be considerable tenderness. The white blood count showed 13,800 white corpuscles. The urine contained no albumin or casts. For the sake of exclusion the blood was examined for a Widal reaction, but there was no reaction in one hour with a dilution of 1 to 10. In this case, the parents objected to lumbar puncture and, therefore, it was not made.

Subsequent History.—The subsequent course of this case was very similar to that of the first one reported. Little by little the child grew more drowsy and finally sank into a coma from which he never roused. His pulse for several days was slow, averaging 92 in rate, and was at times intermittent and irregular. Gradually it grew more rapid and weak as the case progressed and as death approached until it became 140 to 170 and very thready. The temperature was irregular throughout, ranging most of the time between 100 and 102 F., but several mornings touching the normal line, even as late as the day before he died. These remissions in temperature, however, were never accompanied by any improvement in the mental condition. The child died on November 15, about two weeks after the onset of meningeal symptoms. Four days before he died the parents took him back to their home in the country, so that the last stage of the illness was not under my observation; but no general convulsions occurred and, except for spells of tossing about of the limbs and frequent grinding of the teeth, there was no interruption of the earlier stage of the stupor. No autopsy was obtained.

The phase of this subject to which I wish to call particular attention is the diagnosis. The disease is a frequent one in infants and in young children; and occurring as it does at an age when an accurate statement of symptoms can never be obtained, it always offers an interesting problem for solution. It is common enough to attribute the first manifestations of the disease to some other condition; and one other case which I have not herewith reported, but which I saw in the early part of last year, will call attention to the opportunities for error in the early detection of the real trouble. On Jan. 14, 1904, I attended an infant, aged 19 months, who appeared to have a disturbance of stomach and intestines. He had recently been vomiting his food and had had some diarrhea following a history of improper feeding. I gave the usual fractional doses of calomel, regulated the diet, and in a day or two the child seemed perfectly well again. The next time I saw him, on February 22, it was in consultation with Dr. E. G. Frisbie, who had been called a short time after my attendance because the baby did not continue to improve. At the time of this consultation the child was in a condition of coma, with pupils widely dilated and not reacting to light, with the pulse irregular in rhythm, with twitching and contraction of the muscles, with marked retraction of the head and with persistent vomiting and high fever. Death occurred on February 24. This case illustrates how easy it is at the outset of tubercular meningitis to suppose the condition one of acute indigestion. The lesson to be drawn from this experience and from the cases herewith reported is that one should always be suspicious of tubercular meningitis in a child in every case of illness that is associated with disturbance of digestion, a slight degree of fever and peevishness and irritability of temper. With older children, able to talk, the complaint of headache is a valuable early guide as to the site of the mischief, but with infants the diagnosis can not be made with certainty until some days have elapsed, because of the vagueness of the symptoms of onset. If one bears in mind this very fact of the indefiniteness of early symptoms and the possibility that they mean serious disease, he will not be so likely to make a mistake.

More definite symptoms are those of disturbance of the mental condition. In the very beginning these symptoms are due to irritation of the brain, and consequently fretfulness, peevishness, restlessness and insomnia are the phenomena produced; but such symptoms are common to so many diseases in infancy and childhood that they have no definite diagnostic meaning.

Last April, in Vallejo, with Dr. J. J. Hogan, I saw a child that for two or three days previously had been in a state of violent excitement, screaming and crying and tossing about without apparent cause. There was no fever and no vomiting and at the time no explanation for the condition could be found. Gradually, however, this condition of frenzy changed to one of drowsiness and coma and the child's later condition was typical of tubercular meningitis. It is this condition of quietness, drowsiness, loss of interest in surroundings and gradually increasing stupor that rightly gives rise to apprehension of serious cerebral disease; especially if the development of this change has been a slow one, and if it is associated with a low grade of fever. Perhaps the mistake most often made about this mental condition is to assume that it inevitably means meningitis. I have repeatedly seen infants supposed to have meningeal disease, when the stupor was due purely to intestinal toxemia or to some acute infection with high fever, such as lobar pneumonia. In such cases the onset of the cerebral symptoms has usually been rapid, and there is much higher fever than tubercular meningitis would present at so early a stage in its clinical history.

Still more definite is the evidence of irritation or of intracranial pressure, as manifested in parts outside

the brain; such as the unequal pupils, the widely dilated pupils, or the pupils that refuse to respond to light; also the various local paralyses about the muscles of the eye, as in strabismus, or in the muscles of one side of the face or in one limb; or such as the irregular pulse and respiration. All these manifestations, however, may be variable and transient; present one day and absent the next. Indeed, the mental condition itself is a variable one from day to day, and it is not rare to find a child at one visit in profound stupor, incapable of being roused, while at the next visit the child will respond when spoken to and recognize its parents and those about its bedside. This variability in the mental condition is one of the saddest features of tubercular meningitis, for it raises false hopes in those who do not understand its lack of significance and who wrongly interpret it to mean improvement.

When we come to the evidence to be obtained by direct physical examination of the patient with meningitis, and to the various chemical and microscopic tests that give us aid, we find that there are a number of points that help us greatly in the diagnosis. First of all comes retraction of the head, and at times this is so marked that no one, not even the parents, can overlook it; often the head is drawn backward until the occiput nearly touches the back. More frequently, however, the condition found is simply one of stiffness and rigidity of the muscles at the back of the neck, so that the child will not permit the head to be carried forward with the chin against the sternum. This latter condition may be discovered only by examination and may not produce any visible alteration in the usual position of the head on the pillow. The value of this sign when it is discovered is great, and I know of no conditions that simulate it except a rheumatic torticollis, which is more likely to be lateral than anteroposterior, and disease of the cervical vertebræ which is not usually associated with the other symptoms and signs of tubercular meningitis. The Kernig sign, so valuable in adults, is, in my experience, more difficult to elicit in young children, because they can not be persuaded to eliminate the fear of being hurt by manipulation and, therefore, hold the limbs rigidly even though no meningitis is present as a cause. The white blood count gives valuable evidence both as to the presence of a meningitis and as to the character of the meningitis. The leucocytosis found is usually that of other tubercular disease; namely, one of moderate degree. In the cases reported the average count was 12,000, and such a count means, in the first place, that there is some inflammatory process present in the body and, in the second place, that this process is not acute and virulent. The absence of any leucocytosis would speak against the presence of meningitis, while the presence of a high leucocytosis would speak for some other form than the tubercular.

Lumbar puncture gives us evidence that is negative rather than positive, but it is a diagnostic aid we would not like to do without. The fluid obtained is usually clear and not turbid; tubercle bacilli are usually not found either in coverslips or in cultures; and the sediment obtained by centrifugalizing is usually very small in amount and contains few cells. Attention has recently been called to the fact that the cells found in the spinal fluid are mainly lymphocytes in tubercular meningitis, whereas the polymorphonuclear cells predominate in other types of the disease, such as the epidemic or the septic. It is, therefore, the discovery of a clear fluid containing no micro-organisms and but few cellular elements that is characteristic of tubercular meningitis. Lumbar puncture is by this time recognized to be a procedure practically harmless if properly performed, and it is so easily done that it should never be omitted in the effort to obtain data for diagnosis, provided the consent of parents can be obtained.

The second case described, although it did not occur in a child, calls attention to several points that have an immediate bearing on diagnosis. First, the very fact that this case occurred in an adult is of interest, because we are too apt to think of tubercular meningitis as a disease only of children. It is certainly more common in infancy and in childhood, but it can never be ruled out as a possibility in diagnosis because the patient has passed a given age. Second, a case seen for the first time in its later stages may appear to have had a sudden onset and, therefore, to belong to some other type of meningitis than the tubercular. Even when the history of illness is known from the beginning, as it was not in this case, there may still be an apparently sudden onset, because the trivial symptoms preceding the grave ones were unnoticed. One must not, therefore, be guided too much by a history of sudden onset in determining the form of meningitis present. Third, even though the onset be apparently sudden and the symptoms at the time of the first observation are violent and severe, it still remains possible by means of the blood count and lumbar puncture to differentiate tubercular from the other types of meningitis. In this particular case of the young negro referred to, the history and the physical condition at the time he was first seen indicated that he was suffering from the epidemic form of cerebrospinal meningitis. The low blood count, however, was against the latter diagnosis; the fluid obtained by lumbar puncture was at all times characteristic of tubercular meningitis; and at no time were the organisms found that are characteristic of the epidemic type. Fourth, this case, the only one in which an autopsy was obtained, demonstrates that tubercular meningitis is rarely or never a primary disease. There is always a tubercular focus somewhere else in the body to which meningitis is secondary. This focus can not always be found, even if careful search is made for it; but, on the other hand, such search will many times lead to the discovery of tubercular disease elsewhere, either in lungs, abdominal organs or bones, that existed for some time before the symptoms of meningitis presented themselves. In the third case referred to, for instance, there was a definite history of tubercular disease of the vertebræ for some months before the meningitis occurred; and on physical examination there were definite signs of such disease present to account for the meningeal complication. In children it is frequently an infection of the bronchial glands that precedes the disease of the meninges, and the only evidence that can be obtained is a history of persistent cough for some weeks before; though physical examination of the lungs may give very indefinite signs of pulmonary disease. Fifth, if one has any doubt, during the course of a case, whether or not the meningitis is of the tubercular type, the outcome decides the question. A case considered during its clinical course to be tubercular meningitis may be looked on as an error in diagnosis if recovery takes place; for this disease must be set down as uniformly fatal, and we know of no remedies that will stop its progress. Other forms of meningitis may end in recovery, but the tubercular form practically never does. It is true that a few cases have been reported in which recovery occurred

even when the diagnosis seemed positively determined; but they are so few they do not alter the general statement.

In conclusion, the problem presented by these cases is always twofold: First, is meningitis present, and, second, is it tubercular meningitis? In deciding the first point, one must consider the various symptoms and signs already described in the cases presented, and which are more or less common to all types of meningitis. Other conditions occurring in infants and in young children that give rise to similar symptoms are the following: First, acute intoxications, usually intestinal in origin; second, acute infections, such as lobar pneumonia, in which the primary condition is masked temporarily and the meningeal symptoms predominate; third, typhoid fever; and, fourth, uremia, which can easily be eliminated if the urine is examined.

In deciding the second point, one must bear in mind the possible varieties of meningitis and consider the evidence with reference to each. They are as follows: First, the tubercular variety, usually secondary to a focus of tuberculosis elsewhere in the body, with the characteristic clinical history, physical signs and blood count described in the cases herewith presented and with a sterile fluid obtained by lumbar puncture; second, the septic variety, which occurs most often secondary to abscess in the middle ear or to fracture of the skull, and which has a sudden onset, a high leucocytosis and a fluid obtained by lumbar puncture that is more or less turbid, containing the organisms of sepsis in coverslips and in cultures and excess of polymorphonuclear cells; third, the epidemic form, which usually has a sudden onset, a high leucocytosis, a turbid fluid obtained by lumbar puncture, containing the meningococcus and an excess of polymorphonuclear cells; fourth, the pneumonic form, which usually occurs as a complication of lobar pneumonia, is sudden in onset, has a high leucocytosis, and shows the pneumococcus in the fluid obtained by the lumbar puncture; fifth, the posterior basic meningitis, described by Still, of which the characteristic clinical feature is the excessive retraction of the head, which is chronic in its course, which usually presents itself during an epidemic of the cerebrospinal form of the disease, and in which the fluid obtained by lumbar puncture shows either the meningococcus or else no organism at all. In these cases recovery sometimes takes place after a clinical course of weeks or months.

PHYSICIANS IN FICTION.

PHYSICIANS AS SEEN BY HENRY FIELDING.

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We deem it appropriate to begin the study of the types of physicians in fiction with an author who, according to Sir Walter Scott, was "the father of the English novel" and whose "Tom Jones" is considered by the foremost critics to be the greatest novel that was ever written. Although many of the libraries here and abroad have placed Fielding's works in *the index expurgatorium*, yet the observation made by Burrow[1] some sixty years ago holds good even in our generation. He calls Fielding "the most singular genius their island produced, whose works it had been the fashion to abuse in public and to read in private."

In "Joseph Andrews," "Tom Jones" and "Amelia" no physician appears as a prominent character, but a number of medical men, surgeons and apothecaries make their appearance, and, with the exception of two, they offer excellent material for the formation of an opinion of the prevailing tendencies, foibles, shortcomings and petty jealousies among the physicians of the Eighteenth Century. We say "prevailing tendencies" advisedly. For, notwithstanding the fact that that century had produced such eminent physicians as Chesselden, Pitcairn, Arbuthnot, Cullen, Douglas, the Monroes, father and son, the Hunters and others. their influence did not manifest itself universally until the beginning of the Nineteenth Century. The select body of physicians consisted of men of culture, whatever we may think of their therapeutic attainments, but the general run of surgeons and apothecaries of that period, we must admit, possessed but little general education and scant scientific equipment. In the hands of Fielding the latter become fit subjects for ridicule.

In "Tom Jones" we find one of those unfortunates whom we meet even in our day, "a gentleman who had the misfortune of losing the advantage of great talents by the obstinacy of a father who would breed him to a profession which he disliked. In obedience to this obstinacy the doctor (Bilfil) has in his youth been obliged to study physic, or, rather, to say he studied it; for, in reality, books of that kind were almost the only ones with which he was unacquainted, and, unfortunately for him, the doctor was master of almost any other science but that by which he was to get his bread; the consequence of which was that at the age of 40 he had no bread to eat."

The sum total of the knowledge of the causation of disease is thus wittily described: Captain Bilfil died suddenly, and two doctors were summoned. "Having felt his pulse, to wit, Dr. Y. his right and Dr. Z. his left, both agreed that he was absolutely dead; but as to his distemper or cause of his death they differed; Dr. Y. holding that he died from apoplexy and Dr. Z. from epilepsy. To say the truth, every physician almost has his private disease, to which he ascribes the victories obtained over human nature. The gout, the rheumatism, the gravel and the consumption have all their several patrons in the faculty; and none more than the nervous fever, or the fever of the spirits."

That the expectant treatment was an unknown quantity in those days, and was considered a subject worthy of ridicule, is well illustrated by the following grave discourse:

"There is nothing more unjust than the vulgar opinion by which physicians are misrepresented as friends to death. On the contrary, I believe if the number of those who recover by physic could be opposed to that of the martyrs, the former would rather exceed the latter. Nay, some are so cautious on this head that to avoid a possibility of killing a patient they abstain from all methods of curing and prescribe nothing but what can neither do good nor harm. I heard some of those who with great gravity deliver it as a maxim 'that nature should be left to do her own work,' while the physician stands by, as it were, to clap her on her back and encourage her when she does well."

The boastful, garrulous and voluble surgeon, as well as the medical vocabulary of that day, is masterly depicted thus: "Jones fractures his arm while saving the life of Sophia. The surgeon bleeds Sophia first and then proceeds to examine Joseph's arm, and, holding forth his broken arm, he began a very learned and very long lecture, in which simple and double fractures were most accurately described; and the several ways in which Jones might have broken his arm were discussed, with proper annotations, showing how many of these would have been better and how many worse than the present one."

On another occasion Jones receives a blow on the head. The surgeon, "having viewed the wound, having shaken his head and blamed everything that was done, ordered the patient instantly to bed." When asked a little later how his patient did, he answered: "Better, I believe, than he would have been by this time if I had not been called; and even as it is, perhaps, it would have been lucky if I could have been called sooner. . . . I remember to have been called to a patient who received a violent contusion in his tibia, by which the exterior cutis was lacerated so that there was a profuse sanguineous discharge and the interior membranes were so

1. Spain and the Bible. 1848.

divellicated that the os or bone very plainly appeared through the aperture of the vulnus of the wound. Some febrile symptoms intervening at the same time (for the pulse was exuberant and indicated much phlebotomy), I apprehended immediate mortification." When pressed with the question whether Jones is in danger: "In danger, ay surely," cries the doctor; "who is there among us, who in the most perfect health, can be said not to be in danger? All I can say at present is that it is well that I was called as I was, and it would have been better if I had been called sooner, . . ."

At the second visit the landlady informs the surgeon that Jones suffers from an "eating fever, for he has devoured two swinging buttered toasts this morning for his breakfast." The surgeon finds no difficulty in explaining away this physiologic paradox:

"Very likely; I have known people eat in a fever, and it is very easily accounted for; because the acidity occasioned by the febrile matter may stimulate the nerves of the diaphragm and thereby occasion a craving which will not be easily distinguished from a natural appetite; but the aliment will not be concreted nor assimilated into chyle, and so will corrode the vascular orifices and thus will aggravate the febrific symptoms."

Another illustration of clear pathology and distinct nomenclature is to be found in "Joseph Andrews." Joseph was beaten unmercifully. The surgeon pronounces: "His case is that of a dead man. The contusion on his head had perforated the internal membranes of the occiput and divellicated that small, minute and invisible nerve which coheres the pericranium and thus was attended with a fever, at first symptomatic, and he is at length grown delirious, as the vulgar express it."

The barbers, who during many centuries performed the functions of surgeons, have even as late as the Eighteenth Century competed with the surgeons for supremacy. Fielding introduces in "Tom Jones" a barber by the name of Benjamin, "a fellow of great oddity and humor," who undertakes to treat Jones.

"'So, tonsor,' said Jones, 'I find you have more trades than one; how came you not to inform me of this last night?'

"'A surgeon,' answered Benjamin, with great gravity, 'is a profession, not a trade. The reason why I did not acquaint you last night that I professed this art was that I then concluded you were under the treatment of another physician, and I never love to interfere with my brethren in the business.'"

In "Amelia" we find a description of how a physician and an apothecary pull together—a coalition entered into even in our day. A physician is called to see Amelia's sick child.

"He began to inquire of the apothecary what he had already done for the patient; at which as soon as informed he greatly approved. The doctor then sat down, called for pen and ink, filled a whole side of a sheet of paper with physic, then took a guinea and took his leave, the apothecary waiting on him downstairs as he attended him up."

The hostility with which physicians looked on innovations is described in the following episode: The father of a sick child asks the physician for a consultation with an eminent physician, Dr. Thompson."

"'Excuse me, sir,' cried the doctor hastily, 'I shall not meet him. Shall I meet a man who pretends to know more than the whole faculty and would overturn the whole method of practice, which is so well established, from which no person hath pretended to deviate?' 'Indeed, sir,' cries the apothecary, 'you do not know what you are about, asking your pardon; why, he kills everybody he comes near.'"

In the story of the "Man on the Hill," in "Tom Jones," he pays a tribute of respect to his own surgeon, Dr. Ranby. He says:

"R. had the first character in his profession, and was sergeant surgeon to the King. He had, moreover, many good qualities and was a very generous and good-hearted man and ready to do any service to his fellow creatures."

The revulsion against polypharmacy is expressed in the words of Dr. Thompson, who "blew up the physical magazine," that is, he discontinued the administration of the many powders and potions; he "blooded" the patient instead, gave her a clyster, etc.

Notwithstanding the fact that all his medical types play such an insignificant part in his works that they can hardly be called characters from the standpoint of the reader of modern novels, yet we believe that the medical reader with a critical eye will find every line pregnant with curious historical data concerning our brethren of almost two centuries ago. Fielding has truly estimated his own works by saying that they depict "not men but manners, not an individual but a species."

That Fielding did not write about physicians from hearsay or imagination, but from an intimate acquaintance with the medical profession, is evident from the fact that he was an invalid for many years. He came in contact now with the most eminent surgeons and again with most celebrated quacks. Fielding suffered from gout all his life, and having been a high liver he succumbed at the age of 47 to a complaint which was characterized by dyspnea, jaundice, dropsy, extreme feebleness and emaciation. There is no doubt that he suffered from cirrhosis of the liver. He was treated by the following: In 1749[2] by Dr. Thomson, who is described by Johnson as "a man who had by large promises and free censure of the common practice of physic forced himself up into a sudden practice." In 1751 we find Fielding taking the water cure[3] in Somersetshire, which he claimed publicly had relieved him from a disease which baffled the most skillful physicians. Of course, as subsequent events have shown, he did not obtain any permanent relief. In 1752 he had a literary tilt with Dr., afterward Sir John Hill.[4] During the same year he was taking the Duke of Portland medicine, a popular Eighteenth Century gout powder. The disease, however, made rapid strides, and a deep jaundice set in. Dr. Ranby[5] advised him to go to Bath. In 1754 he returned to London in a most deplorable condition and placed himself under the care of the notorious Joshua Ward,[6] who was, however, the first to relieve Fielding of his dropsy by tapping. In May of the same year he was induced to take up the tar cure.[7] As a last hope he was advised to go to Portugal. While on board the ship he was tapped by the celebrated William Hunter. He died in Lisbon Oct. 8, 1754.

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2. He must have been under the care of a physician prior to this date, but I was unable to find any record.

3. This cure came in vogue through an obscure man, who was afflicted with what was considered an incurable case of asthma, and who saw in his dream "near the chain-gate, in the horse track, the clearest pool of water, and that a person told him if he drank a glass of the same, fasting for seven Sundays, he would be cured."

4. Hill was originally an apothecary, but abandoning his business for the stage he produced a few bad farces at the Haymarket, in which he appeared as an actor. Garrick wrote the following epigram on Hill:

For physic and farces
His equal there scarce is,
His farces are physic,
His physic a farce is.

Having been hissed off the stage, he took up the study of medicine and natural history. He seems to have been a prolific writer. The Surgeon-General's Catalogue has 12 entries under his name, mainly on subjects of materia medica.

5. Ranby wrote a celebrated essay, "The Method of Treating Gunshot Wounds."

6. From the Catalogue of the Surgeon-General's Library I conclude that Ward made himself famous by his "drop and pill." There must have been quite an agitation among the profession concerning this remedy. Clutton, for instance, writes a pamphlet in 1736 entitled "A True and Candid Relation of the Good and Evil of Joshua Ward's Pill and Drop." Packe writes an answer to Dr. Turner: "On the subject of Ward's drop and pill wherein his (Dr. Turner's) ignorance of chemical pharmacy is fairly exposed." Tennent, in 1742, writes: "On the mercenary practice of physicians . . . and by his (Dr. Ward's) pernicious progress with medical secrets." Even as late as 1763, Page writes: "Receipts for preparing and compounding the principal medicines made use of by the late Dr. Ward." Pope refers to him: "Ward try'd on Puppies and the poor his drop." He is mentioned in Hogarth's "Consultation of Physicians," 1736. He was the attending physician of George the Second. I should have liked to know more of Mr. Ward, but the literature is not accessible.

7. Bishop Berkley wrote a treatise in 1744, "Philosophical Reflections and Inquiries Concerning the Virtues of Tar Water." Horace Walpole gives in a letter to Mann the following humorous account of the tar-water craze: "We are now mad about tar water, on the publication of a book by Dr. Berkley. The book contains every subject from tar water to the trinity: however, all the women read—and understand it no more than if it were intelligible. A man came into an apothecary's shop the other day. 'Do you sell tar water?' 'Tar water,' replied the apothecary, 'why, I sell nothing else.'"

That Fielding wrote his novels not solely for the amusement of his contemporaries, but also with a view of imparting to future generations valuable data of the habits, customs, morals, etc., of the men and women of his day, and that he also possessed the prophetic sense of foreseeing that some day his novels would be read by some one (whether by the present writer or not remains a mooted question) for the sole purpose of studying the medical types he has described, is evident from the following remarks found in "Amelia":

"Some readers will think the whole chapter (the consultation of the physician quoted above) might have been omitted, but though it contains no great matter of amusement, it may at least serve to inform posterity concerning the present state of physic, . . ."

Special Article

IMMUNITY.

CHAPTER XV—CONCLUDED.

Metchnikoff, taking the view that the phenomena of old age depend on the destruction of various tissue cells by the mononuclear leucocytes, expressed the hope that a lymphotoxic serum might be utilized to combat the action of these cells, with the result that life would be prolonged. Whether or not his view as to the cause of old age is correct, his plan of antagonizing it had to be abandoned because leucotoxic serums do not injure the "macrophages" (large phagocytes) to the exclusion of other leucocytes.

Old Age.

The injection of a leucotoxic serum into the peritoneal cavity of a guinea-pig causes a temporary decrease in the number of leucocytes, and during this period of hypoleucocytosis the resistance of the animal to peritoneal infections with the organisms of typhoid and cholera is lowered. One may refer this effect to the destructive action of the serum on the leucocytes, by which phagocytosis is prevented; or, according to Wassermann, it may depend on the action of anticomplement which the leucotoxic serum contains. Leucocytes contain complement, hence immunization with leucocytes causes the formation of anticomplement. In the course of 24 to 48 hours after peritoneal injection of the serum, the leucocytes reaccumulate to an enormous extent. During this secondary hyperleucocytosis resistance to peritoneal cholera or typhoid is increased. Some non-toxic substances, as bouillon, have a similar effect, and although the secondary leucocytosis is never so great as that caused by the leucotoxic serum, the protective action is equally high. It would seem that, leucocyte for leucocyte, those which accumulate following the injection of leucotoxic serum are less efficient in antibacterial action than those whose presence is caused by non-toxic substances. Hence there probably is no field for leucotoxic serum as a means of temporarily increasing resistance to bacterial infections.

Effect of Leucotoxic Serum on Resistance to Infections.

By guarded immunization Besredka obtained an antileucotoxic serum.

Nephrotoxic serums have been brought into close relationship with clinical and anatomic problems by a number of investigators. Some normal serums are held to be nephrotoxic inasmuch as their injection is followed by albuminuria and renal degenerations. Immune nephrotoxins have a similar but more pronounced effect, and Lindeman referred the death of his experiment animals to the development of a uremic condition. Of more than ordinary interest is the claim of certain workers that autonephrotoxins may be formed in the body. One (Lindeman) caused a toxic nephritis in dogs by the injection of potassium-bichromate. The serum of this dog, although free from chromic acid, was toxic for other dogs, producing the symptoms which are caused by an immune nephrotoxic serum. It was supposed that the chromic acid in the first dog caused disintegration of renal cells and that the constituents of the latter were then taken up by nephrotoxic receptors which normally reside in the organs of the animal; as a result the autotoxic receptors were overproduced and their presence became manifest when the serum was injected into other dogs. In accordance with this view the original toxic cause of a degenerative nephritis would be of less consequence for the continuance of the condition than the formation of the nephrotoxic amboceptors.

Nephrotoxic Serum.

Autonephrotoxins.

Somewhat similar results were obtained by others through ligation of the renal vein or artery on one side; constituents of cells of the isolated kidney were supposed to be absorbed, and as a consequence nephrotoxic amboceptors were produced in excess by organs of uncertain identity. To the new-formed bodies were attributed the degenerative changes which were found in the opposite kidney, and the nephrotoxic properties which the serum manifested when injected into a healthy animal of the same species.

According to Ascoli and Figari unilateral nephrectomy so injures the opposite kidney (overwork) that the serum of the animal becomes nephrotoxic. They state also that an animal, the serum of which contains nephrotoxin may antagonize the latter by the production of antinephrotoxin, and suggest that spontaneous recovery from nephritis may be due to the action of such an antibody. They would account for the cardiac hypertrophy of nephritis by the action of nephrotoxic serum in causing contraction of the peripheral vessels with consequent increase of blood pressure; and for the nervous symptoms on the basis that the serum contains a neurotoxic constituent.

We hardly dare consider such far-reaching conclusions as decisive until they have been extensively confirmed. Yet whatever may be their real value they serve to emphasize the possibility that those principles which are so important in relation to immunity against infectious diseases, may be equally important in relation to other pathologic conditions.

Hepatotoxins have been obtained by a number of workers, and the attempt has been made to produce autohepatotoxins by injecting liver tissue of the guinea-pig into animals of the same species. The success was not unqualified. Hepatotoxins when injected are reported to cause insular degenerations of the liver; however, the lesions may be caused, in part at least, by capillary emboli of endothelial cells or erythrocytes.

Hepatotoxins.

Neurotoxic serums have been studied with some thoroughness. Whether one injects the cerebrum, cerebellum or spinal cord, the resulting serums apparently are similar: either an anticerebral or an anticerebellar serum will cause degenerations of the spinal ganglion cells. In view of their broad range of action it seems improbable that neurotoxic serums will be of service in clearing up the etiology of system degenerations of the nervous tracts. They are usually hemolytic and hemagglutinating and may also be endotheliotoxic and leucotoxic. When mixed with emulsions of the homologous brain tissue the neurotoxic amboceptors are bound by the receptors of the nervous tissue, and the serum consequently loses its toxicity. Antineurotoxic serums have been described.

Neurotoxin.

Syncytiolysin is the name given to a serum which is obtained by immunization with the placenta. Certain writers (Veit and Scholten, Charrin and Delamare) report that the injection of placentar tissue alone causes albuminuria, a consideration which led them to assume that the placentar cells contain a nephrotoxic substance. Inasmuch as placentar cells or their constituents may reach the circulation during eclampsia (Schmorl) it was not a long step to suppose that the nephritis of pregnancy is due to the toxic syncytial cells which are absorbed. The results which Weichardt reported gave some strength to the view just cited. By treating placentar tissue of rabbits with the specific syncytiolysin the toxin supposedly was liberated, and the mass when injected into normal rabbits is said to have produced symptoms of an eclamptic nature. On the basis of these observations the hope has been expressed that an antitoxin for eclampsia might be prepared by immunization with placentar tissue. However, the conditions are by no means simple; any value which the destruction of circulating syncytial cells or their

Syncytiotoxin in Relation to Eclampsia.

toxin would afford might be more than offset by the action of the hemotoxin and neurotoxin which the serum is said to contain. Whether or not the hypothetical toxin of syncytial cells may be separated from the other cell constituents, and whether immunization with the toxin will yield an antitoxic serum are possibilities which remain for further investigation; the results cited have not been obtained by all observers.

Liepmann hopes for a serum-diagnosis of pregnancy. If, as supposed, the blood of a pregnant individual contains syncytial cells or their products of degeneration, the serum when mixed with a specific syncytiolysin may cause a precipitate. He claims to have demonstrated the presence of placentar constituents in the circulation by this biologic method.

Thyrotoxin.

Antithyroid serum is prepared by immunization with ground-up thyroid tissue or with extracts of the organ. It is hemolytic, even though all the blood has been washed from the tissue which was injected. Portis immunized with the "colloid" material of the gland obtaining a hemolytic thyrotoxic serum. When injected into the living animal degenerative changes are produced in the thyroid, and some authors report the tetanic phenomena which often follow surgical removal of the thyroid. In very careful work, however, Portis could not produce "the exact picture presented by thyrodectomized animals." Degenerative changes were found in various organs, as liver, spleen and kidneys.

Sympathetic Ophthalmia.

Brown Pusey has made the interesting suggestion in regard to sympathetic ophthalmia that the disease may be due to the formation of autocytotoxins which are specific for the cells of the inner surface of the ciliary body and iris. The disintegration products of the corresponding cells in the eye which was primarily injured would constitute the stimulus to the formation of the specific antibodies. The possibility is as yet a problematic one.

Pancreotoxin.

The experimental study of cytotoxic serums for the pancreas has, up to the present time, thrown little light on pancreatic diseases. It stated that the serum may cause transient glycosuria, and it is said to have an antitryptic action in experiments performed in the test-glass.

Other Cytotoxins.

The results of different observers concerning the action of antiserums for the adrenal gland are not in entire accord. Although degenerative changes may be caused in the gland when the serum is injected, the action is not specific; the serum may be highly hemolytic (Abbott).

Ceni claims to have demonstrated in the circulation of epileptics a cytotoxin which causes the epileptic attacks, and reports the production of a specific antitoxin.

Toxin of Exhaustion.

Weichardt has published descriptions of a toxin which is peculiar to states of exhaustion, giving an account of the specific antitoxin which he produced by immunization.

Other cytotoxins which have been prepared, as those for the pituitary body, gastric mucosa and cardiac muscle, have at the present time nothing more than general biological interest.

Concerning Autocytotoxins.

It would seem that no question in relation to cytotoxic serums is more important than the possibility that autocytotoxins may develop and institute the vicious cycle which was mentioned earlier. It is true that the results of some investigators suggest the probability of such a process, but it would be going too far to say that its existence as an important pathologic law has been established. On the contrary, the development of autocytotoxins is one of the rarest of occurrences in experimental work; and Ehrlich has spoken of the inability of the body to form such antibodies as a condition of "horror autotoxicus." The cells of our kidneys and our erythrocytes certainly do degenerate, and it is quite possible that the receptors which are thereby liberated actually reach cytotoxic amboceptors which are situated in other organs. In the event that the process extends to this point, Ehrlich assumes that the amboceptors are of a sessile nature, that in spite of the stimulation to which the cells are subjected the "sessile amboceptors" may not be overproduced and liberated as in the case of antibodies for bacterial substances or for the cells of other species. In accordance with this explanation we are saved from intoxications of the nature in question because of the sessile nature of the cytotoxic amboceptors.

"Horror Autotoxicus."

(To be continued.)

Clinical Reports

EMPYEMA TREATED BY PERTHES' METHOD.

WILLIAM S. CHEESMAN, M.D.
AUBURN, N. Y.

After evacuation of the pus in cases of empyema, the huge suppurating cavity that remains must be obliterated. In cases in which the lung, though compressed against the spine or mediastinum, is not yet held in its false position by strong adhesions or by thick deposits of organized new material, aseptic opening and plentiful gauze dressings are sufficient.

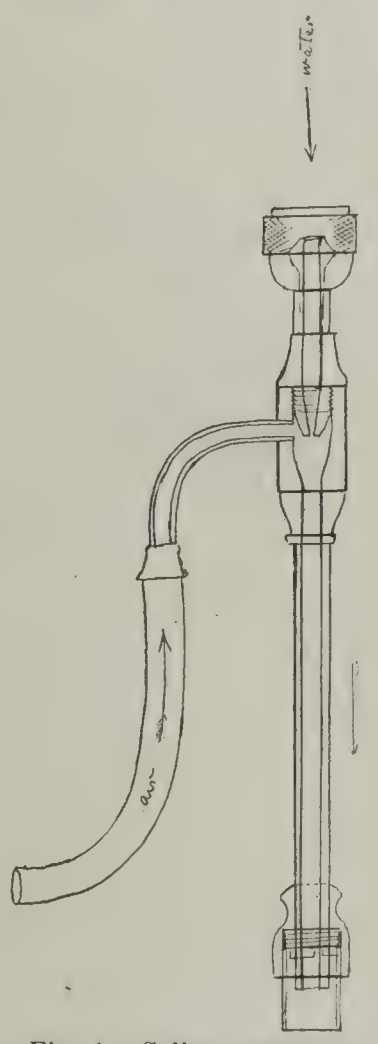


Fig. 1.—Saliva evacuator.

These dressings act as a valve as well as a protection from infection, and they absorb discharge. Air or gas present in the pleural cavity with every cough, indeed with every expiration, is expelled little by little into the gauze covering the orifice of the wound, while this mass of gauze applies itself too firmly to the chest to permit entrance of air from without, and there is produced within the thorax a tendency to a vacuum, a negative pressure, which sucks the collapsed lung out toward the chest wall. The ideal treatment, then, for empyema of recent origin is absolutely aseptic incision, with or without excision of a portion of the rib, one irrigation of the pleural cavity by salt solution—if necessary to remove fibrinous masses, otherwise no irrigation—and voluminous pad dressings of gauze firmly applied to the chest wall by means of an elastic bandage. When these dressings become soaked, they are changed under aseptic precautions. If no mixed infection occurs, we may confidently expect to cure these cases in a few weeks.

In a case in which effusion has been present long enough

for the lung to be more or less bound down by adhesions, or in which evacuation and gauze dressings have not been followed by expansion of the lung, some means must be found of bringing lung and chest wall in contact, or the alternatives must be faced of a long and exhausting discharge, ending in waxy degeneration of the viscera and death, or a frightfully mutilating operation on the thoracic wall, in order to permit it to meet the shrunken lung and to obliterate the pleural cavity.

In these cases, Perthes' method is worthy of consideration. This method aims at the production of constant negative pressure, a tendency to a vacuum within the chest, with the expectation that the lung, unless held down by inextensible adhesions, will expand and adhere to the thoracic wall. Various pumps have been used to produce this constant suction, running water being the agent which has actuated them all.

Patient.—On May 16, 1903, J. B., aged 24, was transferred from the medical to the surgical service of the Auburn City Hospital for operation on left empyema.

eighth rib in mid-axillary line was exposed, the periosteum and pleura were separated from it, and three inches of its length was resected. The pleura was then opened and the pleural cavity flushed with hot saline solution. During the irrigation the lost tube washed into the opening and was recovered. A large dressing was then applied, and the patient put to bed in good condition.

All went well for over three weeks. Drainage was free, asepsis was maintained, there was no temperature, and the patient gained strength. It then became apparent, however, that the lung was not going to expand, and that sooner or later we should be forced to resort to some means of obliterating the secreting cavity of the pleura.

Perthes' Method.—June 16 I installed a vacuum apparatus after the method of Perthes. Please observe that the chest had been opened one month, and that the lung had been compressed at least six weeks, before Perthes' plan was put in operation.

In assembling the essentials of the apparatus I was much

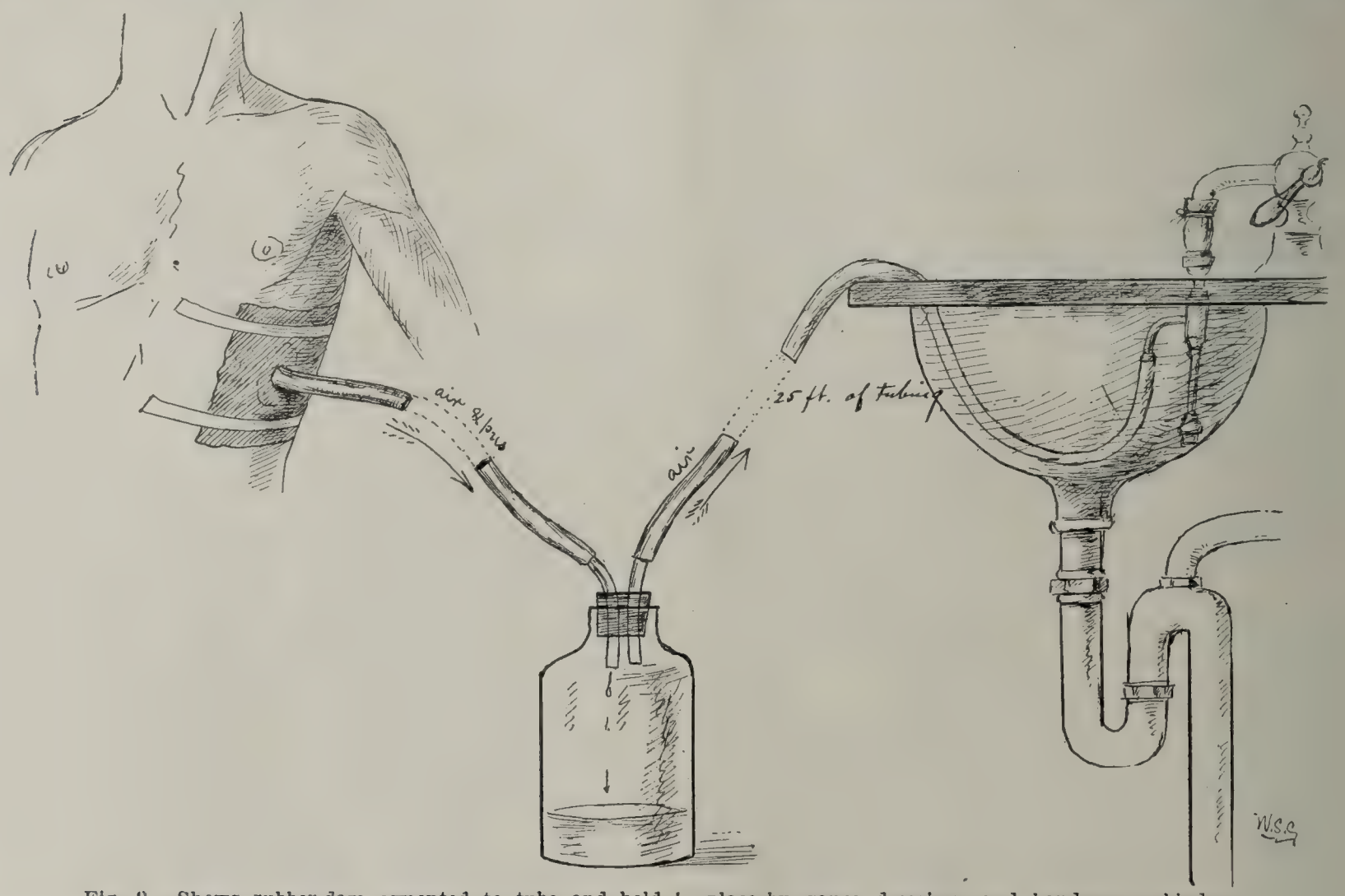


Fig. 2.—Shows rubber-dam cemented to tube and held in place by gauze dressings and bandage or binder.

History.—The patient had had severe pneumonia of the same side, and convalescence had only begun when empyema occurred. One aspiration had already been done, but pus rapidly reaccumulated.

Operation and Result.—May 16: The left chest seemed absolutely full of pus, and under ether so much embarrassment of respiration occurred, and the patient so nearly died, that the contemplated operation of rib-resection had to be deferred, immediate relief being given by what amounted to a stab in the eighth intercostal space. Pus escaped in a jet, a drain-tube was pushed into place and sewed to the skin, a gauze dressing was applied, and the patient was hurried to his room. Here he rallied, and for some days there was satisfactory drainage. On May 22 I was surprised to find, on removing the dressing, that the drain-tube had torn its suture through the skin to which it was sewed and had been sucked into the pleural cavity. The loss of the drain-tube necessitated the completion of the operation first planned, viz., resection of a portion of rib, and larger drainage, with incidental recovery of the lost tube. The next day, May 23, the assisted by Dr. Van Hook's[1] report of his experiences in a similar case, though in many particulars I was compelled to depart from his suggestions.

Of the various air-pumps, run by water or electricity, I found none so easily applicable nor so efficient as the little suction apparatus which dentists employ to keep the mouth free of saliva during long dental operations and known as a saliva evacuator. Dr. F. H. Lee, D.D.S., kindly loaned me one of these instruments (Fig. 1), which I connected with a faucet in a bathroom near the patient's room. It was then connected by tubing, with a large bottle under his bed. This bottle was connected by tubing with an air-tight dressing over the wound (Fig. 2).

In making this air-tight dressing I tried to follow Dr. Van Hook's plan, using for drainage a stomach tube piercing and cemented to a large square of rubber-dam, the whole being held to the chest by adhesive straps and a large gauze dressing. I found it difficult, however, to have rubber-dam ce-

1. THE JOURNAL A. M. A., May 30, 1903.

mented to a tube so strongly that, after sterilization, it would not soon leak air. So I took the rubber parts of bicycle-tire valves, known to the trade as "valve-stems," and cemented them together, as shown in Figure 3, making virtually one tube with a wide flange. One end enters the chest, over the other the tubing going to the bottle is slipped, and to the flange rubber-dam can be fastened strongly. Some oxid of zinc ointment spread over the skin beneath the dam causes it to adhere and improves the air-tight character of the whole dressing.

I did not experience the need for Perthes' complication of apparatus, mercurial manometer, etc., as my patient was at once able to tell how much negative pressure he could bear, and this was simply regulated according to his feelings by turning the stopcock of the water faucet. At first he could not endure strong suction; later, as the lung expanded, he bore a pressure which collapsed the tubing.

Result.—When the suction apparatus was installed the cavity of the pleura was apparently no smaller than when first opened. Six weeks had done nothing toward improving the outlook for eventual closure. Except high in front, one heard over the whole left chest the amphoric breath and voice sounds of general pneumothorax. Four days after Perthes' method was employed I began to hear normal breath sounds over the back, and a few days later over the front and sides of the chest. By July 4—less than three weeks—adhesions of lung and thorax had become so extensive that introduction of the tube was difficult. One month later the use of the apparatus

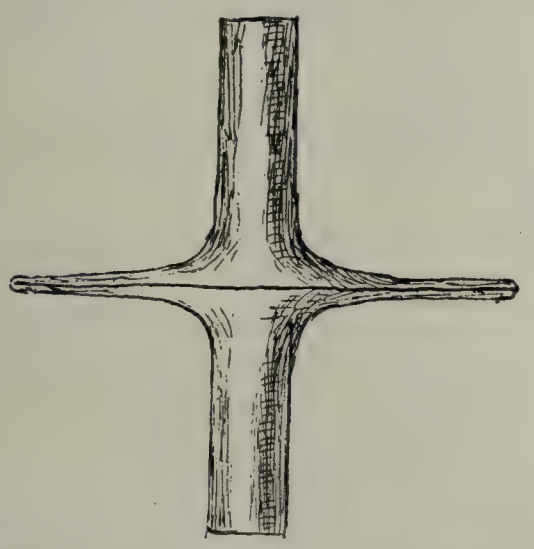


Fig. 3.—Valve stems cemented together.

was discontinued, a small sinus leading to a pocket holding not more than four ounces being all that remained of the cavernous space of the pleura. Meanwhile the general health improved, the patient gained flesh and strength, and in October he returned to his home in a distant town. The sinus closed soon after. He is now working at his trade as a mechanic.

Remarks.—It must be remembered that this method is not proposed for the cure of old chronic empyemas, in which the lung is compressed and immobilized by deposits of what may be termed pachy-pleuritis. But the published experiences of others, and my own experience in this case, lead me to place confidence in it for cases in which the lung fails to expand, yet is still expansible. Nothing in this method makes hospital care necessary. The details can be followed out in a private house. The only demand made on a home is that it contain a water faucet.

I once before knew of a drainage tube being drawn into and lost in the chest. In that case the tube had been transfixed with a safety-pin, but the exertion of coughing had torn the tube away from the pin and pulled it inside. It remained there and was never recovered. This was before the days of effective asepsis, and the patient, an old man, soon became exhausted by his discharge and died. I could not make out that his end was in any way hastened by the accident, but his recovery certainly would have been delayed or prevented had he lived. These cases have convinced me that neither transfixion with a safety-pin nor sewing to the skin, methods recommended by the surgical text-books, are trustworthy.

RESECTION OF MIDDLE TWO-THIRDS OF STOMACH WITH END-TO-END ANASTOMOSIS.*

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SAN LEANDRO, CAL.

Patient.—A carpenter, aged 57, weight 131, was admitted to the County Infirmary July 16, 1904, complaining of a tumor in the abdomen.

History.—Father died of old age. Mother died during confinement. One sister died of pneumonia. Two sisters and two brothers are alive and well. In 1870 he had typhoid fever; otherwise he has been strong and healthy. He does not use alcohol or tobacco.

Present Illness.—The present trouble began about two weeks ago, when he accidentally noticed a swelling in the region of the stomach a little to the left of the median line. He has had no pain or tenderness, and has felt the same as usual. During the past four years he has had a sensation of fullness after eating and has raised considerable gas; this latter symptom has not been confined to any definite period during the day. For the past week his appetite has not been so good as usual, but it is still quite fair. Bowels are regular and he sleeps well at night. He has lost from ten to fifteen pounds in the last four or five months. He feels very weak and can not work. He consulted Dr. Miller, San Leandro, who examined the tumor and advised him to come to the infirmary for operation. He never vomits, but he has had frequent attacks of water-brash.

Examination.—The patient is fairly well developed but poorly nourished. Nothing abnormal was found in the lungs. The heart is slightly enlarged to the left. The left border is in the mammary line. A loud systolic murmur is heard at the apex, transmitted to the axilla and back. The impulse is regular in force and rhythm. The liver extends from the sixth rib to the costal margin. The spleen is not palpable. The abdomen is slightly distended, but there is no tenderness. To the left of the median line and above the umbilicus a tumor can be felt apparently of about the size of a hen's egg. It is not tender on palpation. No difference in rigidity between the two sides of the abdomen can be determined. The urine is amber in color, specific gravity 1,030, solids 69.90, reaction acid, no albumin and no sugar.

Diagnosis.—Carcinoma of the stomach. An exploratory incision was advised, with further operation, if deemed advisable.

Operation.—July 21, in the presence of Drs. Miller, Browning, Condit and Irwin. After the abdomen had been prepared in the usual manner and the patient had been anesthetized with chloroform, a vertical incision about four inches long was made over the most prominent part of the tumor, down and through the peritoneum. As there were no adhesions the stomach was easily delivered through the wound for inspection. The growth was found to involve a large part of the greater curvature and the posterior wall of the stomach. Several greatly enlarged mesenteric glands were found along the lesser curvature well up on the esophageal end. The pylorus was in perfect condition. It was not considered advisable to try to remove the growth and to preserve the integrity of the stomach, as the organ would then have been left divided into two pouches with the opening in the partition at the top, so resection of the middle portion was decided on. The pylorus was separated from the body of the stomach by division between clamps to prevent any secretions from the stomach soiling the wound. The mesentery and omentum were also divided and ligated immediately. Clamps were placed as near the esophageal end of the stomach as possible and division made in the same manner as at the pyloric end; in all somewhat over two-thirds of the entire organ was removed. Considerable trouble from bleeding was experienced in removing several enlarged glands near the esophagus. In order to remove some of these

* Read at meeting of Alameda County Medical Society, Oakland, Cal., 1904.

glands it was necessary to sacrifice practically all of the lesser curvature remaining on the cardiac fragment of the stomach, leaving a double angular line of incision about four and a half inches long. In order to effect an anastomosis with the pyloric edge, which was a little less than two inches long, it was necessary to close the upper incision to within about two inches of the inferior border. This was done by a double row of Lembert silk sutures. The mucous membrane of the two ends to be anastomosed was brought together with a continuous suture of fine silk. The serous and muscular coats were next united by a double row of Lembert sutures completing an end-to-end anastomosis. Modified Mikulicz drains were then placed one above and one below the anastomosis and brought out through the abdominal wound, which was partially closed above and below with interrupted silkworm gut sutures.

Result.—Once during the night the patient vomited about two ounces of a brownish fluid. During the first twenty-four hours he received 1/5 grain strychnin sulphate hypodermically, 63 ounces salt solution subcutaneously, and 12 ounces nutrient enema consisting of peptonized milk 2 ounces, yolk of one egg, brandy 1 ounce, and normal salt solution 3 ounces. Because of seepage the outer dressing was changed that night.

This line of treatment was continued with slight modifications as necessary until September 6. On July 25, seven days after operation, hot water for the first time was given by the mouth, a teaspoonful every hour. On the day following barley water was substituted. The next day milk was given in teaspoonful doses. On July 31, or ten days after operation, broths were commenced, and then from day to day, malted milk, beef juice, peptonized preparations and egg nog were added until on August 26 he was given four raw oysters. Milk toast, crackers and cocoa were then gradually added and on September 2, forty-two days after the resection, he was given a small rare steak. This latter event, in my opinion, was of greater importance to him than the operation.

The convalescence was not without its complications, for on the sixth day bile was noticed on the dressings, and on the twelth day fecal matter was discharged through the wound. These two conditions continued for thirty-two days. The wound then rapidly filled up and on September 27, sixty-seven days after operation, he was discharged from the hospital. On the fourth and fifth days the temperature reached 100.2 F., which was the highest point attained. The highest white blood count, 8,400, was reached on the fifth day.

Subsequent History.—Dec. 12, 1904. Patient returned to-day to report. He weighs 139 pounds, this being a gain of eight pounds since July 16, the date of admission to the infirmary. There is present a very small sinus in the scar, which although closed for some time, reopened two days ago. His appetite is excellent, he is not distressed after eating, and, in fact, does not find it at all necessary to select particular articles of diet.

Remarks.—There are one or two points worthy of notice in this case. We had to deal with an extensive malignant growth involving a large part of the walls of the stomach, but not the cardiac or pyloric orifice, consequently there were no symptoms of prominence. An early diagnosis was made and an immediate exploratory incision was advised by Dr. Miller, his attending physician. We have here an example of what all our teachers, writers and workers so earnestly advocate in suspected malignant growths of the stomach—early recognition of the disease, and an immediate exploratory incision and further operation if deemed advisable.

SUDDEN DEATH FROM THE REMOVAL OF PLEURITIC FLUID.

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MARSHFIELD, ORE.

Under ordinary conditions the removal of one-half of a pleuritic effusion is seldom attended with any risk, but the following case illustrates very clearly how removal of even this amount may be attended with rapidly fatal results and shows the necessity of proceeding cautiously in performing this simple operation when certain pathologic conditions are present.

Patient.—R. M., aged 27, weight 190, well nourished and good muscular development; occupation, laborer; family history negative.

History.—He had complained of poor heart action for 5 or 6 years. He had been treated by several physicians. About 18 months prior to his death he began to complain of a distressing dry cough, shortness of breath on exertion, general malaise and palpitation of the heart. He was again treated by a number of physicians for heart trouble until he came under the care of Dr. J. T. McCormac of Marshfield, who made a correct diagnosis of his case, viz.: pleural effusion extending to the third rib.

Diagnosis and Treatment.—Dr. McCormac, to confirm his diagnosis, withdrew about four ounces of the fluid with a small exploring needle and suggested tapping for a larger amount the following day. However, the condition of the patient was not so good and the matter was deferred. During the next three weeks the patient had considerable elevation of temperature, loss of appetite, distress in the thorax and his cough was worse, with scant expectoration. His condition then improved, and an additional amount of the pleuritic fluid was withdrawn, amounting to about 16 ounces. About two minutes afterward the patient complained of feeling faint; he was put to bed and immediately expired.

Autopsy.—Subject was well nourished. Heart was slightly enlarged and soft, valves normal. Twenty-four ounces of straw-colored fluid was in the left thoracic cavity. There were scattering adhesions, both old and recent, between visceral and parietal pleura. The pleura was considerably thickened and was the seat of numerous miliary tubercles. The entire left lung was dark from hemorrhagic clots and showed numerous rents in the walls of the blood vessels; it appeared more like a large blood clot than a lung. The whole left lung had lost its elasticity from long-standing pressure and tubercular processes and had become fragile so that when the outside pressure was relieved by the withdrawal of the pleuritic effusion it burst asunder on the admission of the arterial pressure. The walls of the blood vessels were the seat of degenerative changes; the intima was rough and the endothelial lining was broken in many places; muscle fibers of the media were cloudy and showed evidence of fatty degeneration; the adventitia was thickened and infiltrated with leucocytes. The pulmonary alveoli were filled with desquamated epithelium, blood and products of inflammatory exudate; the walls were ragged and compressed; the alveolar septa were infiltrated with round and spindle cells, leucocytes and red blood corpuscles. The respiratory bronchioles, peribronchial and interlobular connective tissue were studded with numerous tubercles and small caseous areas and broken-down elements of necrosis.

Remarks.—The rapidly fatal results and the pathologic findings in this case, I think, clearly demonstrate the necessity of searching carefully in old standing cases of pleural effusions for tubercle bacilli, and should they be found or should the clinical history of the case be such as to lead one to suppose that the etiologic factors are of a tubercular nature, tapping for the relief of the symptoms caused by the pressure of the fluid should be undertaken with caution.

A small quantity, perhaps from four to six ounces, should be withdrawn and the effect noted. In this case the removal of four ounces three weeks previous to the fatal tapping produced considerable reaction; elevation of temperature, rapid pulse and other unfavorable symptoms which disappeared as soon as the original amount was restored. If unfavorable symptoms develop after the withdrawal of a test quantity I think further tapping is contraindicated, provided the collection does not produce distressing or alarming dyspnea, and even under these urgent circumstances the amount withdrawn should be regulated with caution. Serous effusions in chronic tubercular processes of the lung act as a splint, giving sup-

port to the weakened vessels, limiting the respiratory movements on the affected side and keeping the parts at rest. The practicability of estimating the area involved and its extent in the presence of a large effusion is out of the question and the insidious manner in which many cases of serous effusion into the pleural cavity come on as a result of tubercular infection leaves one in considerable doubt as to the exact condition of the lung and the consequences of removing the fluid. A lung that has been long compressed undergoes degenerative changes not only from the diseased condition, but from disuse and from impaired blood supply so that its safety depends on the presence of the effusion in sufficient quantity to hold it together.

In this case no microscopic examination of the bronchial secretions was made prior to the autopsy. Tubercle bacilli were found on the free surfaces of the larger and smaller bronchi postmortem, and it is probable that they could have been found in the scant morning expectoration which the patient had. In this connection it is pertinent to remark that physicians are frequently deceived by the statement of patients in regard to the expectoration and coughing in the early stages of pulmonary tuberculosis; they invariably state there is no cough or expectoration when persistent inquiry will elicit the fact that there is slight cough in the morning, to which the patient attaches no significance or he terms it the "morning clearing." All cases of pulmonary tuberculosis begin in this manner, and when it is associated with other evidence of impaired health a careful and frequent examination of the sputum should be made. In tubercular affections limited to the pleura perhaps no bacilli would be found, but in miliary tuberculosis of the lung associated with small caseous areas careful searching will reveal them even in the presence of a considerable pleural effusion which compresses the lung and prohibits the free escape of bronchial secretion from the diseased area.

PRIMARY TUBERCULOSIS OF THE BLADDER.

S. WILLIAM SCHAPIRA, M.D.
NEW YORK CITY.

Patient.—N. K., stock broker, aged 36, was referred to me for cystoscopy and possible catheterization of ureters on account of frequent micturition during the past two years. Previous history is negative.

History.—About two and a half years ago the patient experienced a frequent desire to micturate by day, which was temporarily relieved by medicine and bladder irrigation. About four months ago, he suddenly developed epididymo-orchitis, which partially subsided in four weeks.

Examination.—I first saw the patient Nov. 9, 1904. His urine was turbid. After thorough irrigation of the bladder, I injected boric-acid solution and inserted a cystoscope, with two catheters attached. I found a sore as large as a five-cent piece at the apex of the trigonum, a smaller one about one-half inch to the left, and a number of disseminated tubercles on either side of the trigonum.

The mouths of the ureters looked healthy. I passed the catheters into each ureter for about two inches and collected clear urine from both kidneys, in contrast to the turbid urine from the bladder. The testes and epididymis were tubercular, that is, there was a tubercular epididymo-orchitis, in which both cords were involved. The prostate was slightly enlarged and sensitive. On massaging, I squeezed out some prostatic fluid, which was sent to be examined microscopically. The patient at this time complained of frequent urination by day and night and of very severe pain in both testes.

Diagnosis.—The three specimens of urine, i. e., the first turbid urine from the bladder and the two clear specimens drawn from the ureters were given to his physician for chemical and microsopic examination, and he was asked to make repeated microscopic examinations of the patient's sputa and to let me know the result, as my diagnosis of the case was tuberculosis of the bladder.

Microscopic Report.—In a few days his physician reported that the bladder (first) urine contained numerous quantities of tubercle bacilli and that the specimens drawn from both ureters were normal and perfectly clear and contained no bacilli. Sputa examination: No tubercle bacilli. Prostatic fluid: A number of tubercle bacilli.

Treatment.—Nov. 12, 1904: The patient complained of severe pain in both testes. I again examined his bladder with the cystoscope and catheterized both ureters, with the same result. I advised him to have both testes and cords removed, which was done on Dec. 21, 1904. All contained tubercle bacilli.

Remarks.—I report this case because I have found no case fully reported as primary tuberculosis of the bladder. Pathologists are divided as to the initial lesion, some claiming that it is in the testes, while others hold that it is in the kidneys. In this case it is clear that the kidneys and ureters were perfectly healthy, and that the bladder symptoms preceded the symptoms of the testes, prostate and vesicles by nearly two years. Taking into consideration the fact that the patient was robust and in good health up to two and a half years ago, and that his father, mother, brothers and sisters are in perfect health, I can not but conclude that it is a case of primary tuberculosis of the bladder, followed by extension of the disease to the prostate, vesicles, testes, epididymis and cords.

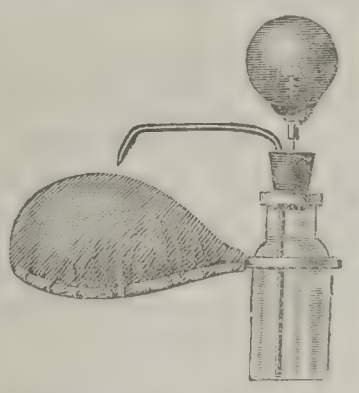
64 Rivington Street.

New Instrument

A NEW CHLOROFORM INHALER.

FREDERICK T. WRIGHT.
DOUGLAS, ARIZ.

I have devised a "one-handed" chloroform inhaler, a sketch of which is given herewith, for use especially in obstetrical practice. A rubber cork, pierced by two metal tubes, is inserted into a wide-mouth bottle of about two ounces' capacity. One of the tubes extends just beyond the bottom of the cork and is connected at its upper end with a rubber bulb. The other tube extends to the bottom of the bottle; its outer portion is curved so that its extremity, drawn out to a very fine point, looks downward. An ordinary mask is attached to the



bottle by a spring collar, being placed nearer the bottom than is shown in the illustration. By intermittent compression of the rubber bulb a very fine stream of chloroform is projected on the mask; the amount can be regulated at will. The bulb, bottle and mask are easily taken apart and packed into a compact bundle, which occupies very little space in an obstetrical bag.

The advantages of the apparatus are obvious. In the majority of obstetrical cases, especially in country practice, the physician is obliged to be his own anesthetist; with this device held in one hand, he can administer chloroform accurately and efficiently, following with ease any movements of the patient's head; at the same time his other hand is left perfectly free to "support the perineum" or for such other maneuvers as may be necessary.

Talent.—If the power to do hard work is not a talent, it is the best possible substitute for it.—*James A. Garfield.*

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A NEW CONTRIBUTION TOWARD THE SOLUTION OF PROBLEMS IN TUBERCULOSIS.

Especially within the last few years many ideas have been advanced which tend to shake long-cherished views concerning the spread of tuberculosis. Many of these ideas have been so directly at variance with accepted teachings that they probably would have received little attention if they had not been advanced by men of high international reputation. We refer to such theories as that of Koch, advocating the rarity of transmission of bovine tuberculosis to man; to that of Baumgarten, maintaining that most cases are of congenital origin; and to that of Behring that the disease usually is contracted in early extrauterine life and through the intestinal tract. The two latter views, as well as Ribbert's, that what apparently is primary pulmonary tuberculosis often is due to secondary deposits of tubercle bacilli by the blood stream, naturally tend to minimize the rôle of air infection and to lessen vigilance in guarding against such infection; just as a general acceptance of Koch's views would tend to relax measures to exclude the use of milk and meat of tuberculous cattle. Whatever their merits, these ideas have powerfully stimulated research in all fields which offer problems bearing on tuberculosis.

Other phases of the problem, especially the frequency and primary localizations of the disease in early life, the possibilities of prolonged latency (which would be essential if Baumgarten's or Behring's theories are correct), the relative frequency of primary invasion of the respiratory and digestive systems, particularly of the lymph nodes connected with them, have recently been studied thoroughly by Professor Harbitz[1] of Christiania, who carried on systematic work on autopsy material for a number of years. Some of the facts brought out by Harbitz merit special notice. Particular attention was given to autopsies in children (under 15 years). In 42.5 per cent. of 275 children, tuberculosis in some form was demonstrated. This high percentage is largely due to the fact that the lymph nodes were examined with great care both macroscopically and microscopically. Most noteworthy is the demonstration of latent tubercle bacilli in the nodes of 18 children under 11 years of age in whom painstaking examination revealed no evidence of tuberculous lesions. The presence of bacilli was shown by inoculations of guinea-pigs. Not less than 10 of the 18 children were under 1 year of age, and in 13 the bacilli were found in the cervical nodes only, in 3 cases in the thoracic, and in 3 in the abdominal nodes. This naturally suggests questions as to the virulence of latent bacilli and the possible duration of the latency, and these questions merit further study. Harbitz considers it plausible that latent bacilli frequently are less virulent than usual; he concludes that a latency of several months seems probable, while one extending over several years is not probable, as claimed by Baumgarten. The latter's claim of the frequency of intrauterine infection is consequently not substantiated by Harbitz, who, however, like Warthin and Cowie, believes that this mode of infection is of greater importance than is generally supposed. That great care must be taken in excluding postnatal infection is shown by the fact that Harbitz found extensive caseous tuberculosis in a child 2 months old, who undoubtedly had contracted the disease from the father after birth. Similar cases occur in the literature. These cases emphasize the great rapidity with which the disease may spread in the body of the infant. From the facts now available, it may be concluded that it is unlikely that a child infected with tuberculosis after birth should die of tuberculosis before the age of 4 weeks, but that it may die of postnatal infection when 8 weeks old, and probably even when only 5 or 6 weeks old.

Harbitz made a painstaking study to determine the primary localization of the disease. How difficult this is, how insufficient the ordinary routine autopsy methods are for the purpose is shown by the many peculiar routes which the infection may take. In 14 cases of localized tuberculous inhalation bronchopneumonia, Harbitz found that the inhaled material had come from the rupture of tuberculous bronchial nodes into the bronchus, about the terminal ramifications of which the tuberculous pulmonary changes were localized; these cases really were instances of primary infection of lymph nodes. Indeed, it would seem that in children, as a general rule, the lungs, when involved, are infected from the lymph nodes; for tuberculosis of the tracheobronchial nodes without involvement of the lungs is common in children, while the reverse is rare. From these nodes the infection of the lungs most frequently takes place in the manner just described, though a retrograde transport by the lymph channels is quite frequent. In 117 autopsies in children, Harbitz found that in 41 per cent. the disease was primary in the respiratory tract (including the tracheobronchial nodes), and in 22 per cent. in the digestive tract (including the tonsils, cervical and abdominal lymph nodes). In 9.4 per cent. there was a general lymphatic tuberculosis, while in the remainder the location of the primary lesion was more or less uncertain. In connection with tuberculosis of the digestive tract, attention is called to the difficulty of determining whether the infection is due to bovine bacilli taken with the food or to inhaled bacilli

1. Jour. Infect. Dis., 1905, vol. ii, No. 2, pp. 143-237.

mixed with the food. The large number of cases of latent tubercle bacilli in the cervical nodes as compared with the mesenteric points to greater danger of infection through the throat than through the intestines. While the different groups of lymph nodes sometimes are infected separately and occasionally, no doubt, by way of the blood, it seems likely that much more frequently the infection spreads from one group to another by way of the lymphatics. Extension upward and downward from primarily infected nodes in the chest appears most frequent, but descending infection from the cervical nodes and tonsils is also quite common; ascending infection from the mesenteric nodes seems more frequent than is commonly supposed. The determination of the primary point of infection is rendered difficult by the fact that we can not exclude the possibility that tubercle bacilli may pass through the intestinal mucosa and one or more groups of lymph nodes before they become stationary and set up inflammation. Feeding experiments on animals[2] have also shown that after the ingestion of tuberculous material the nodes in the chest may be first attacked, and bacilli have been found in the thoracic duct shortly after feeding.

Careful consideration is given by Harbitz to the frequency and localization of tuberculosis in adults. When all tuberculous changes in his series are represented by one curve, it begins with 72.5 per cent. at the ages between 16 and 20, then it sinks to the forties, and rises rapidly in the sixties, where it reaches 90 per cent. The latter high figure is, of course, due to the frequency of healed and latent lesions. These figures, however, are not so high as those reached by Nägeli (97-98 per cent.) and Burkhardt (91 per cent.), largely because Harbitz does not consider the presence of mere apical pleural adhesions or of thickened patches in the pleura over the apices or of small pleural scars in the pleura and lungs as sufficient evidence of former tuberculosis as Nägeli[3] did.

In adults, Harbitz found primary tuberculosis of the digestive tract in 5.5 per cent. of all postmortems; in 7.7 per cent. of all cases in which there was tuberculosis, and in 18 per cent. of all cases in which tuberculosis was the cause of death. In adults the disease was primary most commonly by far in the respiratory tract, but here also pulmonary tuberculosis quite frequently may arise by hematogenous infection from more or less remote foci, most frequently in lymph nodes. Ribbert, probably, goes much too far in considering this the rule. Harbitz emphasizes, however, the importance of careful inquiry into the early history of tuberculous patients, with special reference to enlarged lymph nodes in childhood. The fact that of 800 "scrofulous" children discharged from a Danish hospital no less than one-third had died of, or were suffering from, active tuberculosis, chiefly pulmonary, 10 years later indicates that progressive tuberculosis often starts in enlarged nodes in childhood.

The facts presented in this review show that the problems of invasion and localization of tuberculosis continue to yield valuable results when subjected to critical study by modern methods. Studies like the one here reviewed serve as starting points from which new investigations into various special problems may depart. It is evident that ordinary superficial and routine methods no longer suffice for progressive work in these problems. Painstaking work by means of anatomic and bacteriologic methods, coupled with abundant animal experiments, preferably, of course, on material with full clinical records, is the only way by which our knowledge of these questions can be actually furthered.

2. Weber and Bofinger: Tuberculose-Arbeiten aus dem Kais. Gesundheits, 1904, No. 1, p. 83.
3. Virch. Arch., 1900, No. 160, p. 426.

THE EARLY RECOGNITION OF INSULAR SCLEROSIS.

It is well known that hysteria may simulate almost any form of organic disease of the nervous system, and that the differential diagnosis is by no means always easy. The difficulty is in nowise lessened by the fact that the two varieties of disease may be associated in the same patient. Of the numerous affections of the nervous system, none perhaps exhibits greater variability in symptomatology than multiple cerebrospinal sclerosis, and that this should be so will be easily understood from the nature and distribution of the lesions. In an interesting and instructive paper dealing with the early symptoms of insular sclerosis, Dr. E. Hobhouse[1] takes the ground that hysteria is not rarely the prelude to this affection, and he states that it is exceedingly difficult in some cases to say where the one ends and the other begins, the disease often extending over a long period of years, so that it may be impossible to obtain a continuous clinical history.

The importance of making a correct diagnosis as early as possible resides in the application of appropriate treatment. Difficulty in this connection arises from the great diversity of the symptoms of multiple sclerosis, of which but few may be present throughout a considerable period of time at the outset. Many patients complain at first of weakness in the lower extremities or on one side of the body or in one member; in others, tremor appears early; and, in still others, ocular symptoms may be the initial manifestation. The motor symptoms, as a rule, are transitory and are often associated with sensory phenomena. Vomiting may occur in the form of a crisis. Not rarely the sphincters are involved. In women, menorrhagia has been observed in some instances. Tinnitus aurium has also been noted occasionally and it may appear early; aphonia likewise may occur as an early symptom.

The diagnosis of multiple sclerosis is easy enough in the presence of the classical symptoms, namely, intention tremor, scanning speech, nystagmus, spastic gait, and increased knee-jerks, but often the clinical group-

1. Lancet, Feb. 18, 1905, p. 411.

ing is incomplete. Especially the transitory character of the symptoms and their sudden appearance and disappearance are suggestive of hysteria and only the further course of the disease will at times clear up the doubt. In many instances, moreover, the patient is emotional, is readily moved to tears or to laughter, and the voice has a tremulous character. A symptom of profound differential significance is the toe phenomenon of Babinski, which is probably never present in the absence of organic disease of the nervous system.

Even anatomically there may be doubt as to the condition present, for cases have been placed on record in which during life symptoms of multiple sclerosis have been present, while after death only induration of the brain and cord have been appreciable macroscopically, although an increase of neuroglia tissue has been detected microscopically. One must be exceedingly cautious, therefore, in making a diagnosis of hysteria, when one or more symptoms of insular sclerosis are present.

SYPHILOPHOBIA.

One of the important factors in the reduction of the mortality from tuberculosis has undoubtedly been the gradual obliteration of the conviction that used to be so prevalent, that this disease is incurable. As the result of the persuasion that cure is not only possible, but even probable, if the affection is seen in time, many a tuberculous patient has taken heart and by auto-suggestion has helped on his treatment very materially. There is at least one other of the infectious granulomata in which a corresponding hopefulness in the therapeutics of the disease would do much to lessen the severity of the symptoms and undoubtedly would help to prevent the occurrence of some of the more serious sequelæ. Professor Fournier of Paris, certainly an authority on syphilis, has recently declared that sufferers from this disease who have their initial lesion on the finger are more likely to suffer from severe general symptoms than are those whose affection begins with a genital chancre. Other observers have called attention to the same fact. Fournier explains it by saying that those who acquire syphilis extra-genitally are often physicians or members of the intelligent classes who know the character of the disease and who are accordingly very much depressed by having acquired it. The lowering of resistive vitality by worry makes the course of the affection much more severe than it would otherwise be.

The same state of affairs has been noted in other ways. For instance, in large cities there is an impression that not a few of those who develop general paresis after syphilis practically worry themselves into their mental affection. For example, a young man, having been told by his physician that he has syphilis, may proclaim at once that he knows that he will surely develop paresis, because he knows of several who acquired syphilis, and who are now under treatment for paresis. The mental strain and nervous tension incident on the ever-haunting presence of the awful phantom of an incurable constitutional disease is likely to undermine his mental and physical makeup.

It is quite probable, however, that the prognosis of syphilis is by no means so bad as the present impression which prevails with regard to it would seem to indicate. According to the best available statistics, probably not more than 10 to 15 per cent. of syphilitic patients ever suffer from visceral complications. There is no doubt, according to the testimony of well-known and conservative specialists, that the severity of syphilis has been very much modified in recent years and that the most hideous tertiary manifestations are now seldom seen. With regard to the nervous system the outlook is even less discouraging. Probably less than 3 per cent. of all syphilitic patients ever have any serious affection of their nerve tissues and less than 1 per cent. suffer from general paralysis or locomotor ataxia.

With regard to the severer forms of nervous syphilis, it has been pointed out that only those who overwork and overworry or who were originally of lowered nervous vitality are likely to be sufferers. With regard to general paralysis particularly, overwork or emotional strain, or alcoholism, or sexual excess is the immediate factor in almost every case. Under these circumstances it would seem that there is need of a reaction of sentiment that will make the awful possibilities of syphilis somewhat less likely to interfere with nature's curative efforts than is at present the case. While the moral influence of the possibilities of the affection and the deterrent virtues of proper knowledge will not be lessened, at the same time the exaggeration that may so easily do serious harm should be eradicated so as to give resistive vitality its proper opportunity. After all, there are not a few competent syphilographers who consider that they have seen cases of second infection with syphilis; that is, that from ten to twenty years after an undoubted first attack of the disease and immediately following a prolonged period of cessation of all symptoms. they have seen a second initial lesion followed by all the usual symptoms of renewed secondary syphilis. This would seem to indicate that the first attack of the disease had been overcome and that the immunity produced by it had disappeared, demonstrating the curability of syphilis in certain cases.

THE TREATMENT OF PLEURAL EFFUSION BY PARACENTESIS.

Under ordinary conditions the pleural cavity, representing an enormous lymph sac, contains only a small amount of fluid, which escapes from the blood vessels and is carried off by the lymphatics. If for any reason, such as vascular or circulatory insufficiency, a greater amount escapes from the blood vessels, or, as in the case

of inflammation of the pleura, a lesser amount is taken up by the lymphatics, fluid will accumulate in the cavity. The mere presence of a considerable amount of fluid tends to obstruct its circulation. The movement of the fluid is largely dependent on the activity of the lungs and is, therefore, lessened when pulmonary expansion is interfered with from any cause. Under the conditions stated paracentesis becomes necessary in order that the function of the several structures shall be resumed.

The indications for this procedure are discussed at some length in a recent paper by Dr. Samuel West.[1] When the pleural cavity is filled with fluid and the respiratory movements are abolished, paracentesis should be performed without delay, while a small effusion should be tapped if it has existed for some time and exhibits no tendency to disappear. Immediate paracentesis is indicated when, in consequence of failure on the part of the heart and the lungs, dyspnea sets in suddenly, without premonition, and rapidly becomes urgent, so that suffocation appears imminent.

In the opinion of Dr. West, siphonage constitutes the best means of evacuating a pleural effusion. For this purpose an ordinary trocar and canula, connected with an India-rubber tube reaching to the floor, can be employed. The free end of the tube should be immersed in sterile water to avoid aspiration of air. The negative pressure thus established is sufficient to permit the escape of as much fluid as can be safely removed. Dr. West considers the use of the aspirator unnecessary and attended with risk. Paracentesis may be repeated if the fluid reaccumulates, but after a time some more radical procedure will be required. Free incision of the chest is rarely indicated. It necessarily leads to empyema, but this may be more readily cured than the recurrent serous effusion. The operation should be performed only when the lung is free from adhesion and capable of expanding readily.

In the presence of empyema the pus should be evacuated without delay. Ordinarily, incision and drainage will be required, but occasionally paracentesis by means of an aspirator will suffice, at least temporarily. In making the incision a needle should first be introduced and if pus be found the needle should be used as a director. Generally, the preferable site for incision is just in front of the postaxillary border on a level with the nipple. Resection of a rib should be practiced only when necessary to provide free drainage. An oval opening may be made between the ribs, and two small drainage tubes introduced. When the pus is curdy, flaky or offensive, or if it contains blood clots, recovery will be greatly accelerated by irrigation.

In the presence of pneumothorax tapping may be indicated immediately after the development of the condition or after effusion has taken place. The apparatus used for siphonage is usually sufficient for this purpose. If repeated paracentesis fails to afford relief, free incision may be practiced under these conditions also.

1. Lancet, March 25, 1905, p. 787.

THE SENATE PLOT AGAINST PURE FOOD.

In a paper in May *World's Work* entitled "The Senate Plot Against Pure Food," Edward Lowry says: "A pure-food law will be introduced immediately after the opening of the next session of Congress, and its friends will put aside all other legislative business until their pet project has come to a decisive vote." In addition, he presents facts to spur us to every effort to see that there are enough votes to pass the bill. Opposed to the bill in the Senate were Aldrich and Wetmore of Rhode Island, Hale and Frye of Maine, Kean of New Jersey, Penrose of Pennsylvania, and some southern senators. The Illinois and Michigan senators straddled. Mr. Lowry gives some explanations of the action of the opposing senators, and one anecdote we must quote in full:

"One afternoon at a hearing before a committee of the national House of Representatives a man in the rear of the crowded chamber came forward and asked to be allowed to speak on the bill under consideration. Apparently, none of the lawyers or representatives of manufacturers who were present knew him.

"'Whom do you represent?' asked the chairman of the committee.

"'The people,' was the unexpected response.

"'What people?' asked the chairman, incredulously.

"'The people of the United States.'

"The congressmen burst into open laughter.

"'I am sorry that we can't spare you any time,' began the chairman, curtly. 'We have a number of gentlemen here representing special interests affected by this bill, and we must devote what time we have to them.'"

The medical profession is not a "special interest" by any means, but the next Congress will find that medical men are especially interested in the attitude of every senator and representative toward the pure-food movement. See your senator and congressman this summer and plainly state that you expect them to vote for pure food. The "special interests" are active every minute and they have great resources and much influence. The field staff of our campaign is ready and equipped for the fray. It merely remains for each one of us in the ranks to do his duty.

SMOKE.

The crusade against unnecessary city smoke is more social than medical, and yet has a real interest for physicians. The direct harmfulness of smoke to the human organism is not wholly clear. It is certain, however, that smoke and other products of soft coal combustion vitiate the atmosphere and constitute an influence genuinely depressing to the organism. The skin and mucous membranes suffer and, in children especially, there is deficient oxygenation with anemia. To maintain the best health, city-dwellers seek for a time each year the soot-free air of the country. All forms of life, man included, are dependent on the sun's rays for their greatest activities. In the city whose sunshine is much of the time absorbed by a fall of coal smoke, child life is under average, and the children who can not for a time get out to the sunlit open country tend to be pale and flabby. In its economic aspect smoke annually causes great loss, and this feature of the nuisance enables the sanitarian to appeal for assistance to the commercial in-

terests in efforts to give our cities clear atmosphere. In an address[1] before the Woman's Club of Cincinnati, Dr. Charles A. L. Reed, chairman of the Committee on Medical Legislation of the American Medical Association, effectively turns to a new and powerful source of aid in the antismoke campaign—the women. Smoke-filled air imposes extra and unnecessary drudgery on the housekeeper. Woman's privilege to wear clean clothing is ruthlessly disregarded by the makers of smoke and the permitting municipalities. Reed urged women, individually and through their organizations, to protest vigorously against present conditions. Moral dirt also is close kin to physical dirt, and a clean community has the better chance to avoid degeneracy. The ill conditions are national and not local, so that something more than local effort is needed to combat them. Therefore, he proposes co-operation, national in extent, to create public sentiment, to determine the facts and adjust conflicting interests, to demonstrate plans and appliances for smoke prevention, and to formulate a standard law to secure uniform regulation of the evil all over the country. Promising the co-operation of the American Medical Association, he suggested a "national antismoke convention" to execute these plans, this convention to be really representative of all concerned interests and to be instructed by competent specialists, engineers, physicians, sanitarians, manufacturers, attorneys, and others. The assistance of the press must be secured. The suggestion appears feasible, and it is to be hoped that it will be carried out.

INTERURBAN CLINICAL CLUBS.

Dr. Osler's suggestion[2] in regard to the formation of interurban clinical clubs in different sections of the country undoubtedly receives the hearty approval of the progressive teachers and clinicians. It is self-evident that sincere, thorough work of the kind suggested will help to promote interest in the teaching and investigation of internal medicine. Certain changes, more particularly by the way of additions, should be made in the grouping suggested by Dr. Osler. Of course, Ann Arbor must not be omitted. Detroit and Milwaukee should be considered. Places like Iowa City, in which some effort has been made to build up good clinical work on permanent and adequate basis, should not be forgotten. The men in small, isolated places of this kind, in particular, need the education and stimulus of the clinical club. In the Middle West many state universities have established or are establishing medical departments which are bound to stay, no matter whether the university is located in a small town or in a large city. These departments are entrusted with great responsibility in the matter of teaching medical students, and there is great need for all influences that tend to raise the quality of their teaching, and especially, we believe, of the teaching of clinical medicine. Therefore it is hoped, if Dr. Osler's suggestion takes practical form, that great care be used to secure, by wise grouping, the greatest possible influence on medical teaching and investigation.

1. American Medicine, April 29, 1905, p. 703.
2. Correspondence department, this issue.

THE WAYS OF THE ANTIVACCINATIONISTS.

Antivaccination methods are shown up in a recent communication of Dr. R. N. Willson, Jr., to the Philadelphia *Public Ledger*. It appears that the secretary of the Constitutional League of the United States, apparently an antivaccination society, has been sending out circulars, one of which is made up in part of extracts from articles by Dr. Willson.[1] These extracts, however, are so selected and arranged as completely to misstate the author's ideas and to represent him as an opponent to vaccination. Such passages as would give the real opinions and direct statements of Willson's views on the subject and his conclusions from his studies are carefully omitted, and the whole article is therefore practically a forgery, as attributing views to the person quoted which are exactly the opposite of those held by him. Antivaccinationists, like zoophilists and other *soi disant* philanthropists, while claiming to be actuated by the highest motives, appear to have very little regard for truth and common honesty, as in this example thus exposed by Willson. Lacking decent arguments for their cause, they appear to think any kind of method justified. The kind of literature they favor is well represented by the circular complained of by Dr. Willson.

PREMENSTRUAL PREGNANCY.

It is generally admitted that ovulation and menstruation, while coincidental, are not interdependent, the former, in fact, occurring periodically for some time prior to puberty, while the latter constitutes the final sign of sexual maturity. Accordingly, impregnation may take place before the advent of menstruation, and instances of this character, while unusual, can not be considered as extraordinary. Dr. A. W. Addinsell[2] reports that a 13-year-old girl was delivered of a 7-month's still-born child, although she had never menstruated or previously had presented any other outward sign of sexual maturity. He also refers to the case of a girl who gave birth to a child at the age of 9 years and to similar cases in girls of 11¾, 12 and 12½ years, but who had previously menstruated. He further calls attention to the fact that maternity before the advent of menstruation is not uncommon in Central Africa and in certain districts in India. Dr. Addinsell compares menstruation to a pathologic process, and he believes it probable that primitive woman never menstruated, at any rate not as menstruation is understood to-day.

AUTO CASUALTIES.

The automobile is becoming an important element in our civilization. The record of accidents from its use is becoming appalling. Since January 1 there are said to have occurred in New York City and vicinity no less than seven hundred and ninety-three automobile casualties, sixty-two of them fatal and over sixty more rendering their victims cripples for life. If this can happen in one city it is not pleasant to think of the possibilities for the whole country. We do not vouch for

1. American Medicine, Dec. 7, 1901, and THE JOURNAL A. M. A., May 3 and 10, 1902.
2. London Lancet, March 25, p. 791.

the figures—which would seem to justify a popular uprising—but, even if exaggerated many fold, they demand action. Much of this record, if not all of it, may be credited to high-speed automobiling, and there seems to be a tendency among chauffeurs, unconsciously it may be in some cases, to take excessive risks in this particular way. Many who are arrested for going beyond the speed established by law indignantly claim, but with apparent sincerity, that they have kept well within the limits, though the facts are all against them. The newspapers have spoken of a sort of automobilimania or speed intoxication to which automobilists are specially liable. Whether such exists or not, it is certain that men supposed to be honorable citizens in other respects are all the while imperiling the lives of their fellowmen, to say nothing of their own, by reckless speeding on the public highways, and this apparently without any conscience or scruples. One New York millionaire is reported to have thirteen accidents to his credit, two of them fatal and nine causing permanent injury. As physicians are beginning to use automobiles very largely, we hope and trust that our profession will keep its record clean in this matter.

THE TENDERFOOT EXODUS FROM PANAMA.

Some of the newspapers are rather hard on the considerable number of clerks and others who went to Panama without due consideration of the conditions and who have fled from the isthmus because of the recent scare from the yellow-fever situation. One paper, noting the complaints of the "tenderfoot" clerks, remarks that they offer no real facts that were not known before and entirely accessible; for example, they found that the region of the equator is hot—naturally—one of the things they should have realized before they went. That these men would soon find that work at the isthmus is not a sinecure at a watering place was to be expected, as we mentioned in these columns not long ago. Their charges of mismanagement, however, should be investigated, as conditions on the isthmus need all possible amelioration. Even if all employes could be men who had been seasoned by previous work in the tropics, they need every possible protection. The report of Colonel Gorgas shows that already an enormous reduction in mortality and morbidity rates has been effected in spite of the many hindrances to effective work in the beginning, which have been mentioned. The yellow-fever scare will weed out the adventurers and those who thought they were entering on an easy political job. It will also spur the officials to use every possible precaution to protect the inhabitants of the canal zone.

THE PATENT MEDICINE EVIL.

Elsewhere in this issue we print a communication from Mr. Bok, editor of the *Ladies' Home Journal,* which is both an indictment of and an appeal to the medical profession. The criticism is a just one. No one knows better than the physician the wreckage caused by the indiscriminate use of patent medicines, and it naturally follows that the profession should take the lead in the fight against them. And in reality it has done so, —although individually and spasmodically it is true— but with what result? Opposition on the part of newspapers, some of which could not exist if it were not for the patent medicine advertisements, and on the part of the "vested interests" affected. And the main answer to the charges made by physicians was that they were based on selfish motives, that patent medicines cured those who would otherwise go to physicians, and consequently the income of the latter suffered. It has been useless to say—what is a fact—that the use of patent medicines is detrimental to the health of the people, and increases, not decreases, the number of those who have to consult physicians. Of course such opposition was to be expected, but most of the few who took up the fight in the past soon became discouraged and gave up, instead of determinedly sticking to it, realizing that every reformer's path is full of thorns. Mr. Bok has made the alcohol question the basis of his crusade, but physicians know that this is only one of the evils. The intemperance that results is insignificant compared with the other physical injuries that develop from the indiscriminate and ignorant use of potent drugs. It is certainly encouraging that a layman has now taken up the matter in the practical co-operative manner which is suggested, and we can assure Mr. Bok that physicians everywhere stand ready to aid him by deed as well as by word.

Medical News

ILLINOIS.

Thousands for Hospitals.—The hospital bazaar held at Aurora will net at least $6,000 for the institutions which are to be beneficiaries.

Feud.—Dr. Wesselius Davis, Wapella, who had had trouble with Truman Mason for a long time, was shot in the back by Mason and seriously wounded, May 11. Mason thereon shot himself through the heart.

Chicago.

Deaths of the Week.—For the week ended May 13, the mortality was at the annual rate of 11.79 per 1,000. There were 450 deaths, of which 62 each were due to consumption and pneumonia; 49 to heart diseases; 42 to Bright's disease, and 36 to violence.

Smallpox.—During the week ended May 13, 33 smallpox patients were removed to the Isolation Hospital, and one death occurred. On May 16 there were 85 patients at the hospital. Of the new patients not one had been revaccinated, and 20 had never been vaccinated. There were school children in attendance on false certificates of vaccination, and 5 were children under school age.

A Notable Reduction.—The reduction of the death rate for the last 20 years is shown graphically by the Bulletin of the Health Department. For the first decade, 1885 to 1894, the death rate at all ages was 20.2 per 1,000; for the second decade, 1895 to 1904, the death rate was 15.1 per 1,000, a reduction of 25.3 per cent. The reduction of the death rate for children under five years of age is still more striking: For the first decade the death rate per 1,000 was 9.5 per 1,000; for the second decade, 5.1 per 1,000, a reduction of 46.3 per cent.

INDIANA.

Unlicensed Practitioner Fined.—A. A. Bancroft, an employe of a patent medicine company, was fined $25 and costs at Indianapolis, for practicing medicine without a license. He claimed that he was acting simply as a "demonstrator."

Made Sick by Tuberculous Milk.—A family in Noblesville complained that the milk from their new cow made them sick. Pus and tubercle bacilli were found in the milk and subsequently local tubercle lesions were found in the cow's bag.

State Board Appointments.—Dr. T. Henry Davis, Richmond, was elected president of the State Board of Health for two years, from March 1, at the meeting of the board held April 20. This is Dr. Davis' second term, he having been president in 1900 and 1901. Dr. Frederick A. Tucker, Noblesville, was appointed, April 14, a member of the State Board of Health, to succeed Dr. Clark Cook, Fowler.——Dr. John C. Webster, Lafayette, has been reappointed a member of the State Board of Medical Registration and Examination, for four years, from April 23.

Personal.—Dr. Ira E. Dunlavy, deputy coroner of Marion County, has resigned and has been succeeded by Dr. John F. Robertson, Indianapolis.——Dr. Edmund Van Buskirk, Fort Wayne, has been appointed secretary of the Allen County Board of Health, vice Dr. Carl Proegler.——Dr. Albert H. Combs has been made a member of the Marion Board of Health.——Dr. Reginald W. Garstang, Indianapolis, received injuries to the head and hip while endeavoring to control a fractious horse, April 19.——Dr. Urban A. Lyle, Lafayette, has resigned from the Tippecanoe County Medical Society.——Dr. Sherman B. Hitt has been appointed a member of the Greensburg Board of Health.——Dr. John I. Metts, Ossian, had a second cerebral hemorrhage, May 4.——Dr. Theodore Potter, Indianapolis, has been appointed a member of the commission to investigate the need of a hospital for the treatment of tuberculosis in Indiana.

Many New Doctors.—The thirty-fifth annual commencement exercises of the Medical College of Indiana, Indianapolis, were held, April 19, when a class of 78 was graduated. Dr. Stanley Coulter of Purdue University delivered the principal address on "The Foundation of Specialism," and President Addison C. Harris of the University of Indianapolis conferred the degrees. ——Degrees were conferred on 26 graduates at the twenty-sixth annual commencement exercises of the Central College of Physicians and Surgeons, Indianapolis, April 20. Dr. George D. Kahlo, dean of the college, presided and made the opening address, and President William P. Kane of Wabash College delivered the annual address.——A class of 13 was graduated from the Fort Wayne College of Medicine, April 18, on the occasion of the twenty-sixth annual commencement of the institution. Dr. Charles B. Stemen, dean of the college, presided; Rev. Leroy Belt, D.D., president of Ohio Northern University, conferred the degrees, and the annual address was delivered by Rev. A. S. Preston.

Disease and Death in March.—The most prevalent disease in the month was influenza. In the corresponding month last year pneumonia was the most prevalent, whereas this month it stands fifth. Rheumatism stands second, followed by tonsillitis, bronchitis, pneumonia, scarlet fever, diarrhea, typhoid fever, smallpox, diphtheria, puerperal fever, whooping cough, and measles, in the order named. There were 251 cases of smallpox reported from 29 counties, with one death. In the corresponding month last year there were 231 cases in 41 counties, with three deaths. There were 197 cases of typhoid fever, with 30 deaths, in 37 counties. In the corresponding month of last year there were 288 cases, with 55 deaths, in 40 counties. Tuberculosis caused 476 deaths, 173 males and 303 females. The disease is slowly increasing, and yet the people are not interested in the great economy of stopping this preventable disease. Pneumonia caused 599 deaths. In the corresponding month last year there were 758 deaths from pneumonia. Accidents caused 149 deaths. There were 2 murders, 35 suicides, the remainder of the violence deaths being accidents. Of the suicides, 10 men chose shooting; 3, hanging; 3, carbolic acid, and 3, morphin. Of the female suicides, 1 chose hanging; 3, carbolic acid; 1, morphin, and 3, other poisons. Railroad accidents caused 27 deaths, street cars and interurbans 2, and burns and scalds 8. Fractures of the skull and of the bone caused 12 deaths; gunshot wounds, 6; electricity, 2; dynamite, 2; poisons, 3; coal mine, 9, and drowning, 4. The total number of deaths was 3,656, equivalent to an annual rate of 16.2 per 1,000. In the corresponding month last year the number was 3,860, the rate 18.1 per 1,000. Of the deaths 580, or 16 per cent., were of children under one year of age, and 1,028, or 28 per cent., were 65 years and over. We, therefore, have to credit extremes of life with 48 per cent. of all deaths. Consumption caused 476 deaths; typhoid fever, 30; diphtheria, 25; scarlet fever, 16; whooping cough, 15; pneumonia, 599; cerebrospinal meningitis, 45; influenza, 145; puerperal fever, 12; cancer, 107, and smallpox, 1. The city death rate was 18 per 1,000, and the country death rate 15.2. The following city death rates per 1,000 are noted: Indianapolis, 17.6; Evansville, 14.5; Ft. Wayne, 17.3; South Bend, 19.8; Terre Haute, 23.7; Anderson, 12.3; Muncie, 16; Richmond, 17.5, and Vincennes, 21.8.

IOWA.

Revoke License.—The State Board of Medical Examiners has revoked the certificate of Dr. Anthony R. White, Clearfield, charged with immorality with young boys.

New Wing of Hospital Wrecked.—By the collapse of two weak trusses, April 27, the east wing of the new building of the Clarinda State Hospital was totally wrecked. No one was killed nor seriously injured, but the loss is about $30,000.

Purse to Superintendent.—Dr. Fred C. Brechan, formerly superintendent of the Samaritan Hospital, Sioux City, who has been obliged to go to Arizona on account of rapidly-progressing tuberculosis, was presented with a purse of $600, by his professional brethren, April 21. Dr. J. A. Thomson is his successor.

Abortionist Sentenced.—Dr. J. W. Crofford, Lamoni, convicted of murder in the second degree for the death of Miss Maud Stone, following a criminal operation in his "sanitarium," has been sentenced to 12 years' imprisonment in the State Penitentiary, Fort Madison. The case has been appealed and Dr. Crofford is at liberty on $12,500 bail.

Graduating Exercises.—Keokuk Medical College, College of Physicians and Surgeons, held its sixty-fourth annual commencement exercises, April 25, at which a class of 51 received diplomas from Dr. George F. Jenkins, president of the institution. Dr. Henry E. W. Barnes, Creston, delivered the annual address.——A class of 14 was graduated from the Sioux City College of Medicine May 3. The doctorate address was delivered by Dr. H. G. Campbell, and Dr. John H. Warren conferred the degrees.

Alumni Meet.—The Alumni Association of the University of Iowa College of Medicine, Iowa City, was organized, May 3, and the following officers were elected: President, Dr. David C. Brockman, Ottumwa; vice-presidents, Drs. William L. Allen, Davenport, and Charles E. Ruth, Keokuk; secretary, Dr. Charles S. Chase, Waterloo; treasurer, Dr. Mamie A. Coveny, Clinton. A clinic was held for two days, and a memorial bust of the late dean of the college, Dr. William D. Middleton, Davenport, and a portrait of the late Dr. John W. Harriman, instructor in anatomy, were presented to the college with impressive ceremonies.

Personal.—Dr. Richard C. Sebern has been elected health officer of Odebolt.——Dr. Ray H. Dean, Muscatine, has returned after a year in Vienna.——Dr. Nathan W. Getz has been elected city physician of Marshalltown.——Dr. Harry F. Thompson has succeeded Dr. Hans E. Eiel as health officer of Buffalo Center.——Dr. and Mrs. Alexis M. Warren, Sioux City, have returned from Europe.——Dr. Fred L. Appel, Muscatine, has been appointed coroner of Muscatine County.——Dr. Charles L. Barewald, Buffalo, has been reappointed physician of Scott County.——Dr. James W. Wherry, for many years assistant physician at the Clarinda State Hospital, has been appointed medical superintendent of the Glenwood Hospital for Epileptics, Dansville, N. Y.——Dr. Harvey G. Hieber, Cedar Falls, has sailed for Europe.——Dr. E. L. W. Brown, Lenox, has been appointed to the medical staff of the Panama Canal Commission, and has started for Panama.——Dr. Emma A. Perrine, Des Moines, will go to China as a medical missionary, leaving July 1.

KENTUCKY.

Hospital Opened.—The Jewish Free Hospital, Louisville, erected and equipped at a cost of nearly $50,000, opened its doors to receive patients May 15.

License Fee Not Increased.—As a result of united protest from the physicians of Owensboro, the city council decided not to increase the annual license fee for physicians, which remains at five dollars.

Acquitted.—Dr. Robert N. Whitehead, Fulton, charged with involuntary manslaughter, was found not guilty.——Dr. John F. Boyd, Paducah, charged with failing to report a case of smallpox, was acquitted.

Commencements.—On April 28, a class of 50 received diplomas from the University of Louisville Medical Department.——Louisville Medical College graduated a class of 40, April 11. Rev. William Wisten Hamilton delivered the annual address.——At the eighteenth annual commencement exercises of the Louisville National Medical College, May 5, an address was delivered by Dr. Dudley S. Reynolds and a class of 6 was graduated.

Personal.—Dr. William M. Ewing, Cave City, was thrown from his buggy recently and severely injured.——Dr. James R. Paine, Pembroke, has been appointed a member of the

board of commissioners of the Western Kentucky Asylum for the Insane, Hopkinsville.——Dr. John F. Boyd has been elected a member of the board of trustees of Riverside Hospital, Paducah.——Dr. Charles H. Brothers has resigned from the Paducah Board of Health.——Dr. James W. Guest, Louisville, has been appointed medical director of the Commonwealth Life Insurance Company.

LOUISIANA.

Pesthouse Burned.—The Baton Rouge Isolation Hospital was burned to the ground, April 21. The two inmates were rescued by the police. The loss is $500, with no insurance.

Personal.—The salary of Dr. James M. Batchelor, house surgeon of Charity Hospital, New Orleans, has been increased from $3.000 to $4,000.——Dr. King Holt has been elected city physician of Baton Rouge, vice Dr. John C. Allen, deceased.

Tulane Commencement.—The seventy-first annual commencement exercises of Tulane University of Louisiana Medical Department, New Orleans, were held May 3, when a class of 83 was graduated. Early local medical history was the subject of the annual address delivered by Prof. Alen Fortier. Dr. Stanford E. Chaillé made the annual report and President E. B. Craighead conferred the degrees.

To Be Given Loving Cup.—The *Picayune* loving cup committee, appointed by the board of directors of the New Orleans Progressive Union, has agreed on Dr. Arthur W. DeRoaldes as the recipient of the *Picayune* loving cup, tendered by the *New Orleans Picayune* annually to that citizen of New Orleans who shall be deemed to have performed the most meritorious service in the interest of the whole citizenship during the year 1904. This decision was reached by the committee because of the labors of Dr. DeRoaldes in fostering the Eye, Ear, Nose and Throat Hospital, and in giving his time, energy and strength to the upbuilding of that institution.

MARYLAND.

Smallpox Hospital.—Washington County Commissioners will build a smallpox hospital and Dr. Theodore Boone has been appointed physician.

Annual Banquet.—At the eighth annual banquet of the Baltimore County Medical Association, held May 10, Dr. George H. Hocking presided, and the annual address was made by Dr. Alexander C. Abbott, Philadelphia.

Baltimore.

Personal.—Dr. Henry Barton Jacobs will go abroad till July.——Dr. Richard H. Fallis, resident surgeon at the Johns Hopkins Hospital, has resigned, and will be in Europe from June to October.

Loving Cup to Osler.—At the close of Dr. William Osler's last public clinic at the Johns Hopkins, May 13, a loving cup was presented to him on behalf of the third and fourth year classes by Mr. Allen Weir Foreman of Richmond, Va., a member of the senior class. Dr. Osler was to sail for Europe May 19.

Hospital Report.—The Baltimore Eye, Ear and Throat Hospital reports 5,225 charity and 62 pay patients treated during the year. The aggregate attendance in the dispensary was 28,537. There were 1,261 surgical operations. An appropriation by the legislature of $5,000 and a bequest through the will of Mr. Francis White enabled the trustees to increase the accommodations and facilities of the institution.

Hospital Election.—At the Hebrew Hospital Dr. A. L. Wilkinson has been elected resident physician; Dr. E. A. Rogers, assistant; Dr. J. A. Seligman, dispensary physician, and Dr. J. Rosett, attending dispensary physician.——At the Eastern Dispensary, Dr. Daniel W. Cathell was elected vice-president; Dr. R. S. Kirk re-elected medical superintendent and Dr. John Roth assistant. During the year 24,114 patients were treated.

Alumni Election.—The Alumni Association of the University of Maryland School of Medicine held its annual meeting May 11. Surgeon Howard E. Ames, U. S. N., delivered the address on the Greely Relief Expedition. The following were elected officers: President, Dr. Howard E. Ames, U. S. Navy; vice-presidents, Drs. Charles O'Donovan, William H. Pearce, Baltimore, and C. R. Winterson, Elk Ridge; recording secretary, Dr. Charles E. Sadtler, Baltimore; corresponding secretary, Dr. George H. Hocking, Baltimore, and treasurer, Dr. G. Lane Taneyhill, Baltimore.

Commencements.—Baltimore Medical College held its annual commencement May 11, the governor of Maryland delivering the address. Dr. Charles G. Hill administered the Hippocratic oath. There were 117 graduates. Dr. Charles J. Pflueger of Pennsylvania carried off the college medal and highest honors.——The College of Physicians and Surgeons announces 69 graduates, with M. J. Nestor of Rhode Island first honor man. The commencement was held May 18.——The commencement of the Medical School of the University of Maryland was held May 13, there being 83 graduates. The highest honors (University gold medal) in medicine were taken by Roscoe Conkling Metzel.

MASSACHUSETTS.

Bequest.—By the will of the late Col. J. D. Drew, Lawrence General Hospital receives a bequest of $1,000 in memory of his wife.

Will Furnish Rooms.—The Brockton Hospital authorities have already received offers to furnish nine rooms in the new Wales ward.

New Navy Yard Hospital.—The Charleston Navy Yard has a new medical department nearly ready to occupy. It takes the place of offices which have been in use over a hundred years. A large central building, two stories high, with three one-story, glass-roofed wings and an operating room in the rear, makes quarters said to be the finest in the country in many respects.

Pure Food Laboratory.—A pure food laboratory, with at least two chemists and two clerks, will be opened in Boston about July 1, under the direction of the United States Department of Agriculture, of whose bureau of chemistry Dr. Harvey W. Wiley is chief. The object is to secure more prompt analysis of imported foods than is possible at present, when suspected samples must be sent to Washington.

Lederle on School Inspection.—Dr. Ernest J. Lederle, formerly Health Commissioner of New York City, spoke before the Twentieth Century Club of Boston, May 8, on the successful employment of nurses in the public schools of that city, to co-operate with medical school inspectors. At the same meeting Dr. Samuel H. Durgin strongly favored the introduction of nurses in Boston as a very important aid in preventing and restricting the spread of contagious disease.

MICHIGAN.

New Physicians.—Detroit College of Medicine graduated a class of 54, May 5. Prof. Clarence A. Lightner delivered the address to the class; Sidney T. Miller, president of the board of trustees, conferred the degrees, and Rev. F. J. Van Antwerp made the closing address.——A class of three was graduated from the Grand Rapids Medical College, May 3. Dr. William Fuller distributed the diplomas.

Personal.—Dr. Oscar C. Breitenbach has been reappointed health officer of Escanaba.——Dr. Edwin D. Merritt has been appointed health officer of Oscoda village and township.——Dr. Humphrey D. Robinson has been elected health officer of Manistee.——Dr. Wilfred S. Picotte, Ishpeming, was operated on in Montreal, May 1, for appendicitis, and is making good progress toward recovery.——Dr. Theodore Schmalzriedt, Woodmere, has been reappointed health officer of Springwells township.——Dr. Theophilas I. Langlois has succeeded Dr. Walter C. Lambert as health officer of Wyandotte.

Wealth Left to Charities.—By the will of Mrs. Mary Stockdale, Flint, she devises the bulk of her estate to Harper Hospital, Detroit; Protestant Orphan Asylum, Detroit; Woman's Hospital and Foundling's Home, Detroit; House of Providence, Detroit; St. Mary's Hospital, Detroit; Thompson Home for Old Ladies, Detroit; Buffalo (N. Y.) General Hospital and Ingleside Home for Erring and Fallen Women, Buffalo. It is estimated that each of these institutions will receive more than $30,000.

Health Conference.—The eighth general conference of health officials of Michigan will be held in Ann Arbor, June 1 and 2. The objects of the conference are: The presentation of facts and the general comparison of views by the health officers and other delegates of local boards of health, among themselves, with the members of the State Board of Health and with those in charge of the State Laboratory of Hygiene, and especially with reference to the duties of supervisors and other presidents of local boards of health, health officers and other officials, relative to the restriction of dangerous communicable diseases and other subjects bearing directly on the public health service of the state.

April Mortality.—The total number of deaths for the month of April was 3,022, a decrease of 345 from the number returned for March. The annual death rate was only 14.4 per 1,000 population, as compared with 15.5 for March and 15.7 for

April, 1904. There were 432 deaths of infants under 1 year of age; 171 deaths of children aged 1 to 4 years, inclusive, and 934 deaths of elderly persons over 65 years. A marked diminution appears in the deaths of infants under 1 year. Important causes of deaths were as follows: Tuberculosis, 277; typhoid fever, 38; diphtheria, 24; scarlet fever, 10; measles, 15; whooping cough, 7; pneumonia, 228; meningitis, 57; influenza, 72; cancer, 140; accidents and violence, 147, and smallpox, 4. A slight increase appears in the mortality from typhoid fever, and a considerable decrease in the number of deaths returned from pneumonia and influenza. Meningitis caused 57 deaths during the month, as compared with 54 for March.

MISSOURI.

College Elects Officers.—Central Medical College, St. Joseph, has elected Dr. Thompson E. Potter, president; Dr. William T. Elam, secretary, and Dr. O. Beverly Campbell, treasurer.

Resign from Fulton Hospital Staff.—Dr. James W. Smith, superintendent of Hospital for the Insane, No. 1, Fulton, and the entire staff of assistant physicians resigned, May 10, to take effect June 13. The assistant physicians are Drs. Z. T. Martin Lathrop, William Bayliss Clarence, and J. F. Harrison, Benton City. The reason given for the resignation of the superintendent is ill health. The assistant physicians resigned so that the board might be free to choose a superintendent and staff satisfactory to all concerned.

Alleged Irregularities in Examination.—Dr. Vilray P. Blair reported at the meeting of the St. Louis Medical Society that a committee of the State Board of Health had investigated the charges made that there had been irregularities in the last examination held by the board for the issuance of licenses to practice medicine in this state, to wit, that there had been wholesale cheating on the part of the candidates. No action was taken by the society because it was stated that the whole matter has already been referred to the governor.

Personal.—Dr. John E. Lopp has succeeded Dr. Gustave Ettmueller as physician of Jefferson City.——Dr. Eugene Carbaugh has succeeded Dr. Walter S. Wheeler as inspector of contagious diseases at Kansas City.——Drs. Marshall A. Smith and Charles Pipkin have been appointed members of the Board of Health of Gallatin.——Dr. Carl A. Jackson has succeeded Dr. Robert P. Waring as health officer of Kansas City.——Dr. L. M. Thompson, superintendent of Missouri Colony for Feeble-Minded and Epileptics, Marshall, has resigned.——Dr. Walter C. Overstreet, Sedalia, sails for Europe next month.——Dr. John M. Langsdale, retiring city physician of Kansas City, was presented with a gold-headed cane by the medical staff, nurses, internes and employes of the City Hospital, April 23.

St. Louis.

Graduating Exercises.—At the annual commencement exercises of the Marion Sims-Beaumont College of Medicine, May 8, a class of 103 was graduated.

Personal.—Dr. Charles J. Orr has been elected treasurer of the St. Louis Medical Society.——Dr. Stanley D. Francis was struck by a street car in East St. Louis, Ill., April 24, and dragged fifty feet, but was not seriously injured.

Transmission of Variola.—A woman died in this city about two weeks ago; her burial certificate gave the cause of death as bronchitis and pulmonary hemorrhage. The body was embalmed and shipped to Indianapolis for burial. Advices from Indianapolis state that the undertaker who took charge of the body there became infected with hemorrhagic smallpox, that a number of people who attended the funeral have taken smallpox, and that about one hundred and fifty persons who were near the body are under quarantine. Since these advices came to St. Louis, the undertaker who embalmed the body here was seized with hemorrhagic smallpox, from which he died. Called to account by the local Board of Health, the attending physician maintained that there were no signs of smallpox in this case. Two women who dressed the body state that there was no eruption, yet the board at Indianapolis claims that when the body was exhumed it showed signs of hemorrhagic smallpox.

NEW YORK.

Personal.—Dr. William J. McKown, Albany, has been appointed assistant surgeon of the Tenth Infantry, N. G., N. Y. ——Dr. Luzerne Coville, Ithaca, was operated on for appendicitis, May 8.

Practiced Without License.—Mrs. Louisa Bauch, Buffalo, was convicted by a Supreme Court jury of practicing medicine without a license. She was once before convicted, but was allowed to go on suspended sentence. The penalty of her crime is one year's imprisonment and a fine of $250.

To Limit Distribution of Medicine Samples.—Elmira has passed an ordinance which provides that "No person nor persons shall distribute, or cause to be distributed in any private grounds or residences in the city, any free sample of a medicine; nor shall such sample be handed to any person under the age of fourteen years."

Medical Fakers.—Drs. Roswell Park, Ernest Wende and Henry Hopkins recently addressed a body of laymen in Buffalo on "Medical Fakers." Dr. Park gave a historical sketch of the fakers of the past. Dr. Wende spoke of the workings of "Antonius the Boy Wonder," a convicted faker, who has recently served a sentence, and Dr. Hopkins detailed the dangers, including scourges, pestilences, etc., suffered because of the superstitions and false presentations of fakers.

New York City.

Trustees for Roosevelt Hospital.—Governor Higgins has signed a bill providing for the election of two additional trustees for this institution, who are to be native-born citizens and residents of New York City.

Mount Sinai Hospital.—The fifty-second report of this institution shows it to be in a flourishing condition, although further support from the public is needed. Last year the hospital received contributions amounting to over $25,000 and $21,212 in legacies and bequests.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended May 6, 621 cases of measles, with 13 deaths; 414 cases of tuberculosis, with 181 deaths; 334 cases of diphtheria, with 39 deaths; 256 cases of scarlet fever, with 14 deaths; 178 cases of cerebrospinal meningitis, with 111 deaths; 31 cases of typhoid fever, with 10 deaths, and 137 cases of varicella.

Smallpox.—Three cases of smallpox have occurred in a Brooklyn boarding house, and one of the patients was in attendance at a public school. The 500 pupils in this school have been vaccinated and the authorities do not think there is danger of the disease spreading. So far this year there have been only 33 cases of smallpox and 6 deaths in the city, while for the same period of last year there were 82 cases, with 7 deaths.

Oppose Consumption Home.—An application for a temporary injunction restraining the Board of Health of New York from opening a home for tuberculosis patients in Henry Street, Brooklyn, has been made by several residents in that vicinity. Dr. Billings of the board defends his plan on the ground that there are already a number of such homes in Manhattan which do good work and do not in any way endanger the lives of neighbors.

To Better the Milk Supply.—Forty of the largest milk firms have formed an organization which will be known as the Association for the Improvement of the Milk Supply of New York. Its purpose is to assist the Health Department in its efforts to secure a purer milk supply. The association expects to establish a regular system of inspection of the milk farms and to educate farmers. Ex-Commissioner Lederle has been retained as consulting analyst for the organization. This week two dealers have been fined $75 each and six others have been fined lesser amounts.

OHIO.

Bequest to Hospital.—By the will of the late John Linebaugh $5,000 is bequeathed to the Protestant Hospital, Columbus.

Unlicensed Practitioners Punished.—John Hubbard, a "faith doctor" of Waupakoneta, was fined $25 and costs, April 6, for practicing medicine without a license.——"Dr." X. W. Wittman, an itinerant patent medicine vendor, was arrested, April 8, in Lebanon, charged with the illegal practice of medicine, pleaded guilty, was fined $20 and costs, and ordered to leave town.

Personal.—Dr. Harrie B. Martin, Springfield, has sailed for Europe. He will spend a year in Vienna.——Dr. Leo F. Towers, a physio-medical practitioner of Toledo, has been reappointed a member of the State Board of Medical Examination and Registration.——Dr. David W. Meredith, Warsaw, sustained a fracture of the leg and other serious injuries in a runaway accident, April 10.——Dr. Mary Austin, Columbus, has been appointed to the staff of the Ohio Hospital for Epileptics, Gallipolis.——Dr. Jacob B. Shank, West Alexandria, was injured, May 1, in a collision between a wagon he was driving and a traction car.——Dr. Estell H. Rorick, superintendent of the Athens State Hospital, has been elected superintendent of the Ohio Institution for Feeble-Minded, Columbus, vice Dr. Gustavus A. Doren, deceased.——Dr. Massillon

Cassat, Cincinnati, has donated his medical library of 4,000 volumes, valued at $10,000, to the Cincinnati Academy of Medicine.

New Ohio Physicians.—Starling Medical College held its fifty-seventh annual commencement exercises May 6, when a class of 29 received diplomas from P. W. Huntington, president of the board of trustees. Dr. Charles W. Dabney, president of the University of Cincinnati, delivered the address, and Dr. Starling Loving, dean of the college, the charge to the graduating class.——A class of 38 was graduated from the Ohio Medical University, Columbus, May 3. Fred J. Heer, president of the board of trustees, conferred the degrees, Dr. Emory W. Hunt, president of Dennison University delivered the annual address, and Dr. John W. Wright spoke on behalf of the faculty.——Cleveland College of Physicians and Surgeons (Medical Department of Ohio Wesleyan University) held its annual commencement exercises May 3. Prof. Richard T. Stevenson of Ohio Wesleyan University, Delaware, delivered the address of the evening.——Toledo Medical College (Medical Department of the Toledo University), held its annual commencement exercises May 9. Prof. Charles Zeublin of the University of Chicago delivered an address on "Scientific Education"; Dr. William A. Dickey, dean of the college, gave the faculty address, and Dr. Park L. Myers conferred the degrees.

PENNSYLVANIA.

Jail Quarantined for Smallpox.—Blair County Jail, Hollidaysburg, is under the ban of the State Board of Health because smallpox has broken out among the prisoners.

Tribute to Dr. Ulrich.—At the monthly meeting of the Delaware County Medical Society, May 4, resolutions of regret for the death of Dr. William Baggs Ulrich and of respect for his memory were read and adopted.

District Meeting.—A meeting of the physicians of the First Censorial District of the Medical Society of the State of Pennsylvania, comprising the counties of Chester, Delaware and Philadelphia, will be held at the hall of the College of Physicians, corner of Thirteenth and Locust streets, Philadelphia, at 8:30 p. m., May 26. Dr. J. N. McCormack, chairman of the committee on organization of the American Medical Association, will address the meeting on the necessity and advantages of organization.

Injunction Against Physician.—Dr. F. A. McMasters of Ridley Park is restrained from the practice of medicine in that place by an injunction issued by Judge Johnson. This was done at the instance of Dr. Horace Furness Taylor. Dr. Taylor testified to having purchased the good will and practice of Dr. McMasters for the sum of $300, when the latter left to locate in Pittsburg. He later, however, returned two months ago and resumed practice. Dr. McMasters denied that he had sold his good will, and said that Dr. Taylor paid him for being introduced to his patients as a qualified physician.

Philadelphia.

Deaths and Births.—The report from the Division of Vital Statistics for the month of April shows that there were 2,027 deaths and 2,597 births.

Personal.—Dr. Henry C. Shurtleff has returned from a prolonged trip to Mexico, the Pacific Coast, and British Columbia.——Dr. James Sibbald sailed for Europe, May 10.——Dr. Hugo Biffi, director of the Hygienic Laboratory, Lima, Peru, visited Philadelphia, April 28.

Saloonkeeper Held for Crime.—J. E. Casey, a saloonkeeper, was arrested, April 5, charged with performing a criminal operation on a girl 17 years old. At the preliminary hearing the patient was unable to appear, and the accused was committed without bail for a further hearing.

Milk Inspection Report.—The report from the Division of Milk Inspection of the Health Bureau for April shows that 4,643 inspections were made, 117,030 quarts of milk inspected, of which 1,315 quarts were condemned. The department made 113 chemical analyses and 670 microscopic examinations of specimens submitted.

Bacteriologic Laboratory Report.—The report of the bacteriologic laboratory of the Health Bureau shows that 1,789 cultures were examined for diphtheria; 525 specimens of blood were examined for the Widal reaction; 684 specimens of milk were analyzed; 146 specimens of sputum were examined, and 1,372 bottles of antitoxin were distributed. In the chemical laboratory 165 analyses were made.

Medical Inspection for April.—The number of inspections made by the medical inspectors, excluding the schools, numbered 2,894. They ordered 591 fumigations made and examined 68 cases for special diagnosis; made 4,915 visits to the different schools throughout the city, and excluded 715 children from the schools; they secured 109 cultures for diagnosis, made 115 injections of antitoxin, and performed 519 vaccinations.

Health Report.—The total number of deaths recorded for the week ended May 13 was 455. This is a decrease of 36 from the number reported last week, and a decrease of 39 from that of the corresponding period of last year. During the week 155 new cases of typhoid were reported, with 23 deaths, as against 256 new cases and 20 deaths in the preceding week. An inspection of the returns of the new cases shows that 60 per cent. are located in the five wards which receive Delaware River water by direct pumpage. Two wards which receive a supply of filtered water are credited with 7 cases. The total number of cases of contagious disease reported for the week was 240, with 36 deaths, as compared with 342 cases and 32 deaths for the preceding 7 days. The principal causes of death were typhoid fever, 23; consumption, 61; cancer, 19; apoplexy, 19; heart disease, 39; acute respiratory disease, 43; enteritis, 18; and Bright's disease, 50.

WISCONSIN.

Midwife Fined.—Anna Schreiber, a midwife of Milwaukee, was fined $50 and costs, May 6, for violation of the medical practice act in prescribing for an infant which died soon afterward, but the cause of whose death has not yet been determined.

Typhoid Epidemic Over.—The recent outbreak of typhoid fever in Milwaukee, supposed to have been due to infection brought to the intake of the waterworks system by ice from Port Washington, is now believed to be over. There were 140 cases, with 7 deaths.

Giant Cracker Silenced.—A new law, which went into effect May 5 prohibits the manufacture and sale of firecrackers more than five inches in length and five-eighths of an inch in diameter, under a penalty of a fine of not to exceed $100, and imprisonment for not more than six months.

Commencement.—The twelfth annual commencement exercises of the Wisconsin College of Physicians and Surgeons, Milwaukee, were held May 9. A class of 27 received diplomas from Dr. A. Hamilton Levings, president of the institution. Rev. H. H. Jacobs delivered the doctorate address.

Malpractice Suit Fails.—In the case of Robert Finley vs. Dr. Axel E. Hedback, Barron, in which $10,000 damages were asked for the alleged unskillful setting of a broken leg, the judge took the case from the jury, after hearing the evidence, and dismissed the case on the ground of no cause for action.

Personal.—Dr. Robert R. Leith has been elected city physician of Appleton and secretary of the local board of health.——Dr. D. Gilbert Hathway, Wauwatosa, was operated on May 9 in Milwaukee.——Dr. F. B. Hicks has succeeded Dr. H. G. Lampson as health officer of Washburn.——Dr. Ernst S. Schmidt has been elected city physician of Oshkosh.——Dr. and Mrs. J. Willis Rockwell, Centralia, were seriously injured in a runaway accident, April 15.——Dr. Max Staehle has been re-elected health officer of Manitowoc.——Dr. J. Burrows Atwood has been elected health officer of Oconto.——Dr. Thomas H. McCarthy has been elected health commissioner of Janesville.——Dr. Henry A. Norden has been elected city physician of Sturgeon Bay.——Dr. Joseph S. Cutler, Wauwatosa, has gone to Chicago to be operated on for appendicitis.——Dr. John F. Farr has been re-elected city physician of Eau Claire.

GENERAL.

Banquet to Dr. Emmet.—A banquet will be given in New York City, May 29, to Dr. Thomas Addis Emmet of New York City, in celebration of his seventy-seventh birthday anniversary. Dr. E. C. Dudley, Chicago, will be toastmaster.

Manila Medical Society Appropriates One Hundred Dollars for the Reed Memorial Fund.—At the regular monthly meeting of the Manila Medical Society, held April 3, $100 was appropriated for the Reed Memorial Fund. Most of this was subscribed by individual members, and the full amount was made up from the fund of the society. The society is in a very flourishing condition, and at the meeting referred to eight new members were added to the list. Of these, judging from their names, four were native physicians.

Health Report of the Philippine Islands.—The Health Report of the Philippine Islands for December, 1904, states that there were 708 births registered during the month. There were 915 deaths during December; of these 894 were residents and 121 were transients. By studying the comparative mortality of the entire year, it is observed that the months of

February and March were the most favorable, with a mortality of 40.59 and 40.23, respectively, the lowest death rates registered during the year. On the other hand, August, September and October show the highest, the mortality reaching 55.28, 58.89 and 54.53. January and December had almost the same death rate—42.64 and 42.53. All the tuberculous patients of the infirmary of Bilibid Prison were transferred to the new hospital for tuberculosis situated on one of the banks of the Pasig River in Calle Marques de Comillas, where they can more properly be taken care of and will have more space and purer atmosphere. The Woman's Hospital, established in one of the buildings of San Lazaro, was transferred to Calle Alix, in the district of Sampaloc, and the rooms which were formerly occupied by this class of patients were fitted to accommodate insane patients, who for lack of room could not be admitted in the quarters provided for them in the Hospicio de San José.

Veto of Osteopathic Bill.—The profession of Pennsylvania labored hard to defeat the osteopath bill, but it was passed by the legislature. Their efforts were rewarded, however, by the governor's vetoing the bill, as commented on in THE JOURNAL last week. At the meeting of the Philadelphia County Medical Society, May 10, the committee on medical legislation brought a written report of their labor. Two bills were before the legislature. The Hoke bill, which consisted of amendments to the law of 1893, was supported by the committee and passed both houses by an almost unanimous vote, but the governor vetoed the bill, on account of some technical inaccuracies. The other, the osteopathic bill, was defeated twice in the house, but because of strong political efforts was finally passed. The senate passed it on original and final readings. This brought the bill before the governor for his signature or veto. The committee met the governor and was assisted by the representatives of the homeopathic medical societies. The discussion on the bill lasted three hours. Governor Pennypacker later vetoed this bill in the following language:

"I file, herewith, in the office of the Secretary of the Commonwealth, with my objections, Senate Bill No. 115, entitled: 'An Act to regulate the practice of and licensing of osteopaths in the State of Pennsylvania, the establishmeent of a board of osteopathic examiners representing the Pennsylvania Osteopathic Association and providing for the punishment of persons violating the provisions of this act.'

"The purpose of this bill is to establish a state board of osteopathic examiners, to consist of five members to be appointed by the governor. This board is directed to issue certificates of qualification to practice osteopathy to all applicants having a diploma from a legally recognized and regularly incorporated college of osteopathy. It further provides that licenses shall be issued to all persons who have practiced osteopathy in the state for four years prior to July 1, 1905, and to such persons as now legally hold a diploma from a reputable and legally conducted college of osteopathy. It further provides that the applicants after July 1, 1905, shall have attended for at least three separate years such a college of osteopathy and shall be examined by the board in certain designated branches, and that those who apply after July 1, 1907, shall in like manner have studied for four separate years and submit to such examination.

"Section 7, provides:

> Any person who shall practice or attempt to practice osteopathy in treating diseases . . . without having first obtained the license herein provided for . . . shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not more than one hundred dollars or by imprisonment in the county jail for a period of not more than ninety days for each offense.

"There is nothing in the bill to indicate what constitutes the science of osteopathy. An effort to solve the query by an examination of the printed literature of the science is not very successful. Dr. A. T. Still, who is the founder of the science and is still living, in his autobiography, says:

> Who discovered osteopathy? Twenty-four years ago, the 22d day of next June, at ten o'clock, I saw a small light in the horizon of truth. It was put in my hand, as I understood it, by the God of nature. That light bore on its face the inscription: "This is my medical library, surgery and obstetrics. This is my book with all directions, instructions, doses, sizes and quantities to be used in all cases of sickness, and birth, the beginning of man: in childhood, youth and declining days." I am something of what people call "inspired." . . . The other classes have different names for it—clairvoyancy and clairaudient. Sometimes I was so clairvoyant that I could see my father twenty miles from home; I could see him very plainly cutting a switch for my brother Jim and I, if we hadn't done a good day's work. That is called clairvoyance. Then I could hear him say: "If you don't plow faster I will tan you twice a week." That is clairaudience.

"In his Philosophy of Osteopathy he says:

> Principles to an osteopath means a perfect plan and specification to build in form a house, an engine, a man, a world, or anything for an object or purpose. To comprehend this engine of life of man which is so constructed with all conveniences for which it is made, it is necessary to constantly keep the plan and specification before the mind, and in the mind, to such a degree that there is no lack of knowledge of the bearings and uses of all parts.

"However true this may be, it is too indefinite to give the ordinary layman any very accurate description of the science. Since the bill refers to other schools for the practice of medicine, it is probably a school, and it appears from Section 5 that the holders of certificates are not to prescribe or to use drugs or operative surgery. The main reliance would appear to be on the manipulation of muscles and nerves, but this conclusion is entirely an inference and may be incorrect. It must be assumed, however, that there is some scientific truth which those interested in osteopathy have discovered and that it is utilized in the treatment of diseases. The study of medicine and surgery has been conducted for ages, and we have much legislation which is applicable to its conduct. Under the act of May 18, 1893, a medical council was established which issues licenses after examinations authorizing the applicants to practice medicine and surgery. If, then, osteopathy represents some truth in the treatment of disease, the knowledge and use of which would be beneficial to the diseased and the injured, with what consistency can these practitioners be prevented from making such use of it? Why should their patients be deprived of such benefit as may result from the discovery? If, however, this bill should become a law, the physician who would practice or attempt to practice what the osteopaths have discovered would be punishable by imprisonment for ninety days. This would be possibly a great loss to the community and certainly a great wrong to the physicians.

"The whole thought of the establishment of schools of medicine is unscientific. All those engaged in such pursuit ought to be seeking to ascertain the truth and to accept it wherever it may be found. The approval of this bill would appear to give the authority of the state to a system of practice in the healing art which excludes the use of medicine and the use of surgery. Why should there be an attempt to so confine the operations of the mind? If both drugs and surgery are useless they may be rejected, but if they should at times be found to be beneficial, why should any science for the enforcement of a theory make the effort to exclude their use?

"Should the bill become a law licenses would be issued by the State Board of Osteopathic Examiners and not by the Medical Council of Pennsylvania, which would be an anomaly in our legislation on the subject.

"For these reasons the bill is not approved."

The committee, which consisted of Drs. Alfred Stengel, H. A. Hare, Henry Beates, J. Madison Taylor, Charles H. Frazier, J. M. Anders and L. Webster Fox, recommended that the society have a standing committee on medical legislation to look after all similar matters affecting the profession.

FOREIGN.

Hospital for Crippled Children in Holland.—The Queen of Holland is said to have given $100,000 recently to found a hospital for crippled children at The Hague.

Dengue in Australia.—In an epidemic of dengue in Brisbane, Queensland, more than one-half the inhabitants have been stricken, although the death rate has been very low.

Ankylostomiasis in Germany.—From March 8-29, 1905, according to Public Health Reports, 82 cases of ankylostomiasis were reported in the Arnsberg mining district in Germany.

Leprosy in Germany.—In the German Empire, during the year 1904, 24 cases of leprosy were registered. Of these, 19 cases occurred in Prussia, 3 in Hamburg, 1 in Mecklenburg-Schwerin, and 1 in Alsace-Loraine.

French Yellow Fever Commission in Brazil.—The members of the commission from the Paris Pasteur Institute have arrived at Rio de Janeiro and were entertained at a banquet given by the minister of foreign affairs a few days ago.

Six Tons of Quinin a Year.—This is the amount of quinin taken annually by the people of Italy, according to the *Riforma Medica*. The state produced nearly 30,000 kilograms of quinin during 1903-04, and sold nearly half this amount. This is equivalent to six tons a year. The population of Italy is 32,449,754.

First Hospital for Eye Affections in Paris.—Baron Adolphe de Rothschild has built and equipped the first ophthalmic hospital in Paris. It is said to be a model in every respect. The stone building is an imitation of an old Norman chateau, and is said to be one of the architectural ornaments of the city. Two hundred patients were admitted the first day.

Diminishing European Birth Rate.—The birth rate in the German empire continues its downward course, being only 33.9 per 1,000 in 1903, from 35.7 per 1,000 in 1901. In Great Britain the birth rate has fallen from 30.7 in 1893 to 27.6 in 1904. The last statistics give 22 per 1,000 as the latest figure for the birth rate in France, according to the *Semaine Medicale.*

Inroads of Alcohol in Berlin.—Professor Stadelmann of Berlin says that 7 per cent. of all the cases admitted to the Friedrichshain general hospital in his charge are cases of delirium tremens. He believes that between one-fourth to one-third of the diseases afflicting men in the districts in Berlin inhabited by workingmen are due to the abuse of alcohol. It is one of the principal reasons for the increase in suicides in Berlin, which had 32 suicides to each 100,000 inhabitants in 1904. Paris had 26, Vienna 24, Rome 18, and London 13.

The New German Volkswohlfahrtsamt.—The German government has been styled paternal in its provisions for the people, but the new bureau that has been created with the above title must certainly be styled maternal in its solicitude for the welfare of the populace. This is the literal meaning of its name. The bill creating the new bureau states that in the care for the sick, the invalid and the poor, the healthy, provident classes of the community must not be forgotten, and this bureau is to study means to keep them well and thriving and raise the standard of the public health and physique.

Schiller as a Physician.—May ninth was celebrated by the Germans abroad and in this country as the hundredth anniversary of the death of Friedrich Schiller, the great poet, dramatist and historian. It is not generally known that he commenced his career as a regularly graduated physician. The *Deutsche med. Wochft.* has been collecting data in regard to his work as a physician, and reviews his medical writings and teachings. He was a pupil of Boerhaave, and was imbued with the "humoral" doctrines of the day. The general conclusions of Magnus' article on the subject are to the effect that neither the science of medicine nor Schiller himself seem to have derived any permanent benefit from his connection with medicine. He soon abandoned it.

Nursling Consultations in Madrid.—Dr. Ulecia of Madrid has been instrumental in founding and conducting the free dispensary where mothers can bring their babies every week for consultation with the physician. They obtain advice how to keep them well, while at the same time receiving milk of superior quality for their use. At a recent conference on the subject of charitable work in this line in Europe and America, a row of mothers with their babes sat on the platform behind Dr. Ulecia, and he was able to present many children in good health who owed their lives undoubtedly to his trained observation and advice. These nursling consultations and milk stations are known in Europe as the "Drop of Milk." (Goutte de lait or gota de leche.) Ulecia is trying to arouse interest to have such institutions founded in every town throughout Spain.

Epidemic of Cerebrospinal Meningitis in Germany.—To date over 1,400 cases of the disease have been reported, and the mortality has been fully 70 per cent. The contagiousness of the disease has been apparently established by a number of groups of cases. In Radmann's experience with 30 cases they occurred in groups in four instances. A brother and sister showed symptoms of the disease with an interval of thirty-six hours in one case. The incubation on an average was apparently between this and forty-eight hours. Only 12 persons in the 300 affected at Kattowitz were more than 12 years old. An exanthem is frequently observed, and the cases presenting it seem to be milder than the others. Long hot baths and wet packs were symptomatically beneficial, but no medication seemed effectual, although sodium iodate has been favorably mentioned by some. The Weichselbaum diplococcus was found in all of the 760 cases examined at Beuthen. The epidemic has spread mostly south and east, invading Austria and Russia, but a few scattered cases have occurred in northern and western Germany. The mortality in the last mentioned is not so high as in the endemic focus, only 53 per cent. The cases seem to be grouped in a comparatively limited area, and the subjects have generally been adults.

Pharmacology

The Fundamental Principle of Medical Ethics.

The words ethics and ethical have been referred to so frequently of late, in connection with the proposed work of the Council on Pharmacy and Chemistry of the American Medical Association, that one is almost led to believe that the origin and the limitations of medical ethics are in some mysterious way confined to the use or the non-use of proprietary medicines and that, to be strictly ethical, the physician should, or must, confine his drug medication to the use of ethical preparations. Nothing could be more remote from the actual facts than this supposition and, while it is true that proprietary medicines do play a very important part in the consideration of ethical conduct and practices of medical practitioners, it is not because these medicines are proprietary or secret, but because they are likely to lead the physician using them into unknowingly and unwittingly committing grave and serious errors.

The word ethics has well been defined as designating the science of right conduct, or the doctrine of man's duty to himself and to the rights of others. This science or doctrine is not to be considered as being a theory of modern conception, but is a product of evolution representing the accumulated experiences of countless observers and teachers during the various ages and stages of the world's history.

It would be folly, therefore, to suppose that any number or class of individuals could set up for themselves a set of regulations, or a system of ethics at variance with the accepted rules of moral obligations that guide and regulate the conduct and relations of the remaining portion of the human family. These fundamental facts should always be borne in mind in discussing the relations of physicians to patients, as these relations can in no way be considered exceptional and are subject to the same standards of right and wrong that govern the relations and the actions of the remaining portion of the community.

In this connection it may be interesting to note that the frequent assertion that a physician's first duty to his patient is to do good, regardless of the way it is done, or of the means or the methods employed, is to be classed as being one of the most fallacious and misleading. As physicians or as men, our duty to do good must, and properly should, be made subservient to the more imperative and primarily more important rule, not to do harm. The generally accepted importance of this rule or law will be more appreciated when we realize that it constitutes the underlying foundation of all acceptable forms of religion, of all known systems of ethics and of all modern compilations of statute law.

The peculiar position that we as physicians occupy, in our relations to patients, makes the duty of closely observing this fundamental law or rule of conduct doubly imperative, as it undoubtedly increases the possibilities of the ultimate harm that may be done in cases where the rule has been overlooked or ignored. In none of our relations to our patients is there greater danger of losing sight of this very important and vital rule of conduct than in the use, or rather abuse, of proprietary medicines. Here the possibilities of doing harm are numerous and varied, they may be immediate or remote, evident or obscure, vital or of little direct importance, but they are ever present and should be inquired into diligently, and, if possible, recognized and properly presented for the instruction and guidance of fellow practitioners. In this connection it may be properly asked: How many of us ever stop to inquire as to what may have been the history of the hundreds of new remedies that have been tried and found wanting during our own experience? They have gone out of use, it is true, but they have gone out of use in a way and at a price that is appalling. Hundreds of physicians have tried them on thousands of patients, causing unnecessary expense, prolonged suffering and, not infrequently, untimely deaths.

FURTHER COMMENTS QUOTED.

We submit below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

THE DRUGGISTS' CIRCULAR AND CHEMICAL GAZETTE:—"With the aims and object of this council no honest man or woman can find fault. We need just such work accomplished and we

need it badly. The shelves of pharmacists are being incessantly loaded with worthless preparations which unposted medical men are wiled into subscribing by smooth-tongued detail men, tempting advertisements, and free samples. After the druggist has become stocked with such worthless stuff the doctor becomes disgusted with his results and quits prescribing it. As a result package after package and bottle after bottle accumulates on the shelves to increase the difficulty of finding standard goods. The price of these nostrums is usually high, so that the dead stock represents a considerable amount of capital. The druggist sometimes analyzes such goods, usually to find that a goodly number of them are very nearly the same in composition, and a temptation to 'substitute' is presented to him. When substitution is easy, the conscientious druggist is at a disadvantage as compared with his unscrupulous neighbor, and so he ought to be in favor of anything which will tend to remove this disadvantage.

"Human nature at its best is made of frail material. Could we calculate on the strength of character, intelligence, sympathy, affection and firmness of every individual it might be possible to determine how any given social experiment would be likely to terminate. A council like this one of the American Medical Association is pretty certain to be subjected to great strain unless it degenerates into inefficiency. Just in proportion to its success in carrying out the purposes for which it was created will be the strain to which its members are certain to be put. To properly execute the duties they have assumed will require a large amount of work that will have to be done without remuneration other than the honor which the position which they hold can confer. To shirk this work will be to court failure for the enterprise. To do the work and do it properly will be to win ill-will and invite secret undermining of good name. It will be well-nigh if not quite impossible for the members to draw the lines exactly where they think they should be drawn. It will be found well-nigh if not quite impossible to devote time and labor enough on certain articles to be sure of the truth concerning them. In giving the advantage of the doubt it will not always be possible to know that it is being given justly. The promoters of commerce are usually pastmasters in the art of using the hypnotics of conscience. They win advantages over rivals by such use. Men to whom they would not dare to offer a bribe of money they will offer work. Men who do not care for such work as they have to offer and who might even look upon it as bribery will receive a chloroforming dose of being elected to the coveted presidency of some society. Where even this will not win, friends of the man whose influence is sought receive these honors or emoluments and the promoters of commerce win through affection the good will that could not otherwise be bought. If it is concluded that they can not be won, that their presence on the council is dangerous to a certain interest, then it becomes necessary to get them removed from the council and have a pliant tool placed there. The powerful corporation that has much at stake will work for votes to make the change, and the character of the man that holds out most firmly against them will be quietly, steadily, and surely undermined. If he is a man of original thought he will be pronounced a dangerous crank. Somehow —anyhow—they will seek to have him deposed.

"How long will the members of the council stand all these strains? Charges of corruption will be voiced abroad, and the most innocent and inoffensive, by persistently defending what he deems the right, will bring on himself the secretly uttered smirch. Of course there will be none of this until the council's work begins to tell. It is only in case of success that these things can happen. Then good men may find it very uncomfortable to remain in the council while for bad men the inducements to get the appointment will be large. Should the position ever mean money, promotion, or advancement of personal interest, the struggle will commence and justice will begin to miscarry. IS THERE KNOWLEDGE ENOUGH, AND OF THE RIGHT KIND, IN THE AMERICAN MEDICAL ASSOCIATION, TO THWART COMMERCIALISM AND TO ESCAPE THE RIVAL POLITICS THAT IS PRETTY CERTAIN TO APPEAR? IF THERE IS, THEN THE EXPERIMENT WILL BE SUCCESSFUL AND WILL BENEFIT AND BLESS BOTH PHARMACY AND MEDICINE. IF THERE IS NOT, THEN WE FEAR THAT OUR LAST CONDITION MAY NOT PROVE TO BE ANY IMPROVEMENT ON OUR FIRST."

THE JOURNAL quotes the above at length because of the excellent presentation of the situation. The last portion is accentuated by us to bring it to the attention of the physicians of the country.

JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY (April): "Thus for the first time the medical profession will have established rules for advertising in its journal—supported by a scientific study by its own experts. It is to be expected that all the state medical journals will adopt this standard, and doubtless many private journals. . . . The names of the members of the council give assurance that the sifting will be done wisely and thoroughly.

"We are especially pleased to make this announcement because the council of the Michigan society presented the same idea to the meeting of that body last June. It received it favorably, and instructed its delegates to present it to the American Medical Association and to urge its adoption. It was so presented, but fell by the way. Its adoption by the Board of Trustees fully commends itself to the profession of Michigan, equally with that in other states. Various objections were made to it at the Atlantic City session of the American Medical Association, but these seem to be overcome, as indeed they were but straws. Intelligence and horse sense are all that is needed, inasmuch as the committee is backed by the wealth, prestige and power of a fairly united profession.

"No longer can it be said that the American Medical Association does nothing for the 'rank and file' of the profession, because it has now undertaken to flood with light the darkness of therapeutic agents used by said rank and file. The greatest medical organization of the world has set its stamp of disapproval on the hidden war of commercialism, and stands for the open dicta of expert scientists. With a mighty stride intelligent therapeutics will advance in its mastery of disease.

"This movement will test the power of the organization. By it we shall learn how firmly commercialism has intrenched itself within the profession. With the hundreds of millions of dollars invested in the business of secret remedies, commercialism will seek to give this move of the profession a 'black eye.' It is hoped that every physician will actively stand for open, honest, scientific pharmacy, every day in the year and under all circumstances."

Correspondence

WORKS AND NOT WORDS.

An Appeal from Mr. Bok to the Medical Profession.

PHILADELPHIA, May 15, 1905.

To the Editor:—During the last year I have received hundreds of letters from physicians in every part of the United States commending the attitude of the *Ladies' Home Journal* in its efforts to awaken the public to an understanding of the patent medicine curse. Scores of commendatory resolutions from medical associations have likewise come to our company. All these have been gladly received and appreciated, and our acknowledgments in each case have tried to express this fullest feeling of satisfaction. It is, therefore, with no lack of appreciation that I say that, while these individual and association commendations have been pleasant, I could wish the sentiments therein expressed might have resulted in some effective co-operative work.

What I mean is this: During the past winter there was introduced into the legislatures of not less than fourteen states bills which had for their object the regulation of the sales of injurious patent medicines, or the compulsory printing of the ingredients of these medicines on the label of each bottle, under penalty of fine or conviction. Committee hearings were given on these bills in each state. The proprietors of some of the patent medicines were exceedingly active—and effectively so—in their opposition to these bills.

Associations interested in the patent medicine traffic worked with unceasing vigil to defeat the bills—which they succeeded in doing. The newspapers in these states carrying the advertisements of patent medicines were notified that this lgislation was not desirable. Skillful lawyers appeared before these committees in opposition to the bills. Every effort, in short, was made to defeat these measures, and in all save one state the bills were "killed."

Now, who appeared in favor of the bills at these hearings? Generally, members of the Woman's Christian Temperance Union whose zeal usually exceeded their discretion and judgment—well-intentioned but ineffective. In one or two cases, representatives of some liquor dealers' association appeared in behalf of the bills. But not in a single instance, and I speak by authority of personal representation at each of these hearings, did there appear a single physician or the representative of a single state, county, or city medical association. There was not the slightest active interest taken by physicians in these hearings, and yet scores of physicians wrote me irate letters after the bills were defeated, deploring the corruption (?) of the legislatures in their states!

These hearings were usually of the most perfunctory order, and, from the side of any advocacy of the bills, absolutely without interest, since scarcely any one appeared to give intelligent or convincing reasons why the bills should become laws. Now, I ask the physicians and medical associations of this country: how are we ever to secure effective legislation against patent medicines until some intelligent reasons are presented by intelligent people having the respect of a community, why such legislation should exist?

It is not only likely, but probable, that during the next fall and winter terms there will be introduceed into the legislature of nearly every state in the Union, a regulative patent medicine measure—bills which have a vital interest to every physician in the United States; and my object in this letter is to draw to the attention of every physician, and particularly every medical association, not only the need, but the necessity, for their co-operation in this legislative work.

It is not meeting this question for physicians and associations to contend that their appearance and arguments before these committees would be deemed as emanating from interested motives, and thus have no weight. Surely, the other side does not argue thus, and their appearance and arguments before these committees are certainly from "interested motives." The statements and arguments of reputable physicians of the communities concerned would have the greatest possible weight before these committees. In fact, in several cases members of these committees have asked and desired that some physicians of standing should appear at the hearings, and marveled at their uniform and consistent absence.

Here is not only direct work for every medical association in America, but an actual crying need for such work, and, if I may speak a little frankly, a clear case of shirking responsibility where such work is not forthcoming.

I shall be in a position to know of the introduction of these legislative measures in any state where they are presented, and if in each state the leading medical association would appoint a committee, and a similar committee appointed by county and city associations, and the full name and address of the chairman of each committee can be forwarded to me, between now and October 1 next, it will afford me pleasure to communicate with such party immediately on the introduction of such a measure in the legislature of his state and supply him with printed material, now being prepared, containing arguments for the regulation of the patent medicine traffic in America and showing what has been done by other nations.

But the fact can not be too strongly urged that the most representative physicians in the state, city or county, the men occupying the highest positions in their professions and having the unquestioned respect of their communities, should be members of such appearing committees. The greatest weight should be given to the arguments presented, ensuring the most effective influence.

It should not be necessary to add—but still I will do so, in case of the exceptionally suspicious mind that is always with us: that no advertising element, so far as the magazine of which I am editor is concerned, enters into these desires on our part or into the material being prepared. The publishers of the *Ladies' Home Journal* have no desire that their periodical shall enter into these hearings as a periodical, mentioned, quoted, or commended; they do not crave such advertising; the magazine does not need it. The periodical entered on its editorial treatment of the patent medicine curse from principle and from no other motive. Its only interest is the interest of the great public at large: not the commendation either of it or its editor. Both have received that at the hands of the medical profession. It now asks at the hands of that profession works, not words.

EDWARD BOK,
Editor of the *Ladies' Home Journal.*

The Opium Question in the Philippines.

MANILA, April 14, 1905.

To the Editor:—In connection with the editorial in the *Medical Review* Dec. 10, 1904, on the above question the following statements may be worthy of consideration:

It is to be regretted that the report of the committee appointed to investigate the use of opium and matters therewith connected has not been published, as an acquaintance with its contents might lead to an avoidance of inaccurate statements in regard to its purport. But as the report is voluminous, containing not only the findings, conclusions and recommendations of the committee, but also all the evidence, statistics and laws on which they are based, it is still in the hands of the printer. The report will stand or fall on its own intrinsic merit, and should be read, if a sufficiently patient reader may be found, before the final word of criticism or commendation is said. Until the report is read, and the evidence on which it is based is known, it seems premature to assert the report is a compromise report, or to insinuate that there was a compromise with facts.

"The combination of events unknown (to the writer of the editorial in question), which induced the commissioners to take up the question of the regulation of the opium traffic, to protect the natives," was in no way connected with the "exaggerated statements of the harmfulness of the use of the drug, or with the commissioners' ignorance of the fact that the Asiatic nervous system is absolutely different from that of the European."

In passing, it might be said that the writer's self-attributed ignorance is fairly well supplemented by the conviction he has, that the commissioners "have no doubt been influenced by exaggerated statements, etc." The facts are:

1. The regulations in force during the Spanish supremacy, in regard to traffic in opium, ceased after the American occupation, so that at present there are no restrictions on its introduction into these islands, or on its use in any form in these islands.

2. The use and abuse of the drug by the natives of the Philippine Islands is rapidly and steadily increasing.

3. A very marked increase in the consumption of opium, resulting in a corresponding increase in the number of opium habitués, took place during and immediately after the cholera epidemic of 1902-3. This increase may possibly be due to the natives observing the comparative immunity of the Chinese to cholera, and attributing it to the use of opium rather than to the use of hot cooked food and boiled water (tea); moreover, opium may be of benefit in cholera.

4. All observers agree that the Malay possesses less power of resistance to the effects of opium than the Asiatic. The inhabitants of these islands are Malays, not Asiatics. There does not seem to be much similarity in the effects of the Betel nut and of opium.

The Chinese Chamber of Commerce and a part of the clergy here were opposed to the bill as drafted by the commissioners, prior to the appointment of the committee, but, strange to say, both parties, Chinese and clergy, were in favor of absolute prohibition. The Chinese gave the same moral reasons for being in favor of prohibition as were given by the clergy; so true is it that the Chinese never present their real reasons if others may be substituted.

It is believed that the statement made in the *Medical Record* that as much opium is now obtained in Formosa as was formerly obtained, will be modified in case the report of the committee is read.

E. C. CARTER,
Major and Surgeon U. S. Army, Commissioner of Public Health, Chairman of the Opium Committee.

Interurban Clinical Clubs—A Suggestion.

BALTIMORE, May 12, 1905.

To the Editor:—The remarkable success which has attended the Society of Clinical Surgery suggested to me the organization of a small clinical club among a few of the younger men in the eastern cities. I write now to urge the formation of similar clubs in different parts of the country. The objects should be:

1. The promotion of the scientific study of disease among the younger men.
2. Demonstration of methods of teaching and of work.
3. The encouragement of good fellowship among men working at the same problems.

The clubs should be small, not more than twenty or thirty members, so that all could see the demonstrations, etc. No papers should be read. Methods of work and of teaching should be specially dealt with, and as far as possible the men visiting a city should follow the routine of the day in the school at which the meeting is held. Demonstrations should be provided in cognate subjects, in the physiologic, pathologic and pharmacologic laboratories, and in the surgical clinics. One or two meetings a year should be held, and sometimes two adjacent cities could be visited. The clubs should not be large, and they should in no way take the place of or interfere with existing societies. The educational features for the members should be kept in view.

Six or eight of such clubs, grouped as follows, would do much to promote the study of internal medicine; every fifth year a joint meeting might be held.

1. Montreal, Kingston, Quebec and Burlington.
2. Buffalo, Cleveland, Toronto, London (Ont.)
3. Chicago and St. Louis.
4. Louisville, Memphis, Cincinnati, Columbus and Indianapolis.
5. St. Paul, Minneapolis, Omaha and Winnipeg.
6. New Orleans, Nashville, Birmingham and Atlanta.
7. Washington, Richmond and Charleston.

WILLIAM OSLER.

Book on Uric Acid.

WASHINGTON, D. C., May 13, 1905.

To the Editor:—Referring to the announcement on page 1547 of THE JOURNAL of May 13, as to republication of the series of articles on immunity, permit me to express the hope that the series of valuable papers on uric acid will also be republished in book form and under the author's name.

J. B. NICHOLS.

[EDITOR'S NOTE: The editorials on "Truth and Poetry of Uric Acid," slightly enlarged, will be reprinted in book form with the author's name.]

Association News

New England Special to Portland.

Arrangements have been made for special cars to accommodate members of the A. M. A. Outing Club and other persons from New England who are going to the Portland session. The fare from Boston is $78.50 for the round trip via the C., M. & St. Paul Railroad and Northern Pacific from Chicago, visiting Yellowstone Park (5½ days), and returning via the Canadian Pacific to Montreal, making short stops in the Canadian Rockies and visiting the Canadian National Park. The party contemplates leaving Boston June 27 for a trip of four weeks or more, visiting the important points in the American and Canadian Northwest where stopovers will be allowed. The party can be joined at any point en route, and change of route returning can be made if desired. Further particulars may be obtained from the secretary of the committee, Dr. E. R. Campbell, Bellows Falls, Vt.

Marriages

PHILIP C. HAY, M.D., Chicago, to Miss Helen Davis of Oshkosh, Wis., May 3.

JOHN T. HOSEY, M.D., to Miss Blanche Curling, both of Enterprise, Miss., May 3.

LUELLA S. CLEVELAND, M.D., Harlan, Iowa, and Charles E. Coplin of Leadville, Colo.

E. B. CUMMINGS, M.D., Bronson, Kan., to Miss May Hammel of McCook, Neb., May 7.

CHARLES H. MERRILL, M.D., Shenandoah, Ohio, to Miss Zora Starr of Cleveland, May 3.

J. C. HALL, M.D., Decatur, Ill., to Miss Clara Turpin of Oreana, Ill., at Decatur, May 3.

FREDERICK GREENBAUM, M.D., Chicago, to Miss Blanche D. Klein of Philadelphia, April 27.

DANIEL SCOTT SCHENCK, M.D., Safford, Ariz., to Miss Hattie Webb of Bryan, Texas, April 26.

R. W. CAMPBELL, M.D., Stillwater, Minn., to Miss Lucile Proventura, at Minneapolis, May 3.

REED MCCULLOUGH BAIRD, M.D., to Miss Jennie Penn Young, both of Wheeling, W. Va., April 29.

R. H. DRAPER, M.D., Bloomington, Tenn., to Miss Minnie Coomes of Knottsville, Ky., May 3.

JOHN D. BREWER, M.D., to Miss Lucile M. Grisham, both of Newbern, Tenn., at Memphis, May 3.

LOUIS N. WILSON, M.D., Mardela Springs, Md., to Mrs. Margaret J. Payne, at Baltimore, April 29.

ERNEST W. HILLETTS, M.D., Pittsburg, Pa., to Miss Anne Beattie of Hyde Park, Mass., May 10.

W. H. GLASGOW, M.D., Enid, Tenn., to Mrs. Bertha J. Fishleigh of Ontario, at Cincinnati, April 26.

J. E. NIXON, M.D., New Mount Pleasant, Ind., to Miss Mabel Hiester of Ridgeville, Ind., April 12.

JOHN CRESSWELL SLAWSON, M.D., New York City, to Miss Blanche Weller of Waverly, N. Y., May 16.

MICHAEL GEORGE FOSTER, M.D., London, Eng., to Mrs. Margaret Manning Russell, in Appleton Chapel, Harvard University, Cambridge, Mass., May 9.

Deaths

Heber Nelson Hoople, M.D. Toronto University, 1885, Bellevue Hospital Medical College, 1885, member of the American Medical Association, Kings County Medical Society, Medical Society of the State of New York, British Medical Association, Associated Physicians of Long Island, American Rhinological and Otological Society, and New York Physicians' Mutual Aid Society, died at his home in Brooklyn, May 8, aged 48.

George W. Friend, M.D. Jefferson Medical College, Philadelphia, 1851, for more than half a century a practitioner of Manchester, Chesterfield County, Va., from 1872 to 1874 a member of the state legislature; assistant surgeon in the Confederate service during the Civil War, died suddenly at his home in Richmond, May 5, from cerebral hemorrhage, aged 77.

Washington Matthews, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1864, assistant surgeon, U. S. Army, 1868; promoted to surgeon, 1889; retired from active service, 1895, died in Washington, D. C., April 29, from locomotor ataxia complicated with chronic nephritis and fracture of right femur, after an illness of many years, aged 61.

Joseph O. Yost, M.D. Medical Department of Western Reserve University, Cleveland, 1892, died suddenly from heart disease at his home in Hazelton, Youngstown, Ohio, May 2, aged 37. At a special meeting, held May 3, the Mahoning County Medical Association decided to attend the funeral in a body.

John A. Finlayson, M.D. Kentucky School of Medicine, Louisville, 1892, a member of the American Medical Association and a leading factor in the local medical, social and political matters in Emmet County, Iowa, died at his home in Armstrong, May 9, from appendicitis, after a short illness.

Robert Dickey Wallace, M.D. Cleveland Medical College, 1853, the oldest practitioner of Newcastle, Pa., some-time president of the Lawrence County Medical Society, died at his home in Newcastle, May 2, from arteriosclerosis, after an illness of three weeks, aged 77.

Thomas L. Newberry, M.D. Jefferson Medical College, Philadelphia, 1866, of Hiseville, Ky., a surgeon in the Confederate service during the Civil War, died in an infirmary at Louisville, May 3, five days after an operation for cystitis, aged 71.

John F. Oakley, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1890, a member of the American Medical Association, died at his home in Augusta, Ark., May 3, from malarial poisoning, after an illness of two years.

Frank McMahan, M.D. Sioux City (Iowa) College of Medicine, 1905, demonstrator of chemistry in that institution, died suddenly at Sioux City, May 7, from fatty degeneration of the heart, aggravated by acute alcoholism, aged 26.

William Vincent Wallace, M.D. New York University, New York City, 1855, one of the earliest members of the Rhode Island Medical Society, died at his home in Providence, April 29, after a short illness, aged 76.

George N. Watier, M.D. Trinity Medical College, Toronto, Ont., 1883, coroner of Washington County, Minn., died suddenly at his office in Stillwater, May 1, after the accidental ingestion of carbolic acid, aged 54.

Louis F. High, M.D. College of Physicians and Surgeons, Baltimore, 1891, medical director of the Pineshire Sanitarium, Southern Pines, N. C., died recently at a hospital in New York, after a long illness.

William M. Hammond, M.D. University of Maryland School of Medicine, Baltimore, 1845, for 40 years a resident of Kansas City, Mo., died at his home in Rosedale, Kan., April 27, aged 89.

Dwight M. Wright, M.D. Ohio Medical University, Columbus, 1898, of McArthur, Ohio, died at the home of his parents in Logan, Ohio, April 28, after an illness of more than two years, aged 27.

F. M. Baldwin, M.D. College of Physicians and Surgeons of San Francisco, 1900, died at his home in Reno, Nev., May 1, from pneumonia, after an illness of four days, aged 32.

Herbert H. Ellis, M.D. College of Physicians and Surgeons in the City of New York, surgeon for the Encampment (Wyo.) tie camp, died suddenly, April 29, from heart disease.

Walter L. Taylor, M.D. Years of Practice. Ohio, 1895, of Cincinnati, for 65 years a practitioner, died suddenly in Brooklyn, N. Y., May 9, from cerebral hemorrhage, aged 85.

Judson Coy, M.D. Harvard University Medical School, Boston, 1882, of Prince William, N. B., died at Wakefield, Mass., from nephritis, after a long illness, aged 53.

George H. Munson, M.D. Medical College of Indiana, Indianapolis, 1888, died at his home in Stanford, Ind., May 10, from typhoid fever, after an illness of 10 days.

Seymour C. Troutman, M.D. College of Physicians and Surgeons in the City of New York, 1854, died at his home in Somerville, N. J., May 6, aged 83.

S. D. Welch, M.D. Transylvania University Medical Department, Lexington, Ky., 1847, died suddenly at his home in Nicholasville, Ky., May 1, aged 81.

Lee M. Pettit, M.D. Missouri Medical College, St. Louis, 1859; St. Louis Medical College, 1878, died at his home in Greenville, Mo., May 4, aged 69.

James H. Joyner, M.D. Louisville (Ky.) Medical College, 1859, died at his home in Goodlettsville, Tenn., April 30, after an illness of two years, aged 77.

Andrew C. Donovan, M.D. Rush Medical College, Chicago, 1871, died suddenly at his home in Excelsior Springs, Mo., from heart disease, May 2, aged 55.

F. A. Wallace, M.D. Medical Department of the Pennsylvania College at Gettysburg, 1841, died at his home in Fox Lake, Wis., April 27, aged 86.

G. Lewis Yager, M.D. Boston, 1901, of Cambridge, Mass., died at his home in Dorchester, Mass., April 13, from cerebral hemorrhage, aged 29.

Joseph H. Ford, M.D. Medical College of Indiana, Indianapolis, 1872, died at his home in Auburn, Ind., May 3, after an illness of a year.

Jared Bassett, M.D. Albany (N. Y.) Medical College, 1839, died at his home in Evanston, Ill., May 10, from pneumonia, aged 91.

James Wilson, M.D. Memphis (Tenn.) Medical College, 1848, died at his home in Plano, Texas, May 4, aged 80.

Queries and Minor Notes

PHYSICIANS MAY DISPENSE—CARDS IN NEWSPAPERS—CHARITY PROBLEMS.

KNOB, CAL., May 5, 1905.

To the Editor:—As a member of the American Medical Association and a reader of THE JOURNAL, I am much interested in the subject of professional ethics as discussed by THE JOURNAL and by other journals. Please answer the following questions relative to professional ethics: 1. (*a*) Is it considered non-ethical for a physician to dispense his own drugs instead of writing prescriptions? (*b*) If not, is it non-ethical for a physician to have printed on his professional card the statement that he does not write prescriptions, but dispenses his own drugs? 2. Would it be considered non-ethical for a physician to announce in the local lay papers of his community that he would treat free of charge all patients calling at his office during certain hours on certain days? Question 2 is prompted by the fact that in all communities physicians are called on to treat a great many patients from whom they receive no remuneration, some of whom are amply able to pay if they would. Dr. A. believes that those who can and do not pay would do so rather than be considered charity patients; also that it puts him in a better position to demand his pay from his non-charity patients.

DR. E. H. PITTS.

ANSWER.—1. (*a*) The relative merits of prescription writing versus drug dispensing have no ethical relations. The choice is a matter of individual taste and local custom. (*b*) The placing on a professional card any information other than the name, office hours or telephone number is in most places looked on as at least bad taste. To add to the card the words "drugs dispensed," while hardly to be looked on as unprofessional conduct, would certainly be regarded as unnecessary advertising. No doubt some county societies would consider such a card as entitling the owner to censure. 2. It would certainly be unprofessional conduct for a physician to advertise in the lay papers that "he would treat free of charge all patients calling at his office during certain hours or on certain days." No specious apparent justification of such a procedure can alter its true unprofessional character. It is right for any physician to arrange with his charity patients to call on him at a certain convenient hour. To advertise the fact in the newspapers would be highly reprehensible. To make all who can afford it pay for medical care is eminently proper, but the correct methods for attaining that end necessitate no advertising.

HOW LONG SHALL THE PUERPERA REMAIN IN BED?

————————, ———, May 5, 1905.

To the Editor:—A physician who recently returned from a trip to Chicago has announced that he learned in a postgraduate school of that city how to conduct a labor by which the woman could be up and about in three days. Only as late as last year I had it drilled into me that the process of involution was a necessarily slow one, and required the recumbent posture for its most complete and perfect consummation. It has been my practice for years, with the physiologic processes of the postperineum in mind, to require my patients to keep in bed for ten days to two weeks after labor. I wish to know if any reputable teacher of obstetrics gets his patients out of bed three days after labor, and so teaches the physicians who come for postgraduate instruction. If such is the case, I want to know something about it.

X. Y. Z.

ANSWER.—Many obstetricians have come to the conclusion that the common practice of keeping a puerpera in bed from ten to fourteen days and then letting her get up for several hours at a time is not satisfactory. The long lying in bed without exercise is apt to produce disturbances of the digestion, excretion and circulation with weakened muscles and tender joints. When a patient so weakened and with disarranged functions gets up and remains up for some hours she generally has a return of the lochia, a backache and a feeling of weakness which is far from normal. Recently some obstetricians have thought to obviate this by letting the patient get up on the second or third day of the puerperium. This is in line with the practice of a few surgeons who have their laparotomy patients get up on the second or third day. There seems to be no danger to life in this practice, but the great balance of authority is still opposed to this extreme teaching, and probably will always be opposed to it. After the long strain of pregnancy a woman needs some rest, and the proper involution of the pelvic organs and of the abdominal walls is favored by the horizontal position. The objections to the prolonged rest in bed can be overcome by the employment of suitable bed exercises, such as those described in the paper by Bacon on "Massage and Exercise in the Management of the Puerperium," published in THE JOURNAL, Aug. 16, 1902. With such exercise a rest of seven to fourteen days is an advantage, and if the patient begins to walk and sit a little at a time and progress slowly she will make the safest and most satisfactory convalescence.

MODIFICATION OF COW'S MILK.

BALTIMORE, May 2, 1905.

To the Editor:—Will you kindly inform me how to answer the following questions, which were given at the state board examination in Baltimore, June and December, 1904:

1. Write formula for a mother to use in home modification of cow's milk to yield the following proportions: Total quantity, 40 ounces; fats, 3 per cent.; proteids, 2 per cent.; sugar, 6 per cent.; alkalinity (expressed in limewater), 10 per cent.

2. About what percentage of fats, proteids and sugar should the following milk formula yield: Gravity cream, 5 oz.; skimmed milk, 5 oz.; sugar of milk, 1 oz.; water, a sufficient quantity to make 20 oz.

Kindly mention some text-books which may be consulted with reference to these questions. D. E. RITTER.

ANSWER:—Numerous formulæ and tables for use in percentage modification of cow's milk have been proposed by different writers, but many of these are somewhat complicated and hard to remember. Since the exact composition of milk and cream is rarely known and different specimens differ greatly, there can be only a rough approximation to accuracy. For house modification, top milk or so-called gravity cream is generally used unless cream of a certified composition can be obtained. The upper 6 to 7 ounces taken from a quart bottle of good milk, which was bottled shortly after milking, and for at least four hours has been kept cool contains about 16 per cent. of fat, while it retains about the same proportion of proteids as whole milk. With such a cream and with a good whole milk whose composition is about 4 per cent. fat, 4 per cent. proteid and 4 per cent. sugar, it is perhaps the simplest way to compute the formula required by the first question by means of simple algebraic equations, as follows:

Let x equal No. oz. of cream; y, No. oz. milk; z, No. oz. water.

Then $x + y + z = 40$ (1).

Since the percentage of fat in x oz. of cream is 16 and in y oz. of milk is 4 and in the mixture is 3, then:

$16x + 4y = 3(x + y + z)$ (2), or

$13x + y = 3z$ (3).

Since also the percentage of fat in both cream and milk is 4 and in the mixture 2, then:

$4x + 4y = 2(x + y + z)$ (4), or

$x + y = z$ (5).

Substituting the value of z in equation 1: $x + y = 20$ (6).

Also in equation 3 and we have: $5x = y$ (7).

Combining equations 6 and 7, we have: $x = 3\,1/3$.

Hence: $y = 16\,2/3$, and

$z = 20$.

To obtain 6 per cent. of sugar in the mixture, since both the cream and milk contain only about 4 per cent., we should need 2 per cent. of 20 oz. and 6 per cent. of 20 oz. to sweeten the water, which would amount to 1.6 oz. or about 10 level teaspoonsful of milk sugar. Ten per cent. of limewater would be, of course, 4 oz. The formula then would be:

3 1/3 oz. "gravity cream."
16 2/3 oz. of milk.
16 oz. of sterile water.
4 oz. of limewater.
Ten level teaspoonsful of milk sugar.

In the second question the proportion of cream, milk and water are 1, 1 and 2, hence:

	Fat.	Proteid.	Sugar.
Cream	16	4	4
Skimmed milk	½	4	4
Total	16½	8	8
Dividing by 4:	4⅛	2	2

To 20 oz. of the mixture 1 oz. or 5 per cent. of milk sugar is added, which, combined with 2 per cent., makes 7 per cent. Hence the percentage of the food constituents is about 4 per cent. of fat, 2 per cent. proteids and 7 per cent. sugar.

The recent text-books on children's diseases contain certain directions on modifying milk, and we may also refer to recent monographs on "Infant Feeding" by Chapin and by Pritchard, and also to articles easily found from the Index to Current Medical Literature in THE JOURNAL, printed semi-annually.

State Boards of Registration

COMING EXAMINATIONS.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

California April Report.—The Board of Medical Examiners of the State of California reports the written examination held at San Francisco, April 4-6, 1905. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 56, of whom 39 passed and 17 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Northwestern Univ. Med. School, Ill.	(1903) 80.6; (1901) 89; (1890) 83.5.	
Med. Dept. Univ of Cal	(1904) 83.6, 80.8, 79.1,	81.1
College of Phys. & Surgeons, Chicago	(1902)	76
Jefferson Medical College, Philadelphia	(1885)	84.2
University Med. Coll. of Missouri	(1904)	75.1
American Medical Missionary College	(1904)	84.1
College of P. & S., New York	(1902)	87.3
Rush Medical College, Illinois	(1903)	87.3
Harvard Medical School	(1896) 80.3; (1898)	77.6
Cooper Medical College, S. F.	(1904) 82.2, 82.1, 82; (1905)	88.2
Coll. of P. & S., S. F.	(1905) 80.1, 79.1, 75.8; (1904) 80.8,	75
Med. Dept. Univ. of Cal	(1904) 83.6, 80.8, 79.1,	81.1
Coll. P. & S., Scotland	(1893)	80.3
Faculty of Medicine, Paris, France	(1905)	86.8
Hahnemann Med. Coll. of the Pacific.	(1904) 81.5; (1903)	75.4
University of Michigan	(1902) 87.3; (1901)	75
University of Minnesota	(1901)	78.2
University of Vermont	(1904)	77.4
Johns Hopkins Med. School	(1899)	82.8
Trinity University, Canada	(1904)	80.3
Washington University, Missouri	(1903)	75
Kentucky School of Medicine	(1885)	76.5
Homeopathic Medical College, Missouri	(1897)	83.3
Albany Medical College, New York	(1892)	82.5
FAILED.		
Univ. of Michigan	(1892) 57.3; (1872)	43.8
Rush Medical College	(1880)	42
Harvard Medical School	(1887)	68.1
Amer. Med. Missionary College	(1900)	67.6
Kentucky School of Medicine	(1890)	43.6
College of P. & S., S. F.	(1904) 72.7; (1905)	71.6
Bennett Medical College	(1895)	51.3
Hahnemann Med. Coll. of the Pacific.	(1904 81.5; (1903)	75.4
University of Pennsylvania	(1899)	64.1
Hering Medical College	(1897)	63.5
Laura Memorial Woman's College	(1903)	62
Cooper Medical College	(1903)	70.4
Central College of P. & S.	(1886)	64.7
Long Island College	(1885)	63.4
College of P. & S., Chicago	(1901)	68.2

Idaho April Report.—The secretary-elect of the Idaho State Board of Medical Examiners is Dr. J. L. Conant, Jr., Genesee, Idaho, who succeeds Dr. R. L. Nourse. At the written examination held at Boise, April 4, the number of subjects examined in was 12; total number of questions asked, 110; percentage required to pass, 75; number examined, 30, of whom 19 passed and 11 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Chicago Med. Coll	(1877)	85.5
Rush Med. Coll	(1903) 78.8; (1897) 82.7; (1902)	85
Toronto Med. Coll	(1900)	90.5
Central Med. Coll	(1898)	86.2
Denver and Gross Med. Coll.	(1903) 91.8; (1901) 86.7; (1903) 85.7.	
Illinois Med. Coll	(1905)	89.1
College of P. & S., Chicago	(1901)	96.4
Trinity Med. Coll	(1902) 89; (1898)	88.6
N. W. Woman's Med. Coll	(1901)	85.8
Chicago Homeo. Med. Coll	(1899)	90.1
University of Iowa	(1904)	82.6
University of Colorado	(1904) 89.6,	85.6
Med. Coll. of Paris, France	(1900)	81.8
FAILED.		
Howard Med. Coll	(1892)	70.6
University of South	(1904)	73.6
College of P. & S., Chicago	(1895)	69.8
Rush Med. Coll	(1890) 72.7; (1902)	71.9

FAILED.

College.	Year Grad.	Per Cent.
Starling Med. Coll	(1877)	68.8
Barnes Med. Coll	(1893)	55
University of Nebraska	(1903)	68.7
Chicago Homeo. Med. Coll	(1879)	47.2
Bennett Med. Coll	(1900)	58.1
Ohio Med. Coll	(1889)	64.1

Indian Territory April Report.—Dr. B. W. Caldwell, secretary of the Board of Medical Examiners, Central District Indian Territory, reports the written examination held at South McAlester, April 4-6, 1905. The number of subjects examined in was 13; total number of questions asked, 130; percentage required to pass, 75. The total number of applicants examined was 29, of whom 21 were undergraduates. Fourteen passed, of whom 11 were undergraduates; 15 failed, of whom 10 were undergraduates and 1 not a graduate, but licensed to practice in Texas and in Louisiana. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Fort Worth Univ. (undergraduates)		77, 86, 79
College of P. & S., Dallas	(1905)	76, 76, 75
Baylor University (undergraduates)		81, 75
Barnes Med. Coll. (undergraduate)		86
Coll. of P. & S., Kansas City (undergraduates)		75, 79
Coll. of P. & S., St. Louis (undergraduate)		75
Gate City Med. Coll. (undergraduate)		75
Memphis Hosp. Med. Coll (undergraduate)		81

FAILED.

Atlanta Med. Coll	(1879)	71
Coll. of P. & S., Dallas (1905) 55; (undergraduates)		61, 71
University of Arkansas (1893) 53; (undergraduate)		73
Memphis Hosp. Med. Coll. (undergraduates)		72, 74, 73
Kentucky School of Med	(1901)	65
Fort Worth Univ. (undergraduate)		47
Baylor University (undergraduates)		73, 72
Gate City Med. Coll. (undergraduate)		74
No college; licensed in Texas and Louisiana		41

Kentucky April Examination Questions.—At the examination held by the Kentucky State Board of Health, April 25, the following questions were asked:

BACTERIOLOGY.

1. How do cells multiply? 2. What is a germicide? 3. How would you secure a pure culture of the *Bacillus typhosus*? 4. Give Koch's rules in regard to bacterial cause of the disease. 5. Describe the *Bacillus tuberculosis* and detail a method of staining it.

HYGIENE.

1. Define hygiene. 2. How would you manage a case of phthisis pulmonalis to avoid danger to the other members of the family? 3. How would you manage a case of scarlet fever to prevent its spread, and what precautions would you take to avoid conveying it on your own clothing or person? 4. What is the source and danger of carbon monoxid in living rooms? 5. What are the qualities desirable in water for drinking purposes?

PHYSICAL DIAGNOSIS.

1. Give the abnormal heart sounds and the point of greatest intensity of each. 2. Give method of examination in suspected pleuritic effusion. 3. Give physical signs and method of examination in ascites. 4. Give the landmarks for the colon. 5. Give the physical signs for chronic salpingitis.

ANATOMY.

1. Describe the great sciatic nerve. 2. Describe the hypoblast and mesoblast, and tell what structures are formed by each. 3. Describe one of the following bones: Femur, radius or astragalus. 4. Describe the circle of Willis. 5. Describe the deltoid muscle. 6. Give the principal points to which the pneumogastric nerve is distributed. 7. Describe the gross and minute anatomy of the kidney, and give relations of structures entering and leaving it. 8. Name the muscles of the gluteal region. 9. Describe Poupart's ligament. 10. Describe the foramen of Winslow.

OBSTETRICS.

1. Describe the mechanism of a normal labor. 2. Give symptoms, causes and treatment of acute mastitis. 3. Differentiate between pregnancy and fibroid of the uterus. 4. Give the cause and treatment of postpartum hemorrhage. 5. How would you diagnose and manage a breech presentation? 6. Give the method of determining the quality of the lacteal secretion. 7. Give the diagnosis and treatment of fetal death in utero. 8. Give cause, diagnosis and treatment of puerperal eclampsia. 9. Give indications for and methods of podalic version. 10. Give prognosis for mother and child in placenta prævia.

SURGERY.

1. What is epistaxis? Give causes. How would you treat it? 2. Give the most common seat of fracture of the lower jaw and the treatment. 3. Give the general points of difference between malignant and non-malignant tumors. 4. Give the symptoms, methods of diagnosis and treatment of an enlarged prostate. 5. What are the varieties of fistula in ano? Give treatment. 6. Give the classification of aneurisms and tell how spontaneous recovery may occur. 7. What is a sprain and tell what tissues are involved. Give treatment for sprained ankle. 8. Give causes and treatment of varicose veins of lower extremity. 9. How may a fatty embolism of the kidney occur after a fracture? 10. Describe a carbuncle and give treatment.

PHYSIOLOGY.

1. Describe the various kinds of blood corpuscles, their origin and function. 2. Name the principal digestive enzymes and their functions. 3. Describe a cardiac cycle and give the phenomena attending it. 4. Describe the reflex centers. 5. Give the function of the skin. 6. Give the functions of the lungs, describing the various processes. 7. Give the physiology of vision. 8. Describe the lymphatic system, giving its functions. 9. How is animal heat produced, preserved and dissipated? 10. Describe the different kinds of muscular tissue and mode of action of each.

PATHOLOGY.

1. What diseases are attended with cardiac hypertrophy? 2. Describe the pathologic changes in hip-joint disease. 3. Describe the pathology of acute miliary tuberculosis. 4. Give the pathology of various forms of goiter. 5. Give the pathology of arteriosclerosis. 6. Give the pathology of the different forms of pleurisy. 7. What diseases are attended with ulceration of the intestines? 8. What general pathologic lesion characterizes chronic alcoholism? 9. Give the pathology of rickets. 10. What is a parasite? A saprophyte?

CHEMISTRY.

1. Mention ten elements, giving symbol, anatomic weight and valancy of each. 2. What is sulphur? How is it obtained? Give test for it. 3. How many kinds of heat? Describe them. 4. Give tests in detail for albumin in urine; sugar. 5. Define the meaning of the prefixes hypo-, proto-, bi- and per- in chemical nomenclature. Give examples. 6. Name the alkaline metals. 7. What are alcohols? How classified? Give an example of each class. 8. How determine the presence of organic matter in water? 9. What are acids? What are salts? How is each produced? 10. Give Marsh's test for arsenic.

OPHTHALMOLOGY.

1. Give the cause and symptoms of ophthalmia neonatorum. 2. Describe the iris. 3. What is the treatment for ptosis of the eyelid? 4. (a) How would you detect a foreign body in front of the lens? (b) Behind the lens? 5. Diagnose cataract.

OTOLOGY.

1. Give symptoms of acute otitis media. 2. Give diagnosis of mastoid abscess. 3. What ear symptoms indicate fracture of the skull? 4. Give diagnosis and treatment of eczema of the external auditory canal. 5. What ear complications may result from tonsillitis?

MEDICAL JURISPRUDENCE, MENTAL AND NERVOUS DISEASES.

1. What is malpractice? 2. How would you distinguish human blood stains on clothing? 3. What are the symptoms of poisoning by wood alcohol? 4. When is abortion legally justifiable? 5. How would you differentiate between (a) narcotic poisoning; (b) drunkenness; (c) uremia and (d) concussion? 6. Differentiate between hysteria and melancholia. 7. Name and define two forms of insanity. 8. What mental conditions render a testator capable of making a will? 9. How would you distinguish between a male and a female skeleton? 10. Differentiate between infantile paralysis and idiocy.

GYNECOLOGY.

1. How would you proceed to find whether a woman whom you had just delivered had a lacerated perineum, and how would you repair it? 2. How would you diagnose and treat acute gonorrhea in the female? 3. What are the most common benign growths found in the cavity of the uterus; causes, symptoms and treatment? 4. What would you suspect in a woman of fifty with a slight, constant, bloody uterine discharge, and how would you confirm or disprove your diagnosis? 5. How would you diagnose and treat ectopic gestation?

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending May 13, 1905:

Reno, Wm. W., asst.-surgeon, relieved from temporary duty on transport *Sumner*, and will return to his proper station at Fort Myer, Va.

Palmer, Fred W., asst.-surgeon, returned to U. S. Rifle Range, Arcadia, Mo., from detached duty at Jefferson Barracks, Mo.

Smith, Herbert M., asst.-surgeon, reported at Fort McDowell, Cal., for temporary duty.

Ashford, B. K., asst-surgeon, reported at Aibonito, P. R., on special duty with the governor of Porto Rico.

Mason, Chas. F., surgeon, appointed member of board of officers to select site for new Army post in the vicinity of Buffalo, N. Y.

Rhoads, Thos. L., asst.-surgeon, left West Point, N. Y., on ten days' leave of absence.

Baily, Howard H., asst.-surgeon, left Fort Myer, Va., on ten days' leave of absence.

McCulloch, C. C., Jr., surgeon, granted ten days' leave of absence.

Wadhams, S. H., asst.-surgeon, on being relieved from duty on transport *Logan*, ordered to Alcatraz Island, Cal., for duty.

Fauntleroy, P. C., asst.-surgeon, granted twenty days' leave of absence.

Maus, Louis M., deputy surgeon general, ordered to Fort Logan H. Roots, Ark., Forts Reno and Sill, O. T., on inspection duty.

Owen, Wm. O., surgeon, relieved from treatment at Army and Navy General Hospital, Hot Springs, Ark., and ordered to join proper station, Fort Logan, Colo. Same order grants him three months' sick leave of absence.

Truby, A. E., asst.-surgeon, relieved from duty at Alcatraz Island, Cal., and ordered to Presidio of San Francisco for duty with Company B, Hospital Corps. Granted ten days' leave of absence.

Havard, Valery, asst.-surgeon general, returned to duty as chief surgeon, Department of the East, from detached duty.

Marrow, Chas. E., asst.-surgeon, left Fort Sheridan, Ill., on thirty days' sick leave of absence.

McAlister, John A., dental surgeon, arrived at Presidio of Monterey, Cal., for duty.

Daywalt, George W., contract surgeon, arrived at Jackson Barracks, La., for temporary duty.

McCallum, Francis M., contract surgeon, returned to his proper station, Fort D. A. Russell, Wyo., from temporary duty at Fort Washakie, Wyo.

White, J. Samuel, contract surgeon, returned to station, Fort Snelling, Minn., from Camp Lakeview, Minn.

Holmes, Thomas G., contract surgeon, returned to Fort Wayne, Mich., from leave of absence.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending May 13, 1905.

Hull, H. F., asst.-surgeon, detached from the *Franklin* and ordered to the Naval Hospital, Philadelphia.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 10, 1905:

Pettus, W. J., asst.-surgeon general, granted leave of absence for two days from May 4.

Carrington, P. M., surgeon, detailed to represent the service at meeting of the American Association for the Study and Prevention of Tuberculosis at Washington, D. C., May 18-19.

Lumsden, L. L., P. A. surgeon, relieved from duty at Philadelphia, directed to proceed to Baltimore and to report to commanding officer of United States practice ship *Chase* for temporary duty.

Billings, W. C., P. A. surgeon, relieved from duty at Quebec, Canada, directed to proceed to Seattle, Wash., and to report to commanding officer of the United States steamer *Perry* for temporary duty.

Kerr, J. W., P. A. surgeon, relieved from duty at Ellis Island, N. Y., directed to proceed to Quebec, Canada, for duty in office of the United States Commissioner of Immigration.

Robinson, D. E., P. A. surgeon, relieved from duty at Port Townsend Quarantine, directed to proceed to San Francisco and to report to commanding officer of United States steamer *Manning* for temporary duty.

Holt, J. M., P. A. surgeon, granted leave of absence, on account of sickness, for twenty-three days.

Foster, J. P. C., acting asst.-surgeon, granted leave of absence for ten days from April 17.

Stanton, J. G., acting asst.-surgeon, granted leave of absence for eight days from May 10.

Gahn, Henry, pharmacist, to report at Washington, D. C., for special temporary duty.

Brock, G. H., pharmacist, granted leave of absence for thirty days from May 18.

Troxler, R. F., pharmacist, to report to medical officer in command, Marine Hospital, Port Townsend, Wash., for temporary duty.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended May 12, 1905:

SMALLPOX—UNITED STATES.

California: Los Angeles, April 15-22, 1 case; San Francisco, April 22-29, 2 cases.
District of Columbia: Washington, April 30-May 6, 7 cases.
Florida: Jacksonville, April 30-May 6, 8 cases.
Illinois: Chicago, April 30-May 6, 13 cases, 3 deaths.
Kentucky: Covington, April 30-May 6, 1 case; Lexington, April 22-29, 1 case.
Massachusetts: Boston, April 30-May 6, 1 death.
Michigan: Grand Rapids, April 22-May 6, 47 cases, 5 deaths.
Missouri: St. Joseph, April 30-May 6, 20 cases; St. Louis, May 1-8, 11 cases, 2 deaths.
Ohio: Cincinnati, April 29-May 5, 8 cases; Toledo, April 22-May 6, 7 cases.
Pennsylvania: Lebanon, April 30-May 6, 3 cases.
Wisconsin: Appleton, May 1-8, 4 cases, 1 death; La Crosse, April 22-29, 1 case.

SMALLPOX—INSULAR.

Hawaii: Honolulu, April 24, 1 case on steamship *Coptic* from Oriental ports.

SMALLPOX—FOREIGN.

Africa: Cape Colony, March 25-April 1, 1 case; Monrovia, March 4-11, 10 cases, 2 deaths.
Brazil: Pernambuco, March 15-31, 240 deaths; Rio de Janeiro, April 2-9, 3 cases, 5 deaths.
Ecuador: Guayaquil, April 11-18, 3 deaths.
France: Paris, April 15-22, 11 cases.
Great Britain: Bradford, April 1-22, 10 cases; April 15-22, Cardiff, 1 case; New Castle-on-Tyne, 1 case; Nottingham, 4 cases; Southamptom, 2 deaths among cases previously reported; South Shields, 2 cases.
India: Bombay, April 4-11, 86 deaths; Calcutta, April 1-8, 6 deaths; Karachi, April 2-9, 15 cases, 6 deaths; Madras, April 1-7, 9 deaths.
Italy: Catania, April 6-27, 4 deaths.
Norway: Christiania, April 8-15, 1 case.
Russia: Moscow, April 8-15, 5 cases; Odessa, April 15-22, 5 cases, 3 deaths; St. Petersburg, April 1-15, 24 cases, 7 deaths.
Spain: Barcelona, April 10-20, 10 deaths.
Straits Settlements: Singapore, March 18-25, 2 deaths.

YELLOW FEVER.

Panama: Colon, Jan. 23-April 2, 6 cases, 3 deaths; Panama, Jan. 1-April 29, 50 cases, 20 deaths.

CHOLERA.

India: Calcutta, April 1-8, 58 deaths.

PLAGUE.

Africa: Cape Colony, March 25-April 1, 5 cases, 1 death.
Arabia: Aden, April 7-14, 6 cases, 5 deaths.
India: General, March 25-April 1, 65,000 cases, 57,702 deaths; Bombay, April 4-11, 765 deaths; Calcutta, April 1-8, 712 deaths; Karachi, April 2-9, 104 cases, 176 deaths; Rangoon, to April 11, 500 cases, 380 deaths.
Mozambique: Govura, Feb. 2, present.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
West Virginia State Medical Association, Wheeling, May 24-26.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.
Rhode Island Medical Society, Providence, June 1.
Arizona Medical Association, Prescott, June 1-2.
Minnesota State Medical Society, St. Paul, June 1-2.
American Laryngological Association, Atlantic City, June 1-3.
American Laryn., Rhin. and Otol. Society, Boston, June 5-7.
American Orthopedic Association, Boston, June 6-8.
Indiana State Medical Association, West Baden, June 7-9.
Maine Medical Association, Portland, June 7-9.
Wisconsin State Medical Society, La Crosse, June 8.
Amer. Assn. of Genito-Urinary Surgeons, Montreal, June 13-14.
Massachusetts Medical Society, Boston, June 13-14.
American Pediatric Society, Lake George, N. Y., June 19-21.
Medical Society of New Jersey, West End, June 20-22.
Indian Territory Medical Association, Tulsa, June 20-22.
American Climatological Association, Detroit, Mich., June 28-29.
Michigan State Medical Society, Petoskey, June 28-30.

STATE MEDICAL ASSOCIATION OF TEXAS.

Thirty-Seventh Annual Meeting, held in Houston, April 24-28.

The President, DR. FERDINAND E. DANIEL, Austin, in the Chair.

President's Message.

At the meeting of the house of delegates the president submitted his annual message and recommendations in which he mentioned especially the earnest and sustained, but unsuccessful, efforts to secure legislation in the interest of science and public health; the outrageous veto of the anatomic bill; and referred to the bill for the formation of the State Board of Health to be presented to the next legislature, which covers the ground of sanitary science, renders unnecessary special acts regulating the sale of patent medicine, narcotics and other poisons and adulterated foods, drinks and drugs; prevents the pollution of water supplies; provides for the disinfection of public buildings, cars, etc., and regulates the practice of medicine and the licensing power. He recommended the affiliation of the state association of dentists with the medical association and the creation of a section on stomatology and oral surgery; the passage of a by-law directing the appointment of eighteen members by the association from whom the state board of medical examiners should be selected; provision for the election of trustees and the definition of their duties; definition of the duties, powers and limitations of councilor district societies, and the continuation of the publication of the transactions in book form.

Reports of Secretary and of Treasurer.

The secretary reported a membership of 2,436, and stated that Texas ranks seventh in the list of states in the number of its physicians; fifth in the membership of state societies, and twelfth in the percentage of membership to the total number of physicians. Seven new county societies have been added during the year with a total membership of eighty-six. He recommended the establishment of a state journal and gave in detail his arguments therefor.

The treasurer's report showed a balance of $5,060 in the treasury.

Welcome.

At the opening session of the association Hon. C. R. Wharton welcomed the visiting physicians on behalf of the City of Houston; Dr. E. N. Gray, president of the Harris County Medical Association, on behalf of that body, and Dr. Samuel C. Red on behalf of the physicians of Houston.

State Journal Adopted.

After a very lively discussion the house of delegates voted to abolish the "Red Book," the annual volume of transactions, and to make the *Texas State Journal of Medicine* the official organ.

History of the Association.

DR. ROBERT H. HARRISON, Columbus, chairman of the committee on collection and preservation of records, documents

and data of value to the association, made an interesting report of the early history of the association.

Board of Medical Examiners.

DR. J. T. WILSON, Sherman, president of the board, after giving the number of applicants for examination for certificates as physicians and the results of the examination, reported the defeat in the legislature of the bill embracing the amendments to the medical acts recommended by the board in 1904. The clause which exempts the so-called "drugless doctors" was the cause of its defeat.

Annual Addresses.

PRESIDENT DANIEL delivered the annual address on "Sentiment and Science," and Dr. Jarrette D. Law, Belton, the annual oration on "The Physician and the Humanities."

Tuberculosis in Texas.

DR. MATTHEW M. SMITH, Austin, chairman of the section of state medicine and public hygiene, called attention to the fact that Texas lacks means for the prevention of the spread of tuberculosis. He urged the necessity of the establishment of an institution for the care of indigent consumptives that they may be removed from public places where their presence is a menace to the public health. The general public is sorely in need of instructions as regards tuberculosis, and greater care should be taken to prevent the further spread of the disease. The public should be educated to the observance of anti-spitting, and school children should be guarded from infection.

Election of Officers.

The election of officers resulted as follows: President, Dr. J. Edward Gilcreest, Gainesville; vice-presidents, Drs. Marvin B. Grace, Seguin; Thomas A. Rape, Ballinger, and Oliver I. Halbert, Waco; trustees, Dr. William R. Thompson, Ft. Worth; John S. Lankford, San Antonio; Charles E. Cantrell, Greenville; William C. Blalock, Dallas, and Samuel C. Red, Houston; councilors, Dr. Luther A. Grizzard, Abilene, second district; Dr. Thomas J. Bennett, Austin, seventh district; Dr. Green L. Davidson, Wharton, eighth district; Dr. John T. Moore, Galveston, ninth district, and Dr. Benjamin F. Calhoun, Beaumont, tenth district. The secretary and treasurer were elected in 1904 for a term of three years.

Fort Worth was selected as the next place of meeting.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, Thursday, March 2, 1905.

The President, DR. RICHARD C. NORRIS, in the Chair.

Indications for the Slow Induction of Premature Labor.

DR. WILLIAM R. NICHOLSON mentioned the rarer indications, such as insanity, nervous diseases, blood diseases, etc., but limited himself to the most common indications, namely: Contracted pelves, placenta prævia, heart disease, tuberculosis and toxemia. While admitting that the rapid methods of delivery may very rarely be indicated in the treatment of some of these conditions, he expressed the belief that such indications are most unusual. Thus, in placenta prævia, there might be an indication found for Cesarean section, if a primipara presented a condition of alarming hemorrhage together with rigid cervix; but, in the vast majority of the cases of this abnormality, no such indications existing, the Cesarean operation has no place. In particular, all rapid methods of cervical dilatation by means of the dilators of Bossi and Seigveaux should be avoided, unless the attendant is experienced in the use of such instruments. He is even more strongly opposed to the rapid methods of delivery in the presence of eclampsia. Cesarean section has absolutely no place here. He believes in the great value of the premature termination of pregnancy in the presence of certain grades of pelvic deformity, but is doubtful as to its utility in the presence of tuberculosis of the lung, or cardiac disease, unless in the case of the latter the cause of the alarming symptoms is felt to be due to mechanical pressure of the uterus.

The Indications for Accouchement Force.

DR. GEORGE M. BOYD said that there are two varieties of forced delivery: "(a) The rapid method, which Zincke states represents the class of cases in which the condition of the mother, and sometimes that of the child, demands a prompt and rapid termination of the pregnancy; and (b) the slow method, representing those cases in which the delivery of the child may be effected slowly, because of the absence of immediate danger to the mother, and the existence of a justifiable disregard of the life of the fetus." He described the two steps in the operation: (1) Dilatation of the lower uterine segment and cervix by stretching, tearing or cutting. (2) Removal of uterine contents manually or by resorting to instrumental interference. Dr. Boyd has found the method of manual dilatation the most satisfactory, especially in treating eclampsia.

A Relatively Rapid Method for Terminating Pregnancy.

DR. RICHARD C. NORRIS said that nature's mechanism of dilatation of the cervix should be initiated by any method of artificial dilatation. The longitudinal fibers of the uterus exert a direct pull upward of the lower uterine segment and, assisted by the downward push of the hydrostatic pressure of the bag of waters, and later of the presenting part of the fetus, the lower segment is dilated, the internal os is opened and drawn upward, the surface thus being attenuated and effaced. Mechanical stretching and thinning is not physiologic dilatation, and explains the lacerations so frequent after rapid and complete mechanical dilatation. For two years Norris has used a method combining the use of the bougie, partial mechanical dilatation, to an extent not endangering the cervix (5-7 cm.), followed by the introduction of a very large bag of the Voorhees type (capacity 600 c.c.), which, when completely distended with 480 c.c. of water, supplies an artificial bag of waters. Continuous or intermittent traction on the bag may be employed when dilatation is inordinately slow. In 35 cases of induced labor for the lesser degrees of pelvic contraction, terminated either spontaneously or by forceps or version, the older method of a bougie followed by a bag, required an average of 27½ hours. In 52 cases by the same method, the indications being toxemia, grave kidney, cardiac and pulmonary diseases, chorea, pernicious nausea, etc., the average duration, there being a larger number of spontaneous deliveries, was 34 hours. In 18 cases in which the bag and bougie were preceded by partial instrumental dilatation, the dilator being both dilator and bag-introducer, devised by himself, the average duration of labor was 8 1/5 hours for cases terminated by forceps or version and 16½ hours for spontaneous deliveries, an average duration of 12 1/3 hours for spontaneous deliveries and 5½ hours for labors terminated by version or forceps.

Methods of Inducing Labor.

DR. BARTON COOKE HIRST said that since de Ribes advocated the use of his bag for inducing labor, it has been a disputed point whether the old plan by bougies or the newer one by the inelastic bag in the lower uterine segment is preferable. He has given both methods an extensive trial, with the result that he found the bougie method the easier for the patient and operator, and if properly used, about as efficient as the bag. He gave the following statistics, and though they do not represent his total experience, the number is sufficient for the drawing of conclusions:

Induced labor by bougies alone, 174. The child was born in less than six hours after the introduction of the bougies in eight cases; between six and twelve hours in 23; between 12 and 18 hours in 33; between 18 and 24 hours in 15; between 24 and 30 hours in 11; between 30 and 36 hours in 23; between 36 and 42 hours in 11; between 42 and 60 hours in 12, and in more than 60 hours in 2, the longest time recorded being 62 hours. There were 36 cases in which the time was not recorded. In 81 per cent. of 138 cases, therefore, the child was born in less than 36 hours from the time the bougies were introduced.

Induced labor by bags alone, 23. The child was born in less

than six hours after the insertion of the bags in two cases; between 6 and 12 hours in 3; between 12 and 18 hours in 3; between 18 and 24 hours in 7; between 24 and 36 hours in 6; between 36 and 42 hours in 1; between 42 and 60 hours in 2; over 60 hours 1. The longest time record was 91 hours. In five cases the time was not noted. The delivery was accomplished under 36 hours in 83 per cent.

Labors induced by bougies and bags, 11. The time required was considerably over 24 hours in all, because much time was allowed the bougies before the bags were used. In one of these cases, 96 hours were required, and even then, in spite of the fact that the full sized Champetier de Ribes bag passed spontaneously out of the cervix, there were no pains, and the fetus was extracted from the uterus by its foot. In the cases in which Bossi's dilator was used or vaginal hysterectomy was performed delivery was naturally promptly concluded.

In Hirst's experience, the bougie method best meets the desired requirements, viz., the minimum of discomfort and risk for the patient, and the least trouble and shortest length of time for the physician. In private practice, before leaving his office the physician puts two bougies, size 17 French, in a long glass tube, filled with water into which a mercuric chlorid tablet is dropped, and the tube corked. By the time he arrives at the patient's house, the bougies are sterile. Before the bougies are put in, one or two fingers should be inserted through the cervical canal and swept around the lower uterine segment to separate the membranes. A small tampon of iodoform gauze is placed in the vagina after the bougies are inserted. The physician is notified when the pains become strong and active. He makes no examination and does not remove the vaginal packing or the bougies, until expulsive pains begin, simply devoting the time and attention required in an ordinary labor case, plus about 15 minutes or less, for the insertion of the bougies. The patient has to endure the usual suffering of an ordinary labor, plus the scrubbing of the vagina. She does not feel the introduction of the bougies. In more than four-fifths of the cases she is delivered easily after a labor of average length. He thinks any more complicated or active treatment to bring on labor unnecessary. In many instances patients respond extraordinarily well to this simple plan. In 64 out of 138 cases the child was born in less than 18 hours from the time the bougies were inserted.

In contrasting the bag method with the bougies, Dr. Hirst said the bags must be boiled; their insertion is usually painful; and, if a large one is used, preliminary instrumental dilatation of the cervix is required, for which the patient ought to be anesthetized. After the insertion it is customary to have the nurse pull on the tube attached to the bag every ten or fifteen minutes; this, with the pressure of a large foreign body in the lower uterine segment, adds to the pains of labor. The physician usually has to make frequent examinations to be sure that the bag has not been expelled from the uterus, and to detect the degree of dilatation of the os, thus increasing the risk of infection. The bags do not remain sterile; the Voorhees bag, commonly used in America, quickly becomes foul. In some of his cases the nurse has pulled the bag out prematurely or has pulled the tubing off the bag, necessitating a reinsertion; and in one case a head presentation was converted into a shoulder presentation by the largest size Voorhees' bag. In about a fifth of the cases, or in about the same proportion as with the bougies, delivery is not secured in 36 hours, and something else must be done. Thus the question arises how to manage an induced labor if the bougies or bags fail. Dr. Hirst's present preference is to insert two bougies and wait twenty-four hours; if there are no labor pains by that time, there is at least always a marked softening and elasticity of the cervix. The patient may then be anesthetized and placed on an operating table. With Bossi's dilator, the cervical canal is dilated slowly to 6 or 7 cm. Up to this point there is no danger of injuring the cervix. A forceps is then applied and the child extracted, the whole process taking about thirty-five minutes. He has induced labor by this plan six times. The woman suffers not at all in her labor. She has not felt labor pains and knows nothing about the delivery. If there is a moderate laceration of the cervix or pelvic floor, the injuries are repaired in the puerperium and there are no permanent bad consequences. He thinks there is no reason for the prejudice against Bossi's dilator exhibited frequently by those who have had no experience with it. He has used the instrument twenty-five times, nineteen times for *accouchement forcé*. The only serious lacerations of the cervix have occurred in women delivered in less than twelve minutes. At first the instrument was used in this way for desperate cases of eclampsia, and even in them there was no dangerous laceration. With a slow dilatation, twenty minutes or more, up to 6 or 7 cm., there was not much more danger of lacerated cervix than in the average labor.

If the cervix is not easily dilated with Bossi's dilator after the bougies have been in place twenty-four hours, a slow dilatation with bags, or a rapid delivery by hysterectomy is available. He thinks Norris' proposition deserves careful attention. It is to dilate the cervix up to 7 cm. with an improved and modified Gau dilator, then to insert bougies and the largest sized Voorhees bag, partially filled with water. But even with this combination of all the plans of inducing labor, an apathetic uterus demands operative delivery, in addition, just as it does with bougies alone, bags alone, or both together, and in four-fifths of the cases bougies alone would be enough without the extra trouble and discomfort entailed by the other method. Nevertheless, Norris' technic is an excellent one and will often be useful, especially in cases at a distance where the consultant will be detained until the labor is over.

DISCUSSION.

DR. W. REYNOLDS WILSON'S experience in the induction of labor has been mostly confined to cases of threatened eclampsia and placenta prævia. He has had more or less experience with induction of labor for contracted pelves. In his opinion there are two classes of cases to be considered in the induction of labor. One is that which not only yields readily to the bougie, but to careful packing of the cervical canal and vagina, which he considers a very important adjunct to the use of the bougie. In another class of cases, introduction of the bougie will not cause softening of the cervix or promote uterine contraction. He believes that there is never any dilatation of the cervix without a corresponding degree of contraction in which the whole uterine organ takes place. With this in mind mechanical dilatation in most cases will be shown to be absolutely unnatural. There is, he said, a set of cases in which the cervix is elongated and in which the reflexes are absent, where the bougie is absolutely ineffective, and where he would imagine also the bag would be ineffective. The only possible way to induce dilatation in these cases is to attempt to soften the cervix by careful packing, then by manual dilatation afterwards, making allowance for the fact that time is the most essential element in the procedure. These undilated cases will always remain difficult cases, and it is a mistake to believe that they must be treated by methods of successive mechanical dilatation, because the prolonged treatment and the want of observance of the proper precautions against infection will probably all be against the interest of the patient. Wilson has noticed in certain cases, where it has been necessary to induce labor, that the unyielding quality of the cervix is very often accompanied with a condition of cervical gonorrhea. These cases are apt to be followed by symptoms of local infection and by chronic subinvolution.

He believes also that it would be well to call attention to the shock which accompanies *accouchement forcé* in these cases. The eclamptic cases are those which yield most quickly to dilatation. They are not the cases in which to perform *accouchement forcé*. When rapid dilatation is spoken of, it may be that procedure is meant, but where the eclamptic attack has really come on, the chances are that the labor can be carried on rather promptly. The rapid termination of labor in eclampsia is conservative treatment. In order to cure an eclamptic patient she must first be relieved of her pregnancy. The most modern theory of eclampsia rather explains that; that is, that the syncytial tissue finds its way into the maternal circulation causing to be created in the

serum a corresponding and compensating antidote to the poison which has been described by the Germans as syncytiolysin. If this compensatory or overcoming serum is not sufficiently produced, then the poison is not counteracted. On the other hand, if the antidote is produced in too great an amount to be neutralized, it in turn acts as an irritating toxin. If it is a sound theory, as soon as the syncytial tissue ceases its activity, the patient should be relieved of the poison; and, therefore, emptying the uterus rather favors not the elimination of the poison, but the cessation of its production.

DR. O. HOPKINSON, JR., considered all methods of interfering with pregnancy dangerous and only to be undertaken with an appreciation of the responsibility attached. The choice of the methods, he thinks, should be determined after a careful study of the case, as every case is a law unto itself. He prefers *accouchement forcé* in all cases in which the cervix has been previously dilated, that is, in multiparæ. He uses the Goodell dilators to the full extent, and then the Harris or Edgar method and delivers by version or forceps or allows spontaneous termination, as the occasion demands. If there is no need or haste, he prefers the bougie, or packing with gauze. Both of these methods he considers uncertain, and if the patient shows signs of fever or rapid pulse, he terminates by *accouchement forcé*.

DR. STRICKER COLES believes many cases are best treated by the induction of labor. In the cases where the child is too large for the pelves, if pregnancy is allowed to go to term, the fitting of the child's head to the mother's pelvis is the best index as to the time for the induction of labor. If this shows that labor should be induced before the thirty-second week, then it would be better to consider some other method of treatment. While the bougie has given good results in a large number of cases, it should be removed when labor pains become strong and regular, for when it is allowed to remain there is danger of premature rupture of membranes. This accident has not occurred, except in cases where it was left in too long. When the membranes have not ruptured, labor should be allowed to proceed normally and with as little interference with nature as possible.. If the membranes rupture prematurely, then insert the bag exhibited by Norris, which is large enough to give sufficient dilatation to deliver the child and with slight lacerations to cervix or pelvic floor. The Bossi dilator must be used with care in completing the dilatation as there is more danger of causing lacerations at that time. When obliteration of the cervix has not taken place, the Bossi dilator is a dangerous instrument if used to dilate rapidly, and under no circumstances should the cervix be dilated in less than half an hour. He thinks the operation of induction of labor is useful and will be successful if the cases are carefully studied and scientifically treated.

DR. NICHOLSON said, in regard to the etiology of eclampsia, that in the majority of cases structural changes are found in the kidneys and liver; that they may, however, be only microscopical; that there is some poison circulating in the mother's system and she is autotoxic. He fails to see what use there is in doing anything approaching *accouchement forcé* or any rapid method of delivery in a case of eclampsia. The woman is depressed by the toxins, and the question of a few hours will not make any difference in her life. While it is true that statistics show that a woman who does not become eclamptic until after her delivery is in very much less danger than if convulsed before delivery, nevertheless there is a distinct mortality in this period, and the mere fact of rapid delivery does not put a gestational case into the puerperal class. Therefore, he does not see any reason for the rapid delivery eclampsia. He believes the slow method is the method of value here.

DR. RICHARD C. NORRIS remarked that he would not like it understood that the method he described is the one he would use under all circumstances. He thinks the character of the indication for the induction of labor and the condition of the patient determines largely the method that should be used. For a case with no necessity for a short labor, if the bougie fails, he dilates the cervix mechanically and follows with dilatation by the bag. The method described has enabled him to terminate labor in 8½ hours, and is sufficiently rapid for all the complications he encounters. In cases of heart disease, eclampsia or placenta prævia, where it is to the best interest of the patient to be delivered rapidly, he uses this method in preference to the Bossi dilator or vaginal hysterectomy. It is a relatively rapid method for the termination of pregnancy, and when in the obstetrician's judgment eight or ten hours is sufficiently rapid, it is the method of choice. He could not recall a case where a more rapid delivery seemed to be necessary.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pains of Tabes.

Gowers, in *British Medical Journal*, states that the pains in tabes can be greatly relieved but can not be entirely eliminated. The exacerbations of pain do not indicate a necessary increase of the morbid process as these conditions are susceptible to gouty, rheumatic and digestive derangements. Local measures are of service in relieving the more superficial pains such as chloroform sprinkled on lint and covered with oil silk. Hypodermic injections of cocain at the upper portions of the area over which the pain is felt, administering gr. ⅛ to ¼ (.008-.015) usually stops the pain for an hour or two. Or it may be administered by cataphoresis, using a 6 to 10 per cent. solution and placing it on the anode of the galvanic current. Within a few minutes the area over which it is applied has lost its response to touch and pain. The effect continues for about twice the length of time the current has been applied.

The deeply located pains are relieved only by internal treatment, which, of course, is of service in the superficially located pains. The author recommends the coal-tar derivatives as of most value for these pains. Phenacetin and acetanilid are of great value, unless the pains are severe. Acetanilid is the more effective, and asserts its value more when given in a single large dose, and at the beginning of the attack rather than when the pains have become well developed. In the latter instance morphin may have to be given before relief is obtained, but should never be used at the discretion of the patient.

Not only to decrease the frequency of the attacks, but to diminish the severity of the pain, the author recommends aluminum chlorid in doses of five to ten grains (.30-.65) three times a day. It is readily soluble in water. He recommends also, as worthy of trial, the use of ammonium chlorid, which acts similarly, but less actively. Similar effects may be produced by the alkaline salicylates and by aspirin; the latter should be suspended in mucilage or given in capsule. These latter agents are of service, especially in those attacks of pain brought on by changes in the weather.

Cirrhosis of the Liver.

In hypertrophic cirrhosis of the liver the *Medical Press* recommends belladonna, arsenic and mercurial preparations, especially calomel administered in doses of gr. 1/5 (.012) daily for one week, after which the following outline of treatment is recommended:

℞. Sodii arsenatis .....gr. i | 06
Aquæ .....ʒx 300 |

M. Sig.: One tablespoonful morning and evening.

If ascites is present the following:

℞. Theobromin .....gr. xxx 2 |
Sodii phosphatis .....gr. xxx 2 |

M. Ft. chart. No. iii. Sig.: One powder every hour and repeated daily for three days. Or:

℞. Pulv. scillæ |
Pulv. digitalis |
Pulv. scammonii, āā.....gr. i | 06

M. Ft. pil. No. i. Sig.: One pill thrice daily.

In the atrophic form the following is recommended:

℞. Potassii iodidi .....3i 4|
Strych. sulph. .....gr. ss |03
Aquæ .....ʒx 300|
M. Sig.: One tablespoonful twice a day; and:
℞. Sodii benzoatis .....gr. v |30
Sodii phosphatis .....gr. x |65
Pulv. jaborandi fol. .....gr. ii |12
M. Ft. wafer No. i. Sig.: One wafer to be taken three hours after meals.

A pill containing aloes should be taken at bedtime.

As to the diet, attention is called to the fact that albuminoid substances produce the most stimulating effects on the liver, consequently meat should be eliminated from the diet when the liver is affected. Vegetable albuminoids, milk and eggs may be allowed, as they produce less toxic effect. Fats as a class are non-indicated, but vegetable oils and fresh butter are permissible. Milk is the best article of diet. Green vegetables, such as peas, haricots and artichokes, are permissible, but spinach, cabbage, turnips and radishes should be restricted. Alcohol, coffee and chocolate should likewise be excluded from the diet list.

Hemorrhoids.

According to T. C. Hill, in *Boston Medical and Surgical Journal*, it should be within the province of every general practitioner to treat successfully the more common rectal diseases, including hemorrhoids. Hemorrhoids may be classified, according to Hill, into external and internal, and of the former the most common forms are the thrombotic and the external connective tissue hemorrhoid. The thrombotic form is an extravasation of blood at the margin beneath the skin covering the external sphincter. It is a very painful condition, which usually lasts for two or three days, or until the clot has been absorbed and the pressure relieved on the nerves supplying the parts. They are usually caused by straining at stool, lifting, or by paroxysms of coughing. The treatment of this condition is simple and effective by first injecting with a sharp-pointed needle a 1 per cent. solution of eucain as follows: With the left index finger and thumb grasp the peri-anal skin near the tumor and pinch for a moment to render the part numb, and then insert the needle very superficially just under the skin, slowly injecting the whole of the top of the tumor. Then with a curved bistoury transfix the base of the swelling and cut outward, and if necessary use a curette to remove the clot and pack firmly with a strip of iodoform gauze and allow it to remain for twenty-four hours to prevent the formation of another clot. This procedure, Hill says, is always successful.

The "connective tissue hemorrhoid" is made up of redundant folds of peri-anal and anal skin caused by stretching this region by large hard fecal masses. A slight laceration is produced and a mild infection takes place. In the treatment of this form, when the external sphincter is acutely inflamed, but not hypertrophied, a palliative course of treatment is recommended. Constipation must be relieved. After bathing the parts with warm water and drying, he advises those procedures recommended by Goodsall and Miles of London of removing all adherent secretions and previous ointments, wiping the anal region with olive oil on cotton wool and then apply the following ointment:

℞. Zinci oxidi .....3ii 8|
Linimenti camphoræ .....ʒss 15|
Lanolini .....ʒi 30|
M. Ft. unguentum. Sig.: To be applied locally at night, and during the day dust the parts with the following powder:
℞. Zinci oxidi .....ʒss 15|
Pulv. camphoræ .....3ii 8|
Pulv. amyli .....3x 40|
M. Ft. pulvis. Sig.: To be applied locally during the day.

After the acute symptoms have subsided remove by excision, first anesthetizing with the eucain solution and excising the hemorrhoid with curved scissors and allow it to heal by granulations, or if the base is too broad the wound may be united with catgut sutures. Only two or three folds should be removed at one time, in order to avoid contraction of the anus. As to internal hemorrhoids where the patients complain of bleeding and protrusion takes place, operation is recommended in all cases. The author favors the injection method in skilled hands in such cases. He proceeds as follows: Empty the bowel by means of a saline cathartic and a large enema of soap and water; render the parts aseptic by means of a bichlorid solution and slowly inject the following:

℞. Acidi carbol. .....3ii 8|
Acidi salicylici .....3ss 2|
Sodii biboratis .....3i 4|
Glycerini (sterile) q. s. ad.....ʒi 30|
M. Sig.: Inject six to twelve drops slowly.

After the injection the hemorrhoids should be replaced within the bowel and a suppository containing one grain (.06) of pulverized opium inserted and a T bandage applied with moderate pressure over the anus. The bowels should be moved with cascara on the second night and daily thereafter.

While the writer does not believe in the exclusive use of this method, he is of the opinion that in properly selected cases where the external sphincter is somewhat relaxed, or can be dilated without much discomfort to the patient, perfect results may be obtained. But where the hemorrhoids are not large or are over three in number they may preferably be treated radically by ligature method.

Gant, in *New York Medical Journal*, states that the non-operative treatment of hemorrhoids consists in placing the patient in bed in a recumbent position, restricting the diet to liquids and semi-solids, giving laxatives and applying the ice bag and astringent remedies to reduce the swelling and inflammation. If strangulation is present with pain and spasm of the sphincter hot water compresses should be applied and suppositories containing morphin, gr. ¼ (.015), each inserted as necessary. If hemorrhage is present a small plug of gauze about the size of the little finger and three inches long should be inserted, moistened in a 2 per cent. silver nitrate solution or a 10 per cent. ichthyol or 50 per cent. balsam of Peru. But he is of the opinion that non-operative treatment is only palliative and must be followed sooner or later by operation. The operations most frequently employed are: 1, the clamp and cautery; 2, ligature; 3, excision; 4, injection.

This author prefers the clamp and cautery or the ligature methods. In uncomplicated cases he prefers the office treatment, and he has discarded cocain and eucain, and operates under local anesthesia by distending the tissues with sterile water.

Pruritus Vulvae.

The *Buffalo Medical Journal* recommends the following in the treatment of pruritus vulvæ:

℞. Acidi borici .....3ii 8|
Acidi carbol. liq. .....3i 4|
Morphinæ muriatis.....gr. i |06
Lanolini .....ʒii 60|
M. Ft. unguentum. Sig.: Apply locally.
In pruritus ani the following is of service:
℞. Resorcin .....gr. vii |45
Pulv. opii .....gr. iii |20
Ung. aq. rosæ |
Lanolini, āā.....3ii 8|
M. Sig.: Apply a small amount on absorbent cotton morning and night.

Medicolegal

Negligence of Experts.—The Supreme Court of the United States says, Oceanic Steam Navigation Co. vs. Aitken, that it is true that negligence must be determined on the facts as they appeared at the time, and not by a judgment from actual consequences which then were not to be apprehended by a prudent and competent man. This principle nowhere has been more fully recognized than by this court. But it is a mistake to say that if the man on the spot, even an expert, does what his judgment approves, he can not be found negligent. The standard of conduct, whether left to the jury or laid down by the court, is an external standard, and takes no account of the personal equation of the man concerned. The notion that it "should be co-extensive with the judgment of each individual," was exploded, if it needed exploding, by Chief Justice Tindal, in Vaughan vs. Menlove, 3 Bing. N. C. 468, 475. And since then, at least, there should have been no doubt about the law.

May Show Refusal to Submit to Examination.—The Court of Civil Appeals of Texas says, in Houston Electric Co. vs. Lawson, a personal injury case brought by the latter party as next friend for his minor son, that on the trial the company offered to prove that it had made a motion to have the court appoint a committee of physicians to examine the child to ascertain the extent of its injuries, and that the plaintiff would not agree to the granting of said motion. The plaintiff objected to this proof being made, and the objection was sustained. The court thinks it clear that it was error to exclude this evidence. It says that the extent of the child's injuries and their reasonable probable effect on its future health were put in issue by the evidence. On these issues no testimony would be as satisfactory as the opinion of competent and disinterested physicians who had made a thorough examination of the child. This source of information was closed by the refusal of the plaintiff to submit to an examination and the want of power in the court to compel such examination. When a plaintiff in a case of this character refuses to submit to an examination, the fact of such refusal is a circumstance tending to discredit his claim as to the extent of his injuries, and is admissible in evidence for that purpose. Of course, there might in many cases of personal injury be reasons for a refusal by the plaintiff to submit to an examination which would greatly weaken, if not wholly destroy, the effect of such refusal as evidence; but the refusal, and the reason, if any, given therefor by the plaintiff, are facts to go to the jury, and must be weighed by them.

Absent Treatment and the United States Postal Law.—The United States Circuit Court of Appeals, Fifth Circuit, reverses and remands for a new trial the case of Post vs. United States, as it is now entitled, the district court decision of which was reported on page 1659 of THE JOURNAL, June 18, 1904. There were four indictments under the United States statute which provides, in substance, that if any person, having devised or intended to devise any scheme or artifice to defraud, to be effected by either opening or intending to open correspondence through the United States mail, shall, in and for executing such scheme or artifice, or attempting to do so, place or cause to be placed any letter, etc., in any postoffice of the United States, such person shall, on conviction, be punished, etc. The gist of the scheme or artifice charged in each of the first three indictments was that the accused in this case advertised to practice mental healing, and received pay to treat patients "when she did not intend to administer any treatment." The court says that the evidence not tending to sustain the charge that she did not intend to administer the advertised treatment for which she was paid, a verdict of not guilty should have been directed on these indictments. If the accused intended to administer and did administer the treatment she advertised, she was not guilty of the fraud charged, although the treatment might be in fact valueless. The mere allegation that she was engaged in the business of mental healing was not an allegation of a "scheme or artifice to defraud."

In the fourth instruction there was a distinct charge that the representations made by the accused as to her ability to cure, etc., were false, and were well known to her to be false; that her promised treatment was ineffectual for the cure of any disease. It did not present a question of the lawfulness of the calling of a mental healer, or whether or not mental science is a fraud and humbug, but it presented the question of the good faith of the accused. The case, the court says, should be tried with the distinct understanding that the practice of mental healing is, in federal law, as lawful as healing with drugs. The question involved her belief in her representations and promises. While her belief was not the subject of direct proof, it might be ascertained from circumstances and by the proof of her actions and declarations. If her method of treatment was as baseless as mundane astrology, it made no difference, if the accused believed in it and practiced it in good faith and without positive intention to defraud. If, without belief in her professions or proposed treatment, and with knowledge that her representations were false, she made them to defraud, the fact that mental healing is a lawful vocation did not protect her.

In a criminal trial, where the defendant's only plea is "Not guilty," the general rule is unquestioned that the burden of proof, and the obligation to convince the jury of the prisoner's guilt beyond a reasonable doubt, as to all essential matters, including the criminal intent, is on the prosecution throughout the trial. This being the law, it was error, the court thinks, to instruct the jury, in any aspect of the case, that the burden of proof rested on the accused to satisfy the jury that she possessed the power to cure diseases, as claimed, and that her contention must be satisfactorily proved. It was one of the affirmative averments of the indictment that the representations made by the accused were false and not capable of performance by her, and the burden was on the United States to prove it.

Another point that the court makes is that, under the practice of the federal courts, the judge may express his opinion as to the weight or effect of evidence or the credibility of witnesses; but, if evidence is admitted as, and is, legal and relevant, the jury should not be peremptorily directed to ignore it. The court says that it is not holding that the accused had a right to embark in a business, and to insist that its illegality should be tested by principles beyond the understanding of others, and not by such knowledge as the courts and juries possess. The case must, of course, be tried and tested by the rules of law and by common human understanding. But when a question of fact is tested, although it may involve the existence of a power not generally recognized, evidence bearing on the question must be considered as in other cases. Science has not yet drawn, and probably never will draw, a continuous and permanent line between the possible and impossible, the knowable and unknowable. Such line may appear to be drawn in one decade, but it is removed in the next, and encroaches on what was the domain of the impossible and unknowable. Advance in the use of electricity, and experiments in telepathy, hypnotism and clairvoyance, warn us against dogmatism. The experience of the judiciary, as shown by history, should teach tolerance and humility, when we recall that the bench once accounted for familiar physical and mental conditions by witchcraft, and that, too, at the expense of the lives of innocent men aand women. In that day, it was said from the bench that to deny the existence of witchcraft was to deny the Christian religion. Juries would have done better. Then and now questions of fact were best tried by jury.

Finally, the court says, that in dealing with the issues raised by the record, it did not intend to express any opinion as to the substantiality of mental science, or whether it is founded on some occult natural law or on mere parade and mummery. The court is not a society for psychical research, charged with the duty of forming and announcing opinions on that subject. It endeavored only to make it plain that there was nothing in this case to require a departure from the ordinary rules of evidence and familiar criminal procedure.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical News, New York.

May 6.

1 *Railway Spine. E. R. Angell, Rochester, N. Y.
2 *Treatment of Non-malignant Diseases by the Roentgen Ray. R. H. Boggs, Pittsburg, Pa.
3 To What Extent are Cycloplegics Necessary in Determining the Refraction of the Eye and in the Prescribing of Lenses. F. Van Fleet, New York.
4 *Nasal Conditions Dependent on the Generative Organs. J. Sinexon, Philadelphia.
5 *Septic Thrombosis of the Femoral Vein, Following Influenza. D. F. Talley, Birmingham, Ala.
6 Sporadic Cretinism. Observations Based on Sixteen Personal Cases. E. M. Sill, New York.

1. **Railway Spine.**—This subject is discussed by Angell, who says that railway spine is a convenient and picturesque term which has hypnotized juries, as even the shock has hypnotized the plaintiff. It is dramatic, but not accurate. The damage done is not to the spine or spinal cord, but to the mind. It is a psychical disorder, not a physical one, and it is caused by a very real injury, a shock to the mental synthesis, producing

as definite symptoms for the time being as though a leg or an arm had been cut off. The proper treatment is isolation—absolute removal to the well regulated discipline and care of a hospital, where all influences make toward recovery.

2. **Roentgen Ray in Non-Malignant Disease.**—The time has come, says Boggs, when a line should be drawn between those cases that should and those that should not be treated by the Roentgen ray. It should be the physician's object to treat every patient with the therapeutic agent that is the most effective and produces a cure in the shortest time. Boggs urges: 1. That it is necessary to distinguish between the non-malignant diseases which should, and those which should not be treated by the *x*-ray. 2. That while the continual cry of technic may become tiresome to some who think the subject can be mastered in a few days or a couple of months, the method of application of the rays and the judgment of the operator accounts largely for successful or unsuccessful work. 3. That it is just as essential to administer a therapeutic dose when applying the Roentgen rays as it is when prescribing powerful drugs. 4. That idiosyncrasy is not a frequent cause of excessive dermatitis. 5. That a dosage which causes a stimulation of healthy tissues will usually produce a slight reaction in diseased tissues. 6. That at all times it should be remembered that it is not so much the *x*-ray that cures as the judgment with which it is employed. 7. That the *x*-ray is one of the best therapeutic agents known for the treatment of acne and many other skin diseases, but it is unnecessary in many instances to treat the trivial and less obstinate cases by this method. 8. That the *x*-ray, supplemented by Finsen light, is the most efficient therapeutic agent for the treatment of lupus. 9. That the *x*-ray is the most efficient agent for the treatment of certain tuberculous glands, Hodgkin's disease and selected cases of goiter.

4. **Nasal Conditions and the Generative Organs.**—Sinexon directs attention to the following points: 1. Turgescence of the nasal mucous membrane always occurs during coitus. 2. There also exists a marked degree of hyperesthesia of the nasal mucous membrane. 3. A more or less marked periodical engorgement of the nasal mucosa occurs in females coincident with menstruation. 4. This same engorgement also occurs periodically during pregnancy, demonstrating that it is not dependent on the menstrual flow. 5. Operations which destroy the functions of the generative organs cause the nares to return to the state which existed prior to the advent of puberty. 6. In lower animals sexual excitement is always accompanied by occlusion of the nares. 7. This engorgement in the human family may result in epistaxis or hydrorrhea. 8. The continued overstimulation of the nasal mucous membrane from sexual perversion results in a relaxation of the same through vasomotor paresis. 9. The long-continued hypernutrition from frequent or inordinate congestion will in time produce permanent tissue changes either of hyperplasia or atrophia. 10. These conditions are in no way dependent on hysteria or neurasthenia.

5. **Septic Thrombosis Following Influenza.**—In the case reported by Talley, the venous thrombosis began on the fourteenth day of the disease, when a marantic state of the patient was impossible. It began with recurrence of fever, which lasted four days, ended with crisis, and resembled throughout an influenza fever. The thrombosis of the femoral vein, therefore, could not be interpreted as a marantic thrombosis, but as a new development (sequela), which appeared under new febrile symptoms. The symptoms were clear, characteristic, but not severe; the disappearance of the thrombosis favorable and relatively quick.

American Medicine, Philadelphia.

May 6.

7 Methods of Inducing Labor. B. C. Hirst, Philadelphia.
8 Adulteration of Drugs. H. W. Wiley, Washington, D. C.
9 *Combined Operation of Arthrodesis and Transplantation of the Tendon of the Extensor Proprius Hallucis for the Relief of Flat Foot. H. A. Wilson and R. V. Patterson, Philadelphia.
10 *Diet in Typhoid Fever. J. B. Nichols, Washington, D. C.
11 Remarks on the Causation and Diagnosis of Hepatic Cirrhosis. J. K. Crook, New York City.
12 *Benign Strictures of the Esophagus; Report of Cases. C. D. Spivak, Denver, Colo.
13 Gynecologist and the General Surgeon; Their Respective Fields. B. H. Wells, New York.

9. **New Operation for Flat-foot.**—Wilson and Patterson present a favorable report of a new operation for flat-foot which they have employed, consisting of an arthrodesis of the astragaloscaphoid joint and the transplantation of the tendon of the extensor proprius hallucis through a hole drilled in the scaphoid bone, an adaptation of Wolf's operation for paralytic valgus. The loss of function of the transplanted extensor of the great toe is but temporary, and until the extensor brevis digitorum becomes educated to overcome the toe-drop. The after-treatment consists of well-adapted physical culture drills. This procedure has yielded better functional results than is possible by the use of arthrodesis alone. The combined operation offers no serious difficulties, the additional damage to the structures of the foot necessitated by this procedure is inconsiderable, the time required for treatment not longer, and the results obtained more certain and satisfactory.

10. **Diet in Typhoid.**—Nichols advocates a more liberal and more varied diet in typhoid than is now customary. He is opposed to the exclusive liquid diet so-called, arguing that liquid foods are not necessarily more digestible or less irritating to the bowel than are solid foods. He believes the consistency and condition of the food in the intestine is a criterion of more importance than the fluidity or solidity of the food before ingestion. Nichols gives the published results obtained from mixed and liberal feeding in typhoid, covering a total of 1,000 cases, with 77 deaths. This low mortality of 7.7 per cent. does not bear out the common apprehensions as to the dangers of departure from milk diet. Complications were not increased by the free diet. The patients were markedly more comfortable and contented, their strength appeared better maintained, convalescence was materially shortened, and from the improved resistant power the mortality rates appeared appreciably lowered, comparative statistics showing an improvement in the death rate of from 2 to 4 per cent.

12. **Benign Strictures of Esophagus.**—Spivak divides benign stricture of the esophagus into (1) congenital and (2) acquired. Acquired stricture may be divided into: 1. Organic; (a) after ingestion of corrosive substances; (b) after the healing of an esophageal ulcer; and (c) lues. 2. Mechanical; (a) presence of foreign bodies; (b) polypi; and (c) thrush. Due to compression from without, as tumors, enlarged lymphatic glands, aneurism of the aorta, periesophageal abscess; and verticulum of esophagus filled with food. 3. Spasmodic. The majority of all cases of benign stricture are due to cicatricial obliteration, the result of losses of substance, following scalds, produced by caustic substances. Spivak says the symptoms especially referable to deglutition are: (1) a short period at the beginning when swallowing is impossible—the period of esophagitis—followed by (2) a period lasting several months, when deglutition is not impeded, and (3) a period when the difficulty of swallowing gradually redevelops—the period of stenosis. During the inflammatory period he advises rest; alkalies in acid poisoning, and vice versa, ice to the sternum, and stimulants. Gradual dilation should be employed early. Conic, semisolid elastic esophageal bougies should be used. Metallic or whalebone sounds with olive tips should be avoided. The bougie should be left in the esophagus for several minutes. At first the sound should be passed every day, and later every other or third day. When dilation is complete, a bougie should still be passed at intervals of one month to prevent relapse. He reports three cases.

Medical Record, New York.

May 6.

14 *System and Expedition in Office Practice, Office Plans and Details. R. L. Dickinson, New York.
15 *Present Limitations of Serum Therapy in the Treatment of Infectious Diseases. H. W. Berg, New York.
16 Present Status of Roentgen Ray Therapy. R. H. Boggs, Pittsburg, Pa.
17 Rectal Abscess Containing Gonococci Without Any Accompanying Gonorrhea. F. R. Sturgis, New York.
18 *Cause of Cerebrospinal Meningitis. S. J. Maher, New Haven, Conn.
19 *Scissors for Cutting Secondary Membranous Cataracts. E. L. Oatman, Brooklyn.
20 Primary Epithelioma of the Epiglottis. D. B. Delavan, New York.
21 *Emergency Poisoning Case. J. W. Wainwright, New York.

14. **System and Expedition in Office Practice.**—R. L. Dickinson discusses numerous methods by means of which it is

possible for the physician to economize time in office work and so increase his capacity for work.

15. **Limitations of Serumtherapy in Infectious Diseases.**—Berg reviews the principles underlying the production of antitoxic and antibacterial sera and their therapeutic application. The bacteria concerned in the production of the specific infectious diseases fall into three classes. First, those which, like the bacilli of diphtheria and of tetanus, produce a virulent, a real toxin which is set free in the culture media. Second, those bacteria which secrete but little or no free toxin, but do contain a powerful endotoxin, which is partly liberated only on the death and disorganization of the bacterial cells; good examples of this class are the pneumococcus, typhoid bacillus, the streptococci, etc. Third, those bacteria that produce no free toxins nor have the bacterial cells endotoxins of any power, but in which the cell plasma contains other poisons in addition to the protein poisons common to all bacterial cells. The most important member of this group is the tubercle bacillus. Against the first group the antitoxic sera are available, but their success depends largely on the interval of time that has elapsed since the infection began, for the antitoxin can bind only such toxin as has not yet had time to enter into combination with the body cells. In tetanus the poison becomes fixed in the central nervous system so rapidly that the serum has little chance for effect. The difficulty with the antibacterial sera is that the body's supply of alexin is very small, so that theoretically the injection of the serum should be accompanied by an additional dose of fresh normal animal serum to supply this deficiency; an impracticable procedure. The attempts to treat one disease by means of the antiserum of another, as has been attempted by injecting diphtheria antitoxin in pneumonia and cerebrospinal meningitis is repugnant to the principles of scientific serumtherapy and tends to discredit its principles. The use of Moser's antistreptococcus serum in scarlet fever in the Vienna hospitals has not given results equal to those obtained by the author in the Riverside Hospital, following the classical lines of treatment. The introduction into the body of a child of the large amounts of serum required by Moser's plan is also objectionable, owing to a possible hemolytic action.

18. **Cause of Cerebrospinal Meningitis.**—Maher describes cultural and animal experiments undertaken with pus from the spinal canal of an adult sick with cerebrospinal meningitis. The results lead him to conclude that the diplococcus of Weichselbaum is only one phase in the life cycle of an organism, which at times is larger and rod shaped, at others small and of the shape of the pneumonia diplococcus, and probably at others of yeast shape.

19. **Scissors for Cutting Secondary Membranous Cataracts.**—Special scissors have been designed by Oatman to be used for cutting the membranous bands which sometimes form after cataract extraction. One point is blunt and the other, which is sharp, is ground to a knife edge on its back, so that after introduction into the anterior chamber it may easily perforate and pass below the membrane.

21. **Emergency Poisoning Case.**—The case gotten up by Wainwright is compact and handy, neatly finished in black leather, with a substantial handle. Its outside dimensions are 12 inches long, 4¼ inches wide, and 6 inches high. The contents are as follows: One stomach tube, one tongue forceps, one mouth gag, one 2-oz. glass syringe, one hypodermic syringe. It also contains large bottles of magnesium sulphate, of zinc sulphate in 20-grain powders, powdered mustard, calcined magnesia, and chloroform. The 1-oz. vials contain amyl nitrite, alcohol, dialyzed iron, acetic acid, oil of turpentine, and aromatic spirits of ammonia. The ½-oz. vials contain powdered ipecac, powdered opium, potassium bromid, chloral hydrate, potassium permanganate. The hypodermic tablets are of strychnin sulphate, morphin sulphate, muriate, apomorphin hydrochlorate, nitroglycerin, digitalis, and atropin sulphate. It is believed that this emergency poisoning case contains practically all the essential means for carrying on a successful fight against the effects of poison in the human system. The case also contains a manual on acute poisoning, giving special symptoms, simple tests, chemical antidotes, physiological antagonists and treatment.

Boston Medical and Surgical Journal.

May 4.

22 *Certain Aspects of the Differential Diagnosis Between Epilepsy and Hysteria. J. J. Putnam and G. A. Waterman, Boston.
23 *Subacute Perforation of the Stomach, with Report of Three Cases. F. B. Lund, Boston.
24 *Senile Epilepsy. G. K. Collier, Sonyea, N. Y.

22. **Epilepsy and Hysteria.**—Putnam and Waterman report eleven cases to show how difficult the differential diagnosis between hysteria and epilepsy may occasionally be, and how much injustice the physician is liable to do his patients unless he keeps himself ready to revise his judgments. The authors suggest that the neurological staff of every dispensary and hospital should embrace one or more members skilled in psychopathic researches; by whom all doubtful cases should be reviewed from time to time. Although it is correct, in general, to say that the diagnosis of so-called idiopathic epilepsy is considerably more grave than that of hysteria, and that these two affections represent different tendencies, yet this statement should not be taken as absolute without qualification. It is probable that the term epileptic, as implying a tendency to outbreaks of certain sorts, covers a variety of pathologic tendencies, and the mere form of the attack does not always enable us to distinguish between them. Thus, epileptic fits as seen in cases of brain tumor may be indistinguishable in themselves from those met with in cases exhibiting the familiar degenerative tendency associated with the name of epilepsy in general. Again, degeneracy itself is by no means always present in epileptic conditions, even those classified as idiopathic. We know too little of the physiology of the epileptic seizure, in its varied forms, to be able even to say there is a sharp distinction to be drawn between such an attack as occurring in hysteria and another which might be found in epilepsy proper. However much we may believe these two forms to be different, it is impossible at present to give the ground for our belief.

23. **Subacute Perforation of the Stomach.**—From a study of his own and recorded cases, Lund draws the following conclusions: 1. The symptoms of subacute perforation of the stomach are similar to those of acute perforation, with the important exception that they are less violent and are not followed by collapse or by the development of general peritonitis. 2. The location of the pain and tenderness depends on the location of the ulcer and varies with it. 3. The treatment should be, if possible, posterior gastroenterostomy without breaking up the protective adhesions. A case of ulcer of the stomach, gallstones or ulcer of the colon that has gone on sufficiently to threaten perforation, is certainly in a condition to be benefited by no other treatment than the operative. The treatment of an open perforation is manifestly to invert the edges of the ulcer and close it by suture. The ulcer has already perforated into the general cavity and the peritoneum is soiled. In these subacute perforations, however, nature has already closed the perforation, and if we can get along without tearing the adhesions, opening up the ulcer and soiling the healthy peritoneum, we give our patient a distinctly better chance. In case the ulcer is on the anterior surface or lesser curvature and is to the right of the median line, and the adhesions are to the inferior surface of the liver, there is nothing to prevent turning up the posterior surface of the stomach and performing a posterior gastroenterostomy without breaking up the adhesions, opening the ulcer, or soiling the cavity with stomach contents. We provide internal instead of external drainage for the ulcer, and we operate in a region where the peritoneum and gastric wall are healthy instead of inflamed, and where our opportunity of getting perfect healing is the best. And last, but not least, we give the best treatment to the underlying condition of chronic ulcer to which the perforation has been due.

24. **Senile Epilepsy.**—Collier gives the histories of five cases of epilepsy in which the onset occurred between the forty-sixth and sixty-fifth years.

New York Medical Journal, New York.

May 6.

25 Politico-Sociological Aspects of Tuberculosis Problems. J. Wright. New York.
26 *Dietetic Exercises in Infant Feeding. E. K. Shelmerdine, Philadelphia.

27 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
28 Immediate Abdominal Section. D. Lewis, Chicago.
29 Adenoids in the Adult. D. M. Barstow, New York.
30 *Operation for the Cure of Chronic Bursitis, Especially Adapted to Housemaid's Knee. P. Hoffmann, St. Louis.
31 *Remarks on the Problems Connected with the Study of Pulmonary Tuberculosis; and Suggestions of a New Plan for Improving Statistics Relating to the Disease. E. L. Shurly, Detroit.

26. **Infant Feeding.**—Shelmerdine classifies infants requiring artificial feeding into three groups: 1. Easy cases. 2. Difficult cases. 3. Very difficult cases. Two tables are given showing the method of milk modification adopted by the author, and the diet suitable for the cases, as classified, is described at length.

30. **Operation for Chronic Bursitis.**—The operation devised by Hoffmann for the cure of this condition consists of puncturing the bursa, thoroughly scarifying its walls, expressing its fluid contents, bringing its walls in contact, and holding them so by means of a compress until their raw surfaces have grown together and have thus obliterated the cavity. No anesthetic need be given as the operation is practically free from pain, except that produced by puncturing the skin. The patient need not be confined to bed or even use crutches during the after-treatment, and may attend to almost any tasks, except such as require kneeling.

31. **Tuberculosis Problems.**—That some feasible plan for securing reliable statistics relating to pulmonary tuberculosis is an absolute necessity for the solution of the scientific problems at hand, no practitioner will deny. But how to get such information in conformity with the rights of the patient, the public at large, and the practitioner, under our form of civil government is a serious question. To this end, Shurly suggests the following outline of a plan for consideration: First, let the registered medical profession of the state nominate (by epistolary vote, sent to the secretary of state) nine of their number, from whom the governor shall appoint three to become a board of review (or a body otherwise named). Second, this board shall be created by statute (of the legislature) with power to demand and receive reports from all practitioners, containing such practicable data as the board may dictate. Third, this board's proceedings, books, papers, and files, in so far as the persons reported to them are concerned, shall be wholly in its custody, considered as confidential, and absolutely inaccessible to the public, the press, or the courts. Fourth, each month this board shall make an abstract of the communications received in schedule or detail form, and transmit such abstract without names to the state board of health, which shall publish the same quarterly for the edification and instruction of the medical profession. It would seem as though such a plan would meet the insuperable objection of making public any patient's name, family, or clinical history and give us data devoid of supplication, error of diagnosis, or other common error. Beside, no thoughtful, reasonable physician would object to making reports to such a constituted board.

St. Louis Medical Review, St. Louis, Mo.

April 29.

32 New Therapeutic Measures in Neurology. S. I. Schwab, St. Louis.
33 Contribution to the Etiology of Nervous Affections. T. H. Evans, Philadelphia.

American Journal of Medical Sciences.

May.

34 *Action of Electrically Charged Copper on Certain Organisms in Water. M. E. Pennington, Philadelphia.
35 *Studies on Bactericidal Action of Copper on Organisms in Water. N. Gildersleeve.
36 *Study of the Action of Colloidal Solutions of Copper on Bacillus Typhosus. A. H. Stewart, Philadelphia.
37 Glioma of the Nose. J. P. Clark.
38 Case of Cerebrospinal Rhinorrhea, with Retinal Changes. S. I. Schwab and J. Green, Jr., St. Louis.
39 Case of Mind Blindness. W. A. Holden.
40 *Purpura Hemorrhagica. T. W. Hastings, New York City.
41 Two Cases of Chronic Splenic Anemia, One with Achylia Gastrica. I. H. Levy, Syracuse, N. Y.
42 *Clinical and Pathological Report of a Case of Splenic Anemia. H. L. Sanford and D. H. Dolley, Cleveland, Ohio.
43 Sarcoma of the Small Intestine. E. Libman, New York.
43½ *Clinical Aspects and Differential Diagnosis of Appendicitis and Typhoid. C. G. Cumston, Boston.
44 *The Law and the Doctor. C. S. Patterson, Philadelphia.
44½ *Observations on Aneurism and Arteriosclerosis. C. N. B. Camac, New York City.
45 Case of Laminectomy for Gunshot Wound on the Spine. J. P. Marsh, Troy, N. Y.
46 Gonorrheal Urethritis with Unusual Complications. D. Crosby.

34. **Action of Copper on Bacteria.**—Experiments conducted by Pennington for the purpose of determining the action of electrically charged copper plates on certain pathogenic germs suspended in water have shown that copper electrodes carrying a small current are actively germicidal for the typhoid and colon bacilli. The experiments seem to indicate a balance in favor of a large copper surface with which the organisms come in contact, rather than the actual copper content of the water.

35. Id.—Gildersleeve has also been investigating this subject, and found that dilute solutions of copper salts have a marked destructive action on many bacteria. Of these salts the sulphate is the most active, probably because it undergoes electrolytic dissociation more readily than the others.. The amount of sulphate to be used in the water should be from one part in 250,000 to one part in 100,000, depending on the character of the water. Colloidal copper will quickly destroy certain bacteria; should copper vessels or plates be used to destroy bacteria in water, they must be kept highly polished or the bactericidal property will be greatly reduced. There is no evidence at hand showing that copper, ingested in small quantities for long periods, has a detrimental action on the health of the individual.

36. **Action of Colloidal Solutions of Copper on Typhoid Bacilli.**—This study was carried on by Stewart of the bacteriological laboratory of the Bureau of Health of Philadelphia. Trials were made as to the period of total disappearance of typhoid organisms which had been placed in sterile Schuylkill water and in that taken directly from the tap, and from the river surface containing large numbers of water organisms. These waters were placed in vessels of glass, porcelain, tin and copper and their contents kept at room temperature were plated every fifteen minutes for periods ranging from three to six hours. All the experiments were repeated many times. Sterile drinking water in clean copper vessels inoculated with typhoid bacilli invariably showed that the bacilli had all perished in one hour. Water similarly treated in tin vessels invariably showed living organisms at the end of twenty-four hours. Water similarly treated in glass vessels exposed to light showed varying results, but in no instance had the typhoid organisms all perished in three hours. Water similarly treated in enamel vessels showed a slight diminution of the number of typhoid organisms in three hours. Water similarly treated in aluminium vessels showed a disappearance of the typhoid organisms in three hours. Raw tap-water in glass vessels showed an increase in the number of organisms in three hours; occasionally, there was a slight diminution in their number. Raw tap-water in copper vessels in one experiment showed a diminution from 384,000 germs per cubic centimeter to 18,000 per cubic centimeter in three hours. Usually the diminution was not so great. Raw tap-water containing large numbers of river organisms and considerable vegetable matter, when inoculated with millions of typhoid organisms and placed in a copper vessel, showed that the typhoid bacilli were killed off in one and three-fourths hours to two and one-half hours. Water containing colloidal copper has a more rapid tonic action on typhoid organisms than on river water organisms. The quantity of colloidal copper given off from a one-liter copper vessel in three hours was one part to four million. This amount killed off the added typhoid organisms in from one and three-fourths to two and one-half hours, and chemical experience has shown that this amount of colloidal copper is harmless when taken into the human system. In epidemics of typhoid fever, Stewart concludes that water could be purified of typhoid organisms by allowing it to stand in a copper vessel for three hours.

40. **Purpura Hemorrhagica.**—Hasting's case is of interest because of the close resemblance of the clinical course to cases of acute leukemia, and in this connection he calls attention to the fact that not infrequently cases of purpura are reported in the literature as cases of leukemia. The acute condition, swelling of the right tonsil, the high percentage of lymphocytes in the peripheral circulation suggested the possibility of acute leukemia with an intercurrent infection from the right tonsil gives rise to a well marked leucopenia. However, the evident absence of tonsillitis before admission, the sore throat

occurring a few days later; the absence of pallor at any period preceding the first attack of epistaxis; absence of glandular and splenic enlargement; the persistent bleeding from the bowel, gums and nose; the purpuric eruption from the onset of the condition suggested Werlhof's disease rather than acute leukemia.

42. **Splenic Anemia.**—The case reported by Sanford and Dolley was of long duration, with gastro-intestinal disturbances, and pain in the splenic region; recent severe and repeated hemorrhages by stool and vomitus following traumata; blood findings characteristic of secondary anemia of the chlorotic type, without leucocytosis, and with no general lymphatic enlargement; idiopathic splenomegaly. An exploratory laparotomy was performed, later a splenectomy, to which the patient succumbed. The pathologic findings at the autopsy were as follows: Dislocation of the spleen, with marked elongation and torsion of its vessels and thrombosis; chronic passive congestion and fibrosis of the spleen; interlobular atrophic cirrhosis of the liver; chronic passive congestion of rest of portal system; compensatory hyperplasia of hemolymph nodes; hyperplasia of the bone-marrow, secondary anemia; moderate diffuse emphysema of the lungs; tuberculosis of bronchial and tracheal glands. The authors believe that the patient's previous history of pallor, digestive disturbances, and pain in the splenic region, symptoms of which there is a history extending over a number of years, strongly suggest the early stage of a splenic anemia. The frequent urination and the pain in the splenic region also would imply a long-standing dislocation of the spleen. This is corroborated by the enormous elongation of the splenic vessels. Whether or not all the twists in the splenic veins occurred at the time of the two accidents the patient had, it is impossible to state, but it is at least more reasonable to suppose that from their multiple character they did not all occur at one time, but that some had existed previously. The thrombosis of the splenic vessels must have been the cause of the sudden enlargement of the spleen while the patient was in the hospital. The lack of organization in the thrombi of the vessels removed at the splenectomy proves this. If Banti's stage of splenic anemia is limited only to those cases in which the cirrhosis is a terminal manifestation, this case can not be included in that category, for the cirrhosis of the liver is certainly of as long standing as the fibrosis in the spleen. Sanford and Dolley prefer to regard the case as one of splenic anemia associated with a cirrhosis of the liver, not as a result of the process in the spleen, but rather accompanying it. The enormous elongation and torsion of the vessels associated with the dislocation of the spleen possess a very probable etiological significance in this case.

43½. **Appendicitis and Typhoid.**—Cumston discusses the differential diagnosis of these affections under four heads, as follows: 1. Analysis of the clinical symptoms. 2. Examination of the urine. 3. Examination of the blood. 4. Widal's sero-diagnosis, but offers nothing new. He says that every time an appendicitis exists, either alone or associated with typhoid, an operation is indicated. Interference is contraindicated only in cases of simple typhoid, or one associated with symptoms arising from the appendix, but which are so slight that they can not be considered as due to a true case of appendicitis.

44. **Law and the Doctor.**—Under this title, Patterson discusses the various relations with the law into which the doctor is brought by reason of his profession and his practice. He formulates three practical conclusions: In the first place, it is the duty of every good citizen to obey the law, and this duty is in a high degree incumbent on members of all learned professions whose education and training may properly be supposed to raise them above the common mass of people, and to give to them a higher sense of duty. If, therefore, there be in the law any regulation which seems to do injustice to the interest of your profession, or to yourself, work and agitate for the reformation of the law; but, so long as the regulation be in force, faithfully obey it. In the second place, remember that it is as foolish for a medical man to undertake to determine for himself what the law is on any subject, as it is a lawyer to attempt to prescribe for the bodily ills of himself or of any other person. Therefore, whenever you are in any way brought face to face with law, consult a lawyer, and do it promptly, for it is as true in law as in medicine, that "an ounce of prevention is," if it be not too late to prevent, "better than a pound of cure." In the third place, as legal restrictions and professional ethics touch at many points, it is wise for every young doctor to form such relations of mutual confidence and regard with one or more of the seniors of his profession, that he can obtain for himself the great benefits of a senior's advice, when questions of professional expediency present themselves. Remember that every profession has its traditions, in which is crystallized the wisdom of its past; and that seniors who have risen to eminence, and who have that soundness of judgment which the young, however learned and able, rarely have, can best determine when it is not judicious to depart from those traditions.

44½. **Aneurism and Arteriosclerosis.**—Camac summarizes his findings as follows: 1. Arterial disease appears to be rare, almost unknown in animals. Syphilis, being probably peculiar to man, is by this observation placed more firmly in the list of etiological factors. 2. Arterial disease in children under six years, even in those who are victims of congenital syphilis, is practically unknown. In those from six to fifteen years it is rare. It is found in the initial stage most commonly between the ages of thirty and forty years. 3. The teratologic factor, though an undeterminable one, is of great importance. 4. Arterial disease seems to be attributable to syphilis in about 32 per cent.; to tuberculosis in about 16 per cent. 5. The facts presented go to show that the colored race is affected about four times more frequently than the white. 6. General arteriosclerosis seems to be not commonly found with aneurism and its presence may be considered as evidence against the probable development of aneurism.. 7. Staining with selective stains, and treating with a chemical which digests tissue, shows the elastic tissue to be free of histological alterations, suggesting that this tissue undergoes physical or molecular rather than histologic change.

St. Paul Medical Journal, St. Paul, Minn.

May.

47 Exploratory Incision in Cases of Suspected Malignant Disease of the Abdominal Viscera. C. G. Cumston, Boston, Mass.
48 Chronic Urethritis in Women. J. L. Rothrock, St. Paul, Minn.
49 *Appendicitis, with Special Reference to This Disease in Women. A. MacLaren, St. Paul, Minn.
50 Death Returns in Minnesota for 1904. H. M. Bracken, Minneapolis.
51 In Memorium: Nathan Smith Davis as a Man. E. C. Dudley, Chicago.

49.—See abstract in THE JOURNAL, Jan. 21, 1905, page 238.

Southern Medicine and Surgery, Chattanooga, Tenn.

May.

52 Acute Septic Osteitis. J. L. Crook, Jackson, Tenn.
53 Functional Disorders of the Biliary Secretion and Their Treatment. H. Richardson, Baltimore.
54 Clinical Significance of Ascites. R. Wallace, Chattanooga, Tenn.
54½ Conservative Gynecology. C. R. Robins, Richmond, Va.

Journal of Medical Research, Boston, Mass.

May.

55 Biology of the Micro-Organism of Actinomycosis. J. H. Wright, Boston.
56 Reaction Curve of Tubercle Bacilli from Different Sources in Bouillon Containing Different Amounts of Glycerin. T. Smith, Boston.
57 Variations in Virulence in Organisms Acted on by Serum, and the Occurrence of Spontaneous Agglutination. E. Steinhardt, New York City.
58 Changes in the Bacterial Content of Water in Passing Through a Distributing Reservoir. B. G. Philbrick, Boston.
59 Intracellular Fibrils in a Malignant Tumor of Epithelial Origin. S. B. Wolbach, Boston.
60 Cyclasterion Scarlatinale. F. B. Mallory, Boston.
61 Further Observations on the Transmission of Sarcocystis Muris by Feeding. T. Smith, Boston.

Northwestern Lancet, Minneapolis.

May 1.

62 Why We are Sometimes Obliged to Re-operate in Gallstone Cases. J. E. Moore, Minneapolis.
63 Appendicitis. R. E. Farr, Minneapolis.

Indiana Medical Journal, Indianapolis.

May.

64 Diagnosis and Treatment of Nephritis. D. L. Miller, Goshen, Ind.

65 Tumors of the Brain; Their Etiology and Pathologic Effects. G. F. Neu, Indianapolis.
66 Lumbar Exploratory Puncture. J. A. McDonald, Indianapolis.

Ophthalmic Record, Chicago.

April.

67 Diffuse Leuco-Sarcoma of the Choroid. R. H. Johnston, Baltimore.
68 Practical System of Near Test Types. D. W. Wells, Boston.
69 Difficulties Attending Diagnosis of Aseptic Foreign Bodies in the Orbit. N. M. Black, Milwaukee, Wis.
70 Pathology of Pterygium. R. H. Johnston, Baltimore.

Montreal Medical Journal.

May.

71 Adaptation and Tuberculosis. J. G. Adami.
72 Pathologic Conditions of Clinical Interest Associated with Movable Kidney. J. M. Elder, Montreal.
73 Microphthalmus: Persistent Pupillary Membrane: Anterior Synechia and Central Opacity of the Cornea. J. W. Stirling, Montreal.
74 Case of Congenital Absence of the Vagina and Uterus: Artificial Vagina: Subsequent Operation for Appendicitis. A. L. Smith, Montreal.
75 Unusual Case of Thyroidectomy. F. J. Shepherd.
76 Jubilee of Laryngology. H. S. Birkett, Montreal.

California Medical and Surgical Reporter, Los Angeles, Cal.

May.

77 Nature and Treatment of Epilepsy. E. Wing, Los Angeles, Cal.
78 Diphtheritic Anti-Toxin Treatment for Cerebrospinal Meningitis. L. Roth, Los Angeles, Cal.

Albany Medical Annals.

May.

79 Cancer of the Uterine Cervix; Its Classification and Extension. J. A. Sampson, Albany, N. Y.
80 Abdominal Pain from Adhesions. C. G. Cumston, Boston, Mass.
80½ Blood Pressure. W. Kirk, Jr.

Archives of Physiological Therapy, Boston.

April.

81 Static Electricity in Chronic Nephritis: A Recapitulation. C. S. Neiswanger, Chicago.
82 Therapeutic Application of the Continuous Current. T. A. Pease, Norwood, N. Y.
83 Case of Hyperidrosis Axillæ Treated by X-Rays. G. H. Stover, Denver.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

April 22.

1 Determination of Arterial Blood Pressure in Clinical Practice. C. J. Martin.
2 Case Simulating Intracranial Tumor. T. R. Glynn.
3 *Arthritis Deformans and Its Allies. B. Abrahams.
4 *Medical Treatment of Insanity. R. Jones, Claybury.
5 Inquiry Into the Existence of Typhoid Fever in Bermuda. L. Kilroy and F. W. Hooper.
6 *Corneal Reflex in Anesthesia. L. K. Thomas, London.

3. **Arthritis Deformans and Its Allies.**—Abraham directs attention to the clinical features of the various affections which are ordinarily grouped under the name of rheumatoid arthritis, a term which he regards as being unscientific. These conditions are: (*a*) The children's disease described by Still; (*b*) the acute process occurring in young women; (*c*) the familiar multi-articular affection of middle-aged women, and (*d*) the well known chronic malady of the aged.

4. **Medical Treatment of Insanity.**—In the acute stage of no disease, says Jones, is care and attention more necessary, nor more expensive, nor is there more hope of cure than there is in the early stages of insanity. It is essential to prevent exhaustion and to maintain the patient's strength by giving unirritating foods, easy of digestion, frequently and in small quantities. Plenty of sleep is necessary. For this purpose sedatives and not hypnotics should be given. When there is delirium and when the pulse is full, bounding and firm, and there are symptoms of sthenic inflammation, venesection may prove beneficial. The wine of tartarated antimony for furious excitement, with vascular and cerebral congestion, especially when combined with morphin, is very effective. Aconite ice bags to the head, and continuous immersion are also useful. As a form of electric stimulation, electricity administered in the form of currents through water at 100 F. given daily, or several times a week, for about 10 to 30 minutes, is particularly commendable. For controlling motor excitement, succus condii in doses of from 10 minims to one dram, is efficient. It is best to begin with small doses and to combine these with strychnin or some other cardiac stimulant. As to hypnotics, for the cure or relief of insomnia, paraldehyd, in doses of one-half dram to two drams, is the safest. It is not recommended in lung affections. Hyoscin, or hyoscyamin combined with morphin, are effective for excitement and sleeplessness. However, the bromids are the most useful. They may be combined with chloral and tincture of hyoscyamus, when these are not contraindicated. In cases of so-called hysterical insanity, Jones mentions, as a possible remedy, the use of thorium hydroxid, 500 grams to be placed in a cap over the head, worn day and night. This drug possesses radio-active properties. Jones says two of his cases recovered under such treatment. Laxatives and purgatives are absolutely necessary, and in free doses, usually twice the amount required by a healthy person. The action of the skin should be assisted. This is done best by out-door exercise. Speaking of alcohol, he says that in the great majority of cases of insanity it is not essential, but he does not hesitate to use it in small doses, every few hours, in the exhaustion of acute mania, more especially in the puerperal form of insanity. It often interferes with digestion, and it is always best administered with liquid nourishment. However, it is a dangerous remedy in the various forms of mental depression, for it gives the patient a feeling of buoyancy and stimulation without any lasting benefit and without the sustaining action of food. Strychnin and nux vomica are useful in cases of exhaustion from acute insanity and in cases of cerebral anemia. They should be given alternately for a few weeks, and with about one week's interval.

6. **Corneal Reflex in Anesthesia.**—According to Thomas the corneal reflex can not be depended on as a guide in the administration of anesthetics in cases requiring muscular relaxation, especially in abdominal and hemorrhoidal operations, in which moderate secondary dilation of the pupil is the best guide to complete success. He has found that there is a much greater interval of safety between the loss of the corneal reflex and the failure of respiration and heart than is generally admitted, and that the reaction to corneal stimulation varies enormously in different individuals.

The Lancet, London.

April 22.

7 *Dissemination of Mammary Carcinoma. W. S. Handley, London.
8 *Nature of Diabetes Mellitus. W. C. Bosanquet, London.
9 *Gallstones and Cancer. G. R. Slade, London.
10 Three Cases Illustrating the Condition of the Small Intestine Some Years After Extensive Enterectomies. A. E. J. Barker, England.
11 Further Note on the Relation Between Various Atmospheric Conditions and the Occurrence of Cerebral Hemorrhage. J. W. Russell, London.
12 Plague in Cats. W. Hunter, Aberdeen.
13 Suppurative Periostitis Following Typhoid Fever. L. S. Dudgeon, London.
14 *Cerebro-Spinal Manometer. F. C. Eve, London.

7. **Dissemination of Mammary Carcinoma.**—This is the third and concluding lecture delivered by Handley on this question. From the mass of material presented, he draws the following practical conclusions: If, when it transgresses the limits of the breast, cancer spreads primarily in the deep fascia, the main operative aim next, of course, to complete removal of the breast and of the axillary glands, should be the removal of as wide an area as possible of the deep fascia. And if the mode of fascial extension is by centrifugal continuous permeation, the area affected is roughly a circle, and the area of fascia removed should also be circular with its center at the point of origin of the primary neoplasm. The use of the expression "pectoral fascia" to describe the area which requires removal and the almost exclusive attention paid to the axillary glands as the channels of dissemination have led to inadequate excision of the deep fascia in a downward direction over the upper part of the abdomen. In order to prevent epigastric invasion, the usual incision should be prolonged downwards over the linea alba for about two inches, the flaps undermined, and the fascia excised as far down as a horizontal line running two inches below the ensiform cartilage, or even lower if the growth is in the inferior part of the breast. This step does not increase the shock of the operation. Excision of the overlying skin and of the underlying muscle must

be free, but need not be carried out over so wide an area as excision of the fascia, for the extension of the growth to skin and muscle is a secondary process. As to fascia, it appears that even the widest removal of deep fascia as at present carried out is deficient in the direction of the epigastrium. Owing to the fact that the abdominal muscles arise well above the costal margin, the excision of the deep fascia over the origins of these muscles, a step which forms a part of the accepted operation, does not necessarily involve any interference whatever with the epigastric deep fascia, still less such an extensive removal of it as he is advocating. Local and intrathoracic recurrence after the operation for cancer of the breast appears to take place more and more rarely in the practice of experienced surgeons—that is to say, the modern operation seems to afford a maximum of protection so far as the chest is concerned. On the contrary, it appears from statistical records that the operation for cancer of the breast as at present performed does not by any means give the maximum attainable security against abdominal recurrence. For while modern results show a diminution in the sum total of cases of recurrence, cases of purely abdominal recurrence seem to be increasing in frequency relatively to the lessened number of thoracic recurrences. And this phenomenon is clearly seen only in the results of the more successful operators—i. e., of those whose methods enable them to guard against thoracic invasion. The relative excess of abdominal recurrences associated with modern methods of operation is strikingly exhibited in the cases, upwards of 100 in number, published by Watson Cheyne. Visceral recurrence took place in 15 cases. In ten of these cases the recurrence was (clinically) abdominal, while in only five was it (clinically) thoracic. It seems almost certain that in some of these cases abdominal recurrence might have been prevented by a wider excision of the deep fascia in the epigastric region. Handley believes that a recognition of the danger of epigastric invasion and the adoption of precise means for its prevention will bring about a further appreciable reduction in the mortality from mammary carcinoma.

8. **Nature of Diabetes Mellitus.**—In concluding this series of lectures Bosanquet sums up the views suggested by him as embodying a possible explanation of the phenomena of diabetes and the arguments by which they were reached as follows: 1. Excess of sugar in the blood, which is the condition precedent of glycosuria, may be caused by over-production of sugar in the system or by diminished use or excretion. There is practically no evidence of either of these last processes. There is convincing evidence that at one stage, at all events, of diabetes there is increased production. 2. Over-production of sugar may depend on some digestive irregularity whereby more sugar than normal is poured into the blood from the food, or of manufacture of sugar from the tissues of the body. We have sufficient evidence that both these processes are at work in diabetes, in that, at first, the output in the urine can be controlled by limiting the diet, whereas later this is not possible. But, whereas there are a considerable number of conditions in which sugar appears in the urine apparently as a result of absorption of additional sugar from the alimentary canal—these conditions being identical with diabetes only in the single fact of the appearance of sugar in the urine, while they run an entirely different clinical course—it is in diabetes alone that we have at any time evidence of formation of sugar from the tissue cells of the patient. This autolytic formation of sugar, if it may so be called, is the characteristic feature of diabetes in so far as the production of sugar is concerned. 3. It involves less of an assumption to suppose that this autolytic formation of sugar is present in diabetes all through the disease than to suppose that it ensues after a time as a result of the presence in the blood of excess of the very substance—sugar—into which the cells finally break down. The absence of proof of the existence of this process in the early stages of the disease, when the glycosuria is controlled by diet, may be due to the body possessing a certain power of utilizing sugar in its nutritive processes, so that only the excess above a definite quantum appears in the urine. 4. There is sufficient evidence available to establish beyond the possibility of doubt the fact that there is some connection between the pancreas and diabetes. Although it is not yet proved, yet it is becoming increasingly probable that the pancreas is diseased in all cases of diabetes mellitus. An increasing bulk of evidence is also accumulating to show that the function of the pancreas, which is in abeyance in diabetes, is normally performed by certain special groups of cells known as the islands of Langerhans, which are distinct from the ordinary secreting cells of the gland, but which are not improbably formed from the acini. The special lesion of these islands—hyaline degeneration—which has been associated with diabetes by some writers—is not present in all cases of the disease and may be found (in a less developed state) in other conditions. 5. The action of the pancreas may be exerted in the direction either of supplying a substance necessary for the assimilation of sugar by the cells of the body, or in that of counteracting a poison which in some way causes accumulation of sugar in the blood. There is little or no evidence in favor of the former possibility; in favor of the latter there are the results of experimental intoxication with phloridzin, with suprarenal extract, and with other substances, and a few inconclusive results obtained by injection of secretions derived from diabetic patients. 6. We are not yet in a position to state with any certainty what tissue in the body gives rise to the sugar formed in diabetes. The theoretical possibility that sugar may be derived from fat is supported by certain observations which prove that a serious disturbance of the adipose tissue exists in diabetes. Further, if this hypothesis be admissible, a certain unity will be introduced into our conception of diabetes, the phenomena of which will be explicable as manifestations of a single process occurring in a single tissue. 7. Lastly, glycosuria, as opposed to diabetes, may be due to mere excess of sugar poured into the blood from the alimentary canal in excess of what the system is capable of assimilating; or it may be due to causes acting analogously to the diabetic puncture of Claude Bernard and leading to a discharge of sugar by the liver from its stores of glycogen. If, continues Bosanquet, the views here set forth are correct, it follows that in its earliest stage the diabetic process may constitute rather a predisposing cause of glycosuria than the actual cause of the phenomenon, since the breaking down of the tissue cells into sugar is at first not more than sufficient to saturate the sugar-assimilating powers of the system. At this stage a slight increase of saccharine food will produce glycosuria—an increase which in a normal person would not have this effect. Similarly a slight nervous shock, sufficient to cause the liberation of only a comparatively small quantity of glycogen from the liver, would also augment the sugar present in the blood above the point at which it appears in the urine. In such a way the onset of true diabetes might be ascribed to a shock, when in reality it was previously existent, but unnoticed. As far as definition is possible, then, diabetes might be defined as an increased internal dissociation of tissue (possibly fat) into sugar, caused by a toxic substance which is produced in the course of normal metabolism and which is normally neutralized by the pancreas.

9. **Gallstones and Cancer.**—A very interesting report is made by Slade based on cases that have come to autopsy at the London hospital during the last twenty-six months. In 2180 necropsies there were 33 cases in which gallstones were found either in the gall bladder, or where they had been removed by operation shortly before death. In 17 of these 33 cases, the gallstones were latent and were discovered only at the autopsy. In the remaining 16 cases, the gallstones and complications caused thereby were responsible for the patient's death. Carcinoma of the gall bladder was found in 30 per cent. of all cases of gallstones, and in 56 per cent. of all cases where gallstones had caused symptoms during life, and in 58.8 per cent. of all cases in which at the necropsy the wall of the gall bladder showed inflammatory thickening. Slade concludes that the association between carcinoma of the gall bladder and gallstones is very close, and that gallstones may be looked on as the determining cause of cancer of the gall bladder.. Thickening of the wall of the gall bladder is presumptive evidence of carcinomatous change. Cholecystectomy should be performed, whenever possible, if any thickening of the wall of the gall bladder be found at the time of operation.

14. **Cerebrospinal Manometer.**—The instrument devised by Eve for measuring the cerebrospinal pressure consists of the lumbar puncture needle, which is adapted, on the one hand, to a vertical graduated glass tube, and, on the other, to an exit tube closed by a spring clip, and a detachable handle. In addition to three hollow needles, suitable for children, large or small adults, the case also contains a hydrometer for measuring the specific gravity of small quantities of the cerebrospinal fluid. Just before use the whole apparatus is boiled and brought to the bedside in a dish of boiled water. The puncture is made in the usual manner. The fluid runs up the manometer tubing (the exit tube having been previously clamped) and its pressure can be read off. The needle is withdrawn when the pressure is sufficiently reduced or the requisite amount of fluid has trickled out. The apparatus shows clearly the oscillations in cerebrospinal pressure produced by the pulse and respiration. Lumbar puncture has been performed about 60 times with this instrument without any ill effects.

Journal of Tropical Medicine, London.

April 15.

15 Undescribed Form of Ulceration of the Large Intestine, probably of Amebic Origin, Causing in Some Cases Abscess of the Liver. T. C. Mugliston and G. D. Freer.
16 *Treatment of Malarial Fever by Intramuscular Injections of Quinin. L. E. Ashley-Emile.
17 Tabes Mesenterica and Ceylon Soremouth and Diarrhea. W. A. Wijeyesakere, England.

16. **Intramuscular Injections of Quinin in Malaria.**—Fifty cases of malaria have been treated in this manner by Ashley-Emile. He is of the opinion that this plan should not be adopted as a routine therapeutic measure for all cases of malaria, but should be reserved as an invaluable adjunct to the ordinary method for intractable cases where quinin can not be administered and tolerated by the mouth, as in certain remittent and pernicious types of the disease, when accompanied with excessive vomiting and pronounced nervous symptoms, with delirium, and especially in malarial coma. Quinin injections are inadvisable in all cases suffering from any ulcerative septic disease, and in very young children. Ashley-Emile has found this plan most effective in reducing the temperature of persons who have by excessive daily usage established a tolerance for the drug, and in whom forty to sixty grains of quinin given by the mouth have failed to produce the desired result, when a single injection of five grains of quinin has lowered the temperature. He has made it a routine practice to exhibit quinin injections if on the third day the temperature still remains high without any signs of abatement, and without the least hesitation if the patient has been addicted to large doses of quinin as a prophylactic measure. The advantages this method has, in addition to those mentioned, are economy, and certainty and rapidity of action. The injection should be made deep into the deltoid and interscapular muscles, using the hydrochlorid of quinin.

Annales de l'Institut Pasteur, Paris.

Last indexed page 165.

18 (XVIII, No. 9.) Sur l'accoutumance à la tuberculine (means to detect habituation to tuberculin in cattle). H. Vallée (Alfort).
19 Production d'acide citrique par les citromyces. P. Mazé and A. Perrier.
20 *De l'influence de l'ingestion des bactéries et des produits bactériens sur les propriétés du sérum sanguin. A. Tchitchkine.
21 Mal de caderas chez les animaux domestiques et sauvages. Epidémies parallèles (trypanosoma affection in domestic and wild animals in Paraguay). M. Elmassian and E. Migone.
22 Tuberculose osseuse et troubles circulatoires et trophiques. N. Petroff.
23 (No. 10.) Les propriétés des antisensibilisatrices et les théories chimiques de l'immunité. J. Bordet.
24 Recherches sur la glycolyse des organs des mammifères. P. Portier.
25 Rabies in "Egyptian Rat."—La rage chez la mangouste ichneumon. C. Nicolle and J. Chaltiel (Tunis).
26 Virulence of Salivary Glands in "Passage Rabbits."—Virulence des glandes salivaires chez les lapins de passage. Id.
27 La rage expérimental chez le rat. Id.
28 (No. 11.) *Etudes expérimentales sur la syphilis. E. Metchnikoff and E. Roux.
29 Sur la composition chimique et la formule de l'adrénaline. G. Bertrand.
30 Agglutination of Red Corpuscles by Chemical Precipitates and Suspension of These Precipitates in Colloidal Media.—Agglutination des globules rouges par les précipités chimiques, etc. O. Gengou.
31 *La fièvre typhoide expérimentale. J. Atlassoff.
32 Bactérium Zopfii (Kurth). N. Swellengrebel.
33 (No. 12.) Recherches sur l'assimilation de quelques substances ternaires par les végétaux à chlorophylle. P. Mazé and A. Perrier.
34 *Tétanos et quinine. E. Vincent.
35 Coloration des protozoaires. F. Marino.
36 Importance de l'examen bactériologique pratiqué sur les cadavres. R. B. H. Gradwohl.
37 (XIX, No. 1.) Recherches sur le sérum antirabique. A. Marie.
38 Culture de l'amibe de la dysentérie des pays chauds (tropical dysentery). A. Lesage.
39 El-debab. Trypanosomiase des dromadaires de l'Afrique du Nord. E. Sergent.
40 *Diagnostic histologique de la rage. F. Abba and A. Bormans (Turin).
41 Peste endémique, bubons climatiques, lymphangite infectieuse de la Reunion et erysipèle de Rio. Thiroux.
42 (No. 2.) Recherches morphologiques et experimentales sur Trypanosoma Paddæ. Thiroux.
43 Hémolysines naturelles. G. Mioni.
44 Distribution of Microbes in Infant's Intestine.—Repartition des microbes dans l'intestin du nourrisson. H. Tissier.
45 Determination quantitative du coli-bacille dans les eaux d'alimentation (in drinking water). A. Gautié.
46 (No. 3.) Etudes epidémiologiques et prophylactiques du paludisme en Algérie, en 1904. E. Sergent.
47 *Les tumeurs de la souris (of mice). Haaland (Christiania).

20. **Influence of Ingested Bacteria on Serum.**—Adult rabbits fed with living and killed typhoid bacilli did not develop anything resembling typhoid fever, but their serum acquired properties revealing the presence of agglutinins, fixators and sometimes precipitins. Young rabbits did not respond in this way, possibly because the absorption was less, or because their undeveloped organism was unable to respond with the production of these substances.

28. **Syphilis in Monkeys.**—In this third communication on this subject Metchnikoff and Roux relate further experiences and show the results in colored plates. They are convinced of the syphilitic nature of the lesions observed on the small monkeys (macaques). Their transmission to the chimpanzee and the development of both primary and secondary lesions on the latter is further proof. They believe that the prospects are good for obtaining a specific vaccine by passing the virus through the smaller monkeys, possibly combined with specific antiserums.

31. **Experimental Typhoid Fever.**—Atlassof has succeeded in inducing experimental typhoid fever by feeding very young rabbits with the germs.

34. **Tetanus and Quinin.**—Vincent's attention was attracted to the number of cases that have been reported in which tetanus followed an injection of quinin under aseptic precautions. He has been experimenting and reports that quinin injected into rabbits at the same time or following inoculation with tetanus germs, had an unmistakable action in favoring the development of the tetanus. This action was both local and general. As an instance he mentions that inoculation with tetanus on the other side of the body from an injection of quinin, was followed by symptoms of tetanus and the germs were found congregated, not at the point of inoculation, but at the point where the quinin had been injected, on the other side of the body. This favorable action occurs apparently only when the quinin is injected subcutaneously. The facts related suggest that when an injection of quinin is to be made in a person who has any sores or excoriations liable to shelter or allow the entrance of the tetanus bacillus, it would be wise to inject antitetanus serum at the same time.

40. **Histologic Diagnosis of Rabies.**—The facts reported from Turin by Abba and Bormans are practically the same as those summarized recently on page 1490. A list of 93 tests is given showing the complete concordance between the biologic test for the Negri bodies in the hippocampus major of the suspected animals and the results of Volpino's simple staining test. This requires merely 4 or 5 c.c. of a 10 per cent. solution of osmic acid in a test-tube with the sections of the tissue to be examined. It is left in contact for five or six hours, then rinsed under running water, when it is ready to be examined with the microscope. The Negri bodies have been found in the 10 human brains examined.

47. **Tumors on Mice.**—Haaland rejoices that we are entering on a new era in the matter of cancer. It has become a disease

that can be studied experimentally, he says, and no longer, as formerly, only at the bedside or on the cadaver. Moreau, Jensen and Borrel have demonstrated the inoculability of cancer by grafts of cells; Jensen has studied the nature of the tumors obtained by inoculation, and has commenced serotherapy; Borrel has rendered probable the infectious character under natural conditions, and, hence, the existence of a virus. Haaland's own researches have been with white mice, and he gives a number of plates of the epithelial tumors which he encountered on white mice and which generally displayed the characteristics of malignant tumors. Certain forms bear the closest resemblance to human cancer. The most frequent type displayed the characteristics of an infectious disease, with epidemic or endemic features in some instances. The introduction of a mouse thus affected into a cage of mice previously apparently sound resulted in the development of similar tumors on some of the other mice. This was especially noticeable in case of the epithelioma on the jaw and the malignant lymphoma of which he gives illustrations. Three of these forms produced metastases by cellular embolism; two others by way of the blood in the pulmonary vessels, and another by way of the lymphatics in the ganglia. Cancer cells may continue to grow when grafted into another animal. Certain small tumors noted in the lungs of the cancerous mice suggest the possibility that the cancer virus brought to the spot induced the proliferation of the epithelial cells at this point—not, strictly speaking, a metastasis. The intracellular inclusions, he thinks, can generally be explained as the relics of leucocytes which have made their way into the cancer cells.

Bulletin de l'Académie de Médecine, Paris.

48 (Year LXIX, No. 15.) Sur les vaisseaux sanguins des organes génito-urinaires du périnée et du pelvis (blood vessels of perineum and pelvis). Farabeuf.
49 *Anévrisme traumatique du tronc tibio-péronier ou de l'artère tibiale postérieure près de son origine, guéri par des injections sous-cutanées de sérum gélatiné. Le Dentu.

49. Cure of Aneurism of Tibial Artery with Gelatin.—Le Dentu reports the case of a young man who cut his leg, resulting in the development of a large aneurism at the bifurcation of the popliteal artery, with a pseudo-aneurism from distension of the cicatrix in the vessel. Extirpation of the sac would probably have required ligation of the anterior and posterior tibial arteries and of the peroneal. Before attempting such a serious operation, he injected 200 c.c. of 2 per cent. gelatinized serum, sterilized at 115 C. The injection was made in the buttocks. It was preceded by flexing the thigh on the leg as a means of controlling the blood supply. Seven injections were made in the period between November 23 and January 21, 1905, and at the latter date there was no trace of the aneurism except a minute hard bunch where the trauma had occurred. The patient was kept in bed a month longer, and was then completely well. Pulsation in the posterior tibial is normal.

Presse Médicale, Paris.

50 (No. 25, March 29.) De la fréquence de l'angine à spirilles et bacilles fusiformes. H. Vincent.
51 Sanitary Inspection of Schools. Aid of Fathers.—L'inspection sanitaire des écoles participation des pères de famille à cette inspection. H. Surmont (Lille).
52 Pastes in Dermatology.—De l'emploi des pâtes en dermatologie et pour le pansement des plaies superficielles. L. M. Pautrier.
53 (No. 26.) Application de l'extension continue aux fractures obliques de jambe (of the leg). L. Ombredanne.
54 *Lab-ferment et digestion lactée (of milk). L. Meunier.
55 Balnéothérapie et electrothérapie dans le rachitisme. J. Comby.
56 (No. 27.) L'intervention chirurgicale dans l'appendicite. J. L. Faure.
57 Foie flottant (floating liver). A. Martinet.
58 (No. 28.) Un téléphone modèle: le monophone. E. De Lavarenne.
59 Paralysie générale et syphilis. L. Marchand.
60 Traitement des dystrophies musculaires et des dystrophies générales par les mouvements actifs. P. de Champtassin.
61 (No. 29.) *Cytodiagnosis in Mumps.—Cytologie parotidienne des oreillons. J. A. Sicard and Ch. Dopter.
62 Conférences sur le sécret professionnel et l'avortement criminel (abortion). P. A. Lop.

54. Lab Ferment and Digestion of Milk.—Meunier has been studying the substance in the stomach which coagulates casein and has found that the amount varies within wide limits in different persons. Those with small proportions of this lab ferment are the ones who find difficulty in digesting milk. His research has shown that there is a close connection between the secretion of this substance and the digestion of fats. This is due, he thinks, to the way in which the lab ferment retards the passage of the milk along the intestinal canal, thus enabling it to be submitted longer to saponifying influences and thus favoring the absorption of the fat during the intestinal digestion. Defective digestion of the fat in milk, from absence of the lab ferment, may engender the intestinal troubles noted in some persons on a milk diet. He describes a method for determining the proportion of lab ferment in the stomach contents.

61. Cytodiagnosis of Mumps.—Sicard and Dopter obtain saliva directly from the parotid gland by introducing a short piece of a fine sound through the excretory duct of the gland. The saliva drips from the sound and is easily collected for examination. That taken from 32 persons free from mumps contained very few cells, not more than one or two to the field, but the saliva from 52 persons with mumps showed pathologic almost from the onset in 49 out of 52. It is easy by examining the saliva from the gland in this way to differentiate parotitis at any stage and to reveal the parotitic origin of certain affections of the testicles.

Semaine Médicale, Paris.

63 (XXV, No. 13, March 29.) *Preserves et conserves.
64 *Identity of Fourth Disease with "Scarlatinal Rubella."—L'identité de la "quatrième maladie" avec la "rubeole scarlatineuse." L. Cheinisse.
65 Effects of Humanitarian Bullets.—Les effects des balles dites "humanitaires."
66 (No. 14.) *L'asthénie. P. Londe.
67 (No. 15.) La notion de l'hérédité dans ses applications sociales. Editorial.
68 *Le pityriasis versicolor du thorax, signe indirect de la tuberculose pulmonaire au début. L. E. Bertrand.

63. Preserves and Conserves.—THE JOURNAL recently summarized an article by Ekelof on the diet in Arctic trips which used the term preserves and conserves in a special sense. The *Semaine Mèdicale* hails this use of the terms as destined to be generally adopted in medical literature. He restricts the term "conserves" to articles of food sealed in airtight cans, jars or bottles. The term "preserves," on the other hand, he applies in a more general way to food stuffs preserved from decomposition by any method, salting, smoking, freezing, sterilizing by heat, etc. Medical language has had no special word hitherto for articles of this class.

64. Fourth Disease.—Cheinisse sifts the literature on the subject of Dukes' "fourth disease," coming to the conclusion that it is identical with scarlatinal rubella. It is not a rubella, however, and he thinks that the proper name for it should be "epidemic pseudo-scarlatina." This locates and defines its characteristics and recognizes its autonomy.

66. Asthenia.—Londe's study of asthenia concludes with the remark that it is rather beneficial than otherwise in chorea, Addison's disease, peritonitis from perforation, diabetes or fever from any cause. The repose to which it condemns the patient husbands his strength. It should be respected, at least at first, and treatment should aim to second nature. Asthenia is sometimes a sign of cerebellar origin, but much more frequently it is of visceral and abdominal or sympathetic origin. The sympathetic is the source even in such widely differing conditions as peritonitis, grippe, diabetes, exophthalmic goiter, muco-membranous enteritis, melancholia, etc. The frequent association with the asthenia of vasomotor or secretory disturbances is the proof of this intervention of the sympathetic. Asthenia is evidently a morbid function of the great sympathetic in the same way as anguish seems to be the function of the bulbar centers of the sensory pneumogastric. He describes the anatomic relations between the cerebellum and the sympathetic which bring this to pass, adding that the same peripheral motor neuron or its vascular territory is interested both in simple asthenia and in absolute paralysis. In the former the trouble is merely functional, while in the latter there is some lesion. The rule to examine the state of the abdominal functions in every case of illness that presents itself, is even more imperative in case of asthenia, for the most frequent cause of the latter is in some disturbance in the abdominal sympathetic. Tonics are required only subordinately,

and stimulants are not really indicated except in case of extremely acute asthenia.

68. **Pityriasis Versicolor Sign of Tuberculosis.**—Bertrand stated that almost always when he has observed pityriasis versicolor on the thorax the patient was thin, easily catching cold, coughing a little but not expectorating, and the further course revealed that the pityriasis had been an accompaniment of incipient tuberculosis. This combination of tuberculosis with the cutaneous affection has been so constant in his experience that he regards it as the rule, and always examines for tuberculosis so soon as he notes the other.

Archiv f. Gynäkologie, Berlin.

Last indexed page 1568.

69 (LXXV, No. 1.) *Remote Results of Instrumental Dilation.—Spätfolgen des Entbindungsverfahrens nach Bossi. F. Lichtenstein.
70 Metabolism in Pregnancy.—Beitrag zur Kenntnis des Stoffwechsels während der Schwangerschaft. C. Hahl.
71 Beiträge zur Kenntnis der soliden Ovarial-Tumoren. A. Glockner.
72 Organ-Anlagen in den Ovarial-Embryomen mit besonderer Berücksichtigung pathologischer Vorgänge. Offergeld.
73 Ahlfeld und seine intrauterine Atmung (respiration). M. Runge.

69. **Remote Results of Mechanical Dilation.**—Lichtenstein has examined 18 women long after instrumental dilatation with the Bossi dilator, and found no evidences of injury from the instrument. In 4 cases there were small and in 2 larger lacerations of the portio, and in 1 there was a bilateral laceration of the cervix, but no parametritic changes could be discovered which could be attributed to the mechanical instrumental dilatation.

Berliner klinische Wochenschrift.

74 (XLII, No. 13, March 27.) *Ueber die parasitäre Theorie in der Aetiologie der Krebse (of cancers). E. v. Leyden.
75 *Die biogenetische Theorie der Geschwülste und die Aetiologie des Carcinoms. O. Israel.
76 *Aus dem Gebiete der Hydrotherapie. L. Brieger.
77 *Chronic Inflammation of the Lungs in Heart Disease.—Chronische Lungenentzündungen bei Herzkranken. D. Rothschild.
78 *Etiology of Malignant Tumors.—Was wissen wir über die Ursache der bösartigen Geschwülste. v. Hansemann. (Concluded.)
79 Ueber Wesen und Behandlung des Plattfusses (flat foot). C. Helbing.

74, 75 and 78. **Etiology of Cancers.**—These articles were summarized in the Berlin letter on page 1207.

76. **Hydrotherapy.**—Brieger is in charge of the Institute for Hydrotherapy connected with the Berlin University. In his address delivered at the twenty-sixth congress of the German Balneologic Association, held at Berlin in March, he demonstrated how the benefits of hydrotherapy are becoming better and better realized and how it is overcoming the prejudices of all. He stated that 70,000 different applications of hydrotherapy have been given at his institute, more than 10,000 patients having passed through his hands, and 93 scientific works have issued from the institute. He has had the training in hydrotherapy of 440 physicians from Germany and abroad, and of 283 students. He here reviews some of the principles of the science, among them the intensity of the action of hot water baths in chlorosis, nephritis, syphilis, and for young gouty subjects. Winternitz has established that these hot baths accelerate the oxidation processes more even than fever. Krebs and Mayer have also demonstrated that this form of hydrotherapy alone is able to change the number of blood corpuscles and the specific gravity of the blood. Local applications of heat in gout are made preferably with cotton wrung out of hot water and covered with rubber tissue. He has been ordering patients with chronic rheumatism or gout to drink a quart to a quart and a half a day of distilled water for a month or two. He has never noted any inconveniences from it nor any striking benefit. Corpulent persons are given exercise in tanks of water after a light bath and rub down. More and more water is allowed to flow into the tank and the temperature is constantly reduced, and the patient is instructed to keep the water constantly in motion, with an occasional rest.

77. **Chronic Inflammation of the Lungs and Heart Disease.**—Rothschild expatiates on the immunity to tuberculosis conferred by mitral stenosis. The congestion in the lungs caused by this defect seems to act in the sense of Bier's passive hyperemia and prevent the development of secondary tuberculosis. It is possible for a mitral defect to become installed after tuberculous lesions are already established, but the conditions then favor the cure of the primary lesion. Tuberculosis has no influence in preventing the development of a mitral or other cardiac defect. Kryger found only 10 out of 1,100 tuberculous cadavers with evidences of a heart defect, but he found 59 cases of healed or arrested tuberculosis in cadavers with pronounced heart defects. Cardiac defects seem to favor the development of other pulmonary affections besides tuberculosis. Rothschild has had occasion to observe 5 cases presenting a triad of organic affections, involving the myocardium or pericardium, the pleura and the lower lobe of the lung, a chronic fibrous process resulting from a primary inflammation of the connective tissue.. The primal disturbance is usually pleurisy and generally on the right side. This is followed by induration of the lower lobe; the spread of the process to the pericardium is manifested by arrhythmia. One of the patients is a woman of 41 who does not seem much incommoded by the severe changes evidenced by the arrhythmia, violent catarrh and infiltration of the lower lobe. The second patient is a woman of 63, and her trouble dates from 1872. She is occasionally disturbed by slight hemorrhage, but her mitral insufficiency and stenosis with aortic insufficiency have not prevented her from increasing in weight from 97 to 112 pounds in the last two years. A third patient is a woman of 42 with frequently recurring pericarditis and pleurisy who yet keeps in comparatively good health. He has never encountered but one man presenting this syndrome. Tuberculosis was excluded in each case by repeated examination of the sputa. Syphilis was probable in one case. Potassium iodid seemed to influence these cases favorably, as also carbonated baths and inhalations.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 1322.

80 (XXXII, No. 12.) Zur Korrektur des kongenitalen Klumpfusses (club foot). Nobe.
81 (No. 13.) Ossification in Goiters.—Ueber Knochenbildung in Strumen. E. Sehrt.
82 *Cachexia und Tetania thyreopriva. Lanz.

82. **Cachexia and Tetania Thyreopriva.**—Lanz has been experimenting for some years with thyroidectomized goats, using them for serothapy or breeding purposes. Among the 30 goats thus thyroidectomized at Berne only one developed acute tetania thyreopriva immediately after the operation. All the others exhibited cachexia in varying degrees or no disturbances at all, with no evidences of tetany. During the two years since he has resided in Amsterdam 20 goats have been thyroidectomized and he has been surprised to note that 9 of them developed tetany to which they succumbed in a few weeks. The thyroidectomy was done by the same person and by the same technic in every instance, and this striking difference in the results in Switzerland and Holland suggests some variation in the thyroid gland from the difference in climate, soil or something of the kind. Kocher and Reverdin at Berne and Geneva used to witness cachexia or operative myxedema follow total extirpation of the thyroid in the clinic, while Billroth in Vienna beheld tetany develop instead under the same circumstances. Lanz noticed ten years ago that the thyroid gland is degenerated much more frequently in Switzerland than elsewhere both in human subjects and in cattle, the latter in comparison with the imported Italian cattle. He suggests that experiments with a parathyroidin, made like adrenalin, might yield interesting results.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 1322.

83 (XXIX, No. 12.) *Das Eklampsie-Gift (toxin). A. Dienst.
84 Perforator That Does Not Slip.—Ein neues Perforatorium zur volkommenen Sicherung gegen das Abgleiten. P. Zweifel.
85 (No. 13.) Changes in Ovaries with Hydatiform Mole and in Pregnancy.—Zur Frage der Ovarialveränderungen bei Blasenmole und bei normaler Schwangerschaft. J. Wallart.
86 Id. with Syncytial Tumors and Hydatiform Mole.—Id. bei syncitialen Tumoren und Blasenmolen. S. Patelleni.
87 Intrarenal Tension as One of the Causes of Eclampsia.—Intrarenale Spannung als eine der Ursachen von Eklampsie. A. Mynlieff.

83. Pathogenesis of Eclampsia.—Dienst suggests that the cause of puerperal eclampsia may be sought in an abnormal communication between the circulatory systems of the mother and the fetus. He found that methylene blue injected into the umbilical cord immediately after delivery, caused the mother's urine to show traces of the stain in about a fifth of the cases, not in the others. Milk injected likewise into an umbilical artery or vein oozed from some of the larger vessels on the maternal surface of the placenta. His experiments were made with placentæ from 15 eclamptic women and also with 355 placentæ from normal childbirths. In 160 women thus tested one-fifth showed this phenomenon of blue urine. He further experimented with 3,452 mixtures of the blood of mothers and fetuses in 118 cases. In 24 instances he found that the maternal blood agglutinated or dissolved the fetal blood, acting like a heterogeneous blood. In 15 of these women the urine showed no trace of the stain after injection of the methylene blue into the placental vessels. All of these 15 women had had normal childbirths. The other women showed the blue urine, and 7 had developed eclampsia while the other 2 had exhibited severe albuminuria. He proposes, therefore, the theory that eclampsia is nothing more than the effect of transfusion of the heterogeneous fetal blood into the maternal circulation, that is, the effect of abnormal permeability of the placenta. He presents a number of further arguments to sustain this assumption.

Deutches Archiv f. klinische Medicin, Leipsic.

Last indexed page 993.

88 (LXXXII, Nos. 3-4.) Ueber das photodynamische und optische Verhalten der Anthracinone (behavior of anthraquinones). H. v. Tappeiner.
89 *Zur Behandlung der Haut-Carcinome mit fluorescierenden Stoffen (treatment of cutaneous cancer with fluorescent substances). A. Jesionek and H. v. Tappeiner.
90 2 Fälle von Atresie der Pulmonalis. Koller.
91 *Zur klinischen Diagnostik der intrathorakalen Erkrankungen. A. Grober.
92 Zur diagnostischen Bedeutung der Hämatemesis bei Appendicitis. Krehl.
93 Zur Kenntnis der Komplikationen der Polyarthritis rheumatica acuta von seiten der Haut (cutaneous complications). G. Riebold.
94 Bactericidal Action of Human Serum Against Typhoid Bacilli.—Ueber die bakterizide Wirkung des menschlichen Blutserums gegenüber Typhusbazillen (Nachweis des Zwischenkorpers). G. Hahn.
95 Id. in 60 Typhoid Patients.—Weitere Untersuchungen über die bakterizide Reaktion des Blutserums der Typhuskranken. Korte and Steinberg.
96 *Ueber suggestives "Injektions-Fieber" bei Phthisikern. F. Köhler and M. Behr.
97 Zur Serum-Therapie fibrinösen Pneumonie. H. Pässler.
98 Zur Kenntnis der Bence-Joneschen Albuminurie. F. Reach.
99 Relations Between Motor Functions of Stomach and of Intestines.—Zur Frage der Beziehungen zwischen Magen und Darmmotilität. E. Veiel.

89. Treatment of Superficial Cancer with Fluorescent Substances.—The 6 cases described showed marked improvement after injection or superficial application of fluorescent substances. The benefit seemed to be merely transient in some of the cases. The exposures after the application of the photodynamic substances were as extensive as possible, both sunlight and the arc light being used. The lesion was ulcus rodens in most cases.

91. Signs of Intrathoracal Affections.—Gröber expresses surprise that such scant attention is paid to the variations in the pupil reaction in incipient intrathoracal affections. A tuberculous apical affection is almost certain to cause iritation of the sympathetic and consequent dilatation of the pupil on that side, even from its very incipiency. The findings in Valsalva's experiment also differ from normal if there is any inflammatory process in the thorax. The large veins on the affected side swell up sooner and more prominently than on the other. The pupils also behave differently in Valsalva's experiment in case of an intrathoracal morbid process. The percussion findings over the manubrium are also different. A difference in the pupils after a deep inspiration is a sign of something wrong in the upper segment of the thorax. He has observed unilateral pulsus paradoxus with pleural adhesions in 3 cases.

96. Suggested Fever in the Tuberculous.—Köhler and Behr relate that in 10 out of 40 tuberculous persons who were given a sham tuberculin injection—water being used instead of the tuberculin—the temperature rose and headache, depression and lassitude were observed the same as in a positive tuberculin reaction. The same effects were observed also in 6 out of 20 persons, who were given merely a puncture without injection of any fluid. The temperature rose from .4 to 2.4 of a centigrade degree and remained high for about four hours in the majority, but in four cases the fever persisted for six to sixteen hours.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

100 (XXXI, No. 13.) *Prostata-Sekret und Prostatitis. Ein Beitrag zur Entzündungsfrage. C. Posner and L. Rapoport.
101 *Action of Roentgen Rays on Glands.—Ueber die Wirkung der Röntgenstrahlen auf Drüsen. A. Buschke and H. E. Schmidt.
102 *Sound in Intestines.—Ueber Darmsondierung. E. Rosenberg.
103 *Early Symptoms of Cancer in Throat.—Zur Kenntnis der Fruhsymptome maligner Tumoren des Nasenrachenraums. Stenger.
104 *Superheated Air in Nervous Affections.—Ueber Heissluftbäder bei Nervenkrankheiten. L. Jacobsohn.
105 Industrial Hygiene.—Gewerbehygienische Rundschau. E. Roth.
106 *Medical Indiscretions.—Aerztliche Unvorsichtigkeit. Neuhaus.

100. Prostatitis Viewed from New Standpoint.—Posner and Rapoport argue to the effect that the secretion of the prostate has many points in common with milk and colostrum. The granulations in the prostatic fluid consist of lecithin, which is secreted by the epithelium the same as the milk fat in the breast. Whenever, for any reason, the secretion fails to find a free outlet leucocytes migrate into the gland and the leucocytes devour the lecithin granules by phagocytosis. Certain cases of chronic inflammation of the prostate are merely this combination of circumstances; the infectious element is absent. The disappearance of the lecithin granulations from the fluid is merely the result of stagnation of the secretion with consequent inroad of leucocytes and their incorporation of the lecithin. If the mechanical obstacle to the escape of the secretions can be removed, the secretions find an outlet, the leucocytes cease to flock into the gland and the inflammation subsides. This class of cases is the one benefited by massage, hydrotherapy and electricity. In the presence of chronic prostatitis, therefore, it is of the utmost moment to determine whether the inflammation is of infectious origin or is the result of mere obstruction to the outflow of the secretion.

101. Action of Roentgen Rays on Glands.—In Buschke's experimental research the kidneys and testicles reacted in a different manner to the *x*-rays. The kidneys did not react except after very vigorous exposures, and then with a severe destructive process. In the testicles, even after comparatively slight exposures, extreme atrophy resulted, without traces of inflammation. Further experimental tests showed that the Roentgen rays were able to suppress the sweat secretion without appreciable injury to the skin or sweat glands. A case of hyperidrosis of the hands was treated with the *x*-rays. After a few exposures the sweat secretion was entirely suspended in the parts exposed and in the vicinity, without any appreciable injury to the skin. Pusey, Stelwagon and Müller have reported similar success in treatment of excessive perspiration.

102. To Introduce the Tube High Up in the Bowel.—This communication from Albu's clinic describes considerable research in this line. The final conclusion is that the "recto-romanoscope" is indispensable. With its aid it is possible to introduce the tube much higher than without it, and medicines can be applied directly to the points where needed, either as a fluid or dry powder. Without direct visual inspection it is generally impossible to introduce the tube beyond the entrance of the sigmoid flexure, but with it the tube can be passed to the middle of the flexure, and, under specially favorable conditions, as far as "Schiefferdecker's point," the left margin of the small pelvis. The tube is arrested at this point and attempts to introduce it further merely result in its rolling up on itself. Of all the tubes, sounds, etc., tested a 74 cm. long Jacques stomach tube, No. 12, proved the best adapted for the purpose. It was introduced with the subject in the knee-chest or knee-elbow position. A large number of persons submitted to the tests, the results confirmed by radiography.

103. Early Symptoms of Cancer in Throat.—Stenger emphasizes the importance of paying attention to symptoms on the

part of the nose, obstruction, etc., especially symptoms involving the nasopharynx, also to symptoms of a neuralgic character and ear symptoms. Attention to all these symptoms will in many cases disclose incipient malignant disease of the nasopharynx when none, taken alone, would ever suggest it. Even slight symptoms on the part of the nose should compel examination of the nasopharynx, and obstinate neuralgia should never be dismissed as "mere neuralgia" without search for some objective lesion. The most important early sign of cancer is the development of ear symptoms ushered in by a catarrhal affection of the tubes with neuralgic disturbances.

104. **Superheated Air in Treatment of Nervous Affections.**—Jacobsohn has been applying superheated air in the treatment of all kinds of nervous affections, but has found little benefit from it in the organic troubles. On the other hand, many cases of peripheral and functional nervous troubles were much relieved, some of them to a remarkable extent. The local applications of superheated air thus proved a great aid in polyneuritis, in all forms of neuralgia (supraorbital, sciatica and lumbago), in professional neuroses, in sleeplessness from anemia, in hysteric troubles and in muscular joint rheumatism.

106. **Medical Indiscretions.**—Neuhaus preaches in regard to the necessity of extreme discretion in writing articles for the medical press. His text is an article on syphilis in a recent exchange in which a number of case reports are given. The cases are cited by both initials, with the place, age, profession, aspect and time of infection. These particulars have not the slightest bearing on the subject under discussion, but if the article should fall into lay hands the parties could all be easily identified from the descriptions, and serious trouble might result. This did actually occur in the case of a physician of Luxemberg who published a similar article in the *Wiener medicinische Zeitschrift* some time ago, referring to residents of his city. The parties were recognized and severe penalties were imposed on him. Both authors and editors should bear in mind the possibility of trouble of this nature from these superfluous details.

Monatsschrift f. Geb. u. Gynäkologie.

Last indexed page 913.

107 (XXI, No. 1.) Innervation der weiblichen Genital-Organe. P. Jung.
108 Skopolamin-Morphin-Narkose. H. Ziffer.
109 *Zur Kasuistik des widerholten Kaiserschnitts (repeated Cesarean section). L. A. Kriwski.
110 *Cholecystitis im Wochenbett (in puerperium). Christiani.
111 *Zur histologischen Diagnose bei Frühstadien von Uterus-Tuberkulose (in early stages). J. Schottlaender.
112 Zur Diagnose des Kystadenoms serosum papillare ovarii. E. Fraenkel.
113 *Methodisches Kompression als typisches Heil-Verfahren in der Gynäkologie. L. Pincus (Dantsic).
114 (No. 2.) Intrauterine Respiration.—Die intrauterine Tätigkeit der Thorax- und Zwerchfell-Muskulatur. Intrauterine Atmung. F. Ahlfeld.
115 Dauer der menschlichen Schwangerschaft (duration of pregnancy). A. Blau and R. Cristofoletti.
116 *Lumbal-Anästhesie in der Geburtshülfe und Gynäkologie. J. Müller (Greifswald).
117 Zur Wertschätzung der Myom-Operationen. E. Essen-Möller.
118 Zur Kasuistik der submukösen Myome. R. Katz.
119 (No. 3.) *Zur Indikation und Methodik der Sterilisation der Frau. O. Küstner.
120 Mechanism of Differential Development of Sex.—Zur diff. Entwicklungsmechanik des Geschlechts. Weill.
121 Die Extraktion nach Müller. J. Lovrich.
122 Severe General Manifestations from Compression of One Ureter in Pregnancy.—Fall von einseitiger Ureterkompression, etc. Ahlefelder.
123 *Ueber kriminellen Abort. Puppe.
124 Closure of Peritoneum After Vaginal Hysterectomy.—Zur Frage des Peritonealverschlusses nach vag. Totalexstirpation des Uterus, nebst Bericht über 56 ausgeführte Operationen. Schütze (Königsberg).
125 Spontan-Heilung des Chorionepithelioms (case of spontaneous recovery). C. Fleischmann.
126 Fall ausgetragener ektopischer Schwangerschaft (pregnancy at term). W. Hannes.
127 (No. 4.) Birth of Twins with Over Three Days' Interval.—Zwillingsgeburt mit 3½ tägiger Pause zwischen der Geburt des ersten und zweiten Zwillings. H. Cramer.
128 *Puerperaler Uterus und Curette bezw. Behandlung des Abortes. H. Langes.
129 Perforation of Living Child in Maternities.—Perforation des lebenden Kindes in geburtshülflichen Anstalten. R. Katz.
130 Weitere Beiträge zur Technik der mechanischen Dilatation. E. Pollak.
131 *Zur Aetiologie und Therapie der weiblichen Urogenital-Fisteln. O. Vertes.
132 Zur Kasuistik des Adenoma hidradenoides vulvæ. C. Fleischmann.
133 Zur Tuberkulose der weiblichen Genitalien. H. Thomson (Odessa).
134 Ueber die Thure-Brandtsche Methode. F. H. Kumpff.

109. **Repeated Cesarean Section.**—Kriwski has found in the literature records of 73 cases in which Cesarean section was done twice; 13, three times, and 3 with four Cesarean operations on the same woman. Nine of these twice repeated operations were by various Russian surgeons. One of the latter cases is described in detail, to show how simple and easy the second Cesarean section proved. The adhesions simplified it, but the musculature of the uterus reacted very sluggishly to the metreurynter.

110. **Cholecystitis in the Puerperium.**—Christiani is inclined to believe that the rarity of reported cases of cholecystitis after childbirth is due to the difficulty of differentiating such an affection. He describes 2 cases in detail and emphasizes the fact that fever in the puerperium is not inevitably due to puerperal infection, but may be the result of cholecystitis or of appendicitis. Both of the latter should always be excluded before we diagnose puerperal pyemia. As a general rule, he remarks, we should resort to the knife rather sooner during the puerperium than outside of it. The possibility of involvement of the liver is more menacing during pregnancy and the puerperium than under normal conditions, while the gravid and puerperal states do not affect the chances of the operation unfavorably. Both of his patients recovered under internal treatment alone. The signs on which he relied as speaking against puerperal pyemia were the frequent bilious vomiting with slight peritoneal irritation, and the full, slow pulse. Nothing indicated involvement of the liver. Pinard and others have published 3 cases cured by operation, although the true state of the case was not discovered until about the tenth day.

111. **Histologic Diagnosis of Incipient Tuberculosis of the Uterus.**—Schottlaender thinks that the discovery of a tubercle is not necessary for the diagnosis of tuberculosis. The finding of a few epithelioid cells surrounded by giant cells, even loose in a cavity, is a clue. He has made a point of examining scraps of mucosa from every patient curetted, regardless of the clinical history of the case. He found changes in the epithelium in 10. In some of these cases there was a concomitant tuberculous process elsewhere, but the findings were evidently not specific for tuberculosis, as they occurred in several healthy subjects after abortion or normal delivery. His research further demonstrated that the reaction to the presence of the tubercle bacillus is not invariably in the line of the formation of tubercles. The reaction may be merely tissue changes of indeterminate character, not at all what we are accustomed to regard as tuberculous processes.

113. **Therapeutic Systematic Compression in Gynecology.**—The method of treatment here described is based on scientific empiricism, Pincus remarks. It is a familiar fact that the classic four-in-hand, rubor, dolor, calor and tumor, is essentially benefited by raising the limb, that is, by mechanically driving the blood out of the part. The effect is enhanced by compression applied in the form of a bandage wound around the limb from the periphery toward the center. An aching nerve can sometimes be relieved by pressing on it. Local compression for several minutes at a time or intermittently has cured a number of cases in his experience of clitoris onanism in case of indurated and edematous or hypertrophied clitoris, such as occurs in certain families. Local compression reduces the nervous sensibility and finally abolishes it. Local cold applications benefit temporarily, but leave an injurious after effect, while hot applications do good both temporarily and permanently. The mucosa is liable to react to cold with a catarrhal affection. Pincus applies mechanical compression as a means of stimulating the circulation of blood by driving the blood toward the comparatively empty heart. He accomplishes this in seven typical ways, or by a combination of several of them. Raising the lower part of the body sends the blood to the heart. He calls this autotransfusion, and when accompanied by exercise of the parts, active autotransfusion. Another means of filling the heart is by saline infusion or rectal injections or by drinking a .9 per cent. salt solution. Still another means is by exercises in breathing, by the care of the skin or by mechanical suppression of normal menstrual bleeding (tamponing the young and steam obliteration of the uterine lining in the woman near the climacteric or in hopeless invalids). The autotransfusion is promoted by a mechanical

device which he has invented. It is like a large, round rolling pin, bulging irregularly in the center or on one side, with which the abdomen is massaged. This drives a large wave of blood toward the heart. Another rolling pin device has a middle part like a wheel, with which the plexuses along the spine or the celiac plexus are compressed as the wheel is rolled over them. Another rolling pin is curved to fit over the abdomen. These devices are illustrated, and Pincus has just published in book form a complete, illustrated description of this mode of treating chronic anemic gynecologic affections. He calls it "Belastungslagerung," which is the title of his recently published monograph. It contains a description also of his mode of applying compression and massage by the mercury and the air colpeurynter. The influx of blood to the parts as the compression is removed is one of the chief advantages of this mode of treatment. It is unnecessary to discuss whether suggestion is an important factor in the excellent results obtained. Let us heal and help, he exclaims, we can argue later. When the colpeurynter is in place the compression is slowly applied and then rapidly removed, with a brief interval, this alternation of compression and its suspension acting as a massage of the parts. It is indicated for the sympathetic neuroses, for defective involution of the uterus, for chronic affections in the parametrium and adnexa, free from exudation, for myasthenia and defective tonicity of the wall of vagina or rectum, and also for the chronic muscular constipation of women.

116. **Lumbar Anesthesia in Gynecology.**—Müller's experience with 20 cases has been decidedly in favor of spinal cocainization or tropacocainization for gynecologic operations that do not require the peritoneum to be opened. The anesthesia was complete for operations of an hour's length or under. When the peritoneum was opened the anesthesia was less reliable, but a few whiffs of chloroform rendered it complete.

119. **Operative Sterilization.**—Küstner resected through the vagina 2 or 3 cm. of each tube and sutured the openings into the uterus, in the 2 cases reported. Both refused to allow laparotomy, and further pregnancies were urgently contraindicated. Both the women returned a year or so later in the second or third month of pregnancy. He concludes from his experience that it is necessary to resect the entire tube to prevent conception later. The opening into the uterus should be carefully sutured, with a plastic covering, if possible.

123. **Criminal Abortion.**—Puppe reviews his medicolegal experience as an expert in a number of cases.

128. **Treatment of Abortion.**—Langes describes his experience with 32 cases of simple or complicated abortion, in private practice. There was no temperature in any case. His treatment is digital evacuation in case of a single abortion, curettement for repeated abortion, and, in case of preceding endometritis, always curettement after three or four weeks. He has thus treated 32 cases in his practice without temperature in any case.

131. **Urogenital Fistula.**—Vertes summarizes Döderlein's experiences with 24 cases of urogenital fistula.

Münchener med. Wochenschrift, Munich.

135 (LII, No. 13.) Die Bekämpfung des Status epilepticus (attempts at prevention and treatment). K. Alt.
136 *Ueber den Pulsus alternans und pseudo-alternans. F. Volhard.
137 *Einbruch eines karzinomatösen Ovarial-Tumors in ein intramurales Fundus-Myom. A. Bauereisen.
138 Congenital Hyperplasia of Left Lung with Rudimentary Right Lung.—Angeborene Hyperplasie der einen Lunge, etc. E. v. Graff.
139 *Injuries of the Kidney.—Ueber Nierenverletzungen. Habs.
140 Connection Between Eye Findings and Symptoms in Vagus Domain.—Ueber den Zusammenhang von abnormen Erscheinumgen im Auge mit Symptomen im Gebiete des Vagus. O. Rosenbach.
141 *Therapeutische Notizen zur Syphilis-Behandlung. A. Lieven.
142 *Noch eine Mitteilung über Balsamum peruvianum. Unschuld.
143 Dosage of Roentgen Rays.—Ueber die Köhlersche Röntgenröhre mit Vorrichtung zur therapeutischen Dosierung der Röntgenstrahlen. B. Walter.

136. **Pulsus Alternans and Pseudo-Alternans.**—Volhard describes from the clinic of the late Professor Riegel 4 cases of alternating pulse, giving ten tracings of the findings at different periods. They corroborate his assertions that the anomaly is due to lengthening of the contraction by more sluggish contraction of the smaller systole, combined with high pressure in the aorta. He admits a true alternating action of the heart in the human subject, a rhythmic alternation of vigorous and feeble contractions of the auricles, as well as of the ventricles. There is no disturbance in the rhythm at the heart, only at the pulse; the smaller pulse wave arrives too late. This delay in the pulse wave is not due to any disturbance in conductibility, but to the lengthening of the time of contraction and to the slower propagation of the small wave in the artery. This lengthening in the time of contraction is caused by the more sluggish contraction of the smaller systole and to the high pressure in the aorta as mentioned above. By the appearance of an extra-systole in the alternate period, the alternation becomes so pronounced that the second pulse may become intermittent. There is only a single form of true *pulsus alternans*, that with a retarded smaller wave. If this appears in the normal interval or earlier, the case is one of pseudo-alternans, simulated by extra-systoles. The delaying of the pulse obliterates the regularity and simulates a disturbance in the rhythm in case of true alternans, while in the pseudo form the disturbance in the rhythm is obliterated and regularity is simulated. The idea used to prevail that pulsus bigeminus was a very serious sign, but the opinion is gaining ground more and more that it can be of a very harmless nature sometimes. Volhard's impression is that the nervous form always appears in the ventricular type. The rare auricular type seems to occur more on a muscular than on a nervous basis.

137. **Irruption of Cancerous Ovarian Tumor into a Myoma in Uterus.**—Bauereisen's case was specially interesting from the fact that the patient had presented glycosuria for three years—ever since the first symptoms of the tumor had been noted. After the removal of the diseased organs the sugar vanished from the urine. The glycosuria must have been due to pressure from the tumor on the pancreas, which prevented it from supplying its glycolytic ferment to the blood.

139. **Injuries of the Kidney.**—Five cases of kidney injuries are described and various diagnostic points are emphasized. One patient was a man of 38, who fell on his left side on a car coupler and experienced severe pain at once, radiating to the testicles, bladder and urethra. The kidney region was tender but no tumor was palpable. The urine was free from blood, pus, albumin and sugar. The abdominal muscles were rigid on the affected side, but not on the other. The absence of hematuria was remarkable; it is usually one of the leading symptoms of injury of the kidney. It can be differentiated from hematuria from injury of the bladder by the regularity of the blood stain in the urine. When the injury is in the bladder, the last portions of urine are generally stained more with blood than the first portions. Oliguria is the rule, and if the sound kidney suspends its activity, by reflex action, the case usually terminates fatally. Determination of the freezing point will show whether the reduction of the amount of urine is a true oliguria. The absence of oliguria in the case above described was likewise an interesting feature. When the patient was dismissed a month after the injury there were no symptoms except tenderness in the left lumbar region and slight stinging pains under the left costal arch.

141. **Iodid in Treatment of Syphilis.**—Spencer's formula for potassium iodid combines various tonics with the drug, but the medicine looks and tastes like ink. Lieven has modified the formula while retaining its essential ingredients. The resulting fluid is limpid, durable and of a pleasant flavor, and with it the tendency to iodism can be avoided.

℞.	Potassii iodid	℥i	30
	Ferr. citr. ammon.	3i	4
	Strychnin. nitratis	gr. 1/3	02
	Elæosaccharum menth. pip.	3i¼	5
	Aquæ aurantii flor. q. s. ad	℥iv	120

One teaspoonful equals 1 gm. of potassium iodid. Dose one teaspoonful in a large amount of water, not less than a pint. (The elæosacchara are from the German Pharmacopeia and are made by triturating any volatile oil with sugar in the proportion of one drop of the oil to 2 gm. of sugar. These should be freshly made when wanted.)

142. **Peruvian Balsam in Mal Perforans.**—Unschuld has had very gratifying results from the use of Peruvian balsam in treating mal perforans on diabetics. He applies it as a salve with lanolin in these cases.

Russkii Vratch, St. Petersburg.

Last indexed page 1491.

144 (III, No. 11.) Rubber Gloves in Military Surgery.—Primyenenie guttaperchevykh pertchatok v voennoi chirurgii. V. G. Zoege von Manteuffel.
145 *Unusual Foreign Body in Vagina.—Ryedkii slutchai dolgolyetnago prebyvaniya enorodnago tyela vo vlagalishtchye. V. N. Orloff.
146 *Compulsory Seclusion of Alcoholics in Asylums.—O prinyditelnom pomyeshenii alcoholikov v lyetchebnitzy. F. E. Rybakoff.
147 *Rol psychotherapii v dermatologii. K. S. Agadzhaniantz.
148 (No. 12.) Ob iskrivleniyakh sheiki bedrennoi kosti (coxa vara and valga). G. I. Turner.
149 Study of Blood Supply to Heart of Warm-Blooded Animals.—O mechanismye pitaniya (resp. krovosnabzheniya) serdtza teplokrovykh zhevotnykh. I. A. Tchuevski.
150 *Esophagotomy to Remove Foreign Bodies.—O naruzhnom syetchenii pishtchevoda kak neotlozhnoi operatzii pri udalenii inorodnykh tyel. P. A. Baratinski.
151 Advantages of Operating Under Direct Roentgen Light.—Ob operatziyakh pod neposredstvennoi provyerkoi lutchami Roentgen'a. A. I. Galebski.
152 (No. 13.) *Early Symptoms of Syringomyelia.—Slutchai syrinomyelii v natchalnykh stupenyakh eya razvitiya. M. I. Lifshitz.
153 (No. 15.) *Deceptive Course of 2 Cases of Gastric Cancer.—O skryto protekayushtchem rakye zheludka. A. P. Favitzki.
154 *Study of Action of Drugs on Isolated Kidneys.—O dyestvii yadov na sosudy izolirovannykh potchek. V. V. Zakusoff.
155 High Tension Electric Currents in Surgery.—K primenyeneiyu elek tokov (Tesla-d'Arsonval'ya) v oblasti chirurgii. P. M. Zhdanoff.
156 (Nos. 17-18.) Examination of Blood as Aid to Diagnosis and Treatment.—Znatchenie izslyedovaniya krovi dlya raspoznavaniya i lyetcheniya bolyeznei. K. I. Korovitzki.
157 Artificial Production of Microcephaly in Dogs.—Popytka iskusstvennago polutcheniya microcephalii u sobak. V. I. Danilevski.
158 Pharyngitis hemorrhagica. S. S. Preobrazhenski.
159 Microbes of Bubonic Plague and Bacilli Pseudo-Tuberculosis Rodentium Pf.—K morphologii i biologii mikroba, etc. S. I. Zlatagoroff.
160 Influence of Radium on Specific Hemolytic Serums.—O vliyanii radiya na spec. hemolytitcheskuyu syvorotku. P. P. Yagn.
161 Favorable Influence of Electric Phototherapy on Middle-Ear Affections.—O vliyanii kholodnago el. svyeta (lampotchek nakalivaniya), etc. O. S. Merrovitch.
162 Changes in Red Corpuscles as Early Sign of Lead Poisoning.—Izmyeneniya v krasnykh krovyanykh tyelakh kak rannii priznak svintzovago opravleniya. A. I. Lure.
163 Necessity of Oxygen for Action of Hydrolytic Ferments.—Neobkhodim li kislorod dlya dyestviya hydrolititcheskikh brodil? N. A. Sakharoff.

145. **Croquet Ball Thirty Years in Vagina.**—Orloff relates the case of a ii-para who had introduced a croquet ball into her vagina to relieve the distress caused by prolapse of the uterus. The croquet ball answered the purpose of a pessary so that the prolapse caused her no further annoyance. The ball was left undisturbed for thirty years, when she applied for relief from a fetid discharge from the vagina, aged 60 at this time. The ball was broken up with Doyen forceps and removed in pieces without trouble.

146. **Incarceration of Alcoholics.**—Rybakoff urges that when a habitual drunkard shows signs of mental impairment or of moral depravity he should be placed in an asylum at once, without wasting time in the inebriates' homes.

147. **Importance of Psychotherapy in Dermatology.**—Three interesting cases are related to demonstrate the unmistakable influence of psychotherapy on cutaneous affections. It controls the physiologic functions of the skin, and with it the skin can be restored to normal when reduced sensibility invites a skin affection. Mental conditions have great influence over the nerves of the face and elsewhere, and mental conditions can be modified by psychotherapy. It influences the blood supply to the parts by its vasoconstricting or dilating action, and will prove a valuable aid in dermatology as an adjuvant to the usual measures for certain cases. One of the cases described was that of a woman of 20, hysteric, anemic, and suffering from intercostal neuralgia with periodically recurring herpes zoster. Suggestion in hypnosis for a few times put an end to the neuralgic and cutaneous disturbances. In another young woman there were no evidences of hysteria; but recurring eczema of the face was treated by psychotherapy with prompt cure. In a third case more than 20 seances were required before the rebellious eczema of the hands yielded to treatment. This patient was an elderly neurasthenic male.

150. **Esophagotomy for Removal of Foreign Bodies.**—Baratinski agrees with other writers in affirming that esophagotomy at once to remove a foreign body has had no mortality. The deaths that have followed esophagotomy were due to the injuries inflicted by attempts to extract the foreign body by other means. He reviews the literature on the subject; it embraces 248 cases and 36 of this number, or 14 per cent., were reported by Russian writers. In a personal case described, an insane young man had swallowed a stone weighing 24 gm. and measuring 8.25 cm. in circumference. It had lodged 23 cm. down, but was easily removed by external esophagotomy about eight hours afterward, without any bad effects.

152. **Early Symptoms of Syringomyelia.**—Lifshitz describes the case of a patient, 17 years old, who presented evidences of loss or reduction of sensibility to pain and heat in various regions, incipient atrophy of certain muscles of the hands, and left scoliosis. The course of the case confirmed the presumptive diagnosis of syringomyelia. He has observed left scoliosis also in 2 other cases as an early symptom of syringomyelia.

153. **Deceptive Course of Cancer of Stomach.**—Favitzki describes 2 cases of gastric cancer which presented the aspect of a dropsical affection. One was diagnosed as alcoholic cirrhosis of liver with ascites, but the further course of the case corrected this diagnosis to cancer of the stomach as the usual symptoms became superadded. In the second case, the diagnosis was aortic insufficiency, and concomitant cancer in the stomach was not suspected. The patients were men of 50 to 60. In one case except for loss of appetite and strength there were no signs to call attention to the stomach, no vomiting, dyspepsia nor pains. The tumor caused by the accumulation of ascitic fluid simulated a tumor of the liver in the second case, and in the third the gastric cancer developed with the clinical picture of a heart affection. The rapid course of the affection was suggestive; in the first case there was also associated lymphadenitis, and in the second, signs of cerebral extravasation, which further masked the true disease. These cases and similar ones which he cites from the literature establish that a cause of this nature may be surmised in certain cases of rapid formation of ascites accompanied by progressive emaciation in persons at the cancer age.

154. **Action of Drugs on Isolated Kidneys.**—The kidneys were kept "alive" in Locke's solution, and the action of digitalis, cocain, adrenalin, etc., was tested on them. The influence of some of these drugs on the vessels was marked, but this effect ceased after the organs had been kept in the incubator until they were really dead.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

BEASLEY'S BOOK OF PRESCRIPTIONS. Containing a Complete Set of Prescriptions. Illustrating the Employment of the Materia Medica in General Use; Comprising also Notes on the Pharmacology and Therapeutics of the Principal Drugs and the Doses of Their Preparations According to the Imperial and Metric Systems, with an Index of Diseases and Remedies. Rewritten by E. W. Lucas, F.I.C., F.C.S., with an Introduction by A. Latham, M.A., M.D., F.R.C.P. Eighth Edition. Cloth. Pp. 366. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

SURGICAL DIAGNOSIS. A Manual for Practitioners of Medicine and Surgery. By O. G. T. Kiliani, M.D. Illustrated by Fifty-nine Full-Page Plates and by Engravings in the Text. Cloth. Pp. 449. Price, $4.50. New York: William Wood & Co.

A NURSE'S GUIDE for the Operating Room. Second Edition. Enlarged and Revised. By N. Senn, M.D., Ph.D., LL.D., C.M. Cloth. Pp. 204. Price, $1.75 net. Chicago: W. T. Keener & Co.

FRAMES AND LENSES. A Practical Treatise for Optometrists. Illustrated. By R. M. Lockwood. Paper. Pp. 87. New York: Frederick Boger Publishing Co.

THE JOHN CRERAR LIBRARY. Tenth Annual Report for the Year 1904. Paper. Pp. 50. Chicago: Printed by Order of the Board of Directors. 1905.

PRACTICAL PROBLEMS OF DIET AND NUTRITION. By M. Einhorn, M.D. Cloth. Pp. 64. Price, 75c. New York: William Wood & Co.

SURFACE ANATOMY. By T. G. Moorhead, M.D., M.R.C.P.I. Cloth. Pp. 150. Price, $1.50. New York: William Wood & Co.

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Original Articles

OBSERVATIONS ON INFANT FEEDING, WITH REPORT OF CASES.*

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The question of substitute infant feeding is an ever important one. Much progress has been made in the subject during the last decade, and certain principles laid down and insisted on by Rotch are now well known and accepted, e. g., good breast milk is the ideal food for infants during their first year; if breast milk is impossible, feed accurate percentages of fat, proteids and sugar, feed individuals, not groups, etc. These principles need no further comment. They are universally accepted. Their application, however, is often difficult, and in practice we are constantly meeting with infants, the management of whose diet is puzzling and unsatisfactory.

The whole subject has now been crystallized into a study of the fats, sugars and proteids, and the effects of feeding definite amounts of these elements. Obviously, such study has been made possible only by the method of percentage feeding, which has been gradually evolved and brought to its present high state of perfection by Rotch. Many infants have now been fed along these lines, definite amounts of the above elements prescribed, and the results carefully noted. While our knowledge of fat indigestion, sugar indigestion and proteid indigestion has thus been greatly increased, it is still far from accurate, comparatively few cases having been reported in detail.

The basis of all infants' foods at present is cow's milk, and for a clear understanding of the subject we must remember the complex character of this article. Milk is not a simple food, it is a very complex food, combining in various amounts water, fat, proteids, sugar and mineral matter. It is manifestly as inaccurate and indefinite, therefore, to say "milk" whole or modified does not agree with the baby, as it would be to say "food" does not agree with the adult. Physicians who deal with digestive disturbances in the latter class of people, ask the patient how much meat he is taking, how much carbohydrates, how much alcohol, etc. Similarly with the baby, we ask how much fat he is getting, how much sugar, and how much proteid; in other words, we ask whether he is suffering from fat indigestion, sugar indigestion or proteid indigestion. As to treatment, we work at a great advantage in being able to grade these elements to a fraction of 1 per cent., and also in our absolute control of our patient.

* Read at a meeting of the Chicago Medical Society.

FORMS OF INDIGESTION.

Now what are the symptoms of these various forms of indigestion? The inaccurate state of our knowledge in this direction has already been mentioned. In a general way, however, it may be summarized briefly as follows:

Fat Indigestion.—Disturbances from an excess of this element are more common than has been generally supposed. Too much fat is apt to cause vomiting soon after feeding, distaste for food, and diarrhea with loose, yellow or greenish-yellow stools containing an excess of fat often regarded as curds. Constipation, however, is frequent, and here the stools are hard and light colored. Holt, at the last meeting of the American Pediatric Society, reported several cases of fat indigestion in which some infants fed an a high per cent. of fat for a long time, were apparently perfectly well, but suddenly were attacked with severe nervous symptoms, convulsions, tetany, laryngismus stridulus, and enlarged liver. In other cases, the infants became very constipated and developed rickets, and eczema. Improvement followed in all on cutting the fat very low, to 2 per cent., and then increasing to about 3 per cent.

In the discussion, vomiting and constipation were especially emphasized as symptoms of fat indigestion.

Lack of fat in the diet results in slow gain or in actual loss of weight, generally in constipation, and, if long continued, in decided malnutrition, generally of the rhachitic variety. Rickets in its early stages is a species of fat starvation. Hence the frequency of this trouble among babies fed on the different proprietary foods, improperly modified milk, or a breast milk deficient in fat.

The apparent paradox of rickets arising from both a deficiency and an excess of fat in the diet is undoubtedly due to the fact that with an excess so much intestinal disturbance is produced, that only a small amount of fat is actually absorbed, while a large amount is found in the stools. Hence, the baby really has for purposes of nutrition a deficiency of the element.

Sugar Indigestion.—Disturbances from this element are less frequent than either of the other forms of indigestion, on account of the high sugar-digesting capacity of most infants. The maintenance of bodily heat is a most important matter for the well-being of infants; hence, nature provides for them in their natural food a comparatively large amount of sugar and a corresponding digestive power. Nevertheless, disturbances from an excess of this substance in the diet occasionally arise in infants with an apparently limited sugar-digesting capacity, such disturbances being characterized by tympanites, "wind colic," with severe pain and crying, relieved by the belching of wind and passage of wind by rectum. These infants are apt to have greenish, sour or acid bowel movements. Most of the proprietary foods contain an excess of sugar, and infants fed on them do gain in weight for a time, but are soft and flabby, are

not strong and have little resisting power. The only well-defined results of a deficiency of sugar is failure to gain in weight.

Proteid Indigestion.—It is this element which gives infants the most trouble in digestion, and by far the great majority of cases of difficult feeding are cases of proteid indigestion, arising from an excess of this element. The symptoms are, perhaps, more sharply defined than are the symptoms of the other forms of indigestion. There are severe colic, foul smelling stools, with large curds and often mucus; the putrid character of the bowel movements is particularly characteristic of proteid decomposition and indigestion. Infants fed on a diet deficient in proteids are apt to be anemic, to gain slowly in weight, are soft and flabby, and later their digestive powers are decidedly impaired.

The difficulty which infants experience in digesting the proteids in cow's milk is probably due, not so much

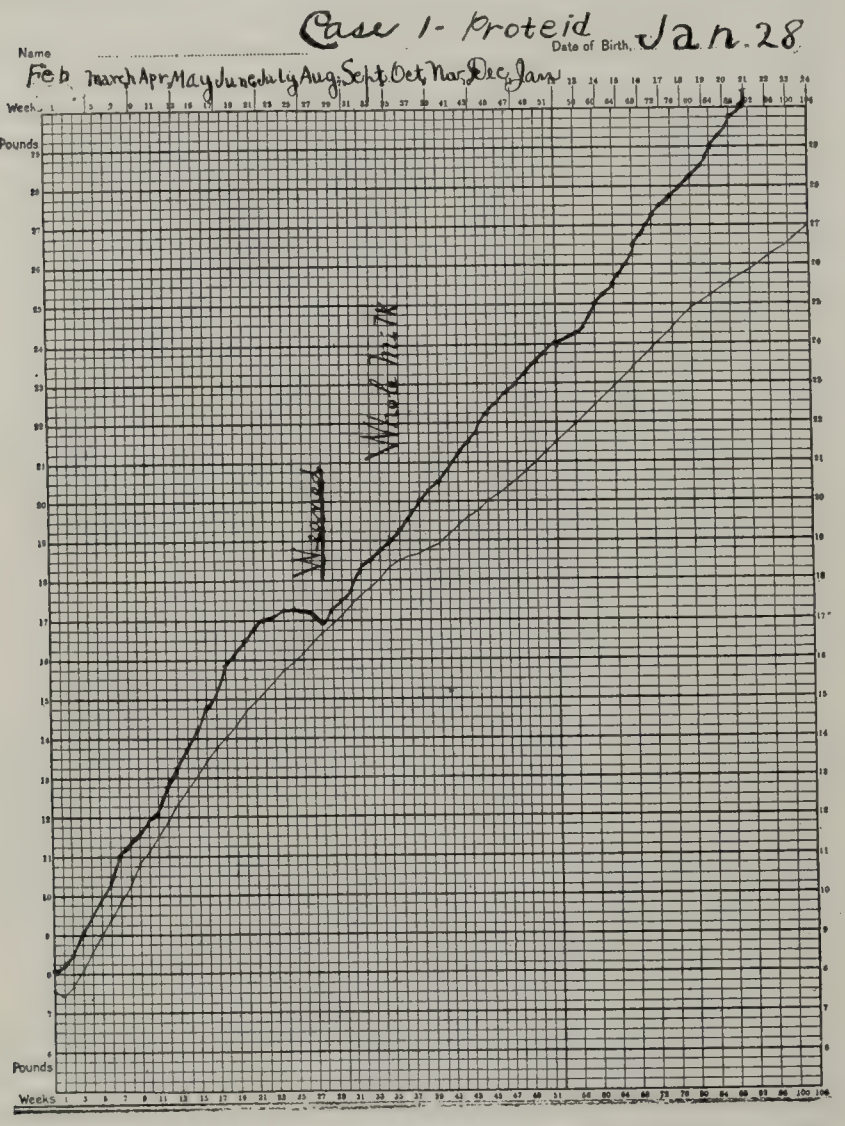


Chart 1.—Case 1. Note the steadily rapid gain in weight up to the fourth month, the gradual falling off and loss up to the sixth month, then the immediate and rapid gain on being weaned and put on modified milk. It may be taken as a standard chart.

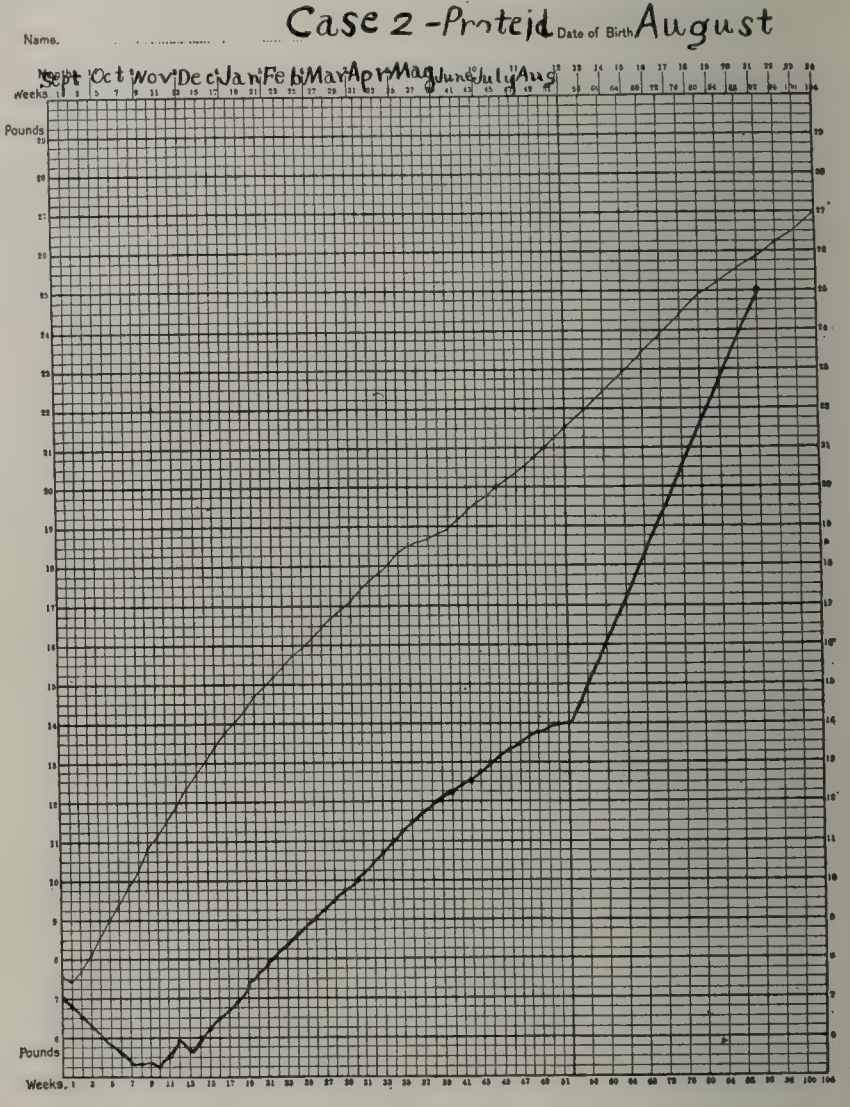


Chart 2.—Case 2. Note the steady loss in weight during the first seven weeks, due to faulty feeding, then the check in the loss of weight during the next four weeks, and finally the steady gain when she was put on first whey and ultimately whey-cream mixtures. It took two years, however, for this child to catch up to the normal weight.

to the greater total amount of this element in cow's milk as compared with human milk, as to its different composition. Analysis shows the following differences between the proteids of the two milks:

	Cow (per cent.).	Human (per cent.).
Caseinogen	2.88	0.59
Lactalbumin	0.52	1.25
Total	3.41	1.84

The difference in the total proteids needs no comment; it is well understood. It is the relative proportion of the two substances, making up the total which is of importance. While in human milk the proportion of caseinogen to lactalbumin is about 1 to 2.5, in cow's milk, on the other hand, the proportion is about 5 to 1. In other words, the human infant is provided in its natural food with a relatively large amount of lactalbumin, but a relatively small amount of caseinogen. The former is easy to digest, the latter is difficult, and it is the presence of caseinogen in such relatively large amounts which causes so much trouble to infants fed on improperly modified cow's milk.

Further consideration shows why the problem is not solved by merely adding water to milk. When cow's milk is diluted with an equal amount of water, the usual household way practiced by mothers, all elements are cut in two, the total proteids being reduced to 2 per cent., the caseinogen to 1.4 per cent., and the lactalbumin to 0.26 per cent. Thus, while the total proteids are brought down within the possible limits of digestive power, the caseinogen is brought down to 1.4 per cent., when the infant's normal digestive power for this substance is only 0.59 per cent. Finally, by such dilution he receives only .25 per cent. of lactalbumin, or about 1/5 as much as he is capable of assimilating, and to this extent he is deprived of a material necessary for his normal nutrition.

Some method other than the addition of water must be practiced in the management of this troublesome element. It must be either cut down to a very small amount or eliminated from the diet altogether. In extremely severe cases of mal-nutrition, at the beginning of treatment it must be eliminated altogether. At the same time, if possible, the lactalbumin must be retained. Now this two-fold object, the elimination of caseinogen and the retention of lactalbumin is attained by simply feeding whey.

The analysis of whey shows the following:

	Per cent.
Lactalbumin	0.8- 1.00
Fat	.32
Sugar	4.79
Salts	0.65
Water	93.38

We have here, then, an article of diet free from caseinogen, yet containing nearly the same amount of lactalbumin found in breast milk, a low percentage of sugar, and a small amount of fat. There are few infants who can not digest this simple article. They may be started on whey, kept on it for a time, and then, depending on their progress, the fat and sugar may be increased by the addition of cream and milk sugar in definite amounts; caseinogen in the form of fat-free milk may be added, and thus the infant may be gradually worked up to a sufficiently nutritious and easily digested food.

The value of whey in the feeding of infants has been known for a long time, but the true reason for its value was first pointed out by Westcott, and was the natural outgrowth of his study of Rotch's percentage method of feeding. His work has resulted in an intelligent and accurate method of handling the indigestible proteids of cow's milk. We are now enabled to "split" the total proteids, feed lactalbumin and caseinogen in definite percentages and in the proportion found in breast-milk, and thus to maintain a proper amount of total proteids. This can be carried out by home modification, but is done more accurately at the laboratory. It marks a distinct and important step in advance in methods of infant feeding.

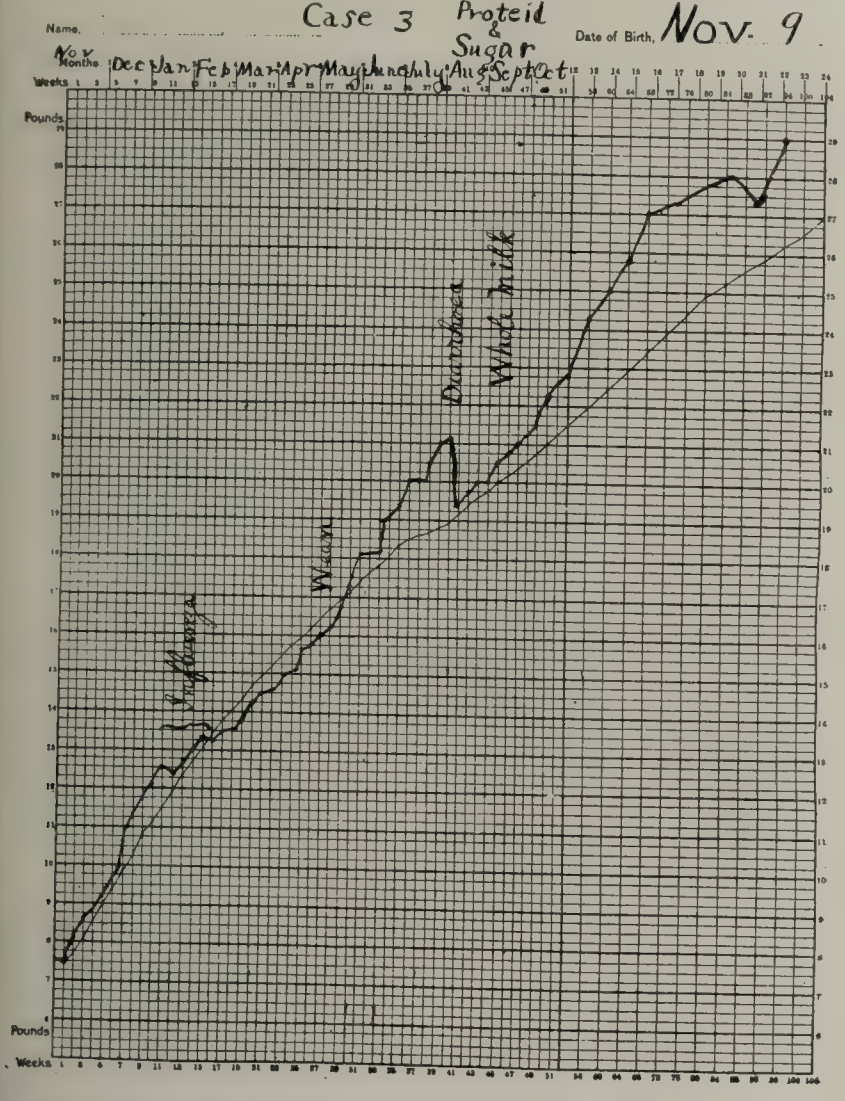


Chart 3.—Case 3. Note the steady gain for the first three months, then the slower rate of gain due to an attack of influenza, the more rapid gain on being weaned, the sharp drop in weight during an attack of summer diarrhea, with, however, a quick recovery and rapid strides during the second year. During his first year he had trouble, first with proteids and later with sugar.

The management of fats and of sugar gives much less trouble than that of proteids. They can be readily increased or diminished by varying the amounts of cream and sugar.

The symptoms described above and the principles of management involved can best be illustrated by reports of cases.

CASE 1.—This boy is an example of a vigorous child who got a good start on breast-milk. The chart shows the satisfactory gain in weight during his first four months, then the lessening rate of increase, the standing still for three weeks, and, finally, the actually steady loss for three weeks during his seventh month. At this time, though it was midsummer, it seemed wiser to wean him before serious nutritional troubles developed, as all attempts to improve the breast-milk during the preceding two months had failed. The baby was, therefore, given daily two bottles containing 6 ounces each of modified milk; fat, 3 per cent.; sugar, 6 per cent.; proteids, 1.25 per cent. He at once began to gain, but had severe colic and curds in the

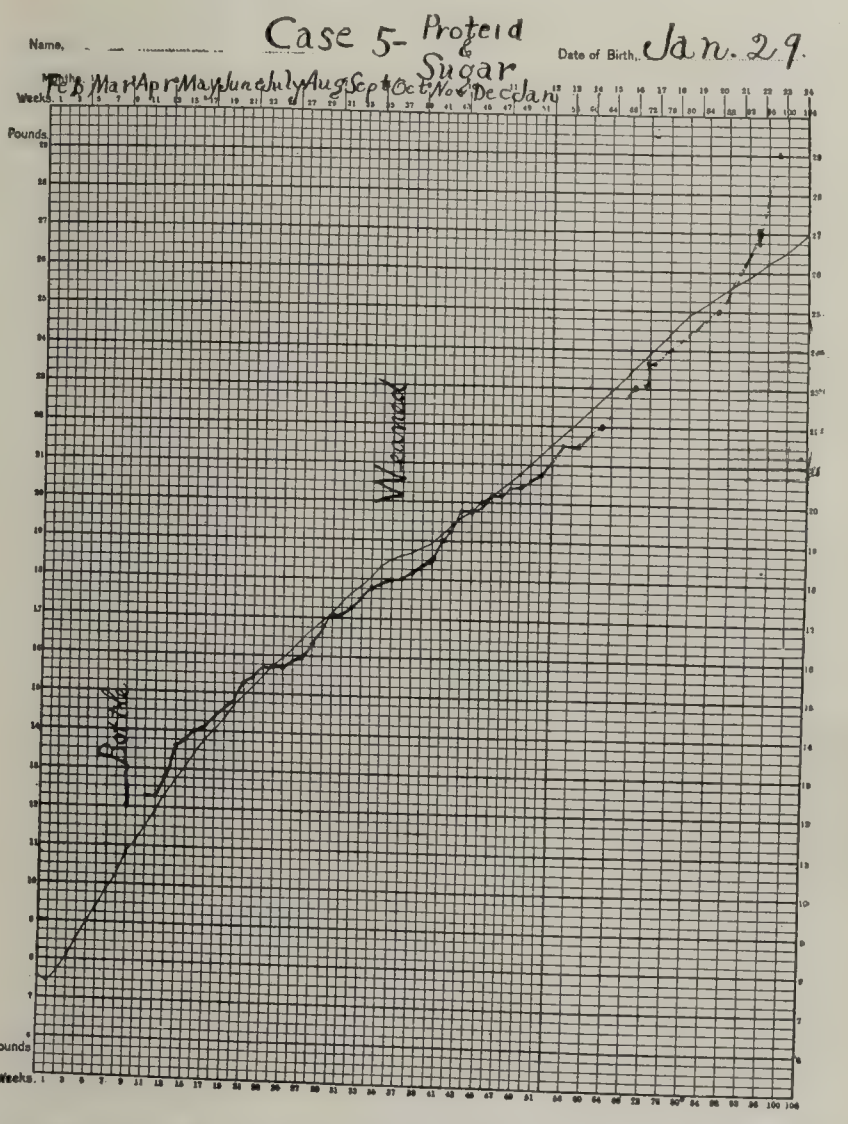


Chart 4.—Case 5. The curve runs closely parallel to that of the average, but below it, owing to the limited proteid and sugar-digesting capacity of the infant. This was a vigorous child and her weight curve ought to have been above the average.

stools. Evidently 1.25 per cent. of proteids was too high for him. They were reduced to 0.75, which agreed with him perfectly, and on this he was kept for ten days, when they were increased to 1 per cent., the number of bottles being rapidly increased to six daily. The proteids were gradually increased 0.25 per cent. at a time until at eight months he was taking whole milk. The fats and sugars he bore well, the former being started at 3 per cent. and gradually raised within a month to 4 per cent., the latter starting at 6 per cent. and raised to the maximum of 7 per cent. within three days. Aside from the slight proteid indigestion of the first three days he did well, rounding out his year at 24 pounds. The case was a simple one, presented no difficulties in its management, and is reported merely as a normal or "standard" case (Chart 1).

CASE 2.—This girl, referred to me by Dr. R. H. Babcock, was a difficult case. She was healthy at birth, weighing seven

pounds, was nursed for three weeks, then fed for three weeks more on mixtures of either milk and water, or milk and barley water. During all this time she had much colic, foul, green, curdy movements, slept but little, was restless and fretful and lost steadily in weight.

Examination.—I first saw her when she was six weeks old, and her condition then was pitiable, indeed. The emaciation was extreme, the color bluish and livid, the face had a constant expression of pain and discomfort, the abdomen was distended and tympanitic, and the extremities cold—a typical picture of severe infantile atrophy. The blood showed Hb. 70 per cent., erythrocytes 4,384,000, leucocytes 6,000. The weight was 5 pounds six ounces.

TABLE I—CASE 2.

Date.	Age.	Feeding.	Result.	Weight.
				lbs. oz.
Oct. 2..	6 wks.	F. 2.5%, S. 5.5%, P. 0.5%.....	Hungry, dejecta green, curds, wind.	5— 6
Oct. 5..	.....	F. 3, S. 5.5, P. 0.5, 3 oz.....	Same.....	5— 4
Oct. 7..	.....	F. 3, S. 4.5, P. 0.5, 3 oz.....	Dejecta yellow, wind.	
Oct. 10.	7 wks.	F. 3, S. 3.5, P. 0.5, 3 oz.....	Better, less wind.	5— 5
Oct. 13.	.....	F. 3, S. 3.5, P. 0.5, 3 oz.....	Better, but more wind.	
Oct. 14.	.....	F. 3, S. 2.5, P. 0.5, 3 oz.....	Hungry, less wind, curds.	5— 5
Oct. 17.	8 wks.	F. 3, S. 2.5, P. 0.75, 3 oz.....	Occasional vomiting, little gas.	5— 6
Oct. 19.	.....	F. 2.5, S. 2.5, P. 0.75, 3 oz.....	Much better, hungry.	
Oct. 23.	9 wks.	F. 2.5, S. 2.5, P. 0.75, 4 oz...	Colic—green stools.	5— 4
Oct. 27.	.....	F. 2.5, S. 2.5, P. 0.75, 4 oz. Barley water, 1 dram.	Colic—green stools.	5— 4
Oct. 29.	10 wks.	*F. 0.3, S. 4. L. 0.8. (Whey, 2 oz. Lime water, ½ oz.)	Better.	
Nov. 3.	.....	F. 0.8, S. 4.5. Total prot. 1.02 { L. .88 C. .14 (Whey, 17 oz. Cream, 1 oz.)	Doing well	5—15
Nov. 9.	12 wks.	.....	Dejecta normal.	5—10½
Nov. 13	.....	F. 1.7, S. 4.6. Total prot. 1.27 { L. .97 C. .3 (Whey, 17 oz. Cream, 2 oz.)	Hungry.	
Nov. 16	13 wks.	.....	Hungry, dejecta normal.	6— 0
Nov. 23	14 wks.	F. 2.8, S. 4.7. Total prot. 1.35 { L. .85 C. .53 (Whey, 17 oz. Cream, 3 oz.)		
Nov. 28	.....	.....	Little vomiting, but generally better.	6— 6
Dec. 2.	15 wks.	F. 1.7, S. 4.6. Total prot. 1.27 { L. .97 C. .3 (Whey, 17 oz. Cream, 2 oz.)	Doing well	6— 7½
Dec. 7.	16 wks.	.....	.....	6— 9½
Dec. 10	.....	.....	Some curds.	6—12
Dec. 16	17 wks.	F. 2.6, S. 5.5. Total prot. 1.00 { L. .83 C. .17 (Whey, 25½ oz. Cream, 4½ oz. Milk-sugar, 2 teaspoonsful.)	Dejecta numerous but normal.	6—15
Dec. 28	19 wks.	F. 2.8, S. 5.5. Total prot. 1.3 { L. .8 C. .5 (Whey, 26 oz. Cream, 5½ oz. Milk-sugar, 2 teaspoonsful.)	.....	7— 9½
Jan.....	.....	.....	.....	7—14½
Jan. 7..	.....	Whey gradually dropped, milk substituted.	Did well...	8— 0
June 10	10 mo..	F. 4, S. 7, P. 3.3.....	.....	12— 0
Oct. 1..	13 mo..	Whole milk.....	.....	15— 0

*Mr. James Cheeseman of The Walker-Gordon Laboratory has kindly verified these formulas.

F., fat; P., proteid; S., sugar; C., caseinogen; L., lactalbumin.

Obviously, the digestive powers in this infant had suffered equally with the rest of the body, and the indications in the management of the case were to feed her small amounts of the three main elements, to begin with low percentages of fat, sugar and proteids, adapted to her extremely limited digestive powers. The management of the feeding, the results of the various formulæ tried, as manifested by the bowel movements and weight, are shown in the accompanying table and weight chart. For four weeks I tried to prepare a modification which would agree with the baby, but unsuccessfully. The downward progress of the weight was checked at once it is true, only two ounces being lost after I took charge, but beyond this no improvement took place. She was then put on a whey mixture, with immediate and marked improvement. Pure whey was fed for nine days, then cream in gradually increasing amounts was added and finally milk sugar. The whey modifications were continued for about three months, milk was then gradually substituted for the whey, and she finally reached whole milk at the age of 13 months.

The immediate effect of feeding whey was striking. While she had stood still at five pounds four ounces for the four weeks preceding, during the first week of her whey feeding she gained eleven ounces. She then lost a little for a week, after which her upward progress was steady, though not rapid. At one year she weighed only fourteen pounds, seven pounds below the average. During her second year she took a sudden start and shot up rapidly, at 21 months weighing twenty-five pounds, less than a pound below normal, and was the picture of health (Chart 2).

As with most cases of severe malnutrition, it was the cow proteids, with its high percentage of caseinogen,

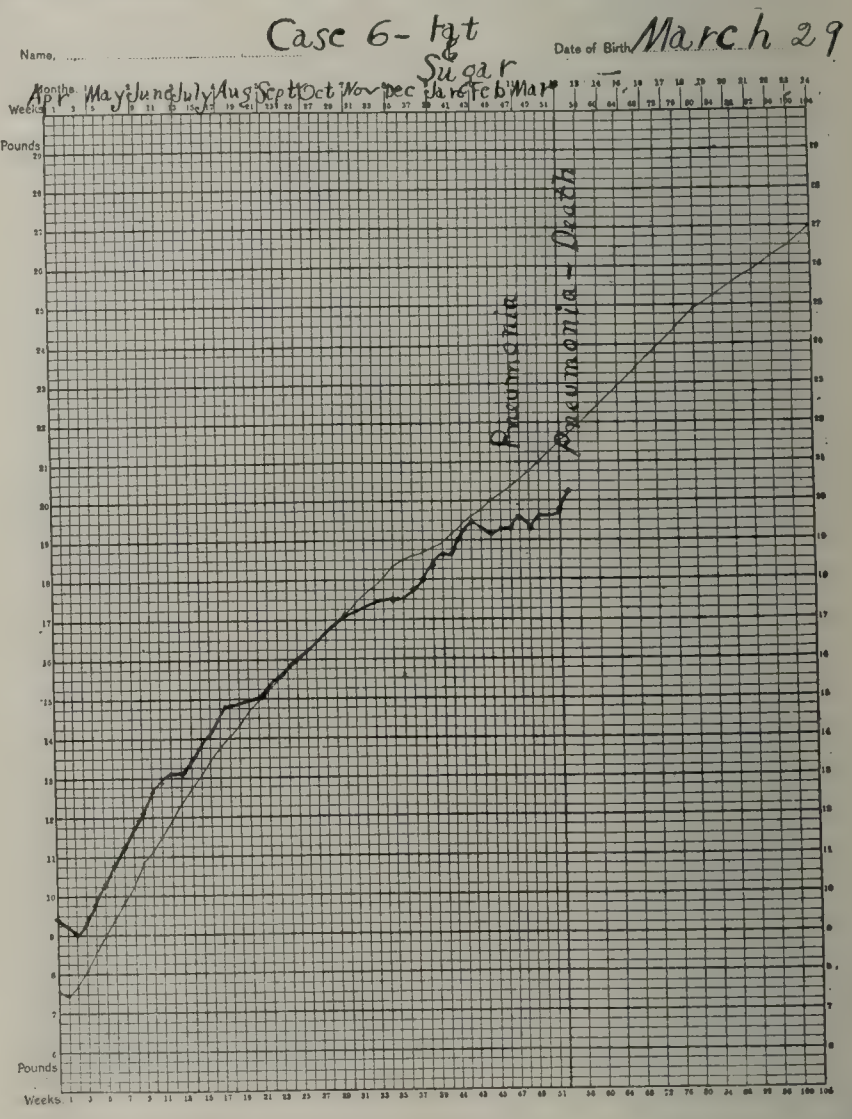


Chart 5.—Case 6. Note the steady gain up to the fourth month, then the slower rate of gain owing to limited fat and sugar-digesting power. Death at one year from pneumonia.

that gave this infant the most trouble. In giving her 0.5 per cent. of this element I gave her lactalbumin 0.08 and caseinogen 0.42 when her capacity for caseinogen was practically nil. By giving her the whey and thus cutting out the caseinogen we removed the greatest obstacle to her progress and at the same time gave her the much-needed lactalbumin. The infant's capacity for digesting sugar did not suffer so much as her power of digesting proteids. The sugar was started at 5.5 per cent., but gradually cut to 2.5 per cent. on account of the formation of gas. My reasoning, however, was obviously incorrect. The gas was evidently due to the proteids and not to the sugar. She had much gas continuously as long as total proteids were fed, even with 2.5 per cent. sugar, whereas when we began to use whey she had no gas, even with the 4.8 per cent. of

sugar contained in whey. This observation emphasizes the opinion that an excessive amount of gas can not always be attributed to sugar alone.

The study of this case taught me much—most of all that it is a mistake to attempt to feed caseinogen too long in our anxiety to give the infant a strongly nutritious food. We shall make more rapid progress by recognizing at the outset that we are asking the impossible in expecting such an infant to digest and to assimilate caseinogen. Rather feed a child at first with food adapted to such powers as it has, and thus help it gradually to develop greater powers for the handling of more difficult foods to be fed later in development.

CASE 3.—This boy, a younger brother of the child in Case 1, was breast-fed for six months. He gained rapidly until about his third month, when he was attacked with a diffuse influenzal bronchitis, as a result of which he at first lost weight, then gained, but more slowly, his curve dropping below the

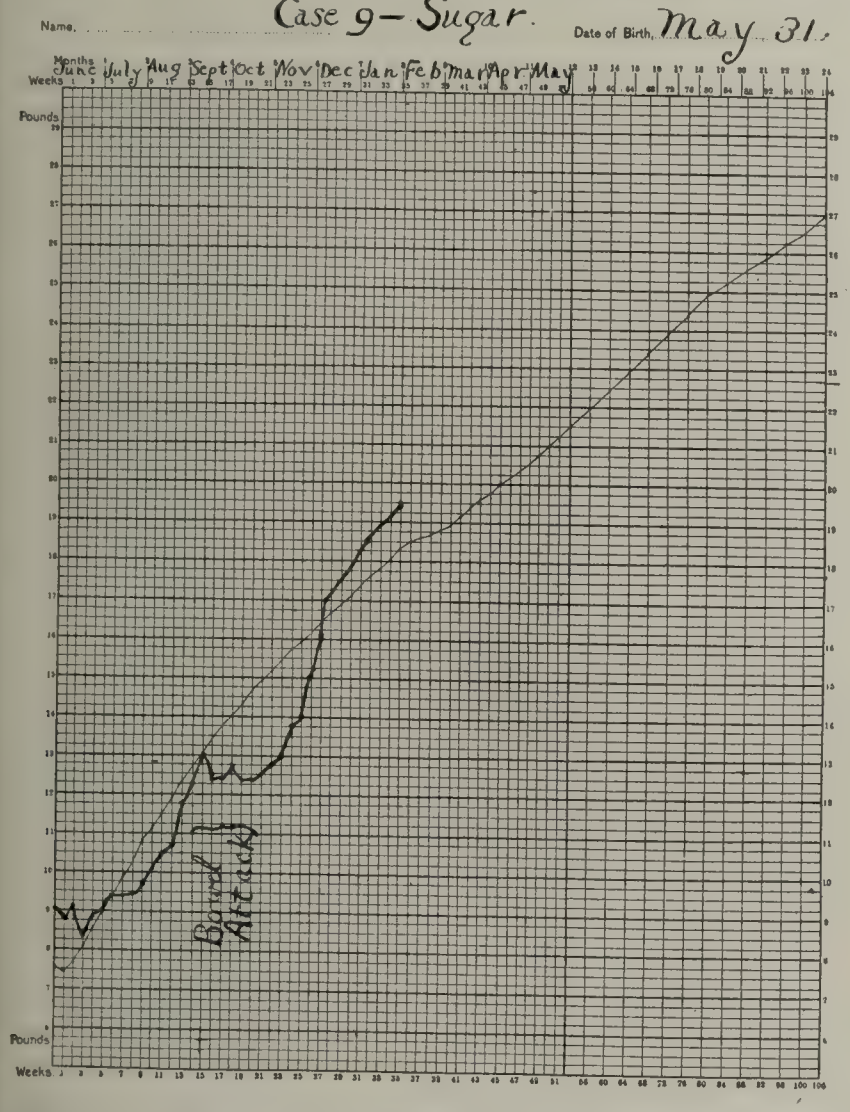


Chart 6.—Case 9. Note the loss of weight during the first three weeks on a poor breast milk, then the slow gain on malted milk or modified milk with too much sugar, the loss in weight from the fifteenth to the twentieth week, due to constant bowel trouble, and finally, beginning with the twenty-first week, the steady rapid gain when fed modified milk containing a small amount of sugar.

average. In May, when he was about 6 months old, I started to wean him, putting him on a mixture prepared at home and averaging F. 2, S. 5, P. 0.75. He was started on these low percentages, as he had been having slight digestive disturbance. During the next few weeks he had some proteid indigestion, characterized by rather foul movements with curds, so that at ten months he could take only 2 per cent. of this element. He also suffered at times with much gas, promptly relieved by cutting the sugar from 6 to 3 per cent. He was kept on this low sugar percentage for two weeks, during which time his weight stood at 18 pounds 2 ounces, though the fat and proteids were 4 and 2.5 per cent., respectively. On increasing the sugar, he again gained steadily until August, when he had a sharp fermental diarrhea and lost weight for a week. His subsequent record was uneventful and he ended his year at 22 pounds 12 ounces in excellent condition (Chart 3).

The slow progress of this case from January to April (third to six month) I attributed to the attack of influenza in January, which weakened the baby considerably. The symptoms of proteid indigestion, curds and foul movements and of sugar indigestion, chiefly gas, were quite sharply defined in this infant and were promptly relieved by reducing the amount of the offending element.

CASE 4.—This girl, weaned at two months, was fed on modified milk and beef juice until six months, when she came into my care, at which time she weighed 13 pounds 3 ounces. This was a difficult case; the child gained only slowly in weight, owing mainly to her low sugar digesting capacity.

I started this baby on F. 2.5, P. 1.7, S. 6; and these figures were increased in a week to 3.5, 2.5 and 6.5, respectively. She bore the fats and proteids well, but had an excessive

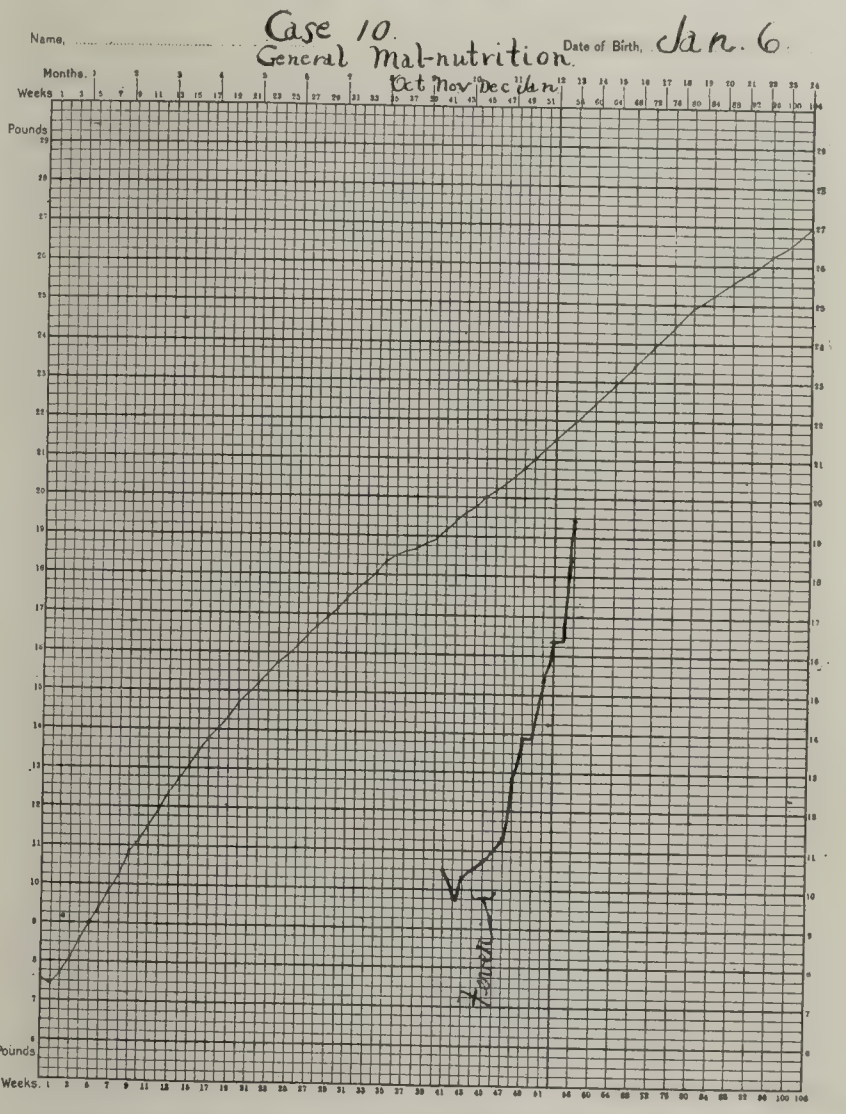


Chart 7.—Case 10. Note the extremely low weight at his tenth month, the loss during the first week of starvation treatment, the the steady upward march when put, first on whey, then whey-cre m mixtures.

amount of gas due to the sugar. This element was, therefore, reduced, but not until it was reduced to 3.5 per cent. was she free from wind colic. The sugar was subsequently increased, but she never was able to take more than 5 per cent. She finally reached whole milk at 11 months.

Her weight chart ran exactly parallel to the average curve, but three pounds lower. She is naturally a small child, but her light weight was undoubtedly due in part to the small amount of sugar which she was able to assimilate. She gained more rapidly during her second year, however; at 16 months she weighed 22 pounds and was in excellent physical condition.

CASE 5.—This girl, a vigorous child, is an example of mixed feeding. At two months the mother, who had had much gastrointestinal trouble since the birth of the child. feared her milk was giving out, and certainly on an average of once a day there was no milk in the breasts at feeding time. Analy-

sis of the milk showed fat 3.6 per cent., sugar 6.91 per cent., albumin 0.84 per cent., ash. 0.12 per cent., water 88.53 per cent. The baby was given daily one three-ounce bottle of modified milk, F. 4, S. 7, P. 0.75. The infant was such a vigorous one that I felt sure she could take care of the maximum amount of fat and sugar. The proteids I made a little lower than those in the breast milk. She bore this element well, and in three weeks it had been gradually increased to 1.5 per cent., the fat and sugar being kept at 4 and 7 per cent., respectively. The number and the quantity of artificial feedings were gradually increased until at eight and one-half months she was wholly weaned and was taking six feedings of eight ounces each, the formula being F. 4, S. 6.1, P. 0.5. Repeated attempts had been made to raise the proteids to 1.7 per cent., but each time colic and curds had followed, and at the time of weaning she had been on 1.5 per cent. for several weeks. A short time before weaning she had much gas and the sugar was reduced to 6 per cent. without any apparent improvement, then to 5.5 per cent., immediately after which she was perfectly comfortable.

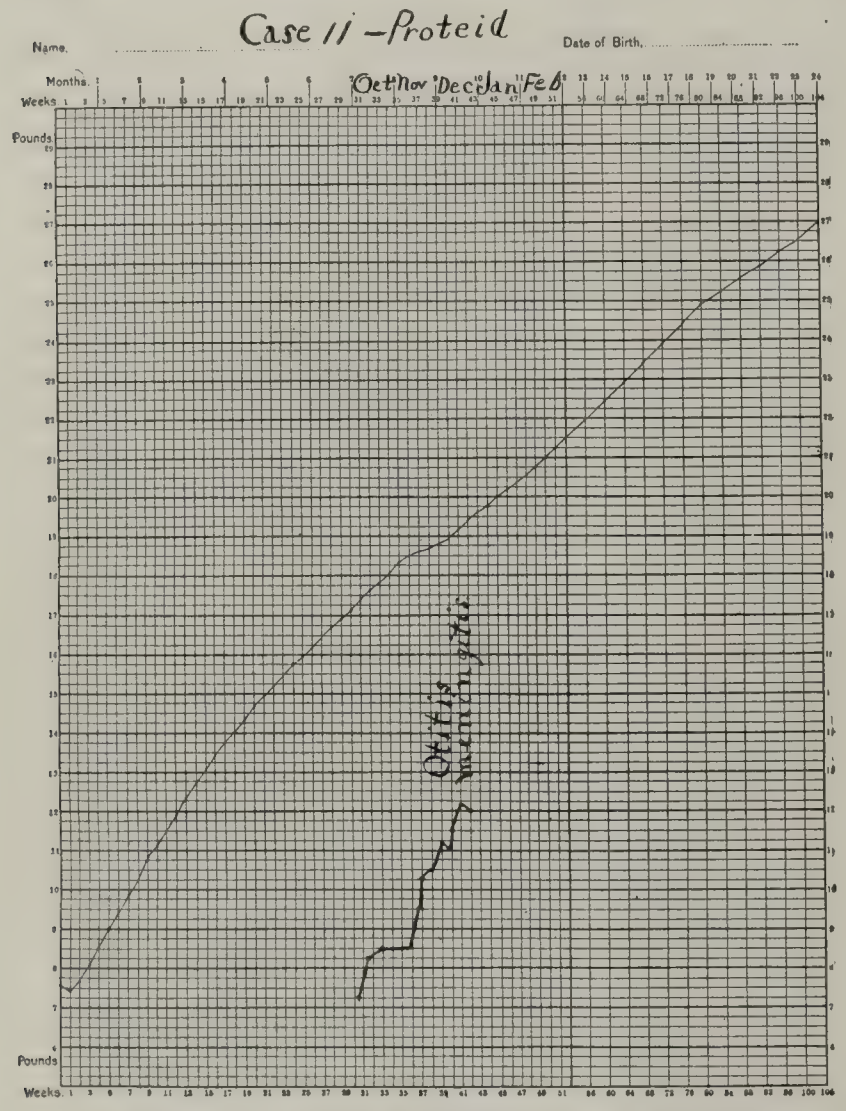


Chart 8.—Case 11. Note the extreme degree of malnutrition, manifested by a weight of 7 pounds at 7 months, the slow gain during the subsequent five weeks, due to his inability to digest caseinogen, then the steady and rapid gain on whey or whey-cream mixtures. Death at ten months from meningitis.

From the ninth to the eleventh month this baby digested her food well and gained in weight, the proteids having been increased to 2.5 per cent. At the eleventh month, however, she again was troubled with gas, and the sugar was cut to 5 per cent., again with good effect immediately. She finally reached whole milk at 12 months. During the first half of her second year she was well, but gained only slowly in weight. At her nineteenth month, however, she took a start and gained rapidly, weighing 29 pounds at 23 months (Chart 4).

This infant's record after her fourth month was only moderately satisfactory. Strong and vigorous at birth with a weight of nine pounds, she should have kept up her pace, instead of which her weight curve gradually drops below the line, runs parallel to it for over a year and does not recross it until she is 20 months old. The record is the more to be criticized, as the artificial feeding was supplemented by breast milk up to her ninth month; for it is well known that modified cow's milk is better borne usually if there are one or two breast feedings during the twenty-four hours. The infant's failure to gain more rapidly in weight was undoubtedly due to her difficulty in digesting, first, the proteids and, later, the sugars. Why such a vigorous child should have been weak in this direction I have no idea. It may have been a manifestation of a family idiosyncrasy. The infant's mother and three older sisters have never been able to eat even a moderate amount of sugar, and a younger sister (Case 6) also had digestive trouble of a similar nature. I think this infant would have been better on a whey-cream mixture, but at that time, 1899, the advantage of splitting cow proteids, thereby feeding a high percentage of whey-proteids and a low amount of caseinogen, had not been pointed out.

CASE 6.—This girl was a younger sister of the child in Case 5. She was a vigorous child at birth and did well on the breast during the first three months, when she was weaned and put on F. 3, S. 4, P. 1.25 and continued to thrive. But intolerance of fat and sugar soon developed and she never got above 3 per cent. of fat and 4 per cent. of sugar. Every attempt to increase either of these elements resulted disastrously. When the fat was raised above 3 per cent. she vomited repeatedly and several times had an urticarial eruption. Increase in sugar above 4 per cent. invariably resulted in wind colic. Most of the time she was taking only 3 to 3.5 per cent. At 11 months she had pneumonia, a mixed infection of the pneumococcus and influenza bacillus, the left lower lobe being affected. She recovered from this, only to be attacked at 13 months by the pneumococcus alone, again in the left lower lobe, and died after ten days. How much part her digestive troubles and lack of proper development played in the final result it is impossible to say, but they probably exerted some unfavorable influence (Chart 5).

This infant's case was the most marked one of fat and sugar intolerance in the series reported. The presence of an urticarial eruption immediately on raising the fat above 3 per cent. occurred repeatedly, too often to be merely a coincidence, and is comparable to a similar phenomenon in certain adults, whenever they eat strawberries, for example. A sugar digesting capacity of from only 3.5 to 4 per cent. is unusual and is particularly interesting in view of the family history.

CASE 7.—This girl is an example of the superiority of wet-nursing to modified cow's milk. She was a small baby at birth, weighing only 6¼ pounds. The mother had practically no breast milk from the start. I first saw her at 12 days, when she was on a mixture prepared by the nurse and analyzing about F. 3.25, S. 4, P. 0.75. She had lost two ounces since birth, had had much colic and slept poorly. I put her on F. 2.50, S. 6, P. 0.75. During the next three weeks the fats were increased to 3 per cent., the sugar kept constant, and the proteids cut to 0.25 per cent. The baby did poorly, however, cried much, had green and yellowish-green movements, and, though she did not lose weight, she made no gain. At five weeks one-ounce feedings of whey were substituted, t. i. d., for the 3-6-0.25 mixture, and she was given one minim of dilute hydrochloric acid after each of the latter feedings. She at once seemed more comfortable, had better bowel movements and began to gain slowly in weight. At the end of ten days she was put on F. 3, S. 6, whey proteids 0.8.

On this mixture the baby had much colic and gas, but gained slowly. Her general condition, however, was poor, the extremities blue and cold, her weight at nine weeks was 6 pounds 15 ounces, a gain of only eleven ounces since birth. Substitute feedings with various modifications of cow's milk had been tried, with most unsatisfactory results. It was, therefore, decided to try a wet-nurse. The baby at once became more satisfied and comfortable and began to gain more

rapidly in weight. During the next three months four different wet-nurses were used. Breast feeding was kept up until the tenth month, but was supplemented by the bottle from the fourth month. She did not reach whole milk until she was 13 months old.

This record was a poor one. It was a mistake to try cow's milk so long. Undoubtedly better progress would have been made had I resorted to wet-nursing earlier. But even with breast feeding, progress was slow. The best results were obtained on mixed feeding—breast and modified cow's milk. In the five weeks during which this method was carried out under my direct supervision the baby gained 2½ pounds, an average of half a pound a week. At the end of this time, in July, the family left the city and did not return until October. No record of the weight was kept during these three months, but it must have been steadily rapid, a striking example of the beneficial results of country life. Late in October the baby again left the city and was in New York two months, gaining slowly. On her return she was weaned and put on modified milk and gained better, though the proteids had to be increased slowly. Although much below weight at 14 months, she was in very good condition and seemed well, happy and contented.

CASE 8.—This girl did only fairly well on the breast for five months, when she was weaned and put on a F. 3, S. 6, P. 0.5 mixture. She at once began to gain rapidly, even through an attack of measles immediately after weaning. Her formula was strengthened at intervals and she reached whole milk at one year. The interesting feature of the case is the rapidity with which the infant gained when she was taken off a poor breast milk and put on modified cow's milk.

CASE 9.—This boy had a limited sugar-digesting capacity. He was weaned at three months, put first on malted milk and then on modified milk. He had much bowel trouble, with curds, mucus and wind colic, the last symptom apparently due to sugar. I first saw this child when he was twenty weeks old, after he had been losing weight for five weeks. His general condition, however, was still excellent. His only weakness seemed to be an intolerance of sugar. He was, therefore, put on a F. 3, S. 2.5, P. 1 mixture. He began to gain immediately and had practically no further trouble. When I first saw him he was 2½ pounds below average. He "crossed the line" in seven weeks. His formula was gradually strengthened, but he never got beyond 3 per cent. of sugar. Every attempt to go beyond this produced much colic. Now, at 8 months, he is getting F. 3.5, S. 3, P. 1.75, weighs 19½ pounds and is in excellent condition. His record shows how well an infant may thrive even on a small amount of sugar (Chart 6).

CASE 10.—This boy, aged 9 months, was brought to me October 17 from Kentucky, in a state of extreme malnutrition. He weighed six pounds at birth, was breast-fed for five months, then all foods were tried, chiefly barley-water and milk. He had never done well and for two months had had numerous foul, green stools containing mucus and curds.

Physical examination showed marked emaciation, slight beading of ribs, distended abdomen, small inguinal hernia (R). His weight at this time was 10 pounds 8 ounces.

Blood:

Erythrocytes	5,320,000
Leucocytes	16,000
	Per cent.
Small mononuclear	61
Large mononuclear	2
Polynuclear	34
Eosinophiles	3

As a preliminary treatment, in order to empty and to disinfect the bowels, he was put for a few days on a diet of arrowroot and rice water and given one-quarter-grain doses of calomel and rectal enemata. He was then put on whey, to which subsequently cream and milk sugar were added in gradually increasing amounts, and finally fat free milk. His progress is best indicated by his weight chart. He lost twelve ounces during his first week of treatment, as was expected. Then he gained steadily and rapidly during the subsequent two months of treatment, at the end of which time he returned to his home in excellent condition, weight 15 pounds 6 ounces. At the beginning of treatment he was nine pounds below average, at the end five pounds below. At thirteen months he weighed 19 pounds (Chart 7).

CASE 11.—This boy, aged 8 months, had been fed on various foods and on improperly modified cow's milk. He had had repeatedly vomiting, diarrhea, green curds, elevated temperature, general malaise. Examination showed much emaciation and pallor. Weight 7¼ pounds.

For a month he had been fed alternately with whey and the "materna," being started on Formula 1 of the latter, F. 2.5, S. 5, P. 0.6. While on this formula he had foul, green movements with curds, much colic, occasional vomiting. Whey was tried for several days with improvement. He was then put back on the "materna," with the same bad result. Whey was tried again, and again with improvement. These experiments were repeated many times, and always with the same result. He invariably had trouble while on the "materna," due to caseinogen; he invariably improved when put on whey.

I took charge of him at eight months with his weight at 8½ pounds. He was started on the following mixture: Whey, 2 ounces; cream, 6 drams. Subsequently this was gradually increased. Sugar was added and in about two months he was taking the following mixture: F., 4 per cent.; sugar, 7 per cent.; P. O., 3 per cent. He then began to run a temperature of obscure origin, which was subsequently explained by the development of double otitis media. Then pneumonia and meningitis developed in the course of three days and the child died at ten months. The weight a few days before death was 12 pounds (Chart 8).

As far as his feeding was concerned, this child did very well, as shown by the weight chart; and had it not been for the development of his acute conditions there was every prospect of his permanent improvement.

These cases give a fair idea of the difficulties encountered in every-day practice among babies. Cases 7, 10 and 12 were cases of proteid indigestion, Cases 4 and 9 of sugar indigestion and Case 6 of mixed fat and sugar indigestion. The treatment appropriate to each has been indicated in the respective cases. It is to be noted that it is largely dietary.

SUMMARY.

Cases of difficult feeding in infancy are cases of (a) fat indigestion, (b) sugar indigestion, (c) proteid indigestion. Each one of these varieties may exist alone or in combination with the others. The most frequent form is proteid indigestion, but cases of fat indigestion are also common.

Each individual infant must be a law unto himself. Babies can not be fed by rule of thumb. The form of indigestion present, if possible, must be determined and appropriate treatment be applied. The treatment is almost exclusively dietary. The fats and sugar can be regulated by varying the amounts of cream and sugar.

The composition of cow proteid, high caseinogen and low lactalbumin, must be remembered in the management of proteid cases. The caseinogen must often be cut to a low point or even eliminated altogether; lactalbumin must be retained in the food; this twofold object is attained by feeding whey.

Increase in quality and quantity of the food must be made gradually.

It is desirable that many artificially fed babies should be carefully studied, the symptoms of different forms of indigestion noted and the data published.

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ECONOMICS OF MEDICAL ORGANIZATION.

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The value of medical organization should be repeatedly emphasized, for it requires much repetition of its advantages to secure full co-operation. Medical men are prone to regard each other as rivals, not as colleagues, and this attitude must be abandoned before effective organization can be accomplished. A most harmful delusion is that best results follow independent or individual action; as a consequence of this, fluctuating personal views on medical treatment prevail, influencing the laity who, having apparently exhausted the resources of one man, reject him and select another. Each time a patient makes such a change, while being treated for some persistent disorder, less is expected, hope shrinks, and confidence dies, till at last the educated physician, equipped with knowledge and experience, is rejected and "mystery mongers" are consulted. These pretenders boast much and claim omniscience, and that most potent of remedies, suggestion, replaces skill and judgment. Again, many charlatans possess undeniable skill in certain narrow lines, and far too often good results follow their optimistic efforts.

The public naturally loses confidence in the use of drugs when each physician consulted apparently experiments with different ones, securing only questionable effects. Some physicians do worse, consciously or unconsciously; they belittle their predecessors, giving small evidence of consistency in their reasoning or in their methods. For these and for other reasons that inestimable quality, so beneficial to the individual and communities, the powerful influence of a scientific personality, has steadily waned. This is shown occasionally in the bearing of our patients, many of whom are our personal friends, yet when they come to us for professional aid they exhibit a flippancy, a conscious reservation, a veiled threat to seek elsewhere if we fail, which, to say the least, is humiliating. There was a time when the implied menace took another form, failing regular medication recourse would be had to the promises of the then new claims of homeopathy; now, however, owing to the enlightenment from European sources, where homeopathy has almost ceased to exist, many intelligent people in this country know that there is little difference to be expected, except perhaps in the rosiness of the mystery-colored vaticinations. Nowadays new brands of optimists ruffle in our midst, liberal of auguries. Their watchword is usually "no drugs"; they advocate ecstatic mental attitudes, readjustments of the bony framework, manipulations, the laying on of hands, *et id omne genus.*

This fashion of mind, at least in its momentousness, is largely due to faults in ourselves. We do not consistently and wholesomely supplement the endeavors of each other. We fail in sustaining a much-needed optimism concerning our monumental patient, painstaking and scientific researches. We testify too little to the value of the life-sacrificing, self-abnegating labors of the humbler, as well of the brilliant, of our brothers in arms, who unflinchingly watch and combat the approaches of disease and death. Instead of exerting cooperative action, early and late, forcing all our efforts toward the unending war against the great destroyer, by lack of vigilance and oneness of purpose we permit the petty things of life to dissociate, to disintegrate and to turn aside our blows from the common enemy. We thus fail to exercise the effect which would be ours if we acted as a unit. At the bedside our individual duty may be done according to our lights, but is this duty ever fully consummated, in grave exigencies, unless we give our patients all the readily obtainable help at our command? Consultations we do hold with specialists, not so often or so frankly as should be, but many times, if we held our neighboring practitioners in just esteem, a life could be saved, suffering would be spared, and, what is more, the appreciation of the public would be won, if we oftener held conferences with others. Men of the law do this thing. Unless direct opposition of interests exist they freely consult each other, sometimes for a fee, oftener with expectation of none. Clergymen hold regular conferences, in some churches, recognizing that they are laboring in a common field to elevate the better parts of man. So of other learned professions; surely nowhere in the realm of human endeavor is enlightenment more needed than among the conservators of health and life. To a limited extent, in large cities, in the meetings of special medical societies, there is ventilation of opinions on pertinent subjects. Particularly is this done among specialists, as in the sections of academies of medicine and associations of physicians and surgeons on occasions selected for discussing the details of narrow specialities, and enormous advantages follow. Individual jealousies are then largely sunk in the breadth of the view taken and the elaborateness of the discussion.

In more sparsely settled communities, even where there exists some semblance of organization, as is well known, frank, full discussions are rather shunned than welcomed. Even in certain great cities there are large areas occupied by excellent medical practitioners where there are few or no local organizations; certainly too little interest is exhibited in the practical workings of these societies where they do exist. Some few of the practitioners are members of the greater societies, but geographical remoteness is regarded as a tenable excuse for rare attendance on meetings.

The ideal organization would be a central meeting place, with a membership actuated by high ideals, presided over by wise and liberal-minded men, and represented by local branches of definite areation, with official meeting places. In each section there should be not only a fair, but full and liberal membership, including all good men properly qualified, constituting a great army whose efficiency would be demonstrated in proportion to the perfection of their organization system. Among such educated, enlightened men there could be no lack of able leaders; all should wish to be faithful soldiers, who would glory in working shoulder to shoulder in a common cause. For the cause is a common one, to which all conservators of human health are committed by devotion of heart and head.

To be sure, the science of medicine requires that her votaries shall acquire means of sustenance while doing duty. Go further, if you like, and call the practice of medicine a legitimate business where each one shall do the best for himself according to his abilities and opportunities. If, however, we estimate on a mere business basis, by which the largest results are made to follow the smallest efforts, assuredly those who have entered the field with this object had better turn back and seek other and more profitable occupation before it is too late. Arguing on the full expectation of adequate material returns, however, even here every argument is in favor of enlightened organization and co-operation.

Take for a moment the question of knowledge, the paramount item of equipment. Information comes largely from books and first-class periodicals. In the more scattered sections, among medical men of small capital, books and knowledge of scientific advancements constitute, in large measure, their capital. The admirable plan of co-operative libraries indicated by Geo. M. Gould and spread abroad so persistently by C. D. Spivak in the now defunct journal, *Medical Libraries,* offers inestimable advantages. This is, in brief, for any number of doctors in a certain locality, for example ten men, to purchase, after due conference, five new books a year and take one leading journal, each according to his inclinations so far as possible; then, pooling their issues, to form card catalogues of their books. There is thus constituted a library of fifty new books each year and ten journals to circulate among the members.

This is a large library for any one man to enjoy, be he rich or poor, and many, in fact enough, periodicals to read, and the cost to each man is small. Over and above the value of the information thus disseminated is to be estimated the personal, more or less intimate, acquaintanceship inevitable on the interchange of library courtesies.

The selfish or merely material view of acquisition is worthy of attention; indeed, when all is said and done, we are all influenced, and rightly so, some less, some more, by personal considerations. Let us suppose a body of practitioners in a region somewhat remote from societies, hence few may have become members. These men are relatively free lances, because not bound by the code of ethics or by special ethical regulations of county or of other societies. They have come to regard each other in the light of competing shopkeepers, doing the same kind of business in a community which is often overfurnished with medical advisers. One man has a well-to-do, but not a wealthy, patient, concerning whose condition he is distinctly anxious or puzzled. He hesitates to put the patient to the expense of a consultation with the specialist of his choice, but would be glad of counsel. He delays till the condition has become so grave that the patient dies suddenly. The family has ample ground for dissatisfaction, even for anger; he loses the family and a large measure of reputation, and he richly deserves to do so. Now, had he and his neighboring physicians felt the common bond of adherence to formulated ethics, he would feel at full liberty, early in the progress of the case, to call a conference with one or more of his medical colleagues, from the stimulus of which good would almost immediately follow.

Each one of these physicians would receive a conference fee, presumably the same or a little larger than the ordinary one, but less than that of the specialist consultant. The patient would be only too glad to pay, and not only he but the family and all the conferees would be pleased, and the attending physician would thus enhance his reputation as a wise, judicious and liberal-minded man. Suppose, further, that the patient dies suddenly and unexpectedly; no blame whatever can be fastened on the physician. He not only did his best, but the responsibility was shared with the reputable practitioners of the neighborhood. Again, take a common instance. Each physician acquires some special skill or dexterity, the outcome of taste or of accidental training. Suppose a man with some painful state consults the physician of his choice who happens to have little acquaintance with the class of maladies represented. He calls on a defective memory and may be guesses, giving drugs and diets to no effect. He might again have recourse to the distant expensive specialist, but he may not know enough of the nature of such troubles to select a suitable one. In disgust the patient goes to an osteopath or to a bonesetter who at least has been taught certain elementary physiologic principles, among which is to examine the part carefully from the standpoint of mechanics, and who has a crude knowledge of the influence of the vasomotor system and of the distribution of the innervation from the segments of the cord and something about inflamed joints and lymph stasis and tissue infiltrations. This man, boasting that he knows more than many doctors, which is often true, promptly and with much flourish readjusts the parts, uses pressure and counter-pressure, and, behold, the case is cured. Thereupon not only the blundering physician is blamed for taking money under false pretenses, but the whole medical profession is sunk low in the estimation of a voluble community and the osteopath is practically invited to move into the neighborhood, to the confusion of all, physicians and laymen.

Now, if among the medical men one or more had enjoyed some instruction in the art of massage or manipulative measures and had been called in conference, his eyes being opened to the efficacy of looking at the part, and to the power of mechanical treatment, he would know that drugs had no place there, only the doing of the one right thing.

It may be objected that these conferences might lead to jealousies and to the belittling of one man's knowledge compared with that of another; I answer not so, by repeating that each individual medical man is probably capable, even brilliant, in recognizing and relieving disorders in one or more specialized lines. By such means the one and the other supplement and broaden their powers by frank, trustful co-operation, gaining a practical knowledge of their several capacities. Each and all are the better for their confidence, each and all make more money, retain their influence with the individual, with the family and with the community. We are brothers in a common cause, we are laborers supplementing each other's limitations, we are warriors arrayed against a common foe; not only disease and death, but the ever wakeful, ever critical kicker and traducer and welcomer of "pathies" and mysticism which constitutes so large a part of the inclinations of common humanity. Yet we slave our lives out trying to keep these people alive and well. Assuredly we can exert a vastly better influence by joint action than by individual unaided, narrow-minded endeavors. By this co-operation we are enabled to cover the whole realm of medical practice otherwise impossible to the best and wisest.

Finally, let me ask what is the position of the medical profession as an entity in the national councils. How far does the influence of medical thought reach in national or state legislation? How much of good could this influence exert on the welfare of the nation, on national or on sectional economics? These and other correlated and virtally important questions must be answered by each one in much the same key. One only, and a practical answer, can be offered here.

The power of the aggregate medical influence in a country is practically boundless and for good of a most diverse and as yet undefinable character, provided individual physicians could be made to realize their own value and could be brought to exert their influence in mass. To do this presupposes thorough, painstaking organization, a full discussion of all such subjects as

naturally fall within the jurisdiction of physicians, a wise formulation of conclusions reached, and a courageous maintenance of recorded convictions. If each reputable physician in America were a member of the American Medical Association and fulfilled his duty in local and centralized organizations, not only would the power of medical opinion become invincible, but individual self-respect would reach a high plane. Not only so, but, individual values being thus raised, proportionate earnings would follow. The public is perfectly willing to pay well for value received and they would quickly become content to pay more for better service not only in times of exigency for personal attention, but for the knowledge that through and by intelligent watchfulness of local and national interests they would be better served, better protected and that future needs would be anticipated and met.

THE DEVELOPMENT OF FIBROIDS OF THE UTERUS AFTER ABLATION OF THE APPENDAGES.*

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Medical literature teems with papers, discussions, essays and books on the subject of fibroids of the uterus in their multiform variations. Fifty-three pages of the Index Catalogue of the Library of the Surgeon-General's office were required to list the titles of the literary productions on tumors of the uterus received in that magnificent library previous to 1893. Of these, fully three-fourths are concerning fibromata and myomata. In the Index Medicus, the list is ever increasing and probably twice as many treatises have been published since, as before, the year mentioned.

Nor does the search for knowledge of uterine fibroids lose any of its energy. New facts concerning these tumors are constantly coming to light; formerly they were considered benign from beginning to end, and they were supposed never to begin before puberty or after the menopause; all these points have been absolutely refuted, at least from a practical standpoint. The large number of published cases of fibroid tumors that have undergone malignant degeneration, or that have broken down, become infected, or undergone other changes in structure detrimental to the lives of their unfortunate possessors have swept away the old ideas as to their benignancy. In fact, pathologists are now searching for a distinct borderline between benign and malignant soft uterine myomata. Recurrent myomata, while not so positively dangerous as cancer, must be considered malignant. Between these and sarcomata there is not always a distinct difference. That they may appear before the establishment of the menstrual function has been abundantly proved. Even the single case of Sutton should go far toward convincing the heretic of this fact. Sutton found a fibroid in the uterus of a childless widow, who had been twice married and had never menstruated or shown any physiologic evidence of ovulation. It had been there twelve years. In 1898,[1] I published a paper, probably the first, on the subject of fibroid degeneration of the uterus after double salpingo-oöphorectomy. It remains as the only paper on the subject in medical literature with the exception of a report of a case by Hey Groves which will be quoted later in this paper. I have noted incidental references, however, to cases like that of Ries[2] in his most excellent article, "The Pathology of Stump Exudates After Salpingectomy." The third case therein mentioned is that of a woman, from whom, several years ago, both tubes and ovaries were removed; then fibroids developed in the uterus and in 1897 vaginal hysterectomy was performed by Dr. F. Henrotin. The cases I have had were as follows:

CASE 1.—C. B., colored, aged 26.

History.—Both appendages were removed for pyosalpinx of gonorrheal origin (supposed) in 1895. The patient was ill but four weeks previous to operation. She had been married two months and had not been pregnant. The uterus at time of operation was about normal size and was not uneven on its surface. The following March she reported having had profuse hemorrhages from the uterus in January and February, and severe and almost constant pelvic pain.

Examination.—An examination revealed an enlarged and nodular uterus.

Treatment.—I did vaginal hysterectomy by morcellation. The uterus was found much enlarged, probably three times its normal size, and studded with numerous small fibroids, none having a diameter of more than half an inch. These tumors were distributed throughout the body of the organ, being directly under the peritoneum and endometrium, as well as in the middle of the muscular wall.

CASE 2.—Mrs. R., white, aged 32, married.

History.—The patient has one child, 14 years of age, no other pregnancy; this labor was followed by fever and she has continually suffered since with pelvic pain, profuse flow and dysuria. In September, 1895, she had moderate fixation of the uterus, endometritis and a doubly lacerated cervix. Curettement and trachelorrhaphy were then done with the expectation of separation of adhesions of uterus and appendages at the same time. However, when the abdomen was opened considerable pus was found in both tubes and the appendages were removed. The uterus was palpated, seemed in good condition and was not removed. She recovered and returned home in buoyant spirits. About a year later she began to have considerable losses of blood from the uterus and pains through the pelvis.

Examination and Treatment.—In December she called at my office and the uterus was found fully double its normal size and distinctly nodular. Hysterectomy was advised and the following month it was done through the vagina and by morcellation. The uterus contained several very small fibroids.

CASE 3.—Mrs. B., white, aged 36, multipara.

History.—The patient was operated on for double ovarian dermoid cysts in November, 1899. Menstruation returned, and with severity fourteen months later. It continued profusely with intervals varying from ten to twenty-two days until I saw her about eight months later.

Examination and Treatment.—At this time, the uterus was found to be more than double its normal size and nodular. Vaginal hysterectomy was done and eight small fibroids were found distributed through the uterus. Adhesions to the organ were marked.

CASE 4.—Mrs. W., widow, white, aged 46.

History.—The patient had had both appendages removed in another city six years before she consulted me in June, 1903, for severe pelvic pain, frequent urination and profuse and irregular uterine hemorrhages of two years' duration. The irregularly shaped uterus extended nearly to the umbilicus and was removed by morcellation by the vaginal route.

The case reported by Hey Groves[3] previously referred to was as follows:

Fibroid tumor of the uterus developed after both ovaries and tubes had been removed for independent disease (dermoid cyst).

Patient.—A woman aged 45 had had four children, the last six years previously.

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* Read at the seventeenth meeting of the Southern Surgical and Gynecological Association at Birmingham, Ala., 1904.

1. The National Med. Rev., Washington, D. C., vol. viii, pp. 1-5.
2. Amer. Gyn. and Obst. Jour., January, 1895.
3. Obstet. Trans., London, 1903, vol. xlv, p. 136.

History.—In November, 1896, she suffered from pelvic pain and abdominal swelling caused by an ovarian tumor. Both ovaries and tubes were removed completely. The right ovary contained a unilocular dermoid cyst. Complete amenorrhea followed for thirteen months. In December, 1898, bleeding occurred, lasting six days, with clots and pain. Menstrual periods then occurred with intervals of five weeks, then four weeks, and in 1901, three weeks, the flow remaining six days and the pain being very severe.

Operation.—In April, 1901, the uterus, containing a fibroid about the size of a small fetal head, was removed by abdominal hysterectomy. The mass removed weighed one and a half pounds and was nearly spherical, measuring from 3½ to 4 inches. A single, densely hard fibroid tumor occupied the posterior wall of the uterus. No trace of tubes or ovaries could be seen. The patient recovered and is now in good health.

Of these five cases two were operated on for non-infectious disease, two were victims of infection and in one the condition requiring removal of the appendages is not known.

It may be suggested that these growths antedated the disease that involved the appendages or developed coincidently with it, and that they were present at the time of operation. This may be the truth. It is by no means impossible for uterine fibroids to be so small as to escape detection by palpation of the uncut uterus even with fingers in the peritoneal cavity. As evidence against it, however, it may be said that in such case they must have been exceedingly small thus to escape detection. It may also be said that their development, apparently entirely after ablation of the appendages, is contrary to the opinion formerly held by most gynecologists, but now by but a few. It casts a strong shadow of unbelief on the efficiency of removal of the appendages to produce atrophy of uterine fibroids, an operation that gained a firm foothold in Europe and found many adherents in this country. It is very common for gynecologists having large clinics frequently to see cases of good sized uterine fibroids that the possessors have not been cognizant of until many years after cessation of menstruation. Does the sudden change in the pelvic circulation, incident to the ligation of the utero-ovarian blood vessels in double salpingo-oöphorectomy, act as a cause of the subsequent fibroid degeneration of the uterus? This question may be reasonably answered in the negative, else such degeneration might logically be seen commonly instead of rarely. Yet, it may be possible that hemorrhagic infarcts in the uterus may occasionally be produced in a manner that will result in a hyperplasia of connective tissue and be the origin of fibromata.

Whether in the process of uterine atrophy etiologic factors of this condition arise is very improbable, though the possibility must be admitted.

That the formation of pelvic adhesions incident to appendage disease, particularly when of infectious nature, may cause fibroids is possible; but here again must be considered this very common condition acting as a cause of a very rare one.

Does an infectious process of the uterus of some special degree or variety gradually bring about this fibroid degeneration? This seems highly probable, though problematic. A cursory consideration of the changes in the uterus after ablation of the appendages in the lower animals may be interesting in this connection. I quote from a paper published by Hunter Robb[4]: "Solokoff[5] noted the following changes in the uterus after bilateral castration in dogs:

"1. Marked changes in the muscular layer, which is the chief constituent of the uterine wall. (*a*) Atrophy in the circular layer setting in as early as six weeks after castration. (*b*) Disappearance of muscle fibers in the longitudinal layer, the fibers being less close than in the corresponding layer in the normal animal. The layer is diminished to half its normal thickness.

"2. No changes in the vessels. The atrophy increased in direct proportion to the time which had elapsed before the dogs were killed. In specimens from a dog killed fourteen months after operation the following were noted:

"1. There is no trace of atrophy in the mucosa.

"2. The circular layer does not present so broad a ring as in normal specimens. It is thin and the muscle fibers are separated, and in places broken.

"3. The vessels are much altered. They are much thickened; their lumen is narrower than normal, and many are obliterated. The intervening tissue is atrophied to such an extent that the vessels often touch one another.

"4. The longitudinal layer has almost entirely disappeared."

He shows atrophy begins first in the circular layer and is intense; in the longitudinal it is slower but continuous. The mucosa remains unaltered. Neither fatty degeneration nor albuminous clouding was noted, but there is much change in form in the individual muscle cell. The fibrillary substance has disappeared and only the nucleus and a granular protoplasm are left. Solokoff reasons that the effect of castration on the uterus is manifested through the nervous system since decreased blood supply—the only other assignable reason—does not result from ligation of the ovarian arteries and since the direct connection between the ovaries and the uterus through the central nervous system remains. In castration this connection is broken. Moreover, Rein has demonstrated that isolation of the uterus from the central nervous system by severing the branches of the sympathetic or of the sacral nerves has no influence on nutrition of the organ and that this atrophy occurs after the function of the ovaries has disappeared at the menopause. As the ovaries are the points of departure for stimuli to the uterus, the removal stops the functions of the uterus, which are necessary for the preservation of any muscle. Gottschalk[6] and Kleinwachter corroborate Solokoff's contention.

In the uterus of a woman removed three months after castration Benckeiser noted an endarteritis obliterans to which he referred the atrophy noted. Gottschalk found in another specimen removed eighteen months after removal of both ovaries for bilateral gonorrheal pyosalpinx that atrophy was greater in the body of the uterus than in the cervix. The individual muscle cell showed a decrease in the size of the body and of the nucleus. The intermuscular tissue was increased, but he could not decide whether he was dealing with a progressive fibrillary metamorphosis of the muscle cells or with the end products of an old inflammatory process. The endarteritis found by Benckeiser he could not discover, though he did note a marked folding of the intima of the larger vessels corresponding to the functional diminution in the size of the lumen produced by an increased tonus in the vessel wall.

From these experiments and investigations one can find but one theory on which to base a cause for the development of fibroids after double salpingo-oöphorec-

4. Cleveland Med. Gaz., May, 1898.
5. Arch. f. Gyn., 1896, vol. li, p. 2.
6. Arch. f. Gyn., 1897, vol. liii, p. 2.

tomy. That is the endarteritis obliterans noted by Benckeiser. I wish the relation was clearer and that more cases could be cited in substantiation. In all the cases of development of fibroids of the uterus after removal of the appendages cited in this paper, the tumors were multiple, showing the existence of a number of foci, and pathologists, I believe. have been interested in endarteritis obliterans in the uterus as the origin of fibroid tumors. The cases of such development of fibroids after castration are probably rare and their existence must be due to some rare cause such as is this form of endarteritis. In the absence of a better explanation I am disposed to accept this one.

A CASE OF TYPHOID PERFORATION OF THE INTESTINE WITH SURGICAL TREATMENT AND RECOVERY.

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Patient.—Male, age 38, single; occupation, miner.

Previous history unimportant.

History.—His illness began 37 days before he was admitted to the University of California wards in the San Francisco County Hospital. At that time he was working in the mines at Mojave. The onset was marked with weakness and dizziness and alternate diarrhea and constipation. He stopped work, but did not go to bed. After going from place to place for five weeks he was admitted to the hospital on Nov. 17, 1904.

Examination.—On entrance he had a temperature of 101.8 F., liver and spleen were slightly enlarged, there were roseola on abdomen, and tenderness and gurgling in right iliac fossa, diazo reaction was present, and the Widal reaction was present in dilution of 1 in 40 in 45 minutes; hemoglobin, 65 per cent.; leucocytes, 6,500.

Treatment.—Treatment for typhoid fever was instituted, and during the next four days a gradual decline in temperature took place, the curve ranging from 98.4 to 101.8 F. The highest temperature on the day before the perforation was 100.4 and the lowest was 99 F.

Course of the Disease.—On November 22, the forty-second day of the disease, the temperature dropped to 97.2 F. at 4 in the morning. At 8 a. m., just after drinking milk, he complained of severe pain in the right iliac fossa. This was at once reported to the interne, Dr. Castlehun, who deserves credit for recognizing the condition and for instituting the proper temporary treatment. An hour later the patient had a severe chill, and the pulse rose to 124 and the temperature to 103.4 F. Examination just before the chill showed tense muscles on the right side of the abdomen, marked tenderness over the cecum, and a dull note over the ascending colon. This dullness was apparently due to the condition of the abdominal muscles and the empty contracted intestine underneath. The liver dullness was clearly defined at the costal margin. The leucocyte count at 9 o'clock was 10,600; at 10 o'clock, 7,300.

The fall of temperature to 97.2 F. four hours before the pain was noticed was probably the actual time of the occurrence of the perforation, but the taking of food at 8 o'clock started peristalsis that caused the sharp pain. The chill at 9 o'clock undoubtedly marked the beginning of peritonitis. This is an important symptom in the diagnosis of perforation. One may not always be justified in separating the symptoms of the shock of perforation from the symptoms of peritonitis, but in this case, with a fall in temperature at 4 o'clock, sharp abdominal pain and muscle rigidity at 8 o'clock, and a chill an hour later, it would seem that the first symptoms were due to the perforation itself and not to peritonitis. Before the first early signs of peritonitis it is very difficult to make a diagnosis. At any rate, in this instance the sudden fall and subsequent rise of temperature, the acute pain in the right iliac fossa, the tenderness, the rigid muscles, the quick rise of pulse, the chill, and the presence of typhoid fever as a cause, enabled a diagnosis of perforation through an ulcer to be made, and the patient was immediately taken to the surgical ward for laparotomy, with most satisfactory results.

The subsequent history will be dealt with from the surgical standpoint.

Examination by Dr. Huntington.—I saw the patient November 22 at 10 a. m., with Dr. Ebright, who had made a diagnosis of typhoid intestinal perforation.

At this time the evidences of profound shock which were manifested at 8 a. m. had measurably subsided; in fact, I hesitated to concede the correctness of Dr. Ebright's opinion. There was no distension and, save over the right lower abdominal segment, tenderness was not especially noticeable. The temperature rose rapidly from 101.4 F. at 8 a. m. to 103.2 F. at 11 a. m. The pulse rate showed a corresponding increase from 84 at 8 a. m. to 140 at 11 a. m. Three white blood counts made between 8:45 and 11 a. m. were interesting. The first showed 10,600 leucocytes, the second 7,300 and the third, just before operation, 6,400.

Operation.—The patient was taken to the operating room at about 11 a. m., and under ether anesthesia the abdomen was opened by a vertical incision 3½ inches long at the outer border of the rectus. The peritoneal fluid was slightly increased and appreciably turbid. The visceral peritoneum was deeply reddened, but there were no lymph deposits and the various loops of bowel were not agglutinated. The small bowel was picked up at the ileocecal valve and was carefully inspected. At a point 8 inches from the colon a small perforation was found in the center of a dark colored elevated area, the size of a nickel, marking the location of Peyer's patch. The opening was about the size of a pin head, but through it the contents of the bowel spouted freely during manipulation. The perforation was closed by a purse-string suture, to which a second was added.

The structure of the bowel adjacent to the perforation was fairly normal and there was no inclination for the sutures to tear out. On further inspection of the ileum it was found that there was no evidence of ulceration proximal to the perforation. Between that point and the ileocecal valve two other elevated patches were found at 2½ and 5 inches from the valve. The covering of the latter was much thinned, and another perforation was impending. Accordingly it was fortified by a purse-string suture. The covering of the third patch seemed fairly resistant and it was not interfered with. The appendix looked angry and was evidently in a state of more or less acute inflammation, but owing to the unfortunate condition of the patient it was thought best not to prolong the period of anesthesia by its removal. At this stage of the procedure, toilet of the perineum became a matter of extreme moment. Irrigation of the general cavity was not considered seriously. The bowels being held aside, large gauze pads were inserted to remove free fluid. This was followed by careful sponging with smaller pads until practically all the peritoneal fluid was eliminated. Despite the fact that Harte and Ashurst and authorities generally agree that drainage should be employed in these cases, I determined to close the wound as in an ordinary clean laparotomy.

The immediate closure of the wound without drainage in the average case of typhoid perforation can not be regarded as a legitimate procedure, but in this instance drainage was omitted because of the small amount of extravasation which had occurred and because of the resistance which the peritoneum manifests when the original focus of infection has been removed at an early period. When sufficient time has elapsed after perforation to admit of extensive peritoneal involvement, drainage by gauze wicks through two or more channels, as suggested by Richard H. Harte, is imperative.

Result.—The patient left the operating room in a state of moderate shock, but reacted well in the course of one hour, at which time his pulse was 108 and respiration 20. For the first forty-eight hours he was fed by rectum, then mouth feeding was gradually resumed. During the first five days he

ran a temperature from 100 F. in the morning to 102 F. in the evening, about as he had been doing before the perforation. There was a free bowel movement on the third day, and the wound at this time seemed to have closed *per primam*.

On the morning of the fifth day a stitch abscess was discovered in the upper part of the wound, which discharged about two drams of thick pus. On the seventh day the discharge manifested a distinctly fecal odor. Following this there was a free discharge of bowel contents, necessitating reopening of the entire skin wound. Fortunately the bowel opening communicated freely with the wound and there was no evidence of peritoneal infection. Gradually the discharge lessened, the sinus became narrowed and about January 1 it closed permanently.

The patient is now convalescing rapidly. He is able to be up and about the ward and is approaching perfect recovery.

That the occurrence of fecal fistula is not so serious as might be imagined is evidenced by the statement of Harte and Ashurst, that of 16 patients who withstood the immediate shock of operation, and in whom a fecal fistula subsequently developed, only two, or 12.5 per cent., died. A fecal fistula, according to the same authorities, is of favorable import. Such lesions rarely fail to heal spontaneously, but, if necessary, reparative measures may be adopted after complete convalescence.

My experience in dealing surgically with typhoid bowel perforations is confined to three cases. The first occurred in 1901. The patient was a woman in whom the perforation occurred sixty hours before operation. There was general peritonitis due to extensive fecal extravasation, and death occurred twelve hours later. The second case, curiously enough, was operated on the same day as the first. The patient was a man in whom the perforation occurred about forty hours prior to operation. He was suffering from diffuse peritonitis due to fecal extravasation, and died sixty hours later. The reasons for the more fortunate termination of the third case are clearly assignable to prompt recognition of the lesion and immediate resort to radical measures for relief.

The operative tolerance of typhoid patients, even those whose vitality has been markedly lowered by the previous illness, is widely recognized. It is maintained by Harte and Ashurst that deaths following surgical interference have rarely been due to operation. Of twenty-six exploratory laparotomies in which perforation had not occurred sixteen patients recovered. The nine fatalities in this series were clearly attributable to causes independent of operation.

R. R. Fitch, M.D., reports from the services of Drs. Vickery and Minot at the Massachusetts General Hospital, 4 cases of laparotomy during typhoid fever. Two were for typhoid perforation, one for a pus tube, and the fourth was for an acute appendicitis. All the patients recovered, and these were all the cases of typhoid subjected to laparotomy during the summer of 1904.

Many other cases of a similar nature could be added to the list of typhoid laparotomies with a favorable result.

In 1903 Harte and Ashurst reported to the American Surgical Association 362 cases of operation for typhoid perforation. This series was collected from the literature covering the period from 1884 to 1903. Of this series, 94 patients recovered and 268 died, the mortality being 74.03 per cent. In a more recent article Keen, commenting on published statistics, calls attention to the progressive fall in mortality in cases operated on, from 90 per cent. in the earlier to 69 per cent. in recent years. He further states that individual operators, with exceptional hospital facilities, have had a much lower mortality rate, and expresses the belief that in the future surgeons may anticipate a ratio of recoveries amounting to from 40 to 45 or possibly 50 per cent. To this end the doctrine of Mikulicz, enunciated so early as 1884, must actuate the surgeon of to-day: "If suspicious of a perforation, one should not wait for an exact diagnosis, but proceed immediately to an exploration, which in any case is free from danger."

STENOSIS OF THE PYLORUS IN INFANCY.

AN ANALYSIS OF 115 CASES.

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"The pylorus was invested with a hard, compact substance or schirrhosity, which so completely obstructed the passage into the duodenum as to admit with the greatest difficulty the finest probe." Thus wrote Hezekiah Beardsley[1] in 1788 from New Haven, Conn., after having examined the stomach of a child who had had "puking and regurgitation of milk" from birth, but who, although much emaciated, had lived, in spite of this rejection of food, until she was 5 years old.

Beardsley's case of 1788 is the first recorded instance of obstruction at the pylorus occurring in infancy. It is a record of importance. In 1841 Williamson[2] recorded the second case of pyloric stenosis. The child died when five weeks old. In 1842 Dawoski[3] reported the third instance. This case likewise died when five weeks old. From the time of the case of Dawosky to that of Hirschsprung[4] of Copenhagen in 1888, a period of forty-six years, medical annals contain no clinical instances of infantile pyloric stenosis.

With the paper of Hirschsprung, in 1888, begins the record of modern cases. Experience with pyloric stenosis in infancy only covers, therefore, a period of about seventeen years. The earlier records are incomplete, but the recent reports are more nearly accurate.

A critical consideration of the accumulated medical and surgical experience with stenosis of the pylorus in infancy should serve to clear away many doubts concerning it and to place its treatment on a definite basis.

The keen interest of the medical profession to-day in stenosis of the pylorus in adult life has led to greater accuracy in its diagnosis and to most brilliant surgical results. The experience gained by our knowledge of the adult condition should prove of value in a study of infantile stenosis.

SUMMARY OF THE REPORTED CASES.

There are available records of some fifty-five autopsies of cases of infantile pyloric stenosis treated medically, and there is great uniformity in the returns from these autopsy reports.

In every instance a pyloric tumor is mentioned; a tumor unassociated with adhesions of any kind; a tumor varying in size and likened to a walnut, to a hazelnut or to a marble.

When one remembers how indefinite at times is the

1. Beardsley: Trans. New Haven Co. Med. Soc., 1788; quoted by Osler, Boston Med. and Surg. Jour., March 12, 1903.
2. Williamson: London and Edinburgh Monthly Journal of Med. Sci., 1841, p. 23.
3. Dawosky: Arch. Gén. de Méd., 1843, 4th series, vol. ii, p. 93.
4. Hirschsprung: Jahr. f. Kinderheilk., 1888, vol. xxviii, p. 61; vol. lv, p. 596.

normal adult pylorus, and how difficult it may be to immediately localize it at operation and at postmortem examination, one is impressed by the definite picture of the pyloric tumor in these diminutive bodies.

The pyloric tumor in each instance was very firm. It is described as being "hard," "very hard," "cartilaginous like" and "scirrhus." "It creaked under the cut of the knife."

Careful microscopic examinations of this movable, circumscribed, hard pyloric tumor show that the enlargement in every instance is due chiefly to a hyperplasia of the circular muscular fibers.

Once the longitudinal muscular fibers were found increased in size. Note the case of Greef.[5] The muscularis

TABLE 1.—COMPARISON OF STOMACH WITH STENOSIS OF PYLORUS AND NORMAL STOMACH.

Measurements of the several layers of the normal pylorus at 4 months and measurements of the hypertrophied pylorus of the same age. Compare figures. Child had had symptoms for two months. (From Gran.)

MEASUREMENT OF TRANSVERSE SECTION.

	Hypertrophied Pylorus.	Normal Pylorus.	
Glandular Coat	600 microns	450 microns	
Muscularis Mucosæ	100	52	
Submucous Coat	300	225	
Tunica Propria	52	39	
Muscularis: Circular Fibers	2,775	1,390	
Muscularis: Longitudinal Fibers	225	260	
Serous Coat	60	26	
	4,112 mm.	2,442 mm.	1,670

MEASUREMENT OF TRANSVERSE SECTION OF STOMACH.

	.1 cm. Distant from Pylorus.	Normal Stomach.	
Glandular Coat	600 microns	375 microns	
Muscularis Mucosæ	75	39	
Submucous Coat	450	150	
Tunica Propria	52	39	
Muscularis: Circular Fibers	1,350	620	
Muscularis: Longitudinal Fibers	150	130	
Serous Coat	60	26	
	2,737 mm.	1,379 mm.	1,358

MEASUREMENT OF TRANSVERSE SECTION OF STOMACH.

	4 cm. Distant from Pylorus.	Normal Stomach.	
Glandular Coat	450 microns	450 microns	
Muscularis Mucosæ	52	39	
Submucous Coat	300	75	
Tunica Propria	39	26	
Muscularis: Circular Fibers	1,275	600	
Muscularis: Longitudinal Fibers	75	300	
Serous Coat	65	39	
	2,256 mm.	1,529 mm.	727

MEASUREMENT OF TRANSVERSE SECTION.

	Thinnest Part of the Fundus.	Normal Stomach.
Glandular Coat	150 microns	300 microns
Muscularis Mucosæ	26	45
Submucous Coat	75	150
Tunica Propria	26	39
Muscularis (entire muscular coat)	300	600
Serous Coat	26	39
	603 mm.	1,173 mm.

mucosæ in the case of DeBruin-Kop[6] was thicker than normal.

Because of the circular constriction of the pylorus the mucous membrane in most instances was thrown into more or less well marked longitudinal folds. These longitudinal folds of mucous membrane are of importance in connection with the treatment of these cases; obviously, they may obstruct the lumen of the pylorus.

In Ashby's[7] case the pyloric mucosa was "swollen." In Larkin's[8] case a new growth of connective tissue in the mucosa is described. The report reads: "There is a hyperplasia of the circular muscular fibers and a replacement of the tubular glands of the mucous membrane by new connective tissue."

Cautley[9] describes a single large longitudinal reduplication of the mucous membrane lying on the posterior wall of the pylorus. Dawosky records a thickening of the submucous lymphoid tissue. This has been observed by no one else.

In estimating the pathologic significance of the longitudinal folds of mucous membrane it must not be forgotten that they exist normally. Probably the folds noted postmortem are the normal folds somewhat exaggerated in number and in size because of a puckering occasioned in certain cases by the constriction of the pylorus, and in other cases by a new growth of connective tissue (as described by Larkin[8]). Prudden discovered in Meltzer's case a fibrous hyperplasia of the submucosa accompanied by the customary hyperplasia of the circular muscular fibers.

The varying thickness of the several layers of the pylorus and stomach has been carefully measured, both macroscopically and microscopically. Gran[10] in 1896 (Table 1) published one of the earliest records of such microscopic measurements, and presented measurements of the normal pylorus for comparison. The gross appearances of hypertrophy were confirmed by his observations.

TABLE 2.—Measurements of normal pylorus in eight infants within first years of life. Some shrinkage due to method of preparation. Considerable variation in the wall of normal pylorus. Compare 5 mos. 5 mos. = 10 mos. — 10 mos. Variation in normal pylorus due to variation in the circular fibers—not in longitudinal fibers. Vide AB. and CD. for normal variations (according to Still).

Age.	Thickness of whole wall.	Whole muscular layer.	Circular layer. A	Longitudinal layer C	Submucosa.	Mucosa.
4 wk. (a)	About 1.8 mm.	1.18 mm.	1.05 mm.	.13 mm.	.2 mm.	—
4 wk. (b)	" 2.2 "	1.55 "	1.3 "	.25 "	—	—
4 mo. (a)	1.5 mm.	1.05 "	.75 "	.3 "	.2 mm.	.25 mm.
4 mo. (b)	2 "	1.36 "	1 06 "	.3 "	—	—
5 mo. (a)	2.6 "	1.6 "	1.1 "	.5 "	.5 mm	.5 mm.
5 mo. (b)	3.3 "	2.5 "	2.1 "	.4 "	—	—
5 mo. (a)	1.7 "	1.15 "	.9 "	.25 "	.25 mm.	.33 mm.
5 mo. (b)	2 3 "	1.5 "	1.2 "	3 "	—	—
6 mo. (a)	1.6 "	.9 "	.7 "	.2 "	.2 mm.	.5 mm.
6 mo. (b)	2.4 "	1.73 "	1.4 "	.33 "	—	—
10 mo. (a)	1.5 "	.82 "	.66 "	.16 "	.23 mm.*	.4 mm.
10 mo. (b)	2.1 "	1.61 "	1.25 " B	.36 " D	—	—
10 mo. (a)	2.4 "	1.51 "	1.1 "	.41 "	.3 mm	6 mm.
10 mo. (b)	2.9 "	2 "	1.5 "	.5 "	—	—
12 mo. (a)	2.31 "	1 55 "	1.1 "	.45 "	26 mm	.5 mm.
12 mo. (b)	2.41 "	2.65 "	2.2 "	.45 "	—	—
Measurements of Hypertrophied Pylorus.						
Case 1. 12½ weeks.	3.5 mm.	2.4 mm.	2.1 mm.	.3 mm.	.3 mm.	.8 mm.
" 2. 14 weeks.	3.7 "	2.7 "	2.4 "	.3 "	.4 "	.6 "
" 3. 14 weeks.	5.7 "	3.4 "	2.6 "	.8 "	.9 "	.4 "

*Approximate measurement.

Still[11] of London, in 1899 (Table 2), likewise made measurements of the normal pylorus at different ages, from 4 weeks to 12 months. He compared these with measurements of the hypertrophied pylorus. Still made measurements of eight individuals with normal stomachs and of three individuals with hypertrophied pylori (Table 2.)

Considerable variation exists in the normal pylorus for the same age, and the differences between the normal and hypertrophied pylorus are very striking.

The important fact demonstrated by these careful measurements is that the essential pathologic change in these cases is primarily an enormous hyperplasia of the circular muscle fibers of the pylorus and of the adjoin-

5. Greef: Med. Rec., 1904, 66, 334.
6. De. Bruin-Kop: Nederlan. Tydschr. von Gruesck, 1896, December.
7. Ashby: Arch. of Ped., July, 1897, p. 408.
8. Larkin: Arch. of Ped., August, 1901, p. 614.
9. Cautley: Trans. Royal Med. Chirurg. Soc., 1899, vol. lxxxii, p. 41; Lancet, July 28, 1900, p. 256, 1904, I, p. 645; British Med. Jour., 1902, vol. I, p. 1340.
10. Gran: Jahr. für Kinderheilkunde, N. F. 43, 1896.
11. Still: Trans. Path. Soc., London, vol. I, 1899, p. 97; Brit. Med. Jour., 1899, I, p. 340.

ing stomach wall. These postmortem findings are absolute.

On the contrary, the postmortem measurements of the relaxed lumen of the pylorus can not be looked on as altogether comparable with conditions existing in life. If a narrowness of the lumen exists postmortem it probably was greater during life.

The degree of the stenosis does not always bear a definite relation to the extent of the hypertrophy. The stenosis is variable, and the pyloric orifice is described as of different sizes.

Pfaundler[12] has established an index of size of the lumen of the pylorus for different ages from birth to adult life (Table 3). This index he determined from measurements of the diameter of the normal pylorus. These measurements reduced to the Charriere or French scale of urethral sounds afford a ready method of determining postmortem and during life whether any given pylorus is above or below Pfaundler's scale. It will be important to have Pfaundler's measurements confirmed before accepting them as altogether accurate, but so far as I have compared them with measurements already made they seem satisfactory.

There is, of course, a slight individual variation in the size of the pylorus. A large child will have a larger

TABLE 3.—DIAMETER OF PYLORIC LUMEN.

Pfaundler's index. Table showing the size of the lumen of the pylorus according to diameter in mm. and the French scale of urethral sounds.

Age.	M.M.	Charriere.	Age.	M.M.	Charriere.
Birth	6.3	19	10 mos.	9.8	30
1 mo.	6.9	21	11	10.1	31
2	7.3	22	12	10.5	32
3	7.6	23	.....	....	..
4	7.9	24	.....	....	..
5	8.2	25	.....	....	..
6	8.5	26	.....	...	..
7	8.9	27	.....	....	..
8	9.2	28	.....	....	..
9	9.5	29	.....	....	..

pyloric lumen than a tiny child. The pylorus of one child at six months may take a certain sized sound with ease, while the pylorus of another child of the same age will scarcely receive this sound, yet no symptoms of obstruction may exist in the latter child.

The lumen of the normal pylorus bears a definite relation to the physiologic needs of the individual. If the lumen is reduced beyond a certain point there is stasis or obstruction and, consequently, symptoms of such stasis or obstruction.

Fortunately, measurements of the lumen have been made directly or indirectly in almost all of the postmortems of pyloric stenosis. In all of these cases undoubted stenosis of the pylorus has been discovered.

It has been noted that even though a solid steel sound will pass through the pylorus with comparative ease, yet fluid can not always be made to pass. Note the cases of Cautley and Shaw. The obstruction offered to the fluid is due to the swollen and reduplicated mucous membrane. These folds are smoothed away by the sound.

To illustrate that these measurements vary in reported cases, and how much they fall below the average, i. e., the index of Pfaundler, consider the Gran case. The lumen was 3 mm. at two months. It should have been 7.3 mm. Note the Abel[13] case: The lumen would not take 3 mm. at eight weeks. It should have received 7.3 mm. Note the Batten[14] case: The lumen admitted a 4 mm. probe at eleven months. It should have admitted one of 10.1 mm., etc.

In most instances, in addition to the pyloric changes secondary changes are noted in the stomach; the muscular wall is found thickened (hypertrophied), especially throughout the pyloric segment. This muscular hypertrophy is found commonly in those cases which have died early. They have not lived long enough for dilatation to succeed the hypertrophy. Gran's third case illustrates well the hypertrophy of the stomach wall.

DeBruin-Kop's[6] case illustrates a great dilatation. The obstruction was practically complete in Kop's case. The child's symptoms began at birth, and the child died at the end of three weeks. The complete obstruction led to a rapid loss of compensatory hypertrophy and to an early dilatation which was noted during life. The stomach extended below the umbilicus. The esophagus was found dilated in a few instances. Note the cases of Thomson[15] and that of Pritchard.[16] The intestinal canal below the stomach was almost always found empty and collapsed—"shrunken."

The postmortem findings, therefore, are very definite and, except for minor differences of degree, invariable: a hard pyloric tumor, of constant structure—and a hypertrophied or dilated stomach—occasionally a dilated esophagus—a narrowing of the pyloric lumen—a hypertrophy of the mucous membrane—a collapsed intestine.

This picture from the dead house is the same picture which operating surgeons up to the present time have recorded in some 60 operations on the living child. The surgeons have found on the living the pyloric tumor in every recorded instance. The surgeon has seen, too, the secondary changes in the stomach.

The operator is often unable to measure the lumen of the pylorus. It is inexpedient. In those cases which were measured in life by the surgeon an abnormal narrowing has invariably existed. In all of the 55 autopsy cases there has likewise existed a narrowing of the pyloric lumen. Therefore, the surgeon may rightly conclude that in the cases operated on by him and not measured, the lumen is less than normal also. The evidence from these 115 cases, 55 autopsies and 60 operations, critically examined by pathologist and surgeon, affirms the existence of a constant lesion causing at the pylorus a more or less complete obstruction to the normal emptying of the stomach contents.

SYMPTOMS OF PYLORIC STENOSIS.

Fortunately we possess the clinical story in each of these 115 cases.

The symptoms are found to depend on the degree of the stenosis at the pylorus. The cases group themselves naturally, therefore, into those having complete obstruction and those with partial obstruction.

The symptoms are vomiting, constipation, the presence of a pyloric tumor, progressive wasting, visible gastric peristalsis, and latterly a dilated stomach.

Vomiting is the first symptom and it begins without apparent cause. It begins the day of birth or the day after (see the case of Ladd and that of Finkelstein), or is delayed a few days or weeks, according to the degree

12. Pfaundler: Wein. klin. Wochft., 1898, p. 1025.
13. Abel: Münch. med. Wochft., 1899, No. 48, p. 1607.
14. Batten: Lancet, 1899, p. 1511.
15. Thomson: Scottish Medical and Surgical Journal, June, 1897: Edinburgh Hosp. Rep., 1896, vol. iv, p. 116.
16. Pritchard: Arch. of Ped., 1900.

of the stenosis. In 52 cases the average time from birth at which vomiting appeared was 17 days.

The vomiting is forcible, very expulsive, obstructive.

It is apparently uninfluenced primarily by the quality of the food. Many cases have been breast-fed. See the case of Ladd. It is influenced, however, somewhat by the quantity of the food. It occurs usually immediately after a feeding or within a half-hour.

It may skip one or two feedings, and then the vomitus will be equivalent to the total amount of the previous feedings. A very great variety in the times of vomiting is recorded referable solely to the time of the feeding.

The material vomited may be liquid or curdled milk. It usually contains no bile. In the cases of Saunders[17] and Schwyzer[18] bile was present in the vomitus. The autopsy in these cases confirmed the diagnosis of partial pyloric stenosis. In one case because bile was present in the vomitus operation was postponed and the child died.

The presence of HCl in the vomitus is very variable; it may be absent, increased or diminished. Lactic acid is usually absent, and usually there is little evidence of a catarrhal gastritis. Blood has never been vomited in any recorded case.

The act of vomiting is not like the simple spitting up of milk so commonly seen in well babies, a running over of a filled stomach. The vomiting is persistent not in the sense that it is "cyclic," but that it is continuous, with occasional remissions between feedings. In cases of partial stenosis, remissions of a few days are recorded. The rapid increase in the flow of milk from the maternal breast on the third day after confinement results in the baby's taking at that time more liquid than formerly, and the third day is the time when vomiting often begins. It may be occasioned possibly by the sudden overfilling of the stenosed stomach. There is no evidence of nausea. The child is comfortable when the stomach has emptied itself.

Constipation is a usual symptom, depending, of course, on the amount of nourishment which is passed through the stenosed pylorus into the duodenum.

Nicoll[19] reports the case of a patient who had diarrhea. Hirschsprung's second patient also had diarrhea. Generally, the tongue is clean and moist.

The child is inordinately hungry, ravenous, and is pacified temporarily by food, only to show signs of distress when the contractions of the stomach empty the contents after the feeding. The eagerness of the child for its food is remarkable.

The child loses in weight because of starvation, and this loss of weight is progressive. Nicoll records one case in which he was deceived in the diagnosis because the child appeared quite plump and well nourished, but the typical hypertrophy was found.

The contraction of the stomach in attempting to overcome the stenosis may be so marked that visible peristaltic waves are seen passing across the stomach from left to right and ending at the pylorus. These peristaltic waves are very noticeable at the beginning, and early in the course of the case. When the stomach is greatly dilated and when the muscular contraction is diminished in power, the peristaltic waves are less and less apparent.

In those cases which had been ill longest, and in which there was a greatly distended stomach, peristaltic waves were seen less frequently.

In about 38 cases, or one-third of the 115 cases, peristalsis is mentioned as present. Of course, some of the 115 cases are incompletely reported with regard to certain facts.

The stomach is often found dilated, and in a few instances it is described as being below the umbilicus.

The epigastrium is distended by the dilated stomach, and there is a striking contrast between the epigastric fullness and the sunken appearance of the lower abdomen.

A tumor the size of a walnut may be felt a little to the right and a little above the umbilicus. The tumor is slightly movable and is rather deeply seated. The failure to discover the presence of a tumor does not mean that it does not exist, but simply that it is concealed either by the large liver, by the dilated stomach or by a normal abdominal wall. The tumor may become evident only when the pyloric portion of the stomach contracts violently.

Nicoll detected a tumor in 20 per cent. of his cases. One-half of these were examined under ether. In only 18 cases of those reported was a tumor recorded as palpated before the autopsy. I am positive that a more careful examination than probably was made in many of these reported cases would have shown the presence of a tumor. In many cases no attempt was made to detect a tumor. It is extremely easy to slip carelessly over the abdomen without noting evident conditions.

One may group the symptoms of the affection in typical cases as follows:

A perfectly healthy child is born; within a few days of birth vomiting, without evidences of nausea, appears —vomiting characteristic of pyloric stenosis. There is no bile in the vomitus. There is constipation, but the child has a clean tongue and a sweet, natural breath. A somewhat enlarged stomach is found, and there is visible peristalsis of the stomach. There is a palpable pyloric tumor and there is progressive wasting, though the child is greedy for food.

A careful review of these cases convinces me that clinically there are to be recognized two general groups, the acute fulminating cases and the subacute or chronic cases, or, to put it more accurately, the acute cases and the mild cases. From a pathologic standpoint the acute cases correspond to a complete or almost complete obstruction at the pylorus, while the mild cases are those attended by a partial pyloric stenosis.

The rapidity of the wasting is apparently not dependent on the degree of the stenosis. A moderate stenosis may be attended by great wasting.

These clinical observations are interesting in connection with the fact demonstrated at autopsy that the size of the pyloric tumor, which is the apparent cause of the obstruction, is not always indicative of the degree of stenosis present.

A very large proportion of all clinical cases are fairly typical. There is no question, however, but that apart from typical symptoms stenosis of the pylorus may exist. Cautley's[9] case illustrates this fact very clearly. A well, strong baby began to vomit when three weeks old. The vomiting was not characteristic, but persisted, although with remissions. The bowels moved, although the dejections were small and constipated. The child wasted, but during a period of two weeks gained 13 ounces in weight.

The child died of exhaustion when three months old. The autopsy showed a distended stomach and a pyloric sausage-shaped tumor one inch long. The lumen of the

17. Saunders: Arch. of Ped., April, 1902, p. 241.
18. Schwyzer: N. Y. Med. Monthly, vol. viii, 1896, p. 674.
19. Nicoll: Brit. Med. Jour., Sept. 1, 1900; Oct. 29, 1904, p. 1148.

pylorus admitted only a small probe and the contents of the stomach could not be squeezed through it. The microscope showed the characteristic hyperplasia of the circular muscular fibers. These symptoms were atypical, and yet the diagnosis of stenosis was made because of the progressive wasting, the palpable tumor and the vomiting.

DIFFERENTIAL DIAGNOSIS.

These atypical cases will always prove difficult of diagnosis, and it is necessary to keep constantly in mind the classical signs; having those firmly fixed, one may hope to arrive at a diagnosis, even amid an apparently anomalous group of symptoms.



Fig. 1.—Life-size drawing of a stomach of child 7 weeks old: Breast fed, vomited persistently after one week, died in convulsions. Note tumor at pylorus and irregularity of stomach surface. (Henry Ashby, Archives of Pediatrics, 1897, vol. xiv, p. 498.)



Fig. 2.—Section through the stomach of Ashby's case. Pylorus seen hypertrophied; diameter, 2 cm.: pyloric opening, 2.5 mm. (Henry Ashby, Archives of Pedriatics, 1897, vol. xiv, p. 498.)

There are two conditions to be considered in the differential diagnosis: first, a congenital atresia of the pylorus of the duodenum or of the gut lower down than the duodenum. Such cases have been reported by Lesshaft, Macé and Wuensche. These cases are rapidly fatal.

The other condition of far greater importance to the clinician is the very common indigestion or dyspepsia of infancy. This latter condition is so common that a vomiting infant is ordinarily thought to have dyspepsia, due to too much food or to improper food. A careful study of the so-called "persistent dyspepsias" or the "inveterate dyspepsias" of infancy will again and again in the future discover a pyloric stenosis. When the clinician's attention has once been called to this affection he immediately begins to discover cases. Many individual observers are seeing more and more of these cases each year; the affection is not uncommon. A most critical study of each symptom in a given doubtful case should be made and a painstaking experimentation should be undertaken with the nourishment of the baby both in time of feeding, quality of nourishment and quantity fed. If these measures fail and the baby loses in weight or gains only intermittently, and if persistent vomiting is present, stenosis of the pylorus is to be strongly suspected.



Fig. 3.—Child 9½ weeks old. Stomach dilated and reaching to ½ in. above umbilicus; esophagus dilated, diameter 3/16 in.; suggestion of hour-glass stomach. Pylorus, 1⅞ in. in circumference, ⅝ in. in diameter. Pylorus enormously hypertrophied, 3/16 in. in diameter. Mucous coat showed a condition of chronic catarrh. Muscular coat thickened. (John Thomson, Edinburgh Hospital Reports, vol. iv, p. 117.)



Fig. 4.—Child 9½ weeks old; same case as in Figure 3. Showing the thickening of the pylorus and the longitudinal folds of mucous membrane. The duodenum is seen distinctly marked from the pylorus. (John Thomson, Edinburgh Hospital Reports, vol. iv, p. 117.)

No one sign should be accepted as diagnostic. A pyloric tumor may be simulated by an enlarged gland,

but the gland will be less well defined, deeper seated and not associated with the other symptoms. The picture as a whole, the composite picture, is to be regarded, and then by the process of exclusion the diagnosis reached.

The fact that a baby on breast milk vomits persistently should be looked on with suspicion. Each of the signs found in cases of pyloric stenosis may be present in cases of infantile indigestion or dyspepsia, but the particular phase or quality, if I may so express it, of

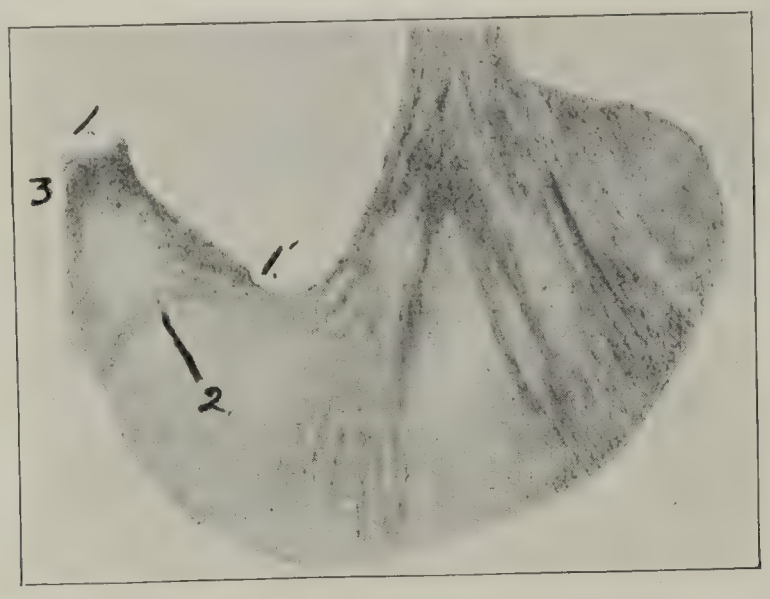


Fig. 5.—Representation of condition found at operation. Child 6 weeks old. Breast fed; vomited from birth. Dilated stomach, visible peristalsis; great emaciation. Note the firm funnel-shaped ring of the pylorus and the situation of the incision for doing a Loreta operation. (Nicoll, British Medical Journal, 1900, vol. ii.)



Fig. 6.—Lower stomach that of a child 3 months old in which vomiting began at the fifth week. A pyloric tumor was felt before death, the stomach was dilated and visible peristalsis was present. Operation refused. Note greatly hypertrophied pylorus and dilated stomach. Above is stomach of child 14 months old for comparison. (Fisher and Neild, Bristol Medico-Chirurgical Journal, June, 1904.)

symptoms characteristic of pyloric stenosis is absent in dyspepsias of infancy. It is not only the pyloric and stenotic quality of the various symptoms, but the sequence and combination of symptoms which is of diagnostic importance.

It seems to me that a discriminating interpretation of these particular symptoms in childhood hitherto has not been made by the general practitioner, as it is only beginning to be made by the pediatrist.

It is the sequence of certain simple commonplace signs in suspected appendicitis which leads one to a correct diagnosis.

Rolleston and Crofton-Atkins[20] report cases of pyloric stenosis in which convulsions occurred similar to those

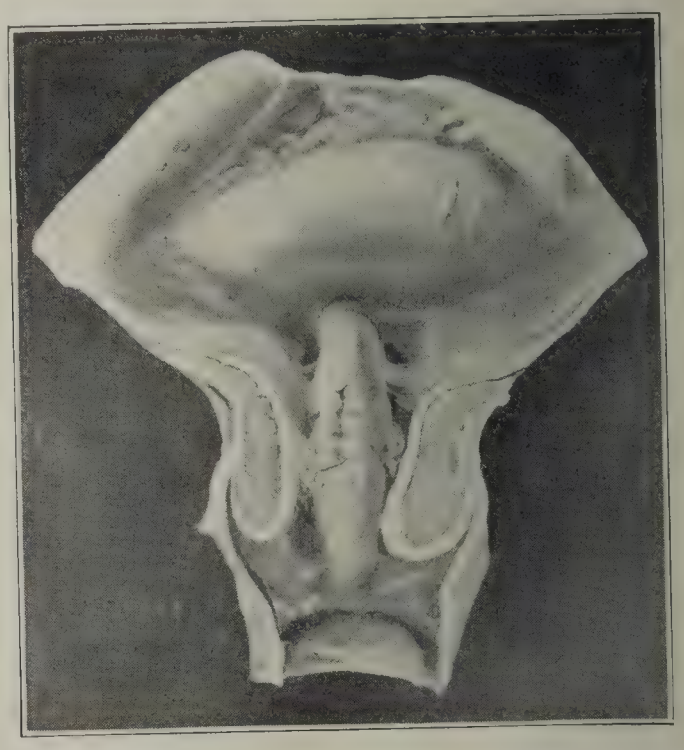


Fig. 7.—Specimen of part of a stomach, pylorus and duodenum, natural size, from a child of 11 weeks with hypertrophy of the pylorus. Note the excessive thickening of the circular muscular fibers and the longitudinal fold of mucous membrane which, when the pyloric cut surfaces are approximated, almost blocks the opening. (Cautley and Dent, Medico-Chirurg. Trans., vol. lxxxvi.)

seen in cases of gastric tetany, and it is not unlikely that these cases were instances of true gastric tetany.

There is evidence to suggest that the infantile pyloric stenosis may persist in chronic form from childhood

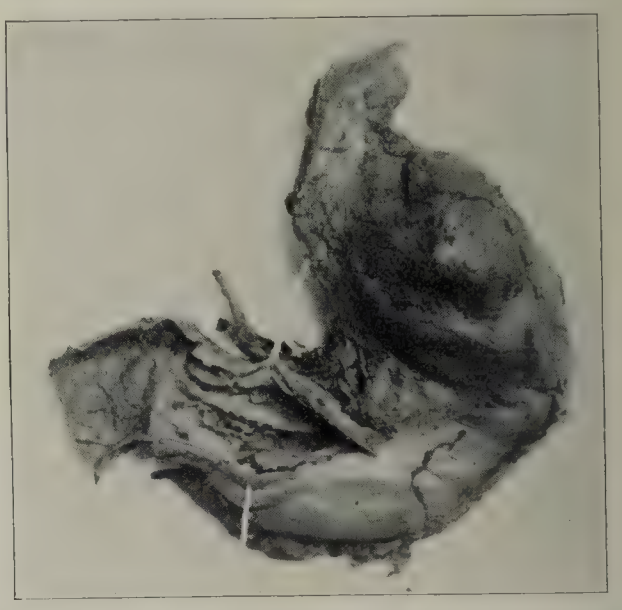


Fig. 8.—Stomach and duodenum at term, pylorus opened longitudinally. Note abrupt ending of pyloric muscle on duodenal side, longitudinal folds of mucous membrane and thin duodenal wall.

and then may appear as either an acute or chronic stomach affection. There also is evidence which suggests that the infantile stenosis may exist through childhood without any very striking manifestations of its presence and may become apparent in adult life as a chronic stomach difficulty.

20. Rolleston and Crofton Atkins: British Med. Jour., Dec. 22, 1900, p. 1768.

Beardsley's historical case, in which a child lived to the age of 5 years with symptoms of stenosis from birth, is an illustration in point. The autopsy report corroborates the clinical evidence that this case was one of pyloric stenosis continuing from infancy to childhood.

Hansy[21] operated on a boy, aged 11 years, who had had gastric disturbances from birth. A dilated stomach, vomiting and emaciation were the chief symptoms. At operation a tumor of the pylorus was discovered 7 cm. long and 2.5 cm. thick. There were no cicatrices, adhesions or ulcerations suggesting a previous inflammatory process. Hansy properly regards the case as one of pyloric hypertrophy.

The cases of Seefish[22] and Sonnenberg[23] are pertinent in this connection.

Just here the evidence from Shaw's[24] case is extremely important. A child from infancy till the age of 5 years had recurring digestive attacks suggesting pyloric stenosis. Finally he died. Autopsy showed no lesion other than a hard pyloric tumor three-quarters of an inch long. The lumen of the pylorus admitted only a fine probe, and fluids could not be forced through the pyloric lumen. There were no ulcerations or evidences of old inflammatory processes. It was a case of hypertrophy of the pylorus, persisting and eventually causing death because the obstruction was unrelieved.

The results of the pathologic investigations of Maier[25] and Landerer have been adduced to demonstrate that some of the stenoses of adults have their origin in infancy and are in fact congenital. The work of these pathologists, however, is not to be accepted as final on this point, for their observations are unassociated with clinical evidence. It seems to me that Robson's adult case is not proved to be one of infantile hypertrophy.

(To be continued.)

ANKYLOSIS.

ARTHROPLASTY—CLINICAL AND EXPERIMENTAL.

JOHN B. MURPHY, A.M., M.D.,
CHICAGO.

(Continued from page 1582.)

CASES 1 and 2, Mr. W. D., aged 21, occupation, barber, was admitted to Mercy hospital July 9, 1901.

Present Illness.—This began in November, 1900, with high fever and very severe pains in the lumbar region. Shortly after onset the trouble extended to the hip, wrist and shoulder joints of both sides. He was confined to bed for six months. About one month after the onset both knees became affected. They were swollen and painful and for four months they were kept at rest in full extension. When the inflammatory process subsided both knees were stiff and this condition persisted. Since then he has walked only with the aid of crutches because of severe pain in the knees when his full weight is thrown on them. The trouble in the other joints subsided without ankylosis.

Previous Illness.—Two months before the onset of the present illness he contracted an acute gonorrhea, which persisted for about two weeks. Family history is negative.

Examination.—Both knee joints were ankylosed in full extension and permitted of no active or passive motion. Both patellæ were firmly ankylosed to femur.

First Operation.—On July 13, 1901, the patient was anesthetized and the adhesions in both knee joints were broken up by forcible manipulations. Passive motions were practiced daily after this but the adhesions rapidly reformed.

Second Operation.—Oct. 5, 1901. The usual preparations were made. Esmarch's constrictor was placed around the thigh and a vertical incision was made over the outer side of the right knee from 6 inches above to 3 inches below the joint. The incision was deepened and the capsule of the joint was opened (Fig. 11).

The patella was freed on the outer side, from fibrous adhesions to the femur with scalpel and chisel, and a second vertical incision 4 inches long was made over the inner side of the joint which was opened. The patella was then freed on its inner side from the articular surface of the femur. The ligamentum patellæ was not divided. The patella was elevated, the knee flexed and the adhesions between the tibia and femur were divided to give free motion in the joint. A large flap of fascia lata with a thin layer of muscle attached, was dissected from the outer surface of the vastus externus, its base being below and anterior. The flap was then turned over the outer condyle of the femur and then drawn through the joint between the two bones by means of heavy catgut sutures, previously passed through its free edge and through the fibrous capsule on the inner side of the joint. The sutures were tied in the inner incision (Figs. 10 and 11).



Fig. 11.



Fig. 12.

Fig. 11.—Case 1: Showing incisions on outer and inner surfaces of right knee.
Fig. 12.—Case 1: The facial flap, with its pedicle below, has been turned into the knee joint.

A small flap of fascia covering the vastus was dissected free in like manner and was placed between the patella and the femur. The flap was secured to the capsule with catgut sutures. The Esmarch bandage was removed and the bleeding points were secured. Subcuticular catgut sutures were used to close skin wounds. A small drain was left in the upper angle of the external wound. Dressing and bandages were applied. The knee was immobilized in full extension by means of a posterior molded cast of plaster of Paris.

Result.—Convalescence after operation was uneventful and the wounds healed by primary union. The cast was removed permanently after three weeks. The joint was massaged and

21. Hansy: Wien. klin. Wochft., 1900, No. 10; Centralbl. f. Chirurg., 1900, No. 41, p. 1036.
22. Seefish: Centralbl. f. Chirurg., 1904, vol. xxvii, p. 81.
23. Sonnenberg and Rosenheim: Berlin. klin. Wochft., vol. xxxvi. 1899, No. 32, p. 703.
24. Shaw: Brooklyn Med. Jour., May, 1903, p. 211.
25. Maier: Virchow's Arch., vol. cli, p. 413.

put through passive motions each day after the first week. On November 13, the patient was again anesthetized and the knee forcibly flexed and extended several times.

Third Operation.—An operation similar to the one just described was performed on the left knee February 22, 1902. The cast was removed from the left knee March 19, and daily passive motions were ordered. He began to walk with the aid of crutches on April 8. April 12 he was anesthetized and both knees flexed to an angle of 30 degrees. Both patellæ were freely movable and motion in the joints was quite free. On June 5, this procedure was repeated.

Fourth Operation.—On August 27, the internal ligament of the left knee was divided with a long narrow bladed scalpel and the patella was separated from the scar. The joint was then forcibly flexed several times until motion was perfectly free. On October 30, both knees were again put through passive motions under anesthesia. The patient left the hospital Dec. 4, 1902. At that time he was able to walk without cane or crutch, had motion in both knees to the extent of between 10 degrees and 15 degrees, and both patellæ were perfectly free.

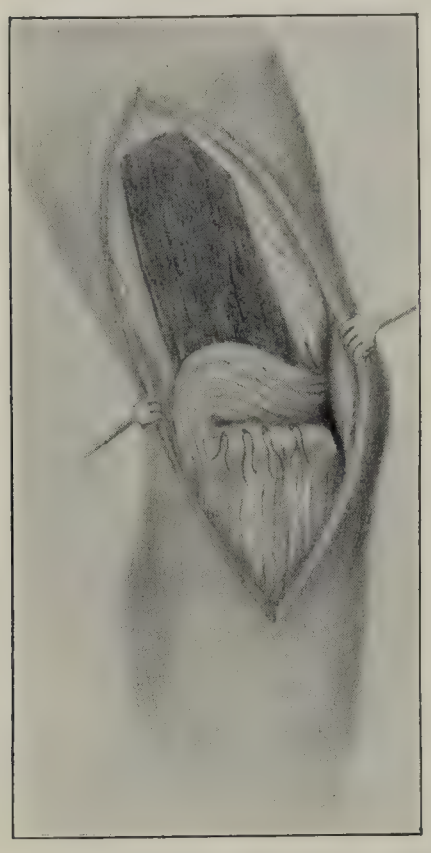


Fig. 13.



Fig. 14.

Fig. 13.—Case 1: Edge of flap sutured to capsule of joint in outer incision.

Fig. 14.—Case 1: Edge of flap sutured to joint capsule in inner incision.

Result.—In a report received from this patient June 23, 1904, he states that he works every day, and that he is on his feet continuously for twelve hours each day. There is no swelling in the knees and he has no pain. After being on his feet for 12 or 14 hours there is some soreness in the knees, but this disappears during the night. He walks without cane or crutch. He says the motion in the right knee amounts to about "3 or 4 inches," and in the left to "about 1 inch."

CASE 3.—Mr. J. H. M., aged 38, occupation, contractor, was admitted to Cook county hospital, October 30, 1901.

Present Illness.—One year ago the patient was shot three times, one of the bullets entering the left leg over the patella. The patella was not fractured, but the bullet passed through the knee joint and lodged beneath the skin under the inner tuberosity of the tibia. It was removed 17 days afterward. Patient says that there was no suppuration in any of the wounds, but that he had severe pain in the knee joint and that it was extremely tender to pressure. After removal of the bullet, the leg was put in a plaster cast with knee extended and the cast was left on for about five weeks. Another cast was then applied and was left on for one month. When this cast was removed the leg was stiff and has remained so ever since.

Examination.—There was slight swelling about the left knee joint, bony ankylosis of the patella to the articular surface of the femur, and firm union between the tibia and femur. There was no irregularity in the shape of the patella.

Operation.—Nov. 1, 1901, arthroplasty, similar to that described under Case 1, was performed. No drainage was used. (This was an error, considering the extensive dissection necessary in the operation and the subsequent oozing [illegible] place from the bone.)

Result.—Suppuration developed eight days after the operation, when the removal of a few sutures allowed a considerable quantity of seropurulent material to escape. The exact cause of the infection was unknown, but in all probability it was due to some error in the preparation of the dressing material or catgut. Feb. 18, 1902, there was still slight discharge from the wound where the drainage tube had been inserted. Slight motion was present in the knee joint, but the large amount of fibrous tissue which had formed as a result of the suppuration prevented more than about 2 degrees. There was no return of the bony ankylosis, notwithstanding the suppuration. (We have been unable to locate this patient since Feb. 18, 1902.)



Fig. 15.—Case 1: After operation on right knee, wounds healed.

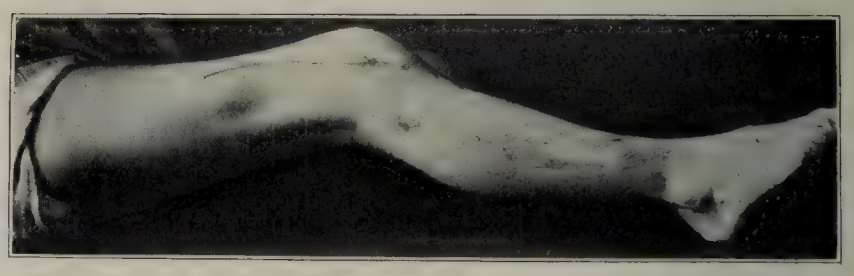


Fig. 16.—Case 1: Showing degree of flexion in right knee after operation.

CASE 4.—J. A., Marysville, Wash., aged 12 years, a school boy, was admitted to Mercy Hospital July 24, 1902. Family and previous history is negative.

Present Illness.—On Dec. 26, 1900, the patient was shot in the abdomen, two inches below the navel, with a 22-caliber gun. The gun was directly in front of him and about 12 feet distant. There was no wound of exit. Operation was performed at once by Dr. W. C. Cox, Everett, Wash.; ten perforations of the intestines were sutured and the abdomen was drained. Recovery from the operation was good. While in bed the boy complained of great pain in the right hip, knee and ankle, and on this account he was allowed to lie with his knee flexed at an acute angle and with the thigh at right angles to the body. The hip gradually became ankylosed in this position, and has remained so to the present time. He still has considerable pain in the right knee and ankle. A small sinus at the lower end of the abdominal incision has never healed and a slight purulent discharge from it has continued. No gas or fecal matter has been noticed. When he was allowed to get out of bed he was unable to use the right leg and thigh, both of which were flexed at right angles. In March, 1901, the pain became less severe in the hip joint, and forcible extension was attempted, but was found to be impossible. In October, 1901, the bullet was passed from the bowel, evidently having ulcerated into it from its place of lodgment. For the past year the patient has been able to walk only with the aid of crutches.



Fig. 17.—Case 1: Radiograph of right knee after operation, showing free patella and free tibia. The clear spaces between the bones show that ankylosis has not recurred.



Fig. 18.—Case 1: Radiograph of left knee after operation (May 8, 1904), showing fibrous attachment between tibia and femur. Patella is free.

Examination.—Patient is a poorly nourished boy; temperature, 99.4°. There was a small sinus at the lower end of the scar, discharging a small amount of pus. A probe was inserted through the sinus into right pelvic fossa and dead bone was detected. There was resistance in the right iliac region. The right thigh was flexed on the abdomen at nearly a right angle, abducted 5 degrees and firmly ankylosed. There was no motion in the hip joint, and attempts at passive motion were painful. The thigh was atrophied. Spine was normal.

First Operation.—July 26, 1902, a probe was inserted through the sinus down to the bottom, and dead bone was found. An incision 4 inches long was made over the right iliac crest, and the periosteum on the inner surface of the ilium was dissected upward for 5 inches in the directon of the sinus. When the sinus was reached, the periosteum and peritoneum were retracted upward and inward, exposing the opening into the acetabular cavity. This opening was enlarged with the chisel, and a small piece of dead bone was removed. The acetabular cavity was drained with a strip of gauze, the periosteum and peritoneum were allowed to fall back into place and the external wound was closed with interrupted silkworm-gut sutures. Some discharge persisted after the operation, and the wound was not healed when the patient left the hospital, Aug. 25, 1902.

Result.—The patient re-entered the hospital Sept. 30, 1902, with both sinuses still open and discharging a small quantity of pus. The sinuses were irrigated every other day. He was also given *x*-ray treatments to the right lower abdomen and hip.

Second Operation.—Nov. 29, 1902, a probe was passed through the original sinus in the median line down to the acetabulum. The acetabular cavity was curetted out thoroughly and a perforated rubber tube was inserted for drainage. At this time the outer wound had completely healed. The sinus was irrigated and the *x*-ray treatments were continued. Some discharge persisted after the tube was removed.

Third Operation.—Feb. 11, 1903, an incision was made through the outer margin of the right rectus muscle externally to the sinus. The peritoneal cavity was entered; the opening into the acetabulum was located from the peritoneal side and, after protecting the general cavity by means of coffer dams, the opening in the bone was enlarged directly through the posterior parietal peritoneum. The entire necrotic head of the femur was found lying free within the acetabulum. The head was extracted entire, the granulation tissue was curetted out and a drainage tube was inserted through

the old sinus into the acetabular cavity. This sinus was extraperitoneal and passed external to the internal iliac vessels. The opening in the posterior peritoneum was closed with catgut sutures and the anterior incision in the usual way. No drainage of the peritoneal cavity was used.



Fig. 19.—Case 4: Radiograph of right hip before operation, showing bony union between neck of femur and ilium.



Fig. 20.



Fig. 21.

Fig. 20.—Case 4: Photograph taken one year after operation, showing normal degree of active flexion.

Fig. 21.—Case 4: Photograph taken one year after operation, showing normal degree of extension, with 1½-inch shortening.

Result.—March 24 the sinus closed completely and permanently. A skiagraph of the hip taken April 25, 1903, shows that there is complete bony union between the neck of the femur and the ileum (Fig. 19).

Fourth Operation.—This operation for relief of the ankylosis was performed May 2, 1903. The usual aseptic preparations of the right hip and thigh were made. A U-shaped incision was made, 5 inches wide with its base upward, beginning 4 inches above the trochanter and extending downward 2 inches below it. The trochanter was exactly in the center of the U. The incision was through the skin, superficial fat and fascia lata, and these tissues were dissected upward as one flap. A long, curved needle, threaded with heavy silk, was passed around the base of the trochanter beneath the muscles attached to it, and by means of this carrier a chain-saw was brought into position. The trochanter was then sawn off and retracted upward. The capsule of the joint was next incised and separated from the ileum all the way around. The attachment of the gluteus maximus was not disturbed. The bone was examined, and the neck of the femur was found to be continuous with the margin of the acetabulum by firm

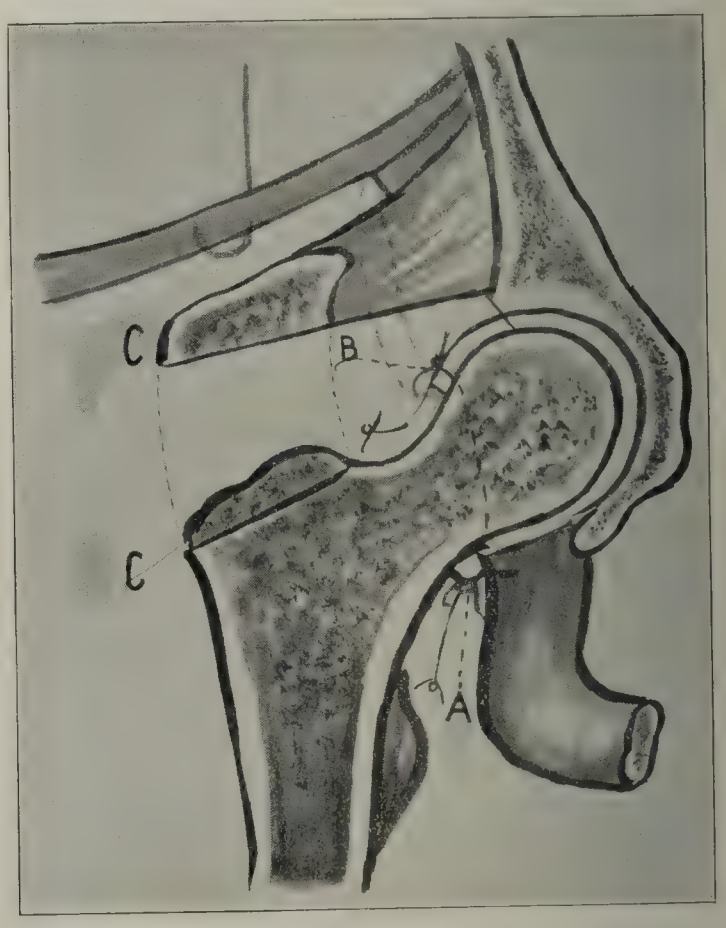


Fig. 22.—Case 5: Great trochanter (C), with its attached muscles turned upward. The fascial flap surrounds the head of the femur and is sutured to the capsule at A and B.

bony union. The formation of a new head for the femur and a new acetabular cavity was the next step in the operation, and was accomplished in the following manner: The bony tissue filling the acetabulum was chiseled free from the latter by following around its margin (the line of junction with the neck) with a carpenter's curved chisel, 1½ inches in diameter. The chisel each time was driven in obliquely toward the fossa acetabuli, the object of this being to make the new femoral head as nearly spherical as possible. When the chiseling process was completed, the new head was entirely separated from the sides of the acetabulum and was attached only at the bottom by a narrow bridge of bone. This bridge was fractured by forcible abduction of the limb, after which the head was dislocated from the cavity by external rotation of the thigh. The shape and contour were almost exactly those of a normal femoral head, except for a few sharp, bony projections which were removed by means of a bone-cutting forceps. Examination of the acetabulum showed that the opening at the bottom, through which the necrotic bone had been removed, was entirely closed by a deposit of new bone. A curette was used to smooth off the irregularities produced by

the chisel and to enlarge the cavity. The fascia lata which formed a part of the original U-shaped flap was now dissected away from the subcutaneous fatty tissue down to its base, where the vessels entered to supply it with blood. The

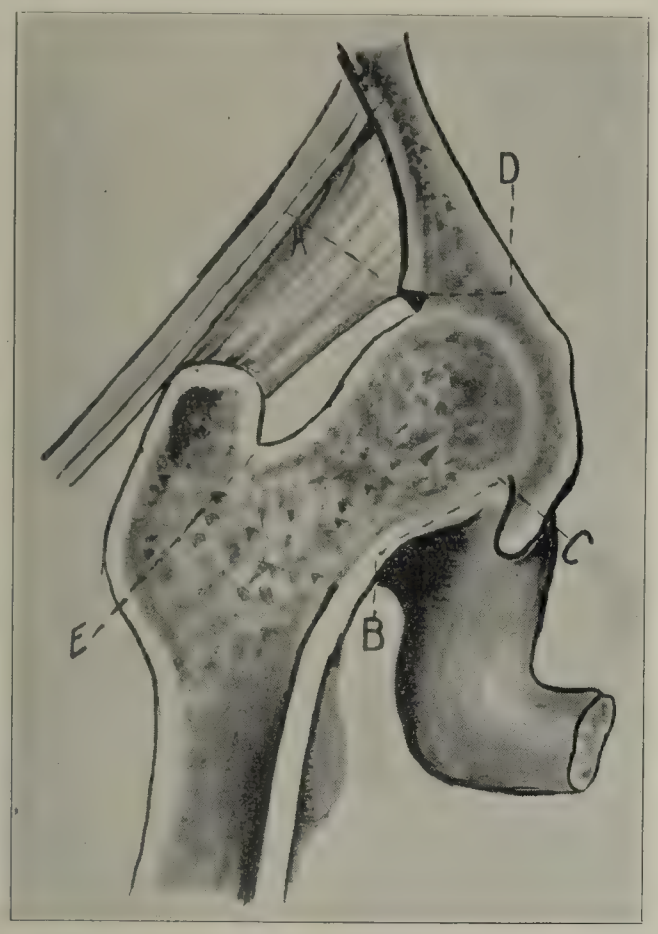


Fig. 23.—Case 5: Showing bony union between head of femur and acetabulum. In separating the bones the chisel was entered at points C and D.



Fig. 24.—Case 5: Radiograph of right hip after operation, showing free joint cavity.

flap of fascia was then drawn down under the head of the femur and carefully fitted into the acetabular cavity to form a complete lining for it. The under surface of the flap, one-half inch from the edge, was sutured to the joint capsule around the acetabular margin with interrupted catgut sutures to secure it and to prevent its subsequent displacement.

The new socket being in readiness, the head of the femur was returned to its normal position by extension and adduc-



Fig. 25.—Case 6: Radiograph of left knee before operation, showing posterior subluxation of tibia and union between bones.



Fig. 26.—Case 6: Photograph after operation, showing the knee extended and posterior subluxation reduced.

tion of the thigh. It was found to fit accurately and it could not be dislocated by any of the ordinary motions of moderate degree. The free border of the fascial flap, which projected from the margin of the acetabulum, was now sutured with

interrupted catgut sutures to the periosteum and the capsule was attached to the neck of the femur. The flap was amply large so that it completely covered the head and came well up onto the neck without tension. (I consider this a very important point; the entire articular surfaces of the bones must be covered by fascia if we are to expect a good functional result, and the same applies to other joints.) The great trochanter was brought down to its normal position and accurately secured with two aluminum bronze wire sutures. The skin flap was replaced and sutured with horse hair. No drainage was used. Because of the contraction of the flexors and abductors of the thigh, extension and abduction were limited and were accomplished only by the use of considerable force. This contraction was overcome by forcibly stretching the muscles, using the thigh as a lever and at the same time exerting with the edge of the hand strong pressure, combined with a sawing motion, over them near their points of origin, after the Lorenz method. The sartorius was divided with the scalpel close to its attachment to the anterior superior spine of the ilium. To retain the limb immobilized until the firm union of the parts was secured, a plaster cast was applied, including the pelvis and entire limb in full extension and abduction.



Fig. 27.—Case 6: Radiograph of left knee nine months after operation, showing separation of bones and perfect reduction of subluxation. Patella free.



Fig. 28.—Case 6: Radiograph of left knee nine months after operation, showing free joint cavity.

Result.—The patient was put to bed and a Buck's extension, with 10-pound weight, was applied to the right leg. The wound healed by primary union. On May 20 the cast was removed and examination showed great freedom of motion in the hip joint. After June 13 the Buck's extension was removed during the day, but was kept on at night. He walked for the first time with the aid of crutches on June 22, and continued to walk each day after that. On July 11 examination showed that the hip joint allowed of fully 20 per cent. of the normal amount of rotation and from 20 to 30 per cent. of the normal amount of flexion and extension. The patient left the hospital July 18, 1903.

Subsequent History.—In a letter received from his father May 20, 1904, three photographs were inclosed, showing the range of motion in the hip. The father stated that the patient went to school every day and had not used a cane or crutch for several months. The motion in the hip is free and of normal extent and he has absolutely no pain. The photographs (Figs. 20 and 21) show flexion and extension to be normal. There is about 1¾-inch shortening in the limb, and he wears an elevated sole to compensate for this.

CASE 5.—Miss M. S., aged 26 years, dressmaker, was admitted to Mercy Hospital May 2, 1903. Family and previous history negative.

Present Illness.—This began about eight years ago with an acute inflammatory process of the right hip joint. At that time the slightest active or passive motion was very painful and the region of the joint was extremely tender to pressure. After the third day the intense pain subsided and she was up most of the time. The trouble continued about the same for nine months, and during this time she walked very little without the assistance of a cane or crutch, because of the pain in the hip. As the trouble subsided, she noticed that the hip was stiff and that she could flex the thigh only to a very limited extent. The immobility of the joint gradually became absolute, and at the present time there is no motion at all. Nearly two years ago the same trouble developed in the left hip, but the progress of the disease here was more gradual. Her general health has been good.

Examination.—The right lower extremity was in full extension and was adducted beyond the middle line, with absolutely no motion in the hip joint. There was some tenderness in the joint on pressure over the great trochanter. The trochanter was in normal position. The muscles of the thigh were somewhat atrophied. Afternoon temperature varied from 99 to 99.6 F.

Operation.—May 21, 1903, arthroplasty, the technic of which was described under Case 4, was performed. In this case the head of the femur was not destroyed, but was united in the acetabulum by bony ankylosis. The bones were sepa-

rated through the lines of union by means of a chisel and mallet (Figs. 22 and 23).

The limb was immobilized in full extension by placing it in a plaster-of-paris cast, and when the patient was returned to bed a Buck's extension was applied. (I believe a better result would have been obtained if the limb had been dressed in a very abducted position.)

Result.—After operation superficial infection occurred, and a small tube was inserted in the upper angle of the wound. The sutures were removed on June 17 and the cast was taken off June 18. On July 27 the left knee became swollen, tender and very painful, and her temperature went up to 101 F. The pain and swelling continued until August 7. On that date the adduction of the limbs which had been present was overcome by placing a wedge between the knees and widening it each day until they were separated about 18 inches. The Buck's extension remained in place until about August 8, when it was removed. Examination on August 8 showed slight motion in right hip joint and considerable atrophy of the muscles of the right leg and thigh (Fig. 24). Faradic electricity and massage of thigh and leg were ordered daily. The patient was allowed out of bed August 15, and was around in a wheel chair every day after that. She walked for the first time with the aid of crutches on December 7, and was on her feet every day after that date. She left the hospital Feb. 15, 1904. At that time the wound was entirely healed and there was free motion in the right hip joint. She was very sensitive to pain and would make no effort to move the joint herself or to bear any weight on it.

Subsequent History.—Examination on June 3, 1904, showed the following condition: The patient is able to rotate the entire lower extremity from hip to extent of 30°. The arc described by the great toe during the rotation is used as measurement. When she stands erect on the left leg with pelvis fixed she can move the right foot forward 18 inches in front of a plumb line from the left hip joint and the same distance posteriorly to it. She is able to bear her entire weight on the right leg without pain, but always uses crutches in walking. She has made no attempt at any time since the operation to dispense with the crutches, because of fear of pain and injury to the hip. When lying flat on her back she can elevate right lower extremity to the extent of raising the heel 2 inches above the level of the table without pain. The wound is at present entirely healed. The muscles of the thigh are atrophied from non-use. The muscular contraction is quite pronounced in this case, particularly the adductors. (In the future when operating on the hip I will dress it in extreme abduction with extension.)

CASE 6.—M. L., aged 9, a school girl, was admitted to Mercy Hospital Aug. 26, 1903. Family history is negative.

Previous History.— She had "measles" four years ago, "whooping cough" one year ago.

Present Illness.—Five years ago, while at play, the patient fell, striking on her left knee. She did not complain much at the time, but two days later she began to have fever and pain in the knee, and a slight swelling developed above the patella. The swelling increased rapidly during the first few days, and at the end of three weeks it was lanced a little below the knee. No pus was found, but the wound did not heal, and shortly after operation it began to discharge a watery secretion, which continued for two months. At the onset of the trouble the knee was bandaged in a flexed position, and no attempt was made subsequently to straighten it. The result was that it became ankylosed at a right angle. Two years ago she was placed under an anesthetic and the leg was forcibly extended on the thigh. A plaster cast was applied and was worn for about one year. When the cast was removed the leg was flexed at an angle of 20°, but this flexion gradually increased until at the present time it is again a right angle. General health has remained good all of the time.

First Operation.—Aug. 29, 1903, all the ham-string tendons of the left leg were elongated by the ordinary method of tendinoplasty and the knee was then forcibly extended. As is usually the case after prolonged ankylosis of the knee at a right angle, there was subluxation of the tibia posteriorly (see Fig. 25).

Second Operation.—Sept. 14, 1903, arthroplasty was performed after method described under Cases 1, 2 and 3. Here, however, the ankylosis was fibrous and was limited to the outer condyle of the femur and to the outer portion of the articular surface of the tibia. The fascial flap, therefore, was interposed between these surfaces only, and its edges were sutured to the joint capsule. Three small foci of ancient suppuration in the articular surface of the tibia on the outer side were removed with the curette.

Result.—September 28 the sutures were removed. The wound healed by primary union. On October 17 there was a slight discharge from the lower end of the inner incision. Patient left the hospital Nov. 30, 1903 (Fig. 26).

Subsequent History.—From the time of the patient's discharge from the hospital until June 2, 1904, she did not report for examination or treatment, and in consequence the important postoperative treatment was neglected. On June 2, 1904, she presented herself at the office for examination. After leaving the hospital she had worn constantly an anterior cast extending from groin to ankle and immobilizing the knee in full extension. No attempt had been made by the patient or by others to increase the motion in the joint. There was a sinus at the lower angle of the inner incision which discharged a small quantity of pus. A moderate amount of swelling existed about the knee anteriorly, but there was no fluid beneath the patella and pressure over the joint was not painful. The muscles of the leg and thigh were somewhat atrophied from non-use. There was free and painless motion in the knee joint, both active and passive, to the extent of from 10° to 15°. The patella moved with the leg during flexion and extension, but permitted of no lateral motion (Figs. 27 and 28). She was able to walk and to run about all day without crutch or support of any kind, and had no pain even after prolonged walking or standing. The cast was removed and the patient was told to exercise the limb and to increase motion in the joint actively and passively.

CASE 7.—Mr. H. C. C., aged 23, electrician, was admitted to Mercy Hospital Dec. 31, 1903. Family and previous history are negative.

Present Illness.—June 21, 1901, the patient fell between two buildings and severely "wrenched his left leg." Immediately following the accident he suffered great pain in his left leg and thigh, but after a few hours he was able to walk and to go on with his work. Three days later he began to have pain in the left inguinal region. This pain persisted and a tender swelling finally developed in the left groin. The swelling was small at first and gradually enlarged until it attained the size of a hen's egg. On October 9 a physician incised it and evacuated a large quantity of pus. The abscess drained for nine months when the sinus healed temporarily. It reopened in July, 1903, and continued to discharge for about a year and a half. After the abscess was drained the patient suffered very little pain, except while running or stooping forward, when he would have some pain in the left hip. On Dec. 16, 1902, he was taken ill with what was diagnosed as "typhoid fever," and was confined to bed for five weeks. Two days after getting out of bed he had a severe chill, followed by fever and by sharp pain in the left hip and knee. He was again confined to bed for three months, during which time the pain in the hip and knee continued to be severe. While in bed, the thigh was flexed on the abdomen, adducted and rotated inward, no attempt being made to correct this faulty position. When, therefore, after three months he attempted to straighten the limb, he found it impossible. He still has a great deal of pain in the hip and knee, especially when he attempts motion, and pressure over the joint is painful. His general health is not good, his appetite is poor and he "cannot gain strength."

Examination.—The patient is of small stature, emaciated and anemic; heart and lungs negative; spine negative. The left thigh was flexed at a right angle on the abdomen, rotated slightly inward and adducted beyond the middle line. All attempts at passive motion of the hip were very painful and pressure over the great trochanter caused great pain. No motion could be demonstrated in the hip joint. The leg was

flexed at a right angle to the thigh and the hamstring muscles were so contracted that extension was impossible. No ankylosis existed, however, in the knee. While this was not a favorable case for arthroplasty, as the tuberculosis was in the active stage, it was decided that the interposition of the fascia lata might hasten the repair of the tuberculous process, as aponeurotic tissue offers great resistance against this type of infection.

Operation.—Jan. 11, 1904. The operation performed in this case, differed from the typical arthroplasty which was described under Case 4 in the following particulars: 1. The tubercular femoral head and adjacent portion of the neck were excised. 2. The tubercular granulation tissue in the acetabulum was curetted out. 3. The fascial flap was sutured over the remaining portion of the neck and the latter was then placed in the acetabulum to form a new head. The edges of the capsule were approximated with catgut, and the limb was forcibly extended and adducted to stretch the contracted muscles of the hip and knee. When the thigh was fully extended and abducted, the end of the neck, or new femoral head, occupied a position beneath the prominent upper border of the acetabulum which held it securely in place and prevented its dislocation upward. A drainage tube was inserted at the lower angle of the wound. The entire limb was immobilized in a hyperextended and slightly abducted position by a plaster cast. The patient was put to bed and Buck's extension with 15 pound weight was applied to leg.

Result.—The skin wound healed by primary union. The sutures were removed on January 25, and the drainage tube January 27. Buck's extension was taken off at the end of the third week. He began to walk with the aid of crutches February 19, but bore no weight on the limb operated on until two weeks later. The cast was removed at the end of the sixth week, and the hip and knee were put through passive motions each day thereafter. On March 26, a small swelling above the left Poupart's ligament was aspirated and several drams of thick pus were withdrawn. Ten c.c. of iodoform emulsion in glycerin were injected into the abscess cavity and the puncture was sealed with collodion. The swelling rapidly diminished in size after the injection and the pain disappeared. April 10, a fluctuating swelling appeared about 5 inches below the inner end of the left Poupart's ligament. This was incised and several ounces of pus were evacuated. The patient left the hospital June 5. At that time he could bear some weight on the limb without pain, but was obliged to use crutches in walking. Examination showed the great trochanter to be in normal position and the limb fully extended, though slightly adducted. The motion in the hip joint though very limited, was perfectly free, showing that no bony or fibrous union had taken place between the neck of the femur and the ilium. I am now convinced that the limitation of motion here, as in some of the earlier cases, is due to the fact that the capsule of the joint was not entirely removed.

(To be continued.)

TOLERANCE TO NITROGLYCERIN.

D. D. STEWART, M.D.
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In a recent issue of THE JOURNAL,[1] there appeared a note concerning the administration of nitroglycerin in which the correspondent (Dr. Maddox) referred to a case under treatment at my service in the Jefferson Medical College in 1888. This patient was an interesting example of rapidly-acquired tolerance to the drug, as he was taking, as remarked by Dr. Maddox, when seen by him in the clinic of Dr. Da Costa, 20 grains of pure nitroglycerin daily. It may be of interest to state that this and similar cases in which marked tolerance to nitroglycerin was easily acquired, I made the subject of several papers some years ago. I reported this particular case in the *Philadelphia Polyclinic* in August and in December, 1888, under the caption of "Remarkable Tolerance to Nitroglycerin." Later, in a paper entitled "Tolerance to Nitroglycerin Easily Acquired: Limitations of Use of the Drug in Chronic Nephritis,"[2] I again drew attention to this case and discussed the restrictions under which nitroglycerin should be employed, and showed how similar effects of blood pressure could be obtained by methods other than the use of drugs. I regarded nitroglycerin then, as now, as a drug which is often of little service, because, despite intelligent employment, tolerance is too readily established. What I then said concerning this bears so directly on the question of the administration of the drug that I regard it as worth repeating here.

In the *Polyclinic*[3] of August and of December, 1888, I related a case of chronic nephritis, under treatment in the medical clinic of the Jefferson Hospital, in which, in less than six months after an initial dose of one drop of a 1 per cent. solution of nitroglycerin, such tolerance has been established that a dose of 50 minims of a 10 per cent. solution (5 minims pure nitroglycerin) was taken four times daily, with less effect on vascular tension than the initial dose of 1/100 grain.

In my experience, too readily acquired tolerance to nitroglycerin is not rare, the difficulty being to so carefully and intelligently regulate its administration that, while maintaining a constant slight effect on blood pressure, the increase in dose is as gradual as possible. In my case, in which 20 minims of pure nitroglycerin were taken daily, the patient had not been encouraged to increase the dose beyond an amount sufficient to produce more than a slight physiologic effect—a feeling of trifling fullness in the head. Yet, despite admonitions as to care in gradual increase, the patient, knowing the nature of his ailment, and believing that great curative power must reside in a drug the name of which suggests so much, and the effects of which on the vascular system were so promptly and powerfully exerted, apparently advanced the dose more rapidly than necessity demanded. Noting this, the drug was several times, at a few weeks' intervals, temporarily discontinued, a much smaller amount being directed to be taken on resuming it than that last used; the increase was also to be very gradual. Notwithstanding this, doses of 50 minims of a 10 per cent. solution four times daily were soon reached and continuously taken without the occurrence of any headache whatever, with but slight transient flushing of the face, and no very marked effect on arterial tension, as shown by the sphygmograph. A dose of 5 grains of pure nitroglycerin (in alcoholic solution) was procured from the apothecary of the hospital and was administered by me before Professor Da Costa and the class in the clinic, so that there could be no mistake as to the amount.

As I prescribe nitroglycerin frequently, I often encounter cases in which I believe similar inconvenient doses could be as promptly reached, with as little systemic effect as in the case just narrated, were a too rapid increase in the dosage to be permitted. When it is desired to employ this drug for a considerable period, for its effects on blood pressure, the best rule of administration, in my opinion, is to so proportion the dose that the intervals are comparatively short—never less than four times daily. The amount, though sufficient to produce some subjective or objective effect, should never be more than just necessary to cause the

1. Feb. 11, 1905, p. 486.

2. Therapeutic Gazette, September, 1893.
3. Philadelphia Polyclinic, 1888, p. 172.

slightest feeling of fullness in the head or to slightly quicken the pulse; these last are certain indications that other desired physiologic effects occur. Unless unusual susceptibility exists, if enough is always taken to produce a more marked immediate result, such as flushing and slight headache, tolerance is soon acquired, and a quantity may be early reached altogether impracticable of administration. When a rather rapid increase seems necessary in order to maintain a constant effect, an equally important point is temporarily to discontinue the drug for two or more days, at intervals of two or three weeks. On its resumption, a much smaller initial dose will be required to produce physiologic effects than that last taken. So used, inconvenient tolerance will be less likely to occur, and the employment of strong solutions, the handling of which is not altogether free from danger, will be less necessary. It must be remembered that nitroglycerin, so far as we know, has absolutely no action in cases of chronic nephritis apart from its effect on vascular tension. It is only indicated in those cases in which the blood pressure is persistently markedly high, and in which ill consequences, such as cerebral hemorrhage or valvular disease of the heart, or stretching of its cavities, are to be feared. Cerebral hemorrhage is a late complication. It requires for its production not only vigorous heart action, but also weakened (generally aneurismal) cerebral vessels. Valvular disease of the slow sclerotic form, commonly mitral, is not infrequently encountered in cases of granular kidney of long duration in which cardiac hypertrophy has kept pace with prolonged arterio-capillary resistance. As Mahomed long ago showed, the pathologic conditions underlying the cardiac condition in these cases is more often recognized than that in which a leaking mitral has resulted from an overstretched ventricle. These various more or less remote sequences of persistent, raised arterial tension—save perhaps the last, to prevent which both nitroglycerin and a heart tonic may be required—are late phenomena, and usually less to be dreaded than certain more immediate results from undue lowering of vascular tone.

It must not be forgotten that probably a moderate amount of tension is actually conservative. It seems to be recognized that those cases of chronic Bright's disease in which tension is persistently low from the outset are actually of much more gravity than the commonly observed variety with raised vascular tone, and when arterio-capillary resistance shows a tendency to fail voluntarily, scanty urine, with more marked albuminuria, and dropsy, may be expected.

In the administration of nitroglycerin these points must be borne in mind, and the drug must not be prescribed merely because the case is one of chronic nephritis. Much more was originally expected of nitroglycerin as a remedial agent in conditions of persistent high tension than has been realized. I now employ it less frequently in such cases than formerly, endeavoring, at first at least, to bring about the same effect by limiting the nitrogenous intake and by maintaining a free action of the skin and bowels. The influence of constipation in heightening blood pressure is well known, but this fact is not always applied in therapeutics, and the modifying effects of diet receive even less attention. Nitroglycerin and the nitrites temporarily lower pulse tension without influencing the ever-present cause. The latter, if not arterio-capillary fibrosis—which is little controlled by any measure—is nitrogenous waste in the blood. Free action of the emunctories tends to overcome this, but the fountain-head must be sought for permanent relief.

I believe I was the first to report the employment of massive doses of nitroglycerin, which, as remarked, although apparently free from danger when reached gradually from initial small amounts, are, however, impracticable and inadvisable. In recent years I have rarely desired to exceed a dose of 10 drops of the 1 per cent. solution, and when from the initial dose of one drop tolerance to the larger dose is apparent, the drug is temporarily discontinued. I regard it as most important that other measures to lower blood pressure be coincidently employed and be tried alone. Especially is it important to restrict the nitrogenous intake, and occasionally to use a mercurial purge, or, more frequently, salines. Aconite is often substituted for nitroglycerin with advantage in these cases.

PERITONEAL GAUZE DRAINAGE.

AN EASY METHOD FOR ITS USE THROUGH THE VAGINA, AFTER ABDOMINAL SECTION.

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The fancied necessity for drainage after abdominal section has been greatly lessened by our knowledge that the peritoneum can easily dispose of considerable amounts of blood and serum and that ancient accumulations of pus are generally sterile. The real necessity for drainage has been greatly minimized by perfected methods of asepticity, by most careful repair of denuded peritoneal surfaces, by efficient hemostasis and control of all oozing, and by avoidance of unnecessary trauma in rude and violent manipulations. Classes of cases that were formerly drained routinely are observed to do quite as well without drainage; yet there is a small minority which requires it.

Abdominal drainage has been very generally abandoned for vaginal drainage when possible, except in general peritonitis, where the very large glass tube above the symphysis, combined with the upright sitting (Fowler's) position, leaves little to be desired. Glass is slow to excite lymph adhesions and a large area is drained longer than by any other material. In operations in the pelvis, drainage through the abdominal incision has the disadvantage of being more remote from the area to be actually drained, and therefore unnecessarily involves viscera that are above the infected site. The more or less inherent dangers of all drainage, i. e., adhesions, intestinal obstruction and fecal fistulæ, are invited.

The likelihood of wound infection from the drain, resulting in hernia, is perhaps the chief disadvantage. About all infected abdominal incisions have subsequent herniæ, which condition is very infrequent in wounds healing aseptically, and without the interposition of a drain. When, therefore, abdominal drainage is used, it is better to bring it out through a separate, small, stab wound, and to close the incision in its entirety. Where the drain must extend for some distance, and adjacent to uninfected viscera, to the point of delivery, gauze should not be unprotected along its whole length. It can be wrapped in gutta-percha tissue, like a cigarette in arrangement, but of any size, or can be encased in a split rubber tube.

In pelvic work drainage through the cul-de-sac into the vagina has the advantage of being very close to the area to be drained, is at the most dependent point, es-

capes through a natural avenue, is devoid of the danger of hernia, and less likely to occasion fistula, bladder disturbance, and secondary obstruction from adhesive bands. It, however, has the disadvantage that the vagina is difficult to render sterile and that infection of the peritoneum may extend from that source. Occlusive protection to the drain from the outside is also somewhat more difficult. The greatest objection to vaginal drainage is the difficulty of making the puncture through the cul-de-sac and of passing the gauze into the vagina. It is this obstacle that I have in my own work, to say the least, greatly overcome, and which is the purpose of this communication to describe.

The usual method of introducing gauze drainage is to have the patient let down from Trendelenburg's position, or unstrapped, if horizontal, the legs flexed, and the assistant, or sometimes the operator, introduces the fingers into the vagina and makes pressure into the posterior fornix with the fingers or forceps. The operator cuts through at the bottom of Douglas' space and passes the gauze down to fingers or forceps. The assistant has to re-sterilize his hands or, better, has to be eliminated from the subsequent steps of the operation. Aside from the time consumed in this method, which is sometimes considerable, the chief objection is that the vagina is often not prepared, and even if prepared there is likelihood of carrying infection from the outside.

Noble of Atlanta simplified the procedure by designing two instruments which he presented at the meeting of the Southern Surgical and Gynecological Association in 1901. One was a counter-pressure instrument, much like an enlarged Hunter's depressor, which was introduced into the vagina and which by pressure fixed the posterior fornix. It could then be punctured by scissors from above with ease and without danger of injuring any other structure. The scissors have a shoulder on the outside of each blade to prevent the margins of the incision from slipping up on the handles as they are opened to stretch the incision to the desired width. This technic relieves the procedure of some of its drawbacks, but the instruments are not in the armamentarium of every surgeon, and if they are, would not always be at hand. I attempted to simplify that feature still further and used, with considerable satisfaction in a series of cases, an ordinary tablespoon, which was inserted into the vagina and made to put the fornix on a stretch, while the blade of a pair of scissors was thrust through from above into the bowl of the spoon.

Unfortunately, in a bad pus case in an 18-year-old girl requiring drainage, the spoon in its introduction folded over the recto-vaginal septum in front of it and in cutting, as I supposed, into the vagina, the rectum was wounded. The resulting fistula into the vagina readily healed, but caused me to abandon the device. It illustrated, however, the efficacy of pelvic gauze drainage in protecting the peritoneal cavity from contamination in injuries of the bowel low down, if for any reason they are not, or can not be, sutured adequately.

In another series of cases, after preliminary disinfection of the vagina, before operations on the abdomen, where the vagina was packed with sterile gauze, I noticed how easily the mass of gauze could be felt and identified from above. In cases where drainage was necessary, I simply cut down on this gauze through the cul-de-sac and attached the drainage gauze to the vaginal gauze by a safety pin, and after closure of the abdomen the drainage gauze was drawn down by withdrawing the original vaginal packing. There are, however, many operators who do not pack the vagina as a routine, and this method has considerable limitations. Many sections are undertaken in which the necessity for drainage is not anticipated; indeed, it is not contemplated in the majority of cases. Sterilization of the vagina by ordinary antiseptic douches is notoriously inadequate. Few men have the vagina "scrubbed up" on the table when the operative procedure is limited to the abdomen, and unless the vagina is prepared beforehand through a speculum, it is usually not in an aseptic condition for the institution of drainage when it finally is determined on.

To obviate all these difficulties in the way of establishing drainage in the usual manner, and as an evolution of the methods heretofore mentioned, I have, for the last year or more, in a considerable number of cases, employed with entire satisfaction the following easy method, which I commend to you.

After the intrapelvic work is completed and drainage is deemed necessary, the gauze is introduced into the cul-de-sac and arranged as desired in plaits, the omentum is drawn down on the right side over the operated area and the sigmoid on the left, and the abdomen closed with the gauze left in. After the abdominal dressings are applied, the patient is drawn with hips to the edge of the table and the vagina cleansed thoroughly, as for any operative procedure. The bunch of gauze can be easily felt as a mass behind the cervix, which is steadied and drawn down with a volsella, and the fornix is opened with one snip of the scissors, cutting directly against the gauze, which is seized with forceps and drawn down. It can be done as quickly as it has been described. It has the advantage of being done under absolute aseptic control from the vaginal side and after the abdomen has been closed from above so that no danger of contamination is incurred. The drainage strip should be tied to the packing in the vagina so that there will be no possibility of ever leaving any gauze behind.

Iodoform gauze should always be used in the vagina, as an effective occlusive dressing is desired. It stays sweet longer than plain gauze. The 1-inch strips of 5 per cent. iodoform gauze with selvedged edge, which come in glass container, have been found most convenient.

The life-history of gauze as a drainage material is very short. The meshes soon become blocked with exudate, and its capillarity ceases. The gauze should not plug the aperture too tightly. The chief function of gauze drainage in a severely infected region of the peritoneum is not so much for its capillarity as for the quarantining of that area from the general cavity by the exudate which is so promptly and effectively thrown out around the area, with the gauze as the excitant. That is nature's plan for segregating all infections. The gauze invites and initiates this very plan.

Occasionally an abrupt rise of temperature occurs when gauze drainage is employed in conditions where free exudation occurs over a long time, and if it is withdrawn, a little quantity of serum will sometimes be found pent up. In cases of that sort, the gauze should be withdrawn a little each day. Generally, however, if gauze drainage is needed at all in the peritoneum, it should be left six days. It can then be easily withdrawn. The walls of exudate around it will be well formed and they are stiff enough to afford a pipelike drain from any septic point for some days without ir-

rigation. If gauze is withdrawn too soon, the fresh granulations will be disturbed and bleeding occurs and atria for fresh infection are opened by the trauma. The external part of the tract may close if not kept open by frequent dressings.

I have not attempted to define the cases which require it, but merely to describe this simpler way of establishing gauze drainage through the vagina.

Special Article

IMMUNITY.

CHAPTER XVI.

PHAGOCYTOSIS.

As one may learn from the writings of Metchnikoff, phagocytosis in its broad sense has three distinct channels of activity: nutritional, resorptive and protective.

Phagocytosis for Purposes of Nutrition.

Phagocytosis for purposes of nutrition is most highly developed in unicellular ameboid organisms, but is found also in animals of considerable organic differentiation. It is perhaps nowhere more striking than among certain myxomycetes, which are large, naked, multinucleated, protoplasmic masses belonging to the plant kingdom, and which possess that peculiar, slow, undulating motility which characterizes the ameboid cells. Ingestion is accomplished through protoplasmic arms (pseudopodia) which are thrown out to envelop the object. Minute plant and animal cells, living or dead, are ingested in this manner by the myxomycetes, amebæ and other unicellular organisms and are subsequently digested by means of intracellular ferments. The ferments which have been extracted are proteolytic, digesting gelatin or fibrin, usually in an acid but sometimes in an alkaline medium; that from amebæ has been called amibodiastase. In the process of digestion a "vacuole," acid in reaction and containing the ferment, forms around the ingested particle. In certain unicellular organisms which are phagocytic the protoplasm shows a degree of differentiation, a mouth and an anus being simulated at points where the food is most readily taken in and discharged. Instances are cited in which ameboid organisms protect themselves against inimical cells by ingesting, killing, and finally discharging or digesting the latter.

Chemotaxis.

Pfeffer first described the phenomena of negative and positive chemotaxis in relation to the myxomycetes. Under certain conditions they either are attracted toward or move from moist places. That a negative chemotaxis may be changed into a positive was shown in relation to salt solutions. When placed in the vicinity of or in contact with strong solutions the cell recedes, whereas if one passes gradually from weaker to stronger solutions the latter eventually attract rather than repel the cell.

Intestinal Phagocytes.

As one goes higher in the animal scale intracellular digestion for purposes of nutrition is confined to rather definite groups of cells. The intestinal epithelium of certain multicellular invertebrates consists of "sessile phagocytes," cells which, individually or after fusion into plasmodial masses, surround and digest solid particles of food. It is said that in sponges the digestive tract is not sharply separated from the mesodermal tissue, and the cells of the latter share with the former the function of intracellular digestion.

Mesoblastic Phagocytes.

In higher invertebrates and in all vertebrates the intestinal epithelium ceases to be essentially phagocytic, digestion being accomplished rather by the ferments which have been secreted by the intestinal and related glandular epithelium. Such animals, nevertheless, possess an abundance of phagocytic cells, but they are in the main mesoblastic in nature, and may have nothing more than a remote relationship to the nutrition of the organism.

Metchnikoff classifies the phagocytic cells of vertebrates into the macrophages and the microphages. The macrophages or large phagocytes include the large lymphocytes, endothelial cells, ameboid connective tissue cells and others which may occasionally take up foreign particles. Our polymorphonuclear leucocytes are the microphages. In relation to immunity we are concerned chiefly with the large lymphocytes (macrophages), and the polymorphonuclear leucocytes (microphages). Although such cells may contain many ferments Metchnikoff recognizes but one type in relation to their resorptive and digestive functions. This he calls cytase and distinguishes that of the macrophage as macrocytase and that of the microphage as microcytase. The two cells do not have identical activities, the macrophage being concerned especially in the resorption of tissue cells and in immunity to certain chronic diseases as tuberculosis and leprosy, whereas the microphage is the cell which is conspicuously antimicrobic in relation to acute infections.

Resorption of Corpuscular Elements.

Metchnikoff has studied the resorption of cells over a wide range of animals. He speaks of the process as the resorption of corpuscular elements. During the metamorphosis of certain invertebrates it is said that the larval tissues are disposed of by the action of wandering phagocytic cells. In involution of the uterus the muscular tissue is invaded by leucocytes which take up and digest or carry away the "retrogressive elements." Perhaps of more interest is Metchnikoff's conception of certain atrophic processes, particularly those which are grouped among the senile atrophies. In sclerotic atrophy of the ovaries the large lymphocytes invade the tissue, surround and destroy the ova and follicular epithelium and eventually, as fibroblasts, participate in the formation of fibrous tissue which to a degree is substituted for the original structure. In old individuals or in those of failing mentality it is said that ganglionic cells are found in a greater or less degree of atrophy because of the action of certain mononuclear phagocytes (neuronophages) which are contiguous to or form a zone around the cell. The neuronophages may represent mononuclear cells from the blood or those of proliferated neurogliar tissue. The best examples of this condition were found in very old dogs.

The Whitening of Hairs.

The chromophores of the skin, according to Metchnikoff, may be considered as chromophages. Whether or not they are of epithelial origin, as he claims, they are said to exist normally in the hairs in a latent or inactive condition. As old age comes on, or as a result of other obscure causes, their attitude becomes an active one, and they proceed to take up and digest the normal pigment of the hairs. Hence white hairs are the result of an autoparasitism by certain mononuclear phagocytes—an atrophic process.

In muscular atrophy it is held that the sarcoplasm takes up the striated tissue after the manner of phagocytes.

Cytotoxins.

We come into closer touch with our general subject of immunity when we consider the attitude of the phagocytes toward cells which are foreign to the host, for example, toward erythrocytes which are injected for the production of a hemolytic serum. Following such an injection into the peritoneal cavity there occurs a great accession of macrophages which ingest the erythrocytes, dissolve the hemoglobin and eventually digest the stroma. The same phagocytes are involved in the resorption of any other foreign cells of animal origin which may be injected. In view of the intracellular hemolysis by the leucocytes one may well suspect that the latter contain a hemolytic ferment; one which perhaps is analogous to the hemolysin (hemolytic amboceptors and complement) of a serum. On this point there has been a sharp discussion. Metchnikoff cites observations to show that a ferment of this nature may be extracted from lymphoid organs, that it contains a heat-susceptible constituent, and that when fresh it may be used to reactivate a heated hemolytic serum. This would indicate that the leucocytes contain cytase (complement), but it is not clear that they would also contain the fixators (amboceptors). Nevertheless the demonstration of an intraleucocytic hemolysin, coupled with the phagocytic power of the leucocytes for erythrocytes, forms the basis for the belief that serum-hemolysin is nothing more than intraleucocytic hemo-

lysin, which under proper conditions may reach the serum or plasma. By an extension of the condition cited it is considered that all cytolysins are produced by the macrophages.

Thermostabile Hemolysin from Organ Extracts.

Korschun and Morgenroth, on the other hand, obtained from lymphoid and various other organs, not a thermolabile hemolysin, but one which withstands prolonged boiling—a coctostabile hemolysin which is soluble in alcohol, shows no amboceptor-complement composition, and is incapable of yielding antihemolysin by immunization. Such contradictory results, Metchnikoff holds, are only in apparent discord with those obtained by himself and his pupils, and are referable to the different methods of extraction which were employed. In order to obtain the thermolabile hemolysin uncontaminated with the thermostabile, the extraction must be a rapid one. If on the other hand it is prolonged, as Metchnikoff assumes that of Korschun and Morgenroth to have been, the intracellular ferments digest the remaining cell constituents, the thermostabile hemolysin being liberated or formed in the process of digestion.

Cytase an Intracellular Substance.

Metchnikoff has utilized experiments similar to the following in order to prove that serum-hemolysin is produced by the macrophage and that cytase under normal conditions is confined to the leucocytes. Given a guinea-pig which has been immunized with the blood of a goose: if fresh goose corpuscles are injected into the peritoneal cavity, the cells are hemolyzed in the fluid without the occurrence of phagocytosis. This is the experiment of Pfeiffer applied to hemolysis, and under these circumstances one must conclude that the cytase and fixators are extra-leucocytic. One of two conditions is possible: either the hemolytic bodies are present normally and continuously in the plasma of the immunized animal, or they become liberated at the time the corpuscles are injected. According to Metchnikoff the latter condition prevails rather than the former. He recognizes a phenomenon which bears the name of phagolysis,

Cytase Becomes Extracellular Through Phagolyses.

i. e., solution, partial or complete, or phagocytes. Almost any foreign substance or fluid which one may choose to put in contact with leucocytes so stimulates or injures them that they discharge certain of their constituents. If the fixators and cytase are among the constituents which are discharged at the time the injection is made, the extracellular hemolysis might depend on these substances rather than on bodies which pre-exist in the plasma. If this be true,

Prevention of Phagolysis.

and if one could in some way fortify the leucocytes against phagolysis the plasma would remain free from hemolytic power. Metchnikoff prevents phagolysis by a simple procedure, which demands nothing more than the peritoneal injection of a small quantity of bouillon or salt solution twenty-four hours in advance of the experiment. Possibly by this means the leucocytes have been habituated to the presence of a foreign fluid, or the new leucocytes which accumulate possess greater resistance. Whatever the explanation, the erythrocytes which are injected at this critical time are said not to undergo extracellular hemolysis, but instead are englobed and dissolved by the macrophages. These results and others of a similar nature are the basis for the belief that cytase normally is intracellular, and that it becomes extracellular only when the leucocytes are subjected to injurious influences. The fact that the serum of defibrinated or coagulated blood contains cytase is not in discord with such an opinion, for in this instance also the leucocytes may be injured to such a degree that certain of their constituents are discharged. We are well aware that fibrin-ferment is liberated under these circumstances.

It was equally desirable, if possible, to determine the relation of fixators to the leucocytes. The situation is, however,

Fixators Produced by Leucocytes.

very complex, and although Metchnikoff regards the fixators as secretion or excretion products of phagocytic cells the question is perhaps not definitely settled. When phagolysis is prevented in the manner described, the injected erythrocytes may well absorb fixators from the plasma and still undergo no hemolysis until englobed by the phagocytes. It is considered that fixators in contrast to cytase may exist in the circulating plasma.

Phagocytosis as a feature of local resistance against microbic invasion was considered in relation to inflammation; we come

Phagocytosis in Immunity.

now to speak of the relationship of the leucocytes to general states of immunity, having reference to the conditions which have been designated as natural and acquired antibacterial immunity, and natural and acquired antitoxic immunity.

Metchnikoff himself says that his first expressions concerning the antimicrobic activity of phagocytes, the power of freeing the organism from "invaders of every sort," were made altogether from an *a priori* standpoint in an address delivered in 1883, "Ueber die Heilkräfte des Organismus." He justified his position on general grounds, having in mind the "more general phenomena of phagocytosis and the resorption of corpuscular elements," as he had observed them in various zoological studies.

Natural Antimicrobic Immunity.

Shortly there came to him the opportunity of studying an infectious disease among the Daphnia (water-flea), a small transparent crustacean. The disease was caused by a blastomyces which forms a long needle-shaped spore. After being swallowed by the animal the spores penetrate the intestinal wall into the body cavity where they are surrounded, englobed and digested by the white blood corpuscles. If this occurred with sufficient vigor all the spores were disposed of and the animal recovered. Sometimes, however, the spores germinated even after they had become intracellular, and when the parasitic cells reached maturity they apparently had the power of killing the leucocytes through the agency of a secretion peculiar to themselves. In the event that the latter process was sufficiently extensive the tissues were soon overrun with parasites and death resulted from a septicemic condition. The observations were made in the living transparent animals.

Although the example cited seemed convincing it was, of course, necessary that observations should extend over many infectious processes before phagocytosis as the cause of natural immunity could be accepted as a general fact. This has been done on rather broad lines by Metchnikoff and his pupils, and the results have served to convince them that the phagocytes are responsible for natural immunity in all instances, and that the degree of natural immunity in a given case depends on the degree of phagocytosis which is manifested against the organism. As stated previously the microphage, with its microcytase, is held responsible for antibacterial immunity in most instances, although the macrophage is concerned in certain chronic infections.

Anthrax.

If an animal is susceptible to a virulent culture of anthrax, but resistant to a weak culture, the phagocytic power is found to be greater for the weaker organism. The highly virulent culture creates a condition of negative chemotaxis with the consequence that leucocytes are not attracted and microbic proliferation proceeds rapidly. Without going into details, studies of the following and perhaps other micro-organisms have strengthened Metchnikoff in his views: staphylococci, streptococcus, pneumococcus, gonococcus, vibrio of cholera in infections of the guinea-pig, the vibrio of goose septicemia in relation to the guinea-pig, which is naturally immune, the spirillum of relapsing fever, tubercle bacillus, yeast cells and other fungi, and certain animal parasites (*Trypanosoma lewisii*).

Toxins as Cause of Negative Chemotaxis.

Most important are certain conditions which create a condition of negative chemotaxis, or otherwise engage the phagocytes so that they refuse to take up the essential organism. Vaillard says that all animals are immune to pure cultures of the tetanus bacillus or its spores provided the latter have been washed entirely free of toxin. The absence of toxin permits of positive chemotaxis, and phagocytosis, whereas toxin when present causes negative chemotaxis, and the bacilli proceed to further toxin formation. The same is held to be true in infections by some other organisms.

It seems definitely established that contaminating organisms (pyogenic cocci, *Bacillus prodigiosus*) may greatly increase the virulence of the bacillus of symptomatic anthrax, *Bacillus aerogenes capsulatus* and the tetanus bacillus—anaërobic organisms. On the one hand the secondary bacteria may produce more favorable conditions for the growth of the anaërobes by consuming local oxygen, or, as Metchnikoff believes, they may so engage the phagocytes that the latter have no disposition to take up the essential organism. This condition may be an important one in other mixed infections, as when the streptococcus complicates diphtheria and scarlet fever.

Accidental Engagement of Phagocytes.

If the phagocytic power is an index of the degree of natural antibacterial immunity, is the same correspondence to be recognized when the immunity is acquired? To answer this question satisfactorily it is necessary to bring phagocytosis in relation to two different types of antibacterial immunity which it is possible to recognize. Cholera is an example of that type of antibacterial immunity in which the bactericidal power of the serum undergoes a great increase. It is stated that anthrax represents another type in which the immunity is not dependent on the bactericidal power of the serum. Probably the same may be said of acquired immunity to the streptococcus, staphylococcus and the pneumococcus, yet it is perhaps not definitely established that the immunity in these instances is antibacterial rather than antitoxic. For the present we may, however, with Metchnikoff, consider that the immunity is antibacterial and that it is a cellular or phagocytic immunity.

Acquired Antibacterial Immunity.

Rabbits which have been immunized against anthrax respond to subcutaneous or intraperitoneal injection of a virulent culture by concentrating so vast a number of microphages at the site of inoculation that the fluid becomes purulent in appearance. Examination shows an enormous degree of phagocytosis. When, on the other hand, non-immune rabbits are submitted to similar inoculations, the fluid which accumulates locally is of a clear serous character, contains few leucocytes, and no phagocytosis is observable; the animals die of a rapidly developing septicemia. From the results one may well suspect that the immunity is related to and perhaps co-extensive with the acquired phagocytic power.

Anthrax.

But is the serum of no influence? It has often been held that phagocytes take up bacteria only after the latter have been injured or killed by the serum or plasma. Metchnikoff answers this objection experimentally by inoculating an immune rabbit with anthrax, withdrawing some of the exudate at a time when phagocytosis is complete, and injecting it into a non-immune rabbit. The second animal dies. Since none but phagocytized bacilli were injected into the non-immune rabbit, and since the latter succumbs to anthrax it seems not only unnecessary, but unjustifiable, to assume that the bacteria must be attenuated by the serum before they can be taken up by the leucocytes. May the serum, nevertheless, have some obscure action which may not be included under such terms as bactericidal and attenuating? It seems fairly well established that anti-anthrax serum, at least from certain animals, may exert a protective influence when injected into other animals in conjunction with or in advance of the culture; yet Metchnikoff discredits the importance of such protection and says that "those properties of the body fluids, as the bactericidal, preventive and agglutinating, fall away into the background in such examples of immunity." It is the tendency of the school of Metchnikoff to refer the protective power of a serum to its faculty of stimulating the phagocytes rather than to its effect on the micro-organisms. We shall see, however, in speaking of opsonins, that even in relation to anthrax the serum may possess a distinct property which facilitates phagocytosis, not by stimulating the phagocytes but by some action on the bacteria.

Phagocytes Take Up Virulent Bacteria.

The Influence of Serum.

Concerning those diseases in which immunity is characterized by a great increase of the bactericidal amboceptors or fixators, Metchnikoff does not disregard the existence or importance of the immune bodies, but rather seeks to establish their genetic relationship to phagocytic activity. The conditions are held to be similar to those already mentioned in connection with *intra vitam* hemolysis. That is to say, microcytase exists only in the leucocytes of the immune animal under normal conditions; it escapes into the plasma, or into the serum during coagulation, only as a consequence of the phagolysis already mentioned. The phenomenon of Pfeiffer occurs only because the injected culture injures the leucocytes, resulting in the liberation of microcytase, which in conjunction with the fixators causes the solution of the vibrio. When phagolysis is prevented by a preceding injection of bouillon, phagocytosis and intracellular solution of the organisms entirely supplant extracellular solution.

Cholera and Similar Infections.

(*To be continued.*)

Clinical Reports

BRONCHOSCOPY FOR THE REMOVAL OF A COLLAR BUTTON FROM THE LUNG.*

E. FLETCHER INGALS, M.D.
CHICAGO.

Patient.—C. D. H. was sent to me May 23, 1904, by Dr. F. W. Wilcox, of Minonk, Ill. He was a man 22 years of age, who had formerly weighed 142 pounds, but who then weighed 107½ pounds.

History.—He told me that 14 months previously he had accidentally drawn a collar button, presumably of vegetable ivory, into the air passages. He at once felt the sensations caused by it near the upper part of the sternum on a level with the second rib; subsequently he had some soreness in the same place. He expectorated a little blood a few minutes after the accident, and he said that there quickly appeared a peculiar squeak in the breath sounds. Pneumonia developed on the left side within 24 hours and lasted for one month. He had coughed ever since. He had sometimes felt something moving up and down in the lower portion of the trachea and a valve-like action with choking for a few seconds. His father stated afterward that the patient frequently had these choking attacks, coming on without apparent cause and without cough. The last time this sensation had been noticed was 4 months before he came to see me. He said he had been coughing continuously ever since, mostly at night. This was probably due to a change in position of the foreign body. During the summer immediately following the accident he had had an aggravation of his symptoms with daily fever in the afternoon, during which time he had been kept in bed for a week or two. His recovery from that attack had been very slow. When I first saw him he complained of occasional pain in the left side, referred to the second interspace about an inch to the left of the sternum and occupying an area about two inches in diameter. He had felt no pain in any other portion of the chest, except low down on the left side, at the time he had the attack of pneumonia. His previous history was negative. The heredity was good, there being no tuberculosis on either side of the family. He was a twin, and reported that his brother was strong and well.

Examination.—He had been much weakened by his prolonged illness, was pale and very anemic; he had dyspnea on any exertion and had some swelling of the feet. The voice was clear. I found the pulse 120, the temperature 99.6. He complained of coughing a good deal, mostly at night, and said that he raised occasionally a thin sputum of a brick-dust color, but there were only from two to four drams daily. There had occasionally been faint traces of blood in the sputum, but no distinct signs since immediately after the accident. His appetite was good, but digestion only fair;

* Patient presented to the Chicago Laryngological and Otological Society, 1905.

bowels loose, urine normal. There were no abnormal signs in the nares, but the larynx and trachea were moderately congested. The hemoglobin was found to be only 65 per cent. The sputum contained many pneumococci and pus cells, but no tubercle bacilli.

On examination of the chest I found very little movement, with retraction of the left side. The right side, an inch below the nipple, measured from 15¼ to 15½ inches, the left from 14½ to 14¾ inches, but there was no change in the line of dullness on changing the patient's position. The patient said he had been aspirated twice about 8 months ago, but no fluid had been found. There was dullness on the left side above the second rib, except a small area between the first and second, and flatness below that level all over the lung. The resonance and respiratory murmur were exaggerated over the right side. The apex of the heart was found in the fourth interspace one-half an inch to the left of the mammillary line. On the left side there was bronchovesicular respiration in the supraclavicular region. From the clavicle to the third rib the breath sounds were very indistinct; below this they could not be heard at all. The voice sounds were exaggerated above the left clavicle and they were quite distinct as low as the second interspace; but they were somewhat feebler over the remainder of the left lung than over the right side. The vocal fremitus was absent below the third rib. The heart's action was rapid and regular and the sounds were normal. Posteriorly there was marked dullness at the left apex extending an inch and a half below the spine of the scapula, with absolute flatness below this line. The resonance and respiratory sounds were exaggerated on the right si e. There was bronchovesicular breathing at the apex of the left lung, though not very intense. On forcible respiration very often breath sounds could be heard as low as the low border of the left lung.

Fluoroscopic examination showed a dense shadow all over the left side, excepting a small area in the infraclavicular region, where the shadow was less marked. I sent the patient to the Presbyterian Hospital and had a skiagraph made, but nothing could be seen, the lung being so dense that even the ribs did not cast a shadow near the root of the lungs. Three other negatives were taken with similar results.

Treatment.—On the afternoon of May 23, assisted by several of the internes, I gave the patient chloroform, and by upper bronchoscopy attempted to remove the button. Although I had previously given the patient one-sixtieth of a grain of atropin, there was still abundant secretion in the trachea and a large amount of expectoration. Indeed, he coughed practically all of the time during the operation, which lasted from the time the chloroform was started until I desisted, in all about two hours. During this time he spat up large quantities of bloody pus, which was only kept out of my eyes by placing a pane of glass between my face and the bronchoscope. The pus rendered it very difficult to see what I was doing and compelled me to swab out the passages almost continuously. After swabbing out the pus I could only get two or three seconds before he would cough again. This seemed to result from the passage of the bronchoscope into an abscess. The patient took the chloroform so badly that we were not able to keep him profoundly under it, and I frequently touched the bronchial tubes and the walls of the abscess cavity with a solution of cocain, but the amount of pus was so great that it had little effect. In the examination of the left lung I was unable to see the numerous branches of the bronchi that are usually apparent, though I followed one of the branches far down until the bronchoscope was introduced its full length, 33 cm. below the incisor teeth. I searched carefully by inspection and palpation with a small hooklet but was unable to locate the foreign body. There was considerable granulation tissue about the bifurcation of the trachea that for some time interfered seriously with the inspection, and one mass presented the appearance of a small polypus which nearly filled the bronchoscope. I had not yet been told of the peculiar choking spells and, therefore, did not have in mind anything of a polypoid nature in that region. The mass that I saw I did not dare to remove, fearing that it might be connected with the bronchus in such a way that I would open through the tube and cause a pneumothorax. During the operation a part of the time I used for removing the pus a strip of one-inch gauze, which was crowded down the bronchoscope with a large wire, the end of which had been flattened and forked, like that used in the ordinary uterine packer. This worked fairly well, but much of the time I used cotton swabs attached very securely to long brass carriers. At one time in swabbing out the pus the sliding ring for fastening the cotton on the carrier caught on the end of the bronchoscope and I had a little difficulty in disengaging it. As the swab was withdrawn I examined it and found the swab of cotton intact, but it seemed to me a little smaller than the others. However, I concluded that this was due simply to its having become saturated with pus. Some time later I discovered at the end of the bronchoscope a white mass which looked like a large swab of cotton. I grasped this with the forceps and withdrew it, thinking it must be a pledget of cotton that had been lost off at the time the instrument caught. Not wishing to direct attention to the interne who had been fastening the cotton on the carriers, and who, by the way, was one of the best men in the hospital, I simply called his attention to it by a look and threw it aside without examining it. This mass appeared fully twice as large as any of the pledgets of cotton after they had been saturated with the pus, and, considering the subsequent history, I am now confident that it consisted of the collar button surrounded with necrosed lung tissue.

Result and Subsequent History.—During the operation the patient's pulse varied from 110 to 150, but all the time was fairly full and regular. Immediately afterward he appeared to be doing well. The next day there was no temperature and the patient said he felt fine. Two days later he was discharged and went to his home in the country. Two weeks later I received a report that he was improving very rapidly, did not cough excepting a few times in the morning, had a ravenous appetite and had gained 11 pounds. A month later another report stated that he was feeling fine and had gained 22 pounds. Two weeks later he came to see me so changed in appearance that I did not know him. He coughed very little, indeed, had no pain, no dyspnea on exertion, had a ravenous appetite and weighed 130 pounds. An examination of the left chest showed only slight dullness from the second to the sixth rib, showing that the lung had cleared up greatly from the third to the sixth rib; flatness below the sixth rib, otherwise in front and laterally signs over the chest were much as at the first examination, except that the apex of the heart was found about 1¼ inches to the left of the mammary line. Posteriorly the respiratory sounds were good over the left lung as low as the eighth rib, but feeble or absent below that level. The fluoroscope still showed a shadow over the left lung, but much less dense than formerly.

In response to a letter the patient called on me recently. He said he had been working 12 hours a day since September, had no cough, no temperature, felt fine and weighed 136 pounds. Examination of the chest showed very slight diminution of resonance over the left side as low as the sixth rib in front and laterally, and as low as the eighth rib, posteriorly, with a vesicular murmur in the same region about two-thirds as intense as on the right side. The lung was somewhat contracted and the heart drawn from 1½ to 2 inches to the left of its normal position. No respiratory sounds could be heard below the eighth rib posteriorly, probably due to drawing upward of the lung and diaphragm. The normal superficial area of cardiac dullness had disappeared over the right half of the lower part of the sternum on account of the increased activity of the right lung and the dislocation of the heart to the left caused by retraction of the left lung. The patient felt perfectly well, and, considering the history, I feel justified in reporting the operation as a complete success, although I did not at the time examine critically the mass that seemed to have been causing the trouble.

34 Washington Street.

AN UNUSUAL MANIFESTATION OF MALARIA.

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The following report is submitted with the hope that it may prove of value to those who are especially interested in the study of malaria—particularly of its unusual manifestations.

Patient.—Private G., about 11 a. m., Jan. 23, 1905, complained of an extremely severe headache, which had first appeared between 9 and 10 o'clock that forenoon, and which had rapidly increased in severity until at the time he applied for treatment it had become almost unbearable. The pain was especially severe in the temporal regions. The man further stated that previous to that morning he had been in his usual good health.

Examination.—The patient was admitted to the hospital; the temperature was normal. He was carefully questioned with regard to his appetite, digestion and action of his bowels, and all seemed to be perfectly normal. He felt certain that he had eaten nothing unusual or which might have given rise to some digestive disturbance. Nothing abnormal was revealed on examination.

Treatment.—The patient was put to bed and his bowels thoroughly evacuated by means of purgatives and enemata. A cold compress was applied to his head and his diet was restricted to liquids. By 3 p. m. on the day of admission his headache had practically disappeared, and by 6 p. m. he felt quite as well as usual.

Subsequent History.—On the morning of January 24 the patient felt quite well until about 9 o'clock. At that time his headache reappeared and gradually increased in severity until, according to his statement, it was even worse than on the preceding day. His temperature remained normal. He was carefully questioned at this time in order to determine whether or not there was a possibility that his headache might be of malarial origin. He stated that he had been born and raised near Altoona, Pa., and had never been any farther south than West Point, Ky. He was positive that he had never suffered from malaria, "ague," "chills and fever," or any disease of that nature whatsoever. He further stated that he had never, at any time during his life, been in the immediate neighborhood of cases of malaria, ague, etc., occurring in other people. In view of the patient's positive statements, together with an entire absence of temperature, and especially in consideration of the fact that the patient's disability had arisen in the very midst of an Alaskan winter, in a section of the country where, even in its warmest season, malaria is practically unknown, the idea of a blood examination seemed so utterly futile that it was dismissed without further thought.

During the succeeding five days, January 24 to 28 inclusive, the patient's headache continued, usually coming on between 9 and 10 o'clock a. m., and disappearing about 3 p. m. On some days it seemed to be less severe than on others.

Further Treatment.—Various combinations of drugs, including sodium bicarbonate, calomel, bromids, chloral, coal-tar preparations, etc., were faithfully tried, but with little or no result. Cold applications to the head sometimes seemed to give slight relief, but at best it was only temporary.

Finally at 8:30 a. m. on January 29, 1.3 gm. quinin sulphate was administered in capsules. The headache appeared as usual, between 9 and 10 a. m., but as time went on, contrary to custom, the aching seemed to be much less severe than usual.

Blood Examination.—Noting this change, at about 11:30 a. m. I proceeded to make a blood examination, which I should have done before, and certainly would have done had it not been for the apparently absolutely contradictory evidence. On taking a slide of the patient's blood and examining it under the microscope I found it to be fairly swarming with malarial spores, which resembled in appearance those of the tertian parasite. The examination, however, had been too long delayed, as prolonged and careful search failed to reveal any mature or segmenting parasites, hence it is impossible to say with certainty which variety of malarial parasite was responsible for the trouble.

Results.—On the whole, the headache on this day (January 29) was much less severe than usual. Two small doses of quinin were given during the day, and on the following morning at 8:30 another large dose of 1.3 gm. was administered.

On the morning of January 30 a very slight headache appeared about 10 o'clock. The blood was again carefully examined at this time, but nothing was found save a few scattered spores. The headache on this day was slight, and had practically disappeared by noon. The quinin was continued up to and including another large dose on the morning of January 31, after which, inasmuch as the patient experienced no pain on that date, it was stopped. From that time until the present the patient has experienced no recurrence of the headache.

It is extremely to be regretted that a thorough blood examination was not made much earlier in this case, but, as stated above, the bare possibility of malarial infection seemed so vague and remote that the examination of a blood specimen seemed an absolutely useless procedure. However, if the above report fulfills no other mission, it may at least serve to warn us against neglecting to follow up every possible diagnostic clue, however useless and insignificant it may seem.

HEMIPLEGIA OCCURRING DURING THE THIRD WEEK OF TYPHOID FEVER.*

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PITTSBURG.

In the *Medical Record*, Dec. 19, 1903, I reported a case of sudden hemiplegia with aphasia occurring during the fourth week of an attack of typhoid fever in a boy aged five years, and I also referred to several other reported cases. Inasmuch as this complication of typhoid fever seems to be a rare one, I have though it worth while to briefly record the clinical notes of a second case which has since come under my observation.

Patient.—A married man, aged 38, a bricklayer, habits good, previous history not significant.

History.—The patient was in the fourth week of a simple uncomplicated attack of typhoid fever, when on Aug. 9, 1904, he developed the hemiplegia to be described. His physician saw him at 5 p. m. on the date mentioned, and noted nothing unusual. He saw the patient again at 9 p. m. the same day, when he found that he was suffering from a complete left hemiplegia. It must have developed gradually and without loss of consciousness, as a member of the family was in constant attendance on the patient and noticed nothing unusual until an attempt to move the patient between 8 and 9 o'clock revealed the hemiplegia described.

Examination.—An examination which I made the next day revealed a complete left hemiplegia, with exaggerated tendon reflexes on the affected side and some mental confusion and thickness of speech. The heart and arteries seemed normal.

Course of the Disease.—The hemiplegia persisted for four months (the patient in the meanwhile had recovered from the typhoid fever) and then began to improve, and has continued to do so slowly up to the present time. He can now move the affected arm and leg pretty freely, but a considerable degree of paralysis persists, together with spasticity.

I am inclined to regard this hemiplegia as of thrombotic origin.

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* Reported at a meeting of the Pittsburg Academy of Medicine, 1905.

We Are Surfeited with Surgeons.—The present "rage" in medicine is surgery, surgery. The fledgling, barely able to diagnosticate a case of chronic constipation, wants to be a "surgeon." The hospital interne, after a year or so in hospital service, wants to be an abdominal surgeon. The young medical man, after graduating, seeks a position in the surgical clinic, and after dressing chronic ulcers for a year or two, modestly classifies himself in the medical city directory as a "surgeon." Enough of this inane desire.—*Med. Fortnightly.*

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SPOTTED FEVER.

For twenty years there has existed in the Bitter Root Valley in Montana a peculiar febrile disease known as spotted fever. It is not confined to the Bitter Root Valley, for cases have been observed in the valley of the Snake river in Idaho, in the valley of the Quinn river in Nevada, and in certain parts of Wyoming. Probably on account of its purely local character, the disease has received but little attention until the last few years, and it was not until 1902 that the work of Wilson and Chowning brought it into prominence. The claims of these authors that the disease is due to a peculiar animal parasite similar to that of Texas fever in cattle, and like it transmitted by insects, focused the attention of the profession on the condition.

In its clinical aspects, this condition suggests in some ways typhus fever, and in others epidemic cerebrospinal meningitis. It differs from the former disease in its lack of contagiousness, and from the latter in the comparatively slight involvement of the central nervous system. It is essentially a seasonal disease occurring almost exclusively in the spring and early summer. After an incubation period of from three to ten days the symptoms appear. At first they are very similar to those of any febrile disorder, chilly sensations or a chill followed by headache, bone and muscle pains, and nausea. As the disease progresses, nosebleed and slight bronchitis may occur, suggesting typhoid fever. The fever gradually rises, with evening exacerbations, and reaches its maximum from the eighth to the twelfth day. At this time the evening temperature may reach 105 or even 107 F.; after this, it falls by lysis, or in fatal cases remains high to the end. The eruption, which is very characteristic and gives the disease its name, appears in most cases about the third day. It is noticed first on the wrists, arms, and legs, later on the forehead, back, and chest, and last on the abdomen. At first, it takes the form of bright red macules from one to five millimeters in diameter, later these assume a purplish hue, and finally definite petechiæ are evident. Slight icterus is usually present, and desquamation may occur in the third week. With these symptoms, there is enlargement of the liver and spleen, scanty urine with albumin and casts, and, in some cases, a slight leucocytosis with increase in the large mononuclear elements. In fatal cases, the changes in the internal organs are those usually found in febrile conditions, cloudy swelling of the parenchymatous organs, submucous and interstitial hemorrhages, fatty liver, and swelling of the spleen. The intestines and lymphatic apparatus present no marked abnormality.

The main interest in the disease centers in its etiology. It would seem likely *a priori* that so sharply localized a disease would have a special causal agent. Such, indeed, were the conclusions of Wilson and Chowning, who stated that the blood contained a piroplasma which they named *Piroplasma hominis*. They claimed, further, that this organism is transmitted by the bite of a tick, and that the gopher acts as an intermediate host. In support of this view, they cited the seasonal incidence of the disease, this, according to them, corresponding to the seasonal incidence of the tick, the history of tick bites in all cases, and the presence of the causal agent in the blood of the gopher. Some months ago, Craig threw doubt on the blood findings, claiming that the appearances described as parasites are merely artefacts, and Stiles also was unable to confirm their observations. Recently Ashburn[1] has published the results of his observations, made with Stiles, on the cases which occurred in 1904. The results seem to indicate quite definitely that the etiology of this strange disease is as obscure as ever. Careful observation of the blood of eleven cases failed to disclose the organism described by Wilson and Chowning, nor was any other organism, bacterial or protozoan, discovered. The work of 1904 has also disclosed several other interesting facts regarding the disease. It has shown that not all those infected have been bitten with ticks, that in the Bitter Root Valley only the mesa on the west bank is infected, and that the nervous system can be quite markedly infected so far as the clinical symptoms are concerned. Pathologically, however, gross nervous lesions are not apparent, and it is still evident that the condition is not a form of epidemic meningitis.

Further investigation is of great importance, not only from a scientific but also from an economic point of view. The tick theory of the disease seems to have reduced the inhabitants almost to a state of panic, and it is to be hoped that the disease will be reinvestigated this season if only to reassure them and to render the development of this fertile valley practicable.

THE TREATMENT OF THE EPILEPTIC STATUS.

At best, epilepsy must be considered as merely a symptom-complex of which, as a rule, the underlying causes elude detection. The disorder must be looked on as the expression of a convulsive neurosis in which an abnormally irritable nervous system responds with undue readiness to varied stimuli. In accordance with this view, the therapeutic indications are, on the one

1. The Lancet-Clinic, vol. liv, No. 17.

hand, to diminish the irritability of the nervous system and, on the other hand, to remove and to avoid all possible exciting factors. The results of treatment will depend on the success with which these indications can be met, but no case should be despaired of and no effort be spared to attain the desired end. Drugs will at times subserve a most useful purpose in this connection, but the greatest good will be accomplished by a regulation of the diet and a simplification of the mode of life. Each case must be considered by itself and will receive treatment in accordance with its individual requirements.

One of the most serious phases of epilepsy with which the physician is called on to deal is the condition known as the epileptic status and consisting in a succession of convulsive attacks of which one begins before the preceding one has terminated. Some of the measures to be adopted with the object of preventing such outbreaks and of mitigating their severity when they occur are discussed by Dr. Konrad Alt,[1] on the basis of a considerable experience in an institution for the care of epileptics. As gastrointestinal disorders, especially constipation, often act as determining causes of the convulsive seizures, the closest attention should be given to the quantity and the quality of the food and the state of the digestive organs and their activities. As alcohol increases the irritability of the nervous system, it should be scrupulously avoided by the subjects of epilepsy. The same statement is applicable in modified degree to the use of morphin, emotional disturbances of varied kind, including sexual excesses, and exposure to the sun's rays.

Perhaps next in importance to gastrointestinal disorders as a factor in exciting the epileptic status is abrupt withdrawal of the bromids. The prophylaxis under such conditions is obvious and the treatment consists in the administration of large doses of the bromids by mouth or by rectum. The employment of iodids in the treatment of epilepsy, alone or in combination with the bromids, and whether a history of syphilis be present or not, is occasionally attended with an increase in motor irritability and the development of the epileptic status. Under such circumstances the iodids should be replaced by bromids, gradually or suddenly as the exigencies of the case may demand. Organic disease of the nervous system may act as the cause of the status and it should receive appropriate treatment. Attacks of epilepsy appear at times to be inhibited during and subsequent to the course of an acute febrile disease, later to reappear suddenly in the form of status. On the other hand, long-continued improvement with respect to the seizures has repeatedly been observed after attacks of erysipelas.

Death may occur during the convulsive stage of the status as a result of asphyxia from spasm of the respiratory muscles or from the entrance of particles of food into the larynx or bronchi. Aspiration pneumonia also may develop from the latter cause. Cerebral hemorrhage may occur from rupture of an artery in the brain and hypostatic pneumonia may be a secondary result. Hemorrhages may take place likewise into other organs, namely, kidneys, heart and liver, and lead to a fatal termination. Accordingly, the seizure should be brought to an end as speedily as possible. The patient should be shielded from light and noise and a high enema be given. Should these measures not suffice, resort may be had, with caution, to sedatives, such as bromid, chloral, amylene, dormiol, and opium, administered, preferably, by the rectum and fortified by tincture of strophanthus, or one may use chloroform by inhalation, guarded perhaps by the conjoint administration of oxygen. When the temperature is high, a prolonged cold bath or a cold douche may be given. When symptoms of general intoxication are present, venesection may be done, with or without saline infusion. Hypodermoclysis or enteroclysis may be employed independently of blood-letting, and nutrient enemata may be given to avert wasting. It seems probable that the treatment outlined in the foregoing will prove applicable also to the eclamptic status of pregnant women, and of children.

1. Münchener med. Wochschft., March 28, 1905, p. 585.

THE EFFECTS OF TROPICAL LIGHT ON WHITE MEN.

The closer one gets to nature, and the more intimately one studies her processes, the more one becomes convinced that there is law and order, not to say volition and intelligence, in all her varied phenomena. Observation has shown that individuals thrive best and attain their highest perfection when most nearly adapted to their environment. In the process of evolution gradual changes take place in response to the tendency to readjustment that is constantly present. It is in conformity with this doctrine that the dark races preponderate in the tropics and the less pigmented peoples in the temperate and arctic zones. It has been thought that this distribution is related to the intensity of the heat in different parts of the world, but sufficient evidence has been accumulated to show that other factors also are at work in this connection. One of the most important of these, there is now good reason for believing, is light, representing merely another mode of motion in the corpuscles of which all matter is constituted.

Ether waves of a certain length and frequency give rise to heat, while below and above these are, on the one hand, the so-called Hertzian and infra-red rays, and, on the other hand, the actinic rays, the *x*-rays, and the radium rays. The effects of the longer, heat rays, are pretty well understood, but those of the shorter, light rays, have only recently been given the consideration to which their importance would seem to entitle them. The subject is quite fully discussed in a monograph by Major Charles E. Woodruff,[1] Surgeon United States Army, who puts forward evidence in support of

1. The Effects of Tropical Light on White Men. New York: Rebman and Company, 1905.

the theory propounded by von Schmaedel to the effect that pigmentation of the skin in man has been evolved for the purpose of excluding the dangerous actinic or short rays of light, which have been found to be so destructive to living protoplasm. Dr. Woodruff shows that plants and animals are essentially identical, the protoplasm of each reacting in accordance with the conditions by which it is surrounded, the one representing merely a more advanced stage in the process of evolution. Both are provided with mechanisms, largely in the form of pigment, for affording protection against the deleterious effects of light, particularly the actinic or short rays. It is admitted that a certain modicum of light is necessary for the continuance of life, exercising a beneficial stimulation on all of the bodily functions, while an excess is exhausting and injurious. The latter-mentioned effects can be observed both in the tropics and in arctic regions.

Woodruff believes that the first men were brunette, though not black, their evolution taking place in a cold and light climate. Blondness appeared later, in cold and dark countries. The transition takes place gradually when the migration from one environment to another is sufficiently slow to permit of adaptation and readjustment to the new conditions, while rapid and radical change in surroundings is more likely to result in extinction. Hybrids do not thrive and are generally sterile, the principal reason perhaps residing in the fact that they are ill-adapted to any environment. Every race flourishes best in the climate for which it is most nearly adjusted.

Applying the foregoing considerations to the occupancy of the Philippines by the United States, Dr. Woodruff declares that acclimatization is, strictly speaking, not possible. Certain precautions, therefore, must be taken by white men compelled to live for longer or shorter periods in tropical climates. He recommends that the clothing worn during the day should be opaque to the shorter light waves. This end is best attained by wearing black or yellow underclothing. At the same time, the outer garment should be of a color that reflects heat in as large a degree as possible, namely, white, gray or yellow, if the wearer is to be exposed to the direct rays of the sun; black or dark blue is more serviceable for those not thus exposed. The hat should have a wide brim and should be thick enough to exclude all the sun's rays. It has been suggested additionally that the helmet be lined with tinfoil. The hair should be permitted to grow to a considerable length. Umbrellas should be carried by those who must go in the sun and are not on military duty. Houses should be provided with large verandas whose roofs come well down, in order that they may be kept dark. They should preferably be painted some shade of green, yellow or brown. Shade trees subserve not merely an ornamental purpose, but they are actually urgently necessary in the tropics. Whenever possible, the use of tents should be dispensed with in the tropics, wooden shelters being preferable when houses are not available. The midday sun especially is to be avoided. Work should be stopped largely between the hours of 11:30 a. m. and 3:30 p. m. and rest and sleep at this time should be encouraged. Women should not be out of doors between the hours of 9 a. m. and 4 p. m. When possible, drills, schools, sports, maneuvers and examinations should be suspended during the summer. The diet should be liberal and should include fresh meat. Civil officials who have been rendered unfit for labor by service in the tropics should be retired or pensioned. White employes presenting signs of breakdown should be transferred to home stations at once.

From the foregoing it will be seen that in the tropics the white man is confronted with many problems whose solution will be aided by observations and reflections such as those recorded by Major Woodruff and for which he, as well as the service he represents, deserves the fullest measure of credit.

WHAT IS THE CYCLASTER SCARLATINALIS OF MALLORY?

In the autumn of 1903 Mallory described certain protozoon-like bodies which he found in the skin of four bodies that had died of scarlet fever. These structures varied in size from 2 to 6 microns or more in diameter and were found in the epithelial cells of the epidermis, between these cells, and also in the superficial lymph vessels. For the sake of convenience in description they were divided into two groups. The members of the first group consist of small, round, oval, elongated or lobulated bodies, while those of the second group are characterized by a radiate structure forming a rosette from 2 to 6 microns in diameter. The rosettes are spherical in shape and contain a central round body around which are grouped from 10 to 18 narrow segments. These structures are not uniformly distributed in the skin, but appear to be found in groups. The skin from a number of other scarlet-fever bodies was examined, but gave negative results. In all of these cases the skin had been taken a number of hours after death, but skin was also taken from four patients during life and examined for the bodies and gave negative results.

From the fact that these structures form a fairly definite series of bodies of a distinct morphology, which may be compared with the cycle of asexual development of the malarial organism, they were looked on as protozoa. If they are protozoa Mallory concluded that they have a causal relation to scarlet fever because they have not been encountered in normal skin nor in the skin of smallpox patients which has been carefully examined by Councilman and his co-workers. He proposed for them the name of cyclaster scarlatinalis because many of the rosettes are either wheel or star-shaped.

In the autumn of 1904 the work of Mallory was verified by Duval[1] by the discovery of protozoon-like bodies in the blister fluid in the skin (and in the skin) of scarlet-fever patients during the height of the rash. In all 18 cases were studied, but the bodies were found only in the last five. These bodies resemble closely those described by Mallory, except that a larger variety of shapes were seen, necessitating the formation of five groups. They vary in size and shape from small, oval bodies 1 to 2 microns in diameter to large rosettes 4 to 6 microns or more in diameter. Many intermediate stages could be made out, suggesting the developmental cycle of a protozoon. Ameboid forms also are not uncommon. Duval believes these bodies to be identical with those described by Mallory in the skin, and although they have not been grown on artificial media he believes them to be protozoa which have a causal relation to scarlet fever.

This question of scarlet-fever protozoa has also been studied by Field[2] of New York. Field was able to verify the work of Mallory and of Duval, but found the bodies in the skin and blister fluid of measles patients as well as in those of scarlet-fever patients. A number of pieces of skin were removed during life, at the height of the rash, but none of them contained any protozoa. This fact suggested to Field that these bodies may be the products of degenerating cells and their nuclei. He accordingly studied the degeneration products of leucocytes and other cells suspended in serum, and found there bodies which closely resembled those described by Duval in the blister fluids. All the different forms, such as rosettes and the individual segments, could be made out in these preparations. Field concludes, therefore, that a large per cent., at least, of the bodies found in the blister fluid from scarlet-fever and measles patients are not protozoa but simply degeneration products of leucocytes and other cells. This question is, however, far from being settled and any additional light that can be thrown on it will be gladly welcomed by those who are interested in the etiology of scarlet fever.

1. Univ. of Penn. Med. Bull., December, 1904. Virchow's Archiv, 1905, vol. clxxix, p. 485.
2. Read before the American Association of Pathologists and Bacteriologists, Chicago, April 21, 1905.

PERICOLITIS SINISTRA.

The term pericolitis sinistra has been employed to describe a condition that is considered comparable with appendicitis, except that it occurs on the left instead of on the right side. Strictly speaking, the disorder more nearly resembles perityphlitis, as it is the peritoneum that is more especially involved. In its simplest form, the morbid process exists as a localized peritonitis surrounding the descending colon or sigmoid flexure. Suppuration may take place, with the formation of an abscess which may rupture into the peritoneal cavity, with the development of general peritonitis. The distinctive symptoms are constipation of some duration, with pain in the left iliac fossa, usually elevation of temperature and at times vomiting. Palpation discloses deep tenderness, muscular resistance and a more or less cylindrical tumor in the left iliac fossa. Leucocytosis and indicanuria have been observed in some cases. The treatment consists in the administration of enemata and castor oil, and the early application of an ice bag and later of hot poultices. In the presence of an abscess, the abdomen should be opened, the pus evacuated and drainage provided for. Cases illustrative of the several phases of the affection are reported by Dr. H. D. Rolleston.[1]

TOO FEW PHYSICIANS? HARDLY!

A dean of a medical college is reported to have prophesied recently that under the present more rigid requirements, both in medical education and in state licensure, there will soon be a shortage of physicians in this country. In support of this view he points out a falling off in the first year enrollments in certain medical colleges and claims that it indicates a coming deficiency and that the supply will not offset the depletion of practitioners caused by death and disability. We are uninformed whether his remarks were intended as a jeremiad or as offering matter for congratulation to his hearers. We see no reason to regret a decrease in the annual output of physicians providing the lessened quantity is in inverse ratio to the quality of the product, as we believe is the tendency at the present time. There would have to be a very rapid falling off in the output of medical graduates to make it seriously felt by the profession for a score of years to come, and there is little reason to fear any undesirable falling off in the supply of undergraduates in the really high-class institutions of the country. If the effect would be to reduce the number of medical colleges by one-half it would not be a matter for serious regret. This country has been suffering from what might properly be called a surfeit of medical education, and the medical profession in general has not been the least sufferer from this cause. The prophecy is one of better things and it is to be hoped it will be realized. But, judging from the reports covering college statistics for 1904-5 thus far received, it looks as though instead of a decrease of the number of graduates there will be an increase.

CENSORSHIP WANTED.

Two or three years ago we noticed the allegation of an eclectic doctor in Connecticut that he was employing therapeutically certain recently discovered elements found in infinitesimal quantities in the atmosphere and elsewhere. As a rather queer statement this could only be interpreted as an attempted imposition on the presumed ignorance of his hearers. Now comes another smart fellow from the same quarter and of the same school of practice, who gives out the remarkable utterance that smallpox is not contagious. At least, this is the newspaper statement of his remarks as reported for the committee on contagion and infection to the Con-

1. Lancet, April 1, 1905, p. 854.

necticut Eclectic Medical Association. Of course, he opposed vaccination and probably will be quoted by the antivaccinationists as another of the eminent physicians who uphold their cause. The Connecticut Eclectic Association certainly ought to sit down hard on some of its members.

THE VIBRATING SENSATION.

It has been observed that under normal conditions the vibration of a tuning fork applied to various subcutaneous bony prominences and surfaces is appreciable at the point of application and throughout the extent of the bone. The sensation is said to be always present in health and usually absent when other forms of sensation are lost as a result of disease of the nervous system. It may be absent, also, in cases of tabes dorsalis when tactile and thermal sensibility are preserved. In this connection, Dr. R. T. Williamson[1] reports the results of a series of observations on persons in health and suffering from divers disorders. He studied 50 healthy persons, 80 suffering from various diseases of the nervous system, 45 suffering from diabetes mellitus, and 75 suffering from other diseases (heart, lungs, abdominal viscera, blood). He was able to confirm the constant presence of the vibrating sensation under normal conditions. In some cases of tabes it was absent in the legs before impairment of other forms of sensibility appeared and before ataxia or Romberg's symptom could be detected. In three cases of spinal paraplegia it was lost in the legs when other forms of sensibility were not affected. In a considerable proportion of cases of diabetes mellitus and of chronic glycosuria it was enfeebled or lost when sensation in other respects was normal. The conclusion is accordingly reached that sensibility can not be declared normal until the vibrating sensation has been tested. In making the observations a tuning fork six inches long was employed, and it was applied to the styloid process of the ulna, the internal malleolus, the inner surface and the anterior edge of the tibia at about its middle, the anterior superior spine of the ilium and the middle of the sternum.

DANGER OF SMALLPOX HOSPITALS.

We recently[2] directed attention to reports from two European cities with reference to the influence of smallpox hospitals in spreading the disease among persons living in their neighborhood. Since these reports were made there has been published the report of the chief of the Bureau of Health of Philadelphia, which shows that, notwithstanding every effort to prevent it, the Municipal Hospital of that city proved a most important focus for the dissemination of the disease. Between June 1 and Dec. 26, 1903, the smallpox morbidity per 10,000 of population in the municipal ward in which the hospital is located was 42.5, while in three immediately contiguous wards it was 18.4, 25.4 and 14.6, respectively. There was a marked decrease in the rate in more remote districts. These facts emphasize the need of isolation hospitals in fact as well as in name. Isolation of the patient is not sufficient—the place of isolation itself must be isolated. Smallpox hospitals ought to be erected in outlying districts sufficiently removed from populated districts to eliminate them as a factor in the spread of the disease.

1. Lancet, April 1, 1905, p. 855.
2. THE JOURNAL, April 22, p. 1287, and May 6, p. 1453.

INTRAPELVIC EXTRAVASATION OF URINE.

Extravasation of urine is usually due to injury of the urethra in its bulbous or membranous portion, and the fluid, by reason of the anatomic relations, finds its way into the perineal space, the scrotum, the penis and the connective tissue of the anterior abdominal wall. Rarely, the lesion occurs further back in the urethra, so that the urine is prevented from passing forward, but is forced to escape into the connective tissue of the pelvis. The latter condition is difficult of recognition and may readily be overlooked in the absence of operation. An illustrative case has recently been reported by Dr. David Lowson.[1] A man received an injury to the perineum by being thrown from a horse, which fell on him. He complained of much pain in the back in the left side of the pelvis and groin. There was little shock and no symptom of internal injury. After a restless night a small amount of blood and urine was removed by means of a catheter introduced as far as possible. Later in the day, only a small amount of blood was obtained in the same way. The patient thought he had previously passed urine freely while in a bath. There was no swelling of the perineum or scrotum, or other indication of urinary extravasation in the usual situation. Above the pubes, however, there was a large, tense, semi-elastic, globular tumor, dull on percussion, tender to touch and extending upward toward the umbilicus. Pressure was followed by an immediate desire to urinate. Attempts to introduce an instrument into the bladder failed, the tip always deviating to the right on reaching the deep urethra and entering a space in which it had considerable freedom of movement on rotation. Operation having been decided on, an incision was made in the median line above the symphysis and a stream of dark blood and urine spurted forth. The source of the fluid was found to be an artificial channel hollowed out of the connective tissue and communicating with a reservoir deep in the pelvis. Further exploration disclosed a large cavity to the right of the neck of the bladder, from which a pint and a half of fluid was sponged out. The bladder was uninjured. The ischial or pubic ramus was denuded of all covering but no line of fracture could be discovered. As bleeding continued, the cavity was packed with aseptic sponges. A small opening was made in the bladder and, with the finger inside, a catheter was gradually passed through the urethra into the bladder and tied in position. A piece of India-rubber tubing just fitting the vesical opening conveyed the urine to a receptacle by the side of the patient. The wound was then partially closed and dressed. The catheter was removed from the bladder and the tube from the vesical wound on the ninth day. A small abscess formed in the abdominal wall close to the incision and had to be evacuated on the eleventh day. The patient was convalescent nine weeks after the accident and free from all urethral trouble.

1. Lancet, March 25, 1905, p. 790.

THE DISREPUTE OF EXPERT MEDICAL TESTIMONY.

This subject is not new, but its vexing perplexities press for solution with increasing insistence. So long as the medical profession includes members who are willing to testify in court to manifest absurdities, or untruths, just so long will expert medical testimony deserve the sneer it so often receives from the public, the press and the legal profession. In a recent trial a man was convicted of murdering his wife by giving her arsenic. There was no direct proof of the crime, but the accused carried a bottle of powdered arsenic in his pocket, the wife who had previously been healthy died rather suddenly of an ailment with symptoms resembling those of arsenical poisoning, her stomach and other organs were found postmortem to contain quantities of arsenic, and it was proved that there was no arsenic in the embalming fluid used. A member in good standing of a representative medical society is reported by the newspapers to have sworn that eight grains of arsenic might be found in the stomach after the body had been buried for a week or so, averring that arsenic which had found its way into the soil from embalming fluids used in other bodies that had been buried might penetrate the interred body during this brief space of time. No proof was offered that the soil of the graveyard contained even traces of arsenic. It is such evidence as is here referred to that has made so-called medical expert testimony an opprobrium to medicine and too often worthless to the courts of justice. Is it not time for our medical societies to take up this matter in earnest?

ABOLISH THE HOSPITAL GRAFTER.

In the May 13 issue of *Charities*—the journal of the Charity Organization Society of New York City—appears a letter from Dr. John Joseph Nutt of that city concerning a topic vital to the interests of the medical profession—the abuse of hospitals and dispensaries. Dr. Nutt writes that physicians give liberally of service and money to charity, and that few of them think it wise to state frankly their opinions on this subject for fear of loss of favor with hospital boards. He very aptly draws a sharp distinction between the public and the semi-public hospital. The former is strictly eleemosynary and is rigidly avoided by the "hospital grafter" (if we may be pardoned for coining the term), while the latter is largely patronized by those able to pay something for medicines, nursing, and medical attention at home. These thrifty ones enter the hospital by means of a letter from a member of the "board" or from some minister or capitalist. The present deficiency in hospital finances would disappear, Dr. Nutt says, if the undeserving were excluded, and there is reason to believe that he is not far astray. The responsibility for the present ill status he lays largely on the physicians themselves, and few will dispute him. In these matters we seem ever ready to sell our brother's inheritance—the right of our professional colleagues to earn a living—for a mess of pottage—to wit, a hospital appointment, or ample clinical material. Experience shows that, as a rule, it is useless to expect physicians holding hospital appointments to make serious effort to combat this evil. Nearly always the members of the staff treat whomever is admitted, without asking embarrassing questions that might lead to an interview with the fearsome "board." So Dr. Nutt proposes a commission to examine minutely into the financial standing of every hospital patient, and as a chief remedy urges the total separation of medical charities from paid medical service. The suggestion is excellent but it can be executed only through one agency, that is, by the active intervention of the organized profession. When the medical societies take hold of this problem in earnest it will be solved. Recently we recorded the fact that a first step is being made in this direction by the Academy of Medicine of Cleveland. When the profession is ready, the societies will appoint committees that will mitigate the evil, and let us hope that we soon shall be ready. There must be an effective organization to investigate the circumstances of every person who offers himself or herself as a "charity" patient. Then let us apply the remedy, absolute segregation of charity patients from pay patients. Those who really have no means will perforce go to the genuine charity hospitals, while few of those who have any income will sink their pride so far as to enter an institution patronized by none but the destitute. When the only alternative is a "pay" hospital where none are treated free, the deed is done. So long as rich and poor are treated under one roof, the well-to-do will not scruple at getting free treatment if they can, as no stigma attaches to residence in an institution where many pay their way. It may be found that this remedy will apply only in the large cities, but other and just as effective measures of reform can be used in smaller places.

DR. MURPHY'S ILLUSTRATIONS: In some copies of this issue, Figs. 17 and 19, on pages 1673 and 1674, were printed upside down before error was discovered.

Medical News

ILLINOIS.

Smallpox at Arcola.—An outbreak of smallpox is reported at Arcola, and an inspector of the State Board of Health has been sent there with instructions to see that adequate precautions against the spread of the disease are observed.

Children's Hospital Ready.—The new Cook County Hospital for Children, erected at a cost of $80,000, was formally opened for inspection May 23. The president of the Board of County Commissioners and the warden of the hospital made short addresses.

Personal.—Dr. W. C. Blankmeyer has been appointed bacteriologist of the State Board of Health.——Dr. August R. Reder, Aurora, has been appointed surgeon for the Burlington System.——Dr. Herman A. Brennecke has succeeded the late Dr. Courtney L. Smith as surgeon for the Chicago and Northwestern Railway at Aurora.——Dr. Henry Hatch, Quincy, who has been seriously ill, is reported to be improving.

Carroll County Frowns on Advertising.—The Carroll County Medical Society, at its meeting in Savanna May 16, passed a resolution that the members of the society refrain from newspaper advertising or notice and that each offense shall be considered a breach of good faith to the society and shall be deemed unprofessional conduct, subject to the penalties laid down in the by-laws and regulations of the society.

Injudicious Economy.—The governor has vetoed the Glackin bill appropriating $25,000 for the establishment of a sanitarium for tuberculosis. He has also reduced the appropriations for state institutions as follows: Illinois Northern

Hospital for the Insane, Elgin, $49,550; Illinois Eastern Hospital for the Insane, Kankakee, $45,000; Illinois Central Hospital for the Insane, Jacksonville, $10,000; Illinois Southern Hospital for the Insane, Anna, $49,000; Illinois Western Hospital for the Insane, Watertown, $30.000, and Illinois Hospital for the Incurable Insane, Bartonville, $293,000.

Chicago.

Only One Death From Typhoid.—One solitary death from typhoid fever in a population of nearly two millions is the notable feature of Chicago's health during the week ended May 20.

Reception to Dr. Stevenson.—A large reception was given by Mrs. Theodore P. Shonts, May 11, at the Virginia Hotel, in honor of Dr. Sarah Hackett Stevenson and in celebration of her return to social life after a serious illness.

The Week's Deaths.—The total deaths from all causes for the week ended May 20 were 539, 89 more than for the previous week and 56 more than for the corresponding week of 1904. Pneumonia again led, with 70 deaths, followed by consumption, with 58; heart disease, with 53; nephritis, with 46, and violence, with 45.

Personal.—Dr. Walter A. Jaquith has resigned the chair of physical diagnosis at the Postgraduate Medical School, as he has received an appointment to the home office medical staff of the Prudential Insurance Company. The Prudential Medical Examiners' Association gave a dinner in Dr. Jaquith's honor May 23.——Dr. C. G. Dwight has been elected professor of otology, rhinology and laryngology in the Chicago Eye, Ear, Nose and Throat College.

Decrease of Mortality.—Study of the decreasing mortality in Chicago during the last ten years, compared with the immediately preceding decade, corroborates the assertion made by the Department of Health that the greatest decreases are among diseases over which sanitary administration and preventive medicine have greatest and most direct control. The decrease is in no wise connected with the climate of Chicago, to which it is so often attributed by those compelled to take cognizance of the fact, nor to any occult or mysterious agency.

INDIANA.

Gifts to Hospitals.—As a result of the second annual "tag day" in South Bend, May 6, $1,987.45 was collected, which will be divided between the St. Joseph and the Epworth hospitals.——Mrs. J. M. Gaar and Mrs. Jennie Leeds have given $1,000 to equip the operating room in the Reid Memorial Hospital, Richmond.——It is announced that $4,750 of the $7,000 required to purchase the Columbus City Hospital has been subscribed.

MARYLAND.

Personal.—Dr. Maximus Whitehill, Unionville, Frederick County, has been appointed by the governor president of the State Board of Immigration.

Typhoid in Institute.—Typhoid fever has broken out at the Jacob Tome Institute, Port Deposit, and many of the students have gone to their homes. There are eight cases.

Hospital for Colored People.—The colored people of Frederick have organized a hospital association and will purchase a building to be converted into a hospital for their race.

Smallpox.—A case of smallpox, which developed in a woman attending the Seventh-Day Adventist Convention, now meeting near Washington, was traced to Montgomery County, and the health officer of the state has ordered an investigation.

Election.—The ninth annual meeting of the Baltimore County Medical Association was held at Towson, May 18. The following officers were elected: President, Dr. George H. Hocking, Govans; vice-president, Dr. Harry S. Jarrett, Towson; recording secretary, Dr. Harry A. Naylor, Baltimore; corresponding secretary, Dr. R. C. Massenburg, Towson, and treasurer, Dr. Benjamin Whiteley, Catonsville.

Merger of Hospitals.—Through the good offices of the governor, a movement is on foot for the merging of the two hospitals at Frederick (the Frederick City and the Emergency Hospital) into one, to be called the "Union Hospital." A petition signed by a number of physicians has been submitted to the Frederick City Hospital and to the Frederick County Medical Society, which controls the other institution, asking each to appoint a member, who with a third, to be selected by the two, shall constitute a board of managers to arrange for consolidation. It is proposed that the board thus appointed shall have charge of the finances and general management and appoint the medical staff.

Baltimore.

Vital Statistics.—There were only 168 deaths last week, an unusually low number, equivalent to an annual death rate per 1,000 of only 15.50, being for whites 13.45, and for colored 26.60. The decrease in pneumonia cases was especially striking.

Personal.—Dr. William H. Welch sails for Europe, May 27, to be gone until September.——Dr. Thomas Opie, who has been dean of the College of Physicians and Surgeons ever since its foundation in 1872, has resigned that office as also the professorship of gynecology, and has been made professor emeritus. Dr. Charles F. Bevan has been made dean.——Dr. Howard A. Kelly sailed, May 23, for England.

The Passing of Osler.—Among the events characterizing Dr. Osler's last days here were a tea given him by the alumni of the Johns Hopkins Training School, at which nearly 175 nurses, some from other cities, were present. A dinner also was given to him and Dr. Barker at the Maryland Club by the advisory board of the medical faculty, consisting of the heads of all the departments of the medical school. The house which Osler occupied is being dismantled, and will be pulled down to make way for an apartment house. The colonial doors, mantels, etc., are advertised for public sale; also the summer house.

Commencement.—At the commencement of the College of Physicians and Surgeons, held May 18, there were 69 graduates. The prize men (gold medalists) were M. J. Nestor, Rhode Island; Ross Anderson, Utah; Fayette E. Read, Massachusetts, and William C. Stiffler, Maryland. The address to the graduates was by Rev. William Howard Falkner. The alumni association met May 17 and elected the following officers: President, Dr. Spencer M. Free, Pennsylvania; vice-presidents, Drs. M. J. Nestor, Rhode Island, and F. A. Ries, Maryland; secretary, Dr. H. C. Knapp, Maryland; treasurer, Dr. C. E. Brock, Maryland, and assistant secretary, Dr. J. W. Chambers, Maryland.

Hospital Staff Appointments.—The following have been appointed on the resident staff of St. Joseph's Hospital for the ensuing year: Dr. J. M. Lynch, senior resident surgeon; Drs. Bernard J. Wess and Sydenham Rush Clarke, resident physicians; Drs. Elmer H. Adkins and Frederick W. Davis, resident surgeons; Dr. H. C. Irwin, resident gynecologist; Dr. Eugene Hayward, pathologist; Dr. H. E. Ashbury, in charge of *x*-ray work. The dispensary staff consists of Drs. John S. Fischer, Eugene L. Crutchfield, physicians, and Drs. Joseph E. Gately, Frank E. Brown, M. J. Cromwell, surgeons.——The following appointments of assistant residents have been made at the University of Maryland Hospital: Physicians, Drs. R. C. Metzel, R. P. Bay and J. H. Smith, Jr.; surgeons, Drs, J. W. Pierson and J. G. Matthews; gynecologist, Dr. H. E. Jenkins.——At the Maternity Hospital Drs. R. L. Mitchell and W. B. Warthen were appointed residents.——At Bayview Hospital, Drs. S. L. Bare, W. Henry Smithson, Jr., W. J. Riddick and W. W. Brabham were appointed assistant residents.——The following appointments have been made at the City Hospital: Drs. A. W. Deal, J. C. Fisk, J. J. Boucher, M. J. Nestor, J. H. Harbman, F. P. Bledsoe, G. C. Berkheimer, A. W. Brinham and Robert Wriston.——At the Maternity Hospital Dr. W. A. Dorsey.

MASSACHUSETTS.

Personal.—Dr. Edward M. Frissell, Webster, has been made town physician of Dudley.——Dr. Edward B. Lane, displaced by politics from his position of superintendent of the Boston Insane Hospital, has taken up his residence in Wellesley Hills.

Loses Suit Against Physician.—In the suit of Lucinda Gerrish, administratrix of the estate of the late William R. Gerrish, against Dr. Robert Provan, Boston, in which $10,000 damages was claimed on account of alleged negligence, the court found for the defendant.

Union Medicale of Fall River.—The French-speaking physicians of Fall River, where there is a large French-Canadian population, have organized a local medical society with the above name. Dr. Joseph B. Chagnon was elected president and Dr. Joseph E. Lanoie, secretary.

State Society Meeting.—The one hundred and twenty-fourth annual meeting of the Massachusetts Medical Society is to be held in Boston June 13 and 14. The section meetings of June 13 will be held in the medical library. The Shattuck lecture in the evening of this day will be by Russell H. Chittenden of Yale, in "Some Problems of Intermediary Metabolism," and will be followed as usual by the president's recep-

tion. Instead of the usual papers of the second morning there has been arranged a series of demonstrations of clinical and laboratory methods. In booths in the Mechanics' Building prominent specialists will explain to visiting physicians the methods they employ. The ear, skin diseases, physical diagnosis in medicine and in surgery, pathologic anatomy, *x*-ray, nose and throat, urine, bacteriology, blood, legal medicine, sputum, feces, gastric and bladder diagnosis, genitourinary and neurology, will each have the latest possible practical demonstration. The annual discourse, which comes at noon, will be by Dr. Charles A. Drew, State Farm, Bridgewater, and will be followed by the annual dinner.

NEW HAMPSHIRE.

Gift to Hospital.—Mr. and Mrs. Edward Tuck have given $10,000 to the building fund of the Exeter Cottage Hospital.

Dartmouth Commencement.—At the one hundred and eighth annual commencement exercises of Dartmouth Medical School, Hanover, a class of 12 was graduated.——A new medical building, to cost $30,000, is to be erected this summer, adjoining the present college building.

Dartmouth Alumni.—The alumni of Dartmouth Medical College have elected the following officers: President, Dr. Ezra Mitchell, Lancaster, N. H.; vice-presidents, Dr. W. A. Negrattis and Dr. Roy V. Baketel, Manchester, and secretary and treasurer, Dr. Howard N. Kingsford, Hanover.

Military Medical Officers.—The officers of the New Hampshire Association of Military Surgeons for the coming year are: President, Dr. Ezra Mitchell, Lancaster; vice-presidents, Drs. George Cook, Concord, and Orlando B. Douglass, Concord; treasurer, Dr. Granville P. Conn, Concord, and secretary, Dr. Ferdinand A. Stillings, Concord.

State Society Meeting.—The one hundred and fourteenth annual meeting of the New Hampshire Medical Society was held May 18 and 19 at Concord. A program of fourteen papers on various topics was provided. The following officers were elected: President, Dr. Ferdinand A. Stillings, Concord; vice-president, Dr. Ira J. Prouty, Keene; secretary, Dr. Granville P. Conn, Concord; assistant secretary, Dr. Loren A. Sanders, Concord; treasurer, Dr. David M. Currier, Newport; anniversary chairman, Dr. Forrest L. Keay, Rochester, and necrologist, Dr. Eli E. Graves, Penacook.

NEW YORK.

County Society Gets Fee.—Judge Childs has ordered the treasurer of Erie County to turn over to the Erie County Medical Society the $250 fine collected from Mrs. Louisa Busch, Buffalo.

Unlicensed Practitioners Fined.—On complaint of the Franklin County Medical Society, "Dr." D. G. Becker, a Malone dispenser of "cure-all," was arrested, charged with practicing medicine without a license, pleaded guilty, was fined $30, paid the fine, and agreed to discontinue the practice.——Mrs. Louisa Busch, Buffalo, who was recently convicted of practicing medicine without a license, was sentenced to pay a fine of $250 or to be committed to the penitentiary one day for every dollar of the fine left unpaid.

Bills Signed by the Governor.—The most important bill signed by the governor during the past week was one which repealed the law of 1902, which centralized the control of the state hospitals for the insane in the State Commission of Lunacy at Albany and substituted boards of visitation for local boards of managers for each hospital. Among other bills signed were that of Assemblyman Fish authorizing the transfer of inmates of state charitable institutions by the State Board of Charities, one providing that a district attorney must prosecute a person illegally practicing as a physician, one making it a misdemeanor for consumptives at a sanatorium not to obey local health regulations, and also one providing that poison shall not be sold unless properly labeled and the sale recorded.

New York City.

Fresh Air Charity.—The board of directors of the Fresh Air Charity have announced that the institution at Rockaway Park will be open to the poor sick children of the city about June 8. Steps have been taken toward the erection of needed buildings.

Scarlet Fever Hospital.—Although 3,000 invitations were sent out to the formal opening of the Kingston Avenue Hospital, Brooklyn, which took place May 13 and 14, fear of infection was probably the cause of the failure to appear of 2,950 of the invited guests. Patients were admitted May 15.

Contagious Disease.—There were reported to the Sanitary Bureau for the week ended May 13, 742 cases of measles, with 14 deaths; 474 cases of tuberculosis, with 195 deaths; 312 cases of diphtheria, with 36 deaths; 235 cases of scarlet fever, with 13 deaths; 136 cases of cerebrospinal meningitis, with 88 deaths; 37 cases of typhoid fever, with 3 deaths, and 129 cases of varicella.

To Test Pasteurizing Plant.—Under the auspices of the Health Department, there will be a test of the new pasteurizing apparatus brought from Germany at the Nathan Strauss Milk Laboratory. Dr. Park will introduce germs of tuberculosis, diphtheria and scarlet fever into the milk. It will then be placed in the pasteurizer and analysis will be made immediately after it passes through the process.

Notice from the Milk Commission.—The Milk Commission of the Medical Society of the County of New York has sent out a notice to the effect that, while it has supervision only of that portion of a dealer's milk which carries certification, it does not intend to allow a dealer known to have adulterated milk to sell certified milk. Eight dealers on the East Side have been fined sums varying from $15 to $50 for selling adulterated milk during the past week.

Praise for Quarantine.—The consulting board of the health officer of the port of New York, consisting of Drs. Joseph D. Bryant, Edward G. Janeway, Herman M. Biggs, George L. Peabody, Francis P. Kinnicutt, John H. Girdner, James W. McLane, Richard H. Derby, William M. Polk, John W. Brannan, and T. Mitchell Prudden, visited Quarantine May 13 and made a careful inspection of the station, hospital and laboratory. The board passed a formal resolution of approval of the high standard of efficiency maintained by Dr. Doty. Dr. Doty's administration is especially noteworthy, according to these resolutions, in the recognition of the fact that it is in the infected man and his immediate surroundings that danger lies, and not in the ship with its cargo and healthy passengers; in the systematic use of the clinical thermometer for the detection of early and obscure phases of infection; in the application of scientific sanitary measures adapted to each special form of infectious disease; in the efforts to ameliorate the hardships of detention; and in the unwearied efforts, through laboratory research, to add to the knowledge of useful practical sanitation.

PENNSYLVANIA.

Physician Exonerated.—Dr. George H. Marshall, Pittsburg, was exonerated, May 15, of the charge of improperly treating Mary Clifford, a young woman who died at the East End Hospital, April 2, under suspicious circumstances.

Gift to Hospitals.—A philanthropist, who desires that his name be not mentioned, has given $10,000 to the Oil City Hospital for a nurses' home. Grandview Sanitarium for Consumptives received $1,000 from the same individual.

Philadelphia.

Bequest.—By the will of Henry F. Louchheim, the Jewish Hospital, the Jewish Maternity Hospital, the Jewish Foster Home, and the United Hebrew Charities each receives $1,000.

Alumni Meeting.—The annual meeting of the Alumni Association of Jefferson Medical College will be held in the amphitheater of the Jefferson Medical College Hospital June 1. The meeting will be presided over by Dr. Jonathan C. Biddle, Fountain Springs, president, and officers will be elected for the coming year. The annual dinner will be held in the evening.

Women Graduate.—The fifty-third annual commencement of the Woman's Medical College of Pennsylvania was held May 17, when 42 women received degrees. The degrees were conferred by the president of the Board of Corporators, Mrs. Mary E. Mumford. The oration to the class was delivered by Mr. Franklin Spencer Edmonds. Eleven states were represented, and there was one student each from Canada, Chili, China, and Turkey.

Health Report.—The deaths reported for the week ended May 20 reached 456, an increase of one over the number reported last week and a decrease of 21 from the number reported for the corresponding period of last year. There was a marked decrease in the total number of contagious diseases and deaths therefrom as compared with last week, there being 103 new cases of typhoid fever and 16 deaths due to the malady this week, against 155 cases and 23 deaths last week. The principal causes of death were as follows: Typhoid fever, 16; pulmonary tuberculosis, 71; cancer, 23; apoplexy, 15; heart disease, 34; acute respiratory diseases, 50; enteritis, 26; Bright's disease, 34. The total number of

contagious disease cases aggregated 193, with 19 deaths, as compared with 240 cases, with 36 deaths, for the previous week.

Sickness Among Infants in 1904.—During the summer of 1904 the assistant medical inspectors of the city made a series of house-to-house visits, primarily for vaccinations. In all 27,000 homes were visited. In the course of this work they made a systematic inquiry into the health, sanitary environment and alimentation of all infant inmates up to 2 years, tabulating the facts elicited in each case. A synopsis of these reports in the case of 3,374 babies is given in the following table:

DIET.	Well.	Diseases Caused Probably by Indiscreet Diet.	Account Specific Disease.	Diathetic.	Unclassified.	Total Sick.	Percentages.
Raw milk	500	39	3	1	2	45	8
Mother's milk	1592	58	2	2	7	69	4
Sterilized milk	87	25	.....	.....	.....	25	23
Pasteurized milk	14	5	.....	.....	.....	5	26
Patented foods	47	18	.....	.....	.....	18	27
Table diet	659	53	6	1	7	67	9
Condensed milk	211	27	1	.....	7	35	14
Totals	3110	225	12	4	23	264	8.5

Vaccinated prior to visit of inspector	578
Vaccinated by the inspector time of visit	285
Those having had variola	2
Not vaccinated at all	2509

From the high percentage of sickness shown among children fed on sterilized and pasteurized milk, it would be easy, if certain important facts were overlooked, to draw an erroneous conclusion. The authorities of the Health Board, however, think that there can be no doubt that modified milk properly pasteurized is the best diet for artificially fed infants. Infants were not ill because they were so fed, but were fed in this manner because of illness. In many cases the diet had been prescribed on account of illness due to previous improper feeding. In most cases the approved diet had been prescribed only a short time before the visit of the inspector. The comparative immunity which nursing infants seemingly enjoyed from acute specific diseases is shown by this table compiled by the health bureau. The authorities state that these maladies usually reach their minimum during the summer months, and a just basis of comparison is hardly afforded by a table compiled at this time. Yet the small number of cases of such diseases among the large number of infants included in this table is striking.

UTAH.

Personal.—Dr. and Mrs. Frederick D. Bickford, Salt Lake City, leave about June 2 for Europe.

Smallpox in Salt Lake.—On May 16, 8 cases of smallpox, 5 of which were in one family, were reported to the Salt Lake City Board of Health.

Hospital News.—Cache Valley Latter Day Saints' Hospital, Logan, was formally dedicated and opened May 4. The hospital will accommodate 50 patients.——St. Mark's Hospital Society has been organized in Salt Lake City.

State Board Organization.—The State Board of Medical Examiners met April 7 in Salt Lake City and organized, electing the following officers: President, Dr. Elias S. Wright, Salt Lake City; secretary, Dr. Robert W. Fisher, Salt Lake City, and treasurer, Dr. Amasa S. Condon, Ogden.

VIRGINIA.

Fined for Selling Cocain.—W. H. Mathews, Norfolk, was fined $100 and costs on April 15 for selling cocain to a colored woman.

Smallpox Hospital Burns.—The smallpox hospital of Elizabeth County was destroyed by fire April 22. There was one inmate, a negro, who has not been seen since, but "the authorities do not think he perished in the flames."

Must Report Contagious Disease.—An ordinance requiring physicians to report cases of contagious diseases and typhoid fever was adopted by the Richmond City Council May 12. The ordinance provides for a fine for each case. The object of the ordinance is to provide better arrangements for keeping the health statistics of the city.

New Virginia Physicians.—The sixty-seventh annual commencement of the Medical College of Virginia, Richmond, was held May 16, when a class of 38 was graduated, two of whom will not receive their diplomas until they attain their majority. Major Walter D. McCaw, surgeon U. S. Army, delivered the address of the evening.——University College of Medicine, Richmond, held its twelfth annual commencement exercises May 18, when a class of 77 was graduated. Dr. C. Alphonso Smith, of the University of North Carolina, delivered the address of the occasion.

Personal.—The class in medical jurisprudence at the Medical College of Virginia presented its professor, Dr. William H. Taylor, with a silver loving cup.——Dr. Charles C. Tucker, Blackstone, superintendent of the Roanoke Hospital, has resigned, and Dr. Thornton, of Charlottesville, succeeds him.——Dr. John F. Winn, Richmond, has been elected to the chair of clinical obstetrics in the University College of Medicine.——Dr. William D. Love, Winchester, was seriously injured in a runaway accident May 17.——The residence of Dr. John C. Anderson, Mineola, was burned April 21. Loss, $5,000, with no insurance.

GENERAL.

Yellow Fever Subsiding in Panama.—A recent cablegram from the canal zone states that no more deaths have occurred among the employes who were stricken with yellow fever May 3. The majority have recovered.

CANADA.

Subscription for Hospital in Labrador.—In addition to other sums secured by Dr. W. T. Grenfell for his medical missionary work, one gift of $5,000 has been made to aid in establishing a hospital on the southern coast of Labrador.

Appropriation for Toronto General Hospital.—The Ontario government will immediately place at the disposal of the University of Toronto $465,000, to be expended on necessary buildings, including a general hospital. Toward this latter Toronto will probably give $200,000. A site is already proposed near the university for the new hospital, which will afford the best facilities for clinical instruction.

Toronto Hospitals Too Crowded.—Dr. R. W. Bruce Smith, inspector of prisons and public charities in Ontario, in his annual report, refers to the need of greater hospital accommodation in Toronto. His official tour of inspection of the Toronto hospitals revealed the fact that unhygienic conditions prevailed in all in some quarters, particularly in the wards set apart for municipal patients. Last year the total expenditure for hospitals in Ontario amounted to $852,240.51, the provincial grant being $110,000.

Amalgamation of McGill and Bishop's Medical Faculty.—The medical faculties of Bishop and McGill's universities will unite June 30, 1905. According to the agreement, the students now at Bishop's will be received by the medical faculty of McGill University at eundem statem. The members of the medical faculty of Bishop's holding only degrees from that body are to receive the degree of M.D., C.M., from McGill, and all the members of Bishop's medical faculty are to be appointed on the staff of McGill.

Personal.—Dr. Allan McLaughlin, London, Ont., has been appointed head surgeon of the Marine-Hospital at Naples, in the service of the United States.——Dr. P. H. Bryce, chief medical officer of the Department of the Interior, Canada, has been on a tour of inspection of the Northwest territories, Manitoba and British Columbia. At the port of Vancouver he has appointed Dr. J. A. L. McAlpine local inspector of immigration, and hereafter all trains entering that city from the United States will be inspected in the same way as boats.

Quarterly Report of Montreal General Hospital.—The receipts for the first three months of this year amounted to $38,470, an increase of $3,781 over last year. The expenditure amounted to $25,644, an increase of $1,719 over the corresponding quarter of last year. The medical report showed that 731 patients had been treated during the quarter and that there had been 61 leaths, 14 occurring within three days of admission. In the out-door departments there had been 11,129 consultations, compared with 9,204 for the first quarter in 1904.

FOREIGN.

New Hygiene Institute in Berlin.—The Berlin University has recently dedicated a "Hygienische Institut" as part of

its teaching equipment. A bust of Pettenkofer was unveiled at the opening ceremonies.

Therapeutic Gardening.—Dr. G. Heimann of Berlin has made arrangements with certain gardeners in the city and suburbs to give employment, at certain hours, to persons suffering from nervous affections. He anticipates fine results from this systematic therapeutic gardening.

Russian Sanitariums for Mental Affections in Physicians and Nurses.—The *Russische med. Rundschau* states that the Russian government is planning the construction, at Irkutzk, Tomsk and elsewhere, of sanitariums for psychic affections in physicians and nurses from the seat of war.

Imprisonment for Medical Fraud in Germany.—The court at Landshut recently sentenced an irregular to four weeks' imprisonment for cheating. The suit was brought on account of his having treated a woman with gout by having her wear a "gout prayer," printed on a card which was pasted on her body. She was to wear the card until it dropped off. His fee for this treatment was $1.00.

Opening for Physicians in Russia.—The Russian authorities have decreed that duly accredited medical men and women will be allowed to practice in Russia, serving at the front or in the campaign against epidemic diseases. Since the war began, women physicians in Russia have been placed on exactly the same footing as the men in all respects. The graduates of the Woman's Medical College in St. Petersburg are now eligible to any official medical position open to their male confrères.

Suppression of Medical News in Russia.—The *St. Petersburg. med. Wochft*, states that the official report of the last national medical congress in Russia has been suppressed by the government. It also mentions that the authorities have forbidden the meeting of a certain public health society at which Dr. P. P. Rosanoff was to present the communication he had read at the recent anticholera medical congress at Moscow. The appeal to the government against the bureaucracy at this congress was editorially mentioned in The Journal April 15, 1905, page 1202.

The Waldfrieden Sanitarium for Male Inebriates.—This is the first public sanitarium for alcoholics in Germany and is said to be a model institution. It is located in the country not far from Berlin in large grounds and has 150 beds. Besides the home proper, where voluntary applicants are treated, there are several lock cottages which receive inmates with curable psychoses from abuse of alcohol, sent to the sanitarium from the insane asylums. The institution is in charge of a resident psychiatrist. The inmates, both voluntary and the confined, pay 75 cents a day.

Campaign Against Cholera in Russia.—The Institute of Experimental Medicine at St. Petersburg is conducting two cholera courses, of a month each, to train physicians for the struggle with cholera which it is feared is impending. It is said that from 150 to 200 physicians and medical students are attending these courses. After a week of lectures about 30 young men and women experienced in laboratory work are inoculated with plague and cholera vaccine. They then go to the laboratory connected with the institute, which is on an island off Cronstadt. Here they complete their practical studies in serum and vaccine treatment of these diseases. The director of this laboratory last year succumbed to laboratory plague infection, we remember.

Reception of the Visiting British Physicians in Paris.—A party of English physicians accepted the invitation of their French confrères and visited Paris May 10-11. A large number of pamphlets were printed and distributed among the guests, presenting in artistic manner information in regard to the medical institutions of Paris, their historical features, etc. After the visits to the hospitals and clinics, the receptions, banquet and theatrical entertainment, a special train will convey the party to Vichy, Evian and Lake Geneva, and a second special train has been arranged for the southwestern resorts, including Biarritz and Pau. The hospitals of Paris are in something of a transitional stage just now, as the authorities are reconstructing them, having appropriated $9,000,000 for the purpose, as previously mentioned in these columns.

Epidemic Cerebrospinal Meningitis in Germany.—The latest reports state that from March 27 to April 16 there were 585 cases in the Oppeln district of Upper Silesia, with 326 deaths. The circular, with instructions for recognizing and taking care of the disease, issued by the German government, is reproduced in the *Münch. med. Wochft.* for May 9. The instructions are practically the same as those issued in this country. Several scattered cases have been reported in Berlin. Ghon has been studying the epidemic in Austrian Silesia, and states that he found only two instances in which there were 2 or 3 cases in one family. In all the other cases the epidemic did not spread from house to house or along a street, but the cases developed scattered here and there. In the 912 cases in Galicia, 819 were children, and the mortality was 40 per cent. There have been 7 cases in Vienna to date, and some in southern Austria.

Sanitary Agreement Between France and Italy.—The French government has invited the Italian government to establish a sanitary agreement, based on the International Sanitary Convention of Paris, Dec. 3, 1903, stipulating that both countries shall recognize and admit the efficacy of sanitary measures taken in each other's country, on board of ships coming from ports infected with plague and cholera. This measure will insure for a ship coming, for example, from India and having been subjected to the necessary sanitary measures in an Italian port, free pratique in a French port without further restriction, and vice versa. The proposed agreement would constitute a notable advantage to the commerce and navigation of both countries, and the invitation has been willingly accepted by the Italian government. The director general of public health in Italy (at present in Paris) has been authorized by the Italian government to negotiate with the French authorities in regard to this matter.—*Public Health Reports.*

Recent Decisions of the Prussian Medical Court of Honor.—Among the decisions handed down since last May is one imposing a fine of $15 and costs for the omission to duly notify the physician who had previously been treating the patient. The defendant's plea was that he had not definitely taken over the patient but merely treated him in a special instance. The court decided that the obligation of professional brotherliness imposed the necessity for notification under all circumstances. The same physician was acquitted on a second count of the same kind, as he was able to establish that the statements of the patient's family had justified him in the belief that the patient was no longer receiving medical attendance from the first physician. In another instance a physician was fined for advertising his sanitarium in an organ unworthy of professional recognition. Another decision was to the effect that the individual pecuniary needs of a physician can not be regarded as any excuse for opening an office in a place where he does not reside and which is already sufficiently supplied with physicians' offices. Another physician was fined $250 and costs and deprived of the privilege of voting in the medical chamber for five years. His offence had been unethical advertising and criticism of the methods of his colleagues.

Fifth International Congress of Psychology.—This congress opened at Rome April 26. Professor Bianchi, minister of public instruction, presided, and addresses were made by Janet, official delegate from France, author of "Causes Célèbres," Henschen from Sweden, Motora from Japan, Ingenieros from Argentine, Vaschide from Roumania, Gheorgor from Bulgaria, Hermanides from Holland, and others. Ottolenghi of Rome presented a communication on "Measurement of Pain," with an apparatus for the purpose, in which the pain is measured by the response to the faradic current. Roncoroni of Cagliari stated that he had examined 400 individuals supposed to be mentally sound, and had found that only 25 per cent. of the women and 5 per cent. of the men were absolutely free from some psychic anomaly. Flechsig's address on the mechanism and localization of psychic activity aroused a lively discussion, Henschen and Mangazzoni disputing his views. Sciamanna reported some interesting and instructive experiments on monkeys. Lipps' address on the impossibility of explaining the facts of consciousness by physiologic data attracted great attention, as he is known to be one of the best students of the physiology of the brain, being in charge of an institute for experimental psychology. The *Gazzetta degli Ospedali* for May 4-9 has a report of the proceedings.

Sequel to Jacob's "Pulmonal Infusion."—The Journal mentioned, on page 557 of the last volume, the sensation caused in Berlin by Jacob's treatment of tuberculosis of the lungs by infusion of tuberculin directly into a lower bronchus, with or without tracheotomy. He was said to have suppressed facts in his reports, and to have directly hastened the death of two of the patients thus treated. Suit was instituted against him, and he lost his position as physician to the Charité Hospital. The irregulars took the matter up, and appealed to the authorities to punish him for homicide. The court recently formally acquitted him, stating that there was nothing to prove that he had hastened the death of one of the patients, while this was directly disproved in the other instance. His name, con-

sequently, appears again on the list of privat docents. The "nature healers" recently announced a public discussion of the Jacob case, inviting him to be present. He did not accept the invitation, but sent a letter in which he denied all criminal experimentation, and stated that now that his reputation had been cleared by the testimony of experts he intended soon to enter the lists in a scientific field, and refute his detractors. The "nature healers'" assembly passed resolutions asking the authorities to publish in full the testimony of the experts, and the other details in the case, and protesting against his retention as privat docent in the university.

Conference of the International Association of the Medical Press.—This association is thus far almost entirely European, and the officers make an urgent appeal to American editors for their co-operation. The official conference of delegates was held at Berne in April. France was represented by Doléris of Paris and Blondel, who is the general secretary of the association and has charge of the scientific information bureau in the Sorbonne building at Paris. England was repsented by Mr. Smith, editor of the *Lancet*; Italy by Bossi of Genoa; Spain by Larra of Madrid; Portugal by Bombarda of Lisbon, secretary general of the approaching International Medical Congress; Belgium by Pèchère of Brussels, and Switzerland by Jaquet of Basle, editor of the *Corr.-bl. f. Schweiz. Aerzte*. The president of the International Association of the Medical Press, Cortezo of Madrid, was unable to be present owing to his recent appointment as minister of public instruction. His place was filled by Posner of Berlin, editor of the *Berl. klin. Wochft.* It was decided to publish an annual report of the transactions of the association with periodical bulletins. Identification cards are also to be supplied to members, which may prove useful in traveling in foreign countries. The next regular meeting of the association will be an informal gathering before the opening of the approaching International Medical Congress at Lisbon. The principal subject to be discussed and arranged then will be the participation of the medical press in international congresses. The presence of the general secretary of that congress was regarded as a happy omen of a change for the better in this respect. An international code of ethics for the medical press is being prepared. The habit of sending an article for simultaneous publication in several journals is one of the practices condemned. Other subjects that were discussed were the right of property in literary works, articles for advertising purposes, and the free medical journals, which are numerous in France and which offer serious competition to the legitimate medical periodicals.

Association News

Chicago Medical Society Train to Portland.

The Chicago Medical Society has completed arrangements for a special train which will leave Chicago July 6 at 7:30 p. m. and will arrive at Portland at 8 a. m. Monday, July 10. This train goes by the Chicago, Milwaukee and St. Paul and the Northern Pacific railroads, and passes the mountain ranges in the west, such as the Rocky Mountains, Bitter Root Range, Mission Range and Cascade Range, in addition to traveling at least 1,000 miles along rivers and lakes between Chicago and Portland, and passing such cities as St. Paul, Minneapolis, Fargo, Helena or Butte, Spokane, Seattle and Tacoma. The beautiful Puget Sound country is passed en route, as well as the large wheat fields of the north, including the famous irrigation ditches and irrigation localities. This train will consist of Pullman cars, dining car, baggage car, and Pullman observation car. This will be a specially conducted party, and the train will run solid from Chicago to Portland, making sight-seeing stops en route, including a two-hour stop at St. Paul and a three-hour stop at Spokane. Reservations for sleeping accommodations may be made by applying to the secretary of the society, Dr. Frank X. Walls, 103 State street, Chicago.

Marriages

BENJAMIN BAKEWELL, M.D., Oakland, Cal., to Miss McElrath.

JULIUS BRODER, M.D., to Mme. Malvine Lobel, both of New York City, May 12.

FOSS SCHENCK, M.D., Cincinnati, to Miss Adelaide Cox, at Colona, Ind., May 3.

FRED M. ANDERSON, M.D., to Miss Nellie McColm, both of Gravity, Iowa, May 10.

ANDREW J. ROBINSON, M.D., to Miss Emily Parsons, both of Aspen, Colo., May 4.

HARRY K. STONER, M.D., Berlin, Pa., to JESSIE BOGGS, M.D., of Cleveland, Ohio, May 9.

CHARLES E. HEARTSILL, M.D., to Miss Vernie Hefner, both of Marshall, Texas, May 18.

GEORGE L. MCBRIDE, M.D., to Mrs. Lillian Storrs, both of Grand Rapids, Mich., May 9.

EDWIN M. MENDEL, M.D., to Miss Loretta Eleanor Jefferson, both of New York City, May 10.

ROY CRUSE, M.D., Iron Mountain, Mich., to Miss Anna Esterbrooks of Lead, S. D., May 12.

WILLIAM JUDSON ALLEN, M.D., Beloit, Wis., to JESSIE TEMPEST PETRIE, M.D., of Chicago, May 10.

ROBERT MCCHEYNE GLASS, M.D., to Miss Katharine Irvine Cover, both of Winchester, Va., May 10.

JOHN C. OUTHET, M.D., to Miss Gertrude Charlotte Paul, both of Chicago, at Rockford, Ill., May 5.

ARTHUR M. HARRISON, M.D., Bowling Green, Ohio, to Miss Herma J. Cuff of Napoleon, Ohio, May 10.

CHARLES C. FULTON, M.D., to Mrs. Alice Ferguson, both of Portsmouth, Ohio, at Covington, Ky., May 4.

JOHN FRANKLIN CRITCHLOW, M.D., Salt Lake City, to Miss Mary Edna Taylor, at Hailey, Idaho, May 17.

HARRY E. ROWAN, M.D., Punxsutawney, Pa., to Miss Mamie Brant Zepp of Baltimore, at Alexandria, Va., May 2.

WILLIAM ALBERT NASON, M.D., Roaring Springs, Pa., to Miss Sarah Jane Baughman of Blairsville, Pa., May 4.

Deaths

Alexander Allen Faris, M.D. University of Nashville Medical Department, 1868, for more than thirty years a member of the American Medical Association; a Confederate veteran, who lost his right arm in the service; the only physician who remained in Hickman, Ky., throughout the yellow fever scourge of 1878; one of the most prominent and beloved practitioners of Western Kentucky, died at his home in Hickman, May 12, from neurasthenia, after an illness of a year, aged 65.

James H. Hysell, M.D. University of Buffalo Medical Department, 1861, assistant surgeon of the Ninth Virginia Volunteer Infantry, and surgeon of the First West Virginia Veteran Infantry during the Civil War, and chief surgeon of the Second Division, First Army Corps, chief surgeon of Cienfuegos province and later medical disbursing officer at Santiago during the Spanish-American War, died at his home in Pomeroy, Ohio, from chronic malaria, May 10, aged 67.

John W. Bayne, M.D. University of Maryland School of Medicine, Baltimore, 1868, professor of clinical surgery in the University of Georgetown, president of the medical board of Providence Hospital, and major and brigade surgeon of volunteers in the Spanish-American War, died suddenly at his home in Washington, D. C., May 17, from disease of the throat, aged 59.

Alexander W. Rogers, M.D. College of Physicians and Surgeons in the City of New York, 1836, said to have been the oldest alumnus of that institution; for 67 years a practitioner of Paterson, N. J.; one of the founders of the Passaic District Medical Society; died at his home in Paterson, May 14, from acute kidney disease, after a short illness, aged 90.

William H. Thome, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, surgeon of the Twelfth Pennsylvania Volunteer Infantry during the Civil War, and thereafter a practitioner of Palmyra, Pa., died in the hospital at the National Soldiers' Home, Hampton, Va., from tuberculosis, after a long illness, April 19, aged 69.

Julius J. Boyle, M.D. University of Buffalo (N. Y.) Medical Department, 1869, a member of the American Medical Association, censor for his district of the Medical Society of the State of Pennsylvania, member of the Susquehanna County Medical Society, died at his home in Susquehanna, Pa., May 12, after a short illness, aged 58.

Edward Pelton Hayward, M.D. College of Physicians and

Surgeons in the City of New York, 1894, acting assistant surgeon, U. S. Army serving in Cuba, Philippine Islands and China; died, March 16, at the home of his mother in Nebraska City, Neb., after an illness of ten days, aged 32.

Hannah C. Rous, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886, a member of the American Medical Association, died at her home in Vevay, Ind., May 12, from cerebrospinal meningitis, after an illness of five weeks, aged 51.

Sarah G. Jones, M.D. Howard University Medical Department, Washington, D. C., 1893, said to have been the only colored woman holding a license issued by the Virginia State Board of Medical Examiners, died at her home in Richmond, Va., May 11.

Henry Joseph Halley, M.D. Jefferson Medical College, Philadelphia, 1856, a pioneer physician of Saline County, Mo., died at the home of his son in Kansas City, February 21, from paralysis, after an illness of three years, aged 71.

Pierre A. Marks, M.D. Miami Medical College, Cincinnati, 1867, assistant surgeon on the U. S. Gunboat *Fairplay* during the Civil War, died at his home in Chicago, May 12, from pneumonia, after an illness of three weeks, aged 61.

David H. Snowden, M.D. Jefferson Medical College, Philadelphia, 1858, died at his home in Sterling, Kan., March 25, aged about 60. He was to have been the president of the Guthrie (Okla.) University Medical Department.

John Franklin Johnston, M.D. Jefferson Medical College, Philadelphia, 1858, for many years a practitioner of Perrysville, Ohio, died at the home of his daughter in Columbus, Ohio, March 3, after a long illness, aged 70.

Louis B. Milliken, M.D. Medico-Chirurgical College of Philadelphia, 1900, formerly interne at the Altoona (Pa.) Hospital, died at the home of his brother in Silver City, N. M., after a long illness, May 6, aged 30.

Moses S. Hall, M.D., once president of the West Virginia Medical Association, and a graduate of a Louisville college, died near Parkersburg, W. Va., recently, from cancer, after an illness of two months, aged 81.

William H. White, M.D. University of Wooster, Medical Department, Cleveland, 1886, died at his home in Cleveland, May 13, from heart disease consequent on influenza, after an illness of several weeks, aged 66.

Bartlett J. Burke, M.D. University of Louisville Medical Department, 1849, died at his home in Lathrop, Mo., April 17, from uremia consequent on chronic prostatitis, after an illness of one month, aged 86.

B. J. Head, M.D. Medical College of the State of South Carolina, Charleston, 1846, for many years a practitioner of Barnesville, Ga., died at the home of his daughter in Lumber City, Ga., February 16.

Robert Emory Stobart, M.D. Starling Medical College, Columbus, Ohio, 1891, for several years health officer of Pomeroy, Ohio, died in that city, May 4, from tuberculosis, after a long illness, aged 38.

Hiram A. Cummings, M.D. Miami Medical College, Cincinnati, 1881, died at his home in Clear Spring, Ind., from valvular heart disease, April 20, after an illness of two years, aged 47.

John A. Hull, M.D. Jefferson Medical College, Philadelphia, 1859, in charge of the Confederate hospital at Hazlehurst, Miss., during the Civil War, died at La Monte, Mo., February 13.

Edward W. Altvater, M.D. St. Louis Medical College, 1859; assistant surgeon United States Army, 1863 to 1865, died from apoplexy at his home in Upper Falls, Md., May 15, aged 68.

Louis A. Jaegers, M.D., of New Albany, Ind., died at his father's home in Lafayette township, Floyd County, Ind., from disease of the stomach, after an illness of two years, aged 28.

Julian W. Deane, M.D. University of Georgetown Medical Department, Washington, D. C., 1868, died at his home in Deanwood, Washington, May 6.

Jacob W. Thompson, M.D. Starling Medical College, Columbus, Ohio, 1865, died from nephritis at his home in St. Paul, Minn, May 15, aged 69.

John C. Batchelder, M.D. Massachusetts, 1887, of Rockland, Mass., died in a hospital in Boston, May 11, after an operation for appendicitis, aged 71.

David G. Proctor, M.D. Jefferson Medical College, Philadelphia, 1875, died at his home in Thompson, Ohio, May 15, after a brief illness, aged 77.

Rufus Willard, M.D. New York University, New York City, 1861, a pioneer physician of Seattle, Wash., died recently and was buried, May 11.

Louis Frederick Hollands, M.D. Examination, Illinois, 1899, died at his home in Wheaton, Ill., February 21, from heart disease, aged 63.

William O. S. Piper, M.D. Baltimore Medical College, 1898, died at his home in Bellaire, Ohio, May 13, after a short illness, aged 34.

Joshua Bayley Gould, M.D. Vermont Medical College, Woodstock, 1850, of Somerville, Mass., died recently in Philadelphia, aged 85.

Joseph Bernard J. Hoeferlin, M.D. Chicago, 1898, died at his home in Chicago, May 12, from phthisis, after a short illness, aged 24.

Edson A. Jenkins, M.D. Ohio, died at Cottage Hill, Fla., April 19, from heart disease, after an illness of three days, aged 63.

Charles M. Neeld, M.D. Pennsylvania, 1886, died at his home in Scranton Pa., May 12, after an illness of four months, aged 49.

James M. Fickle, M.D. Cincinnati, 1878, died at his home in Stockwell, Ind., May 12, from uremia, after a short illness, aged 58.

Henry P. Merrill, M.D. Harvard University Medical School, Boston, 1867, died at his home in Portland, Me., May 11, aged 62.

J. A. Knighton, M.D. Flint Medical College of New Orleans University, 1900, died at his home in West Point, Miss., May 11.

Benjamin F. Josselyn, M.D. Chicago, 1878, formerly of San Francisco, died at his home in Ontario, Cal., February 23.

J. W. Harwood, M.D. Certificate, 1889, died at his home in Atwood, Tenn., January 14, aged 65.

Charles M. Koier, M.D. Illinois, 1883, died at his home in Chicago, May 15, from diabetes.

Book Notices

DISEASES OF THE SKIN, Their Description, Pathology, Diagnosis and Treatment, with Special Reference to the Skin Eruptions of Children and an Analysis of 15,000 Cases of Skin Disease. By H. Radcliffe-Crocker, M.D. (Lond.), F.R.C.P., Physician for Diseases of the Skin in University College Hospital. Third Edition, Revised and Enlarged. Special Illustrated Edition, with 76 Plates and 112 Illustrations. Vols. I and II. Cloth. Pp. 1466. Price, $8.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

This book is acknowledged as one of the best text-books on the subject in the English language. It is a safe, accurate, eminently practical and strictly modern treatise, well and clearly written by a man of large experience and of good judgment. Though thoroughly scientific it can be readily followed by the student as well as by the experienced dermatologist. The etiology, symptomatology, pathology and minute anatomy, constitutional conditions, diagnosis and treatment of each disease mentioned is fully covered. Dietetics and general management of cases receive due consideration. The newer remedies and bacteriologic researches in their bearing on dermatology are carefully set forth. Many valuable additions have been made to the text in this new edition, which brings the work up to date.

ELECTRICAL INSTRUMENTS FOR PHYSICIANS AND SURGEONS for Free Distribution. Chicago: R. V. Wagner Co. 1905.

While this is essentially a catalogue, it differs in character from the usual style of such publications. In addition to a complete and well-illustrated list of instruments and other electrical appliances, the book contains short articles descriptive of the manner of using the various appliances. These make interesting reading and give the book a value for the physician beyond that of the average catalogue.

GYNECOLOGY. Medical and Surgical. Outlines for Students and Practitioners. By Henry J. Garrigues, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City. With 343 Illustrations. Cloth. Pp. 461. Price, $3.00 net. Philadelphia and London: J. B. Lippincott Co. 1905.

This book makes a good companion work to Garrigues' "Text-Book of Diseases of Women." The essential points in

gynecology are treated in a practical way, and minor operations which are liable to be undertaken by the general practitioner are described in detail. The illustrations are unusually good for a book of this kind.

ATLAS AND EPITOME OF OPERATIVE OPHTHALMOLOGY. By Dr. O. Haab of Zurich. Edited, with Additions, by George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. With 30 Colored Lithographic Plates and 154 Text Cuts. Cloth. Pp. 377. Price, $3.50 net. Philadelphia, New York. London: W. B. Saunders & Co. 1905.

The colored plates in this work are worthy of note; they portray the various ophthalmic operations most satisfactorily. There are also over 100 illustrations in the text, which is chiefly explanatory of the plates. Like the other books of this series, it should prove valuable to the general practitioner as well as to the specialist.

Miscellany

St. Louisians at Portland.—The indications are that the St. Louis delegation to the Portland session of the American Medical Association in July will be a record breaker, according to the *Medical Fortnightly.*

Metapsychics.—This new term has been used by Prof. C. Richet of Paris, who has recently been elected president of the Society for Psychical Research. He uses the term as an analogue to "metaphysics," to characterize the subconscious and occult phenomena—phenomena beyond the realm of consciousness.

Properties of Damiana.—John Uri Lloyd, in the *Pharmaceutical Record,* reports the results of his studies of damiana. He found that it is lacking in aphrodisiac properties and that the poorer classes of Mexicans use it as an ordinary domestic beverage, as we use tea or coffee. The studies of damiana were made in its natural habitat, Lower California and Mexico.

Bright's Disease.—Widal and his pupils have shown that aggravation of kidney disease sometimes follows the ingestion of salt and that the increase of albumin goes parallel with the increase of edema. Sicard (*Bulletin de la Société Méd. des Hopitaux de Paris*) reports a case in which this parallelism did not occur and the increased discharge of albumin was followed by no notable augmentation of body weight or of edema.

Nature's Laws.—I have done my best to disabuse the public of the erroneous and harmful view that a man may with safety constantly violate the laws of health, and that he subsequently can go to the doctor and "be fixed up" so that he shall escape the consequences. He may, it is true, receive temporary relief from ill feeling; but he should be made to realize that persistent evil-doing will inevitably lead to ultimate pathologic results, from which there is no relief except by death.—W. B. Ulrich, in his president's address before the Pennsylvania State Medical Society.

The Medical Man's Error.—I have a far greater respect for the ignoramus who, induced by the advertisements in almost every newspaper and magazine published, both secular and religious, purchases a bottle of Hartman's peruna, or Lydia Pinkham's vegetable compound, than I have for the doctor who is supposed to belong to a learned profession—a literary, scientific, logical and rational being—and who prescribes compounds of whose physiologic action, and even of whose composition he is as ignorant as of the pathologic condition he is guessing at.—Boothby, in *Wisconsin Medical Journal.*

Straining Professional Courtesy.—We learn that on May 15 an Italian physician of New York was arraigned on a charge of furnishing a death certificate in the case of a child he had never seen, who had died under the care of an unqualified quack. On the physician's counsel pleading in extenuation that such was the universal practice in the region . . . where the doctor lived, he escaped with a fine of $75 instead of a sentence to nine months' imprisonment, which the judge had first thought fit to impose on him. When we reflect on the chances to conceal crime developed by this amiable custom, it really seems as if the desire to help a needy comrade, qualified by the state or not, might lead to consequences in the highest degree detrimental to that *entente cordiale* that should always prevail between members of the medical profession and the police authorities.—*N. Y. Med. Journal.*

Postoperative Symptoms.—A Roumanian journal describes a number of apparently inexplicable symptoms developing after uneventful laparotomies. In one case a woman of 43, convalescing from a panhysterectomy, suddenly developed hemoptysis the fourth day and died in less than an hour. The lungs were sound. In another case hematuria, incontinence and diarrhea developed the third day after a similar operation. The hematuria subsided the seventh, the diarrhea not until the eleventh day. Other remarkable postoperative phenomena which the writer has observed are intestinal atony and occlusion, gastrointestinal hemorrhage, oliguria, atony and sudden death. His article is summarized in the *Münch. med. Wochft.* for April 4.

Campaign Against Malaria in Roumania.—Several hotbeds of malaria were selected for the campaign in Roumania, undertaken under the direction of Prof. V. Babes of Bucharest. He followed Koch's advice and administered 1 gr. of quinin daily for six to eight days to all those in whose blood the plasmodia were found. After the first week they took 1 gm. every ninth or tenth day for two months. Those who already displayed malarial symptoms took their dose of quinin five hours before the next attack was due. In prophylaxis of the well, every one took 1 gm. every ninth or tenth day for three months. In one community not a single case of malaria developed in 214 thus treated, while 15 cases occurred among 32 persons who did not take any quinin. In another community 1,800 persons were thus preventively treated and none contracted the disease, while there was a morbidity of 20 per cent. in the 800 not treated. In an article in the *Roumania Medicala,* summarized in the *Münch. med. Wochft.* of April 4, he explains the beneficial action of the quinin given in this way as due to the fact that the plasmodia in the blood are destroyed by it, and the mosquitoes biting the individual do not become infected. The prophylaxis was further aided by drainage or petrolization of standing waters.

Centralization of Governing Power Is Demanded.—Out of the multiplicity of associations should be evolved a single authoritative body with power to standardize and to equalize state examining boards and medical colleges, the latter in a way possibly slightly different than is now proposed. Let the colleges themselves be inspected and rated as are firms in the business world. As this method of reaching the colleges becomes more and more thorough, the less need will there be for state licensing boards, until finally their disbanding may be possible, a consummation devoutly to be desired. Smothering of exceptional teaching talent by limiting each professor to a rigid number of hours could be avoided by such a regulating board. If, for instance, an orthopedist can teach other parts of surgery, technically out of his branch, better than other surgeons of the institution, let him do this if the faculty so desire. Whether this central board should take the form of a department of the government in charge of a medical cabinet officer or should be a representative body chosen by the profession is a question for earnest deliberation. The American Medical Association could handle this matter, and in many respects is the proper body so to do. However that may be, we have at present no scheme to cast on the already troubled waters. The various organizations now attempting to solve the problem contain men of the highest acumen and probity and are fully competent to evolve a satisfactory solution. But they must get together.—*American Medicine.*

The Medical Profession—Shall It Be Organized?—There are still a few states that are holding out against the plan of reorganization of the American Medical Association. The objections advanced are those usually opposed to organization of any kind; for example, that the reorganization plan is one suggested by a few for the benefit of a few, and that the rank and file of the medical profession can hope for nothing better when the reorganization is complete than to be led about by the nose, with the rope in the hands of the men who

accomplished the establishment of the new order of things. To all who advance such arguments we would simply reply, Go to! All those who object to organization must necessarily do so as individuals and if they have any proposal to make looking to the welfare of the medical profession they must make such proposals also as individuals. In the meantime the American Medical Association is marching grandly by in regiments and companies, their leaders selected by every man who cares to cast his vote and their line of march determined by grand councils in which the best men from every company (if the local societies do their duty) have a voice and through whom every private in the ranks may bring his influence to bear on the questions that concern the organization as a whole. Those who maintain that these things can not be made to work out do so in the face of experience and knowledge. The fact that there have been corrupt municipal administrations has not yet been advanced by any but a deluded few as a reason for doing away with municipal organization altogether. It behooves every physician, every county officer and every state officer to realize what are the possibilities that lie before us with the perfect organization which has been planned. Already our JOURNAL of the American Medical Association and Dr. Charles A. L. Reed have become factors in national politics by a scathing arraignment of those persons responsible for the maladministration of the sanitary affairs of the Isthmian Canal Commission. This but serves as an example of what things may be done when the physicians of the entire country stand shoulder to shoulder for medical representation in the president's cabinet or, for example, for the election of our honorable ancestors to the Hall of Fame. Let the good work go on!—*Western Medical Review.*

Non-Contagiousness of Cancer.—A Paris medical society has been collecting the experiences of its 62 members in regard to the contagiousness of cancer. Out of the 62 replies to the question blank, 16 replied in the negative as knowing of no instance of possible contagion of cancer; 34 replied in the negative to all the questions except possible heredity. Only 1 knew of any cases of marital cancer. One wrote that he knew of a family of 4 sisters, not twins, who all had twin children. One succumbed to cancer of the stomach, one to a lung affection; the others are still living. Bleckmann stated that in an experience of 6,154 cancer subjects, observed between 1884 and 1905, only 4 instances were known in which cancer of the genitalia were observed on both husband and wife. Only 3 members knew of any cases of cancer occurring in persons who had tended cancer subjects; only 1 knew of any cases among neighbors or occupants of the same house. Only 2 knew of any cases of possible contagion between patient and physician. In respect to heredity, 46 knew of cases of possible direct heredity and 30 of collateral. Cases of other possible origin were known as follows: traumatism by 18; trophic disturbances, 5; malaria, 2; vegetables, 2; grief, 1, and animals, 1. The discussion in the society is published in the *Journal de Méd. de Paris* for April 9. One of the 3 members who related specific cases of contagion of cancer cited the experience of a surgeon who was removing a mammary cancer when the blood spurted and hit him in the nose. A fatal epithelioma developed later at this point. Another member knew of 2 cases of uterine cancer which might possibly have owed their inception to local treatment by a midwife who was tending a case of inoperable cancer at the time.

State Boards of Registration

COMING EXAMINATIONS.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Arizona April Report.—Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, April 3 and 4, 1905. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 10, of whom 7 passed and 3 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Buffalo	(1901)	78
University of Michigan	(1902) 83; (1904)	75
University Med. Coll. of Kansas City	(1899)	87.2
Jefferson Med. Coll.	(1903)	83.7
University of Southern California	(1904)	90.1
University of Texas	(1898)	79
FAILED.		
University of Glasgow	(1885)	..
Columbus Med. Coll.	(1881)	65
Hahnemann Med. Coll., Chicago	(1901)	55.9

West Virginia April Report.—Dr. H. A. Barbee, secretary of the State Board of Health of West Virginia, reports the oral and written examination held at Parkersburg, April 11-13, 1905. The number of subjects examined in was 9; total number of questions asked, 120; percentage required to pass, 75. The total number of applicants examined was 63, of whom 41 passed and 22 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Eclectic Med. Inst., Cincinnati	(1898)	75
Illinois Med. Coll	(1905)	79, 79
Ohio Med. Univ	(1903)	83
College of P. & S., Baltimore	(1902) 88; (1904)	75
Louisville Med. Coll	(1905)	82
Howard University	(1904)	77
Medical College of Ohio	(1904)	91
Starling Med. Coll	(1898)	87
Miami Med. Coll	(1903)	88
University of Virginia (1897) 88; (1899) 91; (1900) 84; (1903) 91; (1904) 84.		
University Coll. of Med.	(1900)	82
University of Maryland	(1904)	81
University of Baltimore	(1904)	77
Baltimore Med. Coll	(1902)	80
University of Nashville	(1905)	86
University of Berlin	(1903)	79
Maryland Med. Coll	(1902) 77; (1903)	76
Columbian University	(1902)	85
Sixteen undergraduates also passed.		

FAILED.

Representatives of the following colleges failed, no percentages were given:

Louisville Med. Coll. (1898), Kentucky School of Med. (1898-1904), Hospital College of Med. (1904), University of the South, 2 (1904), Baltimore Univ. School of Med. (1903). Fifteen undergraduates also failed.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending May 20, 1905:

Moseley, E. B., deputy surgeon general, ordered to make medical and sanitary inspection of several posts in Department of Colorado.

Kean, J. R., surgeon, ordered to proceed to Panama to confer with Colonel Gorgas, asst.-surgeon general, pertaining to the purchase of medical supplies for the Department of Health of the Government of Isthmian Zone.

Adair, Geo. W., deputy surgeon general, promoted to colonel and asst.-surgeon general, to date from April 6, 1905.

Gray, Wm. W., deputy surgeon general, promoted to lieutenant colonel and deputy surgeon general, to date from April 6, 1905.

Woodson, R. S., surgeon, promoted to major and surgeon, to date from April 6, 1905.

DeLoffre, Samuel M., asst.-surgeon, relieved from duty at Fort Assinniboine, Mont., and ordered to Fort Schuyler, N. Y., for duty.

Bruns, E. H., asst.-surgeon, ordered to proceed from Brookville, Ind., and report to commanding general, Department of California, for duty at Sequoia or National Park, Cal.

Gibner, Herbert C., asst.-surgeon, ordered to proceed from Bridge-

port, Conn., and report to commanding general, Department of California, for duty at Sequoia or National Park, Cal.

Mason, Chas F., surgeon, and Rhoads, Thos. L., and Ekwurzel, Geo. M., asst.-surgeons, detailed members of a board of medical officers to meet at West Point, N. Y., June 1, 1905, for the physical examination of the cadets of the graduating class at the U. S. Military Academy, and such other cadets and such candidates for admission to the academy as may be ordered to appear before it.

Hall, John D., asst.-surgeon general, granted thirty days' leave.

Palmer, Fred W., asst.-surgeon, left U. S. Rifle Range, Arcadia, Mo., on ten days' leave of absence.

Cole, Clarence L., asst.-surgeon, appointed first lieutenant, asst.-surgeon, to rank from May 10, 1905.

Duncan, Wm. A., asst.-surgeon, recently appointed, ordered to Fort Leavenworth, Kan., for temporary duty.

White, J. Samuel, contract surgeon, returned to Fort Snelling, Minn., from detached service at Camp Lakeview, Minn.

Sparrenberger, Frederick H., contract surgeon, ordered from Fort Mott, N. J., to Sea Girt, N. J., for duty during the target practice.

Pinkston, Omar W., contract surgeon, ordered from Washington, D. C., to Fort Mansfield, R. I., for duty.

Probert, Merton A., contract surgeon, returned to duty at Fort Crook, Neb., from leave of absence.

Wolven, F. Homer, dental surgeon, ordered from Fort Adams, R. I., to a tour of duty at the posts in the Artillery District of Portland, beginning with Fort Williams, Maine.

Foster, Douglas E., dental surgeon, ordered from Fort Slocum, N. Y., to Fort Jay, N. Y., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending May 20, 1905:

Bertolette, D. N., medical director, commissioned medical director with rank of captain, from April 5, 1905.

Beyer, H. G., medical inspector, commissioned medical inspector with rank of commander, from April 5, 1905.

DeValin, C. M., surgeon, commissioned surgeon, with rank of lieutenant commander, from Jan. 31, 1905.

Guest, M. S., surgeon, commissioned surgeon, with rank of lieutenant commander, from March 3, 1903.

Warner, R. A., and Stalnaker, P. R., asst.-surgeons, commissioned asst.-surgeons, with rank of lieutenant (J. G.) from May 3, 1905.

Vickery, E. A., asst.-surgeon, detached from the *Southery* and ordered to the *Franklin*.

Hoen, W. S., asst.-surgeon, detached from the *Oregon* and ordered home.

Wilson, H. D., surgeon, commissioned surgeon, with rank of lieutenant commander, from March 31, 1903.

Dunn, H. A., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from June 7, 1904.

Tolfree, H. M., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from June 14, 1904.

Webb, U. R., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Oct. 11, 1904.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 17, 1905:

Gassaway, J. M., surgeon, granted leave of absence for four days from May 23.

Light, S. D. W., acting asst.-surgeon, granted leave of absence for six days from May 2.

Malony, J., acting asst.-surgeon, granted leave of absence for thirty days from July 1.

Gibson, F. L., pharmacist, department letter granting Pharmacist Gibson leave of absence for twelve days from May 6, 1905, revoked.

BOARD CONVENED.

Board to meet at Baltimore, May 12, 1905, for the physical examination of cadets, Revenue-Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman; Asst.-Surgeon W. H. Frost, recorder.

APPOINTMENT.

Dr. Simon P. Brooks appointed acting asst.-surgeon for duty at Memphis, Tenn.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended May 20, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, May 6-13, 6 cases.
Florida: Jacksonville, May 6-13, 12 cases.
Illinois: May 6-13, Chicago, 33 cases, 1 death; Galesburg, 1 case.
Louisiana: New Orleans, April 29-May 13, 23 cases, 1 death. Two cases imported.
Massachusetts: Lowell, May 6-13, 2 cases; Quincy, April 29-May 6, 2 cases.
Michigan: Detroit, April 29-May 13, 5 cases, 1 death; Grand Rapids, May 6-13, 15 cases.
Missouri: St. Louis, May 6-13, 12 cases, 1 death.
New Hampshire: Nashua, April 29-May 13, 5 cases.
New York: New York, May 6-13, 6 cases, 1 death.
Ohio: Cincinnati, April 28-May 5, 8 cases.
Pennsylvania: Lebanon, May 6-13, 1 case; York, April 29-May 13, 29 cases.
Rhode Island: Providence, May 6-13, 1 case.
South Carolina: Charleston, April 29-May 6, 2 cases; Greenville, April 20-May 6, 4 cases.
Tennessee: Memphis, April 29-May 13, 12 cases; Nashville, May 6-13, 2 cases.
Wisconsin: Milwaukee, April 29-May 13, 10 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, March 11-April 8, 3 cases.

SMALLPOX—FOREIGN.

Belgium: Ghent, March 25-April 1, 1 death.
China: Niuchwang, April 8, present; Shanghai, March 11-April 8, 3 cases among foreigners, 14 deaths, natives.
Ecuador: Guayaquil, April 18-25, 3 deaths.
Great Britain: Edinburgh, April 15-22, 1 case; Nottingham, April 22-29, 4 cases; Southampton, April 15-29, 1 case, 2 deaths.
India: Bombay, April 11-18, 95 deaths; Calcutta, April 8-15, 14 deaths; Karachi, April 9-16, 5 cases, 3 deaths; Madras, April 7-14, 5 deaths.
Italy: April 13-20, Ancona, 2 cases; Caltagirone, 4 cases; Catania Province, 23 cases; Cosenza Province, 3 cases; Lecce Province, 3 cases; Messina, 3 cases; April 15-22, Palermo, 6 cases, 1 death; Perugia Province, 3 cases.
Japan: Tokyo, April 8, 3 cases.
Turkey: Constantinople, April 16-23, 3 deaths.
West Indies: Grenada, April 6-14, 9 cases.

YELLOW FEVER.

Mexico: Tierra Blanca, State of Vera Cruz, April 23-May 6, 6 cases.
Panama: Colon, Jan. 23-April 6, 6 cases, 3 deaths; Panama, Jan. 1-April 29, 50 cases, 20 deaths.

CHOLERA.

India: Calcutta, April 8-15, 38 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, March 11-April 8, 8 cases, 7 deaths.

PLAGUE—FOREIGN.

Africa: East London, April 1-8, 1 case, 1 death.
Australia: Brisbane, April 1, 1 case; New Castle, April 3, 2 cases.
China: Amoy, May 10, present.
Egypt: April 1-8, Alexandria, 1 case; Magagha, 1 case, 1 death; Tukh, April 1-15, 4 cases, 4 deaths.
India: General, March 18-25, 61,688 cases, 53,895 deaths; Bombay, April 9-18, 979 deaths; Calcutta, April 8-15, 762 deaths; Karachi, April 9-16, 191 cases, 182 deaths.
Japan: Formosa, April 10, 19 cases, 6 deaths; Hiroshima, April 12, 1 death.
Peru: April 9-16, Chiclayo, 6 cases, 5 deaths; Lambayeque, 1 case; Lima, 4 cases, 3 deaths; Chepen, 1 death; Mollendo, 7 cases, 1 death.
Straits Settlements: Singapore, March 25-April 1, 1 death.

Medical Organization

Illinois.

URBANA MEDICAL AND SURGICAL SOCIETY.—This society was reorganized at Urbana, Ill., May 9, with the following officers: President, Dr. Charles A. Nichols; vice-president, Dr. Austin M. Lindley, and secretary-treasurer, Dr. Elijah S. Smith.

Indiana.

THIRD COUNCILOR DISTRICT MEDICAL SOCIETY.—The first annual meeting of the Third Councilor District of the Indiana State Medical Association was held at New Albany, April 20, Dr. Harry C. Sharp, Jeffersonville, presiding. The following counties were represented: Clark, Floyd, Washington, Orange, Dubois, Harrison, Perry and Crawford, Scott being the only county in the district not represented. The following program was rendered: Councilor's address, "Medical Organization," Dr. Harry C. Sharp, Jeffersonville; "Prostatic Cystitis," Dr. William N. Wishard, Indianapolis; "Expert Medical Testimony," Dr. William J. Purkhiser, Salem; "Postpartum Fever, Its Causes and Significance," Dr. Elihu P. Easley, New Albany; "Some Points in the Surgical Treatment of Gangrene," Dr. Charles P. Cook, New Albany; "Treatment of Fractures of the Patella," Dr. David C. Peyton, Jeffersonville; "Ups and Downs of the Profession," by Dr. Claud T. Hendershot, Cannelton; "Pericarditis with Effusion," Dr. W. M. Marshall Varble, Jeffersonville, and "Autointoxication," Dr. Davis L. Field, Jeffersonville. It was voted to hold semi-annual meetings. The society adjourned to meet in Jeffersonville, October 19.

Kansas.

WABAUNSEE COUNTY MEDICAL ASSOCIATION.—This association, whose preliminary meeting for organization was noticed in THE JOURNAL of May 6, met at Alma, May 9, and perfected its organization, electing the following officers: President, Dr. Colonel E. Smith, Alma; vice-president, Dr. Charles E. Menard, Maple Hill; secretary, Dr. A. A. Meyer, Alma; treasurer, Dr. George N. Jeffers, Eskridge; delegate to the state society, Dr. Owen E. Webb, Paxico, and censors, Drs. George W. Beverley, Alma, Owen E. Webb, Paxico, and A. A. Meyer, Alma.

RILEY COUNTY MEDICAL SOCIETY.—Physicians of Riley County met at Manhattan, February 21, and organized a medical society, with the following officers: President, Dr. Charles F. Little, Manhattan; vice-president, Dr. Lewis J. Lyman, Manhattan; secretary, Dr. James D. Colt, Jr., Man-

hattan; treasurer, Dr. George H. Litsinger, Riley; censors, Drs. Archibald G. Henderson, Leonardville, Claude A. Roberts, Randolph, and Warren D. Silkman, Manhattan, and committee on public health and legislation, Drs. Walter M. Reitzel, Cleburne, William A. McCullough, Manhattan, and Owen E. Edgerton, Randolph.

Mississippi.

TIPPAH COUNTY MEDICAL SOCIETY.—A number of physicians of the county met at Ripley, March 31, on call of Dr. Charles D. Mitchell, Pontotuc, councilor for the third district, and organized a county society. Dr. Charles M. Murry, Ripley, explained the objects of standard organization, and the following officers were elected: President, Dr. Charles M. Murry, Ripley; vice-president, Dr. James H. Pearce, Falkner, and secretary-treasurer, Dr. Robert M. Adams, Ripley.

Missouri.

CARROLL COUNTY MEDICAL SOCIETY.—This society was organized at Salisbury on the standard plan, by Dr. Jefferson D. Brummall, Salisbury, councilor for the second district, May 9. Dr. William C. Baird, Bogard, was elected president; Dr. Stonewall W. Miller, Norborne, vice-president, and Dr. Richard F. Cook, Carrollton, secretary.

KNOX COUNTY MEDICAL SOCIETY.—Physicians of the county met at Edina, April 24, and organized a county medical society with the following officers: President, Dr. Lewis S. Brown, Edina; vice-president, Dr. James Myers, Greensburg; secretary-treasurer, Dr. Henry Jurgens, Edina; censors, Drs. Albert R. Wilsey, Hurdland, James R. Northcutt, Knox City, and George S. Brown, Edina, and delegate to the state association, Dr. Henry Jurgens.

Montana.

PARK COUNTY MEDICAL SOCIETY.—This society has been organized at Livingston on the standard plan, with Dr. Robert D. Alton, Livingston, president; Dr. William P. Reynolds, Aldridge, vice-president, and Dr. John B. Beeson, Livingston, secretary and treasurer.

MADISON COUNTY MEDICAL ASSOCIATION.—This association was organized on the standard plan at Virginia City, May 3, with the following officers: President, Dr. Gay F. Tidyman, Ennis; vice-president, Dr. Peter J. Sheeran, Twin Bridges; secretary-treasurer, Dr. George H. Kennett, Virginia City, and delegate to the state association, Dr. Elmer Sutherland, Sheridan.

New Mexico.

OTERO COUNTY MEDICAL SOCIETY.—Physicians of Otero County met at Alamagordo, March 14, and organized a county society on the standard plan, and elected the following officers: Dr. C. H. Walderschmidt, Alamagordo, president; Dr. Otis W. Miller, Alamagordo, vice-president; Dr. E. B. Van Arsdell, Cloudcroft, secretary; Dr. George C. Bryan, Alamagordo, treasurer; Drs. Otis W. Miller, Alamagordo, Hyatt and Kirkpatrick, censors, and Dr. Jesse R. Gilbert, Alamagordo, delegate to the territorial association.

Ohio.

ROSS COUNTY ACADEMY OF MEDICINE.—Physicians of Ross County met at Chillicothe, May 3, and organized a medical society. Dr. Jefferson B. Scearce was elected president, Dr. John W. Maxwell, secretary, and Dr. John M. Leslie, delegate to the state association, all of Chillicothe.

MONROE COUNTY MEDICAL SOCIETY.—With the aid of Dr. James C. M. Floyd, Steubenville, the physicians of the county in convention at Woodsfield, May 5, organized a medical society on the standard plan with the following officers: President, Dr. William G. Webb, Cameron; vice-president, Dr. Alexander H. Korner, Woodsfield, and secretary-treasurer, Dr. Bessie Armstrong, Beallsville.

PORTAGE COUNTY MEDICAL SOCIETY.—Pursuant to the call of Dr. T. Clarke Miller, Massillon, councilor for the Sixth District, physicians of the county met at Ravenna, March 28, and reorganized the county medical society on the standard plan, electing the following officers: President, Dr. William G. Smith, Ravenna; vice-president, Dr. Emmett W. Price, Kent; secretary, Dr. George J. Waggoner, Ravenna; treasurer, Dr. Eugene B. Dyson, Rootstown, and Dr. Bayard T. Keller, Streetsboro, delegate to the state association.

NORTHEASTERN OHIO UNION MEDICAL ASSOCIATION.—At the one hundred and thirty-fourth quarterly meeting held in Akron, February 14, a motion to merge the association with the Ohio State Medical Association was unanimously carried, and it will hereafter form a part of the sixth councilor district. The following officers were elected: President, Dr. Frank C. Reed, Akron; vice-presidents, and the presidents of the component county societies; corresponding secretary, Dr. Charles W. Milliken, Akron; recording secretary, Dr. John H. Seiler, Akron, and treasurer, Dr. Harold H. Jacobs, Akron.

EIGHTH COUNCILOR DISTRICT MEDICAL SOCIETY.—This branch of the state association was organized at Zanesville, January 25, by the councilor, Dr. Edmund C. Brush, Zanesville. Dr. John D. Axline, Shawnee, was elected president; Dr. Charles H. Higgins, Sonora, secretary, and Dr. Fred W. Lane, Cambridge, treasurer. The vice-presidents for the counties making up the district are as follows: Athens County, Dr. Edmund F. Danford, Gloucester; Guernsey County, Dr. Frank M. Mitchell, Cambridge; Licking County, Dr. Ernest J. Barnes, Granville; Morgan County, Dr. Leroy S. Holcomb, Pennsville; Muskingum County, Dr. Abdul M. Templeton, Zanesville; Perry County, Dr. John D. Axline, Shawnee; and Washington County, Dr. Stephen A. Cunningham, Marietta.

Pennsylvania.

LAWRENCE COUNTY MEDICAL SOCIETY.—At the regular monthly meeting of this society at New Castle, May 11, Dr. J. N. McCormack, national organizer of the American Medical Association, delivered an address on organization.

South Carolina.

SPARTANBURG COUNTY MEDICAL SOCIETY.—At a meeting of the county medical society, held in Spartanburg, March 18, reoganization was effected with the aid of Dr. J. Wilkinson Jervey, Greenville, councilor for the fourth district. The following officers were elected: Dr. John O. Vernon, Wellford, president; Dr. Julian H. Allen, Spartanburg, vice-president; Dr. Oliver W. Leonard, Spartanburg, secretary; Dr. James L. Jeffries, Spartanburg, treasurer; Drs. Gaston D. Williams and Hugh R. Black, both of Spartanburg, delegates to the state association, and Drs. S. T. D. Lancaster, Pauline, George R. Dean, Spartanburg, and James L. Jeffries, Spartanburg, censors. The society starts with a membership of 34.

Texas.

UPSHUR COUNTY MEDICAL ASSOCIATION.—The physicians of Upshur County met at Ailmer, January 16, and organized a county association, electing the following officers: President, Dr. Thomas S. Ragland, Gilmer; vice-president, Dr. J. A. Carson, Rosewood; secretary-treasurer, Dr. W. P. Howard; censor, Dr. Charles L. Gregory, Gilmer, and delegates to the state association, Drs. John G. Daniels and H. J. Childress, both of Gilmer.

West Virginia.

PRESTON COUNTY MEDICAL SOCIETY.—Ten physicians of the county met at Tunnelton, pursuant to a call made by Dr. Milton H. Proudfoot, Rowlesburg, reorganized the county society, and applied to the state association for a charter.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Rhode Island Medical Society, Providence, June 1.
Arizona Medical Association, Prescott, June 1-2.
Minnesota State Medical Society, St. Paul, June 1-2.
American Laryngological Association, Atlantic City, June 1-3.
American Laryn., Rhin. and Otol. Society, Boston, June 5-7.
American Orthopedic Association, Boston, June 6-8.
Indiana State Medical Association, West Baden, June 7-9.
Maine Medical Association, Portland, June 7-9.
Wisconsin State Medical Society, La Crosse, June 8.
Amer. Assn. of Genito-Urinary Surgeons, Montreal, June 13-14.
Massachusetts Medical Society, Boston, June 13-14.
American Pedriatric Society, Lake George, N. Y., June 19-21.
Medical Society of New Jersey, West End, June 20-22.
Indian Territory Medical Association, Tulsa, June 20-22.
American Climatological Association, Detroit, Mich., June 28-29.
Michigan State Medical Society, Petoskey, June 28-30.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting, held at Washington, D. C., May 16-17, 1905.

FIRST SESSION.

President's Address.

DR. E. L. TRUDEAU, Saranac Lake, spoke briefly of the work of the association since its organization 19 years ago.

A Study of the Fear of Cats and the Power to Recognize Their Presence Unseen and Unheard.

DR. S. WEIR MITCHELL, Philadelphia, referred particularly to the 159 replies received to his request for information regarding instances of this power, about one-third being valueless for his purpose. The dread or fear of cats as such does not enter into this discussion. In some instances the results of the presence of cats come on instantaneously, in others the onset is slower. The manifestations vary in different persons, but may amount to chilliness, nausea, convulsions, and even temporary blindness. In one-fourth the cases collected, the condition is a family peculiarity; in one instance 5 of 7 members being affected. Sex has no influence, but the symptoms are more severe in women. Dr. Mitchell has not been able to verify the assertion that George Washington had this aversion to cats. Of the entire number collected, 31 persons are affected by the presence of a cat when the animal is neither seen nor heard. Some persons are thus affected at certain times and not at others. Symptoms thus induced are much the same as in cases in which the cat is seen or heard. Only 4 of the 31 patients say it is because of the odor of the animal; the remainder can not explan how they know of its presence. Dr. Mitchell is inclined to the view that emanations from the animals, not recognized by the olfactory nerves as odors, are responsible for the knowledge and its results. An instance supporting this view is that of one patient who, when young, could distinguish the presence of cats by smell; later she could not recognize any odor but could still detect their presence.

Intrapleural Lipoma.

DR. R. H. FITZ, Boston, said that lipomas may project into the pleural cavity from the diaphragm, costal wall, or mediastinum. The first is an anatomic curiosity. The costal lipoma may penetrate the chest wall and appear externally; three such tumors have been operated on with two deaths. Of the mediastinal type, three which penetrated the thoracic wall have been operated on, all the patients dying. Fitz adds a case of pedunculate intrapleural lipoma arising in the mediastinum, occurring in a young man of 24, who had an attack of lobar pneumonia. Delayed resolution pointed to a complication and signs suggestive of pericarditis developed. Effusion was suspected, and punctures in the fourth and fifth interspaces were made, both yielding no fluid. The chest was then aspirated with the idea of detecting an empyema, but no pus was obtained. Fat adhering to the needle suggested the possibility of a new growth. The patient finally died. A puncture was then made in the right xiphocostal angle and a pint of pus withdrawn. Autopsy showed pneumonia, purulent pericarditis, and a lipoma as large as a child's head situated as before described. The tumor explained the absence of the usual signs of pericarditis. The possibility of diagnosing such tumors by the presence of fat on the needle used for puncture is suggested. The most important point raised is the question of puncturing the pericardium at the point employed postmortem, especially in cases of suspected tumor. Fitz has punctured through the xiphocostal angle in two cases with no untoward results and other observers have reported cases. It seems desirable to use this route when fluid is not obtained by puncture elsewhere. An advantage is that if fluid be not obtained and drainage seems demanded, the puncture may be followed by incision, the insertion of a finger and evacuation and drainage as indicated.

DISCUSSION.

DR. JAMES EWING, New York, exhibited a specimen of lipoma obtained in the dissecting room. It consisted of five lobules, the size of goose eggs, united by connective tissue. It was in the lower part of the left pleura and was joined to the mediastinal tissue over the pericardium by fatty projections and thus partly surrounded the aorta; it also infiltrated the diaphragm. The lung was moderately compressed but not atelectatic. The heart muscle was flabby.

DR. WILLIAM OSLER, Baltimore, agreed with Fitz that in many cases puncture in the right xiphocostal angle is preferable. He observed the result of puncture at this point on bodies coming to postmortem in the Philadelphia Hospital, as to danger of wounding the liver, diaphragm, etc., and found these structures were not involved; in all instances of puncture high up in the angle the pericardium was readily reached. He has used this method on several patients, in one case removing a large amount of fluid when but little was obtained by punctures elsewhere. The liver is depressed, out of the way, when a large amount of exudate is present. Another point emphasized by him is that too frequently we let patients die from a large pericardial exudate, or at least with it. He can recall four or five cases in which this should have been removed, but was unrecognized antemortem. He believes we should more frequently use a small hypodermic needle to explore doubtful cases; no harm is done if the heart is punctured.

DR. G. L. PEABODY, New York, said that pneumonia differs in type in different years. In one case was a mass of fibrinous exudate so thick it could not be detected by a needle and could not have been removed at operation. He believes a safer rule for tapping is to wait until there is impairment of cardiac function; it is not judicious to tap for diagnosis or as a routine in pneumonia.

DR. T. M. ROTCH, Boston, considered the fifth interspace the best place to tap, especially in children.

DR. FITZ, in closing, said the special reason for using the xiphocostal route is that if fluid is not obtained and the symptoms indicate its presence, puncture may be followed by incision; in this way may be reached fluid not otherwise obtained because it is behind the heart.

Rhythmic Lateral Displacement of the Heart as a Sign of Unilateral Pleuritic Exudate.

DR. CHARLES LYMAN GREENE, St. Paul, in 1902 first called attention to this sign, the displacement being synchronous with respiration. Observations during the past three years confirm the original statements and show that the sign is of value in differential diagnosis. Cases were cited to show the application of the sign in pleural exudate, and its absence in other conditions. It is absent in subdiaphragmatic abscess, malignant disease of the lung and pleura, and in pneumothorax. It is best observed by the fluoroscope or by auscultatory percussion. The degree of effusion markedly influences the movement, trifling amounts of fluid failing to respond, and massive effusions showing a minimum displacement. Though sometimes obtained by inspection, such observation is subject to error. Right-sided effusions are more easily recognized. Deep respirations are necessary. Greene doubts that effusions cause the diaphragm to become immovable or to project into the abdominal cavity. He also takes issue with the statement that the fluoroscope is necessary accurately to determine the extent of cardiac displacement, auscultatory percussion and simple percussion having yielded outlines corresponding accurately to fluoroscopic findings. He concludes: 1. A rhythmic lateral movement of the heart occurs in unilateral liquid pleural effusions. 2. Such movement is most marked in medium-sized effusions. 3. The heart approaches the affected side in inspiration and moves outward in expiration. 4. The extent of movement is variable, but often amounts to two inches. 5. It may be measured by fluoroscopic examinations, auscultatory percussion, or in the case of right-sided effusions by simple deep percussion of the free cardiac border, or in some instances by mere inspection of the apex beat. 6. Deep breathing and especially forced expiration are essential to the success of the maneuver and, to obtain this, morphin must sometimes be administered.

Gonorrheal Septicemia and Endocarditis.

DR. W. S. THAYER, Baltimore, said the frequency of gonorrheal endocarditis is now well known, the symptoms differing in no way from those of cases due to other pyogenic organisms. In addition to 8 cases reported by other observers at the Johns Hopkins Hospital, he has seen 2, making a total of 10 cases. The important point is that acute urethritis is not

so infrequently followed by endocarditis. Of particular interest is a case seen last July. The patient was a man of 25, who gave a history of gonorrhea four years before, and was at the time he came under observation not fully recovered from an attack beginning three months previous. He had a fever which developed gradually and lasted for seven weeks. The general appearance was that of typhoid fever; the spleen was palpable and there were spots suspiciously like the rose spots of typhoid. The leucocytes ranged from 9,000 to 12,000, with a slight increase in polynuclears. On the twenty-first day, when they were about satisfied the case was one of typhoid fever, bacteriologic examination of the blood showed a pure culture of the gonococcus. No other lesion was to be found, hence the case was one of gonorrheal septicemia. The points to be noted in this connection are (1) mild continued fever may be the only evidence of a septicemia due to the gonococcus, and (2) gonorrheal septicemia, with no evidence of local complications, may run a course of long duration and closely simulate typhoid fever.

DR. WILLIAM OSLER said that in addition to these mild cases of gonorrheal septicemia of long duration and difficult to differentiate from typhoid fever, demonstration of the organism in the blood being the only method, there are cases of overwhelming intoxication from the gonococcus which at first may resemble typhoid. One case of this sort was mentioned, the patient dying within a week.

Fever in Chronic Endocarditis.

DR. J. S. THATCHER, New York, based his remarks on 901 cases. He divided them into three groups according to temperature range, those having a maximum respectively of 100, 101.5, and 103 degrees. In the first group were 316 cases. Of the 585 remaining, complications, such as articular troubles, petechial or other hemorrhagic eruptions, or frank signs of marked complications, ruled out 294, leaving 291 cases with the temperature above 100 degrees with no apparent explanation of the fever, except in a very few—the presence of bacteria. Of the 23 cases accompanied by hemorrhagic eruptions, 18 proved fatal, showing the seriousness of this type. Notwithstanding this, in the non-febrile group were 5 hemorrhagic cases. Autopsy showed that petechiæ are not necessarily associated with large fungating or ulcerating lesions of the valves, as 3 of 5 cases posted showed such lesions and 2 did not. Of the 291 cases with no distinct complication, 45 per cent. of febrile cases, 172 ranged from 100 to 101.5 degrees, 66 from 101.5 to 103 degrees, and 53 above 103 degrees. An interesting comparison between febrile and afebrile cases shows that in the two groups the percentage of cases with a previous history of rheumatism does not greatly differ. The effect on the kidneys, as shown by the presence of albumin and casts, was also nearly alike in the two series and the leucocyte counts did not vary greatly. As to mortality, the rheumatic cases with fever had a much lower death rate, 7 per cent., than the afebrile, 19 per cent. An interesting question is that of the form of lesion on the valve as compared with the clinical picture. The general rule is that those with fungating vegetations are more apt to be febrile and are also more fatal. To this rule are many exceptions. Of 104 autopsies, 70 on patients who showed no fever revealed either large vegetations or ulcerations; 4 which were called malignant had very slight vegetations.

DISCUSSION.

DR. A. O. J. KELLY, Philadelphia, said that studying endocarditis from the standpoint of general principles readily explains the presence of fever. Endocarditis is simply septicemia, the valve lesions being accidental instead of essential. Hence irregular attacks of fever in endocarditis are not uncommon and are to be expected. For the reason cited, small as well as large valve lesions produce fever. Recurrent attacks are due to recrudescence of the infective process.

DR. A. JACOBI, New York, said it is the custom to diagnose endocarditis because a murmur is present. Not all cases of murmur, even systolic mitral murmur, are endocarditis, many of them being due to myocarditis. Some of these may be traced for years; they may be better at times even to the extent of the murmur disappearing and then become worse. Cases of myocarditis are best diagnosed by the fact that hypertrophy is not present as a sequel of the murmur. In case of long duration the diagnosis of endocarditis should not be made unless hypertrophy is present.

DR. JAMES TYSON, Philadelphia, spoke of the relation between chronic endocarditis and petechial eruptions. A girl of 25, now under treatment, has frequently recurring petechial eruptions and subnormal temperature. The eruptions appear suddenly, are particularly marked on the legs and are invited by the upright posture. They disappear more slowly than they appear. The patient has inveterate but slight anemia.

DR. V. C. VAUGHAN, Ann Arbor, said that all bacteria lower the temperature of the person infected, the exact effect depending on the kind of germ and the rapidity with which it liberates toxins. This explains the usual difference between diphtheria and tonsillitis, the latter having the higher temperature. The lower the temperature in diphtheria the more dangerous is the case because of the rapidity of toxin liberation. For this reason it is not surprising that the death rate in the afebrile cases reported by Dr. Thacher was greater than in those with a higher temperature. William Osler said fever in endocarditis may be in the form of slight recurrent attacks due to little vegetations on old diseased valves, with acute malignant cases that terminate fatally, or in severe cases which end in recovery. One case had several attacks during fourteen years. Totally different are the cases of fever with chronic vegetative endocarditis in which there is nothing but the fever. Some cases last a year. He exhibited a temperature chart of a case lasting a year in which there was fever every day. No emboli were manifest. A mitral murmur was the same all the time. The heart showed chronic vegetative mitral endocarditis with but little erosion. He has had a series of cases, both mitral and aortic, the longest being thirteen months in duration. In these the fever dominated the whole picture. They belong to a type different from the others; they can not be called malignant.

DR. F. P. KINNICUTT, Boston, called attention to the fact that not all cases with symptoms as described by Dr. Osler terminate fatally. He has seen two cases recover; one lasted seven, the other five months. The murmur still persists.

A Case of Hemophilia with Special Reference to Joint Symptoms.

DR. F. P. KINNICUTT, Boston, reported a case possessing many points of interest. The case suggests the possibility of the *de novo* origin of the disease, as there was no family history of the affection. The case was otherwise typical. At the age of 5 began articular attacks which were no doubt hemophilic in origin, as they were preceded by injury. Dr. Kinnicutt saw the patient during seven years and there were recurring attacks of arthritis due to effusion of blood into the joints. The knee joints were particularly involved, and also the elbows. There was high temperature but no redness of the skin over the involved joints. There were also hematomas in the abdominal wall. Finally the joints underwent pathologic changes, and partial ankylosis of some of them resulted. The articular ends of the bones appeared to be enlarged. The patient finally died from what was undoubtedly intra-abdominal hemorrhage. No autopsy was allowed. General consideration of arthropathy in hemophilia shows that it may occur in infancy; both hypertrophy and atrophy of bones occur in late stages. Hemorrhage into joints may be both spontaneous and traumatic in origin. Peritoneal hemorrhage is of rare occurrence.

Clinical Notes on Opium in Myocarditis.

DR. J. H. MUSSER, Philadelphia, said that opium exerts no influence on the morbid process in myocarditis, but in many cases is good for the patient. Its use falls into two groups: (1) the continued use; (2) its use at times during the course of the disease. In the dilation of myocarditis, in asystole, and angina pectoris its use is well known. In general heart weakness and during convalescence from acute valvular dis-

ease it is also valuable. Its continued use in some cases is demanded; in one cited, the only relief obtainable was derived from opium. The drug is of value as a preventive of asystole and other grave accidents. Diuresis is increased for a time in certain cases. In cases of senile weak heart, especially when one wishes to prevent the results of peripheral impressions, the drug is an efficient aid. In cases of chronic myocarditis to prevent and mitigate insults to the weakened heart; the prolonged use of opium is advisable. The drug is not contraindicated in chronic myocarditis complicated by the presence of nephritis. It is valuable in cases of melancholia so often present in these cases, especially when the patient knows his lesion. In the not infrequent cases of hypochondriasis it is well to use opium in addition to the usual supporting treatment. Often it is better to rely on this than on the cardinal drugs usually prescribed.

DISCUSSION.

DR. M. H. FUSSELL, Philadelphia, cited a case of severe nephritis during the course of myocarditis in which small doses of morphin hypodermatically gave very happy results. The patient improved rapidly and continued so for several weeks.

DR. BEVERLY ROBINSON, New York, decides on the administration by the condition of the pupils; if they are dilated, he gives opium.

DR. A. JACOBI, New York, agreed with the statements of Dr. Musser. In many cases in which opium is useful, strychnin is to the same degree harmful.

(To be continued.)

ILLINOIS STATE MEDICAL SOCIETY.

Fifty-Fifth Annual Meeting, held at Rock Island, May 16-18, 1905.

Under the Presidency of Dr. William E. Quine, Chicago.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. H. C. Mitchell, Carbondale; vice-presidents, Drs. W. K. Newcomb, Champaign, and M. S. Marcy, Peoria; secretary, Dr. E. W. Weis, Ottawa (re-elected); treasurer, Dr. E. J. Brown, Decatur (re-elected). Springfield was selected as the next place of meeting.

PAPERS OF THE MEDICAL SECTION.

The scientific work was divided into two sections, medical and surgical.

The Optional Disease.

DR. HEMAN SPALDING, Chicago, discussed the symptomatology and differential diagnosis of smallpox, and showed lantern slides made from photographs taken of patients at the Chicago Isolation Hospital. He also quoted the statistics of the Chicago Department of Health, showing the incidence and death rate of the disease in vaccinated and unvaccinated persons, and described the methods of vaccination. He emphasized the exercise of caution in using an efficient virus. Failure to obtain a "take" is usually due to an inert virus; sometimes it is due to improper technic in vaccinating.

Pericarditis.

DR. J. H. BACON, Cleveland, Ohio, discussed the clinical history of the various forms of pericarditis and described a new method of tapping the pericardium. A small trephine opening is made opposite the fifth intercostal space between the midsternal line and the left border of the sternum. The finger is inserted through this opening, adhesions are broken up, and the pericardium is opened. In cases of purulent pericarditis, to prevent infection of the sternum and a subsequent osteomyelitis, the posterior surface of the sternum is covered freely with 10 per cent. iodoform-paraffin or wax. He also suggested that in cases of adherent pericardium the patient's life can often be saved by making a similar opening and loosening the adhesions between the two layers of the pericardium in the same manner as uterine adhesions are liberated. He detailed experiments on dogs that were carried on by him, showing the feasibility of this procedure.

Present Status of Serum-Therapy.

DR. E. R. LARNED, Chicago, defined serum-therapy, and then classified the sera as used in medicine under (a) curative sera and (b) diagnostic sera. He also presented a classification of sera as to efficacy, (a) those of demonstrated efficacy; (b) those whose value appears probable but remains to be proved, and (c) those whose efficacy is *nil*. He described the methods used in the elaboration of sera; and gave a brief outline of the present status of the following sera: (a) Those of demonstrated efficiency are antidiphtheritic, antitetanic, antiplague, antistreptococcic, and sera for exophthalmic goiter. (b) Those whose value appears probable, but remains to be proved, such as serum for hay fever, tuberculin, antityphoid, antirabic, antitubercle, and antivenin. (c) Those whose efficiency is *nil* are antipneumococcic sera, antiscarlatinal sera, antidysenteric sera, antivarioloid sera, antitoxin for cerebrospinal meningitis, serum for rheumatism, serum for syphilis, serum for anthrax, cancer serum, and leprolin.

Scrofula.

DR. HENRY G. ANTHONY, Chicago, said that scrofula is a factor in dermatology, the importance of which is variously estimated, chiefly because of the diversity of opinion which existed as to what is meant by the term. He emphasized the fact that scrofula is not tuberculosis. Children with tuberculosis of joints do not present the various lesions which occur in the eye and skin of scrofulous patients. It requires nose and throat lesions to produce the clinical picture of scrofula. These nose and throat lesions are not tuberculosis, and the nasal and throat secretions do not contain the bacillus tuberculosis. Clinically and microscopically, the disease is a pyogenic infection of the nose and throat. Tuberculosis readily develops on the pyogenic infections, but this can never be determined clinically, and that is the reason so many believe that the disease is tuberculosis. When a chronic pyogenic infection of the nose and throat is present, it spreads to the ear, eye, skin, glands, and bronchial tubes. The eruption of the skin which occurs from this spreading of pyogenic infection is impetigo and not eczema, of which two varieties were mentioned, one of which is a varicella-like eruption. Eczema may occur in scrofula, but the cases which are usually called eczema are really impetigo. The author has observed that sweating of the hands and feet is an important symptom in the disease. Scrofuloderma is subcutaneous tuberculosis, and lichen scrofulosorum is a tubercular toxemia which occurs in all forms of tuberculosis. The severest of all cases are those in which the infection has extended to the bronchial tubes.

The Educational Treatment of Neurasthenics.

DR. CHARLES D. CENTER, Quincy, believes that cases of neurasthenia are increasing in number very rapidly. He showed that a rather definite percentage of the symptoms of a neurasthenic are illusory or hallucinatory in character, and also claims that practically every case has one chief obsession, and when this is overcome or removed, all lesser symptoms are either abated or are relieved entirely. Reference was made to the use of strychnin in these cases, and it is found that the majority are made worse by its administration. The author emphasizes the need of getting hold of the mentality of each case of neurasthenia, believing that it is more essential to treat the mind than the body.

Late Hereditary Syphilis.

DR. R. R. CAMPBELL, Chicago, said in establishing a diagnosis of hereditary syphilis there are three valuable points known as the triad of syphilis—Hutchinson's teeth, interstitial keratitis, and a particular form of deafness. He reported several cases of late hereditary syphilis gleaned from the literature, and others that had occurred in his own practice.

The Climatic Treatment of Tuberculosis, with Special Reference to Colorado.

DR. CLARENCE L. WHEATON, Chicago, spoke of the mortality from tuberculosis and the period of life at which death occurs during the last census year. He alluded to the necessity for enforcing laws relating to hygienic and sanitary measures, to the establishing of state sanatoria for the care of the tuber-

culous poor, etc. He referred to the success of the Ottawa tent colony in the treatment of this disease, and said the tuberculosis problem is to be solved at home, based on a study of conditions in Colorado, Arizona and New Mexico. A knowledge of meteorological facts and climatic data is essential in prescribing climate.

Diet in Tuberculosis.

MISS ADELLA SATER, Ottawa, stated that the appetite is not a reliable criterion as to the amount of food that may be taken and digested by the patient. Hygiene and diet are the foundation stones on which may be constructed successful therapeutics in the cure of tuberculosis.

Indormescent Shocks.

DR. HUGH T. PATRICK, Chicago, calls them indormescent because they ordinarily occur just as the patient is falling asleep. These shocks may be divided, roughly, into motor and sensory. Mild motor shocks, or simple shocks, may be regarded as normal, but in some persons they reach a degree which is pathologic, and in others attain a violence sufficient to make them worthy of medical consideration and special treatment. The sensory form may affect general sensation or the special senses. The manifestation occurs as a symptom of functional disease, and in the vast majority of cases is of no grave significance, although the shock is a most alarming sensation for the patient. Illustrated cases were cited, and the treatment given.

The Practical Significance of Certain Symptoms in the Upper Abdomen.

DR. J. F. PERCY, Galesburg, said that the overlooking in this region of the pathology on which these symptoms are based is one of the strange chapters in the history of diagnosis. The common symptoms are pain due to cholecystitis, ulcer of the stomach and of the duodenum, together with the formation of gas due to inhibited peristalsis. Vomiting is also mentioned, but nausea is a more prominent symptom than the former. Bleeding is also to be noted as one of the symptoms. The significance of these can best be determined by percussion, palpation, and noting costal resistance, especially in the right side. Laboratory methods are of confirmatory value only. Alone they can not make the diagnosis. The periodicity of the attacks from ulcer of the stomach and the duodenum was insisted on, as was also the fact that the cholecystitis or an ulcer of the stomach accounts for many of the chronic lesions of the liver and the pancreas. Both of these facts are new to the literature of this subject.

The Tuberculosis Problem in Illinois.

DR. HOMER M. THOMAS, Chicago, stated that the main factor in the solution of the tuberculosis problem in this state is to secure for patients an abundance of pure air. Tuberculosis in Illinois concerns sources of impure air. These are mainly the home and the workshop. Tuberculosis is a house disease. The house is the granary of the bacillus. Houses of one kind and another are the ordinary means of spreading disease. The workshop comes next. This is so because it takes prolonged intimate contact with a person, place, or thing that has been intensely contaminated with tuberculosis matter to give rise to implantation. Probably three-fourths of all cases of the disease conveyed from person to person are contracted in the home, and one-fourth through the workshop and environment. Homes should be made clean, dry, airy and bright. Buildings in which men and women are employed should be made sanitary, and should have a correct standard of air supply and light supply.

The Irido-Choroidal Form of Parenchymatous Keratitis, with Loss of Both Eyes.

DR. CHARLES H. PROBST, Peoria, said that if iridectomy is to accomplish anything, it should be performed early in the disease, before iridic adhesions had taken place, or before an advanced irido-choroiditis has a chance to develop. On several occasions he has performed iridectomy in the very beginning of the irido-choroidal form of parenchymatous keratitis, with excellent results.

Mixed Infection in Consumption.

DR. ETHAN A. GRAY, Chicago, emphasized the necessity of recognizing the presence of more than one infection in pulmonary tuberculosis. Secondary or so-called mixed infections are the chief agencies in producing the symptom-complex, consumption. As to the course of mixed infection, there is danger of mistaking it for la grippe, malaria, colds, etc. Occasionally pleurisy and bronchopneumonia are expressions of mixed infection. Hemorrhage from eroded arteries is a factor in spreading infection. A diazo-reaction does not always mean a fatal prognosis. The treatment should be largely hygienic and climatic, but this is uncertain so far as checking the toxemia is concerned.

Reference was made to the value of streptolytic serum; amount administered, 10 c.c. daily, for six days; treatment is then discontinued until reaction has passed. Usually cough and expectoration are diminished to a minimum, sometimes altogether. The phenomena of reaction were pointed out. There is a diminution in the number of tubercle bacilli unless the sputum is greatly concentrated; normal pulse and temperature. Severe cases only approximate the normal. Serum does not cure tuberculosis, but only clears out bacteria and their toxins, leaving a better field in which to fight the tubercle bacillus. Seven cases are cited, in all of which the septic fever was materially influenced.

The License and Control of the Practice of Medicine in Illinois.

DR. GEORGE W. WEBSTER, Chicago, said that during the session of the forty-third general assembly a bill was introduced creating a board of examiners. Owing chiefly to want of harmonious action on the part of the legislative committee of the Illinois State Medical Society, it failed to become a law. At the present time the chief functions of the Illinois State Board of Health are the general supervision of all sanitary and public health matters, and quarantine in the state, the examining and licensing of physicians and of "other practitioners," the licensing of embalmers, the licensing of midwives, the inspection of lodging-houses in all cities of 100,000 inhabitants and over. The board established a schedule of minimum requirements for medical colleges, making a high school education the preliminary entrance requirement, prescribed the length of the term, which must be not less than seven months, no two courses to be given in the same calendar year of time, prescribed the minimum number of hours of instruction in each term, the studies of the curriculum, the character of the college equipment, and all those colleges complying strictly with these rules were considered in good standing with the board. This simply admitted them to the examination. If their credentials were found satisfactory, and if they possessed a diploma from a recognized school and sustained a satisfactory examination before the board, they were then licensed. The other practitioners referred to are mostly osteopaths, and this term refers to the licensing of all those who treat human ailments without the use of drugs, or by mechanical appliances.

Some Phases of Disordered Metabolism in Nephritis.

DR. RALPH W. WEBSTER, Chicago, said that nephritis is primarily a constitutional disease, with secondary manifestations in the kidney. The close relationship between the findings in the so-called febrile albuminuria and those in typical nephritis are so marked that a common constitutional condition in each must be granted. All of the causative factors of nephritis produce metabolic disturbances which result in the production of toxins, irritant poisons, changes in the properties of the blood, both physical and chemical, and various other pathologic abnormalities which in themselves cause irritative, and later inflammatory lesions in the kidney resulting in nephritis. A large number of metabolic changes may be directly traceable to the nephritis itself.

The author discussed only the points of chlorid retention, edema and uremia. The retention of chlorids in nephritis is granted, but their relation to edema seems to the author still debatable inasmuch as present knowledge regarding the pathology of albuminuria and edema is not sufficient to warrant

the ascribing of a specific influence to the chlorids in edema over and above that of other salts. A discussion of the relation of chlorid intake to increased albuminuria was given, in which the author concluded that in this connection NaCl may act as a specific.

Concerning the theories of edema, those of Cohnheim, Kövesi and Roth-Schulz, and von Kiranyi received attention. The author showed the importance of osmotic changes in the production of this symptom of nephritis. The relation of the amount of water taken in has a double importance in increasing a hydremia and increasing the work of the heart. With regard to the uremia, it seems that one must at present accept the idea of Senator and assume that this condition is purely a group of symptoms brought about through disordered metabolism as a result of lesions in an insufficient kidney, which lesions have, in their turn, been caused by attempts on the part of the kidney to eliminate products of an abnormal metabolism, the result of a specific or non-specific toxemia.

DR. CHARLES L. MIX, Chicago, discussed the diagnosis of chronic nephritis.

Ocular Manifestations of Chronic Nephritis.

DR. LEIGH E. SCHWARTZ, Chicago, drew the following conclusions: 1. An ophthalmologic examination should be made in all cases where nephritis exists or is suspected. 2. The non-existence of retinitis must not be inferred because visual disturbance is absent. 3. Ocular manifestations are invaluable where nephritis without albumin exists. 4. The severity of the renal symptoms does not influence those of the eye. 5. Retinal changes may occur before any definite clinical symptoms of nephritis develop. 6. Unilateral retinitis gives a relatively hopeful prognosis. 7. Retinitis may be the first indication of nephritis, even in the later stage. 8. The prognostic value of the hemorrhagic type is not greater than that of other forms of albuminuric retinitis.

Medical Treatment of Nephritis.

DR. ARTHUR R. ELLIOTT, Chicago, presented this subject in the following order: First, treatment of chronic nephritis without dropsy; second, treatment of chronic nephritis with dropsy; and, third, treatment of uremia. After discussing the subject at great length under the above heads, the author closed by saying that there is no room for pessimism in our attitude toward this disease, and while obviously there is no remarkable cure to be performed by any mode of treatment, careful regulation of life and attention to little details will secure results which are unsurpassed in any of the chronic dystrophies. The two most important indications are to protect the patient from intercurrent acute disturbance, and maintain the compensatory adjustment in the circulation.

Ideals and Practices of the Medical Profession.

This was the title of the president's address by Dr. William E. Quine, Chicago. He stated that standards differ in different sections and even under different conditions in the same society. It is a fact of familiar knowledge that offenses committed by physicians against the public conscience may be easily tolerated by their own organizations; but offenses against the technical standards of the organizations themselves, although quite unnoticed by the community at large, are liable to severe and lasting penalties, especially if the culprit be of humble rank and without friends. Among misdemeanors of this kind he mentioned advertising in the public prints; the exploitation of remarkable cures and operations; the holding of patents on articles used in the practice of medicine; the pretense of possessing an infallible law of cure; and the acceptance by physicians of commissions on their prescriptions, or on needed appliances which they are instrumental in selling, or on the fees of surgeons received for operations on the physician's patients. Such acts are always small, and surreptitiousness makes them mean; but he fails to see in them convincing proof of gross moral obliquity. Most of them are quite compatible with honorable standing in the community; and yet they are stigmatized, and properly so, by the unanimous vote of the organized profession of the country as derogatory to professional character and incompatible with honorable standing in the profession; and hence are subject to penalty within the organization and profession itself. On the other hand, when physicians violate the public's standards of morality, and thereby bring on themselves public disrepute, their professional standing may be saved from challenge in medical organizations. Such discrimination is neither creditable nor defensible. A life sentence of ostracism should never be inflicted for mere technical transgressions, nor for any others, except such as constitute *prima facie* evidence of depravity of heart.

What We Must Learn and Unlearn in the Treatment of Tuberculosis.

DR. J. W. PETTIT, Ottawa, in his address in medicine, said that it is now a well-established fact that climate is an unimportant factor in the treatment of tuberculosis. Because the medical profession has learned the utter futility of drugs in the treatment of this disease, their responsibility has not ceased. Physicians should guide patients when they do not treat them. A mistake has been made in regarding fresh air as the *sine qua non* in the treatment of tuberculosis. Nutritious food, regular rest and exercise are each of essential importance. There is much to be learned in regard to the housing of tuberculous patients. As to the use of tents, it has been demonstrated that the tent is practicable in cold climates. It fulfills the conditions most perfectly from a scientific standpoint. A practical point essential to success is the importance of an early diagnosis in this disease.

(To be continued.)

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held at Washington, D. C., May 18-19, 1905.

The President, DR. EDWARD L. TRUDEAU, Saranac Lake, N. Y., in the Chair.

GENERAL MEETING.

The Necessity for Education.

DR. EDWARD L. TRUDEAU, the president, spoke in his address of the pathologic, bacteriologic, and clinical advances which we have made in our knowledge of the disease until tuberculosis is now recognized as transmissible, preventable, and, in the earlier stages and in certain types, curable.

Individual effort can accomplish little against it; the watchwords of the new association should be organization and cooperation. The first problem is to combine and to direct individual efforts, preferably by bringing each state into touch with the national organization. The first and greatest need in the work is education; if every man and woman in the United States was thoroughly familiar with the disease and with the simple means effective in its prevention, tuberculosis would soon disappear. The duties of states are in establishing higher standards of hygiene, segregating the tuberculous, erecting sanatoriums, dispensaries and laboratories for research. Medical schools should give special instruction to their students, especially in the diagnosis of tuberculosis; too often they are presented the picture of advanced, instead of incipient, cases. In this line, summer courses in sanatoriums could well be given. The dangers of tuberculin in diagnosis have been exaggerated and Dr. Trudeau hopes the association will be a medium for disseminating exact knowledge regarding this agent and its employment. Conditions in the United States now point to increased research work and for this are needed laboratories and endowments, as it is to this branch we must look for the solution of many problems concerning the varieties of the tubercle bacillus, the chemistry of its toxins, and natural and artificial immunity.

Methods of Education of the Public.

DR. WILLIAM OSLER, Baltimore, in his vice-president's address, said that the one important thing is education. We possess a remarkable amount of knowledge regarding tuberculosis but the association must make it effective. Three parties are to be educated: the public, the profession, the patient. The

public is awake in this regard but is still sitting on the edge of the bed, half-dressed. It has three things to do: 1. To enact good laws (such as those in New York). 2. Properly to care for hopeful tuberculous cases. 3. To make provision for hopeless cases. The education of the profession includes three points: 1. They must know that early recognition is the first and most important thing. 2. They must recognize practically the efficiency of open-air treatment. 3. They must educate medical students; this is of paramount importance. For this purpose, general hospitals associated with medical schools should receive acute cases of tuberculosis and also a few early cases for demonstration. A second most important function of general hospitals in this line is the maintenance of a tuberculosis dispensary. The education of the patient can be possible only when he knows the nature of his ailment; no greater mistake was ever made than to withhold from an early case the knowledge that he has tuberculosis. Dr. Osler closed by paying an eloquent tribute to Dr. Trudeau for his early recognition of the true method of treating tuberculosis and for his convictions in carrying it out.

Reporting and Registration of Tuberculosis.

DR. HERMANN BIGGS, New York, in his address as vice-president, said that, though the need of enforced registration is now very generally admitted, it practically does not exist outside of New York City except in a few small cities in this country and in Great Britain. Constant pressure is needed on physicians and authorities who do not believe in compulsory registration. It is true that over-enthusiasm on the part of the younger men for too radical measures may do more harm than the conservatism of others who antagonize such advances, but the golden mean can be obtained only by judicious and insistent pressure in the direction shown by experience to yield the best results. This antagonism has been met in New York until now there is no serious opposition by the profession or the public. In fact, there is less difficulty than in enforcing measures of protection against scarlet fever or diphtheria. Dr. Biggs is thoroughly convinced that systematic work against tuberculosis can never be done without enforced registration as a basis.

Responsibilities of the Layman in the Prevention of Tuberculosis.

MR. TALCOTT WILLIAMS, Philadelphia, delivered the address at the evening session. Individual responsibility is great. There are great responsibilities of philanthropic aid, but there is also the danger of fostering pauperism. No profession gives so much to mankind as do physicians and no other people give so indiscriminately. Hospitals in the various cities should unite in maintaining a central bureau for investigating persons applying for free treatment, this being particularly needed for the tuberculous.

Resolutions.

Resolutions were passed at this session asking for inquiry regarding the conditions under which employes in government workshops and offices are compelled to labor; calling attention of municipal authorities to the need for legislation and for the appropriation of funds to aid in the work against tuberculosis; and asking the officers of insurance associations to consider means of combating tuberculosis among their policy holders and also asking them to attend the future meetings of the association.

Officers for the Ensuing Year.

The election resulted as follows: President, Dr. Hermann M. Biggs, New York; vice-presidents, Drs Lawrence F. Flick, Philadelphia, and Vincent Y. Bowditch, Boston. Dr. William Osler was elected honorary vice-president. The directors of the association elected were Drs. E. P. Bicknell, V. Y. Bowditch, J. S. Fulton, C. O. Probst and W. S. Carter, and Mr. Henry Phipps.

SOCIOLOGIC SECTION.

Health as an Investment.

MR. HOMER FOLKS, New York, made an address as chairman of this section. 1. Tuberculosis is the leading cause of death in this country; 2, in the past 2 or 3 decades we have learned much regarding the disease and how to control it, particularly in the way of prevention. From this basis the question inevitably occurs to a layman, namely, if tuberculosis is a preventable disease, why is it not prevented? All the reasons given in answer to this question, Mr. Folks condenses into one, namely, we do not realize the value of public health as an investment; we are not yet ready to devote sufficient means to the saving of human life, even when the opportunity is placed squarely before us. Health authorities are given woefully inadequate sums of money to carry on the work they should do. The postage alone of a communication sent to every voter in greater New York costs $60,000 and this is repeated several times in some campaigns. This particular method might not be the best in campaigning against tuberculosis but the work to be effective must be carried on with something of this magnitude. After comparing the value of freedom from tuberculosis with the so-called "permanent" improvements of cities, Folks concluded that municipalities would be justified in using their credit for funds for the former just as they now do for the latter purpose.

A Working Program for Associations for the Prevention of Tuberculosis, National, State, and Local.

MR. EDWARD T. DEVINE, New York, detailed a program possessing 10 features: 1. The maximum of fresh air and sunlight for all mankind; 2. An abundance of simple and yet sufficiently varied and nourishing food; 3, early diagnosis of every case of pulmonary tuberculosis; 4, registration of all cases; 5, the establishment of institutions for advanced cases; 6, the establishment of state, municipal and private sanitariums for early cases; 7, publicity of the means of preventing infection; 8, conferences for interchange of views among workers; 9, relief in various forms but mainly in the shape of special diet for those being treated at home; 10, further research. To the task of establishing institutions must be added that of educating the rank and file of the medical profession and finally the greater task of creating a sound public opinion "midway between indifference and phthisiophobia, an enlightened public opinion in which everyone is frightened just enough to act sensibly and not enough to act foolishly; just enough to ensure necessary public appropriations and private donations, but not enough to make it difficult for a cured and educated consumptive to find a job; just enough to cause the railways to disinfect the hangings of a sleeping car and the cushions of a day coach, but not enough to cause them to refuse to an indigent consumptive girl, on her way to a sanatorium, the charitable reduction which is given to other indigent persons; just enough to cause the city to build a sanatorium, but not enough to induce the legislature to permit local prejudice to close county after county to the urgently needed sanatorium, except on a bribe to the county commissioners and the township trustees."

Progress of the Sanatorium Movement in America.

MR. WILLIAM H. BALDWIN, Washington, traced the progress of this movement from Dr. Trudeau's Saranac venture 20 years ago to the present widespread adoption of this plan of treatment. Now there are 135 institutions of various kinds, new and old, in 33 of the states and provinces in the United States and Canada, caring for the tuberculous. One-third of the number is in New York and Pennsylvania. The total capacity is 8,400 persons, 30 per cent. of these being in New York. The first sanatorium to be established by a state or provincial association was the Muskoka Cottage Sanatorium at Gravenhurst, Ont., in 1897. The first state sanatorium was erected by Massachusetts at Rutland, in 1898. The first municipal sanatorium was established by Cincinnati in 1897. Sanatorium treatment has demonstrated 3 things: 1. Climate is not an essential or even the most important feature; 2, Necessities are fresh air, rest, nourishing food, and regular habits; 3. In a sanatorium medical superintendence is the most essential factor.

Infection in Transportation.

DR. H. M. BRACKEN, St. Paul, spoke of the methods which were used in railway car sanitation and of efforts to bring about their betterment.

DISCUSSION.

Discussion of these various papers followed by prominent workers in this cause, the subjects being treated in all their various phases.

(To be continued.)

FLORIDA MEDICAL ASSOCIATION.

Thirty-Second Annual Meeting, held at Jacksonville, April 19-21, 1905.

The president, Dr. Edward N. Liell, Jacksonville, in the chair.

Welcome.

Addresses of welcome were delivered by Mayor George M. Nolan on behalf of the city, by President C. E. Garner of the Jacksonville Board of Trade on behalf of that body, and by Dr. James D. Love, Jacksonville, on behalf of the Duval County Medical Society. Dr. William L. Hughlett, Cocoa, responded to the address of welcome.

President's Address.

The president, DR. EDWARD N. LIELL, in his annual address on "The Medical Profession in Its Relation to the Elimination of Communicable Diseases," paid especial attention to the progress in the knowledge of the causation of communicable diseases, and the factors involved in natural resistance and acquired immunity. He lauded the important steps taken in the direction of serum therapy, bacteriology, and the spirit of research which now penetrates almost every department of human activity. He gave due credit to the various institutions of the country which are promoting individual research and thus advancing the science of medicine. He considered that no field of medical research was more promising for investigation than that of the composition and chemistry of the blood. He mentioned the school as a potent factor in the propagation of disease, and stated that a systematic daily medical education of school children was demanded by the preventive medicine of to-day. By the improvement of our public health service will communities in general receive the benefits to which they are entitled by virtue of our advanced knowledge as to the origin and transmission of disease.

Councilors' Reports.

Councilors representing the first, second, third, fourth, seventh and eighth districts made their reports. There are at present only four counties in the state in which the medical profession is not organized, namely, Hamilton, Columbia, Orange and Putnam.

Medical Legislation.

DR. J. HARRIS PIERPONT, Pensacola, gave a history of the medical legislation of the state, with special reference to the matter of medical examining board laws. The chief forms of opposition encountered were those of the homeopaths and eclectics who have mistakenly thought that the bills were drawn to inflict on them injustice and hardship; the Eddyites, who feared that a just law would protect the public from their unchristian and unscientific practices; certain members of the regular profession and some of the present members of district examining boards who thought a central state board would prove a great hardship to undergraduates by reason of the necessary expense of taking the examination. Among other questions of interest to the profession he mentioned the inadequate compensation ($10) for making postmortem examinations; the gross injustice of allowing physicians only $1 a day when called on to give expert testimony and the unjust license tax imposed on physicians.

Annual Oration.

DR. ROBERT H. MCGINNIS, Jacksonville, delivered the annual oration on "The Superior Man—The Physician's Opportunity in His Consummation." The superior man, said the orator, must be born under the auspices of health and vigor; nourished by the advice of preventive, protective and progressive science; reared and nurtured in an atmosphere of, and surrounded by, the preservative influences of hygiene, sanitation and disinfection, directed by the experiences and the wisdom of the medical man.

Feeding in Typhoid Fever.

DR. WILLIAM L. HUGHLETT, Cocoa, made a strong argument against injudicious feeding of typhoid patients. He believed that during the first two or three weeks of fever, during the stage of active inflammation, feeding does more harm than good, and is more liable to provide culture media for germs than sustenance for vital forces. The essayist has lost all dread of typhoid fever patients starving to death. His plan of treatment, in brief, is to have the patient in a quiet, cool room, to clear the bowels first with calomel and soda, and by occasional, gentle purges, if necessary; to give plenty of water to drink, lemonade and fruit juices, a small quantity of liquid food if desired during the first two or three weeks; to control the temperature by cold baths or frequent sponge baths, with symptomatic remedies as may be required.

Election of Officers.

The election of officers resulted as follows: President, Dr. James M. Jackson, Jr., Miami; vice-presidents, Drs. James F. McKinstrey, Gainesville; Henry E. Palmer, Tallahassee, and Jay H. Durkee, Jacksonville; librarian, Dr. James D. Love, Jacksonville (re-elected), and councilors, Drs. William L. Hughlett, Cocoa, for the seventh district, and Dr. James H. Hodges, Gainesville, for the fifth district.

Gainesville was selected as the place for the next meeting and the date was fixed at the third Wednesday in April, 1906.

NEBRASKA STATE MEDICAL ASSOCIATION.

Thirty-Seventh Annual Session, held in Beatrice, May 2-4, 1905.

The President, DR. ROBERT C. MCDONALD, Fremont, in the Chair.

Welcome.

Contrary to the ordinary rule, the association held an afternoon session and the formal welcome was not given until the evening session, when on behalf of the city Rev. George W. Crofts welcomed the visiting physicians. In the conclusion of his address he made an eloquent tribute to the heroic element in the physicians' profession, and said that in times of pestilence he has stood nobly at his post when nearly all others had deserted.

DR. ALEXANDER S. VON MANSFELDE, Ashland, in his response to the address of welcome spoke of legislation bearing on the practice of medicine and commented strongly on the too common practice of prenatal destruction of human life.

President's Address.

DR. ROBERT C. MCDONALD, Fremont, in his presidential address, commended the county societies on the general interest taken in the work of organization; referred to the failure of the medical practice act by reason of the veto of the governor and considered that some of the inferences of the governor in vetoing the bill were unwarranted. He believed that state care of the insane should not be made a matter of politics; favored a state sanitarium for the treatment of tuberculosis and popular education on this and other matters of health, and in closing censured the newspapers which accept advertisements of advertising specialists.

Banquet.

The annual banquet was preceded by an illustrated lecture on the "Yellowstone Park" by Charles Truax, Chicago. Nearly 200 guests were present at the banquet, over which Dr. Ernest J. C. Sward, Oakland, officiated as toastmaster.

Election of Officers.

The election of officers resulted as follows: President, Dr. August F. Jonas, Omaha; vice-presidents, Drs. Benjamin F. Farley, York, and Samuel K. Spalding, Omaha; recording secretary, Dr. A. D. Wilkinson, Lincoln; corresponding secretary and librarian, Dr. H. Winnett Orr, Lincoln; treasurer, Dr. Alexander S. von Mansfelde, Ashland; delegate to the American Medical Association, Dr. Ira N. Pickett, Odell.

Lincoln was selected as the next place of meeting.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

107th Annual Meeting, held at Baltimore, April 25-27, 1905.

Officers Elected.

The following officers were elected: President, Dr. Samuel T. Earle, Baltimore; vice-presidents, Drs. Charles O'Donovan, Baltimore; Thomas M. Chaney, Baltimore, and Joseph B. Seth, St. Michaels; secretary-treasurer, Dr. John Ruhräh, Baltimore.

Reports.

Delegates were present from every county, except one, only a provision organization having been effected in Charles County.

Dr. Wilmer Brinton, Baltimore, reported for the trustees that application had been made for the endowment of rooms in the Osler Library Building in honor of deceased physicians. The chairman of the Osler Memorial Fund announced that $20,000 had been subscribed and that $20,000 more would be forthcoming. The report of the library showed that it possessed 14,590 volumes. The memoir committee reported the death of 16 members. The number of members registered was 238, although fully 350 attended. There were present 26 delegates from the counties. A resolution was adopted endorsing the proposed Baltimore sewerage system.

Want New Practice Law.

The report of the Board of State Medical Examiners urged the securing of a new medical law with increased standards for license and inspection of medical colleges. The Maryland license is now recognized in the following states: Delaware, Georgia, Illinois, Iowa, Indiana, Kansas, Maine, Michigan, New Hampshire, Nebraska, Ohio, South Carolina, Texas, Vermont, Virginia and Wisconsin. It is in process of adjustment in Oregon, Wyoming and the District of Columbia.

A committee of nine was appointed to draft a new medical law in accordance with the suggestions of the board. There was some criticism of the examination questions of the board on the part of representatives of the colleges. A change was made in the personnel of the board, Dr. Eugene M. Vanness, Baltimore, the president, withdrawing, and the vacancy being filled by the election of Dr. William M. Dabney, Baltimore.

Medical Defense Adopted.

A plan of medical defense of members was adopted, to be applicable in all cases of suit against members, except in criminal cases, the expense being assumed by the society.

The Osler Address and Presentation of Portrait.

DR. WILLIAM OSLER'S address on "Unity, Peace and Concord" will be published in THE JOURNAL.

Following the address a portrait of Dr. Osler, painted by Mr. Thomas C. Corner, Baltimore, the gift of professional friends and admirers, was presented to the society by Dr. Robert W. Johnson, Baltimore, and was accepted with appropriate remarks by the president, Dr. Edward N. Brush.

Dr. Simon Baruch, New York City, delivered an address on "Hydrotherapy in Chronic Diseases." Dr. Edward N. Brush, Baltimore, spoke on "The Physician as a Citizen"; Dr. Clarence J. Blake, Harvard University, on "Collaboration in Medical Education"; Dr. William H. Welch, Baltimore, on "Preventive Medicine"; Dr. Isaac E. Atkinson, Baltimore, on "Modern Therapeutics," and Dr. Robert W. Johnson, Baltimore, on "The Debt This Generation Owes to Surgery."

Annual Banquet.

In the evening the annual banquet took place at the Stafford Hotel, where speeches were made by Governor Warfield, Mayor Timanns, Dr. Clarence J. Blake, Boston; Rev. Donald Guthrie, Mr. George W. Whitelock, and others.

Cancer in Baltimore During the Last Fourteen Years.

DR. C. HAMPSON JONES, Baltimore, exhibited a chart of the city showing the occurrence of every case of cancer in Baltimore during 14 years. The even distribution of the deaths was remarkable and there were no "cancer houses." There was no evidence of a general increase in proportion to the population, but the figures showed a greater prevalence in the white race.

DR. WILLIAM H. WELCH, Baltimore, thought this might be due to the longer lives of the whites. He also thought that any apparent increase of the disease in the population at large might be explainable (1) by the increased life limit, (2) by the improved diagnosis. It is chiefly in internal cancer that the increase is reported, not in accessible parts, as lips, etc.

Tetanus Successfully Treated with Antitoxin.

DR. CHARLES F. DAVIDSON, Easton, reported the case of a boy, 12 years old, who suffered from what appeared to be the effects of poison oak on the face and temples. Two days later he went bathing in a dirty stream of water. Shortly after he had a high temperature, and pus formed under the scalp and throughout the left arm, necessitating a number of incisions. Nine days after the bath, tetanus symptoms set in; it was 24 hours before the antitoxin could be procured, and during this time he had nine convulsions. Dr. Davidson administered the antitoxin in 20 cm. doses every four hours for forty hours, during which there were seven convulsions. Some improvement at first was not sustained, and at the end of the forty hours the temperature had risen to 107.4 F., and a very severe convulsion occurred, which seemed likely to end life. Sixty cm. of antitoxin were given, and in one hour 40 cm. more were injected. In one hour the convulsion had ceased, the temperature had fallen to 100 and pulse was 90. Four hours later the last dose was given; there were no further convulsions, and recovery followed. Dr. Davidson thought the case indicated that larger doses were required, as much as 100 cm.

Effects of Diet-Cures in Diabetes Mellitus.

DRS. JULIUS FRIEDENWALD and JOHN RUHRÄH, Baltimore, spoke of (a) the milk cure, (b) the potato cure, and (c) the oatmeal cure. Their observations with the use of milk as a form of diet in diabetes are in accord with those of von Noorden and other recent writers. They have rarely found it advisable to place any of their patients on an exclusive milk diet, except in those severe cases of diabetes in which diacetic acid is present in the urine, and in which the patient is threatened with the onset of diabetic coma, or in which this condition had already set in. On the other hand, they have utilized from one-half to a liter of milk daily in many of their cases of diabetes, in addition to other allowable foods, often with excellent results. It is important, however, to observe the effect of this form of food lest untoward effects be produced and great injury be done the patient.

In their observations with the use of the potato cure in the treatment of diabetes they have never followed the Mosse plan, that is, by replacing all carbohydrates by potatoes, but have rather followed the method suggested by von Noorden, replacing a portion of the bread by this form of food. A patient who is permitted to consume 100 grams of bread a day can take 300 grams of potatoes, so that at least a certain proportion of the bread can be replaced by this form of food. If care be taken to regulate these proportions, they have never seen the slightest harmful effect produced by the use of potatoes even in severe forms of diabetes. In a not inconsiderable number of cases very beneficial results were obtained by them. Their results with the oatmeal diet have been very satisfactory. In mild forms of diabetes this treatment should never be utilized. The oatmeal cure has its place, however, only in the severe forms of diabetes. In these cases they have obtained remarkable results. In certain cases it is possible to rid the urine of sugar entirely when this is impossible on an entirely carbohydrate-free diet. In another class of cases the oatmeal diet not only occasions a disappearance of the sugar in the urine, but also the diacetic acid. The milk cure, potato cure, and the oatmeal cure are valuable aids in the treatment of diabetes. Great care, however, is necessary. Each case must be carefully studied individually to obtain the best results.

Empyema of the Frontal Sinus.

DR. RICHARD H. JOHNSTON'S patient was a man 30 years old, who had all the diseases incident to childhood. Since then he has been healthy until the beginning of his present illness. In January, 1904, he had what he took to be a mild case of "grip." He was weak and languid for two or three days. After this he convalesced rapidly and was soon able to attend to business. About two weeks later he was taken with a severe pain over the left eye. This pain was peculiar in that it recurred every other day at 12 o'clock noon or between the hours of 12 and 4 p. m. The duration of the pain was five or six hours. Occasionally the paroxysm would miss the alternate day, but was sure to come the third day. If the patient remained perfectly quiet on Sunday, the attack would be postponed until Monday, but if he took a walk or exercised in any way he was sure to suffer. The pain would begin in the left temporal region and gradually extend toward the middle line of the head, with the point of greatest intensity in the region of the supraorbital notch. At first sight, it would become more and more severe, until at the height of the paroxysm the patient would walk the floor in agony. It would then gradually subside and finally disappear, only to return two days later. On hearing his history, Dr. Johnston thought of a possible sinus disease. The only symptoms that could be elicited were dryness of the mucous membrane in the left nostril, and tenderness on pressure over the left eye. Empyema of the frontal sinus was diagnosed from the following points: 1. Dryness of the mucous membrane. 2. The periodicity of the pain, which is quite often seen in frontal sinus disease. 3. The fact that the pain undoubtedly followed an acute, infectious disease. 4. The tenderness on pressure of the affected as contrasted with the sound side. The cardinal symptom of accessory cavity disease, the presence of pus in the nasal fossa, was not present, although the nose was examined carefully several times. Disease of the frontal sinus had never been suggested to the patient. He at first declined operation, but later submitted to it. The frontal sinus was opened and pus and a degeneration mucous membrane was found. This was carefully curetted out and the walls examined for necrosis of bone. The headaches ceased and have not returned. The case must be classed as one of closed empyema of the frontal sinus. Such cases are very rare. The fact that there was never pus in the nose and the positive declaration of the patient that he had never had a discharge of pus into the nose or into the postnasal space rendered the diagnosis difficult. The case was presented as an illustration of intermittent, periodic headache, periodic headache which could not possibly have been cured without an operation.

Causes Contributing to Success in Cataract Extraction.

DR. SAMUEL THEOBALD, Baltimore, said that fifty years ago, when "flap extraction" was in use, the most skillful operators were well content if their failures did not exceed 12 per cent. During the two decades following the introduction of von Graefe's modified linear extraction, 8 to 10 per cent. of failures were not uncommon. Now the operator whose failures exceed 4 or 5 per cent. has little ground for self-congratulation. In a compilation of nearly 2,000 cataract extractions by well-known ophthalmic surgeons of this country and Europe, made by Dr. Frank M. Ring, in 1895, the percentage of failures was 3.67. In 192 consecutive cataract extractions performed by Dr. Theobald, including 100 reported in the *American Journal of Ophthalmology*, in December, 1899, there was a percentage of failures of but 3.12. Among the causes which have most to do with this markedly better showing are (1) the modification in the operation of cataract extraction introduced by von Graefe, (2) the discovery of local anesthesia, (3) the application of the principles of antiseptic surgery to eye operations, (4) the skilled nursing now at command, (5) the improved hospital facilities, (6) the provision against postoperation accidents afforded by such contrivances as the protection shield of the late Dr. Russell Mendoch, and (7) the more definite specialization of eye surgery. Still better results might be obtained could we guard absolutely against infection—which, in spite of careful antiseptic precautions, occurs about twice in one hundred operations—and were our patients, usually well advanced in life, in sound health, were their eyes free from complicating diseases, and were they always as tractable as the operator could wish. The intractable patient sorely taxes the patience and skill of the most expert operator.

Improved Chemical Methods in the Clinical Laboratory.

DR. EDWARD L. WHITNEY, Baltimore, offered the following conclusions: In the use of the physical chemistry methods in pathology, we have obtained the following information of value: 1. Cardiac insufficiency can be differentiated from renal, and when existing together, both can be detected and determined. 2. The lowering of the freezing point in heart disease gives an indication for the use of oxygen by which the freezing point or osmotic tension can be restored to the normal, the cardiac activity increased, and a well-marked diuresis produced. 3. In unilateral kidney disease the freezing point of the blood furnishes information regarding the condition of the other kidney, when taken in conjunction with the symptoms, and if attention is paid to the food and time of feeding. 4. The amount of work or exercise which can be borne by an individual suffering with heart disease, and the effect of heart tonics can be fairly well estimated by a determination of the freezing point and NaCl of the urine under proper conditions, the quotient (freezing point divided by NaCl being between 1.23 and 1.69. 5. Provided a normal diet with the normal amount of fluid is given, a fall in the freezing point below 0.90 degrees, with a low valence number, indicates disturbance of the renal function. 6. In the regulation of the diet in nephritis care should be taken to give foods yielding as small a number of molecules for kidney elimination as possible. 7. With certain reserve we may be able to determine, with a reasonable degree of accuracy, the relative proportion of interstitial and parenchymatous changes by the manner in which water is eliminated and its effects on the freezing point.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Atony of Rectum and Anal Sphincters.

The first consideration in the treatment of rectal atony, according to W. Bodenhamer in *N. Y. Med. Jour.*, is to establish a regular habit regarding a daily evacuation of the rectum. This may be aided, if necessary, by an injection of from a half to one pint of cold water at the ordinary temperature at the regular time of going to stool. Cold acts as a tonic, stimulant and astringent by exciting the sensibility and contractility of the rectum, and this procedure should be discontinued as soon as its purpose has been attained. In the more obstinate cases, the chief remedy, according to the author, is nux vomica, which may be administered alone or combined with some other drug and along with this treatment the rectal enemas containing strong astringents and tonic substances should be employed with the view of producing contraction and condensation of the relaxed muscle fibers of the rectum and making them shorter and firmer. Drastic purgatives should not be employed. Aperients are indicated, however, especially when atony of the colon is present, along with the rectal trouble. The use of aperients should be restricted to the smallest dose which will arouse normal peristaltic action and continued until a daily habit of evacuation is established. The astringent injections should not exceed in quantity five or six ounces, and before administering them the rectum should be emptied of fecal contents. The astringent enema should be given once daily, and should be retained for a few minutes if possible. The author, in some cases, has used a decoction of

galls or a strong decoction of white oak bark and alum. The following is also recommended by him:

℞. Acidi tannici .....gr. xxx 2|
Vini rubri .....℥iv 120|

M. Sig.: To be used as an injection and repeated once daily.

In cases of rectal constipation complicated with anal fissure he recommends the following as used by M. Bretonnean:

℞. Ext. rhatany .....3ii 8|
Alcoholis |
Aquæ destil., āā.....3v 20|

M. Sig.: To be used as an enema, in five or six ounces of water, and repeated once daily. For children, one-fourth this quantity should be used.

In some cases, the following pill is recommended when atony of the cecum exists with that of the rectum in order to soften the hard fecal matter and to excite peristalsis:

℞. Ext. aloes .....gr. xxx 2|
Ext. nucis vom. .....gr. xx 1|30
Ext. hyoscyami .....gr. xv 1|
Ferri sulph. .....gr. x |65
Olei caryophylli .....m. v |30

M. Ft. pil. No. xxx. Sig.: One pill daily at dinner or at bedtime.

Extract of nux vomica may be given once daily with advantage in the form of a pill, grain one-half to one (.03-.06). Inspissated ox gall is also of service in some cases. In those cases in which the rectum or rectal pouch is firmly distended by hard fecal masses, which neither purgatives nor injections will soften, mechanical means must be resorted to, by first dilating the anal sphincter, under an anesthetic if necessary; the finger and rectal curette should be used to remove these impacted masses as much as possible, and the remainder should be washed out by the astringent injections. A proper diet, claret, and active exercise in the open air, on foot, horseback or bicycle should be advised.

ATONY OF THE ANAL SPHINCTERS.

The anal sphincters are much less frequently affected than the rectum; however, both may be involved. When the sphincters are affected, the disease is much more readily detected, being external. The sphincters of the anus are more frequently affected in old age, and paralysis is then present and becomes so troublesome that it prevents exercise on foot. In such cases, the patient should evacuate his bowels at bedtime; if emptied in the morning, irritation is produced and kept up during the entire day. In hypochondriacs and in hysterical women, atony of the anal sphincters is frequently present. It may also be brought on by protracted ill health, sedentary habits, immoderate use of alcohol and tobacco or repeated dilatation of the anus by straining at evacuation in cases of chronic dysentery. In the treatment of this condition, the cold water ascending douche is a most valuable remedy in restoring lost tone to the muscles, by applying it to the anus for four or five minutes immediately after evacuation of the bowels and once or twice extra during the day. The following local application is recommended by the author as being of great service in such cases:

℞. Strych. sulph. .....gr. x |65
Ung. aquæ rosæ .....℥i 30|

M. Sig.: A small amount to be applied locally once or twice daily.

Or as a lotion the following:

℞. Ext. nucis vomicæ .....gr. viii |50
Alcoholis .....℥ii 60|
Aquæ ammoniæ .....3i 4|

M. Ft. lotio. Sig.: To be applied locally to the affected parts once or twice daily.

Caffein Administered Hypodermically.

Caffein is recommended in the treatment of diabetes, according to *Amer. Med.*, to overcome fatigue, as it acts as a general tonic to the heart and kidneys. It is also of service in grave pneumonia of old people and in cases of adynamia. The following formulæ, after Huchard, are recommended as the best combinations given hypodermically:

℞. Sodii benzoatis .....gr. xlv 3|
Caffeinæ .....gr. xxx 2|
Aquæ destil .....3iss 6|

M. Dissolve with heat. Sig.: Ten drops hypodermically four or five times a day; or a stronger solution as follows:

℞. Sodii salicylatis .....gr. xlv 3|
Caffeinæ .....3i 4|
Aquæ .....3iss 6|

M. Dissolve by heat. Sig.: Ten drops hypodermically three or four times daily.

Acne.

The following combinations are recommended by *Bull. Gen. de Ther.* in the treatment of acne of the face:

℞. Sulphuris precip. .....3vi 24|
Glycerini .....3v 20|
M. et adde:
Spts. camphoræ .....℥i 30|

M. Sig.: Apply with a brush to the face at night; or:

℞. Pulv. cretæ .....gr. xv 1|
Sulphuris precip. .....gr. lxxv 5|
Tinct. saponis viridis |
Liq. petrolati, āā.....3i 4|

M. Ft. unguentum. Sig.: Apply to the face and allow it to remain for from ten to fifteen minutes, remove by washing and dust the face with pulverized amylum.

Treatment of Pneumonias.

The present treatment of pneumonia, according to L. Litchfield in *St. Louis Med. Review*, is symptomatic, with the promise of an antitoxin some time in the future. It is the author's belief, however, as against those less optimistic, that much can be done in the way of lessening the mortality by judiciously treating the symptoms as they arise. The patient should have an abundance of fresh air, without draughts, excluding all unnecessary persons from the room. He should not be weighted down with a needless amount of bedclothing, and it is best to clothe him in light woolen pajamas which unbutton in front. At the beginning of the disease the digestive tract should be thoroughly emptied by a calomel or saline purge or both. Water should be given freely, and in the delirious or unruly it should be forced, if necessary, and administered by high saline enemata or by hypodermoclysis. For the pain, if severe, codein or morphin and atropin may be used sparingly hypodermically. If the blood pressure is high with hard, full, bounding pulse, the patient may be bled or veratrum or aconite, with active catharsis and ice bags to the head and chest, may serve the same purpose. Delirious patients should be constantly watched to guard against accident. During the initial stage, especially, nourishment should be given sparingly, and, of course, should be simple and easily digested, as fermentation is liable to occur, and is a serious complication.

Elimination by the bowels and kidneys must be carefully watched. The temperature should be reduced by sponging and packs. The heart is the important organ to watch, as bruits may appear, both mitral and pulmonic, without special significance; the important thing is to note whether or not the second pulmonic sound is exaggerated, as it is a sign that the right heart is being taxed, and that strychnin is indicated. If the pulse becomes weak, irregular or intermittent, digitalis is indicated.

Alcohol is recommended by the author in the form of old whiskey or brandy, as it steadies the nervous system, stimulates the digestive system, regulates the distribution of blood and takes the place of fats and carbohydrates and can be given in large quantities without signs of intoxication. The author recommends it when the pulse approaches 120, and in sufficient quantities to keep the pulse at or below that point.

[Some authors claim that there is a definite physiologic antagonism between strychnin and alcohol. See abstract in THE JOURNAL, Dec. 17, 1904, p. 1846.—ED.]

If cyanosis appears, oxygen is indicated by inhalation, well mixed with air, for if used too concentrated, it is capable of irritating the pulmonary and bronchial tissues. Dyspnea and cyanosis are frequently cleared up under its use. If collapse threatens, hot mustard bath or hot pack, with free use of stimulants hypodermically, should be employed, and the conditions should be watched from hour to hour or minute to minute to note improvement.

For general nervousness, hot baths and hot packs are of value and poultices may sometimes be resorted to. The air

may be moistened with steam charged with benzoin or eucalyptol to add to the comfort of the patient when there is dryness of the respiratory tract.

After the crisis has passed or when the temperature has dropped in cases of delayed resolution and the patient's desire for food increases, a full nutritious diet, consisting of eggs, chops, steaks, etc., may be given as long as the pulse is good and there are no signs of pulmonary edema.

Acute and Chronic Gastric Catarrh in Infants.

Robert Hutchison of London recommends in the treatment of acute gastric catarrh that the child be put to bed and all foods withheld until vomiting has disappeared, but during this time sips of iced water may be given in order to relieve the great thirst which is often present. If there is much vomiting there is no occasion for washing out the stomach, but in cases in which nausea alone is present lavage is indicated. The most useful drugs are calomel and bismuth. The treatment should be commenced by giving repeated doses of calomel, grain one-sixth to one-fourth (.01-.015) every two or three hours until two grains have been taken and this should be followed by bismuth in large doses, when the attack will rapidly subside.

CHRONIC DYSPEPSIA.

In the treatment of chronic dyspepsia the main line is dietetic and he gives the following directions for diet:

No food must be taken between the regular meals.

No sugars or sweets of any sort are to be eaten.

The child must not eat new bread, potatoes, peas or beans, turnips or carrots, pickles, pastry, jam, syrup or treacle, or cakes. The diet should consist of stale bread or dry toast, with butter or dripping, bacon, eggs, fish, meat, milk, plain milk pudding (except cornflour, arrowroot or sago) and green vegetables in small quantity; the carbohydrates are thus limited.

Medicolegal

Delusions—Privilege—Hypothetical Questions.—The Supreme Court of California holds, in People vs. Griffith, where the defendant was charged with the crime of assault with intent to commit murder, that an instruction to the effect that, when partial insanity or insane delusion or hallucination is relied on, it must be made to appear that the crime charged was the product or offspring of such insanity, insane delusions, or hallucinations, and not the result of some sane reasoning and natural motives. It also holds that the rule as to privileged communications between a party and his physician does not apply in a criminal case. And it says that in every case where a hypothetical question is asked, based on the evidence, it is not to be presumed that the jury is so stupid as not to understand that it is addressed to the supposed acts, facts, and conditions of the defendant in the case; and the answer which the witness gives to such hypothetical question must have its weight with the jury as bearing on the defendant's individual case, or else the jury, through their ignorance and density, would be unfit to sit in any cause.

May Testify as to Wounds Observed on Prisoner.—The Court of Errors and Appeals of New Jersey holds, in State vs. Miller, a homicide case, that it was not erroneous to permit the physician of a jail, in which the accused was confined, to testify to wounds observed by him on the backs of the hands of the accused, although he also testified that he had the accused removed to a room in another part of the jail and divested of his clothing. It says that the observation made by the witness of the wounds on the hands, and testified to by him, was in no sense a compelling of the accused to be a witness against himself. Nor does the court desire to be understood as conceding that if the physician had rendered himself liable to an action for damages for illegally removing the clothing of a prisoner, and thereby enabling him to observe a wound on the person which had been concealed, the testimony of his observation would have been inadmissible. It says that if the wound were on the face or hand, or a part of his person exposed to common view, it would be absurd to say that testimony of what the wound presented to common observation was compelling a person, on whom the wound was, to be a witness against himself. And it thinks it equally absurd to say that the testimony of the observation of a wound in any part of the body, although obtained by a forcible removal of what concealed it, is to be rejected as produced by compelling a person to be a witness against himself. But the court says that there are cases which carry the protection of the accused under such constitutional restrictions to an extent which seems unwarranted.

Privileged Communications and Evidence of Condition.—The Supreme Court of Indiana says that, in the case of Haughton vs. Ætna Life Insurance Co., a physician testified over the plaintiff's objection that the insured in this case personally employed him, and that he advised professionally with said insured during three months named. Section 505, Burns' Annotated Statutes of 1901, prohibits physicians from testifying to "matter communicated to them, as such, by patients, in the course of their professional business, or advice given in such cases." Competency to testify is the rule, and incompetency is the exception. No person will be excluded from testifying, and no testimony will be rejected, unless within the inhibition of the statute. The statute in no manner attempts to prohibit a physician from testifying to the fact of his employment, and the rendition of professional service to a patient. Such facts are not secret and confidential, but may be, and usually are, known by other persons. The statute only forbids the physician from making public matter concerning his patient communicated to or learned by him, as such, through his professional relation. This rule was not violated in the testimony given by the physician referred to, and there was no error in overruling the plaintiff's objection to this evidence. Briesenmeister vs. Knights of Pythias, 81 Mich. 525; Brown vs. Metropolitan Life Ins. Co., 65 Mich. 306; Nelson vs. Nederland Life Ins. Co., 110 Iowa, 600; Patten vs. United States L. and A. Association, 133 N. Y. 450; Sovereign Camp of Woodmen vs. Grandon (Neb.), 89 N. W. 448; Price vs. Standard Life, etc., Co. (Minn.), 95 N. W. Rep. 1118.

Again, the court says that the material point in controversy in this case was the physical condition of the insured at the time he made and signed the statements contained in the application for insurance, and his own knowledge of the same. As tending to show such facts, evidence of his physical condition shortly before and immediately after the time in question was competent. The statements in question were made by the insured in explanation of contemporary facts—to an intimate friend, while he was in bed, as explanatory of that fact; to the county superintendent, in explanation of the dismissal of his school; to a third party, in explanation of his appearance, walk, and the smell of iodoform about his person. These declarations, made in connection with the manifestly impaired condition of his health at the time, and explanatory thereof, were admissible, under the issues of the case, as tending to show knowledge of his physical condition at the time of making the alleged false and fraudulent statements. Swift vs. Massachusetts Mut. Life Ins. Co., 63 N. Y. 186; Kelsey vs. Universal Life Ins. Co., 35 Conn. 225; Averson vs. Kinnaird, 6 East, 188; Stauffer vs. Young, 39 Pa. 455.

Powers of Health Officer—Employment of Physician.—Section 1412 of the Revised Statutes of Wisconsin of 1898 makes it the duty of every health officer, "on the appearance of any dangerous contagious disease in the territory within the jurisdiction of the board of which he is a member, to immediately investigate all the circumstances attendant on the appearance of such disease, make a full report to such board and also to the State Board of Health; and it shall likewise be his duty at all times promptly to take such measures for the prevention, suppression and control of any such disease as may in his judgment be needful and proper, subject to the approval of the board of which he is a member." The Supreme Court of Wisconsin says, Collier vs. Town of Scott, that, under this statute, the power conferred on the health officer is to "investigate all the circumstances attendant on the appearance of such disease, make a full report to such board and also to the State Board of Health." No authority is vested in the health officer to take measures for the prevention, suppression, and control of disease except subject to the approval of the board

of health, and it is clear that the power to investigate and report does not embrace the power to take measures for the suppression and control of disease, vested in the board of health as a board. The statute does not appear to give the health officer any discretionary power concerning the prevention, suppression, and control of the disease, but simply imposes on him the duty of investigating the circumstances attendant on the appearance of the disease, and making report. Whether the health officer could in any case bind the town by the employment of a physician to aid him in such investigation, the court does not now decide. The board, it says, is authorized to take such measures as may be deemed necessary for the prevention, suppression, and control of the disease, and this involves the exercise of discretion, which the statute wisely vests in the board, and which was not intended to be given to the health officer for obvious reasons. The power to charge a town with the expenses of a physician in the prevention, suppression, and control of a dangerous and contagious disease, if it exists in any case, is vested in the board of health, and not in the health officer without the approval of the board, and the physician employed is bound to know at his peril that the action of the health officer in that regard is subject to the approval of the board. A health officer has no power to employ a physician to treat smallpox patients and furnish them with medicine. Again, it was contended in this case that the failure to secure the approval of the board of health does not relieve the town from liability, where the health officer takes such measures as in his judgment are necessary to prevent the spread of disease. But the court does not so understand the statute. It says that the power to investigate and report is given to the health officer without limitation, but the power to take measures for the prevention, suppression, and control of the disease is vested in the board, and can not be exercised by the health officer without approval of the board. Whether this legislation is wise or otherwise, and whether more extensive powers should be given to health officers, are not questions for the courts. Furthermore, under the statutes of Wisconsin, Section 1416 of which provides that the charge shall be against the person so taken care of, or against any other person who may be liable for his support, the court says that it is at least very doubtful whether the board of health has any power to charge a town with the expenses of medical services and medicine furnished to a person infected with smallpox, especially when such person is not a pauper, but well to do, and amply able to pay for such services and medicine.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

May 13.

1 *Surgical Intervention in Cases of General Peritonitis from Typhoid Fever and Acute Gonococcus Infection. J. Price, Philadelphia.
2 *Diphtheria Antitoxin in Cerebrospinal Meningitis. A. J. Wolff, Hartford, Conn.
3 *Gallstone Obstruction of the Bowel; Report of a Case; Removal of One Stone from the Bowel and a Second from the Gall Bladder; Recovery. A. C. Wood, Philadelphia.
4 The Alleged Destruction of Red Blood Corpuscles in the Spleen. E. T. Williams, Boston, Mass.
5 Pancreatic Cyst; Report of a Case. M. J. Karpeles, Philadelphia.
6 *McGraw Elastic Ligature for Gastroenterostomy Secondary to Murphy Button: Operation with Description of Technic. R. J. Christie, Quincy, Ill.
7 *Gunshot Wounds and Their Treatments. J. R. Cook, Fairmount, W. Va.

1. **Surgical Intervention in Typhoid and Gonococcus.**—Price states that typhoid and other perforations are always followed by peritonitis, local or general. The possibility of its remaining local or circumscribed by adhesions should not be considered if the diagnosis of perforation has been made. In more than 75 per cent. of the cases recorded, general septic peritonitis has been found with escaping bowel contents, gas and feces, foul pus, and free exudate in considerable quantity. The perforations are quickly and easily found near the ileocecal valve and are rarely multiple or ragged. Whether of large or small caliber, fine pure silk is the safest suture material; the lumen of the bowel can be safely reduced to one-half. The interrupted suture gives the best result and less risk of strangulation. If the margins of the ulcer are ragged they should be trimmed. A resection is an unjustifiable and dangerous procedure; simply anchor the ragged ulcer and disorganized bowel with catgut sutures on the opening between drains, forming an artificial anus or fecal fistula, which is a much safer procedure and is commonly followed by spontaneous closure. If this result does not follow, the fistula can be easily remedied after convalescence. The irrigation or wash toilet, so long practiced, has unquestionably given the best results. It should be a thorough cleansing with sterilized water of the entire surface, both visceral and parietal peritoneum. Price believes irrigation with hot normal salt solution is harmful by irritation. Curetting or wiping dirty points with gauze is followed by good results. The gauze pack, so commonly and recklessly used, is a dangerous procedure, favoring too many acute and chronic obstructions by pressure. Unless the operator understands how to place gauze drains or coffer dams in and about filthy surfaces, he would better fill the peritoneal cavity with hot salt solution and close.

2. **Diphtheria Antitoxin in Cerebrospinal Meningitis.**—Wolff asserts that when the gross lesions of the disease have made extensive onslaughts on the vital centers a cure can not be effected. To be effective, the antitoxin must be used early in the course of the disease and in large amounts.

3. **Gallstone Obstruction of the Bowel.**—Wood reports the case of a woman, aged 58, operated on for intestinal obstruction, due to a gallstone in the ileum, six inches above the valve. The stone weighed 11.6 gms. and measured 9.3 cm. by 8 cm. in circumference. A second stone, weighing 9 gms., was removed from the gall bladder. Brief notes of 21 additional cases, collected from the literature of the past five years, are appended. Of these 22 cases, 12 patients recovered and 10 died; mortality, 47 per cent. But two of the number were men. The ages ranged from 31 to 73. The average age of the women was 59.85 years. One-half of all the cases occurred in the sixth decade. The site of the obstruction was: Duodenum, 1; duodenojejunal junction, 1; jejunum, 2; "small intestine" (probably ileum), 1; ileum, 11 (probably 15); ileocecal valve, 1; colon, 1; not stated (probably ileum), 3. In one case the stone was in a mass of adhesions in the gall-bladder region and caused obstruction by setting up a local peritonitis.

6. **McGraw Elastic Ligature for Gastroenterostomy Secondary to Murphy Button.**—Christie reviews the development of gastroenterostomy, gives credit to American surgeons for its present state of perfection, relates the pathogenic conditions which may be relieved by the operation, classifies cases which are best done with the Murphy button, describes the technic of the elastic ligature operation as a secondary procedure, and gives the history of a case.

7. **Treatment of Gunshot Wounds.**—Cook says that if the Roentgen rays are not available to aid in locating the bullet, in wounds of the leg, arm or body, the best method is to wash out the tract and to await developments. He especially emphasizes the importance of drainage in all operations for gunshot wounds.

Medical Record, New York.

May 13.

8 *Tuberculosis Situation in Penal Institutions, with Especial Reference to the State Prisons at Sing Sing, N. Y., and Columbus, Ohio. S. A. Knopf, New York.
9 *Dermatitis Seborrhoica and Its Relations to Alopecia and Other Conditions. L. D. Bulkley, New York.
10 Prostatectomy. R. Harrison, London.
11 Importance of Early Recognition of Suppurative Ear Disease. A. G. Bryant, New York.
12 *Treatment of Epidemic Cerebrospinal Meningitis with Injections (Chiefly Intraspinous) of Diphtheria Antitoxin. G. L. Peabody, New York.
13 *Case of Long-Standing Major Hysteria Characterized by a Paroxysmal and Fixed Pain, Mental Depression, Confusion, Delirium with Delusions, and Hallucinations Terminating in Sudden Recovery. T. Diller, Pittsburg.
14 *Case of Menstrual Urticaria. D. J. M. Miller, Philadelphia.

8. **Tuberculosis Situation in Penal Institutions.**—Knopf, after a visit of inspection of the state prisons at Sing Sing

and Columbus, makes the following suggestions: All prisoners detained in jails should be subjected to careful medical examination, and all tuberculous individuals should be isolated. Having arrived at the penal institution, tuberculous prisoners should be assigned to the sort of labor best suited to their condition, and the temperature of the work rooms should be carefully regulated to prevent overheating, while proper dust consumers should also be installed. All prisoners should receive periodical medical examinations. Rules against expectoration should be strictly enforced, and the use of stationary and pocket cuspidors is advised, suitable types being illustrated. Tuberculous prisoners should always have separate cells, and all inmates should have a chance to exercise in the open air several times a day. Whenever possible those predisposed to tuberculosis and those in the earlier stages of the disease should be assigned to agricultural work. The more advanced cases should be treated in special wards and should be required to wear mouth masks to prevent infection. The indiscriminate pardoning of far-advanced cases is to be deprecated, as their families are often too poor to provide for them and they easily become sources of infection to others. Prisons should be constructed so that there is plenty of light, air and ventilation on soil that is dry and porous. These conditions do not exist in Sing Sing prison, which is notoriously damp, and the author suggests some temporary improvements, including the substitution of paint for whitewash on the cell walls, which would make it more sanitary, until an institution can be erected in a more suitable situation. The cells of the Ohio prison are, if anything, worse than those at Sing Sing, and the conditions existing in the work shops, particularly in the tobacco rooms, are highly insanitary.

9. **Relations of Dermatitis Seborrhoica to Alopecia.**—Bulkley says that this is an eruption that forms about one-tenth of the cases which come to the dermatologist. Both sexes are affected in about equal proportions, and, though observed at all ages, from 1 year to 89 years, it is mainly a disease of middle life, almost 53 per cent. of the cases occurring between the ages of 20 and 40. Combining the statistics of alopecia and dermatitis seborrhoica, it appears that in 557 out of 880 cases, or 63 per cent., the loss of hair was due to the latter condition. Dermatitis seborrhoica in all its forms is more or less contagious, and its development is undoubtedly favored by the various elements which lower the vitality and render the skin more susceptible to operation of such local agencies. The differential diagnoses from psoriasis, ringworm, pityriasis rosea, syphilis and eczema is discussed. Bulkley's treatment consists mainly in the application of various combinations of resorcin, sulphur, salicylic acid, carbolic acid, formalin, etc. In this connection he says that proper local treatment is all essential, but for the best results a certain amount of reconstructive treatment is necessary.

12. **Treatment of Epidemic Cerebrospinal Meningitis with Diphtheria Antitoxin.**—Peabody gives the results obtained in 22 cases of the disease treated in this way by himself and Jacobi in the Roosevelt Hospital. In all but one the diagnosis was proved by finding the meningococcus in the spinal fluid. Of the 22 patients, 4 received the antitoxin subcutaneously, 7 received it at different times both subcutaneously and intraspinously, and 11 received it only intraspinously. In only one case did it seem to cause any unpleasant effect. The mortality of the 22 cases, while still uncertain, will go well beyond 50 per cent., and the percentage of recoveries to date is a little over 9. There does not seem to have been any influence for either good or evil ascribable to the antitoxin treatment.

13. **Major Hysteria.**—Diller reports the case of a married woman of 35, who for over two and a half years presented a picture of serious illness, of which uterine hemorrhage, severe autointoxication, mental depression, delirium, elevation of temperature, dyspnea and a great local tenderness and pain in the left lower abdominal and inguinal regions were different phases. No organic basis for the clinical condition could be detected, and one day, during a consultation, it was suggested that an exploratory incision be made through the tender abdominal muscle. From that day the patient began to improve, and three weeks later she was discharged, apparently in the best of physical and mental health.

14. **Menstrual Urticaria.**—Miller epitomizes the literature of this condition and describes its occurrence in a girl of fifteen, who menstruates regularly and whose attacks of urticaria make their appearance seven or eight days before and cease two to three days before each period. Occasionally the urticaria persists until the flow begins, rarely during the first day or two of its course. During the intervals between the periods the patient is quite free from attacks and she is perfectly healthy in other respects. The urticaria is of the ordinary type.

Medical News, New York.

May 13.

15 *Physiology the Basis of Clinical Medicine. Suggestions as to Courses in Applied Physiology. J. M. Taylor, Philadelphia.
16 *Hypodermatic Use of Adrenalin Chlorid in the Treatment of Asthmatic Attacks. D. M. Kaplan, New York.
17 Principles Governing the Technic of Roentgen Ray Therapy. E. G. Williams, Richmond, Va.
18 *Common Causes of Gynecologic Disease, with Some Remarks on Prophylaxis. G. G. Ward, New York.
19 *Remarks on Treatment of Fulminating Appendicitis. J. M. Inge, Denton, Texas.
20 *Gonorrheal Arthritis. H. W. Frauenthal, New York.
21 Case of Sudden Death in a Newly Born Infant Due to Suprarenal Apoplexy. R. E. Pick, New York.

15. **Course in Applied Physiology.**—Taylor discusses the value of possessing a thorough knowledge of practical physiology, and points out the deplorable lack of such knowledge by many in the profession. In this connection, he asks whether the teaching in our medical schools is such that all who graduate have secured opportunities to learn the most important principles by which clear reasoning can be consistently achieved. If not, wherein is the chief deficiency? Appended to the article are letters, or quotations from letters, pertinent to the subject under discussion written by prominent teachers of physiology in all parts of the country. They are unanimous in advocating the more extended teaching of applied physiology.

16. **Adrenalin in Asthma.**—Kaplan reports on the use of adrenalin in the Montefiore Hospital for checking the attacks of asthma, and reports several cases. He says that it is safe to say that the contraindications to the use of adrenalin are generally overstated. Although relieving the paroxysms with greater promptness and certainty than most of the other drugs at our command, the hypodermic use of adrenalin chlorid is in no sense curative of the disease as such, and equally useless are prophylactic injections.

18. **Causes of Gynecologic Disease.**—Ward is of the opinion that a large proportion of these diseases are preventable, and that if the causes and etiologic factors were given more prominence in the teaching of gynecology, the physician would be influenced to avoid these pitfalls, and thus save many a woman from an operation or from chronic invalidism. Prophylaxis means prevention, and in order intelligently to prevent the occurrence of any disease, it is important that we understand the cause. Prophylaxis in gynecology is largely dependent on the proper conduct of a labor or an abortion. Disregard of the importance of antepartum examination, and the cultivation of diagnosis by abdominal palpation, thus reducing the amount of vaginal manipulation during labor; the too ready resort to the forceps and their unskillful use, especially in regard to their application through an undilated cervix, the lack of inquiry as to whether the uterus has involuted properly during the puerperium, the neglect immediately to repair injuries to the pelvic floor, the failure to recognize the importance of gonorrhea in its earlier manifestations, and the popular methods of treating abortion, are all common factors that go to make gynecology a specialty.

19. **Fulminating Appendicitis.**—Inge's paper is largely a discussion of the methods of treatment advocated by Ochsner and Morris, with a report of two cases.

20. **Gonorrheal Arthritis.**—The subject is discussed in general by Frauenthal. Incidentally, he remarks that if the same zeal be displayed in seeking for gonococci as a cause of arthritis as there is for looking for uric acid and urates, possibly more cases of gonorrheal arthritis will be found.

New York Medical Journal.

May 13.

22 *Influence of Cobra Venom on the Proteid Metabolism. J. Scott, Edinburgh.
23 Principles of Manual Therapy. Its Application by the Physician. J. P. Arnold, Philadelphia.
24 *Urethroplastic Dislocation. C. Beck, New York.
25 *Skiagraphy of the Future. J. Rudis-Jicinsky, Cedar Rapids, Iowa.
26 When and How Should the Tuberculous Patient Be Treated? F. M. Pottenger, Monrovia, Ga.
27 Addition of Calcium Salts to Nutrient Broth. A Reliable and Convenient Method for Growing the Pneumococcus, Meningococcus and Certain Other Bacteria. C. Bolduan, New York.
28 Case of Digitalis Poisoning with Very Low Temperature Without Collapse—Recovery. W. N. Johnson, Philadelphia.
29 Immediate Abdominal Section. D. Lewis, Chicago. (Continued.)

22. **Influence of Cobra Venom.**—An extended series of observations has been carried on by Scott with reference to the effect of cobra venom on proteid metabolism. Dogs were used for this investigation. When the animal came into nitrogenous equilibrium, sublethal, and in some cases lethal, doses of cobra venom were injected subcutaneously. Scott found that practically no change in the rate of proteid metabolism was induced by the injection, in spite of well-marked local reaction. A slight decrease in the proportion of urea nitrogen, quite insignificant compared with that produced by diphtheria toxin and various drugs, was observed. A sight rise in the proportion of ammonia nitrogen occurred. There was a slight rise in the proportion of nitrogen purin bodies. The nitrogen in other compounds showed no constant change. The P_2O_5 excreted showed no constant change, but in two experiments there was a slight rise. The change produced in the proteid metabolism is, therefore, small, and as such is the case, being in the directions of decreased elaboration of urea and increase in the proportion of nitrogen excreted as ammonia, it seems to indicate a slight toxic action on the hepatic metabolism rather than a general action on the proteid changes; and tends to confirm the view that the poison acts chiefly on the nervous system.

24. **Urethroplastic Dislocation.**—The procedure described by Beck, known as urethroplastic dislocation, is carried out as follows: After the patient is brought into the lithotomy position, a medium-sized metal catheter is introduced and is gently pressed against the entrance of the strictured area. If firmly held by an assistant, it will serve as a landmark. The indurated area is now exposed by a three-inch incision made in the raphe. The tissues are divided step by step until the urethra is reached. The sclerotic area generally extends into the neighboring perineal muscles. After its length is ascertained, the urethra is grasped with toothed forceps, raised and carefully freed from the surrounding tissues. After isolation is perfect, and not until then, the indurated portion is exsected at its central as well as it peripheral ends. The urethral stumps are now caught with silk ligatures so that they can be pulled forward and further mobilized until they can be placed in apposition. If mobilization of the central end offers any technical difficulties, a large catheter is introduced and serves as a handle during dissection. After the mucous membranes of both urethral ends are united with the fine catgut sutures, a large rubber catheter, provided with a shield, is introduced and fastened at the top of the glans. A row of periurethral sutures is then added, and the skin wound is closed with interrupted silk sutures. No wound drainage is used.

25. **Skiagraphy.**—This paper is essentially a description of improved technic. The apparatus described is the author's protector, a home-made combination of a protective screen and shield, mask, and a lead box, with diaphragm and a metal cylinder and specula for precluding the diffused *x*-rays. The device may be used with great advantage in therapeutic work, in diagnosis, in fluoroscopic examination and in skiagraphy, giving most excellent results not obtainable without it. During the whole exposure of a patient the tube may be observed in action anteriorly and posteriorly, without disturbing the patient. In this way the patient and operator are protected in prolonged exposures. A burn is not possible. Any tube of a good make works with this attachment more steadily, the spreading of the rays when the tube becomes high in vacuum is avoided, and so-called concentration becomes possible, giving the illumination of the part exposed only. The illumination can be regulated at will. The whole arrangement and accessories to the protector weigh only about one pound and one ounce, and are easily portable with the tube, and in the same compartment, or the same box without other attachment.

Boston Medical and Surgical Journal.

May 11.

30 Infections of the Respiratory Tract with Influenza Bacilli and Other Organisms; Their Clinical and Pathologic Similarity and Confusion with Tuberculosis. F. T. Lord, Boston.
31 *Perforated Duodenal and Gastric Ulcers; a Report of Two Cases; Operation; Recovery. C. L. Scudder, Boston.
32 *Suggestions in Regard to the Diagnosis of Seminal Vesiculitis. H. Cabot, Boston.
33 Report of a Case of Exstrophy of the Bladder, with a Consideration of Operative Treatment. H. G. Spooner, New York.

31. **Perforated Duodenal and Gastric Ulcers.**—Scudder records two cases of ulcer of the gastrointestinal canal. One case was an ulcer of the stomach. The other case was an ulcer of the duodenum. Both ulcers perforated, causing acute peritonitis. The first patient was operated on four hours after the initial sign of perforation. The second patient was operated on forty-eight hours after perforation. It was thought previous to operation that the patient had an appendicitis and a general peritonitis. Both the ulcers were closed by sutures. The peritoneal cavity in each instance was quickly cleansed by salt flushing and wiping. Cigarette and tube drains were used for a few days only in each case. Both patients recovered. In each case at a subsequent time a posterior gastrojejunostomy was done. The anastomosis was made close to the ligament of Treitz. Both patients recovered from the second operation, and are well to-day.

32. **Diagnosis of Seminal Vesiculitis.**—The technic adopted by Cabot for the purpose of demonstrating the presence or absence of pus in any noticeable amount in the cavity of the vesicle is as follows: Patients are instructed to come with a full bladder, and this is first emptied, in order to obtain a general idea of the amount of pus in the urethra. The urethra is then irrigated with boric acid solution, and 4 or 5 oz. allowed to run back into the bladder, which is then emptied. In this way the urethra is rendered as clean as possible. The bladder is then again distended with boric acid or salt solution, and the prostate massaged, leaving the region of the vesicle undisturbed. A varying amount of prostatic fluid can be expressed so as to flow from the meatus, but this is not to be regarded as the whole expressed contents, as a certain amount will flow back into the bladder, depending, probably, on the condition of the posterior urethra. If, now, the patient empties the bladder, as much has been done as possible to eliminate contamination from neighboring organs. The bladder is then a third time distended and the vesicles massaged, expressing the contents as thoroughly as possible. By this massage, a variable amount of vesicular contents is expressed so as to come out at the meatus, but in many cases the major portion of it runs back into the bladder and is passed when that viscus is emptied. By using this routine an approximately accurate idea of the contents of the vesicle can be obtained and it is obtained moderately free from contamination.

Lancet-Clinic, Cincinnati.

May 6.

34 *After-Treatment in Abdominal Operation. H. J. Whitacre, Cincinnati.
35 Treatment of So-called Incurable Chronic Disorders by the Physiologic Method. J. H. Kellogg, Battle Creek, Mich.
36 Death Through Misadventure. W. W. Vinnedge, La Fayette, Ind.
36½ Urethrorrhea. E. Harlan, Cincinnati.

34. **After-Treatment in Abdominal Operation.**—The chief points made by Whitacre are: 1. The importance of the face mask as an additional safeguard. 2. The prevention of postoperative vomiting by the stomach irrigation. 3. The avoidance of shock by minimizing the injury. 4. The high value of salt solution per rectum in re-establishing kidney function and in contributing to the comfort of the patient. 5. A prolonged period of convalescence will restore the patient most promptly to a normal state of health.

Memphis Medical Monthly.

May.

37 Facts Versus Theory in the Treatment of Pneumonia. J. L. McLean, Memphis.
38 Lobar Pneumonia and Its Sequelæ; Report of Cases. W. T. Black, Memphis.
39 Further Remarks on the Etiology of Blackwater Fever. J. B. McElroy, Memphis.
40 Ulceration of the Cornea in General Diseases. E. C. Elliott, Memphis.
41 Cough from Causes Outside of the Lungs. J. W. Price, Memphis.
42 *Technic of the Operation for Appendicitis. J. E. Johnson, Memphis.

42. **Operation for Appendicitis.**—The technic prescribed by Johnson is very nearly that used by Morris. After the usual preparation, he begins by taking up a fold of skin and fat between the thumb and index finger, and divides it down to the external oblique. The points of the closed scissors are now pressed through the external oblique, and by opening, split the muscle (aponeurosis in this location) to correspond with the opening of the skin. The internal oblique and transversalis are treated in the same way as the external oblique. The peritoneum is divided between the two forceps, and a strand of No. 2 catgut is passed through one end of the incision and tied. This suture is to be used for drawing up the peritoneum and for closing. The appendix is now tied off close to the bowel and removed; the stump is touched with carbolic acid. The cuff of peritoneum is sutured by what is practically a double Lembert suture. This suture is tied and the ends used as a retractor, while a pouch-string suture is introduced, by beginning half an inch from the appendix, and including part of the peritoneal covering of the bowel, all around. The space between this suture and the suture already tied is scarified with a needle. The ends of the suture in the cuff are now cut off, and as the pouch-string suture is tightened, the stump is pressed back into the bowel. The exposed portion is washed with salt solution and returned to the abdomen. This method of handling the stump has several advantages over simply tying a ligature around and cutting off the appendix, viz., it prevents leaking; there is less appendix left, which might slough; if it does slough, it is inside of the bowel; the peritoneal surfaces are directly together, and do not have to depend on pressure atrophy to bring them together; the peritoneal surface of the bowel, half an inch from the appendix, is brought over the stump; there is no exposed stump to cause adhesions. The closure is begun by drawing back the muscles with tenacula and with a curved needle, and the catgut, already tied into the peritoneum, closes the peritoneum, using a continuous suture. Tie and cut off the suture. With the tenaculum draw the two outer muscles toward the median line and begin the suture in the transversalis, allowing the muscles to come toward the outside as the suturing continues. By retracting in the direction of the split that is being closed, the opening can be kept over the part of the incision that is being sutured, thus giving plenty of room. The muscles move freely over each other and can be retracted for a considerable distance. The internal and external oblique are sutured in like manner, using plain No. 1 catgut. The skin is closed by a subcuticular suture of plain No. 1 catgut and covered with collodion. The advantages of this incision are self-evident. No muscles are cut, they are split. There is no cicatrix binding all of the muscles together and acting as a splint, as in the straight through cut. There is less risk of hernia; there is less pain; the healing is quicker; the scar is hardly noticeable. The patient is allowed to turn over at will, from the first, and may be allowed to leave the bed in from five to seven days.

Brooklyn Medical Journal.

May.

43 *Surgical Treatment of Cirrhosis of the Liver. R. S. Fowler, New York.
43½ Clinical Study of Abscess of Lung. W. H. Rankin.
44 Case of Esophageal Pouch. W. C. Wood.
45 Purulent Ophthalmia. J. C. Hancock.
46 Pelvic Condition of Primiparæ When They Are Discharged from the Physician's Immediate Care. A. M. Judd.
47 "Growing Pains" Fallacy. R. W. Westbrook.
48 Report of Two Cases of Maternal Impression. R. E. Coughlin.

43. **Surgical Treatment of Cirrhosis of Liver.**—The operative procedure employed by Fowler is as follows: After the usual preparation of the patient for anesthesia and abdominal section, the abdomen is tapped some hours before the time set for the operation, preferably the night before, and as much fluid as possible drawn off. This relieves the respiratory embarrassment and so conduces to a safer anesthesia. The patient having been anesthetized, the abdomen is opened by a median incision, reaching from the ensiform cartilage to halfway between the umbilicus and the pubes. The edges of the wound are widely retracted and the peritoneal cavity is thoroughly dried. Every particle of fluid is sponged away. This is not done gently, but roughly, with large, coarse laparotomy pads. The peritoneum is scrubbed with a crash sponge. The upper portion of the liver is scraped with a scalpel, as is also the peritoneum covering the diaphragm. The freshening of the surfaces is completed by going over them roughly with a small piece of crash toweling grasped in a stick sponge holder. The surface of the spleen is likewise abraded, but not as roughly as the liver surface. The next step consists in shortening the round ligament of the liver by taking pleats in it and suturing it to the parietal peritoneum and rectus muscle. This holds the liver in closer apposition to the diaphragmatic peritoneum. To make the approximation more complete, the anterior edge of the liver is sutured to the parietal peritoneum. All sutures are interrupted and of chromic catgut in round needles. Following this, one edge of the wound is widely retracted, and the omentum is sewn to the parietal peritoneum in a line across the abdomen and up to the wound margin. The same procedure is carried out on the opposite side. The first sutures placed are those furthest from the wound. The peritoneum is again dried, and the wound closed with cross sutures of silkworm gut, fastened through rubber bolsters. The skin is sutured with a continuous chain-stitch of silk. The subsequent dressing and treatment is that usually employed in laparotomy cases in which the intestinal canal has not been invaded.

New York State Journal of Medicine, New York.

May.

49 Prostatic Hypertrophy. W. B. Jones, Rochester, N. Y.
50 *Alexander Operation; Its Results, Immediate and Remote. J. E. King, Buffalo, N. Y.
51 *How and When to Use Antitoxin in Diphtheria. C. G. Kerley, New York.
52 Gynecologic Importance of Prolapsed Kidney. A. H. Goelet, New York.
53 Passing of the Old Physician. E. Lester, Seneca Falls, New York.
54 Diarrhea and Bowel Troubles in Infants and Adults. B. W. Stearns, Binghamton, N. Y.
55 Infantile Cerebral Palsy in Its Relation to Epilepsy. E. Sharp, Katonah, N. Y.
56 Symptoms of Cerebrospinal Meningitis. G. H. Fish, Saratoga Springs, N. Y.
57 Observations on the Use of Forceps. E. M. Scofield, Jamestown, N. Y.
58 Clinical Features and Treatment of Epidemic Cerebrospinal Meningitis. F. Huber.

50. **Alexander Operation.**—A word is said in favor of this procedure by King, who believes that recurrence of the pathologic condition for the relief of which the patient is operated on by this procedure should be very rare, if the technic of the operation be varied according to what in the judgment of the surgeon seemed to be the requirements of the case, as determined by the size of the ligaments. When all is said and done, concludes King, it must be admitted that the Alexander operation has a prominent place in the treatment of uncomplicated retroversion.

51. **Antitoxin in Diphtheria.**—Kerley emphasizes the fact that the dosage of antitoxin is not fixed by the age of the patient, but by the severity of the infection and the duration of the disease when first seen. One child may require three thousand units of the antidote; another, 30,000 units.

American Practitioner and News, Louisville.

May.

59 William Osler—An Address. J. W. Irwin.
60 Syphilis. J. M. Morris.
61 *Cystitis. S. S. Prather.
62 *Cesarean Section for Myoma-Uteri Obstructing the Entire Pelvic Outlet. F. W. Samuel.
63 *Observations and Conclusions in Obstetrics. W. A. Keller.
64 *Points on Surgery of the Gall Bladder. L. P. Spears.

61. **Cystitis.**—In acute cystitis, Prather advocates no irrigation, soothing drinks, antiseptics, sedatives, hot applications to the pubes and rest in bed. For chronic cystitis, irrigation, stimulation, antiseptics and moderate exercise.

62. **Cesarean Section for Myoma Uteri.**—Samuel's paper is a review of this subject, with the indications and limitations as to treatment, and the report of one case.

63. **Observations in Obstetrics.**—Attention is directed by Keller to a few points in connection to the practice of obstetrics that bear frequent repetition. He says that the more the obstetrician follows nature, the better will be his results. Assist nature as much as possible without interference. More times harm has been done by trying to do too much than by not doing enough. In applying forceps, be sure of an empty bladder, and the position of the fetus; or get some one to put them on that does know the position. It is imperative to examine the perineum after all deliveries, and it is always well to give the patient a dose of ergot after the third stage of labor.

64. **Surgery of the Gall Bladder.**—For the treatment of cholelithiasis, Spears advocates cholecystostomy as the only conservative procedure in these cases, except where empyema or subsequent rupture and infection have taken place, in which case cholecystectomy is the best procedure, allowing that the common duct is not obstructed. Four cases are reported.

Milwauke Medical Journal.

April.

65 *Treatment of Retro-Displacements of the Uterus. C. A. Stewart, Duluth, Minn.
66 Juglandin. W. F. Waugh, Chicago.
67 Diagnosis of Extrauterine Pregnancy. J. Bruess, Milwaukee.

65. **Retrodisplacements of the Uterus.**—Some modifications of the methods generally practiced for the relief of retrodisplacements of the uterus have been made by Stewart, which simplify the procedure, and at the same time secure permanency of results. After breaking up adhesions the uterus is replaced in position and each round ligament is caught by a uterine tenaculum at a distance of from one to one and one-half inches from the uterus, depending on the amount of slack that the replacement of the uterus leaves in the ligament. Gentle traction is then made, sufficient to make the ligaments taut, when it will be seen that the vesico-uterine peritoneum has been lifted up so that it forms a sulcus. The sides of this furrow are overlapped and stitched together with a fine catgut suture which, as it approaches the round ligaments, tends to draw them together so that when it is completed the two ligaments are in close juxtaposition. The loop formed by the slack in the round ligaments is then stitched together with chromic catgut, after which they are folded over toward each other, fastened together and to the anterior aspect of the uterus. A reasonably extensive experience has convinced Stewart that his method possesses certain points of excellence that entitle it to consideration, such as ease and facility of execution, the certainty of securing equable support to the uterus by the uniformity of traction on each round ligament, and the added element of strength afforded by stitching the folds of peritoneum together so that they are able to aid in giving support to the replaced organ.

St. Louis Medical Review.

May 6.

68 Diagnosis of the Pneumonias. L. Litchfield, Pittsburg, Pa.
69 Pathology of the Pneumonias. J. C. Lange, Pittsburg, Pa.

Vermont Medical Monthly, Burlington, Vt.

March 25.

70 Epidemic Influenza in the Etiology of Certain Diseases. W. N. Bryant, Ludlow.
71 Hysterectomy for Fibroid Tumor of the Uterus; Recovery. A. L. Smith, Montreal.
72 Febricula. W. F. Waugh, Chicago.
73 Cancer of the Uterus. C. E. Chandler, Montpelier, Vt.
74 Treatment of Menstrual Disorders; with Special Reference to Cases in Women Suffering from Mental Diseases. G. S. Walker, Staunton, Va.

Detroit Medical Journal.

March.

75 Cancer and Sarcoma as Affected by Locality. T. A. McGraw, Detroit.
76 General Vibratory Massage. C. Sandzen, Kansas City, Mo.
77 Facial Erysipelas. G. W. Spohn, Elkhart, Ind.
78 Deformities of the Feet Corrected by Elastic Screw and Solid Pressure. V. L. Smith, Detroit, Mich.

April.

79 Hackley Hospital—A Model for Small Cities. F. W. Garber, Muskegon, Mich.
80 Case-History Clinic. R. C. Cabot, Boston, Mass.
81 Differential Diagnosis and Treatment of the Chronic Non-Tubercular Joint Diseases. W. E. Blodgett, Detroit, Mich.

Journal of Advanced Therapeutics, New York.

May.

82 Certain Theoretical and Practical Considerations on the Use of High-Frequency Currents. M. W. Brinkmann.
83 Report of the Committee on Current Classification and Nomenclature. W. J. Jenks and C. I. Clark.
84 Consideration of Some Electrical Modalities with Cases Bearing Thereon. J. H. R. Bond.
85 Contribution to the Knowledge of the Radio-Activity of the X-Ray Tuber. O. Juettner.

Medical Fortnightly, St. Louis.

May 10.

86 Conservative Treatment of Chronic Middle Ear Suppuration. F. R. Packard, Philadelphia.
87 Eradication of Syphilis and Gonorrhea. J. H. Adams, Paoli, Pa.
88 Thorns Among the Roses of a Specialist's Life. A. L. Benedict, Buffalo.
89 Anatomic Eponyms. R. S. Gregg, Chicago.

Buffalo Medical Journal.

May.

90 Traumatic Tetanus. C. Bentx, Buffalo, N. Y.
91 Pendulous Abdomen. J. P. Creveling, Auburn, N. Y.
92 Quarantine. F. H. Sawers, Rochester, N. Y.

Louisville Monthly Journal of Medicine and Surgery.

May.

93 Symptoms of Surgical Lesion in the Upper Right Abdomen. H. Grant, Louisville.
93½ Cesarean Section, Ectopic Gestation, Desmoid-Sarcoma and Uterine Fibroid. L. Frank, Louisville.
94 Tension—Its Relation to the Physical Organization. J. Glahn, Owensboro.

Cleveland Medical Journal.

May.

95 Anti-Tuberculosis Movement in Cleveland. J. H. Lowman, Cleveland.
96 Nutrition in Tuberculosis. J. P. Sawyer, Cleveland.
97 Mental Side of the Consumptive. G. H. Fitzgerald, Albuquerque, N. Mex.

California State Journal of Medicine, San Francisco.

May.

98 Thirty-Fifth Annual Meeting of the Medical Society of the State of California. F. L. Adams, Oakland.
99 Notes on Recent Progress in the Surgery of the Ear and Brain. A. Barkan, San Francisco.
100 Use of Benzoylvinyl-Diacetone-Alkamine (Beta-Eucain) Lactate in Eye, Nose and Throat Work. H. B. Ellis, Los Angeles.
101 Case of Primary Carcinoma of the Lung. H. Herbert, Los Angeles.
102 Tendon Transplantation. F. Lange, Munich.
103 Nephrotomy for Stone in the Kidney. C. M. Cooper and W. I. Terry, San Francisco.
104 Osteomalacia. C. S. Stoddard, Santa Barbara.
105 Fractures of the Anatomic Neck of the Humerus. T. L. Loofburrow, Eureka.
106 Recurrent Eclampsia. O. B. Spalding, Yreka.

Journal of Experimental Medicine.

April.

107 Study of the Changes in the Blood and Blood-Forming Organs Produced by Cytotoxic Sera, with Special Reference to Hemolymphotoxin. H. Woltmann.
108 Artificial Anastomosis Between the Portal Vein and the Vena Cava Inferior—Eck's Fistula. J. E. Sweet, New York.
109 A Second Coagulation of the Blood Due to a Substance That Is Not Identical with Fibrinogen and Is Coagulable by Saturation with Neutral Oxalate. E. T. Reichert.
110 Comparative Statistics of Antitoxin Horses. A Study of the Records of One Hundred Horses Immunized to Diphtheria Toxin, with Composite of Curves. W. R. Hubbert, Detroit, Mich.
111 Observations on Endothelial Separation in the Smaller Arteries and Veins. C. G. Farnum.
112 Study of the Protective Action of Snake Venom on Blood Corpuscles. H. Noguchi.
113 Method for Obtaining Mass Cultures of Bacteria for Inoculation and for Agglutination Tests. P. H. Hiss, Jr.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

May 20.

1 *Etiology of Carcinoma. G. T. Beatson, M.D., Edinburgh.
2 *Malignant Disease of the Fundus Uteri. A. J. Cleveland and D. D. Day.
3 *Points of Incidence Compared in Cancer, Leucoderma and Scleroderma. G. L. Cheatle.
4 Cinnamic Salts in the Treatment of Cancer. L. Drage, Hatfield.

5 *Case of Cancerous Disease of the Stomach. W. M. Stevens, London.
6 Grafting of Completely Separated Skin Flaps in the Treatment of Contractures Due to Cicatrices. R. Kennedy.
7 Recurring Torsion of the Spermatic Cord, with an Account of Five Cases. J. W. Dowden, Edinburgh.
8 *Investigation on the Regeneration of Nerves. B. Kilvington.

1. **Etiology of Carcinoma.**—In this article Beatson reiterates his views as to the germinal or reproductive tissue theory of cancer first enunciated by him nine years ago and offers additional evidence which he believes is in favor of this method of causation of cancer.

2. **X-Ray in Malignant Disease of Fundus Uteri.**—For the purpose of controverting the opinion generally held that the treatment of all but quite superficial malignant growths by the *x*-rays is useless, Cleveland and Day cite one case of cancer of the fundus uteri which was treated successfully by this means. The diagnosis was not confirmed microscopically, the clinical symptoms all pointing toward a malignant growth. The tumor was treated through the abdominal wall with a moderately high tube excited by a mica-plate static machine, applying the rays directly over the pelvis for fifteen minutes at a time, three times a week, the tube being about six inches distant from the skin. The treatments were given at intervals, 12 or 13 at a time, because of severe dermatitis. Seven months after the treatment was begun no tumor could be found, the uterus was freely movable, and there was no discharge; menstruation was normal and the patient was enjoying good health.

3. **Incidence Compared in Cancer, Leucoderma and Scleroderma.**—The points of incidence in which the cancer process begins on the skin are discussed by Cheatle, and attention is drawn to the fact that the point of incidence must have an important etiologic bearing on the actual genesis of cancer. The author believes that the observations made by him strengthen the opinion which he previously expressed that the incidence of cancer may be due to direct or indirect nervous influences of the area in which it occurs, as is now believed to be the case in leucoderma and scleroderma. This nervous influence, if present, is probably either peripheral or a peripheral modification of central influence, and not only segmental. The spread of rodent ulcer on the trunk, as it does on the head and face, appears, on the whole, to resemble the spread of scleroderma and leucoderma, and hence the spread, as well as the incidence of rodent ulcer on the body, is under a nervous influence which is peripheral.

5. **Cancer of Stomach.**—The case reported by Stevens is of especial clinical and pathologic interest, being one of latent carcinoma of the stomach, in which he was able to make an early and correct diagnosis by discovering the presence of glandular enlargement in the left supraclavicular region, and in which postmortem examination showed extensive cancerous affection of the stomach and liver, associated with marked cancerous disease of the thoracic duct and localized infection of the above mentioned glands. The entire duration of the symptoms was seventeen months, during the last five of which the patient was unable to work. There was an entire absence of gastric symptoms until the latest stages. The most prominent symptoms were marked edema of the legs and scrotum, with shortness of breath due to pressure on the veins. This case demonstrates the following points: (a) The marked edema which may be due to intra-abdominal disease; (b) the latency in some cases of cancer of the stomach; (c) the absence of typical signs or symptoms of cancer of the liver; (d) the transference of infection by the thoracic duct; (e) the significance of glandular enlargement above the left clavicle.

8. **Regeneration of Nerves.**—According to Kilvington, it is possible to functionate two opposing groups of muscles by a single nerve which previously supplied one group only; or, to put it in another way, it is possible to innervate fairly completely muscles with a much smaller number of motor horn cells than usually bring about this effect. When the central end of one nerve is joined to the peripheral ends of two nerves there are many more fibers in the peripheral nerves than in the central nerves, so that the nerve fibers in the proximal trunk divide on going to the distal trunk. In some cases, at least, some of the branches from one nerve fiber go to supply one set, and others the opposing set of muscles. This may prevent very delicate movement being restored. In infantile paralysis there is a loss of power in certain muscles as the result of destruction of a certain number of motor ganglion cells in the anterior horn of the spinal cord. Kilvington's experiments show that a certain number of these motor cells can be dispensed with and yet all the functions of the limb be efficiently retained. This suggests the idea that it is probable that a good result could be obtained by suturing the nerve supplying the paralyzed muscles on to the cut surface of the proximal end of an adjacent healthy nerve. The healthy nerve may be cut partly across and the paralyzed one fixed in the gap so formed. This has the advantage that some of the muscles are never cut off from their nerve supply, but the healthy nerve may be cut completely across, and its own peripheral end, as well as the peripheral end of the paralyzed nerve, sutured to the central end. This has several advantages; in the first place, it gives all the fibers in the proximal nerve the chance of branching (for this seems impossible without dividing a fiber) and supplying a greater number of muscle cells. In the second place, the innervated muscles are liable to shorten and develop a contracture before regeneration in the divided nerves has taken place. Lastly, it is possible that the mechanical interposition of the paralyzed nerve may prevent some of the branches of the peripheral end of the healthy nerve receiving any fibers. Kilvington thinks nerve crossing would be specially applicable in the common form of infantile paralysis where the extensors of the toes and the peronei are affected. There are two classes of cases where it is probable that this procedure would be useless. First, in those cases where a large amount of recovery takes place with a limb fairly useful, but still not so strong as its fellow, it is very doubtful if we could hope for a better result from nerve suture than would occur naturally. Secondly, in very severe cases, where only a small group of muscles remains intact (as, for example, a case where the peronei alone retain their function), it is very questionable if the fibers of the musculocutaneous nerve could innervate at all efficiently the muscles supplied by the anterior tibial and large internal popliteal. Several objections may be raised against this procedure. It is impossible to tell for a considerable time how much recovery will take place naturally, and during this delay fatty degeneration and atrophy of the muscle fibers is going on.

The Lancet, London.

April 29.

9 *Nutrition and Malnutrition. W. H. Allchin, London.
10 *Two Cases of Cerebrospinal Meningitis. J. A. Ormerod.
11 *Case of Excision of the Rectum for Carcinoma Recti. F. C. Wallis.
12 Absence or Marked Diminution of Free Hydrochloric Acid in the Gastric Contents in Malignant Disease of Organs Other Than the Stomach. B. Moore.
13 *Effect of Certain Baths and Forms of Electricity on the Blood, Blood Pressure and Metabolism. W. Bain, W. Edgecombe and H. Franklin, London.
14 Case of Extensive Cutaneous Diphtheria, with an Examination of the Nervous System. C. Bolton and D. Brewer, London.
15 Tumor of the Right Caudate Nucleus and Frontal Lobe. D. McCay and E. O. Thurston, England.
16 Latent Pneumothorax. B. C. Stevens.
17 *Two Cases of Tetanus Treated by Antitetanic Serum. R. A. Stoney.

9. **Nutrition and Malnutrition.**—In this lecture, the first of the series, Allchin considers the structure and composition of the bioplasm, the essential characters of the ingesta needful to maintain the living being in structural integrity and functional capability, with the active relation of these factors to one another, and how the bioplasm deals with the food and the outcome thereof.

10. **Cerebrospinal Meningitis.**—The first of Ormerod's cases was a tuberculous meningitis affecting both the brain and the spinal cord; the second was a purulent meningitis of uncertain causation, affecting chiefly the cord and setting up abscesses elsewhere, one of which perforated into the peritoneum. The history of each case and a necropsy report are given in detail.

11. **Carcinoma of Rectum.**—The growth in this case was situated mainly in the posterior wall of the rectum, but extended also on to the anterior wall. It commenced about

three and a half inches from the anus and was freely movable. A skin incision was made from the fourth sacral spine to the tip of the coccyx, and all structures were divided down to the bone. The coccyx was removed, but the sphincters were left untouched, and a portion of the sacrum was taken away by bone forceps. The rectum was freed above and below the growth, the peritoneum being freely opened. A stout silk ligature was passed round the bowel above the growth, and the rectum was divided and turned down and again divided below the growth, about three inches of bowel being removed. The two ends could not be united, but one or two sutures approximated the cut surfaces anteriorly, and then the upper end was sutured to the sacral opening. The remainder of the incision was closed with silkworm-gut sutures after the wound had been thoroughly irrigated and packed with iodoform gauze. A large tube was passed into the bowel and packed round with iodoform gauze. The patient made a good recovery and he has now, to all intents and purposes, a normal rectum with perfect sphincteric control and is in excellent health. The wound was irrigated twice daily after the first 48 hours with either saline or boric solution; as few stitches as possible were applied to the approximated edges in order that drainage might be as free as possible; the greatest care was taken to divide the bowel well above the growth, when possible well below it, and to avoid infecting the wound from the bowel (this was avoided by ligatures and guards); the patient sat up in bed as soon as possible for better drainage from the wound. The fact that perfect control and practically normal sensation were obtained after such an operation is particularly interesting.

13. **Effects of Bath and Electricity on Metabolism, Blood and Blood Pressure.**—Bain and Frankling summarize the results of their investigations as follows: The physiologic action of the high-frequency current in its general application tends to confirm its use in cases of nutritional disorders, such as chronic gout, chronic rheumatism and obesity, by reason of the changes effected in blood pressure and the stimulus given to metabolism, as shown by the plus heat production, the plus excretion of urea, of uric acid and of CO_2 and the loss of weight. The rise produced in the hemoglobin value of the corpuscle points to its use in the above cases when anemia is a prominent symptom and also as a useful adjunct in cases of simple anemia and chlorosis. The distinct contraction of unstriped muscle fiber excited by the effleuve indicates a trial of the method in cases of atony of the hollow viscera, and may also account for the striking results sometimes observed in the shrinking and disappearance of hemorrhoids after repeated applications. The evidence of its real value in cases of diabetes and phthisis does not appear to rest on a sufficiently large number of cases to carry conviction as to its superiority over other modes of treatment. With regard to its action in local affections of the nerves and skin, results offer no evidence for or against. Electric immersion baths are used largely to induce restoration of contractile power in cases of muscular weakness or atrophy resulting from nerve lesions or essential muscular dystrophy, and in cases of neurasthenia and the latent form of hysteria. They are also useful as a general tonic measure in cases presenting no definite disease, but suffering from slackness and want of tone. The results obtained on metabolism are not sufficiently striking to justify the frequent employment of these baths in cases of chronic gout unless the slight increase in elimination of urea and uric acid which followed the constant current may be considered an indication in this direction. The striking results obtained on the hemoglobin value of the blood with the light and ozone bath point to its use in cases requiring sweating baths, in which anemia is present, and further tend to show that the daily breathing, for a stated time, of air highly charged with ozone may be a useful auxiliary measure in the treatment of intractable cases of chlorosis and secondary anemia. Peat baths are largely used in cases of chronic pelvic disorder of an inflammatory nature. Their action, which resembles that of a widespread poultice, materially aids in the absorption of effused products. They are also used for cases of chronic intractable rheumatism and gout and in local manifestations of these disorders, such as lumbago or sciatica. The results obtained are not conclusive enough to indicate strongly in which direction they are likely to be of service. Thermal sulphur baths are largely used at Harrogate in the treatment of gout, rheumatism and functional derangements of the liver and also for their local action on the skin in cases of skin diseases. In the former, as well as in the latter, experience shows that they are of undoubted value, though their mode of action is by no means clear. Apart from their marked effect on blood pressure, which has been previously shown, this investigation proved nothing conclusive as to their influence on metabolism.

17. **Serum Treatment of Tetanus.**—Stoney's cases present a marked contrast to one another. In both the incubation period was long—in the first case 17 days and in the second case probably 18 days. In both the temperature was normal on the first appearance of the symptoms, in the second case it remained normal throughout the course of the disease; but in the first case after a preliminary fall it rose rapidly to 102 F. in 20 hours. In both cases the treatment was the same—i. e., injection of serum and the administration of large doses of bromid of potassium and chloral hydrate by the rectum. In the one case death occurred within 60 hours of the onset of the first symptom, whereas the second patient recovered. In the first case, the spasms were both frequent and severe, while in the second only one was observed. The only conclusion to be drawn from these two cases is that the result was due to the degree of infection and was not materially altered by the treatment.

Presse Médicale, Paris.

18 (No. 30, April 15.) L'ankylostomiase cutanée. W. Dubreuilh.
19 Drinking.—La boisson qualitativement et quantitativement envisagée chez les malades et les gens bien portants. H. Labbé.
20 *Un sou dans l'esophage. A. Broca.
21 (No. 31.) Le rôle du sucre dans l'alimentation (sugar). G. H. Lemoine.
22 Traitement électrique de la sciatique. C. N. de Blois (Trois-Rivières, Canada).
23 (No. 32.) Circulaire de propagande du Congrès International de la Tuberculose de 1905.
24 Amélioration spontanée survenue dans un cas d'ostéomalacie masculine arrivé aux déformations les plus extrêmes avec complications de lithiase vésicale et rénale. Berger.
25 *Traitement du mycosis fongoide par la radiothérapie. J. Belot.

20. **A Coin in the Esophagus.**—Broca rather ridicules the complicated measures advocated for the extraction of a coin that has lodged in the esophagus. He thinks a penny can be readily extracted with the Graefe extractor, a little basket swinging on a crossbar at the end of a whalebone. He shows by four illustrations what to do and what not to do, and states that he has extracted more than a hundred coins in this way with only one mishap, which occurred at the beginning of his practice. He inserts his left forefinger to guide and to bend the extractor as it enters the throat. When he begins to withdraw the instrument he pushes his finger down to meet it, and if it has caught the coin he works his finger over the coin until it fits into the space between nail and pulp of his finger. He then withdraws the extractor and the coin comes out safely without the slightest injury to the walls of the esophagus. The penny usually lodges at an accessible point in children at the penny-swallowing age.

25. **Radiotherapy of Fungoid Mycosis.**—The illustrations before and after show the complete objective cure of a severe case of fungoid mycosis of long standing. The patient was a woman of 39 and she was given daily exposures to the Roentgen rays, never surpassing the dose of 9 H unities for a single tumor at a sitting. For more than a year she thus absorbed from 5 to 7 H units a day, or a total of 1,200, without inconvenience of any kind, and with the final retrogression of all lesions, and no recurrence since her return home in August, 1903. The tormenting pruritus ceased almost at once after the exposures, within three days at latest.

Berliner klinische Wochenschrift.

26 (XLII, No. 14, April 3.) *Dropsy of Renal Origin.—Experimentelles über die Nierenwassersucht. P. F. Richter.
27 *Beitrag zur Behandlung der Ankylostomiasisanämie und der Tropen-Anämien. O. Llermberger.
28 *Beziehungen der Balneologie zur Chirurgie (relation between). F. Krause. (Concluded.)

29 Notwendigkeit und Art der Desinfektion der Krankenbeforderungsmittel (transportation of the sick). G. Meyer.
30 (No. 15.) *Digestive Affections and Balneology.—Verdauungskrankheiten und Balneologie. C. A. Ewald.
31 *Intoxication with Calcium Sulphid.—Ueber Vergiftung mit Schwefelalkalien. E. Stadelmann.
32 *Blunders in Water Cures.—Missgriffe bei Wasserkuren. Winternitz.
33 Ueber experimentelles Hydramnion bei Nephritis. E. Bibergeil.
34 *Aims and Limits of Balneotherapy at Home.—Ziele und Grenzen der Balneotherapie in den Wohnorten der Patienten. F. Frankenhäuser.
35 Untersuchungen über das Dysenterie-Aggressin. Y. Kikuchi.
36 *Ueber Röntgen-Diagnostik und Therapie innerer Krankheiten. R. v. Jaksch (Prague). (Commenced in No. 14.)
37 *Die diagnostische und therapeutische Verwendung der Probe-Punktion in der internen Medizin (exploratory puncture.) O. de la Camp.
38 (No. 16.) Balneologie und Ohrenkrankheiten (and ear affections). Passow.
39 *Die Kombination der Radiotherapie mit der Organotherapie. A. v. Poehl and Prof. Prince J. v. Tarchanoff (St. Petersburg).
40 Ueber Ecchinokokken der Schilddrüse (of thyroid gland). O. Ehrhardt (Königsberg).
41 Zur Pseudo-Leukämie-Frage. K. Nowack.
42 The Minimum of Sanitary and Hygienic Requirements at a Watering Place.—Die gesundheitlichen Mindestforderungen an Badeorte. H. Ruge.
43 Aetiologie und allgemeine Therapie der Arteriosclerose. O. Burwinkel.
44 Die therapeutische Verwendung der Licht-Wärme-Strahlen (light-heat rays). A. Laqueur.

26. **Experimental Research on Dropsy of Renal Origin.**—Richter's experiments were made on rabbits injected subcutaneously with .0075 gm. uranium nitrate. He found that the amount of dropsy was about the same on the same amount of water ingested, whether salt were added to it or not. He thinks that this speaks against the importance recently ascribed to retention of salt in the etiology of dropsy. The main point in the production of dropsy is the intake of water. On a salt-free diet, the subject is not so thirsty, and consequently takes less water, so that he is thus indirectly benefited by the "dechloridation." Richter is inclined to believe that this is the only benefit derived. His experiments further showed that fluids in the form of milk or mineral waters are subject to the same laws. Intake of fluids in any form does not sweep out the waste matters, nor open the sluices of the kidneys. The fluid merely accumulates in the body and increases the tendency to dropsy.

27. **Treatment of Tropical and Ankylostoma Anemia.**—Liermberger practices at Levico, in Southern Tyrol, where there are famous arsenic-iron springs. He describes the symptomatic cure of a number of cases of tropical and ankylostoma anemia by the use of these waters. The systematic use of the Levico waters restored the patients to health, the blood findings becoming normal, even before other medication was attempted. His experience has further shown that tropical anemia, especially the malarial type is promptly curable with the Levico waters, sustaining their traditional reputation in this respect.

28. **Relations Between Balneology and Surgery.**—Krause remarks that when a man of character wills to recover the full use of his limbs and his working capacity after some surgical affection, it is astonishing how effectual the balneologic measures prove. Results are obtained in a short time such as are unrealizable by others under like conditions or only after months of torment. These balneologic measures have been applied on an extensive scale in the army sanitarium at Wiesbaden, which has had 19,939 inmates since its foundation in 1871, the average each year ranging from 177 to 886. About 62.3 per cent. of the inmates since 1894 suffered from surgical affections. The average stay in the sanitarium was thirty days. The chronic stage that follows the acute phase in infectious osteomyelitis was very favorably influenced by the prolonged or continuous thermal baths.

30. **Affections of the Digestive Apparatus and Balneotherapy.** Ewald's article was read as an address at the recent German congress of balneology. He reviews the action of the various mineral waters on the digestive apparatus, remarking that dogs with a Pawlow fistula would be useful subjects for study of the action of mineral waters. He advises against any relaxation of strict dietetic regulations. The patients are usually those who "live too well" all the year around, and need the traditional restrictions accompanying the water course. He classifies the indications for the employment of the various groups of mineral waters, adding that empiricism speaks the last and decisive word in the matter. A personal knowledge of the spas is a great advantage for the physician. The annual "medical study trips" have proved very valuable institutions for this purpose in Germany and France.

31. **Intoxication with Calcium Sulphid.**—A young woman took internally some powder sold to apply as a paste for use as a depilatory. The symptoms were delirium, clonic convulsions, vomiting, cyanosis, small pulse, greenish-black formed stools and grayish-brown urine. The patient gradually recovered. The depilatory is sold under the name of *"Haarfeind,"* hair enemy. It eats off the hair, leaving the spot as smooth as if shaved. Stadelmann frequently uses it to prepare animals for experiments. It is made, probably, by introducing sulphuretted hydrogen into quicklime, and these combine to form calcium polysulphid or hepar sulphuris.

32. **Blunders in Hydrotherapy.**—Winternitz remarks that mistakes are liable to occur in estimating the amount of stimulation from the thermic and mechanical stimuli applied, in the behavior afterward, and in guiding and controlling the reaction. In applying cold baths in fever their effect on the nerves, vessels, heart, blood, tissues and intraorganic metabolism must be borne in mind. It is a mistake to apply very low temperatures, very slight mechanical stimuli and only for a short period. Such applications raise the temperature instead of reducing it; the innervation, metabolism and oxidations are whipped up instead of being checked. Long, cool, not cold baths, rather intensive mechanical stimuli, tranquil rest under adequate covering after such a bath, and its repetition at the proper time, are the necessary factors. By paying attention to the temperature alone, the physician is apt to err by too frequent and too cold baths in the severe infectious diseases. Winternitz has seen cases in which serious nervous disturbances were the result of this error (*febris nervosa, versatilis* in the aged). Longer intervals, slightly warmer water and longer baths, generally banish these frequently threatening complications. In typhoid, a very dicrotic and rapid pulse is more important as an indication for repeating the baths than a high temperature. Very rapid pulse with still vigorous heart calls for wet packs, repeatedly changed, which in case of a slow pulse and signs of weakness on the part of the heart would be a serious blunder. The behavior of the vessels is the guide for the choice of the temperature, and for the length and degree of the mechanical stimulation. When the vessels display a paralytic tendency, as in severe scarlet fever, the most energetic thermic stimulation is demanded, with avoidance of much mechanical stimulation of the skin. Brief dips and douches of quite cold water are often surprisingly effectual. In measles the indications are for powerful mechanical with only slight thermic stimulation. Rubbing down with a fine linen cloth wrung out of quite cold water responds to the indications in measles. The delayed eruption frequently appears at once after this procedure, and threatening symptoms vanish. The most prominent signs of collapse and heart weakness are the high temperature in the mouth and rectum (with clammy extremities, etc.). This condition calls at once for application of heat to the periphery and abstraction of heat from the trunk. Cold packs to the trunk and heat to the extremities have saved many a patient who would have been irremediably lost without such energetic and persevering applications. The water applied to the trunk should be as cold as possible and that applied to the periphery should be as hot as possible. In anemia, in chlorosis, and in convalescence, the error is in using too hot or tepid temperatures, forgetting that the aim is to stimulate all the sources of body heat to a powerfully increased function. Vigorous, brief thermic and mechanical stimulation of the nerves, following a preliminary thorough warming—these are the principles for such cases. In taking a sitz bath, the unimmersed parts of the body must be carefully covered to prevent loss of heat. Otherwise the effect of the bath is entirely annulled in treating intestinal affections. Usually in hydrotherapy the cold should follow hot applications, never the reverse. The physi-

ologic action of hydrotherapeutic measures should be better studied, and a well-conducted clinic for hydriatic treatment is a necessity, he thinks, in every medical school.

34. **Balneotherapy at Home.**—The classes of persons who most need this balneotherapy are chlorotic girls, weakly children and men with rheumatic muscular and joint affections, unable to afford a course at a watering place. Frankenhäuser suggests for such persons in large cities the establishment of some central station where mineral waters to drink and for baths can be obtained at a minimal price or a substitute therefor in packs and other hydrotherapeutic procedures, using mineral instead of ordinary water. The baths should be tepid, and the course should be preceded by a protracted bath in tepid water without soap to aid in the absorption of the mineral waters. After the course is begun, the patient should not bathe again in ordinary water to avoid washing off the salts. Certain German cities send the children into the country for the day during vacation, under the supervision of teachers, and mineral waters might be supplied for them to drink at these times. This article was read at the recent congress of balneology, with a special appeal to the resident physicians at the watering places to devise some means by which the advantages of the mineral waters can be supplied to the poor of the cities at a minimum price.

36. **Roentgen Diagnosis and Treatment of Internal Affections.**—Twelve cases of pneumonia were examined repeatedly with the Roentgen tube, and the course of the disease was traced, with marvelous exactness. In the majority of the cases, before the physical findings show any change, beginning resolution is shown by the Roentgen findings. This method further has disclosed that resolution generally begins in the center of the lobe. The Roentgen shadow of the infiltration is considerably larger than the percussion outline. It also showed in some cases a centrally located pneumonia. The lungs should be examined with the patient reclining and the rays should be applied in the ventro-dorsal direction. Roentgology, as yet, is not a reliable, independent method of investigation. It reveals the presence of certain changes more accurately than any other means at our disposal, but gives no information as to the nature of these changes. Its findings have to be studied by the light of observation at the bedside, bacteriology and chemistry, etc. It will bear fruit in internal medicine only in the hands of the trained clinician, not in the hands of the Roentgen specialist. In regard to Roentgen treatment of internal affections, von Jaksch has no success to record. The most he can say is that certain cancers of the stomach, thus treated, when examined anatomically, showed pronounced destructive processes, and increased suppuration, and thus by the falling away of parts of the tumor the pyloric opening was cleared, and the symptoms of stenosis were relieved. Cancerous glands retrogressed under Roentgen treatment, but adjacent glands constantly proliferated with greater intensity, so that he is absolutely skeptical as to any therapeutic value of these rays in internal medicine.

37. **Exploratory Puncture.**—Every puncture is a surgical intervention and it should be used as little as possible in internal medicine. When the needle is withdrawn, germs from the focus within may be sown along the needle path, or the puncture hole may prove a nidus for germs from the skin afterward.

39. **Combination of Radiotherapy and Organotherapy.**—The writers report that they have succeeded in impregnating cotton with the emanation from a solution of radium bromid. The solution is in a Wulff glass jar with two ends of a long tube passing through the stoppers of the jar. A glass cylinder, loosely filled with cotton, is introduced into the tube and also a double air bulb, farther along. Pressure on the air bulb drives the emanations from the radium solution along through the tube into the cotton, whence they pass through the air bulb back into the jar. The cotton thus charged retains its radioactive strength for three or four days, and is proving very useful in treatment of rodent ulcers, etc. The emanations of the radium behave like a gas, and it has been found possible to transfer them from the radioactivated cotton to fluid organ extracts or physiologic salt solution, which thus become radioactivated in turn in from fifteen to thirty minutes after the cotton has been put to soak in them. The organ preparations made by von Poehl are colloids, and recent research has established that organic colloids in suspension become precipitated under the action of various salts. It is possible, he remarks, that the specific action of the organ preparations is due to the fact that as they circulate in suspension after subcutaneous injection, they become precipitated when they reach the corresponding organ, as they there come under the influence of specific precipitating substances. It is possible also that the specific action may be due to the permeability for the organ cells in question. Be this as it may, if the organ preparations act specifically on certain organs, which experience has established to be the fact, then a radioactivated organ extract will carry the radioactivity to the exact specific point where it is needed. Properly made organ preparations are *per se* harmless, and further work in this line may lead to interesting results.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 1648.

45 (XXXII, No. 14.) *Ueber eine Vereinfachung der Technik der Transplantation nach Thiersch. L. Isnardi.
46 (No. 15.) *Die Behandlung von Darmlähmung (paralysis of intestines). K. Dahlgren.
47 *Eine neue Methode der Sterilisation von Catgut. W. Bartlett.
48 (No. 16.) *Der ektopische Testikel. Lanz.

45. **Simplified Technic for Thiersch Flaps.**—Isnardi has had eight years of experience with the use of the Thiersch flaps applied without the preliminary freshening of the granulations which the original technic called for as indispensable. He has thus treated 140 patients, and the results have been better than when the granulations were scraped or rubbed. His cases embrace all kinds of lesions and operations, and he always made a point to keep the granulating surface intact as far as possible. The method proved effectual even for extensive varicose ulcerations, the touchstone of transplanted flaps. The granulations must be small, pink, hard, healthy, and aseptic. The parts around the lesion must be frequently cleansed and all bleeding when the dressings are changed must be carefully avoided. The flaps are applied with a spatula just passed through a flame or with the fingers in freshly boiled rubber cots. A taut layer of coarse gauze over the flaps is fastened around the edges with collodion, the ends brought around and fastened together at the back of the limb or trunk. He applies a dressing of gauze, cotton and rubber over this, moistened with 3.5 per cent. boric acid, changing the dressings every twenty-four hours, or twelve hours in case of suppuration, not disturbing the immobilizing layer of gauze below. The exudate is cautiously dabbed away, and if blisters are noted the spot is scarified with fine scissors and the exudate dabbed off. Gauze and all are removed on the eighth day, the surface dusted with powder and smeared with lanolin, with dry gauze and cotton to keep it warm.

46. **Treatment of Paralyzed Intestines.**—Dahlgren describes his method of treating extensive suppurative peritonitis which has resulted in the cure of 8 out of 15 severe cases, a proportion of 53 per cent. recoveries. Four of the cured patients were treated by what he calls "milking" the paralyzed intestine. The aim is to evacuate the contents of the intestine as completely as possible. The operating table is slanted toward the left, and the distended small intestine is drawn out on a waterproof cloth covered with a towel. An incision from 1 to 1.5 cm. long is made across the bowel and held open with forceps. The intestine is then stroked with the thumb and forefinger, as in milking, and the contents are forced out through the incision. The milking is carried constantly farther along, 20 to 30 cm. at a time, upward to the duodenum and downward to the ileocecal valve, until the intestine has been emptied so that it can be readily replaced. To prevent the escape of gases backward, he sometimes uses an instrument for the milking which acts more

perfectly than the fingers. It consists of two thin-walled metal cylinders about 4 cm. in diameter by 7 cm. long. They are connected by a wire a few inches long which is crossed just above the cylinders, thus acting like a weak spring to hold them in contact. He has recently been surprised at the remarkable efficacy of atropin in certain serious cases of ileus not due to mechanical obstruction. One case was in a man of 81. The operation showed the intestine to be distended with commencing peritonitis, no peristalsis, no mechanical obstacle. Four injections of 1 mg. of atropin sulphate each caused a movement of the bowels and, after the fifth, abundant stools. The ileus recurred a few days later, but was again conquered by the same measures. These experiences impelled him to try these large doses of atropin in the paralysis accompanying perforation peritonitis when an operation had shown that the ileus was not due to mechanical obstruction. One patient was a young man with diffuse suppurative peritonitis, pulse 140 and fever 39.7 C., with albuminuria. The operation was followed by marked improvement, but ileus developed. A fistula was made in the cecum and atropin injected, with restoration of the bowel movements and recovery. These four patients received each from 5 to 7 mg. of atropin sulphate in from twelve to fifteen hours, and tolerated it without mishap.

47. **New Method of Sterilizing Catgut.**—Bartlett's method consists in drying the catgut, placing it in liquid paraffin until it becomes transparent, about twelve hours, then heating to 160 C., and then setting aside in a 1 per cent. methyl alcohol solution of iodin. A year's experience and countless tests, he states, have proved the superiority of catgut sterilized by this simple, inexpensive technic.

48. **Ectopic Testicle.**—Lanz reviews his experience with 51 operations on account of retained or ectopic testicle. The testicle was retained in two brothers in one family. He has never noticed any indications of peritoneal adhesions suggesting fetal peritonitis. He removed the retained testicle in a fifth of the cases as it was atrophied, or impossible to transplant. In one case, the testicle was apparently normal and active spermatogenesis was evident. In 2 cases, he found a clump of atypical glandular epithelial elements in the testicle, corroborating the assumption of a tendency to malignant disease on the part of ectopic testicles. In 8 cases of retention, he applied elastic extension. He passed a thread up through the scrotum, around the gubernaculum at the lower pole of the testicle, including the tunica albuginea, and brought the thread down and out, fastening it to the inside of the thigh with adhesive plaster or to a crossbar between the thighs, held in a plaster cast. He used an elastic band for the thread, and has been well pleased with the constantly favorable results of this elastic extension of the ectopic testicle.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 1648.

49 (XXIX, No. 14.) Blood-Forming Organs in Pregnancy and Childbirth.—Die blutbildenden Organe während der Schwangerschaft und dem Wochenbett. F. Varaldo.
50 (No. 15.) Instrument und Methode Bossi. H. v. Bardeleben.
51 Lack of Oxygen or Carbonic-Acid Poisoning.—Sauerstoffmangel oder Kohlensäurevergiftung. A. Schücking.
52 *Myomotomie in der Schwangerschaft (pregnancy). C. H. Stratz.
53 (No. 16.) Zur Dienst'schen Eklampsie-Theorie. W. Liepmann. See ab. 83, page 1649.
54 Comparative Study of Pelves and Childbearing in Whites and Blacks.—Eine vergleichende Studie über die Becken von Weissen und Negern mit Berücksichtigung der Grösse des Kindes und ihre Beziehung zur Kindslage und zum Geburtsverlauf bei beiden Rassen. T. C. Riggs (Baltimore).
55 Fall von Endometritis post abortum bei einem 11 jährigen Mädchen (in girl of 11). Schütze (Königsberg).

52. **Myoma and Pregnancy.**—Stratz has become convinced that in by far the largest majority of cases, the myoma can be left until delivery. Myotomy during pregnancy is indicated only in the rarest cases.

Deutsche medizinische Wochenschrift.

56 (XXXI, No. 14, April 6.) *Early Diagnosis and Early Treatment of Tabes.—Bemerkungen zur Frühdiagnose und Frühbehandlung der Tabes dorsalis als einer "Aufbrauchkrankheit." Determann.
57 Simple Maneuver to Determine Position of Head in Small Pelvis.—Ein einfacher Handgriff zur Bestimmung des Tiefstandes des kindlichen Kopfes im kleinen Becken. W. Thomass.
58 *Ueber abdominelle Totalexstirpation des Uterus mit sagittaler Spaltung des Cervix-Stumpfes bei Cervix-Myom. K. Reinecke.
59 Bactericidal Action Not a Factor in Finsen Treatment.—Ueber die bakterizide Wirkung des Lichtes bei der Finsen-Behandlung. V. Klingmüller and L. Halberstaedter.
60 Changes in Walls in Suppurations in Bone Cavities.—Ueber Wandveränderungen bei Eiterungen in starrwandigen Knochenhöhlen. Gerber.
61 New Viewpoints in Bacteriology of Leprosy.—Neue Gesichtspunkte in der Leprafrage. Deycke Pasha and Reschad Bey. (Commenced in No. 13.)
62 *Prophylaxis of Infection from Communion Cup.—Uebertragung von Infektionskrankheiten bei der Abendmahlsfeier und Vorschlag zu einer Modifikation der Feier. A. Moeller.
63 Die neue sichere Epilations-Methode Kromayers und die Elektrolyse. W. Kuhn. Id. Kromayer.

56. **Early Diagnosis and Treatment of Tabes.**—Edinger recently advanced a theory that certain nervous affections are due to lack of normal repair of the nerves after functional use. His communications on the subject have been summarily reviewed in THE JOURNAL, the latest on page 994. Determann is convinced that this theory is extremely valuable as a basis for the diagnosis of incipient tabes. Treatment should aim to remove the underlying cause, generally a toxin. It should also aim to ward off not only all excessive functioning, but a large proportion of normal, ordinary functioning in order to prevent the spread of the process to the adjacent, still sound parts of the nerves. The third aim of treatment should be to regulate the nutrition of the affected nerves, and thus to bring them back to normal functioning in time. Determann has been treating tabes on these principles for some years, and has now a record of 130 cases in which the diagnosis was based on early symptoms before the classical syndrome developed. Edinger's theory supplies a scientific basis to his empiric success, which he recently described at length in a thesis (Freiburg), republished in the *Sammlung Abhandlungen a. d. Gebiete der Nerven- u. Geistes-Krankheiten*, 1904, Nos. 2 and 3. In 14 cases he was alone in thinking that the slight vague symptoms observed were the premonitory signs of tabes, but the course of the cases confirmed his diagnosis. He has treated 40 patients through several years by a combination of hygienic, physical, and dietetic measures and has had the satisfaction of keeping them in comparative health, and active members of the social or business world. As soon as the affection is suspected, the affected organ and all the parts of the body dependent on it are placed in conditions which will exclude as far as possible all functional demands on them. Nourishment must be supplied more abundantly to the affected cells. This is accomplished by a generous diet supplemented by measures to bring the nourishing fluids directly to the spot. This is done by application of stimuli to the periphery which attract the blood to the part and induce a series of reflex phenomena involving the innervation, the vasomotor processes, the distribution of the blood, and possibly also the metabolism and muscular activity. The entire habits of life should be regulated and everything avoided that tends to excess, physical overexertion, fatiguing journeys, the necessity for long standing, and irregularities of all kinds. "Catching cold" must be guarded against with extra care; the bladder should be emptied every hour or hour and a half, and very loud speaking should be avoided, as also all irritation of the gastrointestinal tract. Intercurrent diseases should be prevented and treated with exceptional care. Reclining in the open air is the best means of favorably influencing nervous affections if the circumstances are made to conform to make it an entertaining, agreeable and refreshing mode of passing the time with all disagreeables eliminated. This open air reclining seems to exert a specially favorable influence on the nitrogen metabolism, and thus directly aids the exhausted nerve cells. Several short graduated walks should be taken during the day, and hydrotherapy, carbonated baths, and other mild means of stimulation should be judiciously applied. Massage of the muscles, group by group, centripetally, will be found useful. The main point is to have the patient under supervision for two years at least, and to vary the measures and combinations to insure gentle exercise to fit the circumstances and case. Among his patients is an actor, still playing prominent rôles, who seven years ago presented symptoms

of incipient tabes and has been treated on the above principles. Four are merchants in a large city. They spare themselves all unnecessary functional demands on their nervous system, and occasionally return for a course of treatment. As examples of the early symptoms he mentions that the foot of an apparently healthy man began to swell after a long bicycle trip, and a typical tabetic arthropathy developed. Another robust man experienced difficulty in urinating and tendency to impotence after a long bicycle trip. Laryngeal crises were the first manifestations in an actor forced to strain his voice on the stage. A judge complained of difficulties in urinating and incontinence years before these symptoms were recognized as the heralds of tabes. The first symptom in another patient was a numbness in the feet after a cold footbath, and in another case, a feeling of heat in the feet after standing long in the snow. Headache, vertigo, congestion of the head, weakness of the eyes and tendency to photophobia were the first symptoms in a number of men mentally overworked.

58. **Improved Technic for Removing Myoma of the Cervix.**—The aim of Reinecke's communication is to show the great advantages offered by sagittal slitting of the stump of the cervix after removal of the body of the uterus in case of a myoma in the cervix. He describes a case in detail. There were a number of myomata, two on the cervix, and the uterus had contracted into hour-glass shape, and was held firmly in the pelvis. Owing to the impossibility of rendering the vagina aseptic on account of the presence of the myomata in the cervix, he did not wish to enter the vagina from the entrance, but easily enucleated the myomata after slitting the cervix through the abdominal incision. When the operation was concluded the posterior vaginal wall was incised for drainage, and the patient rapidly recovered.

62. **Individual Spoons to Dip in Communion Cup.**—Moeller is superintendent of the great Belzig sanatorium, and here relates bacteriologic tests of pieces of sterile cotton with which the edge of the communion cup was wiped after the communion service at the sanatorium (40 persons) and also in the city church (150 persons), also in a church in Berlin, where several hundreds had participated, and also in the city of Eupen. The wine left in the cup was also used for the tests. He mentions that scraps of bread were found in the wine. The results of the tests were positive in regard to tuberculosis in only one out of the six guinea-pigs inoculated, but many other pathogenic bacteria were cultivated. He suggests as a simple, cleanly and practical means of avoiding the transmission of infection from this source to have each communicant bring a spoon-shaped small dish with which he can dip up the wine for himself, or the clergyman can take a fresh spoon for each person from a pile on the tray. The sexton could collect and boil these spoons afterward, ready for the next service, or they could be made of paper and burnt. This would remove every hygienic objection without sacrificing the spirit of the sacrament, and even the poorest congregation can well afford the expense of these small spoons or scoops.

Deutsches Archiv f. klinische Medizin, Leipsic.

Last indexed page 1649.

64 (LXXXII, Nos. 5-6.) *Ueber letale Anämien im Greisenalter (after 60). O. Kurpjuweit.
65 *Phosphor-Vergiftung und Autolyse (phosphorus intoxication). Waldvogel.
66 *Blood Pressure, Vessel Tonus and Work of the Heart in Relation to Hydrotherapy.—Ueber Blutdruck, Gefässtonus uud Herzarbeit bei Wasserbädern verschiedener Temperatur und bei kohlensäurehaltigen Soolbädern. J. Strasburger.
67 Paroxysmal Reduplication of Heart Rate.—Ueber anfallsweise auftretende Verdoppelung der Herzfrequenz. F. Lommel.
68 Zur Lehre von den Extra-Systolen. D. Gerhardt.
69 *Participation of Oxygen in Action of Fluorescent Substances.—Die Beteiligung des Sauerstoffs bei der Wirkung fluorescierender Stoffe. A. Jodlbauer and H. v. Tappeiner.
70 *Distribution of Blood Under Influence of Thermic Stimuli.—Ueber die Blutverteilung im menschlichen Körper unter dem Einfluss thermischer Reize. O. Müller.
71 Zur Frage des sogen. "Herzblocks" beim Menschen (condition due to stoppage of some of the auricular contractions at the auriculoventricular boundary). E. Finkelnburg.
72 Ueber "das absolute Sphygmogram." Sahli.
73 Ueber "durch das Tuberkulin-Fieber hervorgerufenen Eosinophilie." C. J. Fauconnet.
74 Zur kolorimetrischen Eisenbestimmung im Blute (tests for iron). A. Jolles.
75 *The Reversed Tuberculin Test.—Versuch einer neuen Serum-Diagnose der Tuberkulose. A. Brion (Strasburg).
76 Behavior of Blood Pressure in Albuminuria of Puberty.—Verhalten des Blutdruckes bei der Pubertätsalbuminurie. M. Matthes.

64. **Primary Fatal Chronic Anemia After Sixty.**—Kurpjuweit describes in detail, with the postmortem findings, 2 cases of primary, chronic anemia in men of 62 and 68. In this type the anemia is moderate in degree and is accompanied by enlargement of the spleen, slight poikilocytosis of the red corpuscles and excessive leucopenia, as low as 660, without essential marrow elements. The affection progresses to a fatal termination in about six months, with variable moderate or high fever of a continuous or intermittent type. The signs of a hemorrhagic diathesis do not appear until late, and are not severe. The bone marrow becomes completely atrophied or shows signs of acute degeneration. The blood findings are not those of pernicious anemia, especially the leucopenia. The symptoms resembled those of what has been called "aplastic anemia," but he thinks that the findings in the bone marrow were of a different nature. His statements were discussed in an editorial in THE JOURNAL, on page 1534.

65. **Phosphorus Poisoning and Autolysis.**—Waldvogel relates experiments which suggest that the essence of phosphorus poisoning is in its inducing autolytic processes in the body.

66. **Behavior of Vascular System Under Hydrotherapy.**—Strasburger epitomizes the most important results from his extensive research in the statement that hot baths make considerable demands on the heart in every direction. Cool baths exercise the heart while at the same time they spare it. This is more pronounced—in a favorable sense—in carbonated saline baths than in any plain water baths. The carbonated saline baths exert their influence on the heart itself like a transient digitalis action. The latter, however, contracts the vessels, while the other expands them. It might be expressed thus: Carbonated saline baths exercise the heart under easier and more sparing conditions. The experiments in this research were all made on healthy subjects, and the conclusions apply to these only.

69. **Oxygen and Action of Fluorescent Substances.**—A long array of experiments is reported which throw light on the phenomena of fluorescence and on the action of fluorescent substances on bacteria, etc.

70. **Distribution of Blood in Body Under Influence of Thermic Stimuli.**—Müller announces that he has demonstrated that the vessels of the periphery react to thermic stimuli exactly contrary to the way in which the vessels of the interior react. Cold contracts and heat expands the peripheral vessels, while the reverse occurs in the visceral and intracranial vessels. He has devised a means to estimate these variations in the regional vascular apparatus by what he calls "partial weighings." Four ordinary household scales with dials are placed on a long narrow table, with the dials all facing the same way. The pan is unscrewed and a piece of wood, shaped something like a coat rest, is laid on top of the scales in place of the pan, the center pressing down on the scales, the ends projecting 6 cm. beyond the edge of the table on each side. A rope is tied to this crosspiece, fastening at each end and forming a swing, with a board seat, a few inches above the floor. There are thus four of these little swings in a row below the table, and the person to be tested lies down on them, one swing board under his neck and shoulders, one under his back, one under his hips and one under his legs below the knees. The arm is further supported on another scale standing on the floor. Experiments with persons lying on these scales, thus weighing the different parts of the body at the same time, showed interesting results when the legs were sprayed with carbonic acid or hot air or heat stimuli were otherwise applied. The results were strikingly harmonious on different subjects under like conditions. He also obtained interesting results from the plethysmograph applied to the crossed leg and arm with the stimuli applied to the crossed mates.

75. **Reversed Tuberculin Test.**—Brion had been studying the reaction that follows injection of human serum in a tuberculous guinea-pig when Merieux published a communication on the subject. (THE JOURNAL, page 726.) Brion's findings were less constant than those reported by Merieux. The reaction

did not occur with any regularity. Its presence or absence probably depends on the intensity of the infection in the animal. Hence, he does not believe that this reversed tuberculin test can be relied on for diagnosis.

Mitteilungen a. d. Grenzgebieten d. Med. u. Chir., Jena.

Last indexed page 1154.

77 (XIV, No. 4.) *Elimination of Iodin and Its Relation to the Thyroid Gland.—Ueber die Ausscheidung des Jods im menschlichen Harn und ihre Beziehung zum Jodgehalt und zur Verkleinerung der Strumen. A. Kocher (Berne).
78 Traumatic Rupture of Wall of Aorta.—Ueber traum. Aortenwandrupturen mit bes. Berücksichtigung des Mechanismus ihrer Entstehung. Revenstorf (Hamburg).
79 Chronic Suppuration in the Fingers with Deposits of Calcium Carbonate.—Chronische Eiterung an den Fingern mit Ablagerung von kohlensaurem Kalk. T. Dunin (Warsaw). Two cases.
80 Ueber congenitale Brust-Muskel-Defekte. W. Wendel. One case.
81 *Absorption in Intestines.—Experimentelle Beobachtungen über die Resorption im Dünn- und Dickdarm. B. Heile (Breslau).
82 Changes in Liver with Fat Tissue Necrosis, etc.—Ueber Leberveranderungen bei multipler abdomineller Fettgewebsnekrose und Pankreatitis haemorrhagica. J. Wiesel (Vienna). Four cases.
83 *Beiträge zur Symptomatologie der Carcinose des Rumpf-Skelettes. K. Petren (Upsala).

77. Elimination of Iodin and Its Relation to the Thyroid Gland.—Kocher has been making extensive investigations on this subject. His tests of persons with sound thyroid glands showed that the elimination in the urine of from .5 to 1 gm. of sodium iodid, ingested fasting, showed very little variation under like conditions. When the thyroid gland was diseased, however, there were wide variations in the proportions eliminated by various subjects and also by the same person at different times. Study of these variations demonstrated that they were due to differences in the histologic structure of the struma. The thyroid gland takes up the iodin and eliminates it rapidly again under normal conditions. The elimination is very much less rapid in thyroidectomized individuals. When the elimination proceeds rapidly in a case of struma, the gland will soon be found to have shrunk in size. Sometimes when the shrinking is very pronounced more iodin will be found in the urine than had been ingested. The specific parenchyma evidently becomes broken down in these cases. In certain others less iodin is eliminated than normally, and the struma does not shrink in size. This is the rule in the colloid goiter. The physiologic activity of the thyroid in this case is reduced. Further tests revealed that goiters which reacted to the iodid, with retrogression and increased elimination of iodin, undoubtedly took up an abnormal amount of iodin and worked it over in some abnormal manner, allowing it to get into the circulation and to induce symptoms of iodism or thyroidism. The practical conclusions are to the effect that iodid treatment should be commenced as early as possible in incipient goiter, with small doses every second day. If the struma is capable of recession, an unmistakable effect will soon become manifest, and small, periodical doses will suffice to keep it reduced to its smallest possible size. It is unnecessary to give large doses in these cases, as they expose to a needless danger of iodism; that is, of partially abnormal functioning of the gland. If a struma does not show signs of retrogression under these small doses, and if it is a diffuse or nodular colloid struma, a longer and more intensive iodin treatment should be instituted. There is no risk to the patient from such treatment, as the colloid takes up the iodin, and even large amounts are scarcely able to bring the proportion in the gland to the normal figure. On the other hand, even this iodin treatment is rarely successful.

81. Absorption in Intestines.—Heile's experiments were made on dogs with a fistula in the lowest part of the ileum, and on dogs and men after exclusion of the large intestine. A number of tables and curves of the findings are given which establish that the small intestine absorbs albumin as well as cane and grape sugar when the amounts correspond to the body's needs for nourishment. Amounts in excess of this are not absorbed, but are passed along into the large intestine, as is also the case when there are catarrhal conditions. Some of the digestion enzymes probably pass into the large intestine with the undigested food and aid in its digestion under favorable conditions. The large intestine is incapable of absorbing unaltered albumin (egg albumin or casein). The absorption of water and of grape and cane sugar is very slight in the large intestine, much less than in the small intestine. The large intestine, however, absorbs the alkali which arrives with the fecal masses. Heile warns that in cases with an artificial anus or in which part of the intestine has been excluded the deprivation of alkali from the loss of this absorbing function of the large intestine may entail serious disturbances in metabolism.

83. Symptomatology of Carcinosis of the Trunk.—Petren analyzes 4 personal cases and also the literature on the subject, formulating the conclusions that carcinosis of the skeleton of the trunk is liable to follow cancer of the breast or prostate even years after its removal. The pains may be paroxysmal, with long intervals of calm, or they may be connected with movements of the trunk, or there may be merely a difficulty in moving or inability to walk. As a rule, the symptoms are restricted to the bones; that is, there are no root nor spinal symptoms.

Nordiskt Mediciniskt Arkiv, Stockholm.

Last indexed page 1156.

84 (XXXVII, Surgery, No. 3.) Myopia in Colleges in Sweden.—Studien über die Myopie in den vollständigen höheren Lehranstalten für Knaben (högre allmänna läroverk) Schwedens. F. Ask.
85 *Zur Technik der Dickdarm-Resektion (of large intestine). J. Borelius.
86 Ueber die Angiotripsie in der allgemeinen operativen Chirurgie. E. S. Perman.
87 Frühzeitige Operation der akuten Appendicitis um septischer Peritonitis oder Allgemeininfektion vorzubeugen oder solche zu begrenzen (early intervention). F. Bauer.
88 Ueber die moderne Pankreas-Chirurgie. G. Naumann.
89 (Internal Medicine, No. 3.) Ueber die biologische Bedeutung der krankhaften Erscheinungen (biologic significance of morbid manifestations). A. Vestberg.
90 Lichtbehandlung im Krankenhause St. Goran, Stockholm (experiences with phototherapy). M. Moller.

85. Technic of Resection of Large Intestine.—Borelius reviews his 20 cases of resection of part of the large intestine. They fail to show any superiority of the extraperitoneal method over others, or any advantages from operating in several sittings. The thickness of the walls forbids the use of the Murphy button, as a rule. Infection and death occurred in one case after side-to-side union, and pus escaped through the vagina in another. A fistula developed in one case of end-to-end union, but closed spontaneously. All the other patients recovered without mishap. The suture was end-to-end in 12, end-to-side in 1, and side-to-side in 7. The 13 patients treated without any kind of drainage all recovered, as also the 3 cases drained. In the 4 cases in which tamponing was applied one patient succumbed soon to infection, and symptoms of acute dilatation of the stomach developed in another the day after the tampon was removed. The two others made a smooth recovery. An important point in the technic is the careful ligating of the vessels in the mesocolon. This must be done for each separately. In one of his cases the vessels were ligated in a bunch. This careless technic resulted in hemorrhage later and development of a hematoma, which threatened the patient's life and delayed recovery for several weeks. The details of all his cases are given in tabulated form. The article is in German.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

CONCEPTO SANITARO DE LAS ENFERMEDADES CUARENTENABLES, por el Dr. Federico Torralbas, ex-comisionado Medico de Cuba en Mexico durante la Epidemia de Peste Bubonica, Medico del Departamento de Sanidad de la Habana, etc. Paper. Pp. 208. Habana, Cuba: Imp. De Gutierrez Y Comp. 1905.

NOTES ON X-LIGHT. By William Rollins. Cloth. Pp. nearly 600. Fully Illustrated. Published for the Author by the University Press. Cambridge, U. S. A.

ACUTE CONTAGIOUS DISEASES. By William M. Welch and Jay F. Schamberg, M.D. Illustrated with 109 Engravings and 61 Full-Page Plates. Cloth. Pp. 781. Price, $5.00. Philadelphia: Lea Bros. & Co. 1905.

EIGHTEENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF OHIO for the Year Ending Dec. 31, 1903. Cloth. Pp. 569. Springfield, Ohio: The Springfield Publishing Co. 1904.

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Original Articles

CHRONIC POISONING BY ACETANILID.*

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That chronic poisoning characterized by degenerative changes in the blood, and by physical disability, may result from the continued ingestion of anilin derivatives is well known, as it is also well recognized that acetanilid, one of these products, because of its small cost and its toxicity in excess of others of this group in common use, renders it particularly liable to be the offending agent. Acetanilid is the chief ingredient in headache powders so generally dispensed by pharmacists without prescription, as it is in certain secret nostrums both in use by the rank and file of the profession, and, unfortunately, thus introduced by them to the laity.

The toxicity of acetanilid in common with related coal-tar products of the antipyretic group, has long been known, and the serious, if not fatal, results which may follow its incautious use in fevers and debilitating conditions should have in past years been brought forcibly to the attention of the reckless seeker after a remedy to reduce temperature, or to assuage pain. But the knowledge of the toxic action of this group, and especially of acetanilid, has had little effect on the unscrupulous, who have found a ready market for compounds offered as analgesics. Attempts have been made to overcome the immediate ill effects of the drug by combining it with small quantities of caffein, and a very popular nostrum now—I should suppose pretty well known throughout the civilized world—contains these as chief ingredients, which also enter into the makeup of presumably nearly all headache powders.

I have under observation a man, aged 40, of splendid physical development, who recently consulted me concerning his digestion. Although of good habits, not given to alcohol and but moderately to tobacco; getting an abundance of fresh air and exercise, and having no element in his life unconducive to well-being, he has been unaccountably more or less out of sorts for the past year or two. There were loss of cardiac tone, a sallow, peculiar dusky hue of the skin, and anorexia. Examination of the stomach contents showed hyperchlorhydria, a condition not regarded as responsible for his partial invalidism. My laboratory associate, Dr. Ghriskey, like myself, was struck by the dusky hue of the skin, not to be attributed to respiratory or cardiac disability. Inquiry elicited the fact that for two or three years his habit had been to take headache powders; he had formed the habit of resorting to them at first for the relief of headache, and finally when at all out of sorts. He invariably had taken one on rising in the morning, and sometimes several (8 to 10) through the day, but often only 2 or 3. These were a proprietary preparation sold under the name of "headache powders,"[1] or a frank prescription, which he obtained without a writing, of acetanilid and caffein; or antikamnia, which he also had combined with acetanilid and salol. Lately he had taken very few; that morning three before his visit to me. The blood, as it stood on the ear, showed the characteristic chocolate hue indicating the presence of methemoglobin. Hemoglobin estimation was thus impossible. Inspection showed moderate variation in size and shape of erythrocytes. These were 3,860,000 per c.mm.; the leucocytes, 9,200. Differential count of 550 leucocytes (Dr. Ghriskey):

Polymorphonuclears	62.20 per cent.
Small lymphocytes	13.66 "
Large lymphocytes	23.81 "
Eosinophiles	0.33 "

Decided variation in size of lymphocytes, from very small to large. The greater number were of medium size. Of the large, 18 were in the transitional form. During the above enumeration there were noted 1 megaloblast and 1 normoblast. Blood placques were increased.

The blood examination was made five hours after the only meal of the day, a breakfast of the whites of two eggs, toast, and two cups of weak tea. There was, therefore, present a pathologic leucocytosis and a diminution in the erythrocytes, the cause of which, an acetanilid toxemia, was not hard to seek, other factors being excluded by careful inquiry. The urine showed nothing characteristic.

This case of mild acetanilid poisoning is mentioned in passing as an example of one of perhaps many similar in which a slight or greater degree of invalidism might be traced to the incautious formation of the acetanilid, phenacetin, or a similar habit.

I recall the case of a woman, aged about 38, under observation some years ago, who had curious attacks of cardiac debility, attended with dyspnea and on one occasion marked edema of the legs. A grave form of mitral disease had been diagnosed by her previous attendant, a therapeutist of eminence. I saw her often casually in attendance on a member of her family. In several examinations there was absolutely no indication of cardiac disease, valvular or otherwise, and no history of any ailment that could have been a factor in originating such. The patient was of more than ordinary robust build, the hue of the skin was habitually dusky, and the breath intensely, peculiarly fetid. I discovered that for a long time she had been a phenacetin habitué.

* Read by title at the meeting of the Association of American Physicians, at Washington, 1905.

1. One of these, a proprietary preparation largely advertised and sold in Philadelphia under the name of a certain doctor's headache powder, I found by analysis to consist solely of acetanilid, with a little coloring matter.

Alcohol, to which she had lately become addicted through it having been prescribed for the cardiac condition, I regarded as a factor in contributing to the *fætor ex ore*.

While one can understand the tendency to enslavement possessed over its unfortunate victim by alcohol, by morphin, by cocain, and the like, it is difficult to comprehend the employment of these coal-tar analgesics to the extent that a distinct addiction to their use is established, and yet that such is the case there is no doubt, even when their use is acquired other than for the relief of pain.

Luce[2] reported two interesting instances of acetanilid addiction, in which the drug had been originally prescribed for pelvic pain.

The first of these, when seen by Dr. Luce, was hysterical and emaciated; there were recurring convulsions, edema of the inferior extremities, feeble and irregular heart, blueness of the mucous membranes, but pallor of the skin; albumin and casts in the urine. The initial diagnosis was uremia. Later, among the patient's belongings a large quantity of acetanilid was discovered. When the drug was withheld the patient "soon began to exhibit all the traits peculiar to the confirmed morphinomaniac, moral depravity, and the like." She employed every possible means to obtain the drug, attempting even to bribe the nurse and, this failing, the members of the family. Recovery followed under careful treatment, and in six months the patient was well, and had remained so to some months later, at the time of the report.

The second case was very similar. So secret was the habit that the attendant, with whom Dr. Luce saw the case, would not entertain the notion of a hidden drug habit. The use of acetanilid was accidentally discovered, and its withdrawal attended with similar difficulties, as in the other case.

In the interesting case of Stengel and White,[3] under their care in the University Hospital, which in character of blood changes that of mine to be reported closely resembles, concealment of the habit was in evidence, and although the patient's ill-physical and blood condition early aroused a suspicion on the part of Dr. Stengel of some form of hemolytic poisoning, it was only with the greatest difficulty ascertained. The case is briefly as follows:

Miss R., aged 25 years, had suffered from insomnia for five years, resulting from neuralgia, and had been given chloral and other drugs for its amelioration. There had been much gastric disturbance; excessive cyanosis for five years; skin of a leaden hue; emaciation; feeble pulse; rapid weak heart action; cardiac enlargement; systolic murmur heard over the whole precordia; venous hum and thrill in the neck; slight liver enlargement; spleen easily palpable; more or less edema of legs for several years; urine claret colored; specific gravity, 1024; albumin; no glucose; granular casts. Blood examination: erythrocytes, various counts, from 1,860,000 to 3,040,000; leucocytes, 19,800. No methemogoblin or hematoporphyrin discovered in blood or urine (Dr. Edsall).

Acetanilid addiction had been established through taking the drug for neuralgia. The habit was recent and unknown to former attendants. One had regarded the case as valvular disease; another as mediastinal tumor; others had thought the cardiac condition could not account for the cyanosis; while a prominent clinician had diagnosed a tear in the interventricular septum. Through the patient being detected in receiving a package of acetanilid capsules, she finally admitted having been taking the drug in large quantities for some five years, and had continued its secret use in the hospital. On its withdrawal improvement was progressively manifest, save for a few days, when a capsule containing phenacetin was administered—then cyanosis, which had quite disappeared, returned. The signs of cardiac disability soon entirely disappeared, and the patient was finally discharged "practically well in every respect."

I wish now to report a recently observed case of my own, of acetanilid addiction, in which the habit had been formed, not for the relief of pain, but through the drug having originally been prescribed for nervousness and insomnia. The point of special interest involved is the blood condition, the picture of which, if its chocolate hue evident in the earlier examination and the slight leucocytosis were disregarded, would appear that of pernicious anemia, characteristic of the blood condition observed by Stengel in his case (though in the case to be related present in less degree) and as usual in the blood studies made by Ehrlich and Lindenthal, Krönig, and others, in certain cases of poisoning by the aniline derivatives. The case is as follows:

A. F., male, aged 50 years, merchant, had been brought to Philadelphia from a distant part of the state to consult a kinsman, a physician, concerning his progressively increasing ill health, and was referred to me. He had begun to ail about two years before; became debilitated, and lost weight; segments of a tapeworm were discovered in July, and the entire worm was believed to have been voided in October. He continued, however, to decline in health. His stomach had been upset for a long time, anorexia was usual, and frequent vomiting common, on which account lately he had eaten very little, and chiefly liquid food. He felt required to take a small amount of whiskey daily and a very small quantity affected him. His usual weight was 140 lbs., but he had now declined to 116. I was summoned to see him at his hotel on March 13, 1905. He was abed; profoundly debilitated; was stuporous; and replied incoherently to questions. He had stood the journey to the city badly. The skin was of a dusky hue; the mucous membranes were pallid and anemic looking; heart feeble, but free from enlargement or adventitious sounds. Outline of liver dullness slightly increased; spleen not palpable; right kidney loose and easily grasped; inferior border of stomach on the line with the umbilicus.

On the following day he was brought to my office for further examination. His appearance was that of a profoundly ill man. He was apathetic; there was marked mental hepatude, as was noticed the previous night, and so debilitated was he that he could scarcely speak. The heart sounds were much enfeebled, and the pulse at the wrist barely perceptible. There had been a good deal of pain in the thighs and legs, with paresthetic sensations in the extremities; edema was not present; the knee jerks were absent, and only a slight flicker evident to reinforcement; the pupils reacted to light and accommodation; station impaired, but evidently due to debility and not to loss of co-ordination; no tactile loss. Blood which exuded from puncture for examination was of a deep chocolate color; inspection showed poikilocytosis and variation in size of corpuscles. The urine was of unusually high color,

2. American Medicine, Sept. 26, 1903.
3. University of Pennsylvania Med. Bull., February, 1903.

resembling that of Madeira wine or porter, and had a peculiarly fetid, aromatic odor. Interrogation of his wife and himself, elicited the information that for two or more years he had acquired the habit of taking antikamnia, which had been originally prescribed by his attendant for the relief of insomnia and nervousness; that for several years, at least two, he had taken daily some twelve tablets of either plain antikamnia, or of antikamnia with codein, and this custom he maintained to the present, totally unaware of its effect in producing the present condition, which was regarded as the result of the gastric disorder. He had, besides, about a year ago, taken for a while 2 ozs. of somnos at night. This he had not used for a long time. The antikamnia preparation was his mainstay, and the only drug now used. His physician, he said, had discovered glucose in the urine, a year or so before, although the twenty-four hour quantity never exceeded two pints. He himself had noticed the peculiar color and odor of the urine for a long time, and it was so evident when "diabetes" was diagnosed.

March 14:—Urine clear, though very dark brown color; odor peculiarly aromatic, and resembling somewhat that of burnt caramel; acid, sp. gr. 1026; albumin, marked reaction; glucose absent though Fehling's test reduced; bile pigment absent (ether and iodin test). Microscopic examination (centrifuged specimen): few granular and hyaline casts; cylindroids; scattered red blood corpuscles, and leucocytes. It was noted that a specimen should be examined for methemogoblin and hematoporphyrin.

Blood examination, March 14: Chocolate color. Hemogoblin estimation then impossible. Three days later the blood was of normal hue, then hemoglobin, 60. Erythrocytes 2,522,524; leucocytes 9,700. Inspection shows variation in size and shape of erythrocytes. In less than a half-hour's examination (Dr. Ghriskey) of a stained smear, there were seven normoblasts and one megaloblast seen.

Further blood report by Dr. Ghriskey: "Variation in size and shape of erythrocytes; moderate polychromatophilia; stray erythrocytes showing granular degeneration; blood placques notably present; nucleated red corpuscles; normoblasts 407 per c.mm.; megaloblasts 58.2 per c.mm. Differential count of 500 leucocytes: Polymorphonuclear 65 per cent; small lymphocytes 25.6 per cent.; large lymphocytes 9.8 per cent; eosinophiles .06 per cent. During the above count, there were observed 21 normoblasts and 3 megaloblasts. The nuclei of these cells were generally round in shape; only several showed a tendency to segmentation."

March 15, examination of stomach contents: Fasting, took meal of bread and tea at 9:30 a. m.; at 11 a. m. lavage showed but little remaining; at 11:45 a. m. 60 grams stale bread; 250 c.c. weak tea; 30 c.c. removed at 12:55 p. m.; the color and odor of removed contents somewhat that of urine. Total acidity=23; HCl absent to Günzberg.

The antikamnia and the small quantity of whiskey he had been taking were ordered absolutely discontinued, and he was placed in the care of a competent nurse. Daily morning lavage was ordered, and menthol valerianate was prescribed for the control of nausea and vomiting. He was fed every three hours by day and given an abundance of pure water.

On March 17 the blood which exuded from the puncture for examination was normal in color.

Examination of stomach contents March 17: At 9 a. m., ate one roll; one soft boiled egg; cup of tea. At 11:20 a. m., 40 c.c. was easily removed; fairly normal appearing contents, well but unevenly solved; considerable ropy mucus; filtrate light amber; t. a. 64; Günzberg, strong; Toepfer, 45. Good digestion with normal HCl was therefore present.

Urine, March 17: 550 c.c. in twenty four hours; color and odor as previously described; acid, sp. gr. 1022; bile absent; albumin, well marked reaction. Microscopic examination: hyaline casts; cylindroids; scattered red blood corpuscles; and leucocytes. Specimen sent to a chemist for examination as to presence of abnormal constituents, the result of blood disintegration. Under a few days' rest abed; careful feeding; daily lavage; a bitter acid mixture before meals; iron albuminate, strychnia, and digitalin, there was a rapid improvement, and on March 25, eleven days after he came under observation, there was a marked change for the better, and he insisted on returning to his home to direct his business. The heart sounds were now fairly strong; the dusky hue of the skin had much lessened; and the pains in the legs and thighs had disappeared; the knee jerks were slightly evident without reinforcement. He was much stronger. Nausea and vomiting had disappeared; he had a good appetite, and for several days had been able to eat three full meals, with light food between. The urine had become normal in amount, and the peculiar odor had disappeared. March 23 it was 1450 c.c. in twenty-four hours. The characteristic odor was slightly present in this mixed specimen, but not in a single specimen voided two days before.

April 12, eighteen days after his return, in response to an inquiry as to his condition, he replied that he steadily continued to improve, weighed 124 pounds, ate well; was "gaining strength daily," although he slept badly and was nervous at night; and that the hue of the skin was more natural. He was still taking the tonics prescribed, including arsenic, and had not resumed the antikamnia.

It is regretted that the record in this case is not complete in that a spectroscopic examination of the blood was not made, as was contemplated, and that no report is at hand as to the presence of methemoglobin and hematoporphyrin in the urine and the character of the body causing the peculiar odor. These examinations were noted to be made, but the case was seen in the midst of active private practice, and the blood clearing so quickly left no time then to arrange for a spectroscopic examination. The chemist to whom the urine was sent for this examination neglected to undertake it. That methemoglobin was present in the blood, the appearance of the latter at the first examination strongly suggests, and that bodies characteristic of blood disintegration existed in the urine is quite likely. Non-isolation of these is regrettable.

In these cases of severe chronic poisoning by acetanilid[4] and related coal-tar products, the symptoms are usually very similar as concerns progressive mental and physical debility, which later often reaches a high grade. There are cardiac weaknesses, more or less pronounced cyanosis, and characteristic changes in the blood indi-

4. It should be here remarked that the composition of antikamnia, the compound of acetanilid used in this case and that employed in many others in which "headache powder" is the form ingested, is, as is well known, a mixture of acetanilid, citrated caffein and sodium bicarbonate. Various analyses of antikamnia show it to contain approximately 70 per cent. of acetanilid.

cative of the pernicious action of a hemolytic agent. Apart from the usual chocolate hue of the blood so noticeable on puncture, the blood picture, were it not for an almost invariably present leucocytosis, would suggest pernicious anemia. There is a diminution in the erythrocytes, with variation in their size and shape, the presence of erythroblasts often in larger number than is encountered in pernicious anemia, polychromatophilic cells, and of cells the protoplasm of which is undergoing granular degeneration. The blood plaques are usually notably increased. A leucocytosis is common, the increase being, it is reported, usually in the polymorphonuclear elements. There were, however, in my two cases, which were uncomplicated, 37 and 35 per cent., respectively, of lymphocytes. In several cases reported the leucocyte increase may have been influenced by a coincident ailment adding its quota, and this also influencing the relative polymorphonuclear increase. Thus in Stengel's case there was an alveolar abscess, and in that of Hall,[5] bleeding hemorrhoids and rectal fistule; and in Cabot's case, nasal carcinoma. Curiously, in Cabot's case,[6] in which the blood as it stood on the ear presented the characteristic chocolate hue, and in which, therefore, the hemoglobin was not estimable, there was a polycythemia—the count ran over 6,000,000 on one occasion, and the only noticeable abnormalities in the stained specimen were slight poikilocytosis, granular stipping of many of the red cells, and undue fragility of the leucocytes. Erythroblasts were not in evidence. Methemoglobin was easily demonstrable in both blood and urine. The patient's general condition was good despite the evident cyanosis. Such a case might superficially suggest the condition which lately has attracted considerable attention—chronic cyanosis with polycythemia and enlargement of the spleen. Hall, in reporting his case of acetanilid poisoning, called attention to the likelihood of the initial confusion, and laid stress on the presence of characteristic anemia, etc.

1633 Spruce Street.

NEURASTHENIA CURED BY EXERCISE AND FORCED FEEDING.

REPORT OF TWO CASES.

EDWARD LIVINGSTON HUNT, M.D.

NEW YORK CITY.

In the two cases of neurasthenia reported in this article, one patient was treated in a hotel, the other in his own home in New York. They were both treated by the simple method of exercise and forced feeding. These methods were employed at a time when rest-cures, with restricted diet and isolation and sanitaria, were universally employed.

In the first case, all hope of recovery had been abandoned, and in the second, the court had signed the commitment papers. Both patients completely recovered.

CASE 1.—A. B., aged 45, married, father of two healthy children, engaged in business.

History.—As a child he was well, except for the ordinary diseases of infancy; as a boy and youth he was strong, healthy, and in every respect normal. There was no history or indication of any serious or prolonged illness. His father was living and his heredity was good. There was no history of alcohol, tuberculosis or syphilis. During the last year he had been working unusually hard, and had assumed large responsibilities.

Present Illness.—This began about six months previous (October, 1901), at which time he began to be nervous, irritable and depressed. Three months later he was worse, and at the end of two more he had become restless, sleepless and even more depressed. During the last month he developed delusions, became violent, and had to be watched by two attendants.

Examination.—I first saw him April 5, 1902. At that time he presented the general appearance of one suffering from an acute mental disorder of considerable violence. He paced the room, rarely if ever sitting down. His hands were constantly employed. The eyes were wild and restless.

The physical examination was as follows: The man was of slight build, and poorly nourished. The skin was dry and sallow, and the mucous membranes were anemic. The pupils responded to both light and accommodation, but more rapidly and with a greater degree of dilatation than in the normal person. There was a marked tremor about the muscles of the face and tongue. The tongue was dry and coated. The viscera were negative. There was a tremor of the hands. The reflexes were all exaggerated. The voice was normal, as was the speech. The mental condition was one of great depression, distrust and hopelessness. At that time, no delusions were evident. He could not read, he could not play games, and he could not sit down for five minutes at a time. Every ten minutes he was obliged to pass urine, which was pale and of a low specific gravity, without albumin or casts. He ate fairly well. The treatment which he had hitherto been subjected to had largely been of an expectant nature, for he had been confined to the house by the aid of keepers and drugs.

Treatment.—I employed two strong and competent nurses, and at once put the patient on a food and exercise régime, which I shall now describe. The diagnosis, of course, was one of acute neurasthenia.

The day began at seven, when the patient was given a cold plunge, followed by a glass of milk. An hour later he was given a substantial breakfast, consisting of cereal, meat, eggs and milk, of all of which the patient was encouraged to eat heartily. Immediately after this the nurse took him out for a long, brisk walk, of about five miles. The route lay through the resident district toward the suburbs. At 11:30 he returned for a glass of milk with an egg; the next hour was given up to complete rest and relaxation. At 12:30 the nurse tried to interest him in reading or cards, and promptly at 1 a hearty dinner was served. An hour was spent at the table, as there was soup, a roast, several vegetables, dessert, and sometimes more. Neither tea nor coffee was served, only milk and water. At 2, the patient started out to spend two and a half hours away from home exercising. If the weather was mild, he and the nurse played golf, tennis or croquet; if stormy, they bowled or played ping pong. Billiards and pool were suggested, but owing to the difficulty of getting a suitable place, were abandoned. Sometimes they walked. At 5, another glass of milk with an egg was taken. Then the physician called and the patient reported his condition, relating in his own language and in his own way the events of the preceding twenty-four hours. For the next half hour he rested. Promptly at 6, nurse and patient spent twenty minutes in hard indoor exercise, such as punching the bag or playing at handball. A cold shower bath followed, and at seven came a substantial supper, with meat and eggs.

The evenings were devoted to games and conversation. At ten, Indian clubs and dumbbells were brought out, and at half-past ten the patient had a glass of milk and retired.

Course of the Disease.—The régime of forced feeding and exercise was kept up with great persistency and regularity for three weeks. At the beginning, the patient was so very restless that small doses of bromid were administered every three or four hours, and a tonic consisting of iron and strychnia was given after meals. Before meals, one of the glycerophosphates was given in hot water.

At the end of the first week there was manifest an improvement. All the symptoms were less aggravated and the appetite had increased. At the end of the second week, the restlessness had diminished. From then on, the improvement was steady, rapid, and consistent. The patient began to read the

5. Boston Med. and Surg. Journal, December, 1903.
6. Phila. Medical Journal, Nov. 29, 1902.

papers, and slept for two or three hours at night. In thirty days he was much better, and began to complain of the monotony of the régime. Ten days after this he was sent to a ball game and a matinee. These diversions broke the monotony of the treatment. At the end of the second month one nurse was dismissed and the patient began to admit that he was better. From this time on, the exercise was not quite so violent nor so extensive; the forced feeding continued. The patient was steadily gaining in weight. At the end of three months he began to go about alone, desired to see his friends, and attended church. He was still obliged to continue taking a very great deal of exercise, but was allowed to select what he preferred. The appetite was large, and the three meals were not satisfying. In addition, he continued milk and eggs. Throughout the five months he had a nurse, and all that time he was made to eat enormously and to exercise in every possible way, and for several hours each day. At the end of that time the one nurse was discharged. Just seven months after I saw him, the patient resumed his business and was discharged cured.

The second case is as follows:

CASE 2.—C. D., aged 55, spinster. Had always been well and healthy, but had always regarded herself as an invalid.

History.—She never walked, never ate very much, and never took much of an interest in anything. She contracted this mode of living, withdrew gradually from everything, and narrowed all her interests. She became depressed, morose, and "hipped" about herself. Her strength failed, her weight dropped to 97 pounds, and she was in a pitiable condition. It was necessary to have constantly with her two nurses. The pulse became very rapid and the condition of neurasthenia was fast drifting into one of melancholia. Sanitaria were tried without any avail.

Treatment.—I saw her first in midwinter, and after in vain trying sedatives, companionship, etc., I resolved to put her on the food and exercise cure. Two strong-minded nurses were provided, and she began with three slight meals, and three glasses of milk daily. The first day she walked only two blocks. Each day the distance was doubled, and when she had walked a mile the next day she was made to walk two. The feeding was as rapidly increased, so that she took three large meals, a light luncheon, quart of milk and three raw eggs daily. She began to gain weight very rapidly, to become quieter and to sleep. The exercise was then increased, until at its maximum she walked five miles daily. The feeding was almost beyond comprehension, as she took two quarts of milk daily, six raw eggs, and three big meals. She gained twenty pounds and gradually began to take an interest in her surroundings. Her entire time was now spent in eating, walking and resting. Each demanded the other. A cycle had been established, she continued to improve, and by summer was able to go away with only one attendant. The forced feeding was diminished, but the exercise was increased.

Subsequent History.—Nine months after I first saw her she was completely recovered, and is to-day a living example of the value of food and exercise in the treatment of neurasthenia.

71 East Fifty-Second Street.

Diabetes in Railroad Employes.—Navarre of Lyons, France, has been investigating the proportions of diabetics among the employes of the railroad line to the Mediterranean. The *Semaine Médicale* for April 19 summaries his report as follows: The entire number of cases of diabetes reported by the medical officers of the road during the last ten years has been 222, an average of 3 per 1,000. The proportion is much higher among engineers and conductors than among other employes, being 12.63 per cent. per 1,000 among the former and 13.1 per 1,000 among the latter, while it is only 1.76 per cent. among the office employes. During the last four years 723 employes have been retired on account of chronic illness, including 14 on account of diabetes. Of this number 11 were engineers or stokers, while only 3 were from the office force. Navarre comments that these figures suggest that vibrations and jars evidently favor the development of diabetes.

THE DANGERS OF THE DOMESTIC USE OF ILLUMINATING GAS AND THE MEANS OF AVOIDING THEM.*

HENRY LEFFMANN, M.D.

PHILADELPHIA.

The employment of illuminating gas manufactured from coal is about a century old. The original method, exclusively in vogue for many years, was by destructive distillation of soft coal. The operation is simple: The coal is heated strongly in a closed vessel, and the gases produced are cooled, purified and distributed. The impurities of the crude gas are numerous, but of only few types. Ammonium compounds and sulphur compounds are the most objectionable, and much attention has been given to devising methods for their removal, which in well-operated works is satisfactorily accomplished. The purified gas as conducted into the storage tanks consists principally of hydrogen and hydrocarbons, among the latter being methane, ethene and benzene. Some carbon monoxid is also present.

Laboratory experiment and clinical experience have shown that gas made in this manner has not very high toxic qualities. The hydrocarbons and hydrogen are rather negative than positive. They are incapable of supporting life, but are not active poisons. The gas always has a characteristic odor that gives warning..

During the past quarter of a century another method of making illuminating gas has been developed, and on account of its simplicity and comparative economy it has largely replaced the older method. This, so-called "water-gas," is made by forcing steam on hot coal, anthracite or coke. The action is not distillation, but partial combustion; the steam oxidizes the coal to carbon monoxid, and is itself reduced to hydrogen. These are combustible gases, almost inodorous and producing an almost non-luminous flame. In this form the gas is suitable for heating purposes. It is sometimes termed "fuel water-gas." To fit this gas for illuminating uses, it is enriched, that is, impregnated with hydrocarbons from petroleum, coal-tar or common oils.

A striking characteristic of water-gas is its toxic power, due to the large amount of carbon monoxid. As this is without odor or irritant action on animal membranes, it may be breathed for a long while unconsciously. It possesses a degree of free affinity, which causes it to combine with hemoglobin to form a body (carbon monoxid-hemoglobin) that is not susceptible of decomposition by free oxygen. Artificial respiration does not remedy this chemical asphyxia. Indeed, up to the present time, no satisfactory method of combating this condition has been devised.

In matters of this kind the economic features are almost always the controlling ones. In spite of the progress of sanitary science, the general management of municipal affairs and of households is along unsanitary lines. It is known, for instance, that unfiltered surface water is unfit for drinking purposes, yet it is the common source of public supplies. So, in the matter of illuminating gas, the more highly toxic water-gas has replaced the older form; the greater danger has been ignored in consequence of economy in cost. The protests made against its use years ago have been disregarded, and the result has been a steady increase in the number of deaths from gas poisoning. Fifty years ago such cases were rare; to-day they are common. In-

* Read before the North Branch of the Philadelphia County Medical Society, 1905.

deed, so far as Philadelphia is concerned, it is noted that illuminating gas and carbolic acid have replaced, for suicidal and accidental poisonings, the arsenic and laudanum of the civil-war period.

The cheapening of the gas supply, representing a reduction to nearly one-half the cost of old-fashioned coal-gas, has led to its extensive use for heating purposes, more especially for cooking. Most of the apparatus furnished for these uses is constructed with but little regard to sanitary requirements. So far as the heating apparatus is concerned, it is used in about the same manner as our barbarian ancestors used their tent fires, except that the ventilating opening in the apex of the tent does not find any analogue in our own rooms.

The gas stove, for cooking, does not represent so serious a menace to health as does the simple heating apparatus. The former is generally employed in the warmer season, when there is much natural ventilation; the most serious difficulty with it is the striking back of the flame, which causes imperfect combustion, with the formation of offensive and poisonous compounds. These burners are generally constructed on the Bunsen principle, but are not provided with a collar by which the air current can be controlled to adapt it to the gas current. Slight changes of pressure will cause interruption of the combustion, with the result that the flame passes back to the inner jet.

For the heating of bedrooms and bathrooms, now becoming a common practice in cities, apparatus has been designed which, though called "stoves," are merely batteries of burners. They appear to be rather wasteful, since there is little metal to be heated and therefore little radiating mass. They are connected usually by a cheap grade of tubing, that soon becomes brittle and leaky. A special, highly objectionable feature is a stopcock attached to the stove, so that the gas supply can be turned off at that point and the connecting tube still remain open to the flow of gas; if this tube leaks, gas continues to flow out into the room. In this way many accidents to life and to property are caused. The convenience of this lower valve leads to its frequent use. During the past winter I have had considerable experience with these appliances and I have found them more than once leaking so badly that a flame an inch long could be obtained from points in the connecting tube.

The modern water-gas is of such insidious nature that a sleeper can easily absorb a fatal quantity without being aroused. Let us suppose that the condition of the atmosphere is such that at each inspiration 1/1000 of a grain of the carbon monoxid present is absorbed. After the first inspiration, the blood will contain this quantity and the equivalent quantity of hemoglobin will be thrown out of function. At the next inspiration, another 1/1000 of a grain will pass in, but the first portion will remain, so that now 1/500 will be present. At the next inspiration the quantity will be increased to nearly 1/333, and so on.

Hüfner states that 1 gram of hemoglobin will take up 1.3 c.c. of carbon monoxid. Da Costa gives the average of hemoglobin in normal blood as 14 grams to 100 c.c., therefore 18.2 c.c., say 20 c.c., of carbon monoxid would render the hemoglobin of 100 c.c of blood useless; 20 c.c. of carbon monoxid weighs about 4/10 of a grain. From this rough calculation it is easily seen that even a small percentage of carbon monoxid can produce serious poisoning.

It is not appropriate to present the analytical data in detail, but the following table shows the principal ingredients of water-gas and coal-gas and their ordinary percentage by volume. It is taken from a recent edition of Kent's "Engineer's Pocketbook," and is presumably from authentic sources. Natural gas is inserted for comparison:

	Natural Gas.	Coal Gas.	Water Gas.
Carbon monoxid	0.5	6.0	45.0
Hydrogen	2.2	46.0	45.0
Methane	92.6	40.0	0.2
Ethene	0.3	4.0	....
Nitrogen	3.6	1.5	2.0
Carbon dioxid	0.3	0.5	4.0
Heat units per cubic foot	1,000	735	322

It will be seen that unenriched water-gas is principally hydrogen and carbon monoxid, and that its fuel value is rather low. When the gas is enriched, the so-called heavy hydrocarbons, compounds rich in carbon, are much increased, and the fuel value, as well as the illuminating power, is much improved. The following are partial statements of composition of enriched water-gas, such as is commonly supplied in American cities. The figures, except for heating power, are per cent. by volume. Not all the ingredients are given:

	No. 1.	No. 2.
Carbon monoxid	28.0	23.0
Hydrogen	37.0	36.0
Methane	19.0	21.0
Ethene	11.0	13.0
Heat units per cubic foot	650	658

As a comparison of heating power between the two types of gas, the figures given by E. G. Love for 1892 (Kent's handbook), may be quoted: New York City gas (carburetted water-gas), costing $1.25 per 1,000, yielded 715,000 heat units per 1,000 cubic feet. London gas (presumably all coal-gas), at from 60 to 70 cents per 1,000, yielded 668,000 heat units per 1,000 cubic feet.

It would be a great mistake, however, to assume that because of these objections we should abandon the use of gas, or even go back to original coal-gas. The object of this paper is to call attention to the dangers in order that renewed attention may be given to avoiding them. Gas is only dangerous when we lose sight of its composition and effects. Its advantages in the household are great. Properly used, it makes for sanitation instead of against it. At the cooking range, it simplifies very much the details of food preparation, relieves the housekeeper of much hard labor, and saves time, temper and trouble. The facility with which it may be used to obtain hot water at short notice is a great advantage, both to the well and to the sick.

The need in regard to house use of gas is better apparatus and better connection of that apparatus with pipes. Gas producers and sanitary authorities should join hands in enforcing regulations in these respects.

Let me take some of these reforms up in more detail. I suggest that the sale of inferior tubing be forbidden. Excellent rubber tubing can be obtained for a reasonable price. Taking into consideration my own experience this winter, I should say that the higher priced tubing is the more economical for it outlasts by a long while the inferior grades. The inferior grade often leaks when purchased. It is sometimes but little else than an imitation of rubber, its quality being concealed by a brilliantly colored covering. I have seen this tubing become in a short time so brittle that it could be broken like a dry twig.

Gas stoves for heating rooms should not have stopcock connections at the base unless attached by metal tubes with tight joints to the house mains. If attached

by rubber tubes, there is great danger of the gas being only turned off below. This method of turning out the stove is the usual one with women and children, who can not conveniently reach the higher burner. The apparatus, however, should be so constructed as to prevent the rubber tube, even when of the best quality, remaining in free connection with the house main when the gas is not lighted.

Improvements should be made in the room stoves by which a larger radiator effect could be obtained by a given gas consumption. So far as I have been able to judge, the principal heating effect is the distribution of the products of combustion through the room. This, of course, is insanitary and doubly so because the shortness of heat forbids the free opening of windows. I believe that stoves for heating purposes should be placed only where the products of combustion can escape freely to the chimney. It must be borne in mind that the carbon monoxid poisoning is not the only danger in the use of gas. The products of normal combustion are more or less toxic and the products of imperfect combustion are still worse.

All burners on the Bunsen principle should be provided with collars for controlling the air supply, and the dealers in these articles should be expected to instruct purchasers in the use of the collar. The escape of the partially burned hydrocarbons resulting from the striking back of burners is very detrimental to health.

The use of illuminating mantles with gas has become very common of late years, and is a great advantage in several ways. The mantle, however, may interfere with proper combustion. It is not at all uncommon to notice a disagreeable odor proceeding from these burners, and this is usually due to displaced or worn-out mantles. The rubber tube connecting the ordinary drop-light with the house main is apt to be a source of danger for the same reason as noted in connection with the stove; the gas may be turned off for convenience, at the base of the light, instead of at the original attachment, and thus may leak into the rooms.

These points may seem trifling, but practical experience has shown that the dangers exist. A rational co-operation of the makers of gas and gas stoves on the one hand, with physicians and sanitarians on the other, will greatly improve the condition of the air of our living rooms.

The mortality statistics of Philadelphia and New York show strikingly the increase in the poisonous qualities of illuminating gas since the extensive introduction of water gas. Both cities have been extensive users of gas for over 50 years. A report presented in 1854 by the trustees of the Philadelphia Gas Works to City Councils states that during the preceding year 250,000,000 cubic feet of gas had been manufactured. This was, of course, for the old city alone, as the consolidation act was not approved until February, 1854.

Deaths from poisoning by illuminating gas do not occupy a place in the mortality reports of Philadelphia or New York until about twenty years ago.

For New York, I have the figures given by Dr. Witthaus in Witthaus & Becker's "Medical Jurisprudence and Toxicology," and the report of the New York Board of Health for 1902. The figures given by Dr. Witthaus are in summary as follows:

DEATHS IN NEW YORK CITY ATTRIBUTABLE TO POISONING BY ILLUMINATING GAS.

	Accidental.	Suicidal.
From 1867 to 1880, 14 years.....	13	3
From 1880 to 1892, 13 years.....	157	45

Up to 1887 the entries are very few; for the last four years of the second period above given the data are:

	Accidental.	Suicidal.
1889	33	11
1890	36	4
1891	35	19
1892	53	11

The report for 1902 gives:

Suicide by "asphyxia" (hanging and strangulation excluded)	118
Deaths by inhalation of "noxious gases" (not suicidal)	235

As a cause of death, illuminating gas first appears prominently in the Philadelphia reports for 1899, but the board's reports for 1897 and 1898 do not give detailed statements and the sudden appearance of this factor may be apparent only. The data are also somewhat confused by the introduction of an item, "suffocation," without further specification. I have endeavored to secure a little more significance to this by showing the proportion of deaths under 1 year and over 15 years attributed to it. I suspect that a notable proportion of suffocations in adults is due to gas poisoning.

The Philadelphia classification differs considerably under different administrations, and some of the terms used are confusing. It is evident that, although suicide is an important factor in mortality statistics, it is not a cause of death in the sense that pneumonia or yellow fever are.

ABSTRACT OF PHILADELPHIA MORTALITY REPORTS.

Year.	Suffocation—Special Cause Not Given.			Suffocation by Illuminating Gas.		Suicide by Illuminating Gas.-
	Total.	Under 1 year.	From 20 to 80 years.	Total.	Under 15 years.	Total.
1893	No entry.	.....	.....	No entry.	.....	No entry.
1894	1	.....	1	.....	.....	1
1895	1	1	.....	.....	.....	
1896	No entry.	.....	.....	No entry.	.....	No entry.
1897	.....	.....	No detailed statistics.	.....	.....	
1898	.....	.....	.....	.....	.....	
1899	27	22	5	16	1	30
1900	23	12	9	5	1	19
1901	62	25	31	1	0	26
1902	42	18	16	7	0	36
1903	50	21	21	29	2	45

MEDICAL EDUCATION.

WITH SPECIAL REFERENCE TO THE SUBJECT OF PHYSIOLOGY.*

MURRAY GALT MOTTER, A.M., M.D.
WASHINGTON, D. C.

I realize that this subject is not one calculated to arouse very enthusiastic interest among general practitioners; nevertheless, I am firmly convinced that, until the general profession takes a more abiding and discriminating interest in the subject of medical education, American medicine will hold itself open to such criticism, whether just or unjust, as has recently emanated from a lofty source.

In an address on this subject, delivered in 1870, Professor Huxley referred to the "singular unreality" of the knowledge of physiology possessed by candidates who appeared before him. "The knowledge I have looked for," he adds, "was a real, precise, thorough, and practical knowledge of fundamentals; whereas, that which the best of the candidates, in a large proportion of cases, have had to give me was a large, extensive, and inaccurate knowledge of superstructure."

It is my purpose to show, by a few quotations, that much the same state of affairs persists to-day; and now,

* Read before the Medical Society of the District of Columbia, 1905.

as then, as it seems to me, we are forced to the same conclusion, that the "fault must be laid, more or less, to the prevalent system of medical education." I am neither so blind nor so pessimistic as to believe that the past thirty-five years have brought no progress; but, surely, the examples to be cited show that there is still great need of improvement, and I beg to submit that this need of improvement may be demonstrated all along the line, in medical students, medical teachers, medical authors, medical schools and state medical examiners.

To begin with the medical student, I quote from a paper which shows that, while the writer has crammed a few facts, he has an utterly inadequate comprehension of their meaning and corelations.

By reflex action we mean the power of the muscle to respond to any stimulus causing a contraction of that muscle. We have tendon reflexes, as the knee jerk, when any quick, sharp blow is rendered on the knee just over the patella. This reflex action is caused by stimulation of the terminal filaments of the nerve supplied to the various parts, and the impulse is conveyed to the brain center, causing contraction of the muscle. In the case of diseased muscle it will not respond to this stimulus, and we have no reflex action. The reflex action is divided into two groups: first, those acting superficially as on the skin itself, and second, those acting on the deeper layers.

The arteries take the blood from the heart, and from there the blood goes on by way of the smaller arteries to the veins, from veins to venules, to capillaries, and so on. Of course, the flow depends on various conditions which are not asked, but I have given the general course.

Nor is this density confined to the subject of physiology; from the same hand we learn:

An element is composed of the essential part of a substance or compound, or one of the parts. Atom is the smallest part of a compound known from a chemical standpoint. Molecule is a group of atoms held together by a substance, considered in relation to an element. Chemical compound, any compound which is held together by atoms and molecules that act chemically and are composed of compounds. Proximate principle is any organic or inorganic substance acting in a general way.

I give next a few quotations from medical authors and teachers, all published within the past three years. While I must confess that the first is hardly fair, I can not resist the temptation to share the joy I had in reading a book which came to me with a note stating that three prominent schools of a neighboring city "are ordering the work regularly." I have no doubt that this is the fact, the work is positively grotesque, but I fancy it is scarcely used as the author would wish to imply.

Dialysis is a theory advanced, concerning which, we believe, the lymph and blood each interchanging their contents, the blood gives through this lining membrane nutriment and the lymph baths [sic!] the tissues with it; then the lymph, in return, gives its waste products (given up by the tissues) to the blood. *Osmosis* is the same theory. However, most physiologists think these changes are brought about by the vital act of the cells themselves. This process of interchange between the lymph and blood takes place through the capillary walls, which are semi-fluid cells with a high function. The blood gives more than it receives from the lymph.

This is, as I have confessed, a huge joke, though it was not so intended by its author. The next, however, is no joke; it is taken from a much more pretentious book, highly commended by no less an authority than THE JOURNAL of the American Medical Association.

Latent heat is the quantity of heat that must be communicated to the body in a given state to convert it into another state without changing the temperature.

We can hardly stop for more quotations from this author, whose pages are filled with grammatical errors which would put a high school student to the blush. One other illustration, however, which marks the lack of attention to current physiologic literature and a failure to appreciate the bearings of research. It is taken from another author and, as it is somewhat technical, perhaps a word of explanation may be pardoned. One of the most interesting features of the functional activity of the cardiac musculature is the initiation and conduction of the contraction wave. We have long been befuddled by a more or less vague discussion of the automaticity of the heart's action and the intracardiac nerve mechanism. From researches which have long been published it would seem that the nature of the stimulus is chemic, depending on the inorganic salts in solution in the blood and especially those of sodium, calcium and potassium, that the most irritable tissue is that at the roots of the great veins, that the contraction starts here and sweeps by direct muscular continuity over the auricles and thence to the ventricles. The direct muscular continuity between auricles and ventricles was shown in 1883, in 1892, in 1897 and again last year, yet we find, in a text-book just published this year, this bald statement:

The fibers of the auricles are, however, quite separate from those of the ventricles, the bond of connection between them being only the fibrous tissue of the auriculo-ventricular openings.

These illustrate perhaps only minor defects, many of which may be rectified in a subsequent edition; yet, they undoubtedly increase the difficulties of the teacher who finds his students becoming dissatisfied with books which seem to need such constant and frequent amending. But the greatest defect I find in many of our books is that they are illogical in arrangement, uneven in development, careless and inaccurate in statement, with a strong tendency either to a too full and exhaustive treatment of certain subjects and a slighting of others, or, on the other hand, to such a fragmentary and disconnected statement of physiologic facts as makes them mere cramming machines.

Turning now to the medical schools, the question is more difficult and, for me, still more delicate. Since the days of Hippocrates, Galen, and Sylvius, "medicine, the most difficult of sciences, the most laborious of arts," has been recognized as resting on the tripod of anatomy, chemistry and physiology. Without the information as to structure, composition and function which these several branches of knowledge contribute, the attempt to cure the ills to which flesh is heir is hopeless empiricism. Though the importance of these so-called fundamental branches, the "institutes of medicine," was thus early recognized, not even yet have they been fully differentiated. In spite of the modern tendency toward specialization, a glance at the catalogues of our multitudinous medical institutions will show that, in many instances, the scientific and the so-called practical branches are combined under one chair. The reasons for this are not far to seek, while the rule is not absolute; the tendency to such combinations is more evident in the smaller, unendowed schools.

The objections to such combinations are, perhaps, more easily stated than supported. Nevertheless, it must be obvious that the sum total of human knowledge, in any one of these branches, is so vast as to tax to the uttermost the capacity and resources of any one man. On the other hand, it is equally obvious that the practi-

tioner, whether of medicine, surgery or what not, if he be imbued with the truly scientific spirit, is more keen to recognize the direct and practical application of scientific facts and principles than is the mere specialist, the theoretical anatomist, chemist, physiologist. The day has not yet passed when connection with the teaching staff of a medical institution is recognized as of no little pecuniary advantage to the practitioner. Aside from the direct advantage of incidental dividends, fees and more abundant clinical material, there is the indirect advantage, often still more remunerative, of consultation work—the prestige of the college professor is admitted. Where these positions are sought and held for such purely commercial advantages, the effects must be pernicious on all concerned, practitioners, patients, students, and schools. But—all such unworthy motives aside—consultation honors do not fall equally to all members of the staff. While the surgeon, the internist, the pediatrist, the obstetrician, etc., are much sought after, the anatomist, the chemist, the pathologist and the physiologist are seldom called on for their special knowledge of these subjects. True, the anatomist may be a successful surgeon and the chemist and pathologist consultant analysts, but there seems no call for the physiologist even as a diagnostician. Moreover, in these days of insistent demands for laboratory training for the students and research work for the teachers, no man can hope to give proper supervision to these departments and at the same time build up a living practice; one or the other is sure to suffer in the effort. This fact is recognized in many of our schools to-day by giving the anatomist, the chemist, the pathologist and the physiologist independent incomes, so that they may devote their whole time and attention to laboratory, library and class-room work. In these schools also we find the tendency more and more marked to teach these subjects intensively, and to arrange and apportion them in the medical curriculum with greater attention to sound and logical pedagogic principles than ever before. These indications are hopeful and progressive, but there is a dark side to the picture.

What shall we say of the schools which carry the lame, the halt and the blind among the student class up to their final examinations for the degree, with unsatisfied conditions in the fundamental branches still adding to their gross weight? Here is a man who has managed to worm through an examination in surgery, but is still conditioned in anatomy. It is too great a pity to "disgrace" him by turning him back, so he is coaxed and he is coached, and, again I quote Professor Huxley, "he works to pass, not to know—and outraged science takes her revenge—he does pass and he does not know!"

Of ten well-known and justly-famed institutions communicated with on the subject of conditioned students, only five compel each man to leave no bridge untaken in his rear, but to enter the next with his records clear. This is, I know, a debatable question. There are often incidents and accidents, which prevent a really worthy student from finishing up all the work of a given year by the close of the term; but the privilege of carrying conditions into the next succeeding year should be guarded and hedged about most closely. I am convinced that, more often than not, a real injustice is done to the student through a mistaken sympathy for his shortcomings. Give the student body to understand that there is a time for all things, and see to it that all things necessary be done in that time. The worthy will respond to a man, the unworthy had "better bide a wee."

One other item with regard to the medical curriculum which it would seem to-day must be regarded as an obsolete method of medical instruction, and that is what has been referred to as "the contemporaneous pursuit of a multiplicity of diverse studies." How can we regard that as "graded course" which, at the same time and place and in the same subjects, groups together students of the first and second, or of the second and third years? Perhaps third and fourth year students may, with advantage, attend the same clinics at the same time, but even this is questionable.

With the establishment of state medical examining boards was brought about the divorce of the degree-conferring from the license-granting power. The cause which led up to this measure was undoubtedly the inefficiency and commercialism of many of our medical institutions. Their diplomas were no longer acceptable certificates of proficiency and the great public demanded some further test of capacity and ability before entrusting its vital interests to the recent graduate. Yea, more, this same great public has clothed these state boards with such power and authority that when the boards pipe we, of the schools, must needs dance. But, how have they been constituted and how have they fulfilled their function? On the whole, well and nobly; yet here and there we have evidence of too much politics, too little comprehension of what is best to be done and how best to do it. From the far West we have learned of scandalous favoritism and gross misconduct in the examinations; and here, in the East, examination questions have leaked out in ways that were dark and by tricks most peculiar.

A recent development in state board activity has been the serving of notice on all colleges that they must come up to a certain standard medical curriculum, or—shut up! For that is what it means, practically; no school could long afford to have any state board say "We will not recognize your graduates as candidates for licensure." This effort to secure a minimum standard of medical education is most praiseworthy and timely. No reasonable reciprocity in state medical licensure can be secured otherwise, but if each one of forty odd states is to set up its own standard, regardless of the others, we will have confusion worse confounded. It is a pleasure, here, to pay tribute to our fellow-member and ex-president, Dr. George M. Kober, for his efforts toward bringing order out of this chaos.

If one might be permitted to criticise the questions propounded by such august bodies, I would suggest that many of them are tests rather of the candidate's memory than of his knowledge. They recall the distinction, made by Professor Huxley, between the teaching of the facts of a science as instruction, and the teaching it systematically as knowledge, a distinction to which I shall have occasion to refer again. Another criticism might be that what is needed is a test of the candidate's knowledge of anatomy, chemistry and physiology, as applied to medicine, not as abstract sciences; but this criticism would revert to the schools for, unfortunately, these subjects are seldom so taught.

Certain of the state boards admit undergraduates to an examination in anatomy, chemistry and physiology on completion of the second year of the medical course. The argument has actually been advanced that at the end of the fourth year they have forgotten these sub-

jects! Surely, the legitimate conclusion from these premises is that the practitioner of medicine has no need of them; and, the next follows close on the heels of this, that these subjects might be dispensed with altogether. Why burden the student with them at all? Is it not a significant coincidence that in one state where this custom prevails a medical school has found it necessary to turn its fourth-year students back for a course in physiology with the second-year men? I am free to admit that, as these subjects have been taught in the past and as, I fear, they are still taught in some places, the student would not lose much if they were abolished. But what a commentary it is on our methods of instruction! Is there any wonder that quackery should be so rampant among us? On the one hand, a public disgusted with and distrustful of these mislabeled "doctors of medicine," on the other a lot of poor, ill-treated ignoramuses who easily drift into the lines of least resistance and find a temporarily profitable outlet for their little accretion of quasi-knowledge in preying on their still more ignorant neighbors. Is there not a really causative relation between the poor cultivation of the medical schools of the past and the mushroom-growth of the innumerable "pathies" of the present? Of all the latter it may be said—as Oliver Wendell Holmes said of the one—"What [in them] is new is not true and what is true is not new." Was the influence of mind on matter, and its applicability in the healing art, unknown before the advent of the Bostonese high-priestess? Had we not known a little, and availed ourselves more, of the benefits of rubbings and movements of various sorts before the day of the osteopath?

If all these things be true, and I think the evidence submitted is at least suggestive, there is still room for improvement in our methods of medical education. The public is to-day more intelligent and more discriminating, more generally informed as to progress in our art and science than it has ever been; and I say this in spite of the widespread commercialism, charlatanism and quackery with which we have been infected. Witness, the large endowment of hospitals, institutes, and laboratories for medical research. The economic value of progress in preventive medicine has been signally marked in our island possessions and is even more strikingly demonstrated in the hospitals and camps of the Japanese army. The problems there dealt with have been solved only by men of wide information, broad culture and deep learning. We must turn out more men like these and even larger.

To return to the more specific part of my subject, what may we gain by the study of physiology? First, there are certain facts with regard to the workings of the economy, demonstrable by experimentation and observation. From these facts we may deduce the fundamental laws and principles underlying them. By repeated experiment and comparison by altering the conditions attendant on the various phenomena, we may further upbuild and establish these laws and principles, we may so weigh and balance and value the contributing factors that we can foretell the effects of subactivity or superactivity of any one of them. We have, then, in the study of physiology a training of the memory, but what is of vastly more importance, a training and development of the powers of observation and of logical reasoning; a recognition of the true relation between cause and effect. In the more modern laboratory course we have, still further, an opportunity for the cultivation of operative skill and technic. Surely, this is a most essential and practical preparation for dealing with the many problems which daily confront the practitioner.

It must be evident that instruction in physiology should be preceded by instruction in anatomy and chemistry. We can get no clear, comprehensive knowledge of organic function until we understand the anatomic structure and relations together with the chemic constitution of the components of the organism. More than this, no student is prepared to take up intelligently the study of physiology until he has thoroughly mastered the principles of physics. How can we understand the circulation of the blood and lymph without a knowledge of the laws relating to liquids? Or how can we understand the process of respiration until we are familiar with the laws of gases? The laws of motion and of moving bodies are as necessary to an understanding of the movements of the skeleton as are the laws of heat, light and electricity necessary to an understanding of other functions of the body. As has recently been remarked, the comparatively new science of physical chemistry has almost revolutionized our ideas of physiologic problems. Our knowledge of osmosis and electrolytic dissociation has given us a much clearer conception of the process of absorption and the action of various chemic substances in the body.

As a matter of fact, the average student comes to his medical studies with too little preparatory training, with an inadequate store of facts and little or no knowledge of method; and, to some of us, he comes too young to appreciate the responsibilities of the work he has undertaken. A course in physics, chemistry and biology, with comprehensive laboratory work in each, should be demanded of every medical matriculant, and this demand should be, not merely on paper, but fortified by an examination to test the efficiency of the qualifications claimed. In the present overcrowded state of the medical curriculum, courses in general chemistry and physics are out of place; we need all the time thus filched from us, by laxity as to preliminary requirement, for courses devoted to the application of these sciences to medicine.

As to the method of teaching physiology, while I am heartily in favor of a comprehensive laboratory course in this branch, I doubt very much whether it be either practicable or advisable to do entirely away with the didactic lecture; but this should be supplemented by frequent recitations, quizzes, and conferences, everything and anything which will bring teacher and student in direct personal contact. With regard to the presentation of the subject, a recent able critic[1] of a current textbook is quoted with most emphatic approval:

> Teachers of physiology should concern themselves with the matters of fundamental importance in their science—the matters that determine the direction in which physiology is developing—because these matters are in the end of as great, if not greater, practical importance to the student of medicine as the well-established familiar facts in regard to the more manifest workings of the circulatory, respiratory and other systems. Teachers of physiology must beware lest they in their efforts to be "practical" cease to be scientific, and thus fail to instill in their students that scientific spirit and interest which physiology is sure to call forth when its study is properly conducted, namely, from the investigative rather than the dogmatic point of view. Physicians sink quickly into the slavery of routinism if not animated by a spirit of inquiry, of criticism, of independent judgment. And how are such qualities to grow in our medical students if

1. THE JOURNAL A. M. A., Oct. 29, 1904, p. 1324.

they are to be denied the stimulus that comes from the study of the living, growing part of sciences of such fundamental import as physiology?

One word more, and I am done. I have recently been asked my "opinion on the subject of a department of applied physiology." I have replied that I am heartily in favor of it. I would put it in the fifth year of the medical course—such as Cornell is planning—and I would place it in charge of a man who has had sufficient experience in general practice to know, not merely to theorize on, the applications of physiology; more than this, I would give him a place on the general staff of the college hospital and require him to demonstrate both normal and abnormal physiology at the bedside. Ultimately, such opportunity and training would develop the physiologist as a diagnostician. The state boards would be less inclined to scale down the value of an examination in physiology to 50 or 70 per cent., as has been done in some places. And the thus demonstrated practical value of this scientific branch of medicine would more clearly justify the expense of modern physiologic laboratory equipment. The field is vast and the fruits already gathered are by no means insignificant. But for applied physiology the surgeon could not operate for the relief of a localizing cerebral lesion, nor could he have warning of an impending intestinal perforation save through blood-pressure observations. The general practitioner and the specialist in nerve and mental diseases would be lost without a knowledge of spinal reflexes. Indeed, about all that we can do, in disturbances of the nerve and vasomotor systems, is the resultant of applied physiology.

With full appreciation of the dangers of dogmatic assertion, I venture to suggest a few of the remedies for the conditions here outlined:

1. Our standard of preliminary education should be raised, and entrance examinations be made more general and more stringent. No student should be advanced to a higher grade until his thorough mastery of the fundamentals has equipped him for an appreciation of their practical bearings. University registration statistics show that the schools which have already effected this are thronged with students.

2. The courses offered in the so-called scientific branches, whether by text-books, by didactic instruction, or by laboratory training, should be at the same time both more scientific and more practical. There is no necessary conflict here, for, after all, "science is nothing but trained and organized common sense."

3. Medical schools should quickly recover their birthright, which they sold for a mess of pottage. It is to their shame that much of recent progress toward higher medical education has found its initiative, not with them, but with the state examining boards.

4. The elevation of our professional standards is a duty which we owe to our patients, to each other, and to the public; its accomplishment will be the full fruition of the high ethical spirit which animates our guild.

1815 Belmont Avenue.

The Hairpin in Emergencies.—The hairpin of domestic life may in emergencies be put to a variety of medical uses—as an esthesiometer, a probe, a wire for fractured bones, a cauterizer, a harelip pin, a tenaculum, a nasal or aural speculum, a wound retractor, an aneurism needle, a tracheal retractor, for drainage, as a female catheter and a wound approximator.—*Medical Times.*

CONJUNCTIVAL IRRITATION EXCITED BY PROXIMITY TO A HORSE.*

WILLIAM CAMPBELL POSEY, M.D.
PHILADELPHIA.

A number of years ago I was consulted by a banker from one of the New England towns, on account of a high muscular error, which occasioned marked asthenopia. During the treatment of the case, it was elicited that in addition to the symptoms of eyestrain, the patient was the subject of a peculiar kind of inflammation of his eyes, which occasioned him great annoyance and distress, and from which he despaired of obtaining relief. This affection, as told in his own words, was as follows:

CASE 1.—Since I was 30 years of age, whenever I drive behind a horse, I usually begin to sneeze somewhat during the first mile, but by the end of the second or third mile the sneezing gradually increases until I sneeze once every 100 feet. If the drive is a long one, the sneezing may relax somewhat for a time, only to recur, however, with the same vigor. During this time the eyes are watery and weak, the lids become much swollen and the eyeballs red; the inside of the lids is also discolored, and my whole appearance is that of a person who has been on a very bad spree. After a night's rest the eyes look as well as ever. The time of year has no influence on the irritation, the symptoms appearing in both summer and winter. I thought for a time that the dust raised in driving might have something to do with it, but then I noticed that it was just as bad after sleighing. Then, too, in recent years I have found that, no matter how dusty the road might be, the symptoms were never provoked if I rode in an automobile. I have suffered just as much in the White Mountains as at home, and climate seems to make no difference.

The trouble is greatly aggravated by rubbing my eyes or even by bathing them in warm water, so that I have learned to avoid touching them, as far as possible, after driving. I have had the same symptoms, though not nearly so bad, after stroking a cat, and if I put my hand to my face directly afterward the irritation is much aggravated and I feel tired, "headachy," and as though I had a cold. So far as I know, no other members of my family have been similarly affected, though repeated attacks of sneezing have always been a family trait.

I have never had any treatment which could control the symptoms.

Some time after this, I was consulted by a lad, aged 10 years, who was suffering from an attack of simple conjunctivitis, which he said had been excited by driving in the country.

CASE 2.—It was elicited that driving, or even approaching a horse in the stable, always caused his eyes to water and itch so badly that he was compelled to hold a handkerchief up to them, though he could ride in an automobile without discomfort. He was a subject of hay fever and was compelled to go north in August and September to escape the annoyance of that disease, but even in Maine or in the Adirondacks, whenever he would drive or come near a horse, the irritation in the eyes and nose would reappear.

Examination.—Inspection showed both the bulbar and tarsal conjunctiva to be swollen and injected, and the follicles enlarged. Lachrymation was profuse and the edges of the lids were covered with mucus. Unfortunately no bacteriologic examination was made of the secretion at the first examination, and, as the usual local treatment for conjunctivitis caused a rapid subsidence of the symptoms, when the patient was seen a second time, a few days later, the inflammation had almost entirely disappeared.

Subsequent History.—The patient shortly afterward removed to a distance, so that I have not had an opportunity

* Read before the Section in Ophthalmology of the College of Physicians of Philadelphia, 1905.

of observing the case further, but a letter was recently received from him from Pomfret, Conn., where he is at school, saying that the same peculiar irritation of the eyes and nose is still excited by the proximity of a horse, though in recent years his hay fever has caused him but little annoyance.

Three years ago, I had an opportunity of obtaining the notes of a third case, that of a physician, but as I made the acquaintance of this patient at sea, on a trip to Europe, I had no opportunity of examining the eyes while they were in a state of irritation. A letter directed to him a short time ago brought the following response:

CASE 3.—I am still suffering from the horse. I felt fine this morning when I started out to visit my patients, but had not gone but a few feet when my nose began to run and my eyes to itch, so much so that I have used up four handkerchiefs and had a strong desire to rub my eyes out. This evening I feel tired, "headachy," and as though I had a cold in my head, and it is hard for me to breathe. Now, this has been my daily experience since the snow came. Previous to that time I had done my work in an automobile and never felt better in my life and never thought of my nose and eyes. Two of the coldest days we had, when the thermometer was a few degrees below zero, I had very little trouble, but as soon as the weather moderated a little my trouble began, and now I am hoping for rain to come and take the snow off so that I can take up the automobile and once more be happy. My eyes become red, just as in an acute conjunctivitis, and my nose runs continually and it is hard to breathe through it. It seems to make no difference as to the time of the year nor where I am; if I go into a stable or near a horse I have to sneeze and blow my nose and rub my eyes, on account of itching. When we were in Lisbon (Portugal) this summer we went out to Mafra and Bathalla, where we had to ride some 16 miles. After going but a short distance, I had the same symptoms and it took me some days to get over the effects. Also in Granada, in driving from the hotel to the railroad station, I had a bad attack. We arrived home in October, and a few times during that month, when the auto was out of order, I had to take a horse for a few hours, but always with the same uncomfortable effects.

After a rather careful search through the ophthalmologic literature which might bear on the subject, I was unable to find any reference to this peculiar form of irritation of the conjunctiva, but a rhinologic friend, Dr. W. J. Freeman, told me that the action of emanations from animals on the respiratory tract had been long recognized and that it is a matter of not infrequent observation that attacks of asthma may be excited by the proximity of a cat or other animal. Mackenzie[1] says:

Some people experience symptoms somewhat analogous to those of hay fever from smelling certain fruits, whilst others are troubled in the same way by the presence of cats, rabbits and guinea-pigs, and Bastian[2] suffered from an affection closely resembling hay fever in dissecting the *Ascaris megalocephala*, a parasite which infects the horse.

Zamiko[3] and Heymann[4] attribute the inflammation of the mucous membrane in these cases to an irritation of the olfactory nerves, others to direct microbic infection. In a paper read before the Seventh Annual Meeting of the American Laryngological, Rhinological and Otological Society, Dr. H. Holbrook Curtis[5] said that in a previous communication he had cited a case in which a man had been unable to live in London since twelve years of age, as he could not pass a horse in the street without having a dreadful coryza. Many specialists in London had experimented with this patient and it had been found that he could ride behind a horse that had been vaselined without the symptoms developing until an hour later. Dr. Curtis added further that some subjects are sensitive to emanations from elephants, cats and mice, and said that he knew several opera singers who were unable to sing after being exposed to such emanations in a room. In a personal communication made to me within the past few days, Dr. S. Wier Mitchell said that in a research on cat fear which he is making, he had come across many cases of conjunctivitis caused by the nearness of cats. In one case, in which he was particularly interested, the ocular symptoms arose in a family where nearly all the members had some means of telling when a cat is present, even though unseen and unheard. He had known of two other persons who had conjunctival symptoms excited by coming near horses; one of these suffered invariably in driving behind a horse, but escaped entirely when mounted on horseback.

The nature of the conjunctival and nasal inflammation which is excited by these animal emanations is, as far as I am aware, unknown, although it would appear that it possesses some association with hay fever. That the process in the two conditions is not identical, however, is indicated by the fact that two of the three cases which have just been reported were not subjects of this disease. It is to be regretted that no bacteriologic study was made in the case which I observed at the time of the attack, though it is probable, from the unsatisfactory results obtained from cultures of the nasal secretion in hay fever, that the findings from the conjunctival secretion in this case would have been negative.

It is of interest, in this connection, to note the observations of Kyle regarding the etiology of hay fever. This investigator is persuaded, after making a series of examinations of the saliva in certain individuals afflicted with hay fever and those not so affected, that in some cases the causes, direct or indirect, of local irritation in the nasal mucous membrane are brought about by chemical change in the constituents of the secretions of the mucous-secreting glands. With a system so predisposed chemically, the contact of a pollen or of an irritating salt like ammonium, is sufficient, by provoking the flow of secretion from the mucous membrane, to precipitate an attack of local inflammation. Dr. Kyle has recently written to me that he has seen a number of cases of nasal and conjunctival irritation excited by animals, in which the symptoms were almost identical with those of hay fever, and in nearly all of which the secretions showed an excess of the ammonia salts. While this theory explains the cause of the susceptibility of certain individuals to affections of the mucous membrane, it does not designate the nature of the agents which excite the irritation, so that it is impossible, therefore, at this time, to do more than conclude that the irritation of the conjunctiva in the class of cases under discussion, is occasioned by a peculiar individual susceptibility to certain substances, chemical, bacteriologic or otherwise, which emanate from the horse.

1. Text-Book on Diseases of Throat and Nose, vol. ii, p. 307.
2. Med. News, Philadelphia, April 17, 1883.
3. Die Krankheiten der Nase, p. 257.
4. Die Nase, vol. iii, p. 67.
5. The Immunizing Cure of Hay Fever.

THE ETIOLOGY OF CHOROIDITIS.*

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The following observations regarding the causal relations of choroiditis with rubeola are the results of observations of numerous cases of this disease which have come under my observation. It has always seemed to the writer that the pathology of choroiditis has not

* Read before the Florida State Medical Association, 1905.

been so definitely established or defined as to enable the practitioner to feel that he has at his command any remedy on which he can rely with definite expectation as to good results, and, in the majority of cases treated, the result has been either partial improvement, a negative result, or gradual loss of vision.

In standard works on ophthalmology, the following causes of choroiditis are mentioned: eruptive diseases, syphilis, rheumatism, dysentery, meningitis, thrombosis, and infection by pyogenic organisms; the three last named causes are probably sequelæ of other diseases. Exposure to light is also mentioned as a cause, to which may be added traumatism.

The following case report suggests an infection of the deeper ocular structures following an attack of rubeola:

Patient.—F. L., a white boy, aged 7, previously in good health, passed through an attack of rubeola, which terminated Jan. 25, 1899, his vision remaining good up to January 31.

Examination.—On February 1 he was found to be totally blind. Ophthalmoscopic examination showed choking of both optic discs and obscurity of blood vessels, with areas of inflammatory exudate scattered through the fundi of both eyes, a typical picture of choroidoretinitis. V. O. D. = O; V. O. S. = O.

Treatment and Result.—After treatment by mercury and potassium iodid, followed by strychnin, by February, 1903, V. O. D. = 20/100 +; V. O. S. = 20/30 +. Ophthalmoscopic examinations showed evidence of marked choroidoretinitis, with atrophy, pigment patches and the other sequelæ of choroidoretinitis. Vision was not improved by glasses.

This is one of many such cases that have fallen under the writer's observation, and it is to this so-called benign disease, rubeola, as a cause of choroiditis, that I desire to direct attention, not to speak of the many other serious ills that follow in its wake.

Physicians who have treated many cases of rubeola have noticed the severe complications involving the lungs, intestines and other viscera. In connection with this, the question naturally arises as to how it involves the deep structures of the body. Knies, in his work on the eye in general diseases, states that optic neuritis, with consequent blindness, may occur from meningitis as a complication of rubeola. Stack, quoted in Knies' work, describes cases of hemiplegia and hemianopsia as sequelæ of rubeola, also keratomalacia. Seeking for the channel of transmission by which infection could reach the eye, we naturally turn to the blood vessels. We find that Knies also speaks of endocarditis as a result of pyemia leading to hemorrhages, thrombosis and abscesses. He states that, as a result of rubeola, numerous ecchymoses are to be found in the conjunctivæ and retinæ, and that there is also congestion of the optic nerve. Numerous capillary emboli and miliary abscesses are also to be found in the optic nerve. Again, Knies states that the affections which may occur with infectious diseases may be summarized as follows: Hemorrhages in peripheral and central visual apparatus, foci of fatty degeneration in central organs, inflammatory changes in blood vessels (endarteritis), iritis, cyclitis, choroiditis or neuritis. While choroiditis frequently invades both eyes, it has been my observation that, following the rule incident to the dual life of man, by which, while one side may be entirely incapacitated, the other will retain its life and usefulness, this disease is apt to attack one eye, leaving the other entirely intact, or to affect one eye to a slight degree only. It has been shown that rubeola has been followed by hemiplegia or hemianopsia, and that as a result of the infection endocarditis and endarteritis may occur. These conditions may extend into the capillary terminals of the vascular system causing the thrombi, miliary abscesses, etc., previously mentioned, and such conditions are evidently most likely to attack or to make the most decided impression on only one side.

The frequent unilateral attacks of choroiditis may be compared with hemianopsia. If the lesion involved the tract there would probably be choroiditis on both sides involving the nasal or temporal side of the fundi, as in hemianopsia, depending on the involvement of the right or left optic tract or chiasm and necessarily associated with hemiopia; inasmuch as this is not the case, the disease is probably in the vascular system and dependent on endarteritis, obliteration of small blood vessels, and later, atrophy. These conditions of primary congestion and inflammation, followed by secondary atrophy and dislocation of choroidal pigment, is the condition which is usually treated with such remedies as potassium iodid and mercury, jaborandi, sweating, etc. These the writer has used, but the results obtained have been unsatisfactory. On the contrary, he has felt that the integrity of important viscera, especially the stomach and kidneys, has been jeopardized by the large doses used in the effort to cure the disease. If these drugs be valuable at all, he believes they will be most so in the early stages of the disease before atrophy has begun. It is to be hoped that good will come in the near future from the immunizing or curative properties of antistreptococcus serum in cases of rubeola. Until such time as a remedy or preventative agent can be found, it is desirable that rubeola be placed on the list of dangerous and destructive diseases, with the same quarantine regulations applied to it as to scarlatina, diphtheria, etc.

THE APPLICATION OF ICE IN LOBAR PNEUMONIA.

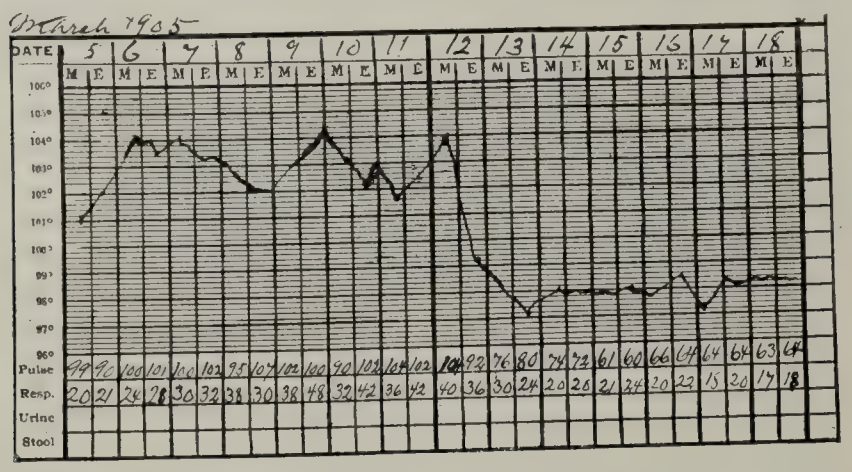
P. A. AURNESS, M.D.
MINNEAPOLIS.

It may be of interest to report a line of treatment of lobar pneumonia that I have carried out for a number of years with no deaths.

The treatment may be outlined as follows: As soon as a diagnosis of lobar pneumonia is made, the patient is given a full warm bath, for cleansing purposes, put to bed and given a laxative dose of calomel and soda. A systematic, routine examination and recording of the general condition of the patient is followed by a careful examination to outline the chest area of the lung tissue involved. This being noted, one or more, as the case may demand, specially constructed ice bags are moderately, but evenly filled with crushed ice and applied so as to accurately cover the chest surface of the parts inflamed. Each bag is wrapped in a thin layer of gauze, and is kept in place by a broad chest binder, while the distal end of a drainage tube, attached to the lower part of the bag, is placed in a basin below the patient's bed. The ice bag is made from a soft, but substantial quality of rubber, shaped to fit in under the axillæ, with a smooth posterior wall and having an airtight screw-top cover to close the filling opening in the front wall. The main and important feature is the arrangement for securing drainage of the water from the melted ice as fast as it is formed, thereby establishing a constant and uniform ice application and utilizing the remarkable heat-absorbing quality of melt-

ing ice, which, it will be remembered, is 80 times greater than that of ice cold water, measured by a calorimeter in centigrade degrees. That is to say, given equal weights of ice and of ice cold water, it will take 80 calories or heat units more to melt the ice than it takes to raise the temperature of the water one (1) degree. This explanation is made in order to understand fully the importance of draining the water in an ice bag, inasmuch as ordinary ice bags soon after being applied render only the service or effect of ice cold water.

In using the drain ice bag, there need be no fear that the vitality of the parts so covered, on account of such increased cooling effect, can be destroyed or damaged for the simple reason that a process of liquefaction of the ice is taking place and not one of freezing or reduction of the body temperature below the freezing point, as might be the case were freezing mixtures applied (as salt and ice—1 to 2). These facts being the basis for the construction of drain ice bags, their use in lobar pneumonia up to the approach of crisis has been adopted in the way described and with the further instruction to the attending nurse, that the ice application must be carried out as faithfully and conscientiously as the administration of any drugs. She is instructed to see that each bag—sometimes as many as seven bags are required—is kept moderately filled and accurately replaced and that no obstruction to the free discharge of



water takes place, and that the bulk of air is forced out, thereby making the pressure of the outer air hold the ice in any desired thickness in the collapsible bag. Morning and evening examinations of the patient are made and the ice application is adapted to correspond to any increased inflammatory area. Should the pulse at any time cause anxiety by increased rapidity, etc., a drain ice bag is also placed over the cardiac region, usually alternating two hours on and off as long as is considered necessary to calm and to strengthen the heart. Headache and delirium are quieted by applying a similar ice bag to the head. Occasionally, when high temperature is persistent, cold spongings are added.

The ice application is kept up continuously as long as the patient's temperature, pulse and respiration indicate that the disease is progressing, and as long as no threatening signs of collapse make their appearance, in which case of course all ice application is promptly removed and such stimulation resorted to as may be required, consisting of increased doses of brandy, strychnin or digitalis, till conditions have improved or till crisis has occurred. The internal medication during the whole course of the disease besides the required stimulants, includes liberal doses of some mild alkaline mineral water, from 4 to 6 glasses a day, and creosote carbonate every 4 hours in doses ranging from 5 to 15 drops. The bowels are kept open with saline laxatives and saline enemas. The diet is guided by the capacity of the digestive apparatus. Proper ventilation of the sick-room is maintained with an upper window open more or less all the time.

Such, then, has been the treatment given to more than a hundred cases of lobar pneumonia with no deaths and without complications to retard recovery. Among these were 5 cases of double lobar pneumonia, in 4 of which Dr. J. W. Bell of the University of Minnesota was called in consultation, and in which the prognosis offered, in spite of the frightful mortality in such cases, was sustained by the recovery.

The points of special interest noted during the treatment were:

1. A distinctly lowered pulse rate with maintenance of cardiac strength and regularity, considering temperature of patient and stage of the disease.

2. If the treatment is begun during first 12 hours of the disease many cases are aborted and in the majority of cases the duration of the disease is shortened.

3. Respiratory difficulty and chest pains are relieved by the ice application to such an extent, that not a single patient remonstrated against the "ice treatment," after first having tried its quieting and analgesic effect.

The last case treated entered the Norwegian Deaconess Hospital March 5, 1905, with lobar pneumonia on the right side, and in the course of 4 days pneumonia of both lungs developed. The pulse, as indicated on the accompanying chart, illustrates the preservation of cardiac power as witnessed during this line of treatment, the highest pulse rate observed being 104.

THE EXPANSION OF GYNECOLOGY, AND A SUGGESTION FOR THE SURGICAL TREATMENT OF INCONTINENCE OF URINE IN WOMEN.*

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The general law that progress in any direction is characterized by specialization, with its attendant classification and simplicity, has been exemplified in no great movement more strongly than in the development of the medical profession during the last three decades. The late Samuel D. Gross, foremost general surgeon of his day, after a long period of active service as author, teacher and practitioner, writing the preface to the sixth edition of his System of Surgery in October, 1882, thus early gives credit to specialization for the unparalleled advances in modern surgery. Specialization, he says in substance, has penetrated with its methods and instruments of research the innermost recesses of the human body, and in a comparatively brief period has achieved triumphs which general surgery perhaps never would have accomplished.

In the earlier period when the specialist confined himself to a particular organ, disregarding its relations to the general system, when frequently exclusive books appeared from this author, for example, on the stomach, or from that one on the brain, specialization was cumbersome, narrow, ineffective and a hindrance to scientific medicine. Finally, the logical tendency to study each part not by itself but in its essential relations to the whole system, gave rise to such a welding together into a great unit of all the specialties, that any

* President's address delivered at the annual meeting of the American Gynecological Society at Niagara Falls, 1905.

organ even though recognized in its individual importance and autonomy at the same time was equally recognized as subject to general law. It then became apparent that physiological and pathological processes, such as circulation and infection, were substantially the same whatever the organ involved. Order then came out of chaos and specialization became a potent factor in the simplification and progress of medicine. From this time forward laryngology, rhinology, orthopedics, ophthalmology, neurology, climatology, state medicine, obstetrics and gynecology rapidly developed and became identified in all parts of the civilized world with remarkable groups of men who have strengthened scientific medicine by building up these departments to an extent unequaled in any other period of history.

In nearly all of the medical teaching centers of America and Europe the most conspicuous specialty of modern medicine, gynecology, has enjoyed full recognition not only in the day of its early struggle, but later in the period of its highest development, with the significant result that in dignity of position and in output of scientific product it has in many respects outbalanced the department of general surgery itself.

The progress of gynecology has been marked by two pronounced periods: The first was an earlier period, characterized by great activity in the perfection of numerous plastic operations on the vaginal side of the pelvic floor. This development of minor plastic surgery calls to mind many familiar names at home and abroad, most conspicuous among them the names of two of our founders, Emmet and Marion-Sims. The second or later period was one of tremendous progress in the surgery of the obverse abdominal side of the pelvic floor. Now a third period is before us in which gynecology has taken to itself the whole field of abdominal surgery.

The early gynecologist was logically led by the anatomical, physiological and pathological unity of the reproductive organs into the peritoneal surgery of the pelvic cavity and thence by anatomic continuity into that of the upper abdomen. In peritoneal surgery, his educated touch, his special surgical judgment, and, above all, his training in the technic of plastic gynecology, placed him on a decided vantage ground over the general surgeon.

This widening of limitations to include the territory of abdominal surgery has given rise to an extraordinary and altogether interesting effort on the part of the general surgeon to promulgate the erroneous idea that the gynecologist has become a general surgeon and thereby has forced gynecology as a specialty into the background, where any one, even without special preparation, may practice it. Thus we hear of "The Merging of Gynecology into General Surgery." "The Passing of a Great Specialty." "The Expansion or Obliteration of a Specialty." We are told that gynecology is a finished subject, and that "he who runs may read," that it is only a matter of a few operative procedures, that the technic of it is now perfected and ready-made for the hand of any one, that soon in medical journals, in text books, in medical schools, in societies and hospitals, gynecology will be merged into general surgery and the name will be forgotten.

In considering this most recent attitude toward gynecology I do not refer to the practitioner who may be so situated that the most competent experts are not available; necessarily he may be compelled to the best of his ability, not for himself alone, but in the interest of his patient, to undertake not only gynecology, but all the other specialties, nor do I deny that a general surgeon of sufficient versatility may carry on miscellaneous surgical work and at the same time if he will undergo the necessary long and careful training, may acquire the special judgment, the special diagnostic and operative technic essential to proficiency in the practice of a great specialty; but this admission does not weaken the indictment which I would offer against a type of general surgeon, whose number increases day by day, whose relation to this specialty is the outcome of a reasoning all his own, a reasoning from the plausible premise that "the gynecologist, having perfected and simplified his specialty, has found it too narrow and has expanded" to the specious conclusion that gynecology is an insignificant branch and that the gynecologist therefore has undertaken general surgery. This logic gives rise to a sophistry; if the gynecologist is a general surgeon, conversely the general surgeon is a gynecologist. As the times change and we change with them, this type of universal operator, quick to seize on and to turn to his own account the intimation that this specialty has passed, with refinement neither of diagnostic nor operative technic, with no appreciation of his limitations, hypnotized by an apprenticeship of six weeks in some postgraduate school, or by no apprenticeship at all, emboldened by the fact that no one has called him to account, would make gynecology crude and common, would persuade the public and the profession that it is a mere caudal appendix to surgery on which no one fears to tread. Let us for the moment dismiss the general discussion of the subject and imagine a private hospital conducted under certain practical conditions of business management and promotion, with a year of active practice in capital operations, most of them belonging to this, forsooth, insignificant branch of surgery and a mortality of 70 per cent., and then with this experience as a background, going on for an additional few weeks to eleven more consecutive abdominal operations and 100 per cent. of mortality. Does this sound like a made up story? On the contrary, it is an extreme but nevertheless historical example taken not from the dark ages of surgery but from our own times.

Gynecology has not passed. We are not general surgeons. We are specialists in the diseases of women, and as our later transactions abundantly show, we are to a rapidly increasing extent specialists also in the wider field of abdominal surgery, a field in which the account on the ledger as it stands to-day will show general surgery indebted to us for a great part of its practical and scientific progress; the claim is valid, for we were blazing the trail through this territory when it was an untrodden wilderness, and it is ours by right of discovery; we were giving laws to govern the conduct of the stranger in this field when it was unknown and unconquered, and it is ours by right of conquest; we received from the pioneers, our teachers, some of whom are with us now, the principles and precepts on which has beeen built up this most aggressive department of surgery, and it is ours by right of inheritance.

Marion-Sims was not a general surgeon when he laid down the laws which to-day govern the surgery of the gall bladder, when he foreshadowed the modern treatment of gun-shot wounds of the abdomen and thereby set in motion a tide of general abdominal surgery of which the ebb flow, particularly in the upper zones of the abdomen, where we have joined hands with the general surgeon, is already overdue. Do the traditions which properly belong to us count for nothing? Shall we re-

tire in the background? Shall we organize a society of the Cincinnati, enter into our second childhood and live on the memories of the past? Is our work done? Shall we say, "Troy has been, we have been Trojans?" If our work is done, why should we not go at once into voluntary liquidation? Why hold another meeting? But so long as in the diseases of women there are more practical and scientific problems to be solved than we have time to enumerate, our work is not done. Does not the increased strain of modern life notwithstanding improved knowledge of sanitation and hygiene bring about exaggerations of pathology which will demand not less but more of the gynecologist? If we do not respect our own specialty, who will? Let us consider, for example, the every-day subject of dysmenorrhea, about which as yet we know but little; the causes of eclampsia, of which we know less; the purpose of menstruation, of which we know nothing; the unknown conditions, which in one case will supply defense against general septic peritonitis and in another apparently similar case will open the way to a rapidly fatal peritoneal infection. Let us reflect that we have not spoken the last word on the surgical treatment of descent, retroversion and other deviations of the pelvic organs; let us consider whether in the next thirty years we or the general surgeons are going to make such improvements in practical gynecology that the hysteropexies, the hysterorrhaphies, the suspensions, the fixations and a number of other procedures may look to our successors as crude and irrational as the clamp and routine use of the drainage tube in ovariotomy look to us at the present time.

And now supplementary to this discussion, may I offer a suggestion? In recent years, abdominal surgery has so far engrossed the mind of the gynecologist, not to mention that of the general surgeon, that by comparisen the minor plastic work to some extent has been neglected or given into incompetent hands. It is perhaps not too much to say that our fathers in their day did better plastic surgery than we are doing in ours. Indeed a revival of interest may be necessary in order to save this part of gynecology from becoming a lost art. There is now accumulating a very appreciable number of patients on whom plastic operations, some of them repeated on the same patient many times over, have been performed with indifferent or injurious results. Many such patients need to have the work undone or done over again. And this class of cases now, therefore, is making an increasing demand on the attention of the competent gynecologist. It is time, therefore, without losing sight of the claims of capital surgery, to bestow adequate attention on the homely every-day problems of minor gynecology; to this purpose I venture to bring forward, as an epilogue, a small contribution concerning a commonplace though troublesome malady about which the literature, so far as I have been able to examine it, is not altogether satisfactory.

INCONTINENCE OF URINE IN WOMEN.

This communication is confined to the involuntary escape of urine through the urethra. Incontinence due to acquired urinary fistula or to any congenital defect of the urinary tract will not be considered. Broadly speaking, from the point of view of the causative pathology, incontinence has been classified under two general forms, and these forms may occur singly or combined; they are:

1. Active incontinence; 2, passive incontinence.

1. Active incontinence is due either to a hypertonic, constricted or distended state of the bladder which causes the urine to be involuntarily forced out through a urethra which under ordinary conditions would have adequate sphincteric power. The bladder acts to a variable extent as a reservoir, but the sphincter is inadequate to prevent involuntary escape of urine. Among the causes of this form of incontinence are abnormal urine, foreign bodies, tuberculosis, cicatrices, tumors of the bladder, cystitis and other conditions which may give rise to such irritation and consequent contraction of the walls of the bladder as to overcome the sphincteric power of the urethra and to force out urine. Overflow of an enormously distended bladder or of a bladder very much contracted from cystitis and having thick unyielding walls, would be an example of active incontinence. Further discussion of active incontinence does not fall within the scope of this paper.

2. Passive incontinence is due to some sphincteric defect, such, for example, as traumatism or paralysis which deprive the neck of the bladder and urethra of the power of retention. Complete paralysis of the sphincter which causes urine to escape involuntarily as fast as it enters the bladder, which is apt to be of spinal origin and consequently associated with paralysis of other parts, such as the bowel, bladder and lower extremities, also will be excluded from further discussion.

The essential purpose of this paper is to consider the surgical treatment of another and frequent variety of passive incontinence common in multiparous women and usually due to the traumatisms or other results of parturition. This special form of incontinence is always characterized by a very appreciable sagging away of the urethra and neck of the bladder from the pubes, and by a dilated sacculated appearance of the urethra. This separation of the urethra from the pubes is often caused by a crushing or tearing of it from the symphysis during parturition. The condition ordinarily is one of urethrocele and commonly is associated with more or less cystocele, laceration and relaxation of the perineum, and subinvolution of the whole vaginal outlet. The loss of urine is not constant but is occasional or frequent and occurs as a result of coughing, sneezing, sudden change of position, fright or from some unassignable, perhaps neurotic, condition. The bladder is neither distended as in cases of dribbling from overflow of urine, nor constantly empty, as in passive incontinence from paralysis of the sphincter, but normally holds more or less urine which the patient can pass or retain at will. The condition will be recognized as one of frequent occurrence, great embarrassment to the patient, and difficulty of cure.

METHODS OF TREATMENT.

In the literature up to the present time, numerous operations and procedures have been put forward for the relief of this form of incontinence; excluding those not specially pertinent to the subject, they are: 1. Injection of paraffin into the region of the urethra. 2. Massage and electricity. 3. Torsion of the urethra, after Gersuny. 4. Advancing of the urethra after the method of Pawlik, Hummelfarb, Albarran and others.[1]

1. Injection of paraffin, even if it gave good results, which it does not, would be prohibited because of danger to life from pulmonary embolism.

1. The significant literature on the subject dates back but a few years and is rather meager. I am indebted to Dr. Heliodor Schiller for numerous references to articles, mostly German, which during the past thirty years have appeared in the periodical literature, many of which I have consulted.

2. Massage and electricity, although sometimes temporarily effective, seldom give permanent results.

3. Torsion of the urethra, after the method of Gersuny, which requires the urethra to be dissected loose from its surrounding throughout its length, then twisted on itself from 180° to 450° and sutured in place, is apt to overcome incontinence, but is prohibited on account of danger from sloughing of the urethra.

4. The advancing of the urethra, after Pawlik's method, consists of two lateral denudations, one on either side of the urethra, and suture of the denuded surfaces in such a manner as to cause the urethra to be stretched laterally and to be drawn up toward the mons veneris.

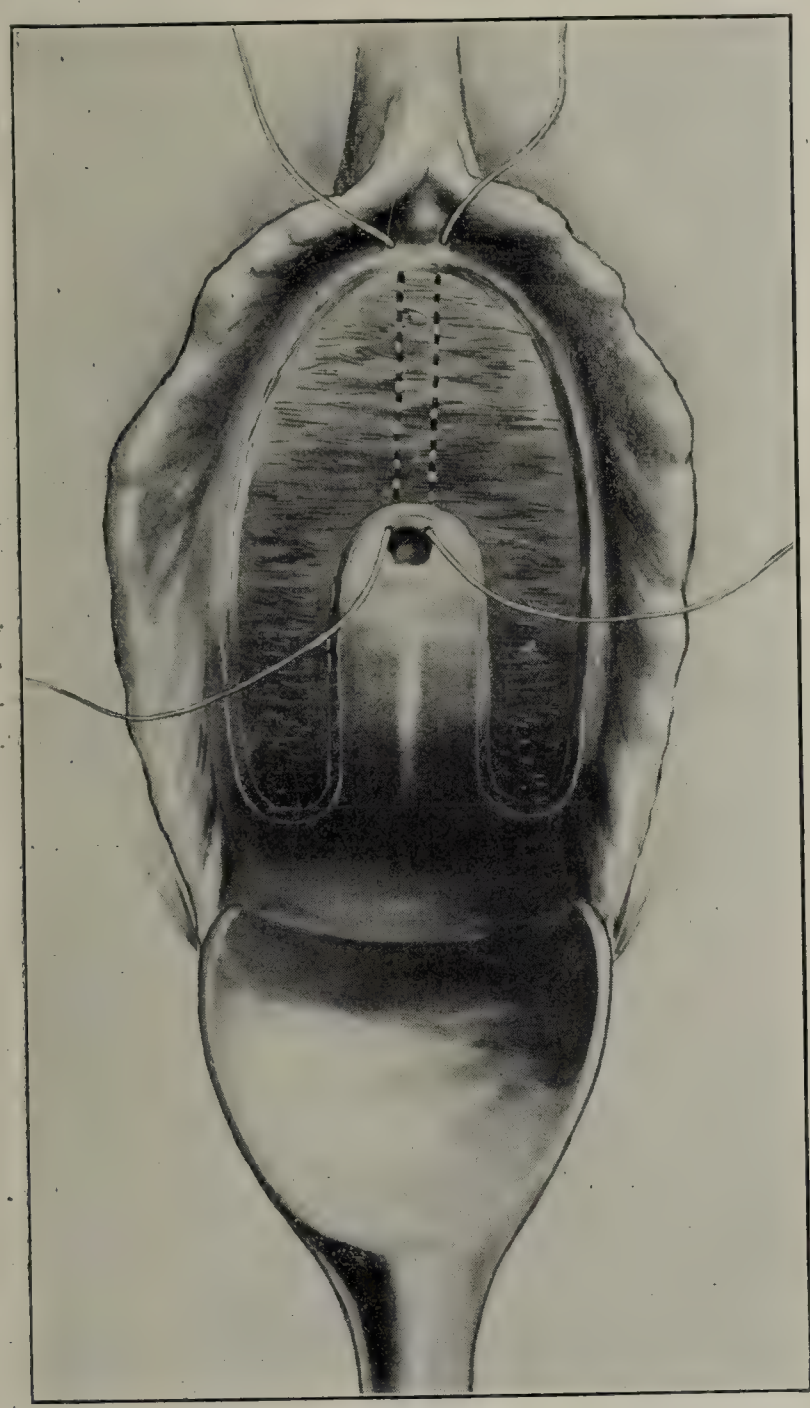


Fig. 1.—Operation for incontinence of urine, showing denuded surfaces and the first two sutures in place, but not tied.

The operation is performed according to Pawlik in two parts, the wound on one side being allowed to unite firmly before that on the other side is made. This operation is sound in principle, that is, advancement of the urethra, but the results too often have not been permanent. Pawlik has proposed another operation in some respects similar to the one which I shall describe later, but so far as I can learn he confines the application of it to cases of congenital epispadias and congenital shortening of the urethra. Hummelfarb lengthens the urethra by union of the labia between the meatus and the clitoris in order that retention may be secured by raising the meatus above the level of the urine in the bladder. The urethra is then expected to act on the principle of the spout of a teakettle. This method, earlier described by Emmet, in a majority of cases fails on account of the activity of the contracting bladder forcing out urine (active incontinence) regardless of the level of the outlet. Albarran's operation consists of dissecting free the urethra, in making an incision from the meatus to the clitoris, in forming two flaps, in raising the urethra to the clitoris, and in suturing the flaps over it. This operation is effective unless, as sometimes occurs, freeing of the urethra from its surroundings gives rise to sloughing.

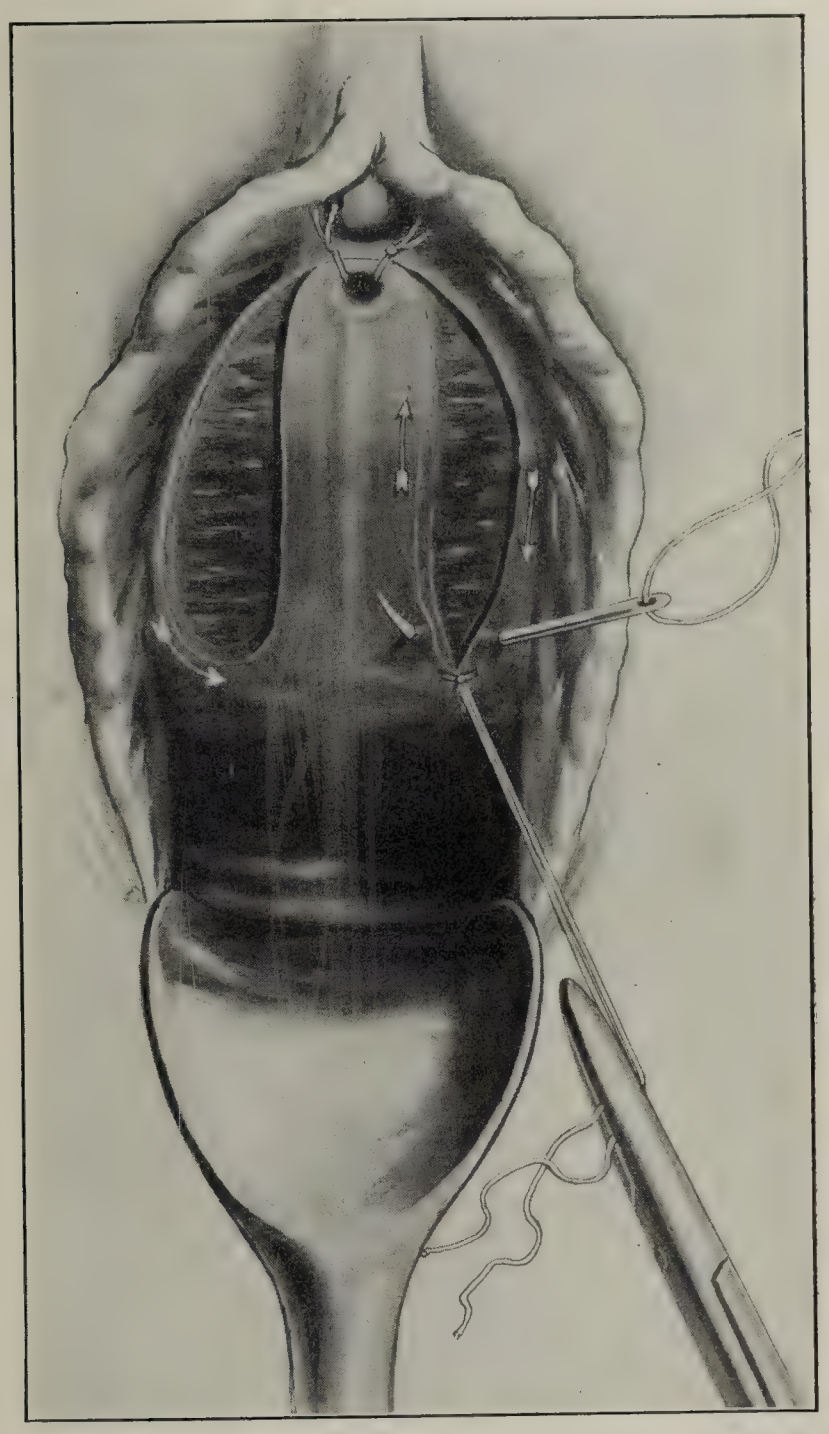


Fig. 2.—First two sutures tied and meatus urinarius drawn up to the clitoris and fastened there. The arrows here show the margins of the lateral parts of the wound so rotated as to make the sutures hold the urethra firmly in its newly acquired elevated position.

PROPOSED OPERATION.

The operation which I would propose is based on the same principle as that proposed by Albarran, that is, advancement of the meatus urinarius to the clitoris, but this is done without dissecting the urethra free and, therefore, it obviates the danger of sloughing of the urethra; it is performed as follows in two steps:

First Step.—A horseshoe-shaped surface is rather deeply denuded between the meatus urinarius and the

clitoris, and to either side of the urethra throughout the entire length of it, as shown in Figure 1.

Second Step.—The meatus is drawn up to a point near the clitoris and is secured there by means of two sutures (Figs. 1 and 2). The lateral portions of the denuded surface are now closed, as shown in Figure 3. The effect of the operation is to replace and to retain in its functional relations the sagging displaced urethra. It will be observed that the two first sutures necessarily stretch the urethra upward to the region of the clitoris and that the lateral sutures must tend to hold it in its new position. By this means, it is proposed to straighten out the urethrocele, by longitudinal traction,

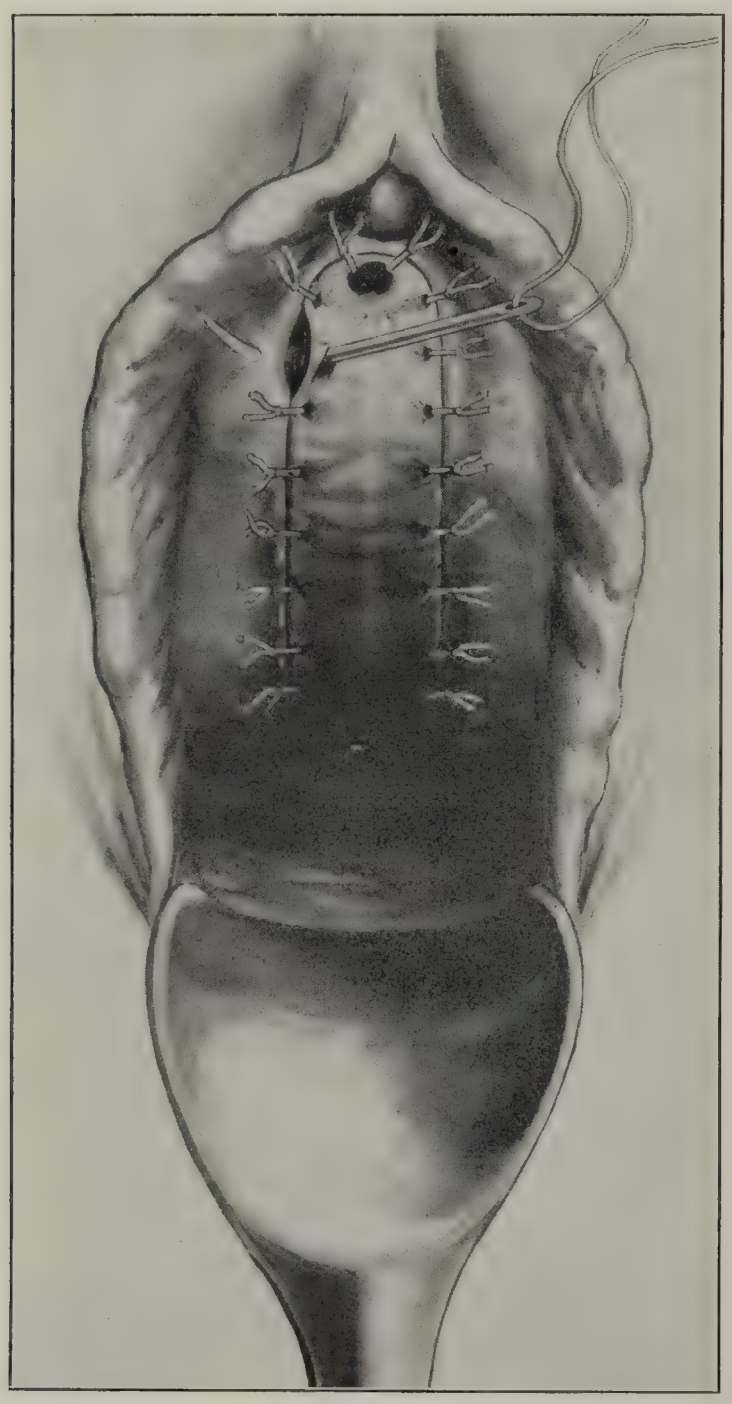


Fig. 3.—Last suture being introduced to complete the operation. The previously sagging urethra is here shown as extended and held firmly up against the pubes in its normal relations. While the lateral sutures are being passed it is well to have the meatus strongly pulled up toward the mons veneris by means of a tenaculum hooked into it and held in the hand of an assistant.

and by lateral traction to collapse and to hold together the dilated walls of the urethra and thus to overcome the sacculation at the neck of the bladder where residual urine is apt to accumulate and give rise to trigonitis, cystitis and possible incontinence.

In many cases, it will be necessary to combine with the operation some appropriate surgical treatment for an associated cystocele and in nearly all cases to perform perineorrhaphy to relieve also relaxation of the posterior vaginal outlet. In one case, I saw fit to narrow the pouching urethra in order to overcome the urethral dilatation.

I have performed this operation five times since January 1, 1905. In the first four cases, relief from incontinence was immediate and, so far as I can learn, has been continuous. The last operation is too recent to be taken into account here. In one case, there was so much relaxation of the skin and other soft parts in the region of the clitoris that I feared the sutured urethra might pull these structures down to the old malposition instead of being held up by them, but so far it remains well in place. In such a case again, or in the event of recurrence from such a cause, however, I should be disposed to make a deep oval denudation over the pubes on the mons veneris just above the clitoris, the longer axis of the oval being directed transversely, and to unite the margins of this wound by a transverse line of union so as to make the clitoris a fixed point on a sufficiently high plane to hold the urethra taut. For obvious reasons, this procedure would be preferable to the removal of the clitoris and the union of the meatus to the parts thereby exposed.

The patients operated on so far are too few and the time since the operations were performed has been too short to warrant any prediction of future results, but the meager and unsatisfactory literature on the subject and the intractable nature of the disorder in spite of such treatment as we have at our command lead me to place before you this record of my own observation. The operation is so simple that I have been rather surprised not to find myself precisely anticipated in every particular, but so far as I have been able to learn, the operation, in some essential respects at least, is novel. If it should be found, however, that I am duplicating the work of another, I desire to make due acknowledgment in advance, "for I would call no other man's labor my own."

STENOSIS OF THE PYLORUS IN INFANCY.

AN ANALYSIS OF 115 CASES.

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AND
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BOSTON.

(*Concluded from page 1671.*)

PROGNOSIS.

The prognosis of these cases of infantile pyloric stenosis if untreated surgically is practically hopeless. A few patients are said to have recovered under expectant treatment.

Batten's[14] case resulted in an apparent cure after several months of nasal tube lavage and dieting. An acute attack of vomiting and diarrhea occurred and the patient died when 11 months old. The autopsy showed a pylorus admitting a probe only 4 mm. in diameter; a narrow pylorus. The symptoms evidently abated under medical treatment, but the condition was not cured.

That these cases may be benefited temporarily by medical treatment is likewise illustrated by the report of Shaw.[24]

Finkelstein,[26] Senator,[27] Saunders,[17] and Stamm[28] report instances of recovery following partial stenosis of the pylorus, that is, in subacute or in chronic cases. Finkelstein's cases were three and were from Heubner's

26. Finkelstein: Jahr. f. Kinderheilk., 1896, vol. xliii, No. 1, p. 105.
27. Senator: Berlin. klin. Wochft., 1897, No. 2, p. 44.
28. Stamm; Munich med. Wochft., 1904, vol. li, p. 232.

clinic, seen at 9, 9 and 4 weeks of age, respectively. They had been vomiting since they were respectively 5, 3 and 3 weeks old. There was gastric distension and visible peristalsis. They were treated by regular breast nursing, lavage of the stomach, rectal feeding, laxatives

pleted story may be. The stenosis may at any time become absolute. The child may have periodic attacks of vomiting, and may suffer all its life from gastric disturbances, from malnutrition and from a train of dependent conditions.



Fig. 9.—First symptoms appeared at 6 weeks. Died at 2½ months. Stomach distended. Pyloric tumor. Pyloric wall thickened. Lumen, 2 mm. Mucous membrane in longitudinal folds. No signs of ulceration, fibrous thickening of submucosa, hyperplasia of circular fibers, thickening of longitudinal long fibers also. M, mucosa; SM, submucosa; CM, circular muscle; LM, longitudinal muscle; I, intestine. (Dorning, Archives of Pediatrics, 1904.)

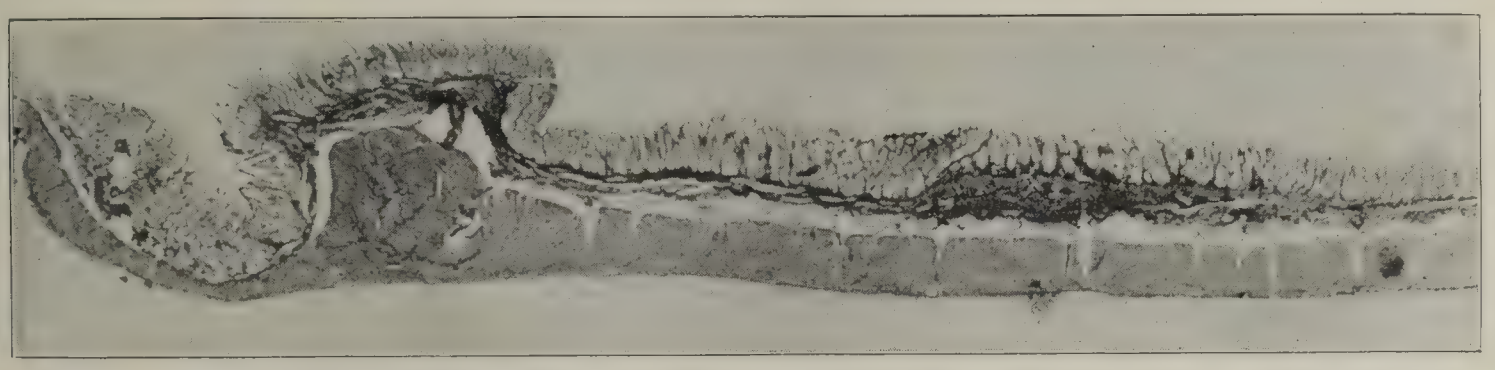


Fig. 10.—Section through the normal pylorus, duodenum and stomach of a child 3 months old. The muscular coat is rather thicker than normal. The duodenum lies to the left. (Cautley and Dent, Medico-Chir. Trans., vol. lxxxvi.)

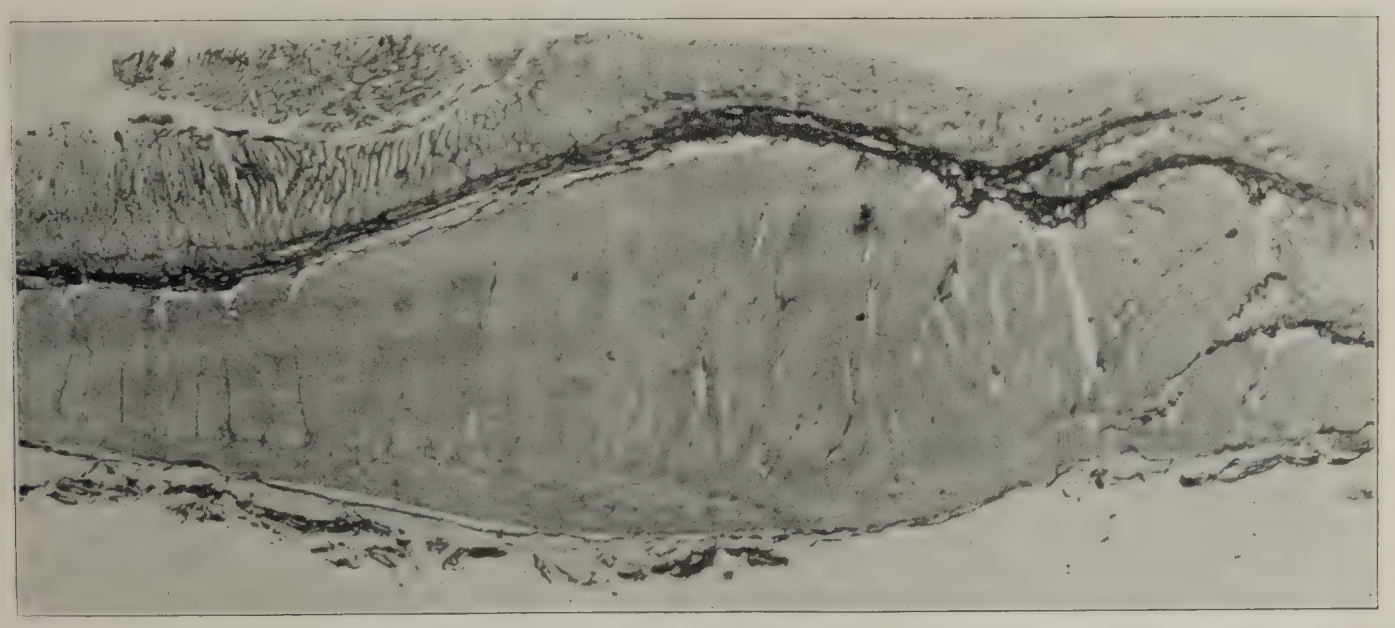


Fig. 11.—Section through the pyloric end of the stomach in the case of a hypertrophied pylorus of a child of 3 months. The thickening of the circular fibers commences in the stomach wall some distance from the pylorus. The muscular coat at the commencement of the duodenum is thickened. The duodenum lies to the right. Compared with Figure 10. (Cautley and Dent, Medico-Chirurg. Trans., vol. lxxxvi.)

and small doses of opium. They are said to have recovered. Of course, the correctness of the diagnosis in these cases may never be absolutely established.

Moreover, if there existed in these so-called cured cases relative stenosis we do not know yet what the com-

I very much doubt the permanence of the cure in cases treated medically. To withhold operative treatment after the diagnosis of pyloric obstruction has been made leaves the case practically hopeless, according to the evidence available.

There are probably cases of narrowing of the pylorus operated on during childhood and adult life, as described by Maylard,[29] which are to be regarded in a class by themselves. No hypertrophy is found in these cases, only a simple narrowness of the pyloric lumen. It is unnecessary to associate these in any way with the infantile pyloric hypertrophy group.

TABLE 4.—TABULATION OF ALL OPERATIONS.

OPERATION.	Cases.	Recovery.	Died.	Mortality Percentage.
Gastroenterostomy.....	40	21	19	47.7
Loreta.....	11	7	4	36.3
Pyloroplasty.....	8	4	4	50
Pylorectomy.....	1	..	1	100
Total.....	60	32	28	46.6

TABLE 5.—GASTROENTEROSTOMY RECOVERIES.

NAME.	Date.	Symptoms.		Age at Operation in Weeks.	Well latest report.	Operation.
		Age at Beginning, in Weeks.	Duration in Weeks.			
Fritzsche	1899	2	4	6	1½ yrs.	Ant.
Kehr	1899	4	3	7	.....	"
Kehr	1900	4	4	8	8 mos.	Post.
Abel	1899	3	5	8	13 days.	Ant.
Schotten	1903	2	3	5	3½ mos.	"
Löbker	1898	9	1	10	2 yrs.	Post.
Monnier	1901	2	4	6	5 mos.	Ant.
Stiles	1904	5	5	10	13½ mos.	Post.
Stiles	1904	..	..	6	3½ mos.	"
Giles	1904	5	2	7	3 mos.	"
Trantenroth	1901	1	4	5½	6 mos.	Ant.
Munro	1904	1	3	3	6 mos.	Post.
Elting	1904	..	20	64	9 mos.	Ant.
Stiles	..	..	..	..	.....	
Stiles	..	..	..	..	.....	
Nicoll	1900	..	..	..	.....	A or P
Nicoll		..	..	..	.....	"
Nicoll		..	..	..	.....	"
Nicoll		..	..	..	.....	"
Nicoll		..	..	..	.....	"
Nicoll	Oct. 1904	..	..	..	.....	"

TABLE 6.—GASTROENTEROSTOMY. DEATHS.

NAME.	Date.	Symptoms.		Age at Operation, in Weeks.	Death.	Remarks.	Operation.
		Age at Beginning, in Weeks.	Duration in Weeks				
Bull	1904	2	2	4	12 hrs	.....	Post.
Meyer	1898	1	3	4	30 "	Button	Ant.
Schotten	1902	4	2	6	14 "	Very weak	Post.
Löbker	1899	..	..	7	.....	Peritonitis	"
Stern	1898	3	4	7	24 hrs.	Evisceration	"
Jordan	1903	..	..	..	.....	.....	"
Jordan	1903	..	..	..	.....	.....	"
Mackay	1903	4	16	20	36 hrs.	.....	"
Munro	1904	3	4	7	23 "	.....	"
Stiles	..	..	..	5	Soon.	.....	"
Mikulicz	1903	..	..	12	2 mos.	Perforating ulcer.	Ant.
Bottomley	1904	5	3	8	10 days.	Very weak	Post.
Meyer	..	..	..	..	.....	.....	?
Stiles	..	..	..	..	.....	.....	..
Stiles	..	..	..	..	.....	.....	..
Stiles	..	..	..	..	.....	.....	..
Nicoll	..	..	..	..	.....	.....	AorP
Nicoll	..	..	..	..	.....	.....	..
Nicoll	..	..	..	..	.....	.....	..

SURGICAL STATISTICS.

What has surgery thus far accomplishel for pyloric stenosis in infancy? Sixty operations have been performed on 59 patients. These are all the operative cases of which satisfactory records exist up to January, 1905 (Table 4).

29. Maylard: British Med. Jour., 1904, No. 1, p. 416.

Of these 60 operations, 40 were gastroenterostomies; 21 recovered (Table 5), 19 died (Table 6), a mortality of 47.7 per cent. Of these gastroenterostomies a little more than half were posterior operations and the others were anterior operations. The place of the anastomosis, whether anterior or posterior, apparently did not affect the mortality rate in these particular cases, except in one instance, which will be mentioned later.

There were 11 divulsions of the pylorus or Loreta operations, 7 recoveries and 4 deaths, a mortality of 36.3 per cent. (Table 7). There were 8 pyloroplasties, with 4 recoveries and 4 deaths, a mortality of 50 per cent. (Table 8). There was one pylorectomy and one death.

A grand total of 60 operations, with 32 recoveries and 28 deaths. A general mortality of 46.6 per cent. (Table 4.) That is, out of 60 cases operated on more than half were saved, 53.5 per cent. These results are certainly brilliant. They represent the achievements of 28 different operators, facing in almost every instance a most desperate problem.

TABLE 7.—CASES OPERATED ON BY DIVULSION OF PYLORUS.

NAME.	Date.	Symptoms.		Age at Operation, in Weeks.	Results.	Remarks.
		Age at Beginning, in Weeks.	Duration in Weeks.			
Nicoll	1899	7	5	12	R	Well 3 years.
Schmidt	1900	3	5	8	R	Well years.
Lendon	1902	2	..	..	D	Lap., 11 weeks.
Mackay	1903	5	1	6	D	After 22 hours.
Stiles	1902	..	..	6	R	Well 1 year.
Stiles	1902	..	3	3+	D	Perforation.
Stiles	1904	2½	2	4+	R	Well 2 years.
Burghard	1903	..	..	8	R	Well 7 months.
Stiles	Gastroenterostomy				R	Failure.
Nicoll	.....	.....	.....	.....	D	Six days. Failure.
Nicoll	.....	.....	.....	.....	R	Failure in 6 months.

TABLE 8.—CASES OPERATED ON BY PYLOROPLASTY.

NAME.	Date.	Symptoms.		Age at Operation, in Weeks.	Results.	Remarks.
		Age at Beginning, in Weeks.	Duration in Weeks.			
Dent	1902	3	5	8	D	Enteritis.
Dent	1902	3	3	6	R	
Dent	1904	2	5	7	R	
Campbell	1904	2	6	8	D	Six days.
Braun	1901	1	5	6	D	Twenty hours.
Guthrie	.....	6	..	..	R	Well in 7 months.
Dent	1903	..	..	5	R	
Granboorn	1902	1	2	3	D	Six weeks.
	PYLORECTOMY					
Sitles	1900	.....	.....	9	D	Thomson's Case.

No apologies are needed to the critics of surgery for the comparatively large mortality of 46.5 per cent. Had not these particular cases been operated on they all probably would have died. Many were almost moribund when placed under surgical care.

These operations have been done since 1898, that is, during the past seven years. This period is a part of the formative or developmental period of gastric surgery. Operative technic is only just reaching its perfection. Important improvements in technic are only now beginning to be adopted. Taking into consideration, therefore, these facts, namely, the yet unsettled question of the best procedure, the faulty technic and the fact that the child was presented for operation as a last resource, after medical experiments had failed, these immediate results are encouraging. As for the end results of sur-

gical treatment we are in the possession of data regarding 14 or 15 cases out of a total of 53; all are well, from several months to three years after operation.

There are certain facts of interest which should prove surgically instructive in connection with pyloric stenosis of infancy.

The first case was operated on in 1898 by Meltzer,[30] in New York, a posterior gastrojejunostomy was done with the aid of a Murphy button. The child died because of intestinal obstruction due to the use of too large a button. (Figs. 15 and 16.)

Löbker,[31] July 25, 1898, performed the first successful operation, a posterior gastroenterostomy by suture. For two years after operation the child was perfectly well. Abel[13] is often credited with having performed the first successful gastroenterostomy, but the records of his case state that the child was discharged on the thirteenth day after operation and no further facts are available. One can hardly assume that the child made a complete recovery. Löbker's case was certainly far more accurately



Fig. 12.—Section through the pylorus of a child 3 months old. who had an hypertrophy of the pylorus which resulted in death. The pylorus was 1.5 cm. long, 1.3 cm. in diameter. Note the tremendously thickened circular fibers which have been cut at right angles to the long diameter of the gut. The longitudinal fibers have been cut transversely; their bundles are clearly seen. (Munro-Townsend, Magrath.)

reported and should have the first place awaiting further news from Abel.

Nicoll[19] records the first case of divulsion of the pylorus—the first Loreta. The operation was performed July 25, 1899. The child recovered and was in good health three years subsequently.

Braun records the first pyloroplasty performed Oct. 18, 1900. The child died in twenty hours after the operation.

Gastroenterostomy, divulsion, pyloroplasty and pylorectomy are the four procedures which have been employed in these cases of infantile pyloric stenosis.

30. Meltzer: Med. Rec., 1898, p. 253.
31. Löbker: Verhandl. d. deutsch. Gesell. f. Chir., vol. xxix, 1900, No. 1, p. 148; 1901, No. 1, p. 158.

The majority of the operative deaths occurred soon after the operation and were due to the weakened condition of the child. In the last analysis, however, this weakened condition was due to the ignorance of the attendant, whether surgeon or physician is immaterial, who did not make an early enough diagnosis or persisted too long in expectant treatment.

Meltzer's patient died not because he used a Murphy button, but because he misused the button, employing one too large for the small lumen of the child's intestine, a death, therefore, occasioned by faulty technic.

Mackay's patient died because, in doing a gastroenterostomy, the redundant mucous membrane was not excised. The redundant mucous membrane blocked the opening formed by the operation. The symptoms persisted and the child died. Autopsy demonstrated the cause of death to be a faulty technic. Littlewood of Leeds, England, first suggested the excision of the mucous membrane in a gastroenterostomy. Moynihan has mentioned that the Murphy button happily accomplishes the same result by causing a pressure necrosis.

Stern's[32] patient died, probably, because of the additional shock occasioned by the escape of the intestines through the abdominal incision. The intestines were

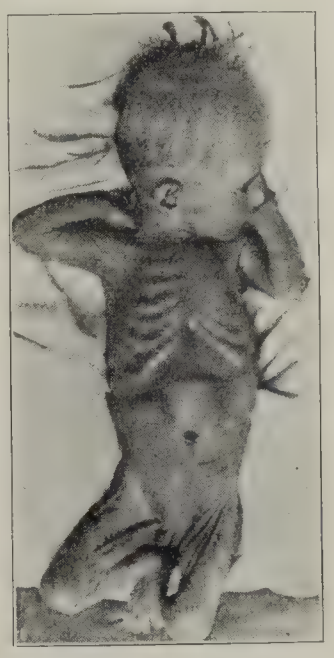


Fig. 13.—Child alive. Demonstration of gastric peristalsis and pyloric tumor. (Fisher and Nield.)

with difficulty replaced. An accident very liable to happen, but also the result of faulty technic.

Schotten,[33] Munro,[34] Meyer,[35] each had very debilitated children on which to operate.

Löbker's[31] patient died of a peritonitis due to leakage from the bowel occasioned by a poorly placed suture, i. e., faulty technic.

In one of Stiles' cases the Loreta operation failed to be permanently beneficial and a subsequent gastroenterostomy resulted in curing the child.

In one of Stiles' cases of the Loreta operation, the patient died of peritonitis occasioned by a perforation of the duodenum. The perforation was made while dilating the pylorus. In another Loreta operation, Lendon's[36] case, a relapse occurred and the patient died at a subsequent exploratory laparotomy, at which nothing was done because of the many adhesions found! In Mackay's Loreta case the patient died of obstruction from re-

32. Stern: Deut. med. Wochft., vol. xxiv. 1898, p. 601.
33. Schotten: Sammlung klin. Vorträge, N. F., 1904, No. 368.
34. Munro: Boston Med. and Surg. Jour., 1904.
35. Meyer: Med. Rec., Aug. 20, 1898.
36. Lendon: Australian Med. Gaz., December, 1902, p. 558.

dundant mucous membrane. In Campbell's[37] case, a pyloroplasty, the patient died because of the obstruction occasioned by the redundant mucous membrane, which was not removed at the time of the operation. Trantenroth was unable in one instance to stretch the pyloric sphincter; it was tough and would not yield. He did an anterior gastroenterostomy. The child recovered. In Campbell's case of pyloroplasty the suturing produced a kink which may have contributed to the cause of death.

Mikulicz has reported a most interesting case. He did an anterior gastroenterostomy on a child with pyloric hypertrophy of extreme type. The immediate relief was satisfactory, but the child died two months later of a peritonitis occasioned by a perforating jejunal ulcer. This child had no increase in HCl in the gastric juice. As Mikulicz suggests in this particular case, the HCl could not have been the cause of the ulcers.

The problem presented to the surgeon by these cases of pyloric stenosis in infancy is similar to the problem which confronts him in the stenosis of the pylorus of adult life except for the conditions dependent on the age of the patient. These conditions are of very great importance. The operation will always be in the nature of an emergency, no matter how soon after birth it is performed. The parts to be operated on in comparison with the adult anatomy are very, very tiny! (Fig. 19.) The overcoming of the obstruction demands a procedure at once rapid of performance, safe and efficient for the emergency and calculated to afford permanent relief.

Rapidity is essential to success, for these tiny patients are easily shocked by delay and by tedious manipulations. To insure rapid operating the surgeon should be particularly familiar with the procedure selected and with the technic of its proper performance. These may seem idle words, but this review of the work done in these cases is a sad commentary on what might have been. I personally believe that so much depends on skilled judgment in the selection of the proper procedure in each case of stomach surgery, to speak broadly, and that so much depends on the familiarity of the operator with the tiny essential details of the technic used in the carrying out of the procedure that stomach surgery should be done, not by every surgeon, but by those who have fitted themselves especially for it and who have demonstrated themselves to be prepared for it.

Rapidity necessitates simplicity of procedure and familiarity with the technic necessary for its accomplishment. The operation must be safe and free from causative factors of shock, namely, sepsis, hemorrhage, prolonged manipulation and loss of body heat. Sepsis will be avoided by emptying the stomach of any unvomited residue previous to operation after anesthesia, by the use, when feasible, of rubber-covered clamps to prevent the escape of the contents of the stomach and intestine, and the prevention of hemorrhage. These small patients bear the loss of a little blood poorly.

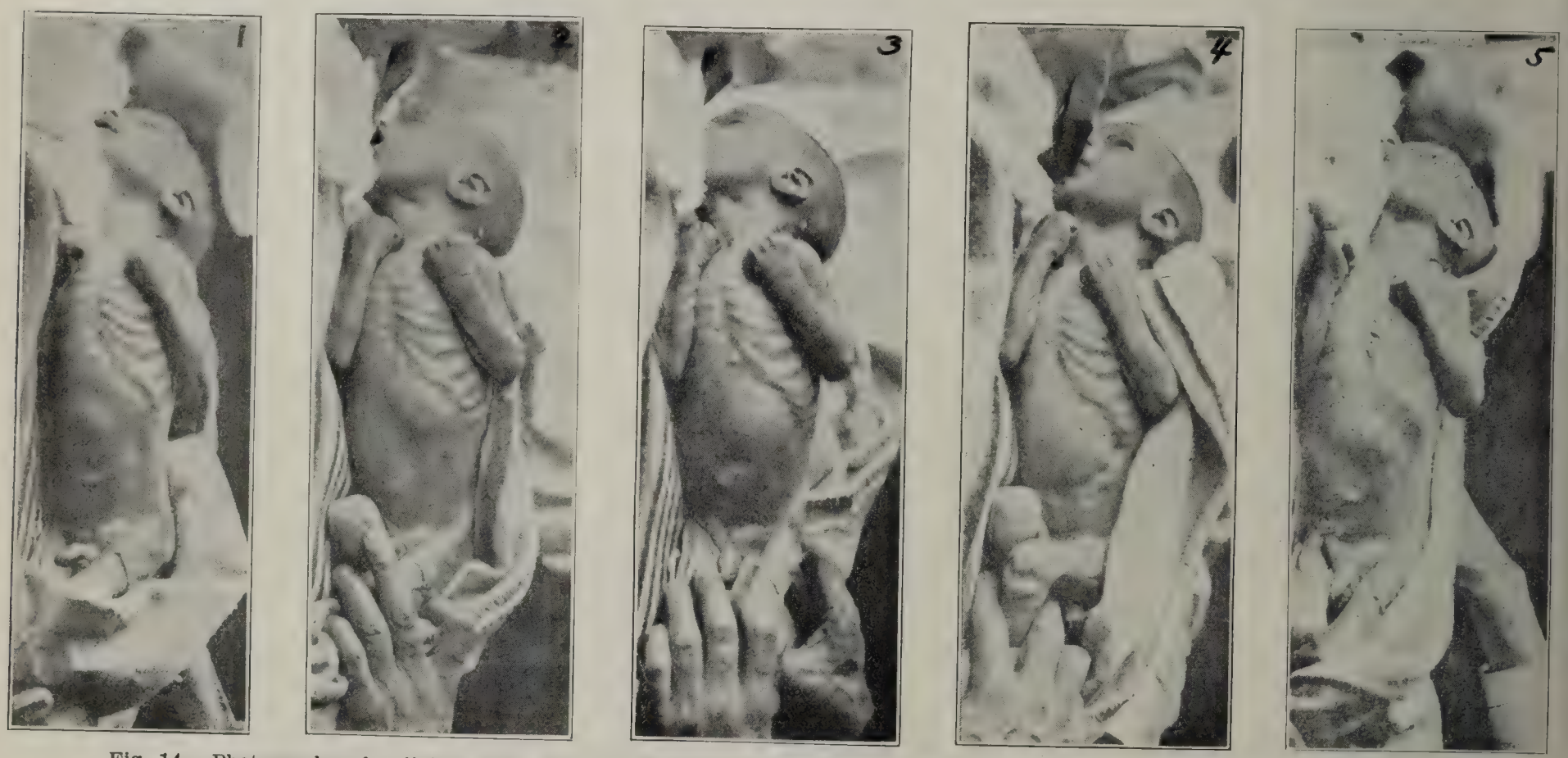


Fig. 14.—Photographs of a living child, showing the emaciated condition present in hypertrophy of the pylorus. Note the peristaltic wave passing over the stomach from right to left. (Fisher and Neild, Bristol Medico-Chirurgical Journal, June, 1904.)

Isolation of the operative field is important, so that practically all work may be done outside the abdominal cavity. It is important to handle the parts gently and as little as possible. It is necessary to wash the exposed parts with warm saline solution before restoring to the abdominal cavity, and it is also important to replace the part handled as nearly as possible in its normal anatomic relations. It is necessary to wrap the patient in sheet wadding or warm small blankets or to use a warmed operating table. Moderate stimulation is wise; rectal nutrient enemata previous to operation often have a wonderfully good effect on these little patients.

The use of subpectoral or rectal saline injections immediately after operation is extremely helpful. All these ordinary measures, especially in babies, diminish shock, and attention to these details is essential to success.

Which method of overcoming the obstruction will prove most efficient and lasting? In these cases reported

37. McCaw-Campbell: British Med. Jour., June 25, 1904, p. 1483.

the Loreta operation of divulsion was several times unsatisfactory. The Loreta operation has likewise proved inefficient in adult cases. Recurrences have been noted both in babies and in adults. Accidents have happened during the performance of a Loreta operation. The pylorus is so small that the gut has been ruptured, wi subsequent fatal peritonitis.

The mucous membrane in certain Loreta cases has been damaged by the great pressure necessary to the proper performance of the operation, and danger from subsequent cicatrices is not absent. Despite the apparent

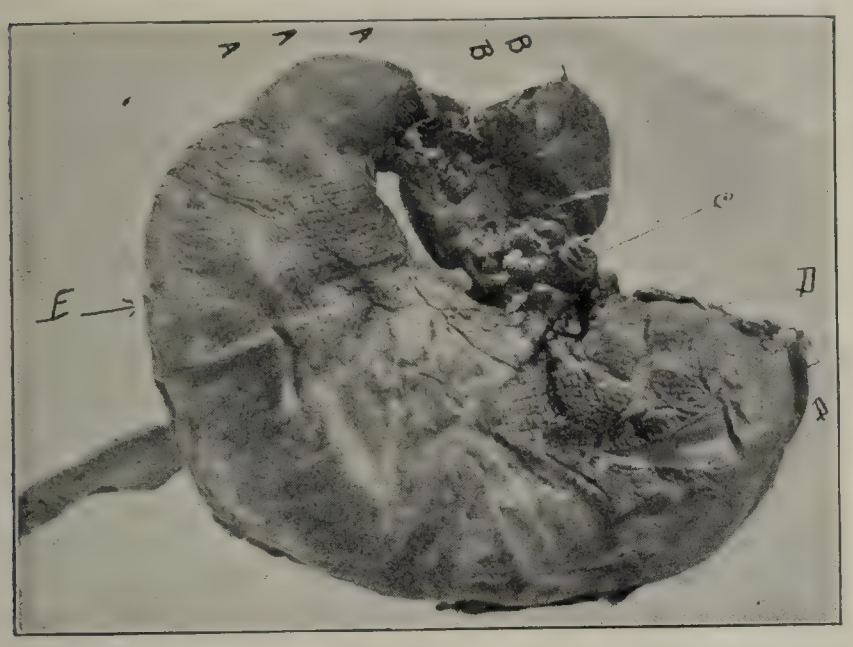


Fig. 15.—(Meltzer's case.) Anterior view: A, pylorus; B, dilated duodenum; C, cardium; D, fundus; E, pyloric part; F, distal jejunum. (Meltzer, Trans. Asso. Am. Phys., vol. xiii, p. 188.)

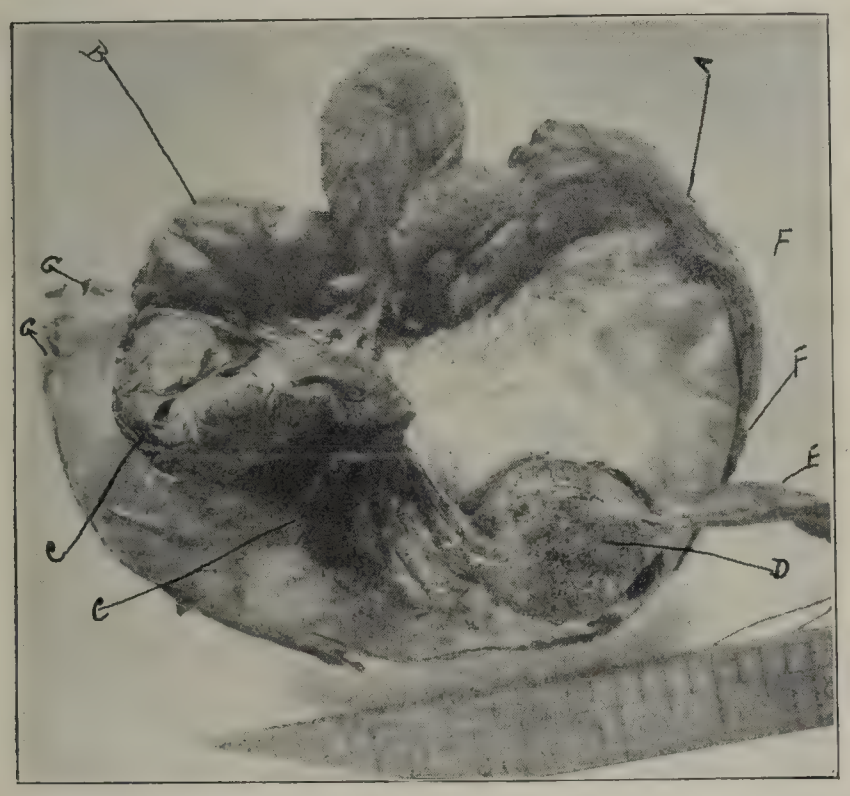


Fig. 16.—(Meltzer's case.) Posterior view: A, pylorus; B, dilated duodenum; C, dilated jejunum; D, Murphy button; E, distal jejunum; F, pyloric part of stomach. G, fundus. (Meltzer, Trans. Asso. Am. Phys., vol. xiii, p. 188.)

lower mortality, this method is inefficient, unsafe and, therefore, not to be used. Nicoll[19] of Edinburgh uses the Loreta method together with a gastroenterostomy in cases that are not too ill to have both of the operations done at one time. It has been found physically impossible to dilate the pylorus in some of these cases.

Pylorectomy is obviously too severe an operation. Pyloroplasty has its advocates in the Englishmen, Cautley and Dent,[38] and there is no doubt that certain cases have done well after this operation. It is a procedure with which one should be familiar and which should be practiced in a certain few of these cases in which the pyloric tumor is small, and in which it can be done without kinking the gut.[39] Personally I am not attracted by pyloroplasty. Both Robson and Moynihan say: "Pyloroplasty, on account of the great thickness of the pylorus and its rigidity in the whole circumference, is applicable."

Some form of gastroenterostomy is the operation best suited to the conditions, but an anterior gastroenterostomy is to be avoided, if possible. Taking all operations together, more trouble subsequent to operation in adults has arisen after an anterior gastroenterostomy than after a posterior one; and the likelihood of jejunal ulcer exists (See the case of Mikulicz). There are in adult life 16 reported instances of jejunal ulcer, nearly all following the anterior operation. Robson has just added a case to this ulcer list.

The mesentery of the baby's jejunum is short in proportion to the width of the gut as compared with the mesentery of the adult gut. It has been found impossible in several cases to do an anterior gastroenterostomy because of this shortness of the mesentery. (Fig. 18.)

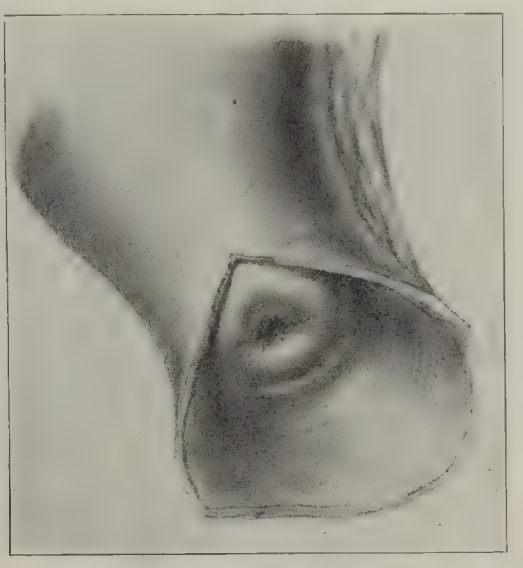


Fig. 17.—The appearance of the pylorus, looked at from the duodenum; from a case of hypertrophy of the pylorus; age of child, 3 months. Note the sharp line of demarcation between pylorus and duodenum.

Nature suggests the posterior method. In most cases a posterior gastrojejunostomy with no loop will prove satisfactory and feasible.

The gastro-pyloro-duodenostomy, first suggested by Finney of Baltimore, may meet the conditions existing in certain of these cases of infantile pyloric stenosis. The incision divides the obstructing stenosed part and allows the stomach to empty its contents into the duodenum at approximately the normal anatomic location.

In many cases this form of gastro-pyloro-duodenostomy in the adult patient has proved satisfactory. Adhesions about the duodenum and pylorus and the normal fixation of the duodenum sometimes offer serious difficulties to the performance of Finney's operation in the adult, but in these cases of pyloric stenosis in infancy no such objections hold. The duodenum is very mobile even to the median line of the body. No adhesions are ever found.

If for any reason, such as rigid or large tumors, the Finney operation is not feasible, Köcher's gastroduodenostomy may prove useful. The duodenum is so freely

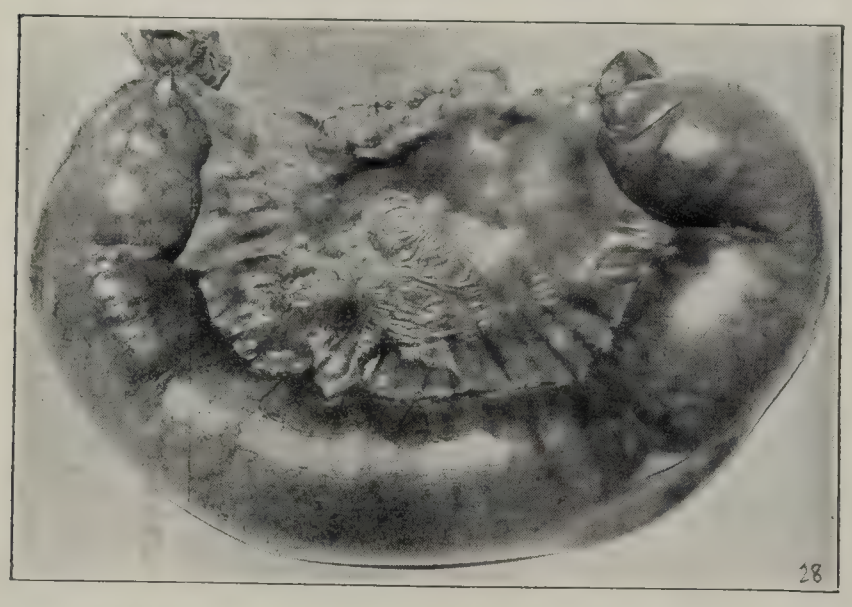
38. Cautley and Dent: Lancet, 1902, vol. ii, p. 1679; Medico-Chirurgical Trans., 1903, p. 474.

39. Adhesions of the pylorus, subsequent to pyloroplasty such as are recorded in the adult—Heinecke-Milkulicz operation—and because of which it has been abandoned by some, probably may be avoided by omental grafting.

movable that it may be placed in contact with the stomach so as not to kink the first portion of the duodenum.

My feeling, then, with regard to the operative procedure to be used in a case of infantile stenosis of the pylorus is that the posterior gastroenterostomy, without a loop, made as snug to the origin of the jejunum as is possible, has first choice. A Finney operation, a Köcher gastroduodenostomy and a pyloroplasty in some cases may be of value. The whole matter is too unsettled to definitely and finally commit myself to any procedure.

The care after operation is of the most vital importance. These little weak patients respond to good care, gentle stimulation and careful feeding. If possible an expert in the feeding of babies should have charge of the diet. It may require some coaxing to establish the child's life on a certain basis. Rectal feeding may be needed for a few days after operation. The baby should be kept absolutely quiet and not handled unnecessarily. One operator thought the baby might be operated on and then carried home in the arms of its mother, several miles into the country. This was not done, however,



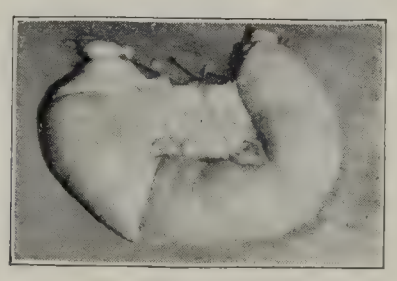


Fig. 18.—The intestine of the adult and of the infant with its mesentery intact. Photographed to similar scales. Note the relative short mesentery of the infantile intestine.

and after the operation it was doubtful for a day or two whether the baby would live or die. The baby lived, but had it been carried immediately home from the hospital it probably would have died. These matters seen ordinary and of minor importance, but they are vital, and it is the attention to all little details which sometimes turns the scales.

I have purposely avoided a discussion of the etiology of this affection because I feel that it is still on a theoretical basis. Little of practical value can come from such a discussion at present. Suffice it to say that there are three theories suggested:

1. That the hypertrophy of the pylorus is a primary congenital overgrowth of the sphincter muscle. This view is entertained by Nicoll.

2. Thomson believes the hypertrophy to be secondary to an incoördinated action of the stomach muscles, dependent on functional disorders of the gastric nervous system, resulting in gastric spasm.

3. The hypertrophy, according to Pfaundler,[12] is due to a spasmodic contraction because of gastric irritation after birth. There are many facts supporting these views. All agree, however, that there is hyperplasia of the circular pyloric fibers. Why and where this hyperplasia occurred it is impossible to determine at present. The discussion is fascinating, but at present unprofitable.

We may accept as true the evidence of the existence at birth of hyperplasia of the pyloric sphincter. I think also that from clinical evidence we may accept as true the fact that after birth there is often, if not always, a spasmodic contraction of this hypertrophied pylorus. More than this we can not accept on the present evidence. I have avoided using the term "congenital hypertrophy" because it involves the etiologic factor. I think that the term "pyloric stenosis of infancy" implies nothing not yet proved; it seems, therefore, to be the better term.

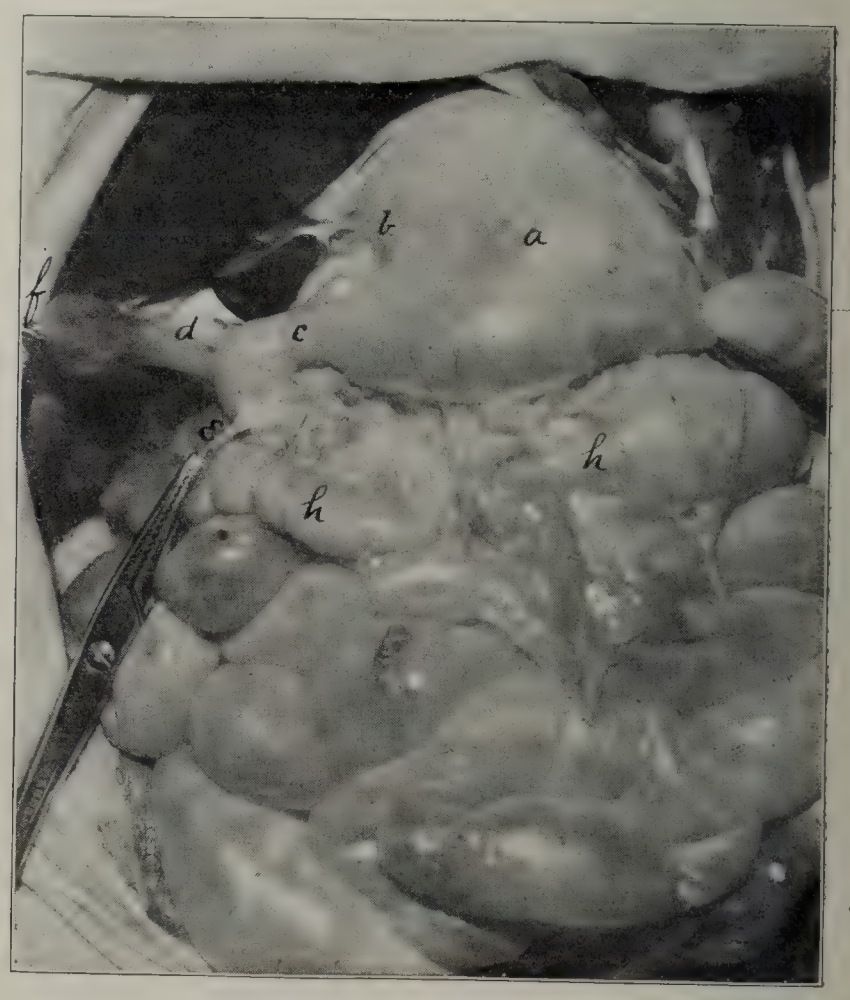


Fig. 19.—Autopsy photograph of a child about 1 year old. Note: (*a*) stomach, (*b*) lesser curvature, (*c*) pylorus, (*d*) gastrohepatic ligament, (*e*) great omental border, (*f*) gall bladder, (*h*) transverse colon.

Our idea of the prognosis of these cases of pyloric hypertrophy is not influenced in the least by the hypothesis we may entertain of the etiology. There is as yet no evidence that patients said to have recovered under medical treatment had this disease. There are cases, already referred to, however, in which the diagnosis of pyloric stenosis had been made, and in which a cure was supposed to have taken place. These patients subsequently died and autopsy demonstrated that the stenosis had persisted after the supposed cure.

Monnier[40] thinks that the mortality without operation is about 80 per cent. If the truth were known I am persuaded that the medical mortality would be above this figure.

40. Monnier: Deutsch. Zeits. für Chirurg., 1901.

When should the physician summon the surgeon? As soon as the diagnosis is made, and before the diagnosis is made in all doubtful cases. When an infant persistently vomits and does not improve after a fair experimentation with feeding in the many ways known to the skilled pediatrist, the case should be regarded with suspicion and pyloric stenosis considered. The physician and surgeon should work over these cases together. The physician, by being keenly alive to the existence of the affection which is no longer a medical curiosity, but is more common than has been supposed, should contribute his accurate observations to a clearer knowledge of the disease. The surgeon, realizing the difficulties of diagnosis, should approach a possible case of the affection with discrimination, being careful not to operate unnecessarily.

The surgeon should not operate because the medical attendant brings him a case which he thinks needs operation. The surgeon should operate only after personally weighing the evidence and being convinced by it.

The pathologic evidence conclusively demonstrates the uniformity of the lesion. The clinical evidence associates with this lesion a typical and an atypical symptomatology. Medicinal treatment has yet to demonstrate its power to cure this affection. Surgery, on the other hand, has proved its ability under adverse circumstances to cure more than one-half the cases entrusted to it.[41]

41. Other references consulted are the following: Bernheim: Karr. corresp. bei f. Schw. Aertz., 1904, xxxiv, p. 257. Blachadder: Brit. Med. Jour., 1901, vol. i, p. 765. Clogg: The Pract., November, 1904. Cleveland: Brit. Med. Jour., 1904, vol. i, p. 1073. Dent: Brit. Jour. Chil. Dis., 1904, vol. i. Dorning: Arch. Ped., September, 1904, p. 681. Elting: Albany Med. Ann., January, 1905. Fritzche: Dis. Zurich, 1900, p. 156; Centlbl. f. Chir., 1901, p. 119. Fenwick: Disorders of Digestion in Infancy and Childhood, 1897. Fletcher: Trans. Path. Soc. London, vol. i, 1899. Freund: Mitt. a. d. Grenz. Med. Chir., 1903, p. 309. Flynn: Australasian Med. Gaz., December, 1902; Münch. med. Wochft., 1903, No. 29, p. 1274. Fisher and Neild: Bristol Med.-Chir. Journal, 1904, vol. xxii, p. 123; Centbl. f. Chir., vol. xxxii, p. 945. Giles: Australasian Med. Gaz., Aug. 20, 1904. Granboorn: Monatsch. f. Kindhk., No. 3, 1902. Guthrie and Murray: Reports of the Society for the Study of Diseases in Children. Gran: Jahr. f. Kindhk., vol. xliii, 1896, p. 118. Hammer: Prag. med. Wochft., 1899, No. 3, p. 25. Herman: Arch. Ped., January, 1901, p. 293. Henschel: Arch. f. Kindhk., 1891, vol. xiii, p. 32. Ibrahim: Münch. med. Wochft., 1903, No. 31, p. 1359. Kehr: Verhand der Deutch. Gesellschaft f. Chir., 1900, vol. i, p. 124. Knoepfelmacher: Wein. klin. Wochft., Dec. 20, 1900. Koplik: Diseases of Infancy and Childhood, Lea Bros., New York, 1902. Lange: Münch. med. Wochft., 1901, No. 7, p. 280. McCaw and Campbell: Brit. Med. Jour., June 25, 1904, p. 1483. Nordgren: Münch. med. Wochft., 1903, No. 4, p. 179. Neurath: Centbl. f. d. Grenz. Med. Chir., 1899. Pedden: Trans. Glasgow Path. and Clin. Soc., 1892. Pitt: Trans. Path. Soc. London, 1892, vol. xliii, p. 63. Riviére: Lancet, 1902, vol. ii, p. 1750. Rolleston and Hayne: Brit. Med. Jour., April 23, 1898. Schmidt: Arch. f. klin. Chir. v. Langenbeck, vol. lxiii, 1901, p. 977. Selter: Monatsch. f. Kindhk., No. 6, 1902. Schultze: Proc. New York Path. Soc., 1901, p. 80, N. S. T. Simonsohn: Diss. Greefswald, 1903, p. 38. Southworth: Arch. Ped., January, 1901. Trantenroth: Centbl. f. Chir., No. 38, 1902, p. 1004. West: Arch. Ped., 1903, p. 750. Weill and Pehn: Lyon Medicale, Dec. 9, 1900, p. 505. Wachenheim, F. L.: Amer. Jour. Med. Sciences, April, 1905, p. 636. Ibrahim: Die Angeborene Pylorustenose im Sauglingsalter. George F. Still: London Lancet, March 11, 1905, p. 632.

Facts About Portland, Oregon.—Portland is the principal city of the northwest coast. The chief export commodities are lumber, flour and grain. The city does a wholesale business of $175,000,000 annually, and the product of its factories was $50,000,000 last year. The name of the "Rose City" has been given this western metropolis on account of the large number of beautiful roses that are constantly in bloom here all the year round. The climate is exceptionally mild on account of the warm currents of the Pacific Ocean. It is the first rank of American cities for health, the death rate being only 9.5 per 1,000 of population.—*Sunset Magazine.*

ANKYLOSIS.

ARTHROPLASTY—CLINICAL AND EXPERIMENTAL.

JOHN B. MURPHY, M.D.,
CHICAGO.

(*Concluded from page 1678.*)

CASE 8.—Mr. Z.; Bohemian, aged 26; was admitted to Mercy hospital April 19, 1904.

Present Illness.—Patient does not speak English and it was impossible, therefore, to obtain a perfectly accurate history. Through an interpreter he stated that stiffness in the right elbow began to develop about ten years ago, and progressed steadily until the joint was completely ankylosed at a right angle. He stated positively that there was no acute inflammation in the joint at any time, and that he had never injured the elbow. From his statement it would seem that the lesion was from the first an ankylosing arthritis. No other joints

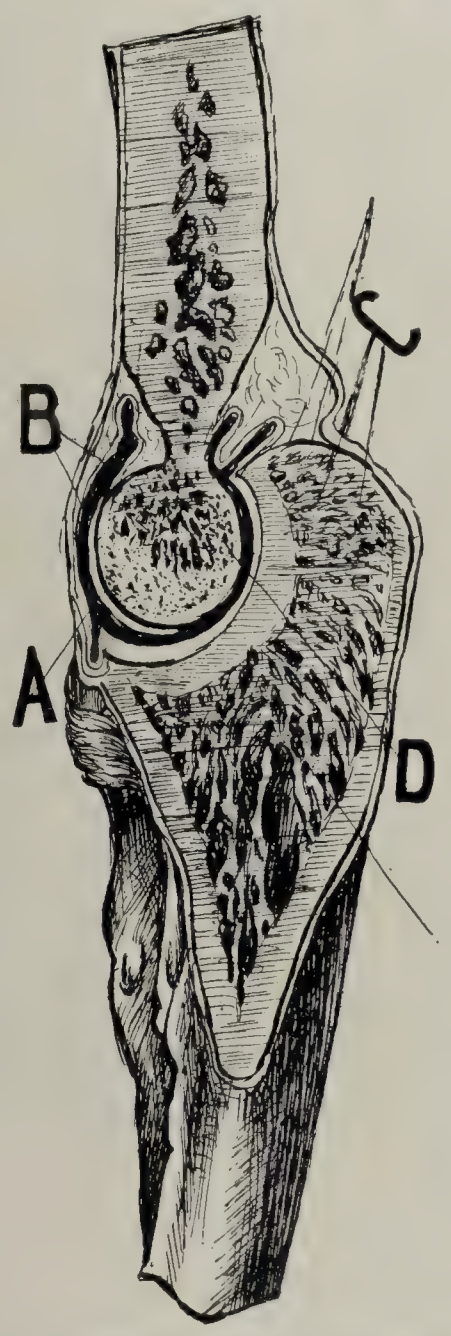


Fig. 29.—Case 8: Showing disposition of synovial membrane in elbow joint (Toldt).

were involved and his general health was good. He gave no history of tubercular or of specific trouble.

Examination.—The patient is of medium stature, rather poorly nourished. The right forearm was flexed at a right angle, and there was absolutely no motion in the elbow joint. The muscles of the arm were atrophied to an extreme degree from non-use, as were those of the forearm, though to a lesser degree. No swelling existed about the elbow joint, except over the articular surface of the radius, where the bone was somewhat thickened. The olecranon fossa was partly filled by bony deposit.

Operation.—April 20, 1904, Esmarch's constrictor was applied to the arm. A vertical incision 6 inches long was made on the posterior surface of the right elbow directly over the

olecranon. It extended from two inches below the tip of the process to 4 inches above it, and exposed the surface of the olecranon and the deep fascia, covering the triceps. The skin and subcutaneous fat were dissected laterally from the bone and fascia for 1½ inches on each side of the incision, and the edges of the wound were widely retracted. A pyriform flap of the deep fascia was dissected from the posterior surface of the triceps. The flap was 4½ inches long by 2½ inches wide at its upper end, and received its blood supply through a broad pedicle which remained attached to the muscle and fascia just below the level of the tip of the olecranon. By means of a long curved needle threaded with a heavy silk carrier, a wire-saw was passed around the base of the olecranon and the latter severed from the ulna. The bone was sawn through in an oblique direction from within outward, in order to secure broad bony surface for subsequent union. After separating with chisel and mallet the bony connection between the olecranon and the humerus, the former with triceps attachment undisturbed, was retracted upward and the interior of the joint exposed. Examination showed firm bony ankylosis which involved the entire elbow joint. The synovial membrane and cartilage had been destroyed, and not a vestige of them remained. The union was firmest between the external condyle and the head of the radius, where in addition to the osseous tissue connecting the articular surfaces, exostoses from the margin of the radial head surrounding the condyle. The bony adhesion between the head of the radius and the lesser sigmoid cavity was separated with the chisel, the coronoid process was liberated from the trochlea in the same manner, and the bony deposit which filled the olecranon depression was removed with the curette. The exostoses were then cut away from the head of the radius and the head itself was reduced to its normal size with bone cutting forceps. Its connection with the external condyle was then severed and all of the articular surfaces were smoothed off. The flap of fascia was drawn downward and turned into the joint around the inner margin of the olecranon. The proximal portion of the flap covered the trochlea and lined the olecranon depression and the lesser sigmoid cavity, while the distal portion covered the external condyle. The margin of the flap was secured to the capsule of the joint on all sides with interrupted catgut sutures and the olecranon was brought into position, and wired to the ulna with aluminum-bronze wire. The ulna nerve, which had been displaced at the beginning of the operation, in order to protect it from injury, was replaced in its groove. Subsequent events show that the fascial flap was not carried sufficiently high on the anterior surface of the humerus to permit of adequate flexion of the joint. (Note the disposition of the synovial membrane of the elbow joint as seen in Fig. 29 and the axis of rotation as seen in Fig. 30.) To prevent adhesion of the triceps muscle to the lower end of the humerus, the deep portion of the common tendon of the triceps was folded together and sutured longitudinally to form a rope-like mass. The edges of the fascia on the posterior surface of the muscle were drawn together as closely as possible to prevent adhesion of the muscle to the skin.

Passive motions of the elbow were now performed and the muscles were stretched to allow a free flexion and extension. The skin incision was closed with silkworm gut and horsehair, and the wound was drained with a small rubber tube at its lower angle. The elbow was immobilized at a right angle in an external plaster cast.

Result.—A mild degree of superficial infection developed a few days after the operation and caused a slight evening elevation of temperature. It was not necessary to reopen the wound on this account as the retained seropurulent fluid escaped through the sutures. The sutures were removed on the tenth day, and the elbow was put through passive motions every day after this. (Figs. 31 and 32.)

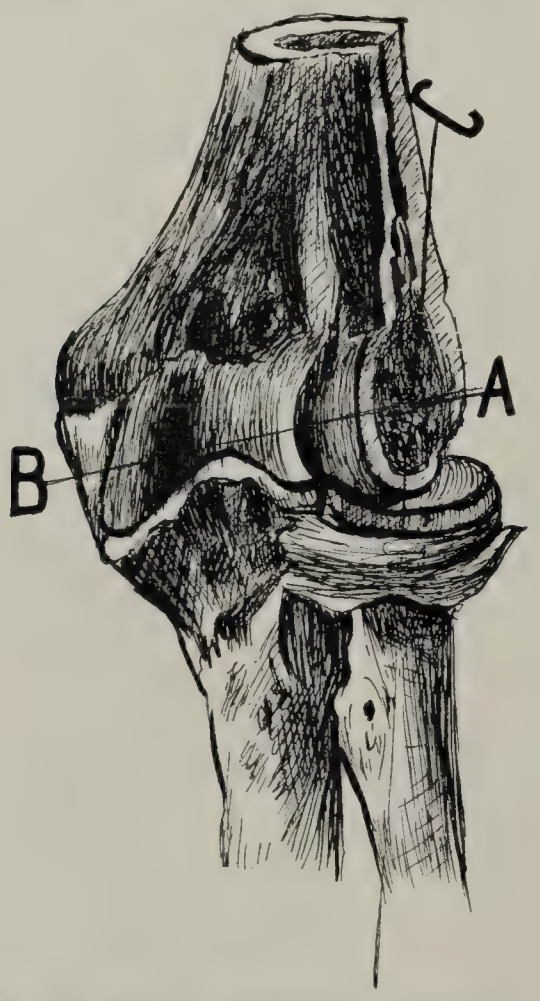


Fig. 30.—Axes of rotation in elbow joint.



Fig. 31.—Case 8: Radiograph of right elbow after operation.

Sept. 17, 1904: He can now pass the hand through an arc of 5 inches. Pronation and supination are about one-half the normal degree. There is no swelling of the joint. The biceps and triceps which had atrophied from non-use are slowly developing.

CASE 9.—Mrs. S. S., aged 29; was admitted to Mercy hospital June 21, 1904.

Family history is negative.

Previous History.—"Scarlet fever and measles" when a child. Never pregnant.

Present Illness.—Ten months previously the patient had an attack of "acute rheumatism" which involved in rapid succession the joints of the fingers, left elbow, both knees, ankles and the right wrist. All these joints were swollen, painful and tender to pressure for three weeks, during which time her temperature ranged from 101 degrees to 103 degrees F. The temperature then became remittent, but the arthritis, partic-

ularly in the left elbow and the right knee, remained active for 4 months from time of onset. The trouble then gradually subsided leaving all the joints normal, except the left elbow and right knee, which were firmly ankylosed, the former slightly flexed and the latter extended. At present, her general health is good but still has some pain in the knee and elbow.

Examination.—The patient is of small stature; fairly well nourished. The left elbow was firmly ankylosed in a slightly flexed position and permitted of absolutely no motion (Fig. 33). There was no swelling about the joint. The right knee was extended and fixed but allowed of slight passive motion between the femur and tibia. The patella, however, was united to the femur by bony ankylosis.

Operation.—Left elbow was operated on June 22, 1904. Arthroplasty was performed after the method described under Case 8. As the superior radio-ulnar joint was not ankylosed it was not necessary to place the fascia in this situation. Care was taken to cover the entire articular surface of the lower end of the humerus with the fascial flap. The capsule of the joint was not removed. (Fig. 34.)

The elbow was put through passive motions to stretch the muscles; the skin incision was closed with horsehair and the elbow was immobilized at a right angle in a posterior plaster cast, which extended from the shoulder to the wrist.



Fig. 32.—Case 8: Normal left elbow joint.

Result.—Wound healed by primary union and the sutures were removed July 2. Passive motions were begun on the fifteenth day and were performed daily thereafter. The cast was removed on the twenty-first day. She left the hospital July 29, 1904. (Figs. 35 and 36.)

Sept. 22, 1904: Active motion carries the hand through an arc of three inches without pain. The elbow can be forcibly flexed to an acute angle and extended to 160 degrees. Supination and pronation are rapidly approaching the normal. There is no swelling or edema about the joint.

CASE 10.—Mr. H. B. D., aged 26, lineman; was admitted to Mercy hospital Sept. 14, 1904. Family history is negative.

Previous History.—"Typhoid fever" many years ago. "Rheumatism" 15 years ago. Three attempts have been made under anesthesia to restore motion, and in one attempt the ligamentum patellæ was ruptured. All were unsuccessful.

Present Illness.—Thirteen months previously in the third week of acute gonorrhea, the patient's left knee suddenly became swollen, painful and tender. The pain was very severe and as no improvement followed rest, hot applications, etc., a plaster cast was applied, which immobilized the knee in full extension. He was confined to bed 3 months and the cast remained on 4 months. When it was taken off the knee was stiff and attempts at active or passive motion were very painful. The stiffness and pain have persisted up to the present time and he is incapacitated.. All treatment has been without effect.

Examination.—The left knee was flexed at an angle of about 5 degrees. It was slightly swollen and tender to pressure around the line of the joint. The patella was firmly ankylosed to the femur and could not be moved independently. The ankylosis between the femur and the tibia was apparently fibrous, as a very slight degree of motion was present.

Operation.—Sept. 17, 1904, Esmarch's constrictor was placed around the middle of the thigh. A transverse incision was made extending from the inner to the outer condyle across the center to the left patella. The patella was sawn through transversely, its lateral ligaments were divided and the bony union to the femur was separated with chisel and mallet. The two fragments were then retracted upward and downward respectively, exposing the interior of the joint. Dense fibrous tissue united the femur and tibia over the entire articular surface and the capsule of the joint was greatly thickened. The capsule was divided in a posterior direction on each side, and the bones were freed from each other by forcibly flexing the leg on the thigh. The anterior crucial ligament was ruptured when the leg was flexed, but the posterior ligament remained intact. A flap of the fascia lata and adipose tissue covering the vastus externus, was then dissected from the muscle leaving a broad pedicle attached just about the joint level. Before turning the flap into the joint the entire capsule, lateral ligaments and periarticular tissue were removed (except from the posterior margin) down to the attachment to the bone. The flap was then turned in between the bones and the entire articular surface of the femur was covered by it. It was large enough to overlap the articular

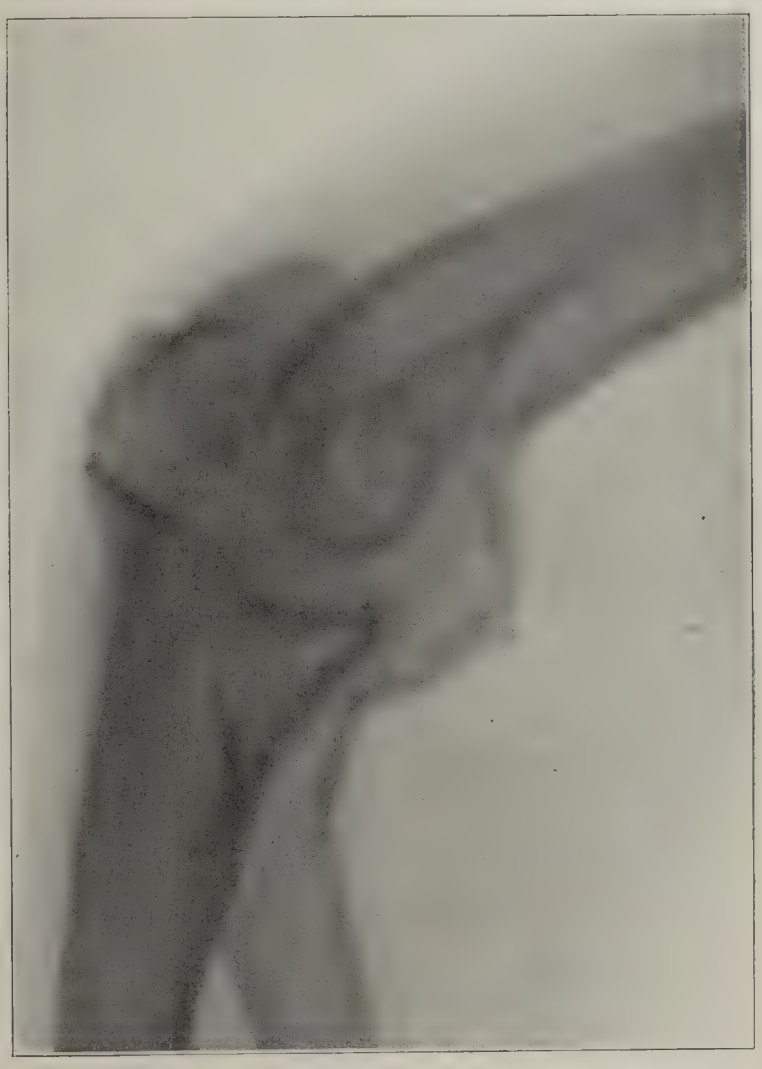


Fig. 33.—Case 9: Radiograph of left elbow before operation. Osseous tissue fills the joint and unites the bones.

surface and to permit its free border to come well up on the shaft of the bone, where it was secured to the periosteum with interrupted catgut sutures (Fig. 37).

The leg was then extended and the upper and lower halves of the patella were united by a mattress suture of heavy aluminum wire in the bone, reinforced by interrupted kangaroo tendon sutures in the periosteum and patellar aponeurosis. The skin incision was closed with silkworm gut and horsehair. Tubular drainage was used. An anterior plaster cast immobilized the knee in full extension. A Buck's extension was applied on the tenth day and slight passive motion was instituted (Figs. 38 and 39).

Result.—Dec. 1, 1904. Patient is able to walk without cane or crutch, though he uses a cane if on his feet for a long time. Motion in the knee joint is perfectly free to the extent of 15 degrees and this is increasing daily. The patella is freely movable.

CASE 11.—Mr. A. W. D., aged 29 years, conductor; was admitted to Mercy hospital Oct. 27, 1904. Family history is negative.

Previous History.—He had acute appendicitis terminating in localized abscess 3 months ago; the abscess was opened and drained.

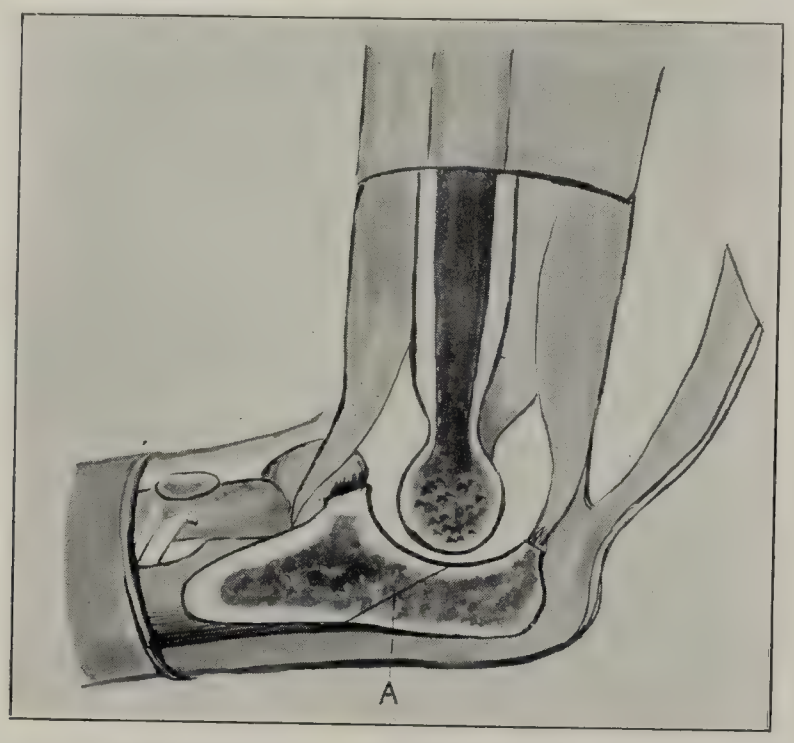


Fig. 34.—Sagittal section through elbow joint. Olecranon is detached from ulna through oblique line. (A) Fascial flap shown with pedicle below.

Present Illness.—Fourteen months ago the patient fell under a moving freight car and was rolled a distance of ten or twelve feet. The wheels did not pass over him, but he sustained the following injuries: (a) Severe contusion and laceration of the soft tissues about the right knee, especially on the outer aspect. The knee joint was opened, but no bones were fractured. (b) Radius and ulna were fractured at about the middle. (c) Right shoulder was severely contused. Suppuration developed in the right knee joint and he was confined to the hospital for 8 months. When he left the hospital the suppuration in the right knee had ceased and the wound was healed, but the patella was firmly fixed to the femur by bony union, the tibia was subluxated posteriorly, and he was unable completely to extend the leg on the thigh. Flexion in the knee was limited to 10° or 15°, and he could not support the weight of his body on the right limb. Owing to the malposition of the leg and foot during the time he was confined in bed, he had a pronounced drop foot which added to the difficulty in walking and standing. Eleven months after the accident the adhesions in the right knee joint were broken up by forcible manipulations. Since then there has been a little more motion in the knee, but he is still obliged to use crutches in walking.

Examination.—There is a scar above right Poupart's ligament where appendiceal abscess was drained. The right radius and ulna were fractured in middle third and fragments were united by fibrous tissue. Right leg was flexed on the thigh at an angle of 140°, and could not be extended beyond this angle. He could flex the knee through an arc of about 20°. The muscles of the right thigh and leg were weakened from disuse. The tibia was subluxated posteriorly and the hamstring muscles permanently shortened. The patella was fixed to the femur by bony union and permitted of absolutely no motion. Marked foot drop existed, the contracted posterior muscles preventing flexion of the foot to a right angle.



Fig. 35.—Case 9: Radiograph of left elbow after operation, showing distinct line of separation between humerus and ulna.



Fig. 36.—Case 9: Radiograph of normal right elbow. The line of separation between humerus and ulna is no more distinct than in Fig. 28.

Operation.—Oct. 29, 1904; Dr. J. M. Neff. The inner and outer hamstring tendons were elongated by tendinoplasty; a U-shaped incision was made around the patella, as in Case 1; the ligamentum patellæ were divided transversely and the joint was opened on each side. The capsule on each side of the patella was incised and removed, after which the leg could be flexed to a right angle without difficulty. There was bony union of the patella and femur. The capsule of the joint was thickened and the synovial membrane was hypertrophied; the tibia was subluxated posteriorly; the synovial membrane and articular cartilages of the knee joint proper were normal, except anteriorly, where the capsule was adherent. The patella was chiseled free from the femur through the line of union between the two bones, and the roughened surfaces were smoothed with bone-cutting forceps; the patella was then retracted upward. A horseshoe-shaped flap, with its pedicle attached just above the knee joint, was cut from the fascia lata,

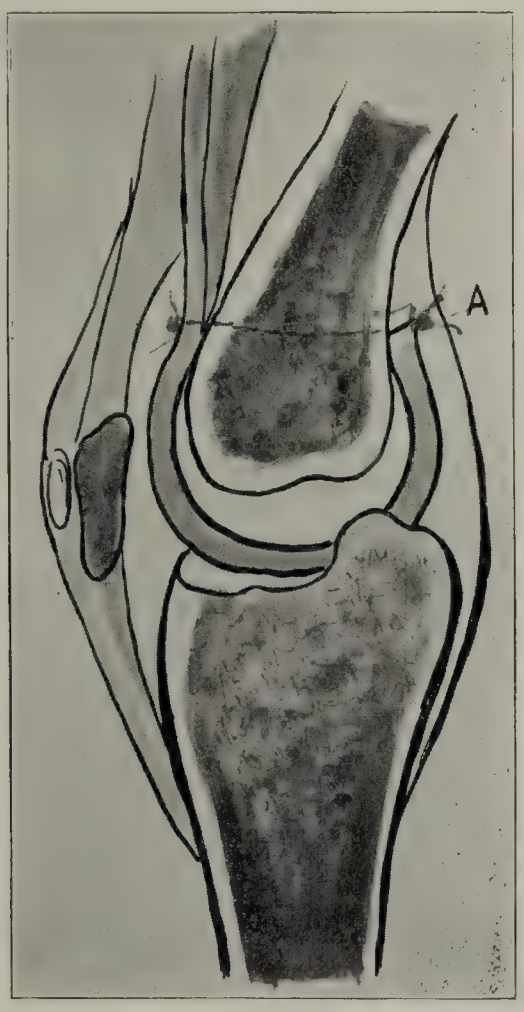


Fig. 37.—Case 10: Sagittal section through knee joint, showing entire articular surface of femur covered by fascial flap, which is sutured to periosteum at A.

which covered the vastus externus, and a similar but smaller flap was cut from the fascia covering the vastus internus. The outer and inner flaps were then turned in between the patella and femur to cover the articular surfaces, and the upper edges of the flaps were sutured to the periosteum on the anterior surface of the femur. The opposing edges were sutured together in the median line and the lower edges were sutured to the crucial ligaments. Kangaroo tendon was used. The patella was then brought down to its normal position and secured to the ligamentum patellæ with heavy kangaroo tendon. These were reinforced by sutures approximating the patella aponeurosis; no drainage was used. The patient was returned to bed and the limb was placed in a box.

Result.—The next morning, October 30, he complained of severe pain and tenderness in the right lower quadrant of the abdomen, and at 4 p. m. his temperature registered 102.6 F. and his pulse was 136. The diagnosis of recurrent acute appendicitis was made, but operation was deemed inadvisable under the circumstances. The pain and tenderness in the right iliac region subsided gradually and temperature became normal November 12. On November 2 the right lower limb was placed in a straight fracture box and Buck's extension of 10 pounds was applied to the leg. The wound healed by primary union and the sutures were removed November 12. Continuous extension was used until December 2, when the patient was allowed out of bed for the first time. The posterior subluxation of the tibia, which was so pronounced before the operation, gradually lessened under the traction and was almost entirely reduced when the extension was discontinued. Passive motions of the patella and the knee with massage were given daily after the first week. December 10 the patient was able to bear his entire weight on the limb, but used crutches in walking. The posterior subluxation was almost entirely reduced and the leg could be extended within 5° of the normal. Motion in the knee joint was perfectly free, though somewhat limited, as a result of the prolonged traction and non-use. The patella is free from the femur and allows of a considerable degree of lateral passive motion (Fig. 40).



Fig. 38.—Case 10: Radiograph of left knee two months after operation. Line of separation between patella and femur is distinct.

CASE 12.—Miss M., aged 29, was admitted to Mercy Hospital Jan. 3, 1905. Complete ankylosis of elbow joint following a compound fracture, with infection. The ankylosis was complete since 1893. There was pronounced atrophy of biceps and triceps; also of pronators and supinators. The details of operation were the same as those of previous operations for elbow ankylosis, except that the lower end of the humerus was reduced in size and the interarticular flap carried with it more of the fatty tissue. There was primary union, and ten days later passive motion was instituted (Figs. 41 and 42), four-fifths normal motion. There is not the slightest pain or discomfort in putting through this degree of motion, and the muscles of the arm have rapidly developed. Pronation and supination are limited. This is not a flail joint, but a typical anatomic complete joint.

Dr. Wm. Dow, Regina, Canada, in a communication dated Feb. 26, 1904, writes as follows concerning a case on which he operated after my plan on Jan. 2, 1904. (The case was one of double-hip ankylosis from tuberculosis.) "I may not have made plain my use of the fascia in description of my operation, ankylosis from tuberculosis of the hip. I stripped down the fascia from the skin and fascia flap in the manner I

saw you do, cutting some fibers of gluteus maximus muscle to place it round the head (end of neck, as head was gone from necrosis), and stitched it to original capsule around neck of bone on as much of neck as contained original capsule, thus surrounding the end of the bone with the fascia lata. The end of bone was smoothed with bone forceps, and the fascia when brought down was made to surround it and was stitched as described, only at upper part of neck I had no original capsule and stitched part to tissues to help hold it down in place. The end of bone was encapsulated with the fascia, and I think it will be all right. There is still a very slight serous discharge, but there is considerable degree of motion at hip and the thigh is filling out. It is now much larger than the opposite thigh. His pulse has slowed some lately. Temperature remains normal. I think I will remove the extension entirely in a few days and will try him on his feet in a week if serous oozing ceases. Will send report of his condition at a later date."



Fig. 39.—Case 10: Radiograph of left knee two months after operation; anterior view. Joint cavity is free and articular surfaces of perfect conformation.

Report of case Dec. 20, 1904: The motion in hip is very good; he can take a very fair step now and can raise the leg up about a foot when standing and can place it over the knee of opposite leg when seated. He uses a crutch and cane when out of doors, but can walk a little in room with one cane alone. There is no pain in that hip or leg. There is 1½-inch shortening, but it was that much shorter than its fellow before operation.

The history of the formation of new joints begins with J. Rhea Barton,[15] of Philadelphia. To him belongs the honor of the first attempt (in 1826) to rectify an angular, true ankylosis of the hip joint by osteotomy. Briefly, his operation consists in incision of skin and muscles and division of bone through the great trochanter and a part of the neck of the femur; then preventing bony union by movements, which will induce ligamentous attachment only.

Dr. J. Kearney Rodgers, of New York, modified his operation in 1830 by removing a disc of bone from between the trochanters.

In 1838 A. Bérard,[16] writing on ankylosis of the temporomaxillary joint, advised the method of Rhea Barton—section of condyles and prevention of bony union by means of motion, in order to form a false and new joint.

John Murray Carnochan, of New York, claims to have performed, in 1840, for the first time, an operation in order to establish a new joint, formation of a "maxillary pseudarthrosis." In operating on a case with ankylosis of the temporomaxillary joint he fractured accidentally the maxillary, which suggested to him later the advantage of dividing the maxillary in order to create a pseudarthrosis of the maxillary joint. In this case he tried to prevent bony union by interposing a piece of wood between the cut bony surfaces. He also advised the patient to chew. The technic followed by Carnochan consisted of division of the temporal and masseter tendons, section of the ramus, and prevention of bony union by interposing cotton. (The bone should be divided through the mouth).



Fig. 40.—Case 11: Radiograph of right knee five weeks after operation. Patella is perfectly free and posterior subluxation is almost entirely reduced.

In his "Lectures on Surgical Anatomy and Operative Surgery" he showed that in some cases of ankylosis of the temporomaxillary joint subcutaneous tenotomy of the masseter and temporal is practicable and rational.

Dieffenbach,[17] in his operative surgery, mentions the treatment of ankylosis of the temporomaxillary joint by "section of bones." On page 774 of the same work he

15. North: Amer. Med. and Surg. J., 1827, p. 290.

16. Bérard, A.: Dict. de Med. en 30 vols., xviii, p. 440, 1838.
17. Dieffenbach: Operative Surgery.

advises section of the masseter and formation of a new joint in cases of ankylosis of the temporomaxillary joint.

Esmarch is one of the surgeons who also recommends the creation of a pseudarthrosis in ankylosis of the temporomaxillary joint. He advises surgical intervention only in cases where the immobility is due to cicatricial tissue; in other words, he does not operate on joints with any structural changes.

In his thesis Charles Richet[18] advises the following technic in cases of ankylosis: Longitudinal incision of



Fig. 41.—Case 12: Shows degree of voluntary extension.

periosteum, which is denuded and preserved "in order to form the new articular capsule." He then divides the bones and advises the patient to chew, so as to prevent bony union.

Rizzoli and A. Verneuil[10] restored motion—the former in three cases, the latter in one of temporomaxillary ankylosis—by section of both extremities and prevention of union by movements. The result was a pseudarthrosis.

FORMATION OF NEW JOINTS BY MUSCULAR INTERPOSITION.

Recently the ankylosis of joints has been corrected by osteotomy, followed by muscular interposition. Nélaton[19] reports two cases overcome by this method. The first case was one with double ankylosis of hip joint, following articular rheumatism. The patient was unable to walk or to stand up. An operation was performed as follows: Antero-external incision of skin, section of muscles and capsule; extrusion of the head of femur; enlargement of cotyloid cavity. Next Nélaton interposed between the head and acetabulum a strip of fascia lata, 2 fingers in width and 5 inches long. Then suture of muscles with catgut and of skin with horsehair. The corresponding leg was extended by weights of from 10 to 12 pounds. Union was obtained in 15 days, and two months later the patient was able to walk. On examining the patient two years later Nélaton found all the movements free and painless, though the patient walked more or less like an individual with congenital dislocation of the hip.

The second case was that of a young man, 29 years old, who had suffered from acute and generalized rheumatism, followed by ankylosis of both hip joints and of



Fig. 42.—Case 12: Shows degree of voluntary flexion.

the lumbar spine. The thighs were flexed on the pelvis (50°) in slight abduction, and the knees were separated by a distance of 8 inches. An incision one inch in length was made on the antero-external margin of the great trochanter; the muscles and capsule were incised; the neck and head of femur were extruded; the old cotyloid cavity was enlarged by scissors; a piece of fascia lata of from 14 to 15 inches was interposed between the head of the bone and the cavity. Healing was obtained in three weeks. The movements of the new joint were very good, but, on account of the pressure exerted by the traction apparatus, the patient developed an eschar at the head of the fibula, followed by paralysis

18. Richet: Thèse de Concours; Des Operations applicables aux Ankyloses.

19. Nélaton: Bull. et Mem. de la Soc. de Chirurgie, 1902, p. 687.

of the external popliteal nerve, which, of course, made extension of the foot impossible. Nélation says in his report: "I believe muscular interposition is the strongest medium that we possess in order to combat bony ankylosis of a joint."

A case of ankylosis of the shoulder joint was treated by muscular interposition by M. Coville (case reported by Nélaton). A young woman, 22 years old, had absolute ankylosis of the shoulder joint, following trauma. On May 19, 1903, Coville made a 4-inch incision, starting below the clavicle and passing externally to the coracoid process; then down the arm, following the fibers of the deltoid. The muscle was incised outside of the groove separating it from the pectoralis. The head of the humerus was extruded and divided at the level of the anatomic neck. The long strip of the deltoid was cut transversely, the superior part being left adherent. A piece of 4 inches, obtained by the transverse section, was interposed between the surface of the humerus and glenoid cavity. Coville perforated the capsule with a probe so as to prevent wounding the



Fig. 43.



Fig. 44.

Fig. 43.—Case 12: Radiograph shows position of bones in voluntary flexion. It will be noted that the tip of the olecranon still hugs the humerus, although three-quarters of an inch lower than in the extended position. Radiograph was made three and a half months after operation.

Fig. 44.—Case 12: Radiograph shows position of bones in voluntary extension. The bones slide on each other in the normal way. The bronze wires are still in place. Radiograph was made three and a half months after operation.

musculo-spiral nerve. A counter incision was made at the same level and a thread passed through this opening, surrounding, in the form of a loop, the extremity of the muscular strip, and by tightening it applies the muscle in the articular cavity. Three days later movements of the new joint were performed.

The result was good; the woman was able to sew (she was a tailoress), but abduction was limited.

Berger[20] reports the following case: The patient suffered from ankylosis of the elbow joint of several years' standing, for which amputation had been advised. Three cm. were resected from the humerus and 2 cm. from the ulna. A piece of the olecranon, covered with periosteum, was left in order to preserve the insertion of the triceps. The extremity of the humerus was carefully rounded, so as to imitate the normal form. In order to assure mobility of the new joint and to prevent return of the ankylosis, Berger placed between the bony extremities a piece of muscle taken from the pronator radii teres, which was fixed by several sutures to the brachialis anticus. He attributes the good result which he obtained to the muscular interposition.

In addition to attempts to overcome the ankylosis, some authors have tried to correct the defect by interposing soft tissues between the bony surfaces.

Föderl, for example, experimenting on animals, found that he could restore the motion in the temporomaxillary joint, ankylosed after resection, by interposing between the bones, animal membranes, such as pieces of bladder or the wall of ovarian cysts.

Chlumsky[11] restored motion in ankylosis, following experimental resection in animals, by first covering the bony extremities with collodion and then interposing between them plates of celluloid, silver, tin, rubber, etc. The animals were able to move their joints just as well as before the operation. Later he used plates of magnesium.

Some surgeons advise another operation for ankylosis. T. Wolff reported 9 cases of ankylosis in 1895 and 1897 in the *Berliner Chirurgen Vereinigung*. He made use of "arthrolysis:" section, chisel and excision of all the fibrous tissue which hindered movement. The operations were followed by good results.

Eiselsberg reports good results in only one of the two joints in which he used the same method. Kocher, while in favor of arthrolysis, modifies it by putting the bony extremities, after the arthrolysis, in a position of dislocation, which he reduces 8 to 14 days later.

Quénu (Société de Chirurgie, Paris, June 25, 1902) reported a case of ankylosis of the elbow joint treated by interposition of soft tissues after an extensive resection of the bony extremities. He first largely resected the ends of the ulna, the radius and the humerus and then interposed the anterior ligament of the elbow. The result was very satisfactory.

Delbet also praises the method of "muscular interposition" in cases of ankylosis.

In our work we have been able, by the interposition of fascia and muscle, covered with a layer of adipose tissue, to produce normal movable joints, with capsules and collagen intra-articular fluid. This, we believe, is the first systematic production of new and practically normal articulations.

20. Berger: Bull. et Mem. de la Soc. de Chir., 1903, vol. xxix.

The Lewis and Clark Centennial Exposition.—The beauty of the site and the superb view to be had from it are far beyond an adequate description. They must be seen to be thoroughly appreciated. Nestling at the base of the foothills of the Cascade Range, on the gentle slopes and terraces overlooking Guild's Lake and the Willamette River, with an unobstructed view of 65 miles which embraces the snowcapped peaks of Mount Hood and Mount St. Helens, the site presents a picture entirely original in exposition building. One may sit on a commanding roof garden and while dining drink in the pictorial sublimeness of real snow peaks of mountains that rival the Alps in grandeur. Of the gross area of the site, 180 acres are on the mainland and 60 acres form a peninsula extending out into Guild's Lake, a fresh water body 220 acres in extent, which is separated from the Willamette River by a narrow strip of land.—*Medical Examiner and Practitioner.*

ABSENCE OF ARTICULATE SPEECH.

CLASSIFICATION OF ONE HUNDRED CASES NOT DUE TO MECHANICAL FAULTS OR DEAFNESS.

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POLK, PA.

The anxiety often expressed by parents in regard to a child's inability to talk, the number of such cases requiring special care, training and treatment, and the relation of the absence of articulate speech to the child's future development and usefulness, have prompted me to present a classification of cases in which there is absence of articulate speech not due to mechanical faults or deafness, with a few remarks on the most interesting conditions found. The patients are inmates of the State Institution for Feeble-Minded of Western Pennsylvania.



Fig. 1.—Paralytic.

	M.	F.	Total.
Epileptic	10	11	21
Epileptic with cerebral paralysis	8	12	20
Paralytic	6	8	14
Cretin	..	1	1
Genetous idiocy	15	14	29
Microcephalic	5	6	11
Hydrocephalic	1	1	2
Mongolian	1	1	2
	46	54	100

To express ideas in language we must understand the meaning of words and the formation of ideas, and we must have a co-ordinate action of the muscles concerned in speech. In these cases of aphasia one or more of these conditions are absent, with the general absence of the power of verbal expression, depending on cerebral lesions or on the lack of mental development.

The cerebral lesions found in diseases affecting the centers of speech have led many to believe "that in the majority of persons the parts presiding over the faculty of speech are situated at the left side, at or near the third frontal convolution and the island of Reil, parts receiving their blood supply from the middle cerebral artery."

In six cases aphasia was due to lack of memory and ideas, and was apparently caused by frequent and severe epileptic convulsions.

We will first consider aphasia in the epileptic. Most of the cases included are of the grand mal type, having frequent and severe convulsions, with a marked tendency to become more severe as the case progresses. Six boys and eight girls, in addition to epilepsy, have some form of cerebral paralysis (Fig. 1). These cases are mostly congenital and due to faulty intrauterine development or to injury at birth. In 15 cases the convulsions began during the first year and in all before the age of 6. Epilepsy was given in the family history of 3 cases. In the majority of the cases, I do not consider epilepsy to be the direct cause of the aphasia, but that both are expressions of a defective development, and their presence should lead us to make a thorough examination of the organs of speech to eliminate mechanical faults. An unfavorable prognosis should be given as these cases do not respond to treatment or improve under instruction.



Fig. 2.—Cretins.

PARALYSIS.

In 20 cases cerebral paralysis was the cause of the aphasia, two being marked cases of hemiplegia with inability to co-ordinate the muscles concerned in articulate language. It is of interest to note here the etiology of hemiplegia, "which is considered to be an injury mostly by hemorrhage to the motor region of one side, mainly in that area supplied by the middle cerebral artery."

In cases of aphasia where but one side of the brain is involved, as in hemiplegia, favorable results have followed a systematic training to develop the center of speech on the opposite side of the brain, which has become functionless from lack of use. This treatment should be tried in all cases presenting a possibility of improvement.

There are 6 cases of diplegia and 8 cases of paraplegia and in all the lesions date from birth, none of these ever having been able to speak.

CRETINS.

Absence of or defective speech is so marked in the cretin that this type is often classified from this condition alone. In the cases shown in Figure 2, the one is deprived entirely of language and belongs to the lowest grade of this type; the other can use but a few words.



Fig. 3.—Microcephalic.



Fig. 4.—Mongolian.

Cases of genetous idiocy present little of special interest. The lack of articulate speech is only a symptom of their low mental capacity.

MICROCEPHALUS.

The head circumference of all microcephalics included in this table is less than 17 inches, and aphasia is simply due to apraxia (Fig. 3).

HYDROCEPHALUS.

The hydrocephalic type is well illustrated by the following case:

Patient.—E. D., aged 8, had never been able to talk or to walk. The bodily development was slow and at the age of five months excessive development or enlargement of the head was observed. Slow mentation was also noticed early. He was the youngest of seven children; one brother died in infancy, the remaining brothers and sisters are healthy, intelligent and without deformity. No hereditary predisposition to mental or nervous trouble could be ascertained.

Present Condition.—There is marked enlargement of the head, circumference 26 in., antero-posterior diameter 9, transverse diameter 7. The body and limbs are undersized and poorly developed; there is slight anesthesia confined to the lower extremities, which show marked paralysis with rigidity and contractures.

In this case it seems fair to assume that the aphasia was due to the intraventricular pressure, which has injured the cortical areas in each hemisphere.

Clinical Reports

A CASE OF PARALYSIS OF THE RECURRENT LARYNGEAL NERVE,

FROM ANEURISM OF THE ARCH OF THE AORTA.*

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LOS ANGELES, CAL.

This case is reported in the interest of laryngology, because of the strong and positive light thrown on the diagnosis by an examination of the larynx. This led to the search for the physical signs of an aneurism of the aorta, which had been overlooked and which might not have been discovered for some time. The history of the case rather inclined toward tuberculosis of the lungs, with secondary laryngeal involvement. It was due to the latter complication that the case was referred for laryngeal examination and treatment. The radiograph of the chest was made to aid in confirming the diagnosis.

Patient.—P. H., 43 years of age, was referred to me two months ago on account of hoarseness. His appearance and voice indicated tuberculosis of the lungs and larynx. The history given at the time was as follows:

History.—Hoarseness was first noticed five or six weeks ago and has gradually grown worse. He had not caught cold, never had had any cough, never spat any blood or any sputum. He has had some shortness of breath; has been a little feverish of nights, and unable to sleep, chiefly on account of the pain in the chest. This pain is referred to the upper sternal region and left shoulder, and later was described as of a severe griping character, frequently running down the arm. Appetite is poor; no nausea or vomiting; some pain on swallowing; has lost 20 pounds in weight in the past six months. Occupation, waiter; has worked steadily until a few weeks ago. The previous history is negative. Denies syphilis; admits gonorrhea, mild attack when a young man. His habits are good. He is married and has two children.

Examination.—Larynx: Slight congestion of the mucous membrane, but no infiltration, nor ulceration, nor any signs of inflammation. There is complete paralysis of the left vocal cord, which remains in the position of cadaveric rigidity during phonation and respiration. The right cord moves freely, and during phonation extends beyond the mid-line to meet the paralyzed one. No tumor of the larynx or neck is apparent.

Chest: The apex beat is displaced outward, in the fifth interspace 1 cm. outside of the nipple line in the upright position, and 1 cm. within the nipple line, when the patient is reclining. Pulsation in the right second intercostal space, close to the sternum, is distinctly seen when the chest is in the proper light. This pulsation is synchronous with the apex beat. No thrill is felt on palpation. Dullness in the second intercostal spaces, both right and left, is found to the extent of

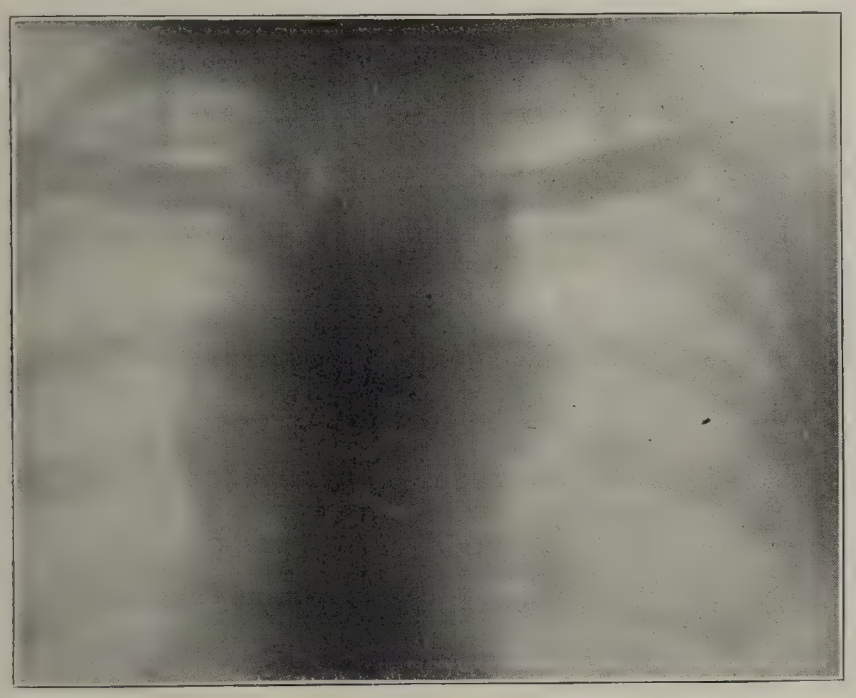
* Presented before the Los Angeles County Medical Society.

two or three cm. on each side of the sternum. Auscultation is negative, except for markedly accentuated second sound at the aortic interspace. No cardiac murmurs and no bruit are heard. The lungs were found to be apparently normal. Tracheal tugging is believed to be present, though it is not marked. The veins of the infraclavicular regions are very slightly enlarged. There is marked difference between the pulsation in the carotid artery, that of the right side being strong and full, while that of the left is weak and small. The difference is perceptible on inspection, as well as on palpation. There is no apparent difference in the radial pulse of the two sides. The pupils are equal.

Diagnosis.—A diagnosis was made of aneurism of the arch of the aorta, pressing on the left recurrent laryngeal nerve.

Skiagraphic Examination.—On the following day an *x*-ray photograph of the chest was made by Dr. A. Soiland. His report is as follows: "The examination with the fluoroscope of the chest of your patient, P. H., shows a shadow about the size of an orange, above the heart and extending on each side of the sternum to an extent of 1½ inches. Pulsation of the shadow is apparent. I am inclined to think that it is an aneurism of the arch of the aorta."

Subsequent History.—The subsequent history has been uneventful, except for some change in the larynx. The hoarseness has increased until he can now speak only in a whisper. The left vocal cord remains in the same position of rigidity, while the excursion of the right cord, during phonation, has



decreased so that it does not meet its fellow. The vocal processes of the two cords almost but do not quite meet during phonation, leaving a space in front and behind, the left edge of which (the free margin of the paralyzed cord) is markedly bowed. On inspiration the right arytenoid and corresponding right cord move outward, while on phonation the right arytenoid is drawn to the opposite one sluggishly. This has been interpreted as due to paralysis of the arytenoideus muscle, which has developed since the first examination.

Marked vicarious action of the false cords is observed. They meet during phonation to the extent of the anterior two-thirds, completely preventing the view of the true vocal cords to that extent. This is believed to be due to excessive action of the thryo-arytenoideus muscles. The veins over the upper part of the chest have become somewhat more prominent, as has also the pulsation in the second aortic interspace. The griping pain referred to the upper sternal region has remained severe and is controlled only by morphin.

The medical profession must begin to get busy in the treatment of their cases. What the people demand is relief or cure of their ills, the quicker the better, and if one does not do something better for them, they are going off into other lines. Diagnosis is essential, and very essential, but after all the ultimate aim of all medical research is the prevention or cure of disease, which means therapeutics.—*George F. Butler.*

QUININ IN PNEUMONIA.

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ROSS FORK, IDAHO.

In thirteen consecutive cases of pneumonia developing in the course of a recent epidemic of that disease among the Indian school children on this reservation, the patients were treated by large doses of quinin, according to the method advocated by Galbraith,[1] without mortality. Some observations on the effects of the treatment, particularly its tendency to induce nasal and uterine hemorrhage, are given below:

Five cases developed in boys ranging in age from 7 to 13 years, and eight developed in girls between the ages of 9 and 17. The initial symptoms common to all cases were intense frontal headache, epigastric distress and vomiting, while in eight cases epistaxis also occurred during the onset.

Of the five boys, three suffered epistaxis as an initial symptom and all had repeated nasal hemorrhages during the administration of the quinin and iron treatment.

Of the eight girls, five suffered epistaxis during the onset; two of these five, aged respectively 11 and 13 years, in whom the menstrual function was not yet established, began menstruating shortly after treatment was begun, but had no further nasal hemorrhages while under treatment. Of the three others with an initial epistaxis, the hemorrhage recurred repeatedly during the treatment. The remaining three girls in whom epistaxis was not noted as an initial symptom, aged respectively 13, 14 and 17 years, began menstruating during treatment, although in none of these cases were the menses due and all were of known regularity with respect to periodicity.

Was this great tendency to hemorrhage from initial symptoms to crisis a part of the disease, peculiar to this particular epidemic, or were the nasal hemorrhages incident to the onset due to infection and the subsequent ones to the treatment?

Quinin in large doses proved a genuine stimulant to the heart and circulation and appeared, in a large measure, to allay the anxiety and apprehension and to secure sleep.

The lung involvement was as follows:

Right upper lobe	5 cases.
Entire right lung	5 cases.
Lower left lobe	2 cases.
Entire left lung	1 case.

The minimum single dose of quinin given was fifteen grains and the maximum single dose thirty-six grains.

As present-day investigators are united in the belief that the exciting etiologic factor of pneumonia is nearly always present in the circulating blood, if indeed the disease is not regarded as essentially a primary pneumococcic septicemia with a secondary process in the lungs, and acknowledging the antiseptic properties of quinin and iron, is not the line of treatment advocated by Dr. Galbraith a rational one?

IMMEDIATE CLOSURE OF TRACHEOTOMY WOUNDS.

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The cases reported by Miles F. Porter, M.D., Fort Wayne, Ind., prompt me to report the following:

Baby girl, aged 2½ years, referred to me by Dr. Quin, West Jefferson, Ohio, Feb. 18, 1898.

The evening before the child had been playing with some corn and a grain lodged in the trachea. When she arrived at my office, having been conveyed in an open buggy eighteen miles, she was breathing easily, but she had a paroxysm of dyspnea while I was examining her.

Low tracheotomy was immediately performed and the grain of corn presenting at the tracheal opening was removed without difficulty. I closed the wound throughout with fine catgut, beginning with the trachea. The recovery was prompt and without unfavorable incident. No drain was used.

If surgical cleanliness is used there certainly can not be any good reason for using the open method in non-infectious cases of tracheotomy.

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1. THE JOURNAL, Jan. 28, 1905, p. 291.

ANOMALIES OF THE TEMPORAL BONE.

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DISPLACEMENT OF THE MASTOID PROCESS BY THE LATERAL SINUS.[1]

One of the most common forms of asymmetry in the human skull consists in the right lateral sinus being situated more anteriorly than the left. Trautmann[2] has made extensive investigations into these conditions, and following his ideas I examined a series of 17 picked temporal bones and described them under the title, "Some Practical Remarks on the Anatomy of the Temporal Bone."[3] Basing my conclusions on the measurements of those 17 temporal bones, in which the distance of the most protruding part of the lateral sinus from the supra-meatal spine varied from 21 mm. (in a right temporal bone) to 6 mm. (also in a right temporal bone), I concluded that a lateral sinus which comes nearer to the supra-meatal spine than 10.6 mm. can be regarded as displaced forward. The distance in the specimen shown in Figures 1 and 2 is 7 mm. This specimen, however, shows a peculiarity which places it in an entirely different class. There is scarcely any mastoid process; its place is taken by the lateral sinus. The mastoid process in the specimen measures 8 mm. in length and about 1 cm. in breadth. The styloid process is situated correspondingly superficially. The meatus appears to be much narrower in the specimen than is usual, a point emphasized by Trautmann. The specimen shows an important condition not only anatomically, but also clinically.



Fig. 1.—Temporal bone, showing short mastoid process and T-like lower dissecting lines.



Fig. 2.—Same temporal bone, showing inside; lowest portion to the left.

1. Demonstrated in the Surgical Section of the Wayne County Medical Society, 1904.
2. Surgical Anatomy of the Temporal Bone, Especially with Reference to the Radical Operation, Berlin, 1898.

A CRISTA TEMPORALIS INSTEAD OF A LINEA TEMPORALIS.[4]

The linea temporalis, according to Schwartze,[5] extends directly behind the outer ear canal, horizontally, from before backward, as a direct prolongation of the upper edge of the zygomatic process, and divides the mastoid portion of the temporal bone from the squamous portion. In this specimen, instead of a shallow line there is an elevation which extends to the height of 4.5 mm., so that instead of a line there is a crest. The crest does not seem to have been produced by any pathologic changes. I do not remember ever before having seen such a crista temporalis, nor do I recollect having found its occurrence recorded in the literature.



Fig. 3.—Temporal bone, showing crista temporalis.

Dr. P. M. Hickey, Detroit Clinical Laboratory, photographed the specimens for me.

3. The Physician and Surgeon, November, 1899.
4. Demonstrated before the Wayne County Medical Society, 1904.
5. Handbook of Otology, Part 2, p. 798.

The medical profession, said the late Austin Flint, senior, will have reached a high ideal position when the physician, guided by his knowledge of diagnosis, the natural history of diseases, and existing therapeutic resources, may, with neither self-distrust nor the distrust of others, treat an acute disease by hygienic measures without potent medication.

THE PORTLAND SESSION

American Medical Association, Fifty-Sixth Annual Session, Portland, Oregon, July 11 to 14, 1905.

OFFICIAL CALL

THE FIFTY-SIXTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, TO BE HELD IN PORTLAND, OREGON, JULY 11-14. 1905.

The next annual session of the American Medical Association will be held at Portland, Ore., on Tuesday, Wednesday, Thursday and Friday, July 11, 12, 13 and 14, 1905. The first general meeting, which constitutes the opening exercises of the scientific functions of the Association, will be held at 10 a. m., Tuesday, July 11.

The following is a list of the constituent associations and the number of delegates to which each is entitled:

State.	Delegates.	State.	Delegates.
Alabama	3	Montana	1
Arizona	1	Nebraska	2
Arkansas	2	Nevada	1
California	4	New Hampshire	1
Colorado	2	New Jersey	3
Connecticut	2	New Mexico	1
Delaware	1	New York	4
Dist of Columbia	1	North Carolina	2
Florida	1	North Dakota	1
Georgia	2	Ohio	5
Hawaii	1	Oklahoma	1
Idaho	1	Oregon	1
Illinois	8	Philippine Islands	1
Indian Territory	1	Pennsylvania	8
Indiana	4	Rhode Island	1
Iowa	4	South Carolina	1
Kansas	2	South Dakota	1
Kentucky	3	Tennessee	3
Louisiana	2	Texas	5
Maine	1	Utah	1
Maryland	2	Vermont	1
Massachusetts	6	Virginia	3
Michigan	4	Washington	1
Minnesota	2	West Virginia	2
Mississinpi	2	Wisconsin	3
Missouri	3	Wyoming	1
U. S. Public Health and Marine-Hospital Service			1
Medical Department, U. S. Army			1
Medical Department, U. S. Navy			1
Each of the scientific sections, one delegate			12



Fig. 1.—Mt. Hood. Another view is given in Fig. 12.

The Registration Department will be open from 8 a. m. to 5:30 p. m., on Monday, Tuesday, Wednesday and Thursday, July 10, 11, 12 and 13, and from 9 to 11 a. m. on Friday, July 14.

NEW MEMBERS.

Those who desire to join the Association at Portland must present certificates showing that they are members in good standing in their state association or in one of its component branches.

THE HOUSE OF DELEGATES.

The House of Delegates of the American Medical Association will convene at the Chamber of Commerce Building, Portland, Ore., at 10 a. m., Monday, July 10, 1905.

GEORGE H. SIMMONS, Secretary.

JOHN H. MUSSER, President.

THE OFFICIAL PROGRAM.

In order to avoid misunderstandings and to protect the interests of advertisers, attention is called to the fact that there is but one official program. This program is copyrighted by the Board of Trustees and contains no advertising matter. A copy will be presented to each member on registration.

COMMITTEE OF ARRANGEMENTS.

List of the General Staff of Officials Who Look After the Arrangements.

The following is the list of the members of the general Committee of Arrangements. The full list of subcommittees will appear in the official program:

K. A. J. Mackenzie, chairman; H. W. Coe, A. J. Giesy, A. C. Smith, E. F. Tucker, William Jones; George F. Wilson, treasurer; F. Cauthorn, secretary.

Committee on Medical Legislation.—Charles A. L. Reed, Cincinnati, Ohio, chairman, one year; William L. Rodman, Philadelphia, two years, and William H. Welch, Baltimore, three years.

Committee on Transportation and Place of Session.—M. L. Harris, Chicago, chairman; John C. Munro, Boston; G. C. Savage, Nashville, Tenn.; W. A. Jayne, Denver; H. Bert Ellis, Los Angeles,

Committee on National Incorporation.—Joseph D. Bryant, chairman, New York; H. L. E. Johnson, Washington, D. C.; Leartus Connor, Detroit; D. S. Fairchild, Des Moines, Iowa, and C. G. Kenyon, San Francisco.

Judicial Council.—P. Maxwell Foshay, Illinois; D. C. Peyton, Indiana; F. H. Wiggin, New York; George Ben Johnston, Virginia; W. B. Russ, Texas.

Committee on Scientific Research.—Alfred Stengel, Philadelphia, chairman; William Osler, Baltimore, and L. Hektoen, Chicago.

Committee on Organization.—J. N. McCormack, Bowling Green, Ky., chairman; P. Maxwell Foshay, Chicago; George H. Simmons, Chicago.

Council on Medical Education.—Arthur Dean Bevan, Illinois, chairman; W. T. Councilman, Massachusetts; J. A. Witherspoon, Tennessee; Charles H. Frazier, Pennsylvania; Victor C. Vaughan, Michigan.



Fig. 2.*—Crater Lake, in southern Oregon.

ASSOCIATION COMMITTEES.

List of the Members of the Committees of the American Medical Association.

Committee on Award of Senn Medal.—J. E. Moore, Minneapolis, chairman; M. L. Harris, Chicago; Floyd W. McRae, Atlanta, Ga.

Committee on Scientific Exhibit.—F. B. Wynn, Indianapolis, director; W. M. L. Coplin, Philadelphia; Walter L. Bierring, Iowa City, Iowa; Horace J. Whitacre, Cincinnati; William T. Eckley, Chicago; W. Ophuls, San Francisco; O. P. Jenkins, Stanford University, Cal.

Committee on Rush Monument.—James C. Wilson, Philadelphia, chairman; Henry D. Holton, Brattlebro, Vt., treasurer; Frank Billings, Chicago; L. Duncan Bulkley, New York; William L. Rodman, Philadelphia.

* EDITOR'S NOTE: A number of the photographs from which these views of Portland and Oregon scenery were made are copyrighted by Kiser Brothers, Portland, Oregon. We acknowledge their courtesy in allowing THE JOURNAL to reproduce them.

PRELIMINARY PROGRAMS OF SECTIONS.

The following is a partial list of titles of papers to be read before the various sections at Portland. The order in which the titles are printed here will not necessarily be followed in the official program.

SECTION ON PRACTICE OF MEDICINE.

CHAIRMAN, RICHARD C. CABOT, BOSTON; SECRETARY, JOSEPH L. MILLER, 100 STATE ST., CHICAGO.

SYMPOSIUM ON NEPHRITIS.

The Relation of Albuminuria to Nephritis. Alfred Stengel, Philadelphia.

The Relation of Cylindruria to Nephritis. C. P. Emerson, Baltimore.

The Cryoscopy of the Urine in Nephritis. Theodore Tieken, Chicago.
The Varieties of Nephritis (Clinical and Pathologic Division). W. T. Councilman, Boston.
Renal Insufficiency. Charles L. Green, St. Paul.
The Relation of Nephritis to Puerperal Eclampsia and of the Latter to Acute Liver Atrophy. P. K. Brown, San Francisco.
The Dietetic Treatment, with Special Reference to von Noorden. F. C. Shattuck, Boston.
Uncinariasis. B. K. Ashford and W. W. King, Porto Rico.
Symptoms, Diagnosis and Prognosis of Amebiasis in the Tropics. W. E. Musgrave, Manila, P. I.

SYMPOSIUM ON GASTRIC CONDITIONS.

Recent Advances in the Physiology of Human Nutrition. Frank Billings, Chicago.
Limitation and Uses of a Knowledge of Gastric Chemistry (with Demonstrations). George Dock, Ann Arbor, Mich.
Non-Gastric Diseases Presenting Themselves with Gastric Symptoms. J. H. Musser, Philadelphia.
Studies in Roentgen Ray Diagnosis of Chest Diseases. James E. Talley and William S. Newcomet, Philadelphia.
Beriberi on the Pacific Coast. K. A. J. MacKenzie, Portland, Ore.
Thyroid Disease in California. H. C. Moffitt, San Francisco.

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

CHAIRMAN, C. L. BONIFIELD, CINCINNATI; SECRETARY, W. P. MANTON, DETROIT.

Chairman's Address. C. L. Bonifield, Cincinnati.
The Anatomy of the Pelvic Floor, with Relation to Its Lacerations and Repair. S. Stark, Cincinnati.
A Review of Pelvic Measurements Made in My Hospital, Dispensary and Private Practice During the Past Five Years. Effa V. Davis, Chicago.
Repair of the Perineum (Illustrated by Lantern Slides). G. B. Somers, San Francisco.
Pregnancy Following Operations for the Cure of Retrodisplacements of the Uterus. Franklin H. Martin, Chicago.



Fig. 3.—Oregon National Guard Armory. Meeting place of General Meetings. Section on Surgery and Anatomy and Section on Practice of Medicine. Location of branch postoffice, registration department, pharmaceutical and appliance exhibit, information bureau, etc. Across the street is the location of the Scientific Exhibit and the meeting places of all the other sections except two, the Section on Ophthalmology and the Section on Laryngology and Otology. These two sections will meet four blocks away.

The Diagnosis and Treatment of Gastric Stasis from Any Cause. C. G. Stockton, Buffalo.
Coccidoidal Granuloma. William Ophüls, San Francisco.
The Effects of the Inhalation of the Fumes of Nitric Acid, with Report of Cases. J. N. Hall, Denver.
Mountain Fever. Henry Sewall, Denver.
The Significance of Blood Pressure in Comparative Health. H. W. Cook, Baltimore.
The Incidence of Heart Disease in San Francisco. W. F. Cheney.
Value of Various Hemoglobin Instruments to the General Practitioner. M. H. Fussell, Philadelphia.
A Type of Tuberculosis on the North Pacific Coast. Woods Hutchinson, Portland, Ore.
A Comparative Study of Tuberculosis in Negroes and Whites. John T. Moore, Galveston.
Clinical Aspects of Amebic Abscess of Liver. W. S. Thayer, Baltimore.
Tubal Pregnancy, with Report of Instructive Case. J. Riddle Goffe, New York.
Some Indications for Surgical Operations During Pregnancy. A. E. Benjamin, Minneapolis.
Overlapping the Fasciæ in the Closure of Wounds of the Abdominal Wall. Charles P. Noble, Philadelphia.
The Innocent Fibromyoma of the Uterus. Thomas Barker Eastman, Indianapolis.
Etiology and Treatment of So-Called Endometritis. Ernest F. Tucker, Portland, Ore.
The Conservation or Restoration of Normal Anatomy in Gynecologic Surgery. Daniel H. Craig, Boston.
Present-Day Methods of Conducting Labor Cases and Results Obtained. John A. McKenna, Lansdowne, Pa.
The Physiologic and Legal Status of the Fetus in Utero. W. H. Sanders, Montgomery, Ala.
The Maternal Impression Superstition in Modern Obstetric Teaching. Edwin Taylor Shelly, Atchison, Kan.

Maternal Syphilis. George S. Whiteside, Portland, Ore.

Some Cases of Extra-Uterine Pregnancy. J. H. Carstens, Detroit.

The Best Methods of Closure of Aseptic Wounds, Especially of the Abdomen. Henry O. Marcy, Boston.

Hysteromyomectomy versus Hysterectomy for Fibroids; A Plea for Conservatism When Operating on Women Under Forty. C. C. Frederick, Buffalo.

Some Causes of Failure After Successful Gynecologic Operations. William E. Ground, Superior, Wis.

Pulmonary Tuberculosis as an Obstetric Complication. C. S. Bacon, Chicago.

Postoperative Pelvic Exudates. W. Francis B. Wakefield, San Francisco.

An Operation for Pyosalpinx without Ligature, Clamp, Artery Forceps or Bleeding by Overthrow Provisional Suture Method. Report of 59 Cases with One Death. W. D. Kelly, St. Paul.

Some Complications of Pregnancy Treated Surgically. Francis D. Donoghue, Boston.

Gonorrhea in the Female; A Discussion of Its Diagnosis and Frequency. L. H. Dunning, Indianapolis.

The Results of Amputation of the Cervix Uteri in Chronic Metritis. C. Jeff Miller, New Orleans.

Hernia of the Fallopian Tube. Frank T. Andrews, Chicago.

Syncytioma Malignum. Laura H. Branson, Iowa City, Iowa.

Fourth Detailed Report of the Superior and Lasting Results of My Bi-inguinal Operation for Simple and Complicated Aseptic Retroversion of the Uterus. A. Goldspohn, Chicago.

SECTION ON SURGERY AND ANATOMY.

CHAIRMAN, MAURICE H. RICHARDSON, BOSTON; SECRETARY, FLOYD W. MCRAE, ATLANTA, GA.

Chairman's Address: Maurice H. Richardson, Boston.

The Cure of Inguinal Hernia. Henry O. Marcy, Boston.

Colohepatopexy or Colon Substitution; a Remedy for Perigastric Adhesions After Gallstone Operations. E. Wyllys Andrews, Chicago.

Splanchnoptosis from a Surgical Standpoint. James E. Moore, Minneapolis.

Early Diagnosis of Gastric Ulcer. H. D. Niles, Salt Lake City.

Clinical Experiences with the Use of the McGraw Elastic Ligature. A. J. Ochsner.

Ulcer of the Stomach and First Portion of the Duodenum, with Especial Reference to the Operative Treatment. W. J. Mayo, Rochester, Minn.



Fig. 4.—Portland Hotel. Headquarters.

Gallstones in the Common Duct. W. D. Haggard, Nashville, Tenn.

Cysts of the Spleen. W. A. Bryan, Nashville, Tenn.

Indications for the Removal of the Pathologic Spleen. B. B. Davis, Omaha.

Exstrophy of the Bladder Treated Successfully by Peter's Method, with Illustrations. Harry M. Sherman, San Francisco.

The Bloodless Resection of the Rectum. Ernest Laplace, Philadelphia.

End Results of 100 Operations for Cancer of the Breast. Homer Gage, Worcester, Mass.

Lip Operation for Cancer and Deformity, with Report of Cases. W. W. Grant, Denver.

Esophagectomy, with Report of Case with Prothetic Appliances. Wallace I. Terry, San Francisco.

Tuberculosis of the Kidney. J. Garland Sherrill, Louisville.
The Value of Skiagraphy in Lithiasis and Tuberculosis of the Kidney. Carl Beck, New York.
Anaërobic Cellulitus, with Report of Successful Cases. J. Clark Stewart, Minneapolis.
Ununited Fracture and Cases of Delayed Union. Casper W. Sharples, Portland, Ore.
A Clinical Chart for the Record of Patients in a Small Hospital. George F. Wilson, Portland, Ore.
Surgery and Pathology of Thyroid Gland. Joseph C. Bloodgood, Baltimore.
Surgery of the Spinal Cord. J. B. Murphy, Chicago.
Fibroid Growths of the Abdominal Wall. Charles A. Powers, Denver.
Penetrating Wounds of the Abdomen. R. Winslow, Baltimore.
Meckel's Diverticulum as a Cause of Abdominal Crises. Miles F. Porter, Ft. Wayne, Ind.

Papers, the titles of which have not been received, will be read by Kenneth A. J. MacKenzie, Portland, Ore.; Park Weed Willis, Seattle, Wash.; A. H. Cordier, Kansas City, Mo., and Harvey Cushing, Baltimore.

SECTION ON HYGIENE AND SANITARY SCIENCE.

CHAIRMAN, JOHN S. FULTON, BALTIMORE; SECRETARY, M. L. PRICE, BALTIMORE.

The preliminary program of this section has not been received.

SECTION ON OPHTHALMOLOGY.

CHAIRMAN, CHRISTIAN R. HOLMES, CINCINNATI; SECRETARY, ALBERT E. BULSON, JR., FORT WAYNE, IND.

Chairman's Address: Studies of School and Hospital Hygiene of Interest to the Ophthalmic Surgeon (Illustrated with Lantern Slides). Christian R. Holmes, Cincinnati.



Fig. 5.—Columbia River excursion scenery. Cascade range.

Address (by special invitation). J. Hirschberg, Berlin.
The Ocular Symptoms of Affections of the Accessory Sinuses of the Nose. William Campbell Posey, Philadelphia.
Demonstration of a Simple Method of Accurately Localizing by the X-Ray a Foreign Body in the Eye. Vard H. Hulen, San Francisco.
The Treatment of Recent Embolism of the Retinal Arteries by Digital Massage. H. V. Würdemann, Milwaukee, Wis.
Is Keratitis Ever Caused by Rheumatism? Leartus Connor, Detroit.
The Correction of Exophoria by the Development of the Interni. W. H. Roberts, Pasadena, Cal.
Perforations in Typhoid Fever. Richard H. Harte, Philadelphia.
Further Experiences with the Radical Operation for the Cure of Aneurism by Aneurismorrhaphy. Rudolph Matas, New Orleans.
Observations on Postoperative Stimulation Based on 6,000 Major Operations. G. W. Crile, Cleveland.
Tuberculosis of the Kidney. Leonard Freeman, Denver.
Non-Calculus Cholecystitis. Davis S. Fairchild, Des Moines, Iowa.
Cancer. William L. Rodman, Philadelphia.
Acid Intoxication and Late Poisonous Effects from Ether and Chloroform. Arthur D. Bevan, Chicago.
Preliminary Report of a Study of Tetanus. James M. Anders, Philadelphia.

Description of an Advancement Suture with Collective Suggestions Regarding Operations on the Ocular Muscles. Mark D. Stevenson, Akron, Ohio.

Lateral Displacement of Tendon Insertions for the Cure of Strabismus. Edward Jackson, Denver.

The Prevention and Cure of Progressive Axial Myopia by Appropriate Treatment of the Internal and External Recti Muscles, with Report of Cases. F. S. Crocker, Chicago.

Transitory Paralysis of the Abducens, with Report of Cases. Meyer Wiener, St. Louis.

The Extraction of Uncomplicated Immature Senile Cataract. Albert E. Bulson, Jr., Fort Wayne, Ind.

Blasting Eye Injuries. John A. Donovan, Butte, Mont.

Some Eye Injuries and Their Lessons. F. C. Heath, Indianapolis.

Non-Toxic Amblyopia. T. W. Moore, Huntington, W. Va.

Amblyopia Caused by Wood Alcohol. C. S. G. Nagel, San Francisco.

A Contribution to the Methods of Restoring the Socket for Prothesis. William H. Wilder, Chicago.

Subconjunctival Salt Injections. Samuel D. Risley, Philadelphia.

Rat-tail Tendons for Sutures in Eye Surgery. Kaspar Pischel, San Francisco.

The Physiologic Action of Dionin. Walter Hamilton Snyder, Toledo, Ohio.

New Test Types Made According to Geometric Progression. Charles H. Williams, Boston.

Traumatic Lesions of the Eye. Frank W. Miller, Los Angeles, Cal.

SECTION ON DISEASES OF CHILDREN.

CHAIRMAN, JOHN LOVETT MORSE, BOSTON; SECRETARY, J. ROSS SNYDER, BIRMINGHAM, ALA.

Chairman's Address: The Teaching of Pediatrics. J. L. Morse, Boston.

A Plea for Better Education of the Laity in the Prevention of Disease, with Especial Reference to Childhood and Adolescence. R. H. Harvey, Chicago.

A Plea for National and Local Boards of School Hygiene. A. M. Smith, Tacoma, Wash.

Rules for the Care of Young Infants in Public Institutions. H. M. McClanahan, Omaha.



Fig. 6.—Treadwell Mine, and the largest stamp mill in the world, operating one thousand stamps. This is on Douglass Island, on the Alaska trip.

Experimental and Clinical Evidence of Dynamic (Spastic) Astigmatism. Practical Conclusions. F. B. Eaton, San Francisco.

Sympathetic Inflammation Following Panophthalmitis. William Zentmayer, Philadelphia.

Spontaneous Hemorrhage in the Orbit. J. W. Reynolds, Creston, Iowa.

Contributions to the Ocular Pathology of (a) Primary Epithelioma of the Cornea; (b) Panophthalmitis from Bacillus Subtilis. Report of Two Cases. George T. Brady, San Francisco.

Differential Diagnosis of Intraorbital Tumors. Report of Unique Case. Flavel B. Tiffany, Kansas City, Mo.

Endothelio-Cylindroma of the Orbit, with Report of a Case. Removal with Preservation of the Vision and Motility of the Eye. John E. Weeks, New York.

A Case of Iritis Tuberculosa Cured by Koch's Tuberculin. E. V. L. Brown, Chicago.

Amaurotic Family Idiocy. A. C. Cotton, Chicago.

Ataxia of Central Origin Appearing in Childhood. A. W. Fairbanks, Boston.

The Prevention of Summer Diarrhea. M. Ostheimer, Philadelphia.

Typhoid in Children; A Clinical Study of 210 Cases. W. J. Butler, Chicago.

The Management of Typhoid Fever in Children. W. C. Hollopeter, Philadelphia.

Pneumonia in Children. E. F. Wells, Chicago.

Pleural Effusions in Children. C. F. Wahrer, Ft. Madison, Iowa.

Vaccination in Whooping Cough and the Use of Adrenal Preparations. E. W. Saunders, St. Louis.

The After-Effects of Diphtheria on the Heart. A Preliminary Report. F. W. White, Boston, Mass.

Malignant Diseases of Ovary in Childhood. W. A. Edwards, Los Angeles, Cal.

Report of Case of Imperforate Rectum, with Absence of Anus. E. H. Small, Pittsburg, Pa.

Surgical Intervention for the Intracranial Hemorrhages of the New Born. Harvey Cushing, Baltimore.

Surgical Treatment of Congenital Pyloric Stenosis. J. C. Munro, Boston.

Can Retention of the Tube in Operative Treatment of Diphtheritic Laryngeal Stenosis Be Avoided? F. G. Burrows, San Francisco.

A Study of Eighteen Cases of Diarrhea in Children. J. C. Cook, Chicago.

Hemorrhages Into the Spinal Meninges of New Born. I. A. Abt, Chicago.

Ringworm and Some of Its Allied Affections. A Practical Demonstration from Lantern Slides. M. L. Heidingsfeld, Cincinnati.

A paper, title not received, by J. H. M. Knox, Baltimore.

SECTION ON STOMATOLOGY.

CHAIRMAN, VIDA A. LATHAM, ROGERS PARK, CHICAGO; SECRETARY, EUGENE S. TALBOT, 103 STATE ST., CHICAGO.

Chaiman's Address. Vida A. Latham, Chicago.

Fatal Oral Pathologic Conditions. G. V. I. Brown, Milwaukee, Wis.

Surgical Bacteriology of the Mouth. A. H. Levings, Milwaukee, Wis.

Surgical Aspects of Disturbed Dentition of the Third Molar. M. L. Rhein, New York City.

The Treatment of Suppurative Affections of the Face and Neck Emanating from Mouth. M. I. Schamberg, Philadelphia.

The Medical Relations of Certain Conditions of the Mouth. L. Duncan Bulkley, New York City.

Some Effects of Inebriety on the Teeth and Jaws. T. D. Crothers, Hartford, Conn.

The Ossification of the Lower Jaw. Edward Fawcett, Bristol, England.

Ankylostomiasis and Tongue Pigment. T. M. Russell Leonard, Grenada, British West Indies.

Notes on Tooth Genesis in Man. H. W. Marett Tims, London, England.

The Etiology of Tooth Corrugations. G. Lenox Curtis, New York City.

To What Extent Are Teeth Necessary to the Human Being? M. H. Fletcher, Cincinnati.

The Roentgen Rays in Dentistry. M. Kassabian, Philadelphia.



Fig 7.—Juneau, Alaska, on the excursion trip to Alaska.

The Causes and the Treatment of the Mouth Manifestations of Certain Metabolic Disorders. Alfred C. Croftan, Chicago.

The Oral Manifestations of Diabetes Mellitus. Hermann Prinz, St. Louis.

The Urine and Saliva in So-Called Pyorrhea Alveolaris. William J. Lederer, New York City.

Further Researches in the Treatment of Interstitial Gingivitis. Eugene S. Talbot, Chicago.

Excretion of Toxic Products into the Mouth, with Relation to Local Infection. Fenton B. Turck, Chicago.

A Common Ground for Medicine and Dentistry. Frank L. Platt, San Francisco.

The Physician as a Dentist. Calvin W. Knowles, San Francisco.

The Physician's Duty to the Child from a Dental Standpoint. Alice M. Steeves, Boston.

Dentistry of To-morrow. H. P. Carlton, San Francisco.

What Will Probably Be the Dental Educational Standard for the Coming Decade? C. C. Chittenden, Madison, Wis.

SECTION ON NERVOUS AND MENTAL DISEASES.

CHAIRMAN, J. H. MCBRIDE, PASADENA, CAL.; SECRETARY, DAVID I. WOLFSTEIN, 22 W. SEVENTH ST., CINCINNATI.

Chairman's Address. J. H. McBride, Pasadena, Cal.

Report of Committee on Drug Addictions. Smith Ely Jelliffe (Chairman), New York.

Defects of Will from a Medical Standpoint. H. T. Pershing, Denver.

Neurasthenoid Conditions, So-Called Neurasthenia. Robert Hessler, Logansport, Ind.

Trauma and Shock as Factors in the Production of Mental and Nervous Diseases. Samuel Bell, Detroit.

The Individual Care of Borderline Cases of Mental Diseases (Minor Psychoses). Frank P. Norbury, Jacksonville, Ill.

Restraint of Liberty in the Treatment of Neurasthenic States. William S. Lindsay, Topeka, Kan.

The Localization of the Higher Psychic Functions, Especially with Reference to the Prefrontal Lobe. Charles K. Mills and T. H. Weisenburg, Philadelphia.

Symptomatology of Cerebrospinal Arteriosclerosis, with Special Reference to Neurasthenic States. D. J. McCarthy, Philadelphia.

Landry's Paralysis, with Report of Cases. Robert McGregor, Saginaw, Mich.

A Case of Landry's Paralysis. Wharton Sinkler, Philadelphia.

Periodic Paralysis. G. E. Holtzapple, York, Pa.

The Tabetic Foot; Its Importance in the Causation of the Ataxia of the Lower Extremities. Sidney I. Schwab, St. Louis.

A Preliminary Report on Experimental Encephalitis. John H. W. Rhein, Philadelphia.

Nervous and Mental Manifestations of Pre-Pernicious Anemia. F. W. Langdon, Cincinnati.

The Abnormal Child. D. I. Wolfstein, Cincinnati.

Clinical Reports of Some Unique Cases of Hysteria. C. C. Hersman, Pittsburg, Pa.

Public Care of the Insane. J. M. Barstow, Council Bluffs, Iowa.

The Use of Fresh Egg Membrane in Brain Surgery. Albert E. Sterne, Indianapolis.

SECTION ON LARYNGOLOGY AND OTOLOGY.

CHAIRMAN, ROBERT C. MYLES, NEW YORK; SECRETARY, OTTO T. FREER, CHICAGO.

Chairman's Address. Robert C. Myles, New York.

Laryngeal Edema. Harmon Smith, New York.

Angina Herpetica in Children. Henry L. Wagner, San Francisco.

The Treatment of Empyema of the Antrum Through the Nose. George L. Richards, Fall River, Mass.

Tonsillotomy versus Tonsillectomy. Joseph C. Beck, Chicago.

Tracheo-Thyrotomy for Malignant Diseases of the Larynx. Chevalier Jackson, Pittsburg.

Collodion as a Dressing After Intranasal Operations. A Preventive of Postoperative Hemorrhage (with Demonstrations). Kaspar Pischel, San Francisco.

The Vapor Method of Anesthesia. James T. Gwathmey, New York.

A Review of Fifty Operations for Deviated Septum by the Freer Method. P. J. H. Farrell, Chicago.



Fig. 8.—Willamette Falls, near Portland, on the Willamette River.

The Psychopathic Manifestations of the Non-Insane Psychoneuroses. John Punton, Kansas City, Mo.

Pre-natal Influences as a Causative Factor in the Production of Nervous and Other Diseases. W. H. Walling, Atlantic City, N. J.

The Psychosis of Morphinism. T. D. Crothers, Hartford, Conn.

The Relation Between Auditory Hallucination and Tinnitus Aurium. W. Sohier Bryant, New York City.

Comparison of the Quick and the Slow Methods of the Treatment of Morphinism. A. J. Pressey, Cleveland.

SECTION ON CUTANEOUS MEDICINE AND SURGERY.

CHAIRMAN, D. W. MONTGOMERY, SAN FRANCISCO; SECRETARY, R. R. CAMPBELL, CHICAGO.

The preliminary program of this section has not been received.

A Demonstration of the Window Resection Method for the Correction of Deflections of the Nasal Septum. O. T. Freer, Chicago.

The Correction of External Deformities of the Nose Associated with Deviation of the Septum. Charles M. Robertson, Chicago.

The Correction of Saddle-Nose by Bone Implantation. Cullen F. Welty, San Francisco.

The Deformed Nasal Septum in the Causation of Respiratory Diseases. Amos R. Solenberger, Colorado Springs.

Chronic Suppurative Ethmoiditis. Its Frequency and Bearing on So-Called Chronic Nasopharyngeal Catarrh. Redmond Payne, San Francisco.

Diagnosis of the Intracranial Complications Due to Middle Ear Suppurations. John F. Barnhill, Indianapolis.

Capital Operations for the Cure of Tinnitus Aurium. W. S. Bryant, New York.

Four Cases of Mastoid Operations Without Opening the An-

trum; Recovery; a Fifth, Periostitis only, and a Sixth, Destruction of Inner Table of Skull. George F. Cott, Buffalo.
A Report of Two Cases of Sinus Thrombosis. Hill Hastings, Los Angeles.
The Use of the Burr in Mastoid Operations. Adolph Barkan, San Francisco.
Exhibition of a New Tonsillotome. Edwin E. Straw, Marshfield, Ore.

SECTION ON PHARMACOLOGY.

CHAIRMAN, HEINRICH STERN, NEW YORK; SECRETARY, C. S. N. HALLBERG, 358 DEARBORN ST., CHICAGO.

Chairman's Address: Heinrich Stern, New York.
Report of Committee on Proprietary Medicines. C. S. N. Hallberg, W. J. Robinson, H. C. Wood, Jr.
Report of Committee to Aid Postoffice Department in Excluding Objectionable Advertisements. C. S. N. Hallberg, H. W. Wiley, H. C. Wood, Jr.
The Pharmacopeia of the United States of America; Its Functions. How May These Be Best Presented to the Medical Profession? William M. Searby, San Francisco.
The United States Pharmacopeia; Its Eighth Decennial Revision. The Organic Materia Medica. Albert Schneider, San Francisco.
The United States Pharmacopeia VIII. The Advance Indicated in Its Pharmacy. C. S. N. Hallberg, Chicago.
The Physician and Proprietary Medicines. George H. Simmons, Chicago.



Fig. 9.—Portland City Hall.

A Practical Cure for the Substitution Evil. Edward A. Tracy, South Boston, Mass.
The Therapeutics of Lupulin. Thomas F. Reilly, New York.

SECTION ON PATHOLOGY AND PHYSIOLOGY.

CHAIRMAN, WINFIELD S. HALL, CHICAGO; SECRETARY, HENRY A. CHRISTIAN, BOSTON.

Chairman's Address: Pathologic Physiology—A Neglected Field. Winfield S. Hall, Chicago.
Case of Cholesterin Stones in Brain. E. E. Southard, Boston.
The Pathology of Varicella. E. E. Tyzzer, Boston.
Methemoglobin as a Factor of Conservative Metabolism. Bernard Oettinger, Denver.
The Pathology of Intestinal Amebiasis (Amebic Dysentery). Paul G. Wooley, Manila, P. I.
The Influence of Chronic Passive Congestion and Cirrhosis of the Liver on the Connective Tissue of the Spleen. Henry A. Christian, Boston.
Further Studies on Streptococcus Infection. G. F. Ruediger, Chicago.
Some Observations on Auscultation of the Abdomen. W. B. Cannon, Boston.
The Freezing Points of Blood and of Urine in Pneumonia; with a Description of a New Method. F. E. Schmidt, Chicago.
Variations in the Ratio of Diameters of the Normal Chest at Different Ages. The Form of the Phthisical Chest. W. A. Bessesen, Chicago.
Are the Proteolytic and Milk Curdling Effects of the Gastric Juice Due to One and the Same Enzyme? J. C. Hemmeter, Baltimore.
Errors in the Determination of Free HCl in the Gastric Juice. E. L. Whitney, Baltimore.
The Blood Plates; Their Microchemistry, Physiology, and Pathology. G. T. Kemp, Champaign, Ill.
A Critical Study of the Various Methods for Determining the Number of Plates in the Blood. J. H. Pratt, Boston.



Fig. 10.—Seining on the Columbia River.

Ulcero-Membranous Angina (Vincent's Angina) and Stomatitis. George H. Weaver, Chicago.
Some Preliminary Steps in the Investigation of Gastric Functions. B. Onuf (Onufrowicz), Sonyea, N. Y.
Mode of Infection in Uncinariasis. Claude A. Smith, Atlanta.
A Further Report on Bacterial Cell Chemistry and Immunity. Victor C. Vaughan, Ann Arbor, Mich.
A New Bothriocephalid Tapeworm in Man. Henry B. Ward, Lincoln, Neb.
Temperature and Muscle Fatigue. F. S. Lee, New York.



Fig. 11.—Inside view of cannery, twenty tons of salmon being on receiving floor.

A Physico-chemical Theory of Fertilization. Martin H. Fischer, San Francisco.
Mineral Albumin Requirements in Health and Disease. L. Breisacher, Detroit.
The Secretion of Pepsin and Rennin: An Experimental Study. Gottfried Koehler, Chicago.
Mucocele of the Appendix. Alfred Stengel, Philadelphia.
Two Cases of Myoma of Esophagus. J. Bryant, Boston.
A paper, title not received, by F. R. Zeit, Chicago.

PORTLAND AND OREGON

FEW are the men who have such an intellectual grasp on the sequence of events as to be able to look forward 100 years and to predicate the resultant effects of all the intermediate transitory conditions. To be able to do this was supposed to be the special prerogative of the divinely inspired seer and prophet. And yet Thomas Jefferson, as the result of his political genius and knowledge of human history, looking forward over the years to come, saw clearly that the United States was to become a great nation, whose western boundary must be the shores of the Pacific Ocean.

At that time our great Northwest was a land as mythical as the location of the scenes of a Rider Haggard novel. Gray, with his ship *Columbia*, had, in 1792, entered the mouth of a great river, which emptied into the Pacific, and which has since been called by the name of his vessel. From the other side had come vague accounts, gathered of the Indians by Jonathan Carver, of a river which, taking its source in the "Stony Mountains," ran westward, and which he called the "Oregon," a name as mythical in its origin as the country through which it flowed; and, for years afterward, this name, as it occurred in the sonorous roll of Bryant's "Where rolls the Oregon," was but a terse expression for distance and vagueness.

To the prophetic mind of Thomas Jefferson this distance and vagueness were but temporary conditions. This country would in time be necessary for the inevitable expansion of the then young and growing nation. The result was the Lewis and Clark expedition, and what an expedition it was! Who that has ever read this simple, straightforward tale of hardship and struggle in an unknown country, amid all the dangers of hostile Indians and snow-clad mountains, can ever forget it? The splendid confidence and co-operation of the two young leaders, their warm, personal friendship, the care and foresight displayed by them in all their plans, the unswerving fidelity of every member of the party, and finally its completely successful execution, mark this as the very type of what such an expedition should be, and cause the heart of every American to thrill with pride.

In passing, it is well to call attention to the influence of Clark's medicine chest on the success of this enterprise. Clark seems to have possessed some crude ideas of surgery, and to have had considerable knowledge of the use of the more common drugs. He was constantly being called on to treat the sick among the various tribes, especially fevers, ulcers and sore eyes, and gained a reputation that he himself says became a source of worry to him. But his efforts secured the good will of the Indians and made friends when friends were needed. Who can estimate the influence of this belated acknowledgment of the services of Clark's medicine chest?



Fig. 12.—A view from Portland Heights, showing part of the city of Portland and Mt. Hood in the distance. Trips to the heights will be made by parties of members during the Portland session. Another view of Mt. Hood is given in Fig. 1.

It was the Lewis and Clark expedition, together with Gray's discovery of the mouth of the Columbia River that, after many vicissitudes and disputes, finally decided the claims to the Oregon country in favor of the United States. The winter of 1805-6 was spent by the expedition at Fort Clatsop, near the mouth of the Columbia.

The Lewis and Clark Exposition, to be held at Portland this summer, June 1 to October 15, was determined on as a fitting recognition of this important event in our national history.

Here will be brought together the representative products and resources of this marvelous section of our country that a hundred years ago was a wilderness, "where rolled the Oregon," "and heard no sound save its own dashing."

The selection of Portland as the meeting place of the American Medical Association will thus afford an especially favorable opportunity to the members of our profession to see and to become acquainted with this section of our country. To those who love the beautiful and the sublime in nature (and who does not?) this trip will prove a revelation, no matter where they may have been before. In no part of our country has nature been so lavish in her handiwork as in the West. The meadows and the cultivated fields of the East give way to the boundless plains; the beautiful and symmetrical views of the Appalachian chain of mountains are here represented in the Rockies, Cascades and Sierra Nevadas by natural scenery, wherein beauty is supplemented by awe-inspiring grandeur and symmetry by sublimity. By whatever route the visitor comes he will pass through some of this beautiful scenery before he reaches Portland. The view from Portland alone of the snow-capped peaks of Mt. Hood, Mt. St. Helens, Mt. Ranier, Mt. Adams and Mt. Jefferson with the Willamette and Columbia rivers in the foreground, is one that, competent critics say, is not to be had from any other city in the world.

Residents of Oregon while visiting in the East are often asked many embarrassing questions in regard to our state, such as whether it is not a "part of California" or "just south of Alaska"; whether we have any churches and school houses and are we not "afraid of the Indians." We do not anticipate any such questions from the members of the American Medical Association, but think that a few facts by way of suggestion may be of interest to many who are visiting us for the first time.

Oregon is over 300 miles square; so do not blame us if we do not happen to know your friend merely because he lives in Oregon. He may live three or four hundred miles from Portland, in several directions, and still be in Oregon. Our New England friends may be interested in knowing that Portland was named after Portland, Me., by a former resident of the "Pine Tree State," after having won the choice by the toss of a coin with a man from Boston.

Portland is on the Willamette River and *not* on the Columbia. (Accent the second syllable in Willamette, if you would appear "to the manor born." It is thirteen miles from the Columbia by water and 100 from the ocean at Astoria. It has a square area of forty miles; a population of 150,000 people; a system of city water works that cost $4,000,000, furnishing its inhabitants the purest water in the world, direct from the glaciers of Mt. Hood; 31 public schools, with 14,500 pupils. It has 180 miles of electric railway and 260 miles of improved streets. It has a delightful climate, and the mortality for 1904 was only 9.01 per thousand inhabitants.

Portland exports more wheat than any other Pacific Coast port, and its sawmills cut 400,000,000 feet of lumber a year.



Fig. 13.—Panoramic view of Columbia River, taken from St. Peter's Dome, at a height of 2,300 feet, and showing Arrowhead Mountain, Bridge of the Gods, and Mt. Adams. Castle Rock, at the edge of the water on the opposite bank, is 1,100 feet high. This is a scene on one of the complimentary excursions given to the members of the American Medical Association by the Committee of Arrangements.

It produces finer roses and more of them than any city in the world, as the Committee of Arrangements hopes to prove to visitors; and from the heights back of the city one can have a series of views that will pay for a trip across the continent.

The salmon industry of the Columbia River annually produces $3,000,000. Let not the piscatorial instincts of our sporting friends become unduly aroused, for it is a tradition that the British government more readily resigned its claim to Oregon because some Englishmen who had been here reported that the salmon would not rise to the fly. They do, however, readily take the spoon at the Falls of the Willamette during May and June. The accompanying photograph of 20 tons of salmon lying on the floor of a cannery shows in what numbers they are caught in gill-nets and seines. The season will

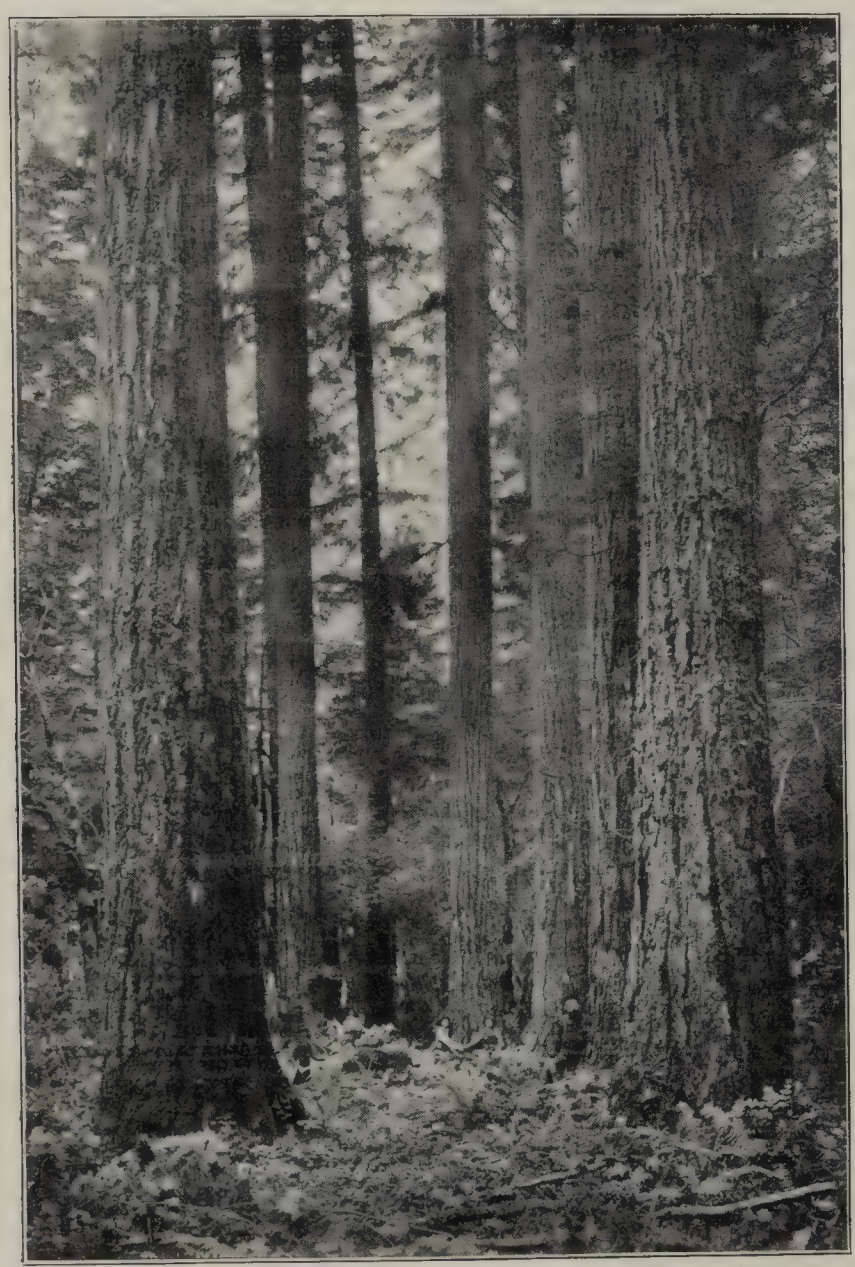


Fig. 14.—"Oregon underbrush," average height 250 feet.

be on during the session of the Association, and the salmon business may be seen in all its phases.

The river at Portland affords splendid opportunity to those who enjoy boating. There is no more delightful way of spending the long twilight July evenings in Oregon than by a ride up or down the river in a motor boat, or lazily bending to the quiet dip of the sculls.

Lastly, a word to the sportsmen. The mountains of Oregon and the Northwest abound in game and the streams are full of trout. If one can spare the time and slight expense, one can arrange to stop off at almost any point where one's route crosses the mountains on any of the various railroads and can enjoy one's self to the heart's content.

It has been the object of the writer of this article to avoid detailed description, for the reason that such description, to be of value, could not be brought within the proper limits. It has been thought that, next to the scientific interest of the meeting, the natural scenery of our great Northwest would be the one thing that would prove most attractive to our visitors. We have, for this reason, dwelt rather in suggestive generalities concerning the history, geography and resources of

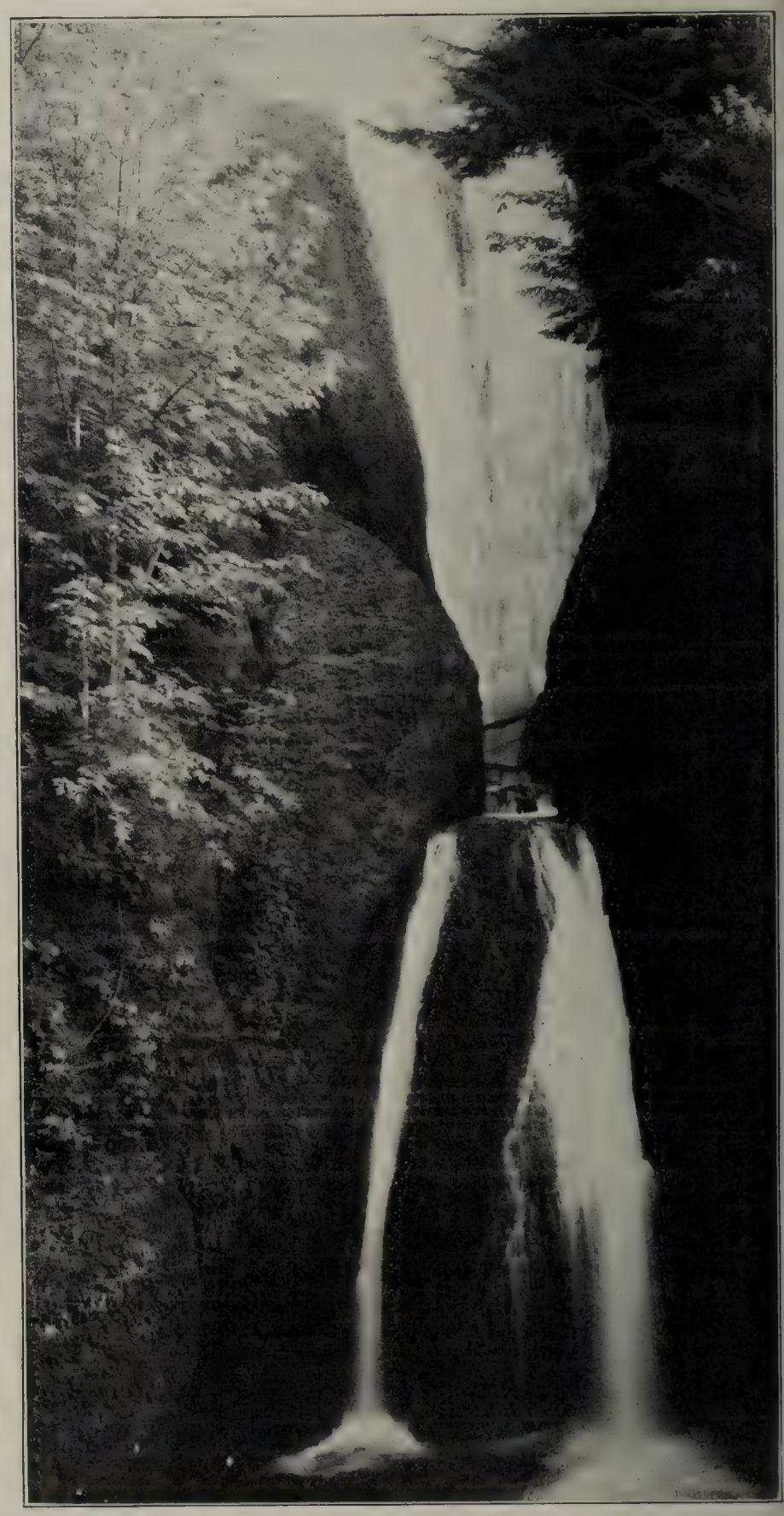


Fig. 15.—Bridal Veil Falls, 190 feet high, on the Columbia River.

our country and, for illustrations, have chosen material as characteristic of the far West and as different from other sections as we could find. We are sure that a trip to this meeting of the American Medical Association will give enlarged views of the size, diversity and grandeur of our great Republic and make better and broader Americans of us all.

The Committee of Arrangements extends to all a hearty

invitation to visit Portland, promising an abundant entertainment and a profitable and interesting time; and this, too, with a full appreciation of the reputation of the West for hospitality.

F. C.

RAILROAD RATES.

Favorable Excursion Rates Secured with Long Time Limit and Stopover Privileges.

The announcement of the Committee on Transportation, through Dr. M. L. Harris, Chicago, chairman, was made in THE JOURNAL, April 22, and showed that the rates were the best that the Association has ever secured.

COST OF ROUND TRIP.

To Portland, Oregon, going via any regular direct route, returning via same or any other regular direct route: From Missouri River points; Sioux City, Iowa; Omaha, Neb.; Kansas City, Mo.; St. Paul and Minneapolis, $45.00; From Chicago, $56.50. From St. Louis, $52.50. From New Orleans, $62.50.

To Portland, going via any regular direct route, returning via San Francisco or San Francisco and Los Angeles, and regular direct routes therefrom, or vice versa: From Missouri River points, $56.00. From St. Paul, $63.00. From Chicago, $67.50. From St. Louis, $63.50. From New Orleans, $71.00.

From all points east of Chicago and St. Louis, the rate will be one fare plus $1.00 added to the rates above given. The Missouri Valley is taken as a basis and is the junction between western and eastern passenger associations. The western associations make a fixed rate to Missouri River points; the eastern associations make a rate of one fare plus $1.00. Thus: Atlanta, Ga., $71.50; Boston, $79.50; New York City, $74.50; Washington, $73.00.

DATES TICKETS WILL BE SOLD.

These tickets will be on sale June 13, 14, 15, 19, 23, 24, 27, 28, 29, 30, July 1, 2, 3, 6, 7 and 8. These days apply to the points above mentioned. For points east of Chicago and St. Louis the date of sale will be advanced sufficiently to enable passengers to reach the points mentioned on any of the days specified. Tickets will be good for ninety days from date of sale, but not later than Nov. 30, 1905.

STOPOVERS.

Going passage must begin on date of sale and must be continued up to first Colorado, Wyoming, Texas or Montana point en route and up to Alliance, Neb., Ft. Williams, Ont., and St. Paul, on Nor. Pac. Ry. West thereof stopovers may be made at any point, going or coming, within final limit of ticket.

Returning stopovers will be allowed within final limit at any point west of the points mentioned above. While conditions governing stopovers are not complicated, they vary somewhat and had best be learned of the agent by each purchaser at the time tickets are purchased and of the joint agent at Portland, who has to stamp each excursion ticket to make it good for the return trip.

ROUTES TO THE PORTLAND SESSION.

Map of the Western Country and the Various Routes by Which to See Its Beauties.

DIRECT AND INDIRECT ROUTES.

We may class the various routes to Portland as direct and indirect, the former being all those on which the short-line rate will prevail, the indirect those which will carry the traveler a round-about route but at an additional railway fare. The latter, for example, permit the passenger for Portland to travel through California either going or returning, the other part of the trip to be by one of the direct lines. The principal routes are shown on the accompanying map.

By the direct routes, Chicago, St. Louis and Memphis passengers for Portland, or parties from points in the East or South ticketed through either of these three gateways, may, at their option, be routed through St. Paul and Minneapolis and thence to Portland via either the Canadian Pacific, the Great Northern or the Northern Pacific railways; or through Omaha or Kansas City, thence through Denver or Cheyenne and Salt Lake City, thence via Ogden, Utah, and Pocatello, Idaho (not via California from Ogden); or through Omaha or Kansas City and thence via Billings, Mont.

Without extra fare, the western or outgoing trip may be made by any of these so-called direct routes and the return by the same or any other of the direct routes; or one way may be by one of the indirect routes, as said above, by paying an additional charge, but the desired route must be determined on before buying the ticket so that the latter may be made out accordingly.

DIRECT ROUTES VIA ST. PAUL.

Tickets may be routed over any one of the lines between Chicago and St. Paul at the passenger's option, these being the Northwestern Line; the Chicago, Milwaukee and St. Paul; the Chicago, Burlington and Quincy; the Wisconsin Central; the Chicago, Rock Island and Pacific; the Illinois Central, and the Chicago Great Western. After reaching St. Paul the traveler via this gateway has choice of but three routes from there to Portland, the Great Northern, the Northern Pacific or the Canadian Pacific.

DIRECT ROUTES VIA OMAHA.

The railway lines that connect Chicago and St. Paul, noted above, also operate between Chicago and Omaha. The Burlington also offers its own line to Billings, Mont., from which point its trains run to Seattle over the Northern Pacific Railway. The Chicago, Union Pacific and Northwestern Line has a daily service direct from Chicago to Portland without change.

Passengers using any other of the Chicago-Omaha lines may be ticketed to travel via any of the lines west from Omaha, at their option, these lines being the Burlington, the Rock Island and the Union Pacific. Each of these affords excellent service between Omaha and Portland via Denver and Salt Lake City, via Denver and Cheyenne and Salt Lake City, or via Cheyenne direct (main line of Union Pacific); or via Billings, Mont. From Denver to Portland the passenger has the further choice of traveling to Portland via either the Denver and Rio Grande, the Colorado Midland or the Union Pacific, via Salt Lake City, Ogden and Idaho.

DIRECT ROUTES VIA KANSAS CITY OR ST. JOSEPH.

Between St. Louis and Kansas City or St. Joseph similarly excellent service to that via St. Paul or Omaha is offered by the following lines: Chicago and Alton; Chicago, Burlington and Quincy; Missouri Pacific; Chicago, Rock Island and Pacific, and the Wabash.

Between Chicago and Kansas City the same lines operate—except the Missouri Pacific—and in addition the Santa Fe, the Chicago, Milwaukee and St. Paul, and the Chicago Great Western.

From either point Portland passengers may travel via the Kansas City or St. Joseph gateway, if preferred, then through Denver, Salt Lake City and Ogden, Cheyenne and Ogden, or through Billings. Such routings will be, beyond Denver, by one of the lines noted above under Omaha routings through Denver, etc. For that portion of the journey between Kansas City and Colorado, one has choice between the Burlington, the Rock Island, the Santa Fe, the Missouri Pacific and the Union Pacific, the first three having their own lines from Chicago to Denver via Kansas City, the first two and the Missouri Pacific their own lines from St. Louis to Denver via Kansas City.

INDIRECT ROUTES.

These are the routes by which the Portland passenger is carried through California either on the outgoing or on the return portion of the trip, an extra fare being charged therefor, with the requirement that the other portion of the trip shall be by one of the direct routes. All the indirect routes lead through California, and may be by boat or rail between Portland and San Francisco; and from the latter city the route may be eastward across Nevada and through Ogden, thence via any of the lines mentioned under direct routes, to destination; or from San Francisco the ticket may read via southern California, and to destination by any of the southern lines—the

Santa Fe, the Rock Island, and the Southern Pacific. The former runs via the San Joaquin Valley and Mojave, then through Arizona and Albuquerque, N. M., the latter either by the San Joaquin Valley or its Coast Line to Los Angeles and El Paso, and on to New Orleans; the Rock Island runs via Los Angeles, using Southern Pacific tracks to El Paso, whence it takes a northwesterly course through southern New Mexico to eastern termini. Further optional routes are available east of El Paso, if the passenger prefers to travel through Fort Worth, San Antonio or Dallas, thence via any of the numerous lines through St. Louis, Kansas City or Chicago. Tickets routed through New Orleans may be over any of the several lines north and east of that city, at the option of the passenger.

DETAILS OF THESE ROUTES.

The above summary is abstracted from an article in THE JOURNAL, April 22, which described the scenic attractions of the various routes referred to, and discusses the places at which stopovers could be made with pleasure and profit. In addition, members are reminded that all the railroad companies mentioned will be glad to send booklets descriptive of their roads and the territory passed through and to advise about itinerary.

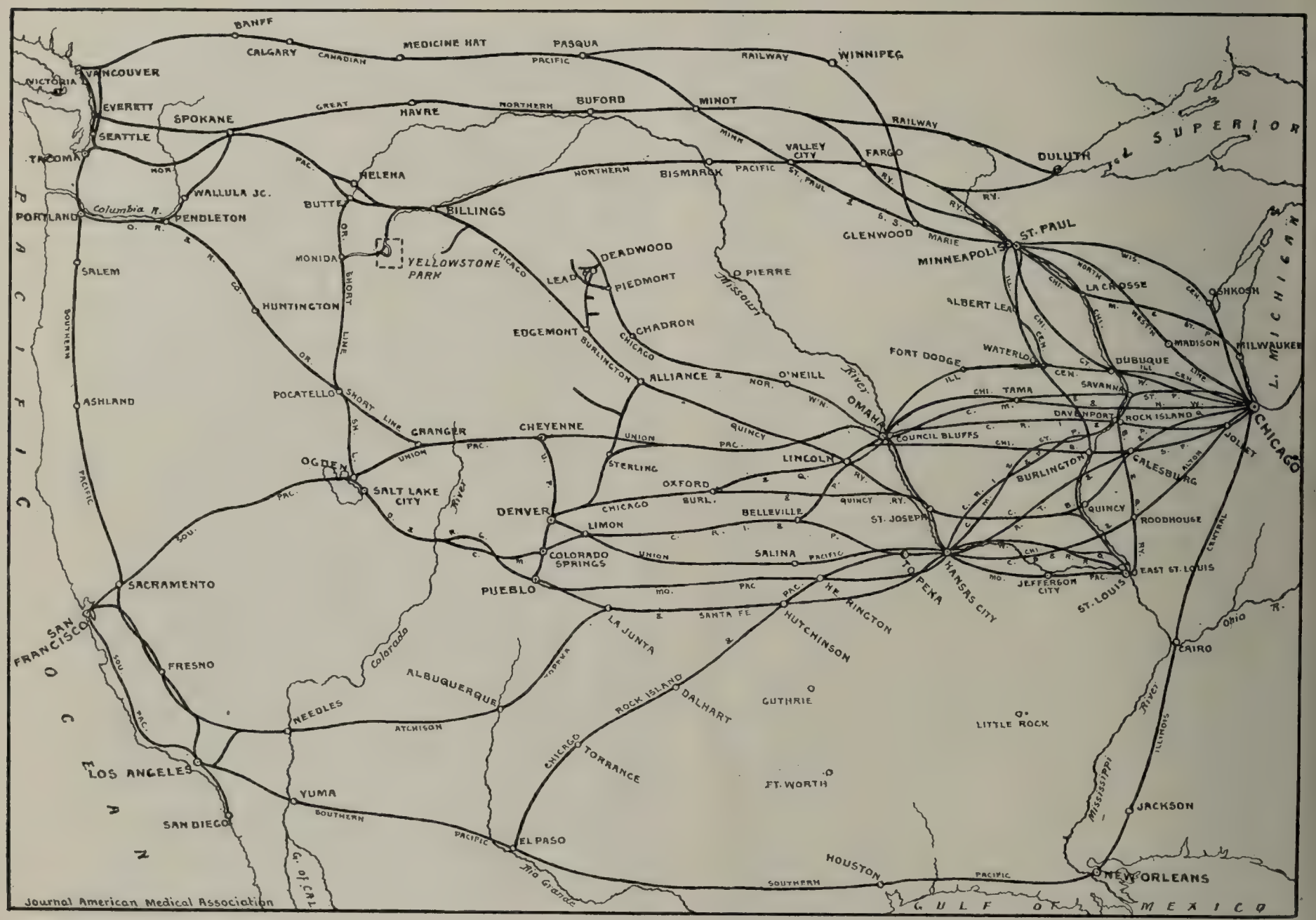


Fig. 16.—Map of the various western routes to and from Portland.

THE SOO-PACIFIC ROUTE.

In the article referred to above, the "Soo-Pacific route" was not explained. The traveler over this line will go from St. Paul and Minneapolis over the Minneapolis, St. Paul and Sault Ste. Marie Railway, through North Dakota and Canada, to the main line of the Canadian Pacific, and on that line across the mountains. The Canadian Pacific is reached at Pasqua, near the center of the Province of Assiniboia, Canada, and it may be reached, the contrast between their rugged scenery and the level contour of the land seen the day before is most entertaining. Higher and higher winds the train and more abruptly break the rocky chasms. The scenery on the Canadian Pacific is said to surpass that of the Alps, and we note with interest that several of the trains mentioned below are to stop for several hours or for a whole day at several of the most striking spots in the Canadian Rockies. Banff, Laggan, Field, Glacier—words fail in attempting to describe the stupendous character of the scenery, its marvelous variety of shade and color, the endless details that grow on one as one gazes in awe.

Although it is most pleasant that the arrangements for the Portland trip allow a return by a different route, so that a great variety of scenery may be seen, many a traveler ex-

presses the desire to sit in silence and gaze on Mt. Stephen or down the Illecillewaet River valley, loth to be hurried on from such a wonderful view by the steed of steel. There is an indescribable added grandeur—richness—atmosphere—in leaving the railroad and all of man's marks behind and climbing off where only untouched nature remains. The opportunity for this is afforded by the brief stops that are made on many of the following trips.

SPECIAL TRAINS TO PORTLAND.

Abundant Accommodations for Through Service to Portland in Good Company.

In arranging the itinerary of a trip through the beautiful scenery of the West by some of the various routes mentioned above the physician is offered many special trains. The particular advantages of these are, first, the through service (that is, no change of cars is necessary), and second, the companionship of members of the profession, perhaps acquaintances, on the journey. The physician who does not find the arrangements that he desires among these special trains can go on the regular trains of the routes desired, although most of such trains will require change of cars. Some roads run sleepers through to Portland, and information should be received from the particular road concerned.

We mention below the essential details as to the time of starting of these trains and cars as far as the information has come to our notice. Arrangements may be made for other special trains. In accordance with the announcement in THE JOURNAL, May 13, page 1547, we publish below the lists which have been sent us of those who have made reservations on these special trains. It will be understood that many others have not yet definitely decided as to the time of departure, etc., and that their names are not included. Especially is the matter unsettled in the case of the trains which leave late and go through without stopovers. Errors in names may have occurred, due to transcribing of names by railroad clerks and others.

New England.

NEW ENGLAND SPECIAL.—Special cars to accommodate members of the A. M. A. Outing Club and others from New England will probably leave Boston, June 27, for a trip of four weeks or more over the Chicago, Milwaukee & St. Paul and the Northern Pacific railroads, stopping five and one-half days at Yellowstone Park, and returning from Portland by the Canadian Pacific to Montreal, making short stops in the Canadian Rockies. A different return route may be used. The party can be joined at any point en route. Address for particulars, Dr. E. R. Campbell, Bellows Falls, Vt.

New York and Philadelphia.

NEW YORK AND PHILADELPHIA SPECIAL.—This train will leave New York City at 6:55 p. m. and Philadelphia at 7:50 p. m. Saturday, June 24, for a forty-day trip to Portland and return, stopping six and one-half days at Yellowstone Park, and passing through San Francisco, Los Angeles, Salt Lake City, Denver and Niagara Falls on the return, reaching the starting points, Thursday morning, August 3. This trip will include visits to the Royal Gorge, Manitou, Pike's Peak, Cripple Creek, Garden of the Gods, the famous Georgetown Loop, a day in Chicago, etc. This party is limited to one hundred and twenty-five persons, and at our last advice a few reservations only were still unspoken for. Further information may be secured from Dr. Frederick Holme Wiggin, 55 West Thirty-sixth street, New York, or Dr. Cyrus Lee Stevens, Athens, Pa.

The following is a list of those who have made definite reservations on this train:

Dr. and Mrs. Dexter D. Ashley, ...New York City.
Dr. J. Riddle Goffe.....New York City
Dr. and Mrs. John T. Nagle and sister-in-law.....
.....New York City.
Dr. Thomas F. Reilly.....New York City
Dr. E. Franklin Smith.....New York City
Dr. and Mrs. J. P. Tuttle.....New York City
Dr. and Mrs. Wisner R. Townsend and the Masters Townsend .....New York City
Dr. Frederick Holme Wiggin and Son...New York City
Dr. and Mrs. L. Grant Baldwin.....Brooklyn, N. Y.
Dr. William Francis Campbell.....Brooklyn, N. Y.
Dr. Mary E. Dunning.....Newburgh, N. Y.
Miss Hill .....Newburgh, N. Y.
Dr. and Mrs. C. E. Townsend.....Newburgh, N. Y.
Dr. Eugene Baker.....Ithaca, N. Y.
Dr. J. Orley Stranahan.....Rome, N. Y.
Dr. C. E. Cuddeback.....Port Jervis, N. Y.
Mr. and Mrs. Charles Landell.....Bayonne, N. J.
Dr. and Mrs. Forman.....Bayonne, N. J.
Dr. and Mrs. J. Fewsmith and Miss Fewsmith.....
..... Newark, N. J.
Messrs. G. Gilbert and Alan H. Brown..Newark, N. J.
Dr. and Mrs. E. Hollingshead.....Pemberton, N. J.
Mrs. Price .....Pemberton, N. J.
Miss Allan .....Pemberton, N. J.
Dr. and Mrs. Marcus F. Squier.....Harrison, N. J.
Dr. Frank W. Stevens ..... Bridgeport, Conn.
Dr. and Mrs. William Witter.....Norwich, Conn.
Dr. and Mrs. C. L. Stevens.....Athens, Pa.
Dr. E. W. Evans .....Easton, Pa.
Dr. and Mrs. J. G. Zern .....Lehighton, Pa.
Dr. John Welsh Croskey.....Philadelphia, Pa.
Dr. J. V. Kelly.....Philadelphia, Pa.
Dr. M. H. Russell.....Philadelphia, Pa.
Dr. D. D. Custer.....Philadelphia, Pa.
Dr. H. K. Regar.....Philadelphia, Pa.
Dr. and Mrs. J. W. Ellenberger.....Harrisburg, Pa.
Mr. Ellenberger, Jr.....Harrisburg, Pa.
Dr. and Mrs. I. C. Gable.....York, Pa.
Mr. Gable, Jr.....York, Pa.
Dr. and Mrs. Holtzapple.....York, Pa.
Miss Holtzapple.....York, Pa.
Mr. and Mrs. Glatfelter.....Spring Grove, Pa.
Mr. Glatfelter, Jr.....Spring Grove, Pa.
Dr. and Mrs. S. L. Wiggin.....McKeesport, Pa.
Dr. and Mrs. O. F. Kistler and niece..Wilkesbarre, Pa.
Dr. and Mrs. Frederick Baldwin.....Danvers, Mass.
Dr. F. H. Thompson and friend.....Fitchburg, Mass.

Indianapolis.

INDIANA STATE MEDICAL SOCIETY.—Sleeping cars will leave Indianapolis on the Pennsylvania lines June 30, 11:50 p. m., and will join the Yellowstone Park Special (for further particulars of which see below) leaving Chicago 11 a. m., July 1. Leaving Portland, July 17 the return will be over the Northern Pacific to Seattle, Canadian Pacific steamer to Vancouver, and home by the Canadian Pacific, the Soo Line, the Burlington route and Pennsylvania lines consecutively; with stopovers at Seattle, Victoria, Vancouver, Glacier (24 hours), Banff, Canadian National Park (24 hours). The return, however, may be made by any other route desired. For further particulars, address Dr. Frank B. Wynn, Newton Claypool Bldg., Indianapolis. The following have made definite reservations:

Dr. W. N. Wishard and wife.....Indianapolis
Dr. T. B. Eastman and wife.....Indianapolis
Dr. H. O. Pantzer and wife.....Indianapolis
Dr. A. E. Stearne and wife.....Indianapolis
Dr. Frank B. Wynn and wife.....Indianapolis
Dr. F. C. Heath and wife .....Indianapolis
Dr. C. E. Ferguson and wife .....Indianapolis
Dr. John L. Freeland and wife .....Indianapolis
Dr. W. H. Ristine and wife.....Crawfordsville
Dr. L. J. Willien .....Terre Haute
Dr. J. T. Freeland and wife.....Bedford
Dr. M. G. Moore, wife and son.....Vincennes
Dr. W. S. Williams and wife.....Kendallville
Dr. C. D. Kimball and wife .....Kendallville
Dr. J. W. Cook and wife .....Pendleton
Dr. J. H. Green and wife .....North Vernon
Jennie H. Smith.....Greencastle
Flora Lammers and daughter.....Greencastle

Nashville.

Special cars are to leave Nashville, Tenn., July 4, to reach Portland July 10, passing through St. Louis, Denver and Salt Lake City, and returning by the Yellowstone Park and St. Paul. There will be stopovers in Colorado and at Salt Lake City. Address for further particulars Dr. G. C. Savage, Nashville, Tenn. The following are planning to go:

Dr. and Mrs. J. A. Witherspoon.....Nashville, Tenn.
Dr. and Mrs. J. T. Altman.....Nashville, Tenn.
Dr. W. A. Bryan.....Nashville, Tenn.
Dr. Louis Leroy .....Nashville, Tenn.
Dr. G. C. Savage and daughter.....Nashville, Tenn.
Dr. and Mrs. E. A. Cobleigh.....Chattanooga, Tenn.
Dr. Holtzclaw .....Chattanooga, Tenn.
Dr. C. A. Abernathy .....Pulaski, Tenn.
Dr. Shields Abernathy.....Pulaski, Tenn.
Dr. J. Ross Snyder and three confrères.Birmingham, Ala.
Dr. and Mrs. A. W. Calhoun.....Atlanta, Ga.
Dr. and Mrs. Floyd W. McRae.....Atlanta, Ga.
Dr. and Mrs. W. D. Haggard.....Nashville, Tenn.
Dr. and Mrs. M. E. Aldersen.....Russellville, Ky.
Dr. Piper .....Russellville, Ky.
Dr. C. N. Clarke .....Mount Pleasant, Tenn.
Dr. Hazel Padgett.....Columbia, Tenn.

Michigan.

MICHIGAN STATE MEDICAL SOCIETY SPECIAL.—Those who take this train will leave all Michigan points Monday, July 3, in time to take the special at Chicago, which leaves at 5:30 p. m. over the C. R. I. & P. Railroad for St. Paul, thence by

the Soo Line (referred to elsewhere) and the Canadian Pacific, stopping at several points in the Canadian Rockies. Between Vancouver and Seattle the trip will be made on the Canadian Pacific Railway Steamer. No fixed return itinerary is planned. For further particulars address Dr. F. W. Robbins, 73 Cass Ave., Detroit. Those who have thus far made reservations are as follows:

Dr. Willis Anderson.....Detroit
Dr. and Mrs. Chas. T. McClintock.....Detroit
Dr. and Mrs. F. W. Robbins.....Detroit
Dr. Walter P. Manton and family (5).....Detroit
Dr. W. R. Chittick.....Detroit
Prof. F. L. Bliss.....Detroit
Dr. F. D. Wheeler.....Detroit
Dr. Wm. J. Stapleton, Jr.....Detroit
Dr. and Mrs. O. H. Lau.....Detroit
Miss Davis.....Detroit
Miss Kenseth.....Detroit
Dr. and Mrs. D. R. Clark.....Dearborn
Dr. M. G. Day.....Ann Arbor
Miss Alice Anthony.....Bryn Mawr, Pa.
Dr. W. F. Dodge and family (6).....Big Rapids
Dr. W. L. Godfrey.....Battle Creek
Dr. W. K. West.....Calumet
Mrs. and Miss Lawbaugh.....Calumet
Geo. A. Robbins, Esq.....Chicago
Miss E. M. Palmer.....Chicago
Dr. B. H. McMullen and family (4).....Cadillac
Dr. and Mrs. Collins H. Johnston.....Grand Rapids
Dr. A. E. Savage.....Gowen
Dr. and Mrs. G. M. Livingston.....Manistique
Dr. and Mrs. Phil H. Quick.....Olivet
Miss Quick.....Olivet
Mrs. and Miss Ely.....Olivet
Miss Hasford.....Olivet
Dr. and Mrs. Chas. B. Stockwell.....Port Huron
Dr. and Mrs. Mortimer Willson.....Port Huron
Family of Dr. Willson (2).....Port Huron
Dr. and Mrs. M. S. Boyer.....Philadelphia
Dr. James Yates.....Roseville
Miss Lapsley.....Roseville
Dr. and Mrs. H. V. Brooks.....Saginaw
Dr. and Mrs. E. E. Curtis.....Saginaw
Miss Coleman.....Saginaw

Chicago.

YELLOWSTONE PARK SPECIAL.—This train will be in two sections, both running over the Chicago, Burlington and Quincy Railroad to Minneapolis, thence by the Northern Pacific to Portland, stopping at Yellowstone Park. The first section will leave Chicago, June 30, will reach Yellowstone Park July 2, and will reach Portland on the morning of July 10. The second section will leave Chicago July 1, reach the Park July 3, and will reach Portland on the afternoon of July 10. Each of these trains will accommodate but one hundred and twenty-five persons, and the reservations are almost all spoken for. For further particulars address Mr. F. E. Bell, City Passenger Agent, Burlington route, 211 Clark street, Chicago.

The following have definitely reserved accommodations for themselves and those who will go with them. (In many cases we are not informed as to the number in the party.)

FIRST SECTION JUNE 30.

Dr. Wm. F. Bacon (2).....York, Pa.
Dr. and Mrs. F. D. Bain.....Kenton, Ohio
Dr. and Mrs. John S. Beck.....Dayton, Ohio
Dr. and Mrs. Henry W. Bettmann.....Cincinnati
Dr. C. L. Bonifield.....Cincinnati
Dr. C. M. Bowcock (4).....Springfield, Ill.
Dr. R. E. Buchanan.....Independence, Iowa
Dr. Henry A. Christian.....Boston
Will C. Braun.....Chicago
Dr. N. S. Davis.....Chicago
Dr. F. M. Elliott.....Aurora, Ill.
Dr. and Mrs. J. Harvey Fronfield and daughter (3).....Media, Pa.
Dr. and Mrs. W. S. Foster.....Pittsburg
Dr. and Mrs. Chas. R. Grandy.....Norfolk, W. Va.
Dr. and Mrs. George Goodhue.....Dayton, Ohio
Dr. and Mrs. J. R. Guthrie.....Dubuque, Iowa
Dr. Elma Griggs (2).....Ithaca, N. Y.
Dr. J. H. Glass.....So. Fork, Pa.
Dr. Benj. H. Grove.....Buffalo, N. Y.
Dr. Robert Hessler.....Logansport, Ind.
Dr. and Mrs. J. W. Hairgrove.....Jacksonville, Ill.
Dr. M. L. Heidingsfeld.....Cincinnati, Ohio
Dr. and Mrs. C. F. Lehnkering.....Darlington, Wis.
Dr. Joseph Lowe.....Cincinnati, Ohio
Dr. A. M. McKibben.....Pittsburg, Pa.
Dr. M. Manges (2).....New York
Dr. E. L. Mitchell.....Monmouth, Ill.
Dr. and Mrs. A. Marcy, Jr.....Riverton, N. J.
Miss Hannah Marcy.....Riverton, N. J.
Miss Lenora Wright.....Riverton, N. J.
Dr. C. P. Morrell.....No. Andover, Mass.
Dr. H. O. Marcy and son (2).....Boston, Mass.
Dr. F. A. Neville.....Meredosia, Ill.
Dr. Maurice Ostheimer.....Philadelphia
Dr. and Mrs. J. F. Pember and 2 friends..Janesville, Wis.
Dr. J. A. Pratt.....Aurora, Ill.
Dr. M. L. Rhein.....New York
Dr. B. L. Riese and mother (2).....Chicago
Dr. Jesse Snodgrass.....Kenton, Ohio
Dr. F. C. Swan (3).....So. Chicago, Ill.
Dr. F. Schill, Jr.....Johnstown, Pa.
Dr. J. A. Tuthill.....Le Roy, Ill.
Dr. L. C. Taylor.....Springfield, Ill.
Dr. R. C. Teschan (2).....Milwaukee, Wis.
Dr. C. O. Thienhaus.....Milwaukee, Wis.
Dr. W. C. Watson.....Lima, Ohio
Dr. and Mrs. E. F. Woods.....Janesville, Wis.
Dr. and Mrs H. G. Wilbur.....Fall River, Mass.
Dr. D. I. Wolfstein.....Cincinnati, Ohio
Miss Westfall.....Dayton, Ohio
Dr. Silver.....New York
Dr. R. S. Yarros and party.....Chicago
Dr. Cook.....Chicago

SECOND SECTION, JULY 1.

A. Alguire.....Belvidere, Ill.
M. K. Allen.....Louisville, Ky.
Dr. and Mrs. Frank T. Andrews, mother and son (5).....Chicago
Dr. Robert C. Bourland.....Rockford, Ill.
Dr. and Mrs. J. Frederick Herbert.....Philadelphia
Dr. Chas. H. Emery (2).....Bedford, Ind.
Dr. W. R. Fringer.....Rockford, Ill.
Dr. and Mrs. J. Frederick Herbert.....Philadelphia
Dr. D. S. Hanson.....Cleveland, Ohio
Dr. J. A. Johnston and sister (2).....Cincinnati, Ohio
Dr. Wm. E. Lower.....Cleveland, Ohio
Dr. W. P. Long.....Weatherly, Pa.
Dr. and Mrs. Geo. E. Malsbary.....Cincinnati
Dr. W. N. Pringle.....Johnstown, Pa.
Dr. Julia Riddle.....Oshkosh, Wis.
Dr. John U. Riggs.....Bryan, Ohio
Dr. D. G. Smith and party.....Elizabeth, Ill.
Dr. J. S. Stribling.....Seneca, S. C.
Dr. and Mrs. Schuman.....Columbia City, Ind.

(Three cars of this train are being filled with Ohio and Indiana physicians and their friends.)

CHICAGO MEDICAL SOCIETY SPECIAL.—This train will leave Chicago July 6 at 7:30 p. m., and will arrive at Portland at 8 a. m., Monday, July 10, passing over the Chicago, Milwaukee and St. Paul and the Northern Pacific railroads. Stopover points include St. Paul, Spokane and points in the Rockies and Cascades. This train will be a luxurious on, with compartment car, observation car and other sleepers, as well as a dining car, which remains on the train throughout the trip. It will be noted that this train starts only in time to reach the Portland session, and the return trips of those who go by this train may be made by various routes, according to the time at each one's disposal. Address for particulars the secretary of the society, Dr. F. X. Walls, 103 State street, Chicago, or Mr. C. A. Matthews, general agent, passenger department, Northern Pacific Ry. Co., 208 S. Clark St., Chicago.

The following have made reservations:

MINNEAPOLIS.

Dr. C. W. Bishop.
Dr. W. A. Hall.
Dr. R. S. Brown.
Dr. J. H. Stuart and wife.
Dr. H. H. Kimbal and wife.
Dr. Edw. Estabrook.
Dr. C. M. Kistler.
Dr. Wm. B. Murphy.
Dr. H. M. Orton.
Dr. A. Soderling.
Dr. C. D. Whipple.
Dr. C. B. Wright.
Dr. E. J. Brown.
Dr. H. A. Cohen.
Dr. W. S. Laton.
Dr. J. D. Simpson.
Dr. A. M. Wang.
Dr. C. G. Weston.

CHICAGO.

Dr. W. C. Abbott (2).
Mr. S. DeWitt Clough (2).
Dr. Frank X. Walls (2).
Dr. W. F. Waugh (2).
Dr. Stemmel, Macomb, Ill.
Dr. Wilson (2).
Dr. M. L. Harris (2).
Dr. C. R. Ogden (2).
Dr. Pennington (2 or 3).

SPECIAL OVERLAND LIMITED TRAIN.—This is one of the quickest trains to Portland. It will leave Chicago Thursday, July 6, at 8:02 p. m., and will reach Portland Sunday, July 9, at 5:25 p. m. This train passes over the Chicago and Northwestern and the Union Pacific railroads, the Oregon Short Line, and the Oregon Railroad and Navigation Co.'s line through southwestern Idaho, the Blue Mountains and Columbia River country. Dr. Lewis S. McMurtry is arranging a party which will spend six days in Yellowstone Park on the return trip. Address for further particulars the nearest member of the committee on arrangements or Mr. H. A. Gross, General Passenger Agent, Chicago and Northwestern Railroad, 212 Clark Street, Chicago. The committee of arrangements is as follows: S. C. Stanton, M.D., 1604, 59 State St., Chicago; Heinrich Stern, M.D., 56 E. 76th St., New York City; Lewis S. McMurtry, M.D., Louisville, Ky.; Wm. Warren Potter, M.D., Buffalo, N. Y.; Florus F. Lawrence, M.D., Columbus, Ohio; Simon P. Scherer, M.D., Indianapolis; Charles A. L. Reed, M.D., Cincinnati.

On this same route is operated a daily through train to Portland on the same fast schedule. For particulars address Mr. Gross as above.

SCENIC LINE SPECIAL.—This train will leave Chicago at 10 p. m., Thursday, July 4, and will reach Portland Monday, July 10, in the afternoon, running on the Burlington route, Denver and Rio Grande, Oregon Short Line, and the Oregon Railroad Company's Navigation Lines, and will stop for sightseeing at Colorado Springs, Glenwood Springs and Salt Lake City. This train will go through the Royal Gorge, Tennessee Pass and other points on the famed Denver and Rio Grande line. Passengers may return from Portland by any route they desire. For information address Mr. F. E. Bell, City Passenger Agent, Burlington Route, 211 Clark street, Chicago.

GATES' TOUR.—OPHTHALMOLOGY SPECIAL.—The officers and a number of the members of the Section on Ophthalmology and some members of the Section on Laryngology and Otology plan to go to Portland in a special car run by the Gates' Tour excursion. This will leave Chicago Monday, July 3, at 10 p. m., by the Chicago and Northwestern Railway, and from Minneapolis on will run over the Soo Line (referred to elsewhere) and the Canadian Pacific. Stops will be made at Banff, Field, Glacier, etc. The return may be by the Northern Pacific and Yellowstone Park, or otherwise. Further information may be had of Chas. H. Gates, 419 Madison av., Toledo, Ohio. Those of the party who have already made reservations are as follows:

Prof. J. Hirschberg.....Berlin, Germany.
Dr. and Mrs. C. R. Holmes.....Cincinnati
Dr. and Mrs. Arthur E. Bulson.....Fort Wayne, Ind.
Dr. Robert C. Myles and family.....New York City
Dr. and Mrs. H. V. Würdemann .....Milwaukee, Wis.
Dr. and Mrs. J. E. Weeks.....New York City
Dr. S. D. Risley.....Philadelphia
Dr. and Mrs. Geo. K. Swinburne.....New York City
Dr. and Mrs. T. W. Moore.....Huntington, W. Va.
Dr. and Mrs. W. C. Chapman.....Toledo, Ohio
Dr. and Mrs. W. H. Snyder.....Toledo, Ohio
Dr. and Mrs. Jas. A. Duncan.....Toledo, Ohio
Dr. S. B. Hiner .....Lima, Ohio
Dr. J. A. Kimmell.....Findlay, Ohio
Dr. W. S. Bryant.....New York City
Dr. and Mrs. E. B. Dench.....New York City
Dr. W. Campbell Posey.....Philadelphia
Dr. W. Zentmayer.....Philadelphia

St. Louis.

Two parties will go from St. Louis over the Burlington Route and the Northern Pacific Railroad, one leaving St. Louis June 27 and visiting the Yellowstone and Puget Sound on the out trip, the other leaving July 6 and going direct to Portland. Reservations may be made by addressing Dr. T. A. Hopkins, 319 Century building, St. Louis.

So far as known, those who expect to go on this trip from St. Louis are as follows:

Dr. H. A. Auler.
Dr. J. H. Amberland and wife.
Dr. Frances L. Bishop.
Mr. G. R. Blickhahn and wife.
Dr. I. H. Cadwallader.
Dr. W. B. Dorsett.
Dr. W. L. Dickerson and wife.
Dr. O. H. Elbrecht.
Dr. Pinckney French.
Dr. J. P. Hennerich.
Dr. Roland Hill.
Dr. J. H. Tanquary and wife.
Dr. C. H. Hughes.
Dr. J. M. Long.
Dr. J. R. Lemen.
Dr. F. J. Lutz.
Dr. L. H. Laidley.
Dr. A. R. Kieffer and wife.
Dr. C. M. Nicholson.
Dr. Wm. Porter.
Dr. W. H. Stauffer.
Dr. R. E. Schlueter.
Dr. B. E. Stockwell.
Dr. F. G. Taussig.
Dr. T. A. Hopkins.
Dr. Meyer Wiener.
Dr. Bransford Lewis and wife.

Kansas City, St. Joseph and Omaha.

Party No. 1 will leave Kansas City Thursday evening, June 29, at 6:10 p. m.; St. Joseph, 8:25 p. m.; Omaha, 11:10 p. m.; and Lincoln Friday, June 30, at 1:20 a. m. This party will arrive in Yellowstone Park Saturday morning, July 1, will remain there about six days, and will reach Portland Sunday evening, July 9.

Party No. 2 will leave Kansas City, St. Joseph, Omaha, etc., on the evening of July 5 and go direct to Portland. The return trip may be by various routes. These trains will go by the Burlington route. For further particulars address Dr. John Punton, 532 Altman Bldg., Kansas City, Mo., or Dr. Chas. Wood Fassett, St. Joseph, Mo.

The reservations that have already been made on this train are as follows:

Dr. John Punton and wife.....Kansas City, Mo.
Dr. S. C. James and wife.....Kansas City, Mo.
Dr. William Frick and wife.....Kansas City, Mo.
Dr. E. Armstrong .....Greenleaf, Kansas
Dr. F. D. Morse.....Lawrence, Kansas
Dr. C. M. Castle .....Wymore, Neb.
Dr. and Mrs. R. C. Moore and daughter.....Omaha
Dr. W. O. Bridges.....Omaha
Dr. and Mrs. B. F. Crummer.....Omaha
Dr. and Mrs. A. A. Ashby.....Red Oak, Iowa
Dr. and Mrs. J. M. Knott and two.....Sioux City, Iowa
Dr. S. F. Sanders and daughter.....Holdredge, Neb.
Dr. W. B. Kern.....Hastings, Neb.
Dr. C. S. Chamberlain and daughter.....Cincinnati
Dr. C. A. Dannaker .....Kansas City
Dr. John Punton .....Kansas City
Dr. Dora Greene-Wilson.....Kansas City
Dr. T. H. Doyle .....St. Joe
Dr. and Mrs. Chas. Wood Fassett.....St. Joseph
Dr. L. W. Shannon and sister.....Hiawatha, Kan.
Dr. and Mrs. I. N. Picket.....Odell, Neb.
Dr. Hugh B. Coffey .....Pittsburg, Kan.
Dr. and Mrs. F. M. Daily.....Beloit, Kan.

Des Moines.

A special Iowa car will leave Des Moines at noon, June 30, Omaha at 11:20 p. m., reaching Yellowstone Park on the morning of July 2. After six days the party will leave for Portland and will arrive July 10.

The second car will leave Des Moines July 6, and will join the first car above mentioned at Yellowstone Park and both will go on to Portland together. Both cars will traverse the Burlington route by way of Billings and the Northern Pacific. No fixed return route is planned. Address Dr. J. W. Cokenower, Des Moines, Iowa.

St. Paul and Minnesota.

MINNESOTA SOCIETIES' SPECIAL.—The special train of the Minnesota State Medical Society, the Minnesota Academy of Medicine, the Ramsey County Medical Society, and the Hennepin County Medical Society, will leave St. Paul, June 29, at 10 p. m., and Minneapolis at 10:30 p. m., reaching Yellowstone Park July 1, and leaving July 6, arriving at Portland July 9 about 6 a. m. The trip will be over the Northern Pacific Railroad. Further particulars may be obtained of C. F. McNeill, C. P. & T. A., Northern Pacific Railway, Minneapolis, or Geo. D. Rogers, C. P. & T. A., Northern Pacific Railway, St. Paul. The following have made reservations:

Dr. C. A. Erdman .....Minneapolis
Dr. H. M. Workman .....Minneapolis
Dr. A. W. Abbott .....Minneapolis
Dr. and Mrs. W. A. Jones .....Minneapolis
Dr. and Mrs. W. J. Byrnes .....Minneapolis
Dr. and Mrs. J. W. Little .....Minneapolis
Dr. and Mrs. C. Nootnagle.....Minneapolis
Dr. and Mrs. J. E. Engstad.....Grand Forks, N. Dak.
Dr. Ira W. Bedle .....Tracy, Minn.
Dr. R. J. Hubbard .....St. Cloud, Minn.
Dr. and Mrs. E. C. Eberlin and daughter..Glenwood, Minn.
Dr. Evans (party of 3) .....La Crosse, Wis.
Dr. and Mrs. C. C. Knapp .....Zanesville, Ohio

PORTLAND'S HOTELS.

A List of Hotels and Information as to Other Accommodations.

The following hotels have been selected for accommodation as the best out of some 100 hotels and boarding and rooming houses, listed by the Press Bureau of the Lewis & Clark Fair:

Hotel Portland, Sixth and Morrison, European plan, $5.00 to $7.00; two in room, $2.50 to $3.50 per person.
The Calumet, Seventh and Alder, $1.50 to $2.00 per room.
Eaton Hotel, Morrison and West Park, $2.00 to $3.00 per room.
Elton Court, Eleventh and Yamhill, $1.50 to $2.00 per room.
Imperial Hotel, Seventh and Washington, $1.50 to $3.00 per room.
Large Hotel, Sixth and Washington, $1.50 to $2.00 per room.
The Oregon, Seventh and Washington, $1.00 to $3.00 per per room.
The Oxford, Sixth and Oak, $1.00 to $2.00 per person.
The Perkins, Fifth and Washington, $1.50 to $3.00 per person.
The Scott, Seventh and Ankeny, $1.00 to $2.50 per person.
American Inn, Fair Grounds, European, $2.00 to $5.00 per day; American plan, $4.00 to $7.00 per day (includes admission to Fair grounds).
Belvedere, Fourth and Alder, $1.00 to $2.50
The Esmond, Front and Morrison, $1.00 to $2.00.
Grand Central, Third and Flanders, $1.00 to $2.00.
The Merchants, Third and Everett, $1.00 to $2.00.
St. Charles, First and Morrison, $1.00 to $2.00.
Hill Military Academy, Twenty-Fourth and Jarshall, American plan, $3.00 to $3.50.

The Portland Hotel Company has also a large number of rooms outside of the hotel, in private residences and boarding

houses, first class in every respect, where guests are cared for in the same manner as are those in the hotels, at a rate of $4.00 to $5.00 per room, two in a room.

The "Exposition Accommodation Bureau," "organized to protect Portland's guests," and under the control of the fair board, have some thousands of rooms in private residences, well selected, first class and comfortable, which they are renting for from $1.50 to $3.00 per room, for either one or two persons. Both the Portland Hotel Company and the "Exposition Accommodation Bureau" are filling the requests of the Committee of Arrangements for reservations on the above terms, thus insuring comfortable quarters at from $1.00 to $2.50 per day, according to rooms.

There are an abundance of restaurants where good meals may be obtained at from 25 cents up.

A bureau of information will be maintained at the Union Depot for the convenience of members on arrival.

The chairman of the committee on hotels is Mr. W. C. Bowers.

Five Thousand for Portland.

The *Medical Sentinel* (Portland, Ore.) says in its May issue: "On May 1 the total number of requests for hotel reservations made to the Committee on Arrangements for the coming meeting of the American Medical Association amounted to 954 rooms. Accommodations have been provided for these as they have been received. Nearly every other man one meets about town, physicians and laymen, tell of preparations for the care of some eastern physician already made. Probably not less than as many more are in this way already provided for. With approximately 2,000 visitors at the American Medical Association already provided with accommodations, two and a half months before the date of the meeting, it is now safe to say that the attendance in Portland will be the greatest in the history of the Association. That there will be not less than 5,000 in attendance seems now positive. The best thing about this is that Portland will be able to care for all who wish to come. Mr. Bowers, who is on the committee, has guaranteed accommodations for 5,000. With the outside help, which is doing its work unrequested and unannounced, in this regard, the committee will not itself be taxed to this amount. The last to request for rooms must, of course, expect to get what is left. Physicians should write for reservations immediately. For instance, Dr. Coffey will care for ten physicians and their families, and others in the profession in proportion to their ability and facilities so to do."

It is gratifying to feel the hearty, hospitable spirit that is shown here and in letters from the officials at Portland. Physicians should assist the committee on entertainment by having accommodations assigned in advance.

MEETING PLACES.

The Sections Will Meet in Unusual Proximity to One Another—Excellent Arrangements.

The meeting places for the various sections are all centrally located; within a few minutes' walk of one another, and of the hotels. The Armory of the Oregon National Guard, Tenth and Couch streets, will be the central point, where will be held the General Meetings and those of the Section on Practice of Medicine and of the Section on Surgery and Anatomy. Here also will be the registration headquarters, the postoffice, the pharmaceutical exhibit, information bureau, free telephone service (local and long distance), etc. The room for the General Meeting will seat 2,500 people. In this same room the Section on Surgery and Anatomy will meet. In the social hall of the same building will meet the Section on Practice of Medicine; this is a spacious room, with a seating capacity of 1,000. Immediately across the street is the Atkinson School building, where some fifteen spacious, well-lighted rooms with seating capacity of from 50 to 250 each have been placed at the disposal of the Committee of Arrangements. Here will be held the meetings of the sections on Obstetrics and Diseases of Women, Pathology and Physiology, Diseases of Children, Cutaneous Medicine and Surgery, Pharmacology, Hygiene and Sanitary Science, and Nervous and Mental Diseases. Here also will be the Scientific Exhibit.

The section on Ophthalmology and the section on Laryngology and Otology will meet in the Hirsch-Selling Building, Tenth and Washington streets, which is only four blocks from the Armory.

The House of Delegates will hold its sessions in the Chamber of Commerce Building, Third and Stark streets, nine blocks from the Armory.

It will thus be seen that the meeting places are compactly arranged. They will prove commodious and comfortable and are only a few minutes' walk from the hotels.

The chairman of the local committee on meeting places is Dr. E. F. Tucker.

REGISTRATION OF MEMBERS.

The registration of members at the annual session is always a simple matter to those who understand what is required.

In the first place, before presenting himself at one of the windows, it is necessary for the physician to fill out a registration card to be found on the tables.

Those registering come under one of three classes: 1, those who have already paid the annual dues for the current year; 2, those who have not paid the dues, and 3, those who join the Association at the session.

1. Those who have paid for the current year have been supplied with a small pocket card, which is also a pocket certificate, to take to the session. This, with the registration card, duly filled out, should be presented at the window, and the badge, program, etc., will be given him at once.

2. Those who have not paid their dues will present the registration cards with the annual dues at a window labeled "cash," and will receive receipts and their badges, programs, etc. (Those who are behind in their dues must pay the back dues as well as those for the current year.)

3. Anyone desiring to join the Association must have a certificate showing that he is a member in good standing of an affiliated association in the state in which he resides. This certificate must be presented with the registration card at the window marked "new members" before the dues are paid at a "cash" window.

COMPLIMENTARY ENTERTAINMENTS.

The Committee on Entertainment has under consideration several special excursions that will enable our visitors to see the most interesting natural scenery accessible within a day's ride of Portland. (In this connection, see the references to Western scenery on preceding pages.)

These excursions will include trolley rides to the most commanding viewpoints on the heights back of Portland (see illustration); a steamboat excursion through the great Columbia River gorge (see illustration); a trip by rail to the ocean, and an evening on the Exposition grounds with special features; these will be free to our guests.

For the excursion on the Columbia River two or three very fine steamers are at the disposal of the committee, each with a carrying capacity of about 500, and in case a greater number wish to go they will be able to secure others. The plan contemplated at present is to go down the Willamette and then up the Columbia to a certain point, and to have a fine luncheon served, and then to return by boat or perhaps by rail. This trip will be a splendid feature of the entertainment.

A special committee will be in charge of the entertainment of the wives and families of visiting members.

THE ALASKA TRIP.

Excursion to Alaska by Steamer After the Session Closes.

There will be a special excursion to Alaska, July 18. This trip is said to be without equal anywhere. It is not an ocean trip in the usual sense, with its many unpleasant accompaniments of seasickness and stormy weather, but rather like a river ride, amid a thousand islands and underneath beetling cliffs and snowcapped mountains, with just an occasional dash

of old ocean as the vessel crosses some wider strait. (See illustrations on previous pages.)

Without specifying in particular the various ports of call on the trip, it can be said that all the points of interest on the **Alaska route will be touched at between** Seattle and Sitka. All applicants for reservations for the trip will be supplied with literature by the steamship company. A round-trip rate of $60 from Seattle has been obtained, and the steamer *Jefferson*, a splendid vessel designed and built especially for this route, will be used. She has spacious social halls and decks, and every modern convenience to make the voyager comfortable. The cuisine is equal to that of the best first-class hotels. The *Jefferson* will leave Seattle at 9 a. m. July 18, and returning, will discharge at Tacoma July 29, thus consuming eleven days in the trip. She will touch at Vancouver on the return trip, and if any of the excursionists desire to visit Victoria they will be given tickets from Vancouver by way of Victoria to Seattle on the company's regular steamers. All intending to make this excursion are requested to send in their applications at once to the Committee of Arrangements, as the number already applying suggests the possibility that they may have to engage a second steamer.

The following quotation from the steamship company's "A Trip to Wonderful Alaska" may be of use in the selection of clothing for the trip: "Making preparations for a tour of southeastern Alaska does not mean that one must provide himself with thick-soled shoes and fur robes. Pack your trunk with summer clothing, wear a Panama hat, and with a light overcoat as a protection in the cool evenings, you are ready to depart on the voyage north."

It might be well to modify this quotation to read "moderately heavy clothing as well as overcoat," and for "Panama hat" read "felt hat" or "traveling cap," though the quotation is given on the authority indicated, and may hold good as a general statement.

HONOLULU AND YOKOHAMA.

Trips to the Hawaiian Islands and to the Orient.

A trip to Honolulu may be arranged. The Pacific Mail Steamship Company will carry fifty excursionists to Honolulu at a round-trip rate of $110 each. The fine steamer *Korea*, said to be equal in all respects to the finest transatlantic steamers, will leave San Francisco July 22, a convenient day for sailing. In view of transpacific travel which must be accommodated, the company limits the number in this party to fifty.

On this same steamer the round-trip rate to Yokohama will be $240; Hong Kong, $270, provided a party of not less than twenty make that trip. Those who are contemplating these trips should write at once to Dr. K. A. J. Mackenzie, chairman of the Committee of Arrangements, Portland, Oregon.

OTHER MEETINGS AT PORTLAND.

Davis Memorial—State Medical Journals' Association—College Alumni.

Announcements are received of the following meetings to be held at Portland in connection with the session of the American Medical Association:

Memorial Meeting to the Late Dr. N. S. Davis.

The American Medical Association and the Society for the Study of Inebriety and Alcohol will hold a memorial service at Portland in commemoration of the life and work of the late Dr. N. S. Davis of Chicago. Dr. Davis will be remembered as one of the founders and most active promoters, as well as president of the American Medical Association, and one of the widest known and most distinguished physicians of this country. He was founder and president for fourteen years of the American Medical Temperance Association. His numerous friends and contemporaries from both societies will unite on this occasion to commemorate his great services to both medicine and science.

This meeting will be held at Portland, Ore., Wednesday evening, July 12, at one of the general meetings of the American Medical Association and will follow the address on "Public Health" in the same hall and place.

The memorial address will be delivered by Dr. Henry O. Marcy, Boston, ex-president of the American Medical Association. Other addresses will be delivered by Drs. J. H. Musser, Philadelphia, and L. S. McMurtry, Louisville, Ky., president and president-elect of the Association, and by Dr. G. W. Webster, Chicago, president of the Illinois State Board of Health; Dr. Winfield S. Hall of Northwestern University, Chicago; Dr. T. D. Crothers, Hartford, Conn.; Dr. John Hollister, Chicago, and Dr. Henry Didama, Syracuse, N. Y. Others will contribute memorial notes of the work and personal influence of Dr. Davis in science and in American medicine.

American Association of State Medical Journals.

The American Association of State Medical Journals will hold its second annual meeting in the parlor of Hotel Portland, Portland, Ore., Tuesday afternoon, July 11, at 4 o'clock.

Papers on medical advertising will be read by Drs. George H. Simmons, Secretary of the American Medical Association; Philip Mills Jones, secretary-editor, California State Medical Association, and E. Eliot Harris, chairman of the committee on legislation, New York State Medical Association; and on "The Function of the State Medical Association Journal," by Dr. James B. Bullitt, secretary-editor, Kentucky State Medical Association. "The Possibilities from a Business Standpoint of Concerted Action on the Part of State Medical Journals" will be a subject for general discussion by all those interested.

PHILIP MILLS JONES, President, San Francisco.
JAMES B. BULLITT, Secretary, Louisville, Ky.

University of Pennsylvania Pacific Northwest Alumni.

The annual reunion of the Pacific Northwest Alumni Association of the University of Pennsylvania will be held at the University Club, Portland, Ore., Saturday evening, July 15, 1905.

All members of the association are earnestly requested to be present, and all visiting University of Pennsylvania graduates who expect to be in Portland at that time are most cordially invited to meet with us.

CHARLES E. MCCLURE, Secretary, Seattle, Wash.

Insurance Examiners—American Urological—American Surgical—Medical Editors.

The American Urological Association will meet in Portland July 12 and 13.

The annual meeting of the American Association of Life Insurance Examining Surgeons will be held in Portland July 10. A program of unusual interest is announced.

The American Surgical Association will meet in San Francisco July 5 to 7. Many are going up the coast to Portland at the close of the meeting.

The American Medical Editors' Association will meet in Portland July 10.

THE SUBCOMMITTEES.

The chairmen of the Portland subcommittees of arrangements (which latter was mentioned on page 1762) are as follows:

COMMITTEE ON FINANCE: Dr. H. W. Coe.
COMMITTEE ON MEETING PLACES: Dr. E. F. Tucker.
COMMITTEE ON HOTELS: Dr. Wm. Jones.
COMMITTEE ON ENTERTAINMENTS: Dr. A. C. Smith.
COMMITTEE ON REGISTRATION: Dr. R. G. Coffey.
COMMITTEE ON GENERAL EXHIBITS: Dr. H. W. Coe.
COMMITTEE ON TRANSPORTATION: Dr. W. T. Williamson.
COMMITTEE ON BADGES: Dr. J. F. Dickson.
COMMITTEE ON PROGRAMS, PRINTING, ETC.: Dr. S. E. Josephi.
COMMITTEE ON BANQUETS: Dr. C. H. Wheeler.
BUREAU OF INFORMATION: Dr. J. F. Bell.
LADIES' COMMITTEE: Mrs. Helen Ladd Corbett.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 3, 1905.

FOOD FOR THOUGHT.

For several weeks the Committee on Chemistry of the Council of Pharmacy and Chemistry, with the assistance and co-operation of other chemists, has been carefully investigating and analyzing a number of proprietary articles on the market, with the object (1) of determining as nearly as possible their composition, and (2) of acquainting the medical profession of the United States with the true character of some of the medicines offered them and for which claims of great therapeutic value are made. The council publishes in the department of Pharmacology in this issue the results regarding a few of the preparations investigated. We hope that our readers will carefully study the report and at the same time will try to appreciate all it means. To realize its full import, however, one should bear in mind the claims made by the manufacturers for these preparations in regard to both their composition and their properties as remedial agents. Most of these preparations have been analyzed by several members of the committee, but to leave no room for doubt as to the facts stated, the services of expert and trustworthy chemists, not members of the council, have also been utilized.

As will be noticed, the statements made in the report are extremely conservative. For instance, the minimum amount of acetanilid found by any chemist is the amount reported. This, in part, will explain why in no instance is the total percentage 100. In cases of tablets, the amount of starch or other excipients used in forming the tablets is not incorporated in the report. Thus the analyses show that these preparations are mixtures of acetanilid, with one or more of the following: sodium bicarbonate, sodium salicylate, ammonium carbonate, caffein and citric acid.

It will be noticed that included in this report are four so-called "proprietary" preparations and two so-called "patent medicines." Medicines bearing trade names, placed on the market for physicians' use, are usually referred to as "proprietary medicines," whereas those that are offered directly to the public are called "patent medicines." We have more than once asserted that there is no difference between a certain class of "proprietaries" and "patent medicines." The report here presented, we believe, illustrates the truth of this assertion.

The report is presented to the members of the medical profession of the United States for their thoughtful consideration.

THE ATOMIC THEORY.

Through the study of radioactive substances and the closely allied phenomena exhibited by x-rays, cathode rays, etc., observations have been made that have led to considerable modifications of the views that have long been held concerning the ultimate composition of matter. So recent are these discoveries that many of the conclusions are hardly beyond the speculative stage; but it may be said that the past two years have given exceptionally great progress in the study of this most fundamental problem. For years the atomic theory has held its ground as affording a working hypothesis, for it expressed the limits of human knowledge in this direction. The atoms of chemistry had never been known to divide, each element had remained true to itself and had resisted all attempts to transform it into any other element, and all the observed phenomena of chemistry were compatible with this theory; indeed, so well does the theory hold that with it as a basis it has been possible to predict many new facts in advance of their discovery. Despite all this evidence it has been well understood that the atomic theory was, after all, only a theory, which at any time might be disproved, and we now seem to have accomplished many of the steps necessary for its dethronement. Evidence is at hand that the atom is not, as its name implies, incapable of division, and the immutability of elements is questioned on good grounds. Although these topics are at the present time under the most active discussion, and, therefore, far from settled, yet a review of the essential features, avoiding the difficulties of technical terminology, may not be untimely, it being understood that no statements are or can be made dogmatically.

In considering this problem of the constitution of matter, one must go back of the ordinary substances of the laboratory, to the ether of the physicists. This ether, which Faraday and other scientists of his time imagined as an absolutely homogeneous, structureless substance, filling all space, is now regarded as consisting of separate particles; these particles may be in immediate contact with each other, however, thus producing much the same effects as if the ether were absolutely continuous. The existence of ether, which has long been a mere hypothesis, is now regarded as proved by many. Even determinations of its weight have been made with some approach to accuracy, although to one unaccustomed to the quantities used in the estimates of physicists, astronomers, and mathematicians, it probably will not convey a very adequate conception of the extreme lightness of ether to say that its weight is to the weight of water as one is to ten raised to the seventeenth power (10^{17}). It is believed that in this great, all-pervading ether mass, not all parts are the same—the particles are all in motion, and in certain places through the revolution of the particles it is thought that vortices are formed. These vortices of rapidly moving particles acquire an electrical charge

and assume a certain degree of permanence, constituting what are termed electrons. This is the ground of the modern "electron theory." The electrons are considered to be the smallest existing particles that possess electrical energy and mass. They exist free and in rapid motion in the cathode rays, and their size has been estimated at one two-thousandth part (1/2000) of that of the hydrogen atoms. Here we have fairly proved the existence of particles much smaller than any of the atoms of chemistry, and in the case of radium we find such particles constantly being given off from a definite chemical substance, constituting what are termed the *B*-rays. According to the electron theory, the "atoms" are made up of accumulations of electrons of different electrical charges.

Not only has the indivisibility of the atom thus been brought into doubt, but also the conception of the unchangeable nature of the elements, which has become almost popular knowledge through the unavailing attempts of alchemists, ancient and modern. Here, again, the radioactive substances have been the source of information. In 1895, Sir William Ramsay discovered the element helium in terrestrial substances for the first time; namely, in minerals which contained radioactive elements (radium, thorium, uranium). Helium is a gas belonging to the same group as argon, all the members of which are characterized by a high degree of chemical inertness, so that as yet they have never been found in chemical combination with other elements. The suggestive association of helium with these radioactive elements led to further studies by Ramsay and Soddy, which resulted in the remarkable discovery that helium is formed spontaneously from radium—it was even possible to collect and to isolate the helium so produced. Helium, an element, appears to be formed through the spontaneous disintegration of radium, another element; in other words, one element may be formed from another, and another essential proposition of the atomic theory is contradicted, at least in part.

The conclusions that can be reached from these observations and deductions may be stated as follows: The smallest particles of matter seem to be the ether particles, which aggregate into electrically charged, rapidly moving masses, the electrons. These, in turn, unite in some systematic manner to form the "atoms" of the "elements." Most of the atoms now existing are very stable, and resist all known methods of separation into their electrons, but there exist a few that are unstable and hence spontaneously break down into more stable forms (e. g., radium into helium), with the production of the phenomena of radioactivity. Radioactivity, therefore, may be looked on as evidence of the spontaneous decomposition of chemical atoms. At the time of the massing of the electrons into the atoms, an enormous potential energy was stored up; for example, it is estimated that by the decomposition of one gram of radium into its electrons, enough energy is liberated to lift 424 tons to a height of one kilometer. After all is said, however, we must admit that the net result is merely the substitution of one theory by another—instead of an atomic theory we have an electron theory, and we have pushed the size of the fundamental constituents of our world, as we know them, down another fraction. A theory is of value when from it new facts can be predicted and so their discovery hastened, and in this way the establishment of the electron theory may become of enormous importance. The atomic theory is not by any means displaced by the electron theory, for its value as a working hypothesis in chemical deductions still remains—at the very least the atom stands as the unit of most chemical changes, and as such is of the greatest importance.

PREPARE FOR THE FOURTH OF JULY.

In 1903, the Fourth of July tribute was 466 dead and 3,983 injured; in 1904, it was 183 dead and 3,986 injured. The first year the reported cases of tetanus numbered 415, while last year there were but 105. Within one year the deaths from tetanus were reduced by 75 per cent., although the deaths from other causes were increased by over 50 per cent., and the total number of recorded injuries was practically unchanged. Our analysis of the epidemics of previous years made it evident that the chief reason for the great tetanus mortality lay in a lack of appreciation of the danger that lies in every blank cartridge wound and the need for vigorous and skilled treatment immediately after its reception. Just before the last Fourth of July a vigorous "campaign of education" on this point was carried on throughout the country, by both the medical and the lay press, and to this cause alone can be attributed the great reduction in tetanus mortality. The average parent learned that a blank cartridge wound was a serious injury that needed surgical attention; the average physician learned that simple dressing of such wounds was little better than nothing at all, and that thorough surgical cleansing with prophylactic injections of tetanus antitoxin were required. The city father and the small boy seem to have profited somewhat also, because, for one reason and another, the number of wounds from blank cartridges fell nearly one-third in the reports, although the less tetanus-dangerous wounds from fire crackers, cannons, display fireworks and bullets all increased markedly. Hence, tetanus mortality fell while the deaths from other causes were more numerous than before.

We are now facing another celebration of Independence Day, and wondering what it will bring forth. Shall we profit by the gain of last year, or, lulled by this success, shall we relapse into the old condition? As certain as the Fourth itself, is the aftermath of death and suffering. We know that it is coming, we know how it is to be prevented, and it only remains to act on

the knowledge we possess. The part that the medical profession has played and can play in this matter of public hygiene is most important; it is twofold, internal and external. The internal action within the profession consists in the development of a universal appreciation of the danger and prophylaxis of tetanus after Fourth of July injuries. As shown by the statistics of last year by far the most important factor in reducing the tetanus mortality by over 300, was the improved treatment of tetanus wounds throughout the country, due to active and intelligent action by both parents and physicians. We have every reason to believe that the profession is now generally aware of the necessities of the situation, and is prepared to take proper measures in all cases. The public, however, needs continual stirring up to remind it of past events and of future dangers. Here lies the important work for the physician outside of the direct care of the injured. Last year a large part of the success of the campaign was due to the public-spirited efforts of medical men. In many cities and towns the local medical societies urged on public authorities the necessity for enforcement of laws regulating the sale and use of dangerous explosives. Frequently this action led to very decisive results, and at the least it brought the matter before the press and the public. The daily papers have been eager advocates of reform in Fourth of July celebrations, and their utterances gain weight in public opinion when based on the action and advice of reputable medical authorities.

Another important aid in securing popular co-operation is the publication of reliable facts and figures, which in many instances may be properly furnished the press by the profession. Inspired by the frequency of eye injuries on the Fourth, the chairman of the Section on Ophthalmology devoted his address at the last annual session of the Association[1] to this subject and made many valuable suggestions as to means available to physicians in inspiring ordinances against the use and sale of dangerous fireworks, and especially in the difficult task of steering them through the rocks and shoals of municipal legislation. The campaign must be aimed in two directions—one, the stimulation of inert and inefficient civic and police authorities; the other, the education of public sentiment which is essential to the observance and enforcement of the laws. The improvement of last year should encourage further action—the record of 183 dead and 3,986 wounded shows that it is still sadly needed.

We shall take pains again this year to gather reliable statistics and hope that we may have the co-operation of our readers in so doing.

1. Thoughts Suggested by a Study of the Eye Injuries of Independence Day. Robert L. Randolph, M.D., THE JOURNAL A. M. A., Dec. 10, 1904.

TENEMENTS.

The State Board of Tenement House Supervision of New Jersey has reason to be proud of the record it has made during the first twelve months of its existence. During this time it has assumed control of the tenement houses, old and new, throughout the state and the inspection of all plans for proposed tenement houses, the latter being defined as a single building housing more than two families. According to the report of the secretary,[1] more than three thousand notices of violation of the law have been served on landlords, all of which have been obeyed. Plans for buildings representing over three and a half millions' expenditure have been approved, and 25 per cent. of all plans examined rejected. All this has been accomplished with only one resort to the courts, the serving of a peremptory order with a notice of the penalty following non-compliance having been sufficient in all the other cases. Incidentally, the board has been a valuable aid to health officials in small communities, hampered in their efforts by the fear of offending local politicians.

The most valuable part of this report to the public outside of New Jersey is the statement made in regard to the conditions found to exist in small cities and rural communities in that state. When the law which created this board was framed, objection was made to the extension of its authority over small towns and boroughs, where, it was argued, conditions did not require such supervision. The board has discovered, however, that bad housing conditions are not confined to the large or even to the second-class cities, but are surprisingly numerous in places where land is abundant and cheap and where the only excuse for overcrowding is the greed of the landlord and the ignorance and low standards of the foreign immigrant.

Tenements designed for from six to ten families were found in process of construction in small towns or at the edge of cities where there was no proper sewer or water supply, the landlord striving to reproduce in a region of ample space the conditions to be found in the old and crowded quarters of our city slums. In other instances, old residence houses were being remodeled to make them accommodate several families, with utter disregard of such factors as light, air and privacy. Mr. Allen states that "privy vaults filled to overflowing, cellars and outhouses reeking with filth, sleeping rooms unlighted and unventilated, all are to be found in sections of the state where land is cheap and where there would seem to be no excuse for the people living in herds." Attractive, prosperous little cities like Plainfield, the Oranges and Montclair were found to contain such "slum" conditions.

What is true of New Jersey is certainly true of many other states. The housing problems of our great cities are so enormous, the conditions there so spectacular, that they tend to blind us to the evils, slighter in extent, but identical in character, which are to be found in small cities and even in villages where large factories have been built. We venture to predict that

1. "Housing in the Smaller Municipalities," Charles J. Allen, Charities, May 6, 1905.

there are few small cities or towns which will not be found to contain their own "slum" districts if careful search be made; and these slums are a serious menace to the health and morals of any community. No evil is more insidious in its onset than the insanitary, overcrowded tenement, none more easy to prevent, none more difficult and expensive to eradicate after it has gained a firm hold. New Jersey is to be congratulated on the vigorous opening of her campaign for improved housing conditions.

ISTHMIAN SANITATION AND THE PRESENT STATUS OF THE SANITARY DEPARTMENT.

Interest in sanitary affairs at the isthmus is just now centered in two special features, namely, the state of health in the canal zone and in the cities of Panama and Colon and the status of the sanitary department under the new canal commission.

With reference to the general health within the canal zone it is gratifying to be able to state that advices as late as May 10 were to the effect that with 11,000 men on the rolls, there were only 199 on the sick list; later advices do not change these figures, which are certainly favorable. This fact should be generally heralded if for no other reason than that its widespread dissemination would tend to increase the confidence in the efficient sanitary administration and to dissipate the deep-seated dread of the climate which, judging from experience under the American occupation, has been much maligned. At the same time it is important to remember that both yellow fever and malaria continue to stand as menaces to the successful prosecution of the great work. With reference to yellow fever no fresh case occurred from March 23 to April 17 and the hope was entertained that it had been stamped out. It must be said, however, that it was a rash hope in view of the fact that the water works with supplementary drainage for Panama are not yet completed and that both that city and Colon are compelled even yet to rely on water from wells distributed by peddlers and stored in the ever-mischievous water barrels. That the hope was in fact delusive was shown by the additional fact that about April 17 a large administration building, in which some 300 nonimmunes were housed, became the scene of an outbreak which yielded 15 cases of yellow fever, 4 of which had died up to May 10. The last case, we are advised, occurred May 21 and is doing well. The premises were, however, speedily and thoroughly fumigated and it is thought that that particular outbreak is at an end.

But more serious is the fact that there has been a sporadic development of yellow fever at Colon, which until recently has been considered free from the infection. This is serious, not from the extent of the disease which, we believe, has so far been limited to a very few cases, but from the fact that, unlike Panama, there is no prospect for the immediate installation of a proper water supply and, consequently, no immediate prospect for the abolition of the water barrels, and the consequent propagation of the stegomyia. Until a reliable water supply derived probably from the upper Chagras, supplemented with drainage, can be installed, effective sanitation of Colon can not be expected. This promises to require at best a period of eighteen months or two years. In the meantime the sanitary department can be relied on to fight this disease, as it is constantly fighting the more widely diffused malaria, with every instrumentality at its disposal and with the probable result that anything like an epidemic manifestation of yellow fever will be averted.

But what instrumentalities has the sanitary department at its disposal? This brings up the question of the status of that department under the new commission. In this connection, the New York *Sun,* while praising the President for his promptness in changing the commission and while praising the personnel of the new commission, calls attention to the fact that Judge Magoon is designated by executive order as "commissioner in charge of government and sanitation" as an evidence that the sanitary department is still technically subordinated to lay dictatorship. It is possibly true that the President's orders are susceptible of this construction and that the "commissioner in charge of government and sanitation" has, if he chooses, the last word to say on sanitary questions. But it is known that Secretary Taft took early opportunity, after the appointment of the new commission, to make it clear that the supervising discretion of the commission, so far as sanitary matters were concerned, would be limited in practice, chiefly and essentially to a just and equable apportionment of such funds as Congress may, from time to time, make available for the general purposes of the enterprise. Any less reservation of power by the commission would certainly be incompatible with good government. In the meantime it is satisfactory to relate that Governor Magoon, almost as the first act of his administration, manifested his interest in sanitary matters by approving in their entirety the requisitions of Colonel Gorgas for the next six months to the amount of nearly $700,000, and by increasing the salary not only of Colonel Gorgas, but of practically the entire personnel of the sanitary department, the details of which were published in THE JOURNAL three weeks ago. The cumbersome and inefficient purchasing machinery set up by the old commission has been abolished and purchases are now made by the purchasing department of the Army as they ought to have been made from the start. Major Kean of the Surgeon-General's office is now on the isthmus to confer with Colonel Gorgas relative to still greater expedition in the matter of making and forwarding supplies; although since March materials for the sanitary department have been arriving as rapidly as existing transportation facilities will permit. The maintenance of transports for isthmian service is simply a vital necessity. The sanitary department has been given charge of

its own property and of its own construction—two privileges that were heretofore denied. These privileges were, indeed, practically all that Colonel Gorgas had asked for from the beginning; other points are considered of comparatively small importance. Reports from the isthmus are to the effect that Colonel Gorgas, pursuant to Secretary Taft's orders, has been serving *ad interim* as governor of the canal zone, pending the arrival there of Governor Magoon—a merited expression of confidence on the part of the Secretary. Further reports are to the effect that the orders of the sanitary department are being more generally obeyed than formerly in Panama and Colon, where, after all, the great sanitary engagement is being fought. Taken all in all the status of the sanitary department has been vastly improved; and the results of its labors are, in consequence, already improved. It is a pleasure to be able to sustain Secretary Taft in the wise course he has taken in the matter.

THE PORTLAND SESSION.

Much space is taken up in this issue with a description of Portland as the next place of meeting of the American Medical Association, the routes to and from Portland, the section programs and other matter of information and interest regarding the coming session. While the place of meeting is in the extreme west, and a long distance from the center of population, there is every promise of a large attendance. At this opportune time of year, most of those who go will make the trip their summer vacation, and will take the opportunity to see and know what the "Great West" contains. An unusually large number of special parties have been arranged, some to make the round trip, others to travel together one way only. The itinerary has been studied out so that the most for the money and the time can be obtained. The great West is full of natural wonders and grand scenery, and to make the best use of the opportunity it is necessary that, before starting, one should study out the various routes in detail, aided by maps and railroad circulars. There is so much to be seen that one is liable to go very near to some attractive point that could have been seen easily and not know it till it is too late. The attraction of the scientific work of the session is not to be ignored. A reference to the preliminary program will show that the various sections offer a sufficient variety of scientific topics to attract every specialist as well as the general practitioners of the country and the city doctor. All will be welcome.

CHARLATANS NOT ALL MEDICAL.

The *Spectator*, an insurance journal, in its issue of May 18, 1905, comments editorially on personal damage suits in a manner interesting to medical men. As a text, it reprints from a New York newspaper this advertisement: "Successful lawyer takes accident and other cases absolutely free unless successful; large settlements quickly obtained; advice free." The wording might almost be copied from the glittering promises of the medical quack. Calling these renegade lawyers "shysters" and "ambulance chasers," the *Spectator* recounts the circumstances of an utterly unjust suit for personal injuries instigated by one of them under conditions perfectly familiar to physicians, and makes the unqualified statement that hundreds of these claims would never be made but for "the intervention of meddlesome lawyers." No one charges the legal profession as a whole with these sins, but we echo the plea of our contemporary that the bar associations should at once make serious efforts to purge their profession of this crying abuse. Physicians, as well as employers and corporations, have suffered much from this species of blackmail; and, while we have our own sins to answer for, we hope to be pardoned for suggesting to the lawyers that an organized effort on their part to expel the shysters would meet with widespread approval. The medical profession through its effective organization has shown the way through which the slow but certain force of permanent reform may work toward greatly improved conditions.

THE DISSEMINATION OF MAMMARY CARCINOMA.

There is probably no subject of such great interest from both the academic and the practical standpoints as the dissemination of malignant neoplasms. Notwithstanding the enormous amount of pathologic work which has been lavished on the subject in the last few years, we can still say, with Handley,[1] "the subject of cancerous dissemination is in a somewhat hazy and indeterminate condition." In the case of mammary carcinoma, the commonest form met with in general practice, the question of metastases is of great importance, particularly from the surgical point of view. The frequency with which this form of growth gives rise to secondary nodules in the skin, the bones, and the internal organs has long been known, but the route of infection of the bones and internal organs has been a much-disputed question. It is probably true that the generally accepted theory has been that the infection of the axillary lymph glands is due to lymphatic infection and emboli of tumor cells. It has also been generally held that regional nodules in the skin, fascia, or muscle were due to lymphatic infection either by direct extension or by embolism. The point most in question is the route by which metastases in the bones and internal organs are carried. Most writers have held that the carcinoma cells are transported to these situations by the blood stream. Handley is entirely opposed to blood transmission, and his recent Hunterian Lectures are largely taken up with a consideration of the facts opposing it and in favor of lymph transmission. The methods of transmission are divided, according to this author, into external or parietal dissemination and internal or visceral dissemination. Handley claims that however distant skin foci are from the original growth they are still transmitted by the lymphatics. According to this conception of carcinoma metastases, the process is one of direct extension through the lymph vessels; in fact, by serial sections of long strips of skin and subcutaneous tissue, Handley claims to have traced a continuity between the primary and secondary growths.

1. Hunterian Lectures, Lancet, April 8, 15 and 22, 1905. Abstracted in THE JOURNAL, May 20, 1904, p. 1644.

The lymph channels mainly involved are the medium-sized ones running on the deep fascia, the skin, bones, and serous cavities being secondarily infected from these. If such a conception is correct, and it is certainly based on careful observation, it means that we must modify our present surgical procedures and pay more attention to the removal of the deep fascia and less to the removal of skin. Handley even suggests removing the fascia down to the epigastric region, as he claims that since the modern operations for breast cancer, while infection of the pleura has become less, the same is not true of infection of the peritoneum through the epigastric region.

THE COMPARATIVE VALUE OF HORSES IN THE PRODUCTION OF DIPHTHERIA ANTITOXIN.

As might have been expected, it has been found that horses do not all react alike in response to inoculations with diphtheria-toxin for the purpose of producing antitoxin, and no method is yet known by which high-test horses can be selected without being submitted to the tedious process of immunization. It has been shown that every horse has a maximum antitoxic limit, which can not be increased no matter how much toxin is employed. As the outcome of a study of the records of 100 horses immunized to diphtheria-toxin, Dr. William R. Hubbert[1] found that in order to obtain the best results in the production of diphtheria-antitoxin, young animals are usually to be preferred. More than one half the number of such horses can be made to yield 300-unit serum, while one-third will yield 500-unit serum. High-test horses require a shorter time for immunization and will yield a potent serum for a longer period than will low-test horses. The maximum antitoxin value is attained within from two to ten months from the beginning of treatment, the average being about four months. Serum of marketable value may be obtained for a few months longer, about five months on the average, when the decline begins, usually never to rise again. If the serum of a new horse does not test 300 units by the end of the fourth month after treatment has been begun, it may be regarded as nearly certain that the animal is not suitable for the purpose in view. A horse is usually at his best during the fourth month of immunization. Horses attaining a high antitoxic strength exhibit a longer period of usefulness than do lower-testing horses, but usually at the expense of a much lower unit value. A horse that has attained a maximum antitoxic height begins to suffer a decline in antitoxin, which is usually as rapid as was the ascent, and it is unaffected by subsequent injections of diphtheria-toxin.

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1. Jour. of Exp. Med., vol. vii, No. 2, p. 176.

Medical News

ARKANSAS.

Dr. Taylor Left Large Estate.—The estate of the late Dr. Charles M. Taylor, Little Rock, is valued at half a million dollars.

To Annul Certificates of Drink and Drug Habitues.—A bill has been passed by the House of Representatives providing for the cancellation of the certificates of all physicians who are habitual drunkards or users of cocain.

Unregistered Physician Fined.—Dr. Thomas B. Rider, Hot Springs, charged with violating the laws laid down by the secretary of the interior for the government of the United States Reservation in that he, not being a registered physician, had prescribed baths for one of his patients, was fined $25, May 20, and took an appeal to the higher court.

Personal.—The Pine Bluff Board of Health has organized with Dr. Henry E. Williams, president, and Dr. W. H. Blankenship, secretary.——Dr. Foster G. Richardson, Conway, has been elected assistant physician at the state penitentiary and has been assigned to duty at the state farm.——Dr. John B. Bond, Little Rock, who was recently operated on for appendicitis, is making favorable progress toward recovery.

CALIFORNIA.

Uxoricide Found Guilty.—Dr. Frederick N. Staples, Amador City, who killed his wife by poison and ran away to Mexico with another woman, was found guilty of murder in the first degree May 15 and will be sentenced to death.

Branch Society Organized.—The Eye, Ear, Nose and Throat Section of the Los Angeles County Medical Society was organized May 10, with a charter membership of 24. Its officers are William D. Babcock, chairman, and F. W. Miller, clerk.

Acquitted.—Dr. Otto C. Joslen, known also as Dr. White, San Francisco, has been acquitted. He was charged with having caused the death of a woman by an illegal operation.——Dr. B. C. Neff, Bakersfield, charged with practicing medicine without a license, was acquitted April 28.

Oppose Contract Doctors.—The Sonoma County Medical Society, at its meeting in Sebastopol May 11, adopted the following resolution:

Resolved. That we, the members of the Sonoma County Medical Society, pledge ourselves not to meet in consultation any doctor who violates Section 1 of amendments to our by-laws, relating to contract work; or any physician who does professionally officiate with such doctors; and that the secretary be instructed to send the names of doctors doing contract work, with a copy of this resolution, to every member of this society.

Antispitting.—The health officer of San Francisco has had posted in all public buildings the following notice regarding expectoration:

SPITTING SPREADS DISEASE.

It is, therefore, prohibited on sidewalks and on the floors of public conveyances, public halls, lobbies of theaters, office buildings, etc.

Violators are liable to arrest and fine under an ordinance of the Board of Supervisors of the city and county of San Francisco.

This order will be enforced by the Department of Health and the Department of Police.

By order of the Board of Health.

D. F. RAGAN, M.D., Health Officer.

April Mortality.—Reports for April, representing a population of 968,750, show a mortality of 1,265, or an annual rate of 15.67 per 1,000. In the public institutions, with a population of 9,401, there were 40 deaths, annual rate of 51.06 per 1,000. Among the causes of death were: Tuberculosis, 206; heart disease, 163; pneumonia, 94; cancer, 86; bronchitis, 20; diarrhea and dysentery, 20; typhoid fever, 16; alcoholism, 13; diphtheria, 12; cerebrospinal fever, 10; cholera infantum, 5; whooping cough, 4; influenza, 4; erysipelas, 2; typhomalarial fever, 2.

Found Guilty.—Dr. L. H. Meadows, San Francisco, alias "Dr. R. H. Westen" and "the old reliable Dr. West," on May 12, was found guilty of using the mails for improper purposes, was released on bail of $3,000, and ordered to appear for sentence May 23.——"Prof." Joseph Fandrey, "rupture specialist," of Los Angeles, charged with practicing medicine without a license, was found guilty May 12 and fined $250. This is his second conviction for a similar offense.——Dr. D. E. Lee, San Francisco, alias "Dr. R. Brooks Stirling," San Francisco, was convicted, May 15, of sending prohibited matter through the mails.

Graduations.—The University of California Medical Department (Toland Medical College), San Francisco, graduated a class of 17, May 17.——On May 18 the College of Physicians and Surgeons of San Francisco held its commencement exercises and graduated a class of 19. Hon. H. M. Delmar delivered an address on "The Dignity, the Responsibility and the Duty of the Medical Profession." Dr. Winslow Anderson, president of the college, conferred the degrees, and Prof. H. D'Arcy Power delivered an address on "The Relation of the Public to the Medical Profession."——Cooper Medical College, at its annual commencement exercises, graduated a class of

37. Addresses were delivered by Prof. C. N. Ellinwood and Edward R. Taylor.

Personal.—Dr. Thomas M. Hayden has been elected health officer of Fresno.——Dr. James E. Taylor, Weaverville, has been appointed physician of Trinity County, vice Dr. David B. Fields.——Dr. Elizabeth Gallimore, San Jose, was thrown from her carriage in a runaway accident, May 7, and seriously injured.——Dr. Edward B. Robinson, San Francisco, has gone to Bristol Bay, Alaska.——Dr. John D. Meng has been reappointed health officer of Chico.——The health board of Oakland has organized with Dr. Frank L. Adams as president and Dr. Edward N. Ewer, health officer. Drs. Edward R. Sill and T. A. Williams are the other new members of the board.——Dr. J. Myler Crenshaw, Redlands, has succeeded Dr. Cooper as health officer of San Bernardino.——Dr. Albert Soiland, Los Angeles, has gone abroad for four months.

COLORADO.

Correction.—Dr. Thomas H. Hawkins, Denver, requests that the item regarding him in THE JOURNAL of March 11 be corrected. He still holds the position of president of the medical staff of St. Anthony's Hospital.

Medico-Military Appointments.—Surgeon-General Matt. H. Root, Denver, has appointed Dr. T. Edward Carmody, major and surgeon, and Dr. Harry P. Packard, captain and assistant surgeon, N. G. Colo., both of Denver.

Judgment for Leaving Sponge.—In the case of Mrs. Mary E. Flamboe, Boulder, against Dr. Charles S. Elder, Denver, in which she claimed that a sponge was not removed after an operation and sued for damages of $10,000, the jury on May 21 returned a verdict for the plaintiff for $400.

Go Forth to Heal.—Chancellor H. A. Buchtel of the University of Denver conferred degrees on a class of 31 graduates from the Denver and Gross College of Medicine, May 18. The address of the evening was made by Hon. Robert W. Bonynge, and Dr. Leonard Freeman delivered the faculty address.

Personal.—Dr. Lewis E. Lemen, Denver, has been appointed a member of the State Board of Health, vice Dr. Hubert Work, Pueblo, resigned.——Dr. Eugene H. Robertson, Boulder, has resigned the chair of pathology and bacteriology in the University of Colorado.——Dr. Alice B. Guthrie, Denver, is seriously ill with ptomaine poisoning.

ILLINOIS.

Thousands for St. Mary's.—The fair recently held in Quincy for the benefit of St. Mary's Hospital netted $4,140.33 for the institution.

Trolley Receipts for Hospital.—On May 26 the entire proceeds of the street car system of Galesburg were given to the Galesburg Hospital.

Personal.—Dr. Samuel R. Hopkins, Springfield, has gone to Europe for a year of study.——Drs. John G. Massie, Belleville, and William C. Spannagel, East St. Louis, have been appointed physicians for St. Clair County.

Physicians of Illinois.—The State Board of Health has just published the final Supplement to the Official Register of Legally Qualified Physicians of 1903. The report shows that there are 9,980 physicians in Illinois. The secretary announces that the 1905 Report on Medical Education and Official Register of Physicians will be published about October 1.

Pass Merit Test.—As the result of the recent examinations for senior physicians at the Cook County institutions, the following have been placed on the eligible list: Nervous and mental diseases—Drs. Joseph M. Kearney, Elgin; Ralph C. Hamill, Chicago; Ernest S. Moore, Chicago; Groesbeck Walsh, Chicago; Benjamin Landau, Dunning; Clara Dunn, Chicago; Julius F. Wen Gleski, Chicago; Goodrich Snow, Princeton, and I. G. Blackmer, Dunning; tuberculosis—Drs. Ernest S. Moore, Chicago, and Benjamin Landau, Dunning; medicine—Drs. Ralph C. Hamill, Chicago; Benjamin Landau, Dunning; Goodrich Snow, Princeton, and Julius F. Wen Gleski, Chicago.

Chicago.

Personal.—Dr. and Mrs. James C. Gill have sailed for Europe.——Dr. and Mrs. P. J. H. Farrell and family have gone to their summer home, East Elmira, N. Y.

Unger Liberated.—Dr. August M. Unger, who was sent to the state penitentiary July 11, 1901, on an indeterminate sentence for conspiracy to defraud a life insurance company, was released April 10.

Speed Parting Guests.—A farewell dinner was given to Dr. Llewellys F. Barker, who goes to Johns Hopkins, and Prof. John F. Jameson, who goes to the Carnegie Institution, by the faculty of the University of Chicago, May 27.

Rush Surgical Faculty.—Dr. John B. Murphy has been appointed a professor of surgery and will assume his duties in the fall semester. He has also been appointed attending surgeon to Presbyterian Hospital. Dr. N. Senn remains the head of the surgical department, limiting his duties to clinical work in the fall semester, and Dr. Arthur D. Bevan retaining his position in the department.

Deaths of the Week.—Measured by the mortality of the week public health conditions are extremely favorable. The total, 434 deaths from all causes, represents an annual rate of only 11.89 per 1,000. Since 1892 the average May mortality has been 15.10 per 1,000. Of the deaths, 62 were due to consumption, 48 to pneumonia, 43 to heart diseases, 42 to violence, 33 to Bright's disease and 28 to cancer.

Wins Fight Against Typhoid.—The Department of Health rejoices in the present showing as regards typhoid fever mortality. In the current issue of the *Bulletin* it is said:

> Chicago's finally successful fight against typhoid fever covers a period of less than a dozen years.
>
> In 1891 it had the highest typhoid death rate of any large city in the world—17.38 per 10,000 of its population.
>
> In 1905 its typhoid rate is among the lowest—1.21 per 10,000 for the 147 elapsed days of the year, and a reduction of more than 93 per cent. from the rate of 1891.
>
> The 1891 rate had a single obvious cause—a sanitary blunder. The 1905 rate is the result of persistent, intelligent sanitary effort.

Adds Fifth Year.—Rush Medical College announces that beginning with the session of 1905-1906 a fifth year will be added to the curriculum, which for the present will be optional. The work of this year will be that of (a) a fellowship in one of the departments of the college, or (b) an interneship in the hospital under the following conditions: 1. Each student taking such work will be under the supervision of the faculty by whom the hospital in which the interneship is taken must be approved. 2. The student must present evidence of thorough clinical work and, if possible, an exhaustive study of a selected group of clinical cases involving original work. 3. He will be required to pass a special examination at the end of the year. On the successful completion of this fifth year he will receive the degree of Doctor of Medicine *cum laude*.

MARYLAND.

Personal.—Dr. James H. Carpenter has been elected secretary of the Midland Board of Health.

Examiners Will Meet.—The Board of Medical Examiners of Maryland will hold the regular examinations in Baltimore, June 21 to 24. Applications will not be received after June 14.

Donations to Hospital.—The Board of County Commissioners of Cecil County has appropriated $2,000 toward the proposed Union Hospital of Cecil County, Elkton. Citizens of the county have already subscribed $2,500 and the state will appropriate $5,000, making a building fund of $9,500.

Hospital Work.—The seventh annual report of Frederick City Hospital shows that 138 patients were treated during the year, 56 male and 82 female. There were 76 operations performed. There were 8 deaths, 5 surgical and 3 medical. There are 5 free beds. The receipts were $9,410 and the expenses $5,876, leaving a balance of $3,533.

Alumni Meet.—The spring meeting of the General Alumni Association of the University of Maryland was held May 25. A sketch of Prof. George W. Miltenberger, M.D., prepared by Dr. I. S. Stone of Washington, D. C., was read and a committee appointed to prepare for an appropriate celebration of the centennial of the association in 1907.

Baltimore.

Low Death Rate.—The death rate continues low. It was equivalent to an annual rate of 14.28 per 1,000 last week, and the rate for whites alone was 12.55 per 1,000.

Will Have Hospital.—The Board of Public Improvements has approved the ordinance appropriating $25,000 out of the levy for 1906, for an infectious diseases hospital.

Personal.—Dr. J. Hall Pleasants will be the resident physician at Buena Vista in the Blue Ridge Mountains.——Dr. J. Clement Clark, superintendent of Springfield Asylum for the Insane, has returned from Europe.——Dr. William Hewson Baltzell will spend the summer abroad.

Hospital Appointments.—Dr. Albert L. Wilkinson has been appointed resident physician in charge at the Hebrew Hospital,

and Drs. J. A. Seligman and Joshua Rosett, dispensary physicians.——Dr. Alexander D. McConachie has been appointed consulting ophthalmic surgeon to the Church Home and Infirmary to fill the vacancy occasioned by the death of Dr. Russell Murdoch.——At Bayview Asylum, Dr. H. D. Purdour, resident physician in charge of the insane department, has resigned to enter private practice, and Dr. N. N. Owensby has been appointed in his place. Drs. J. N. Hess and Jesse Stilwell have been appointed resident physicians.

MINNESOTA.

Hospital Notes.—Leslie Hospital, Duluth, has closed for lack of patronage.——K. J. Taralseth has given $1,000, and Mayor Lungren and Dr. Theodore Bratrud $750 each toward the Warren Hospital.——The new Pipestone City Hospital was publicly opened March 31.

Personal.—Dr. Albert F. Groves, Brainerd, has been elected president of the State Board of Medical Examiners.——Dr. Ernest E. Wells, Stillwater, has been appointed coroner of Washington County, vice Dr. George N. Watier, deceased.——Dr. F. J. Bohland-Fuchs and family have gone to Germany for six months.

Abortionists Sentenced.—Drs. William C. Van Damme, Minneapolis, and Matthew L. Hadsell, St. Paul, convicted of performing a criminal abortion on a young woman, were sentenced to imprisonment in the state penitentiary for four years.——Hannah M. Lund-Begin, for the same offense, has been sentenced to imprisonment for two years and four months.

Vetoes Chiropractic Bill.—The governor has vetoed Senator Gjertsen's chiropractic bill for the following reasons:

> The best information of which I am possessed reveals to me the fact that chiropractic, so called, is a discovery of very recent origin, and was discovered and developed by men who were not learned in the science of healing disease. It is not apparent to me that the devotees of this so-called art in this state are possessed of the proper knowledge of anatomy and kindred subjects to properly constitute a board for the examination of others in those subjects.
>
> The enactment of a law creating a state board of chiropractic examiners and registration, and to regulate the practice of chiropractic in the State of Minnesota, and to license chiropractors, will dignify this new and untried school to the extent that the people will look to it as panacea and remedy for the ills to which the human body is heir, and must, from the very nature of that confidence so established be more or less imposed on by practitioners who will have adopted this means to abuse the confidence of the public.
>
> Chiropractic has not yet become a science or even a school, and is at best but an untried experiment, which has produced no lasting or definite results. Among the applicants for positions on this proposed board are insurance agents and men in other walks in life with absolutely no medical training whatever. The health of the public is the first essential, and should be safeguarded by every possible legal requirement, and if chiropractic must be recognized at all, those practicing this so-called art should certainly be required to pass examination in the essential branches, by due and regular examination before the state medical board, which represents the best thought and is the recognized and established standard which has been developed from the experience of the ages.

MONTANA.

Examining Board Election.—The State Board of Medical Examiners has elected Dr. Ernest Crutcher, Great Falls, president; Dr. William C. Riddell, Helena, secretary, and Dr. Robert D. Alton, Livingston, treasurer.

Propose Hospital for Havre.—At a recent meeting of business men of Havre Joseph Gussenhaven offered to donate 15 town lots as a site for a hospital. A committee was appointed to raise funds for the erection of the hospital.

President Entertains.—Dr. Thomas A. Grigg, Butte, the newly elected president of the Silver Bow County Medical Society, entertained about 30 members of the society and invited guests at dinner. Dr. John W. Gunn, Butte, presided as toastmaster.

Personal.—Dr. Arthur Jordan, Marysville, has been appointed deputy physician for Lewis and Clarke County, vice Dr. Oscar M. Lanstrum.——Dr. Edgar F. Dodds has returned to Missoula after two years of study in Europe.——Dr. Thomas J. Sullivan, Butte, has been appointed a member of the State Board of Health.

NEVADA.

Pneumonia Epidemic.—Pneumonia has been so prevalent in Tonopah as to cause great alarm, and has assumed almost the characteristics of an epidemic. Dr. Simeon L. Lee, Carson, secretary of the State Board of Health, who was sent to Tonopah to investigate the health conditions, reports that from January 1 to April 16, 56 deaths occurred, of which 47 were from pneumonia.

State Society Meets.—The Nevada State Medical Society convened at Reno for its first annual meeting since its reorganization, May 9, the president, Dr. W. L. Moore, Verdi, in the chair. In addition to the literary program the society was entertained at the Nevada Hospital for Mental Diseases, and at a banquet at the Riverside Hotel, at which Dr. J. A. Lewis officiated as toastmaster. The following officers were elected:: President, Dr. John E. Pickard, Virginia City; vice-presidents, Drs. John A. Ascher and John A. Lewis, Reno; secretary (re-elected), Dr. J. L. Robinson, Reno; censors, Drs. Clarence H. Woods, H. E. Hershiser, Reno, and H. E. Franck; delegate to the American Medical Association, Dr. George H. Thoma, Reno, and alternate, Dr. John A. Lewis, Reno. The society will meet next year in Reno.

NEW YORK.

Personal.—Dr. De Lancey Rochester, Buffalo, recently had a man arrested in the street cars for violation of the spitting ordinance.——Dr. John L. Archambault has been appointed health officer, and John M. Adey, registrar of vital statistics of Cohoes.

Donations to Hospitals.—Mrs. Alvira M. Bodwell has given $5,000 to the building fund of the Plattsburgh City Hospital, in memory of her husband, the late William H. Bodwell.——Mrs. Stella Leiter, Syracuse, has given $25,000 to the National Jewish Hospital for Consumptives, Denver, thereby carrying out her deceased husband's wish.

Preparing for Final Union.—The officers of the New York State Medical Association are taking every precaution to avoid legal difficulties that might prevent final action next October looking to the union with the Medical Society of the State of New York. Each individual member is being served with notice of the proposed action, and is given an opportunity to appoint a proxy if he can not attend the meeting himself. It looks now as though nothing could prevent that which practically every member of both the association and the society desires—union.

To Protect Milk Supply.—Governor Higgins signed Assemblyman Ambler's bill requiring owners or operators of milk stations to procure licenses from the state commissioner of agriculture. In applying for such license the operator must file an affidavit declaring that he will not take part in or permit the adulteration of milk at his station. There is an amendment to this bill which declares that no one shall sell or offer for sale any imitation or semblance of cream which is not cream, and also an amendment which provides that no person purchasing milk or cream at dairies on the basis of the amount of fat contained in the milk shall credit any patron with a greater percentage of fat than is acually contained in the milk or cream so delivered. A part of New York City health officials has been inspecting the creameries along the line of the Erie Railroad and states that it has found a great improvement over the conditions formerly noted. There seemed to be no lack of co-operation on the part of any one.

New York City.

Fined for Irregular Issue of Certificate.—Dr. John W. Perille was fined $75 May 14 for signing the death certificate of a child who had died from bronchitis without having seen the patient or viewed the body.

War on Mosquitoes.—Dr. Alvah H. Doty, health officer of New York, has been appointed to direct the work of attempting to exterminate mosquitoes on Staten Island. One thousand dollars was appropriated for this purpose. It is expected that the residents of Staten Island will do their share of the work.

Personal.—Dr. and Mrs. Thomas E. Satterthwaite sailed on the *Kroonland* for Antwerp, May 27.——Dr. Jacob Sobel has been appointed adjunct pediatrist to Syndenham Hospital.——Dr. Albert H. Brundage, Brooklyn, has been appointed chairman and chief contributor for the department of toxicology and pharmacology of the Lewis and Clark Exposition, Portland, Ore.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended May 20, 769 cases of measles, with 10 deaths; 410 cases of tuberculosis, with 155 deaths; 345 cases of diphtheria, with 36 deaths; 201 cases of scarlet fever, with 13 deaths; 99 cases of cerebrospinal meningitis, with 72 deaths; 23 cases of typhoid fever, with 9 deaths; one fatal case of smallpox, and 152 cases of varicella.

Bar Meningitis Cases.—On the theory that cerebrospinal meningitis is contagious, several hospitals have declined to

take patients suffering from this disease. Bellevue Hospital, with an out-door ward set apart for the disease, is receiving an average of half a dozen cases daily. Flower Hospital has closed its doors to the disease by a vote of 2 to 1 of its directors. New York, Roosevelt and Presbyterian hospitals have turned away many meningitis cases because their children's wards are given up almost entirely to this disease.

Oppose City Hospital.—Dr. Darlington and Dr. Hermann M. Biggs, representing the Health Board of New York City, visited the town of Mamakating, Sullivan County, for the purpose of convincing the residents of that vicinity that it would be a good thing for them to have a sanatorium for the care of tuberculosis patients established in that town. About 300 citizens attended the meeting, the majority of whom opposed the project. It was stated that the institution would be a charitable one and that the patients would not be allowed outside the park. Decision was reserved.

New Society.—A new society called the Harvey Society, consisting of laboratory workers in New York City, has recently been established under the patronage of the New York Academy of Medicine. Its purpose is the diffusion of scientific knowledge in selected chapters of anatomy, physiology, bacteriology, pathology, pharmacology and physiologic and pathologic chemistry, by the means of public lectures by men who are workers in the subjects presented. Each lecture is intended to represent the state of modern knowledge concerning the topic treated and at the same time will be adapted for presentation before an audience consisting of that portion of the general medical profession who are interested in the scientific side of medicine. It is hoped that through these lectures the common interests of research workers and the medical profession may be profitably cultivated. The fulfillment of the purposes of the society has been entrusted to the hands of the following committee: Dr. Graham Lusk, president; Dr. Simon Flexnor, vice-president; Dr. George B. Wallace, secretary; Dr. Frederic S. Lee, treasurer, and Drs. Christian A. Herter, S. J. Meltzer and E. K. Dunham. The members of the society consist of two classes—active and associate. Active members are laboratory workers in the medical sciences residing in New York; associate members are such persons as may be in sympathy with the objects of the society and reside in New York. The first course of lectures will be given on Saturday evenings next winter at the Academy of Medicine.

NORTH DAKOTA.

State Board Organizes.—The State Board of Health met at Bismarck for organization May 8 and elected Attorney General C. N. Frich, president; Dr. Edward C. Haagensen, Hillsboro, vice-president, and Dr. Henry H. Healy, Grand Forks, secretary.

Hospitals Incorporated.—Sheyenne Kreds Hospital Association, Rugby, has been incorporated.——Lutheran Hospital Association has been incorporated at Fargo, with a capital stock of $50,000.——St. Alexius Hospital has been incorporated at Bismarck, and contracts for its construction have been let.

OREGON.

Personal.—Dr. F. W. Van Dyke, Grant's Pass, has returned from Europe.——Dr. Gustav Baar, Portland, returned from Europe May 18.——Dr. Woods Hutchinson, Portland, is about to remove to Los Angeles, Cal.——Dr. A. C. Stanley has just begun his ninth term as mayor of Gold Hill. In honor of the event the citizens presented him with a gold-headed cane.

City and County Society Elects.—At the annual meeting of the City and County Medical Society, Portland, May 17, the following officers were elected: Dr. Henry W. Coe, president; Dr. William H. Skene, vice-president; Dr. Alexander D. Mackenzie, secretary; Dr. Joseph A. Pettit, treasurer, and Drs. Edward P. Geary, Andrew C. Panton and Otto S. Binswanger, censors.

PENNSYLVANIA.

West Penn Commencement.—A class of 63 was graduated from the Western Pennsylvania Medical College, Pittsburg, June 1.

A Dangerous Occupation.—The report of the state department of mines for 1904 for the 15 anthracite districts shows that out of 161,330 employes, 595 fatal accidents occurred and 1,407 non-fatal accidents during the 213 working days.

Personal.—Dr. William R. Batt, of Philadelphia, has been appointed state registrar of state vital statistics by the State Board of Health.——Dr. William O. Lubken, Johnstown, has been seriously ill with appendicitis, but is now improving.——Dr. J. Dan Hogue has been made a resident physician of Altoona Hospital, vice Dr. E. L. Wignall, resigned.

Hospital Appointments.—Allentown Hospital, Dr. Mahlon G. Miller; St. Vincent's Hospital, Erie, Dr. Charles A. Davlin; Mercy Hospital, Pittsburg, Drs. Jocelyn J. Emmens and Joseph J. Levy; West Chester Hospital, Dr. D. Edgar Hutchinson; Wilkesbarre City Hospital, Drs. James J. Mac Fayden, Jr., and A. Burton Smith; Mercy Hospital, Wilkesbarre, Dr. Hugh J. Lenahan.

Philadelphia.

Resignation.—Dr. Edith Warner Cadwallader has resigned from the chair of obstetrics in the Woman's Medical College of Pennsylvania, to take effect on the election of her successor.

In Memoriam Frances Emily White.—A bronze tablet in memory of Dr. Frances E. White, late professor of physiology at the Woman's Medical College of Pennsylvania, was unveiled May 18.

Entertainment for Charity.—On May 24 and 25 a bazaar of nations was held at the residence of Mr. John Wanamaker for the benefit of the Jefferson Maternity Hospital. The enterprise was well patronized and nearly $5,000 was realized for the charity.

Hospital Buildings Dedicated.—Four new buildings of the Methodist Episcopal Hospital, erected at a cost of more than $120,000, were dedicated with appropriate ceremonies May 23. The new buildings are the Mary T. Hunter Home for Nurses, the Mary Burton Dispensary building, a new ambulance house and power plant.

Hospital Appointments.—Medico-Chirurgical Hospital, Drs. W. F. Keating, J. J. Moore, C. H. Elliott, S. H. Martin, H. B. Fraile, R. Nebinger and A. Swayne; Frankford Hospital, Drs. John J. Lynch and Thomas C. Ross; Jefferson Medical College Hospital, Drs. J. Howard Anderson, S. A. Munford, F. P. Herff, E. G. Maier, Wayne L. Snyder, L. F. Milliken and C. H. McCallum.

Keen Research Fellowship.—As a memorial to his wife, Dr. William W. Keen has founded the "Corinna Borden Keen Research Fellowship" at Jefferson Medical College, by a gift of $5,000 to the trustees. The fellowship will be awarded in 1907, and every two years thereafter, and the recipient must spend at least one year, in America or abroad, in some especial line of research work.

Commencement.—The annual commencement exercises of the Medico-Chirurgical College were held May 27. President Henry F. Walton conferred the degrees on a class of 85, and Hon. William N. Ashman delivered the doctorate address.——The eightieth annual commencement exercises of Jefferson Medical College were held June 2. The diplomas were presented to a class of 180 by Hon. William Potter, president of the board of trustees, and the oration was delivered by Rev. Dr. J. Andrews Harris.

Health Report.—The whole number of deaths for the week was 400, a decrease of 56 from the previous week and a decrease of 95 from the corresponding period of last year. The principal causes of death were as follows: Typhoid fever, 13; diphtheria, 6; epidemic cerebrospinal meningitis, 1; pulmonary tuberculosis, 46; cancer, 14; apoplexy, 21; heart disease, 34; acute pulmonary disease, 47; enteritis, 20, and Bright's disease, 33. There were 208 cases of contagious disease reported with 21 deaths, as compared with 193 cases and 19 deaths for the preceding week.

Hospital Elections.—The following were elected to compose the staff of the Jewish Maternity Hospital: Medical director, Dr. Isaac Leopold; consulting obstetricians, Drs. Lucy N. Tappan and Joseph Price; consulting surgeons, Drs. Lewis W. Steinbach and Charles P. Noble; consulting ophthalmologist, Dr. Isaac Leopold; consulting neurologist, Dr. Francis X. Dercum; consulting pathologist, Dr. David Riesman; consulting dermatologist, Dr. Jay F. Schamberg; consulting pediatrician, Dr. Eleanor C. Jones; obstetricians and gynecologists, Drs. Clara T. Dercum, Daniel Longaker, Helen Kirshbaum, Edwin A. Heller, Ludwig Loeb and Leo H. Bernd; pediatrician, Dr. L. Valentine Levi; dispensary physicians, Drs. Clara T. Dercum, Daniel Longaker, Helen Kirshbaum, Edwin A. Heller, Ludwig Loeb, Leo H. Bernd, Moses Behrend, I. Valentine Levi, Justin H. Schwerin, Ellis E. W. Given, D. A. Feldstein and Louis P. Steinhart, and resident physician, Dr. Elizabth F. Lewis.

WASHINGTON.

New Wings for State Hospital.—Ground was broken, May 12, for the new wings for the Western Washington Hospital for the Insane, Fort Stellacoom. The buildings will cost about $95.000.

Recommitted to Hospital.—Dr. B. H. Yount, Wilbur, who was committed to the Eastern Washington Hospital for the Insane, Medical Lake, on account of drug addiction and was released on parole in March, was recommitted to the hospital May 10.

Hospital Notes.—Work on the new $75,000 Deaconess' Hospital, Spokane, will begin this month. At first the east wing will be built. It will cost $14,000, of which the association has already $7,000 in hand.——A permit has been issued for the erection of a hospital at Ballard.——The Old Town Emergency Hospital, Tacoma, has been incorporated with a capital stock of $3,000.

Unlicensed Practitioner Fined and Imprisoned.—Dr. O. V. Lawson, who conducts a "medical institute" in Seattle, on April 29, was found guilty of practicing medicine without a license and was given the maximum penalty, a fine of $1[illegible] and imprisonment for 90 days in the county jail The prosecution of Lawson was at the instance of the King County Medical Society.

Personal.—Dr. Wilbur N. Hunt was confirmed, May 15, as health officer of Bellingham. Dr. Howard E. Henderson resigned.——The employes of the Granby Smelter, Grand Forks, presented Dr. E. R. Northrop with a silver loving cup, April 28, as a farewell token of regard. Dr. Northrop will practice in Spokane.——Dr. William H. Anderson, Medical Lake, has been appointed superintendent of the Eastern Washington Hospital for the Insane, vice Dr. W. James Howells, whose term expires in October.——Dr. Charles B. Stewart, Walla Walla, has been elected physician of Walla Walla County.

WYOMING.

Examiners Elect.—At the annual election of the State Board of Medical Examiners Dr. E. P. Rohrbaugh, Casper, was elected president; Dr. Samuel B. Miller, Laramie, secretary, and Dr. Oliver Chambers, Rock Springs, vice-president.

Sanatorium for Disabled Soldiers.—A bill has been introduced in the senate to appropriate $150,000 to establish a sanatorium at Thermopolis for disabled volunteer soldiers, and to appropriate an additional $20,000 for equipment of the institution and transportation of soldiers.

Cross Suits.—In the case in which Dr. Lawrence P. Desmond sued Mrs. Margaret Moore, Cheyenne, for professional fees, and in which Mrs. Moore filed a cross suit against Dr. Desmond for damages on account of alleged malpractice, in the treatment of a broken limb, the jury on May 24 gave Mrs. Moore a verdict for $199.50.

Personal.—Dr. John W. Padgett, Lander, has been appointed assistant surgeon, Wyoming national guard, with the rank of captain.——Ex-Governor Dr. Amos W. Barber, Cheyenne, was operated on for appendicitis in Omaha, May 20.——Dr. R. Harvey Reed, Rock Springs, who has been seriously ill for several months in Chicago and went to California to recuperate, is improving.

GENERAL.

Japanese and Trachoma.—It is reported that every month more than 25 Japanese suffering from trachoma are landed at San Francisco. They evade the immigration laws by a short residence in Hawaii, just long enough to obtain a passport to the United States.

Dr. Wyman Visits Hawaii.—Surgeon-General Walter Wyman of the United States Public Health and Marine-Hospital Service sailed Wednesday last on the transport *Sheridan* for Honolulu. He made a short visit in Chicago on his way West. He goes to consult with the governor of Hawaii and the Territorial Board of Health concerning the establishment of the station for the study of leprosy and its treatment. General Wyman will return in time to attend the Portland session of the American Medical Association.

FOREIGN.

Memorial to Von Esmarch.—The memorial to von Esmarch at Tönning, his birthplace, will be unveiled August 6. The principal address will be delivered by Professor Küster of Marburg.

Personal.—Dr. Edward H. Yume, Yale '97, and a graduate of Johns Hopkins University Medical School, has been appointed head of the medical department of the Yale College in Chungsha, China.

Smallpox in Sicily.—It is reported that there are about 60 cases of smallpox in Catania. The prefect of the city has ordered all the inhabitants to be vaccinated. Anyone refusing to comply with this order may be imprisoned or fined.

Koch in Africa.—Robert Koch is now in the interior of Africa, prosecuting his researches, and does not expect to return to the coast until the end of July. He is in the neighborhood of Iringa, and expects to return to Europe next spring.

Yellow Fever in Rio de Janeiro.—According to *Public Health Reports*, yellow fever is still present in Rio de Janeiro. Since January 1 there have been 198 cases of this disease, with 76 deaths. By far the greater number of deaths were among foreigners, and of 36 deaths in April, 31 were of other than natives of Brazil.

Low Birth Rate in London.—The registrar general's annual summary shows that London has lost over 36,000 lives through its falling birth rate, though it has saved 7,904, owing to the decline in the death rate. Roughly speaking, in London there are 25 per cent. fewer births than in 1870-72. In addition to this the report shows that for every seven children born one under the age of one year died.

Bequest to a Mexican Hospital.—It is reported that a wealthy young woman of Chihuahua, who is suffering from an incurable disease, has made a will endowing the Miguel Salas Hospital in Chihuahua with property valued at $2,000,000. The administration of this endowment will be in the hands of a commission with the governor of the state as chairman. It is provided that hospitals shall be established in other towns in the state of Chihuahua with funds arising from the endowment.

A Physician's Bequests to Medical Charities.—The will of the late Dr. Goburek of Tilsit, Germany, disposes of a large property, and most of it is given for benevolent purposes. It bequeathes $50,000 to the endowment fund for the orphans of physicians; the same amount to the fund for insurance of physicians; $25,000 to aid physicians in need; $50,000 to local benevolent institutions; $62,500 for loans without interest to women medical students, and nearly $40,000 to install public carbonated and hot baths.

Inoculation Against Plague in India.—An officer on plague duty, hearing that persons inoculated in 1902-3 were immune the following year instituted inquiries. In a group of twenty villages, among 34,680 persons who were not inoculated with antiplague serum, 2,040 cases of plague occurred, with 1,495 deaths. Among 11,059 persons who were inoculated only one case occurred; the patient died. Even allowing a liberal margin for error, says the *Public Health Reports*, this is a striking illustration of the prophylactic effects of year-old inoculations.

The Don Quixote Tercentennial.—Again the *Siglo Medico* of Madrid appears in gala dress, this time on account of the celebration of the tercentennial of the publication of Cervantes' Don Quixote, followed by the banquet tendered to the new cabinet minister, Dr. Cortezo, the co-editor of the *Siglo*. The medical faculty of the university arranged a public celebration in the San Carlos theater, with addresses on the medical features of Don Quixote. Ramon y Cajal was one of the speakers, and the entire proceedings were extremely interesting and elevating. The theater was crowded to the doors. The topics treated were recently mentioned in these columns.

Damage Suit in the Profession.—The *Progrès Médical* quotes a daily paper to the effect that for nearly a year the wealthy families of Berne have been receiving anonymous letters denouncing two of the best known physicians of the city with specific accusations. The two physicians suspected a certain confrère of the slanders, and sent a young man to offer him a lot of fine writing paper at a very low price. The paper had a private mark on it, and it was not long before the anonymous letters were found to be written on this very paper. The two physicians brought suit against the offender and he confessed at once and settled the damages for $20,000. The two physicians divided this sum among three local charitable institutions.

Duhrssen's Acquittal.—A suit has long been dragging through the German courts in which Professor Dührssen was sued for damages. He found it unexpectedly necessary to remove the uterus on account of uncontrollable hemorrhage when operating on a woman for the relief of sterility. The medical experts stated that he should have informed the

patient beforehand of the possible danger of the operation, but the court decided that a physician is not legally bound to inform his patients in regard to the dangers of any affection or disease. In the present case he was unable to foresee the possible danger as all his similar interventions in the past had proceeded without mishap. The supreme court recently reaffirmed this decision so that the matter is finally settled in his favor.

Determination of Sex by Dieting.—A paper was read by Dr. Weill of Schwalbach at the recent German Congress of Internal Medicine in which he presented arguments in favor of his theory that the sex of the embryo is determined by the preponderating elements of the diet. He reported experiments with laboratory animals, bees and cattle which demonstrated that when carbohydrate elements predominated in the food more males than females were produced. If albuminoid elements predominated the female embryos were in the majority. He explains this as due to the fact that there is a constant struggle for supremacy between the male and female cell. Carbohydrate elements favor the male cell and albuminous elements throw the influence on the side of the female cell. Careful dieting, he believes, can thus effectually predetermine the sex of the offspring.

Roentgenology.—Before the Roentgen Congress at Berlin adjourned it adopted a resolution to the effect that the name of Roentgen should be perpetuated in every technical term referring to the use of the *x*-rays, as in Roentgen treatment, roentgenogram, to roentgenize, etc. Another resolution adopted by an almost unanimous vote was to the effect that the application of the Roentgen rays should be legally restricted to physicians, as belonging exclusively to the medical domain. This vote was taken after a communication from Hennecart of Sedan, who referred to the clinical and experimental research which has established that the Roentgen rays, applied to the ovary or testicle, render them rapidly and permanently sterile. The *Semaine Médicale* of May 17 has an interesting letter from the congress. It describes a large sarcoma of the skull as completely retrogressing under Roentgen exposures.

Prevention of Intoxication from Canned Vegetables.—Severe intoxication occured in a Darmstadt cooking school last year after the eating of a salad made from canned beans, as was mentioned in THE JOURNAL at the time. German authorities have had experts studying the subject since, and they now announce that there can be no doubt that fission fungi are able to develop in canned vegetables even when hermetically sealed. The toxic metabolic products of the fungi are liable to induce morbidity the same as the ptomains of meat. The toxin generating germs probably get on the vegetables from their being sprinkled or watered with water containing human excretions. All canned vegetables should be thoroughly heated before being eaten, to destroy any possible germs present. If the canned vegetables smell peculiarly—as was noticed in the case at Darmstadt—they should not be used at all, and certainly not as a salad without previous thorough heating.

Epidemic of Criminal Abortions in Paris.—A Paris exchange of recent date contains an article by Professor Mauclaire expatiating on the way in which the surgical wards are being crowded with women suffering from the effects of abortion. He says that almost a third of the patients in the surgical wards are cases of the febrile sequelæ of criminal abortion, generally autoabortion. Recent statistics by Paris obstetricians have shown that the number of abortions has more than tripled of late years in their experience, and in more than half of the cases the abortion was induced. The accoucheurs refuse to take the infected cases into their maternities for fear of infecting other patients, and the surgeons complain of this flood of infected material in their services. A special ward for this class of cases is being discussed. A surgeon is to be in charge, not an obstetrician, as the numerous consecutive measures possibly required call for the surgeon rather than the accoucheur.

The Visit of the British Physicians to Paris.—More than 200 physicians from the British Isles accepted the invitation of their French confrères to return the visit to London of the French physicians last year. The medical faculty received them May 10 in robes of state, and the dean in welcoming them remarked that science has no country, but its devotees have one: "In this common fatherland there is no persecution for political or religious opinions. War—that disgrace of mankind—is unknown. All work in common to enlarge the store of knowledge, to relieve distress and to prevent or cure disease. Fellow-citizens of this beloved fatherland, the English physicians are at home within the walls of this ancient medical college, and the walls greet you as friends long waited for." One of the receptions was held in "Washington Palace." The entire expenses of the two excursions to Vichy and Biarritz, by special train, were paid by the French. The *Lancet* for May 20 devotes 12 pages to a breezy letter describing the medical and other institutions of Paris visited by the party.

Spirobacteria in the Lesions of Syphilis.—The spirochæta which Schaudinn and Hofmann have recently reported as found constantly in syphilitic glandular lesions has been found by Metchnikoff in 4 out of 6 monkeys that had been successfuly inoculated with syphilis. He also found it in 4 out of 6 syphilitic young men, and was unable to detect it in other cutaneous lesions examined. Bordet and Gengou found a spirochæta in a syphilitic chancre and in throat lesions, as long ago as 1902, but did not venture to ascribe etiologic importance to it. Schaudinn and Hofmann were able to distinguish two varieties in the syphilitic lesions, one with sharper coils, more like those of a corkscrew, which they call the *S. pallida*. The other is larger, takes the stains better and its coil is more undulating. It is difficult to stain the *S. pallida* and it has thus far proved impossible to cultivate. It varies from 4 to 14 microns in length, while it is less than .25 micron in diameter, with 6 to 14 turns in its spiral. Their article is published in the *Deutsche med. Wochft.*, May 4, while Metchnikoff's communication on the subject was presented to the Paris Académie de Médecine, May 16. Buschke has since reported the finding of the same *Spirilla pallida* in large numbers in the spleen and liver of a four months' babe with inherited lues. Schaudinn and Hofmann's report was based on 8 cases.

LONDON LETTER.

The Centenary of the Royal Medical and Chirurgical Society.

The greatest though not the oldest of the London medical societies is about to celebrate its centenary. The Royal Medical and Chirurgical Society was founded in 1805 as an offshoot from the Medical Society of London, which was founded in 1773. Among its founders were Sir Astley Cooper, the surgeon; Dr. Matthew Baillie, the morbid anatomist; Dr. William Babington, the physician, and the celebrated Abernethey. In 1834 it obtained the charter by which it was constituted a royal society. In that year the president was Dr. Elliotson, a physician of University College Hospital, who fell into great disrepute because he took up and advocated mesmerism. In 1889 the society moved to its present stately and commodious premises, where a library of 40,000 volumes is housed. The transactions of the society now run to many volumes and contain much of the most important contributions to medical literature by English writers. They also contain much of the work which has rendered famous the names of Marshall Hall (the discoverer of reflex action), Bright, Addison, Jenner, Spencer Wells, Sir Henry Thompson, Kirkes (the discoverer of embolism), Liston's first operation for the removal of the scapula, Paget (the discoverer of trachina), and Hutchison. As previously reported in THE JOURNAL, the society is taking the leading part in the movement for confederating the medical societies of the metropolis.

Pharmacology

COUNCIL ON PHARMACY AND CHEMISTRY
American Medical Association.

OFFICIAL REPORT ON ACETANILID MIXTURES.

The following report has been approved by the Council:

To the Council on Pharmacy and Chemistry of the American Medical Association:

In response to the request of your chairman we have investigated the below-mentioned preparations and report as follows:

Specimens of the articles were bought in different cities in the open market, and in original, sealed packages, and were analyzed by some of us or under our direction. Each article was examined by at least two chemists, and some were subjected to several analyses. While certain of the preparations are represented as being chemical compounds, the specimens examined were all found to be mixtures; the principal ingredient being acetanilid. The percentage proportions of

acetanilid given below are the minimum obtained by any of the analysts.

Soda and ammonia, combined with carbonic acid, are calculated and reported as sodium bicarbonate and as ammonium carbonate (U. S. P.), respectively. Salicylic acid is calculated and reported as sodium salicylate. Diluents and other constituents than those reported were not determined.

AMMONOL.

According to the analyses of the contents of the original sealed packages as purchased, this was found to be a mixture, and to contain the following ingredients approximately in the proportions given:

Acetanilid	Sodium Bicarb.	Ammonium Carb.
50.	25.	20.

ANTIKAMNIA.

According to the analyses of the contents of the original sealed packages as purchased, this was found to be a mixture, and to contain the following ingredients approximately in the proportions given:

Acetanilid	Caffein	Citric Acid	Sodium Bicarb.
68.	5.	5.	20.

KOEHLER'S HEADACHE POWDERS.

According to the analyses of the contents of the original sealed packages as purchased, this was found to be a mixture, and to contain the following ingredients approximately in the proportions given:

Acetanilid	Caffein
76.	22.

ORANGEINE.

According to the analyses of the contents of the original sealed packages as purchased, this was found to be a mixture, and to contain the following ingredients approximately in the proportions given:

Acetanilid	Sodium Bicarb.	Caffein.
43.	18.	10.

Other constituents said to be present were not determined.

PHENALGIN.

According to the analyses of the contents of the original sealed packages as purchased, this was found to be a mixture, and to contain the following ingredients approximately in the proportions given:

Acetanilid	Sodium Bicarb.	Ammonium Carb.
57.	29.	10.

Certain packages of phenalgin were purchased which on analysis did not show ammonium carbonate.

SALACETIN.

According to the analyses of the contents of the original sealed packages as purchased, this was found to be a mixture, and to contain the following ingredients approximately in the proportions given:

Acetanilid	Sodium Bicarb.	Sodium Salicylate.
43.	21.	20.

We recommend that this report be printed in THE JOURNAL of the American Medical Association.

Respectfully submitted,

J. H. LONG, M.S., Sc.D.,
W. A. PUCKNER, PH.G.,
S. P. SADTLER, PH.D.,
J. STIEGLITZ, PH.D.,
H. W. WILEY, M.D., PH.D.
} Committee on Chemistry, Council on Pharmacy and Chemistry of the A. M. A.

THE COAL-TAR PRODUCTS—ESPECIALLY ACETANILID.

The extensive use of acetanilid makes it of interest briefly to recite the origin and history of the coal-tar preparations. In the destructive distillation of coal, by heating it in a closed retort for the production of illuminating gas, there are produced various gases, the residual coke and the intermediary tar. From the latter are derived a great variety of products, consisting of several volatile liquids, principally benzene or benzol and toluene or tuluol, the so-called aromatic alcohols, phenol and cresol, a great variety of bases of the ammonia type, including anilin and the solid naphthalin, etc. Of these, phenol or carbolic acid first became generally known and was extensively employed as a disinfectant and antiseptic, followed shortly by salicylic acid, the first of the long series of medicinal chemicals produced synthetically from phenol, by a process patented by Kolbe, a German chemist, in 1868.

While anilin is found in small quantities in coal tar, not until it was produced artificially did it become important. By action on *benzene*, which is chemically phenyl hydrid (C_6H_6) (and which should not be confused with the liquid of similar name, but of low specific gravity, a mixture of low-boiling hydrocarbons obtained by fractional distillation from petroleum, called *benzin*, petroleum ether or naphtha) the benzene molecule is changed into nitrobenzene ($C_6H_5NH_2$), called oil of mirbane or artificial oil of bitter almond, owing to its peculiar odor and flavor. When subjected to nascent hydrogen, the nitrobenzene is changed into anilin, phenylamin, or amidobenzene ($C_6H_5NH_2$), an oily liquid of strong basic properties which forms crystallizable salts with acids. It is from this liquid anilin that the numerous coal-tar dyes or colors are obtained. They are mostly highly colored and, as is well known, have almost superseded the vegetable dyes; the so-called azo-dyes; alizarin and even artificial indigo having been produced.

ACETANILID.

With acetic acid, however, anilin produces a colorless compound, and this crystallized salt obtained through interaction of anilin and acetic anhydrid is chemically phenyl-acetamid ($C_6H_5NH\ C_2H_3O$), or acetanilid (acetanilidum, U. S. P.). While known experimentally to Liebig and other chemists, it had received no attention until about 1888 when it was found that a synthetic chemical of German origin, introduced under the trade name antifebrin, was nothing but acetanilid. Since this preparation sold at $1.00 an ounce, and acetanilid could be produced for less than half that amount a pound, the monopoly of antifebrin was short lived; the medical and pharmaceutical journals soon making the fact of their identity widely known. Possibly because of this, but more especially because of the extravagant claims for antifebrin, and also because acetanilid bid fair to become a strong rival of antipyrin, and later of phenacetin, the opportunity was seized to use it as a base for certain mixtures under more or less deceptive names, suggestive of entirely new chemical compounds, and thus to exploit the medical profession through the most extravagant and absurd therapeutic claims, all for the purpose of foisting these inexpensive articles on physicians at exorbitant prices.

Acetanilid is distinguished by the so-called isonitril reaction, viz.: On heating 0.1 gm. acetanilid with 5 c.c. solution of KOH (1 in 4) the characteristic odor of anilin is observed; by now adding 1 c.c. chloroform and again heating, the disagreeable odor of the poisonous phenyl isocyanid is evolved.

From the description of the properties of acetanilid, it was quickly recognized that associating it with an alkali would make the salt more soluble, thus insuring more uniform action. Sodium bicarbonate and subsequently ammonium carbonate were thus combined with the acetanilid in various proportions, and to this was sometimes added caffein. To make this mixture more soluble and also to mask the alkaline taste by partial neutralization some added citric acid also.

PHYSIOLOGIC ACTION.

The important physiologic action of acetanilid is to reduce temperature, probably by converting oxyhemoglobin into methemoglobin in the red corpuscles and by interfering with oxidation. In small doses, the action of the skin and kidneys is increased, the blood pressure is raised; this is probably brought about by contracting the smaller vessels by direct action on their muscular coat.

After large doses, the changes in the red blood corpuscles are so great that the effects are shown in the urine by the passage of altered blood. An urticarial rash is sometimes produced by its internal administration. According to White

and Wilcox, it causes a fall in temperature, not by its action on the blood and circulation (as stated by Shoemaker) but by diminishing heat production through its action on the corpus striatum, which is said to be the center for heat production. To a slight extent, it increases heat dissipation, as has been shown by experiments. No effect on respiration is produced, according to Hare, except when it is given in large doses. When toxic doses are administered the breathing becomes rapid and labored and death may be produced by paralysis of the respiratory centers due to primary changes in the blood which so influence oxygenation of the tissues as to affect these centers. That the action of acetanilid is more pronounced on the blood than on any other part of the system is generally recognized. Consequently, its effects on the circulation, respiration, temperature and elimination are all probably secondary to the blood changes brought about by too large a dosage or by prolonged use. Under its continued use congestion of the liver, kidneys and spleen takes place. Hare has recorded a number of cases in which unfavorable signs have appeared after its use. The dose which most commonly produced the symptoms ranged from three to ten grains (gm. 0.20 to 0.65).

Dr. F. E. Clark[1] states that while it is a valuable medicament, there are certain dangers which have been more or less emphasized in the reports on this preparation, though no more than attend other preparations of the same class. In this connection he emphasizes the importance of care in its employment in the treatment of new patients whose constitutions and idiosyncrasies have not been properly studied, necessary precautions have not in all cases been observed in its administration, but in some cases it has been abused. Its value, on the other hand, according to this writer, has been overrated. As the chief untoward effects of acetanilid are on the heart and circulation as a depressant, he recommends that camphor be combined with it as a stimulant or that some form of liquor be used with it. He warns against the use of those proprietary preparations which are constituted principally of acetanilid and sodium bicarbonate as being dangerous to a lamentable extent, as soda is not a corrective of the dangers of acetanilid.

MEDICINAL USE.

Internally, acetanilid exerts an anodyne, sudorific, antipyretic and slightly soporific effect. He goes on to state that as an anodyne, acetanilid is very inferior to the well-established anodynes, no matter what the cause, and that in the treatment of "headaches" it must be remembered that the other ingredients combined with acetanilid are capable of curing the headache, such as caffein or guarana, potassium or sodium bromid. Consequently, he is of the opinion that too much credit is given to acetanilid. In incipient coryzas, in certain bronchial affections and in pharyngitis—called "colds" by the public—acetanilid acts very efficiently, given ordinarily in doses of from 3 to 5 grains (gm. 0.20-0.30) each and repeated every two or three hours until perspiration is established. Acetanilid, given in 5 grain (0.30) doses at bedtime, followed by a hot footbath and a hot lemonade, is superior, in Clarke's opinion, to quinin or Dover's powder.

As a soporific, it is of some value, but is less useful than the opiates. Externally employed, it acts aseptically and antiseptically. As an anodyne locally it is of less value than resorcin. As an aseptic, he claims, it is the equal of iodoform, and is devoid of the odor. He recommends it espeecially in the treatment of ulcers of the leg of the varicose variety.

ACETANILID POISONING.

That the use of acetanilid as a local application is not without its dangers has been demonstrated by a report of Manasses,[2] who mentions two cases of acute symptoms of poisoning following the free use of acetanilid as a dusting powder on abraded surfaces in young children. The usual toxic symptoms were produced, such as cyanosis, subnormal temperature and extreme prostration, which, however, were successfully combated by stimulants.

In regard to chronic acetanilid poisoning, we refer to the article by D. D. Stewart[3] in this issue.

It must be kept in mind in prescribing acetanilid mixtures that no action is produced by them on the cure of the disease. They are of value in the treatment of symptoms mainly, such as relieving pain and reducing temperature. Therefore, to obtain permanent results, other measures can be employed which are of greater value. In cases of fevers, according to von Jaksch, the patient is not made better by these drugs, but, on the other hand, convalescence is prolonged. The effects of antipyretics vary not only with the dose, but, as expressed by Cushny, with the individual patient. Many individuals can take without apparent harm, very large doses of these preparations, while in others minute quantities produce alarming symptoms.

Correspondence

Skipping Rope Fatalities.

NIAGARA FALLS, N. Y., May 17, 1905.

To the Editor:—Referring to your editorial in THE JOURNAL, April 29, p. 1374, I desire to call your attention to the fact that when a girl jumps the rope to break a record the count is only for the number of times that the rope swings under the feet. While the rope is passing over the head and back to the feet a half jump takes place, thus giving the child her balance for the next spring that will throw her feet high enough to clear the rope again. Thus, in order to clear the rope 250 or more times, the same number of half-jumps are required. The succession of rope-jumps has a peculiar jar about it that is a harmful exercise for the body when long continued. When we consider also the rhythmic movement that must of necessity take place to perform such a feat, I think it will be easy to discover that the strain on the body would be like the strain on a long bridge in case an army of men were marched across it all in perfect marching step. It is the long continued unison jar or vibration that does the mischief. When the children *skip* the rope as they do when they run and let the rope pass under their feet as they step, there is no sudden jar to the body and, further, long runs are not made. It is my belief that rope-jumping should be discouraged by physicians.

W. E. MCCHESNEY, M.D.

CHICAGO, May 23, 1905.

To the Editor:—Your point against rope-jumping is well taken. During a period of four years as medical inspector and medical advisor in certain Philadelphia schools I took every opportunity to discourage rope-jumping, and particularly for all girls over 11 years of age. My objection was that that exercise tended to cause displacement of the uterus of adolescent girls. I would urge physicians to discourage rope-jumping.

WINFIELD S. HALL, M.D.

Marriages

JOHN M. BOYLES, M.D., to Miss Agnes Mattes, both of Shelby, Mo., May 14.

ROBERT WOOD, M.D., Washington, Ind., to Miss Stella Rogers of Indianapolis, April 1.

BAYARD G. KEENEY, M.D., to Miss Ethel Adams, both of Shelbyville, Ind., June 1.

JAMES C. MOBLEY, M.D., to Miss Katie Sweets, both of Elizabethtown, Ky., June 1.

EDWARD A. MAYBERRY, M.D., Enid, Okla., to Mrs. Marie Herrman of Lacy, Okla., May 21.

FREDERICK C. POEHLER, M.D., to Miss Eleanor Nesbitt, both of Minneapolis, Minn., June 1.

JAMES WILLIAM MCEWAN, M.D., to Miss Ethel Bowman, both of Detroit, Mich., May 17.

HARRY GARFIELD IRVINE, M.D., to Miss Etta McCabe, both of Minneapolis, Minn., May 31.

1. Boston Med. and Surg. Jour., November, 1904.
2. International Med. Mag., May, 1901.

3. See page 1725.

MOORE MOORE, M.D., Memphis, Tenn., to Miss Ethel Sara Sivley of Jackson, Miss., June 1.

THOMAS H. BAER, M.D., Defiance, Iowa, to Miss May Miller of Kenwood Park, Iowa, May 20.

ROBERT BLACKBURN LOVE, M.D., Livingston, Texas, to Miss Ola Greer of Goodrich, Texas, May 10.

JOHN H. O'DELL, M.D., Three Rivers, Mich., to Miss Lou Harvey of Constantine, Mich., May 17.

NICHOLAS ALBERT BALTZELL, M.D., Marianna, Fla., to Miss Edith Schmelz of Hampton, Va., June 1.

EARL MCDONALD RUSK, M.D., Villa Ridge, Mo., to Miss Effie Mabel Simpson of Moselle, Mo., May 17.

JOHN WARD SHULTS, M.D., Wichita, Kan., to Miss Eudora Florence Underwood of Bowling Green, Ohio.

JAMES B. ANGLE, M.D., to Mrs. Mary E. Garrett, both of Greensboro, N. C., at Danville, Va., May 16.

PAUL C. BRIDGHAM, M.D., to Miss Gertrude Rosamond Murray, both of Cohasset, Mass., at Boston, April 19.

Deaths

Carl H. A. Kleinschmidt, M.D. University of Georgetown Medical Department, Washington, D. C., 1862, a member of the American Medical Association, its librarian from 1883 to 1890, a member of the Medical Society of the District of Columbia, who had held every office in its gift; a member of the Medical Association of the District of Columbia and its president in 1895; first president of the Board of Medical Examiners; for 14 years a member of the board of police surgeons; professor of physiology in the University of Georgetown from 1876 to 1902; one of the oldest and most prominent physicians of Washington; a veteran of the Civil War, died at his home in Washington, May 20, from general debility, aged 66.

Andrew W. McClure, M.D. Medical College of Ohio, Cincinnati, 1853, a member of the American Medical Association; some-time president of the Iowa State Medical Society, and of the district and county medical societies; surgeon of Fourth Iowa Volunteer Cavalry in the Civil War; for many years a member of the Board of Commissioners of Insanity of Henry County; trustee of the Iowa Hospital for the Insane, Mount Pleasant, died at his home in Mount Pleasant, May 21, after a long illness, aged 77. The physicians of the city served as honorary pall bearers and the members of the Grand Army post acted as escort at the funeral.

William Minturne Line, M.D. Jefferson Medical College, Philadelphia, 1851, a member of the American Medical Association, for many years a practitioner of Nebraska City, Neb., died suddenly from heart disease at his home in Aberdeen, S. D., May 9, after a long period of ill health, aged 81. The members of the medical profession of Aberdeen acted as pall bearers at the funeral.

Louis Fielding High, M.D. College of Physicians and Surgeons, Baltimore, 1891, a member of the state medical societies of Virginia and North Carolina and founder of the Pineshire Sanitarium at Southern Pines, N. C., died in a hospital in New York City, May 3, from sarcoma of the neck, after an illness of two months, aged 38.

William Stoner Kidd, M.D. Bellevue Hospital Medical College, New York City, 1898, formerly acting assistant surgeon, United States Army, but for the last year a resident of Arizona, and physician of the Arizona Coffee Company at Morenci, died at Tucson, March 12, from tuberculosis, aged 30.

Erwin Fischer, M.D. University of Tübingen, Germany, 1887, for several years surgeon on the North German Lloyd Steamship Line, and assistant physician of the Tübingen Hospital, died from abscess of the brain at his home in Pittsburg, Pa., May 21, after an illness of five weeks, aged 40.

Charlotte E. Mastin, M.D. University of Buffalo Medical Department, 1897, a member of the American Medical Association, and a prominent young practitioner of Wellsboro, Pa., died in the Buffalo General Hospital, May 20, a day after an operation for peritonitis, aged 33.

Jacob H. Asch, M.D., University of Berlin, Germany, 1864, a member of the American Medical Association, one of the best known German physicians of New York City, died at his home, May 19, from cerebral hemorrhage after an illness of only a few hours, aged 66.

Henricus W. Westlake, M.D. University of the Victoria College, Coburg, Ont., 1887, of Los Angeles, Cal., died at the Good Samaritan Hospital in that city, May 12, after an illness of five weeks, two days after an operation for abscess of the lungs, aged 48.

Henry Ward Chamberlain, M.D. College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1901, died at his home in Bangor, Wis., May 21, from sarcoma of the testis, after an illness of nearly a year, aged 30.

Joseph Johnson, M.D. College of Physicians and Surgeons in the City of New York, 187--, died at his home in New Richmond, Wis., February 17, from cancer of the throat, after an illness of six months, aged 82.

Frank A. Xanten, M.D. State University of Iowa College of Medicine, Iowa City, 1876, of St. Paul, Minn., died at St. Joseph's Hospital in that city, May 17, from acute uremia, after a short illness, aged 51.

William Harry Longsdorph, M.D. Jefferson Medical College, Philadelphia, 1856, formerly treasurer of Cumberland County, Pa., a veteran of the Civil War, died at his home in Camp Hill, Pa., May 23, aged 71.

Henry Judy, M.D. Cincinnati, 1850, president of the Midland National Bank, Washington Court House, Ohio, died at his home in that city, March 9, after an illness of several years, from uremia, aged 76.

Leander L. Tidball, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1874, died suddenly at his home in Monticello, Ill., from heart disease, May 19, aged 58.

Maude A. Thompson-Miller, M.D. American Medical Missionary College, Chicago, 1902, died from psilosis, at her station in Hunan, China, March 14, after an illness of eight months, aged 24.

Jephtha B. Pettijohn, M.D. Medical College of Indiana, Indianapolis, 1870, committed suicide in his office at Noblesville, Ind., by cutting his throat while despondent, May 17, aged 57.

Maude Miller, M.D. Woman's Medical College of the New York Infirmary, New York City, 1899, died at her home in Greenpoint, Brooklyn, N. Y., May 22, from pneumonia, aged 30.

Frank P. Frisbee, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1881, died at his home in Alden, Iowa, May 20, from hypertrophy of the liver and spleen, after a long illness.

Edward D. L. Parker, M.D. Ohio, 1867, for many years a practitioner of Providence, R. I., died at his summer home in Nayatt, R. I., May 13, from angina pectoris, aged 62.

John H. Rippey, M.D. Rush Medical College, Chicago, 1891, of Kingsley, Iowa, died at La Junta, Colo., May 15, from consumption, after a long illness.

Ellis M. Kessinger, M.D. Hospital College of Medicine, Louisville, 1891, died at his home in Sandborn, Ind., after a long illness, May 21, aged 47.

Richard L. Tydings, M.D. Hospital College of Medicine, Louisville, 1882, died at his home in Jefferson County, Ky., May 19, after a short illness.

William A. Laflin, M.D. Rush Medical College, Chicago, 1867, died at Clearwater, Neb., March 22, from pneumonia, after an illness of one week, aged 67.

Marion Crowell, M.D. Macon (Ga.) 1858, died at his home in Solgohachie, Ark., April 23, from senile debility, after an illness of four days, aged 75.

William H. Brown, M.D. Illinois, 1893, of Butler, Pa., died at his parents' home in Brownsdale, Pa., May 21, after a long illness, aged 42.

Horace F. Webster, M.D. Bellevue Hospital Medical College, New York City, 1883, died at his home in Harrison Valley, Pa., May 2, aged 45.

George W. Blend, M.D. Eclectic Medical Society, N. Y., 1874, died suddenly at his home in Oneonta, N. Y., May 22, aged 77.

Francis D. Gridley, M.D. Philadelphia, 1866, died at his home in Binghamton, N. Y., May 19, after a short illness, aged 71.

Edward I. J. Wortham, M.D. Kentucky School of Medicine, Louisville, 1859, died at his home in Hot Springs, Ark., May 23.

Henry Biggs, M.D. Memphis (Tenn.) Medical College, 1849, died at his home in Grand Junction, Tenn., May 16, aged 83.

John Smithwick, M.D. Albany (N. Y.) Medical College, 1869, of Sharon, Mass., died at the town farm, May 21, aged 66.

Lon D. Hockett, M.D. Cincinnati, 1881, died at his home in Whittier, Cal., May 14, after a long illness, aged 50.

Deaths Abroad.

S. von Basch, M.D., professor of experimental pathology at Vienna and author of numerous works on the physiology and pathology of the circulation, on dysentery, innervation of the uterus, histology of the intestines, etc., and inventor of a sphygmomanometer, died at Vienna, May 1, aged 68. He accompanied Maximilian to Mexico in 1865 as his body physician, but returned to Vienna after his execution.

T. Bornhaupt, M.D., professor of surgery at Kiev, died there March 9, aged 63. He had published a number of important works on surgical subjects, the latest being a monograph on surgical affections of the hip joint and thigh, which forms part of the Russian work, "Russian Surgery," now in press.

Miscellany

CLIPPINGS FROM LAY EXCHANGES.

BACTERIOLOGIC SYMPTOMS.

"Professor ——— is at the hospital. . . . He had a tooth pulled and inflammation developed in the jaw, with bacteriologic symptoms."—*Minneapolis Journal.*

ANTONIO'S RUBBER TUBES.

"A peculiar and extremely delicate . . . operation has been performed . . . to save the life of Antonio ———, whose stomach was partially torn out by a dynamite explosion. Coils of rubber tubing were inserted in place of his injured intestines."—*Boston Evening Herald,* Nov. 29, 1904.

THE NEW PATHOLOGY.

"En route there he became ill with pulmonary peritonitis."—*Cincinnati Enquirer,* Dec. 29, 1904.

"Dr. ——— . . . died suddenly of pleurisy of the brain, at his late residence. . . . —*Cincinnati Enquirer,* Nov. 9, 1904.

"She had a stricture of the esophagus or 'swallow,' and . . . she was in fact dying of bodily starvation."—*Charleston* (W. Va.) *Advocate,* April 6, 1905.

"Mr. ——'s death was due to sorosis of the liver."—*Pittsburg Commercial Gazette,* Sept. 19, 1904.

A DOUBLE-BACK-ACTION SNEEZE.

"John ——— sneezed so hard to-day that he doubled himself up and has not straightened up yet. Two doctors have been with him since the sneeze was let loose. . . . He sneezed hard, bending his head to relieve the tension. . . . When he tried to straighten up he could not. . . . The doctors say that the spasm of the diaplerague resulting from the sneeze caused the vertebrae to snap, but they hope to be able to straighten him out again."—*St. Paul* (Minn.) *Pioneer Press,* Dec. 11, 1904.

BONAFIDE BONIFICATION OF BONE.

"Rev. —— . . . is dead of a peculiar disease—ossification of the tissues of the bone. Two operations were performed . . . but blood poisoning had set in and death followed last evening."—*Philadelphia Evening Bulletin,* April 20, 1905.

"*May Cripple—Ossification of Bone Threatened as Result of Term in Prison.*—Washington, May 18. An affidavit of a New York physician stated that Mrs. —— is suffering with rheumatism of the knee and is threatened with ossification of the bone."—*Chicago Record-Herald,* May 19, 1905.

DIAGNOSIS ALONE WORTH THE MONEY.

"On examination I found an indurated condition of the entire cervical region producing an external pressure on the medulla oblongata, creating an inflammation in the fourth ventricle, extending along the longitudinal fissure, corpus callosum and its peduncles, lamina cinerea, olfactory tract, fissure of sylvius and the anterior perforated space, involving secondarily the optic commissure, tuber cinereum, infundibulum, pituitary body, corpora albicantia, posterior perforated space and the cruri cerebri; hence the incoordinations of the muscular system, loss of speech, locomotion and ptosis of the eyelid after an attack of blinding headache." Case report in osteopathic advertisement, *Chicago Evening Journal.*

Queries and Minor Notes

NORMAL SALT SOLUTION.

LAS ANIMAS, COLO., May 27, 1905.

To the Editor: Please answer the following questions through the columns of THE JOURNAL: 1. What is a "normal salt solution"? 2. What is a standard up-to-date work on typhoid fever?

X. Y.

ANSWER.—1. Normal salt solution is a .6 per cent. solution of sodium chlorid in sterilized water. 2. Every good text-book on practice covers the subject of typhoid fever thoroughly. Many monographs have been written on this subject, and one of the best is that entitled "Typhoid and Typhus Fevers" by Curschmann of Leipsic, edited by Osler, in Nothnagel's Encyclopedia of Practical Medicine. This work is published by W. B. Saunders & Co., Philadelphia; price $5.00.

VARICOSE VEINS.

——, COLO, May 25, 1905.

To the Editor:—Please give me name and address of Chicago surgeons who are authorities on the subject of varicose veins of the lower limbs. 2. Please inform me also whether any treatise on this condition can be obtained, other than the articles found in the general works on surgery.

B. T. W.

ANSWER.—1. It would be invidious to mention names here, as all first-class surgeons are presumed to be authorities on this subject. 2. We know of no work on varicose veins published in book form, but we refer you to the following articles which have appeared in leading medical journals: "Surgical Treatment of Varicose Veins," by C. H. Mayo, Rochester, Minn., *St. Paul Medical Journal,* September 1904; abstracted in THE JOURNAL, September 24, 1904, p. 917. "The Remote Results of Operations for Varicose Veins of the Lower Extremities," by Robert Kennedy, *British Medical Journal,* Oct. 29, 1904; abstracted in THE JOURNAL, Nov. 19, 1904, p. 1584. "Local Treatment for Varicose Ulcers," by F. Fletcher, *Columbus Medical Journal,* March, 1904; abstracted in THE JOURNAL, April 16, 1904, p. 1049. "Nature and Treatment of Varicose Veins," by G. R. Johnson, *Medical Times,* New York, May, 1904. "Some Further Points Relating to Varicose Veins of the Lower Limbs," by Sir William H. Bennett, *The Lancet,* Nov. 22, 1902; abstracted in THE JOURNAL, Dec. 13, 1902, p. 1554. "Operative Treatment of Varicose Veins," by J. B. Blake, *Boston Medical and Surgical Journal,* Sept. 25, 1902; abstracted in THE JOURNAL, Oct. 11, 1902, p. 936.

State Boards of Registration

COMING EXAMINATIONS.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Board of Medical Examiners, Central District, I. T., South McAlester, I. T., July 3. Secretary, B. W. Caldwell, Hugo.

Board of Medical Examiners of Arizona, Phoenix, Ariz., July 3-4. Secretary, A. Martin, Phoenix.

Utah State Medical Examiners, Salt Lake City, Utah, July 3-4. Secretary, R. W. Fisher, Salt Lake City.

North Dakota State Medical Examining Board, Grand Forks, July 5. Secretary, H. M. Wheeler, Grand Forks.

State Medical Examining Board of Washington, Seattle, Wash., July 5. Secretary, C. W. Sharples, Seattle.

State Medical Examining Boards of the Regents, State House, Concord, N. H., July 7-8. Regent, H. C. Morrison, Concord.

State Medical Board of the Arkansas Medical Society, Little Rock, July 11. Secretary, J. P. Runyan, Little Rock.

Rhode Island State Board of Health, State House at Providence, commencing at 9 a. m., July 11. Secretary, G. T. Swarts, State House, Providence.

Wisconsin Board of Medical Examiners, Park Hotel, Madison, Wis., July 11. Secretary, F. A. Forsbeck, Milwaukee.

State of Connecticut Medical Examining Board, City Hall, New Haven, Conn., July 11-12. Secretary, C. A. Tuttle, New Haven.

Maine Board of Registration of Medicine, State House, Augusta, Maine, July 11-12. Secretary, Wm. J. Maybury, Saco.

Vermont State Board of Medical Registration, Y. M. C. A. Hall, Burlington, Vt., July 11-12-13. Secretary, W. Scott May, Underhill.

Kansas State Board of Medical Registration and Examiners, State House, Topeka, Kan., July 12-13. Secretary, G. F. Johnston, Lakin.

South Dakota Board of Medical Examiners, Sioux Falls, S. Dak., July 12-13. Secretary, H. E. McNutt, Aberdeen.

Board of Medical Supervisors, Washington, D. C., July 13. Secretary, Wm. C. Woodward, Health Department, Washington.

California State Board of Medical Examiners, San Francisco and Los Angeles, Cal., July 19. Secretary, C. L. Tisdale, San Francisco.

District of Columbia April Report.—Dr. W. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, April 13-16, 1905. The number of subjects examined in was 17; total number of written questions, 80; percentage required to pass, 75. The total number of persons examined was 10, of whom 5 passed and 5 failed. The following colleges were represented:

College.	Year Grad.	Per. Cent.
PASSED.		
George Washington University	(1905)	77.250
Columbian University	(1904)	83.031
Georgetown University	(1904)	78.594
Howard University	(1904)	80.688
Johns Hopkins University	(1902)	80.656
FAILED.		
College of P. & S., Chicago	(1904)	53.688
George Washington University	(1904)	72.219
Howard University*	(1904) 63.656; (1903)	56.688
University of Maryland*	(1904)	61.406

* Second examination.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending May 27, 1905:

Torney, George H., deputy surgeon general, ordered, in addition to present duties at Army General Hospital, Presidio of San Francisco, to take charge of the chief surgeon's office, department of California, during the absence of the chief surgeon on leave.

Girard, Jos. B., asst.-surgeon general, relieved from duty in Philippines division, to proceed by first available transport to San Francisco, and on arrival there to report to the military secretary of the Army for orders.

Byrne, Chas. B., asst.-surgeon general, relieved from duty as chief surgeon of the department of Missouri, and ordered to Manila, P. I., for duty as chief surgeon, Philippines division.

Truby, Willard F., asst.-surgeon, relieved from duty at Fort Preble, Me., and ordered to Fort Niagara, N. Y., for duty.

Jones, Percy L., asst.-surgeon, relieved from duty at Fort Monroe, Va., and ordered to Fort Preble, Me., for duty.

Shimer, Ira A., asst.-surgeon, relieved from duty at Fort Niagara, N. Y., and ordered to report in person to Secretary of War for further orders.

Mearns, E. A., surgeon, ordered to proceed from Washington, where on leave, to Fort Sill, O. T., to accompany First Squadron Eighth Cavalry to Manila, P. I., and on arrival to report to commanding general, Philippines Division, for assignment to duty.

Bispham, Wm. N., asst.-surgeon, reports as in temporary charge of chief surgeon's office, Department of Colorado, during the absence of chief surgeon on inspection duty.

Comegys, Edward T., deputy surgeon general, retired from active service at his own request, on account of thirty years' service, to take effect July 1, 1905.

Collins, C. C., asst.-surgeon, granted three months' leave of absence, to take effect when relieved from duty in Philippine Islands.

Brooke, Roger, Jr., asst.-surgeon, granted three months' leave of absence, to take effect about Aug. 1, 1905.

Borden, Wm. C., surgeon, ordered to New York City, to consult with architects regarding plans for the new Army General Hospital to be constructed in Washington.

Bushnell, Geo. E., surgeon, granted 15 days' leave of absence.

McAndrew, P. H., asst.-surgeon, reports at Arcadia rifle range for temporary duty.

Richards, R. L., asst.-surgeon, having recently arrived from Manila, P. I., will report at Fort Mason, Cal., for temporary duty during the absence of Assistant-Surgeon Murtagh, and in addition to this duty, he will act as attending surgeon and examiner of recruits at San Francisco, Cal.

Murtagh, John A., asst.-surgeon, ordered to accompany Second squadron 13th Cavalry from Presidio of San Francisco, Cal., to Fort Myer, Va., on completion of which he will return to his proper station.

Craig, Charles F., asst.-surgeon, ordered to accompany First Squadron 13th Cavalry from Presidio of San Francisco, Cal., to Fort Riley, Kans., on completion of which he will return to the U. S. Army Transport *"Logan."*

Brooks, Wm. H., asst.-surgeon, granted two months' and fifteen days' leave of absence.

McCulloch, C. C., Jr., surgeon, detailed as a member of board of medical officers to meet at West Point, N. Y., for examination of cadets' graduating class and other cadets, instead of Assistant-Surgeon Ekwurzel.

Hutton, Paul C., asst.-surgeon, leave of absence further extended 14 days.

Webb, Walter D., asst.-surgeon, granted three months' leave of absence.

McAlister, John A., dental surgeon, ordered to Fort Rosecrans, Cal., for temporary duty.

Dade, Waller H., contract surgeon, relieved from duty at Fort D. A. Russell, Wyo., and ordered to Fort DuChesne, Utah, for duty.

McCall, James H., contract surgeon, returned to duty at Fort Smallwood, Md., from leave of absence.

Coffee, Albion McD., contract surgeon, relieved from duty at Fort Worden, Wash., and from temporary duty at Fort Lawton, Wash., and ordered to Fort Davis, Alaska, for duty.

Kelly, John P., contract surgeon, granted leave of absence for four months, to take effect July 7.

Ware, William H., dental surgeon, left Fort Hauchuca, Ariz., for temporary duty at Fort Grant, Ariz.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending June 27, 1905:

Anderson, F., medical inspector, ordered to report to the commanding officer, Marine Barracks, Washington, D. C., for duty at those barracks.

Cordeiro, F. J. B., surgeon, ordered to the *Yankee,* sailing from New York about June 7.

Wieber, F. W. B., surgeon, detached from the *Prairie* when put out of commission, and ordered home to wait orders.

Gatewood, J. D., surgeon, detached from the *Yankee,* and ordered home to wait orders.

Stokes, C. F., surgeon, ordered to additional duty as a member of the Anatomical Board of the District of Columbia.

Warner, R. A., asst.-surgeon, ordered to the Naval Hospital, Philadelphia.

Stainaker, P. R., asst.-surgeon, ordered to the Naval Hospital, New York.

Pugh, W. S., Jr., asst.-surgeon, detached from the *Prairie,* and ordered to the Naval Station, Guantanamo, Cuba, with additional duty on the *Monongahela,* sailing from New York, about June 2.

Grayson, C. T., asst.-surgeon, detached from the Marine Barracks, Washington, D. C., and ordered to the *Maryland.*

Hoyt, R. E., asst.-surgeon, detached from the *Texas,* and ordered home to wait orders.

Brown, H. L., asst.-surgeon, detached from the Naval Station, Guantanamo, Cuba, and ordered to the *Texas.*

Shaw, H., asst.-surgeon, detached from the *Yankee* and ordered home to wait orders.

Zalesky, W. J., asst.-surgeon, detached from the Naval Academy and ordered to the *Yankee,* sailing from New York June 7.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 24, 1905:

Stoner, G. W., surgeon, three days' leave of absence from May 17, 1905, under Paragraph 189 of the Regulations.

Mathewson, H. S., P. A. surgeon, granted leave of absence for two months from June 16, 1905.

McClintic, T. B., P. A. surgeon, to proceed to Berkeley Springs and other points in West Virginia for special temporary duty.

Spratt, R. D., asst.-surgeon, to proceed to Cleveland, Ohio, and assume temporary charge of the station during the absence on leave of P. A. Surgeon H. S. Mathewson.

Long, H. D., asst.-surgeon, to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty.

Olsen, E. T., asst.-surgeon, to proceed to Ellis Island, New York, and report to Surgeon G. W. Stoner for duty.

Miranda, R. U. L., acting asst.-surgeon, granted leave of absence for thirty days from June 1.

Wakefield, H. C., acting asst.-surgeon, granted leave of absence for ten days from May 27.

Roehrig, A. M., pharmacist, granted leave of absence for 5 days from May 19, 1905, under paragraph 191 of the regulations.

BOARD CONVENED.

Board to meet at San Francisco, May 19, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon G. M. Magruder, chairman; P. A. Surgeon D. H. Currie, recorder.

APPOINTMENTS.

Dr. Henry D. Long of Pennsylvania, and Dr. Egil T. Olsen, of Illinois, commissioned (recess) as assistant surgeons in the Public Health and Marine-Hospital Service.

Dr. Charles E. Fisher appointed acting assistant surgeon in the Public Health and Marine-Hospital Service, for duty at Toledo, Ohio.

Health Reports.

Health Reports: The following cases of smallpox, yellow fever and plague, have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from May 20 to May 26, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, May 13-20, 2 cases.

Florida: Jacksonville, May 13-20, 2 cases.

Illinois: Chicago, May 13-20, 6 cases, 2 deaths; Galesburg, April 13-20, 1 case.

Kentucky: Covington, May 13-20, 9 cases.

Louisiana: New Orleans, May 13-20, 4 cases imported.

Massachusetts: Lowell, May 13-20, 2 cases.

Michigan: Ann Arbor, April 29-May 6, 1 case.

Missouri: St. Joseph, May 6-20, 40 cases; St. Louis, May 13-20, 5 cases.

New Hampshire: Nashua, May 13-20, 2 cases.

New York: Kingston, May 13-20, 1 case; New York, May 13-20, 1 case 1 death.

Ohio: Cincinnati, May 5-19, 7 cases; Toledo, May 6-13, 1 case.
Pennsylvania: Altoona, May 13-20, 1 imported case, York, May 13-20, 12 cases.
South Carolina: Greenville, May 13-20, 4 cases, 2 deaths.
Tennessee: Memphis, May 13-20, 1 case; Nashville, May 13-20, 4 cases.
Wisconsin: La Crosse, May 13-20, 1 case; Milwaukee, May 13-20. 2 cases.

SMALLPOX—FOREIGN.

China: Hong Kong, April 1-8, 7 cases, 3 deaths.
France: Paris, April 29-May 6, 21 cases 1 death.
Great Britain: Bradford, April 22-May 6, 12 cases; Toledo, May 6-13, 1 case; London, April 29-May 6, 4 cases.
India: Bombay, April 17-25, 76 deaths.
Italy: Catania, May 6-11, 8 deaths; Palermo, April 22-29, 8 cases.
Malta: April 22-29, 1 death.
Russia: Moscow, April 15-29, 10 cases, 5 deaths.
Spain: Barcelona, April 20-30, 6 deaths.
West Indies: Barbadoes, May 9, 1 case among laborers for canal zone, probably imported; Grenada, April 20-May 4, 2 cases.

YELLOW FEVER.

British Honduras: Belize, May 24, 2 cases, 1 death.
Honduras, Puerto Cortez, May 25, 4 cases, 1 death.
Mexico: Tierra Blanca, May 7-13, 1 case, 1 death.
Panama: Panama, Jan. 1-May 13, 61 cases, 22 deaths.

PLAGUE.

Arabia: Aden, April 14-28, 19 cases, 8 deaths.
Australia: New Castle, April 13, 4 cases 1 death.
Chile: Santiago, April 16-28, 2 cases.
China: Hongkong, April 1-8, 3 cases, 3 deaths.
India: General, April 1-8, 59,227 cases, 52,841 deaths; Bombay, April 18-25, 1,018 deaths.
Japan: Formosa, March 1-31, 284 deaths; April 1-20, 272 deaths.
Straits Settlements: Singapore, April 1-15, 5 deaths.

Medical Organization

Kentucky.

LAWRENCE COUNTY MEDICAL SOCIETY.—On May 13 Dr. James W. Kincaid, Catlettsburg, and Lester Keller, Ironton, Ohio, met physicians of the county at Ashland and assisted in the organization of a county society. Dr. Andrew J. Hillman, Glenwood, was elected president; Dr. John J. Gambill, Jr., Martha, vice-president; Dr. J. C. Bussey, Louisa, secretary, and Dr. Morton G. Watson, Louisa, treasurer.

Ohio.

AUGLAIZE COUNTY MEDICAL SOCIETY.—This society was organized at Wapakoneta, May 25, with 29 charter members. The following officers were elected: President, Dr. Charles H. Phelps, St. Mary's; vice-president, Dr. Henry E. Fledderjohann, New Knoxville; secretary, Dr. C. Ludwig Mueller, Wapakoneta; treasurer, Dr. Franklin C. Hunter, Wapakoneta, and censors, Drs. Simpson N. Ekermeyer, New Bremen; Charles C. Berlin, Wapakoneta, and Bert E. Thomas, St. Mary's.

Pennsylvania.

LUZERNE COUNTY MEDICAL SOCIETY.—At a special meeting held in Wilkesbarre, May 24, Dr. J. N. McCormack delivered an address on organization.

CLEARFIELD COUNTY MEDICAL ASSOCIATION.—At the meeting of the society May 15, at Clearfield, an address on organization was made by Dr. J. N. McCormack.

CLINTON COUNTY MEDICAL ASSOCIATION.—On May 16 this association gave a banquet at Lock Haven in honor of Dr. J. N. McCormack, who addressed the meeting on the need of closer organization.

NORTHAMPTON COUNTY MEDICAL SOCIETY.—At the meeting in Pen Argyle, May 21, Dr. J. N. McCormack addressed the society on the necessity of thorough organization and unity of the medical profession.

NORTHUMBERLAND COUNTY MEDICAL SOCIETY.—Dr. J. N. McCormack addressed the members of this society, and also the members of Montour County Medical Society at Sunbury, May 17. His object was organization.

SNYDER COUNTY MEDICAL SOCIETY.—The physicians of Snyder County met at Middleburg, May 18, and after a full discussion of the subject of organization by Drs. Luther B. Kline, Catawissa, censor for the district; Dr. G. A. Stack, president of the Montour County Society, Dr. J. N. McCormack of Kentucky and others, a promising society was formed under the standard constitution and by-laws. The following officers were elected: President, Dr. Benjamin F. Beale, McKee's Half Falls; vice-presidents, Drs. William W. Longacre, Mount Pleasant Mills, and Charles G. Smith, Beaver Springs; secretary and reporter, Dr. A. J. Hermann, Middleburg; treasurer, Dr. Frank J. Waynesellet, Selins Grove, and censors, Drs. H. M. Nipple, Selins Grove; B. F. Waynesellet, Selins Grove; John O. Wagner, Beaver Springs, and Marand Rothrock, Mount Pleasant Mills.

A CALL FOR ORGANIZATION.—Dr. J. N. McCormack of Bowling Green, Ky., chairman of the Organization Committee of the American Medical Association, addressed the Medical Society of Philadelphia, Chester and Delaware Counties in the College of Physicians, May 26. Dr. McCormack urged the necessity of organization among physicians all over the United States. He said that the physicians of our own state received less compensation for their services than in any other section of the country. Things have come to such a pass in the medical profession, he said, that there is a large class of ill-supported and hence ill-informed and ignorant physicians, whose antiquated methods do their communities and the profession at large more harm than good. The reason is that physicians do not get paid for their services. They work harder than any other class of men, and yet even well-to-do people employ them without even thinking it necessary to compensate them. There should be up-to-date organizations all over the country, particularly in this state, to lift up to the light struggling physicians who do not now earn enough to support their families or even to obtain the necessary standard literature. In Kentucky organization has been effected to make a uniform fee schedule.

Virginia.

MEDICAL SOCIETY OF NORTHERN VIRGINIA.—At a meeting held in Alexandria, May 17, this society was organized with the following officers: Dr. Robert M. Slaughter, Alexandria, president; Drs. George Tully Vaughan, U. S. P. H. and M.-H. Service, Washington, D. C., and Matthew W. O'Brien, Alexandria, vice-presidents; and Dr. A. Avery Rittenour, Alexandria, secretary and treasurer.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

American Laryn., Rhin. and Otol. Society, Boston, June 5-7.
American Orthopedic Association, Boston, June 6-8.
Indiana State Medical Association, West Baden, June 7-9.
Maine Medical Association, Portland, June 7-9.
Wisconsin State Medical Society, La Crosse, June 8.
Amer. Assn. of Genito-Urinary Surgeons, Montreal, June 13-14.
Massachusetts Medical Society, Boston, June 13-14.
American Pediatric Society, Lake George, N. Y., June 19-21.
Medical Society of New Jersey, West End, June 20-22.
Indian Territory Medical Association, Tulsa, June 20-22.
Michigan State Medical Society, Petoskey, June 28-30.
American Climatological Association, Detroit, Mich., June 29-30
American Surgical Association, San Francisco, Cal., July 5-7.
South Dakota State Medical Association, Deadwood, July 5-7.
Amer. Assn. of Life Ins. Exam. Surgeons, Portland, Ore., July 10.
American Medical Editors' Assn., Portland, Oreg., July 10.
Oklahoma State Medical Association, Guthrie, July 10-11.
American Urological Association, Portland, Ore., July 12-13.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting, held at Washington, D. C., May 16-17, 1905.

(*Concluded from page 1704.*)

Some Phases of the Neurotic Heart.

DR. BEVERLY ROBINSON, New York, divides these cases into four groups: 1, those accompanied by general evidences of neurasthenia; 2, cases of organic change in the heart; 3, cases of involvement of the stomach, bowels, or other organs, the heart condition being secondary; 4, cases in which various concomitant troubles are as much the effect as the cause of the cardiac lesion. Cardiac dilatation and hypertrophy may be of neurotic origin and murmurs may be produced in such condition. Organic lesion must be carefully excluded before this diagnosis is made. Treatment is apt to be uncertain and yield only temporary results. In cases of predominant neurosal element, the Nauheim treatment is often beneficial. Robinson emphasized the following points: 1, slight enlargement of the heart may be due to nervous disorders of that organ; 2, there develops a secondary anemia which remains stationary despite treatment directed toward its cure; 3, the absolute or relative uselessness of digitalis in this condition is an important point; 4, the heart muscle, which at times

becomes involved to such an extent as to permit of slight dilatation, may be improved in nutrition in some cases until functional recovery is attained.

SECOND SESSION.

Case of Pneumococcus Sepsis.

DR. J. S. THACHER, New York, cited a case notable for the intensity and rapidity of onset of endocarditis and meningitis. The patient was ill only 19 days. He passed through a rather typical course of croupous pneumonia, the lung being almost entirely clear on the twelfth day. On the fourteenth day signs of fluid in the right chest developed and three days later, two days before death, the first evidence of cardiac trouble became manifest, a diastolic murmur appearing at the apex. The temperature was then 100 degrees. Multiple murmurs afterward developed. On the day preceding death the neck stiffened, headache was severe, and Kernig's sign was present. Lumbar puncture showed a turbid fluid from which a pure culture of the pneumococcus was made; similar cultures were obtained from the pus in the pleura and from the blood.

Six Cases of Perforation in Typhoid Fever in Children.

DR. J. P. CROZER GRIFFITH, Philadelphia, reported these cases because (1) the occurrence of typhoid fever and perforation in childhood is unusual; (2) the symptoms of perforation in children offer difficulties in diagnosis even greater than in the case of adults. In children there is less apt to be collapse, severe abdominal pain, uncontrollable vomiting, abdominal tenderness and abdominal distention.

DR. A. JACOBI, New York, said the difficulty in diagnosing perforation in children was rendered greater by the fact that now and then perforation occurs without diarrhea having been present at any time during the course of the disease. Diagnosis of perforation is not easy in any case and in some is impossible.

Hematemesis from Gastric Ulcer.

DR. W. G. THOMPSON, New York, gave data based on the study of 200 cases. One in 4.8 cases died, but this may not be accurate, as patients who leave the hospital as cured or improved may later die of hemorrhage, though not traced. Regarding operation for this symptom, Thompson believes it should be resorted to oftener than it is. Three indications call for operative intervention: 1, dangerous hemorrhage; 2, recurring hemorrhage not yielding to medical treatment; 3, adhesions to neighboring viscera, whether from the bleeding or other ulcer. The difficulties of accurate diagnosis are proved by the findings of operation and by examination of the stomach contents. Of 20 cases operated on 5 were found to have conditions entirely different from gastric ulcer; several personal cases had hematemesis but no ulcer. The analysis of the gastric contents is essentially no aid in diagnosis; a single examination is absolutely worthless and repeated passage of the tube is dangerous. In several cases unexpected lesions have been found at operation, another indication for early operation, even for diagnosis in some cases. As to the etiology of gastric ulcer, an interesting point is the much greater age of males in which it occurs; few males below 35 have ulcers, while the larger number of affected females are between 20 and 30. Whether of great significance or not, a large proportion of males suffering from gastric ulcer (one-fourth) were workers with metals.

DISCUSSION.

DR. F. P. KINNICUTT, Boston, said that in advising operative procedure one must bear in mind how frequently it is difficult to locate the lesions in the stomach, even at autopsy. They may be small and found only after the most diligent search; with the ordinary surgical incision they may easily be overlooked. A second point is the frequency of cases in which death from hemorrhage appears imminent, but in which the bleeding finally ceases and the patient lives many years.

DR. S. SOLIS COHEN, Philadelphia, said that relative to the recurrence of gastric ulcer we have as yet no positive data of cases in which operation has been performed to show how often new ulcers occur thereafter. He cited the case of an old man who, without symptoms referable to ulcer, suddenly had profuse gastric hemorrhage. Surgeons called in consultation considered him too weak for operation. When strength was regained there appeared to be no need for operation. Hemorrhage again occurred and the man died. Autopsy showed 40 or more small ulcers, 20 or 30 of which were healed. These multiple ulcers had been forming for years without causing symptoms. A second instance was that of a young lady, who, 17 years ago had severe gastric hemorrhage and recovered. She now has symptoms of ulcer but no hemorrhage, and refuses operation. There is still a great deal to be said on both sides of the question of operating for ulcer. In one case with gall-bladder symptoms operation revealed an ulcer of the stomach just on the point of perforation. The pain which led to operation appeared to be due to adhesions between the gall bladder and an old gastric ulcer.

Dr. B. W. Sippy, Chicago, mentioned the case of a girl who had repeated hemorrhages, the hemoglobin being 20 per cent. Surgeons hesitated, and she finally recovered without operation. The danger of operation in such cases is probably not so great as in anemias of slow development, but nearly all operated cases die. It is difficult to say if operation is justified.

Dr. J. H. Musser, Philadelphia, said it is important to remember cirrhosis of the liver as a cause of hematemesis. In cases simulating ulcer, but in which perigastric or periduodenal adhesions to the gall bladder are a possibility, a previous history of typhoid is an important aid in diagnosis, particularly typhoid of long duration and imperfect convalescence.

The Relations of Certain Stomach Disorders to Diabetes Mellitus.

DR. JOHN S. SAWYER, Cleveland, has for the past five years been treating cases of diabetes mellitus from the standpoint of the stomach rather than the glycemia; his results are quite satisfactory. Of the 19 patients treated, 17 gave a history of previous dyspepsia and had a definite catarrhal condition of the stomach. Lavage of the stomach with solutions of resorcin or with chloroform water gave almost immediate relief from excessive thirst, hunger, and polyuria. In several, cessation of glycosuria also followed improvement in the stomach condition. In a few cases similar results were obtained without lavage, but that expedient was most successful, especially in cases of motor insufficiency and hyperchlorhydria. The known duration of glycosuria was from six weeks to five years. The cases reported show that hunger, thirst, and polyuria are not so dependent on hyperglycemia as is commonly supposed, and that stomach disorders possess a far greater importance than is usually attributed to them. Lavage can be properly carried out only when the patient is in the reclining posture, and means other than gravity are used to cause return of the fluid; constant manipulation of the gastric region should be kept up while the fluid is in the stomach to secure thorough application to the organ and removal of the contents.

DR. JAMES TYSON, Philadelphia, has not noticed in diabetes particular symptoms referable to the stomach. It is possible, however, that the efficiency of Fowler's solution in diabetes may be due to its effect on the stomach functions. It is also possible that the formation of acetone and diacetic acid is due to gastric catarrh.

DR. S. SOLIS-COHEN, Philadelphia, has noticed in a number of cases of chronic glycosuria an increase of excretion of sugar accompany septic condition of the intestines, the increase disappearing when the intestines are made antiseptic.

Clinical Notes on the Use of Nux Vomica, Especially in Certain Forms of Hyperchlorhydria.

DR. J. H. MUSSER, Philadelphia, finds that cases of hyperchlorhydria, especially those secondary to gastric neurasthenia, which do not yield to ordinary treatment often do remarkably well on nux vomica. It must be given in ascending doses and in large quantities. In most cases 60 or more drops three times daily are used, but each individual regulates the point of tolerance. It must be given for long periods of time, usually four or five months. In young subjects the drug can be given in much larger doses than in older patients. Nux vomica and not strychnin must be employed.

Umbilical Hernia as a Little Recognized Source of Abdominal Pain.

DR. D. D. STEWART, Philadelphia, called attention to hernia in the linea alba above the umbilicus as a cause of recurring abdominal pain and various dyspeptic symptoms, the cause of which is otherwise regarded as obscure. The hernia is commonly not much larger than a split pea, but may be the size of half a walnut.

Stone in the Kidney and Certain Conditions Simulating It.

Dr. D. D. STEWART, Philadelphia, described several cases, some of renal calculus with unusual symptoms or quiescent as regards the kidneys, others of a different condition but simulating calculus. In some of the former the diagnosis was obscure until repeated examinations of the urine revealed small quantities of blood. At least 4 of the cases of calculus might have been diagnosed intestinal involvement, so clearly did the symptoms point to that source. In one case severe gastralgia and enteralgia were the only symptoms; another had been treated for dyspepsia; 2 more were supposed cases of bowel trouble. One case diagnosed stone was found to be stricture of the ureter.

DISCUSSION.

DR. I. N. DANFORTH, Chicago, exhibited 3 specimens from a girl of 25. All were calculi, one from the bladder weighing 180 gm. (6 ounces), another from the left kidney, and a third from the right kidney. The two first were removed during life, the last postmortem. No acute pain was ever felt in either kidney.

DR. JAMES TYSON, Philadelphia, has seen cases simulating stone in the kidney, some of them operated on and no stone found. In the last two operations done for him in which no stone was found, a condition which might explain the symptoms was what might be called capsulitis. The capsule was thickened, closely adherent and depressed. Decapsulation resulted in recovery in both instances. The symptoms had been those of tenderness over the kidneys and remittent or intermittent catarrhal urine. He advises examination for this condition when operation is performed.

DR. T. FORSCHHEIMER, Cincinnati, has seen 3 cases of the type described by Dr. Tyson. Urinary analysis gave no evidence of a calculus, but the symptoms pointed to that condition. There was no inflammation of the perirenal fat, only of the capsule. All 3 patients recovered.

DR. FRANK BILLINGS, Chicago, speaking of the significance of microscopic blood in the urine, said it was present in almost all cases of acute appendicitis; hence with a pain in the right side of the belly the blood might mean appendicitis or renal calculus. In the diagnosis of stone in the kidney, the Röntgen-ray is a disappointment nearly as frequently as it is an aid. This is especially true if the operator is not a physician.

Study of Abdominal Tumors.

DR. R. C. CABOT, Boston, presented a statistical study of 4,786 tumors collected from the records of the Massachusetts General Hospital. The 5 highest in point of frequency were tumors of the liver, uterus, ovary, kidney, and hernia. Among the points of general interest is the slow growth of cancer of the intestine and the condition found in tuberculous peritonitis. In only 2 of 33 cases of the latter condition was the omentum rolled up to produce a tumor; in the others the swelling was due to matted intestines. Another point was that the lower part of the abdomen was involved as frequently as was the upper. Fever was not an infrequent symptom of cancer of the liver.

DISCUSSION.

DR. M. H. FUSSELL, Philadelphia, emphasized the point regarding chronicity of carcinoma of the intestine; one case lasted for 12 or 14 months.

DR. W. S. THAYER, Baltimore, spoke of the frequency of fever in cancer of the liver. He mentioned 2 cases of rapidly growing sarcoma of the liver accompanied by fever; in one the diagnosis of typhoid had been made; the other resembled typhoid in all respects except the leucocyte count. Another case, occurring in a nurse, had fever, chills, prostration, anemia and slight jaundice. The liver was smooth and a diagnosis of abscess was made. Autopsy showed an adenocarcinoma.

DR. F. P. KINNICUTT, Boston, said his experience confirmed the infrequency of rolled-up omentum in tuberculous peritonitis.

DR. J. H. MUSSER, Philadelphia, said chronicity is a feature of cancer of the large bowel. In one of his cases a tumor above the sigmoid lasted for more than 18 months. Localization of the lesion is one reason for this comparative benignity.

New Method of Treating Cardiospasm.

DR. B. W. SIPPY, Chicago, demonstrated a method of overcoming cardiospasm which has given excellent results in a patient who for months had to be fed through a tube. The apparatus is a cloth-covered balloon containing a central canal through which is introduced an ordinary esophageal bougie. After the bag is in position it is dilated and the cloth holds it at the place desired.

THIRD SESSION.

Considerations on Proteid Diet, with Especial Reference to the Distribution of Amido-Nitrogen, Diamino-Nitrogen and Monamino-Nitrogen.

DRS. L. F. BARKER and B. A. COHOE, Chicago, spoke of the well-known variations in tolerance of the same individual for different kinds of proteid food, and the consequent desirability of seeking a cause in the chemical constitution of the foods. The distribution of the various forms of nitrogen in articles of proteid diet has not hitherto been investigated; this the writers have done, applying the method of Hausmann as modified by Osborne and Harris, and by Gumbel. The amido-nitrogen, melanoidin-nitrogen, diamino-nitrogen, and monamino-nitrogen have been determined in various cuts of beef, veal and pork, in liver, thymus, in fish and in chicken. Elaborate tables set forth the results of the studies and were explained at length. The proteid molecule is exceedingly complex but the ultimate elements are surprisingly few. From all the work that has been done on the subject, Barker believes the possibility of making synthetically all the albumins is a reasonable supposition. This would give the key to the knowledge of proteid foods. Chemical methods of investigation are an aid, but Barker disclaims any illusion that this is to solve all problems; many conditions and processes may, however, be explained in this manner. For instance, amyloid formation is probably due to the substitution of one form of nitrogen for another. Again in gout, monamino-acids appear in the urine and it may be shown that this form of metabolism is as important in this disease as uric acid metabolism has been supposed to be. In phosphorus poisoning similar metabolic changes are at work, as indicated by experiments.

The Chlorid Exchanges in Three Cases of Chronic Nephritis, with Reference to the Dechloridation Treatment.

DRS. A. O. J. KELLY and C. A. FIFE, Philadelphia, reported 3 cases treated by the dechloridation method, with very marked improvement in one, moderate improvement in a second, and absolutely no effect in a third. The first has anasarca and under a salt-free diet his weight fell from 203 to 139 pounds; later this went to 160 but without the appearance of edema. The third patient was in a desperate condition and Edebohl's operation was performed, but gave no relief. Kelly considers the sodium chlorid content of the urine as of some value in prognosis in cases of nephritis; an increase following a low percentage is a good sign, a decrease is bad. Concerning the mechanism of retained sodium chlorid in the body, Kelly believes the salt is first deposited in the tissues, water is then retained with increase of weight but at first without edema, and finally edema appears. In this connection the changes in circulation have not been sufficiently investigated. A salt-free diet may be of benefit in some cases of nephritis and should be tried; it may be given continuously for some time or at intervals during the course of otherwise intractable cases. A point that demands investigation is whether harm is done by the injection of saline solution, as in cases of toxemia and even in nephritis.

Chlorid Retention in Nephritis.

DR. JOS. L. MILLER, Chicago, presented statistics regarding chlorid retention in 2 cases of acute and 6 of chronic parenchymatous nephritis, one of secondary contracted kidney, one of myocarditis, and 4 normal individuals. Of the 6 kidney cases with edema, all had chlorid retention. Miller considers the retention in nephritis as one of degree only, as retention may be equally great in normal persons; the latter gain in weight, but without the appearance of edema. Retention in moderately severe nephritis is not greater than in the normal individual; in severe cases the impermeability of the kidney to sodium chlorid is greatly increased. Edema is probably partly due to lessened perspiration following increased concentration of the body fluids.

DISCUSSION.

DR. ALFRED STENGEL, Philadelphia, who had charge of 2 of the cases reported by Dr. Kelly, said the improvement in the one case was remarkable. The second gain in weight was evidently due to his improved general health and not fluid accumulation. In the second case an interesting point was that the patient had for some time been given enteroclysis with salt solution and had become worse. Since the work of Dr. Kelly was carried out, Dr. Stengel has been in charge of a man of 36 who had acute nephritis 8 years ago and several attacks since, in whom reduction of sodium chlorid has given good results. The man is a private patient and routine investigation, as in the others, cannot be employed. He has arteriosclerosis with the highest blood pressure Dr. Stengel has ever noted, the systolic reaching 280 mm. of mercury. Headache has been a prominent symptom during his entire trouble. The patient volunteered the information that he has always been an inordinate salt eater. Reduction of salt in his diet has been followed by a remarkable improvement as to the headaches and the blood pressure. Regarding the general value of chlorid retention and excretion, Dr. Stengel says it promises something in the line of a method of determining what the kidneys are doing in individual cases, and hence a help in prognosis. Other methods have proved inadequate for this purpose, albumin being discredited as a guide, and cryoscopy probably being of little value and the method so cumbersome as to be practically unavailable even if it were of value. Hence, chlorid retention constitutes a hopeful line of research, but is not so important as the French consider it.

DR. F. P. KINNICUTT, Boston, said he is giving up the indiscriminate use of salt solution by hypodermoclysis and enteroclysis, and is satisfied that better results are thus obtained.

DR. D. L. EDSALL, Philadelphia, considers sodium chlorid retention possessed of only a limited diagnostic value.

DR. S. J. MELTZER, New York, said the investigations along this line were too loosely carried out as the excretion of sodium chlorid by the intestine and skin was not accurately determined. The only safe point to consider in this question is that sodium chlorid controls osmosis. It is possible that in diabetes there is high osmotic pressure with the abstraction of fluid. The results with diabetics detailed by Dr. Sawyer may have been due to removing chlorids by washing the stomach and thus eliminating the abnormal factor in osmosis; this would appear to account for the lowering of polyuria without reducing the sugar output. Possibly a beneficial effect would be produced by a salt-free diet in diabetes.

DR. R. C. CABOT, Boston, asked if any knowledge we possess indicates that we should discountenance the eating of large amounts of salt by well persons.

DR. A. JACOBI, New York, asked if any one had experience with salt-free food in the treatment of epilepsy.

DR. JOSEPH COLLINS, New York, said that 2 years ago 25 hospital epileptics were put on reduced salt diet with the result of a reduction of 38 per cent. in the frequency and severity of the epileptic attacks. Recently the same method was adopted with 5 dispensary patients; in 4 of them the attacks have been reduced upwards of 50 per cent. A normal individual may eat as much salt as he pleases, just as he may eat anything else or do anything, up to a certain limit. When he is not normal, whether due to disease or what is called old age, he may not eat salt with impunity.

The Toxicity of Bile.

DRS. S. J. MELTZER and W. SALANT, New York, reported the results obtained in experimenting with the various toxic aspects of bile on animals, principally frogs. They found that bile contains 2 elements: first, a depressing or coma-producing substance and, second, an exciting or tetanizing substance. These are antagonistic to each other, and normally the second is covered by the first, resulting in neutralization.

The Nature and Origin of Cholemia and Uremia.

DR. S. J. MELTZER, New York, reviewed the various theories regarding the nature of these conditions. None of the theories explain why the substances they suppose to be present are in the blood for years and produce no attack until a certain time; neither do they show why at times coma, at times convulsions, are produced. Based largely on the results obtained by the experiments detailed in the preceding paper, Meltzer advances a theory to explain cholemia and uremia. When the exciting and depressing substances are in equilibrium, the functions are normal; when they are unstable and there is retention by the kidney or liver, a slight additional accident is sufficient to bring out either the effect of the coma-producing substance or that of the exciting or tetanizing agent.

DR. JAMES EWING, New York, said that if the liver has to do with uremia, these statements support the claim that in uremia the liver is often more affected than is the kidney. He has been studying the livers from a series of cases of uremia and in certain instances has found striking lesions therein, more pronounced than in the kidneys.

DR. S. SOLIS COHEN, Philadelphia, asked if Dr. Meltzer excluded cases of chronic uremia from the list caused in the manner he suggests. These cases appear to be admirably explained by that theory, the explosive attacks during the course of the disease being due to the failure of the kidneys to eliminate one of the involved substances.

DR. JAMES CARROLL, Washington, called attention to the lesions found in the liver in cases of yellow fever, fatty degeneration mainly. If the liver elaborates urea, this function will cease when it is seriously affected, and the products formerly used will be retained. In so-called cases of puerperal eclampsia in which the kidney, as indicated by the urine, is not at fault, excessive fatty or cirrhotic changes have been found in the liver.

Xanthelasma and Chronic Icterus.

DR. T. B. FUTCHER, Baltimore, reported 3 cases of multiple xanthomas in patients with chronic icterus. All 3 were women, the ages ranging from 39 to 42 years. In two, the jaundice was caused by gallstones; in the other, by hypertrophic cirrhosis. In one of the first group, the xanthomas disappeared after operation. The relation between jaundice and xanthomas is shown by the fact that four-fifths of cases of the latter occur in cases of jaundice or in liver affections without jaundice.

Case of Lymphatic Leukemia in a Child of Three Years.

DRS. JOHN LOVETT MORSE and HARRY C. LOW, Boston, cited this case, the duration of which was 5 months. The blood picture, while suggesting leukemia, was not characteristic of that condition during the first 4 months. At the end of 3 months, a lymphnode was removed but histologic examination did not justify the diagnosis of leukemia, the appearance being more suggestive of sarcoma. At the end of 4½ months, a node exhibited typical hyperplastic changes, and the blood during the last month was that of lymphatic leukemia. The atypic blood and lymphnode pictures during the early months are the most important features of the case.

DISCUSSION.

DR. T. FORSCHHEIMER, Cincinnati, mentioned a case of leukemia occurring in a child of 8 months, death ensuing in 10 weeks. The age of the child, the rapidity of the course, and the marked lymphemia were the prominent features. The leucocyte count reached 151,000, with 99.6 per cent. of small lymphocytes.

DR. L. F. BARKER, Chicago, asked if there is any evidence that the lymphocytes in the blood in these cases are derived from the lymphnodes. A view now gaining ground is that proliferation of lymphoid cells in the spleen and lymphnodes does not necessarily give rise to an increase of similar cells in the blood as these organs can expand and retain the newly-formed cells. On the other hand, if the marrow cells proliferate, the capacity of that tissue is soon reached, and the excess is poured into the blood.

DR. W. S. THAYER, Baltimore, has seen several cases which ran a clinical course similar to the one reported by Morse. First, the lymphnodes enlarged, simulating Hodgkin's disease; later, the blood picture of leukemia developed. These occur both in adults and children.

DR. W. H. WELCH, Baltimore, said there is great confusion as to the nature of the various types of enlargements of the lymphnodes. At present, however, 3 characteristic histologic pictures can be distinguished: (1) that of Hodgkin's disease; (2), the lymphoma of leukemia; (3), sarcoma. The last is of course the easiest.

FOURTH SESSION.

Lantern-Slide Demonstration on the Stages of Calcareous Degeneration.

DR. J. GEORGE ADAMI and OSKAR KLOTZ, Montreal, presented the following conclusions: 1. The earliest change in cells which later undergo calcareous degeneration, is one of cloudy swelling or coagulation necrosis. 2. Following this, fatty changes are noticeable and by means of proper reagents, soaps with potassium, sodium, and presumably ammonium bases, can be detected. 3. Such soaps and albumins form a combination which is insoluble in water or salt solution. 4. Soaps and fatty acids have an affinity for the calcium salts in solution in the body fluids and form with them an insoluble compound. 5. Later, judging from the fact that phosphate and carbonate of lime are formed, and the deposit gives no reaction for fats, the fatty acid moiety of the calcium soap is replaced by the more powerful carbonic and phosphoric acids. The studies of the writers, both experimental and on human tissue, were made possible by the use of Sudan III. and silver nitrate solutions. A most significant feature of the study was the demonstration that there is calcareous change in the media of the aorta of practically every person past 30 years. This change also occurs in much younger individuals, marked calcification being found in the aorta of one boy of 17. Their observations point to the possibility of the medial change first occurring in the elastica. Another fact demonstrated is the presence of fat in areas of caseation in tuberculosis. Osmic acid fails to detect its presence but it is clearly shown by Sudan III.

Experimental Arteriosclerosis.

DRS. RICHARD M. PEARCE and E. M. STANTON, Albany, showed specimens of aortas from rabbits in which conspicuous lesions had been produced by repeated intravenous injections of adrenalin. The drug was given every other day for 10 days, or up to several weeks. After about 6 doses, the earliest lesion appears, consisting of focal degenerations in the muscle fibers of the media. After 10 or 12 doses, changes appear in the elastica. These appear to be mechanical in nature and consist of swelling and elongation of the fibrils, with later fracture and curling. Still later, in 4 to 6 weeks, the aorta assumes a condition analogous to arteriosclerosis in man. The vessel is rigid, brittle, dilated, and the intima is irregularly elevated. In many instances there are irregular dilations of the vessel that justify the name of aneurism. The process appears to include degeneration of the media with calcareous change and repair of the media and also of the intima. The lesions support the view of Thoma that arteriosclerosis begins in the media. Pearce is not prepared to make definite statements as to the cause of the lesions thus produced. Mechanical and toxic factors are to be considered; it is probable that it is toxic in nature first and later, especially as regards the elastica, mechanical. Studies, yet incomplete, of ganglion cells near the aorta in one case show changes in those cells.

Phlebo-Sclerosis.

DR. C. F. MARTIN, Montreal, reported the results of studies concerning this condition about which but little has been written. He finds it extremely common in young persons, nearly all under 35 showing it to some degree. The veins of the lower extremity are affected chiefly, but all parts of the body may be involved. In essentially all the cases studied there was absence of arteriosclerosis and also of a history of alcoholism. The condition is more common in males. No local conditions were found to account for the change in the veins.

Observations on Metabolism in a Case of Acute Leukemia and a Case of Purpura Hemorrhagica.

DR. D. L. EDSALL, Philadelphia, found in these two cases remarkable tissue destruction. The conditions in the latter indicated that hemorrhage is not an important feature in the production of the great nitrogen loss in either class to which the cases belong. Differences in metabolism in the cases indicated differences in the character of the conditions producing the tissue loss. This also indicates the varied nature of hemorrhagic lesions and is an argument against the ideas advanced by Magnus Levy.

Influence of the Rontgen-Ray on Metabolism in Leukemia.

DRS. J. H. MUSSER and D. L. EDSALL, Philadelphia, gave the results of studies in 2 cases. One patient rapidly improved under the treatment, the other was uninfluenced and soon died. In the first case, the treatment was immediately followed by a remarkable increase in the excretion of nitrogen, phosphorus, uric acid, and xanthin-bases. In the fatal case there was a slight rise at first but the excretion soon became as before treatment or even lower; just before death the excretion became very low. Edsall interprets these results to show that the effect of the Rõntgen-ray is a reaction of the individual and not the direct action of the ray itself. The most probable explanation is that the autolytic processes of the body are stimulated. The result indicates that the process is comparable to resolution in pneumonia, the involution of the uterus after labor, and similar processes. They show the Rõntgen-ray may have a profoundly dangerous effect though temporarily benign in its influence, and account for cases of nephritis and other lesions following exposures. The Röntgen-ray is to be used extensively but not in the unthinking way so often employed; accurate dosage is at least necessary. The cases reported suggest the possible beneficial effect of such treatment in cases of general lowered metabolism but no effect has been observed in 2 cases of diabetes. Very suggestive, however, was a case of unresolved pneumonia lingering for weeks which cleared up entirely under daily exposures for a week.

Chronic Acetanilid Poisoning.

This article by Dr. D. D. Stewart, Philadelphia, is published in this issue of THE JOURNAL.

Brief Report on Recent Researches on Bacterial Toxins and Immunity.

DR. V. C. VAUGHAN, Ann Arbor, found that when bacterial cellular substance is heated at 78° with a dilute solution of sodium hydrate in absolute alcohol, the cell substance is split into 2 portions. One portion is soluble in absolute alcohol and contains the poisonous group of the cell. This poisonous group has been studied, having been obtained from the colon, the typhoid and the anthrax bacillus, and the micrococcus of pneumonia. A similar, if not identical, poisonous substance may be obtained in the same way from certain proteid bodies, such as egg albumen and peptone. Animals may be immunized with this toxic body, the immunity thus induced not being specific or at least not markedly so. The part of the cell substance not soluble in alcohol is soluble in water and with this a specific immunity can be obtained. This second portion also contains a hemolytic body. The studies indicate that the same poisonous body is in both living and dead cells; it possibly belongs to the neurin group. Vaughan believes if we ever get a curative for typhoid it

will not be a serum but the non-poisonous residue of bacteria. This ought to bring about in the body in 6 days what nature does in 28 to 40 days in those spontaneously recovering from typhoid.

Case of Acromegaly.

DR. CHARLES L. GREENE, St. Paul, cited a case in which the features were: 1. Coincidence of symptoms of myxedema and undoubted acromegaly with enlargement of the thyroid gland. 2. Disappearance of all symptoms of myxedema associated with shrinking of the thyroid gland under the administration of thyroid tabloids. 3. The shifting of the site of abnormal bony growth. 4. The long period of observation, 8 years. The first enlargements were of the hands and feet and the upper jaw. After 5 years, enlargement of the clavicles, scapulas, and ribs began and has progressed steadily up to the present time. The jaw and the larynx have not increased in size since 1898.

Nature of Cirrhosis of the Liver.

DR. A. O. J. KELLY, Philadelphia, said that the changes found indicate that cirrhosis of the liver is primarily a degenerative process involving the parenchyma of the organ. In addition to changes in the cells they become arranged irregularly as regards each other and the central vein; in some lobules the vein cannot be recognized. This degenerative change is followed by reparative processes on the part of the parenchyma as well as by hyperplastic changes in the connective tissue. Clinical observations of the size of the liver in 110 cases of cirrhosis showed that in 40 per cent. the liver was enlarged, this being true even of some cases accompanied by ascites. In a number of cases the cause of ascites was evidently peritonitis rather than the condition of the liver itself.

Pathologic Anatomy of Exophthalmic Goiter.

DR. W. G. MACCALLUM, Baltimore, found constant changes in the thyroid in 28 cases, consisting principally of budding or proliferation of the alveoli of the gland. The changes, though constant, were not always of equal intensity. In the 9 cases in which they were studied, the parathyroid glands were practically normal.

Officers Elected.

President, Frank Billings; Vice-President, F. P. Kinnicutt; Secretary, Henry Hun; Recorder, Solomon Solis Cohen; Treasurer, J. P. Crozer Griffith; Councilor, T. Mitchell Prudden.

ILLINOIS STATE MEDICAL SOCIETY.

(Concluded from page 1706.)

SURGICAL SECTION.

Surgery of the Stomach.

DR. ARTHUR DEAN BEVAN, Chicago, said that stomach surgery to-day stands out as the most gratifying surgical field in the process of rapid development. This fact is perfectly patent that the demonstrated value of surgical procedures in treating stomach lesions warrants a much wider application of such methods than are at present practiced. His plea is that the cases must be carefully selected and the surgeon must be sure that an operation is strongly indicated. Cases that can be cured by a summer's outing or by carefully selected diet should not be operated on; nor should hopeless cases be operated on. He discussed the surgery of the stomach under two heads: First, surgical treatment of carcinoma of the stomach, and, second, the surgical treatment of ulcer and its complications and sequelæ. If cases of carcinoma of the stomach are diagnosed early, and operated on at a time when the entire focus of disease can be removed, a cure can be effected. As to stomach ulcer, when intelligent medical treatment fails and the symptoms return and persist, then, and not till then, does the uncomplicated stomach ulcer become a surgical problem. The great majority of cases of perforation of the stomach by ulcer can be saved by early surgical interference.

DR. E. WYLLYS ANDREWS, Chicago, discussed perigastric adhesions after gall stone operations, pointed out their surgical importance, and described a new operation for their relief.

DR. CARL E. BLACK, Jacksonville, discussed the surgery of the bile tracts.

DR. EMERSON M. SUTTON, Peoria, discussed the possibilities of surgery of the duodenum.

DR. M. L. HARRIS, Chicago, spoke of the surgical treatment of injuries to the spleen due to subcutaneous penetrating wounds, and pointed out the value of splenectomy in certain anemias associated with enlargements of the spleen.

Surgical Tuberculosis.

DR. WM. E. GUTHRIE, Bloomington, said that while physicians should study how to help tuberculous patients by the proper removal of diseased tissue, they should not forget that vastly more necessary is the conservation of the power of resistance of the patient to disease through suitable hygiene and forced feeding. He who would treat tuberculosis in any form successfully must have for his watchword, feed, feed, feed.

Tubercular Nephritis.

DR. ROBERT CHRISTIE, Quincy, reviewed the literature of this subject with reference to comparative frequency and alluded to the more recent investigations and observations that have been made. He discussed the modes of infection, primary, secondary, metastatic atypical cases, without characteristic symptoms, other than localized tumefaction, and reported a case in which he did a primary abodminal nephrectomy, which was followed by recovery of the patient.

Errors in the Diagnosis of Abdominal Troubles.

DR. CLIFFORD U. COLLINS, Peoria, said that perfection in diagnosis marks the highest development in science and medicine. With a correct diagnosis it is not hard to institute the proper treatment. The development of diagnosis has been a difficult process marked by many errors. While one is endeavoring to approach perfection in diagnosis, it is highly probable that errors will always be made. Although errors are annoying, each one conveys a lesson, and, if studied and interpreted correctly, will result in much good to the examiner. The keeping of complete case records will permit of close and careful study of each error and lead to success, because "success does not consist of not making any mistakes, but in not making the same mistake twice."

Congenital Club-Foot.

DRS. JOHN RIDLON and CHARLES E. EIKENBARY, Chicago, discussed the varieties of congenital club-foot; also the anatomy of congenital equinovarus and the theories of its causation. They discussed treatment by manipulation, by braces, by the Thomas wrench, by hand modeling, with the patient anesthetized, by the Granton osteoclast, by simple tenotomies supplemented by modeling, or the use of the wrench, or the osteoclast by the Phelps open incision and Jones' modification of it, and by linear and cuneiform ostectomy and enucleation of the astragalus. The methods of after-treatment by plaster splints and by braces were briefly considered and the statistics of Dr. Ridlon's cases for the past twelve years were given.

Diagnosis and Pathology of Neoplasms of the Brain.

DR. HUGH T. PATRICK, Chicago, said that the most frequent tumors were glioma, sarcoma, and solitary tubercles. He enumerated the less frequent forms. Structure and manner of growth of tumors and the physical properties of more frequent tumors were pointed out. As to diagnosis, the determination of intracranial neoplasms is generally easy. Exact localization, however, is generally difficult, frequently impossible. He mentioned the classical symptoms of brain tumor and the points of differential diagnosis. The tumor may simulate apoplexy. General paresis, arteriosclerosis, nephritis, migraine, etc., were discussed in connection with brain tumors; also the symptoms indicating the seat of growth.

Insanity Following Skull Injuries.

DR. E. MAMMEN, Bloomington, referred to contusions, concussions, the location of injuries, fractures, and symptoms following skull injuries. The symptoms are sometimes slow in development. He spoke of the changes in the tissue at the site of injury, described an operation for relieving pressure, and

spoke of the relief following the removal of changed tissues. He cited illustrative cases and gave the results.

Cerebral Infection from Middle Ear Disease.

DR. NORVAL H. PIERCE, Chicago, referred to the anatomic paths by which suppurations within the temporal bone reach the contents of the calvarium. He discussed the character of the primary inflammations which produce intracranial complications, as well as the influence of locality of the primary inflammation on the different intracranial complications. Purulent inflammations of the dura and extradural abscess were discussed. He referred to meningitis and meingoencephalitis serosa following suppurations within the temporal bone; also to phlebitis and thrombosis of the dural sinuses and of the jugular vein. Reference was made to isolated thrombosis of the jugular bulb and to otitis brain abscess.

Prophylaxis of Syphilis.

DR. ALFRED SCHALEK, Chicago, said there is renewed activity in this direction among physicians. The reasons are not an increase in the number of cases, nor a more severe course of the disease, but better statistics and the present improved prophylactic measures against other infective diseases. The spread of syphilis can be limited by means which apply to the general public and to the individual. The former includes control of prostitution, but has proved a failure. Impracticable also is the suggested compulsory report of cases by physicians. A better measure is the education of the public as to the nature of the disease. Instructions should be given how to avoid infection innocently. He makes a plea for increased facilities for treatment in hospitals and dispensaries. The author thinks that at the present time the most valuable prophylaxis against syphilis ought to be practiced by the medical profession in their relations with their patients. Since no methods are known to abort the disease after infection occurs, the most important duty is thorough treatment.

Some Cases Demanding Removal of the Eye.

DR. J. BROWN LORING, Chicago, discussed the responsibility resting on the physician and surgeon, as well as the ophthalmologist, with regard to the treatment of blind eyes. Reports were given of three cases of sarcoma, one of glioma, and five of iridocyclitis of various origin, causing or threatening sympathetic ophthalmia. The first four cases indicated danger to life, the others danger to sight. Statistics were given as to the frequency of sympathetic ophthalmia. Attention was called to the unsatisfactory and at times contradictory manner in which the subject of treating eyes blind from iridocyclitis is discussed in modern text-books. A plea was made for a more radical treatment of these cases from every standpoint.

Immediate Diagnosis and Treatment of Lacerations of the Vagina and Pelvic Floor and Perineum.

DR. C. S. BACON, Chicago, classified tears as external and internal. In both there are many grades, and either may be simple or combined with those of the other class. Diagnosis concerns both the finding of these lacerations and determining their extent and importance. Both touch and inspection are employed. The pain caused can be disregarded, but the risk of infection is considerable and should be carefully considered. Hirst's proposed delay of all examination and operation till the end of a week is not practicable, and the author favors immediate examination and repair, but only with as careful asepsis as would be employed in a secondary operation. In a non-operative labor, when there is no hemorrhage with the expulsion of the head, and no severe external tear, there will be no internal laceration, and an internal examination is unnecessary.

Hemorrhage is rarely an indication for operation in vaginal and perineal tears. The bad results of unimpaired lacerations are generally the reasons for operation. Spontaneous repair is a delusion. Proper preparation is very important in all repair operations. Especial attention should be given to vaginal lacerations which involve the pelvic diaphragm and extend into the central detachments of the accessory diaphragm, but do not implicate the skin surface. Here the skin bridge may be cut and the repair made as in a combined vaginal and perineal laceration, or the internal suture can be applied so as to bring in apposition the divided structures. The perineal sutures of silkworm gut must not be tied too tightly. In a complete rupture the method of restoring the rectal tube by passing the suture through the rectal mucous membrane is preferred to the passing of the suture from the perineal side. The author prefers cutting the ends of the perineal sutures short. He discards powder. Catheterization is unnecessary. A wide occlusive dressing, fastened by the four corners to the abdominal bandage, is much better than the ordinary dressing held by the T bandage. Chief stress is laid on attention to details in the preparation for and technic of operation, without which poor results and total failures furnish grounds for discarding immediate operations.

Pelvic Infections in Women.

DR. T. J. WATKINS, Chicago, said that pelvic infection was preferable to pelvic inflammation as a name to designate disease, as infection injures and destroys tissue, whereas inflammation tends to conserve tissue. He alluded to the importance of the disease and said that the same principles are involved in pelvic infections as in infections in other parts of the body. He considered the etiology, pathology, symptomatology, diagnosis, prognosis and treatment. The importance of prophylaxis was pointed out. Topical applications are often of little or no value. Conservatism during the acute stage is of great importance. Spontaneous and complete recoveries sometimes ensue.

DR. FERNAND HENROTIN, Chicago, made some remarks concerning when and how to treat septic pelvic affections of women by vaginal incision and drainage.

DR. GEORGE SCHMAUCH, Chicago, discussed the diagnosis and treatment of rupture of the uterus.

DR. L. H. NICKERSON, Quincy, discussed the diagnosis and treatment of laceration of the vaginal portion of the uterus and fornix vaginæ.

Intussusception in Infancy and Childhood.

DR. J. H. HESS, Chicago, stated that (1) intussusception demands an early diagnosis and immediate treatment. (2) Abstinence from all food, and, far more important, purgation must absolutely be prohibited. The question of sedatives in the form of opium, etc., must rest with the physician. (3) Irrigation may be tried once or twice under the proper conditions and in properly selected cases. Preparation for immediate laparotomy should be made in the case of failure. Hot salt solution or plain water may be used under a pressure of not more than three feet, the fluid being allowed to remain in the bowel for not less than ten minutes. He pointed out the contraindications to irrigation as follows: (1) Recurrence after a previous complete or partial reduction. (2) The very acute and severe types of this disease, which result in early destruction of the bowel wall, but which cases are fortunately not the most frequent type. (3) Where there are signs of beginning gangrene or ulceration evidenced by subnormal temperature, profound toxemia and other septic symptoms. (4) Enteric intussusceptions. (5) Laparotomy should follow failure of irrigation without delay. One should attempt simple reduction from below upward. In irreducible cases, resection within the bowel in selected cases, or, where this is not feasible, resection with end-to-end anastomosis should be attempted where the patient's condition makes it practicable. An artificial anus or simple packing about the bowel requires a secondary and only too frequently a fatal operation.

Bronchoscopy for the Removal of Foreign Bodies from the Lungs.

DR. E. FLETCHER INGALS, Chicago, mentioned previously reported cases, discussed the removal of foreign bodies by the upper and lower routes and described the instruments used in removing these bodies.

Other Papers Read.

DR. GEORGE E. SHAMBAUGH, Chicago, discussed the indications for opening the mastoid process in cases of acute empyema of the cells where there is an absence of signs over the external surface of the mastoid.

DR. JAMES W. TWITCHELL, Belleville, reported a case in which recovery occurred following a perforated wound of the intestine without surgical interference.

The following papers were also read:

"The Value and Place of Duodeno-Choledochotomy in Gallstone Surgery," by Dr. John C. Hancock, Dubuque, Iowa; "Inversion of the Uterus, with Report of Cases," by Dr. P. L. Markley, Rockford; "Pathology and Diagnosis of the Lesions of the Spinal Cord and Peripheral Nerves," by Dr. F. P. Norbury, Jacksonville; "Malignancy in Uterine Myomata," by Dr. Henry F. Lewis, Chicago; "Air Examinations, Importance and Results," by Dr. Adolph Gehrman, Chicago; "Typhoid Fever," by Dr. G. G. Craig, Rock Island; "Cases of Erysipelas Treated with Marsh Purslane," by Dr. H. C. Mitchell, Carbondale; "Respiratory Oxidation Stimulants in Nephritis, Pulmonary Dyspneic and Allied Crises," by Dr. Geo. F. Butler, Chicago; "Syphilitic Meningitis in Children," by Dr. Wm. J. Butler, Chicago; "Pneumonia in Children," by Dr. J. C. Cook, Chicago; "Case of Poisoning from Oil of Wintergreen," by Dr. F. C. Vandervort, Bloomington; "Stricture of Esophagus Following Typhoid Fever, Colloid Carcinoma of Cecum, Penetrating Wound of Liver and Gastroenteroptosis," by Dr. S. C. Plummer, Chicago; "The Commerce of Surgery," by Dr. Fernand Henrotin, Chicago.

The last mentioned paper will be published in full in THE JOURNAL.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, April 12, 1905.

The President, DR. JAMES M. ANDERS, in the Chair.

Resection of Elbow.

DR. G. G. DAVIS exhibited a girl of thirteen, who, at the age of seven, sustained an injury of the elbow resulting in stiffness. Two years ago there was pain and discharge. On account of the excessive pain, the ulnar nerve was freed, but the pain continued. A skiagraph showed ankylosis of the bones of the forearm with those of the arm. He made a resection, and the result is ability to do light housework and the use of the arm in sewing. The apparatus used to secure motion was an attachment to the forearm with a light weight allowed to hang at the back.

DISCUSSION.

DR. HENRY E. WETHERILL thought the light weight employed by Dr. Davis an improvement over the heavy one of a flat iron sometimes used to maintain motion. He showed a small device cut from wood, on the plan of the stethoscope, for measuring the amplification of sound of the aortic and other valves. The instrument is flute-like in appearance, is placed in the ear, and the fingers one after another taken off of the holes until the sound is not heard. The roaring, a troublesome feature of the ordinary stethoscope, is avoided by the use of a pinhole. The instrument has proved of practical value.

Encysted Calculus Removed by Suprapubic Cystotomy. Enlarged Prostate.

DR. EDMUND W. HOLMES reported a case of encysted calculus removed by suprapubic cystotomy from a patient, aged 45, presenting the classical symptoms of stone in the urinary bladder. Under ethyl chlorid anesthesia the bladder was washed out with a Bigelow evacuator and a careful systematic search made with a sound. The shadowgraph showed the presence of a small calculus. Suprapubic section revealed the calculus encysted in the lower, posterior wall of the bladder. Its complete encapsulation had caused failure of detection by the sound.

Dr Holmes also reported a case of enlarged prostate removed by perineal prostatectomy in a man aged 72. The first attack of retention of urine had occurred five years ago requiring catheterization for about two weeks. In August, 1904, there was a second attack during which catheterization became difficult and painful. Dr. Holmes saw the case in consultation, and subsequently did a perineal prostatectomy. Later, the patient refused catheterization; the fistula remains in the perineum (8 months after operation). The man has complete control over urination, the urine passing out altogether through the opening in the perineum. The man is in good health.

Posterior Gastrojejunostomy for Benign Stenosis of the Stomach.

DR. WILLIAM H. MORRISON presented the following case: The patient, male, aged 44 years, came under observation in August, 1904, with evidences of almost complete stenosis of the pylorus and great dilitation of the stomach. During the previous four years there had been three attacks of gastric hemorrhage. He vomited almost daily, and in the vomitus were frequently found articles that had been eaten one or two days previously. There was great weakness and emaciation. No tumor could be detected. A posterior gastrojejunostomy, with the Murphy button, was done on Nov. 4, 1904. Recovery from operation was rapid and complete. All symptoms of digestive disorder disappeared, and the patient was able to eat and digest all varieties of food. Strength and flesh were rapidly regained and in four months the weight increased forty pounds. The button was not found.

DR. WILLIAM L. RODMAN regarded the case a proper one for gastrojejunostomy, and agreed with Dr. Holmes that the Murphy button still has its place in gastric surgery. The operation of anterior gastrojejunostomy, he believes, is passing out of use.

Epidemic Cerebrospinal Meningitis.

DR. JAMES C. WILSON read this paper, which was published in THE JOURNAL, April 29, 1905, p. 1334.

DISCUSSION.

DR. JAMES TYSON said that there is a tradition that the epidemic which occurred during the war of the Rebellion was introduced by returning soldiers, and that there was also a popular belief that the cause of the disease lay in molded hay. Since that time, cerebrospinal fever has never entirely disappeared from Philadelphia. The most important question of the subject is that of its contagiousness. While Dr. Wilson had deduced remarkable cases, apparently dependent one on another, he recalled a paper by Dr. A. C. Abbott before the Philosophical Society citing cases occurring one after another in the most remote districts. Dr. Tyson believes that the disease is to a certain extent contagious, but not virulently so, as compared with typhoid fever. He is favorably inclined toward the submersion treatment of the paralytic phenomena. In a case of almost total paralysis, this treatment, in conjunction with massage, has brought about almost entire recovery. The principle of the treatment is to place the patient in a bath of warm water and to encourage voluntary motion, which is accomplished with greater facility than in the open air.

DR. A. C. ABBOTT said that there appears to be a pneumococcus meningitidis, which is differentiated only by the modern method of lumbar puncture, or is found at autopsy. The opinion is becoming prevalent that, as in the case of pneumonia, there are individuals going about harboring the organism which the profession regards as the most productive factor of meningitis. It would look as if the widespread appearance of the disease, as it is understood, often may be due to auto-infections that are induced by some undetermined etiologic factor concerned with a corresponding outbreak of pneumonia. What that factor is, has not yet been determined.

The opinion is general that if the disease is transmissible at all, it is mildly so, and the experience of the Department of Health in Philadelphia has not been different from that of others. Up to the present time there have been reported at the Health Department, since September, 58 cases of cerebrospinal fever, with 18 deaths, a mortality of 31 per cent., and this is not allowing for erroneous diagnoses or doubtful cases. Of 34 histories, 6 cases were very doubtful; 5 were almost certainly tubercular. Two of these were shown to be tubercular by lumbar puncture, and 2 cases by lumbar puncture at the autopsy were found to be due to pneumococcus, so that out of the 34 there were 13 which might be taken out of the original 58. From records of outbreaks it appears that the disease is very mildly contagious.

DR. LONGCOPE gave a review of the bacteriologic work in acute meningitis in the Pennsylvania Hospital in the past two years. Eighteen spinal fluids of such cases have been studied. In 4, the pneumococcus was found, and in 12 the meningococcus. There were excluded 8 cases in which the tubercle bacillus was found. In 1 case, the organism was found on the third and fourth days of the disease. In 385 autopsies,

there were 24 cases of acute meningitis and 15 of tubercular meningitis. Six of these were due to either the streptococcus or staphylococcus, and were secondary to scalp wounds, otitis media, or to fractures of the skull. He referred to the conjunctiva as being an additional source from which the organism may be distributed. In one of the cases at the Pennsylvania Hospital there was severe purulent conjunctivitis in which the meningococcus was isolated. The case came to autopsy and the lesions were typical of acute meningitis and the organism was found again in the exudate.

DR. FRANK WOODBURY believes that treatment should not be directed too markedly to the lesion in the nerve centers, brain and spinal cord, because the disease is primarily a blood infection. He advocates the administration of such antiseptics as would be destructive to the meningococcus in the blood, and wherever the blood would carry it into the brain and spinal cord. Such antiseptics are creosote, guiacol, betanaphthol and other coal-tar derivatives. It seems to him possible that these cases may be favorably influenced by injections of formaldehyd into the blood.

DR. NORMAN B. GWYN referred to his observation of an epidemic of cerebrospinal fever in 1899. Eleven cases were attended in the hospital and seen frequently by doctors, nurses and students, yet there was no development of the infection among the attendants. On the other hand, one of the cases gave a distinct history of having been 24 hours before in the barracks from which several cases of meningitis had been reported. Among the interesting observations of these cases was the development of chronic cases in which there was fever, typhoidal in type, with the temperature running to 105-6. which might persist for five to seven weeks. There were cases with acute symptoms, such as convulsions. In each case lumbar puncture was not only of value as a diagnostic measure, but of very material value in relieving the distress of the patients. Convulsive seizures could be allayed as the fluid was drawn from the cord. In the bacteriologic study, the *Diplococcus intracellularis meningitidis* was obtained without difficulty in every acute case. As the case developed into the chronic stage, it became more and more difficult to find the organism in the fluid. Blood cultures, in one case, demonstrated the presence of the meningococcus. In this case there was severe arthritis, and the meningococcus was found in the joint fluid. In many cases the severe symptoms of meningeal irritation, such as rigidity, were frequently relieved by immersion in hot water. In one case, surgery was resorted to. The needle brought away thick pus in which the staphylococci were readily demonstrated. The spinal cord was opened and freely drained and the case did remarkably well for some weeks, but died later from secondary infection of the fluid.

DR. GWYN believes that the suggestion of the disease being a blood infection should be given more consideration, and thinks it possibly due to this that surgical procedures have failed.

DR. WILLIAM WADSWORTH spoke of the probable outbreak of meningitis following a similar infection in horses.

DR. J. B. CROZER GRIFFITH referred to his experience in the Children's Hospital. Each year brings to the hospital some cases of what may be called cerebrospinal fever. Though they have come in groups of two or three from a family, they are usually isolated, and all the types have been presented. There has never been a spread of the infection in the hospital, and the cases are not isolated. He emphasized the marvelous irregularity of the disease in type. He referred to one case outside the hospital which was absolutely typical. Another was fairly pneumonic, and in a third, it would have been said there was present an ordinary pneumonia, were it not for the observation of a little more rigidity and tendency to abdominal rash than is expected.

DR. A. E. ROUSSEL emphasized the fact that even in acute cases the *Diplococcus intracellularis* is not found on the first examination. In one case mentioned in the literature as many as three examinations were made before the organism was isolated. In subacute cases the organism is not found at all. In one case, lumbar puncture was performed twice, and was negative in both instances. The patient improved, but afterward passed into a chronic state. Death occurred outside of the hospital, and it was said that the postmortem was entirely corroborative of the diagnosis.

DR. BOYER, of the Municipal Hospital, said that nine cases of cerebrospinal fever had been sent to the hospital since December, of which a full report would be made at some future time. In one case, on the fifteenth day, there was a leucocytosis of 49,000; on admission, the count was 17,600. One case showed a count of only 7,400. In 7 cases the diplococcus was secured from the spinal fluid and from the nasal mucous membrane. Kernig's sign was present in all the cases. Three gave positive Widal reaction. In none of these three was there any sign of enteric fever. All had retraction of the head and stiffness of the back. Babinsky's sign was met with frequently. The first symptom noted was anesthesia of the conjunctivæ, and generally of the corneæ. In several instances in which it was thought there were pressure symptoms, lumbar puncture did not show excess of fluid. This, he thought, was due to the fulminate type of the disease. In the nine cases in the Municipal Hospital not one vomited while in the hospital. In one case there was marked keratitis, and in one, ulcer of the cornea. The latter showed the meningococcus.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held at Washington, D. C., May 18-19, 1905.

(*Concluded from page 1708.*)

Resolutions on Governmental and Private Responsibility.

The following resolutions, already referred to, were offered by Dr. H. S. Anders and were adopted:

WHEREAS, The sanatorium is now recognized as constituting one of the most valuable agents in the treatment of tuberculosis; and

WHEREAS, In the face of the still enormous needs of the tuberculosis problem hardly more than a fair beginning has been made in its solution: be it

Resolved, That we emphasize publicly and primarily the duty of governments, especially state and municipal, in the more general founding and maintenance of such sanatoria and encourage the philanthropic opportunity of private individuals to the same end. Further, be it

Resolved, That we emphasize the educational, disciplinary and hygienic value of these sanatoria and special hospitals, not only to the segregated, instructed and aided patients themselves, but to the general practitioner and to those patients themselves, but to the general practitioner and to those patients for whom institutional treatment is not possible or feasible.

Early Diagnosis.

The report of the committee on early diagnosis, referred to below on page 1805, will be published in full in THE JOURNAL.

PATHOLOGIC AND BACTERIOLOGIC SECTION.

Channels of Infection in Tuberculosis.

DR. WILLIAM H. WELCH, Baltimore, was introduced by Chairman M. P. Ravenel and delivered the introductory address. Although there are many conflicting statements and theories regarding tuberculosis questions, they do not materially influence measures of protection against the disease which must be carried out on broad lines in which there is more unanimity of opinion. Dr. Welch does not believe the statement of some writers that 98 per cent. of all persons of more than 20 years possess tuberculous lesions. That the small specks seen in organs and called by some tuberculosis are due to attenuated bacilli, as has been suggested, is a question for study. On the whole, it is not best so to regard them. Welch agrees with Cornet as to the fallacy of giving the frequency of tuberculosis in terms of those dead; it should rather be based on the living. If every person that died was subjected to postmortem, such high figures would not be obtained. Again, the conclusion that one person is resistant and another is susceptible, because the first escapes lesions and the second does not, is not justified; the virulence of bacilli in the two instances may be the reason. Welch does not wish to be understood, however, as not believing in predisposition to tuberculosis; he does, but does not like the term ubiquitous as applied to the bacillus. This indicates that it is widespread and aggressive as are the common pyogenic organisms, a view that can not be endorsed.

As to the origin of tuberculosis from bovine and from human sources, the transmissibility of human bacilli to cattle has been demonstrated beyond a doubt. In this connection two points are yet to be determined: (1) The frequency in human beings of tubercle bacilli virulent to cattle, and (2) what percentage of these organisms came originally from cattle. The transmissibility of bovine bacilli to human beings can not be demonstrated experimentally and must be judged from inferences. One method of doing this is careful clinical study, but conclusions therefrom are open to such fallacies that they rarely or never can be considered positive. Another method is to study the localization of the disease, principally as to whether there is primary intestinal tuberculosis. Here we are met with the fact that many of these intestinal lesions are not bovine in origin.

Regarding primary intestinal tuberculosis, there is the most remarkable variation in statistics. Welch can explain them in no other way than by supposing that the incidence is greater in some localities than in others; the irregularity remains a mystery. The whole determining point is the character of the bacilli found in the lesions. This will prove an exceedingly laborious task to perform and it will be a long time before there are sufficient data to settle the question. There is now enough evidence to indicate that the majority of cases are due to the human bacillus, but cases of undoubted bovine origin have been found and render infection from this source a by no means negligible factor. The view of Behring that infection occurs in early childhood and that nearly all cases are bovine in origin, can not be maintained. His assertion, however, is likely to lead to as important investigation as did the famous statement of Koch, and hence is of value. A sufficient number of cases of congenital tuberculosis have been demonstrated to show that this is not a pathologic curiosity; Schmorl's studies indicate that the entrance of tubercle bacilli into the fetus of a tuberculous mother is not uncommon, and the possibility of infection thereby is not to be disregarded by physicians. Regarding the relative frequency of respiratory and alimentary infection in tuberculosis, Welch says that though the latter is far more frequent than was formerly supposed, cases of respiratory infection are still the more numerous.

The Value of Serums in Protection, Diagnosis, Prognosis, and Treatment of Tuberculosis.

DR. A. J. RICHER, Montreal, obtained surprisingly good results from the use of Marmorek's antitubercular serum in 7 advanced and 9 incipient cases. The action appears to have been specific, as it did not fail in any instance. His method of employing the serum is to give 10 c.c. during the first three days, 2, 4, and 4 c.c. respectively, then rest ten or fifteen days. The three doses are then repeated, with the same resting period alternating, until 50 c.c. have been given. Finally, 5 c.c. are given monthly for four or five months.

DR. G. FIGARI, Genoa, reported on the natural and artificial protection of man against tuberculosis. He obtained the most hopeful results from the use, by the mouth, of substances found in the blood, milk and flesh of animals in which the production of immunity has been attempted. By administering the serum of such animals, a certain degree of immunity in human beings may be attained. The results have been sufficiently encouraging to warrant the trial of this method of protection in the children of tuberculous parents and in others specially predisposed to the disease.

DRS. H. M. KINGHORN, Saranac Lake, and M. P. RAVENEL and H. R. M. LANDIS, Philadelphia, considered the serum diagnosis of tuberculosis. Lack of correspondence in certain features of the two reports appear due to differences in the cultures employed, the standardization of which is the greatest difficulty to overcome in this work. Kinghorn, in an experience with 62 cases, found reaction usually absent in far-advanced cases and most often present in favorable cases. His results do not lead him to rely on the method as a sure or reliable test of tuberculosis. Landis also concludes that the agglutination test is not available for diagnosis. A low agglutinating power is unfavorable in prognosis. His experiments indicate that the resisting powers of individuals are increased by sanatorium life.

DRS. BALDWIN, KINGHORN, ALLEN, and NICHOLS, Saranac Lake, dealt with the serum and tissues of immunized rabbits. The results were largely negative, one point being there is no marked difference in opsonic power of immunized and control animals.

Papers were also read on "The Blood in Tuberculosis," by J. Ullom and F. A. Craig; "Tuberculosis of the Thoracic Duct and Acute Miliary Tuberculosis," by W. T. Longcope; "Studies in Mixed Infection in Tuberculosis," by M. P. Ravenel and J. W. Irwin; "The Thyroid Gland in Tuberculosis," by W. B. Stanton, and "Landry's Paralysis Complicating Tuberculosis," by D. J. McCarthy, all of Philadelphia, and on "The Vitality of the Tubercle Bacillus in Sputum," by D. C. Twitchell, Saranac Lake.

CLINICAL AND CLIMATOLOGIC SECTION.

Clinical Nomenclature.

This subject was presented in the form of a report of a committee of six of which Vincent Y. Bowditch, Boston, is chairman. In general, the outline suggested by the committee follows that of Turban in order that statistics here may be compared with those of Germany, England and France in which that classification is used. Minor changes only have been made. The point in the report which brought out the most discussion is that relating to the term "cured," which is defined as the condition in which "all constitutional symptoms and expectoration with bacilli are absent for a period of two years under ordinary conditions of life." This time was considered too short by many speakers. Some objected to the word "cure" in this connection as tending to create in the minds of patients a false sense of security, and rendering more difficult the enforcement of proper methods of living after treatment. The report as presented was finally adopted, as was also a resolution asking that a copy be sent to each member of the association and each tuberculosis organization in the country with the request that the outline be followed for a year and any criticism based on actual use be sent to the committee before the next annual meeting.

The Relation of Tuberculosis to Life Insurance and to Insurance Companies.

DR. C. L. GREENE, St. Paul, called attention to the great loss to insurance companies from tuberculosis, and the need for enlisting them in the work projected by the association. He feels confident that insurance companies are ready to help if the matter is properly presented to them. The aid they might give in disseminating literature, with their enormous circularizing facilities, can hardly be estimated. They also should be solicited for aid in erecting sanatoriums in view of treating therein policyholders who contract the disease. Discussion of this subject led to the resolution adopted in the general meeting.

Early Diagnosis.

DR. ARNOLD C. KLEBS, Chicago, presented the report of a committee of five on this subject. The report discusses in detail physical signs and methods of diagnosis. The use of newer methods, such as tuberculin, iodin, and the Röntgen ray, is discouraged, emphasis being placed on the value of older means carefully applied. Discussion brought out many opinions favorable to the use of tuberculin. The need of better instruction of medical students in the diagnosis of incipient cases was particularly emphasized.

Open-Air Treatment of Surgical Tuberculosis.

DR. W. S. HALSTED, Baltimore, gave notes on 13 cases which illustrate the favorable results to be obtained from proper outdoor life for such patients. Some of the results were remarkable when compared with the slow progress, or lack of progress, of the case while indoors. This salutary effect is also shown by the results of the seaside treatment of surgical tuberculosis at Sea Breeze, Coney Island.

Role of Climate in the Management of Tuberculosis.

DR. C. L. MINOR, Asheville, presented an introductory report of a committee of six members, which was adopted after considerable discussion.

Influence of the Advent of the Tuberculous on Native Populations.

DR. C. F. GARDNER, Colorado Springs, said that theoretically the danger in this regard is very great. Practically, the general statement to be derived from answers to letters sent to 50 resorts is that non-imported tuberculosis in such places has not increased as a result of the advent of tuberculous patients.

Sanatorium Treatment of Consumption.

Several papers were read on each of the two subdivisions of this topic: (1) cases demanding sanatorium treatment regardless of climate, and (2) cases for which sanatorium control may be regarded *sub judice*.

DR. J. P. C. FOSTER, New Haven, advocated the systematic detention in hospitals, by health officers, of indigent consumptives, even though they are able to earn their living. Such people are a menace to others and should be provided for by each city or town. The general result of sanatorium treatment as voiced by all the speakers is favorable; as yet there is nothing to equal the hygienic treatment of tuberculosis.

There was also read papers in the after-treatment of tuberculosis, forms of buildings suitable for open-air treatment, and clinical studies of the disease.

DR. H. M. BIGGS, New York, presented the introductory report of a committee of four members, which recommended for distribution among the people a leaflet somewhat similar to those used by health authorities in Germany.

At a testimonial dinner to Dr. Trudeau a general tribute of honor was paid Dr. Trudeau for his far-seeing efforts in behalf of the tuberculous, efforts which, at first derided, have, nevertheless, borne wonderful fruit.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Alcohol Habit.

T. Haven Ross, in *N. Y. Med. Jour.*, states that the first thing to do in the management of the alcohol habit is to regulate the diet and hours of rest. Explain to the patient, to some extent, the pathologic effect of the abuse of alcohol, and impress on him the importance of avoiding temptations.

Mental treatment is as important as that of drugs, and when the two are properly united in their proper proportions they are very efficacious. In regard to the treatment of the physical state, the first thing to do is to clear out the gastro-intestinal tract. The author prefers calomel in small doses, giving grain 1/10 (.006) hourly until a free watery stool is produced, followed by a saline, if there are any signs of nephritis present. The liver must be kept active, and this is best accomplished by the administration of the following combination:

℞.	Enonymin ..... gr. 1/8		008
	Res. podophylli ..... gr. 1/20		003
	Pulv. ipecac ..... gr. 1/8		008
	Hydrarg. chloridi mitis ..... gr. 1/8		008
	Aloini ..... gr. 1/12		005

M. Ft. capsula No. i. Sig.: One such capsule at bedtime.

The foregoing dose should be regulated to meet the needs of the individual case, as one natural bowel movement, as a rule, should be obtained daily and in some cases two or three times daily. In the general systemic treatment, the author relies on strychnin and ergot assisted by a safe hypnotic and a proper tonic. He prefers the nitrate of strychnia to any other form, giving it in doses of gr. 1/30 (.002) every four hours. This dose should be increased or diminished to suit the individual case. This dose, according to the writer, stimulates digestion, and tends to reduce excitability of the brain and spinal cord. It stimulates respiration, the heart's action and vasomotor centers, replaces alcohol as a stimulant, and acts as a "mental" antidote to alcohol. Care should be observed in its use in order to avoid any cumulative action. He prefers this preparation to nux vomica. Ergot is also recommended, given by the mouth or hypodermically, in order to avoid gastric irritability. Ergot should be given as often as necessary to control the circulation of the blood through the system and to prevent those symptoms that follow the reduction or withdrawal of alcohol. By this preparation the so-called "wet brain" can be avoided.

As a tonic and stomachic, one of the bitters containing iron is preferable. No rule should be laid down as to whether the alcohol should be withdrawn gradually or suddenly, as the physical and mental condition of the patient should decide that. In the majority of cases, however, the author recommends the withdrawal of alcohol at once and supplying the cravings of the system with the foregoing treatment. If opium is required at any stage of the treatment, it should be given without the patient's knowledge.

After the desire for drink has ceased, the hepatic and general tonics should be continued for some length of time afterward.

Hiccough.

Robin, in *Med. Press*, recommends the following combinations in relieving hiccough:

℞.	Picrotoxin ..... gr. i		06
	Alcoholis q. s.		
	Morph. hydrochlor. ..... gr. i		06
	Atropinæ sulph. ..... gr. 1/5		012
	Ergotin ..... gr. xv	1	
	Aquæ laurocerosi ..... ℥iii	12	

M. Sig.: Five drops four times a day. And

℞.	Magnesiæ (calcined) ..... gr. xxx	2	
	Sodii bicarb. ..... gr. xx	1	30
	Codeinæ ..... gr. 1/5		012
	Bismuthi subnit. ..... gr. xv	1	
	Pulv. cretæ ..... gr. xv	1	

M. Ft. chartula No. i. Sig.: One such powder three times daily.

The following combinations have also been recommended by different authorities in the treatment of hiccough:

℞.	Strych. sulph. ..... gr. 1/4		015
	Spts. chloroformis. ..... m. x		65
	Alcoholis ..... ℥vi	24	
	Tinct. capsici ..... m. xii		005
	Aquæ q. s. ad ..... ℥i	30	

M. Sig.: One teaspoonful in a tablespoonful of water and repeated two or three times during the day; or:

℞.	Sodii bicarb. ..... ℥iv	15	
	Tinct. nucis vom. ..... ℥i	4	
	Spts. chloroformi ..... ℥ii	8	
	Tinct. capsici ..... ℥i	4	
	Tinct. gentianæ co. ..... ℥iii	90	

M. Sig.: One teaspoonful after meals, in cases of gastric or intestinal disturbance; or:

℞.	Chloralis hydratis ..... gr. xx	1	30
	Potassii bromidi ..... ℥ii	8	
	Mucilag. acaciæ ..... ℥iv	120	

M. Sig.: To be given at one dose by rectum.

When there is hypochondriasis or hysteria as a primary cause, the following combinations after Beasley are of value:

℞.	Moschi ..... gr. v		30
	Zinci valerianatis ..... gr. v		30
	Asafetidæ ..... gr. iii		20

M. Ft. capsula No. i. Sig.: One such to be taken twice daily; or:

℞.	Tinct. moschi ..... m. xxx	2	
	Tinct. sumbul ..... m. xxx	2	
	Tinct. cannabis ind. ..... m. v		30
	Tinct. ammon. valer. ..... m. xxx	2	
	Mucil. acaciæ ..... ℥i	4	
	Aq. chloroformi q. s. ad ..... ℥i	30	

M. Sig.: To be taken at one dose and repeated once during the day; or:

℞.	Moschi ..... gr. v		30
	Mucil. acaciæ ..... ℥ss	2	
	Spts. chloroformi ..... m. xv	1	
	Aquæ cinnamomii q. s. ad ..... ℥i	30	

M. Sig.: One such dose every four hours in extreme cases.

Malarial Hemoglobinuria.

W. E. Sparkman, in *Ther. Gazette*, recommends the follow-

ing in the treatment of cases of malarial hemoglobinuria accompanied by severe symptoms, such as nausea, vomiting, high temperature, repeated chills and weak heart, jaundice and a suppression of urine.

℞. Sodii sulphitis .....ʒii 60
Aq. cinnamomii q. s. ad.....ʒviii 240

M. Sig.: One tablespoonful every three hours until the jaundice begins to clear and the urine becomes normal.

For nausea and vomiting he recommends brandy on crushed ice or the application of mustard to the epigastrium and the following internally:

℞. Bismuthi subnit. 3ii 8
Cerii oxalatis 3ii 8
Acidi carbol. 3ss 2
Mucil. acaciæ q. s. ad.....ʒiv 120

M. Sig.: Two teaspoonfuls in ice water every three hours. Ergot should never be given, according to the writer, as it favors clot and suppression of urine. If the fever is high and there is great restlessness Sparkman recommends the following:

℞. Potassii bromidi 3ii 8
Spts. etheris nitrosi 3ii 8
Chloralis hydratis 3ii 8
Acetanilidi .....gr. xl 2 65
Elix. simplicis q. s. ad.....ʒiv 120

M. Sig.: One tablespoonful every two or three hours until quiet is obtained.

[The amount of acetanilid in this prescription is five grains to the dose—a dangerous amount to give at intervals of two or three hours.—ED.]

For partial or complete suppression of urine, acetate of potassium with infusion of digitalis in "watermelon seed" tea is the best diuretic. This is aided by the high rectal injection of a hot normal salt solution.

As long as the urine remains bloody, the following is of value:

℞. Tinct. digitalis 3iv 15
Tinct. ferri chloridi.....3iv 15
Ammon. muriatis 3i 4
Elix. simplicis q. s. ad.....ʒiii 90

M. Sig.: One teaspoonful in ice water every three hours.

If this should be rejected it should be repeated at once.

To guard against heart failure strychnin should be given, gr. 1/30 to 1/40 (.002-.0015) every three or four hours in whisky or brandy. Lemonade is regarded as a good diuretic and allays thirst. The author recommends also raw, ripe tomatoes as of great value in relieving nausea and in allaying the irritability of the stomach. After the urine has cleared for thirty hours, he cautiously begins on quinin and stops it if there is any sign of recurrent hemorrhage. During convalescence he recommends the following:

℞. Quin. sulph .....gr. ii 12
Ferric sulph. .....gr. ii 12
Strych. sulph. .....gr. 1/40 0015
Ext. gentianæ .....gr. 1/4 015

M. Ft. pil. No. i. Sig.: One such pili three times daily.

Chronic Dyspepsia in Infants.

The preparation most commonly used at the outset in the treatment of chronic dyspepsia, according to Hutchison, are alkalies and aperients. The latter are of use, no matter whether constipation is present or not. Their usefulness may be accounted for on the excessive production of mucus theory, as they are regarded as good solvents of mucus and they also assist in getting rid of that mucus already dissolved. In this connection he recommends the following combination:

℞. Potass. bicarb.
Potass. citratis, āā.....gr. v 30
Tinct. nucis vom. .....gtt. i 06
Infus. gentianæ co. 3ii 8

M. Sig.: To be given at one dose in a little water and the dose repeated fifteen minutes before meals.

The potassium bicarbonate is said to dissolve the mucus. The citrates are given as these children often have thick urine and pass an increased amount of urates. The nux vomica increases the appetite, as also does the gentian. The author prefers as an aperient, in the beginning, one that contains calomel and rhubarb, as follows:

℞. Pulv. rhei .....gr. viii 50
Sodii bicarb. .....gr. x 65
Hydrarg. chloridi mitis cum creta...gr. i-ii 06-.12

M. Ft. pulvis No. i. Sig.: One such powder every night or every other night, and the amount increased or reduced to suit the age of the child. The author prefers rhubarb because of its astringent as well as of its aperient action. It has a tonic effect on the flabby mucous membrane. The sodium bicarbonate is added to dissolve the mucus.

After two weeks great improvement will be noticed and tonics should then be prescribed, including iron in some form. But the iron and tonics must be deferred until the tongue is clean and the stomach in good condition. It is a great mistake to treat these patients early with cod-liver oil. In some cases, gastric pain is a troublesome symptom and may require opium to control it. The best preparation is Dover's powder, given in two or three-grain (.12-.20) doses. If lienteric diarrhea be present, small doses of opium given before meals constitute the best treatment, giving perhaps two minims (.12) of the tincture combined with a drop of liquor potassii arsenitis and a little nux vomica. By this treatment, peristalsis is kept in abeyance when food is introduced into the stomach. If headache be present, the eyes should be refracted.

Medicolegal

Undue Prejudice Not Insane Delusion.—An undue prejudice based on some reason, the Supreme Court of Nebraska holds, *in re* Clapham's estate, is not an insane delusion.

When Husband Not Liable for Services.—The Supreme Court of Wisconsin reverses, in the case of Morgenroth vs. Spencer, a judgment on a verdict directed for the plaintiff for professional services performed by the plaintiff, a physician, for the wife of the defendant. It says that when the defendant's wife deserted him without cause, and continued to live apart from him without his consent, she did not take with her the defendant's credit. Her misconduct deprived her of power to bind her husband, and it was incumbent on the plaintiff to prove her authority, in order to make out a case against the defendant. *Prima facie*, a woman living separate and apart from her husband has no power to bind him, and it is incumbent on the person furnishing necessaries to a wife so living apart from her husband to show that she is so living for justifiable cause. In the case at bar, if the wife of the defendant was living separate and apart from him without cause and without his consent, and he did not authorize the employment of the plaintiff, the plaintiff could not recover from him for the services. It was a question for the jury to determine whether a rupture had taken place between husband and wife, of such a nature as to deprive her of authority to pledge his credit for necessaries supplied. The action being for necessaries furnished to the wife, the general rule applied that the testimony of the wife is admissible in an action brought against the husband to recover for such necessaries.

Liability of Physician and Surgeon for Malpractice.—The First Appellate Division of the Supreme Court of New York says, in the malpractice case of MacKenzie vs. Carman, that the liability of a physician and surgeon to a patient is based on two obligations which he assumes in undertaking the care of a patient. The first is that he possesses "that reasonable degree of learning and skill which is ordinarily possessed by physicians and surgeons in the locality where he practices, and which is ordinarily regarded by those conversant with the employment as necessary to qualify him to engage in the business of practicing medicine and surgery"; and the second is that he undertakes to use reasonable care and diligence in the exercise of his skill and the application of his learning to accomplish the purpose for which he was employed, and he is "to use his best judgment in exercising his skill and applying his knowledge," and he is liable for an injury "to his patient resulting from want of requisite knowledge and skill, or the omission to exercise reasonable care, or the failure to use his best judgment." The law thus requires a surgeon to possess

the skill and learning which is possessed by the average member of the medical profession in good standing, and to apply skill and learning with ordinary and reasonable care. He is not liable for a mere error of judgment, provided he does what he thinks is best after a careful examination. He does not guaranty a good result, but he promises by implication to use the skill and learning of the average physician, to exercise reasonable care, and to exert his best judgment in the effort to bring about a good result.

No Damages for Disfigurement.—The United States Circuit Court of Appeals, Eighth Circuit, says, in Southern Pacific Company vs. Hetzer, a personal injury case brought by the latter party, that, in some states, notably in Wisconsin and Michigan, evidence of mental pain caused by disfigurement, apart from the physical suffering produced by an injury, is admissible to enhance the damages in an action for personal injury. The rule which has been adopted by this court, however, and the rule which seems to it the better one, is that in actions for personal injury the plaintiff may recover for the bodily suffering and the mental pain which are inseparable and which necessarily and inevitably result from the injury. But mortification or distress of mind from the contemplation of the crippled condition and of its effect on the esteem of his fellows, that mental pain which is separable from the physical suffering caused by the injury, is too remote, indefinite, and intangible to constitute an element of the damages in such a case, and evidence of it is inadmissible. Mental pain of this character, the suffering from injured feelings, is intangible, incapable of test or trial. The evidence of it, like that which convicted the alleged witches, rests entirely in the belief of the sufferer, and it is not susceptible of contradiction or rebuttal. Many other causes, the education, temperament and sentiment of the sufferer, the mental attitude, the acts and words, of his friends and acquaintances, concur with the accident to cause this mental distress, in such a way that it is impossible to separate and ascribe the proper part of it to the injury caused by the defendant. And the amount of the mental pain caused by any disfigurement necessarily varies so with the character, temperament and circumstances of the injured person that no just measure of the damages from it can be found. Such mental suffering is too remote, intangible, and immeasurable to form the basis of any just adjudication, and the objections to the testimony of the plaintiff concerning it should have been sustained.

Enforceability Against Estate of Contract Between Physicians.—The Supreme Court of Missouri, Division No. 2, says that in the case of Rosenwald vs. Middlebrook, administrator, and others, the plaintiff sought to have a court of equity enforce specific performance of a contract alleged to have been made with the defendants' intestate, a physician, during his lifetime, whereby it was claimed that, in consideration of certain acts and services to be performed by the plaintiff, the physician was to leave to him his entire estate. But in order to have justified the chancellor in decreeing a specific performance of this contract, it was absolutely essential, the court says, that it should, first, be made to appear to him that the contract was in fact made, by proof so cogent, clear, and forcible as to leave no reasonable doubt in the mind of the chancellor of its terms and character; second, it was equally essential to show that such contract was made on a valuable consideration, and that a fraud would be perpetrated on the plaintiff unless the contract be performed; third, on the allegations in the petition the consideration of the contract sought to be enforced was predicated on the acts to be performed by the plaintiff, and therefore it was essential that the proof should satisfy the chancellor that the facts performed referred to and resulted from that contract, and were such acts as would not have been done unless on account of the very contract made, and with a direct view to its performance. Furthermore, here being a young practicing physician, entering into a partnership with the head of a medical school, who stood high in his profession, with elaborately furnished offices, with all the modern conveniences, the court is not willing to say that the formation of this partnership was any sacrifice of professional standing or business interests on the part of the plaintiff, although it might be said, from a moral standpoint, that the decedent did not measure up to the standard that would ordinarily be required in selecting a partner. That he attended to all of the correspondence, the business connected with the offices, looked after the wants of the senior partner, cared for him when indulging excessively in intoxicants, the court thinks, were not acts anything out of the usual order, or which would not be expected to be performed by a young practicing physician who had entered into a partnership with an older physician of such marked ability and prestige.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

May 20.

1 *Remarks on Mitral Stenosis. F. P. Henry, Philadelphia.
2 *Artificial Dilation of the Cervix in Obstetrics. R. C. Norris, Philadelphia.
3 *Graves' Disease and Parathyroid Therapy. J. J. Walsh, New York City.
4 Surgical Treatment of Prolapus Uteri, with Special Reference to the Operation of Colpectomy. C. G. Cumston, Boston.
5 Infection of the Urinary Tract by the Colon Bacillus, Simulating Uremia. J. R. Arneill, Denver.
6 *Intestinal Obstruction. D. F. Talley, Birmingham.
7 *New Asiatic Blood Fluke (Schistosoma Japonicum, 1904; Schistosoma Cattoi, 1905) of Man and Cats. C. W. Stiles, Washington, D. C.
8 *Hospital and Dispensary in the Warfare Against Tuberculosis. L. F. Flick, Philadelphia.
9 *Working Program for Associations for the Prevention of Tuberculosis—National, State and Local. E. T. Devine, New York.

1. **Mitral Stenosis.**—Henry says that the diagnosis of mitral stenosis in the first stage is comparatively easy. At that time there is a presystolic murmur easily recognized as such by the fact that it is followed by the first and second sounds, both audible at the apex. The second stage is indicated by disappearance of the second sound at the apex, this being due to dilation and hypertrophy of the right ventricle and to feeble propulsion of blood into the aorta. The presystolic murmur continues. According to the literature, the onset of the third stage is, in contradistinction to this, marked by disappearance of the presystolic murmur and by the establishment of signs of tricuspid regurgitation. Henry has found that it is only exceptionally that the presystolic murmur disappears with the onset of signs of tricuspid regurgitation. Again and again he has heard a typical low-pitched, rumbling, presystolic murmur, coinciding with pulsation in the veins of the neck, a few hours before the death of the patient. Another phase of mitral stenosis which he emphasizes is an extreme arrhythmia—a veritable delirium cordis—which may persist without intermission for months or even for years. In such cases, there is no murmur, and in them it is impossible to distinguish the sounds from each other. The arrhythmia may continue indefinitely and may constitute the chief expression of the lesion. The clinical syndrome of these cases is the following: Marked anemia, with somewhat dusky skin and cyanotic lips; a tendency to bronchial catarrh, marked periods of improvement, with little or no diminution of the arrhythmia, and no edema whatever, or none until shortly before death.

2. **Artificial Dilation of the Cervix in Obstetrics.**—According to Norris, the value of any method of artificial dilation should be measured by its power to evoke uterine contraction and thus to promote effacement of the internal os. He concludes as follows: 1. The necessity for the induction of a premature labor by a method requiring less than 12 hours, is extremely rare. 2. The method most frequently employed, and most satisfactory in his experience, is a combination of partial mechanical dilation, followed immediately by the insertion of a bougie and an extraordinarily large Voorhees' bag incompletely filled. 3. For the relatively rare cases in pregnancy or labor requiring accouchement forcé, the choice of rapid mechanical dilation depends especially on the character of the cervix, the general state of the patient, and the

firm determination not to attempt too rapid dilation. Bossi's or De Seigneux's instrument is cleaner, is less tiresome, is applicable to the same class of cases, and is not more dangerous than manual forcible dilation. 4. Duhrssen's vaginal section is a most valuable operation in the hands of an expert obstetric surgeon, and should be preferred to rapid metallic dilation, except when conditions favorable to the latter are unmistakably present. 5. For the treatment of the grave forms of placenta prævia and of accidental hemorrhage, Duhrssen's hysterotomy, in the hands of an expert vaginal operator, should prove the best method of treatment ever offered.

3. **Graves' Disease and Parathyroid Therapy.**—Walsh reports four cases of Graves' disease treated with desiccated parathyroids. In two mild cases, the remedy seemed to produce a good effect. In two severer cases, the remedy failed utterly to give relief, and in one case seemed to cause an exacerbation of the symptoms somewhat as if thyroid extract were being given. It is not absolutely certain that the parathyroid material was absolutely free from all admixture with thryoid substance, though it was very carefully prepared for these cases.

6. **Intestinal Obstruction.**—Talley emphasizes the fact that in acute cases the life of the patient depends on early recognition of the obstruction and prompt surgical intervention. He advises that when a patient suffers extreme pain in the abdomen, especially in the epigastrium, which is not relieved by an ordinary dose of morphin, when he vomits and his bowels do not respond in 10 to 15 hours to the usual purgatives and enemas, intestinal obstruction should be diagnosed; the error then will be on the side of safety for the patient.

7. **New Asiatic Blood Fluke.**—Stiles calls attention to the fact that the newly described Chinese blood fluke (*Schistosoma cattoi* 1905) may be identified with a fluke (*S. japonicum* 1904) described for man and cats in Japan. The new species is characterized by the absence of spinose warts on the male, and the absence of spines on the egg, while the African blood fluke (*S. hæmatobium*) has spinose warts on the male and a terminal or subterminal spine on the egg. Clinically, in cases of infections with the African fluke both vesical and rectal symptoms have been reported, but all reported infections with the new Asiatic fluke have thus far been intestinal. Another important clinical point is the possibility that some of the cases of cerebral distomatosis, heretofore attributed only to the lung fluke (*Paragonimus westermanii*) may possibly be due to the new Asiatic blood fluke.

8. **Hospital and the Dispensary in the Warfare Against Tuberculosis.**—Flick says the great preventive influence of hospital treatment in pulmonary tuberculosis is due to the isolation of the patient during the time when the disease is most contagious and he is least able to help himself. During the last stage of the disease it is very difficult to keep a consumptive clean, and the frequent changes of linen, which are necessary, make the process too expensive to be practiced in the homes of the poor. In the hospital, the patient can be taken through his exacerbations and even through the terminal stage without danger to others, and without too great an expense, by reason of the discipline which exists. Hospitals form schools and propaganda for the spread of knowledge about the disease. Next to the hospital the dispensary undoubtedly is the most available and the most potent weapon in the warfare against tuberculosis. The two work well together because they are adapted for the early ambulatory cases and the advanced helpless cases. For ambulatory cases, the dispensary gives every facility for successful treatment.

9. **Prevention of Tuberculosis.**—Devine advises the adoption of a definite program in the fight for the prevention of tuberculosis. It should have at least ten features: 1. The maximum of sunlight and fresh air should be obtained for all mankind at work, at leisure, and at sleep. 2. An abundance of simple, and yet sufficiently varied nourishing food—pure milk and fresh eggs. 3. Early diagnosis of every case of pulmonary tuberculosis by the family physician, and the utmost attempt to secure compliance with his advice as to medical treatment and diet, change of work, or complete release from regular employment, change of residence, or removal to a hospital or sanatorium—such advice to take into account all the circumstances of the individual patient. 4. Registration of all cases irrespective of condition in life. 5. The establishment of institutions which will best serve the purpose for advanced cases. 6. The establishment, on a generous scale, of state, municipal and private sanatoria for treatment of patients in the earlier stages. 7. Publicity regarding means of preventing infection and in regard to the other elementary rules of hygiene, through every known channel of public instruction. 8. Conferences for interchange of views and experiences among those who are working for the prevention of tuberculosis. 9. Relief in various forms, especially in the form of special diet for those who can and must be treated at home. 10. Further research. We need more knowledge, better authenticated records, further comparison of results, more accurate knowledge—for these we must have laboratories, endowments, favorable conditions for scientific research, travel for observation and study abroad, and training for fruitful investigation.

Boston Medical and Surgical Journal.

May 18.

10 Satisfactory Prostatectomy. B. Tenney, Boston.
11 *Paramount Value of Localized Râles as a Sign of Incipient Phthisis. H. B. Whitney, Denver, Colo.
12 Therapeutic Value of Some Digestive Preparations, and the Indications for the Use of Pepsin in Diseases of the Stomach. R. F. Chase, Boston.
12½ *Infections of the Respiratory Tract with Influenza Bacilli and Other Organisms; Their Clinical and Pathologic Similarity and Confusion with Tuberculosis. F. T. Lord.

11. **Value of Localized Rales as a Sign of Incipient Phthisis.**—According to Whitney, the great and predominant value of localized râles in the diagnosis of incipient tuberculosis consists, first, in their almost constant presence at a time when other local signs are absent or, at most, indefinite. Second, in their practically unmistakeable character, thus differing widely from other signs which represent merely deviations from the normal. Third, in the fact that when occurring at an apex they are almost pathognomonic, other conditions which might produce them being exceedingly rare. While, therefore, other local signs are of great value, especially for the few experts who by long experience have learned their limitations and the frequent difficulty of interpretation, the presence of localized râles must remain the essential guide to early diagnosis for the rank and file of the profession.

12½. **Infections of the Respiratory Tract.**—Of the 186 nontubercular infections of the respiratory tract observed clinically by Lord (for the most part bronchitis), a mixed infection with various organisms was found in 120 cases (64 per cent.); a comparatively pure infection with one group of organisms was found in 66 cases (36 per cent.). Of these pure infections, those due to influenza bacilli comprise the largest group, with fewer cases of pure infection with the pneumococcus, etc. The pure infections, however, tend to become mixed as the case progresses, and the observer must then remain in doubt—in the presence in the sputum of two or more groups of organisms—as to the relative importance of any one of the infecting agents. In the clinical picture, the symptoms of onset, and the course and duration of the different pure infections, there seems to be nothing distinctive. They all tend to set up diffuse or local bronchitis and a varying degree of bronchopneumonia. The amount of prostration may be as great in one as in the other. The pathologic picture in cases of bronchopneumonia due to the different organisms, likewise seems to be similar in the character of the exudate, its varying extent and intensity, and the tendency, in a small proportion of cases, to end in permanent damage to the pulmonary substance. These results of pulmonary invasion are not infrequently mistaken clinically for pulmonary tuberculosis. Of eighty-five cases of pneumonia, associated with various organisms, well-marked localized pulmonary abscesses or duration or both, were found in eight. No tuberculosis could be demonstrated at autopsy. From the clinical resemblance of such cases to pulmonary tuberculosis, the presence of the tubercle bacillus in the sputum must be regarded as the only infallible indication of this condition.

Medical Record, New York.

May 20.

13 *Cystoscopy and Renal Lavage. F. M. Johnson, Boston, Mass.
14 *Disorders of the Nervous System Arising in the Course of Chronic Nephritis. W. M. Leszynsky, New York.
15 *Treatment of Eczema and Impetigo in Children. C. W. Allen, New York.
16 Relation of the Medical Profession to the Restriction of Tuberculosis. S. P. Wise, Millersburg, Ohio.
17 *Case of Hodgkin's Disease with but Slight Enlargement of the Superficial Lymph Glands. H. F. Stoll, Hartford, Conn.
18 Ventral Decubitus as an Aid to Drainage for Diffuse Purulent Peritonitis. R. M. Harbin, Rome, Ga.

13. **Cystoscopy and Renal Lavage.**—The object of Johnson's paper is to set forth the indications demanding cystoscopy and renal lavage, the rules that it is wise to observe in preparing for the cystoscopy, the description of the *modus operandi*, and the difficulties likely to be encountered in the procedure. The indications for and the conditions governing treatment are the following: 1. From microscopic examinations of the mixed urine, and from the clinical history of the case, information justifying the procedure is obtained 2. A consideration of the nervous and physical condition of the patient will teach us whether interference must be immediate or whether measures to render the operation less painful may first be employed. 3. The eradication of all conditions tending to interfere with the use of the cystoscope, such as stricture, enlarged prostate, sensitive urethra, or an irritable bladder. 4. The condition of the heart must receive special attention, for often surgical shock plays an important postoperative part. Lavage of the kidneys consists in the direct application of some preparation, such as boracic acid solution containing silver nitrate, in strength of from 1-12,000 up to 1-7,000, or .5 of 1 per cent. of one of the organic silver salts, a healing oil, an astringent, or a hemostatic. There are no standard solutions; experience is the teacher, and conditions found, the guide. Only a small amount, from 15 to 30 minims, should be injected at any one time; a total of from one to four ounces can be used at each lavage of both kidneys. Each catheter is then removed in turn, a good plan being constantly to inject some of the fluid during withdrawal, as then the whole urinary tract is influenced and receives a thorough washing-out.

14. **Disorders of Nervous System in Chronic Nephritis.**—Leszynsky emphasizes the well known but deplorable fact that many of the seemingly insignificant or apparently trivial symptoms which arise in the course of unrecognized chronic nephritis do not, as a rule, receive the attention that their gravity merits. Aside from the various neurasthenic manifestations occurring in the patients with chronic nephritis, many of the transitory subjective nervous phenomena arising during the course of the disease are the result of uremic (or possibly other) intoxication in varying degree, while nearly all of the transitory objective nervous phenomena, and the more permanent and incapacitating or fatal complications, are primarily due to the concomitant arterial disease. Hence, palpable evidence of arteriosclerosis and of high blood pressure is usually of the greatest significance. The many forms which the nervous disturbances attendant on nephritis assume are described in detail, and several illustrative cases are cited in which the failure to recognize the uremic condition underlying symptoms apparently of nervous origin led to serious results.

15. **Eczema and Impetigo in Children.**—Allen says that, although many cases of infantile eczema depend on improper feeding and faulty digestion or assimilation, the majority are susceptible of cure by local measures alone. A judicious combination of restricted or regulated diet, internal measures, when indicated, and external application will usually result in rather prompt cure. The treatment of any case must depend largely on the view taken of the origin and nature of the affection. The indications are usually to soothe and to protect a highly inflamed pruriginous area, to destroy germs, and to act in deeper infiltrations and dilated vessels. In general, it may be said that symmetry of lesion speaks for constitutional origin, asymmetry for local cause. Among general local measures to fulfill the objects of disinfection, protection, soothing, and favoring the growth of new epidermis, the use of methylene blue solution is especially advocated. A 3 to 5 per cent. watery solution is allowed to dry in well, and a thin layer of collodion is quickly applied. Nitrate of silver, in from 5 to 20 per cent. strength, salicylic acid, resorcin, sulphur, ichthyol, etc., are also recommended and the indications for their use in different cases described. A favorite prescription is: Resorcin, .5 to 1 per cent.; washed sulphur, 2 to 4 per cent.; lanolin, 5 to 10 per cent., and lard up to 100. Impetigo contagiosa, according to the author, is frequently associated with pediculosis capitis, and in treating it the parasites should be sought for. Crusts are to be removed with potato flour poultices and 10 per cent. ammoniated mercury ointment applied, or green soap solution, followed by 1-1,000 bichlorid of mercury. Ichthyol, salol, betanaphthol, surphur and red sulphid of mercury are also useful in some cases. As a rule, however, ointments are not so good as washes.

17. **Case of Hodgkin's Disease with but Slight Enlargement of the Superficial Lymph Glands.**—In the case reported by Stoll, the following points seem of especial interest: 1. The development of acute symptoms associated with an eruption nearly four years after the beginning of the disease. 2. The slight involvement of the superficial glands. 3. the occurrence of periodical abdominal distention and tenderness. 4. The alternating periods of pyrexia and apyrexia. 5. The unusually severe anemia. 6. The disappearance of the glands before death. The general characteristics of the disease are discussed at length, and in regard to treatment it is stated that improvement of the nutrition by the rest cure and an abundance of fresh air is very important. Arsenic, in the form of Fowler's solution, should be given in relatively large doses. The glands should be exposed to the *x*-rays for a long period, and the earlier such treatment is begun the better will be the results. Removal of the glands is to be resorted to only when pressure symptoms are marked.

New York Medical Journal.

May 20.

19 *Metacarpal Fissure, a Fracture Type Not Heretofore Described, and Some Points Regarding Treatment of Metacarpal Fracture. C. Beck, New York.
20 *Successful Method of Treating Fracture of the Femur in Infancy. W. G. Stern, Cleveland.
21 *Puberty and Adolescence in Their Relation to the Etiology of Epilepsy. W. B. Spratling, Sonyea, N. Y.
22 Syphilis with Late or Absent Secondary Eruption. R. N. Willson, Philadelphia.
23 *Recognition and Differentiation of Râles in the Lung. F. E. Beal, New York.
24 *Alkaline Beverages in the Treatment of Pneumonia. J. B. Todd, Syracuse, N. Y.
25 Virginia Laws Regulating the Sale of Poisons. G. E. Barksdale, Richmond, Va.
26 Diagnosis and Treatment of Typhoid Fever. W. Jones, Atlanta, Ga.

19. **Metacarpal Fissure.**—Beck points out that a large number of the so-called dislocations and contusions of the metacarpal region are in reality fractures, and that this has been established positively by the Roentgen ray.

20. **Fracture of Femur in Infants.**—Steven describes a method of treating fracture of the femur in the newborn and in children up to the age of two years which, in his experience, has proved entirely satisfactory. It enables the mother to nurse the child with very little effort, and enables her to keep the child scrupulously clean; it holds the fragments in apposition without subsequent deformity; allows only a minimum amount of shortening, and there is freedom from pain on moving the child for necessary changes of clothing, etc. For the first three days, enough fixation is secured to keep the child quiet by bundling it in a feather pillow. After the third day, the limb is placed in vertical extension and kept there for at least three weeks. The child rests on a pillow placed on a low stand next to the bed and should not be above the level of the mattress. Its body is parallel to the length of the bed and its head at about the position of the mother's breast. The adhesive straps for the extension are put on in the usual fashion, after the skin has been thoroughly cleansed with alcohol and ether, and should reach well up over the trochanter. Zinc oxid plaster should always be used, as it is far less irritating to the delicate skin; by using sterilized zinc oxid adhesive plaster, the extension can be left

unchanged for the entire three weeks; an adhesive plaster which lacks at all in "stickiness" and is liable to slip, can not be used. It is impossible in these small limbs to get the extension straps to stay unless they are bound down by circular turns around the malleolus, the top of the tibia, the condyles of the femur and the groin; care should be exercised not to get the circular turns too tight, as that might lead to venous stasis. The groin and buttocks are next carefully bandaged with a two-inch bandage of oiled silk, held in place by adhesive strips; next a flannel bandage is carefully applied from the toes to the groin to keep the leg warm, and this again is protected by an oiled silk bandage reaching from the knee to the groin. No spica turns about the pelvis are to be used. The extension is carried upward with wire to a hook firmly fastened into the ceiling, then over for three or four feet, so as to get the weight away from the baby, and then down over another hook for a foot or two, where the weight is placed out of reach of either head or hands. Half of a five pound bag of salt is the best form of weight; it is cheap, can be easily fastened, and the weight can be changed at will by adding or taking out salt. In all cases the weight should be just enough to lift the buttock off the pillow.

21. **Puberty and Adolescence and Epilepsy.**—Spratling summarizes his paper as follows: 1. That we can, and must, in many cases of epilepsy that appear from the twelfth to the sixteenth and eighteenth years, coincident with the establishment of the menstrual flow in women, and with the passing of boyhood into manhood, ascribe to these changes the power of inducing well-defined convulsions that may be epileptic. 2. That except in the most remote and exceptional instances, these periods alone in normal individuals have no power to induce epilepsy, or even epileptoid phenomena. 3. That by searching carefully we shall find in most cases of epilepsy at this period, either a previous history of convulsions, usually in infancy, or a family and personal history so tainted with a tendency to disease that epilepsy under the stress of puberty is plainly invited.

23. **Recognition and Differentiation of Rales.**—For the purpose of a more simple differentiation and recognition of râles, Beal proposes to divide râles heard in the lung into two classes, the dry and the moist. He points out that the principal distinction between a dry and a moist râle is, that a dry râle has always some duration, while a moist râle is always instantaneous.

24. **Alkaline Beverages in Pneumonia.**—In order to promote leucocytosis throughout the course of the disease and to preserve the proper alkalinity and specific gravity of the blood, Todd advises the administration of alkaline saline drinks, from the inception of the disease throughout its entire course. Of a solution of two and one-half grains of sodium chlorid and one grain of potassium bicarbonate to the ounce of cold water, from six to eight ounces should be given every two hours. The addition of a teaspoonful of lemon juice converts it into a refreshing effervescent drink. A generous diet, a well-lighted room and an abundance of oxygen are essential. Todd says that the administration of alcohol, strychnin and the so-called heart tonics in pneumonia is analogous to sustaining a starved horse with a whip when he fails to draw his load. He does not condemn these remedies absolutely, but says that in his opinion there has been no occasion for their use.

Medical News, New York.

May 20.

27 *Recent Advances in Our Knowledge of the Chemical Processes of Digestion. L. Mendel, New Haven, Conn.
28 Laennec and His Stethoscope. C. N. B. Camac, New York.
29 *Recent Advances in the Knowledge of the Movements and Innervation of the Alimentary Canal. W. B. Cannon, Boston, Mass.
30 *Case of Pneumococcus Infection of the Hip. L. W. Ely, New York.
31 Pneumonia—Etiology and Epidemiology. E. F. Wells, Chicago.
32 Remarks on the Proper Cleansing of a Running Ear. H. A. Alderton, Brooklyn, N. Y.

27. **Chemical Processes of Digestion.**—In this paper Mendel refers to facts of historical interest, and reviews present day knowledge on this subject.

29. **Movements and Innervation of the Alimentary Canal.**—Cannon discusses the mechanical activities of the different portions of the alimentary canal—esophagus, stomach, small and large intestine, and the sphincters, and also the extent to which these movements are independent of the central nervous system, and the manner in which they are affected by their connection with that system.

30. **Pneumococcus Infection of Hip.**—In Ely's case, the hip trouble came on about two weeks after an attack of pneumonia. It became necessary to open the joint, and the examination of the pus evacuated revealed the pneumococcus. The patient finally succumbed to an empyema.

St. Louis Medical Review.

May 13.

33 *Irrational Surgery, or Surgery Gone Mad. B. Robinson, Chicago.

33. **Irrational Surgery.**—Robinson discusses what he terms the extent of practice of several notorious fad operations. He says modern surgery appears to have delegated to itself unlicensed liberty to invade with impunity any and every organ. Some of the operations mentioned in this connection are oöphorectomy, trachelorrhaphy, the various "pexies," the use of the dilator and curette, gastroenterostomy, the appendicectomy fad, the varicocele fad, and the ocular myotomy fad. He says that hysteropexy is practically an unnecessary, irrational operation, and that it is an unsafe surgical procedure accompanied by disastrous and fatal issues. Numerous postmortems and dangerous surgical interventions have been the final story of hysteropexy. The other operations referred to are discussed in a similar manner.

Lancet-Clinic, Cincinnati.

May 13.

34 Ptosis of Abdominal Viscera. F. L. Rattermann, Cincinnati.
35 *Report of a Case of Popliteal Aneurism Treated by Arteriorrhaphy. H. O. Pantzer, Indianapolis.
36 Digestive Disturbances—a Clinical Study. J. H. Schroeder, Cincinnati.
37 *Radical Cure of Hernia. H. C. Wyman, Detroit.
38 *Radium—Its Value in Medicine. M. Metzenbaum, Cleveland.

35. **Arteriorrhaphy for Aneurism.**—Pantzer made use of simple arteriorrhaphy in a case of traumatic saccular aneurism of the popliteal artery, following a gunshot wound, which finally ruptured. Because of certain conditions present, the opening in the artery was sewed somewhat transversely, as is done in the Mikulicz-Heinecke operation for stenosis of the pylorus. Previous to operation the patient had pyelitis and cystisis, which became worse and finally caused the patient's death. The portion of the popliteal operated on was resected and showed a perfect closure of the opening. The caliber of the artery was actually wider at the seat of suture than above and below. Pantzer concludes as follows: 1. That traumatic aneurism is amenable to suturing. 2. That even much atheromatous degeneration of the artery wall does not necessarily contraindicate suture, at least as a temporary expedient. 3. That fortifying folds of the aneurismal sac are not absolutely necessary. 4. That early surgical interference in these cases seems clearly indicated.

37. **Radical Cure of Hernia.**—Wyman's paper emphasizes the importance of including in operations for the radical cure of hernia measures tending to reduce the volume of the abdominal contents and to increase the size and strength of the abdominal walls, and all operations having this end in view are commendable. The suture material used by him in hernia cases is linen No. 35. It stands sterilization better than other material, readily becomes encysted and never works out after tardy and tedious suppuration. Dressings are rarely disturbed until healing is complete. Wyman says that it is surprising what changes can be wrought in diminishing intra-abdominal pressure after operations for hernia by radical changes in food.

38. See abstract in THE JOURNAL, Oct. 29, 1904, p. 1327.

American Journal of Obstetrics and Diseases of Women and Children, New York.

May.

39 *Technic of Abdominal and Vaginal Operations for the Relief of Fibromyomatous Tumors of the Uterus. J. R. Goffe, New York.

40 Care and Feeding of Premature Infants. J. L. Morse.
41 Sarcoma of the Uterus, with Remarks on Radiotherapy. H. Grad, New York.
42 *Persistent Mentoposterior Positions. C. B. Reed.
43 *Yeast Treatment of Acute and Chronic Vaginitis and Endocervicitis. H. Schiller, Chicago.
44 *Vaginal Atresia Complicating Labor. J. C. Hirst, Pennsylvania.
45 Secondary Metastatic Implantation of Carcinoma in the Vagina. E. A. Schumann, Philadelphia.
46 Hematoma of the Ovary. M. A. Tate, Cincinnati, Ohio.
47 The Uterine Curette. H. A. Kelly, Baltimore.

39. **Relief of Fibromyomas of Uterus.**—In 1888, Goffe first published his modification of Schroeder's operation for the removal of uterine tumors. The technic of this operation has been improved somewhat, and as performed to-day is as follows: After opening the abdominal cavity, and while the tumor is still *in situ*, the ovary and tube on one side are drawn up, and a ligature is passed through the upper border of the broad ligament and tied; thus controlling the ovarian artery. One end of this is rethreaded into the pedicle needle, and the broad ligament is transfixed a second time near to the tumor and just above the uterine artery; this is also tied. A temporary ligature is now placed near the horn of the uterus to control any reflex hemorrhage from the tumor. The broad ligament is cut down to the lower point of transfixion, and the tumor is then rotated and the same method pursued on the other side. The tumor is then delivered through the wound, and the lower angles of the incisions through the broad ligaments on either side are connected by an oval incision through the peritoneum, first across the anterior and then across the posterior surface of the tumor. Flaps are then dissected down, the one in front carrying the bladder and ureters into safety. One end of the ligature is again threaded into the pedicle needle and is passed inside these peritoneal flaps close to the cervix and below the uterine artery. This is repeated on the opposite side and the ligatures cut short. The tumor is then cut away on a level with the internal os. The cervical canal is disinfected with applications of carbolic acid. The flaps are then stitched together with a running catgut suture over the top of the stump, care being taken to make them cover all the ligatures on either side. Goffe uses catgut ligatures on the broad ligaments and also for stitching the flaps. The advantage of using a single ligature for each broad ligament is that it puckers up the end of the ligament and carries it down alongside of the cervix, so that the raw surface is very easily covered by the peritoneal flaps. In a general way, the advantages of this operation and the superiority over the method of total extirpation consist in the following points: 1. It involves the least possible loss of blood; indeed it is rare for any hemorrhage to occur. 2. It is easy of execution, for the reason that the stump of the cervix can be brought up near to the abdominal wound and the details of disposing of the traumatic tissue carried on with ease and comfort to the surgeon. 3. It is applicable in its general plan to all cases of fibroid tumor. 4. It requires less time than total extirpation. 5. Convalescence, as a rule, is rapid and free from complication, moreover, the patients require no special after treatment whatever. It is not necessary to put gauze in the cervix or in the vagina, consequently there are no dressings to be attended to. The after treatment consists in regulating the functions of nature, and in removing the stitches from the abdomen. The open bowel treatment is employed, and, as a rule, the patient urinates without assistance.

42. **Persistent Mentoposterior Positions.**—Reed claims that engagement of the face in mentoposterior positions does occur, and that the face may reach the pelvic floor without anterior rotation. In almost all cases, the anterior rotation occurs spontaneously. Failure of the chin to rotate anteriorly is a definite indication for interference. In entering the pelvis, the length of the child's neck may permit the head to sink well down into the pelvis before the thorax is involved. Delivery of the unrotated chin, although extremely rare, is by no means impossible, and occurred in his series in 22.6 per cent. of the impacted cases. In 75 cases of impacted mentoposterior position, the maternal mortality (11.6 per cent.) under all circumstances about equals the maternal mortality (12 per cent.) of placenta prævia under aseptic conditions. The fetal mortality under all conditions is only a trifle higher than the fetal mortality of intrapartum eclampsia under the best and most modern conditions, and is far better than the reputed (100 per cent.) mortality. In the management, the position must always be corrected if the rotation does not occur spontaneously. Version is the operation of election, if the head is not engaged and manual flexion has failed. It is contraindicated after engagement. Manual correction by the Baudelocque, De Lee, Thorn or Volland methods should always be attempted. Forceps should be used with the utmost caution, if at all, and as a last resort before mutilating operations, for the fetal mortality is very high (50 per cent.), and, if employed, only the axis traction instrument should be chosen. If symphyseotomy is done, care should be taken to operate while the child is vigorous enough to justify it. Asepsis in the conduct of these cases ought to show a considerable reduction in the mortality figures.

43. **Yeast in Vaginitis and Endocervicitis.**—Schiller advocates the use of fresh brewer's yeast in the treatment of these affections: After cleansing the vagina with sterile water, two teaspoonfuls of fresh yeast and one teaspoonful of grape sugar solution or "bierwuerze" is introduced into the vagina through a speculum so that the portio and walls of the vagina are bathed with it. If this can be done at the patient's home it is preferable; if not, after a few minutes Schiller uses a tampon saturated with "bierwuerze" or grape sugar solution. This process should be repeated every 48 hours. After from 8 to 12 hours, a vaginal douche should be used. Affections in the vagina or on the cervix produced by *Saccharomyces albicans* or blastomycetes have never been observed after using yeast; a simple vaginal douche removes all the yeast used. The cases most suitable for this treatment are those of acute and chronic gonorrhea of the vagina and cervix, as well as those with or without gonococci in the discharge. Cases of purulent vaginitis and endocervicitis of other sources will derive more or less benefit, while cases of pronounced affection of the endometrium with a very watery discharge are not so easily influenced. He states that he has had no experience regarding the use of this method as a preparatory treatment for vaginal operations.

44. **Vaginal Atresia Complicating Labor.**—Hirst says that a Cesarean section is never necessary for uncomplicated vaginal stenosis. All these cases can be managed by manual dilatation, instrumental dilatation, hydrostatic dilatation, or, at the worst, deep lateral incisions of the cicatricial portion of the canal, followed by extraction of the child with forceps or by version. After the delivery the vagina must be repeatedly dilated, until the injuries or incisions have healed, in order to prevent the recurrence of the stenosis in a more serious form. Some of these cases will spontaneously dilate as the head descends and obviate the need of any operative interference. In the presence of complications, as in the case reported, Cesarean section may be necessary. If the operation is performed, the only one to be considered is the Porro operation, or hysterectomy.

Interstate Medical Journal, St. Louis.
May.

48 *Peculiar Alveolar Melanoma of the Choroid with Metastases. R. L. Thompson.
49 *Functional Diagnosis of Kidney Diseases. W. M. Robertson, St. Louis.
50 The Relation of the Defective to the Community. H. C. Wyman.
51 Acute Prostatitis. G. E. Lydston, Chicago.

48. **Alveolar Melanoma of Choroid.**—Thompson reports a case of tumor of the eye, coming from the choroid, which appeared in two forms—a definite pigment-bearing mass, and a spindle-cell mass which practically showed no pigment. The autopsy performed on the patient five years later showed metastases of both types of tumors in various regions. Sections of these metastases showed some of them to be alveolar melanoma and spindle-cell sarcoma while others showed a mixture of both varieties of tumor. The absence of intercellular substance, the tendency to grow in an alveolar arrangement, the presence of pigment, and the relation of the cells

to the blood vessels identified the tumor as an alveolar melanoma.

49. **Functional Diagnosis of Kidney Diseases.**—Robertson presents, in brief, the practical workings of the method as carried out in the clinic of Professor Casper. He concludes: 1, That functional diagnosis presupposes the ability to collect the urine from each kidney separately; 2, that in the present state of our knowledge the determination of the freezing point of the blood for the diagnosis of kidney sufficiency is of no value; 3, that the determination of the freezing point of the mixed urine, and the percentage of sugar in the mixed urine after the injection of phloridizin, on account of the wide variations to which they are subject, give no idea as to the sufficient action of the kidneys; 4, that the determination of the freezing point of the urine from each kidney, and the percentage of sugar in the urine from each kidney after the injection of phloridzin, give the most valuable information as to the existence of disease on the one side and of kidney sufficiency on the other; 5, that functional diagnosis in no way supplants or does away with the older methods of kidney diagnosis, that it is a supplement to them, and that while its employment requires much time and careful attention to detail, if it is carefully carried out it will add much to the surgeon's peace of mind and to the patient's welfare.

Canada Lancet, Toronto.
May.

52 Fever in Puerperium. K. C. McIlwraith, Toronto.
53 Lacto-Farinaceous Diet in the Intestinal Autointoxication. R. M. Beauchant, Portiers, France.
54 *The Prevention of Apoplexy. T. C. Allbutt, Cambridge, England.

54. See abstract in THE JOURNAL, May 6, 1905, p. 1487.

Pacific Medical Journal, San Francisco.
May.

55 Flat-Foot. E. H. Smith, San Francisco.
56 Doctor and the Man. A. Shirk, Oakland.
57 Micrococcus Rheumaticus; Its Cultural and Other Characters. J. M. Beattie.
58 Organized Water as a Food. J. U. Lloyd, Cincinnati.

Iowa Medical Journal, Des Moines.
May 15.

59 Supraorbital Pains. L. W. Dean, Iowa City.
60 Intestinal Obstruction. G. E. and J. L. Crawford, Cedar Rapids.
61 Recent Work in Joint Diseases. A. Egdahl, Iowa City.
62 Physician and the Non-English Speaking Patient. F. Rosenbladt, Audubon.

Dominion Medical Monthly, Toronto.
May.

63 Croup. E. Seaborn, London, Ont.
64 Status of Suprarenal Therapy. S. Floersheim, New York City.

American Journal of Urology, New York.
May.

65 Nephrectomy for Pyonephrosis, with Remarks on Functional Kidney Capacity. M. Krotoszyner, San Francisco.
66 Prostatic Abscess. J. A. Hawkins, Pittsburg.
67 Symptomology of Prostatic Diseases. J. L. Boogher, St. Louis.
68 Incontinence of Urine. T. M. Reade, Springfield, Ohio.
69 Technic of Cystoscopy and Ureteral Catheterization. L. W. Bremerman.
70 Alterations in the Posterior Urethra as a Factor in Neurasthenia. A. Ravogli, Cincinnati.

Canadian Practitioner and Review, Toronto.
May.

71 Neurology and the Prevention of Insanity in the Poor. C. Meyers, Toronto.
72 Toxemia of Pregnancy. K. C. McIlwraith, Toronto.
73 Home Treatment of Pulmonary Tuberculosis—Cases in Practice. E. Plater, Toronto.

Kentucky Medical Journal, Louisville.
May.

74 Treatment of Enlarged Prostate. I. Abell, Louisville.
75 Typhoid Fever. F. L. Lapsley, Paris.
76 Etiology and Pathology of Typhoid. V. V. Anderson, Barboursville.
77 Acute Articular Rheumatism, with Special Reference to Etiology and Diagnosis. A. C. Willmott, Hutchison.
78 Rheumatism. H. A. Elkourie, Nashville, Tenn.
79 Adenoids in the Naso-Pharyngeal Space. M. F. Coomes, Louisville.
80 Progress in General Medicine. J. A. Flexner, Louisville.

Old Dominion Journal, Richmond, Va.
May.

81 Edible and Poisonous Fungi of North Carolina, with Illustrations. J. W. Peacock, Thomasville, N. C.
82 Pneumonia; a Suggestion as to Treatment. L. G. Pedigo, Leatherwood, Va.
83 Typhoid Fever. W. J. Strother, Culpepper, Va.
84 Retro-Displacements of the Uterus. A. E. Baker, Charleston, S. C.

Northwest Medicine, Seattle, Washington.
May.

85 Rôle Played by the Nose and the Mouth in the Etiology of Tuberculosis. H. Stillson, Seattle, Wash.
86 Tuberculosis. I. Janson, Seattle, Wash.
87 Etiology of Tuberculosis and Its Governing Factors in Treatment. J. J. Leiser, Seattle, Wash.
88 Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. A. W. M. Robson, London, England.

St. Louis Courier of Medicine.
May.

89 The Shiga Bacillus. C. Fisch, St. Louis.
90 Vesicovaginal Fistulæ. R. Hill, St. Louis.
91 Baby Incubators on the "Pike." J. Zahorsky, St. Louis.
92 Ruediger Blood Test for Typhoid. G. C. Crandall, St. Louis.
93 Epithelioma of the Face in a Young Child. M. J. Lippe, St. Louis.
94 Review of Methylene Blue Eosin Blood Stain. G. C. Crandall, St. Louis.

Journal of the Mississippi State Medical Ass'n, Vicksburg.
May.

95 History of the State Insane Hospital: Supplemented by Some Observations on the Insane. T. J. Mitchell, Jackson.
96 Response to Address of Welcome. G. L. Harbour, Vossburg.
97 A Health Report from Bolivar County. H. L. Sutherland, Rosedale.
98 Gonorrheal Conjunctivitis. M. H. Bell, Vicksburg.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.
May 6.

1 Discussion on Influenza. T. C. Allbutt, Cambridge.
2 Epidemiology on Influenza. H. F. Parsons.
3 Record of a Year's (1904) Operations in Clarence Ward (Gynecologic) of the Royal Victoria Hospital, Belfast. J. W. Byers and R. J. Johnstone, Belfast.
4 *Diazo-Reaction in Tuberculosis. C. W. Budden, Liverpool.
5 Tetany as a Complication of Gastric Dilatation. A. Trimble, Belfast.
6 Preliminary Note on a Leucocytozoan of the Dog. C. A. Bentley, Borjulie Tezpur, Assam.
7 Acute Poisoning by a Single Castor-Oil Seed. A. G. Gullan, Liverpool.

4. **Diazo-Reaction in Tuberculosis.**—Budden has watched the reaction in 3,000 persons, and has performed it many times in each, in order to determine its value as a diagnostic agent. He found that one or two precautions are required to obtain accurate and uniform results: 1. The test can not be performed except during the day, or by the use of pure white light. 2. The urine should not be more than 24 hours old, and should be kept covered. 3. Fresh solutions must be employed. The nitrite should be renewed weekly, the acid once a month. The proportions of the acid and the nitrite require accurate measurement. An excess of the latter, even in slight amount, will annul a delicate test. The 3,000 cases tested comprised 600 persons in health, and 2,400 suffering from disease. Of those in health, not one yielded a positive reaction. Of the remaining 2,400 cases, reactions were found in 96 cases of various forms of tuberculosis; 18 cases of measles: 17 cases of enteric fever; 5 cases of typhoid; 4 of acute lobar pneumonia; 1 case of acute bronchopneumonia; 1 of acute bronchitis; and 4 of puerperal septicemia, a total of 146 positive reactions in 880 cases examined. The remaining 564 cases, comprising almost every acute malady of common occurrence, continuously yielded a negative test. Speaking of the value of the test as an aid in the prognosis of tuberculosis, Budden says that his investigations lead him to believe that the reaction is not of any value. It is certainly true that those patients who gave the reaction have nearly all died; it is certain that in most cases the course was rapid; it is also true that its appearance and disappearance corresponded to the exacerbations and to improvement; it is also a fact that those not giving the reaction are patients who have shown improvement in their clinical course. This, to a large extent, agrees with what has been previously written. Were this all, such facts would indeed be sufficient, but they reveal only half the truth. The patients giving positive reaction have died, but they were precisely those patients for whom no hope could ever be entertained; many of these cases

have run a rapid course, but an equal number have run a slow course and even have shown improvement. The appearance of the reaction coincides with the exacerbations of the tuberculosis process, but it follows the onset of the graver symptoms, and though it disappears with improvement, such disappearance again follows the suspension of the alarming signs; while, again, it may disappear because the patient is growing weaker. A reaction blowing hot and cold in this manner can not be of very great reliability. Lastly, patients who have not given the reaction have mostly been in the early stages when hope is justifiable, while if it is absent in the latter stage it means nothing, since its appearance is intermittent, present one week, absent the next. It is probable that every fatal case of tuberculosis will yield the reaction at some period of its course. In view of the frequency of the intermissions, we can not say that any case is negative unless it has been tested constantly for long periods. Of the 17 patients who gave negative results and yet died, 6 succumbed to intercurrent diseases. Of the remainder, 2 were admitted *in extremis*, when the reaction is known to fade, so that it is not an unjustifiable conclusion to suppose that the other 9 were tested during an intermission.

The Lancet, London.

May 6.

8 *Some Old and New Remedies. W. Carter, Liverpool.
9 *Nutrition and Malnutrition. W. H. Allchin, London.
10 *Ten Abdominal Sections for Abnormal Pregnancies and Obstructed Labors. J. S. Riddell, Aberdeen.
11 *Blood Changes in Meningitis in Children. S. W. Curl, Colchester.
12 Two Cases of Trichromic Vision. F. W. Edridge-Green, Cambridge.
13 Observations on the Blood. C. W. Cunningham.
14 Tetanus and Chloral Hydrate. J. Maberly, Woodstock, Cape Colony.
15 Case of Hematoma of the Ovary Simulating an Attack of Appendicitis. H. W. Wilson, London.

8. **Some Old and New Remedies.**—In this paper Carter considers oil of turpentine, adrenalin, morphin and pilocarpin, illustrating his remarks by reference to cases.

9. **Nutrition and Malnutrition.**—In this, the second of the Lumleian lectures on this subject, Allchin considers the digestion, absorption and destination of the proteids, carbohydrates, and fats.

10. **Ten Abdominal Sections.**—Riddell gives the history of 10 abdominal sections for abnormal pregnancies and obstructive labors; 2 cases of ovarian tumor (dermoid cyst) obstructing labor; 2 cases of uterine fibroid, one obstructing labor, the other complicating pregnancy; 4 cases of extrauterine pregnancy; a case of tumor (chondroma) narrowing the pelvic outlet and necessitating Cesarean section; and a case of omental adhesions disturbing pregnancy.

11. **Blood Changes in Meningitis.**—Curl found that in tuberculous meningitis in children the red blood corpuscles usually are present in normal or increased numbers; that the majority of cases show no leucocytosis; that the eosinophiles are reduced in number, and that the large lymphocytes and transitional cells are generally present in increased proportions.

12. **Trichromic Vision.**—In the two cases reported by Green, the patients saw only three colors in the bright spectrum—red, green, and violet.

Journal of Tropical Medicine, London.

May 1.

16 Incidence of Disease in Hongkong. W. Hunter, Hongkong.
17 Spirilla Fever in South China. L. Hill.
18 *Form of a Malarial Parasite Found in and Around Jerusalem. J. Cropper, Ramullah, Palestine.
19 Congenital Macrodactylitis in the Philippines. I. W. Brewer.

18. **Malarial Parasite Found in Jerusalem.**—Cropper describes a new form of malarial parasite found in and around Jerusalem and occurring for the most part in children, who frequently have enlarged spleens—30 per cent. at five years or under. The patients had been ill often for months, with fever, generally of a quotidian type, rarely tertian. In about twelve cases the parasite was found in persons who complained of little or no fever, with perhaps headache, anemia, and sallowness. As a rule, the number of parasites in these cases was very small, and was only found after long search. This form of malaria described by Cropper is most refractory to quinin, although it yields in the end. The parasite corresponds with this, and can be seen days after quinin has been given in adequate doses (15 to 30 grains daily). The parasite described has occurred in 192 cases out of a total of 300 positive examinations; sometimes as a mixed infection, but generally alone. The youngest patient was 2½ months old, and 68 cases occurred in children under five years.

Annales de l'Institut Pasteur, Paris.

Last indexed page 1646.

20 (XIX, No. 4.) Propriétés bactériolytiques et anticytasiques du venin de cobra. F. Noc.
21 Sur un hématozoaire endoglobulaire nouveau d'un mammifère. J. J. Vassal (Annam).
22 Sur la signification du "Bacillus coli" dans les eaux potables (in drinking water). H. Vincent.
23 De la valeur thérapeutique de l'antitoxine dans le sérum antidiphthérique. L. Cruveilhier.
24 New Procedure for Detecting Ammonia and Its Salts in Drinking Water.—Etude sur un nouveau procédé de recherche de l'ammoniaque et des sels ammoniacaux. Applicable à la caracterisation des eaux potables. A. Trillat and Turchet.
25 Reaction of Land Turtle to Anthrax, to Glanders, to Rabies, to Tetanus and to Various Other Infections.—Réaction de la tortue terrestre à quelques maladies infectieuses. Remlinger and Osman Nouri (Constantinople).

Revue de Chirurgie, Paris.

Last indexed page 1321.

26 (XXV, No. 4.) *Foreign Bodies in Joints.—Des corps étrangers articulaires et en particulier des corps traumatiques au point de vue expérimental et histologique. V. Cornil and P. Coudray.
27 *Apropos des anévrysmes carotidiens. Pacheco Mendes (Bahia).
28 *Les gastrorragies dans l'ulcère simple de l'estomac. T. Tuffier and Jeanne. (Commenced in No. 2.)
29 *Des hémorragies intestinales consécutives à l'opération des hernies en général. L. Sauvé. (Commenced in No. 2.)

26. **Foreign Bodies in Joints.**—The origin and anatomic evolution of foreign bodies in the joints, especially the traumatic, have been studied by Cornil and Coudray by experiments on dogs, also from anatomic specimens and in the clinic.

27. **Aneurism of Carotid Artery.**—Mendes reports 2 cases of aneurism of the right common carotid artery; both patients were cured by extirpation of the sac. The patients were men of 62 and 42, and the first signs of the tumor had been noticed fourteen and eleven months previously, respectively. A ligature was thrown around the artery below, but in one case it was not drawn tight, the ends of the thread being held by assistants who were instructed to tighten the ligature if hemorrhage occurred. In the other case, the ligature was tied at once. The sac ruptured in each case, but the ligature prevented all hemorrhage of any amount. The operations proceeded smoothly and the patients recovered without mishap. The difficulty of extirpating the sac limits the application of this mode of treating aneurism of the carotid. Every case does not require extirpation, and the future of the intervention should not be jeopardized by resorting to it in all cases. Most of the patients with aneurism of the carotid are elderly, and it seems inadvisable to operate after the age of 60, as the operation is a serious one, and its benefits in these cases are only for a few years. The other contraindications are those of surgery in general.

28. **Hemorrhage from Simple Ulcer of the Stomach.**—The results of surgical intervention were 10 deaths in 15 operations before 1898, but Rodman's statistics in 1901 were 12 fatalities in 32 cases of acute hemorrhage. The results have been still more encouraging in a series of 24 more recent cases, the mortality being only 36.3 per cent. The mortality in operations for chronic hemorrhage has been about 12 per cent. and recurrences have been rare, Tuffier and Hartman never having encountered any. The details of all this material are summarized, and the lessons drawn that the ulcer is liable to be overlooked, and that the danger of infecting the peritoneum must be guarded against. The incisions should be ample and the interior of the stomach well lighted. The organ should be drawn out with thick compresses packed closely around it. The surgeon must guard against the slightest risk of infecting the serous membranes, even more than in operating in the pelvis. Preliminary lavage is superfluous and depressing. The various steps of the operations and the measures to meet the various indications are described in detail. Gastroenterostomy is the

treatment *par excellence* for chronic hemorrhages, but experience has shown that food is liable to linger and to be digested in the stomach afterward as before, consequently the mechanism by which it cures the hematemesis is still obscure. The hemorrhage sometimes recurs. Two deaths in 27 operations of this kind have been recorded in the literature. Porge lost a patient from hemorrhage five days after a gastroenterostomy to relieve stenosis from an active ulcer. Körte has also reported a sudden, fatal hematemesis twelve days after posterior gastroenterostomy on a patient 45 years of age who had suffered for twelve years from pains and hemorrhages in the stomach. The pylorus was found thickened, adherent, and inoperable. The autopsy revealed an ulcer in the lesser curvature with erosion of a branch of the coronary. The conditions were similar in another patient who also died about the eleventh day from hemorrhage due to erosion of the coronary by an ulcer adherent to the liver. In acute hemorrhage the ulcer itself should be attacked by excision, ligature or suture if it is easy of access. If nót, gastroenterostomy should be done, especially in case of an ulcer in the pyloric region, with hemorrhages rebellious to medical measures. Gastroenterostomy is frequently effectual, but is not absolutely certain.

29. **Intestinal Hemorrhages After Operations for Hernia.**—Sauvé has been able to find records of 28 such cases, and thinks that the number would be much larger if the stools were systematically examined for blood after herniotomies. The hemorrhages may be classed as avoidable or non-avoidable, the former including the traumatic hemorrhages due to taxis or to perforation of the intestine. The unavoidable hemorrhages are of three kinds, those occurring early, during the first twenty-four hours, the hemorrhage not severe, but indicating a bad condition of the bowel, with arterial ischemia complicated or not with venous thrombosis. This is the Schnitzler type. The second type is Ulmann's first variety in which, with a good postoperative general condition, hemorrhage occurs from the fourth to the seventeenth day, without a prodrome, and is serious, being the result of retrograde arterial thrombosis of the dropping off of an eschar limited to the mucosa. The description of the third type is also from Ulmann's pen. In this form the hemorrhage occurs tardily after an operation for non-strangulated hernia, and is the result of retrograde arterial thrombosis or is due to a sympathetic reflex or to vasomotor paralysis. The intestinal hemorrhage has always been found to be of arterial or capillary origin. In the Schnitzler type, medical measures are alone indicated to permit the recuperation of the intestine. The recovery of the patient is scarcely retarded by this complication. In the Ulmann types, the character of the stool and pulse should be the guide to intervention. When the bloody stools contain gangrenous scraps, grayish and fetid, the probabilities are that they are from a patch limited to the mucosa, and the hemorrhage will yield to ice, opium and ergot if the surgeon is sure that he did not overlook any patch of gangrene in the peritoneum. One case is on record in which a stricture developed later at the site of the eschar. When the stools contain almost pure blood and the pulse is rapid, showing that the hemorrhage is due to something more serious than the mere falling of an eschar, an operation is practically *in extremis* and is a serious undertaking. Research is now under way for the purpose of establishing the real pathogenesis of this latter form of hemorrhage and the prospects for successful interference. The article concludes with a summary of the 28 cases on record. The list does not include any from America. A number of the traumatic hemorrhages proved fatal.

Semaine Médicale, Paris.

30 (XXV, No. 16, April 19.) L'infiltration ecchymotique diffuse de la face à la suite des compressions du tronc. F. Lejars.

31 (Nos. 17-18.) A Fifth Eruptive Disease.—Une cinquième maladie éruptive: le mégalérythème épidémique. L. Cheinisse (Paris).

32 L'épidémie actuelle de méningite cérébrospinale dans l'Europe centrale.

Deutsche medizinische Wochenschrift.

33 (XXXI, No. 16, April 20.) *Ueber Retroversio uteri gravidi incarcerata an der Hand eines mit schwerstem wirklichen Ileus komplizierten genesenen Falles (One case. Recovery). Dienst.

34 Zur Technik der Alexander-Adam-Operation. Robbers.

35 Zur Klinik und Aetiologie der Angina ulcerosa membranacea (Plaut-Vincent). M. Mayer and O. Schreyer.

36 *One Hundred Foreign Bodies in One Appendix.—Ein eigenartiger Fremdkörperbefund bei Appendicitis. Rebentisch.

37 *Zur Pathologie des Magen Carcinoms (of stomach). v. Tabora.

38 *Beiträge zur Lehre von der Beschäftigungsneuritis (occupation neuritis). H. Curschmann.

39 Zur Technik der Jodipin-Injektionen. Pelizacus.

40 *Zur Behandlung der Meningitis cerebrospinalis epidemica. B. Kallmeyer (St. Petersburg).

41 To Reduce Danger to the Public from the Insane.—Die Gemeingefährlichkeit bei Geisteskranken und ihre Bekämpfung. Dannemann.

33. **Incarcerated Retrodisplaced Gravid Uterus with Ileus.**—The patient was a xii-para with a record of several abortions in the last few years. The retroflexion had probably occurred some time before and symptoms of incarceration developed about the fifth month of the pregnancy. The first symptom was a disturbance in urination, but catheterization every day for a week averted the danger of necrosis of the bladder from pressure of the incarcerated uterus. The urine was always sterile. The intestine became kinked and severe ileus resulted. When the uterus was restored to place the symptoms righted themselves at once. It is the first case on record of recovery from actual ileus under these circumstances.

36. **One Hundred Foreign Bodies in an Appendix.**—The patient was a woman of 74 who had had typhoid fever twenty years, and gallstone colic five years, previously. The appendix was included in an inguinal hernia and symptoms of appendicitis developed. When the purulent appendix was removed it was found to contain two grape stones, two other fruit stones, six splinters of enamel, three splinters of bone, a piece of a match, several small gravel stones and scraps of gallstones, a total of about 100 foreign bodies, of which the grape stones were the largest; 96 were large enough to be arranged on a card and photographed.

37. **Pathology of Gastric Cancer.**—Among the early signs of a cancer von Tabora mentions the small clots, less than the head of a pin in size, generally merely little black points, which are found in the siphoned-out stomach content. These clots are frequently encountered in case of cancer of the pylorus, although they may require the microscope for their differentiation. Hemorrhage in case of mere achylia gastrica is passed along out of the stomach too rapidly for the blood to form into clots. These clots have proved to be the very earliest symptom of cancer in the stomach, in his experience, preceding the discovery of lactic acid. The presence of Oppler's bacillus adds to the probability of cancer, as both require a long sojourn in the stomach. He has not found that the patients lose in weight, unless there is marked motor insufficiency with the cancer. A cancer on the lesser curvature may exist for months and years without appreciable loss in weight. With proper feeding, there may even be a gain in weight. He believes that it is almost impossible to distinguish between a benign ulcer and cancer of the pylorus, and the possibility of malignant transformation of the ulcer should not be forgotten. It is advisable to raise the general tone by dietetic and other measures before attempting any intervention on a pyloric cancer. If this is impossible, gastroenterostomy should be done first, and the radical operation should follow after an interval for recuperation. The benefit is sometimes surprisingly fine, even when a radical operation later is not practicable. The diagnosis of cancer of the normally located lesser curvature is more difficult, and this form of malignant disease is the despair of surgery. Certain surgeons have reported comparatively long survivals after operations, but analysis of their cases will show that the survivals are no more than the average life expectancy of cancers of the lesser curvature when left untouched. Even at best, the definite cures are less than 1 per cent. Exploratory puncture has a high mortality, and is very depressing to the patient, generally convincing him of the absolute hopelessness of his condition. As a rule, it may be said that a good Congo reaction, with increased amount of stomach content retained, indicates that the radical removal of the neoplasm is still possible, and gastroenterostomy is indicated. If the Congo reaction is negative, with increased

amount of stomach content retained, then gastroenterostomy to relieve the motor insufficiency is indicated. If the Congo reaction is negative, and if there is no retention of stomach content, and the lesser curvature is in the normal location, then any surgical interference is useless, except to relieve severe, urgent symptoms, when there is nothing to lose and everything to gain.

38. **Occupation Neuritis.**—A number of cases are described. In one the cause was the habit of resting the elbows on a high table while standing at work. Paresthesia, pain and weakness developed in the fourth and fifth fingers of the right hand, and proved rebellious to treatment. In another case, a young man made ice-cold applications to his inflamed eyes, pressing the cold cloth against the eye with his little finger. Symptoms of a neuritis developed in two or three days in this little finger, but the symptoms vanished under treatment after removal of the cause. An equally favorable termination was observed in a similar case in which the little finger had been submitted to a constant jar and vibration in tending a machine. The prognosis of a true occupation neuritis should be guarded, especially as lead poisoning, tabes, etc., are liable to attack first the radial and ulnar domain of the arm most used. The principal lesson of Curschmann's article is the importance of prophylaxis of these occupation affections.

40. **Treatment of Epidemic Cerebrospinal Meningitis.**—Kallmeyer's advice as to the treatment of this disease has been quoted in recent cable dispatches. He states that mercury, quinin, venesection and narcotics have proved ineffectual. A purgative dose of calomel may be useful at first, but after this enemata are preferable, if necessary. The internal or better still, the subcutaneous administration of arsenic is useful and harmless. It should be commenced the moment the disease is recognized. The doses should progressively increase, and slight fever is not a contraindication. The heart should be stimulated with camphor injections, and great attention should be paid to a suitable and strengthening diet. The main reliance should be on warm baths, at a temperature of about 93 degrees F., with douches of water at a temperature of about 90 degrees F. These baths should be commenced as early as possible in the disease, but not repeated, as a rule, oftener than once a day. Four attendants stand at the four corners of the bed and lift the patient by taking hold of the corners of the under sheet and lifting it with the patient into the bath tub. He remains in the bath for from eight to fifteen minutes, suspended in the sheet, and is then replaced in bed in the same way. Kallmeyer has thus treated and cured two very severe cases of the epidemic variety and a number of sporadic cases.

Münchener medicinische Wochenschrift.

42 (LII, No. 14, April 4.) *Ueber familiären Tremor. Schmaltz.
43 *Ueber periphere Schwangerschaftslähmungen (paralysis of pregnancy). R. Hoesslin.
44 Ueber Aphthæ tropicæ oder indische Spruw. H. Richartz.
45 *Experimentelles zur Pankreas- und Fett-Gewebsnekrose. Hess.
46 *Retrogression of Choked Disc with a Brain Tumor.—Ueber die Rückbildung der Stauungspapille bei Hirntumor. G. Flatau.
47 *Adenokarzinom und Sarkom am gleichen Menschen. H. Landau.
48 Ueber den Gebrauch der haltbaren Borsauer-Aluminumazetatlösung (durable solution of boric acid and aluminum acetate). K. Ludwig.
49 Blood Changes at High Altitudes.—Die vermeintlichen Blutveränderungen im Gebirge. E. Meissen.
50 Laryngeal Tuberculosis in Pregnancy.—Weiterer Beitrag zur Kehlkopfschwindsucht der Schwangeren, etc. O. O. Fellner.
51 Zur Frage der Schultzeschen Schwingungen (swinging). A. Hengge.

42. **Family Tremor.**—Schmaltz gives the family history of three families which include a number of cases of hereditary, essential tremor. He sifts the literature on the subject, and mentions that in his experience the tremor was never accompanied by any serious nervous affection. He personally examined 9 of the 20 cases of tremor in the 30 persons comprised in the three families he reports. Some of the "tremblers" lived to an advanced age. In some the tremor developed in childhood, in others not until late in life, after some accident to self or to dear ones. The tremor persisted through life, unmodified, in some, but in others, under hygienic measures, it improved or subsided altogether. All treatment proved ineffectual. Differentiation is based on the hereditary and family character of the tremor, the lack of disturbance in speech, vision or intelligence, the absence of vertigo, apoplectic symptoms and convulsions, and the benign, non-progressive type of the tremor.

43. **Peripheral Paralysis of Pregnancy.**—This writer last year published a comprehensive monograph on the central pregnancy paralyses. He grouped them as (1) those without anatomic findings: hysteric or myasthenic paralyses of pregnancy; (2) cerebral paralyses of pregnancy: due to apoplexy, albuminuria, thrombosis or embolism in the brain or to other brain affections; and (3) the spinal paralyses of pregnancy. Strümpell has recently observed a number of cases of this last category: actual spastic paralysis with an unmistakable connection with pregnancy and childbed. In the present article, von Hoesslin describes the peripheral paralyses of pregnancy, classifying them as myopathic and neuritic. The first group includes osteomalacic paralysis and polymyositis. The neuritic paralyses may be of traumatic, of toxic, or of post-infectious origin, and may extend by contiguity of nerve tissue. He reviews his extensive experience with each of these types, urging that more attention should be paid to the possibility of such an origin when studying any case of paralysis. The prognosis of the toxic neuritis of pregnancy is the more unfavorable the more extensive the paralyses and the more rapid their development. In 50 severe cases, 10 terminated fatally, while the more localized cases all terminated in recovery. The chances of curing by interrupting the pregnancy are by no means so favorable as in case of chorea gravidarum. Analysis of the hitherto published cases shows that the polyneuritic symptoms did not abate after spontaneous delivery, but rather displayed a tendency to exacerbation. The conclusion seems inevitable that the toxins causing the affection are produced even in the puerperium, possibly in connection with the involution of the genitalia. The pregnancy should not be interrupted, therefore, unless absolutely necessitated by some vital indication or commencing atrophy of the optic nerve. Under the circumstances, the procedure has undoubtedly been beneficial in many cases. Postinfectious puerperal neuritis is almost invariably ulnar and median, and gradual recovery is the rule. The prognosis of traumatic obstetric paralysis is better the less extensive the lesions. When limited to the leg, improvement is noted in a few weeks at farthest, but if extensive and accompanied by atrophy the prognosis must be cautious. Recurrence is also liable after childbirths later. In 92 cases of toxic neuritis of pregnancy or the puerperium uncontrollable vomiting had preceded its appearance in 19 instances. Hyperemesis gravidarum thus occurred in 34 per cent. of the 46 severer cases of toxic neuritis. In some cases they developed simultaneously. This speaks decidedly against the assumption of a hysteric nature for hyperemesis gravidarum, and points unerringly to autointoxication. The cellular elements of the nerves display degenerative changes with proliferation of the interstitial connective tissue. In about half the cases general polyneuritis with muscular atrophy results. In 16 of the 40 severer cases, Korsakoff's psychosis was more or less evident.

45. **Experimental Study of Necrosis of the Pancreas.**—The experimental research reported by Hess from Marburg showed that fatty necrosis can be induced in the pancreas of dogs by stenosis of the duodenum combined with a lesion of the papilla followed by introduction of fat into the pancreas. The saponification which is set up at once when the fat comes in contact with the pancreatic juice, causes a destructive process leading to necrosis. Many cases of apoplexy of the pancreas, etc., may be due to the penetration of fat from the intestines into the pancreas. The cicatricial sequelæ which follow a destructive process of this kind may explain certain cases of chronic indurative pancreatitis.

46. **Retrogression of Choked Disc with Brain Tumor.**—A girl of 16 exhibited symptoms of serous meningitis—headaches and choked disc—after typhoid fever. Both symptoms were relieved by mercurial treatment and by lumbar puncture which was repeated seven times in the course of six months

with the complete retrogression of the choked disc. The symptoms recurred three months later and the patient soon succumbed. The autopsy revealed a small-celled glioma in the left cerebellum. Flatau presents evidence from other writers which shows that lumbar puncture is sometimes able to induce the retrogression of choked disc even in case of a brain tumor.

47. **Variety of Tumors on One Individual.**—Landau thinks that the patient described holds the record for variety of neoplasms. He was a well-nourished, brunette man of 38, with several pointed exostoses on the lower jaw and an osteoma on the upper jaw as large as an apple. The cheek and legs showed several pigmented nevi, the rectum an adenocarcinoma and polypi and the mamma a fibrosarcoma. The two malignant growths were excised and the patient is in robust health to date, seven months since the operation.

Zeitschrift f. klinische Medizin, Berlin.

Last indexed page 1570.

52 (LVI, Nos. 1-2, Naunyn Festschrift, Part II). Catalase of Milk.—Die Katalase der Milch. E. Reiss.
53 Symptomatologie der Fistula gastrocolica carcinomatosa. G. Sandberg.
54 Diphtherie-Antitoxin Bestimmungen bei Mutter und Neugeborenem (in mother and newborn). H. Kayser.
55 Cytodiagnostik eines Falles von Lymphdrüsenkrebs (adenocancer). E. Ducros.
56 Behavior of Carbonic Acid in Stomach.—Das Verhalten der Kohlensäure im Magen. K. Loening.
57 Epileptic Spasms in 2 Cases of Diabetic Coma.—Ueber das Vorkommen epileptischer Krämpfe beim Koma der Diabetiker. J. Lossen.
58 Zur spezifischen Therapie der Febris recurrens (experiments with serotherapy). G. Gabritschewsky.
59 Focal Symptoms in Psychoses Leading to Dementia.—Ueber Herdsymptome bei den zur Verblödung führenden Psychosen. M. Rosenfeld.
60 Ueber unsere Kenntnis der mit dem Carcinom in ursachliche Verbindung gebrachten tierischen und pflanzlichen Mikroorganismen. E. Cohn.
61 Respirations-Versuche an diabetischen Menschen. A. Magnus.
62 Beitrag zum Stoffwechsel Magenkranker (metabolism in stomach affections). A. Loew.
63 Origin of Stearic Acid Needles in Dittrich's Plugs and Determination of Fat-Destroying Microbes.—Ueber die Herkunft von Fettsäurenadeln in Dittrich'schen Pfropfen und den Nachweis von Fett-zersetzenden Mikroben. G. Schwartz and H. Kayser.
64 Ein operativ behandelter Fall von Pneumomycosis aspergillina. G. Schwarz.
65 *Significance of Traces of Blood in Typhoid Stools.—Ueber das Vorkommen von Blutspuren in den Darmabgängen von Typhuskranken und deren Bedeutung. C. Petracchi.
66 Diagnostic Importance of Bactericidal Properties of Typhoid Serum.—Ueber die diagnostiche Bedeutung der bakteriziden Eigenschaften des Blutserums Typhuskranker. K. Laubenheimer.
67 Ueber die Wirkung der v. Noordenschen Haferkur beim Diabetes mellitus (oatmeal in diabetes). S. Lipetz.
68 Influence of Pregnancy on Acute Infectious Diseases.—Ueber die Beeinflussung der häufigsten akuten Infektionskrankheiten durch Gravidität, nach dem Material der Strassburger medizinischen Klinik von 1888-1904. A. Brion.
69 (Nos. 3-4.) *Die Diagnose als aetiologischer Factor. O. Rosenbach.
70 *Experimenteller Beitrag zur Tuberculose-Frage. F. Klemperer.
71 *Ueber das Wesen der Hämophilie. H. Sahli (Berne).
72 Ueber die Phosphate des Mageninhalts (of stomach contents). von Tabora.
73 Ueber Senkung und Agglutination von Blutkörperchen (of blood corpuscles). H. Brat.
74 Die Bakterien-Befunde bei Scharlach und ihre Bedeutung für den Krankheitsprocess (bacteriology of scarlet fever). G. Jochmann.
75 Fall von sensorischer Ataxie der Augen-Muskeln (ocular muscles). H. Feilchenfeld.
76 Zur Mechanik der Expectoration. E. Reichmann.
77 Influence of Elimination of Glucuronic Acid on Acidosis.—Ueber die Einwirkung der Glucuron-Säure-Ausscheidung auf die Acidose. J. Baer and J. Wohlgemuth. (Commenced in Nos. 1-2.)

65. **Significance of Traces of Blood in Typhoid Stools.**—This article was reviewed editorially in THE JOURNAL for April 15, page 1203.

69. **Diagnosis as Etiologic Factor.**—Rosenbach refers to the way in which different physicians diagnose, some diagnosing a disease where another would regard it as highly dubious or non-existent. The consequence is that the statistics presented by different physicians vary widely on the same material. For example, since the presence of the plasmodia is now regarded as indispensable for the diagnosis of malaria, the number of cases of malaria now encountered is apparently very much less than in former years when all suspicious fevers were classed as malaria. The more accurate diagnosis merely pushes the cases of disease observed into other classes, and statistics show a "remarkable decrease in malaria of late years," while, in reality, the morbidity may be even higher than previously. This constant reclassification of diseases and acceptance of new standpoints for their consideration, is of extreme importance in the drawing of conclusions in regard to prevailing morbidity, and in our conceptions of the causes of mortality and of the results of treatment. He urges that the only reliable test for the efficacy of a new remedy or serum is for each alternate case to be treated with and the next without the remedy in question. Long series of cases treated alternately with and without, would solve the problem of the efficacy of the serum or other remedy better than it can possibly be solved in any other way. He complains that physicians display an incredible lack of critical judgment when new remedies are introduced.

70. **To Immunize Against Tuberculosis.**—Klemperer reports a number of experiments which have established the feasibility of rendering already infected cattle immune by subcutaneous injection of human tubercle bacilli. Calves infected with bovine tuberculosis and treated afterward with human tubercle bacilli remained healthy while the controls all succumbed to the bovine tuberculosis. Subsequent inoculation with human tubercle bacilli evidently exerts inhibiting and attenuating influence on bovine tuberculosis. Attempts to apply these conclusions to man are now under way. The first step was to determine the absolute harmlessness of subcutaneous inoculation of tuberculous persons with bovine tubercle bacilli. Klemperer established this by injection in his own person and also by injections in a tuberculous physician who volunteered for the experiments. The latter was injected fourteen times, and the bovine tubercle bacilli, after a single passage through a guinea-pig, were absorbed without any acute reaction, just as in Klemperer's experiments on himself. The same results were observed with 4 tuberculous patients who likewise volunteered their services. The harmlessness of the procedure, he states, is thus amply established, and the results observed suggest the possibility of successful immunization of persons in the early stages of tuberculosis by systematic subcutaneous injection of bovine tubercle bacilli. The guinea-pigs were inoculated with fresh tuberculous glands from cattle, injected subcutaneously into the abdomen. When the resulting tuberculosis was at its height, in about three or four weeks, they were killed and a piece of an inguinal gland and of the spleen studded with tubercles—about 2 gm. of substance in all—were ground in a mortar and suspended in 10 c.c. of physiologic salt solution with 1 to 4,000 formalin, and then filtered through gauze. He calls this the "suspension" (*Rindertuberkelbacillen-Aufschwemmung*). It is very virulent for guinea-pigs for as long as eight days. The human subjects were injected in the forearm with 0.25 c.c. of this suspension.

71. **Essence of Hemophilia.**—Sahli has had occasion to study hemophilia in three families and to trace it through two or three generations. The abnormally low coagulating power of the blood was a marked feature in these families. His observation and research force him by exclusion to accept the theory that the wall of the blood vessels, when it is injured, produces a "thrombokinase" or zymoplastic substance at the spot, which aids in the coagulation of the blood at this point and arrests the tendency to hemorrhage. In the hemophilic organism, the vessel walls are defective in this respect and do not produce the chemical substances which induce local coagulation. Treatment should aim to raise the general health, especially with a good and generous diet. Cases are on record in which the tendency to hemophilia vanished as the patients became robust. There is no reason for preference for a vegetable diet. This was suggested by the supposed analogy between hemophilia and scorbutus, for which in fact there is not the slightest justification. Compression and local gelatin applications may be useful to arrest the accessible hemorrhages especially when preceded by local application of adrenal extract. Gelatin internally is harmless but probably useless. There are no grounds for the internal or subcutaneous use of adrenal extract or ergot. Calcium chlorid internally is still awaiting judgment. The local application of ferric chlorid answers no purpose. It is

still a question whether or not benefit may be derived from local application of calcium chlorid or of the zymoplastic substances or "thrombokinase" in the form of tissue juices or their extracts. If applied, they should be forced into the lumen of the vessel as much as possible by the compressing bandage. The same or better results will probably be accomplished by pressing into the lumen of the bleeding vessel a thick and firmly applied 2 per cent. gelatin gauze dressing. Any attempt to apply the "thrombokinase" and zymoplastic substances otherwise than locally would probably be dangerous. A number of tests on 4 hemophilics are described and 60 articles from the literature are cited. The prompt success of local applications of gelatin in arresting the hemorrhage was confirmed again and again in his experience. Sahli's views were discussed in an editorial on page 1198.

Riforma Medica, Palermo and Naples.

78 (XXI, No. 13, April 1.) *Sulla etiologia e patogenesi del cancro. G. Maniscalco (Tricomi's clinic, Palermo).
79 Study of Metabolism in 2 Cases of Chronic Leukemia.—Ricerche di ricambio nella leucemia cronica. F. De Grazia.
80 (No. 14.) *Passage of Autotoxins and Agglutinins into Milk and Their Absorption.—Sul passaggio delle agglutinine ed antitossine tubercolari nel latte e loro assorbimento per via del tubo gastroenterico. F. Figari.
81 *Su alcuni punti della cura medica e chirurgica del male di Pott. A. Campani. (Commenced in No. 13.)
82 Sclerosi laterale amiotrofica familiare e Pellagra. T. Armaudo.
83 Sui disturbi oculari della paralisi generale e sul loro raffronto con quelli della tabe dorsale (ocular disturbances). C. Mannini.

78. **Origin of Cancer.**—Maniscalco has succeeded in producing in dogs lesions which resemble those of incipient cancer of the stomach. He opened the stomach and cut a pedunculated rectangular flap and also cut out a piece of the abdominal wall of the same shape and size, and sutured the stomach flap in its place. He then closed the stomach and abdomen as perfectly as possible. He scraped the mucosa of the stomach flap and irritated it every day with alcohol or ammonia or with a toothpick. The reaction that followed presented the features of cancerous growth, as he shows by various illustrations of sections. The results of these and other experiments which he describes have convinced him that the reaction to irritation causes a proliferation of the glandular elements which seek to substitute the constantly destroyed lining epithelium. The differentiation is not physiologic, but pathologic and irregular, and the elements of the epithelium behave irregularly also, growing downward into and through the muscularis mucosæ with metastasis in the submucous connective tissue. He thinks that this idea of pathologic proliferation of glandular tissue as the origin of malignant growths is sustained by the fact that cancer never develops in organs that have no glandular tissue.

80. **Milk of Cows, Goats and Rabbits Immunized Against Tuberculosis.**—Figari found that tuberculosis agglutinins and antitoxins passed into the milk of cows and goats actively immunized against the disease and into the milk of rabbits passively immunized. The kids born of immunized mothers inherit the defensive materials from the mother, and the amounts increase as they continue suckling. Calves and kids born of non-immunized mothers are able to absorb in the digestive tract the agglutinins and antitoxins contained in milk from immunized animals. More than this, these agglutinins and antitoxins are able to excite the formation of other agglutinins and antitoxins. Rabbits passively immunized by subcutaneous injection or by ingestion of the immunized milk are able to transmit in their milk to their young both agglutinins and antitoxins. Adult rabbits fed on milk from immunized cows absorb in their digestive tract the antitoxins and agglutinins contained in the milk, and their serum is found to have high agglutinating and antitoxic power. He describes his various experiments in detail. The results confirm in every particular, he adds, Maragliano's assertions in 1903 in regard to the possibility of the passage of the immunizing substances into the milk of immunized animals and their absorption in the digestive tract when fed to other animals, with their subsequent specific action in the organism.

81. **Pott's Disease.**—Campani thinks that the prognosis of this affection is not so grave as many believe. There is a tendency to spontaneous recovery, and if Nature is aided in time the final outcome is liable to be excellent. Various roads lead to the desired goal, but in general, puncture and rinsing out the cavity will be found sufficient. This simple procedure can be done by any one and almost anywhere, while it is much safer than other technics. He prefers to rinse the cavity after puncture with a 1 per 1,000 salicylic-acid solution, using at least 5 liters of the fluid, or until it emerges clear. It may be necessary to repeat the rinsing two or three times. He introduces the fluid through a Plessi return-flow canula, and the rinsing is easily done in a quarter of an hour. He gives the history of several cases thus treated and re-examined several years afterward. The affection healed slowly, but surely, after the injections, and the patients are all free from any disturbances. Those whose cases are described in detail were from 20 to 42 years of age. There is scarcely a trace of their former affection, and all have gained materially in weight, one nearly 60 pounds. In some of the cases the disease had caused paraplegia, but this rapidly subsided under cold hydrotherapy.

Medicinskoe Obozryenie, Moscow.

Last indexed page 1411.

84 (LXI, No. 8.) Ten Cases of Purpura and 3 of Hemophilia in Children.—Nyeskolko slutchaev purpuri i hemophilii u dyetei. I. M. Rakhmaninoff.
85 *Primary, Non-Diphtheric Croup.—O pervitchnom ne diphtheriinom krup. P. P. Istomin.
86 (No. 9.) *Conservative Vaginal Operative Treatment of Uterine Fibromata.—Konservativnii vlagalishtchnii metod op. lyetcheniya fibrom matki. V. V. Uspensky.
87 Influence of Diphtheria Toxin on Nitrogen and Mineral Metabolism in Animals.—O vliyanii diph. toksina no azotistii i mineralnii obmyen u zhevotkikh. M. M. Bremener.
88 *Urobilinuria.—O nakhozhdenii urobilina v motchye. M. G. Shtchegoleff.
89 (No. 10.) *Traumatic Facial Paralysis.—O paralitchakh liyzevogo nerva vslyedstvie nestchastnykh slutchaev. L. S. Minor.
90 O neuropathitcheskoe nepodvizhnosti pozvonotchnika ("rigid spine"). M. Shaikevitch.
91 *Functions of Great Omentum.—O funktziakh bolshogo salnika. L. A. Jacobson.
92 (No. 11.) *K diagnostikye raka zheludka (of gastric cancer). I. Rusloff.
93 Motility of Lymphocytes and Its Significance in Cytodiagnosis.—Aktivnaya podvizhnost lymphocytov i znatchenie eya dlya cytodiagnosa. V. T. Polyakoff.

85. **Non-Diphtheritic Croup.**—Istomin describes 8 cases of severe membranous croup in which it proved impossible to detect the presence of the Loeffler bacillus. Streptococci, influenza bacilli and diplococci were found, and symptoms of grippe accompanied or preceded the manifestations of croup, the maximum phase being reached about the fourth day. Intubation was required in some of his cases and he never failed to inject antidiphtheritic serum; it produced an unmistakably favorable effect, supplemented by hot mustard foot baths and inhalation of steam.

86. **Conservative Vaginal Removal of Uterine Fibromata.**—Uspenski reports 12 patients thus operated on between 1883 and 1903. The operations proceeded smoothly and the after-results were excellent.

88. **Urobilinuria.**—The Schlesinger zinc acetate test for urobilin in the urine was found both sensitive and reliable in the experiences reported. They are summarized in tabulated form. They demonstrate that a certain amount of urobilin can always be found in normal urine, although the traces may be too minute to be revealed by ordinary reagents. If fluorescence appears in the fluid while it is being tested with zinc acetate under ordinary light, this is a sign of abnormally increased destruction of red corpuscles somewhere in the body. The presence of urobilin in the urine can be accepted as a sign of the toxic action of the products of some infection on the red corpuscles, or else as a sign of diapedesis of the red corpuscles, as in transudates. In a case of myocarditis the liver was apparently normal, but its insufficiency was revealed by its inability to transform the urobilin into bilirubin.

89. **Traumatic Facial and Trigeminal Paralysis.**—Three cases are described in detail and are discussed from the standpoint of industrial accident insurance. Two are illustrated and the claims for damages are established on the amount of disability.

91. **Functions of Great Omentum.**—Experiments were made on 8 dogs to test the functions of the great omentum. The animals bore resection of part of the omentum without trou-

ble, and no lesions could be discovered in stomach or liver which could be attributed to the resection. The capacity of transudation shown by the omentum is slight, about equal to that of the intestinal serosa. Further tests also demonstrated that the omentum possesses considerable capacity of absorption. His experiences confirmed those in the clinic in regard to the lesser sensitiveness of the omentum in comparison with the intestine.

92. **Diagnosis of Cancer of Stomach.**—Rusloff relates the clinical history of 4 cases of gastric cancer to bring out certain diagnostic points. Among them is the differential importance of a systolic murmur heard in the epigastric region, caused by compression of the trunk of the aorta by the cancerous tumor in the stomach. This sign has not been credited with the importance which it deserves for the diagnosis of a gastric cancer, especially in those cases in which the cancer develops baekward rather than toward the front, and is thus less accessible to palpation. The systolic murmur also serves to locate a suspected cancer. It is heard on the linea alba, or a little to the left of it, on the middle third of a line connecting the ensiform process with the umbilicus. The murmur can not be heard from the rear, in which it differs from the findings in cases of ordinary aneurism of the aorta. The murmur was observed until death in the cases reported. In one instance the diagnosis based on the murmur was not confirmed by palpation findings until after three months had elapsed.

Hospitalstidende, Copenhagen.

Last indexed page 1411.

94 (XLVIII, Nos. 6-7.) *Om intermitterende Halten (dysbasia angiosclerotica, intermittent limping). E. Kirkstein.
95 (Nos. 9-10.) *Behandlingen af Epididymitis tuberculosa. H. Strandgaard.
96 (No. 11.) Apparatus for Test of Color Blindness.—Et Faveblandingsapparat til Undersogelse af farveblinde. A. A. Meisling.

94. **Intermittent Limping.**—Kirstein describes 3 cases of angiosclerotic dysbasia with the Roentgen findings, and reviews the similar affection in horses. The arteriosclerosis was evident in the Roentgen pictures of the foot in his cases. The patients were men of 60 to 68 years of age, and the trouble had been of several years' duration. In the 2 cases described in detail the fact is mentioned that the men were great smokers, one averaging seven strong cigars a day.

95. **Treatment of Tuberculous Epididymitis.**—Strandgaard describes in detail Rovsing's technic as exemplified in 12 cases of tuberculous epididymitis. In 5 the lesion was confined to the genital organs, and in 7 the urinary apparatus was also involved. All the patients in the first group were permanently cured and 1 in the second group. All in the second group were very much relieved by the operation, and in most cases the inevitably fatal outcome was postponed for several months. In case of doubt whether the testicle is sound, he removes the epididymis, but leaves the testicle untouched, and supervises the case further. If the testicle proves to be pathologic it can easily be removed later, but, if not, the patient is spared unnecessary mutilation. He thinks that this is better than making an exploratory incision in the testicle.

Correspondenz-Blatt f. Schweizer Aerzte, Basle.

Last indexed page 915.

97 (XXXIV, No. 24.) Wann soll man bei Appendicitis operiern? H. Haberlin (Zurich).
98 *Relation of Chronic Articular Rheumatism in Children to Tuberculosis.—Chron. Gelenkrheumatismus der Kinder und seine Beziehungen zur Tub. J. Karcher (Basle).
99 (XXXV, No. 1.) Fibromyxom des Wurmfortsatzes (of appendix). E. Monnier.
100 *Zur Therapie der infantilen Bronchopneumonie. T. Zangger.
101 (No. 2.) Kasuistischer Beitrag zur Ureter-Resektion mit konsekutiver Ureterocystanastomose. H. Friolet (von Herff's clinic, Basle).
102 Relations Between Retinal Hemorrhage During Birth and Glioma Later.—Beziehungen der während der Geburt entstehenden Retinalblutungen des Kindes zur Pathogenese des Glioma retinæ. E. Wehli.
103 (No. 3.) Annihilation of Child's Life During Birth.—Die Vernichtung des kindlichen Lebens während der Geburt. Meyer-Wirz.
104 (No. 4.) *Blood Pressure and Measurements.—Ueber Blutdruck und Blutdruckmessung. A. Martin (H. Eichhorst's clinic, Zurich).
105 (No. 5.) Seven Cases of Fish Poisoning.—7 Fälle von Fischvergiftung. A. Stoll (Zurich).
106 (No. 6.) *Ueber Diagnose und Behandlung der Nieren und Blasen-Tuberkulose (of kidneys and bladder). H. Wildbolz (Berne).
107 (No. 7.) *Die therapeutische Bedeutung der Lumbal-Punktion im Kindesalter (in children). L. Tobler (Vierordt's clinic, Zurich). (Commenced in No. 5.)
108 *Zur Pathologie und Therapie der Streptomykosen. F. Schwarzenbach.
109 (Nos. 8-9.) *New Method of Investigating the Chemistry of the Stomach Without the Stomach Tube.—Ueber die Prüfung des Magenchemismus unter natürlichen Verhältnissen und ohne Anwendung der Schlundsonde. Die Desmoid-Reaktion. H. Sahli (Berne).
110 10 Fälle von Herz-Insuffizienz im Militärdienst (heart insufficiency during military service). R. Staehelin.

98. **Relations Between Chronic Rheumatism in Children and Tuberculosis.**—In Karcher's case, the patient was a girl of 12, whose father and several other relatives were tuberculous. She had been healthy until her eighth year, when a primary, chronic polyarthritis of the hands and feet developed. After persisting several years it subsided under general treatment for tuberculosis. No antirheumatic remedies had shown the slightest efficacy. He is convinced that this form of rheumatism in children has a closer connection with tuberculosis than is generally recognized, and advocates treatment on this assumption.

100. **Treatment of Bronchopneumonia in Children.**—Zangger reports 10 cases of bronchopneumonia in children 3 months to 11 years of age in which defervescence was realized in one to four days. He ascribes this favorable result to his method of giving the little patients from one to seven "half baths" of four to seven minutes each, the water at a temperature of from 30 to 28 C., gradually reduced to 26 or 24 C. (86 to 82 F., reduced to 78 or 75 F.). The room must be moderately warm, and the child must be placed in a bath tub with only enough water in it to cover the body, leaving the breast almost uncovered with water. The child is rubbed during the bath, and after two minutes cool water is added to bring the water down to the desired temperature. The child is then rubbed dry with warm towels and put back to bed. These half baths are given night and morning; a little milk is given to the child before and after the bath. The diet should be milk, diluted or not, and cold spring water should be sipped frequently. His experience has been that these baths twice a day raise the blood pressure, strengthen the heart, promote expectoration and soothe the nerves, etc., much better than any other measures.

104. **Blood Pressure and Measurements.**—Martin reviews recent work in this line and lays emphasis on the fact that the pulse curve is no criterion for the blood pressure. The systolic pressure can be determined by application of Gaertner's tonometer or the Riva-Rocci sphygmomanometer with a 10 cm. tube. The latter instrument is more reliable and also allows the diastolic pressure to be determined. Among the more interesting recent work in this line is Federn's research in Vienna. He is convinced that gout, arteriosclerosis, hemorrhoidal conditions and neurasthenia never develop except on the basis of an abnormally high blood pressure. The symptoms of neurasthenia vanish, he asserts, when the blood pressure is reduced to normal. The blood pressure is also high in constitutional syphilis. In icterus and in influenza the blood pressure is very low. His experiences are noteworthy, as they were in a family practice, and he had generally opportunity to know the state of the blood pressure before the development of the illness. On the whole, Martin adds, the fruits of research on the systolic pressure have been very scanty in comparison with the time and labor spent on it.

106. **Tuberculosis of Kidneys and Bladder.**—Wildbolz comments on the difficulty of differentiating tuberculosis of the urinary apparatus. The patients do not feel seriously ill, but complain merely of being a little depressed, easily fatigued and dyspeptic. The only sure sign is a slightly turbid urine. Generally nothing else calls attention to the bladder or kidneys. He describes several cases to illustrate this almost latent symptomatic course of severe tuberculous processes in these organs. Other cases presented the picture of chronic cystitis; the urine should always be examined bacteriologically in such cases. The bladder affection may be due to a primary focus in a kidney, and removal of the latter will cure the secondary process. If restricted to the bladder, the treatment should be purely medical. Operative intervention is altogether discarded now for tuberculous affections of the bladder. The

organ must be rested, and should be treated only with small injections of the desired drug. The best treatment in his experience was injection of 5 to 10 gm. of a 1 to 5,000 or 1 to 3,000 solution of corrosive sublimate in the empty bladder, or the same amount of a 5 per cent. guaiacol oil to which 2 per cent. iodoform had been added. These injections were made at intervals of two or three days, with a sedative in the form of a suppository to relieve the pain and to aid in keeping the bladder quiet. Such treatment systematically kept up for weeks and months will frequently improve to a remarkable extent, or cure entirely, a primary bladder tuberculosis. He has performed nephrectomy in 9 cases and assisted others in 4 cases of unilateral renal tuberculosis, and the results have been eminently satisfactory. The secondary bladder processes always healed soon afterward.

107. **Lumbar Puncture in Children.**—Tobler reports the various cases in which children were treated by lumbar puncture at Vierordt's clinic. The fluid should be withdrawn slowly and gradually, the patient reclining. The more fluid present the more can be allowed to escape. In 2 cases of hydrocephalus, 400 and 650 gm. of cerebrospinal fluid were drawn, with the best results. In certain cases of meningitis, symptoms developed one or two days after the puncture, demonstrating the excessively sensitive condition of the meninges. The symptoms were relieved by a second puncture. In case of suspicion of a brain tumor, puncture is contraindicated. It proves beneficial in almost all cases presenting symptoms of accumulation of cerebrospinal fluid. Tuberculous and suppurative meningitis, however, do not respond favorably to the punctures. Even slight, transient benefit is scarcely ever obtained. In 16 cases of tuberculous meningitis, in which lumbar puncture was applied 25 times, there was only slight, fleeting improvement in 4 cases, with, in 1, the subsidence of the Cheyne-Stokes respiration. In 2 of the cases the patients died two days after the puncture, and in another it was evidently responsible for the vomiting, trismus and general tremor that followed. In 7 cases of otogenic or postscarlatinal meningitis, the little patients all died, no benefit being apparent from the 10 punctures that had been made. The results of lumbar puncture were far better in 7 cases of epidemic cerebrospinal meningitis. In some instances the benefit was striking, but in others none was apparent. When the first puncture does no good it is useless to repeat it. In some of the cases, with a pressure of from 20 to 60 mm. Hg, the punctures were unmistakably beneficial, while in others, with pressure of from 20 to 30 mm., no results were evident. The particulars of 3 cases in which the punctures were most strikingly beneficial are given in detail. No cure of congenital hydrocephalus is on record, possibly because the punctures have not been systematically repeated long enough. Excellent results were attained in 2 cases of postmeningitic hydrocephalus, and some transient benefit was observed in a case of postmeningitic idiocy.

108. **Treatment of Streptomycosis.**—Schwarzenbach describes how the germs are inhaled in dust and settle in the crevices in the upper air passages. Prophylaxis should aim to reduce dust and to render the air passages more resistant with prompt and persevering treatment of all catarrhal affections. If the throat is once infected, the toxins from the primary focus spread through the body, and the results are liable to be acute or chronic muscular or articular rheumatism, sciatica, headache, neuralgias, eternally recurring pharyngitis or tonsillitis or streptococcus grippe. If it is impossible to eradicate the infection entirely on account of the ever-recurring new infections, the focus at least can be rendered temporarily harmless and the production of toxins arrested. For this purpose he advises daily rinsing of the throat and nose with isotonic salt solution with subsequent insufflation of some mild antiseptic powder. The mucosa must not be irritated or the treatment will do more harm than good.

109. **New Test for Stomach Functions: "The Desmoid Reaction."**—Sahli's test is the ingestion of some stain, methylene blue or iodin, enclosed in some substance which passes unaltered through the alimentary canal unless digested by the action of the normal stomach secretions. He accomplishes this by enclosing the stain in a bag of goldbeater's skin. This is merely the uncooked connective tissue from the cecum of cattle. If 1 gm. of iodoform is wrapped in a square of this skin and swallowed, the stomach secretions digest the skin and the stain escapes, with a marked iodin reaction in the saliva or urine in a few hours. Tests with 92 patients amply confirmed the correctness of these assumptions. He has since modified the test, as he found that the goldbeater's skin varied so much in thickness that the tests were not uniform. He now uses a square of the finest rubber dam of the dentists, 2 mm. thick. A piece about 4 cm. square is dusted with talcum powder to prevent its sticking, and a pill containing .05 methylene blue and .1 gm. of iodoform with extract and pulv. licorice āā .04 gm. is placed in the center. The corners of the square are brought together and a very fine and soft catgut is wound three times around the little bag thus made and tied tight with a double knot. The protruding ends of the rubber are then cut off about 3 mm. from the catgut, with care not to snip them off with a single stroke of the scissors, but to cut the rubber in a single thickness to avoid any possible sticking together of the edges of the bag. The pill is heavier than water and sinks to the bottom of the stomach when it is swallowed, which should be after the usual midday meal. The patient is instructed to urinate at 5 and 7 p. m. and again in the morning and to save the urine in separate labeled flasks. The saliva can also be inspected for the iodin reaction. Sahli calls this test the desmoid reaction, from the Greek term desmos, a ligament or connective tissue. In health the urine shows the stain the same evening. The catgut or connective tissue is submitted to the same digestive process as the food in the preceding meal, and the results enable the natural digestive processes under natural conditions to be estimated as by no other test yet devised. He is convinced that the results of this simple and convenient test will supply data for determination of the appropriate diet in certain cases, for the adaptation of the digestive stimuli to the chemical functional capacity of the stomach, and solve various other problems in the physiology and pathology of the stomach, while as a diagnostic measure it has the advantage of being carried out under natural conditions and without any unusual features in regard to diet, etc. A positive reaction always indicates normal digestion, according to his experience. A negative reaction is generally the indication of some gastric disturbance. The little bags can lie in water for twenty-four hours or in pancreatic juice or in a 1 or 2 per cent. solution of hydrochloric acid without any escape of the stain. Nothing but a combination of hydrochloric acid and pepsin digests the catgut and releases the stain in the bag.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

ENLARGEMENT OF THE PROSTATE; Its History, Anatomy, Etiology, Pathology, Clinical Causes, Symptoms, Diagnosis, Prognosis, Treatment, Technic of Operations and After-Treatment. By J. B. Deaver, M. D., Assisted by A. P. C. Ashhurst, M. D. Illustrated with 108 Full-Page Plates and a Colored Frontispiece. Cloth. Pp. 266. Price, $7.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

TUMORS OF THE CEREBELLUM. By C. K. Mills, M.D., C. H. Frazier, M.D., G. de Schweinitz, M.D., T. H. Weisenburg, M.D., and E. Lodholz, M.D. Cloth. Pp. 179. Reprinted from the *New York Medical Journal*. New York: A. R. Elliott Publishing Co. 1905.

DRINK RESTRICTION (Thirst Cures), Particularly in Obesity. Part VI of Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. C. von Noorden. Cloth. Pp. 86. Price, 75c. New York: E. B. Treat & Co. 1905.

THE HISTORICAL RELATIONS OF MEDICINE AND SURGERY to the End of the Sixteenth Century. An Address Delivered at the St. Louis Congress in 1904. By T. C. Allbutt, M.A., M.D. Cloth. Pp. 125. Price, $1.00 net. New York: Macmillan & Co. 1905.

A TREATISE ON PLAGUE, Dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease. By W. J. Simpson, M.D. Cloth. Pp. 466. Price, $5.00. Cambridge: The University Press. 1905.

A TEXT-BOOK OF MEDICAL PRACTICE for Practitioners and Students. Edited by W. Bain, M.D. With Illustrations. Cloth. Pp. 1011. Price, $7.00 net. New York: Longmans, Green & Co. 1904.

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Original Articles

DIFFERENTIAL DIAGNOSIS BETWEEN COXA VARA AND OTHER STATIC, INFLAMMATORY AND TRAUMATIC AFFECTIONS OF THE HIP JOINT.*

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CHICAGO.

The surgeon not infrequently meets with cases in which it is extremely difficult and sometimes impossible to make an early and positive differential diagnosis between the different forms of static, inflammatory and traumatic affections of the hip joint. The diagnosis of the different affections of the hip joint has gained much by the use of the Roentgen ray as one of our modern and most reliable diagnostic resources, and in obscure affections of the hip joint it should invariably be resorted to; in the majority of cases the information thus gained will forge the last link in the long chain of diagnostic reasoning by exclusion. Even this diagnostic aid, owing to the complicated structure of the hip joint, its deep location and diversity of function, will fail in some cases in clearing up the existing doubt. As an isolated diagnostic aid, it will not infrequently lead the surgeon astray in his search for a correct diagnosis. A careful, painstaking clinical study of the case from all aspects, anatomic, physiologic, mechanical, etiologic, and pathologic, must precede the use of the Roentgen ray, which should only be employed as a diagnostic resource in verifying or correcting the clinical diagnosis. Among the newest, most obscure and least understood deformities of the hip joint is an affection of the femoral neck which manifests itself clinically and pathologically by softening, bending and torsion known and described as coxa vara.

This strange joint disease has not received from the American surgeons the attention its clinical importance merits. Few outside of Germany have made it the subject of special investigation. For a long time pathologists and surgeons have been aware of the existence of a strange deformity of the femoral neck which by mechanical causes seriously interfered with the use of the affected limb and for which they could give no satisfactory explanation. Specimens of this kind can be found in some of the old pathologic museums where they were stored away years ago awaiting a satisfactory interpretation of their pathologic significance. Orthopedic operations were repeatedly performed for the purpose of improving function in cases which are now known to have been instances of coxa vara. It was not, however, until 1888 that coxa vara was made the subject of an earnest clinical study by E. Müller, who proved by his careful observations that it was a disease of the neck of the femur entirely different from any of the then known diseases of the proximal end of that bone. Six years later, and almost simultaneously, Hofmeister and Kocher made valuable contributions to the pathology and clinical history of this disease. Before a true conception of the clinical features of coxa vara was formulated by these pioneers in this part of the surgery of the hip joint, this disease was confounded with the inflammatory affections of the proximal end of the femur, and was diagnosticated and treated as coxitis. A genuine coxa vara is characterized by a non-inflammatory softening of the neck of the femur, accompanied or followed by a downward bending and torsion.

As a knowledge of this disease became more general, it soon became apparent that other affections of the neck of the femur were included under the term coxa vara. Kredel was the first to call attention to the congenital form of the disease and reported two cases that came under his own observation. Similar cases were observed later by Mouchet, Aubion, Schede and Kirmisson. Kirmisson is of the opinion that the congenital form is caused by harmful intrauterine pressure. Distortion of the neck of the femur simulating coxa vara has also been observed in cases of congenital dislocation of the hip joint, more especially in long-standing cases. Wagner describes a case of this kind from Hoffa's clinic. It has also been seen in osteomalacia, and Hofmeister and Alsberg have each reported such a case. Rachitis is likewise frequently mentioned as a cause of coxa vara, and such cases are spoken of as coxa vara rachitica. Lauenstein found in a rachitic skeleton the angle of the femoral neck on one side diminished, and on the other increased. Hoffa states that coxa vara rachitica is not of very rare occurrence, while Charpentier, who examined many rachitic skeletons, did not find a single specimen in which the neck of the femur was in a horizontal position. Nearly all authors agree in admitting that all inflammatory affections, chronic and acute, tubercular and suppurative, may give rise to distortion of the neck of the femur simulating coxa vara, and cases in support of this opinion have been described and reported by Volkmann, Schede, Stahl, Oberst, Bruns, and others.

Arthritis deformans has much in common with the deformity of the neck of the femur, caused by coxa vara, and Kirmisson and Charpentier regard the two conditions as identical. In two cases of coxa vara operated on by Maydl, the specimens presented the gross pathologic changes typical of arthritis deformans. A form of traumatic coxa vara has been described in connection with a trauma resulting in epiphyseolysis and fracture of the femoral neck. Several of the authors who have contributed most toward elucidating the pathology of coxa vara, among them Kocher, Alsberg and Sudeck,

* Presented in abstract to the Pan-American Medical Congress, Panama, January, 1905.

insist that separation of the head of the femur from the neck in persons below the age of puberty can take place in consequence of very slight application of force, and that the displacement of the head and the subsequent manner of repair will give rise to a deformity which corresponds with the clinical phenomena of coxa vara. De Quervain reports a case of fracture of the neck of the femur operated on by Kocher in which such a condition was found. Two similar cases have been reported by Sudeck and Alsberg. From the foregoing, it becomes apparent that even at the present time much confusion exists in reference to the limitation of the term coxa vara from an etiologic, as well as from a pathologic, standpoint. That there is such a thing as a non-inflammatory, non-traumatic softening of the neck of the femur in young subjects, followed or attended by deformation, there can be no further doubt, and it seems



Fig. 1.—Bending downward of the neck of the femur with elongation and flattening of the head.

to me that the term coxa vara should be limited to such cases, or at least this form should be called coxa vara *vera,* in contradistinction to the somewhat similar deformation produced by traumatic and inflammatory causes; in other words, deformations of the femoral neck should be classified on an etiologic basis, the only firm and sound foundation for a rational nomenclature of this as well as of any other disease.

I have had an opportunity to examine in my practice three cases of coxa vara; two in my clinic in Rush Medical College, and one in private. I have undoubtedly had my share of cases that I did not recognize before this disease was known, and I have done what others have done before that time, diagnosticated and treated them as cases of tubercular coxitis. These cases did not suppurate and the patients eventually recovered with good functional result. The two clinical cases mentioned presented the usual evidences of this disease. Both patients were young men between sixteen and eighteen years of age. Rest and the internal administration of phosphorus in minute doses constituted the treatment. In one of these cases the acute stage lasted over a year. I made use of phosphorus under the belief that the softening of the bone was the result of a late localized rachitic process, and that this drug might possibly have the same salutary effect as in the general infantile form of the disease. The third case is of more than ordinary interest, owing to the advanced age of the patient. In forty cases of coxa vara collected by Hofmeister and Frazier, the oldest patient was twenty-one, and all authors place stress on the well known fact that this disease is met with only in children and in adolescents, and in Frazier's table it will be seen that by far the largest number of cases were between fourteen and eighteen years of age. In all probability a doubt will be raised in the minds of many concerning the correctness of the diagnosis in this case, and it will be alleged that the deformity of the

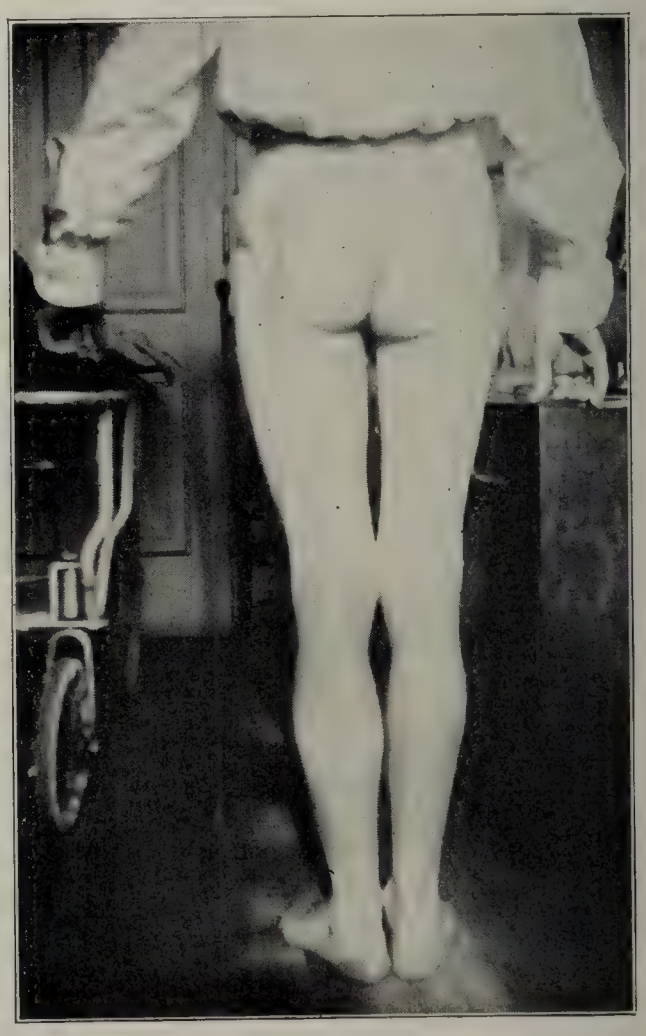


Fig. 2.—Right trochanter major abnormally prominent. Gluteal crease two inches lower on right side.

neck and head of the femur was caused either by fracture or by senile arthritis. A careful study of the clinical history and inspection of the photographs and Roentgen photogram (Fig. 1) will exclude the possibility of a mistaken diagnosis.

Patient.—A man, aged 42, belongs to a long-lived family, and is free from any hereditary taint.

History.—He is a native of this country and was engaged in literary work. He is married, but childless. He is five feet nine inches in height and weighs 129 pounds. With the exception of a moderate use of alcohol and tobacco, his habits are faultless. He has passed through the ordinary diseases of childhood, with the exception of diphtheria. He gives no history of typhoid fever or pneumonia; on the contrary, his general health has been excellent. At the age of 27 he contracted syphilis, followed by mucous patches and characteristic cutaneous eruption.

Present Illness.—Three years ago he experienced a dull

aching pain in the right hip joint, alternating with lancinating pains extending along the anterior surface of the thigh as far as the knee. The pain came on in paroxysms which would last for about two weeks, followed by painless intervals of several days' duration. There was no tenderness and no impairment of joint motion; the pain was not aggravated by standing or walking. Last February he was suffering from one of these painful attacks and had become slightly dizzy; when in the act of carrying two coal scuttles filled with ashes he slipped on the ice and fell with full weight squarely on the buttocks. He immediately regained his feet and finished his task without any apparent ill effects from the fall, and repeated the same work. When he reached home, soon thereafter, he perspired freely, and when he sat down to table he felt "stiff" all over. Next day, about noon, he experienced severe pain in the affected hip joint on walking, and went home in a cab, and the same evening he had to resort to the help of a cane to enable him to walk. Osteopathic treatment seemed to improve his condition. Ten days later, in ascending the stairs, he slipped and fell lightly on hands and knees, and then rolled on the right side, but experienced no immediate untoward symptoms, and climbed the stairs, but on reaching the top the pain in the hip became more severe and he could not stand without some support. The next morning, on leaving his bed, the pain remained quite severe, and was aggravated by flexion and rotation of the thigh. The lameness increased, and a week later the patient became aware that the affected limb was shorter. He has never been confined to bed, and at the time he consulted me, last fall, he walked with a decided limp, but without the aid of any mechanical support. General health of patient is good.

Examination.—There is flat-foot on both sides. The right limb, especially the gluteal region, is markedly atrophic. The trochanter major is abnormally prominent; the gluteal crease is two inches lower than on the left side (Fig. 2). Comparative measurements revealed a shortening of an inch and a half, and the great trochanter is displaced the same distance above the Roser-Nélaton line. At the base of Scarpa's triangle a slight prominence can be felt. The right limb is slightly rotated outward; there is no adduction of thigh. Standing on the left limb, the patient can execute all movements of the thigh freely, without pain, and in all directions, except full abduction. There is no tenderness and no pain. The paroxysmal attacks of pain subsided months ago, and the function of the limb has been improving slowly but steadily. He walks with a decided limp and all he complains of is a muscular weakness and functional defects which will yield to a considerable extent to restoration of the equilibrium of the body by increasing the thickness of the sole of the shoe on the affected side, to make up for the degree of actual shortening, electricity and massage.

Remarks.—The Roentgen picture illustrates the bending downward of the neck of the femur to a horizontal level, elongation and flattening of the head of the femur (Fig. 1). It is not likely that either injuries resulted in an infraction, much less a complete fracture, but there can be no question that they resulted in each instance in an aggravation of the pre-existing local difficulty. The spontaneous recovery, as well as the degree of bending downward of the neck of the femur in its entire length and the complete absence of neoplastic inflammatory products, exclude absolutely the possibility of arthritis deformans or senile coxitis. The clinical history as well as the intra-articular conditions revealed by the *x*-ray could not possibly give rise to a suspicion of tubercular coxitis. The posterior bending of the femoral neck in this case was slight, consequently little backward displacement of the great trochanter; hence the comparatively good remote functional result. If this is a case of coxa vara *vera*, as I believe it to be, it would prove that this disease is not limited to the bone-growing period of life, and that it may, at least in rare cases, attack the adult.

ETIOLOGY.

Very little is known concerning the true nature of coxa vara. The authors admit that the softening of the neck of the femur is the most important element which gives rise to the subsequent deformity which is largely due to the superimposed weight of the body. Kocher and Langhans claim that the softening is caused by a localized juvenile osteomalacia. Others regard it as a late form of local rachitis.

Küster reports a case in which he attributed the characteristic distortion to ostitis fibrosa. Whitman and Sudeck believe that the yielding of the femoral neck can take place without previous softening of the bone by gradual changes in the architectural disposition of the supporting and traction arches in the bone under the weight of the body. Kocher, König, and several other authors consider coxa vara mainly in the light of an occupation disease in the same sense and due to similar causes as genu valgum and flat-foot. Kocher has seen it most frequently in young males whose occupation necessitated prolonged standing position with legs abducted, as is the case with cheese makers and some agricultural pursuits. There are, however, many cases on record in which no such direct static cause could be made responsible for the deformity. Jaboulay has gone so far in comparing coxa vara with flat-foot as to call it simply *"hanche bot,"* and insists that it may be either of congenital origin or acquired-static form. He called attention to this affection of the neck of the femur as early as 1890.

Sprengel reported two cases in 1898, in whom resection of the hip joint was made, and both specimens showed a loosening of the head of the femur in the epiphyseal line, the result of a slight trauma. The displacement of the head and the subsequent union in malposition gave rise to the characteristic deformity, and he is therefore inclined to attribute to trauma the most important etiologic rôle. A number of similar cases have been reported since, and not a few surgeons are under the belief that trauma is the most important element in the causation of this disease. Charpentier and Kirmisson claim that coxa vara is nothing more nor less than a form of arthritis deformans coxæ.

Hoffa recognizes different causes which may affect the resisting power of the neck of the femur, which when so affected yields under the weight of the body, and results in diminution of its angle and sometimes in torsion; the former are the predisposing, the static influence the exciting, cause.

PATHOLOGY.

The gross pathology of coxa vara is well understood and consists in a bending downward of the neck of the femur until it reaches a horizontal line, combined in most cases with a posterior curve, and in rare instances with an anterior curve, these secondary curves causing outward or inward rotation of the axis of the femur. The textural changes are limited to the neck of the femur, the acetabulum and the soft structures of the hip joint remain intact throughout the entire course of the disease. There is no effusion in the affected joint, and no tissue changes in or around the joint indicative of inflammation. The general and local symptoms exclude the existence of any kind of infection and the bone lesion, whatever it may be, is of a degenerative and not of an inflammatory type. Under the weight of the body, the softened neck of the femur bends downward, and muscular action and ligamentous traction are responsible for the torsion, which varies greatly in kind and degree. The primary bone affection appears to be of a self-limited character, as a spontaneous recovery is the rule. The duration of the active stage may terminate

in a few months, and it may be protracted for years. Very little is known regarding the minute morbid anatomy of the primary bone affection which precedes and accompanies the deformation of the femoral neck. As the disease is a self-limited one, few, if any, postmortem examinations have been made so far.

The study of the histology of the bone lesion has been restricted to the examination of specimens obtained by resection (Müller, Kocher, Hoffa, Nasse, Maydl). Frazier gives an account of 16 such specimens from different sources, in which, on examination, three presented rachitic changes, six practically normal bone structure, two arthritis deformans, and the remaining specimens juvenile osteomalacia. It appears that in the cases collected by the same author and comprising Hofmeister's table, only in 12.5 per cent. could the disease be associated with rachitis, and only in 10 per cent. were genu valgum or pes planum, one or both, coexisting affections.

Haedke made a histologic examination of a specimen of coxa vara obtained by resection from a patient seventeen years old. He found a condition similar to rachitis both macroscopically and microscopically. He came to the conclusion that coxa vara may develop at the age of puberty consequent on the so-called late rachitis, although the "juvenile osteomalacia" of Kocher is probably the explanation of the greater number of cases. In Lauenstein's case, there were indications of marked rachitic deformities in many of the long bones. Osteomalacia is a disease that affects, with few exceptions, child-bearing women; rachitis, on the other hand, is a much more common disease and affects children of both sexes alike, consequently it is much more reasonable to assume that the softening of the bone is more likely to be caused by a late localized rachitic process than by osteomalacia. Two other explanations deserve consideration.

As coxa vara is largely, if not exclusively, a disease of the bone-growing period, we might suspect, from a histologic standpoint, either the existence of imperfect ossification caused by a defect in the number or power of histogenesis of the osteoblasts, or possibly an excess of osteoblasts. Again, as the disease is clinically characterized during the acute stage by neuralgic lancinating pains, it is possible that the defective resisting power of the neck of the femur and the osteoporosis might be the consequence of a trophoneurotic affection. In eliminating the affections of the hip joint which clinically mimic very closely coxa vara *vera,* it is very evident that much has to be accomplished in the future to clear up the true etiology, and correct pathology of this strange disease.

SYMPTOMS.

The first symptom complained of by the coxa vara patients is a pain in the hip joint which usually radiates from the joint along the anterior and inner aspects of the thigh as far as the knee. In some cases the function of the joint is seriously impaired almost from the beginning, more especially in the more acute form of the disease; in other instances it is only slightly affected. In severe cases the patients are sufficiently ill to be confined to bed, but ordinarily they are well enough to be about, although quite lame. Temperature and other constitutional disturbances, as well as tenderness about the affected joint, are absent. Patients thus affected are usually under the belief that they are suffering from rheumatism, and when they consult a physician during the early stage of the disease, a diagnosis either of rheumatism or of neuralgia is usually made and treatment directed accordingly. In the course of a few weeks or months the acute symptoms subside, and a decided improvement is noticeable, so much so that the patient resumes his occupation with or without stiffness of the joint. The general health of the patient is not deteriorated to any extent by the disease. Examination of a patient the subject of well-advanced coxa vara reveals apparent and real shortening of the affected limb, the former due to a faulty position of the pelvis, the latter corresponding with the diminution of the degree of obliquity of the femoral neck caused by its downward bending. The normal angle of the femoral neck in the adult, as determined by Mikulicz, is from 125 degrees to 126 degrees, and according to Lauenstein from 126 degrees to 129 degrees. In far-advanced cases of coxa vara the angle is often reduced to 60 degrees. The real shortening varies from an inch to an inch and a half. The affected limb will be found adducted, and in the majority of cases rotated outward. The adduction of the limb is caused by the diminution of the angle of the neck of the femur and the outward rotation by the posterior secondary flexion or torsion of the neck. The downward bending of the neck of the femur is the most conspicuous anatomic feature of the disease, being in-



Fig. 3.—Destructive process involving neck of femur.

variably present to a greater or lesser degree. The posterior curve or torsion is less constantly present, and varies more in degree. In exceptional cases, the neck of the femur bends in the opposite, anterior direction, in which event the femur is rotated inward instead of outward. Such cases have been described and reported by Zehnder, Ghillini, Nasse and Hofmeister. The trochanter on the affected side is abnormally prominent, displaced backward and above the Roser-Nélaton line to the extent corresponding with the degree of actual shortening. The gluteal region is flattened, the gluteal fold lowered, and a deep groove will be found between the trochanter and the gluteal muscles. Ogston, who operated on five cases of coxa vara in young children, the oldest only fourteen years, claims that muscular atrophy is absent, and that the gluteal fold is not affected. In grave cases, the base of Scarpa's triangle is prominent, and a hard swelling can be felt corresponding with the convexity of the posterior curve of the neck. If inward rotation should be present, no such prominence can be felt but instead of it, probably, a shallow depression corresponding with the concavity of the anterior

curve. Aside from the mechanical obstacles due to the distortion of the neck of the femur, joint motion is free and painless. Abduction and inward rotation are the two movements most interfered with by the deformed neck. Unilateral coxa vara leads to static scoliosis, and, if the disease involves both hip joints, a lordosis develops, as in cases of double congenital dislocation of the hip joint, and the patient assumes the same waddling gait. Hands and feet are frequently livid, a condition often observed by Mikulicz in cases of genu valgum in the adult.

DIAGNOSIS.

If an adolescent consults a physician complaining of lameness, pain in the hip radiating in the direction of the knee joint, and on examination the femur is found adducted and rotated outward, the suspicion of coxa vara is well founded, as a similar position of the limb is only observed in fracture of the neck of the femur. If such abnormalities in the position of the limb in young subjects take place in a comparatively short time, coxa vara



Fig. 4.—Inflammatory deposits involving femoral neck, especially its base.

must be suspected, and a most thorough examination should be made with the patient in both the standing and recumbent positions. If this is done mistakes in diagnosis will be avoided, more especially in differentiating between this disease and the early stages of tubercular coxitis. Coxa vara never gives rise to abscess formation, while this is of frequent occurrence in tubercular coxitis. The onset of coxa vara is more abrupt and acute than what is observed in the majority of cases of tuberculosis of the hip joint. It is a self-limited disease, and sooner or later a spontaneous cessation of the acute symptoms may be confidently expected, while the opposite clinical tendencies characterize tubercular coxitis. Tuberculosis of the hip joint, like tubercular processes in other parts and organs of the body, is generally attended at least by a slight rise in the evening temperature, while the temperature in coxa vara remains normal. Tubercular coxitis in the great majority of cases is a disease of childhood, and begins in the larger proportion of instances as a primary osteal affection in the proximal end of the femur. Its onset is insidious. The pain is referred to the inflamed joint, and radiating in the course of the obturator nerve to the inner condyle of the femur. During the early stage of the disease the thigh is slightly flexed, abducted and rotated outward. Nocturnal muscular twitching is almost a constant symptom; this is something which is never found in coxa vara. In tubercular coxitis, muscular rigidity fixes the joint at an early stage and all movements are productive of pain, and light blows against the condyles invariably aggravate the pain. Tenderness, such a marked clinical feature in tubercular and other inflammatory affections of the hip joint, is never found in coxa vara. Shortening and outward rotation of the limb belong to the latter stages of tubercular coxitis, while in coxa vara they may even precede the painful or acute stage of the disease, and the shortening is always one of its early manifestations combined usually with outward, and, in exceptional cases, with inward rotation of the limb. As a final diagnostic test in doubtful cases, the employment of the Roentgen ray will enable us to differentiate between the two affections (Fig. 3). In coxa vara, the downward bending of the femoral neck is almost characteristic, while in tubercular coxitis the *x*-ray picture will show the existence of a destructive process

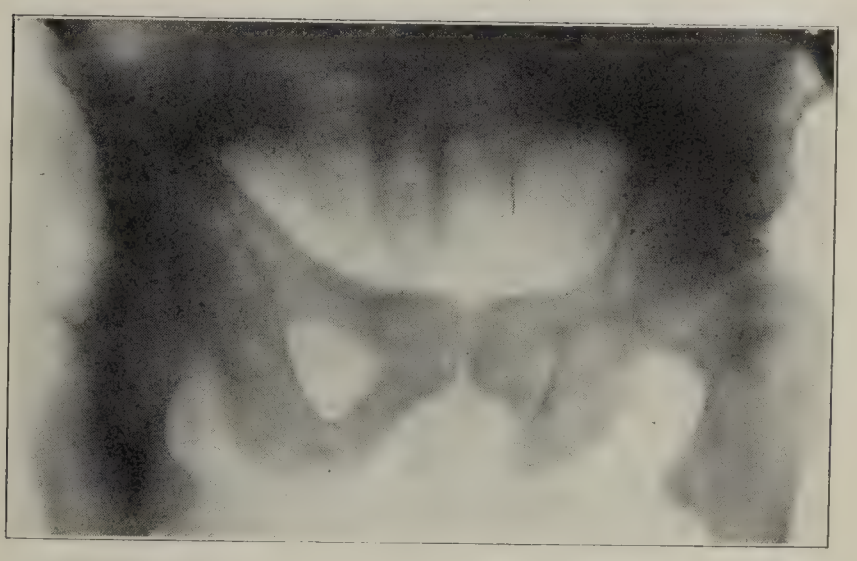


Fig. 5.—Perfect bony union of impacted fracture of the neck of the femur.

involving the proximal end of the femur, frequently complicated by coexisting or consecutive disease of the acetabulum.

Bilateral coxa vara is of more frequent occurrence than bilateral tuberculosis in the relative proportion with which these two diseases are encountered in practice. Muscular atrophy is more marked in tubercular coxitis than in coxa vara. The differential diagnosis between coxa vara and arthritis deformans, called senile coxitis, where it affects the hip joint, presents fewer difficulties. Coxitis senilis is a disease of advanced life.

Old age is a relative term in this as well as in many other connections. Some men are old at forty years, others remain young in body and mind at the age of the Psalmist's limit of life. Cases of senile coxitis are met with in persons less than forty-five years of age. It may be claimed that the case which I report in this paper is one that should be classed under the head of senile coxitis. There is only one condition in the radiographic illustration of this case that might excite doubt, and that is the elongation and flattening of the head of the femur. This condition, however, is not incompatible with my diagnosis as we may safely assume that the same causes

which softened the neck of the femur sufficiently to yield to the weight of the body may have extended to the head, rendering it liable to undergo alterations in shape under the influence of the same mechanical or static causes. On the other hand, this picture is entirely negative concerning the constant pathologic conditions found in senile coxitis, viz., neoplastic inflammatory deposits involving the femoral neck, especially its base, the acetabulum in the form of a new bony deposit, which finally result in a complete ankylosis (Fig. 4).

In senile coxitis the angle of the neck of the femur is not diminished. Arthritis deformans is not infrequently a polyarticular disease, while coxa vara is an affection which is only met with in the hip joint. In senile coxitis, the head of the femur becomes occasionally elongated, but during the later stages the upper surface is deprived of its cartilaginous covering, and the exposed underlying bone becomes hardened and is polished by the limited movements of the joint. In the case reported, such changes have not taken place, most of the movements of the joint have been rather increased than otherwise since the cessation of the acute symptoms. There is no pain, no cracking or roughness elicited by joint motion as in well advanced cases of senile coxitis. The shortening of the limb in senile coxitis is not caused by bending downward of the neck of the femur, but by loss of tissue of the head of the femur and the upper segment of the acetabulum.

It should not be difficult to differentiate between coxa vara and traumatic or pathologic epiphyseolysis. These are injuries and affections recognizable by a careful study of the clinical history and by a thorough examination. The only exception I know of that might lead to a wrong diagnosis is a fracture of the neck of the femur without complete functional loss of the limb, an instance of which came under my observation in the surgical clinic of Rush Medical College last winter.

Patient.—A tall, spare man, aged 65, suffered a fracture of the neck of the femur eight months before he sought the service of my clinic.

History.—The fracture was the result of a fall on the great trochanter and the injury was diagnosticated as a contusion. After the first day, the patient left his bed, and with the aid of crutches, used only for several weeks, has been on his feet ever since. He walks now with a decided limp, but without the aid of mechanical support.

Examination.—I found all the indications of an impacted intracapsular fracture of the neck of the femur which had united by bony union, an inch and a half of shortening, and outward rotation of the limb. The accompanying radiograph corroborates the correctness of the clinical diagnosis. Bony union of the impacted fracture is perfect (Fig. 5). The neck of the femur is shortened, but there is no diminution of its angle.

The Roentgen ray should be relied on in doubtful cases in confirming or correcting the clinical diagnosis. The Roentgen photogram should be taken from behind with the patient in the ventral position, and the tube 24 inches above the surface of the body. (Hofmeister.) In applying this, the most reliable and important diagnostic test, Kirmisson had to change his diagnosis four times in 7 cases, while in Hofmeister's 15 cases it confirmed the clinical diagnosis in all but one.

PROGNOSIS.

Coxa vara never becomes a direct source of danger to life. Left to itself and under the influence of conservative expectant treatment, it pursues the course of self-limited diseases and sooner or later ends in spontaneous recovery. The impairment of the functional result depends on the degree of deformation of the femoral neck. Some cases terminate in almost complete restoration of joint function, in others the extent of bending and torsion of the neck of the femur is such that permanent lameness and great impairment of joint function are the inevitable results. After cessation of the acute symptoms, the use of the limb often improves quite rapidly, just as after a fracture with vicious union, owing to the architectural changes for the better in the deformed neck which nature effects.

Hofmeister gives the ultimate functional results in 32 cases. All the patients recovered sufficiently to return to their former occupations, which certainly reminds us not to resort to operative measures prematurely, as undoubtedly has been done in some cases in the past. As in inflammatory flat-foot, the pain gradually disappears, after which a process of partial or complete restoration of function is initiated.

TREATMENT.

The general treatment in coxa vara is unimportant, if not useless. The subjects of this disease usually enjoy fair, if not perfect, health. It is a local affection, limited, so far as we know, to the neck of the femur, and the exact nature of which so far is unknown. As a number of weighty authorities are of the opinion that this local affection is a late manifestation of rachitis, the internal administration of minute doses of phosphorus would be theoretically indicated. I made use of this anti-rachitic drug in two of my cases with what I believed to have been a good effect, but they might have been comparatively mild cases, and the speedy and satisfactory recovery might have taken place without such medication. In patients infected with hereditary or acquired syphilis, the internal use of potassic iodid should not be neglected. The local treatment must have for its objects the relief of pain and the limitation, as far as possible, of the bending and torsion of the neck of the femur. Both of these indications are met by securing for the affected joint absolute rest. Rest in bed, combined with extension by weight and pulley, should be enforced as soon as a correct diagnosis is made. Bauer reports three cases from the Serafim Hospital, Stockholm; the patients, aged respectively 17, 17 and 16, were cured by baths and massage, in one case combined with extension continued for four weeks. Rest in the dorsal recumbent position combined with extension answers the indications more perfectly than any orthopedic appliances, and should be continued until the acute symptoms have disappeared. After the pain has ceased, the patient should make use of crutches for a number of weeks, and during this time the sole of the shoe on the opposite side should be raised at least an inch in order to secure auto-extension of the limb on the affected side. In the vast majority of cases, this simple expectant treatment will suffice in shortening the acute stage, and in preventing a maximum degree of deformity.

Until the active symptoms are fully under control, operative treatment is absolutely contraindicated. After the acute stage has subsided, baths, massage and electricity will be found useful in developing the atrophied muscles, and in increasing the range of joint motion. At this stage forced motion under narcosis may improve the functional result. The great improvement in the use of the limb, which is so often observed to take place spontaneously, is probably the result of a gradual modeling of the deformed neck into a more

normal shape. The surgeon should postpone all operative measures until he can satisfy himself that conservative treatment and nature's efforts have fallen short in restoring the usefulness of the limb. When this has been shown to be the case, various operative procedures suggest themselves. No one operation can meet the mechanical obstacles in different cases. Before any operation is planned, Roentgen photograms should be taken, showing the anterior and posterior aspects of the joint, as the conditions thus revealed will aid the surgeon in the selection of the operation suited to the case. Zehnder and Vulpius made use of section of the adductor muscles combined with *brisement forcé*, a method of treatment which at best has but a limited range of application. Kraske and Budinger advised the excision of a wedge-shaped piece of bone in the anterior convex side of the neck (*Keilosteotomie*) for the purpose of correcting the extreme outward rotation of the limb. Koenig condemns this operation, unless it can be made extracapsular, which is not often the case. Several disastrous results have followed this operation. Linear straight subtrochanteric osteotomy (Hofmeister) and oblique subtrochanteric osteotomy (Hoffa) have been practiced with success in a number of cases. Watson-Cheyne reports two cases, children six and a half and three years old, in whom he made a subtrochanteric osteotomy to correct the outward rotation. In one case Kocher made a subtrochanteric resection with a satisfactory result. De Forest Willard obtained a good result in an aggragated case by making a transverse intertrochanteric linear osteotomy. In very grave cases of deformity following this disease resection of the joint is favored by Hoffa and by Sprengel. In one of Hoffa's cases, the shortening of the limb was reduced from seven to three inches by this operation.

CHORIOEPITHELIOMA MALIGNUM.

WITH REPORT OF A CASE.*

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PHILADELPHIA.

I recently secured, in the service of Professor Montgomery, in his gynecologic clinic in the Jefferson Medical College Hospital, a tumor of the uterus which is comparatively new, of decided pathologic and clinical interest and worthy of permanent record.

Patient.—R. M., female, white, married, aged 31.

Family History.—One brother died of pulmonary tuberculosis and one maternal aunt of cancer of the uterus.

History.—The patient suffered all the diseases of early childhood; otherwise she had comparatively good health. She menstruated first in her eighteenth year, and the periods were always regular and somewhat painful. She was married at 18 and has had five labors. The first four were normal, but the fifth occurred at the eighth month and was hastened or produced, she states, by sustaining a rather severe fall. The last child died in six weeks.

Present Illness.—This began about six months before the admission to the hospital and four months after delivery. There was more or less vague and indefinite pain, of a dull, aching, boring character, in the lower portion of the abdomen. She suffered constant and increasing distress in the back and head. Two months prior to admission she suffered from rather a free serous and offensive vaginal discharge. During the past six weeks the discharge has greatly increased in quantity and occasionally is mixed with blood. The bleeding is also progressively increasing. The patient is extremely pale and anemic and has lost, she says, considerable flesh. She complains of extreme weakness and is easily fatigued. The urine report is negative.

Examination.—On bimanual examination the cervix is found to be large and soft. The external os and the cervical canal are open and admit the tip of the index finger. The uterus is apparently 2½ times its normal size, of about normal consistence and freely movable. The extrauterine tissues are palpably free from disease. A rather hard, circumscribed prominence was discovered in the right groin immediately below Poupart's ligament.

Operation.—May 19, 1904, Prof. E. E. Montgomery operated. The patient was prepared for combined operation, and before opening the abdomen the cervix was completely dilated and the interior of the uterus explored. A small amount of material was removed, and this so resembled malignant tissue that hysterectomy was decided on and was performed. The abdominal route was selected.

Pathology.—The uterus was 2½ or 3 times its normal size and of normal consistence. The enlargement was general and uniform, though nodulations could be defined in its interior. The uterine wall on incision was found to be thickened and showed the general changes found in chronic metritis. The tissue cut with normal resistance. On exposing the interior of the organ a large, irregular, nodular mass was found occupying the posterior and fundal wall. This was of a greenish "blood-coagula" color and of rather tense consistence. The



Fig. 1.—Drawing of gross specimen. a, Ovarian vein distended with organizing thrombus. Portion of thrombus protruding from the vessel. b, Round ligament. c, Tumor infiltrating mucosa and muscular wall. d, d, d, Three large nodules forming major portion of growth.

nodules varied in size from a pea to a man's thumb and were spread completely over the posterior wall. The mass did not show any line of demarcation between itself and the uterus, but apparently infiltrated the uterine wall to the extent of three-eighths of an inch. The mucosa surrounding the tumor was markedly hypertrophied. The tubes and ovaries did not show any pathologic alteration. The ovarian vein of the right side was distended by an organizing thrombus and a portion of this was protruding from the vessel after removal, as is shown in the accompanying drawing (Fig. 1).

Pathologic Histology.—On microscopic examination of stained sections of the growth several elements were found. The presence of chorionic villi in certain areas of the sections was decidedly marked, and a striking characteristic of these was the phenomenal, active disturbance of their cellular layers. In most of the villi the proliferation was most pronounced in the Langhan's cells (Figs. 2 and 3), and in many places these could be seen in several layers about the villi and apparently wandering in the acid-staining substance surrounding them. The cells varied in size, but all were moderately large and contained oval, well-defined, deeply-staining nuclei. In some of the cells active nuclear division was observed (Fig. 2).

The substance surrounding the villi stained deeply with the

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*From the laboratories of the Jefferson Medical College Hospital.

acid stains and resembled bands of fibrils and whorls of protoplasm. In many areas large, pale nuclei were found, and in the others pronounced vacuolization was observed. These protoplasmic masses were occasionally broken by spaces which were possibly blood channels, as many of them were filled with blood cells. In portions of the sections, collections of very large, oval and round cells were seen. These cells were invariably congregated in masses and, as a rule, were found on the borderline of the blood channels. They were, as I have stated, extremely large and contained rather large, oval and prominent nuclei. Their protoplasm, as a rule, was pale, and in many instances very ill defined. These cells had the general appearance of the decidual cells. In some areas of the tumor leucocytic infiltration was observed, though not to a great degree (Fig. 3).

Subsequent History.—The patient was living and well eight months after the operation, without any subjective manifestations of recurrence of the disease.

GENEALOGY OF CHORIOEPITHELIOMA.

This tumor had been diagnosed clinically as carcinoma of the corpus uteri, but on further investigation, particularly with the microscope, its true character was determined. The different terms applied to this comparatively rare condition of the uterine body are deciduoma malignum, malignant bladder mole, sarcoma deciduo cellulare, malignant placental polyp, and numerous other rather indefinite terms. These names were applied to this growth in its early history, because it was thought in the earlier microscopic study of the growths that they were of decidual or maternal origin and belonged to the sarcoma family. The first important paper describing these tumors was contributed by Sänger[1] in 1889. At this time he described a case of malignant tumor of the corpus uteri possessing a sarcoma-like structure which followed an abortion at the eighth week. Sänger described this as a tumor belonging to the sarcoma family, developing from the decidua and, therefore, he applied the term deciduoma malignum. Sänger[2] later collected all analogous cases from the literature, 11 in number, and these, with his own case, made 12. A paper describing these cases was published in 1893. Among the cases collected by Sänger were 4 from the laboratory of Professor Chiari,[3] who in 1887 described 3 of these growths, pronouncing them cases of uterine cancer complicating pregnancy. Gottschalk,[4] in his contribution on the subject, possibly came nearer hitting the true character of these tumors as taught to-day. He described a case in which chorionic villi were present, and he found that there was quite marked cellular disturbance in the stroma of the villi and Langhan's cell layer. Therefore, he spoke of it as a sarcoma arising from the syncytium and Langhan's cell layer. Ludwig Frankel,[5] however, was possibly the first man to describe the cellular origin of these tumors, and he undoubtedly was the first to observe the proliferation of the syncytium and of Langhan's cell layer. Sänger in his paper regarded the decidual cells as the important elements of the malignant tissue; the chorionic structure he thought foreign or totally adventitious. Sänger's paper, however, was the instrument which directed the attention of the profession to the study of these growths, and shortly after its publication, in 1893, the interest of the profession throughout the world was aroused and several similar cases were reported, particularly in Europe, and one by Williams[6] in this country, in 1895.

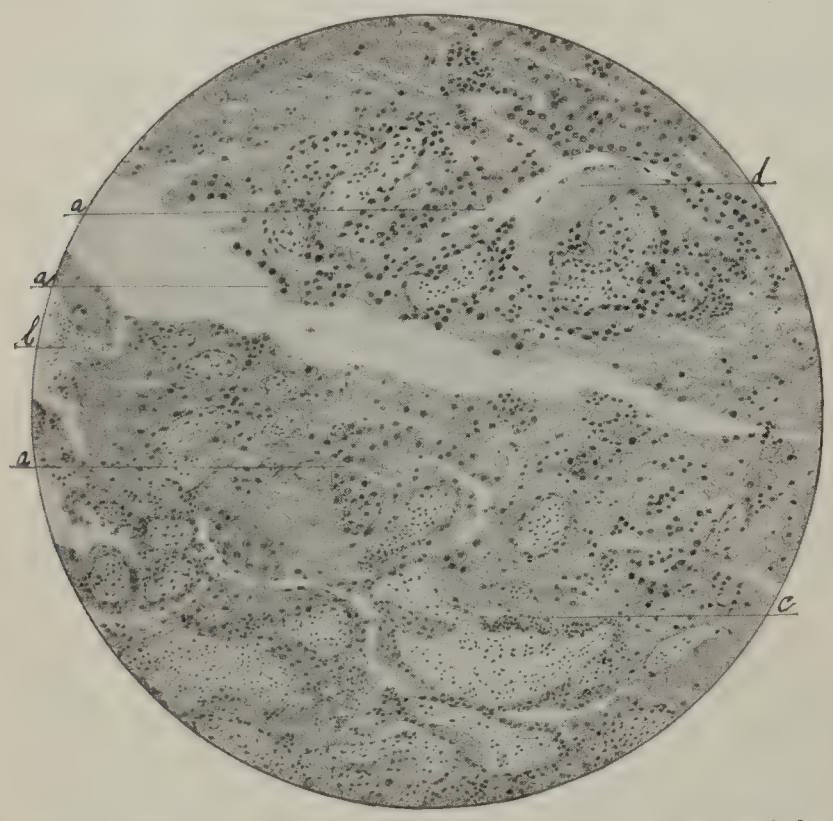


Fig. 2.—Low power microscopic section of tumor removed from its central portion. a, a, a, Large wandering decidual cells. b, Leucocytes. c, Chorionic villi showing marked disturbance in Langhan's cells. d, Non-nucleated protoplasmic masses.



Fig. 3.—High power microscopic section removed from the tumor at its junction with the uterine structures. a, Collection of large decidual cells. b, b, b, b, Chorionic villi showing proliferation of their cellular covering. c, Large multinucleated cell containing a vacuole.

Gottschalk, in 1894, published a paper in which he disapproved of Sänger's view of the maternal origin of these growths, and stated that he believed the disease arose primarily in the fetal tissues. From this assertion the old view of the destructive action of hydatidiform moles was revived; that is, that the fetal tissues have the power of invading and destroying the maternal structures. Frankel later (in 1895) reported a case of deciduoma malignum which he described as arising

1. Sänger: Centlb. f. Gynäk., No. 8, p. 132.
2. Ib.: Arch. f. Gynäk., vol. xlvi, No. 1, 1893.
3. Chiari: Wiener med. Jahr. der Kinderheilkunde Gesell. der Aerzte, vol. vii, 1887.
4. Gottschalk: Berliner klin. Woch., No. 4, 1893; Arch. f. Gynäk., vol. xlvi, No. 1, 1894.
5. L. Fränkel: Arch. f. Gynäk., vol. xlviii, 1895.
6. J. W. Williams: Johns Hopkins Hosp. Rep., vol. iv, No. 9, 1895.

from the syncytium, a structure which he thought was derived from the uterine epithelium. In the same year, 1895, Marchand[7] contributed an article claiming that these tumors originated in the two-celled covering of the chorionic villi. In the same year, Williams also recognized the relation of these growths to the chorionic epithelium. He recognized and described Langhan's layer of cells, but considered the syncytium the important element in the growth, and the latter, too, he was rather persuaded to believe of uterine origin. The writers of the present day nearly all seem to agree with the theory set forth by Marchand that these tumors are of chorionic, fetal or ovular origin. Many of the cases that were originally reported as malignant bladder mole, sarcoma of placenta, and sarcoma deciduo cellulare, etc., have been carefully re-examined and found to be true chorioepitheliomata. This work has been done since Marchand published his observations as to the character and origin of the "so-called decidual tumors and hydatid mole."

Veit,[8] however, still continues to adhere to his original view that the disease is of maternal origin, and that a tumor of the character of the chorioepithelioma could not arise from fetal tissues. He therefore maintains that the old term deciduoma malignum is correct. He still claims, furthermore, that the primary disease is a sarcoma of the corpus uteri, which is cellularly modified, or given special features, such as syncytial conformation by some of the cells, by a superimposed pregnancy. In the strength of his argument, Veit cites the history of a tumor of this nature which he removed and which resembled strikingly a deciduoma. The tumor showed many villi with actively proliferating epithelium and many large cells (many polynucleated) in the circumjacent uterine tissues. These he regarded as sarcomatous cells of maternal origin and as the essential elements of the disease. The presence of villi Veit does not regard of importance, and he states that their existence is merely an accident of the existing gestation. Veit claims that he has never observed the infiltration of fetal elements. He would, however, regard the demonstrable infiltration and destruction of tissue by fetal cells as high evidence of malignancy. He also admits that the similarity between the large cells interspersed with the maternal tissues of the normal placenta, or an adjacent deciduoma, or the cells of the chorionic epithelium, or the cell masses of the tumor, are strikingly exact, but he does not believe, however, in the genetic continuity existing between the two.

As a rule, most late observers have but little difficulty in tracing the genesis of these cells. Teacher,[9] in his discussion of chorioepithelioma before the London Obstetrical Society in 1903, stated that he was able in all his cases to demonstrate the origin of these cells very plainly. Furthermore, he asserted that he was able to demonstrate also their destructive action. The distinctive difference between Veit's and Marchand's theories, histologically, is that learned in the different significance attached to the cellular elements composing the tumor. Veit,[10] in his paper on the deportation of chorionic villi, eludes this question when he reaches the relation of that process to deciduoma malignum. Teacher, in personal conversation with Professor Veit, learned that, though he were forced to admit that these cells were not sarcoma cells of maternal origin but were derivatives of the chorionic epithelium, the theory which we now, in this country particularly, have almost generally accepted, he would, nevertheless, still hold that some pathologic condition inherent in the mother preceded the diseased condition of the ovum. This, Teacher, in his discussion before the London Obstetrical Society on chorioepithelioma, says may be even so, but, notwithstanding, it does not disprove that the elements which enter into the tumor formation are fetal.

Horrocks,[11] in discussing Dr. Teacher's paper, states that from his personal study of several cases of deciduoma malignum, he does not believe we are in a position at present to say that all cases are either of maternal or of fetal origin. He believes, with Lockyer[12] and others, that there are two kinds of malignant tumors associated with pregnancy: one of decidual (maternal) origin of the sarcomatous type, for which he thinks deciduoma malignum the proper term, and the other chorioepithelioma of fetal (ovular) origin of the carcinomatous type. This stand is taken by King[13] in a paper read in Washington, February, 1904.

Marchand's theory is the one now most generally accepted, for he has demonstrated clearly the relation of the protoplasmic masses of the tumor with the syncytium and the relation of the individual cells with those of Langhan's layer. Peters[14] also has observed the true genesis of the epithelial layers of the chorion. He demonstrated that the syncytium and Langhan's cells are derived from the ectoderm, therefore it follows that these tumors are undoubtedly entirely fetal or ovular in origin, and arise from a malignant proliferation of the two layers of the chorionic epithelium.

In reviewing the history of the so-called deciduoma malignum, I have found that the term had been applied to conditions of the uterus characterized by hyperplastic states of the decidua, to tumors of the decidual structure, all of which were of unknown character, long before the publication of Sänger's paper, by Maier,[15] Küstner,[16] and Klotz.[17] The malignant tumor, however, now under consideration, had never before the publication of Sänger's paper been definitely differentiated from other malignant tumors of the corpus uteri, and to him alone belongs the honor of pointing out their distinctive family relation. Gebhard reported 3 cases of chorioepithelioma in 1897; in all of these the characteristic cellular elements and syncytium were found present. The second case strikingly demonstrated the cellular origin of the tumor and in every way confirmed Marchand's theory regarding the genealogy and the relation of the tumor cells. Gebhard found in the wall of the uterus, far from the main growth in his second case, a villus from the surface of which the chorion or ectodermal cells could be demonstrated.

NOMENCLATURE.

With the genealogy of these growths definitely established, it would seem that their distinct relation and a definite terminology should be accepted universally; but

7. Marchand: Monat. f. Geburt. u. Gynäk., vol. i, June, 1895; Monograph, No. 1, 1903.
8. Veit: Volkmann's Sammlungen klin. Vort., No. 254, 1885; Zeits. f. Geburt. u. Gynäk., vol. vi, 1886; Zeits. f. Geburt. u. Gynäk., vol. xxxii, No. 1, 1895.
9. Teacher: Trans. London Obs. Soc., June 3, 1903.
10. Veit: Handbuch der Gynäk., vol. iii, No. 2, Wiesbaden, 1899, p. 533.
11. Peter Horrocks: Brit. Med. Jour., Oct. 5, 1902.
12. C. Lockyer: Trans. London Obst. Soc., January, 1902.
13. King: Trans. Washington, D. C., Obstet. Soc., February, 1903.
14. Peters: Centralb. f. Gynäk., No. 29, 1902.
15. Maier: Arch. f. Gynäk., vol. xxxiii, 1888.
16. Küstner: Arch. f. Gynäk., vol. xxxiii, 1881.
17. Klotz: Arch. f. Gynäk., vol. xxix, 1887.

even now, despite the almost universal acceptance of Marchand's theory as to the genesis of these tumors, there is still considerable discussion over the nomenclature of these growths, many investigators still clinging to the term deciduoma malignum, while others, and the majority, too, now accept the term chorion epithelioma, or, more recently, chorioepithelioma. Teacher considers syncytium a bad name, because the syncytium is not the characteristic element of the tumor. The most characteristic thing I have endeavored to point out in this paper is the physiologic prototype. Teacher, in his paper, favors the term which will indicate some origin of the tumor and believes that chorioepithelioma malignum is the best. He does, however, also favor allowing the term deciduoma malignum to remain as a clinical name. Moreover, the term, he says, has been so completely abandoned that it has ceased to be misleading.

PATHOLOGY.

The tumor, as a rule, follows pregnancy, abortion, or the expulsion of an hydatidiform mole. Indeed, it has been learned that almost 50 per cent. of the cases of hydatidiform mole has been followed by chorioepithelioma. Metoz[18] collected 98 cases of chorioepithelioma from the literature and found in this number 48 preceded by hydatidiform mole. In Teacher's collection of 188 cases, 73 were preceded by mole.

The tumor usually is situated within the uterine cavity, though cases have been reported where the growth has occurred primarily in the vagina. Again, it has occurred primarily in the Fallopian tube, following a tubal pregnancy. It has also been reported to have been observed primarily in the ovary, and also in the brain. These are all possibly cases in which deportation of the chorionic elements has occurred prior to labor, as almost every instance of cases thus recorded has occurred soon after parturition. Busse[19] reported two cases of the disease in which the tumor developed primarily outside the uterus. In one it occurred in the left ventricle of the heart, with secondary deposits in the lungs, brain, kidneys, liver, spleen and intestines; in the other the disease developed in the parametrium, vagina and lungs, the uterus remaining entirely free. These may be instances of the deposition of elements of the chorion prior to the termination of the pregnancy, which developed a malignant change after its completion. Devitski[20] also reports a case of the condition occurring primarily in a virgin 75 years of age, with secondary growths in the lungs, liver and spleen. Steinert[21] reports an instance of embryonal tumors of the genital glands occurring primarily in the testicle, containing pavement and cylindrical epithelium, smooth muscle fiber and chorioepitheliomatous elements, particularly the syncytium and Langhan's cells. When the tumor is situated in the uterine body it is, as I have observed from my own case and from those recorded in the literature, situated in the fundal region and in the posterior wall. The growth varies in size; in some instances it can scarcely be palpated and in one case recorded it was felt as a simple scar, while in the same patient universal metastases were observed. Therefore, the dimension of the growth does not in any way speak either of the benignity or malignancy of the tumor, but it would seem that those characterized by large size are less malignant and vicious than those of small size. The large tumors, too, usually contain chorionic villi, and these, as I have stated, appear to run a milder and calmer course than those of wholly cellular composition.

The tumor may be large, however, and may fill the entire uterine cavity, even dilating the interior to a considerable extent. Croom[22] reports a case of chorioepithelioma malignum in which the tumor weighed 7½ pounds. The uterus itself varies extremely in size. It may be small or apparently of normal size, depending, of course, on the size of the growth. In some of the cases which I have studied it extended to the umbilicus. The growth itself, in almost every instance, in the early stages is irregularly nodular. In this stage it is more or less firm and imparts to the tactile sense an impression of a fibroid tumor. Later, as hemorrhage takes place into the tumor substance, from the penetration of blood vessels by the chorionic villi, and the erosion of the vessel walls, it becomes softer and somewhat friable, and in the still later stages necrosis and sloughing take place. and then we simply find a scooped-out, sloughing ulcer occupying a site in the uterine wall.

In the early stages the growth confines itself to the superficial portion of the lining membrane of the uterus, though at no time is there a sharp line of demarcation between the malignant structure and the uterine wall, as is seen in placental polypus or in cases of retained placenta or membranes.

As the tumor ages, penetration of the mural portion of the uterus occurs, and even in the early stages on microscopic examination the wandering malignant cells will be found between the uterine muscular tissue, and penetration of the wall may take place. In a case recorded by Noble[23] and in one by Hirschman the uterine wall had been completely perforated and the wall of the bladder in each case was involved.

The tumor structure before necrosis and ulceration take place might conveniently be divided into three portions: The basal portion or that portion in juxtaposition to the uterine structure, and the true, active, live portion of the growth; a second and middle portion or body which is composed of blood clot and necrotic tissue, wandering cells and fragments of chorionic villi; a third, the outer or free marginal portion or that portion free in the uterine cavity, composed of a capsule-like membrane. In the early stages this is of a smooth grayish-pink or grayish-green color, while the middle portion is more of a dark blood-coagula color.

METASTASIS.

One of the most remarkable characteristics of chorioepithelioma in the terminal stages and in some cases in the comparatively early stages, is the tendency to early metastasis to other viscera; and from the study of my collection of cases, in several instances, symptoms of metastases were the first manifestations of the disease, and suggested the possible existence of an intrauterine chorioepithelioma. In one patient the first evidence of the disease was cerebral irritation and later right-sided hemiplegia. In other cases the presence of the disease was first manifested by coughing, pleural pain and hemoptosis, thus indicating the presence of malignant emboli in the lungs. In several cases, too, the growth was first discovered in the labia and vaginal walls and the symptoms of the condition first directed to these structures. Of course the disease, as will be seen, occasion-

18. Metoz: Rev. de Gynecol., Paris, vols. iv and v, 1901.
19. Busse: Virchow's Arch., Nov. 4, 1903.
20. Devitski: Med. Obosreni, vol. lvi, No. 5, 1904.
21. Steinert: Virchow's Arch., Nov. 4, 1903.
22. Croom: Med. Press and Cir., June 25, 1902.
23. Noble: Amer. Jour. Obst., vol. xlvi, No. 3, 1902.

ally apparently occurs primarily in these structures. The unusual tendency to widespread metastasis is undoubtedly due to the greatly increased vascularity in the organs of the pelvis, as a result of the pregnancy. The vessels, we know, at this time are multiplied and enlarged and, therefore, readily receive and convey the chorionic elements throughout the body. Of course, it is not improbable, as I have pointed out, that deposition of the chorionic structure takes place prior to the termination of the pregnancy.

LOCATION.

The tumor, as a rule, is primarily situated in the uterine cavity, though cases are recorded, 9 in number, in which the disease occurred primarily in the vagina. It may be primary, also, in the Fallopian tube, following a tubal pregnancy or tubal mole. The organs most frequently involved in metastatic deposits are the lungs, vagina, kidneys, liver, brain, spleen, ovaries, intestines, broad ligaments, pleura, mesenteric glands, pancreas, heart, stomach, and pelvic lymphatic glands. Lymphatic gland infection, however, seems to be extremely rare. In my collection of cases, one instance is recorded in which the disease was first recognized by an apparent involvement of the left inguinal glands. This was first thought to be an adenitis, but incision into the tumefaction liberated a large quantity of bloody fluid, and sections taken from the diseased area showed the characteristic morphologic construction of the structure. In another case in my collection the pelvic lymphatic glands were involved. There are only 7 cases recorded in literature of lymphatic gland involvement; this, of course, is due to the fact that the malignant cells are invariably deported by the hemal circulation and rarely through the lymph channels. E. Seifert,[24] from his study of chorioepithelioma malignum, states that in those cases in which metastases are formed the brain is involved in about 10 per cent.

PATHOLOGIC HISTOLOGY.

On microscopic examination of these structures, different elements will be recognized. In some, nothing but large decidual cells, blood detritus and blood sluiceways will be found, while in others chorionic villi with their characteristic structure with proliferation of the Langhan's layer of cells and syncytium will be seen, a picture observed in my case. A characteristic of the cells is their great tendency to undergo modification. In certain areas, cells undergoing various degenerative changes will be noted, while in others a state of extreme cellular activity will be seen. Teacher says that in the study of chorioepithelioma it is very essential for proper appreciation to have material which shows the growing zone of the tumor and the stages of cell metaplasia or cell division. In such a part he states that three principal cell forms will be found: The synctium, large masses of protoplasm of various shapes, rounded, drawn out bands and whorls or irregular masses. These are very frequently vacuolated and may contain blood, as will be noted in the case I have reported. These syncytia or so-called plasmodia contain numerous nuclei. In nearly all instances these will be found to stain deeply and uniformly. The protoplasm of the cells is opaque and stains deeply with plasma stains. Karyokinetic figures are not found. Assemblages of cells are also seen growing in intimate relation with the syncytium. In the early stages the cells are small, well defined, and pack closely together. There is no stroma between them. The nuclei of these are round or oval and stain moderately deeply. Nuclear activity in these cells is always characteristically well marked. The protoplasm is pale and clear. In some cases it is delicate, too, and finely granular and stains but thinly with the plasmic stains. These cell masses are frequently found within the syncytium. They may show a border of syncytium resembling endothelium. A characteristic feature of the tumor on microscopic examination, in case the chorionic villi are present, is that the cells which I have described will be recognized as developing from the syncytium, the other cells from the second layer of cells covering the chorionic villi or Langhan's cells. Modifications and intermediate forms of the above cells, of course, are often seen.

The individual cell, Teacher claims, is rather the primitive form and the syncytium is a modification of it. He classifies the intermediate forms and the various infiltrating cells together as the first cell type. Teacher found the tumor cells usually assembled in masses of some size and attached to the uterine tissues. This is strikingly demonstrated in the case under my observation. These assemblages of cells are really the active portion of the tumor and the tissues external to these layers or collections of cells or that occupying the free uterine cavity is made up of lymphatic tissue and blood clot, as a rule; hence, the peculiar gross appearance of these tumors. The blood clot seems to be a characteristic feature of the growth, and it seems to be due to the growing and proliferating tumor eroding the vessels and causing hemorrhage into its substance proper. This is of the utmost importance, for in doing a test curettage for diagnostic purposes we often secure only the outer portion or degenerated portion of the growth, and, therefore, may be led astray as to the true character of the tumor on microscopic examination. It is important, therefore, in doing a curettage for diagnostic purposes to be sure of removing tissue in contact with the uterine wall. In the cell masses described under connective tissue, no blood vessels are present, as a rule.

LINE OF INVASION.

A peculiar and characteristic feature of chorioepithelioma is that the line of invasion differs distinctively from that of carcinoma. In chorioepithelioma the process is a destructive one, while in carcinoma there is usually a reactionary zone of inflammatory material and invading cells, giving rise to the indurated base, so characteristic of carcinomatous tumors. This, as you know, is nature's method of throwing up breastworks of defense to halt the invading army of malignant cells.

The relation of the degeneration of the muscular structure of the uterus to the tumor cells has been a subject for much discussion. In nearly all instances, some of the cells are found interspersed between muscular fibers in such a manner as to lead some investigators to believe that they are really degenerating muscle cells. It has been demonstrated, however, that true myomatous degeneration does occur and it is also firmly established, as I have pointed out in preceding paragraphs, that the neoplastic cells are found infiltrating between the muscle fibers, and it is by their action that fibrillar degeneration takes place. In my specimens I was able to locate a few choriomatous cells in the intermuscular spaces, but I did not recognize any degeneration of the muscle fibers.

24. E. Seifert: Arch. f. Psych., No. 1, 1904.

OTHER NEOPLASMS CONTAINING CHORIOMATOUS CELLS.

In this connection, I desire to call attention to a class of tumors recently described as containing cells from the second layer of the chorionic villi, or Langhan's cells, and in some instances also elements of the syncytium. These have been described under the terms embryomata, teratomata, etc. Pick[25] has recently described a tumor of this kind occurring in the ovary of a girl 9 years old, which he designates chorioepithelioma ectodermale. Landau reports 5 similar cases all occurring in young individuals. These growths were all vicious, and characterized, like the chorioepitheliomata, by early metastasis. Ritchie[26] described a tumor of this character occurring in the mediastinum of a man, and Andrews[27] reported a case of an endosteal tumor of the femur, showing syncytial structures. Numerous other similar cases have been recorded. These tumors, as is known, are developed from the three embryonal layers.

Much discussion has arisen as to the proper classification of these growths. Fothergill[28] objects to the tendency of classifying these embryomata or tumors occurring in moles and others independently of pregnancy, but containing chorionic elements and the chorionic epithelium of pregnancy, under the same nomenclature. He says that even though they all be of fetal or of ovular origin it would be better to adopt a nomenclature which would distinguish those closely connected with gestation and those arising independently of it. He further says in support of his argument that "It is plain that a mother invaded by the trophoblast of her own child would be a person of one generation killed by the tumor in a person of the next generation—matricide, in fact—but a man killed by an embryoma of the testicle would be a victim, not of his own child, but a potential brother or sister, fratricide," a condition altogether different and worthy of an individual name.

ORIGIN OF THE SO-CALLED TERATOMATA.

Many theories are advanced as to the origin of these tumors, and we are still somewhat in the dark as to a proper classification, although these are the only growths of whose etiology we have a little certain knowledge. Galabin[29] does not believe that their derivation lies in an included ovum, a brother or sister of the unfortunate being who bears it. Such an imperfect or undeveloped being is usually, as is well known, attached to the surface, and there is no valid reason, he says, why they should be in the testis or ovaries. He believes that they are evidence of imperfect parthogenesis, or attempt at development of the germ elements without union of the sexes. This theory, however, is not considered by most authors, and the Marchand-Bonnet theory of fetal inclusion is now generally accepted. Pick and Landau also incline to this theory and they both have been able to trace the origin of these growths to the three embryonal layers. They found that, in some, certain layers would develop so rapidly as to completely obscure others, and for this reason the genesis of the teratomata was not properly understood. The existence of chorionic elements in certain cases of sarcoma has been set forth as an objection to deciduoma malignum. These, however, are found only in cases of embryomata, and this does not argue against their ovular origin, but favors the theory of deciduoma malignum, being derived from the elements of the fertilized ovum. It must be remembered, too, in this connection that Schmorl and Veit have shown that normal villi and fragments of chorionic epithelium are deported through the blood channels, either arteries or veins, to distant organs and there undergo destruction and become absorbed, or stop and give rise to a malignant neoplasm. This class of cases I have referred to. They were first brought to the attention of the profession in 1896 in the discussion of deciduoma malignum in the Obstetrical Society of London, in describing syncytial masses occurring in a malignant growth of the testis.

Schlagenhaufer[30] later reported a case which was undoubtedly a teratoma, and this was one of the first theories advanced to destroy the theory of Marchand as to the origin of the chorioepithelioma. Schlagenhaufer thought that a large proportion of the deciduomata occurring in the uterus and elsewhere should be regarded as teratomata, and due to the inclusion of an ovum.

ETIOLOGY.

In considering the etiology of chorioepithelioma or malignant disease arising from the chorionic epithelium, we are at once struck by the interesting phenomena associated with the causation of the condition. It is now thoroughly established that pregnancy is an absolutely essential factor in the production of these malignant tumors. It will be found in all cases thus far recorded that some form of gestation has preceded the malignant process, except in the case recorded by Paviot[31]; and this tumor, we have learned, was of doubtful pathologic character. Ladinski[32] says that there is no case recorded where the disease manifested itself outside the parturient age. In my collection of cases, however, I observed one instance of the malignant disease developing after the establishment of the menopause, the patient being 58 years of age.

In 128 cases collected by Ladinski, in which the nature of the pregnancy was recorded, 51 followed hydatid mole, 42 followed abortion, 28 followed labor at full term, 4 followed premature labor, and 3 followed tubal pregnancy. In 40 per cent. of these cases, therefore, it will be seen that the disease followed a molar pregnancy. In Williams' collection of 26 cases, 11 followed hydatid moles, 6 followed full-term pregnancy, 5 followed abortion, 1 followed tubal pregnancy, and in 3 of the pregnancies the true character of the pregnancies was not known. In the 198 cases collected from the literature by Teacher and reported before the Obstetrical Society of London in 1903, 73 followed mole, 59 followed abortion, 49 followed full-term pregnancy, and 7 followed tubal or ovarian pregnancy.

It is seen, therefore, that the relation of hydatidiform mole to chorioepithelioma is very significant, but the relation has not been satisfactorily explained. Hydatidiform mole itself is not, as first pointed out by Virchow, a myxomatous degeneration of the chorionic villi. It is, as more recently explained by Marchand, a proliferation of the syncytium and of Langhan's cells, causing mechanical dropsy of the chorionic villi. The cause, however, of the formation of mole can not be definitely asserted to be due to pathologic changes either in the ovum or in the uterus. Chalensky is persuaded that the death of the embryo is brought about and the cho-

25. Pick: Berlin. klin. Wochft., No. 51, 1902.
26. Ritchie: Trans. London Obst. Soc., June 3, 1903.
27. Andrews: Trans. London Obst. Soc., June 16, 1903.
28. Fothergill: Trans. London Obst. Soc., June 16, 1903.
29. Galabin: Trans. London Obst. Soc., June 16, 1903.
30. Schlagenhaufer: Wiener klin. Wochft., Nos. 22 and 23, 1902.
31. Paviot: Ann. de Gynecol., et d'Obst., vol. xii, 1904.
32. Ladinski: Amer. Jour. of Obst., April, 1902.

rion, therefore, receives in consequence increased nutrition previously intended for the fetus; thus causing the proliferation of the chorionic elements. Marchand refutes this view on the ground that if this were the proper explanation molar pregnancy would occur more frequently. Ludwig Fränkel has brought forth the theory that ovarian adenocystomata must be considered as factors in the production of hydatid moles, as in a number of cases recorded bilateral ovarian adenocystomata were observed. This has been noted in 9 cases. Fränkel claims that in ovaries affected with cystic disease the activity of the corpus lutea and their secretion is destroyed, and that the influence of the latter being withdrawn from the ovum causes it to become diseased and to form a hydatid mole. Pick, however, asserts that in cystic disease of the ovaries there is an excessive production of the lutein secretion, which is deleterious to the ovum and results in a hydatid formation.

Jaffe[33] also believes, with Pick, that the overproduction of corpus lutean secretion is one of the principal factors in the causation of this condition. He reports a case of ovarian tumor which developed 2 months after the discharge of a hydatid mole. This proved to be a chorioepithelioma. The right ovary, which was as large as an apple, showed the same structure. In both these tumors, multiple corpus lutea cysts were present, a condition which has been noted by many observers to accompany hydatid pregnancy. He believes, therefore, that there is a direct causal relation between the two conditions and states that an excess of corpus lutea material in the blood leads to the increase of trophoblasts, and hence the chorioepithelial development in the uterus. Recasens,[34] in considering the etiology, holds that the fetal ectodermal structures possess normal and specific malignant character, which, however, is generally neutralized by secretion of thyroid substance or secretion from the ovary. Therefore, if for any reason the normal secretion of these glands is arrested, abnormal development of the fetal structure occurs.

TIME OF OCCURRENCE.

It has been found that the average duration of time following the molar pregnancy and the manifestation of symptoms is about 4 months. This varies; in some of the cases in my collection the symptoms became manifest immediately after the expulsion of the growth; but the time of the development of the symptoms in all cases of molar pregnancy from my observation must be measured by days or weeks, not by months. In Ladinski's collection, the longest recorded time after the expulsion of the mole was nine months. Race has no influence in the development of the tumor; in cases from my collection it has occurred in all nationalities. Hydatid mole frequently follows an old endometritis. Menu[35] found only 12 cases in 79 in which a hydatid mole had occurred without a preceding childbirth in which the above condition existed.

Gottschalk, in discussing the pathogenesis of chorioepithelioma, says that they are absolutely avascular, and states that the growth is nourished by osmosis from maternal venous channels into which the growth dips. He is persuaded, therefore, that this one-sided and exclusive nutrition with venous blood is the cause, the only important one, of the malignant transformations. He states furthermore that there is possibly an accumulation in the nuclein of the cell nuclei of substances having a chemically toxic action, which also acts as one of the fundamental causes in the production of this condition.

Herbert Snow,[36] in discussing the etiology, says that they may be growths due to altered cells of other malignant disease during preparation for study. He believes that the malignant process has already been grafted on the uterine wall before pregnancy takes place and that the malignant process does not follow that condition. Many others believe also in this same theory, for it was recognized in Williams' case that metastases were noticed in less than two weeks after a full term labor. This view, Teacher says, is not inconsistent with the development of the tumor after labor, for it is possible that thrombi could be carried into the parts containing malignant cells and tumor formation rapidly develop.

Another theory advanced as to the etiology of these malignant neoplasms is one fostered by Ehrlich's side-chain theory; that is, that an organism has the power to produce anti-cells or anti-bodies which are endowed with influences to prevent the excessive proliferation of chorionic elements and combat and render inert or destroy invading foreign cells, and, therefore, prevent choriomatous formation, but when the power of the patient to produce these bodies fails, undue proliferation of chorionic cells occurs and chorioepithelioma results. Veit and Scholten[37] have applied the term syncytiolysin to this body. Therefore, if during the pregnancy or labor chorionic cells or even portions of villi become detached and deported to other portions of the body, they disappear or are rendered entirely inert, provided the syncytiolysing power of the individual is normal. This theory would seem to explain the occurrence of cases of benign metastases, and also why metastases disappear after removal of the primary exciting focus. In this class of cases there is an excessive production and deportation of chorionic elements, which overwhelms the organism and destroys its syncytiolysing power, but after the removal of the provocative focus, and, therefore, after the withdrawal of the source of supply of the chorionic elements, the invaded organism recuperates, and anti-bodies are again rapidly manufactured, and attack and render innocuous the malignant deposits.

This theory would also seemingly explain those cases of spontaneous recovery reported. According to Ehrlich, the influence of these anti-bodies is not a specific one, and for the syncytial cells only, but for any bodies in which they find attractive receptors. The power of the anti-bodies seems to be to dissolve wandering embryonal cells and the dissolving influence of the syncytiolysins on the placenta has been demonstrated by Veit.

AGE.

It will be seen that in chorioepithelioma the disease becomes manifest earlier than any other form of malignant disease. Carcinoma and sarcoma, as is well known, occur near or after the menopause, though certain forms occur earlier, but the maximum incidence of carcinoma and sarcoma is near the menopause. The maximum incidence of chorioepithelioma, however, is in the second and third decades, as pointed out by Lad-

33. Jaffe: Arch. f. Gynäk., vol. lxx, No. 3, 1904.
34. Recasens: Revista de Med. y Cir. Pract. Centralb. f. Gynäk., No. 18, 1904.
35. Menu: Rev. de. Gynecol., Paris, vols. iv and v, 1901.
36. Herbert Snow: Brit. Gyn. Jour., August, 1902.
37. Veit and Scholten: Zeits. f. Geburt. u. Gynäk., vol. xlix, 1903.

inski. His collection of 124 patients gave an average of 32 years. This corresponds, he says, to the generally accepted age of reproduction. The youngest patient observed in my collection of cases was 17 years; the case was one of tubal gestation and was reported by Marchand. The oldest patient in my number of cases collected was 58 years. The average age of women suffering from carcinoma of the uterus is stated as 54 years. It is seen, therefore, that age bears a direct influence in that the disease occurs during the active reproductive life. In nearly all my cases, the condition occurred in patients who had previously borne children, ranging from 1 to 11 labors. The average number of pregnancies recorded in a collection of 98 cases was 4.2.

The lapse of time between the termination of the pregnancy and the manifestation of the symptoms varies somewhat. In some cases the symptoms are progressive from the time of the labor. Indeed, in one case observed in my collection, symptoms began before the termination of the pregnancy, that is, bleeding. This, however, may simply have been a coincidence and not a manifestation of the disease. As I have stated before, however, the time in the majority of cases must be counted by days and weeks, not by months. One patient in my collection, who had one normal labor at the age of 26, was free from symptoms for 6 years before the disease manifested itself. In another patient of 24, the disease did not begin until two and one-half years after the completion of a normal pregnancy. The duration of the time existing between the completion of the labor, whether it be mole, abortion or normal labor, and the evidence of symptoms does not seem to be influenced either by a mole pregnancy, an abortion or a normal pregnancy. The average lapse of time in Ladinski's collection of cases was 8 weeks, 7 weeks and 5 weeks after a mole pregnancy, abortion, or a labor at term, respectively. McCann[38] also reports a case occurring after the menopause. Marchand explains these phenomena of a long period of latency by citing the fact that portions of epidermis are often included in the closure of some of the embryonic clefts. These, as we know, may remain quiescent, 10 or even 20 years, and then, for some unaccountable reason, suddenly spring into activity and form neoplasms. Marchand thinks, therefore, that it is not strange to find the trophoblast lying dormant for a varying period of years and then suddenly becoming active. Croom found in cases he collected from the literature that the average time for the development of symptoms after normal labor was 6.9 weeks; after abortion, 11.4 weeks; after mole, 10 weeks.

MALIGNANCY.

An interesting question in the study of chorioepithelioma, and one which is not perfectly understood, is why these growths vary so greatly in malignancy. In some cases we find the patient succumbing before operative interference is instituted, or the mother of a few days or a few weeks, while in others we find that the patient recovers after a simple curettement, and, indeed, in some spontaneous healing is asserted to have occurred, and in others, despite the evidence of metastatic deposits in other viscera, we find patients recovering after radical operation. In the large majority of cases, however, we find that the behavior of chorioepithelioma is characterized by the highest type of malignancy. Death is usually the ultimate result. It is found that in cases in which villi are present a lower degree of malignancy exists. It is further stated that primary growths in the vagina are less malignant than when located in the uterus, though from the study of my cases this assertion does not hold good. In 9 cases reported in which the tumor was located primarily in the vagina, early dissolution occurred in all. Another question of extreme interest is why metastases should disappear after the removal of the primary exciting focus and why, as in cases reported by Noble and Herschmann, partial removal of the primary growth should be followed by the disappearance of portions which have infiltrated, as in Noble's case, the bladder wall, and which could not be removed. These phenomena are possibly explained by Ehrlich's side-chain theory. McCann, in his study of cases, believes the polypoid or circumscribed form of the chorioepithelioma less malignant. I believe this inference to be drawn from the fact that a tumor presenting such a conformation is only observed in its incipiency, and, therefore, if proper treatment be instituted, a good result may obtain.

CLINICAL SYMPTOMS.

In describing the symptoms of chorioepithelioma we might conveniently divide them into two stages: 1, the incipient and formative stage; 2, the terminal stage or stage of metastasis and absorption. The symptoms in the incipient stage of the disease are first manifested by bleeding. This is an invariable symptom and usually is the first to attract attention. It appears without any cause, and is very irregular. In some instances it may be scanty, while in others it may be extremely profuse and serious. A characteristic of the bleeding of chorioepithelioma is that it is not alleviated by ordinary means of treatment. In all the cases in my collection the patients were, in almost every instance, curetted, and this seemed only to aggravate the condition, or only to control it temporarily. In one or two cases a simple attempt at examination was followed by extensive hemorrhage and profound collapse, the hemorrhage being controlled and the life of the patient saved only by immediate packing and resort to stimulation. The hemorrhage in some instances is continuous, while in others it appears at irregular intervals and varies in quantity. During the period of quiescence, a thin, watery discharge is usually complained of. As the disease progresses, bleeding becomes more pronounced from the erosion of the vessels. Necrosis of the tumor takes place and a foul, profuse discharge is present. In the early cases reported, pain was not recorded as a symptom, but in the later observations this was almost invariably present. It is of a crampy, boring character, situated in the lower portion of the abdomen. In my own case, and also in the case recorded by Ladinski, in April, 1902, pain was the first symptom complained of. Anemia and emaciation are quite marked in all. In the case under my observation the patient had lost several pounds before admission to the hospital. Prostration is also quite profound.

In the second stage, the stage of metastasis and absorption, all these symptoms become more pronounced. Should involvement of the lung, which is the most frequent organ affected by metastatic deposits, occur, pain, cough, hemoptosis and pleural friction sound and areas of consolidation may be manifest. Metastatic deposits in the brain would be evidenced in the first stage by cerebral irritation, later by paralysis. Deposits in the kidney give rise to pain, and possibly to hematuria. During the absorption stage there are, of course, taken

38. McCann: Brit. Obst. and Gyn. Jour., No. 281, 1901.

into the human economy products of necrosis, and therefore symptoms of sepsis and exhaustion, such as sweating, elevation of temperature from 100 F. to 103 F., rapid pulse, nausea and vomiting will be present.

In the terminal stages of the disease, malignant cachexia also becomes quite marked. If penetration of the uterine wall occurs, the bladder or rectum may become involved, and, therefore, symptoms referable to these organs will be present.

PHYSICAL SIGNS AND DIAGNOSIS.

The diagnosis of chorioepithelioma from our present knowledge of the condition should be comparatively easy. Taking into consideration the characteristics of the preceding clinical history of a normal labor, abortion or tubal pregnancy, or molar labor, followed by the symptoms above enumerated, should lead to the suspicion of the disease. This, combined with the bimanual examination and a test excision of a portion of the tumor, would undoubtedly establish the true character of the lesion. We should not, however, depend on the microscope alone, for simply finding syncytial masses in curetted material after a mole labor, abortion or normal labor, does not necessarily indicate the presence of chorioepithelioma. Particular attention should be paid to the clinical symptoms and physical signs. In the early stages of the condition, the uterus is found to be somewhat enlarged. This may vary, according to the age of the tumor, from merely normal size to the tumor reaching almost to the umbilicus. The uterine wall is somewhat softer than normal and softer in consistence than if due to the presence of a fibroid tumor. Of course, in the early stages, the consistence of the uterus would not be affected; it is only when the disease extends into and destroys the mural portion of the organ that its consistence would be altered. In nearly all the cases recorded the os uteri is found dilated, admitting, as a rule, one finger, and in some instances two fingers. The growth in some instances is found to be smooth, and nodular, while in others it may be more or less uniform and present as a simple nodule in the uterine wall, or as a soft scooped-out ulcer. As I have already stated, the tumor, as a rule, is situated in the fundal portion and posterior wall. This, from the cases I have collected, seems almost characteristic of the growth. The consistence of the growth varies; in the early stages it may be more or less moderately firm, but later, as hemorrhage and necrosis take place, it becomes friable, and in the terminal stages, when necrosis is complete, the tumor itself may have totally disappeared and nothing but a scooped-out, sloughing ulcer will be found in the uterine wall. It seems to project from or, in fact, infiltrate the wall, or, in other words, it is a portion of the uterine structure, and bleeds on the slightest provocation. It could readily be differentiated from a submucous fibroid by the history of the case, by the characteristic feel, and, finally, by microscopic examination. It would be differentiated from a carcinoma by the clinical history and by the consistence of the mass, particularly the basal portion of the mass. In carcinoma, it would be hard and indurated, while in chorioepithelioma it is a soft, sloughing ulcer.

Lastly, microscopic examination of sections of the tissue would reveal their true character. In sarcoma of the corpus uteri it would be differentiated by the clinical history, by the rapidity of growth and by microscopic examination. The metastatic deposits observed resemble to a large degree hematomata, but these on microscopic examination, as a rule, will be found to contain the characteristic elements of the growth.

PROGNOSIS.

The prognosis of chorioepithelioma is extremely grave. It is perhaps the most malignant of all tumors, occurring as it does during the full physiologic activity of the patient and with the physiologic process of pregnancy, in an organ in which at this time the blood vessels are greatly multiplied and enlarged, and, therefore, in a condition highly favorable to the transportation of these malignant cells to other portions of the body. The prognosis would seem to be somewhat modified by the character of the growth, for, as I have pointed out, in certain forms of chorioepitheliomata the tendency toward malignancy is not as marked as in others, those we find containing chorionic villi being less malignant than those without these elements. In 124 cases recorded by Ladinski there were 51 recoveries and 73 deaths, giving a mortality of 59 per cent. In 66 patients operated on radically, 57 by vaginal hysterectomy, 6 by abdominal hysterectomy, 3 by laparotomy, 50 of these recovered. Dorland's[39] 52 cases recorded in 1897 gave a mortality of 73 per cent. In Teacher's 188 cases, 99 patients were treated by radical operation. In 87 there was either no operation or it was not radical. Out of the last number 83 died. The fate of 2 was not known. In 2, spontaneous healing occurred. Of 36 deaths, 11 occurred within a few days, and 25 after longer intervals. Of the patients operated on, 16 showed no improvement, 9 made a good recovery. in 5 several months of good health were enjoyed before recurrence. In 5 patients only did the disease recur after more than 6-month intervals. Of the 63 recoveries, 32 patients were well 6 months after the operation, 24 of these after 1 year, 13 after 2 years. Of the patients who had shown signs of disease in the lungs, 8 operated on recovered; in 2 others there were growths in the vagina and 1 in the ovary. In 3 of the cases operated on incomplete operation was done, but the patients recovered. Death usually results from metastases, hemorrhage, exhaustion and sepsis. In 210 cases of hydatidiform mole collected by Findley[40] there were 49 deaths, a mortality of 25 per cent. Of this number, 32 patients died from chorioepithelioma.

Metastasis, however, must not be considered a contraindication to operation unless the patient's condition is in extremis, for several cases are recorded in which recovery occurred where metastatic deposits had been quite marked. The disappearance of metastasis after radical operation is explained by the fact that the malignant cells can only live in live blood and not in extravasated blood; wherever metastatic deposits occur, hernial extravasation occurs and they are, as it were, responsible for their own destruction.

TREATMENT.

The treatment of chorioepithelioma should be the same as for malignant disease elsewhere in the body—complete extirpation of the uterus in the field of healthy tissue at the earliest possible moment should be the only operative resource considered. If we knew more, however, of the early development of chorioepithelioma, preventive means possibly could be instituted. In cases of hydatid mole, however, precautionary measures can be successfully adopted. Bonnaire insists that

39. Dorland: Univ. Med. Mag., No. 8, vol. ix, 1897.
40. Findley: Amer. Jour. Med. Sci., No. 3, vol. cxxv, 1903.

every woman who has had a hydatidiform mole should be regarded as menaced with malignant disease. After a molar labor, the uterus should be thoroughly cleaned and packed to induce the uterine muscle to contract and thus to regain its consistence and thickness. Bonnaire[41] recommends that the cavity of the uterus be swabbed with creosote or with zinc chlorid and that the uterus should, at the interval of 10 or 15 days, be curetted and the curetted material subjected to microscopic study. Findley recommends the same procedure. If, after these operations, atypical metrorrhagia persists, inoculation of the uterus with malignant elements should be considered probable, and the organ should be removed, even if unable to detect any intrauterine nodule or ulceration, by digital palpation or by microscopic examination of the scrapings. In every case of this condition the uterine cavity should be thoroughly cleaned of all elements of this tissue. This should be subjected to careful microscopic examination and should any atypical proliferation of the cells of the villi or suspicious curetted material be seen, early hysterectomy should be performed. I am indebted to Dr. E. E. Montgomery for the privilege of reporting this case.

PROPRIETARY THERAPEUTICS.*

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Perhaps I should apologize for attempting to say anything new on such a well-worn subject as the expediency of using proprietary drugs. Let my apology be the conviction that the increasing prevalence of the use of these remedies is exceedingly detrimental to the best interests of the medical art.

I wish to consider that class of agents, commonly called nostrums, which are mixtures of several more or less well-known ingredients the use of which threatens to relegate prescription writing to a place among the lost arts. In no way do I refer to definite chemical compounds which may be the property of some manufacturing druggist. While I am by no means certain that the introduction into medicine of these products of chemical ingenuity has been an unmixed blessing, any opposition to them is founded on grounds essentially different from those which form the basis of my protests against the pharmaceutical nostrum, whether parading in its true guise or attempting to hide its real character behind that magic shibboleth, "synthetic."

The great fundamental objection to the use of proprietary mixtures is an objection to all set and unalterable formulæ. Disease offers an ever-shifting picture, never presenting precisely the same problems in any two instances, varying from day to day and perhaps from hour to hour in its morbid manifestations, and unless the treatment be capable of easy modification to suit the changing conditions we can not hope to accomplish the best results in our warfare against it.

These set formulæ are presumably constructed on the same plan as ready-made clothing which is made from a large number of measurements to fit the average man. As a matter of fact, however, the average man is non-existent and the ready-made suit can never fit exactly. Clothing, however, is one of the minor cares of life, and the majority of us, having something more important to think about, are satisfied if it fits approximately well, but when we are dealing in human health, and it may be at times in human life, can we justify our satisfaction with an approximately fitting remedy?

Another objection to these substances is their secret or semi-secret nature. Of those abominations which simply advertise a descriptive title and the assertion that what not "is a specific in all forms of" this or that (you know the type), it seems almost unnecessary to speak. We preach to the laity of the evils of self-medication; but I confess that it does not seem very clear to me why the childlike faith of a sick man in the veracity of a nostrum advertisement in the daily press is any less rational than the childlike faith of the physician in the same sort of an advertisement in a medical journal. Indeed, the employment of these fancy-named specifics is a direct temptation to self-medication. In the show windows of one of those so-called drug stores whose chief business is the sale of soda water and silverware with patent medicines as a side line, recently was exhibited a remedy widely advertised to physicians, flanked on one side by Kilmer's swamp root and on the other by peruna catarrh cure.

A much more elusive and therefore more dangerous evil lurks in that class of mixtures which attempt to cloak their secrecy with a deceptive show of frankness. I think you will grant that the physician is rarely justified in the use of remedies concerning which he has no knowledge, and I maintain that the publication by a drug firm of whose integrity the physician is absolutely ignorant, of a professed list of ingredients of some mixture is not sufficient knowledge to pardon or to warrant the use of that remedy. In the first place, if the published formula be correct it is not enough to know simply the composition of a mixture, the exact quantities must also be known; there is a vast difference between the effects of one grain and of one hundred grains of opium. Moreover, there is no means of knowing that the formula is a true one, for many of these corporations do not hesitate to pervert the truth. For example, of a widely known anti-rheumatic mixture it was formerly proclaimed in flaming headlines that it contained no salicylic acid, but to-day the manufacturer sells it as a palatable preparation of the salicylate of sodium; another advertised as passiflora tablets has recently been shown to contain a notable amount of acetanilid.

The common defense of the secret nostrums is based on its value as property. As a typical example, I quote from a recent editorial in an evidently subsidized medical journal; the writer says: "The manufacturer who perhaps has spent hundreds and thousands of dollars in perfecting the formula, can not be expected to give gratuitously the product of his time, thought and money." I ask: How have these hundreds and thousands of dollars been spent? Can a pharmacist hire men to be sick that he may experiment on them with varying combinations of drugs? Does he dare insinuate that the medical profession is ready to barter in human suffering for the enrichment of the nostrum vendor? No, the hundreds and thousands of dollars have been spent in suborning medical journals to laud some hit or miss formula thrown out of a drug factory in the form of a pill, sugar coated with deceit and falsehood.

The defenders of these conglomerations hint vaguely at a wonderful augmentation of beneficial powers, the result of some mysterious manipulation, of some super-

41. Bonnaire: Rev. de Gynecol., Paris, vols. iv and v, 1901.

* Read before the Columbus Academy of Medicine, 1905.

nal pharmaceutical skill which has overturned and transformed the properties of a well-known drug. Are we, as reasonable human beings, expected to believe such twaddle, carrying us back to the dark ages when the black art and fetichism were blood brothers of medicine?

What remarkable pharmaceutical ability does it require to triturate together acetanilid and sodium bicarbonate, and press them into a tablet stamped with a symbolic initial? Can anyone tell me how the addition of potassium bromid and the extract of hyoscyamus makes chloral hydrate "the safest hypnotic known"?

That manufacturers often realize the absurdity of such claims is shown by the number of those who manifest a desire to pose as "ethical" by the publishing of a pretended formula, and yet attempt to obscure the real nature of their mixtures by the use of uncommon names for well-known drugs or by including some plant of which the ordinary physician has probably never heard. The inference, of course, in the latter case is that this rare ingredient is possessed of wonderful healing properties that render the peculiar combination beyond the possibility of imitation. Does it seem probable that if this mysterious plant did possess any such virtues as are ascribed to it, it should have flourished for these thousands of years and escaped the notice of generations of practical physicians, of studious scientists and of far-wandering botanists? We may rest assured that any substance having such remarkable powers would have been known to some member of the medical or pharmaceutical professions, and would have found entrance into that magnificent collection of real medicaments, the United States Pharmacopeia.

Here is an advertisement of a mixture intended for an emmenagogue, which it is stated "contains champaca, abromafastuosa, ferrum, ruta, and apiol." To the uninitiated this seems a truly wonderful aggregation of unknown and therefore potent remedies. But let us investigate. Champaca or champac is an oriental tree of the magnolia family, whose greatest claim for immortality rests on the fact that the poet Shelley has introduced it into his famous song "The Indian Serenade." It has been shown, however, to contain a substance closely allied to camphor. The second ingredient, which is printed as one word apparently for the purpose of deception, is evidently the botanical name of a plant. Now the genus *Abroma* was recommended in the treatment of dysmenorrhea as far back as 1873, but it apparently did not possess sufficient activity to deserve a place in practical therapeutics until some enterprising pharmacist thought of using it to disguise a not very remarkable abortifacient emmenagogue mixture. Of the other ingredients, with which all physicians are probably acquainted, all that remains to be said is that rue is well known to possess emmenagogue properties but it is rarely employed to-day except for the production of criminal abortion. The physician who can not compose a better emmenagogue mixture had better quit the practice of medicine.

Let me call attention to one other example of this effort to confuse the unwary, the simplicity of which is really laughable. A very extensively advertised drug, hailing like other orthodox fakes from St. Louis, is said to be "a palatable preparation of *Panax schinseng*. Panax is the botanical name for the popular Chinese remedy ginseng, whose therapeutic value is about equivalent to that of licorice root. If you want licorice, order extractum glycyrrhizæ.

No condition exists without cause and there must be some strong reason for so general a use of these preparations. It is incredible that mere convenience in prescribing can explain such a widespread popularity without some other influence at work.

One great reason for the flourishing condition of this business is to be laid directly at the door of the profession, that is the ignorance of the action of drugs and of methods of combining them. The subject of therapeutics is all too imperfectly taught in our medical schools, while that of prescription writing is almost completely ignored. If anyone will look over the examinations of various state boards he will find lower marks in prescription writing than in any other subject.

The recent graduate is called on by his first patient, and he has ausculted and percussed the sick man from the tip of the ear to the end of the toe, he has counted the number of corpuscles in the blood, he has taken a sphygmographic tracing of the pulse, he has made a microscopic examination of the sputum and a bacterial culture from the throat, he has tested the urine for acetone and the diazo-reaction, he has determined the percentage of hydrochloric acid in the stomach—all these things have been taught him at his medical school, but no one has thought it necessary to teach him that refinements of diagnosis are but a means to the end of a more successful therapeutics. Perhaps his professor of medicine belonged to the sect of nihilists and taught "leave the patient to nature, and you will get an interesting autopsy!" The young physician realizes that his patient does not want an interesting autopsy and that he must at least make a pretence of doing something, and while his eyes are roving round in thought as to what he can order, they fall on a green and purple announcement received in that morning's mail that "Jones' Creotin" gives wonderful results. Feeling his incompetency and yet fearful of displaying his ignorance is it any marvel that he falls an easy victim to the blandishment of the blotter?

But the most potent factor, I believe, has been extremely lavish and often very shrewd advertising. I read recently an illuminating account of the establishment of a well-known nostrum. The story goes that there was an advertising agent some years ago who was being twitted by a friend as to the uselessness of his calling. The specialist in publicity replied, "Why you can sell anything with proper advertising" and proceeded to mix together some harmless ingredients, gave his concoction a high sounding name, heralded the mixture broadcast throughout the land as a balm for all human woes and to-day is retiring from business a millionaire. We need not flatter ourselves that the medical profession is any less easily duped than is the rest of mankind; after all, the physician is human and there is much truth in the oft-quoted saying of the circus manager that "people like to be humbugged."

A well-known physician in an investigation of this subject two or three years ago calculated that $600,000 was expended annually in advertising secret nostrums. I am inclined to believe that his figures are far short of the mark. The interesting question suggested by these figures is, where does the money come from? Those hundreds of thousands of dollars are coming out of your pockets and your patients' lives, and yet the medical profession is blind enough to continue uncomplainingly feeding these jackals that fatten themselves on human suffering.

Of course the owners of secret remedies as of any

other commodity have a perfect right to advertise their wares in any magazine which will publish them, and by common consent it is understood that advertisers are not bound by any ties of truth nor even of probability, but a very grave danger threatens in this connection. The advertisers are not satisfied with exploiting their products in the back of the magazine, they clamor for reading notices and demand a censorship of the whole journal in their interests. In this respect, we may recall the old story of the camel who on a cold night poked his nose into the tent of the Arab and besought that he might only warm his nose. Little by little he intruded his body until finally he possessed himself of the tent and the poor Arab slept out in the cold.

Using the value of their advertising patronage as a club to force complaisance, slowly but persistently the nostrum vendors are possessing themselves of the medical literature until soon our medical journals will be entirely given up to eulogizing proprietary remedies. I believe I am speaking very conservatively when I say that the reading columns of two-thirds of the medical journals of this country are controlled by the proprietors of various drugs.

Only a week or two ago, the editor and owner of a so-called medical magazine told me that he had sold outright four pages of his reading columns to a certain manufacturing house, that is, he had contracted to allow them to print among the reading matter of his magazine four pages of anything that they pleased. It is not alone the smaller publications of purely local fame which have become entangled in this business, magazines of large circulation and high standing are in the snare of the fowler.

Allow me to relate a personal incident. A short time ago I took an article which contained some unmodified truths concerning certain proprietary disinfectants to the editor of one of the oldest and most widely known medical journals published in Philadelphia. Noting the references to the disinfectants, he informed me that it was his unalterable rule never to mention proprietary drugs in the pages of his journal. Thinking that he meant that secret remedies were things that could not be discussed in so substantial a member of medical journalism, I assured him that I had certainly not sung the praises of these remedies and called his attention to one or two paragraphs in the article which he read over and then reached for the last number of his journal and said with a deprecatory smile, "Here is a whole page advertisement of —— ———; were your article to appear they would withdraw their advertisement immediately; here is half a page of —— advertisement. Doctor, I could not think of publishing your article unless you withdraw all mention of these substances."

If it has come to the point that reputable medical journals are afraid to publish the truth concerning proprietary remedies, it is time to call a halt.

But, after all, this condition of affairs is not to be greatly wondered at. A body of men whose motives are purely mercenary are very likely to develop highly specialized consciences which do not respond to any of the ordinary moral stimuli. We need not be surprised, therefore, if whatever power they possess is used unscrupulously for the advancement of their own interests and for the destruction of any opposition to the growth of this power. The most serious obstacle to the success of such aims is the force of public opinion, for I believe that wherever well informed of the real conditions, the sentiments of the people as a whole will ever be in favor of right and morality.

These men being not only venal but shrewd as well, recognize the necessity of poisoning our sources of information, and exert every effort to the debauchery of the medical press. They were even attempting to exploit THE JOURNAL of the American Medical Association, but this slow-moving body has finally roused from its lethargy and the result has been the most hopeful suggestion that has yet been made for the relief of the profession—I refer to the proposed pharmacopeia of unofficial remedies. Both the character of the committee in charge of this work and the preliminary report already published give ground for hope that much good will be accomplished.

But so thoroughly has the work of corruption been done that even erstwhile respectable medical journals have joined the ranks of the sophists who monotonously chant the same refrain: the right of the drug manufacturer to his property. What interest have you or I as physicians in the commercial value of that property? The moral strabismus of the medical press is comprehensible, for into their coffers flows from these ill-gotten gains a constant dribble in the form of advertising patronage, but the obtuseness of the physician who continues to rob himself to enrich the nostrum-monger is of the same class as that which exposes the country bumpkin to the allurements of the shell-game.

FEDERAL CONTROL OF VACCINE VIRUS.*

JOHN F. ANDERSON, M.D.
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WASHINGTON, D. C.

"An act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes," and the regulations framed thereunder have now been in effect about 18 months, and I thought it might be profitable as well as interesting to call attention to the great improvements which I believe may fairly be traced to the operations of said act.

Prior to the passage of this law there had been no legal control of vaccine virus in this country; and it would seem remarkable that so important a product as vaccine virus, affecting so intimately the protection of the community against such a loathsome disease as smallpox, should have no public supervision over its manufacture. Any one could make a product, label it vaccine virus and place it on the market regardless of the impurities contained therein or its lack of potency, being governed in this respect only as it affected the business of the firm making it.

Any one interested may obtain a copy of the act by applying to the Surgeon-General of the Public Health and Marine-Hospital Service.

In accordance with the law and the regulations, the Surgeon-General of the Public Health and Marine-Hospital Service caused an inspection to be made of all establishments manufacturing vaccine virus in the United States. This inspection was made by officers of the Public Health and Marine-Hospital Service. As a result of the inspection four firms were found manufacturing vaccine virus according to obsolete methods and, being unable to comply with modern requirements of

* Read at the thirty-second annual meeting of the American Public Health Association, Havana, Cuba.

asepsis and laboratory control, preferred to retire from business.

On account of certain insanitary conditions and faulty methods of laboratory control of some of the firms, the inspectors found it necessary to recommend that their establishments and methods of manufacture be considerably improved before the issuance of a license could be recommended, the license being withheld until these faults were corrected.

At present there are eight producers of vaccine in the United States licensed to engage in the manufacture and interstate sale of this article. They are

Parke, Davis & Co., Detroit, Mich.
H. K. Mulford Co., Glenolden, Pa.
H. M. Alexander Co., Marietta, Pa.
Fluid Vaccine Institute, Milwaukee, Wis.
Pocono Laboratories, Swiftwater, Pa.
National Vaccine Establishment, Washington, D. C.
Frederick Stearns & Co., Detroit, Mich.
The Cuttler Analytic Laboratory, San Francisco, Cal.

A description of the manner in which the inspections are made will show the thoroughness with which this part of the law is carried out. The officer detailed for this purpose calls on the head of the establishment without notice, stating the object of his visit. Then, in company with the expert having supervision of vaccine production, a rigid inspection is made of all portions of the establishment, including the stables, barns, warehouses, records and animals, especial attention being given to sanitary conditions, the water supply, the screening of stables to protect animals against insects, disposal of refuse, character of food supplies, and proximity to stables used for housing horses (danger of tetanus contamination).

Close attention is given to laboratory methods, especially those of disinfection and bacteriologic control, in order to insure freedom from outside contamination. The inspector also observes the method of glycerinating the pulp, the process of grinding and mixing the virus, the distribution into tubes and the preparation of points. The inspector then observes the vaccination of a calf and the collection of virus from a "ripe" vaccination. All this is done in order to insure the inspector that the technic of the manufacture is safe and effective. The inspector purchases on the open market vaccine made by the concern and it is forwarded to the Hygienic Laboratory of the service, situated in Washington, where it is examined for purity and potency.

In accordance with the law, monthly purchases of vaccine virus are made on the open market and the product is examined in the Hygienic Laboratory. This exammation is two-fold, for purity and for potency. The person buying the vaccine virus forwards it to the laboratory with a memorandum giving the retailer's name, date of purchase, conditions under which it was kept in the drug store, and any other facts that he may think pertinent.

When received in the laboratory the package is first examined to see whether the regulations have been complied with in that the name and address of the manufacturer, his license number and the date of manufacture and of return are plainly stated on the label.

For the laboratory examination it is necessary to have at least 20 tubes or points to determine the average number of bacteria per point or tube, the presence of pathogenic organisms and the potency of the virus. Ten vaccines—by this I mean either a point or a capillary tube —are planted and counts are made therefrom. The point is immersed in about 1 c.c. of physiologic salt solution for fifteen minutes to soften the vaccine matter. It is then scraped off with a sterile platinum spatula and is thoroughly agitated to break up the clumps. If a tube, the contents are washed into 1 c.c. of salt solution.

Five drops of the emulsion are placed in the first plate, ten drops in the second and the remainder in the third, and then these are flooded with agar. The plates are incubated for three days at 37 degrees C., and then at room temperature for two days, after which a count of colonies is made.

After the counts are made the different plates are carefully gone over, especial attention being paid to cocci, molds, streptothrices, and any unusual appearing colonies. Practice has enabled those making the examinations to detect immediately the presence of unusual colonies. Of course the number of bacteria is not nearly of so great importance as the kind. One tetanus spore or a few virulent pus cocci would be far more serious than countless numbers of subtilis spores.

The entire contents of eight tubes or eight points are planted in 100 c.c. of freshly prepared and recently boiled glucose-bouillon and grown at 37 degrees C. At the end of forty-eight hours 1 c.c. per 1,000 grams of rabbit of the top growth is inoculated into the peritoneal cavity. If the rabbit sickens or dies an effort is made to determine the cause. At the end of seven days the remainder of the bouillon growth is filtered through porcelain and 0.2 c.c. of the filtrate is inoculated subcutaneously into a mouse to determine the presence of tetanus toxin. This method we believe to be a simple and sure one for the determination of tetanus contamination.

Cultures of cocci and certain other organisms are made from the plates and their pathogenicity ascertained by animal inoculation. Within the past year streptococci have been found on but rare occasions. Seldom has a virulent staphylococcus been found. Streptothrices have been found in the product of almost every manufacturer, though not virulent for laboratory animals. No evidence of tetanus has been found in any vaccine examined in the Hygienic Laboratory.

The product is finally tested for potency by primary vaccinations on children, using two tubes or two points taken from packages the remainder of which has been examined bacteriologically. The case is kept under daily observation and special attention is given to the character of the "takes." If any faults are discovered, especially bacteriologic contamination of a serious nature or a lack of potency, the facts are reported to the surgeon-general, who calls the attention of the manufacturer to them.

Vaccine has been examined in the laboratory almost continuously since early in the winter of 1901-2 and the following figures will convey an idea of the degree of contamination before the attention of manufacturers was directed to the large amount of contamination and since the passage of the act approved July 1, 1902. Vaccine virus examined during the winter of 1901-2 gave a general average of 4,698 bacteria per tube and 4,809 per point, the highest count for a tube being 30,080 and for a point 20,828. In the examinations conducted since the act went into effect the general average of the tubes has been 309, for points 1,223; the highest for a tube being 1,501, and for a point 8,860.

The following table shows the highest, lowest and the average number of colonies found in tubes and points in 1901-2 and in 1904. It will be seen that with only one exception the counts for 1904 were considerably

lower than for 1901-2, this one exception being in a manufacturer whose product has always averaged particularly low in contaminating organisms and has given a high percentage of "takes."

TABLE COMPARING THE BACTERIAL CONTAMINATIONS OF VACCINE VIRUS BEFORE AND AFTER THE PASSAGE OF THE ACT.

Manufacturer.	Date.	Tubes.			Points.		
		High.	Low.	Average.	High.	Low.	Average.
A.—Before Act....	1901-02	17,000	86	2,498	15,760	13	2,463
After " ...	1904	1,501	12	462	546	133	271
B.—Before " ...	1901-02	7,274	192	3,896	20,828	4,923	10,708
After " ...	1904	374	3	131	8,148	38	1,243
C.—Before " ...	1901-02	2,440	111	1,166	13,030	847	4,358
After " ...	1904	535	86	213	2,690	642	1,459
D.—Before " ...	1901-02	4	0	1			
After " ...	1904	336	94	209			
E.—Before " ...	1901-02	30,080	11,840	18,443			
After " ...	1904	1,125	53	409	8,860	520	3,132
F.—Before " ...	1901-02	8,000	116	2,455			
After " ...	1904	484	49	229	270	21	90
G.—Before " ...	1901-02	18,404	1,414	6,819	12,800	1,530	6,098
After " ...	1904	1,242	8	373	380	42	149
H.—Before " ...	1901-02	3,819	369	1,875			
After " ...	1904	1,095	343	595			
General average Before Act...	1901—02	.....	.....	4,698	.....	.....	4,809
After " ...	1904	.....	.....	309	.....	.....	1,223

We can not but feel that this decided improvement has been due to the rigid inspection and control of the manufacture of vaccine virus by the federal government.

The first one to call attention to the contaminations of vaccine virus was M. J. Rosenau in his article read before the New York Academy of Medicine on February 20, 1902, and in his article entitled "Bacteriological Impurities of Vaccine Virus," published as Bulletin 12 of the Hygienic Laboratory, which showed that manufacturers were placing too much confidence in the germicidal properties of glycerin. But the results shown in Bulletin 16 of the Hygienic Laboratory[1] demonstrate that the germicidal action of glycerin is very feeble, and that pus cocci were able to live in the ice chest indefinitely. On account of the great demand for vaccine virus at that time manufacturers were without doubt placing the virus on the market very soon after removal from the calf and before it had been freed from its bacterial contamination.

While commercially it may be impossible to place a virus on the market that is absolutely free from microbial contamination, it is not too much to ask that no vaccine be placed on the market unless it is free from pathogenic cocci and other dangerous bacteria.

There is one point in the vaccine question that has, up to the present, had but slight attention from manufacturers, and that is the distribution of their product. As is well known, perishable food products are shipped in cold storage or under special conditions, and it would seem that with a substance so susceptible to the influence of temperature as vaccine virus, it would not be unreasonable to expect that similar care be taken in its distribution.

1. The Bacteriologic Impurities of Vaccine Virus; an Experimental Study. Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service, Bulletin No. 12, 1903. The Antiseptic and Germicidal Properties of Glycerin. Ibid. Bulletin 16, 1903. See also on this subject: Dry Points Versus Glycerinated Virus from a Bacteriologic Standpoint. American Medicine, April 19, 1902, p. 637. Remarks on the Preparation of Vaccine Virus. Anderson, John F., Medical Record, March 12, 1904.

Respect.—If we would have our profession respected, we must respect it ourselves, by never speaking of it lightly, slightingly or in a deprecatory manner.—Williams, in *Journal of the Michigan Medical Society.*

THE ADVANTAGES OF EXPEDITIOUS SURGICAL WORK.

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Previous to the days of anesthetics and of aseptic surgery, operators strove to complete their work in the shortest time possible, and the results of skill in this direction were appreciated. Under the influence of modern methods of protection for the patient, there came a tendency to devote more time to detail in operative technic, and this sometimes degenerated into "puttering." It is quite as important for the patient to retain his natural resistance after operation as it is for the surgeon to add artificial means for securing asepsis during operation. Mr. Tait was the first prominent exponent of this principle, but the special reasons for his success were not understood in his day. We now know that infections are met by the cell resistance of the individual, and the better the general resistance of the patient, the better his special cell resistance. A patient usually retains a great fund of natural resistance during the first fifteen minutes of an operation, no matter what is being done; but he is usually depressed after an hour of operative procedure, even though the work be simple in its nature. It seems well, therefore, for us to make an attempt to approach as nearly as possible to the fifteen-minute standard of time in most of our surgical work.

The matter came up for discussion recently in a little group of surgeons, and I had my next dozen operations timed. Not one of the operations was done in the shortest time in which I have done any one of them previously; other surgeons would have been still more expeditious, and two of the operations required much more than the average length of time, but, on the whole, the list furnishes a very good illustration of the advantages of "getting in quickly, and getting out quickly" in surgical work. A common criticism is that important details may be neglected. That is a matter for the audience to decide, as all of these operations, except in the prostate case, were done in the presence of the class at the Post-Graduate Medical School. It is not desirable to operate against time, but it is worth while to make every move count, and to note, after all necessary things have been done, that the work was not unduly prolonged.

The following 12 cases are consecutive ones, with the exception of two or three minor procedures not worthy of classification.

The time recorded was the time from the beginning of an incision to the closing of the last suture; or, in cases without suturing, to the application of the last dressing.

CASE 1.—Mr. R. L. C., aged 19. Interval appendicitis; appendix entirely buried among dense adhesions.

Operation.—Gridiron incision one and one-half inches long, removal of appendix and suturing of separate tissue planes of the abdominal wall with catgut.

Time.—Sixteen and one-half minutes.

Result.—Primary union and patient out of bed on seventh day.

CASE 2.—Dr. H. E. C., aged 29. Gangrenous appendix; old and new adhesions.

Operation.—Gridiron incision one and a half inches long, removal of appendix and separate suturing of tissue planes with catgut. No drainage.

Time.—Twelve minutes.

Result.—Primary union and patient out of bed on the seventh day.

CASE 3.—Mrs. H. R., aged 31. Extrauterine pregnancy; patient apparently dying. Intravenous saline solution of about 3,000 c.c. was given before operation until pulse could be counted.

Operation.—Midline abdominal incision, many pints of blood and clots removed, oviduct removed; no drainage; tissue planes separately sutured with catgut.

Time.—Twelve and one-half minutes.

Result.—Primary union and patient out of bed on the fifteenth day.

CASE 4.—Dr. J. O. T., aged 60. Hypertrophy of prostate; bladder holding 20 ounces of residual urine; patient feeble.

Operation.—Removal of both lobes of prostate through perineal incision and insertion of Ferguson's drainage apparatus.

Time.—Five minutes for removal of the prostate and four minutes for application of drain and dressings.

Result.—Patient was out of bed on ninth day, but has pus casts with bacteria and will probably lose ground, unless flushing of the renal pelves with argyrol is to be effective. This was begun thirty days after operation, through catheters left in the ureters.

Susequent History.—Patient refused to have the pelves of the kidneys flushed through ureteral catheters daily, and he was placed on urotropin (hexamethylenamine). Excellent response was at once made, and he gradually improved to the point of being up and about the house, but died from the effects of an overdose of morphin two months and a half from the date of operation.

CASE 5.—Mr. F. K., aged 23. Osteoma of left superior maxilla involving vomer and ethmoid bones.

Operation.—Preliminary ligation of left common carotid artery and removal of superior maxilla and other bones through the classical incision.

Time.—About five minutes for the carotid operation, and about twenty-six minutes for the excision. Duration of anesthesia was forty-five minutes, as time was lost in getting out and preparing instruments, the need for which had not been anticipated. A most difficult operation of its class.

Result.—Primary union of all sutured structures. Patient was out of bed on third day after operation and is now having obturator applied by a dentist.

Subsequent History.—The obturator, which was made and fitted by Dr. F. L. Fossume, not only holds the cheek in normal form and allows of good articulation, but it carries teeth which restore the appearance and function of the lost maxilla.

CASE 6.—Dr. A. I. B., aged 33. Interval appendicitis, with one short adhesion band.

Operation.—Gridiron incision one and a half inches long. Eucain anesthesia. Removal of appendix, and closure of separate tissue planes with catgut.

Time.—Seven minutes.

Result.—Primary union. Patient was out of bed on third day, and gave a dinner to friends down town on the fifth day, against my approval.

CASE 7.—Mrs. R. R. D., aged 35. Extensive peritoneal adhesions, involving omentum, loops of bowel, and pelvic structures. Diastasis of rectus abdominis muscles following imperfect closure after a previous operation.

Operation.—Separation of all adhesions, and application of Cargile membrane for prevention of their recurrence. Dissection of sheaths of rectus muscles, and careful suturing of separate tissue planes. Patient was very adipose.

Time.—Twenty-three minutes.

Result.—Primary union excepting at pea-sized point. Patient was kept in a recumbent posture for eighteen days to avoid undue tension on abdominal wall.

CASE 8.—Miss K. S., aged 17. Dysmenorrhea due to cirrhotic ovaries. Extensive active acne of forehead and shoulders. Preputial adhesions.

Operation.—Decapsulation of ovaries, through midline abdominal incision. Circumcision.

Time.—Thirteen and one-half minutes.

Result.—Primary union. Acne had disappeared by fifth day leaving small dry comedones. Patient was out of bed on fifteenth day.

Subsequent History.—Decapsulation of the ovaries has not relieved the dysmenorrhea, but the acne, which had been a distressing feature of the case for several years, is now apparently cured.

CASE 9.—Mrs. T. L., aged 23. Extensive pelvic peritoneal adhesions. Perineum ruptured to second degree.

Operation.—Midline abdominal incision, separation of adhesions, conservative treatment of ovaries and tubes and application of Cargile membrane to prevent recurrence of adhesions. Repair of perineum by semilunar incision and suture of bulbo-cavernosus and levator ani muscles in median raphe.

Time.—Three and one-half minutes for the perineal operation, and nine minutes for the abdominal operation.

Result.—Primary union of abdomen and perineum. Patient was out of bed on seventeenth day.

CASE 10.—Mrs. F. L. F., aged 25. Extensive peritoneal adhesions of pelvis, including loops of bowel, omentum, and uterus and adnexa.

Operation.—Midline abdominal incision, separation of adhesions and application of Cargile membrane; removal of left ragged adnexa; conservative treatment of right ragged adnexa.

Time.—Fifteen and one-fourth minutes.

Result.—Primary union. Patient was out of bed on the seventeenth day.

CASE 11.—Mrs. E. M., aged 74. Carcinoma of right breast; patient was extremely adipose.

Operation.—Removal of breast, pectoral muscles, axillary and subclavicular glands and fat, which latter were firmly adherent to axillary vessels; buttonhole side drain for wick; the rest sutured.

Time.—Twenty-six minutes.

Result.—Primary union along the whole sutured line. Patient had been nervous about operation, and had been led by nurses and assistants to think that we had simply applied "massage under an anesthetic" and did not discover that an operation had been performed until a week later when the dressings were changed. She wished to get up two or three days after the operation.

CASE 12.—Mrs. C. M., aged 18. Tuberculosis of diaphysis and epiphysis of left tibia.

Operation.—Excision of knee.

Time.—Twenty-one minutes.

Result.—Wound granulating safely, two weeks elapsed.

Subsequent History.—There is new tuberculous invasion at the site of the excision, and the leg will probably have to be amputated.

With the exception of the cases of excision of the maxilla and of the knee, the instruments employed consisted usually of a pair of scissors, a needle, a single-hook retractor, and two pairs of artery forceps.

The object in using scissors in place of the classical scalpel is because there seems to be much less oozing of blood from small vessels, and because the number of instruments is lessened. The argument that primary union may not follow the use of scissors is answered well enough by these cases without reference to further statistics.

616 Madison Avenue.

Reflex Trouble After Cataract Operation.—P. de Obarrio of Panama writes to the *Anales de Oftalmologia* for April to call attention to a possible source for the congestion sometimes noted after extraction of a cataract. In about 100 cases he has frequently observed a mild transient hyperemia after cataract extraction, which yielded promptly to the usual measures. In certain instances, however, the congestion was more severe, and proved rebellious to all treatment until a carious tooth in the upper jaw was extracted, when the condition returned at once to normal. In all such cases the teeth should be carefully examined.

TREATMENT OF PSORIASIS BY THE GENERAL PRACTITIONER.*

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In a former article[1] I described a new ointment, which I have used very successfully in the treatment of psoriasis. It consists of:

℞.	Acid. salicylic	3iiss	10
	Chrysarobin		
	Ol. rusci (birch tar), āā	3v	20
	Sapo. virid.		
	Vaselin, āā	3viss	25

This ointment contains keratolytic reducing as well as macerating and antipsoriatic remedies in rather large doses. The combination of sapo. viridis and chrysarobin represents, I believe, an original feature in this application.

During the last two years I have treated a great number of psoriasis patients with this ointment, but I do not intend publishing reports of these cases, as the process of recovery was nearly identical in all. The treatment is as follows:

For from 4 to 6 days the ointment is applied by the aid of a stiff brush to the affected area (after this has dried somewhat it is well to apply a little starch or zinc powder). On the fifth or sixth day the patient starts taking hot baths daily for from one to three days, and after the bath vaselin is to be well rubbed in from one to three times a day. This course of treatment, which embraces a period of eight days, may be repeated several times, according to the severity of the disease, but as a rule the psoriasis patches disappear soon after the first treatment.

During treatment, the appearance of the lesion is as follows: One or two days after the application has been begun, it will be observed that the ointment remains on the normal skin immediately surrounding the patches of psoriasis as a black parchment-like crust of the thickness of a piece of paper, whereas over the affected areas the ointment does not stick but rather causes a powerful scaling of the entire plaque. Wherever psoriasis exists in any shape, from the simple feeling papula to the formed scale-covered plaque, an intense feeling takes place. It is my opinion that the ointment, according to the different effects on normal and diseased skin, as described above, acts as an indicator for all areas of psoriasis.

The black crusts which become closely adherent after five or six days' treatment gradually loosen after a few days of bathing, and inunction with vaselin or with zinc sulphur ointment.

The difference between this ointment and other chrysarobin ointments is that it possesses the property of limiting the chrysarobin irritation almost completely to the diseased area with hardly any damage to the neighboring skin.

Every physician is acquainted with the diffuse staining caused by chrysarobin, which often gives the patient the appearance of an Indian, but my ointment remains, with but few exceptions, limited to the area of application.

In my first publication I mentioned the satisfactory results that I attained by this method of treatment. Since then, Professor Lassar[2] has expressed the same opinion. He says:

I have given the combination of salicylic acid with chrysarobin, tar, soap and vaselin, suggested by Dreuw in the *Monatsschriften fuer praktische Dermatologie*, a thorough trial since March on 300 patients, and am pleased to state that the results were entirely satisfactory. The irritation caused by the chrysarobin, with but few exceptions, remained absent, and in the few cases the inflammation was more moderate than is usually found after treatment with chrysarobin. The ointment forms a thick black crust on the diseased area, and over these areas the ointment can be applied again and again, while the tar treatment can be carried on. Gradually the crusts peal off and, instead of a psoriasis plaque, there remains, as a rule, an area normal in appearance and difficult to distinguish from its healthy surrounding, though now and then an area for a time will assume a paler shade which soon disappears. Dreuw's method has proved itself to be so free from irritation and yet so efficacious that I have used it without exceptions on all my patients and consider it superior to all others as regards the ease with which it can be handled and the promptness with which it cures; and also because it is well adapted for an after-treatment which can be carried on by the patients themselves without any danger. Having had good results in the treatment of psoriasis by means of soap ointments, peeling cures and tar preparations, I was at once inclined to place considerable faith in this combination of useful remedies, and the addition of salicylic acid seems to add materially to the general activity of the ointment. This combination can also be used instead of Wilkinson's ointment in the treatment of prurigo, pruriginous infiltrations and old chronic lichen rubra. It is almost odorless, has the consistency of ordinary ointment, yet the essential advantage lies in its power of impregnating and peeling the diseased area simultaneously. Taking it all in all, this method is a very desirable acquisition to our therapeutics and will be found deserving of the gratitude of all practitioners using it.

In recognition of the good results in the clinic of Professor Lassar and my own private practice, I feel justified in recommending this method to every general practitioner on account of its simplicity and of the ease with which it can be carried out in general practice. The patient should wear old underwear and outer clothing, and should make only the most necessary changes during the entire treatment.

I take pleasure in complying with Dr. Unna's request to state that the results gained by my method of treatment at his clinic as well as at his polyclinic correspond entirely with those at the clinic of Professor Lassar.

In order to obtain the best effects the solid constituents of the ointment must be thoroughly rubbed, so as to produce a uniformly fine ointment. For prolonged use, I prepared a material called mull with this ointment and found its application so free from all irritating qualities that I was enabled to place it on the forehead immediately above the eye in adults as well as in children and to leave it *in situ* for from three to four days without producing any deleterious results. The use of this ointment and mull is not limited to psoriasis, but can be extended to other conditions in which a special macerating process is desired with the smallest possible amount of irritation. I have used it thus in trichophytosis and in local circumscribed dry eczema, and it can be kept on for from six to eight days, after which any mild ointment may be applied.

* From Dr. Unna's dermatologic clinic, Hamburg.

1. Monats. f. praktische Dermat., vol. xxxiv, 1903, p. 508. See also THE JOURNAL, xliii, p. 232.

2. Zeitsf. Dermat., vol. x, part 51, p. 560.

Alcohol from Peat.—*Meyer Brothers' Druggist* states that alcohol is being made from peat in Russia, and that it is hoped to make the product sufficiently cheap for use as fuel.

WHAT IS DYSPEPSIA?*

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Dyspepsia is difficult digestion and may include all forms of disturbances associated with the digestive process. Normally we are not aware that digestion is going on. When sensations are experienced we have dyspepsia.

The ancients sought knowledge through the avenues of philosophic reasoning—the dream of ideas—but in modern methods we gain knowledge by experience of phenomena. What is dyspepsia? We all know, at least empirically, what it is. We were early taught by childish experience with unripe fruit. It has been facetiously stated that the apple which Eve gave to Adam was green, and that it caused indigestion. If we would gain a scientific knowledge of dyspepsia we must study the process of normal conditions and trace the pathologic changes that occur.

From time immemorial dyspepsia has been a national as well as an individual problem. Nations do not begin to decline until they have reached the stage of luxury; then their appetite becomes abnormally developed by overindulgence. The inhibitory power is weakened by degrees, and every nation that climbs into the lap of luxury crumbles through the indigestion of the individual. It was at a great feast that Belshazzar read the handwriting on the wall that foretold the fall of Babylon. The Greeks forsook the simplicity of the heroic Spartan life to indulge in the splendor of Grecian prosperity. Not even the philosophy of Socrates, of Plato or of Aristotle could curb the evils of luxury. As their minds leaped wildly into "absolute infinitude" for the solution of the problems of life, despairingly they fell back into the death grip of dyspeptic gluttony. Rome did not begin to die until her feasts were spread.

In our own land the Puritans were obliged in the beginning to live on simple fare, but, with the advent of prosperity, luxurious tastes developed. New England is responsible for the mince pie, the pork and beans, the doughnuts and the hot biscuits washed down with ice-water, which have become a national dietary. These New England dishes compose the chief menu of the quick lunch counter, which simulate pig-troughs to which busy men run, bolt down a hasty lunch of gastric irritants and return at once to business. This overworks the stomach and results in gastric fatigue, which is serious in its ravages on general health. Man does not succumb so often from overwork of the brain as from overwork of the stomach. Even a gathering of medical men, where the apostles of Hygeia assemble to obtain food for the mind, often resolves itself into a dyspeptic-producing feast. The chef and housewife are ignorant of the laws of dietetics, especially that pertaining to the composition and preparation of food. The agricultural department teaches farmers how to feed their hogs and cattle. Should we not prescribe rational diet for our patients?

Recently we have had a visit from the French apostle of "Simple Life," Wagner, who came to interpret the handwriting on the wall that predicts disaster to a badly overfed nation. Overindulgence of the appetite is not confined to the wealthy; the poor peasant of Europe, as soon as he reaches our opulent shores, falls into the evils of indigestion. Finding here lucrative employment and comparative luxury, he becomes the victim of dyspepsia. Whatever may be said of the vices that are dependent on luxury, it is certain that none of them have more immediate, far-reaching or more fatal effects on individual and national power than overindulgence of the appetite. With better knowledge of the physiology of digestion, of the laws of dietetics and of the pathologic changes resulting from departure from these laws, we may correct the evils and prevent the destruction of individual and national health.

* Read at the annual meeting of the Tennessee State Medical Association, at Nashville, 1905.

PHYSIOLOGY OF DIGESTION.

For the consideration of the physiology of digestion the stomach is divided into two portions—chemical and mechanical. The chemical division is located in the cardiac portion and the mechanical in the pyloric end of the stomach (antrum of the pylorus).

The cardiac area contains the secretory apparatus, and the peptic glands are chiefly found here. HCl is secreted not in the pyloric, but in the middle portion of the stomach.

The pyloric end, while containing some peptic glands, is chiefly concerned in the mechanical work of the contracting muscle. The energy of each contraction wave is directed on the contents, assisted by the resistance of the walls of the stomach and by the constricted pyloric orifice.

The greater part of the stomach contents remains in the cardiac or chemical portion for some time (from one to two hours) in a more or less quiescent state.

The carbohydrates (starch) are acted on by the ptyalin from the saliva, while the proteids, such as meat, are digested by HCl and pepsin secreted by the gastric glands (proteolysis). As HCl is constantly poured out, it checks the action of the ptyalin on the starch. The food mass resting quietly in the cardiac end is attacked first on the surface by the HCl and gastric ferments, which gradually penetrate until the food is more or less saturated. As the mass becomes softened, it reaches the pyloric end of the stomach through the pressure exerted by the tonus of the muscle of the cardiac end, aided by feeble and slow contraction waves occasionally seen in this portion of the stomach. On reaching the pyloric section (antrum of the pylorus) the contents are met by the powerful contractions of the muscle walls which break up the mass, forcing the liquid portion toward the pyloric orifice, the more solid part remaining in the body of the stomach. The pyloric valve relaxes and the rapid waves (one every 15 to 30 seconds) eject the softened semifluid contents out through the open pylorus into the duodenum, and spurts at regular intervals force the contents in jets into the duodenum. This is observed in dogs with the open abdomen. By resecting the duodenum close to the pyloric orifice, the stomach contents spurt a distance of from 8 to 12 cm. against the sides of the trough.

Secretion and motility are two essential factors of digestion and they depend for their action on different forms of stimuli. The sensitiveness of the secretory apparatus responds to odor and the taste of food and is so delicately arranged that the olfactory nerves and nerves of taste carry impulses to the glandular structures that call for the specific secretion adapted for the digestion of the particular kind of food that is to enter the stomach. Thus, at the smell or taste of food the mouth waters, and ptyalin is mixed with the starch and the pancreatic glands are excited into action. Even

juice of meat before it reaches the gastric cavity calls forth the HCl and pepsin in the stomach, preparing the conditions for the digestion of proteids.

The motility is no less delicate in its responses to the slightest pressure exerted by the presence of substances carried to the stomach. Even a small quantity of water taken into the stomach exerts mechanically a stimulus to contraction of the muscular mechanism and discharges it within a few minutes (if no food is taken) into the duodenum. If food is taken with water it is delayed by closure of the pyloric orifice until digestion of the food occurs. Bran, which is not soluble and is chemically inert, will be expelled from the stomach the same as if possessed of food value. Air introduced into the stomach sufficient to partially distend the organ will likewise excite peristalsis by the stimulation of pressure exerted on the gastric walls. This is sometimes useful in differential diagnosis between dilatation of stomach due to obstruction at the pyloric orifice and simple atony of the muscular wall. If overdistention of the stomach is produced, the air can not pass out through the pylorus, as the powerful stimulation of the pressure causes a strong contraction of the pylorus, while the efforts of the stomach with strong peristaltic waves causes colicky pains, which are relieved when the pressure overcomes the less powerful muscles of the cardiac orifice, and the air is belched up. The residual air in the stomach may ultimately escape into the duodenum when the pylorus again becomes relaxed. The manner in which the pyloric and cardiac orifices act during such distention can be used to advantage in the diagnosis of patulous cardia or pylorus. The fine adjustment of secretion and motility to each kind of stimulation necessary for conditions of digestion is well illustrated in the specific chemical excitation of the secretion of HCl and pepsin when meat is eaten, while motility depends more on purely physical stimulation, viz., tension.

Gastric movements are not dependent on chemical stimulation as is secretion, for, if they were, bran, water, air and gases would be retained in the stomach.

To determine the results of the chemical action of food on gastric movements and those produced by different forms of mechanical stimulation, I carried out a series of experiments on dogs, as well as on the human subject. As shown by the protocols,[1] strong HCl, peptones, albumoses, starch, etc., showed no appreciable effect on the movements produced by these substances applied to the mucous membrane, while distention with air or water immediately excited increased peristalsis. If the air or water was under control, by forcing it into a bag within the stomach, so that all the air or water would return promptly, the resultant contractions were more numerous and vigorous. It would appear that tension is one of the most important factors in peristalsis of the stomach.

Cannon's[2] recent experiments have confirmed these observations. Cannon finds that movements of the stomach are independent of the chemical composition of the food introduced. Psychical influence has a marked effect; it was found that when the animal was made irritable during the experiments the peristaltic waves diminished or stopped altogether. A point of considerable practical value is gained in these experiments on gastric movements and confirms what we have learned clinically, that in atony of the stomach mechanical and physical factors are of chief importance in considering the pathology, diagnosis and treatment of the condition.

The complex activities of digestion, secretion and motility, depend on the integrity of the circulation. Betz,[3] V. Braam Houckgeest[4] and Mall[5] have shown that splanchnic anemia produced by clamping the aorta causes cessation of gastrointestinal movements. As examples of anemia of the abdominal vessels, we have the results of exercise just before or just after a meal, which increases the peripheral circulation and interferes materially with the physiologic hyperemia of the splanchnic area necessary to gastric digestion. Placing the feet in hot water immediately after a meal will inhibit, or perhaps check completely, the motor and secretory function of the stomach, this being the result of the disturbed circulatory balance. Colonic lavage or injections of large quantities of hot water into the colon interferes at once with the motor activities of the stomach, causing more or less nausea, and even vomiting, if performed after a meal; this has an effect similar to placing the feet in hot water immediately after eating, inasmuch as the use of hot water, 55° C., in the colon produces contraction of the splanchnic vessels, with dilatation of the peripheral arterioles.[6] The interrelation between the splanchnic circulation (abdominal vessels) and the digestive organs is so intimate that changes in one produce alterations in the other. This seems to be shown in a series of experiments which I reported at the meeting of the American Gastroenterological Association, 1900.[7]

The changes of the splanchnic circulation in cardiac disease affect the digestive organs so that ingestion of food and water frequently produces marked disturbance. Portal obstruction due to hepatic disease causes inactivity of the gastrointestinal tract. Chronic gastrointestinal diseases often produce marked disturbance of the splanchnic circulation, and this, in turn, interferes with the motility and with the secretory function of the stomach and intestines. This "vicious circle" is seen in lesions of the intestines, in acute enteritis, in intussusception, in impaction and in appendicitis, all of which are known to result in marked splanchnic congestion, which, in turn, interferes with both the motor and secretory functions of the stomach and intestines. In shock, after an operation, the chief pathologic condition observed is splanchnic congestion. Clinical evidence has proved both the motor and secretory inactivity of the digestive function in shock. This I[8] also demonstrated experimentally on animals in shock.

In considering the causes and effects of dyspepsia we can readily see how the circulation is directly connected with every change in the digestive process. This point is exceedingly important in selecting a course of treatment.

If any one of the supports in this tripod—secretion, motility and circulation—is disturbed it immediately interferes with the whole process of digestion and dyspeptic symptoms are the result.

1. THE JOURNAL A. M. A., March 16, 1904.
2. Ibid., Jan. 7, 1905.
3. Virchow's Archiv., vol. l.
4. Archiv. f. d. ges. Physiol. Bonn, 1872, vol. vi.
5. Johns Hopkins Hosp. Rep.., Baltimore, 1896.
6. Treatment of the Abdominal Viscera Through the Colon. THE JOURNAL A. M. A., Oct. 7, 1899, and May 5, 1900.
7. An Experimental Study of the Splanchnic Circulation and Its Relation to the Stomach and Intestines. (Amer. Therapist, November, 1900.)
8. Surgical Shock. THE JOURNAL A. M. A., June 19, 1897. The Care of Patients During Surgical Operations. Med. Rec., Aug. 11, 1900.

FOOD.

The physiology of digestion can not be considered without a careful study of the substances to be digested, viz., the food. The composition and amount of food must be adjusted to the physiologic requirements. The amount and manner of preparing food and the intervals between meals are so important as to constitute a special research. Milk may be of proper composition, but in large clumps it is in an improper state for the normal process of digestion. Proteids, carbohydrates and fats may be so badly combined as entirely to destroy digestion. The quantity of food may be so large as to block the whole train of digestion. Food taken at improper intervals may so disturb the rhythm that it will interrupt the process of digestion and result in dyspepsia.

The U. S. Agricultural Department has made most extensive research on the problem of food for hogs and cattle, and the knowledge thus obtained is being utilized in its application to man. When the importance of this branch of medicine is more generally realized we may expect just as good results in the study of the physiology of dietetics applied to man as we have seen in the work on animals.

TREATMENT.

Before a rational course of treatment can be determined, we must gain a clear conception of all the factors concerned in the symptom complex—dyspepsia. As an example, the disturbance of secretion may present the most apparent indications for treatment in a given case, such as excessive secretion of gastric juice and mucus. The disturbance of secretion may depend on diminished motility of the stomach due to atony, the direct result of some errors of diet. This may be excess of food at one time, too frequent meals, or improper composition, or preparation of food. The treatment, then, is first to correct the errors of diet and to restore the atonic condition of the stomach wall. In ordinary cases the atony will disappear by simple dietetic measures. When the atonic condition has reached a stage of extreme fatigue of the gastric musculature and some degree of dilatation, however, dietetic measures alone will not suffice to correct the gastric atony. We must resort, therefore, to some measure that will directly stimulate and restore gastric movement and muscle tonus. Measures for treating this condition will be alluded to later. If the anomaly of secretion be the direct result of infection from infected food, or germs reaching the stomach from an infected condition of the mouth, such as pyorrhea and decaved teeth, or from an infected nasopharynx, then we are dealing with gastritis due to these causes, which must first be eradicated. In chronic cases of long standing, removing the original cause will not correct the evil, for the mucous membrane is infested with growing colonies of micro-organisms; in other words, the stomach is infected. I do not necessarily mean that the germs have penetrated the wall of the stomach, for this would constitute an interstitial form of infection (outside the surface of the mucosa), but, as I have shown, colonies develop on the walls of the stomach when conditions are made favorable for their growth. This leads us to an interesting point that was developed in experimental work. When mustard, $AgNO_3$, or other irritants were introduced into the stomach of dogs, the mucous membrane became reddened, swollen and showed, first, an increase of HCl and ferment, followed by a decrease of gastric juice. There continues a formation of mucus, an exudate of plasma, some fibrin, leucocytes and exfoliated epithelial cells. After a certain period, colonies of micro-organisms developed in this exudate, adhering to the mucous membrane; the colonies developed from the germs already in the normal stomach before the irritation occurred. This we can apply to clinical observation in case of gastritis. Constant irritation of the stomach by errors of diet may irritate the mucous membrane and may cause an exudate to form which furnishes the necessary condition in the stomach for colonization on the mucous membrane. In the treatment we can understand why removal of the errors of diet alone does not remove the diseased condition and why chronic gastritis may continue even after all the etiologic factors, such as errors of living, have been removed. It is here that Art assists in correcting what unaided Nature can not accomplish. If left untreated, the condition may continue insidiously and may extend along the duodenum and into the bile and pancreatic ducts.

Dyspepsia and catarrh were formerly considered as synonomous terms; catarrh is due to a variety of causes, chief among them being some form of irritation that causes a flow of gastric juice or mucus or both.

Dyspepsia may include among its varied symptoms different forms of catarrh and anomalies of secretion and motility. It will be seen, therefore, that we must approach these conditions in our treatment with a clear understanding. When, added to these symptoms, circulatory disturbances exist to complicate matters, the indications for treatment appear exceedingly complex, but this is not generally the case. A single method of treatment may correct all the various disturbances at once. As for example, if in a case of acute dyspepsia as a result of grave errors of diet, the stomach becomes overloaded it can not expel its contents; retention results; the gastric muscle becomes fatigued and can not expel the accumulated mass; the stomach dilates, and stagnation and fermentation result, with marked circulatory disturbances. The heart beats rapidly to keep up the failing circulation, dyspnea follows, feet and hands become cold, the face is blanched and perspiration appears on the forehead, accompanied by a feeling of impending death. The physician introduces the stomach tube, removes the contents, performs gastric lavage with hot water; and the whole picture is changed. If the improvement does not result, the lavage is repeated until recovery is complete. What has occurred in this simple treatment? The load has been removed from the stomach. This is not all that has been accomplished, however, for frequently patients in this condition have vomited up the stomach contents and still continued to suffer. By the lavage the stomach has been distended with water and this has been removed to be repeated over and over again. Each time the water is removed the stomach retracts. The tension produced by the water and the release of the tension excites the peristalsis of the stomach.

In chronic gastric diseases, lavage is useful not only because it removes the stomach contents, but for other reasons. It should be remembered that repeatedly removing the gastric contents by lavage removes secretions that are very essential to digestion, as well as peptones and albumoses that linger in the stomach, especially when it is in a state of atonic dilatation. The relief experienced by the patient immediately after lavage appears to be a valid reason for the procedure, but, as will be shown later, this can be accomplished by emptying the stomach through the normal channel, viz.,

through the pylorus into the intestines. By lavage we attempt the removal of mucus, exfoliated epithelial cells and food detritus that adhere to the mucous membrane. The ordinary method of lavage is the introduction of water through a single tube into the stomach and allowing the water to syphon out again. The single stomach tube through which the water passes into the stomach must have openings sufficiently large to allow the fluid to return through the tube with a flow equal to that with which it entered. With such a tube there is not sufficient force of the inflow to dislodge the mucus and detritus from the stomach wall.

Another important value that is attributed to the use of lavage is the stimulating effect of water projected against the stomach wall, producing a sort of percussion effect mechanically to excite peristalsis and the circulation of the glandular structure of the stomach. Malbranc[9] and Rosenheim attempted to employ a gastric douche by having the tube made with minute as well as with large openings at the end and by elevating the irrigator to obtain the force of gravity. This was termed a stomach douche. This fails to accomplish the purpose, because if the openings of the stomach end of the tube are made small enough to obtain the necessary force and velocity for the fine jets or streams projected against the mucosa the water can not siphon off readily, and, therefore, the return flow is cut off. If the openings are large or one large and several small openings, the force of the inflow is lost, the pressure falls and the object of the douche is defeated. To obtain the desirable advantage of lavage and douche with a single apparatus, we may employ a double tube, one small caliber tube for the inflow attached parallel to a large-sized tube for the outflow, in proportion something like the old-fashioned shotgun, with ramrod alongside the gun barrel, the ramrod representing the small or inlet tube and the gun barrel the outflow; this has an opening of as large a caliber as the largest single stomach tube. This arrangement more readily conforms to the anatomic shape of the esophageal opening, which is oval (not round), flattened in the anterio-posterior diameter. The double tube, being somewhat oval in shape, is more easily introduced into the stomach and is more agreeable to the patient than the round single tube. My double stomach tube is so constructed that the end of the smaller inlet tube reaches to the upper portion of the stomach, just beyond the cardiac orifice, and is perforated with small needlelike openings, while the larger or outlet tube extends to the greater curvature or floor of the stomach, with large end and side openings to allow free outflow of the stomach contents. The advantage of this arrangement is readily seen when put into use. The water passing down through the smaller tube under high pressure is projected with considerable force and velocity in a fine jetlike shower against the upper and lateral walls of the gastric mucosa, and the water, as it reaches the floor of the stomach, passes immediately out of the stomach through the large outflow tube, thus thoroughly cleaning the wall as well as the lumen of the stomach and imparting a powerful invigorating stimulation which is of decided advantage in secretory and motor disturbance of the stomach. As all the portions of the stomach can be reached by this method, it is of decided advantage when local medication is desired. To obtain the necessary pressure to force the water in a fine shower as a gastric needle douche, the irrigator may be elevated or, what is better, the air may be compressed above the water; this will force the water out, the degree of the force and velocity, of course, depending on the amount of pressure used.

In severe forms of gastritis with thick mucus adhering to the stomach walls, and with a sluggish condition of the local circulation and an atonic state of the stomach not relieved by lavage, it is necessary to resort to some other mechanical means of cleaning and stimulating the stomach. The removal of the contents free in the stomach is easily accomplished by lavage, but in the more advanced forms of gastric disease the irritating substances in the stomach are not free but are adherent to the walls of the stomach, as can be observed in postmortems.

The problem has been how to obtain a practical method of removing this tenacious mucus and other material from the wall, of stimulating the motor and secretory apparatus and of exciting the sluggish circulation. Water, however forcibly introduced into the stomach, will not always dislodge the accumulations. Even postmortem it is difficult to remove the mucus with a forcible flow of water on the mucous membrane under the faucet. If a small stomach tube is turned or revolved while in the stomach the mucus will adhere and form around the outside of the tube, and if the turning be continued and increased in rapidity quite a large amount of mucus can be removed in this way. At the same time a stimulating massage and vibratory effect is imparted to the gastric wall. If a flexible cable is inserted within the small tube so that the tube fits close to the cable it renders the procedure much more effective. The spiral end of the cable is covered with cotton or wool over which is slipped a thin rubber finger cot, which renders the apparatus easier to introduce and less injurious than the open end of a stomach tube, which often has comparatively sharp edges. When this apparatus, known as the gyromele, is encased in a short outer stomach tube introduced into the stomach, the outer end is turned by an apparatus like a surgeon's drill. The value of the procedure is chiefly found in those refractory cases that do not yield to treatment by lavage, diet, drugs, electricity or mineral springs. In the progress of treatment the improvement, such as retraction of a dilated stomach, can be noted from time to time by palpating the revolving sound through the abdominal walls.

In certain forms of gastric dyspepsia, with atony of the stomach and sluggish circulation, the mucus accumulations may not appear so evident and cleaning out of the stomach is not indicated; in fact, to use lavage in such cases only seems to increase the trouble. The patients grow thin and weak from the result of lavage in that, as previously stated, the secretions, peptones and albumoses delayed in the stomach are also washed out. Even if lavage is performed when the stomach is empty (which is seldom the case), the water coming in direct contact with the mucosa acts as an irritant; especially is this noticeable in cases of hyperchlorhydria. After a few treatments, lavage, therefore, must be abandoned, but lavage, as we know, mechanically stimulates the stomach by the stretching on introduction of the water and the retraction after its withdrawal. If a similar procedure is carried out at frequent intervals, without the great detrimental effect that we obtain from washing out the gastric cavity, we may obtain the valuable results of regular exercise of the stomach and of the heat of the water acting on the circulation. This can be accomplished by attaching a small, thin intra-

9. Berl. klin. Wochftchr., 1878, No. 4.

gastric bag which may be rapidly distended, and then its contents rapidly withdrawn, thus obtaining a high degree of mechanical stimulation and the physical effects of heat. This can be repeated frequently without injury to the stomach or danger to the patient.

In cases of marked dilatation due to atony of the gastric musculature, the water seeking the deepest portion of the stomach causes the stomach to sag downward. Even a pound weight seems excessive for a weak stomach and as water is non-compressible it does not promptly excite peristalsis of the stomach, just as in atony of the bowel enemas frequently increase the trouble rather than correct the constipation. To overcome this difficulty we may introduce air into the bag within the stomach instead of water. This inflation distends the stomach in all directions. The stomach on inflation rotates forward and upward; this lifts up the stomach instead of bearing it down as when water is used. As the air can be released promptly, it causes rapid retraction of the stomach. Frequently repeated, this procedure excites peristalsis and restores the motor function of the stomach.

In most cases the intragastric bag can be dispensed with and the air may be forced directly into the stomach, moderately distending it, and then allowed to escape through the tube. This direct method is very useful when we wish to apply heated vapor to the mucous membrane. Local medication can be added. Volatile antiseptics and stimulants such as menthol and oil of cloves can be put in a bottle containing water heated to a temperature of from 55 C. to 60 C. (131 F. to 140 F.) Compressed air is then passed through the water and the medicated vapor is forced through the double tube into the stomach. This procedure constitutes a pneumatic gymnastic or exercise of the stomach.

Electricity.—Much has been written on the use of electricity in gastric disease, but there is no certain data that either the faradic or galvanic current has any effect in exciting secretion or motility of the stomach. Experimentally, electricity has no effect on the stomach, and clinically it is an open question.

Diet.—No method of treatment can be entirely successful without an intelligent system of diet, adjusted to the requirements of the individual case. If the stomach is already irritable this condition should not be augmented by giving irritating foods. Bouillon and beef tea or beef juice should be avoided in cases of hyperchlorhydria and other irritable states. When meat is prescribed, the extractives first should be removed and discarded. When the stomach is in a state of atonic dilatation the food should be finely divided by chopping or grinding. In some instances it may be necessary to give meals at frequent intervals, while in other cases, when the stomach is slow in expelling its food, sufficient intervals should be allowed between meals to allow the stomach to empty itself. The activity of the stomach should be determined by frequent examinations during the course of treatment, bearing in mind that this is one of the most important factors. In cases of sluggish bowel with constipation, bran may be prescribed with most excellent results; half a cupful of wheat bran with either hot water or milk may be given once daily.

Drugs.—The more closely we study the pathology of gastric diseases the less do we find drugs to be indicated. Aside from the treatment of symptoms, such as hyperacidity with alkalies and hypoacidity and hypopepsia with HCl and pepsin, there is but little real value in drug medication in these conditions. Antiseptics are apparently efficacious but the entire object of treatment in these cases is to produce normal conditions of the stomach in which autoantiseptics are produced and autoseptics take place, hence antisepsis by drugs is unnecesary.

Tonics such as nux vomica or its alkaloid strychnin are generally recommended to tone up the muscle of the stomach. According to my experiments on dogs, these drugs have no effect on the motility of gastric muscle, and this is confirmed by clinical experience. It is an error to prescribe drugs that may irritate the stomach without the certain knowledge that they will produce beneficial results.

Surgery.—In complete mechanical obstruction of the pyloric orifice, an outlet for the stomach must be reestablished by surgical interference, and, likewise, in certain cases of ulcer of the stomach, relief may be obtained by surgical means. Dyspepsia due to atonic dilatation (fatigue of the gastric muscle) as well as catarrhal conditions do not require surgery.

After a number of years of clinical experience I have found that the methods of treatment outlined above are the most rational and effective means of permanently restoring to health a large variety of dyspeptic cases suffering from chronic gastritis and from atonic dilatation of the stomach.

PUERPERAL ARTHRITIS.*

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The following case of puerperal sepsis is presented for consideration:

History.—Mrs. X., aged 20, primipara, with a history of gonorrhea a few months earlier, was delivered on June 9, no unusual features characterizing the labor. On the third day following delivery she complained of a chill and the temperature was found to be 101 F. With a slight morning remission, the temperature continued to rise until 105 F. was recorded on the third day. I first say the case at this time.

Course of the Disease.—For five weeks the temperature ranged between subnormal and 105, on July 20 becoming normal and so remaining for five days. At no time during the illness was there evidence of much pain or tenderness about the uterus and appendages, the predominant and alarming feature being a profound exhaustion. On July 25, the patient complained of tenderness in the left shoulder and elbow; temperature was 101 F., and continued to rise to 102.8, the pain localizing itself in the opposite elbow, followed successively by involvement of the left wrist, left knee, right wrist and right knee. All these joints became swollen, puffy and exquisitely painful, the patient complaining of the slightest touch and presenting unquestionable evidence of great suffering. The joints showed the usual and typical appearance of an ordinary arthritis.

Treatment.—The salicylates were prescribed but proved ineffectual from failure to retain them. The pain was controlled by morphia and the affected parts were wrapped in raw cotton. Although still painful, improvement followed, the temperature becoming normal on July 30.

It is to this local evidence of sepsis, as manifested in the involvement of the joints, that I call attention especially.

Inflammation of the joints occurring in childbed was noticed as early as 1852 by Charcot. The following year, Sir James Y. Simpson of Edinburgh, whose broad observation seemed to have grasped every detail of midwifery, drew attention to this interesting condition, and

* Read at the meeting of the Clinico-Pathological Society, 1905.

he was followed later by numerous writers, chiefly of the French school, all of whom united in describing the condition as puerperal rheumatism. That the subject was considered an important one, is evidenced by the many papers on record and the care and attention devoted to a description of the cases cited. Celles, whose doctorate thesis before the French Academy was published in Paris in 1881, gives several cases occurring under his observation in which the disease developed after confinement or as an accompaniment or sequel of some diseases of the reproductive organs. As the result of his studies, he eliminated cold and exposure as causative agents, both of which up to that time had been regarded as potent factors in the production of rheumatism. He noted the fact, however, that, in all cases, fever and a general constitutional disturbance accompanied or preceded the development of the arthritic symptoms. It must be remembered that in 1881, the year in which Celles published his essay, bacteriology was in its infancy and, as a consequence, modern pathology was unknown. Puerperal sepsis, as an infectious disease, due to the presence within the body of bacteria which, by their activities, produced changes of a local or general inflammatory character, was not understood. He, therefore, joined with his predecessors in describing the inflammation of the joints occurring after confinement as puerperal rheumatism, a view which to this day still holds, as may be seen by referring to some of the recognized authorities on obstetrics. Hirst[1] says that arthritis occurring during the puerperal state is either a local manifestation of septic infection, or else, as a rheumatic arthritis, is simply an accidental intercurrent affection. He also states that the diagnosis between septic arthritis and simple acute rheumatism is not always easy, and that there may be very little evidence of general septic infection, as the arthritis may make its appearance late in the puerperal state, and may be accompanied by very moderate fever of an irregular type. It is more apt to appear in women who have had gonorrhea. Edgar, in discussing the symptoms and diagnosis of puerperal septic arthritis, says that the diagnosis presents little difficulty, although the condition has been mistaken for acute articular rheumatism.

It is apparent, therefore, that an arthritis occurring within or shortly after the puerperium has been recognized as one of two forms, namely, either a local manifestation of a general septic condition or else an inflammation of a distinctly rheumatic character with no apparent relation to a condition of sepsis. It will be observed that the graver forms of the disease, leading to suppuration and probable ankylosis of the joint, are considered septic, while the milder forms, in which the inflammation subsides after a few days, leaving no permanent traces of its presence beyond a slight tenderness, have been classed as rheumatic or non-septic.

I venture to express the opinion, with due respect to the eminence and authority of the writers previously quoted, that this view is erroneous; that the distinction between sepsis and rheumatism is only apparent and not real; that all cases of arthritis occurring during the puerperium (excluding those due to external injuries, traumatisms, etc.) are septic, and, further, that a puerperal arthritis should be so recognized and so treated.

To establish the truth of this position involves an inquiry:

First, into the conditions, specific and general, which may lead to the development of an arthritis.

Second, into the relationship, if any, which may exist between these several productive or causative agents.

A non-traumatic arthritis occurs in many different diseases. In view of its prominence as a symptom in rheumatism, its presence is oftentimes considered a proof of rheumatic origin, in spite of the well-known fact that an arthritis in itself is not necessarily rheumatic and, further, that an arthritis is not a necessary accompaniment of rheumatism. The worst cases of rheumatism in many instances have been characterized by few, if any, symptoms of the joints. An arthritis may develop during the progress of any of the acute febrile diseases, especially those of bacterial origin, such as scarlet fever, typhoid fever, gonorrhea, puerperal septicemia. The presence within the blood of any active bacterial agent is sufficient to produce an inflammation of the joints, provided the infective agent is one which has an especially destructive power for serous surfaces, or that the condition of a particular joint or joints affords a favorable nidus for the localization of the germs. In childbirth, an especially good field is afforded for the infection of the patient in consequence of the continuous and far-reaching extent of the genital canal, as well as the bruising and lacerations of the soft parts incidental to delivery, especially if the necessary measures to prevent infection are neglected or impossible of execution.

In a series of investigations conducted by Krönig to establish as far as possible the identity of the particular germs most frequently found in cases of puerperal sepsis, out of a total of 179 cases 75 were found to be due to streptococci, 4 to staphylococci, and 50 to the gonococcus. Whether an arthritis has followed an infection from the streptococcus pure and simple I am unable to state from actual observation. There remains, however, no question as to the effects of an infection by the gonococcus. In innumerable cases, puerperal and non-puerperal, the presence of this germ has been demonstrated not only in the joints but in many other portions of the body, its presence always serving as an exciting cause for varied and profound changes. These cases of infection were formerly designated gonorrheal rheumatism, through ignorance of the real nature of rheumatism and a failure to comprehend the extensive and all-embracing character of a gonorrheal sepsis.

Our present views on the subject are well expressed by a writer in a recent number of the *Lancet,* who states that to the original idea of gonorrhea as a purely local disease with acute and possibly with chronic manifestations also of a local character, is now being added that of a general malady, sometimes having an acute septicemic or pyemic character, at others producing important inflammatory lesions in many different forms, and that practically no tissue can claim immunity from attack. In women with a history of recent gonorrhea the chances of an acute and general infection are many, and Jewett says that the gonococcus is the only pyogenic coccus which can live and thrive in the vaginal secretion, and further, that the organisms persist in the crypts of the cervical canal, where they live as parasites and simply find more suitable conditions for development in the first few days of the puerperium.

Theories regarding the etiology of rheumatism have been as numerous as they are varied. Cold and exposure, its relation to gout, and to excess of acid in the blood, especially the lactic-acid idea, were all at one time or another considered potent factors in the origin of rheumatism. To-day, we consider rheumatism an acute in-

1. Text-Book of Obstetrics, 1898, p. 629.

fectious disease, presenting as it does all the forms of such a disorder. This theory has its origin in the investigations of bacteriologists who have united in saying that there exists in the blood of rheumatic subjects a micro-organism which is described as the *Micrococcus rheumaticus.*

According to Walker,[2] rheumatism in its character of an acute illness presents all the stigmata of an attenuated septicemia. In 1875, Klebs detected micro-organisms in cardiac valves which were affected with rheumatic valvitis, and Popoff, in 1887, obtained cultures from the blood of rheumatic subjects which on inoculation gave rise to pericarditis, endocarditis and arthritis. Many organisms were found, all different, and the tendency was to regard rheumatism as an infection by attenuated pyogenic staphylococci or streptococci; while certain features were attributed to a mixed infection. Walker, whose investigations have been thorough and complete, says that he believes in a specific organism, having found it present in 15 cases. This organism is described as a tiny micrococcus arranged in chains or pairs.

He says that it is a culture indistinguishable from an ordinary streptococcus and, further discussing its identity, states that at any rate it may, with reason, be affirmed that a micro-organism, morphologically and culturally indistinguishable from a streptococcus, is constantly associated with rheumatic lesions and is the only lesion so associated. Gustav Singer says that it is impossible to establish the specific character of an organism which is indistinguishable from an ordinary pyogenetic streptococcus and, therefore, holds that the infection of rheumatism is due to an attenuated streptococcic septicemia.

The recognition of rheumatism as an acute infectious illness of a septicemic character places it in the same class with all other diseases which have been found to have a bacteriologic basis. Sepsis requires but two conditions for its development: a favorable soil, and an infective agent. In puerperal septicemia, these two essentials are present, as the condition of the birth canal after labor affords an ideal soil for the implanting of infected germs. It makes no difference which germs may cause the infection, whether the ordinary streptococcus which Jewett found to predominate in his cases, the staphylococcus, the gonococcus or the *Diplococcus rheumaticus,* the result is the same, namely, a septic infection, and it should be so recognized. An arthritis occurring during puerperal sepsis and forming a part of the infective process, may be due to the gonococcus, to the particular germ of rheumatism or any other germ or group of germs, which by their presence in the body generate a poison sufficiently severe to affect the joints; but to speak of an arthritis following labor and occurring during the puerperium as septic in one instance because of certain gross and superficial characteristics and as rheumatic or non-septic in another instance, is to fail to grasp the real nature of rheumatism and to restrict puerperal sepsis to narrow limitations altogether unwarranted by facts. The attempt to draw a distinction in diagnosis between a septic arthritis and a rheumatic or non-septic arthritis based on symptomatology and clinical observation is illogical and unsatisfactory. In reality, the distinction is purely one of degree and not of kind. The recognition of all forms of arthritis, whether single or multiple, suppurative or non-suppurative, as sepsis in varying forms, is perfectly consistent with facts so far as ascertained in puerperal infection. Commonly three forms of sepsis are recognized: Sapremia, or septic intoxication; septicemia, or true sepsis, and pyemia, the stage of suppuration. The first mentioned either disappears or develops into true septicemia. In this form of infection, an arthritis may develop in one joint or more; it may be a matter of a few hours or days. Should it pass into the stage of suppuration it becomes pyemia and differs in no particular from a pyemic abscess occurring elsewhere. In pyemia, the immediate cause of localized infection are small particles of infected material, oftentimes small emboli. I think I can not do better in conclusion than to quote the language of Winckel[3] on the subject of infections of the joints.

> Very often (21.6 per cent.) we also find inflammations and suppurations in the articulations, especially in the shoulder, elbow, wrist, knee, hip, sternoclavicular and pelvic joints. The synovial membrane is usually thickened and reddened; the cartilage appears unchanged or slightly opaque; sometimes the cartilage becomes necrotic and may be followed by caries of the bone with external perforation of the pus. In 22 per cent. of the cases numerous abscesses of the muscular or cellular tissue occur; they usually spring from the muscular connective tissue. The frequent occurrence of miliary abscesses proves that in this form of puerperal pyemia we have to deal not with the wedging of large masses, but with finely divided molecular substances. The metastatic inflammation of the joints, the pleural cavities, etc., indicate that the infectious material is often carried to the infected regions in a finely divided form.

In other words, an arthritis may be set up by any one of the numerous infective germs, which may be comparatively mild and subside within a few days, the joint being the seat of inflammation, but not of suppuration. On the other hand, the infection may be of so intense a character as to produce suppuration early, or later by the deposition within the articulation of small infected emboli or particles. The changes thus set up are septic in character and constitute a true sepsis.

2. Practitioner, London, 1903, p. 185.

3. Edgar's translation, chapter on "Venous Thrombosis and Pyemia," p. 817.

THE SEQUENCE OF THE PATHOLOGIC CHANGES IN APPENDICITIS.

A STUDY OF THE SIGNIFICANCE OF THE LESIONS FOUND IN DIFFERENT STAGES OF APPENDICITIS, BASED ON THE PATHOLOGIC FINDINGS IN A SERIES OF OPERATIVE CASES.

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Within recent years much has been written concerning the pathology of appendicitis. The anatomic characteristics of the different varieties of appendicitis, together with the secondary lesions accompanying the primary appendiceal inflammation, have been most carefully described and abundant statistics dealing with the relative frequency of the different types of appendiceal and periappendiceal lesions exist. In spite of all this accumulated knowledge, the subject of the pathology of appendicitis is not by any means a closed chapter, but continues to be prominent in medical discussions and literature. The reason for this, perhaps, may lie in the fact that it has not yet been generally recognized that the different pathologic conditions, as they are encountered at operation in cases of appendici-

tis, represent, for the most part, simply different stages of an inflammatory process involving primarily the appendix and accompanied, in a large proportion of cases, by a more or less extensive secondary involvement of the peritoneal cavity. Most of the studies dealing with the description and classification of the different pathologic varieties of appendicitis are based on a study of the lesions without reference to the duration of the symptoms previous to the observation of the pathologic condition and for this reason such studies throw little light on the pathologic history of the disease.

A study of the pathologic history of appendicitis resolves itself into a study of the processes of inflammation and repair as they occur in this disease, and a knowledge concerning the progress of these processes can best be obtained by a combined clinical and pathologic study of a sufficiently large series of cases, tabulating the pathologic findings according to the time which has elapsed between the onset of the attack and the observation of the pathologic condition. When the lesions are studied in this way, there is found to exist a striking general uniformity of the microscopic appearances at each of the succeeding periods following the onset of symptoms. This uniformity in the microscopic appearances exists in spite of decided variations in the gross appearances of the appendices, and the fact that the microscopic features prominent at one period may be either increased or diminished in preceding or in subsequent stages, shows that we have to do with a continuous process and that it is probable that the majority of cases presenting the characteristic lesions of patients operated on on the tenth day would, seven days earlier, have presented the lesions characteristic of the third day. The results of such studies, therefore, should serve not only as a basis for a knowledge of the pathologic history of the disease, but should aid also in the diagnosis of the probable lesions existing at any given period during the attack.

OBSERVATIONS OF CASES.

The following observations are based on a study of the condition of the peritoneum as found at operation in 485 cases of appendicitis[1] occurring at the Albany Hospital during the past six years, and of the condition of the appendix in 188 of these cases, the descriptions and sections of which are on file in the Bender Laboratory. The pathologic findings in this series of cases were studied with special reference to the relations existing between the character of the lesions and the stage of the disease.

In summarizing the results of the observations in this series of cases, those cases operated on during the first, second, third, fourth, fifth and sixth days of the attack are considered in separate groups for each day. Those cases operated on from the seventh to the tenth, from the eleventh to the fifteenth and from the sixteenth to the thirtieth day are considered in three corresponding groups; while all cases operated on one month or more after the occurrence of a definite attack are considered as a separate group.

The following is a summary of the more striking features of the pathologic process:[2]

First Day Group.—This was made up of ten patients operated on during the first twenty-four hours following the onset of symptoms. In two cases (20 per cent.) there was a seropurulent intraperitoneal exudate without perforation of the appendix. In one other case, the omentum was adherent by a fibrinous exudate to a gangrenous appendix. The gross appearances of the nine appendices studied histologically varied greatly. Two showed plainly visible gangrenous areas, one was described as normal, while in others the only macroscopic evidence of disease was a congestion or slight opacity of the peritoneum, with a swollen or hemorrhagic mucosa.

In sharp contrast to the often apparently insignificant gross lesions is the microscopic picture, which is essentially similar in all cases and consists of an intense, diffuse, polynuclear leucocytic infiltration with focal areas of hemorrhage and necrosis involving all coats with a more or less extensive destruction of the mucosa and, in many cases, a fibrinous or fibrinohemorrhagic exudate on the peritoneal surface. One of the most striking features in these cases is the presence throughout the majority of the sections of numerous areas of necrosis. These areas are larger, but are not more numerous in those cases which show macroscopic evidences of gangrene.

Second Day Group.—This was made up of twenty-three patients operated on during the second twenty-four hours following the onset of symptoms. Eight (34.8 per cent.) of the cases in this group were accompanied by intraperitoneal fluid exudates, usually of considerable extent and of a seropurulent or purulent character. As in the first-day cases, the appendices in this group, which were studied histologically, presented no uniformity as to gross appearances. Some of them are described as "gangrenous," others as "catarrhal" and "ulcerative" or "slight periappendicitis."

Microscopically, all the appendices show an intense leucocytic infiltration involving all coats, together with a more or less extensive ulceration of the mucosa, while 70 per cent. show a well-marked fibrinous or fibrinopurulent exudate on the peritoneal surface. In those cases which presented macroscopic evidence of gangrene the areas of necrosis as seen microscopically are decidedly more extensive than in the similar cases of the first-day group, while in those cases which did not present macroscopic evidences of gangrene the focal areas of necrosis so prominent in the first-day cases are still evident in the majority of sections, but are often obscured by the leucocytic infiltration.

Third Day Group.—This was made up of fifty-three patients operated on during the third day following the onset of symptoms. Twenty-nine (53.7 per cent.) of the cases in this group were accompanied by intraperitoneal fluid exudates which were of a distinctly purulent character and usually described as periappendiceal abscesses. The macroscopic evidences of disease were distinctly more prominent than in the earlier cases. Forty per cent. of the appendices studied histologically were

1. The data referring to the condition of the peritoneum is taken from the notes made at the time of operation: all else is based on the descriptions and sections on file in the Bender Laboratory. The histologic observations have necessarily been confined to those cases, the sections of which have been preserved and are available for present study. While the anatomic variations, especially as regards the condition of the peritoneum, are so variable as to require a large series of cases on which to base satisfactory observations, this is not the case with the histologic changes which are so uniform that it is not deemed necessary to include a larger series of cases.

2. The accompanying charts show graphically the relative frequency of the various types of lesions grouped according to the different periods as enumerated above and also serve to give an idea of the relationships existing between the character of the pathologic lesions and the duration of the disease. The absence of irregular fluctuations in the platted curves is evidence that the series of cases here studied has been sufficiently large for the purposes of this investigation, although the relative heights of the different curves must vary somewhat in different series of cases.

described as "gangrenous" and all but three of the others as "acute" or "acute ulcerative."

Microscopically, two recurrent cases show decided chronic changes, but no evidence of an acute process. The remaining cases all show a diffuse inflammation like that seen in the earlier groups. In the macroscopically gangrenous cases the necrosis is prominent, while in the non-gangrenous cases focal areas of necrosis are seen only in the mucosa. The most striking histologic feature which distinguishes this group from the earlier groups is the evidence of beginning repair as seen by the presence of fibroblasts in all sections. These new-formed connective tissue cells are especially numerous in the region of the peritoneum, although present in other areas, particularly in those cases showing the least marked leucocytic infiltration.

Fourth Day Group.—This was made up of thirty-one patients operated on during the fourth day following the onset of symptoms. Seventeen (54.5 per cent.) of the cases in this group were accompanied by purulent periappendiceal exudates usually described as abscesses. With the exception of one normal and one chronic atrophic appendix (microscopic diagnosis), all of the appendices in this group presented well-marked anatomic changes in general similar to those seen in the third-day cases.

Microscopically, the gangrenous cases show large areas of complete necrosis, the histologic picture differing but little from that seen in the gangrenous cases of the third-day group. In sections of the non-gangrenous cases, and in sections taken at some distance from the necrotic areas in the gangrenous appendices, the most noticeable histologic feature which distinguishes this group from the preceding one is a decided increase in the relative number of fibroblasts and the presence of numerous lymphocytes and, in several cases, plasma cells. In those cases accompanied by a periappendiceal exudate a few fibroblasts and many new-formed blood vessels can be seen extending into the exudate from the peritoneal surface. Focal areas of hemorrhage into the exudate occurring from these new-formed blood vessels are seen in many of the sections.

Fifth Day Group.—This was made up of twenty-seven patients operated on during the fifth day following the onset of symptoms. Fifteen (55.5 per cent.) of the cases in this group were accompanied by periappendiceal pus. With the exception of one recurrent case, all of the appendices presented easily recognizable anatomic changes most evident in the mucosa or on the peritoneal surface.

Microscopically, the lesions may be classified into two rather sharply defined groups. In the cases presenting macroscopic evidences of gangrene, the necrosis and polynuclear leucocytic infiltration is the predominating characteristic, although the repair process is well advanced in several instances. In the non-gangrenous cases the polynuclear leucocytes have practically disappeared except at the surfaces of the ulcerations in the mucosa and of the periappendiceal exudates. Throughout the coats of the appendix there is a marked increase in the number of fibroblasts and often an intense lymphocytic infiltration. In the periappendiceal exudates the new-formed blood vessels penetrate to a greater distance than in the fourth-day group and this granulation tissue is decidedly richer in fibroblasts.

Sixth Day Group.—This was made up of twenty-four patients operated on during the sixth day following the onset of symptoms. Twelve (50 per cent.) of the cases in this group were accompanied by periappendiceal pus and all the appendices showed well-marked anatomic changes. The partially organized periappendiceal exudates were very noticeable in those cases accompanied by abscess formation.

Histologically, the repair processes are decidedly more advanced than in the fifth-day group. The gangrenous cases show well-marked evidences of repair, the histologic picture of which is similar to that seen in the non-gangrenous cases of the preceding group. A number of these cases, however, present the picture of a fresh acute process engrafted on the subacute process, there being a diffuse leucocytic infiltration with areas of hemorrhage and necrosis, the latter often involving areas rich in fibroblasts. The non-gangrenous cases now show areas in which the fibroblasts are massed together and elongated so as to resemble young connective tissue cells. Small ulcers in the mucosa have apparently been largely repaired.

Seventh to Tenth Day Group.—This was made up of one hundred and six patients operated on from the seventh to the tenth day of the attack. Fifty (47.1 per cent.) of the patients operated on during this period were accompanied by periappendiceal pus, which in all but six cases was more or less localized and usually accompanied by marked evidences of organization. Anatomic changes, for the most part, were well marked, particularly so in those cases accompanied by partially organized periappendiceal exudates. In the cases unaccompanied by periappendiceal exudates the anatomic lesions were decidedly less prominent than in the earlier groups, and four of the appendices studied histologically were described anatomically as cases of catarrhal appendicitis.

Histologically, the repair process has become still more advanced, so that in 18 per cent. of the appendices in this group the organization is so far advanced as to present the picture of a distinctly chronic process, the evidence of a previous active inflammation being shown by the presence of new-formed fibrous tissue which is rich in connective tissue cells. In addition to the new-formed connective tissue in these cases, numerous focal collections of lymphocytes are seen, which are most noticeable in the subperitoneal tissues and muscular coats. In 64 per cent. of the appendices in this group the presence of the fibroblasts and other evidences of active repair is noticeabe, being most marked in those cases showing partially organized periappendiceal abscesses. Eighteen per cent. of the cases show evidences of an acute process, which is seen as a diffuse polynuclear leucocytic infiltration, often accompanied by hemorrhage and necrosis. In all but one of these acute cases, however, there are also evidences of an older subacute process.

Eleventh to Fifteenth Day Group.—This was made up of forty-eight patients operated on from the eleventh to the fifteenth day following the onset of symptoms. In this group but sixteen cases (33.3 per cent.) were accompanied by periappendiceal abscesses, and when present the pus was usually found in small collections surrounded by thick masses of new-formed connective tissue. The macroscopic appearances of the appendices in this group varied greatly: Two were described as "gangrenous," two as "acute," three as "normal," and the rest as "subacute," "chronic," "chronic obliterative," "chronic periappendicitis" and "catarrhal." Except in those cases showing an acute process and in those accompanied by evidences of periappendiceal or-

ganization, the gross changes in the appendices, as a rule, were not prominent.

Microscopically, 68 per cent. of the appendices present lesions of a typically chronic character, the most constant feature of which is an increase of connective tissue, usually well marked and accompanied by conspicuous focal collections of lymphocytes; the latter occur usually within the perivascular and interstitial lymph channels of the peritoneal and muscular coats. An additional 10 per cent. show a less advanced stage of repair corresponding to the predominating lesion in the preceding group. Ten per cent. show changes confined to the mucosa, such as are usually described as catarrhal appendicitis. Ten per cent. show the presence of acute inflammation, in addition to subacute or chronic changes.

Sixteenth to Thirtieth Day Group.—This was made up of forty-six patients operated on from the sixteenth to the thirtieth day following the onset of symptoms. Abscesses were present in 19 per cent. of the patients operated on at this period of the disease; this decrease in the frequency of pus being accompanied by a corresponding increase in the number of cases showing adhesions without the presence of pus. In the cases unaccompanied by histologic evidences of an acute or subacute inflammatory process, the macroscopic changes in the appendices were not prominent except in those cases showing an obliteration of the lumen or evidences of periappendiceal organization.

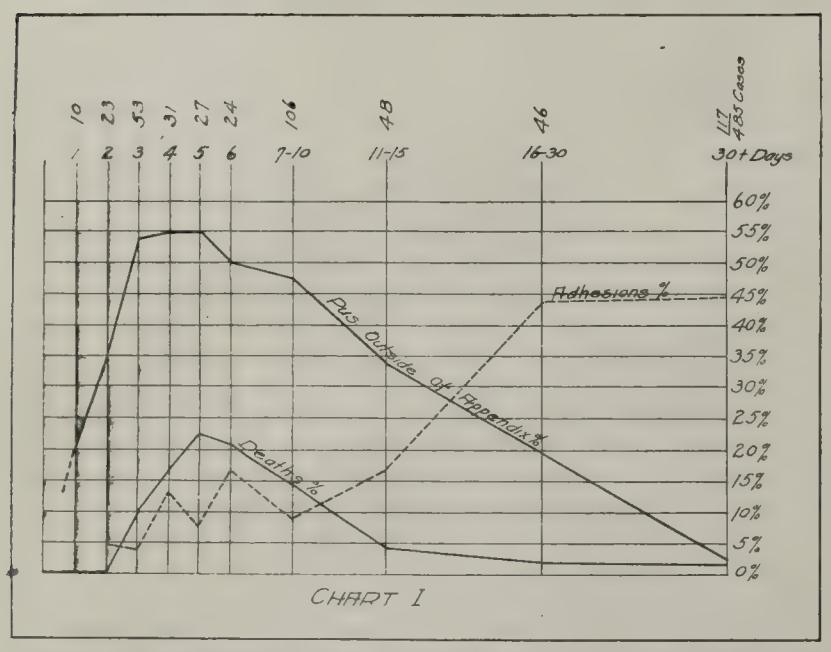


Chart 1.—Condition of the peritoneum and death rate. The term "pus outside of appendix" is used to include all cases accompanied by purulent intraperitoneal fluid exudates, either localized or general. The term "adhesions" is limited to those cases presenting organized adhesions without the presence of pus.

Microscopically, 69 per cent. of the cases show only chronic changes. In these cases the new-formed connective tissue is more fibrous than in the similar cases of the preceding group, while the focal collections of lymphocytes, so prominent in the preceding group, are now less numerous. A few cases still show acute or subacute lesions, in addition to more chronic changes. Ten per cent. of the cases must be considered as examples of catarrhal appendicitis, as the demonstrable pathologic changes are confined entirely to the mucosa.

Patients Operated on One Month or More After a Well-defined Attack.—In this group are included one hundred and seventeen patients, having, for the most part, histories of long-standing chronic, recurrent or relapsing appendicitis. In three cases (2.5 per cent.) small foci of pus were found in connection with extensive adhesions. In 44 per cent. of the cases there were well-marked adhesions, without the presence of pus. With the exception of the cases of chronic obliterative appendicitis, the macroscopic changes in the appendices were usually not prominent, and many of the cases which show an extensive increase of interstitial connective tissue were described as macroscopically normal.

No appendices in this group show microscopic evidence of an acute or subacute inflammatory process. Six per cent. of the appendices are microscopically normal; 16 per cent. are examples of catarrhal appendicitis; 52 per cent. are microscopically examples of more or less well-defined chronic interstitial appendicitis; 26 per cent. are examples of chronic obliterative appendicitis.

SUMMARY.

The character of the histologic changes is essentially similar in all of the appendices in this series which were removed during the first few days of the disease and consists of a severe, diffuse inflammation, accompanied by focal areas of hemorrhage and necrosis. These focal areas of necrosis may increase in extent during the first few days and give rise to macroscopic areas of gangrene or they may remain of microscopic size and be quickly repaired. The various anatomic varieties, such as the gangrenous, perforative and ulcerative forms, are determined by the extent and distribution of these necroses.[3]

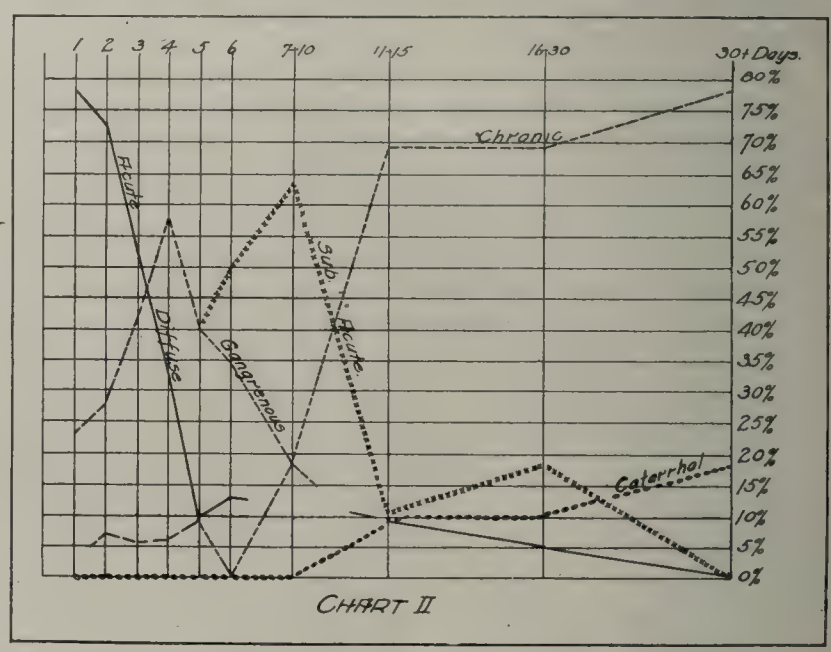


Chart 2.—Histologic condition of appendix. The term "acute diffuse" is used to include all appendices showing a diffuse polynuclear leucocytic infiltration without the presence of macroscopic evidences of gangrene. Under the term "gangrenous" are included all appendices showing macroscopic areas of gangrene with or without perforation. Under the term "subacute" are included all appendices showing evidences of active repair unaccompanied by a polynuclear leucocytic infiltration. Under the term "chronic" are included all appendices showing a distinct increase of connective tissue without evidences of active repair or leucocytic infiltration. All appendices showing changes confined to the mucosa are included under the term "catarrhal."

Evidences of repair are seen as early as the third day, and in the non-gangrenous cases the histologic picture of an acute process has changed to that of a distinctly reparative process by the fifth day. In those cases in which the necrosis is so extensive as to give macroscopic

3. In connection with the well-known difficulties encountered in attempting to predict the subsequent course of a case of appendicitis seen during the first few days of the disease, it is a fact worthy of emphasis that the early histologic changes were essentially similar, irrespective of the severity of the clinical symptoms, in all the cases observed and that the later more important gross changes, such as gangrene and perforation, were dependent on the apparently more or less accidental factors which determined the extent and distribution of the necroses.

evidences of gangrene, the histologic picture of an acute process persists for a longer period, but even in these cases (unless there is a later acute process engrafted on the earlier lesion) the evidences of repair are by the sixth or seventh day the predominating feature of the lesion. Evidences of a recurrent acute process are by no means uncommon, and were present in from 10 to 15 per cent. of the cases after the first week.

During the second week of the attack the repair proceeds rapidly, fibroblasts, new-formed blood vessels and lymphocytes making up the chief features of the histologic picture. The rapidity with which the repair of the appendix itself is accomplished depends chiefly on the extent of the primary destruction and on the presence or absence of a periappendiceal exudate. By the end of the second week, in the majority of cases, the repair is so far advanced that the new-formed connective tissue may constitute the only evidence of a previous inflammation, although in cases with extensive periappendiceal exudates evidences of active organization of the exudate itself are still to be seen.

Except for the completion of the repair in those cases accompanied by more extensive periappendiceal lesions, the histologic changes occurring after the second week are seen chiefly in the more fibrous nature of the new-formed connective tissue which persists so as to be readily recognizable in the majority of cases. Of the patients operated on one month or more following an acute attack, 78 per cent. were cases of chronic interstitial or chronic obliterative appendicitis very often accompanied by adhesions. Six per cent. of the appendices were apparently normal, while in 16 per cent. the demonstrable pathologic changes were confined to the mucosa.

A notable feature seen in the histologic examination of these cases is the fact that in no instance was the pathologic change confined to the mucosa in the appendices examined during the first ten days of the attack.

In this series of cases, purulent fluid outside of the appendix was present in 51 per cent. of the patients operated on from the third to the tenth day of the attack.[4] After the tenth day the relative number of cases accompanied by abscesses decreases steadily, with a corresponding rise in the number of cases presenting adhesions without the presence of pus, which would seem to indicate that resolution by absorption had played an important rôle in the repair of this lesion. This is doubtful, however, and is probably in large measure due to the fact that the involvement of the peritoneal cavity was less extensive in those cases in which operation was delayed. In a number of cases, however, the adhesions were so massive as to leave little doubt of the previous presence of an extensive periappendiceal exudate.

After the third day the exudates on the peritoneal surface contain highly vascular granulation tissue, and it is probable that the high operative death rate between the third and tenth days in part may be accounted for by absorption from the denuded granulating surfaces as well as by the extent of the peritonitis and the bad general condition of the patients.

4. This includes the cases of general peritonitis as well as those accompanied by a more localized periappendiceal exudate. According to the reports of the operations, the cases of general peritonitis were distributed as follows:

First day	No case.
Second day	One case with recovery.
Third day	Seven cases with five deaths.
Fourth day	Four cases with four deaths.
Fifth day	Six cases with five deaths.
Sixth day	Four cases with four deaths.
Seventh to tenth day	Six cases with six deaths.
Eleventh to fourteenth day	One fatal case.

Special Article

IMMUNITY.

CHAPTER XVI.—CONCLUDED FROM PAGE 1683.

If an immune animal receives an intravascular injection of the vibrio of cholera and is sacrificed shortly, the relation of the organisms to the leucocytes may be studied in stained microscopic sections of the organs (lungs). Leucocytes which have undergone phagolysis are seen to be clumped in the pulmonary vessels and in their immediate vicinity one finds many micro-organisms which have been changed into the characteristic granules by the action of the cytase which has escaped from adjacent leucocytes. Coincident with the phenomenon of phagolysis the leucocytes lose their phagocytic power, hence no bacteria are found within the leucocytes. On the other hand, all those vibrios which are remote from the leucocytes have a perfectly normal appearance. Phagolysis in the blood stream may be prevented, just as in the peritoneal cavity, by a preceding injection of bouillon. In this instance when the culture is injected no extracellular solution or transformation of the organisms into granules takes place, but as in the peritoneal cavity their destruction is accomplished entirely within the microphages. Metchnikoff holds to the correctness of these observations and interpretations, although contradictory results were obtained by Pfeiffer and his pupils. As further evidence that cytase does not exist normally in the plasma Metchnikoff cites the condition which is found in the anterior chamber of the eye in immune animals. The vibrios continue unaffected in the aqueous humor until such a time as leucocytes wander in, when they are destroyed by phagocytosis. Hence cytase does not exist in the aqueous humor, and if not in the aqueous humor it is surely absent also from the plasma; for if present in the plasma it would reach the anterior chamber by a process of diffusion. Similar conditions prevail in edematous fluids. In another instance a portion of a vein, filled with blood, was resected and centrifugated without the formation of a clot (absence of phagolysis); the plasma contained no cytase. Also Gengou collected and centrifugated blood in tubes which were coated with paraffin, and thus avoided clotting; here also cytase was absent from the plasma.

Intravascular Phagocytosis and Phagolysis.

Microcytase is Intracellular.

It would seem, then, that two important antibacterial factors characterize immunity to cholera and similar infections: the development of specific fixators, and a greatly increased phagocytic power on the part of the leucocytes. Metchnikoff leans to the view that bacteria, having absorbed fixators, are more readily phagocytized, but no clear idea is given as to the change which the fixators produce. However, he would not refer the increased phagocytic power entirely to the influence of the fixators. He believes that the leucocytes of the immune animal have *per se* a higher phagocytic power than those of the normal animal. In anthrax, for example, the phagocytic power is heightened in spite of the fact that there is no increase in specific fixators. This view, however, is opposed by Denys and Leclef, who found that the leucocytes of the immune animal, when transferred to normal serum, had no greater phagocytic power than normal leucocytes.

Increase of Fixators and of Phagocytic Power.

Metchnikoff believes that fixators, like cytase, are produced by the microphage. That the lymphoid organs may form certain fixators seems probable from the observations of Pfeiffer and Marx in regard to cholera and Wassermann and Takaki in typhoid. During the process of immunization and at a time when amboceptors were absent from the serum they could be demonstrated in the blood-forming organs (spleen, lymph glands, bone-marrow). Metchnikoff suggests that they may be produced in these organs by the microphages which have wandered in after having englobed the micro-organisms. In contrast to cytase

Fixators Product of Microphage.

the fixators readily abandon the leucocytes which produced them and become a constituent of the plasma.

The leucocytes have also been brought in relationship to antitoxic immunity and the formation of antitoxins. In experimental tetanus exudates which are rich in leucocytes contain more toxin than does a similar quantity of blood. That is to say, the leucocytes have the power of absorbing toxins, and the natural immunity of the animal depends on the degree to which this power is present. The immunity of the chicken to tetanus depends not on non-susceptible nerve cells nor on the presence of natural antitoxin, but on the absorbing power of the leucocytes for the toxin. Not only do leucocytes absorb toxins, but it is held that they also are the producers of antitoxins. As compared with the side-chain theory it is a peculiarity of the view of Metchnikoff that antitoxin does not represent a constituent of the tissue cells, but rather the toxin itself, which has been altered by leucocytic activity in a manner as yet obscure.

Natural Antitoxic Immunity.

In passive antitoxic immunity the idea of a chemical union between toxin and antitoxin does not meet with general acceptance among the upholders of the phagocytic theory. It is sometimes said that antitoxins are efficacious from the fact that they stimulate phagocytosis (absorption) of the toxin, the latter then suffering disintegration in the leucocytes.

Passive Antitoxic Immunity.

The following statements summarize the phagocytic theory of immunity as conceived by Metchnikoff:

Summary.

1. Natural antibacterial immunity depends on and is coextensive with phagocytosis and subsequent digestion of the microbes. The intraleucocytic destruction of the micro-organisms is accomplished by the cytase, possibly aided by intraleucocytic fixators. Normal serum is devoid of both fixators and cytase.

2. Acquired antibacterial immunity depends on the establishment of a heightened phagocytic power as the result of immunization or infection. In diseases like anthrax, in which fixators are not increased, this new power is an acquired property of the leucocytes and is independent of any influence on the part of the serum. In diseases like cholera, the new fixators which are formed may render the micro-organisms more susceptible to phagocytosis, but this is probably secondary to increased function on the part of the phagocytes. Both cytase and fixator are produced by the phagocytic cells. In acquired active immunity to bacteria the fixators may be free in the serum plasma, but the cytase is intracellular. In all cases cytase becomes extracellular only as the result of phagolysis.

3. In passive antibacterial immunity, as when an antibacterial serum is injected for the sake of prophylaxis or cure, the serum is efficacious chiefly because it stimulates the leucocytes to increased phagocytosis.

4. Natural antitoxic immunity depends on the power of the leucocytes, and perhaps the generative organs, to absorb the toxin.

5. Active antitoxin immunity is established through the activity of the leucocytes, by which the toxin is probably so changed as to constitute antitoxin.

6. In passive antitoxic immunity the antitoxin presumably acts by stimulating the phagocytes to an increased absorption of the toxin.

Many investigators are carrying on work in regard to phagocytosis and the properties of serums from a point of view which is entirely unbiased. From sources of this nature discoveries of recent date indicate that phagocytosis of micro-organisms by the leucocytes is impossible without the aid of some property in the serum. It seems that these substances, which the discoverers, Wright and Douglas, call opsonins, act directly on the bacteria, and that there is no reason to suppose that their virtue lies in a stimulation of the phagocytes themselves. The facts which permit of this deduction are the following: 1. When the fresh defibrinated blood of some animal is mixed with the culture of a suitable micro-organism (staphylococcus, streptococcus, anthrax bacillus, etc.) and placed in the thermostat for 20 to 30 minutes, stained preparations of the mixture show that the polymorphonuclear leucocytes contain a large number of the microbes. 2. If, however, all the serum is washed from the blood before adding the micro-organisms practically no bacteria are ingested. This shows the importance of the serum, but does not differentiate between some effect on the leucocytes on the one hand or the bacteria on the other. 3. In order to decide this point one may subject the suspension of bacteria to the action of fresh cell-free serum, and after a contact of about 30 minutes remove all the serum by centrifugation, and mix the "sensitized" culture with serum-free blood; phagocytosis occurs almost to the same degree as when the fresh defibrinated blood containing serum is used. These results seem to show definitely that phagocytosis depends on the power of the opsonins to affect the bacteria in some peculiar manner. Opsonins are very susceptible to heat, and, like complement, disappear spontaneously from the serum in a short time. Hektoen and Ruediger, and Bulloch and Atkin have confirmed the observations of Wright and Douglas and the former have added facts of importance. It seems that opsonin has a structure like that of toxin, i. e., a haptophorous and an opsoniferous group; "by heating sensitized bacteria the opsoniferous group appears to be destroyed, but the inactive opsonin (opsonoid) by saturating the receptors of the bacteria prevents further sensitization by fresh serum" (Hektoen and Ruediger). Various salt solutions neutralize the opsonins. Opsonins will be brought in still more important relationship to phagocytosis if it can be shown definitely that they are increased as the result of immunization or infection.

Opsonins.

(To be continued.)

Clinical Reports

RENAL CALCULUS.

UNUSUAL SIZE, VOLUNTARILY EXPELLED.

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Patient.—Mrs. A., aged 22, married, with one child 14 months old, is anemic, has had no illness since childhood, but suffers from dysmenorrhea, which she has had since the beginning of menstruation.

History of Illness.—The latter part of November, 1904, she had a severe attack of cramps, which lasted three or four days, the exact cause or nature of which was not determined. Two weeks previous to the present attack she had a similar attack, severe in character.

The present illness began suddenly Jan. 7, 1905, with a sharp, spasmodic, colicky pain in the right side, with nausea and vomiting. January 8, the pain became so excruciating that she fell in collapse. I found her in a condition of profound shock. She was pulseless at the wrist and the heart sounds were very indistinct; temperature, 95.8, skin moist with cold, clammy perspiration; semi-delirious. Three-quarters of a grain of morphin given hypodermically gave very little relief. She was removed to the hospital.

Examination.—January 9, examination revealed pronounced tympanitis, with tenderness on pressure on right side, extending from the margin of the rib to the right groin; the pain radiated from a point over the right kidney toward the bladder. The point of greatest tenderness and distension was in the region of the right kidney and of the gall bladder. The great distension of the abdomen and the severe pain made a thorough examination impossible. Pulse and temperature varied, with the movement of the stone and the severity of the pain.

Diagnosis.—Renal colic.

Course of the Disease.—The amount of urine passed was scant and concentrated. Examination, microscopically, showed no pus or blood but a great abundance of uric acid crystals. There was no albumin, but the urine solidified on making the nitric acid test. Nitrate of urea crystallized immediately on

coming in contact with nitric acid. Heat did not alter the urine.

On the third day, and on the days following, the bowels were abundantly moved; the pain became less excruciating and the tympanitis subsided entirely. Examination on the fifth day revealed a distended right kidney and ureter. The ureter was tender and distended from the kidney to a point on a direct line with the umbilicus; this condition was more marked on the sixth day. The distension of the ureter was above the calculus.

Up to the seventh day, the day of the passage of the stone, the amount of the twenty-four hours' urine was only from twenty-five to thirty-six ounces. Preliminary to operation on the afternoon of the seventh day, the bladder was thoroughly irrigated, and, a short time afterward, in passing the warm irrigation water, the calculus was voided in the vessel. The relaxing effect of the warm water no doubt released the stone from the ureter. The dimensions of the stone are: long circumference, ⅞ inch; short, ¾ inch; weight, 8 grains. With the passing of the calculus, the high temperature, severe pain and high pulse dropped below normal before morning.

The woman was discharged from the hospital three days after the expulsion of the stone.

Remarks.—The particular points of interest in this case are: 1. The low temperature and extreme shock. 2. The unusual size of the calculus to be voided voluntarily. 3. The stone after leaving the pelvis of the kidney completely obstructed the ureter; the accumulation of the urine above it gave a definite outline of the ureter and showed the approximate location of the stone. 4. The roughness of the stone and its large size did not produce hematuria. 5. Entire absence of pus. 6. The unusual feature of the almost complete crystallization of the urine in testing it with nitric acid.

I am indebted to Miss Ella Wilkinson, head nurse of St. Luke's Hospital, for reviewing this report.

EPILEPSY OF SYPHILITIC ORIGIN.*

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GALVESTON, TEXAS.

This patient was admitted to the nervous service of the John Sealy Hospital Dec. 28, 1904. The case presented a number of interesting features.

Patient.—J. S., male, white, widower, aged 35; is a dairyman and general laborer. He uses alcohol moderately, has no drug habits, but chews and smokes tobacco; his sanitary surroundings are fair; he takes plenty of time in eating and has a good appetie.

History.—His father and mother are living and in good health; one brother was poisoned, other brother and a sister are in good health, except that one of them has "liver trouble" of some kind. The patient has had measles and pneumonia. He says he received an injury over the right eye about five and a half years ago which "mashed in" the skull slightly. His physician called it a fracture of the skull. He had an attack of a similar nature to this one about three years ago, a second one a month later, and then a third attack about one year after the first. He has been well otherwise, and denies syphilis.

Present Disease.—The patient says that he was taken sick by suddenly fainting or losing consciousness, during which attacks he bit his tongue. He says that he regained consciousness in about two hours after each attack begun.

Examination.—He is a large, muscular man, with fair complexion, red hair and scanty beard, slightly pale, but very well nourished. His expression is dull and listless, and he sits for a long time without saying a word. There is a linear scar over the right eye, about 4 or 5 cm. long, running into the eyebrow, and said to have been received from a blow on the head. Arteries are sclerosed, heart, lungs and abdominal organs are apparently normal; tibia is slightly roughened, and the supratrochlear, cervical and inguinal glands are easily felt. Pricking with a pin showed blunted sensation, but no areas of anesthesia. Patellar reflexes were diminished. Pupils reacted to light and distance. Gait is normal. Grip in both hands is weak.

Treatment.—A diagnosis of epilepsy of a grand mal type was made, and, owing to the slight roughening of tibia, he was put on saturated solution of potassium iodid, m. xv, three times a day, the dose to be increased 1 minim daily.

Course of the Disease.—January 5 he had an attack, but no note of its character was made.

January 6: The following note was made: Patient complains of great headache and sleeplessness; convulsions come on at irregular intervals. He says that he begins to feel dull about the head a short time before convulsion. He is very dull, taking but little interest in what is going on in the ward. Patellar reflexes are increased. Pupils react to light and distance. He stands poorly, and the grip in both hands is weak; his intelligence is poor, and he answers slowly. He recognizes position of limbs and body in space, but is slow to feel pricks of pins. There are no areas of anesthesia or of hyperesthesia. There is no paralysis.

January 9: The patient had seven severe attacks that were recorded. These continued during January 10, being partly controlled by chloroform and amyl nitrite.

January 11: The nurse recorded fifteen attacks from 4 a. m. to 7 a. m., and the following note was made: Patient is having very hard convulsions, somewhat Jacksonian in type, though there is no constancy of onset. Convulsions come on in right side of face and pass to right arm, left arm, whole face and lower jaw and then to legs and entire body. Eyes are directed to the right, axis parallel. Spasms are both clonic and tonic in character; they begin as tonic spasms as a rule.

The convulsions continued to grow more frequent and severe notwithstanding administration of the bromids and chloral and occasionally morphia and antipyrin. Chloroform was used to modify the convulsions. Owing to the comatose condition of the patient it became necessary to feed him through the nostril by tube.

Drs. Thompson and Dudgeon were consulted with reference to operative interference, but it was decided that the symptoms were too indefinite, though there was a history of an injury.

January 12: The patient had a severe convulsion at 2 p. m. He recovered consciousness about 4 p. m. and has not had a convulsion since. On this day, he was put on 1/10 grain doses of bichlorid of mercury by hypodermic injection, and his improvement continued very rapidly to complete recovery.

Remarks.—Syphilitic epilepsy was suspected on account of the age of onset. Practically all authorities agree that epilepsy coming on during adult life, unless directly traceable to injury, should be regarded as syphilitic in character.

There is nothing distinctive about this form of epilepsy though Charcot claims that the jactitations of syphilitic epilepsy are of a peculiar character, viz., if the convulsions begin in the upper extremity, the lower is attacked only after the face. If the face is attacked, the convulsions spread to the upper and then to the lower extremity, and if they begin in the lower, they attack the upper extremity and then the face. The convulsions never occur in the order of leg, face and arm, or arm, leg and face.

It was observed in this case that the movements began in the face, next involving the upper extremities, and then the legs, finally taking the whole body. The injury received was over the right eye, while the apparent focus was on the left side. A lack of regularity in the mode of onset also led us to suspect syphilis as the cause.

The improvement on anti-syphilitic remedies fully justified the diagnosis of syphilis as the cause of the epileptic attacks.

*Reported to the University of Texas Medical Club, 1905.

Black Urine.—The *Medical Council* states that melanuria often occurs after eating damson plums. When the patient is taking ferric chlorid or nitric acid, the urine may turn black after it cools.

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THE CHRONIC FORMS OF PURPURA HEMORRHAGICA.

Purpura hemorrhagica appears so generally as an acute affection, and the chronic forms are so seldom mentioned in medical literature, that we are apt to regard them as being exceedingly rare. In the most recent text-books even, the chronic forms are barely mentioned, and for extended descriptions it is necessary to consult articles in medical journals. The recent work of the French school, if we are to judge from the article of Bensaude and Rivet,[1] tends to show that the affection is far from being a complete rarity, but has been overlooked or confounded with hemophilia.

The condition is found clinically under two forms, a continuous and an intermittent. The continuous form is the rarer of the two. The subjects of this variety generally consult the physician for general weakness with gastric and intestinal disorders, and the skin lesions are often considered of minor importance, and are discovered as the result of routine examination. The patients usually give a history of having been subject for years to attacks of nosebleed or hemorrhage from the gums. Continuous observation of the patients shows that for months or years they present petechial eruptions appearing in crops and disappearing spontaneously. The severe hemorrhagic crises of acute purpura hemorrhagica are entirely lacking. The intermittent form is more common. In these cases, there is a history of crops of purpura recurring at intervals of months or even years. These attacks are quite severe and resemble closely the ordinary picture of Werlhof's disease. Between the attacks of skin eruption it is not uncommon for the patient to suffer from nosebleed or gingival hemorrhages. There is often a history of perfect health between the purpuric attacks, and it is only by questioning that one finds that nosebleed, menorrhagia, or bruising from insignificant traumata have occurred in the seemingly normal intervals. In other cases, the general health between the attacks is more or less disturbed; the patient feels weak, there is a certain degree of anemia, or the digestion is feeble and accompanied by more or less pain. In some cases, there seems to be an alternation between visceral and skin hemorrhages, the latter disappearing on the advent of visceral bleeding. The free intervals vary greatly in different cases, and a period as long as seventeen years may elapse between two purpuric attacks. It is difficult on account of the long remissions to state absolutely whether a given patient is well or not, and it is known that in some instances the disease has resulted fatally.

The diagnosis of these cases is often far from easy, especially when they are observed for short periods only. During the intervals, when local hemorrhages, as nosebleed or menorrhagia, are present it is natural to conclude that the hemorrhage is due to some local condition, and during the purpuric attack the case is apt to be regarded as one of the ordinary type of Werlhof's disease. When profuse hemorrhages occur, a diagnosis of hemophilia is often made. Chronic purpura hemorrhagica differs from this latter condition in the fact that it is not hereditary, and also in the fact that the blood coagulates more rapidly than normally under the influence of heat, and once coagulated, the normal retraction of the clot occurs.

It is difficult to explain this peculiar intermittency in the hemorrhagic tendency. The knowledge that hemorrhages accompany some disturbance in hepatic function has led to the examination of the liver in these cases for signs of hepatic insufficiency. Examination of a number of these cases for such signs, however, has been without result. The resemblance to hemorrhagic sepsis has led to bacteriologic researches, but, so far, these also have been fruitless. One form of infection has been associated with these cases not infrequently. and that is tuberculosis. It has been suggested that possibly the recurrent attacks of purpura may be associated with recurrent invasions of the body by tubercle bacilli from some usually latent hidden focus of the disease. While this may be true in some instances, and the coincidence seems worthy of attention, it seems more likely that we are dealing with an intermittent intestinal toxemia. The resemblance of this disease to scurvy, and the more marked resemblance to Henoch's purpura, and to the group of cases classed by Osler under the erythema exudativum type, together with the almost constant presence of gastrointestinal disturbances, make this seem likely. The condition is one which has so far remained unnoted in this country; it seems likely that it occurs here, and a further investigation of these interesting cases would be desirable.

1. Arch. Gén. de Méd., 1905, No. 4.

HISTORY OF THE MEDICAL DEPARTMENT OF TRANSYLVANIA UNIVERSITY.

It is of interest and of profit, in these rushing times, occasionally to pause for a survey of past events and to note how institutions and men, once prominent, fade into the indistinct and well-nigh forgotten past. The "History of the Medical Department of Transylvania University,"[1] just published, gives, for the first time, a complete sketch of one of the most interesting medical

1. The History of the Medical Department of Transylvania University. By. Dr. R. Peter. Prepared for publication by his daughter, Miss Johanna Peter, member of the Filson Club. Illustrated. Filson Club Publications No. 20. Paper. Pp. 193. Louisville, Ky.; John P. Morton & Co. 1905.

institutions in America, of which now not even the name remains. Born of the growing demand for learning in the Trans-Allegheny region and fostered by the difficulties of travel across the mountains, the little school at Lexington grew with phenomenal rapidity to a position second to none in the United States. In the thirty-nine years of its active life (1817-1857) there were 6,456 students enrolled and not less than 1,881 graduated from this, the first medical school founded in the West. The author, Dr. Peter, was for many years a member of the faculty of this remarkable institution and long survived its dissolution. In the biographical studies of his colleagues he gives an account of the rise, phenomenal growth, decline and final disruption of an institution which exercised a powerful, though transient, influence in the middle period of the Nineteenth Century.

From the long list of names we can pick out several of the ablest writers and teachers our country has produced. Samuel Brown, Edinburgh graduate and first professor of medicine, introduced vaccination into the West, and as early as 1802, when the eastern men were beginning their first experiments, had vaccinated over 500 persons with the bovine virus. Benjamin Dudley, thoroughly trained in France and England, was in the chair of surgery from the opening until 1850, when he retired full of honors to live for twenty years in peace and comfort on his beautiful estate. Dudley, while erratic in some particulars, was one of the famous surgeons of his day. Careful, conservative and eminently successful, he drew patients and students from the whole Mississippi Valley.

The bright, particular stars of this galaxy, however, were Daniel Drake and Elisha Bartlett, who held the chair of medicine in turn, though separated by a period of years in their incumbency. Drake was an enthusiastic investigator and the most popular teacher of his time; a restless spirit, he wandered all over the country, having held professorships in eleven different schools. The journals of the period are filled with his writings, and he has left as his monument one of the most important contributions ever made by an American to medicine, namely, his "Treatise on the Principal Diseases of the Interior Valley of America." Elisha Bartlett, scholar, poet, philosopher, as well as student and teacher of medicine, was connected with Transylvania during some of his best and most productive years. It was while in Lexington that he produced the work on which his fame as a medical writer principally rests. His "Fevers," published in 1842, contains a description of typhoid which is classic. With his lovable nature and his literary productions, the tributes of Holmes, Gross and Osler have made us familiar. Among others less eminent Charles Caldwell is the most striking figure. Intensely fond of polemics, his caustic tongue made him many enemies, and his "Autobiography," published after his death, is one of the most vitriolic works of the kind ever written. It is said of this book that "he used no ink, but dipped his pen alternately in wormwood and in gall."

A reversal of the economic conditions which had contributed to the founding and growth of Transylvania brought about its decline. With the development of steam navigation on the rivers, the population drifted rapidly from the interior towns to St. Louis, Cincinnati and other cities, so that in 1856 the last course of lectures was given and the famous and influential school at Lexington was closed never to be reopened.

The profession at large is indebted to the memory of Dr. Peter for the preservation of this very interesting chapter in the history of American medicine and to the Filson Club for making it available to the general reader.

EARLY DIAGNOSIS OF TUBERCULOSIS.

The one persistent note in the important addresses at the recent meeting[1] of the National Association for the Study and Prevention of Tuberculosis, in Washington, was the necessity, in the crusade against tuberculosis, for education—education not only for the public, but also for the medical profession. It was with regard to the early diagnosis of tuberculosis particularly that such authorities as Trudeau and Osler emphasized the necessity for progress among medical practitioners. The points in early diagnosis that were deemed of special importance can not but be of interest to all who recognize the value of the present movement for the eradication of the great white plague of the North. There is no one pathognomonic sign of incipient tuberculosis and no constant set of symptoms that can be depended on absolutely as indicating the presence of the disease in an early stage. The one thing necessary is for the careful practitioner to consider a number of symptoms and to recognize that the presence of even a few of them in the same individual must be considered as evidence of the existence of tuberculosis. Many of these early symptoms are, in themselves, of such slight significance that only careful attention will lead to their recognition and to the realization of their possible importance.

As pointed out in the report[2] of the committee on early diagnosis of tuberculosis, and in the discussion which followed the presentation of this report, it is in individuals of special physical constitution that tuberculosis is most likely to occur. In those who are under weight and who are lacking in normal thoracic development and in respiratory power, the presence of any suspicious symptom must be considered of significance. If such individuals have been exposed to possible contagion from tuberculosis and if they exhibit even such slight signs as beginning loss of weight with persistent dry cough, even without the presence of tubercle bacilli in the sputum, it is extremely rash to make a negative diagnosis as to tuberculosis. Patients of this kind must

1. THE JOURNAL, May 27, p. 1706; June 3, p. 1804, and June 10, p. 1874.
2. THE JOURNAL, June, 10, p. 1874.

be kept under observation until they have regained their normal weight and have lost their cough before their cases can be considered to be above suspicion. It is much better for them to have been treated, perhaps needlessly, for tuberculosis than to have been told that they were not suffering from the disease because there were no absolute pathognomonic signs, and so, perhaps, lose precious time just when it is most valuable.

It is sometimes said that disturbance of pulse and temperature must be considered as necessary for the diagnosis of an active tuberculous process. In many patients, however, it will be found that the pulse shows this disturbance only after exercise and that the temperature is elevated only at times when the patient is tired or at such periods of physical stress as during menstruation. It is considered important that advantage should be taken of times like these in order to determine how susceptible to changes of pulse and temperature the patient may be, and thus deduce the presence of some infectious element causing an instability of these usually well-balanced functions.

With regard to physical signs in the lungs, the report of the committee emphasized particularly the fact that râles may be heard with much more certainty at certain times than at others. In the early morning, râles are much more likely to be present than in the afternoon. They may be heard quite easily on damp days and yet looked for in vain on dry days. They may be heard when the patient is tired, much better, as a rule, than when he feels well. In the case of women, râles are much more likely to be present and audible during the menstrual period than at any other time. It is the knowledge of such aids to diagnosis that enables the expert to recognize the disease at a much earlier period than is possible for those who consider that a single hurried examination enables them to tell something definite with regard to the existence of incipient tuberculosis.

All the experts are agreed on the danger that inevitably follows from negative diagnoses of tuberculosis made after insufficient examination. Patients are encouraged to continue their usual mode of life when they should be taking the outdoor air and diet treatment as conscientiously as possible. More than one experienced diagnostician insisted that a single examination of the lungs in a suspicious case is never sufficient ground for a negative diagnosis and that the making of it under such circumstances invites error. Indeed, so difficult to those with most experience is the diagnosis of incipient tuberculosis in very early cases that practically all those who see many tuberculous patients at sanitariums are agreed that tuberculin constitutes a very valuable agent in making a sufficiently early diagnosis, and that in some cases a positive diagnosis can only be reached by this means. In a word, the more knowledge of the disease there is the less the assurance in reaching conclusions in early cases. While unfortunately the reassurance of the patient by a negative diagnosis seems to the inexpert almost to justify immediate decision, the serious consequences of error must emphasize the necessity for the most careful investigation of each individual case.

THE TREATMENT OF TETANUS.

So far as can be learned from the incomplete statistics available, tetanus following Fourth of July injuries is particularly virulent. The period of incubation is usually short, the attack violent, and the rate of mortality seems to be not far from 95 per cent., while the usual rate for traumatic tetanus is probably about 80 per cent. This great virulence is due apparently to the unusually favorable conditions furnished in the lacerated, necrotic, air-tight wound produced by blank cartridges, which give the bacilli the best possible opportunity for rapid and unrestricted growth, with the production of corresponding amounts of toxin. In each of the last two epidemics, the percentage of mortality has been about the same and far too high to indicate any substantial results from the treatment used. Unfortunately the more modern methods of treatment seem to have been seldom tried, the usual routine of sedatives and the subcutaneous injection of antitoxin having been generally followed. The sad inefficiency of antitoxin when so used has led to many researches, both experimental and clinical, to secure some better method of administering it, for there is no doubt that tetanus antitoxin will neutralize tetanus toxin with which it comes in contact; therefore, the problem is to bring about this contact rapidly and abundantly, and particularly where it is most needed; that is, within the motor nerve cells of the spinal cord. As an outcome of this work certain results have been obtained that have led to a method of administration of tetanus antitoxin which seems, so far, to have had a better success than any other yet used. This may be called the combined intraneural and intraspinal antitoxic treatment. A year ago, in a special article,[1] we discussed the physiologic considerations on which it is based, and the encouraging results obtained up to that time. Since then a number of new cases have been reported with very favorable results, which indicate that through this method we can hope for, at least, some lowering of the mortality figures below the almost hope-destroying point at which they now stand.

In practice the method is as follows: The patient is anesthetized, preferably with chloroform, and an incision is made over the site of the large nerve trunks leading to the injured part, if the wound is in an extremity, as is nearly always the case. The nerves being isolated and exposed for a distance of from one to two inches, as much tetanus antitoxin as possible is injected into the substance of the nerve trunk through a fine hypodermic needle—generally from 2 to 4 c.c., in the case of a large trunk; a slight injury of the nerve fibers is rather to be desired than otherwise, as the object of the procedure is to get the antitoxin into the motor nerve fibers, along

1. THE JOURNAL, June 18, 1904, p. 1621.

which it seems to be transported into the cord. A lumbar puncture should then be made, and, after withdrawal of as much cerebrospinal fluid as is safe, generally as much as will readily flow out of the needle, for it seems to contain much toxin, from 3 to 10 c.c. of antitoxin is injected into the spinal canal, depending on the age of the patient. In addition to this, it is well to inject an additional 10 to 20 c.c. of antitoxin subcutaneously, preferably near the wound or in territory supplied by nerves from the same section of the cord as the injured part. There need be no fear of giving too much antitoxin—patients have received hundreds of cubic centimeters without showing untoward effects beyond an occasional dermatitis. Schley[2] has suggested that to facilitate reinjection the wounds made in isolating the nerves be left packed lightly with gauze strips saturated with antitoxin, which is kept from escaping into the dressing by means of rubber protective. While the patient is still under the anesthetic the wound is, of course, to be thoroughly and vigorously cleaned. Tetanus-infected wounds are to be kept open to heal from the bottom, and so dressed that air may reach them after diffusing through the dressings. The injection of serum into the spinal canal, which should always be preceded by withdrawal of a few cubic centimeters of fluid, may be repeated as often as every six to twelve hours during the first forty-eight hours, and the intraneural injections should be repeated at least once again after twelve or more hours, as also should the subcutaneous injections. Administration of chloroform for the purpose of making these frequent injections has a decidedly beneficial effect, not only affording the patient a rest from the spasms, but also lessening their violence and frequency for some time afterward.

Tetanus antitoxin, at the best, does not produce effects rapidly, and the symptomatic treatment of each case is not altered in the least by its use. The spasms must be kept down, if possible, to prevent death from exhaustion or asphyxia. In addition to the usual use of chloral and morphin as sedatives, more vigorous measures may well be taken. When the violence of the spasms threatens asphyxia, chloroform is always indicated. Intraspinal injection of eucain and morphin, as advocated by Murphy,[3] is a highly rational procedure and may be performed at the same time as the antitoxin injection without complicating the treatment. Curare, first suggested by Claude Bernard, has been used successfully both experimentally and practically in von Leyden's clinic[4] and is the most powerful of all agents in controlling the spasms, although without influence on the course of the disease. S. A. Mathews has suggested the intravenous injection of a calcium containing salt solution, the formula of which has been published in THE JOURNAL,[5] which also has the effect of reducing the muscular spasm as well as improving elimination. This is especially to be urged as a method always available to practitioners who are so situated as to be unable to secure antitoxin promptly.

Tetanus is fortunately so uncommon a disease that no one person is able to acquire an extended experience with its course and treatment; hence, we must rely on what can be learned by compiling and studying the reports of as many isolated cases as possible. By this means has been reached the conclusion that the treatment of tetanus by subcutaneous injection of antitoxin adds a slight improvement to the usual sedative measures, but by no means enough to warrant us in resting content with its results.

Of the various other methods suggested, the combined intraneural and intraspinal injections have, so far, furnished the best results, and this method is based on the soundest experimental and clinical basis, for which reasons we have ventured to urge its application in all cases of tetanus. It is extremely important that case records of tetanus patients, whether recovering or not, be reported, in order to add to our scanty information on the subject, and especially so when a new method of treatment is tried. Only by collecting many such scattered reports can a basis for future improvement be obtained.

2. Med. Rec., Oct. 15, 1904.
3. THE JOURNAL, Aug. 13, 1904.
4. Therapie der Gegenwart, vol. xlv, No. 9.
5. THE JOURNAL, Aug. 29, 1903, p. 565.

AMENORRHEA AND SYSTEMIC DISEASE.

It is usually considered that amenorrhea, especially if it asserts itself after menstruation has once been thoroughly established, is due to some affection of the genital tract. As a matter of fact, however, the cessation is more likely to be the consequence of some systemic disease. The cessation of the menses in young women may be the first signs of tuberculosis, when there is otherwise little general disturbance of the health. As a matter of fact, menstruation and the menstrual period in women present conditions, modifications of which in various ways point more often to an active tuberculous process in the system than almost any other set of symptoms. Recently it has been noted that chlorosis is reported much less frequently than used to be the case, and there would seem to be a lessening of the prevalence of this blood affection in America. It has been suggested, however, that the apparent diminution of chlorosis is really due to the earlier recognition of tuberculosis than formerly. The two affections present a similar blood picture at the beginning, and the treatment—fresh air and abundant diet, with care of the bowels—is the same for both. It is more favorable to find tuberculosis present than severe chlorosis, since genuine cases of chlorosis are likely to be associated with defects in the blood-making organs, or with abnormally small size of the heart and arteries, conditions which are hopeless of treatment.

Certain nutritional disturbances consequent on a marked change in the habits of life of the individual are often followed by a cessation of the menses. This is especially true when young women move from the country

into the city, and as a consequence have much less outdoor air than before, and usually, also, much less nutritious food. Most immigrants present a period during the first year of their sojourn in America during which their menses are irregular, if not entirely absent. This, too, would seem to be a result of the disturbance of the blood-making function, consequent on a lessened amount of fresh air. Sir Andrew Clarke used to insist, however, that chlorotic conditions, associated with amenorrhea, are more often the result of chronic constipation or of insufficient evacuation of the bowels—two quite distinct conditions—than of any other single cause. Certain it is that most of the country girls who come to the city, as well as most of the foreigners who come to this country, are apt to suffer for a time from irregularity of the bowels, and treatment of this symptom does more to bring about a return to their normal condition than any more direct remedial measures that may be considered indicated for the menstrual disturbance.

In quite recent years it has come to be realized that many of the serious nervous affections have amenorrhea as one of their preliminary or very early symptoms. This is especially true of affections of the ductless glands. When there is lack of the thyroid substance in the system, as occurs during myxedema, amenorrhea is almost the rule. In a few cases of exophthalmic goiter associated with a distinct tendency to obesity during the years between fifteen and twenty, menstruation is often scanty or is absent entirely. As a rule, during exophthalmic goiter, however, there is an increase of the menstrual flow. It is said that the cases marked by amenorrhea are usually amenable to treatment by thyroid extract. The first symptom of Addison's disease in young women is likely to be a suppression of menstruation. The lowered blood pressure consequent on the absence of the internal secretion of the suprarenal bodies somehow affects the function of the uterine mucosa so as to prevent the usual hemorrhagic exudation.

The disturbance of the function of the pituitary body associated with the enlargement of the face and the extremities, that eventually gives the clinical picture of acromegaly, is likely to have as one of its first symptoms the absence of menstruation. This occurs at a time when there are but very few signs of the disease that is developing. A certain amount of coarsening of the features may have been noticed, but even friends are not likely to consider this as evidence of a pathologic condition. Sometimes the menses are absent for several months before any pathognomonic signs of the serious nervous disease that is at work can be recognized. Amenorrhea associated with very severe headaches for which treatment is of little avail, especially if there is also some disturbance of vision, or if there is vomiting, without cause, must be considered suspicious, and if the features of the patient are heavier than normal, then the development of a tumor of the hypophysis must be considered as one of the possibilities in the case.

INNOVATION IN MEDICAL SOCIETY WORK.

The American Gynecological Society, at its recent meeting, introduced an innovation which is worthy of adoption by other societies. Authors were allowed to read only full abstracts of their papers, limited to twelve to fifteen minutes, according to the nature of the subjects discussed, although the complete papers, which, in some instances, were twice as long as the abstracts, were handed to the secretary for publication in full in the annual volume of transactions. Such a reading inaugurated each discussion, and the member whose ideas were thus succinctly set before his associates took part in the discussion and closed it. By this method the ideas of the individual members were more intelligently presented than if they had read their complete papers. The time of the society is economized, full debate is encouraged, and at the same time the members have the advantage of publishing their contributions to the world in which their points are set forth to the fullest length and without time limitation. The discussions elicited by this method were not only pointed and spirited, but singularly interesting and instructive. With the inauguration of this plan, it was evident that the patience of the members was not taxed beyond the point of endurance, as is frequently the case, in listening to long, tedious introductories, statistical data, and exhaustive recitals of the work of others. On the contrary, the curtailed contributions were listened to with marked attention. The salient points in them were set forth clearly, and in no instance was clearness of expression sacrificed for the sake of brevity.

PURE VACCINE.

Dr. Anderson's article in this issue reports a very satisfactory state of affairs as regards the purity of vaccine material in this country. While the federal government can not constitutionally exercise any control over local municipal laboratories such as exist in some large cities, the benefits of its supervision in the management of the private firms engaged in the manufacture of vaccine and other organic therapeutic agents is very obvious. We would not wish to be understood as inferring that manufacturers would intentionally send out dangerous serums, etc., but the fact that one or two have been obliged to retire from business in this line shows what was needed in the way of government inspection. At present, it appears that the business is in good hands, yet the fact that with one exception there has been an improvement in the product since the inauguration of the government inspection is sufficiently significant. The public can rest easy in regard to the purity of its vaccine matter at the present time.

SANITATION AT THE ISTHMUS.

Colonel W. C. Gorgas, Chief Sanitary Officer, Isthmian Canal Zone, in *Harper's Weekly,* May 27, writes entertainingly of the sanitary work accomplished at the isthmus and of the plans for the future. The article is admirably adapted to its purpose of interesting the public in the methods of the modern educated sanitarian, but it contains many points of interest to physicians.

Colonel Gorgas compares the death rate and morbidity rate of the first year of American occupation with what is known regarding the first year of French work on the canal. He estimates (exact figures not yet being available) that the mortality during the last year has been 14.66 per 1000, while the French reported 67 per 1000 after excluding deaths occurring out of the hospitals. He describes the measures which have been adopted and which have resulted in the disappearance of yellow fever from the city of Panama; the paving and cleaning of the streets, the collection of garbage, the ditching and oiling of swampy ground in order to destroy mosquitoes, the covering of all fresh-water receptacles, and the fumigation of every house in the city to kill the infected mosquitoes. Similar work has been done along the line of the Panama Railroad. There is a quarantine system and an immigration bureau. In connection with the hospital work, there is a laboratory for the investigation of diseases, and, in all, the sanitary work furnishes employment for a thousand men. During the next year the city of Panama will receive good water and sewerage systems, and the city of Colon will be filled in with dredged material until it is raised from 12 to 15 feet above water level. In closing, Dr. Gorgas asserts that "it is not a very difficult thing to keep yellow fever out," and notes that Havana—treated in a similar way—has been free from yellow fever since 1901. He believes that we shall attain an equally good result on the isthmus. The whole article, while tentative, preliminary and popular, is hopeful and confident. The medical profession is given every reason to hope that in a short but sufficient period American medical science will achieve a similar triumph to that already won in Cuba. Until sanitary measures are perfected some ill conditions are to be anticipated, but we need not be influenced by the gloomy forebodings given to the newspapers by disappointed adventurers now returning from the isthmus.

THE UNTOWARD SYMPTOMS INCIDENT TO THE USE OF ANTITOXIN.

Nearly every one, at one time or another, has met with untoward symptoms following the use of antitoxin. As a rule, these symptoms appear in the form of more or less distressing urticarias, myalgias, arthralgias and erythemas, but occasionally there may be seen marked cyanosis, syncope and collapse. None of these cases seems to have had a fatal outcome, but the symptoms may be extremely alarming, and we may well ask what is their underlying cause. We know that the repeated injection of serum from one animal into an animal of a different species gives rise to the formation of precipitins in the serum of the injected animal. That is, if the clear serum of the injected animal is mixed with a small quantity of serum coming from an animal of the same species as that which furnished the serum for injection, the resultant mixture soon becomes turbid owing to the formation of a precipitate. It has been noticed that the untoward symptoms following the use of antitoxin frequently increase in severity with the increase in the number of injections. This fact gave rise to the suspicion that these symptoms may be dependent on the formation of precipitins in the serum of the patient. The supporters of this theory believe that the reaction between the horse serum and the patient's serum gives rise to the formation of emboli which occlude the finer capillaries and thus produce the accidents incident to the use of these sera. The researches of Hamburger and Moro, Arthus, Francioni, Rovere and others point toward the correctness of this theory. Hamburger and Moro were among the first who showed that a precipitate is formed, *in vitro,* when antitoxin is mixed with the serum furnished by a patient who has had urticaria or other symptoms due to the injection of antitoxin. In one case, for instance, they obtained no reaction with the serum taken on the third day after the injection of antitoxin. On the fourteenth day the patient developed a severe urticaria and for forty-eight hours after the appearance of this eruption the patient's serum gave a distinct precipitate with horse serum. Francioni found that the accidents following the use of antitoxin are always accompanied by the formation of precipitins in the patient's serum, but the latter may be present in small amount without producing symptoms. Arthus showed that although horse serum is not toxic for rabbits, repeated subcutaneous injections produce local disturbances of gradually increasing severity. After the first few injections, all further injections produced marked swelling and localized gangrene. Rovere[1] has recently taken up this problem and came to the same conclusions as the earlier investigators. He studied twenty cases and got a positive reaction in three. These three patients had developed an extensive urticaria and were the only ones in his series that had distressing symptoms. Three patients whose serum gave negative results had a very slight urticaria, and Rovere believes that here, too, the precipitins may have been present, but in too small amounts to be detected. In one of the patients who developed an extensive urticaria and in whose serum precipitins were demonstrated, a marked local reaction was noticed. Two subsequent injections into this patient gave rise to a more severe local reaction than the first. This would seem to corroborate Arthus' work on rabbits. It would seem from these experiments that the accidents following the use of antitoxin are in some way associated with the formation of precipitins in the serum of the patient. It must be mentioned, however, that this explanation makes it difficult to understand why these symptoms, if due to embolism, are of such an evanescent nature.

Medical News

ILLINOIS.

Trolley Day Successful.—Hospital trolley day at Galesburg, when the street car receipts were turned over to the hospital fund, netted nearly $1,200 to the institution.

To Save Babies.—The State Board of Health has issued a circular for the guidance of mothers, instructing them as to the best methods of feeding and caring for infants, and giving simple and explicit directions as to the methods to be adopted during the summer months which are so full of peril to infant life.

Nurses' Bill Vetoed.—Governor Deneen has vetoed the bill for an act to establish a state board of examiners of regis-

1. Arch. Gén. de Méd., Feb. 7, 1905.

tered nurses. An analysis of the veto shows that the bill conferred special privileges on graduates of certain training schools, and that hardships were imposed on many well qualified and experienced nurses now in practice.

Personal.—Dr. Frank H. Norbury, Jacksonville, has been elected professor of nervous and mental diseases in Keokuk Medical College.——Dr. H. H. Fletcher, North Henderson, who is now in London, will sail for home June 16.——Dr. Edwin M. Minnick, Bradford, returned from Vienna May 20.——Dr. John C. Corbas, Jr., has been appointed local surgeon at Mendota for the C., M. & St. P. Ry.——Dr. John A. Davis, Farmer City, tripped over a low wire fence June 1 and fell, breaking an arm and dislocating a wrist.

Chicago.

Personal.—Dr. Casey A. Wood sailed for Europe June 9 from Montreal on the *Victorian*.——Dr. Frank E. Pierce has been appointed surgeon of the Indiana Harbor Railroad Company.

Concerts for Charity.—On June 3 Creatore's band gave a concert in behalf of the new Columbus Hospital. The receipts exceeded $3,000.——An entertainment given May 28 for the benefit of St. Mary of Nazareth Hospital netted about $2,500 for the institution.

The Week's Deaths.—The total deaths from all causes for the week ended June 3 were 467, equivalent to an annual death rate of 12.22 per 1,000. Heart diseases led the chief death causes with 59, followed by pneumonia with 49, consumption with 47, and violence with 45.

Physicians' Club Annual.—At the annual meeting of the Physicians' Club of Chicago, May 23, it was announced that the membership list was full and that there were several on the waiting list. Dr. Charles Louis Mix was elected secretary, and Drs. Clarence A. Earle, Desplaines, and Henry F. Lewis and Arthur M. Corwin, were elected directors. It was decided to continue the policy of holding irregular meetings.

State University Commencement.—The twenty-third annual commencement exercises of the College of Physicians and Surgeons, the College of Medicine of the University of Illinois, were held June 6. A class of 213 was graduated, and 13 of the class were women. Four of these appear on the honor list. Rev. William A. Quayle delivered the doctorate address, and Prof. T. J. Burrill, vice-president of the University of Illinois, conferred the degrees.

May Mortality.—During May 2,180 deaths were reported, equivalent to annual death rate of 12.88 per 1,000. There were 105 fewer deaths than in May, 1904—representing a decrease of 5.2 per cent. in the annual death rate. Among the causes showing increase over May, 1904, are: Acute intestinal diseases, 7; bronchitis, 6; cancer, 4; convulsions, 8; heart disease, 50; measles, 32; nervous diseases, 29; smallpox, 6; suicide, 15; violence other than suicide, 23; whooping cough, 57. Among those showing decreases are: Apoplexy, 16; Bright's disease, 29; consumption, 19; diphtheria, 10; pneumonia, 146; scarlet fever, 8; typhoid fever, 8. Pneumonia, consumption, heart diseases and violence, in the order named, headed the list of death causes.

MARYLAND.

Baltimore.

Women Graduate.—The commencement exercises of the Woman's Medical College were held May 31. Two graduates received diplomas from Dr. J. H. Mason Knox, president of the faculty.

Personal.—Dr. S. M. Stratton, professor of experimental psychology at Johns Hopkins University, has gone to Connecticut for the summer.——Drs. Jacob H. Hartman and John N. Mackenzie are at Atlantic City.——Dr. Daniel Dunott will be resident physician at Deer Park, Md., this summer.——Dr. Melville T. Carter has returned from a health trip to Mexico. ——Dr. H. Warren Buckler will spend the early summer at Cedarhurst, L. I., and will go later to White Sulphur Springs, Va.——Dr. John Turner has been elected a member of the National Geographic Society, Washington.

Report of Hospital for Crippled Children.—The biennial report of the Hospital for the Relief of Crippled and Deformed Children shows that 1,552 patients were treated, of whom 702 were cured, 683 improved, 59 unimproved, 81 lost sight of, and 27 died. There were 2,438 free cases treated in the dispensary. For 1904 the average daily number of children treated was 44. The present indebtedness is $5,000. The hospital accommodates 60 patients (six beds being for colored children). The state gives $5,000 and the city supports 23 beds at 50 cents a day each. Four beds are endowed in perpetuity and seven annually. The summer hospital in the Blue Ridge Mountains will open June 15.

MASSACHUSETTS.

State Board Election.—The Massachusetts State Board of Health has re-elected Dr. Henry P. Walcott, Boston, chairman, and Dr. Charles Harrington, Boston, secretary.

Diphtheria.—While Boston has been singularly free from diphtheria, two weeks having passed recently with no deaths reported from that disease, Barre and Quincy have each been obliged to close school buildings in an effort to check rising epidemics.

To Investigate Nuisance.—On petition of the mayors of Chelsea and Somerville, the State Board of Health has appointed a committee consisting of Drs. Henry C. Walcott, Boston; Hiram F. Mills, Lowell; Julian A. Mead, Watertown, and John W. Bartol, Boston, to investigate the problem of the foul odors originating in the New England Gas and Coke Works in Everett.

Appointments of Medical Examiners.—Governor Douglas has made the following appointments: Dr. Silas D. Presbrey, Taunton, Bristol County; Dr. Joseph G. Pinkham, Lynn, Essex County; Dr. Francis J. Canedy, Shelburne Falls, Franklin County; Dr. William G. Kimball, Huntington, Hampshire County; Dr. Francis A. Harris, Boston, Suffolk County; Dr. Henry R. Hitchcock Hyde Park, associate examiner of Norfolk County, and Dr. George F. Thompson, Belchertown, associate examiner of Hampshire County.

Government Hits Quacks.—Medical quacks who have flourished in Boston have been hard hit by the postoffice department. In the last six months about 50 have been suppressed. The latest ones are Dr. Joseph Grady, the Dr. Collins Medical Institute, the Dr. Herrick Medical Company and Dr. L. B. Williams. The last two are said to have large branches in other cities east and west. Their mail is intercepted, stamped "fraud," and, if possible, returned to the sendees. Payment of money orders is refused and mail, where senders are unknown, goes to the dead letter office. Some of these concerns are said to be taking in $2,000 a week.

MICHIGAN.

Sanitarium Burned.—The Grand Rapids Sanitarium was destroyed by fire May 15. All the patients were removed. The property loss is estimated at $15,000.

Commencement.—Michigan College of Medicine and Surgery, Detroit, graduated a class of 24, May 19. Prof. William A. Hackett delivered the doctorate address, and Dr. Hal C. Wyman, dean of the faculty, administered the Hippocratic oath.

Ill and Injured.—Dr. Gustav Nicolai, Detroit, suffered a skull fracture and other injuries in a fall from a street car, May 19, but is slowly recovering.——Dr. Wilbur Gillett, Detroit, has been declared insane and will be taken to a private hospital for treatment.

Washtenaw County Society Election.—At the annual meeting of the Washtenaw County Medical Society, held at Ann Arbor, May 24, the following officers were elected: President, Dr. John A. Wessinger; vice-president, Dr. Roger S. Morris, and secretary-treasurer, Dr John W. Keating, all of Ann Arbor.

Personal.—Dr. George Dock, Ann Arbor, left for the Pacific coast June 1.——Dr Charles J. Sorsen, Calumet, left for Europe June 6.——Dr. Christopher M. Kelly, Grand Rapids, has returned from Europe.——Dr. Clarence A. Traphagen, Armada, sailed for Europe May 20.——Dr. Edwin B. Forbes, Detroit, has been appointed a physician of Wayne County, vice Dr. Philip G. Sanderson, resigned.——Dr. Roy W. Chivers has been appointed health officer of Jackson.

MISSOURI.

Unlicensed Practitioner Fined.—In the case of the State of Missouri vs. John M. Davis, Memphis, for practicing medicine without a license, the jury found the defendant guilty and he was fined $50 and costs. He has appealed to the higher court.

Colleges Merge.—Ensworth and Central Medical College, St. Joseph, have consolidated under the name of the "Ensworth-Central Medical College." The officers of the board of trustees are: Dr. James W. Heddens, president; Dr. Thompson E. Potter, secretary; Dr. Charles R. Woodson, treasurer, and Dr. Jacob Geiger, dean.

Personal.—Dr. J. N. Barger, Darlington, has been made county physician of Gentry County, vice Dr. T. E. Graham, resigned.——Dr. Thomas H. Doyle, St. Joseph, has been appointed police commissioner of that city.——Dr William L. Whittington, St. Joseph, has been elected superintendent of the colony for epileptics and feeble-minded at Marshall, vice Dr. L. S. Thompson, resigned.——Dr. Porter E. Williams, Bunceton, has been elected superintendent of Hospital for Insane No. 1, Fulton, vice Dr. James W. Smith, resigned. Drs. J. Frank Harrison, Fulton; Edwin E. Evans, Hallsville, and W. C. Lewis of Pike County, were elected assistant physicians of the institution.——Dr. Harry S. Forgrave, St. Joseph, has been appointed local surgeon for the Rock Island System, vice Dr. Peter J. Kirschner, resigned.

St. Louis.

Hospital Dedicated.—St. Anne's Hospital, at Union and Page Avenues, was formally dedicated by Archbishop Glennon, June 3.

Successful Candidates.—Out of the 63 candidates who tried the competititve examination for interneship in the City Hospital the 32 who succeeded entered on their duties June 1.

Will Erect Medical Headquarters.—The St. Louis Medical Society will erect an auditorium on the lot adjoining the Medical Library, 3525 Pine Street, for use as assembly rooms for all the medical bodies of the city.

The Medical Department of Washington University held its graduation exercises May 25. Dr. Abraham Jacobi, New York City, delivered the commencement address on "The Modern Doctor." A class of 63 was graduated.

Personal.—Dr. Percy H. Swathen, senior assistant physician at the City Hospital, left his post June 1 for a two years' course in Vienna and Berlin.——Dr. Benjamin L. Dorsey has started for Europe.——Dr. Louis H. Behrens sailed for Europe May 31 for six months' post-graduate work.——Dr. William E. Sauer has sailed for Europe.——Dr. T. Casey Witherspoon has gone to Germany for the summer.——Dr. Eugene J. Neville has returned from a six months' trip abroad.

Appointments.—Health Commissioner Simon has submitted the following appointments for approval to the Board of Health: Assistant superintendent at the Female Hospital, Dr. M. C. Tuholske, who was senior physician at the institution last year; senior assistant physicians at the City Hospital, Drs. Thomas E. Graham, N. M. Freund, C. H. Shutt, Clarence Matlock, J. W. Shankland and J. V. Koch; at the Female Hospital, Drs. L. E. Messimore and A. H. Rohlfing and Jacob J. Singer.

City Hospital Superintendent vs. Health Commissioner.—The action of the health commissioner, Dr. J. H. Simon, in summarily dismissing the chief clerk of the City Hospital, Miss Elizabeth Rowan, without cause in the opinion of the City Hospital superintendent, Dr. John Young Brown, has caused quite a sensation. This clerk has been in service in the hospital for 11 years and has served with devotion and earnestness three superintendents. The health commissioner's only explanation for her dismissal was that the "politicians" were calling for a man for this job, and so he appointed a man, Henry Newmark, to fill the position.

NEW YORK.

Accepts Appropriation.—The directors of the Batavia Woman's Hospital have decided to accept the appropriation of $1,500 made by the legislature. The hospital will now come under the supervision of the State Board of Charities.

Against Tuberculosis Sanitarium.—Despite the efforts of the Board of Health to secure permission to locate a tuberculosis sanitarium near the town of Mamakating, the town board has decided against the project. It is said that the Board of Health will now endeavor to obtain a location in Orange County.

Personal.—Dr. Frank L. Washburn, Sherman, who was overcome by smoke during a fire last week, is seriously ill with pneumonia.——Dr. Charles A. Luce has been elected health officer of Amityville.——Dr. Henrich C. Leonhardt, North Tonawanda, who went to Porto Rico a few months ago, is seriously ill with fever at a hospital in San Juan.

Relief to State Hospitals.—The twelfth annual report of the State Charities Aid Association suggests the following improvements in state hospital management: The adoption of a plan of boarding out the harmless insane; improvement in the present unsatisfactory methods of deporting the alien insane; the employment of a dentist at every hospital for the insane; the early construction of the proposed reception hospital in New York, and the construction of a new hospital between New York and Poughkeepsie. The association also desires the employment at every hospital of a dietist who shall be a graduate of a normal domestic science school.

Druggist's Certificate in Danger.—Two of the changes in the excise law jeopardize not only the druggist's liquor tax, but also the state license to do business as a pharmacist, for one provides that whenever a liquor tax certificate of a licensed druggist or pharmacist is cancelled, such person shall, in addition to the other penalties prescribed by this act, forfeit the use of his license as such druggist or pharmacist for the term of one year, and be deprived of all rights and privileges thereunder during such period. The other bill repeals the act of 1903, which establishes a special tax stamp, which permitted druggists to sell liquor, in quantities of a pint or less, without a physician's prescription.

The Insane of the State.—The number of insane persons in New York state hospitals and licensed private asylums increased nearly 1,000 in the last year, according to a report of the State Charities Association. The total number of insane persons in state hospitals and licensed state asylums on Oct. 1, 1904, was 26,861, an increase of 927. Of this total number 25,019 were in the 14 state hospitals, not including Matteawan and Dannemara, or 832 more than in October, 1903. The system of complete control, financial and administrative, by the state commission in lunacy, which has been in operation two and a half years, is not considered the wisest method of governing these institutions.

Buffalo.

Would Placard for Meningitis.—Health Commissioner Greene is attempting to have all houses in which cerebrospinal meningitis exists placarded. There have been several cases reported in various parts of the city.

Personal.—Dr. F. Park Lewis has been appointed a trustee of the New York State Institution for the Blind, Batavia. Dr. Lewis is at present serving as president of the board of managers.——Dr. Harvey Gaylord has been elected permanent chairman, and Dr. William Ward Plummer, secretary, of the Buffalo Medical Historical Club. Dr. Gaylord read a paper on "Johannes Müller," and Dr. Julius Ullman, a paper on "The History of the School of Salerno."——Dr. Walter Goodale has been appointed tenement house inspector for the Charity Organization Society.

Prominent in Civic Improvements.—Two Buffalo physicians deserve especial mention for the interest they are taking for the elevation and general improvement of civic matters. Dr. Ernest Wende is president of the Municipal League, which comprises among its members the best element of citizenship and has for its object the purification of municipal politics and the expurgation of municipal "graft." Dr. Matthew D. Mann is president of the Society for Beautifying Buffalo, which is doing excellent work toward improving the condition of trees and otherwise beautifying the city.

Health Report.—Health Commissoner Greene in his annual report for 1904 states that the death rate for the year was 14.31 per 1,000. The report says: "During the year there was an epidemic of typhoid fever. It was easily ascertained that the temporary condition of the water and to no other factor was this due, and that 90 per cent. occurred in families where the drinking water was not boiled." Mention is made of the scarlet fever epidemic from contaminated milk, and of measles, on account of which 36 deaths occurred in 2,349 cases. Tuberculosis continues its ravages with but slight amelioration of its mortality.

New York City.

Righteous Judgment.—A milk dealer was arrested for selling impure milk and was sentenced to five days' imprisonment in addition to a fine of $150.

The New Bellevue.—The Board of Estimate has finally approved the modified plans for the new Bellevue Hospital, which is to be built at a cost of $8,500,000.

A Low Death Rate.—The death rate for the week ended June 3 was equivalent to an annual mortality of 17.11 per 1,000. The mortality for the corresponding week of last year was 20.52 per 1,000.

Explosion in Hospital.—The explosion of a steam pipe attached to the sterilizing tank in the room adjoining the main operating room at the Presbyterian Hospital, May 29, caused considerable alarm but did little damage.

Long Island Graduates.—On June 1, 73 graduates of Long Island College Hospital, Brooklyn, received diplomas from

Dr. Joseph H. Raymond, secretary of the faculty. Dr. John A. McCorkle presided and administered the Hippocratic oath, and Borough President Littleton delivered the address to the class.

May Have to Tear Down Hospital.—The Supreme Court of Brooklyn has decided that the new addition to the scarlet fever pavilion of the Kingston Avenue Hospital, recently erected at a cost of $90,000, must be torn down, as it extends 55 feet into the street. The Board of Health has appealed from this decision.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended May 27, 888 cases of measles, with 19 deaths; 470 cases of tuberculosis, with 163 deaths; 331 cases of diphtheria, with 26 deaths; 184 cases of scarlet fever, with 15 deaths; 76 cases of cerebrospinal meningitis, with 60 deaths; 32 cases of typhoid fever, with 4 deaths, and 141 cases of varicella.

PENNSYLVANIA.

Philadelphia.

Personal.—Dr. Boardman Reed and wife sailed for Europe June 3.——Dr. and Mrs. Milton Keim and Dr. and Mrs. Milton N. Keim Jr., will sail for Europe June 15, to be absent until October.

Resident Physicians.—The following have been appointed resident physicians at the Presbyterian Hospital: Drs. William F. Guilfoyle, Jr., A. Bruce Gill, H. McC. Snyder, A. H. O'Neal, F. D. Dickson and C. J. Hunt.

For Charity.—Miss Eliza Wood has donated $10,000 to the Home of the Merciful Savior for Crippled Children to endow two beds in perpetuity. To the rector of St. Matthias' Episcopal church has been given the privilege of selecting children to occupy these beds.

Correction.—Dr. J. H. Montgomery writes that the applications for positions on the resident staff of St. Vincent's Hospital, Erie, were received until June 10, and consequently that the item regarding an appointment in that institution which appeared in THE JOURNAL of June 3 was incorrect.

Health Report.—The total number of deaths from all causes for the week numbered 450, an increase of 50 over those reported last week, and an increase of 15 over those of the corresponding week of last year. There were 130 cases of typhoid fever reported, an increase of 27 over the previous week. The principal causes of death were: Typhoid fever, 13; diphtheria, 9; tuberculosis, 69; cancer, 20; apoplexy, 21; heart disease, 45; acute respiratory diseases, 35; enteritis, 28, and Bright's disease, 35. There were 275 cases of contagious diseases reported, with 23 deaths, as compared with 209 cases and 21 deaths for the preceding week.

Dr. Forbes Honored.—At the eightieth annual commencement of Jefferson Medical College, June 2, a life-sized oil portrait of Dr. William S. Forbes, professor of anatomy in the college, was presented by the alumni and present classes of the college to the board of trustees, to be placed in the "Hall of Fame of the College." The presentation address was made by Dr. Addinell Hewson, assistant professor of anatomy in the college, and the painting was received on behalf of the board of trustees by the Hon. William Potter, president. The painting is a tribute to Dr. Forbes and a manifestation of the high admiration and esteem in which he is held by the students and profession who have come in contact with him during his long years of service in the college. It was through the efforts of Dr Forbes that the state anatomical act was instituted in this commonwealth. As a further recognition of Dr. Forbes' worth the Medical Alumni Association of the University of Pennsylvania presented him with resolutions and a silver loving-cup as a mark of their esteem, and a tribute to his efforts in the field of anatomy. The resolutions and cup were presented by Dr. George A. Piersol, professor of anatomy in the medical department of the University.

Jefferson Alumni Meeting.—At the annual meeting of the Jefferson Medical College Alumni Association, June 1, the following officers were elected: President, Dr. George B. McClellan, Philadelphia; vice presidents, Alabama, Dr. Luther L. Hill, Montgomery; Arkansas, Dr. Charles H. Cargile, Bentonville; California, Dr. Joseph C. Hearne, San Diego; Colorado, Dr. Charles D. Spivak, Denver; Connecticut, Dr. William S. Keating, South Manchester; Delaware, Dr. Joseph C. Chandler, Centerville; District of Columbia, Dr. Thomas N. Vincent, Washington; Florida, Dr. Frank P. Walker, Jacksonville; Georgia, Dr. Henry F. Harris, Atlanta; Idaho, Dr. B. Frank Jones, Idaho Falls; Illinois, Dr. Frank C. Greene, Chicago; Indiana, Dr. Thomas C. Hood, Indianapolis; Iowa, Dr. Frank T. Seybert, Council Bluffs; Kansas, Dr. W. H. Bogle, Atchison; Kentucky, Dr. George B. Sprague, Lexington; Louisiana, Dr. Thomas B. Hopkins, Lafayette; Maine, Dr. Harry S. Emery, Portland; Maryland, Dr. Seth S. Ullrich, Baltimore; Massachusetts, Dr. John J. Flynn, Pittsfield; Michigan, Dr. Daniel La Ferte, Detroit; Minnesota, Dr. George C. Barton, Minneapolis; Mississippi, Dr. John W. King, Vicksburg; Missouri, Dr. William F. Kuhn, Kansas City; Montana, Dr. Thomas J. Murray, Butte; Nebraska, Dr. Harry McClanahan, Omaha; Nevada, Dr. Clarence H. Woods, Reno; New Hampshire, Dr. James R. May, Portsmouth; New Jersey, Dr. Daniel Strock, Camden; New Mexico, Dr. William R. Tipton, Las Vegas; New York, Dr. Thomas Addis Emmet, New York City; North Carolina, Dr. Robert Lardner Gibbon, Charlotte; North Dakota, Dr. John D. Heming; Ohio, Dr. Alonzo B. Walker, Canton; Pennsylvania, Drs. Percy C. Hoskins, West Chester; George B. Kalb, Erie; James L. Rea, Jacob O. Knipe, Norristown; James Van Buskirk, Philadelphia; Lewis W. Steinbach, Philadelphia; William M. Sweet, Philadelphia; Oklahoma, Dr. George A. La Motte, Oklahoma City; Oregon, Dr. Joseph R. Wetherbee, Portland; Rhode Island, Dr. John T. Farrell, Providence; South Carolina, Dr. James R. Ware, Greenville; South Dakota, Dr. Samuel A. Brown, Sioux Falls; Tennessee, Dr. Joseph A. Crook, Jackson; Texas, Dr. Adolph Herff, San Antonio; Utah, Dr. Archiemi De Rose, Vernal; Virginia, Dr. Thomas Dudley Merrick, Richmond; Washington, Dr. Nevin D. Pontius, Seattle; West Virginia, Dr. Sylvanus S. L. Spragg, Wheeling; Wisconsin, Dr. John W. Coon, Milwaukee; Wyoming, Dr. Otto K. Snyder, Cheyenne; Hawaii, Dr. Hubert Wood; Philippine Islands, Dr. Charles M. Gandy, U. S. Army; United States Army, Lieut. Louis Brechemin, M.D., Fort Baker, Sausalito, Cal.; United States Navy, Lieut. F. Clarence Ely, Colon, Panama; United States Marine-Hospital Service, Dr. George W. Stoner, Ellis Island, N. Y.; recording secretary, Dr. Charles S. Barnes, Philadelphia; corresponding secretary, Dr. Aller G. Ellis; treasurer, Dr. Randle C. Rosenberger, and chairman of executive committee, Dr. Ward Brinton, Philadelphia.

GENERAL.

Confederation of Licensing Boards Not to Meet at Portland.—The executive council and the president of the National Confederation of State Medical Examining and Licensing Boards have decided to postpone the annual meeting, set for July 10, at Portland, Ore. A meeting will be held later, most likely during the early part of the winter. The secretary is Dr. Felix A. Larue, New Orleans.

January Health Report for the Philippine Islands.—During the month there were 677 births recorded, 343 male and 334 female, representing an annual birth rate of 32.26 per thousand. The lowest birth rate is among the Chinese, and this may be explained, in part, by the fact that very few Chinese, proportionately, are married. Seven hundred and fifty-six deaths were recorded during January; of these 685 were of residents and 71 of transients. The greatest number of deaths from any one disease was 200, from convulsion of children; pulmonary tuberculosis caused 84 deaths, and chronic diarrhea and enteritis, 38. There were 28 deaths from simple meningitis.

State and Territorial Boards of Health.—The third annual conference of the state and territorial health officers with the United States Public Health and Marine-Hospital Service convened at Washington, D. C., May 15, 1905. Twenty-two delegates, representing as many states and territories, were in attendance. The principal subjects discussed were the national control of leprosy, the methods by which typhoid fever spreads, and car sanitation. Dr. John S. Fulton, Baltimore, secretary of the Maryland State Board of Health, stated that in some municipalities officials had been discovered selling the names of persons afflicted with consumption and other diseases to firms wishing lists of persons to whom samples of medicine might be sent. Dr. Edmund Souchon, New Orleans, introduced the following resolution, which was adopted by the conference:

WHEREAS, the eradication of plague from California through the united and harmonious efforts of the United States Public Health and Marine-Hospital Service, state and local boards of health, by means of rat extermination and extensive sanitary improvements throughout the affected area, is an accomplished fact: Therefore, be it

Resolved, That this conference of the United States Public Health and Marine-Hospital Service with the state boards of health expresses its entire satisfaction with the methods used and the results obtained.

The following officers were elected for the ensuing year: President, Dr. R. H. Lewis, North Carolina; vice-president, Dr. T. G. Kennedy, Iowa; treasurer, Dr. J. A. Egan, Springfield, Ill.; secretary, Dr. John S. Fulton, Baltimore.

Honor Grand Old Gynecologist.—About 125 physicians gathered at Delmonico's, New York City, May 29, to celebrate the seventy-seventh birthday anniversary of Dr. Thomas Addis Emmet. Dr. E. C. Dudley, Chicago, was toastmaster and made the introductory address. Dr. William M. Polk, New York City, spoke of Emmet as a surgeon; Right-Reverend John Farley, archbishop of New York, responded to the toast of Emmet as a writer on subjects apart from medicine; Dr. William H. Baker, Boston, considered Emmet as a teacher; Dr. Seth C. Gordon, Portland, Maine, referred to Emmet as a medical author; Dr. George T. Harrison, New York City, paid an eloquent tribute to Emmet as a friend; Dr. Francis J. Quinlan, New York City, discoursed on Emmet as a patriot, and Sir William H. Hingston, Montreal, expressed his pleasure at being privileged to be present to do honor to Emmet, whose name was so well known in Canada and abroad. Dr. Emmet in reply, gave a brief sketch of his early experiences.

CANADA.

Baptist Medical School for Toronto.—A report appeared in one of the Toronto newspapers a few days ago which stated that there is a strong possibility of the establishment of a new medical school in Toronto in connection with the University of McMaster, a Baptist institution.

University of Toronto News.—In the year just closed 652 medical students attended lectures at the University of Toronto. Medical college and hospital matters in Toronto today, it is understood, are being carefully considered both by the general hospital management and the senate of the University of Toronto, and there is every possibility of some important announcement being made in the immediate future, as it is understood that radical changes are contemplated.

Personal.—The Hon. Dr. R. A. Pyne, minister of education for the province of Ontario, and registrar of the Ontario College of Physicians and Surgeons, and Dr. J. Algernon Temple, professor of gynecology in the University of Toronto and formerly dean of Trinity Medical College, will receive the honorary degree of LL.D. from the University of Toronto on commencement day, June 9.——Dr. George H. Field, Coburg, Ont., has returned from a trip to the hospitals of Europe.——Dr. W. A. Young, managing editor of the *Canadian Journal of Medicine and Surgery*, Toronto, is at Atlantic City.——Mr. I. H. Cameron, professor of surgery in the University of Toronto, will spend the next three months in England and will attend the annual meeting of the British Medical Association at Leicester.——Dr. Carleton Jones, chairman of the committee of arrangements of the Canadian Medical Association, which meets at Halifax on August 22, has returned from Bermuda. ——Dr. Charles O'Reilly, the retiring general superintendent of the Toronto General Hospital, will be tendered a banquet by the profession in Toronto and the province of Ontario on June 10 at the Albany Club, Toronto.——Dr. C. F. Martin, Montreal, associate professor of medicine in McGill University, has returned to Montreal from Washington, D. C.——Dr. O. M. Jones, Victoria, B. C., has gone to Europe for three months.

FOREIGN.

Congress of Medical Women.—The women physicians of Russia are planning a congress to be held this year at St. Petersburg.

Prophylaxis Against Malaria in Algiers.—The French government is undertaking a systematic campaign against malaria in the army stations in Algiers this coming season.

International Conference for the Protection of Wage-earners. —Nearly all the European countries were represented at this conference held at Berne last month. Among the resolutions adopted was one prohibiting wage-earning work for women at night, and another, the use of white phosphorus in the manufacture of matches.

Imprisonment for a German Irregular.—A former fish merchant of Lüneburg, named Kurzinski, advertised and sold a remedy which he claimed to be an absolutely certain cure for tuberculosis of the lungs. This claim was regarded as an attempt to deceive the public and he has recently been condemned to six years' imprisonment. This is the second or third prosecution for similar practices.

Swiss Law Against Marriage of Imbeciles.—A Swiss law, dated in 1874, forbids the marriage of dements and imbeciles. The latter term has been found too vague, and the revised code now limits marriage to persons capable of discernment (*die sich im Zustand der Urteilsfähigkeit befinden*). The clause prohibiting the marriage of dements is maintained, but the term imbeciles has been dropped, according to a recent subeditorial in the *Semaine Médicale*.

Plague at Port Said.—A case of plague was reported from Port Said during the first week in May. Plague in this port, the Mediterranean entrance to the Suez canal, where on an average 10 vessels pass every day, is naturally regarded with apprehension, not only because of the transit trade with the canal, but because of its large bonding warehouse trade and the importance of the port as a coaling station.

Lay Editor Fined for False Report of Diphtheria Epidemic. —The courts at Kiel have recently condemned the editor of a political journal for publishing a false report that diphtheria was epidemic. The medical experts testified that the false report had not caused any appreciable sensation, but the court decided that even if there had been no general alarm from it, the news was such as to cause a certain amount of anxiety.

The Formic Acid Sensation.—A member of the party of British physicians recently visiting Paris remarks that one of the most interesting sights there was the set of curves exhibited by Professor Huchard and others, showing the increase in their energy and endurance after taking formic acid. Our French exchanges lately have been teeming with articles commending formic acid as a stimulant and tonic or else ridiculing this revival of the old extracts of ants, "water of magmananimity," etc., of the seventeenth century pharmacopeias.

Professional Secrecy.—A German physician was recently condemned to a $5 fine for violation of professional secrecy, as was mentioned in THE JOURNAL at the time, page 803. He had warned a certain family to beware of a certain relative whom he knew to be in the contagious phase of syphilis. The relative brought suit against him, and he was fined as stated. Appeal to the supreme court, however, has resulted in the reversal of the decision, the court stating that the obligation to professional secrecy is not absolute. It is outranked under certain circumstances by professional duty. In the case in question there was no violation of medical secrecy as the danger to which the third parties (to whom he was family physician) were exposed justified him in his course of warning them of the existence in their relative of a "horrid contagious disease."

French Law on Dangerous Trades.—The French legislation on indemnities for industrial accidents (1898), excluded from the benefits of the law the so-called "professional affections" almost inevitably associated with the exercise of certain trades. Time has shown, however, the *Semaine Médicale* observes, that certain accidental affections, such as syphilis among glassblowers from the use of instruments in common, and malignant pustule among tanners, have to be included among those calling for an indemnity. The only affections now excluded are those which are the slow, certain and almost fatal consequence of the practice of the trade in question. The authorities have been collecting data on this subject during the last four years, and a bill has recently been presented to the parliament bearing on the dangerous trades using lead and mercury. The *Semaine* remarks that in these trades the right of the state to interfere should be restricted to the enforcement of sanitary and other measures to guard the workmen against poisoning. When the proprietor conforms to these measures his responsibility ceases, the workman knowing that the trade he follows is a dangerous one for the health.

LONDON LETTER.

The Financial Relations Between the London Hospitals and Medical Schools.

At the annual conversazione of the Medical Society of London, Mr. Henry Morris delivered the oration for the year on a subject which has become a burning question—the financial relations between the London hospitals and the associated medical schools, and the bearing of these relations on medical education. Until the last decade the medical schools of London have been practically self-supporting, but the need for the teaching of recent extensions of science has made this no longer practicable. Two schemes have been formulated to meet the difficulty—one, a self-supporting amalgamating scheme to include the existing medical schools, and the other, an appeal to the public for funds to be applied to medical education to be administered in connection with the University of London. Referring to the instruction of the King's Hospital Fund, based on the finding of its medical school committee (which has been reported in THE JOURNAL), that none of this fund should be applied to medical education, he maintained that here were good reasons why some part of the incomes of hospitals should be devoted to the associated medical school, in view of the wishes of donors that as much good as possible should be done by means of their contributions. This idea, he held, would take in the matter of medical education,

for the sick poor benefited by the training given in the schools, not merely within the walls of the hospitals, but to a much greater extent outside. The medical schools are an integral part of the machinery for helping the poor. Moreover, if the school fees are raised so as to remunerate adequately the teachers, rich men alone could afford to enter the profession. As the supply of physicians, therefore, would be diminished, the poor would inevitably be to some extent neglected. He vigorously combatted the idea of the committee of the King's Hospital Fund that the hospitals by providing the so-called "clinical material," sufficiently requited the obligation of the schools. He hoped that those hospitals which suffered by this new regulation would at once establish separate medical school funds. At the London Hospital such a fund has already been instituted, and during the first week of its existence the sum transferred to it by supporters of the hospital was more than twice the sum ever contributed by the hospital to the school. Referring to the proposed delegation of the teaching of pure science to an institute of medical sciences, he maintained that the only teaching from which the medical schools should be relieved was that of physics, chemistry and biology, and that an examination on these subjects should be passed before the fifth year's medical curriculum was begun.

Bubonic Plague at Leith.

Bubonic plague has broken out at Leith, an important Scotch seaport town. The first case occurred in a tenement house near the docks. The patient was a laborer employed in the reconstruction of the Leith tramways; his wife worked in a rag store. He became ill a week ago, and when his condition became serious the health officer ordered his removal to an isolation ward in a hospital where he developed unmistakable symptoms of bubonic plague and died. Energetic measures have been taken to prevent the spread of the disease. The man's wife and two children and the remaining inhabitants of the tenement numbering 25 in all were removed and isolated. The hypothesis put forward as to the origin of the disease is that some affected rats were concealed in the rags imported from the East but the owners of the store where the man's wife worked say that they have not imported eastern rags for years and that it is almost impossible for rats to be concealed in the rags which as a rule are hydraulically pressed before shipment. The health officer has issued a circular to shipowners requesting that fenders be placed on all ropes connecting vessels with the quays and that all gangways be withdrawn at night in order to prevent rats gaining access to ships from the shore.

Telephones and Infectious Diseases.

From time to time scares have been raised in the lay press as to the danger of transmitting diseases by the mouthpieces of the telephones. Tuberculosis and diphtheria were particularly mentioned. In order to investigate the matter Dr. Collingridge, health officer of the city of London, removed the twelve mouthpieces from various call offices and sent them to Dr. Klein for bacteriologic examination. The latter after conducting experiments with guinea-pigs, reported that none of the mouthpieces contained either tubercle or diphtheria bacilli. Dr. Collingridge, therefore, concludes that in the use of the telephone there is no risk of acquiring infectious diseases. But he calls attention to the fact that the various public telephone offices are very badly ventilated.

Death of Dr. Dutton of the Liverpool School of Tropical Medicine.

The Liverpool School of Tropical Medicine has for the second time lost one of its most promising workers while he was engaged in one of its expeditions for the investigation of tropical diseases. It may be remembered that in 1901 Dr. Walter Myers, while studying tropical diseases, contracted yellow fever at Para and died. In his memory a Walter Myers fellowship was founded by the Liverpool school. The sad news has been received that Dr. Dutton, who was appointed to this fellowship, has suddenly died in the Congo while investigating trypanosomiasis and tick fever. In 1903, accompanied by Dr. Todd, he proceeded to the Congo. Toward the end of 1904 they were able to demonstrate independently the cause of tick fever in man—a discovery made a few weeks previously by Ross and Milne in Uganda. Further, they demonstrated the transference of the disease from man to monkeys by means of a peculiar species of tick. During the investigation they both contracted the disease. Dr. Dutton had not attained the age of 30 and yet had made a name as an investigator of tropical diseases that was famous throughout the world. His first expedition to West Africa took place in 1900, when, with Drs. Annett and Elliott of Toronto, he visited Nigeria in order to study the bionomic of the anopheles and measures for the prevention of malaria. The expedition issued two reports, one on antimalaria sanitation and the other one of the most complete monographs on filariasis published. In 1901 Dr. Dutton proceeded alone to the Gambia and drew up a most comprehensive report on the prevention of malaria. He also discovered for the first time a trypanosome in human blood. Hitherto the organism had been known only in the blood of animals. This organism was that subsequently shown to be the cause of sleeping sickness (*T. gambiense*). He also described several other trypanosomes which were new to science. In 1902 he proceeded with Dr. Todd to Senegambia and drew up a report on sanitation which was presented to the French government. He had charge of the present expedition to the Congo, which was sent out in 1903, and was accompanied by Dr. Todd and Dr. Christy. The expedition had made many valuable observations while tracing sleeping sickness along the river banks and investigated the nature of tick fever and filariasis. A most promising life and brilliant career have been cut short.

The Centenary of the Royal Medical and Chirurgical Society.

The greatest of the English medical societies has celebrated its centenary in a manner worthy of its history and position. The proceedings commenced with the admission as honorary fellows of Dr. Christian Bohr, Sir William Ramsay, Dr. Robert Barnes, and Dr. Walter Gaskell. The president, Sir Douglas Powell delivered an address in which he congratulated the society on the part of its past presidents now living, on the part of the council and himself on its completion of the hundredth year of its existence. He referred to the volume just issued by the honorary secretary, Mr. Stephen Paget, in which the chronicles of the society are most interestingly set forth and which contains a sketch of the lives of its fifty presidents by the honorary librarian, Dr. Norman Moore. These chronicles are an epitomized history of the medicine and surgery of the past century. In the first half of the century they deal with many great incidents in medicine and surgery and in the second with great developmental movements in pathology and therapeutics. Among notable achievements the president referred particularly to the papers describing Astley Cooper's ligature of the common carotid artery, Dundas' description of acute rheumatic pericarditis and endocarditis, and Abernethey's account of mitral stenosis. When the Napoleonic wars were raging the society was receiving papers from its Fellow, and later President, Sir Gilbert Blane whose introduction of lime juice for the prevention of scurvy saved more lives than were lost in all the naval battles. Sir B. Brodie in 1836 by his temperature records of a fatal case of luxation of the cervical vertebræ with destructive hemorrhage into the upper cord demonstrated what his earlier experiments of 1811 had led him to believe, and had been guessed by John Hunter, that fever was neither a mere matter of altered circulation, as the older physicians had thought, nor of oxidation as the physiologists after Lavoisier were teaching, but that it was dependent on some other controlling factor probably of nervous origin. How otherwise could be explained a rise of temperature to 112° in a man dying with respirations reduced to less than six a minute? This was the earliest instance of the use of the clinical thermometer. During Bright's presidency in 1838 Bostock read his paper on the clinical examination of the urine and initiated an important development of clinical pathology. Dr Webster's paper in 1843 on the "Brutal Treatment of the Insane" then prevailing was the forerunner of the more humane methods of Conolly. The paper by Roe and Thompson in 1835 on "Paracentesis for Empyema" was the beginning of a great advance in thoracic therapeutics. Then followed John Hutchinson on "The Spirometer," John Marshall on "The Galvanocautery," Golding-Bird and Hilton on "Operation for Internal Strangulation," in 1846-47, Kirkes on the "Detachment of Fibrinous Clots from the Interior of the Heart and Their Mixture with the Circulating Fluid," and Spencer Wells' first five cases of ovariotomy. In the second half of the century among the most important papers were Fenwick's, on the "Microscopic Examination of the Sputum," Marcet's, on the "Inoculation of Sputum in the Diagnosis of Tuberculosis," Hutchinson's, on "Vaccino-Syphilis," in 1871, and Ord's, on "Myxedema," in 1877. After the address, Professor Chin on behalf of the Medico-Chirurgical Society of Edinburgh, Mr. Langton on behalf of the Medical Society of London, Dr. Frederick Taylor on behalf of the Clinical Society, Dr. Boxall on behalf of the Obstetrical Society, and Mr. Symonds on behalf of the Laryngological Society, congratulated the Fellows of the Royal Medical and Chirurgical Society on the attainment of its centenary. The banquet which

followed was attended by a number of distinguished guests, including the Prince of Wales, Prof. Clifford Allbut, Right Hon. John Morley. A conversazione was held at the Natural History Museum and was attended by some thousands of persons. Amongst those present was Senor Manuel Garcia who, as recently reported in THE JOURNAL, has just celebrated his centenary.

Medical Plants.

At the Royal Horticultural Society a lecture illustrated by lantern slides was delivered by Mr. E. Morrell Holmes on "Medical Plants Old and New" which, in view of the celebration of the Centenary of the Royal Medical and Chirurgical Society, was both opportune and interesting. The lecturer pointed out that although horticulture must have begun at a very early period of civilzation, the plants required for medicinal use were chiefly collected from the fields and woods and were not specially cultivated, except those which, like the pomegranate and almond, afforded edible fruits, and like henna were planted for their fragrance, and like the lily for their beauty. Even in the time of the Greeks and Romans, although horticulture had made great strides and pipless apples and long grapes were known, violets and roses were found in winter, yet there is no record of distinct physic gardens. It was only in the records of monasteries, abbeys, and nunneries in the Middle Ages, that we found any mention of a physic garden or portion set apart for the cultivation of medicinal herbs, usually near the surgeon's residence and distinct from another portion of the garden, retained for culinary herbs. One of the first lists of plants cultivated in these physic gardens was given in the "Capitulary of Charlemagne." Subsequently, wealthy citizens had physic gardens, and during the reigns of the Tudors there were physic gardens under the charge of the apothecary who attended royalty. Private physic gardens were followed by municipal physic gardens, and these developed into the modern botanical gardens to which modern horticulture owes so much. Descriptive catalogues of the plants grown in these gardens and containing an account of their medicinal properties were published by their owners, and form the herbals on which domestic medical treatment was based until the early part of the last century, when a large number of medical plants described in them were omitted from the pharmacopeias, and the herbals were succeeded by more advanced work on the medicinal plants and the pharmacopeias. During the last half of the eighteenth century the growth of the population led to increased demand for medicinal plants and their preparations, and the cultivation of these was carried on on an agricultural rather than on a horticultural scale. The increasing use of quinin led to cultivation of chinchona bark on a large scale in India and Ceylon, followed by that of coca in various colonies. The lecturer also alluded to the cultivation of Indian hemp for medicinal purposes and to the ancient and more extensive cultivation of the opium poppy in various countries.

Correspondence

"Works But Not Words."

BISMARCK, N. D., June 3, 1905.

To the Editor: I failed to see Mr. Bok's letter in THE JOURNAL, May 20, 1905, until my attention was drawn to it at the meeting of the House of Delegates of our state association.

Mr. Bok complains of the apathy of individual physicians and medical societies in not appearing before legislative committees on behalf of pure-drug laws, introduced in different legislatures last winter, and states that within his own knowledge not a single physician or representative of a medical society appeared before such a committee.

While this may be true generally, it does not apply in this state to the bill introduced and passed in our legislature, prohibiting the adulteration of drugs and providing for the printing of the ingredients, in case of poisons and other dangerous substances, on the labels of proprietary medicines. My attention was first drawn to this bill when appearing before the public health committee of the House of Representatives, in opposition to a so-called pure-food bill, the effect of which would have been completely to nullify the good work that has been done for the past two years by our pure-food commissioner. I appeared by authority of the council of our state medical association and was received with courtesy by the committee. After I had presented the case on behalf of our association, my opinion was asked as to the pure-drug bill that had been introduced and also as to another pure-food bill that had been introduced in the senate. I had to reply that I had not seen either of the bills and knew nothing of their provisions, but agreed to examine them and to appear again before the committee, when it met to consider the bills, the date being fixed for the following week. I forwarded copies of the bills to the secretary of the state association, asking him to bring them before the president and other members and to use his influence in favor of their passage. I also saw some of the registered pharmacists of this city and as many of the members of the legislature as I could and pointed out the advantages of the bills and prepared myself to go before the committee. Before the time came for the committee to meet, the legislature adjourned for a week and I received no notice of the new time of meeting, but as sentiment, in the public press and among the members, was almost unanimously in favor of the proposed laws it was not necessary for me to take a more active part, and, in fact, by doing so I should probably have caused more opposition, as representatives of the patent medicine interests would have argued that physicians were supporting the bill for selfish reasons.

The credit of introducing the bills is entirely due to our energetic pure-food commissioner, Prof. E. F. Ladd of the North Dakota Agricultural College, and it was a worthy tribute to his efficiency to have members of the legislature tell me that they were satisfied that the bills were all right, as Professor Ladd was supporting them.

I do not know how it is in other states, but here it is difficult to find out when a committee is going to consider any particular bill, and in one case last winter, after the chairman of a committee had promised to give me notice when his committee would consider a bill, containing a provision allowing communities to discharge unpurified sewage into streams and rivers, and I had remained in my office for two or three mornings waiting for a notice by telephone, I was informed that the bill was passed. In this case not a single member, that I spoke to, knew of this provision in the bill, but simply accepted the report of the committee recommending that the bill pass.

I agree with Mr. Bok that it is the duty of medical associations to take an active and leading part in promoting legislation bearing on the public health, and our state association can point with pride to the fact that all the legislation that is asked for, including an almost new medical law providing for reciprocity in exchange of licenses, an anatomic law, and a law establishing a state bacteriologic laboratory—this last was vetoed by the governor on account of the appropriations exceeding the available funds—was passed. Having been a member of the legislative committee for the past ten years, I can testify that under the new system of organization the medical societies can exert more influence than formerly.

F. R. SMYTH,
Chairman Committee on Legislation and Public Policy,
North Dakota State Medical Association.

Climate in Treatment of Tuberculosis.

EL PASO, TEXAS, May 30, 1905.

To the Editor: In the proceedings of the Illinois State Medical Society meeting (THE JOURNAL, May 27, p. 1706), I notice that Dr. J. W. Pettit, Ottawa, Ill., is reported to have said, in his article on tuberculosis, that "climate is an unimportant factor in the treatment of tuberculosis," and that "it has been demonstrated that the tent is practicable in cold climates." In the same issue, in the transactions of the National Association for the Study and Prevention of Tuberculosis, Dr. William Osler is quoted as saying: "The education of the profession includes three points: 1. They must know that early recognition is the first and most important thing. 2. They must recognize, practically, the efficiency of open-air treatment. 3. They must educate medical students;

this is of paramount importance." Mr. William H. Baldwin, Washington, in a paper, at the same meeting, said: "1. Climate is not an essential, nor even the most important feature" in the treatment of tuberculosis. 2. "Necessities are fresh air, rest, nourishing food and regular habits."

The statements of Dr. Pettit and Mr. Baldwin are very frequently made. One statement made by each man is contradictory to his own statement just preceding, both making the statement that climate is unessential, and following it by immediately making open-air treatment one of the greatest essentials. Now, if open air is one of the greatest essentials, as emphasized by both of these men, and also by Dr. Osler, why does it not necessarily follow that the preferable climate is that in which the patient can get the most of this open air? If open air and sunshine are essentials, why is it not better that the patient be where he may have from 82 to 84 per cent. of possible sunshine, as is stated by the government report to occur at Phoenix and Tucson, Arizona, and El Paso, Texas, and at other points in the arid Southwest, instead of being in Chicago, with a possible sunshine of 53.6 per cent., or in New York, with a possible sunshine of 59 per cent; also why should not the patient be where there are only 37 cloudy days out of 365, as given by the government reports at the above-named points in Arizona and Texas instead of in Chicago, with 107, or New York, with 118, or St. Louis, with 117 cloudy days in the year?

Also, if being out of doors in the open air is an essential, is it not probable that the patient will be in the open air more in a climate where there is only an average mean rainfall of 7 inches a year, as at any of the above-named places in Arizona and Texas, than in Chicago, with an average mean rainfall of 30 inches, or in New York, with 42, or in Indianapolis, with 40 inches per year? Is it not probable that the patient will be in the open air more in a vicinity where there is never any snow, or only a trace, than he will be in Chicago, with an average yearly snowfall of 35 inches, or New York, with 26 inches, or Kansas City, with 31 inches?

I am glad to see emphasis laid on the point that an early diagnosis should be made; that diet and proper care are essentials in the treatment of tuberculosis; and, leaving out all arguments as to the questions of altitude, humidity, and electrical phenomena, I wish to emphasize that the location for a tuberculous patient is preferably where he may have the benefit of open air and sunshine the maximum number of hours out of the twenty-four, without exposing himself to unnecessary discomforts and inclement weather.

When this question is given some thought along these lines, I think the statement will not so frequently be made that there is nothing in climate in the treatment of tuberculosis, as my interpretation of a good climate is simply one where the patient can be out of doors most.

W. LAUNCELOT BROWN, M.D.

Cesarean Section for Placenta Prævia.

OMAHA, NEB., May 30, 1905.

To the Editor:—In Dr. Holmes' article on section for placenta prævia in THE JOURNAL, May 20, appears this assertion concerning the Catholic Church's doctrine anent extrauterine pregnancy: "The profession may not know it, but the church prohibits operation for extrauterine pregnancy; this prohibition would not be countenanced by physicians."

I do not suppose for a moment that the writer intends the latter part of this assertion for Catholic physicians who look on that church as their teacher and guide in questions of faith and morals; and as there is a moral principle involved in this, as well as in kindred operations, they must, if true to their religious belief, follow the wise decisions of the church.

But apart from this, and not in a spirit of controversy, let me ask is not Dr. Holmes' statement, "The church prohibits operation for extrauterine pregnancy," somewhat misleading, put forth, as it is, in such general terms? Is it altogether true? The words of the church in deciding the case will answer the question so plainly that he who runs may read.

The court's decision, given on the fourth of May, 1898, is as follows: "In a case of necessity, laparotomy and Cesarean section are allowable in extrauterine pregnancy, or in ectopic conception, on condition that, as much as can be, the lives of the fetus and of the mother are carefully considered and protected."

In face of this pronouncement, the alleged statement of Dr. Holmes is not correct. The church does prohibit every kind of operation before the period of viability, otherwise the life of the fetus would not be carefully protected, a life that in the eyes of the church is as valuable and sacred as that of the mother. So, too, is the induction of premature labor either in intrauterine or extrauterine pregnancy regarded by the church as not only lawful but meritorious on the part of the physician when the child is viable; and this, too, whether the necessity arises from contraction of the pelvis, from tumors contracting its cavity, from abnormal size of the child, from death of the fetus, from diseases of the mother dependent on pregnancy or aggravated by it, and threatening the mother's life.

This is the doctrine of the Catholic Church. She condemns any action or operation that has for its object or aims at the destruction of the fetus for the safety of the mother. She holds that the infant within the womb has an inalienable right to life as much as the infant on its mother's lap, as much as the mother herself, and, therefore, in her teaching regarding operations, does she forbid strongly any and all that tend directly to destroy the life of the fetus.

W. P. WHELAN,
Professor of Medical Jurisprudence,
Creighton Medical College.

A Section on Tropical Diseases.

PHILADELPHIA, June 1, 1905.

To the Editor:—The Section on Tropical Diseases of the British Medical Association, organized a few years ago through the efforts of Dr. Sandwith of Cairo, has proved a noteworthy success. The meetings have been largely attended and the discussions have excited wide interest among the members of the association who represent the medicine of Great Britain in the tropical outposts and those at home. The subjects selected for the successive meetings have been of very general interest. This year they are as follows: For the first day, "Tick Fever"; second, "Sprue and Hill Diarrhea"; for the third, "Tropical Diseases of the Skin."

While our national interests in the tropics are of comparatively recent date and much less extended than those of Great Britain, they are sufficiently important to make it in the highest degree desirable that a section on tropical diseases should be organized in connection with the American Medical Association, and this I earnestly hope will be done at the coming session. This suggestion is based chiefly on the obvious necessity for a common ground in which matters relating to tropical medicine may be discussed at the sessions.

The subjects directly related to tropical medicine fall chiefly under the heads of pathology and bacteriology, practice of medicine, cutaneous medicine and public and personal hygiene. Yet papers on these subjects from the standpoint of practitioners having experience in the tropics, on the one hand, and of those looking forward to medical work in tropical climates, on the other hand, if read in existing sections would occupy time which a majority of those present could utilize in more congenial work, while if read in a special section they could not fail to attract a body of interested men which would become larger from year to year, as the scope and purpose of such a section become more evident.

Courses on tropical diseases, which have been delivered in the Jefferson Medical College, first by Captain Kiefer and later by Major McCall, have been highly successful. Attendance has been voluntary and there were no examinations, but the interest manifested by the students was remarkable and many practitioners availed themselves of the opportunity of being present.

It is to be hoped that this matter will be thoroughly considered by the House of Delegates. J. C. WILSON.

Proposed American Medical Insurance Company.

FORT WAYNE, IND., June 1, 1905.

To the Editor:—In view of the approaching meeting of the American Medical Association, I wish to make a suggestion in regard to the relief of the "wounded soldiers of the war"—that is, those of our profession who, through age, illness, accident or other not discreditable cause, have been reduced to exiguous circumstances at the closing of their careers.

Probably the best way by which this philanthropic purpose can be accomplished is by the organization of an American medical insurance company. We note many large companies handling vast sums of money and making immense profits. If members of the Association were generally interested in an insurance company of their own they could make it a great success, as they have accumulated a great fund of valuable experience relating to insurance matters. Part of the profits of the company might be used in paying small annuities to the objects of this benevolent enterprise. The company would also provide moderately costly insurance rates and favorable options for members, and would, of course, accept business outside of the profession. It would be able to secure best actuarial and managing talent, and all physicians would be interested in making it a success. W. P. WHERY, M.D.

Association News

The Portland Session.

Attention is called to the fact that the last issue of THE JOURNAL, June 3, contained nineteen pages devoted to the Portland session, the attractions en route, the railroad rates, routes, trains, the hotels, meeting places, etc., with sixteen illustrations. Additional information will be published in this department from week to week. We repeat the reminder that reservations on trains and hotel accommodations in Portland should be secured now.

Chicago Medical Society Special.

Reservations on this train may be made through Drs. A. E. Halstead, 103 State St., or M. L. Harris, 100 State St., in addition to Dr. F. X. Walls, 103 State St., and Mr. C. A. Matthews, 208 S. Clark St., all of Chicago. The train leaves Thursday, July 6, at 7:30 p. m. and reaches Portland Monday, July 10, at 8 a. m.

Welcome to Spokane on the Portland Trip.

SPOKANE, WASH., June 1, 1905.

To the Editor:—The Spokane County Medical Society extends a cordial invitation to physicians to stop off at Spokane, either going to or returning from the Portland session. We will provide entertainment for all who come. We want you to see our beautiful city. Write or wire date, time you can spend in Spokane and number in party.

WILLIAM L. HALL, Secretary,
209 Empire State Building, Spokane, Wash.

Welcome to Portland.

The Portland (Ore.) City and County Medical Society will take the greatest interest in making pleasant the visit of the physicians from other parts of the United States. At the annual meeting, just held, Dr. Henry Waldo Coe, editor of the *Medical Sentinel*, was elected president. The society feels that this is an important year for it, as it will have charge of one of the most important social functions of the session of the American Medical Association. Dr. Coe has appointed committees that will act with the local Committee of Arrangements.

Cordial Greeting from the Seattle Profession.

SEATTLE, WASH., May 29, 1905.

To the Editor:—The medical profession of Seattle is anxious to extend all possible courtesies to the members of the American Medical Association and their families either on their way to the Portland session or returning therefrom. It will be our endeavor to make their stay in our city, whether it be lengthy or brief, as pleasant and interesting as the time will permit.

That we may be enabled to afford our visitors such attention as we desire it will be necessary for the secretaries, chairmen or managers of parties to notify us as soon as possible of: 1. The date of arrival in Seattle. 2. The length of time to be spent in Seattle. 3. The number in the party. 4. The number of ladies.

If those in charge of parties will advise us on these points it will be our pleasure to extend to them a most cordial welcome.

J. H. LYONS,
President of King County Medical Society.

Excursion to Los Angeles—Pennsylvania Alumni Reunion.

LOS ANGELES, CAL., June 1, 1905.

To the Editor:—The Alumni Association of the University of Pennsylvania of the Pacific Southwest will give to visiting alumni a reunion and banquet at the California Club, Los Angeles, Cal., on the evening of July 25, 1905. This date was chosen because there will be an excursion to members of the American Medical Association from Portland, reaching Los Angeles July 24, and it is hoped that as many as can will avail themselves of the opportunity to meet their classmates of former years. It is intended to have present as guests Drs. John A. Musser, and Vice Provost Edgar F. Smith of the University of Pennsylvania, besides other notable men, who will give addresses. It is expected of alumni that they will co-operate in order to make this a grand success. Charge per plate will probably be five dollars.

Kindly address the undersigned for further particulars.

C. G. STIVERS, M.D.,
Secretary University Pennsylvania Alumni Association of the Pacific Southwest.

NEW MEMBERS.

List of new members of the American Medical Association during the month of May, 1905:

ALABAMA.

Baker, J. N., Montgomery.
Dennis, D. R., Arley.
Frazer, T. H., Mobile.
Glass, E. T., Birmingham.
Huey, T. F., West Blocton.
Lusk, P. B., Guntersville.

ARIZONA.

Caven, C. L., Bisbee.
Edmundson, C. L., Bisbee.
Frazer, Alex. I., Kofa.
Fanning, G. J., Prescott.
Sawyer, F. W., Prescott.
Yount, C. E. Prescott.

ARKANSAS.

Blankenship, W. H., Pine Bluff.
Butler, J. L., Sheridan.
Dickinson, W. H., Emmet.
Gant, Jas. Robt., Ft. Smith.
Johnson, Dave T., Ft. Smith.
Jelks, James T., Hot Springs.
McCurry, W. T., Texarkana.
Merritt, L. H., Forrest City.

CALIFORNIA.

Alden, B. F., San Francisco.
Bonar, R. M., Santa Rosa.
Besson, E. A., San Francisco.
Buchanan, R. A., San Francisco.
Butler, T. P., San Diego.
Bullock, R. R., San Francisco.
Beyer, Herman, Oreano.
Condit, J. D., Pasadena.
Chancellor, P. S., Santa Barbara.
Casey, Philip F., San Quentin.
Deal, Louise B., San Francisco.
Fouch, Albert, Sutter.
Fields, David Blackstone, Weaverville.
Foulkes, Bruce, San Francisco.
Felt, Rae, Eureka.
Goodman, Minerva, Stockton.
Gunn, John William, Jr., San Francisco.
Howard, Edw. S., San Francisco.
Hamman, A. F., Long Beach.
Helgesen, Segrid, Templeton.
Hawkins, W. J., San Francisco.
Jordan, P. A., San Jose.
Jenks, C. A., Los Angeles.
Lynne, M. A. A., Napa.
Legge, Robt. T., Redding.
McLeod, J. H., Santa Rosa.
Morse F. W., San Francisco.
Moffitt, H. C., San Francisco.
McCleave, T. C., Berkeley.
Meneray, Prince A., Santa Rosa.
Peery, T. P., Yuba City..
Pierce, Clarence, Los Angeles.
Perdue, L. C., Chico.
Pierce, R. E., San Jose.
Stevenson, G. L., Sacramento.
Seibert, F. M., San Mateo.
Toland, M. R., Los Angeles.
White, J. Francis, East Auburn.
Watt, George, Orland.
Williams, Ralph, Los Angeles.
Williams, Annie W., Gonzales.
Young, W. J., Stockton.

COLORADO.

Brown, Joseph M., Akron.
Hereford, J. H., Cripple Creek.
Hanford, P. O., Colorado Springs.
McGill, E. D., Wray.
Pascoe, J. N., Silverton.
Pogue, George R., Greeley.

CONNECTICUT.

Kilbourn, Joseph A., Hartford.
Reeks, T. E., New Britain.
Rundlett, David Livingston, New Haven.
Williams, Allen H., Hartford.

DISTRICT OF COLUMBIA.

Beyer, H. G., U. S. Navy, Washington.
Curriden, G. A., Washington.

FLORIDA.

Ferris, F. F., Apalachicola.
McCall, C. P., Lemont.
McEachern, J. R., Monticello.
Thomas, R. Y. H., Jacksonville.

GEORGIA.

Funkhauser, W. L., Rome.
Richardson, E. H., Atlanta.
Roberts, S. R., Oxford.
Sullivan, J. S., Macon.
Wicker, R. H., Rome.
Wheeler, A. E., Atlanta.

HAWAIIAN TERRITORY.

De Faria, J. B., Honolulu.
Walters, St. David G., Honolulu.

IDAHO.

Burke, E. L., Culdesac.
Collins, I. S., Burke.
Noth, R. F., Minidoka.

ILLINOIS.

Allen, E., Sheldon.
Blomgren, C. E., Chicago.
Bartholomew, J. K., Chicago.
Brown, E. V. L., Chicago.
Biankini, A., Chicago.
Blazer, M. S., Manito.
Ball, A. W., Rushville.
Cupler, R. C., Chicago.
Davis, W. J. N., Chicago.
Daley, W. H., Chicago.
Day, J. A., Jacksonville.
Daniel, O. L., Murphysboro.
Edward, J. T., Chicago.
Eddy, J. H., Decatur.
Evensen, H. O., Ottawa.
Flatt, Stephen, Hardin.
Gregory, E. H., Chicago.
Gibson, A. Tilden, Morrisonville.
Gramm, Carl T., Chicago.
Harms, A. H., Sterling.
Hemingway, C. E., Oak Park.
Isham, I. D., Chicago.
Johnson, A. L., Prophetstown.
Kradwell, W. T., Joliet.
Kearsley, Mary J., Chicago.
Lunn, S. J., Chicago.
Lantz, Ida R., Oak Park.
McIntyre, George, Chicago.
McDeed, Winfield G., De Land.
Mangum, Wm. R., Buncombe.
McLaughlin, J. J., Chicago.
McKenney, G. M., Oregon.
Menn, Rudolph, Chicago.
O'Hara, F. S., Springfield.
Proudfoot, Alexander, Chicago.
Pusey, C. M., Chicago.
Parker, Wm., Mt. Sterling.
Renfrew, F. C., Sadorus.
Rees, Wm., St. Joseph.
Sweeney, J. L., Chicago.
Semple, W. F., Chicago.
Simmons, Albert C., Girard.
Snow, Frederick H., Chadwick.
Shastid, T. H., Harrisburg.
Sheppard, L. D., Chicago.
Warner, Arthur K., Chicago.
Walton, T. E., Danville.
Windsor, B. P., Mt. Auburn.
Young, C. O., Chicago.

INDIANA.

Abbott, Clarence, Otwell.
Busse, E. P., Evansville.
Cohen, David, Jeffersonville.
Cox, Lafayette T., Napoleon.
Cook, John W., Pendleton.
Duemling, Hermann A., Ft. Wayne.
Daniel, Wm., Corydon.
Dewey, E. L., Hammond.
Ford, O. P. M., Rising Sun.
Grayston, B. H. B., Huntington.
Jenkins, M. J., Richmond.
Knabe, Helene, Indianapolis.
Kennedy, Bernays, Indianapolis.
McDonald, A. J., Bedford.
Osterman, A. T., Seymour.
Smith, W. H., Bedford.
Shonkwiler, F. Marion, New Market.
Sloan, Wm. W., French Lick.
Schreiber, A. W., Lafayette.
Westfall, Arthur B., Lafayette.

INDIAN TERRITORY.

Booth, T. S., Ardmore.

IOWA.

Aschenbrenner, Carl F., Dysart.
Appel, Fred L., Muscatine.
Benedict, Chas. C., Menlo.
Beatty, E. D., Mallard.
Brann, J. V., Knoxville.
Brink, Milber, Boyden.
Bennett, G. J., Denver.
Barstow, J. M., Council Bluffs.
Conroy, H. H., Keswick.
Hull, F. C., Carlisle.
Luckey, G. M., Shellsburg.
Mantz, R. L., Cedar Rapids.
Morse, C. H., Eagle Grove.
Sawyer, P. E., Sioux City.
Smith, C. F., Des Moines.
Shelton, Bernard, Pulaski.
Talboy, J. H., Mapleton.

KANSAS.

Bice, G. R., Plainville.
Bodenhamer, Elmer A., Frederick.
Bertholf, C. M., Cherokee.
Duncan, E. C., Fredonia.
Graham, J. W., Wetmore.
Morrison, Hector, Womer.
Watkins, F. M., Wetmore.

KENTUCKY.

Froedge, C. W., Eighty-Eight.
Filiatreau, R. N., Knottsville.
Keen, L. O., Burkesville.
Lewis, A. S., Greensburg.
Lambert, Stinson, Owensboro.
McPherson, U. W., Sulphur Well.
Norment, Henry T., Anthoston.
Offutt, Vance, Jackson.
Royster, L. C., Smith Mills.
Rowe, A. M., Glasgow.
Stewart, P. H., Paducah.
Stone, W. S., Benton.
Thompson, W. R., Mt. Sterling.
Taylor, Z. G., Knob Lick.
Taylor, Eugene F., Liletown.
Williams, D. J., Ford.
Wilkerson, L. B., Russellville.
York, S. R., Center.

LOUISIANA.

Bernard, F. R., Lake Providence.
Brickell, W. E., New Orleans.
Delcourt, Adolphe, Sr., Terrebonne.

MAINE.

Pillsbury, C. W., Saco.

MARYLAND.

Hirsh, J. L., Baltimore.
Iglehart, N. E. B., Baltimore.
Litsinger, Glenn M., Baltimore.
McNeilan, Milton, Parkersburg.

MASSACHUSETTS.

Adams, James P., Lowell.
Belding, J. E., Springfield.
Eddy, George S., Fall River.
Gafney, H. D., Ware.
Joslin, E. P., Boston.
Sproull, J., Haverhill.
Sheehan, M. D., Stoneham.
White, F. W., Boston.

MICHIGAN.

Blanchard, F. N., Detroit.
Hilliker, J. B., Grand Rapids.
Noble, F. W., Remus.
Older, H. L., Morenci.
Zumstein, F. E., Detroit.

MINNESOTA.

Burton, O. A., Albert Lea.
Byrnes, W. J., Minneapolis.
Benham, E. W., Amboy.
Boyd, H. J., Alexandria.
Cavanaugh, J. O., St. Paul.
Cook, P. B., St. Paul.
Coon, G. M., St. Paul.
Duncan, W T., Fergus Falls.
Payette, C. H., W. Duluth.
Plummer, Henry S., Rochester.
Pool, Daniel, St. Paul.
Schjelderup, W. H., Granite Falls
Whiting, A. D., St. Cloud.
Woodruff, C. W., Chatfield.
Whyte, J. J., Bertha.

MISSISSIPPI.

Burnham, Chas. E., Big Springs.
Greaves, Walter J., Biloxi.
Linder, F. B., Oxford.
McEachern, C. G., Moss Point.

MISSOURI.

Ayars, T. R., St. Louis.
Atkins, Calvin, Independence.
Allison, Nathaniel, St. Louis.
Craig, T. B. M., Nevada.
Colley, E. A., Plattsburg.
Caldwell, W. C., Essex.
Cadwell, Victor, Essex.
Donnell, J. F., Festus.
Forster, Otto E., St. Louis.
Fowler, S. R., St. Louis.
Forgrave, H. S., St. Joseph.
Gilmer, J. E., Piedmont.
Grant, J. M., St. Louis.
Hall, H. R., St. Louis.
Heryford, W. B., Pickering.
Hamilton, R. L., Richmond.
Hickman, S. P., Ulman.
Kinner, Wm., Ferguson.
Lanier, L. H., Martinsburg.
Mueller, E. H., St. Louis.
Moore, G. M., Linn Creek.
Moore, J. G., St. Louis.
McNutt, I. N., Pevely.
McCulloch, G. A., Kearney.
Newhouse, Stanley, Kansas City.
Rice, J. J., Kearney.
Snodgrass, C. A., St. Louis.
Schmalhorst, D. E., St. Louis.
Shankland, W. M., Clinton.
Steedman, I. G., St. Louis.
Schwab, S. I., St. Louis.
Tureman, H. C., Kansas City.
Taylor, W. F. S., Poplar Bluff.
Talbot, Ambrose, Kansas City.
Wheeler, B. N., Kansas City.
Wilson, Eli, Leora.

MONTANA.

Bond, Harry A., Dillon.
Duncan, A. R., Kalispell.
Freund, I. D., Butte.
McGrath, George, Hamilton.
Packard, L. R., Whitehall.
Peek, W. A., Amador.
Warren, O. Y., Warm Springs.

NEBRASKA.

Andrews, James A., Holdrege.
Barton, A. E., Arcadia.
Bild, Elmer J., Page.
Butterbaugh, W. S., Johnson.
Hilton, D. C., Lincoln.
Hartwell, J. E., Crawford.
Thompson, T. D., West Point.

NEVADA.

Cox, J. E., Tonopah.
Dempsey, G. L., Fallon.
Drake, F. N., Goldfield.
Hood, W. H., Reno.
Samuels, W. L., Winnemucca.

NEW HAMPSHIRE.

Douglas, O. B., Concord.

NEW JERSEY.

Buchanan, J. Hervey, Plainfield.
De Hart, Clara M., Jersey City.
Dodge, Walter, Orange.
Harmon, W. J., Trenton.

NEW MEXICO.

Goelitz, Herman W., Las Vegas.
Long, John W., Tularosa.

NEW YORK.

Ippolito, Gennoro, New York City.
Kellogg, E. K. L., New York City.
Lambert, E. B., Port Jervis.
Pfeiffer, F., New York City.
Roberts, P. W., New York City.
Sinnott, J. J., Mt. Vernon.
Shrady, John Eliot, New York City.

NORTH CAROLINA.

Taylor, Isaac M., Morganton.

NORTH DAKOTA.

Irwin, S. H., Grand Forks.
Kaufmann, Carl, Wahpeton.
Mallarian, K. H., Fargo.
Sasse, E. G., Lidgerwood.
Shrodes, Geo. H., Lidgerwood.
Strauss, F. B., Glen Ullin.
Tronnes, N. L., Fargo.

OHIO.

Anders, C. I., Old Fort.
Brown, N. Worth, Toledo.
Chabot, G. W., Otway.
Dreyer, C. C., Toledo.
De la Barre, Paul, Port Clinton.
Edwards, H. E., Cleveland.
Fullerton, E. B., Columbus.
Houser, D. C., Millerstown.
Harrison, Charles M., Napoleon.
Hobson, J. A., Flushing.
Haldy, Walter A., Cleveland.
Halleck, F. D., Bowling Green.
King, C. W., Dayton.
Kleyinger, L. G., Dayton.
Kimmell, J. A., Findlay.
Marder, A. W., Lebanon.
Minton, Fred P., E. Toledo.
Moore, T. M., Willoughby.
Ong, A. R., Martins Ferry.
Pitkin, C. E., Cleveland.
Spence, W. S., Germano.
Snyder, A. E., Bryan.
Snyder, G. C., Moxahala.
Stephen, J. E., Drusilla.
Salzer, Moses, Cincinnati.
Thompson, J. A., Cincinnati.
Woolgar, W. J. W., Cleveland.
Young, H. A., Cleveland.

OREGON.

Ainslee, George, Portland.
Barber, J. R., Portland.
Coghlan, J. N., Portland.
Cauthorn, F., Portland.
Equi, Marie D., Portland.
Ferguson, E. E., The Dalles.
Ferguson, Belle C., The Dalles.
Flanagan, W. H., Grant's Pass.
Griffith, L. F., Salem.
Kelly, Richmond, Portland.
Manion, K. C., Portland.
McGavin, J. M., Portland.
Nunn, R., Portland.
Newth, C. H., Philomath.
Parker, M. E., Portland.
Paine, D. A., Eugene.
Panton, J. J., Portland.
Reuter, J. A., The Dalles.
Strickland, M. C., Oregon City.
Sheldon, S. H., Portland.
Taylor, Frank M., Portland.
Wallace, J. P., Albany.
Wheeler, C. H., Portland.
Walls, J. J., Portland.
Ziegler, Amelia, Portland.

PENNSYLVANIA.

Adams, C. W., Uniontown.
Allen, F. O., Jr., Philadelphia.
Bryant, Wm. C., Pittsburg.
Byrne, T. J., Philadelphia.
Barth, J. B., Charleroi.
Campbell, W. J., Mt. Union.
Dehoney, Howard, Philadelphia.
Enfield, Walter F., Bedford.
Fish, H. S., Sayre.
Gwyn, N. B., Philadelphia.
Henry, J. A., Lancaster.
Hough, C. B., Ambler.
Koons, J. H., Waynesboro.
McKee, Claude W., Scottdale.
Manning, C. J., Harrisburg.
Shurtleff, H. C., Philadelphia.
Smith, H. F., Harrisburg.
Scarlett, R. B., Philadelphia.
Updegrove, J. D., Easton.
Wechsler, B. B., Pittsburg.
Woods, G. H., Pine Grove Mills.

PHILIPPINE ISLANDS.

Newberne, R. E., Manila.
Thomas, R. C., Capiz.

RHODE ISLAND.

Ballou, Chas. O., Providence.
Hamlin, E. F., Statesville.
Watson, W. P., Pawtucket.

SOUTH CAROLINA.

Pack, W. S., Greenville.

SOUTH DAKOTA.

Berry, S. G., Tyndall.
Daniels, A. H., Mitchell.
Kammerling, T. S., Mitchell.
Kheiralla, G. I., Lake Preston.
Lawver, J. C., Spencer.
Morehouse, E. M., Yankton.
Miller, E. C., Brookings.
Sornsen, A. A., Summit.

TENNESSEE.

Dotson, Walter, Kempville.
Dake, R. W., Nashville.
Edwards, C. W., Memphis.

TEXAS.

Bowman, A. R., Uvalde.
Cathcart, J. W., El Paso.
Hildebrand, W. J., Gonzales.
Johnston, E. A., Amarillo.
Parr, A. B., Dimmitt.
Roebuck, L. B., Sweetwater.
Van Vettermann, Emanuel, Shiner.

UTAH.

Robison, Geo. E., Provo City.

VIRGINIA.

Chinn, Geo. E., Norfolk.
Henkel, Casper C., Shenandoah.
Hobson, S. W., Newport News.
Meriwether, G. D., Buena Vista.
Mitchell, L. G., Downings.
Robertson, E. W., Onancock.
Thornhill, W. B., Lynchburg.

WASHINGTON.

Gammon, C. P., Walla Walla.
Harrison, R. H., Tacoma.
Hawley, Alanson W., Seattle.
Van Vechten, W. B., Tacoma.
Wells, W. B., Hoquiam.

WEST VIRGINIA.

Barbee, H. A., Point Pleasant.
Bosworth, J. W., Philippi.
Doyle, J. H., Grafton.
Moore, J. W., Charleston.
Morgan, E. H., Eagle.
Proudfoot, M. H., Rowlesburg.

WISCONSIN.

Bacon, H. L., New London.
Bodorn, Thomas, Blair.
Bassard, Clemens, Richfield.
Cunningham, J. N., Stanley.
Cutter, J. D., Tomahawk.
Ellenson, E. P., Chippewa Falls.
Franzel, J. E., Howards Grove.
Glasier, M. B., Bloomington.
Grant, J. C., Lena.
Graenicher, Sigmund, Milwaukee.
Harter, A. F. S., La Crosse.
Horace G. Hilliard, Baraboo.
Ladwig, W. A., Edgar.
Luhman, F. W., Morrison.
McCormick, Hugh, New Auburn.
McKellar, A., Blanchardville.
Noble, J. B., Waukesha.
Nystrum, C. E., Medford.
Reinhardt, J. Paul, Fountain City.
Schoenfeld, Chas. J., La Crosse.
Shaw, B. W., Waunakee.
Storey, C. L., Hayward.
Ven Hengel, G. T. A., Waupun.
Winneman, F. A., Hazelhurst.

WYOMING.

Freeman, Chas. M., Rock Springs.
Godfrey, A. C., Lander.
Wicks, Jos. L., Evanston.

Marriages

LEO BLOCH, M.D., to Miss Elise Nichols, both of Louisville, Ky., June 6.

LOUIS E. SCHMIDT, M.D., to Miss Marie Mansfield, both of Chicago, June 1.

EDWARD M. HOLMES, M.D., to Miss Sadie Clohesy, both of Chicago, June 7.

EDWARD P. ANDREWS, M.D., to Miss Isabel Bain, both of Milwaukee, June 1.

ROY A. DODGE, M.D., Omaha, to Miss Ella Ruffner of Plattsmouth, Neb., June 3.

ROBERT S. ENGLER, M.D., to Mrs. E. Harriett Thornton, both of Philadelphia, May 9.

LEWIS W. SPRADLING, M.D., to Miss Lida Burns, both of Athens, Tenn., May 22.

JOHN COOK HIRST, M.D., Philadelphia, to Miss Maud Wilson Boyd of Maryland, June 1.

E. GECONA MAXWELL, M.D., to Miss Lila Parker, both of Wildersville, Tenn., May 21.

ORA J. CULBERTSON, M.D., to Miss Louise Leber, both of East St. Louis, Ill., May 25.

MERVYN ROSS F. TAYLOR, M.D., to Miss Jeannette Riley, both of Philadelphia, June 7.

GEORGE EDWIN BAXTER, M.D., to Miss Cecile Maude Hitchcock, both of Chicago, June 7.

O. P. HOPPING, M.D., to Miss Bertha Zella of Mount Pulaski, Ill., at Girard, Kan., May 24.

REINHARD E. WOBUS, M.D., St. Louis, to Miss Dora L. Schaffer of Quincy, Ill., May 23.

MILTON GOLDSMITH, M.D., to LUBA NATALIA ROBIN, M.D., both of Pittsburg, Pa., March 25.

CLINTON G. BECKETT, M.D., Hillsboro, Ind., to Miss Lillie Rhode of Winthrop, Ind., May 21.

WILLIAM DE FORREST OLMSTEAD, M.D., to Miss Martha E. Smith, both of Baltimore, May 29.

MILLS T. CHASTAIN, M.D., Marshall, Mo., to Miss Dora Cartright of Milton, Ore., May 24.

VICTOR D. MILLER, JR., M.D., to Miss Nellie Baechtel Loose, both of Hagerstown, Md., June 1.

A. D. BREWER, M.D., Belgrade, Mont., to Miss Florence Belle Somers of Grinnell, Iowa, May 22.

RICHARD WEIL, M.D., to Miss Minnie Straus, both of New York City, at Long Branch, May 30.

JAMES MAXWELL DELL, M.D., Gainesville, Fla., to Miss Johnnie Liddon of Ocala, Fla., June 7.

CHARLES M. HENDRICKS, M.D., Denver, Colo., to Miss Edith Louise Duguid of Toledo, Ohio, June 7.

JAMES E. HICKS, M.D., Mount Vernon, Ind., to Miss Lilian Harriet Ridley of Toledo, Ohio, May 25.

MICHAEL A. FLOERSCH, M.D., Hartington, Neb., to Miss Rose Uhlrich of Wamego, Kan., May 24.

MICHAEL H. ETCHEVERRY, M.D., San Diego, Cal., to Miss Caleste Lacoste of San Francisco, June 1.

BRUCE LINVILLE TAYLOR, M.D., Washington, D. C., to Miss Helen Sewell Child, at Baltimore, June 1.

ARTHUR F. HESS, M.D., Zanesville, Ohio, to Miss Grace G. Wallwork of the Adamsville road, June 8.

FREDERICK C. WARNSHUIS, M.D., to Miss Calla Ewing Bottsford, both of Grand Rapids, Mich., May 24.

LLEWELLYN POWELL SPEARS, M.D., to Miss Katherine Linwood Payne, both of Louisville, Ky., May 25.

HENRY STEPHEN SMITH, M.D., San Diego, Cal., to Miss May F. Lawton of Los Angeles, Cal., May 17.

WILLIAM WESLEY STALLWORTH, M.D., Fayette, Ala., to Miss Mary Ruth Plant of Birmingham, Ala., May 23.

JAMES A. REA, M.D., Wellington, Kan., to Miss Kate Parshall of Lamont, Iowa, at Newkirk, Okla., May 27.

WILLIAM ALVA DAVIS, M.D., Baltimore, to Mrs. Maria Kane Wetherill Apperson of Philadelphia, at Baltimore, May 25.

GEORGE BULLOCK WEISS, M.D., Washington, D. C., to Miss Virginia Tilard Syme of Winchester, Va., at Baltimore, May 25.

CLARK STEVENS FORTNEY, M.D., Howesville, W. Va., to MARY JEANETTE FANSLER, M.D., of Rowlesburg, W. Va., in Washington, D. C., May 25.

Deaths

Henry Putnam Stearns, M.D. Medical Institution of Yale College, New Haven, 1855, a member of the American Medical Association; sometime president and vice-president of the Connecticut Medical Society and the Hartford Medical Society; ex-president of the American Medico-Psychological Association, and of the Yale Medical Alumni Association; for 31 years superintendent of the Retreat for the Insane, Hartford; lecturer on insanity in Yale University Medical Department from 1876 to 1897; during the Civil War first surgeon of the First Connecticut Volunteer Infantry, and later brigade surgeon of volunteers and medical director; an eminent practitioner, teacher, alienist and expert on insanity, died at his home in Hartford, May 27, from general nervous breakdown, aged 77. The Hartford Medical Society, at a special meeting, passed resolutions of regret and voted to attend the funeral in a body.

James Thorburn, M.D. Toronto University Medical Faculty, 1856, for several years professor of pharmacology and therapeutics in his alma mater; president of the Canadian Medical Council in 1895, and of the Ontario Medical Council two years later; surgeon to the Queen's Own Rifles, a member of the staff of the Toronto General Hospital, died at his home in Toronto, May 26, from heart disease, after a short illness, aged 74.

John William Compton, M.D. Medical College of Evansville, Ind., 1873, assistant surgeon of the Seventeenth Kentucky Volunteer Infantry during the Civil War; at one time professor of materia medica and therapeutics in his alma mater, and from 1881 to 1885 president of the State Board of Health, died at the home of his son in Terre Haute, Ind., May 28, after a long illness, aged 80.

George Miles Palmer, M.D. University of Buffalo (N. Y.) Medical Department, 1865, supervisor of the town of Pike for five terms; representative from Wyoming County in the legislature for two terms; health officer of Warsaw; surgeon in the Army during the Civil War, died at his home in Warsaw, N. Y., May 28, after a lingering illness, aged 77.

Edward Payson Drown, M.D. Harvard University Medical School, 1893; city physician of Malden, Mass., 1895 to 1898, past president of the Malden Medical Society; member and district censor of the Massachusetts Medical Society, died at his home in Malden, May 25, from peritonitis, a few hours after an operation for appendicitis, aged 39.

Melville M. Shearer, M.D. Medical Department of the University of Iowa, Keokuk, 1864; surgeon of the Forty-eighth Illinois Volunteer Infantry during the Civil War; sometime physician of Sonoma County, Cal., and president of the Sonoma County Medical Society, died at his home in Santa Rosa, May 28, after an illness of two months.

John Findley Hathaway, M.D., a practitioner of Leavenworth, Kan., for more than 50 years, an early "free-state" and anti-slavery advocate, died at the Western Branch of the National Home for Disabled Volunteer Soldiers, Leavenworth, from cerebral hemorrhage, Oct. 27, 1904, aged 85.

Miles F. McTaggart, M.D. Philadelphia, 1865; College of Physicians and Surgeons of Ontario, Toronto, 1880, a member of the Medical Society of the State of California, died at his home in Reno, Nev., May 22, from heart disease, after an illness of six months, aged 55.

John Ford McCarthy, M.D. Rush Medical College, Chicago, 1855, surgeon of the Fifteenth and the Twenty-ninth Indiana Volunteer Infantry during the Civil War; postmaster of Valparaiso, Ind., for 12 years, died at his home in that city, May 27, from cancer, aged 77.

John Williams Streeter, M.D. Illinois, 1868, of Chicago, formerly major-surgeon First Infantry, Illinois National Guard, and assistant-surgeon general of the state, died at his summer home in Lake Forest, Ill., from spinal paralysis after an illness of several years, aged 63.

William Bernard Warren, M.D. Dartmouth Medical School, Hanover, N. H.; New York University, New York City, 1881, a member of the Massachusetts Medical Society, died suddenly at his home in Groton, Mass., April 29, from cerebral hemorrhage, aged 51.

Cranston de St. Remy, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1903, of Kingston, house surgeon of the Manhattan Eye and Ear Hospital, died in St. Vincent's Hospital, New York City, April 7, after an illness of several weeks.

Hatton Nathan Thompson Harris, M.D. College of Physicians and Surgeons in the City of New York, 1885, surgeon United States Navy, died at the Naval Hospital, Pensacola, Fla., May 19, from appendicitis, after an illness of five days, aged 43.

D. H. Johnson, M.D. New York University, New York City, 1868, a member of the San Mateo County (Cal.) Medical Society, died from interstitial myocarditis at his home in San Mateo, March 12, after an illness of six months, aged 70.

Roger S. Turlington, M.D. Medical College of Virginia, Richmond, 1895, formerly of Bennettsville, S. C., died in the James Walter Memorial Hospital, Wilmington, N. C., from acute alcoholism, May 17, after an illness of four days, aged 40.

Henry B. Orr, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1898, of New Orleans, for several years professor of biology in Tulane University, died at Touro Infirmary, New Orleans, May 29, after a long illness.

Albert H. Dickinson, M.D. University of Maryland School of Medicine, Baltimore, 1856, formerly of Galena, Md., was found dead in his room in Baltimore, May 23, from the effects of laudanum taken with suicidal intent, aged 74.

Emil Tietze, M.D. Royal Academy of Medicine and Surgery, Dresden, Saxony, 1847, for many years chief surgeon for the Pennsylvania Railroad at Altoona, died at the home of his daughter in Philadelphia, May 24, aged 76.

August F. Hipp, M.D. Cincinnati College of Medicine and Surgery, 1870, for 11 years physician at the Toledo (Ohio) Workhouse, died at his home in Toledo, May 25, after an illness of seven months, aged 66.

Joseph A. Gilliss, M.D. Washington University School of Medicine, Baltimore, 1870, of Baltimore; for 10 years vaccine and police physician, died suddenly from cerebral hemorrhage, in York, Pa., June 2, aged 64.

Arthur R. Boyle, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., of Wychwood Park, Ont., died in Grace Hospital, Toronto, May 27, aged 70.

Ross Fear Klock, M.D. Medico-Chirurgical College, Kansas City, Mo., 1904, of Ottumwa, Kan., was drowned, March 18, while making a professional call which necessitated fording the Neosho River, aged 28.

Joseph S. De Jarnette, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1848, formerly treasurer of Spottsylvania County, Va., died at his home in Lewiston, Va., May 23, aged 75.

Thomas F. Steele, M.D. New York University, New York City, 1888, of Unionport, Borough of the Bronx, New York City, died May 27 at the Lebanon Hospital, New York City, from pneumonia, aged 35.

Amasa J. Mullan, M.D. Central College of Physicians and Surgeons, Indianapolis, 1893, died from general miliary tuberculosis at his home in Indianapolis, May 30, after an illness of four weeks, aged 34.

Clio B. Collier, M.D. Tennessee Medical College, Knoxville, 1900, assistant physician of Knox County, Tenn., died at his home in Knoxville, May 27, from tuberculosis, after a long illness, aged 28.

Ira P. Smith, M.D. Albany (N. Y.) Medical College, 1859, surgeon of a New York regiment during the Civil War, died suddenly from heart disease at his home in Bath, N. Y., aged 69.

Emmett Jowers, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1890, of New Orleans, died May 22 at Channing, Texas, after a long illness, from tuberculosis, aged 46.

George Frederick Thomas, M.D., at one time professor of pathology in Cooper Medical College, San Francisco, died at his home in Berkeley, Cal., April 10, from senile debility, aged 83.

John L. C. Whitcomb, M.D. New York University, New York City, 1890, a member of the New York State Medical Association, died at his home in Liberty, N. Y., May 21, aged 43.

Robert M. Delzell, M.D. License Indiana, 1897, of Reynolds, Ind., was instantly killed May 29, by a tree struck by lightning falling on the carriage in which he was, and crushing him.

Everett L. Creesy, M.D. Harvard University Medical School, Boston, 1900, died at his home in Beverly, Mass., May 28, from the effects of morphin taken with suicidal intent, aged 30.

Lebbeus J. Bigelow, M.D. Baltimore Medical College, 1891, of Juniata, Pa., died at the Altoona Hospital from paretic dementia, May 23, after a long illness, aged 35.

C. W. Eagon, M.D., a veteran of the Civil War, in which he served as surgeon in a Virginia regiment, died at his home in Parkersburg, W. Va., May 22, aged 75.

William Hale Burns, M.D., for many years a practitioner of Richview, Ill., died at the home of his son in San Jose, Cal., from senile debility, May 18, aged 84.

Hal-Cee J. Hamilton, M.D. Hospital College of Medicine, 1897, died at his home in Clear Creek, Ind., from tuberculosis, May 26, after a long illness, aged 37.

Henry Wagner Kreider, M.D. Rush Medical College, Chicago, 1856, died at his home in Galesburg, Ill., May 25, after a short illness, from senile debility, aged 86.

J. R. Franklin, M.D. Medical College of Alabama, Mobile, 1880, a member of the Louisiana State Medical Society, died at his home in Hornbeck, March 31.

Sylvester M. Hewitt, MD. Vermont Medical College, Woodstock, 1843, formerly treasurer of Morrow County, Ohio, died recently at his home in Cincinnati.

Albert E. Harvey, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1869, died suddenly at his home in Wyoming, Ont., May 27, aged 63.

John A. Greig, M.D. Manitoba Medical College, Winnipeg, 1887, formerly of Bottineau, N. D., died in Washington recently, from tuberculosis.

Charles A. Wean, M.D. Detroit Medical College, 1885, died at his home in Chicago, May 28, from septicemia, after an illness of 10 days, aged 40.

Charles C. Higgins, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1863, died in Chicago, May 26, from acute nephritis, aged 65.

Joseph E. Lowes, M.D. Ohio, 1868, of Dayton, Ohio, died from cerebral hemorrhage at Pasadena, Cal., May 24, after a short illness, aged 56.

Clyde E. Huffman, M.D. Cincinnati College of Medicine and Surgery, 1892, died suddenly in his office in Cincinnati, May 27, aged 38.

Matthew Q. Hendrix, M.D. Rush Medical College, Chicago, 1884, died at his home in Lexington, S. C., from smallpox, May 20.

Henry P. Watson, M.D. Dartmouth Medical School, Hanover, N. H., 1867, died at his home in Manchester, May 19, aged 61.

Philip Chisholm, M.D., the oldest resident of Cape Breton, died at Loch Lomond, C. B., March 10, aged 102.

Deaths Abroad.

M. Soupault, M.D., author of what promises to be a classic work on diseases of the stomach, his specialty, died at Paris May 2, in the prime of life, succumbing to diabetes.

K. Eckhard, M.D., professor of physiology at Giessen and author of a manual of anatomy, and of works on experimental physiology on the nervous system and on the glands and their functions, died at Giessen May 3, aged 83.

Paquelin, the inventor of the thermocautery which has made his name a familiar term in medical circles the world around, died at Paris about May 1, at an advanced age. He invented his cautery soon after he had commenced to practice medicine in Paris, about 1870. It was adopted almost at once by the profession. Paquelin was little known by the present generation. He always refused to accept the teachings of bacteriology and held himself aloof from those professing the microbian doctrine.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ARE TRICHINÆ IN DRIED BEEF?

FALLS CHURCH, VA., May 26, 1905.

To the Editor:—Can dried or "jerked" beef infect the human alimentary canal with the tapeworm larvæ as does raw beef?

INQUIRER.

ANSWER.—We do not believe that dried or jerked beef will infect with trichinæ in the same way as raw beef. Of course something depends on the length of time that the beef is dried. We think it would be impossible for trichinæ to live long in beef that is properly dried.

CONVENTIONS TO BE HELD IN EUROPE.

PHILADELPHIA, May 25, 1905.

To the Editor:—Will you kindly publish a list of the medical societies and congresses that are to meet in Europe during the summer and fall of 1905. MIHRAN K. KASSABIAN.

ANSWER.—The following is a list of meetings of which we have information:

June 9 and 10: Fourteenth Congress of German Otologic Society. Homburg.

June 12: Congress of Laryngologists of Southern Germany. Heidelberg.

June 13: First Congress of German Laryngologic Association. Heidelberg.

June 13: Second French Congress for School Hygiene. Paris.

June 13 and 14: Congress of Bavarian Psychiatrists. Munich.

June 14 to 17: German Congress of Gynecology. Kiel.

July 25 to 28: Annual Meeting of British Medical Association. Leicester.

August 1 to 7: Fifteenth French Congress of Alienists and Neurologists. Rennes.

August 7 to 10: International Congress of Anatomy. Geneva.

August 13 to 15. Belgian Congress of Professional Medicine. Liège. Secretary, Dr. Hougardy, Rue du Diamant, Liège.

August 13 to 15: First International Congress of Physico-Therapy. Liège. Secretary, Dr. De Munter, 86 rue Louvrex, Liège.

September 11 to 16: Tenth International Antialcohol Congress. Budapest.

September 11 to 18: Fifth International Congress for Gynecology. St. Petersburg.

September 21 to 23: First International Congress of Surgery. Brussels.

September 20-23: Fifth German Medical Study Trip. Starts from Munich and ends at Meran. Dr. W. H. Gilbert of Baden in charge.

September 24 to 30: Seventy-seventh German Congress of Physicians and Scientists ("Naturforscher Congress"). Meran. General secretary, Dr. S. Huber, Meran.

September: First International Congress of Education and Protection of the Child in the Family. Liège. Secretary's address, 44 via Rubens, Brussels.

October 2 to 4: Seventh French Congress for Internal Medicine. Liège.

October 2 to 7: International Tuberculosis Congress. Paris.

The French Congress for Suppression of Illegal Practice of Medicine has been postponed to April 30, 1906.

The "Leipziger Verband" for the Promotion of the Material Interests of the Physicians of Germany holds its annual meeting at Strasburg in June.

BIOGRAPHY—DODERLEIN—FACULTATIVE ANAEROBE.

NASHVILLE, TENN., May 26, 1905.

To the Editor:—1. Is there a work published that gives a short biography of the most prominent *living* men of science (especially in medicine) in America or Europe or both? 2. With what institution, if any, is Döderlein connected and what is his address? 3. What is the meaning of the term "facultative anaërobe? Stengel's work on pathology and many of the standard works on surgery give exactly opposite definitions to those given by many standard text-books on bacteriology. X.

ANSWER.—1. The "Bibliographical Dictionary of Physicians," published by D. G. Brinton, 115 South Seventh Street, Philadelphia, 1880, contains short biographies of contemporary American physicians and surgeons. "Physicians and Surgeons of America," Republican Press Association, Concord, N. H., 1896, is a collection of biographical sketches of the regular medical profession. The two above mentioned are probably out of print, but will, perhaps, be found in some library. "Who's Who in America," A. N. Marquis & Co., Chicago, also contains the names and short biographical sketches of leading medical men. "Biographisches Lexikon hervorragender Arzte," by Professor Pagel of Berlin, gives similar information concerning European physicians (most of them deceased). It is in German (price, about $8.50), and may be purchased from W. T. Keener & Co., 90 Wabash Avenue, Chicago. Appleton's Universal and other good encyclopedias give sketches of the most prominent men in the profession. 2. Döderlein is professor of gynecology at the University of Tübingen, Germany. 3. A faculiative anaërobe is a micro-organism which will grow either in the presence or in the absence of oxygen.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending June 3, 1905:

Richards, R. L., asst.-surgeon, now at San Francisco, relieved from further duty in the Philippines Division and ordered to Vancouver Barracks, Washington, for duty.

Cole, Clarence L., asst.-surgeon, recently appointed; ordered to the bacteriologic laboratory at Army Medical Museum, Washington, D. C., for temporary duty.

Richards, Robert L., asst.-surgeon, reported for temporary duty at Fort Mason, Cal.

Jones, Percy L., asst.-surgeon, ordered to report, June 12, 1905, to Major Wm. H. Arthur, surgeon, president examining board, Washington, D. C., for examination to determine his fitness for advancement to rank of captain.

Perley, H. O., deputy surgeon general, Mason, Charles F., surgeon, McCulloch, C. C., Jr., surgeon, appointed members of a board to meet at West Point, N. Y., about June 5, 1905, for the examination of such officers of the medical department as may be ordered before it to determine their fitness for promotion.

Rhoads, Thos. L., asst.-surgeon, under orders to report to president of examining board at West Point, N. Y., for examination to determine his fitness for advancement.

Rand, I. W., asst.-surgeon, ordered to accompany detachment of 10th Infantry from Presidio of San Francisco, to Portland, Ore.

Stone, John H., asst.-surgeon, relieved from duty at Fort Leavenworth, Kans., and ordered to Key West Barracks, Fla., for duty.

Hartnett, Eugene H., asst.-surgeon, relieved from duty at Key West Barracks, Fla., and ordered to Fort Hancock, N. J., for duty.

McCulloch, C. C., Jr., surgeon, relieved from duty at Fort Hancock, N. J., and ordered to the Presidio of Monterey, Cal., for duty.

Koerper, C. E., asst.-surgeon, having relinquished leave of absence, is ordered to the U. S. Army General Hospital, Washington Barracks, D. C., for duty.

Stiles, Henry R., asst.-surgeon, ordered to report to Major Wm. H. Arthur, surgeon, president of examining board, Army Medical Museum Building, Washington, D. C., June 15, 1905, for physical examination to determine his fitness for promotion.

Reno, Wm. W., asst.-surgeon, ordered to proceed from Fort Myer, Va., to Washington Barracks, D. C., for temporary duty.

Murtagh, John, A., asst.-surgeon, granted ten days' leave of absence.

Banister, John M., surgeon, left Fort Riley, Kans., on leave of absence.

Glennan, James D., surgeon, left Fort Myer, Va., on ten days' leave of absence.

Long, Charles J., dental surgeon, left Fort Harrison, Mont., for temporary duty at Fort Missoula, Mont.

Watkins, Victor E., contract surgeon, accompanied Troop M, 5th Cavalry from Fort Apache, Ariz., to Fort Du Chesne, Utah, and ordered to remain on duty with that troop.

Thorp, Charles W., contract surgeon, returned to Fort Ethan Allen, Vt., from temporary duty at Fort Adams, R. I.

Mason, George L., dental surgeon, ordered from Fort Oglethorp, Ga., to Fort Dade, Fla., for temporary duty.

Wolven, F. Homer, dental surgeon, left Fort Adams, R. I., for Fort Williams, Me., for temporary duty.

Ware, William H., dental surgeon, left Fort Grant, Ariz., and arrived at his proper station, Fort Logan, Colo.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, week ending June 3.

G. M. Olson, B. Elmore and E. O. J. Eytinge, asst.-surgeons, appointed asst.-surgeons, with the rank of lieutenant (J. O.), from May 24, 1905.

Mears, J. B., acting asst.-surgeon, ordered to additional duty at the Marine Recruiting Station, Buffalo, N. Y.

Guthrie, J. A., surgeon, detached from the *Dixie* and ordered to the Naval Hospital, New York, N. Y., for treatment.

Murphy, J. F., asst.-surgeon, ordered to additional duty on the *Dubuque*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 31, 1905:

Vaughan, G. T., assistant surgeon general, granted leave of absence for one month and fifteen days from June 16.

Carmichael, D. A., surgeon, bureau letter of May 24, 1905, granting him leave of absence for 14 days from May 12, 1905, amended so that said leave shall be for eleven days only.

Corput, G. M., P. A. surgeon, granted leave of absence for seven days from May 28, 1905, under paragraph 191 of the regulations. Granted extension of leave of absence for 23 days from June 4.

Holt, J. M., P. A. surgeon, granted extension of leave of absence, on account of sickness, for 1 month, from May 29.

Wilson, R. L., P. A. surgeon, granted leave of absence for ten days, from May 31, 1905.

Baley, C. W., acting asst.-surgeon, granted leave of absence for twenty-six days, from June 5 to May 27, 1905.

Edwards, J. W., acting asst.-surgeon, granted leave of absence for three days, from May 26, 1905, under paragraph 210 of regulations.

Schug, F. J., acting asst.-surgeon, granted leave of absence for fifteen days, from June 15 to May 26, 1905.

Stuart, A. F., acting asst.-surgeon, granted leave of absence for thirty days, from July 3 to May 27, 1905.

Gahn, Henry, pharmacist, relieved from duty at Purveying Depot, New York, and directed to proceed to Washington, D. C., for duty in the Purveying Depot in that city, May 27, 1905.

Stearns, W. L., pharmacist, relieved from duty at Purveying Depot, New York, and directed to proceed to Santa Rosa quarantine, Pensacola, Fla., and report to acting asst.-surgeon in charge for duty and assignment to quarters, relieving Pharmacist Chas. Miller, May 26, 1905.

Miller, Charles, pharmacist, on being relieved from duty at the Santa Rosa Quarantine Station, Pensacola, Fla., by Pharmacist W. L. Stearns, to proceed to San Francisco, Cal., and report to the

medical officer in command for duty and assignment to quarters, May 26, 1905.

Bierman, C. H., pharmacist, granted leave of absence for thirteen days, from June 7 to May 25, 1905.

Dr. Montafix W. Houghton, appointed acting assistant surgeon for duty at Providence, R. I., May 29, 1905.

Acting Asst.-Surgeon J. W. Hargis, resigned, to take effect May 31, 1905.

Health Reports.

The following cases of smallpox, yellow fever and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service during the week ended June 3, 1905:

SMALLPOX—UNITED STATES.

Arkansas: Fort Smith, March 11-April 22, 8 cases.
Florida: Jacksonville, May 20-27, 1 case.
Illinois: Chicago, May 20-27, 28 cases; Galesburg, May 20-27, 2 cases.
Louisiana: New Orleans, May 20-27, 11 cases, two imported.
Massachusetts: Lowell, May 20-27, 5 cases; Quincy, May 13-20, 1 case.
Michigan: Detroit, May 21-28, 2 cases; Grand Rapids, May 13-27, 41 cases, 8 deaths.
Missouri: St. Joseph, May 20-27, 12 cases; St. Louis, May 20-27, 3 cases.
Montana: Butte, May 14-21, 1 case.
Nebraska: Omaha, May 20-27, 3 cases; South Omaha, May 12-19, 3 cases.
New Hampshire: Manchester, May 20-27, 1 case; Nashua, May 20-27, 2 cases.
Pennsylvania: Lebanon, May 20-27, 1 case; York, May 20-27, 16 cases.
Tennessee: Memphis, May 20-27, 5 cases.
West Virginia: Morgan County, Oct. 31, 1904-May 25, 1905, 200 cases.
Wisconsin: La Crosse, May 20-27, 2 cases.

SMALLPOX—INSULAR.

Porto Rico: San Juan, April 1-30, present.

SMALLPOX—FOREIGN.

Africa: Cape Town, April 8-15, 4 cases.
France: May 6-13, Lyon, 1 case; Paris, 20 cases, 2 deaths.
Great Britain: Bradford, May 6-20, 9 cases; London, May 6-13, 2 cases; Newcastle-on-Tyne, May 6-13, 7 cases; Nottingham, April 29-May 6, 1 death; South Shields, April 29-May 6, 2 cases.
India: Bombay, April 25-May 2, 63 deaths; Karachi, April 16-30, 27 cases, 11 deaths.
Italy: Catania, May 11-19, 4 deaths; Cosenza Province, April 30-May 4, 2 cases; Lecce Province, April 20-May 4, 7 cases; Milan Province, April 20-May 4, 2 cases; Messina Province, April 20-May 4, 1 case; Mazzarino, April 20-May 4, 1 case; Palermo, April 29-May 13, 12 cases, 3 deaths; Potenza, April 20-May 4, 2 cases; Siena, April 20-May 4, 2 cases; Syracuse, April 20-May 4, 5 cases; Villenza, April 20-May 4, 2 cases.
Russia: Moscow, April 29-May 6, 5 cases, 2 deaths.
Spain: Barcelona, May 1-10, 6 deaths; Cadiz, April 1-30, 3 death.
Turkey: Constantinople, May 7-14, 2 deaths.
West Indies: Bridgetown, May 9, 1 case, probably imported.

YELLOW FEVER.

British Honduras: Belize, May 25-June 1, 4 cases, 4 deaths.
Honduras: Puerto Cortez, May 25-29, 5 cases, 3 deaths.
Mexico: Tierra Blanca, May 14-20, 1 death.
Panama: Panama, January 1-May 13, 63 cases, 22 deaths.

PLAGUE.

Africa: East London, March 18-25, 3 cases.
Egypt: Tukh District, April 15-22, 1 death; April 22-29, 2 cases.
Great Britain: Leith, May 6-13, 3 cases, 1 death.
India: Bombay, April 25-May 2, 822 deaths; Karachi, April 16-30, 483 cases, 422 deaths; Madras, April 22-28, 1 death.
Japan: Formosa, April 20-30, 238 cases, 210 deaths.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Amer. Assn. of Genito-Urinary Surgeons, Montreal, June 13-14.
Massachusetts Medical Society, Boston, June 13-14.
American Pedriatric Society, Lake George, N. Y., June 19-21.
Medical Society of New Jersey, West End, June 20-22.
Indian Territory Medical Association, Tulsa, June 20-22.
Michigan State Medical Society, Petoskey, June 28-30.
American Climatological Association, Detroit, Mich., June 29-30.
American Surgical Association, San Francisco, Cal., July 5-7.
South Dakota State Medical Association, Deadwood, July 5-7.
Amer. Assn. of Life Ins. Exam. Surgeons, Portland, Ore., July 10.
American Medical Editors' Assn., Portland, Ore., July 10.
Oklahoma State Medical Association, Guthrie, July 10-11.
American Urological Association, Portland, Ore., July 12-13.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Annual Meeting, held at Washington, D. C., May 18-19, 1905.

(Concluded from page 1806.)

Report of the Committee on Early Diagnosis.

Drs. A. C. Klebs, Chicago; J. H. Musser, Philadelphia; F. Billings, Chicago; J. C. Wilson, Philadelphia, and H. R. M. Landis, Philadelphia, made the following report, which has been referred to on page 1805:

The diagnosis of phthisis, that well-developed stage of pulmonary tuberculosis, offers no difficulty whatever, the symptoms are well marked and typical, the pulmonary signs easily discoverable, the expectoration contains bacilli—the clinical picture is so typical that mistakes in diagnosis can not well be made, even by the superficially trained observer.

But this stage of pathologic development in the great majority of cases is reached only after very long periods, during which all signs and symptoms are less typical, less marked from that time on which infection took place. During this time, which marks the true incipiency of the malady and which anatomically is characterized by the formation of few isolated tubercles in lymph glands or lung tissue, no symptoms, or only vague general symptoms exist, and none on which to base a positive diagnosis of the disease. Investigation has shown that such infections are of very frequent occurrence, and that only in a comparatively small percentage of these cases does the disease develop further. This percentage, however, is sufficiently large to make tuberculosis the most destructive of all diseases, and the demonstration of its frequent and spontaneous arrest and of its curability by certain therapeutic measures at an early period of its development, must induce efforts of recognition long before the stage of phthisis is reached.

The discovery of the tubercle bacillus in the sputum of patients suffering from the disease constitutes a diagnostic means of indisputable accuracy. The consideration of the fact that tubercle bacilli can appear in the sputum only after the caseation and breaking down of a tubercle situated near a bronchus or bronchiolus, makes it certain that tuberculous changes occur previous to the appearance of the bacillus in the sputum. This is borne out by the clinical observation of a recognizable stage of tuberculous lung involvement, before bacilli are found in the sputum. The adoption of the term "closed," designating this stage, in opposition to "open," i. e., with bacilli found in the sputum, can be recommended for more general introduction.

From the therapeutic standpoint the diagnosis of pulmonary tuberculosis in its closed stage is of the utmost importance, the chances of permanent recovery diminishing proportionally with the postponement of rational therapeutic measures. These measures being, on the whole, nothing but a radical change in the patient's mode of life, will also interfere less with his usual occupations, the earlier the diagnosis is made. Hence also the paramount importance of an early diagnosis. The physician who declines to make a positive diagnosis of tuberculosis on account of the absence of bacilli in the sputum only, assumes a very grave responsibility, and great caution in this respect can not be urged sufficiently. Whenever certain signs and symptoms justify a suspicion of the disease, without there being positive evidence, it is wise to instruct the patient carefully as to his mode of life, to watch him closely, and to repeat the examination at stated intervals.

It may be said in general that a close and careful investigation of constitutional as well as local manifestations by the simplest methods will often reveal sufficient evidence for a positive diagnosis. The search for bacilli in the sputum, unfortunately, has brought about a neglect of these methods.

The history of the patient may or may not contain useful information; it ought to be carefully investigated in every case. Predisposing factors such as cases of tuberculosis in the family and among intimates, or an unhygienic mode of life, dusty and confining occupations, must all be taken into consideration; their absence in any one case, on the other hand, must not discourage further examination.

The symptoms of incipient tuberculosis will rarely offer anything typical. There may be very early hoarseness or a condition resembling that of chlorosis or neurasthenia, of bronchitis or dyspepsia. Cough may or may not be present. Hemoptysis, in the absence of other causes among all the symptoms which may be found in the history, is one of the greatest signs. Physical signs are sometimes absent for weeks after the hemoptysis. Vague as all these symptoms may be, they assume diagnostic value only when considered together with the results of a careful physical examination.

Here, inspection first of all will have to reveal conditions of stature and physical development which in their deficiencies we know to be indicative, if not of the disease itself, at least of a predisposition to it. Length and weight of body, circumference and degree of expansion of chest, are data of importance and in their correlation give indication of the bodily condition and state of nutrition. Still we must not depend on finding often the classical *habitus phthisicus*, the paralytic thorax, if we are to make an early diagnosis of tuberculosis. These data, however, as well as the determination of symptoms, are of greatest value as a guidance in subsequent examinations, and for that reason should not be neglected in any case.

Of great importance is the temperature. Even a slight rise of temperature in the afternoon, if other causes can be excluded, ought invariably to arouse suspicion. Very often this is overlooked, and to avoid such oversight great care in the measuring of the temperature is to be recommended. Whenever possible, a two-hourly record for a period of several days ought to be taken, a good thermometer to be placed in the mouth with tightly closed lips and held there for at least five minutes, the patient in a room of even temperature. It should also be remembered that in some tuberculous patients the rise of temperature appears only after some exercise, in women before and at the time of menstruation.

The physical examination of the chest by inspection, palpation, percussion and auscultation, if carefully and properly performed, will give more direct evidence than other methods. It may be said here that the newer methods of examination, notably that with the Roentgen rays, can not, at least in their present state of development, claim superiority over the results obtained by the before mentioned methods.

On inspection very often a retardation in the respiratory movements over the affected lung portion can be observed, especially over one apex. This retardation is more pronounced in a more recent involvement of the corresponding area of the lung (Turban). Foci of greater extent diminish the excursions of the diaphragm of the affected side; this can be demonstrated on the fluorescent screen, but equally well and without apparatus by the observation of the diaphragmatic excursions by means of Litten's shadow.

The vocal fremitus in early pulmonary tuberculosis gives little information. It may be increased or decreased over areas of pleural thickening; over pleuritic exudations it is always diminished.

Painstaking percussion and auscultation of the chest, over all parts and always comparing the two sides, is of the greatest value. The use of the blue pencil for marking the border lines and determining the excursions of the lungs can not be urged too strongly; strong percussion, on the whole, should be avoided. Marked dullness is but rarely found over portions of the lungs in incipient tuberculosis; however, the percussion will elicit sometimes a significant retraction of one apex as compared with the other.

In judging the results of the examination by auscultation it should always be remembered that many of the signs are subject to considerable variation, depending on the time at which the examination is made. Râles, which can be easily discovered in the morning, will regularly be absent during the afternoon. On damp and rainy days they will be found when they are absent in dryer weather. In women pulmonary signs are accentuated at the time of menstruation.

All these circumstances must be considered before a final judgment of the case is given.

Although every portion of the lung (including the lingula over the heart dullness) should be examined with the stethoscope, particular attention will have to be paid to the upper portions of the lungs and also to the lower borders and to the axillary regions.

The rough and slightly diminished respiratory murmur may be regarded as the earliest auscultatory sign in early pulmonary tuberculosis. The former must not be confounded with the sharp (puerile) respiratory murmur, which is more a sign of increased function than of swelling of the mucosa; both are vesicular murmurs. The rough character is produced by a succession of sounds, following each other too rapidly for aural differentiation. If the succession be less rapid, then we speak of an interrupted respiratory murmur, which suggests much coarser changes. Thus the rough murmur changes the character of the respiratory sound; it loses its "smooth" quality and becomes "impure and roughened" (Sahli). When these adventitious sounds become audible beside the vesicular murmur, then we can speak of râles. The rough murmur is produced by slight inflammatory changes in the bronchioles, the air passing over an uneven surface and through a slightly narrowed lumen. It is principally audible during inspiration over the apices and below the clavicles. This murmur precedes the appearance of râles (not the case, as a rule, with the puerile murmur), and this is the earliest auscultatory manifestation of tubercular involvement of the air passages. Distinct attention, therefore, should be paid to it. The appearance of râles over the apices (also in the axillary region) is next to it in importance. Râles indicate catarrhal conditions; with them the intensity of the vesicular murmur is usually diminished; this is also produced by the more pronounced swelling of the bronchial mucosa. In the earlier stages there are usually fine crackling râles, which can often only be heard directly after the patient has coughed.

Bronchial respiration is heard but rarely in early tuberculosis; when it appears, we have to deal with a more extensive process. By its localization in the apices and in conjunction with other signs, it is, of course, pathognomonic of consolidation; the same may also be said in regard to the other deviations from the normal respiratory murmurs, which are indicative of profound tissue changes. On the other hand, pleuritic friction is often heard at an early period, most frequently in or near the axillary line, between the sixth and eighth ribs.

Only passing mention can be made of other diagnostic methods, of which tuberculin is the most important. Although it is well understood that by injection of small doses of tuberculin and by the febrile reaction thus produced in tuberculous individuals, we can diagnose early tuberculosis, the method necessitates great care in its application and an apparatus too complicated for general use. The dangers of the preparation in the hands of one well acquainted with the method are very slight, but by applying carefully the other means of observation and examination, a case will rarely be found in which it would add considerably to the information gained.

The fact that certain salts, especially iodin salts, increase catarrhal symptoms and thus make them more perceptible to auscultation, has led to their administration for diagnostic purposes. For similar reasons a general introduction of this method can not be recommended.

The examination with *x*-rays has the drawback of a complicated apparatus; besides, its value over the other methods has not yet been satisfactorily demonstrated.

Various other methods have been advocated for the early detection of tuberculosis—inoscopy, sphygmograph, sphygmomanometry, serum test, etc.—all apt to increase our knowledge of the disease, but of no practical advantage in the every-day diagnosis of so frequent a disease. The careful and painstaking application of the methods well taught and well understood, with the simplest apparatus, but applied with a broad conception of the pathogenesis of the disease, will bring about much earlier diagnoses than are usually made.

Report of Committee on Influence of Climate in Pulmonary Tuberculosis.

A committee, previously appointed for the purpose and consisting of Drs. Charles L. Minor, Asheville, N. C., chairman; S. E. Solly, Colorado Springs, Colo.; E. R. Baldwin, Saranac Lake, N. Y.; C. F. McGahan, Aiken, S. C.; Henry Sewall, Denver, and Norman Bridge, Los Angeles, made a report, to which reference has been made on page 1805. The full report requires more space than we can devote to the subject this week, so we quote the concluding portion:

No advanced workers in this line would to-day, as was formerly done, place climate first in the order of therapeutic measures. Let it never be forgotten that hygiene, diet, teaching and supervision must *always* come first, but, granted that

they are properly attended to, then enters the powerful rôle of climate, reinforcing and accentuating the effects of these other measures, and yielding results that can not be approached even with the same care and watching and food in less favorable climates.

Climate has been defined by Parke Weber as "a combination of various conditions of the atmosphere and earth's surface determining the suitability of a region or a site for the life and health of animals and plants," and climatotherapy as "the utilization of climate to promote the comfort and recovery of the sick or to prevent the development of disease."

W. L. Dunn has also well said that "a climatic resort is a place where there is a maximum of sunshine, a minimum of fog and mist, relatively few hours of rainfall, a relatively low humidity, great purity of the atmosphere and an opportunity for efficient medical supervision." Altitude is not referred to here, despite its great value, as not being a factor in all climates beneficial in tuberculosis.

To discuss here the various forms of climate is not within our province, but it should rather be our effort to point out what in general are the effects which in climate have a beneficial influence. These can be classified in the order of their importance as: 1. Abundance and bacteriologic and chemical purity of the air; 2, sunshine; 3, coolness, or, in a certain number of cases, warmth; 4, dryness, or, in a few cases, a moderate degree of humidity; 5, altitude; 6, wind; 7, equability; 8, soil.

The bacterial and chemical condition of the air has been carefully studied and has been found to vary from a very high pollution in the streets of our large cities to an almost absolute purity in high mountains, open seas, deserts and arctic regions, and is very low in country and mountain climates, especially when sparsely settled.

Recalling the powerful rôle of streptococcal and other mixed infections in pulmonary tuberculosis and their power of changing a simple tuberculosis with chronic advance into a destructive consumption, noting also the bad effects of dusty atmospheres in producing bronchial catarrh, and especially the rapid lessening of mixed infections and such catarrhs in the purer air of our climatic resorts, the importance of this factor does not need to be further dwelt on. We would only here note that we believe it is chiefly due to the reinfection of the diseased lung by pus organisms and its irritation by dust, to which is often due the relapses of some cases when they return to city life.

After pure air we would place sunshine and sun heat, whose effects are both direct and indirect. Directly while its effects are evidently beneficial, they have never been completely analyzed and, therefore, will not be dwelt on here. The indirect effects of sunshine as seen in its powerful stimulation of the patients' spirits is of great importance.

Dryness in most cases is a most important factor through its valuable anti-catarrhal effects, but, when extreme, this influence may be reversed and there are not a few cases in which a moderate degree of humidity is more beneficial.

Generally, low relative humidity with moderately low temperatures has a tonic effect and is beneficial in irritated conditions of the respiratory mucous membrane, while such low humidity with very low temperatures, while stimulating, is apt to irritate the mucous membrane. Low relative humidity with high temperature is generally debilitating. High relative humidity and moderate temperature is soothing to the irritated mucous membranes, but high humidity combined with low temperature favors catarrh. On the whole, in pulmonary tuberculosis, low relative humidity with moderately low or low temperatures is most generally suitable, and the average tuberculous patient always makes his best gains in cold, dry weather, where such conditions prevail, but there are certain cases which do better with a high relative humidity and warm temperature.

Equability in older people or in the very feeble can be of great value, but is not as important as used to be supposed. In stronger cases variations in temperature stimulate the vital activities; hence, generally speaking, equability is not an important factor.

Wind, when the patient is directly subjected to it, is harmful, but when he is properly protected its purifying influence on the air, provided vegetation is sufficient to prevent dust-storms, is beneficial.

Altitude.—Most authorities are agreed that, other things being equal, some degree of altitude, owing to the great purity of the air and to its stimulating effect on the metabolism and appetite, etc., is most desirable, but it is not here our function to discuss the large question that this opens up. Enough to say that care should be used to choose an altitude suited to the patient's degree of vitality and heart power.

But a study of these local conditions and their adaptability to any given case is not enough. The temperature of the patient should be studied, as well as his docility and intelligence, for these play an important part in getting the best results from a climatic cure. In a few homesickness can be so severe and unyielding as to make a departure from home impossible. Others are so intractable and so unwilling to obey any instructions that they are apt to injure themselves by imprudences.

Above all, the financial condition of the patient is a determining factor, for, as one of your committee has elsewhere written, "If, however, one has to choose between treating patients in narrow circumstances in their own homes or sending them to a resort where their poverty will not enable them to get the necessary conditions of quarters, diet and care, which are so essential, by all means let them stay at home. By changing their houses, by moving to the top floor, using the roof as an outdoor sun parlor, and spending the utmost possible part of their time there, by economizing in every other way in order to be able to spend more freely for good food and cookery, much can be done, provided always that their lives can be properly supervised. Where pecuniary reasons prevent the patient from seeking a special climate, excellent results can thus be had, though with greater difficulty, in the patient's home, if the case is not too far advanced and that home not too miserable."

For the submerged tenth climatotherapy, save as supplied by the municipality or state, or philanthropic effort, is an impossibility and even the getting of proper conditions in their own homes is for them a Utopian idea. That municipal or state sanatoria have been opened for this class near our cities, but in localities whose purer air and favorable conditions mark them as climatic resorts, gives hope in this direction, but the only permanent results among the poor will come from a prophylaxis based on teaching them decent modes of life, on improvement of bad sanitary conditions and on a change in the impossible hygiene of their lives. For those in modest or narrow circumstances it is only desirable when they will be able to get at the resort equal or better conditions than they could have at home. For those who are comfortably off, or for the well-to-do, it seems to your committee that there can not be a moment's doubt that any results that they could obtain at home by the most careful treatment, even if their home doctors are absolutely familiar with the kind of detailed and personal work which these cases require, can be infinitely improved and the percentage of cures or arrest greatly increased by the carrying out of similar treatment under the favorable influences of climate.

We would here also say that, with rare exceptions, the patient who leaves the resort, however well he may be and however great the improvement in his physical findings, should not be told that he is cured, but only that the process is arrested and that if when he returns home he, by faithful living, can show for two years a continuance of such conditions, that then he may justifiably consider himself cured.

A misunderstanding of this fact is largely responsible for the popular condemnation of climatic cure. A climatic resort should be looked on as a university where the patient goes to get, under proper conditions, that discipline and instruction which he will bring back with him into his daily life at home, where he should serve as a teacher of those with whom he is thrown, and the physician in a climatic resort will be of use to his patient in proportion as he is able to be a forceful and stimulating teacher.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, held at Niagara Falls, May 25-27, 1905.

Under the Presidency of DR. E. C. DUDLEY of Chicago.

Accidental Rupture of the Non-Parturient Uterus, with Report of Cases.

DR. GEORGE W. JARMAN, New York, reported five cases of accidental rupture of the non-parturient uterus, and drew the following deductions from his own cases and those reported by others: 1. That the operation of invading the cavity of the uterus should not be regarded lightly, and that the same care in the details of asepsis should be carried out as in a laparotomy. 2. That great care should be used in the introduction of steel dilators, and at no time forcing them into the cavity of the uterus. 3. That as one's experience in gynecology increases, the use of the uterine sound decreases, and the fingers more and more frequently take the place of the curette to remove secundines from the uterus. 4. That sterile water is the best fluid for irrigating the uterine cavity. 5. That if a rupture or perforation of the uterine wall occurs, it is better to perform a laparotomy and assure one's self of the safety of the patient than to hope that no untoward results will ensue. 6. That if one can not be certain of the asepsis of the curettage, it is better to use a small drain through the vagina, and a slightly elevated posture of the patient, than to regret its non-use after the development of septic peritonitis. 7. That in properly conducted cases observed soon after the accident, there should be almost no mortality.

DISCUSSION.

DR. A. PALMER DUDLEY, New York, said he has perforated the uterus four times. In one case, after introducing the instrument into the uterus, he withdrew what he supposed was a fungous growth or secundines, but which proved to be eight inches of small intestine. The intestine was pushed back through the opening made in the uterus and the patient let alone. She has since borne two children.

DR. HERMAN J. BOLDT, New York, said that a perforation of the uterus does not always cause serious trouble. Great discrimination should be used in those cases in which there is danger. In all instances of criminal abortion, where there is any suspicion that infection has taken place, the abdomen should invariably be opened. He has perforated the uterus a number of times, and has seen it perforated by others.

DR. EUGENE BOISE, Grand Rapids, Mich., reported two cases of perforation of the uterus, one of which occurred in 1871. The physician in attendance passed a sound clear up to its handle. Nothing was done and the patient developed no symptoms. In the other case the uterus was perforated with a curette; the cavity was thoroughly washed out, the patient put to bed without anything further being done, and she made an uninterrupted recovery.

DR. FERNAND HENROTIN, Chicago, has seen five cases in which the uterus was perforated. One was accidental. One was the result of the work of an abortionist, and on opening the abdomen, nine days after the supposed operation, the patient being septic, he found a bougie nine inches long in the abdominal cavity. The patient recovered after undergoing a severe trial.

DR. ANDREW F. CURRIER, New York, agreed with the previous speakers that in many of the cases in which perforation occurs no damage will result if the intestine has not been withdrawn. If there is a mere puncture of the uterus, if the woman is not septic, it is safe to leave her alone and do just as little manipulation as possible. But supposing the uterus was in a soft, friable condition, one is confronted with the alternative of either closing the perforation or of removing the uterus. In many cases the removal of the uterus is preferable, and more than likely will result in more benefit to the patient than the mere closure of the rent or perforation. The key to successful treatment is complete drainage, and if there is already a septic uterus and one simply closes the wound, he is by no means sure that the sepsis will not continue. In cases of that kind, it is prudent to remove the uterus, leaving the wound in the vagina open and establishing free drainage.

DR. A. LAPTHORN SMITH, Montreal, does not think the curette is responsible in most cases for perforation of the uterus. He confessed to having perforated this organ six or eight times, and he has no fear of the result if the parts are thoroughly aseptic.

DR. CLEMENT CLEVELAND, New York, perforated the uterus with a sharp curette on one occasion when he was talking to his class about the carefulness with which the instrument should be used. The patient was to have been operated on for a lacerated cervix and lacerated perineum. He immediately postponed the operation, put the patient to bed, and no bad results followed. He thought the society should exercise its influence toward eliminating the sharp curette from the bag of the general practitioner, as it is fraught with the greatest harm to women if used in the careless way it is to-day.

DR. WM. E. MOSELEY, Baltimore, said that both the dull and sharp curettes have their place. Personally, he first introduces the dull instrument for diagnostic purposes, and then the question as to whether the dull or sharp curette shall be used depends on the character of the tissues he has to deal with. There are some cases in which there is more danger of perforating the uterus by the use of the dull than by the sharp curette.

DR. WM. H. WATHEN, Louisville, does not think the dull curette has any place in the surgery of an experienced gynecologist. The man who can not use a sharp curette without injuring his patient or perforating the uterus had better refer his cases to someone who can. Occasionally cases are reported where the uterus has been perforated by experienced operators. Curettage should be done by the sharp curette, or decidual remains should be removed by the finger.

DR. ELY VAN DE WARKER, Syracuse, N. Y., stated that uterine curettement is attended with more or less danger, and should be confined to the hands of good gynecologists, and rarely ever or never done by the general practitioner.

DR. SETH C. GORDON, Portland, Maine, said that occasionally he has pushed a sound through the uterus, but by leaving the patient alone he has not seen any harm result.

DR. P. A. HARRIS, Paterson, N. J., has perforated the uterus twice, once through the corpus posteriorly and once anteriorly. The perforation posteriorly was done by the curette, and the one anteriorly by his dilator. With his present dilator there is a device attached to it which registers the exact number of pounds exerted by the operator in dilating the cervix.

DR. T. A. REAMY, Cincinnati, Ohio, said that perforation of the uterus was an accident liable to happen to any man. He had perforated the uterus with a sharp curette within the last two years. He curetted a woman a short time ago whose condition was such that his consultant was in doubt as to whether she had cancer of the body of the uterus or whether it was the result of a chronic endometritis. In curetting the uterus rather thoroughly he accidentally perforated it. A pelvic abscess resulted, which was opened, and the patient made a good recovery.

DR. E. C. DUDLEY, Chicago, stated that within five weeks he perforated a uterus with the curette. The uterine wall was not more than a thirty-second of an inch thick, the thinness being due to a localized pathologic condition. A considerable quantity of bloody fluid was found in the cul-de-sac of Douglas, which was sponged out, the abdominal cavity flushed out with salt solution, and after closing the wound in the uterus with a purse-string suture, the abdominal wound was closed, and the patient made a good recovery.

Treatment of Retroversion of the Uterus by Shortening the Utero-sacral Ligaments.

DR. A. W. JOHNSTONE, Cincinnati, stated that the first step in either retroversion or prolapse is due to a stretching of the utero-sacral ligaments. This stretching is most commonly due to a low grade of infection spreading to these ligaments from the uterus or other contiguous structures, that made them lose their tone. A few cases are due to direct violence. The operation consists in shortening the utero-sacral ligaments through the vaginal incision. The uterus is replaced and the prolapse cured. Shock is *nil*, and convalescence smooth.

A New Plan of Procedure in Retrouterine Displacements.

DR. E. E. MONTGOMERY, Philadelphia, suggested a combination of operative procedures employed by Gilliam, Ferguson and Simpson. It permits of treatment of diseased ovaries and tubes, leaves the uterus a freely movable organ, supports it by normal elastic and muscular structure, capable of undergoing evolution and involution, and, finally, affords no opportunity for the formation of adhesions.

Inflammatory Conditions of the Appendix Accidentally Brought to Light in Pelvic Operations.

DR. HUNTER ROBB, Cleveland, Ohio, stated that of 370 appendices removed and examined microscopically, 103 were normal; 46 showed signs of a chronic and 1 of an acute appendicitis. In 88 cases there was an hypertrophy of the subperitoneal or internal coat, or of both coats. In 66 cases the changes were of doubtful significance; in 36 the lumen was occluded; in 16 dilated; in 12 the appendix contained concretions; in 1 case the appendix was cystic and had undergone myxomatous degeneration; in 1 case no lymphoid tissue was present.

Appendicitis in Its Relation to Pregnancy.

DR. HENRY C. COE, New York, cited 8 illustrative cases from his private practice, 4 patients recovering without operation, 2 being operated on at the third and fifth months, without interruption of the pregnancy, while the remaining two were carried through the puerperium and submitted to operation later. The writer's views coincide practically with those of Pinard, namely, to treat appendicitis in the pregnant female according to the same rules as in the nonpregnant. In mild cases carry the patient to term, if possible, and operate as soon as convenient after the puerperium, if the trouble persists. With the persistence of local pain, and if an induration is felt, he would operate as in any other case. Perforation and abscess formation call for immediate operation, rapid work, as little handling of the uterus as possible, and free drainage.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. R. B. Maury, Memphis, Tenn.; vice-presidents, Drs. Howard A. Kelly, Baltimore, and Reuben Peterson, Ann Arbor, Mich.; secretary, Dr. J. Riddle Goffe, New York City; treasurer, Dr. J. Montgomery Baldy, Philadelphia.

Hot Springs, Va., was selected as the place for holding the next meeting.

(To be continued.)

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Creosote and Guaiacol.

The following combination containing creosote is recommended by Beasley in the treatment of vomiting of pregnancy:

℞.	Creosoti	m. i	06
	Cocainæ hydrochlor.	gr. 1/6	01
	Cerii oxalatis	gr. ii	12

M. Ft. pil. No. i. Sig.: One pill on rising, followed by another later in the day, if necessary.

In flatulent dyspepsia the following is recommended:

℞.	Creosoti	m. iii	20
	Tinct. card. co	m. xv	1
	Syr. aurantii	3ss	2
	Aquæ q. s. ad	℥i	30

M. Sig.: To be taken at one dose and repeated three times daily.

In phthisis he recommends the following combination:

℞.	Creosoti	m. ii	12
	Olei morrhuæ q. s. ad	3i	4

M. Sig.: One teaspoonful three times daily. Or:

℞.	Creosoti	m. ii	12
	Paraffini liq.	3ss	2
	Olei morrhuæ	3i	4
	Pulv. acaciæ	gr. xxx	2
	Syr. aurantii	3ss	2
	Aq. cinnamomi q. s. ad	℥i	30

M. Sig.: At one dose, to be taken in a little water and repeated three times a day after meals.

To lessen the cough in phthisis the following is useful:

℞.	Creosoti	3ii	8
	Menthol	gr. v	30
	Spts. chloroformi q. s. ad	℥iv	120

M. Sig.: Ten drops to be placed on the cotton of an oronasal respirator, which should be worn for ten minutes six times a day. Instead of the foregoing, 20 drops or more of the mixture may be dissolved in a pint of water and vaporized from an ordinary bronchitis kettle.

The following containing guaiacol is of value in the treatment of pulmonary tuberculosis:

℞.	Guaiacol	m. iii	20
	Tinct. card. co	m. xxx	2
	Glycerini	m. xv	1
	Vini xerici q. s. ad	℥ss	15

M. Sig.: At one dose, to be repeated three times a day after meals. Or:

℞.	Guaiacol	m. iii	20
	Syr. picis arom	3i	4
	Aquæ dest. q. s. ad	℥ss	15

M. Sig.: At one dose, and repeated every four hours, in water.

When there is a more or less constant hacking cough present the following, containing guaiacol, is recommended:

℞.	Guaiacol	m. ii	12
	Tinct. benzoini co	m. xv	1
	Syr. tolutani	3ss	2
	Mist. amygdalæ q. s. ad	℥ss	15

M. Sig.: At one dose in a little water and repeated three times a day.

If diarrhea be present the following combination is recommended:

℞.	Bismuthi carb.	gr. v	30
	Guaiacol salicyl.	gr. x	65

M. Ft. cachet No. i. Sig.: One such cachet every four hours. Or:

℞.	Guaiacol carb.	gr. v	30

M. Ft. cachet No. i. Sig.: One such cachet three times a day.

As an inhalant in phthisis the following may be used:

℞.	Guaiacol	3i	4
	Terebene	3i	4
	Menthol	3ss	2
	Thymol	3ss	2
	Spts. chloroformi	3iss	6

M. Sig.: From six to ten drops placed in an inhaler and inhaled morning and night.

In cases of orchitis of doubtful nature the following is recommended:

℞.	Guaiacol	3i	4
	Cocainæ	gr. v	30
	Paraffin. mollis q. s. ad	℥iss	45

M. Ft. unguentum. Sig.: To be smeared over the affected parts and covered loosely with lint.

When the appetite is much impaired in phthisis the following combination is sometimes recommended:

℞.	Creosoti	3ss	2
	Tinct. nucis vom.	3i	4
	Mucil. acaciæ	℥ss	15
	Syr. hypophos. q. s. ad	℥ii	60

M. Sig.: One teaspoonful after meals, in water or milk.

Pulmonary Hemorrhage.

In the treatment of pulmonary hemorrhage, McLaughlin, in *Ther. Gaz.*, states that those measures should be adopted which will assist in the formation of a clot as quickly as possible and which will prevent its dislodgment until sufficient time has elapsed for the eroded vessel to become permanently occluded. In order to accomplish this the reflex irritability of the lung tissue must be decreased and the respiratory mobility of the side from which the hemorrhage originates must be limited.

To meet the first indication the bromids and chloral are of value, and a still better preparation is opium, which will better control the cough. It lessens tissue metabolism and renders less oxygen necessary and thus reduces the amount of work of the lung.

To limit the respiratory excursions, strapping the sides of the chest from which the hemorrhage arises is the most efficient measure. These straps should be applied with considerable pressure during the act of forced respiration and should cover the entire half of the chest from the axillary fold to the lower costal margin.

By means of this treatment he claims the following advantages:

1. It favors the formation of a clot around the bleeding point and thus assists in controlling the hemorrhage.
2. It prevents the clot from becoming loosened or dislodged, thus preventing further hemorrhage.
3. The clot is formed in this manner in lung tissue which is in a state of relaxation rather than when it is on a stretch.
4. On the removal of the straps the expansion of that side of the chest and the consequent expansion of the air vessels of the contained lung will loosen up and favor the expulsion of any clots which may remain.

His routine treatment, so to speak, is as follows:

On the occurrence of hemorrhage the patient is given a hypodermic injection of nitroglycerin grain 1/100 (.0006), and morphin sulphate grain 1/4 (.015). The adhesive straps are then applied to the side of the chest from which the hemorrhage arises and the patient is placed in the horizontal position on the affected side. Six hours later, if the hemorrhage has ceased, the patient is moved into a summer house. At the end of four days the straps are removed and the patient is allowed to rest for one week in the open air.

Zederbaum, in *Colorado Med. Jour.*, states that, as a rule, hemoptysis does not require active treatment. The patient should be kept quiet in bed. A saline cathartic will check the hemorrhage more quickly than anything else. This author prefers the following combination when medicaments are required:

℞. Ext. opii
Plumbi acetatis, āā.....gr. ss |03
Pulv. rhei.....gr. xv 1|
M. Sig.: At one dose. Or:
℞. Ext. opii.....gr. ss |03
Or:
Pulv. opii et ipecacuanhæ.....gr. v |30
Bismuthi subnit.....gr. x |65
M. Ft. chart No. i. Sig.: To be taken at one dose and repeated as indications demand.

The foregoing is also of value in checking the diarrhea which is so obstinate in tuberculosis as a rule. Another method of checking the diarrhea, as recommended by this author, is the administration of small enemata containing tannic acid, and tincture of opium suspended in cornstarch water, introducing an ounce or two of this mixture every three or four hours until the diarrhea is checked. To overcome the vomiting, which is sometimes severe, and which is caused in part by the effects of the toxin in swallowing the sputum, the author recommends lavage, cocain in moderate doses, or the following:

℞. Sodii bicarb.....gr. xv-xxx 1.-2|
Aq. chloroformi
Aq. amygdalæ amaræ, āā.....3ii 8|
M. Sig.: Shake and take at one dose.

Strontium bromid is recommended to relieve the nervousness and insomnia, as it disturbs the stomach less than the other bromids. Codein is also recommended for this purpose.

The bowels should be regulated with pulvis glycyrrhizæ compositæ or a combination of cascara sagrada with strychnia and tincture of gentian compound.

The following combination is recommended for the relief of the cough:

℞. Dionin.....gr. viii |5
Apomorphinæ.....gr. i |06
Syr. altheæ
Aquæ āā, q. s. ad.....℥iv 120|
M. Sig.: One teaspoonful three or four times daily and an extra dose at night, if necessary.

The foregoing is especially recommended when the cough interferes with rest at night. The nasal passages, the larynx and the pharynx should be carefully examined, as they may be the seat of irritation which may resist the treatment by ordinary expectorants.

Acute Pruritus.

M. Gaucher, in *Amer. Med.*, recommends that patients suffering from acute pruritus shall be placed on a strictly milk diet at first and later a milk-vegetable diet. To calm the itching he recommends acetic acid lotions, followed by ointments of menthol and guaiacol, 1 to 2 per cent.

The following ointment is recommended:

℞. Guaiacol
Menthol, āā.....gr. xv 1|
Lanolini.....℥iiiss 100|
M. Ft. unguentum. Sig.: Apply locally morning and evening.

Medicolegal

City Not Liable for Handling of Patients.—In the case of Lynch vs. City of North Yakima, where a city fireman sought to recover damages because a policeman had brought to the room where he was a man "charged with having been exposed to smallpox," the Supreme Court of Washington says that the handling of persons sick with contagious diseases is a duty which the city performs through its officers and agents in the exercise of governmental functions. The benefits of such service go to the public, and not to the municipality as a corporate body. Hence the manner in which the officers of the city perform said service can not, ordinarily, render the municipality liable in damages.

Competency of Witness to Testify to Fees.—The Supreme Judicial Court of Massachusetts states, in City of Lawrence vs. Town of Methuen, that it does not go so far as to say that one who is not a physician could not qualify as an expert on the question of the reasonableness of the fees charged by a physician for medical services, yet the practical result which would follow if every one who hired physicians or knew of the amount charged by them could be called as an expert on the question is a matter to be considered. In the case at bar, the court can not say that, on the evidence before him, the presiding judge did not find that the experience of a member for 16 years of the Board of Health of Methuen, who was called as a witness, was confined to the fees charged by two or three physicians, on two or three occasions, in the treatment of smallpox cases, which may have been quite unlike the case of smallpox in the action before the court, in a small town like Methuen, and consequently that he was not qualified to give an opinion on the reasonableness of the fee charged in this case by a physician in a city like the city of Lawrence.

Taxation of Private Medical School Hospital.—The Court of Appeals of Kentucky holds, in Wathen vs. City of Louisville, that an infirmary or hospital owned by the owners of a medical-school property is not exempt from taxation under the constitutional provision that "there shall be exempt from taxation public property used for public purposes; places actually used for religious worship, institutions of purely public charity, and institutions of education not used or employed for gain by any person or corporation, and the income of which is devoted solely to the cause of education." Here it appeared that medicines were dispensed and patients were treated free of charge, unless they were able to pay from $3 to $5 per week, and that the income from the hospital did not meet its expenses, by from $5,000 to $7,000, when interest was charged on the investment in the hospital. But the court says that it was manifest from the evidence that the hospital was maintained because it was necessary to the successful conduct of the school of medicine. Without the clinical instruction and the operations by the professors in the presence

of the students, the school could not be maintained with success. The hospital was an adjunct or a part of the medical school. Whatever gain might result from the operation of the medical school went to the owners of the property. While the evidence showed a great deal of charity work was performed in the treatment of patients and in dispensing medicines, still the institution was conducted for profit, and, as it was operated for gain, no part of it was exempt from taxation, under the constitutional provision quoted.

Radiographs.—The Supreme Court of Iowa says, in the case of State vs. Matheson, that the process of *x*-ray photography is now as well established as a recognized method of securing a reliable representation of the bones of the human body, although they are hidden from direct view by the surrounding flesh, and of metallic or other solid substances which may be imbedded in the flesh, as was photography as a means of securing a representation of things which might be directly observed by the unaided eye at the time when photography was first given judicial sanction as a means of disclosing facts of observation; and for that purpose *x*-ray photographs, or skiagraphs, or radiographs, as they are variously called, have been held admissible on the same basis as photographs. Therefore the court has no difficulty in holding that a radiograph admitted in evidence in this case, after proof that it was taken by a competent person, was admissible to show that there was in the body of the person of whom it was taken, at the time it was taken, some hard substance, in the shape of a bullet, near the spinal column. True enough, there was no evidence that this object which was represented in the radiograph was a bullet, but it was proper for the jury to take the evidence for what it was worth, as indicating that something in the shape of a bullet was lodged in the man's body. Whether it was in fact a bullet, they must determine, just as they would have been required to determine the fact if the witness had testified that he saw something the size and shape of a bullet. That was all he could have told simply by looking at it if it had been exposed to view. Of course, evidence as to the location of the bullet at a time subsequent to that when it first lodged there after being fired would not be material in determining the course that it took, unless there was some reasonable ground for assuming that its location had not changed in the meantime. But the court thinks it can properly take judicial notice of the fact that a bullet imbedded in human flesh usually becomes encysted, and does not change its location without external interference. And it seems to the court that the probability that the bullet when discovered by means of the radiograph was in the same position that it was when first lodged in the man's body was sufficiently strong to have warranted the jury in taking the information furnished by the radiograph for what it was worth, in their judgment, in determining whether the course of the bullet after entering the body was downward or upward.

Violation of Practice Act by Fitter of Glasses.—Section 21 of chapter 176 of the laws of South Dakota of 1903, regulating the practice of medicine, provides that: "When a person shall append or prefix the letters M.B., or M.D., or the title Dr. or Doctor or any other sign or appellation in a medical sense to his or her name or shall profess publicly to be a physician or surgeon * * * he or she shall be regarded as practicing within the meaning of this act." The defendant in the case of State vs. Yegge, who was charged with practicing medicine without a license, had a sign in front of his office with the name "Dr. Yegge" thereon. There was also introduced in evidence the following notice: "Ophthalmology. A Science for the Analysis of the Cause of Human Ills and How to Abolish Them. Everybody should know that this is a science that practices by guesses. It differentiates between functional derangements and disease. By its assistance nature cures cross-eyes, without operation; headache without drugs; hysteria without a straight jacket; female disorders without a trip to the hospital; and hundreds of nervous troubles. Simply removing causes is the secret. A true Ophthalmologist explains your case to you. Dr. M. F. Yegge," giving address and location of office. The Supreme Court of South Dakota thinks it was quite clear from the evidence that the letters "Dr." were used in a medical sense, and affirms a conviction. It says that the legislature evidently intended, in enacting the law, to prevent persons not properly educated in the science of medicine from assuming to act as a physician, and to protect the public, and it has deemed it proper that every person assuming to act as a physician or surgeon should be properly licensed. In carrying into effect this law, it was competent for the legislature to define, as it has assumed to do in Section 21, what evidence shall be deemed sufficient to constitute a practitioner within the meaning of the act. In view of the testimony of the physicians as to the proper definition of ophthalmology, it was quite clear from the defendant's advertisement that he had assumed to hold himself out as a physician within the meaning of the act. And it was not only clear from the language of the advertisement itself, which would be generally understood as an assumption on his part of being a regular physician, or at least a specialist in that branch of medicine treating of ophthalmology, but the legislature has declared that prefixing the term "Dr." to his name should be so regarded. The law should not be so construed as to deprive the people of the benefits intended by the act, but such a construction should be given it as to carry into effect the evident intention of the legislature.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

May 27.

1 *Intermittent Claudication and Allied Syndromes Due to Angiosclerosis of the Extremities. J. R. Hunt, New York.
2 *Gardener's Spade Deformity and the Silver-Fork Deformity in Fractures of the Carpal End of the Radius. J. B. Roberts, Philadelphia.
3 *Changes of View in Appendicitis Work. R. T. Morris.
4 *Toxemia of Intestinal Origin as a Condition Predisposing to Minor Infections. H. A. Houghton, New York.
5 Responsibility in Mental Deformity. J. Weir, Jr., Owensboro, Ky.

1. **Intermittent Claudication and Allied Syndromes.**—Hunt has made an exhaustive study of all aspects of this affection, which was first described by Charcot in 1858. Alcoholism, syphilis, gout, nicotinism, diabetes, exposure, flatfoot, compression by a truss, aneurism, the neuropathic diathesis, and congenital insufficiency of the cardiovascular apparatus are cited as etiologic factors. The pathologic findings may be summed up in one word—angiosclerosis, though in advanced cases secondary changes of a trophic nature frequently occur, and the vasomotor element is also of importance in producing the spasm. While the typical picture of the disease comprises intermittent limping, with the paroxysm during activity and complete freedom during rest, sensory symptoms and weakness, in some cases, may be present more or less constantly and may give rise to errors in diagnosis. Cases in which the anus, rectum or bladder, brain, kidney or retina were affected have been recorded, and it is also thought that the paroxysms of angina pectoris may be referable to a similar condition of the coronary arteries. The prognosis as regards cure is unfavorable, but by suitable treatment, consisting of rest, potassium iodid, cardiac tonics, warm foot baths and galvanic foot baths, much may be done toward warding off indefinitely the threatened gangrene. Digitalis, ergot, nitroglycerin, and very hot or very cold baths should be avoided. Four illustrative cases are described, and in conclusion the author says that angiosclerosis of the extremities in its gravest form, uncomplicated by a vasomotor neurosis, leads to spontaneous gangrene. If the angiosclerosis occurs in combination with a vasomotor instability and a tendency to vasomotor spasm, the syndrome of intermittent claudication results. This is characterized by the development of sensory (pains and paresthesia) and motor (weakness and rigidity) manifestations during the functional activity, with a rapid and permanent restoration to the normal during rest. The syndrome, however, has a wider and more general application to the whole circulatory

mechanism and has been observed in relation to various organs of the body (heart, intestines, brain, kidney and eyes).

2. **Deformity in Fractures of Carpal End of Radius.**—Roberts directs attention to the fact that in addition to the so-called "silver fork" deformity produced in fractures of the carpal end of the radius when the lower end of the bone is forced backward, there occurs in some cases a different deformity due to forward displacement. In such instances, instead of the classical picture presenting a convexity over the dorsum of the wrist, the convexity is in front, and the planes of the forearm and hand are related to each other much like those of the handle and blade of the gardener's spade. Great force is often necessary in dislodging the small radial fragment from its new position; but unless this is accomplished the fracture is not reduced. Various types of such fractures, together with appropriate forms of dressing, are shown in numerous illustrations.

3. **Changes of View in Appendicitis Work.**—Morris says that although formerly he used to forbid morphin altogether, his views on the subject have changed, and he now gives it cautiously in cases in which there is great restlessness. Both gauze packing and iodoform gauze have been abandoned altogether, as well as the use of buried sutures of silkworm gut. A standard length of one and one-half inches for the incision has been adopted for nearly all instances, including cases of abscess and peritonitis, and it has been found safer to deal with adhesions by touch than by sight. The time limit has also been greatly reduced, and now it is common to have the time from the first incision to the last suture occupy not more than seven or eight minutes. All patients are operated on, even if moribund, a preliminary infusion of salt solution being given; adhesions are freely separated if necessary, but not otherwise, and the idea of flushing out the abdomen has been dropped. After eliminating the features which seemed to have a special death rate of their own, viz., gauze packing, iodoform gauze, long incisions, and the expenditure of time in unnecessary detail of work, 100 consecutive operations were reported with a 2 per cent. death rate. The author does not favor the removal of the normal appendix in the course of other operative work, and he now uses a cigarette drain in all cases in which pus and septic débris have been left in the peritoneal cavity. The dictum of operating as soon as the diagnosis is made holds good, with certain exceptions, but it is still a question what to do with patients who are convalescing from the attack. In interval cases it now seems best to operate only when, on palpation, the appendix is found to be the definite seat of chronic infection or of adhesions which cause symptoms.

4. **Toxemia of Intestinal Origin Predisposing to Minor Infections.**—Houghton describes 30 cases of minor infections, in nearly all of which a toxemia of intestinal origin appeared to be present. Examination of the urine showed that 27 out of 30 patients had an excess of indican; 1 case presented glycosuria and indicanuria, 1 glycosuria, and 1 tuberculosis. The conclusion is that in many cases of vital decrease manifested objectively by minor septic infections, toxemia of intestinal origin may be regarded as the predisposing cause. The practical bearing of this conclusion is far reaching and explains such problems as that encountered by the surgeon when two patients of apparently similar vitality show a great difference in recuperating powers after the same operation, or why one exposed person contracts an infectious disease and another does not. The practical application of the conclusion means attention to the proteid fermentation taking place in the bowel, particularly in those cases in which the urine presents a large amount of indican. It is not sufficient simply to produce evacuation of the bowels. The indicanuria must be treated by diet and other procedures looking toward its complete cessation. This will undoubtedly completely cure many troublesome cases of recurring minor infections.

American Medicine, Philadelphia.

May 27.

6 Ailurophobia and the Power to be Conscious of the Cat as Near, When Unseen and Unheard. S. W. Mitchell, Philadelphia.
7 Observations on Amebas Infecting the Human Intestine, with a Description of Two Species, Entameba Coli and Entameba Dysenterie. C. F. Craig, San Francisco.
8 *Chylous Ascites. J. F. Bell, Englewood, N. J.
9 *Results of Abdominal Operations. G. E. Shoemaker, Philadelphia.
10 The Lloyd Reaction for Morphin and Other Alkaloids. D. W. Fetterolf, Philadelphia.
11 Acute Carbon Bisulfid Poisoning. A. P. Francine, Philadelphia.

8. **Chylous Ascites.**—Bell cites the case of a man aged 57 from whom 106,370 c.c. of fluid were withdrawn in about ten weeks. At the last paracentesis the patient weighed but five pounds less than his normal average. The history would suggest a rupture of a large lymph duct, the thoracic duct, the receptaculum chyli, or a chylous cyst of the mesentery which has continued to discharge into the peritoneal cavity. The cause of the rupture is unaccounted for.

9. **Some Results of Abdominal Operations.**—Shoemaker deals with 100 unselected, consecutive cases, with 5 deaths, one patient moribund when admitted and rapidly incised for pus drainage without diagnosis; 1 seen two weeks after onset with gangrene of several feet of small intestine; 2 bad chronic pus cases, and 1 patient with chronic inflammation of tubes, ovaries and appendix. In the 95 recoveries, hysterectomy was done 20 times; 9 times for malignancy. In malignant cases, the growth was separated through the vagina, followed by removal of the uterus through a suprapubic incision. In the 12 cases of fibroid tumor, hysterectomy by supravaginal amputation was done. Operation was done primarily for appendicitis 11 times, but in the course of other abdominal operations the appendix, not being normal, was removed in 22 other cases, so that altogether in one-third of the cases of the series the appendix was removed. The removal of the appendix probably increases the risk of the primary operation to a very slight degree, and is not advised under favorable conditions, as in a complicated hysterectomy. Of the 6 extrauterine pregnancies, all the patients recovered. A large number of other operations were done in a corresponding period, such as plastic perineal work, suspension of the kidney, curetting, etc., some of these operations being done in combination with abdominal section and all without mortality. In 68 per cent. of the cases requiring perineal repair, the anterior vaginal wall was also treated by the excision method.

Medical News, New York.

May 27.

12 Clinical Features and Treatment of Epidemic Cerebrospinal Meningitis. F. Huber, New York.
13 *Infantile Tuberculosis; Its Portal of Entry, Topography and Clinical Manifestations. R. G. Freeman, New York.
14 *Two Unusual Cases of Gastric Cancer. W. F. Cheney, San Francisco.
15 Present Clinical and Bacteriologic Status of Vincent's Angina. Wm. N. Berkeley, New York.
16 *Widal Reaction. E. Andrade, Jacksonville, Fla.

13. **Infantile Tuberculosis.**—According to Freeman, tuberculosis in infancy arises most often from an infection through either the respiratory or alimentary tract; the comparative frequency of these two modes of infection has not yet been definitely determined. The tuberculosis of early life is most common during the first year, when children are on an exclusive milk diet; much milk contains tubercle bacilli, and bovine tubercle bacilli are pathogenic for man. At this period, owing to the structure of the intestinal wall, bacteria can probably pass through it, although it is uninjured. Experiments on animals show that inhalation tuberculosis causes usually lesions of the bronchial lymph nodes and lungs alone, while, wherever the portal of entry, these structures become very early involved. Inoculation experiments prove that the mesenteric lymph nodes may be tuberculous without the presence of any gross lesions in them. Twenty-six and one-half per cent. of the 158 autopsies on tuberculosis cases at the Foundling and Nursery and Child's hospitals, which Freeman has tabulated, show intestinal or mesenteric lesion on gross examination. The tuberculosis of infancy, unlike that of later life, is usually an acute, widely disseminated, general disease, with moderate temperature and few symptoms and physical signs; unless the invasion of the meninges gives rise to symptoms. Tuberculosis of the cervical lymph nodes and of the

joints is rarely seen under the third year. The power to overcome a tuberculosis infection that has spread from the lymphatics and invaded the organs apparently does not exist in infancy. A series of autopsies in the same institutions, in which the intestines were carefully examined without being separated from the mesentery, and with microscopic examination of all suspicious thickenings, would probably show a much larger proportion of intestinal involvement, and a still greater proportion could be found by animal inoculations.

14. **Unusual Cases of Gastric Cancer.**—The first case cited by Cheney presented symptoms pointing toward either cancer of the liver or syphilis of the liver, with the probabilities in favor of the latter, because of the good nutrition of the patient, the absence of pain and of the usual symptoms accompanying malignant disease. The autopsy disclosed a carcinoma of the stomach, with metastatic tumors in the liver and elsewhere. The second case was looked on as one of secondary anemia, probably due to chronic malaria, the symptoms all pointing in that direction. An operation was finally thought necessary, and on opening the abdomen the tumor, which was thought to be an enlarged spleen, was found to be an enormous carcinoma of the splenic end of the stomach. In both these cases there were peculiarities in the clinical history and physical findings that made the diagnosis of gastric cancer unsuspected.

16. **Widal Reaction.**—From a careful comparison of the results obtained from the examination of 300 specimens of typhoid blood with both living and dead cultures of typhoid bacilli, Andrade concludes as follows: 1. Living and dead cultures are about equally sensitive to the action of the agglutinins of typhoid fever, though in dead culture the reaction may require a longer time to take effect, and it is, therefore, necessary to keep the specimen under observation for two hours. In some cases, the reaction is quicker with the dead than with the living cultures. 2. The dried blood method is equally effective with dead as with living cultures. 3. The reaction, when it takes place, is more characteristic with dead cultures than with living cultures. There are no pseudo-reactions with dead cultures. 4. Dead cultures do not seem to lose their sensibility to the agglutinins of typhoid fever for a long time. Andrade has now in use a dead culture which was prepared six months ago, and it reacts just as typically as when first used.

New York Medical Journal.

May 27.

17 *Intermittent Angeiospasm on the Basis of Chronic Malaria. F. Schwyzer, New York.
18 Acute Appendicitis. L. Brinkmann, Philadelphia.
19 *The Surgical Paradox. E. Van De Warker, Syracuse, N. Y.
20 Malposition of the Abdominal Viscera and Medical and Surgical Treatment for Some of the Acute Cases. G. E. Benninghoff, Bradford, Pa.
21 Case of Extreme Sepsis from Multiple Sinusitis, with Description of Operation. W. W. Carter, New York.
22 Diagnosis of Chicken-pox. W. L. Somerset, New York.
23 Mental Wards in General Hospitals. J. N. Mosher, Albany, N. Y.
24 Abortive Treatment of Gonorrhea in Man. Report of a Case. G. Gross, San Francisco.

17. **Intermittent Angeiospasms on Basis of Chronic Malaria.**—Schwyzer describes 8 cases which exhibited a number of symptoms in common due to a disturbance of the vasoconstrictor nerves caused by chronic malaria. Each patient gave a malarial history, and showed the external signs of chronic malaria. In each, the spleen was either large, or very large, and hard, when palpable; in most of them the liver was enlarged. A detailed analysis is made of the symptoms manifested in each case, from which the author concludes that these were cases of what he terms malarial angiospasm. The treatment of this form of malaria does not differ from that of chronic malaria in general.

19. **Surgical Paradox.**—Van de Warker's paper is essentially a plea for better teaching of surgery, and more of it, in medical colleges.

Boston Medical and Surgical Journal.

May 25.

25 *Consideration of the Pelvic Articulations from an Anatomic, Pathologic and Clinical Standpoint. J. E. Goldthwait and R. B. Osgood, Boston.
26 Foreign Body in the Esophagus. A. Coolidge, Jr., Boston.
27 *Conservative Operation on the Ovaries and Tubes: Analysis of Ninety Cases. R. G. Wadsworth, Boston.

25. **Pelvic Articulations.**—Goldthwait and Osgood present a complete study—anatomic, pathologic, and clinical—of the pelvic articulations for the purpose of calling attention to certain conditions concerning which the knowledge of the profession has been much less than the importance of the symptoms and the frequency of occurrence seem to justify. Their work, as well as the work of other investigators, makes it quite plain that the pelvic articulations, especially the sacro-iliac synchondroses, are by no means as stable as has been supposed, and that in man and woman definite motion exists under normal conditions. Clinical cases are divided into three groups; the first including the cases in which there is definite relaxation associated with pregnancy, representing an exaggeration of a normal condition; the second, the cases in which the relaxation is associated with menstruation, apparently representing also a physiologic condition, apart from any pathologic change with which we are at present familiar; and the third, the cases in which the lesion is due to trauma, general weakness, or some definitely known pathologic process. The authors discuss, in full, the clinical history of cases coming under this classification, mentioning particularly the methods of demonstrating the mobility of affected joints, demonstrating disease of joints, and the various forms of support used to relieve the strain on these joints.

27. **Conservative Operations on the Ovaries and Tubes.**—Wadsworth contributes the result of a detailed study of the after histories in 90 cases in which a conservative operation was done on the ovaries and tubes. Taking the series as a whole, 51 per cent. of the patients were cured, 35.5 per cent. were relieved, and 13.5 per cent. were not relieved. In 52 of the 90 cases, however, retroversion of the uterus was corrected, and in many of them lacerations were repaired. Therefore, these cases should be considered separately, since in them the symptomatic result is only in part due to the operations on the appendages. Of these 52 patients, 48 per cent. were cured, 36.5 per cent. were relieved, and 15.5 per cent. were not relieved. Of the remaining 38 patients, in whom the appendages only were diseased, 55.5 per cent. were cured, 34 per cent. were relieved, and 10.5 per cent. were not relieved. In 64 patients in whom one ovary was normal and the other was either resected or removed for cystic disease, 7 (11 per cent.) have come to second operation, while in 20 patients in whom both ovaries were cystic, and part of one or both were saved, 6 (30 per cent.) have had a second operation. In these 64 patients there was possibility of future pregnancy, and 17 (26.5 per cent.) have become pregnant, 13 of this number (20 per cent.) having a normal delivery at term, and 4 one or more miscarriages. Considering the cases together, without regard to the extent or multiplicity of operation, partial or complete symptomatic relief has been obtained in 86.5 per cent. Multiple operations give less good results as a whole than operations on the appendages alone, there being half again as large a per cent. of failures in the former class. When both ovaries are cystic and part of one or both are saved, the chance of secondary operation for recurrence of cystic disease is nearly three times as great as in those cases in which one normal ovary is present. In estimating the likelihood of subsequent pregnancies in any given case, the fact that the patient has borne children before operation nearly triples the chance of subsequent pregnancy.

Lancet-Clinic, Cincinnati, Ohio.

May 20.

28 Two Cases of Otitic Brain Abscess. G. F. Keiper, La Fayette, Ind.
29 Brief History of the Medical Libraries of Cincinnati. H. W. Bettmann, Cincinnati.
30 Value of a Medical Library to the Community. D. I. Wolfstein, Cincinnati.
31 *Suggestion as to the Treatment of the "Spotted Fever" of Montana. P. M. Ashburn, Ft. Missoula, Mont.
32 Eye, Ear and Throat Sequelæ of Diphtheria. L. D. Brose, Evansville, Ind.

31. **Treatment of Montana Spotted Fever.**—Ashburn (THE JOURNAL, May 27, 1905, p. 1686) recommends in the treatment

of this disease the Brand treatment of typhoid, plus the occasional use of normal salt infusions and a few medicines, principally calomel, alcohol and strychnin. He advises the immersion of each patient presenting a temperature of 102.5 F. in water having a temperature of 70 F., and keeping him there, constantly applying hand frictions to the body and limbs, with cold applications to the head, from ten to twenty minutes, according to effect, repeating this procedure every three hours as long as the temperature remains above the point indicated. This bath should be preceded by the administration of a stimulant (Ashburn prefers alcohol), and followed by a quiet rest in bed, under blankets, and, if necessary, with hot water bottles at the feet. Ashburn sounds the following note of warning: 1. That the lower the temperature of the water (below 60 F., say) the greater the contraction of the blood vessels of the skin, the slower their consequent dilatation, and the smaller the reduction of temperature and the greater the internal congestion. 2. That without friction a moderately cold bath (70 F.) may do harm in the same way, and may fail to reduce temperature. 3. That until reaction occurs the circulation is not benefited, and that to hasten reaction by friction is absolutely necessary for this reason also. 4. That the effect on the circulation, because in that way the condition of the skin, kidneys, lungs, nervous system and temperature itself are beneficially influenced, is the most important object to be attained. 5. That water not cold enough does not cause the primary spasm of the skin vessels, without which the tonic dilatation does not follow. 6. That alcohol or hot coffee by the mouth and ice water by the rectum add to the efficiency of the bath and hasten reaction. 7. That, while the temperature may be used as a guide within considerable limits, the circulation being most what we want to influence, the baths should be given at such fairly regular intervals as to exercise a continuous, beneficial effect on it, and should be graded by its condition rather than by the temperature.

St. Louis Medical Review.

May 20.

33 Malignant Tumors of the Extremities. C. G. Cumston, Boston.

Illinois Medical Journal.

May.

34 *Surgical Analgesia from Spinal Cocainization. A. E. Halstead, Chicago.
34½ Multiple Neurofibromata. R. B. Preble, Chicago.
35 *Larvated Forms of Exophthalmic Goiter. L. H. Mettler, Chicago.
35½ Pleurisy. A. R. Edwards, Chicago.
36 Diagnosis of Appendicitis in Children. J. H. Hess, Chicago.
37 Water Supply. J. M. G. Carter, Waukegan.
38 *Surgical Treatment of Sciatica. M. R. Barker, Chicago.
39 Some of the Newer Remedies. J. C. Beck, Chicago.
40 High Forceps, Pelvic Inlet Forceps; Its Indications and Relations to Forceps and Version. G. Schmauch, Chicago.
41 *Prison Tuberculosis. E. E. Tracy, Chicago.
42 Sterility in the Male. A. Schalek, Chicago.
43 Two Cases of Complete Perineal Prostatectomy by Young's Technic. J. Frank, Chicago.
44 Differential Blood Count, Technic and Clinical Value in Septic Cases. C. Hill, Chicago.
45 Bronchoscopy for the Removal of a Collar Button from the Lung. E. F. Ingals.
46 Colle's Fracture. E. A. Edlen, Moline.

34. **Spinal Cocainization.**—Halstead believes spinal analgesia is contraindicated in all cases in hysterical women, in young children, and in the insane. It should be used only when its action can be explained to the patient, and thus co-operation secured. Halstead does not consider any ordinary heart lesion a contraindication to its use. Any marked idiosyncrasy for cocain should constitute a positive contraindication against spinal analgesia. The surgical indications for spinal cocainization given by Halstead are the following: 1. In operations on the lower half of the body, when, from kidney, lung or heart disease, a general anesthetic is dangerous, and where infiltration or analgesia from neural injections of cocain are not possible. 2. In strangulated hernia or intestinal obstruction from other causes, and perforations, where considerable time may be required, thus contraindicating the use of local anesthesia. Spinal cocainization is an ideal method of securing analgesia, first, because the patient remaining conscious is not so likely to drown in fecal vomit; second, because the shock from the puncture is practically *nil*. In traumatic surgery of the lower extremities, spinal cocainization blocks the reflexes and eliminates, to a great extent, the risk of shock. In amputations above the hip, where shock from the operation is generally very severe, and often fatal, after cocainization of the cord, the amputation may be performed without any change in the pulse rate. In this class of operations, if, for good reason, unconsciousness is essential, as it sometimes is, a small amount of ether and chloroform may be administered to secure this end.

35. **Larvated Forms of Exophthalmic Goiter.**—Mettler emphasizes the fact that there are aborted, mild types of exophthalmic goiter; that they are not by any means uncommon; and that they are the most important cases for the physician's consideration from the standpoint of diagnosis, prognosis and treatment. Their diagnosis does not involve so much their mere differentiation from other diseases as it does the direct establishment of the existence of Grave's disease. This positive affirmation of the presence of this affection can not be made unless one or more of the cardinal symptoms—tachycardia, struma, exophthalmos and tremor—are present. Wanting all these, the diagnosis is worthless, no matter what other symptoms and complications may be present. Of the cardinal symptoms, the tachycardia, and of the minor or doubtful symptoms, those of a general neurasthenic nature, constitute the more familiar grouping in these important larvated types of exophthalmic goiter. Once the diagnosis is established in this type, the prime factors in the treatment of the case are absolute physical and mental rest and heightened nutrition.

38. **Surgical Treatment of Sciatica.**—The object of Barker's paper is to present a reasonable treatment for sciatica based on the etiology and pathology of the affection. The treatment is divided into two parts: (1) The dry or bloodless stretching of the nerve; (2) the introduction of normal salt solution between the nerve sheath and the nerve substance. The dry stretching, done by flexing the leg in extension on the abdomen, lessens the caliber of the nerve substance and thus relieves the pressure on it by a contracted sheath. To carry out the second part of the treatment, the nerve is exposed by an incision between the trochanter major and the tuberosity of the ischium. All the tissues are separated from the nerve, as far as possible, both longitudinal and laterally, but the nerve is not raised out of its bed and must not be on the stretch when the injection is made. As the salt solution is forced between the nerve sheath and nerve substance, the two are separated and the adhesions between them broken up. A common aspirator, with a barrel holding half an ounce, and having a needle about four inches long, is a satisfactory instrument with which to inject the salt solution. This process is repeated eight or ten times, changing the direction of the needle each time. The wound is closed, the patient put to bed, massage is practiced every day for ten days, and the patient made to use the limb from the first.

41. **Prison Tuberculosis.**—Tracy says that tuberculous patients must be isolated more particularly in prison than anywhere else. Convicts sentenced for only a short time enter these institutions, contract tuberculosis, serve their sentence, are discharged and roam about at large, spreading the disease, and die outside the prison walls. He urges the erection of proper sanitary cell-houses, and states that the prison physician should keep his patients in the open air as much as possible, and that when in the hospital he should isolate them. All tuberculosis patients should be clothed with flannels both winter and summer, and should receive a good nutritious diet with plenty of milk. For excessive coughing, he advises anodynes and good tonics.

American Journal of Surgery, New York.

April.

47 *X-Rays and Sterility. F. T. Brown and A. T. Osgood, New York.
48 *New Method of Performing Appendicectomy. C. W. Strobell, Rutland, Vt.
49 Paraffin in Surgery. A Critical and Clinical Study. (Continued.) W. H. Luckett and F. I. Horn, New York.
50 New X-Ray Tube Stand: A New X-Ray Table. W. M. Brickner, New York.
51 Chronic Constipation Due to Invagination of the Sigmoid into the Rectum and Its Surgical Treatment. S. G. Gant, New York.

52 Significance of Chronic Jaundice. C. A. Elsberg, New York.

May.

53 Gastroenterostomy. A. H. Ferguson.
54 Paraffin in Surgery. A Critical and Clinical Study. (Continued.) W. H. Luckett and F. I. Horn, New York.
55 Urethral Neoplasms. G. F. Lydston, Chicago.
56 Treatment of Acute Otitis Media in Childhood. P. Fridenberg.
57 Typhoid Ulcer—Its Surgical Aspect. T. B. Noble, Indianapolis.

47. **X-Rays and Sterility.**—Brown and Osgood urge *x*-ray workers to provide adequate protection for all parts of the body not directly exposed for examination or treatment, becaused repeated, prolonged exposures of the testes invariably produces sterility in the human being.

48. **New Appendicectomy.**—Strobell has devised a new operation which he believes will meet the requirements of more than 75 per cent. of the cases. The various steps of the operation are as follows: Tentatively, the muscle-splitting section, after McBurney, is always employed, the peritoneal opening not to exceed three-fourths of an inch, if possible. Through this small opening he introduces the beak of a short hysterectomy clamp, and grasps very gently a portion of the cecum and draws it upward through the opening, sufficiently far to seize it with fingers. The longitudinal band is readily found, and the appendix, if free, is easily brought through the opening. At no time should there be more than a square inch of intestine in sight. The appendix is now put on the stretch, and a longitudinal incision is made through the peritoneal coat, opposite the attachment of the mesentery, beginning at the base and terminating at the tip. This part of the operation is practically bloodless, as the incision traverses a "bloodless zone." Two Kelly's hemostatic forceps are now made to grasp the edges of the divided peritoneal coat, near the tip, while a third forceps grasps the head of the appendix and readily enucleates it from its bed, down to its base, with the aid of a scalpel or the gauze-covered finger. The next step is amputation of the appendix, one centimeter from the cecum. In doing this, Strobell proceeds to clamp just above the proposed line of amputation; while just below it he grasps the walls on the opposite sides with forceps. This insures control of the contents not only of the removed portion, but also of the stump, which is important in the subsequent steps. The appendix removed, he assures himself of the permeability of the lumen of the stump, cauterizes it with pure carbolic acid, and follows this with alcohol. The stump is now dilated, very gently, to its full extent. Next follows the most important part of this operation, the one on which Strobell bases his claim of originality. He introduces, through the canal of the stump into the lumen of the cecum, just at and parallel with the base of the stump, a small oval ring or band of metal (preferably of aluminum) of suitable size. The thumb and index finger are now made to compress the walls of the cecum, over the site of the ring, thus steadying it, while with a mosquito forceps the cut edges of the stump are inverted through the lumen of the ring, and into the cecum; firm compression of the ring is then made with the thumb and index finger, withdrawing meanwhile the inverting forceps. All that now remains to be done is to further compress the ring, which is accomplished with flat, smooth-faced compression forceps. No reinforcing stitches are necessary; the ring will hold the tissues without them. The cut edges of the peritoneal coat of the appendix are folded in upon themselves, and may thereafter be disregarded; nothing more is required but to drop the cecum back into the peritoneal cavity, after completing the toilet, and to close the abdominal incision. There are no sutures, no ligatures, no bleeding, no danger of secondary hemorrhage or of sepsis from possible infected suture or ligature material. The ring or band should be oval, not over one centimeter in its longitudinal diameter. It may be of any metal, but the ductility and lightness of aluminum makes it especially adaptable. The inside of the ring should be roughened with a graver, in one direction, to facilitate the withdrawal of the inverting forceps. The ring falls off and makes its exit from the bowels in about one week.

Virginia Medical Semi-Monthly, Richmond.

May 12.

58 Psychological Incident in the Court Room. T. D. Crothers, Hartford.
59 Abscess of the Lung—Operation, with Recovery. W. D. Travis, Covington, Ga.
60 Pernicious Malarial Fever, with Special Reference to the Hemorrhagic Types. Report of Cases. W. L. Crosthwait, Holland, Texas.
61 *Nephrectomy Performed for Gunshot Wound. J. McFadden Scott, Atlanta, Ga.
62 *Excision of the Urinary Bladder. G. T. Vaughan, Washington, D. C.
63 Typhoid Fever. F. M. Brantley, Senoia, Ga.
64 Principles of Surgery. S. McGuire, Richmond.

61. **Nephrectomy for Gunshot Wound.**—Gaston's patient was shot in the left ninth interspace in the mid-axillary line, the bullet ranging down toward the crest of the ilium. The kidney was considered to be wounded, because of the direction of the bullet and the bloody condition of the urine. The kidney was removed, but the ureter was left loose, in the care of nature; the kidney space was packed thoroughly with iodoform gauze. The patient made an uneventful recovery.

62. **Excision of Urinary Bladder.**—In the case reported by Vaughan, a case of sarcoma of the vesical trigone, in a man, aged 32, the rectum was packed with gauze, a curved incision was made across the perineum, the bladder and prostate were dissected from the rectum and the space packed with gauze. The abdomen was then opened through the left rectus muscle, and by an incision at right angles along the pubes, chiseling off the bony attachment of the recti-muscles. The urethra was then divided in front of the prostate gland and the bladder separated from its attachments as far as the ureters. The peritoneum was split over the ureters and the bladder lifted up and opened, in order to see about removing the segment containing the mouths of the ureters, but as the disease involved the entire bladder this could not be done. The right ureter was completely occluded with two or three small calculi near its mouth, and was dilated to the size of one's finger with dark bloody urine. The ureters were cut off near the bladder and implanted separately into the sigmoid flexure by means of fine silk sutures. The patient died at the close of the operation from exhaustion.

Quarterly Journal of Inebriety, Hartford, Conn.

April.

65 *Study of the Effects of Alcohol on School Children. T. A. MacNicholl, New York City.
66 Contribution to the Study of Narcosomania. T. H. Evans, Philadelphia.
67 Treatment of the Morphin Habit. C. Pope, Louisville, Ky.
68 Things That Make Inebriates. D. Paulson, Hinsdale (Ill.) Sanitarium.

65. **Effect of Alcohol on School Children.**—In the course of a study of the relation of heredity to the mental deficiency of children, MacNicholl examined 55,000 school children, 10,800 from country schools and 44,200 from city schools. The 55,000 children, classified according to their standing in studies, appear as follows: Standard, 42 per cent.; below standard, 16 per cent.; dullards, 17 per cent.; very deficient, 25 per cent. Direct causes of dullness reported: Personal habits, 9 per cent.; environment, 11 per cent.; heredity, 65 per cent.; sickness, less than .03 of 1 per cent. Comparing city and country schools we find a preponderance of deficients in the city. Country schools: Dullards, 15 per cent.; very deficient, 7 per cent—a total of deficients in country schools of 22 per cent. City schools: Dullards, 17 per cent. plus; very deficient, 29 per cent. plus—a total of deficients in city schools of 46 per cent. The personal attitude to alcoholic drinks, including beer, wine and spirits, is reported in 34,000 cases, viz.: Abstainers, 73 per cent.; drinkers of beer, 23 per cent.; drinkers of spirits, including wines, 4 per cent.; drinkers of beer and spirits, 12 per cent. The parental attitude to alcoholic drinks is reported in 20,147 cases: Children of drinking parents, 6,624; children of abstaining parents, 13,523; children of drinking parents reported dullards, 53 per cent.; children of abstaining parents reported dullards, 10 per cent. The following is a summary of the family histories of 3,711 children of 1,100 different families traced through three generations: 1,871 males, 1,840 females; 19 precocious in one or more studies, 421 excellent, 981 fair, 2,290 dullards. The personal attitude to drink: 66

per cent. abstainers, 28 per cent. beer drinkers, 6 per cent. whisky drinkers, 14 per cent. beer and spirits drinkers. Family history in relation to drink: 2,713 had drinking parents, 2,771 had drinking grandparents, 2,530 had drinking parents and grandparents, 998 had abstaining parents, 757 had abstaining parents and grandparents. Of the children of drinking parents but abstaining grandparents, 73 per cent. were dullards; of the children of abstaining parents but drinking grandparents, 78 per cent. were dullards; of the children of abstaining parents and abstaining grandparents, 4 per cent. were dullards. Dividing the 3,711 children into two classes, viz., those free from hereditary alcoholic taint and those with hereditary alcoholic taint, some very striking contrasts may be noted. 1. Of those free from hereditary alcoholic taint, 96 per cent. were proficient, 4 per cent. were dullards, 18 per cent. suffered from some neurosis or organic disease. 2. Of those with hereditary alcoholic taint, 23 per cent. were proficient, 77 per cent. were dullards, 30 per cent. very deficient, 76 per cent. suffered from some neurosis or organic disease. From these studies, MacNicholl concludes: First, alcohol at the threshold of life is a bar to success and a foe to health; second, alcohol, by destroying the integrity of nerve structures and by lowering the standard of organic relations, launches hereditary influences which by continuous transmission gain momentum and potency and leave their impact on gland and nerve until the mental faculties are demoralized, physical energies hopelessly impaired, and the moral nature becomes degenerate and dies; third, if we are to make any material change in the ranks of mental deficients, we must adopt methods of prevention as well as methods of cure.

Journal of the Kansas Medical Society, Kansas City, Kan.

May.

69 Business Side of Professional Life. L. Reynolds, Horton, Kan.

Detroit Medical Journal.

May.

79 Sanitation on the Isthmus of Panama. W. C. Gorgas.
71 Borderline Between Ophthalmology and General Medicine. K. K. Wheelock, Ft. Wayne, Ind.
72 Nose and Throat Work for the General Practitioner. B. R. Shurly, Detroit.
73 Points on Retention of Urine. W. A. Hackett, Detroit.
74 Should We Have County Health Officers? F. E. Kitzmiller, Piqua, Ohio.

The Medical Herald, St. Joseph, Mo.

May.

75 Surgical Versus X-Ray Treatment of Rodent Ulcers and Epitheliomata of the Face, with Report of Operated Cases. C. O. Thienhaus, Milwaukee.
76 Points on Suprapubic Cystotomy. E. N. Wright, Olney, I. T.
77 Injuries to the Spinal Column. C. E. Black, Jacksonville, Ill.
78 Medical and Office Treatment of Gynecologic Patients. E. Brown, Omaha, Neb.
79 Skin Therapy. L. H. Warner, New York.

Northwestern Lancet, Minneapolis.

May 15.

80 Mortality, Disability and Permanency of Cure in Surgery. C. H. Mayo, Rochester, N. Y.
81 General Considerations in the Treatment of the Earlier Stages of Pulmonary Tuberculosis. L. A. Nippert, Minneapolis.
82 Importance of Nasal Breathing in Exercise. W. N. Porteous, Minneapolis.

Medicine, Detroit, Mich.

May.

83 History of Panama and the Panama Canal. S. Egbert, Philadelphia.
84 The Isthmian Canal Zone. J. McFarland, Philadelphia.
85 Medical Conditions of the Isthmus of Panama, with Other Notes. R. G. Curtin.
86 How Can the Physician Profit by Preventive Medicine? J. M. Taylor.
87 Accouchement Forcé. G. M. Boyd, Philadelphia.
88 Civil Malpractice. G. J. Tobias, Chicago.
89 Orbital Tumor of Ten Years' Standing. C. A. Leenheer.

Southern California Practitioner, Los Angeles.

May.

90 Flies as Carriers of Disease. J. O. Cobb, Los Angeles.
91 History of Medicine. J. P. Widney, Los Angeles.
92 Physical Inspection of Children—Tests. G. L. Leslie, Los Angeles.

Alienist and Neurologist, St. Louis, Mo.

May.

93 Status of Insane Homicides Under Illinois Law. J. G. Kiernan, Chicago.
94 Some Observations on Dementia Precox (Adolescent Insanity). D. R. Brower, Chicago.
95 Outlines of Psychiatry in Clinical Lectures. C. Wernicke, Breslau.
96 Mixoscopic Adolescent Survivals in Art, Literature and Pseudo-Ethics. (To be continued.) J. G. Kiernan, Chicago.
98 Panama Pan-American Medical Congress. C. H. Hughes, St. Louis.

Wisconsin Medical Journal, Milwaukee.

May.

99 Stokes-Adams Disease. C. H. Stoddard, Milwaukee.
100 Radical Treatment of Cancer of the Stomach. Report of Cases. H. Reineking, Milwaukee.
101 Important Point in Our Warfare Against Tuberculosis. W. B. Hopkins, Cumberland, Wis.
102 Cryptorchism. P. H. Jobse, Milwaukee.
103 Complications of Labor at Term. O. T. Woolheiser, South Wayne, Wis.

Columbus Medical Journal.

May.

104 Traumatic Neurosis. H. C. Rutter, Columbus.
105 Intermittent Claudication. G. F. Zinninger, Canton.
106 Case of Tonsillar Tuberculosis. C. S. Means.

Chicago Medical Recorder.

May 15.

107 Gastroenterostomy. W. H. Wathen.
108 Cholecystotomy and Cholecystectomy. A. C. Wiener, Chicago.
109 General Anesthetics, Ether and Chloroform. H. D. Peterson, Chicago.
110 Impotence and Sterility. F. A. Leusman, Chicago.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

May 13.

1 *Logical Basis of the Sanitary Policy of Mosquito Reduction. R. Ross, Liverpool.
2 *Cause and Treatment of Pruritus Ani. F. C. Wallis, London.
3 Surgical Anatomy and Operative Treatment of Tuberculous Glands of Neck. W. G. Sutcliffe, Margate.
4 Congenital Hypertrophy and Dilatation of the Sigmoid Flexure. W. F. Brook, Swansea.
5 *After-History of Patients on Whom Gastric Operations Have Been Performed. C. M. Moullin, London.
6 Value of the Vermiform Appendix in the Treatment of Ulcerative and Membranous Colitis. J. Hutchinson, Jr., London.

1. **Sanitary Policy of Mosquito Reduction.**—The whole subject of mosquito reduction, says Ross, can not be scientifically considered without mathematical analysis. He believes that the effect of anti-propagation measures must always be a reduction of the mosquito density, not only within the area of operation, but to a distance equal to the ideal limit of migration beyond it. On the boundary of operations the mosquito density should always be reduced to about one-half the normal density, while the curve of density will rise rapidly outside the boundary and will fall rapidly inside it. As immigration into an area of operations must always be at the expense of the mosquito population immediately outside it, the average density of the whole area affected by the operations must be the same as if no immigration had taken place. As a general rule, for practical purposes, if the area of operations be of any considerable size, immigration will not very materially affect the result.

2. **Treatment of Pruritus Ani.**—In over 90 per cent. of cases of pruritus ani examined Wallace found a shallow ulcer situated between the two sphincters, more often in the posterior segment than in the anterior and generally near the dorsal midline. As this was a definite and constant lesion, he determined to treat it, believing it to be the cause of the trouble. The usual preparation for a rectal operation having been carried out, the patient is anesthetized and put in the lithotomy position. The sphincter is moderately stretched, and the ulcer or ulcers are brought into view and treated with the electric thermocautery. The cautery is also applied to the thickened skin, especially in any cases in which fissures or clefts exist between the hypertrophied skin folds. Vaselin is applied to the cauterized area, and a morphin suppository is inserted into the bowel. A pad of wool is kept in position by a T-bandage, and the patient is put back to bed and kept there. A purge is given on the third night, and a warm boracic bath is taken twice a day. After the bath the skin is thoroughly dried and powdered with starch and zinc powder, and a small piece of cotton-wool, impregnated with powder, is introduced just inside the sphincter. In all these cases the irritation ceases either at once or after a few days, and, if

proper care is taken, it does not return. The patients are usually well in about 14 days, but the absolute healing of the ulcer may often take longer than this. In cases in which the abrasion practically encircles the bowel it is better to dissect off the ring of tissue involved, bringing the upper cut edge down to the anal margin, to which it is attached by a continuous catgut suture—thus removing all the lining membrane of the proctodeum. These cases are not so immediately successful as the others because the condition of the mucocutaneous margin is indifferent and healing is at times protracted, and some temporary contraction may occur; but with proper care this disappears, the result is good and the pruritus is cured. Ambulant cases are treated as follows: The patient being placed in the knee-elbow position, a bivalve speculum is inserted into the rectum and kept in position about half opened. Some eucain is injected behind the ulcer. This renders the area anesthetic and brings the ulcer into prominence. The ulcer is either treated with lactic acid or burnt with the electric thermocautery, the speculum removed and a morphin suppository introduced. A zinc and starch powder is dusted over the skin and a pad and T-bandage are applied. The subsequent treatment is the same as has already been described.

5. **After-History of Gastric Operations.**—The after-history is given by Moullin of 24 patients operated on for some gastric disturbance. Considering these cases in conjunction with others previously published, he concludes that pyloroplasty can only be regarded as a very qualified success. The pain returned more or less in all the cases. The scar left seemed to have contracted again. Of 21 cases of gastroenterostomy, 12 patients may be regarded as cured and 5 as very much benefited by the operation. Of the latter, several are as well as they could ever expect to be under the conditions of the life they lead. The posterior transmesocolic operation was performed whenever practicable, but so far as the stomach is concerned, it seems to be immaterial whether the opening is made on the anterior or on the posterior wall. In either case it soon becomes the most dependent part. In addition to the gastroenterostomy in all but two a lateral communication was made as well between the contiguous sides of the jejunal loop for the purpose of preventing what is known as the "vicious circle." Moullin says that if pain is to be avoided after gastroenterostomy the opening in the stomach must either be at the cardiac end, and very free, so that the pyloric end has no work to do; or if it is placed at the pyloric end, for the same reason, there must be free division of the circular muscular fibers in the prepyloric portion. In either case adhesions, the results of past inflammation, must be dissected away or the stomach will continue to drag through them on the parietal peritoneum and the pain will continue.

The Lancet, London.

May 13.

7 Case of Concealed Menstruation with Remarks on Treatment. P. Horrocks, London.
8 *Nutrition and Malnutrition. W. H. Allchin, London. (Concluded.)
9 *Case of "Splenomegalic" or "Myelopathic" Polycythemia with True Plethora and Arterial Hypertonia Without Cyanosis. F. P. Weber, London.
10 Symptomatology and Diagnosis of Vincent's Angina. H. Vincent.
11 Carcinoma of the Uterus and Its Surgical Treatment. E. T. Thring.
12 *Technic of the Operation for Adenoids and Enlarged Tonsils, with Some Practical Suggestions. F. C. Carle, London.
13 *Anatomic Peculiarities of a Gall Bladder and an Appendix. F. Lemon, Hawthorne, Australia.
14 Cesarean Section for Congenital Malformation of the Cervix Uteri; Recovery. H. T. Skae, London.

8. **Nutrition and Malnutrition.**—In this paper Allchin discusses the rôle of oxygen in tissue metabolism, the part played by ferments in nutrition, the relation of lymphocytes to nutrition, the influence of the nervous system on nutrition, and the relation of ions to vital activity and nutrition.

9. **Splenomegalic Polycythemia.**—The case reported by Weber differs markedly in one particular—the absence of cyanosis—from cases previously reported by others as well as himself. The examination of the blood in this case was very complete, including a determination of its viscosity, the amount of albuminous substance in the blood plasma, the estimation of the salts, and a thorough cryoscopic examination. The Roentgen rays were used in the treatment, the patient having 21 sittings, five minutes each, the splenic region being exposed to the radiation, but without any beneficent effect. The treatment had to be discontinued because the patient complained more of headache and a feeling of congestion in the head. Weber believes that the order of development of the main symptoms and their causal connection to be as follows: 1. Increased erythroblastic activity involving a great part, but not necessarily the whole, of the bone marrow. 2. Increased viscosity of the blood resulting from the polycythemia. 3. Dilatation of small blood vessels, partly to lessen resistance to the abnormally viscous blood, partly to make room for dilution of the blood. 4. The "plethora vera" or "polyhemia" is probably to be regarded as an attempt to compensate for the increased viscosity of the blood and for the excessive percentage of the total blood volume occupied by the cells. In fact, it is necessary, first, that there should be sufficient blood plasma to nourish the tissues and to make metabolism possible; and, second, that the viscosity may not become so great as to render sufficient circulation impossible. 5. The arterial hypertonia is to be regarded as a result of the greater strain thrown on the circulatory mechanism. 6. Cyanosis, when this occurs, is probably due to inadequacy of the series of compensatory changes which, according to his view, precedes it.

12. **Operation for Adenoids and Enlarged Tonsils.**—The practical points to which Carlé calls attention are as follows: The horizontal position of the patient in the dorsal decubitus, the head being neither flexed nor extended. With the head extended the cervical curve of the spinal column is increased; in this position the operator is liable to cut deeply into the muscular structures of the posterior pharyngeal wall, which will be stripped down by the curette, leaving extensive tags of muscle and mucous membrane. These will slough and give rise to unpleasant symptoms in the after-treatment, so making the patient more liable to acute middle-ear inflammation, a not infrequent result of the operation for adenoids. The lateral position favors the drainage of blood from the pharynx out through the mouth and in no way inconveniences the surgeon in removing the tonsils. In removing the tonsils a small guillotine is better than a large one, since the encircled organ is not so liable to slip out of the smaller ring. The lower end of the tonsil hangs down into the pharynx and does not merely project from between the faucial pillars. In removal, therefore, it is important to get the lower edge of the guillotine ring below this projection, and to thread the ring on to the tonsil from below upward. The posterior pharyngeal wall is best cleared at the end of the operation by scraping with the finger nail from below upward, thus avoiding tearing downward of the posterior pharyngeal wall as is liable to follow the use of a curette. Large buried tonsils are best dealt with by removing a thin slice, followed by breaking down of the tonsil. The cicatricial contraction following this method of procedure markedly reduces the size of the hypertrophied organ. The results obtained by the above method of operating are eminently satisfactory, any after ill-effect rarely occurring.

13. **Anatomic Peculiarities of a Gall Bladder and An Appendix.**—Lemon reports an incident of inclusion of a gall bladder in the substance of the liver. After opening the abdomen the liver presented itself in the operation wound, and what appeared to be a hydatid cyst was seen on the anterior surface of the right lobe—a slightly rounded elevation of pale yellowish color. On lifting the liver forward a similar though somewhat more projecting eminence appeared on the posterior surface which, when viewed through the substance of the liver, was quite translucent. It was in the normal position for a gall bladder, but the surfaces, both anterior and posterior, were continuous with the liver substance. As no gall bladder could be discovered, an incision was made on the posterior surface into the swelling, when bile gushed out, and on further exploration two large gallstones, one barrel-shaped and

the other conical, were secured; there was an additional facet on the barrel-shaped stone, showing that a third stone had been present, but as a probe passed the whole length of the common duct without striking one, it had evidently been passed previously. The edge of the incision into the gall bladder at the time of operation was at least three-eighths of an inch thick, the circularly arranged coat of the gall bladder being marked off very definitely from the liver substance on the one hand and from the mucosa, etc., of the bladder on the other. At another operation for appendicitis, a divergence from the normal was seen in the appendix. On lifting the cecum into view a small elevation on the anterior surface of the cecum, about five inches from the extremity of the gut, was seen, from which a little pus oozed. At first sight it looked like a perforation of the cecum itself, as no trace of the appendix connected with it could be seen; but on further examination a little loop of appendix with a diameter of half an inch sprang from the extremity of the gut and, passing upward, appeared to end in the cecum half an inch away from its origin. No elevation appeared on the smooth peritoneal surface to indicate that the loop had any connection with the perforated elevation four and a half inches distant. Taking the loop as a guide, however, and carefully dissecting away the peritoneum, the appendix was traced till it ended in the elevation. The appendix was then stripped off the cecum and removed in the ordinary manner. The exposed surface beneath was the muscular tissue of the cecum, and it bled freely. After careful application of a continuous suture of fine catgut through the free edges of the peritoneum, including some of the muscular layer, the bleeding was stopped, and for further security a second row of sutures was inserted, invaginating the first, and including the stump of the appendix. The abdomen was then closed.

Semaine Médicale, Paris.

16 (XXV, No. 19.) Des effets mécaniques de l'hypertension sur le système cardio-aortique. H. Vaquez.
17 Report of XXXIV German Congress of Surgery, Berlin, April 26-29. (Commenced in No. 18.)
18 (No. 20.) Gaseous Tumor Protruding Above and Below the Clavicle.—Cas de tumeur gazeuse sus et sous-claviculaire. A. Chauffard and L. Laederich.

Berliner klinische Wochenschrift.

19 (XLII, No. 17, April 24, 1905.) Hydrotherapie und funktionelle Störungen der weiblichen Genitalorgane (and functional gynecologic affections). Koblanck.
20 *Die Stellung eines Sauerstoffatmungsapparatus in der Therapie (apparatus for inhalation of oxygen). H. Brat.
21 Zur Lehre vom Hermaphroditismus. E. Unger.
22 Adenoma of Testicle and Ovary in Hermaphrodites.—Ueber Adenome der männlichen und weiblichen Keimdrüse bei Hermaphroditismus verus und spurius. Nebst Bemerkungen über das endometriumähnliche Adenom am inneren weiblichen Genitale. L. Pick.
23 Diagnostik der chirurgischen Nierenerkrankungen (kidney affections). J. Vogel.
24 (No. 18.) Ueber einige seltener vorkommende peripherische Lähmungen (rare peripheral paralyses). M. Bernhardt.
25 Ueber aktive Lymphocytose und die Mechanik der Emigration. O. Israel.
26 Kidney Surgery Since Ureters Have Been Catheterized.—Rückblick auf die Nieren-Chirurgie seit Einführung des Ureteren-Katheterismus. L. Casper.
27 Ueber die Kelling'sche Serum-Reaktion bei Carcinomatösen. E. Fuld.
28 Reform of Modern Watering-Place Methods.—Das moderne Bäderwesen und seine Reform. Ebstein.
29 Zur Behandlung der epidemischen Genickstarre (advantages of sodium iodate in cerebrospinal meningitis). J. Ruhemann.
30 Balneotherapy for Children.—Ueber Badekuren im Kindesalter. O. Huebner. (Commenced in No. 17.)
31 Ueber die neueren Methoden der Lokal-Anästhesia. Hildebrandt.

20. Apparatus for Inhalation of Oxygen.—In presenting this apparatus, Brat emphasizes the importance of inhalation of oxygen in certain forms of industrial poisoning, etc.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

32 (XXI, No. 15.) Asthma cardiale und Angina pectoris. A. Fraenkel. Clinical lecture.
33 *Die lokale Immunität der Gewebe und ihre praktische Wichtigkeit (local immunity of tissues). A. Wassermann and J. Citron.
34 Ueber hemophile Bacillen. C. Klieneberger.
35 *Die Klangleitung in der Lunge und ihre diagnostische Verwertbarkeit (conductibility of resonance in lungs). R. von den Velden.
36 *Klinische Untersuchungen über die Viskosität des Blutes bei Störungen der Kohlensäureausscheidung (viscosity of blood with disturbances in elimination of carbonic acid). J. Bence (Koranyi's clinic, Budapest).
37 Behandlung des Scharlach mit Antistreptococcen-Serum (scarlet fever). F. Ganghofner. (Commenced in No. 14.)
38 Oxygen Inhalation Apparatus.—Ueber einen neuen Sauerstoffatmungsapparat. H. Brat. See 20 above.
39 (No. 16.) See page 1815.
40 (No. 17.) *Importance of Roentgen Rays for Surgery.—Bedeutung der R.-Strahlen für die Chirurgie. J. v. Mikulicz.
41 *Die Verwendung der Roentgen-Strahlen im Kriege (in war). Schjerning.
42 *Results of Roentgen Rays in Internal Medicine.—Ergebnisse der R.-Strahlen für die innere Medizin. T. Rumpf (Bonn).
43 *Roentgen Rays in Obstetrics and Gynecology.—Bedeutung der R.-Strahlen für die Geburtshilfe und Gynäkologie. H. Freund.
44 *Id. in der Dermato-Therapie. H. E. Schmidt.
45 *Id. für die Kinderheilkunde (for pediatrics). P. Reyher.
46 *Id. im Dienste der Zahnheilkunde (in stomatology). W. D. Miller (Berlin).
47 Id. in der Anatomie. K. v. Bardeleben (Jena).
48 Die Entwicklung der Technik des Roentgen-Verfahrens (evolution of technic). M. Levy-Dorn (Berlin).
49 Erfahrungen über 1,000 Operationen der Appendicitis. H. Kümmell (Hamburg). (Commenced in No. 26.)

33. Practical Importance of Local Immunity of Tissues.—Wassermann has been studying anew the local production of antibodies which follows local contact with certain germs. This local immunity acquired by the tissues in time, he thinks, is due to a transformation of the cells involved, and is an important fact in the study of immunity in general. Permanent or long-continued immunity is possible only when living germs are used for the inoculations. This immunity is not identical with "serum immunity." It has been established recently that there is no direct connection between the experimental virulence of a micro-organism for an animal species and its capacity to induce spontaneously an epidemic among animals of this species.

35. Auscultation of Conducted Sounds.—The percussion is the usual finger method, but is applied by an assistant, and the physician listens on the other side of the body, directly opposite. The findings by this technic are analyzed and compared with the results of other means of investigation, showing its advantages.

36. Viscosity of Blood and Carbonic Acid.—Bence found that the blood is more viscid the more carbonic acid it contains. The latter alters the size and surface of the red corpuscles, and the blood consequently becomes more viscid. In this condition it imposes extra work on the heart.

40. Roentgen Rays and Surgery.—Mikulicz surveys the whole field of the application of the Roentgen rays in surgical affections and conditions. In regard to treatment, he thinks that superficial cancers are the only ones that we can yet expect to cure with this agent. He has never witnessed a curative reaction in case of sarcoma, but the experience of others has demonstrated that certain varieties of sarcoma are probably curable by this means. He has observed the complete disappearance of the infiltration in several cases of scleroma and of the tumors in pseudoleukemia, and the prospects are bright for further progress in this line.

41. Roentgen Rays and Military Surgery.—Schjerning gives an illustrated description of his Roentgen-ray wagon for use on the field.

42. Roentgen Rays in Internal Medicine.—The main points in this address were summarized in the account of the Roentgen Congress on page 1544.

43. Roentgen Rays in Obstetrics and Gynecology.—Freund recapitulates his previous communications on the application of the Roentgen rays in the diagnosis of pregnancy, of extra-uterine or twin gestations, estimation of the size of the pelvis, etc., and differentiation of tumors. An illustration of his apparatus is given. The movements of the fetus may prove a disturbing factor, but, as the technic is perfected and length of exposures shortened, the results will be more reliable. The Roentgen findings may be able to reveal deformities in the fetus and morbid conditions in kidneys, spleen or other organs. In gynecology the rays are useful in detecting foreign bodies, calcification and concrements.

44. Roentgen Rays in Dermatotherapy.—Schmidt states that the first 3 cases of rodent ulcer treated with the Roentgen rays at his clinic have shown no signs of recurrence since the

lesion was cured by the exposures from twelve to eighteen months ago. Especially favorable results have been obtained with the rays in treatment of recurring mammary cancers. The cases of lupus with flat, distinct nodules on a level with the skin have proved resistant to the rays, as a rule, but the other varieties have been remarkably favorably influenced, as also lupus erythematodes, favus, sycosis, trichophytosis, acne keloid, papillary dermatitis, psoriasis, eczema, chronic lichen, hyperidrosis manuum, and the verrucous form of lichen ruber. Verrucæ shrivel and vanish without leaving a trace, under exposures which cause merely a slight erythema on sound skin. In some of the above affections the *x*-ray treatment should be reserved only for the more rebellious cases, as in psoriasis and eczema.

45. **Roentgen Rays in Pediatrics.**—Reyher reviews the diagnostic findings in pathologic conditions in children with Roentgen examination. The therapeutic indications he dismisses with the brief statement that symptomatic benefit has been derived in leukemia and pseudoleukemia.

46. **Roentgen Rays in Stomatology.**—Miller gives illustrations of various pathologic processes inaccessible to all other means of investigation which the Roentgen rays have revealed in all their details. He does not write from personal experience, as he remarks that the official university dental institute at Berlin, where he is professor, has absolutely no room for installing a Roentgen equipment.

Münchener medicinische Wochenschrift.

50 (LII, No. 15, April 11.) *Ueber Herz-Dilatation (of heart). F. Moritz. Ueber Herz-Dilatation bei Diphtherie. H. Dietlen.
51 *Zur Aetiologie der Eklampsie. W. Liepmann.
52 *Action of Roentgen Rays on Blood.—Experimentelle Untersuchungen über die Einwirkung der Röntgenstrahlen auf das Blut. E. Helber and P. Linser.
53 *Zur chemischen Imitation der biologischen Strahlenwirkung (action of rays). R. Werner.
54 Behavior of Substances Involved in Precipitation in Respect to Photodynamic Substances.—Die bei der Präzipitation beteiligten Substanzen in ihrem Verhalten gegenüber photodynamischen Stoffen. P. Fleischmann.
55 *Die Prophylaxe des Ohres bei den akuten Infektionskrankheiten (prevention of ear complication). Ostmann.
56 *Results of Sanatorium Treatment of Pulmonary Tuberculosis.—Die Erfolge der Heilstättenkuren bei Lungenschwindsüchtigen. F. Reiche.
57 Zur Technik der Gruber-Widalschen Reaktion. E. Schottelius.
58 Ein für die Praxis geeignetes Besteck zur Anstellung der Gruber-Widalschen Reaktion mit dem Fickerschen Typhusdiagnostikum. Martineck.
59 Case of Traumatic Laceration of Sound Pulmonary Valve.—Ueber traumatische Herzklappenzerreissung. E. Fraenkel (Hamburg).
60 Arzuei-Exanthem nach Aspirin. R. Freund. Three cases.
61 Protection During Examination of Upper Air Passages.—Eine Schutzvorrichtung für den Arzt bei der Untersuchung der oberen Luftwege. H. Neumayer.
62 *New Sieve for Stools.—Ein neues Sieb für Fäzesuntersuchungen. R. E. Schütz (Wiesbaden).

50. **Acute Dilatation of Heart.**—Moritz does not believe that acute dilatation of any extent can occur in a sound heart. When the sound organ has extra demands made on it by overexertion or emotion it may increase a little in size, but within narrow limits, and it soon subsides to normal after removal of the exciting cause. Whenever there is considerable increase in the size of the heart, which does not subside to normal soon afterward or does so very slowly, not until after days or weeks, the heart must be regarded as pathologic. Even his "orthodiagraphy" (mentioned on page 1826 of the last volume of THE JOURNAL) has failed to confirm the occurrence of any appreciable acute dilatation after physical exertion, after ingestion of alcohol, or hot baths, narcotic or other medication, chloral, chloroform, caffein or kola. It has revealed, however, that the outline of the heart is smaller in the upright position than when the subject reclines. An interesting field for research is opened by "orthodiagraphy" of the dilated heart to note the influence on it of rest in bed, of digitalis, of carbonated baths, of electric or carbonated baths and of gymnastics, etc.

Dietlen states that he has examined 47 out of 65 diphtheria patients with the aid of Moritz' orthodiagraph, the subjects reclining, and found that 20 of these 47 presented evidences of myocarditic phenomena. In 15 of this group (75 per cent. of the cases of myocarditis and 32 per cent. of the total number), dilatation of the heart was unmistakably apparent when examined with the orthodiagraph. The myocarditis of diphtheria made its appearance in the first half of the second week of the disease. It entails a gradual dilatation of the heart, accompanying the progress of the myocarditis and reaching its acme with the height of the latter, usually in the third week, sometimes even before the pulse shows any irregularity. It is generally accompanied by a diffuse apex beat, visible heart beat in the second, fourth, or seventh interspace, with accentuation of the second pulmonary sound, and frequently with a blowing systolic murmur. This dilatation generally retrogresses, mostly by the fourth week, from eight to fourteen days after it has reached its height. The retrogression was complete in only 2 out of the 14 cases; in the others the heart merely retrogressed to about half of the dilatation. Any further subsidence after the children had been dismissed was not followed. The changes in the pulse are no criterion as to the extent of the dilatation, and slight degrees of the latter escape detection by percussion. The orthodiagraph is proving a valuable aid in the study of such cases. Even extreme degrees of dilatation are liable to retrogress, so that the prognosis is not necessarily bad, but the sight of these excessively dilated hearts, with their muscular walls stretched so thin, is an impressive warning as to the danger to which the subjects are exposed from threatening paralysis of the heart. Such patients should not be allowed to leave their bed until the dilatation has retrogressed entirely or at least to a considerable degree.

51. **Etiology of Eclampsia.**—Liepmann has been experimenting with rabbits injected with extract of placentæ from cases of eclampsia, hoping to obtain a curative serum in this way. He found that all the rabbits thus injected rapidly succumbed with symptoms of severe intoxication. This has convinced him that the source of eclampsia must be sought in the placenta. Normal placentæ are entirely harmless for rabbits. He appeals to his colleagues to send him the placentæ from all the cases of eclampsia they encounter. The placenta should be wrapped in a linen cloth saturated with toluol and should be as fresh as possible.

52. **Action of Roentgen Rays on the Blood.**—The conclusions of this communication from Romberg's clinic at Tübingen are that the Roentgen rays have an elective injurious action on the leucocytes. The nuclear substance suffers most. The lymphocytes are injured first and most by the action of the rays. The white corpuscles are destroyed in the circulation as well as in the blood-forming organs. The rays have but little action on the reds, on the blood plates and on the hemoglobin. After exposures to the Roentgen rays the kidneys showed injury not the result of the direct action of the rays on these organs. Acute nephritis was manifest in all the rats, rabbits and dogs that had been exposed to the rays in these tests.

53. **Chemical Imitation of Biologic Action of Rays.**—Werner reports experiments with radioactivated lecithin which presented effects similar to those of radium itself. Further experiments demonstrated that results could be obtained when the lecithin was ozonized the same as when it was radioactivated. Cholesterin and turpentine could be ozonized and then they behaved like radioactivated substances. These results and others which he describes suggest the probability that the biologic action of these substances is due to their oxygen factor, and that the splitting off of the oxygen is the process common to both the radium and the chemical imitations. It is possible that not only the biologic but the therapeutic action of the rays can be imitated in this way to good effect.

55. **Prevention of Ear Complications in Acute Infections.**—Ostmann calls attention to the increasing danger of extension of the infection into the middle ear when the child grows thin, and the opening into the Eustachian tube thus becomes wider than under normal conditions. In children this tube is very short, which further favors propagation of the infectious process in the throat, the inevitable accompaniment of measles, scarlet fever, whooping cough, influenza, etc. This

propagation is almost certain in case of preceding catarrhal conditions or of adenoid vegetations. Children should be trained to blow their nose on one side, with a vigorous but not violent effort. They should also be trained in gargling and in the technic of rinsing the nasopharynx. The nose of the sick child should be kept clean and open, with a cocain-boric acid spray in case of severe catarrhal conditions, with careful toilet of the mouth and throat, three or four times a day. By this means, renewed infection from the throat is prevented; removal of the exudate relieves the ear, and if there is an opening in the tympanic membrane, mixed infection is averted. The thinness of the child during convalescence requires the continuance of the prophylactic measures as the opening into the Eustachian tube remains abnormally large until normal plumpness is regained. Any unusual pressure in the nasopharynx must be carefully avoided. One of the severest cases of bilateral otitis media that he has ever encountered was in a patient who had apparently entirely recovered from a diphtheritic sore throat, but immediately after playing a cornet the severe ear affection developed. Blowing the wind instrument had evidently forced the bacilli into the middle ear on both sides.

56. **Results of Sanatorium Treatment of Tuberculosis.**—Reiche has traced the 2,697 tuberculous persons referred to him for decision as to the suitability of sanatorium treatment. Out of this total, 1,842 persons were received into various sanatoria for four weeks or more. The first symptoms of the disease were depression and pains in the back and chest in the female patients, most of them anemic, while in the men the disease had usually progressed beyond the incipient stage before their attention was called to its existence by coughing or spitting blood. Of the 2,697 patients, 984 recovered full working capacity. The duration of the disease before treatment seems to be immaterial. Success seems to depend more on the strength of the resistance offered by the patient. The long, shallow thorax was encountered in 35 per cent. of the total 2,697, but the proportion was only 13.1 per cent. among the male and 19.3 per cent. among the female patients dismissed as cured. These figures point to more than a casual coincidence.

62. **New Sieve for Feces.**—Schütz has examined more than 1,200 stools, and has modified Boas' sieve by passing the material through three superposed sieves, the finest the lowest. The water pours into the sink outside the sieves, and thus enters them rising from below. The outlet in the bottom of the sink is kept closed while the stool material is soaking.

Virchow's Archiv, Berlin.

Last indexed XLIII, page 1825.

63 (CLXXVIII, No. 1.) Welchen Aufschluss geben Bau und Anordnung hyperdaktyler Gliedmassen über die Aetiologie und die morphologische Bedeutung der Hyperdaktylie des Menschen. E. Ballowitz.
64 Kongenitale Divertikel Bildung im Processus vermiformis. E. Hedinger.
65 Origin of Blood Plates.—Ueber die Abstammung der Blutplättchen. K. Preisich und P. Heim.
66 Epithelcysten zwischen Steissbein und Rectum bei einem Fötus. H. Ribbert.
67 Ueber die Regeneration der Schleimhaut der Harnblase in Beziehung zur operativen Behandlung der chronischen Cystitis (regeneration of bladder mucosa). G. Lasio.
68 *Experimentelle Beitrage zur Lehre von dem latenten Mikrobismus. A. Wrzosek.
69 Zur Aetiologie der Orientbeule (bouton d'Orient). E. J. Marzinowsky.
70 Paget's disease und sein Verhältnis zum Milchdrüsenkarzinom (mammary cancer). H. C. Jacobaeus.
71 Veränderungen in dem Nerven-System beim plotzlichen Uebergang vom hohen zum normalen Barometer Druck. H. P. Lie.
72 *Zur Kenntnis des Ertrinkungstodes (drowning). E. Margulies.
73 Das Verhalten der Ossa sesamoidea an den Spaltgliedern bei Hyperdaktylie des Menschen. E. Ballowitz.
74 Synthesis of Fat in "Surviving Organs." F. Hagemeister. Reply to Fischler.

68. **Latent Microbism.**—Wrzosek has been conducting extensive researches on animals to determine whether microbes can be found in the internal organs under normal conditions. His conclusions are affirmative and that most of the microbes find their way from the intestinal canal. He affirms that the animal organism is thus incessantly infecting itself from birth to old age. This latent microbism is liable to flare up into disease when the normal resistance of a part is reduced from any cause. This physiologic infection of the organism, the latent microbism in the tissues, is the key that solves many puzzling cases of acute traumatic osteomyelitis, etc., of primary tuberculosis of the kidney, of suppurative meningitis after long exposure to the heat of the sun, of traumati· tuberculosis of bones, joints and testicles, or of tardy suppuration of a retrouterine hematoma. The details of the various tests are given. Microbes were cultivated from the spleen in 7 out of 28 animals; from the liver in 5 out of 30; from the lungs in 8 out of 15; from the mesenteric glands in 9 out of 17; from the kidneys in 4 out of 21; from the bile in 0 out of 21; from the bronchial glands in 5 out of 10, and from the bone marrow in 5 out of 28. In 47 warm-blooded animals, in which various microbes had been introduced into the digestive tract, the microbes were cultivated again from the internal organs in all but 17 of the animals. They were found in the mesenteric glands, kidney and other internal organs. The positive results were most numerous in dogs and rarest in rabbits.

72. **The Lungs of a Drowned Person.**—It has been established that the lungs of a drowned person are usually much distended, and this distension has been accepted as a sign of death from drowning. Margulies has been experimenting with rabbits and found that when the animal sank into the water just after a deep inspiration the air in the lungs could not escape. The lungs were found much distended although they weighed scarcely any more than the undistended lungs of control animals drowned after an expiration instead of inspiration. The difference between deep expiration and deep inspiration in an adult is said to be about 3,700 c.c. of air. This represents a difference in weight of more than seven pounds, that is, a person sinking after a deep inspiration is seven pounds lighter than when he sinks after a deep expiration. Margulies believes that the shock of the cold water and other circumstances cause a deep inspiration as one enters the water. The air thus taken in can not be expelled if one is completely submerged, and the lungs remain distended. Distension of the lungs is, therefore, a sign that the person was alive when he entered the water.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed page 1076.

75 (LIV, No. 1.) Zur Anatomie und Physiologie der Nabelgefässe (umbilical vessels). J. Bondi.
76 *Fate of Relics of Ovarian Tumors.—Ueber das spätere Schicksal von Implantationen und zurückgelassenen Tumorresten nach Ovariotomien. H. Schroeder.
77 Study of Elements at Point of Embedding of Ovum.—Ueber das Verhältnis von mütterlichen und kindlichen Elementen an der Einnistungsstelle jungerer menschlicher Eier. J. Voigt.
78 *Spontaneous Correction of Retrodisplacement. Ueber die spontan eintretende Aufstellung des mobilen retrodeviierten Uterus. L. Kleinwächter.
79 Changes in Omentum with Tubo-abdominal Pregnancy.—Ueber deziduale Veränderungen im Netz bei tuboabdominaler Schwangerschaft. M. Penkert.
80 Zur Exstirpation der Pankreas-Zysten. A. Sitzenfrey.
81 *Zur instrumentellen direkten Messung der Conjugata obstetrica (measurement). C. J. Gauss.
82 *Influence of Preliminary Cleansing of Vagina on Puerperal Morbidity.—Hat die präliminäre Scheidenreinigung einen Einfluss auf die Wochenbettsmorbidität? F. Ahlfeld.
83 *Prevention of Great Loss of Blood After Childbirth.—Zur Verhütung grösserer Blutverluste in der Nachgeburtsperiode. F. Ahlfeld.

76. **Fate of Relics of Tumors.**—Schroeder relates the particulars of three instructive cases. In one an inoperable part of a serous cystadenoma was left behind at the operation, and it continued to grow. A communication was opened between it and the posterior vagina. The patient has been comparatively well, but granulations around the fistula have required curetting occasionally in the three or four years since. The growth has retained its benign character. In another patient general carcinosis of the peritoneum developed from implantation of relics of a benign tumor left at the time of its removal. Similar cases of incomplete ovariotomies from the literature are analyzed. Undetachable adhesions set a limit to extirpation of ovarian tumors. Occasionally a second attempt will succeed when a first failed, but, generally, the conditions are still more unfavorable at the second trial. In a third case taxis of a tumor during childbirth resulted in its

rupture. This case is another argument in favor of prompt removal of an ovarian tumor during pregnancy. It is impossible to determine whether it will prove malignant or not, and its extirpation removes the danger of formation of adhesions with consecutive infection and rupture. If first discovered during parturition the tumor, if impacted in the pelvis, should be removed through the vagina, carefully avoiding taxis. The removal of larger tumors, close to or above the uterus, which do not interfere with delivery, should be postponed to the end of the puerperium, or ovariotomy may be done at the same time as Cesarean section. This is indispensable if the tumor in the pelvis is a solid fibroma or an intraligamentary cyst too large to remove through the vagina or inaccessible by this route.

78. **Spontaneous Correction of Retrodisplacement.**—Kleinwächter states that in 41 out of 366 cases of retrodeviation of the uterus in his experience, the organ spontaneously returned to its proper place without pessary or other treatment. In 10 other cases the uterus was restored to position by some pathologic process drawing it up into place—a fibromyoma, ovarian cyst—or by spontaneous correction after amputation of the abnormally long cervix. He has thus witnessed spontaneous, natural corrections in 11.2 per cent. of his total cases.

81. **Obstetric Measurements.**—Gauss has been giving von Bylicki's method of instrumental measurements a thorough trial. He has found it very simple and extremely satisfactory, and suggests a few modifications which render it still more useful. Bylicki's measure was illustrated in the *Monatss. f. Geb.*, vol. xx.

82. **Preliminary Cleansing of Vagina and Puerperal Morbidity.**—Ahlfeld's curves show a marked increase in the number of non-febrile confinements since the vaginal douches have been reintroduced. Bacteriologic tests also show improvement.

83. **Prevention of Much Loss of Blood Postpartum.**—Ahlfeld accepts 600 to 800 gm. of blood as the normal amount that accompanies the birth of a child weighing seven or eight pounds. The placenta has a larger surface in case of large children, and it is liable to obstruct the inner os. This causes the body of the uterus to become distended by the accumulating blood, and a condition of atony is liable to result. He relates a few instances illustrating this fact. In one, the placenta weighed 635 gm. and measured 21 by 19 cm. The blood accumulated behind it as it obstructed the opening, and could not escape until the placenta was removed. If expression had been undertaken earlier, before the internal os had contracted too much for the exceptionally large placenta to pass, the atony of the uterus might have been prevented. Ahlfeld advises more frequent control of the condition of the body of the uterus after delivery of extra large children. If the umbilical cord is drawn inward into the vagina when the uterus is pushed up, then expectant treatment must be abandoned and the placenta be removed at once. Few realize the importance of the information to be derived from the protruding umbilical cord. He has the second ligature applied to the cord close to the vulva, so that the progress of the placenta can be estimated from the change in the position of the ligature. If the ligature remains close to the vulva, or if it is drawn backward into the vagina when the uterus is pushed up, this indicates that the placenta is being retained in the cavity of the uterus, and early expression is called for. Even if the amount of hemorrhage does not demand immediate expression, the physician and midwife under such circumstances should not wait more than half an hour before resorting to Credé's maneuver to expel the placenta.

Zeitschrift f. klinische Medizin, Berlin.

Last indexed page 1817.

84 (LVI. Nos. 5-6.) Weitere Untersuchungen über Eiweiss-Präcipitine (of albumin). L. Michaelis (von Leyden's clinic, Berlin).

85 *Zur Kenntniss der sporadischen einheimischen Dysenterie. A. Albu (Berlin).

86 *Extent of Digestion of Albumin in Stomach.—Ueber den Umfang der Eiweissverdauung in menschlichen Magen unter normalen und pathologischen Verhältnissen. E. Rosenberg.

87 *Zur Lehre von der Morvan'schen Krankheit und die Entstehung der Höhlen im Rückenmark (Morvan's disease). W. Sterling (Flatau's clinic, Warsaw).

88 *Zur Frage der hepatogenen Lävulosurie. E. Sehrt (Senator's clinic, Berlin).

89 *Remarkable Dilatation of Heart and Loss of Function of Auricle.—Ungewöhnliche Dilatation des Herzens und Ausfall der Vorhofsfunktion. G. Müller (Minkowski's clinic, Cologne).

90 *Behavior of Bone-Marrow Cells in Various Diseases.—Verhalten der Knochenmarkszellen bei verschiedenen Krankheiten. B. Wolownik.

91 *Elimination of Chlorin in Urine and Its Relation to the Digestive Processes.—Die Chlorausscheidung im Harn und ihre Beziehung zu den Verdauungsvorgängen. A. Müller and P. Saxl (Nothnagel's clinic, Vienna).

85. **Sporadic Dysentery in Germany.**—Albu describes the history and findings in the case of a robust young woman who succumbed to chronic marasmus, the result of an acute dysentery. She resided in Berlin and was taken sick after a trip to Silesia and Breslau. The intestines showed the necrotic processes characteristic of tropical dysentery, and the true dysentery ameba, Schaudinn's histolytic ameba, was cultivated from the stools.

86. **Extent of Digestion of Albumin in the Stomach.**—Among the various facts established by Rosenberg is the remarkable property displayed by the cancerous stomach to form such amounts of nitrogenized residue out of the albumin in such a short time. The average in case of cancer of the stomach was 51 per cent., while with hyperacidity it was 39 per cent., in normal conditions 30 per cent., in chronic gastritis 28 per cent., and in achylia 27 per cent. The higher the acidity, the more extensive the splitting of the dissolved albumin, and the more the nitrogen surpasses the limits of the albumoses. Digestion proceeds in the stomach much more rapidly and effectually than in artificial peptic digestion. This was confirmed again and again by his tests with casein. Not the slightest diagnostic features could be discovered in the tryptophan reaction. The particulars of the various tests on 40 subjects are given in tabulated form, as carried out in Albu's clinic for internal diseases and in Salkowski's chemical laboratory.

87. **Morvan's Disease.**—Sterling had occasion to study during life and postmortem a typical case of analgesia with paresis of the arms and trophic lesions, that is, Morvan's disease. He reviews the literature on the subject and theorizes to explain the origin of the cavities in the spinal cord which he believes are concerned in the etiology of the affection.

88. **Levulosuria of Liver Origin.**—Sehrt reports a number of experiments with desiccated pulverized internal organs from slaughtered cattle. The chopped organs were soaked for ten minutes in four times the volume of acetone and then drained and the residue dried and pulverized. One gram of this powder was mixed with 50 c.c. of a solution of dextrose or levulose in an Erlenmeyer jar. The sugar-destroying action of the organ powder was then determined. The results showed that the co-operation of two organs is necessary for any decided destruction of grape sugar in the animal organism—admitting that the results of laboratory experiments *in vitro* can be applied to the living organism. The two organs required are the pancreas and muscle. The pancreas alone has but a feeble glycolytic power. The combination of pancreas and muscle, and tests with other organ powders, thyroid, suprarenal and combinations of them, failed to show any sugar-destroying power for levulose, but a mixture of liver and salivary gland powders always demonstrated a slight activity in this respect, and were the only ones that did. The apparatus in the body that takes charge of the levulose must be independent of the musculature and more isolated than the apparatus that serves for the destruction of dextrose. Even the slight levulose-destroying power evinced by the liver he regards as a suggestive fact.

89. **Case of Remarkable Dilatation of Heart.**—In Mueller's case of mitral stenosis the patient weighed 65 kg. and the heart weighed 620 gm. The normal proportion is a heart of 297.2 gm. for a weight of from 60 to 70 kg. There was no increase in the size of the left ventricle; the left auricle was larger than a child's head. The patient died at the age of 39, but had continued at his trade of mason until shortly before death. The first heart symptoms had been noted fourteen years previously. The heart beat was apparently regular, as

the ventricle had evidently assumed the function of the rhythm.

90. **Bone Marrow in Various Infectious Diseases.**—Wolownik summarizes as follows the results of his research on a number of patients with various infectious diseases or neoplasms. The predominantly myelocytic type was found in tuberculosis, in sepsis, pyemia, heart affections, nephritis and carcinoma. The lymphocytic type was found in pneumonia, with cirrhosis of the liver, and in morbid conditions involving the lymph glands. There was a constant parallel between the numbers of the large lymphocytes and of the myelocytes. The polynuclear neutrophiles were most numerous in cases with suppuration or ulceration. The eosinophiles were most numerous in pneumonia and in nephritis. When they were encountered in large numbers in other diseases, the kidneys were usually involved in the morbid process. In tuberculosis and carcinoma the giant cells and the normoblasts were materially increased. Megaloblasts were observed in very small numbers in one case of nephritis and in certain cases of carcinoma. He regards the constancy of these findings as suggestive, but remarks that much wider experience is required before they can be accepted as fully established.

91. **Elimination of Salt in Urine and Its Relation to the Digestive Processes.**—Forty-one curves are given showing the elimination of sodium chlorid, and of the other solid matters and the proportions between them at various periods during the day, especially with reference to the meals. The tests were made on healthy persons and on patients with various affections. The influence of the mealtimes is apparent at a glance, sending the elimination up in sharp peaks, while as soon as digestion commences, immediately after the meal, the elimination drops abruptly very low. This is due to the retention of the chlorin for the production of hydrochloric acid. When the production of hydrochloric acid is defective, then less chlorin is retained and the drop is not so abrupt nor so low. It may be possible by thus inspecting the periodical elimination of salt in the urine to detect pathologic alteration of the gastric secretions. The curves show distinctly that in case of complete achylia or of cancer of the stomach there is no decline in the amount of chlorin eliminated while digestion is in progress. It would be more difficult to draw diagnostic conclusions in case of less marked hyposecretion or hypersecretion, as the curves are not sufficiently characteristic except for extreme conditions; they vary normally within somewhat wide limits. As a test for the rapidity and amount of absorption in stomach or intestines, this method of determining the elimination of salt has the advantage that it utilizes a substance which is a physiologic element of the diet. Observation of the time when the intestinal absorption commences throws light on the motor functions of the stomach. Assuming that a pint of .4 per cent. HCl is produced in the stomach after dinner, this corresponds to 3.3 gm. of sodium chlorid. This represents about a third of the amount of salt eliminated daily in the urine. It is drawn from the blood very rapidly, in order to aid in the production of the gastric juice, and is restored to it again very slowly by absorption from the stomach, and later quite rapidly as the intestines absorb it. At the acme of intestinal absorption the blood contains an excess of sodium chlorid and the curve of its elimination rises abruptly. It is thus able to throw light on the vital processes of gastric juice production and of intestinal absorption.

Gazzetta degli Ospedali, Milan.

Last indexed page 1410.

92 (XXV, No. 151.) Contributo allo studio delle mioclonie (myoclonus). N. Soma.
93 Alcune considerazioni sulla cura radicale dell'ernia inguinale. C. V. Teseo.
94 Contributo alla cura chirurgica delle retrodeviazioni dell utero. F. Orta.
95 Contributo alla casistica delle ernie della tuba (hernia of fallopian tube). C. Clerici.
96 (No. 154.) Sull'iperglobulia tubercolare. C. Tarchetti.
97 Sulla possibilita della diffusione della tubercolosi per mezzo carni insaccate (in sausages). C. Tonzig.
98 *Reducing Power of Cerebrospinal Fluid.—Sul potere riduttore del liquido cerebro-spinale. A. Tonello.
99 Semplificazione del metodo Kjeldahl in chimica medica. E. Pittarelli.
100 (XXVI, No. 1.) Reazione di Justus. G. Pollo and A. Fontana.
101 Conservative Treatment of Sarcoma.—Cura economica dei sarcomi ed agli innesti tendinei. A. Cordero.
102 (No. 4.) Proportion of Hemoglobin in Blood Corpuscles.—Sul valore emoglobinico globulare. C. P. Goggia.
103 Experimental Evacuation of Suprarenal Capsules.—Smidollamento delle capsule surrenali in due tempi. E. Cioffi.
104 Gravidanza e nefrectomia. G. D. Fabbro.
105 (No. 7.) *Reducing Power of Urine in Pleurisy, etc.—Il potere riduttore delle urine nelle pleuriti, peritoniti e tubercolosi polmonare. A. Plessi.
106 *Iodin Treatment of Typhoid.—La cura iodica nel tifo. A Cerioli.
107 Nuovo autoclave a riscaldamento di vapore per piroscafi in servizio di emigrazione (for emigrant ships). C. Tarchetti.
108 (No. 10.) *"Occult" Gastrointestinal Hemorrhage.—Sull'importanza delle "emorragie occulte" del canale digerente. E. Tedeschi.
109 Sulla paralisi isolata ed unilaterale dell'oculomotore comune di origine sifilitica. G. Fazio.
110 Operative Treatment of Stiff Knee.—Contributo alla cura delle anchilosi angolari del ginocchio mediante l'osteotomia alla Gordon Buck. M. Capuano.
111 *Della cura medica dell'onichia laterale (ingrowing nail). A. Gasparini.

98. **Reducing Power of Cerebrospinal Fluid.**—Tonello tabulates the findings in the cerebrospinal fluid of 17 individuals, sick and well, infants and adults. The fluid was limpid in all, and the density was approximately the same, as also the proportions of albumin and chlorids. But in one point there was a marked difference between the various specimens. This was in respect to the reducing power of the fluid in regard to sodium hypobromid. In the cases of rickets this reducing power was very low, while in all the other cases it averaged much higher. The list included cases of sclerodermia, bronchopneumonia, nephritis and asthma.

105. **Reducing Power of Urine.**—Plessi relates the particulars of a number of examinations of the reducing power of the urine in health and disease. He thinks that this point has been too much neglected, as it may serve to characterize the progress of the disease. In tuberculosis the reducing power is augmented, but there does not seem to be any connection between it and the extent and gravity of the pulmonary lesions or the temperature.

106. **Iodin Treatment of Typhoid.**—Ceriolo states that typhoid is endemic where he lives, and his cases were always severe, the fever persisting high. One patient succumbed to pulmonary complications. Since he has begun to use iodin systematically in treatment his cases have all been mild. Even when the onset was stormy the disease rapidly assumed a mild course. He administered 7 cg. of iodin and 70 cg. of potassium iodid during the day, fractioned, with a quantity of water. He gave also from 15 to 20 cg. of quinin to retard the tissue breakdown and 50 cg. of sodium benzoate to favor elimination of waste. He briefly reviews the history of iodin in internal medication.

108. **Occult Gastrointestinal Hemorrhages.**—Tedeschi describes series of cases in which the presence of invisible amounts of blood was determined by the guaiac-aloin test. His findings confirmed Boas' assertions in regard to the great diagnostic value of these occult hemorrhages, especially in cases of latent cancer in stomach or intestine, in those of gastric ulcer presenting an atypical or incomplete clinical picture, and in chlorosis with a suspicion of ulcer in the stomach. The presence or absence of blood in the feces is often of the greatest value for diagnosis, treatment and prognosis in cases of ulcer and ankylostomiasis. The occult bleeding is often a premonitory symptom of serious hemorrhage in typhoid fever. In 3 cases of peritonitis accompanying typhoid fever the test was positive in 2 cases in which the peritonitis was known to be due to perforation, while it was negative in the one case of peritonitis from extension of the inflammation through the intestinal wall. If the findings of others confirm this experience, this occult bleeding may serve to differentiate perforation. He also noted that the occult bleeding was also an early sign of cirrhosis of the liver.

111. **Medical Treatment of Ingrowing Nail.**—Gasparini has found that copious application of dried powdered alum is sufficient to cure every case of ingrowing nail in his experience in about five days. The applications were never painful in the least, and the destruction of the pathologic tissue resulted in the formation of a hard, resistant and non-sensitive bed for

the nail, a perfect cure for the ingrowing tendency. The nontoxicity of the alum, its easy application and the fine results render it the chosen treatment for cases in which surgical intervention is not contemplated. He describes a series of cases and contrasts them with another series treated with other caustics with far less favorable and durable results. He applies a fomentation of soap and water for 24 hours beforehand and then pours the alum into the space between the nail and its bed, tamponing with cotton to keep the alum in place, and repeating the application daily. The suppuration rapidly dries up and pain and discomfort are relieved almost at once.

Revista de Medicina y Cirugia, Havana.

Last indexed pages 168 and 432.

112 (IX, No. 6.) Del tratamiento de las uretritis cronicas. R. Menocal.
113 (No. 7.) Consideraciones sobre la relacion fisiologica de los normoblastos con el higado y el bazo (with liver and spleen). J. F. Arteaga.
114 Medical Examination of Criminals; Prison Physicians.—El examen medico de los detenidos y los medicos de las prisiones. R. P. Vento.
115 (No. 8.) The Sechium Edulis as a Desirable Culture Medium.—El chayote como medio de cultivo en bacteriologia. E. Cuervo.
116 (No. 9.) Signos clinos que autorizan la nefrectomia. M. V. Bango.
117 (No. 10.) Via transpleural para las intervenciones del bazo (transpleural route for access to spleen). F. Dominguez.
118 (No. 11.) Puericultura. G. Arostegui.
119 Frogs as Food.—Las ranas como alimento. L. M. Cowley.
120 (No. 12.) La terapeutica de la sifilis. M. Duque.
121 Contribucion al diagnostico del carbunclo bacteridiano y del edema maligno. E. Cuervo.
122 (Nos. 13-15.) Creches.—Asilos cunas. L. M. Cowley.
123 Anatomia topografica de la region ceco-apendicular. J. F. de Poo.
124 Id. del duodeno. J. A. Taboadela.
125 Id. del estomago (stomach). G. Pedroso.
126 (No. 15.) Influence of Hysteropexy on Succeeding Pregnancies.—Influencia de la histeropexia sobre la evolucion y terminacion de los embarazos consecutivos. E. Nunez.
127 Sobre infecciones piohemicas. M. G. Lebredo.

Siglo Medico, Madrid.

128 (LII, No. 2,665, January 7.) *El tratamiento de la pustula maligna. D. J. G. Castro.
129 (No. 2,666.) El infantilismo en las enfermedades de la trompa (in affections of Fallopian tube). P. Martin. (Commenced in preceding number.)
130 (No. 2,668.) *Serotherapy in Treatment of Ulceration of the Cornea.—La sueroterapia como tratamiento de las ulceras supurativas de la cornea. B. Castresana. (Commenced in No. 2,667.)
131 Cold and the Tubercle Bacillus.—El frio y el bacilo tuberculoso. A. Correa.
132 (No. 2,669.) *Sphenoid Excision in Gasserectomy.—Escision esfenoidal de dentro afuera en la extirpacion del ganglio de gaserio. A. San Martin.
133 (No. 2,670.) Hydatid Cysts of Orbit.—Quistes hidatidicos de la orbita. R. D. Quartiellers.
134 (No. 2,670.) Public Health in Spain.—De la sanidad publica en Espana. M. L. Comas.
135 (No. 2,671.) Incision trilineal y resection romboidea en la toracoplastia. Algunos casos raros de cirugia toracica. A. San Martin.
136 (No. 2,673.) La pustula maligna y su tratamiento siempre eficaz por las inyecciones iodicas. A. M. Ayuso. (Commenced in No. 2,672).
137 Massage and Mobilization of Fractures.—El masage y la gimnasia medica en las fracturas. Tripels-Dentzkof.
138 Los grandes remedios. C. M. Cortezo. (Commenced in No. 2,670.)

128. **Treatment of Malignant Pustule.**—Castro writes that he has occasion to treat more than 50 cases of malignant pustule every year and has never lost a case. He follows the technic advocated by the Spanish physician, de Sande, which, he states, has never yet failed in countless experiences. One drop of a 4 per cent. solution of corrosive sublimate is placed on the pustule, and after it dries, another and another until five drops have been applied, waiting for each to dry before the next is added. Usually all the symptoms subside in from 12 to 24 hours, but occasionally it may be necessary to repeat the application the next day.

130. **Antipneumococcus Serum in Corneal Ulcers.**—Castresana is convinced that fully 95 per cent. of all corneal ulcers are the work of the pneumococcus. He has consequently been treating ulcers of this class with antipneumococcus serum, and relates that the majority of the patients were promptly cured. In 20 cases of suppurative keratitis with hypopyon, 16 were cured, 1 showed no improvement and 3 did not return to finish the course of treatment. The results were less favorable in 3 cases with multiple foci in which the affection continued its course to loss of vision in all but 1 case. The serum was injected under the conjunctiva and also instilled every four hours, supplemented by the usual measures.

132. **Technic of Gasserectomy.**—San Martin illustrates his technic and describes its application in 2 cases in the clinic. He saws through the sphenoid from within outward, using the Gigli saw. The operation proceeded without mishap, but the neuralgia was relieved in only one of the cases after extirpation of the Gasserian ganglion. Its persistence in the other case was followed by acute mania and death a few months later.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A MANUAL OF PRACTICAL HYGIENE FOR STUDENTS, PHYSICIANS AND MEDICAL OFFICERS. By C. Harrington, M. D. Third Edition, Revised and Enlarged. Illustrated with Twelve Plates in Colors and Monochrome and One Hundred and Eighteen Engravings. Cloth. Pp. 793. Price, $4.25. Philadelphia: Lea Brothers & Co. 1905.

THE HISTORY OF THE MEDICAL DEPARTMENT OF TRANSYLVANIA UNIVERSITY. By Dr. R. Peter. Prepared for Publication by His Daughter, Miss Johanna Peter, Member of the Filson Club. Illustrated. Filson Club Publications No. 20. Paper. Pp. 193. Louisville, Ky.: John P. Morton & Co. 1905.

AN ATLAS OF DERMATOLOGY, Showing the Appearances, Clinical and Microscopical, Normal and Abnormal, of Conditions of the Skin. By M. Dockrell, M.A., M.D. Cloth. Pp. 264. Price, $17.00 net. New York: Longmans, Green & Co. 1905.

THE NEW KNOWLEDGE. A Popular Account of the New Physics and the New Chemistry in Their Relation to the New Theory of Matter. By R. K. Duncan. Illustrated. Cloth. Pp. 263. Price, $2.00 net. New York: A. S. Barnes & Co. 1905.

MODERN DIETETICS IN THE CAUSATION OF DISEASE. By J. S. Wallace, M.D., D.Sc., L.D.S. Cloth. Pp. 87. Price, 2/6 net. London: Bailliere, Tindell & Cox. 1905.

REPORT OF THE COMMISSION OF EDUCATION FOR THE YEAR 1903. Vol. II. Cloth. Pp. 2511. Washington: Government Printing Office. 1905.

NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

787874 Atomizing inhaler, Anton Bulling, Munich, Germany.
787828 Anesthetic-mask, Henry Clayton, Philadelphia.
787537 Sanitary device, George Davis, Portland, Maine.
787443 Massaging apparatus, Emory J. Godman and B. F. Frizzell, Baltimore.
787760 Portable invalid's chair, Elmer E. Higgins, St. Paul, Minn.
787776 Antiseptic soap and making same, Otto Liebknecht, Frankfort-on-the-Main, Germany.
787848 Stretcher, George Lung, U. S. Navy.
787694 Syringe, Wm. H. Pontious, Chicago, Ill.
787591 Antiseptic bottle, Franck Sonnenfeld and J. Glass, New York.
788345 Vaporizer, Godfrey Beaumont, Dallas, Texas.
788451 Making meat extracts, Umberto Cianter and F. W. F. Ross, London, England.
788038 Vibratory massage appliance, George B. Fraley, Philadelphia.
788151 X-ray meter, Thomas P. Hall, Chicago.
787920 Medical apparatus. Frederick Hofmann, New York.
788362 Anatomical measuring and recording machine, Henry C. Lavery, Superior, Wis.
788059 Syringe, Patrick J. McElroy, Cambridge, Mass.
788277 Operating table or similar structure, George L. Poll, New York.
788073 Surgical pad, Henry O. Sommer, Washington, D. C.
788176 Syringe. Webster F. Traves, Cleveland, Ohio.
788757 Atomizer, Hiram C. J. Decks, Paterson, N. J.
789092 Syringe, George A. Hulett, Ann Arbor, Mich.
788541 Cane or crutch attachment, August Kunkel, Johnstown, Pa.
789040 Electrotherapeutic apparatus, Charles F. Marsh, Pensacola, Fla.
788935 Syringe, Henry C. McKinley and A. Diegel, Detroit.
788663 Truss, Aris Menas, St. Louis.
788943 Apparatus for the treatment of certain diseases, Arthur H. Pohl, Chicago.
788557 Electrical ozonizer, Carl A. Sahlstrom, Ottawa, Canada.
789074 Making potassium salts, Aurelius J. Swayze, Danville, N. J.
789401 Umbilical forceps and metal sealing band. Ernest V. Acheson, Salt Lake City.
789647 Making dibasic calcium phosphate, Richard Arens, Marxloh, Germany.
789269 Producing tartaric acid and its salts, Carleton Ellis, Boston.
789286 Surgical appliance. Willard F. Main, Iowa City, Iowa.
789397 Astigmatic chart, Elmer L. Ryer, New York.
789237 Bacteriological oven or incubator, Charles E. Skinner, Wilkinsburg, Pa.
790051 Breast-pump, Hubert H. Halstead. Poughkeepsie, N. Y.
790057 Respirator or inhaler, John L. Hively, Elkhart, Ind.
789733 Truss, Wm. S. Hobson, Aberdeen, Miss.
789915 Determining degree of deafness, Miller R. Hutchison, New York.
789876 Sound-dissipating earpiece, Herman G. Pape, New York.
790234 Surgical instrument, Abraham R. Waldo, Eaton, Colo.
790241 Antiseptic mouthpiece for telephones or the like, Walter Wright, San Francisco.

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Original Articles

THE TREATMENT OF PULMONARY TUBERCULOSIS.*

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PHILADELPHIA.

It would be entirely impossible in the short space allotted to cover comprehensively the entire treatment of a disease on which volumes have been written. I shall therefore not even endeavor to mention a large number of means and measures of undoubted utility which in the hands of various practitioners have proved of unquestionable benefit; but shall confine my remarks to a single method which has successfully stood the test of trial. I shall try to point out a series of simple and practical procedures such as are available in any climate or locality, attempting at the same time to lay emphasis on certain simple details, the oversight of which has often proved the stumbling block of the general practitioner, and I shall of necessity be forced to pass perfunctorily over certain subjects, in order to be sufficiently brief.

The only treatment which has satisfactorily stood the test of time and of investigation, is that which with various modifications, is now in vogue in the various sanatoria throughout the world. The underlying basis of the treatment in all of these institutions is: first, a constant and unlimited amount of fresh air and sunlight; second, the proper quantity and quality of food, taken at the right time; third, a regulation of the expenditure of bodily energy; anabolism and katabolism being so regulated that the balance sheet shall always show a credit in favor of the former.

The successful treatment of pulmonary tuberculosis, perhaps more than any other disease, depends on a relentless attention to detail. Of the greatest importance also is an early diagnosis. This means a diagnosis of the condition at a time when no more than slight infiltration of the lungs has taken place. I would not be understood as saying that patients with cavities can not be cured, for such cure is a matter of every-day occurrence, but the length of time required for recovery corresponds more or less to the length of time the disease has run. If we wait for the appearance of tubercle bacilli in the sputum in every case before making a diagnosis, many a patient's life will be sacrificed which might have been saved if he had been given the benefit of the doubt, and if treatment had been inaugurated at an earlier moment.

* Read before the Harrisburg Academy of Medicine, 1905.

Except in hopeless cases, as soon as the diagnosis is established, the patient should be told of his condition in unequivocal terms; the general source and character of the disease should be explained, and a favorable prognosis given, provided that the proper treatment is promptly instituted and carried out for a sufficiently prolonged period. At the same time, the danger of infection, both to himself and to others, should be fully impressed on the patient, who should be warned against swallowing his own expectoration, and instructed in a method of hygienically disposing of it. He should never be allowed to leave the office with any such ambiguous phrases as "lung trouble," "weak lungs," "spot on the lung," running through his mind. This is necessary, not only in justice to the patient himself, but because it is impossible to make him carry out the treatment with the rigor, or for the length of time required for a cure, or even for an arrest of the disease, so long as he considers himself merely the victim of a protracted cold.

He must be made to understand from the very outset, that a disease which has existed for months or years can not be cured in a number of weeks, and that, in order to recover, it will be necessary for him to make it his business to get well, a duty to which all his pleasures and all but the barest necessities must be temporarily sacrificed; also that the success of the treatment will be proportional to the exactness with which he carries out the instructions of his medical adviser. He must be taught—and this is often a difficult matter at first—that the old ideas as to the baneful effects of exposure to the out-of-door air on raw, cold, damp or stormy days or nights, also bathing, etc., are fallacious; and that if properly but not too warmly clothed he may go out, and must if within doors keep the windows constantly open. As to catching "fresh cold," it should be explicitly stated that it is not the exposure to inclement weather which is to be avoided, but the association with individuals who are affected with "colds," tonsillitis, etc., as these maladies are distinctly contagious. It must also be clearly understood between the patient and the physician that the former must absolutely forswear the taking of any remedies not prescribed by the latter. Failure on the part of the patient to respond to treatment is often due to the fact that various patent medicines, cough mixtures, consumption cures, etc., which have been recommended by solicitous friends, are surreptitiously taken by the patient. These remedies usually contain large quantities of narcotics or stimulants, such as opium, cocain, alcohol and other medicaments which should rarely if ever be prescribed for a case of pulmonary tuberculosis.

Before attempting to lay out any line of treatment, the physician, by careful questioning, should make himself acquainted with every phase of the patient's daily

life and habits. Inquiries should be made as to how the waking hours are spent, the patient's surroundings, and the amount of rest during the day, or sleep at night, the state of the teeth, the digestion, the appetite; the character, quantity, quality and time of food, the use of alcohol and tobacco, especially if the patient is addicted to chewing; the character of the work done and the amount of physical effort or physical strain undergone. Attention must also be given to the mental attitude of the patient—depression calls for optimistic encouragement, and a sanguine disposition for coercing restraint, on the part of the physician. Loss of weight should be ascertained. A gain in this respect is one of the best indices as to the benefit of treatment, and patients who have lost one-third their bodily weight practically never recover.

The relinquishment of business is always a *desideratum,* although sometimes impossible. Incipient and early cases can often be satisfactorily treated while continuing their work, but the conservation of energy is a factor of prime importance which must always be borne in mind by the patient. Mill hands, factory workers, miners, bartenders and the employes of sweatshops and laundries should be required to obtain more healthful occupations. The more nearly the patient can approximate a tent-life existence the better. He should never sleep in the same room with a healthy person. My instructions to tuberculous patients are usually more or less as follows:

You are suffering from a contagious disease and unless constant care is taken in disposing of your expectoration, you are a danger to the rest of your family, to those with whom you associate, and to yourself. Every particle of your sputum must be carefully collected and destroyed. This is best accomplished by using a spit-cup containing a little water and a teaspoonful of lye; when away from home you should carry a paper bag and napkins of tissue paper into which to expectorate. Use a fresh napkin each time after spitting, carefully wipe your mouth and place the napkin in the paper bag and burn it with its contents on your arrival at home. Always hold your hand over your mouth when coughing. Never spit on the floor, street, into a spittoon, hankerchief or rag, or any place where the expectoration can not be disinfected. Be careful to avoid soiling your hands or clothes with your expectoration, and always wash your hands, lips and mouth before eating. Avoid handshaking and kissing, these customs may give your disease to others, and may bring you colds which will delay your recovery.

Never remain in a room with closed windows, especially if there is a lamp, gaslight or fire present; for the flame consumes the oxygen which you need; for this reason avoid theaters, music halls, etc. Remain out of doors as much as possible, but take no exercise, even walking without especial permission.

In order to recover you must gain weight, to do this you must save your strength and energy as much as possible, and must eat only the most nourishing and easily digestible food. Never do anything to the extent of tiring yourself out, but stop and rest before this point is reached. Your diet should consist mainly of milk, cream, eggs, fresh meat, butter, bacon, stale bread or toast, potatoes—well baked or boiled, or boiled rice.

If possible, rest in a recumbent position for half an hour before and after meals. All food must be eaten slowly, and thoroughly chewed. Retire early and secure at least nine hours sleep.

The rays of the sun are directly curative in their action; except in the very hottest days, expose yourself to them as much as possible. Exposure of the entire body to the sun if possible in your room is eminently desirable. It is a good plan each morning to bathe the neck and chest with cold water, following this up with a brisk rub with a coarse towel. Medicines may help you, but they alone can not cure you. Your recovery depends largely on the exactness with which you carry out my instructions.

THE PATIENT'S ROOM.

The patient's room should be well ventilated, and should preferably have a southern exposure, if possible with a porch attached, on which the greater part of the day, and often the night, can be spent. In the absence of the latter structure, however, a flat roof, a fire escape or the back yard and a steamer chair can easily be made to compensate for the deficiency. The room should be uncarpeted and all draperies, curtains and useless ornaments should be removed therefrom. All the foregoing and other innovations at first sight, of course, will seem ridiculous to the patient, but the vast majority, as well as their friends, will usually accede to requirements with alacrity if their necessity be explained by the physician.

DIET.

It should not be forgotten that the tuberculous patient requires more food than the normal individual. It is a good plan to bear in mind in a general way the relative caloric value of foods. A tumbler of good milk contains as much nutritive material as two eggs, three ounces of lean meat, sixteen ounces of oysters, one ounce of cocoa or cheese, or two ounces of bread. Digestibility and ease of absorption must not be overlooked. All food should be well cooked with a liberal admixture of fats, especially butter. Hydrocarbons are much more easily and perfectly absorbed and digested if well mixed with carbohydrates.

As has already been stated, the patient should never eat a heavy meal when mentally worried or physically exhausted; for this reason rest before and after meals should always be insisted on when possible. The entire day should be mapped out for the patient in detail. It is usually best to have him take only one heavy meal a day, this preferably at noon. In prescribing a diet for the tuberculous patient, the principle object to be borne in mind is that the food should contain a high nutritive quality in the most easily digestible form. For this reason, milk stands easily at the head of the list. The midday meal should consist of fresh meat, milk, baked potatoes, boiled rice, very soft boiled or poached eggs, bacon and some light dessert such as junket, sago, tapioca or baked apples. The partaking of milk, cream and butter should be facilitated and encouraged. Sweets, pastry, fried foods, cabbage, and similar indigestible articles are forbidden. Cocoa and weak tea or coffee are permissible, but must not be allowed to supplant the drinking of milk. The last named article of diet may be taken either hot or cold, but should not be boiled. The nourishment during the rest of the day is to be supplied by a glass of milk with an egg beaten up in it, sipped slowly, with the addition of toast or a cracker, at three hourly intervals during the waking period. A little nutmeg, cinnamon or a pinch of salt may be added if desirable, or the eggs may be taken separately. The addition of salt and lemon juice often makes the taking of a raw egg much less difficult. In this way, three or four quarts of milk and from four to a dozen eggs can be taken by the patient without much trouble. The constipation which the change to a milk diet might seem likely to cause is overcome by the increased amount of fluid and fat ingested.

I would not, however, be understood as recommend-

ing the indiscriminate stuffing of patients with nutriment. Each case must be regarded on its own merits and individually treated. If there exists a weakness of the heart, a dilated stomach, marked tendency to gastrointestinal fermentation, motor insufficiency, etc., large quantities of fluid may be harmful.

Alcohol in any form is better omitted, and the use of tobacco should be minimized, especially if there is pharyngeal, laryngeal or bronchial irritability. The taking of milk and eggs should be insisted on, even when the appetite is lacking. The digestive capacity of the tuberculous patient is usually much better than the subjective appearances of it; especially if the condition of the emunctories is kept up to par. Very soft boiled or poached eggs may be allowed if the raw eggs remain insuperably objective.

The stimulating effect of the outdoor air, and the regular taking of milk and eggs is usually attended by the ability to take more, "as if increase of appetite had grown by what it fed on."

The value of the appetite itself, however, must not be overlooked or underrated. Pawlow's experiments have proved beyond cavil the value of the "psychic juice." With this end in view, no pains should be spared to make the meals of the patient as dainty and attractive as possible. Food remnants, half emptied tumblers, soiled napkins, etc., should never be allowed to stand around within the sight of the patient, and for the same reason, when possible, the odor of the kitchen should be rigorously excluded from the patient's room.

PSYCHICAL TREATMENT.

Next in importance to hygiene and diet is what may be termed the psychical treatment. Tuberculous subjects are almost without exception largely susceptible to suggestion. It requires more than a knowledge of the disease and a familiarity with therapeutic procedures successfully to treat these cases, and the sooner a bond of sympathy, confidence and control is established between patient and physician the better. An example of this susceptibility to suggestion is shown by the way in which night sweats cease if a pan of water is placed under the bad, and the hypnotic effect of certain placebos, etc.

The physician must study the mental state of the patient in order to be able to exercise the proper influence over him. "Frivolity must be met with sternness, ignorance by benevolent instruction, and foolish conduct by firmness and constancy" (Cornet). The mental attitude of the physician must always be one of firmness and optimism, at least in so far as the patient is able to judge of it. The protracted course of the disease taxes the endurance of the most strong-willed patient, and it requires the employment of all of his best efforts, combined with the sustaining guidance of his medical adviser, to overcome the hardships, trials, temptations and discouragements which bestrew the path to recovery.

CLIMATE.

Volumes have been written on this subject of climate, recommending various altitudes with varying degrees of temperature, humidity, sunlight, wind, etc., but practical experience has taught us that, while certain regions may confer benefits, tuberculous individuals can recover in almost any climate if the proper treatment is instituted early, and if the necessary hygienic and dietetic principles are carried out. The good results of sanatorium treatment are due less to the climatic causes, and more to the careful and constant supervision the minor details of which go to make up the daily régimen than is generally supposed. A patient with limited means would far better remain in a crowded city if he can command home care and comforts and a proper dietary than move to some health resort where, owing to his lack of funds, these items will be grudgingly and inadequately supplied.

GASTROINTESTINAL SYMPTOMS.

The treatment of the gastrointestinal tract is the most legitimate form of phthisiotherapy. The importance of intestinal fermentation, flatulence, etc., on cough will be considered later. Fermentation and flatulence should be treated with hydrochloric acid and strychnin, before meals, or with a mixture of creosote and sodium bicarbonate an hour or two after meals. Due attention, of course, must be given to the diet, the more indigestible forms of carbohydrates being excluded.

Diarrhea due to decomposition of food products or to intestinal congestion or ulceration yields most promptly to a carefully regulated diet and the administration of castor oil, to which, if the case be a severe one, a few drops of the deodorized tincture of opium may be added. Excellent results are often achieved by the administration of magnesium sulphate in doses of ten or fifteen grains at half hourly intervals. If the intestines are kept free from the irritating secretions by two or three good bowel movements daily, astonishing improvement often occurs. The addition of lime water or barley water to the milk, which should be warmed before taking, is also useful. Bismuth, to accomplish any results, must be given in large doses, to which salol or guaiacol carbonate may be added.

Constipation calls for an increased amount of fruit and green vegetables to the diet. A raw apple eaten before retiring is often quite miraculous in its results. The amount of fluid in the dietary should be increased, and, if possible, also the amount of fat ingested. A glass of water taken on rising, to which a little sodium phosphate or magnesium sulphate may be added, and massage of the abdomen practiced by the patient himself before getting out of bed, are all useful measures. If vegetable laxatives such as aloin cascara, belladonna, podophyllin, etc., are resorted to, they should be used with caution. If intestinal ulceration, which is often present when unsuspected, exists, these remedies almost invariably do harm and set the patient back many weeks on his road to recovery, by irritating ulcerations and increasing the amount of secretion. The administration of laxatives is frequently necessary in pulmonary tuberculosis, and constipation should be most carefully guarded against.

Few drugs if any are needed in the treatment of pulmonary tuberculosis.

Many forms of medication are distinctly injurious in their action as a general rule; among these may be mentioned, mercury, potassium iodid and antimony. A large number of drugs from which *a priori* we might expect benefit, are disappointing; among these are digitalis, strophanthus, caffein, spartein, etc. Among those which will perhaps be found the most useful the following may be mentioned: Strychnin, nitroglycerin, camphor, iodin, iron, arsenic, calomel, magnesium sulphate, sodium phosphate, creosote.

The primary factor ever to be borne in mind is that

no drug should ever be prescribed without a definite indication or object in view. Nothing can be more ridiculous and harmful than this sort of ratiocination. "This man has pulmonary tuberculosis, therefore I will give him cod-liver oil;" or "he looks pale, therefore we will administer iron." In the first instance, we are simply supplying a fat which is no more nutritious, but much more indigestible than butter, and in the latter we upset the digestion of a patient who may have a normal number of red blood corpuscles and normal amount of hemoglobin for no purpose. Recovery in tuberculosis of the lungs depends largely on the ability of the patient's stomach to digest more than a normal amount of food and his heart to do an abnormal amount of work, therefore, no drug should ever be given which entails the risk of disarranging the digestion or depressing the circulation, without the most urgent necessity. No known drug has any directly curative influence on the tuberculous process *per se*.

From what has been said, it is perfectly obvious that the medicinal treatment of this disease should consist largely in remedies calculated to further the digestive processes. With this object in view, it is primarily necessary to keep the action of the liver, gastrointestinal tract and kidneys in a satisfactory state of functionation. As an aid to digestion, I have seen marked benefit follow the administration, either before or after meals of HCl, strychnin and some bitter tonic despite the statements of recent gastrologists that the small amount of HCl thus administered can not appreciably aid in digestion, directly. Good results have also followed the use of sodium bicarbonate and nitrohydrochloric acid.

As to the benefits conferred by pepsin, pancreatin, caroid, taka-diastase and similar preparations, I must confess myself a skeptic. I have never been able to convince myself that any distinct improvement attended their administration. To give a medicine merely for the sake of appearing to do something is most reprehensible, and unless the proper kind and quantity of food be taken and the other hygienic details carried out, all the tonics in the world will accomplish nothing.

SYMPTOMATIC TREATMENT.

Cough is the symptom of which the patient most frequently complains, and it is in the treatment of this symptom that the most serious mistakes are usually made. A certain amount of cough is usually necessary to keep the respiratory passages free; in this respect it is beneficial and should not be checked. Excessive cough either without or with but slight quantities of sputum should never be treated by the administration of opium or any of its drivatives. It should be made an almost invariable rule, that no opium should be given to tuberculous patients unless all hope of recovery is despaired of. Cough is a symptom which is largely within the subjective control of the patient, who should be taught to overcome the desire by his volition; and not to abet it. If the first impulse to cough is withstood, the desire and necessity will often pass away. A paroxysm of cough can often be aborted by taking eight or ten long slow, deep inspirations followed by forcible expirations. If this method fails, the patient should be told to guard himself against dusty or smoky atmosphere, the odor of tobacco, etc. The cough-eliciting effect of cold, raw, dry or windy air can be avoided by holding a cloth before the mouth, or by artificially moistening the atmosphere of the room. Of the greatest importance too, is attention to the state of the gastrointestinal tract. Cough is often the result of pneumogastric irritation caused by indigestion, constipation, etc., and attention to these matters will often relieve a cough which has resisted all other treatment.

If the expectoration is very tenacious, the period of morning cough may be materially shortened and eased by drinking a glass of hot water, containing a little sodium bicarbonate or some other alkali. The administration of the usual cough mixtures, syrups and the like should never for a moment be considered as a routine treatment. If an attack of acute bronchitis supervenes, a mixture somewhat similar to the following may prove beneficial.

R.	Ammonii chloridi	gr. vi	3
	Spts. ammoni aromatici	m. xv	1
	Spts. glonoini	m. i	06
	Tr. nucis vomicæ	m. x	6
	Elixir calisayæ ad q. s	3i	4

Under careful hygienic and dietetic treatment, excessive cough, which only means excessive irritability, usually disappears.

When cough is due to venous engorgement of the lungs, as is manifested by an accentuation of the pulmonic second sound, nitroglycerin is indicated. Strychnin should be administered with caution in cases with irritable cough. In cases of mixed infection, with large amounts of expectoration, creosote is sometimes of undoubted benefit if administered in gradually increasing doses. It should never be employed as a routine method, on account of the danger of interfering with the digestion; and it is hardly ever necessary in incipient cases.

Many cases of cough arise reflexly through inflammation of the pharynx, larynx, trachea or costal pleura. When the latter condition exists, strapping of the chest may be very beneficial; if the former, appropriate local treatment should be instituted.

FEVER.

Pyrexia is best treated by rest in bed, but patients with slight degrees of fever—99 to 100—may be allowed to go about, with proper restrictions; even these will do better, however, if they are only allowed to be up during a part of the day. As has already been stated, neither fever nor any other symptom should ever be considered a bar to the fresh air treatment. Hyperpyrexia may be reduced by cold sponging, but under no conditions should any of the coal tar products—or other depressant remedies be administered, as they weaken the patient and, by producing vasomotor relaxation, favor the occurrence of night sweats. If the digestive organs are in a normal condition, no restriction need be made in the diet on account of the pyrexia. If anorexia exists, the digestive organs require treatment.

NIGHT SWEATS.

The treatment of this condition is, strange to say, frequently a bugbear to the physician. In the wards of the Phipps Institute, where practically all the patients are in a hopelessly advanced stage of the disease, this symptom is almost unknown. No medical treatment whatever is employed in its relief. The constant supply of fresh air, and the regulation of the digestive functions completely eradicate the appearance of night sweats even in patients who, previous to their admission had been used to a drenching sweat every night. In cases of unusual severity, the patients are sponged with cold water and alcohol, once or twice

in the course of 24 hours, which helps to restore vasomotor tonicity.

HEMOPTYSIS.

Hemoptysis calls for rest in bed, for at least ten days. An ice bag should be placed on the chest, nitroglycerin gr. 1/100 administered every three hours, laxatives prescribed, and the patient warned against exertion, excitement, and all loud talking or unnecessary coughing. Anxiety on the part of the patient should be allayed by a hypodermic injection of morphin, and the assurance that hemorrhages are rarely fatal, and that a few days' rest and good feeding will easily compensate for the amount of blood lost.

PAIN.

Pain due to pleuritis may be relieved by strapping the chest, tincture of iodin, blisters, dry cupping, or application of an ice bag, or a mustard plaster. The vague aches and pains which are so frequent, and which have been called tuberculous rheumatism should be treated by attention to the emunctories, the local application of heat, warm baths, and massage. For the latter purpose, almost any of the official liniments may be employed. A preparation which has been found very efficacious is as follows:

R.	Iodi cryst	gr. xxx	2
	Lanolini	ʒiss	45
	Olei gossypii ad	ʒiii	90
	Etheris q. s.		

Internally administered, sodium salicylate is sometimes of benefit.

INSOMNIA.

As has already been intimated, much can be accomplished in the treatment of this symptom by suggestion. A heavy meal in the evening should be avoided. A glass of hot milk or cocoa, or a mustard foot bath may be taken just before retiring. If the insomnia is due to cough, the patient should be instructed to suppress the latter as much as possible. Hyperirritability of the pharynx or larynx should be treated. If insomnia is due to tachycardia, an ice bag to the precordium will be found useful.*

Under the beneficent influence of fresh air this symptom can usually be overcome without great trouble. Only after all other measures have failed should recourse be had to sedatives or hypnotics, and as can not be too forcibly insisted on, no form of opium should be administered as long as a chance of recovery is entertained.

One of the most fruitful sources of insomnia during the winter months is coldness of the extremities. This may be overcome by hot foot baths, or by placing hot bricks in the bed. The patient in such cases should sleep in woolen stockings, and it is not a bad plan to have woolen pajamas worn, which have stockings attached.

HEART WEAKNESS.

Cardiac weakness as manifested by tachycardia, palpitation on exertion, a sense of weakness, edema or vertigo, should be treated by absolute rest in bed, the avoidance of mental excitement, or worry, and application of an ice bag to the precordium. Heart weakness is a serious sign, which should receive prompt and careful treatment. Patients who present persistent and intractable rapidity of the pulse are apt to do badly even though the amount of lung tissue involved may be slight. As internal remedies, digitalis and strophanthus are signal failures, and reliance will usually have to be placed on glonoin, camphor, and strychnin.

I have made no mention of specific treatment by means of the various serums and culture products which are now in use, because, while these methods may be, and probably are, of benefit in the treatment of tuberculosis, they must still be considered in the nature of adjuncts, and not of essentials.

There is nothing original or new in the methods which I have advocated. The whole matter is so simple that it seems hardly worth while calling attention to it, but the entire success of the treatment is proportional and dependent on the exact and careful manner in which apparently insignificant details are investigated and carried out. The main reasons why such an air of incredulous skepticism and prognostic gloom pervades the subject of pulmonary tuberculosis in the mind of the average practitioner are two: First, the disease is not recognized in its incipient stage; second, owing to lack of conviction, on the part of the physician, and to insufficient understanding and impression on the part of the patient, the simple details of the essentials—fresh air, diet, and hygiene—are not properly carried out.

A tuberculous patient who has lost weight, when put under the proper treatment, should promptly and steadily respond. This response will be manifested by a gain in weight, gradual subsidence of the fever, cough, expectoration, malaise, and in time, by the disappearance of the tubercle bacilli from the sputum, unless the case be too far advanced. If distinct improvement does not occur something is wrong—there is a mistake somewhere, and it is the duty of the physician, by careful questioning, by relentless examination, and by exhaustive collateral investigation among the patient's family or friends, to ascertain the cause.

It will usually be found that the patient in some respect or another is not carrying out his treatment. He is exhausting his strength by exercise or overwork, by not taking his food as prescribed, the windows of his room are only down half an inch at the top, instead of all the way, he is surreptitiously taking alcohol or some patent nostrum recommended by a friend, or he is in some respect deceiving himself and his physician, and infringing the rules laid down by the latter, and until these irregularities are discovered and corrected no satisfactory progress will be made.

*For a more comprehensive consideration of tachycardia in pulmonary tuberculosis the reader is referred to an article by the author in the Zeitschrift für Tuberculose und Heilstaettenwesen, 1905.

CASE OF EXOPHTHALMIC GOITER WITH UNUSUAL ASSOCIATED LESIONS.

DISCUSSION OF THE CLINICAL PROBLEM SUGGESTED THEREBY.*

ARTHUR R. ELLIOTT, M.D.

CHICAGO.

Patient.—W. M., aged 54, American of Scotch parentage; occupation, foreman of public works. Family history negative.

History.—Patient is over six feet in height, is of unusual intelligence and displays evidence of having possessed great muscular development when in his prime. He declares that his use of alcohol and tobacco has always been extremely moderate and there is no history of venereal infection. He con-

* Read before the Chicago Medical Society, 1905.

fesses that he has always been a very nervous man and that, despite his efforts at control, his temper has been a quick and unruly one. Mumps, measles and "grippe" are the only illnesses in his personal history, with the exception of an ephemeral attack occurring a year ago designated by his medical attendant "muscular rheumatism."

Present Illness.—Five years ago the patient first observed a swelling of the neck, which has persisted in the form of a moderate sized goiter ever since that time. Close questioning elicits the general statement that he was very nervous, had considerable palpitation and began gradually to lose weight about the time of the appearance of the goiter. Shortly afterward he observed transient swelling of the hands and feet on exposure to cold. He states that about the same period he noticed that the urine became increased in quantity and he began to experience the necessity of rising each night to void urine, a practice which has continued ever since. He denies that there existed at that time or subsequently any undue prominence of the eyeballs. About one year ago he suffered a severe attack of urticaria, ascribed at the time to food poisoning. The patient was first seen by me in August, 1903. The emaciation, which has been gradual and continuous since the development of the goiter, has reduced the body weight from 200 pounds to 160 pounds. For some months he has noticed that the appetite is unnaturally voracious and that he suffers considerably from thirst, the urine being correspondingly copious. There have been no boils or skin eruptions other than the urticaria already referred to. The following clinical notes were taken at this time.

There is noticeable a high degree of general nervousness and the patient is easily excited. The skin is dusky, although not pigmented, and is constantly covered with an oily warm perspiration. There is present fine tremor of the hands when the arms are extended. The face is covered with a fine network of dilated capillaries, most pronounced at the nasal alæ and over the malar prominences, which gives to the face a dusky bronzed look. The anterior temporal arteries are dilated and tortuous and can be seen to pulsate strongly. A decided bagging under the eyes is noticeable, and the conjunctivæ are injected. The pupils are regular in size and react normally to light and accommodation, and both hearing and sight are good, except for the usual presbyopia to be expected at his age. A moderate sized right goiter exists, as already stated. The pulse is rapid, counting 126 at the wrist, irregular both in rhythm and volume, the pulse wave being abrupt and large, but not sustained. The vessels are markedly sclerosed, but do not give to the examining finger the impression of tension. There is excessive pulsation of the prominent systemic arteries, particularly the carotids and brachials. On flexure of the forearm the brachial artery is thrown into vermicular folds and is seen to pulsate strongly with a lateral movement of the vessel. The patient is dyspneic and states that for some time he has experienced "short breath" on exertion and nervous strain. At such times he feels a sense of poststernal weight and oppression, but has never had any pains in the chest. There is marked pretibial pitting, the edema not extending above the knees, and there is no ascites. At this time the patient has no idea of his physical condition, except a vague impression that something is the matter with his heart.

Physical Examination.—Patient shows some evidence of emaciation. The skin is oily, moist with perspiration, and there is a small papular eruption on the chest and back, while many moles exist.

Heart: On inspection an excessive diffuse precordial heave is observed; viewed in profile, the left anterior chest curve is more prominent than the right. The apex can be readily seen in the fifth interspace and displaced fully one inch to the left of the nipple line. Excessive carotid pulsation and suprasternal and epigastric pulsation exist. On palpation a soft presystolic thrill running up to the apex can be felt. The area of superficial cardiac dullness measures 16.5 centimeters at the level of the fourth rib, 10 centimeters to the left and 6.5 centimeters to the right of the midsternum. In the fifth interspace the left border reaches 13 centimeters to the left of the median line. A blowing systolic murmur is audible in the mitral area, with its point of greatest intensity at the apex. This murmur almost entirely substitutes the first sound of the heart at the apex and is transmitted toward the axilla, but is not audible under the scapula behind. A second murmur, harsher in quality and presystolic in time, is audible over a comparatively limited area to the right of and above the apex. The second pulmonic sound is markedly accentuated, as is also the second aortic, although to a less extent.

Abdomen: Abdominal examination is negative, except that the liver is enlarged two finger breadths and somewhat tender to pressure over the left lobe.

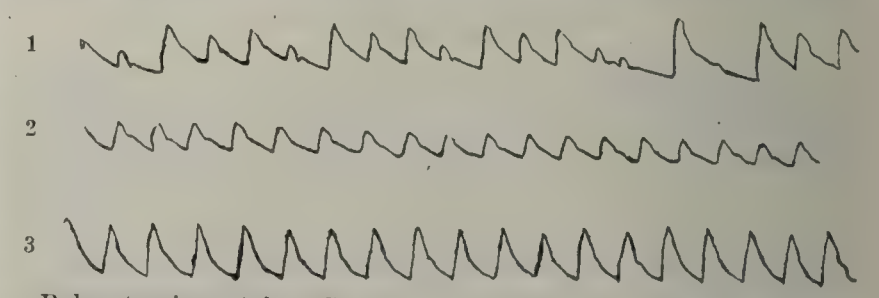
Blood vessels: The systemic arteries are sclerosed and the pulse wave is excessive all over the arterial tree. The pulse is very irregular both in rhythm and quality. Many cardiac systoles are abortive, some not being perceptible at the wrist. The sphygmogram displays little of the wave of tension that might with reason be expected in view of the arteriosclerosis and the following urinary findings. Blood pressure equals 130 mm. of mercury (Riva Rocca, 9 cm.)

Urine: Urine analysis reveals 3 per cent. of sugar, 8 per cent. bulk of albumin precipitate estimated by centrifuge, 1 per cent. urea, and under the microscope many casts and renal epithelia. The casts are mainly broad hyaline, with some granular and a few waxy casts. Acetone and diacetic acid absent.

No anemia is present. The patellar reflexes are markedly accentuated.

Eyes: A careful examination of the eyes made a short time after first consultation, with the expert assistance of Dr George F. Suker, yielded the following results:

There is no constriction in the field of vision of either eye. There is no visible protrusion of the eyeball and the exophthalmic symptoms of von Graefe, Stellwag and Moebius are absent. Ophthalmoscopic examination reveals the presence of typical hemorrhagic retinitis in both fundi. Multiple pin-



Pulse tracings taken Sept. 4, 1903, Feb. 15, 1904, and March 4, 1904, respectively.

point hemorrhages are found distributed over the retinæ of both eyes, particularly to the nasal side of discs, some being quite peripheral. A large flame-shaped hemorrhage exists in the upper temporal quadrant of retina between the disc and macula in the right eye. The retinæ and choroids of both eyes, as a whole, look somewhat suffused, but otherwise no degenerative changes are present. Discs are clearly outlined and apparently normal. The retinal vessels, especially the veins, are tortuous and a marked venous pulsation is noticeable. The peripheral light striæ on the arteries are prominent and enlarged, due to the arteriosclerosis. Repeated fundus examinations have been made in the intervening months since the above findings were recorded, and we have been able to follow closely the progress of degenerative changes which are typically those of albuminuric retinitis. On March 8, 1904, the date of last recorded ophthalmoscopic examination, many well-formed areas of degeneration could be seen. The larger areas were confined to the circum-macular region, the smaller ones to the periphery of the retinæ. There were several fresh hemorrhages in each retina. Vision is not altered and there is no change in the visual fields.

Influence of Treatment.—Treatment consisted of general hygiene, dietetic procedure and the routine administration of digitalis.

(*a*) Influence of diet on the glycosuria: The patient was at first placed on a diet of meat, fats, green vegetables, acid fruits, 100 grams of plain white bread and 50 grams of potato to be taken at the midday meal, the bread to be equally divided between the three daily meals. At the expiration of the first week of treatment, the glycosuria had become reduced from

3 per cent. to 2 per cent. Two weeks later (Sept. 21, 1903), without further restriction of carbohydrate foods, the glycosuria had subsided to 0.4 per cent. October 22 the glycosuria amounted to 0.6 per cent. The allowance of starch was now increased in the interests of the patient's general nutrition, the daily ration of bread being raised to 200 grams. The increase of carbohydrate was attended by a marked rise in the glycosuria, the urine showing on October 20 a sugar content of 1.7 per cent. and on November 20 the same amount. The patient's condition in other respects being now much improved, he was directed to gradually return to the former dietary. The subsequent course of the glycosuria was as follows:

December 3, 1903, glycosuria	1.3 per cent.
December 21, 1903, glycosuria	1.0 per cent.
March 5, 1904, glycosuria	1.0 per cent.
March 23, 1904, glycosuria	0.8 per cent.
May 2, 1904, glycosuria	0.7 per cent.

With control of the glycosuria, the diabetic symptoms (polyuria, polyphagia, polydipsia, etc.) have gradually disappeared.

(*b*) Influence of digitalis on the heart and albuminuria: Tincture of digitalis was ordered in 15-drop doses every eight hours. One week after the institution of this medication the patient's cardiac condition remained practically unchanged, the albuminuria having undergone no diminution (8 per cent.) Two weeks later (Sept. 21, 1903) patient was still dyspneic and edematous, the pulse irregular, and the albuminuria had increased to 15 per cent. bulk of moist coagulum. An additional dose of digitalis was now ordered, the total dosage being 60 minims of the tincture in the twenty-four hours.

Result.—Steady improvement now set in, and by October 22 cardiac regularity had become almost completely restored. Edema was greatly lessened, the albuminuria subsiding to 2.5 per cent., casts persisting and urea 0.7 per cent. Since that date the progress of the case has been marked by steady improvement. Digitalis administration was continued, although in reduced amount, the routine dosage being 15 minims twice daily. The patient's general strength has been greatly benefited, although no gain in body weight is recorded; dyspnea has disappeared except on sharp exertion, and but slight evening malleolar edema can be detected. Albuminuria persists at 2 per cent. bulk, not having been at any time reduced below that point.

Analysis: May 2, 1904: Total quantity, 1,000 c.c.; albumin, 2 per cent.; urea, 23 grams; sugar, 0.7 per cent. (total, 7 grams); casts and renal cells.

An interesting feature of the case is that despite the restoration of compensation and the disappearance of cardiac irregularity, digitalis medication failed to reduce the pulse rate. The pulse has persistently ranged from 100 to 120 a minute although greatly improved in tone and rhythm. Notwithstanding the great improvement in ventricular adequacy, the sphygmograph and examining finger fail to detect any distinct element of tension in the pulse. Meanwhile the vasomotor phenomena (fine tremor, excessive pulsation, sweating) have continued unchanged, and recently increasing irritability of temper, failure of memory and power of concentration point to developing psychosis.

Under very moderate dietetic control the glycosuria remains at a minimum and polyuria, polyphagia and polydipsia have disappeared. This amenability to treatment indicates a diabetic glycosuria of extremely mild type, probably corelated to the thyroid toxemia.

The persistence of albuminuria after the therapeutic test of continuous digitalis administration until cardiac adequacy was restored, marks it as being independent of circulatory failure in its origin—in fact, a true renal albuminuria. This deduction is proved correct by the low urea excretion, the presence of degenerative tube casts and finally by the incontrovertible evidence of albuminuric retinitis typically developed in both eyes.

That exophthalmic goiter exists I think there can be no question. With the exception of the ocular signs, the symptom complex is complete, including goiter, tachycardia, fine tremor, emaciation, excessive sweating and vasomotor paresis.

The cardiac lesion is a double mitral one, an associated regurgitation and stenosis. The element of stenosis marks it as probably being of endocarditic origin and not primarily produced by the Bright's disease or by the exophthalmic goiter.

We have, then, clearly established in this patient the unique association of the following lesions: Exophthalmic goiter, diabetes, Bright's disease, mitral disease and retinitis.

The chief interest of the foregoing case is in the clinical values which it includes. These comprise the problems of the association of glycosuria and exophthalmic goiter, the influence of the latter and of Bright's disease in causing valvular defects and the differentiation of secondary cardiac lesions so caused from those of antecedent but obscure endocarditic origin. There is involved as well the question of the association of glycosuria and nephritis and finally the interpretation of retinitis occurring in cases presenting both glycosuria and albuminuria. These are without exception vital problems in clinical medicine and their bearing on the present case constitutes my warrant for reporting this incomplete clinical history.

Glycosuria as a secondary or symptomatic manifestation is of frequent occurrence during the progress of a variety of pathologic states. It is met in many functional and organic nervous diseases, in many infectious diseases and systemic toxemias, and after the administration of various drugs. The exact manner in which carbohydrate metabolism is affected in so wide a range of clinical conditions is not definitely known. Accumulating evidence points with strong probability to the assumption that any nutritive perversion of toxic or infective origin is capable of so influencing carbohydrate assimilation by its effects on cellular vitality as to produce glycosuria. Exophthalmic goiter has long been recognized as exerting a particularly disturbing influence over the metabolism of the carbohydrates. It has been found that glycosuria of a purely functional type (*glycosuria e saccharo*) can be produced by the alimentary test in exophthalmic goiter in a much higher percentage of cases than in health (Chvostek, Kraus and Ludwig, Strauss). It is a question, however, whether the proportion of cases so affected is much greater in this disease than in many nervous affections and diseases characterized by toxemia. Stern claims that *glycosuria e saccharo* is no more frequent in exophthalmic goiter than in some other conditions, notably gastric hyperacidity, in which he was able to demonstrate the reaction in 12 per cent. of 42 consecutive cases. It would appear that we are not warranted in drawing any conclusion from the presence of a lowered carbohydrate tolerance in exophthalmic goiter beyond the general existence of disturbed assimilation.

It is demonstrated by a considerable array of recorded clinical observation that this disease and true diabetes mellitus are not infrequently concurrently present in the same individual. A few instances are on record in which diabetes existed before the advent of exophthalmic goiter. A greater number of cases is recorded in which either the two diseases developed synchronously or exophthalmic goiter antedated the diabetes. The underlying factor in this association still awaits demonstration. The most sugges-

tive feature of the corelation of the two states is that the administration of thyroid preparations will frequently produce glycosuria and when that symptom already exists will often render it more intense. Glycosuria not only results in subjects who are already the victims of thyroidism, but in apparently healthy individuals. This phenomenon can not be dismissed with the assumption of Strauss that thyroid preparations produce glycosuria only in subjects that are predisposed to it. Bettmann was able to produce glycosuria by a week's thyroid medication in 12 out of 25 normal healthy people. It is not reasonable to suppose that so large a proportion of healthy individuals (48 per cent.) is predisposed to glycosuria. This power of thyroid preparations to cause glycosuria may be regarded as similar to the effect of suprarenal extracts which are capable of inducing glycosuria. It speaks in favor of a grave influence over carbohydrate metabolism and leaves us to perforce accept the conclusion that the perverted thyroid activity of exophthalmic goiter disease is at least a factor in producing the associated glycosuria. In other pathologic states associated with hyperactivity of the thyroid, viz., chlorosis, acromegaly and pregnancy, glycosuria is frequently noted as a development.

I think it improbable that the thyroid is directly concerned in carbohydrate assimilation. The most reasonable explanation of the glycosuria of this disease is that it is a toxic glycosuria, the toxin consisting of the thyroid or parathyroid secretion, which results from the abnormal gland activity. The appearance of glycosuria in exophthalmic goiter or its increase when already present may be taken as evidence of increasing thyroid toxemia and, consequently, may prove an indication of prognostic value. The instance constituted by the foregoing reported case appears to be a mild diabetic glycosuria developing during the course of exophthalmic goiter. The exact relation in time to the primary disease can not be determined owing to lack of data, but it is clear that the thyroidism antedated the glycosuria by a considerable interval.

The effects of exophthalmic goiter on the heart are marked and constant although not characteristic in type. A certain amount of cardiac enlargement almost constantly exists and in many cases murmurs are to be heard over the heart. Russel Reynolds found cardiac murmurs in two-thirds of his cases, Mannheim in 5 out of 41 cases, Murray in 41 out of 120 cases. When a systolic murmur develops it is frequently audible over the whole heart, with greatest intensity near the sternum or at the base of the heart. Such a murmur may be hemic in origin if anemia is present, although anemia is not a necessary concomitant of this disease. It may at times be heard distinctly at the apex and sometimes to the left of the apex, having all the characteristics of a mitral murmur. There is a probability, then, that actual mitral insufficiency has developed, the result of dilatation of the left ventricle, the mitral valve orifice sharing in the dilatation. It is proved by clinical experience not only that mitral regurgitation may be produced in this manner by the heart strain and denutrition of exophthalmic goiter, but also that the cardiac phenomena may closely simulate those of organic defects produced by endocarditis. If evidence of valve lesion is found in this disease, the cardiac disturbance is not to be regarded as necessarily dependent on the exophthalmic goiter. The question of structural heart disease co-existing with the thyroidism is to be considered and this will chiefly be determined by the nature of the consecutive changes in the heart chambers and the antecedent history. In some cases, cardiac lesions have undoubtedly preceded the disease and in a few instances rheumatic antecedents may be elicited, in which case the murmur may reasonably be attributed to rheumatic endocarditis. Unless the question of antecedent endocarditis can fairly be raised, the murmur may be interpreted as due to relative mitral insufficiency from ventricular dilatation. The cardiac enlargement and murmur of exophthalmic goiter are not so permanent and do not produce such grave consequences on the heart and circulation as are wrought by the valvular defects of endocarditis. The evidence of cardiac impairment is often found to improve *pari passu* with the disease, and it may perhaps disappear as the systemic state improves. Slight mitral endocarditis has occasionally been found after death in this disease, probably due to mechanical strain of the valve. The experiments of Roy and Adami demonstrate that, as a result of overstrain, ecchymosis and roughening of the valve may be produced, resulting in incompetence.

The frequency of secondary heart lesions in chronic Bright's disease is too well known to require elaboration. A systolic murmur at the apex is extremely common in cases in which arterial tension is greatly increased. Indeed, sooner or later in most cases of chronic Bright's disease and especially during the terminal stage, a murmur in the mitral area and ventricular enlargement may be made out. The walls of the ventricle have yielded under prolonged strain and the curtains of the mitral valve become drawn one from the other to such a degree that they are imperfectly opposed during systole and regurgitation ensues. In such case there is no history of antecedent rheumatism or of endocarditis. Usually in cases of mitral disease of endocarditic origin the second sound is feeble or at least not accentuated. In chronic renal disease with mitral complication the second sound is unduly loud and valvular, especially in the aortic area. Chronic nephritis is much more liable to produce endocarditis than is exophthalmic goiter, as is proved by the relatively greater frequency of mitral stenosis in the former than the latter disease.

In the case reported, a double lesion of the mitral valve exists, with great enlargement of the heart and with cardiac inadequacy. The etiology of the valvular lesion comes under discussion. Exophthalmic goiter and chronic nephritis, both well established, exist, and either is capable of producing mitral disease. Two organic lesions, regurgitation and stenosis, are clearly indicated in our case by the double murmur presystolic thrill, and extensive consecutive changes in the heart chambers. This at once eliminates the purely mechanical element as an acceptable explanation of the lesions and marks the case as of inflammatory origin. Exophthalmic goiter is excluded by the profound character of the organic changes in the heart, for neuro-cardiac disturbance of itself is incapable of such consequences. Chronic Bright's disease is far more deleterious in its influence on cardiac welfare than is exophthalmic goiter, and in its full development the nephritic heart is often a very large and defective organ. The element which brings about such dire consequences to the heart is high peripheral resistance in the arterial field.

In this particular case no material increase of systolic blood pressure was noted during the period of observation, and the sphymogram failed to reveal the

element of tension characteristic of the nephritic state. Whether this effect was due to the low vasomotor tone of the accompanying exophthalmic goiter or was directly attributable to the weak cardiac state I am unable to say, although inclining to the latter opinion, since exophthalmic goiter is a hypertensive disease rather than the reverse. In view of these facts, we may conclude that the cardiac lesions are the result of antecedent endocarditis although it is fair to presume that the circulatory state is greatly aggravated by the associated diseases. The absence of a rheumatic history can not be taken as negative evidence.

No direct association exists between exophthalmic goiter and nephritis, although transient albuminuria has been noted during the periods of acute disturbance. Chronic Bright's disease is not numbered among the epiphenomena of exophthalmic goiter, although there is no reason to believe that the toxemia of the latter disease is incapable of setting up degenerative renal change if long enough continued.

Diabetes and chronic Bright's disease, on the contrary, are very frequently associated. In a consideration of this subject presented before the American Medical Association in 1903,[1] I demonstrated that the average of diabetics displaying albuminuria was over 43 per cent. The renal changes are of the nature of chronic interstitial nephritis and result from long-continued irritation of the renal secreting structure.

In the case under discussion there is small likelihood of any relation existing between the diabetes and Bright's disease. The latter is out of proportion to the former and displays an activity seldom observed in the nephritis of diabetes, which is, as a rule, a mild and slowly-progressive dystrophy. The mild character of the diabetes in this case precludes the possibility of such connection.

The interpretation of retinitis in cases displaying both glycosuria and albuminuria offers considerable difficulty. The retinitis of diabetes possesses no distinguishing mark that will enable us to differentiate it from retinitis nephritica. We must depend on other evidence than that furnished by the ophthalmoscope to determine this point. The prognostic value of retinitis is practically the same in diabetes as in Bright's disease, i. e., it is a terminal symptom. Retinitis does not develop in diabetes until late in the disease and is attended by a fully-developed diabetic state, with the patient in bad general condition. Under such circumstances, the glycosuria is not likely to prove amenable to diabetic control and polyphagia, polyuria, etc., will exist with progressive emaciation and increasing adynamia. In this case some doubt existed after ophthalmoscopic examination as to whether the retinal changes were produced by the diabetes or by the nephritis. This uncertainty was dispelled by the behavior of the case under treatment and the subsequent complete development of the retinitis.

103 State Street.

1. THE JOURNAL A. M. A., Aug. 8, 1903.

The profession of the Northwest should be largely represented at the Portland session, and, since the opportunity is offered to take a most interesting journey at a comparatively slight expense, we advise every one of our readers who can possibly do so to take his vacation this year in this way.—*St. Paul Med. Jour.*

THE NORMAL AND PATHOLOGIC HISTOLOGY OF THE AORTIC AND MITRAL VALVES.

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BOSTON. PORTLAND, ME.

At the suggestion of Dr. Councilman, we have undertaken in the last few years the study of the aortic and mitral valves from hearts of different ages, representing both normal and pathologic conditions. The study was undertaken in the first place to obtain more definite ideas of the normal structure of the valves, particularly the amount and relation of different tissues entering into their composition; further, to determine the period at which degenerative lesions first appear in the valves and the relation of these degenerations to the different tissues; and finally, to study the relation between such degenerative changes and acute infections.

The work will be considered under these heads:

1. Normal structure of valves and normal variations of structure with age.
2. Degenerative lesions.
3. Acute infections in relation to degenerative lesions.

TECHNIC.

The specimens were obtained from autopsies on 42 hospital patients, varying in age from a child, which died at birth, to a man of 60. The autopsies were made from 12 to 48 hours postmortem. All the hearts were apparently in a good state of preservation. In almost all cases the mitral and aortic rings were cut out together, washed gently, and hardened at once in Zenker's fluid—celloidin was used for mounting in all but a few cases, for these paraffin was used.

The sections were cut out as follows: A segment about one-fourth inch wide was cut from one of the cusps of the aortic valve, including its widest portion. Longitudinal sections of these were used for staining. In the same way, a segment of the broadest portion of the mitral curtain (at the base of the aortic valves) was taken and cut longitudinally, or sometimes several segments were removed when the valve presented any peculiar appearances.

Three sets of stains were used for each specimen. One section was stained with Mallory's differential connective tissue stain, a second with Weigert's elastic tissue stain, and a third with hematoxylin and eosin.

The first of these was found most useful for studying the general anatomy of the valves. The second gave beautiful pictures of the elastic tissue. The third brought out some peculiarities of the staining reactions of the various tissues, and showed best the morphology of the cells and muscle tissue.

1. NORMAL STRUCTURE OF VALVES AND NORMAL VARIATIONS OF STRUCTURE WITH AGE.

Standard works on histology give very meager descriptions of the heart valves. Kölliker describes the auriculoventricular valves as composed of a strong layer of fibrous tissue with abundant elastic fibers running out from the fibrous ring about the valve orifice, each surface being covered with a layer of endocardium which is thicker on the auricular side. He says that the semilunar valves have the same structure, but are thinner.

The works of most of the older writers are either insufficient or inaccurate. Luschke[2] was one of the

1. Kölliker: Handbuch der Gewebelehre. Sixth edition, vol. iii, p. 607.
2. Luschke: Virchow's Arch., vol. iv, 1852.

earliest to describe, and to demonstrate by injections, blood vessels in the auriculoventricular valves (1852), Later (1878), he stated the vascularity of the semilunar valves.[3] There was considerable controversy over these observations. Coen[4] found the mitral valves vascular, but the aortic valves not vascular. Darrier,[5] in a careful work in 1895, found that semilunar valves never contained blood vessels; that a normal tricuspid never contained them; that the large curtain of the normal mitral valve, where its base is applied to the aortic valve, contained numerous vessels as far out toward its edge as the muscular layer extended (i. e., one-fourth way in the infant and one-sixth in the adults); that in pathologic conditions the whole valve might be abundantly supplied with vessels.

We find no accurate observations on elastic tissue

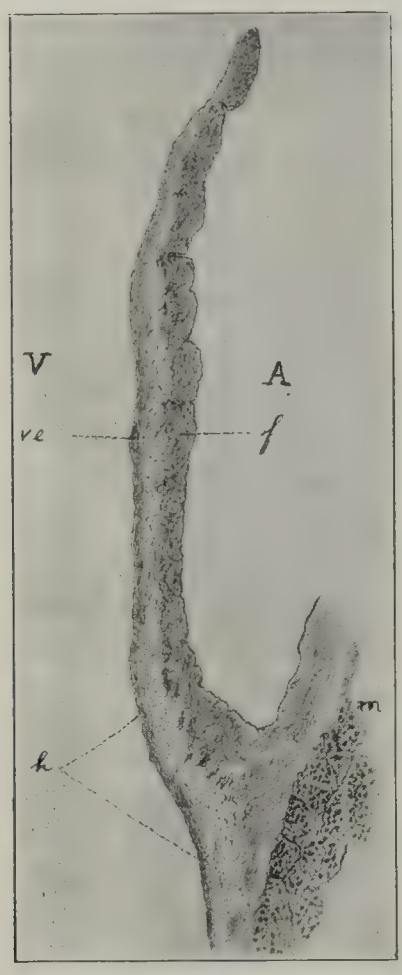


Figure 1.

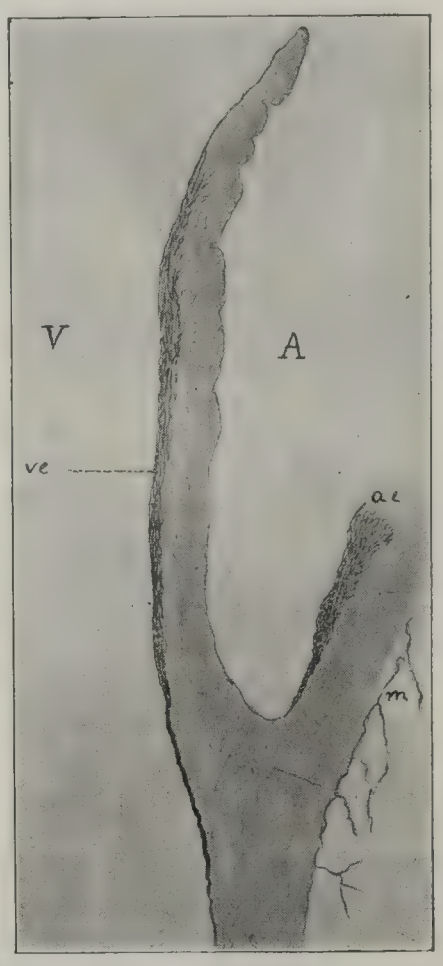


Figure 2.

Fig. 1.—Aortic valve. Age 15 months. V, ventricular side; A, aortic side; ve, ventricular elastic layer; f, aortic fibrous layer; h, hinge area; m, muscle. (Mallory's stain, low power.)

Fig. 2.—Aortic valve. Age 15 months. V. Ventricular side; A, aortic side; ve, ventricular elastic layer; ae, aortic elastic layer; m, muscle. (Weigert's elastic tissue stain, low power.)

in the valves up to 1895, when Seipp,[6] in a work on elastic tissue of the heart, goes into the subject at length. A summary of most of the literature on the subject can be found here. Seipp states that the stains used by most previous observers did not give a correct impression of the elastic tissue in the valves. He used orcein and seems to have obtained very good results. In the main, our observations agree with his.

Only a few writers give a detailed description of the tissues entering into the various layers of the valves. Curtis[7] enumerates four distinct layers of the semilunar valves, but does not describe them in detail. Veraguth[8] describes various layers of the auriculoventricular and semilunar valves according to the appearance of the cells and intercellular substance, and according to the embryology of the structures as given by Hertwig.[9]

According to Veraguth, the valves consist of five layers, as follows:

1. Under the endothelial covering of the valve a thin layer of tissue rich in cells with small spindle-shaped nuclei and some with larger nuclei.

2. Under this, a more distinct zone of a few large cells (as 6-1 to cells in first layer) with much intercellular substance.

3. In the center, a layer of fibers running parallel to the rim of the valve and especially marked (in case of auriculoventricular valves) where the chordæ tendineæ are attached. This layer also possesses a few large cells.

Nos. 4 and 5 correspond to 2 and 1, respectively, on the other side of the valve.

In the mitral valve the central layer is pronounced, but in the semilunar valves it is practically wanting, so that the valve by the union of layers 2 and 4 consists of but three layers.

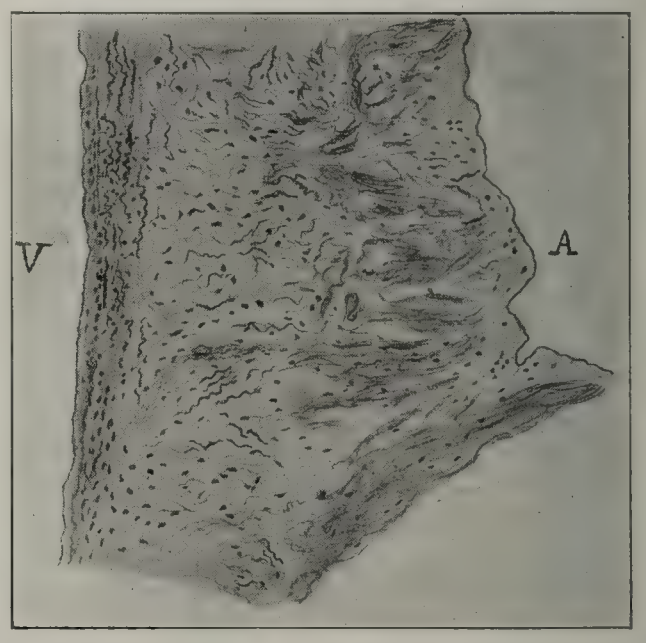


Fig. 3.—Aortic valve. Age 15 months. Shows "hinge area." V, ventricular side; A, aortic side. Shaded area on ventricular side contains elastic tissue and a few scattered connective tissue fibers. Central portion composed of very loose tissue fibers. Denser tissue on aortic side. (Mallory's stain, high power.)

This arrangement, he says, is borne out by the developmental appearances of the valves in the embryo. According to Hertwig,[9] the auriculoventricular valves are formed by a fibrous degeneration of muscle tissue, which originally surrounded a small auriculoventricular opening. This fibrous tissue is covered on both sides by a layer of "gelatinous" tissue lining the heart. The semilunar valves, being composed only of an outfolding of this same "gelatinous" tissue, have not the same fibrous center.

Veraguth[8] concludes that the two outer layers he describes are remains of the embryologic "gelatinous" tissue mentioned above, and that his central layer in the auriculo-ventricular valves is the fibrous degenerated muscle layer. The valves, according to him, are symmetrical as to their two faces, and if slit down the middle between them would show similar halves.

3. Luschke: Verhandl. der phys.-med. Gesellschaft in Würzburg, 1878.

4. Coen, E.: Ueber die Blutgefässe der Herzklappen. Arch. f. microsc. Anat., vol. xxvii, pp. 397-403.

5. Darrier, J.: Les vaisseaux des valvules du coeur chez l'homme à l'etat normal et à l'etat pathologique. Arch. de Physiol., No. 5, July, 1888, pp. 35-59.

6. Seipp, L.: Das elastische Gewebe des Herzens. Anatomische Hefte, No. 17, vol. vi. 1895-6, pp. 63-116.

7. Curtis F.: Structure des Valvules sigmoides de l'aorte, etc. Societé de Biologie, vol. xl, 1888, pp. 591-594.

8. Veraguth, O.: Untersuchungen über normale und entzundete Herzklappen. Arch. f. pathol. Anatomie, vol. cxxxix, pp. 59-80.

9. Hertwig: Embryologie. Third edition, 1890, p. 457.

This assertion we find to be more nearly true of the aortic valves than of the mitral; but even in the latter the distribution of the elastic tissue on the two faces is not at all the same, and the layer of muscle so often seen is always near the auricular surface. Of the aortic valve, this is not true at all, as can be seen from the drawings accompanying this article.

The following description is from normal aortic and mitral valves of various ages, cut and stained by the methods already described.

A. Normal Aortic Valves. From Birth to Perhaps Five Years of Age.—The valve is composed of (1) fibrous and (2) elastic tissue.

1. Fibrous Tissue: This tissue is densest on the aortic side of the valve. It is denser toward the tip than at the base. The fibers of the aortic side are for the most part cut in cross section, i. e., their direction is circular. Some, however, are longitudinal or nearly so. Cells are not numerous. In the middle plane of the valve, the fibrous tissue is not dense. The fibers are arranged in small spiral bundles, some of which run in the long axis of the valve (especially near the ventricular side), while others run from one surface toward the other. The cells are larger and more numerous. Many of the fibers are extremely fine and

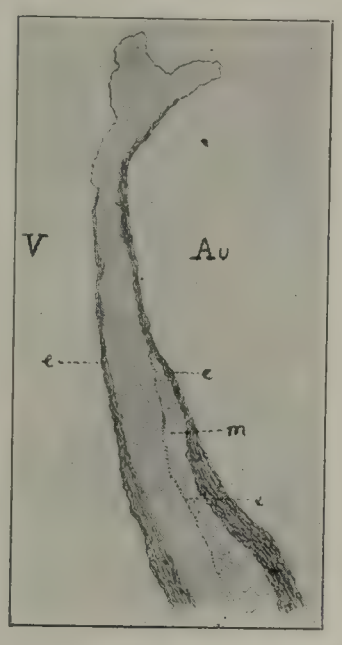


Figure 4.

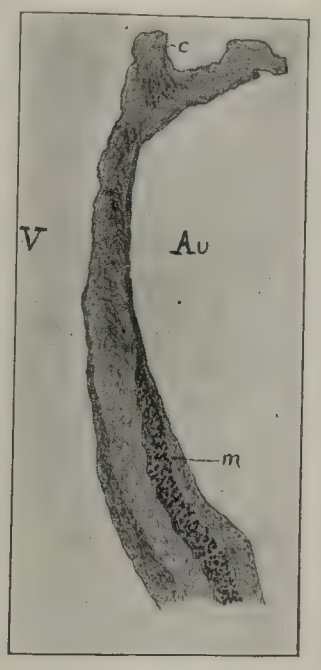


Figure 5.

Fig. 4.—Mitral valve. Age 15 months. V, ventricular side; Au, auricular side; e, elastic layer; m, muscle. (Weigert's elastic tissue stain, low power.)

Fig. 5.—Mitral valve. Age 15 months. V, ventricular side; Au, auricular side; c, chordæ tendinæ; m, muscle. (Mallory's stain, low power.)

wavy (this layer which we have spoken of as lying in the middle plane, is really nearer the ventricular side, directly beneath the ventricular elastic layer. It is so spoken of because it lies between this layer and the dense fibrous tissue of the aortic side. If this latter layer is unusually narrow it really appears to lie in the middle.) On the ventricular side of the valve there are only a few wavy, longitudinal fibrous bands mingled with the elastic tissue of the part.

At the base of the valve, in what might be called the "hinge area," the middle layer of very loose fibrous tissue is so broad as to occupy nearly the whole width of the valve, but immediately beyond this it becomes much thinner. Toward the end of the valve it is invaded by a few longitudinal bundles of fibers of the ventricular side, and finally is obliterated, the dense layer of the fibrous tissue on the aortic side meeting the ventricular elastic layer (Fig. 1).

2. Elastic Tissue: This tissue is densest on and practically confined to, the ventricular side of the valve. The fibers run for the most part longitudinally, immediately beneath the surface endothelium. Among them are a few crosscut (i. e., circular) fibers, and beneath the main layer of longitudinal fibers these crosscut fibers form a fairly distinct band.

The elastic layer begins at the base of the valve as a very dense band of fibers in which the individual threads can not be distinguished. It broadens as it goes out on the valve so that the individual fibers can be clearly seen, being, at its broadest part, from two-thirds to three-fourths of the distance from base to tip. Here the fibers invade the middle layer of the valve to a considerable extent. Beyond this the layer thins out rapidly, though tissues having the same appearance as that in which the elastic fibers are embedded run to the end of the valve as a definite layer containing almost no connective tissue fibers. This appearance is well shown in specimens stained by Mallory's connective tissue stain. Here this layer is seen extending well to the tip of the valve, but with the elastic stain no elastic fibers are seen beyond the inner three-fourths. Just at the tip of the valve, on the ventricular side, a well-marked layer of circular fibers is often seen (Fig. 1).

On the aortic side of the valve there is a thin layer of crosscut elastic fibers, immediately beneath the endothelium. This layer keeps its same character throughout the length of the valve. Among the fibrous tissue at large, occasional elastic fibers are found, running in various directions.

The "hinge portion" of the valve is that part particularly adapted to easy bending. In it the fibrous tissue of the aortic side is thin, the central loose tissue is abundant, and the elastic layer of the ventricular side is thin, dense and strong. Its size varies considerably in different valves. It often takes a peculiar blue stain with hematoxylin (i. e., the loose central part), analogous to myxomatous tissue, but the continuation into the main part of the valve seldom shows this reaction (Fig. 3).

B. Normal Adult Aortic Valves.—The fibrous tissue is again densest on the aortic side. The bundles are thicker, less wavy, and with more tendency to longitudinal arrangement than in the infantile valve. The valve is less cellular. The middle plane of the valve, which in the infant is occupied by a fairly broad band of very loose cellular tissue, is much narrower in the adult, being encroached on by the dense fibrous tissue of the aortic side and driven up against the ventricular elastic tissue layer. The latter contains rather more fibrous tissue.

The elastic tissue is arranged as in the infantile valve, but is denser and continued on both sides more distinctly to the tip of the valve. It seems as if the elastic forming layer (noticed along the ventricular side of the valve) of the infant had formed its elastic fibers completely in the adult. There are also more elastic fibers mingled with the fibrous tissue at large and in the "hinge area."

While the relation of fibrous and elastic tissue is constant in valves of different ages, there is a progressive change toward an adult type. This consists of a thinning of the valve in proportion to its length; in a condensation of the fibrous tissue, the densest part of which, lying in the infant near the aortic surface, comes to occupy the greater proportion of the width of the valve,

while the loose layer in the middle plane becomes reduced in thickness; and in a considerable increase in the quantity of the elastic tissue both on the valve surfaces and in the valve substance.

In many infantile valves the tip of the valve forms a sort of knob connected with the rest by a very thin portion. This arrangement we have never seen in adult valves. In one adult valve in our collection a few isolated bundles of muscle fibers, circular in direction, are seen in the ventricular elastic layer.

C. Normal Infantile Mitral Valves (large mitral curtain).—The mitral valve is somewhat stronger, thicker and less flexible than the aortic. It consists of a fibrous plate which tapers a little from base to free edge, where it becomes differentiated into the chordæ tendineæ. It is supplied at its base and for a variable part of its length with cardiac muscle. It possesses a thick covering of elastic tissue on both its surfaces at its base, but the layer on the ventricular surface thins out rapidly as it passes out of the valve (Figs. 4 and 5).

The fibrous tissue occupies the greater part of the thickness of the valve. It is densest on the ventricular side. The fibers are more generally circular in direction and the cells rather few in number. Under the elastic layer of the auricular side of the valve the fibrous tissue is thinner, more cellular and consists of wavy bundles either longitudinal in direction or running from one surface of the valve toward the other. This arrangement corresponds to that of the aortic valves, but in the mitral valve the dense fibrous layer occupies much more of the thickness of the valve. As the region of the chordæ tendineæ is reached the fibrous bundles becoming longitudinal in direction stream out into them from the ventricular surface.

The elastic tissue is seen on both sides of the valve. On the ventricular side it is continuous with the elastic layer of the ventricle and is thick and strong at the base of the valve, being composed of wavy layers of fibers longitudinal in direction. It thins out rapidly and dwindles to nothing about two-thirds of the way from base to tip. On the auricular side the elastic layer is equally thick and sometimes denser. It is composed of many layers of fibers longitudinal in direction and diminishes in thickness as it extends outward. At a point from two-thirds to three-fourths of the distance from the base to the tip it spreads out away from the auricular surface, but part of it can be seen continued beneath the endothelium nearly to the tip. It is embedded in the same sort of tissue as that on the ventricular side of the aortic valve and has among its fibers and beneath it a few fine wavy bundles of fibrous tissue. Between the main fibrous layer and the wedge-shaped area of muscle at the base of the valve is a layer of elastic tissue generally circular in direction. There are a few elastic fibers among the muscle fibers.

In a general way the arrangement of elastic tissue resembles that of the aortic valve, but differs in the thickness of both layers at the base. There are occasional elastic fibers in the fibrous tissue occupying the middle plane of the valve.

Muscular Tissue.—The mitral curtain possesses a strong wedge-shaped area of muscle at its base. The muscle is of the usual cardiac variety and its fibers are circular in direction. The amount of this muscle and the extent to which it runs out on the valve vary widely. In some cases it extends out as a long wedge for nearly half the length of the valve. In other cases it ends abruptly at the base. It is always found immediately beneath the auricular elastic layer. Sometimes the main mass of muscle is confined to the base, while a thin band of muscle broken up into small bundles extends out nearly to the tip. In such cases it lies in the auricular elastic layer. Occasionally isolated bundles are seen scattered along the layer.

D. Adult Normal Mitral Valve.—The adult mitral valve bears the same relation to the infantile as does the aortic. The elastic tissue is much more fully developed and the fibrous tissue more dense. The chordæ tendineæ can now be seen to possess a thin longitudinal layer of elastic fibers close to their surface.

The valve is much longer in proportion to its thickness, and the muscular portion shorter as a general thing in proportion to the whole length of the valve. In all cases in which muscle tissue is seen definite blood vessels are found and may extend well out to the edge of the valve. They are always with the muscle on the auricular side.

II. DEGENERATIVE LESIONS.

Under this head will be considered thickenings whose pathologic character is in doubt. There is little in the literature on this subject. Veraguth[8] describes certain thickenings on the valves, which apparently are not pathologic in character. These are seen at any age. They are apt to appear at the points where the valve surfaces come in contact with each other in closing, and are apparently developed from his "second" layer. They consist, he finds, of a very dense connective tissue formation, sometimes almost homogeneous in appearance and containing a few drawn-out, shrunken cells. He considers them to be a development from embryologic remains which take on growth, perhaps, because of irritation from the coming together of the valve surfaces. He points out that they are not a result of hypertrophy from work, as they are found in the very young, nor are they remains of acute infections, as the layer between them and the surface is unchanged.

We have frequently found such thickenings accompanied or unaccompanied by definite pathologic changes. In aortic valves they occur on the ventricular surface, where the valves meet in closing. They are conical or rounded in shape. They consist of tissue such as is described above, but contain in addition many fine elastic fibers. They appear to grow, in fact, from the ventricular elastic layer which forms their base. We have found them in a child 5 years old and at various other ages, but in later life they are generally accompanied by certain degenerations in the valves which will be described later. In addition to the hypothesis given by Veraguth as to their origin, it might be suggested that they are an adaptation acting to correct a faulty closure of the valves. They are best seen on the aortic valves and often on one or perhaps on two cusps only.

Degenerative lesions in the aortic valves are of the following types: (a) mucoid, (b) fatty.

(a) *Mucoid Degeneration.*—In the normal anatomy of the aortic valves already described, a layer of loose cellular tissue was mentioned, very wide at the "hinge area" of the valves and running from here toward the free edge, between the ventricular elastic layer and the dense aortic fibrous layer. In young valves this was found to take at times a deep blue stain with hematoxylin, thus resembling myxomatous or mucoid tissue.

In older valves, tissue having this same appearance is seen as a degenerative lesion more commonly than any other. It occurs toward the tip of the valve beneath the ventricular elastic layer and encroaching con-

siderably on the dense fibrous tissue of the opposite surface. Such areas show an increased number of large cells with round or oval nuclei and few connective tissue fibers, many of which appear fragmented. While they generally stain blue with hematoxylin, they sometimes take practically no stain at all, there being little intercellular substance left. Stains for elastic tissue show a few elastic fibers.

This condition very frequently accompanies and may occur in the midst of large thickenings on the valve surface. The youngest valve in our collection which shows such a degeneration is one cusp of an aortic valve (the other cusps being normal) of a woman, aged 24, dead of pneumonia and empyema. The degenerate area is beneath a moderate thickening on the ventricular surface. The natural explanation of this condition is that the thickening by interfering with the nutrition of the valve caused the degeneration, for such myxomatous or mucoid tissue is often seen in the midst of very large thickenings. Attention has already been called to the fact that the layer in which the myxomatous degeneration is found is one which in young valves sometimes presents something of the same appearance throughout its length.

Mitral valves, like the aortic, are apt to show thickenings on the auricular side where the valves meet, but we have not noticed this in young valves, and the thickening is apt to include the whole width of the valve. Mucoid degeneration is very common in the midst of them.

(*b*) *Fatty Infiltration.*—In aortic valves this occurs most often midway from base to tip, almost never near the base, and frequently throughout the outer half. It occupies the middle plane of the valve encroaching much more on the ventricular elastic layer than on the dense fibrous tissue. The majority of our valves of over 30 years show more or less of this condition, which is usually accompanied, when extensive, by a generally diffused thickening of the ventricular surface, analogous in this respect to the sclerotic changes in arteries. The fat cells are often very large and are apt to lie in groups among the elastic fibers, often pushing them aside.

The fatty changes in mitral valves take place in the auricular elastic layer and just beneath it. In distribution and arrangement they resemble those in aortic valves. They are more often seen, however, near the base of the valve than in the aortics.

III. ACUTE INFECTIONS IN RELATION TO DEGENERATIVE LESIONS.

We hoped on beginning this investigation to find some degenerative lesions directly connected with acute infections, such as pneumonia, typhoid, diphtheria, etc. It has been disappointing, therefore, to find that in valves of those dead of such diseases there appear only degenerations which are evidently chronic, or at least none which we can recognize as acute. In fact, we find in no valves from pneumonia patients, etc., a predisposing cause for acute endocarditis.

A good account of the pathologic anatomy of acute valve infections is given by Veraguth,[8] who quotes experimental results of other investigations on this subject. We have only seen one instance of an acute infection in valves not previously diseased (i. e., thickened). In this case (mitral valve) there was a destruction of tissue on the auricular side of the valve near the tip, extensive fibrin formation in the necrotic tissue, and beneath this, in the main substance of the valve, a considerable proliferation of large connective tissue cells. Large masses of streptococci were seen in the necrotic area. The great increase in the number of connective tissue cells about the infected area is spoken of by Veraguth, who states that apparently they take the place of polynuclear leucocytes, which are not present to any extent. These cells are large, round and oval in shape, with a rather deeply stained granular protoplasm and a comparatively small round nucleus. They resemble plasma cells. No blood vessels are seen, new or old. It is an interesting fact that the pulmonic valves were severely infected in this case, while the aortic valves were normal.

A number of our specimens showed acute infections superimposed on chronic thickenings. Most of these were in mitral valves. They showed a fibrinous or fibrino-purulent exudate on the surface and extending into the valve substance for a varying distance, always from the auricular surface. In many cases, when the valve was much thickened, there was a considerable collection of what looked like plasma cells about the blood vessels, which were often numerous and sometimes quite large. In these cases the cells seemed to be connected with the repair of the valve, as young blood vessels and young connective tissue cells were in abundance.

In some cases the relative age of the different depths of a thickening could be told fairly well. Furthest from the auricular surface the tissues and blood vessels were richly supplied with elastic fibers. Nearer the surface the tissue became less elastic and more like ordinary scar tissue, while the vessels were smaller and younger. On the surface, when the repair from the last attack was still going on, the young connective tissue cells were large and abundant, and the vessels thin-walled and capillary. Such conditions would seem to show that the thickening was due to repeated attacks of acute infection. At other times it was impossible to tell whether the thickening was of the benign type described earlier or of the type we have just described. We think that the vascularity of the thickened tissue would generally show the difference, but further observations are needed.

We have not noticed in mitral valves such extensive destruction of a large, thickened flap as in aortic cases. In one of these a very large, thickened tip was practically eaten away from the ventricular side. It seems evident that a valve which has no internal blood supply can not repair itself so well as one in which the blood supply is abundant. This valve in which the destruction of tissue was extreme, possessed only a number of capillary vessels with no elastic tissue in their walls; vessels which were connected apparently with the surface of the valve only, and were little more than blood spaces. Indeed, there was little attempt at repair in this case, and it would seem as if an aortic valve stood a poorer chance of repair without deformity than a mitral valve under similar circumstances.

We can only conclude from our observations on acute infections in degenerate and thickened valves that mucoid and fatty degenerations do not apparently predispose to infection; that "benign thickenings" do not predispose to infection, though it is hard in the case of the mitral valve to tell whether a thickening is benign or due to repeated acute attacks; that the thickenings in mitral valves when infected are better repaired than in those of aortic valves; and that acute toxemias do not cause degenerations (at least none that we can recognize) predisposing to infection.

GASTROENTEROSTOMY.*

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It is conceded by the best authorities in both surgery and internal medicine that efficient drainage by some of the various surgical operations devised is the correct and only successful treatment for many diseased conditions of the stomach and duodenum, usually diagnosed as chronic indigestion; and for hemorrhage in acute ulcer of the stomach that resists medical treatment and is endangering the life of the patient; or for continued and profuse hemorrhage in chronic gastric ulcer; and for perigastric adhesions or stomach infiltration and contraction, that disturb the physics of digestion. There is not a consensus of opinion by our best abdominal surgeons, however, as to the method of drainage that accomplishes the best results in all cases. Hence, let us consider the facts bearing on the operations that have been performed, and decide which one of the several is the most logical, and has given and must give the best immediate and ultimate results. Pyloric divulsion by the method of Lorata and Hahn has proved unsatisfactory, seldom giving permanent relief, and sometimes committing a traumatism that intensifies the trouble. While the Heineke-Mikulicz pyloroplasty and its modifications by Richardson, Koeppelin and Jaboulay have given better results, it is an operation seldom indicated and is practically obsolete. Jaboulay's gastroduodenostomy, as modified by Duranti and Henle, has given better results than pyloroplasty, but it is far from satisfactory, and in many cases is impracticable, and cannot be performed because of extensive adhesions. In establishing stomach drainage into the duodenum, Villard's subpyloric gastroduodenostomy as modified by Kocher's lateral gastroduodenostomy, with vertical division of the duodenocolic peritoneum, and Finney's gastropyloroduodenostomy, are the most popular, and will probably give better results, but these operations are too recent, and the cases too few to enable us to give a positive opinion of their merits, and there are many cases in which they cannot be performed, or are contraindicated. Their simplicity can not recommend them, because gastroenterostomy can be performed as easily and as quickly, and with a mortality as low. Then in excluding these operations in favor of gastroenterostomy, we must decide which method of draining the stomach directly into the jejunum has the lowest mortality, and gives the best immediate and final results.

The Wolfler anterior anastomosis and the von Hacker posterior anastomosis, with their modifications, must be carefully considered, in order that we may arrive at a conclusion as to the relative value of each. In a paper read before the Kentucky State Medical Society, in May, 1904, I made the following statement:

Anterior gastroenterostomy as an operation of election must very soon become obsolete, and will finally be accepted only in rare cases as an operation of expediency or necessity to give temporary relief, or to meet special abnormal conditions.

The ideal operation of election must eliminate the intestinal loop, and this can only be done by the posterior retrocolic method, attaching the jejunum near its origin under the transverse mesocolon to the lowest part of the stomach. This prevents the vicious circle and regurgitant vomiting—the most fatal complications.

Anterior anastomosis has given many excellent results, and the complications of the earlier operations have been greatly diminished because of the more correct appreciation of the proper point of the stomach and jejunum to be anastomosed, and the improved technic in the operation. In the older operations, the opening into the stomach was made too high, and often not in the proper direction, and the jejunum was attached too near or too far from its origin under the transverse mesocolon; hence, stomach drainage was imperfect, permitting a residuum of decomposed stomach contents with bile and pancreatic secretions, which caused much trouble, often resulting in the passage of food and secretions into the proximal end of the anastomosed bowel, with a high mortality or subsequent complications. Of the 35 gastroenterostomies performed between 1881 and 1885, only 12 patients recovered; the mortality being 66.71 per cent., and of the 1,978 gastroenterostomies up to 1899, the mortality was 34.4 per cent., but fortunately it is now below 5 per cent. in the anterior anastomosis, but the immediate and subsequent complications and ultimate results are greater than in the posterior anastomosis. Robson's mortality by the posterior retrocolic method, in about 200 cases, including cancer cases and cases of acute gastritis, is 4 per cent., and in his private practice, including 15 cancer cases, it is 3.2 per cent., and in 77 simple cases, 2.62 per cent.; and Moynihan, in 191 operations, had but five deaths, 2.63 per cent., with practically no complications. Three of these deaths occurred in his 27 cases in which the patients were operated on for hemorrhage where the condition was desperate; one death was caused by suppression of urine, and another was caused by hernia of the intestines through the opening in the mesocolon into the small omental bursa. Mayo's mortality in his last 150 cases is under 3 per cent. Kocher, in the last edition of his book on operative surgery, reports 100 anterior gastroenterostomies with three deaths, none due to the operation direct, but he now prefers the posterior retrocolic attachment.

Neither Robson, Moynihan, Kocher, von Mikulicz, Mayo, Murphy, Park, or other surgeons report any vicious circle or regurgitant vomiting, or subsequent closing of the gastrojejunic opening following the recent operations by the posterior retrocolic attachment with no loop, conditions frequently reported by Mayo and other surgeons following the anterior anticolic attachment, causing death, or requiring a secondary operation. The side-to-side jejunal anastomosis prolongs the operation, increases the dangers, disturbs normal peristalsis, and does not always prevent the vicious circle; the other mutilating operations of closing the pylorus or proximal end of the jejunum by resection, wire or suture constriction, are superfluous and may cause immediate or subsequent bad results. The belief that the passage of bile and pancreatic secretions into the stomach is responsible for bad results, has been disproved by actual observation in experiments in animals and in operations on man, and it is probable that their presence in the stomach may so alkalize the stomach contents as to aid in preventing jejunic ulceration in the distal end, a complication that has occasionally followed gastroenterostomy.

The observations of Fantino, Hartman, Carle, Sipault, Mintz, Clumsky, Kautsch and Mathieu seem to show that in all cases of gastroenterostomy the bile and pancreatic secretion pass through the gastrojejunic opening into the stomach, causing no regurgitant vom-

* Read before the American Gynecological Society at Niagara Falls, 1905.

iting or disturbance in digestion. We arrive at the same conclusion of the innocuousness of bile and pancreatic secretion in the stomach, in studying the case of Moynihan, in which he severed the jejunum near its duodenal junction, closed the proximal end and then implanted the distal end in the anterior wall of the stomach, thereby causing all the bile and pancreatic secretion to pass into the stomach. This caused neither vomiting or disturbed digestion. The same is true of Steudel's experiments on dogs, and is also true in the broad experience in gastroenterostomy by Robson, Czerny, von Mikulicz and Moynihan. Hence we must look for some other cause for the vicious circle and regurgitant vomiting, since neither the presence of bile or pancreatic secretion causes the trouble, and this will be found in the election of methods, based on a false assumption of the physics and physiology of digestion, and a defective technic.

The Raux and Doyen operation, theoretically suggested by Wolfler, of cutting the intestine across and implanting the distal end into the stomach, and the proximal end into the side of the distal, may prevent regurgitant vomiting; but it is difficult and prolonged and if universally accepted would have a mortality that would be prohibitory. The stomach anastomosis by this method may be made anteriorly or posteriorly, but the posterior method is preferable and the results better.

Ulcer in the upper part of the attached jejunum has followed this operation, but Raux claims that this is because the proximal limb was attached too low on the distal limb, though further observation is necessary to prove the correctness of this statement, for in his operation the bile and pancreatic secretion cannot enter the stomach to modify in any way the degree of hyperchlorhydria, or to change the character of the stomach contents.

While the immediate complications and sequelæ of Wolfler's anterior anticolic gastroenterostomy have been minimized, they are still far in excess of the complications and sequelæ of the modifications of von Hacker's posterior retrocolic anastomosis without a loop, for it does not prevent the vicious circle; it greatly disturbs the normal relations of the jejunum and transverse colon, and it does not insure permanency in the gastrojejunal opening, objections that do not obtain in the posterior retrocolic attachment near the beginning of the jejunum. I, therefore, assume that with fewer complications and sequelæ, and with better immediate and subsequent results, the posterior retrocolic gastroenterostomy near the duodeno-jejunal flexure, in the near future will be accepted by most of our best surgeons as the operation of election, the anterior method being reserved for conditions that contraindicate the posterior attachment, such as extensive posterior stomach adhesions that cannot be separated, tumors, cancerous infiltration, etc. This is now unfortunately far from true in the United States, for most of our published papers during the last twelve months have advocated a jejunal loop, usually followed by an enteroanastomosis; and many of them recommend closure or narrowing of the pylorus or proximal jejunum by the method of Fowler, Scott and Mattolie, or Doyen and Chaput. Mayo, who has probably performed as many gastroenterostomies as any other surgeon, until recently has made the anterior anticolic attachment, often supplemented by an enteroenterostomy, or by closure of the pylorus or proximal limb of the jejunum; and in nearly all his posterior retrocolic attachments he also made a ten-inch loop with an enteroenterostomy, and closed the proximal limb by suture plication. He seems to have been dissatisfied with these methods, and by a practical evolution in the work of a great surgeon, is now doing the posterior retrocolic anastomosis without a loop, and attaches the jejunum one and one-half inches below its origin. Mayo's change from these complicated operations that so greatly disturb the normal relations, and the physics and physiology of digestion, to the simple attachment of the jejunum to the posterior inferior part of the stomach, with the elimination of the loop, is a most positive proof of the superiority of the latter method, for the excellence of his technic in his surgical work and his broad experience enable him to interpret logically and to accept correct conclusions.

To enable me to present the exact facts as to the methods, the immediate and final results and complications in gastroenterostomy in the experience of men who have done the greatest number of these operations, I have by personal correspondence obtained the desired information from Robson, Czerny, von Mikulicz, Moynihan, Kochen, Murphy, Mayo, Ochsner, Park, and Deaver, and I am able to give results of the observations in their operations to April 15, 1905. I will first give the technic of the operation I am now doing, with nearly perfect results, and then conclude with a summary of conclusions.

An incision about four inches long is made above the umbilicus, splitting the right rectus muscle about three-fourths of an inch from the median line. The stomach, the pylorus, the duodenum, the gall bladder and the bile ducts, and surrounding structures are carefully examined. If a gastroenterostomy is then indicated, the great omentum, the transverse colon and the stomach are delivered and turned above the incision on the abdominal wall, and covered with gauze wrung out of hot salt solution. A bloodless point in the transverse mesocolon, under a loop formed by the middle colic artery, is selected, and an incision is made into the small omental bursa. This is torn larger with the fingers until it is from one and one-half to two inches in diameter —large enough to allow the posterior wall of the stomach to be easily pulled through. The bleeding is usually insignificant, but, if necessary, a small catgut ligature is applied to the torn vessel. With the left hand above the omentum and the colon, the stomach is made to protrude into the opening in the mesocolon, the posterior wall is caught with the fingers of the right hand, or by a tenaculum or small vulsellum forceps, care being taken not to include the anterior wall. The posterior wall is then drawn by the fingers of both hands well through the opening, and a fold from three to four inches in length is caught in the rubber-covered blades of a long forceps. These forceps is applied obliquely on the stomach from the lowest part of the great curvature toward the cardia. This may be easily and correctly done with the stomach turned over on the abdomen above the incision, before applying the forceps from below upward, and from left to right at an angle of approximately 45 degrees with the median line. When the anastomosis is made in this direction and the stomach is returned to the abdominal cavity, the jejunal attachment from above downward will be at an angle to the vertical line of about 45 degrees from left to right. If the anastomosis is made close to the *plica duodenalis*, when the stomach is returned to the cavity, both stomach and jejunum will sustain nearly their normal relations, there being no loop or twisting of the bowel,

so that the stomach contents may pass uninterruptedly into the distal end of the bowel, and will not pass into the proximal end. The only change, then, from the normal relation and condition, is the attachment of the stomach and the intestine and the gastrojejunal opening, hence there can be no vicious circle or regurgitant vomiting. The stomach, colon and omentum are now returned into the cavity above the incision, the clamped part only being held outside. The jejunum is now picked up on the left side of the spinal column, just under the transverse mesocolon, and a loop three or four inches long is caught in the rubber-covered blades of a long forceps from two to four inches below the duodenojejunal flexure, usually two inches.

Gauze wrung out of hot sterile salt solution is now applied under and around the clamps, so as to protect the peritoneal cavity against any possible infection from leakage of stomach or intestinal contents after the stomach and jejunum are incised. The portions of the stomach and intestine embraced in the clamps are brought evenly together, so that the ends of the blades are at the same level at the bottom of the greater curvature of the stomach, which now lies above, and the lesser curvature below. The stomach and jejunum are now united by a line of continuous sutures, including the serous and submucous coats, beginning at the shank of the forceps and going to the end of the blades at the bottom of the greater curvature. The suture line is from left to right, from the proximal toward the distal end of the bowel, and in the direction of the cardia or lesser curvature toward the greater curvature. The line of suture is never less than two inches and in dilated stomachs it may be three and one-half inches, to give room for a long stomach incision, so as to guard against too much narrowing of the gastrojejunal opening after the stomach finally contracts approximately to its normal size. In dilated stomachs, the incision must be made correspondingly long, and the failure to observe this precaution has resulted in bad ultimate results in stomach drainage, because of too much narrowing of the opening after stomach contraction.

I use the Moynihan needle with a slot eye, curved over half circle. It can be quickly threaded and has a round point which does not cut the tissues of the stomach or intestine or cause hemorrhage or tearing. I use the fine Pagenstecher thread, because it sutures better than the silk, and perfect apposition is more easily assured, but the silk suture may be substituted. I leave a six-inch end at the beginning of the suture, and at the end of the first line of suture the thread is left long enough to complete the second line of sero-serous suture around the gastrojejunal opening after the cut edges of the stomach and bowel have been sutured through all the coats entirely around the incision. After the first line of suture is applied, the stomach and intestine are incised one-sixth to one-fifth of an inch away and above down to the mucous membrane, which pouts in the wound and is removed in an elliptical piece about one-half inch wide, for the full length of the incision, but I do not dissect the mucous coat from its stomach and intestinal attachments, as I do not believe it necessary, and it makes correct suturing more difficult to get perfect apposition of all layers.

The second suture also begins at the proximal end of the jejunum and must include all the layers of the stomach and intestine (serous, muscular and mucous), so as to put the cut edges in perfect apposition and leave no open, raw surface. An end of this suture about six inches long is left, and the suture is drawn sufficiently tight not only to secure perfect union but to control bleeding. It is carried entirely around the opening and tied to the end of the suture left at the point of beginning. The clamps are now unlocked, and if any bleeding point is seen, an interrupted suture is applied, but this will seldom be necessary if the suturing has been carefully done.

With the first (sero-serous) suture left long at the greater curvature of the stomach, a line of suture is now applied above and in front of the gastrojejunal opening to the point of beginning, and tied to the end left. This suture includes the serous and sub-serous coats.

The exposed parts of the stomach and bowel are now gently sponged with gauze wrung out of hot salt solution, and allowed to fall back into the abdominal cavity. The omentum, transverse colon and stomach are again delivered on the abdominal wall and with a catgut suture, the edges of the opening through the transverse mesocolon are attached around the gastrojejunal anastomosis. This is done with from four to six interrupted sutures introduced through the serous and subserous tissues of both intestine and stomach, so as to cover the entire area around the gastrojejunal anastomosis and the outer layer of sutures. This prevents hernia of the small intestines into the lesser peritoneal cavity, and adds protection and strength to the anastomosis. If the attachment of the jejunum is made at the proper distance from the duodenojejunal flexure, the only change from the normal relation is the anastomosis of the two viscera, and the relation of the stomach and intestine otherwise will not be changed. I have made careful examinations of these cases after completing the suturing, and know this to be true. The point of attachment of the jejunum in each case must meet the existing conditions, and in no instance after the operation should there be any jejunal loop or any tension on the intestine because of anastomosis too far from or too near the plica. The abdominal incision is now closed with three rows of catgut sutures. As soon as the patient has recovered from the immediate effects of the anesthesia, he is propped well up in bed. This aids in preventing vomiting and encourages the passage of gas through the intestines. These patients vomit less than my patients on whom laparatomies are performed for other diseased conditions. This may be due to the fact that the stomach contents pass so directly and with such ease into the jejunum. Little, if any, of the bile and pancreatic secretion will go into the stomach, but may modify the acid contents in its passage down the jejunum, and probably aid in preventing peptic ulcer in the intestine below its stomach attachment.

Adhesions are often found between the transverse mesocolon and the posterior stomach wall, but these may usually be separated through the opening in the mesentery, and I have not found it necessary to attempt the separation through an opening in the gastro-colic omentum, but this may be done. All perigastric adhesions are dissected away when it is possible to do so.

Where one is accustomed to its use, the curved needle is far superior to the straight, in applying both the internal and the external layer of sutures. In the introduction of the outer sero-serous suture, by drawing gently between the needle and the last stitch, a little ridge will be raised in front of the suture in both stomach and intestine, which will aid in the introduc-

tion of the needle with ease and accuracy. The best apposition follows the continuous suture with no interruption, and the various other methods of applying the suture in stomach and intestinal surgery, are unnecessary and may be harmful. With experience in the use of the continuous suture with the curved needle, there are few tissues that are more easily and more perfectly sutured than the intestinal tract.

In suturing openings in the intestines, I often use for the inner suture through all the coats, a No. 0 or No. 1 ten-day chromic catgut, with Pagenstecher thread or silk for the outer sero-serous suture, and I have had no leakage. With the adoption of the retro-colic posterior anastomosis near the duodenojejunal flexure at the lowest part of the stomach, there will no longer be any necessity for mutilating operations for closing or dividing the pylorus or jejunum, or for an enteroanastomosis, and the posterior attachment may be made in nearly every case in which a gastroenterostomy is indicated.

While the Murphy button has done much in the evolution of gastric and intestinal surgery, it will not be generally used in the future except in selected cases. If the experience of Ochsner and of some other surgeons, show that equally good results may follow the use of the McGraw ligature, with an outer layer of sero-serous suture, this will be a great advantage over the stomach and intestinal incision, and the method would be generally adopted, for it reduces the operation to great simplicity. The McGraw ligature may be used as successfully in the posterior as in the anterior attachment, and its use practically removes all immediate danger from stomach and intestinal leakage, and the anastomosis may be made without the use of clamps. Let us then hope that the immediate and ultimate results with the ligature may be all that its advocates claim or wish.

The illustrations are intended approximately to show the relations of the stomach and jejunum before and after gastroenterostomy, with the elimination of the loop. The stomach and the anastomosed jejunum will lie evenly against the posterior wall of abdomen, and the forward position is an intentional exaggeration for better illustration.

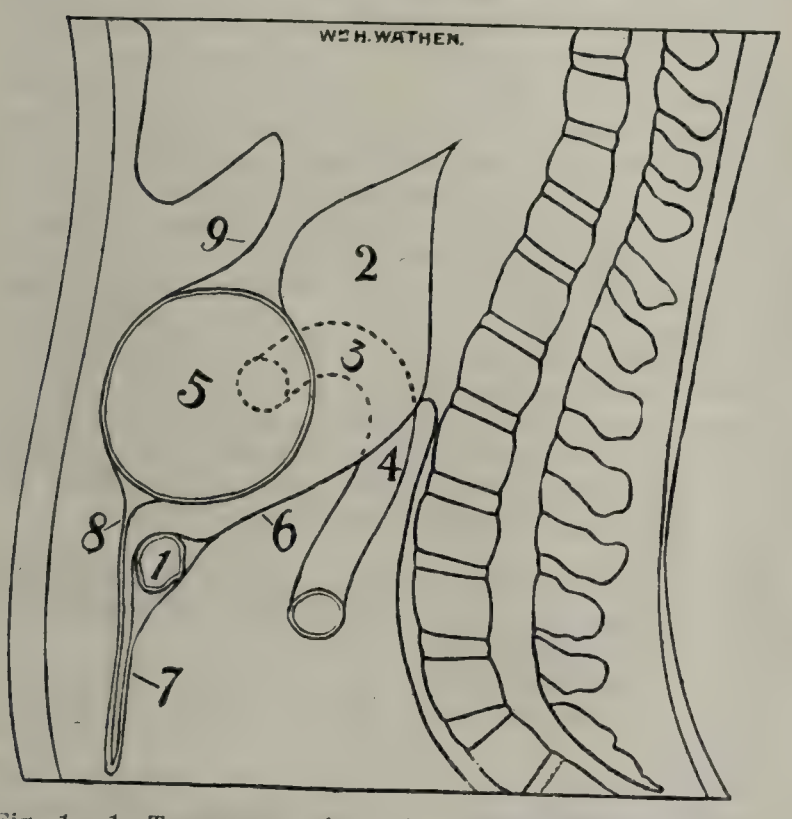


Fig. 1.—1. Transverse colon. 2. Lesser peritoneal cavity. 3. Duodenum behind stomach. 4. Beginning of jejunum. 5. Stomach. 6. Transverse mesocolon. 7. Great omentum. 8. Gastrocolic omentum. 9. Gastrohepatic omentum.

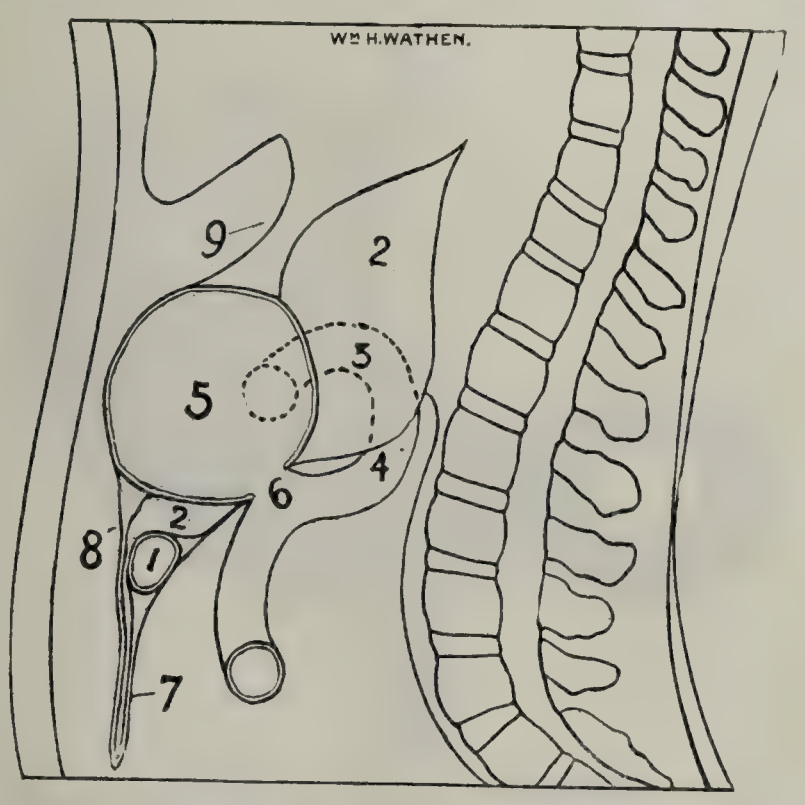


Fig. 2.—1. Transverse colon. 2. Small peritoneal cavity. 3. Duodenum behind stomach. 4. Beginning of jejunum. 5. Stomach. 6. Gastrojejunal opening. 7. Great omentum. 8. Gastrocolic omentum. 9. Gastrohepatic omentum.

The following twelve inquiries, referring to the most important and live question in gastroenterostomy, were mailed to five of the most representative men in stomach surgery in Europe, and five in the United States, and under each of the twelve headings I give the answers in the order in which they were received, making neither change nor comment, so that the reader may in no sense be influenced in his conclusions, as to the trend of thought in the best methods of stomach drainage into the jejunum.

1. Where do you make the anastomosis?

Robson: "Posterior wall of stomach to jejunum, 3 to 4 inches from duodenojejunal junction. My reason for performing the posterior operation is because I saw that the results of anterior gastroenterostomy, both in the hands of others and in my own experience, were not satisfactory, and regurgitant vomiting occurred at times, whereas, from the time I began to perform posterior gastroenterostomy, my results have been satisfactory."

Moynihan: "Opening high in jejunum, and oblique in posterior wall of the stomach, so that position of jejunum is the normal one, and the lowest part of the stomach is drained. A large opening is made."

Von Mickulicz: "It depends on the conditions in such cases. In cancer, where the entire organism is seriously affected, and the question of the operation is of considerable importance to the patient, we usually make the anterior anticolic gastroenterostomy with the Murphy button. Where the conditions are favorable, the suture is preferred; and in such cases the anterior gastroenterostomy is made with an enteroanastomosis to avoid the vicious circle, or the posterior gastroenterostomy is made. The latter will always be done when the conditions are favorable, provided the pyloroplastic operation, including the modification by Finney, is impossible."

Kocher: "Posterior inferior, as described in my text-book on surgical operations."

Czerny: "Posterior, because the parts remain after the operation in normal (physiologic) position."

Mayo: "Posterior, within an inch and a half of origin of jejunum."

Murphy: "I do the posterior gastroenterostomy, making the connection on the stomach wall about 3 inches to 3½ inches

from the pylorus, and in the jejunum from 2 inches to 4 inches from the ligament of Trietze. This, I believe, gives the best drainage of the stomach when the stomach will have restored itself to its vertical position. The opening, however, is not in the most dependent portion of the stomach in the majority of cases at the time of operation, as there is so much gastrectasis and gastrocolitis that the curvature is much below its level. It rapidly assumes a vertical position, and this point becomes the most dependent position of the stomach. I use the straight loop of the jejunum at that point, because it is the natural resting place of the stomach on the jejunum, gives the best drainage and avoids dilatation which occurs in the jejunum when a loop is formed."

Ochsner: "At the present time I make the anastomosis at the lowest point on the posterior surface of the stomach directly through the mesocolon, and start the tear to the posterior surface of the stomach. For a long time I made the anterior gastroenterostomy at the lowest point directly along the edge of the gastroepiploic vessels, leaving a loop of about 16 inches of jejunum."

Deaver: "With jejunum, 10 to 12 inches from its commencement (lower part posterior stomach wall)."

Park: "I prefer the posterior operation, although it is a little more difficult and time-consuming, because it seems to give better drainage and for obvious reasons. Of course, in

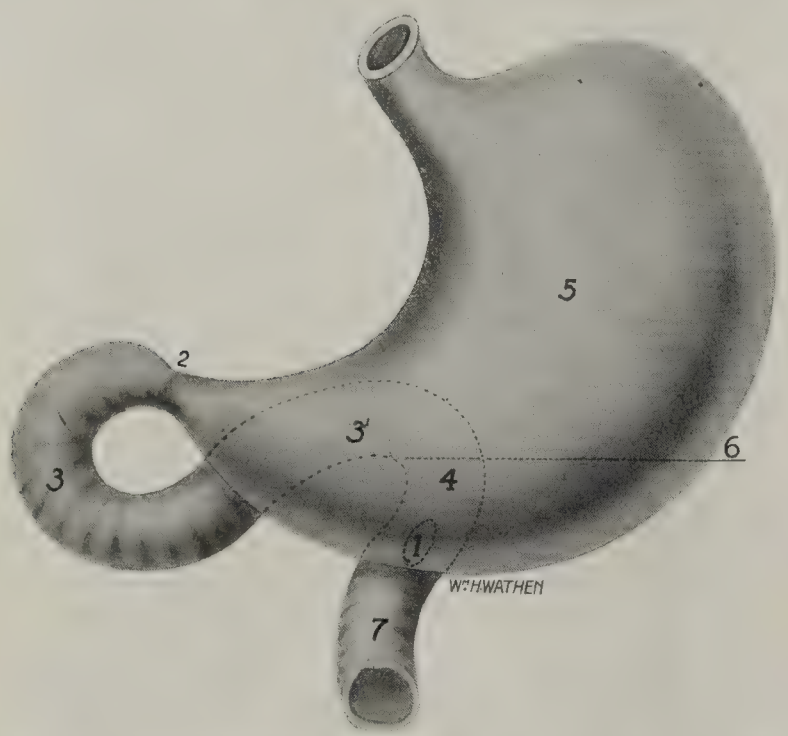


Fig. 3.—1. Gastrojejunal anastomosis and opening. 2. Pylorus Stomach. 6. Posterior attachment transverse mesocolon. 7. Jejunum below anastomosis.

the presence of indications to the contrary, I should make anterior operation, but only when the posterior did not seem practicable."

2. Do you eliminate the loop, and how near the duodenojejunal junction do you make the attachment?

Robson: (1) I leave no loop of jejunum, but (2) make the attachment as near to the duodenojejunal junction as I conveniently can."

Moynihan: "Yes, entirely. Opening begins about 2½ inches below the flexure."

Von Mikulicz: "In anterior anticolic gastroenterostomy, about 50 cm. from the plica duodenojejunal junction is selected to make the anastomosis. It is made this length in order to avoid the compression of the transverse colon. By the posterior retrocolic method, the loop is made as short as possible so that no tension exists."

Kicher: "I used to make it as near as possible to the duodeno-jejunal junction a certain time, but found it less convenient than the older method to put it at a certain distance, that is to say, 30 or 40 centimeters."

Czerny: "I have no loop of intestine, because I take the jejunum only so far behind the plica that it goes straight to the opening in the posterior face of the stomach near (1 or 2 cm.) the large curvature."

Mayo: "One and one-half inches (no loop)."

Murphy: "From 2 to 4 inches. I eliminate the loop entirely. The origin of the jejunum is above the level of the lesser curvature of the stomach."

Ochsner: "In gastroenterostomy for non-malignant conditions I make a loop of about six to eight inches from the duodenojejunal junction to the anastomosis. I do not eliminate the loop in these cases. In gastrectomy, if I have to remove more than two-thirds of the stomach, I always eliminate the loop by making an enterostomy in the following manner: I sever the jejunum about eight inches from the point where it passes through the mesocolon, and attach the distal end to the stomach and make a lateral implantation of the proximal end into the distal, about four or five inches from the point of the implantation of the latter into the stomach."

Deaver: "The anastomosis is made 10 to 12 inches below the jejunal flexure, giving a loop."

Park: "I endeavor to make the opening as near as possible to the pylorus in order to leave a minimum of loop, and to this I rarely pay any further attention. If the stomach be very much dilated or enlarged this may not be practicable, yet even then I have not paid much attention to the matter of loop."

3. If you have a loop, do you ever make an enteroanastomosis?

Robson: "In my early cases, when some loop was left, I have had to make an enteroanastomosis on one or two occasions, but these were only in anterior gastroenterostomies, except once, when there was intestinal obstruction, a few months after the operation, owing to adhesions between the distal loop of the jejunum and the colon."

Moynihan: "Have no loop, and therefore make no enteroanastomosis."

Von Mikulicz: "In cases where the gastroenterostomy is done with the suture in front of the colon, we add to it the enteroanastomosis. Where made with the button, this is usually not done, as the vicious circle does not usually occur in this method. If by the posterior gastroenterostomy a long loop must be made, the enteroanastomosis is also made."

Kocher: "No."

Czerny: "Never. Some years ago when I did not avoid so strongly the loop I was necessitated to make sometimes the enteroanastomosis secondary."

Mayo: "Abandoned."

Murphy: "I make no loop, nor have I done so for about three years."

Ochsner: "I have in a number of cases made an enteroanastomosis, but of late I have abandoned this plan and have substituted the implantation of the proximal end into the side of the distal segment. This is done where I do a partial gastrectomy."

Deaver: "Always."

Park: "I have not been in the habit of making anastomosis, not having been able to convince myself that the conditions were materially improved by making it."

4. If you have a loop, do you ever close or divide the proximal limb, or the pylorus?

Robson: "I have never found it necessary to close the pylorus, and only twice performed a Raux operation—once where there were extensive adhesions, and where there was a jejunal ulcer. Both cases were anterior gastroenterostomies."

Moynihan: "No."

Von Mikulicz: "No."

Kocher: "No."

Czerny: "I have no loop, and therefore closure of the pylorus or enteroanastomosis is not necessary."

Mayo: "Abandoned."

Murphy: "I make no loop."

Ochsner: "At the present time I do not close the pylorus, nor do I close the proximal limb."

Deaver: "I have closed the pylorus in two cases; good results."

Park: "No."

5. How long is the incision, and in what direction do you incise the stomach and intestines, and do you remove any of the underlying mucous coat?

Robson: "I make an incision into the stomach parallel with the lower border. The oblique incision is quite unnecessary. The intestinal incision is longitudinal. About two inches is the usual length of the visceral incision. I do not remove mucous membrane of the stomach or jejunum, as a rule. I think the stomach will drain as well if the incision be made parallel with the lower border as by the oblique incision. The great secret is to attach the bowel correctly with the least possible manipulation and the least interruption to continuity."

Moynihan: "Oblique in stomach, longitudinal in intestine, opening at least 2 inches in length, nearly always more. Removal of mucosa was first adopted by me (see 'Diseases of Stomach,' edition 1, p. 273). It was suggested to me by the 'stamping out' of the Murphy button."

Von Mikulicz: "The cut is usually made in the stomach and bowel in a longitudinal direction, and is from 3½ to 4½ cm. long. The underlying mucous coat is not cut out."

Kocher: "I make a transverse incision in the intestine, half circumference, and for the stomach a longitudinal incision of corresponding length."

Czerny: "Only 2 or 3 cm. so long as to introduce the button. For the button it is equal if the incision is made longitudinally or transversely. For the suture I prefer a longitudinal incision 4 to 5 cm."

Mayo: "Two and one-half to 3 inches, oblique above down left to right, and always go to bottom stomach and a little on to the anterior surface below."

Murphy: "I make the incision long enough to admit of the insertion of an oblong button, which is about five-eighths of an inch. I do not remove the mucosa, as I feel that the pressure from the button assures one against hemorrhage from the cut mucous membrane, which is an important factor, as this has caused more than one death."

Ochsner: "At the present time I use the McGraw ligature, making the bite of this 7.5 cm. in length. This causes the mucous coat to become necrotic, which corresponds to cutting it away. In resection of the stomach I make an implantation of the distal segment of the jejunum, and an end-to-side anastomosis."

Deaver: "Usually make incision three inches in long axis of stomach, and remove the projecting mucous membrane flush with the serous and muscular coats."

Park: "I make the opening some 3 inches in length and remove quite a strip of mucosa. The incision in the bowel is, of course, longitudinal; that in the stomach I place, so far as I can, between large vessels, although not hesitating to make this parallel with the greater curvature and cross the vessels when it seems easier, quicker or more adapted for the purpose."

6. Do you use the button or the suture?

Robson: "I employ two continuous sutures: (1) mucous, (2) serous, usually around a decalcified bone bobbin, that dissolves under forty-eight hours. I sometimes omit the bobbin, but my results with it have been so satisfactory, and the recoveries so smooth that I think the immediately patent opening is of service, and enables feeding to take place immediately. I do not use the metal button."

Moynihan: "The suture always. It is almost as speedy—the suture line never yields—the button does. The opening by suture can be made any size, proportioned to size of stomach. The operation when completed leaves nothing behind to cause further disaster. With regard to time, I have recently completed a gastroenterostomy from incision to final suture in abdominal wall in exactly fifteen minutes in a desperate case."

Von Mikulicz: "We believe the thread is the ideal and safest way, but often, on account of the poor condition of the patient, and in cases of cancer where the question of time (an operation of 10 minutes) is of great importance, we usually use the button. In favorable instances, the suture." (Compare this answer with the previous questions.)

Kocher: "Suture, as a rule; button more frequently these last months, because it is so simple."

Czerny: "I use the Murphy button; very seldom the suture, because the operation is much quicker, the danger of infecting the peritoneum from the contents of the intestines less. But I agree that the button will not remain the best method, because it passes sometimes, about 5 per cent., in the stomach, and the passage through the intestine is sometimes difficult, and the anastomosis properly in the thickened hypertrophied stomach is too narrow."

(Czerny usually puts a ring of sutures around the button to give additional protection.—W. H. W.)

Mayo: "Suture, button goes into stomach."

Murphy: "I use the button all the time, because I believe it gives the best scar. There is less likelihood of leakage when properly made and properly inserted, and the oblong button has not been retained in the stomach in a single instance."

Ochsner: "I use a needle and thread, because in two cases the button tore out and I had a fatal result, while in using the needle and thread I have not had this difficulty."

Deaver: "Always needle and thread for the gastroenterostomy; the button for enteroenterostomy. Never use clamps."

Park: "I have so far always used sutures, believing that I can do better work with them, even though a little more time is consumed."

7. Do you have a vicious circle or regurgitant vomiting?

Robson: "No."

Moynihan: "At first I did. I re-operated twice in my first fifty cases. Now never occurs. Patients vomit less after gastroenterostomy than after any admonial operation, probably because in efforts of vomiting the new opening affords the easiest escape from stomach. Patients should be propped up in bed as soon as they are aroused from the anesthetic. Five pillows or bed-rest. This is a point I have always emphasized and have adopted for over five years. It helps to keep stomach and jejunum in their proper relative position."

Von Mikulicz: "In the last few years we have seldom had the vicious circle in using either the button or the suture, since we added to the gastroenterostomy the enteroanastomosis. In spite of this fact, we had in the last year two cases of vicious circle—one by the anterior gastroenterostomy with the button, and the second time by the posterior operation with the loop."

Kocher: "As a great exception in nervous people, and in cases where the indication was not absolute, have had regurgitant vomiting."

Czerny: "Never, or nearly never. Vomiting has been stopped by one or two introductions of stomach tube."

Mayo: "No, unless we have a loop."

Murphy: "I have only had one case of vicious circle. I have had two cases of regurgitant vomiting."

Ochsner: "Since choosing the lowest portion of the stomach, I have had no vicious circle or regurgitant vomiting. When I made the enterogastroenterostomy without choosing the lowest point of the stomach, I frequently had this trouble."

Deaver: "No."

Park: "I have so far had no evidences of vicious circle or regurgitant vomiting, although, as I have remarked above, I rarely, if ever, do anything but the simple gastroenterostomy."

8. Have your ultimate results been good?

Robson: "Yes."

Moynihan: "Yes; I have had but six unsatisfactory cases in approximately 180 cases."

Von Mikulicz: "As far as the functional results and the length of life after the operation are concerned, compare the work of W. Kausch on functional results after operations on the stomach in favorable cases. Extracts from an article in the *Journal of Medicine and Surgery*, vol. iv, 1899. Chumsky —Additional observations on gastroenterostomy in the *Journal of Clinical Surgery*."

Kocher: "Very good."

Czerny: "Very good (Vide Pedersen, 215 gastroenterosto-

mies with 5 per cent. mortality from all causes in benign cases, with no serious vomiting and no obstruction)."

Mayo: "Yes."

Murphy: "The ultimate results have been good. I feel that sufficient attention has not been paid to the direction of diet immediately after the gastroenterostomy."

Ochsner: 'My ultimate results have been satisfactory so far as I have been able to review my cases, but I have been compelled to reoperate in about 4 per cent. of my cases."

Deaver: "Yes."

Park: "Excellent."

9. Have you had closure of the gastrojejunal opening?

Robson: "No."

Moynihan: "No. I have reopened abdomen about four times for other conditions, and opening has always been patent, even when pylorus is open. Closure of opening is due, I think, to improper technic. It is avoided by large opening, removal of mucosa and through-and-through suture, securing apposition of mucosal edge."

Von Mikulicz: "No."

Kocher: "No."

Czerny: "I guess one or two times in postmortem for cancer cases, or in cases where the functional use of the anastomosis has been of little importance. (Vide Pedersen.))"

Mayo: "Yes."

Murphy: "No."

Ochsner: "After using the Murphy button, I had a number of cases in which the gastrojejunic opening closed down to less than one-half cm. Since using the McGraw ligature I have not had this experience."

Deaver: "No."

Park: "Not to my knowledge, although one of my old cases has just come under my observation in which it is possible that the opening has become contracted."

10. What has been your mortality, both past and recent?

Robson: "My total mortality in posterior gastroenterostomy (close on 200) including both malignant and simple cases, the latter including hour-glass stomach and acute gastritis, has been 4 per cent. In my private practice there were 77 simple cases with two deaths, 2.62 per cent., one patient operated on for acute gastritis and incessant vomiting. There was no vomiting after operation and the wound healed, but the patient died subsequently of exhaustion; and one operated on at a distance, and after attention conducted by an inexperienced practitioner who starved patient, previously exhausted. Death occurred from asthenia in two weeks. There were 15 cancer cases, with one death. Total, 92 cases, 3 deaths, 3.2 per cent."

Moynihan: "Including cases just left hospital, 191 cases, 5 deaths, 2.63 per cent. In these were three deaths in 27 patients operated on for hemorrhage, when the patient's condition was somewhat desperate."

Von Mikulicz: "Of 210 patients operated on for carcinoma of the stomach in the years 1890 to 1904, 69 died—that would be a mortality of 32.85 per cent. In the favorable cases from 1891 to 1897, the mortality was 16.2 per cent. In the operative cases from 1897 to 1899, 23 patients were operated on, one died; mortality 4.35 per cent. The statistics of the patients operated on in the last years have not been compiled."

Kocher: "I am now gathering all my cases, so I can not at this moment give you my exact results. I might in October. The earlier results are given in my text-book, 1903 (100 cases, 3 deaths, neither referable to the operation, but to the disease itself)."

Czerny: "Vide No. 8."

Mayo: "Over 400; past, 6 per cent.; present, less than 3 per cent. in 150 cases. Have recently made 53 gastroenterostomies in succession without a death."

Murphy: "Last year one death. I have not gone over my cases recently, and am not in a position to do so at present."

Ochsner: "The mortality in cases in which the operation was performed for relief of pyloric obstruction due to malignant growths has depended largely on the condition of the patient at the time of the operation. It is approximately 12 per cent. In non-malignant cases it is approximately 4 per cent. I have performed the operation 143 times."

Deaver: "This I can not answer off hand; would require my going over all records. I have never lost but one case of gastroenterostomy out of a large number for benign condition. The mortality in malignant cases has been about 10 per cent."

Park: "I have had about 25 cases. The number may be a little larger or a little smaller; I have not time to look over my records. Among these cases there have been two deaths. I have not heard of the death of any patient since the operation who survived the procedure itself."

11. Have you ever had the anastomosis become detached after using suture or button?

Robson: "Yes, after using the Murphy button in anterior gastroenterostomy; never in the posterior operation."

Moynihan: "Have only used button in early cases, about six. Suture line has never given any trouble."

Von Mikulicz: "A complete parting never. Partial insufficiency in rare cases has occurred both with the suture and the button."

Kocher: "No."

Czerny: "As much as I remember, never, but in few cases the postmortem showed an infection by secondary necrotic dehiscence of the adhesions."

Mayo: "Yes; button must be protected by a few sutures if used."

Murphy: "No."

Ochsner: "The anastomosis in my experience has never been detached in using the McGraw ligature, but it has become detached twice in using the button."

Deaver: "No."

Park: "I have not had any detachment of anastomosis myself, but have seen one or two cases where it has occurred with the button in the practice of others."

12. Do you believe that the passage of bile and pancreatic secretion into the stomach causes regurgitant vomiting?

Robson: "No, if the passage out of the stomach is free and the intestine is not obstructed."

Moynihan: "No. In one case of mine, all bile and pancreatic juice passed into the stomach for weeks and no vomiting ensued. See *Brit. Med. Jour.*, May, 1901."

Von Mikulicz: "No."

Kocher: "Yes, in nervous people."

Czerny: "The anastomosis causes sometimes (in very rare cases) a bitter sensation of bile in the morning, which causes nausea. About regurgitation I have no experience."

Mayo: "Yes."

Murphy: "I think it might, but I doubt if it does."

Ochsner: "I believe that regurgitant vomiting is caused by the fact that in some cases the opening in the stomach is not at the lowest point, and that in this way bile and pancreatic fluid will run into the stomach and can be evacuated into the jejunum only with difficulty. In the other cases, the attachment of the jejunum to the stomach may be such as to make the passage of bile and pancreatic juice easier into the stomach than into the lumen, because of angulation or narrowing of the lumen or obstruction due to some form of torsion."

Deaver: "Yes."

Park: "I have no good reason for thinking so, at least from my own experience."

CONCLUSIONS.

1. Some cases of acute and subacute gastric and duodenal ulcer, and many cases of chronic and duodenal ulcer, should be treated by efficient stomach drainage into the duodenum or jejunum.

2. Drainage by pyloric divulsion, and by pyloroplasty with its modifications, has not been successful, and these methods are now practically obsolete.

3. Gastroduodenostomy as modified by Kocher and Finney, may give efficient drainage in many cases, but

it should be limited to such patients as can not be operated on by a posterior retrocolic gastroenterostomy with the anastomosis near the duodenojejunal flexure.

4. Anterior anticolic gastroenterostomy should not be an operation of election, but an operation of expediency and necessity, to give temporary relief, or to meet special abnormal conditions that may contraindicate the posterior attachment.

5. The ideal operation of election must be the posterior retrocolic attachment near the beginning of the jejunum, and at the bottom of the stomach in the pyloric end, thus eliminating the loop.

6. This gives the most efficient drainage, prevents the vicious circle and regurgitant vomiting, leaves stomach and intestine in nearly normal relation, and is followed by better immediate and ultimate results.

7. The intestinal incision should be made longitudinally and not less than two inches long, and the stomach incision of corresponding length, preferably in the oblique direction. An elliptical strip of mucosa should be excised from both stomach and intestinal incision.

8. The anastomosis is best made with a continuous suture (Pagenstecher or silk) using a full curved round-pointed needle. The suture should be applied in double layers, the inner to include all the visceral layers, and unite the cut edges of the opening; the outer, one-fifth inch away, to include the serous and sub-serous layers.

9. Enteroenterostomy, or closure or resection of the proximal jejunum or the pylorus is unnecessary. It commits an unnecessary traumatism and leaves a deformity that may cause immediate and subsequent bad results.

THE SURGICAL IMPORTANCE OF THE CERVICAL RIB.

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While the supernumerary ribs of the lumbar vertebræ possess an academic interest only, the accessory rib of the cervical portion of the spinal column commands practical importance. Literature does not contain a single case in which the lumbar rib has caused any discomfort whatsoever. In contrast hereto the observations concerning more or less great disturbances, due to cervical rib, are multiplying with each year. The Roentgen ray has enabled us to obtain more accurate anatomic knowledge of this region and has also given us a means to determine the accuracy of surgical procedures. We have learned to use the Roentgen picture as a reliable guide in outlining the plan of operation.

Naturally it was the anatomists who gave us the etiology at a period when we did not as yet value the clinical importance of the cervical rib. As the pioneer in this direction we may consider Hunauld.[1] Later, Gruber was able to demonstrate 76 cases on 45 bodies, and 2 in the living.

Pilling[2] mentions 129 cases, but these were mostly all observed in the dead body.

Gruber differentiated the different grades of the anomaly according to their several stages of development. On the basis of his viewpoint we may divide the different types as follows: (*a*) Slight degree: The cervical rib reaches beyond the transverse process. (*b*) More advanced: The cervical rib reaches beyond the transverse process, either with a free end or touching the first rib. (*c*) Almost complete: The connection between the cartilage of the first rib is formed either by means of a distinct band or by the end of its long body. (*d*) Complete: It has become a true rib and possesses a true cartilage, which unites with the cartilage of the first rib.

In general, we can assume that the cervical rib is double in 67 per cent., and single in only 33 per cent. of all cases. A completely developed cervical rib on both sides is to be regarded as rare. One such case is described in the monograph of Pilling.

An additional rib which runs from the sixth cervical vertebra is to be regarded as a very rare condition. With the exception of the case to be described, I have found this anomaly observed twice only in literature.

It is significant for the difficulties of the diagnosis that naturally presented themselves before the Roentgen era, that by far the most of the reports speak of accidental discovery at autopsy. Consequently, if no marked disturbance was caused, the possessor of the cervical rib undoubtedly took his "special marks of identification" with him, unknown, to his grave.

Although this anomaly is of congenital origin, the complaint does not make itself felt until about the twentieth year, a fact which is hard to explain.

From most reports, we learn that by far the greater number of patients had passed the age of twenty years—a few patients had even reached the age of 55 years. In a number of cases, it was possible to refer to trauma as a precursor of the complaint, in others the presence of constitutional diseases such as anemia, chlorosis, rheumatism, scrofula or even tuberculosis was observed.

Whether the loss of fat causing a diminution of padding in these diseases is the reason for the greater manifestation of the discomfort, must remain to be seen. At any rate, special circumstances, the nature of which is still unknown to us, must form important factors in the maturing of the disease; besides, it is to be assumed that the tissues adapt themselves to the rib during the period of development, and that no discomfort arises where a certain amount of elasticity or of a yielding tendency exists; thus the age of the patient is valueless from a diagnostic point of view.

Before the Roentgen era, it might have been thought that in cases of symptoms referable to this region the possibility of some such anomaly might have been considered, but in most cases, other conditions, especially tumors of all kinds, were thought of rather than cervical rib.

Tilmann,[3] who has gained special credit in the investigation of these cases, could collect only 26 cases among the living, and of these one-half were discovered accidentally. There can not be the least doubt that the actual number of cases is by far a much greater one. In the future this will have to be proved by the Roentgen rays.

This difficulty of diagnosis is brought forward in the splendid monograph of Kammerer,[4] a treatise which deserves recognition and imitation for its brave self-criticism. Although in his case, the possibility of a cervical rib as the cause of the swelling had been thought of, the natural tendency seemed to be to con-

1. Sur le nombre des côtes mojndres ou plus grands qu' à l'ordnaire, Mém. de l'Académie Royale des Sciences de Paris, 1743.
2. Ueber die Halsrippen des Menschen, Inaug. Dis., Rostock, 1894.
3. Deutsche Zeits. f. Chir., vol. xli.
4. Annals of Surg., November, 1901.

sider it as an exostosis. The pressure symptoms disappeared in this case after removal of the rib.

The principal symptoms of the anomaly are the hump-like prominence in the lateral cervical region, the superficial pulsation of the subclavian artery and the appearance of pressure symptoms in the brachial plexus.

Prickling and lancinating pains in the arm, general loss of flesh and especially atrophy of the muscles supplied by the median nerve, numbness and diminished compressive power of the hand of the affected side, a feeling of cold, and pains in the neck on stretching it have also been observed. At times it goes so far as to form an aneurism of the subclavian artery.[5]

A striking fact is that even after a diagnosis has been made the attempt is often made to master the trouble by internal means. But as soon as the physician becomes familiar with the anatomy of the cervical rib, he must acknowledge that he has to deal with a disturbance placed in the way of the normal blood and nerve paths, which has attained the prowess of a foreign body. Thus the treatment for the difficulties arising therefrom can only be a mechanical one, i. e., surgical, massage, electricity, hot and cold packing, etc., can be of only temporary benefit and possess the disadvantage



Figure 1.

that much valuable time is wasted. Thus the disturbance may become permanent.

A radical cure can be effected only by the removal of the cause of pressure, that is of the rib itself.

It is just as foolish to remove a cervical rib which causes no disturbance as it is to leave one that does until lasting tissue changes have been brought about. The operative measure, if timely, removes all discomfort at once.

At times the technic for the removal of the rib is very simple. In the majority of cases, however, one encounters difficulties, and, therefore, the operation should be done only by an experienced surgeon. The difficulty of the removal is magnified by the fact that it is necessary to remove the periosteum with the rib, for if the much easier subperiosteal removal is undertaken a recurrence due to the regeneration of the bone must be expected.

The field of operation grazes the lower two cervical nerves, the upper dorsal nerve and the lower cervical ganglion of the sympathetic. Furthermore, it touches on the large vessels and on the pleura, the latter being especially thin here and very easily wounded. Of course

5. Wiltshire, Lancet, p. 633, London, 1860, and Boyd, Internat. Med. Mag., 1893.

the adhesions formed between the parietal and visceral pleura in most of these cases give a certain amount of protection against the development of a pneumothorax, if an injury be caused. In a case of Planet[6] it seems to have been impossible to avoid injuring the pleura, so that a pneumothorax was caused, but without any grave disturbance.

The extirpation of small rudiments whose ends do not reach the subclavian artery, is naturally simple. When we have to deal with a fully developed rib the various steps of the operation must be so carried out that the artery is avoided from the beginning.

Some operators place their incision along the posterior border of the sternomastoid, while others advise a longitudinal incision between the trapezius and the jugular vein.

I find that a triangular flap incision, running directly downward along the trapezius and then conducted toward the sternum about one inch above the clavicle, fully exposes the field of operation. If the trapezius can not be sufficiently retracted with broad retractors, a transverse incision must be made into the muscle, for next to a strict asepsis the success of the operation depends on extensive exposure of the field of operation.

The brachial plexus, which usually runs across the rib, can also be pushed aside. The subclavian artery is



Figure 2.

best pulled forward. The scaleni are carefully divided at their point of insertion, and this is best done by using a Cooper shears and, advancing layer by layer, lifting the several muscle fibers with the flat of the scissors and using the instrument as one would use a grooved director. By means of a ring-shaped periosteotome the rib is then freed of any small muscular appendages. The division can easily be accomplished by means of my beak-shaped rib-shears. Some prefer the Gigli saw. Any remains are nipped off with the rongeur forceps.

The following case is of interest from several points of view.

Patient.—A young woman, aged 21, delicate, anemic and of small stature.

Family History.—Both parents are alive. The mother is also small and delicate, but well. As a child she lost an eye through trauma. Father has suffered from interstitial nephritis during the last few years.

History.—The patient had measles and scarlet fever when a child. One year ago, after a fall, she began to suffer with pain in the right side of the neck. This was regarded and treated as rheumatic. Two months later the pains began to extend into the arm and were accompanied by prickling and numbness of the fingers. She was then treated in the department for nervous diseases of the German Poliklinik and re-

6. Tumeurs osseuses du cou, Thèse de Paris, 1890.

ferred from there to me. My assistant, Dr. Heckmann, diagnosticated a slight bulging of the right side of the neck and a corresponding osseous tumor which could be traced from the spinal column to the neighborhood of the sternoclavicular joint. Pulsation was marked. After Dr. Heckmann had confirmed his diagnosis of accessory cervical rib by means of the Roentgen plate (Fig. 1) he exposed the anterior portion of the rib by means of an incision running along the posterior border of the sternomastoid muscle. He found both the brachial plexus and the subclavian artery passing over it. After the resection of this portion the plexus as well as the artery dropped back into the newly formed cavity. As the cause of the pressure had been removed it was decided to let the posterior remnant of the rib take care of itself. The symptoms of complaint gradually disappeared, but returned with undiminished vehemence three months later.

Examination.—When I examined the patient I could find neither prominence nor pulsation. The pulse of the axillary, brachial and radical arteries, however, was diminished in tension. The reaction to electricty of muscles and nerves was also diminished. Sensation was normal. Patient was extremely anemic and complained of pains in the neck and right arm and of numbness of the fingers. On stretching the neck the pains were intensified. The power of compression of the right hand was diminished.

The Roentgen picture—extreme lateral position of head during exposure—(Fig. 2) shows on the right side the presence of a fair-sized costal stump running from the seventh cervical vertebra, while the left side shows a small rudiment. The sixth cervical vertebra shows a rudiment on both sides.

Operation.—In view of the vehemence of the symptoms, especially of the pains, I decided to reopen the field of operation for the purpose of removing the remainder of the rib. Advancing carefully, layer by layer, into the deeper tissues, I neither came in contact with the brachial plexus nor with the artery. It was rather difficult to separate the muscle from the edges of the rib. Most of the separating was done bluntly with the aid of the Cooper scissors, using them as a support. The extirpated fragment of the rib measured 4 cm. As the previous resection had been done subperiosteally a new formation of bone of more than one cm. in length had attached itself to the stump of the rib. Hence it becomes evident how necessary it is always to remove the periosteum with the rib. The rib, on the whole, was narrow, thickened at its vertebral attachment and presented a small groove on either side.

Recovery was uneventful. The symptoms disappeared entirely shortly after the operation. Two months later slight symptoms of pain made themselves felt in the neck on the right side, but these also disappeared after the use of the galvanic current.

BLOODLESS REPOSITION OF THE CONGENITALLY DISLOCATED HIP JOINT VERSUS ARTHROTOMY.

WITH STATISTICS OF 34 CASES OPERATED ON BY DR. LORENZ DURING HIS VISIT TO THE UNITED STATES IN 1902.

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A dispute which appears to be settled, at least so far as the competent authorities in Germany, France and Italy are concerned, seems to have been resurrected in America in recent days. The question is whether the open operation or the bloodless reposition of the congenital dislocation of the hip joint should dominate the future therapy of this deformity.

One of Sherman's later publications[1] is so much in favor of the open operation that it seems quite justifiable to compare these methods of treatment critically without any prejudice.

In this connection I quote the historical fact that the originator of the bloodless method, Prof. A. Lorenz of Vienna, had the largest record (about 200 cases) of open operations just at the very time when he began to develop the bloodless method, which he considers the only and the most suitable treatment. Prof. A. Hoffa of Berlin, whom we may call the most prominent pioneer in the development of the open method, recommends in all cases at first the attempt to reduce the congenitally dislocated hip, leaving for the open operations only those cases in which the bloodless method failed.

Among American surgeons it must be admitted that some uncertainty about the advisability of the new method has developed, because of the many accidents which have been observed; but to be just we must frankly state that for those accidents and mischief the method can not be held responsible. They occurred mostly in unsuitable cases and were due to rough maneuvers or to other mistakes in technic.

The great importance of the first mentioned point may readily be seen in the many cases scattered between Boston and San Francisco on which Lorenz operated. Not half of those cases were pronounced by Lorenz as favorable, either because of the advanced age of the patients or because they had been operated on before without success either by arthrotomy or by reposition. Knowing how small a chance for success he would have, and emphasizing this fact, he nevertheless was obliged to operate on these patients, as these cases were often the only ones which could be secured for his clinical work.

In a great many cases his refusal to operate would have resulted in great disappointment to many physicians and students who wished to witness the single steps of the operation. In one large eastern city with a population of nearly a million, not a single half-way suitable case was among those that were prepared for him; he was not loath to cancel the clinic altogether, and only the consideration of the crowded amphitheater, as well as regard for his host, induced him to do his best in spite of the very unfavorable circumstances.

That under these conditions the method could not show its best results and could not be expected to give the claimed 50 per cent. of anatomic cures is an evident matter of fact.

The few cases which Lorenz pronounced favorable could not give the best results possible, as the very important after-treatment was administered by the various surgeons under whose care the patients were left in various ways and after different principles. This fact, although deplorable, was unavoidable, as with the exception of the few pages which Lorenz[2] devoted to this chapter in his book nothing existed dealing with these very important features of the treatment. Many new details have been added to this chapter, and simple comparison of the after-treatment as outlined by Lorenz in his book in 1900, and given by me in 1904 and 1905,[3] shows this fact very clearly. Those details explain why the majority of the cases operated on by Lorenz can not be regarded as giving average results or as being

1. Sherman: Congenital Dislocation of the Hip. THE JOURNAL A. M. A., Jan. 7, 1905.

2. Lorenz: Ueber die Heilung der angeborenen Hüftgelenksverrenkung durch unblutige Einrenkung. Wien, 1900.

3. Mueller and Ashley: Treatment Following the Bloodless Reduction of Congenital Hip Dislocation. New York Medical Journal. A series of four articles, beginning May, 1904, ending January, 1905.

fitted for drawing figures for statistics. That among Lorenz' cases, however, a good many first-class results have been secured I am able to prove by the following statistics:

Total number of cases operated on by A. Lorenz and left under my care, 34.

Cases suitable for statistics, 32.

Anatomic repositions, 21 (Table A).

Subspinal positions, with excellent functional result, 11 (Tables A, B and C).

TABLE A—ANATOMIC RESULTS.

No.	Name.	Age in Years.	Side.	Date of Operation.	Gait. (1905)	Motion. (1905)	Notes.
1	L. Th.	3½	L.	Oct. 18, 1902.	Normal.	Full.	February 19, 1903, depression of the head, which stood in suprapubical position.
2-3	B. M.	4	L. & R.	Nov. 24, 1902.	Normal.	Full.	April 25, 1903, removal of the cast; after-treatment.
4-5	E. L.	4	L. & R.	Oct. 24, 1902.	Normal.	Full.	June 24, 1903, depression (as in Case No. 1). August 29, 1903, third cast; February 5, 1904, after treatment.
6	M. W.	4½	L.	Oct. 18, 1902.	Good.	Full.	April 20, 1903, after-treatment; Feb. 15, '05, some outward rotation still exists.
F	B. E.	4½	L.	Oct. 15, 1902.	Stiff.	Limited.	March 15, 1904, forcible correction of the abducted position; parents discontinued treatment.
8	S. L.	4½	L.	Oct. 22, 1902.	Normal.	Full.	July 6, 1903, after-treatment.
9-10	K. B.	5	L. & R.	Oct. 16, 1902.	Good.	Limited on left side.	May 20, 1903, depression on the right side (as in Case No. 1).
11	L. R.	5	L.	Nov. 12, 1902.	Normal.	Full.	December 12, 1903, depression (as in Case No. 1).
12	D. A.	5½	L.	Oct. 22, 1902.	Normal.	Full.	Operated on without success by Dr. J. Ridlon, 3 years ago. April 23, 1903, after-treatment. August, '04, died from typhoid fever.
13	A. L.	6	R.	Oct. 10, 1902.	Somewhat stiff.	Somewhat limited	Operated on without success by Dr. J. Ridlon, 2 years ago. April 19, 1903, second cast. July 2, 1903, after-treatment.
14	W. M.	6½	L.	Oct. 17, 1902.	Normal.	Full.	April 18, 1903, after-treatment.
15	N. H.	7	L.	Oct. 24, 1902.	Good.	Full.	Operated on without success by Dr. J. Ridlon, 2 years ago. April 19, 1903, after-treatment leg somewhat rotated outwards.
16	L. E.	7½	L.	Oct. 12, 1902.	Normal.	Full.	Operated on without success by Dr. J. Ridlon, 3 years ago. May 29, 1903, depression (as in Case No. 1). August, 1903, after-treatment.
17	B. Ph.	8	L.	Oct. 16, 1902.	Normal.	Nearly full.	April 27, 1903, after-treatment.
18	E. S.	8½	L.	Oct. 12, 1902.	Normal.	Full.	May 18, 1903, depression (as in Case No. 1). August 18, 1903, after-treatment.
19	H. R.	8½	L.	Oct. 22, 1902.	Normal.	Full.	May 19, 1903, after-treatment.
20	L. T.	8½	L.	Oct. 18, 1902.	Stiff.	Limited.	January 14, 1904, and February 9, 1905, correction of the abducted position in narcosis.
21	K. M.	9½	L.	Nov. 2, 1902.	Normal.	Full.	June 8, 1903, after-treatment.

As the cases contained in Table C must be excluded, the proportion of the anatomic repositions to the subspinal positions stands 21 to 11. Although more than two years have elapsed since the time of the operations, the treatment of all cases can not be considered as finished. This is shown by Cases 7, 13 and 20 of Table A, where some stiffness and limitation of the motion of the hip joint is still present. Under suitable treatment all these cases are improving, so that for each one a perfect motion (continued care provided) may be predicted. Even in case we subtract for the present time Cases 7, 13 and 20 from the perfect anatomic cures, the proportion stands 18 to 14. That means about 50 per cent. of anatomic cures with absolutely normal gait.

Among the 21 anatomic results, depression of the head, which stood in a suprapubical position, was necessary in six cases. All cases thus treated gave beautiful results.

That many of the patients operated on unsuccessfully before are among these cases, and that many of them

TABLE B—SUBSPINAL POSITIONS.
ANTERIOR SUPERIOR REDISLOCATIONS.

No.	Name.	Age in Years.	Side.	Date of Operation.	Gait. (1905)	Motion. (1905)	Notes.
1	B. L.	3	R.	Oct. 16, 1902.	Good.	Full.	April 27, 1903, after-treatment.
2	T. H.	3	R.	Oct. 31, 1902.	Nearly normal.	Full.	June 5, 1903, after-treatment.
3	M. M.	3	L.	Oct. 17, 1902.	Good.	Full.	April 18, 1903, after-treatment.
4	B. T.	3½	L.	Oct. 12, 1902.	Good.	Full.	May 15, 1903, after-treatment.
5	V. T.	4	L.	Oct. 21, 1902.	Good.	Full.	April 25, 1903, after-treatment.
6	L. M.	4	L.	Oct. 15, 1902.	Nearly normal.	Full.	April 18, 1903, after-treatment.
7-8	S. M.	6½	L. & R.	Nov. 22, 1902.	Good.	Full.	September 10, 1903, second cast; August 14, 1903, third cast; March 15, 1904, after-treatment.
9	L. G.	7	L.	Oct. 18, 1902.	Somewhat stiff.	Full.	April 29, 1903, after-treatment.
10	E. N.	5	L.	Oct. 29, 1902.	.....	.....	Although both children walked well the parents were determined to have the attempt made of changing the subspinal position into an anatomic position. In both cases the secondary operation was successful. Further particulars about this new improvement will be published later.
11	A. G.	5	L.	Oct. 18, 1902.	.....	.....	

TABLE C—MISCELLANEOUS CASES.

No.	Name.	Age in Years.	Side.	Date of Operation.	Gait. (1905)	Motion. (1905)	Notes.
1	G. E.	10	L.	Oct. 14, 1902.	.....	.....	During March 1903, a correction of the abducted position was made and a cast was applied by a Chicago surgeon; this manipulation probably led to a relapse. June 17, 1903, this cast was removed and a relapse was apparent.
2	E.McL.	4½	L.	Oct. 20, 1902.	.....	.....	June 18, 1903, removal of the case, depression of the head (as in Case No. 1) proposed, but declined by the parents.

were near or beyond the age limits can be seen from the statistics, but so much the more must we be satisfied with the fact that over 50 per cent. of anatomic results and no relapses have been obtained. The reported relapse in Case 1, Table C, is certainly due to the unsuitable maneuvers while the second cast was put on.

It can not be repeated often enough that in order to show the full efficiency of the bloodless method it is necessary to keep strictly within the age limits. It can not be expected that a method for which such limits exist will give the best results in cases which have passed this limit, although the operation itself, that is,

the reposition of the head of the femur into the socket, might be accomplished in a great many cases that are beyond that limit. The age limit—about 7 years for unilateral cases, and 4 or 5 years for bilateral cases—are too well known to need further discussion. Within these limits it must be considered a great rarity when the bloodless manipulations do not give the wished-for reposition; but such exceptions occur. Sherman's case of the 10-month-old baby in which he found the entrance to the cavity of the socket exceedingly narrow, may belong to this group; I had a similar experience four months ago in a case of a double dislocation—a girl of 3 years—in which I secured an anatomic result on the left side and two attempts to reduce the right side failed, although each attempt lasted more than one and one-half hours. Other orthopedic surgeons undoubtedly will have similar experiences.

The obstacle in such cases is the narrowed part of the capsule, which in some publications is called the "hourglass-shaped constriction of the capsule" (*Sanduhrförmige Einschnürung der Kapsel*), and in others, "the entrance to the pocket-shaped recessus of the socket" (*Eingang zur Pfannentasche*).

It always has been evident for every one who ever performed or witnessed an arthrotomy, or an open reposition, that a disproportion exists between the head of the dislocated femur and this narrowed part of the capsule, through which the head has to be introduced into the socket. All authors are familiar with this fact. This narrowed space, however, within the age limits of the bloodless operation with the exception of a very few cases, is always large enough to allow the passing of the head of the dislocated femur. That this passage is not always easily accomplished can be readily understood; usually some difficulties are met with in executing the reduction; the narrowed capsule must be widened according to the diameter of the femur head.

If we open a joint we can not tell from the appearance of the narrowed part of the capsule whether a reposition by mere maneuvers would be impossible. Sherman[1] in his paper, however, avails himself of this kind of argument and in discussing his 28 cases comes to the conclusion that among 28 impossibilities there was only one possibility for getting a real reposition by the bloodless method. Of course, no one is able to prove such a statement. not even Sherman himself.

The same objection to the bloodless method was made in Europe at the time the first communications about it were brought forth. All these voices were silenced after it was proved that the impossibilities were lost sight of in the overwhelming number of possibilities. When Sherman's paper was discussed at the meeting of the American Orthopedic Association, Atlantic City, June, 1904, as far as I remember Sherman's standpoint was not supported in the general sense. An eminent guest of the association, Professor Hoffa of Berlin, who, like Lorenz, performed several hundreds of open and bloodless operations and who is a pronounced partisan of the open method, did not consent to Sherman's accounts, and preferred not to answer when Sherman asked him whether he really believed the possibility of driving the camel (the head of the femur) through the needle's eye (the narrowed part of the capsule). Each surgeon who has performed a bloodless reposition may answer this question for himself.

The possibility of the immediate success of the operation, which means the fact of the introduction of the head into the socket is the same, whatever method may be resorted to; but for the criticism of a method not only the immediate success of the anatomic result but also the permanency and the quality of the functional result comes into consideration and it must be emphasized that anatomic and functional results do not always correspond.

My connection with Prof. A. Lorenz in Vienna enabled me to form an opinion regarding the results of the two routine treatments, as in 1897, when I began to work with Lorenz, the open operation was still very often practiced by him in older cases, whereas, on the other hand, all those patients who have been operated on by Lorenz by the open operation previous to that time used to come regularly either for after-treatment or for an examination.

I was able to trace more than 200 cases of open operations in their results for a long time—some for several years. This gave me the opportunity to compare their results by interposition with the results obtained by the bloodless method.

The exact requirements of a perfect anatomic result are not always obtainable by performing the open operation. There are many cases in which the head does not stand centrally opposite the V-shaped cartilage, a sort of new socket being devolved above or in the back of this place. The functional result, however, is not altered by this fact, provided that it finds a stable position in its new place.

A much more important point is whether or not an ankylosis or restriction of motion in the joint operated on follows. Very often the success of the nicest anatomic reposition is annihilated or at least greatly interfered with by the presence of a total or partial ankylosis. This always threatens to develop when the children operated on are over 4 years of age. A sure exclusion of this disagreeable accident can never be warranted, however, not even in cases in which the children are operated on at a very tender age, say 2 or 3 years old, although the chance for a prospective ankylosis is greatly diminished.

Patients who suffer from a single dislocation only in cases of ankylosis may sometimes obtain, but not always, a half way good functional result so far as walking is concerned. Only after a long and tedious after-treatment of massage and gymnastics is it possible to teach them how to execute the motions of the thigh. In these favorable cases, too, a constant care and supervision and a continued after-treatment for years is necessary in order to overcome the tendency of contracture, which, if overlooked, flexes and adducts the thigh, thus causing in neglected cases formidable secondary shortenings.

For children operated on on both sides, the establishment of an ankylosis always proved disastrous. I know of 6 or 7 cases among the 240 open operations of Lorenz in which neither mobilizations under anesthesia nor secondary surgical interferences like resection of the head, nor gymnastic and passive motions, even when continued for years, were able to give any relief. Such patients are by far worse off with their double ankylosis after the operation than before, although the *x*-ray picture in some of the cases belonging to this group showed perfect anatomic replacement on both sides.

I wish to state these facts before going into a detailed discussion of the advisability of both methods. I think they explain clearly why the two orthopedic surgeons, Hoffa and Lorenz, who have the greatest ex-

perience with the various open operations, are righteously prepossessed in favor of the bloodless method.

The main objections which are made to the bloodless method by the partisans of the open operation are principally the impossibility of reducing the dislocated hip in all cases by bloodless manipulations; the dangers involved, such as hematomas, fracture of the bones, injuries of the capsule and of the nerves; the poor results as shown by statistics.

The first point, the frequently quoted impossibility of obtaining a reduction by the bloodless method, has been discussed enough and needs no further explanation. Sherman, in his paper, constructs on this infinitesimally small chance of not being able to accomplish a reposition within the proper age limits, a peremptory postulation to treat all cases by the open operation, without making an effort to reduce the dislocation by maneuvers, saying: " . . . if we are to save these cases, irreducible by manipulations, from the risks of forcible manipulation, we must save all, for no one can tell *a priori* which case is to prove reducible and which is not; and that will mean that all congenitally dislocated hips shall be reduced by arthrotomy."

The so-called dangers of the bloodless method, which have been discussed so often in various places, collapse if the operator, and this especially holds good for the unskilled operator, keeps himself within the age limits. All accidents, such as fractures and so on, are due to the fact that the operator either tries to increase the age limits or that he resorts to too much force without the exact knowledge of how much the tissues are able to stand. Both mistakes were made and are made frequently by the unskilled operator; if an accident then happens, of course "the method is responsible for the mischief done."

Lorenz himself made the same mistakes in the beginning and in this sense he reports them in his book. Similar cases are always reported if a method is comparatively new and its indications still unsettled.

Fractures of the bone and ruptures of the capsule can be promptly excluded by care or by resorting to a kind of preparatory treatment consisting in tenotomies and extension if greater difficulties should be foreseen.

The same is not true of the subcutaneous lacerations of some muscles (like the adductors) and the extravasate which is observed in many cases. No complication, however, ever results from their presence. No one should believe that accidental lacerations are absolutely excluded by using the open method. Sherman's case, in which the perineum was torn, is a classical example of this. Everyone knows that the resistance of the shortened muscles of the hip joint must be overcome by traction alone in performing the open operation. Therefore, it can be safely said that paralysis is more apt to happen in the course of an open operation than after a bloodless operation. This especially holds good for the paralyses of the sciatic and principally of the peroneal nerves. Sherman also reports a case of paralysis among his twenty-eight cases.

As the peroneus nerve is fixed where it enters the capsule of the peroneal muscles, it is easily understood that the fibers have to be stretched to overcome the shortening caused by the dislocation. As the knee joint is held rectangularly after the bloodless operation, the strain on the peroneal fibers is relieved, whereas the straightened knee joint held in a straight position by the cast after the execution of the open operation does not afford any relief. In consideration of this fact, which can be proved by experience, one of the strongest claims of the open operation falls to the ground. Another kind of paralysis which sometimes develops after the bloodless reposition does not deserve any consideration at all; it is the so-called paralysis of the quadriceps; this disappears spontaneously within two or three months, not leaving the slightest sign of its presence.

It must not be forgotten that there are dangers which are connected with every open operation and which neither the best technic nor the most skillful operator can exclude with absolute certainty.

Sherman asks why the orthopedic surgeon should be afraid to open the hip joint. I think it is safe to say that not one of them is "afraid" to open it, but that a good many of them decline righteously the responsibility of representing this procedure "as absolutely harmless" so far as the life of the little patient is concerned. It is a matter of fact that every operator who resorted to the open operation on a large scale had deaths among his cases, although the percentage may be small, perhaps 2 or even 1 per cent. This should make it apparent that among 28 cases no death must necessarily occur.

If, however, such an accident happens and sepsis claims a victim, then we can not compare such a death with an exitus after an appendectomy or laparotomy.

We never performed nor ever will perform any operation for a dislocation of the hip joint under a coercion similar to that which lets the surgeon choose between death and the operation, because all orthopedic operations have only a conditional indication.

One of the main questions of the parents is, and always will be, whether there is positively no danger connected with any of the proposed operations. With regard to the open operation, I leave the answer to the honesty of the surgeon whom it may concern; with regard to the bloodless operation, however, an affirmative answer to this question can be given quite frankly.

At all events, no death which should occur after an open operation performed for reduction of a congenitally dislocated hip joint can be excused, for nowadays the bloodless method has been developed and such accidents are excluded.

A total failure meets the recommendation of the open method if statistics of the bloodless method are referred to. Sherman, however, in quoting statistics comes to the opposite result; fortunately, however, he quotes two sets of statistics, which can not be considered as giving valid figures.

The first is the statistic of Wolff, a fanatic believer in the Lorenz method who died in 1900. He began experimenting with this method in 1896. No one can expect that his first cases could show the best figures possible. Nevertheless, his statistics in question showed 25 per cent. of anatomic cures. Since then the method has been developed to a much higher degree of efficiency, so that Wolff's statistics can not be quoted seriously to-day.

The other statistics quoted by Sherman are Ridlon's,[4] which, although published in 1904, are not at all fitted to prove anything. The many objections which can be made to his statistics I[5] described in a previous paper. I do not wish to fall back on them in this place, but wish only to mention that Ridlon's statistics deal mostly with cases operated on by Lorenz during his visit in

4. Ridlon: THE JOURNAL A. M. A., April 16 and 23, 1904.
5. Mueller: The Lorenz Operation as Seen in the American Statistics. Ill. State Med. Jour. October, 1904.

this country, and showed about 10 per cent. anatomic results. The fact that many of these cases were unsuitable for the operation because of the advanced age or because they had been operated on before, or that other cases such as the suprapubic positions (anterior transpositions, Ridlon's) did not get the right kind of after-treatment (depression of the head) has been alluded to in the beginning of this paper.

Fortunately there are other reliable statistics[3] existing, among which I wish to point to those published quite recently and quoted by me in my above mentioned paper, as well as at the Atlantic City meeting of the American Orthopedic Society, 1904.

These statistics are compiled by E. Mueller, Stuttgart; Joachimsthal, Berlin, and Drehmann, Breslau, and were published in 1903. The numbers of the anatomic results are 28 among 40, 17 among 23, 43 among 56, respectively.

Altogether, they show more than two-thirds of anatomic cures. From this it is to be seen that Lorenz is very conservative in pronouncing a possibility of 50 per cent. anatomic cures. Seventy-five per cent. would not be too much, and, with some improvements of the method, a still greater percentage might be obtainable.

Another statistic recently published by Braun[6] shows 57 ideal anatomic results among 117 joints; excellent functional cures were obtained in 72 of these 117 cases.

We must not lay too great a stress on the anatomic results alone, however. We have also to consider the remaining 33 or 25 per cent. of cases which do not give a central reposition, but only a subspinal position (anterior superior redislocation). In these cases we always find such a great improvement that—suitable after-treatment provided—the overwhelming majority give such excellent functional results that they can truly be called a cure. The fact that no subspinal position is ever combined with partial ankylosis or stiffness of the hip should be highly appreciated.

This fact renders the second-class result after the bloodless reposition by far superior to the second-class result of the open operation, where we obtain ankylosis; as far as the functional result alone is concerned, the subspinal position exceeds even many so-called first-class results of the open operation. Therefore, Lorenz, who had his experience with the postoperative ankyloses after the open operation, knew why he called the subspinal positions "good" results, and every orthopedic surgeon who has had the misfortune to get a double ankylosis after an open operation, thus crippling the patient more than before, must agree with him.

We have all been taught that the first principle of medicine should be: *Primum non nocere.*

If we keep this in mind and if we are desirous to avoid even a mere chance of offending against it, we can have no doubt which method, whether the open or the bloodless, will be the method of the future days.

6. Braun: Zur unblutigen Therapie der Luxatio coxae congenita. Langenbeck's Arch., 1904, vol. lxxiv, No. 3.

A Bandage for Varicose Veins.—A zinc-glue bandage may be made of gelatin, glycerin, zinc oxid and water, heated in a water-bath and applied to the bare skin with a painter's brush. Then a gauze or cheese-cloth bandage is applied, very evenly and not too tight. This is painted with a zinc-glue, and a new bandage applied outside it. Such a bandage may be worn from five to eight weeks without change. Dr. H. Keogh states, in the *Northwestern Lancet*, that dozens of his patients who have been almost in depair at the annoyance of their varicose legs, have been made comfortable by this bandage.

INTESTINAL PERISTALSIS.

ACTION OF DIFFERENT AGENTS ON IT.

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The recent method of Professor Magnus[1] of Heidelberg in the study by registration of the intestinal movements has simplified the investigation of the action of agents on the intestine. Magnus names two kinds of periodic movements of the intestine: 1, the pendulum movements, which follow each other rapidly in a contraction and relaxation of the intestine; and, 2, a tonus variation, much slower, but making periodic changes in the intestine. Drs. Kubliabko[2] and Alexandrowitsch, using the method of Magnus, have published a preliminary note on the action of several agents on the movements of the intestine.

Our experiments were made by taking a piece of the small intestine, about 10 centimeters in length, of a rabbit or cat. This was placed vertically in a glass containing 225 c.c. of the modified Ringer solution as advised by Magnus. One end of the intestine was fastened by a hook to an L-shaped glass tube and the other by a thread to Porter's heart lever, slightly weighted. The intestine was wholly immersed in the solution through which oxygen was constantly streaming. The temperature of the Ringer solution was about 37 C. The heart lever registered the contraction of the longitudinal muscles of the intestine on the smoked drum.

Before adding the agent to be experimented with to the Ringer solution several contractions were recorded before the substance was dropped into the solution containing the intestine. The changes then induced in the intestinal contractions indicated the action of the agent on the longitudinal muscles. The number of experiments was 115.

ADRENALIN.

Ott[3] was the first (1897) to call attention to the fact that adrenal extract caused a relaxation of the intestinal wall. This was afterward confirmed by Boruttau (1899), Langley (1901) and subsequently by Pal (1901) and Kubliabko (1904). In these experiments we used the adrenalin of Parke, Davis & Co.

As is well known, adrenalin excites the smooth circular muscles of the arterioles to contract, but in the intestine it causes the longitudinal muscles to relax and to stop the pendular movement.

It seems to exert its action on the unstriped muscular fiber. Langley has shown that the effect of adrenalin on unstriped muscle was the same as exciting the sympathetic nerve supplying that particular tissue. Elliot[4] has shown that, after section of the nerves going to the plain muscle of the dilator pupillæ and after their degeneration for three days or ten months, the plain muscle will respond to adrenalin with greater rapidity and longer persistence than does the iris, whose nervous relations are intact. Hence the conclusion that adrenalin acts on the muscular fiber of the intestine. When

1. Pflüger's Archiv, 1904.
2. Zentralblatt für Physiologie, 1904, July.
3. The Peristaltic Action of the Intestine, Medical Bulletin, 1897.
4. Proceedings of Physiological Society, Jour. of Physiology, 1904.

the intestine was painted with a 2½ per cent. solution of cocain, or treated with small doses of nicotin, pilocarpin, muscarin, eserin, apocodeia, morphin, digitalin, curare, albumose, chloral and veratria, still adrenalin exerted its peculiar action, arresting the pendulum movement and producing a relaxation of the longitudinal muscles of the intestine. One drop of adrenalin solution was sufficient.

SPLEEN.

Ott[5] first noticed that a filtered watery infusion of the spleen when injected into the circulation increased the peristaltic movement both in frequency and force. In this method of study a similar effect was observed.

PANCREAS.

One drop of filtered infusion of the pancreas in the cat was seen to relax the muscle and to slow the movements of the intestine. At the same time the force of the contraction was increased.

OTHER ANIMAL EXTRACTS.

Experiments were made with the ovary, testes, parotid and mammary gland, pituitary, thyroid, brain and spinal cord, but they had no marked effect on intestinal peristalsis. The thymus occasionally seemed to increase the force of the contraction.

SODIUM CITRATE AND CALCIUM CHLORID.

John Bruce MacCallum[6] has shown that sodium citrate, as well as other saline purgatives, act when injected subcutaneously by increasing peristalsis and by augmenting the secretion of fluid in the intestine. He has also shown that injection of calcium chlorid entirely inhibited the action of the saline, especially that of sodium citrate. We have made observations on the effect of sodium citrate (¼ grain), which increases the force of the peristaltic contractions; when calcium chlorid (1 grain) was added the muscle relaxed and the contractions became weaker, slower and irregular.

MacCallum thinks purgatives act by the removal of calcium ions from the tissue, and the subsequent addition of calcium restores the tissue to a normal condition. Loeb has shown that the salts which produce rhythmic contraction of the involuntary muscle are those which are liable to decrease the concentration of the free calcium ions. Hence calcium is indicated in persistent diarrhea of nervous and hysterical cases.

OTHER DRUGS.

Atropin.—In small doses (1-100 grain) in the cat it relaxed the tonus and increased the force of the contractions.

Nicotin.—In the rabbit in small doses (1/100 grain) it caused a sudden tetanic contraction of the intestine, followed by a slow relaxation. In cats it caused at once a great decrease in the tonus and then a stronger and slower contraction.

Eserin.—In the rabbit eserin (1-60 grain) produces a rapid tetanic contraction of the muscle, followed by alternate falls and rises of tonus, with smaller and slower contractions.

Muscarin.—In the rabbit muscarin (1-60 grain) produced a sudden contraction of the intestine, followed by a gradual relaxation.

Pilocarpin—In the cat small doses (1/60 grain) caused the most prolonged tetanic contraction of the muscle, with occasional relaxation of the tetanic state, followed by a slower and stronger contraction.

Strychnia.—In small doses strychnia (1/50 grain) increased the height of the contractions.

Curare.—Curare in small doses reduced the force of the intestinal contractions.

Apocodeia.—In small doses (1-100 grain) it increases the force of the contractions and makes them slower.

Morphin.—In the cat in small doses it increases the tonus and the force of the contractions, but slows them. Here morphia has a different action than in man.

Digitalin.—In doses of 1-80 grain it increased the tonus and made the contractions considerably greater.

Chloral.—Chloral in small doses reduces the force and frequency of the contraction.

Veratria.—Veratria in small doses reduces the force and frequency of the contractions.

ORGANIC BODIES.

Bile.—One drop of fresh bile caused the contraction of the muscle to become stronger.

Albumoses (free from peptones).—The albumose was furnished some years ago by Professor Chittenden of Yale. It was prepared from egg albumin. When a small dose (1-10 grain) was used it increased the tonus and the force of the intestinal contraction and made them more regular.

Peptones (free from albumoses).—Ampho-peptone, prepared from egg albumin by Professor Chittenden, was also used. It increased the force and frequency of the intestinal contractions.

Leucin (Merck).—It increased the force and frequency of the intestinal contractions.

Tyrosin (Merck).—It increased the force of the intestinal movements.

It is evident that the products of proteid digestion are active stimulants of peristalsis. A good digestion predisposes to a regularity of evacuation of the bowels.

These facts explain the habitual constipation of dyspeptics.

ANTAGONISM OF DRUGS ON INTESTINAL PERISTALSIS.

With the idea of obtaining a closer insight into the action of drugs on the intestines, several experiments were made to determine if one drug prevented the action of another previously given.

Small doses of the drugs were applied to the intestine in solution. The table gives the results:

AFTER COCAIN.

(Two and one-half per cent. solution painted on the intestine.)
No action by nicotin, pilocarpin, muscarin.
There is an action by eserin, atropin, morphia, digitalin.

AFTER ATROPIN.

No action by nicotin (in rabbit; acts in cat), pilocarpin, muscarin.
There is an action by eserin, morphin, digitalin.

AFTER ADRENALIN.

No action by nicotin.
There is an action by pilocarpin and muscarin.

AFTER MORPHIN.

There is an action by atropin and nicotin.

AFTER DIGITALIN.

There is an action by nicotin, atropin.

AFTER ESERIN.

There is an action by atropin.

AFTER CURARE.

There is an action by nicotin.

ADRENALIN.

Acts after cocain, nicotin, pilocarpin, muscarin, eserin, apocodeia, morphin, digitalin, albumose, curare, chloral, veratria.

As nicotin is known to act on the terminals of the preganglionic fiber, it is evident that it probably acts in a like manner on the intestine. Eserin antagonizes atropin, and atropin acts after eserin. As atropin acts on the post-ganglionic fibers of the vagus, it is probable that it also acts on the post-ganglionic fibers in the intestine. Eserin also in all probability acts on the

5. Medical Bulletin, 1897.
6. University of California Publications, vol. 1, 1904.

post-ganglionic fibers. These facts do not preclude an additional action on the intestinal muscle in larger doses of these drugs. Magnus has shown that Auerbach's plexus is important to the rhythmic activity of the circular muscles. The removal of Meissner's plexus permits the circular muscles to continue their rhythmic contractions. The longitudinal muscles which have Auerbach's plexus in connection with them continue their automatic movements. Hence the conclusion follows that the automatic movements of the intestinal musculature are not myogenic, but dependent on Auerbach's plexus. Magnus has also shown that not only is the plexus of Auerbach a source of automatic movement, but that it in a large part governs the rhythm, and that the refractory period in the intestine is due to the presence of the nerve centers.

Bayliss and Starling have stated that painting a 2.5 per cent. solution of cocain on the intestine paralyzes the local nervous system. They have shown that in fact Auerbach's plexus is a local nervous system with two reflexes, inhibition and augmentation, and one function, the propulsion of food. Now, after the use of cocain it was noted that nicotin, pilocarpin and muscarin did not act. We have stated the point of action by nicotin. As to pilocarpin and muscarin, they act in the heart on the inhibitory ganglia. After cocain they do not act. As cocain paralyzes the nervous apparatus, it is highly probable that they act normally on the plexus of Auerbach.

After the intestine is painted with cocain then eserin, atropin and morphia still act, and as the nervous system of the intestine is paralyzed it is inferred that these agents act on the motor nerve terminals. For it is known that one of them at least, atropin, paralyzes the post-ganglionic fibers of the vagus. As to digitalin, it acts on the muscle of the intestine, as it exerts its activity after the previous use of cocain.

During the action of adrenalin, nicotin does not act, although pilocarpin and muscarin do. It is probable that nicotin has not enough stimulant action to overcome the muscle relaxation caused by adrenalin.

THE ESSENTIALS OF TREATMENT OF ACUTE INFLAMMATION OF THE MIDDLE EAR.*

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I am not unmindful of the diversity of opinion among otologists as to the essentials of treatment of an acute inflammation of the middle ear; and in giving my personal opinions, based on considerable observation and experience, it is possible that I shall advocate some measures which may seem somewhat radical and not thoroughly approved by some of you. It is gratifying to know, however, that the trend of medical teaching to-day is in favor of more radicalism in the treatment of acute middle-ear inflammations and that the so-called conservative treatment, in the management of these cases, is considered by most progressive otologists as carrying with it a decided element of danger.

Most authors divide acute inflammation of the middle ear into two forms, the catarrhal and the purulent. Clinically, the two forms should be considered as different stages of the same disease, the difference in the character of the inflammatory process depending on the presence and activity of the infection and the resisting power of the tissues, features that are always factors in the production and the limitation of an inflammation of the middle ear. When an acute inflammation of the middle ear does not end in suppuration it is either because the micro-organisms necessary for suppuration are not present or because the resisting power of the tissues renders them ineffective.

Bacteriologic investigations have shown that various micro-organisms can produce similar pathologic effects on the middle ear, but as a rule the milder forms of middle ear inflammation are produced by the pneumococcus or the staphylococcus, and the severer forms by the streptococcus (Nadoleczny). The fact that the milder forms of middle ear inflammation often run into the severer forms makes it difficult if not impossible in many cases to distinguish the two forms of inflammation described by most authors. Neither subjectively nor objectively will the symptoms in a large percentage of cases give evidence of the character of the infection at work, for in some individuals the pain will be very severe and the congestion of the membrana tympani pronounced in a comparatively mild inflammation, while in others the pain will be slight and the external evidences of congestion not marked in a very severe inflammation.

In probably 99 per cent. of all cases the infection reaches the middle ear through the Eustachian tube. Even in healthy individuals the bacteriologic examination of the secretion from the nasopharynx almost always shows the presence of a certain number of pathogenic bacteria, and in the presence of diseased conditions of the nasopharynx, as in the case of hypertrophied and degenerated conditions of the lymphoid pharyngeal structures, or inflammation of the nasal and pharyngeal mucous membrane accompanying many of the infectious and contagious diseases, the number of pathogenic bacteria is greatly increased.

The extension of bacteria to the middle ear by means of the eustachian tube is accomplished by mechanical means, as from pressure while blowing the nose and while swallowing, or by extension of the inflammation through continuity of tissue. Predisposition, as well as activity of the infection, will in a large measure determine the extent and the severity of the inflammation. If the infection is mild the inflammation may not result in suppuration but may continue to the end devoid of severe symptoms or manifestations, and as such it may be classed with the catarrhal inflammations in which the exudation is sero-mucous in character and the bacteria few in number and of low vitality. It should be remembered, however, that such an inflammation may be transformed into the suppurative type through introduction of more active infection through the Eustachian tube or, in case of perforation of the drum membrane, through the external auditory canal. What, therefore, begins as a comparatively mild inflammation may very quickly pass into a severe inflammation with all the attending danger of complications and perhaps loss of life. This transition of one type to the other may be so rapid as to escape early recognition unless the otologist is in a position to watch the progress of the inflammation much more closely than is generally the case, and as a result proper treatment may be adopted too late to limit ravages of the disease which might have been limited or prevented by earlier attention.

The possibilities of an earache, and a moderately congested ear-drum in whole or part, are not limited

*Read before the American Otological Society at Toledo, Ohio.

to a few hours or days of discomfort and of moderate impairment of hearing which a hot-water bag and judicious politzerization will relieve, but include all the dangers which accompany a violent inflammation in a region connected with or surrounded by some of the most vital structures in the body. The recognition of the possible seriousness of every earache and the gravity of every acute inflammation of the middle ear, and the necessity for prompt and energetic treatment of such conditions can not be too forcibly impressed on the minds of general practitioners and public if we are to make any progress in limiting the number of cases of partial or complete deafness, intracranial complications, and fatal results which now frequently follow middle-ear diseases.

Prophylactic treatment in cases predisposed to middle-ear inflammation is too often overlooked or is given inadequate attention. The mild earaches which promptly subside under simple treatment, or under no treatment at all, should lead to an investigation as to the predisposing causes. In the majority of such instances there will be found various forms of diseased conditions of the upper respiratory tract. In children adenoids and enlarged tonsils are a prolific source of middle-ear inflammation, while in adults obstructive lesions of the nose are more frequently predisposing factors. Such conditions should be recognized and should be given prompt attention if we are to do the most to prevent the development of many acute inflammations of the middle ear. Lowered resisting power from the effects of various debilitating diseases should also receive appropriate constitutional treatment, while the local treatment of the nose and throat in the exanthemata, influenza and all other infectious or contagious diseases in which the mucous membrane is affected should never be neglected.

In practically every case of acute middle-ear inflammation the patient seeks relief because of discomfort or impairment of hearing or both. Treatment must be instituted which will have a tendency to relieve pain, to prevent complications from extension of the diseased process, and to restore the hearing. It would seem superfluous to condemn the use of opiates for the relief of pain, and yet as a few text-books recommend this treatment with but little qualification it seems pertinent to oppose it on the ground that opiates mask the symptoms and at times give the patient, as well as the surgeon, a sense of false security. Pain is only a symptom and is of sufficient diagnostic importance to warrant no treatment which will simply obtund it without relieving the diseased condition which is causing it. Dry heat will generally give relief if measures short of operative are to be sufficient to produce the desired results. But as the pain is due to pressure from congestion and exudates resulting therefrom, the essential treatment must come from depletion. This may be accomplished in whole or in part by catharsis, leeching, the application of carbolic acid and glycerin solution to the membrana tympani for its osmotic effect and by direct incision into the congested tissues. When seen early or before there is marked congestion of all or of any part of the membrana tympani, the inflammatory process may often be checked by free purgation, the use of leeches to the tissues immediately in front of the tragus, carbolic acid (10 per cent.) and glycerin tampons, and the application of heat to the ear. More often, however, the patient does not seek the aid of the physician until the membrana tympani is decidedly congested if not already bulging, and then to delay the more heroic measure of incising the drum membrane is to invite complications and to prolong the suffering of the patient.

Many otologists of skill and experience recommend waiting until there is bulging of the membrana tympani before making an incision, and even go so far as to call it pernicious and meddlesome surgery to incise the drum membrane at any other time than when there is bulging. It is accepted as a fact that sometimes a waiting policy brings with it good results, but there are some of us who, having seen unfortunate results from the waiting policy, prefer not to take the chances. If we remember the direct connection which exists between the mastoid antrum and the middle ear, and the tendency for infection to travel, especially in the direction of least resistance, we can readily understand how the infective process may extend to the antrum without indicating its tendency to extension by bulging of the drum membrane, particularly in cases in which the drum membrane is abnormally unyielding, as is not infrequently the case. I have seen mastoid complications which came to operation without bulging of the drum membrane ever having occurred, and I am satisfied that the complication would not have occurred had early and free drainage through the membrana tympani been established.

When properly done, incision of the drum membrane is appropriate treatment of those cases of acute inflammation of the middle ear, either with or without severe pain, which present marked congestion of either a part or the whole of the membrane, and whether bulging or not. By means of the incision, depletion of the tissues is secured, the pressure is reduced and the associated pain is relieved, required drainage is established, and in the majority of cases mastoid and other complications are prevented. The incision should be free, preferably in the posterior quadrant, and should be performed under strict aseptic precautions. Subsequently, the external auditory canal should be packed with a strip of dry sterile gauze, the end of which should be placed against the drum membrane for the purpose of drawing the secretions from the ear by capillary attraction. Due care should be taken to keep infection from entering from without. This can be accomplished by pursuing the ordinary rules of surgical cleanliness when replacing the gauze, as becomes necessary when it becomes saturated with secretion from the middle ear, and by keeping the outer ear covered with an aseptic absorbent pad of cotton or gauze. When the discharge from the ear is profuse the gauze will require removal frequently, and before inserting fresh gauze the canal may be wiped dry with sterile cotton wrapped on a probe.

Following incision of the membrana tympani, treatment directed to the relief of any nose or throat troubles may be continued, and inflation practiced in the usual way. Early syringing is generally to be avoided as being detrimental through increasing the maceration of the tissues, though in the later stages with an increase in the amount and purulency of the discharge careful syringing under aseptic precautions is appropriate. Local medicinal applications to the middle ear are also considered superfluous, if not detrimental, in the early treatment. The gauze packing should be continued until the perforation in the drum membrane has closed.

In those cases which are commonly called catarrhal, in which the infection is of low vitality and in which

the discharge is sero-mucous in character, the relief by incision is prompt, and unless more active infection is introduced through the Eustachian tube or the external auditory canal, the discharge seldom lasts more than a few days, sometimes but a few hours, on the cessation of which the clean-cut opening rapidly closes and, following a short period of inflation, normal hearing returns.

Like any other surgical procedure, incision of the drum membrane should be done under aseptic precautions, the knife being sterile and the external auditory canal and drum membrane having been made as sterile as possible by thorough cleansing with a 1 to 3,000 bichlorid solution. Following the opening of the drum membrane, infection from without should be prevented by using only sterile instruments and gauze in the external auditory canal. If these precautions are followed there can be no possible cause for the charge by a well-known otologist that "opening of a drum membrane that is not bulging is pernicious practice." Rather is it more appropriate to say that it is pernicious practice to delay the adoption of such an inoffensive measure, when done properly, in those cases of congested drum membrane which from the rapidity of progress, severity of symptoms, predisposition from impaired health or the presence of complicating infectious or contagious diseases, give indication of steadily progressing inflammation to the point of bulging of the membrane and spontaneous rupture unless anticipated. I have never seen any complications arise from a properly done early incision of the membrana tympani which I believe would not have occurred any way. On the other hand, I have seen delay in cessation of the discharge, impairment of hearing and sometimes more serious complications which I believe might have been limited or prevented had incision been performed before bulging occurred. In the early years of my practice it was my rule to await bulging before opening the drum membrane. Since adopting the more radical treatment of incision with the appearance of marked redness, my results have been better from every standpoint and my patients have been spared unnecessary suffering, prolonged treatment, impairment of hearing and other possible complications which I am sure would have followed a less radical course of action. In a series of 20 operations for acute mastoiditis performed during the past 18 months, 12 of the cases had rupture of the drum membrane spontaneously, 6 had incision on appearance of bulging, and 2 had intact drum membranes at the time of the mastoid operation. During the same time, out of 11 cases of acute inflammation of the middle ear, with late incision of the drum membrane, all but 1 case required more than 6 weeks for recovery. In a series of 32 other cases in which early incision of the drum membrane was performed, only 1 case required over 3 weeks for cure, and a majority of the cases recovered in less than 10 days and not a few in less than 5 days.

With early incision the pain is almost immediately relieved, the intensity of the inflammatory process is diminished, the exudate in the tympanic cavity is given an outlet, thus lessening the tendency to extension to adjoining structures and producing more serious complications, and the chances for adhesive changes in the sound-conducting apparatus are lessened.

In the early treatment of every case it is advisable to secure a prompt and free movement of the bowels. Calomel in small but frequently repeated doses, followed by a saline, is best for the purpose. The patient's chances for an early recovery will also be increased if he is kept in bed until the active inflammation in the middle ear has subsided. For the relief of neuralgic pain, if present either before or after the incision of the drum membrane, dry heat will be found most agreeable to the patient. In every case the catarrhal conditions of the nose and nasopharynx should be treated, but during the height of an acute middle-ear inflammation it is seldom necessary to do anything more than to cleanse the nose and the throat with an alkaline antiseptic spray to aid in preventing infectious material from entering the Eustachian tube. During the course of a middle-ear inflammation or the progress of an infectious or contagious disease the patient should be advised to blow the nose with caution, with a view to preventing the forcing of infection into the tympanic cavity. In children enlarged tonsils and adenoids are hotbeds for the retention and the development of infection which predispose to inflammations of the middle ear, and their removal should be accomplished without delay. The treatment of a constitutional dyscrasia should also not be neglected, for the administration of tonics, alteratives or other indicated treatment will do much to hasten recovery from the ear complication.

Inflation by Politzer's method in the presence of an intact membrana tympani, while seemingly beneficial in some cases, may be productive of harm in others. There can be not the slightest doubt that infection may be forced from the tympanic cavity to the epitympanic space, and thence into the mastoid antrum, by inflation, even when skillfully performed; and the possibilities of changing what is and what might remain a mild infection of the middle ear into a severe infection by forcing more active micro-organisms through the Eustachian tube by inflation should not be considered lightly. I am firmly convinced that I have on more than one occasion, in the earlier years of my practice, been indirectly responsible for an unfortunate change in the character and severity of an acute inflammation of the middle ear by following the practice, too freely recommended by many reputable otologists, of inflating the middle ear cavity in the presence of active inflammation. In recognizing the evil effects of the treatment, I am not willing to admit any laxity on my part in observing the precautions ordinarily followed. The evil effects have occurred by forcing infection to regions hitherto uninvaded, and the complications thus brought about were not dependent on any carelessness in the methods employed. It is more rational treatment to postpone inflation until the acute symptoms have subsided, or until the membrana tympani has been opened.

In my judgment acute inflammation of the middle ear is essentially a surgical disease, and its successful treatment depends on the early establishment of drainage, but in a summary of the recommendations for the treatment of the affection from its incipiency I would say:

1. The patient should be kept quiet, preferably in bed, and the more active the symptoms the more necessary for the enforcement of this measure.

2. Secure a prompt and free movement of the bowels by means of calomel and salines.

3. Secure depletion of the vessels of the membrana tympani and the tympanic cavity by leeches applied to the region immediately in front of the tragus, and the osmotic effect of carbolic acid (10 per cent.) and glyc-

erin tampons applied directly against the drum membrane.

4. Cleanse the nasal and pharyngeal mucous membrane with a saline antiseptic spray or douche. Remove any existing hypertrophied lymphoid tissue.

5. Advise cautious blowing of the nose to limit introduction of infection to the tympanic cavity.

6. Apply dry heat to aid in control of pain.

7. Incision of the drum membrane under strict aseptic precautions on the appearance of pronounced redness of any portion of that organ when accompanied by pain, impairment of hearing and other evidences of acute inflammation.

8. Following perforation of the drum membrane the use of aseptic dry gauze packing for the purpose of excluding infection from without and also to withdraw the discharge from the tympanic cavity by capillary attraction.

9. Syringing, under aseptic precautions, only when the discharge is purulent and profuse, to be followed by as thorough drying as possible with sterile absorbent cotton.

10. Judicious inflation by Politzer's method only after the acute symptoms have subsided or after the drum membrane has been opened, to facilitate removal of discharge from the tympanic cavity and to prevent adhesive changes in the sound conducting apparatus.

11. Appropriate treatment of any associated systemic disease.

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TURNING IN ORGANIC HEMIPLEGIA.

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Dr. Leonard J. Kidd recently discussed the mode of turning in walking of organic hemiplegics and spastic paraplegics and referred to a paper by von Schüller in which the latter says that an organic hemiplegic cannot walk toward the sound side, as he must drag the paralyzed leg after him. It is also pointed out that the functional hemiplegic does not walk toward the palsied side but only toward the sound side, and Kidd concludes that the direction in which the hemiplegic turns is of equal diagnostic value, and that this test causes less inconvenience to the patient. To prove the correctness of this opinion, he examined hemiplegias and spastic paraplegics who were more spastic on one side or the other, and found that fully 99 per cent. spontaneously turned to the spastic or more spastic side. From this he draws the following conclusions:

1. If such a patient in walking turns round to the affected side or more affected side, an organic lesion is present.

2. If he turns to the sound or less affected side the case may be one of either functional or organic affection; a cursory examination will determine which.

As he urges clinicians to observe the direction in which a patient turns who is weak or spastic on one side, and as no one else has attempted to confirm his conclusions, I examined 36 cases of organic hemiplegia in order to determine the value of his observations. The patients were made to walk in some open place, to turn round of their own accord and to come back to the starting point. This was repeated and when the strength and facility of walking permitted, 10 turns were made.

In some cases, the mentality was such that the patients could not be made to walk away and to return merely on being told to do so, and it was necessary in these cases to call to them to come back.

It was found that the direction from which came the sound of the voice, and the presence of persons or objects, were sufficient to determine the turning in some particular way. As far as possible, crutches, canes and all outside influences were removed. It was found that only 67 per cent. of the whole number turned to the affected side, 16 per cent. turned to the sound side, and 16 per cent. turned indifferently to either side; a difference of over 30 per cent. from Kidd's figures.

While most hemiplegics seem to turn by preference to the more affected side, they do so in such numbers as hardly to make it a rule. Moreover the less the paresis and the greater the difficulty of determining between organic and functional complaint, the more indifferently the patient turns to either side, as shown by the fact that half of those examined who turned to either side walked excellently. The factors which determine the direction in which a hemiplegic patient turns seem to be many, but it may be said that when the paralyzed limb has marked foot-drop and contracture in that position, it becomes necessary to sweep the foot around in a large circle to bring it forward, and the turning is done on the other foot as a pivot. If the palsied leg be not so deformed, and it is not necessary or perhaps is difficult to swing the leg around, the turning is done on the affected leg as a pivot. If this is so, it is plain that there may be intermediate positions of deformity in which the patient turns to either side. One patient examined said that he turned according to which foot was foremost at the time, his position determining the direction, but most of those who were asked after being examined did not confess to its being any easier to turn one way than the other. Several hemiplegics moreover who turned consistently to one side were examined and told to turn in walking at such times as one or the other foot was advanced, but they nevertheless turned toward the same side as formerly, so that at most the patient's position explains but a part of the phenomenon.

If it can be shown that a functional hemiplegic ever turns to the affected side, and observations are perhaps needed to that end, the value of Kidd's deductions is much lessened. While the above findings do not disprove his conclusions, that a man who turns to the affected side is organically diseased, they make that fact applicable as a test to fewer cases, and consequently leave a larger proportion open to other means of diagnosis.

I am indebted to Dr. William G. Spiller for the use of his wards at the Philadelphia General Hospital, where about half of the cases examined were obtained, and also for his corroboration of part of the work done.

1. Kidd: Review of Neurology and Psychiatry, November, 1904.

Management of Labor.—1. Absolute asepsis as regards the puerperal woman, lying-in room, and the person of the accoucheur. 2. A careful diagnosis of the position of the child should be made before the completion of the first stage of labor. 3. Watch expectantly the progress of the labor. 4. Non-interference during the labor except for cause. 5. A clean delivery of the placenta. 6. Be assured that there is a good contraction of the uterus before leaving the patient. 7. After the delivery, examine carefully by ocular inspection, and see if there is any laceration of the perineum. 8. If a laceration be discovered, repair at once.—*Medical Visitor.*

THE PREVENTION OF SHOCK AND HEMORRHAGE IN SURGICAL PRACTICE.*

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INTRODUCTORY.

During the past eleven years I have conducted an experimental laboratory, in which some of the problems suggested in surgical practice have been investigated. On some we failed to throw any light; in some our results were inconclusive; and in others their solution seemed to have been found, or at least useful data obtained. These were published in four monographs, to wit: *"Surgical Shock,"* 1897; *"Research into the Surgery of the Respiratory System,"* 1899; *"Problems Relating to Surgical Operations,"* 1901; *"Blood Pressure in Surgery,"* 1903.

On the clinical side during a corresponding period, we accumulated notes on 5,800 major operations in general surgical service, including every variety excepting certain operations on the eye and ear.

The discussion of the various operations is only from the restricted viewpoint of the title of this paper. In the experimental as well as the clinical work my associate, Dr. W. E. Lower, was actively engaged during this time and shares fully with me the responsibility for the results.

In this paper we shall assume that pure surgical shock is mainly due to the effect on the vasomotor centers of the afferent impulses set up by trauma, exposure, etc.; that each such impulse modifies these centers; that a sufficient number of such impulses with sufficient intensity over a given period of time causes the vasomotor centers to lose their excitability; that during the production of this functional impairment and final breakdown the blood pressure becomes irregular, becoming proportionately lower, and when the final stage of complete loss of excitability of the vasomotor center has been reached the pulse in the peripheral arteries can not be palpated and the carotid pressure would probably register not more than 20 mm. mercury. This would represent a picture of complete shock, presenting a very unfavorable prognosis. The symptoms are a close counterfeit of those of hemorrhage, indeed, the state of the circulation is that of a transference of the blood to the venous side of the circulation; that is, it is an intravascular hemorrhage, but because the hemorrhage is intravascular the symptoms should not be unlike those of an extravascular hemorrhage. The afferent impulses may either be of such intensity or of such great numbers, or more usually both, as to cause this functional dissolution.

Among the accessory causes, aside from the afferent impulses mentioned, there may be mentioned certain factors that lower the physiologic resistance, viz.:

(*a*) Psychical excitation, such as fear, foreboding, etc. This needs only to be mentioned to be admitted, and it has seemed to me to be a more powerful factor than is usually considered.

(*b*) Hemorrhage. This also is a self-evident factor, and often very difficult to estimate closely.

(*c*) Cold. The depressing effect of the lowering of the body heat, as noted in exposure to cold on battlefields, in undue exposure in the operating room, and in many physiologic experiments, is well established. In practice I place the patient on a hot-water bed adapted to the operating table.

(*d*) Acute and chronic infections. In these infections there is a marked physiologic disturbance of many parts of the body, and certainly not the least is the circulatory mechanism.

(*e*) Anemia, cachexia, collateral diseases, etc.

(*f*) Age and sex.

Of all these accessory causes of shock we may for our present purpose reduce them to a physiologic basis as follows: The vasomotor centers have a normal definite range of functional capacity. When one or more of these accessory factors enter, this range of definite functional capacity is by so much definitely reduced. This is a plain physiologic law.

In practice one finds one or more of these factors in the vast majority of his patients. That is to say, most of our patients are handicapped in various degrees, from the slight to the grave, even fatal. These handicaps should be our special consideration, and our ability to correctly estimate them on the one hand, and to correctly estimate the vital cost to execute a given technic on the other, constitutes in my opinion the most difficult problem presented to our surgical judgment for decision.

OPERATIONS ON THE HEAD.

Horsley and Spencer long ago demonstrated the dangers of increased intracranial pressure, and Cushing has offered an explanation of the physiologic necessity for the increased general blood pressure under this condition.

In tumors, abscesses and hemorrhages, causing an increased intracranial pressure, the blood supply of the extracranial portion is increased. This was more especially noted in the veins. The blood pressure of the brain under these circumstances is at an irreducible minimum. Therefore, until decompression of the brain has been effected, it would be unsafe to materially lower it either by hemorrhage or anesthesia. After having lost one case of extensive, acute hemorrhage during the second stage of anesthesia, I have in severe cases opened the skull under local anesthesia.

In other instances I have, when necessary, detailed an assistant to give artificial respiration while the bone was rapidly cut away. Alternating heat and cold are perhaps the most powerful respiratory excitants. In two instances respiratory arrest was successfully combated on these lines.

The most severe cases were those of traumatic origin in which opportunity for physiologic compensation was greater. Marked assistance in control of the troublesome venous hemorrhage was obtained by applying the pneumatic rubber suit and placing the patient in the 45-degree upright posture, thereby gaining the advantage of gravity in decreasing the venous pressure in the vessels of the head and maintaining or even increasing the arterial pressure in the same territory. In opening the skull, if by mallet and chisel, it is very important to use the greatest gentleness, as both the clinical and experimental evidence show that the medulla is seriously disturbed by the repeated percussions of the mallet. In opening the skull, in my earlier cases, I am sure that the mallet and chisel provoked some serious circulatory disturbances. Since using only well-beveled, sharp chisels more precisely and a light mallet more gently, I have not detected any circulatory changes.

The supreme importance of reducing to a minimum the exposure and manipulation of the meninges and the brain can only be fully appreciated after noting the circulatory changes and the loss of cortical excitability

* Read before the Pittsburg Academy of Medicine, 1905.

in laboratory experiments. Unless precise arrest of the hemorrhage is made as the operation progresses the operator is quite likely to do unintended damage in sponging.

Since in intracranial operations sudden circulatory disturbances are always imminent, the blood pressure is in all cases continuously noted by a special assistant for that purpose. The patient is inclosed in the pneumatic suit during the early stages of anesthesia, and saline solution and adrenalin are at hand. That is to say, as complete preparation as possible for the control of the blood pressure is made.

CLAMPING THE CAROTIDS.

Since the first case, which was in 1897, I have closed the common or the external carotid artery 51 times with no unfavorable results. The effect on hemorrhage is found to vary greatly. In some the arterial hemorrhage is completely controlled; in others, owing to the greater collateral circulation, but particularly owing to the freer anastomosis, especially through the circle of Willis, a distinct peripheral pulse was noted. That is to say, the blood continued in a pulsating circulation from the opposite unclamped artery through the circle of Willis, causing a reverse current through the peripheral cerebral vessels of the clamped side, re-establishing the circulation through all the branches supposed to be closed off. This reverse circulation in several instances was sufficient to produce a pulsating hemorrhage in the severed terminal arterial branches of the external carotid.

In such cases closure of the external carotid would be more effectual, and in operations in which the factor of hemorrhage is of great moment, as in cases in which the tumor is supplied from both sides, both external carotids have been closed.

The venous hemorrhage, as we have said, is but slightly modified by closure of the carotids. At present the most effective means of lessening the venous hemorrhage is by posture—the head-up posture. In the past this has been the method of choice in all cases in which the danger of cerebral anemia was not present. The pneumatic rubber suit enables us to make free use of this position, as by means of it the blood is not permitted to accumulate in the veins of the body below the diaphragm.

So far as we now know the most favorable condition for controlling the hemorrhage in certain major hemorrhage risks is by closure of one or both common or external carotids according to the location, and the head-up posture with the patient inclosed in a pneumatic rubber suit.

LARYNGEAL AREA.

In such operations as intubations, laryngotomies, laryngectomies, intralaryngeal operations of all sorts, operators have reported instances of sudden collapse or death.

This is now well understood to be due to reflex inhibition of the heart and of the respiration from mechanical stimulation of the superior laryngeal nerve.

The cardiac collapse may be wholly obviated by previously administering a physiologic dose of atropin, or by applying cocain on the nerve ending in the laryngeal mucosa, or by injecting its trunk with cocain. Surgery scarcely claims a more definite law or a more striking phenomenon.

In the eleven total laryngectomies for carcinoma, in the first two, before the definite cause and prevention had been worked out in the laboratory, dangerous collapse occurred; in the remaining nine not even a change in respiration or in the heart rate was noted. Because of this dangerous reflex area in the larynx, tracheotomy, not laryngotomy, should be the operation of choice.

THORAX.

In intrathoracic infections with a seriously hampered respiration and a circulation dangerously impaired, one may often with greater safety do a morphin-cocain operation for a mere intercostal opening or resection of a rib, relieving the impending danger, and after the patient's forces are recruited, a more complete operation under surgical anesthesia may be made.

In intrathoracic procedures one must not lose sight of the supreme importance of the respiratory action on the circulation—constituting a great respiratory pump for the circulation, especially for the venous inflow. Even in the normal the circulation is most seriously hampered when both the pleural cavities are opened, thereby eliminating the suction power so necessary to fill the auricles.

In such cases, while by one of the various methods of positive ventilation of the lungs, as by the Fell-O'Dwyer apparatus, in pulmonary collapse oxygen may be freely supplied while the greater danger, that of circulatory collapse, is little if at all obviated. Extensive pressure on the other parts of the body is the most important in throwing back the blood into the thoracic circulation and permitting the heart to refill in the face of the loss of the respiratory pump.

In all intrathoracic procedures one must ever bear in mind the high importance of interfering with the great venous trunks, since their blood pressure is very low, they are surprisingly easily compressed. Such compression would have an immediate disturbing value to the heart's action, equal to a torrential hemorrhage.

ABDOMEN.

In abdominal operations the amount of shock depends in a direct ratio on the trauma and the exposure. This territory bears a rich supply of vasomotor nerves, and the effect of a given operation on the vasomotor center is the sum of the exposure and the intensity and the number of mechanical contacts with the delicately receptive nerves. It follows in practice as truly as in theory that a given operation in the hands of one operator may be manifold more shock-producing, than in the hands of another.

In extensive technical operations, such as the removal of tumors requiring resections of intestines. in certain cases of gastro-enterostomy with entero-enterostomy, in ureteral and in any other time-consuming, exacting technics when no special contraindication exists. morphin-ether anesthesia is used, ether during the abdominal incision, and the exploration and development of the operative field, and morphin alone with slight or no ether accessory during the technic proper, then ether again in closing the abdominal wound.

The region around the diaphragm and the large splanchnic trunks, as in operations for common duct gall stones, operations on the head of the pancreas, etc., is especially shock producing.

The expiratory moan in these upper abdominal operations near the diaphragm may deceive the anesthetizer and mislead him into giving excessive anesthesia. This is entirely analogous to the inspiratory moan while working on the sigmoid or rectum in pelvic operations, or divulsing the sphincter ani. Manipulation in the

peritoneum other than the latter mentioned areas, especially if rough or extensive, may cause an expulsive action, a powerful action tending to force out the bowel by definite straining phenomena. The greater the surgeon's efforts at returning the intestine the greater the mechanical stimulation, and so the greater the expulsive response, which in turn stimulates the operator to greater effort, completing a physiologic vicious circle, which, when once started, continues until either the reflex or the operator is overcome. In acute peritonitis this state is most likely to occur.

In anemias, cachexias and acute infections, a most careful physiologic invoice of the available vitality is made, and a procedure requiring an expenditure falling within such limit is chosen. In illustration, in cases of acute cholecystitis, in deep toxemia, in subjects varying from 36 to 96 years, by a cocain-morphin, or a cocain-morphin-gas anesthesia, a simple opening for drainage was made. After the acute stage had passed, in two cases, under gas or gas and ether, better drainage was provided and in one an impacted stone was removed. All recovered.

The same plan has been repeatedly employed in pelvic and appendiceal abscesses, and in one instance in an abscess in the lesser peritoneal cavity caused by a perforating duodenal ulcer simple drainage under cocain was made and later a radical operation was successfully done. Operative treatment by a process of physiologic progression is not infrequently demanded.

In operations on the pelvic organs we are impressed that this area is somewhat less shock producing than equally extensive dissections above the pelvis.

EXTREMITIES.

The prevention of shock in operations on the extremities has resolved itself into two or three simple propositions, the minimum loss of blood, the minimum manipulation and force, and the "blocking" of the nerve trunks by intraneural injections of cocain or eucain.

In considering the first proposition, surgeons will succeed by individual methods. I have within the past two years adopted the plan of direct dissection, using for the soft parts precisely the same instruments as for a breast amputation. The smaller vessels are secured in passing and a dry field is maintained. The large nerve trunks are exposed as early as possible and "blocked." The larger vessels are ligated and divided as they are reached. Great care is exercised in so dividing the tissue that any further revision is not required. The bone is divided by means of a Gigli saw, obviating the heavy manipulation of retraction of the entire stump when a plain saw is employed.

As an example, in intrascapulo-humeral amputations by first exposing the subclavian artery and vein and the brachial plexus through the same incision each trunk of the plexus is "blocked," the artery and vein are then secured and the skin incision of the part supplied by the cervical nerves is then made. The anesthetic may then be withdrawn, as the major field remaining has been anesthetized by the physiologic "blocking" of the brachial plexus—not only anesthetized but rendered shockless. As no impulses of any kind can pass either upward or downward, there is no more shock in dividing the tissues, even the nerve trunks thus "blocked," than in dividing the sleeve of the patient's coat.

Blood-pressure observations by means of a sphygmomanometer during such operations entirely substantiate this statement. After the effect of the "block" wears away, however, impulses pass up from the injured nerves just as after amputation by any other method, but the vasomotor centers have been protected against their greatest dangers and can better tide over the crisis.

Since my original publication of the peculiar property of cocain, whereby shock-producing impulses were "blocked" in the large nerve trunks, Matas, Cushing, Gibbon, Lund, Cobb and others have confirmed its value.

SUMMARY.

Every tissue and organ has a more or less individual shock-producing value and must be individually considered. The amount of shock produced by a given trauma varies according to the amount and special quality of nerve supply involved and the number and intensity of the afferent impulses originated by the injury or operation.

Cocain or eucain may wholly "block" these shock-producing impulses. When one or more of the accessory causes of shock are present the highest possible tax is laid on the surgical judgment of the operator. A precise technic offering a minimum of exposure and trauma, grafted on a comprehensive grasp of all the factors entering into the operative consideration, are the ideals for which we must strive.

THE ANTAGONISM OF THE OVARIES AND THE THYROID.—C. Parhon and M. Goldstein (*Archives Generales de Medicine*) review the subject of the relations of the ovarian and thyroid secretions and maintain that a very marked physiologic antagonism exists between them as regards their action on the organism. In support of this opinion they refer to the increase of the thyroid gland as frequently observed at the menopause; the facts that the thyroid seems to favor the normal growth of the osseous system, as shown by its defective development in myxedematous cases, and the contrary action of the ovaries in osteomalacia, as shown by the good effects of castration in that disease; the evident antagonistic action as regards the adipose development, the thyroid secretion being an anti-fat agent, and the normal ovarian functions tending, to a certain degree, toward the growth of adipose tissue. The thyroid favors the growth of hair, which is suppressed to some extent by the influence of the ovaries, as shown by the appearance of hairy growths at the menopause, and their action is also contrary as regards the effects on the circulatory system, the thyroid accelerating the pulse and increasing tension, while the ovarian secretion, they claim, has the opposite effect. They also find similar antagonisms in the regulation of the secretions, in the nutritive metabolism, the output of urates, phosphates, and chlorids, and the elimination of calcium, arsenic, and iodin. The therapy of Grave's disease and chlorosis is also brought into the argument, both being considered by the authors as dependent, at least in many cases, on exaggeration or perversion of the thyroid functions. The question as to whether there exists a similar antagonism between the testicles and the thyroid is suggested as one deserving special study. The authors consider that many facts, such as the effect of castration on the bony growth and the hairy development when performed on young individuals strongly point toward such antagonism.

Special Article

IMMUNITY.

CHAPTER XVII.

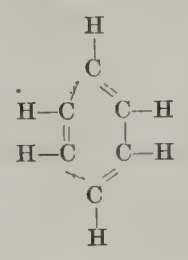
THE SIDE-CHAIN THEORY OF EHRLICH AND ITS RELATION TO THE THEORY OF PHAGOCYTOSIS.

Ehrlich,[1] in 1885, before the discovery of toxins and antitoxins, before there was any knowledge as to the real nature of immunity, and before he had become actively interested in its study, published a small volume on the "Oxygen Requirements of the Body." Herein the belief was expressed that the assimilation of foods by cells is accomplished only after chemical union has taken place between the food substance and some constituent of cellular protoplasm. It is not the understanding that assimilation is at an end, however, when this union has occurred, for certain molecules of complex chemical nature and of great size must be split up into simpler substances before they enter into the composition of protoplasm. Therefore, the cell constituent which combines with the nutritious molecule serves only as a link to bring the foodstuff into relation with the digestive, oxidizing or fermentative activities of the cell.

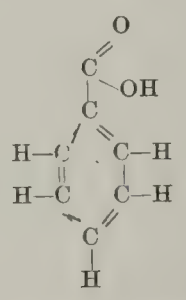
"Leistungskern" and Side-Chains.

Ehrlich speaks of that portion of living protoplasm which represents the cellular activities as the *"Leistungskern"* of the cell, the center of cellular activity, or the central group of protoplasm, whereas those chemical groups which bind the food substances are called the side-chains of the *"Leistungskern."*

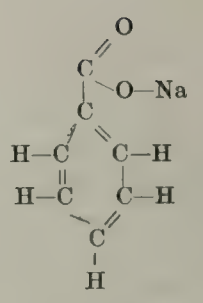
The author of the theory has made his conception somewhat more tangible through an analogy which was drawn with the so-called ring or nucleus of benzol and its side-chains. The molecule of benzol, C_6H_6, has a definite formation in which each carbon atom is linked to two others in such a manner as to form a ring; three valencies of each carbon atom are satisfied in this way, and the fourth is satisfied by atoms of hydrogen, one of which is attached to each carbon atom, thus:



This ring is analogous to the *"Leistungskern"* of the cell. A great variety of chemical compounds exists and very many may be produced synthetically by substituting for one or more atoms of hydrogen, one or more other groups of atoms which may be very simple or very complex. The groups which have been substituted are called side-chains. Thus benzoic acid is formed from benzol by substituting the acid radical COOH for a particular H, and the COOH in this instance is a side-chain of the ring:



Just as the side-chains of the *"Leistungskern"* may combine with food particles, so may the side-chains of the benzol ring combine with other groups of atoms and thereby assimilate the latter, so to say, into the ring. To choose a simple example, the sodium of sodium hydroxid may unite with the side-chain COOH to form sodium benzoate, the hydrogen of the acid radical being replaced by the sodium, thus:



Presumably it is in some such manner as sodium is brought into relationship with the benzol nucleus, in the example cited, that the food substances are brought into relationship with the *"Leistungskern"* of the cell.

Haptophores.

The hypothesis of Ehrlich carries with it the assumption that the side-chains of a cell possess or consist of definite groups of atoms capable of uniting chemically with certain other definite groups of atoms in the food particles; that is to say, the food substances also have combining groups—haptophores. The side-chains of the cells Ehrlich now calls receptors, elements which we have already recognized in connection with immunity. Inasmuch as different foods have different chemical compositions, it is likely that their binding groups are not identical; and if this be true there must exist many kinds of receptors each of which is able to unite only with that food substance which has a corresponding binding group of atoms.

In contrast to the condition with respect to foods, it is held that chemical substances of known composition, drugs and alkaloids never become incorporated as a part of the protoplasm, that is, they do not unite with cell receptors, although they may affect the vitality and function of protoplasm profoundly. Their inability to yield antibodies as a result of immunization is supposed to depend on this condition. Such substances, according to Ehrlich, exist in the cell in a condition of unstable salt formation with some constituent of the protoplasm, or in a state of solid solution.

The following statement from a recent publication by Ehrlich summarizes the nutritional aspect of the theory: "We must assume that all substances which enter into the structure of protoplasm are fixed chemically by the protoplasm. We have always distinguished between assimilable substances which serve for nutrition and which enter into permanent union with the protoplasm, and those which are foreign to the body. No one believes that quinin and similar substances are assimilated, that is, enter into the composition of the protoplasm. On the other hand, the food substances are bound in the cells, and this union must be considered as chemical. One can not extract a sugar residuum from cells with water but must first split it off with acids in order to set it free. But now such a chemical union like every synthesis, demands the presence of two binding groups of maximal chemical affinity, which are suited one to the other. The binding groups which reside in the cells and which bind food substances I designate as side-chains or receptors, while I have called those of the molecules of foodstuff the haptophorous groups. I also assume that protoplasm is endowed with a large series of such side-chains, which through their chemical constitution are able to bind the different foodstuffs and thereby provide the prerequisite for cellular metabolism."

Side-Chain Theory of Immunity.

If the side-chain theory of nutrition is to become the side-chain theory of immunity it is necessary that it undergo elaboration in order that the formation of antibodies may be adequately explained. If, as Ehrlich assumes, the union of toxin with cell receptor is analogous to the union of food substances with similar receptors, one may wonder that antibodies are not formed for our ordinary foods, antibodies which would be discharged from the cells and which would unite with circulating nutritious particles and thereby bring about a condition of starvation. Without entering into the intricacies of this question, it seems probable that normally a condition of physiologic equilibrium exists between the food substances on the one hand and the cellular activities on the other, so that the union of food with protoplasm constitutes no abnormal stimulus to the *"Leis-*

1, Sauerstoffbedürfnis des Organismus.

tungskern" of the cell. When, however, cells are diverted from their normal metabolic function by union with toxins and other abnormal "food substances," the result on the cell is described as a cell defect, the defect consisting of the functional elimination of the receptor. The "*Leistungskern*" as the vital or regulating center of the cell repairs the defect by the formation of new receptors, and in harmony with the hypothesis of Weigert produces not only enough to repair the defect, but a great excess, with the result that many are thrown into the circulation. The analogy of the "*Leistungskern*" with the benzol ring can not be carried to this extent, for the latter has no power of reproducing side-chains to take the place of one which has been bound by some new group of atoms.

It will be appropriate in this place to consider the character of the proof which has been offered in support of the three tenets which constitute the framework of the theory of Ehrlich. These three tenets may be expressed as follows: 1. Antitoxins counteract toxins by entering into chemical union with them; a similar union takes place between other antibodies and their homologous substances. 2. Toxins in injuring cells combine chemically with a definite constituent of the protoplasm, the cell receptor; other antigenous substances[2] enter into similar union with the appropriate receptors of cells. 3. The specific antibodies of the serum are new formed receptors identical in structure with those which, as cell constituents, had combined with the homologous antigen.

Tenets of Ehrlich's Theory.

First tenet: In the early days of studies on immunity (1890-1897), the action of a toxin and the efficacy of an antitoxin could be determined only by injecting these substances into living animals, and the animal experiment naturally continues to be the means of testing the curative and prophylactic value of serums. So long, however, as such experiments were performed exclusively in the living animal the nature of the action of antitoxin remained to a certain extent in doubt. It remained uncertain whether antitoxin is protective because it actually destroys the toxin, because neutralization of a chemical nature occurs, or because in some manner it increases the resistance of the inoculated animal. In Chapter IX experiments were cited to show that antitoxin does not destroy the toxin, and this is generally admitted to-day. There continues to be some difference of opinion, however, in relation to the other two possibilities, i. e., as to whether antitoxin combines chemically with toxin, or is efficacious because of its stimulating power on the tissues of the animal. Behring, the discoverer of antitoxin, was from the beginning an exponent of the chemical theory, even at a time when the conceptions of Ehrlich had not been fully developed. On the other hand, certain noted investigators, especially Roux and Buchner, and later Metchnikoff, stood for the alternative view.

Union of Chemical Antibodies with Antigens.

Following closely on Behring's great discovery Ehrlich studied the hemagglutinating toxin ricin, from the castor-oil bean, and by immunization with it produced a specific antitoxin, i. e., antiricin. Ricin is toxic to erythrocytes both in the animal body and in the test-tube, and if it could be shown that antiricin protects in the test tube by a direct effect on the toxin, it was highly probable that its action in the animal body would be of a similar nature. It was, of course, possible that the antitoxin might increase the resistance of the erythrocytes through some effect on them, but this possibility was eliminated, supposedly, by first treating the corpuscles with certain chemicals. The results left no doubt in the mind of Ehrlich that antiricin unites chemically with ricin, and the applicability of this principle in animal experiments became all the more apparent when it was shown that the proportion of antiricin which protects *in vitro* also protects *in vivo*.

Ricin and Antiricin.

It is held that similar proof of chemical union between bacterial hemolysins, the hemolysin of venom and the leucocidin of the staphylococcus with their respective antitoxins is equally valid. Although the animal body can not be dispensed with in testing the action of the antitoxins of diphtheria and tetanus, certain principles of chemical action are found to prevail which leave no doubt in regard to the chemical neutralization of the toxins. If neutralizing proportions of diphtheria toxin and antitoxin be mixed in a test tube and injected immediately, the serum does not afford absolute protection; if, however, the mixture is allowed to stand for from fifteen to twenty minutes before injection, the protection is absolute. This alone would point to an action of the antitoxin on the toxin, for the completion of which a certain amount of time is required. For the complete neutralization of tetanus toxin by its antitoxin about forty minutes are necessary at ordinary temperatures. Then certain other chemical principles described in Chapter IX are found to hold true: That neutralization proceeds more rapidly at higher than at lower temperatures, more rapidly in concentrated than in dilute solutions, and that it takes place in accordance with the law of multiple proportions.

Chemical Neutralization of Toxins.

Granting, then, that neutralization of toxin by antitoxin is of a chemical nature, the first essential step in the chemical or side-chain theory is established. If antitoxin combines chemically with toxin, union must occur through combining groups which each molecule possesses. Herein lies the experimental justification for assuming the existence of haptophorous groups.

The situation is more difficult in regard to the union of agglutinin and amboceptors with their homologous receptors. One can not titrate bacteria against agglutinin or bactericidal amboceptors so exactly as toxin can be titrated against antitoxin, for, in the first place, it is difficult to obtain at will a desired concentration of bacteria and to keep it without alteration, and, in the second place, bacterial cells contain many more receptors than are necessary for their agglutination and solution. A given mass of bacteria will take up varying quantities of agglutinin, depending on the concentration of the latter, and the same principle applies to the absorption of bactericidal and hemolytic amboceptors. As more and more agglutinin is added, the total amount absorbed increases with each addition, although the ratio of absorbed to unabsorbed agglutinin grows less continuously. The conditions which govern this phenomenon are not understood, although it has been suggested that the law of mass action explains it. Perhaps no condition speaks more decisively for chemical union of these bodies with cell receptors than immunization experiments which were carried on with cells which had been treated with a great excess of the specific antiserum. The assumption was made that if one could force all the receptors of erythrocytes, for example, to take up the specific amboceptors, such corpuscles should lose their power to cause the formation of hemolytic amboceptors when injected into a suitable animal. This would follow logically, for the receptors of the corpuscles, being already bound, would not be free to unite with receptors of the immunized animal. Antibodies were **not** formed under these circumstances, from which it is concluded that the receptors of the erythrocytes had united chemically with the antibodies of the serum (Sachs). In order to completely occupy all the receptors of the vibrio of cholera Pfeiffer used 3,000,000 to 4,000,000 times the dissolving amount of the anticholera serum. Although the mere absorption of agglutinins and amboceptors by the homologous cells is cited in favor of the chemical hypothesis, we may bear in mind the contention of certain investigators that this absorption is physical rather than chemical.

Union of Agglutinin and Amboceptors with Receptors.

Second tenet: What evidence have we that toxins and other antigenous substances enter into chemical union with cell receptors It is probable that no observation speaks more strongly in favor of such union than a famous experiment of Wassermann's in which the central nervous system of guinea-pigs was ground up with tetanus toxin, the mixture allowed to stand for a short time and

Chemical Union of Toxins and Antibodies with Cell Receptors.

2. An antigen or an antigenous substance is one which is able to cause the formation of an antibody.

then injected into mice. The mixture was found to be non-toxic, and further experiments showed that the neutralizing power resides in the solid tissue in the emulsion. It is claimed by Ehrlich that this experiment demonstrates positively that chemical union of tetanus toxin takes place with constituents of the nervous tissue. The toxin having been completely neutralized can not again be extracted from the tissue. The condition is the opposite in relation to some poisonous alkaloids, as strychnin, which it appears does not combine with the protoplasm firmly and may again be extracted by simple methods.

Von Dungern conducted very important work with the precipitins, which is interpreted as showing that albuminous substances other than toxins are taken up chemically by the cells. He injected considerable quantities of a foreign serum into the veins of rabbits and studied its disappearance from the blood of the injected animal. Traces of the foreign serum could be recognized by treating the rabbit serum with a specific precipitin for the former, the precipitin having been obtained previously by the immunization of other animals. The foreign serum disappeared from the circulation of the rabbit with some rapidity and since it could not be demonstrated in the excretions, it seemed necessary to assume that it had been bound by the cells, that is to say, by the cell receptors.

(*To be continued.*)

Clinical Reports

CASE OF TETANUS, WITH RECOVERY FOLLOWING OPERATION.

C. F. STOKES, M.D.
Surgeon U. S. Navy, Naval Medical School.
WASHINGTON, D. C.

The approach of the Fourth of July and the interesting editorial in THE JOURNAL, June 10, on the treatment of tetanus prompt me to submit a brief history of a patient operated on by me in Gouverneur Hospital, New York City, in the fall of 1885. The case was fully reported in a paper read before the Society of the Alumni of Bellevue Hospital shortly afterward, and was, in fact, among that society's earliest papers.

It was my belief at that time that tetanus was due to a peculiar type of infection in wounds, and that the result of the infection was an "irritation" to the nerve filaments supplied to the wound, and that this "irritation" was carried through the nerves to the cord, which, in turn, manifested the extent of transmitted "irritation" by the character of the tetanic convulsions developed. The discovery of the tetanus bacillus by Nicolaier in 1884 was not known to me at that time. The treatment in this case was planned in accordance with the foregoing theory of the origin of this disease.

Patient.—Male, aged 23, a carpenter by trade, while at work on an outside window frame, had an epileptic seizure, fell to the ground and sustained a contused wound, high up in the occipital region, on the right side. The wound was dressed at a dispensary and appeared to do well for three or four days. On the fifth day I saw the patient at his home, when he showed marked stiffness of the muscles of the neck and trismus, and while I was removing him to the hospital he had his first convulsion, a typical opisthotonos. The convulsions rapidly increased in frequency and severity and bade fair rapidly to exhaust him. The case appeared to be pronouncedly acute and hopeless.

Treatment.—The patient was anesthetized with chloroform, the entire scalp was shaved, and the wound, which was about the size and shape of a half-dollar and infected, was curetted and cleaned out down to the bone with knife and scissors. This cavity was packed with gauze saturated with a solution of carbolic acid. The supposed source of the "irritation" was in this way removed. The nerves—the channels by which the "irritation" was supposed to reach the cord—were completely cut off from the wound area by a liberal V-shaped incision, angle downward, carried to the bone, and extending well beyond the site of the injury. The arms of the V-shaped wound were packed to the bone with gauze soaked in a weak solution of cocain to relieve the proximal ends of the nerves from supposed "irritation." In addition, the patient was treated symptomatically with particular attention to catharsis and nourishment.

Result.—Most surprising results followed this treatment. Within twenty-four hours the convulsions became decidedly less exhausting and less frequent and by the tenth day had practically ceased. On the fourteenth day, however, while turning over in bed, the patient accidentally touched the slats of a shutter, and bright sunlight fell on his face, bringing on a tetanic seizure, his last, which nearly cost him his life. He made an uninterrupted recovery, stiffness of the jaw persisting for some days, however.

As the absorption of the cocain solution could not be controlled, its use was discontinued after a few applications and a moist antiseptic dressing was substituted.

In a region where the division of nerves is of comparatively little moment I believe the foregoing plan of treatment is indicated, supplemented by the use of antitoxin in the spinal canal, beneath the skin, and in the wounds in place of the cocain solution as employed by me.

The necessity for collecting the scattered notes of cases justifies this brief report.

TRANSPOSITION OF THE VISCERA (SITUS TRANSVERSUS).

W. J. ZALESKY, M.D., AND W. A. ANGWIN, M.D.,
Assistant Surgeons, U. S. Navy.
ANNAPOLIS, MD.

Cases of complete transposition of the viscera are still rare enough to be classed as curiosities and each case reported is of interest if only because of that fact. We have the following case to add to the list:

Patient.—J. W. B., U. S. Navy, native of Texas, aged 18.

History.—Parents are both living and in good health; two brothers and one sister are living, also in good health, and with all viscera in normal position. The patient has had all the diseases of childhood, from which he made a good recovery. At the present time he is well built, strong and active, and able to do any kind of work and stand any hardship in the curriculum of a naval training. His condition was first noticed by one of the naval medical officers while on recruiting duty, and before whom the patient appeared for physical examination. Being physically strong, and in the best of health, this transposition could in no way interfere with his appointment to the navy.

Examination.—Inspection shows a marked apex beat in the right fifth intercostal space, two and one-half inches from the sternum. The chest is well formed, and the right testicle is suspended lower than the left one. Percussion shows heart dullness on the right side, but liver dullness increasing and extending to the left side, with diminished liver dullness on the right side. The percussion area of the heart on the right and the liver on the left side is identical with that of a normal person on the respective opposite sides. Splenic dullness and stomach resonance are found to be on the right side instead of on the left. X-ray examination confirms the physical examination, the beating heart being easily seen occupying the right side of the chest. Reasoning from analogy, the appendix is on the left side, and the sigmoid flexure on the right. Curious to note, in addition, is the fact that the patient is right handed, but whether from training or not we are unable to find out.

United States Naval Academy.

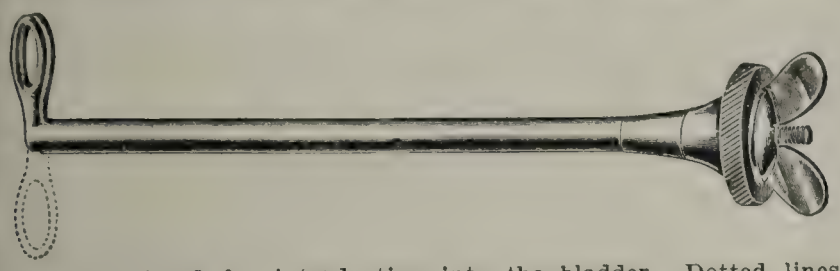
New Instruments

A NEW PROSTATIC TRACTOR.

M. R. BARKER, M.S., M.D.
CHICAGO.

The tractor is introduced closed into the bladder, through a slit in the membranous urethra, and is then opened by turning the thumb-screw five or six times to the left. Then slide the

large nut back to the thumbscrew, and hold it with the right hand while the shaft is turned to the left with the left hand until the groove on the nut is in line with the groove on the shaft. Then slide the large nut back to its place and lock by turning the thumbscrew to the right. The end of the tractor is now elevated and the instrument is used as a lever; the pubes being the fulcrum of the lever and the prostate the body moved. This maneuver brings the broad flat surfaces of the blades of the instrument in contact with the bladder



Tractor closed for introduction into the bladder. Dotted lines show the tractor open after being introduced into the bladder.

wall through which the force must be applied to the prostate. The tractor is taken apart for cleaning by simply removing the thumbscrew.

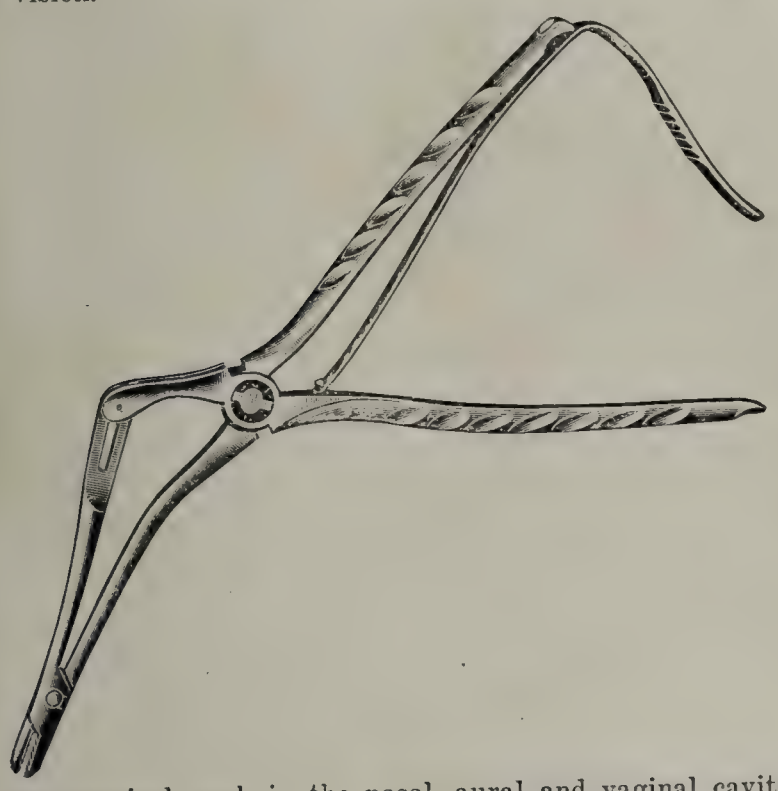
The advantages of this instrument are as follows: It is easily understood and manipulated. It can not get out of order. The danger of injuring the bladder wall is reduced to a minimum.

4625 Greenwood Ave.

PISTOL-GRIP NEEDLE FORCEPS FOR ABDOMINAL SURGERY.

EDGAR CALVIN SEIBERT, M.D.
Assistant Surgeon Orange Memorial Hospital.
ORANGE, N. J.

The placing of sutures in the deeper regions of the abdominal cavity has always been a matter of especial difficulty in abdominal surgery. Owing to the prevailing straight construction of needle forceps, the operator's hand not only must be held at an uncomfortable angle, but also greatly obscures his vision.



For surgical work in the nasal, aural and vaginal cavities, great advantage and perfect visual control is derived from the use of curved or angular instruments.

Having this in mind, I have had constructed a "pistol-grip" needle forceps whose jaws are at an angle of thirty degrees to the handles, which permits a full unobstructed view of the operative field and gives perfect control of the needle even in the deeper and less accessible regions of the abdomen.

In order to provide the power necessary to hold the needle securely, two levers are used, one acting on the other, thus greatly increasing the grasping force of the jaws. Consisting of only four parts which are simple and easily detached, the instrument is readily made aseptic. The jaws have serrated surfaces which are best adapted to grasp straight or curved intestinal needles in any position. A later model has more fully curved handles which give a broader grasp and a better purchase to the hand. French locks on both joints afford additional strength and security. The spring lever for the little finger which opens the catch has a rough serrated surface which guards against slipping of the finger.

This instrument, because of its angle, will be found especially valuable for operations on the stomach, gall ducts, pancreas, kidneys and ureters, and intestines; and particularly so in bringing together peritoneal surfaces after removal of organs in the pelvic cavity. It is equally useful in operations on the cervix and vagina or, in fact, wherever the depth of the operative field makes a full unhampered view of all procedures desirable or necessary.

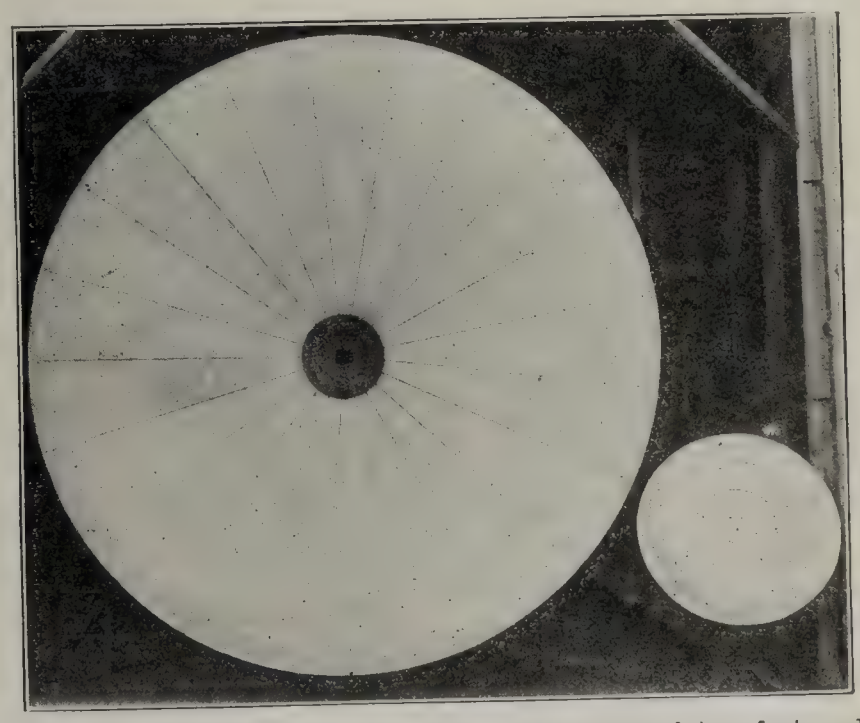
PRELIMINARY ANNOUNCEMENT OF A NEW INSTRUMENT TO BE USED IN PHOTOTHERAPY.

J. W. KIME, M. D.
Superintendent Boulder Lodge Sanatorium for Tuberculosis.
FORT DODGE, IOWA.

During the past six years in which I have made use of light in the treatment of tuberculosis in its various forms I have constantly felt the need of a much more intense light than any that has yet been produced.

I believe that it is impossible to obtain a light from any source, except the sun, that is sufficiently powerful to accomplish what we desire in this direction. The electric arc light is exceedingly limited, but, with the sun as our source of supply, the amount of light is unlimited, and that which we may utilize depends wholly on the size and construction of the apparatus used to gather up the light.

The illustration shows the mirror which I now use and the relative proportion of one now nearing completion. The smaller is three feet in diameter and contains an area of seven



square feet, while the larger has a diameter of ten feet and contains an area of seventy-eight square feet. It is so constructed that all the light falling on the entire surface is concentrated on an area of one-fourth of one square foot. In this manner, sunlight is piled up to an intensity three hundred times that of ordinary sunshine.

Such a light would ordinarily be accompanied by heat of corresponding intensity. Provision has here been made for the absorption of this heat, leaving the light in its full strength by passing the concentrated sunlight through twelve inches of cold water which is flowing through a cooling tank with plate-glass sides.

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EXPERIMENTAL INOCULATION OF MONKEYS WITH SYPHILIS, LEPROSY AND TUBERCULOSIS.

In order to study disease in detail, especially those due to pathogenic organisms, experimental reproduction in animals is of the greatest importance. A brief consideration shows at once that, on the whole, those diseases that may be reproduced in animals are far better understood and controlled than those which can not thus be transmitted. It is, therefore, with much interest that we note the further success attained in the experimental inoculation of monkeys with syphilis.

In their last report, Metchnikoff and Roux[1] describe their further experiments in this fertile field. Altogether they have inoculated ten chimpanzees with syphilitic virus from various sources and have obtained positive results in all cases. Successful results were obtained by using material from secondary lesions of the disease, as well as from the primary lesion, and one chimpanzee has been successfully inoculated from lesions of another, thus establishing the possibility of transmission from animal to animal.

The incubation period varied in these experiments from twenty-two to thirty-seven days. Some days following the primary lesion adenopathy developed in a characteristic manner and the investigators also obtained typical mucous patches on the tongue in one instance. Smaller monkeys were successfully inoculated with the virus, and attempts have been made to produce antibodies and also to obtain a vaccine, but so far the experiments in this respect have been negative. The fact, however, that successful inoculation may be obtained with these smaller animals is of great importance, in that material for further work along this line may be comparatively easily obtained and thus greatly increase the number of investigators.

Metchnikoff and Roux were also able to demonstrate that the virus of syphilis does not pass through a Berkfeld filter, which allows the organisms of peripneumonia to pass, indicating that the virus in all probability exists in molecules large enough to be seen if only the proper technic is employed. They were also able to show that the virus is killed by exposure to 51° C. for one hour, and that glycerin does not destroy its pathogenic power. These facts enabled them to attempt an attenuation of the virus for purposes of vaccination, but the few experiments so far made have resulted negatively.

The importance of this work on syphilis can scarcely be overestimated. Here is a disease recognized as one of the most widespread scourges of the world, and about which practically nothing is known so far as etiology is concerned. Suddenly, largely through the work of these French investigators, this disease has been brought within the realm of experimental medicine, and certainly we expect our knowledge of the disease to be greatly extended within a short period of time.

In this connection it is of interest also to note that an apparently successful attempt has been made to inoculate monkeys with leprosy. Nicolli[2] inoculated into monkeys (*Macacus sinensis*) fragments of leprous tissue and obtained, after a period of incubation of sixty-two days, nodules which have the characteristics of human leprous nodules. The bacillus of leprosy was found in the nodule by suitable staining methods in rather small numbers. None of the large leprous cells filled with enormous masses of bacilli, which appear in the human, was seen, this really being the only difference observed between the nodules in man and in the inoculated animal.

Further experiments are in progress along much the same lines as those being carried on with syphilis. We, therefore, have good reason to hope that this disease, about which so little is known, will also become accessible to experimental research.

It is well known that monkeys are very susceptible to tuberculosis and this fact has been taken advantage of in attempting to determine the relation of bovine to human tuberculosis. Because they are more closely related to the human being zoologically than any other animal, the experimental results obtained with them are, for that reason of greater value than results obtained with species farther removed from man, and because of the impossibility of inoculating the human species with the bacilli; the inoculation of monkeys furnishes the most direct experimental evidence possible on the question of the transmissibility of bovine tuberculosis to human beings.

De Schweinitz, Dorset and Schroeder[3] recently succeeded in producing generalized tuberculosis in seven monkeys by both feeding and inoculation experiments, using tubercle bacilli of both human and bovine origin. They conclude from this, and also from other evidence, that there is every reason to believe that bovine tuberculosis is communicable to man, and that the only difference between tubercle bacilli of human and bovine origin is one of virulence. Nocard, Cipollina and others have obtained similar results.

These experiments with monkeys indicate the important rôle these animals may play in experimental work in the future.

1. Annal. Past. Inst., vol. xviii, No. 11.

2. Comptes Rend. Acad. Sciences, vol. cxl, No. 8.

3. U. S. Department of Agriculture, Bureau of Animal Industry, Bull. No. 52, Part II.

THE SOCIAL TRAINING OF THE PHYSICIAN.

Education is something more than the accumulation of facts. True education, along any particular line, involves more than the perusal of certain texts or attendance on a course of prescribed lectures or demonstrations. Training for any particular calling or vocation, to be of the highest utility, should include all lines which are necessary for the attainment of success. This necessitates instruction not only in the theory and principles, as well as the technic of one's future work, but also should involve training in regard to those future relations to one's fellows which are often of more importance to progress and success than exhaustive knowledge and precise technical ability. These self-evident truths were recognized, years before the development of modern psychology and pedagogy, by the United States Government, in the management of West Point and Annapolis. At these two academies, which have stood for years as models of what technical institutions should be, the young cadet, as a future officer of the army and navy of the United States, is taught not only mathematics, chemistry, military tactics and gunnery, but riding, swimming, fencing, boxing and dancing, French, German and Spanish as well. The fact is recognized that each graduate must have all the training that is necessary to enable him to meet and to associate not only with other officers of the army and navy of his own country, but with military and naval officers of any other country.

The enormous increase of detail in all scientific and technical lines in the last twenty-five years, has so broadened the field of modern education that practically all of the student's time is occupied in acquiring data for his future work. This is particularly true in medicine. Necessitated by the rapid increase of medical knowledge, the course has been lengthened from two to three and then to four years. It is still inadequate and five year courses are now being planned; and yet the modern medical student does not receive as much instruction on medical ethics and professional etiquette as did his predecessor of thirty or forty years ago. He leaves his alma mater, an individual instructed in the latest results of scientific research, but still an isolated individual, with little idea of his duties as a member of a profession or of his responsibilities, either to his brother practitioner or to his lay neighbor.

In no other way can we account for the apathy among the young men, the recent graduates, in regard to professional ethics and medical organization. The existence of this indifference has been noticed in both country and city and in different localities. In the organization columns of this issue, will be found an article by Dr. J. N. McCormack, on local conditions among the medical profession in Pennsylvania. In enumerating the difficulties encountered in this, one of the oldest states in the Union, from the standpoint of medical organization, Dr. McCormack emphasizes the apathy and indifference of the young man in the profession as one of the greatest obstacles in the way of successful organization. He clearly points out that the student of to-day, practically without exception, leaves his college with no adequate training for his future work, so far as his relations to his fellows and his duties to society at large are concerned; and yet every successful practitioner knows that these are at least as great, if not greater factors, in winning success, as are technical training and exhaustive knowledge of scientific facts. It is also a well recognized fact that the standing and influence of the medical profession depend on the material success and financial independence of its members. A poverty-stricken and ill-paid profession can never wield the influence for its own good and that of the community at large, that could be exercised by an independent, self-respecting, adequately paid profession.

Instruction in all those factors that make for the highest success, is the right of every medical student and should be the duty of every medical teacher. Necessarily, instructors in medical schools are drawn from the ranks of successful, and therefore, busy practitioners. They are not experts in pedagogy nor in sociology, yet they can profit by the results of modern thought and development along educational lines. We need, in our medical schools, not less fact or less practical instruction, but more instruction of the future physician in regard to his duty to the profession at large and to its individual members, as well as his duty as a citizen-physician. An adequate course of lectures, to senior students, given by some broad-minded and experienced member of the faculty should be on every medical college schedule. Not only medical ethics and the etiquette of intimate professional relations, but medical organization and the advantages of co-operation, as well as the peculiar duties of the physician as a member of modern society, should be carefully and earnestly discussed. Then the young and inexperienced graduate could begin his professional career, with that conception of his professional responsibilities and duties that is indispensable to true success.

THE DIAGNOSTIC SIGNIFICANCE OF THE BABINSKI TOE PHENOMENON.

One would imagine that after hundreds of years of clinical observation the signs of disease would all have been discovered. Such is not the case, for every year new diagnostic signs, and even new diseases are described. Some of these signs, after being tried and found wanting, pass back into the oblivion from which they originally emerged, others stand the test, and become incorporated into the routine of the physician. Among the latter may be mentioned the sign originally described by Babinski in 1898, and now usually referred to as "Babinski's sign" or "the toe phenomenon of Babinski." The phenomenon was originally de-

scribed by Babinski in the following words: "On the healthy side, the prick of the sole of the foot causes under normal circumstances a flexion of the thigh on the pelvis, of the leg on the thigh, of the foot on the leg, and of the toes on the metatarsus. On the paralyzed side a similar excitation gives rise also to flexion of the thigh on the pelvis, the leg on the thigh, and the foot on the leg, but the toes instead of flexing execute a movement of extension on the metatarsus."

The significance of this sign, as originally pointed out by Babinski, lay in the fact that it supplied, what had hitherto been lacking, a sure means of differentiating certain organic lesions of the central nervous system from functional lesions which closely simulated them. In hemiplegia, for example, it has always been difficult to differentiate hysterical from organic cases in some circumstances, and the character of the ordinary reflexes offered but little aid. The Babinski phenomenon, however, never occurs in hysterical hemiplegia, while at is very common in organic hemiplegia, and appears very shortly after the stroke. In differentiating between hysteria and early or atypical cases of disseminated sclerosis also, the sign is of the greatest value as Byrom Bramwell[1] has recently pointed out.

Continued study of the sign has shown, as would have been expected, that it is not so limited in occurrence as Babinski at first thought; it has been demonstrated, however, that in the main the original statements regarding the value of the phenomenon are to be relied on. It has been shown that the sign occurs normally in infants up to the age of one year, a discovery which detracts nothing from its usefulness; and also, that it may occur temporarily after various forms of convulsion, epileptic or uremic for example. Here, again, it serves to distinguish disease on an organic basis from hysteria, for it does not occur after convulsions of an hysterical nature. It may also occur temporarily as a result of tetanus or of strychnia poisoning.

Naturally there have been those who claim that the sign is inconstant, uncertain, and of relatively little value. Generally a study of the writings of such individuals will show that they have failed to carry out the technic necessary to bring out the sign, or that they have overlooked the fact that under certain circumstances it fails to appear. When the feet are cold and damp, or when the patient has been standing some time the sign may be absent. Then, again, the position of the patient may be of great importance, especially when the sign is not well marked. In typical cases the sign is easily elicited with the patient on his back and the legs extended, but in less typical ones it is necessary to have the patient lying rather toward the side to be tested, with the thigh and leg both flexed to about a right angle, and the outer surface of the limb resting on the bed. Then, again, the degree of plantar stimulation which is necessary varies in different cases; in general, stimulation of the outer part of the plantar surface or of the ball of the toe leads to the best results. If every precaution be taken in performing the test, and with all precautions it is not a difficult one, good results are bound to be obtained. So far the use of the test has been too much limited to the neurologists, but it is so simple, and gives such valuable information, that it is to be hoped it will be more extensively used by the general practitioner.

1. Clinical Studies vol. iii, part 3, 1905.

THE PROPHYLAXIS OF FOURTH OF JULY TETANUS.

In a previous editorial we discussed the important work that physicians can and should do in suppressing the annual Fourth of July nuisance through legislative and educational measures. This is the most hopeful way of striking at the root of the tetanus epidemic, and the only one which will lead to permanent results, but we are as yet much too far from the civic millenium to hope for a total suppression of Fourth of July indiscretions and injuries for many years to come. We must prepare to face a few thousand useless injuries and a few hundred unnecessary deaths, and the responsibility as to the outcome of a large part of these injuries is put on the physicians. It is unnecessary to insist that the chief danger to be feared is tetanus, which has ever shown a remarkable frequency after Fourth of July wounds. Whether tetanus is so frequent because certain blank cartridge wads contain tetanus bacilli or simply because the nature of the wound and the conditions under which it is generally received favor infection with tetanus bacilli present in the dirt of the street is a matter of minor importance when the case is at hand.

It is, then, important that every penetrating or lacerated wound received from explosions of instruments of celebration is a very possible site of tetanus infection, and also that these wounds present certain anatomic peculiarities that render their treatment no simple matter. The small, clean-cut wound in the skin made by a blank cartridge wad gives no idea of the serious nature of the destruction that has gone on beneath, and which is difficult of conception by one who has never dissected out such a wound.

Beneath the tough skin of the hand, where most of these wounds are received, the explosive force tends to spread laterally along the course of the tendons and their sheaths, so that particles of powder and dirt may be found several inches away from the site of the injury. The penetrative power of the wads is also seldom appreciated—they may pass from the palmar surface entirely through the hand to lodge beneath the skin of the dorsum; there is one case on record in which a wad passed through the abdominal wall and penetrated the intestine. Hence, the proper cleansing of a blank cartridge wound is not a simple matter, but, in general, is a proce-

dure that calls for full anesthesia and some surgical skill, a fact difficult to impress on the patient, and formerly too little appreciated by the family physician. Drainage with a strand of gauze, even if the wads have been successfully picked out of the bottom of the wound, is entirely inadequate treatment; the entire wound track must be thoroughly cleaned and opened widely to permit of free drainage, exposure to air through porous dressings, and healing from the bottom.

Last year we received, on a grand scale, a demonstration of the efficiency of tetanus antitoxin as a prophylactic. Previously, there had been several instances of the checking of hospital epidemics, or of stable epidemics among horses, by this means, but there has probably never been so large an experiment performed as this. That it was successful the figures prove beyond a doubt. We have yet to learn of a single instance in which a patient with a blank cartridge wound who received a prophylactic injection of antitoxin later developed tetanus, although there were instances enough of such wounds not so treated that were followed by tetanus. Having, therefore, an almost positive and harmless preventive of tetanus at our disposal, there is no apparent reason why it should not be used in every case of this dangerous class of injuries. Last year most of the large hospitals and dispensaries adopted this measure with the best of results. It now remains for the private practitioner, particularly in the smaller towns, to insist on the necessity for immediately securing antitoxin from the nearest source of supply. As a prophylactic dose, from 5 to 10 c.c. injected subcutaneously, preferably in the vicinity of the wound, is sufficient; the amount depending on the age of the patient, although there seems to be no danger from large quantities. If this is done universally, we may confidently expect to see the great saving of life recorded last year repeated and increased this year, with the deaths from tetanus practically limited to those whose wounds did not receive medical attention until the symptoms of the disease had already appeared.

MUTUAL MISUNDERSTANDINGS AMONG MEDICAL INVESTIGATORS.

Medical men, noted for their broad sympathies, for their charity and for their magnanimity, are human nevertheless, and have human imperfections. It must be admitted that they sometimes misunderstand their colleagues and are misunderstood by them. From time to time we hear of conflicts arising, even among medical investigators; mutual misconceptions and erroneous interpretation lead occasionally to disturbances of harmony. Let us examine a little more carefully into the nature of some of these conflicts and ascertain, if we can, how they have arisen, whether or not their existence is justified, and what steps, if any, may be taken to bring about reconciliation.

Among the tendencies to conflict observable among medical investigators a rivalry may first be mentioned between workers in biology, physics and chemistry and investigators who believe that they employ other methods in their work; second, a struggle between non-medical scientists on the one hand and medical men on the other regarding medical problems or problems related to medicine; and, third, a strife between morphologists, who study form, and physiologists, who study function. Though to a certain extent all three conflicts probably exist, the first and second, which are perhaps most noticeable, are the least significant, and the third, which may be least conspicuous, we think, is most deeply rooted. The fact that one contestant may engage not only in one but in two, or in all three of the conflicts, doubtless accounts for the fact that many find difficulty in forming a clear conception of the situation.

If one inquires into the origin of the conflicts mentioned, we think he will find that in each case the principal motive is the contestant's interest in the valuation of certain phases of knowledge—his desire for their good induces him to enter the lists in their defense. On the other hand, the chief incentives to conflict lie, we believe, in the reciprocal misunderstandings of the combatants. Further, it is possible that, occasionally, a competitor may be driven on by transitory impulses of jealousy or of envy; the enmity in the one instance being prompted by fear, in the other by covetousness. If one asks himself, if there should be such conflicts, he can not but answer in the negative; they are unconformable to common sense and no real reason for them exists.

While the motives inspiring the conflicts generally may be good, the immediate incentives thereto and the impulses concerned are too often bad. The non-medical scientist, on the one hand, sees in medicine a field in which the principles and facts of the basal sciences are capable of much more extended application than has yet been made. He is impatient that the exact and rational methods of the laboratory may quickly replace what he regards as the haphazard, empirical routine of "long-distance diagnosis" and "shotgun polypharmacy." The medical practitioner, on the other hand, sees living, suffering human beings, whom it is his duty and desire to help and to comfort, rationally if he can, but merely empirically if he must. He chafes at the criticism of the pure scientist, realizes how little, often, the latter understands more strictly medical problems; he accredits to him such general propositions as "electricity is life" and laughs at them; regards the suggestions from the laboratories as interesting in theory but sterile for practice; and resents, quite properly, the statement so frequently and thoughtlessly made, that the work of a laboratory man is scientific, and that of the practitioner is not.

Again, biologists, physicists and chemists, who work at medical problems, too often forget that the great mass of even the chemical and physical facts of the

medical sciences have been discovered by physicians themselves. It is just as true that medical men forget that the methods that they use every day are those of physics and chemistry. The conflict between the students of form and the students of function, as has been said, is probably more deeply rooted, for here the interest of each partisan is often beyond the comprehension of the other. Great morphologists, like Virchow, it is true, have appreciated the importance of physiology, and great physiologists, like Ludwig, have had a sympathetic feeling for form. Frequently, however, the investigator of structure has no great interest in function, and often the student of processes has but little sympathy with morphologic research. Two distinct and somewhat antagonistic types of mind seem to be concerned. In all these conflicts, if the reciprocal misunderstanding regarding each other's aims and work could be done away with, the main incentive to altercation would be removed. The impelling forces to hostility, we fear, can not help being active, however, at least until men cease to have the common passions; jealousy and envy will not entirely disappear so long as prestige in faculties, among students, in societies and academies, and with the laity is of influence in aiding or in thwarting ambition. It is obvious that the conflicts described are deplorable; since no right rational basis for them exists, and since, instead of them, sympathy and hearty co-operation are desirable, they should be discouraged in every way possible.

What remedies may be suggested? We can not discuss the subject fully at this time, but a few hints may suffice. The greater factor in removing the causes of conflict will undoubtedly be further education—education that will show what we have tried to show, namely, that the conflicts are unconformable to common sense. The pure scientist must learn to respect, more fully than he sometimes does, the medical practitioner. The scientist will do well to acquaint himself more intimately with the physician's problems; when he urges his methods and results on the clinician he should write and speak intelligibly to the average man and not in the jargon of those whom he regards as "the elect." The medical man, in turn, must frankly recognize his debt to the sciences fundamental to medicine. The bedside worker may as well acknowledge first as last that the methods which he can most profitably follow are those of the biologist, the chemist and the physicist; he will be very unwise if, as a student, he fail to work long enough in the sciences they represent to understand the principles and to apply them to the solutions of problems that interest him; he should welcome every new method which is given him from any source whatever, provided it can be made useful for the understanding of human suffering or for its alleviation. A similar therapy might well be recommended for the other conflicts. Broad sympathies, consideration for the feelings of others, and, above all, respect for good work of all kinds, will go far to prevent unseemly strife.

A RATHER DRASTIC SANITARY MEASURE.

A state law that has just gone into force in California makes it a misdemeanor to own, lease, let or hire any room for a lodging or sleeping apartment that contains less than 500 cubic feet of airspace "in the clear" for each occupant, and it goes further and makes it also a misdemeanor to be an occupant of such quarters. If this law is enforced there will have to be a general remodelling, not only of lodging houses in the large cities at which the measure is evidently aimed, but also of a large proportion of the private dwellings of the state. The hall bedroom will have to go, and it will not be at all surprising if the state itself is found to be an extensive offender in some of its crowded public institutions. The inflow of "lungers" into the state and the popular anti-tuberculosis agitation have evidently educated the legislators as to the importance of fresh air; the next thing is to educate the house owners and users, and that will be a somewhat larger contract, if the law is to be interpreted exactly as it seems to read.

STATE MONTHLY JOURNALS.

At its recent annual session, the Ohio State Medical Association decided to publish its transactions hereafter in a monthly medical journal that is at once to be established by the Association. The advantages of this plan over the conventional annual volume are so obvious that state after state is creating its own monthly publication.

THE OSTEOPATH'S GOAL.

The public is frequently warned that the attempt of the osteopath to secure the permission to manipulate under certain restrictions is but a stepping stone to securing the right to practice in every way that the regular practitioner does, but without first securing the qualifications that the state has demanded. In Iowa the failure of the State Board of Health to confirm the appointment of an osteopath as local health officer has aroused the fears of these semi-doctors that their death certificates will not be accepted, and this means, according to the one who sounded the alarm, the practical abolition of the practice of osteopathy in the state. If they can not sign death certificates their patients must all get well or else they will have to turn them over to regular physicians when they become moribund, as is the practice of Eddyites and other irregulars. This is unsatisfactory, because the osteopath wants to be a whole physician. We call attention in our Queries and Minor Notes department this week to some testimonials which are evidence that osteopaths are using drugs, contrary to the conditions on which they were licensed. Attention has previously been called to the use of drugs by osteopaths, and it might surprise one who had thoughtlessly accepted as a final statement of creed an "old school" osteopath's condemnation of drugs. Their prejudice against drugs will all pass away when they have been permitted to build up a new school of incompetent practitioners who, without undergoing the increasingly severe tests required by modern medical laws, can impose themselves on the confiding public as fully qualified physicians.

"THE PROFESSION OF GETTING HURT."

In *Pearson's Magazine* for June, Theodore Waters writes entertainingly under the above title about cases of malingering. Because of its excessive number of personal damage suits against the municipality, Chicago is given a "bad eminence." Not much in the article is in the least new to the well-read physician, but it is a pleasure to find that the professional malingerers are being exposed to the sympathizing and rather unsophisticated public; and undoubtedly much good will come from the education of the public perception and conscience. Mr. Waters equally and rightly exposes the "shyster lawyers and the doctors without-the-code," and condemns the benumbed conscience of the public in reference to damage suits against corporations and municipalities. He cites many instances showing the swarm of lawyers that besets every injured person whose accident is reported in the papers. Concerning Chicago, we read: "And by a curious coincidence the clients of many of these law firms have employed the same doctor." In the suits on file against the city "one doctor was found to have been in attendance in over one hundred." These statements grate unpleasantly on the ears of medical readers, but doubtless they are true. However, it is not hazardous to predict that the medical profession ere long will rid itself of this scandal. No physician will be permitted to belong to a medical society who lends himself as a tool to corrupt lawyers and unscrupulous malingerers, and the physician outside the organization soon will be in hopeless plight. The active medical society will watch these cases and make sure that the medical backslider gets his deserts. Then, a sure but slower process, the good medical schools are now graduating few men who will, under any stress, descend to this level, and very soon there will be no medical schools but the good ones. Meantime publicity is the most effective weapon against this as well as against other forms of "graft."

Medical News

CONNECTICUT.

Estate for Hospital.—By the will of the late Wolcott B. Manwaring of Baltimore, practically his entire estate, valued at about $150,000, is left to establish and maintain a children's hospital in the Manwaring homestead, New London.

Injured, Asks Damages.—Dr. Morris D. Slattery, New Haven, who was injured by being thrown from his buggy April 7, by reason of an unprotected excavation in a street, has filed a claim against the city of New Haven for the damages sustained by him, his horse and his carriage.

April Deaths.—There were 1,347 deaths during April. This was 229 less than in March, and 30 less than in April, 1904, and is equivalent to an annual mortality of 16.6 per 1,000. Nervous diseases, pneumonia, heart disease and consumption, in the order named, headed the list of death causes.

Old Practitioners Honored.—At the 113th annual meeting of the Middlesex County Medical Association held at the home of Dr. Miner C. Hazen, Haddam, the host in commemoration of the fifteenth anniversary of his entrance into practice, was presented by the association with a cut-glass and silver cigar jar suitably inscribed and filled. Dr. Gurdon Werdsworth Russell, Hartford, received many felicitations on his ninetieth birthday anniversary. He is still in active practice.

Hospital Notes.—St. Francis Hospital, Hartford, announces that its Easter donations amounted to $1,300.——The treasurer of the William W. Backus Hospital, Norwich, appeared before the house committee on appropriations with the usual request that the institution be relieved from taking the $10,000 appropriated for its use.——St. Vincent's Hospital, Bridgeport, has had appropriated for its use $6,000 to be paid on completion of the equipment of the hospital, and after the institution has been in actual operation three months. ——An appropriation of $10,000 has been granted the Wallingford Sanatorium for Tuberculosis.——The benefit performance for the Hartford Hospital, May 29, netted more than $5,500 for the institution.——Senator H. H. Peck, Charles F. Rockwell and Charles F. Linsley have each given $500 to the Meriden Hospital.

DISTRICT OF COLUMBIA.

Hospital in New Home.—The new building of the Casualty Hospital and Eastern Dispensary, Washington, was formally opened, April 26.——Dr. Charles F. Rand has given the hospital a medical library of 160 volumes, a surgical chair and electrical apparatus.

Eye and Ear Society Officers.—At the meeting of the Society of Ophthalmologists and Otologists of Washington, May 19, the following officers were elected: President, Dr. Oscar A. M. McKimmie; vice-president, Dr. Hobart S. Dye, and secretary and treasurer, Dr. Henry A. Polkihorn.

Medical Board Decision Reversed.—In the case of Dr. Sigmund A. Czarra, Washington, the District Court of Appeals has reversed the decision of the board of medical supervisors against the appellant, holding that Congress has the power to regulate the practice of medicine and surgery in the District of Columbia and to define what shall constitute unprofessional or dishonorable conduct, but that it has failed to do so.

Commencements.—George Washington University Department of Medicine, Washington, held its eighty-fourth annual commencement exercises, May 29. Prof. Charles E. Monroe, Ph.D., delivered the address on "The Lord Protector's Motto;" Dr. William F. R. Phillips, the dean of the faculty, presented the candidates for degrees which were conferred by the president of the university. A class of 61 was graduated.——Howard University Medical Department, Washington, held its annual commencement, June 1.

ILLINOIS.

Hospital Transferred.—The grounds and buildings of St. Francis' Hospital, Blue Island, have been transferred by Rev. Francis A. Rempe to the Sisters of St. Mary of St. Louis. The property is valued at $50,000.

Personal.—Dr. James A. Egan, Springfield, secretary of the State Board of Health, has been appointed a member of the committee to inspect state military schools.——Dr. Carleton E. Starrett, Elgin, has returned from Europe.——Dr. Frank B. Lucas, Peoria, has been made physician of the township board of health.——Dr. William Hul, Bloomington, is seriously ill. ——Dr. James L. O'Connor, Arlington, who was operated on for appendicitis last week, is progressing favorably toward convalescence.

To Save the Babies.—The State Board of Health has issued a timely twelve-page circular on "Infant Feeding and the Care of the Mother and Infant," written not for the physician but for the guidance of mothers. It deals first with the dangers of artificial feeding and how these dangers may be minimized; urges the use of pure cow's milk, properly diluted and modified; gives sound advice on the care, exercise, diet and mode of life of the nursing mother, and pays especial attention to the care of the infant, the danger signals of the first year, and the necessity of cleanliness. This circular is intended for general distribution.

Chicago.

Fined for Contempt of Court.—Because Dr. George W. Boice, when subpœnaed as a witness before Judge Tuthill, gave freely to the deputy sheriff his opinion of courts, judges, sheriffs, etc., Judge Tuthill admonished him and then fined him $10 with added costs.

Fined for Improper Use of Mails.—Drs. Alice B. Stockham and Edward B. Beckwith on June 5 were found guilty of sending improper matter through the mails and were fined $250 each. In addition, Dr. Stockham was sentenced to pay one-third and Dr. Beckwith two-thirds of the court costs.

The Week's Deaths.—There were 514 deaths reported in the week ended June 10, equivalent to an annual death rate of 13.46 per 1,000. Pneumonia again takes the lead with 73 deaths, consumption coming next with 70. Among other principal death causes are the following: Heart diseases and violence, each 48, and nephritis, 46.

Erratic Weather Causes Increased Mortality.—A sunstroke in April and overcoats, wool blankets and another sunstroke in June are the sufficient explanation of the increase of mortality in one of the two most healthful months in the year. The 47 more deaths than in the previous week and the 94 more than in the corresponding week of 1904 represent increases of 10.4 and 18.4 per cent. respectively in the annual death rates per 1,000 of the population. The erratic weather is chiefly responsible for the 23 more deaths from consumption and the 24 more from pneumonia than reported during the week of June 3.

University of Chicago Faculty Notice.—It is officially announced that Dr. Nicholas Senn has been elected professor of surgery, and Dr. Frank Billings, professor of medicine in the University of Chicago, and will lecture before the respective classes at the university. Dr. Senn will have entire charge of the clinical teaching of surgery during the fall semester. Dr. John B. Murphy has been elected professor of surgery in Rush Medical College, and, with Dr. Arthur Dean Bevan, will have charge of the administrative details of the department of surgery and will conduct the clinical teaching of surgery during the remainder of the year.

INDIANA.

Going Abroad.—Dr. James E. Johnson, Marion, left for Europe June 3.——Dr. David R. Ulmer, Alexandria, has gone to Europe.

Judgment for Physician.—On June 3 a jury in the Circuit Court, at New Castle, awarded Dr. John P. Black, Greenfield, a judgment against that city of $850, for services rendered during the recent smallpox epidemic.

Health Conference.—Under the auspices of the State Board of Health, the annual conference of health officers was held at Indianapolis, June 1, 2 and 3. Drs. Joseph McFarland and Seneca Egbert of Philadelphia delivered addresses.

Injured and Operated On.—Dr. Arthur K. Hammond, in jumping from his carriage when his horse fell, was kicked on the wrist by his horse, fracturing the arm at that point.——Dr. James N. McCoy, Vincennes, was operated on for appendicitis at St. Vincent's Hospital, Indianapolis, June 9.

Personal.—Dr. John L. Puckett, Kokomo, has been made secretary of the local board of health and charities.——Dr. Samuel Harrell has been elected president, and Dr. Fred A. Tucker, secretary of the Noblesville Board of Health.——Dr. Edward P. Busse, Vincennes, has been made a member of the board of park commissioners.——Dr. T. Victor Keene, Indianapolis, has been elected superintendent and pathologist of the new State Laboratory of Hygiene, with a salary of $2,000 a year

KENTUCKY.

Will Equip Wards.—Joseph L. Friedman and John W. Keiler will each equip a ward in the Riverside Hospital, Paducah, in memory of his father.

Physician's Suit Compromised.—The suit of Dr. Theodore D. Finck, Louisville against the estate of the late Carl F. Eller, asking $7,858 for treatment of the deceased for 7 years, has been settled by mutual agreement for $1,500.

Physicians Nominated.—Dr. Lawrence C. Nell, Columbia, has been nominated for state senator from the Sixteenth senatorial district.——Dr. John A. Yates, Edmonton, has been nominated for the legislature, by the republicans of Metcalf and Monroe counties.

Must Comply with Health Regulations.—On May 24 the State Board of Health granted an extension of ten days to the authorities of Mahlenberg county, to take the proper steps to control the spread of smallpox in that county. In the event of non-compliance with the regulations, quarantine of the entire county will be declared and rigidly enforced.

Personal.—Dr. Charles C. Norman, Hawesville, is seriously ill with cirrhosis of the liver.——Dr. William A. Briggs, Bowling Green, was assaulted with brass knuckles by a negro ex-convict, breaking his nose, and sustaining severe cuts and bruises.——Dr. and Mrs. Morean S. Brown, Winchester, have started on a trip to Alaska and Hawaii.——Dr. Louis H. Landman, Covington, will go to Europe for a year, sailing in July.

Anti-Tuberculosis League Organized.—The Kentucky Anti-Tuberculosis League was formally organized on June 8, by the election of the following officers: President, W. C. Nones; vice-president, Rev. William H. Ramsey; secretary, George L. Sehon, and treasurer, Theodore Harris. A committee composed of Dr. Jacob A. Flexner, Robert W. Bingham and C. A. Adler was appointed to draft by-laws. A resolution was adopted asking every person interested in the establishment of a tuberculosis hospital to join the association, which can be done by the payment of $5. Thus far no site has been considered nor will this be done until the membership is increased.

MARYLAND.

Fire in Towson.—The house occupied by Dr. Stuart W. Cassard in Towson, was burned May 30. Insurance covered $2,500 of the loss.

Osler Memorial Number.—The issue of the *Maryland Medical Journal* for June was an Osler memorial number. It contained articles on Dr. Osler as teacher and physician and illustrations of Johns Hopkins and Oxford universities, of Dr. Osler at different ages, his residence, etc.

Protest Against Tuberculosis Hospital.—The movement by ex-Surgeon General George M. Sternberg, U. S. Army, and others to establish a sanitarium for tuberculosis at Rockville, Montgomery County, has been prohibited by the mayor and council of that town, as the citizens and physicians protested against it.

Baltimore.

Johns Hopkins Commencement.—At the annual commencement exercises of the Medical Department of Johns Hopkins University, June 13, a class of 53 received degrees.

Personal.—Dr. William Lee Howard sailed for Europe June 3.——Dr. Albert M. Wortman has been elected a member of the National Geographical Society of Washington, D. C.

Appropriate Money for Isolation Hospital.—The Board of Estimates has approved the ordinance appropriating $25,000 out of the 1906 levy for the erection of an infectious diseases hospital.

Fellows of Johns Hopkins.—The following have been given university fellowships at the Johns Hopkins University: Ernest K. Cullen, M.B., University of Toronto 1903, pathology, and John A. E. Eyster, M.D., Johns Hopkins 1905, physiology.

Hospital Reports.—The thirteenth annual report of the Evening Dispensary for working women and girls shows 1,302 new patients for the year; 369 visits to Wednesday clinics; 4,960 patients in all clinics; 2,260 visits paid to homes; 12,791 prescriptions filled; 8 major surgical operations.——Limited provision is made for surgical cases at the Church Home and Infirmary. The income of the home was $1,903; the disbursements, $1,710.

NEW JERSEY.

Opening of Sanitarium.—The twenty-fifth annual opening of the sanitarium at Red Bank, for poor children, took place June 10.

Hospital Opened.—St. Elizabeth's Hospital, Elizabeth, which was dedicated May 29, was formally opened to receive patients the following day. The institution is non-sectarian and is intended primarily for women.

Bogus Physician Goes to Prison.—Maximilian Muller, who stole jewelry worth $330 from a citizen of Newark by pretending to be a physician and taking his victim under treatment, pleaded guilty to larceny June 5, and was sentenced to imprisonment for five years.

Hospital Report.—The report of Cooper Hospital, Camden, for May shows that 1,814 patients were cared for, or an average of 59 daily; 8 patients were admitted to the wards of the hospital; 411 new cases were treated in the dispensary, and 1,291 return visits were made.

Funds for Hospitals.—At the meeting May 21, $4,236 was subscribed to the building fund of the Beth Israel Hospital, Newark.——The Board of Freeholders has appropriated $5,000 to the Perth Amboy Hospital, and the same amount to the Wells Memorial Hospital, New Brunswick.——The annual fair for the benefit of the Memorial Hospital netted nearly $10,000 for the beneficiary.

Hospital Appointees.—Atlantic City Hospital, Dr. Samuel Barbosh; Trenton Emergency Hospital, Dr. Howard W. Levengood; Trenton State Hospital, Dr. Clarence J. Slack.——Drs. Fred Sonneborn, Philadelphia; John Glick, Wilkesbarre, and Edgar L. West, Hamilton Square, have been elected resident physicians at St. Francis' Hospital, Trenton.——Dr. Victor Mravlag has been appointed consulting surgeon, and Dr. Thomas E. Dolan, visiting surgeon, at Alexian Brothers' Hospital, Elizabeth.

NEW YORK.

Addition to Batavia Hospital.—An addition is to be built for the hospital at Batavia. This is made possible by the will of the late Adelaide R. Kenney, which leaves $20,000 to the institution.

Staten Island Mosquitoes.—The war of extirmination has begun. Dr. Aloin H. Doty, of the government sanitary department, and Chief Engineer Skinner, started work June 7. Special officers detailed by the sanitary department assisted.

Prisons to Be Made Sanitary.—The joint committees from the Society of Medical Jurisprudence and the Civic Club met recently to perfect plans for conducting an extended investigation of the police stations, courts and court prisons of Manhattan and the Bronx. At the end of the summer after these have been investigated, all found insanitary will be reported to the Health Board and that body will be asked to direct that they be closed

Hospital Managers Named.—Gov. Higgins decided on the appointments of managers of the state hospitals for the insane which under the Allis law, takes the place of the board of visitation to these institutions. This restoration of the boards of managers marks the culmination of a fight of the charitable interests of the state against the legislation of 1902, which put them out of office and centralized all power over the insane hospitals in the State Lunacy Commission.

New York City.

To Endow a Free Bed.—The will of Mrs. Rebecca Ladew bequeaths $5,000 for the purpose of endowing a free bed in a hospital to be designated by her executors.

Yellow Fever Death.—Frank O'Leary, a passenger on the *Seguranca* from Colon, who has removed to Swinburne Island, on the arrival of the ship in New York, died from yellow fever, June 9.

Record Low Death Rate.—The death rate for the week ended June 2 was equivalent to annual mortality of 16.11 per thousand, which is a new death record for this season of the year. The record for a number of years has been 16.74.

St. Gregory's Free Hospital.—The first hospital in this city for purely the care of accident cases was opened last week. Two ambulances are attached to the hospital and it is intended to aid the Hudson Street Hospital in accident cases as much as possible.

A Medical Quack Heavily Fined.—Through the efforts of the County Medical Society Joseph Rohrer was sentenced to pay a fine of $500, the heaviest imposed for a misdemeanor in the Court of Special Sessions. He was convicted for practicing medicine without a license, and this was his third conviction.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended June 3, 727 cases of measles with 17 deaths; 393 cases of tuberculosis with 142 deaths; 320 cases of diphtheria with 27 deaths; 152 cases of scarlet fever with 14 deaths; 71 cases of cerebrospinal meningitis with 60 deaths; 38 cases of typhoid fever with 4 deaths; 113 cases of varicella and 1 case of smallpox. The epidemic of cerebrospinal meningitis seems to be decreasing.

A New Law Needed.—Health Commissioner Darlington was treated so insultingly when he appeared before the town of Bloomingburgh, Sullivan County, to ask for permission to establish a sanitarium for New York City's consumptives that he has determined not to appear before a town board but instead to prove unconstitutional the law which requires that New York City can not establish a sanitarium without obtaining the consent of the town board and the Board of County Supervisors.

Personal—Dr. Frederic Griffith has been appointed by the Pennsylvania State Society a member of the International Peace Congress to be held in Lucerne, Switzerland, during the coming summer.——E. J. Lederle, formerly Commissioner of Health, has been appointed a member of the State Water Commission.——Dr. Valentine Mott and wife sailed on the *Barbarossa* June 8.——Dr. Francis J. Quinlan has been elected President of the Catholic Club.——Dr. William S. Stone, who was operated on for appendicitis last week, is convalescing rapidly.

Lebanon Hospital.—The annual report of this institution shows that the work has grown to such an extent that a new site has been required for the erection of a training school for nurses so that the quarters at present occupied may be used as wards. The money for this purpose thus far donated amounts to $30,000. During the past year 2,721 patients were treated. The dispensary treated 19,009 cases, and the ambulance responded to 1,401 calls. The receipts during the year amounted to $97.521 and the disbursements to $96,219. The legacies received amounted to about $2,000.

Subway Air Again.—The few warm days that we have had this spring have led to renewed agitation in regard to the subway. In warm weather the surface air is warmer than the air underground and in consequence of the density due to lower temperature and the admixture of carbonic-acid gas the air is retained under ground and while passing cars may churn up the air there is not that exchange between the surface and subway air which is requisite for proper ventilation. It is probable that it will be necessary to introduce rotary fans. Health Commissioner Darlington has drawn up rules to be applied to the cleaning of the stations and wall of the subway, most of which has already been put into service.

The Milk Supply.—Judge Lacombe has signed an order suspending the operations of an injunction recently granted in the Federal courts in favor of the Ironclad Manufacturing Company. The order prevented the use of a patented milk can owned by the company and it was claimed that there were as many as 200,000 cans in use in this city which were infringements on the patent. Certain milk dealers said that the Ironclad Company threatened to seize their cans and empty the milk and retain possession of the cans.——The Association for the Improvement of the Milk Supply of New York held its first executive meeting June 8. This association will work with the Board of Health. The officers will have sanitary supervision over the men who deliver milk in the city and over all dairies, creameries and shipping stations. Firms interested in industries allied to the milk supply will be admitted to the association.

Tuberculosis Among Negroes.—A special class for the treatment of pulmonary tuberculosis among negroes has been started at the Department of Health's clinic for the treatment of communicable pulmonary diseases. This class will be held on the evenings of Tuesday, Thursday and Saturday of each week from 8 to 9 p. m., and only negroes will be seen on those days and hours. The establishment of such a class was due to a request made by the Afro-American physicians of the city, who believed that the colored people would attend such a special class more readily. The physicians in attendance are negroes, and arrangements have been made for the services of a colored nurse. The physicians on duty are: Dr. Peter A. Johnson, laryngologist; and Drs. William H. Johnson, Alexander A. Kellogg, Albert S. Reed, J. F. Thorpe, and E. P. Roberts, attending physicians. These physicians were recommended by the Medico Chirurgical Society, New York City, at a special meeting June 4. Treatment and medicines are, of course, free; and the patients will be visited at their homes by the tuberculosis nurses of the department. Negroes may attend any of the other classes of the clinic, which is open daily from 9 to 4, and on Monday, Wednesday and Friday evenings from 8 to 9 p. m.

Defective Pupils in Schools.—It has been announced by the Medical Inspector in the division of contagious diseases of the Health Department that of 7,166 boys whom he had examined, he had found 3,132 in need of medical attention. The following table shows the result of the work:

Total examination of boys	7,166
Cases of bad nutrition	632
Cases of enlarged anterior glands	1,221
Cases of enlarged posterior glands	417
Cases of chorea (St. Vitus's dance)	85
Cases of cardiac disease	133
Cases of pulmonary disease	127
Cases of skin disease	126
Cases of deformity of spine	68
Cases of deformity of chest	100
Cases of deformity of extremities	133
Cases of defective vision (objective)	1,273
Cases of defective vision (subjective)	517
Cases of defective hearing	265
Cases of defective nasal breathing	843
Cases of defective teeth	1,946
Cases of hypertrophied tonsils	602
Cases of posterior nasal growths	704
Cases of bad mentality	650
Requiring medical attention	3,132

The results of inquiry into the 650 cases of weak mentality gave the following results:

Total mental cases investigated	515
Cases of bad nutrition	113
Cases of anterior glands	132
Cases of posterior glands	27
Cases of chorea	13
Cases of cardiac disease	20
Cases of pulmonary disease	0
Cases of skin disease	11
Cases of deformity of chest, spine and extremities	28
Cases of defective vision	229

Cases of defective hearing	71
Cases of defective nasal breathing	163
Cases of defective teeth	249
Cases of defective palate	18
Cases of hypertrophied tonsils	99
Cases of posterior nasal growths	174

NORTH CAROLINA.

Personal.—Drs. William DeB. McNider, Raleigh and Martin L. Foroder, Rolesville, have been elected members of the Wake County Sanitary Board.——Dr. James W. McGee, Jr., Raleigh, has been elected superintendent of health of Wake County.——Dr. S. Fred Pfohl, Winston-Salem, has been elected health officer of Forsyth County.

Receive Diplomas.—The graduating exercises of North Carolina Medical College, Charlotte, were held May 14 and 15, the closing event taking place May 15. Dr. W. Gill Wylie, of New York, delivered the closing address and the president, Dr. J. P. Monroe, presented diplomas to a class of 25. After the exercises a banquet was tendered the graduating class by the faculty.

Communicable Diseases.—During April there were reported to the State Board of Health, measles from 42 counties; pertussis from 19 counties; scarlet fever from 5 counties; diphtheria from 10 counties; typhoid fever from 14 counties; malarial fever from 4 counties; influenza from 17 counties; pneumonia from 23 counties; parotitis from 3 counties, and smallpox from 45 counties.

State Board of Health.—The annual meeting of the State Board of Health was held recently in Greensboro. Four of the nine members retired this year. The State Medical Society filled two of the vacancies by the re-election of Drs. George G. Thomas, Wilmington, and Thomas E. Anderson, Statesville. The governor appointed two members, Drs. J. Howell Way, Waynesville, and William O. Spencer, Winston-Salem.

Faculty Changes.—The faculty of the North Carolina Medical College held a meeting in the office of Dr. A. J. Crowell April 20 and elected the following members: Dr. Frank M. Winchester, Charlotte, professor of obstetrics; Dr. Robert E. Mason, Charlotte, professor of therapeutics, and Dr. B. S. Moore, lecturer on surgery. The North Carolina Medical College now has a faculty composed of twenty professors and five lecturers, and gives four courses of nine months each.

OHIO.

Honor Nestor of Dayton Profession.—The Montgomery County Medical Society gave a reception and banquet June 5 in honor of Dr. John C. Reeve, on the occasion of the seventy-ninth anniversary of his birth and the fifty-first anniversary of his entry into active practice. Dr. John S. Beck acted as toastmaster.

Voyagers by Sea.—Dr. and Mrs. Edward Edwards, Delphos, started for Europe May 18.——Dr. Albert E. Warren, Youngstown, and Henry D. Warren, Warren, have arrived at Honolulu, and will return on the same sailing vessel to San Francisco.——Dr. and Mrs. Frank L. Stillman, Columbus, sailed for Europe June 3.——Dr. and Mrs. A. Per Lee Pease, Massillon, have returned from a trip around the world.

Personal.—Dr. Milo Wilson has been appointed superintendent of the Athens State Hospital.——Dr. Alfred A. Jenkins has been appointed surgeon in the engineers, vice Dr. William Hendry, deceased.——Dr. Harry A. March, Canton, has been appointed coroner of Stark County, vice Dr. Clarence F. Schlitz, resigned.——Dr. Benjamin F. Clark, local surgeon for the B. & O. S. W. Railroad at Cincinnati, has resigned. Dr. Charles F. Winton succeeds him.

New-Made Physicians.—At the eighty-sixth annual commencement exercises of the Medical College of Ohio, the Medical Department of the University of Cincinnati, May 30, a class of 33 was graduated. President Charles W. Dabney of the university conferred the degrees.——Miami Medical College, Cincinnati, graduated a class of 22 June 2. Dr John C. Oliver delivered the doctorate address, and Hon. Jacob Schroeder conferred the degrees.

Hospital Staff Appointments.—Dr. Frank A. Stovering has been re-elected president of the staff; Dr. Milton J. Parke, secretary; Dr. Charles B. Parker, visiting surgeon; Drs. Joseph H. Hobson and Thomas J. Mizer, alternate surgeons; Drs. John H. Lowman and Henry W. Rogers, consulting physicians; Dr. Samuel W. Kelley, pediatrist; Dr. Joseph C. Fritch, visiting ophthalmologist and otologist, and Dr. Alvin S. Storey, skiagrapher at St. John's Hospital, Columbus.——Dr. George A. Fackler has been elected president; Dr. B. K. Rackford, vice-president; Dr. Arch I. Carson, secretary, and Dr. Phineas S. Conner, treasurer, of the medical staff of the City Hospital, Cincinnati.

The Afflicted.—Dr. William H. Knauss, Newark, on May 23, while examining a pistol in the armory of the Fourth Regiment, O. N. G., of which he is assistant surgeon, was accidentally shot and seriously wounded.——Dr. Arthur H. McCrory, Bucyrus, was run down by his automobile while he was endeavoring to escape a collision with a passenger train May 28. He sustained severe bruises and a fracture of one rib.——Dr. Salathiel A. Hitchcock, Elida, was stricken with paralysis May 26.——Dr. Martin Friedrich, health officer of Cleveland, is seriously ill with typhoid fever.——Dr. Charles C. Mandeville, Galion, made a misstep while going up to his office May 27 and fell, injuring himself seriously about the head.——Dr. Philander Jacobs, Jackson, is in critical condition from a cerebral hemorrhage May 8.——Dr. William A. Pitzele, Lorain, injured his arm in saving a boy from being run over May 31.

PENNSYLVANIA.

A Narrow Escape.—Dr. J. Charles Hamnett, an aged physician of Homestead, took poison by mistake May 31, but, thanks to prompt aid, his life was saved.

Personal.—Dr. Raymond Barber, Doylestown, has been put in charge of a mining hospital in Rock Springs, Wyo.——Dr. R. Bruce Gamble has been appointed local surgeon of the Bessemer & Lake Erie Railroad at Meadville, vice Dr. Edward T. Lashells, who resigned on account of ill health——Dr. Edward W. Meisenhelder, Jr., has been added to the gynecologic staff of the York Hospital.

Show Appreciation of Services Rendered.—For the meritorious work done by the Harrisburg Hospital, in the care of the dead and the aid to those injured in the recent wreck on the Pennsylvania Railroad near Harrisburg, the officials of the company have donated $10,000 to the hospital without restrictions as to its use, and accompanied the donation by a letter expressive of the deep gratitude of the company.

Banquet to Veteran Physicians.—Dr. John B. Carrell, Hatboro, gave a dinner to about 80 physicians of Bucks and Montgomery counties June 8, in honor of six of the oldest practitioners in the two counties: Drs. Joseph Foulke, Evan J. Groom, Joseph Thomas, Joseph B. Walter, James N. Richards and Horace M. Bellows.——The Medical Society of Susquehanna County on June 7 celebrated the ninetieth birthday anniversary of Dr. William Lee Richardson, Montrose, by holding a banquet at which he was the guest of honor and was presented with a loving cup.

Philadelphia.

Dr. Martin Injured.—Dr. Edward Martin, director of the Department of Health and Charities was painfully injured in a trolley car collision June 7. He is progressing toward favorable recovery.

Personal.—Dr. Charles H. Weber sailed for Europe June 6. ——Dr. and Mrs. Augustus Kempton will return home from Europe this month.——Dr. David Riesman sailed for Europe June 15.——Dr. John H. Musser has been chosen a member of the mayor's advisory board.

Residents Appointed.—Dr. T. William Schleindwine, of the resident staff of St. Joseph's Hospital, has been appointed resident physician in the Wills Eye Hospital.——Dr. J. J. Lynch has been appointed resident physician of Frankford Hospital, succeeding Dr. J. H. Hoffa, who resigned on account of ill health and will go to Europe.

The Osler Portrait.—The graduates of the medical department of the University of Pennsylvania who studied in the university under Dr. Osler presented the board of trustees with a life-size oil portrait of their distinguished teacher at the one hundred and forty-ninth annual commencement exercises, June 14. The portrait was presented by Dr. M. Howard Fussell, a member of the medical faculty and chairman of the picture committee The portrait was received on behalf of the university by the provost, Charles C. Harrison.

Health Report.—The total number of deaths for the week aggregated 420, a decrease of 30 over those reported last week, and a decrease of 6 from the corresponding period of last year. The principal causes of death were: Typhoid fever, 11; diphtheria, 8; tuberculosis. 53; cancer, 18; apoplexy, 24; heart disease, 55; acute respiratory disease, 37; enteritis, 28, and Bright's disease, 24. There were 229 cases of contagious disease reported, with 20 deaths, as compared with 275 cases and 23 deaths the previous week. Typhoid fever is still prevalent, though all contagious diseases, with the exception of typhoid, show a marked decrease.

Dr. Dixon Honored.—Dr. Samuel G. Dixon, president of the Academy of Natural Sciences, was appointed state commissioner of health June 6. Dr. Dixon graduated from the University of Pennsylvania in the class of 1886. He has made valuable discoveries both in bacteriology and biology. In 1891 he became curator of the Academy of Natural Sciences and in 1896 was elected president, which position he has held since. He is a trustee of the Wistar Institute of Anatomy, vice-president of the Zoological Society of Philadelphia, and a member of the council of the American Philosophical Society. He was born in this city in 1851. He served for one year as professor of hygiene in the medical and scientific departments of the university.

Hospital Reports for May.—There were 115 patients admitted to the wards of the Polyclinic Hospital; 1,981 new patients were treated in the dispensary, and 9,200 visits were made to the different dispensaries. The accident ward received 754 patients.——The Kensington Hospital for Women admitted 77 patients and 67 operations were performed.——The Pennsylvania Hospital admitted 415 patients to the wards, treated 2,136 new patients in the dispensaries, and 5,449 revisits were made; 2,842 patients were treated in the receiving ward.——The Episcopal Hospital admitted 254 patients and treated 7,717 in the different dispensaries.——Two hundred and thirteen patients were admitted to the wards of St. Agnes' Hospital; 613 new patients were treated in the dispensaries, and 2,225 old patients.——St. Mary's Hospital admitted 166 new patients and treated 5,179 patients in the different dispensaries.

GENERAL.

American Pediatric Society.—This society will hold its seventeenth annual meeting at Lake George, N. Y., June 19-21, 1905.

Smallpox on the Transport Sherman.—An outbreak of smallpox was reported on the army transport *Sherman* on its arrival at Manila. The Ninth Infantry and the second squadron of the Seventh Cavalry were on board. The outbreak is not considered serious.

Ohio Valley Medical Association.—The seventh annual meeting will be held at Henderson, Ky., Nov. 8-9, 1905. The secretary is Dr. B. L. W. Floyd, Evansville, Ind., and Dr. Arch Dixon, Henderson, Ky., is chairman of the committee of arrangements. Those wishing to contribute papers can address the latter.

Meeting of the American Neurological Society.—At the thirty-first annual meeting of this society, held in the College of Physicians, Philadelphia, June 1-3, the following officers were elected for the coming year: President, Dr. Henry L. Stedman, Boston; vice-presidents, Drs. Henry M. Thomas, Baltimore, and George W. Jacoby, New York; secretary and treasurer, Dr. Graeme M. Hammond, New York; councilors, Drs. W. G. Spiller, Philadelphia, and Walter Channing, Boston. It was decided to hold the next annual meeting in June, 1906, in Boston.

Annual Meeting of the American Laryngological, Rhinological and Otological Society.—At the eleventh annual meeting of this society, held in Boston, June 5-7, 1905, the following officers were elected for the ensuing year: President, Dr. James E. Logan, Kansas City, Mo.; vice-presidents, Drs. Thomas H. Halsted, Syracuse, N. Y.; William L. Ballenger, Chicago; H. Bert Ellis, Los Angeles, and Henry L. Myers, Norfolk, Va.; secretary, Dr. Wendell C. Phillips, New York; treasurer, Dr. Ewing W. Day, Pittsburg, Pa.; council, Drs. Frederic C. Cobb, Boston; James F. McKernon, New York, and H. W. Loeb, St. Louis.

American Microscopical Society.—The twenty-seventh annual meeting will be held at Cedar Point (Sandusky) Ohio, on July 5-8, 1905. The society will be the guests of the Ohio Lake Laboratory under the direction of Prof. Herbert Osborn of Ohio State University, who has placed at the disposal of the meeting all the facilities of the laboratory and who is planning excursions and collecting trips to demonstrate the rich fauna and flora of this region. The meetings will be held in the laboratory, but the president's address will be given in Sandusky. Thursday's program is especially devoted to medical zoology, the afternoon being given to a symposium led by the president, Dr. Henry B. Ward, Lincoln, Neb., on animal parasites, their effects on the hosts, with demonstrations of specimens, microphotographs and discussion. Further information may be received by addressing the secretary, Dr. Robert H. Wolcott, Lincoln, Neb.

French and Americans in the Canal Zone.—The chief sanitary officer of the Canal Zone, in his report dated April 21, 1905, according to *Public Health Reports*, makes the following comparison of the health conditions of the French and American laborers in the first year of their work, with the prevailing conditions in that region: There were 9,000 employes on the rolls on March 31, 1905, with 301 admissions to hospital during the month, 11 deaths, and 153 remaining sick at the conclusion of the month, giving yearly an admission rate of 401.28, a constant sick rate of 17, and a death rate of 14.66 per mille. Under the French the admission rate to the hospital for the first year was 630.38, and the death rate 66.80 per mille. An extension throughout the year of the American rates for March would give 3,612 cases of sickness and 132 deaths, whereas, for the same number of men and the same length of time, the French had 5,850 men taken sick, with 620 deaths.

Fifteenth International Medical Congress.—It is anticipated that there will be a much larger attendance at the next congress (Lisbon, Portugal, April 19-26, 1906) than at the last, as a great many objectionable features that interfered before have been eliminated. The date of the congress of 1903 interfered with that of the American Medical Association, and this prevented a large number from taking advantage of it. The qualifications for membership have also been placed on a higher plane, which will add much to the ethical tone of the congress. Dr. Charles Wood Fassett, St. Joseph, Mo., has arranged with Thomas Cook & Son (who had full charge of the details of a similar trip in 1903) to take a party of physicians together, relieving them of all troublesome details of arrangements, and securing companionship, saving of expense, etc. A number of returning routes have been selected, and those who desire may include a Mediterranean trip, excursions to Madrid, etc., as well as an opportunity to return leisurely through Italy, France and Great Britain. Dr. John H. Musser, Philadelphia, is chairman of the National American Committee, and Dr. Ramon Guiteras, 75 West 55th Street, New York City, is the secretary, to whom all applications for membership and communications in regard to the presentation of papers should be addressed. Further information about transportation may be obtained from Dr. Fassett. (See further notice on next page.)

FOREIGN.

The Next Roentgen Congress.—Another international congress devoted to the Roentgen rays is already planned for 1908, to be held at Amsterdam.

Official Insect Extermination.—The Cuban Medical Congress adopted a resolution asking that a special branch of the Public Health Department should be devoted exclusively to extinction of infection-carrying insects.

Dried Fruits from the Orient.—The Russian governor of Turkestan has written the home government, urging the prohibition of importation of dried fruits from Persia into Russia. The reports of the Russian physicians stationed throughout the country indicate that these dried fruits are liable to be a source of infection. They are handled without care and cases of cholera were observed in the vicinity of some of the places where the fruits are spread to dry.

Combes in Private Life.—Dr. Combes, who until recently was prime minister of France, with his every move chronicled in the political press, has returned to his home in a retired province and resumed the practice of his profession. It is said that he is a man of no luxuries, a non-smoker, a non-theatergoer and a teetotaler. He has voluntarily returned to his native village and provincial obscurity now that he has been released from the cares of political leadership.

Campaign Against Tuberculosis in Spain.—A national association has been organized in Spain to aid in the struggle against tuberculosis. A general meeting was held in a Madrid theater, Sunday, May 19, and a dozen addresses were made by prominent men. Ramon y Cajal spoke on the importance of laboratory studies for the campaign against tuberculosis, and F. Rodriguez spoke on the rôle of the daily press in this line. The *Siglo Medico* comments sarcastically on the number and length of the addresses, each one proclaiming that deeds, not words, are what is needed, and each more prolix than its predecessor.

Celebration in Honor of the Inventor of Clinical Laryngoscopy.—A communication has been received from Prof. O. Chiari, president of the Vienna Laryngological Society, to the effect that in 1908 fifty years will have elapsed since Türck founded clinical laryngoscopy and rendered it the common property of physicians in general. The Vienna Laryngological Society decided, at a recent meeting, to celebrate the anniversary with due ceremony and invites all specialists at home and abroad to participate. Türck's work in perfecting and applying

in the clinic Garcia's laryngoscope was mentioned, in connection with the Garcia semicentennial, on page 970.

High Infant Mortality in Germany.—Notwithstanding the progress of hygiene and insurance against sickness in Germany, the mortality among infants less than a year old is said to be more than twice that of France and nearly twice that of the United States. The percentage of deaths among infants in comparison with the deaths at all ages is, for Germany, 35.8; for France, 15.5; for Great Britain, 26.6; and for the United States, 19.2. The Berlin authorities have recently taken steps to introduce the "nursling consultations" which are proving so successful in France, and bequests have been received to apply toward reducing the infant mortality in that great industrial center.

The French Yellow Fever Commission in Brazil.—Marchoux and Simond were delegated by the Paris Pasteur Institute to study tropical diseases in Brazil, and first arrived there in 1901. They returned to France for a time in 1903, but with that exception have been almost steadily at work until their final departure last month. A convenient two-story building was erected for their research in the grounds of the S. Sebastiao Hospital. The expenses were paid by the French government and the government presented the building and its equipment to the Brazilian authorities when the commission left for home. Their research fully confirmed the mosquito theory in regard to yellow fever.

Pilocarpin in Cerebrospinal Meningitis.—A physician in eastern Austria writes to the *Wiener klin-therap. Wochft.* to urge the more general use of pilocarpin in treatment of cerebrospinal meningitis. He relates his extremely favorable experiences with it in pneumonia and meningitis, insisting that the leucocytosis which it induces, with the consequent phagocytosis, accomplishes all and more than can be realized from lumbar puncture, hot baths and salicylic acid in meningitis. His experience has been only with the sporadic form of cerebrospinal meningitis. He insists that .05 to 0.7 cg. a day is none too much for an adult and .02 to .05 for a child, administered by the mouth, and remarks that this dosage is free from danger, which he thinks can not be said of its subcutaneous administration.

Parsee Maternity Hospital, Bombay.—The annual report of the Parsee Maternity Hospital in Bombay shows a continued record of really good work. The *British Medical Journal* states that its popularity among this community is remarkable; out of a total of 1,304 births among the Parsees no less than 535 occurred in this hospital. The hospital is always full and many have to be refused admission. The example set by this hospital has been followed by other sects which have now established separate hospitals for their respective communities. In the Parsee institution a certain proportion of the poor are admitted but the majority pay. Infant mortality in the hospital seems to be much lower than in the homes of the people, as only 10 deaths occurred among the children born in the hospital while 59 occurred among those outside.

Suspension of the Moscow Psychologic Society.—The Moscow Psychologic Society is a very prominent organization, with members of world-wide fame and honorary members in many countries. At a recent meeting Nikitin spoke in favor of suspending the society, exclaiming: "How can we devote ourselves to the study of psychologic matters at a time when the whole land is seething with excitement? People and institutions which have always quietly hitherto fulfilled their duties are now all clamoring, 'We can't live this way any more.'" Bechterew presided over the meeting and opposed the disbanding of the society, but he was voted down and the society was declared closed by 12 yeas to 8 nays. He asserted that the closing could apply only to the present meeting. Before the society could be definitely suspended a vote of all the members would have to be taken.

Pecuniary Responsibility for Transmission of Syphilis.—THE JOURNAL chronicled about two years ago the decision of a French court, which condemned a young man to pay damages to a girl of 16 whom he had infected with venereal syphilis, knowing his infectious condition at the time. The courts of Havre are now engaged on a similar case. The woman plaintiff suing for damages has established her case in every point except whether the defendant was aware that he had syphilis at the time of its transmission. The court is awaiting testimony on this point, having conceded that the defendant must pay the damages if it can be proved that he was aware of his infectious condition. The *Semaine Médicale* comments on the case that if this jurisprudence should become generally accepted, namely, that the contaminator is responsible for pecuniary damages if he knows or has reason to believe that he is liable to communicate the disease with which he is affected, it would be more effectual for the prophylaxis of venereal diseases than any of the repressive measures.

Approaching International Medical Congress, Lisbon, April, 1906.—The sixth official bulletin sent out by the committee of administration brings word that the total of communications presented to the congress now reaches 233, and that the membership list is growing apace. The names are published as the members inscribe. Chicago and New York have a number of representatives in the last series. Several scientific societies pay each a single subscription and are to be represented by a present or former president or other delegate. The subscription fee should be sent direct to the treasurer, Dr. Alfredo Luiz Lopes, Hopital de Rilhafolles, Lisbon, Portugal. The committee comments on Sir Felix Semon's words in regard to the necessity for a separate section for laryngology, instead of yoking it with rhinology, otology and stomatology in a single section. His statements were cited in THE JOURNAL recently on page 1129. The committee replies that the members of the section may form subsections as desired, but by thus grouping specialties the arrangement of the congress becomes much less unwieldy. It adds that Sir Felix Semon's own specialist journal is addressed to "laryngology, rhinology and allied sciences," and that the annual meeting of the British Medical Association always groups these specialties in a single section. At the Moscow congress there were only 12 sections in all. The official bulletins of the congress are written in French, and will be sent to physicians on request. Address Prof. Miguel Bombarda, Hopital de Rilhafolles, Lisbon, secretary general. The titles of communications are published as received. (See page 1941.)

LONDON LETTER.

The British Dental Association.

The twenty-fifth annual meeting of the British Dental Association has been held. The report showed that the membership continues to increase and now is about 1,400. Reference was made to the fact that the admiralty has appointed three dentists to the navy and regret was expressed that the army authorities had not been allowed to increase their staff, the blame apparently resting with the treasury. The president, Mr. T .Gaddes, delivered an interesting address. He referred to the great increase in the number of individuals practicing dentistry unregistered. This condition he attributed to the most regrettable state of the law as to practice. He expressed a hope that no impediment would be placed in the way of students for dental qualifications and thought that the present curriculum should not be extended or made more severe. The need for efficient dental service for the poor, he considered, would be best met by the establishment throughout the country of provident dental aid associations, guilds or dispensaries. He advocated also the teaching of oral hygiene in elementary schools in order to prevent caries.

The Centenary of the Royal Medical and Chirurgical Society.

One of the most interesting features of the celebration of the centenary of the Royal Medical and Chirurgical Society (previously described in THE JOURNAL) was an exhibition of books, instruments and other objects brought together to illustrate the condition of medicine when the society was established. The exhibits were arranged in six sections. The first section consisted of books and was subdivided into three parts. The first part comprised books in use by the society in the year of its foundation, 1805. The second part comprised books and pamphlets on vaccination, including a Chinese work with an English translation by Sir George Macartney, sent as a present to Dr. Jenner. The third part contained miscellaneous books, among which were: "Outlines of a Course of Lectures on the Practice of Medicine, as Delivered in the Medical School of Guy's Hospital," 1802-6, by William Babington and James Curry; "Essays on Quackery and the Dreadful Consequences Arising from Taking Advertised Medicines," and journals and textbooks of the period. The second section contained manuscripts. Among these were "Lectures on Anatomy," by Henry Cline, and a list of the so-called African surgeons—persons who passed an examination at the Liverpool Royal Infirmary and were considered competent to act as surgeons on ships engaged in the slave trade. The third section comprised instruments, among which were the forceps which belonged to Dr. John Burton, the prototype of Dr. Slop in "Tristam Shandy," who is described in Chapter XIX as: "Of all the men in the world the fittest for my father's purpose; for his newly invented forceps was the armour he had proved to be the safest instrument in deliverance." The fourth section comprised portraits and the fifth medals. In the former were portraits of the first twenty-five presidents of the society. The sixth section was miscellaneous

Pharmacology

FURTHER COMMENTS QUOTED.

We submit below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

NORTHWEST MEDICINE (April): "These uncertainties are now to be dissolved by action of the Council on Pharmacy and Chemistry of the American Medical Association, whose personnel includes chemists and pharmacists of national note. . . . The profession will await the appearance of this publication with much interest. The mooted question of ethical and unethical preparations should then be relegated to the past. For whatever passes muster at the hands of the men composing this council should be worthy of unquestioned acceptance."

THE COLUMBUS MEDICAL JOURNAL (April, 1905): "We note with pleasure that the Board of Trustees of the American Medical Association has created an advisory board to be known as the Council on Pharmacy and Chemistry of the American Medical Association. . . . The work of this council will be of great advantage to physicians and to editors of other journals, for, as stated by the council, the physician not only has the right to know, but it is his duty to know, the composition of medicines he prescribes for his patients."

THE MEDICAL RECORDER, April, after calling attention to an abuse which it declares "is constantly on the increase, namely, the prescribing of secret or semi-secret proprietary medicines by reputable physicians," remarks: "If this abuse continues the art of prescription writing and also the art of prescription compounding will soon be lost arts. This is not, however, a local condition; it exists all over the country. The Council on Pharmacy and Chemistry will pass on the value of proprietary medicine from a pharmaceutical and ethical point of view. After that, if the evil continues, the profession will have themselves alone to blame."

"The Best Artificial Food."

We have recently had occasion to open a package of a well-known "Tasteless Cod Liver Oil" preparation. The circular which was wrapped about the bottle was replete with interesting information, especially for the patient who obtains the remedy in the original package, as prescribed by his physician. He finds in it a list of the diseases in which the preparation does wonders—they range from the dread consumption to cystitis and hemorrhage of the kidney. Most interesting to us, however, is the statement that this compound "contains all the necessary elements of nutrition." It is too bad to disturb this beautiful vision by the report of the chemist. This shows that the product is quite free from oil or proteids; the only nutrient ingredients are alcohol, sugar and, perhaps, glycerin! But the claims of the manufacturer are probably quite correct, for it contains carbon, hydrogen, oxygen, and probably a trace of nitrogen—so does gunpowder! Perhaps it will now be the turn of strychnin to be advertised as the ideal food! It seems superfluous to point out the moral of this tale.

Correspondence

Pennsylvania and North Carolina State Board Examinations in 1904.

WAYNESVILLE, N. C., June 2, 1905.

To the Editor:—In THE JOURNAL, May 6, is published a very elaborate series of tables exhibiting in detail the results of the examinations held in the year 1904 in the various states for state license to practice medicine. These tables are very instructive, comprehensive and complete, and replete with much valuable information relative to the standards of medical education in the 63 medical colleges of the country whose graduates appeared before the various examining boards of the states.

In 1904 there were examined for license in the separate states of the Union 8,034 graduated physicians, of which vast number 5,672 were granted license and 1,365 rejected—the gross percentage of failures being 19.3.

Some of these were duplicates, of which the carefully prepared tables make no mention. I know that of recent years it has become more or less a custom for young physicians just graduated to "swing around the circle," as it were, of a number of state medical boards and to secure license from a few or several pending the important question of location. This injects a possible source of error into the valuable data which future tabulators for THE JOURNAL will likely find some way to avoid. Suffice it to say here that in the main the work has been splendidly performed and has brought together a mass of information relative to the various medical teaching institutions of our country which is nowhere else to be found, and which in its conception reflects credit on the editor of THE JOURNAL.

But, to consider more critically the results manifest in the tables, we find a not inconsiderable portion of these graduates were from the schools prior to 1904, the 1904 graduates making a decidedly better showing before the boards. Of the 8,034 graduated applicants in 1904, 4,542 of the number were graduates of the colleges in 1904, and from this number 3,533 were granted license and 449 rejected, the percentage of rejections being for the graduates of 1904 only 11.3.

THE JOURNAL presents a smaller table, showing in detail the rejection of graduates by all state boards from the graduates of the separate states of the Union, and in this interesting tabulation it falls to the unenviable portion of North Carolina medical colleges to present the greatest percentage of failures, to-wit, in the "graduates of all years" North Carolina leads in percentage of failures with a record of 39.6 per cent., and in "graduates of 1904" it is somewhat lower, being 34.1 per cent., though still at the top of the list for failures.

But a little investigation shows that the high percentage of the failures of North Carolina graduates in medicine is due to the record of the graduates of the negro medical college at Raleigh, the Medical Department of Shaw University or Leonard Medical College, as it is usually called.

A glance at the figures below is interesting:

	Passed.	Failed.	Rejected, Reg. on per cent.	Dipl.	Totals.
Physicians examined by all state medical licensing boards in 1904.....	5,672	1,363	19.3	999	8,034
N. C. MEDICAL COLLEGES:					
University of N. C.....	4	0	.0	0	4
N. C. Med. College.....	19	1	.5	0	20
Leonard Medical College....	12	22	64.7	0	34
Physicians examined by all state examining boards in 1904, graduates of the year 1904—graduates of 163 schools	3,643	449	11.3	560	4,542
N. C. MEDICAL COLLEGES:					
University of N. C.....	4	0	.0	0	4
N. C. Medical College.....	17	0	.0	0	17
Leonard Medical College....	8	15	65.2	0	23

While an occasional negro is found in the medical classes at Harvard and other of the eastern schools of medicine, it is a fact that the great majority of negroes who study medicine do so at the schools in Raleigh, N. C., Nashville, Tenn., and Washington, D. C., and it would only have been eminently fair and proper if THE JOURNAL had taken cognizance of the presence of a considerable percentage of negro graduates in the colleges of certain states before it published gross results which, on the surface, appear to the discredit of the medical colleges therein located.

A cursory survey of the figures in the above table reveals the fact that the correct percentage of failures of graduates from North Carolina schools of medicine graduating in the various years prior to 1904, as evidenced in the examinations by the various state boards of the country for the examinations held in 1904, was for white men only 5 per cent. Of white graduates of the classes of 1904 the percentage of failures was 0. A very striking contrast to the figures which THE JOURNAL publishes as evidencing the standard of medical education in North Carolina and which figures place her at the bottom of the list of all the states of the Union, when the facts are that, when the records of her white graduates are studied, she should come at the top, being better than that

of any southern state and equaled by few in any section. Taken—13 states—at random over the country, we note for comparison the percentage of failures of all graduates without regard to year of graduation before the boards in 1904 was as follows:

Alabama, 11.1; Georgia, 8.8; South Carolina, 7.7; Texas, 14.3; Virginia, 8.5; Massachusetts. 7.5; Wisconsin, 33.3; Michigan, 12.5; Louisiana, 15.9; Illinois, 8.2; New York, 5.3; Maryland, 28.7; Ohio, 19.3; North Carolina (white physicians), 5.

Again, take the record of the examination of graduates of all colleges in 1904 before all state boards in 1904 and examine the individual states:

Alabama, 3.1; Georgia, 1.4; South Carolina, 4.8; Texas, 16; Virginia, 6.2; Massachusetts, 6.7; Wisconsin, 37.5; Michigan, 3.0; Louisiana, 6.7; Illinois, 4.9; New York, 2.5; Maryland, 27.8; Ohio, 9.0; North Carolina (white physicians), 0.

Certainly in a matter which so concerns the reputation of the North Carolina colleges of medicine, it is only just that a loyal citizen of the state should direct attention to the incorrect rendering of the data relative to the standard of the schools. While I have never been connected in any capacity with the teaching of medicine in any of the North Carolina colleges of medicine, for several years I was a member of the North Carolina State Board of Medical Examiners, and an experience with some hundreds of medical graduates fully satisfied me that the work done in the schools of medicine of North Carolina for white men would compare very favorably with that done by white men anywhere.

In this connection it may be well to note also that in the negro medical college of this state, for about twenty years, a corps of able, earnest, faithful white men, the elite of the profession, socially, intellectually and otherwise, have labored zealously for the uplifting of the negro race by endeavoring to teach them medicine, but up to the present time (as, for instance, the examining board records above noted) with only indifferent success. God in his infinite wisdom evidently knew what he was about when he prepared and fitted certain races and types of beings for "hewers of wood" and "drawers of water," and even though we may with valiant effort attempt to change the inevitable bent of a race, the result is very apt to be only what a student of the negro from a scientific standpoint would expect. He is not possessed of those mental faculties which enable him to grapple with the abstrusities of medical science. By rote he may learn certain things (though his capacity even for doing this will be in direct proportion to the amount of white blood in his veins—how very, very rarely do we in the South who know the race as it is ever see much real intellectual development save where there is much mingling of Caucasian blood in the stream), but he can never be a man of science. In North Carolina, in addition to the earnest effort of white physicians, who have for two-score years labored without money compensation for the betterment of the race, there is everywhere a distinct recognition of the demand of the white physicians for negro physicians, and the white physicians are throughout the state encouraging negro physicians in every possible way. We consult with them freely, we aid them in every possible way, we look on them as the flower of their race—and they certainly are the decidedly superior men of their race in the South—they have absolutely the same examinations before our state examining board as the white physicians; there is no possible opportunity nor desire for discrimination, but all the same the results do not place the negro in a favorable light as a student of medicine.

In conclusion, if it is not asking too much, I respectfully suggest that in future compilations of this sort THE JOURNAL will please do just as the Federal Government does in compilations of such character—place the races in separate lists and not belittle the record of a proud and worthy people by comparisons which include the mingling of inferior creations.

J. HOWELL WAY, M.D.,
Secretary Medical Society of the State of North Carolina, member North Carolina State Board of Health, ex-member and Secretary North Carolina State Board of Medical Examiners.

[EDITOR'S NOTE.—The *total* percentage of failures in the State of North Carolina would be the same, even though were shown *what portion* were of the white and what portion of the colored race. THE JOURNAL has certainly laid the blame at the right door when it needs but a glance at the tables to show what college or colleges are to blame for the high percentage of failures.]

PHILADELPHIA, June 6, 1905.

To the Editor:—The results of the examinations for medical licenses for 1904, as published in THE JOURNAL, May 6, have been very interesting to me, and I feel that I must commend you, both for their completeness and for the energy and labor expended in their preparation.

There is, however, one point for criticism concerning them, inasmuch as it introduces an element of unfairness in the published reports and records of certain schools. I refer to the fact that in the report for Pennsylvania schools, and perhaps for those of some other states, certain individuals were counted twice in the summations, this being contrary, I believe, to established principles of statistical determination. Thus, for the Medico-Chirurgical College of Philadelphia, 78 members of the class of 1904 are reported as being examined, with 13 failures, the latter giving a percentage of 16.7. The fact is, no one knows just how many individuals of this class were examined last year, as some were possibly examined in more than one state; but certainly not more than 56 were examined in Pennsylvania, and these, added to the 15 that you report as examined in other states, make a total of only 71, of whom none in the other states and only 6 in Pennsylvania had failed to pass at the end of the year. Thus the actual percentage of failures for this school for the class of 1904 is 8.45, or just about half of that reported. Likewise, of the graduates from 1900 to 1904, inclusive, there were but 88 examined instead of 98, and of these only 11 instead of 21 failed to pass by the end of the year, this justifying a reduction of almost one-half in the published percentage of failures. And so, for the total for all years the percentage is reduced from 20.8 to 11.95.

I have no doubt that the error is to be attributed to the source of your information concerning the Pennsylvania applicants rather than to your office, but I trust that you will appreciate the element of unfairness involved, and that in your future reports you will enumerate—as I believe you did in those for 1903—the actual number of *individuals* that have succeeded or failed at the *ends* of the respective years.

I would also ask you to note that, unless the emendation indicated be made for some of the other schools in this state, as well as for this college, Pennsylvania is a marked exception to what you state to be the apparent rule, namely, "that the graduates of a certain school should have a much better chance of passing the examination in the state in which the school is located than they have elsewhere." Thus, according to Table G, there were for the Pennsylvania schools collectively 29 reported failures to 299 successes outside the state. Does not this clearly indicate either that the reports for Pennsylvania need the correction that I have asked for, or that the examinations in this state are far more drastic to the graduates of its schools than are those of other states?

SENECA EGBERT.
Dean of the Department of Medicine, Medico-Chirurgical College.

[EDITOR'S NOTE.—There are two possible ways wherein duplication may have occurred. 1. An applicant who failed at one examination may have come up for re-examination later in the year and may have been reported as another individual. 2. A graduate may have taken examinations in more than one state. In neither of these instances, however, would this reflect unfavorably against the college concerned unless the applicant failed in more than one attempt, as otherwise his success at a second examination would tend rather to cancel his failure at the first trial. An individual succeeding before several state boards would reflect with sufficient favor on the college giving him his training to warrant its being counted as separate individuals. The same argument would fit repeated failure with, of course, the opposite interpretation. It should certainly stand to the credit of the Pennsylvania State Examining Board if it requires the same high standard for the colleges of its own as for colleges of other states.]

Was the Schoolmaster Abroad?

——— ——, June 9, 1905.

To the Editor:—I submit for the information of your readers the questions in a state board examination and the answers submitted by a recent graduate of a well-known medical college in the West. The college is a member of the Association of American Medical Colleges and, in common with all other medical institutions recognized by the board giving the examination, is supposed to require evidence of high school education as a condition of admission. I wonder, and your readers will doubtless wonder, how any college could have graduated a student who would be responsible for such answers as these:

Question.—Give physical signs and symptoms of cerebrospinal meningitis.

Answer.—Cerebro spinal meningitis is is Inflammation of the spinal column or spinal cord and of the Cerebelliam of the brain it is also Pain in the back and back of the head there is heat and inflammation.

Question.—Give physical signs and symptoms of tuberculosis of the lungs.

Answer.—Tuberculosis of lungs is pain in the brest a dry and Hacking caugh and may spit up some and they may no.

Question.—Give physical signs and symptoms of lobar pneumonia.

Answer.—In Lobar Pneumonia we have a pain in the side bad breath rattling of the lungs coated Tongue and some fever colared stools red splotches on back.

Question.—Give physical signs and symptoms of chronic Bright's disease.

Answer.—Chronic Bright's disease is Inflammation of the kidney's scanty High Colored urine Pain in the back and scarcely fells like mooving has Pain in back and lions specific Gravity 1018 to 1030.

Question.—Give differential diagnosis between malaria and pyemia or concealed suppurations.

Answer.—Malaria the patient is full of bile has a chill ever few days. has a yellow color and jest drags around all the time and so weak that he cant do nothing. Pyemia is also torn down tissues but does not have the chills like they do in Malaria.

Question.—What are the symptoms of acute catarrh of the middle ear and what is the treatment?

Answer.—The symptoms of acute Catarrh of the middle year is a running of the ear and may cause deafness. Treatment is to wash the year out twice a day with warm watter and Green soap wash the year with a ear surrenge and then dry the ear as well as possible.

Question.—Give symptoms and treatment of scarlatina. Name some of the most frequent complications.

Answer.—Scarlatina is a severe disease among Children they have high fever Paining almost all over and it is an infectious disease it is dangerous among children. Treatment is to give anti Pyrene and small doses of Calomel they are most Frequent found in large towns or cities.

Question.—Name three respiratory stimulants, and mention the diseases in which you would use them.

Answer.—We have the wine, milk and Soups, I would use them in Lagripp & Pneumonia.

Question.—Explain the physiologic action and therapeutic indications of nux vomica. What are the active principles?

Answer.—The Physiological action and Therapeutic indications of Nux Vomica is to excite the vagi nerves and make a person sick at his Stomach so as to vomit him.

Question.—What are hypnotics? Name three and give action of one.

Answer.—Hypnotics are where a person has lost controle of hisself it might be that he is Intoxicated or Insane, or overdose of Opium Intoxication is where Liquor has him bested and cannot do anything he looses controle of muscles and nerves.

Question.—Classify hyocin hydrobromate and give the dose.

Answer.—Hyocin hydrobromate is a nerve sedative it eases and rests your patient the dose is one half teaspoonfull.

Question.—Name the drugs which lower blood pressure and give indications for use.

Answer.—Anti Pyerine give it when the pulse is high.

Question.—What are the principal forms of bacteria and how do they differ in appearance?

Answer.—Bacteria differs in several ways its principle form if from an old Sore some in cuts bruises burns the Bacterea may live for several days it is hard to kill they may be in Maleria Typhoid Pneumonia Fevers Dyptheria.

Question.—Give Koch's postulates or rules in regard to bacterial cause of disease.

Answer.—well the bacteria gets into the system and sets up an eritation and they jest keep accumilateing and become more and more all the time if the Patient is old they are harder to destroy if the patient old wore out and broke down when they once get hold they accumilate very readily they will live several days in the Sun they are the cause of many diseases.

Question.—How would you differentiate dysentery from typhoid fever by bacteriologic test?

Answer.—I would differentiate dysentery and Typhoid fever by the Tongue being coated and the symptoms what ever that they might be if by the Bacteriological Test if I should find the Typhoid Bacill I would diagnose the case as Typhoid fever other wise I dont no jest how that I diagnose the case also by the stools.

Question.—Differentiate between pathogenic and non-pathogenic bacteria and give five examples of each.

Answer.—Pathogenic Bacteria always occurs occur in man it may be a cut broose Syphilitic Gangrene or Ghonorhea Non Pathogenic Bacteria is found in horses animals Guinea Pigs Rabbits and they may get the bacteria from some Stream of watter or from something that they have eaten a person could ketch it the same way or they could ketch it from sleeping with each other or being with each other from kissing and so forth.

Anticipating inquiries I will say that at the time the candidate took the examination he was apparently clothed and in his right mind.

AN EXAMINER.

The Physiologic Action and Toxic Action of Acetanilid.

PHILADELPHIA, June 7, 1905.

To the Editor:—In THE JOURNAL, June 3, page 1790, appears the "Official Report on Acetanilid Mixtures" made by the Committee on Chemistry of the Council on Pharmacy and Chemistry of the American Medical Association. The report is signed by the individual members of the committee, who possess our full confidence, and who are recognized by all as fully competent to speak with authority on any subject connected with materia medica or medical chemistry. My object in writing at the present time is to call attention pointedly to this valuable report, and to express my great personal satisfaction and gratification, as a teacher of pharmacology, with the important work which the Council has inaugurated. I believe that the value of this work to American medicine can scarcely be overestimated. The Section on Pharmacology and Materia Medica has on several occasions, by resolution, called the attention of the Association to the crying need of enlightenment of the medical profession on the subject of the exact composition of proprietary remedies of secret composition, which have been so lavishly exploited and freely advertised in our medical journals. The fact that this work has at length been definitely undertaken is hailed with delight by every member of the Section of which I have the honor to be an ex-chairman; and probably also by every American physician who is interested in the scientific practice of medicine. It is acknowledged by all that the habit of prescribing pharmaceuticals of unknown composition is utterly unscientific and stultifying, and is opposed to all further progress in therapeutics. The new departure of THE JOURNAL in giving publicity to the results of examinations of secret proprietary preparations, thoughtlessly used by some physicians, is the first practical step toward the removal of this reproach,

which has assumed the proportion of a scandal, to American medicine.

In the carefully prepared article which appears as a supplement to the above mentioned report, entitled "Coal-Tar Products, Especially Acetanilid," you have done well in calling attention to the dangers following the incautious use of acetanilid. You have done me the honor of referring to me as opposing the theory that the antipyretic influence is to be explained by the primary action of acetanilid on the corpus striatum, and as teaching the generally adopted view that its action is chiefly on the blood and circulation. In view of the importance of the subject, I feel that I am not trespassing too much on your space in asking permission to make my position a little more clear on the physiologic and toxic action of acetanilid.

The first point that attracts attention, from the clinical standpoint, is the marked discrepancy that is seen to exist among writers in regard to the size of the dose. The British Pharmacopeia states that the ordinary average dose for an adult is from one to three grains; Sydney Ringer makes it four or five grains; the United States Dispensatory, from five to fifteen grains. In Germany several grams have been given at a dose; doses of four grams have been followed by serious collapse and recovery. On the other hand, patients have been made cyanotic and have collapsed with two or three grains, and death has more than once been reported from five grains. Numerous deaths from headache powders also have been reported; the principal constituent of these powders, as we know, is acetanilid. Recovery has taken place after the ingestion of nearly an ounce (31.1 gr.).

While idiosyncrasy or unusual susceptibility may, to some degree, enter into the explanation, yet it seems inadequate to solve all cases. I would suggest that impurity of the acetanilid may be responsible for some accidents. Anilin is very poisonous and the presence of anilin compounds, due to imperfect purification, might produce symptoms of collapse from small doses. As stated in my work on "Materia Medica and Therapeutics" (Fifth Edition, page 10), "Toxic symptoms are especially apt to occur when acettoluid is present." In this connection, we may recall the fact that Ritsert (*Pharm-Zeitung*, 1890, p. 306) has called attention to the almost constant presence of toluidin in commercial anilin. (Quoted from United States Dispensatory, 18th Edition.) To return, however, to the subject of acetanilid itself, and to its proper physiologic action: As pointed out by T. Lauder Brunton, in his Croonian lectures on the "Relationship Between Chemical Structure and Physiologic Action" of drugs (1892), acetanilid has the simplest structure of any member of the group of aromatic bodies, and is the nearest to anilin, since it merely consists of anilin in which one atom of hydrogen is replaced by acetyl. It may also be regarded as ammonia in which one atom of hydrogen is replaced by phenyl and another by acetyl, hence it is also known as phenylacetamide. Structurally, therefore, acetanilid is closely related to phenacetin; but it is less soluble in water, and is more toxic than the latter. In its medical actions, it appears to be almost identical with antipyrin; but the latter does not cause alteration in the red blood cells, with the formation of methemaglobin, as acetanilid and its congeners do. This action is due to the decomposition of acetanilid in the blood and the liberation of paramidophenol, or a similar derivative. This action also occurs, although more slowly, in the case of phenacetin and its allies, and is absent after antipyrin (as stated by Cushny). The toxic action of comparatively small doses of acetanilid is thus explained. Small quantities cause the formation of methemaglobin within the blood cells, which remain intact; but larger doses destroy the blood cells and set free the methemaglobin in the plasma. Part of this, in escaping through the kidneys, may excite nephritis; and set up albuminuria, hemaglobinuria, or hematuria.

Without pursuing this interesting topic further, I would merely express my cordial agreement with the views expressed in the article referred to, especially the following paragraphs:

"That the action of acetanilid is more pronounced on the blood than on any other part of the system is generally recognized. Consequently, its effects on the circulation, respiration, temperature, and elimination are all probably secondary to the blood changes, etc."

In conclusion, I wish to emphasize your final word of warning as to the cautious use of the drug, especially when the personal idiosyncrasy, or degree of susceptibility, to the toxic action of acetanilid is unknown. Compounds, or mixtures, of acetanilid with soda, ammonia, or other comparatively harmless substances, should not be administered in large doses indiscriminately, simply because they are advertised as being "entirely free from depressing action on the heart and circulation."

John V. Shoemaker.

1519 Walnut Street.

Too Few Physicians—Hardly.

To the Editor.—An article has been going the rounds of the daily press, purporting to be an interview with me, bewailing the prospective scarcity of physicians. No such interview was ever held. The only grounds that could ever have existed for such an article was that while I was talking to another physician, I congratulated the people that good, yes, first-class medical schools would have fewer graduates owing to the fact that preliminary requirements and the standard of teaching had increased to such an extent that numbers would not rush to these colleges as had been the case before the rise in requirements. It is quality and not quantity that is needed. I have stood for quality all my life. I endorse the sentiment in your editorial.[1] "Too few physicians? Hardly."

Yours truly,

A. W. McAlester.

"Epilepsy of Syphilitic Origin."

Pittsburg, June 9, 1905.

To the Editor:—The statement of Dr. John T. Moore in The Journal, June 10, p. 1855, that "practically all authorities agree that epilepsy, coming on during adult life, unless directly traceable to injury, should be regarded as syphilitic in character" ought not to pass without protest. Certainly the possibility of syphilis should be carefully considered; but there are other causes, among them innocent arteriosclerosis certainly may be reckoned and it would be wrong to give prolonged antisyphilitic treatment in all cases of epilepsy in which the attacks first appear in adult life and which are not traceable to injury.

Theodore Diller.

Report of Acetanilid Mixtures.

Brooklyn, June 8, 1905.

To the Editor:—Allow me, as a subscriber to The Journal, to add my word of approbation for the work of the Committee on Chemistry. The results of this investigation are most profitable to us all as practicing physicians, and perhaps the word of good cheer for this undertaking from many quarters will not be amiss. I only hope that this work may continue.

Harris Moak.

Whereabouts of Mr. Orriss Wanted.

Princess Anne, Md., June 10, 1905.

To the Editor:—A Mr. A. W. Orriss is operating among physicians, exchanging old medical books for new ones. Will any one knowing the whereabouts of such a person kindly communicate with

Chas. W. Wainwright, M.D.

Association News

Additional Through Train on Canadian Pacific.

To accommodate a number of members who wish to go to the Portland session over the Canadian Pacific Railway, that road announces that a special sleeping car for physicians and their friends will be attached to their train leaving St. Paul at 9:05 a. m., Tuesday, July 4, reaching Banff, Friday at 7:06 a. m.; Vancouver, Saturday at 10:45 a. m., and Seattle via Victoria and Puget Sound at 10:45 Saturday evening or all-

1. The Journal, May 27, 1905, p. 1689.

rail by way of Mission Junction, at 5:50 p. m. Saturday. Stopovers may be made at the various mountain resorts. Application for sleeping car space should be made at once to A. C. Shaw, 232 South Clark Street, Chicago. The beauties of this route were described in the Portland issue of THE JOURNAL, June 3, 1905, pages 1761-1779.

To Portland via San Francisco.

A number of members expect to go to Portland by way of San Francisco, stopping at the meeting of the American Surgical Association, to be held in the latter city July 4-7. The Chicago, Union Pacific and Northwestern Line will run a special car or cars on their through train, leaving Chicago Thursday, June 29, 8:02 p. m., Des Moines, Friday, June 30, 3:00 a. m., and Omaha, 9:15 a. m., Ogden, Saturday, July 1, 3:30 p. m., and arriving at San Francisco, Sunday, July 2, 5:50 p. m. The same schedule without change of cars is in operation every night, but on June 29, arrangements have been made by Drs. J. B. Murphy, A. J. Ochsner, A. D. Bevan and E. W. Andrews of Chicago; D. S. Fairchild, Des Moines; A L. Wright, Carroll, Iowa; B. F. Jones, Omaha; Miles F. Porter, Ft. Wayne, Ind., and others to make the journey more pleasant by traveling together. One sleeper is to run from St. Paul and Minneapolis to Omaha and there to be attached to the regular train. Reservations may be made through Mr. H. A. Gross, general passenger agent, C. & N. W. Ry., 212 Clark St., Chicago, or through any nearer agent of that railroad or of the Union Pacific. From San Francisco the members of the party will go to Portland by the coast steamers or by the Southern Pacific's beautiful Mt. Shasta line. In this connection, see the Portland number, June 3, and also the article on routes April 22.

Marriages

EMIL LOFGREN, M.D., to Miss Alina Nelson, both of Rockford, Ill., June 7.

ROBERT R. WALLACE, M.D., to Miss Jean Leslie, both of Hamilton, Ont., June 1.

GEORGE A. ULRICH, M.D., to Miss Hester D. Ralston, both of Philadelphia, June 7.

AUGUSTINE PALMISANO, M.D., to Miss Sara Mary Demares, at Baltimore, June 7.

A. J. BURRIDGE, M.D., Winnipeg, Man., to Miss Duncan of Nelson, Man., June 1.

THOMAS HERBERT BELL, L.C.R.P., to Miss Minnie Darling of Toronto, Ont., June 1.

PHILIP J. DAVIES, M.D., to Miss Katherine Johnson, both of Scranton, Pa., June 1.

LOUIS F. O'NEILL, M.D., to Miss Mary F. Hanlon, both of Auburn, N. Y., June 6.

MERVYN ROSS F. TAYLOR, M.D., to Miss Jeanette Riley, both of Philadelphia, June 7.

GEORGE R. TABOR, M.D., to Miss Cordelia Ann Barton, both of Austin, Texas, June 1.

ORRIS F. STARR, M.D., Tulsa, I. T., to Miss Mary E. Hughes of Vinita, I. T., May 25.

ARTHUR C. KLENTGEN, M.D., Chicago, to Miss Mildred King of Belvidere, Ill., June 3.

JAMES M. DELL, M.D., Gainesville, Fla., to Miss Johnnie Liddon of Ocala, Fla., June 7.

J. CLAY ROSS, M.D., Louisville, Ky., to Miss Mamie Massie of Hopkinsville, Ky., June 6.

LILLIE ROSA MINOKA, M.D., Philadelphia, and Charles A. Hill of Oneida, Wis., June 6.

ROBERT M. LAPSLEY, M.D., Keokuk, Iowa, to Miss Lyda Hiller of Kahoka, Mo., June 7.

CHARLES H. CRETZMEYER, M.D., Algona, Iowa, to Miss Maude Lowe of Osceola, Iowa, June 5.

DANIEL W. LAYMAN, M.D., Indianapolis, to Miss Maude Carroll, at Lynchburg, Va., June 7.

HOWARD ROY HESS, M.D., Sidney, Ill., to May Katherine Gilmore of Rock Island, Ill., June 8.

JOHN NELLIS DALY, M.D., Orangeville, Ill., to Miss Maude Hoyman of Freeport, Ill., June 1.

CARL KLEMER, M.D., Faribault, Minn., to Miss Anna Burnham of Red Wing, Minn., June 6.

CHARLES BLEDSOE CRUTE, M.D., to Miss Elizabeth Robertson Martin, at Farmville, Va., June 7.

RALPH BENJAMIN COX, M.D., to Miss Florence Bertha Hough, both of Collinsville, Conn., June 1.

WILLIAM DUDLEY SPEARMAN, M.D., to Miss Edna Gunter, both of Social Circle, Ga., June 14.

JOHN W. LAIRD, M.D., Mount Pleasant, Iowa, to Miss Ora Alton of Hillsboro, Iowa, June 14.

COMPTOM RIELY, M.D., Baltimore, to Miss Estelle Randolph Hughes, at Cambridge, Md., June 6.

COLEMAN L. HOFFMAN, M.D., Rockton, Ill., to Miss Sarah Olivia Paine, of Iowa City, June 1.

JAMES EDWARD COGAN, M.D., to Miss Katherine May Gleason, both of Cleveland, Ohio, June 1.

CHARLES C. STAUFFER, M.D., Harrisburg, Pa., to Miss Hanna G. Henry, of Zoyertown, Pa., June 1.

FRANK LOUIS STILLMAN, M.D., to Miss Elouise Landon Converse, both of Columbus, Ohio, May 30.

ALVAN W. SHERRILL, M.D., Markleton, Pa., to Miss Mary Elizabeth Jones of Allegheny, Pa., June 7.

JAMES J. P. ARMSTRONG, M.D., to Mrs. M. E. Skipper, both of Douglas, Ariz., at Crowley, La., June 1.

HERMAN EDWIN HASSELTINE, M.D., New York, to Miss Bertha Margery Mohl of Baltimore, June 6.

WILLIAM G. SMITH, M.D., Ravenna, Ohio, to Mrs. Mae E. Sawyer of Kent, Ohio, at Ravenna, June 1.

HARRIS ROYAL MOORE, M.D., Burlington, N. C., to Miss Alice Mutter Cheek of Henderson, N. C., June 15.

LUTHER JERRELL HEAD, M.D., Penola, Va., to Miss Lucy Gwynn Fox, in King William County, Va., June 7.

JAMES A. REA, M.D., Wellington, Kan., to Miss Kate Howe of Lamont, Iowa, at Newkirk, Okla., May 28.

NORMAN B. ALEXANDER, M.D., London, Ont., to Miss Maude Amelia Somerville of South London, Ont., June 3.

EARL D. KILMER, M.D., Rushville, N. Y., to Miss Marie Parsons of Walsall, England, at Rochester, N. Y., May 29.

JOHN H. KERN, M.D., North St. Louis, Mo., to Miss Rosamond Reck of Spragueville, Iowa, at Warrenton, Mo., June 6.

Deaths

Joseph M. Wishard, M.D. Medical College of Ohio, Cincinnati, 1857, said to have been the oldest member of the Johnson County Medical Society and one of the oldest members of the Indiana State Medical Society; surgeon of the Fifth Indiana Volunteer Cavalry during the Civil war, and for several months a prisoner in Libby Prison, died at his home in Greenwood, Ind., May 31, from the effects of a fall 20 months ago in which he dislocated his thigh, aged 77.

Lawrence C. Swift, M.D. College of Physicians and Surgeons in the City of New York, 1878, a member of the American Medical Association; secretary of the Berkshire District (Mass.) Medical Society; associate medical examiner for central Berkshire county, died at his home in Pittsfield, June 1, from cerebrospinal meningitis, after an illness of four days, aged 53.

Benjamin Knight, M.D. Harvard University Medical School, Boston, 1869, for many years local surgeon of the South Pacific Coast and Southern Pacific railroads; a veteran of the Civil War; state senator in 1883 and president pro tem. of the Senate, died at his home in Santa Cruz, Cal., June 2, after a long illness following influenza, aged 68.

Matthew Watson Donavin, M.D. University of Maryland School of Medicine, Baltimore, 1866, some time coroner of Baltimore County, member of the Baltimore City Council, member of the state legislature, and police magistrate, died at his home in Baltimore, June 4, aged 67.

Chauncey S. Burr, M.D. Long Island College Hospital, Brooklyn, N. Y., 1865, major and surgeon of the Twenty-third Illinois Volunteer Infantry in the Civil War, first mayor of Mitchell, S. D., died at his home in Chicago, June 4, three days after a surgical operation, aged 65.

John Brock Darling, M.D. Vermont Medical College, Woodstock, 1848, a practitioner of South Ryegate, Vt, for 55 years, died at his home in that place, February 12, from chronic cystitis, and senile hypertrophy of the heart, after an illness of six months, aged 82.

Hiland A. Weed, M.D. New York University, New York City, 1857, assistant surgeon in the Seventeenth, and surgeon of the Twenty-fifth New York Volunteer Infantry during the Civil War, died recently at his home in Fayetteville, N. Y., aged 71.

James D. Taylor, M.D. St. Louis Medical College, 1861, surgeon of First Missouri Cavalry, C. S. A., in the Civil War, and for more than 40 years a resident of Richmond, Mo., died at his home in that city, May 26, after a short illness, aged 70.

Marion Wells Thoms, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898, a medical missionary of the Reformed Church, died at her station on Bahrein Island in the Persian Gulf, from typhoid fever, aged 31.

Vivian E. Zimmerman, M.D. University of Nashville Medical Department, 1901, of Corcordia, Kan., died at the home of his father near Jamestown, Kan., May 21, from consumption, after a long illness, aged 27.

Whitfield L. May, M.D. Jefferson Medical College, Philadelphia, formerly of Lyons, Kan., was found dead at Eureka, Cal., May 25, from heart disease, with alcoholism as a contributory cause, aged 53.

Harry H. East, M.D. Barnes Medical College, St. Louis, 1890, of Xenia, Ill., while suffering from melancholia, cut his throat at the Alexian Brothers' Hospital, St. Louis, and died June 2, aged 45.

Edgar Macklin, M.D., honor graduate of the Western University, Medical Department, London, Ont., 1890, died May 29 at London, Ont. He had served as a surgeon on the Allan Steamship Line.

William J. Sheppard, M.D. University of Wooster Medical Department, Cleveland, Ohio, 1870, of Cleveland, died at Lakeside Hospital in that city, May 29, from cancer, after a long illness, aged 62.

Francis Addison Day, M.D. University of Louisville, Tuley Medical Department, 1850, died at his home in Louisville, May 24, from nephritis, after an illness of sixteen months, aged 78.

A. Parker Muir, M.D. Albany (N. Y.) Medical College, 1896, for a long time a member of the staff of the Manhattan State Hospital, died recently and was buried in Albany, N. Y., June 4.

Charles B. Chesher, M.D. Cincinnati College of Medicine and Surgery, 1876, formerly superintendent of the Cleveland State Hospital, died at his home in Columbus, June 1, from heart disease.

William Isaac Goodin, M.D. Medical College of Ohio, Cincinnati, 1874, died at his home in Cincinnati, May 31, after a long period of invalidism from gastritis, aged 68.

Thomas H. B. Baker, M.D. University of Louisville Medical Department, 1876, died at his home in Pekin, Ind., June 1905, after an illness of about 3 months, aged 67.

DeWitt G. Lippincott, M.D. Jefferson Medical College, 1883, member of Orange County Medical Society, died at his home in Campbell Hall, N. Y., June 7, aged 44.

Chauncey B. Ostrander, M.D. (years of practice, Illinois), 1881, a practitioner of Fairbury, Ill., since 1850, died at his home in that city, May 30, aged 87.

Orville R. Baker, M.D. Ohio about 1849-1850, died at his home in Rutland, Vt., May 26, from senile debility, after an illness of two weeks, aged 81.

Jacob D. Kirby, M.D. Cincinnati, 1868, died at his home in Grand Junction, Iowa, from septicemia, January 30, after an illness of 20 days, aged 77.

Henry F. Crensheno, M.D. (years of practice, Ky.), 1893, for 35 years a practitioner of Mount Washington, Ky., died at his home in that place, June 8.

William K. Spiller, M.D. University of Nashville (Tenn.) Medical Department, 1874, died at his home in Bridgeport, Ala., May 25, aged 60.

Alonzo W. Marston, M.D. McGill University Medical Department, Montreal, 1871, died at his home in Hull, Que., April 3, from nephritis.

Henry F. Gorman, M.D. University Medical College of Kansas City, 1900, died at his home in Chickasha, I. T., June aged 57.

Jacob Price, M.D. Jefferson Medical College, Philadelphia, 1850, died at his residence in West Chester, Pa., June 9, aged 79.

N. F. Pierce, M.D. Kentucky School of Medicine, 1889, died suddenly at his home in Howard's Mill, Ky., June 2, aged 42.

John H. Tims, M.D. Examination Ohio, died suddenly at his home in Sparta, Ohio, May 23, from heart disease, aged 87.

Albert D. Getman, M.D. New York, 1883, died at his home in Oneonta, N. Y., May 23, from pneumonia, aged 46.

John Kossuth Oshley, M.D. (years of practice, Illinois), died at his home in Cisne, Ill., May 26, aged 80.

T. G. Flournoy, M.D. St. Louis Medical College, 189, died at his home in Pasadena, Cal., May 26, aged 67.

Julia A. D. Adams, M.D. Ohio, 1871, died in Palos Park, Ill., May 30, aged 74.

Deaths Abroad.

Ezio Sciamanna, M.D., one of the leading psychiatrists of Italy, died at Rome about May 20. He was one of the foremost figures in the International Congress of Psychology which closed its sessions at Rome, April 30.

A. Hilger, M.D., professor of pharmacy at Munich, died May 25, aged 66. He was one of the leaders in this branch of science in Germany, especially in physiologic chemistry.

Book Notice

MANUAL OF OPERATIVE SURGERY. By John Fairbairn Binnie, A.M., C.M., (Aberdeen), Professor of Surgery, Kansas City Medical College. With 559 Illustrations, a Number of Which Are Printed in Colors. Cloth. Pp. 644. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

The author is to be congratulated on having been able to condense so much valuable information within so few pages. This book is in a convenient form and size for ready reference and covers this rapidly growing field in a very thorough manner. The descriptions of operative procedures are short and clear. The book reflects throughout the personal views of the author and gives the reader the benefit of his large experience in sifting good from inferior methods. It also states from time to time the objections or disadvantages in such a concise manner that the book can not fail to be of great aid to the student as well as to those who employ the various methods in their daily surgical work. With but few exceptions, all of the latest operative methods are given. Not sufficient mention is made of the Andrews imbrication method for inguinal hernia nor of the Cushing operation for the removal of the Gasserian ganglion nor of the Pfannenstiel transverse incision for laparotomy. All instruments described in the text are well illustrated, but it is to be regretted that so few original illustrations have been employed. The description of the treatment of skull fractures and the operations for removal of tuberculous glands of the neck are exceedingly creditable. A brief review of the principal points in the surgical anatomy would be of great aid. With the exception of these minor details, the book is a very useful guide for the busy surgeon, as well as for the medical student.

Miscellany

ISTHMIAN SANITATION.

Letter from Secretary Taft to Colonel Gorgas Concerning Panama Matters.

WAR DEPARTMENT, WASHINGTON, D. C., April 25, 1905.

Col. W. C. Gorgas, Chief Sanitary Officer, Isthmian Canal Commission.

My Dear Colonel Gorgas:—I have read your letter of April 1, forwarded to me through the governor of the Canal Zone, and in response thereto beg to point out that under the new organization the difficulties which have confronted you in mak-

ing the sanitation of the Isthmus efficient must largely disappear.

The chief change will be in bringing to your door the power to buy supplies without any delay. The executive committee will be in constant session on the Isthmus, and whenever you desire extraordinary orders all you have to do is to apply to Governor Magoon, who can call the committee together and issue the order, even though the chairman, Mr. Shonts, be absent. Governor Magoon has already manifested his desire to accord with your wishes by increasing the salaries of your medical assistants. . . . With greater facilities for obtaining supplies I have no doubt that construction will go forward much more rapidly than it has heretofore. Judge Magoon will go down to the Isthmus on the thirteenth day of May and will be soon followed by Mr. Wallace and Mr. Shonts. The power is to be there, and proximity to power is what produces efficiency and quickness in action. The time spent here is taken up in reorganizing the office, which was in a state of inefficiency and chaos.

I think you are doing very well, indeed, in the suppression of yellow fever, and I hope that with the coming of supplies and of new conditions under which you will be less hampered than you have been heretofore by the absence of authority, your ability to deal with malarial fever and the whole problem of sanitation will be made apparent. You could not have any one to work with more anxious to comply with your desires than Judge Magoon. . . .

With congratulations on your good work, believe me, my dear doctor, Very sincerely yours,

WILLIAM H. TAFT.

[The above letter has recently come into our possession, with permission for its publication. It is interesting in that it shows the change that has taken place in the management of affairs on the Isthmian Canal Zone. A careful reading of the letter reveals the fact that underlying it is a recognition of the bad condition of affairs preceding the reorganization. For instance, this sentence is full of meaning, "The time spent here is taken up with reorganizing the office which was in a state of inefficiency and chaos." It is corroborative of some of the charges made by Dr. Reed in his report. The letter further officially informs us of the enlarged authority and opportunities that have been granted to the chief sanitary officer, Dr. Gorgas, by the new commission.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NEW TECHNIC FOR CIRCUMCISION.

ANCON, CANAL ZONE, May 29, 1905.

To the Editor: For several years I have been doing an operation for circumcision that I do not see described in any of the text-books on surgery. The method, so far as I know, is an original one, and unless some one else has described the technic of the operation, or a similar one, I shall be glad to publish the result of my cases. The operation as done by me is briefly as follows: 1. The mons jovis is shaven and prepared in the usual way. 2. An incision circumnavigates the penis, going through the skin only, at the root of the organ. 3. The skin is dissected and drawn back to correspond with the length of the foreskin. 4. A second incision is made as in the second step. 5. The sutures are so placed as to allow perfect apposition. The advantages of this simple operation are apparent, and I should be grateful if you would tell me, through THE JOURNAL, whether this or a similar operation has ever been advised. M. E. GARDNER, M.D.

ANSWER.—We are unable to find this method of operating described in any of the text-books on surgery. The method does not seem to us to be adapted for children nor even for adults unless the prepuce is very short, because the tightness of the foreskin and the lesions would not be affected by it. The object of circumcision is to make the prepuce loose enough to be readily retracted, not to shorten it so that it will remain retracted.

PRACTICE LAWS IN ALBERTA, CANADA.

TULSA, I. T., May 30, 1905.

To the Editor:—Please state the requirements of the laws governing the practice of medicine and surgery in the province of Alberta, Canada. G. R. B.

ANSWER.—The Council of the College of Physicians and Surgeons of the Northwest Territories admits on the register: 1. Any person possessing a diploma from any medical school in Great Britain and Ireland having power to grant such diploma, and who produces such diploma and furnishes satisfactory evidence of identification. 2. Any member of an incorporated college of physicians and surgeons of any province of the Dominion of Canada. 3. Any person producing a diploma from any recognized medical college requiring a four years' course; provided, the applicant passes a satisfactory examination before the council. The registrar is Dr. J. D. Lafferty, Calgary.

OSTEOPATHS ARE GETTING THERE FAST.

We have received a circular that is being sent out by an osteopath of Kansas City which indicates that osteopaths not only are using medicines, but also are right in front with the unadulterated nostrum exploiters:

> For the past five years I have been making a specialty of skin diseases, and am able to say that we can handle this class of practice just as successfully as we do the others. Osteopaths all over the country have used my antiseptic treatment and with the fullest measure of success.
>
> This antiseptic is made according to the requirements of each case and in the way best suited to the case. I now make it as a liquid, a light lotion, a heavy lotion, a liquid ointment, and an ointment. You tell me of the case and I will give you what is best according to my experience. And you may rest assured that I give your cases the same attention I give my own. [Probably true.] Seven packages, retailed at $1.00 each, constitutes a month's treatment for Acne, Eczema or Psoriasis. It lasts the average case, from six to eight weeks, and I sell it to you for $5.00. To get the best results the patient should be required to pay for the antiseptic. [This is very important.] I find that diet is an essential in the successful treatment of all skin diseasees and in each instance I suggest the diet in full.
>
> I have often been asked to supply the antiseptic in a way that it could be used whenever an antiseptic is required. For a short time I am going to sell a full quart of the preparation for $2.00. You should sell it in four ounce bottles at $1.00 each, or $8.00 for the quart. You simply can't get results if you give it away. [What results? Dollars?] I have tried it often enough to know. This quart can be used for any ailment excepting Acne, Eczema or Psoriasis—but it is not made in the right way or of a sufficient strength for either of these ailments.

Then follow the usual testimonials, of which the following is a sample:

> I used your antiseptic on a very bad case of Barbers' Itch, and at the end of three weeks' time a cure was effected. I gave Osteopathic treatment to equalize the circulation and used the liquid full strength.—Drs. Hook & Hook, Belding, Mich.

The names of these and the other individuals are not in any of the late medical directories. If we are to judge by some of the testimonials, the osteopaths are using medicines in states (Kentucky, Missouri, Michigan and Pennsylvania) in which they are licensed on condition that they do not use drugs.

State Boards of Registration

COMING EXAMINATIONS.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Board of Medical Examiners, Central District, I. T., South McAlester, I. T., July 3. Secretary, B. W. Caldwell, Hugo.

Board of Medical Examiners of Arizona, Phoenix, Ariz., July 3-4. Secretary, A. Martin, Phoenix.

Utah State Medical Examiners, Salt Lake City, Utah, July 3-4. Secretary, R. W. Fisher, Salt Lake City.

North Dakota State Medical Examining Board, Grand Forks, July 5. Secretary, H. M. Wheeler, Grand Forks.

State Medical Examining Board of Washington, Seattle, Wash., July 5. Secretary, C. W. Sharples, Seattle.

State Medical Examining Boards of the Regents, State House, Concord, N. H., July 7-8. Regent, H. C. Morrison, Concord.

State Medical Board of the Arkansas Medical Society, Little Rock, July 11. Secretary, J. P. Runyan, Little Rock.

Rhode Island State Board of Health, State House at Providence, commencing at 9 a. m., July 11. Secretary, G. T. Swarts, State House, Providence.

Wisconsin Board of Medical Examiners, Park Hotel, Madison, Wis., July 11. Secretary, F. A. Forsbeck, Milwaukee.

State of Connecticut Medical Examining Board, City Hall, New Haven, Conn., July 11-12. Secretary, C. A. Tuttle, New Haven.

Maine Board of Registration of Medicine, State House, Augusta, Maine, July 11-12. Secretary, Wm. J. Maybury, Saco.

Vermont State Board of Medical Registration, Y. M. C. A. Hall, Burlington, Vt., July 11-12-13. Secretary, W. Scott May, Underhill.

Kansas State Board of Medical Registration and Examiners, State House, Topeka, Kan., July 12-13. Secretary, G. F. Johnston, Lakin.

South Dakota Board of Medical Examiners, Sioux Falls, S. Dak., July 12 13. Secretary, H. E. McNutt, Aberdeen.

Board of Medical Supervisors, Washington, D. C., July 13. Secretary, Wm. C. Woodward, Health Department, Washington.

California State Board of Medical Examiners, San Francisco and Los Angeles, Cal., July 19. Secretary, C. L. Tisdale, San Francisco.

North Carolina May Report.—Dr. George W. Pressly, secretary of the Board of Medical Examiners of the State of North Carolina, reports the written examination held at Greensboro, May 17-23, 1905. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 80. The total number of applicants examined was 133, of whom 92 passed, 40 failed and 1 withdrew. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Rush Medical College	(1897)	92
Woman's Med. Coll. of Pennsylvania	(1905)	91.8
University of Alabama	(1890)	82.2
University of Pennsylvania	(1902)	87.2
Harvard University	(1899)	89.5
Med. Coll. of South Carolina	(1900)	80
University of Nashville	(1904)	80.1
Washington University	(1902)	87.8
Medico-Chirurgical, Philadelphia	(1905)	87.7
Northwestern University	(1896)	80
Columbian University	(1904)	89.7
Univ. of Copenhagen, Denmark	(1869)	80
Coll. of P. & S., Baltimore	(1905)	80
Tennessee Med. Coll.	(1901)	81.4, 80
McGill University	(1876) 80; (1899)	83.1
University of the South	(1903)	83.1
Tulane University	(1905) 85.5,	80
Louisville Med. Coll.	(1905) 80,	80
Coll. of P. & S., New York	(1904) 91.1; (1894)	94.5
Johns Hopkins University	(1904) 90.8; (1900)	81.7
Baltimore Med. Coll.	(1896) 80; (1905)	80
Leonard Med. Coll. (1905) 84.5, 80, 86.1; (1904) 80; (1902)		80
Jefferson Med. Coll. (1904) 84.8, 88.2; (1905) 92.7, 80, 86.2,		89.5
University of Virginia (1902) 80.2; (1903) 90.1; (1897)		87.8
Med. Coll. of Virginia	(1903) 80; (1905) 89.2,	85.1
University Coll. of Med. Richmond (1900) 84.4; (1903) 93.1; (1905) 81.4, 85.2, 86.4, 89.4, 89.1, 91.5		
University of North Carolina (1905) 91.2, 80, 80, 80, 85.7,		95.8
University of Maryland (1905) 85.8, 90.1, 82.4, 88.1, 80, 82, 86.2, 87.8, 80; (1904) 80; (1900) 80.7		
North Carolina Med. Coll. (1905) 80, 82, 84.1, 83.4, 86.5, 89.2, 85.4, 88.2, 87.7, 92.4, 92.1, 88.2, 88.7, 82.2, 80, 80, 80, 81.2, 84.1, 93.4, 80, 80		
Meharry Med. Coll.	(1904)	60
Hosp. Coll. of Med. Louisville	(1898)	56.7
Maryland Med. Coll.	(1901)	59.5
Atlanta Med. Coll.	(1896)	65.5
Vanderbilt University	(1893)	65.5
Tennessee Med. Coll.	(1902)	63.5
University of North Carolina	(1905)	76.7
Coll. of P. & S. Baltimore	(1905)	71
Med. Coll. of Virginia	(1905) 70,	69.7
University of Tennessee	(1902) 72.8; (1904)	68
Coll. of P. & S., Atlanta	(1902) 64.1; (1900)	74.2
University of Kentucky	(1904) 66.7; (1905)	75.2
Knoxville Med. Coll.	(1904) 68.1	70.1
Chattanooga Med. Coll. (1900) 66.8; (1903) 45; (1904) 70.5; (1905) 74.8		
University of Maryland (1905) 75.2, 76.1; (1904) 63.2, 71.1; (1903) 76.1		
Leonard Med. Coll. (1902) 68.1; (1905) 70, 67.1, 75, 74.4,		70.1
North Carolina Med. Coll. (1905) 67.5, 74.5, 70.4, 75; (1903) 77; (1902) 72.1. One withdrew from examination.		

The following questions were asked:

CHEMISTRY.

1. What are hydrates? 2. Distinguish between deliquescent and efflorescent substances. 3. What is alcoholic fermentation? 4. Give name and formula of three acids used in medicine. 5. Write a chemical equation. 6. Chemical antidote for nitrate of silver. 7. What is contained in the so-called hard waters? 8. Name the inorganic salts of the blood. 9. Normal temperature of the body in centigrade scale. 10. Convert 1 c.c. of water to minims. 11. What is iodoform chemically? 12. Complete the following:

$K_2CO_3 + H_2O + CO_2 =$

$Ca\ Cl_2 + Na_2\ CO_3 =$

$2\ C_2\ H_5\ OH + HNO_3 =$

(Answer and ten questions and *only* ten.)

SURGERY.

1. Give etiology of erysipelas, carbuncle, septicemia. 2. Give general plan of treatment in cases of inflammation and suppuration. 3. Give the general and local treatment of hemorrhage. 4. Give in detail the preparation of a patient for laparotomy. 5. Give treatment of acute suppurative osteomyelitis. 6. Give treatment of compound fracture of lower one-third of femur. 7. Describe circular method of amputation through upper one-third of leg. 8. Give causes and symptoms of compression of brain. 9. Diagnosis of penetrating wounds of abdomen.

PRACTICE OF MEDICINE.

1. Give etiology of lobar pneumonia. 2. Give the symptoms of hemorrhage in typhoid fever. 3. Define locomotor ataxia and give the anatomic lesion. 4. Give treatment for sciatica. 5. Where is the point of tenderness in appendicitis, in hepatic colic (cholocystalgia), in nephritic colic (nephralgia) of right side? 6. Give treatment for gonorrheal arthritis. 7. Give treatment for aortic stenosis. 8. Give symptoms of tubercular kidney. 9. Write a single prescription for erysipelas. 10. Outline briefly the treatment of glycosuria.

OBSTETRICS, GYNECOLOGY AND PEDIATRICS.

1. The true pelvis—describe the superior strait, the inferior strait, giving boundaries of each. 2. Describe preparation for delivery after labor has actually begun, the necessary articles to be gotten together, preparation of patient, physician, patient's bed, etc. 3. Give treatment of delay in the first stage of labor. Treatment for antepartum eclampsia at sixth or seventh month. 4. Give differential diagnosis between pregnancy at the third month and an interstitial fibroid of the uterus. 5. Give etiology and symptoms of pelvic cellulitis. 6. Give symptoms and treatment of endometritis. 7. Give directions for care of new-born baby for the first twelve hours after birth. 8. Give symptoms and treatment of acute catarrhal bronchitis in a child two years old. 9. Give etiology, lesions, prophylaxis and treatment of acute gastroenteric infection (summer diarrhea in children). (Answer any eight questions and *only* eight.)

MATERIA MEDICA AND THERAPEUTICS.

1. Give dose and physiologic action of ipecacuanha, mention alkaloids. 2. Dose and physiologic action of chloral hydrate. 3. Give preparations of nux vomica, doses, its principal alkaloid, symptoms of lethal dose. 4. Give technical name of Jamestown weed, its alkaloids, symptoms and treatment of poisoning by. 5. Cocain, dose, toxic symptoms and treatment. 6. Gelsemium, dose of tr. and f. e., its alkaloid and dose, symptoms and treatment in case of poisoning. 7. Physiologic action of cannabis indica. 8. Explain effect of acetanilid and the cyanosis it sometimes produces, dose. 9. Give dose and therapeutic uses of spartein. 10. If any reason why these combinations should not be used, give them. (1) Pulv. ipec. acid. tannic, plumbi acet. (2) Antipyrin, spts. æther nitrosi, (3) Tr. ferri., tr. nuc. vom., tr. cinch. co. (4) Cocain hyd., sodii borat., aq. rosae. (5) Potassii permang., hydrogen perox, aq. destil. (6) Spts. turpentine, tr. iodin, lin. chlorof.

ANATOMY AND HISTOLOGY.

1. Describe the upper extremity of the humerus. 2. Describe the middle meningeal artery (meningea magna) after it emerges from the foramen spinosum, giving its distribution; state at what point you would trephine to stop hemorrhage from this vessel. 3. Describe the island of Riel (or insula) or central lobe. 4. Describe and give the relations of the tonsils. 5. Describe and give relations of the internal mammary artery. 6. Give the relations of the left kidney. 7. What are the boundaries of the femoral canal and give the relations which it bears to the deep epigastric and obturator arteries and the spermatic cord. 8. Give attachments of the ligaments of the hip joint. 9. Give the origin and distribution of the fourth pair of cranial nerves (pathetic nerve). 10. Give the distribution of the musculo-spiral nerve and name its branches. (Answer only eight questions.)

PHYSIOLOGY AND HYGIENE.

1. What action has pancreatic juice on nitrogenized substances? 2. How is inspired oxygen absorbed into the system? 3. What conditions modify temperature in the body? 4. Name the vascular or ductless glands. 5. Give origin and functions of bile. 6. Give functions of liver. 7. Give functions of cerebellum. 8. Give functions of anterior roots of spinal cord. 9. What nerve endows the tongue with motion? 10. Differentiate between antiseptic and a disinfectant.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending June 10, 1905:

Bruns, Earl H., asst.-surgeon, assigned to duty at the Sequoia National Park, Cal., relieving Assistant Surgeon Kiersted.

Kiersted, Henry S., asst.-surgeon, on being relieved from duty at the Sequoia National Park, Cal., will return to station, Presidio of Monterey, Cal.

Gibner, Herbert C., asst.-surgeon assigned to duty at the Yosemite National Park, Cal., to relieve Major Reynolds, surgeon.

Reynolds, F. P., surgeon, relieved from duty at Yosemite National Park, and to return to station at Presidio of San Francisco.

Smith, Herbert M., asst.-surgeon, relieved from further duty at Fort McDowell, Cal., and ordered to U. S. Army General Hospital, Presidio of San Francisco, for duty.

Blanchard, R. M., asst.-surgeon, left Fort Thomas, Ky., on ten days' leave of absence.

Roberts, William, asst.-surgeon, relieved from temporary duty at Fort Greble, R. I., and to return to his station, Fort Hamilton, N. Y.

Shimer, Ira A., asst.-surgeon, left Washington, D. C., en route to Ancon, Isthmian Canal Zone, for duty with the Isthmian Canal Commission.

Reilly, John J., asst.-surgeon, relieved from further duty at Jackson Barracks, La., and ordered to Fort Slocum, N. Y.

Dale, Frederick A., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Washington Barracks, D. C., and ordered to Fort Walla Walla, Wash., for duty.

Chidester, W. C., asst.-surgeon, ordered to accompany Companies A and B, First Battalion Engineers, from Fort Leavenworth, Kan., to San Francisco; on completion of this duty to revert to status of leave of absence.

Powell, Junius L., surgeon, left Fort Hamilton, N. Y., on ten days' leave of absence.

Bartlett, C. J., asst.-surgeon, reported for temporary duty as attending surgeon and examiner of recruits, San Francisco.

Porter, R. S., asst.-surgeon, left Fort Niobrara, Neb., on leave of absence.

Reno, Wm. W., asst.-surgeon, relieved from temporary duty at Washington Barracks, D. C., and from duty with troops at Saunder's Ridge, Md., and ordered to return to his station. Fort Myer, Va.

Crabtree, Geo. H., asst.-surgeon, ordered to proceed from Fort Jay, N. Y., to Fort Monroe, Va., for duty in connection with the joint Army and Navy exercises.

Brooke, Roger, Jr., asst.-surgeon, having arrived at San Francisco, from Manilla, P. I., will report to commanding officer, Fort Bayard, N. M., for duty at the General Hospital.

Dale, Frederick A., asst.-surgeon, granted two months and fifteen days' leave of absence.

Ames, Roger P., contract surgeon, granted leave of absence for one month.

Macy, Fred S., contract surgeon, granted leave of absence for one month.

Sievers, Robert E., contract surgeon, leave of absence extended twenty days.

Slater, Ernest F., contract surgeon, leave of absence granted for one month sixteen days, with permission to go beyond sea.

Hogue, Gustavus I., contract surgeon, leave of absence granted for one month.

Dillon, G. Parker, contract surgeon, relieved at the General Hospital, Presidio of San Francisco, and ordered to duty at Fort McDowell, Cal.

Scott, Sidney L., contract surgeon, ordered from Fredericksburg, Va., to Washington Barracks, D. C., for duty with troops at Camp Saunders, Glen Burnie, Md.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending June 10, 1905:

Stitt, E. R., surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., June 5, and ordered to the Naval Hospital, Canacao, P. I., sailing from New York about June 10.

Eytinge, E. C. J., asst.-surgeon, ordered to the Naval Hospital, New York.

Farwell, W. G., asst.-surgeon, detached from the Naval Hospital, New York, and ordered to the *Brooklyn*.

Bishop, L. W., P. A. surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the *Dubuque*.

Murphy, J. F., asst.-surgeon, detached from the *Dubuque* and ordered to continue duties on the *Hancock*.

Mayers, G. M., asst.-surgeon, ordered to Washington, D. C., for examination for promotion, and then to wait orders.

The following passed assistant surgeons have been ordered to report to the president of the Naval and Medical Examining Boards for examination for promotion, June 26, 1905, and then to wait orders: F. M. Furlong, J. F. Leys, W. M. Garton, F. L. Benton and J. C. Thompson.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending, June 7, 1905:

Sawtelle, H. W., surgeon, relieved from duty at Purveying Depot, New York, and directed to proceed to Washington, D. C., for special temporary duty.

Stoner, G. W., surgeon, to proceed along Canadian border as far as Sault Ste Marie, Mich., stopping at intermediate points, especially Quebec, Montreal, Niagara Falls and Detroit, on special duty.

Oakley, J. H., P. A. surgeon, detailed as inspector of unserviceable property at the U. S. Marine Hospital, Port Townsend, Wash.

Clark, Taliaferro, P. A. surgeon, granted leave of absence for three days from June 7, 1905, under Paragraph 191 of the Regulations.

Kerr, J. W., P. A. surgeon, granted leave of absence for one month from June 15.

Salmon, T. W., asst.-surgeon, granted leave of absence for five days from June 4, 1905, under Paragraph 191 of the Regulations.

Spratt, R. D., asst.-surgeon, relieved from duty at New Orleans, La., and assigned to duty at Louisville, Ky., effective June 15, 1904.

Porter, J. Y., sanitary inspector. granted leave of absence for seven days from June 20.

Bean, L. C., acting asst.-surgeon, granted leave of absence for three days from June 8.

McConnell, E. F., acting asst.-surgeon, relieved from duty at Nuevitas, Cuba, and directed to proceed to New York and report to Surgeon G. W. Stoner, Ellis Island, for duty.

Mason, W. C., acting asst.-surgeon, granted leave of absence for five days from June 26.

Ransom, S. A., acting asst.-surgeon, granted leave of absence for two days from May 3.

Achenbach, J., pharmacist, granted leave of absence for sixteen days from June 13.

Health Reports.

The following cases of smallpox, yellow fever and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended June 10, 1905:

SMALLPOX—UNITED STATES.

California: Los Angeles, May 20-27, 1 case.
Florida: Jacksonville, May 27-June 3, 3 cases.
Illinois: Chicago, May 27-June 3, 18 cases; Danville, May 5-31, 7 cases; Galesburg, May 27-June 3, 3 cases.
Kansas: Wichita, April 29-May 27, 21 cases.
Louisiana: New Orleans, May 28-June 3, 5 cases.
Massachusetts: Haverhill, May 27-June 3, 1 case.
Michigan: Grand Rapids, May 27-June 3, 10 cases, 1 death.
Nebraska: Omaha, May 27-June 3, 2 cases.
New York: New York, May 27-June 3, 1 case.
Ohio: Toledo, May 20-June 3, 15 cases.
Pennsylvania: May 27-June 3, Altoona, 1 case, imported; Lebanon, 1 case: York, 10 cases.
South Carolina: Greenville, May 20-27, 2 cases.
Tennessee: May 27-June 3, Memphis, 1 case; Nashville, 5 cases.
Utah: Ogden, May 1-31, 7 cases.
Wisconsin: Appleton, May 27-June 3, 2 cases; Milwaukee, May 20-27, 3 cases.

SMALLPOX—INSULAR.

Philippine Islands. Manila, April 8-29, 3 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, April 15-22, 1 case.
Belgium: Ghent, April 29-May 6, 1 death.
Brazil: Rio de Janeiro, May 7-14, 8 cases, 3 deaths.
China: Hongkong, April 8-15, 3 cases, 1 death.
Ecuador: Guayaquil, May 2-9, 3 deaths.
France: Paris, May 13-20, 18 cases, 2 deaths.
Great Britain: Bristol, May 6-20, 2 cases; Liverpool, May 6-13, 1 case; London, May 13-20, 3 cases, 1 death; New Castle-on-Tyne, May 6-13, 7 cases: South Shields, May 6-20, 5 cases.
India: Bombay, May 2-9, 37 deaths; Calcutta, April 15-May 6, 24 deaths; Karachi, April 30-May 7, 11 cases, 3 deaths; Madras, April 29-May 5, 4 deaths.
Italy: General, May 4-11, 111 cases; Catania, May 18-25, 7 deaths; Palermo, May 13-20, 1 case.
Japan: Yokohama, April 2-9, 1 case.
Russia: Moscow, May 6-13, 7 cases, 2 deaths; Odessa, April 22-May 6, 15 cases, 4 deaths; St. Petersburg, April 15-May 6, 32 cases, 8 deaths; Warsaw, March 11-18, 1 death.
Straits Settlements: Singapore, April 15-29, 4 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, May 7-14, 42 cases, 18 deaths.
Ecuador: Guayaquil, May 2-9, 5 deaths.
Mexico: Tierra Blanca, May 21-27, 1 case.
Panama: Colon, Jan. 23-May 29, 15 cases; Panama, Jan. 1-May 25, 65 cases.

PLAGUE—INSULAR.

Philippine Islands: Manila, April 8-29, 1 case, 1 death.

PLAGUE—FOREIGN.

Africa: Cape Colony, April 15-22, 8 cases, 6 deaths.
Arabia: Eden, April 28-May 12, 10 cases, 10 deaths.
Australia: Brisbane, April 1-8, 1 case.
China: Hongkong, April 8-15, 1 case, 1 death.
India: General, April 18-22, 64,214 cases, 54,602 deaths; April 22-29, 67,086 cases, 56,732 deaths; Bombay, May 2-9, 702 deaths; Calcutta, April 15-May 6, 1,867 deaths; Karachi, April 30-May 7, 202 cases, 189 deaths; Madras, April 22-May 5, 2 deaths; Rangoon, April 1-8, 613 cases, 539 deaths.
Japan: Tokyo, May 10, 1 case.
Peru: Chiclayo, April 16-30, 4 cases, 8 deaths; Eten, April 16-23, 2 cases, 1 death; Lima, April 16-30, 6 cases, 2 deaths; Mollando, April 16-23, 13 cases, 3 deaths.

Medical Organization

ORGANIZATION WORK AND PROFESSIONAL CONDITIONS IN PENNSYLVANIA.

J. N. McCORMACK, M.D.

Chairman of the Committee on Organization of the American Medical Association.

BOWLING GREEN, KY.

I have been almost constantly engaged for five years in organization work in states and sections where the medical profession was just beginning to awaken to the possibility and importance of such a utilization of all of the forces at its command for the protection and advancement of its own and the public interests. After this extended experience in fields where the movement was in the initial and experimental stage, I was especially anxious to visit one of the representative states which had long been operating under the county society system and to go over it in such a way as would enable me to make a careful and comparative study of the results of that system on the life and work of the individual physician, and on the profession as a whole. In return for the information thus obtained I hope that it will not be unprofitable for me to give to those older in this work the information and impressions received in my large and varied experience.

Almost an ideal opportunity for such study and comparison was afforded in an extended itinerary arranged for me, after much thought and labor, by Dr. Cyrus L. Stevens, the efficient secretary of the Medical Society of the State of Pennsylvania. The appointments began at Johnstown in the evening of May 8 last, where the practical benefits to both the profession and people which would result from real organization were discussed before and with a semi-popular audience, made up of representative laymen and physicians. Meetings followed, usually one but sometimes two daily, exclusively of medical men, at Washington, Ridgway, Beaver Falls, New Castle, Erie, Reynoldsville, Clearfield, Lock Haven, Sunbury, Middleburg, Pen Argyl, Lebanon, Gettysburg, Pottsville, Wilkesbarre, Honesdale, Scranton and closing this arduous but most pleasant and interesting labor at Philadelphia on the evening of May 26, after which similar appointments were filled in each of the counties of Delaware before leaving for the State Society in Maine.

Dr. Stevens had given full publicity to the places and dates, as well as of the scope and purposes of the meetings, and

nearly all were well attended. The appointments were so arranged as to make one or more of them easily accessible to the physicians of nearly every county, and as my opening talks were always followed by a full and frank discussion of both the conditions and needs of the profession of each locality represented, with especial reference to scientific attainments, harmony and material prosperity; and as the information thus obtained was constantly supplemented by personal investigation and inquiry before and after the meetings, I was able to get a fair insight into the actual conditions in nearly every county in Pennsylvania, and to institute comparisons in a broad and instructive way between such conditions there and similar conditions in Wisconsin, Missouri, Illinois, South Carolina, Kansas and other recently organized states which had been visited in the same way.

On the whole, this comparison was most favorable to the Pennsylvania profession, but it soon developed that this advantage was confined strictly to the counties where fairly effective local organizations had been maintained. Wherever a few devoted men had stood together year after year, if only for a little scientific work, with good fellowship inseparable from such contact, the good results were noticeable, not only in them, but, to a degree, in those who did not attend or even belong to the societies. In such counties, constituting a majority in the state, the distinct impression was made on me that the tone and attainments of the profession were higher, and that there were fewer lower grade men than in most of the other states. As if to emphasize the value of local organizations, often adjoining such counties would be found others equally wealthy and prosperous in other respects where societies existed only in name, and where the profession was as much demoralized and as low in grade as could be found in any part of the United States. The value of good work on such lines was especially marked in the newer and more sparsely settled mountain counties. Here a larger proportion of the members of the profession were young men, they were better organized as a rule, and impressed one as being more competent and progressive than those found in many old and rich counties in other sections.

In order to attain a proper understanding of these criticisms, and of others to follow, it may be well to state here that in framing the old Pennsylvania plan, it appears to have been the intention that the county societies should be exclusive in their make-up in the best sense, and should confine themselves almost entirely to scientific and to social functions. No comprehensive system for co-operation or assistance from the state society in promoting organization in laggard counties was contemplated, each county being left to work out these matters with the varying degree of success which might have been anticipated. Most of the societies met only at long intervals and little or no effort was usually made to promote or to protect the business interests of members, to influence legislation, to educate or to secure the support of the public along legitimate lines, or to take a directing part in other matters so intimately connected with the well-being of both the profession and country. Membership was discouraged in many counties by the requirement of a year's residence after graduation or removal, or other regulations equally archaic, with the result that often not more than a third or one-half of the eligible physicians were enrolled as members, and in two or three instances it was a question if the best men were not on the outside.

Under such a system it is not surprising that the medical fees were found to be lower in a majority of the counties than in any other state where this matter has been investigated. In Luzerne, Washington and some other counties the societies had taken up this phase of the work systematically and with most satisfactory results, but, as a rule, the profession evidently participates less in the general prosperity of this rich country than any other class of citizens; and, outside of a comparatively small number of leading men, this seemed as true of the cities as of the country districts. In fact, low fees, with rate cutting and the dissensions inseparable from such conditions, were most common in the older and richer counties, unless their organizations were strong. In like manner, and for the same reason evidently, the profession has little influence in securing necessary medical and sanitary legislation. These things here have been considered as beyond the province, or rather as beneath the dignity, of medical men and societies, with results almost disastrous to both the profession and people. Drs. Beates and Stevens, who have both done noble and self-sacrificing labor in these and other fields for years, informed me that even in an emergency it was impossible to secure the co-operation of any considerable number of the physicians in most of the counties. This impressed me with the importance of insisting that county societies everywhere should be kept constantly alive to every interest of the profession, material as well as scientific, public as well as personal.

The need for reform in both business and legislative affairs is certainly urgent in Pennsylvania, and well-devised and comprehensive plans for both should probably originate in the State Society, taking one of the best county societies as a model. Dr. Beates or some other well-equipped and tactful leader, who has the confidence of the profession, should be employed, on an adequate salary, to devote his entire time to organization and legislative work, and should visit, know and be in constant touch with the medical men in each county; and he should know legislators and their affiliations in such a way as to be able to concentrate the influence of their medical constituents on them at any time in support of every proper measure. The sooner the profession can be made to understand that its legislative work is a specialty, requiring the same study and skill as any other specialty, the sooner it will begin to get proper and tangible results. No one is fitted for such work who does not possess great tact in dealing with men, an unfailing good temper, and the truest and highest spirit of altruism.

It was a constant complaint here that young men take little interest in society work, and even when there is no rule to the contrary, it is almost impossible to induce recent graduates to accept membership. This has been found to be the case all over the country, so much so as to raise the question, if the apathy and indifference of the medical schools on the subject do not constitute the most serious obstacles to the complete organization of the profession of this country. The time has come in our history when it is just as essential that the medical graduate shall know how to legitimately obtain practice, how to make a living, how to live at ethical peace with his neighbor, and how and why he owes it as a personal and public duty to co-operate with the organized body of his guild in advancing his own and their common interests, as that he should have careful training in the technical branches. Such a practical course is now given in the University of Michigan, and in a few of the best homeopathic schools, but with these exceptions, after years of agitation of the subject, even our best schools are still asleep in this regard, and almost 5,000 graduates are sent out from them annually, without economic or ethical chart or compass, to make port or shipwreck, as personal character, chance, or accident, may determine. A large per cent. of the profession of this country is in poverty, and the whole of it almost in disgrace in the public estimation, for the lack of such training, and the time is ripe for such united effort to be made as will, at least for the future generations, correct this evil at its source.

For the reasons indicated, it would be easier, to my mind, to secure practically complete and universal organization in Pennsylvania than in any other of the great states. To begin with, it has a great profession, with strong leaders who have its confidence, and the nucleus for an effective society in a majority of the counties, so distributed geographically, that such counties, under a proper system, might easily be made centers for organization in a district. With such a foundation to start with, and under such an organization force as is provided in the councilor system of the Association plan, which is now under advisement in the State Society, and with the county societies converted so far as practicable into combined postgraduate schools, and practical business and social clubs, for the study, protection and advancement of the best interests of every physician and citizen of the jurisdictions, it ought not to be a difficult matter to bring into membership all of the 3,500 medical men now on the outside, and to enlist the support of all of the best elements of the press and the public. It is true that the problems of Philadelphia, and probably of Pittsburg, are complex, but they are certainly not more so than than those which are being worked out in Chicago, Detroit, Cleveland and other large cities, and if Drs. Eaton, Perkins, Hirsch and Anders can have the earnest, active co-operation of the leading teachers and practitioners of Philadelphia, to which they are entitled, and especially if the meetings could be held on a regular evening in each week, and made so attractive as to invite and to encourage attendance from near-by counties in their own and adjoining states, this one society could easily be made a most potent factor in professional affairs in all that section of the Union. The benefits of such a policy, broad, liberal and helpful as they would be to others, would be of incalculable value to the local profession. To do all of these things, and not a single impractical or utopian suggestion is embraced in them, would require a real, practical union of all of the forces at the com-

mand of a united profession—the medical schools, first and most important, for the reasons already stated, and then the societies, clubs and individual physicians.

To say that much time and unceasing labor would be required to perfect such an organization in Pennsylvania, and that if undertaken individual members would fail to do their duty, or would obstruct the work, is only to say that the movement is a vast one, in a sadly neglected field in some counties; that the agencies to be relied on are voluntary and finite, and that it is subject to the fortunes and vicissitudes attending all human endeavor. Realizing all these things, the contention is that the results would be well worth all the time, labor and money expended, and much more, and that the work must be undertaken in the broad, catholic, generous spirit indicated, before the profession can be redeemed from self-imposed evils, many of them hoary with age, and come to occupy that place in the public estimation, and as a directing force in public affairs, to which its real worth, learning and usefulness so justly entitle it.

The compensations of the trip, aside from its main purposes, and the pleasant acquaintances renewed or made, were numerous. At Northumberland, nestled in the beautiful valley of the Susquehanna, I stood with uncovered head by the grave of Priestly, and saw his home and the little laboratory where he worked out his discovery of oxygen. In Northampton County I saw the birthplace of Gross. I was in Easton, in the same county, where he located and practiced before he came to Kentucky and caught the inspiration from the work of Brashear, McDowell and Dudley, and from association with Drake, Cooke, Austin and Joshua Flint, the elder Yandell and other colleagues, which his genius and industry transmuted and coined into a successful career there, and which crowned him with a world-wide fame after his return to the larger field later opened up for him in the metropolis of his native state.

This account can not close without an acknowledgment of the kind and generous hospitality extended to me at every appointment. This was so cordial and constant as would make the mention of individual instances invidious, and was tendered in such a way as would make criticisms of any kind seem ungracious, but for the fact that it was invited and expected, and that it is known in advance that it will be received in the same kindly spirit in which it is written.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

American Pediatric Society, Lake George, N. Y., June 19-21.
Medical Society of New Jersey, West End, June 20-22.
Indian Territory Medical Association, Tulsa, June 20-22.
Michigan State Medical Society, Petoskey, June 28-30.
American Climatological Association, Detroit, Mich., June 28-29.
American Surgical Association, San Francisco, Cal., July 5-7.
South Dakota State Medical Association, Deadwood, July 5-7.
Amer. Assn. of Life Ins. Exam. Surgeons, Portland, Ore., July 10.
American Medical Editors' Assn., Portland, Oreg., July 10.
Oklahoma State Medical Association, Guthrie, July 10-11.
American Urological Association, Portland, Ore., July 12-13.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held April 25, 1905.

The President, Dr. Dudley Tait, in the Chair.

Epidermolysis Bullosa Hereditaria.

DR. HOWARD MORROW presented a boy, 10 years old, showing the above condition. Whenever he is bruised, a vesicle or bulla develops. These have been most numerous about the feet and legs, and are due to an accumulation of serum between the layers of the epidermis. The boy also has sweating palms and soles. His mother suffered from a similar condition as a child, and another brother has it.

DR. MONTGOMERY stated that it is important to differentiate this condition from pemphigus, for the former is relatively harmless. The use of belladonna in one of his cases had seemed to control the formation of vesicles.

Autopsy on Case of Leukemia Treated by the X-Ray.

DR. W. F. CHENEY made a final report on the case of leukemia previously reported (see THE JOURNAL, Nov. 14, 1904, page 1578). At that time the patient had 60,000 leucocytes. Somewhat later, even while under treatment, he began to run down, and, becoming discouraged, discontinued the treatment. In November he had lobar pneumonia, but his blood picture did not change during this time. He died on March 5, 1905. The autopsy showed the ordinary gross and microscopic changes of leukemia.

DISCUSSION.

DR. GEO. EVANS believed that the treatment had been discontinued too soon in this case, and that it could hardly be cited as one demonstrating the inefficacy of *x*-ray treatment. His own cases, previously reported, are still under treatment and are doing well.

DR. A. W. HEWLETT stated that he recently had a case of leukemia under treatment with the *x*-ray. The patient had been treated with arsenic and quinin previously without any apparent benefit. Under *x*-ray treatment, the leucocytes have fallen from about 350,000 or 400,000 to about 75,000, and the hemoglobin has risen from 48 per cent. to 74 per cent. At present, about three months after treatment, the condition seems to be almost stationary. The spleen has become much smaller, but it is still much enlarged. Treating the spleen seemed to be more effective in reducing the number of leucocytes than was treating the long bones.

DR. LEHMANN prefers to treat leukemia by small doses of the *x*-ray over a long period of time. Some cases, reported in the literature, have improved remarkably within a short time, but these seem to be the very ones that are most likely to die suddenly. High tension tubes are used.

The Effect of Atropin on a Pulsus Bigeminus.

DR. A. W. HEWLETT demonstrated some tracings taken from a patient who had a pulsus bigeminus. He was given a large dose of atropin. At first the pulse became more rapid, but the interval between the normal beat and the extra systole remained unchanged. Then the pulse became irregular and the extra systoles disappeared. Finally, the heart rate slowed down; but the extra systoles did not reappear, and the pulse has, therefore, become converted from a continual bigeminal pulse into a perfectly regular, apparently normal pulse.

Regular Meeting, held May 23, 1905.

The President, Dr. Dudley Tait, in the Chair.

Bilharzia Disease in Porto Ricans.

DR. HERBERT GUNN reported two cases. This disease is prevalent in some countries, especially Egypt and other parts of Africa. British soldiers, returning from South Africa, have probably disseminated it more or less throughout the British possessions. Hitherto only six cases have been reported in the United States. Of these, four probably were imported. The other two, supposed to have originated in this country, are not examples of bilharzia infection. Manson discovered an infection in a man who had lived in the West Indies, and he believes that this patient must have contracted the disease there. This patient had not been in Porto Rico. No other reference to the occurrence of bilharzia infection in the West Indies could be found in the literature.

Both of the patients whose histories were here reported had come from Porto Rico and had resided for a few months in the Hawaiian Islands. Yet there is no reason to believe that the disease was contracted in the latter place, and it seems much more probable that it was contracted in Porto Rico. Both patients were also infected with *Uncinaria duodenalis*, and the bilharzia eggs were found in their stools accidentally. So far as could be told, they presented no symptoms directly attributable to the latter infection. The eggs found in their stools were quite typical, being about .16 mm. long by .06 mm. wide, and with lateral spines. When bilharzia eggs appear in the urine, they differ from those that appear in the feces, in that the spine is not lateral, but terminal. The cause of this characteristic difference is not known. Possibly there are two varieties of worms. The adult worms are one to two centimeters long and are bisexual. They live in the portal vein or its branches, or more rarely in the veins of other parts of the body. Several hundred worms may be present. The life cycle of the worm outside of the human body has never been worked out, and consequently we are quite ignorant as to the manner

of infection. Many believe that it takes place through drinking water or during bathing.

As in these cases just reported, the patient frequently presents no symptoms that are referable to the infection. At other times, malaise, pains in the back, loss of weight and strength, eosinophilia, etc., are present. If the eggs appear in the urine, they may cause hematuria and the symptoms of cystitis. If they appear in the feces, the patient may suffer from dysenteric symptoms.

DISCUSSION.

DR. GEO. BLUMER suggested that the lateral spine assisted the eggs in penetrating the tissues, in that it allowed them to travel in only one direction. The cases that have been reported as originating in the United States were probably not examples of bilharzia infection.

DR. C. M. COOPER stated that bilharzia disease is very common among the Boers, and much more frequent there among the boys than among the girls. This is supposed to be due to the fact that the boys bathe in streams, etc. Hematuria is so frequent that many of the more ignorant people believe a boy is not healthy unless he passes bloody urine occasionally.

Adhesive Pericarditis.

DR. C. M. COOPER stated that too much stress must not be laid on the Broadbent sign in the diagnosis of adhesive pericarditis. He has seen this sign a number of times in patients with hypertrophied hearts, as well as in thin patients whose hearts were beating very forcibly. These observations have, in a number of cases, been confirmed at autopsy. The retraction of the intercostal spaces in these cases usually ascends during expiration and descends during inspiration, thus demonstrating that it is due, not to a direct tug of the diaphragm on the chest wall, but to a negative pressure within the chest cavity caused by the contraction of the heart. Cooper has been able, in a number of cases, to demonstrate pericardial adhesions on *x*-ray photographs.

AMERICAN THERAPEUTIC SOCIETY.

Sixth Annual Meeting, held in Philadelphia, May 4-6, 1905.

The President, DR. OLIVER T. OSBORNE, New Haven, Conn., in the Chair.

The address of welcome was delivered by Dr. H. C. Wood, Philadelphia, and the response by Dr. R. W. Wilcox, New York.

The address by the president, Dr. Osborne, was on the subject, "The Therapeutic Art." This was published in THE JOURNAL, May 13.

Officers Elected.

President, Dr. Carl Beck, New York City; vice-presidents, Drs. J. M. Hall, Denver, and Robert Reyburn, Washington, D. C.; secretary, Dr. Noble P. Barnes, Washington; recorder, Dr. William M. Sprigg, Washington; treasurer, Dr. John S. McLain, Washington; curator, Dr. George C. Ober, Washington.

The next annual meeting will be held at New York City, May 3-5, 1906.

Among the papers read were the following: "The Effects of Intravenous Injections of Ergot on the Mammalian Circulation," by Drs. Torald Sollmann, and E. D. Brown, Cleveland, Ohio; "The Proper Sphere of Bromids in Epilepsy," by Dr. Frederick Peterson, New York; "The Prevention and Treatment of Uremia in Acute Nephritis," by Dr. Howard Van Rensselaer, Albany, N. Y.; "The Management of Chronic Parenchymatous and Chronic Interstitial Nephritis," by Dr. S. Solis-Cohen, Philadelphia; "The Medical Treatment of Serous Effusions," by Dr. Thomas L. Coley, Philadelphia; "The Treatment of Chronic Nasal Catarrh with Sulphur," by Dr. Louis Kolopinski, Washington, D. C.; "The Value of Physiologic Salt Solution in Circulatory Failure," by Dr. H. C. Wood, Jr., Philadelphia; "Clinical Experiences with Certain Drugs in Heart Disease," by Dr. Thomas E. Satterthwaite, New York City; "Exhibition of Several Cases of Skin Disease," by Dr. John V. Shoemaker, Philadelphia; "The Recognition and Treatment of Cholecystitis," by Dr. Robert T. Morris, New York City; "The Treatment of Intestinal Indigestion," by Dr. George B. Fowler, New York; "The Treatment of Chronic Diarrhea," by Dr. Reynold Webb Wilcox, New York City; "Rectal Alimentation," by Dr. William H. Porter, New York City; "The Etiology and Treatment of Infantile Atrophy," by Dr. John Blake White, New York City; "Notes on the Treatment of Hay Fever and Asthma," by Dr. Charles H. Knight of New York City; "Drug Adulterations," by Dr. Harvey W. Wiley of New York City; "The Prophylaxis of Pneumonia," by Dr. James M. Anders, Philadelphia; "The Recognition and Treatment of Pancreatic Inflammations," by Dr. Carl Beck, New York; "The Management of Injuries to the Knee-Joint," by Dr. DeForest Willard, Philadelphia; "The Treatment of Neuritis," by Dr. Daniel R. Brower, Chicago; "The Value of the Correction of Errors of Refraction in Psychoses," by Dr. Edward D. Fisher, New York City; "The Management of Dysmenorrhea," by Dr. Egbert H. Grandin, New York City; "The Treatment of Incontinence of Urine in Children," by Dr. Noble P. Barnes, Washington, D. C.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirtieth Annual Meeting, held at Niagara Falls, May 25-27, 1905.

(*Continued from page 1878.*)

Arteriosclerosis of the Uterus as a Factor in Uterine Hemorrhage.

DR. PALMER FINDLEY, Chicago, gave a résumé of all cases and reported four new ones. The writer deals exclusively with the so-called essential or idiopathic hemorrhages, the cause of which is not definitely determined. He argues that arteriosclerosis of the uterus is not the prime factor in bringing about these obscure hemorrhages. In his opinion, muscular insufficiency is the underlying cause, and the sclerosed vessels are but contributing factors.

Postoperative Vomiting.

DR. EUGENE BOISE, Grand Rapids, Mich., said it is assumed as proof that there is a vomiting center from which all impulses toward vomiting are sent. These impulses may be received through various channels. The conditions that lead to postoperative vomiting are numerous. They may be grouped as (1) those conditions pertaining to the anesthetic; (2) those pertaining to the general condition and surroundings of the patient; (3) and those pertaining to the stomach. The anesthetic causes vomiting (1) by its direct irritant action on the vomiting center; (2) by causing a toxemia, and (3) by saturating the secretions of the stomach. The conditions pertaining to the stomach are chronic, such as atony, dilatation, chronic disease of the mucous membrane, etc. Acute, as saturation of the tissues and secretions of the stomach by the anesthetic. Treatment must, therefore, be preventive as well as curative, involving greater care in the preparation of the patient. Four things should be kept in mind: (1) The abnormal irritability of the vomiting center; (2) the condition of the stomach; (3) the condition of the blood, and (4) the condition of elimination.

DISCUSSION.

DR. A. LAPTHORN SMITH emphasized the necessity and importance of preliminary preparation of patients, and advocated the drinking of large quantities of hot water by patients to wash out the ether that has been swallowed during its administration.

DR. MATTHEW D. MANN said that for three years he has been using ether, preceding it by chlorid of ethyl. He has done operations, lasting forty-five minutes, with two or three ounces of ether at each operation, when preceded by chlorid of ethyl. Since following this method, vomiting has been greatly reduced, and in many instances the patients have not vomited at all.

DR. A. PALMER DUDLEY said that if operators considered the preparatory measures mentioned, there would be less reflex action on the part of the stomach after operation.

DR. ANDREW F. CURRIER thinks that the preliminary administration of chlorid of ethyl, or nitrous oxid, as has been his custom recently, is much more satisfactory than the prolonged and irritating effects which come from the first stage of anesthesia, through the administration of ether alone.

DR. C. C. FREDERICK said that for a year and a half he has commenced anesthesia with chlorid of ethyl, getting the patient under its influence rapidly, then changing to ether or chloroform. Vomiting is much less by this combination.

DR. ARTHUR W. JOHNSTONE attributes the great decrease in the amount of vomiting after operations largely to careful preliminary preparation of his patients, and of having the same man give the anesthetic.

DR. MALCOLM MCLEAN, New York, said anesthetics should be given by men who are skilled in this work. By giving a preliminary anesthetic of chlorid of ethyl or nitrous oxid, the preparation of the patient is such that when ether or chloro-

form is given, large toxic doses of it are not carried through the circulation to poison the patient in the postoperative stage.

DR. GEORGE GELLHORN, St. Louis, has employed as a preliminary the hypodermic injection of scopolamin-morphin about an hour before operation. This combination arrests secretions from the mucous membrane of the mouth and throat. He gives these in the proportions of 1/150 of a grain of scopolamin to 1/6 of a grain of morphin. The amount of ether used is materially minimized by this preliminary.

DR. REUBEN PETERSON said that for years he had used about 1/6 of a grain of morphin and 1/150 of a grain of atropin, about three-quarters of an hour before the anesthetic was given. Before he used these drugs there was excessive secretion, so that the mouth and throat of the patient had to be swabbed out, but since their use this has ceased almost entirely. He has not attributed the absence of vomiting entirely to the use of these drugs, but also to thorough preliminary preparation of the patient, and to better methods of administering chloroform or ether.

DR. EDWARD P. DAVIS said that one is obliged sometimes to operate on emergency cases. In these, postoperative vomiting may be very depressing and dangerous. What can be done to prevent it? While the patient is on the table, and before the operation is quite completed, intravenous saline transfusion or injection will prevent postoperative vomiting as well as shock.

DR. FERNAND HENROTIN said that one of the most important factors in reducing vomiting, as well as shock, and of making a patient's recovery reasonably smooth, is washing out the stomach. For a little over a year, he has been resorting to quick anesthesia with nitrous oxid preparatory to the administration of ether, using as little of the anesthetic as possible, immediately washing out the stomach thoroughly after every operation, and giving a hypodermic injection of eserin before the patient is taken off the table. The use of this combination has made an immense difference in the results of his general operative work.

DR. J. WESLEY BOVEE thinks the proper procedure is to prepare patients as well as the conditions will permit. This should be done with proper discrimination. Then comes the proper administration of the anesthetic, giving as little as possible of it, and steadily, not irregularly. After the administration of the anesthetic he has found the administration of oxygen for a short time to be most satisfactory.

The Relation of the Appendix to Pelvic Disease or to Pregnancy.

DR. REUBEN PETERSON, Ann Arbor, Mich., presented his conclusions based on the clinical and microscopic study of 85 appendices removed during the course of operations for pelvic disease (see abstract in THE JOURNAL, Sept. 10, 1904, page 756).

DR. A. LAPTHORN SMITH, Montreal, said that in many cases of supposed pelvic disease and fever after delivery the appendix is responsible for most of the trouble, although it may not always present gross lesions. Therefore, no woman should be allowed to begin or to continue a pregnancy with an appendix which is known to be chronically inflamed, and all operations for the removal of the appendages should begin by the removal of the vermiform appendix.

DISCUSSION.

DR. SETH C. GORDON said it is his invariable rule, whenever he opens the abdomen for any other purpose, to remove the appendix whether good, bad, or indifferent.

DR. FREDERICK W. SEARS said that one should not be fearful about operating on pregnant women for appendicitis, as his experience has been that they stand the operation better than the non-pregnant. He reported three cases in which he operated on pregnant women for appendicitis.

DR. ANDREW F. CURRIER does not believe that it is good surgery to remove any organ of the body which he is not convinced is diseased. In certain cases in which there is a strong probability of malignant disease, an exception should be made; but the function of the surgeon is to build up rather than to remove.

DR. CLEMENT CLEVELAND looks on the appendix as a useless organ, and when he operates for other intra-abdominal conditions he does not hesitate to remove the appendix. In cases in which the appendix has not been found diseased, but has been removed, there is no history to show that any harm has come to the patients. The effect has been *nil*.

DR. FERNAND HENROTIN said that, so far as clinical observation is concerned, the appendix is not only responsible for inflammatory attacks, but for indigestion, colic, dyspeptic symptoms, and trouble in the abdomen which is never accurately diagnosed. After an operation for its removal, the patients complain less. He removes the appendix in every instance when operating for some other purpose, unless there are contraindications to its removal.

DR. HERMAN J. BOLDT said that a woman, pregnant about the fourth month, had a number of attacks of acute pain in the abdomen. On bimanual examination, under ether, it was impossible to determine anything definite, but because of the extreme pain he opened her abdomen and found an appendix about six inches long, curled on itself, and acutely inflamed. Since its removal the woman has been well.

DR. JAMES F. BALDWIN, Columbus, Ohio, has for the last eight years made it a routine practice to examine the appendix in all cases when operating for other intra-abdominal pathologic conditions. Out of 3,000 abdominal sections, he has removed the appendix 1,800 times.

DR. E. P. DAVIS said there are special reasons why appendicitis should appear in pregnant women, and why the appendix should be removed during pregnancy. The *Bacillus coli communis* is present in abundance in the intestine of every pregnant woman, and any condition of the intestinal tract during pregnancy, which in the slightest degree lessens peristalsis of the normal intestine, predisposes to infection by that organism—infection of the adnexa, the uterus, or the appendix. On the other hand, the pregnant woman whose metabolism is well maintained is in a good condition for a surgical procedure, because she has a physiologic blood plethora. She bears anesthesia well. The removal of the appendix is applicable to pregnant women, and need not be delayed until after delivery, as it is much safer to do the operation during pregnancy than let the woman run the risk.

DR. ARTHUR W. JOHNSTONE said that his experience has been limited to four operations performed on pregnant women for appendicitis between two and a half and four months. All recovered. There were no miscarriages.

DR. MALCOLM MCLEAN would not remove an organ simply because it may in the future give trouble.

DR. ELY VAN DE WARKER sees no reason why, if one observes a perfectly healthy appendix, when operating for some other purpose, it should be removed for fear that it would give trouble in the future. One might as well remove the gall bladder and other organs for fear they might cause trouble in the future.

DR. J. RIDDLE GOFFE does not believe in removing a healthy appendix when operating for some other purpose. The appendix may have some function.

DR. P. A. HARRIS opposes the removal of perfectly healthy appendices unless there is abundant time to remove these organs or unless the patients desire it.

Radical Abdominal Versus Vaginal Operation for Uterine Carcinoma.

DR. C. C. FREDERICK, Buffalo, N. Y., drew the following conclusions: 1. The radical operation for carcinoma of the uterus should be done only when the gross lesions are confined to the uterine tissues. 2. The deeper tissues of the cervix are generally invaded first, and also the deeper layers of the vagina in the immediate vicinity of the cervix are infected before the disease appears on the mucous surface. 3. The bladder wall is very early infected, especially when the anterior lip of the cervix is the starting point of the growth. 4. When pain becomes a prominent symptom, the growth has passed beyond the uterine tissue. Such an involvement is a positive contraindication to a radical operation. 5. In carcinoma of the body of the uterus the liability of extrauterine lymphatic infection is less for the same period of growth. 6. When the

radical operation is done, it is necessary to remove as much of the vaginal wall and pericervical tissues and broad ligaments as possible. 7. It is a well attested fact that in most recurrences after hysterectomy the growth is found in the cicatrix and the adjacent vaginal tissues. 8. Removal of the pelvic lymphatics and glands does not insure against recurrence. 9. If the vagina is ordinarily capacious, and if the uterus can be drawn down, it would seem that the vaginal route is naturally the one by which the operation can be most readily and thoroughly done. 10. Recurrence due to infection of the freshly incised tissues at the time of operation by contact of the carcinomatous mass or its fluids may, to a degree, be prevented by the vaginal removal of the cancerous mass, or by thoroughly cauterizing it before beginning the operation proper. 11. The operation can be more quickly done than by the abdominal route. 12. Convalescence after vaginal operations is much more rapid, there is much less pain, and there is much less shock to the nervous system. 13. For the cervical carcinoma, in most instances the combined clamp and cautery operation seems to be the preferable one. 14. Infected areas are reached and rendered harmless by the free use of the cautery in this operation. 15. All tissues should be seared by it, except those at the utero-vesical junction. The writer limits the abdominal operation to those patients in whom the condition of the vagina or immobility of the uterus makes the vaginal operation practically impossible.

Paravaginal or Abdominal Operation in Uterine Carcinoma.

DR. GEORGE GELLHORN, St. Louis, presented the following conclusions: 1. The radical abdominal operation, so far as the routine ablation of the lymphatic organs of the pelvis is concerned, has thus far failed to yield the desired results. On the other hand, the eradication of the parametria has been found to reduce greatly the percentage of cures. 2. The simple abdominal and vaginal operations which do not include this procedure should be discarded. 3. For the extirpation of the parametria, Wertheim's method is the best of the abdominal operations. It has, however, certain disadvantages as compared with the paravaginal method of Schuchardt. 4. Considering the encouraging results of igni-extirpation, a combination of thermocautery with paravaginal extirpation, gives promise of further improvement in operative results.

Incontinence of Urine in Women.

The president's address by Dr. E. C. Dudley, Chicago, was published in full, with illustrations, in THE JOURNAL, June 3, 1905, page 1738.

Mortality in Operations for Uterine Fibroid.

DR. J. MONTGOMERY BALDY, Philadelphia, said that degenerations of fibroid uterus, except malignant and necrotic, are of more scientific interest than practical value. The greatest dangers of fibroids lie in the large death rate following operations due to heart degeneration, arterial changes, lung thrombosis, etc. He pointed out the condition inherent in all fibroid tumors of the uterus, and said the tumor should be removed at a period early enough to anticipate the changes.

Migratory Uterine Fibroids.

DR. REUBEN PETERSON, Ann Arbor, Mich., reported cases showing the different stages of the separation of uterine growths from the uterus and their attachments to other abdominal organs. The causes and results of such migration were studied in the light of the literature of the subject and the personal experience of the author. Case 1 was an irregularly-shaped subperitoneal fibroid the size of a fist, attached to the uterus by a very slender pedicle. The latter was very friable and broke away from the uterus during the removal of the latter. The omentum was attached to the posterior surface of the fibroid and partially nourished it. Case 2 was one of subperitoneal uterine fibroid, the size and shape of a normal kidney, connected with the uterus by a narrow pedicle, twisted once on itself. The tumor was situated on the right uterine horn, although the pedicle came from the other horn. The tumor was also attached to the bladder, pelvic peritoneum, omentum and appendix. Case 3 was a hard, smooth tumor the size of an orange, unattached to the uterus, having all the characteristics of a subperitoneal fibroid, surrounded on all sides by the omentum and nourished entirely by the omental blood vessels.

Surgical Treatment of Gastric Ulcer.

DR. WILLIAM H. WATHEN, Louisville, contributed a paper on this subject, which will be published in THE JOURNAL.

SYMPOSIUM ON THE TOXEMIAS OF PREGNANCY.

Clinical Types of Pregnancy Toxemia.

DR. J. CLIFTON EDGAR, New York, considered the benign type, subacute type, acute type, fulminant type, toxemic coma without convulsions, acid toxemia simulating hepatic pregnancy toxemia, persistent hyperemesis without clinical symptoms of toxemia, etc. Cases illustrating each type of toxemia were reported.

Renal Insufficiency.

DR. HENRY C. COE, New York, said that this referred not only to diminished amount of urine, but to deficient excretion of urea, with or without accompanying albumin and casts. The importance of this subject can not be overestimated on account of its direct bearing on the prevention of eclampsia. He mentioned the erroneous views formerly held that eclampsia always comes suddenly, without warning. Now it is known that danger signals are seldom absent long before the attack, if careful watch is kept over the urine. Diminished urea, not the presence of albumin, is the important point. There are two channels for the excretion of toxins, the kidneys and intestines. The kidneys and bowels should be flushed and the diet regulated all through pregnancy. One should know the daily amount of urine at frequent intervals and the amount of urea. He should not wait for general evidences of toxemia, gastric disturbances, pruritus, headache, etc., but anticipate them. Illustrative cases were cited.

Pernicious Vomiting of Pregnancy.

DR. J. WHITRIDGE WILLIAMS, Baltimore, after pointing out the distinction between vomiting of and vomiting in pregnancy, divided the former into three groups, and discussed their nature, etiology and treatment, namely, reflex, neurotic, and toxemic. The reflex vomiting of pregnancy may be due to the presence of abnormalities of the generative tract or ovum, which exist prior to the onset of pregnancy, or are coincident with it. Among such conditions may be mentioned retrodisplacements of the uterus, ovarian tumors, certain forms of endometritis, and abnormalities of the ovum, such as hydatidiform mole, hydramnios, and certain cases of twin pregnancy. The observations of the author and others show that typical lesions may be found at autopsy in certain cases, and these consist in the necrosis of the central portions of the liver lobules, and fatty degeneration and necrosis of the secretory cells of the kidney. Such changes can be produced only by the circulation in the blood of some toxic substance which acts destructively on the cells in question. The occasional occurrence of jaundice in some cases adds confirmation to the existence of an hepatic lesion; while the not infrequent association of peripheral neuritis with the vomiting accentuates the probability of its toxemic origin. The liver lesions are identical with those observed in acute yellow atrophy of the liver and icterus gravis, though in most of the cases of vomiting no marked diminution in the size of the liver has been noted. As the former affections occur usually in the second half of pregnancy, and the vomiting in the first half, it seems probable that the effect of the toxemia varies somewhat with the duration of the pregnancy. At present, we are unacquainted with the exact nature of the toxic substances, though they are supposed to be metabolic in origin, but whether derived from the mother or fetus, or both, is not known. All that is definitely settled at present is that we have to deal with a toxemia which gives rise to serious lesions in the liver, and later in the kidneys. That the latter are secondary in character is indicated by the fact that the urine does not contain albumin or casts until shortly before death. Associated with these lesions is a striking change in metabolism, manifested by a marked increase in the percentage of the total nitrogen of the urine, put out as ammonia, which, instead of being 2 to 5 per cent., as normal, may rise to 16,

32, or even 46 per cent. Whether the increased ammonia output is due to the fact that the liver lesions interfere with the normal oxidation of nitrogenous material, so that large amounts escape conversion into urea, and are therefore excreted in a less highly oxidized form, as ammonia, or whether it represents an attempt to neutralize an acid intoxication, is as yet undetermined. The practical point established is that a marked increase in the percentage of the urinary nitrogen excreted as ammonia indicates the existence of a serious toxemia, which, if allowed to continue, will bring about lesions in the liver and other organs inconsistent with life, and, accordingly, abortion should be induced as the only hope of saving the patient. It is probable that an ammonia output of ten per cent. represents the danger signal, and as soon as it is reached, immediate interference is demanded.

In the reflex and neurotic forms of vomiting, the ammonia output remains normal, and, accordingly, in such cases the treatment should consist in correcting genital lesions, if present, and the employment of mental suggestion and rest cure. There are at least two forms of toxemia of pregnancy, one giving rise to pernicious vomiting, and acute yellow atrophy, and the other to eclampsia.

Eclampsia and Its Treatment.

DR. CYRUS A. KIRKLEY, Toledo, Ohio, said that other toxins than urea may produce eclampsia. Mixed infection is most probable. Renal insufficiency rather than albuminuria is an etiologic factor. Although the source of the toxins is unknown, recent research rather points to functional disease of the liver. Prophylactic treatment, as a rule, is successful, and this consists of means to promote elimination through the great emunctories. Venesection in suitable cases, both as a prophylactic and curative measure, stands first in the list of remedies.

DR. FRANKLIN S. NEWELL, Boston, in a paper on the same subject, said that the treatment, to be efficient, should have four distinct objects in view: (1) the prevention of further absorption of toxins by the removal of the cause; (2) limitation of damage by the toxins already in the system; (3) elimination of the toxins, and (4) treatment of the patient. For some days after the acute process has subsided, the patient should be kept on a liquid diet. Absolute quiet and freedom from care are imperative, and free excretion should be maintained. Sedatives and stimulants should be used as indicated.

Vaginal Cesarean Section, Indications, Advantages and Technic.

DR. HENRY D. FRY, Washington, D. C., said the indications for the employment of this operation are, necessity for emptying the uterus in cases of grave eclampsia, cancer of the uterus, rigidity of the os, threatened rupture of the uterus, prolapse of the funis, placenta prævia, heart disease in the pregnant woman, and hemorrhage from the normally implanted placenta. Fry entertains grave doubts regarding the application of this operation or any other method of rapid dilatation to the treatment of placenta prævia. The reduced maternal mortality from this serious complication is largely due to recognizing the value of slow dilatation. He sums up the various indications for this new operation. The advantages of vaginal Cesarean section are the rapidity with which the uterus can be emptied. From six to ten minutes is all the time that operators have reported necessary, and as they become more familiar with the technic, it may be further reduced. Few operators have done more than one or two operations. Twenty to thirty minutes should complete the sewing up of the wound. There is little traumatism, and a clean surgical cut to sew up instead of leaving a lacerated surface. In eclampsia, the blood resulting from the operation is beneficial, and the patient is returned to bed in the best condition to overcome toxemia.

Mortality of Operations, Other Than Strumectomy, in Exophthalmic Goiter.

DR. BARTON C. HIRST, Philadelphia, said that to learn the collective experience of American surgeons with exophthalmic goiter complicating operations, 366 letters were despatched to the members of the national societies of surgery and gynecology. Forty-three surgeons reported 69 cases. This number added to the six collected and reported by Sanderson, makes a total of 75. Of this number, 13 died. In all of these fatal cases the cause of death is expressly stated to be acute thyroidism, with tachycardia to an extreme degree, and eventual heart failure. In one case of appendiceal abscess, the patient died of the combined effects of sepsis and thyroidism. In another case of pelvic abscess, the patient died under chloroform before the operation was begun. Excluding these two cases, the mortality from thyroidism was 14.6 per cent., or including them, 17.3 per cent. The character of the operation seems to have made little difference in the results. The mortality of the minor operations was 16 per cent.; that of the hysterectomies and myomectomies, 13.3 per cent. It appears, therefore, that the existence of exophthalmic goiter adds about 15 per cent. to the mortality of any operation performed on the patient. In the first of the author's patients there has been a distinct goiter and exophthalmos for years, but the tachycardia was moderate. The symptoms in this case were never very alarming, and soon yielded to treatment. It was not known that the second patient had Graves' disease until two days after the operation, when the pulse rose to 180; the eyes protruded, and the throat swelled. He then learned that since girlhood the woman had been subject to such attacks, but lately has been free from them. Although some improvement was shown after hypodermoclysis, purgation and heart stimulants, on the first day that symptoms appeared, a rapid and complete recovery was secured in the next three or four days, apparently in consequence of the administration of suprarenal extract in three grain doses every four hours.

Sudden Death During or Immediately After the Termination of Pregnancy or Operation on Pelvic Organs.

DR. EDWARD P. DAVIS, Philadelphia, reported three instructive cases, and presented a table of 25 typical cases, selected from 193 papers on the subject consulted, and drew the following conclusions:

1. Sudden death may occur after abortion, labor or operation, from undemonstrable causes.

2. Death may follow abortion, labor or operation from the rapid formation of a pulmonary embolus. Examination of cases shows that this happens after so many different procedures that it is impossible to designate any one operation or manipulation which produces it. Pulmonary embolism may develop before the placenta has been delivered, or when delivered by Credé's method; although it is impossible to select any one manipulation which produces this accident. It is not frequent after Cesarean section, nor after the more complicated obstetric operations. Predisposing and probably exciting causes are bronchial infection and abnormal conditions of the blood. In 18,800 women in childbirth or having operation, 30 cases of immediate pulmonary embolism occurred, with a mortality of 73 1-3 per cent. Diagnosis: Respiratory spasm, with continued heart action. Treatment: Hypodermatic stimulation and electric current; intravenous saline transfusion has not proved efficient.

3. Primary thrombosis and secondary embolism may cause death after the termination of pregnancy or operation. Causes: Pre-existing infection, mechanical violence, altered conditions of blood serum, and lesions in the walls of the vessels. The most important symptom is Mehler's sign—rapid pulse. The temperature curve in these patients falls on the third or fourth day, while the pulse curve rises. Death usually occurs from secondary formation of pulmonary embolus. Treatment consists in absolute rest, bandaging of extremities, and in some cases abdominal section with ligation and excision of the veins of the broad ligament. Pulmonary complications develop in 25 per cent. of the cases. Thrombosis is most common in vessels connected with the left iliac vein. There is no conclusive evidence that the entrance of air into the veins is a sufficient cause for death. Gas may form in the vessels from infection.

4. Sudden death occurs in parturient women, and after operation, from reflex nervous shock, without assignable cause; also from disease of the thoracic viscera, from infec-

tion of the placental site, and other obscure conditions. Patients having fibroid tumors are especially liable to disease of the heart and vessels.

Present Therapeutic Status of Electricity in Gynecology.

DR. CHAUNCEY D. PALMER, Cincinnati, spoke of the importance of this agent in a certain class of cases, and referred to its evolution. He said the possibilities of electricity as a therapeutic agent are by no means limited, and the object of his paper is an effort to speak of electricity and place it on its proper basis, not to magnify or misrepresent its virtues, nor to depreciate its powers.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Some Uses of Ammonium Chlorid.

In the treatment of neuralgia of the fifth nerve, Shoemaker recommends the following combination containing ammonium chlorid:

℞.	Ammon. chloridi	gr. xxx	2 |
	Tinct. gelsemii	m. viiss	| 50
	Tinct. aconiti	m. i	| 06
	Ext. glycyrrhizæ flu	3i	4 |
	Aquæ q. s. ad	℥i	30 |

M. Sig.: To be taken at one dose, and repeated every hour, when the pain comes on, until three doses are taken.

In the first stage of bronchitis, when there is a deficient secretion, he recommends it combined as follows:

℞.	Ammon. chloridi	3ii	8 |
	Potass. iodidi	gr. xv	1 |
	Tinct. ipecacuanhæ	m. xxx	2 |
	Mist. glycyrrhizæ co. q. s. ad	℥iv	120 |

M. Sig.: One tablespoonful every four hours.

Ammonium chlorid is also recommended by some authorities as a hepatic stimulant as follows:

℞.	Ammon. chloridi	3iii	12 |
	Sodii chloridi	3i	4 |
	Ext. taraxaci flu	℥ii	60 |
	Decoct. aloes co. q. s. ad	℥viii	240 |

M. Sig.: From one dessertspoonful to a tablespoonful in water three or four times a day.

According to Ringer, ammonium chlorid increases the flow of bile and, therefore, is of service in torpor of the liver, sick headache, biliousness and jaundice due to obstruction of gall ducts. In laryngitis and in chronic bronchitis, when the secretion is tough, it may be used in an inhaler, or internally as follows:

℞.	Ammon. chloridi	gr. v	| 30
	Vini ipecacuanhæ	m. v	| 30
	Syr. tolutani	ʒss	2 |
	Mist. ammoniaci (B. P.)	3ii	8 |
	Aq. anisi q. s. ad	℥i	30 |

M. Sig.: At one dose and repeated three times a day.

[Mistura ammoniaci is composed of: Ammoniac, 5 parts; syrup of tolu, 10; aqua destil., 150.]

In the treatment of the different forms of neuralgia, Beasley recommends the following combinations containing ammonium chlorid:

℞.	Ammonii chloridi	gr. x	| 65
	Tinct. gelsemii	m. x	| 65
	Tinct. aconiti	m. ii	| 12
	Ext. kolæ liq.		|
	Ext. glycyrrhizæ, flu. āā	ʒss	2 |
	Aq. chloroformi q. s. ad	℥i	30 |

M. Sig.: At one dose and repeat every four hours. Or:

℞.	Ammonii chloridi	gr. xv	1 |
	Tinct. ammon. valer	m. xv	1 |
	Tinct. belladonnæ	m. x	| 65
	Tinct. ignatiæ	m. v	| 30
	Syr. arom.	3i	4 |
	Aquæ destil. q. s. ad	℥i	30 |

M. Sig.: One to two tablespoonsful to be taken in water every four hours for three doses.

In cirrhosis of the liver he recommends the following combination:

℞.	Ammonii chloridi	gr. xii	| 75
	Ext. taraxici liq.	3i	4 |
	Tinct. gent. co.		|
	Syr. aurantii, āā	ʒss	2 |
	Infus. sennæ co. q. s. ad	℥i	30 |

M. Sig.: To be taken at one dose in water and repeated once daily.

When there is congestion of the respiratory mucous membranes or of the pleura the following is advised:

℞.	Ammonii chloridi	gr. x	| 65
	Vini antimonialis	m. vi	| 40
	Ext. glycyrrhizæ liq.	ʒss	2 |
	Aq. anisi q. s. ad	℥ss	15 |

M. Sig.: At one dose in water and repeated every four hours.

In cases of orchitis the following is recommended:

℞.	Ammonii chloridi	3i	4 |
	Spts. rectif.	℥i	30 |
	Aquæ destil. q. s. ad	℥vi	180 |

M. Fiat lotio. Sig.: Lint to be saturated with this solution and applied to the painful parts.

Sponging of Fever Patients.

The following method of procedure in sponging a patient is recommended by the *Hospital*: Before commencing the sponge the temperature of the patient must be taken. For tepid sponging, water should be prepared at a temperature of from 80 to 90 degrees F. Remove all the clothing from the patient and place him between blankets. All basins, sponges and towels must be arranged beside the bed, as the patient should never be left during the course of sponging. Commence at the head and proceed downward, exposing only one limb at a time. When the entire body has been gone over the patient should be wrapped in a warm blanket and left undisturbed for an hour. The temperature should then be taken in order to ascertain whether or not any reduction has taken place. The same routine should be carried out in cold sponging as in tepid sponging. It is better, so it is stated, to sponge the limb over first in tepid water before applying the cold, as it will then cause less shock to the patient. A hot-water bottle should be kept in touch with the patient's feet during the sponge, in order to prevent a chill or collapse. When the temperature has been reduced, the body should be dried and a flannel gown put on. Ammonia, cologne water or vinegar added to the water makes it more cooling by its rapid evaporation.

Hyperidrosis.

The following combinations after Unna are recommended in the treatment of hyperidrosis: Wash the affected parts with spirits of camphor and apply the following:

℞.	Ichthyol.		|
	Spts. terebinthinæ, āā	3ii	8 |
	Ung. zinci oxidi	3iv	15 |

M. Fiat unguentum. Sig.: Apply locally.

In the shoes the following may be sprinkled:

℞.	Sinapis	3i	4 |
	Pulv. talci	℥iv	120 |

M. Sig.: To be dusted in the shoes and hose.

The Itching of Psoriasis.

The following combination is recommended by *Med. Rev. of Reviews* in the treatment of the itching which may occur in psoriasis:

℞.	Chloralis hydratis	ʒss	2 |
	Pulv. camphoræ	gr. xx	1 | 30
	Acidi carbol	m. xlv	3 |
	Sulphuris sublim	3i	4 |
	Ung. aq. rosæ	℥i	30 |

M. Fiat unguentum. Sig.: Apply locally two or three times daily to the affected areas.

Gout.

The following combinations are recommended by *Le Prog. Méd.* in the treatment of gout:

℞. Lithii iodidi.....gr. iv | 25
Ext. gentianæ
Pulv. gentianæ, āā.....gr. i | 06

M. Fiat cap. No. i. Sig.: One such capsule three or four times a day.

Acne.

In the treatment of acne occurring in young individuals, Shoemaker recommends the following outline of treatment:

℞. Ferri pyrophos.....gr. i | 06
Calcii sulphidi.....gr. ss | 03
Strych. sulphatis.....gr. 1/80 | 008
Quin. sulph.....gr. i | 06

M. Fiat cap. No. i. Sig.: One such capsule three times daily.

Locally the following should be applied:

℞. Ung. hydrarg. nitratis.....3i | 4
Lanolini.....ʒss | 15
Camphoræ.....gr. xx | 1 | 30
Beta-naphthol.....gr. xv | 1
Ung. zinci oxidi benzoatis.....ʒss | 15

M. Fiat unguentum. Sig.: Apply locally night and morning.

Scabies.

The following outline of treatment has been recommended by M. Hodara in the treatment of scabies:

℞. Olei olivæ
Adipis, āā.....3v | 20
Sulphuris
Beta-naphthol, āā.....3i | 4
Balsami peruv.....3ss | 2
Cretæ prep.....3i | 4

M. Fiat unguentum. Sig.: To be thoroughly applied over the affected areas at night.

In the treatment of young children the foregoing may be diluted by adding an equal quantity of olive oil. When impetigo or severe eczematous conditions accompany the scabies the following is recommended:

℞. Liq. petrolati
Glycerini, āā.....3ii | 8
Lanolini.....3vii | 28
Sulphuris.....3ii | 8
Zinci oxidi.....3v | 20
Menthol.....gr. ii | 12

M. Fiat unguentum. Sig.: Apply locally to the affected areas.

Pertussis.

H. J. Ring, in *Calif. State Med. Jour.*, states that the fluid extract of castanea has formed the basis of his treatment of pertussis for several years past. He has found that it acts more promptly if combined with belladonna and hyoscyamus. When there are indications of brain complications he combines it with small doses of fluid extract of ergot. One advantage of this preparation is that when combined with simple syrup all children take it readily, as it is not unpleasant, and it is a harmless remedy when given in medicinal doses however long it may be continued. It may be given in from 15 to 20 minim doses (1.-1.30) at any age over 2 years, and repeated every two hours. The following combination is recommended by him:

℞. Ext. castaneæ flu (chestnut).....ʒi | 30
Ext. belladonnæ flu.....gtt. iv | 25
Ext. hyoscyami flu. (according to age).....
.....m. x-3i | 65-4.
Syr. simplicis q. s. ad.....ʒiv | 120

M. Sig.: One teaspoonful every two hours.

Any local application desired may be used in connection with this treatment, but care must be observed in obtaining a reliable preparation of castanea.

The preparation made from the fresh root of *Cochlearia armoracia* (horse-radish root) is recommended by French authorities as of value in the treatment of whooping cough. It may be combined with an infusion of coffee as follows:

℞. Spts. armoraciæ co. (B. P.).....3ii | 8
Infusi coffeæ q. s. ad.....ʒiv | 120

M. Sig.: One tablespoonful every four hours.

Four or five drops of the wine of ipecac may be added to the foregoing combination if desirable.

Medicolegal

Not Liable for Insanitary Prison.—A municipal corporation, the Supreme Court of Appeals of West Virginia holds, in the case of Shaw vs. City of Charleston, is not liable for injuries to a person occasioned by the insanitary condition of its prison while he is confined therein for violation of a city ordinance. The explanation given is that the maintenance of a prison is the exercise of a purely governmental power, and that therefore a municipal corporation is not liable for injuries caused by negligence or omission of duty on the part of its officers and agents respecting its prison or persons confined therein.

Relation of Second Miscarriage to Accident.—The Supreme Court of Texas says that in Rapid Transit Railway Co. vs. Smith, an action brought by the latter to recover damages for personal injuries to his wife, there was testimony to show that the wife shortly after the accident had a miscarriage, and later another. The jury were instructed that, if they found that the second miscarriage was the result of the original injury, they should consider it in assessing the damages, otherwise not. The Supreme Court thinks it would have been better to have instructed the jury as to the purpose for which it was to be considered, namely, in determining the extent of such injury, and not for the purpose of allowing specific damages for that miscarriage itself.

May Charge for Liquors Properly Administered.—The Kansas statute provides that a physician lawfully and regularly engaged in the practice of his profession, if he shall deem it necessary to the health of a patient, may administer intoxicating liquors to the patient. It follows, therefore, the Supreme Court of Kansas holds, in the case of State vs. Wilson, that in the absence of any statutory inhibition he may charge and receive pay therefor. The following definition was given: "The legal definition of the word 'administer' is to give, supply, or dispense." It was contended that the word "furnish" should have been added. But the court holds that it was not necessary to use all the synonyms of the word in order to convey to the jury a correct definition of it.

Can Not Compel Re-exhibition of Person.—The Court of Civil Appeals of Texas holds, Houston & Texas Central Railroad Co. vs. Anglin, an action brought to recover damages for personal injuries to the minor son of the latter party, that there was no errror in the refusal of the trial court to require the boy to exhibit his chest to a physician, so as to permit the latter to examine the same, although it appeared that the physician had previously examined him, and that, while testifying in his own behalf, the boy had removed part of his clothing and exhibited to the jury a depression in the lower part of his chest, claimed to have been caused by a crushing of the same at the time of the alleged accident. The Court of Civil Appeals says that, whatever may be the rule in other jurisdictions, it regards it as well settled in that state that a court has no authority to compel a party to exhibit his person to a physician, or any other person, for the purpose of examination; and the fact that he has done so once does not deprive him of the right to refuse to do so again.

Powers of Superintendent of Health.—The Supreme Court of North Carolina says, in the case of Copple vs. Commissioners of Davie County, that it is of the opinion that the county superintendent of health has no right to delegate the performance of his official duties to others—certainly not so as to give his employes the right to make their services a county charge. The office of superintendent of health is one of trust and responsibility. Such superintendent is paid a salary pursuant to the statute at that time fixed by the board of commissioners, and they have the right to expect and require that he will perform the duties for which he is paid. In this case an insolvent person had the smallpox. To prevent the spread of the disease, in the judgment of the superintendent of health, the officer who was given control of the matter, it was necessary to remove and isolate the patient. This was done by removing him to a pesthouse belonging to certain mills. The plaintiff, a physician, took the patient to the pesthouse, took his meals to him three times a day, and attended to him

continually during his sickness, when no one else could be found to do it, at the request and by the direction of the superintendent of health. This, the court says, was no delegation of that officer's duties. The superintendent did attend the patient. He was performing the duties imposed on him by statute, and this was a case where the employment of help was necessarily contemplated and authorized. It could not be suggested for a moment that the power of the superintendent was exhausted when he had the patient removed, and that the statute contemplated that he was to be left without food or attendance. There was no abdication of his office by the superintendent. On the contrary, in providing for the care and attendance that officer was carrying out his duty as prompted by every instinct of humanity, and sanctioned by the express provision of a wise and merciful law. If the county pesthouse had been properly equipped and ready, and nurses and sustenance provided, the county commissioners might have reasonably required that patients of this character should be removed into the public pesthouse, provided the quarantine could be made effective that way. The county pesthouse was not ready, and the court holds that, under the statute, and on the facts of the case, the superintendent of health had the power to direct this removal and provide for the maintenance of the patient, to the amount of its reasonable worth.

When May Court Compel Examination Board to Issue License.—The Supreme Court of Washington says, in State vs. Board of Dental Examiners of the State of Washington, that it seems to it that the confusion that arises in the discussion of the question of the right of the courts to interfere with the discretion of an examining board arises more from the inaccurate terms which are used by the law writers than from any inherent difficulty in the law itself. The general rule is well established that the courts can not review the discretion which has by law been vested exclusively in inferior tribunals, and mandamus will therefore not lie to compel the performance of acts or duties which necessarily call for the exercise of discretion on the part of the officer or board at whose hands their performance is required, because the state has, as in this instance, specified the officers on whose judgment on the questions submitted to them the state is willing to rely. Taking the case at bar (where a mandamus was sought) for an example, if a record of the examination had been produced in court, with the questions, answers, and credits given to each question, who would determine whether or not a particular answer had received a sufficient credit? Certainly not the jury, for they are not presumably competent to pass a proper judgment on such subjects. Not the judge, for his qualifications do not embrace, or at least require, an expert knowledge of the science of dentistry. Expert witnesses could not be properly permitted to testify for the reason that the state has already designated and empowered experts to pass on these questions, presumably by reason of their recognized qualifications. But, notwithstanding this, it is equally well established that courts will compel by mandamus the honest performance of official duty, and if, under pretense of exercising discretion, the power is exercised with manifest injustice, or is grossly abused, or duty is avoided, the courts will grant relief. The action of the court must in reality be based on the assumption that the inferior tribunal has refused to exercise the discretion with which it is clothed, because, if it acts arbitrarily or fraudulently, or through unworthy or selfish motives, or conspires against the rights of individuals, under the law, and therefore against the law itself. it has not strictly, as is frequently said, "abused its discretion"—a term which is responsible for some confusion of ideas on this subject—but, in contemplation of law it has not exercised its discretion at all, but has sought to substitute arbitrary and fraudulent disposition and determination of the question submitted for the honest discretion demanded by the law. In such cases the law will by mandamus compel the tribunal to act honestly and fairly, or, in other words, to exercise its discretion; and, when this distinction is kept in mind, the seeming difficulties which have surrounded this question, and which have caused so much discussion, disappear.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

June 3.

1 *Inflammatory Diseases of the Uterine Adnexa and Its Treatment. H. Grad, New York.
2 *Ophthalmic Suggestions. R. Kalish, New York.
3 *Heart and Circulation in the Prognosis and Management of Pulmonary Tuberculosis. S. von Ruck, Asheville, N. C.
4 *Relation of Ethmoidal Inflammation to Asthma. H. Coggeshall, New York.
5 *Difficult Diagnosis in a Case of Abdominal Pregnancy. W. S. Langfitt, Pittsburg, Pa.
6 Case of Heroin Habit. C. E. Atwood, New York.
7 Cactus Grandiflorus. F. Ellingwood, Chicago.

1. **Inflammatory Disease of the Uterine Adnexa.**—Grad considers the anatomy of the adnexa, the etiology of inflammatory processes in this region, their pathology and their relation to pelvic abscess and peritonitis, the clinical history of acute and chronic salpingitis and of ectopic pregnancy. The author believes that the use of palliative methods is very important, as the natural termination of these lesions is in resolution and cure. Procrastination in operative measures and judicious persistence in general treatment is to be strongly urged. The use of opiates requires especial care in order not to mask the symptoms and yet not to permit the patient to suffer needlessly. Local treatment may or may not be necessary, and antiseptic applications and irrigations with liberation of pus and absolute cleanliness are the essentials in the treatment of the various lesions of the urethra, vulva, vagina and cervix. Grad calls attention to the danger attempting radical operation during the acute exacerbations, which he terms a questionable procedure. Vaginal drainage will usually bring about a cessation of symptoms with improvement in the patient's condition. The technic of pelvic operations is treated at length, special stress being laid on the matter of conservative measures and their advisability, when possible. Vaginal section by a T-shaped incision is commended for use in suitable cases.

2. **Some Ophthalmic Suggestions.**—In regard to diseases of the eye, Kalish points out some popular fallacies which, he says, are often the cause of serious injury to the visual power. Among these is the senseless outcry against the wearing of glasses by the young, the belief that squint in young children should go untreated, as they will outgrow it, and especially what the author terms the self-fitting of glasses in the establishments of opticians. The victims in these places are allowed themselves to select the glasses that seem to "fit," and 20 per cent. of such eyes are accurately corrected as to the refractive error, and sooner or later it is discovered that serious damage has been done. Much emphasis is laid by the author on the broad rule that glasses should never be ordered without an ophthalmoscopic examination. Instances are cited in which the glasses obtained from opticians were wholly unsuitable and did positive harm.

3. **Heart and Circulation in Prognosis and Management of Pulmonary Tuberculosis.**—von Ruck says that the relation of the heart and circulation to the course of chronic pulmonary tuberculosis is a factor both in the prognosis and management of such cases which is not generally accorded the attention and study which its importance demands. He suggests the analogy between the relation of the heart and circulation to the local disease in acute pneumonia and in chronic pulmonary tuberculosis. According to his conception, this relation differs chiefly in that the pulmonary obstruction develops rapidly in the one and more slowly in the other. By reason of this difference, more can be done to conserve or to increase the power of the heart in phthisis than in acute pneumonia. It follows that close observation of the circulation in the course of phthisis is imperative, and that a weak second pulmonic sound is to be regarded as a danger signal, just as in acute pneumonia. Overexercise is considered by von Ruck as a potent factor in the production of tachycardia in consumptives, and he cites statistics from the Winyah Sanitarium showing that of 60 patients with disturbed heart action, in 58 per cent. overexercise had been a contributing factor in its

causation. For the entire number of 261 patients, the figures show 72.9 per cent., whereas for those with tachycardia the figures show only 34.1 per cent. The restriction of exercise for consumptives with weak hearts is strongly urged, and the physical management of such patients, together with the regulation of the diet, bathing, etc., is described in detail.

4. **Relation of Ethmoidal Inflammation to Asthma.**—Coggeshall says that asthma is a name given to paroxysmal difficult breathing, and that the disease is an inflammation of the mucous membrane of the ethmoidal cells. An irritation of branches of the trigeminus or olfactory nerves causes an altered activity in the medulla; that is to say, in the center of respiration. The result in the bronchial tubes is a vasomotor disturbance or a contraction of muscles, or both. Chronic bronchitis, or emphysema, or a dilated right side of the heart, are not asthma. They are sequels to asthma of severity and long standing. Other varied factors are the contributory causes of asthma. Errors of nutrition, errors of diet, gout, obesity, lymphatism, impure air and poor circulation are such causes. To these may be added direct irritants to the nasal mucous membrane, such as various pollens, emanations from animals, dust, smoke, and many others in the cases of the sufferers from periodic asthma. Coggeshall outlines a plan of treatment directed toward the correction of the chronic inflammation in the ethmoidal cells.

5. **Difficult Diagnosis in Case of Abdominal Pregnancy.**—Langfitt's patient came under observation a month after a missed labor. She had a temperature of 101 F. and other signs of infection. On opening the abdomen, the uterus was found to be very slightly enlarged and displaced by a large mass occupying the pelvic cavity and attached to the right Fallopian tube. The fetus, which was dead and disorganizing, weighed six pounds. The removal of the mass was successfully accomplished, in spite of the many adhesions, but the patient died a week later of the septic condition present at the time of operation. Langfitt points out the necessity for careful diagnosis and prompt action in such cases, as it seems likely that the woman would have recovered if she had come to operation before infection had begun.

Medical News, New York.

June 3.

8 *Prophylaxis of Lobar Pneumonia. J. M. Anders, Philadelphia.
9 *Causes Underlying Prolonged Loss of Function in Certain Injuries About the Shoulder Joint—Prognosis—Treatment. A. S. Taylor, New York.
10 *Plea for Medical Treatment of the Inflamed Appendix. A. L. Benedict, Buffalo, N. Y.
11 *Late Results of Surgical Treatment in Gastric Ulcer—Preliminary Report. J. C. Munro, Boston, Mass.
12 *Laryngeal Complications of Typhoid Fever. R. H. Johnston, Baltimore, Md.
13. Rotary Lateral Curvature of the Spine. L. W. Ely, New York.
14 Effect of Intestinal Antisepsis on the Excretion of Hippuric Acid in the Urine. J. B. Prager, New York.

8. **Prophylaxis of Lobar Pneumonia.**—According to Anders, the most efficient prophylaxis for pneumonia must have reference to the accomplishment of four main objects: 1. To overcome individual predisposition. 2. The prompt and thorough disinfection of the sputum and secretions of the upper respiratory tract. 3. Isolation of the patient, especially from the debilitated, and disinfection of the sick room, together with its contents, after death or recovery. 4. The observance of certain public measures. The prevalence of influenza during the last fifteen years has brought about an increased receptivity for and incidence of the pneumococcus infection. Certain degenerative lesions, especially of the cardiovascular system and the kidneys, have shown increased incidence during the last two decades; and these are found to be associated or antecedent conditions in the majority of cases of pneumonia, hence are probably potent, predisposing factors. The indoor conditions during the cold season favor multiplication and propagation of the pneumococcus and at the same time tend to diminish resistance to infection by the specific organism. The aged are peculiarly susceptible to pneumococcus infection, hence their bodies should be kept as strong and healthy as possible, especially during the pneumonia season. To overcome the predominating factors in individual predisposition, special attention must be paid to the subject of ventilation, to appropriate clothing, and to the avoidance of agencies that cause degeneration of the heart, blood vessels and kidneys, as alcohol, social excesses, an overstrenuous business or professional life, and the like. The sputum is the principal source of infection, and should be thoroughly disinfected so soon as it is expectorated and then destroyed by burning. A large proportion of the general populace harbors the pneumococcus in the nasopharynx, and this is especially true in families and in institutions in which cases of pneumonia have occurred; hence thorough cleanliness and systematic disinfection of these chambers should be carried out during the pneumonia season, more particularly in the case of persons more or less exposed to the virus of the disease. Means to prevent dust from accumulating and its daily removal from the home and the city streets are imperatively demanded. Public health authorities should be given full executive power to carry out rules and regulations relative to pneumonia looking to the prevention of its spread, as in the case of other infectious and contagious diseases; they should also carry on a campaign of public education. Measures of prophylaxis must accord with intelligent public opinion before they can be rendered wholly efficient either by municipal or private authority.

9. **Causes of Loss of Function in Injuries About Shoulder Joint.**—In cases of injury about the shoulder joint followed by prolonged disability, Taylor says that the paralyzed muscles are in groups corresponding to the exit of their motor nerve supply in the roots of the brachial plexus from above downward. The lesion is situated in the roots of this plexus, most commonly at the junction of the fifth and sixth cervical roots, but it may involve any portion or all of the roots from above downward. The lesion is caused by too great diastasis of the head and neck from the shoulder, which results in overstretching of the nerves, followed by paralysis, traumatic neuritis, and often cicatricial compression of the nerve, with permanent impairment of function. The prognosis is not very favorable. Treatment consists of immobilization of the extremities, with counter irritation over nerve roots, followed later by massage, electricity, etc., and finally, surgical interference, in selected cases.

10. **Medical Treatment of Appendicitis.**—Benedict argues in favor of medical treatment of appendicitis and discusses the reasons therefor. He does not hold that this is the treatment for every case of appendicitis, but simply pleads for proper discrimination and rational treatment, not neglect under morphin in cases in which operation is unnecessary. The medical treatment of the acute and subacute case should be based on the conception that in most cases the ordinary colon bacillus and other regular inhabitants of the bowel are responsible for the diseased process. He holds strongly to the belief in free catharsis, and, if indicated, bowel and stomach washes.

11. **Late Results of Surgical Treatment of Gastric Ulcer.**—Of 146 cases of operation for lesions of the stomach, Munro reports on the end results in 134 cases, or 91 per cent. Of this number, 90 operations were done for gastric ulcer, and in 9 cases the end results are known. Munro says he does not feel that the ideal method for the routine case is attained, but the results are sufficiently encouraging to stimulate him to carry on the operative treatment. The merits and demerits of the various operations employed are discussed in detail.

12. **Laryngeal Complications of Typhoid Fever.**—Johnston emphasizes the importance of a careful laryngoscopic examination in all cases of typhoid showing laryngeal complications. Prompt diagnosis and treatment of the milder complications may prevent the disastrous results arising from the more serious affections of the larynx. Most of the conditions tend to recover, and expectant treatment is all that is necessary in the majority of cases, such as a mild spray of an oily solution of camphor and menthol and non-use of the voice. When ulceration or perichondritis is present, submucous laryngitis must be watched for, and, should it arise, energetic treatment must be instituted at once. Sprays of adrenalin, the swallowing of small pieces of ice, and perfect quiet may tide the patient over. If marked symptoms of stenosis make their appearance, tra-

cheotomy, promptly performed, is the best means of saving life. When permanent adhesions form as a result of the inflammatory process, the tracheotomy tube may have to be worn indefinitely.

American Medicine, Philadelphia.

June 3.

15 *Further Remarks on Ischochymia and Its Treatment. M. Einhorn, New York.
16 *Bright's Disease in High Official Circles at the Nation's Capitol. T. L. MacDonald, Washington, D. C.
17 Observations on Amebas Infecting the Human Intestine, with a Description of Two species, *Entameba coli* and *Entameba Dysenterie*. C. F. Craig, San Francisco, Cal.
18 Office of the Spleen: An Essay in Comparative Physiology. E. T. Williams, Boston, Mass.
19 *Malarial Infection Presenting Symptoms of Multiple Neuritis. G. E. Price, Philadelphia.
20 Lloyd Reaction for Morphin and Other Alkaloids. D. W. Fetterolf, Philadelphia.

15. **Treatment of Ischochymia.**—Einhorn describes cases of benign ischochymia with intense peristaltic restlessness of the stomach which were cured by medical treatment. He also reports cases of ischochymia with a short history of disease which were benign in character. Two cases are described in which tumors of the pylorus and stomach were seen and palpated during operations and left untouched—the patients, however, recovering entirely and remaining well for many years. The indications for medical and surgical treatment of ischochymia are given as follows: (1) Benign ischochymia requires, first, medical treatment; if this be unsuccessful, i. e., if, after a longer period, the fasting stomach, on a fluid diet, is not empty, but contains food remnants, an operation is advisable. (2) Surgical intervention is also indicated in benign ischochymia which has developed subsequent to a condition of continuous hypersecretion of gastric juice (preceded by hemorrhage or not). (3) Malignant ischochymia or one of dubious nature in which, however, a thickening of the pylorus is found, should also be treated surgically (gastroenterostomy and, if possible, resection of the pylorus).

16. **Bright's Disease in High Official Circles at the Nation's Capital.**—Macdonald says that the strenuous life, excessive mental activity and the corresponding degree of physical quiescence and years of overindulgence in rich foods, with the associated high blood pressure, are the essential causes which render Bright's disease frequent in the high official circles at Washington. In conclusion he emphasizes the following facts: Unemployed food products become toxic irritants and menace the structural integrity of the kidneys. Man is an organism built round an eliminative system; when that is abnormal he can not be normal. When the balance between ingestion, metabolism, and elimination is absent, danger is present. Apparently nutritional excess is the germ of nephritis. Mental activity and physical quiescence aid in its production. Carking care and the corrosive influence of worry and mental strain render prominent aid in producing it. It is prone to attack the intellectual and the anxious. Alcohol, while offering it encouragement, has been given a too conspicuous place as a causative agent. It is an extremely insidious disease, and is often well advanced when discovered. It is so far-reaching that its first noticeable effects may be visited on organs and tissues remote from the original disease. The conditions which lead to it are quite amenable to correction if efforts are made sufficiently early. It occurs somewhat frequently at the nation's capital because the congregation of eminent public men means a concentration of worries, wealth, and official feasting.

19. **Malarial Infection Presenting Symptoms of Multiple Neuritis.**—Price reports the case of a girl, aged 8, who had multiple neuritis of 18 months' duration, following malarial infection. The symptoms were pain, paresthesia, tremor of hands, diminished power in all extremities, particularly marked in the flexors of the ankles, and giving the characteristic "foot drop." There was also a slight intermittent rise of temperature. The malarial parasite of the estivo-autumnal variety was found in the blood.

New York Medical Journal.

June 3.

21 *Medical and Surgical Treatment of Gastric Ulcer. B. Robinson, New York.
22 *Medical Treatment of Gastric Ulcer. J. Friedenwald, Baltimore, Md.
23 *Employment of Celluloid Plates for Covering Openings in the Skull in Operations for Epilepsy, Brain Tumor, etc. W. P. Nicolson, Atlanta, Ga.
24 *Recurring Subluxation of the Femur an Unusual Sequel to an Incomplete Fracture of the Neck of the Femur. P. Le Breton, Buffalo.
25 Loss of the Sign Language in a Deaf Mute from Cerebral Tumor and Softening. C. W. Burr, Philadelphia.
26 Prevention of Insanity in Its Incubation by the General Practitioner. J. T. W. Rowe, New York.
27 Inguinal Bubo as a Complication of Malarial Fever; Additional Report. A. C. Smith, New Orleans.

21. **Gastric Ulcer.**—Robinson has collected the histories of 35 cases of gastric ulcer, in which 18 of the patients were operated on, the balance having been placed under medical treatment. The results of operations were ten deaths, seven recoveries, with the result unknown in one case. The results of medical treatment were no deaths, ten cured, one improved, with the results unknown in six cases. Of the patients operated on, a gastroenterostomy was done in five—four posterior, one anterior. Most of the other operations were for emergency cases and consisted in sutures of the ulcer area only. Of 43 cases of gastric ulcer at another hospital, 39 patients were under medical treatment and four under surgical treatment. Of the medical cases, 26 patients were cured (in one, no treatment); improved 10; unimproved 1; died 1; unknown 1. In the four surgical cases, one gastroenterostomy was done, one excision of the ulcer, one exploratory operation, and one McGraw ligature operation. Robinson concludes that acute gastric ulcer must be recognized clinically, for it usually heals, and the treatment is purely medical. A considerable minority fail to do so and constitute a share of the chronic ulcers. Despite the brilliant results of gastroenterostomy in the treatment of gastric ulcers, there may be forcible objections to it. Any form of gastroenterostomy is a grave operation. However, in emergency cases no rational preventive medical treatment can be carried out.

23. **Celluloid Plates for Covering Skull Defects.**—Nicolson discusses the use of celluloid for closing in defects in the skull, the result of operations for epilepsy, brain tumor, etc., and reports 6 cases, giving a description of the technic employed by him. Nicolson makes the following claims for the routine application of this principle to all operations where we are compelled to make openings of any size in the skull, or where a larger area has been removed by accident: 1. It is safe, does not add any risk to the operation, and the materials required are easily obtainable. 2. It not only removes the pressure and irritation, but, by its resistance, prevents a recurrence from the subsequent consolidation of the coverings in a false position, due to atmospheric pressure. 3. It protects the patient from external influences, and not only makes him feel safer, but actually safer. 4. It enables us to be much more untrammelled in the amount of bone that we can remove. 5. It prevents deformity which, especially when beyond the hair line, is necessarily great in large bone removals, and this produces an important cosmetic result. 6. It does away with the necessity for introducing substances for preventing adhesion between the scalp and dura mater. 7. In the event of a necessity for subsequent invasion of the brain it enables one rapidly to reach the seat of trouble, without finding adhesions to confuse and to obstruct.

24. **Subluxation of Femur.**—The interesting points in LeBreton's case were that a recognized incomplete fracture had been received which nature repaired. The patient adopted a position to favor the leg, which finally resulted in a stretching of the capsule of the joint and a tendency to luxation, so that while standing and walking the head of the femur was not in the acetabulum. A short period of immobilization by plaster cured this very marked deformity.

Boston Medical and Surgical Journal.

June 1.

28 *The Experience of Nine Years in the Treatment of Diphtheria with Antitoxin. J. H. McCollom, Boston.
29 Description of "Pfeiffer's Disease" (Glandular Fever), with a Report of Two Cases. A. H. Wentworth, Boston.
30 Report on Early Diagnosis of Tuberculosis. A. C. Klebs, Chicago, and others.
31 Consideration of the Pelvic Articulations from an Anatomic, Pathologic and Clinical Standpoint. J. E. Goldthwait and R. B. Good, Boston.

28. **Nine Years' Experience with Diphtheria Antitoxin.**—Following a brief review of the early history of diphtheria, McCollom discusses the treatment with antitoxin in Boston and in several other cities in the East. The article is elucidated by a number of charts. Chart A shows the percentage of mortality at the Boston City Hospital proper and at the South department from 1888 to 1904, inclusive, with the percentage of mortality of intubations. Previous to 1895 the death rate varied from 46 per cent. in 1888 to 48 per cent. in 1893. In 1890 and in 1894 the death rate was 36 per cent. and 38 per cent., respectively. In 1895, in the latter part of which year the South department was opened and antitoxin was given to every patient ill with diphtheria, the death rate fell to 14 per cent. Since that time it has fallen gradually to 9.5 per cent. If the deaths that occurred within twenty-four hours of admission are eliminated, of which there were forty, the actual mortality of diphtheria amenable to treatment during 1904 was 6.95 per cent. The mortality rate of intubation cases previous to the use of antitoxin varied from 78 to 86 per cent. From 1895 to 1904, the mortality rate of these cases varied from 64 to 26 per cent. This diminution in the mortality rate is attributed to the use of antitoxin. Chart B indicates the ratio of mortality per ten thousand of the population for thirty years. Chart C shows the percentage of cases of diphtheria sent to the hospital, with the percentage of deaths to the population from 1888 to 1904, inclusive. Chart D shows a ratio of mortality per ten thousand of the population in Boston, New York, Philadelphia, and Brooklyn for the past twenty years. Chart E shows the relative advantages of intubation with antitoxin as compared with tracheotomy without and intubation without. McCollom concludes that antitoxin is of immense value in the treatment of diphtheria, but in order to obtain the best results it is important that the serum should be given at the earliest possible moment in the course of the disease. In severe attacks, it should be given in very large doses. In laryngeal diphtheria, in the majority of instances, intubation is the operation of election.

Lancet-Clinic, Cincinnati, Ohio.

May 27.

32 Considerations on Inherited Syphilis, with Special Reference to Paternal Inheritance. A. Ravogli, Cincinnati.
33 *Medical Aspects of Appendicitis. J. Eichberg, Cincinnati.
34 Pathology of Typhoid Fever. J. E. Griewe, Cincinnati.
35 Clinical History of Typhoid Fever. E. Campbell, Cincinnati.
36 Typhoid Fever Treatment. J. H. Landis, Cincinnati.
37 Surgical Treatment of Perforation in Typhoid. N. P. Dandridge, Cincinnati.

June 3.

38 Cerebrospinal Meningitis. G. A. Fackler, Cincinnati.
39 *Bi-Inguinal Celiotomy. S. Stark, Cincinnati.
40 Typhoid Fever in Children. W. W. Pennell, Mt. Vernon, Ohio.

33. **Medical Aspects of Appendicitis.**—Eichberg discountenances what he terms the "frantic hurry" to unload the bowel, and urges that nature be given a chance to circumscribe the seat of danger with a wall of lymph, which makes surgical intervention more easy and successful. If the case does not call for immediate operation, no harm is done by allowing the bowel to rest for 36 or 48 hours. The colon can then be unloaded by a small enema. He considers it of some advantage to give from the start one-tenth grain doses of calomel at intervals of two hours. Morphia, which he gives invariably, goes well with calomel. All food is withheld for at least 48 hours, and a tablespoonful of water, not too cold, is given every half-hour. He says that, in his hands, this treatment has averted the necessity of operation in a number of patients who have not had more than the primary attack. The patient must be watched carefully as to pulse, respiration, facial expression and local conditions, and from these deductions can ordinarily be drawn safely as to whether his interests require more than the purely medical treatment.

39. **Bi-Inguinal Celiotomy.**—This operation described by Stark differs from the Goldspohn operation in the closure of the peritoneal cavity, the suture of the round ligament to Poupart's ligament, and the disposal of the internal abdominal ring and inguinal canal. The incision is made in the line of the inguinal canal from the spine of the pubes to a point a short distance above the internal abdominal ring, altogether from two and a half to three inches in length. The aponeurosis of the external oblique being exposed, the intercolumnar fibers are split and the incision through this fascia is continued upward and downward toward the internal ring. The lower portion of the aponeurosis is rapidly separated from its adjacent tissues with the index finger until Poupart's ligament is reached. This flap is then held downward in the grasp of a wide-mouthed hemostatic or by means of a blunt retractor and all the tissues imbedded in the canal rapidly raised by dissection with the finger. The complete isolation of the ligament from its surrounding structures is then effected, and a strip of gauze is passed underneath, through the medium of which all further manipulation on it is carried out. With the continuance of traction, a pouch of peritoneum is made to present above the ligament, and this is snipped transversely with the scissors. The peritoneal cavity now being opened, the aperture is caught on either side at its upper extremity by two artery forceps, and, while traction on the ligament is kept up, the peritoneum is severed closely from its attachment to the ligament on either side with the scissors as high up as may be deemed desirable. One or two fingers are introduced into the peritoneal cavity in order to determine the presence of pelvic adhesions and to remedy the same, to investigate the condition of the appendages of that side, and, if need be, to operate on them and to note the degree of uterine support in the round ligament while traction is being made thereon, and to liberate it still further from the broad ligament if the support is insufficient. The wound is then packed with gauze wrung out of hot salt water and the same procedure is gone through with on the opposite side. The peritoneal cavity is closed by catching the upper portion of the opening by means of an artery forceps in such a manner that the opposing surfaces of the peritoneum are approximated and are united by means of a fine continuous catgut suture, the last stitch including the inner border of the ligament, which has been continuously drawn on by means of the gauze strip. The round ligament is then sutured to Poupart's by means of interrupted fine silk sutures, the first stitch being applied just below the lower border of the internal abdominal ring. Three or four sutures are employed and the redundant proximal portion of the ligament is held together in the form of a loop, the base of the loop tied off with catgut and the portion above the ligature cut off. Closure of the internal ring is accomplished by suturing the internal oblique transversalis muscle and fascia to Poupart's ligament, for which silk is used. Ordinarily, it is unnecessary to close off any more of the canal, but should it seem weak or should a hernia exist the remainder of the conjoined tendon can be sutured to Poupart's ligament above the attachment of the round ligament. The divided aponeurosis of the external oblique is brought together by interrupted catgut sutures and the skin wound closed in the ordinary manner by subcuticular suture or interrupted silkworm gut. The other side is treated in the same manner. If a suitable pessary has not been introduced before the operation because of adhesions interfering with replacement, this is now done and permitted to be worn two or three months.

St. Louis Medical Review.

May 27.

41 *Two Cases of Congenital Anomalies of the Female Genital Tract. S. M. Brickner, New York.

41. **Congenital Anomalies of Female Genital Tract.**—Brickner cites one case of atresia hymenalis, with hematometra and hematocolpos, and one of total atresia of the vagina, with absence of the uterus.

Annals of Otology, Rhinology and Laryngology, St. Louis, Mo.

March.

42 Contribution to the Study of the Secreting Mechanism of the Nose. J. L. Goodale, Boston, Mass.
43 *Skiagraphy as an Aid in the Diagnosis and Treatment of Diseases of the Accessory Sinuses of the Nose. C. G. Coakley, New York.
44 Radical Operation for Chronic Suppurative Otitis Media. W. C. Phillips, New York.
45. Further Remarks on a Case of Cholesteatoma. W. H. Dudley, Easton, Pa.
46 *Mycosis of the Throat Treated by the Roentgen Ray. L. M. Hurd.
47 *Technic of the Radical Operation for Chronic Suppurative Otitis Media. J. D. Richards, New York.
48 Brain Abscess. Resulting from Chronic Purulent Otitis Media. J. F. McKernon, New York.
49 Case of Sarcoma of the Maxillary Sinus. Z. L. Leonard, New York.

50 Caries of Both Petrous Pyramids—Removal of the Entire Petrous Portion of the Cranial Base. P. Cauzard, Paris.
51 Relative Frequency of the Dental and Nasal Origin of Antral Empyemata. G. L. Richards, Fall River,.
52 *Results from the Treatment of Vertigo, Tinnitus and Deafness by Babinski's Method. Dr. Tretop.
53 Lumbar Puncture and Affections of the Ear. E. Lombard and H. Caboche.
54 Appearance of the Fundus Oculi in Diseases of the Ear. F. Tenzer, Berlin.

43. **Skiagraphy in Diseases of Nasal Accessory Sinuses.**—Concerning the value of skiagraphy as an aid in the diagnosis and treatment of disease of the accessory sinuses of the nose, Coakley says that it is possible by means of a skiagraph to determine the presence or absence of a frontal sinus which extends vertically above the glabella. A frontal sinus may be small, parallel with the upper inner margin of the orbit and not detected in the skiagraph. In all cases of unilateral disease of the frontal sinus verified by operation, he has observed a cloudiness in part or all of the area occupied by the sinus and indistinctness in the outline of the cavity when compared with the opposite or healthy side. The skiagraph has invariably shown the frontal sinus to be somewhat larger in all dimensions than it proved to be when operated on. This is undoubtedly due to the divergence of the rays as they pass from the tube to the plate. A good negative may be depended on to show the septum separating one sinus from another. The various incomplete septa that may be present in each sinus are usually shown quite clearly. An oblong, narrow, much darker area, nearly parallel with the upper margin of the orbit on its nasal side, and usually just above it, whenever present, has been found to be an orbital prolongation of the frontal sinus, running antero-posteriorly above the orbit, oftentimes the full depth of the latter. The examination of a skiagraph of the two frontal sinuses when compared with results found on transillumination will aid very much in determining the presence of a diseased sinus. Skiagraphy may prove a valuable aid in determining our method of treating a chronic suppurative frontal sinusitis. A skiagraph may also be of considerable value in determining the height and width of the ethmoidal cell area and the sphenoidal sinuses. If the plate can be so arranged as to include the superior maxilla as well, a chronic suppurative process in an antrum presents the same filmy appearance as above noted in similar conditions of the frontal sinus and ethmoidal cells. A healthy antrum presents an irregular, triangular area, dark in color, with a few light colored septa running through it, many of which are ridges present in the wall.

46. **Roentgen Ray in Mycosis of the Throat.**—Hurd's patient was first given ten-minute sittings, twice a week for six weeks. The pain and discomfort diminished after the first two exposures, and after the fourth exposure some of the smaller tufts in the throat became soft and could easily be wiped off. At the end of six weeks the patient discontinued the treatment for business reasons. Three months later, he returned for further treatment, the condition in the throat having remained stationary during this time. He again received ten-minute sittings, but three times a week, and after three months no spots could be found. The tonsils and pharynx were directly exposed to the rays through a speculum something like a Ferguson vaginal speculum with a large flange to protect the face from the rays. The lingual tonsil and larynx were treated with the rays from the outside. In all, the patient received forty-one treatments; a medium tube with a spark gap of about three inches was used.

47. **Radical Operations for Chronic Suppurative Otitis Media.**—In this paper, Richards describes a few points in the technic of the operation which are new and which he deems of some advantage.

52. **Babinski's Treatment of Vertigo, Tinnitus and Deafness.**—Tretrop says that in cases of labyrinthism accompanied or not by lesions of other parts of the auditory organ, when other treatment has no effect, we are justified in proposing lumbar puncture while telling the patient that it is not a panacea, but a method that gives a percentage of cures and also failures. The attacks of vertigo which are often so annoying are the most favorably influenced, then comes the tinnitus, and last the deafness. He states that the persevering and judicious use of Delstanches masseur-rarefier, by decompressing the labyrinthine liquid, in similar cases, may yield unexpected results. Its use by the patient himself, however, must be discouraged, as he will employ it indiscriminately and only do harm. Deaf-mutism appears amenable to this method of treatment. This treatment has a better chance of success if a careful examination shows that some internal ear perception still exists and that the latter can be developed by appropriate educational treatment. The method can be advised only as a chance of cure, without promising anything. In both classes of cases—pure labyrinthine affections and those complicated with deaf-mutism—careful examination, noting the lesions and measuring the hearing power, is necessary before operation, if errors would be avoided.

University of Pennsylvania Medical Bulletin, Philadelphia.
May.

55 *Action of Alcohol on the Circulation. H. C. Wood and D. M. Hoyt.
56 Occurrence of Epidemic Cerebrospinal Meningitis in Philadelphia, Winter 1904-05. A. C. Abbott, Philadelphia.
57 Metastatic Ophthalmitis, with the Report of a Case which Developed Thirty-one Days After Confinement. G. E. de Schweinitz.
58 *Study of Fifty Cases of "Perforation in Typhoid." J. A. Scott.
59 Use of Iodid of Silver in Urethritis. E. H. Siter and A. A. Uhle.
60 Studies on Cell Granula and Ameboid Movements of the Blood Cells of Limulus. L. Loeb.

55. **Action of Alcohol on the Circulation.**—The facts which Wood and Hoyt have determined experimentally in regard to the action of alcohol on the circulation are: 1. In the normal dog alcohol does not usually either in small or large dose distinctly increase the arterial pressure, although occasionally such an effect appears. 2. The action of alcohol on the circulation in dogs suffering from an infective fever, so far as the blood pressure is concerned, is similar to its influence on the normal dog. 3. After section of the spinal cord in the cervical region, with maintenance of the respiration, alcohol distinctly and consistently increases arterial pressure; in other words, alcohol increases arterial pressure after the general vascular system has been separated from its dominant vasomoter centers. 4. The administration of small doses of alcohol increases very markedly the rate of flow of blood through the large arteries, as measured by Ludwig's stromuhr. This increase of rate being consistently maintained under the repetition of the intravenous injection of alcohol until the time comes when the rate of flow gradually lessens until, under the paralytic influence of the alcohol, it becomes much smaller than its normal. The increase of the rate of flow is in nowise dependent on or directly related to the arterial pressure, as it may occur without the pressure being sensibly affected. 5. Alcohol .25 to .5 per cent. added to nutritive fluid feeding an isolated working reptilian heart markedly and persistently increases the amount of this fluid pumped in a given length of time by the heart; that is, markedly increases the work done by the heart, the withdrawal of the alcohol being followed at once by a corresponding decrease in the heart work. If from .50 to 1 per cent. of alcohol be added to the nutritive fluid there may be a primary condition of increase of work, followed often in a few minutes by marked lessening of the work done. Larger percentages of alcohol immediately decrease the activity of the isolated reptilian heart.

58. **"Perforation of Typhoid."**—In 1,948 cases of typhoid studied by Scott, there occurred 153 deaths, a total mortality of 7.8 per cent. In this same number of cases there occurred 50 cases of perforation. Scott concludes that perforation of the bowel in typhoid fever is more common than is generally supposed, occurring once and a trifle over in every three deaths. The most common time of perforation is between the fourteenth and the twenty-first days. In 92 per cent. of the cases in this series, the perforation occurred between the second and fifth week, inclusive. The earlier cases are probably perforation in a relapse; now and then perforation may occur without evidence of previous illness. Perforation occurs in cases of all grades of severity, from the ambulatory to the hemorrhagic type. It is most common in those with moderate (25 per cent.) and severe (50 per cent.) infection (75 per

cent.). It is not more common in the hemorrhagic than in the mild cases (8 per cent. each). The ileum is the common site of perforation (86 per cent.); the majority occur within twelve inches of the ileocecal valve; the appendix and colon respectively are the next most frequent sites of perforation in this series of cases. Pain of some kind is present in 75 per cent. of all cases. In 50 per cent. of the cases the onset is sudden and severe and of increasing intensity, localizing itself to a special zone. In 20 per cent. of the cases the pain is of slow onset, not localized, with general distribution. In some cases (12 per cent. of this series), no pain is complained of, and the usual symptoms of perforation are absent. Tenderness and rigidity are present in from 75 to 65 per cent., respectively, of all cases, and are usually combined; in some cases either one or the other may be wanting; rigidity especially may be absent in patients with rather a pendulous and relaxed abdominal wall. When perforation is suspected, the temperature should be taken every hour; only by this means can the immediate rise and slow fall to normal or subnormal which often occurs be detected; in some cases, and especially those of extreme toxicity, no noteworthy change at all in the pulse, temperature, or respiration can be detected when perforation occurs. Distention (if absent during the course of the disease and at the time of suspected perforation) is a late symptom of perforation. The obliteration of liver dullness is not a reliable sign of perforation. The study of the leucocytes is of little aid. In a few cases, their increase is such as to confirm the diagnosis. In a considerable number of cases, there is a decided reduction in leucocytes after symptoms of perforation. Differential counting is not of practical use. Before being assured of the diagnosis, right-sided pleurisy, pneumonia (especially in the young), cholecystitis, acute gastrointestinal indigestion, femoral and iliac thrombosis, appendicitis, peritonitis without perforation cystitis, rupture of a mesenteric gland, or even hemorrhagic exudation into the abdominal muscles (Zenker's degeneration) should be considered. Even then mistakes in diagnosis will be made. While nature will infrequently close one, two, or even three perforations, the only rational procedure when perforation occurs is operative interference. No case is too desperate for the attempt. Not infrequently, in the so-called mild cases, the patient succumbs, while very ill patients recover. The diagnosis made, time for operation has arrived; its important point is rapidity. Closure of the perforation and drainage is all that is needed; from fifteen to twenty minutes should suffice.

64. **Catarrhal Deafness.**—Lautenbach considers those cases of deafness often termed "dry" cases as distinguished from the results of suppuration—cases in which the drum-head is unruptured; when the deafness is not of centric or nervous origin, not caused by the direct action of toxic agents, nor the result of injuries. Nose disease is practically always the cause of catarrhal deafness. Nose diseases are usually curable and easily controlled in the early stages, and treatment should be persisted in until this is accomplished, but they are difficult to cure when of long standing. The proper way to avoid catarrhal deafness is to cure the nose in the first stage before the ears become affected. This is the best treatment and is prophylactic, should the ear disease be present and in its incipiency. In the second stage, treat the nose vigorously and treat the ears carefully and persistently until a cure is effected. This is next to the best method and is practically always positive in its results. Should the ear disease be of long standing, treat the nose, but be sure to treat the ears vigorously and persistently, using both ability and patience to the greatest possible extent until the maximum of hearing and comfort is attained in that particular patient. Afterward see the patient at regular intervals of from three to six months, in order to see that there may be no retrogression. If this occurs, commence treatment anew. In this class of cases this is the best that can be done. The results may not be so favorable as we may desire, but under the conditions they are the best attainable. It is to avoid this third stage that we should devote our best efforts. In the first stage, that of disease of the nose only, we can be sure of a cure; in the second stage, we can usually be pretty sure of a cure. It is in one of these two stages that the case should be carefully and persistently treated. In the third stage, the progress of the disease can be stopped and usually the hearing can be improved; the measure of gain depending on the form the disease has assumed and the length of time it has existed.

Pennsylvania Medical Journal, Athens.

April.

61 Tuberculosis of the Gastrointestinal Tract. J. A. Lichty, Pittsburg.
62 Pleurisy with Effusion. J. E. Rigg, Wilkinsburg.
63 Removal of Cataract Without Iridectomy. J. E. Willetts, Pittsburg.
64 Thoughts as to the Cause and Cure of Catarrhal Deafness. L. J. Lautenbach, Philadelphia.
65 Reduction of Maternal and Infantile Mortality in Private Obstetric Practice. D. P. Rettew, Coatesville.
66 Mastoiditis. F. W. Frankhauser, Reading.
67 Autointoxication—Etiology and Diagnosis. I. N. Snively, Philadelphia.
68 Recovery, Without Operation, from Perforation of the Intestine in the Course of Typhoid Fever; Death from Hemorrhage. J. H. Musser, Philadelphia.
69 *Carbonate of Creosote in Pneumonia. C. P. Stackhouse, Wilkesbarre.

69. **Carbonate of Creosote in Pneumonia.**—Stackhouse finds that carbonate of creosote is of decided value in both the bronchial and lobar forms of pneumonia. In mild cases, if the patients are seen early, they are practically well in 24 hours. In severe cases, there is usually a response within 24 hours and normal conditions are reached in from 2 to 5 days by lysis. Complications are rare, and if present are mild. Convalescence is shortened. Children respond more promptly than adults.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

May 20.

1 *Causes and Treatment of Edema. J. D. Mann, Salford Royal Hospital.
2 Treatment of Purulent Cavities. R. H. Woods, Dublin.
3 Frontal Sinus Empyema Followed by Subdural Abscess. A. J. Martineau, Brighton.
4 *Remarks on Complete Prostatectomy Founded on Fifteen Cases. J. L. Thomas, Cardiff.
5 Series of 60 Cases of Total Enucleation of the Prostate for Radical Cure of Enlargement of that Organ. P. J. Freyer.
6 *Treatment of Tuberculosis and Tuberculin Inoculation. T. W. Brown, Wallington.
7 *Treatment of Seasickness. J. M. Sharpe, R. M. S. *Ultonia*.

1. **Edema.**—Mann discusses the various theories of the causation of edema, and details the treatment of this condition in full. In cardiac edema, when the heart alone is at fault, physiologic rest is the most potent of all remedial agents; but in most cases of failure of cardiac compensation, rest alone is insufficient to restore it. Of drugs he prefers digitalis to strophanthus. When the incompetent kidneys fail to respond to the stimulus of diuretics, hot air baths and vapor baths must be resorted to. He advises against allowing the patient to drink copiously of water during the administration of the bath, because the water thus drunk is added to that which is already retained, and, therefore, in proportion to its amount, it neutralizes the remedial action of the bath. Regulation of the diet is also of importance. The indications are to avoid excess of proteids and of such dietetic substances as are likely to irritate the renal epithelium or to increase the retention of water. The quantity of liquid allowed to dropsical patients with Bright's disease should be determined by careful consideration of the conditions involved. The plan frequently adopted of causing the patient to drink copiously of liquids in order to promote the elimination of end-products is fallacious on two grounds: First, the kidneys are incompetent to excrete urine of normal molecular density, consequently it is poor in solid constituents; second, the fact that edema is present indicates a tendency to retention of water which lays under contribution the whole of the liquid imbibed, leaving but a small proportion of the excess to act as the vehicle for carrying away effete products in the urine, so that the edema is increased in place of the tisues being flushed out. On the other hand, undue restriction of liquids impedes the

output of a certain proportion of solid constituents which the kidneys are still competent to eliminate, provided that the volume of urine be not arbitrarily checked. When the volume of urine is ample, the intake of liquid usually needs no restriction with scanty urine, the intake should be adjusted by comparing daily the intake with the weight of the patient; increase in weight would suggest restriction of intake. It is better to aid diuresis by a sufficiency of water than to attempt to induce it by copious imbibation.

4. **Prostatectomy.**—Thomas reports on 15 prostatectomies—13 suprapubic and 2 perineal—with 2 deaths, 1 the result of operation, occurring 48 hours afterward, and the other due to pneumonia, about nine days after operation. The ages of his patients varied from 56 to 77. The two patients who died were operated on by the suprapubic method. Thomas says, speaking of the use of antiseptics in these operations, that weak antiseptic solutions for washing out the bladder are only a source of local irritation, plus the possibility of being absorbed and throwing unnecessary tax on the eliminating organs. Sterilized salt solution is better for irrigation, because the beneficial effect is really due to the mechanical removal of surgical dirt. Antiseptics to be of any germicidal value must be strong, and for suprapubic operations on the bladder pure tincture of iodin poured into the bladder (2 to 4 drams) through the suprapubic opening is an excellent preparation to correct septic conditions either at the time of operation or at subsequent dressings. It is better than any powder, he states, because it runs into all the nooks and crevices, and comes into contact with the entire field of operation.

6. **Tuberculosis and Tuberculin.**—Brown reports a case of tuberculous ulceration of the bladder which, failing to respond to antiseptic and constitutional treatment, was treated with tuberculin, Koch's TR. Beginning with .04 mg., the dose was raised gradualy to .25 mg., which was continued, every other day, for a week, when the patient was given .5 mg., every four days, for about one month. The dose was then increased to .75 mg., which was kept up for about one month, when it was increased to 1 mg., which was given once a week, and is still being used. After three months of tuberculin treatment the ulcers in the bladder had healed completely, but there were still present a few scattered nodules. The patient had increased in weight and shows a general improvement.

7. **Treatment of Seasickness.**—Assuming that seasickness is a reflex action of the stomach to a certain stimulus, and that this stimulus enters the brain through the optic tract, Sharpe advises the following treatment, which he has used successfully in 50 cases: Two or three drops of a solution of atropin (4 gr. to the ounce) or other mydriatic were dropped into one eye daily, after a satisfactory examination with the ophthalmoscope, etc., or, when the patient objected, one eye was merely bandaged; thus, by altering the principal focus, the motion of objects on board a ship (which no doubt forms the impulse) is not so uniformly transmitted to the brain.

The Lancet, London.

May 20.

8 Financial Relations Between the London Hospitals and Their Affiliated Medical Schools, and the Bearing of These Relations on Medical Education. H. Morris, London.
9 *Nutrition and Malnutrition. W. H. Allchin, London. (To be continued.)
10 General Cystic Disease of the Kidneys in Brother and Sister; Nephrectomy. E. L. Collis and J. T. Hewetson, Birmingham.
11 *Two Cases of Gangrene with Spontaneous Amputation. E. O. Thurston, Calcutta.
12 Epidemic Cerebrospinal Meningitis and Posterior Basic Meningitis. O. Hildesheim, London.
13 *Pneumococcus Endocarditis Treated by Anti-Pneumococcus Serum. T. J. Horder and H. C. L. Scofield, Edinburgh.
14 *Congenital Elevation of the Scapula. C. R. Keyser, London.
15 Is Man Poltophagic or Psomophagic? H. Higgins, Cambridge.
16 *Influence of Smallpox on Vaccination. J. C. Hibbert, Newcastle-on-Tyne.

9. **Nutrition and Malnutrition.**—This is the third lecture on this subject delivered by Allchin. In it he considers the subject of malnutrition when due to errors in diet, when due to maldigestion and malabsorption, and to perverted metabolism, or to the result of a deficient supply of oxygen, and the most marked of the general structural manifestations of impaired nutrition—atrophy, degeneration and death.

11. **Gangrene with Spontaneous Amputation.**—The two cases reported by Thurston show to what an advanced stage natives of India allow disease to progress before applying for relief. The first case occurred in a man, aged 50, and, judging from the slow onset, was probably due to thrombosis. The amputation, which occurred at about the middle of the forearm, was complete with the formation of a conical ulcerated stump. The second patient, aged 40, had gangrene of the right foot and leg. The leg began to slough, and as the sloughs separated, the patient removed them, until finally only the bones remained from the ankle to the level of the tubercle of the tibia. The gangrene in this case was probably the result of embolism from a thrombosis forming in a weak heart during an attack of fever.

13. **Pneumococcus Endocarditis Treated by Antipneumococcus Serum.**—For five days, during the eighth and ninth weeks of the disease, Horder and Scofield injected 10 c.c. of Pane's serum No. 2. Two days after the last injection signs of nephritis appeared, and six days later the patient died in coma. The authors are of the opinion that the serum was given too late to be of any service, and that death was not the result of the treatment, because death with the symptoms of a terminal nephritis is a common event in malignant endocarditis.

14. **Congenital Elevation of Scapula.**—On examination of his patient, a girl, aged 9 years, Keyser found the left scapula to be two and a half inches higher than the right, but the bone of the same size as its fellow. Movement of the arm, both active and passive, was normal. There was no osseous bridge to be felt between the vertebral border of the scapula and the spine, nor was there any lateral curvature of the spine. The spinous process of the third dorsal vertebra, however, felt thicker than normal and was apparently displaced slightly to the left. The inferior angle of the scapula was on a level with the interval between the sixth and seventh dorsal spines. There was no paralysis of any muscle. The *x*-rays showed nothing abnormal and the two arms were of the same length. The child's head was rickety in appearance, but there were no other signs of rickets or any other deformity. The teeth were slightly notched and ridged, as is generally the case in ill-nourished children. As the child suffered absolutely no pain or inconvenience from her condition, no active treatment was adopted, especialy as the deformity was barely visible, except when the patient was undressed.

16. **Influence of Smallpox on Vaccination.**—In 20 cases of smallpox in which the patients were vaccinated or revaccinated by Hibbert after the appearance of the eruption, 11 vaccinations or revaccinations were successful. No second attempt at vaccination or revaccination was made in the unsuccessful cases. In the greater proportion of the successful cases well-marked typical vaccine vesicles appeared at the site of vaccination or revaccination. These vesicles became evident from the fourth to the sixth day after the operation and ran the usual course. In some cases, instead of the typical vesicle there was merely an indurated raised papule. In two cases of semiconfluent smallpox, one patient was revaccinated on the first day and the other on the third day of the smallpox rash; the vaccine vesicles were extremely well marked. Of the 11 successful cases 10 patients were vaccinated or revaccinated on one or other of the first four days of the smallpox eruption. The eleventh patient was not revaccinated until the fourteenth day of the smallpox eruption. Four raised indurated papules at the sites of the operation gave evidence of successful revaccination in this case. Hibbert could not detect that vaccination or revaccination when performed after the smallpox eruption had appeared had any definitely modifying influence on the rash or on the course of the disease.

Journal of Tropical Medicine, London.

May 15.

17 Note on Yaws. G. Pernet.
18 *Leprosy and Christianity. A. Neve.
19 *Notes on the Fish Theory of Leprosy. A. Neve.

Bulletin de l'Académie de Médecine, Paris.

20 (Year LXIX, No. 26.) *Modified and Sterilized Milk.—Le lait de vache sterilisé, sa valeur nutritive. R. Brunon.
21 Discussion sur la paralysie générale et la syphilis. Raymond, Fournier and Lancereaux.

22 (Nos. 17 and 18.) Cas de trypanosomiase chez un blanc (in a white man). A. Laveran.
23 (Nos. 19 and 20.) *Recherches microbiologiques sur la syphilis. E. Metchnikoff and E. Roux.

18. **Leprosy and Christianity.**—In refutation of the claim made by Jonathan Hutchinson that leprosy and Christianity go hand in hand, Neve calls attention to the fact that in northern India less than 5 per cent. were Christians before they became lepers, and that only one or two cases could be found in which adult converts a few years later became leprous. Of 80,000 Christian kols in Chota Nagpur there are none who are now lepers and were Christians before they were lepers. In Purulia asylum the 503 Christian inmates all became converts after they were lepers. There are no Roman Catholics among the Christian lepers. Of 38,500 Roman Catholic converts elsewhere, only 7 are lepers, all of them leprous before baptism. Not more than 1 per cent. of Christian lepers live out of asylums, so that all Christians who are lepers are registered as such. In the Punjab, where there are 39,000 native Christians, apart from those actually converted in the asylums, Neve discovered only one case of leprosy. In Madras there are 27,485 Jains, of whom 14 were lepers, i. e., 5 per 10,000, as against 4 per 10,000 among Christians, and this last figure is greatly in excess because many of the Christian lepers became lepers before conversion. Among the Brahmins, who are strict vegetarians, leprosy exists in the ratio of about 4 per 10,000.

19. **Fish Theory of Leprosy.**—In this paper Neve shows that the eating of fish has very little, if anything, to do with the causation of leprosy. In the districts of India where fish forms the principal diet of the inhabitants, there are very few cases of leprosy, and in some districts none, while in others, where fish is eaten seldom, leprosy prevails to an alarming extent.

20. **Modified and Sterilized Milk.**—Brunon describes the workings of the charity milk supply station at Rouen which is supplemented by "nursing consultations" twice a week. Here the infants are weighed, their progress supervised, and the mothers advised. The milk is derived from a model dairy where the cows are curried every day and the milkers scrub their hands and clean their nails before milking. The milk is filtered through sterilized cotton and keeps for several days. It is modified for weak infants by withdrawing a third from below and replacing it with an equal quantity of water to which 1 gm. of salt and 10 gm. of sugar to the liter have been added. Four years of experience have demonstrated to his satisfaction that the nutritive properties of a milk should be estimated from the condition of the infants taking it. Also that milk sterilized by heating to 192 C. (215.6 F.) for forty-five minutes retains its nutritive value. A frequent cause of enteritis in infants is that too large amounts of milk are given. The general tendency is to feed too much.

23. **New Spirochaete in Syphilis.**—Metchnikoff's communication was mentioned on page 1790. He is convinced that the data which he presents plead seriously in favor of the assumption that syphilis is a chronic spirillosis, produced by Schaudinn's *Spirochaeta pallida*. He found this spirochaeta in 8 cases of syphilis (4 in man and 4 in monkeys), but could not find it in 2 other human subjects and in 2 other monkeys. He never found it alive. The Giemsa stain was used, applied for sixteen hours or more. When more rapid results were desired, Marino's technic was followed. This consists in mixing a methyl alcohol solution of azure blue with a weak aqueous solution of eosin. The result is not so distinct as with the Giemsa stain, but the positive diagnosis can sometimes be made with it in fifteen minutes. He found no traces of these spirochaetes in a number of non-syphilitic cutaneous affections examined. It has proved impossible to date to obtain pure cultures. The *British Medical Journal* states that Levaditi has discovered the new spirochaete in the lesions of a child suffering from congenital syphilis. (See abstract below.)

Presse Médicale, Paris.

Last indexed, page 1719.

24 (No. 33.) *The Enema in Art.—Iconographie du lavement. P. Desfosses.
25 La spermatorrhée et sa thérapeutique. Ré-éducation psychique et traitement somatique. P. E. Levy.
26 Traitement des adénites cervicales tuberculeuses. R Siegel.
27 (No. 34.) *La "scarlatinoide métadiphthérique." A. B. Marfan.
28 Pro et contra les crèches. V. Bué (Lille).
29 (No. 35.) *La "Mutualité Maternelle" de Paris. H. Legrand.
30 *L'anesthésie par l'atropomorphine et le chloroforme. T. Tuffier.
31 Causes et évolution du travail de l'avortement (labor in abortion). E. Bonnaire.
32 (No. 36.) Méningites cérébrospinales à meningocoques. A. Chauffard.
33 (No. 37.) "King's Evil" in France and England.—Le mal du roi. Le toucher des écrouelles en France et en Angleterre. L. Landouzy. Illustrated historical sketch.
34 Le dispensaire antituberculeux de Lyon. J. Courmont.

24. **The Enema in Art.**—This article is a supplement to one on the same subject published last April. A number of quaint old tiles, engravings, etc., have since been found, representing the use of the time-honored instrument in past centuries. It is said that the rectal syringe was suggested by the Egyptian ibis, the sacred bird with a very long neck, which has been depicted in Egyptian art with its beak inserted in its anus.

27. **"Metadiphtheric Scarlatinoid."**—Marfan has coined this term to express the syndrome of the erythema which is liable to develop in a patient convalescing from diphtheria. The general symptoms are frequently so severe that he is inclined to regard it as an actual morbid entity, a new malady grafted on the declining diphtheria. The onset is abrupt, with many symptoms resembling those of scarlet fever, including temperature and swelling of the tonsils and glands. In some cases he has observed three recurrences. The erythema generally subsides in two or three days, but the temperature is liable to remain high until from the third to the sixth day. He presents arguments to prove that this scarlatinoid is not due to the use of the curative serum. It never occurs in healthy children injected with antitoxin, and it spreads in series of cases. He regards it as an associated or secondary infection, and discusses whether or not it should be classed with the infectious erythemata or whether it is a true scarlet fever grafted on the diphtheria, but modified in its course by the preceding disease. It is impossible to differentiate positively true scarlet fever from this metadiphtheric scarlatinoid. The fact that the latter has been observed only since serum treatment has been instituted has led to its being considered as due to the serum. This connection is only apparent, however; in the ante-serum days the patients were apt to die before this stage was reached. Since Marfan has been impressed with the resemblance and possible identity of this infectious erythema with scarlet fever, he has the patients isolated at once at the first symptoms, and every child entering the diphtheria ward is isolated for five days as if known to have been exposed to scarlet fever. Since these precautions have been taken, the number of cases of this erythema have been reduced to almost zero, while urticaria after injections of antitoxin has persisted in about the same proportions. This is another argument in favor of the infectious nature of the erythema. Its course is generally short and comparatively mild. He mentions, in the course of his article, that diphtheria under serum treatment is quite a different disease from the classic type of a few years ago.

29. **"The Mutual Maternal" Association.**—The members of this society pay about sixty cents a year, and these dues entitle them to $2.40 a week for the first four weeks after a childbirth, with an additional $2 a week if they nurse the child. During the last ten years over four thousand mothers were thus aided, and the mortality of the infants has been reduced to 6 per cent., while the birth rate has risen.

30. **Mixed Anesthesia with Atropin-Morphin and Chloroform.**—Tuffier relates his experiences with mixed anesthesia a few years ago, and gives his reasons for abandoning the method of mixed anesthetics. The patient, under the influence of morphin, seems more as if he had been rendered unconscious by a blow from a club rather than merely put to sleep. The vital processes are at such a low ebb, Tuffier remarks, that he always fears that the organism might be unable to rally in case of any untoward occurrence. No mishap ever occurred in his experience, but this impression has been one of his

reasons for discarding the method. The patients in 2 of his cases did not wake for an hour or so after the operation. This prolongs the surgeon's anxiety unnecessarily.

Revue de Chirurgie, Paris.

Last indexed page 1814.

35 (XXV, No. 5.) *De la tuberculose et des sténoses tuberculeuses du pylore. Ricard and Chevrier.
36 *Des kystes hydatiques de l'abdomen. Mabit (Buenos Ayres).
37 *Contribution à l'étude des impotences fonctionelles consécutives aux traumatismes articulaires. Mally and L. Richon. (Continued from preceding volume through Nos. 3 and 4, and concluded.)
38 La chirurgie du coeur (of heart). P. Guibal. (Continued.)
39 *La tuberculose du coccyx. H. Caubet. (First part in preceding volume.)

35. **Tuberculosis of the Pylorus.**—Ricard and Chevrier have been able to find in the literature 107 cases of tuberculosis of the stomach, but only 16 of tuberculous stenosis of the pylorus. The duodenum was involved in 8.42 per cent. of the gastric cases and in 25 per cent. of the pyloric. The microscopic and macroscopic characteristics of the tuberculous lesion may become entirely obliterated under the action of the gastric juice. In such cases, the nature of the process may be determined from involvement of the surrounding tissues. Tuberculous stenosis of the pylorus is primary in about half the cases, and in other respects it differs from tuberculosis of the rest of the stomach. The ulcerations at the pylorus are due to the direct action of the tubercle bacillus. Elsewhere in the stomach the ulcerations are a result of a gastric "tuberculinosis," the effects of the tuberculous toxin. Such lesions may develop also at the pylorus, but this is the chosen site for the true tuberculous ulcerations. The article is continued. It is based on 4 cases personally observed.

36. **Hydatid Abdominal Cysts.**—Mabit has had occasion to operate in 18 cases of hydatid cysts. Eight were in the right lobe of the liver, 3 in the left, 2 in the spleen, 3 in the omentum and 2 in the mesentery. He operates by uncovering the cyst, walling it off with compresses, and then puncturing. When most of the fluid has escaped, he draws the cyst out and opens it. The mother cyst is removed and the lips of the incision are then everted and the interior is rinsed with a strong jet of a weak solution of boric acid. This flushes out the cavity and washes away all débris and daughter cysts. He then sponges the cavity dry and examines it for fistulas and bleeding points. It is then detached as completely as possible from adhesions and everything floating—that is, not attached anywhere—is removed and the abdomen sutured in three tiers. The results have been perfectly satisfactory in all the patients treated by the above technic. The 18 cases are described in detail. The affection is so common in Argentina that it is recognized early; none of the cysts were very large.

37. **Functionally Impotent Joints After Traumatism.**—Mally and Richon call attention to the reflex amyotrophia from changes in the spinal trophic centers liable to follow a traumatic articular affection. They conclude that in all cases of functional impotence following an accident to a joint the concomitant spinal-cord affection must not be overlooked. Besides the familiar symptoms of reflex atrophy, the electric resistance will be found below that of the sound side. The spinal cord exhibits lesions corresponding to the joint affection. In the first or dynamic stage of the lesions in the spinal cord there are no changes in the cells discoverable by our technic, and this phase is curable. After the motor centers become appreciably affected the muscular fiber succumbs to degenerative atrophy, and the process is then incurable. This conception of reflex amyotrophia originating in a joint is important for general surgical pathology. It explains the pathogenesis of a large number of joint affections, such as the passive displacement of the humerus, painful valgus flat foot, painful acquired hip-joint deformities, the genu valgum and scoliosis of adolescents, etc. The extensive experimental research reported established that there is no necessary relation between the intensity of the articular affection and the gravity of the reflex amyotrophia induced by it. There is, however, a certain connection between the duration of the joint process and the gravity of the reflex amyotrophia. The more prolonged the irritation in the joint the more pronounced the lesions in the spinal cord and the greater the probabilities of their being incurable. Reflex amyotrophia is generally severer in the legs than in the arms, as the mechanical irritation from walking, during convalescence, is more intense than from any exercising of the arms. If the joint affection recurs after apparent recovery, the amyotrophia engendered by the joint affection generally leaves some indelible traces, easily detected by electric exploration. The prognosis is more serious the greater the difference between the response to electric tests on the affected and on the sound side. The writers conclude their extensive article with suggestions as to treatment, commending faradization or static electricity for the mild form of reflex amyotrophia. When there are considerable spasmodic phenomena, local faradization is dangerous. Static electricity should be substituted and all forcible measures avoided. Full particulars of 36 cases with results of treatment are tabulated.

39. **Tuberculosis of the Coccyx.**—Caubet reviews the details of 27 cases published in the literature or personally observed. The only rational treatment, he remarks, is radical extermination of the entire process involving the bone. This treatment is logical, as the tuberculous affection in the coccyx is generally primary and the lesions do not display any tendency to invade the neighboring organs. Any intervention less radical than entire suppression of the focus is a mere waste of time. The various points for superior technic in resection of the coccyx are analyzed and summarized.

Archiv f. Gynaekologie, Berlin.

Last indexed page 1648.

40 (LXXV, No. 2.) Ueber Decidua-Cellen in der Cervix uteri bei intracorporaler Gravidität. M. Blumberg.
41 *Digestive Disturbances in Early Infancy.—Zur Kenntnis der Verdauungs-Störungen im ersten Lebensalter. F. Kermauner.
42 Formation of Perineal Flap.—Die Lappendammbildung bei completer Ruptur, bes. die Lawson Tait'sche Methode. W. Nagel.
43 Instrumental Dilatation Should Not be Recommended to the General Practitioner.—Darf die Bossi'sche Methode dem prakt. Arzt empfohlen werden? A. Dührssen (Berlin).
44 *Evacuation of Glands in Operating on Uterine Cancer.—Der Werth der Drüsenausräumung bei der Operation des Uterus-Carcinoms. K. Baisch (Tübingen).
45 *Vaginal Cancers.—3 Fällen von Scheidenkrebs. K. Schmidlechner (Budapest).
46 Partus bei Uterus duplex separatus und Vagina septa. E. Pollak (Vienna).
47 *Internal Secretion of Ovary and Placenta and Their Importance for the Functions of the Mammary Gland.—Die innere Secretion von Ovarium und Placenta und ihre Bedeutung für die Function der Milchdrüse. J. Halban.

41. **Digestive Disturbances in Early Infancy.**—Kermauner states, from his own experience and that of others, that more than 26 per cent. of the infants who succumb to gastrointestinal disturbances are less than a month old. The infection must have taken place during the first days of life. If infection during the first week can be prevented, the child then acquires strength and produces antibodies which, to a certain extent, protect it against infection later. It is not the lack of proper food so much as the lack of proper care otherwise that is responsible for this high morbidity during the first week. Almost all the infants in his charge at the Heidelberg maternity showed the staphylococcus albus in their stools. This infection remained latent or induced dyspepsia accordingly as the infants were kept clean and warm or were allowed to become chilled. The attendants are required to wash their hands each time after changing the diaper of an infant. Heubner even goes so far as to have different attendants take care of the upper and of the lower parts of the body of the infant. The cotton used in powdering is thrown away and a fresh piece taken for each child. The infants suck through a nipple guard to prevent infection from this source, and the mothers are taught to keep the nipple clean and not to touch the rubber guard. The low temperature of the newly born is combated by wrapping in warm woolen blankets and by giving the first bath at a temperature of 40 C. (104 F.), leaving the child in the water for fifteen minutes, and keeping it warm afterward with hot water bottles in the crib. To avoid exposing the infant, the umbilical cord is not inspected until the fourth day after it is dressed.

Cleanliness and warmth are the principal aids in tiding the infant past its defenseless stage and in preventing the latent microbism from developing gastrointestinal disturbances.

44. **The Glands in Uterine Cancer.**—Baisch remarks that the findings in operations as well as in the cadaver show that the glands are affected by metastases along the physiologic anatomic routes, following a regularly progressive course. The metastasis does not skip about arbitrarily. The glands are found affected in about a third of the cases of operable cancer of the cervix. He reviews the results of 125 operations for uterine cancer with the autopsy findings in 18 patients who succumbed soon after the operation, comparing them with those published by others. They demonstrate the necessity for seeking and removing affected glands, and also that this can scarcely be done by way of the vagina.

45. **Vaginal Cancer.**—Three cases of vaginal cancer in pregnant women are reported and 13 from the literature are summarized. The patients in the first group were from 20 to 33 years old, and when the age is mentioned in the cases on record it was never over 41. Vaginal cancer is particularly malignant and grows exceptionally rapidly during a pregnancy. Five of the patients died from septic infection during the puerperium, and the others died in less than a year from recurrence after removal of the neoplasm. Living children were born in 10 cases. In treatment, perineal total extirpation of vagina and uterus offers the best chances for success, but if the case does not seem operable palliative measures should aim to relieve and to deliver the child at term. Various contingencies are described with the special technic for each.

47. **The Mammary Gland and the Internal Secretion of Ovary and Placenta.**—Halban points out that the development of the breast coincides with that of the ovaries. At first there is an "embryonal impulse" imparted by substances from the maternal organism. Then comes the "puberty impulse," connected with the development of the ovaries, then follows the "menstruation impulse," the breasts enlarging at each menstrual period. During pregnancy and nursing the ovaries remain quiescent. The "pregnancy reaction" on the part of the mammæ is not due to influences from the fetus, as it persists after the death of the latter. He attributes it to the influence of the placenta, the trophoblast and the chorionic epithelium, assuming that both placenta and ovaries have an internal secretion analogous in their effects, but that the former is stronger in its action. Both make the mammæ increase in size, and as soon as their influence is removed the enlarged gland settles down to increased secreting functions. During pregnancy the placenta assumes the task previously accomplished to a limited extent by the ovary. Experiences with hysterectomized patients and others have shown that the milk secretion can not be due to the action of the uterus nor to nervous impulses, as it continues after hysterectomy and after the nerves leading to the mamma have been severed. Puerperal involution of the uterus is a true atrophy following the loss of the placenta. The milk secretion enters on the program when the action of the placenta has ceased or nearly so. The milk secretion is disturbed again when the woman enters on a new pregnancy and also by menstruation. The ovary and the placenta alike induce hyperplasia of the mammæ and inhibit the secretory function. Castration removes this inhibition and is advantageously applied to milch cows in dairies. Osteomalacia is an infection which frequently develops during pregnancy and may subside afterward, or if it persists it may be cured by removal of the ovaries. Halban cites a number of facts from comparative anatomy and physiology to sustain this assumption in regard to the etiology of the secretion of milk. He has been elaborating this theory for several years and has become more and more convinced in the course of his research of the close relationship between the ovary and the placenta and that both are directly concerned in the physiology of the mammary gland, and especially in the secretion of milk.

Centralblatt f. Chirurgie, Leipsic.

48 (XXXII, No. 17.) *Treatment of Prolapsed, Gangrenous Hemorrhoidal Nodules.—Zur Behandlung vorgefallener brandiger Hamorrhoidalknoten. R. v. Baracz.

49 Eine neue Nadel (needle). P. Loopuyt (Rotterdam).

50 Success of Bier's "Congestion Hyperemia" in an Acute Suppurative Process.—Ueber eine Beobachtung im Gefolge der Bier'schen Stauungshyperämie bei akut eitrigen Prozessen. Leser (Halle).

Centralblatt f. Gynäkologie, Leipsic.

51 (XXIX, No. 17.) Mechanical Reasons for Rotation During Delivery.—Zur mechanischen Begründung des Rotationsvorganges der Geburt. H. Ostermann.

48. **Treatment of Prolapsed Gangrenous Hemorrhoidal Nodules.**—Twenty years' experience has only confirmed von Baracz in the advantages of prompt amputation of the gangrenous portion into sound tissue and thermocauterization of the stump. He has never had any hemorrhage, stricture or recurrence with this technic.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

52 (XXXI, No. 18, May 4.) *Protecting Antityphoid Vaccination. —Zur Schutzimpfung gegen Typhus. R. Bassenge and M. Mayer.

53 *Treatment of Cardiac Insufficiency.—Behandlung der Herzinsuffizienz. A. Hoffmann (Düsseldorf). Postgraduate lecture.

54 Zusammenwirken normaler und immunisatorisch erzeugter Ambozeptoren bei der Hämolyse. H. Sachs.

55 *Epidemic Cerebrospinal Meningitis.—Genickstarre in Ober-Schlesien. Radmann.

56 *Traumatic Affections in Telephone Tenders.—Ueber funktionelle nervöse Störungen bei Telephonistinnen nach elektrischen Unfällen. G. W. Wallbaum (Berlin).

57 *Ueber Spirochaeten-Befunde im Lymph-Drüsen-Saft Syphilitischer. F. Schaudinn and E. Hoffmann.

58 Behandlung der Furunculose und Folliculitis mit Hefe-Präparaten (yeast). A. v. Kirchbauer.

59 Schiller als Arzt (as physician). H. Magnus. See page 1627.

52. **Vaccination Against Typhoid.**—Mayer discovered some time ago that it was possible to derive a vaccine from bacilli by shaking them up for a certain length of time in distilled water. The filtrate is free from the bacteria themselves, but it contains a potent vaccine. With Bassenge he has been applying this method to the production of a vaccine against typhoid fever. A single subcutaneous injection of 2 c.c., which contains the effective substances of an entire culture, induces such a production of antibodies that the blood displays marked bacteriolytic properties even six months afterward. The vaccine is a yellowish limpid fluid, durable and dosable, while the reaction to the injection is very slight.

53. **Treatment of Cardiac Insufficiency.**—Hoffmann expatiates on the importance of the functional diagnosis, and whether the insufficiency is relative or absolute. Much depends on the effort demanded of the heart by the mode of life, etc. He regards baths as worth more for prophylaxis than in treatment of heart disease. His experience with the sinusoidal current and even with carbonated baths has not answered his expectations. The remote results of balneologic treatment should be published by physicians more than hitherto. He regards the combination of baths and Zander exercises as absolutely dangerous. When signs of absolute insufficiency appear, rest in bed is necessary, with an ice bag to the heart region, suspended from a hoop spanning the bed, so that its weight does not rest on the heart. The ice bag is not indicated in cases without acceleration of the heart action. If digitalis fails, calomel may prove useful, given in large doses for several days. The diet should be light, preferably fluid, but "thirst cures" do no good. The main point in treating cardiac insufficiency is in the diagnosis and treatment of the underlying affection.

55. **Epidemic Cerebrospinal Meningitis.**—Radmann's article was summarized in the news columns on page 1627. He suggests that the disease may be transmitted by vermin, as he noticed that flea bites were numerous on the stricken children.

56. **Functional Traumatic Nervous Affections in Telephone Attendants.**—Wallbaum analyzes the severe functional disturbances resulting from an electric shock received while tending the telephone. If the person calling up "central" rings again while the wire is being connected, before the operator has had time to get out of the circuit, the result is a slight electric charge received by the operator. It scarcely ever amounts to more than 10 volts, and usually is hardly noticed by the operator, although the receiver is bound to her head. Occasionally the shock is very severe, and serious functional dis-

turbances are liable to result. Five typical cases are reported in detail to illustrate the points learned in the course of his extensive experience. First and foremost is the warning that those predisposed by heredity or for other reasons to nervous and vascular affections should be excluded from service as telephone operators. The syndrome resulting from the shock generally commences with fainting, clonic convulsions, swelling of the extremities, especially on the affected side, and disturbances in sensibility. This is followed in time by headache and vertigo, with neuralgia-like pains here and there, especially during cold and stormy weather, with tonic and clonic muscular spasms, colic pains in the abdomen and various paralyses. He attributes to paralysis of the vascular innervation the edematous swellings and extravasation. The mental functions also suffer, the power of concentration becoming more or less impaired. Irregularity in the heart action was a feature of all his cases, as was also a suspicion of hysteria. A person thus affected should not resume the service for a long time even after apparent recovery. Suggestion proved the best means of curing the paralyses and static electricity for the neuralgic pains. Faradization is contraindicated, as too irritating. Ordinary drugs proved ineffectual against the headaches; cold compresses and static electricity were more successful. From ten to fifteen minutes in a bath before retiring proved the best means to combat the insomnia. Carbonated baths were useful in restoring the general metabolism to normal.

57. **New Spirochaete in Syphilis.**—The finding of the *Spirochaeta pallida* in 8 cases of syphilitic lesions is mentioned above, abstract 23. Schaudinn is a member of the Imperial Council of Health, and Hoffmann is a retired army medical officer and privat docent, both trained and accurate observers, especially in the study of protozoa and spirochaetes. The *Spirochaeta pallida*, as they have named the new micro-organisms, was found in smears of extirpated inguinal glands from 2 cases and in the gland juice obtained by puncture in the 6 other cases. The syphilis was from one to four months old. The new spirochaete is almost transparent and extremely motile, tapering to a point at each end. They found two varieties of spirochaetes, the larger one taking the stains readily and found only in the superficial lesions, while the pale, delicate, more thread-like and much smaller *Spirochaete pallida* could be found not only on the surface, but in the depths of the primary and secondary syphilitic glandular lesions. (The illustrated description of the new spirochaete appears in the last number of the *Arbeiten a. d. kaiserl, Gesundheitsamt*, xx, page 527. The only technic that showed up the *Spirochaete pallida* was the following: The smears from fresh syprilitic lesions are made as thin as possible on the cover-glasses, and are fixed in absolute alcohol for about ten minutes after being thoroughly dried. The cover-glasses are then left for sixteen to twenty-four hours in a freshly made mixture of 12 parts Giemsa's eosin solution (2.5 c.c. of a 1 per cent. solution of eosin to 500 c.c. water); 3 parts azure I (solution 1 to 1,000 water), and 3 parts azure II (solution 0.8 to 1,000 water). After briefly rinsing in water the cover-glasses are dried and mounted in oil of cedarwood. This technic shows up the pale spirochaete well. In one of the illustrations seven of the corkscrew spirals are seen in the field, magnified only 1,200 times.)

Münchener med. Wochenschrift, Munich.

60 (LII, No. 16.) Entwicklungsstörungen, Fötalismus und Infantilismus (disturbances in development). A. Hegar.
61 *Suction Applied in Treatment of Inflammations.—Ueber die Behandlung entzündlicher Erkrankungen mittelst Saugapparaten. R. Klapp.
62 Zur Differentialdiagnose zwischen Hernia diaphragmatica und Eventratio diaphragmatica. H. Hildebrand and O. Hess.
63 *Combined Salve and Phototherapy.—Erfahrungen bei Behandlung mit elektrischem Licht unter besonderer Berücksichtigung einer neuen Lichtsalbenbehandlung bei Hautkrankheiten. L. Steiner.
64 Modified Finsen Lamp.—Ueber Verbesserungen der Finsen-Reynlampe nebst Bemerkungen über Lupusbehandlung. Fr. Bering.
65 Ophthalmology of the General Practitioner.—Die Augenheilkunde des praktischen Arztes. Salzer.
66 Zur Diagnose des Trachoms. Junius.
67 *Hysteric Traumatic Affections in Telephone Attendants.—Hysterische Unfallerkrankungen bei Telephonistinnen. H. Bohmig.
68 Bauchpresse und Torsion des Samenstrangs (straining and torsion of spermatic cord). H. Landau.
69 *Verwendung des Santonins gegen Lungentuberkulose. C. Tollens.

61. **Treatment of Inflammatory Affections with Suction Apparatus.**—Bier's success in treating infectious processes on the limbs with his technic of stasis hyperemia was chronicled in these columns recently. In Klapp's communication from the same clinic, the experiences with suction apparatus to apply the same principle to inflammatory processes on the trunk are described and illustrated. On the extremities, the desired result is obtained by applying a tourniquet to the limb. On the trunk it is necessary to use aspirating or suction apparatus. In mammitis, a broad-rimmed glass fits over the breast around its base, and a vacuum is created with an air pump connecting with a cannula through the rubber stopper in the top of the cup or jar. When there is distinct fluctuation in the abscess it is opened with small incisions after local anesthetization with an ethyl chlorid spray, and the glass bell is applied at once. The immediate relief of the pain in all cases of mammitis is one of the greatest advantages of this method of treatment. It aborts early cases and prompt recovery is the rule. Three weeks was the average duration of the 15 cases thus treated, including 13 of puerperal infectious mastitis. At the end of this time the breast had resumed entirely its normal aspect and consistency, without leaving any disfiguring traces. Even infiltrated tissue seems to retain its vitality better under this treatment than by other technics. The milk should be drawn completely with an ordinary breast pump beforehand. It sometimes happened that the application of the suction apparatus promoted the flow of milk, so that where there had been none before the use of the breast pump afterward brought from 50 to 60 c.c. The same principle has been applied to treatment of furuncles, panaritium, abscesses, infected insect bites, etc. One of the apparatus used consists of a broad-rimmed glass tumbler with a large rubber bulb set in the inverted bottom of the tumbler. For the finger he has a cylindrical glass cup with a rubber cuff that fits air-tight around the base of the finger. The vacuum is made with an air pump connected with a spout branching from the cylinder. The results in 100 cases thus treated have been excellent and corroborate all the claims made for this method of treating inflammatory processes. In 4 cases of carbuncle the apparatus was applied for forty-five minutes daily and the pus aspirated through the spontaneous openings. By the third day the carbuncle was soft throughout, the tension relieved and all pain gone. When there is a distinct fluctuation small incisions, not longer than from .5 to 1 cm., are made, or the tip of the pustule is picked off and the aspirator applied at once. The suction should never be violent, usually merely enough to hold the apparatus on the skin. The outcome seems to depend on the care with which the first applications are made. In mastitis, the hyperemia induced should be as intense as the patient can bear without pain, or until the skin over the mamma becomes very red with a slightly bluish tint. He has found it best to remove the stopper of the jar after five or six minutes and to allow the circulation to be restored through the parts for a few minutes before applying the pump again. The patient holds the glass bell against the breast and can regulate the amount of suction to suit herself.

63. **Electric Light Plus Salve Treatment of Cutaneous Affections.**—Steiner describes numerous experiences from Hoffmann's clinic at Leipsic which have established the superior efficacy of a combination of reflected electric light and salve treatment. The results are far better than with either alone. This form of phototherapy seems to act more by the heat generated than by the light rays. The active hyperemia induced is probably the main factor in the results, supplemented by the bactericidal action of the rays. When used with a sulphur or mercurial ointment, eczema, parasitic affections and acne rosacea, etc., were more promptly and favorably influenced than by any other method of treatment in his experience. He gives the details of about three dozen cases.

67. **Traumatic Hysteric Affections in Telephone Girls.**—Böhmig reports 9 cases of neuroses following an electric shock

received while tending the telephone. He examined the young women in from three to twenty-four hours after the traumatism, and has had them under observation for several years. Organic changes were not found in any instance. One case is distinguished by attacks of vertigo on the crossed side, probably due to vasomotor disturbances in the labyrinth. In others, the symptoms involved both sides, and in others only the injured side. The complete picture of the severe neurosis was observed at once after the accident, which speaks against simulation or suggestion as a possible factor.

69. **Santonin as a Remedy for Tuberculosis.**—Tollens learned that santonin is currently used in parts of the orient as a remedy for tuberculosis. His tests on rabbits, based on this fact, showed that santonin has the power to reduce temperature, to induce leucocytosis and to promote respiration by increasing the depth and reducing the frequency of the respirations.

Virchow's Archiv, Berlin.

Last indexed page 1889.

70 (CLXXVIII, No. 2.) Ueber die ersten anatomischen Veränderungen bei Lungen-Phthise (first anatomic changes in phthisis). A. J. Abrikossoff (Moscow).
71 Primäre congenitale Herz-Hypertrophie (of heart). E. Hedinger.
72 Anatomische Untersuchungen über die Aetiologie der Prostata-Hypertrophie. P. Wichmann.
73 Ueber Angiome und sarkomatöse Angiome der Milz (of spleen). Theile.
74 Ueber Psammome der Haut und des Unterhautgewebes (of skin and subcutaneous tissue). M. Winkler.
75 (No. 3.) Die Traktions-Divertikel des Oesophagus. H. Ribbert.
76 Ueber die Arteriosklerose der kleinen Organ-Arterien und ihre Beziehung zur Nephritis. L. Jores.
77 Veränderungen der Aorta bei Syphilis. S. Abramow.
78 Zur Histologie der Arteriosklerose der Pulmonal-Arterie. H. W. E. Ehlers.
79 Fall von Angioma racemosum der Arteria alveolaris inferior. F. Schlagenhaufer.
80 Fall von Chorionepithelioma der Harnblase (of bladder). W. Djewitzki.
81 Fate of Purin Bodies Introduced into the Circulation.—Schicksal der in die Blutbahn gebrachten Purinkörper. W. Ebstein and E. Bendix.
82 Behavior of Leucocytes in Vital Blood Staining.—Verhalten der Leukocyten bei der vitalen Blutfärbung. Rosin and E. Bibergeil.
83 Origin of Blood Plates. H. Hirschfeld. Reply to Presich's Article in No. 1.

Wiener klinische Rundschau, Vienna.

Last indexed page 1490.

84 (XIX, No. 13, April 2.) *Kasuistisches zur Frage der sogenannten essentiellen Nierenblutung (hematuria). H. Schüller.
85 Action of Hemolysins.—Ueber die Wirkung der Hämolysine. K. Landsteiner and M. v. Eisler.
86 *Hematoma of Nasal Septum.—Die Hämatome der Nasenscheidewand, deren Umwandlungen und deren einfache Behandlungsart. E. Baumgarten.
87 (No. 14.) Einige Bemerkungen zu C. Spenglers "neuem Heilverfahren" (treatment with bovine tuberculin). H. Frey.
88 (No. 16.) Compressing Diaphragm.—Die Faszikelrohrblende. Eine verbesserte Kompressionsblende. I. Robinsohn.
89 Contrivance to Hold Roentgen Wires Taut.—Eine Röhrenkabelspannvorrichtung. R. Kienböck.
90 Radioscopy of Heart with Weak Electric Current.—Technik der Herstellung fast orthodiagraphischer Herzphotogramme vermittels Röntgeninstrumentarien mit kleiner Elektrizitätsquelle. A. Kohler (Wiesbaden).

84. **Essential Hematuria.**—Schüller reports a number of cases to show the errors liable to be made on the assumption of essential hematuria. In one case, unilateral hematuria was for a long time the only symptom of a chronic, severe parenchymatous nephritis revealed later by operation. Two cases demonstrate the unreliability of unilateral hematuria as a sign of unilateral lesions. In one patient, the hematuria occurred at one time exclusively on one side and then exclusively on the other. In five pregnancies, it appeared always at the twenty-second week, but persisted chronically after a sixth. In another case, the unilateral hematuria was the first and for more than a year the only symptom of advanced bilateral nephritis. Albumin and tube casts did not appear until after two years of hematuria. He regards it as a sign of nephritis in every case, involving either one or both kidneys, even when the hematuria is exclusively unilateral.

86. **Hematoma of Nasal Septum.**—A hematoma developing in the nasal septum after an accident to the nose is generally absorbed and causes no disturbance, but in some cases it may persist and cause chronic perichondritis or obstruction of the nasal passages. In 40 cases in which he has found a hematoma in the septum as the cause of the nose affection, there had been suppuration in only 5. He treats the hematoma by compression with a wick of carbolized cotton as soon as the swelling and pain from the accident to the nose have subsided under applications of ice the first day. The wick is changed every day, a larger one being inserted each time, until all trace of the hematoma has vanished. By tamponing each side of the septum any dislocation or fracture of the cartilage can be corrected.

Wiener klinische Wochenschrift, Vienna.

Last indexed page 995.

91 (XVIII, No. 6.) *Zur operative Behandlung des Kryptorchismus. A Hermann.
92 *Ueber 2 seltenere Ursachen der Duodenalstenose (unusual causes). K. Reitter.
93 (No. 7.) Route of Infection in Alimentary Tuberculosis.—Die Infektions-Wege bei der Fütterungstuberkulose. J. Bartel.
94 Entoptic Perception of Own Circulation.—Ueber entoptische Wahrnehmung des eigenen Blutkreislaufes und ihre Bedeutung in der Lehre von den Gesichtalluzinationen. A. Pick.
95 (No. 8.) Ueber induciertes Irresein (psychic infection). E. Raimann.
96 *Zur Röntgenbehandlung der Leukämie. A. Herz.
97 Ein Plessimeter zur Unterscheidung feinerer Schalldifferenzen (improved plessimeter). K. Feiler.
98 (No. 9.) Der akute Tod von Meerschweinchen an Tuberkulose (acute death of guinea pigs). O. Bail.
99 Der Gang der natürlichen Tuberkulose-Infektion beim jungen Meerschweinchen (course in young guinea-pigs). J. Bartel and F. Spieler.
100 Action of Light on Mixture of Eosin and Blood.—Wirkung des Lichtes auf Eosin-Blutgemische. H. Pfeiffer.
101 *Zur Aetiologie der Pinguecula und des Pterygiums. A. Sachsalber. (Commenced in No. 8.)
102 (No. 10.) *Zur Frage der Latenz der Tuberkulose. A. Weichselbaum and J. Bartel.
103 Die psychiatrischen und neurologischen Indikationen zur vorzeitigen Unterbrechung der Schwangerschaft (for premature interruption of pregnancy). J. W. v. Jauregg.
104 *Justification of Artificial Abortion.—Ueber die Berechtigung zur Einleitung der künstlichen Frühgeburt. A. Haberda.
105 *Medical Indications and Forensic Latitude for Artificial Interruption of Pregnancy in Case of a Neurosis or Psychosis.—Inwiefern ist beim Vorlegen einer Neurose oder Psychose künstliche Unterbrechung der Schwangerschaft medizinisch indiziert und juristisch gestattet? H. Gros.
106 (No. 11.) Ueber spezifische Antikörperbildung nach Eiweissfütterung (formation of antibodies after feeding on albumin). H. L. Celler and F. Hamburger.
107 Perineotomia mediana. C. Fleischmann.
108 Experiences with Carlsbad Waters, etc., in Cholelithiasis.—Ueber die mit der balneologischen und der operativen Behandlung des Gallensteinleidens gemachten Erfahrungen. F. Fink.
109 Die Bestimmung des spezifischen Gewichtes von Exsudaten und Transsudaten bei Körpertemperatur (specific gravity at body temperature). M. Engländer.
110 *Zur Frage des Coma diabeticum nach operativen Eingriffen. E. Ruff. (Commenced in No. 10.)
111 (No. 12.) Use of Caustics in Uterus.—Ueber den Gebrauch von Aetzmitteln. R. Chrobak.
112 Fatal Pemphigus Involving Stomach Mucosa After Taking 10 gm. of Sodium Iodid.—Fall von Jodpemphigus mit Beteiligung der Magenschleimhaut. R. Polland.
113 Nutrition and Nutritional Disturbances of Lens.—Ueber unsere heutigen Kenntnisse der Ernährung und Ernährungsstörungen der Linse. E. Zirm.
114 Variola und Varicellen. R. Pick.
115 (No. 13.) Ueber die periodisch auftretende (paroxysmale) Lähmung (paralysis). H. Schlesinger. Id. M. Infeld.
116 Action of Eosin on Blood Corpuscles and Serum.—Ueber die Wirkung fluoreszierender Stoffe (Eosin) auf normales Serum und rote Blutkörperchen. H. Pfeiffer.
117 Dermatosis epithelialis (degenerativa) circumscripta eczemiformis.—Paget's disease. E. Lang.
118 Paraffin Injections to Remove Smallpox Pits.—Die kosmetische Behandlung der Blätternarben mit Vaselin und Oelvaselin. E. Stegmann.

91. **Operative Treatment of Retention of Testicle.**—Gersuny has treated 4 patients with bilateral undescended testicles by drawing the testicle down with a silk thread tied around the relics of the gubernaculum at the lower pole of the testicle. This thread is then brought down into the scrotum and passed through the septum at its lowest point and tied around the other testicle. This holds each in place without inconvenience, while the firm bridge between prevents their slipping back. Examination three years after the operation showed the testicles still at the lowest point in the scrotum, while the band formed of the two united gubernacula was distinctly palpable.

92. **Causes of Duodenal Stenosis.**—In one of the cases described, the pancreas became self-digested. The subacute development of the process enabled a sac of connective tissue to form around the necrotic mass, thus encapsulating it. Effusion of fluid into this sac increased its size and compressed adjacent organs. The stenosis in the other case had been

caused by an impacted gallstone in the first loop of the jejunum which had been palpated at first, but later became inaccessible to palpation.

96. **Roentgen Treatment of Leukemia.**—In the case described by Herz, the patient was a man of 56, a gardener, with lymphatic leukemia. The proportions of leucocytes remained about the same under Roentgen treatment, but the total number gradually rose and then rapidly sank again. The action of an intercurrent pneumonia on the leukemia is compared with that of the Roentgen treatment. Both were followed by reduction in the size of the enlarged organs, but the pneumonia also reduced the number of pathologic forms of the leucocytes. Neither an intercurrent infection nor Roentgen treatment seem to offer much prospect of a permanent cure. His patient died of the pneumonia. The autopsy findings are described in detail.

101. **Cause of Pterygium and Pinguecula.**—Sachsalber ascribes pterygium to irritation from fine hairs on the inside of the lid. He has found such hairs in all his cases. He removes the hairs and instructs his patients how to pull out the lanugo hairs every week with the aid of a strong magnifying glass. All the previous disturbances, chronic conjunctivitis, congestion, etc., were restored to normal, incipient pterygium retrogressed, and when long established its progress was arrested. He describes 6 typical cases from a large experience and thinks that pulling out these hairs will remove the cause in many cases of pterygium.

102. **Latency of Tuberculosis.**—Weichselbaum and Bartel tested the glands from a number of children who had succumbed to various affections without any apparent tuberculous process or complication. Animals were inoculated with glandular substance, and tuberculous processes developed in consequence from the material from 8 of the cadavers. There must have been living bacilli in the glands tested, and they must have been capable of inducing infection, although no infection had resulted in the patients. General tuberculosis developed in from forty-five days to five months in some of the animals, indicating a certain virulence on the part of the germs.

104-105. **Artificial Abortion.**—Haberde thinks that in every case in which artificial abortion has to be done by the physician to save the mother's life—and this is the only justification, in his eyes—the state should require declaration of the circumstance. The physician should demand a consultation. Gross emphasizes the point that the woman has the right to decide whether any operation and what one should be done on her. In case of a neurosis or mental disease, if she is not able to decide for herself, the physician should be the one to decide for her—not any third person. Consultation with a neurologist or alienist is advisable in these cases, if possible, for the protection of the physician.

110. **Postoperative Diabetic Coma.**—Ruff's article issues from A. Froenkel's clinic at Vienna. It reviews the entire subject of coma following an operation on a diabetic, and shows that this contingency has occurred after the use of all kinds of anesthetics in a series of cases embracing 236 operations on diabetics. Coma developed in 25 patients, with a mortality of 10.6 per cent. A few cases are on record in which the manifestations of the diabetes vanished after the operation. When 2 gm. of ammonia are excreted during the day, the development of coma may be feared, and it is almost certain to occur when the amount reaches 4 gm. Otherwise there does not seem to be any criterion from which to deduce the probability of coma from the quality of the excretions or the severity of the diabetes. Two cases of coma have been reported in which merely local anesthesia had been used, and yet death ensued. The loss of fluids during the operation can scarcely be considered, as cases have been reported in which there was no loss, as in a case described in which a woman of 35 was operated on for the relief of a periappendicular abscess under the Billroth anesthesia, and died in coma next day. Such mishaps may be averted by careful psychic preparation of the patient for the operation, with dietetic measures to reduce the glycosuria. General anesthesia, copious purgation and irrigations should be avoided. Food should not be withdrawn until the last minute, and should be commenced again as soon as possible, by the rectum if necessary. The operation should be postponed until these conditions are secured unless it is a vitally urgent one.

Archivio per le Scienze Mediche, Turin.

119 (XXIX, Nos. 1 and 2, 1905.) Istogenesi delle cisti semplici dell' ovaia (simple cysts of the ovary). D. Cesa-Domenichi.
120 Macroglossia congenita neurofibromatosa. E. Delfino.
121 Structure of Red Corpuscles.—Struttura dei globuli rossi. G. Pighini.
122 *Determination of Typhoid Bacilli in Stools.—Osservazioni e critiche sperimentali sul metodo di v. Drigalski-Conradi per le ricerche dei bacilli del tifo nelle feci. E. Monti.
123 Eziologia delle diarree estive dell' infanzia. G. Volpino.
124 Pathologic Anatomy of Hemo-angio-endothelioma of Liver.—Sui cosidetti tumori endoteliali. E. Ravenna.
125 Ipernefroma maligno del fegato. M. Donati.
126 *La morfologia del sangue nel periodo catameniale (blood in menstrual period). E. Ricca-Barberis.

122. **Determination of Typhoid Bacilli in Stools.**—The von Drigalsky-Conradi technic is recommended by Koch as the most reliable and practicable means of determining the presence of typhoid bacilli in the feces. The Genoa Institute of Hygiene has been testing this technic, and it has been found that absolute reliance can not be placed on it. Positive findings, supplemented by the agglutination test, are not enough to establish beyond question that the bacilli found are true typhoid bacilli. On the other hand, negative findings with the Drigalsky-Conradi test do not positively exclude the presence of the typhoid bacilli. This test is valuable to control others, but its findings can not be accepted as decisive alone. It is possible, however, that it may be perfected and that it may then prove the ideal method for the purpose. The experiments and findings are related in detail.

126. **Morphology of Blood in Catamenial Period.**—Ricca-Barberis states that the proportion of hemoglobin in the blood commences to diminish about the seventh day before the onset of the menses, rising again to normal or above and then diminishing again with the commencement of the menstrual flow, reaching the minimum at the close and returning to normal about the sixth day after cessation of the flow. The number of red corpuscles show no or very slight changes, not at all in proportion to the variation in the hemoglobin. The percentage of polynuclears is almost always reduced, while that of the small lymphocytes is increased. The proportion of eosinophile leucocytes increases or diminishes, never retaining the standard intermenstrual proportions. These morphologic changes in the blood occur unmistakably even in women who, on account of pregnancy or for other reasons, have no menstrual discharge. The catamenial period can be readily recognized by examination of the blood alone.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

OUTLINES OF INORGANIC CHEMISTRY. By F. A. Gooch and C. P. Walker. Cloth. Pp. 514. Price, $1.75 net. New York: The MacMillan Co., 1906.

EFFECTS OF TROPICAL LIGHT ON WHITE MEN. By Major C. E. Woodruff, A.M., M.D., Surgeon United States Army. Cloth. Pp. 358. Price, $2.50. New York: Rebman Company, 1905.

PSYCHOLOGICAL MEDICINE. A Manual on Mental Diseases for Practitioners and Students. By M. Craig, M.A., M.D. Cloth, Pp. 449. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1905.

DR. JESSNER'S Dermatologische Vortrage für Praktiker Heft 8 Dermatologische Heilmittel (Pharmacopœa dermatologica) Zweite verbesserte Auflage. Von Dr. S. Jessner, Konigsberg i. Pr. Paper. Pp. 96. Price mk. 1,50. Wurzburg: A. Stubers Verlag (C. Kabitzsch), 1905.

A SYSTEM OF CLINICAL MEDICINE, Dealing with the Diagnosis, Prognosis and Treatment of Diseases, for Students and Practitioners. By T. D. Savill, M.D. Vol. II. Certain Disorders; Diseases of the Skin and Nervous System. Cloth. Pp. 1,147. Price $3,00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

A SHORT PRACTICE OF MIDWIFERY FOR NURSES, Embodying the treatment adopted in the Rotunda Hospital, Dublin. By B. H. Jellett, B.A., M.D. Second Edition, Revised. With five colored plates and 133 illustrations in the text, also an appendix and a glossary of medical terms. Cloth. Pp. 407. Price, 6s. 6d. net. Philadelphia: P. Blakiston's Son & Co. 1905.

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Original Articles

SIX YEARS' EXPERIENCE AT THE MASSACHUSETTS STATE SANATORIUM FOR TUBERCULOSIS.*

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In presenting the results of six years' experience in the treatment of tuberculosis, chiefly in the pulmonary form, at the State Sanatorium in Rutland, Mass., it is with pleasure and pride that we recall the fact that Massachusetts was the first state in the Union to adopt as a public enterprise methods which had been successfully used for many years abroad and later in our own country at private institutions, notably that of Dr. Trudeau at Saranac Lake, New York.

It should be remembered, moreover, that the idea of treating this disease with any hope of success in a large number of cases in a moist, harsh climate like that of New England had been regarded with extreme doubt, to say the least, among the rank and file of the medical profession. The results obtained in previous years, however, at the small charitable institution, viz.: the Sharon Sanatorium at Sharon, Mass., situated only twelve miles from the ocean and at about 250 feet only above sea-level, had attracted the attention of the earlier board of trustees of the State Sanatorium and had encouraged them, as stated in one of their early reports, to make the institution at Rutland a sanatorium (in the strict sense of the word) for the earlier cases of disease and not a mere hospital for the hopelessly ill.

The state owes a debt of gratitude for this decision to the foresight and determination of the board of trustees, both past and present, and notably to Dr. Alfred Worcester, of Waltham, Mass., now no longer a member of the board. To his enthusiasm and persistency is doubtless due much of whatever success the sanatorium has attained as a place where people can go with the hope of arresting a disease which is threatening life.

The legislature has in times past been generous in its appropriations, far more so than in some other states where earnest endeavors are being made by public-spirited men to follow the example of Massachusetts. In this respect we have little cause to complain. The difficulties which have stood in the way of those in charge of the institution, however, have been many. The fact that it was a state corporation made it of the nature of a new and great experiment, offering the vicissitudes with which great experiments are always obliged to grapple. Naturally from time to time the methods have been subjected to severe criticism, often doubtless with best intent, from those who we have reason to believe have sometimes not fully understood the precise nature, the necessities, and the difficulties of management of such an institution. While not wishing to claim immunity from liability to make mistakes, and while desiring to listen to kindly criticism, we nevertheless feel that had we not endeavored to adhere as closely as possible to the expressed wish of the trustees that only hopeful cases should be admitted and that provision should be made elsewhere for the hopelessly sick, we should have been unable to accomplish results which have attracted the attention of the public both at home and abroad, results which have encouraged other states to erect similar institutions elsewhere in the Union.

It should be distinctly understood, however, that while we have endeavored to adhere to this standard, feeling that in this way we were doing "the greatest good to the greatest number," and while our failure to accept many advanced cases had been the frequent cause of adverse criticism not only from the laity but, I regret to say, from our own profession, yet, as a matter of fact, the majority of patients admitted have been far past the incipient stage of disease, many of them having such advanced signs that there has been little hope of accomplishing anything more than a temporary amelioration of the symptoms. With these cases, however, there has at times been a most gratifying and unexpected improvement, and when we consider the means that we have at our disposal, the insufficient number of assistants necessary for the proper supervision of large numbers of patients, and the kind of cases dealt with, we have reason to be pleased at the favorable results thus far accomplished. We plead at the same time for increased facilities in our work and set our faces strongly against increasing the size of any such institution lest it become elephantine in dimensions, proportionately difficult to manage, and therefore less productive of favorable results.

To illustrate our meaning it will be well to state that at the outset, in the original bill before the legislature, provision was to have been made for two hundred patients. Owing to lack of funds, only one hundred and seventy-five could be received in the earlier months. Later, following an additional appropriation and for administrative reasons, accommodations were made for two hundred and fifty patients. For the care of these patients, most of them ambulant and able to take active exercise, we were obliged to work with but one assistant

* Read before the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., 1905.

for each of the two medical departments of the sanatorium. Up to the time of the appointment of an assistant whose duties were practically confined to the examination of sputa and urine, such work was chiefly done in the laboratories of the medical schools of Harvard and Boston universities, institutions to whom we owe a debt of gratitude for helping us over a very awkward and difficult stage in our progress.

Later we again had to face the determination of our state legislature to enlarge the institution by the addition of new buildings to bring our capacity up to nearly four hundred beds, a plan which we believed to be fraught with danger to the accomplishment of best results for the reasons before mentioned. With the recent appointment of another assistant physician, we are now striving to hold to the standard originally set, although we have had to meet the fact that in order to keep the beds filled an unusually large number of well-advanced cases has been admitted. The number of assistant physicians and nurses, moreover, is still insufficient to exert the supervision necessary for the best results.

These introductory statements are made without the least desire to criticize those who, while doing their utmost in the fight against tuberculosis, may differ with us in the details of the work. We wish only to emphasize the aims and requirements of the institution, and the difficulties which have had to be met in order that others may profit by our mistakes as well as by whatever success we may have attained.

Since the opening of the sanatorium in October, 1898, up to May 1, 1905, 3,300 patients have been admitted, and there have been approximately 7,000 applicants.

The results of treatment are recorded in the following tables of percentages taken from the Eighth Annual Report, Sept. 30, 1904.

In recording results a few words of explanation are necessary. It has been the policy of our own department up to the present to use merely the term "arrested" in those cases in which all outward symptoms have ceased, such as cough, sputa containing bacilli, fever, etc., the general condition being one apparently of perfect health at time of discharge. The terms "cured" and even "apparently cured" have up to the present not been used by our department, although the condition of many of the patients would often seem to justify these expressions. As used by us thus far, the term "arrested" is equivalent to the less conservative one "apparently cured" employed by our colleagues in the other department of the Sanatorium. In deference to the wishes of the trustees, therefore, in the following quotation from the last annual report the results of the two departments are classed together.

TABLES SHOWING RESULTS OF TREATMENT.

[*From Eighth Annual Report.*]

Comparison of percentages during the first six years, up to October 1, 1904.

Year of Discharge.	1899	1900	1901	1902	1903	1904
Per cent. of "arrested" and "apparently cured" cases	34	42	46	48	49	45
Per cent. of all classes of "improved" cases	40	45	48	45	43	48
Per cent. of "not improved" cases	26	13	6	7	8	7

PERCENTAGE OF INCIPIENT CASES WHICH WERE "ARRESTED" AND "APPARENTLY CURED."

Year.	1899	1900	1901	1902	1903	1904
Per cent.	65	73	73	72	73	76

In comparing the results obtained in the last year with those of former years, we may notice the significant fact that the percentage of incipient cases which have been discharged as "arrested" or "apparently cured" has steadily increased, a proof of the importance of sending cases early in the history of disease, instead of waiting until the symptoms become more marked.

It will be noticed that the percentage of "arrested" or "apparently cured" of the total number of cases was somewhat less last year than the preceding year, which, at first sight, would seem to be discouraging. When we study the facts, however, we find reason to be encouraged. The acts of the legislature have twice increased the capacity of the sanatorium. In order to fill the 260 beds available during the last year, a larger proportion of advanced cases was admitted than before. The average length of stay, moreover, was for several reasons lessened during the last year, with a consequent increase in the number of patients admitted. Both of these facts naturally tended to diminish the relative number of cases discharged as "arrested" or "apparently cured," although the actual number of such cases was larger than before (258). Taking these facts into consideration, therefore, we feel that there is every reason for encouragement, and that by properly meeting new conditions we can increase the amount of good done to the community by the sanatorium.

SUBSEQUENT HISTORIES OF "ARRESTED" CASES IN OUR DEPARTMENT OF THE SANATORIUM UP TO MAY 1, 1905.

The subsequent histories of patients who have been at the sanatorium are naturally of great interest. The following tables have been made after painstaking endeavors to trace all those who left the institution with the disease "arrested," in our own department, which represents a majority of the whole number of patients in the sanatorium. It is still somewhat early to make very definite conclusions as to the lasting effects of the treatment, when we consider the nature of the disease; but even at this stage in the history of the sanatorium enough can be evolved to be of value. It must be remembered that we are dealing with people of very limited means, often with the poorest classes, who naturally return as a rule to less favorable conditions of living than the well-to-do. Favorable results in such cases are therefore all the more gratifying.

Although earnest endeavors are made to place people in hygienic surroundings after they leave the sanatorium, and to induce those who have lived in the city to take up a country life, yet as a matter of fact the great majority return from necessity even if not to exactly the same conditions, yet to employments which are more or less unfavorable to health. Sanatorium methods, moreover, are of course not as rigidly carried out after discharge; but it is interesting and gratifying to note that the majority persist in keeping their windows open at night and dislike any lack of ventilation. All of these facts go to prove the educational value of the institution, and augur well for the cause of preventive medicine even when our efforts to overcome the disease may not be successful in individual cases.

In regard to those from whom no replies have been thus far received, it should be stated that it not infrequently happens that former patients for various reasons will not reply to repeated inquiries, and it has been oftentimes casually discovered that they are in excellent health; so that it would not be fair to state that the lack of response is equivalent to an unfavorable reply.

From the tables it will be seen that the number of those (35) who left our department over five

years ago with the disease "arrested" and are now known to be in active work, amounts to probably 70 per cent., when we take into consideration those who have not recently been heard from but who we have good reason to believe are active wage-earners still. How far the return to unhygienic conditions has been the cause of relapse and how far death may have been due to other causes than tuberculosis it is of course impossible to say with certainty. Up to May 1, 1905, of the whole number of "arrested" cases (539) discharged from our department alone up to Oct. 1, 1904, 45 have died; but the cause of death in four of these by authentic report was either accident or intercurrent disease not of tubercular nature. This would make the number of deaths of which we have certain knowledge, therefore, among the "arrested" cases only about 8 per cent. thus far.

The fact that a considerable number (63) of those who left "improved," with their symptoms still present to some degree, have since reached a condition of "arrest" is another gratifying evidence of what can be done at the sanatorium to instruct patients how to regain their health when left to their own devices under favorable conditions. It should be stated in this connection also that in this same period there were 647 cases discharged from our department in all grades of improvement but still having some symptoms. Among these have been reported 191 deaths; but the reports thus far received from those who are living show that the majority are now working.

It adds to the reliability of these statistics to know that hundreds of examinations have been made by the medical staff of past patients, who are encouraged to return regularly for purposes of comparison and counsel. The Boston Association for the Relief and Control of Tuberculosis has been very helpful to us in this work.

In trying to determine how many patients after leaving the sanatorium have made a change of residence, of climate or of occupation, it is most encouraging to note that although the majority of all the patients discharged as "arrested" have been obliged for many reasons to disregard our advice and to return to the same places of residence and occupations as before entrance, yet they are now hard at work and in good condition. A very small percentage only have made a change of climate.

This brings us to the much mooted question as to the advisability or necessity of change of climate, and it is perhaps well to reiterate statements which have been made before in other papers on the subject. We hold practically the same view which we have always had, viz., that while undoubtedly, *ceteris paribus,* a climate which presents the best opportunities for life in the open air with the maximum of sunshine is best for the consumptive, and that the chances of relapse there are smaller, yet for hundreds and thousands of those who for many reasons cannot go far away we have certain knowledge that a large percentage can regain and keep their health by comparatively simple methods near home. We know also that while undoubtedly thousands of patients who have gone to distant health resorts have done well, there are some who have lost ground there and who upon return have again improved. In short we do not sympathize with what we deem the equally sweeping assertions of those who maintain that it is no longer necessary to send patients far away and those who insist on the other hand that an entire change of climate is the *sine qua non* of success.

SUBSEQUENT HISTORY OF PATIENTS ON DR. BOWDITCH'S SERVICE UP TO MAY 1, 1905.

	Year of Discharge.						
	1899	1900	1901	1902	1903	1904	Total.
Number of patients discharged with "disease arrested"..	35	56	85	90	132	141	539
Number of patients now in good health and working.	18	39	60	65	105	113	400
Number of patients who have not replied to letters lately	2	9	3	8	10	17	50
Number of patients who can not be traced.....	4	1	2	1	1	0	9
Number of patients in whom symptoms have returned.	2	2	9	8	4	11	36
Died*	9	5	11	8	12	0	45
Patients left sanatorium "improved," but now reached condition of "arrest"....	9	5	14	7	15	13	63

Of those who died in the class of 1899, all returned to the same residence, except one, who went from Springfield to Boston and one, who went from Boston to Colorado.

All had returned to the same occupations, except one girl, who married and had a child.

Of the 18 at work now, all returned to the same residences, except 2; 1 went from Boston to Colorado, and 1 from Worcester to a Canadian town.

All returned to the same occupation as before entrance.

All but 2 of the 9 "arrested since discharge" cases bettered their residences, 2 of them being in Colorado.

In the class of 1900, of the 7 patients who died or relapsed, 2 changed occupation or residence, and 1 changed climate.

Of the 39 patients who remain well, 13 changed occupation or residence and 2 changed climate.

In the class of 1901, of those who relapsed (20) 1 changed climate and occupation; 2 died from causes other than tuberculosis.

Of those who are in good condition (60),
10 made a change of residence.
3 made a change of climate.
6 made a change of occupation.

In the class of 1902, of those who relapsed (16),
1 changed climate.
3 changed residence.
2 changed occupation.

Of those who are now in good health (65),
3 changed climate.
12 changed residence.
7 changed occupation.

METHODS OF TREATMENT.

It will be impossible in this paper to do more than give the general outline of methods of treatment at Rutland. For the most part we employ what are recognized now as the essentials in all sanatoria for tuberculous patients, viz.: the greatest amount possible of fresh air, good food, judicious exercise and general supervision as far as is possible in order to guard against the mistakes which arise through ignorance in whatever direction.

As to the use of any one specific remedy, we can frankly say that we have thus far found nothing to equal the effect of the so-called hygienic treatment, although we have at times experimented with certain vaunted remedies with negative results. In the use of tuberculin we have held a conservative position, doubtless an unwarrantable one in the minds of some of its advocates. We can say, however, that in taking this position it has been with no wish to shut our eyes obstinately to what shall be proved of undoubted efficacy, but because of honest doubt and in order to be better able to make comparisons after a reasonable experience with one method. Deeply impressed if not wholly convinced yet by the statements and experience of those for whose opinions we have great respect, we have in many cases used tuberculin for diagnostic purposes, with the result that while believing it to be not an infallible test and that error may arise, we nevertheless believe it has at times been of much value in determining the nature of doubtful cases, and that in the future,

* Four have died from causes other than tuberculosis.

with the possibility of establishing a definite standard in the preparations, it can be of still greater service.

Of its use therapeutically, about which so much is said and written *pro* and *con,* we can say that recently, in a few cases which have for several months seemed to remain in *statu quo* under the usual hygienic methods, we have begun its use in accordance with the recommendations of its advocates. Our experience thus far, however, has been too meager to warrant any positive opinion. We can certainly say that we have seen no harm come from its use, and in one or two cases the improvement in symptoms has encouraged us to pursue our investigations still farther.

One word in reference to exercise. One great difficulty in a large sanatorium like that at Rutland is to provide sufficient and healthful amusement to keep the patients content. With men especially, many of them in vigorous condition, chafing at confinement, we allow, in carefully selected cases, a certain amount of freedom of exercise which on general principles some would think unwise. Believing that the moral effect of outdoor games will outweigh the possible deleterious effect of active exercise, we have allowed some of the patients who are approaching a state of arrest of disease to indulge at times in baseball and other games of a less active nature. It should be distinctly understood, however, that these are the exceptions to the general rule. While an occasional mishap may have occurred, we believe that much less evil has come from this than would be naturally supposed at first thought. At the same time there is a marked beneficial effect on the mental condition of the patients in allowing them this comparative freedom. Incidentally it should be said that in properly selected cases we thoroughly believe in the good effect of moderate calisthenic exercises for the chest, and disagree wholly with those who make the (to us) sweeping assertion that every tubercular chest should be kept in as absolute a state of immobility as possible, no matter how slight the amount of disease. That rest of the diseased organs, as far as it is possible to obtain it, is required for cases of very active trouble, we believe to be true; but we also maintain from experience that expansion of the lungs at regular intervals, where the disease is quiescent, is productive of excellent results.

What then can we say of the wisdom of establishing a state sanatorium after these six years of experience at Rutland? Have the results justified the original outlay, and can we urge other states to do likewise? In our opinion there can be but one answer to this question, and that in the strongest affirmative. No one who has studied the question of tuberculosis and who has carefully and conscientiously followed the working of methods for relief of the victims can fail to be struck forcibly by what has been already done at Rutland, first from the humanitarian point of view, and second from the utilitarian side of the question. As case after case comes before our eyes and we watch the gradual change in aspect from one of disease and invalidism to that of health and vigor, and contrast present conditions with the wretched hopelessness of former years, can we, if we have a spark of human sympathy in our breasts, fail to rejoice that we now can hold out the hope of renewed health to many of those who otherwise from lack of means would be practically doomed to die a lingering death?

From the humanitarian point of view alone we feel that the Rutland Sanatorium has given already sufficient justification of its existence in spite of the inevitable discouragement and sense of failure which must come in a certain number of cases. When we consider the utilitarian side, can there be any doubt, when reading the large percentage of those who have returned to their homes and have become active wage-earners again, that the money expended has been fully repaid in the renewed vigor and usefulness of large numbers of our citizens?

It has been, moreover, often said, but the truth cannot be emphasized too much, that quite apart from the good done to the individual patient, stands the far-reaching educational effect of such institutions upon the community. This cannot be reckoned in figures, but that it is a great power for future good no rational person, if he has had even small experience, can deny.

Thus we give the results of our personal experience. That the Massachusetts institution may be but the small beginning of a similar movement all over our country in the fight against tuberculosis is the earnest wish of everyone connected with the Rutland Sanatorium.

WHEN NOT TO OPERATE FOR APPENDICITIS.*

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The profession has spent a number of years discussing when to operate in appendicitis and has arrived at a definite conclusion concerning most cases, but there still remains a class of cases in which there is a decided difference of opinion.

In the past few years the extremists have been losing ground. It is some years now since I have met a medical man who claimed that medical treatment is the best for appendicitis and that operations should not be performed. On the other hand, I am not now personally familiar with the work of any surgeon who says that every case of appendicitis should be operated on no matter when the diagnosis is made, although several of my colleagues held that opinion a few years ago, and I was inclined to believe then that operation at all times and under all conditions should be the rule. At that time we had just learned that by operating on acute appendicitis early we could save nearly all cases. We then theorized that when an operation was so good in one class it must be in all classes. I now believe that our theory was based on false premises, because experience, which is always better than theory, has taught me that there are conditions under which we should not operate for appendicitis. Our extreme practices have resulted in good to our fellow man, although they were pretty hard on him for a time, because we have learned that in appendicitis, as in most things, there is a happy medium, and that there are times when not to operate.

There are still a few exponents of this operative extreme, but they are condemned by their own statistics and their own discussions. Their statistics show a much higher mortality rate than those of surgeons who exercise some judgment in their selection of cases for operation. Surgery deals with human life and it can not be done by fixed rules. If we could say we must always operate, experience would be of little value. All that would be necessary would be to learn the rules. A surgeon, of all men, should avoid fixed rules

* Read before the Minnesota State Medical Society.

and should exercise reason and judgment in every case. He should base his opinion on his own experience, on the experience of others and on the conditions found in a given case, for no two cases are alike. A surgeon should be brave and should operate when he concludes that operation offers his patient the best chance, no matter how desperate that chance, but he has no license to be foolhardy because it is the patient's life that is at stake and not his own. One who operates for a record does not always have his patient's best interest at heart.

All surgeons and most physicians agree that chronic, recurring appendicitis should be operated on in the interim. There are still a few physicians who tell their patients after an acute attack that they are well and need no operation. How they can do so conscientiously is beyond comprehension, because they know that a goodly number of those patients do have recurrences, and some of them with fatal results, while on the other hand, operation in the interim by experienced surgeons is almost without mortality. Many surgeons of large experience can show an unbroken record. My first operation in the interim was performed Feb. 11, 1893, and since that time I have operated hundreds of times without a single death. One patient from Wapheton had chronic appendicitis when I operated on him, but he came to me with chronic obstruction of the bowels, for which a resection of several inches of bowel was made with a fatal result. Patients who have had an acute attack resulting in abscess are sometimes told that they need no operation because the appendix has sloughed away, but when the surgeon operates on these patients he always finds an appendix. It is sometimes abbreviated and shrunken, but still big enough to cause future attacks. At my first operation I was completely disgusted because after cutting my patient both lengthwise and crosswise I found, behind the ascending colon, an inoffensive looking, shriveled up remains of what had been an appendix. I felt that I had subjected my patient to a very grave operation without corresponding benefit. The outcome, however, was eminently satisfactory. Before the operation he had had frequent dangerous attacks of "perityphlitis" with abscess, and since the operation he has been in perfect health.

Because the interval operation is so safe it does not follow that it is always safe to wait for it, for the patient may die before reaching that period. It has been very aptly said that an interval operation is a good thing to recommend in the interval.

I wish to call particular attention to the fact that many people suffer from chronic appendicitis who have never had an acute attack. These patients should be all operated on because the operation is perfectly safe, and because they are almost certain sooner or later to suffer an acute attack with all its attending dangers.

Both physicians and surgeons agree that when a localized abscess is formed an operation is indicated.

All surgeons of large experience, and many physicians agree that under proper conditions every case of acute appendicitis coming under observation within the first forty-eight hours should be operated on at once. I hope and believe that the time is not far distant when this view will be universally accepted. Under proper conditions these operations can be performed with less than one per cent. mortality, and that is better than can be accomplished by any other method. When this rule is adopted by all appendicitis will have lost most of its terrors, and there will be no ground for controversy except in cases where the proper conditions can not be complied with and where the diagnosis has not been promptly made. Fitz, Osler and other eminent internists are teaching this doctrine now, and it is to be hoped that their influence will convert the family physicians throughout the world, because they see these patients first. When a case goes beyond this stage it is the fault of the patient or his physician, and theirs is the responsibility. The patient's unwillingness to accept an operation does not relieve the physician of his responsibility unless he has given the patient his positive opinion in favor of an operation. It is not the province of the physician or surgeon to ask the patient what he wants, but to advise him what he needs. Fortunately, the laity are so well educated in this matter in most communities that operation is rarely refused when earnestly advised. In communities where early operations are not popular it is the fault of the physicians in that community who have been advising late operations only, and then when they thought the patient was about to die. The surgeon can not say to the physician "bring your appendicitis cases to me any time and I will cure them," but he does say most emphatically, "make your diagnosis early, bring your patient within forty-eight hours of the beginning of the attack and he can be cured ninety-nine times out of one hundred."

The proper conditions on which I wish to lay great stress are hospital facilities and an experienced surgeon. Without these I believe early operations are contraindicated. Fortunately, this is a day of hospitals and surgeons, and there are very few who can not comply with these conditions. If every physician felt it his duty to operate whether he had had experience in abdominal surgery or not, or if it were considered proper to operate everywhere, the mortality would be greater than if no operations were performed.

As a rule the early diagnosis is easy and should be made by anyone competent to practice medicine. That familiar train of symptoms can scarcely be mistaken. Pain very commonly beginning in the epigastric or umbilical regions and gradually extending to the right iliac region; tenderness often all over the abdomen at first and gradually settling down to the region of the appendix; rigidity of the muscles on the right side; vomiting. There are a few cases, however, in which the symptoms are masked and in which a positive diagnosis is difficult or impossible. When the patient is very ill and what few symptoms there are suggest appendicitis, an exploratory opening should be made through the right rectus. The pernicious habit of administering an opiate for every case of bellyache has caused the loss of many lives by obscuring symptoms. Every attack of abdominal pain should suggest the possibility of appendicitis, or some other serious condition.

When appendicitis is complicated by typhoid fever, pneumonia, severe la grippe, acute nephritis, or other conditions which contraindicate an anesthetic, operation should be avoided as a rule, but even under these conditions a localized abscess should be opened under local anesthesia.

When a patient is evidently moribund he should not be subjected to operation, because it does him no good and it does the cause of surgery harm.

I believe that when a patient is not brought to the surgeon's notice until he is evidently convalescing from an attack, he should not be operated on, but

Nature should be allowed to complete her work, and that he should be carried over to the interim and then operated on.

Surgery can not be scientifically done by the calendar. We can not fix a rule that on a certain day we may operate for appendicitis, and on another day we must not. The nearest we come to it is at the beginning where the concensus of surgical opinion based now on a vast experience is that the first forty-eight hours of the attack is the safety period. Within this period the infection is usually limited to its original seat and it can be completely removed. The wound can be closed and all the dangers and annoyance of drainage avoided.

There is a time, beginning with the third day of an attack of appendicitis, when surgeons begin to differ as to whether we shall or shall not operate. We can not hope to settle this vexed question to-day, for it is doubtful if it ever will be definitely settled, but we can contribute our mite in the way of discussion. When I am called to see a case of appendicitis on the third, fourth or fifth day of the attack and the patient is evidently doing well, I do not operate because I have learned that when a patient is doing well at this time Nature is doing her part, and the rule is that the patient will either go on to convalescence without operation, or that a localized abscess will form, making an operation a safe procedure. The danger of a case going wrong under these conditions has been greatly exaggerated. Over zealous surgeons very greatly underestimate Nature's work in these cases. If we could operate as safely at this time as we can in the first two days I would gladly do so, but I tried it a few years ago and failed to improve on Nature's methods, and in this practice I have a host of good company. I am sure that with my improved technic I could do much better now than I did then, but I am too well content with Nature's work under these conditions to want to interfere. It is easy to understand the difference between the early and late cases. Under ordinary conditions an infection does not spread beyond its original seat within forty-eight hours, and the surgeon can remove it, making a complete operation, but after this period the infection has had time to spread and for the first few days Nature has not had time to complete her lines of defense. If the surgeon "butts in" at this time he interferes with Nature's work, and is very liable to fail to take her place successfully, because he can not surely remove the infection and he is liable to spread it.

When the attack has been going on for three, four or five days, and the patient is doing badly, the natural instinct of the surgeon is to interfere. He feels that Nature's efforts have failed and that the patient's only hope is in operation, but it has been demonstrated by Ochsner and his followers that immediate operation is not his only hope, and if statistics are worth anything they have demonstrated that his chances are better to wait. I am still at sea in these cases. I decide each case on its own merits to the best of my ability, and operate or wait as seems to me best at the time, and no matter what course I pursue I sometimes wish I had chosen the other one.

When I am called to a distance to see a patient within the first few days of the attack, I always feel relieved when the attending physician tells me he wishes to consult with me as to the advisability of an operation, for there is always a chance for an honest difference of opinion. It is embarrassing to both surgeon and physician when the former is called to perform an operation and feels it his duty to advise against it.

The so-called "Ochsner method" has been so generally misunderstood and misapplied that, regardless of its real merit, it has done infinitely more harm than good. Dr. Ochsner is an earnest advocate of early operation for appendicitis. He does not recommend starvation and lavage for appendicitis, but he does recommend them for a spreading peritonitis due to a neglected appendicitis. The treatment, or rather the neglect, of early cases of appendicitis by starvation and lavage has caused the loss of many lives that might have been saved by early operation.

There remains for our consideration that grave class of cases in which the patient has a so-called general peritonitis. I say "so-called" advisedly because it has been demonstrated that a general peritonitis is, to put it mildly, a very rare condition. The patient's abdomen is distended, is hard and boggy to the touch, his pulse is high, he gives a history of having had a fluctuating temperature with possible chills and sweating; he is septic and has been so for some time. I can not understand the mental processes of men who report ten, twelve and sixteen cases of this class in which they have performed the radical operation with a mortality of 100 per cent., and who still advocate the radical operation. These patients do not all die when treated differently. I can still remember going from my own college to the University of New York to hear Professor Loomis deliver his famous lecture on the treatment of peritonitis by four grain doses of opium. His patients did not all die. A few years ago I did perform the radical operation on a very few of these cases, and they all died promptly. Since that experience I have been content to open abscesses locally, and to carry out to a greater or lesser extent the plan of treatment so admirably set forth by Dr. Ochsner, and I have succeeded in carrying a number of these patients over to a safe interval operation. That old dictum so forcibly laid down by the late Dr. Sayre, that the presence of pus always demands free incision, has been overworked. The mere presence of pus is not the point at issue. The question is whether the septic material is being absorbed so rapidly as to overcome the resisting powers of the patient. We all know that Nature does often take care of large quantities of pus, and this is particularly true in the peritoneal cavity. In face of this fact what right have we to perform an operation with such an appalling mortality? What surgeon is present who has not removed tubes from the pelvis which had contained pus for months and sometimes for years? What one among you knowing of the presence of pus in the tubes during the acute stage will not wait for a safe operative period? You often drain through the vagina during the acute stage, but you do not undertake the radical operation at that time.

During the past few months I have had but five cases of appendicitis of this extreme type, one referred by Dr. Cleveland of Osakis, Minn., two by Dr. Ridgway of Annandale, Minn., one by Dr. Cutts of Forest City, Minn., and one by Dr. Tarbell of Watertown, S. Dak. These patients were all treated expectantly, and are all alive today. Had I performed the radical operation on them, judging from my former experience, they would all have died. I am morally certain that some of them would.

In Dr. Cleveland's case no operation was performed for nearly three months, when I performed an interval

operation successfully. In one of Dr. Ridgway's cases several abscesses were opened locally and fecal fistulæ formed. I operated later, removing the appendix and closing the fistulæ successfully. His other patient, a seventeen-year-old girl, had a most extensive peritonitis, for which I drained through the vagina, evacuating immense quantities of pus. She is now in apparent good health and expects soon to have her appendix removed. Dr. Cutt's patient had pus seemingly in every corner of his abdomen. I opened first high up on the left side and later over the appendix. He was at last report, in April, in good health but had suffered one mild recurrence and still has a fistula. His foolish parents, who are responsible for his former bad condition, have so far prevented him from having his appendix removed. Dr. Tarbell's case is still in bed most of the time, but improving. I have opened several abscesses, and am waiting for the proper time to remove his appendix.

To recapitulate: I believe that there are times in appendicitis, as in all other surgical diseases, when operation is not the best treatment. I believe that the radical operation should not be performed, first, when the patient is evidently moribund; second, when the patient is evidently convalescing; third, when certain grave complications are present; fourth, in the midway cases beginning with the third day when the physician and surgeon are in doubt; fifth, in the extreme cases of suppurating peritonitis.

In conclusion I wish to state that some of these opinions concerning these late cases are in all probability not final with me, and that should I have the privilege of reading to you again on this topic a year or more hence, the chances are that I shall have modified them. I hope to die before I reach a point where I am no longer open to conviction, for I agree with Emerson that a man who never changes his mind probably has no mind to change.

THE CIRCUMSTANCES AND TREATMENT OF BRIGHT'S DISEASE.

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THE MODERN CONCEPTION OF BRIGHT'S DISEASE.

The determining feature of Bright's disease is high arterial tension, with resulting cardiovascular changes. The latter lead to nutritional disorders in various parts of the body, and particularly in those organs that are supplied by end-arteries, viz., the kidneys, retina and brain.

The old idea that in Bright's disease the kidneys are always primarily involved, and that as a result of renal inadequacy certain toxic products are retained that produce the cardiovascular changes and the eye and brain symptoms, is untenable, for many cases of Bright's disease occur in which the kidneys are not involved until very late in the course of the disease, long after cardiac hypertrophy, retinitis, albuminurica and brain symptoms have appeared.

True, there are many infections and intoxications of an acute character in which the kidneys are primarily affected. Most of these nephritides, however, run their course without any involvement of the heart, the arteries, the retina or the brain. If occasionally, late in their course, degenerative changes about the heart and arteries, as well as in many other organs of the body, occur, then these secondary events must be considered due to the general toxemia, that is, to the inevitable result of advanced degrees of renal insufficiency.

These, however, are not cases of Bright's disease. The underlying causes and, above all, the sequence of events are different.

It is unfortunate that the name Bright's disease is retained at all in our medical nomenclature, for what we understood by this term and what Richard Bright originally described are two very different things.

It is still more unfortunate that the terms Bright's disease and nephritis are so commonly employed synonymously. This is radically wrong, for Bright's disease in the modern sense is a systemic disorder that usually produces nephritis, but does not invariably do so. and nephritis, while often due to Bright's disease, may also be due to a great many other causes. It is not tautology, therefore, by any means, to speak of the nephritis of Bright's disease.

THE CAUSES OF BRIGHT'S DISEASE.

The high arterial pressure that ushers in every case of Bright's disease, in all probability, is produced by circulating toxins. The latter, so far as we know, are derived from the abnormal degradation of albumins either in the intestine or in the tissues at large.

A number of pressure-raising principles have been isolated from putrid bowel contents. We also know that many of the intermediary products of metabolism can raise blood tension.

A deranged bowel function always leads to the abnormal disassimilation of albumins, chiefly because putrefactive bacteria gain unopposed sway. The toxic albuminoids and alkaloids generated in this way flood the liver channels, where they should normally be arrested or disinfected. For a while the hepatic cells can withstand the stream of toxic matter that circulates around and through them and can properly exercise their disinfecting properties; but an overwhelming mass of putrefactive material flooding them at one time, or small quantities of putrid excrement irritating them continuously, must needs impair their function and render them inadequate to protect the organism as a whole from poisoning. When this occurs, intestinal toxins filter through into the circulation beyond, and there can exercise their deleterious effects on the heart, on the arteries, and also on those organs that chiefly supplement the disinfecting function of the liver by eliminating poisons, namely, the kidneys.

Hepatic insufficiency produced in this way also leads to the incomplete elaboration of the aforementioned intermediary products of metabolism that reach the liver in the general circulation as poisonous purin bases, ammonium salts, etc., and should leave the liver more highly oxidized, as innocuous uric acid, urea, etc. When the liver cells are inadequate to produce this conversion, then these intermediary bodies are returned unchanged to the general circulation, and thus cause autointoxication. That some of these bodies can produce the cardiovascular changes of Bright's disease and some of the renal changes was shown by me in 1900.[1]

Another important result of hepatic insufficiency is perversion of the physical and chemical character of the bile. Instead of flushing the bile channels in a broad stream, the bile sluggishly oozes through the hepatic capillaries. The thick and viscid character of the bile favors diapedesis of poisonous bile ingredients from the

1. Croftan: "The Rôle of the Alloxuric Bases in the Production of the Cardiovascular Changes of Nephritis." Am. Jour. Med. Sciences, February, 1900.

bile channels into the blood capillaries and produces clogging of liver channels, with pressure on the hepatic cells and on the afferent blood capillaries that nourish them; as a result, the function of the liver cells is still further impaired and self-intoxication favored.

Finally, the absence of the proper quantity of normal bile from the intestine deprives the organism of its most important antiseptic secretion, so that intestinal putrefaction increases and a vicious circle is closed.

THE TREATMENT OF BRIGHT'S DISEASE.

General Considerations.—Bright's disease, as shown above, is a toxemia, presumably of intestinal and, by implication, of hepatic origin, involving, primarily, the cardiovascular apparatus and, secondarily, many organs of the body, including the kidneys.

Causal treatment, therefore, must be directed toward the digestive disorders that, in my opinion, underlie most cases of the disease. There are other cases, I believe, which are due to obscure metabolic perversions that we do not understand. These are more difficult to handle, because we have nothing tangible to attack; for who can successfully combat a tissue anomaly that is hereditary in character and in which an obscure neurotic element plays a commanding rôle?

Whereas, in the cases of gastroenteric or of hepatic origin, the prognosis is not bad if early attention is given to the digestive disorders; the prognosis in the second variety of cases, in the obscurity of our present knowledge, is always doubtful, and all treatment is of necessity symptomatic.

Symptomatic Treatment.—In Bright's disease this is not, however, the conventional treatment of the kidneys, but the treatment of the heart and arteries. When the nephritis is established, it becomes necessary, of course, to counteract the renal inadequacy and its sequelæ.

The treatment of the common cerebral and retinal symptoms is synonymous with the treatment of the heart and arteries.

General Treatment.—The treatment of the patient as a whole, i. e., the maintenance of the general nutrition by mathematically regulated feeding, and by the avoidance of those great perverters of all functions, nervousness, worry, depression and fear, is naturally also of paramount importance.

It is not my intention to discuss all the elements in the management of a case of Bright's disease; I merely wish to emphasize some of the therapeutic means which have been evolved from the newer reasoning outlined above, and which have proved useful in my hands.

The Prevention of Intestinal Putrefaction.—Sterilization of the human intestine with its thirty feet, more or less, of warm, moist culture medium is manifestly impossible; nor is it desirable, for many of the micro-organisms that normally abound in the bowel aid the enteric ferments in the disassimilation of the food and produce certain physical changes in the bowel contents that favor the act of defecation.

The human intestine is practically sterile at birth; later bacteria appear in the bowel contents, some of them pathogenic. Against the latter the organism normally protects itself by very efficient means; when these measures become inadequate, artificial intestinal antisepsis is called for.

The object of intestinal antisepsis, so-called, is not, therefore, to free the bowel from bacteria, but to prevent the pullulation of certain pathogenic species and to destroy their poisons.

Remedies employed to this end may become operative in two ways: They may either act chemically by direct contact or they may act physiologically by stimulating the natural defenses of the organism to greater activity.

Most of the drugs employed as intestinal antiseptics fulfill both indications, inasmuch as they possess not only germicidal properties, but also act as hepatic stimulants. As the liver cells possess the power of arresting and of disinfecting many bowel poisons, and as the bile is a germicide, any remedy that irritates and causes increased activity of the hepatic cells and, by inference, acts as a cholagogue may be considered an intestinal antiseptic of the second variety.

Chief among the remedies recommended as intestinal antiseptics are certain metallic salts, the bile acids and certain organic peroxids. It is necessary, of course, that these remedies when given in doses sufficient to check intestinal putrefaction should be non-irritating and non-poisonous. For this reason I prefer the sulphocarbolate of zinc to other metallic salts (mercury, lead, silver, copper), and sodium glycocholate to the free bile acids. A variety of organic peroxids under various trade names are on the market, and I consider them useful.

Intestinal putrefaction may be considered checked when certain bodies that we know to be formed from the putrefactive disintegration of albumin disappear from the feces and from the urine (abnormal degradation products of the fats and carbohydrates play a subordinate rôle in autointoxication). Chief among these bodies is a variety of sulphur compounds and a complex group of substances that contain the aromatic radicles that are split off from putrefying albumin.

For clinical purposes it is sufficient to study the sulphids of the feces and the aromatic sulphates (with indican as their prototype), the compound glycuronates and the compound glycocolls of the urine.

I give the intestinal antiseptics in small doses (sulphocarbolate of zinc, one-half grain; sodium glycocholate, one grain; the organic peroxids, one grain), at frequent intervals, together with about twenty grains of bismuth subnitrate, in the twenty-four hours. The latter is given merely as an indicator of the presence or absence of sulphids (sulphuretted hydrogen or its salts) from the feces. H_2S or its alkali salts form black bismuth sulphid, and when the intestinal antiseptic is given in sufficient quantity to check the putrefaction of albumin, then no bismuth sulphid is formed and the stools are not colored black.

It will be found, in most cases, that when the stools retain a light color, despite the administration of bismuth, the indican of the urine and the other aromatic urinary ingredients will also disappear or become greatly reduced.

The proper dose, then, of the above-named intestinal antiseptics is enough to prevent blackening of the stools after the ingestion of bismuth subnitrate and enough to cause the disappearance from the urine of aromatic bodies.

The selection of a diet containing the proper quantity and the proper kind of proteids, fats and carbohydrates to fit the peculiarities of each case of chronic intestinal putrefaction is, of course, also of prime importance, but can not be discussed within the narrow frame of this article.

The Use of Cardiac Tonics and of Vasodilators.—Digitalis in small doses (i. e., one drop of the tincture,

t. i. d.) renders the heart less susceptible to the disturbing stimulation of circulating toxins. In this sense it slows and regulates the heart beat without unduly prolonging the diastole and without causing too energetic systolic contractions. It can not, therefore, do harm by overstimulating an organ that requires rest. Such small doses may be given with impunity for months without impairing the power of the heart to respond to large doses in emergencies.

For strengthening the heart in Bright's disease when myocardial changes threaten, the Schott exercise treatment is very useful. It is infinitely superior to the use of large doses of digitalis or of any other so-called cardiac tonic. It is often astonishing to witness the improvement in the action of the heart, and the coincidental decrease in the albuminuria when this exercise treatment is judiciously administered.

Nitroglycerin or, better, erythrol tetranitrate, a preparation that seems to grant a prolonged vasodilator effect, is the orthodox remedy to reduce the blood pressure. Patients may be kept under the influence of these drugs for long periods of time. Continuous vasodilatation, by causing a fall of blood pressure in the kidneys, reduces the albuminuria and enables the renal epithelium to regain its tone and to resume its function.

Hot baths, rest in a warm bed, judicious life in a warm, dry climate are all useful measures, because they favor prolonged dilatation of the superficial blood vessels, and hence reduce the arterial tension and rest the heart.

FOUR NEWER POINTS IN THE TREATMENT OF THE NEPHRITIC MANIFESTATIONS OF BRIGHT'S DISEASE.

1. *The So-called Surgical Treatment of Bright's Disease.*—Splitting of the kidney capsule, or decapsulation of the organ, for the cure of Bright's disease is altogether irrational. The temporary relief of tension may improve the blood supply to the kidneys, and hence restore for the time being some functional activity to diseased epithelia; and this improvement in the renal function may become manifest by a reduction of edema, by a transitory decrease in the albuminuria, the disappearance of formed elements (casts, etc.) from the urine, and an increase in the excretion of solids and of water.

Bright's disease, however, as we have seen in the preceding paragraphs, is a systemic disorder, and the nephritis is merely one of its symptoms. Any treatment of the kidneys alone, whether surgical or otherwise, is therefore purely symptomatic, and can in no sense be regarded as curative. One might as well amputate the rose spots in typhoid fever and expect to cure the disease.

It is not surprising to find, therefore, that no true case of Bright's disease has even been permanently benefited by operations on the kidneys. The procedure is mentioned in this place merely to be condemned.

2. *Liberal Feeding.*—In acute forms of nephritis underfeeding, or even starvation, of the patient not only is permissible, but is good practice, for the smaller the amount of excrementitious material the kidneys are forced to eliminate, the more are they spared, and the more rapidly can they resume their normal functions.

One may say, in a broad sense, that the daily amount of feeding, expressed in caloric values, should be inversely proportionate to the presumable duration of the nephritis. Hence, the more chronic the nephritis, the more nutritive should be the diet; and as the nephritis of Bright's disease is the most chronic variety with which we have to deal, a patient with this disease should receive daily the full caloric value in his diet that is required to maintain nutritive equilibrium, i. e., at least thirty calories per kilo of body weight.

There is no compelling reason why a mixed diet should not be given in these cases. It is ridiculous to postulate that the albumin of the food will reappear as such in the urine, and that the more albumin the patient eats the more should he excrete—though this prejudice still exists in the minds of many. A diet containing variety should be carefully selected and only those articles excluded that lead to the formation of urinary end products that are eliminated with difficulty, and hence can be assumed to irritate the kidneys when these are diseased. The details of this selection can not be given within the narrow scope of this article.

MILK DIET IN THIS DISEASE.

A few words in regard to the popular method of feeding sufferers from Bright's disease with milk alone.

In acute forms of nephritis this is good practice; in chronic forms, however, and in particular in the nephritis of Bright's disease, the only argument in favor of an exclusive milk diet administered for long periods of time is the fact that such a régime reduces intestinal putrefaction, and hence removes a prolific source of renal, hepatic and cardiovascular irritation.

As against this, as I have pointed out elsewhere,[2] the following five arguments can be brought forward:

1. In order adequately to nourish a patient with milk, enormous quantities must be given, and where enough milk is given the albumins are much in excess (200 to 300 gr. instead of the normal 100 gr. in the 24 hours); this imposes an excessive task on the kidneys, and renders the restriction of albumins that is attempted by the withdrawals of meats fictitious.

2. The administration of large quantities of milk causes flooding of the heart and arteries with water, and hence must act deleteriously on an already overtaxed cardiovascular apparatus.

3. Milk is deficient in iron, and an exclusive milk régime, if carried out for long periods of time, leads to deficiency of hemoglobin and all the dire results entailed thereby.

4. The constant dilution of the gastroenteric secretions is harmful.

5. An exclusive milk diet must needs sooner or later become monotonous and distasteful, and hence deprive the patient of the psychic stimulus of appetite that is all-important for proper digestion.

3. *The Restriction of Liquids.*—It is a common practice to give much water in all forms of nephritis (witness the many waters on the market that are sold as "cures" for Bright's disease!).

Regarding Bright's disease as a primarily cardiovascular affair, it is evidently bad practice to flood the heart and arteries with liquid, and hence to augment the blood volume, to increase the arterial tension, and, of necessity, to overwork the heart. All the liquid that is poured into the stomach must needs pass through the heart and arteries in order to reach the emunctories of the body.

The chief advantage postulated for abundant water drinking is that it "flushes out the kidneys."

This idea is wrong in most cases of nephritis; for in acute and in subacute forms of the disease water passes

2. Croftan: "The Dangers of an Exclusive Milk Diet," Medicine, May, 1903.

the kidneys with difficulty, so that they spontaneously stop eliminating it as soon as they become diseased, and they do not resume the copious elimination of water until they are recovering. Hence, to try to force water through the kidneys is to irritate them when they should be kept at rest.

In late stages of chronic types of the disease, it is true (and this applies to the nephritis of Bright's disease), polyuria is common, but here the urine contains few solids and few renal elements, and there is practically nothing to "flush out."

Abundant water drinking, therefore, as a rule, is irritating to the kidneys and injurious to the overtaxed cardiovascular apparatus. In acute and subacute forms of nephritis it is usually dangerous; in most chronic types it is at least superfluous. I consequently adhere to the rule, broadly speaking, of gauging the water intake by the water output—carefully considering all the while the particular requirements and the changing features of each case. I rarely see the necessity for forcing the ingestion of water, and I am always more inclined to restrict liquids.

It is popular to "sweat" nephritics, and at the same time to force these patients to drink much water, the object presumably being to rid the organism, via the sweat glands, of toxic excrements that the kidneys fail to eliminate. There is, however, very little evidence to show that the sweat of nephritics contains poisonous bodies; it does contain some urea, some fatty acids, some sodium chlorid, and, above all, much water. The chief advantage of sweating nephritics is, therefore, to rid the organism of some of the surplus water that is circulating, and of which the kidneys can not get rid. To sweat a patient, on the one hand, and to give him abundant water, on the other, is, therefore, irrational: for to do this is to neutralize the good effects of the sweating, to irritate the kidneys when they should be allowed to enjoy the rest granted them by the elimination of water through the sweat glands, and again to overtax the straining heart and arteries.

4. *The Withdrawal of Chlorids from the Food.*—In nephritis the elimination of sodium chlorid is usually reduced. It is retained in the tissues, and in order to remain there in a solution that equals the molecular concentration of the blood and tissue juices, it must draw water from the blood (the less concentrated solution) into the tissues (the more concentrated solution) by a process of osmosis. This idea may in part explain the edemas of nephritis.

On the basis of this theory, the ingestion of sodium chlorid, i. e., common table salt, has been restricted in order to enable the kidneys slowly to eliminate the retained chlorids. If the theory were correct, the edemas should disappear.

As a matter of fact, in common with many others, I have repeatedly seen nephritic edemas disappear (and, incidentally, albuminuria decrease) when the chlorids were excluded from the food, and reappear when salt is again given.

As 100 grains of common salt require about three pounds of water to form the proper physiologic solution (i. e., a solution exercising the proper osmotic pressure) in the body, any sudden increase in the weight of a nephritic patient, other things being equal, may mean salt-retention and hence water-retention (deep edemas), and should be an indication, tentatively at least, to withdraw the chlorids from the food.

100 State Street.

A STUDY OF PROPRIETARY[1] MEDICINE ADVERTISEMENTS.*

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In a previous paper[2] I called attention to the most prevalent names of diseases, ailments, and symptoms found in the advertisements of patent medicines in the newspapers, and to their significance. Since then I have traced the subject through a number of medical journals and I now desire to give a few notes on the subject.

If we take a broad view of the matter we will find no abrupt transition between the advertisements of patent medicines in the newspapers and those of proprietary remedies in the medical journals. Although the extremes are marked, yet they shade off into each other, in fact they overlap. Some newspapers have a higher standard than some so-called medical journals; there is less quackery. Lately we have heard much of medical journals decrying advertisements of patent medicines in the newspapers and yet they make no attempt to purge their own ranks. If we say the public is gullible and is induced to buy worthless patent medicines, then many doctors too are gullible, because many advertisements in some medical journals—I am not mentioning any names—are not one whit better than those found in newspapers. This may sound harsh, but I shall try to show later on that it is the truth. It is, moreover, a fact that many remedies are advertised to the medical profession of whose composition we are wholly ignorant; others are advertised with a list of names of ingredients, but no quantities are specified. Many we know are not what they claim to be, and some can be made at a cost per pound for what they sell per ounce.

There is, of course, a great difference between medical journals. Why should there not be? We have articles and commodities, in fact all sorts of things that can be exchanged for money, to fit any purse and any mental requirement—first class, second class, third class. Why not medical journals? I am not going to make invidious distinctions, however, by singling out certain journals and ridiculing them on account of the amount and quality of their advertisements. As in many other things, we have not yet reached the standard of the old-world nations in medical literature, but, judging by the progress we have made in medical education generally, we may reasonably expect an improvement in our medical journals in the course of time. At present some of our best journals carry a large amount of advertisements of proprietary remedies—but there is no slopping over into the reading matter. The kindergarten nature of the reading matter of some journals is, of course, in perfect harmony with the advertisements they carry.

It is a rather difficult matter to classify briefly the great variety of advertisements found in some medical journals, by the method of exclusion we can, however, obtain a list of advertisements that can fairly be regarded as relating to proprietary medicines. We can

* Presented with illustrations before the Huntington County (Ind.) Medical Society, March 14, 1905.

1. Objection may be made to the term "proprietary medicine." As here used it refers to preparations advertised in medical journals, in distinction to patent medicines advertised in the newspapers. That many proprietary remedies are patented and that many patent medicines are not patented is known to everyone who has given the subject any attention.

2. American Medicine, March 4, 1905.

thus at once exclude all advertisements relating to medical colleges, to books, surgical instruments and appliances, hospitals and sanatoria, vehicles, cards or announcements of manufacturers of standard preparations, and several other, minor, things or articles. In order still further to limit the list we can exclude advertisements relating to preparations for which no special curative properties are claimed, such as various food preparations, wines and whiskies.

After thus limiting our list we find a curious condition presented in different medical journals: In good journals comparatively few of the advertisements remain, while, on the other hand, in some of the poor journals the total has been reduced but slightly—and that means that most of the advertisements relate to proprietary remedies.

If we attempt to classify the advertisements of proprietary medicines, as limited above, we again experience difficulties. Some are worded or written so diffusely that a person not familiar with the preparation is at a loss to know for what it is to be used. Some advertisements are practically on a level with those on some waste-paper boxes: "Williams whiskey, that's all." However, by following the same ad through different issues or through different papers we will finally be told "what it is good for," and we shall then be able to classify it.

The examination of proprietary advertisements can be followed along different lines, such as the comparative number and size in different journals; the local character of the ads and the exclusion of German syntheticals; the repetition of an ad in the same issue—sometimes as high as six repetitions in the same issue. There are many aspects of the question, but in the present paper, following along the lines of a previous paper, I desire to take up only the relationship of the advertisements to the condition of the air inhaled—that is, whether the influence of a polluted atmosphere crops out in them as it does in the advertisements of patent medicines in the newspapers.

I was at first undecided how to proceed, but I finally decided on the following: I selected five medical journals, some to which I subscribe and some that were sample copies; all were recent issues although I shall give no dates. In giving the names an alphabetical arrangement will be followed, otherwise according to the numbers preceding or following. The list of journals is:

American Medicine.
Indiana Medical Journal.
International Journal of Surgery.
THE JOURNAL of the American Medical Association.
Medical Brief.

The advertisements in the above journals were arranged in a row at the head of a long sheet of paper, the names of the papers were given in a row down the left-hand end. At the proper place under one and opposite the other a number, 1, ½, or ¼, showed the presence and size of an ad and its recurrence in more than one journal.

The following table gives the number of advertisements of proprietary remedies occupying one-fourth page or more. (Ads of less size are very few and would not materially alter the result.)

THE JOURNAL American Medical Association	26
American Medicine	34
Indiana Medical Journal	34
International Journal of Surgery	57
Medical Brief	72

In the last-mentioned journal there were a number of repetitions, but in the above table all were counted as one advertisement.

The total number of different kinds of proprietary remedies (as limited above), in the five journals is 132. Out of this great number those occurring but once, that is given in only one journal, were dropped, in order to reduce the unwieldy list. This left 59 for further consideration, and of this number:

1 advertisement occurred in all five journals.
9 were found in four journals.
10 were found in three journals.
39 were found in any two journals.

The local distribution of many proprietaries was brought out at once. The middle West especially has a large number of preparations that are not advertised, or only sparingly so, in Eastern journals, and, on the other hand, some of the Western journals are short on Eastern preparations and especially German synthetics.

Still further reducing our list by omitting those occuring less than three times, that is in any three journals, we have 20 remaining, the distribution now is as follows:

THE JOURNAL American Medical Association	8
American Medicine	12
Indiana Medical Journal	15
Medical Brief	17
International Journal of Surgery	19

These 20 may perhaps be considered as fairly representative of our medical journal advertisements of proprietary remedies, and for the territory covered by these journals. The frequency of occurrence is as follows:

Occuring in all five journals: Glycothymoline.

Occurring in four journals: Antiphlogistine, Bovinine, Daniel's Passiflora, Hagee's Cordial Cod Liver Oil, Hayden's Viburnum Compound, Peacock's Bromids, Pepto-Mangan, Sal Codeia, Seng.

Occurring in three journals: Anasarcin, Angier's Petroleum Emulsion, Cactina, Fellow's Hypophosphites, Germiletum, Glyco-Heroin, Listerine, Sanmetto, Tongaline, Unguentine.

This method of selecting a representative list of proprietary remedies is, of course, open to criticism, but almost any other method would be equally so.

What is back of the great mass of advertisements, we may ask. Does the influence of a polluted atmosphere, or of our national spitting habit, crop out as it does in the advertisements of patent medicines in our newspapers?

In a previous paper on "Atypical Cases and Dust Infections"[3] I attempted to show the influence of infected dust, and in a subsequent paper I similarly attempted to show that many of the names used in patent medicine advertisements go back to infected dust.

Table 1 gives a list of air-borne diseases and names of affections or ailments and symptoms of dust infection. The list is subject to modification and might be considerably enlarged, especially by adding popular names:

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3. American Medicine, Oct. 1, 1904. Abst. in THE JOURNAL A. M. A., Oct. 15, 1904. Dust infection or dust disease may be characterized briefly about as follows: There is an irritation of the mucous membranes; vague wandering pains occur throughout the body, at times more strongly localized at some one point, as in the back or in an arm; there is a feeling of lassitude or discomfort, rising to severe headache, feverishness, loss of appetite and even vomiting. In some individuals there is cough, on account of the unusual irritation of the respiratory mucous membranes; some complain mainly of the nervous symptoms and the inability of applying themselves to a task; in some the wandering or localized pains predominate.

TABLE I.

GENERAL.	Respiratory.	Rheumatic.	Nervous.
Bronchitis	X		
Pneumonia	X		
Phthisis—Consumption	X		
Catarrh—Catarrhal affections	X		
Tonsillitis—Sore throat	X		
Coryza—Coughs and Colds	X		
Laryngitis	X		
Asthma	X		
Grippe and Grippe pain	X	X	
Pleurisy	X	X	
Rheumatism and Rheumatic pains		X	
Neuralgia, Neuralgic pains		X	
Lumbago, Sciatica		X	
Uric Acid Diathesis, Lithemia		X	
Backache, Disease of Kidneys		X	
Sick Headache		X	X
Nervous Headache		X	X
Nervous Prostration, exhaustion			X
Neurasthenia, hysteria			X
Insomnia, irritability			X

Accompaniments: Biliousness. dyspepsia, constipation, gastralgia, gastric and intestinal catarrh, anemia, amenorrhea, dysmenorrhea.

A cursory examination of the above 20 preparations will show that some are intended for local application, some are for particular kinds of ailments, and some have a more or less general range—shall I say—of application or usefulness. The so-called "cure-alls" are practically eliminated from the list. In my opinion at least half of the 20 relate to infected dust. This can be shown by table 2.

TABLE II.

MORBIDITY NAMES IN ADVERTISEMENTS IN MEDICAL JOURNALS.

	Angier Petroleum Emulsion.	Antiphlogistine.	Glyco-Heroin.	Fellow's Hypophosphites.	Hagee Cordial Cod Liver Oil.	Germiletum.	Glycothymoline.	Listerine.	Sal Codeia.	Tongaline.
Bronchitis	X	X	X	X						
Pneumonia		X	X							
Phthisis, tuberculosis	X		X	X	X					
Coughs, colds	X		X		X					
Catarrh, catarrhal conditions						X	X			
Respiratory diseases								X		
Grippe and grippe pain		X		X					X	X
Rheumatism, rheumatic pains									X	X
Neuralgia, neuralgic pains									X	X
Headache										X
Lumbago, sciatica										X
Nervous prostration, nerv'n's				X	X					

If we examine the whole list of 132 preparations we will find that many are what may be called dust advertisements, that is they refer to a polluted atmosphere. Some run along the general line, some belong to the respiratory type, others to the rheumatic or nervous types. Blood deficiencies and alimentary tract derangements may naturally be expected as accompaniments.

Whether the manufacturers who advertise in the medical journals realize the influence of infected dust I am unable to say. Some have admirably grouped disease and symptom names, and they certainly know that it pays to advertise. If there were no demand for their preparations the advertisements would soon disappear.

The similarity in the wording of advertisements of proprietary remedies in medical journals to those of patent medicines in the newspapers is at times remarkable. We of course must make some allowance for the use of technical terms or synonyms, "coryza" sounds better than "cold" in a medical journal.

Some advertisements change their character, depending on the company they are in. In a good medical journal, as in a good newspaper, the claims for curative properties may be moderate and reasonable; in a poor journal or newspaper specific and positive curative properties may be claimed. As an example G may be mentioned as found in two journals:

G— Is almost a specific for catarrh.
G— Is really a specific for catarrh.

COMPARISON OF MEDICAL JOURNAL AND NEWSPAPER ADS.

A short time ago I pasted a lot of clippings from newspapers and various medical journals side by side on a large sheet of paper, to show the parallelism of the two kinds. Beginning with microbe-killers and pain-killers, the list runs into local applications and plasters. rheumatism cures, cough and cold cures, special pain cures, and finally into what seem to be "cure-alls." A study of many of the latter will show, however, that they are really not cure-alls, but simply apply to the varying manifestations of a protean disease, an affection that has many disguises and that is of every-day occurrence. Some of the ads are practically free from all extraneous names; some advertisement writers have certainly made a close study of symptomatology.

There is, of course, a wide difference between different preparations, both of proprietary remedies and patent medicines. There are good preparations among both, but the tendency to fraud is infinitely greater among the latter. It is easy enough to make claims for curative properties, but any one versed in pathology knows that nature does the curing—a remedy may simply make the conditions favorable for nature. In this paper I am simply dealing with the advertisements or rather with their wording and without attempting to discuss the merits of the thing itself, the preparations.

In the following list is given the initial letter, followed by a verbatim list of names of diseases, ailments and symptoms used in the advertisements. They are in sets of twos (with more time and a larger list of ads to select from an even closer agreement could be obtained than is here given). In each set one ad is taken from a medical journal and the other from a newspaper, either one or the other may be given first, and it will tax the reader's ingenuity to tell some apart—especially where technical names in a medical journal advertisement do not preponderate. According to the newspaper advertisement the preparation will "cure," but in the advertisements of proprietaries the term "relief" is generally used, although the term cure is used in many. Some laymen can not understand why we call a preparation advertised in the newspapers "nostrum" and why we use a different word for the preparation advertised in our medical journals, especially where the claims of the two are alike. Some accuse us of making distinctions without there being any difference. Such criticism is usually based simply on the wording of an advertisement and does not consider the intrinsic value of the preparation. A physician might naturally feel aggrieved if accused of prescribing a nostrum.

R.'s Microbe Killer.
G. Opposed to germ life.

A. Opposed to pain.
P. D.'s Pain-killer.

G. "For catarrhal conditions; nasal, throat, intestinal, stomach, rectal, and utero-vaginal."
P. "Cures catarrh of head, throat, lungs, stomach, kidneys and bladder, female organs."

A. "Pneumonia, bronchitis, pleurisy, neuralgia, rheumatism, burns, erysipelas, acute arthritic and glandular involvement."
A's P-P. "Rheumatism, colds, cough, weak chest, weak back, lumbago, sciatica, sore throat, bronchitis."

A. "Enterocolitis, erysipelas,—pleurisy, pneumonia,— rheumatism, spasmodic croup, synovitis, and any inflammatory disease."

P. "Rheumatism, neuralgia, sore joints, sore throat,—catarrh, hay fever, asthma, throat troubles,—any disease that begins with fever, swelling or inflammation."

T. "Rheumatism, neuralgia, grippe, gout, sciatica, lumbago."

M's R. C. "Rheumatism, sciatica, lumbago, pain in the back, lameness, stiff and swollen joints, and all pains in the hips and loins."

P. "Face pain, back pain, neuralgic pain, rheumatic pain, sciatic pain, dyspeptic pain, la grippe pain, colds and fever."

A. "Fevers, neuralgia, atonic dyspepsia, pneumonia, gastralgia, bronchitis, coryza, catarrhal influenza, la grippe, rheumatism, hysteria, alcoholism, amenorrhea, dysmenorrhea, uterine and intestinal colic, obstinate vomiting, catarrh of the bile ducts, and jaundice."

T. "Gout, rheumatism, uric acid diathesis, constipation, acute and chronic hepatic torpor, obesity, Bright's disease, albuminuria of pregnancy, asthma, incontinence of urine, gravel, cystitis, uro-genital disorders, chronic lead poisoning, headache, neuralgia, neurasthenia and lumbago."

H. "Chronic headache, rheumatism, neuralgia, impaired vision, memory and concentration, persistent dyspepsia, nervousness, melancholia, chronic constipation, loss of weight, susceptibility to cold."

M.'s A.-P. P. "Neuralgia, headache, stomach-ache, menstrual pains, rheumatism, backache, toothache, dizziness, car-sickness, indigestion, irritability, sleeplessness, nervousness."

N. "Epilepsy, neurasthenia, insomnia, hysteria, chorea, migraine, neuralgia, restlessness of fevers, alcoholism, asthma, opium or morphin habit, nervous exhaustion, convulsive and reflex neuroses."

U.-A. "Rheumatism, gout, sciatica, lumbago, tonsillitis, hayfever."

S.-L. "Rheumatism, lame back, lumbago, gout, catarrh of bladder, etc."

A. "Rheumatism, la grippe, hysteria, dysmenorrhea, neuralgias, insomnia, headaches, nervousness."

O. "Cold, catarrh, hay fever, rheumatism, indigestion, brain fag, painful menstruation, seasickness, grip."

P. "Coughs, colds, grip, catarrh."

A.'s P.-E. "Winter cough—of bronchitis, phthisis, laryngitis."

B. "Bronchitis, cough, laryngitis, pneumonia, asthma."

F.'s H. T. "Coughs, colds; prevents pneumonia and consumption."

A.-a.-l. "Grippe, pneumonia, colds."

T. "Bronchitis, pertussis. phthisis, laryngitis, pneumonia, bronchial asthma, tuberculosis."

G.-H. "Coughs, phthisis, bronchitis, pertussis, laryngitis, pneumonia, asthma."

B. B. "Coughs, croup, asthma, bronchitis, sore throat; prevents pneumonia and grip."

S. R. "Coughs, colds, grippe, sore throat, rheumatism, dyspepsia, general debility, catarrh, asthma,—kidney trouble,—nervous troubles, neuralgia, whooping cough."

H.'s C. C. L. O. "Phthisis, scrofula and all chronic pectoral complaints, coughs, colds, brain exhaustion, nervous debility, palsy, chronic cutaneous eruptions and impaired digestion."

O.-M. "Coughs, colds, influenza, pneumonia, sore throat and lungs, consumption, and all pulmonary diseases."

F. "Coughs of phthisis, coughs following la grippe, broncho-pneumonia."

F.'s T. "Paralysis, locomotor ataxia, epilepsy, neurasthenia, senile and general debility, mental failure, debilitating losses, spinal weakness, nervous dyspepsia, and all troubles affecting the brain, nerve centres and spinal cord."

L. "Asthma, anemia, bronchitis, blood poison, Bright's disease, coughs, colds, consumption,—catarrh,—hay fever, influenza, kidney diseases, la grippe, leucorrhea, neuralgia, pneumonia, pleurisy, rheumatism, scrofula,—throat troubles, tuberculosis.—."

F.'s S. H. "Anemia, neurasthenia, bronchitis, influenza, pulmonary tuberculosis, wasting diseases of childhood, convalescence from exhausting diseases."

A. A. I. "Anemia, chlorosis, pallor, leucorrhea, backache, dizziness, headache, fatigue, insomnia, colds, catarrh, fever, malaria, pleurisy, malnutrition,—overtaxation, loss of memory, nervousness."

D.'s P. M. Whiskey makes almost more modest claims in the newspaper advertisements than in some medical journals, as the following will show—the newspaper claims appearing first:

"Is the only cure and preventative of consumption, pneumonia, grip, bronchitis, coughs, colds, malaria, low fevers and all wasting, weakening diseased conditions."

"Cures: general debility, overwork (!), la grippe, colds, bronchitis, consumption, malaria, dyspepsia, depression, exhaustion and weakness from whatever cause."

The diffuseness of the terms used and the varying claims made at different seasons of the year are well shown in an ad which appears regularly each week in a number of medical journals. It is usually a full-page ad with the name of the remedy in large type. The disease, ailment and symptom names vary from one to four in any one issue. From July to December of last year the list ran as follows:

Neuralgia and sick headache. Summer diarrhea, cholera morbus, colic. Neuralgic dysmenorrhea. Rheumatism, neuralgia, or any painful lithemic condition. Dysmenorrhea. Neuralgia and neuralgic conditions. Rheumatic and neuralgic pain. Sick headache, rheumatism, neuralgia. Uric acid headache. Rheumatic and neuralgic pain. Sick headache. Rheumatism. Rheumatism and neuralgia. Cranial, respiratory and abdominal pain. Rheumatism, neuralgia, tonsillitis, grippe (Oct. 22). Rheumatic pain. Rheumatic pain. Pneumonia and any inflammatory condition of the throat and lungs. Rheumatism. Grippe, tonsillitis, acute bronchitis, cough. Rheumatic and neuralgic pain. Rheumatic and neuralgic pain. Lithemic headache. Rheumatism, neuralgias or grippe. Rheumatic and neuralgic pain.

The list is suggestive of every-day pains and aches—and to me has the flavor of infected dust. I am not saying anything against the remedy itself, I have never used it, but I know that I get excellent results in cases like the above by the use of salol and codein—as mentioned in my previous paper.

The remedy is evidently, according to that list of names, applicable to the two chief forms of dust infection, the peripheral or rheumatic, and the respiratory. An infected alimentary tract, as in the case of an infant, would likely be benefited by such a remedy.

If instead of "uric acid," infected dust was mentioned as a causative factor, it would, in my opinion, be more in accordance with the facts. To quote from a previous paper, "I have seen so-called rheumatic and gouty and uric acid diatheses disappear as soon as the patient got into a good atmosphere, and, on the other hand, their prompt return on getting back into the dust."

The seasonal influence is especially marked in newspaper advertisements, as I have attempted to show in figures,[4] and it crops out more or less in our medical journals. Thus in the case of the widely-advertised A.

4. "City Dust and Patent Medicine Advertisements." American Medicine, March 4, 1905.

In July it was recommended in cases of enterocolitis and cholera infantum; in October it was suggested for pneumonia, pleurisy, bronchitis, adenitis, synovitis, sprains, etc.; in January it becomes a "standard remedial agent for pneumonia, pleurisy or bronchitis, primary or secondary to grip or to any other disease."

There are many physicians who never give any attention to the advertisements of proprietary remedies in their medical journals, yet I venture to say that something may be learned from them.

I have already made this paper unduly long, but in closing I should like to refer briefly to the different types of advertisements which may be designated "infected dust advertisements," or "dust ads," the chief types being the general, respiratory, rheumatic, and nervous. I have several before me as I write and I will give a list of names accompanying them, after the initial letter of the remedy:

A. "Pneumonia, bronchitis, pleurisy, neuralgia, rheumatism, burns, erysipelas, acute arthritic and glandular involvements."

To make this advertisement typical we need take out only two words, "burns" and "erysipelas." (Perhaps the manufacturer will thank me for the suggestion.)

Another advertisement, also beginning with the letter A, has the following list:

"It is indicated in fevers, neuralgia, atonic dyspepsia, pneumonia, gastralgia, bronchitis, coryza, catarrhal influenza, la grippe, rheumatism, hysteria, alcoholism, amenorrhea, dysmenorrhea, uterine and intestinal colic, obstinate vomiting, catarrh of the bile ducts and jaundice."

This is a typical example and evidently the result of much study. One may wonder at the word alcoholism in connection with the list, and yet it seems to be not out of place. We need only consider the large number of victims to the "P— habit," P— being a widely-advertised "catarrh cure" containing 28.5 per cent. of alcohol. Many users in addition to their ailment or affliction undoubtedly develop the alcohol habit.

For the rheumatic type of dust infection the following will answer:

T. "Rheumatism, sciatica, gout, neuralgia, lumbago, grippe, nervous headache."

Objection may be made to the term gout; it should no doubt read gouty conditions, since typical gout is not common among us.

Advertisements of the respiratory type are very common at this time of the year (winter) when pure air is often at a premium; they contain the names of air-borne diseases and accompanying symptoms. A pneumonia that gets well in the course of a day or two under the use of the remedy is, in all probability, not pneumonia at all but a simple case of dust infection with pneumonia-like symptoms; all have seen such cases.

Of the nervous or neurasthenoid type the following will answer:

N. "Indications: neurasthenia, insomnia, hysteria, chorea, migraine, neuralgia, restlessness of fevers, alcoholism, asthma, opium or morphin habit, nervous exhaustion, convulsive and reflex neuroses, etc."

This ad is, of course, broader than is necessary, but the terms alcoholism and morphin habit need not be eliminated—they will apply to cases that have developed the habits in attempting to get relief from their susceptibility to infective dust. This explanation may seem a little far-fetched, but I am offering it simply in explanation of the advertisement as it stands.

The following taken from one of my medical journals may not be out of place:

"THE SUREST CURE—FREE! The pure air, the equable climate, and the constant sunshine of —— will effect the speediest cure of throat and lung troubles, if a cure is possible," etc.

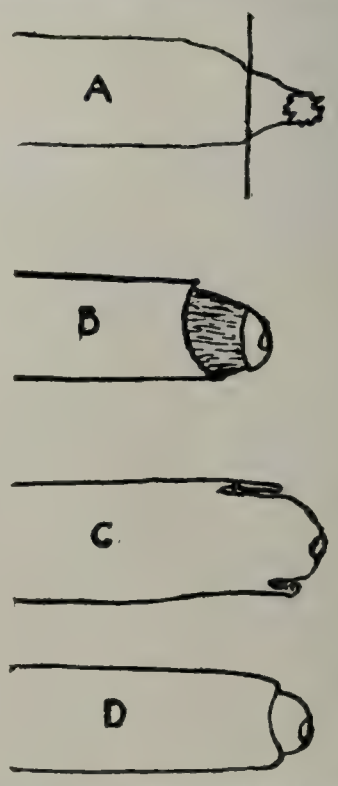
If this paper will lead some men to examine the advertisements of proprietary remedies in their medical journals and to ponder on the cause or the reason of their prevalence, then I have accomplished what I had in mind in beginning this paper.

CIRCUMCISION.

GEORGE TULLY VAUGHAN, M.D.
WASHINGTON, D. C.

The operation of circumcision is one of minor importance—except to the individual concerned or to his family, but it is the proper performance of the little things in life that often works for satisfaction or discontent.

In view of its ancient origin, it is surprising that some generally accepted method of circumcision has not been devised. Some of the objections to the methods in vogue are the difficulty of keeping the wound aseptic, of the adhesions occurring between prepuce and



a. Line of incision. b. Skin retracted and inner layer of prepuce covering the glans as a hood. c. Line of suture covered and concealed by the skin after the latter has been drawn forward as shown in d.

glans, the sacrifice of too much skin, not leaving enough sometimes to accommodate the organ when erect without uncomfortable stretching, and the bad cosmetic effect when an ugly, ragged, dog-eared, onesided or irregular prepuce is left.

The following operation has been performed by me for some years past with very satisfactory results:

Attach three hemostats to the margin of the prepuce —one at the frenum and the other two on the sides at equal distances from each other, and make traction in order to put the inner layer on the stretch—the skin is stretched slightly, if at all. While an assistant holds the part, in this position, cut off squarely with scissors or knife that portion of the prepuce which projects beyond the glans, being careful—especially in infants—not to cut the glans. The skin is then retracted and a hood comprised of the inner layer of the prepuce is seen covering the glans about two-thirds of its length. This hood is slit up on the dorsum, with scissors, back to the cervix glandis, and the corners and sides are

trimmed off, leaving from one-eighth to one-quarter inch—enough to sew to the skin. This is done with a fine catgut continuous suture, securing with the suture any bleeding vessels. The blood is then wiped off, the foreskin pulled forward so that it covers the glans for from one-half to two-thirds of its length (d), and the patient is put to bed. No dressing is necessary.

The advantages of this operation are:

1. The line of union is beneath the prepuce and is well protected from infection; union usually results without suppuration in from seven to ten days.
2. No dressing is necessary.
3. There is little or no danger of adhesion of the prepuce to the glans after this operation, as a fresh portion of skin is folded in on itself in place of the old, perhaps inflamed and ulcerated portion.
4. There is no danger of contraction of the preputial orifice.
5. The glans is left partially covered as it should be, and plenty of skin is left for adjustment to the varying conditions of the organ.
6. The cosmetic effect, while it may not be considered important, is all that the most fastidious could desire.

Special Article

IMMUNITY.

CHAPTER XVII (CONCLUDED).

THE SIDE-CHAIN THEORY OF EHRLICH AND ITS RELATION TO THE THEORY OF PHAGOCYTOSIS.

Proliferation of Receptors.

Third tenet: Is there any direct experimental proof that those constituents of cells which have been designated as cell receptors actually undergo multiplication in the cell itself as a preliminary to their discharge into the circulation in the form of antibodies? If this condition could be demonstrated in one instance, one might reasonably consider that it typifies a law according to which all antibodies are formed. Further experiments by von Dungern with the precipitins seem to show that such intracellular overproduction actually does occur. The experiments concern the fate of "Majaplasma" (plasm of the crawfish) when injected into the circulation of the rabbit (see above). If a single injection of the serum is given, a specific precipitin for the latter body in due time may be demonstrated in the serum of the rabbit. Eventually the precipitin disappears from the circulation by excretion or other means. At that time, when all the precipitin has disappeared, one may assume that the cells of the animal still contain an increased number of precipitin receptors, although the latter are no longer produced to such an extent that they are thrown into the circulation. If this condition exists the tissues of the animal at this time should be able to absorb a larger amount of the foreign serum, given in a second injection, and perhaps absorb it more rapidly than the tissues of an untreated rabbit. Using a specific precipitating serum in order to detect traces of the foreign serum which still remained in the blood of the injected animal, von Dungern determined that its tissues actualy do absorb the plasma more rapidly than does the untreated rabbit. The cells of the former have a greater absorbing power for the plasma, a greater binding power, therefore, an increased number of receptors.

These examples are, perhaps, sufficient to illustrate the principles of experimentation which have been followed in the attempt to obtain definite proof of the correctness of the essential points of the theory. The results are in entire accord with the primary assumptions and show that the theory continues to serve as an explanatory basis for newly discovered facts, and as a foundation on which new researches may be instituted.

Other Important Principles of Ehrlich.

In addition to the three main principles treated above, the following points are necessarily included in a summary of the views of Ehrlich, many facts of a corroborative nature having been ascertained in independent laboratories.

1. The recognition of different types of tissue receptors by which peculiarities in the action of the different antibodies are explained. Receptors of the first order, as antitoxins, anticomplements and antiamboceptors, are regarded as relatively simple bodies because no other constituent can be recognized than the haptophorous group by which they combine with their homologous substances. Receptors of the second order are more complicated in that they have something more than the mere binding power; usually they are able to produce some observable change in the substance with which they unite. Hence, each has a toxophorous or a zymotoxic group in addition to the haptophorous, and the two groups are part of the same molecule. Toxins, agglutinins, precipitins and complements are receptors of the second order. Receptors of the third order, i. e., the bacteriolytic, hemolytic and cytotoxic amboceptors, are still more complex in that they are, so to say, only partial antibodies, the complete body consisting of the amboceptor-complement complex. The amboceptor is not an active body, but serves as an intermediary body to connect the active substance, complement, with the cell. In the cytolytic process the amboceptor through its cytophilous haptophore first unites with the cell, and as a result acquires an increased affinity for complement, with which it unites through its complementophilous haptophore. Only after this double union is completed may complement affect the cell. From this it follows that complement in the cytolytic process does not combine with the cell directly. As previously stated, Bordet and others oppose the idea that the absorption of these bodies is of a chemical nature, considering it rather to be a physical process.

Ehrlich has intimated his belief that the amboceptors play the chief rôle in the fixation of foods by the cells of the body.

2. The chemical theory explains the specificity which characterizes the formation and action of antibodies. Every antigen has a haptophore which is different from those of other antigens, consequently it unites only with the corresponding cell receptor, and the latter when overproduced and cast into the circulation, retains its specifie binding power for the corresponding antigen.

3. The multitude of antibodies which have been obtained indicate that the cells contain a vast number of different receptors which correspond to the three types now recognized; that is, there is a different antitoxin receptor for every kind of toxin, etc.

4. Ehrlich has limited the application of the term toxin to those substances of animal or plant origin, immunization with which causes the formation of specific antitoxins. Other characteristics have been given in Chapter VIII.

5. Receptors of the second order, toxins, agglutinins, precipitins and complements, undergo a peculiar degenerative change, spontaneously or as a result of exposure to injurious agents, in which the toxophorous or zymotoxic group disappears or is rendered inactive. The termination -oid is affixed to the altered bodies, as toxoid, agglutinoid, precipitoid and complementoid. Wechsberg has described a similar degeneration of one of the haptophores of amboceptors, calling the product amboceptoid. Toxoids and complementoids on immunization cause the formation of corresponding antitoxins and anticomplements, by virtue of retention of their haptophorous groups.

6. By means of a special technic devised for studying the neutralization of toxin by antitoxin, i. e., the partial saturation method, Ehrlich found diphtheria toxin to be a very complex substance. Not all the molecules of the toxin have the same affinity for antitoxin, and according to the degrees of their affinity have received the names of prototoxin, deuterotoxin and tritotoxin. Similarly, protoxoids and syntoxoids are molecules of toxoid having different affinities for antitoxin. These conditions are represented graphically by means of the "toxin spectrum" described previously.

7. It is thought that the incubation period which characterizes the action of toxins represents to a large degree the time

required for the action of the toxophorous group after the toxin has been bound by the cells.

8. Ehrlich claims that the diphtheria bacillus secretes two toxins, one of which causes the acute manifestations of diphtheritic intoxication, whereas the second toxin, i. e., toxon, has a prolonged incubation period and probably causes diphtheritic paralysis. Toxon has a lower affinity for diphtheria antitoxin than the other constituents of the toxin solution, but is neutralized by the same antitoxin. This view is strongly opposed by Arrhenius and Madsen, who, working on the basis that the neutralization of toxin takes place according to certain laws of physical chemistry, claim that toxon is nothing more than toxin which has dissociated from the toxin-antitoxin molecule.

9. Ehrlich stands for the multiplicity of complements in opposition to Bordet and others who claim the existence of but one alexin. The various complements differ in the nature of their haptophores, without regard to possible differences in their zymotoxic groups.

10. Only those organs which have suitable receptors may produce an antibody for a given antigen, i. e., only those cells which may enter into chemical combination with the antigen. It does not follow, however, that only those organs which show clinical or anatomic lesions may produce say, an antitoxin; for other organs not so susceptible to the action of the toxin may still possess the suitable receptors and cast them out as antitoxin.

The various types of immunity are explainable on the basis of the side-chain theory in the following terms

Causes of Different Types of Immunity.

1. Natural antitoxic immunity may depend on (*a*) a lack of suitable cell receptors, the toxin consequently finding no point of attack; or (*b*) on the presence of natural antitoxins.

2. Acquired active antitoxic immunity depends on the multiplication and excretion of cell receptors (antitoxin) into the circulation, the new formed bodies having the power of combining chemically with additional toxin which may be introduced.

3. Passive antitoxin immunity, as established by the injection of an antitoxin, depends on the ability of the antitoxin to combine chemically with the toxin and thus to divert the latter from the cells.

4. Natural antibacterial immunity depends on (*a*) a lack of suitable cell receptors with which the toxic bacterial constituents might combine, or (*b*) on the presence of natural bacteriolysins (amboceptors and complements).

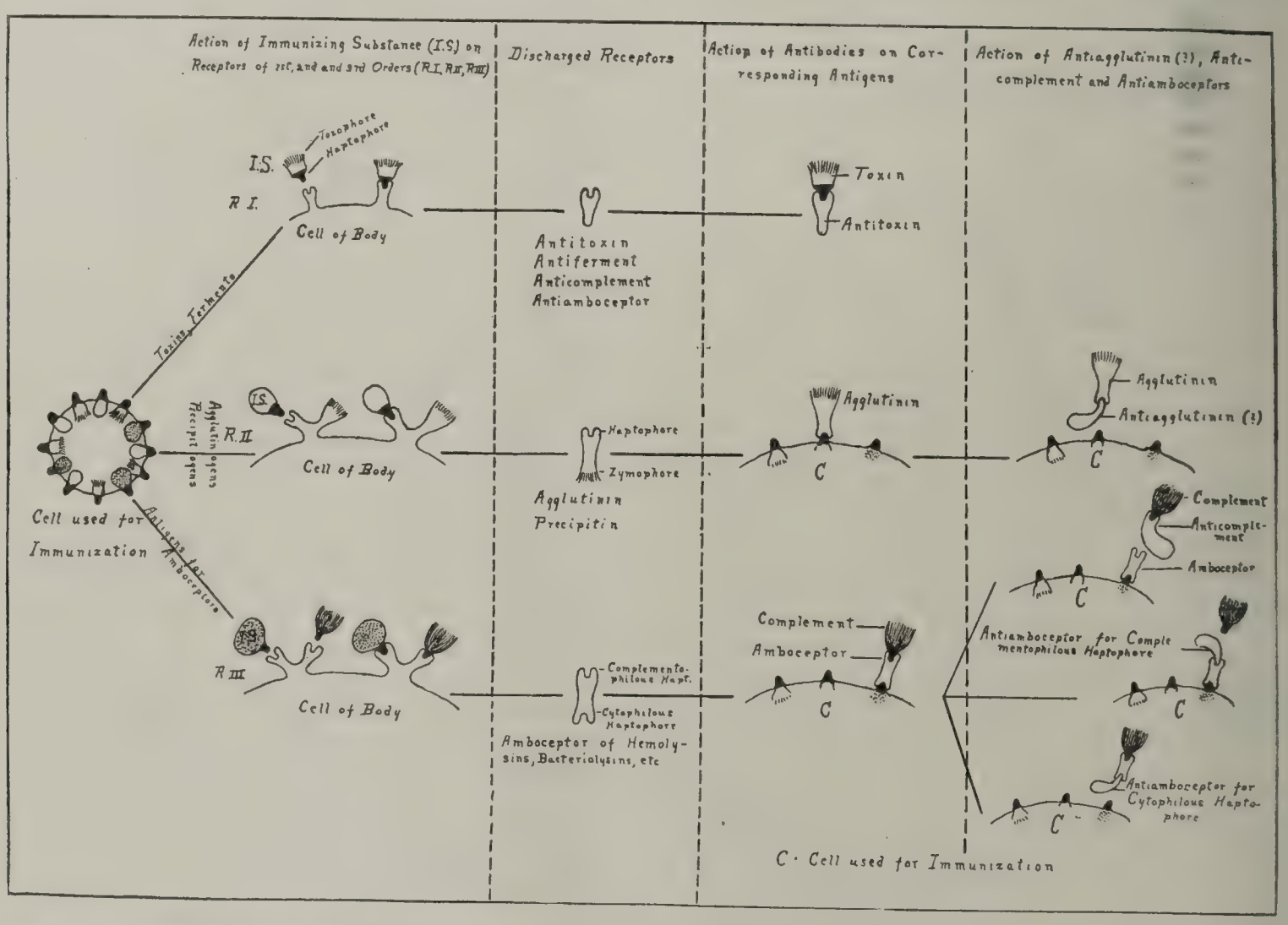
5. Acquired active antibacterial immunity depends on the multiplication and excretion into the circulation of specific cell receptors (amboceptors) which have the power of uniting with complement to kill the micro-organisms which may be introduced.

6. Passive antibacterial immunity, as established by the injection of a bacteriolytic serum depends on the ability of the amboceptors contained in the serum to unite chemically with the receptors of the micro-organism, as a result of which complement is absorbed to kill and perhaps to dissolve the bacteria. The complement may be present in the serum which is injected, or the natural complement of the individual may be utilized by the amboceptors.

When one seeks to compare the theory of Ehrlich with that of Metchnikoff, one finds little more in common than the general purpose of explaining the phenomena of immunity. Yet it is remarkable that where there is so little in common there are so few contradictions of an essential nature.

Comparison of Theories of Ehrlich and Metchnikoff.

The theory of Ehrlich has that degree of definiteness which it must have in order to be a plausible chemical theory, whereas that of Metchnikoff seems more general in that it is so largely biologic and vitalistic.



Each has a certain relation to nutrition. Phagocytosis as a nutritional measure is found in lower types of animals, and accomplishes nothing further than to bring the food substance in contact with the digestive ferments contained in the cell. In relation to nutrition the theory of Ehrlich begins, so to say, where the phagocytic theory leaves off, involving as it does the method by which food substances become a part of the protoplasm.

Metchnikoff with Ehrlich recognizes the various antibodies which have been discovered. The former holds that all are produced by the phagocytes without hypothecating clearly a method by which they may be formed. Ehrlich assumes a very precise method by which they may be formed, but designates no particular cells as their producers. An antibody is

produced only by those cells with which the antigen may combine, and, in some instances, the leucocytes may be such cells.

The theory of Metchnikoff is not concerned with the structure of toxins and the various antibodies, nor with the method by which toxins may injure the cells, whereas Ehrlich presents definite conceptions on these points.

Both recognize that there is more than one complement (cytase). Ehrlich recognizes no limit to the varieties which may exist, whereas Metchnikoff describes but two cytases, microcytase and macrocytase.

The view which Metchnikoff has expressed, that antitoxin is produced by some action of the phagocytes on the toxin, is directly opposed to that of Ehrlich which recognizes antitoxin as a product of the cell itself.

They agree that amboceptors (fixators) become extracellular in the blood.

Metchnikoff holds that complements (cytases) are produced only by the phagocytes and that these substances are found in the plasma or serum only as a result of injury to the phagocytes (phagolysis). These points are not involved essentially in the theory of Ehrlich. Certain investigators who work in harmony with the side-chain theory, as well as those who represent the views of Metchnikoff, have extracted complement from the leucocytes. Some of Ehrlich's supporters believe that complement exists normally in the plasma.

Metchnikoff and Ehrlich hold divergent views concerning the action of antitoxins, the former believing that antitoxins stimulate the phagocytes to an increased absorption and consequent destruction of the toxin, whereas Ehrlich claims that antitoxin neutralizes toxin by combining chemically with it.

According to Metchnikoff all types of immunity depend directly or indirectly on phagocytic activity. While the side-chain theory is not in harmony with such a broad assumption, it carries with it no denial of the phenomenon of phagocytosis nor of its importance in certain infections.

SCHEME OF IMMUNIZING BODIES AND THEIR ANTIBODIES.

Antigens or Immunizing substance.	Products of immunization		
Toxins	Antitoxins		
Ferments	Antiferments		
Precipitogenous substances	Precipitins		
Agglutinogenous substances	Agglutinins		
Cytotoxin producing substances	Cytotoxins	Hemolysins	Consisting of two bodies, i.e., complement and amboceptor.
		Bacteriolysins	
		Special Cytotoxins	
		Spermotoxin	
		Nephrotoxin	
		Hepatotoxin	
		Neurotoxin	
		Syncytiolysin etc.	

IMMUNIZATION WITH ANTIBODIES.

Precipitins	Antiprecipitins	Consisting either of anticomplements or antiamboceptors; the latter may be an antibody for the complementophilous or for the cytophilous haptophore of the amboceptor.
Agglutinins	Antiagglutinins (?)	
Cytotoxins	Anticytotoxins	
Hemolysins, etc.	Antihemolysins, etc.	

SYNONYMS.

Complement	Amboceptor
Alexin	Immunkörper
Cytase	Zwischenkörper
	Intermediary body
	Substance sensibilisatrice
	Fixator
	Preparator
	Copula
	Desmon

From these selected considerations it is seen that the two theories do not stand to each other in the relation of antitheses, and in the light of present knowledge it would seem unwarranted to cling to one view to the absolute exclusion of the other. It does not follow that because demonstrable serum properties explain immunity to one disease, or to a certain group of diseases, that recovery from all diseases must depend on properties of the serum; nor because phagocytic activity explains recovery in certain instances, that recovery from all diseases must depend on a similar activity. The conditions which exist in each disease, of course, must be recognized independently. It so happens that recovery from a certain group of diseases, e. g., staphylococcus, streptococcus and pneumococcus infections, is not accompanied by the development of conspicuous antitoxic or bactericidal properties in the serum, but they are characterized by a great increase in the number of circulating leucocytes (microphages), cells of known phagocytic and bactericidal power, whereas the opposite conditions are found in certain other diseases, e. g., typhoid and diphtheria. If one seeks the most apparent explanation in each case, the great leucocytosis would seem to be of prime importance in the first group, and the antitoxic and bactericidal powers of the serum in the second.

Investigations from various sources render unquestionable the value of phagocytosis in certain infections, and of particular significance is the work concerning opsonins which was referred to in the preceding chapter. From this work it follows that even for the phagocytic destruction of bacteria the serum contains properties which are of essential importance. We may hope that future researches will disclose methods by which the phagocytic power of the leucocytes may be increased, a condition which does not necessarily coincide with an increase in the number of the leucocytes.

The accompanying illustration with some modifications is taken from "Ehrlich's Seitenkettentheorie," by Ludvig Aschoff. The cell used for immunization is assumed to be a cell which will cause the formation of antitoxin, agglutinin or precipitin, and bactericidal amboceptors; the diphtheria bacillus is such an organism considering toxin as one of the receptors of the bacillus. This means that the bacillus is able to cause the overproduction of all three types of receptors. The illustration, however, is on the basis of a hypothetical cell.

(*To be continued.*)

Clinical Report

POISONING BY ORANGEINE.

J. L. MILLER, M.D.
CHICAGO.

A recent report in THE JOURNAL on some of the coal-tar products[1] recalls to mind a case I saw about three years ago of fatal orangeine poison.

I was first called to see the patient, a young lady, physically sound, who had been taking orangeine powders for a number of weeks for insomnia. The rest of the family noticed that she was very blue and for this reason I was called. When I saw the patient there was extreme cyanosis, not only on the ears and beneath the nails, but on the face and the entire extremities as well. She complained of a sense of faintness and inability to keep warm. At this time she had taken a box of six orangeine powders within about eight hours. She was warned of the danger of continuing the indiscriminate use of the remedy, but insisted that many of her friends had used it and claimed that it was harmless. The family promised to see that she did not obtain any more of the remedy. Three days later, however, I was called to the house and found the patient dead. The family said that she had gone to her room the evening before in her usual health. The next morning, the patient not appearing for breakfast, they investigated and found her dead. The case was reported to the coroner and the coroner's verdict was: "Death was from the effect of an overdose of orangeine powders administered by her own hand, whether accidentally or otherwise unknown to the jury."

While the chemicals in these powders, as the published analyses have shown, do not differ from what a physician would prescribe for headache, I think one of the serious dangers is that these orangeine powders are advertised as being harmless and this, of course, leads the patient to take them freely, being governed by the relief of pain only; while the same remedies prescribed under a physician's directions would be taken only at stated intervals, thus removing one of the very objectionable features of this class of drugs.

100 State Street.

1. THE JOURNAL A. M. A., June 3, 1905, p. 1791.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE . . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

SATURDAY, JUNE 24, 1905.

[The large amount of space occupied by the index in this issue compels us to omit several departments, and to curtail others.]

THE CURRENT INDEX.

For several years THE JOURNAL has been printing an index to the current medical literature of the world, besides an index to the contents of THE JOURNAL itself, that for the current volume appearing in this number. We wish again to emphasize the fact that we are giving in this index a guide to the current medical literature of the world, not so full as is contained in the Index Medicus, but sufficiently so to make it very valuable to those who wish to look up any subject. As usual, we shall make a reprint of the index, incorporating in the reprint titles that are referred to, and which appeared week by week in THE JOURNAL. These titles, with the index to them, present the medical literature of the world for six months just passed in compact form, for easy and ready reference. The price of this reprint is fifty cents, or seventy-five cents per annum.

SERUMTHERAPY IN HEMOGLOBINURIA.

Although an enormous amount of work has been done in the field of serum therapy, up to the present time practically nothing has been accomplished in the treatment of diseases other than those having a microbic origin. When we consider the work and the time spent in the study of specific sera with all their related problems and the enormous accumulation of facts with extremely complex theories to explain them, we need not be surprised if occasionally the practicing physician who cannot possibly keep up with all of the advances made in this field should utter a word of protest and call for more results which may be of use to him in a practical way. It is with interest, therefore, that the attention of the profesion is directed to some very important results obtained by Widal and Rostaine[1] by directly applying certain facts observed in the study of hemolysis to a case of hemoglobinuria. The patient was a woman who had typical attacks of hemoglobinuria when exposed to even slight degrees of cold. Exposure to a temperature of 10° C. for ten minutes or immersing the hand in water at 10° C. for one-half hour was sufficient to bring on the attacks, which might last for several hours. The hemoglobinuria was preceded by hemoglobinemia. In order to counteract, if possible, this diffusion of hemoglobin from the red blood corpuscles under the above mentioned conditions an antibody or antihemolysin was prepared by injecting an animal several times with human serum. Serum from this animal when injected into the patient had the specific effect of greatly diminishing the action of cold in bringing on the attacks of hemoglobinuria. For instance, exposure to +3° C. for forty minutes did not cause the least signs of hemoglobin in the urine, while this exposure previous to the administration of the serum caused a long and severe attack. The protection lasted for about four weeks and was lost in direct proportion to the diminution of the antibody in the blood.

The explanation given by the authors of the hemoglobinuria caused by the low temperature is as follows: Normally there is present in the plasma a hemolytic and an antihemolytic body which are in a state of equilibrium. The latter is very sensitive to cold, its action being lessened thereby. The former then becomes active and attacks the red blood cells, causing hemolysis to occur. This patient, then, may be considered to have an insufficiency of antihemolytic substance and hence the condition may be remedied by the introduction of an antihemolytic substance, which is readily produced in an animal by inoculation with human serum.

Cases of this sort are rare, especially when such definite symptoms as here occur can be so accurately controlled. For that reason, the results are striking. Of course, results from one case are of little value in themselves but may be extremely suggestive however, and certainly those who may have occasion to observe cases of this character should attempt to substantiate these results, and should report on their investigations.

1. C. R. Soc. Biologie, vol. lviii, 1905.

DROWNING ACCIDENTS.

We are just entering on the season of the year when nearly every morning paper brings the news of a drowning accident. These accidents are mostly the result of carelessness and, as foolishness is a disease, for which unfortunately there is as yet no specific curative serum, they will continue to happen. There are, however, a certain number of these accidents that might be avoided if the necessity for careful precautions was impressed on the minds of individuals who run special risks owing to some readily recognized physical conditions. There are a number of deaths from drowning while bathing in which the victim, though a good swimmer, seems to have been utterly unable to make any effort to save himself. It is usually considered that in these cases there was a simultaneous series of cramplike seizures in various groups of muscles that completely unnerved the swimmer. There is, however, a growing doubt in the minds of many physicians with regard to the acceptance of this explanation. It would seem as though something more serious than cramps were the cause of the help-

lessness that ensues. Special attention has recently been called to the fact that persons who have been suffering from middle ear disease and who have already had some symptoms of vertigo are more likely to be the victims of these accidents than are others. It seems not improbable that something happens in the semi-circular canals and that this is the reason for the utter helplessness. Swimming is, after all, mainly a balancing feat in the water. The semi-circular canals are the organs of direction, and the maintenance of equilibrium depends on them. If there should be then a sudden hemorrhage even of very small amount, into this delicate organ (and the possibility of such an accident is never far off amid buffeting waves), the result would surely be serious if the person swimming were at the moment beyond his depth. Persons then who suffer from middle ear disease should be warned not to take risks in swimming beyond their depth, particularly on blustery days, when breaking waves are likely to prove sources of injury to structures that are already not in the best resistive condition.

There is another class of cases for whom a warning also seems necessary. Certain neurotic individuals are especially liable to suffer from cramp-like seizures that for a time prevent the use of their limbs. Unfortunately, this class of persons is rather prone to make foolhardy attempts to swim distances beyond their strength. Their neurotic habit makes them especially liable, through auto suggestion, to lose control over their motor apparatus, and consequently to become helpless on such a swimming journey. If there is no one near them the fright adds to their paretic condition, and the result is that, unless rescue is immediate, another drowning accident is added to the long list. Not a few of these persons have had warnings in the shape of sudden moments of fright during which their swimming power was seriously impaired, on previous occasions, and yet they dare to encounter similar danger again because they harbor the notion that by training they can discipline themselves not to be so timorous. This is, however, an extremely imprudent procedure. As a matter of fact, all persons with any tendency to cramp-like seizures should be advised against going beyond their depth except under such circumstances that they can be assured of prompt assistance in case of need.

ADVERTISING PSYCHOLOGY.

Much has been said recently, even in prominent educational circles, about the psychology of advertising, and this subject is considered to require special study on the part of those who would succeed in capturing the gentle buyer. We are interested only in the psychology of medical advertising and especially in one feature of it, the psychology of the mail order business in proprietary medicines. There is a special periodical devoted to the instruction of those who wish to make fortunes out of selling by mail, which contains in a recent issue the following paragraph:

"They say we are all crazy on some subject, and my long experience has taught me that there are tens of thousands of men and women on this continent who are absolutely crazy on the subject of ordering by mail. Many of them spend their entire earnings in this way. This is the class you must reach. 'But how am I to reach that class?' you say."

The publisher offers to furnish the names of such persons at a reasonable remuneration per thousand.

He does not, however, merely furnish names in general, but he has specific classes of would-be purchasers with whom he can put his clients in touch. For instance, he offers to supply lists of names of persons suffering from various diseases. Such diseases he says he has carefully classified. The remuneration for these names is as might be expected much higher than for just the ordinary lists of individuals who may have a fad for buying by mail. There are different prices for lists of those suffering from different forms of disease. As might be expected, the names of sufferers from private diseases of various kinds command the highest price, since such persons are usually known to be much more gullible than others. We should like to have the details of the prices for lists of sufferers from other diseases, since in this way some idea for medical purposes might be obtained of the affections which are supposed to affect the minds of patients more than others and thus make them fall more readily the victim to the wiles of the mail order man.

The publisher of this guide to wealth by the mail-order-business route has much to say about the necessity for proper supervision of the mails and for the careful issuance of fraud orders against those who have abused the mailing privileges. Indeed, there is so much of this in his columns that the casual reader is apt to think within himself that he protests too much. Certain it is that some of the scheming which he suggests smacks very strongly of deliberate deceit of the public by means of certain simple medical formulæ. He has, for instance, a prescription for rheumatism that he offers to sell very reasonably to whomever may wish to advertise it, guaranteeing that it can be put up for a few cents and sold for a dollar a box. There is a formula for vaginal wafers, which he says can be put up in boxes at the cost of about three cents a box, to retail at $2.00. Their success, he adds, has been remarkable during the past twenty years. "They sell best under a woman's name."

It would be well for physicians to warn sufferers from certain classes of diseases not to allow their names to get into the hands of any proprietary medicine concern, since they are liable to be passed on from one to another under certain conditions and so the sufferer is likely to find himself deluged with literature calling attention to other remedies for his disease after he has failed to find the first one that he tried helpful

and has given up its use. There are hundreds of thousands of sufferers who are desperate enough to grasp at any straw; and there are always villains who have the straws to offer.

THE MEDICAL SITUATION IN RUSSIA.

The effect of the war on the medical profession in Russia, has been marked, according to the testimony in the *Archives Générales de Médecine,* of Dr. Marcon, a French physician, resident in St. Petersburg. Nearly all the army reserve physicians, as well as the more advanced students of the medical schools, have been called to the front, and while there are yet sufficient in the cities for the paying clienteles, the country districts are almost without physicians. It has been proposed to open the gates, temporarily, to foreign physicians, under the condition that they are acquainted with the Russian language, but, as Dr. Marcon says, there will probably not be many who will avail themselves of these conditions. Country practice in Russia is not ordinarily attractive and in the present state of affairs and in case of epidemics, such as the now threatening cholera, the situation of the physician among the ignorant peasantry might easily be unpleasant, if not, indeed, actually perilous. Another peculiar feature which deserves mention is that the present political agitation has resulted in the closing of all the institutions of higher education, including the medical schools. Professors and students have alike "struck," to use the common expression of the day, and this serious interruption occurs at a time when the young physicians have gone to the war, and pestilence is threatening a large portion of the empire. If cholera does come it will find a clear field for its ravages in Russia. Still another thing that he mentions is the marked increase of insanity among the soldiers. Between internal disturbances and external war the empire of the czars is in a bad way. "Let us have peace."

THE LAST (?) WORD FROM CONCORD.

The daily press of June 12, contained "Mrs. Eddy's Good-By." Those who recoil from open blasphemy will be comforted at the prospect of a cessation of the Concord pronunciamentos. Unhappily this "last" deliverance is more shocking to the Christian sense of the community than most of its predecessors. Mrs. Eddy calmly announces that hers is "a new religion," that she herself is "an interpreter of Jesus' teaching," and that her book, "Science and Health," is "a fulfillment of the New Testament promises of a latter-day revelation"! The whole document is a series of questions propounded by a correspondent of the Boston *Herald,* together with Mrs. Eddy's replies. Having given this last public utterance, Mrs. Eddy desires that she now be permitted uninterrupted opportunity, "to assimilate myself to God"! On the medical side, this proclamation shows that denial of the obvious facts of life is not inconsistent with great modifications of belief and teaching due to very appreciable contact with those same mundane phenomena. "There is no material science" and "Christian Science denies the existence of disease germs," but in case of infectious disease the Christian Scientist must yield himself to the customary treatment of isolation and disinfection "if the law demands it." Asked whether a "Scientist" should disregard the laws of hygiene or should make use of physical culture and fresh-air treatment, Mrs. Eddy artfully dodged. As to the propriety of calling on the resources of surgery she replied "Yes and no," which must be very satisfying to her sane followers who believe in her omniscience. She does not opine that society could get along without jails, almshouses, hospitals, and philanthropic works, but cripples, criminals and poverty would cease to exist if the world would abandon the study of disease and crime and devote itself to the study of wealth, health, and love. Only to a slight extent can it be claimed that Mrs. Eddy "improves with age." The recent revolt of one of her leading Boston champions with his bitter denunciation of her methods and motives undoubtedly has been a hard blow to Mrs. Eddy and her followers. Signs of dissension and disintegration are multiplying, though in some places the cult yet appears to spread.

Medical News

ILLINOIS.

Personal.—Dr. William Hill, Bloomington, who has been critically ill, is reported to be improving.——Dr. Mont. M. Brown, Quincy, will go to India as a medical missionary in September.——Dr. Robinson R. Whiteside, Moline, has been appointed county physician for the poor in Moline, and Dr. Cyrus T. Foster, for the poor in Rock Island.——Dr. H. H. Fletcher, North Henderson, has returned from Europe.——Dr. James M. Postle, De Kalb, has been commissioned assistant surgeon, Illinois National Guard, with the rank of first lieutenant.

Military Surgeons Meet.—At the annual meeting of the Association of Military Surgeons of the State of Illinois, held at Danville, June 8, the president, Col. N. Senn, and the secretary, Lt.-Col. Charles Adams, both of Chicago, were re-elected. Dr. Charles D. Center, Quincy, read a paper on influenza; Lt.-Col. George Paull Marquis, Chicago, presented an article on "Mastoid Operation;" Col. Senn gave an abstract of an exhaustive article on iodin and its use as a bactericide and especially as a streptococcicide, and Capt. S. C. Stanton, Chicago, demonstrated the method of physical examination of recruits. The association decided to hold its next meeting in Moline.

Chicago.

Rush College Commencement.—On June 16 Rush Medical College graduated a class of 71. Dr. Ira Remsen, president of Johns Hopkins University, Baltimore, delivered the doctorate address, and the dean, Dr. Frank Billings, conferred the degrees.

Personal.—Dr. Richard J. Tivnen and his mother sailed for Europe June 13.——Dr. Marie A. Olsen has been re-elected president of the Tabitha Norwegian Hospital Society.——Dr. Charles J. Whalen has been appointed commissioner of health, vice Dr. Arthur R. Reynolds.

The Death Record.—For the elapsed 17 days of June the rate was 12.73; for the week ended June 17 there were 458 deaths, equivalent to an annual mortality of 12.01, and the average of the decade is 14.00. June, 1904, is the record month of lowest mortality—the rate being 11.02 per 1,000 of the population. Among the important causes of death showing decrease the most notable are: Pneumonia, 18; consumption, 10; heart disease, 12; Bright's disease and measles, 8 each, and typhoid fever, 4. The acute intestinal diseases show an increase of 12; bronchitis of 9, and diphtheria of 4. Only two suicides were reported during the week—the smallest number in any one week for several years—the average weekly number during the previous ten years being 7.5.

INDIANA.

Personal.—Dr. Frederick F. Kremer, Versailles, has been appointed physician of Ripley County.——Drs. B. B. John, Gentryville, and Charles S. Williams, Columbia City, are seriously ill.

The Law Supreme.—After a long and determined contest between the unregistered osteopaths of Indiana and the State Board of Medical Registration and Examination, the board has won. Ed. C. Crow, Elkhart, abandoned further opposition, pleaded guilty to practicing medicine without a license, and was fined $25 and costs, which he paid.

La Porte County Medical Society.—The thirtieth anniversary of this society was held at La Porte June 14. After the program clinical cases were presented, and in the evening a banquet was given at the Teagarden Hotel, at which the first president, Dr. George L. Andrew, and the first secretary, Dr. Nelson S. Darling, the only two surviving charter members, were the guests of honor.

May Morbidity and Mortality.—The most prevalent disease in May was rheumatism. Diarrhea, which stood seventh in April, rose to second place. Diseases of the air passages, as tonsillitis, bronchitis, influenza and pneumonia, and also cerebrospinal meningitis, decreased very materially. Smallpox by comparison with the same month last year, showed a remarkable decrease. Only 25 cases were reported from 11 counties, with 2 deaths, whereas in May, 1904, there were 259 cases in 36 counties, with 6 deaths. Typhoid fever also shows a decrease. There were 307 cases reported from 23 counties, with 32 deaths. Pneumonia in May last year caused 319 deaths, and this year only 170. The death rate for the whole state was equivalent to an anual mortality of 11.3 per 1,000. By important ages the deaths were: Under 1 years, 310, or 13.1 per cent.; from 1 to 5, 126; from 5 to 10, 41; from 10 to 15, 39; from 15 to 20, 110; 65 and over, 681, or 28.9 per cent. of the total. Cancer caused 122 deaths. There were in all 143 deaths from violence, 5 of which were homicides and 23 suicides. Of the suicides 7 were females; 9 employed carbolic acid, 5 hanging, 4 shooting, 1 drowning and 1 jumped from a train.

MARYLAND.

Baltimore.

Personal.—Dr. Ronald T. Abercrombie has been appointed director of athletics at the Johns Hopkins University. For seven years he has been identified with Hopkins athletics and was its star lacrosse player. He has also received the appointment of resident physician at the Church Home and Infirmary. ——Dr. Hubert Richardson has returned from a trip to Jamaica.

Hospital Buys New Quarters.—The South Baltimore Eye, Ear and Throat Hospital has purchased a permanent home for $13,000. The lot is 90 by 200 feet and is improved by a building containing 15 rooms. This is the third special hospital of the sort in Baltimore, the others being the Presbyterian and the Baltimore, the former in the eastern, the latter in the western part of the city.

Home for Invalid Children.—The Harriet Lane Home for Invalid Children will be built on the grounds of the Johns Hopkins Hospital. It was provided for by the late Mrs. Harriet Lane Johnston, niece of President Buchanan. She left the residue of her estate for this purpose, which provides an endowment of about $400,000. An expert investigation will be made of the best children's hospitals at home and abroad before the plans are made.

Johns Hopkins Hospital Appointments.—The following appointments to the staff of the Johns Hopkins Hospital are announced: Medical—Drs. Douglas Vanderhoof and Frank Roul, Baltimore; Khleber H. Beatty, Fort Worth, Texas, and William L. Moss, Athens, Ga.; surgical—Drs. Julius Theodore Haller, Davenport, Iowa; Clifton M. Faris, Sacramento, Cal.; Robert B. Slocum, Albany, N. Y., and Edward H. Richardson, Farmville, Va.; gynecologic—Drs. Harry Weil, San Francisco, Cal., and Frederick R. Ford, Elmira, N. Y. Two appointments remain to be announced.

Johns Hopkins Faculty Changes.—The commencement of the Johns Hopkins University was held June 13. The following appointments in the medical faculty were made: Dr. William Osler, honorary professor of medicine; Dr. Florence R. Sabin, associate professor of anatomy; Dr. William S. Baer, associate in orthopedic surgery; Dr. Thomas R. Boggs, associate in medicine; Dr. Charles H. Bunting, associate in pathology; Dr. Richard H. Follis, associate in surgery; Dr. William W. Ford, associate in bacteriology; Dr. J. Morris Slemons, associate in obstetrics; Dr. George Walker, associate in surgery; Dr. J. Hall Pleasants, instructor in medicine; Dr. Francis C. Goldsborough, assistant in obstetrics; Dr. Arthur W. Meyer, assistant in anatomy; Dr. Robert Retzer, assistant in anatomy, and Dr. George H. Whipple, assistant in pathology. The two university fellows in pathology and physiology are Drs. Ernest K. Cullen and J. A. E. Eyster. The Adam T. Bruce fellow in biology is Forrest Shreve, Ph.D. Interest centers in the associate professor of anatomy from the fact that a woman has been given the position.

MASSACHUSETTS.

Will Build Cottage Hospital Ward.—The Ladies' Aid Society of Malden has asked permission to raise the $2,500 to be used in erecting a small cottage hospital ward on the hospital grounds.

Bequests.—Mrs. Emily Warren Appleton has left by will, $5,000 to the Kindergarten for the Blind, $2,000 to the Massachusetts Charitable Eye and Ear Infirmary, and $5,000 to the Instruction District Nursing Association.

State Society Meeting.—The sessions of the Massachusetts Medical Society in Boston, June 13 and 14, were very largely attended. The following officers were chosen: President, Dr. Arthur T. Cabot, Boston; vice-president, Dr. Frederick H. Thompson, Fitchburg; treasurer, Dr. Edward M. Buckingham, Boston; corresponding secretary, Dr. Charles W. Swan, Brookline; recording secretary, Dr. Francis W. Goss, Roxbury, and librarian, Dr. Edwin H. Brigham, Brookline.

Fraud Order Issued.—The postoffice department has issued another fraud order in Boston, this time against the Dr. A. M. Wells Company. The basis for these actions is illustrated in the following opinion of the case by E. W. Lawrence, acting assistant attorney general:

> The business of the concern is fraudulent for two reasons: first, the representations of the advertisement used to induce patients are in numerous and material respects false and fraudulent; second, the company fraudulently treats patients for diseases with which they are not afflicted, and accepts money for so doing, well knowing that the patients do not need such treatment, or, as a matter of fact, any treatment whatever. The representation that the doctor of this concern is a graduate of Harvard Medical College is false and fraudulent.

MISSOURI.

Personal.—Dr. Finis L. Anderson and family, Joplin, sailed for Europe June 15.——Dr. Porter E. Williams, Bunceton, assumed his duties as superintendent of Hospital for the Insane, No. 1, Fulton, June 13.——Dr. John A. J. James, St. Louis, departed for Europe June 15.——The new board of managers met June 13, 1905, and elected Dr. William F. Kuhn, Kansas City, superintendent of State Hospital No. 4 for the Insane, Farmington, succeeding Dr. Frank L. Keith.

State Appointments.—The governor has announced the following appointments: Drs. Paul Y. Tupper, St. Louis; Robert H. Goodier, Hannibal; W. S. Thompson, Armstrong, and John T. Thatcher, Oregon, members of the State Board of Health. Drs. William M. Bayless, Macon, and L. Claude McElwee, St. Louis, as members of the commission to locate the state sanatorium for the treatment of pulmonary tuberculosis, for the location and erection of which $50,000 was appropriated by the last legislature. Dr. Frank J. Lutz of St. Louis was reappointed surgeon general on the governor's personal military staff.

Hospital News.—The Frisco System Hospital to be built in St. Louis will be erected corner of King's Highway and Euclid Avenue. In all probability this will then be made the central hospital of the system, taking the place of the present hospital located at Springfield.——Work has been commenced on an $85,000 addition to the Evangelical Deaconess' Hospital at Sarah Street and West Belle Place, St. Louis. Owing to an overcrowded condition of the hospital this step has become imperative, and building will be pushed as rapidly as possible. ——The Robert A. Barnes Hospital will not be built for another year, and possibly longer, as the funds are not sufficient to erect the hospital. The official name of the institution will be the "Robert A. Barnes Hospital." It is an entirely separate undertaking from the Barnes Medical College. Robert A. Barnes died about twelve years ago, leaving $1,000,000 for the erection of a hospital. The fund is under the supervision of the Methodist Episcopal Church South, but the hospital will be non-sectarian.

NEW YORK.

New York City.

Off for Europe.—Dr. and Mrs. Walter F. Chappell sailed on the *Cedric* for Liverpool, June 16.——Dr. and Mrs. George C. Freeborn sailed on the *Vaterland* for Dover, June 17.——Dr.

and Mrs. George R. Lockwood sailed on the *König Albert* for Genoa, June 17.

For Sanitary Treatment.—The Christian Workman's Institute wants to have a bill passed in the legislature providing for the purchase by the city of unsanitary tenements in order that model buildings may be put up in their place. The Church Association for the Advancement of the Interests of Labor will indorse this movement.

High Death Rate.—The death rate for the week ended June 15 was 17.73 per 1,000, while for the corresponding week of 1904 it was 16.61. The cause of this increase is the unusually large number of deaths from heart disease, pneumonia and tuberculosis. The deaths from heart disease numbered 123, as against 58 for the same period of 1904.

Cornell Commencement.—The seventh annual commencement exercises of the Cornell University Medical College were held June 14. Dr. Jacob G. Schurman, president of Cornell University, conferred degrees on a class of 72, which included eight women, and Dr. George H. Simmons, Chicago, delivered the commencement address on "Work, the Basis of Success in Medicine."

Contagious Diseases.—There were reported to the sanitary bureau for the week ended June 10, 770 cases of measles and 18 deaths; 522 cases of diphtheria, with 30 deaths; 339 cases of tuberculosis, with 167 deaths; 152 cases of scarlet fever, with 13 deaths; 52 cases of cerebrospinal meningitis, with 57 deaths; 49 cases of typhoid fever, with 10 deaths; 120 cases of chickenpox, and 1 case of smallpox.

Work of the Milk Dealers' Association.—The executive committee of this association, of which Dr. Ernest Lederle, former health commissioner, is the moving spirit, have had a meeting for the purpose of drafting a constitution and by-laws. So far 45 of the leading milkmen have joined the movement. One milk dealer has been sentenced to five days' imprisonment in the Tombs. He is the second dealer who has been imprisoned instead of fined. Within the past week 17 dealers have been fined from $5 to $150 each.

Dispensary Treatment of Tuberculosis.—Drs. T. W. Bickerton and D. M. Barston, members of the committee appointed to review the work of curing tuberculosis carried on at the Post-Graduate Hospital Dispensary, announce that 5 more cures have been effected. This makes a total of 45 passed on by the committee since it has been conducting experiments to show that uncomplicated cases of pulmonary tuberculosis could be cured by dispensary treatment. The treatment employed is founded on the fact that consumption is a result of malnutrition. It aims to build up the body by a scientific diet faster than the disease can break it down. In order to make sure that the patients consume the proper quantity of food they are made to report at the dispensary twice daily and drink there an emulsion of fats.

PENNSYLVANIA.

Hospital Saturday and Sunday in Pittsburg.—The sum of $6,700 was distributed among the associated hospitals of Pittsburg June 9 by the Hospital Saturday and Sunday Association.

Injured Physicians.—Dr. Addison M. Rothrock, West Chester, while trying to separate two fighting bulldogs June 1, fell and broke his right arm below the elbow.——Dr. Martin E. Griffith, Manor, was seriously injured in a runaway accident May 30, near Monessen.

Health Advisers Named.—Governor Pennypacker has appointed the following advisory committee to act with Dr. Samuel G. Dixon, the new state health commissioner: Dr. Charles B. Penrose, Philadelphia; Dr. Samuel T. Davis, Lancaster, former member of the assembly and president of the State Board of Health; Leonard Pearson, Philadelphia, state veterinarian; Dr. Adolph Koenig, Pittsburg, president of the Medical Society of the State of Pennsylvania; B. H. Warren, West Chester, state dairy and food commissioner, and Lee Masterson, Johnstown, civil engineer.

Philadelphia.

Money for Germantown Hospital.—Germantown Hospital has received $5,000 each from Dr. and Mrs. George Woodward, Mr. Randal Morgan and Stephen Green.

Personal.—Dr. William S. Wadsworth, a coroner's physician, was operated on for appendicitis in the German Hospital, June 14.——Dr. Wilbur Pepper was thrown from his carriage in a runaway accident June 16 and sustained a fracture of the left arm.

Meeting of the Medical Club.—The regular quarterly meeting of the Medical Club was held June 16. It was given in honor of the prominent medical publishers of America. Among the publishing houses represented were W. B. Saunders & Co., P. Blakiston's Son & Co., Lea Brothers & Co., J. B. Lippincott Co., E. B. Treat & Co., D. Appleton & Co., and other guests.

University Commencement.—The one hundred and forty-ninth annual commencement of the University of Pennsylvania was observed June 14 in the Academy of Music. The class oration was delivered by Dr. George Harris, president of Amherst College, and a class of 108 was graduated. The honor men were Drs. Arthur Hilton Payne, Frederick A. Packard, George Morris Piersol, Henry A. Schetze and H. R. Owen.

Health Report.—The deaths from all causes during the week ended June 17 numbered 421. This is a decrease of one from those reported last week, and an increase of 33 over that of the corresponding period of last year. Typhoid fever is still prevalent, 17 deaths being due to this condition; an increase of 6 deaths as compared with last week. The principal causes of death were: Typhoid fever, 17; tuberculosis, 69; diphtheria, 9; cancer, 21; apoplexy, 13; heart disease, 39; acute respiratory disease, 39; enteritis, 36, and Bright's disease, 32. There were 269 cases of contagious disease reported, with 29 deaths, as compared with 229 cases and 20 deaths for the previous week.

GENERAL.

Plague in Hawaii.—Two cases of plague have occurred at Hilo. One patient is recovering, but in the second case the prognosis is doubtful.

American Association of Genito-Urinary Surgeons.—At the annual meeting, held in Montreal June 13 and 14, the following officers were elected: President, Dr. F. Tilden Brown, New York; vice-president, Dr. William K. Otis, New York; secretary, Dr. John Van der Poel, New York; member of council, Dr. Hugh H. Young, Baltimore. Next place of meeting, New York City.

Health Report of the Philippine Islands.—The health report of the Philippine Islands and the city of Manila for February states that during the month there were 581 births—309 males and 272 females. There were 670 deaths in Manila, of which number 608 were residents and 62 transients. The infant mortality represented 49 per cent. of the total deaths of the month. The largest number of deaths from any one cause was 191, from convulsions of children. There were 105 deaths from tuberculosis of the lungs, 32 from chronic diarrhea, 8 from typhoid fever and 15 from meningitis.

Frisco System Medical Association.—At the annual meeting of this association the following officers were elected for the ensuing year: President, Dr. B. F. Fortner, Vinita, I. T.; vice-presidents, Drs. R. J. Redden, Sulligent, Ala.; J. E. Teft, Springfield, Mo.; J. L. Burns, Jonesboro, Ark.; J. A. McAllester, Sapulpa, I. T.; G. C. Purdue, Wichita, Kan.; W. E. Hempstead, Arapahoe, O. T.; W. E. Sturgis, Stephensville, Texas; P. M. Farmington, Memphis, Tenn.; M. J. McNeill, Olive Branch, Miss.; secretary, R. W. Hogeboom, Springfield, Mo.; treasurer, W. A. Camp, Springfield, Mo.

Meeting of American Medical Society for Study of Inebriety and Alcohol.—The thirty-fourth annual meeting will be held in the Atkinson school building, Portland, Ore., July 12 and 13, 1905, beginning at 9 a. m. Dr. W. S. Hall, Chicago, will deliver the annual address. The committee on the influence of alcohol in literature and history will make a report through its president, Dr. John Madden. The committees on heredity as a cause in disease and spirit taking and on patent medicines will report. Papers will be read by Drs. MacNicholl, Steward, Nash and others. The second session, Thursday, July 13, at 9 a. m., will be a memorial service to the late Dr. N. S. Davis.

Special Meeting of the National Tuberculosis Association.—A special meeting of the National Association for the Study and Prevention of Tuberculosis is called for July 6, at 4 p. m., in Room 613 of the United Charities building, 105 East Twenty-second street, New York City, to consider the following amendments and additions to the by-laws which were approved by the board of directors at the annual meeting in Washington, May 18, 1905:

Article II, Section 1 of the By-laws shall be amended to read as follows: Section 1. The association shall, at its first meeting, elect a board of thirty directors, divided into five groups of six each to serve one, two, three, four and five years, the duration of office to be determined by lot; thereafter, retiring directors, who have served a full term of five years, shall not be eligible for re-election the year of retirement; provided, however, that this restriction shall not apply to the secretary or treasurer. The Board of Directors may hereafter, at the annual meeting or at a special meeting of the Association, be increased to at least sixty, the additional members to be divided into groups in accordance with the provisions of the preceding paragraph of this section and subject to the same restrictions. It is furthermore provided that at least one-third of the total membership of the board shall consist of laymen. At

annual meetings succeeding the increase of the board of directors to a membership of sixty, twelve directors shall be elected for terms of five years, or, in case of vacancies in any of the groups, for such unexpired terms.

Article VIII of the By-laws shall be amended to read as follows: Propositions to amend the Constitution may be presented in writing, etc.

Article IX shall be amended to read as follows: By-laws may be amended in the same manner as the Constitution, or by a two-thirds vote of the members present at a meeting of the Board of Directors, provided that in the latter case the proposition to amend has been presented in writing at a previous meeting of the Association, or of the Board of Directors, and that subsequently to such presentation twenty days' notice in writing has been given of the proposed amendment in the call for the meeting.

CANADA.

University News Items.—The medical faculty of Queen's University, Kingston, Ont., will ask the Ontario government for financial aid, the same as promised to the medical faculty of Toronto University, for the hospital.——McGill University, having found that extension has worked well in the province of British Columbia, may establish a college at Calgary, N. W. T.

Personal.—Dr. E. K. Cullen of the house staff of the Toronto General Hospital, and a brother of Dr. Thomas S. Cullen, Baltimore, has been appointed a fellow in pathology at Johns Hopkins University, Baltimore.——Two French medical students, recently in Winnipeg, have reached Wetaskiwin, Alberta, N. W. T., on their tour around the world, and in strict accordance with the terms prescribed, they are traversing this continent on foot. After reaching Vancouver they will embark for the Orient.——At the annual commencement exercises of the University of Toronto, June 9, the following honorary degrees were conferred: Lewellys F. Barker, Baltimore, M.D.; Dr. J. Algernon Temple, Toronto, LL.D.; Hon. Dr. R. A. Pyne, LL. D.——Dr. Freeman has resigned from the position of medical superintendent of the Hamilton (Ontario) General Hospital. Dr. E. R. Secord, Brantford, Ont., and Dr. McIlwraith, Binbrook, Ont., are stated to be applicants for the position.——Dr. Charles O'Reilly, the retiring superintendent of the Toronto General Hospital, was tendered a banquet on the evening of June 10 by his medical friends in Toronto and vicinity. Dr. O'Reilly was the recipient of an address and two handsome pieces of silver plate. Dr. O'Reilly, with Mrs. O'Reilly, his brother, Dr. Gerald O'Reilly of Guelph, and his only son, Dr. Breffney O'Reilly, will sail July 1 for Ireland and a two years' visit to the old land.

Ontario Medical Association Meeting.—The twenty-fifth annual meeting of this association was held in Toronto, June 6-8, and proved one of the best and the second largest meeting in the history of the organization. Dr. William Burt of Paris, the president, was present at all the sessions and delivered the annual presidential address. Dr. A. J. Ochsner, Chicago, delivered the address in surgery, taking for his subject, "Surgery of the Stomach from the Standpoint of the Clinician," a paper which was listened to with marked attention, was very much appreciated, and resulted in a vote of thanks, and a prolonged and intelligent discussion. Dr. W. B. Pritchard, New York, delivered the address in medicine, his subject being, "The American Disease—an Interpretation," a deliverance which excited some adverse comment, owing to the fact that Canadians claim to be Americans, while yet British, and further, because of the fact that we on this side of the line are not much afflicted with that malady. Dr. H. A. Bruce's paper reported 400 operations for appendicitis in the past eight years, and advocated the calling of the surgeon as soon as the medical man made his diagnosis. Dr. R. W. Bruce Smith, inspector of hospitals and insane asylums, read a paper on "Preludes to Insanity." The author's desire to do away with the words asylum and lunatic met with unanimous approbation. Dr. D. Campbell Meyers read a paper on "Wards in General Hospitals for Acute Nervous and Mental Diseases," which resulted in a committee being appointed to see this matter prosecuted. It was decided to convene next year in Toronto, with Dr. George A. Bingham of Toronto, president; Dr. Charles P. Lusk, Toronto, secretary, and Dr. Fred. Fenton, Toronto, treasurer, although the next meeting of 1906 may be a purely business one, as the presence of the British Medical Association in Toronto in 1906 is looked for.

FOREIGN.

Advertising Medical Sheets and the Medical Societies.—The international conference of the medical press last month was recently mentioned in these columns. The question of "house organs" was discussed at some length, with special reference to the so-called medical journals which are distributed gratis and which are liable to be taken seriously by certain people. A resolution was adopted asking medical societies everywhere to undertake a sanitary reform in this matter and to exclude this class of periodical. This will allow the true scientific publications to take rank and to distinguish themselves by some external sign which will prevent the gratis journals from imposing on the public.

Unveiling of the Tarnier Monument.—On June 1 the memorial erected by subscription to Tarnier was unveiled with appropriate ceremonies at Paris, Brouardel presenting the monument to the city. It is on the rounding projecting wall of the Tarnier clinic, facing the Place de l'Observatoire, and represents in bas relief Tarnier standing by the bedside of a young mother, who is clasping her babe in her arms. There is a suggestion of an incubator in the background. The bas relief is framed with columns and frieze above, like an ornamental portal. Above is the inscription, "Tarnier, 1828-1897." Below are the words, "To the master who consecrated his life to mothers and children, his colleagues, his pupils, his friends, his admirers."

Use of Anesthesia and Radiography in Medicolegal Testimony.—The Paris Society of Forensic Medicine recently appointed a committee to study this question. The report was to the effect that it is the right and the duty of the medicolegal expert to utilize anesthesia and radiography in his examination when indicated. At the same time he must bear in mind that neither is absolutely free from danger up to the present. He must not resort to them without discussing the subject with the examinee and obtaining his written consent. In case of his refusal to submit to these measures, the expert must state the fact in his report, but without drawing any conclusions, leaving it to the court to judge of the motives which instigated the refusal.

Antityphoid Inoculations.—THE JOURNAL mentioned on page 1569 the recent antityphoid inoculation of about 2,000 officers and men of a German regiment leaving for southwest Africa. The *Lancet* comments on these inoculations that the irony of fate has appointed that this regiment has been quartered in a station which is practically never visited by typhoid fever. This medical policy is on a par, it adds, with that in England when antityphoid inoculation was abolished in the army. Not only the inoculations were ordered suspended, but also the collection of data in regard to the later history of the many thousands previously inoculated. Antityphoid inoculation has been reintroduced into the British army, but the advantages of the previous experience were practically lost. The German committee in charge of the antityphoid inoculations regards the subject as one of national moment.

International Medical Association Against War.—Dr. J. A. Rivière is a Paris physician of English parentage who has made a specialty of physicotherapy. He was recently decorated by the French government, and the banquet tendered him by his friends on this occasion was presided over by Lancereaux, president of the Paris Académie de Médecine. As THE JOURNAL recently mentioned, page 1287, Rivière has organized an international medical association whose aim is solely to oppose the outbreak of any more wars. The membership is limited to physicians the world around, and they are urged to join this new and unique international association and lend their aid to a systematic crusade against further warfare. The membership dues are $1 a year. They may be sent to Dr. J. A. Rivière, rue des Mathurins 25, Paris, France. The medical journals of the world are asked to aid in the crusade against war by publishing the aims and proceedings of the association when fully organized.

International Congress on Accidents to Workingmen.—The first congress of this kind convened at Liège, May 29. Among the principal subjects discussed were the importance of hernia from the standpoint of industrial insurance and compensation for injury, and whether industrial poisoning should be classed with surgical injuries in respect to compensation. The membership list numbered 575 and a large English contingent was present. The French and Germans were particularly interested in the discussions of the "free choice" of a physician by the injured or sick workman. This is known as the "American plan," and is generally opposed by the accident and sickness insurance societies on the continent. Nuel's compromise was finally accepted and ratified by a vote of the congress. This provides for "free choice," while allowing the proprietor to have the case supervised by his accredited physician, and also provides for a disciplinary council to prevent abuses from the system. The importance of investigating the causes of an accident was emphasized by several speakers, especially the

value of the testimony of the injured party. By this means it has proved possible to unearth and remedy various defects which have prevented recurrence of similar mishaps. The regulations in Holland during the last two years were commended. They provide for medical inspection of the causes of the accident, in consultation with an engineering expert to suggest changes in the machinery, etc., to guard against recurrence.

Epidemic Cerebrospinal Meningitis in Germany.—The committee sent from Berlin to study the epidemic in Silesia has made its report. In 29 cadavers examined the tonsils were found enlarged and also the lymph glands in the neck and the thymus. The nasopharyngeal space was always plugged with tenacious mucus, beneath which the walls were found red, swollen and edematous. The anterior portion of the nose was generally normal, but the accessory cavities were frequently affected. These findings indicate that the germ is inhaled and enters through the lymphatic apparatus in the upper air passages and finds its way thence into the meninges. The region of the sella turcica was always the first involved. The lymphatic disposition seemed to afford a special tendency to the disease, those children in the family being affected who presented this disposition, while the others escaped, and the cases always being most severe in such children. The total number of cases in the epidemic of Prussia to May 1 has been 1,935, with 994 deaths, and in the Oppeln district, to May 7, 1,955 cases, with 1,002 deaths. The disease seems to confer a certain immunity and the possibility of producing a curative serum is now being investigated. The summer weather, it was hoped, would arrest the epidemic, but this hope has not been realized to date. The lack of regulations permitting coercive measures for isolation of patients has contributed to keep the epidemic alive. A bill has been presented to parliament conferring drastic powers in this respect on sanitary officials and physicians in their attempts to curb the spread of transmissible diseases.

Fate of the Medical Accident Insurance Company.—A band of physicians in Belgium organized an accident insurance company a few years ago, to keep the profits of accident insurance in the hands of the profession. The founders pointed out how sickness and accident insurance companies wax fat on the exploitation of the medical profession, and they asked what was to hinder physicians from organizing and conducting such a corporation and profiting thereby. The Médicale, as the Belgian society is called, competes with other accident insurance companies on their own ground, not restricting its policyholders to the medical profession by any means. The central main office is at Liège, 4 place du Theatre. It has thriven well, and divided annually 15 per cent. of the surplus among the shareholders. A new law recently went into operation which made the reincorporation of the society necessary. The legal steps were taken last month when the shareholders and the profession at large were confronted with the absolute refusal of the authorities to accept the young society. This refusal, it is expressly stated, is "not based on any juridical consideration nor on any motive touching the intrinsic worth of the company," but no further explanation is vouchsafed. Eight of the eleven members of the committee having the matter in charge voted, it seems, against accepting the Médicale, qualifying it as a "powerful and dangerous syndicate of medical men." The *Gazette Méd. Belge* does not hesitate to ascribe this refusal to the lobbying influence of lay insurance societies, jealous of this invasion into their ranks. Physicians throughout the country are protesting against this humiliation and injustice, and some have even proposed to retire in a body from all the unremunerated official positions they now occupy. This radical step finds no support, but one medical society, on receipt of a request from the government to cooperate in a collective inquiry in regard to tuberculosis, with blank circulars to be filled out, sent them back unopened, stating their grievance as that the government in refusing to accept the Médicale places an entire class of the citizens of Belgium outside the pale of the law. It evidently wishes to impress on physicians that they must not do anything but practice medicine, and should not try to make money in any ways except those inherent in their profession. Consequently they protest against this decision, and respectfully regret that they are constrained to refuse their disinterested aid to the government under these circumstances.

LONDON LETTER.

Outbreak of Sore Throats Due to Infected Milk.

A severe outbreak of sore throats which occurred in Colchester during the second half of April has been traced by the health officer, Dr. Savage, to infected milk derived from a cow suffering from mastitis. The outbreak was confined to the western parts of the town and involved from 500 to 600 persons. The symptoms were those of septic sore throat, with much constitutional disturbance and high temperature. Bacteriologic examination showed that the disease was due to streptococci. Some of the cases clinically resembled diphtheria and could be distinguished only by bacteriologic investigation. The outbreak began about April 16 and ceased about April 29, but the greater number of cases occurred between April 20 and 25. Though many of the cases were severe, none were fatal. Females were attacked more frequently than males, and adults were more affected than children. Consideration of the possible causes led the health officer to suspect the milk. Of 140 cases reported, he found that 123, or 88 per cent., from all over the town were supplied with milk by one particular vendor, while of those from the part of the town specially affected no less than 96.6 per cent. were supplied from this source. House-to-house inquiries showed this even more clearly. In 57 houses supplied by this dealer there were 53 cases of sore throat, while in 217 houses supplied by other dealers there were only 13 cases. The implicated dealer obtained his milk from six farms, and it was found that one particular round was especially affected and that this round usually received the milk from one particular farm. The cows of the six farms were examined. One of the cows of the suspected farm had extensive mastitis and a number of cases of sore throat had occurred on the farm. All the cows on the other farms apparently were healthy. After the selling of the milk from this cow was stopped the outbreak ceased.

Cancer Research at the Middlesex Hospital.

The fourth report of the Cancer Research Laboratories of the Middlesex Hospital has just been published under the editorship of Dr. Lazarus-Barlow. The majority of the papers are statistical and are based on the extensive records of the hospital, which alone among the general hospitals of the metropolis makes special provision for cases of cancer. Dr. Lazarus-Barlow contributes a paper on cancer ages based on cases admitted to the hospital from 1746 to 1904. The age given is that on admission and probably approximately corresponds with the age at which the patient first observed the growth. The total number of cases comprises 2,073 males and 4,659 females. The following conclusions are drawn: 1. The mean age of the males was 55.2 years; of the females 49.9. 2. Cancer of the alimentary tract is about seven times as common in males as females, but this difference gradually and uniformly diminishes as the seat of the primary growth is lower in the tract. 3. The mean age of liability of males to cancer of the alimentary tract is 55 years; that of females 52.5 years; but in cancer of the liver and gall bladder the mean age of female patients is higher than that of males. 4. In males 80 per cent of all cancer affects the alimentary tract; in females 80 per cent. affects the generative organs, including the breast. 5. In both sexes the generative system tends to be affected earliest and the cutaneous system latest; the alimentary system occupies an intermediate position. 6. Cancer before the age of 35 is commoner in women than in men, and in both sexes shows a tendency to affect the generative tract. The second paper is on the sites of cancer and is contributed by Dr. Lazarus-Barlow and Dr. Gordon Taylor. An attempt is made to ascertain whether the general increase in cancer affects every organ or not. The statistics appear to show that an increase in the mortality from cancer has occurred in the alimentary tract, stomach, colon, and rectum and anus in both sexes; in the lip, tongue, floor of the mouth, cheek, and esophagus in males; and in the uterus and breast in females. On the other hand, there was a diminution in mortality from cancer of the lip, tongue, floor of the mouth and vulva in females, and from rodent ulcer and cancer of the skin in both sexes.

The Royal Institute of Public Health Congress in London.

The Royal Institute of Public Health will hold a congress in London, July 19-25. An elaborate program has been arranged both of social functions and scientific proceedings. Special arrangements have been made for visits to the following institutions: The Smallpox Diagnosing Station at South Wharf, and thence by ambulance boat to the Joyce Green Fever Hospital; the school at Swanley, where 300 cases of ophthalmia are under treatment. The children live in cottage homes and the treatment is carried on concurrently with their education; the Downs school, where 420 cases of ringworm are under treatment.

Pharmacology

ACETANILID MIXTURES.

Two weeks ago we published the official report of the Council on Pharmacy and Chemistry relative to certain acetanilid mixtures. It may be of interest to quote from the literature of some of these preparations. Incidentally it should be known that acetanilid is worth about 31 cents a pound, carbonate of ammonia about 15 cents a pound, and bicarbonate of sodium 3 cents a pound. Apparently, therefore, these preparations cost less than 5 cents an ounce, including packages, labels, etc., and yet sell at from $1 to $1.25 an ounce.

Phenalgin.

This week we reproduce from the advertising literature of the Etna Chemical Company some of the claims made for phenalgin. It will be remembered that in the published analysis of phenalgin the smallest amount found by any analyst was the amount specified. Judging from all the analyses made, it is probable that phenalgin contains more than 60 per cent. of acetanilid. This should be kept in mind when reading the following.

We have before us a so-called reprint of an article entitled "Physiological Effects of Phenalgin on Uterine Tissue. Alice B. Condict, M.D., Ludhiana, Punjab, India." [We fail to find any Dr. Alice B. Condict in late British or American medical directories, but a graduate of Chicago Homeopathic Medical College, 1883, of this name, at one time practiced in Orange, N. J. Whether or not this is the same individual we have no means of knowing.] On the first page is a reproduction of the title page of an esteemed contemporary as follows: "Annals of Gynecology and Pediatry, September, 1904, vol. xvii, No. 9." As we failed to find this article in the journal in question, we communicated with the editor and found that the article actually appeared in that journal, but in the advertising pages, a fact which was not hinted at by the phenalgin people. We quote from the reprint:

"With regard, however, to the use of phenalgin in time of difficult labor, we would wish to show that it does something more than simply relieve pain in the first stage of labor. That it has a specific action on the round muscle or sphincter of Os Uteri refuses to dilate and allow the fetal head to pass its the tension is overcome and the spasm relieved. * * * It is in such difficult cases, where from actual irritation of an inflamed Os Uteri, or from spasm of the fibers of the circular muscle, resulting from undue nervous tension, where the Os Uteri refuses to dilate and allow the fœtal head to pass its reluctant door, that phenalgin has a most benign and simple action that surpasses the skillfully handled rubber bags, or the many remedies that are so often useless.

"Even when valuable time has been wasted, and dangers from delay have caused exhaustion, so great that the worst may be feared, still, let not the Accoucher fear to use this benign remedy, while taking care to sustain the patient's failing strength by proper nourishment, remembering that phenalgin has a specific stimulating action on the tired heart. * * * "

The following testimonials from physicians are further illustrations of the remarkable powers claimed for this acetanilid mixture:

"Our Necessities in Practice, by O. Henley Snider, A.M., M.D., Atlanta, Ga." "One of the chief feelings of consolation in the employment of phenalgin lies in its safety, removing doubts or restless apprehensions of approaching depression, heart troubles, syncope or collapse, and this property renders its application preferable in almost or quite every disease accompanied with pain. * * * A Swede, engaged in merchandise business, was seized with nephritic colic of a most violent character. His groans were heard for blocks distant, and the painful agonies had set up a profuse but perverted perspiration. It was plain that life could last but a short time without relief. A chloroform liniment was freely rubbed over the right kidney, and the patient was given five-grain capsules of phenalgin with half-grain morphia sulphate. At the end of half an hour he was given another five-grain dose of phenalgin, and was left with a supply of five-grain doses to be taken a while before meals —t. i. d.—for a few days. He has never had another attack, though he has kept phenalgin on hand, taking a small dose when symptoms of approaching attack were thought to be felt. * * * This preparation has been proven to possess positive properties for dissolving and removing calculus formations, eliminating uric acid, and overcoming chronic or subacute irritations of the urinary tract. It has given happy results in some painful prostatic conditions, and in one case of agonizing chordee, where the sufferer had wished for relief for days, phenalgin relieved the patient, and thus aided in a cure.

"For Doctors by a Doctor, by Walter J. Hansen, M.D., St. Joseph, Mo." "Clarence R.——Struck on mastoid with rock: doctor called third day after accident at 7 p. m. Patient's temperature, 103, vertigo and vomiting, dull throbbing pain over mastoid. Mastoid opened and drained by doctor in kitchen, by lamplight without hospital electric light or trained nurse, phenalgin taking the place of the nurse, keeping the patient quiet and comfortable, used as often as necessary, and as long as necessary without the nose-bleed caused by acetanilid, or the habit caused by opium preparations." * * * [The reference to acetanilid is interesting in light of the fact that the analyses showed phenalgin to contain over 60 per cent. acetanilid.] "Mrs. F.—Pneumonia; temperature, 103-105, cough all the time, heart action irregular. Phenalgin in ten-grain doses every two hours, then five-grain doses every two hours for forty-eight hours." [Are we to believe that this patient, "with heart action irregular," received over five grains of acetanilid every two hours, over one dram of acetanilid in twenty-four hours, and lived?!!]

"Alcoholic Gastritis, by J. A. Hopheimer, M.D., late attending surgeon, Harlem Hospital Dispensary, New York." * * * "Phenalgin is a coal-tar product, and so combined with ammonia that, while its sedative action is marked, it exerts a tonic effect upon the heart; and its decidedly alkaline reaction makes it a valuable adjuvant in the treatment of these cases."

[Analysis of certain samples of phenalgin purchased in the open market in original sealed packages did not show ammonia, which may be due to carelessness in the preparation of the article, or to volatilization. Through the action of time and exposure small quantities of phenalgin remaining in the original vials have no ammonia odor and assume a yellowish color, evidently due to decomposition of the acetanilid into anilin by the alkalies present.]

We quote the following excerpts from the advertising descriptive literature distributed by the manufacturers: "Phenalgin, in ten-grain doses, gives prompt relief and induces refreshing sleep; and in nausea due to reflex causes, as in pregnancy or pneumonia, given in small doses, one or two grains dry on the tongue, it has completely controlled the attack. Phenalgin being slightly laxative [which of the constituents possesses laxative properties?], acting upon the liver and as a general glandular stimulant, is a valuable eliminant, thus being the opposite of opium and its derivatives or other analgesics; consequently its administration is devoid of the disagreeable after-effects to be expected when other drugs are given. No habit is ever acquired by taking phenalgin; this positive assertion is borne out by the most extensive clinical experience [?!] It supplants opium and its alkaloids. * * * Phenalgin may be given to great advantage from the beginning of the discomfort, and, indeed, it is often well to give it in anticipation. The relaxation produced is most satisfactory, and the sedation to the irritated nerves is most pronounced. Ten-grain doses may be very safely administered every two to four hours during the menstrual period, and it should be given preferably with hot water. It checks fermentation (sic) and depression, being rather a stimulator to the heart than otherwise. Its tendency is also in a direct and gentle manner to arouse the secretions, being mildly laxative. It can thus be safely administered as a steadying agent for the reflex disturbances of the heart. * * * Many of the nagging, aching pains of gout are lost sight of during the day, the mind being absorbed by manifold duties, but when night comes they assert themselves in a most potent way. Phenalgin will invariably relieve these pains, and, being alkaline and a gentle stimulant of secretions, it will assist in the removal of the cause."

Ammonol.

The manufacturers of ammonol, which the analyses showed to be, to all intents and purposes, almost identical with phenalgin, are more modest in their claims for its therapeutic value. They make a few statements, however, which most physicians will take *cum grano salis;* for example: "Ammonol —A destroyer of the plasmodium of malaria." [!!!] "It is an invaluable remedy in dysmenorrhea and in dyspeptic disorders, for the relief and permanent cure of gastralgia, hyperacidity of the stomach and atonic dyspepsia."

"Ammonol in Malarial Paroxysm, Cyrus Edson, New York; Reprint from the National Board of Health Magazine." [We are not familiar with the publication.] * * * This agent has for a long time been known favorably as a malarial remedy. It unlocks the secretions, stimulates and has a selective action on the liver and not unlikely is a destroyer of plasmodium of malaria. That ammonol is an effective germicide can readily be proved by its action on the disease when given as the sole treatment in cases of it. I find the treatment I have given as most certain, however, and I can not too highly recommend it."

Compare the two following statements taken from the advertising literature: 1. "The efficacy of ammonol in dysmenorrhea has been thoroughly tested by the medical profession. They have found that it relieves pain promptly and surely. They know that it is safe because the habit of taking it for any narcotic or stimulating effect can not be acquired and because, instead of depressing, it sustains the heart's action."

2. "With the cessation of pain the ammonol should at once be discontinued, as it is best not to accustom the system to its effects, as when it is actually needed its action will not be so marked." [No habit!!!]

The above is all advertising matter—reading notices, as it were—but we make no charge for inserting it. It reads well in connection with the analyses of the preparations which we published. This subject will be continued.

Council's Work Approved.

Resolutions presented to the House of Delegates of the Ohio State Medical Association by the Academy of Medicine of Cleveland indorsing the action of the American Medical Association in creating a Council on Pharmacy and in the work of that body relative to the question of proprietary medicines were adopted unanimously.

Association News

THE PORTLAND SESSION.

The following is quoted from the official program of the Portland session, now in press:

Program of Entertainments.

TUESDAY EVENING, JULY 11.

General reception and smoker with special program of entertainment and with refreshments, at the American Inn, Lewis and Clarke Fair Grounds, given to the members of the American Medical Association by the city and county, state and district societies. (Subject to change.)

WEDNESDAY, JULY 12.

Trolley ride to Portland Heights, 7 a. m. Cars leave First and Washington Streets. Free to members and their families.

Afternoon—Ladies' entertainment.

Evening—Receptions at private residences.

THURSDAY, JULY 13.

Trolley ride to Portland Heights, 7 a. m. Same as Wednesday.

Afternoon—Ladies' entertainment.

Evening—Grand fête on Exposition grounds, with special program in New York State Building, music, dancing, fireworks, refreshments, etc.

FRIDAY, JULY 14.

Columbia River excursion. Boats leave Ash Street dock at 8 a. m.

Detailed program will be issued by Committee on Arrangements.

General Meetings.

THE GENERAL MEETINGS WILL BE HELD IN THE ARMORY OF THE OREGON NATIONAL GUARD, TENTH AND COUCH STREETS.

OPENING MEETING, TUESDAY, JULY 11—10:30 A. M.

Call to Order—The President, JOHN H. MUSSER, Philadelphia.

Prayer—REV. A. A. MORRISON.

ADDRESSES OF WELCOME.

On behalf of the State of Oregon, by GOVERNOR GEORGE E. CHAMBERLAIN.

On behalf of the City of Portland, by MAYOR DR. HARRY LANE.

On behalf of the Oregon State Medical Society, by the President, GEORGE F. WILSON, M.D.

On behalf of the City and County Medical Society, by the President, H. W. COE.

Report of Committee on Arrangements—K. A. J. MACKENZIE, Portland.

Introduction of the President-elect, LEWIS S. MCMURTRY, Louisville, by the retiring President, JOHN H. MUSSER, Philadelphia.

Address of the President—LEWIS S. MCMURTRY, Louisville.

TUESDAY, JULY 11—7:30 P. M.

Oration on Medicine—CHARLES G. STOCKTON, Buffalo, N. Y.

Oration on Surgery—JOHN COLLINS WARREN, Boston.

WEDNESDAY, JULY 12—7:30 P. M.

Oration on State Medicine—GEORGE BLUMER, San Francisco.

Memorial Address on Dr. Nathan Smith Davis—HENRY O. MARCY, Boston.

New York Special to Portland.

Through the strenuous efforts of Drs. Frederick Holme Wiggin and Wisner R. Townsend of New York, and Dr. Cyrus Lee Stevens of Pennsylvania, a goodly number of physicians will leave New York June 24, for their forty-day trip. The train will consist of five sleeping cars, a dining car, a composite car and a baggage car. The itinerary of this train, as well as of all other special trains, was given in the special illustrated "Portland Number" of THE JOURNAL, June 3, pages 1761 to 1779.

Marriages

JOHN A. JUNCK, M.D., to Miss Lydia Albers, both of Sheboygan, Wis., June 3.

JAMES E. CASEY, M.D., to Miss May Evelyn Leahey, both of Detroit, Mich., June 7.

ARCHIBALD MCINTYRE, M.D., to Miss Julia Mullins, both of Marion, S. C., June 7.

QUINTAIN COOPER, M.D., to Miss Ollene Hulett, both of Columbia, Mo., June 9.

NATHAN T. BEERS, M.D., to Miss Isabel Lockwood, both of Brooklyn, N. Y., June 19.

HERBERT T. BARNES, M.D., Chicago, to Miss Olive Morefield of Elkhorn, Wis., June 7.

AMBROSE J. GALLISON, M.D., to Mrs. Mima A. Holmes, both of Franklin, Mass., June 6.

FREDERICK A. ERB, M.D., Minneapolis, Minn., to Miss Jessie Cribb of Milwaukee, June 20.

WILLIAM MCDOWELL, M.D., to Miss Virginia L. Coburn, both of Seattle, Wash., June 6.

S. L. BARNETT, M.D., Arnold, Miss., to Miss Josephine Patterson of Shivers, Miss., June 7.

R. CLAUDE FOSTER, M.D., Argenta, Ark., to Miss Minnie Lou Graham of Lonoke, Ark., June 4.

CLAY MCKITTRICK, M.D., to Miss Ella Whisman of Washington, Ind., in Illinois, Dec. 25, 1904.

CYRUS KNAPP MERRIAM, M.D., to Miss Miriam Hooper Tannalt, both of Spokane, Wash., June 6.

FRANKLIN PETRY, M.D., Thayer, Ind., to Miss Elva Amy of Wheatfield, Ind., at Rensselaer, Ind., June 5.

LELA NELL FRENCH, M.D., and Prof. Carl C. McClelland, both of Benton Harbor, Mich., June 7.

MAURICE S. DAVIS, M.D., Lexington, Ky., to Miss Olga Rosenberg of Louisville, June 15.

CLAUDE C. CRUM, M.D., Jeffersonville, Ind., to Miss Myrtle Emery of New Albany, Ind., June 22.

ROBERT BALLANTINE SWEET, M.D., to Miss Maud Emma Clark, both of Clarion, Iowa, June 14.

WILLIAM F. WORK, M.D., Charlestown, Ind., to Mrs. Belle Graham of Jeffersonville, Ind., June 20.

WILLIAM F. JONES, M.D., McCook, Neb., to Miss Martha Anna McNish of Norfolk, Neb., June 14.

FLOYD M. BALDWIN, M.D., North Muskegon, Mich., to Miss Cora A. Moulton of Ashton, S. D., June 13.

ARTHUR C. BLAINE, M.D., Brunswick, Ga., to Miss Emma Christine Lundin of Richmond, Va., June 14.

JOHN HANCOCK FUCHSIUS, M.D., to Miss Martha Louise Englehardt, both of New York City, June 14.

THEODORE B. PEARSON, M.D., Louisville, Ky., to Miss Ethel Lewis Dunham of Jeffersonville, Ind., June 21.

OTTO C. CRAWFORD, M.D., Stone Creek, Ohio, to Miss Ada Viola Kinsey of Oldtown Valley, Ohio, June 4.

HENRY ALBERT, M.D., Iowa City, Iowa, to Miss Edith Whiteis of Urbana, Iowa, at Iowa City, June 10.

WILLIAM R. WATTERSON, M.D., to Miss Catherine Curran, both of Pittsburg, Pa., at Allegheny, Pa., June 20.

WILLIAM FRED ACKER, M.D., Monroe, Mich., to Miss Mildred Hoag Crane of Grand Ledge, Mich., at Detroit, June 7.

Deaths

David Dennison Stewart, M.D. Jefferson Medical College, Philadelphia, 1879, a member of the American Medical Association; a member of the Philadelphia College of Physicians and Surgeons; physician-in-chief to the Episcopal Hospital; a specialist of acknowledged power in neurology, died at his home in Philadelphia, June 3, after a second operation for appendicitis, aged 46.

Edward Newhall, M.D. Harvard University Medical School, Boston, 1848, a member of the Massachusetts Medical Society, and for many years consulting physician to the Lynn (Mass.) Hospital, died at his home in Lynn, June 12, from senile debility, after an invalidism of nine weeks, aged 82.

Martin Luther Chambers, M.D. New York University, New York City, 1871, vice-president of the First National Bank, Port Jefferson, Long Island, N. Y., and once president of the local board of education, died suddenly from heart disease, at his home in Port Jefferson, June 12, aged 62.

William E. Maloney, M.D. University of Vermont Medical Department, Burlington, 1887, some-time city physician, councilman and alderman of Keene, N. H., and representative for two terms, died at his home in Keene, June 1, after an illness of two years, from consumption, aged 40.

Richard G. Turner, M.D. Medical Department of the University of Louisiana, New Orleans, 1860, of Houston, Texas, assistant surgeon and surgeon in the Confederate service during the Civil War, died at the home of his son in Houston, June 8, after an illness of eight weeks, aged 65.

Louis James Sutton, M.D. University of Maryland School of Medicine, Baltimore, 1855, who practiced for many years in St. Mary's County, Md., died at the home of his daughter in Hyattsville, Md., June 11, from injuries received in a bicycle accident a year before, aged 73.

William Randolph Chalker, M.D. Medical College of the State of South Carolina, Charleston, 1878, a member of the board of aldermen of Lake City, Fla., and local surgeon for the three railroads intersecting at that place, died June 2, at his home, after a short illness, aged 57.

John H. Mullen, M.D. Jefferson Medical College, Philadelphia, 1867, assistant surgeon in the Twenty-eighth Pennsylvania Volunteer Infantry during the Civil War, died suddenly at his home in Bellefonte, Pa., June 3, from heart disease, aged 72.

Arthur H. Gardner, M.D. College of Physicians and Surgeons in the City of New York, 1898, died suddenly at his home in New York City, June 12, from poisoning by hydrocyanic acid, self-administered for the relief of chronic bronchitis, aged 37.

Gustave C. Vibrance, M.D. University of Minnesota College of Medicine and Surgery, of Watkins, Minn., a member of the American Medical Association, died at St. Luke's Hospital, St. Paul, June 10, from kidney disease, aged 33.

Charles W. Bush, M.D. Cleveland Medical College, 1854, in 1872 state senator and said to have been the author of the first medical practice bill introduced in California, died at his home in Los Angeles, June 8, aged 80.

John W. Williams, M.D. Medical College of Virginia, Richmond, 1864, of North Garden, Va., died at the University of Virginia Hospital, Charlottesville, from acute peritonitis after appendicectomy, June 11, aged 65.

Mordecai Yarnell, M.D. St. Louis Medical College, 1867, formerly gynecologist to St. John's Hospital, St. Louis, died at his home in that city June 10, after an illness of several months, aged 62.

Virgil Buell, M.D. Long Island College Hospital, Brooklyn, N. Y., 1871, for many years town clerk of Plainville, Conn., died suddenly in his office in that place, June 8, from heart disease, aged 57.

Joseph N. Black, M.D. Rush Medical College, Chicago, 1883, a member of the Adams County Medical Society, died at his home in Clayton, Ill., June 8, from an overdose of morphin, aged 45.

Sion H. Jurden, M.D. Toledo (Ohio) Medical College, 1897, of Clayton, Mich., died at his father's home near Lima, Ohio, after an illness of four months, from rheumatic endocarditis, aged 34.

Samuel Sylvanus Finkbinder, M.D. Jefferson Medical College, Philadelphia, 1865, died suddenly from heart disease at his home in Parkerford, Pa., June 11, aged 67.

John C. Hardy, M.D. Atlanta (Ga.) Medical College, 1892, was shot and instantly killed in a fight with the mayor and marshal of Chipley, Ga., June 9.

Francis Drummond Gilbert, M.D. Royal College of Surgeons, England, 1891, died at his home in Irvington, Cal., May 31, aged 85.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

DECREASE IN VIRULENCE IN EPIDEMICS.

A. B. B. asks: "Is there a tendency in epidemics of certain diseases to become less fatal toward the close of the epidemic than in the beginning? If this is true, in what diseases has it been noticed?"

ANSWER.—Insofar as a search of treatises on epidemiology and various text-books of medicine shows, there is little of a statistical nature which permits of a satisfactory answer to this question. History points out that certain infections, e. g., syphilis and measles, are much more virulent when first introduced among a people or race, than at a later period when the disease has existed endemically for a long period of years. It is thought that the great European pandemic of syphilis centuries ago was much more virulent than the syphilis which is endemic in all civilized countries to-day. Iceland, naturally free from measles, was more than decimated by the epidemic of 1882-84, and the same is true of an epidemic in the Faroe Islands. The decrease in mortality in certain infections which has come about with time, as typhoid, syphilis, may in part be due to a gradual immunization of the race, but improved therapeutics may play even a more important part, as in diphtheria and typhoid. The variations in the virulence of different epidemics have been noted in connection with most acute infectious diseases, and these variations are most logically explained by variations in the virulence of the specific organism. In a given locality rather long periods often exist between two successive epidemics, and it is probable, or at least possible, that the organism causing the second outbreak is a different strain from that which caused the first. On clinical grounds it seems that the late pandemic of influenza was more virulent at its inception than later. In a Chicago hospital, which treated from 65 to 75 cases of typhoid fever in the summer of 1902, the mortality decreased from about 33 per cent. the first month to about 15 per cent. the second, and still less the third. In the typhoid epidemic of Winnipeg, Manitoba, from 1900 to 1904, the mortality has fluctuated from 6 per cent to over 10 per cent. in such a manner that the variations may be due to other causes than wide alterations in the virulence of the bacillus. In diseases having a seasoned or

climatic distribution, measles, diphtheria, yellow fever, and to some extent typhoid, subsidence of epidemics is explainable on other grounds than decreased virulence of the organism.

MAY TAPEWORM INFECTION BE CAUSED BY DRIED BEEF?

In our reply to "Inquirer" in regard to the above question, published in this department, June 10, page 1872, we made an absurd blunder. Scores of letters have been received criticising the answer given, but we can give space to the following only:

TRUXTON, ARIZ., June 14, 1905.

To the Editor:—In THE JOURNAL of June 10 "Inquirer" asks: "Can dried or 'jerked' beef infect the human alimentary canal with the tapeworm larvæ as does raw beef?" In reply, you speak of *trichinæ*, an altogether different organism. The question of the transmittal of tapeworm larvæ is one in which I have been and am greatly interested. During several years in the U. S. Indian service I have seen many cases of tapeworm. I believe it safe to say that fully 15 per cent. of the adult Sioux Indians on the Cheyenne River reservation, in South Dakota, have tapeworm, and it is not uncommon among the children. Nearly all of the beef consumed by these Indians is "jerked," though it is true the older Indians eat some raw beef. It seems to me that in the majority of these cases the larvæ must be obtained from the "jerked" meat. I have known cases to develop on the reservation among white people and half-breeds, who positively ate no raw beef. It is possible that the beef is not properly dried, especially in the fall. Among these people tapeworms cause grave anemia in some instances, and I think often pave the way for tuberculosis. I never miss an opportunity to warn them against underdone or raw meat, but the warnings are seldom heeded.

ALBERT L. TILTON, M.D.,
U. S. Indian Service.

LINCOLN, NEB., June 14, 1905.

To the Editor:—In THE JOURNAL, June 10, p. 1872, there is an evident slip, since the question of your correspondent refers to tapeworm larvæ, or hydatid cysts, and not to trichinæ. Regarding trichinæ it may be said that the herbivores are infected with some difficulty and become infested with trichinæ only by artificial feeding with flesh containing the larvæ of this parasite, so that the chance of obtaining trichinæ from beef, under any circumstances, may be regarded as *nil*. So far as tapeworm larvæ are concerned, the duration of life of the beef tapeworm larva (*Cysticercus bovis*) is in any event short, and as the form seems to be rather susceptible to external influences, the processes in making dried or jerked beef would probably destroy the life of the parasite, especially if the beef were kept a short time. There do not seem to be experiments on record regarding this factor.

HENRY B. WARD.

RANDOLPH, OHIO, June 12, 1905.

To the Editor:—Is it not a fact that trichinæ are never found in beef, but in pork alone? Are they not the cause of trichinosis instead of tapeworm? You surely did not mean that tapeworm was caused by trichinæ.

JOHN J. ORTON.

HOW TO USE THE INDEX.

KENILWORTH, D. C., June 8, 1905.

To the Editor:—I am writing to you to ascertain something in regard to the index in THE JOURNAL. I am hunting for the record of a paper by Dr. E. F. Ingals, read before the American Medical Association, at Atlantic City, N. J., in the summer of 1904, entitled "A Method of Removing the Tonsils with Snare." On referring to index of Dec. 31, 1904 (Vol. XLIII, No. 27, page 2111), I find "Ingals, E. F., (130) 153, (9) 281, *1514." With the exception of page 1514 I can find nothing pertaining to this author. Can you tell me what these numbers refer to and where I can find the article desired?

FREDERICK W. DIDIER, M.D.

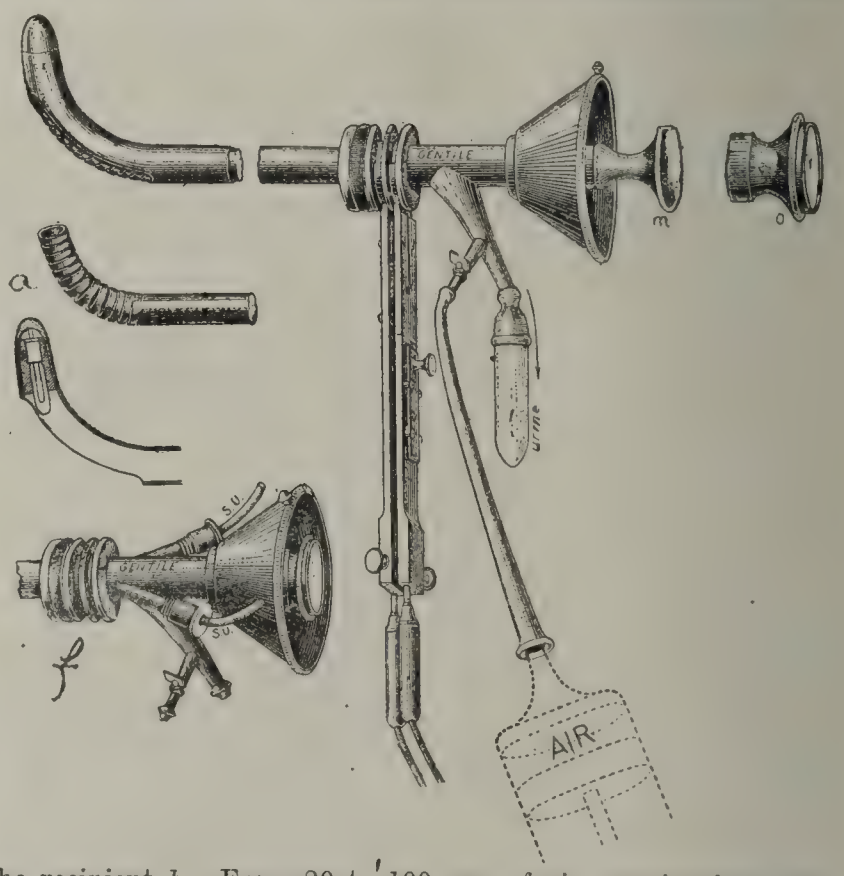
ANSWER.—One who consults any index, the size of which requires the use of abbreviations, will naturally begin by reading the "directions on the label." The "Explanation" of the Current Medical Literature Index of Vol. XLIII is at the beginning, on page 2076. Our correspondent apparently thinks he is using an index to "reading matter" in THE JOURNAL, but he refers to the Index to Current Medical Literature, a list of original articles published in the leading medical journals of the world. We will explain in detail the search for this article which our correspondent desires. Remembering from the "Explanation" that figures in parentheses refer to the numbered paragraphs and that all other figures are the numbers of pages, one turns first to page 153. Here, at paragraph 130 one finds the title of an article by Dr. Ingals, with the name and date of issue of the publication in which the article appeared. Since this is not the article desired, the next reference, (9) 281, is then looked up. Neither is this the article desired, and the only remaining reference is *1514 (the star meaning that this article appeared in full in THE JOURNAL). Our correspondent has already looked at page 1514, and has found that the article there given is not the one desired. This issue of THE JOURNAL, containing the index for January to June, 1905, gives opportunity to look further for the article. Turning to page 2063 of this issue, one looks up the various references under the name of the author until the reference to *386 is reached. Here is found the desired article, published in THE JOURNAL, Feb. 4, 1905. Incidentally one sees that the title of the article, "Tonsillectomy, Thorough, Painless and Safe" is slightly different from the one quoted by our correspondent above. This serves as a reminder that if one were looking for an article by title instead of by name of author, one should look for related words, lest one had failed to remember the exact wording.

Miscellany

Enterprise of Porto Rico Medical Society.—The little bulletin issued monthly by this society plans to index without comment the original articles in all its exchanges. The exchanges are then loaned to members on demand, and by this means the society has a catalogued circulating library of contemporaneous periodical literature with scarcely any expense. The editor is Dr. M. Ramirez of San Juan.

Necessity for Precautions Against Radium.—Mme. Curie mentioned some time ago that the apparatus kept in the same room with radium were affected by it, and those which could be injured by it soon became useless. A Swiss journal states that certain apparatus kept in the same room with some radium register now entirely different figures from those of two years ago. It has also been found that the influence of the radium is not restricted to the room, but extends throughout the entire building and many substances in it become radioactivated. The journal adds that, according to experiences to date, this saturation with radium will keep on increasing in intensity for two or three years, and that the subsidence will be so gradual that after forty years the intensity will be reduced only one-half.

Air Cystoscope.—F. Cathelin is "*chef de cliniquc*" at the Necker Hospital at Paris and is also widely known by his method of epidural cocainization for incontinence and by his intravesical urine segregator. He has now invented a cystoscope, for which he claims several advantages over the ordinary cystoscope in vogue. Its principal superiority is in the fact that the bladder is distended with air instead of a fluid, which renders the views much clearer. The guide is a flexible coil, shown at *a* in the illustration. The urine flows out spontaneously into



the recipient *b*. From 20 to 100 gm. of air, previously sterilized with an alcohol flame, are injected with a Guyon syringe, and the bladder can then be inspected with ease. He remarks in his illustrated description of the new "air cystoscope" that he was able to see better in one hour with it than after a year's practice with the ordinary cystoscope. His article is published in the Paris *Tribune Médicale* for May 27, with 6 illustrations, of which the first is reproduced. The model with the openings for catheterization of the ureters, is shown at *f*.

State Boards of Registration

COMING EXAMINATIONS.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

Board of Medical Examiners, Central District, I. T., South McAlester, I. T., July 3. Secretary, B. W. Caldwell, Hugo.

Board of Medical Examiners of Arizona, Phoenix, Ariz., July 3-4. Secretary, A. Martin, Phoenix.

Utah State Medical Examiners, Salt Lake City, Utah, July 3-4. Secretary, R. W. Fisher, Salt Lake City.

North Dakota State Medical Examining Board, Grand Forks, July 5. Secretary, H. M. Wheeler, Grand Forks.

State Medical Examining Board of Washington, Seattle, Wash., July 5. Secretary, C. W. Sharples, Seattle.

State Medical Examining Boards of the Regents, State House, Concord, N. H., July 7-8. Regent, H. C. Morrison, Concord.

State Medical Board of the Arkansas Medical Society, Little Rock, July 11. Secretary, J. P. Runyan, Little Rock.

Rhode Island State Board of Health, State House at Providence, commencing at 9 a. m., July 11. Secretary, G. T. Swarts, State House, Providence.

Wisconsin Board of Medical Examiners, Park Hotel, Madison, Wis., July 11. Secretary, F. A. Forsbeck, Milwaukee.

State of Connecticut Medical Examining Board, City Hall, New Haven, Conn., July 11-12. Secretary, C. A. Tuttle, New Haven.

Maine Board of Registration of Medicine, State House, Augusta, Maine, July 11-12. Secretary, Wm. J. Maybury, Saco.

Vermont State Board of Medical Registration, Y. M. C. A. Hall, Burlington, Vt., July 11-12-13. Secretary, W. Scott May, Underhill.

Kansas State Board of Medical Registration and Examiners, State House, Topeka, Kan., July 12-13. Secretary, G. F. Johnston, Lakin.

South Dakota Board of Medical Examiners, Sioux Falls, S. Dak., July 12-13. Secretary, H. E. McNutt, Aberdeen.

Board of Medical Supervisors, Washington, D. C., July 13. Secretary, Wm. C. Woodward, Health Department, Washington.

California State Board of Medical Examiners, San Francisco and Los Angeles, Cal., July 19. Secretary, C. L. Tisdale, San Francisco.

Louisiana May Report.—Dr. F. A. Larne, secretary of the Louisiana State Board of Medical Examiners, reports the written examination, held at New Orleans, May 4-5, 1905. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of applicants examined was 98, of whom 89 passed and 9 failed. The following colleges were represented:

PASSED.

Tulane University,	(1901) 83.2; (1904) 76.2; (1905) 91.6, 75.6, 82.4, 91.2, 90.8, 77.6, 87.6, 91.4, 88.6, 87.2, 91.6, 87.6, 87.2, 82.2, 86.8, 89, 81.2, 86.6, 80, 84.6, 90.6, 76.6, 84.6, 79, 95.2, 79.2, 90.4, 87.6, 82.4, 89, 91, 89.4, 89.6, 77.6, 91.4, 92.6, 83.6, 85.2, 83.8, 87.4, 89.4, 80, 90.4.
Memphis Hosp. Med. Coll.	(1901) 83.2; (1903) 84.2; (1904) 88.8; 83.2, 80.4, 81.8; (1905) 79, 78.8, 76.6, 89.8, 86.6, 75.8, 78, 82.6.
University of the South,	(1903) 78.2; (1904) 81.2, 93.4, 81.4, 87.6; 85.8, 72.4.
University of Nashville,	(1896) 75.2; (1900) 88.2; (1905) 85, 88.8, 88.2, 81.8
Vanderbilt University	..(1894) 76.2; (1902) 75; (1904) 85.2
Louisville Med. Coll.	(1905) 80.4
Woman's Med. Coll., Pa.	(1904) 80.4
Georgetown University	(1897) 88.8
College of P. & S., New York	(1893) 92.8
Fort Worth University	(1905) 77.4
Missouri Med. Coll.	(1898) 75.6
Maryland Med. Coll.	(1905) 89.8
University of Louisville	(1891) 86
Dallas Med. Coll.	(1904) 78.4
Med. Coll. of Alabama	(1893) 83.8
Jefferson Med. Coll.	(1904) 90.8
Hosp. Coll. of Med. Louisville	(1904) 78.2
Johns Hopkins University	(1903) 90
Harvey Med. Coll., Chicago	(1900) 84.6 (colored.)

FAILED.

Memphis Med. Coll.	..(1893) 63; (1899) 17.4*; (1900) 16.4*
Louisville Med. Coll.	(1905) 67.6
University of Tennessee	(1880) 61.2
Kentucky School of Medicine	(1898) 67.2
Meharry Med. Coll.	(1905) 66.6 (colored).
Flint Med. Coll.	....(1902) 63.6 (colored); 1901) 64.8 (colored).

*Retired.

Illinois April Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, April 12-14, 1905. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 38, of whom 33 passed and 5 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Amer. Med. Miss. Coll., Chicago	(1904)	80
Baltimore Med. Coll.	(1902)	78
Barnes Med. Coll., St. Louis	(1904)	78
College of P. & S., Chicago	(1901)	78
College of P. & S., New York	(1902)	89
College of P. & S., St. Louis	(1901)	77
Detroit, Coll. of Med.	(1892)	78
Hahnemann Med. Coll., Chicago	(1905)	78, 87, 84, 75
Illinois Med. Coll., (1905) 84, 79, 78, 89	(1904)	84
Johns Hopkins University	(1904)	86
Kentucky School of Med., Louisville	(1889)	81
Lincoln Med. Coll., Omaha	(1901)	83
Long Island Coll. Hosp., Brooklyn	(1891)	76
Meharry Med. Coll., Nashville	(1904)	82
Northwestern University	(1905)	88, 89
Rush Med. Coll.	(1905) 86, 92, 89; (1903) 89; (1899)	87
University of Louisville	(1891)	78
University of Pennsylvania	(1904) 87, 81; (1899)	87
University of Edinburgh, Scotland	(1891)	86

FAILED.

Dartmouth Med. Coll.	(1881)	68
Hering Med. Coll., Chicago	(1904)	68
Hosp. Coll. of Med., Louisville	(1904)	52
Kansas City Med. Coll.	(1903)	68
Keokuk Med. Coll	(1900)	69

The Public Service

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, for the week ending June 17, 1905:

Kennedy, James H., asst.-surgeon, ordered to accompany troops from Benicia Barracks, Cal., to Vancouver Barracks, Wash., returning to station at U. S. Army General Hospital, Presidio of San Francisco.

Ewing, Charles B., surgeon, left Columbus Barracks, Ohio, with recruits en route to Vancouver Barracks, Wash.

Gorgas, William C., assistant surgeon general, and Straub, Paul F., and Shimer, Ira, asst.-surgeons, appointed members of a board of officers to meet at Ancon, Canal Zone, Isthmus of Panama, July 17, 1905, for the examination of medical officers to determine their fitness for promotion or advancement.

Lyster, Theo. C., asst.-surgeon, ordered to report in person to Col. Wm. C. Gorgas, president, examining board, Ancon, Canal Zone, Isthmus of Panama, for examination to determine his fitness for advancement to rank of captain.

Wadhams, S. H., Lyster, Wm. J. L., Persons, Elbert E., Bispham, Wm. N., Geddings, Edward F., and Rutherford, Henry H., asst.-surgeons, ordered to report in person on July 17, 1905, to Lieut. Col. George H. Torney, deputy surgeon general, at Army General Hospital, Presidio of San Francisco, for examination to determine their fitness for advancement to rank of captain.

Reilly, John J., asst.-surgeon, relieved from further duty at Jackson Barracks, La.

Robbins, Chandler P., and Gilchrist, Harry L., asst.-surgeons, ordered to report in person on July 17, 1905, to Major William H. Arthur, surgeon, president examining board, Army Medical Museum Building, Washington, D. C., for examination to determine their fitness for advancement to the rank of captain.

Allen, John H., asst.-surgeon, granted ten days leave of absence.

Porter, R. S., asst.-surgeon, leave of absence extended ten days.

Blanchard, R. M., asst.-surgeon, leave of absence extended twenty days.

Krebs, Lloyd LeR., asst.-surgeon, ordered to proceed from San Francisco, Cal., to Vancouver Barracks, Washington, as witness before a G. C. M.

Van Poole, G. McD., asst.-surgeon, granted thirty days' leave of absence.

Reynolds, Charles R., asst.-surgeon, left Army General Hospital, Washington Barracks, D. C., on ten days' leave of absence.

Webber, Henry A., surgeon, reported for temporary duty at Fort Stevens, Oregon.

Gibson, Robert J., surgeon, having reported at San Francisco, Cal., will proceed to and take station at Fort Logan, Colo.

Owen, Wm. O., surgeon, relieved from duty at Fort Logan, Colo., and on expiration of present sick leave will proceed and take station at Presidio of Monterey, Cal.

McCulloch, C. C., Jr., surgeon, assignment to the Presidio of Monterey, Cal., revoked and ordered to Fort Meade, S. Dak.

McAllister, John A., dental surgeon, ordered from Fort Rosecrans, Cal., to the Presidio of San Francisco, Cal., for temporary duty.

McCord, Donald P., contract surgeon, ordered from St. Louis, Mo., to Fort Rodman, Mass., for duty.

Stearns, Charles H., contract surgeon, granted leave of absence for one month.

Sievers, Robert E., contract surgeon, ordered from Fort Harrison Mont., to Fort Yellowstone, Wyo., for duty in the Yellowstone National Park during the tourist season.

Wythe, Stephen, contract surgeon, ordered from the Presidio of San Francisco to the Depot of Recruits and Casuals, Angel Island, Cal., for duty.

Watkins, Victor E., contract surgeon, ordered to return from Fort DuChesne, Utah, to his proper station, Fort Apache, Ariz.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending June 17, 1905:

Pryor, J. C., surgeon, detached from the Museum of Hygiene and Medical School, Washington, D. C., and ordered to duty as a member of the naval and medical examining boards, Washington, D. C.

Shook, F. M., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va.

Olsen, G. M., asst.-surgeon, ordered to the Naval Hospital, Philadelphia.

Guthrie, J. A., surgeon, discharged from treatment at the Naval Hospital, New York, and granted three months' sick leave.

Sutton, R. L., asst.-surgeon, discharged from treatment at the Naval Hospital, New York, and ordered to Washington, D. C., for examination for retirement and then home to wait orders.

Bogan, F. M., P. A. surgeon, ordered to the Naval Hospital, Yokahoma, Japan, for duty.

Rodman, S. S., P. A. surgeon, detached from the *Ranger* and ordered to the *Rainbow*.

Wikes, G. L., asst.-surgeon, detached from the *Solace* and ordered to the Naval Station, Cavite, P. I.

Ohnesorg, K., P. A. surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., June 20, and ordered home to wait orders.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending June 14, 1905:

Stimpson, W. G., P. A. surgeon, granted leave of absence for five days from July 5.

Rosenau, M. J., P. A. surgeon, detailed to represent the service at session of American Medical Association at Portland, Ore., July 11-14.

Blue, Rupert, P. A. surgeon, granted leave of absence for sixteen days from June 22, 1905.

Sprague, E. K., P. A. surgeon, granted leave of absence for one month from June 27.

Cumming, H. S., P. A. surgeon, detailed for duty on special Revenue-Cutter Service Board. Detailed to represent the service at session of Ameican Medical Association at Portland, Ore., July 11-14.

Foster, M. H., P. A. surgeon, granted leave of absence for one month from June 11.

Wilson, R. L., P. A. surgeon, granted extension of leave of absence for seven days.

Francis, Edward, asst.-surgeon, granted leave of absence for seven days.

Altree, G. H., acting asst.-surgeon, granted leave of absence for thirty days from June 10.

Bailey, C. W., acting asst.-surgeon, department letter of May 10, granting leave of absence for twenty-six days, amended to read ten days from June 5.

Blain, A. C., acting asst.-surgeon, granted leave of absence for fourteen days from June 14.

Drew, A. D., acting asst.-surgeon, granted leave of absence for five days under Paragraph 210 of the Regulations.

Hunter, W. R., acting asst.-surgeon, granted leave of absence for ten days from June 11.

Simonson, G. T., acting asst.-surgeon, granted leave of absence for two days from June 11.

Walkley, W. S., acting asst.-surgeon, granted leave of absence for two days under Paragraph 210 of the Regulations.

Carlton, C. G., pharmacist, granted leave of absence for one day from June 9, 1905, under Paragraph 210 of the Regulations.

Bierman, C. H., pharmacist, department letter of May 19, 1905, granting leave of absence for thirteen days from June 7, 1905, revoked.

BOARD CONVENED.

Board convened to meet at the Marine Hospital, New Orleans, June 13, 1905, for the physical examination of an officer of the Revenue-Cutter Service: Detail for the board: Surgeon A. C. Smith, Chairman; Assistant Surgeon F. H. McKeon, Recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from June 10 to June 16, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, June 3-10, 2 cases.
Florida: Jacksonville, June 3-10, 1 case.
Illinois: Danville, June 1-8, 5 cases.
Indiana: South Bend, June 3-10, 16 cases.
Louisiana: New Orleans, June 3-10, 16 cases.
Massachusetts: Lowell, June 3-10, 1 case.
Michigan: June 3-10, Detroit, 2 cases; Grand Rapids, 44 cases, 2 deaths.
Missouri: June 3-10, St. Joseph, 5 cases; St. Louis, 3 cases, 1 death.
Nebraska: Omaha, June 3-10, 1 case.
New York: New York, June 3-10, 1 case.
Pennsylvania: June 3-10, Lebanon, 1 case; York, 3 cases.
South Carolina: Charleston, May 20-June 10, 1 case.
Tennessee: Memphis, June 3-10, 3 cases.
Wisconsin: May 26-June 10, La Crosse, 2 cases; Milwaukee, 5 cases.

SMALLPOX—FOREIGN.

Brazil: Rio de Janeiro, April 23-May 7, 26 cases, 12 deaths; Santos, April 9-16, 1 death.
Chili: Valparaiso, May 10, 15 cases daily.
China: Shanghai, April 30-May 6, 2 cases.
Ecuador: Guayaquil, May 11-18, 1 death.
France: Paris, May 20-27, 12 cases, 1 death.
Great Britain: May 20-27, Birmingham, 4 cases; Bristol 2 cases: Cardiff, 1 case; London, 1 case; New Castle-on-Tyne, 11 cases; Southampton, 1 case, imported from South Africa; South Shields, 1 case.
Italy: General, May 11-19, 40 cases.
Turkey: Constantinople, May 14-21, 2 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, April 23-May 7, 96 cases, 35 deaths.
British Honduras: Belize, May 24-June 1, 4 cases, 4 deaths.
Ecuador: Guayaquil, May 11-18, 3 deaths.
Guatemala: Livingston, June 10, 1 case.
Honduras: Puerto Cortez, May 25-29, 5 cases, 3 deaths.
Panama: Colon, Jan. 23-May 31, 19 cases, 6 deaths; Panama, Jan. 1-May 31, 70 cases, 23 deaths.

CHOLERA.

Russian Empire: May 2-4, Ashabad, 1 case; Zarazyn, 1 case.

PLAGUE.

Africa: April 29-May 6, East London, 1 case; Port Beaufort, 2 cases, 1 death; King Williams Town, 2 deaths; Port Elizabeth, 1 case.

Brazil: Rio de Janeiro, April 23-May 7, 1 death; Sao Paulo, April 16-23, 1 death.
Egypt: Port Said, April 29-May 6, 1 death; Tukh, 4 cases, 3 deaths.
Peru: April 30-May 10, Callao, 1 case: Chiclayo, 1 case; Lima, 2 deaths; Mollendo, 4 cases, 2 deaths.

Medical Organization

Delaware.

KENT COUNTY MEDICAL SOCIETY.—At its meeting in Dover, May 29, Dr. J. N. McCormack addressed this society on the benefits of organization.

SUSSEX COUNTY MEDICAL SOCIETY.—Dr. J. N. McCormack addressed this society at Georgetown, May 30, on the importance of standard medical organization.

NEW CASTLE COUNTY MEDICAL SOCIETY.—At the meeting of this society, May 27, Dr. J. N. McCormack spoke of the advisability of an organization of both schools of medicine, discussed the public health problem, and advised that the authorities co-operate with the physicians to stop the pollution of rivers and streams.

Georgia.

BARTOW COUNTY MEDICAL ASSOCIATION.—Pursuant to call from Dr. Alfred T. Calhoun, Cartersville, physicians of Bartow County met at Cartersville June 6, to organize a county medical society.

Pennsylvania.

SCHUYLKILL COUNTY MEDICAL SOCIETY.—Physicians of the county met at Pottsville, May 24, and were addressed by Dr. J. N. McCormack on the subject of standard organization.

LACKAWANNA COUNTY MEDICAL SOCIETY.—At the meeting of this society at Scranton, May 25, Dr. J. N. McCormack described the standard plan of organization and emphasized the value of the county medical society, saying that the national and state bodies were in session but a few days each year. It was the duty of the county society, he said, to further the three needs of the profession in the maintenance of a post-graduate school, a business club and a social club.

WAYNE COUNTY MEDICAL SOCIETY.—The physicians of Wayne County met at Honesdale, May 25, with an attendance from Scranton, Carbondale and other places in surrounding counties, and after a free discussion of the subject by Drs. Cyrus L. Stevens, secretary of the State Medical Society of Pennsylvania; J. N. McCormack, Bowling Green, Ky., and others, a county society was organized on the standard plan, and officers were elected as follows: President, Dr. Harold Cummings White, Ariel; vice-presidents, Drs. William T. McConville, Honesdale, and Atherton B. Stevens, South Canaan; secretary and reporter, Dr. Arnold C. Voight, Hawley; treasurer, Dr. H. B. Searles, Honesdale, and censors, Drs. T. W. Bortree, Winnwood; Arthur J. Simons, Newfoundland, and William A. Stevens, Hamlinton.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Michigan State Medical Society, Petoskey, June 28-30.
American Climatological Association, Detroit, Mich., June 28-29.
American Surgical Association, San Francisco, Cal., July 5-7.
South Dakota State Medical Association, Deadwood, July 5-7.
Amer. Assn. of Life Ins. Exam. Surgeons, Portland, Ore., July 10.
American Medical Editors' Assn., Portland, Oreg., July 10.
Oklahoma State Medical Association, Guthrie, July 10-11.
American Urological Association, Portland, Ore., July 12-13.

WISCONSIN STATE MEDICAL SOCIETY.

Minutes of Meeting of House of Delegates, held at La Crosse, June 7, 1905.

FIRST SESSION.

The President of the Council, DR. W. T. SARLES, in the Chair.

Reports of Councilors.

Reports of Councilors were received from the First, Third, Fourth, Seventh, Tenth and Twelfth Districts.

DR. H. B. SEARS, of the First District, thought every legalized practitioner should become a member. Meetings should

be made interesting, and outside talent occasionally invited to participate. License reciprocity between states should be accomplished as speedily as possible. Insurance against malpractice suits might be desirable.

DR. F. G. NYE, of the Third District, had met with some pessimistic opposition, but the outlook is bright. Outside physicians have difficulty in understanding the reason for existence of county medical societies. Earnest endeavor to get fully attended meetings is desirable.

DR. T. S. LAWLER reported that the general condition of the Fourth District is fairly good. The fee-bill is an important question. The society hopes to have four meetings a year, two of them social.

DR. BOOTHBY, reporting for the tenth district, said there was a slight gain in membership. An annual sanitary meeting to which prominent citizens, boards of health, etc., should be invited, would be desirable. The fee-bill might be considered by members unofficially, inviting non-members to participate.

DR. A. T. HOLBROOK'S report showed the conditions in Milwaukee county to be excellent.

Members Need not Resign from Sectarian Societies.

DR. W. T. SARLES, of the Fifth District, spoke of the importance of admitting to membership in the county society, those who are licensed by law to practice medicine, but who are affiliated with Homeopathic or Eclectic societies. An annual business meeting of the county society should be held. Outside talent should occasionally be called on. About four meetings a year is all the average county can stand.

DR. A. W. GRAY suggested the advisability of passing a resolution declaring eligible to membership in county societies, all who under the law are qualified to practice medicine.

DR. W. H. WASHBURN presented the following resolution, which was adopted:

Resolved, That it is the sense of the House of Delegates of the Wisconsin State Medical Society, that eligibility to membership in county societies shall not require physicians to relinquish their membership in their sectarian, local or state societies.

The secretary said that he had received reports from sixty-two secretaries, which he considered a promising indication; that there were grounds for belief in the ultimate success of the new plan; membership has increased, better work along scientific lines is being done, and the morale and *esprit du corps* of the profession are rapidly advancing to a higher plane.

Thursday, June 8, 1905.

SECOND SESSION.

DR. W. H. WASHBURN was elected delegate, and Dr. A. H. Levings, of Milwaukee, alternate, to the American Medical Association, for two years.

A committee of three to name ten men from whom the governor shall make selection of a member of the State Board of Medical Examiners, was appointed by the president.

A proposition and communication were submitted from the *Wisconsin Medical Journal* to renew contract for printing proceedings at rate of $1.20 per member.

This proposition was referred to the council with recommendations that it be accepted, and contract awarded at rates specified, if the finances of the society will permit it.

Friday, June 9, 1905.

THIRD SESSION.

There being a balance of $1,129.10 due for expenses of getting the medical quackery bill passed and for other legislation, a resolution was passed directing the secretary to request aid from county societies in paying the amount. Arrangements were afterward made looking to the immediate settlement of the indebtedness.

Election of Officers.

The election resulted as follows: President, J. R. Currens, Two Rivers; vice presidents, A. W. Gray, Milwaukee, A. Gunderson, La Crosse, and W. E. Fairfield, Green Bay. Councilors, First district, H. B. Sears, Beaver Dam; Second district, G. Windesheim, Kenosha. Program Committee: Arthur J. Patek, Milwaukee, chairman; Fred T. Nye, Beloit, and the secretary, ex officio. Committee on public policy and legislation, G. E. Seaman, Milwaukee; J. J. McGovern, Milwaukee; W. T. Sarles, Sparta.

Place of next meeting, Milwaukee.

Dr. Byron M. Caples of Waukesha, was named as delegate to the American Medical Association meeting as delegate-elect and alternate-elect could not go.

A congratulatory telegram was sent Drs. Dinsdale, Powell and Noble for their work in connection with medical legislation.

General Session, Fifty-ninth Annual Meeting, June 8, 1905.

The President, DR. C. W. OVIATT, in the Chair.

President's Address.

The morning session was devoted to preliminary matters, and the afternoon session was opened with the address of the president on "The Responsibility of the General Practitioner in Relation to Surgical Diseases." He said that this is not fully recognized. There should be a prompt recognition of cases which are strictly surgical, particularly acute surgical infections and malignant disease. Appendicitis and cancer demand early operation. In cases of too long delay, death should be charged to the procrastinating physician rather than to the surgeon. An early exploratory incision is often indicated in suspected cases of cancer of the stomach.

Ectopic Pregnancy.

DR. W. C. F. WITTE, Milwaukee, said the etiology is still in doubt. Gonorrheal inflammation is supposed to be a frequent cause. Tubal is the most frequent form of ectopic pregnancy, but many of the cases are atypical and difficult of diagnosis. To-day it is generally admitted that the proper treatment is surgical. The mortality rate should not be above 10 per cent. The secret of success lies in the management of the placenta. In operating, the abdominal route is generally preferable.

DISCUSSION.

DR. C. H. LEMON, Milwaukee, said the differential diagnosis may be difficult as between appendicitis, other pelvic inflammations and recent abortion. Immediate surgical intervention in urgent cases, and ultimate surgical interference in all cases is indicated.

DR. JOHN SPECHT, Superior, urged early diagnosis and immediate operation.

DR. MALONE, Milwaukee, said that the comparative rarity of the disease is the reason why it is sometimes incorrectly diagnosed, though its symptomatology is no more obscure than that of appendicitis. An exploratory incision is sometimes advisable.

DR. J. R. MINAHAN, Green Bay, advised against the use of an anesthetic in diagnosing this condition. Where a woman has gone over her periods, has symptoms of miscarriage, and is seized with severe pain in abdomen, followed by shock and symptoms of internal hemorrhage, open the abdomen.

DR. C. O. THIENHAUS, Milwaukee, said that an examination under narcosis is dangerous. If the physician has no surgical aid at hand, he can open the abdomen and check the bleeding by means of a clamp on each side of the broad ligament, and then await surgical aid.

DR. EDWARD EVANS, La Crosse, exhibited specimens illustrating rare cases of true ovarian pregnancy and of incipient tubal abortion.

DR. R. G. SAYLE, Milwaukee, declared it impossible to make a differential diagnosis, in all cases of ectopic pregnancy, from appendicitis. Severe examination, with or without anesthesia, is inadvisable. Nothing should delay operation.

DR. JULIUS NOER, Stoughton, described two cases of mistaken diagnosis of ectopic pregnancy.

DR. WITTE advised repeated examination only in suspected unruptured cases. Abdominal incision (not vaginal) should be employed.

The Permissibility of Medical Abortion.

DR. W. E. FAIRFIELD, Green Bay, stated that medical abortion is sometimes justifiable. It does not open the door to criminal abortion. If, as opponents admit, we are justified in removing the sac after abdominal section in extrauterine pregnancy, thus indirectly causing the death of the fetus,

we would have the right to destroy the fetus when the mother is suffering from a malignant tumor of the uterus or from pernicious vomiting.

The Clinical Aspects of Diabetes.

Dr. C. J. Combs, Oshkosh, presented cases illustrating interesting clinical features, such as no reduction of weight; the patient apparently healthly, in spite of grave pathologic changes; diabetic coma and almost complete consolidation of lungs, without temperature; also diabetic dyscrasia without sugar.

Present State of Surgical Treatment of Undescended Testis.

Dr. Chester M. Echols, Appleton, said all cryptorchids, if seen before puberty, should be operated on, thus avoiding hernia, strangulation, malignant disease and psychical disturbances. The most favorable age for operation is between 5 and 12 years. After puberty there is small hope of improving function. Orchidopexy is the operation of choice. More accurate observations of final results of surgical treatment are needed.

Dr. A. H. Levings, Milwaukee, said a majority of these cases favor malignancy, hernia, neurasthenia and sterility, and operation should be undertaken.

Dr. T. L. Scanlan, Grant county, has found epilepsy associated with this condition, which improved after operation.

Address in Medicine.

Dr. V. C. Vaughan, of the University of Michigan, delivered a public lecture on tuberculosis and its prevention. He said that the disease can be wiped out by destroying the infected discharges, through which alone it is spread. Education through antituberculosis societies, and otherwise, must be undertaken. Sanatoria, public or private, for all classes of cases must be established. Tuberculosis is not hereditary, and there is no known specific for it. Continued reinfection is one of the greatest sources of danger, even to the already infected. The disease is curable in its incipient stages. The best food in sufficient quantities is an aid in the treatment, and the government that allows such a thing as the beef trust to exist, aids and abets in the spread of tuberculosis. As a result of the establishment of hospitals for advanced cases of tuberculosis in London twenty years ago, statistics show that the death rate from this cause is only half what it is in cities of Europe of the same class. Civilized man has overdone his housing. Tuberculosis is a preventable disease, therefore, let us prevent it.

(To be continued.)

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Constipation.

J. J. Moyer, in *St. Louis Med. Rev.*, gives Fleiner's classification of the forms of constipation, which he divides into the atonic form and the spastic form. In the atonic variety the stools consist of large, dry masses, while in the spastic form the stools are like pencils. Boas adds a third variety which he calls the fragmentary form, in which fecal matter still adheres to the bowel walls even after several evacuations.

The treatment of constipation, according to Moyer, may be divided into three parts:

1. External treatment by such influences as hygiene, exercise, massage, habit, time, position.
2. Internal treatment such as by the ingestion of food, drinks and medication.
3. Local treatment by suppositories, clysters, irrigation.

EXTERNAL TREATMENT.

The external treatment consists in plenty of good air, recreation, mental and physical, followed by proper periods of rest and sleep. Massage is recommended, given in the direction of the colon in atonic forms of constipation. Cold compresses are also of value, applied to the abdomen for a time each day and followed by friction, general exercise and draughts of cold water.

INTERNAL TREATMENT.

The dietetic treatment is very important and is in a large measure curative. It should be a mixed diet and may be divided, according to the author, into three classes:

1. Those possessing an abundance of cellulose. 2. Acids. 3. Sugars.

1. Foods which have little residue tend to produce constipation. This class includes meat, fish, wheat bread and pastry. So it is with this in view that foods which are largely insoluble and indigestible and which leave a large residue are recommended. This class includes cabbage, potatoes, salads, spinach, carrots, onions, tomatoes and turnips, fruits, rye bread and oatmeal, all of which stimulate peristalsis.

2. Acids, either free in the foods or as the result of fermentation in the bowel, favor peristalsis. Included in this class are lactic, butyric, acetic and carbonic acids. Foods such as buttermilk and sour milk, also herring and smoked ham, which contain muriated salts and stimulate peristalsis.

3. Milk sugar and cane sugar stimulate peristalsis. This is due, perhaps, to decomposition producing lactic acid or because they produce an increased transudation of the watery elements from the mucous membrane of the bowels. The following diet list as recommended by Boas may serve as a guide in outlining a diet in these cases:

7 a. m., a glass of cold water; 8 a. m., a liberal breakfast, with sweetened coffee, a good deal of butter, honey and graham bread. After this the patient should go to stool. 1 p. m., meat, a good deal of vegetables, salad, stewed fruit, farinaceous foods, followed by half a bottle of light wine. 7 p. m., meat, with plenty of butter, graham bread and stewed fruits.

The foregoing must be varied to suit the individual case.

MEDICINES.

Medicines should be given only as adjuncts to the other measures mentioned. The author mentions two points to be observed in the administration of drugs in habitual constipation when uncomplicated: 1. The dose should be once daily. 2. Drugs combined should be such as act at the same time.

The following combination is of value in increasing peristalsis as recommended by Brunton:

℞.	Pil. colocynth. co, (B. P.)	
	Pil. rhei co, (B. P.), āā.....gr. i	06
	Pil. hyoscyami.....gr. ss	03

M. Ft. pilula No. i. Sig.: One such pill at bedtime.

Aloes should not be given in plethoric or acute inflammatory conditions, nor in pregnancy.

Cascara, rhubarb, podophyllum, senna and sulphur are all spoken of as of value as laxatives.

Magnesium sulphate is of value in plethoric patients and in cases of dry stools, but should not be given habitually.

LOCAL TREATMENT.

The use of suppositories, clysters and irrigations are of value in the symptomatic treatment of constipation. Their continued use produces catarrh and atony of the rectum. The clyster should not be over a pint of cold water or of warm, soapy water, or a few ounces of glycerin, castor oil or olive oil.

Cimicifuga.

This preparation acts similarly to the bitters on the gastric secretion and stimulates the functions of the digestion. It is an anodyne and antirheumatic. It is of value in the treatment of lumbago and chronic rheumatism combined as follows:

℞.	Tinct. cimicifugæ	℥vi	24
	Sodii bromidi	℥ii	8
	Sodii salicylatis	℥iiss	10
	Elix. simplicis q. s. ad	ℨviii	240

M. Sig.: One tablespoonful every four hours. Or:

℞.	Tinct. cimicifugæ	℥vi	24
	Sodii salicylatis	℥ii	8
	Vini colchici	℥iss	6
	Aq. chloroformi q. s. ad	ℨviii	240

M. Sig.: One tablespoonful every four hours in water.

In the treatment of amenorrhea accompanied by severe headaches the following is of value:

℞.	Cimicifugin or macrotin.....gr. xx	1	30
	Ferri sulphatis (exsic.)		
	Sodii carb, āā.....gr. xlviii	3	20
	Ext. aloes. soc.....gr. xx	1	30

M. Ft. cap. No. xxiv. Sig.: One capsule after each meal three times a day. Or:

℞.	Ext. cimicifugæ flu.....ʒv	20	
	Tinct. nucis vom.....ʒi	4	
	Tinct. cinchonæ co. q. s. ad.....ʒiii	90	

M. Sig.: One teaspoonful every three hours in water.

According to Shoemaker, the following combination is of service in the treatment of neuralgic or acute rheumatic conditions:

℞.	Ext. cimicifugæ flu.....ʒi	30	
	Morph. sulphatis.....gr. i		06
	Spts. etheris nitrosi		
	Liq. ammon. acetatis, āā.....ʒii	60	

M. Sig.: Two teaspoonfuls in water every three hours.

In case of gastric catarrh, delirium tremens and functional impotence the following is of value:

℞.	Ext. cimicifugæ.....gr. xxiv	1	65
	Ext. belladonnæ alc.....gr. i		06
	Pulv. capsici.....gr. xii		75

M. Ft. capsulæ No. xii. Sig.: One to two pills three times a day.

Typhoid Fever.

There is no such thing as a routine or specific treatment for typhoid fever, according to Shoemaker, in *Med. Bull.* The symptoms and complications must be dealt with to suit the individual case. Effective nursing is necessary. The excretions should be carefully disinfected before they are thrown into the drain, and everything should be sterilized which is brought in contact with the patient. Milk, as a rule, is the best diet, as it is the most nutritious and most digestible food. From one to two quarts should be given in the twenty-four hours, to which lime water should be added. By inspecting the stools one can tell whether or not the patient is properly taking care of the milk by the presence or absence of curds. When these are present a portion of the milk should be withdrawn and some other form of liquid food substituted, such as beef tea, beef broth, clear soup or barley water. Sometimes the animal broths will increase the diarrhea beyond the limit, and under those circumstances they will have to be omitted and buttermilk, koumyss or albumin water given to alternate with the milk. Alcohol should not be given as a routine treatment. If the first sound of the heart shows signs of weakness, however, alcohol may be given in the form of whisky. In the early part of the illness, if an excessive nausea is present champagne may be given. The quantity of whisky must depend on the individual, as abstainers will require less than those who have previously used it as a beverage. Water should be employed both internally and externally in order to promote elimination by the skin and kidneys. During the third week, when the patient may be in a stupor, drink should be given him at short intervals. When the temperature is 102 F., or higher, the body should be frequently sponged. The water may contain vinegar, alcohol or cologne spirits to increase the evaporation. When the temperature is 104 F., or higher, the patient may be rubbed down with a sheet dipped in ice water or the surface of the body may be ironed with ice. The tub bath is rational, and the author prefers to reduce the temperature gradually until the patient shivers rather than to put him in too cold a bath at once. He is then put to bed, the body dried and covered with a blanket and some wine or whisky is given. In regard to the medicinal treatment, the author states that he has derived benefit from the administration of quinin and salol in combination, as the former is a powerful antiseptic and prevents the development and activity of micro-organisms and checks abnormal fermentation. According to the author, it has antipyretic virtues and is a valuable tonic. He regards quinin as the best medicinal preparation for the reduction of temperature in typhoid fever. Salol likewise checks diarrhea and is synergistic in its action to quinin. An occasional enema of starch water and tincture of opium is of value to check an abnormal diarrhea. The lead and opium pill is preferred by some writers.

As a heart stimulant, camphor is recommended, or strychnia, and perhaps whisky hypodermically. Digitalis is indicated in some cases, but should not be given long at a time in typhoid fever, because of its tendency to produce nausea and to increase the diarrhea, but it is an antipyretic and stimulates the kidneys. When there are indications of a hemorrhage, turpentine is the best remedy. It is an antipyretic, diuretic and vascular stimulant, and is a good antiseptic to the mucous membrane. It aids the ulcers to heal, decreases tympanites, restrains hemorrhage and invigorates the heart. Its unpleasant taste may be disguised by the addition of glycerin in the proportion of dram (4.00) one to the ounce (30.). It may be given in ten minim (.65) doses and in bad cases when hemorrhage has occurred, the author prescribes it in half ounce (15.00) doses. The nervous symptoms are best relieved by the use of water internally and externally. In case of perforation, turpentine stupes are placed on the abdomen and the patient is kept under the influence of opium. Bedsores must be avoided by means of cleanliness, keeping the parts dry, changing the position of the patient and the use of the air cushion or water bed.

Medicolegal

No Damages for Causing Inability to Bear Children.—The Second Appellate Division of the Supreme Court of New York says, in the personal injury case of Lennox vs. Interurban Street Railway Co., where it holds that no damages can be recovered in such a case for inability to bear children as the result of the injury, that it is clear that pecuniary damages suffered for the loss of children unborn and unconceived are too remote and speculative to constitute an element proper to be submitted to a jury.

Rights of Employe Disabled by Sickness.—The Second Appellate Division of the Supreme Court of New York says, in the case of Gaynor vs. Jonas, that it is well settled that where an employe under a contract for the rendition of personal services for a specified period is disabled by sickness from fully performing the contract, he may recover the value of such services as he has actually rendered. Sickness, under such circumstances, is said to be deemed the act of God. Moreover, the court thinks that under a contract of this sort the illness which will justify a master in dismissing his servant must be something more than a mere temporary malady of short duration compared with the entire period of service contemplated by the agreement. In other words, it must be a serious sickness, lasting, or likely to last, so long as to interfere substantially with the interests of the employer.

Good Faith a Defense in Prescribing Liquor.—The Court of Appeals of Kentucky says, in the case of Commonwealth vs. Williams, that a city ordinance made it unlawful for any physician to make or give to any person a prescription for any spirituous, vinous or malt liquors, or enable him to purchase same, unless such person to whom such prescription was given was sick, or such liquor was absolutely required as a medicine. It was contended that the ordinance was void because it undertook to punish the physician for giving a prescription where he made an honest mistake as to the liquor being required as a medicine. The rule is that a statute will not make an act criminal unless the offender's intent concurred with his act. A case of honest mistake will be excepted out of the general statutory prohibition. If the defendant gave the prescription complained of in good faith as a physician, believing the whisky to be absolutely necessary as a medicine, he was not guilty; but, if he did not act in good faith or on reasonable grounds, he was guilty. Whether he acted in good faith or not, or made an honest mistake of fact, was a question for the jury under the evidence, and for the determination of this question any evidence was competent which was admissible in other cases where intent was material.

Sufficient Evidence of Cause of Glaucoma.—The First Appellate Division of the Supreme Court of New York says that the plaintiff in the personal injury case of O'Neil vs. Metropolitan Street Railway Co., a woman 61 years of age, who was the principal of a public school, and whose eyesight had been remarkably good, was, through the negligence of the defendant, precipitated to the pavement with considerable violence, landing on her head and left shoulder so that she sustained a scalp wound an inch and a half in length nearly on top of her head, above her left ear, and her left collar bone was fractured. There was evidence indicating that she was stunned, and that her eyesight immediately became blurred; also, that immediately after the accident she had such intense pain in her eye and in her head between the wound and the eye that she did not feel the injury to the collar bone, and continued to have these pains constantly until shortly before the trial, when she had them at intervals of two or three weeks. The fracture of the collar bone united and healed in about three weeks, and she was afterward able to resume her duties as principal of the school. But about fourteen months after the accident occurred she began to have special trouble with her eye, and within the next few weeks consulted two eye specialists, one of whom operated for glaucoma, and during the operation discovered a subluxation of the lens, which, in his opinion, was sufficient to account for the glaucoma, and, in his opinion, caused it. The court is of the opinion that the testimony of the plaintiff, showing a continuity of pain in this eye since the accident, supported and sustained by the medical testimony introduced in her behalf, fairly sustained the finding of the jury that the glaucoma of the left eye resulted from the injuries she received through the negligence of the defendant. It was undisputed that the glaucoma in the left eye destroyed the sight of that eye and communicated to the right eye, ultimately resulting in permanent total blindness, and, the court holds, the defendant being responsible for the plaintiff's total blindness, it needed no argument to show that a verdict for $13,580 damages was not excessive.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

June 10.

1 *Treatment of Chronic Diarrhea. R. W. Wilcox, New York.
2 *Observations on Amebas Infecting the Human Intestine with a Description of Two Species, Entameba Coli and Entameba Dysenteriæ. C. F. Craig, San Francisco, Cal.
3 Dysentery in Cook County Hospital. C. G. Grulee and J. S. Welch, Chicago.
4 *Bacterial Element in Catharsis. G. Walsh, Chicago.
5 Lloyd Reaction for Morphin and Other Alkaloids. D. W. Fetterolf, Philadelphia.
6 *Sign of Value in Splenic and Hepatic Disease. T. H. Evans, Philadelphia.

1. Treatment of Chronic Diarrhea.—Wilcox urges that diarrhea being a symptom, the cause, which may be mechanical, nervous or hemic, always should be ascertained. The treatment of the mechanical forms of diarrhea is based primarily on removing the cause of the irritation. This is accomplished by freeing the alimentary tract from all substances likely to cause increased peristalsis. This, in the dyspeptic form of mechanical irritation, is accomplished by a full dose of castor oil. If there is proteid in indigestion the process can be checked by resorcin, six grains, four times daily, to which 20 minims of tincture of nux vomica should be added if there is diminished motor function of the stomach. After a few days give three drops of strong nitrohydrochloric acid, or 10 drops of hydrochloric acid with one twentieth grain of strychnin sulphate, in the midst of each meal. In amylaceous indigestion, thorough mastication of starchy food, limitation of fluids with their ingestion, and the administration of diastase, in 15-grain doses, an hour after meals, will generally correct the difficulty. The use of sodium bicarbonate Wilcox considers improper in all gastric and in most intestinal indigestions. Magnesia ponderosa in 10-grain doses after meals meets all indications. If bile pigment is present in the stools a combination of salicylic acid, 6 grains, with the same amount of acid sodium oleate, with 4 grains of phenolphthalein and one-half grain of menthol may be given once daily, for several days. Fecal impactions are best relieved by softening them by quart injections of warmed olive oil, or 1-dram doses of arsenic-free sodium phosphate twice daily; 1/100 grain of physostigmin salicylate three times daily, to enable the intestinal muscle to recover its tone. Opium is only admissible when the alimentary canal has been thoroughly emptied, to check excessive peristalsis. It should be given hypodermically, as morphin, in substantial doses, and not repeated. A prescription for opium, or any of its preparations or alkaloids, should never be trusted to nervous patients. There is too great danger of habit formation. The tannin preparations are sometimes useful by temporarily innibiting the action of bacteria and their toxins. Bismuth naphtolate, bismuth tribromophenolate and bismuth tetraiodophenolphthaleinate are more effective.

2. Amebas Infecting the Human Intestine.—Craig summarizes his observations as follows:

1. The intestine of man may be infected with two varieties of amebas, one pathogenic (*Entamœba dysenteriæ*), and the other nonpathogenic (*Entamœba coli*). 2. *Entamœba coli*, the non pathogenic variety, is found in 65 per cent. of healthy individuals studied, and in 50 per cent. of individuals suffering from diseases other than dysentery, if a saline cathartic has been administered. 3. These organisms can be easily distinguished in both fresh and stained specimens. 4. They differ widely in their method of reproduction, and this is the most important method of distinguishing them. 5. *Entamœba dysenteriæ*, whether fed in milk or injected through the rectum, produces in kittens the typical lesions of amebic dysentery as observed in man. 6. In kittens, *Entamœba coli*, whether fed in milk or injected through the rectum, is absolutely harmless. 7. Neither feeding experiments nor rectal injections of fecal material or the bacteria occurring in such material produces any of the lesions of amebic dysentery, unless *Entamœba dysenteriæ* is present.

4. Bacterial Element in Catharsis.—Walsh calls attention to the fact that we have every reason to believe that the increase in peristalsis, the increase of gas formation, and the liquefaction of feces which follow the use of cathartics is due to the same cause which produces the infections of the intestine, an exaltation in bacterial activity. He emphasizes the fact that while cathartics differ in effects, these differences are only relative and the evidences on clinical grounds of a common agency of force are overwhelming. The following classification of cathartics is proposed: 1. Cathartics which produce a convulsion of activity amongst our intestinal bacteria by the production of an effusion of warm blood serum into the lumen of the gut. 2. Cathartics which act by means entirely unknown to us at the present time.

6. Sign of Value in Splenic and Hepatic Disease.—Evans describes a method uniting both palpation and percussion. The abdominal walls should be relaxed, the lower extremities slightly flexed on the abdomen, and the leg on the thigh. The patient should open the mouth, breathing lightly through it. The physician gently plunges the fingers of one hand into the abdominal wall at the level of the anterior or lateral costal margin, and rather under the osseous curtain of the same. With the fingers of the other hand he firmly percusses over the supposed site of the organ, spleen or liver to be examined. Very delicate sense in the percussion hand will discover a variation of resistance, according to the state of the underlying organ, for the retaining hand secures the liver or spleen, as the case may be, between itself and the superior structure, the diaphragm. The more valuable result is the sensation derived from the parenchyma striking the retaining fingers, which are pressed into the abdominal wall. With a little experience the peculiar shades of consistency of the spleen or liver will make themselves readily perceptible. Any enlargement accompanied by softening or rigidity should be easily distinguished. In cases of typhoid this method is successful for the early diagnosis of splenic variations.

Medical Record, New York.

June 10.

7 *Contribution to Hemophilia, with Special Reference to the Joint Symptoms of the Disease. F. P. Kinnicutt, New York.
8 *Etiology of Fissure in Ano. J. R. Pennington, Chicago.
9 Early Diagnosis of Pulmonary Tuberculosis. G. R. Pogue, Greeley, Colo.
10 *Encephalomeningocele. W. D. Haggard, Nashville, Tenn.
11 Is Craniotomy on the Living Child Ever Justifiable? I. Marx, New York.

12 *Gunshot Wounds of the Abdomen. J. E. Cannaday, Pt. Creek, Va.
13 *Cushion Diseases. J. D. Potts, St. Louis, Mo.

7. **Hemophilia.**—An abstract of Kinnicutt's article was published in THE JOURNAL, May 27, 1905, but the abstract did not set forth the author's views as to the therapeutics of this disease. They may be summarized as follows:

1. The internal administration of the lime salts, especially of the chlorid of calcium, in doses of two grams (30 grains) twice or thrice daily. Its continued use should be interrupted every two or three days by a period of twenty-four hours. The salt is soluble in 1.5 parts of water and is well borne by the stomach. 2. The application of solutions of the same salt, with compression, for accessible surface bleedings. Aqueous solutions of .5 per cent. are efficient. Another convenient mode of employment is in the form of a finely powdered chalk mixed with .5 per cent. solution of the calcium chlorid. The less soluble lime salts, such as calcium phosphate, are equally efficient for local application. 3. The use of a combination of .5 per cent. solution of calcium chlorid and one-sixth volume of a solution of nucleo-albumin, for local application. The nucleo-albumin can be obtained from aqueous extracts of various cellular tissues—testicle, thymus, thyroid, ovary, etc. If the prepared extracts are not available, a supply may be procured readily by mincing any of these tissues in a weak alkaline solution (1-500 solution carbonate of sodium) and filtering through gauze after a few minutes. 4. The application of a stream of carbonic-acid gas to the bleeding surface, in accessible hemorrhage. Its inhalation, freely mixed with ordinary air or oxygen, in concealed hemorrhage. 5. The use of 4 per cent. solution of cocain hydrate for surface bleedings, and also of adrenalin (1-,1000) with compression.

8.—See abstract in THE JOURNAL, Nov. 12, 1904, p. 1490.

10. **Encephalomeningocele.**—Haggard's patient, aged four months, reacted well after the operation, but died unexpectedly on the ninth day. The temperature had not been above 100 for the four days preceding, and for two days previously the only conspicuous symptom was a lateral nystagmus. The tumor measured 17 inches by 23, and weighed five pounds.

11. **Is Craniotomy on Living Child Ever Justifiable?**—Marx says that other things being equal, considerations of religion weighing strongly and more often than not absolutely determining the result, he favors the mother as compared to the unknown fetus when asked to allow the mother to suffer an increased risk. Only in rare cases is a Cesarean section on a woman many hours in labor after manifold efforts to deliver in the presences of a suffering fetus, to be considered as more conservative than a skillfully performed craniotomy. The sphere of craniotomy is limited, but it must and ought to be extended. The positive contraindication to the operation is furnished by absolute contraction of the pelvis either from bone approximation or through obstruction by a tumor mass. The treatment here should be early induction of abortion, if the demand is made, or elective Cesarean section at or near term. The absolute and relative indications for perforation are discussed.

12. **Gunshot Wounds of Abdomen.**—Cannaday points out the difference in effect on the tissues between the old style low velocity ball and the modern projectiles, which latter are less apt to be deflected in their course through the body, and produce neat, clean-cut perforations which are easily sutured and heal rapidly. Although the greatest risk of infection in abdominal wounds comes from perforation of the hollow viscera and the subsequent contamination of the peritoneum, there is danger from the projectile itself, for, contrary to common belief, the heat generated in firing does not in any sense destroy bacteria, and the missile easily becomes infected en route by contact with clothing, skin, etc. In these wounds occurring in civil life, when the wound of entrance can be shown to have penetrated the abdominal wall and the services of an experienced surgeon are promptly available, laparotomy indications are imperative as a rule, regardless of symptoms. In war, however, when operative action often comes late and must be carried out under adverse conditions, it has been found that the conservatism of inactivity is the saner policy. The technic of such operations is described.

13. **Cushion Diseases.**—Potts calls attention to the harmfulness of soft, warm, cushioned seats, which he considers productive of certain disorders of the perineal region. The warmth of the perineal structures in contact with the cushions is increased, and the function of the sudorific follicles and sebaceous glands is stimulated to greater activity. The inability of the secretions to escape by friction or evaporation must sooner or later result in maceration and exfoliation of the epithelial layer, and infection by some one of the ever-present pathogenic bacteria will result as soon as the integrity is broken. Depletion of the blood vessels of the parts, while under pressure, must be followed by more or less congestion. Deranged nutrition ensues, and the foundation of many disease processes is laid in the injured parts. Potts has observed three classes of diseases, in which he regards the soft cushions as the chief etiologic factor. The first of these has its seat in the integument, or beneath the integument of the perineum and perineal regions, and embraces such well-known diseases as eczema simplex, eczema marginatum, intertrigo, erythema simplex, pruritus ani, and tegumentary and subtegumentary abscesses. The second class has its seat in the mucous membrane and submucous tissue, and embraces such disorders as simple urethritis, simple proctitis, anal ulcers, etc. The third class has its origin in the blood vessels and glands, and includes such diseases as hemorrhoids, papillomata, adenomata, etc. Prophylaxis consists in the use of the old-fashioned hard-bottomed seat or one with a cushion so firm that the tuberosities can not sink down into it. The treatment of the three forms of cushion diseases is described in detail.

Boston Medical and Surgical Journal.

June 8.

14 *Surgery of Renal and Ureteral Calculi. A. T. Cabot, Boston.
15 *Cases of Renal and Ureteral Calculi at the Boston City Hospital. J. H. Cunningham, Boston.
16 *Results of Cases Operated on for Stone in the Kidney, Massachusetts General Hospital, from 1897 to 1904, inclusive. H. Cabot, Boston.
17 Notes on Operations for Renal and Ureteral Stone. P. Thorndike, Boston.
18 Diagnosis of Renal and Ureteral Calculi. B. Tenney, Boston.
19 Aids to Diagnosis of Renal Calculi Obtained Through Examination of the Urine. H. F. Hewes, Boston.

14. **Surgery of Renal and Ureteral Calculi.**—Cabot reports on nine cases of ureteral calculus. In all the stone was so fixed in the ureter that it was hopeless to expect it to be moved along by natural forces. The experience in two cases teaches that the extreme lower end of the ureter is the point at which stones are arrested most frequently (six of the nine cases). When a stone is caught at this point there is a considerable chance of dislodging it by manipulation. The ureter in such cases should be stripped from above downward as thoroughly as possible. In a thin person this can be done through the abdominal wall with considerable effect. In a woman, vaginal manipulation of the lower end of the ureter should also be done thoroughly, and in man the rectal touch should be essayed. If a stone in the ureter can not be dislodged by manipulation over the ureter it must be reached in some other way.

15. **Id.**—Cunningham has collected from the records of the Boston City Hospital 48 cases of renal calculus in 19 of which the patients were operated on, and one case of ureteral calculus in which the patient also came to operation. The renal cases in which the patients were not operated on had either passed gravel or stones and presented physical evidence of calculi in the kidney, or the diagnosis was made on the rather typical history, confirmed by physicial examination. The age of the patients varied from 6 to 65 years. Thirty-seven were males and 11 were females. In 46 cases the stone was unilateral; 33 occurring on the right side and 13 on the left side, and in 2 cases it was probably bilateral. Of the 19 cases in which operation was done the analysis of the stone showed the following composition: Uric acid, 3; calcium oxalate, 1; uric acid and calcium oxalate, 1; calcium phosphate, calcium oxalate and triple phosphate, 1; character not determined in 13. The *x*-ray was employed in 10 cases. Stone was demonstrated in 7 cases and this was confirmed at operation. In the 3 cases which showed no calculus by the *x*-ray the patients were operated on, and in 2 stones were found. There were 3 deaths among the 19 patients. The lumbar incision was employed alone in 17 cases; in 2 an exploratory laparotomy was performed as a preliminary measure. Of the 3 fatal cases, 1 patient died from shock within the first twenty-four hours, 1 died from extensive suppuration and insufficient amount of kidney substance; the third died from hemorrhage. Subsequent observations were obtained in 7 cases: (The figures have reference to the case number.)

1. The renal fistula persisted during the patient's life, otherwise the patient was in good health and comfort, and lived more than twenty years after operation. 2. The patient lived for three years after operation, and until a short time before death, was in a good condition and in comfort. Death was believed to be due to presence of calculus in the other kidney. 3. Patient known to be in good health and without recurrence of former symptoms at the end of two years after operation. 4. Patient known to be in good health and without recurrence of former symptoms at the end of two years after operation. 5. Renal fistulæ persisted for eight months and then closed; the patient's condition was excellent at the end of one year after operation. No recurrence of symptoms up to that time. 6. Patient in good health and without recurrence nine months after operation. 7. In good health and without recurrence six months after operation.

16. **Stone in Kidney.**—Cabot discusses the results of 26 cases of stone in the kidney. The operations done in this series were nephro- and uretero-lithotomy, and nephrectomy. The cases of nephrectomy were 3 in number; were done on kidneys largely destroyed and containing large calculi, and were all followed by complete and, to date, permanent recovery. Nephrotomy was done 27 times, on 21 patients, with 4 deaths. Ureterolithotomy was done once, with one death. In the 27 nephrotomies stone was found, and removed in 21. In 6 cases stone was not found at operation, but in 4 it was passed a few days after operation, and the patients have since been well. Two patients have continued to have stones form and pass, apparently unaffected by the operation. In one case the stone was found at a subsequent operation and was presumably present at the first. In this series of 26 cases, with 33 operations, there were 6 deaths, 2 from extensive suppuration, 1 from an insufficient amount of kidney substance, 2 of uremia and 1 as the result of secondary hemorrhage. Of the 20 patients who survived the operation, 13 have either been seen or have been communicated with recently. Of these 13, 10 have been entirely relieved and are well to date. With the remaining 3 the situation is as follows: One was a case of large double calculi, in which two operations were done, separated by an interval of a few months. The patient has been entirely relieved of pain, from which he suffered for years, but still continues to have a purulent urine and occasional attacks of irritability of the bladder. One patient still has pain, referred to the bladder and prostate, for which no cause has been found. There has been no recurrence of pain or bleeding from the kidney. One patient continues to have pain in the kidney and to pass gravel at irregular intervals, as before operation.

Medical News, New York.

June 10.

20 *Mosquitoes of Florida. H. Byrd, Jacksonville, Fla.
21 Suicide; Its Consideration from a Medical Standpoint. R. W. Parsons, Ossining, N. Y.
22 Immigration—the Medical Examination of Immigrants and What the Nation Is Doing to Debar Aliens Afflicted with Trachoma. G. W. Stoner, New York.
23 "Sore Throat" as Caused by Systematic Conditions. N. G. Ward, Philadelphia.
24 *Medicinal Treatment of Affections of the Thyroid Gland. C. R. Grandy, Norfolk, Va.
25 *Very Simple Method to Locate the Stomach. M. I. Knapp, New York.
26 *Drainage After Laparotomy. L. A. Ewald, New York.

20. **Mosquitoes of Florida.**—Byrd describes eight genera of mosquitoes found in Florida. There are eleven species of culex, five of anopheles; one of stegomyia—the fasciatus; one of janthinosoma—the mucisa; and several other less important families which bring the total number of species now known in Florida up to twenty-two. Byrd says that the time is coming when the toleration of mosquitoes will be a municipal crime. He describes the life history of the more important in detail.

24. **Treatment of Thyroid Gland Affections.**—Grandy says that when the symptoms of disease of the thyroid are not too urgent thyroid extract and iodin should be tried in cases in which the secretion of the gland is diminished, and rest treatment and blood from thyroidectomized animals in cases in which the gland is secreting excessively. If these measures are of little avail, and the symptoms demand it, the surgeon should be called in immediately to partially remove the gland.

25. **Simple Method of Locating the Stomach.**—In the method described by Knapp the patient sits or stands and with the abdomen freed from clothing but not uncovered, as uncovering the abdomen soon chills it. The physician's hand must not be too cold. He must wait for about half a minute to allow the cold of the stomach to spread to its overlying skin. All that is necessary is to have the patient drink a glass of cold water, wait for about half a minute, and then to put a hand on the patient's bare abdomen. This method is available only for a short period after the patient drinks the water, because soon the cold area extends to the adjacent structures, thus widening the cold zone; again, the cold water in the stomach soon warms up.

26. **Drainage After Laparotomy.**—Ewald considers it a settled question that drainage is no longer indicated in the so-called unclean cases when a considerable quantity of non-infectious material finds entrance to the abdominal cavity. In 17 cases out of 257 laparotomies in which pus found entrance to the abdominal cavity through rupture of a tumor, no drainage was employed. Sixteen made prompt recovery; the other patient died on the third day of septic peritonitis, the result of a ruptured pyosalpinx. Two of the cases were purulent ovarian cysts; 15 were cases of pyosalpinx, each one of which was of from seven to nine months' duration. Drainage was considered in all of these cases, but was not instituted. In malignant tumors that are not only partially extirpated or when a portion of the cyst wall remains, Ewald considers drainage not only entirely unnecessary, but even dangerous, because it may cause secondary infection, rapid disintegration and sepsis. The patient can best be guarded against infection by: 1. Thorough careful indication for operation and operative procedure. All those patients who show a severe infection with high temperature and other symptoms should be operated on only when operation is made necessary by *indicatio vitalis*, and then a preliminary vaginal incision should be made. Pus located intraperitoneally or in the parametrium is highly infectious. 2. Through selection of proper time for operative procedure. Pus from a pyosalpinx is sterile after nine months. When no immediate indication for operative interference exists, it is better to wait. 3. Through careful observance of the following preventive measures: Protection of the abdominal cavity with layers of gauze; careful separation of adhesions; removal of all visible pus; exact hemostasis, and rapid operative procedure.

New York Medical Journal.

June 10.

27 The Modern Doctor. A. Jacobi, New York.
28 *Hypodermatoclysis. W. P. McIntosh, Portland, Maine.
29 Observations on the Diagnosis and Treatment of Herpes Zoster. D. M. O. Robinson, New York.
29½ *Therapeutic Value of Marmorek's Antituberculosis Serum. A. J. Richer, Montreal.
30 *Orbital Sarcoma, with Report of a Case and a Discussion of Radical Operation, X-Ray Therapy, and Electrochemical Sterilization. G. O. Ring, Philadelphia.
31 Detection of Methyl Alcohol. H. Scudder, New York.
32 Experiments of Sauerbruch in the Field of Esophageal Surgery. D. Stetten, New York.
33 Case of Traumatic Aphasia. C. Phelps, New York.

28. **Hypodermatoclysis.**—From experiments and observations which he has made, MacIntosh attempts to prove that the use of saline solution by hypodermatoclysis causes a decided increase in both the erythrocytes and leucocytes, and that it stimulates the ductless glands to increased activity. The strength of the salt solution used by MacIntosh was the so-called normal physiologic, which is 0.6 per cent., although recently he has been using a 0.9 per cent. solution. A number of cases cited illustrating the good effects of this procedure, such as hemorrhage and shock, uremia, typhoid, pneumonia, anemia and puerperal eclampsia. In these it often saves life and always does good. MacIntosh also found it excellent in rheumatism and in infectious diseases generally, although he does not consider it a remedy for everything.

29½. **Value of Marmorek's Antituberculosis Serum.**—Of seven advanced cases of tuberculosis in which the patients were treated with this serum by Richer and reported by him in September, 1904, four patients have kept up to their improved condition. Since then he has submitted to this treatment cases of incipient pulmonary tuberculosis, and the results have been uniformly good. In some instances, improvement was very marked within forty-eight hours, accompanied by corresponding modifications in the physical signs. In no single instance did any untoward symptom become manifest. Usually he inoculates 10 c.c. during the course of three days, giving 2 c.c.

the first day and 4 c.c. each subsequent day. Then follows a period of rest of at least ten days, sometimes fifteen, then he proceeds as before until 50 c.c. have been injected. After an examination of the patient, if the results are good, Richer believes it to be wise to continue the inoculations every month, one of 50 c.c. being administered for four or five months in order to keep the passive immunity conferred by the antitoxin.

30. **Orbital Sarcoma.**—Ring reports a case of orbital sarcoma in a girl, aged 6. From a study of this case the following deductions are made: The difficulty in accurate diagnosis under certain conditions entirely justifies an exploratory excision with removal of a section of growth for microscopic study, said exploration likewise serving to determine the classification of the tumor. The brilliant results achieved by a number of accurate observers in the field of Roentgen ray therapy justify the immediate tentative application of the method before any radical operation is attempted. If unsuccessful in removal of the growth, the virulence of the latter will probably be decreased and the dangers of metastasis lessened. If the sarcoma is encapsulated, operative intervention without orbital evisceration promises a successful outcome. In view of the almost constant recurrences after orbital evisceration, the removal of the growth itself is regarded as sufficient unless the periosteum or bony wall is involved. The encouraging results reported from the cataphoric sterilization of malignant growths in other parts of the body seem to warrant the utilization of this method in the orbit, due care being exercised as to the strength of current used.

St. Louis Medical Review.

June 3.

34 *Paravaginal or Abdominal Operation in Carcinoma of the Uterus. G. Gellhorn, St. Louis, Mo.

Lancet-Clinic, Cincinnati, Ohio.

June 10.

35 Out-Door Treatment of Pulmonary Tuberculosis. B. F. Lyle, Cincinnati.
36 Infection on Transportation. H. M. Bracken, Minneapolis, Minn.

34. See abstract in THE JOURNAL, June 17, p. 1956.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

May 27.

1 Notes on 600 Cases of Typhus Fever. F. Robinson and E. T. Potts, Liverpool.
2 *Experiments in the Treatment of Trypanosomiasis. H. W. Thomas, Liverpool.
3 Case of Cerebrospinal Meningitis; Lumbar Puncture; Recovery. J. Donelan, London.
4 Sodium Salts of the Coumaric Acids as Therapeutic Agents. G. T. Morgan, South Kensington.
5 Two Cases of Unilateral Convulsions and Paralysis in Young Subjects, Associated with Exudative Erythema. T. K. Monroe, Glasgow.

2. **Treatment of Trypanosomiasis.**—Thomas presents the results of his experiments in the treatment of trypanosomiasis with an anilin compound which is said to contain 37.69 per cent. arsenic, and which is claimed to be 40 times less toxic than Fowler's solution. Thomas states that it is especially suitable for either subcutaneous or intravenous administration as it produces no necrosis, no pain, and very much higher doses of arsenic can be given without producing toxic results.

The Lancet, London.

May 27.

6 Clinical Illustrations of Angina Pectoris and Pseudoangina. W. H. Broadbent, London.
7 Treatment of Puerperal Infection. F. J. McCann, London.
8 *Report of 100 Consecutive Abdominal Hysterectomies (Attended with Recovery.) J. B. Sutton, London.
9 *Pneumococcal Sore-throat with Notes of a Fatal Case. W. Pasteur, London.
10 Resemblances Existing Between the Plimmer's Bodies of Malignant Growths and Certain Normal Constituents of Reproductive Cells of Animals. J. B. Farmer, J. E. S. Moore and C. E. Walker.
11 Acute Aortitis. W. Broadbent, London.
12 A Regulating Chloroform Inhaler. A. G. Levy, London.
13 Purulent Ophthalmia and the Treatment by Argyrol. G. E. Wherry.
14 *Man Poltophagic or Psomophagic. H. Higgins, London.
15 Visit of British Physicians and Surgeons to Paris; a morning at Hotel Dieu. E. Owen, London.

8. **One Hundred Consecutive Abdominal Hysterectomies.**—Throughout this paper Bland-Sutton uses the term sub-total hysterectomy in place of supravaginal hysterectomy as signifying the removal of the body of the uterus with a variable portion of its neck. He considers this change of terms a desirable one, for the operation which has given him the best results is not quite what would be called a panhysterectomy, yet it is something more than is usually covered by the phrase supravaginal hysterectomy. He says that the careful study of the subsequent course of patients after supravaginal hysterectomy led observant operators to notice that those patients did best in whom the supravaginal cervix had been most freely removed; as a matter of fact, in the majority of his operations classed as supravaginal hysterectomy the only part of the uterus left is the vaginal portion of the cervix, and after the operation is completed the united surfaces of the peritoneum merely appear as a slightly raised ridge across the pelvic floor, so that a surgeon inspecting the operation area from above would imagine that a total hysterectomy had been performed. On the other hand, if the cervix be examined from the vagina six months after the operation it will appear natural to the eye and touch. This is a matter of importance, as the operation in no way impairs the pelvic floor or hinders the function of the vagina. For this method the term in familiar use among Parisian surgeons, "sub-total hysterectomy," is peculiarly suitable. The morbid conditions of the uterus which rendered radical operation necessary in Bland-Sutton's patients fall into five groups: Fibroids and adenomyoma, 81; cancer, 4; sarcoma, 1; chronic inflammatory disease of the uterus, 4, and fibrosis, 10 cases; these causes indicate the widening scope of hysterectomy. In 81 patients fibroid hysterectomy was performed for tumors, including 2 cases of the remarkable disease known as diffuse adenomyoma of the uterus. The commonest condition which induced these patients to submit to operation was profuse and long-continued bleeding from the uterus. The age of the patients varied from 27 to 69 years. Out of a total of 81 hysterectomies for fibroids, 13 of the patients had reached the age of 50 years and upward, and in each of them it was necessary to perform a serious operation for a disease which is generally believed to become harmless about the forty-eighth year of a woman's life. In addition to the 81 patients from whom the uterus was removed for fibroids and diffuse adenomyoma, there were 8 women in whom myomectomy or enucleation was performed, and one woman, aged 28 years, from whom a large soft fibroid weighing 14 pounds was removed from the round ligament of the uterus. This tumor grew into the abdomen like a subserous stalked fibroid. Each of these patients made an uninterrupted recovery. Myomectomy and enucleation are justifiable procedures in women contemplating marriage and in married women so anxious for offspring that they are willing to run serious risks on the chance of obtaining living children. Experience, however, teaches this stern lesson: After the enucleation of a fibroid in the procreative period of life a woman is 20 times more likely to grow more fibroids in the uterus than to conceive successfully.

9. **Pneumococcal Sore Throat.**—Pasteur says that the local signs of pneumococcal pharyngitis are in no sense distinctive. The membranous form may closely simulate diphtheria and a bacteriologic examination alone reveal the true nature of the case. Somewhat similar appearances are also met in some cases of streptococcal inflammation of the throat, but here the exudate is usually thinner and looser in texture and less adherent than in pneumococcal or diphtheritic inflammations. More reliance may be placed on the early symptoms and mode of onset. In pneumococcal sore throat the onset is usually quite sudden, often with rigor or chills, the initial symptoms are severe, and the temperature rises rapidly to 103 or higher—a grouping of symptoms strikingly like those of pneumonia and very rarely met with in anything like the same degree in diphtheria or even in streptococcal pharyngitis. The disease tends to run a short course—from two to five days—but to this there are exceptions. The erythematous form of the affection is most likely to be mistaken for scarlatinal angina and here the diagnosis—apart from bacteriologic findings—must rest mainly on the absence of other signs of scarlet fever.

14. **Is Man Poltophagic or Psomophagic?**—Higgins says that the chief changes produced by poltophagy are, as regards appetite, it tends to become well defined at the commencement of a meal, as well as to cease as definitely at the end. There is a marked increase of pleasure in eating. The taste for simple food becomes more pronounced, preferences are more defined (if care be taken to study and to indulge them). The feces are lessened in amount and are odorless; on those occasions in which odor is present there is marked malaise and discomfort. The large intestine becomes smaller and the feces tend to remain a longer time in the bowel. In all cases it can be said that there is an extraordinary change in the general health, much more of the joy of living, increased power of work, and freedom from the infinitely troublesome concomitants of chronic disease.

The Practitioner, London.

June.

16 On Breathlessness, Especially in Relation to Cardiac Disease. Sir Lauder Brunton.
17 Cirrhosis of the Liver. R. Saundby.
18 The Bacillus Coli Communis as a Cause of Septicemia. T. Gillman Moorhead.
19 Valvular Disease of the Heart. I. Mitral Stenosis. R. Crawford.
20 The Separation of the Urine of Each Kidney. A Discussion of Recent Methods of Diagnosis in Urinary Surgery. J. W. T. Walker.
21 The Causes of Appendicitis. F. C. Bottomley.
21½. The Causation and Treatment of Appendicitis. J. Sherren.

Semaine Médicale, Paris.

22 (XXV, No. 21, May 24.) De l'appendicite chez les sujets agés (in the aged). R. de Bovis.
23 (No. 22.) De la persistance des sensations lumineuses dans le champ aveugle des hémianopsiques (in the blind area in the field of vision in hemianopsia). L. Bard.

Berliner klinische Wochenschrift.

24 (XLII, No. 19.) *Blood diseases and Balneology.—Blutkrankheiten und Balneologie. E. Grawitz.
25 Zur Frage der Differenzierbarkeit von Cholera- und cholera-ähnlichen Vibrionen mittels des Blut-Agars. C. Prausnitz.
26 *Quinquaud's Sign.—Zur Kenntniss des Q'schen Zeichens. H. Hoffmann and H. Marx.
27 *Zur Behandlung der Arteriosclerose. L. Steinsberg.
28 *Balneotherapie bei komplizierten Herz-Affektionen and Compensations-Störungen (heart affections). M. Fisch.
29 *Ueber die Orthophotographie des Herzens (of heart). Immelmann.
30 Neuere Arbeiten über Narbenbildung und Regeneration (scar formation and regeneration). H. Beitzke.
31 Nationale und Internationale Mediziner-Kongresse (suggestions to improve medical congresses). W. Waldeyer.

24. **Blood Diseases and Balneology.**—The development of the lymphoid bone marrow in early childhood is favored by muscular exercise, and the lack of it induces a tendency to blood affections later in life. Grawitz cites this as one of the reasons why girls are more inclined to anemia and to chlorosis than boys. Appropriate prophylaxis from earliest infancy will prevent the development of serious blood affections later. Other factors that co-operate in the production of blood affections are chronic losses of organic juices, as in suppurations, also nephritis, hemorrhages and the influence of toxins. Iron and arsenic waters affect the blood favorably, and the climatic factors and exercise in the mountains are of benefit, although the supposed increase in the red corpuscles is now considered merely a mechanical phenomenon. One of the most important factors in climatotherapy and balneotherapy is the cure of the digestive disturbances, of the congestions and autointoxication. The idea that eggs and meat are particularly needed in anemic conditions is a mistaken one, as they increase the production of ptomains in the intestines. In his experience he has found a vegetable diet best for cases of severe anemia, giving animal albumin only in nutrient enemata, at least at first. The purgative waters and the rational dietetics at watering places benefit not only liver, stomach and intestinal affections, but also the serious anemic conditions.

26. **Quinquaud's Sign of Alcoholism.**—Hoffmann and Marx examined 1,018 persons for this sign. (It was described at length in THE JOURNAL, vol. xliii, p. 433.) They found it more reliable than they had anticipated from others' reports, and state that the absence of the sign renders the abuse of alcohol improbable, while its presence in a pronounced form points with more or less probability to the liquor habit. They found that the sign could be elicited experimentally. It consists in the sensation of light shocks when the tips of the fingers of the subject's hand are placed on the palm of the examiner. At first nothing is perceived, but then a series of slight concussions are noticed, as if the bones in the fingers knocked lightly against each other and against the palm supporting them. The sensation ranges from that of slight friction to actual grinding and cracking.

27. **Treatment of Arteriosclerosis.**—Steinsberg pleads for earlier treatment of arteriosclerosis, at the first sign of its appearance, even in the young. It is the malady of civilization, and if physicians accustom themselves to look for it they will be amazed at the number of young persons with the Cain's sign of thickened, tortuous temporal arteries. During the initial phases of the affection the arteriosclerosis may be regarded as latent, and proper prophylaxis in this stage will postpone its further development for years. Excessive physical exercise and the reverse, excessive sedentary occupations, overabundant diet, excessive ingestion of fluids, abuse of tobacco and alcohol, all these factors must be regulated, and moderation should be preached in all things. Excess of meat by ptomain production, and excess of vegetables by the large amounts of lime, are both harmful. Reduction of the intake of salt is to be recommended, and ergot and potassium iodid have also favorable effect. The latter renders the blood more fluid. Carbonated baths and "cold rubs" are particularly useful and never do harm. Their influence on the dilatation of the cutaneous blood vessels and on the vagus are factors of the greatest importance in treatment of arteriosclerosis. They are of still more importance in prophylaxis. Brine baths have also a pressure-reducing action, and, in combination with carbonated baths, have often done good service.

28. **Balneotherapy in Complicated Heart Affections and Failing Compensation.**—Fisch analyzes the lessons learned from long experience at Franzensbad. Ascending graduation of the carbonic acid and chlorids in the balneotherapy, combined with rational gymnastics of the heart, possibly massage of the organ, both individualized to fit each case and to restore compensation, are the main principles in treatment, he says, although courses of mineral waters, diet, climate, rest in bed, heart tonics, ice bags and puncture for relief of dropsy, all have their place. He relates a few cases in detail to illustrate his success in treating serious forms of cardiac disease on these principles.

29. **Orthophotography of the Heart.**—Immelmann regards this method of examining the heart as a great progress. He gives several photographs thus obtained by direct, perpendicular projection. It is a modification of the orthodiagraph. Only those rays are used which fall perpendicularly on the object. The standard holding the tube moves parallel to the standard holding the photographic plate on the other side of the object, both tube and plate, with a diaphragm interposed, forming thus a single apparatus. The three parts are always parallel and always the same distance apart. The outline of the heart thus obtained differs materially from other radiograms, and his experience has shown that it is absolutely true to nature.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

32 (XXXI, No. 19, May 11.) *Das Carcinom. Eine klinische Studie auf Grund eigener Beobachtung. König.
33 *Die Behandlung der Fettleibigkeit (obesity). C. v. Noorden.
34 *Experimentelle Untersuchungen über die Bedeutung der Extraktivstoffe des Fleisches für die Magenverdauung (extractives of meat and gastric digestion). K. Sasaki.
35 *Transmission of Syphilis to Monkeys.—Versuche zur Uebertragung der Syphilis auf Affen. A. Neisser.
36 *Vaccine Germ.—Untersuchungen über das Wesen des Vaccineerregers. S. Prowazek.

32. **Carcinoma.**—König here summarizes the personal impressions in regard to carcinoma derived during his extensive experience. He believes that carcinoma is liable to grow at any point where there is epithelium, and nowhere else. For a certain length of time it is entirely a local affection. When the cachexia observed is due merely to the ulceration of the cancer, it may be cured by removal of the latter. Age affords a general predisposition to cancer, and this may be reinforced by a family tendency, trauma, irritation of an ulcer or increased glandular function, as in case of the mammary gland. He does not believe in the transmission of cancer from one person to another, although he admits the possibility of

transplantation. The supposed increase in the number of cases is only apparent. He accepts a still unknown specific cause of cancer. Roentgen treatment is still on trial, but radical removal of the growth cures fully 30 per cent. of the patients. He knows of no instance of vaccination of cancer. Many surgeons vaccinate themselves involuntarily with syphilis, tuberculosis, etc., but he has never heard of a case in which a physician acquired a cancer from injury in operating on a cancer patient.

33. **Treatment of Obesity.**—It is not the four weeks of the antifat course that determine the ultimate success of the treatment of obesity, von Noorden remarks, but the forty-eight weeks of the rest of the year which the patient passes, left to his own devices, at home or elsewhere. For this reason the course should be taken in a sanitarium instead of at home. By this means the patient, instead of slavishly following the physician's directions, obtains a clear insight into the duties which regard for his future health imposes on him. Muscular exercise is the main feature of treatment, and mountain climbing is the best of all forms of exercise, as it can be graduated. Rowing comes next. Horseback riding, which is most excellent to stimulate the intestines, is of no use in reducing obesity (except in the horse, he adds). The use of gymnastic apparatus and massage is only for those too weak for out-of-door exercise. Some of the antifat remedies advertised contain thyroid extract, which has an unmistakable action in reducing obesity. Its advantages are more than counterbalanced, however, by its frequent toxic action. Courses of mineral waters are of benefit, but not from the waters, merely from the promenading and the less nutritious diet, climatic factors, etc. Sweat baths, electric light and sun baths do not affect the obesity directly, but may be useful nevertheless. Eating smaller meals at shorter intervals and reducing the intake of fluids are of no practical use in the reduction of obesity, except in so far as that the patient has less appetite on a dry diet.

34. **Importance of Meat Extractives for Digestion.**—Sasaki's experiments on dogs with a Pawlow fistula confirmed the assumption that ingestion of meat extractives shortly before a meal increased the secretion of gastric juice. The stomach mucosa reacted to the presence of the food taken in the meal afterward with a much more copious secretion of gastric juice, and it contained a larger proportion of acid than in the experiments without the previous dose of the meat extractives.

35. **Transmission of Syphilis to Monkeys.**—Neisser is at present in Batavia for the purpose of further work in this line. This article is the report of successful experimental research made before he left Germany. The principal problem is now, he remarks, to determine whether and where in the body of an animal sucessfully inoculated with syphilis, material for further inoculation can be found.

36. **The Vaccine Germ.**—This article issues from the Protozoa Laboratory of the Imperial Public Health Department, in charge of Schaudinn. Prowazek reports experiments on the eyes of rabbits, which have proved excellent material for study of the vaccine agent. The infection remains strictly localized, and generation after generation of the germs can be cultivated in the eye without inducing general infection. This localized organic cultivation offers unparalleled opportunity for study of the vaccine germ. He is convinced that the Guarnieri bodies are not the causal agents. The virus evidently does not develop like a protozoon, as inoculation at any time in a range of from 8 to 36 hours caused no appreciable difference in the length of the incubation period. The bodies which he calls "initial bodies," found along with Guarnieri bodies in the vaccine, resemble the Negri bodies in rabies. He gives details of the technic that show them best.

Münchener medicinische Wochenschrift.

37 (LII, No. 17, April 25.) *Left-Sided Pain in the Stomach.—Ueber den linksseitigen Magenschmerz. Riedel.
38 *Appendizitis und embolische Magenerkrankungen (stomach affections). E. Payr.
39 *Suction Mobilization of Ankylosed and Contracted Joints.—Mobilisierung versteifter und Streckung kontrakturierter Gelenke durch Saugapparate. R. Klapp (Bier's Clinic, Bonn.)
40 *Transformation in Functional Testing of Kidneys.—Die Wandlungen in der funktionellen Nierendiagnostik. G. Kapsammer.
41 Danger from Inverted Position in Operating on Uterus.—Eine Gefahr der invertierten Lage bei Operationen am Uterus. C. Lauenstein.
42 Further Progress in Instantaneous Radiography.—Ueber weitere Fortschritte in der Moment-Röntgenphotographie. H. Rieder and J. Rosenthal.
43 Sources of Error in Roentgenography.—Fehlerquellen und diagnostiche Schwierigkeiten beim Röntgenverfahren. R. Grashey.
44 Zur Frage der Sauerstoff-Chloroform-Narkose (oxygen and chloroform). R. Rothfuchs.
45 *Ueber Darm-Invagination und eine neue gefahrlose Methode der operativen Behandlung. K. Israel.
46 *Radikal-Operation bei Ulcus cruris. Schneiderlin.
47 Eine Bandage für grosse Bauchbrüche (truss for large hernia). A. Schanz (Dresden).
48 *Flügeldrain (X drain). A. Hofmann (Freiburg).

37. **Left-Sided Stomach Pains.**—Riedel has found that pain in the stomach to the left of the median line is characteristic of an ulcerative process in the middle segment of the stomach. He asserts that gastric pains of reflex origin or propagated from adjacent organs are very rare in the left side. Ulcerative processes in or near the pylorus induce pains in the median line, as the pylorus is the only part of the stomach that projects to the right beyond the median line, and only for a short distance. All the rest of the stomach is to the left of this line, and as an ulcerative process spreads farther and farther to the left the pains are localized to correspond. The pylorus is even pulled over to the left by the traction of the tumor. Long before such a tumor can be palpated, its existence can be surmised from pain under the left costal arch, especially if accompanied by gastric disturbances. The pains are characteristic. There is generally a single attack of pains, occurring after eating, and persisting for a few hours, then comes peace for months, followed by another attack, lasting possibly twelve hours, and recurring again after a shorter interval. The stomach begins to be sensitive, with oppression after eating, or perhaps there are attacks of pain. By dieting, the patient gets along for a few months, with perhaps an occasional attack of pains, and then he begins to vomit half an hour or later after meals. These symptoms recur with increasing frequency; the vomiting is purely reflex, as there is no question of stenosis. Finally, the pain on the left side becomes continuous and vomiting a daily affair. Others experience the pain almost continuously from the first, but are able to control it by a light diet. Two or three years may pass before they begin to vomit. The older the patient the more rapidly the ulcer develops, as a rule. When the ulcer becomes very extensive, symptoms of stenosis are noted and the stomach is liable to assume the hour-glass shape. Only once in his experience with thirty cases was pain noted in the back, near the eleventh rib. The left-sided pain is increased by inflation of the stomach, as the ulcer is stretched. In treatment the internal measures must be exhausted before surgical intervention is contemplated. The results of the latter are the definite restoration of the patient, as the process is not malignant. Riedel reviews his experiences with twenty-eight such patients treated by the operation. The ulcers were multiple in about half the number.

38. **Appendicitis and Embolic Stomach Affections.**—Payr has published various communications on the subject of embolism from thrombosis of the veins in the mesentery and omentum. This embolism may occur in the stomach or elsewhere, and his experimental research has shown that it is especially liable to accompany or to follow appendicitis. This is the explanation, he thinks, for the gastric hemorrhages, hemorrhagic erosions or small ulcers secondary to appendicitis, as also for perigastric adhesions and for cicatricial stenosis of the pylorus.

39. **Suction Apparatus in Mobilization of Ankylosed Joints.**—Klapp describes, in this article, the application of Bier's stasis hyperemia to ankylosed joints by means of suction apparatus combined with appliances inside the vacuum box, which act on the joint and allow movements of the joint while under the influence of the aspirating process. Illustrations of the apparatus devised for the knee and hand are given, the vacuum being created by an air pump. A rubber bag fits air-tight over an opening corresponding to the position of the hand or knee in the box. The vacuum draws the

rubber bag downward into the box and it presses evenly on the limb. The pressure of the rubber bag on the hand or knee is so great that it expels the blood from the part, while the opposite side of the joint is red with the stasis hyperemia induced by the suction of the vacuum. The pressure of the large rubber bag is uniform over the entire surface which it touches. The results with this apparatus have been extremely satisfactory, but Klapp reserves the details for a later communication.

40. **Functional Test of the Kidneys.**—Kapsammer thinks that time has proved the unreliability of the freezing-point test and also of tests based on intravesical segregation of the urine. Catheterization of the ureters is becoming more valuable every year, but of all the other means of determining the functional capacity of the kidneys none have survived except the indigo-carmin test (see THE JOURNAL, xlii, page 68), and the test with a warm solution of phloridzin. With the phloridzin test the conclusions are founded on the length of time before the phloridzin glycosuria becomes evident. If sugar can be found in the urine in from twelve to fifteen minutes after injection of .01 gm. phloridzin, this finding speaks for health or for good functional capacity. If it does not appear until half an hour, the kidneys may be functionally affected, but capable of recovery, while non-appearance until later than thirty minutes indicates irreparable functional disturbance.

45. **Operative Treatment of Invagination.**—Israel describes his technic as free from danger, while it allows ample oversight of the invaginated intestine and resection of the desired amount, and absolutely prevents any fecal substance from finding its way into the peritoneal cavity. The part of the intestine containing the invaginatum is sutured to the parietal peritoneum. The invaginated portion is then drawn out through a long incision and resected into sound tissue. Two cases are described which confirm the advantages of this extraperitoneal technic. They demonstrate further that the portion of the lumen which had been mechanically constricted by the invagination recuperates and recovers its normal diameter spontaneously in time. He advises operating even on cancerous strictures by this extraperitoneal principle, first artificially invaginating the parts.

46. **Radical Treatment of Leg Ulcers.**—Schneiderlin reports a number of cases in which Wenzel's technic of circular incision of the limb in the lower third of the thigh was applied. This abolishes the incompetent superficial veins and forces the blood to seek the normal deep-lying veins. The results have been gratifying in every respect.

48. **X-Drain.**—Hofmann calls it the "wing drain." It consists of two flat drains crossed to make an X. The central part forms a single piece from which the four arms project at right angles, with a perpendicular tube from the center of the X. The shape of the drain prevents its slipping around or out through the incision.

Nordiskt mediciniskt Arkiv, Stockholm.

Last indexed page 1724.

49 (XXXVII. Internal Medicine, No. 4.) *Nobel Address. J. P. Pawlow.
50 *Studien über die senilen Rückenmarksveränderungen (changes in spinal cord). E. Rodhe. (Commenced in No. 3.)
51 *Sekundar-Infektion bei Tuberkulose. K. Thue.
52 *Ueber paroxysmale Tachykardie. T. Fischer.
53 Scandinavian Medical Literature, 1904.

49. **Pawlow's Address on Receiving the Nobel Prize.**—Pawlow remarked, in the course of his address, that the founder of the prizes gave him a considerable sum of money ten years ago to further his scientific research on the physiology of digestion. His achievements in this line are familiar to readers of THE JOURNAL. He summarizes the principal results here and outlines various fields of research which promise rich rewards for their cultivation. Among them is what he calls the "conditional reflexes," such as the secretion of saliva that follows the mere sight of food by a hungry dog. This excitation from a distance, without actual contact, differs from the ordinary saliva reflex in being so variable and conditional. Another difference is that in the ordinary reflex act the response in the saliva secretion is proportionate to the dryness, hardness or acidity of the object in contact with the mucosa of the mouth. In the "conditional reflex" the response is determined by properties which have no physiologic bearing on it, such as the color, for instance. By combining this "signal conditional reflex" with stimuli applied to other parts of the body, various paradoxical combinations are obtained. It seems to be evident that the point in the central nervous system which is more strongly excited during a direct stimulus, draws to itself the weaker excitations, reaching the other points of the nervous system from without. In other words, the direct, unconditional reflex creates a temporary, casual route for all the other stimuli from without, and thus collects and conducts them to the central point for this reflex. The conditions governing the opening or closing of this route are the physiologic foundation for the most delicate capacity of adaptation manifested by the animal organism, and will well repay study.

50. **Senile Changes in the Spinal Cord.**—Rodhe's comprehensive study of the anatomy, etc., of senile changes in the spinal cord concludes with a discussion of their clinical importance. As a rule, the changes are slight, and even where they are extensive, the symptoms are generally masked by other senile processes in the organism, mostly cerebral. He has found 18 cases on record, however, in which the anatomically demonstrated senile alterations in the spinal cord dominated the clinical picture. They include some of Gower's simple senile paraplegia and some of Dana's chronic senile paraplegia, with a few of spastic paresis, the gait having a spastic character, and terminating in Demange's contracture. When lax senile paralysis appears early, it is hard to differentiate it from a syphilitic spinal cord affection. The spastic form is also liable to simulate lateral sclerosis or the combined or circumscribed forms, or even compression of the spinal cord or progressive muscular atrophy. The lack of pronounced cerebral symptoms and of apoplectic symptoms, the very gradual development of the symptoms, the pains and, in the later stages, the comparatively rapid course, the extension of the contractures, the sphincter disturbances, the tendency to decubitus—all these speak in favor of a senile process. His bibliography includes a number of inauguration theses and American works.

51. **Secondary Infection in Tuberculosis.**—Thue summarizes his research in the statement that examination of 288 tuberculous persons, all febrile but 57, has demonstrated that tuberculosis alone, without any secondary infection, is able to induce the complete clinical picture of true phthisis; also that every kind of fever may be found represented in pure tuberculosis. His findings further established that a secondary infection may become installed shortly before death, after a long course of pure tuberculosis. In 11 cases he found evidences of recent endocarditis.

52. **Paroxysmal Tachycardia.**—In regard to the essence of this affection, Fischer thinks that any judgment is premature as yet. The evidence seems to favor the assumption of slight disturbances of a vasomotor or trophic character, possibly due to defective nutrition of the nerves in the medulla or heart from interference by processes of sclerosis in the heart or vessels. The prognosis depends on the ability of the patient to avoid the factors which bring on the attack. Their repetition weakens the heart, while, if the intervals can be prolonged, there is no trouble for months and years. Brieger's patient kept in good health for thirty years by this means, and Fischer's own patients were well after five or more years of the paroxysmal tachycardia. Treatment should attack the fundamental affection, and emotions, smoking and errors in diet should be avoided. Absolute repose, cold injections and compression of the vagus are good symptomatic measures. Edgrens has described a case in which the attacks were arrested by bending the neck over backward—this effect may have been due to compression of the vagus by this means. Others have derived benefit from massage of the abdomen, from holding the breath for twenty seconds, and from drinking cold water. Digitalis has seldom any influence. In distressing cases, morphin or amyl nitrite may be required. West has reported benefit from the latter in this "paroxysmal hurry of the heart."

GENERAL INDEX.

All reading matter in THE JOURNAL from January to June, inclusive, 1905, is indexed here. (For Current Medical Literature Index see pages 2034 to 2070.) All societies, clubs, congresses, etc., are grouped under the general subject of "Societies" at the end of the letter "S." Similarly, all "Deaths" and all "Book Notices" are indexed under those titles at the ends of the letters "D" and "B", respectively. Matter pertaining to the Association is under "Association News." With the above exceptions, all matter is indexed under the most important word of the heading that was used in THE JOURNAL. It is, therefore, well to remember that in looking up a certain subject, related words should be consulted, for example, bone, ostitis, periostitis, inflammation, etc. The letters used to explain in which department the matter indexed appeared are as follows: "E", editorial; "O", original article; "T", therapeutics; "Ml", medicolegal; and "ab" denotes an abstract of an article that has appeared in full elsewhere.

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SOCIETIES.

Abbreviations:

Acad.—Academy.
Am.—American.
A.—Association.
Coll.—College.
Conf.—Conference.
Cong.—Congress.
Dist.—District.
Hosp.—Hospital.
Internat.—International.
M.—Medical, Medicine.
Nat.—National.
Phys.—Physicians.
S.—Society.
Surg.—Surgical, Surgery, Surgeons.

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CURRENT MEDICAL LITERATURE

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Explanation: This index includes the titles and the subjects of original articles published in the leading medical journals of the world during the past six months. The titles and the names of the journals in which they appeared were published weekly in the Current Medical Literature Department, to which references are made. The figures in parentheses refer to the paragraph; the number following, to the page in THE JOURNAL. For instance, "Abdomen, chylous cyst of, (6) 657—ab," refers to page 657 of THE JOURNAL, on which is found opposite paragraph 6 the title of the paper and the name of the author, viz.: "Case of Chylous Cyst of the Abdomen, M. H. Richardson." This title is listed under the journal in which the article appeared, "*Boston Medical and Surgical Journal*, February 9." The "ab" indicates that an abstract of the article appeared in THE JOURNAL, which will be found below the title. Titles of articles which appeared in THE JOURNAL are indicated in the index below by an asterisk (*) before the page number. Index to authors of all the articles below is on pages 2060 to 2072 of this index. The reading matter which appeared in THE JOURNAL is indexed in the General Index on pages 2017 to 2035.

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